SECTION 00 9113 – ADDENDUM NO. 4

Central Middle School
Greenwich, Connecticut

S/L/A/M Project No. 22367.00

This Addendum, dated October 25, 2024, forms a part of the Contract Documents, and modifies the original Bidding Documents dated September 30, 2024, Addendum No. 1 dated October 16, 2024 and Addendum No. 2, dated October 22, 2024. and Addendum No. 3, dated October 25, 2024. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum is comprised of Page Nos. 1 of 5, and the following attachments:

1.1 BID RFI LOG (GCMS Phase 2 – Bidder's Question Log – dated 10/31/2024)

1.2 00 4000 – Turner Construction: Phase 2 of 3 Procurement Manual

A. 01 – Updated Drawings & Specifications List.

B. 02 – Updated Bid Package Breakdown.

C. 03b - Updated BP#11 - Scope of Work – MASONRY

D. 03l - Updated BP#19- Scope of Work - GLASS, GLAZING, & METAL PANELS

E. 03z.d - Updated BP#37 - Scope of Work – HVAC & CONTROLS

F. 03z.g - Updated BP#40 - Scope of Work – CONCRETE FLATWORK

G. 38 – Phase 1 of 3 Pre-purchased Equipment Bid RFI Log dated 8.13.24

1.3 PROJECT MANUAL

A. REPLACE the follow specification section, previously dated September 30, 2024 with the revised section dated October 30, 2024

1.	00 3132	GEOTECHNICAL DATA
2.	08 4413	GLAZED ALUMINUM CURTAIN WALLS
3.	10 2800	TOILET ACCESSORIES
4.	10 5113	METAL LOCKERS
5.	12 6613	TELESCOPING BLEACHERS
6.	23 0900	INSTRUMENTATION AND CONTROLS FOR HVAC

7.	23 0993	SEQUENCE OF OPERATIONS
8.	23 8200	CONVECTION HEATING AND COOLING UNITS
9.	32 0529	GLACIAL BOULDERS FOR EXTERIOR IMPROVEMENTS
10.	32 1400	UNIT PAVERS
11.	32 1640	GRANITE CURBING
12.	33 0513	MANHOLES AND CATCH BASINS
13.	33 0514	BREAKING INTO EXISTING MANHOLES AND CATCH BASINS
14.	33 3113	POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS
15.	33 3114	TESTING OF SANITARY AND STORM DRAINAGE SYSTEMS
16.	33 4114	UNDERGROUND WARNING TAPE

B. 23 8200ADD new specification section dated October 16, 2024

1.	04 4313	STONE MASONRY VENEER

C. REMOVE specification section in its entirety

1.	32 1613.23	PRECAST CONCRETE CURB

D. Additional Reports Issued for reference only, these Appendices to be Added to Vol 4 of 4

1. **Appendix E – Greenwich Test Pit Field Log Forms (TP101-TP120) Dated 11/23/2023 (provided for additional information request in BQ Log RFI #223**

1.4 DRAWINGS

A. Replace the following Drawing, previously issued on 09/30/2024 for BIDDING/PERMIT, or ADDENDUM No.1 on 10/10/24 or ADDENDUM No. 2 on 10/16/2024, with new drawings dated 10/23/2024

CIVIL

1.	C201	SITE LOW IMPACT DEVELOPMENT PART PLAN
2.	C203	SITE LOW IMPACT DEVELOPMENT PART PLAN
3.	C205	SITE LOW IMPACT DEVELOPMENT PART PLAN
4.	C206	OVERALL SOILS TEST LOCATIONS PLAN
5.	C301	OVERALL SITE UTILITY PLAN
6.	C302	SITE UTILITY PART PLAN
7.	C303	SITE UTILITY PART PLAN
8.	C304	SITE UTILITY PART PLAN
9.	C305	SITE UTILITY PART PLAN
10.	C307	SANITARY SEWER PROPOSED PLAN AND PROFILE
11.	C506	SANITARY SEWER DETAILS

LANDSCAPE

12.	L202A	SITE MATERIALS NORTHEAST
13.	L202B	SITE MATERIALS SOUTHEAST
14.	L202C	SITE MATERIALS SOUTHWEST
15.	L501	SITE DETAILS
16.	L601	ATHLETIC FIELD SITE DETAILS

STRUCTURAL

17. S301D LOW ROOF FRAMING PLAN – PART D
18. S410 FRAMING DETAILS
19. S411 FRAMING DETAILS

ARCHITECTURAL

20. A092 SECOND FLOOR & LOWER ROOF SLAB EDGE PLAN
21. A101A FIRST FLOOR PLAN – PART A
22. A102C SECOND FLOOR PLAN – PART C
23. A102E SECOND FLOOR PLAN – PART E
24. A111.4 ENLARGED PLAN & ELEVATIONS – GYMNASIUM
25. A111.9 ENLARGED PLAN & ELEVATIONS – MEDIA CENTER
26. A111.16 ENLARGED PLAN & ELEVATIONS – ADMIN SUITE, HEALTH SUITE & GUIDANCE SUITE
27. A130 ENLARGED TOILET ROOM PLANS AND ELEVATIONS
28. A131 ENLARGED TOILET ROOM PLANS AND ELEVATIONS
29. A132 ENLARGED TOILET ROOM PLANS AND ELEVATIONS
30. A201B FIRST FLOOR REFLECTED CEILING PLAN – PART B
31. A502 EXTERIOR SECTION DETAILS OF NON-PROJECTED THROUGH WALL FLASHINGS
32. A511 EXTERIOR PLAN DETAILS
33. A520 EXTERIOR SECTION DETAILS
34. A521 EXTERIOR SECTION DETAILS
35. A522 EXTERIOR SECTION DETAILS
36. A530 TYPICAL MEMBRANE ROOFING DETAILS
37. A530 TYPICAL MEMBRANE ROOFING DETAILS
38. A611 DOOR SCHEDULE
39. A632 ALUMINUM FRAME ELEVATIONS – CURTAIN WALLS AND STOREFRONTS
40. A640 TYPICAL ALUMINUM FRAME DETAILS
41. A805 INTERIOR DETAILS

MECHANICAL

42. M103A MECHANICAL ROOF PLAN – PART A
43. M103B MECHANICAL ROOF PLAN – PART B
44. M103C MECHANICAL ROOF PLAN – PART C
45. M103D MECHANICAL ROOF PLAN – PART D
46. M103E MECHANICAL ROOF PLAN – PART E
47. M500 MECHANICAL DETAILS
48. M501 MECHANICAL DETAILS

ELECTRICAL

49. E000 ELECTRICAL ABBREVIATIONS, NOTES AND SYMBOLS
50. EP101A ELECTRICAL POWER FIRST FLOOR PLAN – PART A
51. EP101D ELECTRICAL POWER FIRST FLOOR PLAN – PART D
52. EP101A ELECTRICAL POWER FIRST FLOOR PLAN – PART A
53. E400 ELECTRICAL ENLARGED PLANS - KITCHEN
54. E700 ELECTRICAL RISER DIAGRAM

55. E701 FIRE ALARM RISER DIAGRAM

END OF DOCUMENT 00 9113 - ADDENDUM No. 4

END OF SECTION 01 09113

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BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
1	Turner	Procurement Manual	10/1/24	What type of labor is being requested for this project? Union or CT Prevailing wage ? When is the estimated installation of the food service equipment? Substantial completion date ? Do you expect to need BIM Coordination on this project?	As this is a public bid, all work must be Prevailing Wage, there is not a requirement for Union Carpentry on this project. Reference Project manual item 10 – Minimum Rates and Classifications for Building Construction – CT Prevailing Wage Rates dated 9.23.24. Note that the State of Connecticut issues updated required rates each year on July 1. Review project schedule for Lower Level fitout scheduled to start September 2025 through June 2026 specific kitchen development will be within this range. See Additional Provisiosn/Scope of Work for all Subcontractors, item #55. Kitchen equipment to participate in BIM 3D Modeling.	10/1/2024	Turner/ J Phelan		Closed	10/1/2024
2	Turner	Procurement Manual	10/1/24	Is this project being done under Carpenter Union?	As this is a public bid, all work must be Prevailing Wage, there is not a requirement for Union Carpentry on this project. Reference Project manual item 10 – Minimum Rates and Classifications for Building Construction – CT Prevailing Wage Rates dated 9.23.24. Note that the State of Connecticut issues updated required rates each year on July 1.	10/1/2024	Turner/ J Phelan		Closed	10/1/2024
3	SLAM	A111.16	10/1/24	No Basis of Design was found for the Ballistic Level 3 Transaction Window at Entry Vestibule. Please provide basis of design for this product. **Turner Follow-up (10/16/24):** Please provide a spec to cover this item.	BOD will be ARMORTEX Aluminum Transaction Window system w/speaker furnished & installed by BP #19. **Turner Response (10/21/24):** Spec Section 08 5653 has been issued in Addendum #2	10/9/2024	SLAM		Closed	10/21/2024
4	SLAM	Spec -1 3575 & Dwg GC01	10/1/24	Delegated Design Procedure Spec (01 3573) and table on drawing GC01 includes Spec 28 5319, Distributed Antenna System. This spec was not found in document. Please confirm if applicable and provide spec.	Spec section 285319 has been removed. Refer to specification 276010 for distributed antenna system	10/30/2024	CES		Closed	10/31/2024
5	Turner	Procurement Manual	10/2/24	Where can I find the information on Small Business / MWBE participation percentage requirements.	Refer to the Invite to bid for specific package requirements in the Chart on Page 1 and 2. Also, reference the Boilerplate additional provisions item #4 page 3C.	10/2/2024	Turner/ J Phelan		Closed	10/1/2024
6	Turner	Procurement Manual	10/2/24	Is a bid bond required for bid submission?	A bid bond is applicable for bids in excess of $100,000. This information is detailed in the Invitation to Bid document along with additional required information for bid submission.	10/2/2024	Turner/ B Moore		Closed	10/7/2024
7	SLAM	3D/A522	10/3/24	Please confirm that the anchorage at Curtain Wall header is the Anchorage is concealed in mullions per detail 6C/A640.	Confirmed	10/9/2024	SLAM		Closed	10/16/2024
8	SLAM	1D/A640	10/3/24	Please provide clarifying detail of sunshade attachment to storefront mullion. Additionally, clarify how flashing/roof membrane extends around attachment bracket.	The Sunshade is provide by the window manufacture - all attchment detail is per there typical instaltion method for their system. The shade does not interact with the roof or wall membrane flashings as it attached to the window system only.	10/9/2024	SLAM		Closed	10/16/2024
9	SLAM	1C/A640	10/3/24	At South Elevation Main Entrance (5C/A310), there is concern of potential condensation accumulation at metal panel infill. Please confirm that no insulation is required on the inside of the glazed-in metal insulated panel.	There is no condesation concern and no insulation is required.	10/9/2024	SLAM		Closed	10/16/2024

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10	SLAM	A901C	10/3/24	Please confirm that the wall panels (AWP8) in the Media/Production Classroom 1063 & Media Sound Booth are to be full height at all walls.	Per the Finish Product List AWP6 is to be full height. It is only to be installed on the 2 walls per room as shown on the Finish Plan A901C. Furnished & Installed by BP #18.	10/8/2024	SLAM		Closed	10/16/2024
11	SLAM	A122	10/3/24	Please confirm that 3A/A501 is the applicable detail for waterproofing at the elevator pit (A122). Additionally, will waterproofing be required at the interior of the elevator pit? Please provide details.	3A/A501 is the correct detail refernnce for the Elevator Pit. No see 5E/A122 plan refernce tht calls for exterior side waterproofing on all sides of the elevatior pit.	10/9/2024	SLAM		Closed	10/16/2024
12	SLAM	S410, S411, S420, S421, S430	10/3/24	There are details throughout the S400 series of drawings that do no show all the connection types, i.e. bolt sizes, weld types & sizes, etc..for items like hung lintels and perimeter angles. For example see 9/S410 or 15/S410. Are these intended to be delegated design? If so, no loads seem to have been provided. Please advise & provide these connection details where missing. **Turner Follow-up (10/16/24):** Confirm typical welds shown on Detail 1 of same page are adequate for these conditions.	Follow-up - Confirmed	10/28/2024	SLAM		Closed	10/31/2024
13	SLAM	6/S420	10/3/24	Please confirm that the joist bridging, diagonal horizontal bracing, and rigging beam connections to the joists will be a delegated design.	Confirmed.	10/8/2024	SLAM		Closed	10/16/2024
14	SLAM	S302B	10/3/24	Please confirm that the intent is for the basketball hoop supplemental steel supports, attachement to the roof joists, and any associated bracing to be a delegated design.	Basketball hoop supplemental steel supports and attachments to roof joists by basketball supplier (BP #21), inclusive of delegated design.	10/8/2024	SLAM		Closed	10/16/2024
15	SLAM	S302B	10/3/24	It is not clear how motorized partition will be mounted to the roof joists. Please provide details and a section cut. **Turner Follow-up (10/16/24):** Provide detail of mount to roof joists.	Atcahnment to bottom of roof joist is the design intention. This conection is provided by the partiton manufacturer. **Turner Response (10/31/24):** The General Trade Subcontractor (BP #21) shall design, furnish, & install any additional supports necessary to mount the motorized partition.	10/28/2024	SLAM		CLosed	10/31/2024
16	SLAM	A522	10/3/24	Detail 3B/A522 shows CFMF angles attached to the top flange of the steel beams to support the skylight framing. Will CFMF be sufficient to carry this load or will strcutrual steel angles welded to the steel be required?	Detail has been revised in Addendum 4 relocating the steel beams to be centered under the skyligh curb framing, and eliminating the CFMF angles.	10/28/2024	SLAM		Closed	10/31/2024
17	SLAM	GC12	10/3/24	The steel framing between gridlines XB-XC and in front of gridline AK seems to be called out to be galvanized as well as coated in thermal insulative coating and intumescent paint. Are any special primers or prep required for these 3 coating to be applied on top of each other? Please confirm the order these coatings should be applied in.						
18	SLAM	S502	10/3/24	Please confirm that all the shear walls shown on S502 are 12" CMU.	See architect plans and arch wall type sheets for wall designations	10/10/2024	SLAM		Closed	10/16/2024
19	SLAM	S401 & A122	10/3/24	No elevator hoist beam size has been provided. Please provide size and bearing details.	This identified on the related structural drawings S302E.	10/10/2024	SLAM		Closed	10/16/2024
20	SLAM	Spec 055000	10/3/24	Please confirm that the "ships ladder" spec also applies to roof hatch ladders in 055000 2.6.c	The refernce to "ships ladder" in this section will be removed and replaced with a fixed ladder revision. **Turner Response (10/21/24):** Revised Spec Section 05 5000 has been issued in Addendum #2	10/16/2024	SLAM		Closed	10/21/2024
21	SLAM	T400	10/3/24	Please confirm the fiber & copper backbone interconnecting the IDF & MDF rooms is not required to be run in conduit, and that armored cable is sufficient.	Armored cable, as specified, is sufficient. **Turner Additional Response (10/21/24):** Armored cable & supports furnished & installed by BP #39 per scope of work documents.	10/16/2024	DA		Closed	10/21/2024

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
22	SLAM	T400	10/3/24	Please confirm scope & devices noted on the T set and TY set generally have conduit pathways to above accessible ceilings, unless otherwise noted. And that scope & devices on TA set (AV) have conduit directly to the AV cabinet supporting the space, unless otherwise noted as to be above accessible ceiling. **Turner Follow-up (10/21/24):** Please confirm that AV conduit and rough-in requirements for rooms other than the Gym, Cafeteria, and Auditorium are only what is identified in the AV conduit & cabling schedule on TA000.	Confirmed.	10/16/2024	DA			
23	SLAM	T101A & T101D	10/3/24	There doesn't appear to be any data, voice, or network connections shown for the fire alarm system on the technology drawings. Please advise and provide details. **Turner Follow-up (10/23/24):** Please advise how the fire alarm reports out without network connections?						
24	SLAM	T series	10/3/24	There doesn't appear to be any data or network connections shown for the BMS system on the technology drawings. Please advise and provide details.	See data adds for BMS in Addendum 02.	10/16/2024	DA		Closed	10/21/2024
25	SLAM	Spec 276010	10/3/24	Sheet GC0A calls for the DAS to be a delegated design. The spec doesn't explicitly mention any engineering or delegated design requirements or deisgner certifications. **Turner Follow-up (10/16/24):** Spec section 276010 was issued, but is not listed on the delegated design schedule shown on sheet GC0A. Spec section 28 5319 was not issued, but is listed on sheet GC0A. Please advise.	Spec section 285319 has been removed. Refer to specification 276010 for distributed antenna system and its Delegated design rquirments.	10/30/2024	CES		Closed	10/31/2024
26	SLAM	E602-E607	10/3/24	The panel schedules indicate a lot of spares. Are there truly this many spares available?	Spare capacity in panels to remain at this time.	10/10/2024	CES		Closed	10/16/2024
27	SLAM	SU500	10/3/24	Detail 1 and 4 on SU500 reference a concrete encasement detail in Note #4. Has this detail been provided? What sheet is it on? Please add sheet reference to this Note #4. Also, please confirm if any concrete encasement around site conduit is required. **Turner Follow-up (10/16/24):** On C508 ductbank detail notes reference concrete being needed beneath paved areas only. Please confirm. Also please provide spacing and concrete encasement dimensions (i.e. concrete cover).	Refer to CIVIL (Tighe and Bond) drawings for trenching detail requirements. Concrete encasement as required furnished & installed by Site Contractor (BP #09).	10/10/2024	CES			
28	SLAM	SU500	10/3/24	Sheet SU100 references a detail on SU500 for the primary electric manhole. There is no detail on SU500. Please provide this detail, size, and specifications on the primary electric manhole.	Refer to sheet SU501 for eversource hex manhole detail. References to SU500 will be changed to reference SU501. Site Contractor (BP #09) shall furnish & install the Eversource manhole & associated details, inclusive of coordination with BP #38.	10/10/2024	CES		Closed	10/16/2024
29	SLAM	C301, SU100	10/3/24	Note 28 on C301 alludes to utility company review and the design being subject to change pending utility company review. Have the utility companies reviewed & approved the current design? There is also mention of ultility "design by others". Can you please clarify the intent?						
30	SLAM	09 6500	10/3/24	RT1, RT2 and RT3 are all listed as 4mm thick. Can you please confirm that they should be listed as 2.5 mm thick to match up to all the other LVT's on the job.	All should be 2.5mm (not 4mm)	10/11/2024	SLAM		Closed	10/16/2024

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
31	SLAM	09 6500	10/3/24	RT2 and RT3 come with the same wear layer as all the other RT's lised but they are both 40 mill and the warranty is 25 years. This 40 mill and 25 year warranty are specific to the Amtico selections	The minimum wear layer for the resilient tiles is 20 mil and the basic warranty is 15 years - RT2 and RT3 exceed this with 40mil wear layer and a 25 year Warranty which is acceptable but not a requirement.	10/11/2024	SLAM		Closed	10/16/2024
32	SLAM	C301, SU100	10/3/24	Please confirm that the electrical utility company will install conductors from Stanwich Road to the pad mounted transformer. Please confirm that the utility company will also furnish & install the pad mounted transformer. The EC will then provide conductors from the utility transformer to MSB-1 & FP-DS. Please confirm that the telecom service provider will be installing conductors from Stanwich road to a demarcation / box in MDF 1066.	The electric utility company will provide primary cable from the riser pole to the pad mounted transformer. The project will provide the conduit ductbank, pulling structure with proper subgrade and grounding, transformer pad with subgrade and grounding, secondary conductors from the transformer to MSB-1 and FP-DS in conformance with the identified trench detail.The communication utility company will provide service cable from the riser pole to the Telecommunications Equipment Room full length underground.	10/11/2024	CES		Closed	10/16/2024
33	SLAM	Spec 260573	10/3/24	Please confirm all electrical power studies required. Spec section 260573 didn't seem to mention an Arc-Flash study. Is that required? Other spec sections refer to arc-flash labeling. We want to ensure all the studies required is clear.						
34	SLAM	Electrical Specs	10/3/24	We didn't see a spec for electrical infrastructrure vibration & seismic controls. Please confirm that there are no vibration or Seismic requirements for electrical systems. If there are, then please provide the appropriate spec.						
35	SLAM	Spec 323120, SU100, TY100	10/3/24	The spec for vehicle barrier gates calls for communiction wiring. SU100 shows power run to the gates, but doesn't explicitly show any communications cabling or infrastructure run to the gates. Please advise and update the drawings to clearly shown interconenctions and/or wiring details.	Refer to keynote E13 and note calling for (1) 2” conduit. Refer to note on site plan “(2) 2” CONDUITS FOR COMMUNICATIONS TO SITE CAMERAS AND EV CHARGING EQUIPMENT.” Refer to EV charging detail for communication conduit requirements. The base electrical contractor (BP #38) shall funrish & install all conduits / pathways. Low voltage contractor (BP #39) to furnish, install, terminate, & test all low voltage cabling.	10/13/2024	CES		Closed	10/16/2024
36	SLAM	Spec 262653 & SU100	10/3/24	The spec calls for the EV charging stations to be networked. There doesn't seem to be any data / LV cabling or connections indicated. Will these be connected via a cellular or wifi signal? Please advise and update the drawings to clearly show network connections required and/or wiring details.						
37	SLAM	Spec 260533	10/3/24	This spec section mentions related spec sections that have not been issued, i.e. 270533 Raceways for Communications Systems. Please advise and provide all specs required. Please ensure all related specs are provided or delete references throughout.	Refernces to 27 0533 in this spec section should be replaced with 27 0536.	10/9/1902	CES		Closed	10/24/2024
38	SLAM	E Series	10/3/24	Please confirm that all motorized shades are intended to be manually & locally controlled. Confirm that they will not be integrated with any lighting controls system or have any automation.	Motorized shade control shall be manual and locally controlled.	10/13/2024	CES		Closed	10/16/2024
39	SLAM	E701 & Spec 262826	10/3/24	This spec mentions an Engine Start Monitoring system that is integrated with the Fire Alarm system. There doesn't appear to be reference to this on the fire alarm riser SOO (E701). Please advise and update accordingly.	Monitoring module for monitoring of the engine start circuit is added to floor plan and riser diagram in Addendum #2.	10/10/2024	CES		Closed	10/21/2024
40	SLAM	Spec 283100	10/3/24	Please confirm that MC Cable is acceptable for fire alarms systems in all concealed conditions (i.e. within walls and above accessible, finished ceilings), and that conduit is only required in "exposed" installations. Please confirm if areas with "cloud" ceilings are considered "exposed" (i.e. the Cafeteria).	MC Cable is acceptable for fire alarm systems in concealed areas. Areas with cloud ceilings are considered exposed, provide wire in conduit.	10/10/2024	CES		Closed	10/16/2024

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
41	SLAM	Spec 270536	10/3/24	This spec section mentions delegated design for seismic restraints. Is this required for the small amount of cable tray scope in IDF/MDF rooms? If so, please reference this spec in the delegated design matrix on the GC series of drawings.	Disregard requirement for delegated design for seismic restraints in Specification 27 0536.	10/16/2024	DA		Closed	10/21/2024
42	SLAM	E Series	10/3/24	Is there a spec for the overhead cord reels? Please advise or provide.	Cord reel spec to be "Industrial cord reel, with Hubbell HBL4729C twist-lock input connector, 25' SJO Cable Jacket, 12/3, Nema 5-20R connector for use by owner. White housing. Shall be provided with the following: Pivot Base Hubbell #HBLI340PH; Mounting Bracket Hubbell #HBLIMB; Ball Stop Hubbell #HLI12BS". Cord reels shall be furnished & installed by BP #38.	10/11/2024	CES		Closed	10/16/2024
43	SLAM	S421 & A521	10/3/24	Detail 1B on A521 shows CFMF supports for the MCM panel soffit around the Gym. Detail 1 on S421 shows a top chord extension for the roof joists to create a an overhang. What is the profile / shape of this top chord extension because it looks larger than a typical top chord. Also, is the intent for the CFMF to attach to this extension or will the CFMF hang from the roof deck overhang?	Top chord extension & profile (i.e. depth) is by joist fabricator (BP #12) as part of the delegated design process. CFMF is intend to attach to the extended top cord, infilling between members. CFMF furinshed & installed by BP #21.	10/9/2024	SLAM		Closed	10/16/2024
44	SLAM	MEPFS Drawings	10/3/24	Please provide matchlines on all plans.						
45	SLAM	L503 & L504	10/3/24	Please confirm the manufacturer and model number intended to be used for the metal screen fence and black chainlink viynl coated fence shown on L503 & L504.	Please see spec section 12 9300 for METAL SCREEN FENCE – Basis of Design is Pallisade Fortress Screen Fence as provided by Palm SHIELD. Please see spec section 32 3113 for CHAIN LINK FENCE – components called out. B.O.D. EAGLE FENCE or equal. Furnished & installed by BP #09.	10/11/2024	SLAM		Closed	10/16/2024
46	SLAM	TR1 & TR2	10/3/24	Details 7 & 8 seem to show a rigging beam up high and then a pipe batten hung from that beam. Details 3, 5, & 6 on TR1 show "compression tubes" and "strongbacks" between the rigging beam and pipe baten, which are not part of the details on TR2. It is not clear from the sections & details provided what the intended theatrical lighting / rigging assembly should be. Please provide updated or additonal details. **Turner Follow-up (10/29/24):** Please provide detailed section cuts on the TR plans, especially for 3/TR1, 4/TR1, 5/TR1, & 6/TR1, that are similar in level of detail to 6 & 7 on TR2. There are so many light weights that it is not clear what is intended. Please also provide a section cut symbol showing where details 6 & 7 on TR2 apply.	Reference specifications for basis of design products. Note that it different products between detail 6 on TR1 and Details 3 and 5.	10/22/2024	CT/SLAM			
47	SLAM	TR1 & TR2	10/3/24	Please confirm how the curtain tracks shown in Detail 2 on TR1 on the perimeter (adjacent to gridlines CN & CJ) should be supported. Can they be hung directly from the roof deck or is that an issue structurally?	Theatrical rigging contractor (BP #31) to provide intermediate support strut between rigging beams to support track. System is not to be huing directly form the roof deck.	10/9/2024	CT/SLAM		Closed	10/16/2024
48	SLAM	T-Series & A912	10/3/24	It is not clear from the drawings & specs if there will be any owner furnished, contractor installed Low Voltage and/or AV equipment and components (for example network switches, smartboards, etc.). If there is anything, please provide a responsibility matrix indicating this scope. Ideally an OFCI vs. OFOI vs. CFCI matrix should be provided, similar to the specialty equipment matrices on A912.	Refer to scope matrix added to T000, TA000, & TY000 in Addendum 02.	10/16/2024	DA		Closed	10/21/2024
49	SLAM	Spec 276010	10/3/24	Please confirm that the distributed antena system shown in the bid documents is intended for Emergency Responder Radio Coverage Only. And that there will not be a system for extended cellular coverage.	Confirmed. DAS is intended for Emergency Responder Radio Coverage only.	10/11/2024	CES		Closed	10/16/2024

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
50	SLAM	E400 & EP101D	10/3/24	It seems like under slab conduit and electrical circuit infrastructure will be required, especially for the kitchen and auditorium spaces. There doesn't appear to be any typcial below slab typical details in the E500 series. Please advise and provide. Also, please confirm it is acceptable to run feeders and branch circuits below the slab on grade generally. **Turner Follow-up (10/16/24):** Please follow-up with a typical below slab conduit detail for within the footprint of the school.	Underslab feeders and branch circuits below slab are acceptable means and methods procedure.	10/11/2024	CES			
51	SLAM	E700	10/3/24	E700 shows the PV 1200A NEMA 3R disconnect and meter cabinet as "future" with dashed lines, seeming to indicate it is not part of the scope of work for this project. Is that true? However, E700 shows 1200A feeders from these future cabinets as being part of the scope of work for this project. Is this true? **Turner Follow-up (10/16/24):** Please provided updated drawings showing the (4) 4" empty conduits.	PV disconnect and meter cabinet is future and not part of the scope of work for this project. Space reserved for future PV equipment shown on EP101A, EP101C, EP101E and roof plans. 1200A feeder shown on E700 was intended to just be conduit and pull string. Reference to 1200A feeder will be removed in next addendum and replaced with note for (4) 4” conduits and pull strings, furnished & installed by BP #38. **Turner Follow-up Response (10/24/24):** E700 was updated in Addendum #3.	10/11/2024	CES		Closed	10/24/2024
52	SLAM	E700	10/3/24	Detail 2 on E700 shows a Future PV System Riser Diagram. Please clarify what should be included in the base electrical bids. Will it be empty conduit w/ drag lines only to the general locations indicated.	Yes, base electrical bid (BP #38) will be empty conduit w/ drag lines. Refer to E700 Future PV System Conduit Riser Diagram, and roof plans for conduit stub up locations.	10/11/2024	CES		Closed	10/16/2024
53	SLAM	E700	10/3/24	Please confirm if the submetering shown in the submetering schedule on E700 is the only submetering required. Or is there addition submetering required for mechanical system and/or lighting not currently shown in this schedule? If so, please advise on a full list of submetering.	Confirmed. Submetering shown in schedule is all that is required. If you have specific system you have a question about please submit a more detsiled question. **Turner Follow-up Response (10/21/24):** The electrician (BP #38) to review all bid documents and specifications, and furnish & install all submetering identified therein.	10/16/2024	SLAM		Closed	10/21/2024
54	SLAM	S401 & A121	10/3/24	It is not clear from detail 1/S401 or 3D/A121 how the 2nd floor curtain wall / window will be supported. Please advise and provide the corresponding detail(s).	At the limited width of that window (7'-6) typical CFMF detailing & framing by BP #21 will be required (i.e. box headers and sills - double jamb king suds). Similar to 2D/A641 added in this Addednum	10/9/2024	SLAM		Closed	10/16/2024
55	SLAM	S211	10/3/24	Detail 1/S211 notes that 1st floor slab needs to be poured prior to backfill. Can you confirm if it is acceptable to backfill prior to pouring slab? Also note that detail 3/S211 does not require slab install prior to backfill. **Turner Follow-up (10/16/24):** Initial SLAM response will provide a hardship to construction sequence & scheduling. Please provide detail and plan locations for keyway at retaining wall footing to eliminate the requirement for placing this SOG prior to backfilling.	Revised detail and plan, at this location was Issued in Addednum No. 2 removing this requirement.	10/28/2024	SLAM		Closed	10/31/2024
New Bidder's Questions as of 10/04/24 Issuance										
56	Turner	Procurement Manual	10/8/24	Will the Turner Pre-Qualification Form be required for the bid, if the potential subcontractor has recently filled out pre-quals with Turner Construction?	Subcontractors who are currently Prequalified with Turner may request Turner provide a letter to verifiy prequalification. Copy of letter can be submitted with Bid in lieu of submission of the "Turner Prequalification Response Form" included within the project manual. Send requests for Prequalified letter Francesca Perugini at fperugini@tcco.com.	10/9/2024	JP/Turner		Closed	10/9/2024
57	Turner	Procurement Manual	10/8/24	What time do te buses arrive in the morning, and when do they pick-up in the afternoon.	CMS Dropoff starts at 7:20 a.m. and Dismissal time is 2:45 p.m.	10/9/2024	JP/Turner		Closed	10/9/2024
58	Turner	Procurement Manual	10/8/24	What percentage of the project is State funded vs. town funds?	Not applicable	10/16/2024	JP/Turner		Closed	10/16/2024

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59	Turner	Procurement Manual	10/8/24	Is Turner planning on submitting and self-perform scopes?	Turner Self Perform (SPO) will not be bidding on any of the prime bid packages.	10/9/2024	CL/Turner		Closed	10/9/2024
60	SLAM	C305	10/9/24	There is a Heat Trace system for the grease waste system. The Civil Drawings say to reference details on the MEP drawings, MEP drawings only show HT-1 on the interior and then HT-2 on the portion of the exterior line shown on Drawing P100A. Shall HT-2 extend all the way to the grease trap on the site or just required for the first 10 feet of piping?	HT-2 shall extend all the way to the grease trap per Addendum #2. Heat trace installation shall be coordinated with Civil piping and routing. **Turner Additional Response (10/21/24):** Plumbing subcontractor (BP #36) to furnish heat trace and the Electrician (BP #38) to install per the Turner scope of work documents.	10/16/2024	CES		Closed	10/21/2024
61	SLAM	A902A	10/9/24	Classroom 2019 also does not show roller shades at the counter space. Please confirm if this area is to have roller shades.	Yes shades are required	10/30/2024	SLAM		Closed	10/31/2024
62	SLAM	21 05 33, 22 05 33	10/9/24	There is no Heat Trace Specificaiton for Fire Protection or Plumbing systems. Please provide specifications. **Turner Follow-up (10/21/24):** Please provide a written heat trace specification.	Refer to schedules on plumbing and fire protection drawings for heat trace specification. **SLAM Follow-up Response (10/23/24):** See Addendum #3 for written Heat Trace Specification.	10/16/2024	CES		Closed	10/24/2024
63	SLAM	275313	10/9/24	Is it acceptable to utilize Primex Clocks in lieu of SiteSync IQ by American Time?	No - The Clock system specifed is an approved sole source item for this project.	10/22/2024	SLAM		Closed	10/24/2024
64	SLAM		10/9/24	Are the site boulders intended to be imported to site or harvested from site? **Turner Follow-up (10/28/24):** Design Team please provide the intended source to procure the boulders.	Although a new specification has been issued, the architect leaves this difficult to quanttify. Turner's direction to the bidding sitework subcontractors is to assume the required boulders sourced from site will either not be acceptable or in the quantity and size required. For these reason, Sitework bidders shall include providing boulders from an off-site location and do not assume the site will yeild the required boulders.	10/23/2024	JAC/Turner			
65	SLAM	L404	10/9/24	On drawing L404 the site irrigation plan what is the location of the point of connection to the new building for irrigation piping?	Irrigation will connect in through the Fitness Room 1099. See Plumbing Drawings P101B for more information and updated L404 in Addendum 2.	10/16/2024	SLAM/CES		Closed	10/21/2024
66	SLAM	Spec 08 4413	10/10/24	In regards to the ballistic curtainwall type ICW02, no specification was found for ballistic curtainwall framing. Can you please clarify or provide? **Turner Follow-up (10/17/24):** The lower section of the frame (3E/A632) has the bullet resistant glass, but not the upper. Typically, if any part of the frame is to have bullet resistant glass in it than the entire frame is to be bullet resistant. The glass doesn't have to be, as it shows in this case, but the frame does. Please clarify if the entire frame is to be bullet resistant. **Turner Follow-up (10/31/24):** No new spec was provided in Addendum 4. Please provide individual spec for Ballistic Curtainwall frame with acceptable manufactures that provides frames to meet UL 752, Level 3 requirement and that coordinates to the security glazing listed in 08 8000.	A. Balistic Spec has been added in Addednum 4. B. Follow-Up - Confirmed - Entire frame to be the balistic frame.	10/28/2024	SLAM			
67	Turner	A924	10/10/24	Please confirm that the masonry for Sign Type R is not within the scope of the signage contractor.	The masonry will be by the Masonry subcontractor (BP #11) and the fiber cement paneling system will be by the drywall subcontractor (BP #21). The flush mount alum. letters will be by the signage contractor (BP #28).	10/16/2024	JM/Turner		Closed	10/16/2024
68	SLAM	A924	10/10/24	Please confirm that halo lit is acceptable for Sign Type S.	Halo/Back Lit lighting is required and meets the Town's Lighting regulation	10/22/2024	SLAM		Closed	10/24/2024

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69	Turner	10-1416-1	10/10/24	Is the dedication plaque detailed in Section 10-1415 part of the signage scope?	The millwork subcontractor (BP #18) will be responsible for the Plaques spec section.	10/16/2024	JM/Turner		Closed	10/16/2024
70	SLAM	Existing / As-Built Dwgs	10/10/24	Can drawings of the Existing Building Construction be provided?	See existing drawings issued in Addendum #3	10/24/2024	SLAM	yes - Existing Drawings	Closed	10/24/2024
71	SLAM	05 2100	10/10/24	Specification section 05 2100-1.3B notes comprehensive engineering analysis of "special joists", signed and sealed by qualified engineer. It appearst the joist sizes are already on the documents, please clarify the intent of what joists are to be delegated design as 'special joists". Are there restrictions on the 'special joists', meaning do portions of the design need to align with sizes provided on the documents?	The SP designation on the framing plans is what defines a "Special Joist". The depth designations on the plans need to be adhered to. The delegated design specified and required, covers all of the rest of the loading criteria that goes into sizing the individual parts and pieces thst make up a typical joist. All of which are defined in the drawing set. See Soo1, Individual Details in the S400 Series and S700 series for loading information and notes. Along with other things that hang from the joists - I.E. Basketball Hoops, divider curtains, motors that move these things....etc. All of these things need to be factored into the delegated desing by the fabricator's engineer (by BP #12)	10/14/2024	SLAM		Closed	10/21/2024
72	SLAM	05 5000	10/10/24	Specification section 05 5000 is identified as delegeted design on sheet GC0A. Reviewign 05 5000-1.5 is notes notes ladders, backstop and elevator beams as delegated design. Please confirm these items are the extents of the delegated design requirements of this specification section 05 5000.	Paragraph 1.5-A says “ladders, backstop and equipment supports, and elevator beams”. Equipment support requiring delegated design should include support for the gym divider curtain, overhead coiling doors and grilles, and cubicle ceiling track support, unless covered by structural in their drawings. **Turner Additional Response (10/21/24):** Each bid package subcontractor is responsible for delegated design of their own scope items and coordination with associated trades for loads imposed. See Turner Scope of Work documents for delineation of scope.	10/16/2024	SLAM		Closed	10/21/2024
73	SLAM	08 4313	10/10/24	Specification section 08 4313 is identfied as delegated design on sheet GC0A. Reviewing the spec section 08 4313-1.5E it appears only to indicated attachments and anchors require delegated engineering analysis. Confirm this is the correct interpretation and that standard manufacturer data for the storefont framing in lieu of delegated design calcs.	Questioner’s interpretation is acceptable. Manufacturer’s published design data is sufficient to describe framing’s structural and physical characteristics.	10/16/2024	SLAM		Closed	10/21/2024
74	SLAM	A911	10/10/24	Finish Schedule doesn’t have a color for PL5 Wilsonart Plam, only a finish. It also shows PL7 Wilsonart Plam with no color or finish. Please advise a color and or finish selection are for these Plastic Laminates.	PL5 is a placeholder for finish on the face and sides of servery equipment only. There is no millwork in the servery. PL5 will match PL1. PL7 please use Formica, Specialty High Pressure Plastic Laminate, Magnetic, Writable Whiteboard surface, stain resistant in Crystal White. Both items have been modified in the Finish Materils list.	10/14/2024	SLAM		Closed	10/21/2024
75	Turner	Millwork SOW	10/10/24	SOW for Millwork and Casework (Scope Item #19) states we own furnish and install of TRM1 through TRM5. Details 1A, 1B, 3B/A805 all show Fry Reglet TRM trim being installed behind either wallcovering or AWP’s, both we don’t own. Shouldn’t this be furnished and installed under the Bid Packages that own the wallcovering and AWP Panels? Of all 5 TRM’s, the only one I see our Bid Package owning would be TRM3 per A911 as this if for the exposed edges tackboard that we do own. Please advise who will own the furnish and install of TRM1, TRM2, TRM4, & TRM5.	~~The Millwork subcontrator (BP #18) shall furnish and install all metal trim as noted in the millworks scope line item 19. The trim shall be coordinated with the adjacted trades material.~~ **Turner Revised Response (10/24/24):** BP18 MIllwork Shall furinish and install TRM2 and TRM3. TRM1 by painter BP27. TRM4 and TRM5 shall be furnished and installed by BP23 Tile. SOW have been updated to clarify. Please review SOW for millwork as AWP ownership is explained on what millwork owns.	10/16/2024	JM/Turner		Closed	10/24/2024

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76	SLAM	1E, 2E, 3E/A805	10/10/24	1E, 2E, & 3E/A805 show what looks like gyp. Panels on the top and bottom of all 3 types of display cases. Please advise if this is the design intent or are the tops and bottoms supposed to be Plam like the side walls? If gyp. on the top and bottom is the design intent, please advise who owns the gyp. furnish and install.	All sides of interior of display cases are to be PL7, this discription has been revised in the Finish Materials list.	10/16/2024	SLAM		Closed	10/16/2024
77	SLAM	64100	10/10/24	Spec Section 064100 – Architectural Wood Casework sub-section 2.9 Hardware states product grade as Grade 2. Since no cabinet door and drawer locks are listed, please confirm Grade 1 locks are not required. Also please advise the specific locks that are required for all cabinet doors and drawers since none are listed. a. 2.9/C states either side mounted recessed metal shelf standards or multiple holes for pin shelf rests with nominal 1in. spacing. Will standard 32mm spacing be acceptable, or are Metal Pilaster shelf standards required? b. 2.9/J calls for soft close door and drawer adjustable dampers. Are dampers required with self close European hinges and drawer slides, or are soft closed hinges and slides acceptable, not requiring the dampers?	Locks: Grade 2 is acceptable, Grade 1 not required. Owner to select specific lock types a: Standard 32mm spacing is acceptable. b. Provde a substitution request for alternate product types.	10/16/2024	SLAM			
78	SLAM	64100	10/10/24	Architectural Wood Casework sub-section 2.1C states multiple-dovetailed/dovetail joint construction. Please advise if standard hardwood dowel construction is acceptable.	This method is acceptable as long as it conforms to the requirements and standards of AWI Custom Grade casework.	10/16/2024	SLAM		Closed	10/21/2024
79	SLAM	123553.19	10/10/24	Wood Laboratory Casework lists Acid Storage Cabinets, Solvent Storage Cabinets, and Mobile Tables. Please advise where these items are located as nothing is shown on any floor plans or elevations for these items. If these items are not required for this project, please advise if Div. 6 Architectural Wood Casework would be acceptable ilo of Div. 12 Lab Casework, still following hardware materials but using AWI Standard Construction as outlined in Spec Section 064100. Div. 12 Epoxy counters, google cabinets, and drying racks would still be supplied as speced. **Turner Follow-up (10/21/24):** Please provide a revised spec that removes references that are not applicable to this project.	Spec will be revised to remove refrences to Acid Storage, Solvent Storrage, and Mobile Tables as they are not in this projects scope. Both specification section will remain as is otherwise. **Turner Response (10/21/24):** Revised Spec Section 12 3553.19 has been issued in Addendum #2	10/16/2024	SLAM		Closed	10/21/2024
80	SLAM	08 4413	10/10/24	Specification section 08 4413 is identfied as delegated design on sheet GC0A. Reviewing the spec section 08 4413-1.5F and 1.6A it does not indicated any signed and sealed calculations are required. Please clafify the delegated design intent of this specification section.	Delgated design is required for this spec section - langage has been changed to match 08 4313 in Addendum #3.	10/22/2024	SLAM		Closed	10/24/2024
81	SLAM	08 4413	10/10/24	Specification section 08 4413-1.6B seems to indicate an off site mockup performance test. If this is required, additional information is required for testing procedures, size of mockup, etc. Or can standard manufacturer systems specified provide performance testing of the specified systems to meet this requirement. **Turner Follow-up (10/21/24):** Please advise and provide an updated spec removing reference to off-site performance testing. **Turner Follow-up (10/31/24):** Please confirm that a seperate performance mock-up is not required, and that testing at an off-site lab (i.e. Intertek) is not required.	The two required fleld tests are outlined in part 3.4 Field Qulaity Control to be included by BP #19.	10/13/2024	SLAM			

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82	SLAM	12 6613	10/10/24	Specification section 12 6613 is identfied as delegated design on sheet GC0A. Reviewing the spec section 12 6613 and the requirements noted, can the specified manufacturers standard certification statement meet the delegated design requirements, assuming the specified seating meeting the requirements of this specification section.	Delgated design is required of the project specific seating design and layout, by BP #32.	10/13/2024	SLAM		Closed	10/21/2024
83	SLAM	22 1123	10/10/24	Specification section 22 1123-1.7C seems to indicate delegated design which is not called for on GC0A. Reviewing this spec section it is not clear if delegated design of "design piping system" is intended to included. Please clarify the design requirements of this specification section.						
84	SLAM	11 0610	10/10/24	Specification section 11 0610-1.9C seems to indicate delegated design which is not called for on GC0A. Reviewing this spec section it is not clear what portions of the specification section are to be delegated design and associated criteria. Please clarify the design requirements of this specification section.						
85	SLAM	14 2100	10/10/24	Specification section 14 2100-1.6A seems to indicate delegated design which is not called for on GC0A. Reviewing this spec section appears guide rails are to be delegated design. Please confirm the design requirements of this specification section. **Turner Follow-up (10/21/24):** Please provide updated specs.	Paragraph 1.2-C outlines the items requiring delegated design – pit ladder, divider beams [where required], supports for entrances and rails, and hoisting beam (a/k/a machine beam). Paragraph 1.6-A will be revised to include these items; Article 1.5 will be revised to include a delegated design submittal (in coordination with Section 05 5000). **Turner Response (10/21/24):** Revised Spec Section 14 2100 has been issued in Addendum #2. The elevator subcontractor (BP #34) shall provide signed and sealed elevator drawings with supporting calculations for all elevator delegated design, except for the hoist beam, pit ladder, and pit grating. The elevator subcontractor (BP #34) shall design, furnish, & install all steel supports for sills and entrances as required. The hoist beam, pit ladder, & pit grating delegated design shall be performed by the misc metals subcontractor (BP #13), as they are responsible to furnish & install these components. The elevator subcontractor (BP #34) must provide all loads imposed to the misc metals subcontractor (BP #13).				Closed	10/21/2024
86	SLAM	22 0516 & 23 0516	10/10/24	Specification section 22 0516 and 23 0516 seems to indicate delegated design which is not called for on GC0A. Please confirm if these spec sections should be added to GC0A.						
87	Turner	A610	10/10/24	Please clarify under which bid package the Sliding Window at the Nurses Office, and the Bullet Resistant Pass Thru Window at the Admin Office fall under. Are there any specification for them?	Per the BP#19 scope of work, the Sliding Window at the Nurses Office and the BR Pass Thru Window at the Admin Office are to be furnished and installed by BP #19 (Glass & Glazing). No specs are provided for these items. A basis of design for the Bullen Resistant Pass Thru Window is referenced in RFI #3. Reference RFI #88 for product information of the sliding window at the Nurse's office.	10/10/2024	BM/Turner		Closed	10/21/2024
88	SLAM	A610	10/10/24	Please provide basis of design and specification of sliding window at the Nurse's office.	See specification issued as part of Addendum #2	10/22/2024	SLAM		Closed	10/24/2024

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89	SLAM	10 5113	10/10/24	Please see attached RFI 89 attachments for potential locker substatution request. Please advise if this substitution is acceptable. **Turner Follow-up (10/31/24):** If "approved as noted" please provide the associated notes in the BQ response.	Lockers are Approved as Noted	10/30/2024	SLAM	Yes -- Substitution Request		
90				BQ NOT UTILIZED						
91	SLAM	00 3132	10/11/24	The Geotechnical boring information provided within the specification 00 3132 provides limited information at the phase 2 Turnaround (dwg C303) and deep Sanitary sewer roadwork excavation along Indian rock lane(C306, C307). Are Rock elevations known in these areas? What assuptions are to be made?	Limited Rock elevations are known at the intersection of Indian Rock Lane and Stanwich Road. See the attached existing sanitary sewer as-built which shows rock profile. The Rock profile is anticipated to undulate as shown on the as-built profiles and the provided geotechnical data. Encountering rock should be anticipated in contractor's bid.	10/16/2024	T&B		Closed	10/21/2024
92	SLAM	Site Utility	10/11/24	When reviewing the permit application for the Sanitary sewer the town noted the new lines need to be videoed to show the install from within the new pipes/manholes. There does not appear to be a mention of this video documentaiton. Will this be required by the Sitework Subcontractor? If yes please provide the details and specifications.	Sheet C-301 has been revised to include note 35. stating "ALL SANITARY SEWER MAINS AND LATERALS SHALL BE VIDEO RECORDED PER SEWER DIVISION PERMIT REQUIREMENTS AND PER SPECIFICATION 33 31 15." This will be required by the Sitework Contractor (BP#09).	10/16/2024	T&B		Closed	10/21/2024
93	SLAM	Civil Series	10/11/24	There does not appear to be a Storm Water Pollution Prevention Plan included in the contract documents. Please advise if Sitework Subcontractor will be responsible for SWPPP and if so provide aproject specific plan	Sitework Subcontractor (BP #09) is responsible for the SWPCP. See the included Stormwater Pollution Control Plan for the project.	10/16/2024	T&B		Closed	10/21/2024
94	SLAM	05 3100	10/11/24	Detail 1B/A521 calls for Steel plates top and bottom of deck - fasten and seal with continuous butyl. Please confirm these steel plates are to be by the metal deck manfacturer as no plates are shown on the structural documents. Please provide length of steel plates, and the fastening requirements of the steel plates top and bottom. Where should continuous butyl be applied? Is the butyl part of the roofing specification to be installed by the roofer? **Turner Follow-up (10/16/24):** Please confirm that this plate is not structural. Are there any specific fastening requirements for the attachment of these plates?	Structural Steel subcontractor (BP #12) shall furnish & install steel plates called for on A521 and detailed on 1E/A501. See 1E/A501 detail for length requirement of the steel plates. Fastening requirements are to coordinated between the trades by the Contractor. The mason (BP #11) shall furnish & install two lines of butyl sealant & insulation called for on 1E/A501 at all block exterior wall locaitons and the drywall contractor (BP #21) at all other locations. Sealant should be provide at outermost parrallel flute and each perpendicular flute.	10/13/2024	SLAM			
95	SLAM	Civil Series	10/11/24	Will Sitework Subcontractor be responsible for to perform the Turbidity tests (as part of a SWPPP) for the stormwater leaving the site which typically is performed by the Geotech engineer/by Owner?	No, turbidity monitoring is no longer required under the current CT DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities.	10/16/2024	T&B		Closed	10/21/2024
96	JLL	02 4100	10/11/24	During the site walk through it was clear there was a significant amount of existing tables, chairs, file cabinets, general ffe, etc. throughout the existing building. What is the intent for the removal of this equipment? Can a schedule be provided for what is to be salvaged by the owner and what is to be removed as waste by the demo subcontractor?						
97	JLL	02 4100	10/11/24	During the site walk through it was clear there was a significant amount of exterior items not called to be demolished on the site demolition plans (C402, C403) including chain link backstops, basketball hoops, fenced garden, soccer goals, etc. Can a schedule be provided for what is to be salvaged by the owner and what is to be removed as waste by the Sitework subcontractor?						
98				BQ NOT UTILIZED						
99	SLAM	31 2300	10/11/24	Are reports available regarding the hazardous material clasification of the exiting soils to be removed?	Available reports have been issued in Addendum #2	10/22/2024	SLAM		Closed	10/24/2024
New Bidder's Questions as of 10/11/24 Issuance										

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100	SLAM	M601	10/11/24	Remark #5 on the HVLS Fan Schedule on Drawing M601 states the color and finish of the CF-A fans shall be selected by the Architect. Please provide desired color and finish.						
101	CES	M502	10/11/24	The Mechanical piping floor plans indicate HWS, HWR, MCHWS & MCHWR feeding the active chilled beams, however, Details 6 & 7 on Drawing M502 indicate HWS, HWR, CHWS & CHWR. Please advise which is correct.	Chilled beam details have been updated for Addendum No. 3.	10/22/2024	CES		Closed	10/24/2024
102	SLAM	A200 Series	10/11/24	General Note #12 on the A200 series drawings state nothing other than ceiling systems can be supported from the roof deck where there is no concrete fill. In instances where long duct runs on the roof occur (i.e. from RTU-1 into the building), does this statement still apply? 9/M500 and 9/M501 indicate duct/pipe supports sitting on top of the roof insulation; In most cases, these supports will not be located over structural steel, but solely on top of metal decking. Should curbs/rails be specified? Is there a wind load concern for detail 9/M500 and 9/M501?	A. Roof top supports for duct wrok should be placed over roof structure. B. Roof mounted ductwork and pipe supports/rails shall be securely attached to steel below the roof deck. The details mentioned will be updated to reflect that attachment to steel within the next addendum. Wind load calculations are required for all roof mounted ductwork. Turner Response (10/31/24): The HVAC contractor (BP #37) shall design, furnish, & install all roof support structure for duct & HVAC piping including but not limited to wind load calculations.	10/28/2024	CES		Closed	10/31/2024
103	SLAM	003132	10/14/24	Specification Section 003132 Geotechnical Data The contract documents only include the boring locations and data. Please provide the complete Geotechnical report by Tighe & Bond dated 01/26/24 as referenced on drawing S-001 Paragraph C : Foundations and Geotechnical Report.	Geotechnical Report has been provided in Addendum No. 2	10/22/2024	T&B		Closed	10/24/2024
104	SLAM	Civil Series	10/14/24	Will Versa Lok retaining walls be an acceptable substitiion to the specified product? See attached Product Data.	Versa-lock is an acceptable substitution. Contractor to ensure that proposed product can meet design intent with regard to layout and construction. Color to be selected from manufacturer's full range of colors and finishes (including premium). Near vertical batter (1/4").	10/30/2024	SLAM	Yes -- Substitution Request	Closed	10/31/2024
105	Turner	Procurment Manual	10/14/24	Is the request for the bid bond a dual oblige (i.e. Construction and Board of Education of the Town of Greenwich)?	Confirmed Dual Oblige. Turner Construction and "Town of Greenwich"	10/14/2024	JP/Turner		Closed	10/14/2024
106	Turner	Procurment Manual	10/14/24	Do we need to fill out "35 - Turner Prequal form 1 17 07 format" if we've already submitted our prequal online with Turner for this year?	Subcontractors who are currently Prequalified with Turner may request Turner provide a letter to verify prequalification. Copy of letter can be submitted with Bid in lieu of submission of the "Turner Prequalification Response Form" included within the project manual. Send requests for Prequalified letter Francesca Perugini at fperugini@tcco.com.	10/14/2024	JP/Turner		Closed	10/14/2024

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
107	CES	M503	10/14/24	The following details were ommitted from Drawing M503 between the Phase 2 Set dated 07/08/2024 and the Bidding/Permit Set dated 09/30/2024: - 1 - Boiler - Condensing w/ Pump - 2 - Glycol Make-up Unit - 3 - Expansion Tank and Air Separator - 6 - Pump - Inline - 8 - Low Loss Header - Suspended - 9 - Pump - Base Mount Inline - 10 - Pot Feeder Please confirm these details are no longer required for this project.	The individual details are no longer required as the equipment details are shown on the hot water and chilled water piping diagrams.	10/22/2024	CES		Closed	10/24/2024
108	CES	M700, M701	10/14/24	We cannot locate Control Diagrams for the following pieces of Mechanical equipment on Drawings M700 or M701. Please provide: 1) Heat Recovery Ventilator HRV-1 2) High Volume Low Speed Fan CF-A 3) Dust Collector DC-1 4) Air Filtration Unit AFU-A 5) Heat Exchanger HX-1 6) Exhaust Fan KHEF-1 7) Exhaust Fan DEF-1	Controls diagrams have been updated in Addendum No. 2, all units not shown are outlined with the sequence of operations spcefification 230993.	10/22/2024	CES		Closed	10/24/2024
109	CES	M700	10/14/24	Please confirm Detail 8/M700 should be utilized for both Exhaust Fans EF-1 and EF-2.	Exhaust fan controls diagrams have been updated in Addednum No. 3.	10/22/2024	CES		Closed	10/24/2024
110	CES	23 09 93	10/14/24	We cannot locate a sequence of operations for the following pieces of Mechanical equipment within Specification Section 23 09 93. Please provide: 1) Finned Tube Radiators 2) Dust Collector DC-1 3) Air Filtration Unit AFU-A	Sequences of operation have been added for addendum #3.	10/22/2024	CES		Closed	10/24/2024
111	CES	M601	10/14/24	Please provide a Specification Section for Dust Collector DC-1.	Dust Collector DC-1 specification has been added to section 233400 - HVAC Fans within Addendum No. 3.	10/22/2024	CES		Closed	10/24/2024
112	CES	M602	10/14/24	Please provide a Specification Section for Air Filtration Unit AFU-A.	Air Filtration Unit AFU-A specification has been added to section 233400 - HVAC Fans within Addendum No. 3.	10/22/2024	CES		Closed	10/24/2024
113	CES	23 09 93	10/14/24	Mechanical pump designations were updated on the drawings in the Bidding/Permit set dated 09/30/2024, however, these designations were not updated in Specification Section 23 09 93-3.20. Please update accordingly.	Specification 230993 has been updated in Addendum #4 to reflect these changes.	10/30/2024	CES		Closed	10/31/2024
114	CES	23 09 93	10/14/24	Specification Section 23 09 93-3.20.D identifies Heat Exchanger Pumps HXP-1 and HXP-2, however, we cannot locate these pumps on the mechanical plans or schedules. Please advise.	Specification 230993 has been updated in Addendum #4 to reflect these changes.	10/30/2024	CES		Closed	10/31/2024
115	CES	23 09 93	10/14/24	Specification Section 23 09 93 contains sub-part 3.18 for Boilers as well as sub-part 3.19 for Water Heaters. The Boilers are identified throughout the Plans and Specifications, however, please advise where the Water Heaters are located an specified.	The water heaters are located within Mechanical Room 1060 and are specified under Division 22, specification 223300.	10/22/2024	CES		Closed	10/24/2024
116	SLAM	FS141	10/14/24	Details 1/FS141 shows recessed slab and pourable fill and 2 " concrete topping within the Refrigerator rooms, who is to provide this scope.	Recessed slab, Pourable Fill and 2" concrete topping to be furnihsed and installed by the Concrete Bid Package #10. Concrete Bid Package #10 to also provide the concrete fill shown on 2/FS141	10/14/2024	JP/Turner		Closed	10/14/2024
117	SLAM	FS141	10/14/24	Detail 2/FS141 calls for back fill by GC below floor pan and grate. Please provide what this backfill material is intended to be?	Backfill material shall be Concrete furnished & isntalled by the Concrete subcontractor (BP #10).	10/28/2024	Crabtree		Closed	10/31/2024
118	Turner	23 7413, 262413, 262416	10/14/24	Can shipping splits and informatoin be provided for the PrePurchsed Equipment	See attached BQ 118 for use in HVAC Bid Package #37 and Electrical Bid Package #38 information for spilts and weights.	10/14/2024	JP/Turner	Yes -- Prepurchased Equip. List & Shipping Splits	Closed	10/14/2024
119	SLAM	096466	10/14/24	Please advise if the attached wood flooring product can be substituted for the current speced out wood flooring.	Approved	10/30/2024	SLAM	Yes -- Substitution Request	Closed	10/31/2024

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
120	SLAM	L501	10/15/24	The curb detail calls for 6”x20” curb. Greenwich municipal standard is 5”x18” with a buzzed edge. Can you confirm the 6”x20” is correct?	Please use the Greenwich municipal standard for curbs. SLAM will update the detail accordingly. Maintain overall walk widths.	10/28/2024	SLAM		Closed	10/31/2024
121	SLAM	L202C	10/15/24	Please clarify the proposed condition within the chiller pad area on L202C. There is a callout for stone mulch as well as heavy duty concrete pavement.	The proposed condition in the chiller pad area should be heavy duty concrete pavement. The errant leader will be deleted from L202C accordingly.	10/28/2024	SLAM		Closed	10/31/2024
122	SLAM	S210	10/15/24	Please provide a detail for the chiller and generator pads. The detail callout of 7/S210 doesn’t seem to be correct.	The concrete pad in detail 18/S200 will bear on the frost walls indicated and be reinforced per detail 7/S210.	10/28/2024	SLAM		Closed	10/31/2024
123	SLAM	Civil / Landscape Series	10/15/24	Is there supposed to be a warning track along the baseball and softball backstops? If so, please provide a detail for the warning track	Yes, warning track should be provided. Limits are shown on L202 series and are clarified in Addendum #4. Detail of warning track section has been provided on L601.	10/28/2024	SLAM		Closed	10/31/2024
124	SLAM	L601	10/15/24	Please clarify the limits of detail 3C/L601 on the ball fields as well as the limits of sod in alternate #’s 1 & 2	Any athletic field area should utilize detail 3C/L601 for the turf section. This includes run-off areas as shown with a dashed line on the plans. This is also the limit of sod for the alternate. Infield and warning track to be omitted from the turf areas.	10/28/2024	SLAM		Closed	10/31/2024
125	SLAM	Existing / As-Built Dwgs	10/15/24	Please provide existing building drawings to help estimate the existing building slab elevations and the conditions the sitework contractor will be left with after the demolition contractor removed the building slab and foundations	See existing drawings issued in Addendum #3. The demolition subcontractor (BP #08) shall remove all slabs on grade and footings, per the Turner scope of work documents. Sitework Subcontractor (BP #09) shall include all fill as needed based on the existing building elevation changes. The Sitework Subcontractor shall remove any existing gravel course or footing / slab-on-grade subgrade prep materials (assume 12" depth). The demolition subcontractor to cut back any slopes (per Turner EH&S) where foundation walls/retaining walls are being removed. The sitework subcontractor shall backfill sloped and excavated areas to achieve the correct final elevation and conditions.	10/24/2024	SLAM	yes - Existing Drawings	Closed	10/25/2024
126	Turner	Civil / Landscape Series	10/15/24	Please confirm all existing topsoil is to be stripped and exported. None is to be left onsite for reuse a.Please confirm that BP#9 does NOT own furnishing and installing any topsoil or athletic field topsoil mix.	Confirmed. Top soil shall be removed from site by the Sitework Subcontractor (BP #09). Furnishing and installing topsoil is assigned to the Landscape Bid Package (BP #41).	10/15/2024	JAC - Turner		Closed	10/21/2024
127	SLAM	Civil Series	10/15/24	Please provide a detail for the concrete weirs under the porous asphalt	See detail for precast concrete barriers to be used as concrete weirs on C501 issued in Addendum No. 3	10/22/2024	T&B		Closed	10/24/2024
128	SLAM	Geotech Report	10/15/24	I see the boring and soil information, but I do not see a geotechnical report with engineering directives/recommendations. Please provide a complete geotechnical report.	Geotechnical Report has been provided in Addendum No. 2	10/22/2024	T&B		Closed	10/24/2024
129	SLAM	Scope of Work	10/15/24	BP #9 scope of work item #93 states that the excavation is considered to be unclassified. We will utilize any provided information to include in our bid any and all rock, unsuitable soils, etc. that can be reasonably anticipated. If we encounter soil conditions that could not have been reasonably anticipated based on the contract documents, will extra compensation be paid via change order? a.Please provide a definition of “unclassified” as it relates to all excavation onsite. Confirm that it only applies to the subgrade level and any excavation required beyond subgrade level would be paid via change order.						

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130	SLAM	A600	10/15/24	Can you identify the typical locations that Partition Type B is found within the building/on the drawings? For Type B Partitions - are these to be full height to underside of deck or just above ceiling ?	Wall partition type B1B and B1A are located in the Main Entry Vestibule 1000 and are full height to unerside of roof deck.	10/22/2024	SLAM		Closed	10/24/2024
131	SLAM	S211	10/15/24	As a follow up to Bidder Question #55 - For the portion of SOG that needs to be poured prior to the backfill taking place on the back side of the Retaining Wall, what is the minimum distance off the wall that the SOG needs to be poured?	Revised Structural details have been provided at this condition in Addendum No. 2	10/28/2024	SLAM		Closed	10/31/2024
132	SLAM	Geotech Report	10/15/24	Only page 1 of the boring plan is visible. Page 2 is just a white screen. Please provide page 2 of the boring plan because the plan is cut off at the new baseball fields home plate area.	There is no page 2, the blank page was for the 11x17 to print correctly. See revised Geotech Report issued in Addendum No. 2	10/22/2024	T&B		Closed	10/24/2024
133	Turner	Proj. Schedule/ Logistics Plans	10/15/24	1. Phased Project for Millwork Install? How Many? When do they Start & Complete? 2. Any special delivery times or requirements? 3. Elevator/Hoist available?	1. Please reference the project schedule where it references Start Finishes. 2. No specific delivery requirements other than what is shown on the logistics plans. Each delivery will have to be coordinated/ scheduled with the TCCO super. 3. No elevator/ Hoist available- However there will be access to the second-floor level through the back of the building as it is on grade.	10/15/2024	JM-Turner		Closed	10/16/2024
134	Turner	098416	10/15/24	Does ADC1 found in Spec Section 098416 belong to bid package #22 – Acoustical ceilings?	Yes ADC1 is part of the BP#22 Ceilings package.	10/15/2024	JM-Turner		Closed	10/16/2024
135	Turner	098416	10/15/24	BP#22, Line 18 refers to Spec Section 098416 for SAC1 locations. SAC1 is found in Spec Section 098430. Please Clarify.	BP#22 Ceilings shall furnish and install all Sound absorbing ceiling panels. BP#18 Millwork will install all sound absorbing Wall panels.	10/15/2024	JM- Turner		Closed	10/16/2024
136	Turner	098416	10/15/24	Is BP #22 responsible for work shown in Spec 098416?	Spec section 098416 Fixed Sound Reflective Panels is a shard spec section between BP#22 Ceilings and BP#18 Millwork. See specific scope of work for clarifications.	10/15/2024	JM- Turner		Closed	10/16/2024
137	Turner	098416	10/15/24	Which bid package is responsible for ceiling type ADC1?	Yes ADC1 is part of the BP#22 Ceilings package.	10/15/2024	JM-Turner		Closed	10/16/2024
138	SLAM	A901C	10/15/24	Is AWP8 only to be installed on 2 walls in room #'s 1059 and 1061?	See bidder question #10 response	10/28/2024	SLAM		Closed	10/31/2024
139	SLAM	A901D	10/15/24	Finish plan on A901D calls for AWP11 in rooms 1119 & 1110 while the finish schedule calls for AWP8 in practice rooms. Which is the correct?	The wall panel is tagged incorrectly on the plan and should be AWP8 as noted on the Finish Product List	10/28/2024	SLAM		Closed	10/31/2024
140	SLAM	A901D	10/15/24	Are AWP panels in rooms 1119 and 1110 to extend floor to ceiling?	Practice Rooms get full height/width AWP on walls noted on Finish Plan	10/28/2024	SLAM		Closed	10/31/2024
141	SLAM	095100	10/15/24	Finish schedule on A9111 specifies USG 88983 for APC2. This tile does not have the NRC value specified in Spec Section 095100. USG 86258, however, does meet the specified NRC value. Should 86258 be used instead of the specified 88983?	Revise to be USG # 86258	10/28/2024	SLAM		Closed	10/31/2024
142	SLAM	098416	10/15/24	The finish schedule lists a USG Geometrix product for ADC1 while Spec Section 098416 lists a Kinetics product. Which is correct?	The manufacturer listed on A911 is incorrect and should be Kinetics as listed in the specifications.	10/28/2024	SLAM		Closed	10/31/2024
143	SLAM	A911	10/15/24	Are perforations and acoustical felt required for ADC1 panels?	Perforations and acoustical felt are not an option for ADC1	10/28/2024	SLAM		Closed	10/31/2024
144	SLAM	A910	10/15/24	The finish schedule lists a specification for AWP7. No AWP7 panels can be located on the architectural drawings. Is this specification relevant to this project?	AWP7 is not used.	10/28/2024	SLAM		Closed	10/31/2024
145	Turner	Logistics Plans	10/15/24	Regarding the debris netting on the Turner Logistics Plans - A site bidder asked what is this 12'-15' feet debris netting? Is this 4 more feet on top of the fence w/ driving range style golf protection? How high? 12 or 15?	This is additional protection on top of the 8ft construction fence for the egress door on that side of the building. It can be an extension of the fence posts, provided it works, or a separate system. Spacing that would prevent a golf ball size object should be sufficient. The height should be 15 feet.	10/15/2024	JAC - Turner		Closed	10/16/2024

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
146	SLAM	34 0000	10/16/24	Sitework Bid Package includes spec. 34 0000 – Transportation. Can you please clarify are we to trench and backfill for the electrical package or do we own furnish and install of all aspects of the traffic control signal plans? Turner Follow-up (10/21/24): SLAM please provide electrical design for traffic control devices that require power.	Turner Response (10/21/24): Sitework Bidder (BP #09) shall trench and backfill for power requirements, and Electrical Subcontractor (BP #38) shall be responsible for load carrying conductors, raceways and power connections, and Eversource Coordination. Sitework subcontractor shall furnish and install, solar panels, batteries any interconnecting or control wiring for these systems. Turner Updated Response (10/24/24): See updated TC202 issued in Addendum #3	10/22/2024	JAC-Turner		Closed	10/24/2024
147	Turner	Logistics Plans & Sitework Scope	10/16/24	1. Please clarify the reference to 12-15'H debris netting requirements with 8'H driven temp fence. 2. Scope of Work 75 thru 77 - Please confirm this equipment will remain property of Sitework Subcontractor at end of project or if it is to be handed over to Turner/owner permanently? 3. Scope of work 88 - "This subcontractor shall furnish and install all rain gardens and swales..." Is landscaping package responsible for any planting? 4. Scopes of work for utility coordination references "this subcontractor shall include all fees..." Please confirm any new service or connection fees required by utility companies will be paid for by the owner. If this is not the case, please provide appropriate allowance or amounts for bidding purposes. 5. scope of work 123 and 124 - Confirm sitework is to furnish concrete bases, but all anchor bolts, conduit or other embedded items that may be required from other trades' lighting vendors, will be provided to sitework prior to precast.	1. See RFI Response #145 2. These will become property of the Town of Greenwich. 3. Landscaping Bid Package (BP #41) will be reponsible for Plantings. 4. This is will be sitework subcontractors (BP #09) responsibility to include the fees associated with utility tie-ins, tap fees and/or conection fees due to the utility company. 5. Anchor Bolts shall be funished and installed by Sitework Subcontractor (BP #09). Conduit inside concrete bases provided by Sitework Bid Pacakge shall be furnished and installed by Sitework Subcontractor. Furthurmore it is the Sitework Subcontractor's responsibility to cooridnate Anchor Bolt Size and Locations and conduit size and location with Electrical Subcontractor (BP #38 & 39). Additionaly, sitework subcontractor to include delegated design of footings, per the contract documents, including the anchor bolts.	10/16/2024	JAC-Turner		Closed	10/16/2024
148	Langan	28213	10/16/24	Specification Section 028213-1.6 notes that the contractor is to provide Testing Lab Services for asbestos abatement. Please clarify what the extent of these services would be and how this differs from the Testing Lab Services provided by Langan and the Owner.	Contractor is to submit information for laboratories they use for OSHA personal air sampling analysis (asbestos and PCB) as well as additional laboratory information if they are going to send any disposal TCLP samples out for analysis.	10/28/2024	Langan		Closed	10/31/2024
149	Langan	28432	10/16/24	Specification Section 028432-1.6 notes that the contractor is to provide Testing Lab Services for PCB remediation. Please clarify what the extent of these services would be and how this differs from the Testing Lab Services provided by Langan and the Owner.	Contractor is to submit information for laboratories they use for OSHA personal air sampling analysis (asbestos and PCB) as well as additional laboratory information if they are going to send any disposal TCLP samples out for analysis.	10/28/2024	Langan		Closed	10/31/2024
150	Turner	PSU001	1/16/24	Drawing PSU001 shows the 4" fire protetion line up to Fire Dept. Connection by DIV 21, but Turner's scope of work assigns this to sitework subcontractor. Please clarify	Sitework Subcontractor (BP #09) is responsible for this scope outside of the building up to 5 feet from the building. Itis their responsibility to be licenced to install this scope of work. Fire protection subcontrator (BP #35) will be rsponsible to bring this, and other fire protection services, from 5 feet outside the building into the building including providing the foundation penetration or sleeve / link seal.	10/16/2024	JAC- Turner		Closed	10/16/2024
151	Turner	Scope of Work	10/16/24	Sitework Scope Of Work #133, Furnish & Install Vertical Foundation Insulation Spec. Section 07 21 00; Thermal Insulation; Details 3A/A501 and 5E/A501. Please confirm that BP #14 - Waterproofing is responsible for the 3" thick rigid insulation as shown in details 3A & 5E/A501	The sitework bid package shall be reponsible to furnish and isntall the rigid insulation as described in scope of work item 133 and shall also be responsible to furnish and install the rigid insualiton per details 3A and 5E on drawing A501.	10/22/2024	JAC- Turner		Closed	10/21/2024

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152	Turner	Scope of Work	10/16/24	Sitework Scope Of Work #70 states...'This contractor shall furnish, install and maintain asphalt millings, including removal for 50' around perimeter of the building. Does this mean 50 feet in width around the perimeter?? Many areas do not have 50 feet in width available.	The Intent is that the Sitework Subcontractor shall be responsible for providing a uniform and level compacted grade around the building perimeter suitable for the support of scaffolding and lifts. The 50 foot dimension may be deviated from if any obstruction such as a retaining wall, temporary fence, buildiung or similar obstruction exists, however if the 50' dimension is acheiveable, this uniform level comacted grade with millings shall be provided by the Sitework Subcontractor.	10/22/2024	JAC- Turner		Closed	10/21/2024
153	Turner	Scope of Work	10/16/24	Sitework Scope Of Work #28 - Turner's Site Trailer, paragraph (a), refers to 'plans for layout and furniture requirements. Please provide plan for the trailer and the wood platform/stairs.	See attached Layout within BQ Attachments for trailer layout.	10/22/2024	JP - Turner	Yes - Trailer Layout	Closed	10/22/2024
154	SLAM	TC Series	10/17/24	TC Drawings show Solar Powered Rapid Flashing Beacons and specification 344114 page 19, mentions hardwired 100-240VAC connections but no electrical scope is shown on the contract documents for the hardwired connection. Please confirm these units are only solar/battery and no line voltage connection is required. If line voltage is required please provide the electrical information	Confirmed, these units are to be solar powered. No line voltage is required.	10/22/2024	T&B		Closed	10/24/2024
155	Turner	Scope of Work	10/17/24	What bid package is required to wire the rapid flashing beacon	Sitework subcontractor (BP #09) shall be reponsible for all wiring with the exception of line voltage that may be required per RFI#154's response. If line voltage power is required then pathways, conductors, termination, & testing shall be furnished and installed by the base electrician (BP #38). Trenching, backfill, etc. will be by the site contractor (BP #09).	10/16/2024	JAC- Turner		Closed	10/16/2024
156	SLAM	TC Series	10/17/24	TC Drawings show radar speed display and indicate a hardwired connection. No electrical scope is sown on the CDs. If line voltage is required for radar speed display please provide the electrical information	See the revised TC202 in Addendum No. 3	10/22/2024	T&B		Closed	10/24/2024
157	Turner	Scope of Work	10/17/24	What bid package is required to wire the Radar Speed Display?	Sitework subcontractor (BP #09) shall be reponsible for all wiring with the exception of line voltage that may be required per RFI#156's response. If line voltage power is required then pathways, conductors, termination, & testing shall be furnished and installed by the base electrician (BP #38). Trenching, backfill, etc. will be by the site contractor (BP #09).	10/16/2024	JAC- Turner		Closed	10/16/2024
New Bidder's Questions as of 10/16/24 Issuance										
158	SLAM	A311	10/17/24	Exterior elevations Dwg A311, grraphic legends, calls for Masonry Expansion Joint (MVEJ) detailed on 1B/A502. No 1B/A502 exists. Was this detail intended to be detail 1C/A502, Typical Masonry Veneer Movement Joint Detail?	Yes, 1C/A502 was the intended detail. 1C will be renumbered to 1B in the confromed set.	10/22/2024	SLAM		Closed	10/24/2024

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
159	SLAM	07 9513	10/17/24	Specification section 07 9513-2.2 I and 2.2J call for Exterior expansion joint types, however, no designation is provided. Please provide designation of this type of Joint and where it would be located on the contract drawings. **Turner Follow-up (10/24/24):** 1) Please confirm that by "AL" series, you are referencing the Architectural Layout Plan drawings. 2) AL series (example: AL102E) calls for "Roof to Wall Expansion Joint" and Architectural Roof Series (example: A103A) calls for "EJ." No designation for this expansion joint is called out that keys it to the associated Expansion Joint Spec (i.e. Exterior Wall Non-Fire Rated or Exterior Wall Fire-Rated Expansion joint). Please clarify what type of exterior wall expansion joint is required in coordination with the specs.	Refer to "AL" series, wall sections and section details for expansion joint types and details.	10/22/2024	SLAM			
160	SLAM	01 4000	10/17/24	Please provide Statement of Speical inspections identifying the scope of owner testing requirements and frequency for coordination with trade subcontractors. (i.e. Concrete, Masonry, Steel)						
161	Turner	32 1613.23 & 321640	10/17/24	BP #9 scope of work exclusion #6 states we should exclude all curbing unless otherwise indicated. Listed under exclusive specifications in the scope of work for BP#9 is precast concrete curbing (321613.23) and granite curbing (321640). Please advise as to who owns the curbing (BP#9 or BP #40).	Granite Curbing and Pre-Cast Concrete Curbing shall be furnished and installed by the Sitework Subcontractor **SLAM Follow-up Response (10/23/24):** See the revised TC202 in Addendum No. 3 for Asphalt curbing detail, which shall be furnished & installed by the sitework subcontractor (BP #09).	10/23/2024	JAC/Turner		Closed	10/24/2024
162	SLAM	32 1613.23 & 321640	10/17/24	There is no precast concrete curb shown on the plans nor is there a detail. Please confirm that all curbing is to be granite.	All curbing is granite, as shown on the drawings	10/28/2024	SLAM		Closed	10/31/2024
163	Turner	03 6213	10/17/24	Is masonry to provide non-metallic non-shrinking grouting at the steel column and base plate locations?	The grouting at steel column and base plate locations to be furnished and installed by BP#10 Concrete.	10/17/2024	BM/Turner		Closed	10/17/2024
164	SLAM	A606	10/17/24	Drawing A606 seems to provide both Masonry and steel lintel schedule for masonry openings. Can either option be used at contractor choice for openings or are there specific areas that require masonry lintels and others that require steel?	Contractor Choice. **Turner Follow-up Response (10/24/24):** Masonry subcontractor (BP #11) to furnish & install all masonry or steel lintels indicated on the lintel schedules.	10/22/2024	SLAM		Closed	10/24/2024
165	SLAM	A911	10/17/24	a: Finish Product List A911 calls out “9/16” DXL grid”. USG DXL grid is 15/16”. Please confirm USG DXT 9/16” grid should be utilized for APC-1-4. b: Finish Product List A911 APC-1,3,&4 states 70% recycled content. Please confirm if this is in reference to the tile recycled content, or if high recycled content grid is required?	a. Use 9/16 " DXT Grid b. Recycled content is specifically for the tile not the grid	10/28/2024	SLAM		Closed	10/31/2024
166	SLAM	3A/A520	10/17/24	Details 3A & 4C on A520 seem so show AVB below the window in the cavity behind the insulation at the expansion joint locations. (shown as dashed line). There also appears to show AVB outside of the vertical plywood also at the joint location. Please clarify if there is AVB at both locations or if the dashed line shown outside the plywood is part of the expansion joint. Also, where does the AVB behind the thermal insulation terminate, or confirm it terminates it terminates at the blocking at the steel beam/blocking at SOD?	Refer to revised details in Addendum No. 3	10/22/2024	SLAM			
167	SLAM	A911	10/17/24	Substitution request for Certainteed products in lieu of USG. See attached RFI 167 request form. **Turner Follow-up (10/31/24):** If "approved as noted" please provide the associated notes in the BQ response.	Certainteed is Approved as Noted	10/28/2024	SLAM	yes - substitution request		

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
168	SLAM		10/17/24	Please advise if the roof joists at the Gym & Auditorium, which are a delegated design, need to account for the loads imposed by a future PV system. If so, please provide those future PV loads that need to be incorporated into the joist design. **Turner Follow-up (10/31/24):** Please confirm that there are no local point loads imposed by the future PV system that needs to be accounted for in the joist delegated design.	See drawing S302B for joist loads. These include PV panel loads.	10/28/2024	SLAM			
169	SLAM	SOW	10/17/24	Acoustical Ceiling SOW #22 states “This Subcontractor shall design, furnish & install an independent support system for all hung equipment, fixtures, ceiling and piping system that are directly below the metal roof deck. This support system must attach to structural steel framing members as the metal roof deck cannot be utilized for support. Refer to A200 series drawings General Note #12 for criteria.” Note #12B states “a. ACOUSTIC CEILING SYSTEMS (ACT TILES, ETC.) WEIGHING LESS THAN 5 LBS/SF AND HUNG AT 4'-0" O.C. BOTH DIRECTIONS. b. SINGLE LAYER GYPSUM BOARD CEILING SYSTEMS WEIGHING LESS THAN 5 LBS/SF AND HUNG AT 4'-0" O.C. BOTH DIRECTIONS.” Is it acceptable to hang ACT and GWB ceilings from the roof deck?	As long as the ceilings being provided meet the Note A and Note B criteria listed in the question.	10/22/2024	SLAM		Closed	10/24/2024
170	SLAM	3B/A522	10/17/24	Please confirm that the vapor barrier at the skylight system notes to flap to inside face of curb is not required to lap to termination bar at roofing termination. **Turner Follow-up (10/24/24):** Please provide updated details.	The VB has been modified and reissued in Addendum No 4	10/28/2024	SLAM		Closed	10/31/2024
171	SLAM	A126, A911	10/17/24	Drawing A126 does not have any interior layouts of the interior of the elevator cab walls and/or ceiling. Finish drawing A911 calls for Wilsonart Panels, clarify if this is for full height? are rails and/or base required? **Turner Follow-up (10/24/24):** Please provide elevator interior cab elevations, details, and RCP.	Spec section 14 2100, 2.10-A-4 calls out a recessed stainless steel wall bse.	10/22/2024	SLAM			
172	SLAM	5B/A805	10/17/24	Detail 5BA805 shows the overall height of the locker and enclosure at 3’-5 ½”. This includes the 4” high Z base and the thickness of the enclosure top. Subtracting the height of the Z base this leaves a total dimension of 37 ½”. The locker itself would need to have an overall height of 37 1/32” leaving 15/32” for the top of the enclosure, and the slight gap between the locker and the top. Is this acceptable?	Detail has been revised in Addendum 4	10/28/2024	SLAM		Closed	10/31/2024
173	SLAM	Speciifcation 105113 2.2 A .8	10/17/24	Speciifcation 105113 2.2 A .8 states to provide sloped top to the extent indicated on drawings. The Corridor Lockers as seen on drawing A111.13 Elevations 4C,4D,4E, & 4F do not show sloped top. Is there supposed to be sloped top for these lockers?	No Sloped tops	10/22/2024	SLAM		Closed	10/24/2024

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174	Turner	Scope of Work & Procurement Manual	10/17/24	1.General Trade Requirements for BP12 - Structural Steel, #7 - will the erectors foreman suffice as representation for the full-time superintendent at the jobsite? 2.Scope of Work BP12 – Structural Steel; #50, can the requirement to furnish and install bituminous paint be removed from this bid package? 3.Scope of Work BP12 – Structural Steel; #63, can the requirement to furnish and install the spray-applied insulative coating system be removed from this bid package?	1. This will be acceptable assuming the foreman has decision making authority for the prime steel contractor. The prime steel contractor must have their own dedicated project manager assigned to the project. And Turner reserves the right to request a full time on-site superintendent from the prime contractor at Turner's discretion, especially if their sub tier is not performing the role accordingly. ~~2. This scope of work item will remain with Structural Steel BP #12.~~ See follow-up response below. 3. This scope of work item will remain with Structural Steel BP #12. **Turner Follow-up Response (10/21/24):** 2. Bituminous paint shall be excluded from the steel subcontractor's scope (BP #12). The concrete subcontractor (BP #10) shall furnish & install the required concrete cover in lieu of bituminous paint. For example, see detail 4 on S200.		CL/Turner		Closed	10/21/2024
175	JLL	MEPD000 & MEPD001	10/18/24	Please advise if there are any existing electrical feeds that originate from the Existing School, which is slated for demolition, that need to remain energized or be re-circuited from another source prior to demolishing the existing school. **Turner Follow-up (10/24/24):** JLL please provide this information per SLAM's response.	Any existing electrical feeds originating from existing school to remain or be recircuited to be identified by Greenwich Public Schools.	10/22/2024	CES			
176	SLAM	SU100 & TY301	10/18/24	Detail 7 on TY301 shows a pole mounted secuitry camera. TY100 shows locations of these cameras. They seem to align with SL-3 & SL-4W site lighting fixtures on SU100. Is the intent that the cameras are mounted to the light fixture poles, or are they independent poles?	Cameras are to be mounted to light fixture poles.	10/22/2024	DA		Closed	10/24/2024
177	Turner	Procurement Manual	10/18/24	Please advise if Misc. Metals (BP #13) is a set aside package.	Yes, BP #13 is a set aside package. See the "Invitation to Bid" for a full list of all set aside bid pacakges.	10/18/2024	CL/Turner		Closed	10/18/2024
178	SLAM	12 6100	10/18/24	With regards to specfication section 126100, Subsection 2.2.B.3. To achieve this test, requires treatment of the fabric before it is placed on the chair assembly and then the mock-up is burned. This process is best referred to as CAL 133 (California Bulletin 133). The treatment of the fabric has been determined to have cancer causing agencies. Because of this, CAL 133 is being eliminated. Can this portion of the specification to be omitted?	In lieu of compliance with ASTM E1537, upholstery materials shall comply with requirement set forth in California Bureau of Home Furnishing Technical Bulletin 117-2013 ("TB-117").	10/22/2024	SLAM		Closed	10/24/2024
New Bidder's Questions as of 10/18/24 Issuance										
179	SLAM	C506	10/18/24	Sanitary details on C506 show flexible coupling adapters at existing sanitary sewer lines. Note #13 on C301 calls for "Fernco" syle shield couplings with hardware requirements. Confirm Sitework subcontractors are to follow the noteson C301 in lieu of the details provided.	"Fernco" style shielded couplings shall be used for pipe-to-pipe connections. Details and specifications have been revised in Adendum No. 4 to clarify.	10/29/2024	Tighe & Bond		Closed	10/31/2024
180	Turner	Scope of Work & Procurement Manual	10/21/24	Who is responsible for the stone mulch to furnish and install?	Per the Landscapeing scope of work see exclusion#9. The Sitework contractor (BP #09) will furnish & install the stone mulch.	10/21/2024	Turner		Closed	10/21/2024
181	BC	Procurement Manual	10/21/24	Can the construction Start time be udjusted to 6 a.m. start Monday-Saturday in lieu of the current 7 a.m. start time?	Reference Greenwich Code of Ordinances, Chapter 6B Noise for requirements.				Closed	10/21/2024

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
182	SLAM	08 4313 & A611	10/21/24	Aluminum Storefront spec (08 4313) states the doors to be 2" thick where the door schedule (A611) calls for the doors to be 1 3/4" thick. Thermal doors are in actuality 2 1/4". Please confirm to follow the Aluminum Storefront specification for door thickness.	Follow the specification. Product data for the basis-of-design thermally broken EFCO Thermastile D502 indicates that these are 2" thick doors. However, it's understood that thermal door thickness may vary slightly from manufacturer to manufacturer. The 2" dimension may be considered a nominal dimension. The BOD interior doors – EFCO Durastile D518 -- are also 2" thick doors. Similar slight variations in these doors are also expected/acceptable.	10/29/2024	SLAM		Closed	10/31/2024
183	SLAM	TA Series	10/21/24	Please confirm that ceiling mounted AV components in spaces other than the Gym, Cafeteria, & Auditorium will be furnished and installed by the Owner, including their associated support systems. For example, S1 speakers, S2 Speakers, and Plenum Enclosures.	S1 speakers, S2 speakers, and Plenum enclosures will be furnished and installed by Owner, including support systems.	10/29/2024	DA		Closed	10/31/2024
184	SLAM	T Series	10/21/24	Please confirm that Owner furnished WAPs will not require backboxes or supports provided by the Low Voltage subcontractor (BP #39).	Ceiling mounted AP's do not require backbox. Wall mounted AP's do require backbox. Refer to T301/12 & 13.	10/29/2024	DA		Closed	10/31/2024
185	SLAM	T Series	10/21/24	Please confirm it is accepable to use plenum rataed cable supported by J-hooks in areas with "cloud" ceilings for low voltage & security cabling. **Turner Follow-up (10/31/24):** Please confirm that this is acceptable at ares with "Cloud" ceilings also	Low voltage cabling shown on the T series may be run above accessible ceiling in J-Hooks.	10/29/2024	DA			
186	SLAM	E700	10/21/24	Per Note E2 on E700, the electrician (BP #38) is to wire a remote EPO pushbutton for the Generator. Please advise where this EPO is located.	EPO located adjacent to switchboard, generator annunciator panel located in custodial work room per Addendum No. 4.	10/30/2024	CES		Closed	10/31/2024
187	SLAM	TA000	10/21/24	The new responsibility matrix issued in Addendum #2 lists the Gymnasium twice under Section #7 "AV Systems". Please confirm that one of these references was intended to be "Auditorium" instead.	One of these is intended to be Auditorium	10/29/2024	DA		Closed	10/31/2024
188	SLAM	14 2100	10/21/24	Please confirm that the elevator shaft walls were designed to be capable of supporting the elevator rail, entrance, & hoist beam loads imposed. There doesn't appear to be any support steel called for in the drawings. However, the revised 14 2100 spec section issued in Addendum #2 indicates elevator entrance and rail support steel to be a delegated desgin. Please advise. **Turner Follow-up (10/31/24):** If the CMU elevator shaft walls were designed to take the loads imposed by the rails, then please confirm that elevator rail support steel is not needed in addition to the CMU walls.	Confirmed. All steel in the elevator section is by the elevator manufacturer and is to be included in their dlegated design for there elevator.	10/28/2024	SLAM			
189	SLAM		10/22/24	For site pavers, Unilock Artline has (7) different sized blocks. Can you please clarify what size is required?	Please use Unit G – 7 ½" x 17 ¾" x 2 ¾". Specification Section 32 1400 has been updated accordingly and issued with Addendum 4	10/29/2024	SLAM		Closed	10/31/2024
190	SLAM	S002	10/22/24	The decking schedule on S002 calls for the decking to be attached with puddle welds. The 053100 Steel Decking spec calls for roof deck and floor deck to be fastened with powder actuated fasteners. Which is correct?	Either is acceptable. Spec calls for fastening per Drawings. If PAF's are used they need to be fastened for the equivalent strength of the values given in the schedule as noted in Section 05 3100 2.3.E.2.	10/28/2024	SLAM		Closed	10/31/2024
191	SLAM	GC12, GC13	10/22/24	Per GC12 and GC13 there are multiple members including top chord joist extensions that require multiple coating systems - intumescent paint, galvanizing, and the 3-coat fluid applied insulative coating, or a combination thereof. Please provide detailed instructions as to the process, steps and sequence these different multiple coating systems are to be applied.						

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192	Turner	Procurement Manual	10/22/24	Which bid package is responsible for the pony wall and anchors in detail 7/S210?	Per the Turner Scope of Work Documents, the General Trades subcontractor (BP #21) shall furnish & install all engineered posts and attachments for Pony Walls, for an example see 7/S210.	10/23/2024	CL/Turner		Closed	10/23/2024
New Bidder's Questions as of 10/23/24 Issuance										
193	SLAM	113013	10/23/24	Specificaiton section 11 3013 does not provide a model for EQ02 Frigidare. Also, Models provided for EQ01 - Refrigerator, EQ06-Cloths Washer, EQ07-cloths dryer and EQ08-Range are discontinued. Provide currnet models for inclusion.						
194	Turner	General Scope Delineation	10/23/24	If a Turner scope of work line item, or Bidder Question response, contradicts the scope delineation identified by the Design Team in the contract documents, how should the bidders handle this?	In general, if a conflict or contradiction exists between a Turner Scope of work line item (or Bidder Question response) and the scope delineation identified by the Design Team in the contract documents, then the Turner Scope line item and/or Bidder Question response shall govern.	10/23/2024	CL/Turner		Closed	10/23/2024
195	SLAM	Structural & Architectural Series	10/23/24	Please verify what steel, if any, should be treated as AESS.	There is no AESS steel on this project.	10/28/2024	SLAM		Closed	10/31/2024
196	SLAM	Structural Series	10/23/24	Please confirm that only the Gym roof will be acoustical cellular deck.	Confirmed	10/28/2024	SLAM		Closed	10/31/2024
197	SLAM	A315	10/23/24	Please advise if any steel supports will be required for the mock-up shown on A315. No steel is currently shown. **Turner Follow-up (10/31/24):** Please provide the steel support requirements and design for the mock-up as this is not a delegated design.	See note on 4E/A315, contrcator to coordinate steel support requirements for mock-up	10/28/2024	SLAM			
198	SLAM	GC11	10/23/24	Please confirm that the only colored galvanizing required is for the HSS canopy columns shown on GC11.	Confirmed	10/28/2024	SLAM		Closed	10/31/2024
199	SLAM		10/23/24	There appear to be cast in place concrete curbs in details but none shown on the site plans. Please clarify if any curbs are cast in place and provide the locations	All curbing to be granite, per Town of Greenwich. Cast-in-place curbing specification has been removed from the project manual with Addendum 4 to eliminate confusion.	10/29/2024	SLAM		Closed	10/31/2024
200	SLAM	Site Material Plans	10/23/24	Site Plans show several locations that appear to be curbs. There is no GC designation on these curbs, if all curbing is granite curbing, please identify the Curbs with GC designation or clarify the curb type.	As noted in item 199 and 162, all curbing to be granite.	10/29/2024	SLAM		Closed	10/31/2024
201	SLAM	L501 & L202A	10/23/24	Detail 1C on L501 calls for curbs (See detail) but doesn't specify a curb type. Material Plan L202A doesn'tshow curbs at the 1C poruos bituminous pavement. Please clarify this discrepncy. **Turner Follow-up (10/31/24):** Please confirm that the revised detail 1C on L501 shall utilize granite curbs.	Transitions from one type of bituminous pavement to another (porous, regular duty, heavy duty) do not require curbing. Detail will be added to show this condition and L202A and L202B plan drawings will be updated in Addendum 4.	10/29/2024	SLAM			

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202	SLAM	GC0A	10/23/24	There appear to be more spec sections that have delegated design language within them than what is listed in the delegated design table on GC0A. Below is a list of examples we have found. Please advise and please provide a revised table that includes all delegated design required for the project. 110610 - Stage Rigging & Curtains 142100 - Electric Traction Elevators 220516 - Expansion Fittings and Loops for Plumbing 22 1123 - Fuel Gas Piping 23 0516 - Expansion Fittings and Loops for HVAC Piping 23 0900 - Instrumentation & Controls for HVAC 23 3100 - HVAC Duct & Casings 23 5100 - Breechings, Chimneys, & Stacks 27 0536 - Cable Tray for Communication Systems 276010 - Emergency Responder Radio Coverage System 28 0528 - Pathways for Security Systems 312300 - Excavation, Backfill, Compaction, & Dewatering 316616 - Aggregate Piers 32 3120 - Vehicle Barrier Gates 334419 - Stormwater Treatment System					
203	SLAM	08 5653	10/23/24	The new spec section 08 5653 issued in Addendum #2 appears to be a sole source for Armortex. Please confirm that this is acceptable with the State.	SLAM email response (10/23/24): The way the spec is written we have provided a BOD and allow for a substitution, this is not a sole source item.	10/23/2024	SM/SLAM		Closed	10/23/2024
204	Turner	A805	10/23/24	Who owns the Locker toe kicks and low wall framing / plywood ?	Locker bases by the locker subcontractors BP29. The low wall framing and plywood will be by Drywall & General Trades BP21.	10/23/2024	JM/ TCCO		Closed	10/23/2024
205	Turner	Procurement Manual	10/23/24	Please confirm if the steel subcontractor (BP #12) or Misc. Metals subcontractor (BP #13) should provide debris nets at shaft openings and stair openings.	The steel subcontractor (BP #12) shall furnish, install, and maintain the debris at all shaft and stair openings per the Turner Scope of Work Document. The steel subcontractor (BP #12) shall remove nets when directed by Turner for other trades to complete their work at shafts and stair openings. The scope of work document for Misc. Metals (BP #13) will be updated to reflect this.	10/23/2024	CL/Turner		Closed	10/23/2024
206	Turner	Procurement Manual	10/24/24	looking at BP#40 for concrete flatwork and noticed a potential scope overlap. BP#9 SOW 120 notes that this package owns furnish and install of concrete pads for generators. BP#40 SOW 16 notes that this package owns all exterior pads including but not limited to the generator pad. Which package should it fall under?	BP#40 - Concrete Flatwork shall furnish and install concrete pads for Transformer(s), Generator(s) and Gas Meter(s). BP#9 Sitework shall exclude furnish and installing these concrete pads. BP#9 Sitework Scope of Work will be updated to reflect this.	10/24/2024	JAC/Turner		Closed	10/24/2024
207	SLAM	1B/ A805	10/24/24	Detail 1B/A805 notes TRM4 at wallcovering. TRM4 is trim that is called out for tile edges. Should this trim be TRM1 being that it is at the edge of wallcovering?						
208	SLAM	21 0433 / 210533	10/24/24	The new spec section 21 0433 states that the Heat Tracing for Fire Suppression to be delegated design, however 21 0533 - Heat Trace for Plumbing does not have delegated design. Please confirm that only Fire Protection needs to be delegated design and if so please add the specification to GC0A - Code Information						
209	CES	26 26 53	10/24/24	Please confirm if the installing Subcontractor for the electric vehicle charging equipment is required to be a licensed installer with the manufacturer as well as if the charging equipment itself needs to be registered nationally or on a State level.	The installing sub (BP #38) will be required to be factory trained.	10/30/2024	CES		Closed	10/31/2024

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210	SLAM	122401	10/24/24	Please confirm if it acceptable to provide the window shades per the attached Substitution Request Form.	Not Approved - doesn't meet the same level of quality of the BOD and the project specification list 4 acceptable manufacturers	10/30/2024	SLAM	yes - substitution request	Closed	10/31/2024
211	SLAM	A805	10/24/24	Acoustical Panels- Detail 1A/A805 calls for 1-5/8" thick panels, Detail 3B/A805 calls for 3/4", Finish Schedule calls for 1-1/8". Please advise which prevails.	1-1/8", as noted on the finish schedule is the correct panel thickness. A805 has been reissued in Addendum 4	10/29/2024	SLAM		Closed	10/31/2024
212	Turner	Coordination Matrix	10/24/24	Please provide a Responsibility Matrix for the Electrical Gear.	Please refer to the coordination matrix provided in Addendum #2.	10/24/2024	CL/Turner		Closed	10/24/2024
213	JLL	276010	10/24/24	Please confirm what kind of system is needed for the DAS System (i.e. UHF, VHF, 700/800). **Turner Follow-up (10/31/24):** JLL please provide direction.	Frequencies required for the BDA system have not been provided by the town to the design team - this will need to be coordinated as part of constrcution.	10/30/2024	CES			
214	CES	EL101D	10/24/24	There are two closets on the first floor of part D (1119 & 1120) that show switches but no light fixtures. Please advise on the fixture type & quantity required.	Light fixtures in room 1119 and 1120 are shown in addendum 2	10/30/2024	CES		Closed	10/31/2024
215	Turner	Masonry Scope	10/24/24	BP 11 Masonry Scope Item 17 states "Trade Allowance: 80 hours of labor time for 5S…". Please clarify "5S".	Reference Procurement Manual Item #03 - Boiler Plate Additonal Provisions for all Subcontractors (page 3U for "5S"). 5S stands for "Sort, Straighten, Shine, Standardize, & Sustain".	10/25/2025	CL/Turner		Closed	10/25/2024
216	Turner	Masonry Scope	10/24/24	BP 11 Masonry Scope Item 43 indicates to "Furnish and Install Sealant at…….attachments that penetrate the air/Vapor Barrier". Please confirm this applies only to attachments/fasteners required by the work of BP 11, and other attachments/fasteners will be sealed by the trades requiring the attachments.	The Mason (BP #11) is responsible for furnishing and installing sealant at ALL through-wall penetrate and attachments that pentrate the AVB regardless of trade whom installs item that pentrates the AVB. Trades with penetrations through AVB to coordinate and install penetration prior to install of AVB.	10/28/2024	BM/Turner		Closed	10/31/2024
217	Turner	Masonry & Drywall Scope	10/24/24	BP 11 Masonry Scope Item 32 indicates the mason is responsible to furnish and install top of wall anchors as shown on Detail 1B/A605. However, BP 21 Drywall & General Trades Scope Item 77 indicates the General Trades contractor is responsible for all the CFMF 12 GA clips and sheet metal at tops of masonry walls per Details 1C and 1B on A605. Please advise which Bid Package will own these details at the tops of CMU walls.	The Mason (BP #11) is to furnish and install top of wall anchors and plate to support masonry walls per scope of work item 32. Dyrwall & General Trades (BP #21) scope will be updated to exclude furnish and install top of wall anchors for masonry walls. BP 21 to furnish and install beam support at walls including stude brace and bent plate.	10/28/2024	BM/Turner		Closed	10/29/2024
218	SLAM	07 6200	10/24/24	The specification for Masonry through wall flashing and separate drip edge (Section 076200) is for stainless steel with No. 2D-Dull Finish. There are notes on the elevation drawings indicating "Flashing Color To Match Stone" (ex. 1E/A-311). Details indicate the drip edge is flush with the face of stone and does not protrude out of the wall. Please confirm the SS through wall flashing and drip edge are not colored. **Turner Follow-up (10/31/24):** Please confirm the Stainless Steel is not colored.	Flashings are to be Stainless Steel with a hemmed edge as detailed on A502.	10/28/2024	SLAM			
219				BQ NOT UTILIZED						
220	SLAM	A311 & A502	10/24/24	Please provide a specification and basis of design for the 8" HIGH LIMESTONE BASE (1E/A-311 and 3E/A-502).	04 4313 Specification Section has been added to Addendum No 4	10/28/2024	SLAM		Closed	10/31/2024
221	SLAM	A500	10/24/24	Ref. TYPICAL EXTERIOR ELEVATIONS on A-500: In Assembly Type 06 (3B/A-500) the wall brackets are thermally broken. Do the anchors for the stone veneer in Assembly 01A (5B/A500) also need to be thermally broken? If yes, what is the thermal break material?	No, provide specified anchor system	10/28/2024	SLAM		Closed	10/31/2024
222	SLAM	Drawing Addendum	10/24/24	Reviewing the updated Addendum #2 drawings, can you confirm all of the changes to the drawings have been clouded?	All drawings are clouded and tagged to associated Addedndum's	10/28/2024	SLAM		Closed	10/31/2024

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
223	SLAM	Geotech Report	10/25/24	Sitework Bidders I have marked up the area scheduled for removal of unsuitable materials and have plotted the boring information from the available boring logs included in the report. The problem is that many of the borings located within the removal area are missing. Please provide the missing borings or provide assumptions sitework bidders may use to complete their takeoff as siteowrk bidders cannot accurately determine the quantity of unsuitable to be removed without this information as can be seen from the attached plan sheet. Specific needs include need TP03,06,07,09,10,12; and also TP 118, 119 and 120.	TP 03 through TP12 are included in the geotechnical report. See page 50-69 of the geotechnical report for test pit information. On Sheets C202, C203, C205, C206 in Addendum No. 4, TP 118 has been relabeled to TP 102, TP 119 has been relabeled to TP 110, and TP 120 has been relabeled to TP 111 . The addition of TP 112 and TP 113 have also been included in the geotechnical report on Page 18 with correspoding Soil Discriptions on pages 43 and 44 . See the geotechnical report for TP 101 through TP 113, see page 32-44 for test pit information. See supplemental Geotechnical Data for TP 101 through TP 120 data.	10/30/2024	Tighe & Bond		Closed	10/31/2024
224	SLAM	126100	10/25/24	Specification section 126100 Fixed Audience Seating Subsection 1.4.A. it refers to 01 3000 – Administrative Requirements and 1.4.J.1. refers to 01 6000 – Product Requirements, both of which mention CTHPB, which we believe FSC plywood is part of CTHPB. Do the chairs require FSC plywood inner back panels?	The applicable credit calls for at least half of wood and wood-based products to be FSC-certified for permanently installed items. If the 50% threshold can be met without using FSC-certfied plwyood seat panels, they are not required. See Section 01 3566.42 -1.1-E.2 for CM/contractor tracking and reporting responsibility.	10/29/2024	SLAM		Closed	10/31/2024
225	SLAM	126100	10/25/24	Specification section 126100 Fixed Audience Seating Subsection 2.2.2. E. Calls for Oval Mechanical Tubing. This is NOT the Traditional Standard as called out in 2.1.A.1.e. The Traditional Steel is more in line with most manufacturer's Steel Standards, which as rectangular Tubing, a.k.a. – Traditional design. Are Oval Standards required?	That description was taken directly from the Hussey guide spec Section 12610 with footer subtitle "Quattro Traditional Collection Specification", Rev. Date February 2016, page 12, Article A. As such we understood this to be the typical standard material/shape for this chair. If you are submitting a char by one of the other named manufacturers, use the manufacturer's standard tubing shape.	10/29/2024	SLAM			
226	SLAM	126613	10/25/24	Specification section 126613 Telescoping Bleachers Subsection 1.4.C. CTHPB is referenced, which we believe FSC plywood is part of CTHPB. Does the bleacher require FSC plywood decking?	See response to BQ# 224.	10/29/2024	SLAM		Closed	10/31/2024
227	SLAM	126613	10/25/24	Specification section 126613 Telescoping Bleachers Subsection 2.3.B.2 Calls for 3 tiers, however, drawing A111.4 is showing 4 tier. How many tiers are needed?	There are 4, as shown on the drawing - specifcation have been modified to account for the discrepancy	10/29/2024	SLAM		Closed	10/31/2024
228	SLAM	126613	10/25/24	Specification section 126613 Telescoping Bleachers Subsection 2.4.A Calls for UV Inhibitors. The drawings seem to show no windows. Are UV Inhibitors needed?	There is glazed aluminum curtain wall on the south elevation. UV inhibitors to remain.	10/29/2024	SLAM		Closed	10/31/2024
229	SLAM	126613	10/25/24	Specification section 126613 Telescoping Bleachers Subsection 2.4.A.6. Calls for Seat numbers and Row Letters. This is unusual for a bleacher used for general assembly. Are SN/RL's required?	Seat numbers and row letters are not required.	10/29/2024	SLAM		Closed	10/31/2024
230	SLAM	126613	10/25/24	Specification section 126613 Telescoping Bleachers Subsection 2.5.A.3. Calls for Top Row Rear Guardrails. This project only required End Rails, which the very top tier is included, therefore, the top rear rails is not required. Confirm this portion should be omitted.	Yes, omit. Bleachers will back right up to and attach to wall.	10/29/2024	SLAM		Closed	10/31/2024

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
231	Turner	Procurement Manual	10/25/24	What is the address Bids are to be sent?	Per invite to bid: All Bids shall be submitted in a sealed envelope with hard copies in duplicate (2 copies) by mail or in person to 290 Greenwich Ave, Greenwich CT 06830 The envelope shall be labeled by bid package number, GPS number and bid package description. Bidders submitting for multiple bid packages must submit each bid package sealed and labeled separately by bid package. Bids may be submitted at any time leading up to the specified due date and time, and will remain sealed until the specified due date and time. Turner Construction will be conducting a in person public bid opening at 290 Greenwich Ave, Greenwich CT. Bids received after the specified due date and time will not be allowed to be submitted.				closed	10/25/2024
232	Turner	09 8430	10/25/24	Clarification on spec section 09 8430 Sound absorbing wall and ceiling units.	Spec section 098430 Sound- absorbing Wall and Ceiling Units is a shared spec section between the ceiling bid package and the millwork bid package. BP18 Millwork shall be responsible for furnishing and installing all Wall sound absorbing panels and BP22 Ceilings shall be responsible for furnishing and installing all Ceiling sound absorbing panels.	10/25/2025	JM/ Turner		Closed	10/25/2024
233	CES	E604 & E607	10/25/24	There doesn't appear to be a panel labeled OSDPC or OSDPE in the E600 series. Are the two panels on E607 (OSP2C and OSP2E) mislabeled? Those panel designations also appear on E604. Please advise and revise accordingly.	OSDPC and OSDPE added to Addendum 4 drawings.	10/30/2024	CES		Closed	10/31/2024
234	Turner	E700	10/25/24	Please advise what manufacturer will be providing the Pre-Purchased Electrical Distribution equipment that is part of BP #05, and indicated in the BQ #118 prepurchased equipment list attachment.	The intent is for this electrical distribution equipment (i.e. switchgear, panels, transformers, etc.) to be manufactured by Eaton, except for the Generator & ATS's.	10/25/2024	CL/Turner		Closed	10/25/2024
235	CES	E700	10/25/24	Please adivse if all electrical equipment & devices throughout must be sourced from the same manufacturer as the pre-purchased electrical distribution equipment. For example, **FP-DS** is not part of the pre-purchased electrical distribution equipment. Note that the Generator and ATS-1 & ATS-2 will by a different manufacturer as part of Phase 1, BP #06. For reference, see the BQ #118 attachment for a list of the electrical distribution equipment that is part of the pre-purchased equipment (Phase 1, BP #05). Also, see BQ #234 for the intended manufacturer for the pre-purchased electrical distribution equipment.	The bulk of the prepurchase equipment, including disconnect switches, will be the same manufacturer. If the contractor wants to provide any equipment other than the manufacturer of the prepurchase equipment, they should formally submit it in an RFI. **Turner Response (10/31/24):** The electrical subcontractor (BP #38) shall assume Eaton for their base bid.	10/30/2024	CES		Closed	10/31/2024
236	Turner	Procurement Manual	10/25/24	Please clarify the intent of the Concrete foundations noted to start on February 2025 and steel to start on April 25, 2025.	See attached Turner Construction Crew Flow diagrams dated 10.25.24 showing intended month to month crew flow and direction January to June 2025. Subcontractors to include appropriate crews, crew size and equipment to meet project schedule requirements.	10/25/2024	JP/Turner	Yes - TCCO Crew Flow Diagrams	Closed	10/25/2024
237	SLAM	A901A	10/25/24	According to the finish floor plan drawing A901A in the finish plan graphic legend RS-2 is at the gymnasium only. When referring to the gymnasium drawings there is one window on drawing A111.4 Detail 3B but no call outs for RS-2 can you please provide details on how this roller shade is too be mounted?	Elevation on A111.4 has been revised to include shade locations. The assocoated Wall Section Detail has also been revised. Both revisions are included in Addendum No. 4	10/28/2024	SLAM		Closed	10/31/2024

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
238	JLL	Procurement Manual	10/25/24	Can you share how much of this project is State funded? I believe the CHRO participation is based on that total, not our contract total.						
New Bidder's Questions as of 10/25/24 Issuance										
239	SLAM	10 2800	10/25/24	According to Spec Section 10 2800 - Toilet Accessories page 6 section 2.6 paragraph D Clothes hook Type T15 is Typical at all offices. It is not clear what rooms are considered offices on the drawings can you please provide a count of robe hooks we should carry.						
240	Turner	Procurement Manual	10/25/24	Question Regarding bonding: 1.Provide us with a completion date or timeframe it will take you to complete this project? 2.Are there any daily liquidated damages for not completing the project in time? How much? 3.Is there a standard 1 year warranty for workmanship? 4.if you are awarded this job, then Turner and the town of Greenwich want to be listed as multiple obligees on the Payment/Performance bonds?	1. Reference Procurement manual document "04 - Project Schedule" Construction Phase 1 New Bldg Substantial completion July 2026, Construction Phase 2 closeout January 2027. 2. Reference Procurement manual document "03 - Boiler Plate Additional Provisions for all Subcontractors" page 3G, item 11. Liquidated damages $6,000/Day. 3. Reference Procurement manual document "08 - Turner Form 36 rev 7-31-20", Article XXII for minimum 1 year Guarantee in addition to any specified warranty within the contract documents. 4. Yes, Turner Construction & the Town of Greenwich are the Dual obligee(s) for Bid Bond and Payment/Performance Bonds.				Closed	10/25/2024
241	SLAM	323223	10/25/24	Specification 32 3223 Segmental Block Retaining Wall Drawings L301A, 301C, 301D and C603 & C604 Detail 1D/L503 The proposed retaining wall will encounter rock between stations 1+50 to 3+0 and 6+0 to 7+50 approximately. The specifications for rock exc and the logistics plan require presplitting or line drilling to provide a smooth exposed surface of the rock. Since the retaining wall design specifies the bottom of wall elevation at approx. the FG of the access driveway which takes precedence? Please provide a detail showing the intersection of the top of rock and the installation of the proposed retaining wall.						
242	SLAM	A911	10/25/24	Please advise on a spec section for the "fabric facing" noted on the ADP1 & ADP2 description on the finish schedule.						
243	SLAM	S410	10/28/24	In Detail 4/S410 please provide the bolt size, type, quantity, and spacing required for the L4x4x1/4" under the windows to the C4x4.5. Also, please provide the 1/4" thick cap plate attachment to the post.						
244	SLAM	S410	10/28/24	In detail 6/S410, please confirm the weld sizes, type, pattern, etc. of the L4x4x1/4" to the wide flange beam.						
245	SLAM	S410	10/28/24	In detail 8/S410: 1. Please confirm the weld sizes, type, pattern, etc. of the L6x4x5/16" to the wide flange beam. 2. Please provide with the clip sizes and weld sizes, type, pattern, etc. required for the HSS7x5x3/8"						

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
246	SLAM	S410	10/28/24	In detail 9/S410: 1. Please confirm the weld sizes, type, pattern, etc. of the L4x4x1/4" to the wide flange beam. 2. Please provide with the clip sizes and weld sizes, type, pattern, etc. required for the HSS9x5x1/2"						
247	SLAM	S410	10/28/24	In detail 10/S410: Please confirm the weld sizes, type, pattern, etc. of the L6x4x5/16" to the wide flange beam.						
248	SLAM	S410	10/28/24	In detail 13/S410: Please confirm the weld sizes, type, pattern, etc. of the L5x5x5/16" to the HSS12x8x3/8.						
249	SLAM	S410	10/28/24	In detail 14/S410: Please confirm that the 1/4" closure plate for the HSS12x8x3/8 should be a 1/4" fillet weld all around.						
250	SLAM	S410	10/28/24	In detail 14A/S410: Please advise if the "U-Plate" or the HSS12x8x3/8 gets physically fastened to the CMU wall, or is it just bearing on the CMU? Are any bearing plates needed?						
251	SLAM	S410	10/28/24	In detail 15/S410: 1. Please confirm the weld sizes, type, pattern, etc. of the L4x4x1/4"" to the wide flange beam. 2. Please confirm the bolt size, type, quantity, and spacing for the L8x6x7/16" angle to the C6x8.2. 3. Please confirm the HSS7x5x3/8 connection will be the same as clarified in BQ #245 above.						
252	SLAM	S410	10/28/24	In Detail 16/S410 please confirm the bolt size, type, quantity, and spacing required for the L4x4x1/4" under the windows to the C4x4.5. Also, please provide the 1/4" thick cap plate attachment to the post.						
253	SLAM	S411	10/28/24	In Detail 1/S411: 1. Please confirm the weld size, type, pattern, etc. for the L4x4x5/16" angle to the wide flange beam. 2. Please confirm the weld size, type, pattern, etc. for the L3.5x3.5x5/16" angle kicker to the wide flange beam. Is a connection plate or stiffener required at the WF? If so, please provide sizing and attachment detail.						
254	SLAM	S411	10/28/24	In Detail 3/S411: 1. Please confirm the weld size, type, pattern, etc. for theL6x4x5/16" angle to the wide flange beam (top & bottom flange) should be the same as shown in detail 2/S411. 2. Please confirm the weld size, type, pattern, etc. for the 1/4" bent plate to the wide flange beam. 3. Please provide with the clip sizes and weld sizes, type, pattern, etc. required for the HSS12x6x3/8".						

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
255	SLAM	S411	10/28/24	In Detail 5/S411: 1. There appears to be an angle along grid line "X12", but no size is annotated or weld information provided. Please advise and provide. 2. Please provide the stiffener plate and cap plate weld sizes, type, pattern, etc. 3. Please confirm the weld size, type, pattern, etc. for the L6x4x5/16" angle to the wide flange beam.						
256	SLAM	S411	10/28/24	In Detail 6/S411 please provide the bolt size, type, quantity, and spacing required for the L4x4x1/4" under the windows to the C4x4.5. Also, please provide the 1/4" thick cap plate attachment to the post.						
257	SLAM	S411	10/28/24	In detail 8/S411, please confirm the 3/4" thick cap plate weld size, type, pattern, etc. to the column.						
258	SLAM	S411	10/28/24	In Detail 1/S411, please provide the weld size, type, pattern, etc. for the L3x3x1/4" angle to the wide flange beam.						
259	SLAM	S420	10/28/24	In details 4 & 5 on S420, please provide the weld size, type, pattern, etc. for the 12x6x5/16" bent plates to the wide flange beams.						
260	SLAM	S421	10/28/24	In detail 2/S421, please confirm the angle and weld size shown in detail 1/S421 should be utilized along the edge of the metal deck.						
261	SLAM	S421	10/28/24	In detail 4/S421, please provide the weld size, type, pattern, etc. for the 10x5x5/16" bent plates to the joist.						
262	SLAM	S421	10/28/24	In detail 5/S421, please provide the weld size, type, pattern, etc. for the L6x4x5/16 and the L8x4x7/16.						
263	SLAM	S430	10/28/24	In details 2, 3, 4, 5, 6, & 9 on S430, please provide the weld size, type, pattern, etc. for all the L6x4x5/16 and the L4x4x1/4 shown.						
264	SLAM	S411	10/28/24	In detail 2/S411: 1. Please provide the clip size and weld details required for the L8x4x7/16 attachment to the "jambs". 2. Please confirm the intent is to cope, extend, & connect the vertical portion of the BP14x4x5/16 Frame up to the HSS12x6x3/8 tube. If so, please provide the weld details for this attachment.						
265	SLAM	S420	10/28/24	For clarity, per the previous BQ #13 response, please confirm that all the kickers, diagonal braces, bridging, rigging beams, etc. shown in details 1, 2, & 6 on S420 should have delegated design connections.						
266	SLAM	S420	10/28/24	In detail 7/S420, please provide the weld size, type, pattern, etc. for the L6x6x5/16 brace to the joist top chord.						
267	SLAM	14 2100	10/28/24	Please see attached substitution request for the electric traction elevators and please confirm if acceptable.						
268	SLAM		10/28/24	Please provide a detailed drawing with dimensions of the solar system and USA map to be painted on the asphalt						
269	SLAM		10/28/24	The granite curb spec states the curb is to be 6”x30”. The detail shows 6”x20”. Greenwich municipal spec is 5”x18” with buzzed edge. Please clarify as to which size is desired						
270	SLAM	Specifications	10/28/24	Please provide a spec for the shade enclosures. (ie. Preferred manufacturer)						

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271	Turner	Procurement Manual	10/28/24	Please clarify the scope of work as relates to the athletic fields between BP#9 & BP#41. a. Shade Structures & Fence – b. Infield Mix & Warning Track Mix c. Furnish & Install Bases d. Root Zone Mix	a. Shade Structures & Fence – Furnish & installed by Sitework (BP #09). b. Infield Mix & Warning Track Mix furnish & installed by Landscaping (BP #41). c. Furnish & Install Bases Furnished and installed by Landscaping subcontractor (BP #41). d. Root Zone Mix – Removals by Sitework (BP#9), and furnish & install of Root Zone Mix by Landscaping (BP #41).	10/28/2024	JAC		Closed	10/29/2024
272	SLAM	L202A	10/28/24	Please provide a specification for Stepping Stones shown on drawing L202A & detail 5C/L501.						
273	SLAM	260519	10/28/24	Please confirm that areas with "Cloud" ceilings are considered exposed and no MC cable for line voltage electrcial power should be utilized in these locations.						
New Bidder's Questions as of 10/28/24 Issuance										
274	SLAM	A125	10/29/24	In detail 5D/A125 it appears that the stair nosing does not cover the 1/2" thick steel tread. Please advise if the intent is to paint the leading edge of the steel tread.						
275	CES	M0.00	10/29/24	Drawing M0.00 contains a Damper Legend which includes smoke dampers (SD), combination fire/smoke dampers (FSD) and backdraft dampers (BD). We cannot seem to locate where any of these are indicated on the Mechanical ductwork plans. Please review and confirm none are required.						
276	SLAM	098416	10/29/24	ADC1 panels call for an NRC value of 0.10 in Spec section 098416 Part 2. While this is a low NRC, a solid panel does not achieve any NRC value. The solid wedge shape will only provide sound deflection. To achieve an NRC value, perforations with an acoustical felt backing will be needed but this comes at an additional cost. Are acoustical perforations needed?						
277	SLAM	A912	10/29/24	Please clarify if any of the OFCI specialty equipment identified on A912 is hard wired. Also, please advise if the owner will be delivering the equipment and setting it in place.						
278	Turner	Procurement Manual	10/29/24	Please confirm the following items for bidding: 1.You will need Union labor for all areas that apply, correct? 2.DAS certified 3.PP bond. Do you want this as an add alternative or in our base bid? 4.Tax exempt for new construction 5.Now prevailing wage or chro requirements.	1) See BQ #1 2) DAS certification requirements varies per package. Reference Procurement Manual "00 - Invitation to Bid" for DAS certification requirements. 3) Reference Procurement Manual "03 - Boiler Plate Additional Provisions for All Subcontractors" B-1 for PP bond requirements. PP bond to be included in base bid. 4) This project is tax exempt for new construction; reference Procurement Manual "03 - Boiler Plate Additional Provisions for All Subcontractors" B-2 for tax requirements. 5) Both requirements are applicable. This is a prevailing wage project. Minimum rates are provided in the Procurement Manual. See BQ #1 for further details. Chro requirements varies per package. Reference Procurement Manual "00 - Invitation to Bid" Trade Package Table and SBE/MBE Column for requirements.	10/29/2024	BM/Turner		Closed	10/30/2024
279	CES	23 05 23	10/29/24	Specification Section 23 05 23-2.5.A & B state ball valves can be press type valves. This same specification, but sub-part 3.3.C.1 states ball valves are to be threaded valves. Please verify if ball valves can be Pro-Press type valves.						

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280	CES	23 82 00	10/29/24	The CUH & UH units do not have Piping Details in any of the project drawings. Please provide Piping Details for these units.						
281	CES	MP102C	10/29/24	Drawing MP102C is missing room tags for SPED RES. 2002 and HEARING / VISION IMPAR. 2003. Each of these rooms appear to indicate Radiant Ceiling Panels (one in 2002 and two in 2003), however, are missing the associated pipe routing and connections. Please provide a piping drawing for these rooms.						
282	CES	MP102C	10/29/24	Drawing MP102C is missing Active Chilled Beam designations in SPED RES. 2002, HEARING / VISION IMPAR. 2003 and FACULTY WORKROOM 2072. Please advise which room will receive which Active Chilled Beam designation.						
283	SLAM	L202A	10/29/24	Chain link fence at the garden on L202A (Addendum 2) does not state a height. Please advise.						
284	CES	MP102A, MP102C	10/29/24	Drawing MP102A appears to depict two (2) Active Chilled Beams in SPED RES. 2002, however, Drawing MP102C appears to indicate only one (1) Active Chilled Beam in this same room. Please advise which is correct and update drawings accordingly.						
285	SLAM	L401 series & Spec. 32 9200	10/29/24	Please provide the lawn seed mix for the various grassy areas not considered the ball fields. Spec. 32 9200 says to find the seed mix on the plans but we have not been able to locate this information						
286	Turner	EP102D, E504	10/30/24	There are six motorized lighting battens on the plans. On sheet EP102D, a note says "HPP (HOIST POWER PANEL) PROVIDED BY DIV. 11 AND INSTALLED UNDER DIV. 26". This appears to be referencing the junction boxes for the hoist motors. Similarly, the connector strips are noted as “PROVIDED BY THE DIV. 11 RIGGING CONTRACTOR AND WIRED BY THE DIV. 26 CONTRACTOR” on Sheet E504. My question is: are the EC’s providing a theatrical package complete with motorized hoists, rigging and connector strips? Or are they only doing the electrical hookup for the rigging motors? Sometimes the GCs want all theatrical equipment to be handled under one contract. Please confirm the scope delineation.	The electrical subcontractor (BP #38) shall be responsible for all final power connections to the theatrical rigging system, including but not limited to the control & power panel, connector strips, etc. The theatrical rigging subcontractor (BP #31) shall be responsible to furnish & install all theatrical rigging components, including but not limited to all controls & control wiring. The Stage Rigging and Curtains specification 110610 is exclusive to the Theatrical Rigging Subcontractor (BP #31). The electrical subcontractor shall furnish & install all theatrical lighting, supports, & components for a complete system per BP #38 scope of work line items #66 & 67 for example. The Theatrical Lighting Specification 265561 is exclusive to the electrical subcontractor (BP #38).				CLosed	10/30/2024
287	SLAM	323120	10/30/24	Section 1.2 of spec setion 323120 calls for delegated design. However, it seems like specific products are identified in Part 2 of the spec. If the specified products are used can we just submit the manufacturer's literature / product data. It is not clear what specifically needs to be a delegated design. Please advise.						
288	SLAM	334419	10/30/24	Section 1.4 of spec setion 334419 calls for delegated design. However, it seems like specific products are identified in Part 2 of the spec. If the specified products are used can we just submit the manufacturer's literature / product data. It is not clear what specifically needs to be a delegated design. Please advise.						
289	SLAM	280528	10/30/24	Section 1.05.B of Spec section 280528 calls for Professional Engineer qualifications. It is not clear from the spec section what needs to be a delegated design or engineered for the security system pathways. Please advise.						

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
290	SLAM	280528	10/30/24	Section 1.05.C of Spec section 280528 calls for Seismic Certificates. Are there seismic requirements for the scope covered by this spec section? Per BQ #41 there are no seismic requirements necessary for cable tray. There also doesn't appear to be any seismic requirements for line voltage pathways. Please advise.						
291	Turner	Procurement Manual	10/30/24	Where is the project schedule located?	The project schedule is included with the Procurment Manual, "04-Project Schedule."	10/30/2024	BM/Turner		Closed	10/30/2024
292	SLAM	230900	10/30/24	Section 1.10.D of spec section 230900 mentions a Professional Engineer licensed in the state of CT shall perform the design of the system software. It is not clear to us exactly what the delegated design intent is based on this section of the spec. Can you please clarify and provide the specific delegated design requirements.						
293	SLAM	233100	10/30/24	Section 1.4.A of spec section 233100 mentions delegated design for duct construction and sheet metal thicknesses. In our experience this is **not** typical as the EOR already has calculated the static pressure and typically specifies the duct construction. Can you pelase confirm the intent? There also does not appear to be a mention of a professional engineer or their qualifications in this spec section either.						
294	SLAM	235100	10/30/24	Section 1.8.A of spec section 235100 states that the stacks shall be designed under the supervision of a structural engineer licensed in the State of CT. Can you please clarify exactly what is intended to be a delegated design? Is it limited to delegated design of vibration and seismic? The size of the vents are shown on the contract drawings and Part 2 identifies the vent materials / products. Please advise.						
295	SLAM	221005	10/30/24	On drawing P-100A there is grease waste and vent piping but there is nothing in the plumbing specs for grease waste and vent. Please specify what pipe material to use for this.						
296	CES	EP101A	10/30/24	We were recently informed by Johnson Controls that the water box heaters and convenience outlets associated with both Chillers CH-1 and CH-2 require separate power wiring. These power requirements are not indicated on Drawing EP101A or the panel schedule drawings. Please provide all pertinent circuiting information including, but not limited to, conduit size, wire size, panelboard, circuit breaker size, etc. The water box heater kits require either 115V/60Hz or 220V/50Hz.						
297	SLAM		10/30/24	there is a conflict between the specs and the drawings. The specs call for 6” x 30” and the plans call for 6” x 20”.						
298	SLAM	S101A	10/30/24	Architectural Drawing A101A illustrates concrete pads on the exterior of the building for two (2) chillers, one (1) generator and one (1) transformer and states to refer to the mechanical, structural and electrical drawings. None of these disciplines appear to indicate pad locations, dimensions or details. Please provide and update drawings accordingly.						
299	CES	23 64 11	10/30/24	Specification Section 23 64 11 - 2.3.C. states the Contractor shall wire separate power to energize heat tape to protect cooler while chiller is disconnected from the main power. Mechanical heat tracing is not specified, please provide. Please also provide all pertinent circuiting information including, but not limited to, conduit size, wire size, panelboard, circuit breakers, etc.						
300	SLAM	L501 detail 2A & 2B	10/31/24	Details 2A & 2B on L501 references staining of concrete and that the scope of which sidewalks are stained is reflected in the plans. We cannot locate this delineation nor do we have any information on the staining specification that is required. Please provide.						

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
301	SLAM	105113-Metal lockers	10/31/24	In Spec Section 105113 - Metal Lockers Page 2 Detail 2.2 Part A states that Type A Lockers are to be 4 Tier but this conflicts with the drawings as indicated on drawing A102C under the floor plan graphic legend it states Type A Lockers are 2 Tier and on drawing A112.2 detail 1E it shows Type A lockers to be two tier. Please confirm if we should carry a two tier locker or 4 tier locker?						
302	SLAM	SWPCP	10/31/24	Within the Addendum #2 Stormwater Pollution Conrol Plan, the Permittee section 1-1 is not completed. Please identifty the Permitee for the SWPCP and complete associated form. Note Permittee shall hold meeting with qualified professional, qualified inspector conducting inspections and site contractor and subcontractor Per item (16)-A on page 18 of 49 of General Permit.						
303	SLAM	SWPCP	10/31/24	Within the Addendum #2 Stormwater Pollution Conrol Plan, the General permit for Discharge of Stormwater and Dewatering from Construction Activities was effective Dec. 31, 2020 and expires 12/20/25 (prior to the completion of construction activities. Please confirm that the Owner's consultant will update per current project schedule.						
304	SLAM	L202A, L202B, & L202C	10/31/24	Confirm Mateiral type 1E added in parking areas within Addendum #4 and not shown within Site Material Legend on same sheets (L202A, L202B, L202C) is intended to be Bituminous Concrete pavement (Porous asphalt) per detail 1E on Drawing L501.						
305	CES	M103B, M103D	10/31/24	Drawings M103B & M103D issued in Addendum #4 added notes to provide stair dunnage for walking pathway over roof mounted ductwork associated with RTU-1 and RTU-2 as well as to coordinate with the Architectural Drawings. Drawings A103B or A103D do not indicate any stairs at these locations. Nor does Drawings S301B and S301D indicate any structural steel members for this "dunnage". Typically, dunnage is furnished and installed by the Sturtural Steel or Misc. Metals disciplines, not HVAC. Please provide details indicating these stairs, included roof details, supports, etc. as well as confirm which discpline should furnish and install.						
306	Turner	Procurement Manual	10/31/24	BP12 Scope number 13 of D. Safety Additional Provisions says install stairways with pace of erection. Stairs are in BP13.	For BP12 this is referring to the temporary stair towers identified in safety scope of work line item #01.	10/31/2024	CL/Turner		Closed	10/31/2024
307	SLAM	220523	10/31/24	Is the use of grooved Butterfly valves acceptable in lieu of Gate valves for grooved domestic water size 2-1/2" and larger,						
308	Turner	P100A	10/31/24	Alt #7 asks for a gas generator vs a diesel fuel generator, ref P100A & P500 which shows gas to a generator. If a diesel generator is needed please provide spec's and details on piping ect.	The alternate was accepted during phase 1 for a gas generator. Please inculde gas piping as shown on contract documents.	10/31/2024	TB/Turner		Closed	10/31/2024
309	Turner	Scope of Work	10/31/24	In reference to BP 15 Scope of Work #14, please provide detail/s of that specific requirement for the roofer to furnish and install associated with Future PV Array installation.	See BQ #52 for conduit scope for future PVs. BP 15 shall patch roof as required.	10/31/202	BM/Turner		Closed	10/31/2024
310	Turner	A091-A093	10/31/24	Please provide locations of building expansion joints	See Slab edge plans (A091-A093) for locations where EJ is Marked.	10/31/202	TB/Turner		Closed	10/31/2024
311	SLAM	078100	10/31/24	078100-2.3.A.1 states "not mineral fiber based" however, basis of design names Cafco Blaze Shield HP which is a mineral fiber based product. Please confirm mineral based products are excluded and products such as Cafco 400 or GCP Z106HY are acceptable.						
312	SLAM	078100	10/31/24	078100-2.3.C.1 states "not mineral fiber based" however, basis of design names Cafco Blaze Shield II HS which is a mineral fiber based product. Please confirm mineral based products are excluded and gypsum products such as Cafco 300HS or GCP MK10HB are acceptable.						

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
313	SLAM	078100	10/31/24	Bond strength of low density fireproofing 078100 2.3.C.2 states bond strength of 600psf. This higher bond strength is required on building greater than 75' in height. Can 200lb psf standard bond strength low density fireproofing be utilized? Cafco 300/Monokote MK6 vs. Cafco 300HS/Monokote MK10HB						
314	Turner	Scope of Work	10/31/24	In reference to BP 15 Scope of Work #31, please clarify what particular roof curb/s and metal covers does the Roofer will furnish and install. Does the roofer responsible in furnishing and installing large RTU/ HVAC curbs?						
315	Turner	Scope of Work	10/31/24	In reference to BP 15 Scope of work #35, please clarify further the inclusion of custom fabricated galvanized bent plate to the Roofing scope. (Typically, this is owned by the Steel/Structural sub.) Also, detail 3E/A511 is a wall detail. How is this related to the roofing scope?	BP 15 to provide RWL and RWL attachments (spec 07 7100), for example on 3E/A511. Scope to be revised. The mason (BP 11) to furinish and install custom galvanized plate and clips at Recessed RWL. BP 11 to reference & follow the appropriate specification for colored galvanized steel. BP 15 to exclude the colored galvanized plate at the Recessed RWL. BP 15 must provide RWL and attachments to the galvanized plate.	10/31/202	BM/Turner		Closed	10/31/2024
316	Turner	Scope of Work	10/31/24	Please confirm whether all stair towers, engineered over-head protection, temporary access stairs are all included in the Roofing Scope of Work. Note: These items are not typically carried by the Roofing Contractor as these safety equipment are commonly used by all other trades (for liability insurance issues).						
317	Turner	Scope of Work	10/31/24	Who furnishes and installs VFD's?	VFD's are to be furnished by the Bid Package purchasing the equipment requiring a VFD. VFD's to be furnished to BP#38 for installation and wiring.	10/31/202	BL/Turner		Closed	10/31/2024
318	Turner	Schedule	10/31/24	Can you expand the schedule to show MEP durations?						
319	Turner	Scope of Work	10/31/24	Will the electrician wire equipment splits?	Yes. BP #38 Electrical and Fire Alarm shall make all internal connections between shipping splits needed for mechanical equipment.	10/31/202	BL/Turner		Closed	10/31/2024
320	Turner	Scope of Work	10/31/24	Please confirm that the gym floor will be protected by others, so lifts, etc., can be driven over it for MEP installs.						
321	Turner	Scope of Work	10/31/24	Please confirm we are NOT furnishing any "T-bars" associated with the ceilings. Ref BP#37 pg 5, SOW #28.	Confirmed. BP #38 shall not be furnishing or installing and "T-bars" associated with the ceilings, however, will need to furnish and install "T-bars" associated with the assembly of the hydronic radiant ceiling panels and active chilled beam units. For instance, between each unit where multiple units are adjacent to one another.	10/31/202	BL/Turner		Closed	10/31/2024
322	Turner	Scope of Work	10/31/24	Ref BP#37 pg 5 item #33, we can only include dampers as shown on our mechanical drawings. We are not the design engineers and the sheet metal union will not take that responsibility. This is always agreed to on every project to date.	Understood and agreed. Turner will amend BP #37, SOW #33 accordingly. BP #37 to furnish and install all fire, smoke and combination dampers with actuators at locations indicated on the Contract Documents.	10/31/202	BL/Turner		Closed	10/31/2024
323	Turner	Scope of Work	10/31/24	Ref BP#37 pg 6 #45, please clarify is this just for equipment? If not please define what exactly is to be included						
324	CES	Scope of Work	10/31/24	Please provide a specification for VFD's.						

RFI 89

SUBSTITUTION REQUEST
(During the Bidding/Negotiating Phase)

CSI®

PROJECT: Greenwich Central Middle School

SUBSTITUTION REQUEST NUMBER: 1

FROM:

TO: Turner Construction

DATE: 10/10/24

A/E PROJECT NUMBER:

RE:

CONTRACT FOR:

SPECIFICATION TITLE: Metal Lockers

DESCRIPTION: Metal Locker & Bench

SECTION: 10 5113

PAGE: 2,3,4

ARTICLE/PARAGRAPH: 2.1-A, 2.2-A, 2.2-B 2.2-C, 2.4-A

PROPOSED SUBSTITUTION: Metal Lockers & Bench

MANUFACTURER: List Industries **ADDRESS:** Deerfield Beach, FL **PHONE:** 1-800-776-1342

TRADE NAME: Metal Lockers & Benches **MODEL NO.:** Classmate Corridor Bench Tops & Pedistals

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.
Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:
- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

SUBMITTED BY:

SIGNED BY:

FIRM:

ADDRESS:

TELEPHONE:

A/E's REVIEW AND RECOMMENDATION:

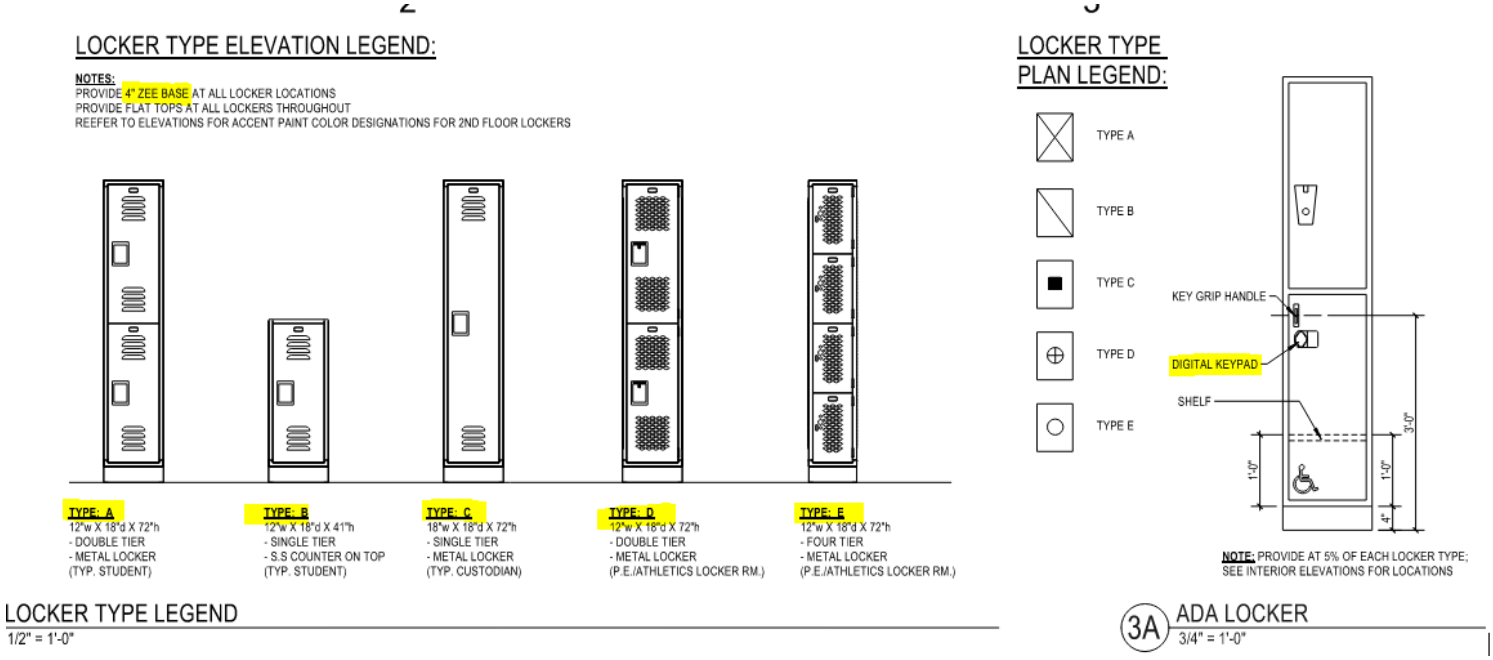
- ☐ Approve Substitution—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- ☒ Approve Substitution as noted—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- ☐ Reject Substitution—Use specified materials.
- ☐ Substitution Request received too late—Use sp

LOCKERS - Needs to be able to meet the A911 Color requirements(does not acknowledge project specific colors). Product needs to meet all Accessibility requirements in the Specification including Built-In Digital Keypad Locking (information missing)
BENCHES - See comments

SIGNED BY: Stephen Martocchio - SLAM **DATE:** 10/30/24

SUPPORTING DATA ATTACHED: ☑ Drawings ☑ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

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FROM A911

3. Substitutions: See Section 01 6000 - Product Requirements.

2.2 LOCKER APPLICATIONS

A. Student Lockers: **Types A and B**. Metal lockers, free-standing with matching closed base.
   1. Width: 9 inches 12 inches.
   2. Depth: 15 inches 18 inches.
   3. Height:
      a) Type A: 72 inches.
      b) Type B: 40 inches, nominal.
   4. Configurations: As indicated below.
      a) **Type A**: Four-tier. DOUBLE
      b) **Type B**: Single-tier.
   5. Fittings: Size and configuration as indicated on drawings.
      a) Provide additional shelf for accessibility compliance, as indicated on drawings. Provide at 5% of each locker type, or (1) minimum, whichever is greater.
      b) Hooks: One single prong.
   6. Ventilation: Louvers at top and bottom of door panel.
   7. Locking: Recessed lift handles with built-in padlock hasp.
      a) Accessible Lockers: Provide a built-in digital keypad lock.
   8. Provide sloped top, to the extent indicated on drawings.
   9. Color: To be selected from manufacturer's full range by Architect and allow for (3) additional custom accent colors, as indicated on the "Finish Product List - Finishes for Miscellaneous Items" on the drawings.

B. Custodial Lockers: **Type C**. Metal lockers, free-standing with matching closed base.
   1. Width: 18 inches.
   2. Depth: 18 inches.
   3. Height: 72 inches.
   4. Configuration: Single tier.
   5. Fittings: Size and configuration as indicated on drawings.
      a) Hat shelf.
      b) Hooks: One single prong.

4. Metal Lockers
   a. General Lockers: Basis of Design, Penco, Canvas 054, Interior and any exposed sides of locker to match exterior paint color.
   b. Color Accent Lockers at Right Side Classroom Pod: Custom Color to Match P10, interior of locker any exposed sides to match exterior paint color.
   c. Color Accent Lockers at Center Classroom Pod: Custom Color to Match P11, interior of locker any exposed sides to match exterior paint color.
   d. Color Accent Lockers at Left Side Classroom Pods: Custom Color to Match P12, interior of locker any exposed sides to match exterior paint color.
   e. Athletic Rooms: Basis of Design; Penco 052 Reflex Blue, To be selected from manufacturer's full range, interior of locker to match exterior paint color. Flat top and exposed sides to match exterior paint color.
   f. Custodial Room: Basis of Design; Penco 052 Reflex Blue, To be selected from manufacturer's full range, interior of locker to match exterior paint color. Flat top and exposed sides to match exterior paint color.

RFI 89

Approved Substitution - SLAM

SUPERIOR®
Bench Top and Pedestal Specifications

Maple

Benchtops: To be 9-1/2" wide x 1-1/4" thick and made from laminated ~~hardwood~~. Benchtops are to be finished with one coat deep penetrating sealer and two coats of heavy body high impact hot hydraulically applied lacquer. Benches up to 8'-0" in length have two pedestals. Benchtops longer than 8'-0" up to 12'-0" are supplied with three pedestals.

No. 4805 Heavy-Duty Steel Pedestal: Fabricated from 1-1/2" diameter 14 gauge steel tube welded to top and bottom 11 gauge formed flanges. Each flange to have three anchoring holes. Color: #729 Parchment.

No. 4810 Extra Heavy Duty Cast Iron Pedestal: One piece cast iron pedestal to include 6" diameter top and bottom flanges. Each flange to have three anchoring holes. Multiple piece constructed pedestal are not acceptable. Color #729 Parchment.

No. 4820 Standard Moveable Pedestal: Fabricated of extruded aluminum providing four anchoring holes at bottom. Pedestal is designed to be moveable type if desired. Color #729 Parchment.

No. 4825 Stainless Steel Pedestal: Fabricated from 16 gauge stainless steel. Pedestal is designed to be moveable but includes 4 holes for anchoring to floor if desired. Unpainted

No. 8032 Pedestal: Adjustable height pedestal consisting of a cast aluminum base, threaded pipe nipple and steel pipe flange at the top. Anchoring thru the cast aluminum base is concealed.
Color #729 Parchment.

UNIBODY ALL-WELDED CORRIDOR LOCKERS

WHAT IS UNIBODY ALL-WELDED?

- Superior unibody all-welded corridor lockers include our double vertical frame design adding strength, integrity, durability and visual appeal.
- First we start with prime grade cold rolled sheet steel. 16 gauge for all body components except backs which are 18 gauge. Doors are heavy 14 gauge.
- Sides are formed to be an integral part of the front vertical locker frame which locks into the bottom for precise alignment and added strength.
- We MIG weld an additional channel shaped vertical frame member between doors providing a continuous door strike at both the hinge and latch side of the door.
- The top and bottom are flanged downward at the front to form a 1-1/2" high channel shaped top and bottom horizontal frame member continuous across the multiple column unit up to 60" wide.
- The base is a full 1-1/2" high keeping locker contents away from moisture on the floor and/or wood/concrete base.
- Front-to-back channel stiffeners are welded into the base under each side panel providing a strong anchor bearing surface for installation and increasing overall unit strength.
- Horizontal tier dividers for double and triple tier models project through to the face of the locker forming a horizontal cross member between doors for maximum strength.
- Guaranteed in writing by our lifetime warranty.

THE CLASSMATE™ CORRIDOR LOCKERS

Our unique double frame, unibody all-welded design provides a durable locker with a classic appearance that is backed by our life-time warranty.



Single Tier 3-Wide

Double Tier 3-Wide

Triple Tier 3-Wide



UPGRADE

INTEGRAL SLOPE TOP *is fabricated of heavy 16 gauge steel, runs continuous across a multiple column unit and is MIG welded at the factory replacing welded locker unit flat top. Sides are sloped at top providing rigid support beneath the slope top between each locker column.*



UPGRADE

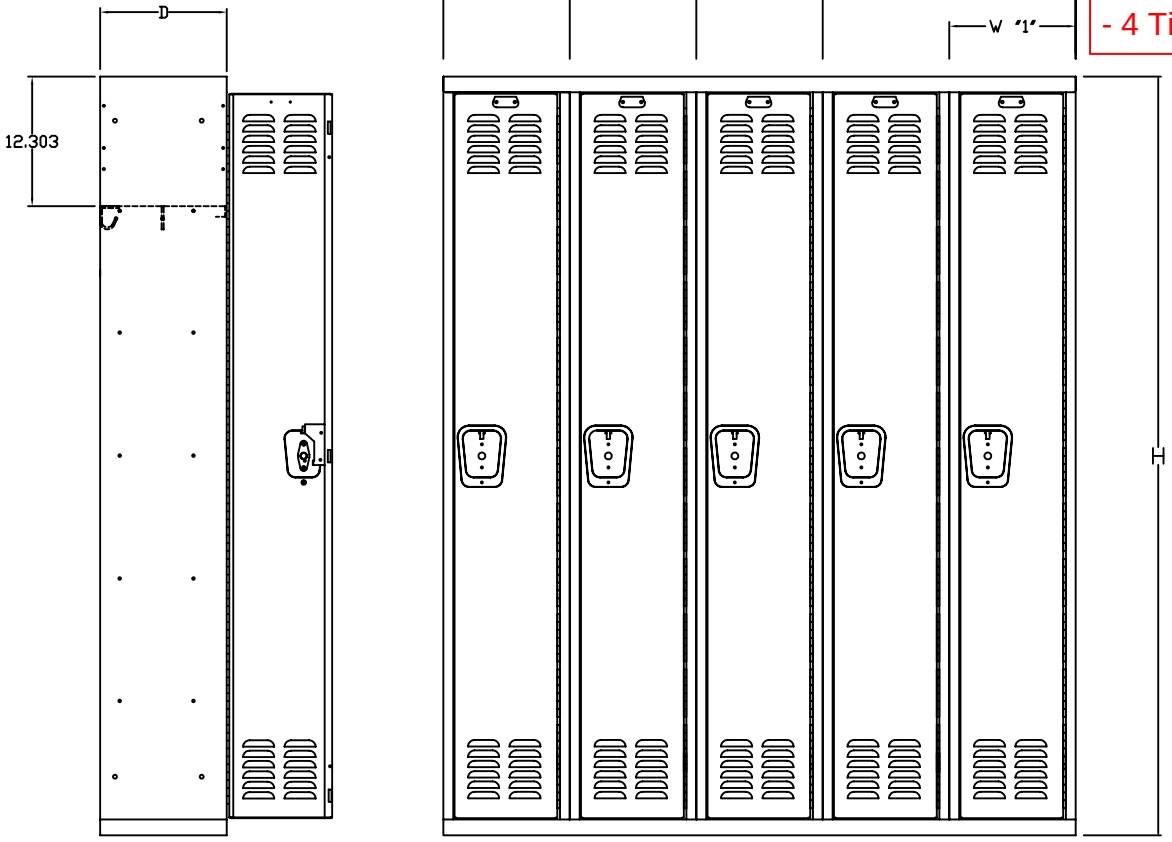
PREMIER SERIES CLASSMATE *which includes a 3" wide 18 gauge full height door stiffener spot welded to the inner door face and MIG welded to the hinge side as well as to the top and bottom door flanges providing a rigid torque-free door. A 1-1/2" wide stiffener will be furnished for 9" wide Premier doors. 18" and 24" all-welded lockers are only available in Premier Series.*

FOR MORE INFO GO TO LISTINDUSTRIES.COM

RFI 89

LIST "CLASSMATE" WELDED SINGLE TIER LOCKER (9" TO 15") (PRODUCT No. LUC _ _ _ -1)

ELEVATION ' '



SIDE VIEW

FRONT VIEW

Lockers can also be:
- 2 Tier
- 3 Tier
- 4 Tier

LOCKER DETAILS:

EXTERIOR COLOR =
INTERIOR COLOR = SAME AS EXTERIOR
TOP =
HANDLE = LIFT (S.S. RECESSED DRAWN)
DOOR VENTILATION = 3" LOUVER
SIDE VENTILATION = SOLID
BASE =
LOCKS =
HINGE = 16ga. CONTINUOUS PIANO TYPE HINGE WELDED TO DOOR & RIVETED TO FRAME

CONTRACTOR NOTE

ALL CONCRETE BASES SHOULD BE LEVEL AND TROWELED SMOOTH TO ASSURE PROPER INSTALLATION OF THE LOCKERS. ALL FLOORING MATERIAL ATTACHED TO THE FACE OF THE BASE SHOULD BE RECESSED AT LEAST 1/4" FROM THE TOP EDGE OF THE BASE. LOCKERS MUST BE ANCHORED TO WALL.

GAUGES

DOOR =	14 GA., C.R.S.
FRAME =	16 GA., C.R.S
TOP =	16 GA., C.R.S.
BOTTOM BASE =	16 GA., C.R.S.
SHELVES =	16 GA., C.R.S.
SIDES =	16 GA., C.R.S.
BACKS =	18 GA., C.R.S.

LATCHING: (WARDROBE) THREE POINT RECESSED ON LOCKER DOORS 48" AND OVER, TWO POINT RECESSED ON ON LOCKER DOORS 36" TO 20". AUTOMATIC LOCKING DEVICE WITH LIFT-TYPE PADLOCK HASP.

SUPERIOR

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TOLERANCES UNLESS SPECIFIED:
FRACTIONS: ±1/32 DECIMALS: ±.010 DEGREES: ±1°

Customer: CUSTOMER
Customer Order Number: PO#
Description: JOB NAME
JOB LOCATION

Drawn By:	Checked By:	Date:	Scale:
DRAFTER		DATE	NONE

Acad Number: PAGE NUMBER | Sheet # Of # | Revision:

Drawing Number: FOLDER NUMBER

LUC-1 11-21-12

RFI 89

SUPERIOR®
Classmate Corridor™
Unibody All-Welded Lockers

General: Lockers shall Be **"Superior Classmate Corridor Unibody All-Welded Lockers**" as manufactured by List Industries Inc. or approved equal. All lockers shall be factory-assembled, of all MIG welded construction, in multiple column units to meet job conditions. **Assembly of locker bodies by means of bolts, screws, or rivets will not be permitted. Welding of knockdown locker construction is not acceptable.** Grind exposed welds and metal edges flush and make safe to touch.

Lockers shall be **GREENGUARD Gold Certified**℠.

Finishing: All locker parts to be cleaned and coated after fabrication with a seven stage zinc/iron phosphate solution to inhibit corrosion, followed by a coat of high grade custom blend powder electrostatically sprayed and baked at 350 degrees Fahrenheit for a minimum of 20 minutes to provide a tough durable finish. Color to be selected from manufacturer's standard list of colors. **Two-Tone Color Combination: Shall be at no additional cost with the locker body, frame and trim chosen from one color and the doors may be one of any other color chosen from manufacturers standard selection.**

Classmate Wardrobe Doors: Doors 20" high and over and 15" wide and under shall be fabricated from single sheet prime 14 gauge with single bends at top and bottom and double bends at the sides. The channel formed by the double bend at the latch side is designed to fully conceal the lock bar. Doors to be louvered.

Seamless Drawn Stainless Steel Recessed Locker Handle: All locker doors shall have a seamless drawn not less than 304 stainless steel recessed handle shaped to receive a padlock or built-in combination lock. The recess pan shall be deep enough to have the lock be completely flush with the outer door face. A finger lift/padlock hasp shall protrude through the top of the handle for easy opening of the locker door.

Latching: The latching mechanism shall be finger lift control type constructed of 14 gauge (minimum) steel with a nylon cover that has a generous finger pull. Spring activated nylon slide latches shall be completely enclosed in the lock channel allowing doors to close with the lock in the locked position. Lock bar shall be hot dip galvanized and installed after paint to ensure proper paint coverage and lock bar operation. Locking devise shall be designed for use with either built-in combination locks or padlocks. Latch hooks shall be 12 gauge (minimum) and shall be MIG welded to vertical frame member. Provide three latch hooks for doors 48" and over and two for doors under 48".

Hinges: Hinges shall not be less than 16 gauge continuous piano type hinges riveted to the frame and welded to the door. All doors shall be right hand side hinged.

Twin-Frame / Vertical Side Panels: Shall be of integral frame and side wall construction manufactured from solid 16 gauge sheet steel. The one-piece side/frame shall be formed to provide a continuous door strike on the hinge side. An additional continuous vertical door strike shall be achieved at the latch side by MIG welding a 16 gauge full height channel frame member to the integral locker side producing a rigid torque-free welded locker body. The frame shall include a tab which engages a slot in the base locking the side panel and frame into position.

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SUPERIOR® Classmate™ Corridor Unibody All-Welded Lockers (Page 2)

Integral Frame Locker Base: 16 gauge formed sheet steel with double return flanges at the front and rear. A full depth horizontal channel shall be MIG welded under the locker bottom front-to-back at the left and right side of each welded locker unit as well as beneath each vertical side panel for maximum rigidity.

Flat Tops: Shall be formed of one piece of 16 gauge cold rolled sheet steel and shall be an integral part MIG welded to each vertical side panel frame member and be continuous to cover the full width of a multiple locker unit.

Hat Shelves, Intermediate Shelves And Bottoms: Shall be 16 gauge sheet steel, have double bends at front and shall be MIG welded to the sides.

Backs: Shall be 18 gauge cold rolled sheet steel, be continuous to cover a multiple twin-framed unit and be welded to each vertical side panel.

Locks (If Required): Shall be master keyed to one system for the entire project. (See lock use chart for suggested lock application).

Equipment: Furnish each locker with the following items, unless otherwise shown.

Single tier lockers: Openings 60” and 72” shall include one hat shelf, one double prong ceiling hook and a minimum of two single prong hooks.

Double and Triple tier lockers: Openings 20” thru 36” high shall include one double prong ceiling hook and a minimum of two single prong hooks.

Lifetime Warranty: Superior Unibody All-Welded Lockers are covered against all defects in materials and workmanship excluding finish, damage resulting from deliberate destruction and vandalism under this section **for the lifetime of the facility**.

RFI 89

PEDESTAL AND BENCH TOP INSTALLATION INSTRUCTIONS

General Instructions

1. Check material received against the packing list. First, check the number of packages received and then check the contents of each package.

2. Check the material received for damage. If damage has occurred, secure a "damage notation" from the carrier

3. Identify each part as it is unpacked and put like parts together as close as possible to the working area where they are to be assembled.

4. Be careful to use the correct hardware as specified in the assembly instructions.

CAUTION

In the interest of safety, all lockers must be securely anchored to the floor and/or wall. For safety, handle all components carefully and wear work gloves when assembling lockers. Install all units plumb and tighten all hardware securely. Retain instruction for future reference.

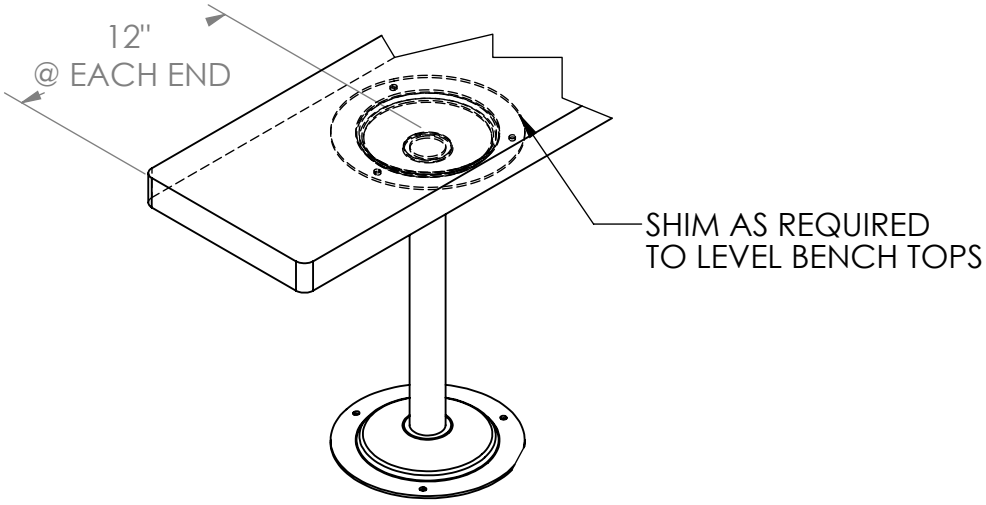
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www.ListIndustries.com

RFI 89

GENERAL ASSEMBLY FOR PEDESTALS

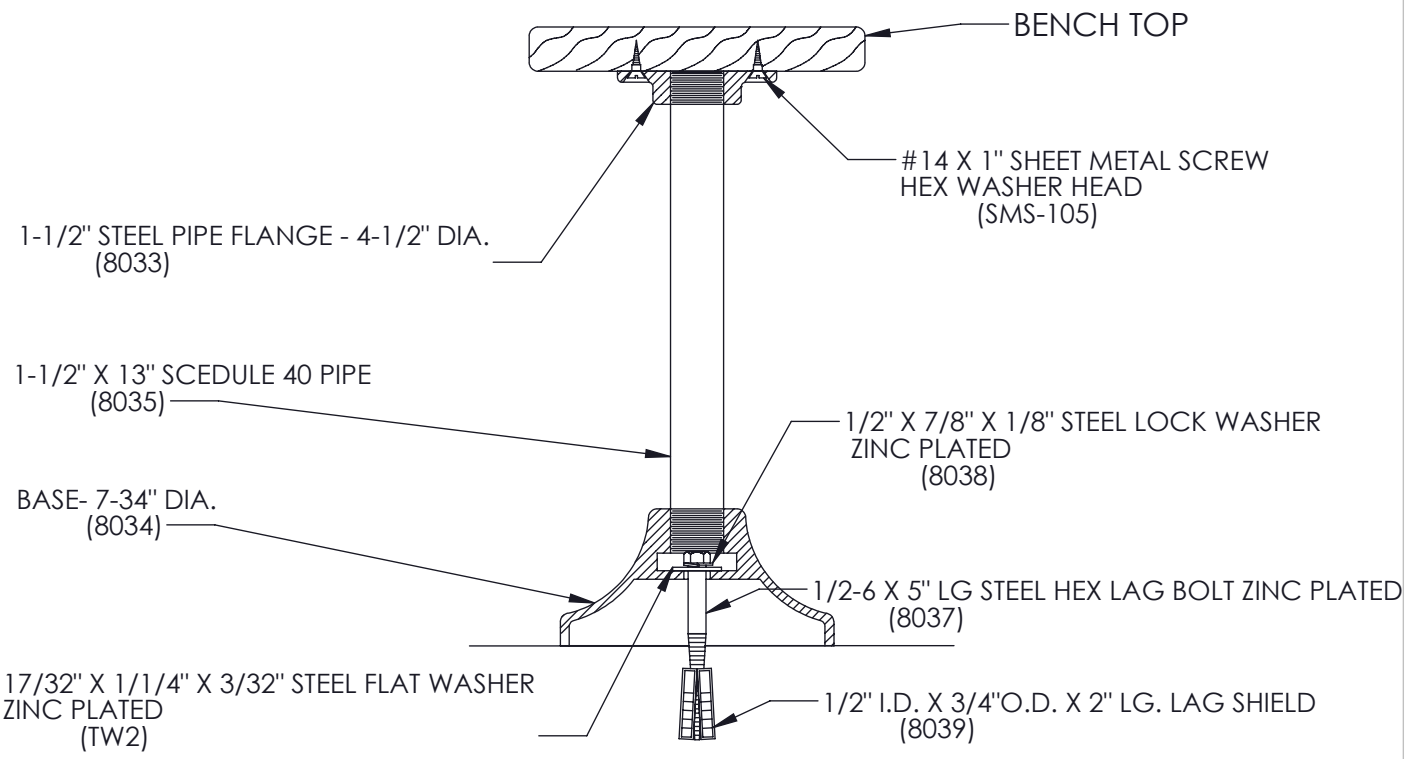
USING THE PEDESTAL AS A TEMPLATE, LOCATE CENTERS. DRILL 3/16" HOLES AND ATTACH WITH THE SCREWS PROVIDED. FLOOR ANCHORS ARE PROVIDED BY THE INSTALLER. RECOMMENDED HILTI ALUMINUM HIT ANCHORS CAT. NO. 5400192 OR 1/4" X 2" TAP-COM.



PEDESTAL ARRANGEMENT

ALL PEDESTALS TO BE LOCATED 12" FROM EACH END WITH A MAXIMUM OF 6'0" SPACING.
ON BENCH LENGTHS GREATER THAN 8'0", (3) PEDESTALS ARE REQUIRED.

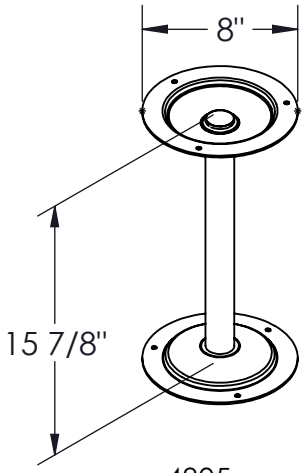
8032 PEDESTAL ANCHORING



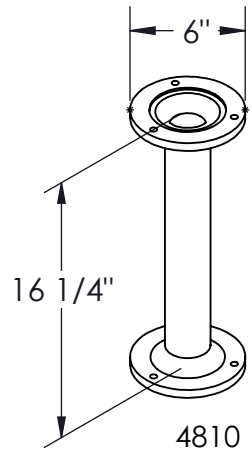
SA0754-1

RFI 89

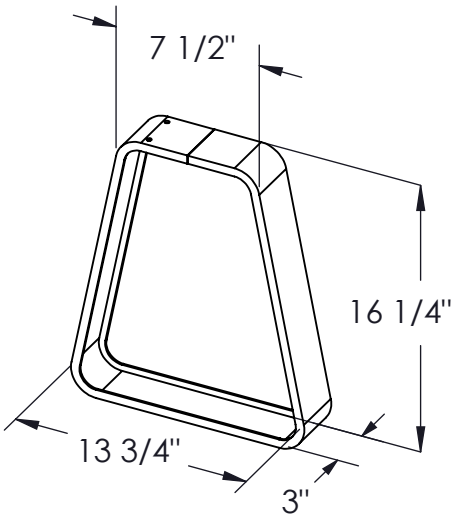
PEDESTAL TO BENCH TOP ATTACHMENT HARDWARE



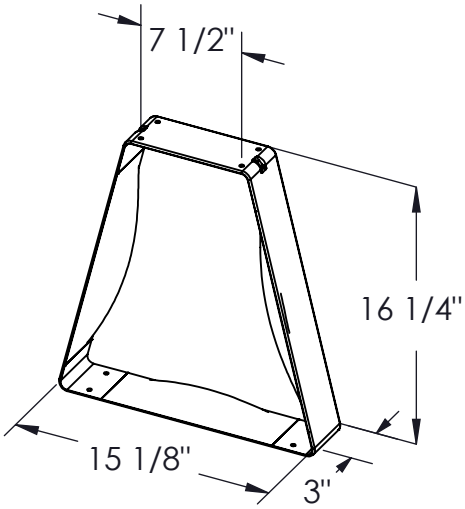
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HEAD SHEET
METAL SCREW



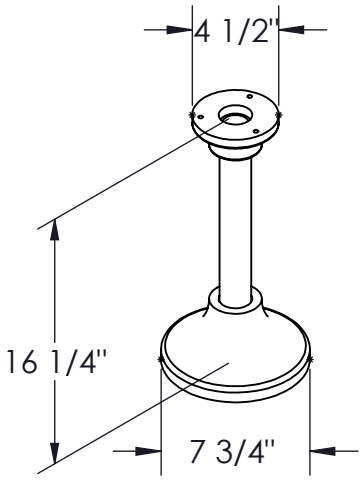
4810
(3)#14 X 1-1/2" HEX
WASHER
HEAD SHEET
METAL SCREWS



4820
(4)#14 X 1" HEX WASHER
HEAD SHEET
METAL SCREWS



4825
(4)#14 X 1" HEX WASHER
HEAD SHEET
METAL SCREW



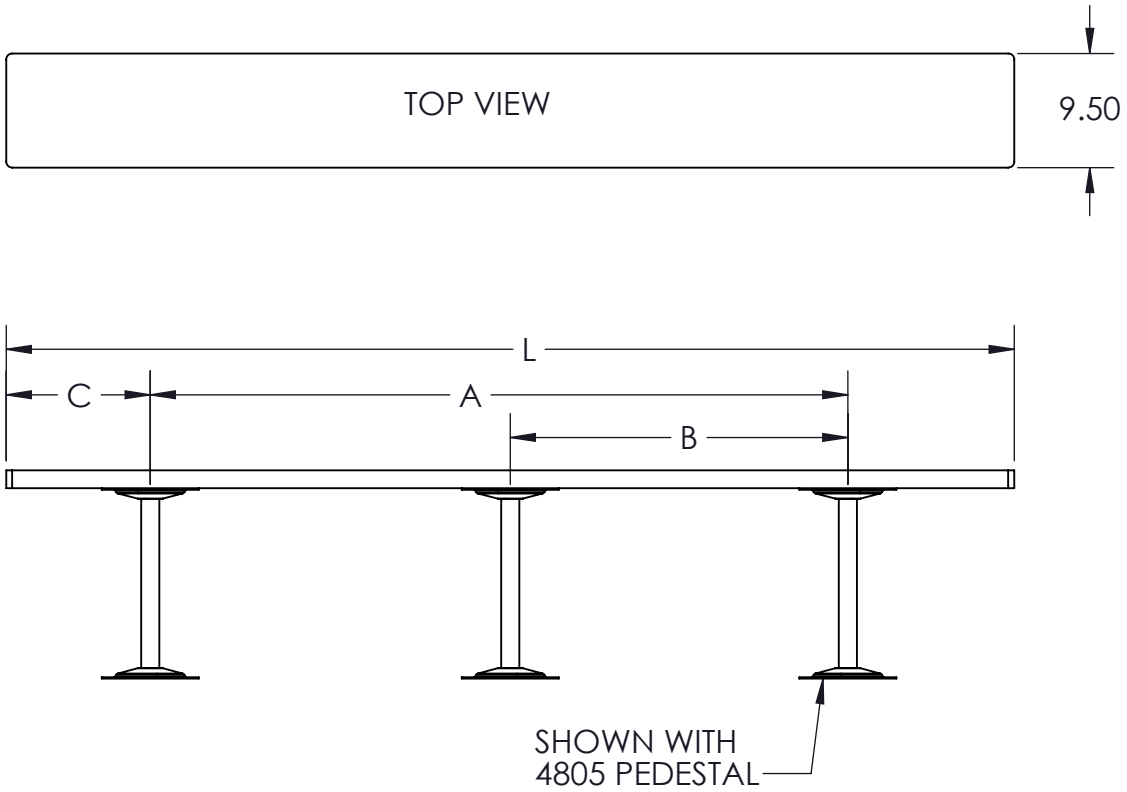
8032
(3)#14 X 1-1/2" HEX
WASHER
HEAD SHEET
METAL SCREW

NOTE: FLOOR ANCHORS
SUPPLIED BY OTHERS

SA0754-2

RFI 89

BENCHES & TOPS



QTY. OF PEDESTALS	
3 FT.	2
4 FT.	2
5 FT.	2
6 FT.	2
7 FT.	2
8 FT.	2
9 FT.	3
10 FT.	3
11 FT.	3
12 FT.	3
13 FT.	3
14 FT.	3
15 FT.	4

LENGTH	L	A	B	C
3 FT.	36"	24"	X	6"
4 FT.	48"	32"	X	8"
5 FT.	60"	40"	X	10"
6 FT.	72"	48"	X	12"
7 FT.	84"	60"	X	12"
8 FT.	96"	72"	X	12"
9 FT.	108"	84"	42"	12"
10 FT.	120"	96"	48"	12'
11 FT.	132"	108"	54"	12"
12 FT.	144"	120"	60"	12"
13 FT.	156"	132"	66"	12"
14 FT.	168"	144"	72"	12"
15 FT.	180"	156"	52"	12"

BQ#104 Attachment

SUBSTITUTION REQUEST
(During the Bidding/Negotiating Phase)

CSI®

PROJECT: Greenwich Central Middle School
State Project No. 057-0114N

TO: Turner Construction Company

RE: BP-9 Sitework Retaining Walls

SUBSTITUTION REQUEST NUMBER: 001

FROM:

DATE: 10/14/24

A/E PROJECT NUMBER:

CONTRACT FOR:

SPECIFICATION TITLE: Segmental Retaining Walls

DESCRIPTION:

SECTION: 323223 **PAGE:** 6 of 10

ARTICLE/PARAGRAPH: 2.2 Segmental Retaining Wall

PROPOSED SUBSTITUTION: Versa-Lok Square Foot

MANUFACTURER: Versa-Lok

ADDRESS: 5 Northern Blvd #15
Amherst, NH 03031

PHONE: (603)883-3042

TRADE NAME:

MODEL NO.: Square Foot

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.
Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:
- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

SUBMITTED BY:

SIGNED BY:

FIRM:

ADDRESS:

TELEPHONE:

Versa-lock is an acceptable substitution. Approval contingent on contractor to ensuring that proposed product can meet design intent with regard to layout and construction, as well as warranty and compatibility. Color to be selected from manufacturer's full range of colors and finishes (including premium). Near vertical batter (1/4"). - SLAM

A/E's REVIEW AND RECOMMENDATION:

- ☐ Approve Substitution—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- ☒ Approve Substitution as noted—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- ☐ Reject Substitution—Use specified materials.
- ☐ Substitution Request received too late—Use specified materials.

SIGNED BY: Kathryn Packtor - SLAM **DATE:** 10.30.2024

SUPPORTING DATA ATTACHED: ☒ Drawings ☒ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

CSI Form 1.5C (August 2020 version)

BQ#104 Attachment

VERSA-LOK SQUARE FOOT

RETAINING WALL SYSTEM

VERSA-LOK®
Retaining Wall Systems
Solid Solutions.™



AFFORDABLE & ATTRACTIVE WALLS BY THE FOOT.

VERSA-LOK® Square Foot™ units are engineered to provide the construction flexibility you need in a large retaining wall project, making it a smart, low-cost alternative for public works, institutional and commercial projects. At 87-pounds each, the Square Foot unit is a unique hybrid design, combining the versatility of VERSA-LOK's top-pinning technology with cost-effective hollow-core unit construction. No mortar or concrete footings are needed, so Square Foot walls remain flexible in climates that experience freeze-thaw cycles. And its thick face affords better durability than other cored systems.

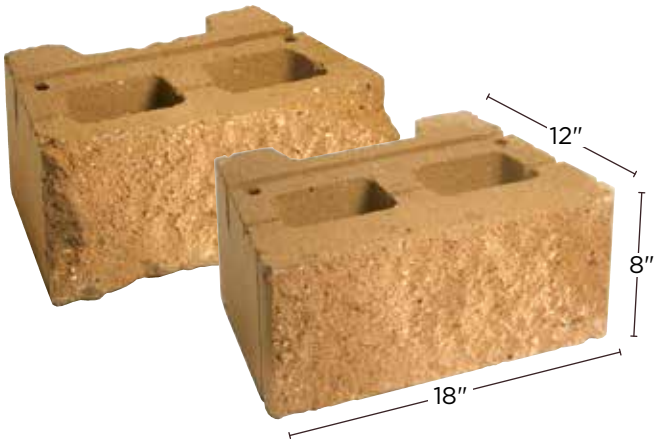
Square Foot's top-pinning system allow for variable bond construction, quick accurate alignment, tighter vertical joints and easy installation. Its trapezoidal design enables inside and outside curves with one of the tightest radiuses in the industry (4' 6"). Square Foot retaining walls can be built with a traditional 1-inch setback or near-vertical, and will accommodate geogrid reinforcement to build walls to any height. The maximum stable unreinforced Square Foot wall is 3 feet, depending on soil, site and loading conditions (including terraces). Square Foot walls can be finished off with VERSA-LOK cap units.

BQ#104 Attachment

VERSA-LOK SQUARE FOOT

RETAINING WALL SYSTEM

VERSA-LOK® Retaining Wall Systems
Solid Solutions.™

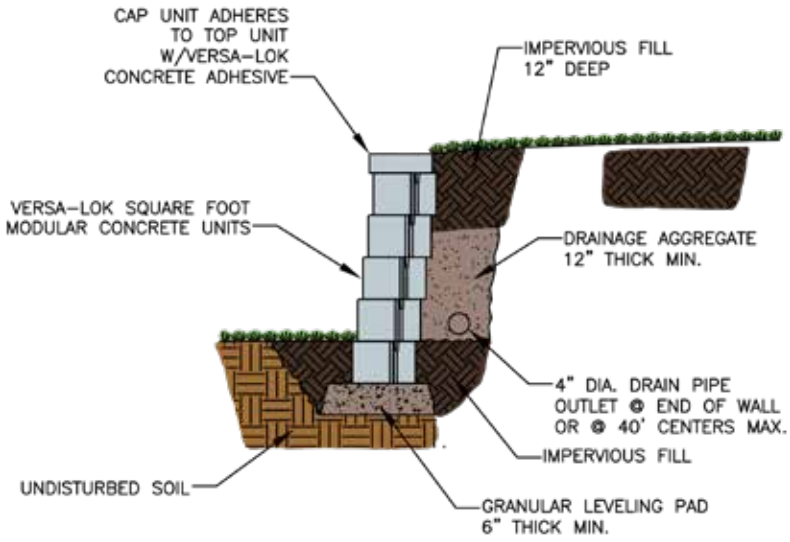


SPECIFICATIONS

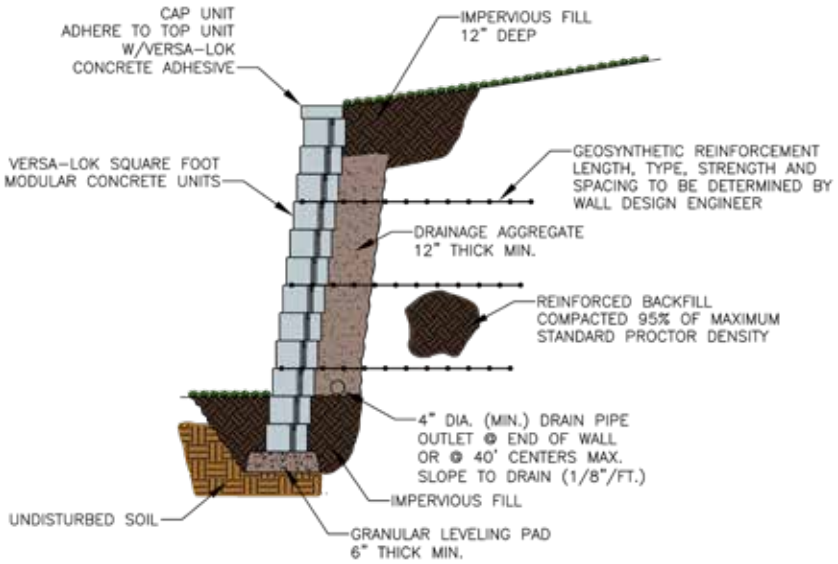
Height	8″
Width (face)	18″
Depth	12″
Face area	1 sq. ft.
Weight	87 lbs.
Weight (w/ aggregate fill)	115 lbs.
Minimum outside radius	4′ 6″
Setback	1″ (7 degrees)
	or 1/4″ (1.8 degrees)
Pins	2 per unit



UNREINFORCED*



SOIL-REINFORCED



***Please note:** The maximum height for an unreinforced Square Foot retaining wall is 3 feet. Taller walls up to 50 feet+ require soil reinforcement and engineering assistance. Individual site, soil and loading conditions (including terraces) may limit unreinforced wall heights to less than 3 feet. Check your local building code requirements. Please contact your supplier or VERSA-LOK representative for assistance.

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BQ#104 Attachment



Square Foot™

Design & Installation Guidelines









Building a reputation.
One square foot at a time.





BQ#104 Attachment

WELCOME

This guide is intended to illustrate design and construction capabilities of Square Foot™ retaining walls. There are many variables to consider, however, when planning or constructing any retaining wall. Soil types, drainage, loading, topography, and height each need to be addressed on every project to ensure safe, trouble-free installation.



Walls that support heavy loads or exceed three feet in height require special soil reinforcement and often professionally designed plans. Consult a qualified engineer if unsure about any construction, site, or soil conditions.

A variety of technical support is available including in-house engineering assistance and reference literature. The following Technical Bulletins* are for VERSA-LOK® Standard units, however, the general principles also apply to Square Foot units.

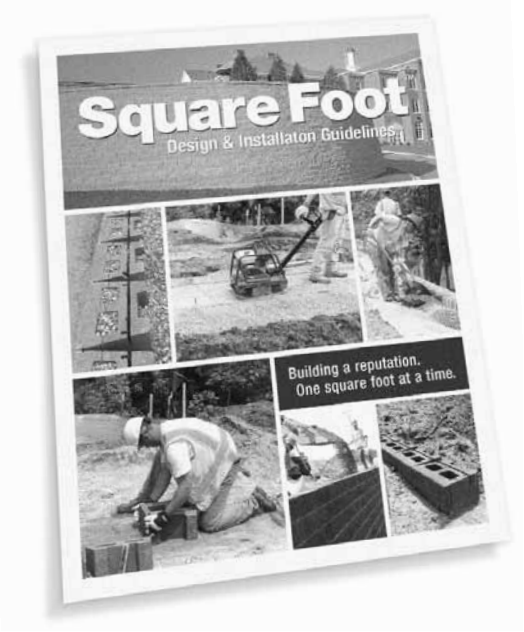
Please call **(800) 770-4525** with questions or to request any of the following:

- **Technical Bulletin #1** *Shoreline, Waterway and Retention Pond Protection*
- **Technical Bulletin #3** *Curves and Corners*
- **Technical Bulletin #4** *VERSA-LOK® Caps*
- **Technical Bulletin #5** *Base Installation*
- **Technical Bulletin #7** *Tiered Walls*
- **Technical Bulletin #8** *Fences, Railings, and Traffic Barriers*
- **Technical Documentation for VERSA-Grid® Soil Reinforcement**

**Technical Bulletins are also available for download online at www.versa-lok.com.*

BQ#104 Attachment

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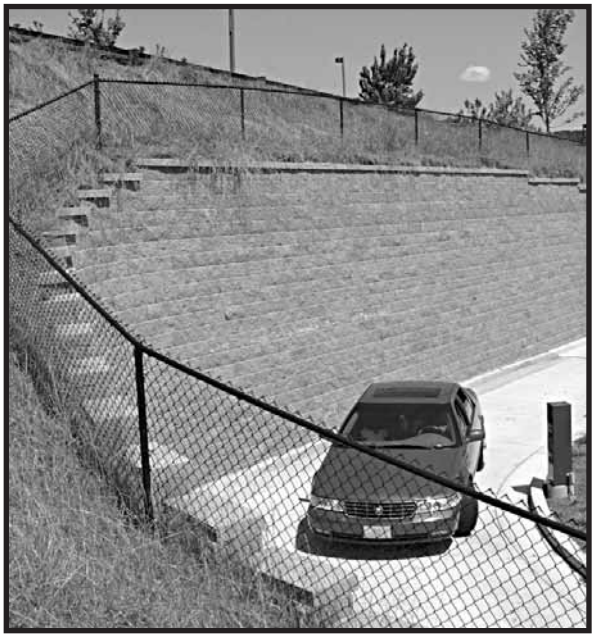
Construction Details 36

BQ#104 Attachment

INTRODUCTION & UNIT SPECIFICATIONS

1

Square Foot™ retaining walls are a permanent, attractive, preferred alternative to ordinary retaining wall types. They have a natural split-face texture to complement any environment and because they are made of concrete, are environmentally safe.



Square Foot retaining walls are economically installed without mortar and do not require concrete footings. In addition, each unit covers one square foot of wall face, making Square Foot retaining walls an economical choice for large commercial and agency projects.

Square Foot retaining walls have rapidly earned approval from architects, engineers, and contractors. It may be easily installed by contractors, grounds maintenance personnel, or municipal construction crews. Matching concrete caps are available to attractively finish any Square Foot retaining wall.

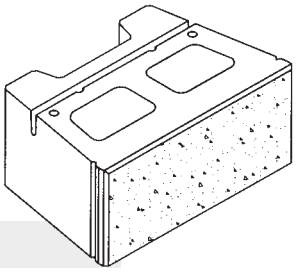
Square Foot units are routinely used by many state transportation departments. Properly designed, walls may be constructed to heights in excess of 40 feet.

Square Foot units are made from high-strength, low-absorption concrete on standard block machines. Holes and slots molded into units accept VERSA-TUFF® non-corrosive, nylon/fiberglass pins. Pins interlock units and help provide consistent alignment. This unique hole-to-slot pinning system permits easy variable-bond construction—keeping vertical joints tight.

1 INTRODUCTION & UNIT SPECIFICATIONS

SQUARE FOOT™ UNIT

(Actual unit size and weight may vary slightly by region.)



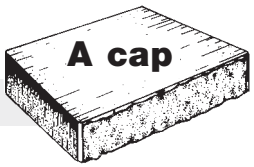
Height:	8 inches	(203.2 mm)
Width (face)**:**	18 inches	(457.2 mm)
Width (rear)**:**	14 inches	(355.6 mm)
Depth:	12 inches	(304.8 mm)
Face Area:	1.0 foot^2	(0.093 m^2)
Weight:	87 lbs.	(39.46 kg)

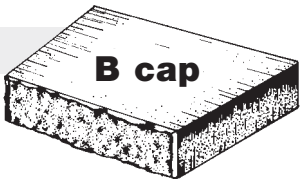
VERSA-TUFF® PIN



Length:	6.8 inches	(172.7 mm)
Diameter:	0.48 inches	(12.2 mm)
Material:	Glass-Reinforced Nylon	

CAP UNITS



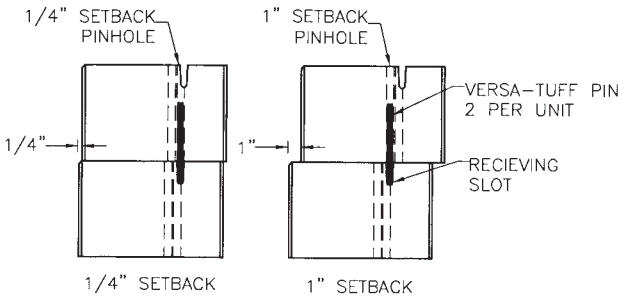


Height:		3-5/8 inches	(92.1 mm)
Width (face)**:**		14 inches	(355.6 mm)
Width (rear)**:**	**A** cap	12 inches	(304.8 mm)
	B cap	16 inches	(406.4 mm)
Depth:		12 inches	(304.8 mm)
Weight:	**A** cap	40 lbs.	(18.14 kg)
	B cap	50 lbs.	(22.68 kg)

BQ#104 Attachment

Pinning

Square Foot™ units interlock with non-corrosive VERSA-TUFF® pins (two per unit). As wall courses are installed, pins are inserted through holes in uppermost course units and are received in slots of adjacent lower course units. Receiving slots allow pinning for near vertical (1/4" setback) or canted (1" setback) walls.

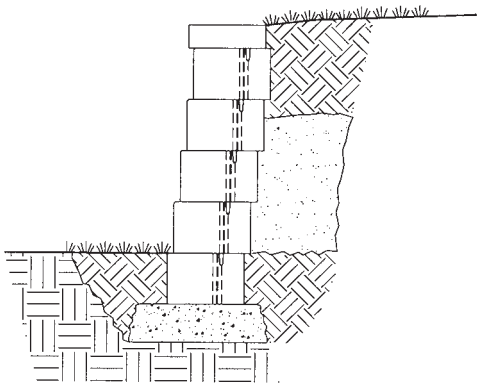


PINNING DETAIL

Unreinforced Walls

For shorter walls, Square Foot retaining walls work purely as gravity systems—unit weight alone provides resistance to earth pressures. Batter setback of wall faces offers additional resistance against overturning.

Maximum allowable wall height for gravity walls varies with soil and loading conditions. Generally, with level backfill, good soils and no excessive loading, Square Foot gravity walls are stable to heights of three feet.



Reinforced Walls

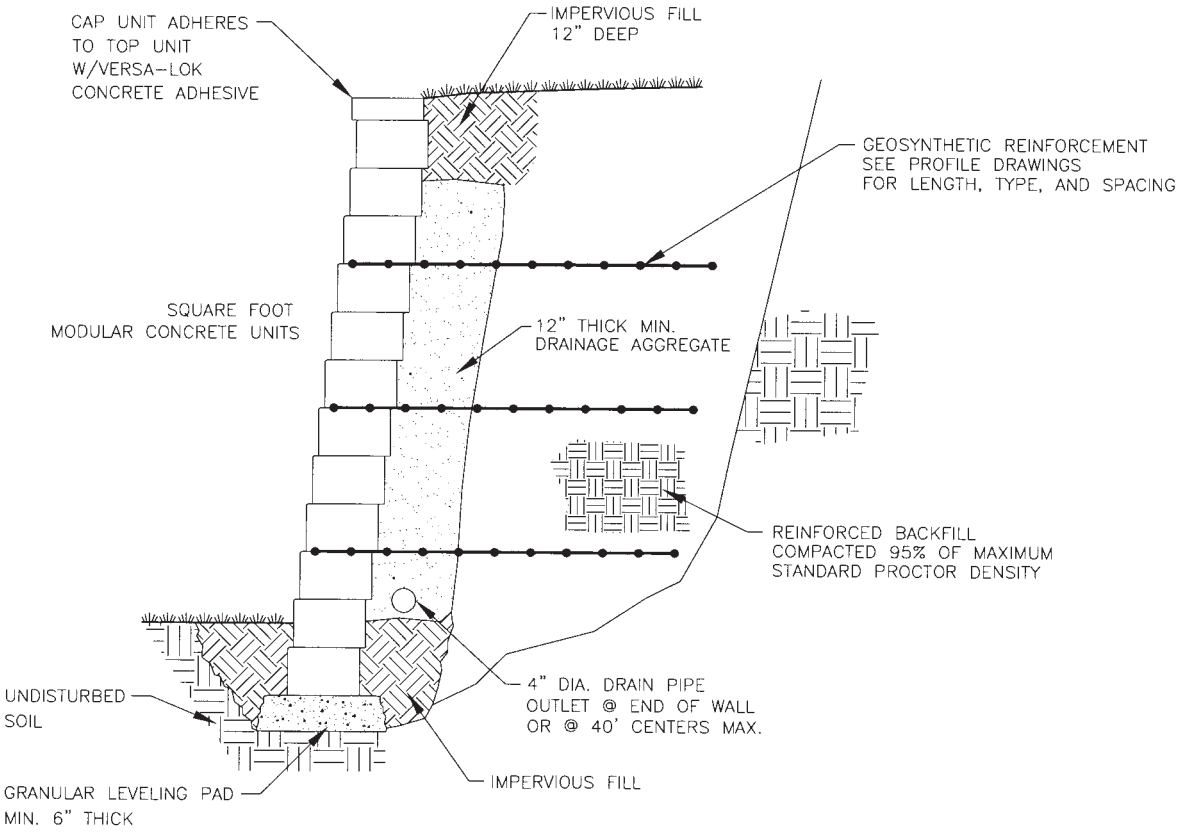
When weight of units alone is not enough to resist soil loads, horizontal layers of geosynthetics are used to reinforce soil behind walls. With proper soil reinforcement and design, Square Foot retaining walls can be constructed to heights in excess of 50 feet. Geosynthetics and soil combine to create reinforced soil structures that are strong and massive enough to resist forces exerted on them.

2 SYSTEM OVERVIEW

Reinforced Wall Typical Section

(The need for design of soil reinforcement and drainage materials is site/soil dependent.)

A Square Foot™ retaining wall has a number of components: the Square Foot modular concrete facing units, geosynthetic reinforcement (if required), leveling pad, backfill, drainage features, and retained soil.



BQ#104 Attachment

Foundation

Foundation soils on which walls will rest must be stiff, firm, and have sufficient capacity to support wall system weight. Any loose, soft, or compressible material must be removed and replaced with properly compacted backfill. The bearing capacity of the foundation soils should be addressed by a soils engineer.

Square Foot™ retaining walls are installed on leveling pads consisting of well-graded angular gravel. The most commonly used material for leveling pads is that which is used locally as road base aggregate. Granular leveling pads provide stiff, yet somewhat flexible, bases to distribute wall weights.

Rigid concrete footings extending below frost are not required or recommended. Because Square Foot units are installed without mortar, they are free to move slightly in relation to each other. Flexibility of the leveling pad and wall units accommodates freeze/thaw cycles without damage to structures. Square Foot walls, installed on granular leveling pads, have been successfully used on projects throughout North America—including shoreline applications and walls exceeding 50 feet in height.

If a contractor chooses to form leveling pads using concrete, unreinforced pads should be made of lean concrete mix (200-300 psi) and no more than two inches thick. To ensure correct Square Foot unit alignment, special care needs to be taken to construct concrete pads that are exactly level. In rare situations where rigid, reinforced-concrete footings are required, they should be placed below seasonal frost depths.

Embedment

Square Foot retaining walls usually have one-tenth of exposed wall heights embedded below grade. For example, a wall with 20 feet of height exposed above grade would have a minimum of 2.0 feet buried below grade—making a total wall height of 22.0 feet. Embedment should be increased for special conditions such as slope at the toe of walls, soft foundation soils, or shoreline applications. Embedment provides enhanced wall stability and long-term protection for leveling pads.

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3 WALL COMPONENTS

Soils and Compaction

With proper design, segmental walls can be constructed within a wide variety of soil conditions. Granular soils are preferred as fill in the areas reinforced with geosynthetics. However, fine-grained soils such as clays are acceptable, too. Usually, coarse soils require less soil reinforcement and are easier to compact than fine soils. Problem materials like expansive clays, compressible soils, or highly organic soils (top soil) should be avoided or properly addressed in designs.

Proper compaction of foundation and backfill soil is critical to long-term performance of retaining wall systems. Loose backfill will add pressure on walls, collect water, cause settlement, and will not anchor soil reinforcement materials properly.

Foundation and backfill materials should be compacted to at least 95 percent of standard Proctor density. (Proctor density is the maximum density of the soil achieved in a laboratory using a standard amount of compaction effort.) Generally, construction observation and testing for proper soil type and compaction is provided by the project's soils engineer.

Drainage Within Walls

Segmental retaining walls are designed assuming no hydrostatic pressure behind walls. Drainage aggregate (angular gravel, clear of fines) placed behind walls helps eliminate water accumulation. Because no mortar is used in Square Foot™ wall construction, water is free to weep through joints of installed units. For walls taller than three feet high, a perforated drain pipe is recommended at the base of the drainage aggregate to quickly remove large amounts of water.

If high groundwater levels are anticipated or if the wall is along a shoreline, additional drainage materials behind and below reinforced fill may be required. Filter fabric may be required to prevent unwanted migration of fine soil particles into the drainage aggregate.

Surface Drainage

Wall sites should be graded to avoid water flows, concentrations, or pools behind retaining walls. If swales are designed at the top of walls, properly slope them so water is removed before it can flow down behind walls.

BQ#104 Attachment

Give special attention to sources of stormwater from building roofs, gutter downspouts, paved areas draining to one point, or valleys in the topography. Be sure to guide flows from these areas away from retaining walls. Slope the soil slightly down and away from wall base to eliminate water running along base and eroding soil.

If finish grading, landscaping, or paving is not completed immediately after wall installation, temporarily protect the wall from water runoff until adjacent construction and drainage control structures are completed.

Geosynthetic Reinforcement

Geosynthetics are durable, high-strength polymer products designed for use as soil reinforcement. Horizontal layers of geosynthetic provide tensile strength to hold the reinforced soil together, so it behaves as one coherent mass. The geosynthetic reinforced soil mass becomes the retaining wall. Sufficient length and strength of geosynthetics can create a reinforced soil mass large enough and strong enough to resist destabilizing loads. Geosynthetic layers also connect the Square Foot units to the reinforced soil.

Geosynthetics are made from several types of polymers that resist installation damage and long-term degradation. Geosynthetics are designed to interact with the soil for anchorage against pullout and resistance to sliding. Geogrids, the most common soil reinforcement for walls, are formed with an open, grid-like configuration. Geotextiles (solid fabrics) are also used. Product-specific testing determines the durability, soil interaction, and strength of each type of geosynthetic. The interaction of various geosynthetics with Square Foot units (connection strength) has also been thoroughly tested.

Geosynthetic layers must be nominally tensioned and free of wrinkles when placed. Geosynthetics are generally stronger in one direction—the roll direction. It is important that the high-strength direction is placed perpendicular to the wall face, in one continuous sheet (no splices). Along the wall length and parallel to the face, adjacent sections of reinforcement are placed immediately next to each other without overlap to create 100-percent coverage with no gapping, and with special details for curves and corners.

The required type, length, vertical spacing, and strength of geosynthetic vary with each project depending on wall height, loading, slopes, and soil conditions. A professional Civil Engineer (P.E.) should prepare a final, geogrid-reinforced wall design for each project.

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4 ENGINEERING

Square Foot™ retaining walls are designed as traditional gravity walls. For unreinforced walls, the stabilizing weight of the battered wall units is compared to the loading on the walls to ensure stability against overturning and sliding. *(Figure **1A**)* When the loading exceeds the stability of the units alone, a larger gravity mass is created from reinforced soil. *(Figure **1B**)*

To ensure stability of a reinforced retaining wall, the wall engineer must design a reinforced soil mass large enough to resist loads from outside the wall system (external stability) and with enough layers of proper strength geosynthetic to keep the reinforced soil mass together (internal stability). In addition, the design must have sufficient geosynthetic layers to keep units stable and properly connected to the reinforced soil mass (facial stability).

For internal stability, the geosynthetic layers must resist loads that could pull apart the reinforced soil mass. *(Figure **2**)* The wall design engineer must ensure the geosynthetic has enough anchorage length to resist pullout from the stable soils and enough strength to resist overstress (breakage). The geosynthetic also must be long enough to resist sliding along the lowest layer.

For external stability, the reinforced soil mass must have sufficient width to resist sliding and overturning. *(Figure **3**)* The wall design engineer increases geosynthetic lengths until the reinforced soil is massive enough to provide required stability. The project geotechnical engineer should review the wall design and site soil conditions for external stability against bearing failures, settlement, or slope instability. *(Figure **4**)* Often, the wall design engineer can address any such global stability concerns by increasing geosynthetic lengths.

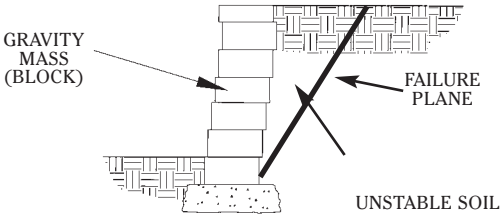
For facial stability, the wall design engineer must ensure wall units can resist loads at the face of the wall and stay connected to the reinforced soil mass, stay interlocked between geosynthetic layers, and not overturn at the top of the wall.

Loading on segmental walls is dependent on soil conditions, surcharges, slopes, water conditions, and wall heights. Accurate knowledge of each of these properties is needed for a proper design. Soil properties required for a segmental retaining wall design include the internal friction angle (ϕ) and soil unit weight (γ). Generally, the cohesion (c) of any fine-grained soils is conservatively ignored to simplify the design.

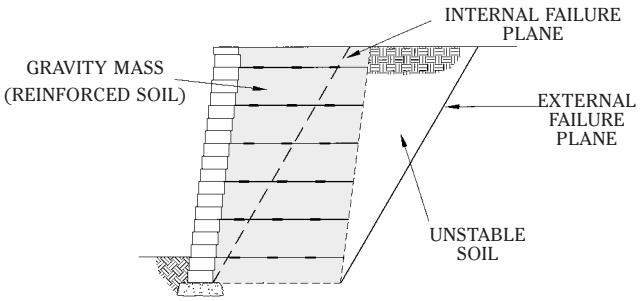
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Stability Analysis

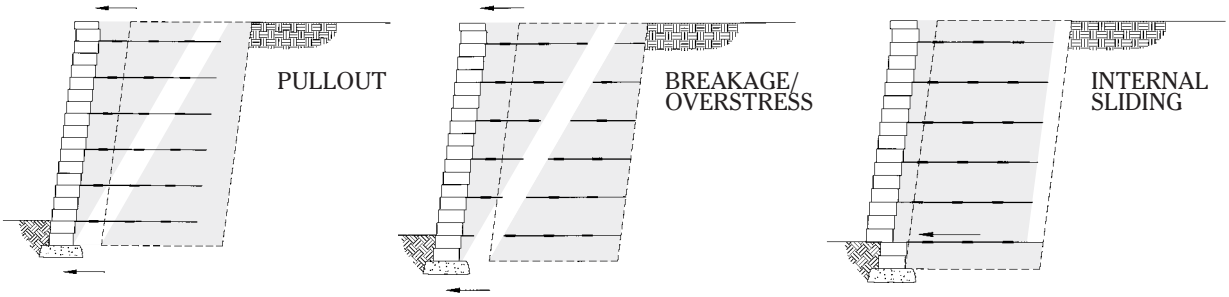
Unreinforced Wall *(Figure 1A)*



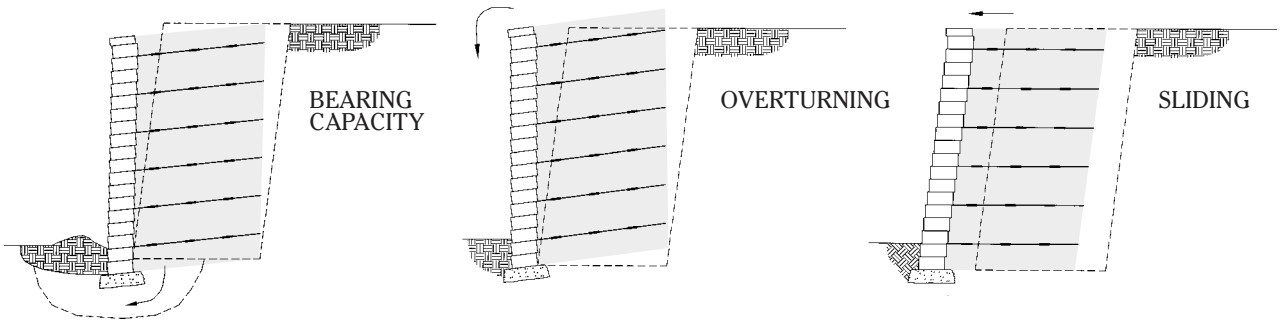
Reinforced Wall *(Figure 1B)*



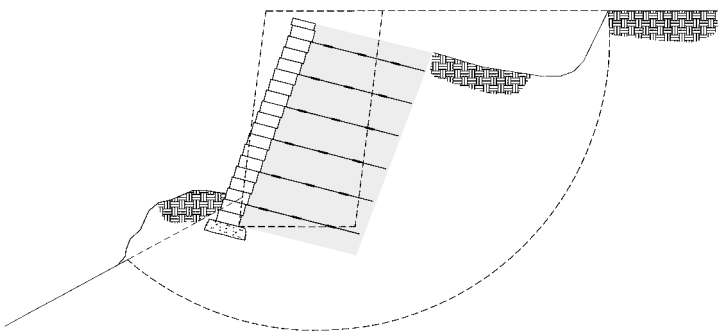
Internal Stability *(Figure 2)*



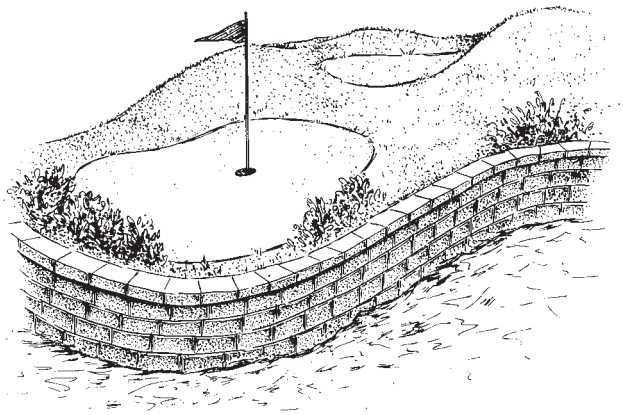
External Stability *(Figure 3)*



Global Stability *(Figure 4)*



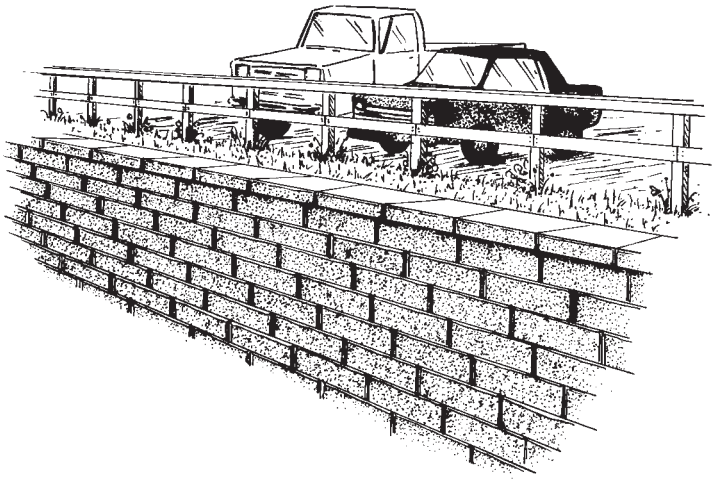
5 SPECIAL DESIGN CONSIDERATIONS



Shorelines

Square Foot™ retaining walls perform well in shoreline applications. However, special design considerations are often necessary to ensure that water pressures do not build up behind walls. Special provisions may include granular reinforced backfill, additional drainage aggregate, drainage behind reinforced soil masses, and filter fabric. Protection of bases from water scour, wave action,and ice may also be necessary.

! *See VERSA-LOK® Technical Bulletin #1 for more information regarding shoreline and retention pond protection.*



Loads Behind Walls

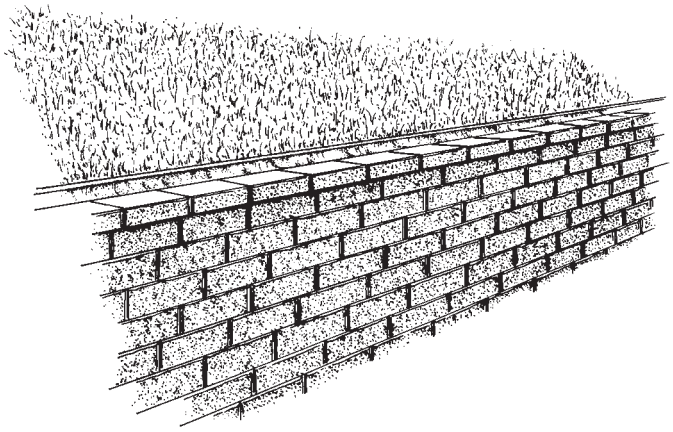
Surcharge loads behind walls can substantially increase amounts of required soil reinforcement. Common surcharge loads include: parking areas, driveways, roads, and building structures. For design purposes, permanent loads like buildings are considered to contribute to both destabilizing and stabilizing forces acting on walls. Dynamic forces like vehicular traffic are considered to contribute to destabilizing forces only.

BQ#104 Attachment

Often, the highest surcharge loads are caused by grading or paving equipment during construction. Heavy equipment should be kept at least three feet behind the back of retaining wall units. Soil reinforcement designs should accommodate all anticipated surcharge loads—even if they will occur infrequently or just once.

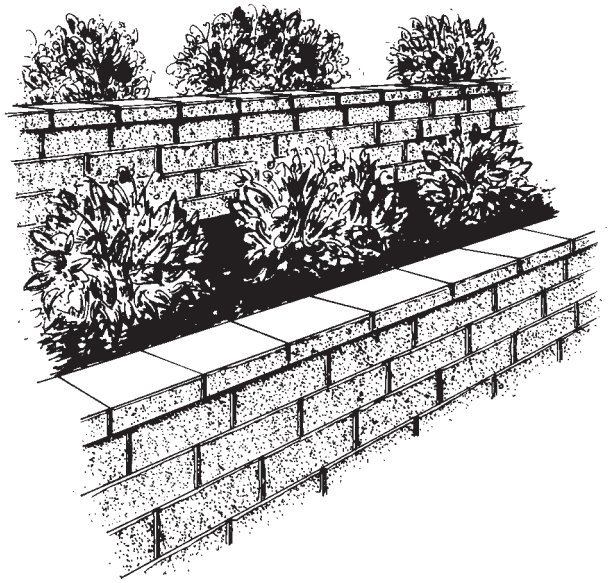
Slopes

Slopes behind walls increase pressures, sometimes doubling soil loads compared to level backfills. Steep slopes below walls can decrease stability of wall foundations. Slopes can increase the amount of soil reinforcement needed, especially the length. Generally, slopes above or below walls should be no steeper than 2:1 (horizontal:vertical).



Tiering

Aesthetically, dividing large grade changes into tiered wall sections may sometimes be desirable. However, upper wall tiers can add surcharge loads to lower walls and necessitate special designs. To avoid loading lower walls, upper walls must be set back horizontally at least twice the height of the lower walls. If walls are placed closer, lower walls must be designed to resist the load of upper walls.



! Several closely spaced tiered walls can create steep, unstable slopes. If tiered walls make a grade change steeper than 2:1 (horizontal:vertical), global slope stability may need to be reviewed by a qualified soils engineer. See VERSA-LOK® Technical Bulletin #7 for more information regarding tiered wall construction.

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6 PLANNING, ESTIMATING, & FINAL DESIGNS

Planning

Careful planning is critical to successful projects. Prior to design, accurate information needs to be gathered including soil conditions, proposed wall heights, topography, groundwater levels, and surface water conditions. Proper permits, owner approvals, utility clearances, and temporary easements should also be obtained in advance.

Planned wall alignments should be reviewed for feasibility. Make sure that layouts account for minimum curve radii, wall setback, and area needed for geosynthetic soil reinforcement. Be sure that all wall components fit within property constraints. Verify that temporary construction excavations will not undermine foundation supports of any existing structures or utilities. Considerations should also be given to site access for equipment and materials.

Estimating

Accurately estimate and order required materials including Square Foot™ units, VERSA-TUFF® pins, cap units, VERSA-LOK® Concrete Adhesive, imported backfill, leveling pad materials, geosynthetic soil reinforcement, drainage aggregate, and additional drainage materials. See the Material Estimation Worksheet on page 28 to help determine Square Foot quantities.



For reinforced-wall projects, the VERSA-Grid® estimating charts on page 29 provide approximate amounts of geogrid soil reinforcement necessary to construct walls in various soil and loading conditions. For tall walls or complex situations, our staff engineers can prepare project-specific preliminary designs to be used for estimation purposes.

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Final Designs

For walls more than four feet tall, most building codes require a final wall design prepared by a licensed Civil Engineer (P.E.) registered in that state. Square Foot™ retaining wall manufacturers have a network of licensed civil engineers who are familiar with segmental retaining wall design. These individuals are available for referrals to architects, engineers, or contractors with final wall design needs.

Final wall designs may be provided prior to putting projects out for bidding. Alternatively, wall portions of projects can be specified design/build. With design/build projects, engineers/architects provide wall layout information (line and grade) but not final engineering for the wall. Contractors submit bids based on this layout including estimated labor, materials, and final engineering costs. Contractors who are awarded projects retain licensed engineers to prepare final wall designs and submit shop drawings for approval from project engineers/architects.

As with all proposed construction, a soils report prepared by a qualified geotechnical engineer is required to provide adequate information for proper design. The soils report should address overall stability of planned grade changes and allowable bearing capacity of foundation soils. The report should also include information about reinforced and retained soil properties.

For assistance in specifying, designing and engineering Square Foot retaining walls, standard design/build specifications and sample construction details are provided on pages 30 to 41. This information is also available in electronic format on a Square Foot Construction Details disk. Technical staff is also available to assist with planning, layout, preliminary engineering, and referrals for final engineering.

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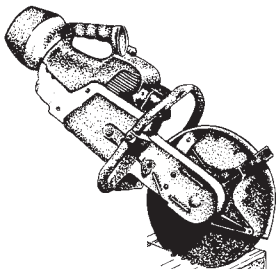
7 WALL CONSTRUCTION

Tools

The following tools may be helpful during construction of Square Foot™ retaining walls.

- **Safety Protection**
- **Shovel**
- **Four-Foot Level**
- **Smaller Level**
- **Four-Pound Sledge Hammer**
- **Masonry Chisel**
- **Brick Hammer**
- **Tape Measure**
- **Hand Tamper**
- **Vibratory-Plate Compactor**
- **Caulking Gun**
- **String Line**
- **Finishing Trowel**
- **Broom**
- **Diamond-Blade Concrete Saw**
- **Transit or Site Level**
- **Backhoe or Skid-Steer Loader**

Unit Modification



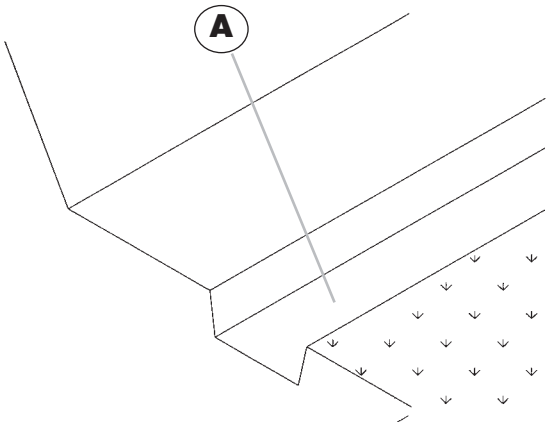
Saw-cuts are normally made using a gas-powered cut-off saw with a diamond blade. To cut a unit, mark desired path of cut on all unit sides. Stand the unit with its face up and cut two to three inches deep along the front path. Reposition the unit and complete the cut by cutting the remainder of the unit along top and bottom paths. Cutting first into the front face ensures a straight, square edge which will likely have to fit closely next to the straight edge of an adjacent unit. Remember to always wear proper safety protection when performing cutting operations.

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Excavation

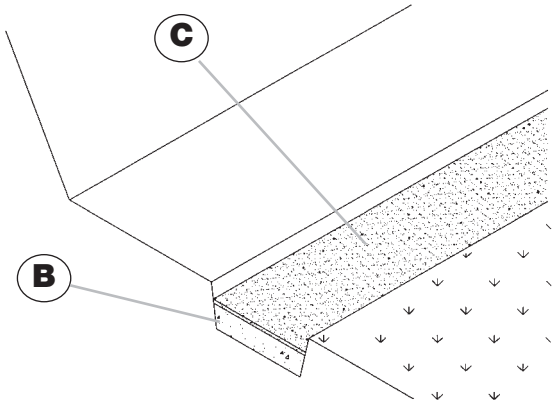
Excavate just deeply enough to accommodate the leveling pad (usually six inches) and required unit embedment below grade. (A) When necessary, also excavate areas where geosynthetic soil reinforcement will be placed. Required unit embedment varies with wall height and site conditions. Generally, if grade in front of the wall is level, one-tenth of the exposed wall height should be buried (embedded) below grade. Additional embedment may be required for special conditions including slopes in front of walls, soft foundation soils, and water applications.

Compact soil at the bottom of excavation. Do not place wall system on loose, soft, wet, or frozen soil—settlement may result. If the wall will sit on a previously backfilled excavation such as a utility line trench, be sure the entire depth of existing backfill is well compacted. If necessary, over-excavate soft soils and replace with properly compacted backfill.



Leveling Pad

Place granular leveling pad material and compact to a smooth, level surface. (B) Leveling pad should be at least six inches thick and 24 inches wide. It should consist of 3/4-inch crushed gravel. Use a thin layer of fine sand on top of the leveling pad for final leveling. (C)



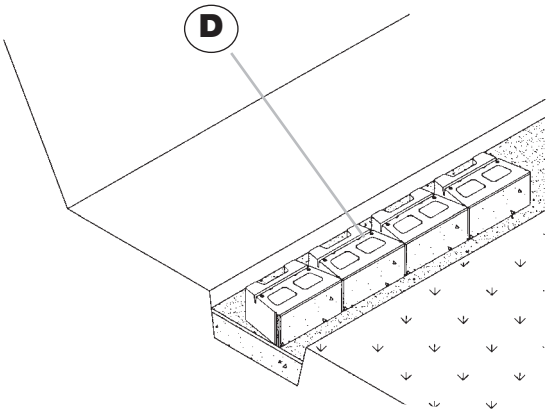
To quickly construct long sections of leveling pad, create forms by leveling and staking rectangular metal tubing along both sides of the planned pad. Place and compact granular material within these leveled forms and screed off excess. See VERSA-LOK® Technical Bulletin #5 and video for more tips about leveling pad construction.

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7 WALL CONSTRUCTION

If the planned grade along wall front will change elevation, the leveling pad may be stepped in eight-inch increments to match the grade change. Always start at the lowest level and work upward.

Step the leveling pad often enough to avoid burying extra units while maintaining required unit embedment.



Base Course

Make sure that the leveling pad is level and begin placing base course units. (D) If the leveling pad is stepped, begin at the lowest course before proceeding to next course.

Align units using their backs or slot rather than their irregularly textured front faces. String lines may be helpful when aligning straight walls. Refer to pages 24 and 25 for tips on curve and corner alignment. Place units on the leveling pad, side-by-side. Front faces on adjacent units should fit tightly and unit bottoms should contact the leveling pad completely. Using a four-foot level, level units front-to-back, side-to-side with adjacent units. Tap high points with a mallet or hand tamper until level. Take time to ensure a level base course. Minor unevenness in the base course will be amplified and difficult to correct after several course have been installed.

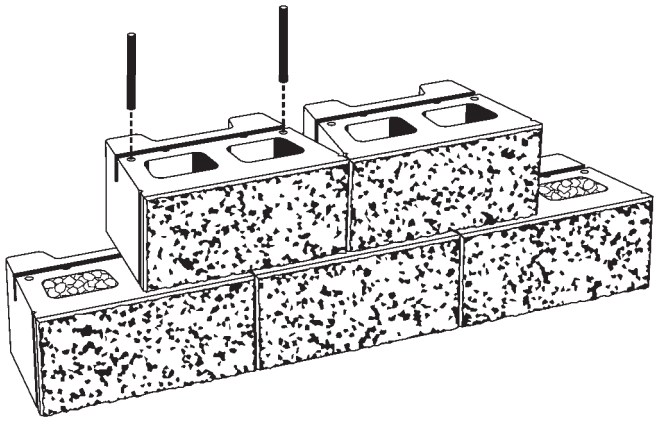
After positioning the base course, fill the voids (cores) of the units with crushed gravel. To avoid clogging the pinning slots, use gravel that is 1.0 to 1.5 inches in diameter. Crushed gravel is suggested in the base course core fill because free-draining aggregate core fill may allow water to flow down to the base. Place and compact soil backfill behind the units. Also replace and compact over-excavated soil in front of the units. The backfill behind and in front of embedded units should consist of soil—do not use drainage aggregate.



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Additional Courses

Sweep off tops of installed units to remove any debris that may interfere with additional courses. Place the next course of units by setting them a short distance away from their final position and slide them into place. Sliding helps remove imperfections and debris from the top surface of installed units.



A unique hole-to-slot pinning system allows units to be installed on variable bond. (Square Foot™ units do not need to be placed exactly halfway over the two lower course units.) Vertical joints can wander in relation to other joints throughout walls. Do not try to install walls on half bond by leaving gaps in vertical face joints. Because the bond can vary, vertical face joints can and always should be tight.

Pin Square Foot units with a one-inch setback (7 degree cant) or a 1/4-inch setback (near vertical). Use the one-inch setback unless the near vertical setback is specifically required. (Near-vertical walls require more geogrid than setback walls). For the one-inch setback, use the front pin holes (outside holes). For the near vertical setback, use the pin holes within the slots (inside holes). Insert two VERSA-TUFF® pins through the appropriate holes of the upper units into the receiving slots in the lower units. The two pins should engage two separate units in the course below. Make sure the pins are fully seated in the lower unit slots. If necessary, seat pins using a mallet and another pin. Avoid dropping pins into holes in the slots.

Pull the units forward to remove any looseness in the pin connection. Check unit alignment and levelness—adjust if necessary. If length of a course must fit into a limited space or if vertical joints begin to line up with joints below, adjust by installing partial units. Create partial units by saw-cutting whole units into pieces at least four inches wide.

Fill the voids (cores) of each course of units with angular, free-draining gravel before stacking the next course. Stack no

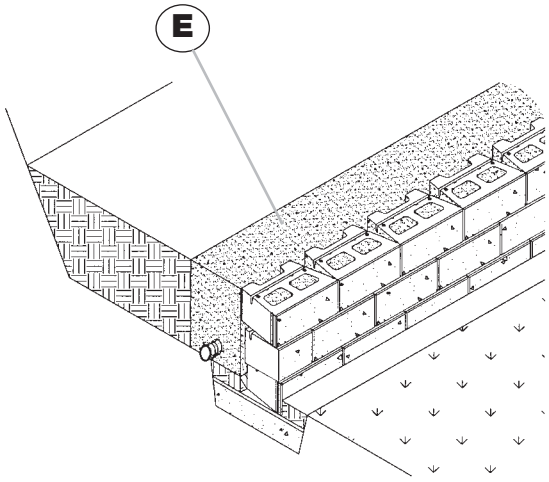
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7 WALL CONSTRUCTION

more than two courses before backfilling. If units are stacked too high, they may push out of alignment during placement of backfill.

Drainage Aggregate

Beginning at the level of planned grade in front of the wall, place drainage aggregate (1-1.5-inch clear, free-draining, angular gravel) between and directly behind units to a minimum of 12 inches. Drainage aggregate must be free of fine dirt or soil. Do not place drainage aggregate behind units that will be embedded. (E)



Drainage aggregate is critical to wall performance because it keeps water pressures from building up behind the wall face.

For walls over three feet in height, perforated drain pipes should be used to collect water along the base of the drainage aggregate. Drain pipes help to quickly remove large amounts of water.

For some projects, especially shoreline applications, a geosynthetic filter fabric may be required behind the drainage aggregate. Filter fabric prevents soils or sands (fines) from migrating into the drainage aggregate and wall face joints.

Compacted Soil Backfill

Proper placement and compaction of backfill is critical to the stability of a segmental wall. Poorly compacted backfill puts extra pressures on a wall—especially when it becomes wet.

Place soil backfill beginning directly behind drainage fill in layers (lifts) no thicker than six inches. Compact soil backfill—making sure that backfill is neither too wet nor dry. The amount and type of effort needed for adequate backfill compaction varies with soil type and moisture content. Generally, hand-operated vibratory-plate compactors can be used to achieve adequate compaction of granular soils—even on big projects. Fine soils such as clays should be compacted with kneading-type equipment like sheepsfoot rollers.

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To avoid pushing wall units out of alignment, do not use heavy self-propelled compaction equipment within three feet of the wall face.

At the end of the day's construction, protect the wall and the reinforced backfill from possible rainstorm water damage. Grade the soil backfill so water will run away from wall face and direct runoff from adjacent areas away from project site.

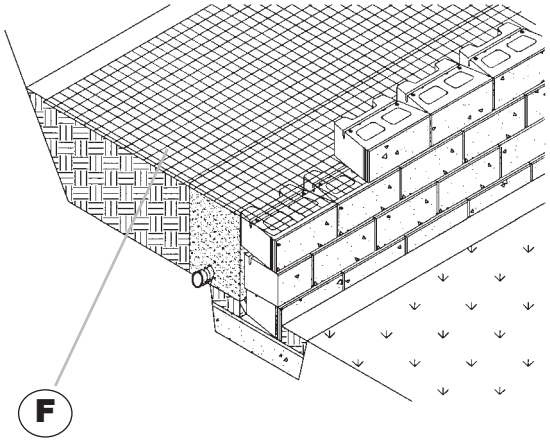
Geosynthetic Soil Reinforcement

Geosynthetic soil reinforcement, like VERSA-Grid®, is used to reinforce soil backfill when weight of Square Foot™ units alone is not enough to resist soil pressures. Soil reinforcement type, length, and vertical spacing will vary for each project and should be specified in a final wall design prepared by a licensed Civil Engineer (P.E.).

Prepare to install soil reinforcement materials by placing Square Foot units and backfilling up to the height of the first soil reinforcement layer specified on construction drawings. Lay soil reinforcement horizontally on top of compacted backfill and Square Foot units. (F) Geosynthetic layers should be placed about one inch from the front of Square Foot units.

Geosynthetics are usually stronger in one direction. It is very important to place them in the correct direction.

The strongest direction of the geosynthetic must be perpendicular to the wall face. For correct orientation, follow the geosynthetic manufacturer's directions carefully.



To ensure stability during construction, vertical spacing between geosynthetic layers should never exceed two feet. See VERSA-Grid® estimating charts on page 29 for assistance with preliminary material estimating.

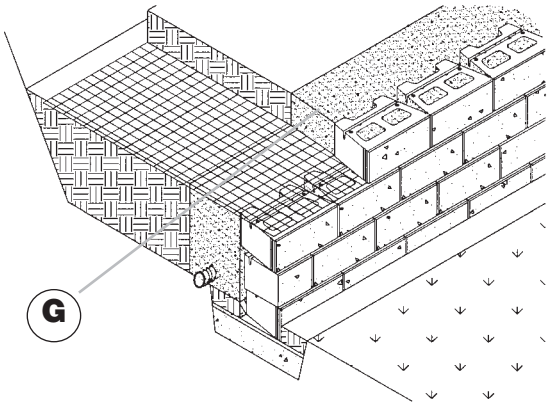
After positioning soil reinforcement, place the next course of Square Foot units on top of soil reinforcement. Insert pins through Square Foot units and into lower course units. Place drainage aggregate against back of the units and on top of soil reinforcement. Remove slack by pulling soil reinforcement away from the wall face and anchoring at back ends.

7 WALL CONSTRUCTION

(G) Beginning at the wall face, place and compact soil backfill. Keep soil reinforcement taut and avoid wrinkles.

Place a minimum of six inches of soil backfill before using any tracked equipment on top of soil reinforcement. Follow manufacturer's construction guidelines to avoid damage to soil reinforcement.

Placing soil reinforcement behind curves and corners requires special layout and overlapping procedures. Never overlap soil reinforcement layers directly on top of each other. Slick surfaces of geosynthetics will not hold in place properly when placed directly on top of one another. Always provide at least three inches of soil fill between overlapping soil reinforcement layers.



! *See VERSA-LOK® Technical Bulletin #3 and geosynthetic manufacturer's instructions for more curve/corner soil reinforcement details.*

More, More, More ...

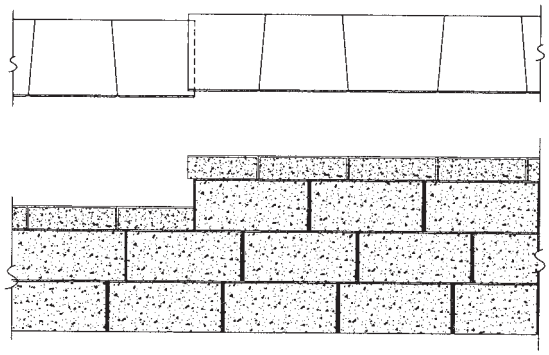
Continue placing additional courses, drainage material, compacted soil backfill, and geosynthetic soil reinforcement as specified until desired wall height is achieved.

! *For walls more than four feet high, most building codes require a final wall design prepared by a licensed Civil Engineer (P.E.) registered in that state. Square Foot™ and its manufacturers have a network of licensed civil engineers who are familiar with segmental retaining wall design. These individuals are available for referrals to architects, engineers, or contractors with final wall design needs.*

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Caps

Finish the wall by placing cap units along the top. Two cap unit types are available—A and B. Alternate A and B caps on straight walls. Use A caps for convex (outside) curves. Use B caps for concave (inside) curves.



If cap layout does not exactly match the wall radius, adjust spacing at the back of the caps—do not gap caps at the front. To completely eliminate gapping, it may be necessary to saw-cut sides of cap units.

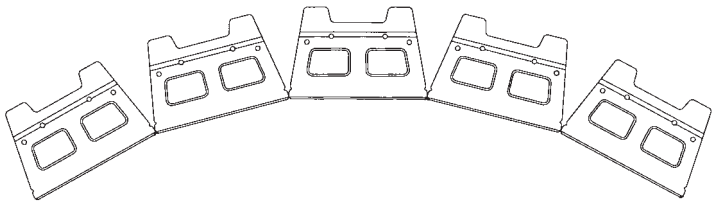
Front faces of caps may be placed flush, set back, or slightly overhanging faces of Square Foot™ units. It is preferred to overhang cap units approximately 3/4-inch to create an "eyebrow" on top of the wall. Overhanging cap units will create a small shadow on wall units and help hide minor imperfections in wall alignment.

! *All cap units should be arranged before securing with VERSA-LOK® Concrete Adhesive. Secure caps by placing two, continuous, 1/4-inch beads of adhesive along the top course of wall units. Set caps on prepared wall units. Do not secure caps using mortar or adhesives that become rigid. A Square Foot wall may move slightly (especially in areas subject to freeze/thaw cycles) causing a rigid cap adhesive to fail. Do not place caps if the units are too wet for the adhesive to stick. In cold weather, keep the adhesive tubes warm until just prior to use. For more information about capping, see VERSA-LOK Technical Bulletin #4.*

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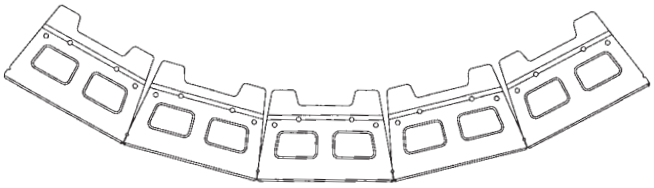
8 WALL DESIGN ELEMENTS

Curves



The trapezoidal shape of Square Foot™ units permits construction of concave and convex curves. Construct curves by increasing or decreasing spaces between the backs of the units—always keeping the front joints tightly aligned. The recommended minimum radius for both convex (outside) and concave (inside) curves is 4’ 6” (4.5 feet), measured from the front face of the units.

See VERSA-LOK® Technical Bulletin #3 for proper placement of geosynthetic soil reinforcement.

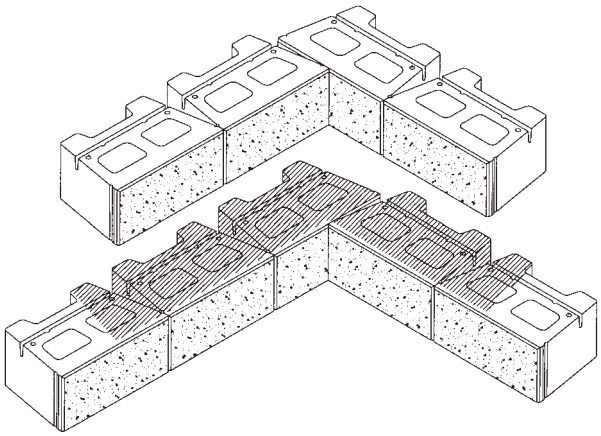


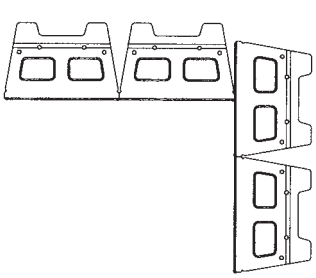
For convex curves, plan ahead to make sure the upper courses do not get tighter than the minimum radius. Because each course sets back, the radius of a convex curve becomes smaller as each course is stacked. To calculate minimum base course radius of a convex curve, add up the setback (either 1/4 or one inch) for each course needed. For example, minimum base course radius for a wall that will have six one inch setbacks (including embedded units) will be (6 x 1") + 4'6" = 5.0".

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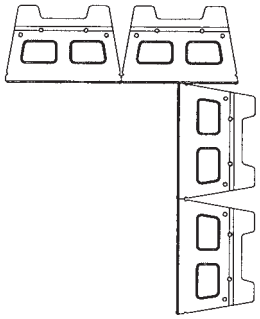
Corners

Inside 90-degree corners can be easily installed with no unit modification. For the first course, abut the unit from one side of the corner against a unit on the other side that runs past the corner. On the next course, simply reverse which side abuts and which side runs long.





UPPER COURSE



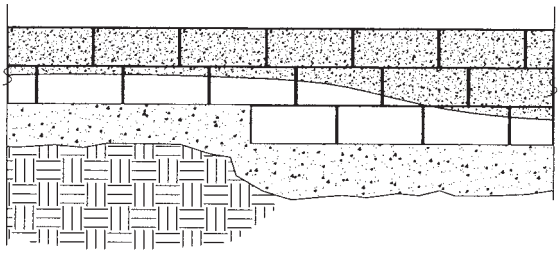
LOWER COURSE

A special corner unit is needed for an outside 90-degree corner and is available only in limited markets. Check with your local Square Foot™ supplier. For ease of installation, it is suggested to replace outside corners with a tight radius convex curve whenever possible.

8 WALL DESIGN ELEMENTS

Stepped Base Elevations

If the final grade along the front of the wall changes elevation, the leveling pad and base course may be stepped in eight-inch increments to match the grade change. Always start at the lowest level and work upward.



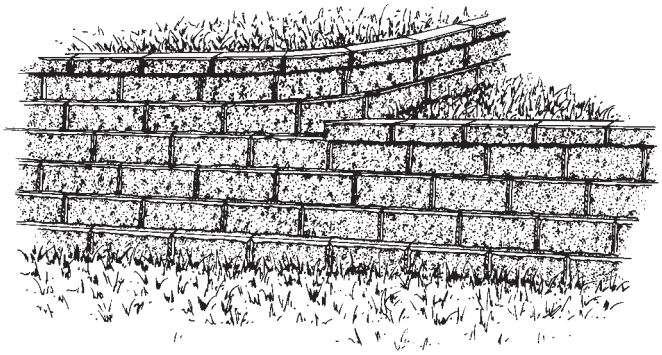
Step the leveling pad often enough to avoid burying extra units while maintaining required unit embedment.

Returns

As an option to stepping wall tops, grade changes at the top of a wall can be accommodated by creating returns that turn into slopes behind a wall.

Returns create a terraced appearance instead of several small steps along the top of a wall.

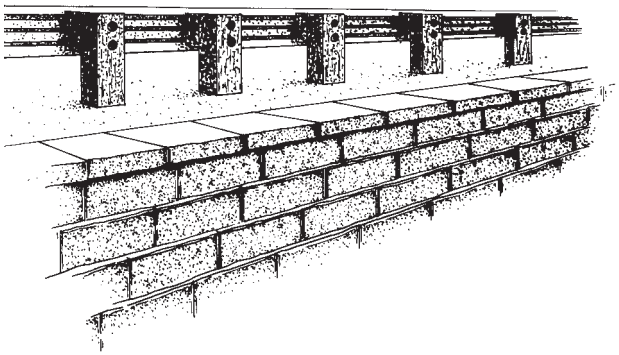
! *See VERSA-LOK® Technical Bulletin #7 for more information on tiered walls.*



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Guide Rails, Railings, and Traffic Barriers

For safety purposes, a variety of barriers may be placed behind Square Foot™ walls, including fences, railings, and guide rails. Barriers should be placed several feet behind wall faces to provide post foundations. Posts may penetrate geosynthetic soil reinforcement layers in accordance with the manufacturer's and engineer's recommendations.



When space is limited, properly designed, reinforced concrete barriers can be placed directly on top of walls. Expansion joints and bond breaks should be provided to accommodate differential movement between rigid barriers and flexible wall faces. Cantilevered supports extending behind walls stabilize the barriers against overturning.

! *For more information about guide rails, railings, and traffic barriers see VERSA-LOK® Technical Bulletin #8 or Construction Details Disk—available FREE by calling (800) 770-4525.*

BQ#104 Attachment

MATERIAL ESTIMATION WORKSHEET

Square Foot™ Units

Area of Wall (SF) x 1.0 Units per SF = Number of Units

_____ SF x 1.0 = _____ Units Needed

VERSA-TUFF® Pins

Units x 2 Pins per Unit = Number of Pins

_____ Units x 2 = _____ Pins Needed

NOTE: *Pins will not be used on the base course.*

Cap Units

Lineal Feet of Wall (LF) x .86 = Number of Caps

_____ LF x .86 = _____ Caps Needed

straight walls - use half **A** caps and half **B** caps
inside curves - use **B** caps
outside curves - use **A** caps

Additional caps may be needed for special splits or cuts.
Gradual curves may require a combination of A & B caps.

VERSA-LOK® Concrete Adhesive

11 oz. Tube: _____ LF ÷ 14 LF per Tube = _____ Tubes

For estimating purposes, the tables on the following page provide approximate amounts of geogrid soil reinforcement needed to construct walls in certain soil and loading conditions. For tall walls or complex situations, in-house staff engineers can prepare project specific preliminary designs to be used for estimation purposes.

VERSA-GRID® ESTIMATING CHARTS

These tables are provided for **estimating purposes only**. *They should not be used or relied upon for any application without verification of accuracy, suitability, and applicability for the use contemplated, which is the sole responsibility of the user. A final, project-specific design should be prepared by a qualified, licensed, professional Civil Engineer (P.E.) based on actual site conditions. Preparation of these tables did not include consideration or analysis of global slope stability or allowable bearing capacity of foundation soils. These must be reviewed for each project by a qualified Geotechnical Engineer.*

There are three tables provided in this guide to help estimate geogrid for different wall loading situations—level backfill, sloping backfill, and surcharges. To estimate geogrid quantities, first look under the **column** *appropriate for project soils, determine the height (H) of the proposed wall and read across the* **row** *(under appropriate soil column) to approximate geogrid type, number of layers, and lengths of each layer.*

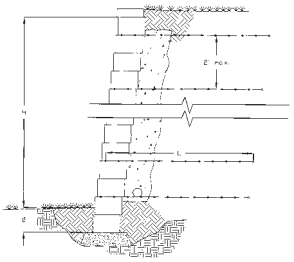
These design charts assume the following conditions:

- Uniform soil conditions
- Stable foundation soils
- Level grade in front of the wall
- No groundwater/water loads
- Slopes and loads behind the wall as shown
- No additional loading behind wall *(such as tiered walls, building loads, etc.)*

Design standards and properties used to develop these charts were:

- Design methodology - in general accordance with NCMA Design Manual for SRWs
- Unit weight of soil (γ) 120 pcf
- Internal friction angle of soil (ϕ) as shown on charts
- Long term design strength of the geogrid (LTDS)
  - **VERSA-Grid VG 3.0 - 1250 lb/ft**
  - **VERSA-Grid VG 5.0 - 1875 lb/ft**

LEVEL BACKFILL



Gravel (ϕ = 34°)

H (feet)	D (feet)	L (feet)	layers	Versa-Grid
4	0.5	n/a	n/a	n/a
5	0.5	3.5	2	VG 3.0
6	0.5	4.0	2	VG 3.0
7	1.0	5.0	3	VG 3.0
8	1.0	5.5	4	VG 3.0
9	1.0	6.0	4	VG 3.0
10	1.0	6.5	5	VG 3.0
12	1.0	8.0	6	VG 3.0

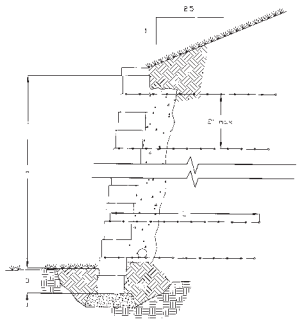
Sand (ϕ = 30°)

H (feet)	D (feet)	L (feet)	layers	Versa-Grid
4	0.5	4.0	1	VG 3.0
5	0.5	4.0	2	VG 3.0
6	0.5	4.5	2	VG 3.0
7	1.0	5.5	3	VG 3.0
8	1.0	6.0	4	VG 3.0
9	1.0	6.5	5	VG 3.0
10	1.0	7.0	5	VG 3.0
12	1.0	8.5	7	VG 3.0

Clay (ϕ = 28°)

H (feet)	D (feet)	L (feet)	layers	Versa-Grid
4	0.5	4.0	1	VG 3.0
5	0.5	4.5	2	VG 3.0
6	0.5	5.0	2	VG 3.0
7	1.0	5.5	3	VG 3.0
8	1.0	6.0	4	VG 3.0
9	1.0	6.5	5	VG 3.0
10	1.0	7.0	6	VG 3.0
12	1.0	8.5	7	VG 3.0

SLOPING BACKFILL



Gravel (ϕ = 34°)

H (feet)	D (feet)	L (feet)	layers	Versa-Grid
4	0.5	4.0	1	VG 3.0
5	0.5	4.0	2	VG 3.0
6	0.5	4.5	3	VG 3.0
7	1.0	5.5	4	VG 3.0
8	1.0	6.0	4	VG 3.0
9	1.0	6.5	5	VG 3.0
10	1.0	7.5	6	VG 3.0
12	1.0	8.5	7	VG 3.0

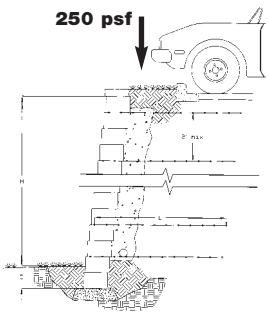
Sand (ϕ = 30°)

H (feet)	D (feet)	L (feet)	layers	Versa-Grid
4	0.5	4.5	1	VG 3.0
5	0.5	4.5	2	VG 3.0
6	0.5	5.5	3	VG 3.0
7	1.0	6.5	4	VG 3.0
8	1.0	7.0	5	VG 3.0
9	1.0	8.0	6	VG 3.0
10	1.0	8.5	6	VG 3.0
12	1.0	10.0	7	VG 5.0

Clay (ϕ = 28°)

H (feet)	D (feet)	L (feet)	layers	Versa-Grid
4	0.5	4.5	2	VG 3.0
5	0.5	5.5	2	VG 3.0
6	0.5	6.0	3	VG 3.0
7	1.0	8.0	4	VG 3.0
8	1.0	9.5	5	VG 3.0
9	1.0	11.0	6	VG 3.0
10	1.0	12.0	6	VG 5.0
12	1.0	15.0	7	VG 5.0

SURCHARGE BACKFILL



Gravel (ϕ = 34°)

H (feet)	D (feet)	L (feet)	layers	Versa-Grid
4	0.5	4.0	2	VG 3.0
5	0.5	4.5	2	VG 3.0
6	0.5	5.0	3	VG 3.0
7	1.0	6.0	4	VG 3.0
8	1.0	6.5	4	VG 3.0
9	1.0	7.0	5	VG 3.0
10	1.0	7.5	5	VG 3.0
12	1.0	9.0	7	VG 3.0

Sand (ϕ = 30°)

H (feet)	D (feet)	L (feet)	layers	Versa-Grid
4	0.5	4.5	2	VG 3.0
5	0.5	5.5	2	VG 3.0
6	0.5	6.0	3	VG 3.0
7	1.0	7.0	4	VG 3.0
8	1.0	7.5	5	VG 3.0
9	1.0	8.5	5	VG 3.0
10	1.0	9.0	6	VG 3.0
12	1.0	10.0	7	VG 5.0

Clay (ϕ = 28°)

H (feet)	D (feet)	L (feet)	layers	Versa-Grid
4	0.5	5.5	2	VG 3.0
5	0.5	6.0	2	VG 3.0
6	0.5	6.5	3	VG 3.0
7	1.0	7.5	4	VG 3.0
8	1.0	8.0	5	VG 3.0
9	1.0	9.0	5	VG 3.0
10	1.0	9.5	6	VG 3.0
12	1.0	11.0	7	VG 5.0

*Geogrids with similar LTDS and connection strengths with Square Foot™ units can also be estimated using these charts. With some variations, the VERSA-Grid VG 3.0 charts also generally estimate quantities for Miragrid 3XT, Stratagrid 300, and Raugrid 4/2. The charts for VERSA-Grid VG 5.0 generally estimate quantities for Miragrid 5XT, Stratagrid 500, and Raugrid 6/3.

Miragrid is a registered trademark of Nicolon Corporation. • Stratagrid is a registered trademark of Strata Systems, Inc.
Raugrid is a trademark of Lückenhaus Technische Textilien GmbH and Lückenhaus North America, Inc.

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SQUARE FOOT™ SPECIFICATIONS

PART 1: *GENERAL*

1.01 DESCRIPTION

A. *Work includes furnishing and installing segmental retaining wall (SRW) units to the lines and grades designated on the project's final construction drawings or as directed by the Architect/Engineer. Also included are furnishing and installing appurtenant materials required for construction of the retaining wall as shown on the construction drawings.*

1.02 REFERENCE STANDARDS

A. *Segmental Retaining Wall Units*
   1. **ASTM C 1372**
      - Standard Specification for Segmental Retaining Wall Units
   2. **ASTM C 140**
      - Standard Test Methods of Sampling and Testing Concrete Masonry Units

B. *Geosynthetic Reinforcement*
   1. **ASTM D 4595**
      - Tensile Properties of Geotextiles by the Wide-Width Strip Method
   2. **ASTM D 5262**
      - Test Method for Evaluating the Unconfined Creep Behavior of Geosynthetics
   3. **GRI:GG1**
      - Single Rib Geogrid Tensile Strength
   4. **GRI:GG5**
      - Geogrid Pullout

C. *Soils*
   1. **ASTM D 698**
      - Moisture Density Relationship for Soils, Standard Method
   2. **ASTM D 422**
      - Gradation of Soils
   3. **ASTM D 424**
      - Atterberg Limits of Soil

D. *Drainage Pipe*
   1. **ASTM D 3034**
      - Specification for Polyvinyl Chloride (PVC) Plastic Pipe
   2. **ASTM D 1248**
      - Specification for Corrugated Plastic Pipe

E. *Engineering Design*
   1. "NCMA Design Manual for Segmental Retaining Walls," Second Edition

F. *Where specifications and reference documents conflict, the Architect/Engineer shall make the final determination of applicable document.*

1.03 SUBMITTALS

A. **Material Submittals**: *The Contractor shall submit manufacturers' certifications two weeks prior to start of work stating that the SRW units and geosynthetic reinforcement meet the requirements of Section 2 of this specification.*

B. **Design Submittal**: *The Contractor shall submit two sets of detailed design calculations and final retaining wall plans for approval at least two weeks prior to the beginning of wall construction. All calculations and drawings shall be prepared and sealed by a professional Civil Engineer (P.E.) – (Wall Design Engineer) experienced in SRW design and licensed in the state where the wall is to be built.*

1.04 DELIVERY, STORAGE AND HANDLING

A. *Contractor shall check materials upon delivery to assure that specified type and grade of materials have been received and proper color and texture of SRW units have been received.*

B. *Contractor shall prevent excessive mud, wet concrete, epoxies, and like materials that may affix themselves, from coming in contact with materials.*

C. *Contractor shall store and handle materials in accordance with manufacturer's recommendations.*

D. *Contractor shall protect materials from damage. Damaged materials shall not be incorporated into the retaining wall.*

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SQUARE FOOT™ SPECIFICATIONS

PART 2: *MATERIALS*

2.01 SEGMENTAL RETAINING WALL UNITS

A. *SRW units shall be machine-formed, Portland Cement concrete blocks specifically designed for retaining wall applications. SRW units currently approved for this project are:* Square Foot™ units as manufactured by _____.

B. *Color of SRW units shall be* _____.

C. *Finish of SRW units shall be split face.*

D. *SRW unit faces shall be of straight geometry.*

E. *SRW unit height shall be 8 inches.*

F. *SRW units (not including aggregate fill in unit voids) shall provide a minimum weight of 80 psf wall face area.*

G. *SRW units shall be interlocked with connection pins, designed with proper setback to provide 8:1 vertical to horizontal batter (a 7 degree cant from vertical) or near vertical (2 degree cant from vertical).*

H. *SRW units shall be capable of being erected with the horizontal gap between adjacent units not exceeding 1/8 inch.*

I. *SRW units shall be sound and free of cracks or other defects that would interfere with the proper placing of the unit or significantly impair the strength or permanence of the structure. Cracking or excessive chipping may be grounds for rejection. Units showing cracks longer than 1/2" shall not be used within the wall. Units showing chips visible at a distance of 30 feet from the wall shall not be used within the wall.*

J. *Concrete used to manufacture SRW units shall have a minimum 28 days compressive strength of 3,000 psi and a maximum moisture absorption rate, by weight, of 8 percent as determined in accordance with ASTM C140. Compressive strength test specimens shall conform to the saw-cut coupon provisions of ASTM C140.*

K. *SRW units' molded dimensions shall not differ more than ± 1/8 inch from that specified, in accordance with ASTM C1372.*

2.02 SEGMENTAL RETAINING WALL UNIT CONNECTION PINS

A. *SRW units shall be interlocked with VERSA-TUFF® connection pins. The pins shall consist of glass-reinforced nylon made for the expressed use with the SRW units supplied.*

2.03 GEOSYNTHETIC REINFORCEMENT

A. *Geosynthetic reinforcement shall consist of geogrids or geotextiles manufactured as a soil reinforcement element. The manufacturers/suppliers of the geosynthetic reinforcement shall have demonstrated construction of similar size and types of segmental retaining walls on previous projects. The geosynthetic type must be approved one week prior to bid opening. Geosynthetic types currently approved for this project are:* **VERSA-Grid® Geogrids.**

B. *The type, strength, and placement location of the reinforcing geosynthetic shall be as determined by the Wall Design Engineer, as shown on the final, P.E. sealed retaining wall plans.*

2.04 LEVELING PAD

A. *Material for leveling pad shall consist of compacted sand, gravel, or combination thereof (USCS soil types GP, GW, SP, & SW) and shall be a minimum of 6 inches in depth. Lean concrete with a strength of 200 to 300 psi and three inches thick maximum may also be used as a leveling pad material. The leveling pad should extend laterally at least a distance of 6 inches from the toe and heel of the lowermost SRW unit.*

2.05 DRAINAGE AGGREGATE

A. *Drainage aggregate shall be angular, clean stone or granular fill meeting the following gradation as determined in accordance with ASTM D422*

Sieve Size	Percent Passing
1 inch	100
3/4 inch	75-100
No. 4	0-60
No. 40	0-50
No. 200	0-5

SQUARE FOOT™ SPECIFICATIONS

2.06 DRAINAGE PIPE

A. *The drainage collection pipe shall be a perforated or slotted PVC, or corrugated HDPE pipe. The drainage pipe may be wrapped with a geotextile to function as a filter.*

B. *Drainage pipe shall be manufactured in accordance with ASTM D 3034 and/or ASTM D 1248*

2.07 REINFORCED (INFILL) SOIL

A. *The reinforced soil material shall be free of debris. Unless otherwise noted on the final, P.E. sealed retaining wall plans prepared by the Wall Design Engineer, the reinforced material shall consist of the inorganic USCS soil types GP, GW, SW, SP, SM meeting the following gradation, as determined in accordance with ASTM D422:*

Sieve Size	Percent Passing
4 inches	100
No. 4	20-100
No. 40	0-60
No. 200	0-35

B. *The maximum particle size of poorly-graded gravels (GP) (no fines) should not exceed 3/4 inch unless expressly approved by the Wall Design Engineer and the long-term design strength (LTDS) of the geosynthetic is reduced to account for additional installation damage from particles larger than this maximum.*

C. *The plasticity of the fine fraction shall be less than 20.*

PART 3: *DESIGN PARAMETERS*

3.01 SOIL

A. *The following soil parameters, as determined by the Owner's Geotechnical Engineer shall be used for the preparation of the final design:*

	Unit Weight (γ) (pcf)	Internal Friction Angle (ϕ) (degrees)	Cohesion (c)
REINFORCED FILL:	_____	_____	0
RETAINED SOIL:	_____	_____	0
FOUNDATION SOIL:	_____	_____	_____

(If internal friction angles are not available for the above section, the specifier can provide the USCS soil type classification for the reinforced, retained, and foundation soils and/or attach the geotechnical investigation report for this project.)

B. *Should the actual soil conditions observed during construction differ from those assumed for the design, design shall be reviewed by the Wall Design Engineer at the Owner's Geotechnical Engineer's direction.*

3.02 DESIGN

A. *The design analysis for the final, P.E.-sealed retaining wall plans prepared by the Wall Design Engineer shall consider the external stability against sliding and overturning, internal stability, and facial stability of the reinforced soil mass and shall be in accordance with acceptable engineering practice and these specifications. The internal and external stability analysis shall be performed in accordance with the "NCMA Design Manual for Segmental Retaining Walls", using the recommended minimum factors of safety in this manual.*

B. *External stability analysis for bearing capacity, global stability, and total and differential settlement shall be the responsibility of the Owner and the Owner's Geotechnical Engineer. The Geotechnical Engineer shall perform bearing capacity, settlement estimates, and global stability analysis based on the final wall design provided by the Wall Design Engineer and coordinate any required changes with Wall Design Engineer.*

C. *While vertical spacing between geogrid layers may vary, it shall not exceed 2.0 feet maximum in the wall design.*

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D. *The geosynthetic placement in the wall design shall have 100-percent continuous coverage parallel to the wall face. Gapping between horizontally adjacent layers of geosynthetic (partial coverage) will not be allowed.*

PART 4: CONSTRUCTION

4.01 INSPECTION

A. *The Owner or Owner's Representative is responsible for verifying that the Contractor meets all the requirements of the specification. This includes all submittals for materials and design, qualifications, and proper installation of wall system.*

B. *Contractor's field construction supervisor shall have demonstrated experience and be qualified to direct all work at the site.*

4.02 EXCAVATION

A. *Contractor shall excavate to the lines and grades shown on the project grading plans. Contractor shall take precautions to minimize over-excavation. Over-excavation shall be filled with compacted infill material, or as directed by the Engineer/Architect, at the Contractor's expense.*

B. *Contractor shall verify location of existing structures and utilities prior to excavation. Contractor shall ensure all surrounding structures are protected from the effects of wall excavation. Excavation support, if required, is the responsibility of the Contractor.*

4.03 FOUNDATION PREPARATION

A. *Following the excavation, the foundation soil shall be examined by the Owner's Engineer to assure actual foundation soil strength meets or exceeds the assumed design bearing strength. Soils not meeting the required strength shall be removed and replaced with infill soils, as directed by the Owner's Engineer.*

B. *Foundation soil shall be proofrolled and compacted to 95 percent standard Proctor density and inspected by the Owner's Engineer prior to placement of leveling pad materials.*

4.04 LEVELING PAD CONSTRUCTION

A. *Leveling pad shall be placed as shown on the final, P.E.-sealed retaining wall plans with a minimum thickness of 6 inches. The leveling pad should extend laterally at least a distance of 6 inches from the toe and heel of the lower most SRW unit.*

B. *Granular leveling pad material shall be compacted to provide a firm, level bearing surface on which to place the first course of units. Well-graded sand can be used to smooth the top 1/4- to 1/2-inch of the leveling pad. Compaction will be with mechanical plate compactors to achieve 95-percent of maximum standard Proctor density (ASTM D 698).*

4.05 SRW UNIT INSTALLATION

A. *All SRW units shall be installed at the proper elevation and orientation as shown on the final, P.E.-sealed retaining wall plans and details as directed by the Wall Design Engineer. The SRW units shall be installed in general accordance with the manufacturer's recommendations. The specifications and drawings shall govern in any conflict between the two requirements.*

B. *First course of SRW units shall be placed on the leveling pad. The units shall be leveled side-to-side, front-to-rear and with adjacent units, and aligned to ensure intimate contact with the leveling pad. The first course is the most important to ensure accurate and acceptable results. No gaps shall be left between the front of adjacent units. Alignment may be done by means of a string line or offset from base line to the back of the units.*

C. *The voids (cores) of the base course units shall be filled with crushed gravel. The cores of additional courses shall be filled with free-draining aggregate.*

D. *All excess debris shall be cleaned from top of units and the next course of units installed on top of the units below.*

E. *Two VERSA-TUFF® connection pins shall be inserted through the pin holes of each upper course unit into receiving slots in lower course units. Pins shall be fully seated in the pin slot below. Units shall be pushed forward to remove any looseness in the unit-to-unit connection.*

F. *Prior to placement of next course, the level and alignment of the units shall be checked and corrected, where needed.*

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SQUARE FOOT™ SPECIFICATIONS

G. *Layout of curves and corners shall be installed in accordance with the wall plan details or in general accordance with SRW manufacturer's installation guidelines. Walls meeting at corners shall be interlocked by overlapping successive courses.*

H. *Procedures "C" through "F" shall be repeated until reaching top of wall, just below the height of the cap units. Geosynthetic reinforcement, drainage materials, and reinforced backfill shall be placed in sequence with unit installation as described in Section 4.06, 4.07, and 4.08.*

4.06 GEOSYNTHETIC REINFORCEMENT PLACEMENT

A. *All geosynthetic reinforcement shall be installed at the proper elevation and orientation as shown on the final, P.E.-sealed retaining wall plan profiles and details, or as directed by the Wall Design Engineer.*

B. *At the elevations shown on the final plans, (after the units, drainage material, and backfill have been placed to this elevation) the geosynthetic reinforcement shall be laid horizontally on compacted infill and on top of the concrete SRW units. It shall be placed to within one inch of the front face of the unit below. Embedment of the geosynthetic in the SRW units shall be consistent with SRW manufacturer's recommendations. Correct orientation of the geosynthetic reinforcement shall be verified by the Contractor to be in accordance with the geosynthetic manufacturer's recommendations. The highest strength direction of the geosynthetic must be perpendicular to the wall face.*

C. *Geosynthetic reinforcement layers shall be one continuous piece for their entire embedment length. Splicing of the geosynthetic in the design strength direction (perpendicular to the wall face) shall not be permitted. Along the length of the wall (parallel to the face), horizontally adjacent sections of geosynthetic reinforcement shall be butted in a manner to assure 100-percent coverage parallel to the wall face.*

D. *Tracked construction equipment shall not be operated directly on the geosynthetic reinforcement. A minimum of 6 inches of backfill is required prior to operation of tracked vehicles over the geosynthetic. Turning should be kept to a minimum. Rubber-tired equipment may pass over the geosynthetic reinforcement at slow speeds (less than 5 mph).*

E. *The geosynthetic reinforcement shall be free of wrinkles prior to placement of soil fill. The nominal tension shall be applied to the reinforcement and secured in place with staples, stakes, or by hand tensioning until reinforcement is covered by 6 inches of fill.*

4.07 DRAINAGE MATERIALS

A. *Drainage aggregate shall be installed to the line, grades, and sections shown on the final P.E. sealed retaining wall plans. Drainage aggregate shall be placed to the minimum thickness shown on the construction plans between and behind units (a minimum of 1 cubic foot for each exposed square foot of wall face unless otherwise noted on the final wall plans).*

B. *Drainage collection pipes shall be installed to maintain gravity flow of water to outside the reinforced soil zone. The drainage collection pipe shall daylight into a storm sewer manhole or along a slope at an elevation lower than the lowest point of the pipe within the aggregate drain.*

4.08 BACKFILL PLACEMENT

A. *The reinforced backfill shall be placed as shown in the final wall plans in the maximum compacted lift thickness of 10 inches and shall be compacted to a minimum of 95-percent of standard Proctor density (ASTM D 698) at a moisture content within 2-percent of optimum. The backfill shall be placed and spread in such a manner as to eliminate wrinkles or movement of the geosynthetic reinforcement and the SRW units.*

B. *Only hand-operated compaction equipment shall be allowed within 3 feet of the back of the wall unit. Compaction within the 3 feet behind the wall unit shall be achieved by at least three (3) passes of a lightweight mechanical tamper, plate, or roller.*

C. *At the end of each day's operation, the Contractor shall slope the last level of backfill away from the wall facing and reinforced backfill to direct water runoff away from the wall face.*

D. *At completion of wall construction, backfill shall be placed level with final top-of-wall elevation. If final grading, paving, landscaping, and/or storm drainage installation adjacent to the wall is not placed*

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immediately after wall completion, temporary grading and drainage shall be provided to ensure water runoff is not directed at the wall nor allowed to collect or pond behind the wall until final construction adjacent to the wall is completed.

4.09 SRW CAPS

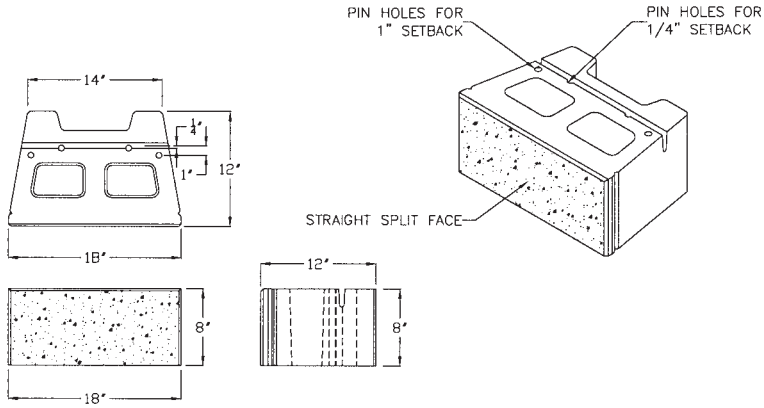
A. *SRW caps shall be properly aligned and glued to underlying units with VERSA-LOK® Concrete Adhesive, a flexible, high-strength concrete adhesive. Rigid adhesive or mortar are not acceptable.*

B. *Caps shall overhang the top course of units by 3/4- to 1-inch. Slight variation in overhang is allowed to correct alignment at the top of the wall.*

4.11 CONSTRUCTION ADJACENT TO COMPLETED WALL

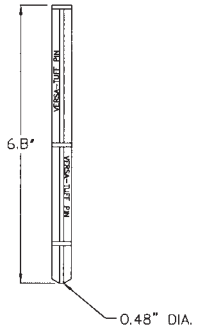
A. *The Owner or Owner's Representative is responsible for ensuring that construction by others adjacent to the wall does not disturb the wall or place temporary construction loads on the wall that exceed design loads, including loads such as water pressure, temporary grades, or equipment loading. Heavy paving or grading equipment shall be kept a minimum of 3 feet behind the back of the wall face. Equipment with wheel loads in excess of 150 psf live load shall not be operated within 10 feet of the face of the retaining wall during construction adjacent to the wall. Care should be taken by the General Contractor to ensure water runoff is directed away from the wall structure until final grading and surface drainage collection systems are completed.*

CONSTRUCTION DETAILS



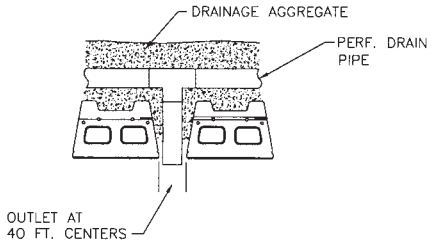
VERSA-LOK SQUARE FOOT UNIT

UNIT DIMENSIONS
SCALE: NONE



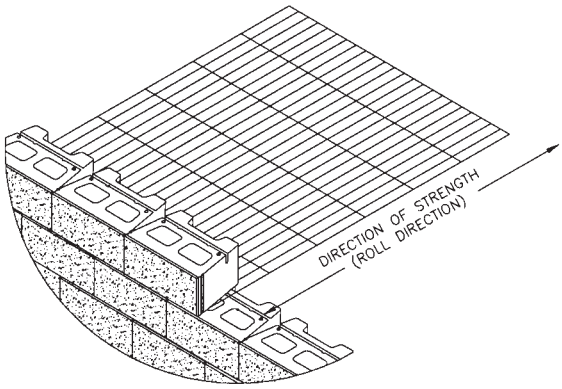
VERSA-TUFF PIN

PIN DIMENSIONS
SCALE: NONE



DRAIN DETAIL

WALLS OVER 3'
SCALE: NONE

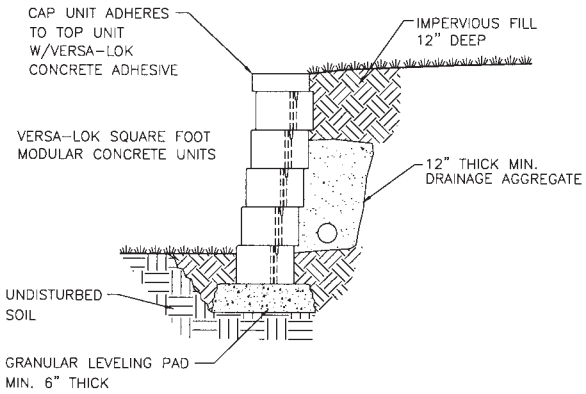


NOTE:
1. FOLLOW GEOSYNTHETIC GRID MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SPECIFICATIONS
2. GEOGRID LENGTH AND ELEVATION PLACEMENT SHALL BE DETERMINED BY PROJECT ENGINEER

GEOSYNTHETIC INSTALLATION DETAIL

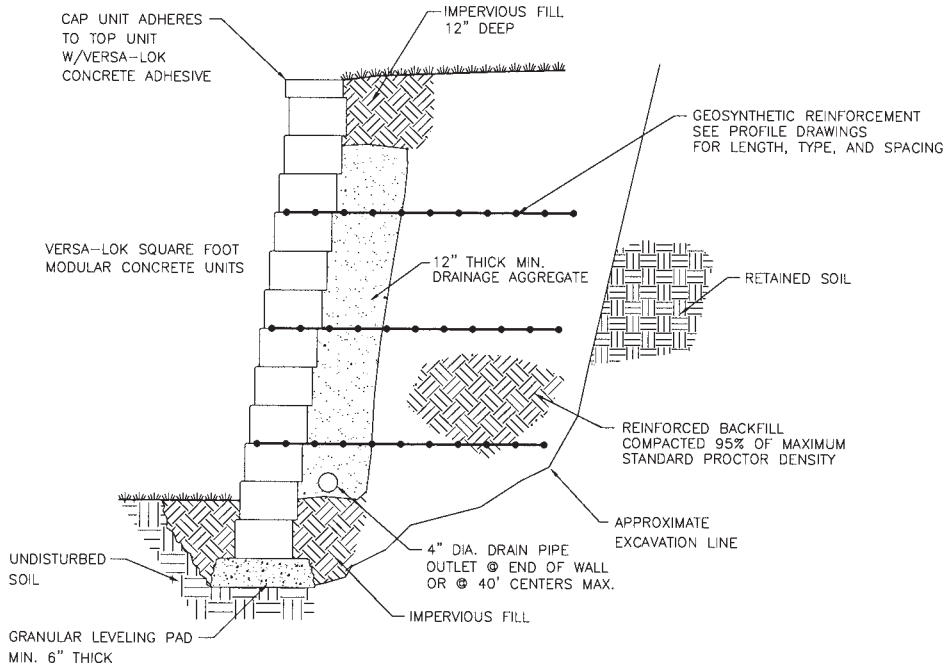
SCALE: NONE

CONSTRUCTION DETAILS



TYPICAL SECTION – UNREINFORCED RETAINING WALL

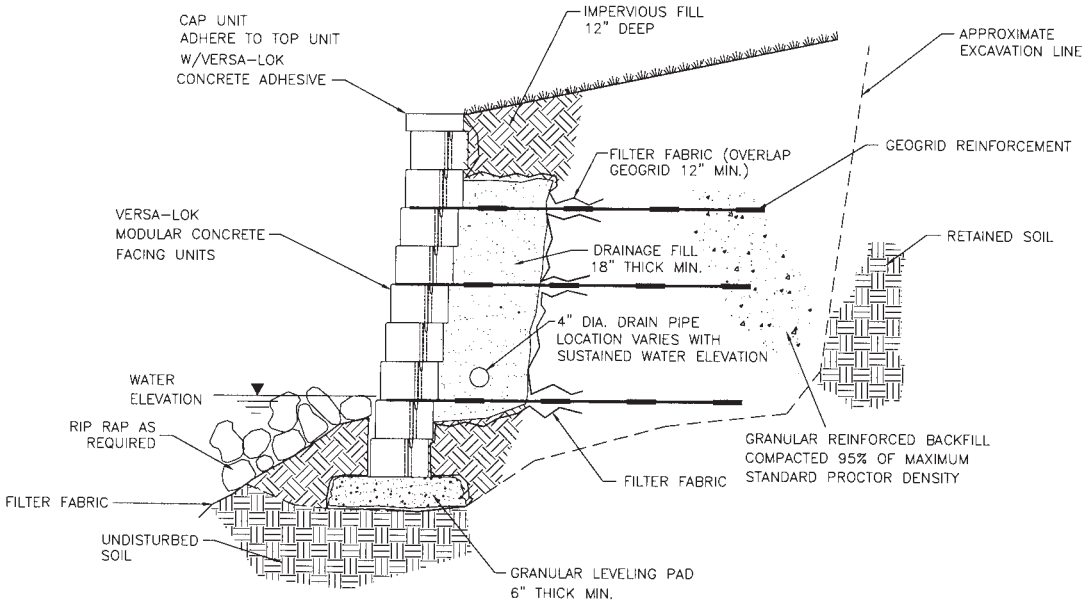
SCALE: NONE



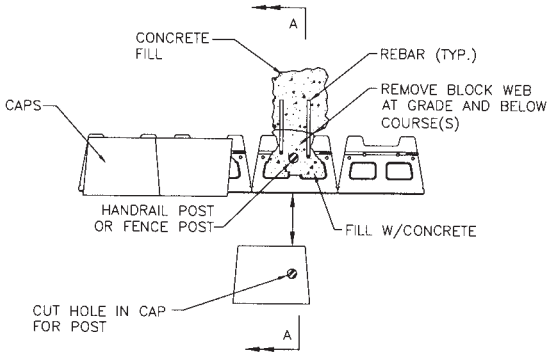
TYPICAL SECTION – REINFORCED RETAINING WALL

SCALE: NONE

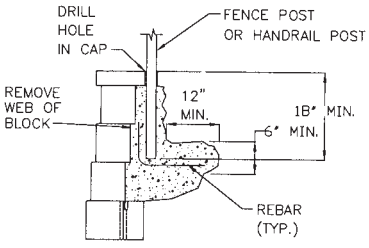
CONSTRUCTION DETAILS



TYPICAL SECTION-REINFORCED SHORELINE WALL
SCALE: NONE

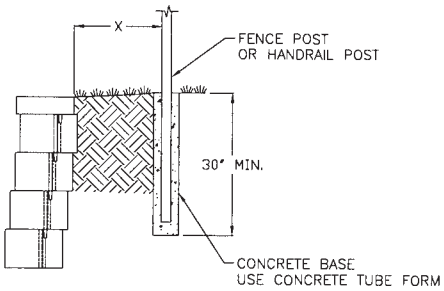


POST DETAIL- PLAN VIEW
TYPICAL HANDRAIL AND/OR FENCE POST
SCALE: NONE



POST DETAIL- SECTION A-A
TYPICAL HANDRAIL AND/OR FENCE POST
SCALE: NONE

CONSTRUCTION DETAILS

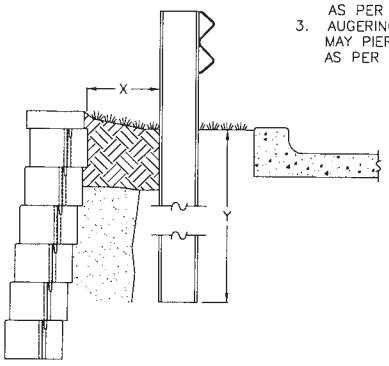


POST DETAIL

TYPICAL HANDRAIL AND/OR FENCE POST
SCALE: NONE

GUARD RAIL NOTES:

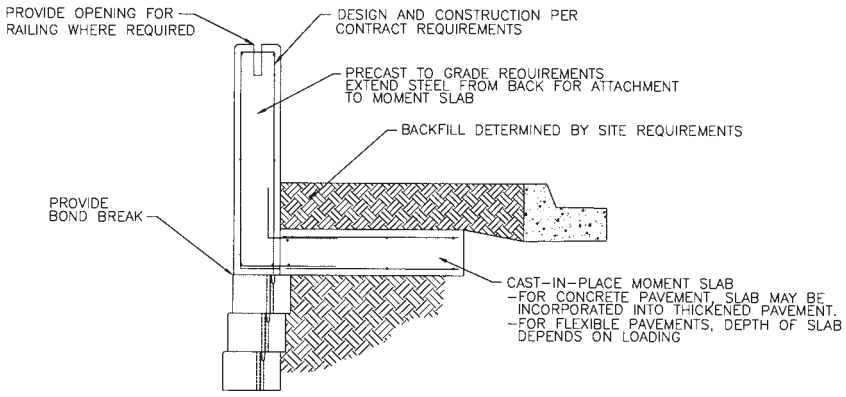
1. DISTANCE X AND Y TO BE DETERMINED BY ENGINEER BASED ON SOIL AND LOADING CONDITIONS.
2. INSTALL H-PILE OR WOOD POST AS PER MANUFACTURER'S RECOMMENDATIIONS.
3. AUGERING OR DRIVING OF POST MAY PIERCE UPPER LAYER OF GEOSYNTHETIC AS PER ENGINEER'S DESIGN.



GUARD RAIL DETAIL

TYPICAL GUARD RAIL
SCALE: NONE

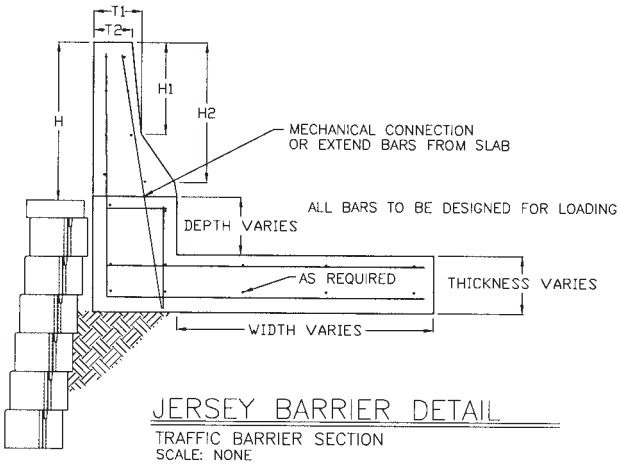
CONSTRUCTION DETAILS



COPING DETAIL
TRAFFIC BARRIER SECTION
SCALE: NONE

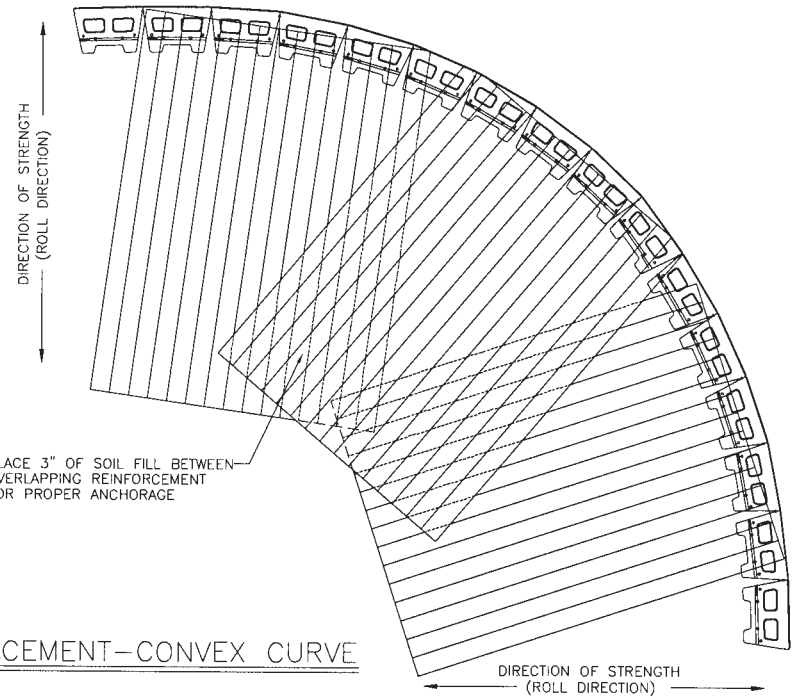
BARRIER NOTES:

1. BARRIERS MAY BE SET ON TOP OF OR BEHIND WALL.
2. BARRIERS ON TOP OF WALL SHALL BE DESIGNED TO ACCOMODATE DIFFERENTIAL MOVEMENT OF RETAINING WALL.
3. STEEL DESIGN AND COPING GEOMETRY WILL VARY WITH SITE LOADINGS. DESIGN MUST BE PROJECT SPECIFIC.
4. DURING PLACEMENT OF CONCRETE, PRECAUTIONS SHOULD BE TAKEN TO REDUCE LATERAL PRESSURES ON THE VERSA-LOK WALL. FORMING AND/OR TEMPORARY BRACING MAY BE REQUIRED.



JERSEY BARRIER DETAIL
TRAFFIC BARRIER SECTION
SCALE: NONE

CONSTRUCTION DETAILS

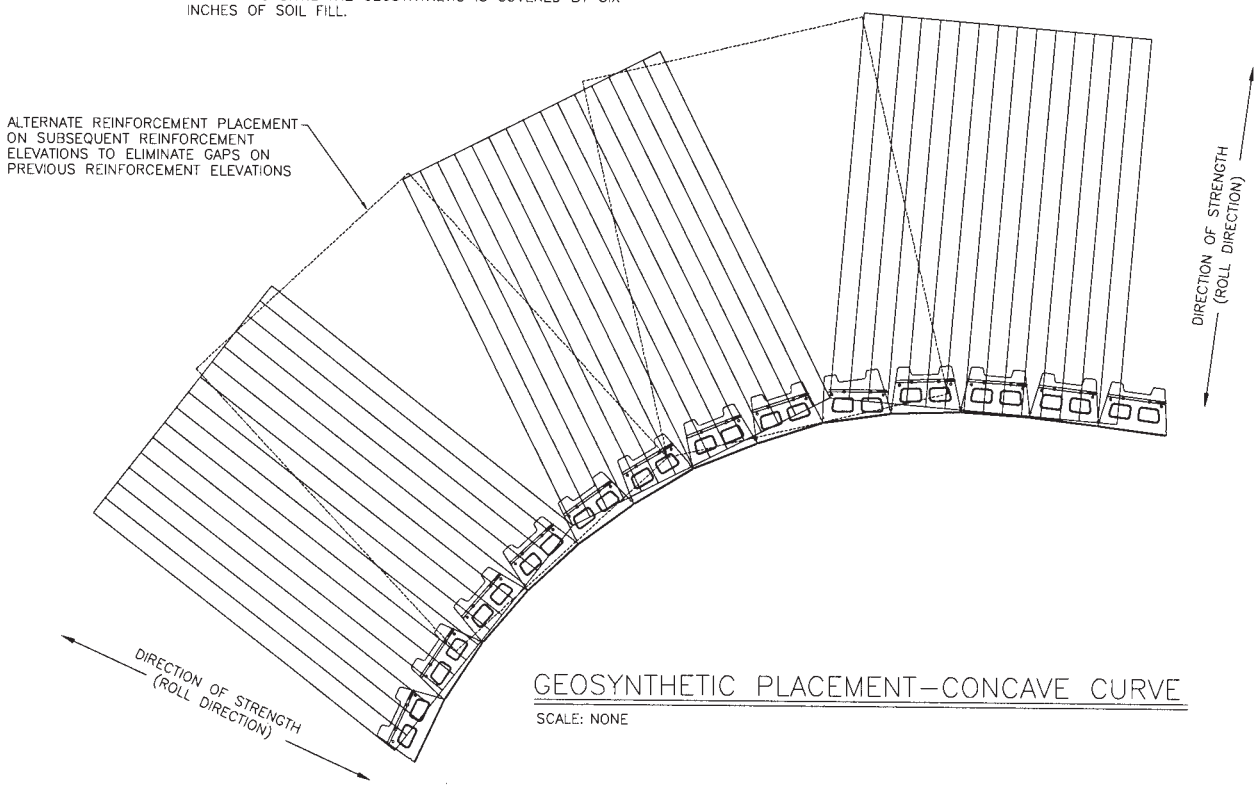


GEOSYNTHETIC PLACEMENT–CONVEX CURVE

SCALE: NONE

GENERAL NOTES FOR GEOSYNTHETIC REINFORCEMENT

1. AT THE ELEVATIONS SHOWN ON THE CONSTRUCTION PLANS, THE GEOSYNTHETIC SHALL BE LAID HORIZONTALLY ON COMPACTED SOIL FILL AND PLACED ON TO THE VERSA–LOK UNITS.
2. CORRECT ORIENTATION (ROLL DIRECTION) OF THE GEOSYNTHETIC SHALL BE VERIFIED BY THE CONTRACTOR TO BE IN ACCORDANCE WITH THE GEOSYNTHETIC MANUFACTURER'S RECOMMENDATIONS.
3. THE GEOSYNTHETIC SHALL BE IN TENSION AND FREE OF WRINKLES PRIOR TO PLACEMENT OF SOIL FILL.
4. NOMINAL TENSION SHALL BE APPLIED TO THE GEOSYNTHETIC AND SECURED IN PLACE WITH STAPLES, STAKES OR BY HAND TENSIONING UNTIL THE GEOSYNTHETIC IS COVERED BY SIX INCHES OF SOIL FILL.



GEOSYNTHETIC PLACEMENT–CONCAVE CURVE

SCALE: NONE



VERSA-LOK® Retaining Wall Systems · A Division of Kiltie Corporation
6348 Hwy 36, Suite 1 · Oakdale, MN 55128
(651) 770-3166 · (800) 770-4525 · (651) 770-4089 fax · www.versa-lok.com

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Made worldwide under license from VERSA-LOK® Retaining Wall Systems.
U.S. Patent D319,885, U.S. Patent D321,060, U.S. Patent D341,215,
U.S. Patent D346,667, U.S. Patent D378,702, U.S. Patent D391,376,
U.S. Patent D430,680, U.S. Patent D435,302, U.S. Patent D452, 332 and other U.S. patents pending; Canadian Industrial Design Registration No. 63929, No. 71472, No. 73910, No. 73911, No. 73912, No. 77816, No. 79058, No. 82288, and No. 89084.

THE INFORMATION, INCLUDING TECHNICAL AND ENGINEERING DATA, FIGURES, TABLES, DESIGNS, DRAWINGS, DETAILS, SUGGESTED PROCEDURES, AND SUGGESTED SPECIFICATIONS, PRESENTED IN THIS PUBLICATION IS FOR GENERAL INFORMATION ONLY. WHILE EVERY EFFORT HAS BEEN MADE TO ENSURE ITS ACCURACY, THIS INFORMATION SHOULD NOT BE USED OR RELIED UPON FOR ANY APPLICATION WITHOUT VERIFICATION OF ACCURACY, SUITABILITY, AND APPLICABILITY FOR THE USE CONTEMPLATED, WHICH IS THE SOLE RESPONSIBILITY OF THE USER. A FINAL, PROJECT SPECIFIC DESIGN SHOULD BE PREPARED BY A QUALIFIED, LICENSED, PROFESSIONAL ENGINEER BASED ON ACTUAL SITE CONDITIONS. *VERSA-LOK RETAINING WALL SYSTEMS DISCLAIMS ANY AND ALL EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY FITNESS FOR ANY GENERAL OR PARTICULAR PURPOSE, TRADEMARK, OR COPYRIGHT IN REGARD TO INFORMATION OR PRODUCTS CONTAINED OR REFERRED TO HEREIN.*

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BQ#118 Attachment

GCMS SB Pre-Purchased Equipment & Shipping Splits									10/9/2024
		Section Specs				Overall Unit Specs			
Equipment Tag	Number of Sections	Max Height	Max Length	Max Width	Max Weight	Height	Length	Width	Total Weight
RTU-1	5	87"	181"	72"	3,053 lbs	86.75"	305"	72"	6,600 lbs
RTU-2	5	127"	195"	80"	4,380 lbs	126.75"	325"	80"	8,300 lbs
RTU-3	5	102"	185"	72"	3,255 lbs	101.75"	310"	72"	7,200 lbs
Curbs: RTU-1,2,3	3 (Prefabricated)								
DOA-1	6	102"	79"	72"	1,616 lbs	102"	310"	72"	8,200 lbs
DOA-2	8	109"	79"	80"	1,543 lbs	109.25"	310"	80"	9,300 lbs
DOA-3	8	110"	80"	80"	1,543 lbs	109.25"	310"	80"	9,400 lbs
DOA-4	8	110"	79"	80"	1,543 lbs	109.25"	310"	80"	9,600 lbs
DOA-5	8	102"	79"	72"	1,475 lbs	102"	315"	72"	9,000 lbs
Curb: DOA-5	1 (Prefabricated)								
HRV-1	1					61"	190"	63"	3,500 lbs
CH-1	1					92.8"	335.2"	88.3"	17,271 lbs
CH-2	1					92.8"	335.2"	88.3"	17,271 lbs
Generator	1					108"	181"	58"	8,750 lbs
ATS-1	1								
ATS-2	1								

BQ#118 Attachment

GCMS SB Pre-Purchased Equipment & Shipping Splits									10/9/2024
		Section Specs				Overall Unit Specs			
Equipment Tag	Number of Sections	Max Height	Max Length	Max Width	Max Weight	Height	Length	Width	Total Weight
MSB-1	4	90"	45"	36"	2,400 lbs	90"	156"	36"	6,815 lbs

Transformers	QTY
T2 - 15KVA	1
T3 - 30 KVA	1
T4 - 45 KVA	3
T5 - 75 KVA	2
T7 - 150KVA	1
T8 - 225 KVA	1
T9 - 300 KVA	1
Electrical Panels	**QTY**
GP1A-F	6
GDP	1
GDPC	1
GDPE	1
GP2A, C, E	3
GP-CL	1
GP-WS	1
MHDP	1
MP1A-1E	5
OSDP	1
OSDPC & OSDPE	2
OSP1A-F	6
OSP2A, 2C, 2E	3
OSKP	1
ELDP	1
LP1B-E	4
SHP	1
SLP	1
KHP	1
KP	1
ELP1B-E	4
TLCP-1	1
EVLP1	1
EVLP2	1
EVHP	1
LDP	1
Secondary Overcurrent Protection	12
Utility Meter	1

RFI 119

SUBSTITUTION REQUEST
(During the Bidding/Negotiating Phase)

PROJECT: Greenwich Middle School

SUBSTITUTION REQUEST NUMBER: 1

FROM:

TO: Joseph Matta

Turner Construction Company

DATE: 10/14/2024

A/E PROJECT NUMBER:

RE: Aacer Power Play Panel equal to basis of design

CONTRACT FOR: Aacer Sports Flooring

SPECIFICATION TITLE: Wood Athletic Flooring

DESCRIPTION: Wood Athletic Flooring

SECTION: 096466 **PAGE:** 3

ARTICLE/PARAGRAPH: 2.1,A,1

PROPOSED SUBSTITUTION: Aacer Power Play Panel

MANUFACTURER: Aacer Sports Flooring **ADDRESS:** 701 E. Elm St, Crandon, WI 54520 **PHONE:** (877)-582-1181

TRADE NAME: Aacer Sports Flooring LLC **MODEL NO.:**

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.
Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:
- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

SUBMITTED BY:

SIGNED BY:

FIRM:

ADDRESS:

TELEPHONE:

A/E's REVIEW AND RECOMMENDATION:

- [X] Approve Substitution—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- [ ] Approve Substitution as noted—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- [ ] Reject Substitution—Use specified materials.
- [ ] Substitution Request received too late—Use specified materials.

SIGNED BY: Stephen Martocchio - SLAM **DATE:** 10/30/24

SUPPORTING DATA ATTACHED: [ ] Drawings [X] Product Data [ ] Samples [ ] Tests [ ] Reports [ ]

RFI 119

PowerPlay™ Panel

FIXED RESILIENT SYSTEM

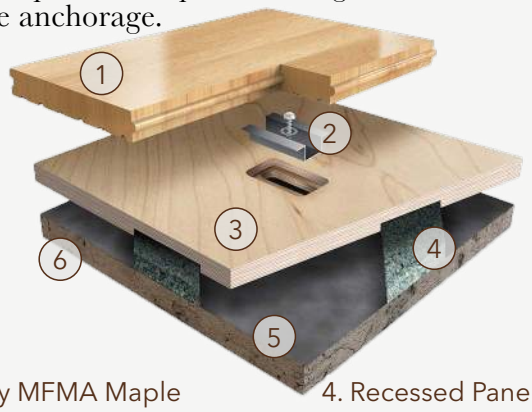
AACER SPORTS FLOORING
an Infinity Wood Floors Company

Prefabricated PowerPlay Panels provide lineal cushions contributing to uniform high shock absorption and ball rebound value and offer athletic response equivalent to full blanket floors with the added advantage of subfloor ventilation and resilient pad protection. Sectional steel channel anchorage contributes to added stability and uniformity while allowing for lateral movement.



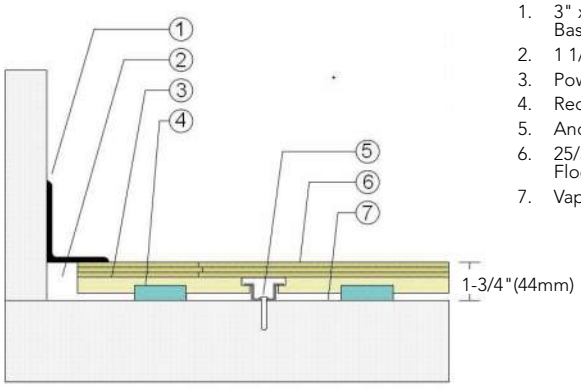
PowerPlay™ Panel RFI 119

PowerPlay Panel provides desired shock absorption, basketball rebound, protective pad housing, airflow, and stabilizing steel concrete anchorage.



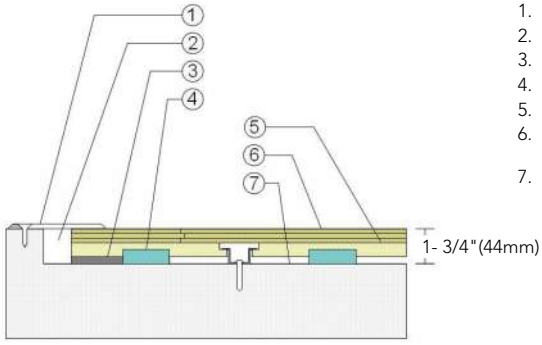
1. Infinity MFMA Maple
2. Sectional Steel Channel Anchor
3. Pre-manufactured Panel
4. Recessed Panel Cushion
5. Vapor Retarder
6. Concrete Substrate

WALL BASE



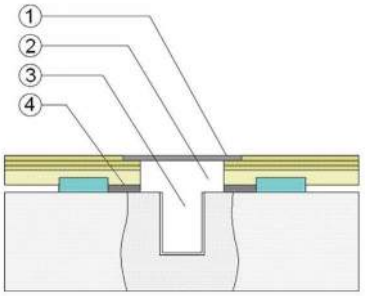
1. 3" x 4" (76mm x 101mm) Vent Cove Base
2. 1 1/2" (38mm) Min. Expansion Space
3. PowerPlay™ Panel Subfloor
4. Recessed Resilient Cushion
5. Anchored Steel Channel Section
6. 25/32" (20mm) MFMA Maple Flooring
7. Vapor Retarder

THRESHOLD



1. 1/4" (6mm) Aluminum Threshold
2. 1 1/2" (38mm) Min. Expansion Space
3. Solid Blocking at Doorway
4. Recessed Resilient Cushion
5. PowerPlay™ Panel Subfloor
6. 25/32" (20mm) MFMA Maple Flooring
7. Vapor Retarder

EQUIPMENT



1. Floor Plate
2. 1 1/2" (38mm) Min. Expansion Space Required at all Insert & Electrical Penetrations
3. Concrete Floor Penetration
4. Solid Blocking at Insert

Anchorage	Sectional Channel
Certified	MFMA PUR COMPLIANT
Green Status and LEED Contributors	• FSC® Certified Maple - MR • FSC® Certified Subfloor Components - MR • Environmental Quality - EQ • Regional Materials - MR
Resilience	3/4" (19mm) Open-Cell Polyurethane Foam
Slab Depression	• 25/32" (20mm) flooring –1 3/4" (44mm)
Optional PowerPlay™ Systems	PowerPlay™ Edge PowerPlay™ Cradle PowerPlay™ Trax PowerPlay™ TP
Subfloor Construction	Pre-manufactured panels
System Type	Fixed Resilient
Testing Laboratory Partners	ASET SERVICES, ISSS, USSL

It is the policy of Infinity Wood Floors to continuously improve its line of products. Therefore, Infinity Wood Floors reserves the right to change, modify or discontinue systems, specifications and accessories of all products at any time without notice or obligation to purchaser.

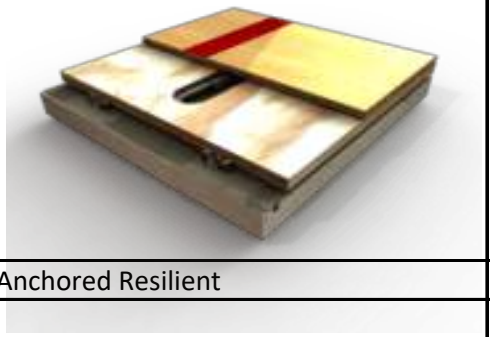
see us at Sweets.com

Jan2024

RFI 119

System Comparison Chart

AACER

Aacer PowerPlay Panel to Robbins Bio-Channel Star SB				
System Feature	Aacer PowerPlay Panel	Robbins Bio-Channel Star SB	Verdict	Comments
Cross Section				
System Type	Anchored Resilient	Anchored Resilient	Equal	Same
Slab Depression	1-3/4" with 25/32" Maple	1-3/4" with 25/32" Maple	Aacer Advantage	Aacer system provides a lower profile
Surface Vapor Retarder	In compliance with product specification	In compliance with product specification	Equal	Same
Resilient Pad	Open cell rebonded polyurethane 8pcf density foam	Open cell rebonded polyurethane 8pcf density foam	Aacer Advantage	Aacer lineal pads allow subfloor wall to wall airflow
Recessed Pad Support	Designed to address heavy non athletic loads. Protected recessed pads create lower profile.	Competitors subfloor doesn't provide recessed component and pad protection	Aacer Advantage	Aacer subfloor system provides pad and sytem support protection under aggressive loads
Steel Channel	16 Gauge Steel Hat Channel with steel anchor pin	16 Gauge Steel Hat Channel with steel anchor pin	Equal	Same
Wood Subfloor	23/32" thick pre-manufactured subfloor panels, MFMA PUR compliant.	23/32" thick pre-manufactured subfloor panels, MFMA PUR compliant.	Equal	Same
Maple Flooring	25/32" MFMA-RL graded and stamped Maple Flooring	25/32" MFMA-FJ graded and stamped Maple Flooring	Equal	Same

RFI 119

System Comparison Chart

AACER

Aacer PowerPlay Panel vs. Robbins Bio-Channel Star				
System Feature	Aacer	Robbins	Verdict	Comments
Sanding	Machine sanded with course, medium and fine paper to a smooth even and uniform surface	Machine sanded with coarse, medium and fine paper to a smooth even and uniform surface	Equal	Both systems are sanded the same
Sealers	oil modified polyurethane	oil modified polyurethane	Equal	Same products
Finishes	oil modified polyurethane	oil modified polyurethane	Equal	Same products
Game lines	game line paint compatible with sealers and finish	game line paint compatible with sealers and finish	Equal	Same products
Wall Base	3" x 4" vented cove base with premolded corners	3" x 4" vented cove base with premolded corners	Equal	Same products
Threshold	6" x 6' or 10' aluminum plate or 8" x 6' or 10' aluminum plate	6" x 6' or 10' aluminum plate or 8" x 6' or 10' aluminum plate	Equal	Same products

Minimum Furniture Schedule:
(38) - Stackable Chairs
(15) - Rolling Desk Office Chairs
(31) - 30"x60" Tables
(15) - Rolling File Cabinets (For Under Desks)

Minimum Furniture Schedule (Cont...):
(7) - Front Privacy Shields
(13) - Side Privacy Shields
(9) - Large White Boards (LWB)
(5) - Medium White Boards (MW

REMOVE AND CAP EXSITING PLUMBING FIXTURES, IF APPLICABLE

WALL MOUNTED DATA JACK PATCH PANEL WITH SHELF ABOVE.

INTERIOR WALLS:
TYPE '2R' - 2x4 STUD WALLS AT 16"o.c. & ACOUSTIC INSULATION WITH 1/2" GYPSUM WALL BOARD, EACH SIDE
ALTERNATE 1: TACKABLE DEMOUNTABLE PANELED WALL SYSTEM (ACOUSTIC INSULATION)

Wellness/Mother's Room/prayer/meditation

Storage

LWB
LWB
ALIGN
NEW CARPET
LWB
REMOVE EXISTING TRAILER WALLS
CONFERENCE
FLOOR MOUNTED DATA & POWER JACKS, TYP.
LWB
2R
LWB
REMOVE EXISTING TRAILER WALLS
20' - 0"

CONFERENCE
MWB
42" A.F.F WORK SURFACE
2R
VIRTUAL PLAN TABLE /HUDDLE AREA
CLOSET
RECEPTI
5' - 6"
18' - 8"

NEW CARPET

1
2
3
4
5
6
7
8
9
10
11

Coffee/Snacks/Copier & Supplies

OPEN SHELVING AND CASEWORK FOR DISPLAYING SUBMITTALS, MATERIAL SAMPLES, FIELD PANELS, ETC...

Turner

TRIPLE 12x60 - TOILET (15 STAFF)

TYPE 'D.1'

1/4" = 1'-0"

BQ#153 sketch

RFI 167

SUBSTITUTION REQUEST
(During the Bidding/Negotiating Phase)

PROJECT: Greenwich Central Middle School

SUBSTITUTION REQUEST NUMBER: 1

FROM:

TO: Turner Construction

DATE: 10/17/24

A/E PROJECT NUMBER:

RE: Ceiling Substitutions

CONTRACT FOR:

SPECIFICATION TITLE: Acoustical Ceilings

DESCRIPTION: Acoustical Ceilings

SECTION: 09 51 00

PAGE: 2

ARTICLE/PARAGRAPH: 2.1 - A & B

PROPOSED SUBSTITUTION: Utilize Certainteed ceiling tile and grid

MANUFACTURER: Certainteed

ADDRESS: 5015 Oakbrook Pkwy
Norcross, Georgia 30093

PHONE:

TRADE NAME: Acoustical Ceilings

MODEL NO.: Various

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.
Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:
- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

SUBMITTED BY:

SIGNED BY:

FIRM:

ADDRESS:

TELEPHONE:

Approved as Noted – missing the trim pieces we have noted in the spec to provide to create a full system, ie floating ceiling 4" trim etc. 095100 2.5 Accessories. C. - SLAM 10/30/2024

A/E's REVIEW AND RECOMMENDATION:

- ☐ Approve Substitution—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- ☒ Approve Substitution as noted—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- ☐ Reject Substitution—Use specified materials.
- ☐ Substitution Request received too late—Use specified materials.

SIGNED BY: Stephen Martocchio - SLAM

SUPPORTING DATA ATTACHED: ☐ Drawings ☒ Product Data ☐ Samples ☐ Tests ☐ Reports ☐

Samples can be provided on request.

RFI 167

USG Ceiling Solutions

USG MARS™ HIGH-NRC/HIGH-CAC ACOUSTICAL PANELS

CLIMAPLUS™ PERFORMANCE WITH PLANT-BASED BINDER[9]

Basis of Design



USG Mars™ High-NRC Acoustical Panels with ClimaPlus™ Performance, and USG Donn® Brand Centricitee™ DXT™ Acoustical Suspension System Lowell Justice Center in Lowell, MA, Architect: Finegold Alexander Architects, Photo: ©Anton Grassi

TO ORDER SAMPLES, GO TO USG.COM OR CGCINC.COM

PREMIUM COLORS

Dawn 3679 | Old Stone 3691 | Sea Shell 3678 | Light Brown 3690 | Nut Brown 3680 | Peat 3682

Shale 3683 | Ocean Ridge 3684 | Atmosphere 3681 | Laguna 3685 | Grass 3688 | Tangy Taleia 3689

Deep Cranberry 3687 | Deep Violet 3686 | Deep Berry 3693 | Deep Blue 3692 | Flat Black 205

STANDARD COLOR

Flat White 050

CUSTOM COLOR

Unlimited Color Options

FEATURES AND BENEFITS

- Balanced Acoustics. Wide range of options. Sound absorption NRC up to 0.90 and sound attenuation CAC up to 40 with 0.95 NRC coming soon.
- High light-reflective finish (LR-0.90 White products).
- Washable and scrubbable finish.[6]
- Impact and scratch resistant.[6]
- Coordinates visually with USG Halcyon™ Acoustical Panels for open- or closed-plan applications.
- Nondirectional, monolithic visual reduces installation time and waste.
- ClimaPlus™ 30-year limited system warranty against visible sag, mold and mildew.
- GREENGUARD Gold certified for low emitting performance.
- USG Mars™ High-NRC/High-CAC Acoustical Panels are part of the Ecoblueprint™ portfolio — meeting today's sustainability standards. For sustainability documentation go to USG.com or CGCInc.com.

APPLICATIONS

- Offices
- Healthcare
- Classrooms and corridors
- Reception areas and lobbies
- Department stores and retail
- Restaurants and hospitality

SUBSTRATE

- Wet-formed mineral fiber

Fine-Textured Panel

USG CGC

IT'S YOUR WORLD. BUILD IT.™

RFI 167

USG MARS™ HIGH-NRC/HIGH-CAC ACOUSTICAL PANELS

CLIMAPLUS™ PERFORMANCE WITH PLANT-BASED BINDER[9]

PRODUCT CERTIFIED FOR LOW CHEMICAL EMISSIONS: UL.COM/GG UL 2818

30 YEAR LIMITED SYSTEM WARRANTY
- No Visible Sag
- Mold/Mildew Protection

BALANCED ACOUSTICS

HRC HIGH RECYCLED CONTENT

PREMIUM COLOR PALETTE

CUSTOM COLOR

Plant-Based Binder

ECOBLUEPRINT

Declare

ORDER SAMPLES/LITERATURE
USG: usg.com or samplit@usg.com
CGC: contact Sales Representative

TECHNICAL SERVICES
800 USG.4YOU (874-4968)

FOR MOST UP-TO-DATE TECHNICAL INFORMATION AND LEED REPORT TOOL
usgdesignstudio.com
cgcdesignstudio.com

	Edge	Panel Size	Fire Rating	Item No.	UL Classified[5] NRC	CAC Min.	LR[2]	Color	Grid Options	VOC Emissions	Anti-Mold & Mildew/Sag Resistance	Recycled Content[1]	Panel Cost
USG MARS™ HIGH-NRC PANELS 95/30 Plant-Based Binder **COMING SOON**	SQ	2′x2′x1.3″	Class A	88280	0.95	30	0.90	White	A, B, C	Low	✓	27%	$$$
		2′x4′x1.3″	Class A	88281	0.95	30	0.90	White	A, B	Low	✓	27%	$$$
		30″x30″x1.3″	Class A	88282	0.95	30	0.90	White	A, B	Low	✓	27%	$$$
	SL	2′x2′x1.3″	Class A	88285	0.95	30	0.90	White	I	Low	✓	27%	$$$
		2′x4′x1.3″	Class A	88286	0.95	30	0.90	White	I	Low	✓	27%	$$$
		30″x30″x1.3″	Class A	88287	0.95	30	0.90	White	I	Low	✓	27%	$$$
	FL	2′x2′x1.3″	Class A	88290	0.95	30	0.90	White	J, K, L, M	Low	✓	27%	$$$
		2′x4′x1.3″	Class A	88291	0.95	30	0.90	White	J, K, L, M	Low	✓	27%	$$$
		30″x30″x1.3″	Class A	88292	0.95	30	0.90	White	J, K, L, M	Low	✓	27%	$$$
USG MARS™ HIGH-NRC PANELS 90/30 Plant-Based Binder	SQ	2′x2′x1″	Class A	88137	0.90	30	0.90	White, color[7]	A,B,C	Low	✓	67%	$$$
		2′x4′x1″	Class A	89137	0.90	30	0.90	White	A,B	Low	✓	67%	$$$
		30″x30″x1″	Class A	80213	0.90	30	0.90	White	A,B	Low	✓	67%	$$$
		30″x60″x1″	Class A	89143	0.90	30	0.90	White	A,B	Low	✓	67%	$$$
	SLT	2′x2′x1″	Class A	88138	0.90	30	0.90	White, color[7]	D	Low	✓	67%	$$$
		2′x4′x1″	Class A	89138	0.90	30	0.90	White	D	Low	✓	67%	$$$
		30″x30″x1″	Class A	80239	0.90	30	0.90	White	D	Low	✓	67%	$$$
		30″x60″x1″	Class A	89144	0.90	30	0.90	White	D	Low	✓	67%	$$$
	FLB	2′x2′x1″	Class A	88139	0.90	30	0.90	White, color[7]	E,F,G,H	Low	✓	67%	$$$
		2′x4′x1″	Class A	89139	0.90	30	0.90	White	E,F,G,H	Low	✓	67%	$$$
		30″x30″x1″	Class A	80265	0.90	30	0.90	White	E,F,G,H	Low	✓	67%	$$$
		30″x60″x1″	Class A	89145	0.90	30	0.90	White	E,F,G,H	Low	✓	67%	$$$
USG MARS™ HIGH-NRC PANELS 85/35 Plant-Based Binder	SQ	2′x2′x7/8″	Class A	88134	0.85	35	0.90	White, color[7]	A,B,C	Low	✓	69%	$$$
		2′x4′x7/8″	Class A	89134	0.85	35	0.90	White	A,B	Low	✓	69%	$$$
		30″x30″x7/8″	Class A	80113	0.85	35	0.90	White	A,B	Low	✓	69%	$$$
		30″x60″x7/8″	Class A	89140	0.85	35	0.90	White	A,B	Low	✓	69%	$$$

Low Emissions (VOC)
Third party (GREENGUARD Gold) certified for low-emitting performance, meets California Department of Public Health's (CDPH) Standard Method v1.2 - 2017 (CA Section 01350). 'Certificates of Compliance' for Low VOC Emissions are available on usg.com and at spot.ul.com.

ClimaPlus™ Warranty Performance[3]
Contains a broad-spectrum antimicrobial additive on the face and back of the panel that provides resistance against the growth of mold and mildew. Includes sag-resistance performance.

High Recycled Content
USG classifies High Recycled Content as greater than 50%. Total recycled content is based on product composition of postconsumer and preconsumer (postindustrial) recycled content per FTC guidelines.

USG CGC

RFI 167

USG MARS™ HIGH-NRC/HIGH-CAC ACOUSTICAL PANELS

CLIMAPLUS™ PERFORMANCE WITH PLANT-BASED BINDER[9]

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30 YEAR LIMITED SYSTEM WARRANTY
• No Visible Sag
• Mold/Mildew Protection

BALANCED ACOUSTICS

HIGH RECYCLED CONTENT

PREMIUM COLOR PALETTE

CUSTOM COLOR

Plant-Based Binder

ECOBLUEPRINT

Declare

UL Classified

Edge	Panel Size	Fire Rating	Item No.	NRC	CAC Min.	LR[2]	Color	Grid Options	VOC Emissions	Anti-Mold & Mildew/Sag Resistance	Recycled Content[1]	Panel Cost	
				NRC	CAC								
USG MARS™ HIGH-NRC PANELS 85/35 Plant-Based Binder													
SLT	**2′x2′x7/8″**	Class A	**88135**	0.85	35	0.90	White, color[7]	D	Low	✓	69%	**$$$**	
	2′x4′x7/8″	Class A	**89135**	0.85	35	0.90	White	D	Low	✓	69%	**$$$**	
	30″x30″x7/8″	Class A	**80139**	0.85	35	0.90	White	D	Low	✓	69%	**$$$**	
	30″x60″x7/8″	Class A	**89141**	0.85	35	0.90	White	D	Low	✓	69%	**$$$**	
FLB	**2′x2′x7/8″**	Class A	**88136**	0.85	35	0.90	White, color[7]	E,F,G,H	Low	✓	69%	**$$$**	APC-3
	2′x4′x7/8″	Class A	**89136**	0.85	35	0.90	White	E,F,G,H	Low	✓	69%	**$$$**	APC-1/4
	30″x30″x7/8″	Class A	**80165**	0.85	35	0.90	White	E,F,G,H	Low	✓	69%	**$$$**	
	30″x60″x7/8″	Class A	**89142**	0.85	35	0.90	White	E,F,G,H	Low	✓	69%	**$$$**	
USG MARS™ HIGH-NRC/ HIGH-CAC PANELS 80/40 Plant-Based Binder													
SQ	**2′x2′x1″**	Class A	**86345**	0.80	40	0.90	White	A,B,C	Low	✓	71%	**$$**	
	2′x4′x1″	Class A	**88345**	0.80	40	0.90	White	A,B	Low	✓	71%	**$$**	
SLT	**2′x2′x1″**	Class A	**86346**	0.80	40	0.90	White	D	Low	✓	71%	**$$**	
	2′x4′x1″	Class A	**88346**	0.80	40	0.90	White	D	Low	✓	71%	**$$**	
FLB	**2′x2′x1″**	Class A	**86347**	0.80	40	0.90	White	E,F,G,H	Low	✓	71%	**$$**	
	2′x4′x1″	Class A	**88347**	0.80	40	0.90	White	E,F,G,H	Low	✓	71%	**$$**	
USG MARS™ HIGH-NRC PANELS 80/35 Plant-Based Binder													
SQ	**2′x2′x7/8″**	Class A	**86100**	0.80	35	0.90	White	A,B,C	Low	✓	70%	**$$**	
	2′x4′x7/8″	Class A	**86300**	0.80	35	0.90	White	A,B	Low	✓	70%	**$$**	
	30″x30″x7/8″	Class A	**86426**	0.80	35	0.90	White	A,B	Low	✓	70%	**$$**	
	30″x60″x7/8″	Class A	**86429**	0.80	35	0.90	White	A,B	Low	✓	70%	**$$**	
SLT	**2′x2′x7/8″**	Class A	**87200**	0.80	35	0.90	White	D	Low	✓	70%	**$$**	
	2′x4′x7/8″	Class A	**89600**	0.80	35	0.90	White	D	Low	✓	70%	**$$**	
	30″x30″x7/8″	Class A	**86500**	0.80	35	0.90	White	D	Low	✓	70%	**$$**	
	30″x60″x7/8″	Class A	**86466**	0.80	35	0.90	White	D	Low	✓	70%	**$$**	
FLB	**2′x2′x7/8″**	Class A	**87100**	0.80	35	0.90	White	E,F,G,H	Low	✓	70%	**$$**	
	2′x4′x7/8″	Class A	**89500**	0.80	35	0.90	White	E,F,G,H	Low	✓	70%	**$$**	
	30″x30″x7/8″	Class A	**86400**	0.80	35	0.90	White	E,F,G,H	Low	✓	70%	**$$**	
	30″x60″x7/8″	Class A	**86497**	0.80	35	0.90	White	E,F,G,H	Low	✓	70%	**$$**	

Low Emissions (VOC)
Third party (GREENGUARD Gold) certified for low-emitting performance, meets California Department of Public Health's (CDPH) Standard Method v1.2 - 2017 (CA Section 01350). 'Certificates of Compliance' for Low VOC Emissions are available on usg.com and at spot.ul.com.

ClimaPlus™ Warranty Performance[3]
Contains a broad-spectrum antimicrobial additive on the face and back of the panel that provides resistance against the growth of mold and mildew. Includes sag-resistance performance.

High Recycled Content
USG classifies High Recycled Content as greater than 50%. Total recycled content is based on product composition of postconsumer and preconsumer (postindustrial) recycled content per FTC guidelines.

USG CGC

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• No Visible Sag
• Mold/Mildew Protection

BALANCED ACOUSTICS

HIGH RECYCLED CONTENT

PREMIUM COLOR PALETTE

CUSTOM COLOR

Plant-Based Binder

ECOBLUEPRINT

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USG MARS™ HIGH-CAC PANELS 60/40

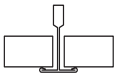
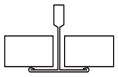
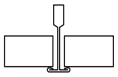
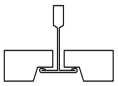
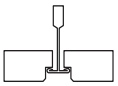
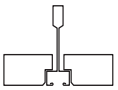
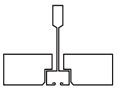
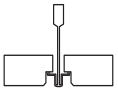
Edge	Panel Size	Fire Rating	Item No.	UL Classified NRC	UL Classified CAC Min.	LR[2]	Color	Grid Options	VOC Emissions	Anti-Mold & Mildew/Sag Resistance	Recycled Content[1]	Panel Cost
SQ	**2'x2'x3/4"**	Class A	**86186**	0.60	40	0.90	White, color[7]	A,B,C	Low	✓	70%	**$$$**
	2'x4'x3/4"	Class A	**87187**	0.60	40	0.90	White	A,B	Low	✓	70%	**$$$**
SLT	**2'x2'x3/4"**	Class A	**86786**	0.60	40	0.90	White, color[7]	D	Low	✓	70%	**$$$**
	2'x4'x3/4"	Class A	**88786**	0.60	40	0.90	White	D	Low	✓	70%	**$$$**
FLB	**2'x2'x3/4"**	Class A	**86986**	0.60	40	0.90	White, color[7]	E,F,G,H	Low	✓	70%	**$$$**
	2'x4'x3/4"	Class A	**88986**	0.60	40	0.90	White	E,F,G,H	Low	✓	70%	**$$$**

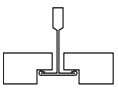
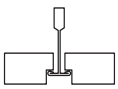
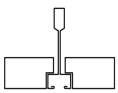
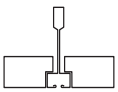
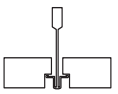
Low Emissions (VOC)
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ClimaPlus™ Warranty Performance[3]
Contains a broad-spectrum antimicrobial additive on the face and back of the panel that provides resistance against the growth of mold and mildew. Includes sag-resistance performance.

High Recycled Content
USG classifies High Recycled Content as greater than 50%. Total recycled content is based on product composition of postconsumer and preconsumer (postindustrial) recycled content per FTC guidelines.

GRID PROFILE OPTIONS

A **USG DX®**	B **USG DXW™**	C[4] **USG Centricitee™ DXT™**	D **USG DX®**	E **USG Centricitee™ DXT™**	F **USG Fineline® DXF™**	G[8] **USG Fineline® 1/8 DXFF™**	H **USG Identitee® DXI™**
							

I **USG DX®**	J **USG Centricitee™ DXT™**	K **USG Fineline® DXF™**	L **USG Fineline® 1/8 DXFF™**	M **USG Identitee® DXI™**
				

PHYSICAL DATA/ FOOTNOTES

Product literature
Data sheet: SC2487

ASTM E1264 classification
ASTM E1264-22: Type IV, Form 1 and 2, Pattern E, G
ASTM E1264-23: Type A, Form A2.1 and A2.2, Pattern E, G

ASTM E84 and CAN/ULC S102 surface-burning characteristics
Class A
Flame spread: 25 or less
Smoke developed: 50 or less

Weight
1.09 - 1.36 lb./sq.ft.

Online tools
usgdesignstudio.com or cgcdesignstudio.com

Thermal resistance
R-2.2 (3/4" panel)
R-4.5 (1.3" panel)

Maximum backloading
See *USG 30-Year Limited System Warranty Commercial Applications* (SC2102).

Maintenance
Can be cleaned easily with a soft brush or vacuum. To clean white panels, use a clean, white cloth with water or a mild detergent and wipe surface.

Metric sizes available
Contact sales for minimum quantities and lead times.

Notes
1. For details, see USG Sustainability tool at usgdesignstudio.com or cgcdesignstudio.com.
2. LR values are shown as averages.
3. For details, see *USG 30-Year Limited System Warranty Commercial Applications* (SC2102).
4. Maximum 2'x2' with SQ edge panels.
5. Acoustic values are for white only. Colored values are lower depending on specific color selected.
6. White panels only.
7. Available in Premium and Custom Colors.
8. Not available in Premium or Custom Colors.
9. All USG Mars™ High-NRC Acoustical Panels with a "plant-based binder" label contain up to 65% plant-based material in the binder. For more information, please refer to the USG Mars Acoustical Panels Health Product Declaration, available at www.usg.com.

Notice
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Chicago, IL 60661

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Safety First! Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read SDS and literature before specification and installation.

USG CGC

RFI 167

USG Ceiling Solutions

USG MARS™ HEALTHCARE ACOUSTICAL PANELS CLIMAPLUS™ PERFORMANCE WITH CLEAN ROOM, HIGH-NRC AND AIRCARE™ COATING OPTIONS



Basis of Design

USG Mars™ Healthcare Acoustical Panels with ClimaPlus™ Performance/USG Donn® Brand DX®/DXL™ Acoustical Suspension System

Photo this page:
Chinook Regional Hospital
Architect: Perkins + Will / KRA / Group2 / Stuart Olson
Photo: © Andrew Latreille

TO ORDER SAMPLES, GO TO USG.COM OR CGCINC.COM

White 050

Fine-Textured Panel

FEATURES AND BENEFITS

- Water-repellent membrane designed to be durable and safe with common disinfectants.**
- Washable and soil-resistant fi nish. Impact and scratch resistant.
- Acoustics and cleanability exceed FGI guidelines for healthcare.
- Meets USDA/FSIS guidelines for use in food-processing areas.
- Achieves FDA standards for smoothness, durability and cleanability.
- Clean Room tested to ISO 5 (Class 100) (Items 86169CR, 88189CR, 86684CR, 88683CR).
- ClimaPlus™ 30-year limited system warranty against visible sag, mold and mildew.
- AirCare™ coating applied to face and back reduces 75% of formaldehyde over a 10-year period.[4]
- GREENGUARD Gold certified for low emitting performance.
- Balanced Acoustics. High-NRC and High-CAC provide excellent sound control that assist in addressing HIPAA standards.
- USG Mars™ Healthcare Acoustical Panels is part of the Ecoblueprint™ portfolio — meeting today's sustainability standards. For sustainability documentation go to USG.com or CGCInc.com.

APPLICATIONS

- Kitchen and food-prep areas
- Lavatories and restrooms
- Laboratories and Clean Rooms
- Nurses' stations/ waiting rooms
- Treatment/patient rooms

SUBSTRATE

- Wet-formed mineral fiber

USG
IT'S YOUR WORLD. BUILD IT.™

RFI 167

USG MARS™ HEALTHCARE ACOUSTICAL PANELS

CLIMAPLUS™ PERFORMANCE — NEW CLEAN ROOM, HIGH-NRC AND AIRCARE™ COATING OPTIONS

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30 YEAR LIMITED SYSTEM WARRANTY
• No Visible Sag
• Mold/Mildew Protection

BALANCED ACOUSTICS

HIGH RECYCLED CONTENT

AIRCARE™

Plant-Based Binder

ECOBLUEPRINT

Declare.

UL Classified

Edge	Panel Size	Fire Rating	Item No.	NRC	CAC Min.	LR[2]	Color	Grid Options	VOC Emissions	Anti-Mold & Mildew/Sag Resistance	Recycled Content[1]	Panel Cost
				NRC	CAC						HRC	$
USG MARS™ HEALTHCARE HIGH-NRC PANELS 85/35 Plant-Based Binder[6]												
SQ	**2′x2′x7/8″**	Class A	**86256**	0.85	35	0.90	White	A,B,C,D,E,F	Low	✓	70%	**$$**
	2′x4′x7/8″	Class A	**88256**	0.85	35	0.90	White	A,B,D,E,F	Low	✓	70%	**$$**
SLT	**2′x2′x7/8″**	Class A	**86257**	0.85	35	0.90	White	G,H,I,J	Low	✓	70%	**$$**
FLB	**2′x2′x7/8″**	Class A	**86258**	0.85	35	0.90	White	K,L,M,N	Low	✓	70%	**$$**
USG MARS™ HEALTHCARE HIGH-NRC/ HIGH-CAC PANELS 80/40 Plant-Based Binder[6]												
SQ	**2′x2′x1″**	Class A	**86115**	0.80	40	0.90	White	A,B,C,D,E,F	Low	✓	71%	**$$**
	2′x4′x1″	Class A	**88115**	0.80	40	0.90	White	A,B,D,E,F	Low	✓	71%	**$$**
SLT	**2′x2′x1″**	Class A	**86343**	0.80	40	0.90	White	G,H,I,J	Low	✓	71%	**$$**
	2′x4′x1″	Class A	**88343**	0.80	40	0.90	White	G,H,I,J	Low	✓	71%	**$$**
FLB	**2′x2′x1″**	Class A	**86344**	0.80	40	0.90	White	K,L,M,N	Low	✓	71%	**$$**
	2′x4′x1″	Class A	**88344**	0.80	40	0.90	White	K,L,M,N	Low	✓	71%	**$$**
USG MARS™ HEALTHCARE HIGH-NRC PANELS 80/35 Plant-Based Binder[6]												
SQ	**2′x2′x7/8″**	Class A	**86152**	0.80	35	0.90	White	A,B,C,D,E,F	Low	✓	70%	**$$**
	2′x4′x7/8″	Class A	**86340**	0.80	35	0.90	White	A,B,D,E,F	Low	✓	70%	**$$**
SLT	**2′x2′x7/8″**	Class A	**86470**	0.80	35	0.90	White	G,H,I,J	Low	✓	70%	**$$**
FLB	**2′x2′x7/8″**	Class A	**86750**	0.80	35	0.90	White	K,L,M,N	Low	✓	70%	**$$**
USG MARS™ HEALTHCARE PANELS 75/35												
SQ	**2′x2′x3/4″**	Class A	**86169**	0.75	35	0.90	White	A,B,C,D,E,F	Low	✓	69%	**$$**
	2′x4′x3/4″	Class A	**88189**	0.75	35	0.90	White	A,B,D,E,F	Low	✓	69%	**$$**
SLT	**2′x2′x3/4″**	Class A	**86684**	0.75	35	0.90	White	G,H,I,J	Low	✓	69%	**$$**
	2′x4′x3/4″	Class A	**88683**	0.75	35	0.90	White	G,H,I,J	Low	✓	69%	**$$**
FLB	**2′x2′x3/4″**	Class A	**86984**	0.75	35	0.90	White	K,L,M,N	Low	✓	69%	**$$**
	2′x4′x3/4″	Class A	**88983**	0.75	35	0.90	White	K,L,M,N	Low	✓	69%	**$$**
USG MARS™ HEALTHCARE HIGH-CAC PANELS 60/40												
SQ	**2′x2′x3/4″**	Class A	**86270**	0.60	40	0.90	White	A,B,C,D,E,F	Low	✓	71%	**$$**
	2′x4′x3/4″	Class A	**88271**	0.60	40	0.90	White	A,B,D,E,F	Low	✓	71%	**$$**
SLT	**2′x2′x3/4″**	Class A	**86272**	0.60	40	0.90	White	G,H,I,J	Low	✓	71%	**$$**
FLB	**2′x2′x3/4″**	Class A	**86273**	0.60	40	0.90	White	K,L,M,N	Low	✓	71%	**$$**
	2′x4′x3/4″	Class A	**88273**	0.60	40	0.90	White	K,L,M,N	Low	✓	71%	**$$**

APC-2

Low Emissions (VOC)
Third party (GREENGUARD Gold) certified for low-emitting performance, meets California Department of Public Health's (CDPH) Standard Method v1.2 - 2017 (CA Section 01350). 'Certificates of Compliance' for Low VOC Emissions are available on usg.com and at spot.ul.com.

ClimaPlus™ Warranty Performance[3]
Contains a broad-spectrum antimicrobial additive on the face and back of the panel that provides resistance against the growth of mold and mildew. Includes sag-resistance performance.

High Recycled Content
USG classifies High Recycled Content as greater than 50%. Total recycled content is based on product composition of postconsumer and preconsumer (postindustrial) recycled content per FTC guidelines.

USG CGC

RFI 167

USG MARS™ HEALTHCARE ACOUSTICAL PANELS

CLIMAPLUS™ PERFORMANCE — NEW CLEAN ROOM, HIGH-NRC AND AIRCARE™ COATING OPTIONS

ORDER SAMPLES/LITERATURE
USG: usg.com or samplit@usg.com
CGC: contact Sales Representative

TECHNICAL SERVICES
800 USG.4YOU (874-4968)

FOR MOST UP-TO-DATE TECHNICAL INFORMATION AND LEED REPORT TOOL
usgdesignstudio.com
cgcdesignstudio.com

PRODUCT CERTIFIED FOR LOW CHEMICAL EMISSIONS: UL.COM/GG UL 2818

30 YEAR LIMITED SYSTEM WARRANTY
• No Visible Sag
• Mold/Mildew Protection

BALANCED ACOUSTICS

HIGH RECYCLED CONTENT

AIRCARE™

Plant-Based Binder

ECOBLUEPRINT

Declare.

UL Classified

	Edge	Panel Size	Fire Rating	Item No.	NRC	CAC Min.	LR[2]	Color	Grid Options	VOC Emissions	Anti-Mold & Mildew/Sag Resistance	Recycled Content[1]	Panel Cost
					NRC	CAC						HRC	$
USG MARS™ HEALTHCARE WITH AIRCARE™ COATING[4] 75/35	SQ	**2′x2′x3/4″**	Class A	**86169AIR**	0.75	35	0.90	White	A,B,C,D,E,F	Low	✓	69%	**$$**
		2′x4′x3/4″	Class A	**88189AIR**	0.75	35	0.90	White	A,B,D,E,F	Low	✓	69%	**$$**
	SLT	**2′x2′x3/4″**	Class A	**86684AIR**	0.75	35	0.90	White	G,H,I,J	Low	✓	69%	**$$**
		2′x4′x3/4″	Class A	**88683AIR**	0.75	35	0.90	White	G,H,I,J	Low	✓	69%	**$$**
	FLB	**2′x2′x3/4″**	Class A	**86984AIR**	0.75	35	0.90	White	K,L,M,N	Low	✓	69%	**$$**
		2′x4′x3/4″	Class A	**88983AIR**	0.75	35	0.90	White	K,L,M,N	Low	✓	69%	**$$**
USG MARS™ HEALTHCARE CLEAN ROOM PANELS 75/35	SQ	**2′x2′x3/4″**	Class A	**86169CR**	0.75	35	0.90	White	O	Low	✓	68%	**$$**
		2′x4′x3/4″	Class A	**88189CR**	0.75	35	0.90	White	O	Low	✓	68%	**$$**
	SLT	**2′x2′x3/4″**	Class A	**86684CR**	0.75	35	0.90	White	P	Low	✓	68%	**$$**
		2′x4′x3/4″	Class A	**88683CR**	0.75	35	0.90	White	P	Low	✓	68%	**$$**

Low Emissions (VOC)
Third party (GREENGUARD Gold) certified for low-emitting performance, meets California Department of Public Health's (CDPH) Standard Method v1.2 - 2017 (CA Section 01350). 'Certificates of Compliance' for Low VOC Emissions are available on usg.com and at spot.ul.com.

ClimaPlus™ Warranty Performance[3]
Contains a broad-spectrum antimicrobial additive on the face and back of the panel that provides resistance against the growth of mold and mildew. Includes sag-resistance performance.

High Recycled Content
USG classifies High Recycled Content as greater than 50%. Total recycled content is based on product composition of postconsumer and preconsumer (postindustrial) recycled content per FTC guidelines.

RFI 167

USG MARS™ HEALTHCARE ACOUSTICAL PANELS

CLIMAPLUS™ PERFORMANCE — NEW CLEAN ROOM, HIGH-NRC AND AIRCARE™ COATING OPTIONS

ORDER SAMPLES/LITERATURE
USG: usg.com or samplit@usg.com
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FOR MOST UP-TO-DATE TECHNICAL INFORMATION AND LEED REPORT TOOL
usgdesignstudio.com
cgcdesignstudio.com

PRODUCT CERTIFIED FOR LOW CHEMICAL EMISSIONS: UL.COM/GG UL 2818

30 YEAR LIMITED SYSTEM WARRANTY
- No Visible Sag
- Mold/Mildew Protection

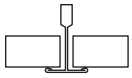
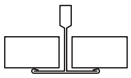
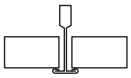
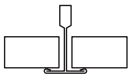
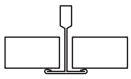
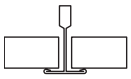
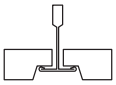
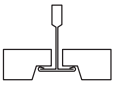
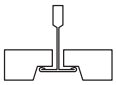
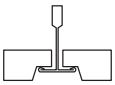
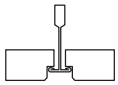
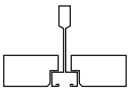
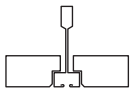
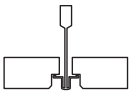
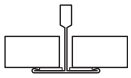
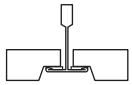
BALANCED ACOUSTICS

HIGH RECYCLED CONTENT

AIRCARE™

Plant-Based Binder

GRID PROFILE OPTIONS

A USG DX®	B USG DXW™	C[5] USG Centricitee™ DXT™	D USG DXLA™
			
E **USG ZXLA™**	**F** **USG AX™**	**G** **USG DX®**	**H** **USG DXLA™**
			
I **USG ZXLA™**	**J** **USG AX™**	**K** **USG Centricitee™ DXT™**	**L** **USG Fineline® DXF™**
			
M **USG Fineline® 1/8 DXFF™**	**N** **USG Identitee® DXI™**	**O** **USG CE™**	**P** **USG DXCE™**
			

PHYSICAL DATA/ FOOTNOTES

Product literature
Data sheet: SC2585

ASTM E1264 classification
ASTM E1264-22 Type IV, Form 1 & 2, Pattern E & G
ASTM E1264-23 Type A, Form A2.1, Pattern E & G

ASTM E84 and CAN/ULC S102 surface-burning characteristics Class A
Flame spread: 25 or less
Smoke developed: 50 or less

Weight
1.03-1.24 lb./sq. ft.

Thermal resistance
R-2.2

Maximum backloading
See *USG 30-Year Limited System Warranty Commercial Applications* (SC2102).

Online tools
usgdesignstudio.com or cgcdesignstudio.com

ASTM D2486 scrubbability test
(standard test)

ASTM D4828 washability test
(modified test)

Water repellency
Cobb method (Tappi T441 om-84) Water Drop Test

****Maintenance**
To clean panel, use a clean, white cloth with water or a mild detergent and wipe surface. To disinfect panel, lightly spray surface and wipe clean with a clean, white cloth. Acceptable colorless disinfectants include:
- Hydrogen peroxide
- Isopropyl alcohol
- Quaternary ammonium
- Sodium hypochlorite

Do not mix cleaners. Follow cleaner manufacturer's recommendations.

USG Mars™ Healthcare Clean Room
- Field-cut edges of USG Mars™ Healthcare Clean Room panels may be sealed with white latex paint. Use square edge panels for all lay-in field-cut perimeter panels.
- Clean Room-rated applications require a suspension system with gasketed tee flanges such as USG Donn® Brand CE™.
- Tested to ISO Class 5 particle emissions, per ISO 14644, by UL Environment. Rating may decrease to ISO Class 7 or greater with airflow above 1 ACH, pressure fluctuations, or vibrations in the ceiling system.
- For more information, please reference test report from UL Environment.

Metric sizes available
Contact sales for minimum quantities and lead times.

Footnotes
1. For details, see USG Sustainability tool at usgdesignstudio.com or cgcdesignstudio.com.
2. LR values are shown as averages.
3. Panel face and back surfaces treated with a proprietary broad-spectrum antimicrobial standard formulation that inhibits and retards the growth of mold and mildew. For details, see *USG 30-Year Limited System Warranty Commercial Applications* (SC2102).
4. AirCare™ coating removes formaldehyde by an average of 75% over 10 years at an average indoor concentration of 13 ppb.
5. Maximum 2'x2' with SQ edge panels.
6. All USG Mars™ High NRC Acoustical Panels with a "plant-based binder" label contain up to 65% plant-based material in the binder. For more information please refer to the USG Mars™ Acoustical Panels Health Product Declaration, available at www.usg.com
7. Mars™ Healthcare should not be mixed with non-Healthcare products in the same ceiling plane.
8. Product with Aircare™ coating should not be mixed with non-Aircare™ coated products.

Notice
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USG Interiors, LLC
550 West Adams Street
Chicago, IL 60661

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Safety First! Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read SDS and literature before specification and installation.

RFI 167

SYMPHONY *m* HIGH NRC
SYMPHONY *m* HIGH CAC
SYMPHONY® *m*

Proposed Substitution

MINERAL FIBER
SMOOTH



The Symphony line provides a full range of ultra-durable acoustic solutions with a consistent, smooth visual, coupled with excellent durability.

FEATURES AND BENEFITS

- Excellent sound absorption (NRC 0.75-0.85) and sound blocking (CAC 33-42)
- Certified clean room component to ISO Class 4 (highest among comparable products)
- Tested to 1,000 wash cycles and compatible with most sanitizing solutions
- Exceeds FGI Guidelines for cleanability and acoustic performance (≥ 1.0 lbs/s.f.)
- **SmartFit panels available** – fully fabricated off-the-shelf solution to accommodate linear lighting, ventilation and utility areas with standard components
- **CertaSize® program** – non-standard sizes made to order on select products. Lead time varies. Contact your local sales rep or Customer Support

ATTRIBUTES

NRC UP TO 0.85

SAG RESISTANT

BIOSHIELD® MOLD/MILDEW RESISTANT

LOW VOC
EMISSION COMPLIANT CERTIFIED

WASHABLE W/ SANITIZING CHEMICALS

LR 0.90

CERTIFICATIONS & PRODUCT DECLARATIONS

EPD AVAILABLE

HPD AVAILABLE

USDA CERTIFIED BIOBASED PRODUCT

Declare℠
Living Building Challenge Red List Free®
Declare℠ is a service mark of The International Living Future Institute.

LEED® v4

RECYCLED CONTENT	62%	
	PRE: 60%	POST: 2%

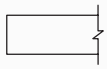
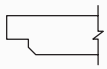
- ✓ EQ: Optimize Energy Performance
- ✓ EA: Prereq. Min. Energy Performance
- ✓ EQ: Interior Lighting
- ✓ MR: PBT Source Reduction (Healthcare)
- ✓ EQ: Acoustic Performance
- ✓ EQ: Prereq. Min. Acoustic Performance (Schools)
- ✓ EQ: Low-Emitting Materials
- ✓ EQ: Daylight
- ✓ MR: Material Ingredients (HPDs)
- ✓ MR: Sourcing Raw Materials
- ✓ MR: Environmental Product Declarations (EPDs)
- ✓ MR: Construction and Demolition Waste Management Planning

LEED® is a registered trademark of the U.S. Green Building Council.

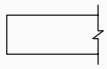
RFI 167

SYMPHONY *m* HIGH NRC | SYMPHONY *m* HIGH CAC
SYMPHONY® *m*

SYMPHONY *m* HIGH NRC

			FORMAT	DIMENSIONS (IN.)	NRC	CAC	RECYCLED CONTENT	PIECES/ CARTON	SQ. FT./ CARTON	LBS./ CARTON	CARTONS/ PALLET	
TRIM												
	NRC .85	1222-85-1	Panels	24 x 24 x 7/8	0.85	35	62%	14	56	64	16	
		1220-85-1	Panels	24 x 48 x 7/8	0.85	35	62%	8	64	74	14	
		1223-85-1	Panels	30 x 30 x 7/8	0.85	35	62%	8	50	58	28	
		1221-85-1	Planks	24 x 60 x 7/8	0.85	35	62%	8	80	92	14	
		1228-85-1	Planks	24 x 72 x 7/8	0.85	35	62%	8	96	110	14	
REVEAL												
	NRC .85	1222BB-85-1	Panels	24 x 24 x 7/8	0.85	35	62%	14	56	64	16	
		1220BB-85-1	Panels	24 x 48 x 7/8	0.85	35	62%	8	64	74	14	
		1221BB-85-1	Planks	24 x 60 x 7/8	0.85	35	62%	8	80	92	14	
		1228BB-85-1	Planks	24 x 72 x 7/8	0.85	35	62%	8	96	110	14	
NARROW REVEAL												
	NRC .85	1222BF-85-1	Panels	24 x 24 x 7/8	0.85	35	62%	14	56	64	16	APC-3
		1220BF-85-1	Panels	24 x 48 x 7/8	0.85	35	62%	8	64	74	14	APC-1/4
		1221BF-85-1	Planks	24 x 60 x 7/8	0.85	35	62%	8	80	92	14	
		1228BF-85-1	Planks	24 x 72 x 7/8	0.85	35	62%	8	96	110	14	

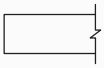
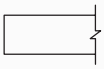
SYMPHONY *m* HIGH CAC

			FORMAT	DIMENSIONS (IN.)	NRC	CAC	RECYCLED CONTENT	PIECES/ CARTON	SQ. FT./ CARTON	LBS./ CARTON	CARTONS/ PALLET
TRIM											
	NRC .80	1222-80-1	Panels	24 x 24 x 7/8	0.80	40	62%	14	56	64	16
		1220-80-1	Panels	24 x 48 x 7/8	0.80	42	62%	8	64	74	14
		1221-80-1	Planks	24 x 60 x 7/8	0.80	42	62%	8	80	92	14
		1228-80-1	Planks	24 x 72 x 7/8	0.80	42	62%	8	96	110	14
		1223-80-1	Panels	30 x 30 x 7x8	0.80	40	62%	8	50	58	28
REVEAL											
	NRC .80	1222BB-80-1	Panels	24 x 24 x 7/8	0.80	40	62%	14	56	64	16
		1220BB-80-1	Panels	24 x 48 x 7/8	0.80	42	62%	8	64	74	14
		1221BB-80-1	Planks	24 x 60 x 7/8	0.80	42	62%	8	80	92	14
		1228BB-80-1	Planks	24 x 72 x 7/8	0.80	42	62%	8	96	110	14
NARROW REVEAL											
	NRC .80	1222BF-80-1	Panels	24 x 24 x 7/8	0.80	40	62%	14	56	64	16
		1220BF-80-1	Panels	24 x 48 x 7/8	0.80	42	62%	8	64	74	14
		1221BF-80-1	Planks	24 x 60 x 7/8	0.80	42	62%	8	80	92	14
		1228BF-80-1	Planks	24 x 72 x 7/8	0.80	42	62%	8	96	110	14

RFI 167

SYMPHONY *m* HIGH NRC | SYMPHONY *m* HIGH CAC
SYMPHONY® *m*

SYMPHONY *m*

			FORMAT	DIMENSIONS (IN.)	NRC	CAC	RECYCLED CONTENT	PIECES/ CARTON	SQ. FT./ CARTON	LBS./ CARTON	CARTONS/ PALLET
TRIM											
	NRC .75	1222-75-1	Panels	24 x 24 x 3/4	0.75	38	62%	14	56	57	16
		1220-75-1	Panels	24 x 48 x 3/4	0.75	40	62%	8	64	65	16
		1223-75-1	Panels	30 x 30 x 3/4	0.75	38	62%	8	50	51	28
		1229-75-1	Panels	30 x 60 x 3/4	0.75	40	62%	8	100	101	16
		12220-60-75-1	Planks	20 x 60 x 3/4	0.75	40	62%	8	66	67	24
		1221-75-1	Planks	24 x 60 x 3/4	0.75	40	62%	8	80	81	16
		1228-75-1	Planks	24 x 72 x 3/4	0.75	40	62%	8	96	97	16
REVEAL											
	NRC .75	1222BB-75-1	Panels	24 x 24 x 3/4	0.75	38	62%	14	56	57	16
		1220BB-75-1	Panels	24 x 48 x 3/4	0.75	40	62%	8	64	65	16
		12220-60BB-75-1	Planks	20 x 60 x 3/4	0.75	40	62%	8	66	67	24
		1221BB-75-1	Planks	24 x 60 x 3/4	0.75	40	62%	8	80	81	16
		1228BB-75-1	Planks	24 x 72 x 3/4	0.75	40	62%	8	96	97	16
NARROW REVEAL											
	NRC .75	1222BF-75-1	Panels	24 x 24 x 3/4	0.75	38	62%	14	56	57	16
		1220BF-75-1	Panels	24 x 48 x 3/4	0.75	40	62%	8	64	65	16
		12220-60BF-75-1	Planks	20 x 60 x 3/4	0.75	40	62%	8	66	67	24
		1221BF-75-1	Planks	24 x 60 x 3/4	0.75	40	62%	8	80	81	16
		1228BF-75-1	Planks	24 x 72 x 3/4	0.75	40	62%	8	96	97	16
METRIC TRIM											
	NRC .75	1220-60-75-1M	Panels	500 x 1500 x 19	0.75	40	62%	8	6	96	16
		1220-75-1M	Panels	600 x 1200 x 19	0.75	40	62%	8	5.8	49	32
		1222-75-1M	Panels	600 x 600 x 19	0.75	38	62%	14	5	55	16
		1229-75-1M	Panels	750 x 1500 x 19	0.75	40	62%	8	9	64	24
		1223-75-1M	Panels	750 x 750 x 19	0.75	38	62%	8	4.5	62	16

APC-2

SYMPHONY *m* SmartFit

			FORMAT	DIMENSIONS (IN.)	RECYCLED CONTENT	PIECES/ CARTON	SQ. FT./ CARTON	LBS./ CARTON	CARTONS/ PALLET
TRIM									
	SMARTFIT	12204-24-FIT-1	SmartFit	4 x 24 x 3/4	62%	84	56	58	16
		12204-48-FIT-1	SmartFit	4 x 48 x 3/4	62%	48	64	66	16
		12204-60-FIT-1	SmartFit	4 x 60 x 3/4	62%	48	80	82	16
		12206-24-FIT-1	SmartFit	6 x 24 x 3/4	62%	56	56	58	16
		12206-48-FIT-1	SmartFit	6 x 48 x 3/4	62%	32	64	66	16
		12206-60-FIT-1	SmartFit	6 x 60 x 3/4	62%	32	80	82	16
		12212-24-FIT-1	SmartFit	12 x 24 x 3/4	62%	28	56	58	16
		12212-48-FIT-1	SmartFit	12 x 48 x 3/4	62%	16	64	66	16
		12212-60-FIT-1	SmartFit	12 x 60 x 3/4	62%	16	80	82	16

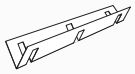
RFI 167

SYMPHONY *m* HIGH NRC | SYMPHONY *m* HIGH CAC
SYMPHONY® *m*

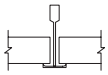
SYMPHONY *m* SmartFit continued

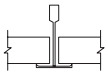
			FORMAT	DIMENSIONS (IN.)	RECYCLED CONTENT	PIECES/ CARTON	SQ. FT./ CARTON	LBS./ CARTON	CARTONS/ PALLET
REVEAL									
	SMARTFIT	12204-24BB-FIT-1	SmartFit	4 x 24 x 3/4	62%	84	56	58	16
		12204-48BB-FIT-1	SmartFit	4 x 48 x 3/4	62%	48	64	66	16
		12204-60BB-FIT-1	SmartFit	4 x 60 x 3/4	62%	48	80	82	16
		12206-24BB-FIT-1	SmartFit	6 x 24 x 3/4	62%	56	56	58	16
		12206-48BB-FIT-1	SmartFit	6 x 48 x 3/4	62%	32	64	66	16
		12206-60BB-FIT-1	SmartFit	6 x 60 x 3/4	62%	32	80	82	16
		12212-24BB-FIT-1	SmartFit	12 x 24 x 3/4	62%	28	56	58	16
		12212-48BB-FIT-1	SmartFit	12 x 48 x 3/4	62%	16	64	66	16
		12212-60BB-FIT-1	SmartFit	12 x 60 x 3/4	62%	16	80	82	16
NARROW REVEAL									
	SMARTFIT	12204-24BF-FIT-1	SmartFit	4 x 24 x 3/4	62%	84	56	58	16
		12204-48BF-FIT-1	SmartFit	4 x 48 x 3/4	62%	48	64	66	16
		12204-60BF-FIT-1	SmartFit	4 x 60 x 3/4	62%	48	80	82	16
		12206-24BF-FIT-1	SmartFit	6 x 24 x 3/4	62%	56	56	58	16
		12206-48BF-FIT-1	SmartFit	6 x 48 x 3/4	62%	32	64	66	16
		12206-60BF-FIT-1	SmartFit	6 x 60 x 3/4	62%	32	80	82	16
		12212-24BF-FIT-1	SmartFit	12 x 24 x 3/4	62%	28	56	58	16
		12212-48BF-FIT-1	SmartFit	12 x 48 x 3/4	62%	16	64	66	16
		12212-60BF-FIT-1	SmartFit	12 x 60 x 3/4	62%	16	80	82	16

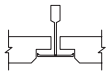
ACCESSORIES

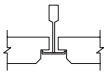
SYMPHONY m ACCESSORIES		PRODUCT NAME	PIECES/ CARTON	USE
	1170-SEL-1	Mineral Fiber Edge Sealant	1	For re-sealing cut edges; 1 quart container
	STBAR-2	2´ Stabilizer Bar	40	Recommended one pc/panel for all 2x5 and 2x6 narrow reveal installations
	STBAR-4	4´Stabilizer Bar	40	Recommended one pc spanning two panels in 2x5 and 2x6 narrow reveal installations

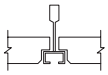
EDGE DETAILS

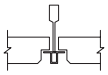

Trim
9/16" EZ Stab
Elite Narrow


Trim
15/16" EZ Stab
Classic


Reveal Corner Bevel
15/16" EZ Stab
Classic


Narrow Reveal
Corner Bevel
9/16" EZ Stab
Elite Narrow


Narrow Reveal
Corner Bevel
9/16" EZ Stab
Bolt Slot


Narrow Reveal
Corner Bevel
9/16" EZ Stab
Tier Drop

PHYSICAL DATA

MATERIAL
Mineral Fiber

FIRE CLASS (ASTM E1264)
All are Class A per ASTM E84 & CAN/ULC S102
Flame Spread: 25 or less
Smoke Developed: 50 or less

ASTM E1264 CLASSIFICATION
Type IV, Form 2, Pattern E

VOC EMISSIONS
Independently certified compliant with California Department of Public Health CDPH/EHLB/Standard Method Version 1.2, 2017.

MOLD/MILDEW RESISTANCE
BioShield treatment included for added mold and mildew resistance.

APPLICATION CONSIDERATIONS
Clean panel using a sponge/cloth dampened with water and mild liquid detergent solution. Do not soak panel. Cleanable with sanitizing chemicals.

WARRANTY
10-year 104/90 Limited Warranty increases to 15 years when installed with CertainTeed suspension systems. Full warranty information can be found at certainteed.com/warranty.

SAINT-GOBAIN

CertainTeed ARCHITECTURAL

METAL • WOOD • FELT • FIBERGLASS & MINERAL FIBER • GYPSUM • SUSPENSION & INTEGRATED SYSTEMS

20 Moores Road, Malvern, PA 19355 800-233-8990 certainteed.com/architectural

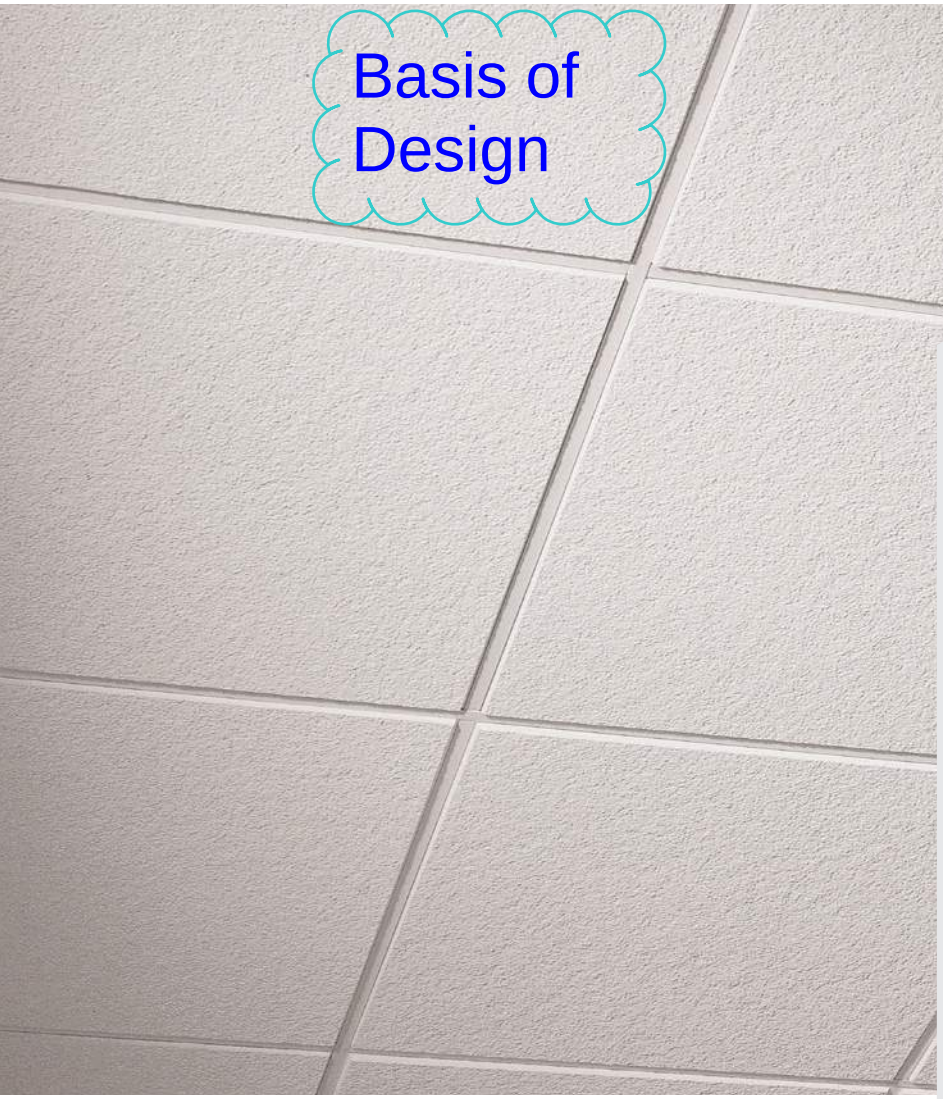
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RFI 167

USG Ceiling Solutions

USG DONN® BRAND CENTRICITEE™ DXT™/DXLT™ ACOUSTICAL SUSPENSION SYSTEM

Basis of Design



USG Donn® Brand Centricitee™ DXT™ Acoustical Suspension System/ USG Eclipse™ Acoustical Panels

TO ORDER SAMPLES, GO TO USG.COM OR CGCINC.COM

STANDARD COLORS

Flat White 050 · Parchment 103 · Manila 246 · Straw 143 · Sandstone 090 · Taupe 107 · Charcoal 534

Flat Black 205 · Silver Satin 002 · Reserve White 4250

ADVANTAGE COLORS

Breeze 2659 · Blue Gray 564 · Azure 2660 · Slate 568 · Spruce 567 · Tuscany 2663 · Sorbet 2658

Squash 2661 · Safari 2662 · Redwood 566 · Sienna 565 · Halo 206 · Mist 053 · Nectar 546

Quartz 082 · Beige 142 · Silvertone 052

PREMIUM COLORS

Dawn 3679 · Old Stone 3691 · Sea Shell 3678 · Light Brown 3690 · Nut Brown 3680 · Peat 3682 · Shale 3683

Ocean Ridge 3684 · Atmosphere 3681 · Laguna 3685 · Grass 3688 · Tangy Taleia 3689 · Deep Cranbury 3687 · Deep Violet 3686

Deep Berry 3693 · Deep Blue 3692

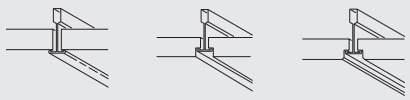
POWDER-COATED FINISH

Powder White 3767

PROFILE



EDGE DETAIL



Square Edge · Fineline · Fineline Bevel

FEATURES AND BENEFITS

- 9/16" exposed grid provides a clean aesthetic.
- Compatible with USG Logix™ Integrated Ceiling Systems.
- Cross-tee override-ends resist twisting and ensure a finished look.
- Proprietary Quick-Release™ cross tees.
- High recycled content (HRC) available.
- Seismic installation designs validated in ICC-ES Evaluation Report ESR-1222.
- Premium and custom colors available.
- Some items available in metric sizes.
- USG Donn® Brand Centricitee™ DXT™/DXLT™ Acoustical Suspension System is part of the Ecoblueprint™ portfolio — meeting today's sustainability standards. For sustainability documentation go to USG.com or CGCInc.com.

APPLICATIONS

- Interior general-use areas
- Fire-rated interior general-use areas
- USG Logix™ Integrated Ceiling Systems

USG CGC

IT'S YOUR WORLD. BUILD IT.™

RFI 167

USG DONN® BRAND CENTRICITEE™ DXT™/DXLT™ ACOUSTICAL SUSPENSION SYSTEM

ORDER SAMPLES/LITERATURE
USG: usg.com or samplit@usg.com
CGC: contact Sales Representative

TECHNICAL SERVICES
800 USG.4YOU (874-4968)

FOR MOST UP-TO-DATE TECHNICAL INFORMATION AND LEED REPORT TOOL
usgdesignstudio.com
cgcdesignstudio.com

30 YEAR LIMITED SYSTEM WARRANTY
• No Visible Sag
• Mold/Mildew Protection

HRC HIGH RECYCLED CONTENT

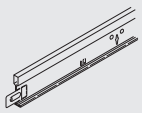
ECOBLUEPRINT

Declare®

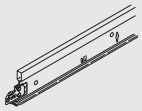
Declare® Labels on select finishes, see usg.com for more details and documentation.

9/16″ TEE SYSTEM[3,4]

Main Tee



Cross Tee 1-1/2″[3,4]



ASTM Class	Length	Height	Item No.	Fire Rating	Color[5]	Seismic Design Category[1,6] IBC	Seismic Design Category[1,6] ICC-ES Evaluated Installation	Rated Load[2] 4′ Hanger Spacing	Rated Load[2] 5′ Hanger Spacing
				🔥			〰		
Intermediate Duty	**10′** 3000 mm	**1-1/2″** 38 mm	**DXT24-10**	Class A	SC, AC, PC	A, C	7/8″ Molding ACM7 Clip	12 lb./LF	6.3 lb./LF
	12′ 3600 mm	**1-1/2″** 38 mm	**DXT24**	Class A	SC, AC, PC	A, C	7/8″ Molding ACM7 Clip	12 lb./LF	6.3 lb./LF
			DXT24HRC HRC						
			DXLT24	🔥	SC, AC, PC	A, C	7/8″ Molding ACM7 Clip		
Heavy Duty	**12′** 3600 mm	**1-5/8″** 42 mm	**DXT26**	Class A	SC, AC, PC	A, F	7/8″ Molding ACM7 Clip	16 lb./LF	8.1 lb./LF
			DXT26HRC HRC						
	1′	**1-1/2″**	**DXT122**	Class A	SC, AC, PC				
	2′ 600 mm	**1-1/2″** 38 mm	**DXT222**	Class A	SC, AC, PC				
			DXT222HRC HRC						
			DXLT222	🔥	SC, AC, PC				
	30″	**1-1/2″**	**DXT3022**	Class A	SC, AC, PC				
	4′ 1200 mm	**1-1/2″** 38 mm	**DXT422**	Class A	SC, AC, PC				
			DXT424	Class A	SC, AC, PC				
			DXT424HRC HRC						
			DXLT424	🔥	SC, AC, PC				
			DXT426	Class A	SC, AC, PC				
	5′	**1-1/2″**	**DXT524**	Class A	SC, AC, PC				
	6′	**1-1/2″**	**DXT624**	Class A	SC, AC, PC				
	8′	**1-1/2″**	**DXT824**	Class A	SC, AC, PC				

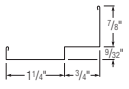
Low Emissions (VOC)
CDPH 01350 v1.2-2017 compliance on select finishes, see usg.com for more details and documentation.

High Recycled Content
USG classifies High Recycled Content as greater than 50%. Total recycled content is based on product composition of postconsumer and preconsumer (postindustrial) recycled content per FTC guidelines.

Firecode®

MOLDING[2]

Shadowline

Wall Angle	Length	Item No.	Color
	**12′** 3600 mm	**M9**	Flat White, Standard, Advantage, Premium
		M9HRC HRC	Flat White, Standard, Advantage, Premium
	**12′**	**MS125**	Flat White, Standard, Advantage, Premium
	**12′**	**MS174**	Flat White, Standard, Advantage, Premium
		MS174HRC HRC	
	**10′**	**MS274** 2″ shelf for seismic	Flat White

PHYSICAL DATA/ FOOTNOTES

Product literature and samples
Data sheet: AC3040, USG Logix™ system guide: IS268 USG Logix™ architectural design guide: IS287, USG Logix™ critical system dimensions: IS609, Sample: 206564

Material
Min. G30 hot-dipped galvanized steel body and cap. Baked on polyester paint or powder-coated finish.

Installation
Install according to ASTM C636, ASTM E580, CISCA and USG requirements. Alternate installation methods may be used when approved by the authority having jurisdiction.

Online tools
usgdesignstudio.com or cgcdesignstudio.com

Air diffusers
Refer to: AC272

Limitations
Refer to specific ceiling panel for limitations with square edge panels.

ICC Evaluation Service, LLC Report Compliance
For areas under ICC jurisdiction, see ICC-ES Evaluation Report ESR-1222 for allowable values and conditions of use. Reports are subject to reexamination, revision and possible cancellation. Refer to usg.com for most current version.

ASTM Load Compliance
Classified as Light, Intermediate or Heavy Duty when tested in accordance with ASTM C635.

Notes
1. All USG main tees, cross tees and main tee-hanger wire connections meet AC 368 and ASTM E580 requirements for tension and compression strength, as tested per ASTM E3090.
2. Rated Load expressed in lb./LF based on simple span tests in accordance with ASTM E3090 with deflection limit of L/360. Duty rating is assigned based on rated load per ASTM C635.
3. Panels must be specified to be field-cut to size and field-revealed to provide as wide a lay-on edge as possible.
4. Metric sizes shown available with standard lead times. Other metric sizes available by RTQ.
5. SC = Standard Color, AC=Advantage Color, PC=Premium Color
6. Seismically tested in accordance with ASTM E3118.

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Chicago, IL 60661

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Safety First! Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read SDS and literature before specification and installation.

USG CGC

MAI RFI 167



CROSS TEE



9/16" WALL ANGLE



7/8" WALL ANGLE



Suspension Systems

Proposed Substitution

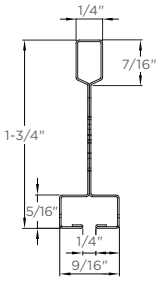
9/16" EZ Stab Elite Narrow System

The slim face width complements modern design and offers flexibility and added strength.

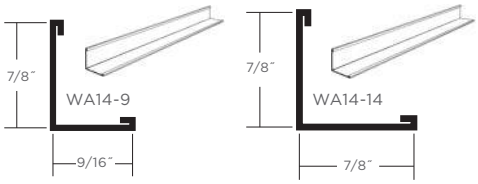
Features & Benefits

- Increased frequency (3" O.C.) of patented Latitude Holes™ provides installation flexibility
- Narrow style 9/16" (15 mm) face integrates with narrow reveal edge panels
- EZ Stab clip technology allows for a fast and strong connection on cross tees with enhanced removability
- Centering tabs prevent gaps around the edge, enabling integration with trim edge panels
- Enhanced stitching increases stiffness, reducing bending or twisting
- Suitable for all seismic applications
- ICC certified (ESR-3336) and City of Los Angeles Building Code compliant via ESR-3336 LABC Supplement
- Grid features G30 hot-dipped galvanized steel web construction for corrosion resistance
- Intermediate- and heavy-duty load-bearing capabilities/classification
- Available in Standard White and Black. Additional color options are offered through our Post-Paint process.

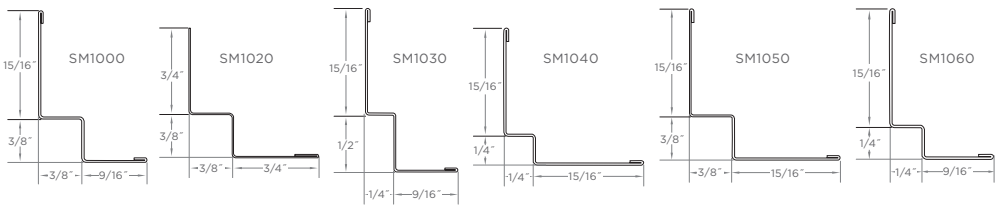
Main Runner



Wall Angle



Shadow Molding



LEED® v4

RECYCLED CONTENT	up to 86%
✓	MR: PBT Source Reduction (Healthcare)
✓	MR: Material Ingredients (HPDs)
✓	EQ: Low-Emitting Material
✓	MR: Sourcing Raw Materials
✓	MR: Environmental Product Declarations (EPDs)
✓	MR: Construction and Demolition Waste Management Planning

LEED® is a registered trademark of the U.S. Green Building Council.

CERTIFICATIONS & PRODUCT DECLARATIONS

UL CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION UL.COM/EPD

EPD AVAILABLE

hpd

HPD AVAILABLE

Declare℠
Living Building Challenge Red List Free®

certainteed
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9/16" EZ Stab Elite Narrow System

	GRID FACE (IN.)	DIMENSIONS (IN.)	SLOT SPACING (IN.)	PIECES/ CARTON	FT./ CARTON	SEISMIC DESIGN CATEGORY	STRUCTURAL CLASSIFICATION (ASTM C635)	RECYCLED CONTENT PRE*	RECYCLED CONTENT POST*	RECYCLED CONTENT TOTAL*	ALLOWABLE UNIFORM LOAD (PLF)	ALLOWABLE CONCENTRATED LOAD AT MIDSPAN (LBF)**
Main Runners												
EZES12-12-18	9/16	144 x 1-1/2 x 9/16	6 O.C.	20	240	A-C	ID	25%	35%	60%	13.15	32.88
EZES12-12-19	9/16	144 x 1-11/16 x 9/16	6 O.C.	20	240	A-F	HD	25%	34%	59%	17.97	44.93
Cross Tee												
EZES0.33-12-12	9/16	4 x 1-1/2 x 9/16	—	60	20	—	—	25%	34%	39%	—	—
EZES0.5-12-12	9/16	6 x 1-1/2 x 9/16	—	60	30	—	—	25%	34%	39%	—	—
EZES1-12-12	9/16	12 x 1-1/2 x 9/16	—	60	60	—	—	25%	34%	59%	210.53	131.58
EZES2-12-12	9/16	24 x 1-1/2 x 9/16	—	60	120	—	—	24%	36%	60%	27.97	34.96
EZES2-12-19	9/16	24 x 1-11/16 x 9/16	—	60	120	—	HD	25%	34%	59%	50.00	62.50
EZES2.5-12-12	9/16	30 x 1-1/2 x 9/16	—	60	150	—	—	24%	36%	60%	—	—
EZES4-12-12	9/16	48 x 1-1/2 x 9/16	12 O.C.	60	240	—	—	24%	36%	60%	8.44	21.09
EZES4-12-19	9/16	48 x 1-11/16 x 9/16	12 O.C.	60	240	—	HD	25%	34%	59%	17.97	44.93
EZES5-12-12	9/16	60 x 1-1/2 x 9/16	12 O.C.	20	100	—	—	24%	36%	60%	4.44	13.88
EZES5-12-12-5s	9/16	60 x 1-1/2 x 9/16	6, 20, 30, 40, 54	20	100	—	—	24%	36%	60%	—	—
EZES6-12-12	9/16	72 x 1-1/2 x 9/16	12 O.C.	20	120	—	—	24%	36%	60%	2.76	10.35
EZES8-12-12	9/16	96 x 1-1/2 x 9/16	12 O.C.	20	160	—	—	24%	36%	60%	1.00	5.00
Wall Angle												
WA14-9	9/16	144 x 7/8 x 9/16	—	40	480	—	—	19%	69%	88%	—	—
WA14-14	7/8	144 x 7/8 x 7/8	—	40	480	—	—	19%	69%	88%	—	—
WA14-14-10	7/8	120 x 7/8 x 7/8	—	40	400	—	—	19%	69%	88%	—	—
WA32-32	2	120 x 2 x 2	—	20	200	—	—	19%	69%	88%	—	—
WA32-32-12	2	144 x 2 x 2	—	20	240	—	—	19%	69%	88%	—	—
WA32-15	2	120 x 15/16 x 2	—	20	200	—	—	19%	69%	88%	—	—
WA32-15-12	2	144 x 15/16 x 2	—	20	240	—	—	19%	69%	88%	—	—
Flexible Wall Angle*												
FWA14-9	9/16	96 x 1-1/8 x 9/16	—	63	504	—	—	19%	69%	88%	—	—
FWA14-14	7/8	96 x 1-1/8 x 7/8	—	63	504	—	—	19%	69%	88%	—	—

*Flexible Wall Angle is made of Rigid PVC

Shadow Molding												
SM1000	—	120 x 15/16 x 3/8 x 3/8 x 9/16	—	40	400	—	—	19%	69%	88%	—	—
SM1020†	—	120 x 3/4 x 3/8 x 3/8 x 3/4	—	40	400	—	—	19%	69%	88%	—	—
SM1030	—	120 x 15/16 x 1/2 x 1/4 x 9/16	—	40	400	—	—	9%	44%	53%	—	—
SM1040	—	120 x 15/16 x 1/4 x 1/4 x 15/16	—	40	400	—	—	9%	44%	53%	—	—
SM1050	—	120 x 15/16 x 3/8 x 3/8 x 15/16	—	40	400	—	—	9%	44%	53%	—	—
SM1060	—	120 x 15/16 x 1/4 x 1/4 x 9/16	—	40	400	—	—	9%	44%	53%	—	—

	GRID FACE (MM)	DIMENSIONS (MM)	SLOT SPACING (MM)	PIECES/ CARTON	FT./ CARTON	SEISMIC DESIGN CATEGORY	STRUCTURAL CLASSIFICATION (ASTM C635)	RECYCLED CONTENT PRE*	RECYCLED CONTENT POST*	RECYCLED CONTENT TOTAL*	ALLOWABLE UNIFORM LOAD (PLF)	ALLOWABLE CONCENTRATED LOAD AT MIDSPAN (LBF)**
Main Runner Metric												
EZES3600M-12-18	14	3600 x 38 x 14	150	20	72	—	ID	25%	35%	60%	13.15	32.88
Cross Tee Metric												
EZES1200M-12-12	14	1200 x 38 x 14	300	60	72	—	ID	25%	35%	60%	8.66	21.31
EZES600M-12-12	14	600 x 38 x 14	0	60	36	—	ID	25%	35%	60%	29.68	36.51

†SM1020 is not hemmed along 3/4˝ side
*Maximum recycled content percentage. Recycled content varies by manufacturing location.
**Allowable concentrated loads at midspan are determined in accordance with AC368 Section 3.2.

For each framing member, the allowable concentrated load must not be combined with the allowable uniform load.
To specify Main Runners, Cross Tees, Wall Angles or Shadow Molding in black, order by item number followed by BLK.
Example EZES12-12-18 BLK
Flex Wall Angle will fit a 5-1/2" radius or larger

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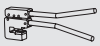
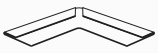
9/16" EZ Stab Elite Narrow System

Maximum Fixture Weight

ITEM NUMBER	CONFIGURATION A	CONFIGURATION B	FIXTURE A	FIXTURE B	HANGER SPACING A	HANGER SPACING B	MAXIMUM WEIGHT A	MAXIMUM WEIGHT B
Main Runner to Main Runner – Drawing Key: Main Runner (|) Cross tee (- - -) Hanger wire (✚)								
EZES4-12-12			24" x 48"	24" x 48"	48"	48"	41.00 lbs.	32.00 lbs.
EZES4-12-19			24" x 48"	24" x 48"	48"	48"	56.00 lbs.	56.00 lbs.
EZES4-12-12			24" x 48"	24" x 48"	48"	48"	41.00 lbs.	32.00 lbs.
EZES4-12-19			24" x 48"	24" x 48"	48"	48"	56.00 lbs.	56.00 lbs.
EZES4-12-12			24" x 24"	24" x 24"	48"	48"	26.00 lbs.	26.00 lbs.
EZES4-12-19			24" x 24"	24" x 24"	48"	48"	53.50 lbs.	56.00 lbs.

Cross tees tested as follows: EZES4-12-12 tested at 8.44 lbs/LF to 1/360 of 4' span; EZES4-12-19 tested at 17.97 lbs/LF to 1/360 of 4' span.

Accessories

		ITEM NUMBER	PRODUCT NAME	DIMENSIONS L" X W" X H" (MM)	COLOR	PIECES/ CARTON	LBS./ CARTON
SEISMIC		SLEEVE916	9/16" Sleeve	4 x 9/16 x 1/64 (102 x 15 x 1)	White	100	1
		CTSPC-2	Seismic Perimeter Clip	3-1/16 x 2-1/4 x 1-1/16 (78 x 58 x 27)	Metal	100	9
		CTSTJ	Seismic Transition Joint Clip	3-1/2 x 3-1/2 x 1-3/16 (89 x 89 x 31)	Metal	100	10
STANDARD		AHD	Adjustable Hold Down Clip	1-1/8 x 1/2 x 1-11/16 (29 x 13 x 43)	Black	1000	16
		HW12	Hanger Wire 12´ (3660 mm) 12 Gage (2.05 mm)	144 x 12 gage x 12 gage (3658 x 12 gage x 12 gage)	Metal	141	50
		EZSLOTTER	Slot Punch	11 x 3-1/4 x 1 (280 x 83 x 26)	Metal	1	2.5
		SFYK	SmartFit Yoke	8.55 x 1.25 x 9.56 (217 x 32 x 243)	Metal	20	9
		IC-9	9/16" Inside Corner	3 x 3 x 1/16 (76 x 76 x 1.52)	White	100	10
		OC-9	9/16" Outside Corner	3 x 3 x 1/16 (76 x 76 x 1.52)	White	100	10

RFI 167

9/16" EZ Stab Elite Narrow System

Physical Data

CROSS TEE/MAIN RUNNER MATERIAL
Hot dipped galvanized steel (G30)

FACE DIMENSION
9/16"

CROSS TEE/MAIN RUNNER INTERFACE
Stepped-end/Override

DUTY CLASSIFICATION
Heavy duty and Intermediate duty per ASTM C635

CROSS TEE/MAIN RUNNER SURFACE FINISH
Painted Steel Cap

PROFILE HEIGHT
ID: 1-1/2"
HD: 1-11/16"

VOC EMISSIONS
Independently certified compliant with California Department of Public Health CDPH/EHLB/Standard Method Version 1.2, 2017.

END DETAIL
Main Runner: Integral Stab
Cross Tee: Staked-on Stab Clip

SEISMIC CATEGORY
A, B, C, D, E ,F

WARRANTY
10-year Limited Suspension Systems warranty increases to 30 years when installed with CertainTeed ceiling panels. Full warranty information can be found at certainteed.com/warranty

Seismic Performance

MAIN RUNNERS:
All main runners

MINIMUM LBS. TO PULLOUT COMPRESSION/TENSION:
180 lbs.

CROSS TEES:
All cross tees

ICC Evaluation Service, Inc., Report Compliance

Suspension systems manufactured by CertainTeed ceilings have been reviewed and are approved by listing in ICC-ES Evaluation Report ESR-3336. CertainTeed suspension systems have been reviewed and are approved by listing in the City of Los Angeles Building Code ESR-3336 LABC Supplement. Evaluation Reports are subject to reexamination, revision and possible cancellation. Refer to certainteed.com for current reports.

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CertainTeed

CEILINGS • GYPSUM • INSULATION • ROOFING • SIDING • TRIM
20 Moores Road, Malvern, PA 19355 800-233-8990 certainteed.com

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BQ #210 Attachment

SUBSTITUTION REQUEST
(During the Bidding/Negotiating Phase)

CSI

PROJECT: Greenwich Central Middle School

SUBSTITUTION REQUEST NUMBER: 1

FROM:

TO: Turner Construction

DATE:

A/E PROJECT NUMBER:

RE:

CONTRACT FOR:

SPECIFICATION TITLE: Window Shades

DESCRIPTION: Window Shades

SECTION: 12 2401

PAGE: 3

ARTICLE/PARAGRAPH: 2.1 - A, 2.2 - A & B

PROPOSED SUBSTITUTION: Window Shades

MANUFACTURER: Spring Window Fashions

ADDRESS: 8467 Route 405 Highway South montgomery Pa

PHONE: 844 - 782 - 0002

TRADE NAME: Window shades

MODEL NO.: - Z - Wave Motorized - Roller shade manual

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.
Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:
- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

SUBMITTED BY:

SIGNED BY:

FIRM:

ADDRESS:

TELEPHONE:

A/E's REVIEW AND RECOMMENDATION:

- ☐ Approve Substitution—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- ☐ Approve Substitution as noted—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- ☒ Reject Substitution—Use specified materials.
- ☐ Substitution Request received too late—Use specified materials.

Roller shades – the proposed product appears to be residential and not of the same quality. The submittal is lacking in detail on materials used for the housing etc. Project Specification lists four acceptable manufacturers - SLAM

SIGNED BY: Stephen Martocchio - SLAM

DATE: 10/30/24

SUPPORTING DATA ATTACHED: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

BQ #210 Attachment

GRABER | DELIGHT IN EVERY DETAIL



Graber Solar Shades
English/US Price Guide

May 2024

BQ #210 Attachment

ROLLER SOLAR

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PLEASE NOTE:

Photos and illustrations are for inspiration only.
Not all product configurations are available in all countries.

Window blinds with a damaged or loose tension device or retractable cord that fails to fully retract pose a strangulation risk to children. To avoid this potential strangulation risk, consider purchasing cordless products or products with inaccessible cords.

GRABER®

MAY 2024

(5/24) 24-519200

Features

Summary

Graber® Roller and Solar Shades offer a great selection of light and temperature controlling shades.

Roller Shades
- Wide variety of colors
- Wide variety of textures and designs
- Improved temperature control

Solar Shades
- 1% to 12% openness
- Excellent outward visibility
- Glare control

Features	Benefits
UltraLite Cordless Lift	• Precision placement — lower and raise the shade by moving the hem bar exactly where you want it. Ideal system for aligning shade height for multiple shades on the same wall • Light and smooth lift for all shade sizes • Aesthetically beautiful mounting hardware that hides mechanics • Shade is spring-loaded on each end and will self-center between brackets when installed • Streamlined appearance with no chains; ideal for homes with children or pets • Optional contour valance, cassette valance with fabric insert, fascia, flat valance, or wood cornice
UltraLite Dual Lift (U.S. ONLY)	• Precision placement with two ways to operate the shade — lower and raise the shade by moving the hem bar exactly where you want it, or lower and raise by pulling on the chain or cord • Light and smooth lift for all shade sizes • Choice of bead chain or fabric cord • One pull of the chain will raise the entire shade • Aesthetically beautiful mounting hardware that hides mechanics • Shade is spring-loaded on each end and will self-center between brackets when installed • Beaded chain (or optional cord) remains at same length, regardless of chain position • Choose from five colors for the plastic chain, or stainless steel chain • Hold down device keeps chain taut for enhanced safety • Choose left or right chain or cord location • Optional contour valance, cassette valance with fabric insert, fascia, flat valance, or wood cornice
Enclosed Loop Dual Lift (Canada ONLY)	• Precision placement with two ways to operate the shade: 1) lower and raise shade by moving the hem bar exactly where you want it, or 2) raise the shade by moving the plastic grip toward the top of the window, then hold down the up-arrow button, while simultaneously pulling the grip down. Once you are at the bottom, release the button, reset the grip at the top, and repeat until your shade is at the desired height. To lower the shade, hold the down-arrow button and follow the same instructions. • Light and smooth lift for all shade sizes • Aesthetically beautiful mounting hardware that hides mechanics • Shade is spring-loaded on each end and will self-center between brackets when installed • Beaded chain remains at same length, regardless of chain position • Choose left or right chain location • Optional contour valance, cassette valance with fabric insert, fascia, flat valance, or wood cornice
Enclosed Loop Lift (Canada ONLY)	• Spring-loaded idle for easy install • Enclosed Loop Lift features a cord cover and sliding handle to operate the chain loop easily and safely • Four clutch sizes depending on shade size • Beaded chain remains at same length, regardless of shade position • Choose left or right chain location • Optional contour valance, cassette valance with fabric insert, fascia, flat valance, or wood cornice
Continuous-Loop Lift (U.S. ONLY)	• Spring-loaded idle for easy install • Beaded chain and clutch system make raising and lowering shade easy • Four clutch sizes depending on shade size • Beaded chain remains at same length, regardless of shade position • Choose from five colors for the plastic chain or stainless steel chain • Hold down device keeps chain taut for enhanced safety • Choose left or right chain location • Optional contour valance, cassette valance with fabric insert, fascia, flat valance, or wood cornice

Features

Summary

Graber® Roller and Solar Shades offer a great selection of light and temperature controlling shades.

Roller Shades
- Wide variety of colors
- Wide variety of textures
- Improved temperature control

Solar Shades
- 1% to 12% openness
- Excellent outward visibility
- Glare control

Features	Benefits
Cordless Lift	• Streamlined appearance with no chains; ideal for homes with children or pets • Shade raises and lowers smoothly and easily due to a unique dual braking system • Tension can be manually adjusted so shade always raises at desired speed • Color coordinated tassels facilitate easy operation and keep fabrics clean (wood tassels in Natural, Walnut, and Golden Oak are optional) • Optional clear hem grip available (not available with scallop option) • Optional contour valance, cassette valance with fabric insert, flat valance, or wood cornice
Smart Pull Lift	• Convenient easy glide lift system with a wand • Shade is lowered automatically with a single pull of the wand • Shade is raised to the desired placement with simple pull of the wand • Optional contour valance, cassette valance, flat valance or wood cornice
Motorized Lift	• Window treatments can be operated from virtually anywhere in the home • Provides easy operation of hard-to-reach or larger windows • Operate multiple window treatments simultaneously or individually
Dual Shade (U.S. ONLY) or Enclosed Loop Dual Shade (Canada ONLY)	• Two shades are combined onto one bracket for complete privacy and light control • Each shade may be configured with roller and/or solar fabrics • Maximizes view to the outside with solar or sheer fabrics • Maximizes privacy with roller fabrics • Improves energy efficiency • Optional large cassette
Options	• Each operating system offers multiple valance and cornice options (surcharge applies) • Turning fabric width for height and seaming accommodates larger windows; available on select fabrics • Reverse roll: fabric rolls over the front of tube; standard: material rolls over the back • Hem bar: fabric-wrapped (standard) or sealed (optional with Continuous-Loop Lift, Enclosed Loop Lift and Motorized Lift) • Projection brackets for Smart Pull Lift and Cordless Lift (no charge) • Hold down brackets (no charge) • Bay or corner shade • Motorized Lift • Fascia available in 3" and 4" heights
Commercial Solutions	• Side and sill channels (optional with Enclosed Loop Lift, Continuous-Loop Lift and Motorized Lift) • Low voltage motorized coupled shades • Pockets and closure plates
Total Room Coordination	• Total room fabric coordination of many fabrics for roller, solar, sliding panels, verticals, and pleated shades • Coordinate a room by using a single fabric for a mixture of window types and sliding doors • Cut yardage available
Scallop, Gimp, and Trims	• Create a customized look for roller shades
Warranty	• Limited lifetime warranty; five-year warranty on motorization components

Features

Roller Shade Fabrics

- Offer a solution for light control (sheer to blackout fabrics)
- Any room or decorating style
- Block damaging UV rays
- Coordinate with other product lines (vertical blinds, pleated shades, and sliding panels)
- "Fabric Width" is only a representation of the unfinished roll's usable width. See max/min tables for product size offerings.

Fabric Styles and Information: Roller Shade Fabrics

Style Name	Opacity Level	Fabric Composition	Fabric Width (inches)	Oeko-Tex® Certified	Can be Turned Width for Height	Sealed Hembar Option	Color to Street Side	Color Number	Can be Seamed
Aberdeen BO	Blackout	100% Polyester	92	•			White	All colors	
Aberdeen LF	Light Filtering	100% Polyester	92	•	•		Same front and back	All colors	
Arboretum BO	Blackout	100% Polyester	91¾	•	•		White	All colors	
Arboretum LF	Light Filtering	100% Polyester	91¾	•	•		Base color of front	All colors	
Bravado BO	Blackout	100% Polyester	108¼	•		•	Varies by colorway	All colors	
Bravado LF	Light Filtering	100% Polyester	108¼	•			Same front and back	All colors	
Canyon Ridge BO	Blackout	100% Polyester	92	•			White	All colors	
Canyon Ridge LF	Light Filtering	100% Polyester	92	•	•		Same front and back	All colors	
Cambridge LF	Light Filtering	100% Polyester	76	•	•		Same front and back	11103	
Cambridge LF	Light Filtering	100% Polyester	120	•	•		Same front and back	All colors except 11103 & 11114	
Cambridge RD	Room Darkening	100% Polyester	76	•	•	•	White	11203	
Cambridge RD	Room Darkening	100% Polyester	118	•	•	•	White	All colors except 11203 & 11214	
Cloud Frost	Light Filtering	100% PES	120	•			Same front and back	All colors	
Conservancy LF	Light Filtering	18% cotton/82% polyester	115	•			Same front and back	All colors	
Conservancy BO	Blackout	18% cotton/82% polyester	115	•		•	White	All colors	
Consummate Silk	Blackout	20% Cotton/80% Polyester	77¼				White	All colors	
Debonair	Light Filtering	3.1% Flax/4.3% Cotton/ 92.6% Polyester	106	•			Same front and back	All colors	
Delphine BO	Blackout	100% Polyester	108	•		•	White; except Mythical Gray: gray	All colors	
Delphine LF	Light Filtering	100% Polyester	108	•			Same front and back	All colors	
Destin BO	Blackout	2% Nylon/98% Polyester	114	•			White	All colors	
Emerson	Blackout	100% Polyester	118	•			White	All colors	
Empirical	Light Filtering	100% Polyester	95¾	•			Same front and back	All colors	
Emporium	Light Filtering	100% Polyester	95⅛	•			Same front and back	All colors	
Essential*	Blackout	25% Fiberglass/75% PVC	69⅞		•	•	Varies by colorway	All colors	•
Flock BO	Blackout	100% Polyester	110	•			White	All colors	
Flock LF	Light Filtering	100% Polyester	110	•			Same front and back	All colors	
Gleam	Blackout	100% Polyester	91¾	•		•	White	All colors	
Harmony	Light Filtering	100% Polyester	91¾	•			Same front and back	All colors	
Inkblot	Light Filtering	100% Polyester	120	•			Same front and back	All colors	
Jacinta	Light Filtering	100% Polyester	112	•			Same front and back	All colors	
Kindred	Light Filtering	100% Polyester	112	•			Same front and back	All colors	
Manifest LF	Light Filtering	100% Polyester	92½	•			Same front and back	All colors	
Manifest BO	Blackout	100% Polyester	92½	•			White	All colors	
Mayfair	Sheer	100% Polyester	107	•			Same front and back	All colors	
Northshore	Light Filtering	100% Polyester	110¾	•			Same front and back	All colors	
Paving Stone	Blackout	100% Polyester	117	•	•		White	All colors	
Providence BO	Blackout	100% Polyester	115	•		•	White	All colors	
Providence LF	Light Filtering	100% Polyester	115	•			Same front and back	All colors	
Regent	Sheer	100% Polyester	114¾	•			Same front and back	All colors	
Renaissance	Light Filtering	100% Polyester	91¾	•			Lighter Version of Front	All colors	
Riverbend	Light Filtering	100% Polyester	71½	•			Same front and back	All colors	

*Material is FR rated.
NOTE: A black line may appear on front and back side of shade due to fabric and seaming process.

Features

Roller Shade Fabrics

- Offer a solution for light control (sheer to blackout fabrics)
- Any room or decorating style
- Block damaging UV rays
- Coordinate with other product lines (vertical blinds, pleated shades, and sliding panels)

Fabric Styles and Information: Roller Shade Fabrics

Style Name	Opacity Level	Fabric Composition	Fabric Width (inches)	Oeko-Tex® Certified	Can be Turned Width for Height	Sealed Hembar Option	Color to Street Side	Color Number	Can be Seamed
Sahara Ridge	Light Filtering	95.8% Polyester/ 2.5% Cotton/ 1.7% Flax	106	●			Same front and back	All colors	
Sanguine	Blackout	100% Polyester	78				White	All colors	
Santorini	Light Filtering	100% Polyester	76	●			Same front and back	All colors	
Shadow*	Blackout	100% Polyester	119¼	●		●	White	All colors	●
Sheffield	Light Filtering	100% Polyester	108	●			Same front and back	All colors	
Shiloh	Sheer	100% Polyester	114¾	●			Same front and back	All colors	
Solana BO	Blackout	100% Polyester	113⅜	●			White	All colors	
Spring Bloom	Light Filtering	100% Polyester	92	●			Same front and back	All colors	
Suburban II	Light Filtering	100% Polyester	71½	●	●		Same front and back	All colors	
Tattered Husk BO	Blackout	100% Polyester	111	●			White	All colors	
Tattered Husk LF	Light Filtering	100% Polyester	109				Same front and back	All colors	
Terrain	Light Filtering	100% Polyester	106	●			Same front and back	All colors	
Thesis	Blackout	100% Polyester	69½	●			White	All colors	
Tuvalu	Sheer	100% Polyester	106	●			Same front and back	All colors	
Vancouver	Light Filtering	100% Polyester	110¾	●			Same front and back	All colors	
Wayfarer	Sheer	100% Polyester	91¾	●			Same front and back	All colors	
Whitcomb	Light Filtering	100% Polyester	107½	●			Same front and back	All colors	
Whitehall	Blackout	100% Polyester	120	●	●	●	White	All colors	
Whittaker BO	Blackout	100% Polyester	113⅜	●			White	All colors	

*Material is FR rated.
NOTE: A black line may appear on front and back side of shade due to fabric and seaming process.

Features

Light Control and Privacy: Roller Shade Fabrics

Sheer*: Allows the most amount of light into the room for a minimum amount of privacy and a view to the outside. Objects in the room can be seen quite clearly through shades.
Privacy Level: Minimal

Light Filtering*: Allows light to gently filter through and provides privacy. Images and shapes may be seen through these shades, but details are not visible. Deep fabric colors provide moderate light control, while light colors provide lower light control.
Privacy Level: Moderate

Room Darkening*: Allows some light to filter into the room and provides privacy. Objects in a lit room seen through these shades appear as vague shapes. Deep fabric colors darken a room; light colors filter and diffuse bright sunlight.
Privacy Level: Complete

Blackout: Prohibits light from shining through and provides maximum privacy. Prevents shadows and silhouettes from showing through the fabric. All fabric colors provide maximum light control.
Privacy Level: Complete

Light Gaps: For optimal light and glare control, outside mount is recommended, or you may add a secondary soft window treatment (drapery or curtain) to hide the light gap on an inside mount. (Refer to light gap chart in this section.)
Privacy Level: Moderate

*These fabrics are translucent and their colors may be influenced by changing light conditions. Colors may appear to vary depending upon the time of day and type of lighting, as well as whether the shade is partially or fully lowered.
NOTE: Select roller weaves may have “pinpricks” of light showing through.

Features

Solar Shade Fabrics

Maintain an Outward View
- Filter and diffuse light while maintaining an outward view
- In general, the higher the openness factor and darker the fabric, the clearer the view

Manage Glare
- Minimize glare on televisions and home office computers
- The darker the fabric color, the better the glare control and the better the view to the outside

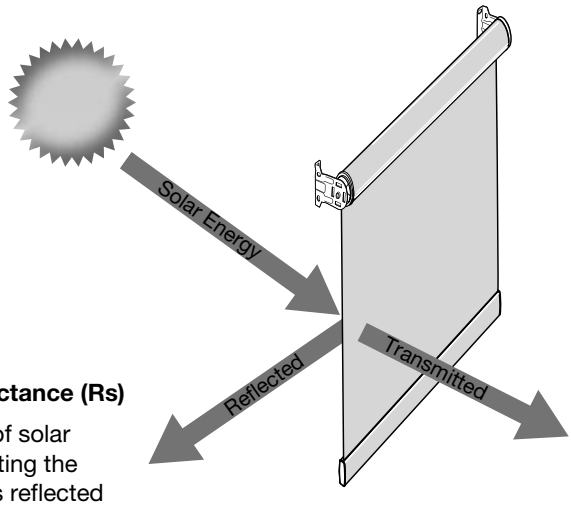
Block Damaging UV Rays
- The amount of UV ray blockage is the inverse of a fabric's openness factor (e.g., a fabric with 10% openness blocks 90% of UV rays)
- Protect your furniture, carpets, artwork, etc., from fading due to harmful UV rays

Reduce the Temperature
- Fabrics reduce heat transmittance, keeping rooms cooler and increasing the comfort level in the home
- The lighter the fabric color, the better the temperature control

NOTE: Solar shades do not offer nighttime privacy; lighted interiors allow inward visibility. If complete privacy is desired, a Dual Shade or secondary treatment is necessary.

Solar Optical Properties

When solar radiation reaches the shading fabric it is either reflected, absorbed, or transmitted. The sum of these values equals 100% of the solar energy hitting the fabric.



Solar Reflectance (Rs)

Proportion of solar radiation hitting the fabric that is reflected by the fabric.

Solar Absorption (As)

Percentage of the solar radiation hitting the fabric that is absorbed by the fabric.

Solar Transmittance (Ts)

Percentage of solar radiation hitting the fabric that is transmitted through the fabric, illuminating the interior space.

Features

Fabric Styles and Information: Solar Shade Fabrics

Style Name	Openness	UV Blockage	Fabric Composition	Fabric Width (inches)	GREENGUARD® Certified	anti-microbial	anti-fungal	FR Rated	Can Be Turned Width for Height	Color Numbers	Can Be Seamed	Sealed Hembar Option
Bradley	8%	92%	16% Polyester/ 84% PVC	96	●	●	●	●		All colors		
Broadcast	1%	99%	25% Polyester/ 75% Vinyl on Polyester	116	●	●	●	●	●	All colors	●	●
Chronicles	4%	96%	15% Polyester/ 85% Vinyl on Polyester	96	●	●	●	●		All colors	●	●
Complex	5%	95%	30% Polyester/ 70% Vinyl on Polyester	96	●	●	●	●		All colors	●	●
Earth Synergy	5%	95%	16% Linen/ 18% Polyester/ 66% PVC	116	●	●	●	●		All colors		●
EcoEncore	5%	95%	100% PET recycled polyester	99½	●			●		All colors		
Ellington 1%	1%	99%	22% Polyester/ 78% PVC	124	●	●	●	●	●	All colors	●	●
Ellington 3%	3%	97%	22% Polyester/ 78% PVC	124	●	●	●	●	●	All colors	●	●
Ellington 5%	5%	95%	22% Polyester/ 78% PVC	124	●	●	●	●		All colors	●	●
EnviroINFUSION	5%	95%	100% Polyester	114¾	●	●	●	●		All colors		
Exposition	8%	92%	26% Polyester/ 74% Vinyl on Polyester	96	●	●	●	●		All colors	●	●
Guildhall	5%	95%	26% Polyester/ 74% Vinyl on Polyester	96	●	●	●	●		All colors	●	●
Harmonics	5%	95%	100% Polyester	114¾	●	●	●	●		All colors		
LiveWell	2%	98%	20% Polyester/ 80% PVC	95 1/8	●	●	●	●	●	All colors		
Merit	4%	96%	15% Polyester/ 85% Vinyl on Polyester	96	●	●	●	●		All colors	●	●
Momentum	5%	95%	17% Polyester/ 83% PVC	94	●	●	●	●		All colors	●	●
Monticello	7%	93%	23.8% Polyester/ 76.2% Vinyl on Polyester	96	●	●	●	●	●	All colors		
Nantucket	8%	92%	17% Polyester/20% PP/63% PVC	96	●					All colors		
Pannier	10%	90%	85% PVC/ 15% Polyester	96	●	●	●	●		All colors		
PlanetSafe	3%	97%	100% PET recycled polyester	103⅛	●			●		All colors		
Plexus 1%	1%	99%	19% Polyester/ 81% Vinyl on Polyester 25% Polyester/ 75% Vinyl on Polyester	116	●	●	●	●	●	47612, 47611 47610, 47604, 47606, 47613, 47609, 47608, 47603, 47602, 47605, 47607	●	●
Plexus 3%	3%	97%	19% Polyester/ 81% Vinyl on Polyester 25% Polyester/ 75% Vinyl on Polyester	116	●	●	●	●	●	47712, 47711 47710, 47704, 47706, 47713, 47709, 47708, 47703, 47702, 47705, 47707	●	●
Plexus 5%	5%	95%	13% Polyester/ 87% Vinyl on Polyester 25% Polyester/ 75% Vinyl on Polyester	116	●	●	●	●	●	47812, 47811 47810, 47804, 47806, 47813, 47809, 47808, 47803, 47802, 47805, 47807	●	●
Porter	11%	89%	16% Polyester/ 84% PVC	96	●	●		●		All colors		
Quintessence	7%	93%	25% Polyester/ 75% PVC	116	●	●	●	●		All colors	●	●
Sabine	3%	97%	25% Polyester/ 75% PVC	96	●	●	●	●		All colors	●	●
SafeSync	12%	88%	16% Polyester/ 84% PVC	96	●	●		●		All colors		
Sakura	5%	95%	28% Polyester/ 72% PVC	96⅜	●	●		●		All colors		

*Oeko-Tex® certified.

Features

Fabric Styles and Information: Solar Shade Fabrics

Style Name	Openness	UV Blockage	Fabric Composition	Fabric Width (inches)	GREENGUARD® Certified	anti-microbial	anti-fungal	FR Rated	Can Be Turned Width for Height	Color Numbers	Can Be Seamed	Sealed Hembar Option
Standard Weave 1%	1%	99%	21% Polyester/ 79% Vinyl on Polyester 24% Polyester/ 76% Vinyl on Polyester 25% Polyester/ 75% Vinyl on Polyester	124	•	•	•	•	•	47907, 47908, 47905 47901, 47906 47902, 47903, 47904	•	•
Standard Weave 3%	3%	97%	18% Polyester/ 82% Vinyl on Polyester 21% Polyester/ 79% Vinyl on Polyester 24% Polyester/ 76% Vinyl on Polyester	124	•	•	•	•	•	48202, 48203, 48204 48207, 48208, 48205 48201, 48206	•	•
Standard Weave 5%	5%	95%	16% Polyester/ 84% Vinyl on Polyester 21% Polyester/ 79% Vinyl on Polyester 24% Polyester/ 76% Vinyl on Polyester	124	•	•	•	•	•	48302, 48303, 48304 48307, 48308, 48305 48301, 48306	•	•
Standard Weave 10%	10%	90%	16% Polyester/ 84% Vinyl on Polyester 21% Polyester/ 79% Vinyl on Polyester 24% Polyester/ 76% Vinyl on Polyester	116	•	•	•	•	•	48402, 48403, 48404 48407, 48408, 48405 48401, 48406	•	•
Steel House	8%	92%	70% PVC/ 30% Polyester	96	•			•		All colors		
Tableaux	1%	99%	23% Polyester/ 77% PVC	96	•	•	•	•		All colors	•	•
Unison	5%	95%	100% Polyester	114¾	•	•	•	•		All colors		
Vanguard 1%	1%	99%	21% Polyester/ 79% Vinyl on Polyester 24% Polyester/ 76% Vinyl on Polyester 25% Polyester/ 75% Vinyl on Polyester	124	•	•	•	•	•	47914, 47912, 47917, 47913, 47918 47909, 47915, 47911, 47916 47910	•	•
Vanguard 3%	3%	97%	18% Polyester/ 82% Vinyl on Polyester 21% Polyester/ 79% Vinyl on Polyester 24% Polyester/ 76% Vinyl on Polyester	124	•	•	•	•	•	48210 48214, 48212, 48217, 48213, 48218 48209, 48215, 48211, 48216	•	•
Vanguard 5%	5%	95%	16% Polyester/ 84% Vinyl on Polyester 21% Polyester/ 79% Vinyl on Polyester 24% Polyester/ 76% Vinyl on Polyester	124	•	•	•	•	•	48310 48314, 48312, 48317, 48313, 48318 48309, 48315, 48311, 48316	•	•

Features

Fabric Recommendations

Order all shades for the same room at the same time to ensure color consistency and minimize dye lot variation.

When displaying multiple shades in the same room, we recommend all shades be ordered with the same fabric orientation for a consistent look.

Fabric Disclaimers

Due to the nature of the weaving process, some imperfections in the weave are normal.

NOTE: Select roller weaves may have "pinpricks" of light showing through.

Roll direction cannot be reversed after a shade is ordered. Fabric appearance can vary based on changing light conditions in the room.

Fabric Width

The fabric width is narrower than the finished shade width of the tube and its components.

Light Gap

Control Type	Light Gap per Side (inches)
UltraLite Cordless Lift	⅜
UltraLite Cordless Lift with Cassette	½
UltraLite Cordless Lift with Contour Valance	⅜
UltraLite Cordless Lift with Fascia	⅜
UltraLite Cordless Lift with Flat Valance	⅜
UltraLite Dual Lift or Enclosed Loop UltraLite Dual Lift	½
UltraLite Dual Lift or Enclosed Loop UltraLite Dual Lift with Cassette	½
UltraLite Dual Lift or Enclosed Loop UltraLite Dual Lift with Contour Valance	½
UltraLite Dual Lift or Enclosed Loop UltraLite Dual Lift with Fascia	½
UltraLite Dual Lift or Enclosed Loop UltraLite Dual Lift with Flat Valance	½
Enclosed Loop Lift or Continuous-Loop Lift	9/16 to ⅞
Enclosed Loop Lift or Continuous-Loop Lift with Contour Valance	9/16 to ⅞
Enclosed Loop Lift or Continuous-Loop Lift with Flat Valance	9/16 to ⅞
Enclosed Loop Lift or Continuous-Loop Lift with Fascia	9/16 to ⅞
Enclosed Loop Lift or Continuous-Loop Lift with Cassette	9/16 to 1 1/16
Dual Shade or Enclosed Loop Dual Shade Lift	9/16 to 1 1/16
Dual Shade or Enclosed Loop Dual Shade with Cassette	9/16 to ⅞
Cordless Lift	⅜ to ¾
Cordless Lift with Contour Valance	⅜ to ¾
Cordless Lift with Flat Valance	⅜ to ¾
Cordless Lift with Cassette	7/16 to 1 3/16
Smart Pull Lift	9/16 to 15/16
Smart Pull Lift with Contour Valance	9/16 to 15/16
Smart Pull with Flat Valance	9/16 to 15/16
Smart Pull Lift with Cassette	⅝ to 1

Cleaning and Care Information

Roller shade fabrics are virtually maintenance free. If the shade is dusty, simply vacuum over it using an upholstery attachment. A dusting cloth can also be used to gently remove dust. Shades may also be gently wiped with a clean damp cloth. Allow the shade to dry completely before raising. Do **NOT** completely immerse.

Solar shade fabrics are virtually maintenance free. Only periodic vacuuming and an occasional cleaning using a mild detergent, soft brushing, and thorough rinsing is required. Allow the shade to dry completely before raising. Do **NOT** completely immerse.

Large Window Sizing

Fabrics can be turned 90° clockwise (width for height) to accommodate wider windows. In these cases some solar fabrics can be seamed for longer heights. Fabrics turned width for height (referred to as railroaded) may curl along the edge. Springs Window Fashions performs extensive testing to ensure our customers receive high quality shades. On extremely wide shades, a slight V shape may appear in the center of the shade. This occurs due to the weight of the fabric and should be considered a normal characteristic.

Seams may be added to solar fabrics to accommodate long shade requirements. Seams are placed as close to the tube as possible; seam location is determined by the manufacturer. Seams may be visible when the shade is fully extended. Seaming is not available for Cordless Lift or Smart Pull Lift shades.

Pattern Alignment

Exact alignment of the fabric pattern across side-by-side shades is not possible. Vertical alignment of the shade fabric with cassettes is not possible. Fabrics with large repeat patterns are not centered on the shade.

Fabric Certifications

GREENGUARD Indoor Air Quality Certified® Fabrics: Many Graber® fabrics have been certified by GREENGUARD Environmental Institute (GEI) to be low chemical- and particle-emitting fabrics, which provides a healthier indoor air quality. The process used for certification complies with established indoor air quality standards and is performed by a third party lab. Please see baliblinds.com for more information.

Cradle to Cradle Certified Design: Cradle to Cradle certification aims to transform all industries through ecologically intelligent design. That means the certified textiles are globally recognized to be safer and more sustainable.

Oeko-Tex® Standard 100 certifies that our fabrics are free of halogen, lead, formaldehyde, allergenic dyes, pesticides, phenols, and heavy metals, and meets all VOC content limits.

GREENGUARD Indoor Air Quality Certified is a registered trademark of the GREENGUARD Environmental Institute.

Oeko-Tex is a registered trademark of the Oeko-Tex Association.

Size Considerations

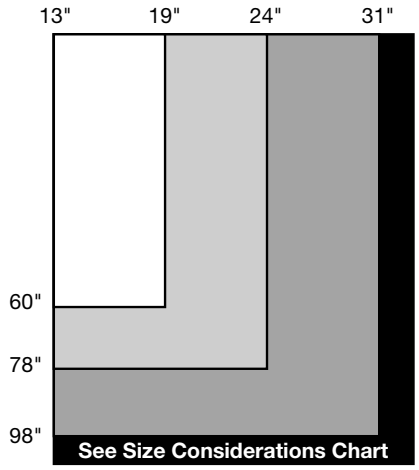
Maximum Shade Size

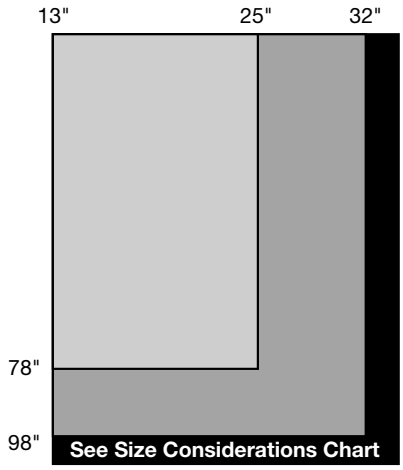
Cordless Lift Shade Maximum Size

If Shade Width Is at Least (inches)	Maximum Height of Shade (inches)
13 but less than or equal to 19	60
19⅛ but less than or equal to 24	78
24⅛ but less than or equal to 31	98
For shades greater than 31", see size considerations charts	

Smart Pull Lift Shade Maximum Size

If Shade Width Is at Least (inches)	Maximum Height of Shade (inches)
13 but less than or equal to 25	78
25⅛ but less than or equal to 32	98
For shades greater than 32", see size considerations charts	





Follow these easy steps to determine maximum shade size and valance size from the maximum shade size tables:

1. Determine your fabric style, shade size, control type, and cassette valance (or no cassette valance) requirement.
2. Find the fabric in the first column.
3. Follow the fabric row to the appropriate control type section (UltraLite Cordless Lift, UltraLite Dual Lift, Enclosed Loop UltraLite Dual Lift, Enclosed Loop Lift, Continuous-Loop Lift, Dual Shade, Motorized Lift, Cordless Lift, or Smart Pull Lift).
4. Determine if your shade size is within the normal fabric orientation size range.
5. Identify the appropriate size valance for your shade size.
6. If your shade size is larger than either the maximum width or height range, your fabric may be able to be turned width for height for larger shades. Use the fabric turned width for height tables to determine this maximum size.

EXAMPLE 1: Determine the maximum allowable shade size and cassette valance for normal orientation shades. The example shade is 72" x 100", Arboretum BO fabric, Cordless Lift, with cassette valance.

1. Go to the Cordless Lift section.
2. Find Arboretum BO in the first column.
3. The maximum width and maximum height available for this configuration is 78" x 120".
   NOTE: Both width and height must be less than the maximum width and height segment to fit the normal shade orientation.
4. Follow this segment to the top of the table. This segment is within the medium cassette valance size, indicating that the smallest segment cassette valance size available for this shade is a medium size cassette valance.

EXAMPLE 2: Determine the maximum allowable shade size and cassette valance for a continuous-loop shade. The example shade is 79" x 80", Exposition fabric, Enclosed Loop Lift with a large cassette valance. First, determine if the shade size is available with the requested fabric and control type.

1. Go to the continuous-loop section.
2. Find Exposition in the first column.
3. The maximum width and maximum height available for this configuration is 96" x 144". The 79" x 80" size does not exceed the Enclosed Loop Lift segment.
4. The 79" x 80" size does not exceed either the medium or large cassette segments. The smallest cassette valance size available for this shade is the medium cassette valance.

Dual Shades

The maximum size for Dual Shades is found using the Dual Shade column. Because two shades must fit into a single cassette valance, the Dual Shade requires the large cassette valance. Small and medium cassette valances are not available for Dual Shades.

Recommendation: For a consistent look in a single room, we recommend the same size cassette valance be used for every shade. Use the largest shade to determine the smallest available cassette valance size for that room. For example, if the largest shade in the room requires a medium cassette valance, then it is recommended all shades in the room use a medium cassette valance. The cassette valance size can be specified during ordering.

BQ #210 Attachment

GRABER | DELIGHT IN EVERY DETAIL



Graber Z-Wave
English/US Price Guide

January 2024

BQ #210 Attachment

MOTORIZATION FEATURING BLUETOOTH AND Z-WAVE TECHNOLOGIES

Motorization Features

Motorized Shades 2
Radio Frequency (RF) 2

Motorization Size Considerations

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Pleated Shades Motorized Lift 4
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GRABER®

MAY 2023

(4/23) 23-426800

Motorization Features

Motorized Shades

Refer to individual product information guide for specific option for the product being ordered. See price charts for pricing.

Radio Frequency (RF)

Graber motorized shades feature advanced Bluetooth and Z-Wave radio technology that provides reliable, effortless operation of window coverings. Graber motorized shades are quiet, simple to install and adjust, and simple to operate. These automated shades also feature:

Bluetooth Radio Frequency Features

Bluetooth technology allows you to control your shades directly from your phone without a hub or gateway. Any iOS or Android device is compatible.

- Control your shades directly from your phone or tablet without a gateway
- Operate your shades within Bluetooth range
- Create and schedule routines to automate your window coverings
- A safer alternative to accessible cords; ideal for homes with children and pets
- Provides easy operation for hard to reach or large windows

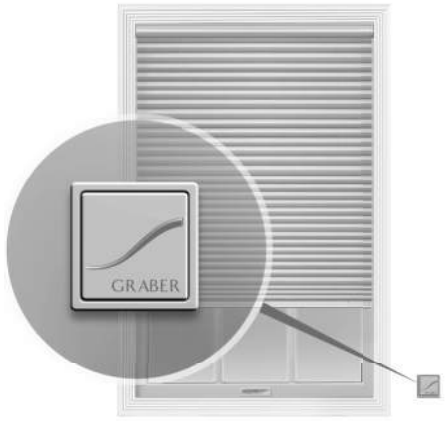
Z-Wave Radio Frequency Features

- Operates your shades virtually anywhere within 65 feet
- Supported by an alliance of countless smart home products and home automation providers making integration simple and inexpensive.
- Easily integrate with voice control devices
- A safer alternative to accessible cords; Ideal for homes with children and pets.
- Provides easy operation for hard to reach or large windows.

Motorization Size Considerations

CrystalPleat® Cellular Shades Motorized Lift

Order Entry: 12V Z-Wave and Bluetooth Motor



Refer to individual product information guide for specific option for the product being ordered.
See page 2 for benefits of using Bluetooth & Z-wave motorization.

Product Specifications

- Motor located on right side within headrail
- Available as corner and bay window application
- Available with Wood Cornice and Valance
- Available with reversible fabric at time of order
- Available with lightblocking strip
- Available with Fabric Wrapped headrail.
- Rail colors can be specifided at time of order
- Available with room-darkening channels
- Not available with top down continuous-loop, sun up/sun down, combination shades, SkyTrack™ Skylight, specialty shapes or multiple shades on one headrail
- Not available with hold down brackets or side mount brackets

Control and Power Options

- Multiple control and power options available; see Z-Wave options for availability

NOTE: Motorization components and accessories have a five-year limited warranty, excluding batteries.

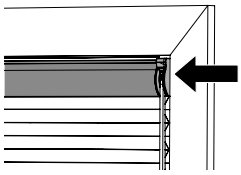
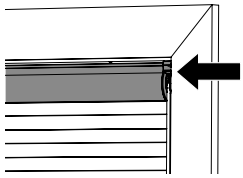
Size Considerations	**Minimum Width‡** (inches)	**Maximum Width** (inches)	**Minimum Height** (inches)	**Maximum Height** (inches)
Cellular Shades	20	144*	9	144 *
Bottom up/Top Down	28 5/8	120	9	86

*This is the shade size maximum limit for this motor type, shades size limit may be smaller based on specific fabric type.

Cell Size	**Collection Name**	**Maximum Shade Size** (square inches)	**Bottom up/Top Down Maximum Shade Size** (square inches)
½" Double Cell	Sanctuary	10,000	6,000
½" Double Cell	Splendor	12,500	8,200
¾" Single Cell	Champagne Toast, Couture LF and BO, Enchantment BO, Infuse LF and BO, Kinsley LF and BO, Montage BO, Prestige BO, Sanctuary, Scroll FR, Valletta BO	12,500	8,200
¾" Single Cell	Enchantment LF, Montage LF, Prestigue LF, Splendor LF	17,000	9,600
¾" Single Cell	Discovery, Endeavor, Simply Sheer, Valletta LF	20,800	10,600
9/16" Single Cell	Discovery	12,500	N/A
9/16" Single Cell	Endeavor	17,000	N/A
1 ¼" Single Cell	Splendor	14,000	9,200
1 ¼" Single Cell	Champagne Toast, Sanctuary, Valletta LF and BO	12,500	8,200

NOTE: For all inside mount applications, ⅜" deduction is taken by manufacturer on overall width.

Depth Requirements

Cell Size	**Headrail Dimensions** (inches)	 Partially recessed headrail in window casing/ molding. **Minimum Depth Mount** (inches)	 Fully recessed headrail in window casing/ molding. **Flush with Casing** (inches)
¾" single cell ½" double cell	1 9/16 x 2⅜	⅝	2⅝
9/16" single cell	1 9/16 x 2⅛	⅝	2⅜
1¼" single cell	1⅝ x 3 3/16	1⅜	3⅜

Size Considerations

Pleated Shades Motorized Lift

Order Entry: 12V Z-Wave and Bluetooth Motor



Refer to individual product information guide for specific option for the product being ordered.
See page 2 for benefits of using Bluetooth & Z-wave motorization.

Product Specifications

- Motor located on right side within headrail
- Available as corner and bay window application
- Available with Wood Cornice and Valance
- Available with Dayliner or Midnight liner
- Available with lightblocking strip
- Rail colors can be specified at time of order
- Not available with bottom up/top down, sun up/sun down, combination shades, SkyTrack™ Skylight, specialty shapes or multiple shades on one headrail
- Not available with hold down brackets, side mount brackets or room-darkening side channels

Control and Power Options

- Multiple control and power options available; see Z-Wave options for availability

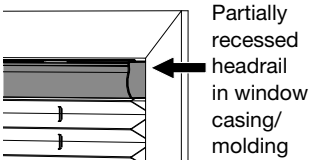
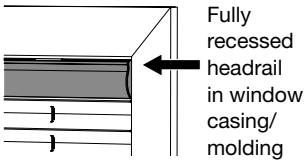
NOTE: Motorization components and accessories have a five-year limited warranty, excluding batteries.

Size Considerations	Minimum Width‡ (inches)	Maximum Width (inches)	Minimum Height (inches)	Maximum Height (inches)
1" FashionPleat®	20	144*†	9	96
1" EvenPleat®	20	120*†	6	96
2" EvenPleat	20	144*†	12	144*

*This is the shade size maximum limit for this motor type, shades size limit may be smaller based on specific fabric type.
†Based on fabric width with overlaps.
‡For all inside mount applications, ⅜" deduction is taken by manufacturer on overall width.

Pleat Size	Collection Name	Maximum Shade Size (square inches)
1" Pleated	Aberdeen, Canyon Ridge, Cloud Metal, Debonair, Desert, Grasscloth, Marina, Prescott, Sahara Ridge, Serendipity, Spring Bloom, Terrain	9,000
1" Pleated	Allure, Inkblot, Sheer Linen	11,500
1" Pleated	Blackout and Privacy Liner Only	13,000
2" Pleated	Aberdeen, Cloud Metal, Debonair, Desert, Sahara Ridge, Serendipity, Spring Bloom, Terrain	7,500
2" Pleated	Sheer Linen	11,500
2" Pleated	Blackout and Privacy Liner Only	13,000

Depth Requirements

Shade Type	Headrail Dimensions (inches)	 Minimum Depth Mount (inches)	 Flush with Casing (inches)
1" Pleat	1 9/16 x 2⅛	⅝	2⅜
2" Pleat	1 9/16 x 2⅜	⅝	2⅝

Size Considerations

Fresco® Roman Shades Motorized Lift

Order Entry: 12V Z-Wave and Bluetooth Motor



Refer to individual product information guide for specific option for the product being ordered.
See page 2 for benefits of using Bluetooth & Z-wave motorization.

Product Specifications

- Motor located on right side within headrail
- Available with both flat and looped styles
- Available as corner and bay window application
- Available with fabric valances and fabric valance trims
- Not available with bottom up/top down or multiple shades on one headrail
- Not available with hold down brackets or side mount brackets

Control and Power Options

- Multiple control and power options available; see Z-Wave options for availability

NOTE: Motorization components and accessories have a five-year limited warranty, excluding batteries.

Roman Size Considerations	**Minimum Width*** (inches)	**Maximum Width** (inches)	**Minimum Height** (inches)	**Maximum Height** (inches)
Roman Shades: Classic Flat or Looped	20	76†	18	96

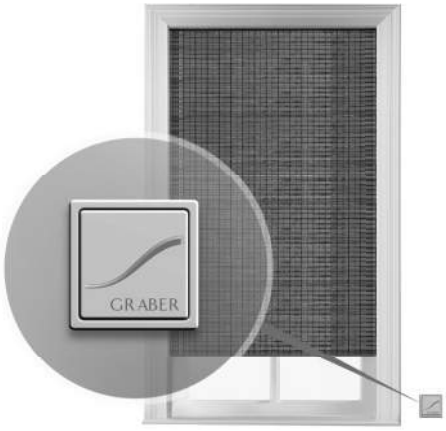
*For all inside mount applications, ⅜" deduction is taken by manufacturer on overall width.
†Based on fabric width.

Lift Option and Shade Style	**Headrail Dimensions** (inches)	 Partially recessed headrail in window casing/ molding **Minimum Depth Mount** (inches)	 Fully recessed headrail in window casing/ molding **Flush with Casing** (inches)
Motorized Lift: Flat	1½ x 2	⅝	2 ½
Motorized Lift: Looped	1½ x 2	⅝ (fabric loops will overhang approximately 3" into the room)	2½ (fabric loops will overhang approximately 3" into the room)

Size Considerations

Tradewinds® Natural Shades Motorized Lift

Order Entry: 12V Z-Wave and Bluetooth Motor



Refer to individual product information guide for specific option for the product being ordered.
See page 2 for benefits of using Bluetooth & Z-wave motorization.

Product Specifications

- Motor located on underside of hardwood headrail on right side
- Available with Standard Roman and Old Stle Roman styles
- Available with multiple shades on one headrail; each panel will have a motor and power source and there will be ½" gap between panels
- Available with 9" standard valance, 9" premiere valance, or 9" deco-trim valance
- Available with: fabric edge banding, hem options, privacy and room-darkening liners
- Available with deco-trim hems and accent gimp
- Available as corner and bay window application
- Available with Wood Cornice and Valance
- Not available with bottom up/top down, cut outs, turned headrail or specialty shapes
- Not available with hold down brackets or side mount brackets

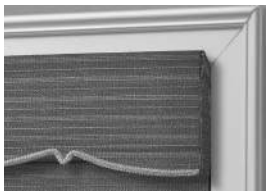
Control and Power Options

- Multiple control and power options available; see Z-Wave options for availability

NOTE: Motorization components and accessories have a five-year limited warranty, excluding batteries.

Natural Shades Size Considerations

Style	Minimum Width (inches)	Maximum Size	
		Shade (square inches)	With Liner (square inches)
Inan, Moniz, Lipo, Revelry, Serenity, Toushan II	18	2,755	2,333
Denver, Brooklyn, Stateside, Reminisce	18	4,493	3,466
Bellamy, Seasons	18	5,194	3,878
Boardwalk, Merino, Sarto	18	6,058	4,330
Bayport, Beachfront, Hadley, Kelton, Oxford, Paralian, Verity, Wild Haven	18	6,854	4,723
Berwick, Cameron, Cherish, Interlude, Olympia, Purcell, Rowen, Saterra, Selene, Ventura, Tatum, Terrestrial, Zishan	18	9,149	5,712

Headrail Dimensions (inches)	 Partially recessed valance in window casing/ molding **Minimum Depth Mount** (inches)	 Fully recessed valance in window casing/ molding **Flush with Casing** (inches)
⅝ x 2¼	¾	Standard valance 3³⁄₁₆

Size Considerations

Artisan Roman Shades Motorized Lift

Order Entry: 12V Z-Wave and Bluetooth Motor



Refer to individual product information guide for specific option for the product being ordered.
See page 2 for benefits of using Bluetooth & Z-wave motorization.

Product Specifications

- Motor located on underside of hardwood headrail on right side
- Fabric wrapped headrail for a beautifully finished look; returns are standard on outside mount shades
- Available as pleat styles: Looped, Classic Flat, Seamless, or Relaxed
- Available with Liner styles: Standard, Water Repellent, Thermal, Flannel-back
- Available finishing options: Inset banding, edge banding, decorative tape
- Not available with multiple shades on one headrail, bottom up/top down, turned headrail, balloon shade or blackout lining
- Not available with hold down brackets or side mount brackets

Control and Power Options

- Multiple control and power options available; see Z-Wave options for availability

NOTE: Motorization components and accessories have a five-year limited warranty, excluding batteries.

Artisan Roman Shades Size Considerations

Width		Length	
Minimum (inches)	**Maximum** (inches)	**Minimum** (inches)	**Maximum** (inches)
24	96	18	Classic Flat, Seamless and Relaxed – 120, Looped – 103

Motorized Maximum Shade Area in Square Inches

Fabric Name	**Standard or Water Repellent** (square inches)	**Thermal** (square inches)	**Flannel-Back** (square inches)
Candor, Cloud Metal, Enchanting, Liana, Meredith, Piazza, Stanton	4,209	3,719	3,450
Absolute, Alea, Arcadia, Artesso, Aspirational, Beach Chalet, Bianca, Bisque, Bloomscape, Brandywine, Brooke, Callahan, Countryside, Diversions, Esperance, Gratitude, Grayson, Harmonious, Heilene, Hypnotic, Iconic, Kazlo, Manning, Newleaf, Pageantry, Palatial, Rainfall, Raleigh, Sea Paisley, Seafront, Spargel, Undertones, Valor, Whimsical	3,569	33,254	3,000
Affinity, Ainslie, Avid, Bountiful, Burnham, Casita, Chalkdust, Conceptual, Confidence, Downpour, Dreamscape, Florabar, Focus, Frond Mist, Gjusta, Hama, Ibiza, Imagination, Kelsey, Kings Garden, Kingsbury, Maisonette, Meadowlark, Mikado, Mysterious, Mystical, Painterly, Pastoral, Posy, Primavera, Reflection, Refuge, Richland, Rutherford, Sustained, Symbiotic, Textile, Tyrell, Uplifting, Venetian, Wonder, Woodblock	2,921	2,859	2,550
Assurance, Athens, Birch, Bursche, Carver, Checkerloom, Circumference, Cloverleaf, Cooperative, EarthWise, EnviroLiving, Environment, Garden, Meditations, Monorail, Skipping Rocks, Soliloquy, Steward, Thistlerock, Wexler	2,489	2,423	2,130

If fabric not listed, it is not avaialble with the motorized lift option.
NOTE: Area is ordered width x ordered height in square inches.

Headrail Dimensions (inches)	 Partially recessed headrail in window casing/ molding **Minimum Depth Mount** (inches)	 Fully recessed headrail in window casing/ molding **Flush with Casing** (inches)
2¼ D x ⅝ L	¾	2⅞

Size Considerations

Mezzanine Layered Shades Motorized Lift

Order Entry: 12V Z-Wave and Bluetooth Motor



Refer to individual product information guide for specific option for the product being ordered.
See page 2 for benefits of using Bluetooth & Z-wave motorization.

Product Specifications

- Motor located on right or left side; standard is on right
- Fabric wrapped cassette standard and creates a cohesive appearance in the window
- Static-guard is necessary during dry conditions to prevent static build up
- Available as corner and bay window application
- Not available with hold down brackets or side mount brackets
- Not available with Wood Cornice or Valance

Control and Power Options

- Multiple control and power options available; see Z-Wave options for availability

NOTE: Motorization components and accessories have a five-year limited warranty, excluding batteries.

Light Gap

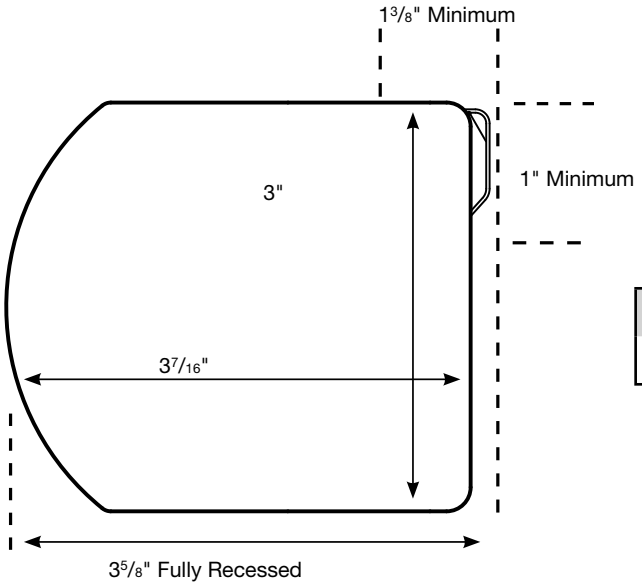
The fabric width is narrower than the finished shade width of the tube and its components. See chart below for light gap.

Motor End		Idle End	
Inside Mount (inches)	**Outside Mount** (inches)	**Inside Mount** (inches)	**Outside Mount** (inches)
11/16	1	3/4	11/16

Layered Shades Size Considerations

Style Name	Maximum Width* (inches)	Maximum Height* (inches)	Style Name	Maximum Width* (inches)	Maximum Height* (inches)
Atlantic Waves	100	75	Herard	97	77
Bernina	96	110	Linen Dream	95	72
Coastal Collection	98	75	Oceanfront	99	60
Coastal Ridge	98	60	Palmetto	97	100
Cordillera	85	75	Papyrus	98	60
Cottonwood	101	100	Refreshed	93	84
Crestones	97	84	Riptide	100	110
Culebra	95	110	Seascape	98	77
Glorieta	98	110	Seaside Resort	99	110
Glorieta Sheen	98	110	Spascape	100	77
Heathered	95	77	Vanoise	91	95

Minimum width: 16".
Minimum length: 12".
*If the height is shorter than the maximum, a slightly larger width may be available to order. Maximum width is 102".



Fabric-Wrapped Cassette

Minimum Mounting Depth	1 3/8"
Minimum Mounting Depth, Flush Mount	3 5/8"

Size Considerations

Overture Sheer Shades Motorized Lift

Order Entry: 12V Z-Wave and Bluetooth Motor



Refer to individual product information guide for specific option for the product being ordered.

See page 2 for benefits of using Bluetooth & Z-wave motorization.

Features

- Motor located on right or left side; standard is on right
- Fabric wrapped cassette standard and creates a cohesive appearance in the window
- Available as corner and bay window application
- Not available with hold down brackets or side mount brackets
- Not available with Wood Cornice or Valance

Control and Power Options

- Multiple control and power options available; see Z-Wave options for availability

NOTE: Motorization components and accessories have a five-year limited warranty, excluding batteries.

Light Gap

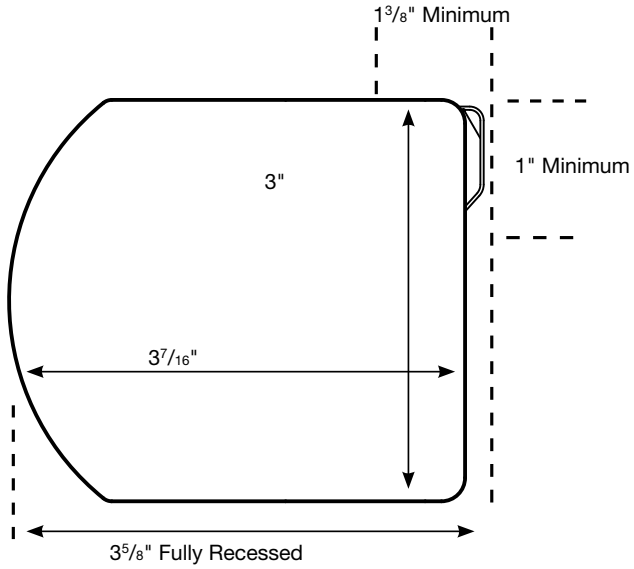
The fabric width is narrower than the finished shade width of the tube and its components. See chart below for light gap.

Motor End		Idle End	
Inside Mount (inches)	**Outside Mount** (inches)	**Inside Mount** (inches)	**Outside Mount** (inches)
1	15/16	11/16	5/8

Sheer Shades Size Considerations

Style Name	Maximum Width* (inches)	Maximum Height* (inches)	Style Name	Maximum Width* (inches)	Maximum Height* (inches)
Alpine 2"	79	110	Modern Grid 1" 5302, 5303, 5304	98	87
Coastal Waves 2"	96	105	Modern Grid 1" 5300	94	75
Deco Diamond 2"	96	105	Roslin 1"	94	75
Deco Diamond 3"	96	65	San Simeon 3"	96	65
Evening Star 2"	71	85	Starlight 2"	96	105
Glessner 2"/Glessner 3"	96	105	Starlight 3"	96	65
Glessner Sheen 2"/Glessner Sheen 3"	98	110	Sun Reflections 2"	96	105
Glessner Woven 2"/Glessner Woven 3"	96	110	Surfside 2"	96	105
Lustrous 1"	102	69	Surfside 3"	96	65
Lustrous 2"	96	105	Winchester 1"	97	87
Marisco 2"/Marisco 2 3/4"	94	99	Winchester Sheen 1"	102	69
Modern Grid 1" 5301	102	69	Winchester Woven 1"	97	87

Minimum width: 16".
Minimum length: 12" .
*If the height is shorter than the maximum, a slightly larger width may be available to order. Maximum width is 102".



Fabric-Wrapped Cassette

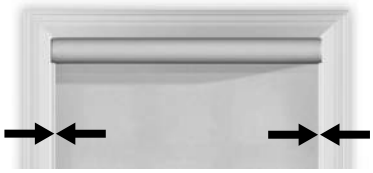
Minimum Mounting Depth	1 3/8"
Minimum Mounting Depth, Flush Mount	3 5/8"

Size Considerations

Lightweaves® Roller and Solar Shades Motorized Lift

Order Entry: 12V Z-Wave and Bluetooth Motor





Inside Mount Light Gap
Refer to Light Gap Chart

Refer to individual product information guide for specific option for the product being ordered.
See page 2 for benefits of using Bluetooth & Z-wave motorization.

Product Specifications

- Motor located on right or left side; standard is on right
- Available with standard or reverse roll; reverse roll not available with any valance option
- Available with valance styles: cassette, contour, fascia, wood valance and wood cornice
- Available as corner and bay window application
- Available with fabric rotated 90° (width for height) and seaming
- Available with as Dual Shade (integrates two fabrics that can be independently raised and lowered as needed); each shade requires a power source)
- Available with finishing options: scallops, gimp trim, bead trim
- Available with side and sill channels and pocket
- Not available with hold down brackets

Control and Power Options

- Multiple control and power options available; see Z-Wave options for availability

NOTE: Motorization components and accessories have a five-year limited warranty, excluding batteries.

Light Gap		
Valance Type	**Motor End (Inside Mount)**	**Idle End (Inside Mount)**
Contour, Fascia, Flat, No Valance	9/16	7/8
Cassette - all sizes	9/16	1
Dual - No Cassette	9/16	7/8
Dual with Cassette	9/16	1

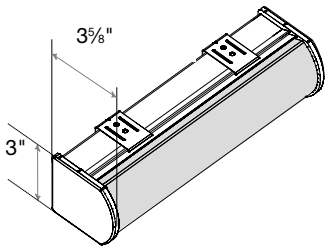
Size Considerations	
Minimum Width (inches)	**Minimum Height** (inches)
16	13

NOTE: See size charts on following pages.

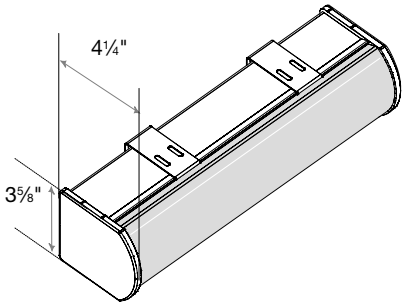
Size Considerations

Motorized Lift, and Dual Shade: Mounting Depth Illustrations

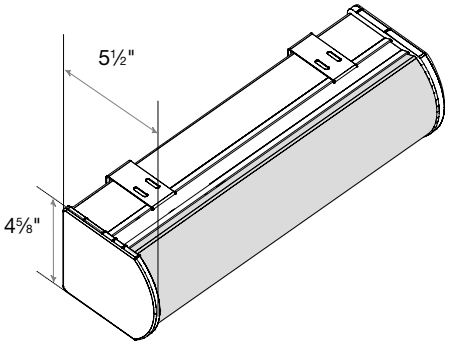
The following diagrams illustrate the mounting depth requirements for shades mounted inside window casements.



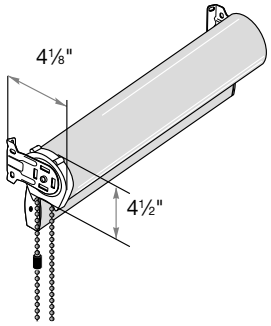
Small Cassette Valance
1⅜" Minimum Inside Mount



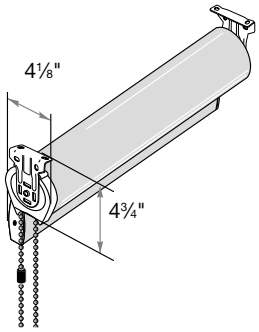
Medium Cassette Valance
1¾" Minimum Inside Mount



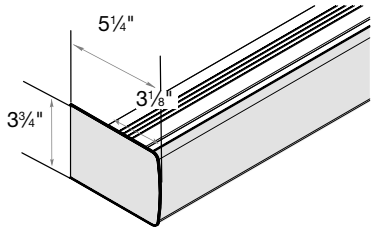
Large/Dual Cassette Valance
1¾" Minimum Inside Mount



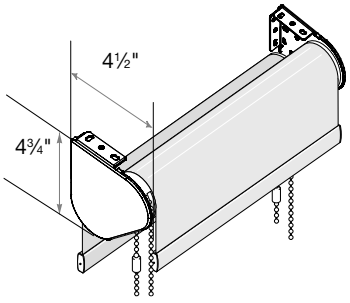
No Valance*
¾" Minimum Inside/Side Mount



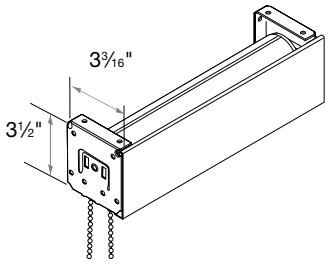
No Valance*
4⅛" Minimum Inside/Top Mount



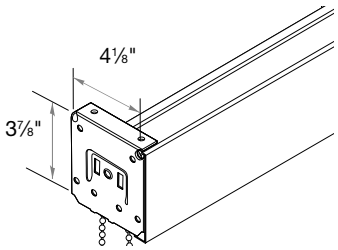
Contour Valance
2⁷⁄₁₆") Minimum Inside Mount
(return can be trimmed)



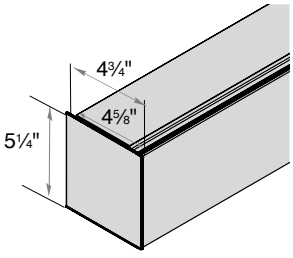
Dual Shade—No Cassette Valance
2" Minimum Inside/Top Mount
¾" Minimum Inside/Side Mount



3" Fascia
2¾" Minimum Inside/Top Mount
¾" Minimum Inside/Side Mount



4" Fascia
3¾" Minimum Inside/Top Mount
1½" Minimum Inside/Side Mount



Flat Valance
2¹⁵⁄₁₆ Minimum Inside Mount
(return can be trimmed)

12V Non-Rechargeable
Non-rechargeable Motor
Minimum Width: 16"
Minimum Height: 13"

Features and Size Considerations

Lightweaves Roller and Solar Shades: 12-Volt Motor Maximum Shade Size

Valance Type	Normal Fabric Orientation										Fabric Turned Width for Height (railroaded)									
	Small Cassette		Medium Cassette		Large Cassette/ Contour Valance/ No Cassette/ No Valance		3" Fascia		4" Fascia		Small Cassette		Medium Cassette		Large Cassette/ Contour Valance/ No Cassette/ No Valance at Maximum Width		3" Fascia		4" Fascia	
Fabric	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)
Aberdeen BO(Ingenue Pearl; Effervescene; Pristine; Dulcet Graphite)	66	114	65	126	65	126	65	126	65	126	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Aberdeen LF(Ingenue Pearl; Effervescene; Pristine; Dulcet Graphite)	92	127	92	137	92	137	92	137	92	137	83	84	83	84	83	84	83	84	83	84
Arboretum BO(Serene; Monarch; Sirius; Distinguished)	87	97	82	131	82	131	82	131	82	131	75	84	75	84	75	84	75	84	75	84
Arboretum LF(Serene; Monarch; Sirius; Distinguished)	90	136	90	136	90	136	90	136	90	136	82	84	82	84	82	84	82	84	82	84
Bradley(Antique Silver; Hearthstone; Midas; Azurine; Majesty; Everest)	71	85	79	111	79	111	81	101	79	111	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Bravado BO(Magnolia; Elusive Ecru; Tumbled Stone; Canterbury Night)	73	93	82	125	82	125	84	111	82	125	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Bravado LF(Magnolia; Elusive Ecru; Tumbled Stone; Canterbury Night)	79	113	91	133	91	133	91	133	91	133	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Broadcast(Constellation; Sonnet; Cashmere; Alfresco; Motif; Taliesin; Austere; Continental; Simplicity; Genuine; Gourmet; Serenade)	70	79	77	100	77	100	79	95	77	100	70	79	77	100	77	100	79	95	77	100
Cambridge LF(White; Off White; Inkwell; Clay; Hawaiian Blue; Academy; Mirage; Vernal Pond; Ivory)	94	121	94	121	94	121	94	121	94	121	95	110	95	110	95	110	95	110	95	110
Cambridge RD(Hawaiian Blue; Academy; Mirage; Vernal Pond; White; Off White; Inkwell ; Clay ; Ivory; Misty)	85	114	82	139	82	139	82	139	82	139	86	108	86	108	86	108	86	108	86	108
Cloud Frost(Fading Nimbus; Shell; Creamy Mocha)	80	120	80	120	80	120	80	120	80	120	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Cloud Frost(Sea Stone)	82	102	80	120	80	120	80	120	80	120	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Complex(Couture; Chance; Oceans; Visage)	71	84	79	110	79	110	80	103	79	110	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Conservancy -LF(Edelweiss; Feather Grass; Golden Morel; Flowering Ash; Silver Maple; Black Peony; Sea Salt)	74	91	72	118	72	118	72	118	72	118	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Conservancy-BO(Edelweiss; Feather Grass; Golden Morel; Flowering Ash; Silver Maple; Black Peony; Sea Salt)	56	87	63	114	63	114	64	103	63	114	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Consummate Silk(Opalescence; Posh Platinum ; Bright Champagne; Pale Gold; Sandstone; Seafoam)	79	96	79	144	79	144	79	138	79	144	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Debonair(Weekender Twill; Tan Gaberdine; Natural White; Harberdasher Gray)	92	106	89	132	89	132	89	132	89	132	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Delphine BO(Mythical Gray; Evocative White; Island Paradise; Dark Earth)	72	101	82	123	82	123	82	120	82	123	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR

NOTES: Due to continuous manufacturing improvements, minimums and maximums are subject to change. Please call customer service for up to date size considerations.See dual shade section for motorization information.

12V Non-Rechargeable
Non-rechargeable Motor
Minimum Width: 16"
Minimum Height: 13"

Features and Size Considerations

Lightweaves Roller and Solar Shades: 12-Volt Motor Maximum Shade Size

Valance Type	Normal Fabric Orientation										Fabric Turned Width for Height (railroaded)									
	Small Cassette		Medium Cassette		Large Cassette/ Contour Valance/ No Cassette/ No Valance		3" Fascia		4" Fascia		Small Cassette		Medium Cassette		Large Cassette/ Contour Valance/ No Cassette/ No Valance at Maximum Width		3" Fascia		4" Fascia	
Fabric	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)
Delphine LF(Mythical Gray; Evocative White; Island Paradise; Dark Earth)	94	118	94	119	94	119	94	119	94	119	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
EcoEncore(Mint Condition; Lunar Light; Cocoa Powder)	95	119	95	119	95	119	95	119	95	119	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Empirical(White Shimmer; Complex Carbon; Modern Gray; Classic Khaki)	93	123	93	123	93	123	93	123	93	123	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Emporium(Bookplate White)	88	120	88	124	88	124	88	124	88	124	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Emporium(Silver Dollar ; Vintage Letterpress ; Sheet Music; Stepping Stone)	74	115	85	133	85	133	85	133	85	133	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Emporium(Sepia Snapshot)	88	98	82	144	82	144	82	141	82	144	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Essential(Classic White; Creamy Beige; Taupe; Smokey; Black; Black on Black; Forest Green; Canyon ; Beige ; Stone; Black)	70	144	70	144	70	144	70	144	70	144	77	62	77	62	77	62	77	62	77	62
Exposition(Consummate; Genesis; Wishlist; Resonance)	75	67	82	104	80	116	71	92	80	116	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Gleam(Gold Rush; Ebony Glimmer; Silver Shine; Glistening Waterfall)	78	106	76	122	76	122	76	122	76	122	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Harmony(Pebble ; Tassel; Marina; Shiplap; Cityscape ; Harvest; Lavender)	91	132	91	133	91	133	91	133	91	133	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
LiveWell(Dew Kissed; Finely Frosted; Succulent; Sandbar; Icelandic; Seaspray)	70	89	79	109	79	109	79	109	79	109	70	87	83	86	83	86	83	86	83	86
Manifest BO(Freshwater Pearl; Flint Rock; Savvy Gray; Lifting Fog; Ciabatta; Cream Filled)	82	140	82	144	82	144	82	144	82	144	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Manifest LF(Freshwater Pearl; Flint Rock; Savvy Gray; Lifting Fog; Ciabatta; Cream Filled)	92	144	92	144	92	144	92	144	92	144	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Momentum(Soft Seashell; Parisian Cream; Luxe Leather; Etched Brown; Brushed Pewter; Toasted Spice)	71	94	80	120	80	120	81	113	80	120	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Monticello(Mist; Burro; Dune; Tikki; Rust)	73	71	79	108	79	109	84	84	79	109	73	71	83	86	83	86	84	84	83	86
Nantucket(Vintage Veil; Taupe Utopia; Rich Sable; Spice)	77	64	84	98	80	122	72	89	80	122	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Pannier(Black Dahlia; Creamy Mocha; Feather White; Riverbed Brown)	75	67	81	104	80	111	71	89	80	111	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Paving Stone BO(Bechamel; Pale Adobe; Eventide; Almond Butter)	81	112	79	126	79	126	79	126	79	126	82	105	82	105	82	105	82	105	82	105
PlanetSafe(French Pastry; Gray Perfection; Cool Cave)	94	122	94	122	94	122	94	122	94	122	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Plexus 1%(Renewal; Provisions; Chalcedony; Stately; Landmark; Travertine; Penumbra; Nutley Pier; Black Granite; Niche)	68	74	72	89	72	89	74	86	72	89	68	74	72	89	72	89	74	86	72	89

NOTES: Due to continuous manufacturing improvements, minimums and maximums are subject to change. Please call customer service for up to date size considerations.
See dual shade section for motorization information.

12V Non-Rechargeable
Non-rechargeable Motor
Minimum Width: 16"
Minimum Height: 13"

Features and Size Considerations

Lightweaves Roller and Solar Shades: 12-Volt Motor Maximum Shade Size

	Normal Fabric Orientation										Fabric Turned Width for Height (railroaded)									
Valance Type	**Small Cassette**		**Medium Cassette**		**Large Cassette/ Contour Valance/ No Cassette/ No Valance**		**3" Fascia**		**4" Fascia**		**Small Cassette**		**Medium Cassette**		**Large Cassette/ Contour Valance/ No Cassette/ No Valance at Maximum Width**		**3" Fascia**		**4" Fascia**	
Fabric	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)
Plexus 3%(Renewal; Provisions; Chalcedony; Stately; Landmark; Travertine; Penumbra; Nutley Pier; Black Granite; Niche)	68	75	73	92	73	92	75	89	73	92	68	75	73	92	73	92	75	89	73	92
Plexus 5%(Renewal; Provisions; Chalcedony; Stately; Landmark; Travertine; Penumbra; Nutley Pier; Black Granite; Niche)	68	82	73	96	73	96	73	96	73	96	68	82	73	96	73	96	73	96	73	96
Quintessence(White Enchantment; Flecked Gray; Gilded Linen; Gray Alloy; Black Facet)	65	96	74	125	74	125	75	114	74	125	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Regent(First Frost; Smoky Taupe; Fossil; Lulling Storm; Magnetic)	95	118	95	125	95	125	95	125	95	125	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Sahara Ridge(Vapor ; Alabaster; Birch Grove)	81	84	89	129	89	130	77	115	89	130	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Sakura(White Lattice; Zen Gray; Craftsman)	67	58	73	89	71	103	63	80	71	103	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Sanguine(Blue Pueblo; White Serenity; Misty Morning; Gray Estate; Montauk Slate)	73	63	78	96	76	100	68	87	76	100	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Santorini(Desert Sands; Unexpected Umber; Evocative Ivory)	76	144	76	144	76	144	76	144	76	144	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Shadow(White; Beige; Tan; Light Gray; Dark Gray)	84	97	80	123	80	123	80	123	80	123	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Sheffield(Chelsea; Henley; Windsor; Tuscon; Eclipse; Weathered; Meadow; Manor)	78	126	91	136	91	136	91	136	91	136	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Solana BO(Drift ; Blue Breeze; Dandelion Wish; Brown Tint; Black Whirlwind; Sweet Dreams)	64	87	72	114	72	114	73	103	72	114	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Spring Bloom(Kissed Olive; Cultivated Kalamata; Tropical Garden; Sunmeadow; Botanical Garden; Cherry Blossom)	92	140	92	140	92	140	92	140	92	140	84	84	84	84	84	84	84	84	84	84
Standard Weave 1%(Calcite; Polished)	83	89	79	116	79	116	79	116	79	116	83	89	80	111	80	111	80	111	80	111
Standard Weave 1%(Veranda; Café Doppio; Chiseled)	82	94	79	112	79	112	79	112	79	112	82	94	79	112	79	112	79	112	79	112
Standard Weave 10%(Calcite; Polished)	84	106	82	124	82	124	82	124	82	124	84	106	84	106	84	106	84	106	84	106
Standard Weave 10%(Veranda; Café Doppio; Chiseled)	84	101	81	121	81	121	81	121	81	121	84	101	83	106	83	106	83	106	83	106
Standard Weave 3%(Calcite; Polished)	83	96	80	120	80	120	80	120	80	120	83	96	81	113	81	113	81	113	81	113
Standard Weave 3%(Veranda; Café Doppio; Chiseled)	82	96	79	116	79	116	79	116	79	116	82	96	79	114	79	114	79	114	79	114
Standard Weave 5%(Calcite; Polished)	84	96	81	121	81	121	81	121	81	121	84	96	82	114	82	114	82	114	82	114
Standard Weave 5%(Veranda; Café Doppio; Chiseled)	82	101	80	120	80	120	80	120	80	120	82	101	81	113	81	113	81	113	81	113
Steel House(Cavern Floor; Cloud ; Buff; Chocolate Souffle)	72	99	82	121	82	121	82	118	82	121	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Tableaux(White Tranquility; Stately Gray ; Gray Opulence; Craftsman Brown; Provincial Plum; Ivory Cameo)	74	55	80	85	72	96	69	77	72	96	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR

NOTES: Due to continuous manufacturing improvements, minimums and maximums are subject to change. Please call customer service for up to date size considerations.
See dual shade section for motorization information.

12V Non-Rechargeable
Non-rechargeable Motor
Minimum Width: 16"
Minimum Height: 13"

Features and Size Considerations

Lightweaves Roller and Solar Shades: 12-Volt Motor Maximum Shade Size

Valance Type	Normal Fabric Orientation										Fabric Turned Width for Height (railroaded)									
	Small Cassette		Medium Cassette		Large Cassette/ Contour Valance/ No Cassette/ No Valance		3" Fascia		4" Fascia		Small Cassette		Medium Cassette		Large Cassette/ Contour Valance/ No Cassette/ No Valance at Maximum Width		3" Fascia		4" Fascia	
Fabric	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)	**Width** (inches)	**Height** (inches)
Terrain(Gray Frost; Pale Adobe ; Pale Rhino)	78	112	89	135	89	135	89	135	89	135	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Thesis(Weathered Stone; Bluebook White; Summer Khakis; Oxford Blue; Macho Macchiato; Dusky Titanium)	70	93	70	142	70	144	70	126	70	144	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Tuvalu(Wisteria White; Silver Tree; Dusky Botanical)	94	121	94	121	94	121	94	121	94	121	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Vanguard 1%(Authentic; Gentle Beige; Chrome; Pendulum)	83	89	79	116	79	116	79	116	79	116	83	89	80	111	80	111	80	111	80	111
Vanguard 1%(Elusive; Macedonia; Dew; Homage; Peloton)	82	94	79	112	79	112	79	112	79	112	82	94	79	112	79	112	79	112	79	112
Vanguard 3%(Authentic; Gentle Beige; Chrome; Pendulum)	83	96	80	120	80	120	80	120	80	120	83	96	81	113	81	113	81	113	81	113
Vanguard 3%(Elusive; Macedonia; Dew; Homage; Peloton)	82	96	79	116	79	116	79	116	79	116	82	96	79	114	79	114	79	114	79	114
Vanguard 5%(Authentic; Gentle Beige; Chrome; Pendulum)	84	96	81	121	81	121	81	121	81	121	84	96	82	114	82	114	82	114	82	114
Vanguard 5%(Elusive; Macedonia; Dew; Homage; Peloton)	82	101	80	120	80	120	80	120	80	120	82	101	81	113	81	113	81	113	81	113
Wayfarer(Sultry White; Maldives Gray)	92	144	92	144	92	144	92	144	92	144	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Whitcomb(Paloverde; Invitation; Juniper)	90	118	89	132	89	132	89	132	89	132	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Whitehall(Veranda; Wolverine; Nectar; Westminster; Seattle Mist)	87	106	82	144	82	144	82	144	82	144	87	106	87	108	87	108	87	108	87	108

NOTES: Due to continuous manufacturing improvements, minimums and maximums are subject to change. Please call customer service for up to date size considerations.
See dual shade section for motorization information.

Features and Size Considerations

This table provides the maximum shade size available by fabric, control type, and valance style.
Fabric turned width for height (railroaded) may curl along its edge. This is not a defect in the product.

Only the large cassette valance is available for the dual shade.
Small and medium cassette valances are not available.

Lightweaves Roller and Solar Shades: Dual Shades Maximum Shade Size

Valance Type	Normal Fabric Orientation				Fabric Turned Width For Height (railroaded)							
	12V Motor No Cassette/ No Valance		12V Motor Large Cassette		12V Motor No Cassette/No Valance at Max Length		12V Motor No Cassette/ No Valance at Max Width		12V Motor Large Cassette at Max Length		12V Motor Large Cassette at Max Width	
Fabric	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)
Aberdeen BO (Ingenue Pearl; Effervescene; Pristine; Dulcet Graphite)	67	108	68	97	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Aberdeen LF (Ingenue Pearl; Effervescene; Pristine; Dulcet Graphite)	92	123	92	109	83	84	98	82	83	84	98	82
Arboretum BO (Serene; Monarch; Sirius; Distinguished)	72	108	73	101	75	84	89	82	75	84	89	82
Arboretum LF (Serene; Monarch; Sirius; Distinguished)	90	136	91	121	82	84	96	82	82	84	96	82
Bradley (Antique Silver; Hearthstone; Midas; Azurine; Majesty; Everest)	71	83	72	75	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Bravado BO (Magnolia; Elusive Ecru; Tumbled Stone; Canterbury Night)	74	90	75	82	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Bravado LF (Magnolia; Elusive Ecru; Tumbled Stone; Canterbury Night)	79	110	81	98	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Broadcast (Constellation; Sonnet; Cashmere; Alfresco; Motif; Taliesin; Austere; Continental; Simplicity; Genuine; Gourmet; Serenade)	70	77	71	70	70	77	87	62	71	70	88	55
Cambridge LF (White; Off White; Inkwell; Clay; Hawaiian Blue; Academy; Mirage; Vernal Pond; Ivory)	94	121	94	121	95	110	95	110	95	110	95	110
Cambridge RD (Hawaiian Blue; Academy; Mirage; Vernal Pond; White; Off White; Inkwell ; Clay ; Ivory; Misty)	86	109	87	97	86	108	86	108	87	97	87	97
Cloud Frost (Fading Nimbus; Shell; Creamy Mocha)	80	120	80	119	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Cloud Frost (Sea Stone)	82	99	83	88	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Complex (Couture; Chance; Oceans; Visage)	71	84	72	76	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR

NOTES: Due to continuous manufacturing improvements, minimums and maximums are subject to change. Please call customer service for up to date size considerations.
Seams may be added to fabrics to accommodate long shade requirements. Seams will be placed as close to the tube as possible; seam location is not selectable. Seams are visible when the shade is fully extended. Not available with RU28 rechargeable motor or RU30 Simple RTS motor.

Features and Size Considerations

This table provides the maximum shade size available by fabric, control type, and valance style.
Fabric turned width for height (railroaded) may curl along its edge. This is not a defect in the product.
Only the large cassette valance is available for the dual shade.
Small and medium cassette valances are not available.

Lightweaves Roller and Solar Shades: Dual Shades Maximum Shade Size

Valance Type	Normal Fabric Orientation				Fabric Turned Width For Height (railroaded)							
	12V Motor No Cassette/ No Valance		12V Motor Large Cassette		12V Motor No Cassette/No Valance at Max Length		12V Motor No Cassette/ No Valance at Max Width		12V Motor Large Cassette at Max Length		12V Motor Large Cassette at Max Width	
Fabric	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)
Conservancy -LF (Edelweiss; Feather Grass; Golden Morel; Flowering Ash; Silver Maple; Black Peony; Sea Salt)	74	88	63	97	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Conservancy-BO (Edelweiss; Feather Grass; Golden Morel; Flowering Ash; Silver Maple; Black Peony; Sea Salt)	56	84	58	74	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Consummate Silk (Opalescence; Posh Platinum ; Bright Champagne; Pale Gold; Sandstone; Seafoam)	71	112	72	102	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Debonair (Weekender Twill; Tan Gaberdine; Natural White; Harberdasher Gray)	76	125	77	113	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Delphine BO (Mythical Gray; Evocative White; Island Paradise; Dark Earth)	72	98	74	88	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Delphine LF (Mythical Gray; Evocative White; Island Paradise; Dark Earth)	95	110	79	126	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
EcoEncore (Mint Condition; Lunar Light; Cocoa Powder)	95	119	95	119	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Empirical (White Shimmer; Complex Carbon; Modern Gray; Classic Khaki)	93	123	93	123	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Emporium (Bookplate White)	89	115	75	119	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Emporium (Silver Dollar ; Vintage Letterpress; Sheet Music; Stepping Stone)	74	115	75	105	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Emporium (Sepia Snapshot)	73	111	74	104	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Essential (Classic White; Creamy Beige; Taupe; Smokey; Black; Black on Black; Forest Green; Canyon; Beige; Stone; Black)	70	144	70	144	77	62	91	60	77	62	91	60
Exposition (Consummate; Genesis; Wishlist; Resonance)	76	65	77	59	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR

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Features and Size Considerations

This table provides the maximum shade size available by fabric, control type, and valance style.
Fabric turned width for height (railroaded) may curl along its edge. This is not a defect in the product.

Only the large cassette valance is available for the dual shade.
Small and medium cassette valances are not available.

Lightweaves Roller and Solar Shades: Dual Shades Maximum Shade Size

Valance Type	Normal Fabric Orientation				Fabric Turned Width For Height (railroaded)							
	12V Motor No Cassette/ No Valance		12V Motor Large Cassette		12V Motor No Cassette/No Valance at Max Length		12V Motor No Cassette/ No Valance at Max Width		12V Motor Large Cassette at Max Length		12V Motor Large Cassette at Max Width	
Fabric	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)
Gleam (Gold Rush; Ebony Glimmer; Silver Shine; Glistening Waterfall)	78	102	80	90	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Harmony (Pebble ; Tassel; Marina; Shiplap; Cityscape ; Harvest; Lavender)	92	124	93	112	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
LiveWell (Dew Kissed; Finely Frosted; Succulent; Sandbar; Icelandic; Seaspray)	70	89	71	82	70	87	86	73	71	82	88	65
Manifest BO (Freshwater Pearl; Flint Rock; Savvy Gray; Lifting Fog; Ciabatta; Cream Filled)	84	131	85	119	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Manifest LF (Freshwater Pearl; Flint Rock; Savvy Gray; Lifting Fog; Ciabatta; Cream Filled)	92	144	92	144	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Momentum (Soft Seashell; Parisian Cream; Luxe Leather; Etched Brown; Brushed Pewter; Toasted Spice)	71	92	72	83	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Monticello (Mist; Burro; Dune; Tikki; Rust)	74	68	75	62	74	68	91	54	75	62	92	48
Nantucket (Vintage Veil; Taupe Utopia; Rich Sable; Spice)	77	62	78	56	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Pannier (Black Dahlia; Creamy Mocha; Feather White; Riverbed Brown)	75	65	76	59	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Paving Stone BO(Bechamel; Pale Adobe; Eventide; Almond Butter)	82	106	83	95	82	105	82	105	83	95	83	95
PlanetSafe (French Pastry; Gray Perfection; Cool Cave)	94	122	94	122	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Plexus 1% (Renewal; Provisions; Chalcedony; Stately; Landmark; Travertine; Penumbra; Nutley Pier; Black Granite; Niche)	68	72	70	65	68	72	85	57	70	65	87	50

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Lightweaves Roller and Solar Shades: Dual Shades Maximum Shade Size

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Fabric	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)
Plexus 3% (Renewal; Provisions; Chalcedony; Stately; Landmark; Travertine; Penumbra; Nutley Pier; Black Granite; Niche)	69	73	70	66	69	73	85	58	70	66	87	51
Plexus 5% (Renewal; Provisions; Chalcedony; Stately; Landmark; Travertine; Penumbra; Nutley Pier; Black Granite; Niche)	68	80	69	72	68	80	84	64	69	72	86	56
Quintessence (White Enchantment; Flecked Gray; Gilded Linen; Gray Alloy; Black Facet)	66	93	67	84	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Regent (First Frost; Smoky Taupe; Fossil; Lulling Storm; Magnetic)	96	114	81	124	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Sahara Ridge (Vapor; Alabaster; Birch Grove)	81	82	82	74	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Sakura (White Lattice; Zen Gray; Craftsman)	67	56	69	50	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Sanguine (Blue Pueblo; White Serenity; Misty Morning; Gray Estate; Montauk Slate)	74	61	75	54	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Santorini (Desert Sands; Unexpected Umber; Evocative Ivory)	76	144	76	132	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Shadow (White; Beige; Tan; Light Gray; Dark Gray)	84	93	71	97	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Sheffield (Chelsea; Henley; Windsor; Tuscon; Eclipse; Weathered; Meadow; Manor)	78	122	80	109	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Solana BO(Drift ; Blue Breeze; Dandelion Wish; Brown Tint; Black Whirlwind; Sweet Dreams)	64	84	66	76	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Spring Bloom (Kissed Olive; Cultivated Kalamata; Tropical Garden; Sunmeadow; Botanical Garden; Cherry Blossom)	92	140	92	127	84	84	98	82	84	84	98	82

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Fabric	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)
Standard Weave 1% (Calcite; Polished)	84	86	71	87	84	86	84	86	71	87	86	76
Standard Weave 1% (Veranda; Café Doppio; Chiseled)	82	91	68	101	82	91	82	91	68	101	84	80
Standard Weave 10% (Calcite; Polished)	85	102	71	110	85	102	85	102	71	108	87	90
Standard Weave 10% (Veranda; Café Doppio; Chiseled)	84	98	71	101	84	98	84	98	71	101	86	86
Standard Weave 3% (Calcite; Polished)	84	92	70	101	84	92	84	92	70	101	86	82
Standard Weave 3% (Veranda; Café Doppio; Chiseled)	83	92	71	87	83	92	83	92	71	87	85	82
Standard Weave 5% (Calcite; Polished)	85	92	71	101	85	92	85	92	71	101	87	82
Standard Weave 5% (Veranda; Café Doppio; Chiseled)	83	97	85	86	83	97	83	97	85	86	85	86
Steel House (Cavern Floor; Cloud ; Buff; Chocolate Souffle)	72	96	74	87	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Tableaux (White Tranquility; Stately Gray; Gray Opulence; Craftsman Brown; Provincial Plum; Ivory Cameo)	74	53	76	47	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Terrain (Gray Frost; Pale Adobe ; Pale Rhino)	78	110	79	99	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Thesis (Weathered Stone; Bluebook White; Summer Khakis; Oxford Blue; Macho Macchiato; Dusky Titanium)	70	90	70	82	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Tuvalu (Wisteria White; Silver Tree; Dusky Botanical)	94	121	95	107	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Vanguard 1%(Authentic; Gentle Beige; Chrome; Pendulum)	84	86	71	87	84	86	84	86	71	87	86	76
Vanguard 1%(Elusive; Macedonia; Dew; Homage; Peloton)	82	91	68	101	82	91	82	91	68	101	84	80

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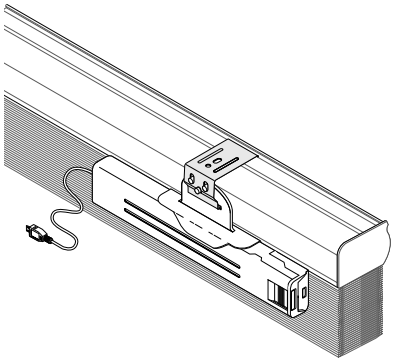
Lightweaves Roller and Solar Shades: Dual Shades Maximum Shade Size

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Fabric	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)	**W** (in)	**H** (in)
Vanguard 3% (Authentic; Gentle Beige; Chrome; Pendulum)	84	92	70	101	84	92	84	92	70	101	86	82
Vanguard 3% (Elusive; Macedonia; Dew; Homage; Peloton)	83	92	71	87	83	92	83	92	71	87	85	82
Vanguard 5% (Authentic; Gentle Beige; Chrome; Pendulum)	85	92	71	101	85	92	85	92	71	101	87	82
Vanguard 5% (Elusive; Macedonia; Dew; Homage; Peloton)	83	97	85	86	83	97	83	97	85	86	85	86
Wayfarer (Sultry White; Maldives Gray)	92	144	92	144	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Whitcomb (Paloverde; Invitation; Juniper)	91	114	76	126	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR	NO RR
Whitehall (Veranda; Wolverine; Nectar; Westminster; Seattle Mist)	88	102	73	114	88	102	88	102	73	109	89	90

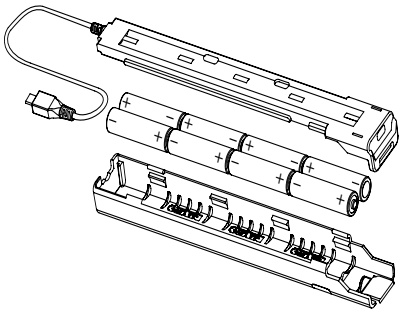
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Options

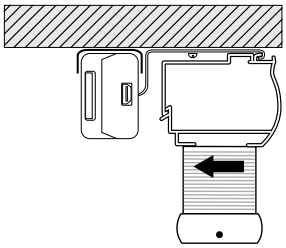
Power Considerations



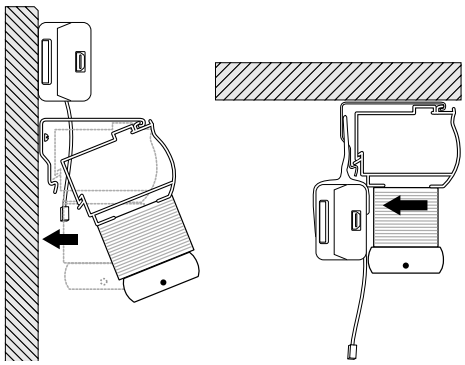
Cellular and Pleated
Battery Consideration



Battery Case (non-rechargeable solution)
Dimensions: 9 1/4" x 1 1/4" x 7/8"

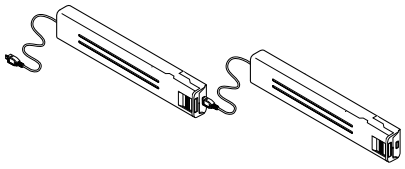


Ceiling/Inside Mount



Outside Mount

Inside Mount



Dual Battery Cases

Motors can be powered by non-rechargeable AA lithium batteries, rechargeable battery pack, plug-in transformer, or multi-motor power supply. Each shade requires a motor and appropriate power source.

Power Considerations
Larger shades consume more power while operating. When choosing the appropriate power source based upon the shade size we recommend the following power sources for the best performance.

Shade Size square inches	**Non-Rechargeable Recommended Power Source**	**Rechargeable Battery Pack Estimated Battery Life Before Recharge* Single Pack Only**
0 to 3,600	Batteries (single or dual), plug-in, or multi-motor power supply	~12 Months
3,600 to 7,200	Dual battery cases, plug-in, or multi-motor power supply	~6-12 Months
>7,200	Plug-in or multi-motor power supply only	~6 Months or Less

Battery Case Considerations
Battery power recommended for maximum of 10 shades for best battery performance.
Battery cases are installed in space outside of the product and can be a challenge to hide in some windows.

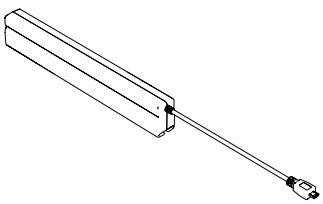
For Inside Mounts
- The cleanest and simplest method available for cellular and pleated shades is the integrated battery case hanger; this hanger attaches directly to a shade bracket to support the battery case while allowing the case to be removed for battery changes; additional recessed space will be needed

For Outside Mounts
- For outside mounts, battery cases can be installed above or to the side of the shade

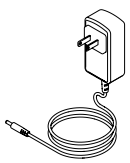
NOTE: For best performance with non-rechargeable solutions, use only AA lithium batteries.

Dual battery cases installed end-to-end: require 21" of space (including connectors)

Battery case minimum recessed space (installed with bracket): product minimum recessed space + ¾"



Rechargeable Battery Pack
Dimensions: 8 9/16" x 1 7/16" x 15/16"



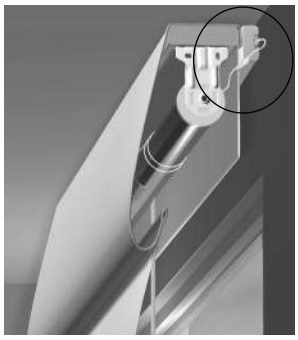
Li-Ion Charger

Options

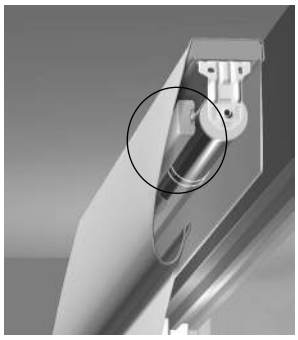
Power Considerations

Solar/Roller, Natural Shades, Artisan Roman, Layered, and Sheer Shade Battery Considerations

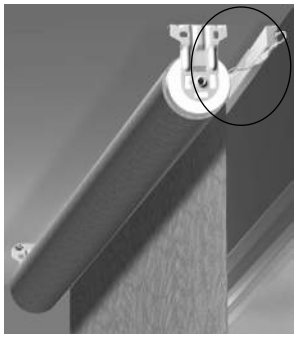




Artisan Roman/Natural Shades
Battery Pack
Mounted Behind



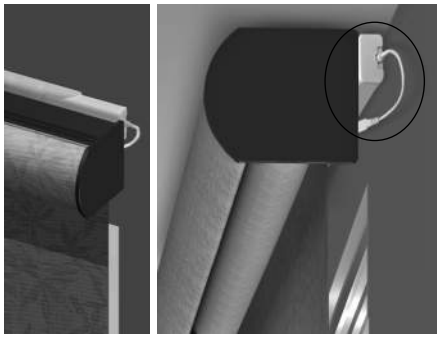
Artisan Roman/Natural Shades
Battery Pack
Mounted on Headrail



Solar Shades
Outside Mount
Battery Pack



Solar Shades
Inside Mount Battery Pack

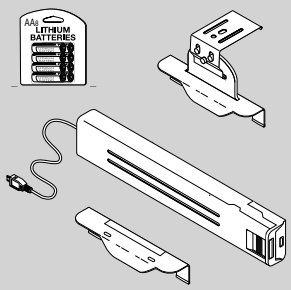


Solar, Layered, and
Sheer Shades with Cassette
Battery Pack

Motorization Power Options

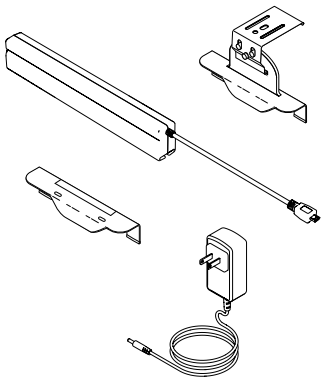
Power Components

NOTE: These power supplies are not compatible with Radio Technology Somfy motors.



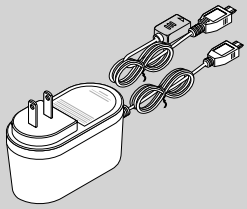
Reloadable Battery Case

- Reloadable: available with or without batteries
- Multiple mounting options provided
- Simple case design allows for easy battery replacement
- Recommend shades greater than 3,600 square inches utilize two single battery cases (dual cases) to extend battery life
- For best performance, use only AA lithium batteries (each case requires 8 AA lithium batteries)
- 48" and 96" extensions available, maximum of 2 per motor
- Battery power recommended for maximum of 10 shades for best battery performance



Rechargeable Battery Pack

- The rechargeable battery pack comes as a sealed pack with the batteries already included. Batteries are charged by plugging the charger into the pack.
- Multiple mounting options provided.
- 48" and 96" motor-to-battery extensions available, maximum of 2 per motor
- Rechargeable battery packs ship at 30% charge and must be fully charged prior to installation
- Dual pack configuration is not available or necessary for the rechargeable battery packs
- One Lithium-Ion Charger is required per order; sold separately
- Lithium-Ion charger cable is 6 feet
- Lithium-Ion charger has an LED that turns red to indicate charging and green to indicate fully charged
- Fully charging the rechargeable battery pack takes an average of 5 hours



Plug-In Transformer

- Eliminates the need for batteries
- Small plug profile
- Cord can be concealed behind curtains or along trim
- 72" power cord and 96" extension cable (power cord and extension cable cannot be cut to length)
- 48" and 96" extensions available, maximum of 2 per motor
- We recommend shades greater than 7,200 square inches utilize a transformer to eliminate changing batteries frequently
- Available in white only

Transformer Dimensions

- 3¼" wide x 2" deep (not including plug) x 1½" tall (as you look at the plug in the outlet)
- Wire management components are not included with your motorized shade system
  - Refer to 12 volt power considerations for further details



Multi-Motor Power Supply

- Used when direct wiring the motorized window coverings
- Each motor is “home run” wired back to the multi-motor power supply using 16 gauge 2 conductor wire (must be purchased locally; Graber® does not supply)
- Power supply includes connectors
- Must be mounted indoors, NEMA rated
- Dimensions: 12" wide x 6" deep x 12" high
- Input: 100-120v AC / 200-240V AC at 3.3 amps
- Output: 10 amps; each shade port - 2 amp fused

NOTE: Due to the many variations of installations, wire management components are not included with your motorized shade system. There are numerous wire management products available at your local hardware store or home improvement center to help disguise the power cord when using a plug-in transformer. An example of a popular wire management accessory is wire channel. Wire channel is a vinyl sheathing that can be placed along the window casing or wall that will house and conceal exposed wiring for a clean and professional appearance.

Z-Wave Control Options

Z-Wave Motorization Controls

NOTE: These controls are not compatible with Radio Technology Somfy motors.



Standard Remote

The standard remote is meant to control an individual shade (one to one). This helps assure simple, reliable control as well as simplifying the process of readjusting pre-set positions should it become necessary—without removing power from adjacent shades. However, the standard remote can be paired to multiple shades to provide group control (onsite programming step).

- Not available for sheer or layered shades
- Includes convenient mounting hardware
- Battery included—CR2430
- Available in white
- Not available with Bottom Up/Top Down



Plus Remote

- Used to control single shades or a group of shades simultaneously
- Set and use an intermediate position for your shades
- Includes convenient mounting hardware
- Battery included—CR2430
- Available in white
- Not available with Bottom Up/Top Down



Plus Remote Decorator Wall Plate Kit (single-channel remote sold separately)

- Provides attractive mounting option to match look of existing light switches
- Locates the remote where most convenient for the user
- Helps prevent misplacing of remote when not in use
- Mounts flush to wall with included anchors, no cutting of drywall needed
- Available in white



Premium Remote (12-channel)

- 12-channel remote, controls up to 24 shades
- Control single shades on each channel or group shade performing the same function
- Control Bottom Up/Top Down cellular shades
- Shades are added to the remote fro the manufacture. Channel assignment will need to be done at time of install.
- Convenient display provides easy programming
- Set and use an intermediate position for your shades
- Includes mounting wall plate and hardware; mounts to wall with anchors (see multi-channel remote mounting options)
- Batteries included—2 AAA
- Available in white





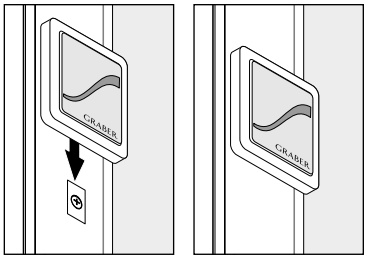
Graber Motorization Gateway

The Graber Motorization Gateway takes your motorized shades to the next level. The gateway allows you to control your shades away from your home, integrate with third party services, and schedule routines based on sunrise and sunset.

- Controls up to 10 devices (shade motors and remotes)
- Average Home Coverage: appox. 2,500 square feet depending on a variety of factors including number of walls and material of walls
- Mulitple gateways can be added to an account on the Graber Motorization App to extend coverage and number of devices
- Control single shades individually with the abiltiy to group shades in rooms for additional functionality
- Integrate directly with Amazon Alexa and Google Assistant for voice control
- Create routines routines to control multiple shades with the ability to schedule based on sunrise and sunset
- Set and use favorite positions
- Compatible with Apple and Android devices
- Gateway (shown in the image to the left) plugs directly into your wall outlet.
- Requires a 2.4Ghz, password protected, Wi-Fi network
- Multiple users can be added to an account with the option to assign different permission levels

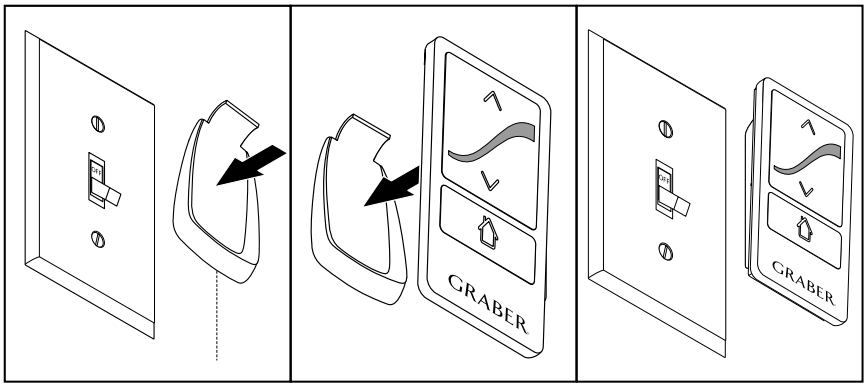
Motorization Features

Standard Remote Mounting Options

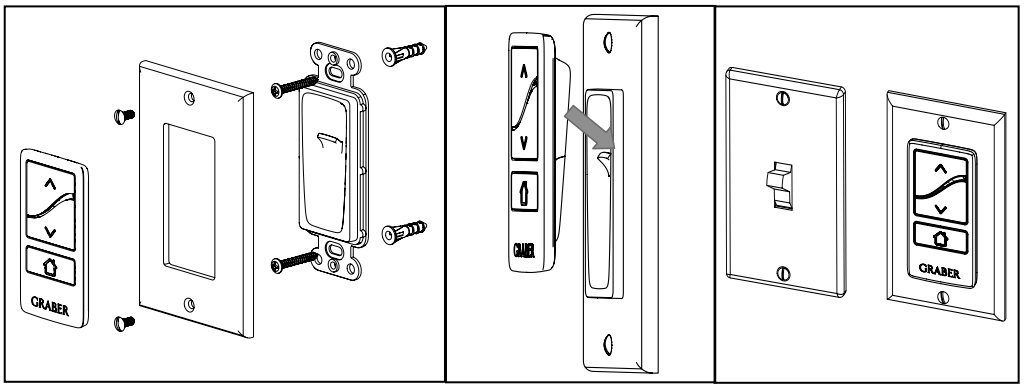


Z-Wave Standard Remote

Single-Channel Remote Mounting Options

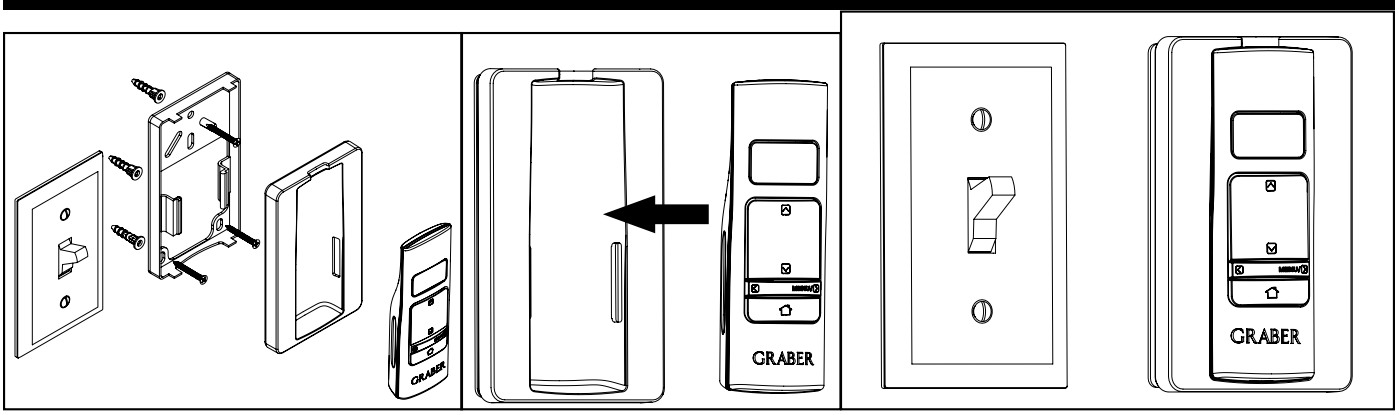


Z-Wave Plus Remote



Optional Decorator Wall Plate Mount
(see options for details)

Multi-Channel Remote Mounting Options



Z-Wave Premium Remote

GRABER

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(4/23) 23-426800

GRABER.

Graber Motorization

Designer US Price List — Effective January 2024

Motorization

See product information guide for illustrations of power and control items listed below. Select motor package and add to price of shade.

Motor Pricing

See options section for descriptions and illustrations of items listed below.
For motorized lift dual shades, one (1) motor, and one (1) power source are required for each motorized shade (total of two motors and two power sources if both shades of the dual shade are motorized lift).

A. Motor Pricing

Add price of motor to blind or shade price.
Order Entry: 12V BLE and ZW Motor without Remote (option 14)

Motor Options	
Cellular, Pleated, and Classic Roman Shades	451
Roller, Solar, Layered, Artisan Roman and Sheer Shades	451
Natural Shades*	451
Cellular Bottom Up, Top Down	646

*Motor on a natural shade is priced per panel and can be ordered with multiple shades on one headrail.
NOTE: For all other non-motorization options, see individual price list for specific blind or shade.

B. Motorization Power Sources

Choose one (1) battery option or one (1) transformer per motor.

12-Volt Power Options	
Battery Cases	
Single Non-Rechargeable, Reloadable Battery Case (empty)	48
Single Non-Rechargeable, Reloadable Battery Case (filled) (Includes 8 AA lithium batteries)	115
Dual cases recommended for shades over 3,600 square inches (2.3 square meters) to extend battery life.	
Dual Non-Rechargeable, Reloadable Battery Case (empty)	95
Dual Non-Rechargeable, Reloadable Battery Case (filled) (Includes 16 AA lithium batteries)	230
Other Power Options	
48" (121.9 cm) Extension Cable	21
96" (243.8 cm) Extension Cable	26
12 Volt DC Plug-In Transformer (includes 96" (243.8 cm) extension)	115
Multi-Motor Power Supply Kit (Up to 10 motors per power supply)	1179
12-Volt Rechargeable Power Options	
12-Volt Rechargeable Battery Pack	187
12-Volt 6 foot (1.9 m) Li-ion Charger	21

NOTE: For woven wood shades, surcharge is per panel.

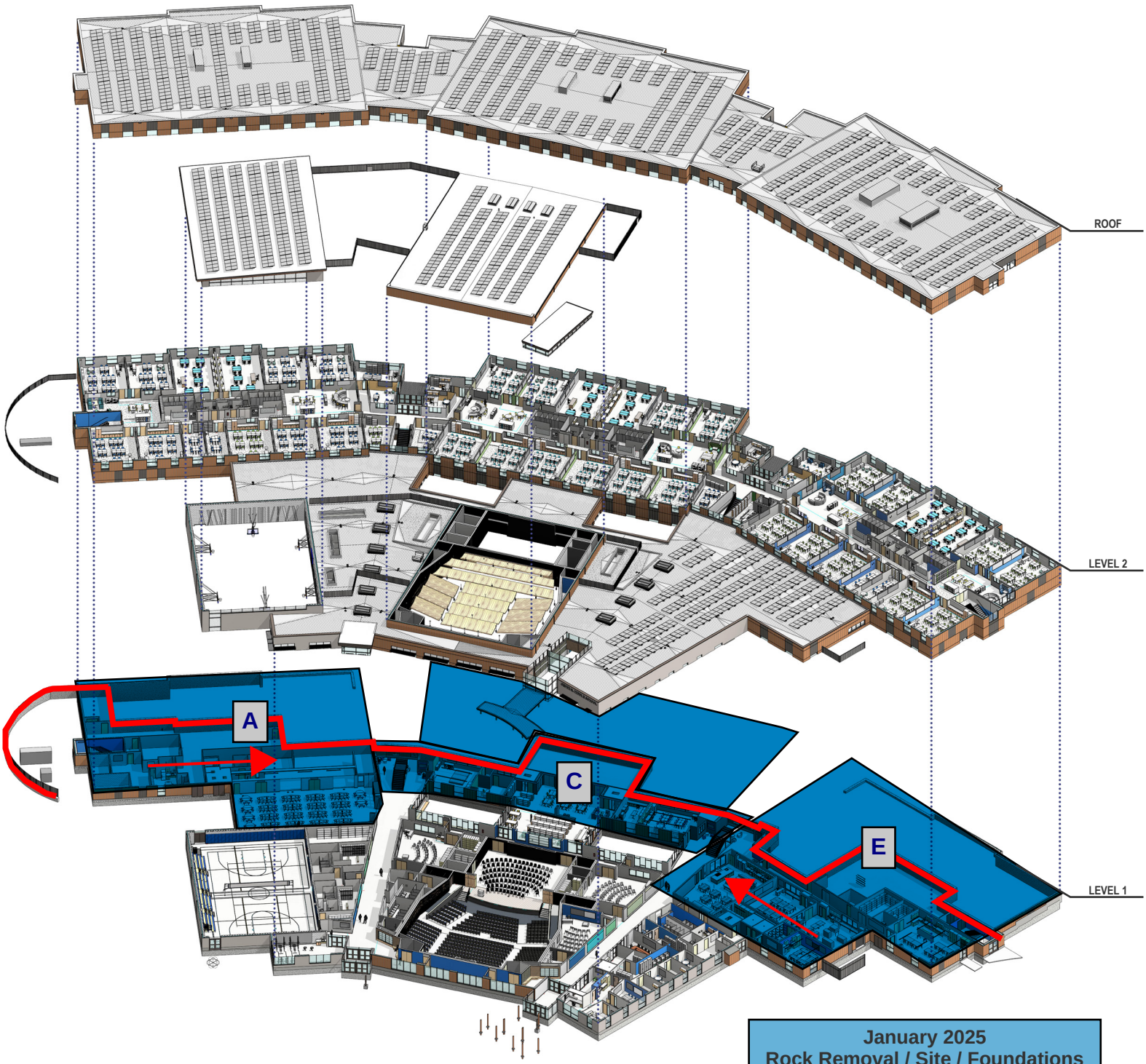
C. Z-Wave Motorization Controls

Choose one or more remotes per order. Controllers are wire-free, battery and mounting hardware is included. App & Gateway are wire-free and do not require batteries.

Radio Frequency Remote Controls	
Standard Remote	152
Plus Remote Single Channel	175
Plus Remote Decorator Wall Plate	18
Premium Remote Multi-Channel (includes wall mount and hardware)	310
Graber Motorization App and Gateway	315

Turner Construction
Greenwich Central Middle School
Crew Flow
10.25.24

Bid RFI #236
Response



January 2025
Rock Removal / Site / Foundations

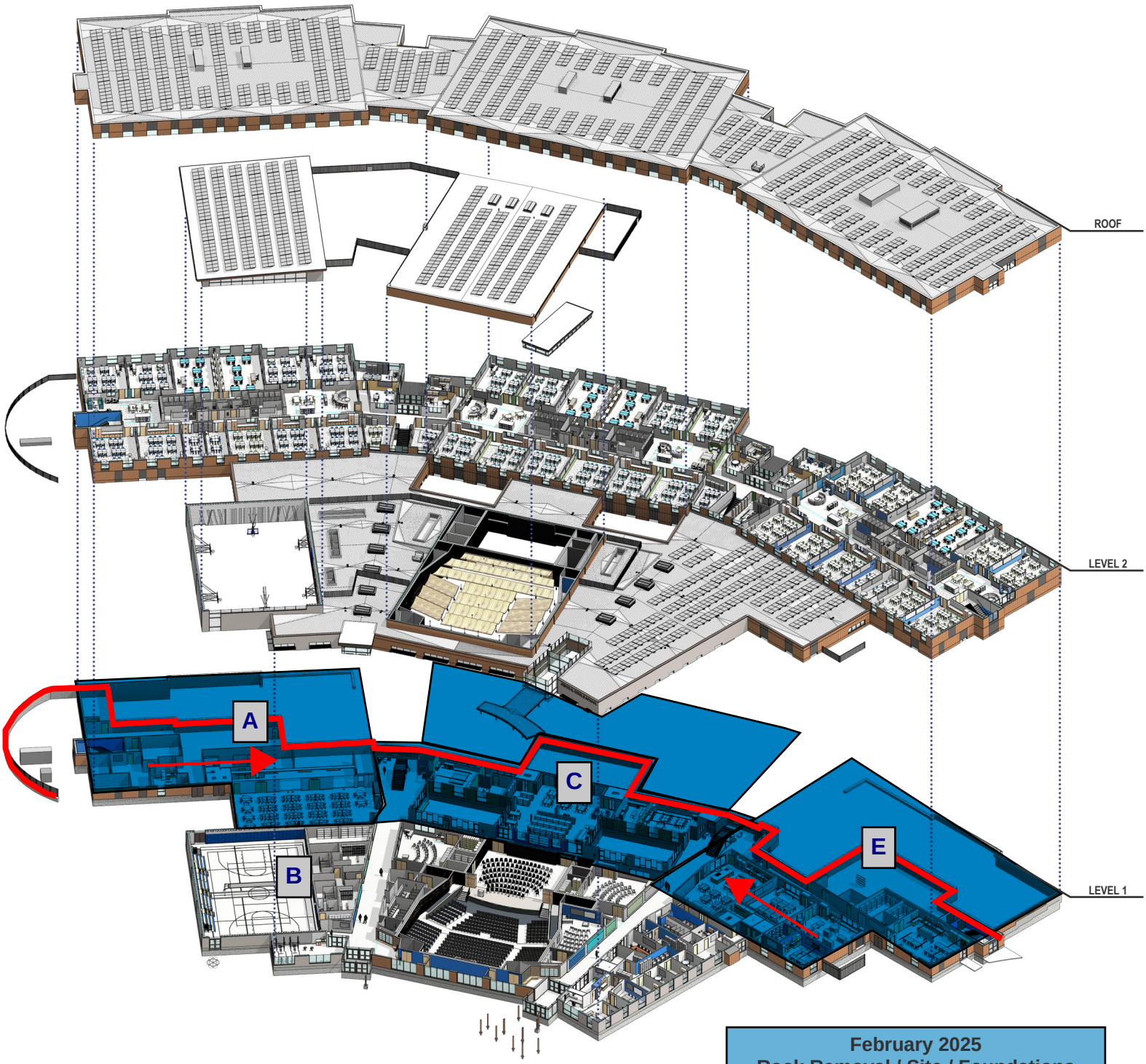
Rock Removal: A / C / E
Excavate: A / E
Retaining Wall: E

Greenwich Central Middle School
New Construction [AXON]

Turner

Turner Construction
Greenwich Central Middle School
Crew Flow
10.25.24

Bid RFI #236
Response



February 2025
Rock Removal / Site / Foundations

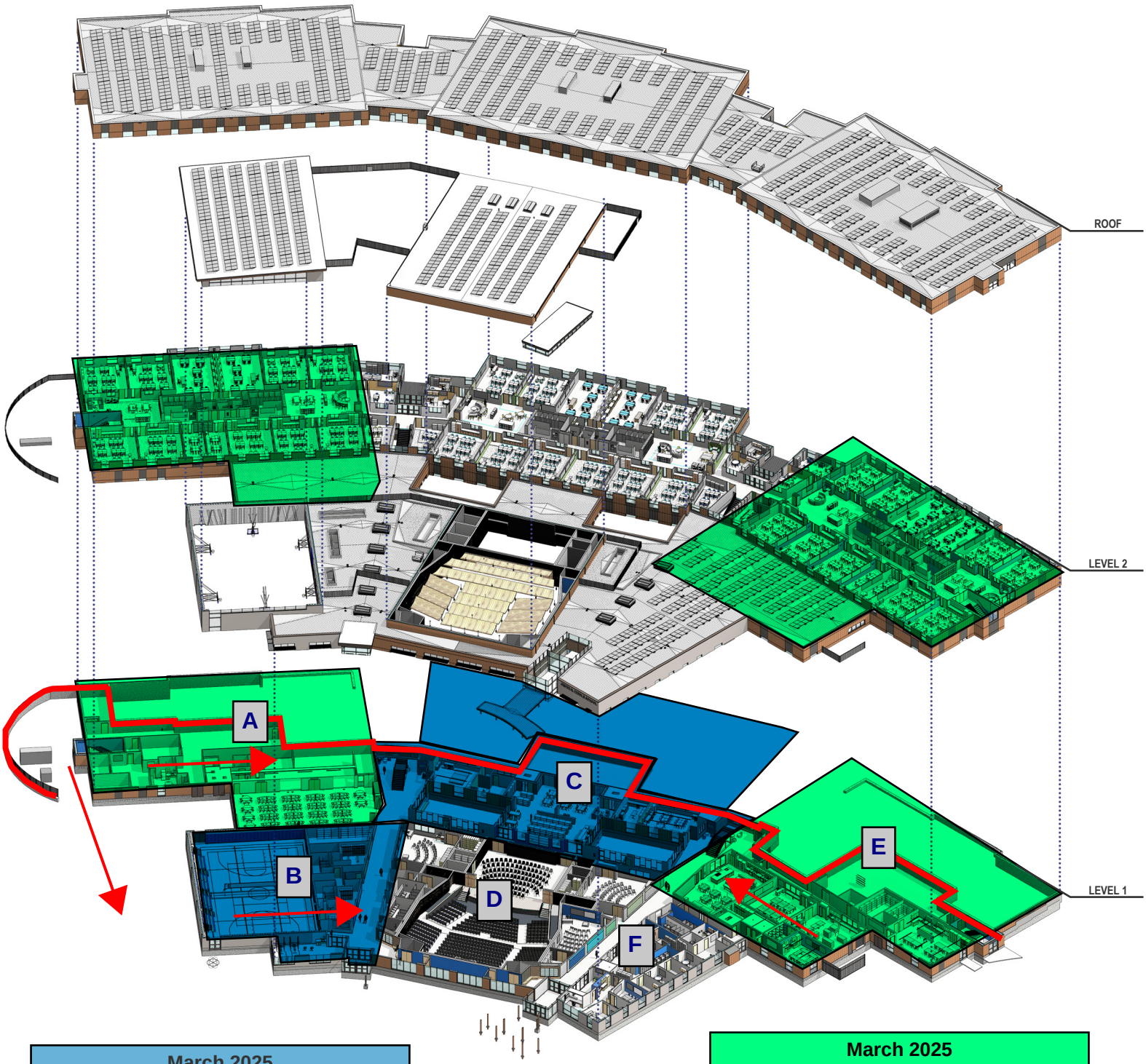
Excavate: A / E / C
Retaining Wall: A / C / E
Foundation Walls & Spread Footings: A / E

Greenwich Central Middle School
New Construction [AXON]

Turner

Turner Construction
Greenwich Central Middle School
Crew Flow
10.25.24

Bid RFI #236
Response



March 2025
Site / Foundations

Excavate: C / B
Foundation Walls & Spread Footings: C

March 2025
Foundations /Backfill / MEP Underground / SOG

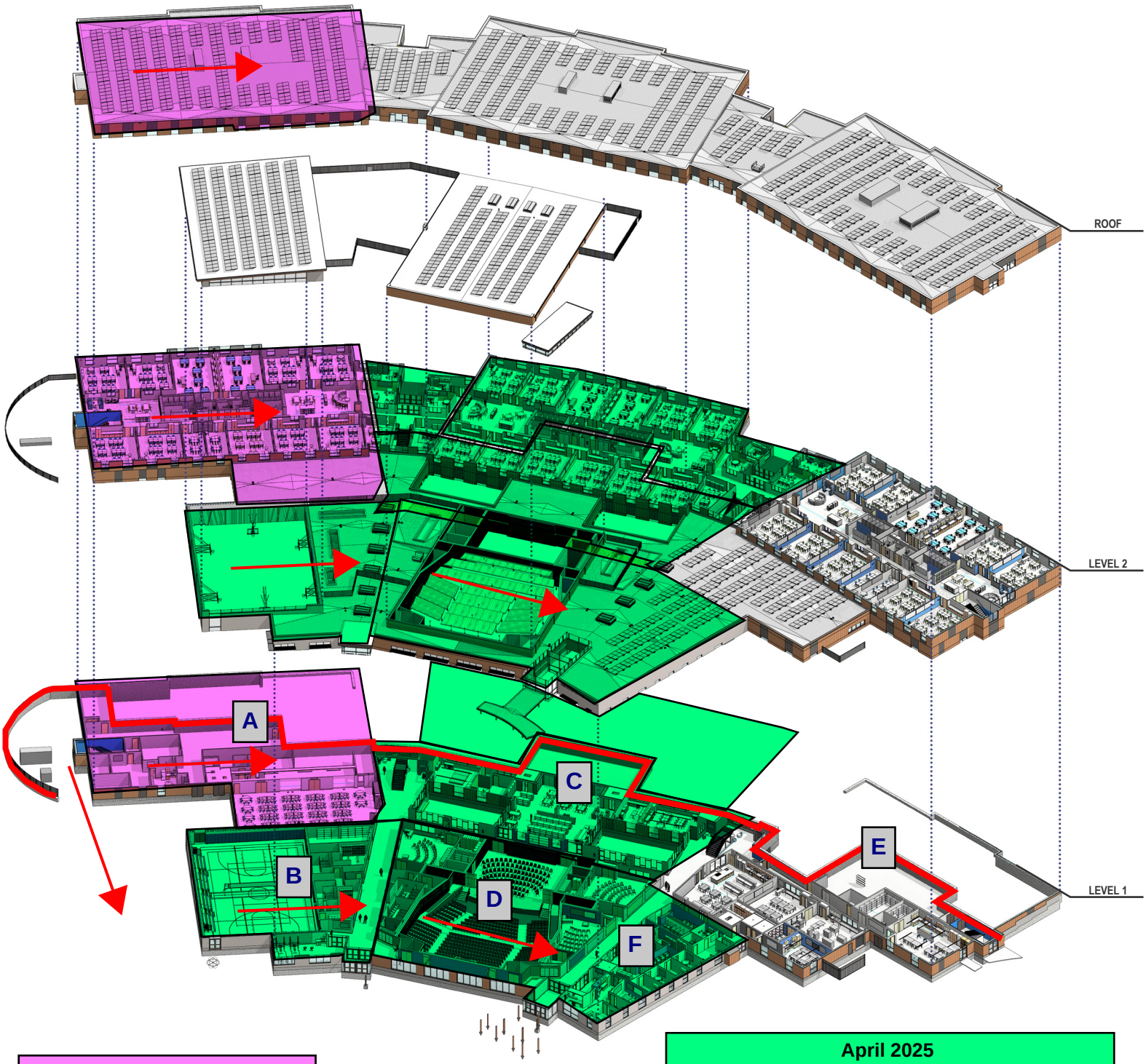
Foundation Walls & Spread Footings: A / E
Backfill: A / E
MEP Underground: A / E
SOG: A / E

Greenwich Central Middle School
New Construction [AXON]

Turner

Turner Construction
Greenwich Central Middle School
Crew Flow
10.25.24

Bid RFI #236
Response



April 2025
Steel Erection

Steel Erection: A

April 2025
Site / Foundations /MEP Underground / SOG

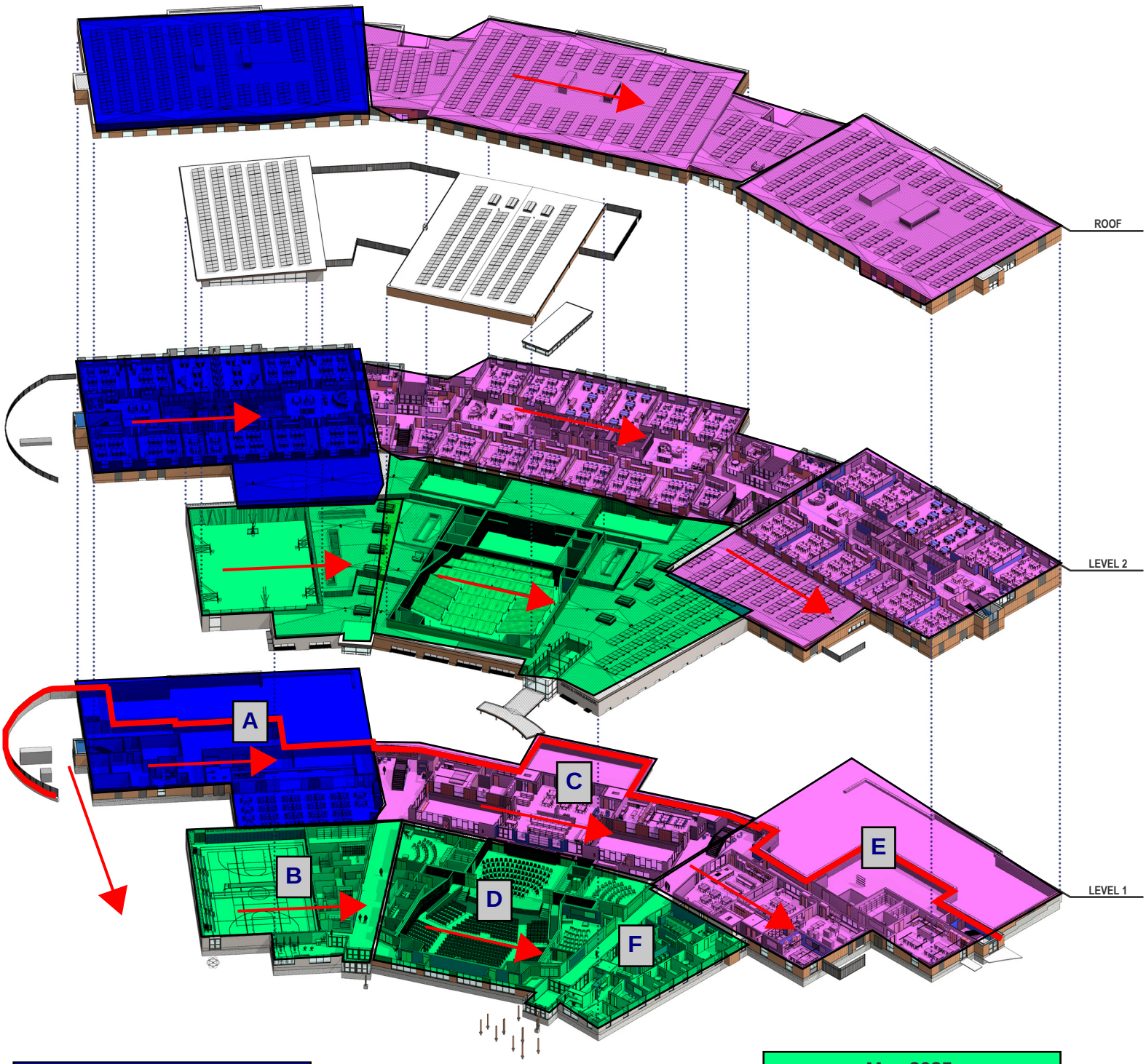
Excavate: D / F
Foundation Walls: B / D / F
Spread Footings: B / D / F
MEP Underground: B
SOG: C

Greenwich Central Middle School
New Construction [AXON]

Turner

Turner Construction
Greenwich Central Middle School
Crew Flow
10.25.24

Bid RFI #236
Response



May 2025
Steel Erection / Slab on Deck
Steel Erection: A
SOD: A

May 2025
Steel Erection
Steel Erection: C/ E

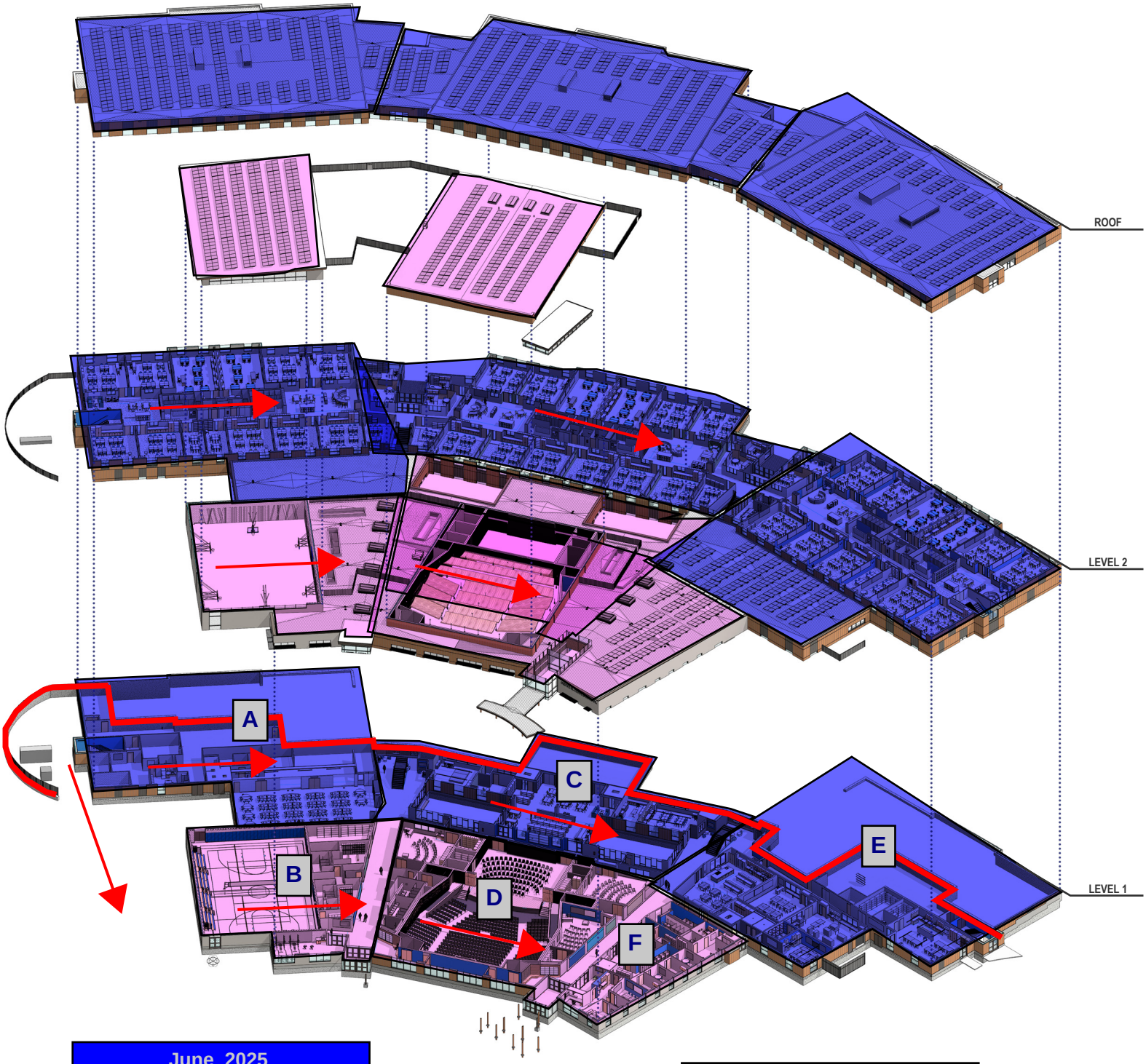
May 2025
Underground MEP / SOG
MEP Underground: B / D / F
SOG: B
Masonry Walls: B

Greenwich Central Middle School
New Construction [AXON]

Turner

Turner Construction
Greenwich Central Middle School
Crew Flow
10.25.24

Bid RFI #236
Response



June 2025
Exterior Envelope / Steel Detailing / SOD

Exterior Envelope: A
Steel Detailing: C / E
SOD: C / E

June / July 2025
SOG / Steel Erection

SOG: D / F
Steel Erection: D / F

Greenwich Central Middle School
New Construction [AXON]

Turner

BQ #267 Attachment

SUBSTITUTION REQUEST
(During the Bidding/Negotiating Phase)

CSI®

PROJECT: Greenwich Central Middle School

SUBSTITUTION REQUEST NUMBER:

FROM:

TO: Bridget Moore

DATE: 10/28/24

Turner Construction

A/E PROJECT NUMBER:

RE: Approved Elevator Manufacturer

CONTRACT FOR: Greenwich Central Middle School

SPECIFICATION TITLE: Electric Traction Elevators

DESCRIPTION: Manufacturers

SECTION: 142100

PAGE: 5

ARTICLE/PARAGRAPH: 2.1/A./1&2

MODEL NO.: 3300 MRL

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.
Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:
- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

SUBMITTED BY:

SIGNED BY:

FIRM:

ADDRESS:

TELEPHONE:

A/E's REVIEW AND RECOMMENDATION:

☐ Approve Substitution—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.

☒ Approve Substitution as noted—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.

☐ Reject Substitution—Use specified materials.

☐ Substitution Request received too late—Use specified materials.

Approved as Noted - needs to meet the full specification, limited information is provided to review other than max weight and travel speed - SLAM

SIGNED BY: Stephen Martocchio - SLAM

DATE: 10/30/24

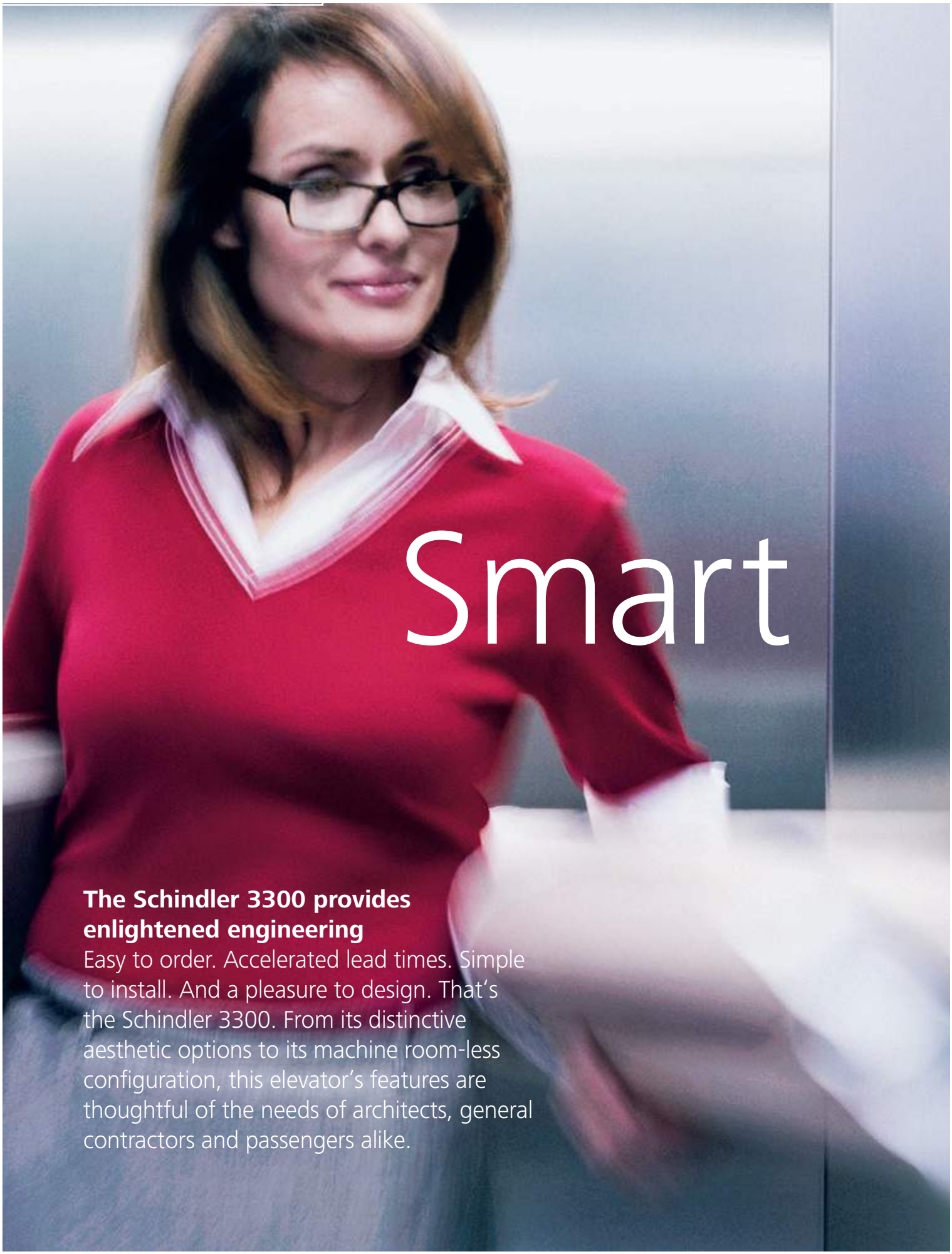
SUPPORTING DATA ATTACHED: ☐ Drawings ☒ Product Data ☐ Samples ☐ Tests ☐ Reports ☐



Schindler 3300

Distinctive design. Cost-effective solution. Green technology made easy.

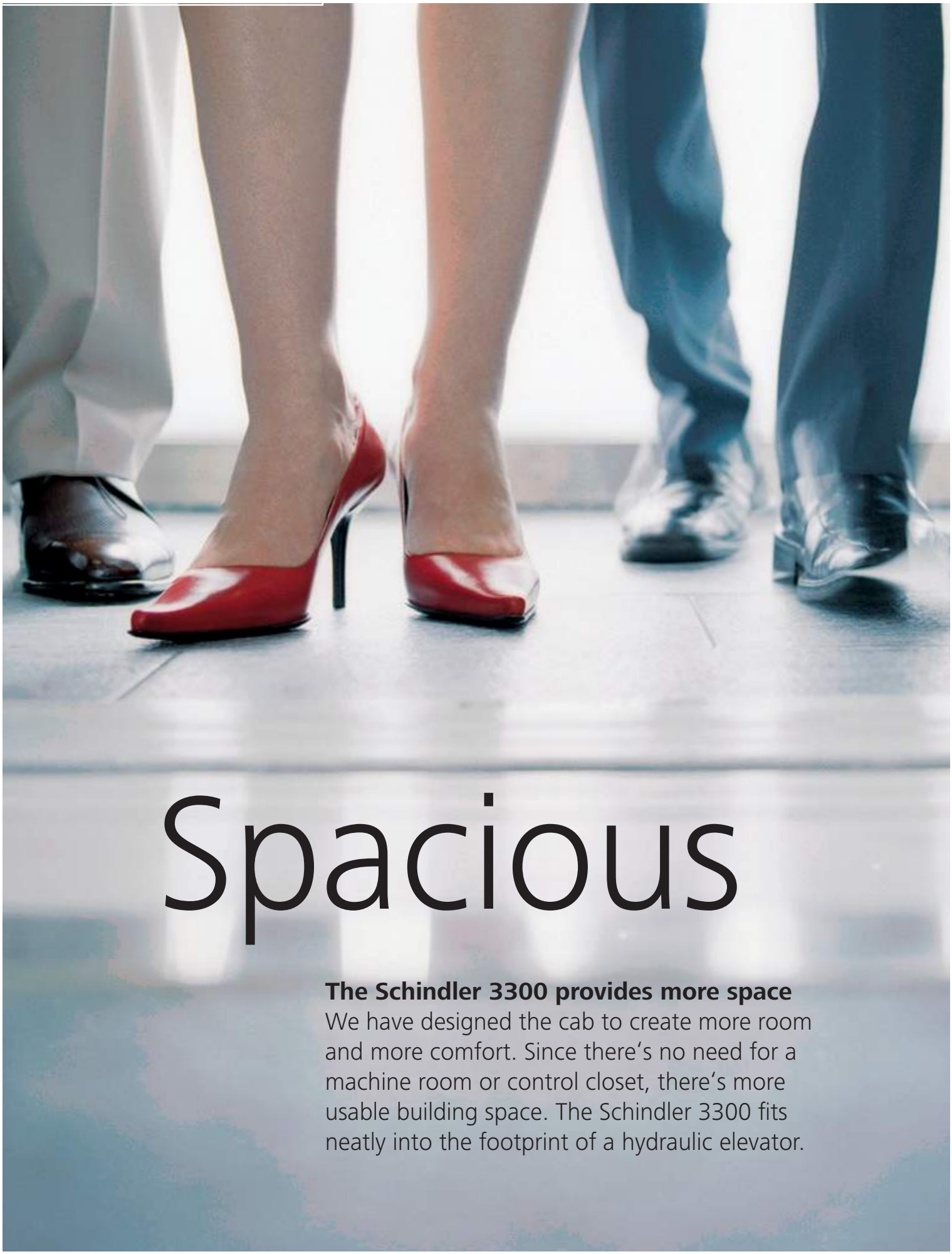
Schindler



Smart

The Schindler 3300 provides enlightened engineering

Easy to order. Accelerated lead times. Simple to install. And a pleasure to design. That's the Schindler 3300. From its distinctive aesthetic options to its machine room-less configuration, this elevator's features are thoughtful of the needs of architects, general contractors and passengers alike.



Spacious

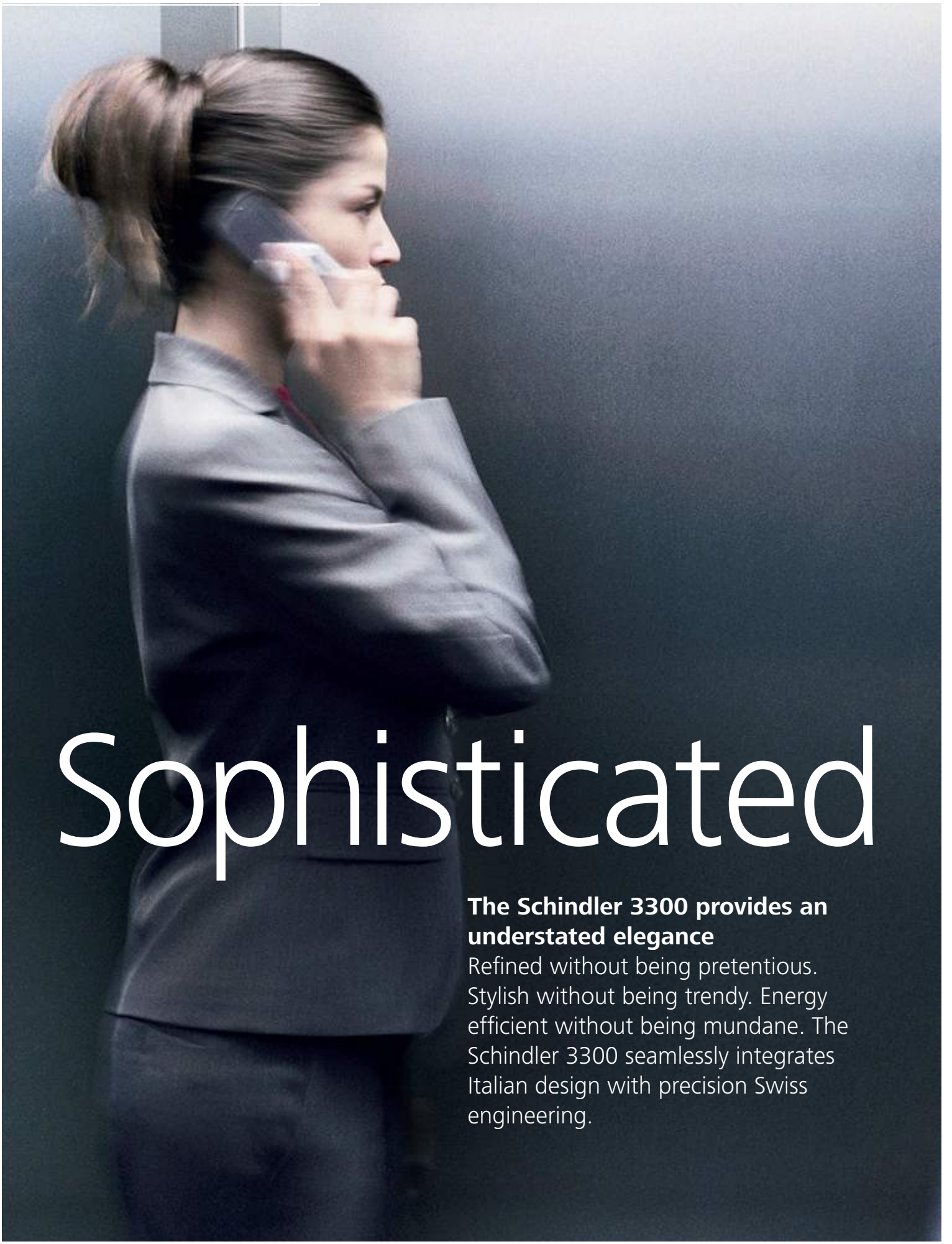
The Schindler 3300 provides more space
We have designed the cab to create more room and more comfort. Since there's no need for a machine room or control closet, there's more usable building space. The Schindler 3300 fits neatly into the footprint of a hydraulic elevator.



Smooth

The Schindler 3300 provides a more comfortable ride

Noticeably quiet. Beautifully fluid. Reliably safe. Schindler's exclusive engineering provides smooth, quiet operation for the most comfortable ride experience – floor by floor, stop by stop.



Sophisticated

The Schindler 3300 provides an understated elegance

Refined without being pretentious. Stylish without being trendy. Energy efficient without being mundane. The Schindler 3300 seamlessly integrates Italian design with precision Swiss engineering.


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B

Value has a new, intelligent design

The world's most enlightened elevator
The Schindler 3300 has proven itself globally as the smartest choice for low- to mid-rise commercial and residential buildings.

That's because it is engineered like no other everyday elevator. It offers a distinctive range of design and aesthetic options along with an amazingly smooth performance that uses less energy and makes less noise. All in a smaller, easy to fit footprint.

It's setting the new global standard.

More room. More usable space.
As architects and engineers around the world can attest, the Schindler 3300 is designed to minimize the space required for technical equipment, while maximizing the square footage of the cab interior.

Thanks to our new easy-to-install suspension traction media, hoistways designed for a hydraulic elevator can now accommodate a more spacious traction elevator.

Also, because the control is distributed throughout the system, and inspection and test panels are located in the top landing hoistway door jamb, the Schindler 3300 needs no machine room. What's more, it requires minimum overhead, eliminating unsightly structures on your roof. All told, the Schindler 3300 gives you more space and reduces construction costs.

Smooth to the eyes and ears
Schindler cabs are constructed using only high-quality materials. And with standard palettes that are anything but "standard," we can provide exceptional looks, while keeping lead times and costs down. From stainless steel to a distinctive collection of attractive color laminates, your design choices are easier than ever before.

To add to the aura, we are also working to reduce noise. Our suspension traction media enables the Schindler 3300 to glide peacefully through your building. Elevator movements go virtually unnoticed – which will certainly be appreciated by guests in your building.

Sophisticated design for our passengers and our planet
With automatic evacuation, we've elevated our focus on safety. In the event of a power failure, you will be taken safely to the next floor.

We're also setting a new standard in conservation. The Schindler 3300 is economical in its use of energy, which contributes to lower operating costs and a smaller carbon footprint. The effects are highly visible.

Fast facts

Capacity	2100–3500 lbs., 14-23 passengers
Travel height	Max. 98'-5", max. 8 stops
Door width	36-42 inches
Door height	84 inches
Drive	Gearless/frequency controlled
Speed	100/150 FPM
Control	Selective collective
Interior	Baked enamel, plastic laminate or brushed stainless steel



Efficient mobility
Sustainable technology

In architecture, in engineering, in everyday life, there is a global movement toward sustainability. There is a growing demand for solutions that benefit the planet as much as they do people. At Schindler, we are proud to be at the forefront of this initiative. In every facet of our business, we are looking for ways to become better stewards of the planet.

The Schindler 3300 is the hallmark of our environmental efforts. When designing this elevator, sustainability was not an afterthought, but the driving force behind every decision we made. As a result, the Schindler 3300 offers more eco-friendly features than one might have thought possible.

Drive
- Gearless machine designed to save energy and avoid power loss
- Stable start uses energy more efficiently and reduces electric costs
- Frequency converter with standby power mode allows elevator to return safely to nearest floor in the event of a building power outage
- Compact, lightweight and durable design.

Control
- Controls automatically switch car lights to standby mode to save energy
- Car panel and floor indicators all operate with low power, LED lights
- Multi-bus control architecture reduces cabling, material and waste
- Smart controls provide more efficient passenger transportation.

Cab and hoistway
- Car lighting equipped with energy-efficient lamps
- Central guiding system reduces friction and overall energy consumption
- Door drive with standby mode uses less electricity
- Overall design provides more usable space for enhanced passenger comfort.

Environmentally-responsible company
We are working to make our entire operation more eco-friendly. We have instituted more ecologically responsible production systems and material usage. We are able to manage installations faster and more efficiently. And our products and services are designed to provide energy-efficient and eco-friendly options to architects, contractors, building owners and managers.

What's more, Schindler is a member of the U.S. Green Building Council and supports the LEED® Green Building Rating System.

The following categories of the LEED rating system are areas where Schindler can assist you in obtaining the necessary credits for accreditation.

ISO9001 • ISO14001

LEED RATING SYSTEM VERSIONS 3 AND 2.2

Energy and Atmosphere	Materials and Resources	Indoor Environmental Quality
Prerequisite 1 Fundamental Commissioning of the Building Energy Systems	Credit 2.1 and 2.2 Construction Waste Management	Credit 4.1 Low – Emitting Materials: Adhesives and Sealants
Credit 1 Optimize Energy Performance		Credit 4.2 Low – Emitting Materials: Paints and Coats
		Credit 4.4 Low – Emitting Materials: Composite Wood and Agrifiber Projects

Technology advanced
Perfection attainable

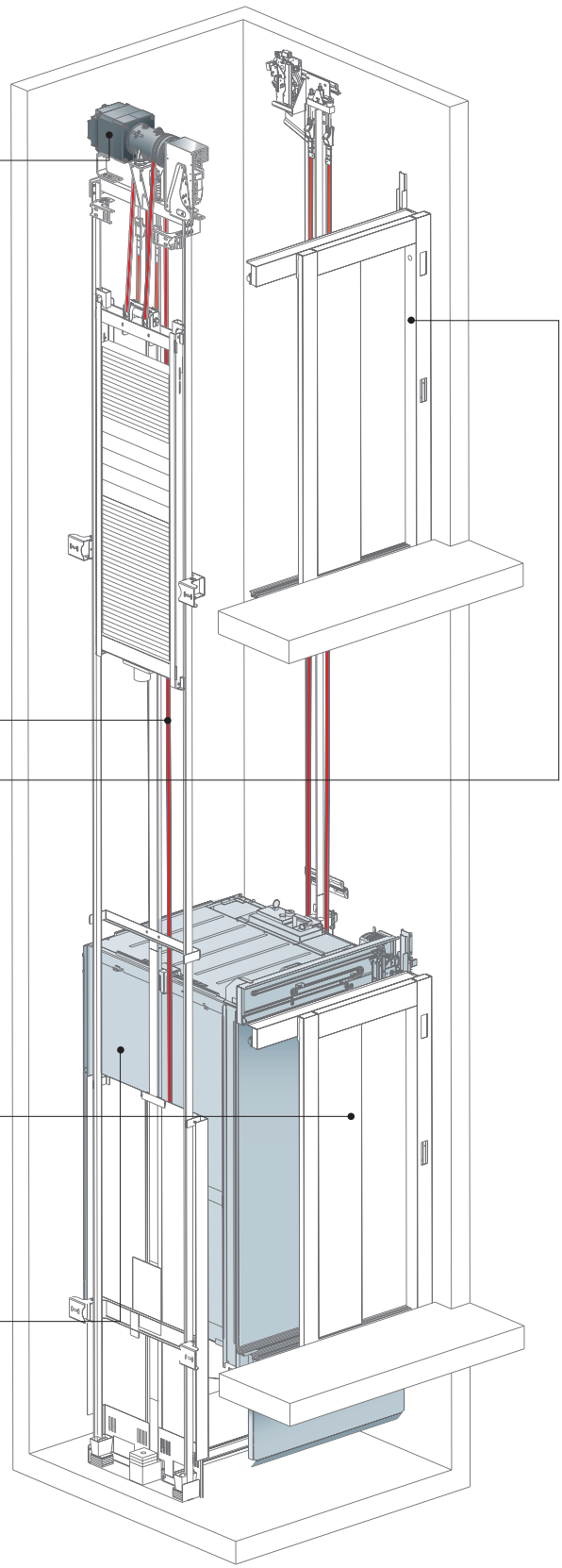
Drive system
The Schindler 3300 requires a small hoist machine and inverter. This saves more space compared to previous drive systems; it is installed directly in the overhead and does not require a separate machine room. The system stops the car with precision. Cab and landing floor line up very accurately to ensure that passengers get in and out safely. The system is economical in energy consumption and causes minimal noise due to the material of the suspension traction media (STM) in the elevator and in the entire building. Real comfort.

Suspension Traction Media (STM)
The STM consists of thin metal cables sheathed in a non-circular EPDM (Ethylene Propylene Diene Monomer) jacket. They replace conventional steel cables, weigh less, require less space and run quieter. Thanks to the STM, there is room for the machine and drive directly in the elevator hoistway, allowing hydraulic-sized shafts to be utilized.

Inspection and test panel
In the Schindler 3300, the inspection and test panel is built directly into a standard door frame at the top landing. This highly functional solution is a vital achievement. It simplifies elevator installation, provides practical handling and saves space.

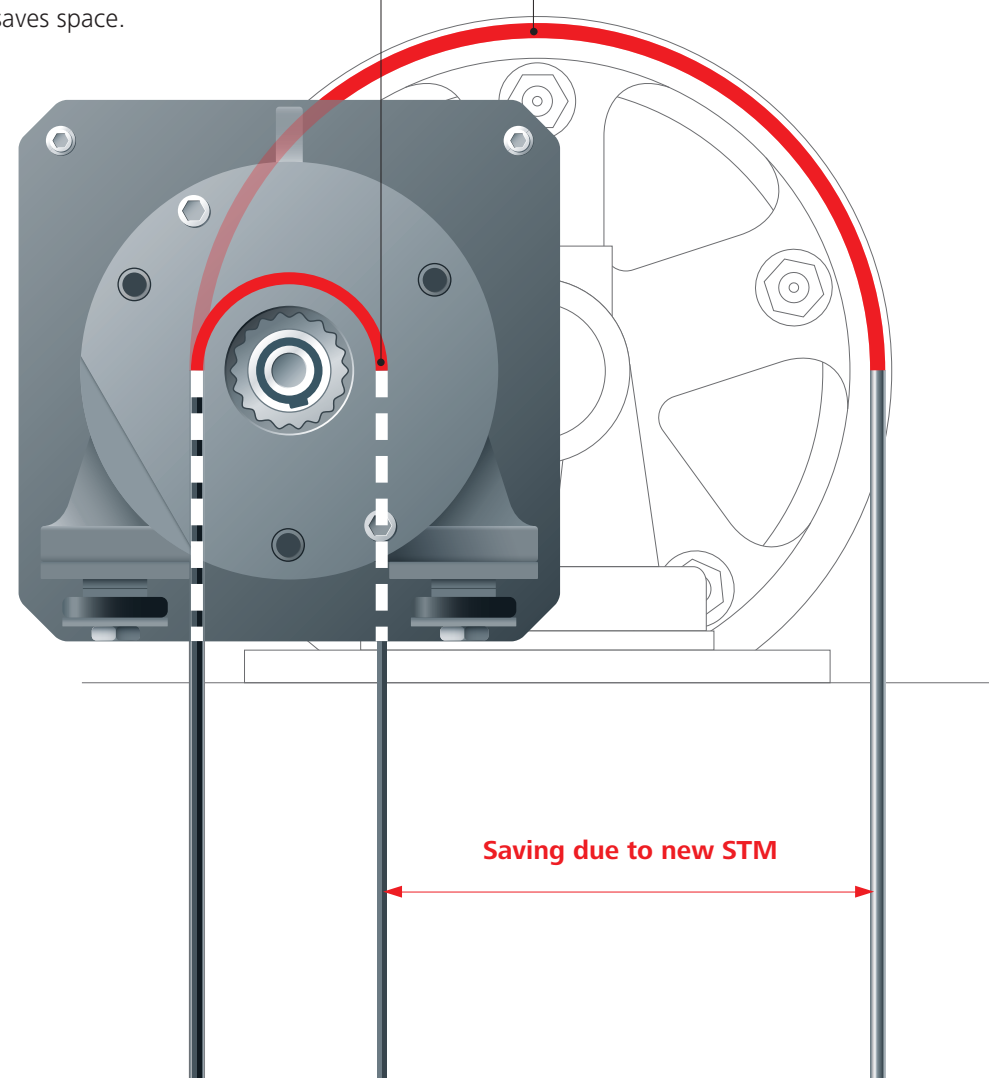
Doors
Doors are equipped with a frequency-controlled drive for fast and reliable operations. Two-speed side-opening doors opening to the left or right, as well as single-speed center-opening doors are available.

Cab
Technology does not take much space in the Schindler 3300. This is an obvious benefit that allows hydraulic elevator-sized shafts to be utilized while providing a larger cab interior. This is a striking advantage.



Previously: steel cables
Steel cables are relatively inelastic. They need a traction sheave diameter of at least 12 inches with the cable diameters required for elevators. The complete conventional motor, including drive gears, must be large enough to match. A system that requires space.

New: Suspension Traction Media (STM)
Suspension traction media are flexible. They use a much smaller traction pulley diameter than steel cables. 4.25 inches is enough, requiring a much smaller motor. A design that saves space.



We put a premium on design, without charging a premium

All around the world, architects and designers are discovering a new creative outlet. Conceptualized by an Italian designer, the Schindler 3300's sleek cab design is impressive yet understated. Simple, yet refined, with design palettes to suit any style or building décor.

– Cab walls are available in stainless steel, baked enamel or a choice of plastic laminates.

– The unique ceiling design is available in a choice of brushed stainless steel or silver-metallic baked enamel.

– Ceiling lighting is refined, yet illuminating, with compact fluorescent light fixtures.

– The elegant curved handrail is available in painted, brushed or polished aluminum finishes.

– Landing doors are available in brushed stainless steel, various colors of durable baked enamel or primer. Doors are available in center-opening or side-opening configurations, with left-hand or right-hand openings.

– Hall fixtures are composed of tempered safety glass panels, back-printed in white, to give the Schindler 3300 a contemporary, modern look.

Note: For more information on the high fashion details we designed into the Schindler 3300, be sure to ask for a copy of our Deco brochure, which includes all décor and accessory options. The car specifications, options and colors in this brochure are representative only and are subject to change. Sample shown may vary from the original in color and material.



Laminate – Long Beach Blue



Brushed stainless steel



Landing doors - Available in 11 baked enamel colors or stainless steel



Ceiling lighting



Hall fixtures



Handrails

If you can envision it, you can create it

From the fun, fresh colors of Tribeca to the subdued natural tones of Willamette, the Schindler 3300 gives you a wide selection of durable baked enamel or colorful laminate finishes, as well as a sleek brushed stainless steel cab. Create a look and feel that is truly one of a kind.

Tribeca

Fresh, flashy and multifaceted



Montreal Blue



Baked enamel colors

South Beach

Warm, distinguished and genuine



Tampa Tangerine



Matte finish laminates with subtle, wavelike design

River Walk

Clean, cool and cutting edge



Miami Bottle Glass



Matte or gloss finish laminates with glassy sheen; swatches are a representation of the gloss finish.

Great Lakes

Steely, sophisticated and elegant



Toronto Grey



Choose from gloss finish laminates with subtle, monochromatic patterns or a distinctive brushed stainless steel cab.

Willamette

Rich, natural and classic



Baltimore Cherry



Matte and gloss finish laminates with rich, wood-grain colors; swatches are a representation of the gloss finish.

The perfect fusion of people-centered design and technology

The features and components of the Schindler 3300 are smartly designed to enhance the rider experience, improve safety and minimize downtime. From the low-energy multiprocessor controls to the stylish, tempered safety glass operating panels, you'll find the latest technological advances.

Control
The control system is based on low-energy multiprocessor technology. The compact main inspection and test panel of the decentralized system is integrated in the door frame.

Control functions
– Miconic® NX microprocessor
– On-board diagnostics, self testing
– Light curtain
– Overload detection
– Two-way, hands-free emergency communication
– Firefighter's Service operation
– Independent service
– Automatic car light
– Automatic evacuation to nearest floor.

Schindler Remote Monitoring™
Supports Schindler predictive maintenance, anticipating difficulties before they occur and allowing rapid response to service calls.

Fixtures
The stylish, tempered safety glass panels are back-printed in white to give the elevator a contemporary, modern look while meeting all applicable codes. Please refer to our deco brochure for more information on all decor and accessory options.



State-of-the-art planning, installation and support



Planning
The Schindler 3300 requires no machine room. For you, this means less planning. Only one space, the elevator shaft, has to be designed. Standardized plans simplify the process, making it fast and efficient.



Order
The design of the Schindler 3300 is sophisticated, yet simple. The key factors are quickly established. Since there are no complicated specifications, it is easy to place an order. You will quickly and effortlessly find the product that fits your needs.



Delivery
We deliver the Schindler 3300 complete and all at once, just in time for when the building is ready for the elevator installation.



Installation
The elevator is quickly installed. No cranes or scaffoldings are required. The system is ready in about two weeks. A well-thought-out process.

Keeping it all running smoothly

The Schindler 3300 combines proven engineering and smooth performance with the best service in the industry, from our integrated maintenance delivery technology to our highly trained technicians. So you can be confident of fewer callbacks, fewer inconveniences and less downtime.

– On-board sensors monitor your equipment 24 hours a day with Schindler Remote Monitoring™ (SRM). It's a powerful diagnostic tool that can identify a problem, map out a solution and dispatch a technician to your site – often before you're even aware of the issue.

– One toll-free call to the Schindler Customer Service Network (SCSN) provides fast dispatching at any time, day or night.

– Schindler FieldLink™ gives your technician unlimited access to virtually any information needed to complete your maintenance quickly and accurately.

– Genuine manufacturer's replacement parts from extensive local and national inventories are available within 24 hours if need be.

– Exclusive Schindler Customer Score Card™ allows you to track trends, view performance reports and service records in real time at www.us.schindler.com.




FIREFIGHTERS'
OPERATION

Ever greener



Keeping the environment in mind

Schindler is committed to helping you reduce the environmental footprint of your buildings and qualify for LEED® certification by incorporating sustainable green features into our elevator and escalator systems. Improving the environmental impact of our products and processes, particularly our consumption of energy and materials, is fundamental to our corporate responsibility as an industry leader. Schindler 3300 is a prime example of our continuing commitment to improve mobility while preserving resources.

LEED is a registered trademark of the U.S. Green Building Council.

For more information, including location of the Schindler office nearest you, please visit:

U.S. Headquarters
Morristown, New Jersey
Tel. 973.397.6500
www.us.schindler.com

Canada Headquarters
Scarborough, Ontario
Tel. 416.332.8280
www.ca.schindler.com

Schindler is a member organization of the U.S. Green Building Council.

Schindler has received renewal to ISO 14001:2004 and ISO 9001:2008 certificates.

Schindler prints with vegetable-based ink on paper containing post-consumer waste fiber.

Mixed Sources
Product group from well-managed forests, controlled sources and recycled wood or fiber
www.fsc.org Cert no. SGS-COC-005547
©1996 Forest Stewardship Council

© Schindler Elevator Corporation

A1105
BRN-1018

BQ #70 & 125 Attachment

NOTE:
6" water main and 3" gas main located on west side of Stanwich Road.

STANWICH ROAD

Edge of existing asphalt pavement

Construct Post & Wire fence 6' high

W.M. Pit

Construct catch basin style "C-1" with trap style "T-2". Connect to manhole with 12" R.C.P.

Adjust manhole head to grade

Walk at street to end 5' wide with back edge 1' from property line

Construct #4 Rapid Drainage Pipe Seepage Drain and connect to manhole.

Construct concrete curb and 2½" asphalt pavement on 6" gravel base

Construct catch basin style "C-1" with trap style "T-2". Connect to manhole with 12" R.C.P.

Construct concrete curb and asphalt drive

Adjust existing sewer manhole to grade

Construct catch basin style "C-1" with trap style "T-2". Connect to manhole with 12" R.C.P.

12" R.C.P. Spur for future connection

WALK TO BE USED AS DRIVEWAY ACCESS TO PARKING AREA

Connect 6" V.T.P. Sewer to existing manhole and rebuild invert

Culvert and headwalls by Town of Greenwich

Construct Post & Wire fence 6' high on property line starting at rock ledge

New road to be constructed by others

PARKING AREA A

PARKING & PLAY AREA

Lawn

Canopy Cover

Construct Asphalt Walk

Flagpole

Lawn Frame

Rock Knoll to remain in natural state except for clearing brush and relocating loose rock as directed.

Carry asphalt walk to rock

Lawn & Plant

See building plans for retaining walls

See building plans for platform and steps

This sewer to be abandoned. Plug at manhole on main sewer

Construct Concrete Platform and Ramp

Construct Asphalt Walk

Construct Asphalt Walk on Gravel Base

Construct catch basin style "C-1" with trap style "T-2". Connect to manhole with 12" R.C.P.

Construct Headwall with screen as per detail

Construct & V.T.P. drain from leaders to 36" R.C.P.

Construct 6" V.T.P. San. Sewer

See Dwg. #850-W1

18" R.C.P. Relief Drain

Concrete Curb

Lawn

Construct catch basin style "C-4" with trap style "T-2".

Construct Asphalt Walk

Rip-rap Slope

15'x15' Pole Vaulting Pit

Construct #4 Rapid Drainage Pipe Seepage Drain

Backstop

SOFT BALL

Stripped Area (Alternate 34.05)

Construct catch basin style "C-1" with trap style "T-2".

Manhole

Construct 12" R.C.P. Seepage Drain as per detail.

Stripped Area (Alternate 34.05)

HARD BALL

Backstop

Manhole F.L. 45.55

Construct catch basin style "C-1" with trap style "T-2". Connect to manhole with 12" R.C.P.

Existing Concrete Pavement

Construct manhole over existing culvert. Tunnel tree roots

Mag. Dek.

True North

BOYS FIELD 240'x150'

GIRLS FIELD 240'x150'

7'x25' Broad Jumping pit (Alternate 34.01)

RUNNING TRACK 355' long

Gravel seepage drains in main drains

Construct catch basin style "C-4" with trap style "T-2".

Backstop

SOFT BALL

Stripped Area (Alternate 34.05)

27" R.C.P.

Bottom of Slope

Construct catch basin style "C-1" with trap style "T-2".

TENNIS COURTS (alternate 34.102)

240'

120'

6 gates

Post & Wire Fence around tennis courts 10' high

Pave courts with 2½" asphalt on 6" Gravel Base

Net strap anchors

Net Posts as per detail set 3' from playing line

ORCHARD STREET

NOTE:
Figures in circles are elevations of finished surface at point indicated.
T.C. = Top of Curb
F.L. = Flow Line of Pipe

SITE & DRAINAGE PLAN

CENTRAL JUNIOR HIGH SCHOOL

L1

30 APR 57 | 1" = 50'-0"

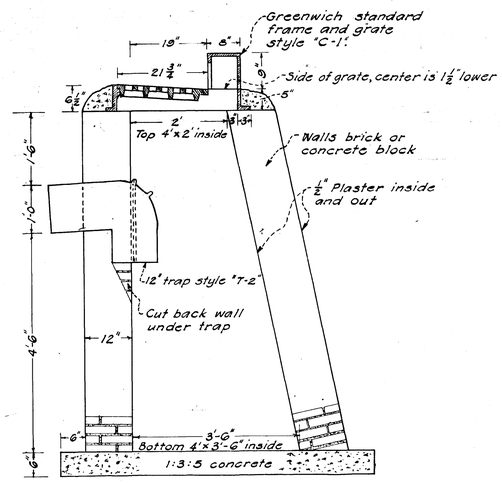
SHERWOOD, WELLS AND SMITH
Architects and Engineers

S.E. MINOR & CO.
CONSULTING ENGINEERS
GREENWICH, CONN.

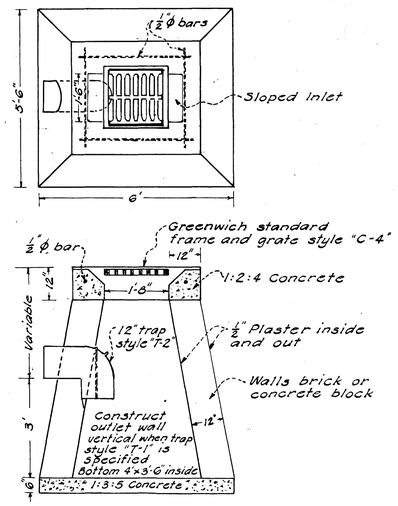
BYE & HERRMANN
LANDSCAPE CONSULTANTS, RYE, N.Y.

46

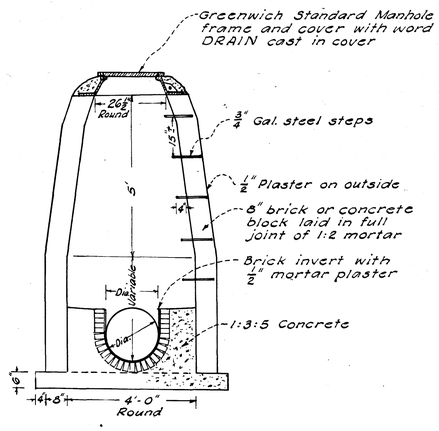
BQ #70 & 125 Attachment



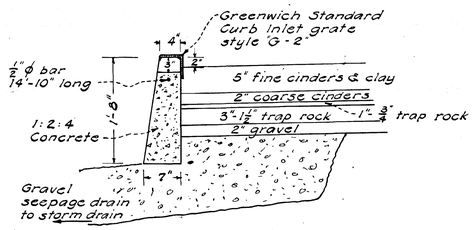
DETAIL OF CATCH BASIN STYLE "C-1"
SCALE: ¾" = 1'-0"

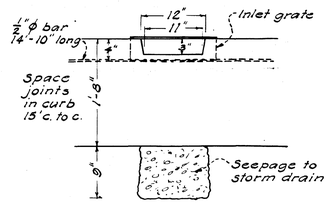


DETAIL OF CATCH BASIN STYLE "C-4"
SCALE: ½" = 1'-0"

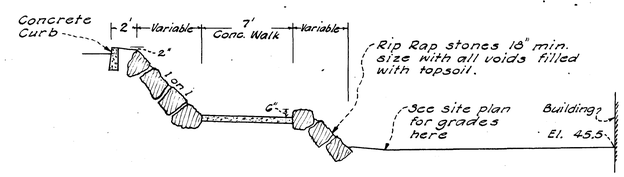


DETAIL OF DRAIN MANHOLE
SCALE: ½" = 1'-0"

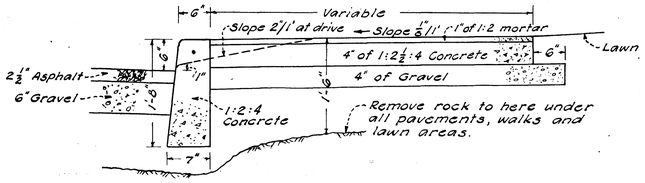




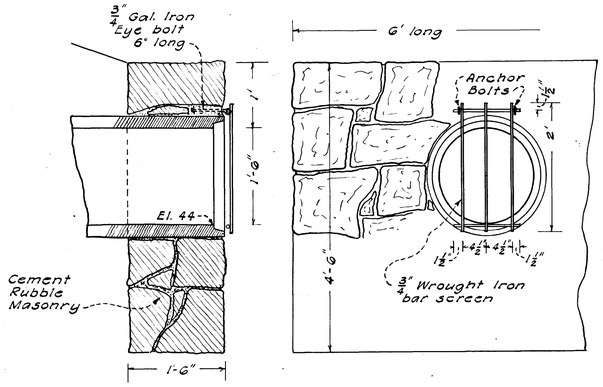
DETAIL OF INLET, CURB & RUNNING TRACK
SCALE: 1" = 1'-0"



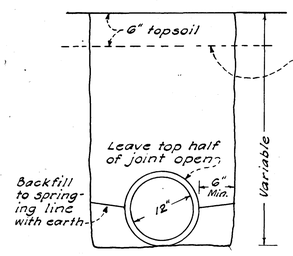
DETAIL OF RIPRAP PAVING AT SECTION A-A
SCALE: 1" = 5'-0"



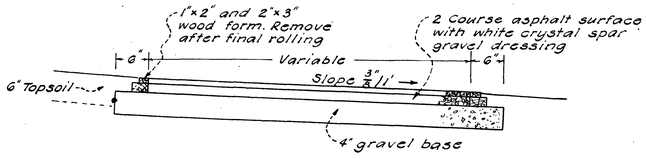
DETAIL OF PAVEMENT, CONCRETE CURB & WALK
SCALE: 1" = 1'-0"



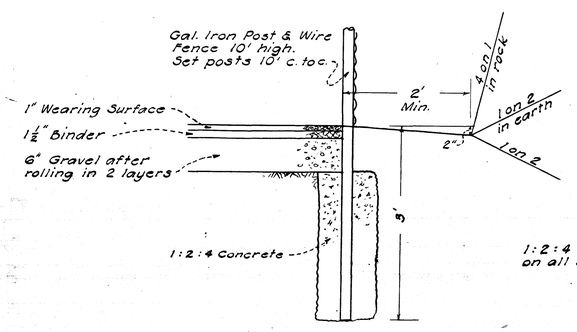
DETAIL OF HEADWALL & SCREEN
SCALE: 1" = 1'-0"



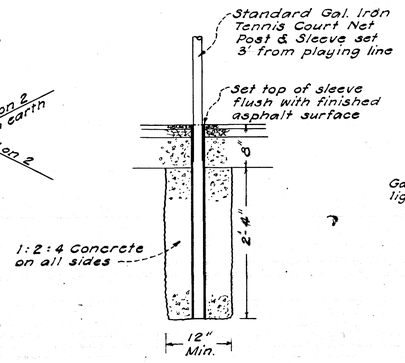
DETAIL OF SEEPAGE DRAIN
SCALE: 1" = 1'-0"



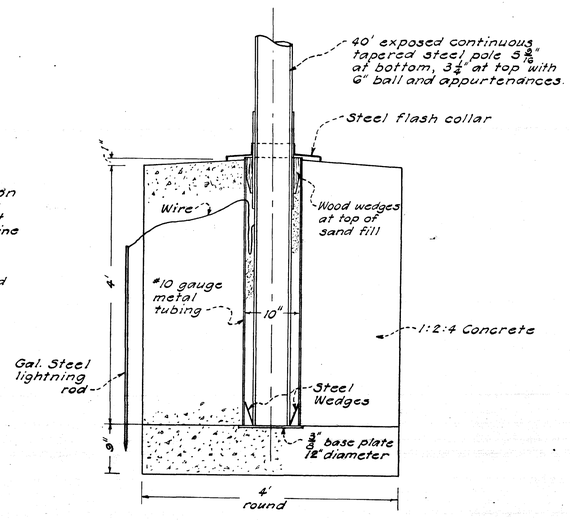
DETAIL OF ASPHALT WALK
SCALE: 1" = 1'-0"



DETAIL OF TENNIS COURT PAVEMENT & FENCE
SCALE: 1" = 1'-0"



DETAIL OF NET POSTS
SCALE: 1" = 1'-0"



DETAIL OF FLAGPOLE
SCALE: 1" = 1'-0"

SITE WORK DETAILS

30APR

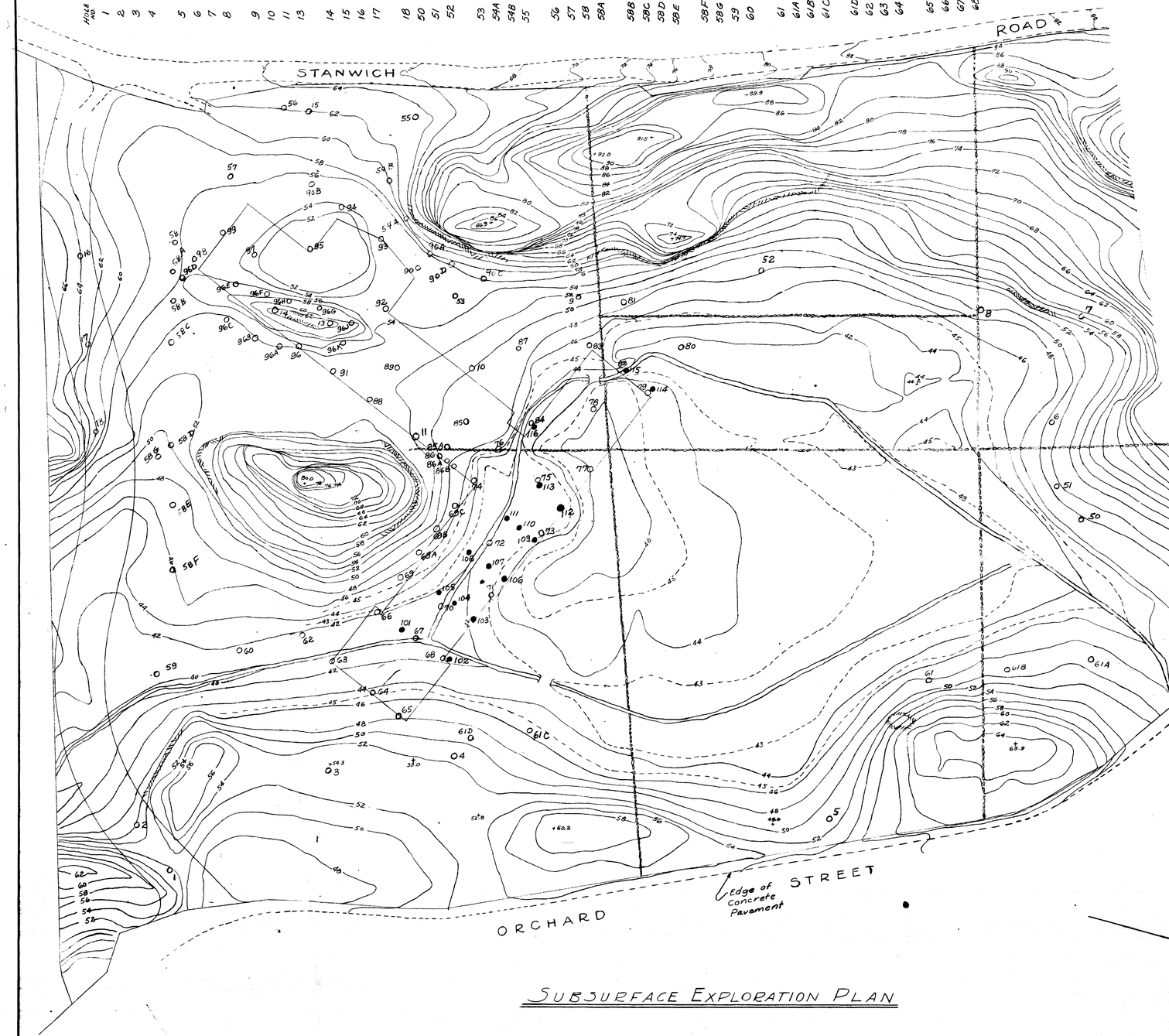
SHERWO
Architects

BQ #70 & 125 Attachment

SOUNDING DATA

NOTE: UNIT PRESSURES WITH 2" PISTON, WATER TABLE N.R. UNLESS NOTED

HOLE NO.	DEPTH TO ROCK	DEPTH OF HOLE
1	4' TO ROCK	6' N.R.
2	4' " "	4' 7" "
3	5' " "	5' TO ROCK
4	6.5' NR	6' 3" "
5	6' TO ROCK	6' 9"
6	1" " "	6' "
7	ROCK EXPOSED	6' "
8	6' TO ROCK	6' "
9	7' TO ROCK	8' N.E.
10	8' N.R.	6' "
11	9.5' TO ROCK	6' "
13	ROCK EXPOSED	6' "
14	ROCK EXPOSED	6' N.E.
15	8' N.R.	6' "
16	4' TO ROCK	6' "
17	7' " "	6' "
18	1' TO ROCK	6' N.E.
50	6' N.E.	6' "
51	2' TO ROCK	6' "
52	3' N.E.	9.5' TO ROCK
53	2.5' 3.5' TO ROCK	9.5' TO ROCK
54A	DRY 1' " "	6' " "
54B	1.2' 4.5' " "	5.5' " "
55	0.5' 5.5' N.E.	9' N.E.
56	3.0' 4.5' TO ROCK	6' N.E.
57	1.7' 3.5' N.E.	DRY 6' "
58	2.0' 7.0' TO ROCK	6' TO ROCK
58A	6.5' " "	5' " "
58B	5' TO ROCK	25' TO ROCK
58C	8' N.E.	25' N.E.
58D	1.5' TO ROCK	6' "
58E	5.5' " "	6' "
58F	5' N.E.	5' TO ROCK
58G	4' TO ROCK	6' N.E.
59	5.5' N.E.	4.5' TO ROCK
60	6' N.E.	6' N.E.
61	4.5' TO ROCK	6' N.E.
61A	5.5' " "	1.5' TO ROCK
61B	6' N.E.	2' " "
61C	6' "	15' " "
61D	4.5' TO ROCK	3' TO ROCK
62	5.5' N.E.	3' " "
63	6' "	5' " "
64	4.1' 5' "	25' " "
65	6' TO ROCK	2.5' TO ROCK
66	1.7' 6' N.E.	4' " "
67	6' "	25' " "
68	6' "	3' " "
90A	DRY 25' TO ROCK	
90B	25' N.E.	
90C	3.0' 6' "	
90D	3.5' 6' "	
91	5' TO ROCK	
92	4.0' 6' N.E.	
93	5.5' N.E.	4.5' TO ROCK
94	0.9' 6' N.E.	
95	6' N.E.	
96	1.5' TO ROCK	
96A	2' " "	
96B	15' " "	
96C	DRY 3' TO ROCK	
96D	3' " "	
96E	5' " "	
96F	25' " "	
96G	2.5' TO ROCK	
96H	4' " "	
96J	25' " "	
96K	DRY 3' " "	
97	1.7' 6' N.E.	
98	6' "	
99	1.1' 6' "	



SUBSURFACE EXPLORATION PLAN

BORINGS

NOTE: ▽ INDICATES GROUND WATER TABLE
VERTICAL SCALE: 1" = 4'

FS = Fine Sand
MS = Medium "
CS = Coarse "

HOLE #115: TOPSOIL; MOTTLED GRAY TAN CLAYEY SILT; GRAY BROWN SAND & GRAVEL & COBBLES

HOLE #114: TOPSOIL & ROOTS; GRAY BROWN SAND, GRAVEL & COBBLES

HOLE #116: TOPSOIL & COBBLES; DARK BLUE GRAY CLAY, SAND & GRAVEL & COBBLES; GRAY-TAN SILT & FS SOME GRAVEL

HOLE #113: ORGANIC CLAY → TOPSOIL; MOTTLED CLAYEY SILT; MOTTLED CLAYEY SILT W/SOME FS, FEW COBBLES; GRAY SILT & FS + THE CLAY GRAVELLY MATERIAL

HOLE #112: TOPSOIL; MOTTLED CLAYEY SILT; ▽ MOTTLED CLAYEY SILT W/SOME FS FEW COBBLES; GRAY SILT & FS LITTLE CLAY (SOFT); GRAVELLY MATERIAL

HOLE #111: TOPSOIL; GRAY FS & SILT; BOULDER

HOLE #110: TOPSOIL; MOTTLED SILT & CLAY; BLACK ORGANIC CLAY; GRAY CLAY & SILT; GRAY FS & SILT

HOLE #109: TOPSOIL; SAND & GRAVEL

HOLE #108: TOPSOIL; GRAY-BROWN SAND & GRAVEL, FEW COBBLES

HOLE #107: TOPSOIL; ORGANIC CLAY; MOTTLED CLAYEY SILT; GRAY BROWN SAND & GRAVEL, FEW COBBLES

HOLE #106: TOPSOIL; GRAY BROWN GRAVEL & SAND (COMPACT)

HOLE #105: TOPSOIL; GRAY CLAY & SILT; SAND & GRAVEL

HOLE #104: TOPSOIL; GRAY CLAY & SILT; GRAY SILT & FS LITTLE GRAVEL; SAND & GRAVEL

HOLE #103: ▽ TOPSOIL; GRAY SILT & FS LITTLE GRAVEL

HOLE #101: TOPSOIL; MOTTLED CLAY & SILT, TRACE ROOTS; M TO FS (FIRM); M TO CS (FIRM)

HOLE #102: TOPSOIL; MOTTLED CLAY & SILT; M TO FS; GRAY-BROWN SILT & FS TRACE ORGANIC



PLAN OF ROCK CONTOURS

This is to certify that the subsurface information on this sheet is substantially correct

Philip Keene
Civil Engineer, "204"

SUBSURFACE EXPLORATION PLAN

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-L4

Date: 30 APR 57 | Scale: 1" = 5

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

PHILIP KEENE
MIDDLETOWN, CONN.

BQ #70 & 125 Attachment

SCHEDULE OF DRAWINGS

830-L1 SITE & DRAINAGE PLAN
830-L2 GRADING PLAN
830-L3 SITE WORK DETAILS
830-L4 SUBSURFACE EXPLORATION PLAN

830-1 ROOF & MODULE PLANS
830-2 BASEMENT PLAN
830-3 FIRST FLOOR PLAN AREA A
830-4 FIRST FLOOR PLAN AREA B
830-5 FIRST FLOOR PLAN AREAS C & D
830-6 ELEVATIONS
830-7 ELEVATIONS
830-8 ELEVATIONS & LETTERING DETAILS
830-9 WALL SECTIONS 1
830-10 WALL SECTIONS 2
830-11 WALL SECTIONS 3
830-12 WALL SECTIONS 4
830-13 STAIRS
830-14 ENTRANCE DETAILS
830-15 TOILET ROOMS
830-16 TYPICAL CLASSROOMS
830-17 CORRIDOR ELEVATIONS
830-18 CORRIDOR ELEVATIONS & DETAILS
830-19 GYMNASIUM DETAILS
830-19A ALTERNATE GYMNASIUM
830-20 AUDITORIUM DETAILS
830-21 SCIENCE ROOMS
830-22 ARTS & CRAFTS ROOMS
830-23 HOMEMAKING ROOMS
830-24 LIBRARY
830-25 KITCHEN
830-26 SHOPS
830-27 MUSIC ROOMS

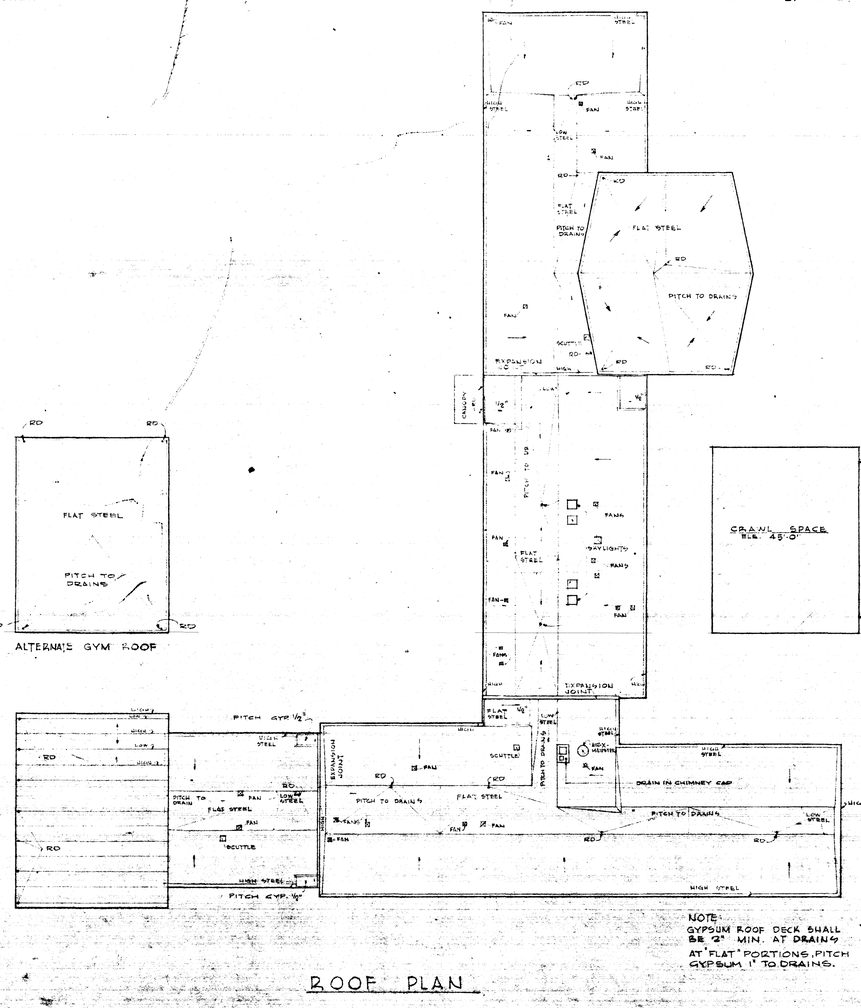
830-D1 WINDOW DETAILS
830-D2 GYMNASIUM WINDOW DETAILS
830-D3 SPECIAL HOLLOW METAL BUCKS & DETAILS
830-D4 DOOR, BUCK & SADDLE TYPES
830-D5 METHODS OF BUCK ATTACHMENT
830-D6 METHODS OF BUCK ATTACHMENT & LIBRARY PART.
830-D7 WOOD BUCK & PARTITION DETAILS
830-D8 DOOR SCHEDULE
830-D9 DOOR SCHEDULE
830-D10 DOOR SCHEDULE
830-D11 DOOR SCHEDULE
830-D12 DOOR SCHEDULE
830-D13 DOOR SCHEDULE
830-D14 DOOR SCHEDULE
830-D15 FINISH SCHEDULE
830-D16 FINISH SCHEDULE
830-D17 FINISH SCHEDULE
830-D18 FINISH SCHEDULE
830-D19 FINISH SCHEDULE
830-D20 FINISH SCHEDULE
830-D21 MISCELLANEOUS DETAILS
830-D22 ADMINISTRATION COUNTER & MAIL BOXES
830-D23 MISCELLANEOUS DETAILS
830-D24 GYMNASIUM COURT MARKING DETAILS

830-S1 FOUNDATION AREA A
830-S2 FOUNDATION & BASEMENT FLOOR FRAMING AREA B
830-S3 FOUNDATION & FIRST FLOOR FRAMING AREAS C&D
830-S4 STRUCTURAL DETAILS & SCHEDULES
830-S5 FIRST FLOOR FRAMING AREA A
830-S6 FIRST FLOOR FRAMING AREA B
830-S7 ROOF FRAMING AREA A
830-S8 ROOF FRAMING AREA B
830-S9 ROOF FRAMING AREAS C & D
830-S10 STRUCTURAL DETAILS

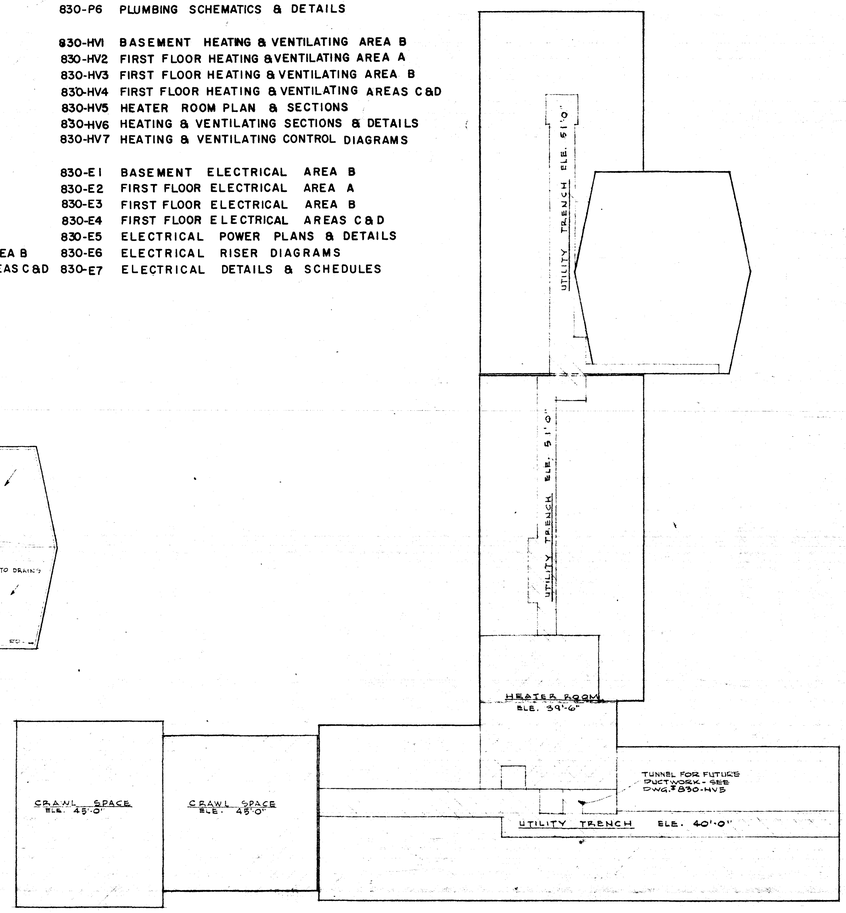
830-U1 SITE UTILITY PLAN
830-P1 BASEMENT PLUMBING AREA B
830-P2 FIRST FLOOR PLUMBING AREA A
830-P3 FIRST FLOOR PLUMBING AREA B
830-P4 FIRST FLOOR PLUMBING AREAS C & D
830-P5 PLUMBING SCHEDULES & KITCHEN PLANS
830-P6 PLUMBING SCHEMATICS & DETAILS

830-HV1 BASEMENT HEATING & VENTILATING AREA B
830-HV2 FIRST FLOOR HEATING & VENTILATING AREA A
830-HV3 FIRST FLOOR HEATING & VENTILATING AREA B
830-HV4 FIRST FLOOR HEATING & VENTILATING AREAS C&D
830-HV5 HEATER ROOM PLAN & SECTIONS
830-HV6 HEATING & VENTILATING SECTIONS & DETAILS
830-HV7 HEATING & VENTILATING CONTROL DIAGRAMS

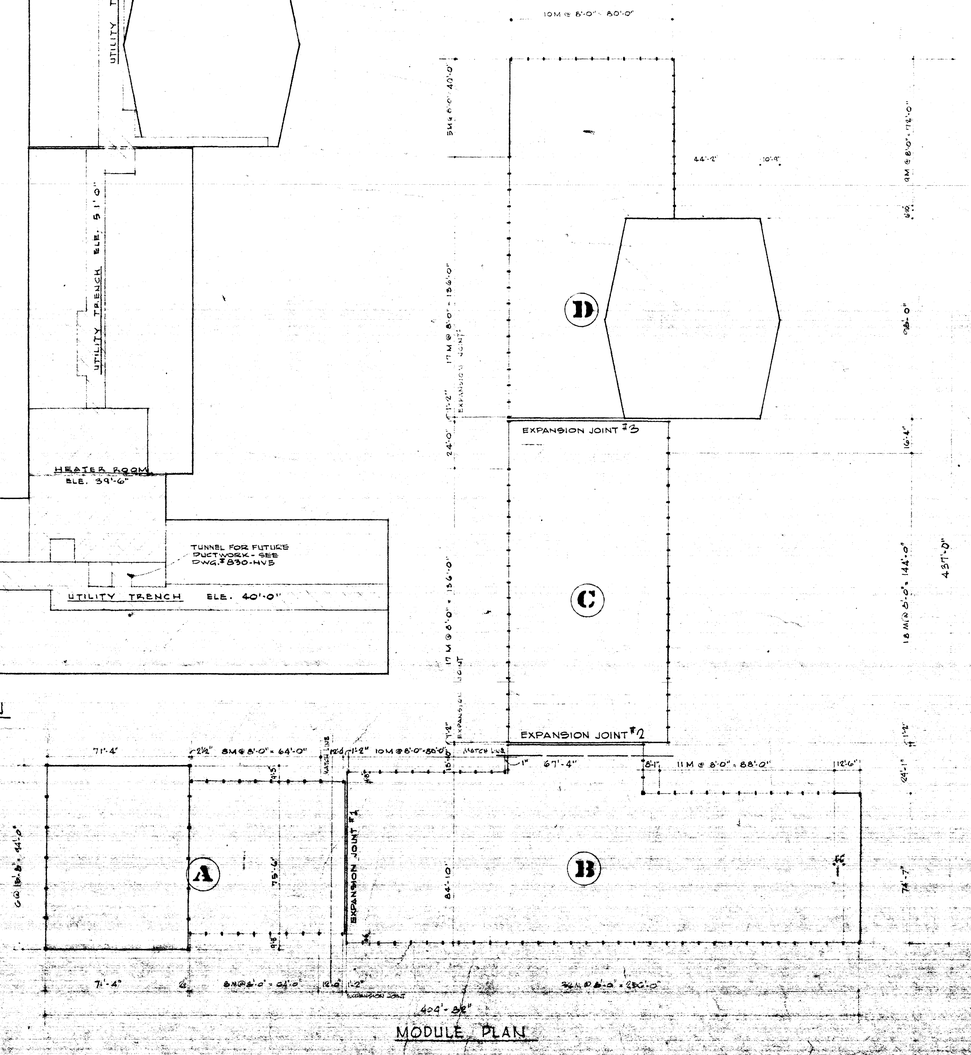
830-E1 BASEMENT ELECTRICAL AREA B
830-E2 FIRST FLOOR ELECTRICAL AREA A
830-E3 FIRST FLOOR ELECTRICAL AREA B
830-E4 FIRST FLOOR ELECTRICAL AREAS C&D
830-E5 ELECTRICAL POWER PLANS & DETAILS
830-E6 ELECTRICAL RISER DIAGRAMS
830-E7 ELECTRICAL DETAILS & SCHEDULES



ROOF PLAN



SUB-FLOOR PLAN



MODULE PLAN

DATE	ISSUE OR REVISION	No.

MATERIAL LEGEND
- CONCRETE
- CONCRETE BLOCK
- BRICK
- STEEL
- FORMBOARD, TILE
- FINISH WOOD
- ROUGH WOOD
- PLYWOOD
- GYPSUM, PLASTER
- INSULATION
- GRAVEL

MODULE PLAN
ROOF PLAN

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-1
Date 30APR 57 Scale 1/32" = 1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Pacific Street, Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No.

KEY PLAN

BASEMENT PLAN
AREAS B&C CLASSROOMS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

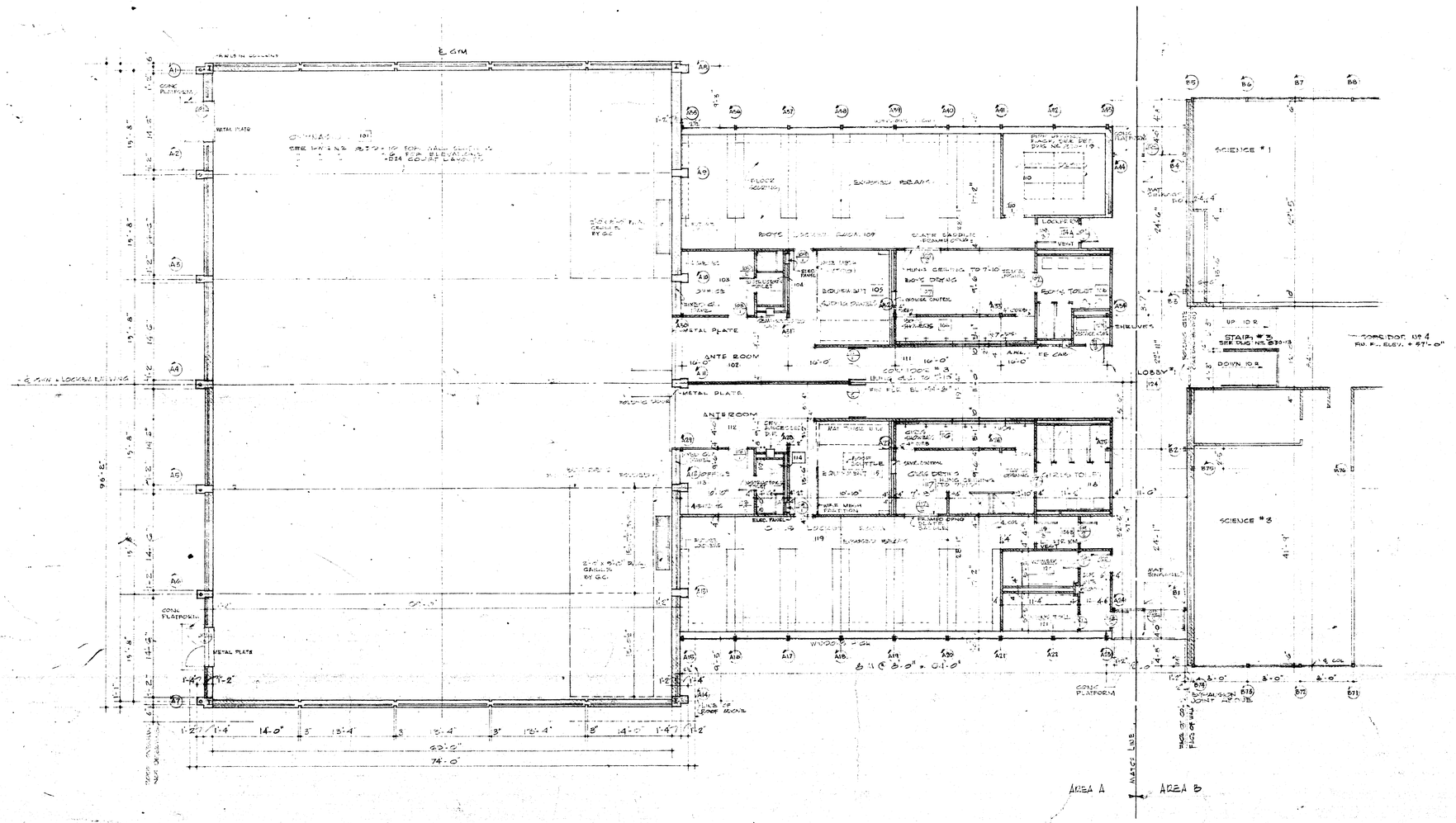
830-2

Date: 30APR 57 | Scale: 1/8" = 1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No.



KEY PLAN

FIRST FLOOR PLAN
AREA A - GYM + LOCKER RMS.

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

330-3

30 APR57

Scale 1/8" = 1'-0"

SHERWOOD, MILES AND SMITH
Architects 93 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No.

SCIENCE ROOM No 1 125
SEE DWG 850-21

PREPARATION No 1 127

SCIENCE ROOM No 2 126
SEE DWG 850-21

TEACHER'S CLOSET

DUCT SPACE

TRACHER'S CLOSET

DARK ROOM 128

PAPER T.H. VACT

48 LOCKERS

SCIENCE ROOM No 3 129

LIBRARY 161
SEE DWG 850-24

CONF. No 1 138

CONF. No 2 134

CORRIDOR No 4 156

TRACHERS ROOM 124

TOILET 123

CAFETERIA No 1 162

CLASSROOM No 1 141

CLASSROOM No 2 142

CLASSROOM No 3 143

CLASSROOM No 4 144

CLASSROOM No 5 145

CLASSROOM No 6 146

CLASSROOM No 7 147

CLASSROOM No 8 148

CLASSROOM No 9 149

CLASSROOM No 10 150

CLASSROOM No 11 151

CORRIDOR No 5 155

AREA 'A'

AREA 'B'

KEY PLAN

FIRST FLOOR PLAN
AREA B CLASSROOMS

CENTRAL JUNIOR
HIGH SCHOOL
Greenwich, Connecticut

830-4

Date 30 APR 57

Scale 1/8" = 1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Field Street Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No.

KEY PLAN

FIRST FLOOR PLAN
AREAS C & D

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

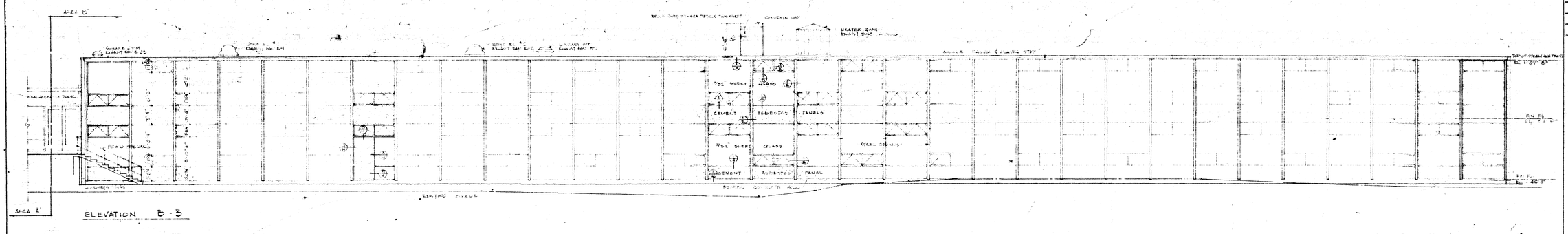
830-5

Date 30APR 57 | Scale 1/8"=1'-0"

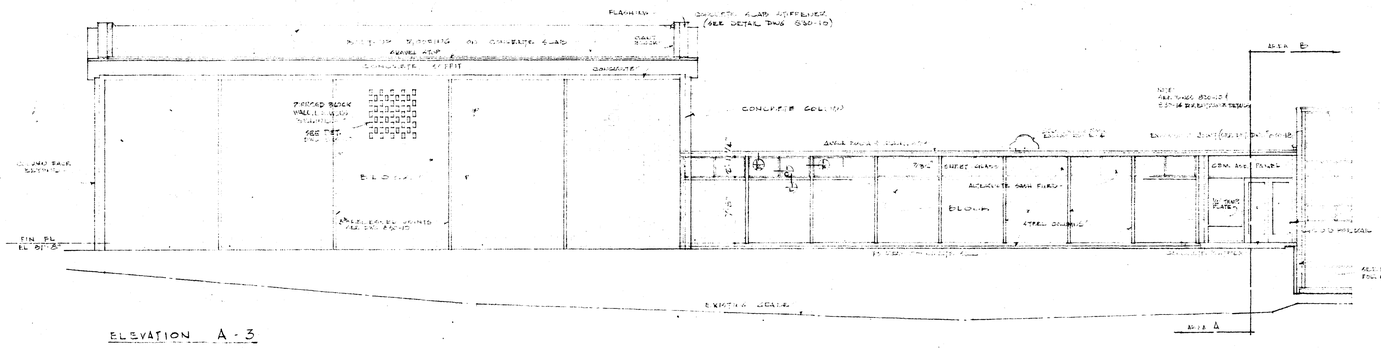
SHERWOOD, WELLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

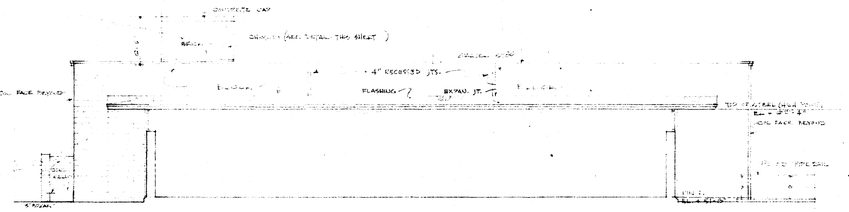
DATE	ISSUE OR REVISION	No.



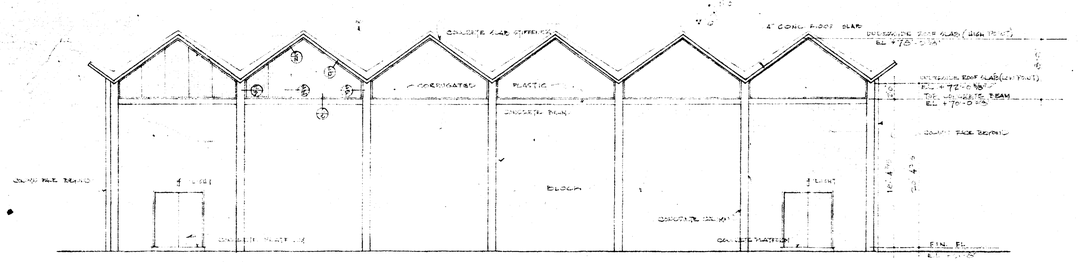
ELEVATION B-3



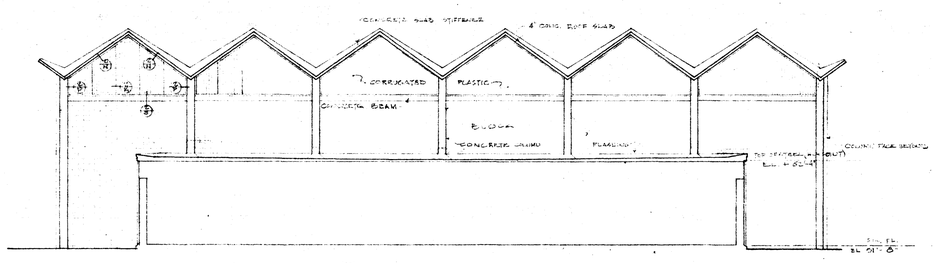
ELEVATION A-3



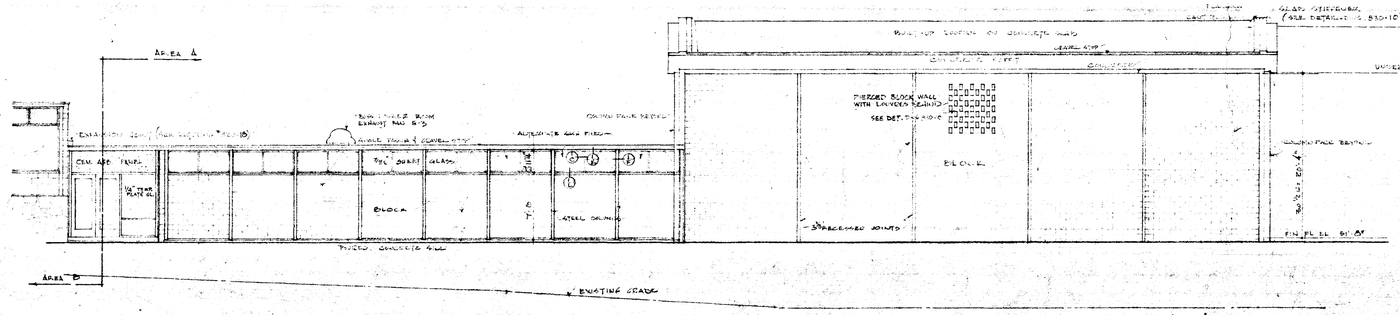
ELEVATION B-2



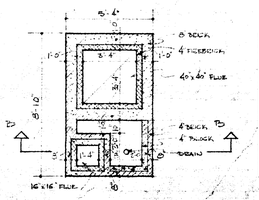
ELEVATION A-2



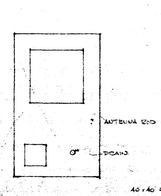
ELEVATION A-4



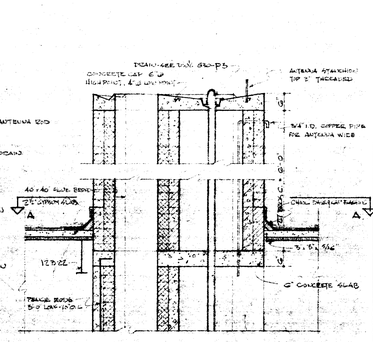
ELEVATION A-1



SECTION A-A
SCALE - 1/4"=1'-0"

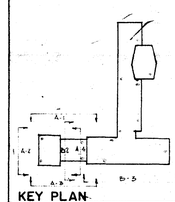


CHIMNEY CAP PLAN
SCALE - 1/4"=1'-0"
NOTE:
GIVE SPLITS AT EDGE OF CHIMNEYS & FLUES. SLOPE TO LEAD POINT @ DRAIN



CHIMNEY DETAILS
SCALE - AS LISTED

SECTION B-B
SCALE 1/2" = 1'-0"



KEY PLAN

ELEVATIONS

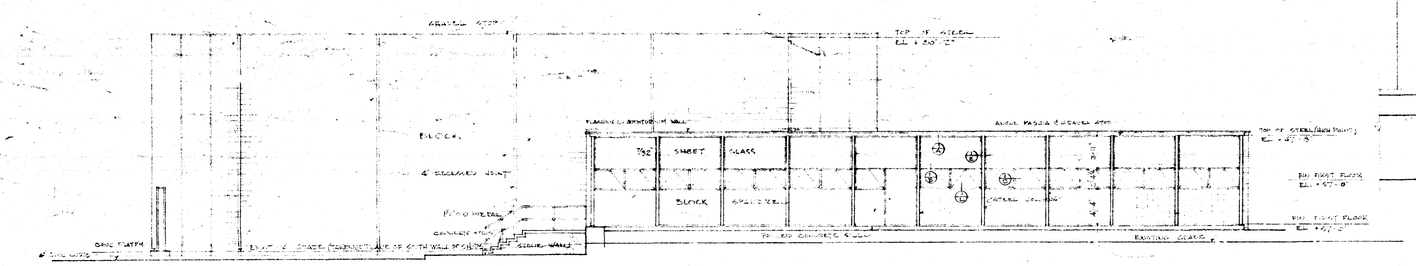
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-6

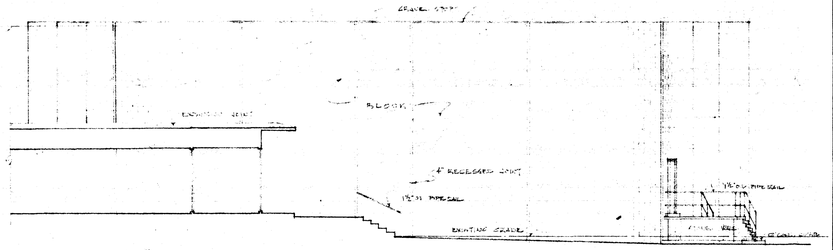
Date: 30 APR 57 | Scale: 1/8"=1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

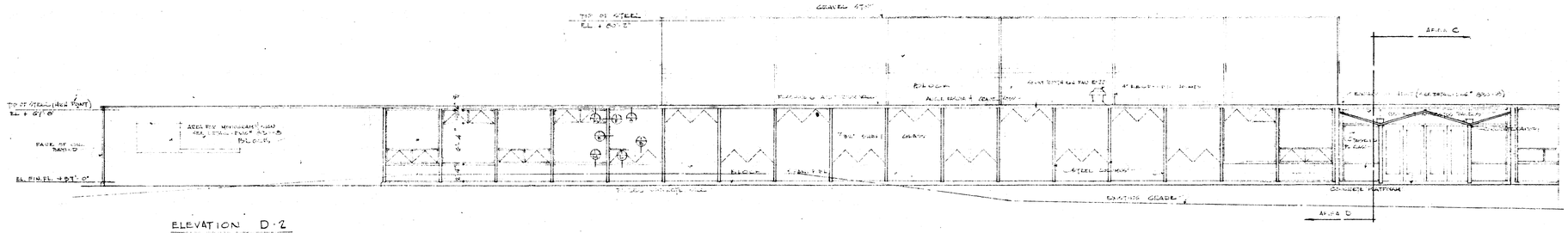
BQ #70 & 125 Attachment



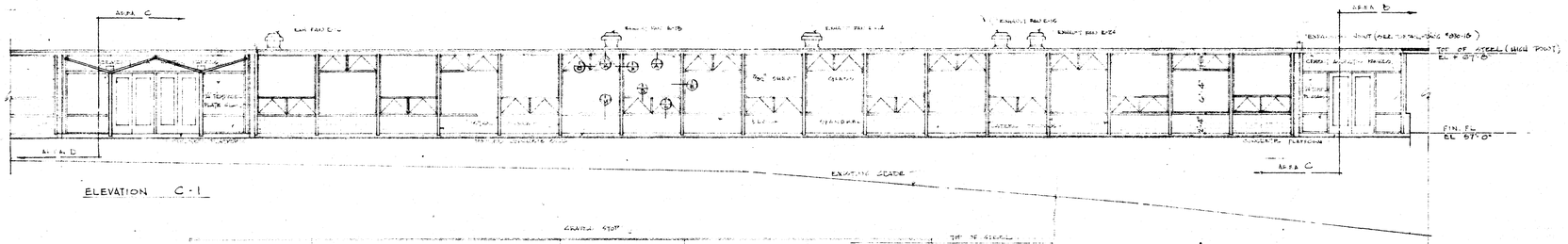
ELEVATION D-1



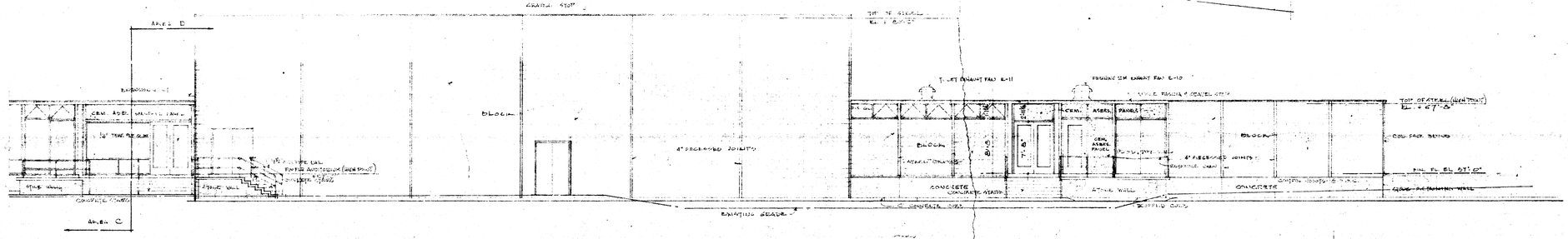
ELEVATION D-3



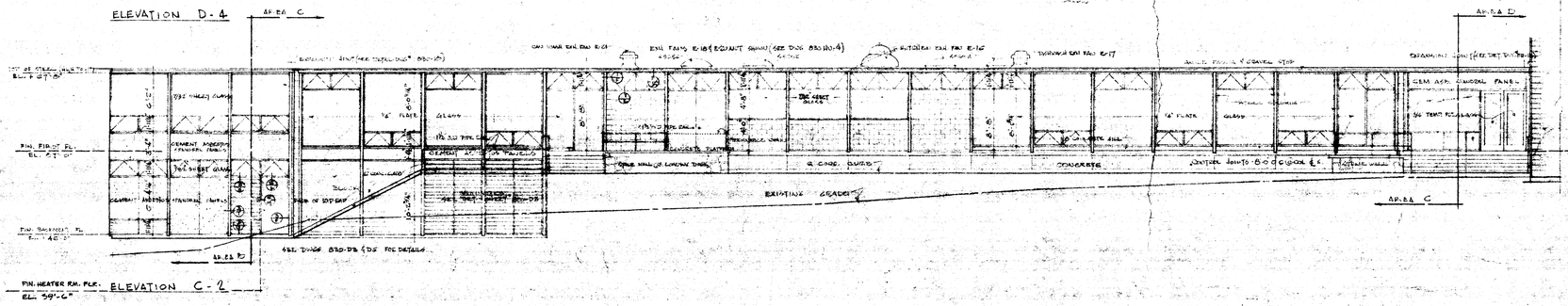
ELEVATION D-2



ELEVATION C-1

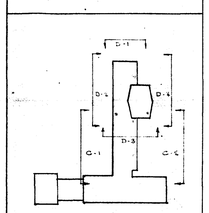


ELEVATION D-4



ELEVATION C-2

DATE	ISSUE OR REVISION	No.



KEY PLAN

ELEVATIONS

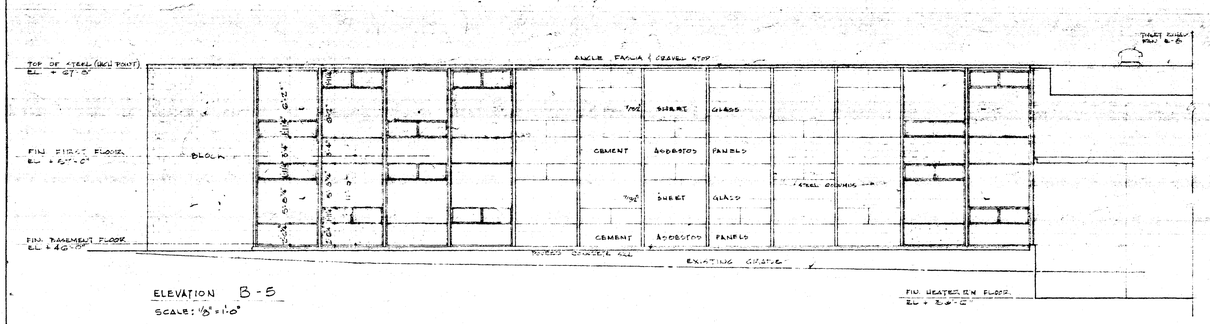
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-7

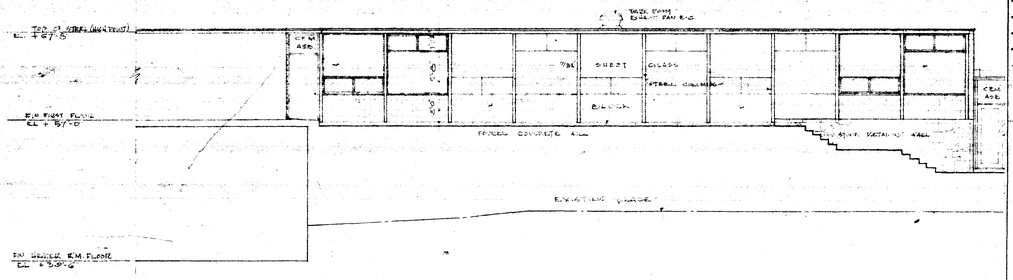
Date	Scale
30APR 57	1/8"=1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

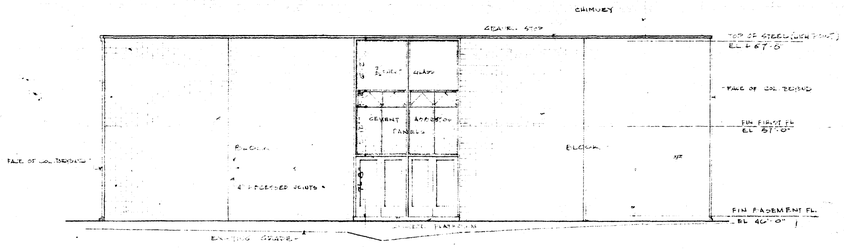
BQ #70 & 125 Attachment



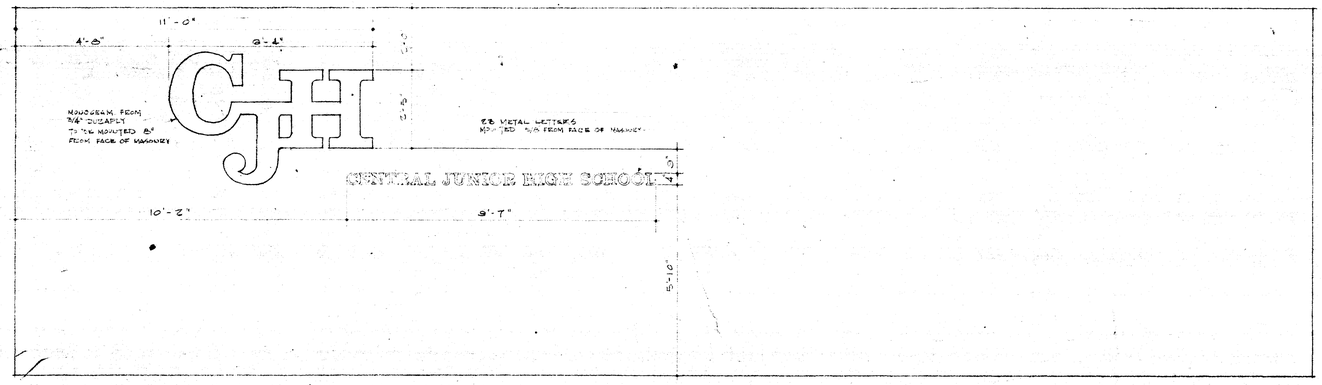
ELEVATION B-5
SCALE: 1/8" = 1'-0"



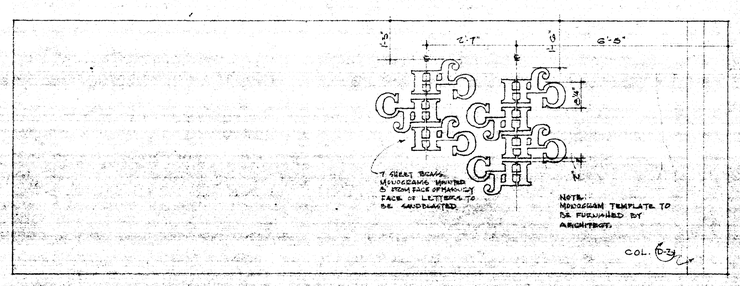
ELEVATION B-1
SCALE: 1/8" = 1'-0"



ELEVATION B-4
SCALE: 1/8" = 1'-0"



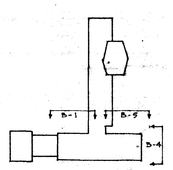
EXTERIOR LETTERING (SEE ELEVATION D-2, DRAWING 830-7)
SCALE 1/2" = 1'-0"



INTERIOR LETTERING (SEE SECTION A-A THROUGH AUDITORIUM LOBBY #2, DRAWING 830-14)
SCALE 1/2" = 1'-0"

DATE	ISSUE OR REVISION	No.





KEY PLAN

ELEVATIONS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-8

Date	Scale
30APR 57	AS NOTED

SHERWOOD, MILLS AND SMITH
Architects, 55 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No.

DETAIL 830-9-J
3" = 1'-0"

DETAIL 830-9-K
SCALE 3" = 1'-0"

DETAIL 830-9-L
SCALE 3" = 1'-0"

PLAN SECTION A-A
SCALE 3" = 1'-0"

DETAIL 830-9-W
SILL AT WINDOW PANELS
(TO STOP FLUSH WITH 3'-0" DIM. OF COLUMN AT EXTERIOR DOORS)

DETAIL 830-9-X
SILL AT SPANDREL PANELS

DETAIL 830-9-Y
SILL AT KITCHEN BLK PANELS

DETAIL 830-9-Z
PLAN AT EXTERIOR CORNER
(SEE ALSO DETAIL 'S')

ELEVATION OF TYPICAL BLOCK PANEL
3/8"=1'-0"

SCALE OF DETAILS: 1½"=1'-0"

DETAIL 830-9-R
PLAN AT END OF WALL

DETAIL 830-9-S
PLAN AT RECESSES

DETAIL 830-9-T
PLAN AT OUTER VESTIBULE CORS.
(CONDITION AT INNER CORS & COL. = C.4 SIMILAR)

DETAIL 830-9-U
PLAN AT STEEL COLUMNS

DETAIL 830-9-V
PLAN AT PARTITIONS
SEE DET. 830-D1-N.A. CORS. FOR INTERSECTION

DETAIL 830-9-M
SILL AT 12" CAVITY WALL

DETAIL 830-9-N
SILL AT RECESSES

DETAIL 830-9-P
SILL AT OUTER VESTIBULE CORS.
(FOR DETAILS AT VESTIBULE #2 SEE DWG. #830-12)

DETAIL 830-9-Q
SILL AT BLOCK PANEL WALL

NOTE:
AT DF CAVITY WALLS USE 8" STANDARD WALL TIES.
AT 12" CAV. WALLS USE SPECIAL 10" WALL TIES WITH LEGS 4" LONG AT ONE END

830-9-A
TYPICAL TWO STORY BLOCK END WALL UNIT "B" CLASSROOMS

830-9-B
TYPICAL TWO STORY SPANDREL PANEL UNIT "B" CLASSROOMS

830-9-C
BLOCK SIDE WALL UNIT "D" SHOPS

830-9-D
BLOCK & WINDOW PANEL WALL UNIT "D" SHOPS

830-9-E
BLOCK & WINDOW PANEL WALL UNITS "C" & "D" ADMIN., ARTS, CHARTS, & MUSIC ROOMS

830-9-F
WINDOW PANEL WALL UNIT "C" CAFETERIA #2 & FACULTY DINING

830-9-G
BLOCK & WINDOW PANEL WALL UNIT "C" KITCHEN

830-9-H
BLOCK & WINDOW PANEL WALL UNIT "B" SCIENCE ROOMS & BSMT STORAGE

KEY PLAN

WALL SECTIONS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-9
Date: 30 APR 57
Scale: 3/4" = 1'-0" AS NOTED

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No.

STATE OF CONNECTICUT * REGISTERED ARCHITECT * No. 832

STATE OF CONNECTICUT * REGISTERED ARCHITECT * No. 532

STATE OF CONNECTICUT * REGISTERED ARCHITECT * No. 832

KEY PLAN

WALL SECTIONS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-10

Date 30APR 57 | Scale 3/4"-1'-0" & AS NOTED

N

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

830-10-A
NORTH WALL
SOUTH WALL SIMILAR

830-10-B
EAST WALL AT
DOORS #101, 2

830-10-C
WEST WALL AT
ANTEROOM #2

830-10-D
SOUTH WALL BOYS' LOCKER RM
GIRLS' SIMILAR

830-10-E
Boys' SHOWER ROOM
GIRLS' SIMILAR

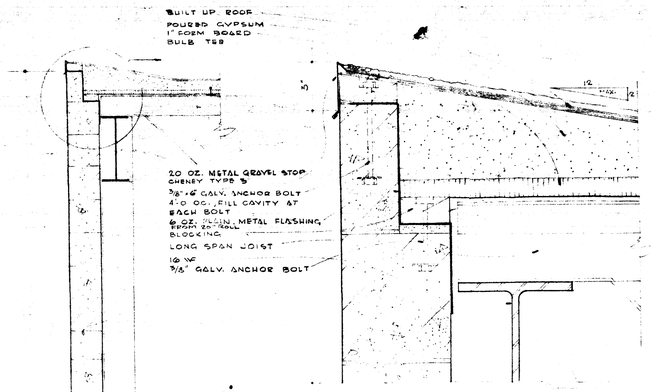
830-10-F
LOBBY #1 AT
STAIR #3

830-10-G
Boys' TOILET #108
& LAUNDRY #1

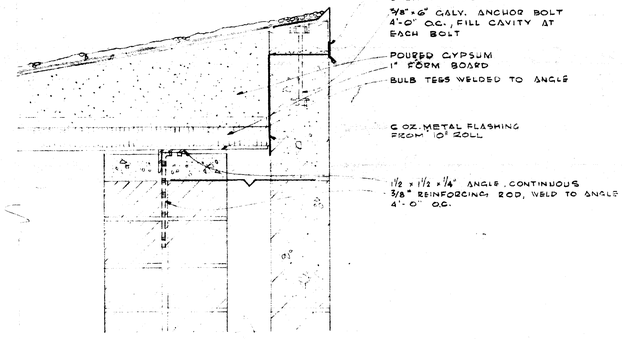
830-10-H
LOBBY #1
& STORAGE #001

BQ #70 & 125 Attachment

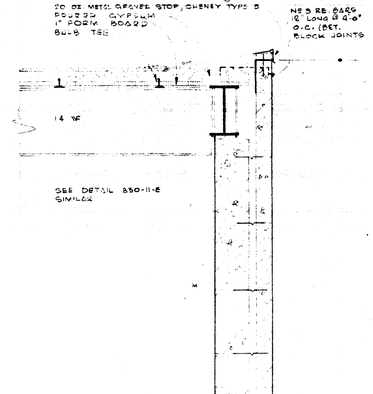
DATE	ISSUE OR REVISION	No.

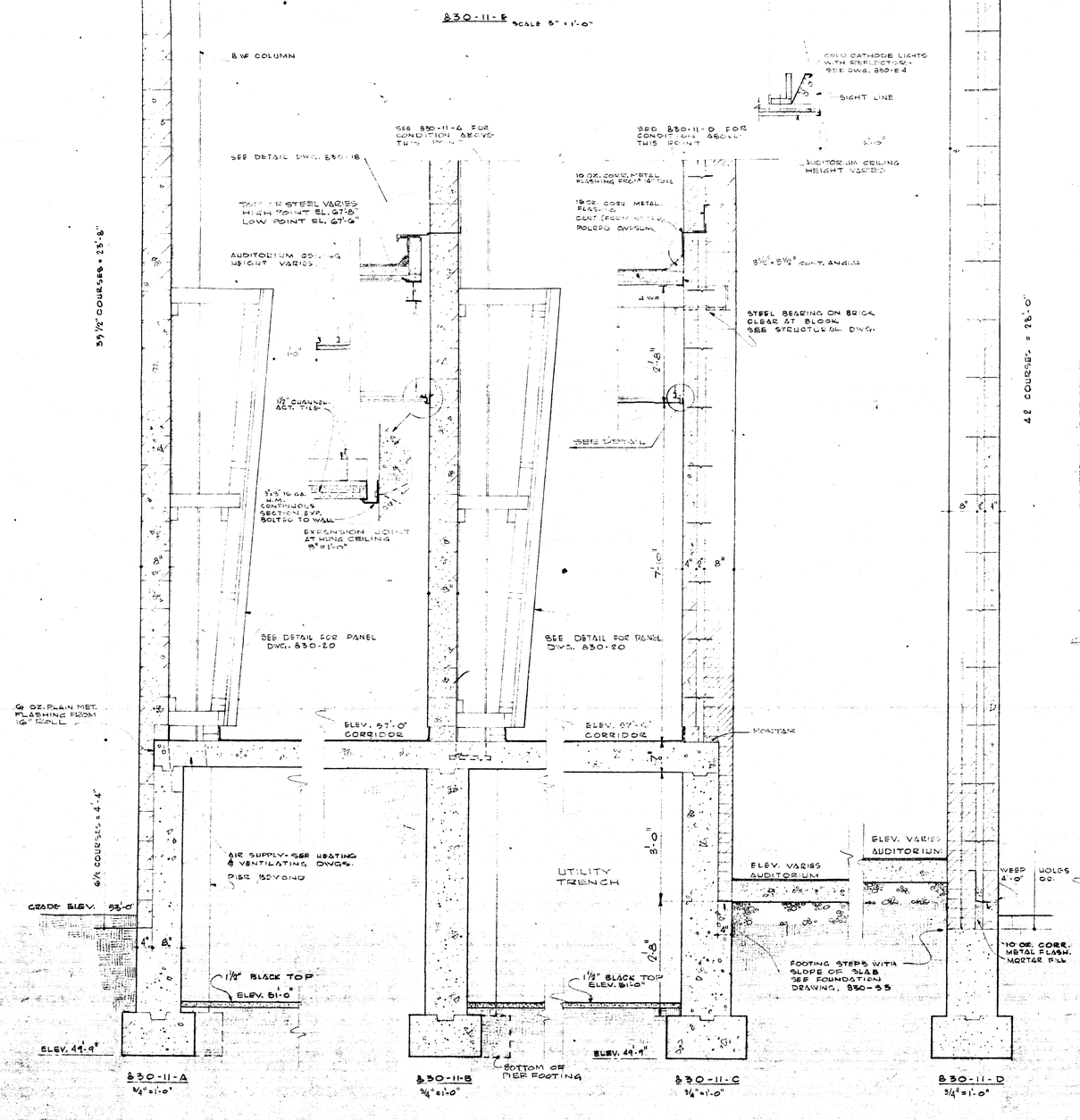


830-11-E SCALE 3" = 1'-0"

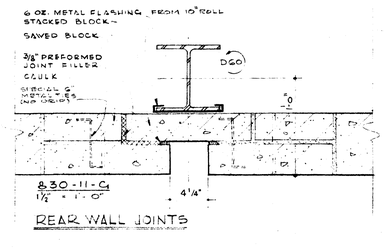


830-11-F SCALE 3" = 1'-0"



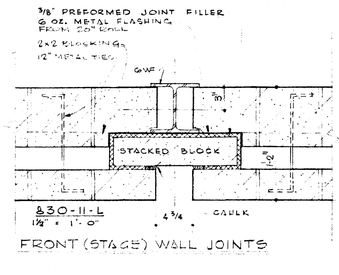


830-11-A 3/4"=1'-0" | 830-11-B 3/4"=1'-0" | 830-11-C 3/4"=1'-0" | 830-11-D 3/4"=1'-0"



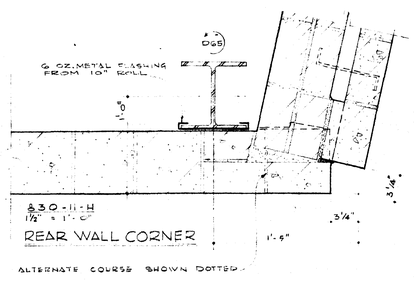
830-11-G 1½" = 1'-0"

REAR WALL JOINTS



830-11-L 1½" = 1'-0"

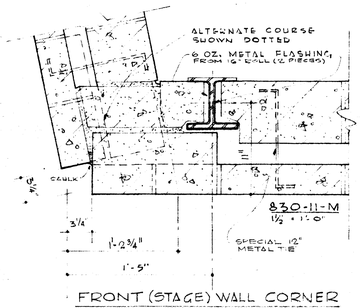
FRONT (STAGE) WALL JOINTS



830-11-H 1½" = 1'-0"

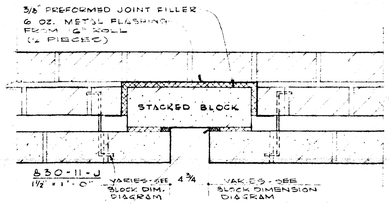
REAR WALL CORNER

ALTERNATE COURSE SHOWN DOTTED



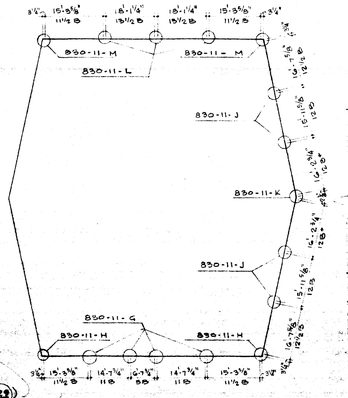
830-11-M 1½" = 1'-0"

FRONT (STAGE) WALL CORNER

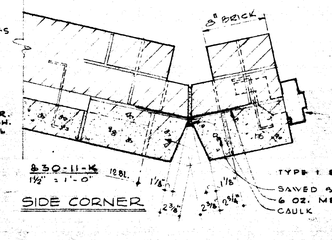


830-11-J 1½" = 1'-0" VARIES-SEE BLOCK DIM. DIAGRAM 4¾ VARIES-SEE BLOCK DIMENSION DIAGRAM

SIDE WALL JOINT



830-11-N 3/4"=1'-0"

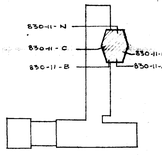


830-11-K 1½" = 1'-0"

SIDE CORNER

BLOCK DIMENSION DIAGRAM

SCALE: 1"=20'-0" (APROX.)



KEY PLAN

WALL SECTIONS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

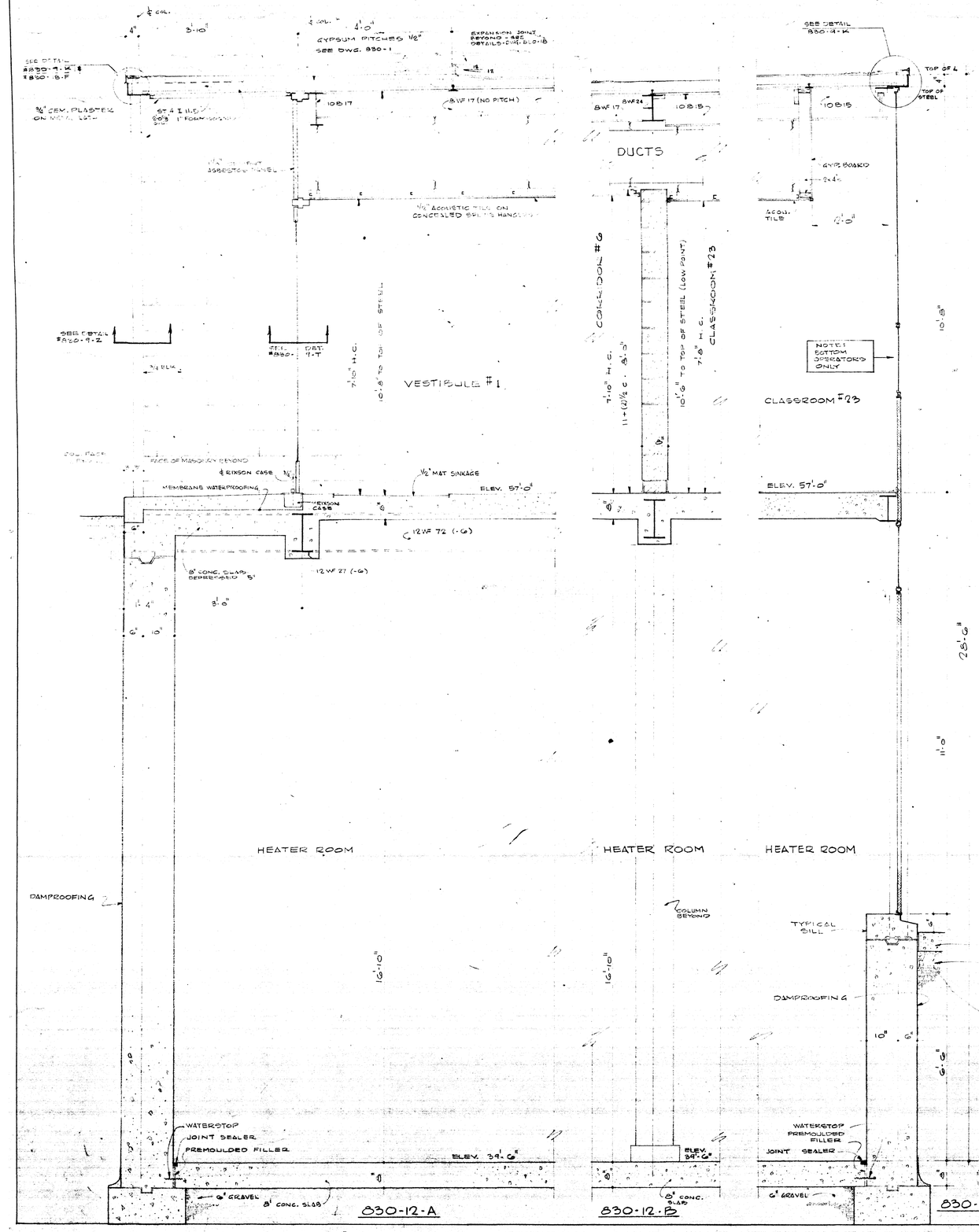
830.11

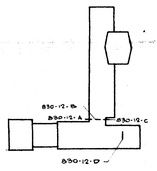
Date 30APR57 Scale AS NOTED

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No.





KEY PLAN

WALL SECTIONS

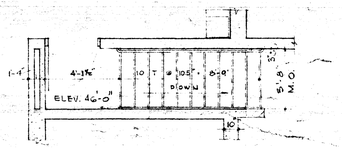
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-12
Date: 30 APR 57
Scale: 3/4" = 1'-0"

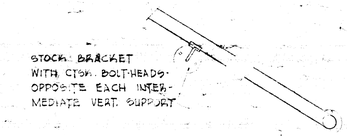
SHERWOOD, MILLS AND SMITH
Architects 69 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No.

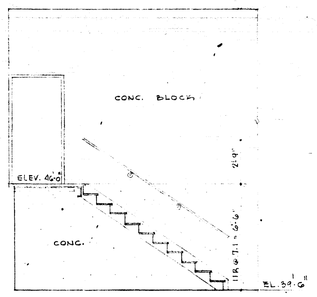


STAIR #4

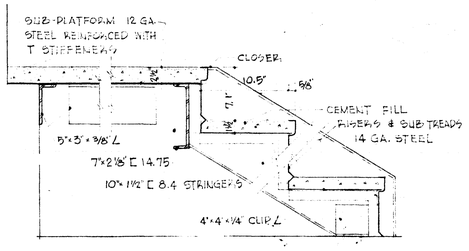


STOCK BRACKET WITH CTSK. BOLTHEADS OPPOSITE EACH INTERMEDIATE VERT. SUPPORT

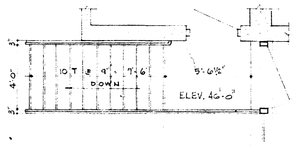
WALL RAIL DETAIL
TYPICAL FOR ALL STAIRS



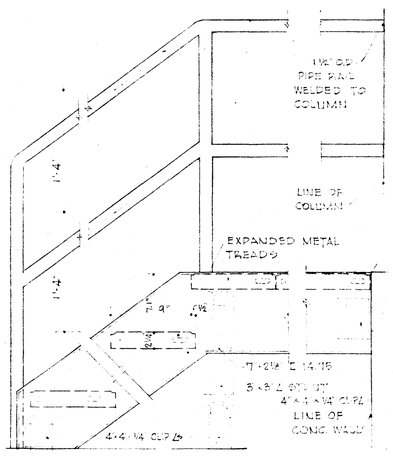
SECTION 4



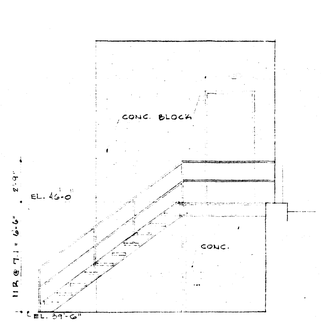
DETAIL SECTION 4



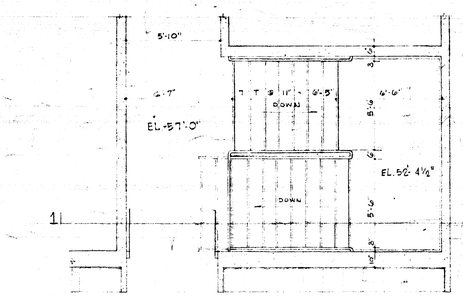
STAIR #5



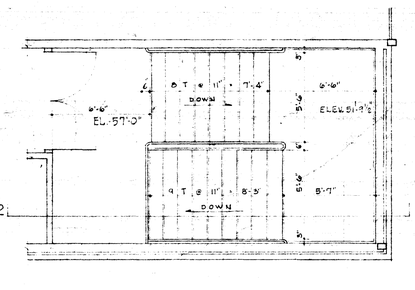
DETAIL SECTION 5



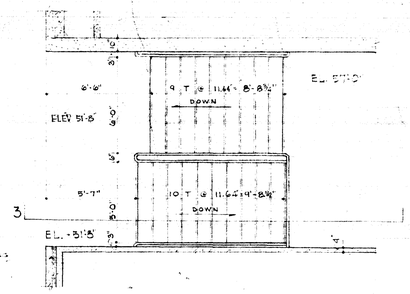
ELEVATION 5



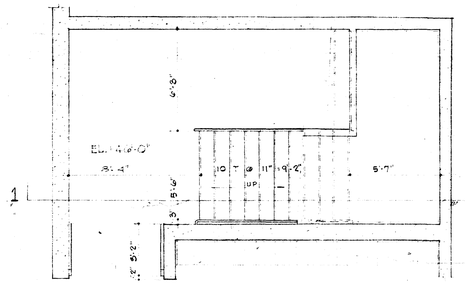
STAIR #1 PLAN AT FIRST FLOOR



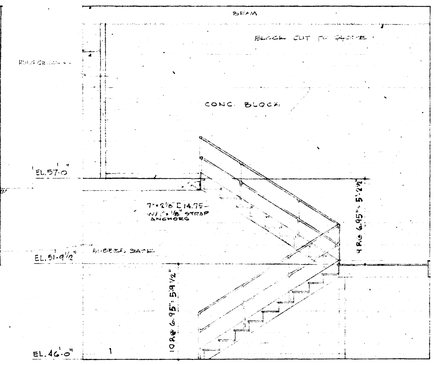
STAIR #2 PLAN AT FIRST FLOOR



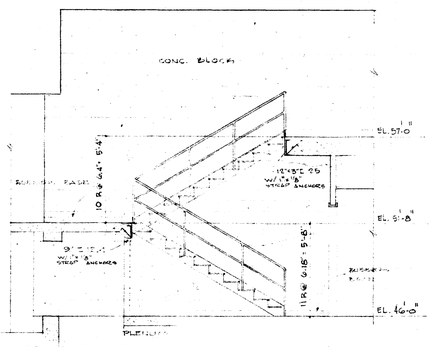
STAIR #3 PLAN AT FIRST FLOOR



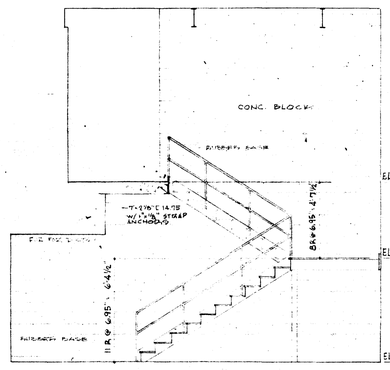
STAIR #1 PLAN AT BASEMENT



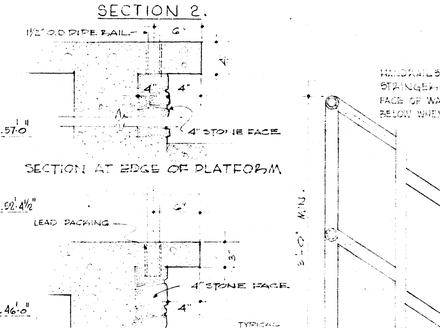
SECTION 2.

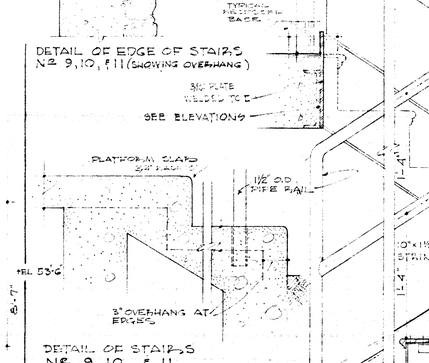


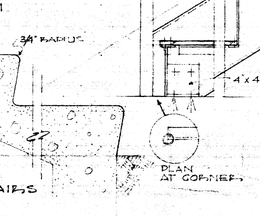
SECTION 3



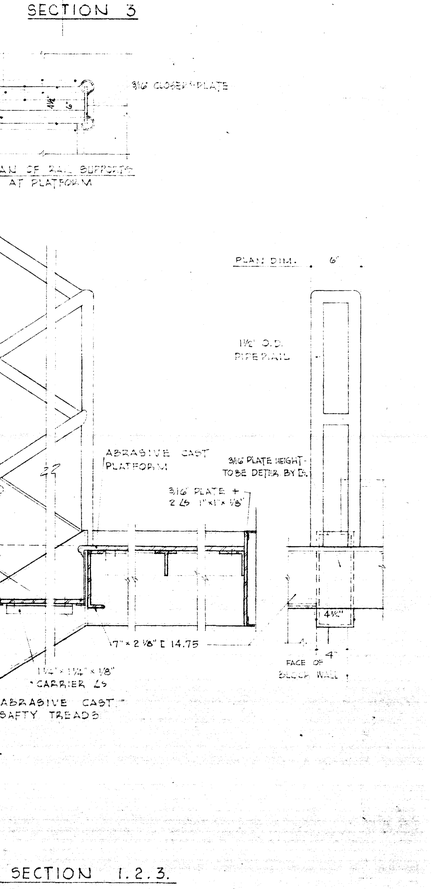
SECTION 1



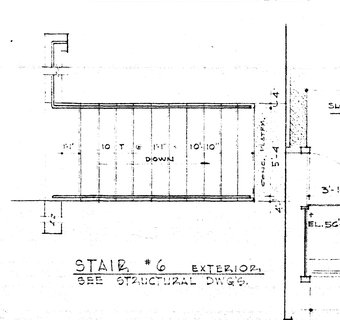




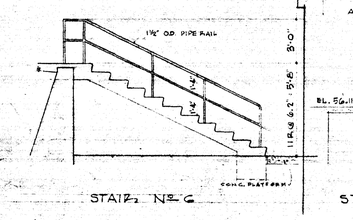
DETAIL OF STAIRS Nº 6, 7 & 8



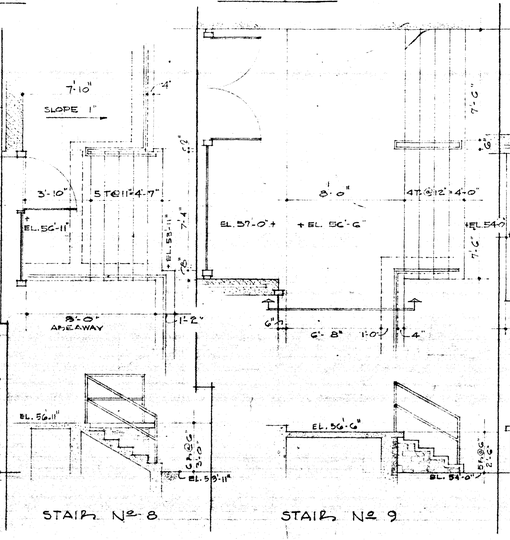
DETAIL SECTION 1.2.3.



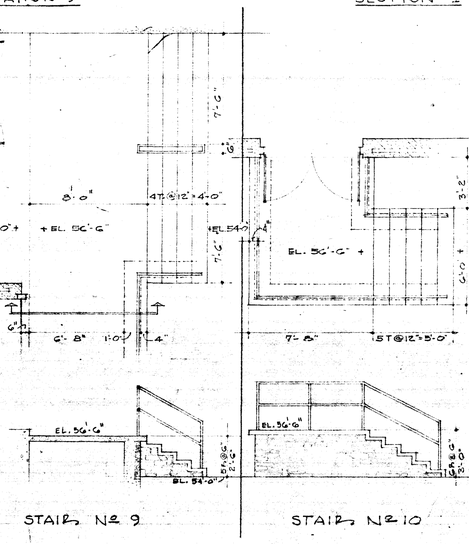
STAIR #6 EXTERIOR
SEE STRUCTURAL DWGS.



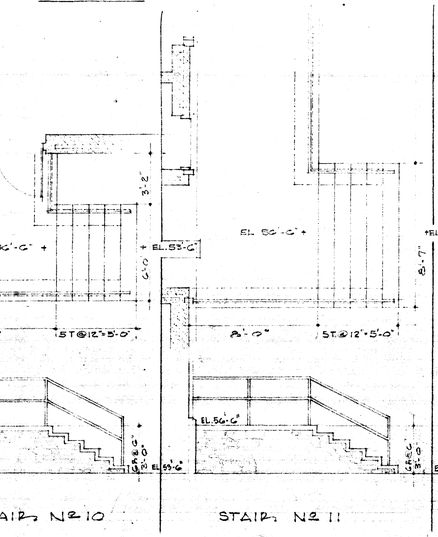
STAIR Nº 6



STAIR Nº 8



STAIR Nº 9



STAIR Nº 10

STAIR Nº 11

NOTE:
STAIR #7 - SEE DWGS. #830-4 & #830-14. SEE DETAIL OF TREAD & RISER AT LEFT.

STAIRS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-13

Date 30APR 57

Scales 1/4" = 1'-0" 1/2" = 1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No.

AUDITORIUM LOBBY * 2

SECTION "AA" THRU AUDITORIUM LOBBY * 2

ELEVATION "A"
AUDITORIUM LOBBY * 2

NORTH ENTRANCE LOBBY * 1

EXTERIOR ELEV. SOUTH ENTRANCE TO LOBBY * 1

EXTERIOR ELEVATION SOUTH ENTRANCE TO LOBBY * 1

SOUTH ENTRANCE LOBBY * 1

EAST ENTRANCE TO AUDITORIUM LOBBY

WEST ENTRANCE TO AUDITORIUM LOBBY

VESTIBULE * 1

EXTERIOR ELEVATION
VESTIBULE * 1 ENTRANCE

NOTES:
A. TOP OF 4" COURSE OF BLOCK SLICED 3/8" FOR MORTAR JOINT.

ENTRANCE DETAILS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-14

Date 30 APR 57 | Scale 1/4" = 1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	NO

INSTRUCTORS TOILET 104
(INSTL FOR LH SIMILAR TO OPPOSITE HAND)

PRINCIPAL'S TOILET 183
KITCHEN TOILET SIMILAR

CLINIC TOILET 170

WOMEN'S TOILET 161

MEN'S TOILET 199

SHOWER 116
DRYING 117
GIRLS 118
GIRLS GYMNASIUM TOILET
BOYS SIMILAR

WOMEN 120
ANTE ROOM 122
MEN 121

BOYS TOILET 108

PUBLIC TOILETS

DRYING 117-S

GIRLS 118-S

GIRLS 118-N

DRYING 117-N

GIRLS 118-W

119-W

WOMEN 120-W

MEN 121-W

MEN 121-S

GIRLS DRYING 117-E

UNIFORM STORAGE 228
BOYS TOILET 225
SERVICE CLOS 226
GIRLS TOILET 224

GIRLS TOILET 224-N

SERV. CL. 226

BOYS TOILET 225-N

STOR. 225

BOYS TOILET 137
GIRLS TOILET 138
SERVICE CLOS 139
140
SEMI-RECESSED CAB.

BOYS TOILET 137-E

BOYS TOILET 137-S

BOYS TOILET 137-W

GIRLS TOILET 138-E

BOYS TOILET 007
GIRLS TOILET 008

BOYS TOILET 007-S

GIRLS TOILET 008-S

TOILET ROOMS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-15

Date 30APR 57 | Scale 1/4"-1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No.

ELEVATION 1

ELEVATION 2

ELEVATION 3

ELEVATION 4

TYPICAL 1ST FLOOR CLASSROOM
SCALE 1/4" = 1'-0"

ELEVATION 5

ELEVATION 6

TYPICAL BASEMENT FLOOR CLASSROOM
SCALE 1/4" = 1'-0"

TYPICAL CROSS-SECTION THROUGH AREA "B"
SCALE 1/4" = 1'-0"

TYPICAL SECTION THROUGH CLASSROOM BOOKSHELVES

TYPICAL CLASSROOMS

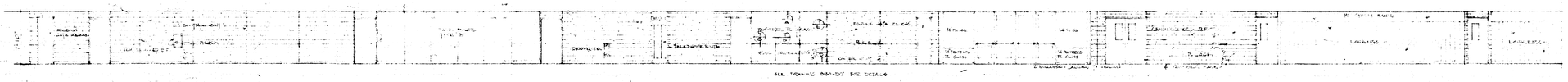
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-16

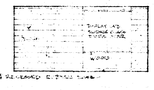
Date: 30APR 57 | Scale: 1/4"=1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 East Main Street, Stamford, Connecticut

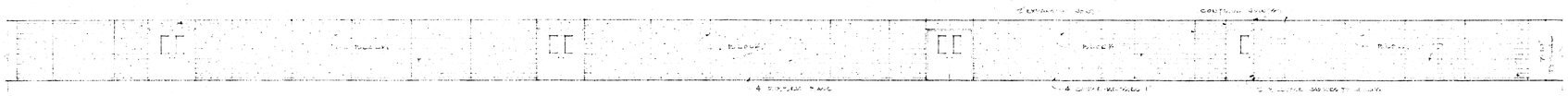
BQ #70 & 125 Attachment



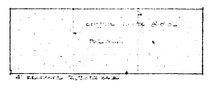
CORRIDOR *147 - EAST WALL - *147



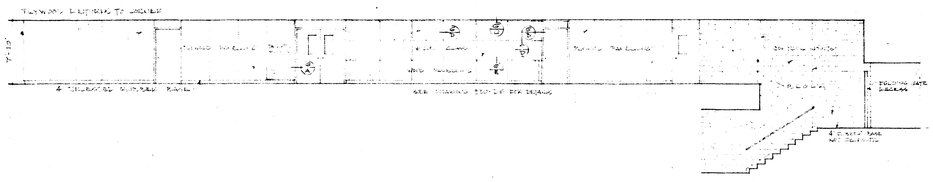
CORRIDOR *3 - SOUTH WALL - *216



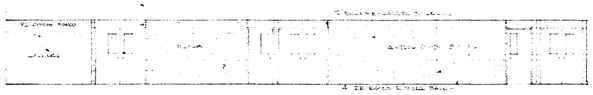
CORRIDOR *3 - WEST WALL - *157



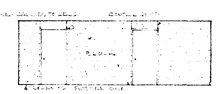
CORRIDOR *6 SOUTH WALL - *220



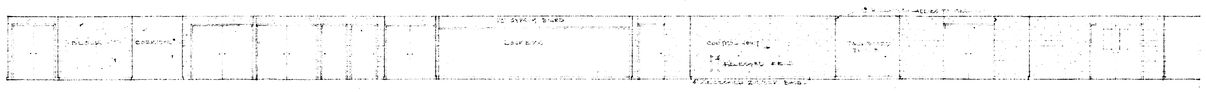
CORRIDOR *4 - NORTH WALL - *176



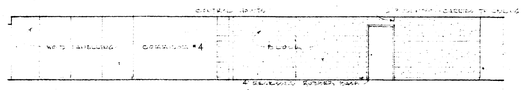
CORRIDOR *7 - EAST WALL - *202



CORRIDOR *6 - NORTH WALL - *220



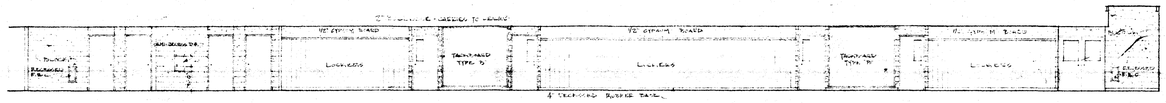
CORRIDOR *7 - WEST WALL - *202



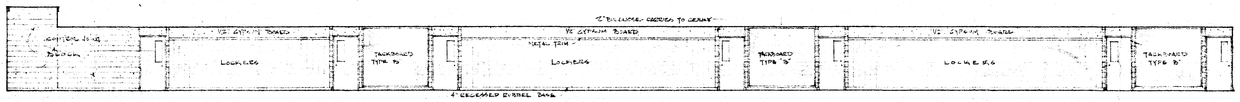
CORRIDOR *5 - EAST WALL - *153



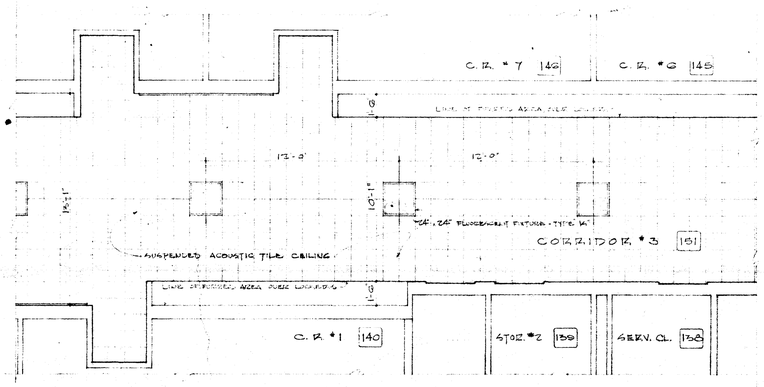
CORRIDOR *4 - SOUTH WALL - *156



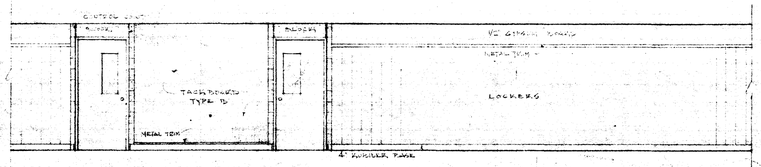
CORRIDOR *5 - SOUTH WALL - *153



CORRIDOR *5 - NORTH WALL - *153



TYPICAL CORRIDOR REFLECTED CEILING PLAN



CORRIDOR ELEVATION @ CLASSROOM ENTRANCE

DATE	ISSUE OR REVISION	No.

CORRIDOR ELEVATIONS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-17

Date 30APR57 | Scale 1/4" = 1'-0" 1/8" = 1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No.

LOCKER ROOM LOBBY WEST WALL - #124

LOCKER ROOM LOBBY - EAST WALL - #134

CORRIDOR #3 - SOUTH WALL - #111

CORRIDOR #3 - NORTH WALL - #111

SEE DWG #830-B-12 FOR CONTROL JOINT DETAILS

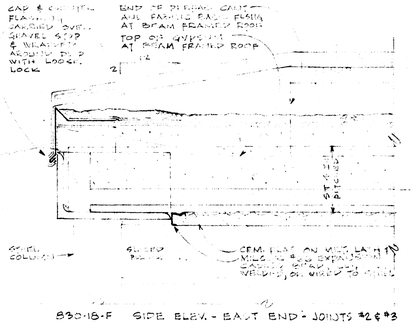
CORRIDOR #1 & #3 - SOUTH WALL - #128

CORRIDOR #1 - NORTH WALL - #128

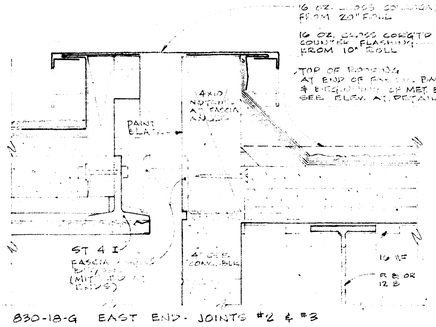
KITCHEN WEST WALL
ELEVATIONS - SCALE: 1/8"=1'-0"

KITCHEN NORTH WALL

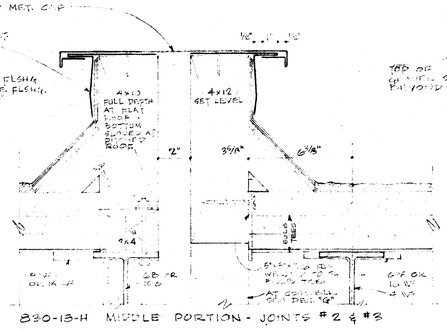
KITCHEN SOUTH WALL



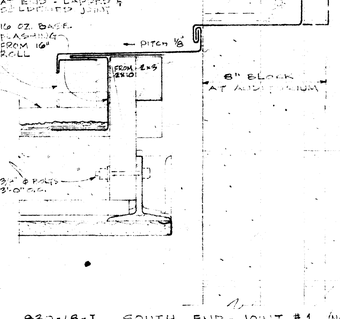
830-18-F SIDE ELEV. - EAST END - JOINTS #2 & #3



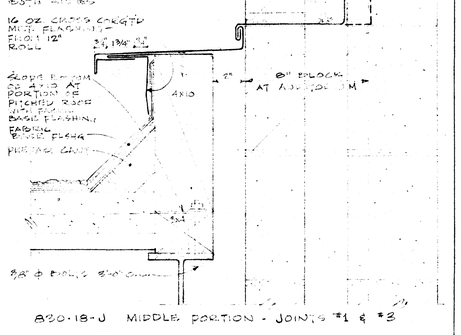
830-18-G EAST END - JOINTS #2 & #3



830-18-H MIDDLE PORTION - JOINTS #2 & #3

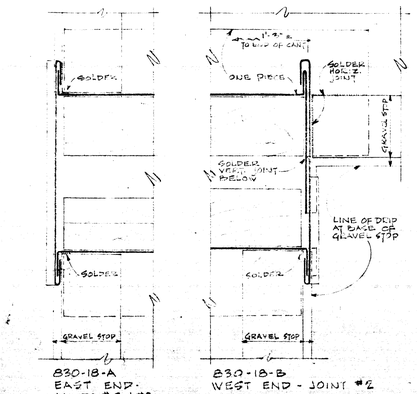


830-18-I SOUTH END - JOINT #1 (NORTH REV.)
WEST END - JOINT #3, REVERSED



830-18-J MIDDLE PORTION - JOINTS #1 & #3

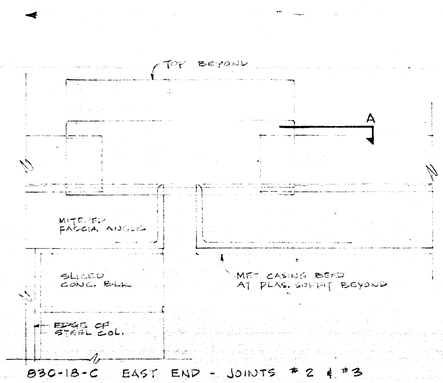
SECTIONS



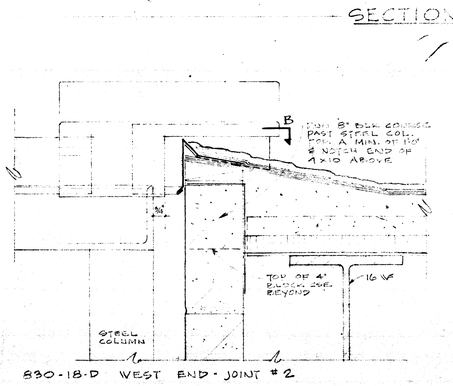
830-18-A
EAST END -
JOINTS #2 & #3

830-18-B
WEST END - JOINT #2

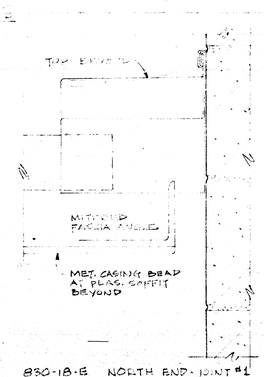
PLAN SECTIONS
ROOFING NOT SHOWN



830-18-C EAST END - JOINTS #2 & #3



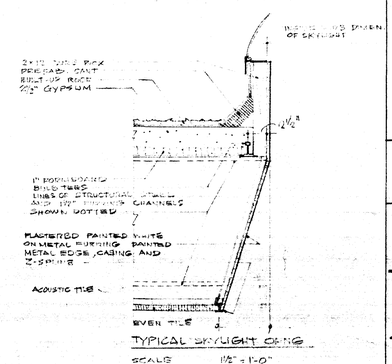
830-18-D WEST END - JOINT #2



830-18-E NORTH END - JOINT #1
(SOUTH REVERSED)
WEST END - JOINT #3

ELEVATIONS

EXPANSION JOINT DETAILS AT ROOF
SCALE: 3"=1'-0"



TYPICAL SKYLIGHT OPNG.
SCALE 1½"=1'-0"

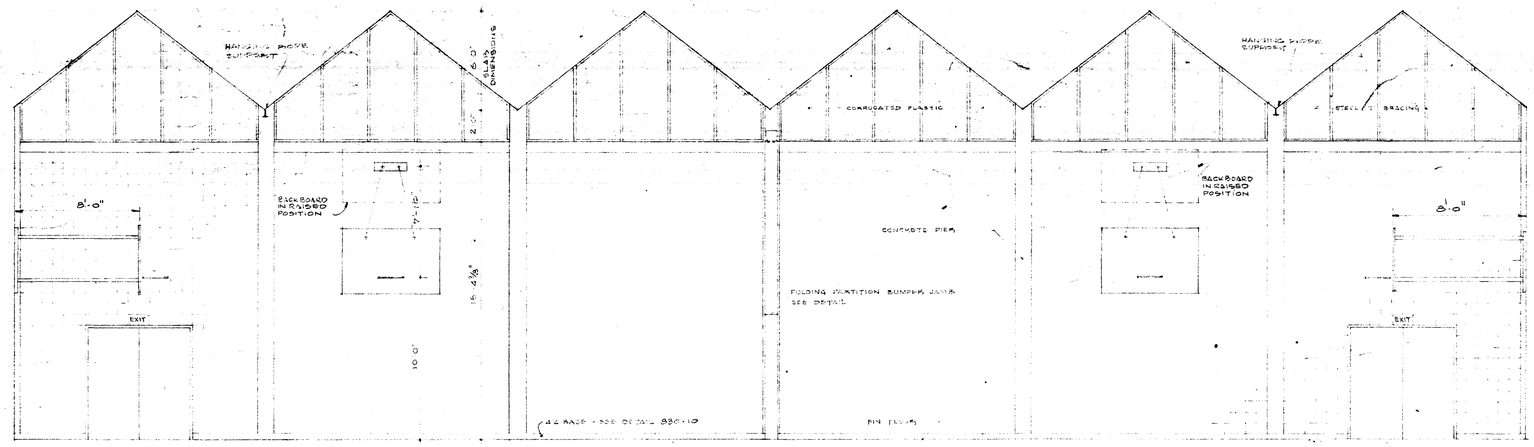
CORRIDOR & ELEVATIONS DETAILS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

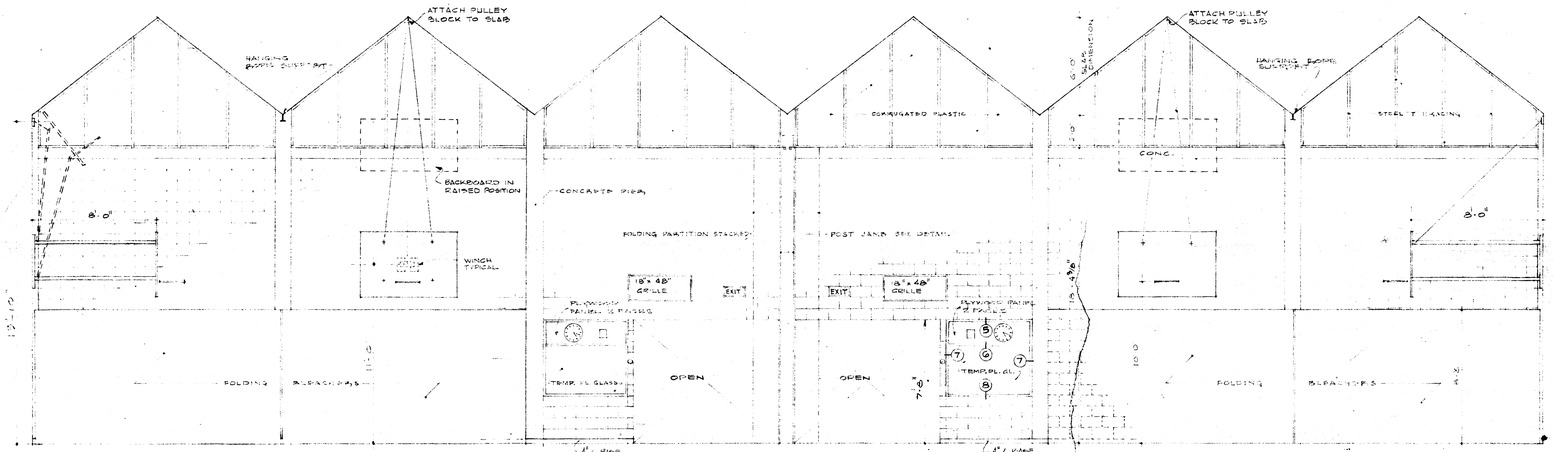
830-18
Date 30APR 57 Scale AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

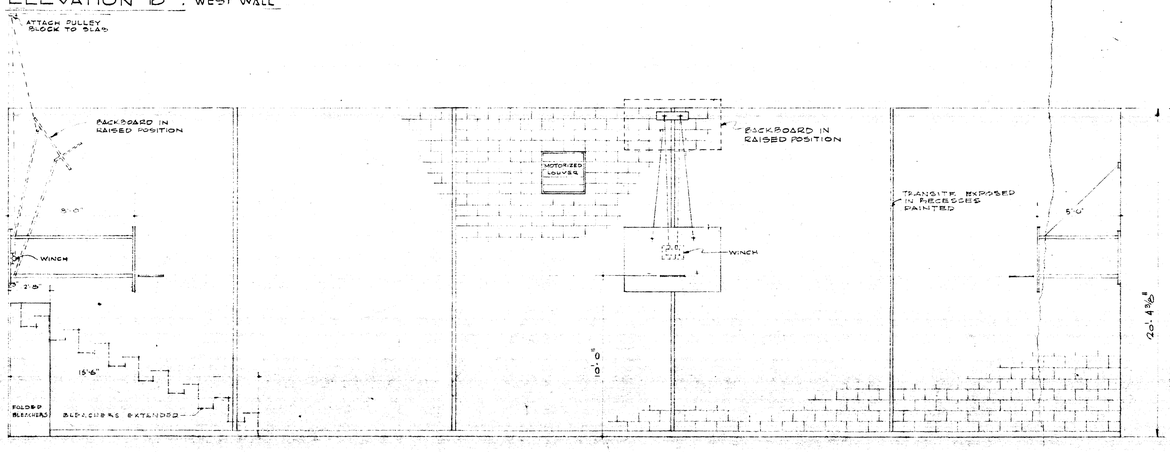
BQ #70 & 125 Attachment



ELEVATION "A" : EAST WALL

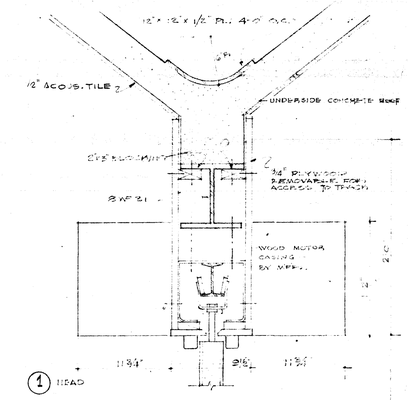


ELEVATION "B" : WEST WALL



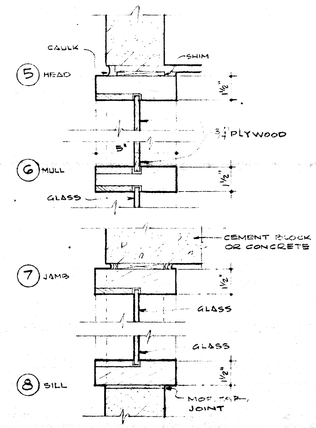
ELEVATION "C" : NORTH WALL SHOWN
SOUTH WALL SIM. TO OPP. HAND

SEE WALL SECTIONS & DETAILS, DWG. 830-10



UNIFORM DRYING RACK
SCALE: ¼"=1'-0" SEE DWG. 830-5 SPACE NO. 119

FOLDING PARTITION DETAILS
SCALE: 1½"=1'-0"



GLASS PARTITION DETAILS
SCALE: 3"=1'-0"

DATE	ISSUE OR REVISION	No.

GYM DETAILS

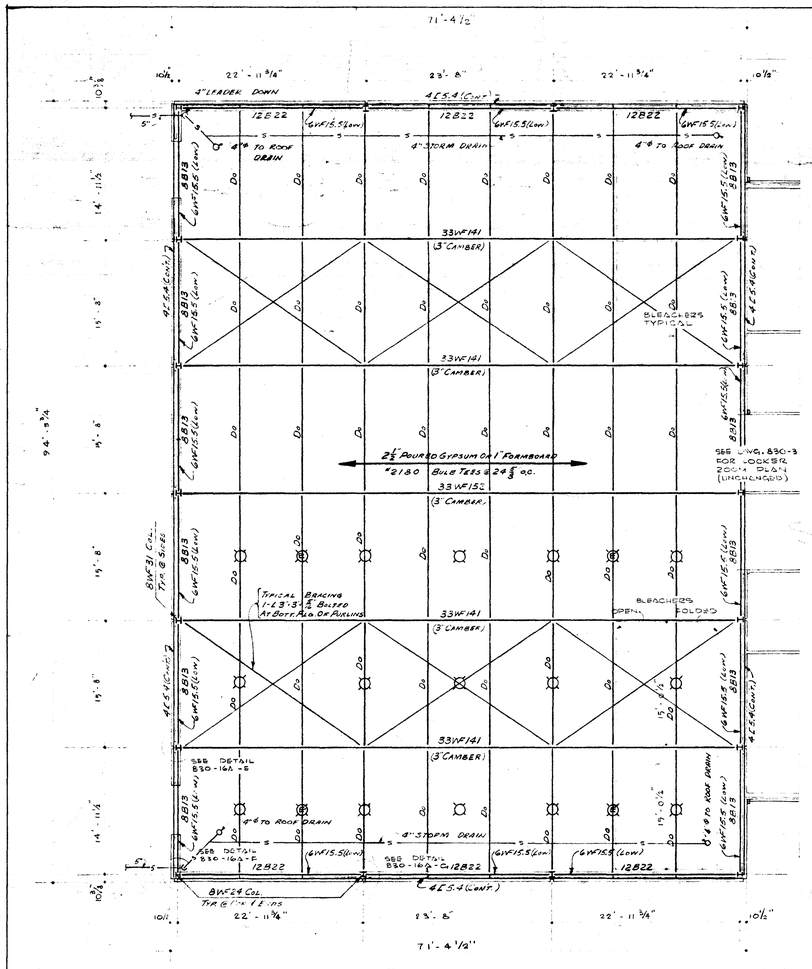
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

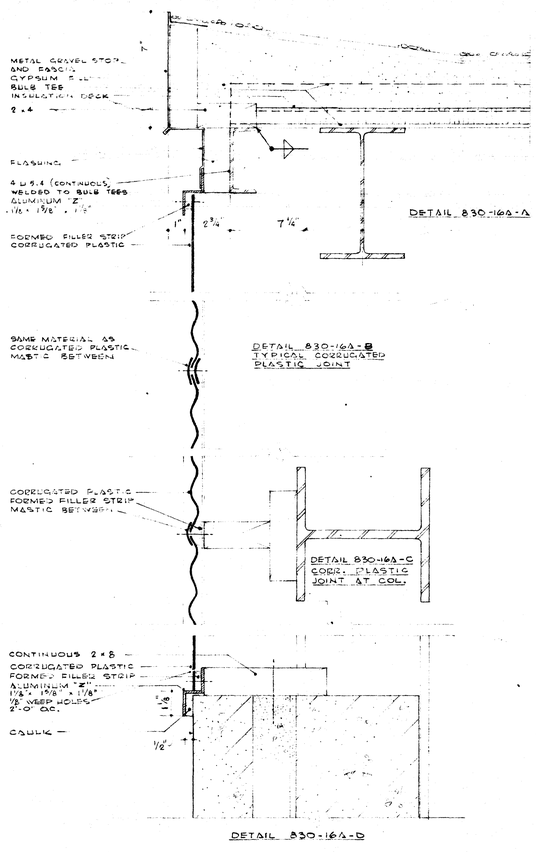
830-19

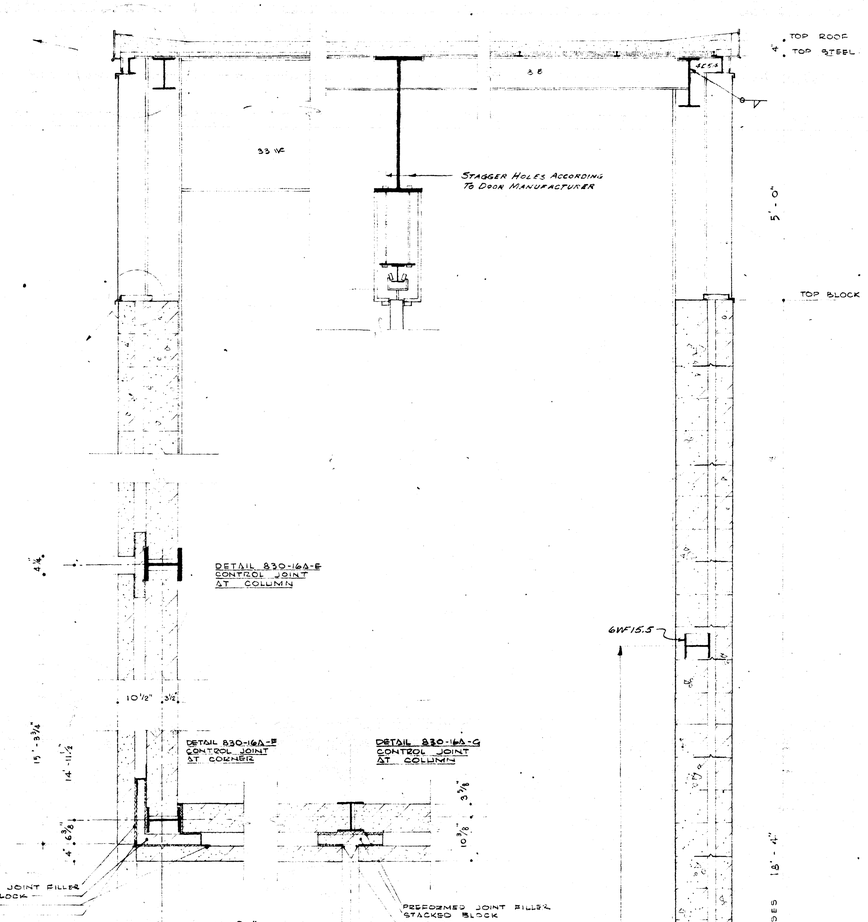
Date: 30 APR 57 | Scale: AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

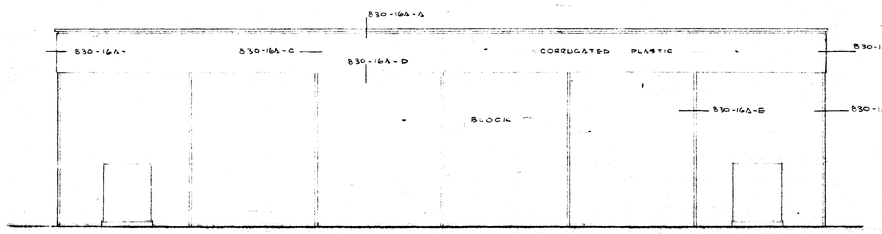




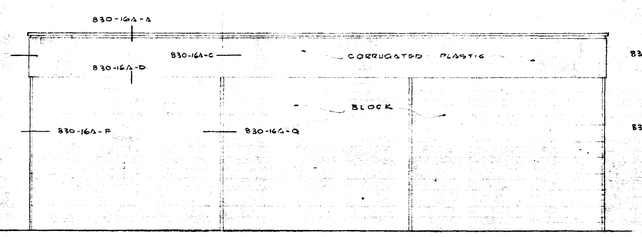


NOTES.

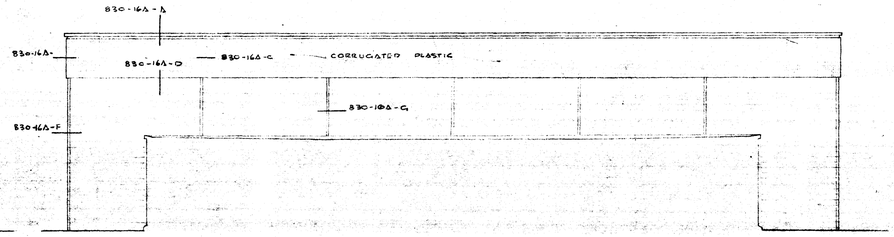
1. THE FOUNDATION PLAN OF GYMNASIUM (DWG. B30-5), MAY BE USED TO SHOW DIMENSIONS & DETAILS FOR THIS ALTERNATE.
2. SHOWN BOILERS, PIPING, AND OTHER EQUIPMENT FOR THIS ALTERNATE ARE SAME AS SHOWN IN BASE BID.
3. HEAT IS INSTALLING NEW CONTROLS FOR THIS ALTERNATE TO MAKE AS SHOWN IN BASE BID.
4. PLUMBING IS AS SHOWN ON THIS DRAWING.
5. LIGHTING PANEL FOR SOUTH SIDE IS SIMILAR TO LIGHTING PANEL FOR NORTH SIDE.
6. CONDITION OF EXISTING SAME AS SHOWN ON DWG. B30-1&2
7. ELECTRICAL CONNECTIONS SHALL CONFORM AND CONNECTED INSOFAR AS SHOWN IN BASE BID.
8. PLUMBING: VERTICAL RAIN LEADERS (2) GALVANIZED IRON PIPE WITH CAST IRON FITTINGS.



ELEVATION "A"



ELEVATION B & C



ELEVATION D

DATE	ISSUE OR REVISION	No.

KEY PLAN

ALTERNATE GYMNASIUM

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

N

830-19A

Date: 30APR 57 | Scale: AS NOTED

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No

CROSS SECTION OF AUDITORIUM SHOWING WALLS AT WIDEST POINT AND ALL OF SUSPENDED CEILING - LOOKING TOWARD STAGE

SCALE 1/8" = 1'-0"

CENTER LINE SECTION AT XX

SCALE 1/8" = 1'-0"

REFLECTED CEILING PLAN

SCALE 1/8" = 1'-0"

SECTION ATTIC

SCALE 1½" = 1'-0"

PLAN SECTION "A"

SCALE 1½" = 1'-0"

SECTION THROUGH STAGE AT "U"

SCALE 1½" = 1'-0"

SECTION AT "E" THROUGH STAGE STAIRS

SCALE 3/4" = 1'-0"

SECTION AT Y-Y SHOWING REAR WALL

SCALE 3/4" = 1'-0"

SECTION THROUGH REAR WALL OF AUDITORIUM SHOWING ACOUSTIC TREATMENT. SEE SECTION 830-11-A

SCALE 3/4" = 1'-0"

DETAIL OF WOOD BASE AT JUNCTURE OF STAGE FLOOR AND MASONRY WALLS

SCALE 3" = 1'-0"

LOUDSPEAKER ENCLOSURE FOR LOCATION ABOVE AUDITORIUM CEILING

TYPICAL CORNER DETAIL "F"

NOTE: AUDITORIUM SEATING TO BE FURNISHED & INSTALLED BY OWNER. STAGE CURTAINS TO BE FURNISHED & INSTALLED BY OWNER.

AUDITORIUM DETAILS

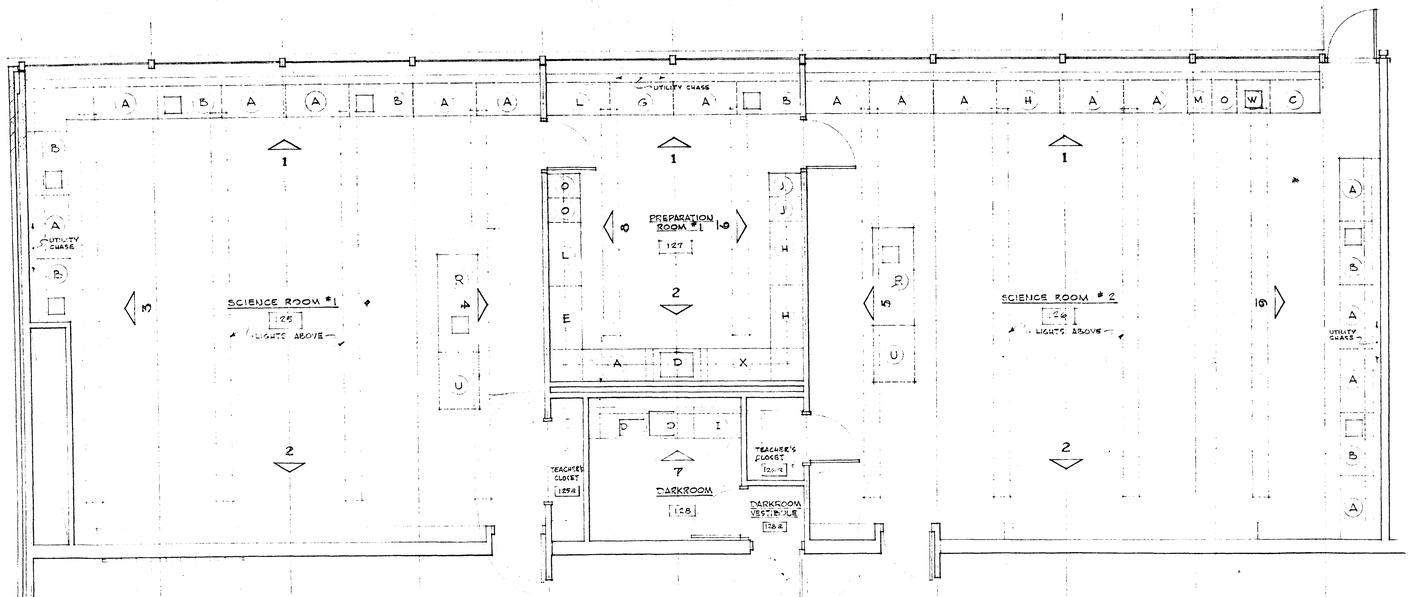
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-20

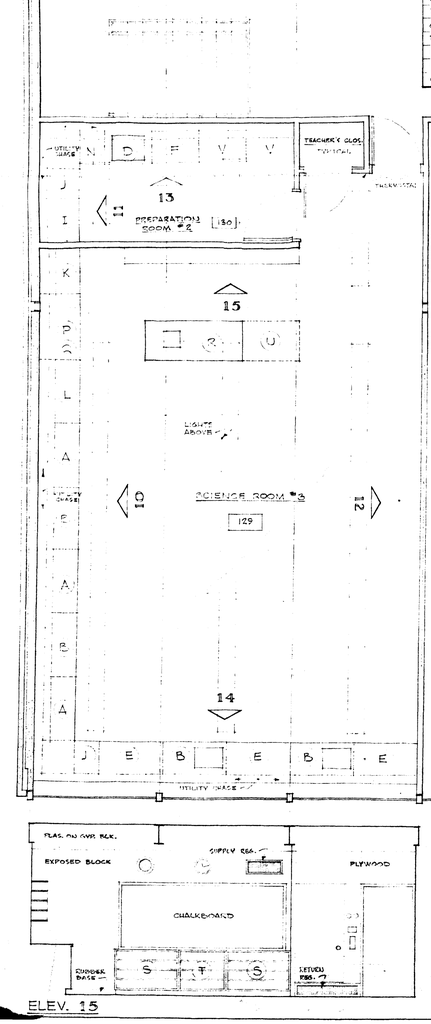
Date 30 APR 57 | Scale AS NOTED

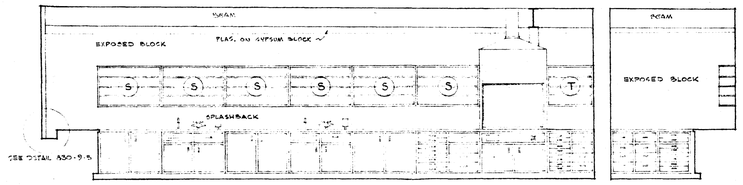
SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

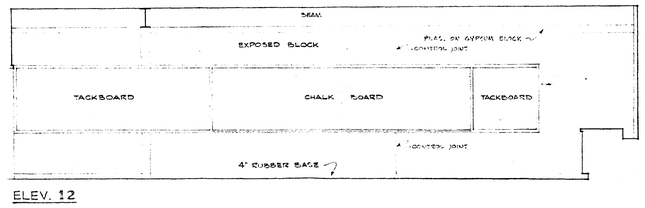
BQ #70 & 125 Attachment

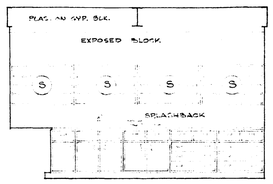


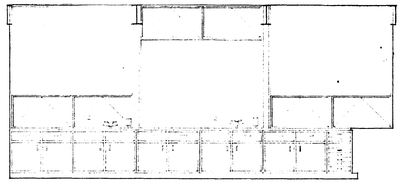
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A	BASE CABINET	EQUIP. MANUF.	#647	H	BASE CABINET	EQUIP. MANUF.	#647	O	BASE CABINET	EQUIP. MANUF.	#8x17	V	BASE CABINET	EQUIP. MANUFACTR.	#937
B	BASE CABINET & SINK	DO	#647	I	DO	DO	#687	P	FUME HOOD	DO	#MCT47	W	BASE CABINET & SINK	DO	#687
C	BASE CABINET	DO	#1347	J	DO	DO	#6M17	Q	FUME HOOD BASE	DO	#FCR47-AS	X	BASE CABINET	DO	#147-AS
D	BASE CABINET & SINK	DO	#2347	K	DO	DO	#6M37	R	INSTRUCTOR'S TABLE	DO	#57CO				
E	BASE CABINET	DO	#347	L	DO	DO	#6M47	S	OPEN SHELVING UNIT	DO	#WC-247-30"h				
F	DO	DO	#337	M	DO	DO	#3x17	T	DO	DO	#WC-235-30"h				
G	DO	DO	#647	N	DO	DO	#3-517	U	INSTRUCTOR'S DESK	OWNER	N.I.C.				

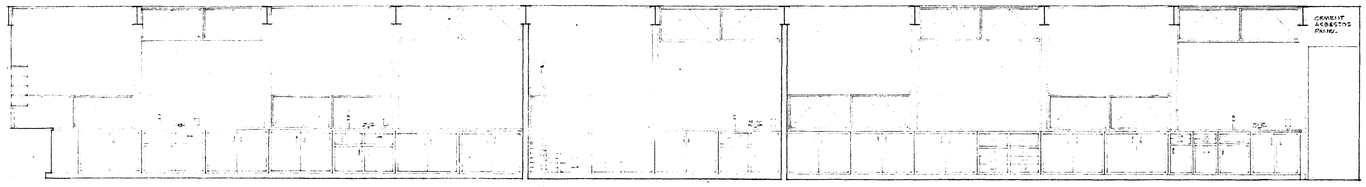


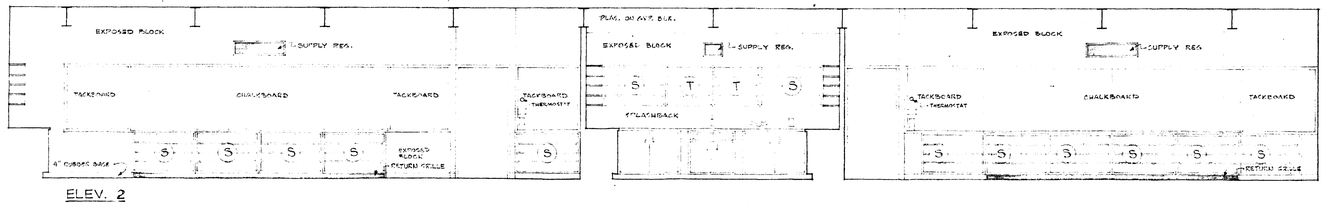


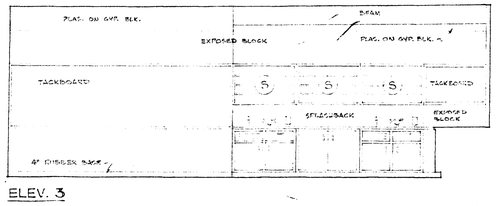


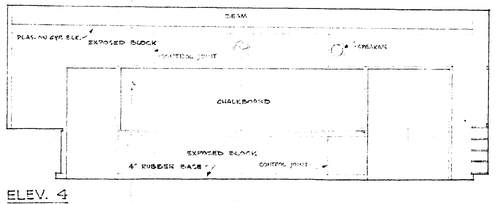


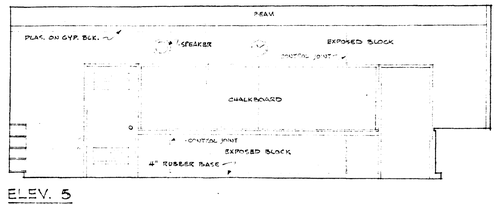


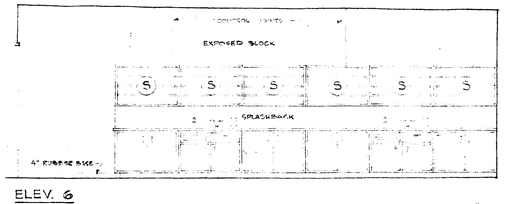


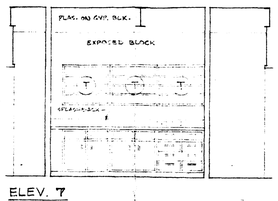


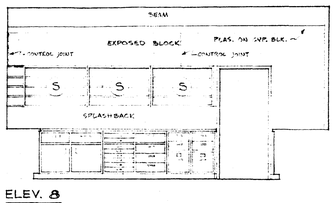


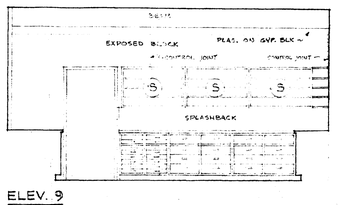












DATE	ISSUE OR REVISION	No.

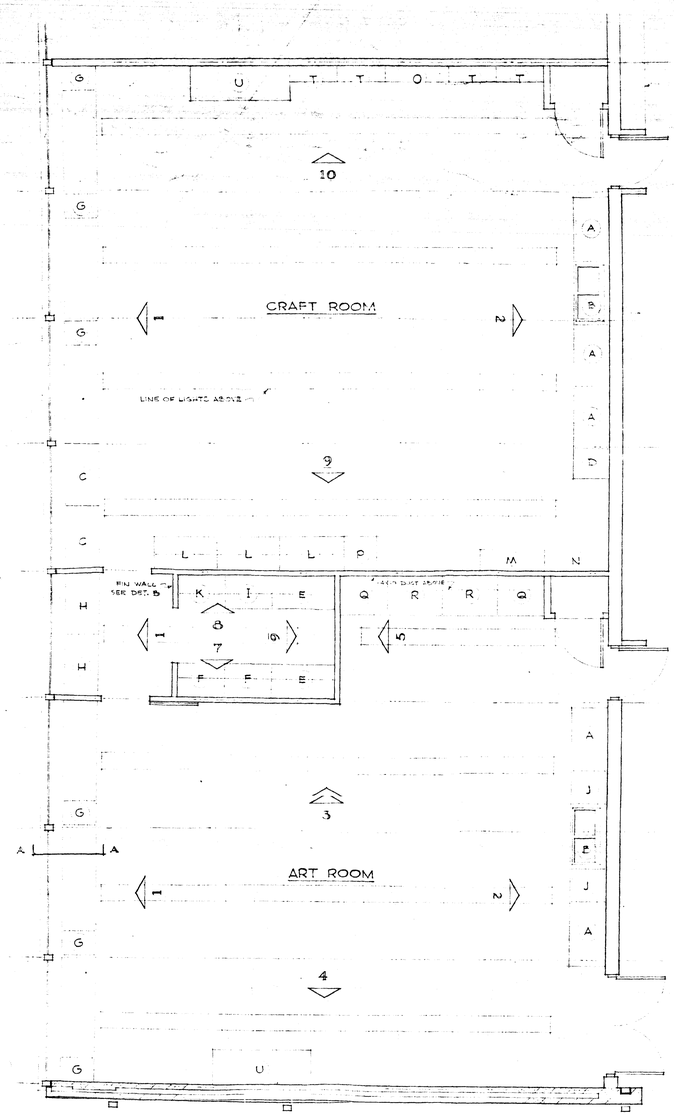
SCIENCE ROOMS

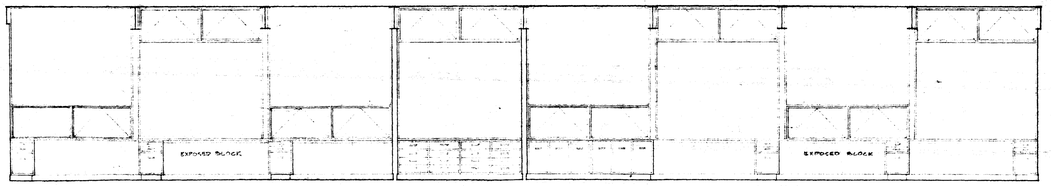
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

330-21
30APR57
1/4"=1'-0"

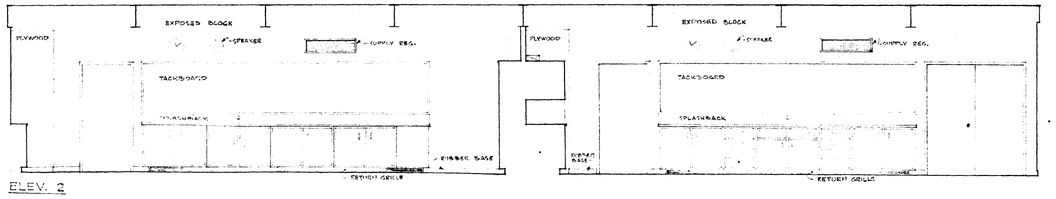
SHERWOOD, MEAD AND SMITH
Architects

BQ #70 & 125 Attachment

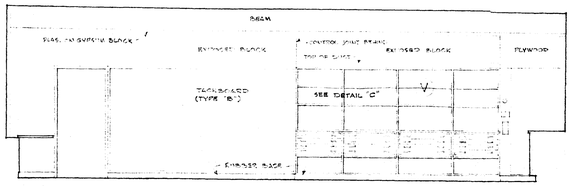




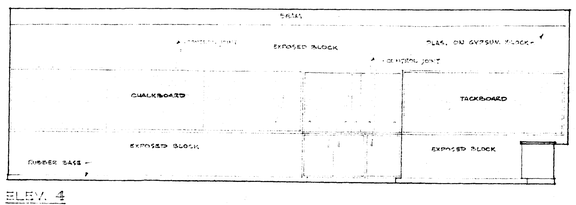
ELEV. 1



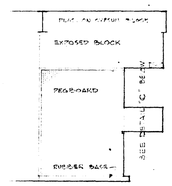
ELEV. 2



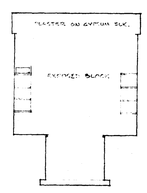
ELEV. 3



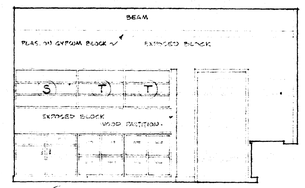
ELEV. 4



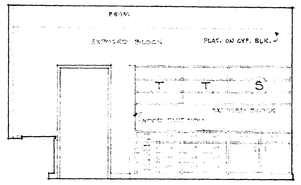
ELEV. 5



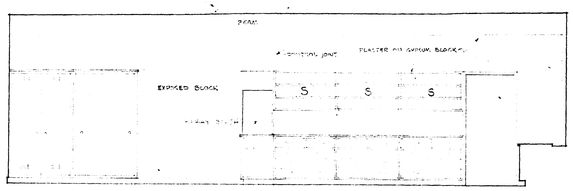
ELEV. 6



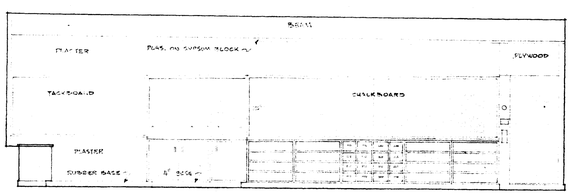
ELEV. 7



ELEV. 8

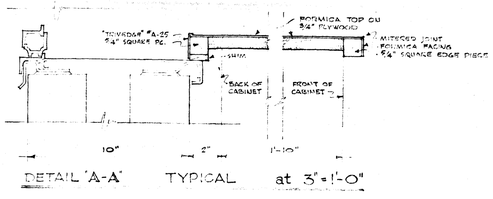


ELEV. 9

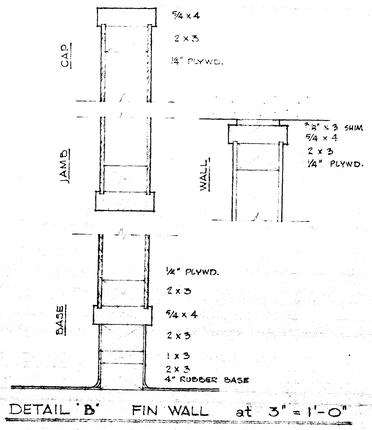


ELEV. 10

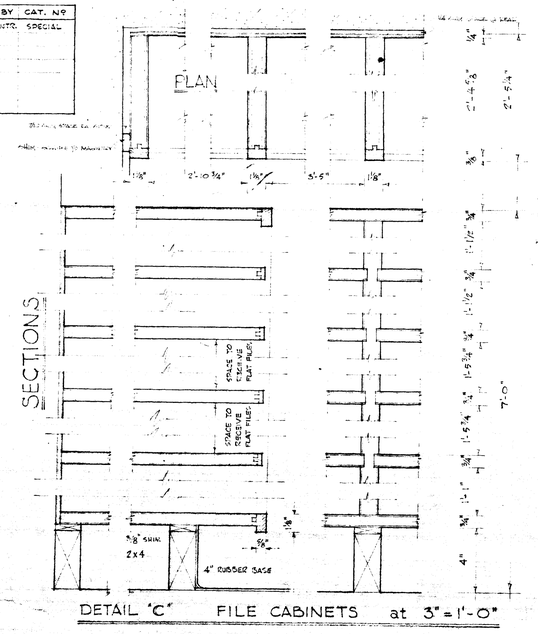
ITEM	DESCRIPTION	FURNISHED BY	CAT. Nº	ITEM	DESCRIPTION	FURNISHED BY	CAT. Nº	ITEM	DESCRIPTION	FURNISHED BY	CAT. Nº	ITEM	DESCRIPTION	FURNISHED BY	CAT. Nº
A	BASE CABINET	EQUIP. MANUF.	#147	H	BASE CABINET	EQUIP. MANUF.	#841	O	BASE CABINET	EQUIP. MANUF.	SPECIAL	V	WOOD SHELVING	GENERAL CONTR.	SPECIAL
B	DO	DO	#247	I	DO	DO	#837	P	SPRAY BOOTH	DO	SPECIAL				
C	DO	DO	#141	J	DO	DO	#827	Q	FLAT FILE		B 2531				
D	DO	DO	SPECIAL	K	DO	DO	#SM37	R	FLAT FILE		B 3726				
E	DO	DO	#347	L	DO	DO	#947	S	OPEN SHELVING	EQUIP. MANUF.	WC-247-30"A				
F	DO	DO	#LD37	M	STORAGE CAB.	DO	#2640	T	DO	DO	WC-235-30"A				
G	DO	DO	#8X11	N	STORAGE CAB.	DO	#2920	U	TEACHING CENTER	DO	SPECIAL				



DETAIL 'A-A' TYPICAL at 3"=1'-0"



DETAIL 'B' FIN WALL at 3"=1'-0"



DETAIL 'C' FILE CABINETS at 3"=1'-0"

DATE	ISSUE OR REVISION

ART & CRAFT ROOMS

CENTRAL JUNIOR HIGH SCHOOL

330-22

30APR57 | 1/4"=1'-0"

SHERWOOD, MILLS AND SMITH

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No.

NOTE: FOR CONTENTS OF TYPICAL TEACHING CENTER EQUIPMENT CLOTHING ROOM, PLAN & UNIFORM DETAIL - DWG. NO. 5-16

COMMERCIAL 006

HOME MAKING Nº1 003

HOME & FAMILY LIVING CENTER 004

HOME MAKING Nº2 005

KITCHENETTE Nº2-R

KITCHENETTE Nº2-L

KITCHENETTE Nº3-R

KITCHENETTE Nº1

KITCHENETTE Nº3

KITCHENETTE Nº4

ADJ. SHELVES 4 FILE CAB'S

ADJ. SHELVING TO HAVE ¼" PLYWOOD BACK ON 8/4 FURRING STRIPS & ¾ PLYWOOD DIVIDERS

TACKBOARD

LINE OF DROPPED SOFFIT

LINE OF FURRED CEILING - HT 7'-10"

END CABINETWORK WITH LINE OF FURRED CEIL.

LIGHT FIXTURES

LAUNDRY AREA

DWARF PARTITION (SEE DETAIL)

WD STUD PARTITION

BULLETIN BD.

CLOSE BETWEEN FLANGES OF 2CI W/MGA STEEL LOUVRED TO DOOR FRAME

NOTE: FOR ELEVATIONS OF KITCHENETTES IN THIS AREA, SEE HOMEMAKING I Nº2 ELEVS. ALL ARE TO OPP. HAND. ADJUSTMENTS (SINK FUNCTION-WASHER (ITEM J))

ELEVATIONS IN SPACE ARE SIMILAR TO THOSE IN HOMEMAKING Nº2 - BUT OPPOSITE HAND; DIMENSIONS OCCUR WHERE NOTED.

CONTROL JOINT

CEILING REGISTER

VENT

PIPE SPACE

FIRE EXTINGUISHER CAB.

SECTION A-A
(TYPICAL AT FURRED WALLS)
SCALE 3/4"=1'-0"

BLOCKING

ACOUSTICAL TILE

FIN HUNG CLG

GYPSUM BD

4" CONC BLOCK WALL

2x4 WD STUDS

PIPE CHASE

ADJ SHELF

TYPICAL MET. WALL CAB

FORMICA BENDED TO ¾ PLYWOOD

FORMICA TOP

FORMICA EDGE

TYPICAL MET. BASE CAB

ADJ SHELF

OPEN BASE WITH R.A. GRILLE

4" ASPHALT TILE

SECTION B-B
SCALE 3/4"=1'-0"

RETURN FORMICA TOWALL

SCRIBE WD CAP

WD CAP BY G.C.

FORMICA TOP & SPLASHBACK ON ¾ PLYWOOD

POT OF WALL CAB

WASHER

½" PLYWOOD PAINTED

2x4 WD STUD PART

TYPICAL MET. BASE CAB

ASPHALT TILE

OPEN END WITH R.A. GRILLE

ELEV.-1

ELEV.-2

ELEV.-3

ELEV.-4

ELEV.-5

ELEV.-6

ELEV.-7

ELEV. 8

ELEV.-9

ELEV.-10

ELEV.-11

ELEV.-12 (PART.)

ELEV.-13

ELEV.-14

ELEV. 15 (PART.)

ITEM	DESCRIPTION	FURNISHED BY	CAT. Nº	ITEM	DESCRIPTION	FURNISHED BY	CAT Nº
A	BASE CABINET	EQUIP. CONTR.	*50C	W	IRONING BD CAB.	EQUIP. CONTR.	*2484 IB
B	MIXER CABINET	DO	*41 MC	X	WARDROBE CAB.	DO	*4884 WA
C	SINK CABINET	DO	*3066	Y	TOTE TRAY CAB.	DO	*4084 HT
D	UTENSIL CABINET	DO	*8 UT	Z	WARDROBE CAB.	DO	*3084 WA ●
E	BASE CABINET	DO	*12L	A-A	APRON STOR. CAB.	DO	*3084 HA9
F	DO	DO	*24C	B-B	CLEAN. UTENSIL CAB.	DO	*3084 CU
G	SWEEPER CABINET	DO	*48GB	C-C	FOOD STAPLES STOR.	DO	*3084 FS
H	BASE CABINET	DO	*18D	D-D	CHINA STOR. CAB.	DO	*2184 CHS
I	RANGE	OWNER	—	E-E	GLN. STOR. CAB.	DO	*4884 GS
J	DISH WASHER	DO	—	F-F	MIRROR CABINET	DO	*2484 M1
K	SINK CABINET	EQUIP. CONTR.	*3066	G-G	BED STORE CAB.	DO	*4884 WB(NO BASE)
L	UTENSIL CABINET	DO	*12UT	H-H	TEACHING CENTER	DO	*H-3510
				I-I	FITTING STAND	BY OWNER	—
N	BASE CABINET	DO	*18C-K	J-J	WASHER	DO	—
O	REFRIGERATOR	OWNER	—	K-K	DRYER	DO	—
P	VENTED CABINET	EQUIP CONTR	*X-5618 WV				
Q	WALL CABINET	DO	*4830 W				
R	DO	DO	*3030 W				
S	DO	DO	*3618 W				
T	DO	DO	*3630 W				
U	DO	DO	*3018 W				
V	DO	DO	*1830 W-L				

HOMEMAKING ROOMS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-23

Date 30 APR 57

Scale 1/4" = 1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No.

SCALE-DETAILS: 1½" = 1'-0"

TACKBOARD, TYPE "B"
METAL TRIM
RUBBER BASE
SECTION A-A

METAL BEAD
TACKBOARD TYPE "B"
TYPICAL CORNER DETAIL

DUCT SPACE
DISPLAY COUNTER, SHELF OVER
OUTLET IN COUNTER
LINE OF HUNG CEILING AT 7'-10"±
ELEC. PANEL
DUCT SPACE
TACKBOARD
CONF. RM. #1
133
DISPLAY CASE SEE DETAIL-C ON DWG. A30-D23
CHALKBOARD
AUDIO-VISUAL STORAGE
135
STEEL ADJUSTABLE SHELVES
CEILING GRILLE
¾" PLYWOOD
2"x4" HARDWD TRIM
STEEL BOOK SHELVES
EXPOSED BEAMS
LIBRARY
131
FUTURE BOOK SHELVES
SHELVES
CONTROL JNT.
LIBRARIAN'S OFFICE & WORK ROOM
132
CONTROL JOINT
DUCT DN.
WOOD ADJUSTABLE SHELVES
COUNTER
SHELVES
SINK
10"x12" VENT ENCLOSURE
CHALKBOARD
TACKBOARD
CONTROL JOINT
CONF. RM. #2
134
SCRIBE TO COLUMNS
8 @ 6'-0" = 64'-0"

TILE PATTERN
6'-0 LONG SURFACE MOUNTED FLUORESCENT FIXTURES
EXHAUST GRILLE & DUCT
ACOUSTIC TILE
12'-0" LONG SURFACE MOUNTED FLUORESCENT FIXTURES
CEILING GRILLE
TILE PATTERN

REFLECTED CEILING PLAN — CONFERENCE ROOM #1 133 & OFFICE & WORK ROOM 132

PLAN

TOP OF STEEL
CORRIDOR HUNG CLG.
14 WF
LINTEL, WELD TO COL.
CONTROL JOINTS
PLASTER
PAINTED BLOCK
METAL STANDARDS & BRACKETS
ADJUSTABLE SHELVING
VINYL TOP
FIXED SHELVES
FIN. FLR.
DISPLAY CASS SEE DETAILS ON DWG. A30-D23
4" RUBBER BASE
PLYWOOD

ELEV. #1

HUNG CLG.
PLYWOOD PANELS
GLASS ¼" HEAVY SHEET
INTERCOM 'PHONE
FIN. FLOOR
4" RUBBER BASE

ELEV. #5

GYPSUM BOARD
METAL TRIM
AIR SUPPLY GRILLE
PLYWOOD
GLASS, ¼" HEAVY SHEET
CHALKBOARD
TACKB'D TYPE "A"
4" RUBBER BASE
RETURN AIR GRILLE BY H & V CONTR.

ELEV. #8

PLASTER
CONTROL JOINTS
PAINTED BLOCK
PLYWOOD
VINYL TOP
FIXED SHELVES
COL.
BOOKSHELVES
WD. ENDS

ELEV. #2

PLYWOOD
FIXED SHELVES
GLASS ¼" HEAVY SHEET
OUTLET
DUCT SPACE
4" RUBBER BASE

ELEV. #6

PAINTED BLOCK
FORMICA BACKSPLASH & COUNTER
PLYWOOD
ADJUSTABLE SHELVES
4" RUBBER BASE

ELEV. #7 (PART.)

1 BTM OF ROOF PLANK; FLANGE OF 14 WF; GYPSUM BOARD; 14 WF PUNCH FOR NAILER
2
3 GYPSUM B'D. IN 134 WITH METAL TRIM; LINE OF JOINT BETWEEN GYP. BD. & PLYWOOD AT 9'-0" IN 134; AC. TILE AT 7'-10" IN 132
4 CAULK AT COUNTER; TOP OF COUNTER IN 132; ¼" PLYWOOD (OR MICARTA IN 132 AT JAMBS)
5 L.M. BUCK AT DR. 132/2
6 ¼" PLYWOOD; RUBBER BASE

WOOD WALL DETAILS
SCALE: 3" = 1'-0"

SPEAKER; CLOCK
AIR SUPPLY GRILLE
GYPSUM BOARD
CONC. BLOCK
PLYWOOD
STEEL BOOK SHELVES
WIRE GLASS
H.M. FRAME SEE DETAILS ON DWG. A30-D6
VINYL TOP
FIXED SHELVES
FLOOR LIGHT
PLYWOOD
TILESMO. ½" POL. PL. GL. SHELVES METAL BRACKETS & STANDARDS
SWITCH
PLYWOOD
4" RUBBER BASE
CONT. RETURN AIR GRILLE IN BASE BY H & V CONTR.

ELEV. #3

VINYL TOP
FIXED SHELVES
4" RUBBER BASE

ELEV. #4

LIBRARY

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-24
Date 30APR 57
Scale AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects 60 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

K.E.C. DENOTES KITCHEN EQUIPMENT CONTRACTOR
G.C. " GENERAL CONTRACTOR
S/S " STAINLESS STEEL
G/I " GALVANIZED IRON
C/P " CHROMIUM PLATED

SYMBOL & ABBREVIATION SCHEDULE

PLUMBING-HEATING		ELECTRICAL	
C	COLD WATER	HP	MOTOR HORSEPOWER
H	HOT WATER	KW	KILOWATTS
W	WASTE	EO	ELECTRIC CONNECTION
IW	INDIRECT WASTE	EL	ELECTRIC LIGHT
G	GAS	DR	DUPLEX RECEPTACLE
FD	FLOOR DRAIN	SW	SWITCH
S	STEAM SUPPLY	SP	SWITCH AND PILOT LIGHT
R	STEAM RETURN		JUNCTION BOX
AF	ABOVE FINISHED FLOOR		SPECIAL PURPOSE OUTLET

SCHEDULE OF EQUIPMENT AND CONNECTIONS

ITEM NO.	Q'TY	DESCRIPTION	H	C	W	IW	G	HP	KW	EL	EO	DR	VOLT.	PH.	REMARKS
1	3	RANGES, SHELF AND FAUCET	¾"	¾"			15/16								270,000 BTU - FAUCET BY K.E.C.
2	1	OVEN					¾"								88,000 BTU.
3	1	VEGETABLE STEAMER	¾"				¾"								160,000 BTU-¾" STEAM CONNECT
4	1	TILTING KETTLE & FAUCET	¾"	¾"											CONNECTIONS TO #3 BY OTHERS
5	1	MIXER						1				1	208	3	BY OWNER
6	1	HOOD OVER RANGES, OVEN, ETC.							0.8	8	1		120	1	9800 C.F.M. FAN
7	1	COOK'S TABLE & SINK	¾"	¾"	1½"								120	1	CONVEYANCE DR.
8	1	FAN & UTENSIL RACK													CEILING TYPE
9	1	PORTABLE SLICER TABLE													
10	1	SLICER							¼				120	1	CORD & PLUG BY OWNER
11															
12	1	VEGETABLE SINK & DRAINBOARD	3/4"	3/4"	2"										
13	1	PEELER & TRAP		¾"	3"			½			1		120	1	SOLID CONNEC. NON-IW to FD
14	1	TABLE										1	120	1	CONVENIENCE DR.
15	1	POT SINK & DRAINBOARDS	3/4"	3/4"	2"										
16															
17	1	BAKER'S TABLE & PANS										1	120	1	CONVENIENCE DR.
18	2	PASS-THRU REFRIGERATORS			1"		½				2		120	1	CORD & PLUG EACH/BY OWNER
19															
20	2	UPRIGHT FREEZERS					½				2		120	1	CORD & PLUG EACH/BY OWNER
21	1	WALK-IN REFRIGERATOR					¾					1	1 SOL	3	REFRIGERATION UNIT / BY OWNER
													1 SOL	3	BLOWER COIL & MOTOR
22	2	DISHWASHERS	180°F	¾"	2"		½	1			2		208	3	40,000 BTUH EACH WASHING
23	2	HOT WATER BOOSTERS	¾"				15.0				2		208	3	EACH - SOLID CONNECTIONS
24	2	SETS OF DISHTABLES & SINKS	3/4"	3/4"	2½"										EACH SET: SOILED DISH PASS OPENING BOOK & DOOR BY K.E.C.
25	1	HOODS OVER DISHWASHERS													750 CFM EACH
26	2	CAFETERIA COUNTERS													
A	2	TRAY & SILVER SECTIONS													
B	2	HOT FOOD TABLES							3.6		2		120	1	EACH - SOLID CONNECTIONS
C	2	PROTECTOR CASES													
D															
E	2	DISPLAY CASES													
F	2	REFRIGERATED MILK DISPENSERS			1"		½				2		120	1	CORD & PLUG EACH
G	2	CASHIER SECTIONS									2		120	1	CONVENIENCE DRS
H	2	TRAY SLIDE													
27	3	WATER COOLERS		¾"	1½"						1		120	1	CORD & PLUG - EACH
28															
29	1	CAFETERIA COUNTER													
J	1	HOT FOOD TABLE							2.4		1		120	1	SOLID CONNECTION
K	1	PROTECTOR CASE													
L	1	BREAD DRAWER													
M	1	REFRIGERATOR UNDER							¼			1	120	1	CORD & PLUG BY OWNER
N	1	DISPLAY CASE													
P															
Q	1	TRAY SLIDE													
30															
31	3	ICE CREAM CABINETS (BY OTHERS)							¼			1	120	1	BASES BY K.E.C. CORD & PLUG
32	1	CAN RINSER	¾"	¾"											
33	1	HOT STORAGE CABINET													

DATE	ISSUE OR REVISION	No.

SERVING

CAFETERIA #2

DISHWASHING

COOKER ROOM

STORE ROOM
SHELVING BY G.C.

KITCHEN

RECEIVING

TRASH & CAN WASHING

OFFICE
TELEPHONE

DISHWASHING

CAFETERIA #1

FACULTY DINING ROOM

PLAN
SCALE: ¼"=1'-0"

SECTION V-V
¾"=1'-0"

DISPLAY CASE
PROTECTOR CASE
SILVERWARE
ICE CREAM CABINET
REMOV. ACCESS PANEL
REFRIG. MILK DISPENSER
REMOVABLE SHELVES
FIXED
PLATE SHELF
BOTTOM SHELF
SCREENED OPENING
BASE BY K.E.C.

ELEVATION A-A
½"=1'-0"

SLOPED SHELF
FOUR(4) BINS
SCREENED OPENING
TOE BASE

ELEVATION B-B
½"=1'-0"

SECTION C-C
¾"=1'-0"

SECTION D-D

SECTION THRU ¾"=1'-0" ELEVATIONS
SOILED DISH PASS OPENINGS

SECTION Z-Z
1½"=1'-0"

SECTION THRU SOILED DISH TABLE
SIZE AND SHAPE AS SHOWN ON PLAN

SECTION THRU CLEAN DISH TABLE
SIZE AND SHAPE AS SHOWN ON PLAN
¾"=1'-0"

SECTION THRU PRE RINSE SINK

SECTION THRU SINK
¾"=1'-0"

SECTION X X THRU PRE RINSE SINK
¾"=1'-0"

PART ELEVATION OF SINK AND DRAINBOARD
SIZE AND SHAPE AS SHOWN ON PLAN

SECTION THRU RANGE HOOD
¾"=1'-0"

SECTION Y-Y
HALF SIZE

DETAILS SHELVES OVER
1½"=1'-0"

SECTION THRU DISHWASHER HOOD
¾"=1'-0"

SECTION THRU TABLE AT WALLS

WORK TABLE
¾"=1'-0"

PERSPECTIVE

SECTION

CARVING BOARDS
¾"=1'-0"

PERSPECTIVE OF TOOL DRAWER

GENERAL NOTE
THIS PLAN IS AN INSTRUMENT OF SERVICE PREPARED FOR THE CONVENIENCE OF OTHER CONTRACTORS AND IS AS ACCURATE AS CAN BE OBTAINED AT THIS DATE. WE WILL NOT BE RESPONSIBLE FOR ANY DISCREPANCIES WHICH MAY DEVELOP BETWEEN LOCATIONS OF CONNECTIONS SHOWN AND ACTUAL LOCATIONS OF CONNECTIONS OF FIXTURES FURNISHED. CONNECTIONS SHOWN ARE APPROXIMATE LOCATIONS ONLY. FIXTURES VENDOR MAY REQUIRE DIFFERENT STANDARD ALLOWANCES MUST BE MADE FOR TRAPS, VALVES, STRAINERS OR OTHER CONNECTING DEVICES. CONNECTIONS FOR FIXTURES IN FLOOR OR PARTITIONS OR DROP ANS ARE FOR GUIDANCE ONLY. FOR FLOOR AT REAR OF DRIP PAN AND CONNECTIONS FOR FIXTURES AS REQUIRED. LOCATIONS OR CONDITIONS ON FIXTURES ARE MEASURED FROM FINISHED FLOORS, WALLS OR PARTITIONS. IT IS THE CONSULTANT CONTRACTOR WILL FURNISH DIMENSIONED PLANS.

ROTHMAN & FOERST
FOOD SERVICE CONSULTANTS
LONG ISLAND CITY, N.Y. - PASSAIC, NEW JERSEY
HENRY H. ROTHMAN, F.F.E.S. W. E. FOERST

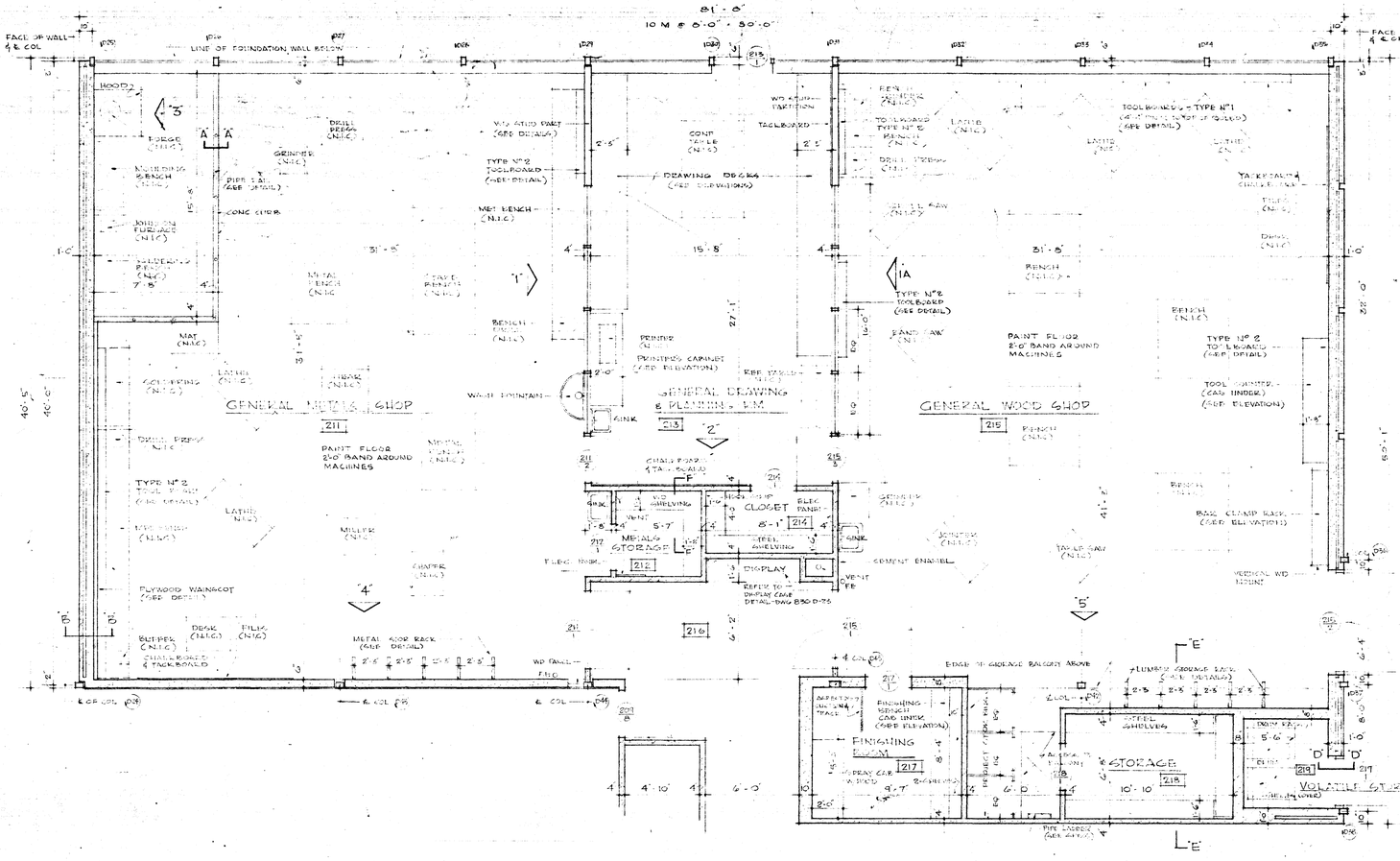
KITCHEN

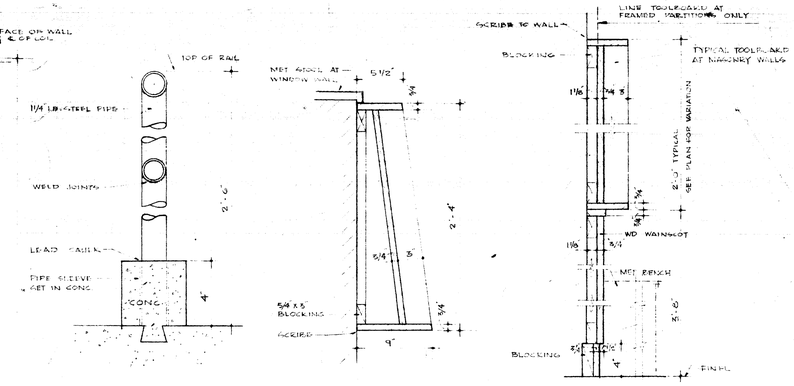
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-25
Date 30APR 57 Scale AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects and Town Planners, Litchfield, Connecticut

BQ #70 & 125 Attachment

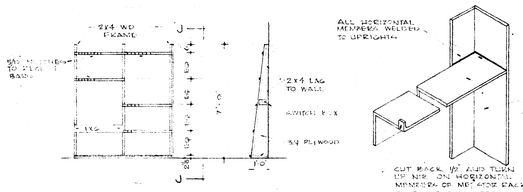




SECTION A-A
SCALE: 1"=1'-0"

SECTION THRU TOOLBOARD TYPE N° 1
SCALE = 1½"=1'-0"

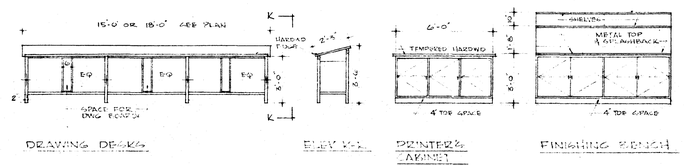
SECTION B-B
TYPE N° 2 TOOLBOARD
(W/O WAINSCOT WHERE NOTED)
SCALE: 1½"=1'-0"



FRONT ELEVATION
BASE CLAMP RACK
SCALE: 1/4"=1'0"

ELEVATION J-J

TYPICAL RACK FRAME DETAIL
SCALE: 3"=1'-0"



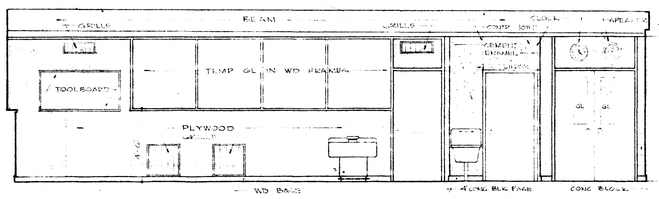
DRAWING DESKS

ELEV'TOL

PRINTER'S CABINET

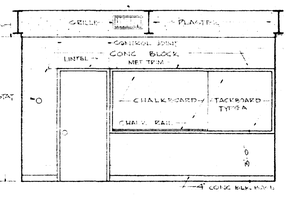
FINISHING BENCH

PLAN ELEVATIONS
SCALE: 1/4"=1'-0"

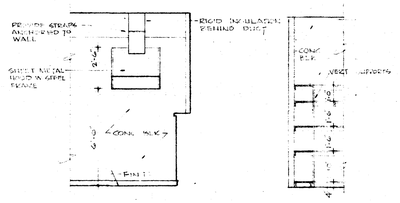


ELEVATION "1"

ELEVATION 1A
SIMILAR BUT OPPOSITE HAND

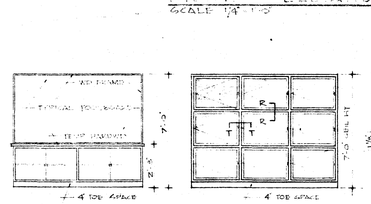


ELEVATION "2"



ELEVATION "3"
TYPE IN FINISHING RM SIMILAR

SECTION E-E
SCALE: 1/4"=1'-0"

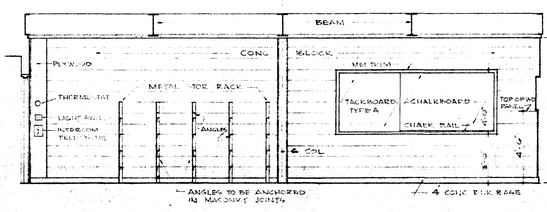


FRONT ELEVATION
TOOL COUNTERS
SCALE: 1/4"=1'-0"

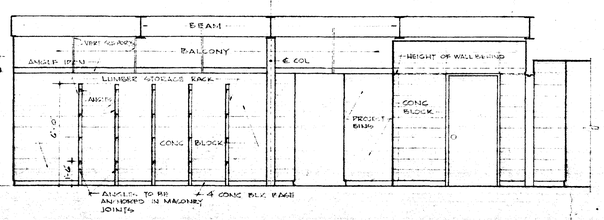
FRONT ELEVATION
PROJECT. VISOR RING
SCALE: 1/4"=1'-0"

SECTION T-T

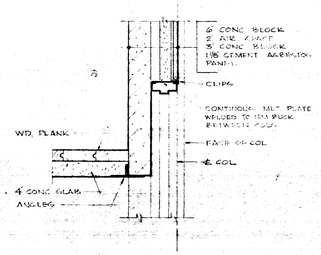
SECTION R-K
SCALE: 3"=1'-0"



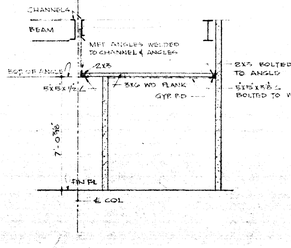
ELEVATION "4"



ELEVATION "5"



SECTION D-D
SCALE: 3/4"=1'-0"



SECTION E-E
SCALE: 1/4"=1'-0"

DATE	ISSUE OR REVISION	No.

SHOPS

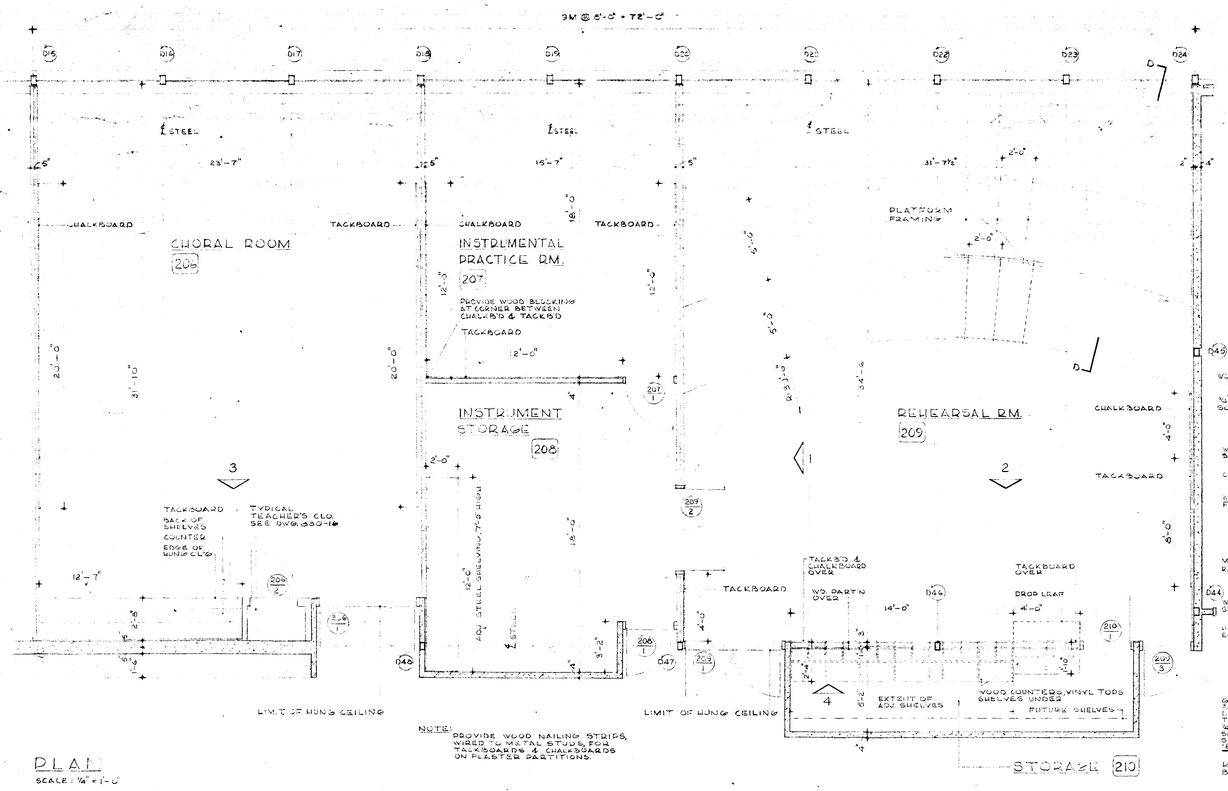
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-26

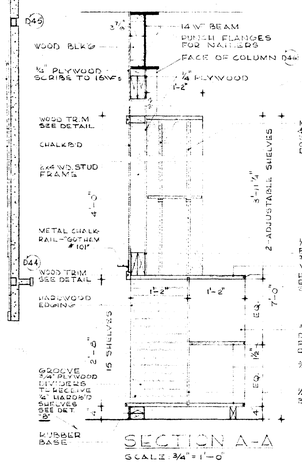
Date: 30APR 57
Scale: AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

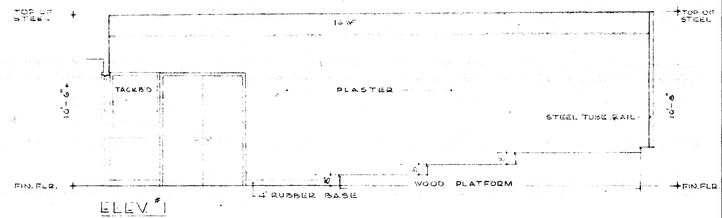
BQ #70 & 125 Attachment



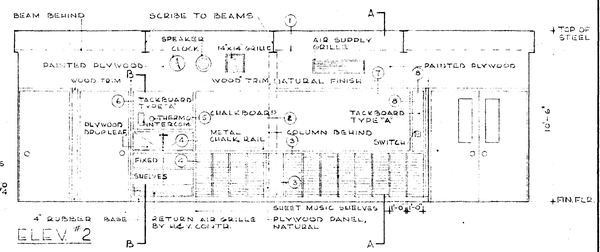
PLAN
SCALE: 1/4" = 1'-0"



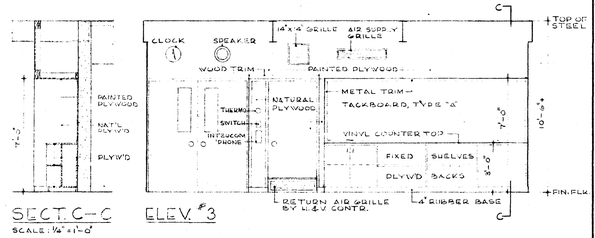
SECTION A-A
SCALE: 3/4" = 1'-0"



ELEV. #1



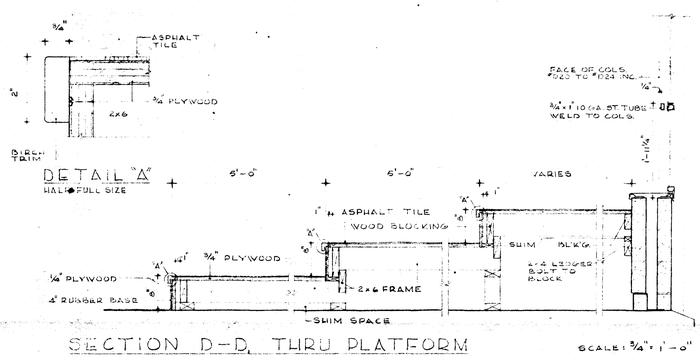
ELEV. #2



SECT. C-C
SCALE: 1/4" = 1'-0"

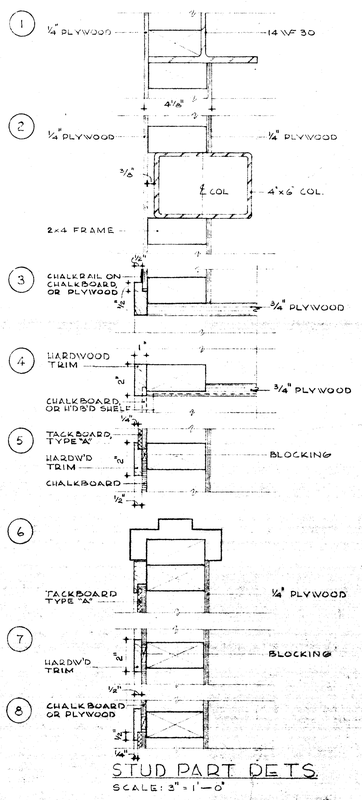
ELEV. #3

NOTE: ELEVS #2 & #3 — HEIGHT ℄ CLOCK & SPEAKERS TO FIN. FLR. = 8'-6"

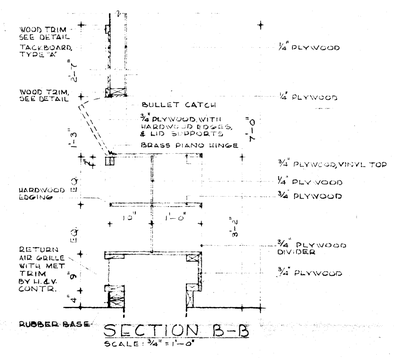


DETAIL "A"
HALF FULL SIZE

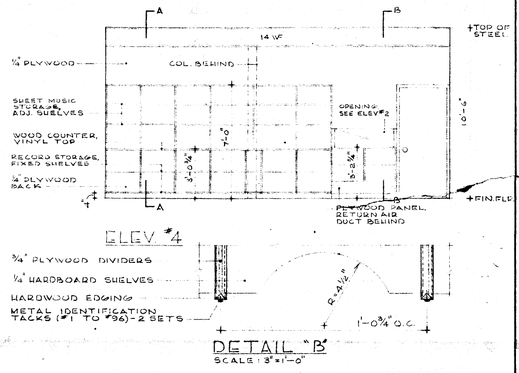
SECTION D-D THRU PLATFORM
SCALE: 3/4" = 1'-0"



STUD PART DETS.
SCALE: 3" = 1'-0"



SECTION B-B
SCALE: 3/4" = 1'-0"



ELEV. #4

DETAIL "B"
SCALE: 3" = 1'-0"

DATE	ISSUE OR REVISION	No

MUSIC ROOMS

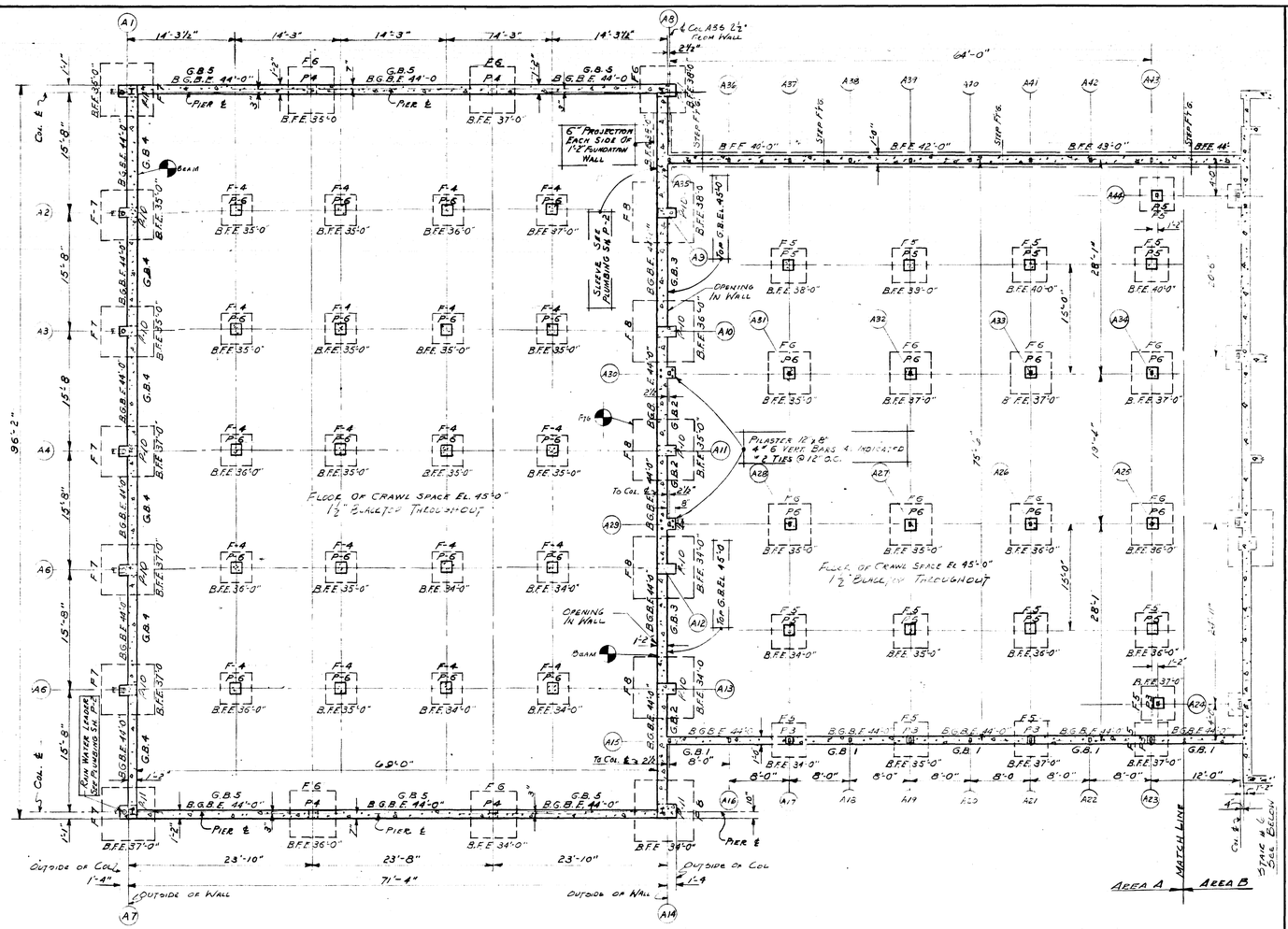
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-27

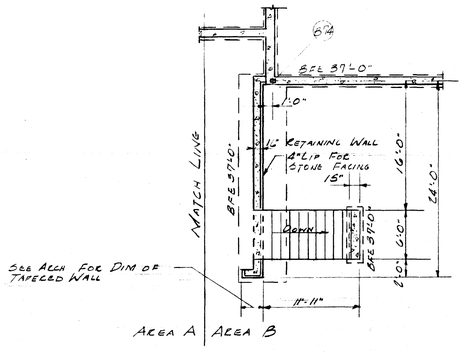
Date: 30 APR 57 | Scale: AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

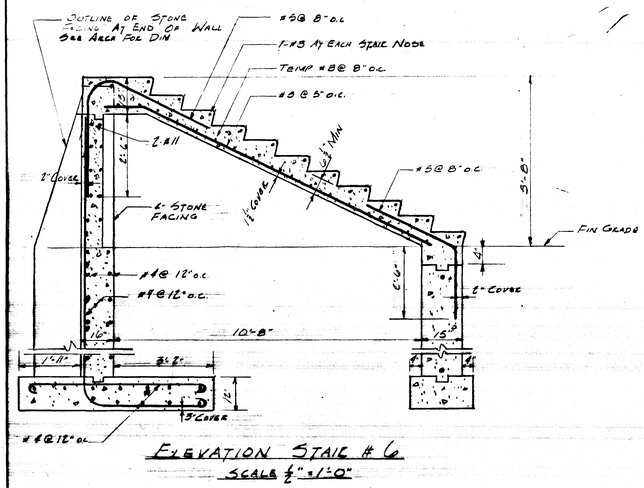


FOUNDATION PLAN

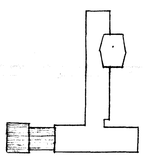


FOUNDATION PLAN
STAIR #6
SCALE 3/8" = 1'-0"

NOTE
SEE STAIR ELEV. THIS SHEET FOR DIMENSIONS & REINFORCEMENT



ELEVATION STAIR #6
SCALE 1/2" = 1'-0"



KEY PLAN

FOUNDATION
AREA A

CENTRAL JUNIOR
HIGH SCHOOL
Greenwich, Connecticut

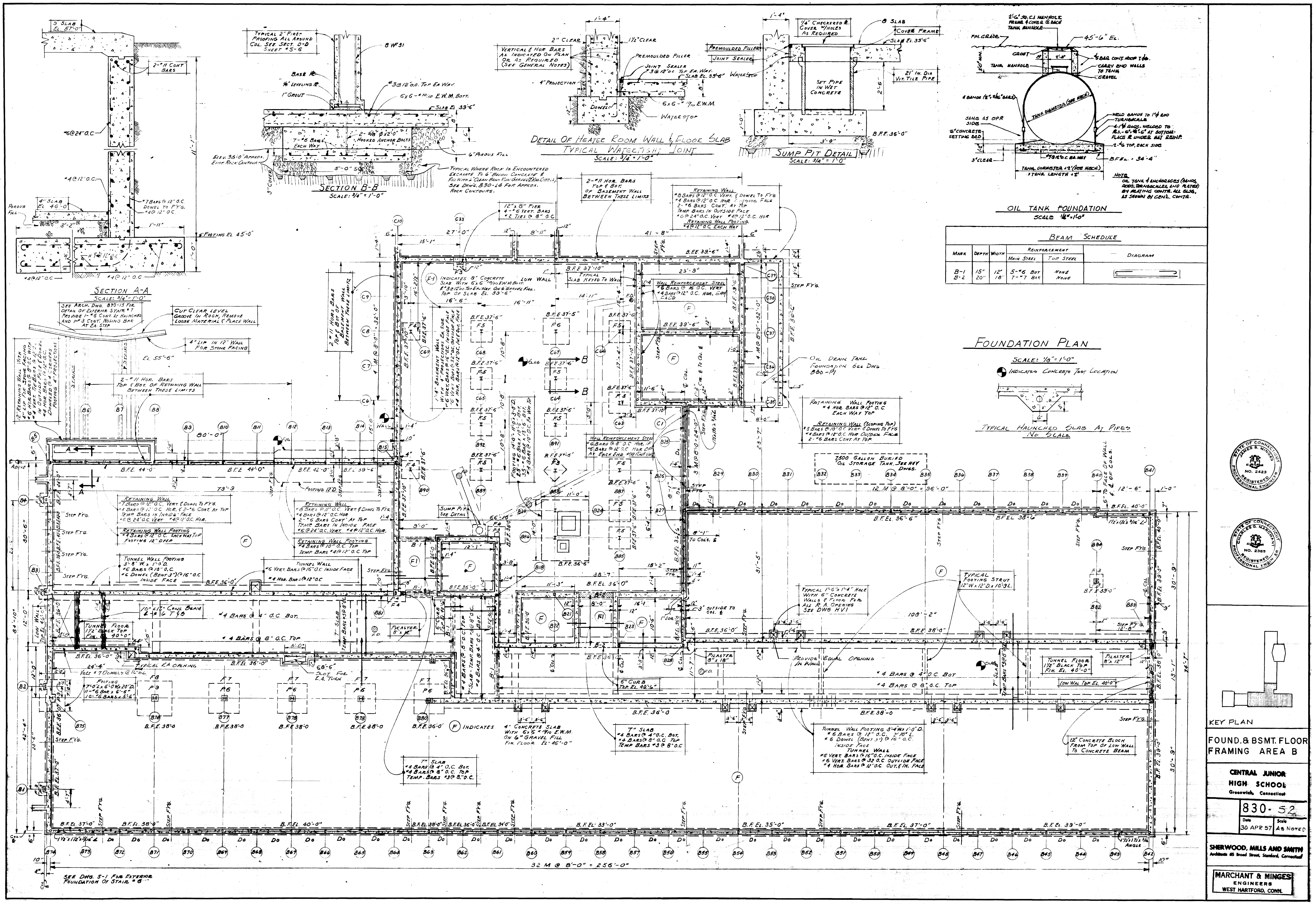
830-51

Date 30 APR 57 | Scale 1/8" = 1'-0"

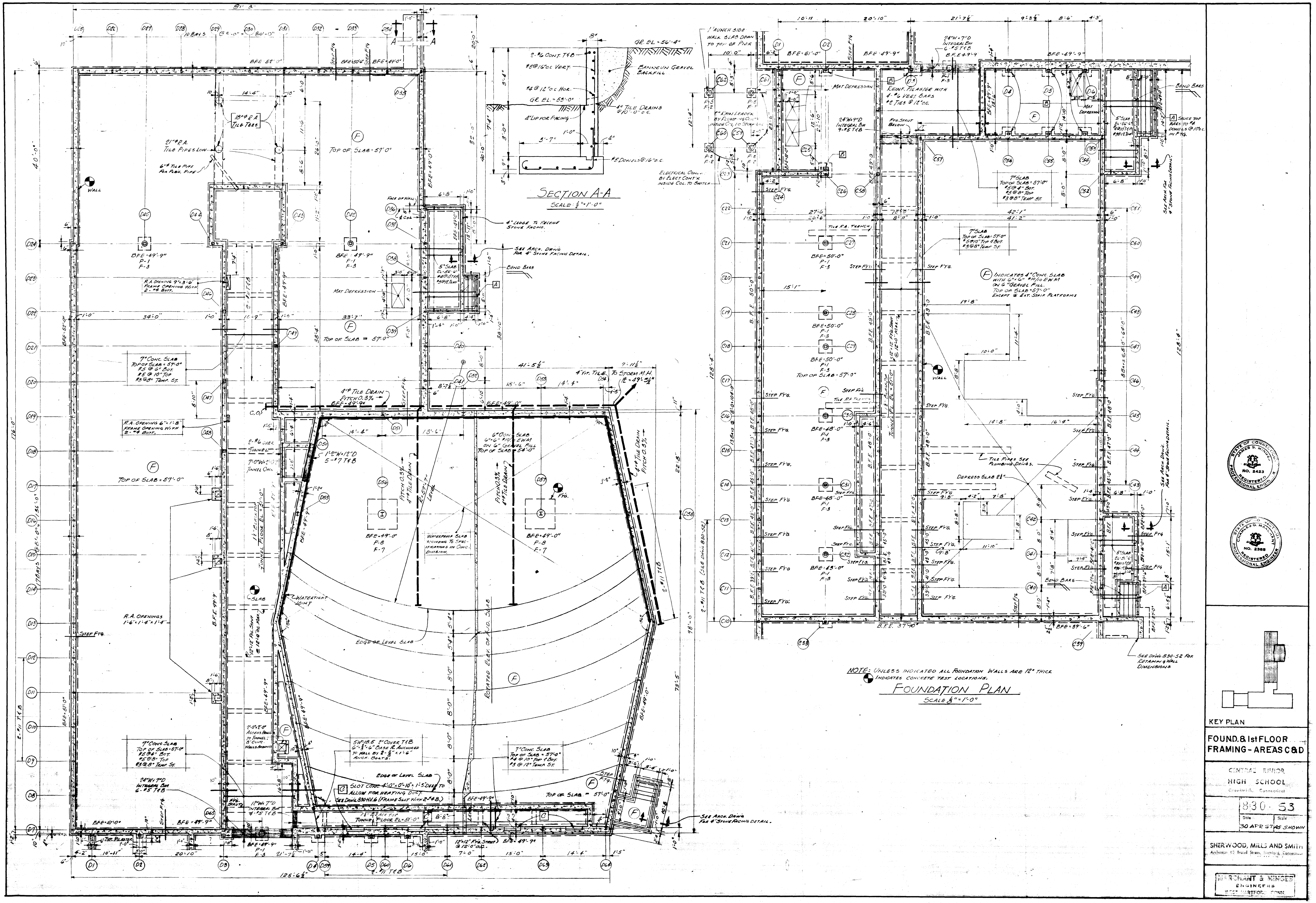
SHERWOOD, MILLS AND SMITH
Architects, 65 Broad Street, Stamford, Conn.

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment



BQ #70 & 125 Attachment



BQ #70 & 125 Attachment

GRADE BEAM SCHEDULE

NOTE: RUN TOP STEEL OF GRADE BEAMS CONTINUOUS AND SEE TYPICAL BAR SPLICE DIAGRAMS FOR GRADE BEAMS AT CORNERS AND INTERSECTIONS. SPLICE TOP BARS AT MIDSPAN AND BOTTOM BARS AT SUPPORTS.

MARK	WIDTH	DEPTH	REINFORCEMENT TOP	REINFORCEMENT BOTTOM	#3 STIRRUPS DIAG.	#3 STIRRUPS	REMARKS
GB-1	12"	6'-10"	3-#6	3-#6	*	NONE	#3@18"o.c. HOR. INSIDE & OUTSIDE FACES #4@18"o.c. VERT. INSIDE & OUTSIDE FACES
GB-2	1'-8"	6'-10"	4-#11	4-#11	*	NONE	NONE
GB-3	1'-8"	18"	2-#5 BOTH ENDS	5-#5	O	NONE	NONE
GB-4	1'-8"	6'-10"	3-#6	3-#6	*	NONE	#6@12"o.c. HOR. INSIDE FACE #6@24"o.c. HOR. OUTSIDE FACE #4@12"o.c. VERT. INSIDE & OUTSIDE FACE
GB-5	1'-8"	6'-10"	4-#10	4-#10	*	NONE	#6@8"o.c. HOR. INSIDE FACE #6@12"o.c. HOR. OUTSIDE FACE #4@12"o.c. VERT. INSIDE & OUTSIDE FACE

PIER SCHEDULE

NOTE: WHEN PIERS ARE 2'-0" OR LESS IN HEIGHT, DOWELS MAY BE USED AS VERTICAL STEEL. INCLUDE TIES.

MARK	SIZE	VERT. REINF	HOR TIES	DIAGRAM
P-1	14"ø	4-#6	#2@10"	
P-2	16"ø	4-#7	#2@10"	
P-3	12"□	4-#6	#2@10"	
P-4	14"□	4-#7	#2@10"	
P-5	16"□	4-#8	#3@16"	
P-6	18"□	6-#7	#2 [a@12" b@12" ALT. #3 a@16" b@16" ALT.	
P-7	20"□	6-#8	#3@16"	
P-8	22"ø	4-#10	#3@18"	
P-9	24"□	8-#8	#3 [a@16" b@16" ALT.	
P-10	14"x30"	10-#8	#3 [a@12" b@12" c@12" ALT.	
P-11	20"x30"	10-#8	Do	

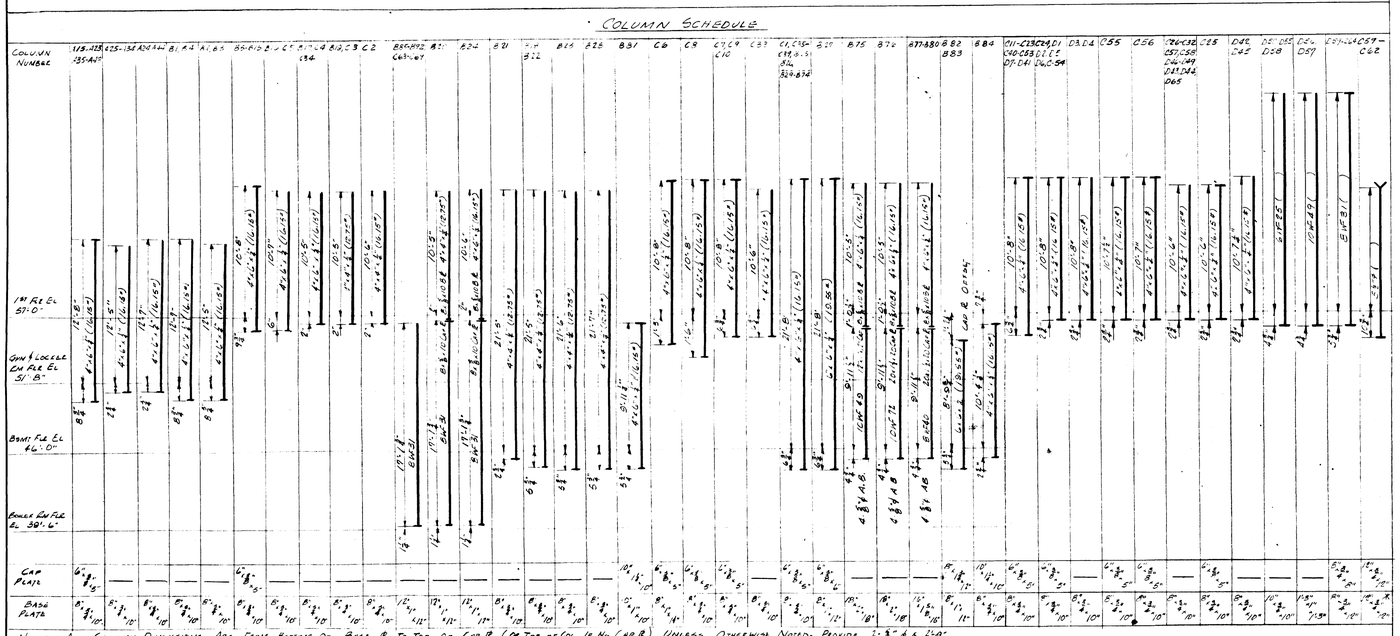
FOOTING SCHEDULE

NOTE: PROVIDE DOWELS SAME NO. AND SIZE AS PIER STEEL. OMIT DOWEL WHERE NO PIER EXISTS.

MARK	SIZE	DEPTH	REINF. EA WAY
F-1	3'-6"□	1'-4"	4-#6
F-2	2'-0"□	1'-0"	NONE
F-3	3'-0"□	1'-4"	4-#6
F-4	4'-0"□	1'-6"	5-#6
F-5	5'-0"□	1'-9"	7-#6
F-6	6'-0"□	1'-5"	10-#6
F-7	7'-0"□	1'-8"	11-#6
F-8	8'-0"□	1'-10"	13-#6

BEND #8 BARS TO ALIGN WITH COL BARS ABOVE. SEE DWG 830-S10

COLUMN SCHEDULE



NOTES: ALL COLUMN DIMENSIONS ARE FROM BOTTOM OF BASE PL TO TOP OF CAP PL (OR TOP OF COL IN NO CAP PL). UNLESS OTHERWISE NOTED, PROVIDE 2-¾" ø x 2'-0" HOOKED ANCHOR BOLTS AT EACH COLUMN BASE.
ALL COLS 8"x6"x⅜", 6"x4"x⅜", OR 5"x3½"x⅜" ARE HOLLOW TUBULAR COLUMNS.
FOR COLUMNS BEARING ON BEAMS USE 4 BOLTS IN BASE PL
SEE SHEET S-7 FOR STEEL & CONC. COL. TYP. A-1, A-2, A-3, A-4, A-5, A-6
* PROVIDE 3" HOLE IN MIDDLE OF BASE PL

STRUCTURAL GENERAL NOTES

GENERAL:

A. SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR DIMENSIONS AND DETAILS REQUIRED AS STRUCTURAL WORK. BUT WHICH ARE NOT SHOWN ON STRUCTURAL DRAWINGS.
B. EXCEPTIONS TO ITEMS AS OUTLINED IN THESE NOTES ARE SPECIFICALLY NOTED ON PLANS AND SPECIFICATIONS.

SPECIFICATIONS:

A. SEE SPECIFICATIONS GOVERNING DETAILING, FABRICATION, ERECTION, AND INSTALLATION OF ALL STRUCTURAL STEEL, CONCRETE AND WOOD CONSTRUCTION.

DESIGN:

A. LIVE LOADS
Roof ..... 40 psf Kitchen ..... 150 psf
Office ..... 50 "
Classrooms & Toilets ..... 60 "
Cafeteria & Wood Shop ..... 80 "
Corr., Exitways, Stairs, Gym & Projection Rm., Assembly .. 100 "
Book Stacking Area ..... 120 "
Metal Shop, Storage, Fanroom ..... 150 "
B. FOUNDATION BEARING
2 TSF = 4 KSF
C. CONCRETE STRENGTH: ALSO, SEE SPECS. CONCRETE QUALITY AND STRENGTH:
4000 P.S.I. [illegible]

BEARING ON MASONRY WALLS:

A. CONCRETE OR STEEL BEAMS AND COLUMNS SHALL BEAR ON SOLID BLOCK 3'-0" IN LENGTH
B. CONCRETE OR STEEL JOISTS SHALL BEAR ON SOLID BLOCK
C. FILLED CONCRETE BLOCK WILL NOT BE ACCEPTABLE FOR BEARING.

CONCRETE:

A. FOOTINGS ARE 12" DEEP WITH 4" PROJECTION.
B. EXTERIOR FOUNDATION FOOTINGS SHALL BE CARRIED A MINIMUM OF 4'-0" BELOW FINAL GRADE AND ALL FOOTINGS A MINIMUM OF 21-0" BELOW PRESENT GRADE, BUT TO SOUND GROUND IN ANY CASE.
C. CONCRETE BEAMS ARE CAST MONOLITHICALLY WITH SLABS AND ARE LISTED IN BEAM SCHEDULE. DEPTHS ARE MEASURED FROM TOP OF SLABS TO BOTTOM OF BEAMS.
D. INSTALL #6 BARS, 2 FOR EACH SIDE, FRAMING AROUND FOUR SIDES OF ALL OPENINGS IN CONCRETE WALLS. BARS SHALL EXTEND 2' BEYOND OPENING.
E. INSTALL #4 TOP BARS @ 10" O.C. EXTENDING INTO SLAB TWO FEET EACH SIDE OF BEAM OR WALL WHERE SOLID SLABS ARE PARALLEL TO BEAM OR WALL. WHERE SLAB OCCURS ON ONE SIDE ONLY, PROVIDE STANDARD HOOK.
F. CONCRETE SLABS AND BEAMS SHALL HAVE 8" MINIMUM BEARING ON MASONRY WALLS.
G. SLABS AND BEAMS BEARING LESS THAN 8" REQUIRE BOTTOM BARS HOOKED AT SUPPORTS.
H. TOPS OF CONCRETE WALLS SUPPORTING SLABS SHALL BE KEYED TO RECEIVE SLABS AND TO INSURE LATERAL SUPPORT TO WALLS. ALL FOOTINGS SHALL BE KEYED TO RECEIVE WALLS.
I. PROVIDE 2 #4 TIE BARS IN TOPS OF ALL CONCRETE BEAMS IN ORDER TO FASTEN STIRRUPS WHEN NO TOP STEEL IS DESIGNATED ON PLANS OR BEYOND WHERE DESIGNATED TOP STEEL MIGHT NORMALLY BE DISCONTINUED.
J. WHERE COLUMNS BEAR ON INTERSECTION OF TWO DISCONTINUOUS WALLS, PROVIDE #4 BARS X 8'-0" LONG 1' 12" O.C. CORNER REINFORCEMENT FOR TOP FIVE FEET OF WALLS, 2" CLEAR FROM OUTSIDE FACE.
K. WHEREVER STEEL BEAMS ARE ENCASED IN CONCRETE, THE MINIMUM COVER SHALL BE 2 INCHES.
L. PLACE ALL BASEMENT FLOOR SLABS PRIOR TO BACKFILLING AGAINST ADJACENT WALLS.
M. REINFORCE ALL FOOTINGS WITH 2 #8 BOTTOM BARS EXCEPT FOR FOOTINGS WHICH SUPPORT FOUNDATION WALLS GREATER THAN 2'-0" IN HEIGHT.
N. ALL EXTERIOR AND INTERIOR CONCRETE WALLS OF ALL THICKNESSES SHALL BE REINFORCED AS FOLLOWS:

HEIGHT OF WALL	FOOTING SUPPORTING WALL	EARTH PRESSURE ON WALL	REINFORCEMENT
0' TO 2'-0"	YES	FULL OR PARTIAL EITHER SIDE	1-#6 TOP
0' TO 2'-0"	NO	FULL OR PARTIAL EITHER SIDE	1-#6 TOP AND BOTTOM
2'-0" TO 8'-0"	YES OR NO	FULL OR PARTIAL EITHER SIDE	1-#6 TOP AND BOTTOM
2'-0" TO 12'-0"	YES OR NO	LESS THAN 4'-0" DIFFERENCE BETWEEN SIDES	1-#6 TOP AND BOTTOM
8'-0" TO 12'-0"	YES OR NO	MORE THAN 4'-0" DIFFERENCE BETWEEN SIDES	#6@18" O.C. VERT #4@12" O.C. HORIZ

O. ALL REINFORCING FOR WALLS AND FOOTINGS SHALL BE CONTINUOUS AND LAPPED 30 DIAMETERS AT ALL SPLICES, CORNERS AND INTERSECTIONS. PROVIDE #6 FOOTING DOWELS FOR ALL VERTICAL BARS IN WALLS.
P. METAL REINFORCEMENT SHALL BE PROTECTED BY THE FOLLOWING THICKNESSES OF CONCRETE:
1. WHERE CONCRETE IS DEPOSITED AGAINST GROUND, 3" INCHES
2. WHERE CONCRETE IS EXPOSED TO THE WEATHER, OR EXPOSED TO THE GROUND AFTER REMOVAL OF THE FORMS, 2" INCHES EXCEPT THAT SLABS WITH #5 BARS OR SMALLER SHALL HAVE ONLY 1-1/2" CLEAR COVER.
3. IN SLABS INCLUDING CONCRETE ROOF CONSTRUCTION, AND WALLS NOT EXPOSED TO THE GROUND OR WEATHER, 3/4" INCHES
4. IN BEAMS, GIRDERS, AND COLUMNS NOT EXPOSED TO THE WEATHER OR TO THE GROUND, 1-1/2" INCHES
5. IN ALL CASES THE THICKNESS OF CONCRETE OVER THE REINFORCEMENT SHALL BE AT LEAST EQUAL TO THE DIAMETER OF THE BARS.

STEEL:

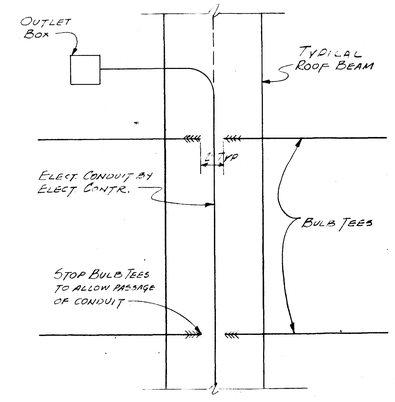
A. FURNISH LOOSE ANGLE LINTELS OVER ALL OPENINGS IN MASONRY WALLS AND PARTITIONS INCLUDING OPENINGS AT DOORS, WINDOWS, RECESSES, DUCTS, VENTS, ETC.
B. PROVIDE ONE ANGLE FOR EACH 4" OF MASONRY THICKNESS AS FOLLOWS:

SPANS	LINTEL
UP TO 4'-6"	L - 3-1/2" X 3-1/2" X 5/16"
4'-6" TO 5'-6"	L - 4" X 3-1/2" X 5/16"
5'-6" TO 6'-6"	L - 5" X 3-1/2" X 5/16"
6'-6" TO 7'-6"	L - 6" X 3-1/2" X 3/8"

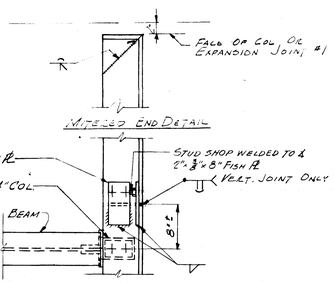
PROVIDE 3" HORIZONTAL LEG ON ANGLES IF REQUIRED AT CERTAIN METAL DOOR BUCKS. WHERE TOTAL THICKNESS OF WALL TO BE SUPPORTED BY LINTEL IS 4" AND ARCHITECTURAL FINISHES REQUIRE EXPOSED MASONRY ON EACH SIDE, LINTEL SHALL BE AN STJ3½25 WITH 2" OF MASONRY EACH SIDE OF WEB. FURNISH SIMILAR TREATMENT FOR 6" WALLS USING 2 L5 3-1/2" X 5/16" WITH 2" OF MASONRY ON EACH SIDE OF VERTICAL LEGS. ALL STEEL LINTELS SHALL HAVE 8" BEARING ON MASONRY AT EACH END.
C. ALL ROLLED STEEL MEMBERS BEARING ON MASONRY OR CONCRETE WALLS SHALL BE PROVIDED WITH BEARING PLATES AND SHALL BE ANCHORED BY MEANS OF HOOKED ANCHOR BOLTS FOR ALL ROOF ANCHORAGE. WHERE BEAMS FRAME INTO A WALL AND ROOF ANCHORAGE IS NOT NEEDED, GOVERNMENT ANCHORS MAY BE USED. ANCHOR BOLTS SHALL BE 5/8" X 2'-0" WITH 3" HOOK. BEAMS SHALL BE OF SUFFICIENT LENGTH TO BEAR THE FULL WIDTH OF PLATE AT EACH END.
SIZE OF BEARING PLATES FOR BEAMS SHALL BE AS FOLLOWS:

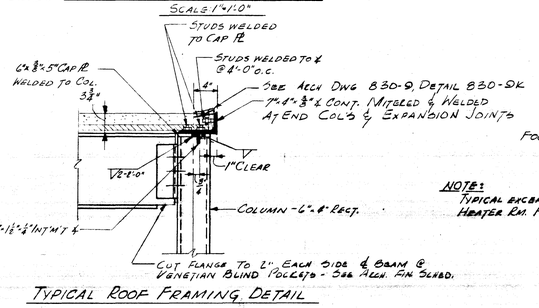
S-SERIES, CHANNELS, TB, AND 4 WF'S	6" X 3/8" X 6"
6 WF	8" X 3/4" X 10"
10 WF, 12 WF	8" X 7/8" X 1'-0"
14 WF, 16 WF, 18 WF	8" X 1" X 1'-2"
21 WF, 24 WF	10" X 1" X 1'-2"

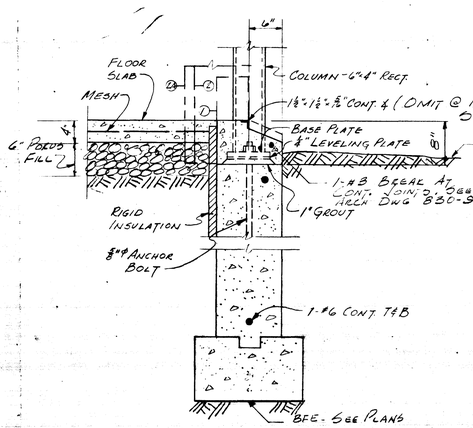
D. PUNCH OR DRILL STEEL FOR 5/8" BOLTS FOR ALL BLOCKING AND ACCESSORIES AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS. SEE ARCHITECTURAL, WHERE NOT SPECIFICALLY INDICATED, STEEL SHALL BE PUNCHED 2'-6" O.C. STAGGERED, FOR BLOCKING.

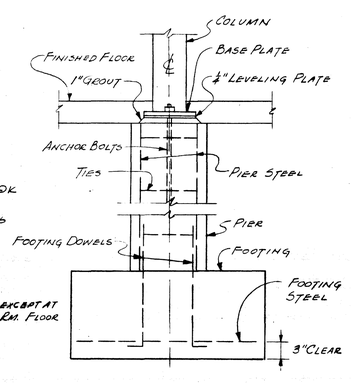


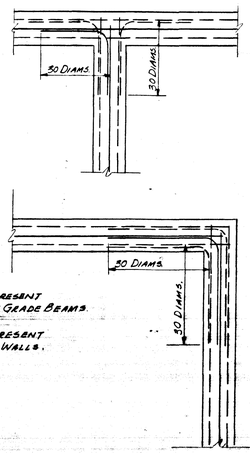
TYPICAL PLAN OF BULB TEE
BREAK FOR PASSAGE OF ELEC. CONDUIT TO OUTLET BOXES IN AREAS OF EXPOSED ROOF CONSTRUCTION
No Scale

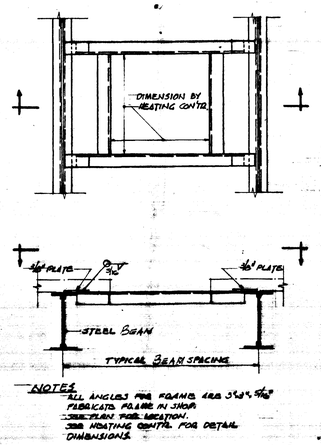












STATE OF CONN. JAMES K. MINGES NO. 2423 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT CHARLES G. MANCHANT NO. 2389 REGISTERED PROFESSIONAL ENGINEER

STRUCTURAL DET'LS. & SCHEDULES

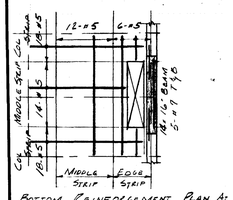
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-S4
Date: 30 APR 57 Scale: AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects, 65 Broad Street, Stamford, Connecticut

MANCHANT & MINGES ENGINEERS WEST HARTFORD, CONN.

BQ #70 & 125 Attachment

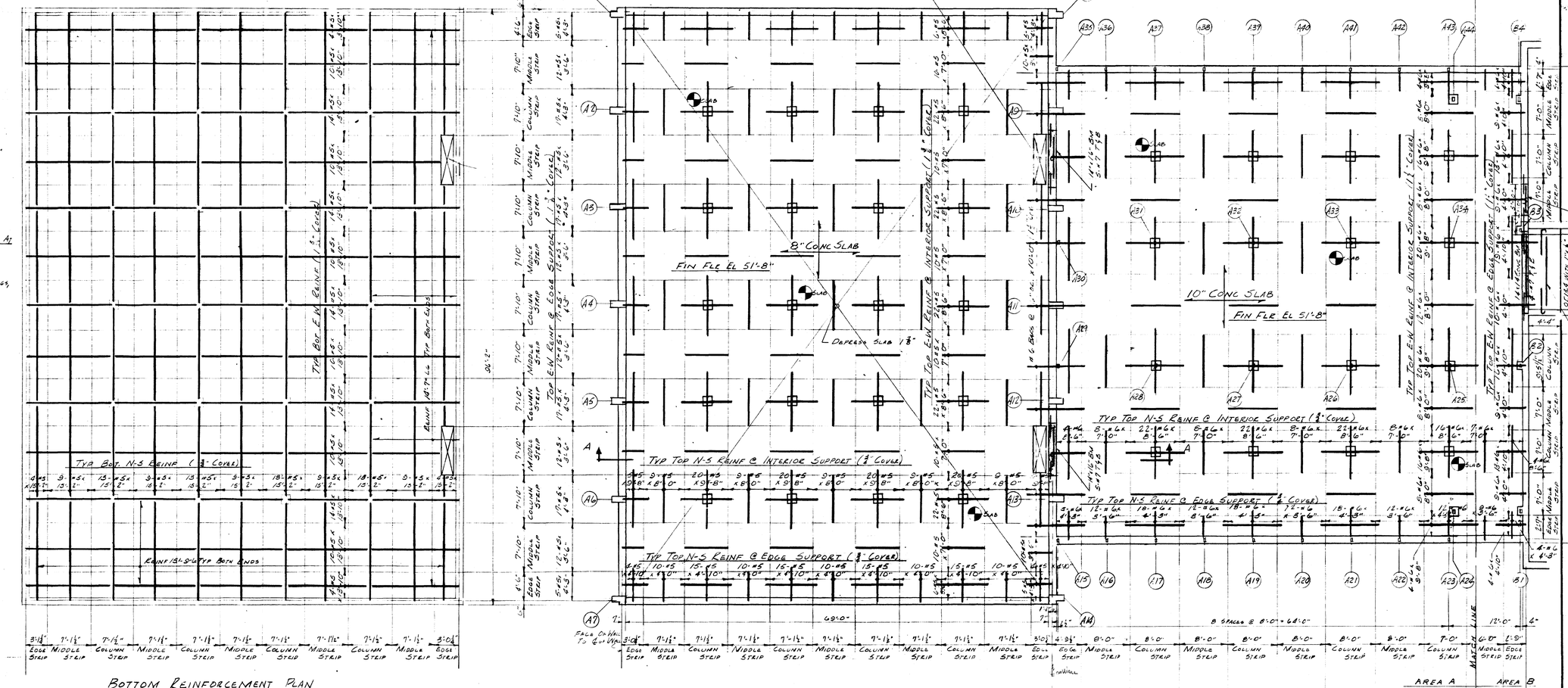


BOTTOM REINFORCEMENT PLAN AT GYM SLAB OPENING

SCALE 3/8" = 1'-0"

NOTES:

TYPICAL TOP STEEL USED AT OPENING, EXCEPT N-S STEEL TO BE 8'-0" LG FOR EDGE STRIP. E-W TOP # 6 BARS TO BE 6'-0" LG & HOOKED AT BEAM.



BOTTOM REINFORCEMENT PLAN

FIRST FLOOR FRAMING PLAN AND TOP REINFORCEMENT PLAN

SCALE 3/8" = 1'-0"

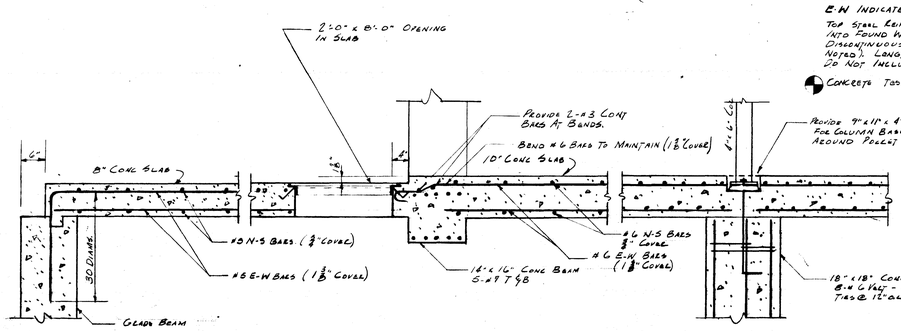
NOTES:

N-S INDICATES NORTH - SOUTH

E-W INDICATES EAST - WEST

TOP STEEL REINF TO BE DOWELED 30 DIAMS INTO FOUND WALL OR GRADE BEAM AT ALL DISCONTINUOUS EDGES (UNLESS OTHERWISE NOTED). LENGTHS OF REINF NOTED ON PLAN DO NOT INCLUDE EDGE DOWEL LENGTH.

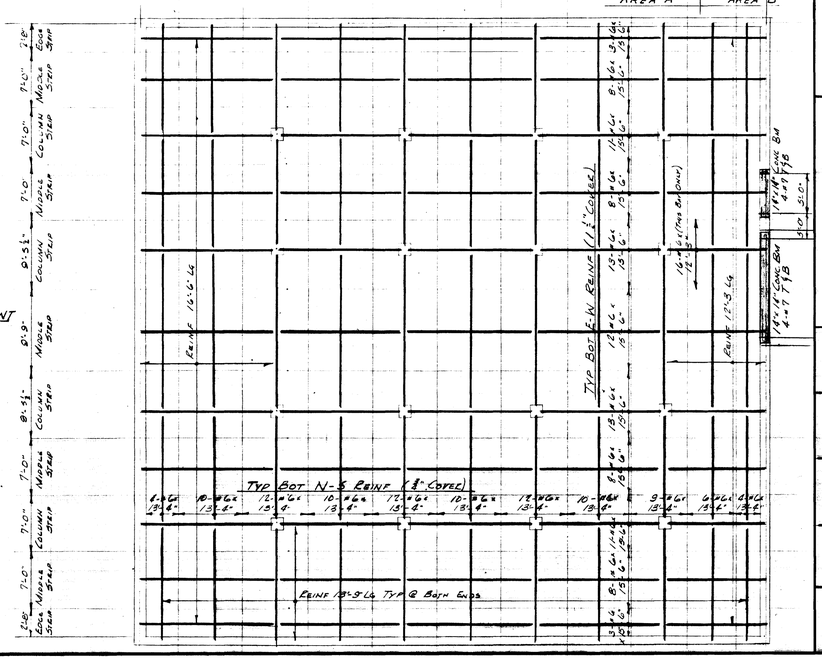
● CONCRETE TEST LOCATIONS



SECTION A-A

SCALE 3/8" = 1'-0"

BOTTOM REINFORCEMENT PLAN



KEY PLAN

I st. FLOOR FR'M'G. AREA A

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830- S5

Date: 30 APR 57 | Scale: AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

STATE OF CONNECTICUT JAMES S. MINGES NO. 2423 REGISTERED PROFESSIONAL ENGINEER

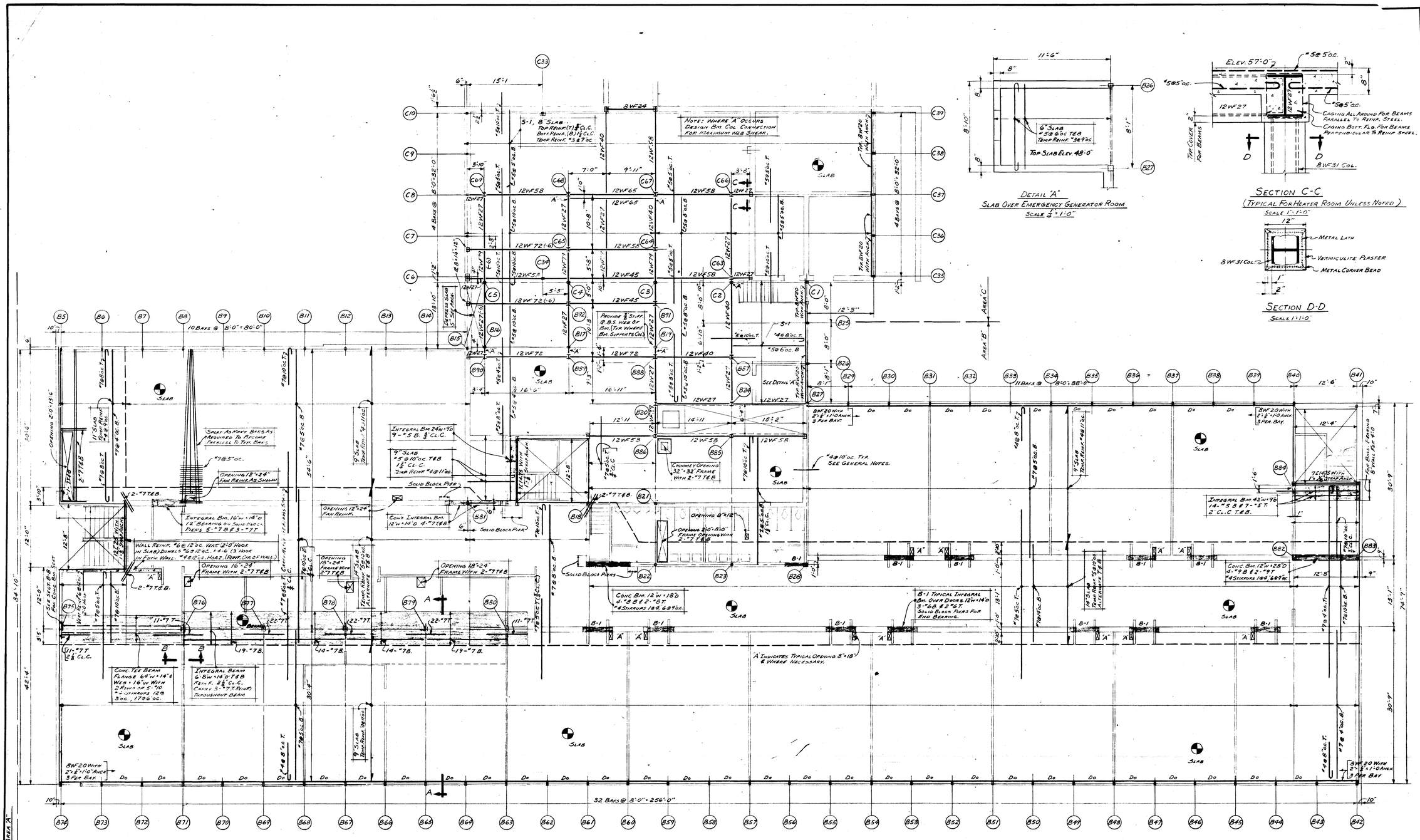
STATE OF CONNECTICUT CHARLES S. MARCHANT NO. 2388 REGISTERED PROFESSIONAL ENGINEER

BQ #70 & 125 Attachment

First Floor Framing Plan Unit "B"

Top Slab Elev. 57:0"

Scale 1/8" = 1:0"



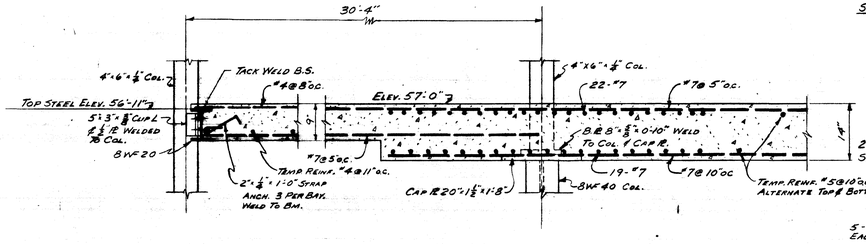
Notes:

See General Notes for reinforcement not shown on plan.

Top of Conc. Drop Beams same Elev. as Top of Slab.

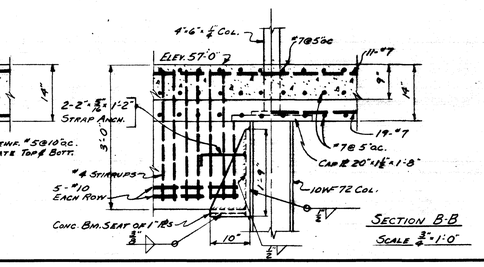
Top Steel in Heater Room (-2") from Top Slab Elev. 57:0" unless noted.

Indicates Concrete Test Locations.



Section A-A

Scale 3/8" = 1:0"



Section B-B

Scale 3/8" = 1:0"

Detail "A"

Slab over Emergency Generator Room

Scale 1/4" = 1:0"

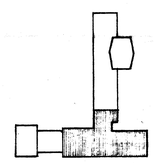
Section C-C

(Typical for Heater Room Unless Noted)

Scale 1"-1'-0"

Section D-D

Scale 1"-1'-0"



KEY PLAN

I st. FLOOR FR'M'G.
AREA B

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-56

Date 30 APR 57 | Scale 1/8 SHOWN

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

JAMES J. MARCHANT NO. 2423 REGISTERED PROFESSIONAL ENGINEER

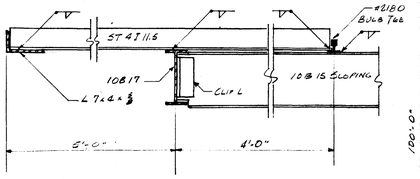
STATE OF CONNECTICUT CHARLES G. MINGES NO. 2385 REGISTERED PROFESSIONAL ENGINEER

BQ #70 & 125 Attachment

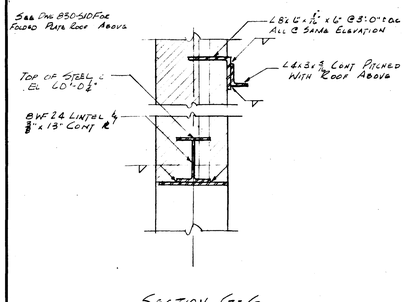
NOTES:

SEE DWG. B30-510 FOR DIMENSIONS & EQUIP FOR CONC. COLUMNS.

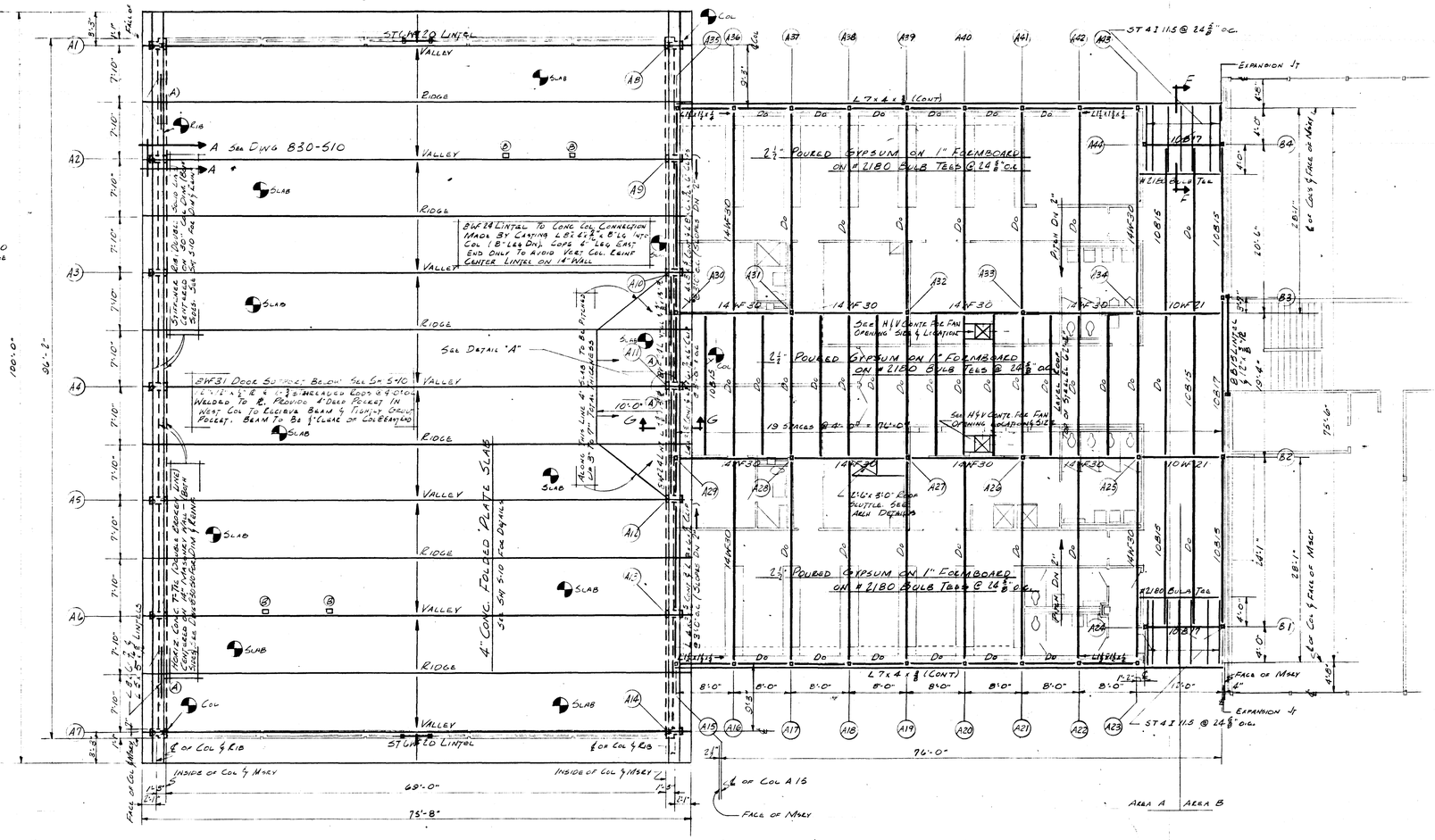
COLUMNS A1, A7, A8, & A14 HAVE INTERIOR STEEL COLUMNS CAST IN CONCRETE SECTION. STEEL COLUMNS CONSIST OF 8WF31 & 6WF15.5 SPLICED AS SHOWN ON DWG. B30-510 PROVIDE 8"x $\frac{3}{8}$"x 8" BASE PL FOR 6WF15.5. USE 2-$\frac{3}{4}$"ø x 1'-9" ANCHOR BOLTS AT EACH COLUMN BASE. BOTTOM BASE PL EL 51'-0"



SECTION F-F
SCALE 1"=1'-0"



SECTION G-G
SCALE 1"=1'-0"



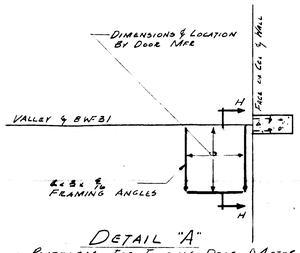
ROOF FRAMING PLAN - UNIT A
SCALE ⅛"=1'-0"

NOTE:

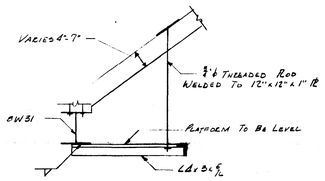
(A) INDICATES LOCATION OF SPECIAL LINTELS (4 PLACES) LINTELS ARE L 8"x 6"x ½" & L 5"x 3½"x ⅜"

(B) INDICATES L 4"x 3½"x ½" PL WITH ¾"ø THREADED STUD SHOT NORMAL INTO 4" CONC PLATE SLAB FOR HANGING ROPE SUPPORT. SEE ARCH FOR LOCATION

CONCRETE TEST LOCATION



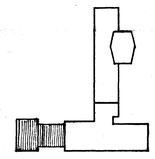
DETAIL "A"
PLATFORM FOR FOLDING DOOR MOTOR
NO SCALE



SECTION H-H
NO SCALE

STATE OF CONNECTICUT JAMES S. MINGES NO. 2423 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT CHARLES G. MARCHANT NO. 2385 REGISTERED PROFESSIONAL ENGINEER



KEY PLAN

ROOF FRAMING AREA A

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

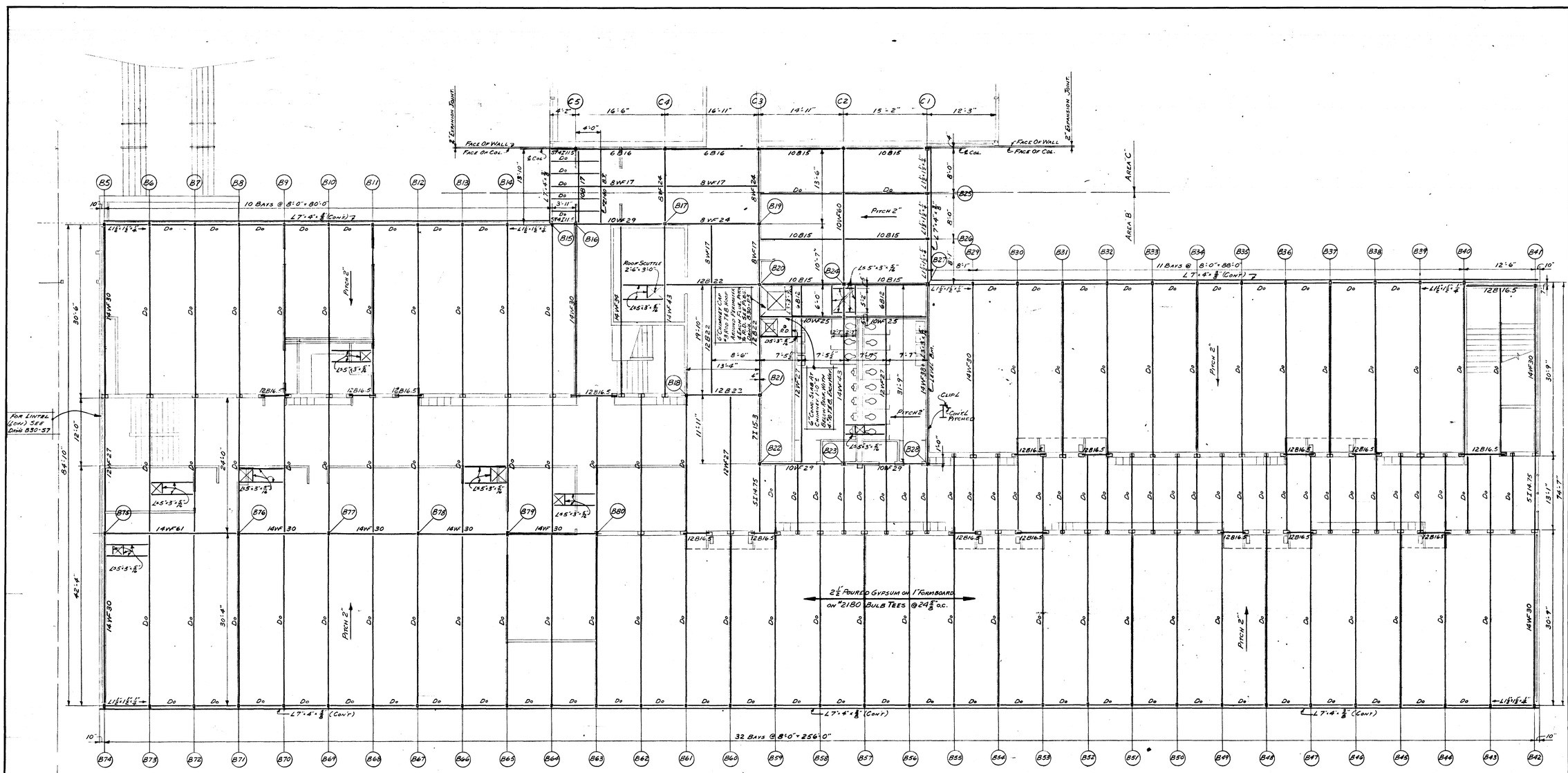
830-57

Date 30 APR 57 | Scale AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment

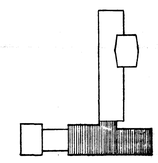


Roof Framing Plan Unit "B"

Scale ⅛" = 1'-0"

General Notes:

Use "2140 Bulb Tees for spanning less than 3 bays continuous. Anchor masonry bearing beams with 1-⅞"ø J310 (3' Hook) Bolts. See H.&V. Contr. for all fan opening dimensions and location.



KEY PLAN

ROOF FRAMING AREA B

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830- 58

Date 30 APR 57 | Scale ⅛" = 1'-0"

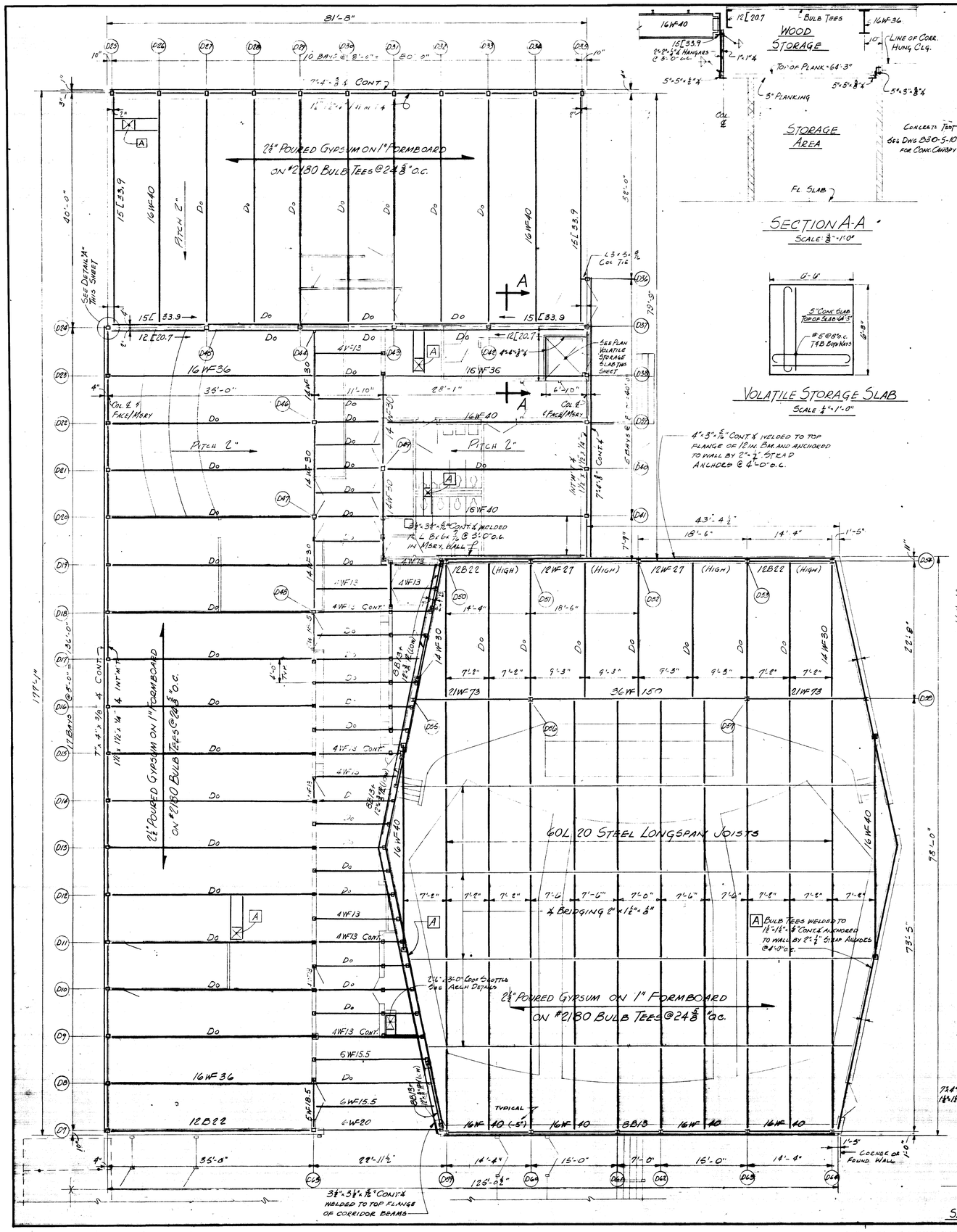
SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

State of Connecticut — James S. Minges — No. 2423 — Registered Professional Engineer

State of Connecticut — Charles G. Marchant — No. 2388 — Registered Professional Engineer

BQ #70 & 125 Attachment



State of Connecticut James S. Minges No. 2423 Registered Professional Engineer

State of Connecticut Charles G. Marchant No. 2385 Registered Professional Engineer

KEY PLAN

ROOF FRAMING AREAS C&D

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

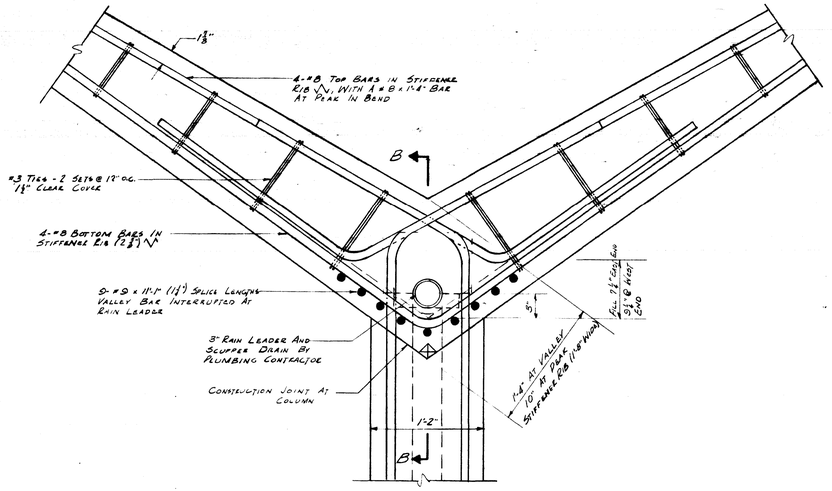
830- S9

Date: 30 APR 57 | Scale: AS SHOWN

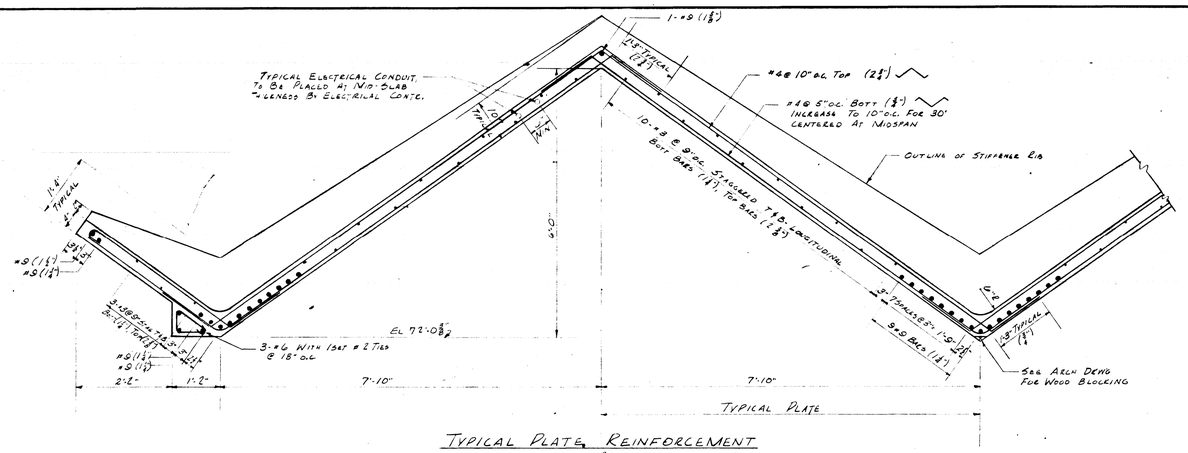
SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment



SECTION A-A
SCALE 1½" = 1'-0"



TYPICAL PLATE REINFORCEMENT
SCALE ¾" = 1'-0"

NOTES:

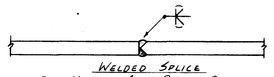
Dimensions In Parenthesis, i.e. (1⅛"), Indicate Support Distance For Bottom Of Bar Above Bottom Of Slab.

Entire Folded Roof Plate Shall Be Placed In Either 2 Or 3 Sections. If 2 Sections Are Prefixed, Locate Construction Joint At Center Valley. If 3 Sections, Locate Construction Joints At Valleys Each Side Of Center.

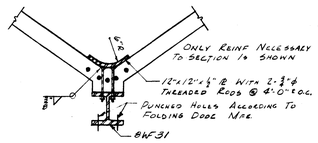
All Forms Must Be Left In Place A Minimum Of 7 Days. Provide 1½" Camber At Midspan. Forms Shall Be Removed In Sections To Insure That Shores In Longitudinal Direction At No Time Exceed 12' O.C., Throughout, For A Duration Not Less Than 28 Days After Final Concrete Placement. Temp Bents Or Longitudinal Shores Shall Compress One At Ridge, One At Midslope, And One At Valley Of Each Plate, Maintaining Proportionate Camber.

Forming, Shoring, And Concrete Sequence Shall Be Subject To Engineer's Approval.

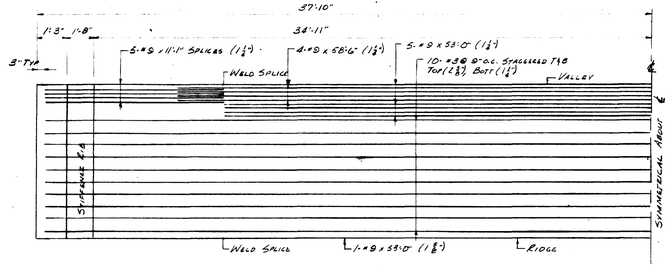
Shores At North And South End Valleys Must Not Be Removed Until Masonry Walls Are Mortared Up Tight.



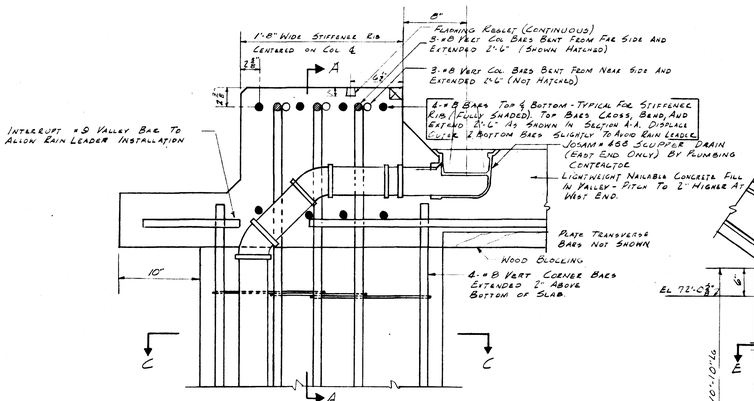
WELDED SPLICE
FOR VALLEY AND RIDGE BARS
NO SCALE



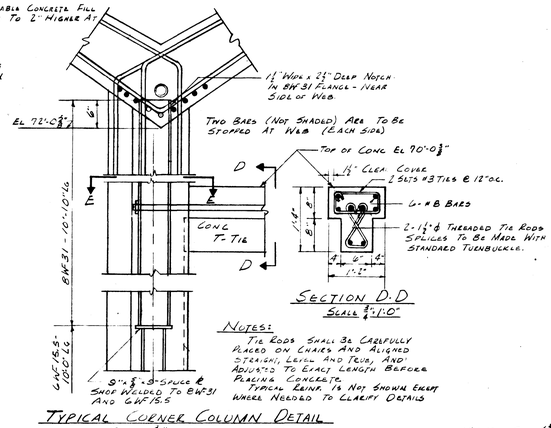
FOLDING DOOR SUPPORT
SCALE ¾" = 1'-0"



PLAN OF LONGITUDINAL STEEL IN PLATE
SCALE ¾" = 1'-0"



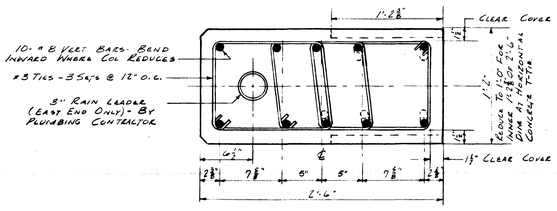
SECTION B-B
SCALE 1½" = 1'-0"



SECTION D-D
SCALE ¾" = 1'-0"

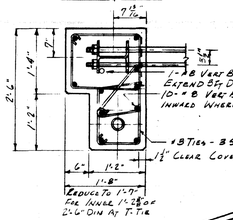
NOTES:

Tie Rods Shall Be Carefully Placed On Chairs And Aligned Straight, Level And True, And Adjusted To Exact Length Before Placing Concrete. Typical Reinf. To Not Shown Except Where Needed To Clarify Details

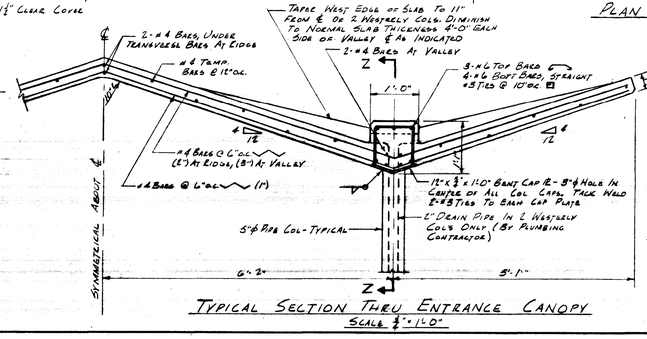


SECTION C-C
SCALE 1½" = 1'-0"

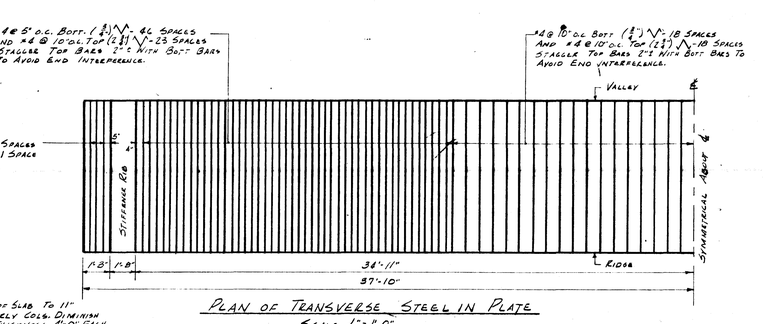
TYPICAL CORNER COLUMN DETAIL
SCALE ¾" = 1'-0"



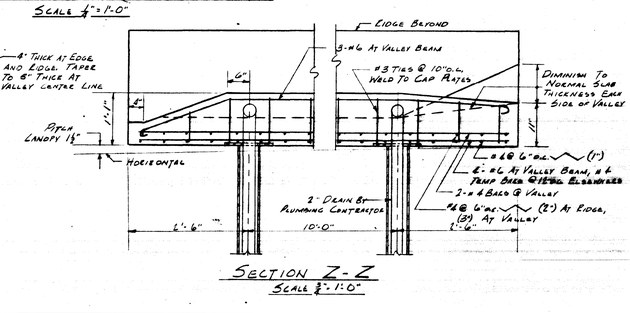
SECTION E-E
SCALE ¾" = 1'-0"



TYPICAL SECTION THRU ENTRANCE CANOPY
SCALE ¾" = 1'-0"



PLAN OF TRANSVERSE STEEL IN PLATE
SCALE ¾" = 1'-0"



SECTION Z-Z
SCALE ¾" = 1'-0"

TYPICAL FOLDED PLATE DETAILS
SCALE AS SHOWN

STATE OF CONNECTICUT JAMES S. MINGES NO. 2423 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT CHARLES G. MARCHANT NO. 2388 REGISTERED PROFESSIONAL ENGINEER

STRUCTURAL DETAILS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

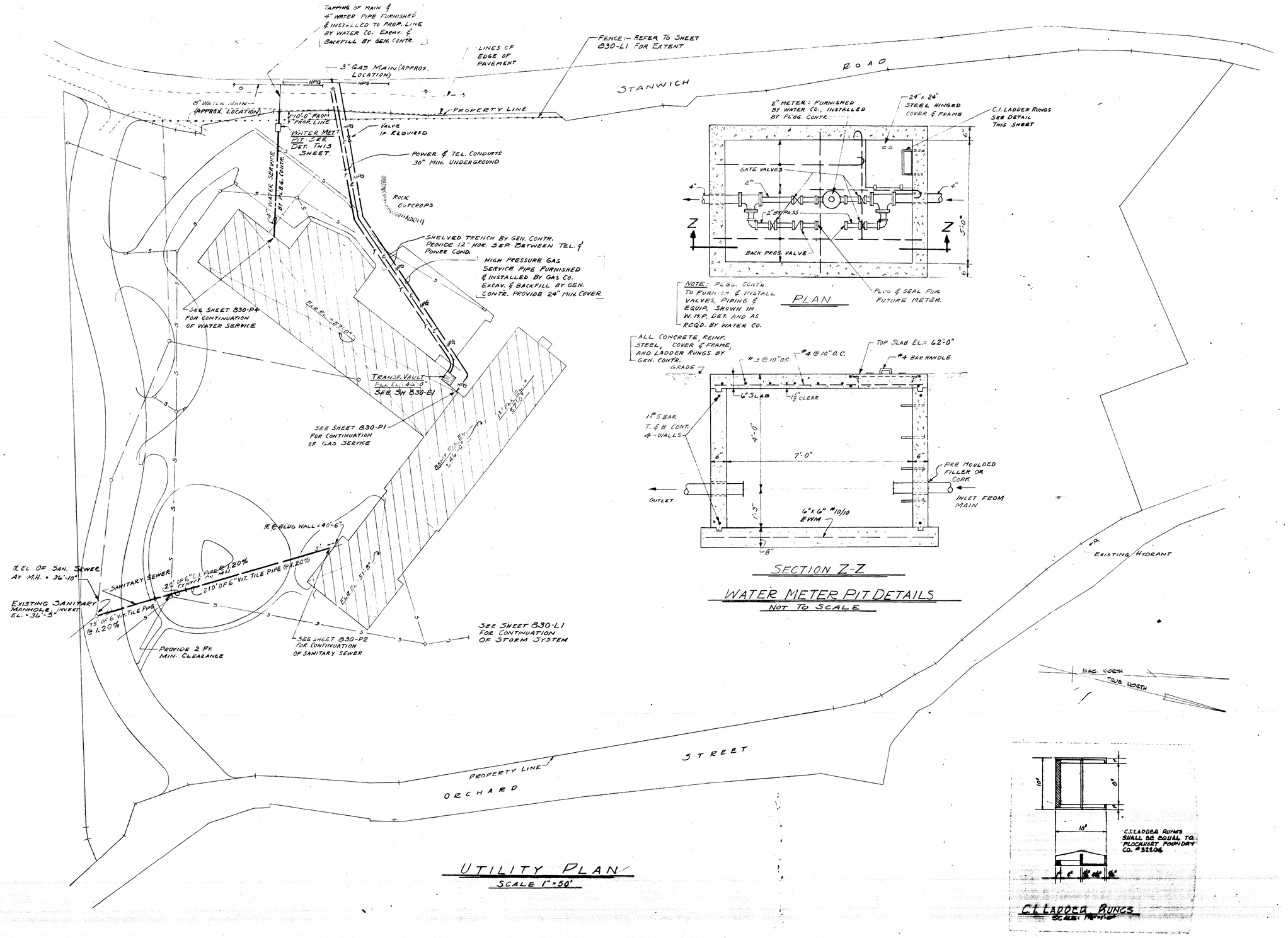
830-510

Date: 30 APR 57 | Scale: AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut.

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment



UTILITY PLAN
SCALE 1"=50'

PLAN

SECTION Z-Z

WATER METER PIT DETAILS
NOT TO SCALE

STATE OF CONNECTICUT FRANK A. NIXON No. 1668 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT JAMES S. MINGES NO. 2428 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT CHARLES G. MARCHANT NO. 2369 REGISTERED PROFESSIONAL ENGINEER

SITE & UTILITY PLAN

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-U1

Date: 30 APR 57 | Scale: AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects 66 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment

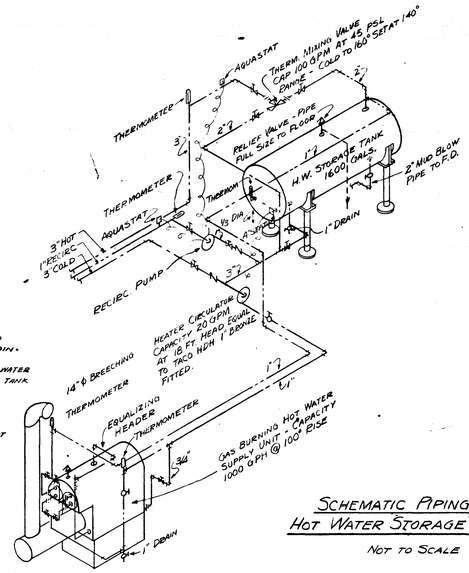
NOTE
RACK PIPING ON EAST WALL AT ENTRANCE TO TUNNEL TO AVOID R.A. DAMPERS. SEE H&V DWGS. FOR SPACE AVAILABLE

NOTE: NO HORIZONTAL PIPING TO BE RUN IN STRUCTURAL BEARING WALLS

6"S BURIED
DROP TO R. ELEV 44'-0"
4"SAN.
2"G, 3/4"R, 2"H, 4"C
3" HOT
1" RECIRC
3" COLD
2" GAS
C.O.
FD-4
HOT WATER STORAGE TANK
FL ELEV 46'-0"
3"C, 2½"H, 3/4"R
3-½"C. STUB OFF FOR CONN. TO HUMIDIFIERS BY H&V CONTR.
3-3/4" GAS STUB OFF FOR CONNECTION BY H&V CONTRACTOR
2" GAS 1"H, 1"C UNDER 72 x 90 DUCT
SWITCH ROOM
TRANSFORMER VAULT
275 GAL. TANK BURIED FOR TRANSF. VAULT DRAIN - SLOPE ANCH. TO P.G.
3" PIPE TO GRADE WITH WATER TIGHT CAP FOR PUMPING TANK
1¼" VENT UP IN WALL ADJACENT TO F.O.V. TERMINATE WITH BRICK VENT
HEATER ROOM
FIN. FL ELEV. 39'-6"
SPACE FOR GAS METER & PRESSURE REDUCING VALVE TO BE FURNISHED & INSTALLED BY GAS CO.
GAS SERVICE TO STREET - SEE DWG. 0-1 FOR CONTINUATION
1¼" GAS - STUB OFF FOR CONNECTION TO EMERGENCY GENERATOR BY ELECTRICAL CONTRACTOR
HOT WATER HEATER
3"C, 2½"H, 3/4"R, 2"GAS
SEE NOTE AT TUNNEL ENTRANCE ABOVE
14" Ø FLUE
3" VENT FOR GAS SERVICE
3" CHIMNEY DRAIN UP TO ROOF
SUBMERSIBLE SUMP PUMP BY PLG. CONTR. IN SUMP PIT BY GEN. CONTR.
STAIR No.1
2½"H, 3"C, 3/4"R, 2"GAS
3"R.L. UP
2"V
4" STACK UP
BOYS' TOILET ROOM
GIRLS' TOILET ROOM
ABOVE CEILING
4" V.T.-F. UP
1"H.C.-2"C TO 2ND FLOOR
CAP TEE FOR FUTURE SAN. R. 43'-0"
FD-4
IN TUNNEL BELOW
2½"C, 1"H, 3/4"R.
2"C, 1"H, 3/4"R.
CORRIDOR No. 2 FIN. FL EL 46'-0" (TUNNEL UNDER FL. EL. 40'-0")
R. 44'-1"
4"R.L.
4"R.L. UP
CAP TEE FOR FUTURE
3¼"C.
3¼" SILLCOCK
1½"C
STAIR #2

1½" A.W., ½"G, ½"C UP
1½" TRAP
½"C & G UP
1½" A.W. UP - 1½" TRAP & 1½" A.W. BELOW FLOOR
STORAGE
2½" A.W. UP
2½"
2½" A.W., ½"C, ½" GAS
C.O.
2½" A.W., 1½"C, ½" GAS
2 "A.W., 3/4"C, 3/4" GAS
4"R.L. UP
2"W UP
2½" A.W., 3/4"C, ½" GAS
2" A.W., 3/4" H&C UP
2½" A.W., 3/4"H, 1"C, ½"G
AT CEILING
R. 42'-5"
IN TUNNEL BELOW
2½"C, 2"H, 3/4"R, 1¼" GAS
CORRIDOR No. 1
FD-4
1"H, ¼"C, 1" GAS
1"H.C.V. GAS
2½"W DN
3" A.W. TO CEILING
1"H&C, 2"H, 1" GAS BEHIND COUNTER
2½"W DN EXPOSED
1½"W DN EXPOSED
TYPE "F" SINK
3"W. DN - 2"V UP
1½" W TO DISHWASHER TRAP & CONN. BY PLBG CONTR.
½" W, ½" H&C UP TO LIBRARY SINK
1"GAS, ½" H&C BEHIND COUNTER
3/4" GAS TO RANGES
½" H&C BEHIND COUNTER
3 TYPE "F" LINKS
½" H&C ABOVE C.O.
3/4" GAS TO RANGES
1½" STANDPIPE WASTE - ½" H&C FOR WASHER TRAP CONNECTIONS BY PLUMBING CONTRACTOR.
1½" A.W. UP & DN
3" A.W. UP & DN
ABOVE C.O.
3/4" C & GAS UP
3" A.W. BURIED

COMMERCIAL
HOMEMAKING No.1
HOME & FAMILY LIVING
HOMEMAKING No. 2
CLASSROOM 16
CLASSROOM 17
CLASSROOM 18
CLASSROOM 19
CLASSROOM 20
CLASSROOM 21
CLASSROOM 22
CLASSROOM 12
CLASSROOM 13
CLASSROOM 14
CLASSROOM 14



SCHEMATIC PIPING DIAGRAM
HOT WATER STORAGE TANK & HEATER
NOT TO SCALE

STATE OF CONNECTICUT JAMES S. MINGES NO. 2423 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT CHARLES G. MARCHANT NO. 2385 REGISTERED PROFESSIONAL ENGINEER

KEY PLAN

BASEMENT PLUMBING AREA B

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

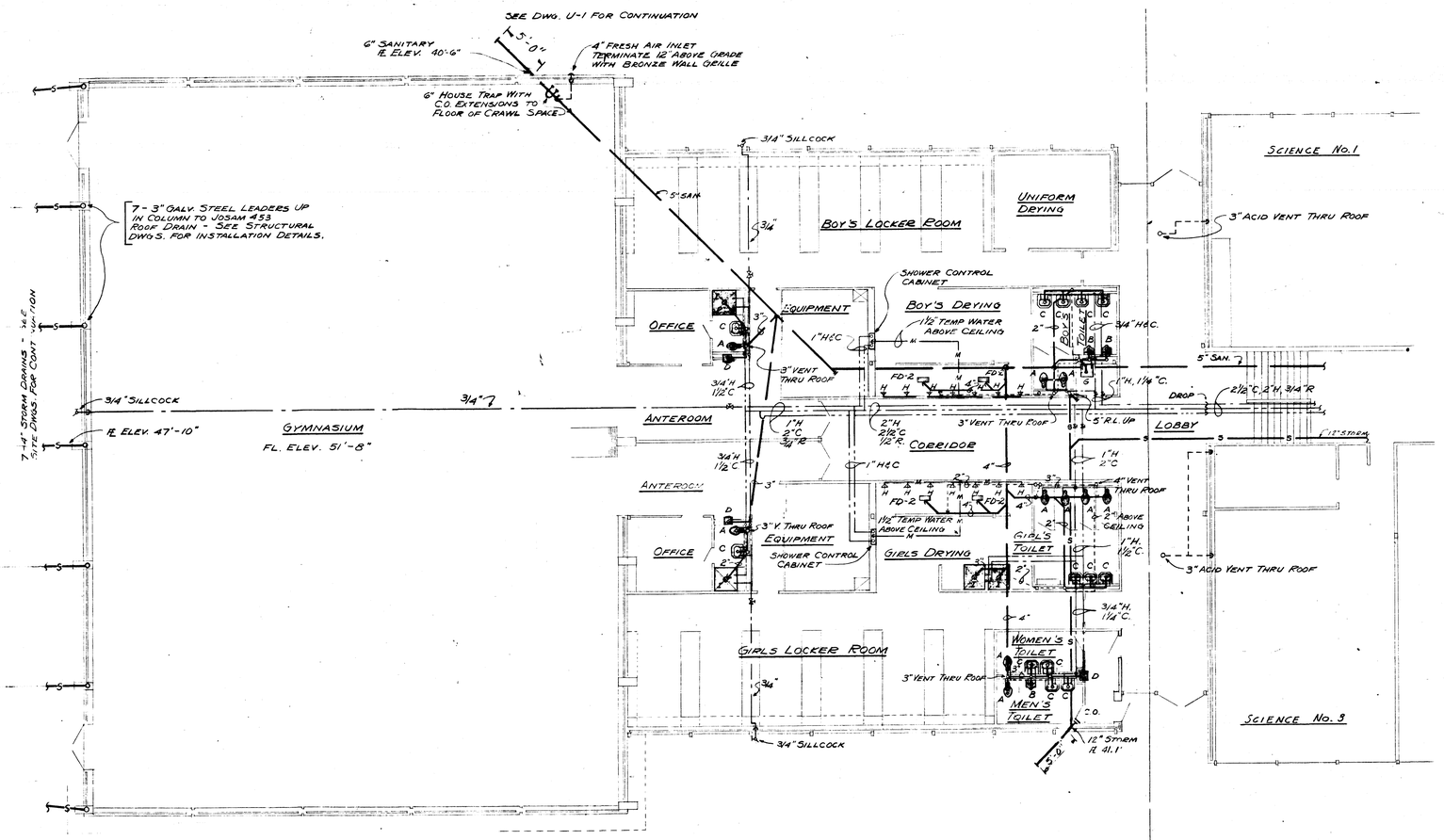
830-P1

Date 30 APR. 57 | Scale 1/8"=1'-0"

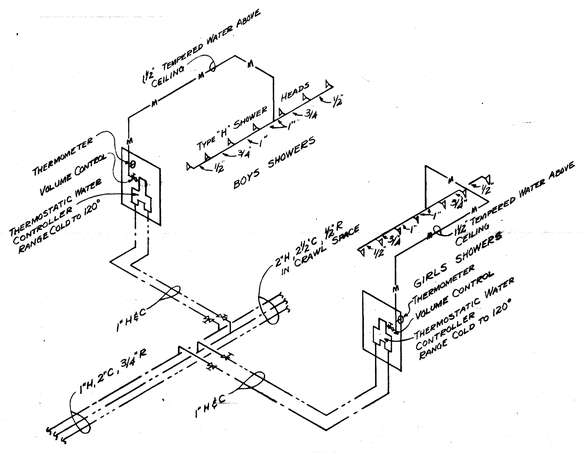
SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

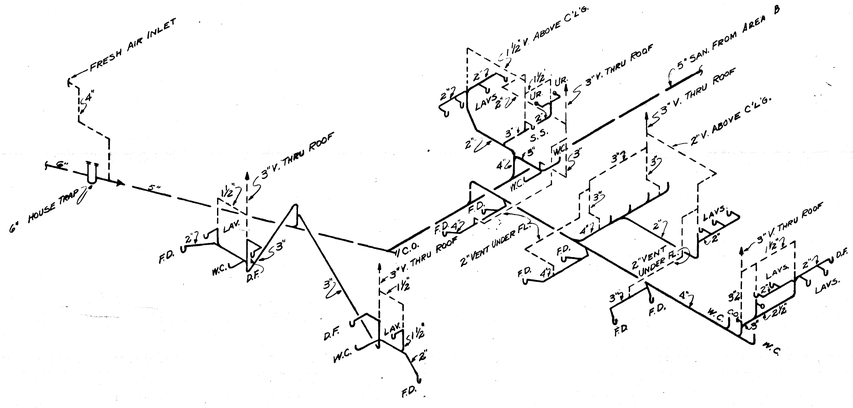
BQ #70 & 125 Attachment



FIRST FLOOR PLAN
SCALE 1/8" = 1'-0"



SCHEMATIC WATER PIPING
BOYS & GIRLS SHOWERS
NOT TO SCALE



SCHEMATIC SOIL, WASTE, & VENT PIPING
LOCKER ROOM AREA
NOT TO SCALE



KEY PLAN

FIRST FLOOR PLUMBING AREA A

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

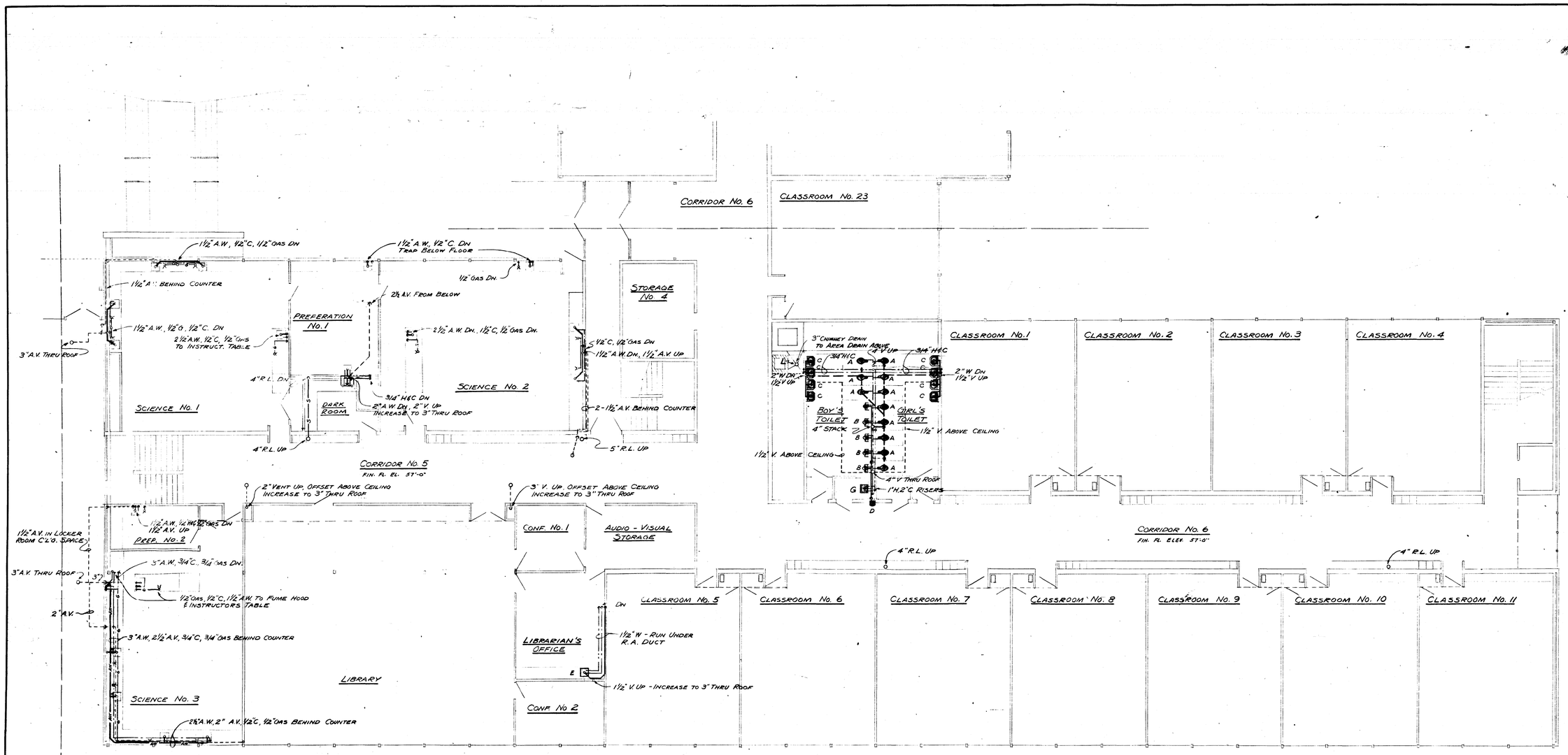
830-P2

Date: 30 APR. 57
Scale: 1/8" = 1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

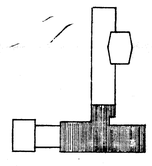
MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment



NOTE

PLUMBING CONTRACTOR TO FURNISH AND INSTALL TRAPS FOR ALL SINKS AND MAKE FINAL GAS AND WATER CONNECTIONS TO ALL OUTLETS IN SCIENCE ROOMS, PREP ROOMS & DARK ROOM.
TRAPS INSTALLED ON ACID WASTE LINES SHALL BE DURIRON OR EQUAL AND 1½" SIZE UNLESS OTHERWISE NOTED.



KEY PLAN

FIRST FLOOR PLUMBING AREA B

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-P3

Date 30 APR. 57 | Scale ⅛"=1'-0"

SHERWOOD, MILLS AND SMITH
A. Hazuts 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment

GEN. DRAWING & PLANNING ROOM
GENERAL METALS
GENERAL WOODSHOP
STORAGE
REHEARSAL
BOY'S TOILET
MEN'S TOILET
CUSTODIAN
INSTRUMENTAL
INSTRUMENT STORAGE
STAGE
CHORAL
CRAFTS
WORK & STORAGE
AUDITORIUM
ARTS
LOBBY
PRINCIPAL
WAITING
OFFICE
VAULT
VICE-PRINCIPAL
STORAGE & WORK
GUID. CONF.
GUIDANCE
NURSE
EXAMINATION
TEACHER'S ROOM
CAFETERIA NO. 2
DISH-WASHING
KITCHEN
STORE ROOM
CAFETERIA NO. 1

KEY PLAN

FIRST FLOOR PLUMBING AREAS C&D

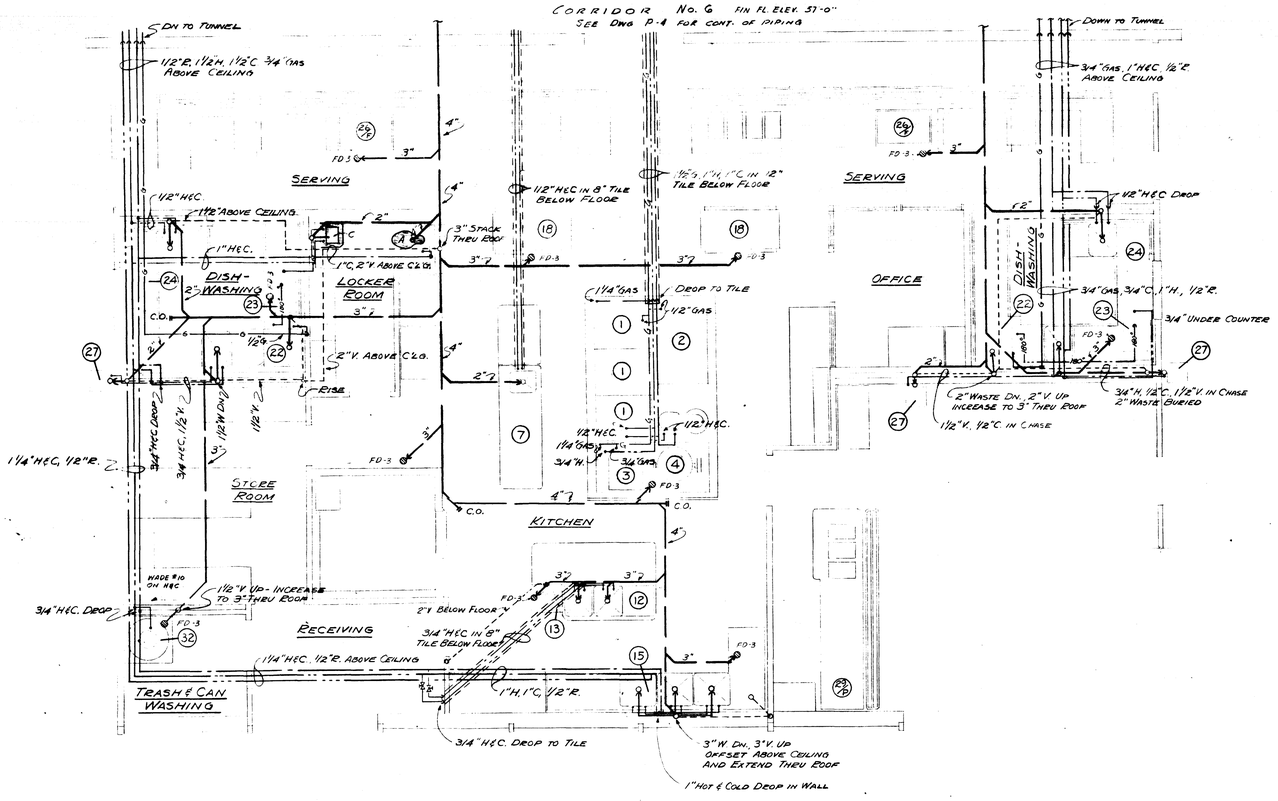
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830- P4
Date 30 APR 57
Scale 1/8"=1'-0"

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Architects 65 Broad Street, Stamford, Connecticut

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BQ #70 & 125 Attachment



KITCHEN FLOOR PLAN

SCALE 1/4" = 1'-0"

SCHEDULE OF KITCHEN EQUIPMENT AND CONNECTIONS

ITEM NO.	Q'TY	DESCRIPTION	CONNECTIONS BY PLBG CONT. M	C	W	FW	G	FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR
1	3	RANGES, SHELF AND FAUCET	1/2"	1/2"			1 1/2", 1/2"	STOPS ON SUPPLIES
2	1	OVEN					1/2", 1/2"	
3	1	VEGETABLE STEAMER	3/8"				3/4"	STOPS ON SUPPLIES
4	1	TILTING KETTLE & FAUCET	1/2"	1/2"				STOPS ON SUPPLIES
7	1	COOK'S TABLE & SINK	1/2"	1/2"	1 1/2"			STOPS ON SUPPLIES & 2" TRAP BELOW FLOOR
12	1	VEGETABLE SINKS & DRAINBOARD	1/2", 1/2"	1/2", 1/2"	2", 2"			STOPS ON SUPPLIES & 2" TRAP BELOW FLOOR
13	1	PEELER & TRAP		1/2"			1 1/2"	EXTEND WASTE OUTLET TO F.D.
15	1	POT SINK & DRAINBOARDS	1/2", 1/2", 1/2"	1/2", 1/2", 1/4"	2", 2"			TRAP EACH SINK ABOVE FLOOR
18	2	PASS THRU REFRIGERATORS					1"	EXTEND WASTE OUTLET TO F.D.
22	2	DISHWASHERS	3/4"		2"		1/2"	2" TRAP ON OUTLET, AIR BREAK ON INLET, TO BOOSTER CONNECT
23	2	HOT WATER BOOSTER	3/4"					3/4" 180° HOT TO D. WASHER W/ WADE #5 THERMOM; ECO VALVE PECS.
24	2	DISHTABLES & SINKS	1/2", 1/2"	1/2", 1/2"	2", 1 1/2"			TRAP EACH SINK ABOVE FLOOR; STOPS ON SUPPLIES
24/2	2	REFRIGERATED MILK DISPENSERS					1"	EXTEND WASTE OUTLET TO F.D.
27	3	WATER COOLER'S		3/8"	1/4"			TRAP AND STOPS ON SUPPLY
29/2	1	OVEN SECTION						
32	1	CAN RINSER	3/4"	3/4"				STOPS ON SUPPLIES

PLUMBING FIXTURE SCHEDULE

FIXTURE	SYMBOL	SOIL OR WASTE	VENT	COLD WATER	HOT WATER	MOUNTING HEIGHT	SPECIFICATION
Water Closet	A	4	2	1		Floor	"Santon" #3-300 bowl with #110 FIV "Crown" valve; Olsonite #10 Seat, black with check hinge.
Urinal	B	2	1½	3/4		22"	"Correcto" #7-07 urinal with #186 "Crown" valve.
Lavatory	C	1½	1½	½	½	31"	"Norwich" #1-160V 20"x18"; #8-562 supply and drain fitting, #8-410 1 1/4"x1 1/2" trap; #8-304 3/8" supplies with stops. #8-763 porcelain brackets.
Drinking Fountain	D	1½	1½	½	½	36"	"Coolbrook" #6-570, #6-572 supply fitting; #6-813 waste and 1 1/4" trap with G.P. Wall C.O. No substitutes.
Sink	E	2	1½	½	½	Counter	#5-136 24"x21" acid resisting enamaled C.I. sink; #8-101 A supply fitting, #8-365 open strainer, #8-410 1½" rough brass 'P' trap with C.O.; Judee Frame.
Sediment Trap	F	1½	1½				Josam series "H-20 type H-21½ sediment interceptor with gasketed watertight screwed cover and removable perforated screen. Install on each sink outlet in Arts & Crafts Rms.
Service Sink	G	3	1½	½	½		#7-563 22"x18" acid resisting enamaled C.I. sink; #8-101 rough plated supply fitting with hose end and pail hook, #7-620 trap standard, #8-980 rim guard.
Service Sink	G-1	3	1½	½	½		Same as sink G except without rim guard.
Shower	H					Girls-69" Boys-71"	Speakman #S-2260 shower head with key operated volume control and back inlet.
Shower Cabinet	I	2	1½	½	½		Fiat "Cadet" Model 27 76"x36" galv. steel cabinet with baked enamel fin. Terrazzo receptor with integral drain; Speakman #S-2250 Mixometer shower control with renewable seats #S-2250 Model 3 shower head with ball joint, Bent arm and wall flange, furnish plastic curtain, hooks and soap dish.
Wash Fountain	J	2	1½	1	1	Floor	Bradley type CFA 36" semi-circular, foot operated, precast granito wash fountain
Trap	K	1½	1½				Crane # 8-410 rough brass "P" trap with cleanout. Double sinks to be provided with "LK-5" (Elkay) waste fitting #L350.
Area Drain	L	3					Josam series 110 C.I. area drain with loose set grate
Floor Drain	FD-1	3					Josam series 300 C.I. floor drain with brass strainer. Furnish deep seal 'P' trap
Floor Drain	FD-2	3					Josam series 300-R C.I. floor drain with C.P 17"x5" rectangular strainer. Furnish deep seal 'P' trap
Floor Drain	FD-3	3					Josam series 300-350 C.I. floor drain with non clog C.P. strainer and removable sediment bucket. Furnish deep seal 'P' trap.
Floor Drain	FD-4	3					Josam series 200 C.I. floor drain with integral drum type 'P' trap and polished brass strainer.
Roof Drain							Josam series 410 C.I. roof drain with removable high dome and sediment cup.
Roof Drain		3					Josam series 450 C.I. drain with flashing clamp, removable high dome and C.I. flashing clamp device.
Sillcock					3/4		Josam series Y-210 cast brass non-freeze wall hydrant with loose key.
Gas Valve	Gas V. →						Crane #L-2880 hose end needle valve with renewable seat and plastic index button.
Air Valve	Air V. →						Same as gas, valve, except for use with compressed air and with indentifying index button.

MATERIAL SCHEDULE

	SYSTEM	PIPING	JOINTS	SUPPORTS	TEST	REMARKS
A.	BURIED DRAIN & VENT PIPING EXCEPT WHERE NOTED	SUPER SPUN XHCI PIPE, TARRED - XHCI FITTINGS, TARRED	PACKED OAKUM 1" POURED LEAD SECURELY CAULKED	MASONRY PIERS AT LEAST EVERY 5' ON SOLID EARTH	MAINTAIN 10' HEAD IN PRESENCE OF ENGINEER	3" MIN. DRAINS - 2" MIN. VENTS
B.	ABOVE GROUND DRAIN & VENT PIPING	DO	DO	CLEVIS HANGERS 5' O.C. HORIZ. PIPE CLAMP EVERY OTHER FLOOR	CAP SYSTEM AND FILL TO ROOF IN PRESENCE OF ENGINEER	WHERE ALLOWED BY CODE AND APPROVED BY ENGINEER "C", "D" OR "E" MAY BE USED
C.	ABOVE GROUND DRAINAGE - SEE REMARKS FOR "B"	TYPE L COPPER TUBING. COPPER DRAINAGE FITTINGS	SWEAT JOINTS. 50/50 SOLDER. NON-CORROSIVE FLUX	CLEVIS HANGERS 8' O.C. PIPE CLAMP EVERY OTHER FLOOR	DO	
D.	DO	STD. WGT. GAL. W.I. PIPE, GAL. C.I. DRAINAGE FITTINGS	USE NON HARDENING JOINT CEMENT	DO	DO	NO CLOSE NIPPLES
E.	ABOVE GROUND VENTS - SEE REMARKS FOR "B"	STD. WGT. GAL. STEEL. GAL. MALL. VENT FITTINGS	DO	DO	DO	NO CLOSE NIPPLES
F.	ABOVE GROUND WATER PIPING	TYPE L COPPER TUBING. BRONZE SWEAT FITTINGS	SWEAT JOINTS 95/5 SOLDER. NON-CORROSIVE FLUX	DO	MAINTAIN 150 LBS. PRES. FOR 3 HRS. IN PRESENCE OF ENGINEER	GANG HANGER MAY BE USED WHERE APPROVED BY ENGINEER
G.	BURIED WATER PIPE, 2" AND SMALLER	TYPE K SOFT COPPER WITH FLARED COMPRESS. FITTINGS	JOINTS AS RECOMMENDED BY MANUFACTURER	LAY ON 3" FINE SAND OR GRAVEL	DO	NO JOINTS LESS THAN 60' APART ON CONTINUOUS RUNS
H.	BURIED WATER PIPE, 3" AND LARGER	CLASS C BELL & SPIGOT PIPE & FITTINGS - CEMENT LINED	PACKED WITH JUTE, 2" POURED LEAD SECURELY CAULKED	LAY ON SOLID EARTH OR MASONRY PIERS	DO	LEADITE MAY BE USED WHERE APPROVED. ANCHOR AND STRAP AS REQUIRED BY ENGINEER.
I.	DRAIN PIPE OUTSIDE BUILDING	VIT. CLAY PIPE AND FITTINGS	HOT BITUMINOUS COMPOUND	DO	VISUAL INSPECTION BY ENGINEER	TRANSITE MAY BE USED WHERE ALLOWED BY CODE AND APPROVED AS REQUIRED BY ENGINEER.
J.	ACID WASTE AND VENT PIPING	DURIRON PIPE & FITTINGS	SAME AS "B"	SAME AS "B"	SAME AS "B"	OAKUM TO BE COATED WITH BEES WAX
K.	GAS AND AIR PIPING	STD. WGT. BLK. STEEL PIPE. BLK. MALL. PATTERN FITTINGS	USE NON HARDENING JOINT CEMENT NO WICKING	SAME AS "C"	MAINTAIN 150 LBS. PRES. FOR 2 HRS. IN PRESENCE OF ENGINEER	PIPING TO BE INSTALLED AS APPROVED BY LOCAL UTILITY CO.

WATER SUPPLY SIZING SCHEDULE

FIXTURE	RATING IN UNITS	PIPE SIZE	CAPACITY IN UNITS
WATER CLOSET	6	1/2"	3
URINAL	3	3/4"	5
LAVATORY	1	1"	12
SINK	2	1 1/4"	30
D. FOUNTAIN	1	1 1/2"	30
SHOWER HEAD	3	2"	65
SILLCOCK	3	2 1/2"	112

THE ABOVE SCHEDULE TO BE USED FOR SIZING BRANCH WATER PIPING FOR FIXTURES IN BATTERIES. SEE FIXTURE SCHEDULE FOR INDIVIDUAL SUPPLY SIZES.

GENERAL NOTES

1. ALL LINES OF PIPING SHOWN ARE DIAGRAMMATIC ONLY. EXACT LOCATIONS SHALL BE DETERMINED ON THE JOB AND IN CONJUNCTION WITH THE OTHER TRADES.
2. CONTRACTOR SHALL CHECK ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL ROOF LEADERS, FIXTURES AND SPECIAL EQUIPMENT REQUIRING PLUMBING CONNECTIONS. CONTRACTOR SHALL MAKE CONNECTIONS TO ALL SUCH EQUIPMENT.
3. SANITARY LINES SHALL BE LAID OUT TO MAINTAIN A MINIMUM PITCH OF 1/8" PER FT.
4. PROVIDE STOPS ON BOTH HOT AND COLD WATER LINES AT EACH FIXTURE AND OUTLET. PROVIDE GAS SHUTOFF COCK AT EACH GAS OUTLET.
5. RACK ALL PIPING ON TUNNEL WALLS ON PROPER SUPPORTS TO MAINTAIN MAXIMUM PASSAGE.
6. ALL TRAPS INSTALLED UNDER FLOOR SLABS TO BE LOCATED AS CLOSE AS POSSIBLE TO FINISHED FLOOR.
7. ALL PLUMBING SHOWN ON THESE DWGS SHALL CONFORM TO NATIONAL PLUMBING CODE.

PLUMBING SYMBOLS

- SOIL OR WASTE
- SOIL OR WASTE - BURIED
- VENT
- S — S — S — STORM
- S — S — STORM - BURIED
- COLD WATER
- HOT WATER
- H.W. RECIRCULATION
- G — G — G — GAS
- AW — AW — AW — ACID WASTE
- A — A — A — COMPRESSED AIR
- GATE VALVE
- GLOBE VALVE
- CHECK VALVE
- COCK
- TRAP
- CLEANOUT
- UNION
- RELIEF VALVE
- THERMOMETER
- SILLCOCK
- A.V. ACID VENT

STATE OF CONNECTICUT JAMES S. MINGES NO. 2423 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT CHARLES G. MARCHANT NO. 2385 REGISTERED PROFESSIONAL ENGINEER

PLUMBING SCHEDULES
KITCHEN PLAN

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-P5

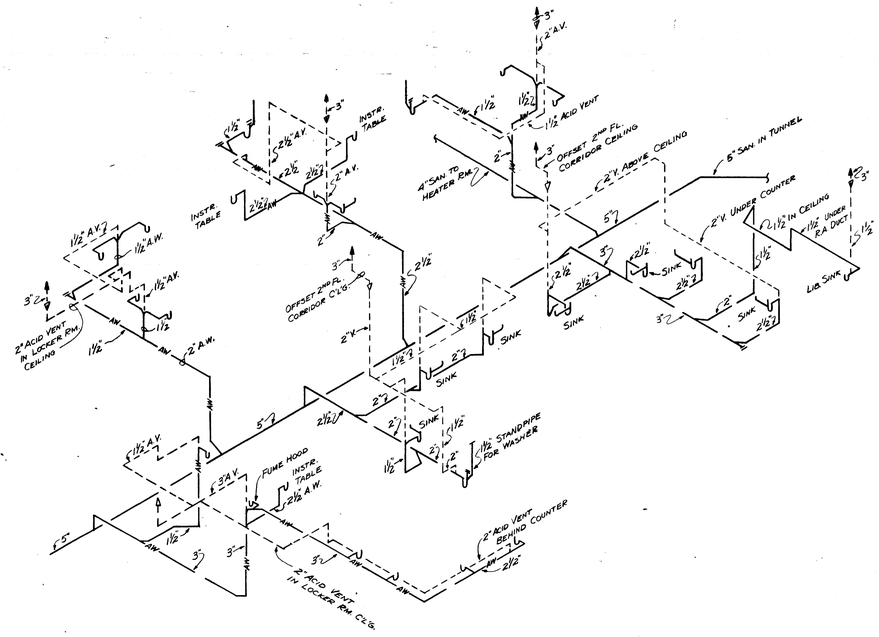
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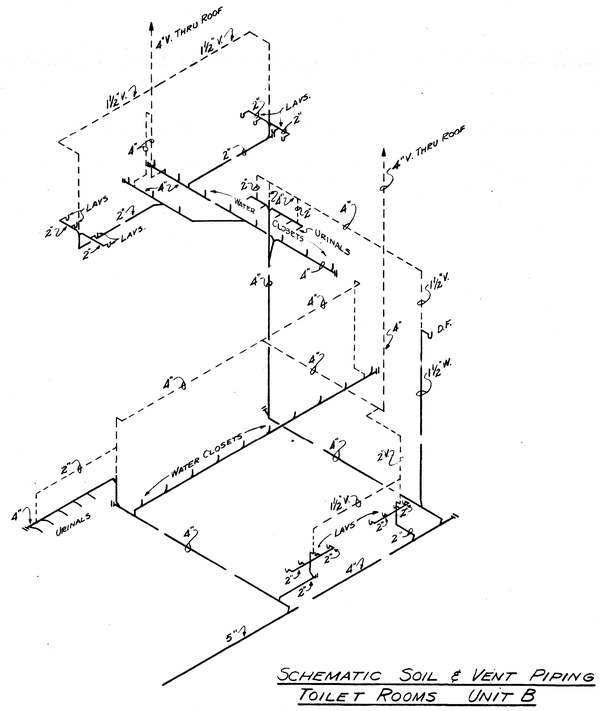
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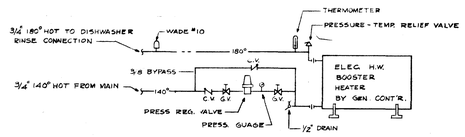
BQ #70 & 125 Attachment



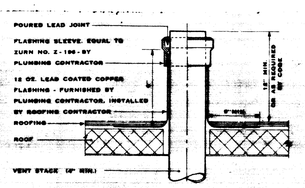
SCHEMATIC SOIL WASTE & VENT PIPING
LABORATORIES UNIT B
NOT TO SCALE



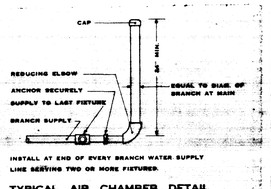
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TOILET ROOMS UNIT B
NOT TO SCALE



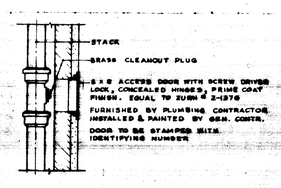
HOT WATER BOOSTER HEATER
SCHEMATIC PIPING DIAGRAM
NOT TO SCALE



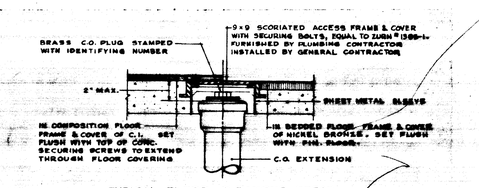
TYPICAL VENT FLASHING DETAIL
NOT TO SCALE



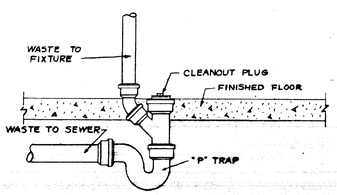
TYPICAL AIR CHAMBER DETAIL
NOT TO SCALE



TYPICAL WALL CLEANOUT DETAIL
NOT TO SCALE



TYPICAL FLOOR CLEANOUT DETAIL
NOT TO SCALE



TYPICAL BURIED TRAP DETAIL
NOT TO SCALE

STATE OF CONNECTICUT
JAMES S. MINGES
NO. 2423
REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT
CHARLES G. MARCHANT
NO. 2388
REGISTERED PROFESSIONAL ENGINEER

PLUMBING SCHEMATICS DETAILS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

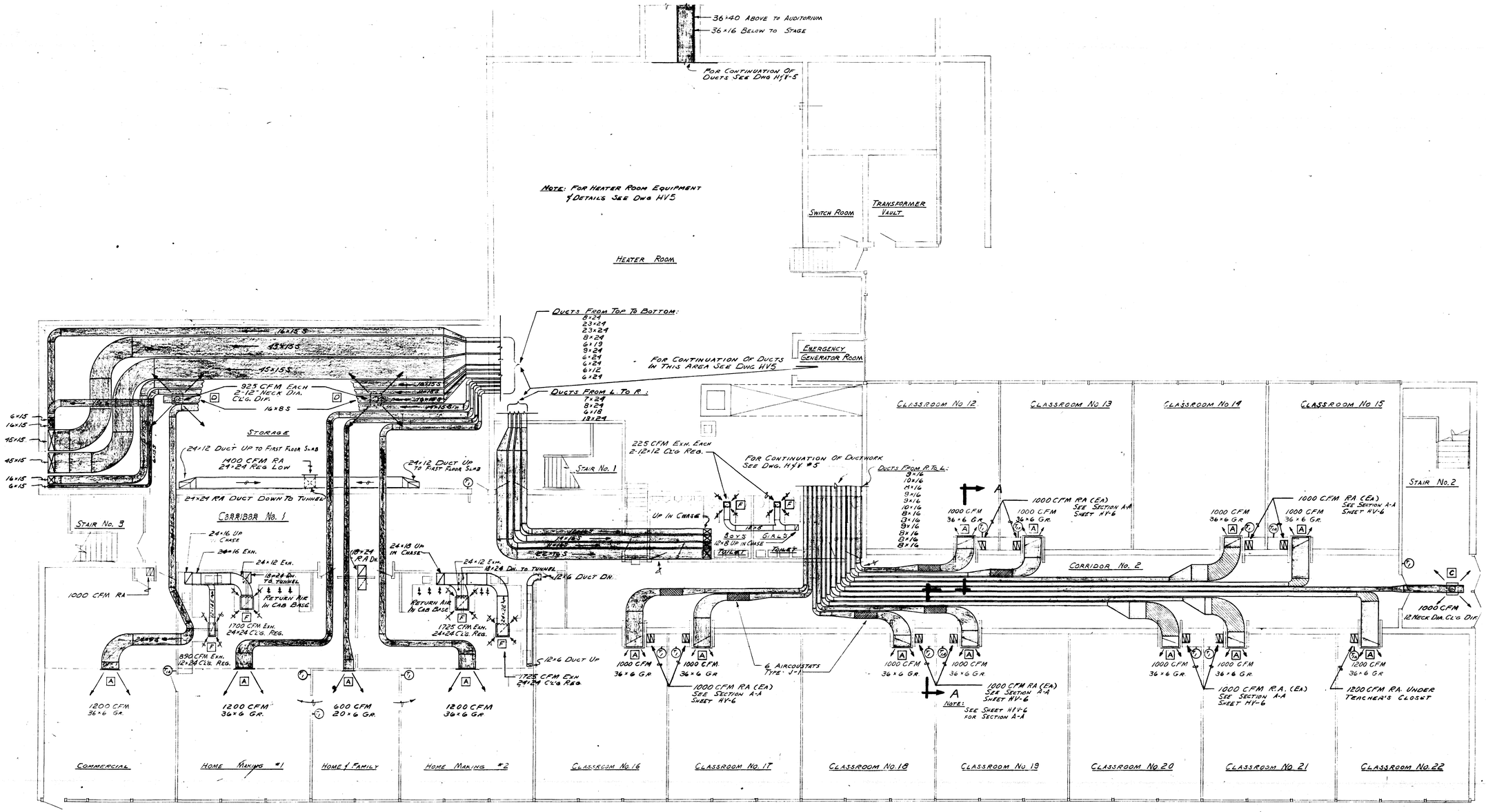
830- P6

Date: 30 APR. 57
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BQ #70 & 125 Attachment



LOWER CLASSROOM WING PLAN AREA "B"

SCALE: 1/8"=1'-0"

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KEY PLAN

BASEMENT HEATING AND VENTILATING AREA B

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

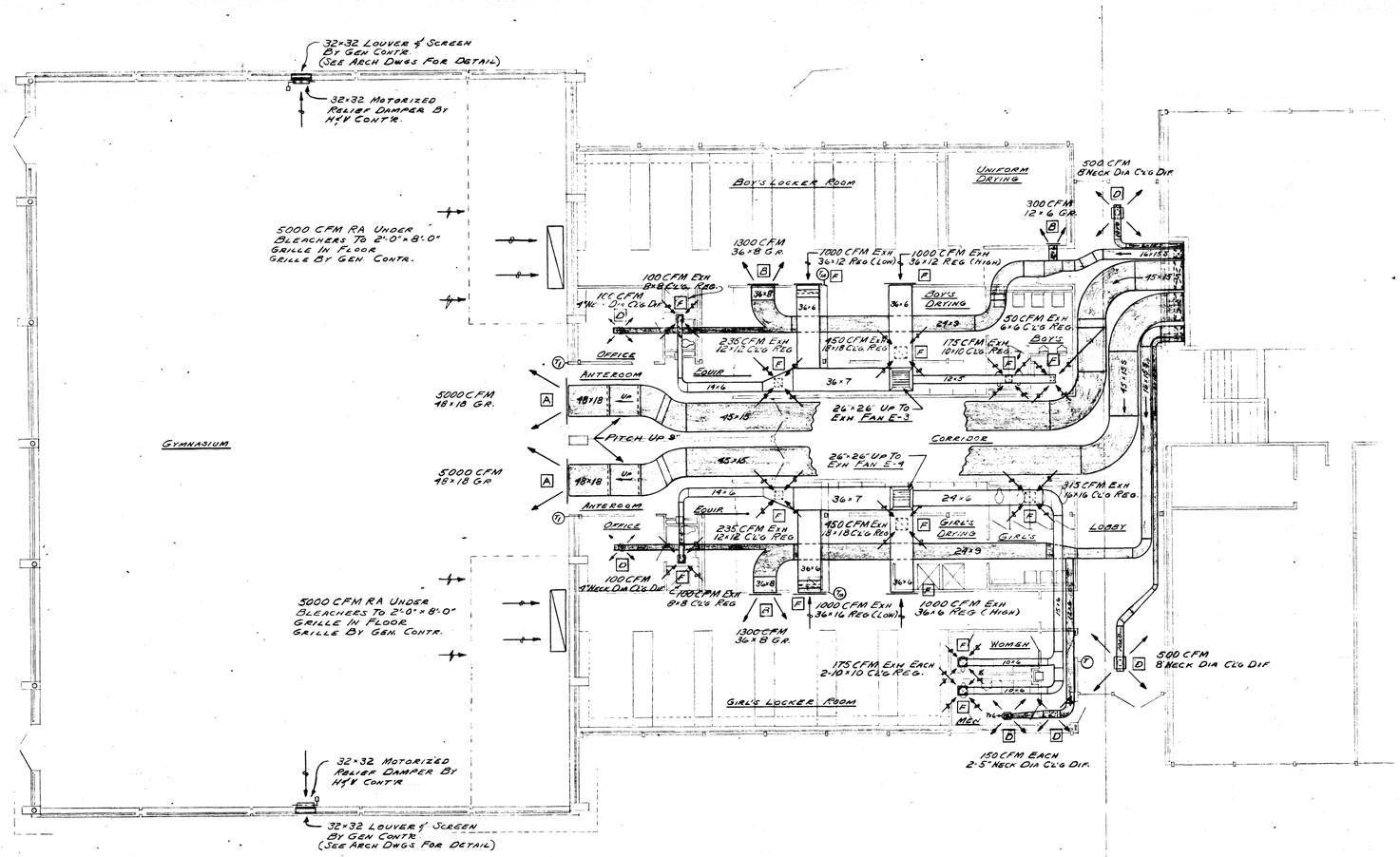
1830 - HV-1

30 APR. 67 1/8"=1'-0"

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Architects 60 Broad Street, Stamford, Connecticut

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WEST HARTFORD, CONN.

BQ #70 & 125 Attachment



GYMNASIUM FLOOR PLAN
SCALE: 1/8"=1'-0"

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STATE OF CONNECTICUT CHARLES G. MARCHANT NO. 2385 REGISTERED PROFESSIONAL ENGINEER

KEY PLAN

1st FLOOR HEATING & VENTILATING AREA A

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-HV-2

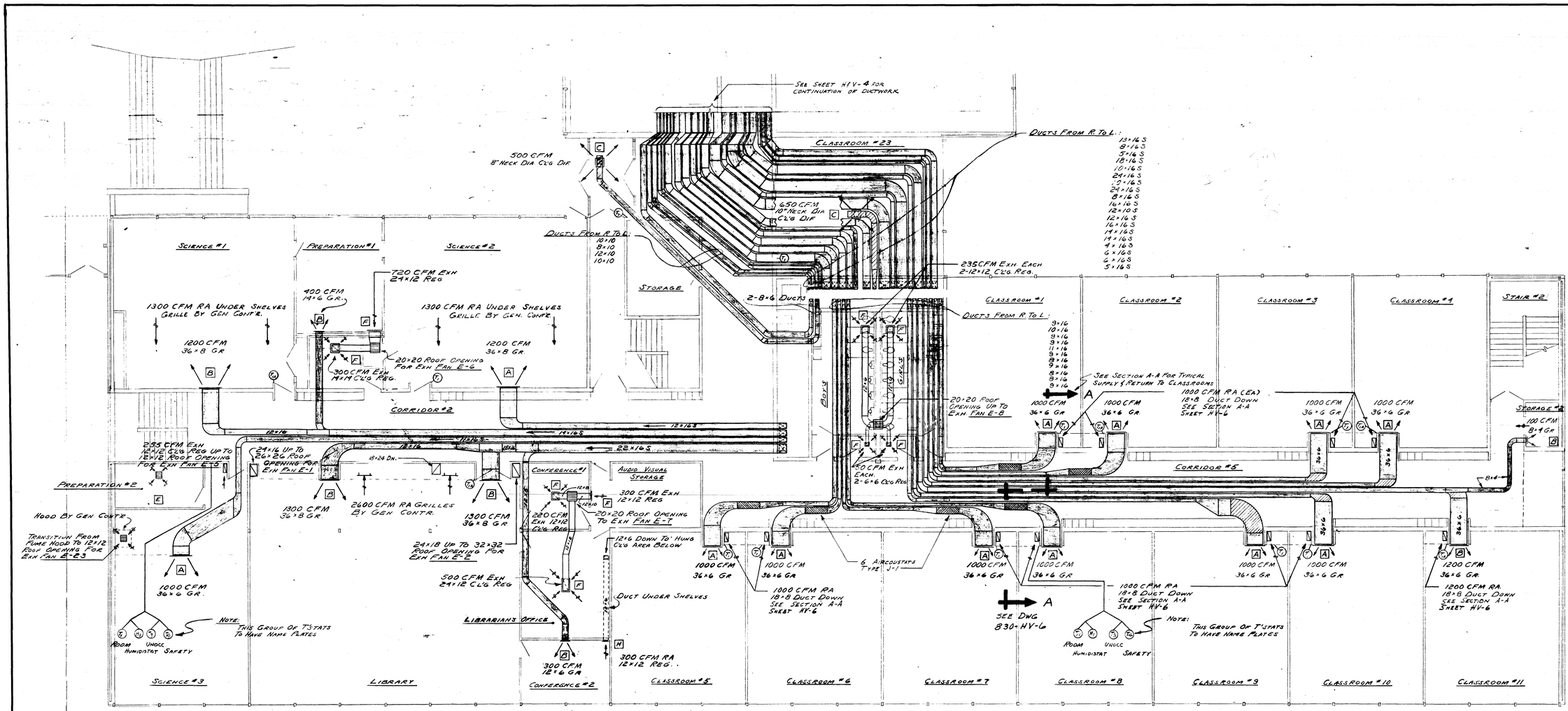
Date 30 APR. 57

Scale 1/8"=1'-0"

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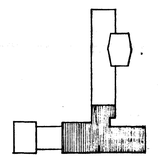
BQ #70 & 125 Attachment



UPPER CLASSROOM WING PLAN
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT CHARLES S. MINGES REGISTERED PROFESSIONAL ENGINEER NO. 2423

STATE OF CONNECTICUT CHARLES G. MARCHANT REGISTERED PROFESSIONAL ENGINEER NO. 2385



KEY PLAN

1st. FLOOR HEATING & VENTILATING AREA B

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-HV-3

Date: 20 APR. 57

Scale: 1/8" = 1'-0"

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EXH FAN E-9 TRANSITION DUCT FROM FORGE HOOD UP TO 24"x24" OPNG AT FAN.

2020 CFM EXH.

950 CFM 24×8 GR

950 CFM 24×8 GR

EXPOSED DUCT 3

1050 CFM RA EACH 2-48×12 REGS.

1050 CFM RA EACH 2-48×12 REGS.

METAL SHOP

DRAFTING

WOOD SHOP

600 CFM 20×8 GR

950 CFM 24×8 GR.

950 CFM 24×8 GR.

NOTE: ALL DUCTWORK TO THE RIGHT OF LINE IS UNDER SUPPLY DUCT

DRAFTING

WOOD SHOP

1050 CFM RA EACH 2-12×48 REGS.

FLOOR

21"x18" TEE

21" TILE BY GEN. CONTR.

SECTION C-C
NO SCALE

20×20 UP TO EXH FAN E-10

FINISHING ROOM

STORAGE

VOLATILE STORAGE

50 CFM 8×4 GRILLE

1055 CFM EXH.

PAINT SPRAY HOOD BY GC

250 CFM 7" NECK DIA. C.I.G. DIF.

1400 CFM RA GRILLE IN CAB. BY GEN. CONTR.

1400 CFM 36×8 GR.

REHEARSAL

16×16 UP TO EXH FAN E-11

400 CFM 16×6 GR.

300 CFM EACH 2-14×14 C.I.G. REG.

CUSTODIAN

140 CFM EXH 10×10 C.I.G. REG.

500 CFM 20×6 GR.

20×6 S.

INSTRUMENTAL

INSTRUMENT STOR. ROOM

BLANK PLATE EACH END

3600 CFM CONTINUOUS 4" SECTIONS BASEBOARD SUPPLY GRILLE

CENTERED 18"×3" SLOTS ONE PER SECTION

1050 CFM RA GRILLE IN CAB BY GEN. CONTR.

CHORAL

1050 CFM 20×6 GR.

1400 CFM RA UNDER CLOSET

CRAFTS

NOTE: UNDER STAGE IS RA PLENUM

STAGE

14600 CFM RA

1400 CFM 36×8 GR

TRANSITION DUCT FROM PAINT SPRAY BOOTH TO 12"x12" ROOF OPENING FOR EXH FAN E-22

490 CFM EXH

200 CFM 10×4 GR.

WORK & STORAGE

1400 CFM RA UNDER CLOSET

1200 CFM 36×6 GR.

ARTS

AUDITORIUM

DUCTS FROM R TO L:
8-20S
10-20S
9-20S
18-20S
43-20S
6-20S
10-20S
13-20S
12-20S

3250 CFM EACH 2-48"×20" GRILLES.

3-32×32 MOTORIZED RELIEF DAMPERS. BY H&V CONT'R. CENTERED OVER SUPPLY GRILLES. SEE SECT. 7 ON SH. HV-6

B

SEE DWG. H&V #8 FOR SECTION B-B

12×12 UP TO EXH FAN E-13

255 CFM EXH 10×10 C.I.G. REG.

STORAGE

130 CFM EXH 10×10 C.I.G. REG.

12×12 UP TO EXH FAN E-14

115 CFM EXH 8×8 C.I.G. REG.

NURSE'S OFFICE

550 CFM RA 36×4 REG

12×12 UP TO EXH FAN E-13

115 CFM EXH 8×8 C.I.G. REG

100 CFM EXH 8×8 C.I.G. REG.

160 CFM EXH 10×10 C.I.G. REG.

12×12 UP TO EXH FAN E-24

850 CFM RA UNDER COUNTER

350 CFM EXH 14×14 C.I.G. REG.

TEACHER'S ROOM

140 CFM EXH 10×10 C.I.G. REG

MEN'S TOILET

1000 CFM 12" NECK DIA. C.I.G. DIF.

16×10S

130 CFM EXH 10×10 C.I.G. REG.

12×12 UP TO EXH FAN E-16

250 CFM 12×5 GR.

250 CFM RA 10×4 REG.

OFFICE

650 CFM 24×6 GR.

NOTE: THIS GROUP OF T'STATS TO HAVE JAMB PLATES

HUMIDISTAT UNOCC. SAFETY ROOM

250 CFM 12×5 GR.

VICE PRINCIPAL

125 CFM 8×4 GR.

1275 CFM RA 24×24 REG.

20×4S

125 CFM 8×4 GR.

20×5S

185 CFM 8×4 GR.

NURSE'S OFFICE

300 CFM 14×4 GR.

EXAMINING

250 CFM 12×4 GR.

850 CFM 24×8 GR

TEACHER'S ROOM

MEN'S TOILET

500 CFM 8" NECK DIA C.I.G. DIF.

2200 CFM 48×8 GR

CAFETERIA NO. 2

3200 CFM RA 36×30 REG.

DISHWASHING

12×12 DUCT FROM HOOD TO 16×16 ROOF OPENING FOR EXH FAN E-17

HOOD BY KITCHEN SUPPLIER

790 CFM EXH.

550 CFM 20×6 GR.

20×6 S.

OFFICE

FACULTY DINING ROOM

FOR SECTION C-D SEE H&V DWG #6

HOOD & FILTERS BY KITCHEN SUPPLIER

18 GAUGE STEEL DUCT FROM OPENING IN HOOD TO 38×38 ROOF OPENING FOR EXH FAN E-14

3800 CFM EXH.

700 CFM 10" NECK DIA. C.I.G. DIF.

24×16S

KITCHEN

TOILET

12×12 ROOF OPENING FOR EXH FAN E-15

200 CFM 4" NECK DIA. C.I.G. DIF

130 CFM EXH 12×12 C.I.G. REG.

12×12 DUCT FROM HOOD TO 16×16 ROOF OPENING FOR EXH FAN E-18

100 CFM 12×4 REG

HOOD BY KITCHEN SUPPLIER

COLD STORAGE

130 CFM EXH. 12×12 GR. 4-12×12 ROOF OPENING FOR EXH FAN E-21

790 CFM EXH.

DISHWASHING

CAN WASH

2200 CFM RA 36×30 REG

255 CFM EXH. 14×14 REG TO 12×12 ROOF OPENING FOR EXH FAN E-20

2200 CFM 48×8 GR

CAFETERIA NO 1

5 DUCTS FROM R TO L:
11×20S
7×20S
5×20S
15×20S
8×20S
18×20S
19×20S
19×20S
13×20S
6×20S
10×20S
13×20S
12×20S
12×20S
1×20S
6×20S
6×20S
5×20S
7×20S

MEN'S TOILET

AUDITORIUM WING FLOOR PLAN
SCALE: 1/8"=1'-0"

STATE OF CONNECTICUT CHARLES S. MINGES REGISTERED NO. 2423 PROFESSIONAL ENGINEER

STATE OF CONNECTICUT CHARLES S. MARCHANT REGISTERED NO. 2385 PROFESSIONAL ENG.

KEY PLAN

1st. FLOOR HEATING & VENTILATING-AREAS C & D

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830 - HV-4

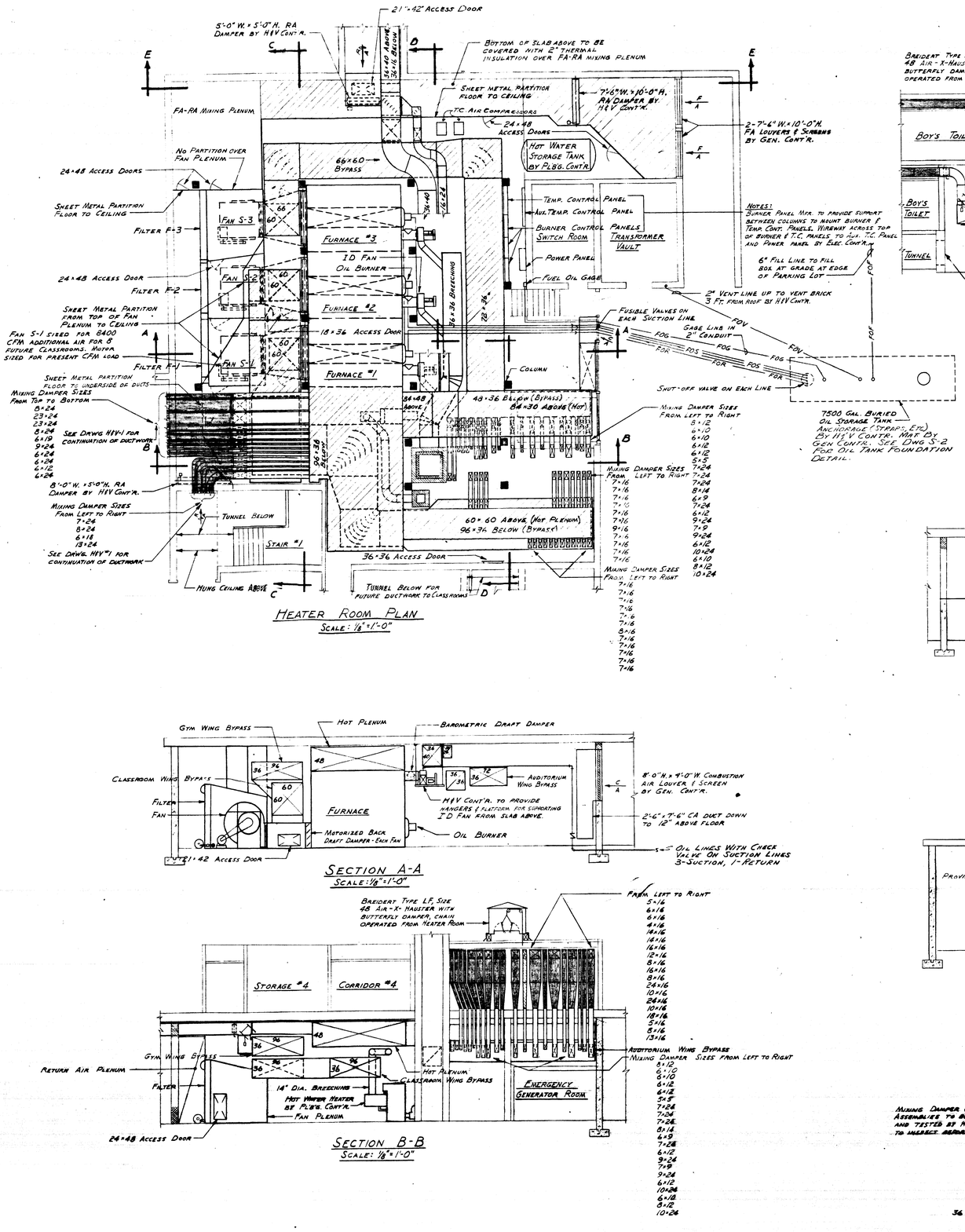
Date 30 APR. '57

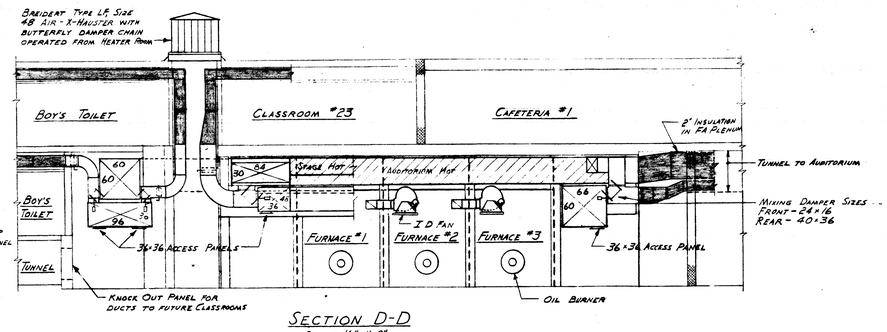
Scale AS NOTED

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

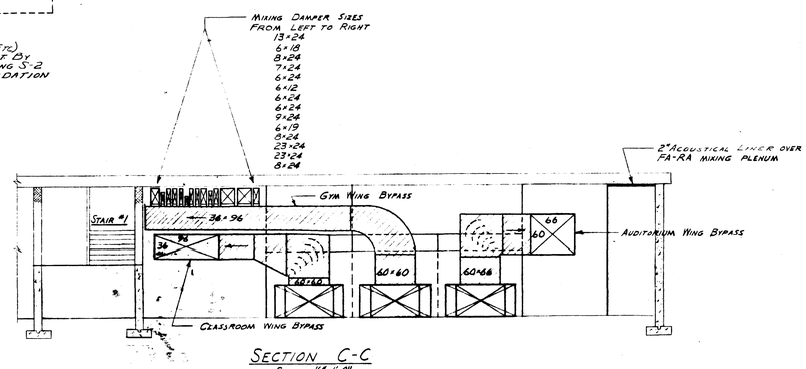
MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment





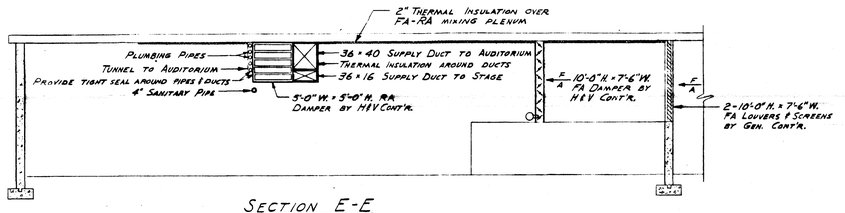
Section D-D
Scale: 1/8" = 1'-0"



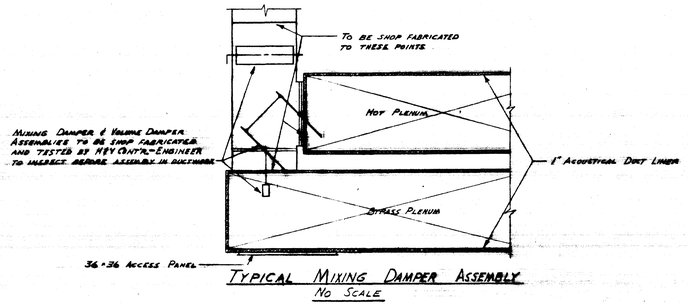
Section C-C
Scale: 1/8" = 1'-0"

Section A-A
Scale: 1/8" = 1'-0"

Section B-B
Scale: 1/8" = 1'-0"



Section E-E
Scale: 1/8" = 1'-0"



Typical Mixing Damper Assembly
No Scale

STATE OF CONNECTICUT JAMES S. MINGES NO. 2423 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT CHARLES G. MARCHANT NO. 2385 REGISTERED PROFESSIONAL ENGINEER

HEATER ROOM PLAN & SECTIONS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

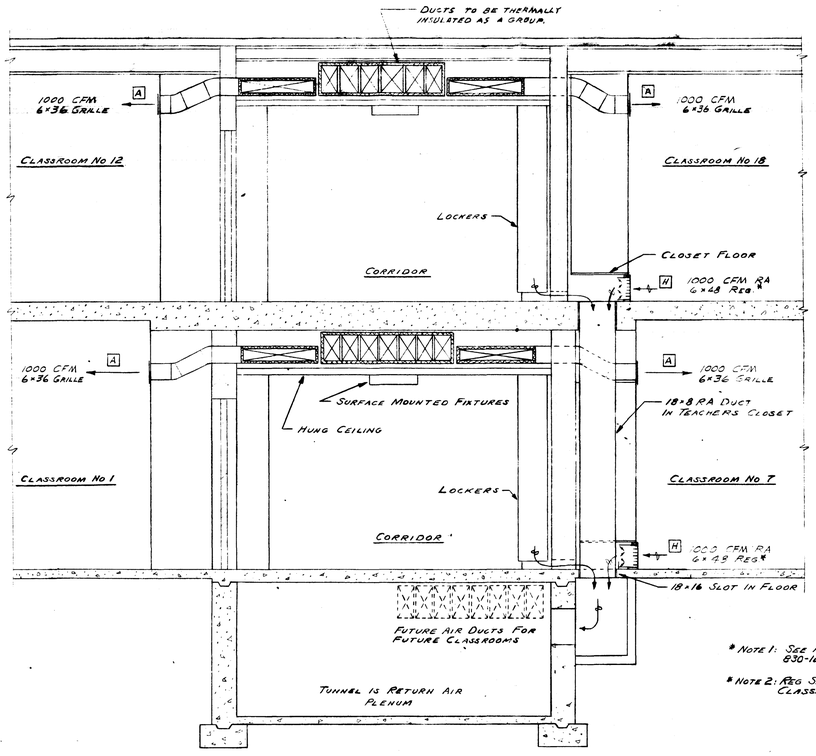
830 - HV-5

Date: 30 APR 57
Scale: As Noted

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

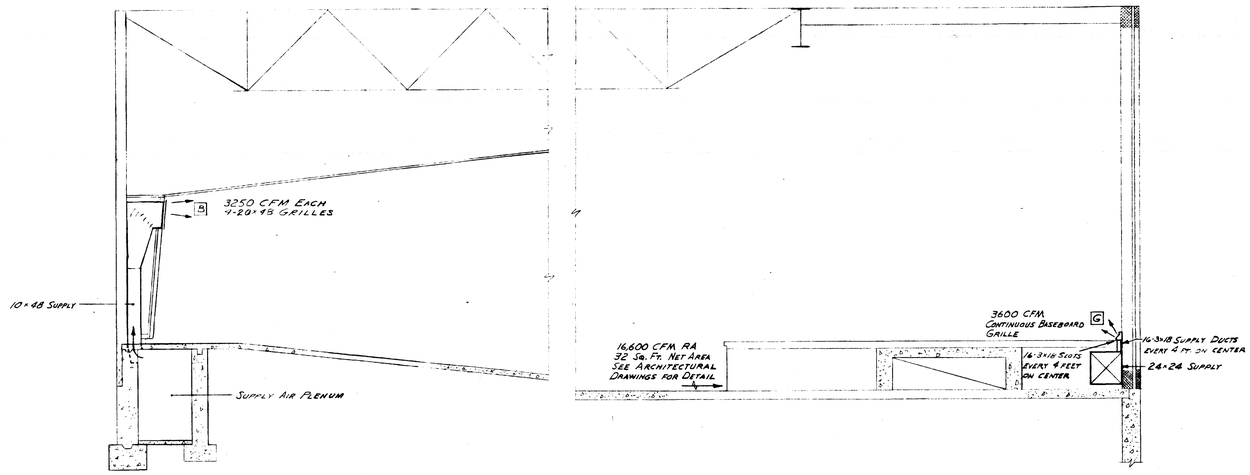
BQ #70 & 125 Attachment



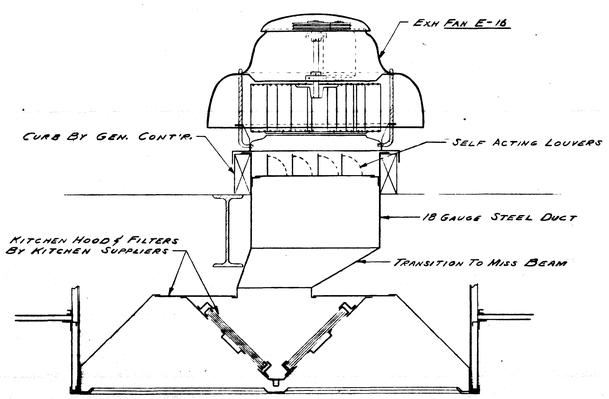
* NOTE 1: SEE ARCHITECTURAL SECTION 830-12-D FOR RA REG DETAIL

* NOTE 2: REG SIZE TO BE 7"×18" IN CLASSROOMS #11 & #22

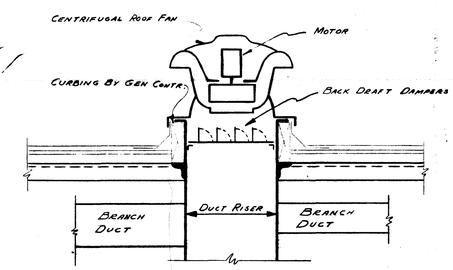
SECTION A-A
TYPICAL CLASSROOM SUPPLY AND RETURN
NO SCALE



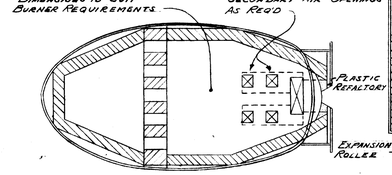
SECTION B-B
SCALE: 1/4"=1'-0"



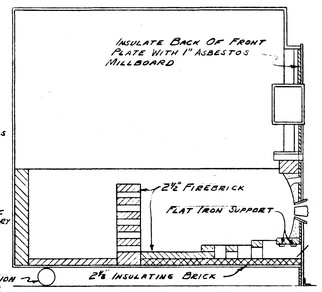
KITCHEN HOOD EXH. FAN DETAIL
SECTION D-D
NO SCALE



TYPICAL ROOF EXHAUST FAN
NO SCALE



PLAN



ELEVATION
COMBUSTION CHAMBER DETAIL
SCALE 1½"=1'-0"

STATE OF CONN. JAMES S. MITCHELL NO. 2423 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT CHARLES G. MARCHANT NO. 2385 REGISTERED PROFESSIONAL ENGINEER

HEATING & VENTILATING
SECTIONS & DETAILS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

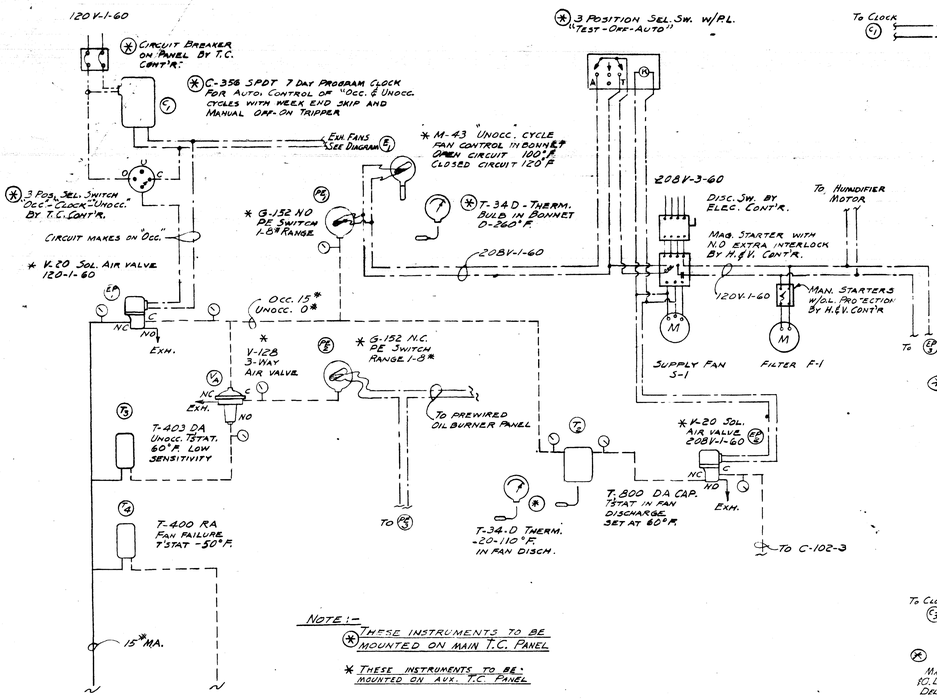
830-HVL

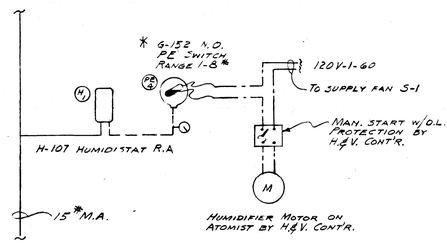
Date: 30 APR. 67 | Scale: AS NOTED

SHERWOOD, MILLS AND SMITH
Architects: 63 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment





Humidity Control — System I

(Systems 2 & 3 Same)

Grilles & Registers

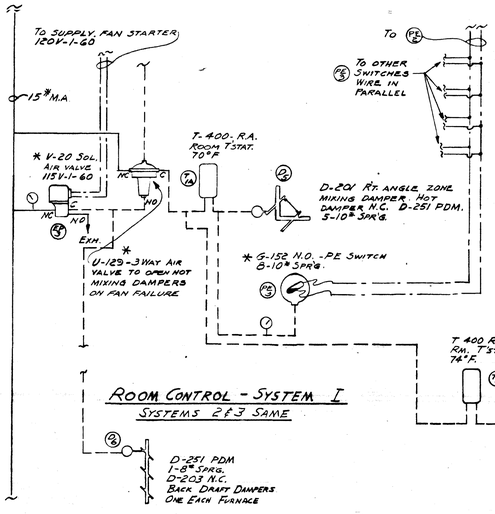
TYPE	DUTY	MFG. & STYLE	FINISH	SPECIAL FEATURES
A	Supply	Tuttle & Bailey #T-64 Grille	Prime	
B	Supply	Tuttle & Bailey #T-647 Grille	Prime	Key operated volume damper
C	Supply	Anemostat Type E-1	Aluminum	Equalizing Deflector
D	Supply	Anemostat Type E-1	Aluminum	Combo Unit Type CU-2
E	Exhaust	Tuttle & Bailey T-70D	Prime	
F	Exhaust	Tuttle & Bailey T-77D	Prime	Key operated volume damper
G	Supply	Standard #B-48 Baseboard Grille	Prime	Dial operated damper
H	RETURN	TUTTLE & BAILEY #T936 W/#T956 FACE	PRIME	KEY OPERATED VOLUME DAMPER

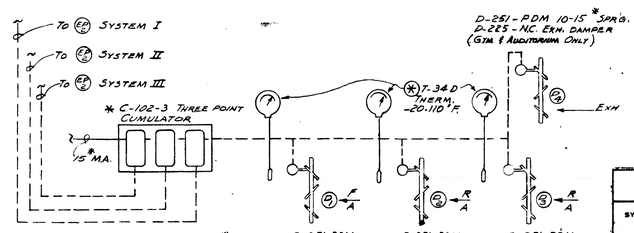
Filter Schedule

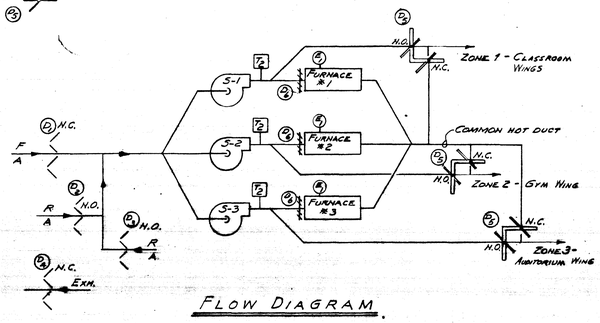
SYSTEM NO.	FILTER NO.	MFG. & STYLE	CFM	FILTER SIZE
1	F-1	American Air Filter Roll-O-Matic #8-100	24,650	10'-0" H. x 8'-0" W
2	F-2	American Air Filter Roll-O-Matic #8-100	27,000	10'-0" H. x 8'-0" W
3	F-3	American Air Ficter Roll-O-Matic #12-100	40,000	10'-0" H. x 12'-0" W

Heating & Ventilating Symbols

FUEL OIL SUCTION — FOS — FOS
FUEL OIL RETURN — FOR — FOR
FUEL OIL TANK VENT — FOV — FOV
FUEL OIL PUMP DISCHARGE — FOD — FOD
FUEL OIL TANK FILL — FOF — FOF
SUPPLY DUCT (NO INSULATION) — S
RETURN DUCT (NO INSULATION) — R
EXHAUST — E
THERMALLY (EXTERNALLY) INSULATED DUCTS
ACCOUSTICALLY (INTERNALLY) INSULATED DUCTS







Fan Schedule

SYSTEM NO.	FAN NO.	SERVICE	LOCATION	CFM	SP	MIN. W.D.	MAX. OV FPM	ARRANGEMENT & DISCHARGE	FAN SIZE & MFG.	RPM	BHP	MOTOR HP SIZE	MOTOR CURRENT	DRIVE TYPE	REMARKS
1	S-1	Supply	Classrooms	24650	1 1/4	44"	1200	Arr. #3 BH Disch.	Trane #44 BIDW	421	6.26	7 1/2	208V-3-60	V-Belt	Fan Sized for additional 8,400 CFM future CR load.
2	S-2	Supply	Gymnasium	27000	1 1/4	40"	1600	Arr. #3 BH Disch.	Trane #40 BIDW	515	7.19	10	208V-3-60	V-Belt	
3	S-3	Supply	Auditorium	40000	1 1/4	49"	1600	Arr. #3 BH Disch.	Trane #49 BIDW	419	10.69	15	208V-3-60	V-Belt	
	E-1	Exhaust	Home Ec. #1	2590	1/8			Roof	Jenn-Air #24 BCR	460		1/4	115V-1-60	V-Belt	Local Sw. & Pl.
	E-2	Exhaust	Home Ec. #2	3450	1/8			Roof	Jenn-Air #27 BCR	430		1/3	115V-1-60	V-Belt	Local Sw. & Pl.
	E-3	Exhaust	Boy's Lockers	3010	1/8			Roof	Jenn-Air #24 BCR	520		1/3	115V-1-60	V-Belt	Local Sw. & Pl. - 2 Speed
	E-4	Exhaust	Girl's Lockers	3450	1/8			Roof	Jenn-Air #27 BCR	430		1/3	115V-1-60	V-Belt	Local Sw. & Pl. - 2 Speed
	E-5	Exhaust	Prep. Rm. #2	255	1/8			Roof	Jenn-Air #70 CR	1550		1/25	115V-1-60	Direct	
	E-6	Exhaust	Dark Rm.	1020	1/8			Roof	Jenn-Air #128 CR	860		1/4	115V-1-60	Direct	
	E-7	Exhaust	Lib. Office	1020	1/8			Roof	Jenn-Air #128 CR	860		1/4	115V-1-60	Direct	
	E-8	Exhaust	Toilets	1020	1/8			Roof	Jenn-Air #128 CR	860		1/4	115V-1-60	Direct	
	E-9	Exhaust	Forge Hood	2020	1/8			Roof	Jenn-Air #24 CW	460		1/4	115V-1-60	V-Belt	Local Sw. & Pl.
	E-10	Exhaust	Paint Spray	1055	1/4			Roof	Jenn-Air #111 CR	1140		1/6	115V-1-60	Direct	Expl. motor-spark resistant fan wheel-Local Sw. & Pl.
	E-11	Exhaust	Toilets	740	1/8			Roof	Jenn-Air #91 CR	1140		1/8	115V-1-60	Direct	
	E-12	Exhaust	Princ. Toilet	130	1/8			Roof	Jenn-Air #71 CR	1550		1/25	115V-1-60	Direct	2 speed Local Sw. & Pl.
	E-13	Exhaust	Storage	255	1/8			Roof	Jenn-Air #70 CR	1550		1/25	115V-1-60	Direct	
	E-14	Exhaust	Nurses Toilet	130	1/8			Roof	Jenn-Air #71 CR	1550		1/25	115V-1-60	Direct	
	E-15	Exhaust	Health	190	1/8			Roof	Jenn-Air #80 CR	1550		1/15	115V-1-60	Direct	
	E-16	Exhaust	Kit. Hood	9800	1/4			Roof	Jenn-Air #36 BCR	500		2	208V-3-60	V-Belt	Local Sw. & Pl.
	E-17	Exhaust	Dishwash #2	740	1/8			Roof	Jenn-Air #91 CR	1140		1/8	115V-1-60	Direct	Local Sw. & Pl.
	E-18	Exhaust	Dishwash #1	740	1/8			Roof	Jenn-Air #91 CR	1140		1/8	115V-1-60	Direct	Local Sw. & Pl.
	E-19	Exhaust	Kit. Toilet	130	1/8			Roof	Jenn-Air #71 CR	1550		1/25	115V-1-60	Direct	
	E-20	Exhaust	Cold Storage	255	1/8			Roof	Jenn-Air #70 CR	1550		1/25	115V-1-60	Direct	
	E-21	Exhaust	Can Wash	130	1/8			Roof	Jenn-Air #71 CR	1550		1/25	115V-1-60	Direct	
	E-22	Exhaust	Grefte Hood	490	1/8			Roof	Jenn-Air #80 CR	1550		1/25	115V-1-60	Direct	Expl. motor spark resistant fan wheel Local Sw. & Pl.
	E-23	Exhaust	Science Rm.	490	1/8			Roof	Jenn-Air #80 CR	1550		1/25	115V-1-60	Direct	Local Sw. & Pl.
	E-24	Exhaust	Teachers Toi.	490	1/8			Roof	Jenn-Air #80 CR	1550		1/25	115V-1-60	Direct	

STATE OF CONNECTICUT CHARLES O. MARCHANT NO. 2423 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT CHARLES O. MARCHANT NO. 2385 REGISTERED PROFESSIONAL ENGINEER

H&V TEMP. CONTROLS DIAGRAMS & SCHEDULES

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

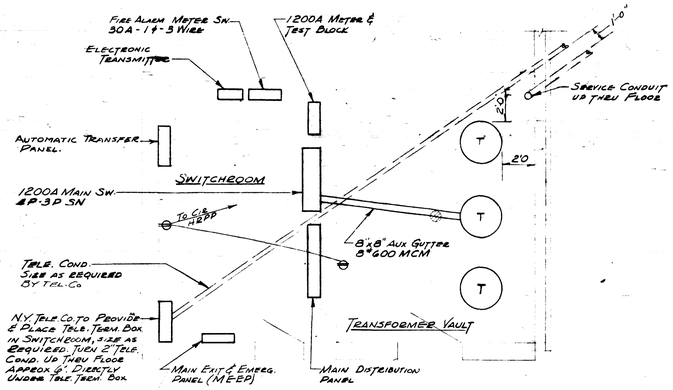
830 - HV-7

Date 30 APR. 57 | Scale No Scale

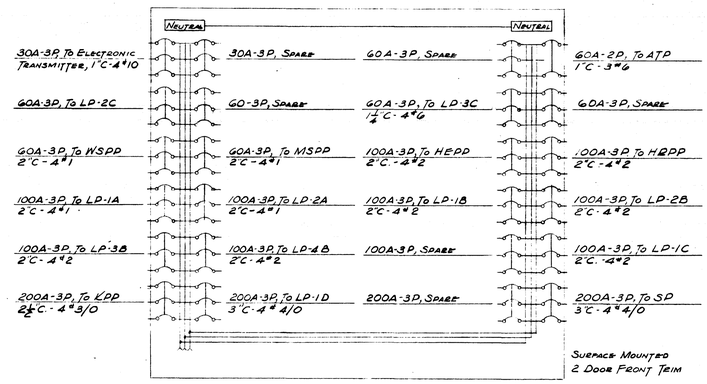
SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

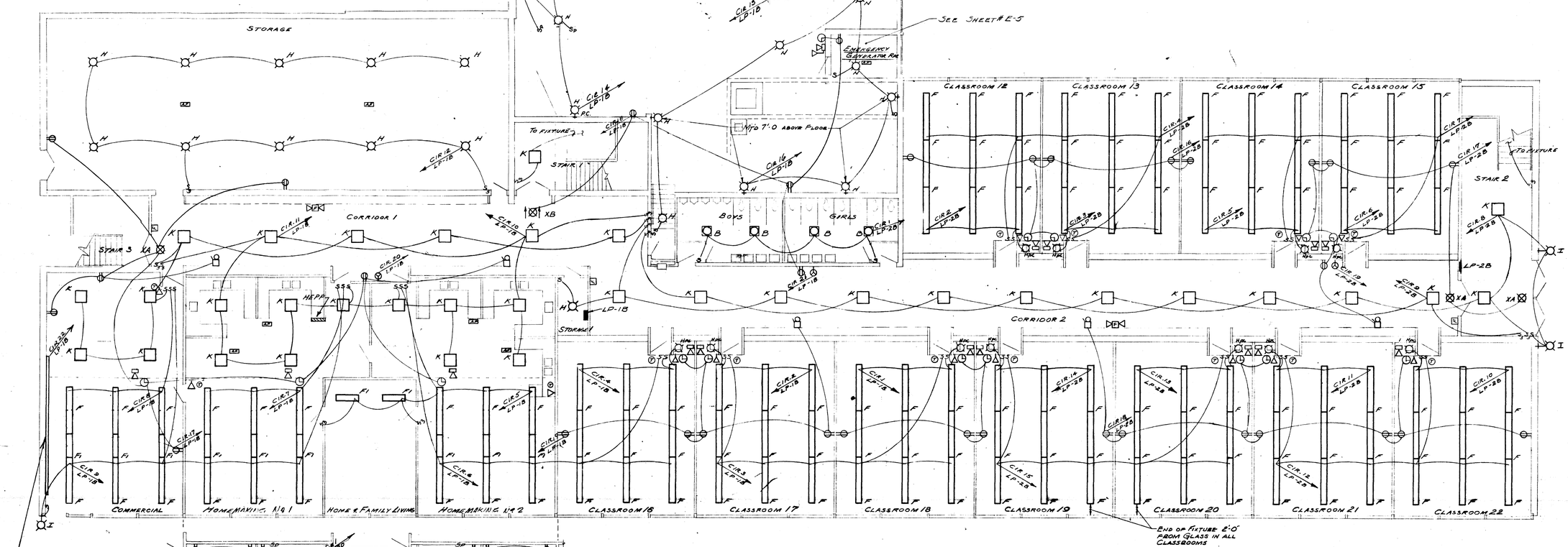
BQ #70 & 125 Attachment



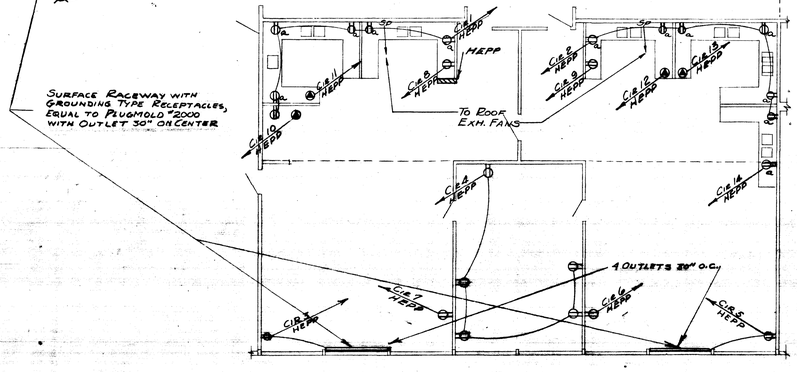
SWITCH ROOM & TRANSFORMER
SCALE 1/4" = 1'-0"



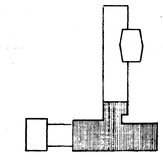
MAIN DISTRIBUTION PANEL DETAIL
SWITCH - FUSE TYPE
208/120 VOLTS, 3 PHASE, 4 WIRES
NO SCALE



BASEMENT PLAN – AREA "B"
SCALE 1/8" = 1'-0"



HOMEMAKING 1 & 2 POWER PLAN
SCALE: 1/8" = 1'-0"



KEY PLAN

BASEMENT ELECTRICAL AREA B

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-E1

Date: 30 APR 57
Scale: AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects 45 Broad Street, Stamford, Connecticut

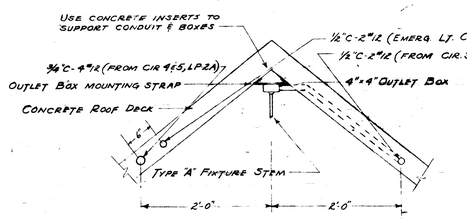
MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

STATE OF CONNECTICUT JAMES S. MINGES No. 1640 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT JAMES S. MARCHANT NO. 2423 REGISTERED PROFESSIONAL ENGINEER

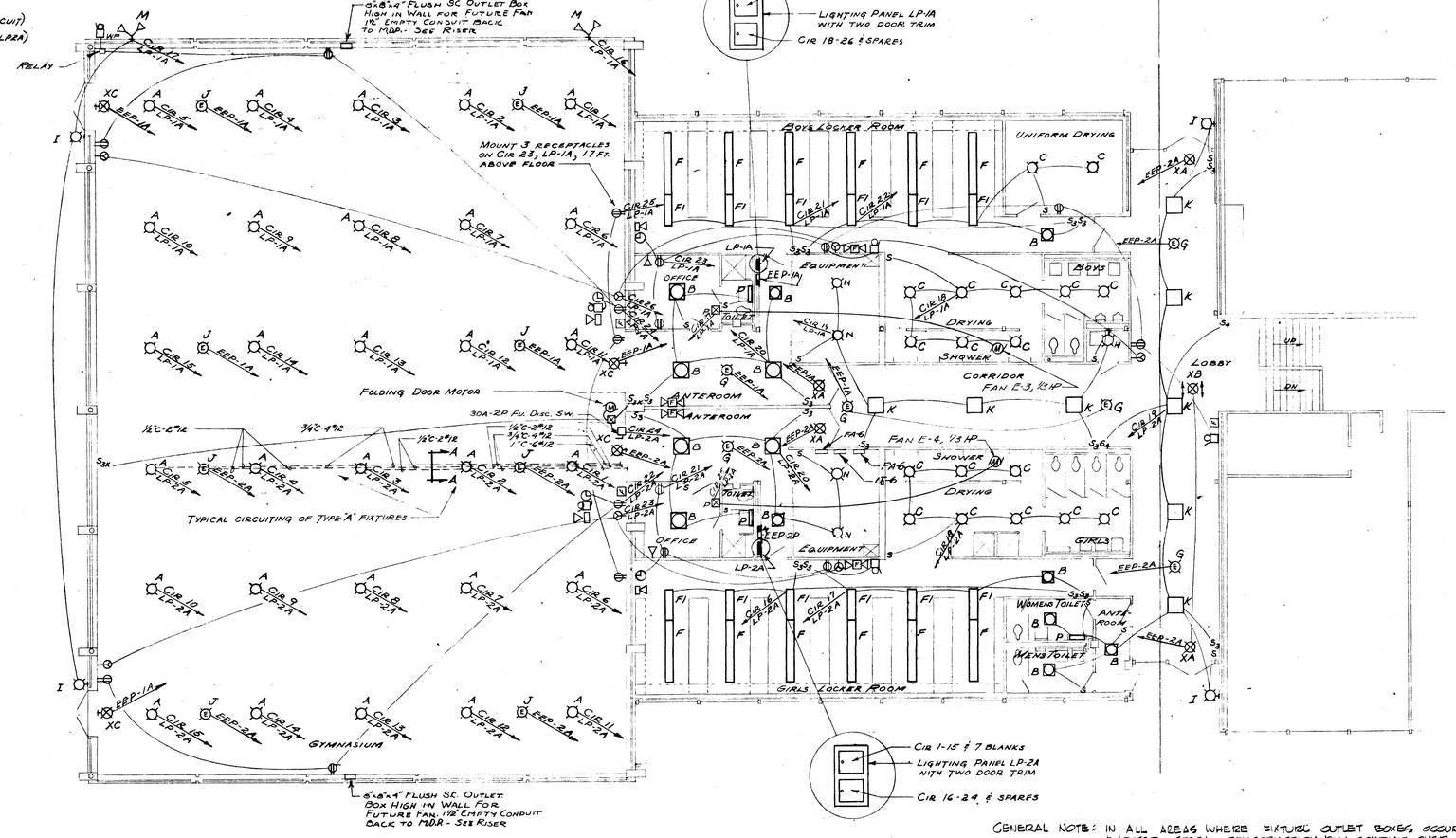
STATE OF CONNECTICUT CHARLES B. MARCHANT NO. 2388 REGISTERED PROFESSIONAL ENGINEER

BQ #70 & 125 Attachment



ELEVATION A-A

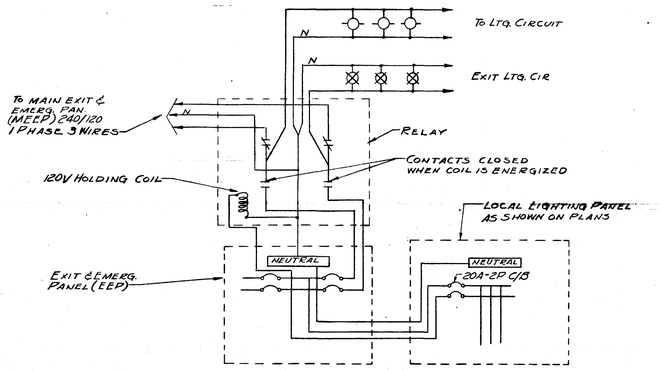
SCALE 1"=1'-0"



FIRST FLOOR PLAN - AREA "A"

SCALE ⅛"=1'-0"

GENERAL NOTES: IN ALL AREAS WHERE FIXTURE OUTLET BOXES OCCUR AT EXPOSED STEEL CONSTRUCTION, RUN CONDUIT OVER BEAMS BETWEEN WELDED BULB TEES. SEE DWG. 830 S4 FOR DETAIL.



TYPICAL CONNECTIONS FOR EXIT & EMERG. LTG.

NO SCALE

SCHEDULE - CLOCK, PROGRAM BELL, RELAY

ROOM OR AREA	CLOCK	BELL	RELAY
AREA "A"			
Gym	2	2	
Gym Outside		1	
Boy's Locker Rm.	1	1	
Girl's Locker Rm.	1	1	
AREA "B"			
Commercial	1		
Home Economics #1	1		
Home Economics #2	1		
Classroom #16	1		
Classroom #17	1		
Classroom #18	1		
Classroom #19	1		
Classroom #20	1		
Classroom #21	1		
Classroom #22	1		
Classroom #12	1		
Classroom #13	1		
Classroom #14	1		
Classroom #15	1		
Corridor		5	
AREA "B" FIRST FLOOR			
Science #3	1		
Library	2		
Classroom 5	1		
Classroom 6	1		
Classroom 7	1		
Classroom 8	1		
Classroom 9	1		
Classroom 10	1		
Classroom 11	1		
Science #1	1		
Science #2	1		
Classroom #23	1		

ROOM OR AREA	CLOCK	BELL	RELAY
AREA "B" FIRST FLOOR CON'T.			
Classroom #1	1		
Classroom #2	1		
Classroom #3	1		
Classroom #4	1		
Corridor #4		2	
Corridor #5		3	
Corridor #6		1	
AREA "C"			
Principal	1		
Gen'l. Off.	Master Clock		
Guidance	1		
Nurse	1		
Teachers' Room	1		
Cafeteria #2	1		
Cafeteria #1	1		
Serving	1		
Corridor #4		2	
Faculty Dining	1		
AREA "D"			
Wood Shop	1	1	
Metal Shop	1	1	
Metal Shop Outside		1	
Rehearsal	1		
Instrumental	1		
Choral	1		
Crafts	1		
Arts	1		
Auditorium	1		
Corridor		2	

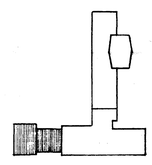
ELECTRICAL SYMBOLS

	CEILING LIGHT OUTLET	F	MANUAL FIRE ALARM STATION
	RECESSED CEILING LIGHT OUTLET	AF	AUTOMATIC FIRE ALARM DETECTOR
	WALL LIGHT OUTLET	FH	FIRE ALARM HORN
	FLOODLIGHT OUTLET	FA	FIRE ALARM JUNCTION BOX
	PILOT LIGHT OUTLET		OUTSIDE TELEPHONE
	EMERGENCY LIGHT OUTLET		LOUD SPEAKER
	EXIT LIGHT OUTLET		INTERCOM. 'PHONE
	FLUORESCENT FIXTURE	PA	P.A. JUNCTION BOX
	DUPLEX CONVENIENCE OUTLET 6" AF TO ℄		CLOCK OUTLET
	OUTLET 2" ABOVE COUNTER TO ℄	M	MOTOR
	SPECIAL OUTLET - SEE PLANS & BELOW	H	HOT WATER HEATER
	OUTLET FURNISHED BY EQUIP. MAN (SCIENCE)	T	TRANSFORMER
	3 WIRE POLARIZED OUTLET		FUSED DISCONNECT SWITCH
WP	WEATHERPROOF OUTLET		CONTROLLER
EP	EXPLOSION-PROOF OUTLET	P	CONTROLLER WITH PILOT LIGHT
	RANGE OUTLET	AQ	AQUASTAT
	FLOOR OUTLET	R	RELAY
M	MICROPHONE OUTLET		PUSH BUTTON
B	SOUND OUTLET	T	THERMOSTAT
V	TELEVISION OUTLET		POWER PANEL
S	SINGLE POLE SWITCH		EXIT & EMERGENCY PANEL
S2	TWO POLE SWITCH		LIGHTING PANEL
S3	THREE WAY SWITCH		DISTRIBUTION PANEL
S4	FOUR WAY SWITCH		BUZZER
SK	KEYED SWITCH	PB	PROGRAM BELL
SKP	KEYED SWITCH WITH PILOT		
SRC	REMOTE CONTROL SWITCH		
SA	SEE KIT POWER PLAN SH. E5		

STATE OF CONNECTICUT JAMES H. MARCHANT No. 1648 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT JAMES S. MINGES NO. 2423 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT CHARLES G. MARCHANT NO. 2385 REGISTERED PROFESSIONAL ENGINEER



KEY PLAN

FIRST FLOOR ELECTRICAL AREA A

CENTRAL JUNIOR HIGH SCHOOL

Greenwich, Connecticut

830-E2

Date 30 APR 57 | Scale AS SHOWN

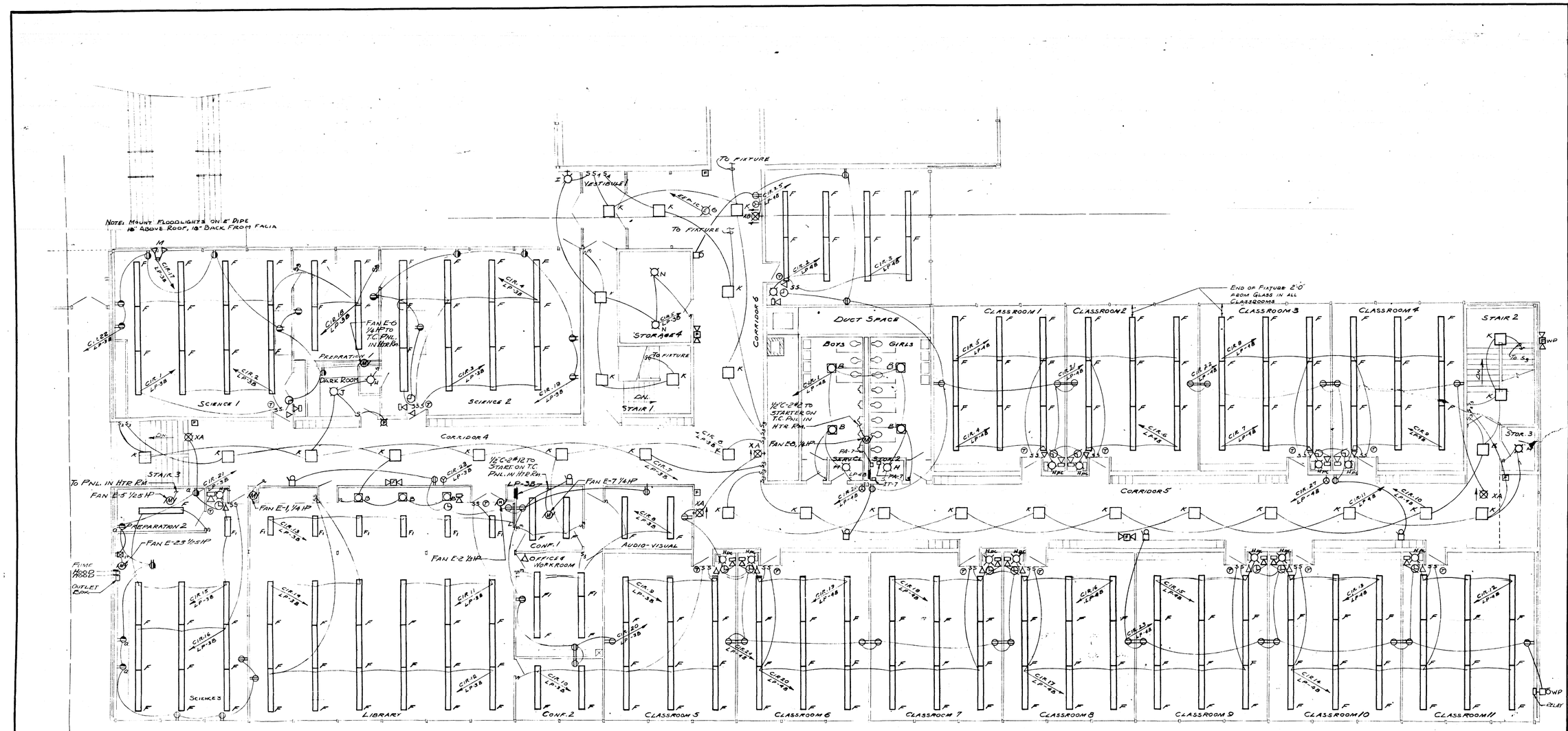
SHERWOOD, MILLS AND SMITH

Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES ENGINEERS

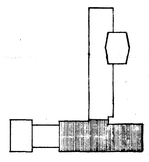
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment



FIRST FLOOR PLAN - AREA "B"

SCALE 1/8" = 1'-0"



KEY PLAN

FIRST FLOOR ELECTRICAL AREA B

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

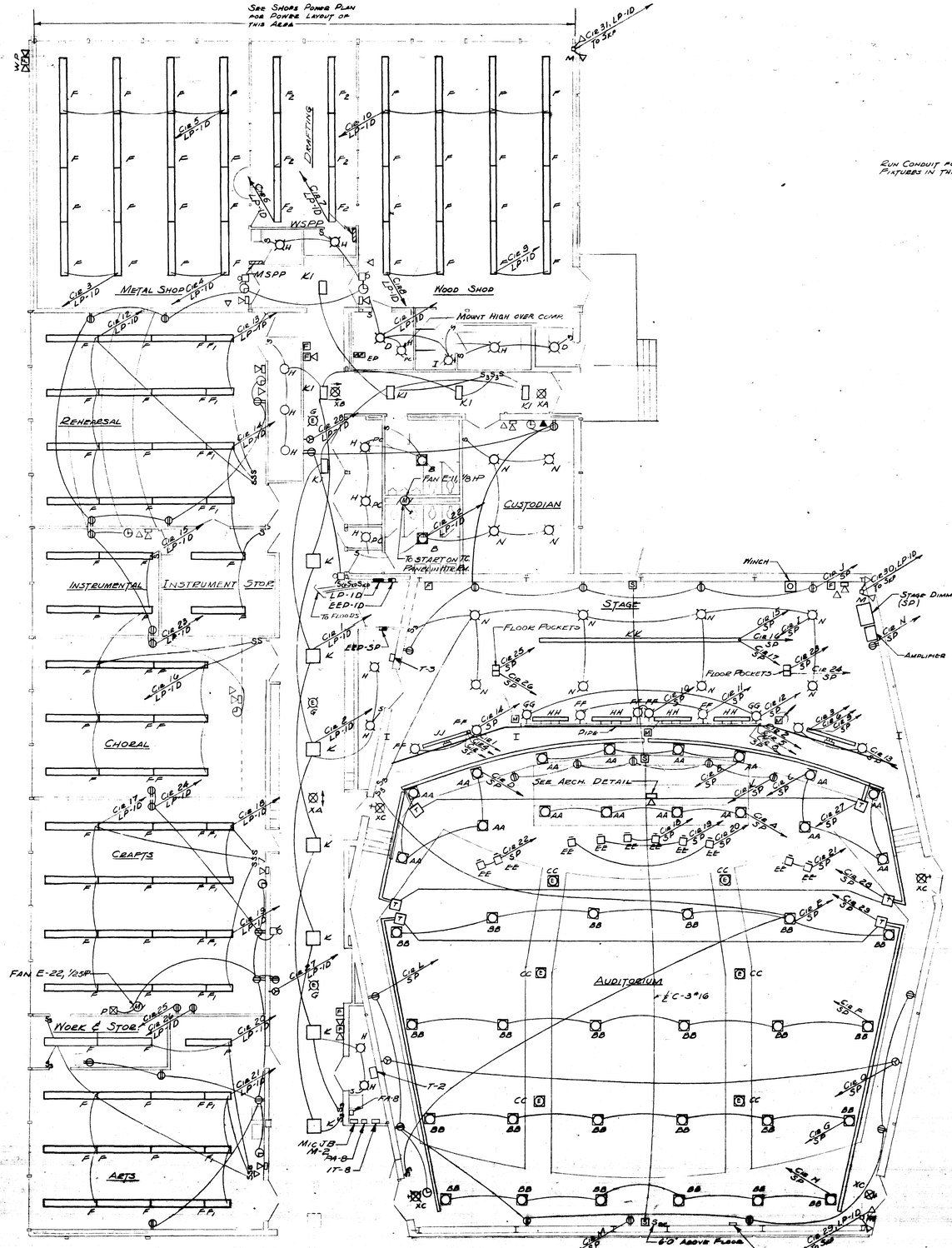
830-E3

Date 30 APR 57 | Scale 1/8" = 1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

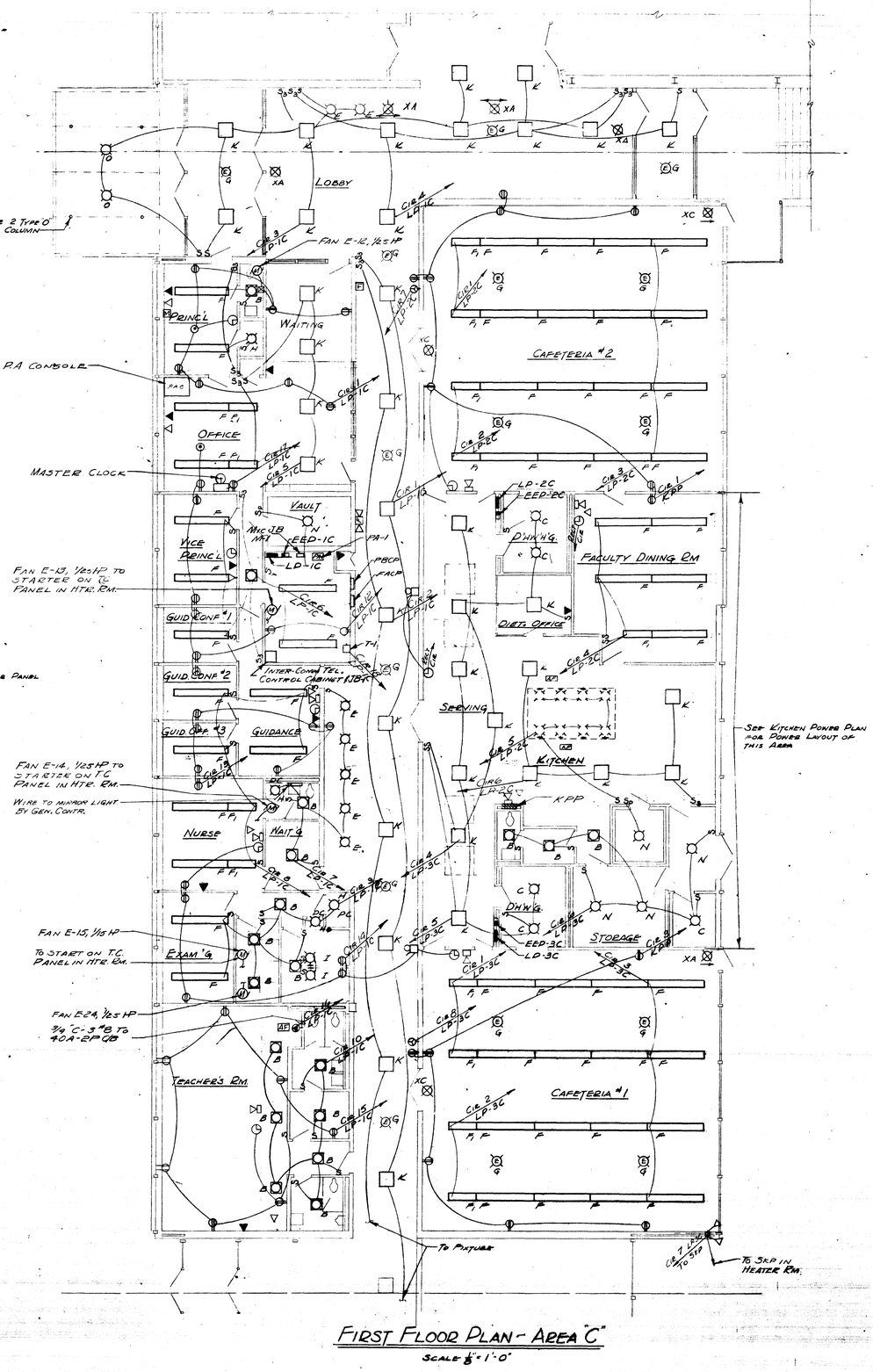
MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment



FIRST FLOOR PLAN - AREA "D"

SCALE ⅛" = 1'-0"



FIRST FLOOR PLAN - AREA "C"

SCALE ⅛" = 1'-0"

STATE OF CONNECTICUT JOHN N. MACDONALD No. 1648 REGISTERED ARCHITECT

STATE OF CONNECTICUT JAMES S. MINGES NO. 2423 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT CHARLES G. MARCHANT NO. 2385 REGISTERED PROFESSIONAL ENGINEER

KEY PLAN

FIRST FLOOR ELECTRICAL AREAS C & D

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

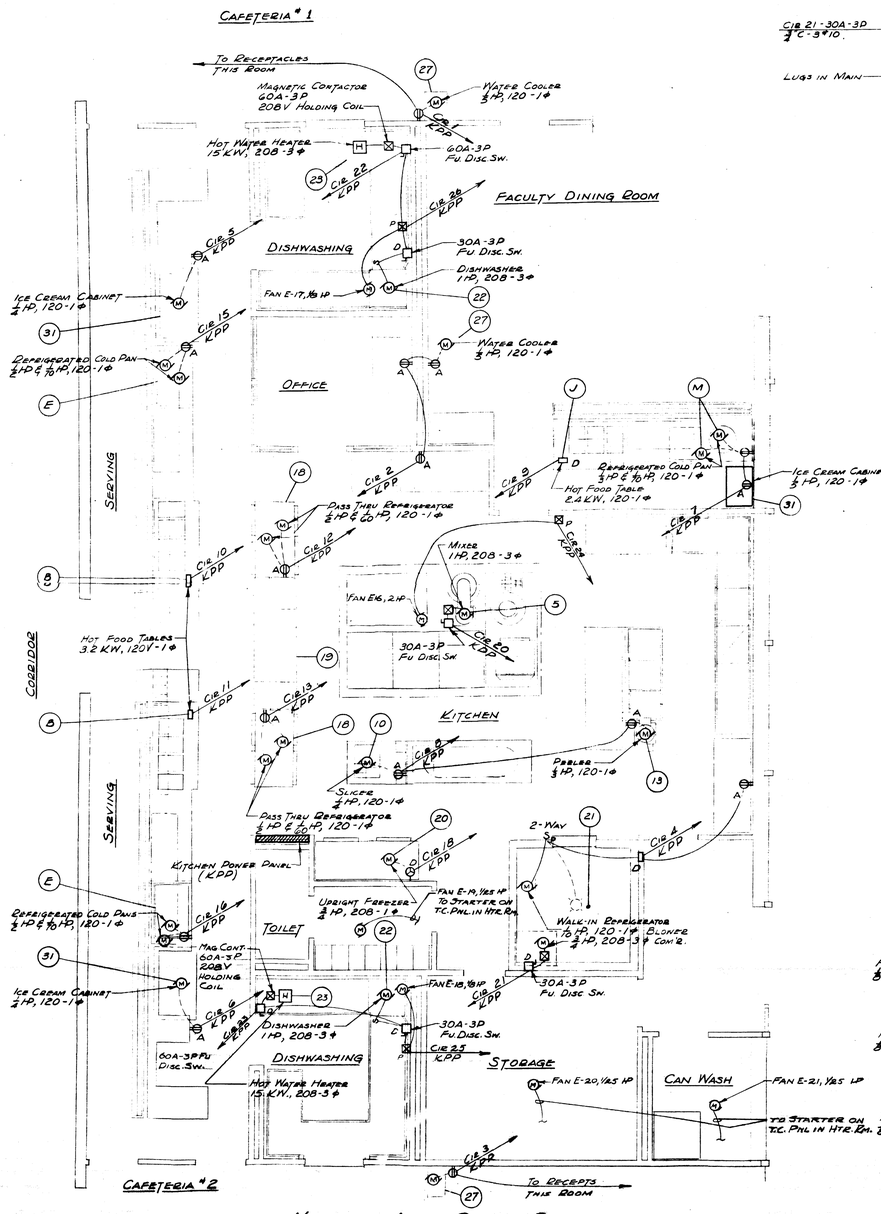
830-E4

Date 30 APR 67 | Scale ⅛" = 1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

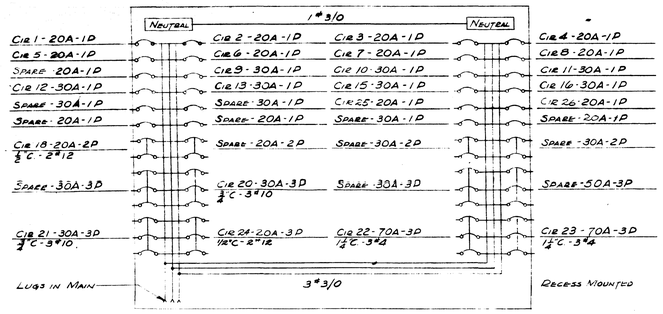
BQ #70 & 125 Attachment



Kitchen Area Power Plan

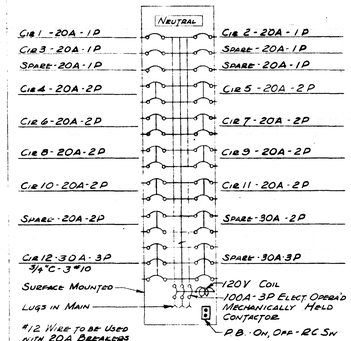
Scale ¼"-1'-0"

Note: Refer to Kitchen Equipment Drwg. (Sheet 330-E5) for Mounting Height of all Receptacles, Junction Boxes, & Disconnect Sws. Item Numbers Refer to Kitchen Equipment Schedule & Detail (Sheet 330-E4) All Symbols with the Letter "A" next to the Symbol, to be Checked on Kitchen Equip. Drwg. for Mounting Height



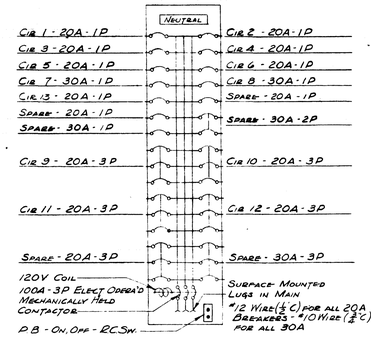
Kitchen Power Panel (KPP)

Circuit Breaker Type
120/208 Volts 3 Phase 4 Wires



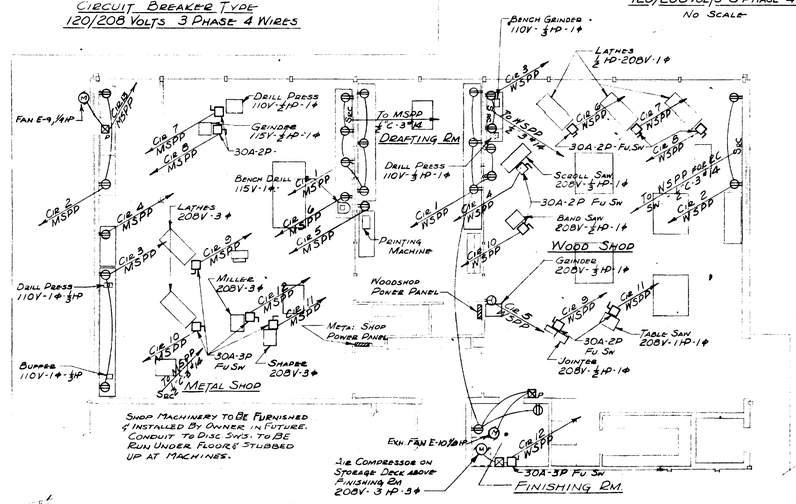
Wood Shop Power Panel

Circuit Breaker Type
120/208 Volts 3 Phase 4 Wires
No Scale



Metal Shop Power Panel

Circuit Breaker Type
120/208 Volts 3 Phase 4 Wires
No Scale

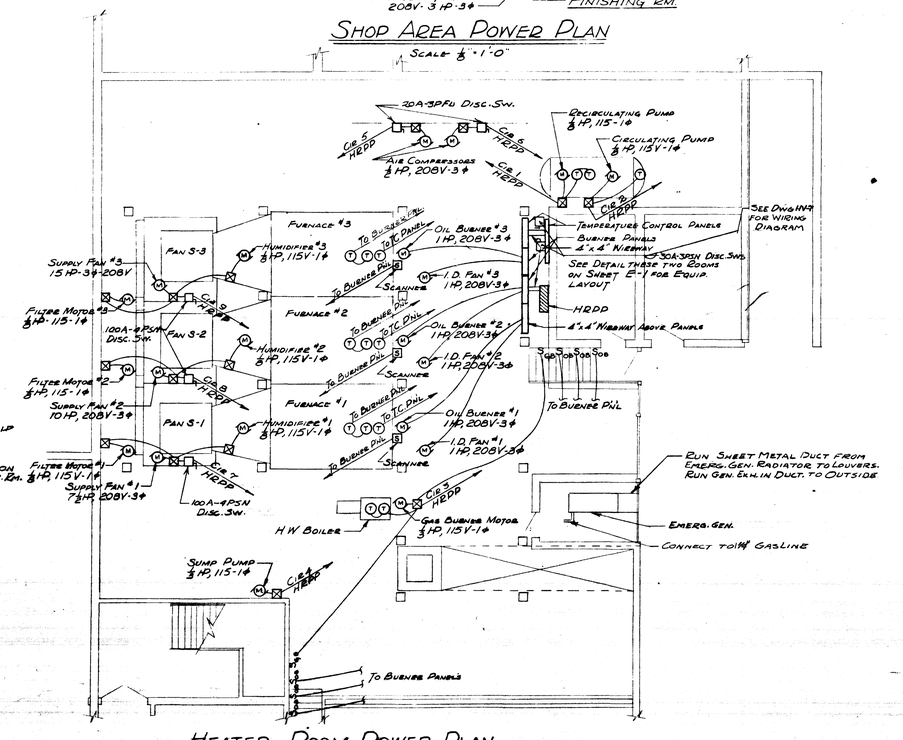


Shop Area Power Plan

Scale ⅛"-1'-0"

Heater Room Power Panel

No Scale



Heater Room Power Panel

Scale ⅛"-1'-0"

ELECTRICAL POWER PLANS & DETAILS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

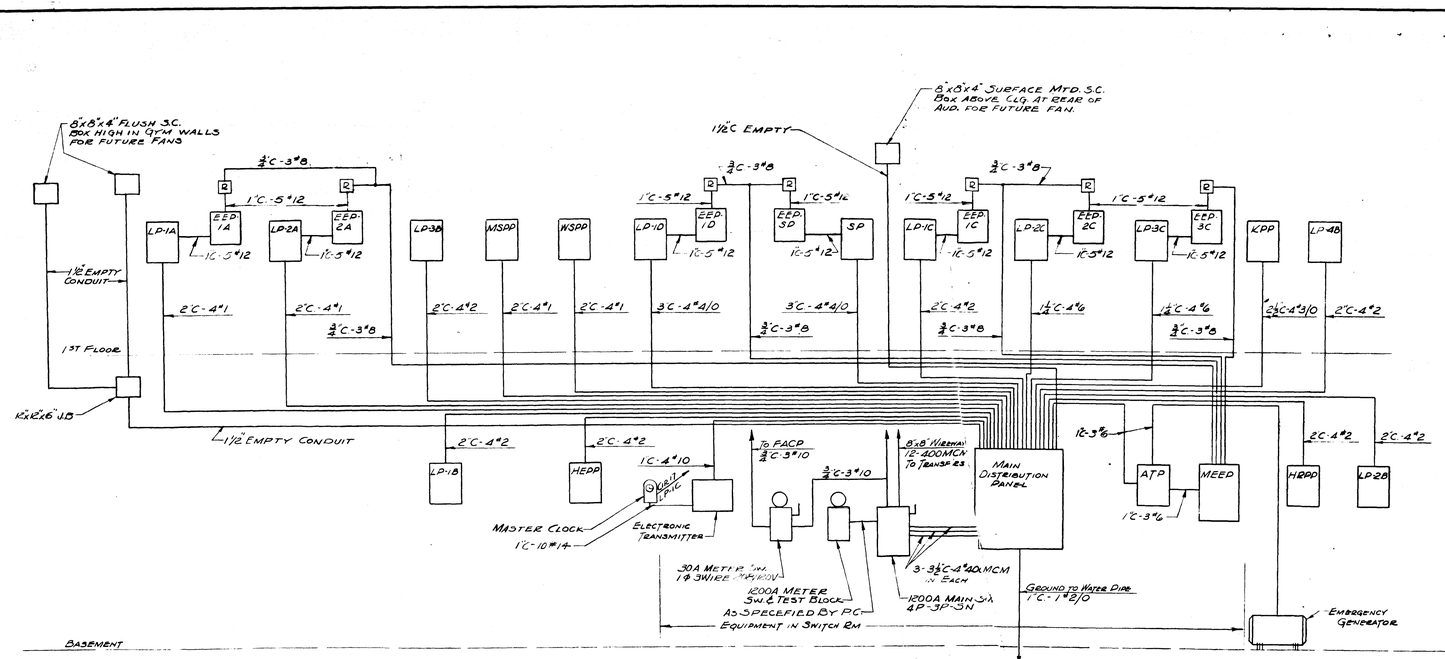
830-E5

Date: 30 APR 57 | Scale: AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Conn.

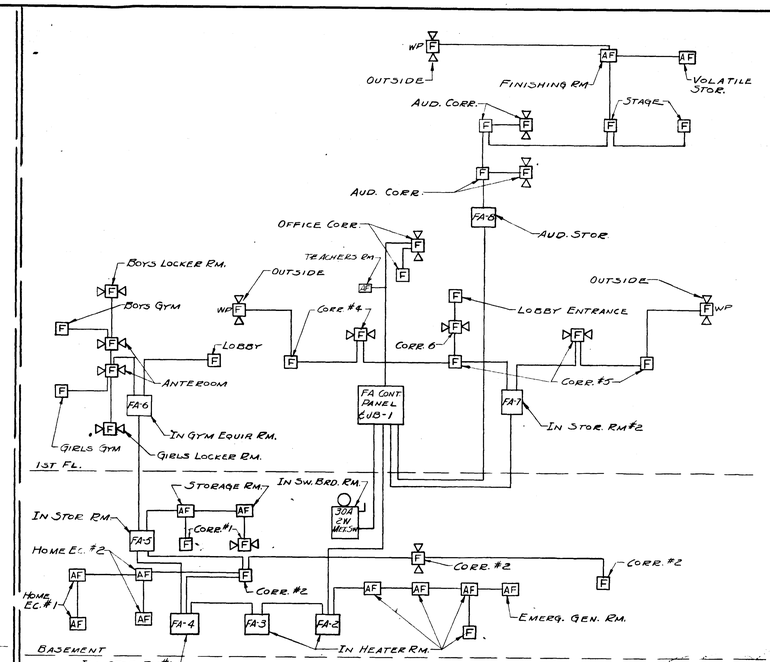
MARCHANT & M... ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment



MAIN LIGHT, POWER, & EMERGENCY SYSTEM RISER DIAGRAM

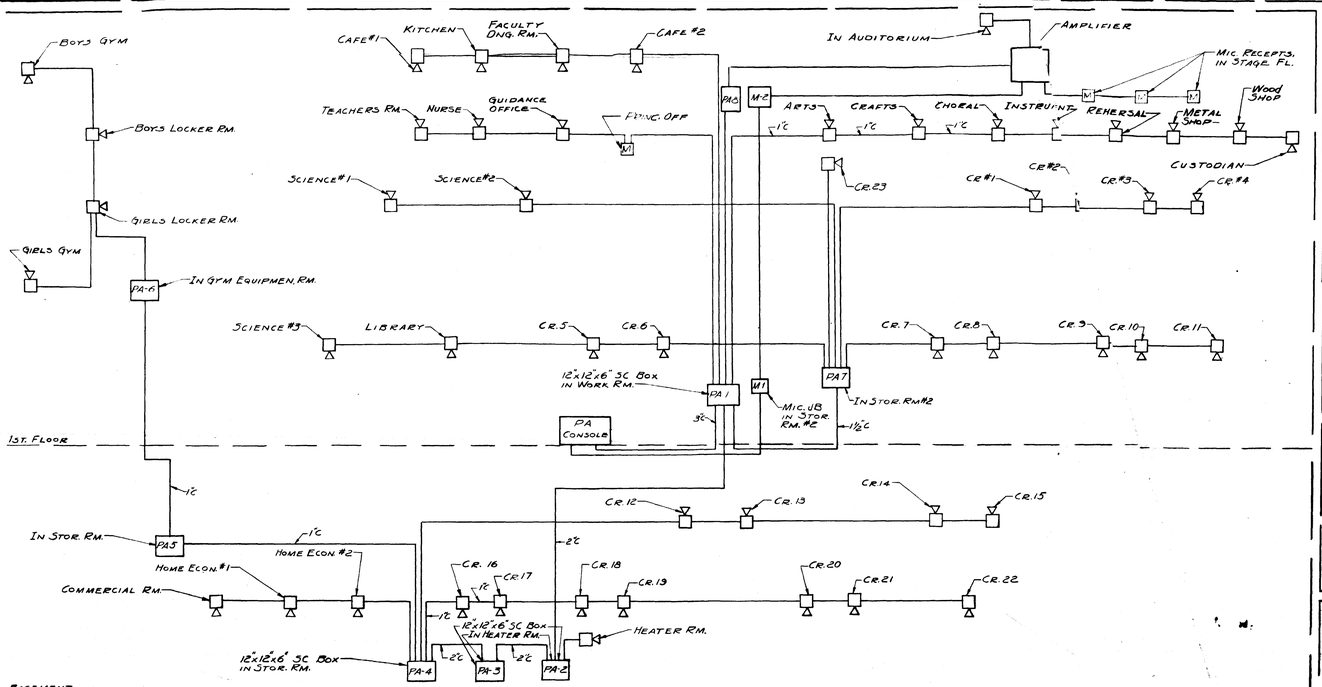
No Scale



NOTE: ALL CONDUITS ¾"

FIRE ALARM RISER DIAGRAM

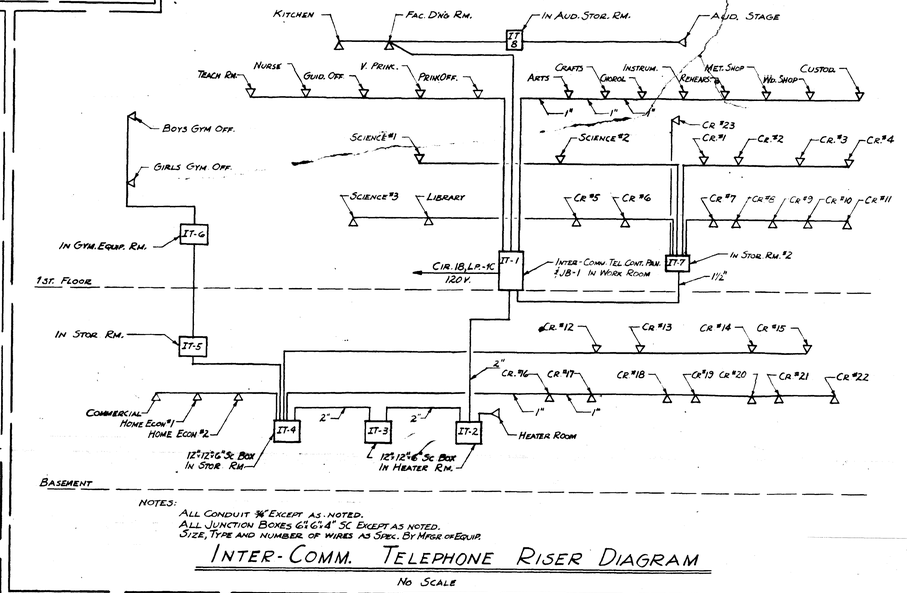
No Scale



NOTE:
ALL CONDUITS ¾" EXCEPT AS NOTED
ALL JUNCTION BOXES 6"x6"x4" SC EXCEPT AS NOTED
SIZES, TYPE AND NUMBER OF CONDUCTORS AS SPECIFIED BY MFGR. OF EQUIP.

PUBLIC ADDRESS AND AUDITORIUM SOUND SYSTEMS RISER DIAGRAM

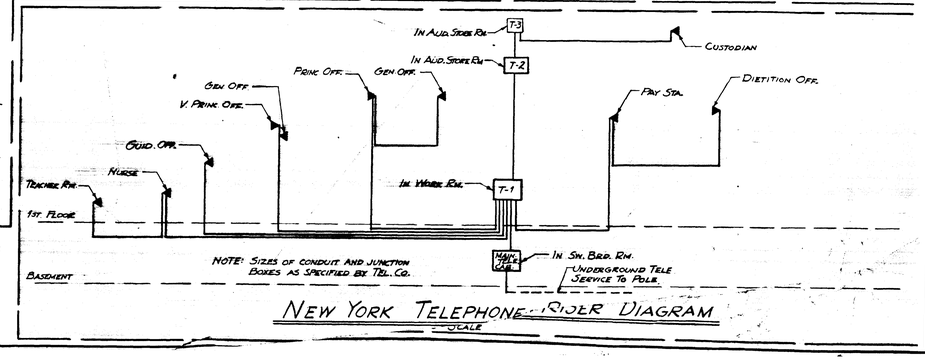
No Scale



NOTES:
ALL CONDUIT ¾" EXCEPT AS NOTED.
ALL JUNCTION BOXES 6"x6"x4" SC EXCEPT AS NOTED.
SIZE, TYPE AND NUMBER OF WIRES AS SPEC. BY MFGR OF EQUIP.

INTER-COMM. TELEPHONE RISER DIAGRAM

No Scale



NOTE: SIZES OF CONDUIT AND JUNCTION BOXES AS SPECIFIED BY TEL. CO.

NEW YORK TELEPHONE RISER DIAGRAM

No Scale

STATE OF CONNECTICUT JOHN W. MINGES REGISTERED PROFESSIONAL ENGINEER No. 1648

STATE OF CONNECTICUT JAMES S. MITCHELL No. 2423 REGISTERED P.E. PROFESSIONAL ENGINEER

STATE OF CONNECTICUT CHARLES G. MARCHANT No. 2385 REGISTERED PROFESSIONAL ENGINEER

ELECTRICAL RISER DIAGRAMS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

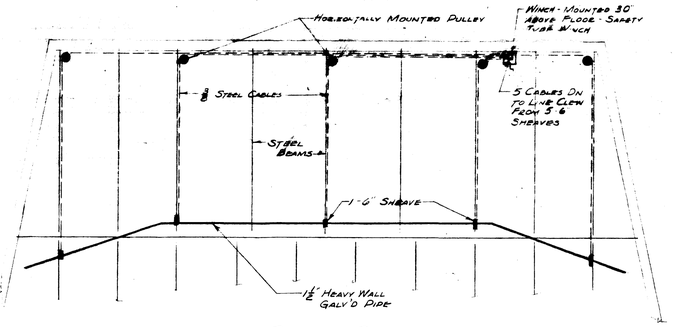
830-E6

Date: 30 APR 57 | Scale: AS SHOWN

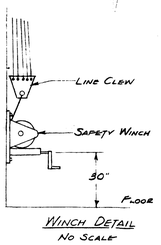
SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

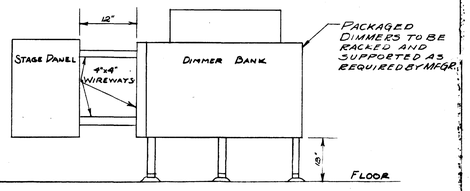
BQ #70 & 125 Attachment



RIGGING PLAN
FOR RAISING & LOWERING OF BORDER LIGHTS
NO SCALE



WINCH DETAIL
NO SCALE

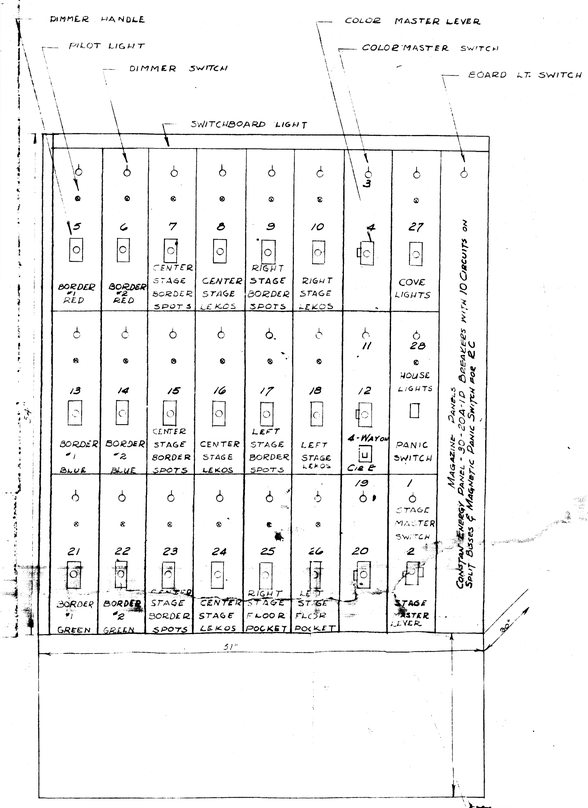


STAGE PANEL (SP) & PACKAGE DIMMER BANK INSTALLATION-ALTERNATE
NO SCALE

LIGHTING FIXTURE SCHEDULE

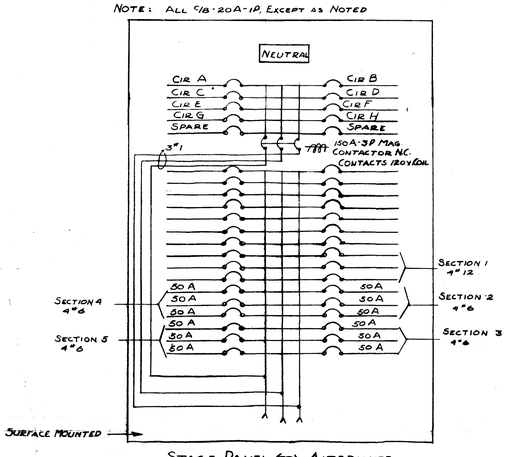
TYPE	MANUFACTURER AND DESCRIPTION	LAMP		MOUNT	REMARKS
A	Holophane #692-AL-HS High Bay unit with #0256 wire guard	I	1-1000W	30"Stem	Swivel on outlet box
B	Litecraft #E312 housing with #E24 opal glass lens and frame	I	1-150W	Ceiling Recess	
C	Perfeclite #1517 vapor proof with aluminum baby and round opal globe	I	2-60W	Ceiling Surface	
D	Russell & Stoll #4510 explosion proof fixture	I	1-150W		
E	Century #942 swivel light with canopy and #948 lauver	I	1-150W R-40FL	Ceiling Surface	
F	Smithcraft #SN2-42Rs "Shearton" with 8 ft. housing with plastic sides and metal louvers. Include necessary stems, clamps & end plates. Use with rapid start lamps	F	4-40W RS	Ceiling	
F_1	Same as "F" except with 4 ft. housing and 2-4ft. lamps	F	2-40W RS	Ceiling	
F_2	Same as "F" except #SN 4-42R Switch 8' housing and 8-4ft. lamps	F	8-40W RS	Ceiling	
G	Miller #MB-150 round aluminum drum with flat glass lens	I	2-15W	Ceiling Surface	Use 2-40W lamps where not on Emerg. System
H	Bryant #5289 porcelain filter with convenience outlet and pull chain	I	1-100W	Ceiling or Wall Surface	
I	Presolite #WB-24 wall bracket with opal glass globe	I	1-100W	Wall Surface	Mount 7'-6" above floor slab
J	Miller #MB-160 satin aluminum tapered drum	I	1-150W R-40FL	Ceiling Surface	
K	Lightolier #13526 "Optiplex" 24" square with plexi-glass diffuser	F	6-20W	Ceiling Surface	
K_1	Same as "K" except #13524, 12"x24"	F	4-2W	do	
L	Progress #1148RS strip with #R-48 adjustable chrome reflector	F	1-40W RS	Under Cabinets	
M	Outside Flod lights - see specifications	I	2-500W	See detail	
N	Miller #PREDD-150 RLM reflector for conduit mounting	I	1-150W	Ceiling Stem	
O	McPhilben #32-88 cast aluminum square, weather-resistant with square opal glass bowl	I	2-100W	Canopy Surface	
XA	Day-Brite #3146 or #3145 single face top or end mounted Exit Lights with solid bottom and metal stencil. Furnish with directional arrows as shown on drawings	I	2-25W	Ceiling or Wall Surface	
XB	Same as "XA" except #3126 or #3125 with double face	I	2-25W	Ceiling or wall Surface	
XC	Same as "XA" except #3106 or #3105 recessed	I	2-25W	Wall Recess	With wire guard in Gym

NOTE:
REFER TO SPECIFICATIONS - DIV. 43 FOR AUDITORIUM & STAGE LIGHTING FIXTURES



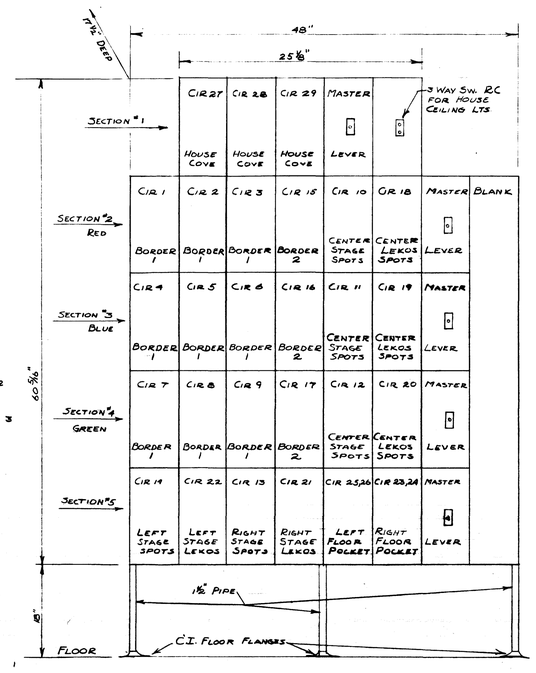
STAGE DIMMER PANEL PLAN
NO SCALE

NOTE: ALL C/B-20A-1P. EXCEPT AS NOTED

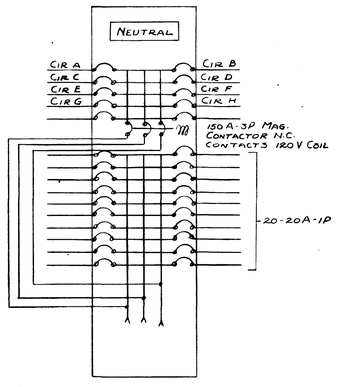


STAGE PANEL (SP) ALTERNATE
CIRCUIT BREAKER TYPE
208-120 VOLTS 3 PHASE 4 WIRE
NO SCALE

ALTERNATE
STAGE PANEL



STAGE DIMMER PANEL SCHEDULE - ALTERNATE
NO SCALE



CONSTANT ENERGY PANEL
BUILT-IN TO MAGAZINE OF DIMMER BOARD
NO SCALE

STAGE DIMMER PANEL SCHEDULE

No	NAME	COLOR	DIMMER WATTS	DIMMER CIR SIZE	No. OF BRANCH CIRCUITS	BRANCH CIRCUIT NUMBERS
1	STAGE MASTER SW					
2	STAGE MASTER LEVER					
3	COLOR MASTER SW	RED				
4	COLOR MASTER LEVER	"				
5	BORDER #1	"	1-6000	50-A	3	1,2,3
6	BORDER #2	"	1-2500	30-A	1	15
7	CENTER STAGE SPOTS	"	1-1000	20-A	1	10
8	CENTER LEKO SPOTS	"	1-2000	20-A	1	18
9	RIGHT STAGE SPOTS	"	1-1000	20-A	1	13
10	RIGHT STAGE LEKOS	"	1-2000	20-A	1	21
11	COLOR MASTER SW	BLUE				
12	COLOR MASTER LEVER	"				
13	BORDER #1	"	1-6000	50-A	3	4,5,6
14	BORDER #2	"	1-2500	30-A	1	16
15	CENTER STAGE SPOTS	"	1-1000	20-A	1	11
16	CENTER LEKO SPOTS	"	1-2000	20-A	1	19
17	LEFT STAGE SPOTS	"	1-1000	20-A	1	14
18	LEFT STAGE LEKOS	"	1-2000	20-A	1	22
19	COLOR MASTER SW	GREEN				
20	COLOR MASTER LEVER	"				
21	BORDER #1	"	1-6000	50-A	3	7,8,9
22	BORDER #2	"	1-2500	30-A	1	17
23	CENTER STAGE SPOTS	"	1-2500	30-A	1	12
24	CENTER STAGE LEKOS	"	1-2000	20-A	1	20
25	RIGHT FLOOR POCKET		1-2000	20-A	2	23,24
26	LEFT FLOOR POCKET		1-2000	20-A	2	25,26
27	HOUSE COVE LIGHTS		1-6000	50A	3	27,28,29
28	HOUSE CEILING LTS.		NONE			A,B,C,D,E,F,G,H

NOTE: CONNECT "LETTERED" CIRCUITS TO CONSTANT ENERGY PANEL. PANIC CONTACTOR 60A-3P-MAGNETIC TYPE, NORMALLY CLOSED CONTACTS (CONNECT TO CIRCUITS "A" TO "H" INCLUSIVE.

STATE OF CONNECTICUT JOHN H. MARCHANT No. 1640 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT JAMES G. MINGES NO. 2423 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT CHARLES G. MARCHANT NO. 2385 REGISTERED PROFESSIONAL ENGINEER

ELECTRICAL DETAILS AND SCHEDULES

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-E7

Date 30 APR 57 | Scale NO SCALE

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

CENTRAL
MIDDLE
SCHOOL

ESTIMATING

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN
TWO LAFAYETTE SQUARE / BRIDGEPORT, CT 06604-3944 / 203 366 5441 / FAX 367 9540

BID SET

MARCH 16, 1998
FT PROJECT NO. 50950.06

PRINTED BY NATIONAL DIRECT - 618-372-3999 - Illinois - 7/29/98 4:00:00 PM

ABBREVIATIONS

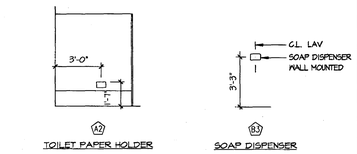
A.DR.	ACCESS DOOR	K.E.C.	KITCHEN EQUIPMENT CONTRACTOR
A.F.F.	ABOVE FINISH FLOOR		
A.F.R.	ABOVE FINISH ROOF	L.P.	LOW POINT
A.P.	ACCESS PANEL	LAB.	LABORATORY
A.S.	ALUMINUM SADDLE	LAD.	LADDER
A.V.	AUDIO VISUAL	LAM.	LAMINATED
AC.	ACOUSTIC, ACOUSTICAL	LAV.	LAVATORY
AC.BD.	ACOUSTICAL BOARD	LDR.	LEADER
AC.T.	ACOUSTICAL TILE	L.F.	LINEAR FEET
ADD.	ADDITIONAL	LKR.	LOCKER
AD.J.	ADJUSTABLE	LOC.	LOCATION
ALT.	ALTERNATE	LT.	LIGHT
ALUM.	ALUMINUM	LTWT.	LIGHTWEIGHT
APPROX.	APPROXIMATE		
ARCH.	ARCHITECTURAL	M.B.	MARKER BOARD
&	AND	M.ER.	MECHANICAL EQUIPMENT ROOM
@	AT	M.O.	MASONRY OPENING
		MACH. RM.	MACHINE ROOM
B	B LABEL DOOR	MAS.	MASONRY
B.M.	BENCH MARK	MAX.	MAXIMUM
B.U.R.	BUILT-UP ROOF	MATL.	MATERIAL
BD.	BOARD	MECH.	MECHANICAL
BIT.	BITUMINOUS	MET.	METAL
BLDG.	BUILDING	MEZZ.	MEZZANINE
BLK.	BLOCK	MFR.	MANUFACTURER
BLKG.	BLOCKING	MIN.	MINIMUM
BM.	BEAM	MISC.	MISCELLANEOUS
BOT.	BOTTOM	MLDG.	MOULDING
BRK.	BRICK	MTD.	MOUNTED
C.	CLEAN, CLOSET	N.	NORTH
C. TO C.	CENTER TO CENTER	N.I.C.	NOT IN CONTRACT
C.B.	CHALK BOARD	N.T.S.	NOT TO SCALE
C.J.	CONTROL JOINT	N.A.	NOT APPLICABLE
C.L. OR ℄	CENTER LINE	NO. OR #	NUMBER
C.M.U.	CONCRETE MASONRY UNIT	NOM.	NOMINAL
CAB.	CABINET		
CEM.	CEMENT	OA.	OVERALL
CHG.	CHANGE	O.D.	OUTSIDE DIAMETER
CLG.	CEILING	OFF.	OFFICE
CLO.	CLOSET	OPNG.	OPENING
CNTR.	COUNTER	OPP.	OPPOSITE
COL.	COLUMN		
CONC.	CONCRETE	P.L.	PROPERTY LINE
CONF.	CONFERENCE	P. LAM.	PLASTIC LAMINATE
CONN.	CONNECTION	PH.	PENTHOUSE
CONST.	CONSTRUCTION	PLAS.	PLASTER
CONT.	CONTINOUS, CONTINUE	PLYWD.	PLYWOOD
CONTR.	CONTRACTOR	PNL.	PANEL
CORR.	CORRIDOR	PREFAB.	PREFABRICATED
CPT.	CARPET	PROP.	PROPERTY
CTR.	CENTER	PRTN.	PARTITION
		PTD.	PAINTED
DEPT.	DEPARTMENT		
DET.	DETAIL	QTR.	QUARTER
DIA.	DIAMETER	QTY.	QUANTITY
DN.	DOWN		
DR.	DOOR	R.	RADIUS
DWG.	DRAWING	R.C.P.	REFLECTED CEILING PLAN
		R.D.	ROOF DRAIN
E.	EAST	R.O.	ROUGH OPENING
EA.	EACH	REC.	RECESS
E.I.F.S.	EXTERIOR INSULATION AND FINISH SYSTEM	REF.	REFRIGERATOR
EL.	ELEVATION	REINF.	REINFORCEMENT
ELEC.	ELECTRIC	RELOC.	RELOCATED
ELEV.	ELEVATOR	REQD.	REQUIRED
ENCL.	ENCLOSURE	RESIL.	RESILIENT
ENT.	ENTRANCE	REV.	REVISION
EQ.	EQUAL	RIS.	RISER
EQUIP.	EQUIPMENT	RM.	ROOM
EXIST.	EXISTING	RUB.	RUBBER
EXP.	EXPANSION		
EXP. JT.	EXPANSION JOINT	S.	SOUTH
EXT.	EXTERIOR	S.S.	STAINLESS STEEL
		S.F.	SQUARE FEET
F.E.	FIRE EXTINGUISHER	SCHED.	SCHEDULED
F.E.C.	FIRE EXTINGUISHER WITH CABINET	SECT.	SECTION
F.H.C.	FIRE HOSE CABINET	SH. MT.	SHEET METAL
F.S.P.	FIRE STANDPIPE	SIM.	SIMILAR
F.D.	FLOOR DRAIN	SK.	SKETCH
FDN.	FOUNDATION	SPEC.	SPECIFICATIONS
FIN.	FINISH, FINISHED	ST.	STREET
FIXT.	FIXTURE	STD.	STANDARD
FL.	FLOOR	STL.	STEEL
FLUOR.	FLUORESCENT	STOR.	STORAGE
FT. OR '	FEET OR FOOT	STRUCT.	STRUCTURAL
FTG.	FOOTING	SUPP.	SUPPORT
FURR.	FURRING	SUSP.	SUSPENDED, SUSPENSION
FUT.	FUTURE		
		T. & G.	TONGUE AND GROOVE
G.C.	GENERAL CONTRACTOR	T.B.	TACK BOARD
GA.	GAGE	T.O.S.	TOP OF STEEL
GALV.	GALVANIZED	T.O.W.	TOP OF WALL
GEN.	GENERAL	TD.	TREAD
G.F.R.G.	GLASS FIBER REINFORCED GYPSUM	TELE. CAB.	TELEPHONE CABINET
G.F.R.G.	GLASS FIBER REINFORCED GYPSUM	TELE.	TELEPHONE
GL.	GLASS, GLAZE	THK.	THICKNESS
GR.	GRADE	THRES.	THRESHOLD
GYP.	GYPSUM	THRU	THROUGH
GYP. BD.	GYPSUM BOARD	TLT.	TOILET ROOM
		TRANS.	TRANSFER
H.C.	HANDICAP, HANDICAPPED	TV.	TELEVISION
H.M.	HOLLOW METAL	TYP.	TYPICAL
H.P.	HIGH POINT		
HDWD.	HARDWOOD	U.N.O.	UNLESS NOTED OTHERWISE
HDWR.	HARDWARE	U.L.	UNDERWRITERS LABORATORY
HGT.	HEIGHT	UR.	URINAL
HORIZ.	HORIZONTAL, HORIZONTALLY	URH.	URINAL HANDICAPPED
H.V.A.C.	HEATING VENTILATING AIR CONDITIONING		
		V.C.T.	VINYL COMPOSITION TILE
I.D.	INSIDE DIAMETER	V.I.F.	VERIFY IN FIELD
I.P.S.	IRON PIPE SIZE	V.W.C.	VINYL WALL COVERING
IN. OR "	INCH OR INCHES	VEST.	VESTIBULE
INCL.	INCLUSIVE, INCLUDE, INCLUDING	VIT.	VITREOUS
INSUL.	INSULATION		
INT.	INTERIOR	W.	WEST
INTER.	INTERMEDIATE	W. GL.	WIRE GLASS
		W.M.	WIRE MESH
JAN.	JANITOR	W/	WITH
JT.	JOINT	W/ANS.	WAINSCOT
		WD.	WOOD

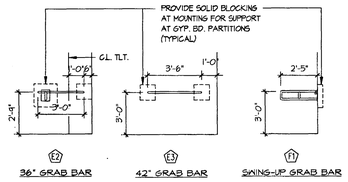
NOTES

1. FOR STRUCTURAL SYMBOLS AND ABBREVIATIONS REFER TO DRAWING S401.
2. FOR MECHANICAL SYMBOLS AND ABBREVIATIONS REFER TO DRAWING M401.
3. FOR FIRE PROTECTION SYMBOLS AND ABBREVIATIONS REFER TO DRAWING FP401.
4. FOR PLUMBING SYMBOLS AND ABBREVIATIONS REFER TO DRAWING P401.
5. FOR ELECTRICAL SYMBOLS AND ABBREVIATIONS REFER TO DRAWING E401.

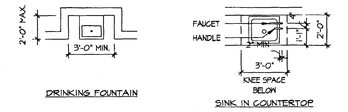
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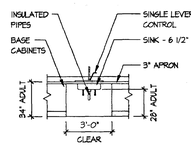
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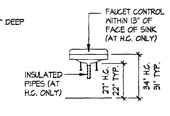


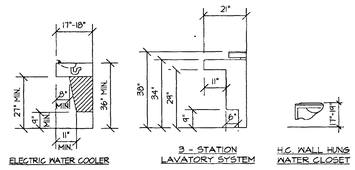


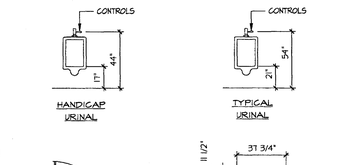
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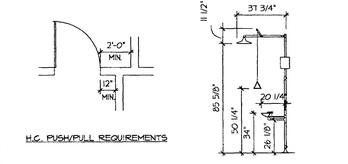






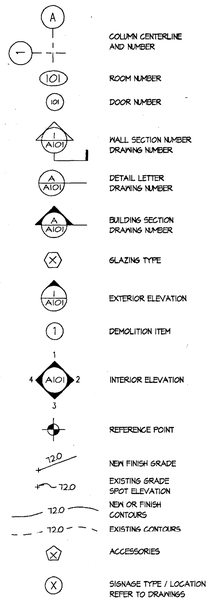




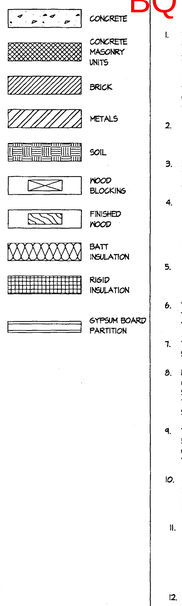


SYMBOLS

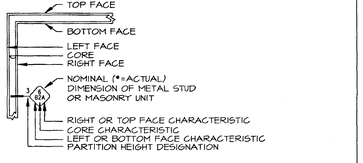
GRAPHIC



MATERIALS



PARTITION TYPE DESCRIPTION



CORE CHARACTERISTICS

1. METAL STUD
2. METAL STUD WITH SOUND ATTENUATION BLANKET
3. 7/8" FURRING
4. METAL Z CHANNEL WITH RIGID INSULATION
5. C-H METAL STUD

FACE CHARACTERISTICS

- NO CHARACTERISTIC
A. SINGLE LAYER- 5/8" GYPSUM BOARD
B. DOUBLE LAYER- 5/8" AND 5/8" GYPSUM BOARD
C. DOUBLE LAYER- 1/2" AND 5/8" GYPSUM BOARD BELOW (ACOUSTIC)
D. DOUBLE LAYER- 3/8" AND 3/8" GYPSUM BOARD (CURVED)
E. DOUBLE LAYER- 5/8" GYPSUM BOARD WITH 3/4" PLYWOOD BELOW
F. ABUSE RESISTANT GYPSUM BOARD
6. MOISTURE RESISTANT GYPSUM BOARD
H. CEMENT BOARD
J. PLASTER AND LATH
K. RESILIENT CHANNELS WITH 5/8" GYPSUM BOARD
L. 1" GYPSUM LINER PANEL
M. EXISTING SURFACE
N. 6" CONCRETE MASONRY UNIT. (SEE NOTE #18)
O. 8" CONCRETE MASONRY UNIT. (SEE NOTE #18)
P. 8" X 8" X 3" SOLID GLASS BLOCK 1 1/2 HR RATED UL DESIGN #R2556.

PARTITION HEIGHT

1. FULL HEIGHT
2. 4" MINIMUM ABOVE FINISHED CEILING
3. UNDERSIDE OF FINISHED CEILING
4. LOW HEIGHT

GYPSUM BOARD PARTITION RATING

1. 1-HR SHAFT-WALL UL DESIGN #468.
2. 1-HR PARTITION UL DESIGN #465.
3. 2-HR PARTITION UL DESIGN #412.
4. 2-HR SHAFT-WALL UL DESIGN #438.

BRICK VENEER W/ SHEATHING METAL STUDS & GYPSUM BOARD

1. 1-HR EXTERIOR WALL CONSTRUCTION UL DESIGN #425. SEE DWG A601 FOR EXTENT.

NOTE:
ADD ADDITIONAL LAYER OF 1/2" RATED GYPSUM BOARD TO SHAFT-WALL WHEN USED HORIZONTALLY TO MEET WARNOCK-HERSEY TESTED AND APPROVED ASSEMBLY # WH-0415-PSH0154-0187.

PARTITION NOTES

1. UNLESS OTHERWISE NOTED ALL MASONRY PARTITIONS SHALL BE FULL HEIGHT UP TO STRUCTURE ABOVE. ALL PENETRATIONS SHALL BE SEALED WITH FIRE-STOPPING MATERIALS. SEE STRUCTURAL DRAWINGS FOR REINFORCING AND BRACING REQUIREMENTS.
2. UNLESS OTHERWISE NOTED ALL GYPSUM BOARD PARTITIONS SHALL BE 3- 5/8" METAL STUDS AT 16" O.C. WITH 1- LAYER 5/8" GYPSUM BOARD ON EACH SIDE. EXTEND FULL HEIGHT UP TO STRUCTURE ABOVE AND SEAL WITH FIRE-STOPPING MATERIAL AT RATED PARTITIONS AND ACOUSTIC SEALANT AT NON-RATED PARTITIONS. PROVIDE SOUND ATTENUATION INSULATION FULL HEIGHT.
3. PROVIDE SOLID BLOCKING AT ALL GYPSUM BOARD PARTITIONS FOR ALL WALL MOUNTED EQUIPMENT INCLUDING THOSE LISTED AS N.I.C.

GENERAL NOTES

BQ #70 & 125 Attachment

1. THE EXISTING CONDITIONS REPRESENTED HEREIN ARE BASED ON THE CONSTRUCTION DRAWINGS PREPARED BY SHERWOOD, MILLS AND SMITH ARCHITECTS DATED 4-30-97, MAITLAND/STRAUSS/BEIRK ARCHITECTS PC DATED 5-4-81 AND SITE SURVEY PREPARED BY CCA DATED 8-27-97. SITE SURVEY IS INCLUDED FOR CONTRACTORS REFERENCE ONLY. FLETCHER THOMPSON CANNOT GAURANTEE THE CORRECTNESS OF THE EXISTING SHOWN AND ASSUMES NO RESPONSIBILITY HEREITOF. INCLUSION OF THESE EXISTING CONDITIONS HEREIN SHALL IN NO WAY ALLEVIATE THE CONTRACTOR OF ITS RESPONSIBILITY TO VISIT THE SITE AND VERIFY ALL EXISTING CONDITIONS.
2. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS, DIMENSIONS, FLOOR ELEVATIONS AND MATERIALS IN THE FIELD AND SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES TWO WEEKS PRIOR TO BID OPENING.
3. EACH TRADE CONTRACTOR IS RESPONSIBLE FOR REVIEWING "THE CONSTRUCTION DRAWINGS" IN COORDINATING HIS WORK WITH THE OTHER TRADE CONTRACTORS AS IS INDICATED ON THE DRAWINGS AND SPECIFICATIONS.
4. THE CONTRACTOR SHALL PATCH, REPAIR AND FINISH ALL EXISTING CONSTRUCTION DAMAGED DURING PERFORMANCE OF HIS OR HIS SUB-CONTRACTORS WORK. HE SHALL ALSO PROVIDE ALL OPENINGS IN EXISTING AND NEW CONSTRUCTION REQUIRED BY HIM OR HIS SUB-CONTRACTORS AND SHALL PATCH, REPAIR AND FINISH THE OPENINGS TO MATCH EXISTING OR NEW FINISHES AFTER WORK HAS BEEN COMPLETED.
5. THE CONTRACTOR SHALL SCHEDULE ALL WORK SO AS TO KEEP ALL CORRIDORS, STAIRWAYS AND OTHER EXIT COMPONENTS FREE OF CONSTRUCTION DEBRIS, STAGING, STORED MATERIALS, ETC. DURING NORMAL SCHOOL HOURS.
6. THE CONTRACTOR SHALL COORDINATE ALL WORK IN THE EXISTING BUILDING WITH THE SCHOOL PRINCIPAL AND SHALL PROVIDE A MIN. OF ONE WEEKS NOTICE PRIOR TO PROCEEDING WITH ANY WORK.
7. THE LOCATION OF ALL TRAILERS, STORAGE STRUCTURES AND OTHER TEMPORARY SITE FACILITIES SHALL BE APPROVED BY THE OWNER AND FIRE MARSHAL.
8. WHERE OWNERS FURNITURE IS REQUIRED TO BE MOVED AND/OR STORAGE CLEANED OUT IN ORDER FOR THE CONTRACTOR TO PERFORM HIS WORK, THE CONTRACTOR SHALL COORDINATE THAT PHASE OF WORK WITH THE OWNER A MIN. OF ONE WEEK TO WORK START-UP. ALL OWNERS FURNITURE RELOCATION AND/OR CLEAN-UP SHALL BE PERFORMED BY THE OWNERS WORK FORCE.
9. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER ANY SALVAGE REQUIREMENTS PRIOR TO START-UP OF WORK AND SHALL REMOVE AND TURN OVER TO THE OWNER ANY HARDWARE AND/OR OTHER EQUIPMENT OR MATERIALS THE OWNER WANTS TO RETAIN.
10. THE PLUMBING, HVAC, SPRINKLER AND ELECTRICAL CONTRACTORS SHALL SEAL NEW OPENINGS AROUND PIPE, CONDUITS, DUCTS, ETC. WITH FIRE-STOPPING / SMOKE RESISTANT NON-COMBUSTIBLE MATERIALS AS INDICATED ON CONSTRUCTION DRAWINGS AND IN PROJECT SPECIFICATIONS.
11. ACCESS PANELS WHICH ARE REQUIRED BY THE PLUMBING, HVAC, SPRINKLER OR ELECTRICAL CONTRACTORS WHICH ARE NOT SHOWN ON THE CONSTRUCTION DRAWINGS, BUT ARE REQUIRED FOR ACCESS TO THEIR EQUIPMENT, SHALL BE FURNISHED BY THE RESPECTIVE CONTRACTOR TO THE MASONRY CONTRACTOR FOR INSTALLATION INTO MASONRY WALLS AND TO THE DRYWALL AND CEILING CONTRACTOR FOR INSTALLATION INTO DRYWALL PARTITIONS AND CEILINGS.
12. PROVIDE TRENCHING IN EXISTING BUILDING FOR UNDERFLOOR PIPING AS INDICATED ON PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS.
13. ALL WOOD BLOCKING USED ON THE INTERIOR SHALL BE FIRE RETARDANT TREATED. ALL EXTERIOR WOOD BLOCKING SHALL BE PRESSURE TREATED.
14. ALL CONCRETE MASONRY UNIT WALLS SHALL EXTEND TO THE UNDERSIDE OF CONSTRUCTION ABOVE AND BE SEALED-OFF BETWEEN THE CONSTRUCTION AND TOP OF WALL W/ A NON-COMBUSTIBLE FIRE-STOPPING MATERIAL. SEE SPECIFICATIONS 07210. SEE STRUCTURAL DRAWINGS FOR TYPICAL BRACING AT TOP OF INTERIOR C.M.U. WALLS.
15. REFER TO STRUCTURAL DRAWINGS FOR REINFORCING AND GROUTING REQUIREMENTS OF ALL CONCRETE MASONRY WALLS.
16. BLOCK FOR USE IN (1) & (2) HR FIRE RATED WALLS AND PARTITIONS SHALL HAVE SUCH EQUIVALENT SOLID THICKNESS THAT WHEN INSTALLED THEY WILL PROVIDE FIRE RESISTANCE RATING CONFORMING TO STATE CODE REQUIREMENTS.

    THE PRODUCER OF CONCRETE MASONRY UNITS FOR FIRE RATED WALLS SHALL FURNISH CERTIFICATION FROM AN INDEPENDENT TESTING LABORATORY CONFIRMING ALL 8" WIDE OR LARGER MASONRY UNITS MEET THE REQUIREMENTS OF UL-618, REFERENCING FULL SCALE FIRE TEST REPORTS (ASTM E-119). ALL 4" AND 6" WIDE UNITS SHALL CONFORM TO NATIONAL BUREAU OF STANDARDS AND NATIONAL COUNCIL FULL SCALE FIRE TESTS.
17. FINISH GROUND FLOOR ELEVATION 44'-1".
    FINISH FIRST FLOOR ELEVATION 55'-1".
18. IN ALL NEW CONSTRUCTION WHERE CEILING PLENUMS ARE INDICATED FOR USE AS UNDUCTED RETURN AIR TRANSFER, ALL MATERIALS PROVIDED WITHIN THESE SPACES SHALL BE NON-COMBUSTIBLE. ALL WIRING SHALL BE IN CONDUIT & ALL CABLING FOR FIRE ALARM, P.A., COMPUTERS, T.V., TELEPHONE SYSTEMS SHALL BE RATED FOR PLENUM INSTALLATION.

    IN ALL EXISTING RENOVATED AREAS WHERE CEILING PLENUMS ARE INDICATED FOR USE AS UNDUCTED RETURN AIR TRANSFER, ALL COMBUSTIBLE MATERIALS SHALL BE REMOVED & REPLACED WITH NON-COMBUSTIBLE MATERIALS. ALL WIRING SHALL BE IN CONDUIT & ALL CABLING FOR FIRE ALARM, P.A., COMPUTERS, T.V. TELEPHONE SYSTEMS SHALL BE RATED FOR PLENUM INSTALLATION.

DRAWING NOTES

- REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR REINFORCING, GROUTING AND BRACING REQUIREMENTS AT CONCRETE MASONRY UNIT PARTITIONS.
- REFER TO CODE COMPLIANCE AND LIFE SAFETY DRAWINGS FOR SMOKE AND FIRE RESISTANCE REQUIREMENTS FOR PARTITIONS.
- REFER TO GENERAL INFORMATION DRAWING FOR ABBREVIATIONS, SYMBOLS, GENERAL NOTES, AND ACCESSORY MOUNTING HEIGHTS.

TRADE CONTRACTOR'S NOTE

ALL EQUIPMENT SHOWN ON THESE DRAWINGS AND IN PROJECT SPECIFICATION IS BASED ON SPECIFIED MANUFACTURERS. ANY MODIFICATION AND/OR SUBSTITUTION OF SAID EQUIPMENT IS SUBJECT TO COMPLETE COORDINATION OF ALL CONNECTIONS, SERVICES, OPENING SIZES, AND ANY OTHER CONSTRUCTION RELATED REQUIREMENTS BY THE TRADE CONTRACTOR PROVIDING THE EQUIPMENT.

SCHEDULE OF DRAWINGS

DWG. NO.	TITLE
-	COVER SHEET
G1001	GENERAL INFORMATION
Site	
G001	SITE GRADING UTILITY LANDSCAPE AND SOIL
G002	EROSION CONTROL PLAN
	CONSTRUCTION NOTES & DETAILS
1 OF 1	PROPERTY & TOPOGRAPHIC SURVEY (REFERENCE ONLY)
1 OF 2	PROPOSED BUS LANE IMPROVEMENTS
2 OF 2	NOTES & DETAILS BUS LANE IMPROVEMENTS
Architectural	
A001	GROUND FLOOR PLAN CODE COMPLIANCE & LIFE SAFETY
A002	FIRST FLOOR PLAN CODE COMPLIANCE & LIFE SAFETY
A098	GROUND FLOOR DEMOLITION PLAN
A098.1	FIRST FLOOR DEMOLITION PLAN
A100.1	GROUND FLOOR PLAN PART "A"
A100.2	GROUND FLOOR PLAN PART "B"
A101.1	FIRST FLOOR PLAN PART "A"
A101.2	FIRST FLOOR PLAN PART "B"
A110	ROOF PLAN
A110.1	ROOF DETAILS
A201	EXTERIOR ELEVATIONS AND BUILDING SECTIONS
A301	WALL SECTIONS
A302	WALL SECTIONS
A303	WALL SECTIONS
A401	DOOR SCHEDULE
A410	ROOM FINISH SCHEDULE
A411	INTERIOR SIGNAGE
A501	ENLARGED TOILET PLANS
A502	MISCELLANEOUS DETAILS
A503	MISCELLANEOUS DETAILS
A601	STAIR PLANS SECTIONS & DETAILS
A700.1	GROUND FLOOR REFLECTED CEILING PLAN - PART "A"
A700.2	FIRST FLOOR REFLECTED CEILING PLAN - PART "B"
A701.1	FIRST FLOOR REFLECTED CEILING PLAN - PART "A"
A701.2	FIRST FLOOR REFLECTED CEILING PLAN - PART "B"
A801	INTERIOR ELEVATIONS
A802	INTERIOR ELEVATIONS
A803	INTERIOR ELEVATIONS
A804	INTERIOR ELEVATIONS
A805	INTERIOR ELEVATIONS
A901	CASEWORK DETAILS
Structural	
S100.1	FOUNDATION PLAN - PART "A"
S101.1	FIRST FLOOR FRAMING - PART "A"
S102.1	ROOF FRAMING PLAN - PART "A"
S301	FRAMING SECTIONS AND DETAILS
S302	FRAMING SECTIONS AND DETAILS
S401	GENERAL NOTES AND TYPICAL DETAILS
S402	GENERAL NOTES AND TYPICAL DETAILS

DWG. NO.	TITLE
HVAC	
M098.1	GROUND FLOOR DEMOLITION PLAN - HVAC
M098.2	FIRST FLOOR DEMOLITON PLAN - HVAC
M100.1	GROUND FLOOR PLAN PART "A" - HVAC
M100.2	GROUND FLOOR PLAN PART "B" - HVAC
M101.1	FIRST FLOOR PLAN PART "A" - HVAC
M101.2	FIRST FLOOR PLAN PART "B" - HVAC
M110	ROOF PLAN - HVAC
M201	FLOW DIAGRAMS & DETAILS - HVAC
M301	DETAILS - HVAC
M302	DETAILS - HVAC
M401	SCHEDULES & NOTES - HVAC
PLUMBING/FIRE PROTECTION	
P098	GROUND FLOOR DEMOLITION PLAN - PLUMBING
P098.1	FIRST FLOOR DEMOLITION PLAN - PLUMBING
FPP100.1	GROUND FLOOR PLAN PART "A" - PLUMBING & FIRE PROTECTION
FPP100.2	GROUND FLOOR PLAN PART "B" - PLUMBING & FIRE PROTECTION
FPP101.1	FIRST FLOOR PLAN PART "A" - PLUMBING & FIRE PROTECTION
FPP101.2	FIRST FLOOR PLAN PART "B" - PLUMBING & FIRE PROTECTION
P110	ROOF PLAN - PLUMBING
P201	ENLARGED TOILET ROOM LAYOUT AND RISER DIAGRAMS - PLUMBING
P301	DETAILS - PLUMBING
P302	DETAILS - PLUMBING
P401	LEGEND, NOTES AND SCHEDULES - PLUMBING
Electrical	
E001	SITE ELECTRICAL PLAN AND SITE DETAILS
E100	GROUND FLOOR FIRE ALARM PLAN
E100.1	GROUND FLOOR PART "A" ELECTRICAL PLAN
E100.2	GROUND FLOOR PART "B" ELECTRICAL PLAN
E101	FIRST FLOOR FIRE ALARM PLAN
E101.1	FIRST FLOOR PART "A" ELECTRICAL PLAN
E101.2	FIRST FLOOR PART "B" POWER PLAN
E110	NEW ADDITION ROOF ELECTRICAL PLAN
E301	ELECTRICAL HIRING AND RISER DIAGRAMS AND DETAILS
E302	ELECTRICAL HIRING AND RISER DIAGRAMS AND DETAILS
E401	ELECTRICAL SPECIFICATIONS, SCHEDULES AND NOTES
E100.1	GROUND FLOOR PART "A" LIGHTING PLAN
E100.2	GROUND FLOOR PART "B" LIGHTING PLAN
E101.1	FIRST FLOOR PART "A" LIGHTING PLAN
E101.2	FIRST FLOOR PART "B" LIGHTING PLAN

GENERAL LINTEL NOTES

1. Openings for which no specific lintels or lintel sizes are indicated shall have one angle for each 4" of masonry, or an approved equivalent thereof as follows:

ANGLES SIZE	MAX. M.O.	BEARING EACH END
3 1/2" X 3 1/2" X 5/16"	3'-6"	6"
3 1/2" X 4" X 5/16"	5'-0"	6"
3 1/2" X 5" X 5/16"	6'-0"	8"
3 1/2" X 6" X 5/16"	8'-0"	8"

2. For 6" partitions use wt. 7 x 13 for spans up to 7'-0" with 6" bearing each end.
3. Fill two courses directly under lintel bearing with grout for 16" length x 16" depth.
4. See ARCHITECTURAL & MECHANICAL drawings for size and location of openings.
5. When openings occur in bearing walls or the height of masonry above the lintel is less than the opening width or when a control joint is located directly above or within 16" of the jamb opening and drawings do not otherwise indicate a specific lintel design, consult with the architect to confirm lintel requirements.
6. Within the existing building, new openings in concrete masonry walls where no specific lintels or lintel sizes are indicated shall have the following sizes.

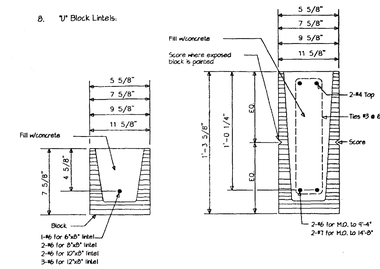
MAX. M.O.	WALL THICKNESS	LINTEL SIZE	BEARING PLATE
6'-0"	8"	(3) 3 1/2"X6"X3/8"(LLV)	7"X8"X1/2"
9'-0"	8"	W8X18 + 5/16" PLATE	7"X8"X1/2"
12'-0"	8"	W8X28 + 5/16" PLATE	7"X8"X1/2"

   Plates indicated in above lintels shall have a width 1" less than the wall thickness.

7. At new shear walls AND NEW exterior wall where no specific lintels or lintel sizes are indicated, provide the following sizes.

MAX. M.O.	WALL THICKNESS	LINTEL SIZE	BEARING PLATE
7'-0"	10" - 14"	W8X13 + 5/16" PLATE	10"X8"X1/2"
12'-0"	10" - 14"	W8X28 + 3/8" PLATE	10"X8"X1/2"

8. "L" Block Lintels.



   6"x8", 8"x8", 10"x8" & 12"x8" lintel for M.O. to 8'-8" 8" bearing (min.) each end See note 3 above

   8"x16", 10"x16" & 12"x16" lintel for M.O. to 14'-8" 12" bearing (min.) each end See note 3 above

9. Lintels over adjacent opening with piers between less than 2'-4" wide shall be continuous over piers. Masonry units of such piers shall be filled with grout for full story height.
10. Connect lintel to structural steel columns when there is less then 16" of masonry between the masonry opening and the outer most face of column.
11. Reference structural drawings for notes and details regarding reinforcing and grouting requirements.
12. For lintels at unit ventilators in building parts "D" and "E", see detail on structural drawings.

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE

ARCHITECT/ENGINEER: S.E. McNEECE

DRAWN BY: J.J. DUBATY

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3904

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106BA

DRAWING TITLE

GENERAL INFORMATION

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998

SCALE: N. T. S.

PROJECT NO.: 50950.06

DRAWING NO.: G1001

BQ #70 & 125 Attachment

SYMBOL LEGEND

- PROPERTY LINE
- 50 — EXISTING CONTOUR LINE
- 40 — PROPOSED CONTOUR LINE
- EX. STONE WALL
- EX. TREELINE
- EX. TREE TO BE REMOVED
- EX. CHAINLINK FENCE
- EX. RETAINING WALL
- EX. WIRE FENCE
- EXISTING CATCH BASIN/MANHOLE
- PROPOSED CATCH BASIN/MANHOLE
- PROPOSED YARD DRAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- E — E — EXISTING ELECTRICAL LINE
- T — T — EXISTING TELEPHONE LINE
- G — G — EXISTING GAS LINE
- W — W — EXISTING WATER LINE
- GV — EXISTING GAS VALVE
- WV — EXISTING WATER VALVE
- GS — PROPOSED GAS SERVICE
- WS — PROPOSED WATER SERVICE
- FS — PROPOSED FIRE SERVICE
- EX. FIRE HYDRANT
- EX. POLE W/ ANCHOR
- EX. STREET SIGN
- EX. BASKETBALL HOOP

CONSTRUCTION NARRATIVE:

THIS PROJECT IS COMPRISED OF THE CONSTRUCTION OF A NEW BUILDING ADDITION TO ADD 12 NEW CLASSROOMS. 11 NEW PARKING SPACES SHALL BE PROVIDED ON THE SOUTH SIDE OF THE WEST PARKING LOT. BUILDING CONSTRUCTION MACHINES AND EQUIPMENT WILL ACCESS THE SITE THROUGH THE WEST PARKING LOT. A 1:1 ROCK SLOPE WILL BE EXCAVATED ON THE WEST SIDE TO PROVIDE ROOM FOR THE NEW BUILDING AND WALKWAY. CONSTRUCTION MATERIAL WILL BE STORED ADJACENT TO THE NEW BUILDING.

GENERAL CONSTRUCTION NOTES:

1. EXISTING UTILITIES, TOPOGRAPHY AND PROPERTY LINE INFORMATION SHOWN ON THIS PLAN IS TAKEN FROM EXISTING RECORDS AND FIELD SURVEY PERFORMED BY CARROCCIO-COVILL AND ASSOCIATES, LLC. REFER TO "PROPERTY & TOPOGRAPHIC SURVEY CENTRAL MIDDLE SCHOOL", DATED AUGUST 27, 1997 FOR ADDITIONAL INFORMATION.
2. EXISTING SUBSURFACE STRUCTURES AND UTILITIES HAVE BEEN DETERMINED FROM EXISTING RECORDS. THESE RECORDS ARE NOT GUARANTEED TO BE COMPLETE OR ACCURATE. TO AVOID CONFLICT WITH THE PROPOSED WORK AND EXISTING UTILITIES, THE CONTRACTOR SHALL CHECK EXISTING INVERTS AND PERTINENT DATA, EXCAVATE TEST HOLES AND NOTIFY "CALL BEFORE YOU DIG". IF A CONFLICT EXISTS, PROMPTLY NOTIFY THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.
3. ALL SITE CONSTRUCTION SHALL CONFORM TO THE TOWN OF GREENWICH STANDARD SPECIFICATIONS AND THE CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL. IN THE ABSENCE OF TOWN STANDARDS, REFER TO THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 814.
4. ALL STORM SEWER PIPE SHALL BE REINFORCED CONCRETE PIPE (RCP) WITH MORTARED JOINTS. CATCH BASINS AND YARD DRAINS SHALL BE PRECAST CONCRETE WITH 4" SUMPS.
5. WATER SERVICE TO THE PROPOSED BUILDING SHALL BE PROVIDED BY CONNECTICUT AMERICAN WATER COMPANY VIA THE EXISTING WATER SERVICE SERVING THE SCHOOL.
6. SANITARY SEWER, ELECTRIC, TELEPHONE AND OTHER UTILITY SERVICES SHALL BE PROVIDED FROM THE EXISTING SCHOOL BUILDINGS.
7. GENERAL FILL SHALL BE CLEAN, FREE DRAINING AND FREE OF ORGANIC MATERIAL WITH NO STONES LARGER THAN 8 INCHES. APPROVAL OF THE FILL MATERIAL IS REQUIRED BY THE DESIGN ENGINEER.
8. A 4" LAYER OF TOPSOIL SHALL BE SPREAD OVER ALL LAWN, LANDSCAPE AND SLOPE AREAS. FINAL SEEDING OF DISTURBED AREAS SHALL BE COMPLETED AS SOON AS PRACTICABLE AND COVERED WITH HAY TO PREVENT EROSION DURING THE GERMINATION PERIOD.
9. ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED PRIOR TO CONSTRUCTION WHENEVER POSSIBLE. REFER TO DRAWING C002 FOR ADDITIONAL SOIL & EROSION CONTROL NOTES.
10. REFER TO DRAWING C002 "CONSTRUCTION NOTES AND DETAILS" FOR ADDITIONAL INFORMATION.

STRUCTURE DATA TABLE

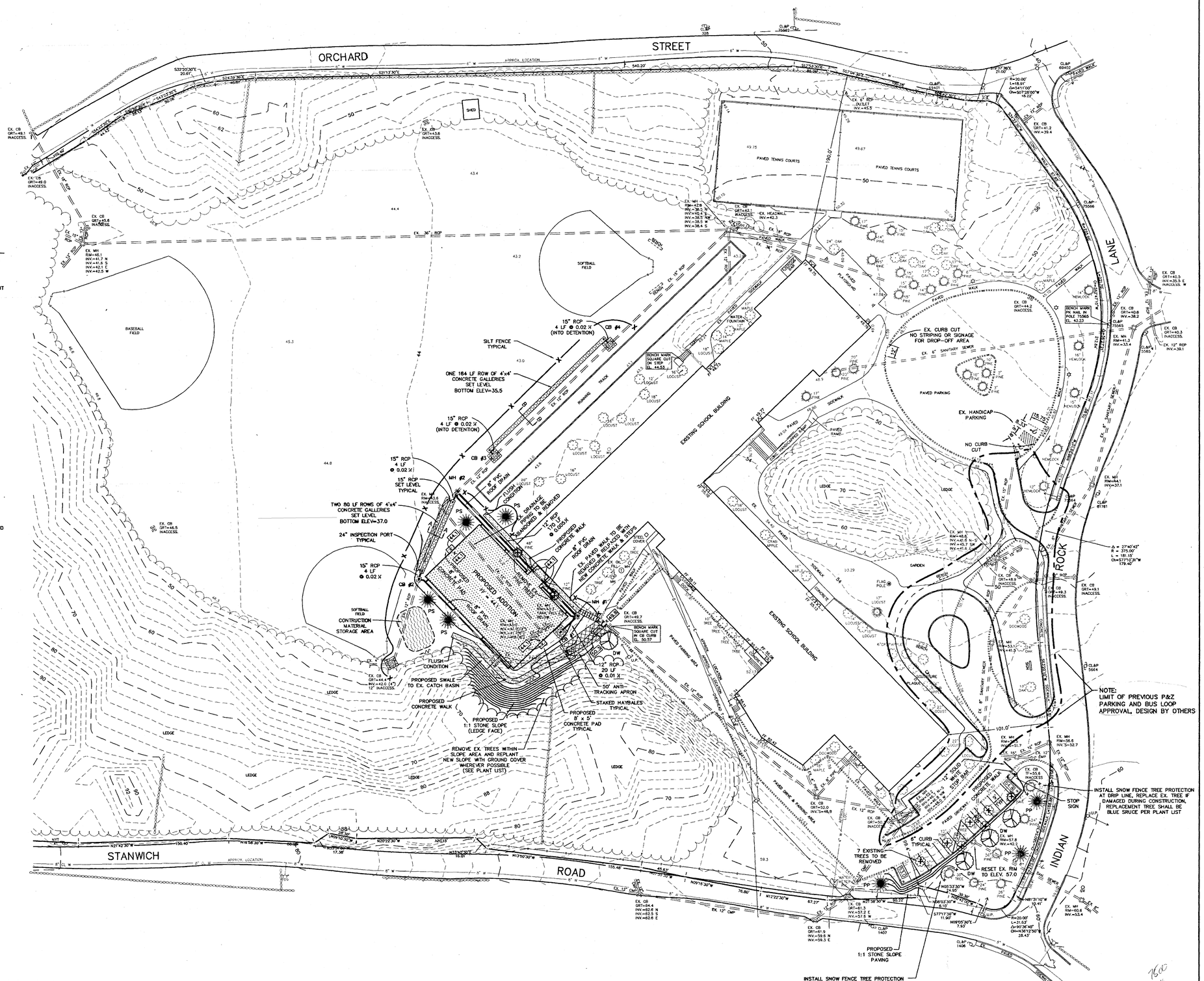
STRUCTURE	GRT/RIM	INV. IN	INV. OUT	TYPE
CB #1	43.5	41.7	41.7	"C-L"
CB #2	43.8	41.0(EX.) 39.6	39.6	"C-L"
CB #3	42.6	41.0(ROOF) 40.4(EX.) 38.2(DET.)	40.3(EX.)	"C-L"(EX.)
CB #4	42.6	39.4(EX.) 38.2(DET.)	39.3(EX.)	"C-L"(EX.)
MH #1	43.9	41.5(CB #1) 41.8(ROOF)	41.5	"STORM"
MH #2	43.1	40.8(ROOF) 40.7(MH #1) 39.4(DET.)	40.6	"STORM"

ZONING DATA TABLE:

LOCATION:		9 INDIAN ROCK LANE
ZONE:		R-12
LOT AREA:		21.72 ACRES (946,123 SQUARE FEET)
BUILDING SQUARE FOOTAGE:	EXISTING:	91,617
	PROPOSED:	19,800
	TOTAL:	111,417
BUILDING FOOTPRINT:	EXISTING:	66,547
	PROPOSED:	9,900
	TOTAL:	76,547
FLOOR AREA RATIO:	ALLOWED:	.35
	EXISTING:	.0968
	PROPOSED:	.1178
SITE COVERAGE:	EXISTING:	128,066(13.53%)
	PROPOSED:	144,184(15.24%)
PARKING SPACES:	EXISTING:	108
	PROPOSED:	121
NUMBER OF FACILTY AND STAFF:	EXISTING:	78
	PROPOSED:	97
NUMBER OF STUDENTS:	EXISTING:	514
	PROPOSED:	692(PEAK @ 2002)
BUILDING HEIGHT:	EXISTING:	21'-8" 27'-0"
	PROPOSED:	24'-4"

PLANT LIST:

QTY.	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT
3	PP	Picea pungeus var. glanca	BLUE SPRUCE	8'-10'	B&B
4	DW	Malus "Donald Wyman"	DONALD WYMAN "CRABAPPLE"	8'-10'	B&B
4	PS	Pinus strobus	WHITE PINE	8'-10'	B&B
25	PT	Parthenoussus tricuspidata	BOSTON IVY	1 GAL.	CONT.



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ARCHITECTURE / ENGINEERING / INTERIOR DESIGN
FLETCHER-THOMPSON, INC.
TWO WORLD TRADE PLAZA
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

SITE GRADING, UTILITY, LAND-SCAPE AND SOIL & EROSION CONTROL PLAN

NO	DATE	REVISION	BY
6	4-28-98	REVISED & ISSUED TO P&Z	HWM
5	3-24-98	ISSUED TO D.O.E.	HWM
4	12-31-97	REVISED & ISSUED TO P&Z	HWM
3	11-12-97	ADDED PREV. APPROVED BUS LOOP/PARKING IMP.	HWM
2	10-20-97	ISSUED TO P&Z	HWM
1	9-22-97	ISSUED FOR SCHEMATIC DESIGN	HWM

DATE	9/22/97
SCALE	1"=40'
PROJECT NO.	50950.06
DRAWING NO.	C001

3

7500
3-4th 11-12
$228,800
Final 325,800

BQ #70 & 125 Attachment

SEDIMENT AND EROSION CONTROL NARRATIVE:

THE PURPOSE OF THE SEDIMENT AND EROSION CONTROL PLAN, DETAILS AND NOTES IS TO OUTLINE A PROGRAM THAT MINIMIZES THE SOIL EROSION DURING CONSTRUCTION. THE PRIMARY POLICIES OF THIS PROGRAM ARE:

A) AVOIDANCE & MINIMIZATION BY RETAINING THE NATURAL VEGETATION WHENEVER FEASIBLE AND EXPOSE THE SMALLEST PRACTICAL AREA AT ONE TIME.
B) TRAPPING PARTICLES AT THE SOURCE BY PROMPTLY STABILIZING AND REVEGETATING DISTURBED AREAS.
C) AVOIDING THE CONCENTRATION OF WATER AND RUNOFF.
D) AVOIDING THE CONTAMINATION OF STORM DRAINS.
E) MAINTAINING THE EROSION CONTROLS TO ENSURE THAT THEY ARE FUNCTIONING PROPERLY BY PERFORMING WEEKLY INSPECTIONS AND AFTER STORM EVENTS.
F) DISPOSAL OF COLLECTED SILT AND SEDIMENT LEGALLY AND IN KEEPING WITH THE INTENT OF THIS PLAN.

CONSTRUCTION SEQUENCE:

A. GENERAL
1. PROJECT START: SPRING 1998
PROJECT COMPLETION: FALL 1999
BASED ON RECEIVING TIMELY APPROVALS
2. THE PROPOSED CONSTRUCTION SEQUENCE IS PROVISIONAL.

B. SITE PREPARATION
1. REVIEW THE SEDIMENT AND EROSION CONTROL PLAN WITH THE CONSTRUCTION TEAM, SITE ENGINEER AND INLAND WETLANDS OFFICER.
2. DELINEATE THE LIMITS OF DISTURBANCE AND ESTABLISH THE STAGING AREAS, CONSTRUCTION TRAILER LOCATIONS AND TEMPORARY UTILITIES.
3. INSTALL THE TRACKING PAD FOR THE CONSTRUCTION ACCESS AND INSTALL SILT FENCE ALONG THE LIMITS OF DISTURBANCE AS SHOWN ON THE PLANS.
4. INSTALL ADDITIONAL SOIL AND EROSION CONTROLS AS REQUIRED.
5. FLAG AND/OR FENCE OFF ALL TREES TO BE PROTECTED.
6. CUT TREES TO BE REMOVED AND GRUB AREAS TO BE CLEARED WITHIN THE DEVELOPMENT ENVELOPE AS APPROPRIATE.
7. STRIP TOPSOIL AND STOCKPILE IN DESIGNATED AREAS. SURROUND TOPSOIL WITH SILT FENCE TO CONTAIN SEDIMENTS.

C. GENERAL SITE CONSTRUCTION:
1. PERFORM GENERAL EARTHWORK ACTIVITIES INCLUDING EXCAVATION AND FILLING AS REQUIRED.
2. ABANDON EXISTING UTILITIES AS MAY BE INDICATED ON THE PLANS.
3. ROUGH GRADE AND EXCAVATE THE BUILDING AREA AND PREPARE THE BUILDING SUBGRADE.
4. INSTALL THE STORM SEWER AND ADDITIONAL SEDIMENT AND EROSION CONTROLS ASSOCIATED WITH THE NEW STORM SEWER.
5. EXCAVATE AND ROUGH GRADE THE PROPOSED PARKING AREA. STABILIZE STEEP SLOPES ADJACENT TO THE NEW PARKING.
6. CONSTRUCT THE LANDSCAPE SLOPES AND SEED AND MULCH ALL LANDSCAPE AREAS.
7. STABILIZE DISTURBED AREAS AS SOON AS PRACTICAL.

D. DUST CONTROL:
1. PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, AND REDUCE THE PRESENCE OF DUST WHICH MAY CAUSE OFF-SITE DAMAGE, BE A HEALTH HAZARD TO HUMANS, WILDLIFE AND PLANTLIFE, OR REDUCE TRAFFIC SAFETY HAZARD.
2. THIS MEASURE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND SOIL MOVEMENT WHERE ON-SITE AND OFF-SITE DAMAGE IS LIKELY TO OCCUR IF PREVENTIVE MEASURES ARE NOT TAKEN.
3. USE TRAFFIC CONTROL TO RESTRICT TRAFFIC TO PREDETERMINED ROUTES. MAINTAIN AS MUCH NATURAL VEGETATION AS IS PRACTICABLE. USE PHASING OF CONSTRUCTION TO REDUCE THE AREA OF LAND DISTURBED AT ANY ONE TIME. THE USE OF TEMPORARY MULCHING, PERMANENT MULCHING, TEMPORARY VEGETATIVE COVER, OR SODDING WILL REDUCE THE NEED FOR DUST CONTROL. USE MECHANICAL SWEEPERS ON PAVED SURFACES WHERE NECESSARY TO PREVENT DUST BUILD UP. STATIONARY SOURCES OF DUST, I.E., ROCK CRUSHERS SHOULD UTILIZE FINE WATER SPRAYS TO CONTROL DUST.
4. INSTALLATION REQUIREMENTS
A. WATER –
THE EXPOSED SOIL SURFACE SHOULD BE MOISTENED PERIODICALLY WITH ADEQUATE WATER TO CONTROL DUST.
B. STONE –
COVER SURFACES WITH CRUSHED STONE OR COARSE GRAVEL. IN AREAS ADJACENT TO WATERWAYS USE CHEMICALLY STABLE AGGREGATE.
5. WHEN TEMPORARY DUST CONTROL MEASURES ARE USED, REPETITIVE TREATMENT SHALL BE APPLIED AS NEEDED TO ACCOMPLISH CONTROL.

E. GENERAL BUILDING CONSTRUCTION:
1. INSTALL THE BUILDING FOUNDATIONS AND FLOOR SLABS.
2. BACKFILL THE FOUNDATIONS AND CONNECT BUILDING UTILITIES.
3. CONSTRUCT THE BUILDING SUPERSTRUCTURE.
4. FINE GRADE ALL DISTURBED AREAS, STABILIZE AND SEED AS SOON AS PRACTICAL.
5. INSTALL PAVING ON DRIVES AND PARKING AREAS. COMPLETE ALL WALKWAYS AND SITE HARDSCAPE.
6. INSTALL LANDSCAPE PLANTINGS AND SEED.

F. GENERAL CLEAN UP:
1. REMOVE TEMPORARY SEDIMENT AND EROSION CONTROLS.
2. MAINTAIN PERMANENT SEDIMENT AND EROSION CONTROLS.
3. COMPLETE ALL PUNCH LIST ITEMS.

GENERAL SEDIMENT AND EROSION CONTROL NOTES:

1. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION.
2. COORDINATE THE CONSTRUCTION PHASING WITH THE TOWN OF GREENWICH INLAND WETLANDS AGENCY STAFF PRIOR TO BEGINNING WORK IN EACH PHASE.
3. EXISTING TREES TO BE SAVED SHALL BE PROTECTED BY FLAGGING AND/OR SNOW FENCING AT THE DRIP LINE WHICH SHALL BE MAINTAINED DURING CONSTRUCTION.
4. ANTI-TRACKING APRONS SHALL BE INSTALLED AT THE START OF CONSTRUCTION AND MAINTAINED THROUGHOUT CONSTRUCTION. APRONS SHALL CONSIST OF 2"- 4" CRUSHED STONE WITH A MINIMUM THICKNESS OF 4 INCHES. EACH APRON SHALL BE APPROXIMATELY 50 FEET LONG AND EXTEND THE WIDTH OF THE CONSTRUCTION ACCESS. THE LOCATION OF THE TRACKING PADS MAY CHANGE DURING THE VARIOUS PHASES OF CONSTRUCTION.
5. SILT FENCE AND OTHER SEDIMENT CONTROL MEASURES MUST BE INSTALLED IN ACCORDANCE WITH THE DRAWINGS AND SPECIFIC MANUFACTURER'S RECOMMENDATIONS.
6. SILT FENCE SHALL BE MIRAFI ENVIROFENCE OR EQUIVALENT APPROVED BY THE DESIGN ENGINEER. FILTER FABRIC SHALL BE MIRAFI 100X OR EQUIVALENT.
7. ADDITIONAL SEDIMENT AND EROSION CONTROLS MAY BE INSTALLED DURING THE CONSTRUCTION PERIOD IF FOUND NECESSARY BY THE INSPECTING ENGINEER OR ANY GOVERNING AGENCY.
8. AFTER EACH STORM EVENT OR AT LEAST ONCE WEEKLY, ALL SEDIMENT AND EROSION CONTROLS WILL BE INSPECTED. CORRECTIVE MEASURES TO MITIGATE ENVIRONMENTAL CONCERNS WILL BE ORDERED BY THE DESIGN ENGINEER OR GOVERNING AGENCY IF REQUIRED.
9. ALL PERMANENT AND TEMPORARY SEDIMENT CONTROL MEASURES WILL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF WORK, ALL TEMPORARY SEDIMENT CONTROL DEVICES SHALL BE REMOVED FROM THE SITE AND ANY COLLECTED SEDIMENTS FROM THE DEVICES AND CATCH BASINS SHALL BE DISPOSED OF LEGALLY AND IN KEEPING WITH THE INTENT OF THIS PLAN.
10. DUST CONTROL SHALL BE ACHIEVED WITH WATERING DOWN THE DISTURBED AREAS AS REQUIRED.
11. UPON THE INSTALLATION OF CATCH BASINS, IMMEDIATELY SURROUND THEM WITH HAYBALES AS PER THE DETAIL AND/OR PROVIDE SILT SACKS FOR THE BASIN TOPS.
12. ALL DEWATERING PUMPING MUST HAVE SEDIMENT AND EROSION CONTROL PROVISIONS TO MAINTAIN CLEAR WATER DISCHARGE. IF TRENCH DEWATERING IS REQUIRED, PUMP DISCHARGE SHALL PASS THROUGH A SEDIMENT FILTER TO OBTAIN CLEAR WATER DISCHARGE.
13. LAND DISTURBANCE SHALL BE KEPT TO A MINIMUM. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED.
14. EFFECTED PORTIONS OF OFFSITE ROADS MUST BE SWEPT CLEAN WHEN REQUIRED OR AT LEAST ONCE A WEEK DURING CONSTRUCTION.
15. ALL EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL," DATED JANUARY 1985.

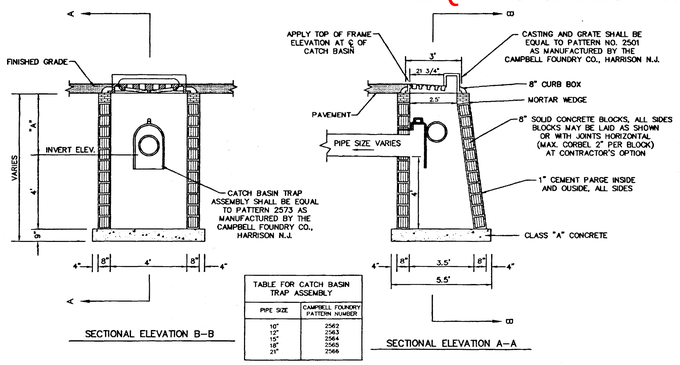
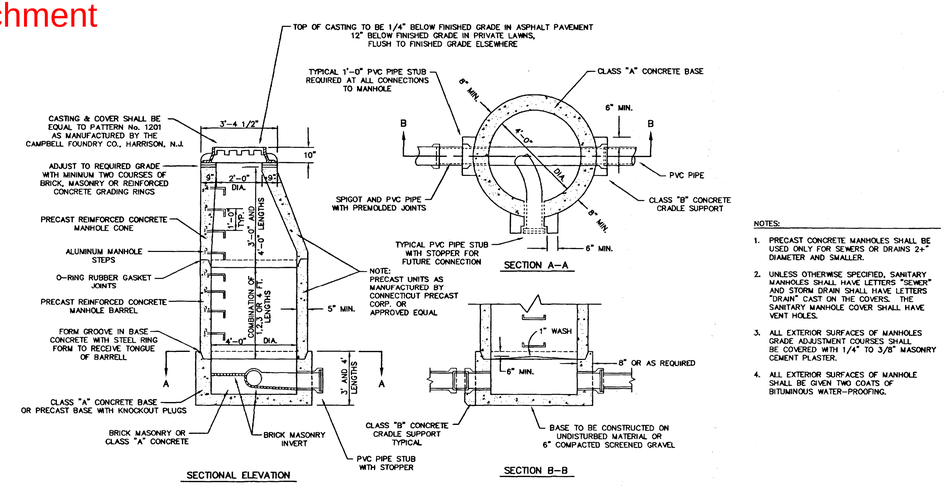


TABLE FOR CATCH BASIN TRAP ASSEMBLY

PIPE SIZE	CAMPBELL FOUNDRY PATTERN NUMBER
10"	2562
12"	2563
15" AND 18"	2564
24"	2565
30"	2566

NOTES:
1. DIMENSION "A" SHALL BE CONSISTENT WITH INVERT ELEVATION SHOWN ON CONTRACT DRAWING. WHEN NO INVERT ELEVATION IS SPECIFIED DIMENSION "A" SHALL BE SUCH AS TO PROVIDE MINIMUM OF 2'-6" COVER OVER PIPE.
2. INCREASE WALL THICKNESS TO 12" FOR THOSE PORTIONS OF WALL AT DEPTHS GREATER THAN 8'. INSIDE DIMENSIONS TO REMAIN THE SAME, FOOTING SIZE TO BE INCREASED 8".

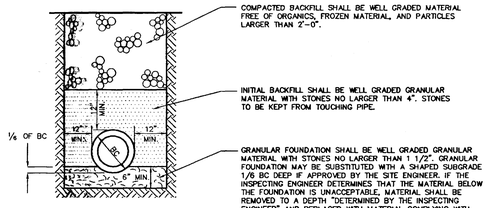
CATCH BASIN TYPE "C-1"
N.T.S.



NOTES:
1. PRECAST CONCRETE MANHOLES SHALL BE USED ONLY FOR SEWERS OR DRAINS 2+" DIAMETER AND SMALLER.
2. UNLESS OTHERWISE SPECIFIED, SANITARY MANHOLES SHALL HAVE LETTERS "SEWER" AND STORM DRAIN SHALL HAVE LETTERS "DRAIN" CAST ON THE COVERS. THE SANITARY MANHOLE COVER SHALL HAVE VENT HOLES.
3. ALL EXTERIOR SURFACES OF MANHOLES GRADE ADJUSTMENT COURSES SHALL BE COVERED WITH 1/4" TO 3/8" MASONRY CEMENT PLASTER.
4. ALL EXTERIOR SURFACES OF MANHOLE SHALL BE GIVEN TWO COATS OF BITUMINOUS WATER-PROOFING.

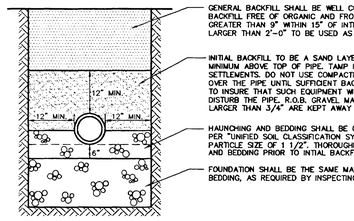
PRECAST CONCRETE MANHOLE TYPE P2
N.T.S.

ALL MATERIAL TO BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557 EXCEPT "COMPACTED BACKFILL" NOT UNDER PAVEMENT WHICH SHALL BE COMPACTED TO A DENSITY AT LEAST EQUAL TO THAT OF THE ADJACENT UNDISTURBED MATERIAL.

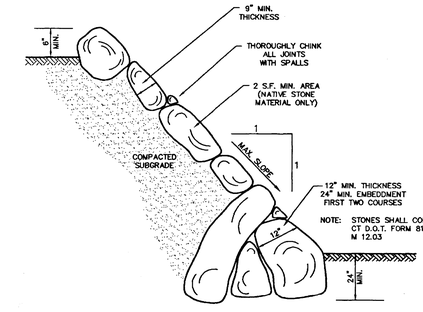


RCP PIPE TRENCH BEDDING DETAIL
N.T.S.

NOTE: GENERAL BACKFILL SHALL BE COMPACTED TO A DENSITY AT LEAST EQUAL TO THAT OF THE ADJACENT UNDISTURBED MATERIAL. ALL OTHER MATERIAL TO BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1577. TAMPING AND COMPACTION TO BE IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION MANUAL AND ASTM D2821. GENERAL BACKFILL UNDER PAVEMENT TO BE COMPACTED TO 95% DENSITY.



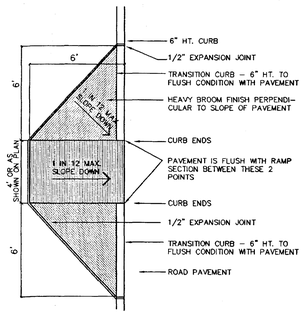
PVC TRENCH BEDDING DETAIL
N.T.S.



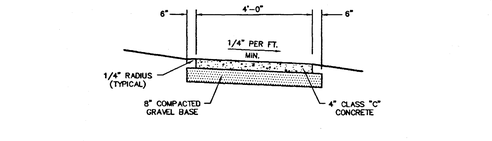
NOTE: STONES SHALL CONFORM TO CT D.O.T. FORM 814, SECTION M 12.03

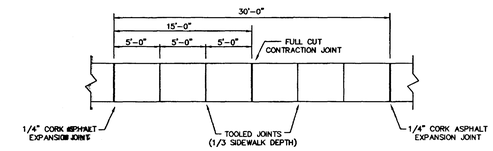
STONE SLOPE PAVING DETAIL
N.T.S.

NOTE: ALL WORK SHALL CONFORM TO CT D.O.T. FORM 814 SECTION 7.05

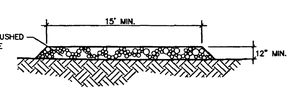


ACCESSIBLE CURB/RAMP
N.T.S.

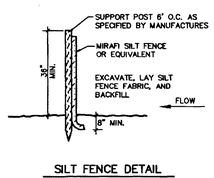




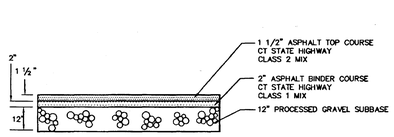
CONCRETE SIDEWALK DETAIL
N.T.S.



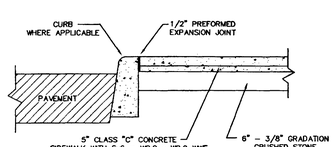
TYPICAL ANTI-TRACKING APRON
N.T.S.



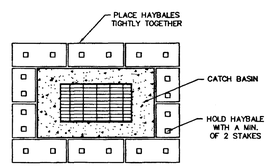
SILT FENCE DETAIL
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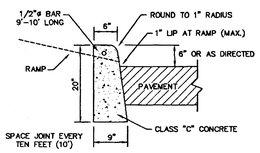
PAVEMENT DETAIL
N.T.S.



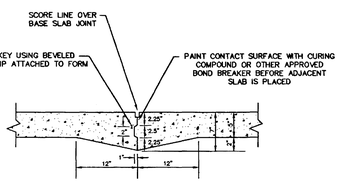
REINFORCED CONCRETE SIDEWALK
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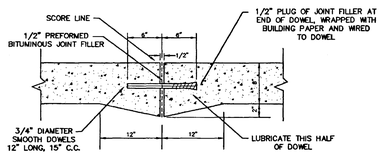
HAYBALE RING DETAIL
N.T.S.



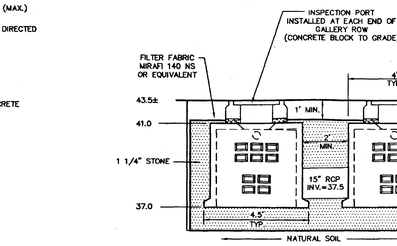
CONCRETE CURB
N.T.S.



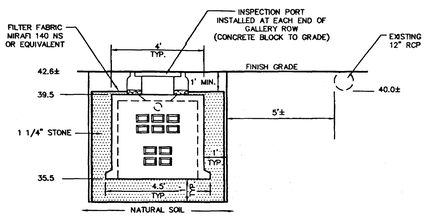
CONTRACTION JOINT DETAIL
N.T.S.



EXPANSION JOINT DETAIL
N.T.S.



YARD DRAIN DETENTION DETAIL SECTION A-A
N.T.S.



YARD DRAIN DETENTION DETAIL SECTION B-B
N.T.S.

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Consulting Civil Engineers
78 Danbury Road, Suite 202
Wilton, Ct 06897 (203) 834-0569

PROFESSIONAL SEAL

PRINCIPAL IN CHARGE: L. FREE
PROJECT ENGINEER: H. McCHORD
DRAWN BY: D. SULLA

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN
FLETCHER-THOMPSON, INC.
TWO WORLD TRADE PLAZA
BRIDGEPORT, CT 06604-3944

PROJECT TITLE
ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE
CONSTRUCTION NOTES & DETAILS

NO	DATE	REVISION	BY
4	3-24-98	ISSUED TO D.O.E.	HWM
3	12-31-97	REVISED & ISSUED TO P&Z	HWM
2	10-20-97	ISSUED TO P&Z	HWM
1	9-22-97	ISSUED FOR SCHEMATIC DESIGN	HWM

DATE: 9/22/97
SCALE: AS SHOWN
PROJECT NO.: 50950.06
DRAWING NO.: C002
4

PRINTED BY NATIONAL DIRECT - 518-372-9985 - TEMP484.ILL - 11/19/98 4:02:08 PM

file: 551m2

BQ #70 & 125 Attachment

LEGEND

- PROPERTY LINE
- STONE WALL
- CURBING
- MANHOLE (MH)
- SANITARY SEWER MANHOLE (S)
- DRAINAGE MANHOLE (D)
- CATCH BASIN
- GAS VALVE (GV)
- WATER VALVE (WV)
- FIRE HYDRANT
- UTILITY POLE WITH ANCHOR
- STREET SIGN
- TEST BORING
- RETAINING WALL
- CHAIN LINK FENCE
- WOODEN FENCE
- GAS LINE (G)
- WATER LINE (W)
- ELECTRIC LINE (E)
- TELEPHONE LINE (T)
- TREE LINE
- EXISTING CONTOUR (200)
- EXISTING SPOT ELEVATION (202.77)
- BASKETBALL HOOP

PROPERTY & TOPOGRAPHIC SURVEY
CENTRAL MIDDLE SCHOOL
INDIAN ROCK LANE
GREENWICH, CONNECTICUT

NOTES:
- BOUNDARY DETERMINATION CATEGORY: RESURVEY
- VERTICAL DATUM BASED ON N.G.V.D.
- REFER TO TOWN CLERK MAPS 3472, 5728, 4209, 3708, 4108 AND 3483 ON FILE IN GREENWICH LAND RECORDS.
- REFER TO SITE, UTILITY AND DRAINAGE PLANS FOR CENTRAL JUNIOR HIGH SCHOOL GREENWICH, CONN. PREPARED APRIL 1957 BY SHERWOOD, MILLS AND SMITH ARCHITECTS, STAMFORD, CT.
- OFFSETS ARE TO THE FACE OF THE STRUCTURE.

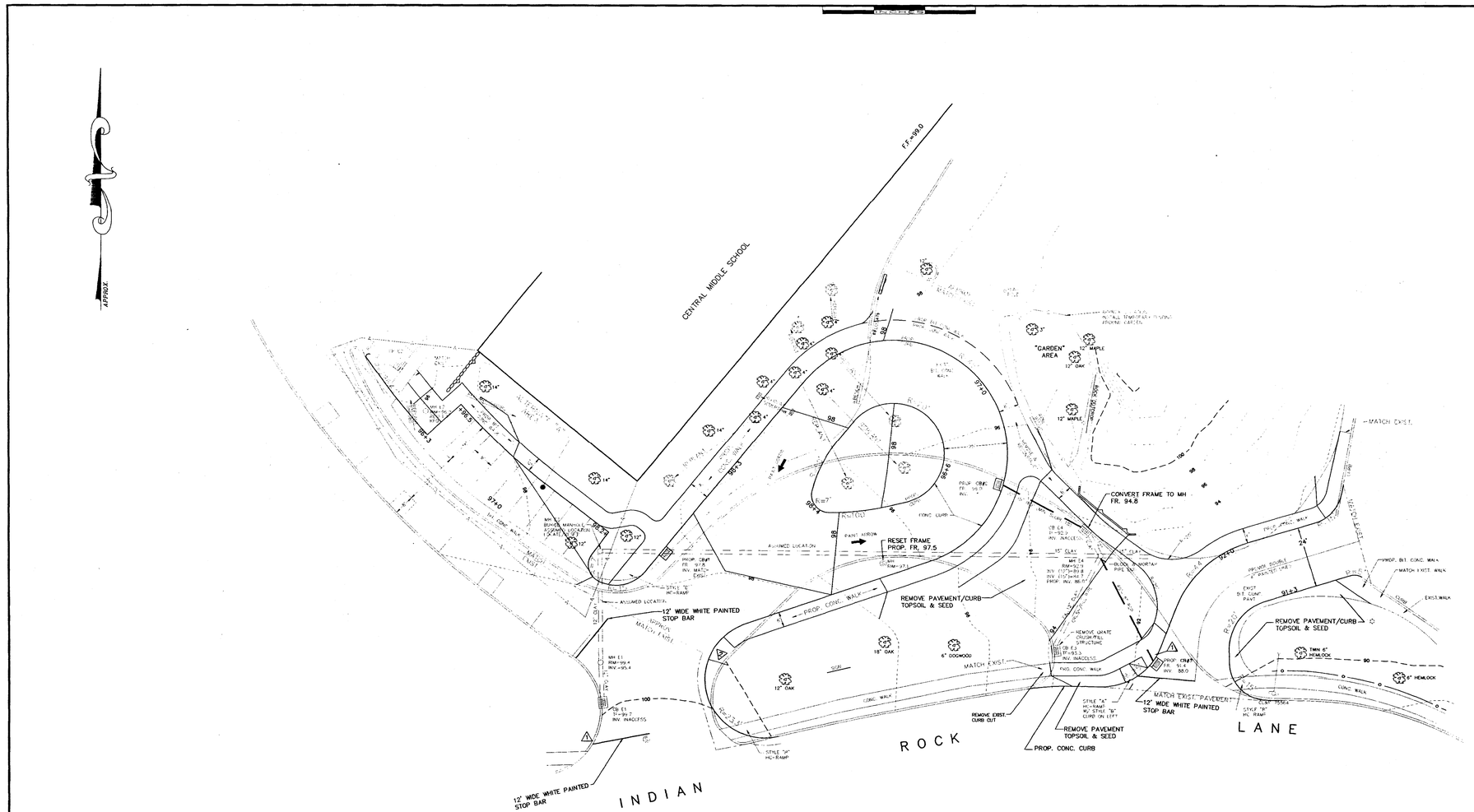
I HEREBY DECLARE THAT TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON. THIS SURVEY CONFORMS TO THE STANDARDS OF A CLASS A-2 SURVEY AND WAS PREPARED IN ACCORDANCE WITH SECTIONS 20-300b-1 THROUGH 20-300b-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES AND THE MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

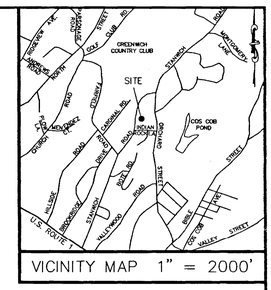
STEPHEN R. LATOUR, R.L.S. CT LIC. #15456
NOT VALID WITHOUT EMBOSSED SEAL

CCA
ENGINEERING-SURVEYING-ENVIRONMENTAL
40 Old New Milford Road, Brookfield, CT 06804, (203) 775-6207
33 Ridge Green Drive, Enfield, CT 06759, (203) 567-3179

By: G.P.O. | Scale: 1" = 40' | Sheet 1 of 1
Date: 8 / 27 / 97 | Project No. 97-199 | Drawing No. 1993

BQ #70 & 125 Attachment





LEGEND

UTILITY POLE W/ANCHOR	
CHAIN FENCE	
STONE WALL	
EXIST. CATCH BASIN	
PROP. CATCH BASIN	
PROP. DRAINAGE	
EXISTING CONTOUR	310
EXISTING SPOT ELEVATION	311.5
PROPOSED CONTOUR	98
PROPOSED SPOT ELEVATION	311+5
ROCK OUTCROP	
MANHOLE	MH
LIGHT POLE	
RETAINING WALL	
"ALTERNATE A" LIMIT	
PROP. TRAFFIC SIGN	

SIGNS

- PROPOSED STANDARD STOP SIGN
- PROPOSED "AUTHORIZED VEHICLES ONLY" SIGN

PROPOSED
BUS LANE IMPROVEMENTS

PREPARED FOR

CENTRAL MIDDLE SCHOOL
GREENWICH , CONNECTICUT

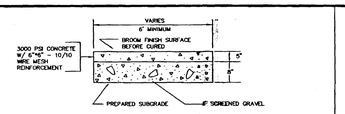
CCA
CARROCCIO-COVILL & ASSOCIATES, INC.
ENGINEERING-SURVEYING-ENVIRONMENTAL
40 Old New Milford Road
Brookfield, CT 06804
(203) 775-6207
33 Village Green Drive
Litchfield, CT 06759
(203) 567-3179

By: R.T.P.	Scale: 1" = 20'	Sheet 1 of 2
Date: 4/18/96	Project No.93-386SP	Drawing No. 1432

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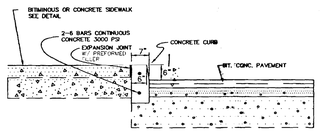
Date	Revisions

ORIGINAL SEAL

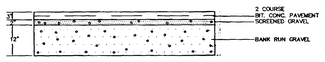


SIDEWALK DETAIL
N.T.S.

- PROVIDE EXPANSION JOINT W/ PREFORMED FILLER EVERY 25' MAXIMUM.
- PROVIDE TROWLED JOINTS EVERY 5'.
- ALL CONSTRUCTION JOINTS TO HAVE A KEY CONSTRUCTED.

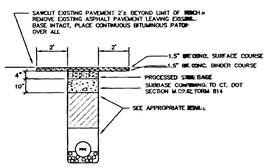


CONCRETE SIDEWALK, PARKING & DRIVEWAY DETAIL
N.T.S.

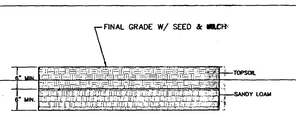


PARKING AND DRIVEWAY DETAIL
N.T.S.

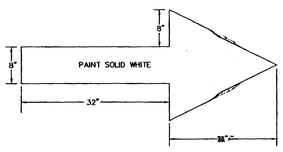
PAVEMENT MATCHING DETAIL
N.T.S.



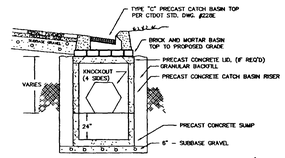
TYPICAL DETAIL
PAVEMENT PATCHING
N.T.S.



TOPSOIL DETAIL IN PAVEMENT REMOVAL AREAS
N.T.S.

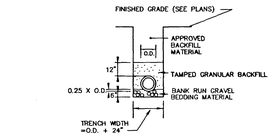


PAVEMENT MARKING DETAIL
N.T.S.



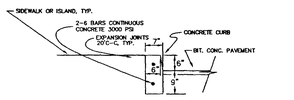
NOTE - 1) ALL PRECAST COMPONENTS TO BE ABLE TO WITHSTAND HS-20 WHEEL LOADING.
- 2) BACKFILL TO BE COMPACTED IN 8" LIFTS AROUND BASIN
- 3) TYPE C-1, OR C-G BASIN TOP MAY SUBSTITUTED ABOVE WHERE CALLED FOR ON THE PLANS.

DETAIL - PRECAST CATCH BASIN
WITH TYPE "C" CATCH BASIN TOP
SCALE 1/4"=1'-0"

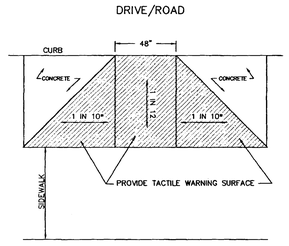


NOTE: 1) - PIPE SECTIONS TO BE JOINED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.
2) - INSTALL ADDITIONAL 6" OF BEDDING MATERIAL FOR TRENCH IN LEDGE.

TYPICAL TRENCH SECTION
NTS

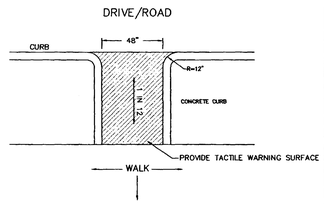


TYPICAL CONCRETE CURB
N.T.S.

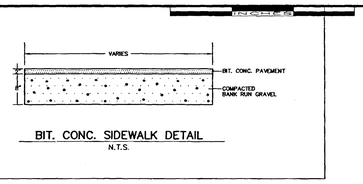


* IF ADJACENT SIDEWALK IS LESS THAN 4' WIDE THIS SLOPE SHALL BE 1IN 12.

CONCRETE HANDICAP RAMP STYLE "A"
N.T.S.



CONCRETE HANDICAP RAMP STYLE "B"
N.T.S.



BIT. CONC. SIDEWALK DETAIL
N.T.S.

NOTES:
- TOPOGRAPHIC AND BOUNDARY SURVEYED BY CCA AND BASED ON AN ASSUMED DATUM
- ALL CURBING TO BE PORTLAND CEMENT CONCRETE.
- PARKING AND DRIVEWAYS TO BE BITUMINOUS CONCRETE.
- CONTRACTOR IS RESPONSIBLE TO CONTACT "CALL BEFORE YOU DIG".
- CONTRACTOR TO CONFIRM LOCATION AND ELEVATION OF EXISTING DRAINAGE INCLUDING DRAINAGE WHOSE INVERTS AND LOCATION WERE INACCESSIBLE OR ASSUMED. ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES OR NECESSARY REVISIONS.
- ALL WORK TO CONFORM WITH THE REQUIREMENTS OF THE TOWN OF GREENWICH.
- IN ALL AREAS THAT ARE TO BE "MATCHED" INTO EXISTING CONDITIONS THE "MATCHING" TO BE AS SMOOTH A TRANSITION AS POSSIBLE. ALL JOINTS TO BE SEALED.
- MINIMUM DEPTH OF TOPSOIL TO BE 6".
- CONTRACTOR TO PROVIDE SHOP DRAWING FOR RELOCATION OF TREES. TREES SHALL BE STAKED W/ PROTECTION AGAINST CHAFING PROVIDED.
- CONTRACTOR TO PROVIDE AND INSTALL "GEOFOAM" OR EQUIVALENT SEDIMENTATION PROTECTION FOR ALL CATCH BASINS.
- ALL DISTURBED AREAS TO BE TOPSOILED, SEEDED & MULCHED OR LANDSCAPING PLACED AS SOON AS POSSIBLE TO PREVENT EROSION.
- CONTRACTOR TO PROPOSED TYPE OF TEMPORARY FENCING AROUND GARDEN AREA. SUCH FENCING SHALL BE MAINTAINED UNTIL THE END OF CONSTRUCTION. NO DISTURBANCE WITHIN THIS AREA SHALL BE PERMITTED WITHOUT PERMISSION.
- ALL TREES, SHRUBS, ETC TO REMAIN OR BE RELOCATED TO BE PROTECTED WITH FENCING OR BY OTHER APPROVED METHODS.
- CONTRACTOR TO PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY EROSION CONTROLS.
- LAYOUT OF DRIVES, WALKS, ETC. TO BE APPROVED BY OWNER OR OWNER'S REPRESENTIVE.
- OWNER WILL BEING USE THE SITE AND BUILDINGS DURING THE CONSTRUCTION OF THE IMPROVEMENTS. CONTRACTOR TO COORDINATE ACCESS TO BUILDING AND PARKING AREAS.
- "ALTERNATE "A" AREA" REFERS TO AN ALTERNATE CONSTRUCTION OPTION THAT THE OWNER MAY OR MAY NOT CONSTRUCT.

NOTES & DETAILS
BUS LANE IMPROVEMENTS

PREPARED FOR

CENTRAL MIDDLE SCHOOL
GREENWICH , CONNECTICUT

CCA
CARROCCIO-COVILL & ASSOCIATES, INC.
ENGINEERING-SURVEYING-ENVIRONMENTAL
40 Old New Milford Road
Brookfield, CT 06804
(203) 775-6207
33 Village Green Drive
Litchfield, CT 06759
(203) 567-3179

By: R.T.P.	Scale: AS NOTED	Sheet 2 of 2
Date: 4/18/96	Project No.93-386SP	Drawing No. 1432

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Date	Revisions

BQ #70 & 125 Attachment

COVERED AREA = 104235 SF

DATA Room #153

DATA Room #211

INTEGRATED COMMUNICATIONS Room # 240.

SEE DWG. A101-2 | SEE DWG. A101-3

SEE DWG. A101-1 | SEE DWG. A101-2

SEE DWG. A101-1 | SEE DWG. A101-4

FIRST FLOOR OVERALL PLAN

SCALE: 1/16" = 1'-0"

NORTH

CONSULTANTS

NOTES:

1. FOR ARCHITECTURAL LEGENDS, ABBREVIATIONS, PARTITION TYPES AND LINTEL SCHEDULE, SEE DRAWINGS 61001 AND 61002.
2. XXXXX
   XXXXX

K:\48 projects\48100\dwg\Arch\A101 4-28-98 6:5

PROGRESS PRINT
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NO	DATE	DESCRIPTION	BY
8	1/5/96	PLAN REV'S.	S.E.M.
6	12/27/95	PLAN REV'S.	S.E.M.
5	12/19/95	PLAN REV'S.	S.E.M.
3	12/11/95	PLAN REV'S.	S.E.M.
2	11/28/95	PLAN REV'S.	S.E.M.
1	11/20/95	PLAN REVISIONS	S.E.M.

FTD	EF	KT	Fcdc
FY	MAY 19		
SS	Connecticut Office		
FILE			

PROJECT MANAGER — P. MYLER

PROJECT ARCHITECT OR ENGINEER — J. KANCPO

DESIGN ARCHITECT — J. A. SELLS

DRAWN BY — S. E. M. NEECE

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FLETCHER-THOMPSON, INC
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

NEW WESTOVER ELEMENTARY SCHOOL

STILLWATER ROAD
STAMFORD, CONNECTICUT

REGIONAL MAGNET SCHOOL
STATE PROJECT NO. 135-178

DRAWING TITLE

FIRST FLOOR OVERALL PLAN

0 16' 32' 56'

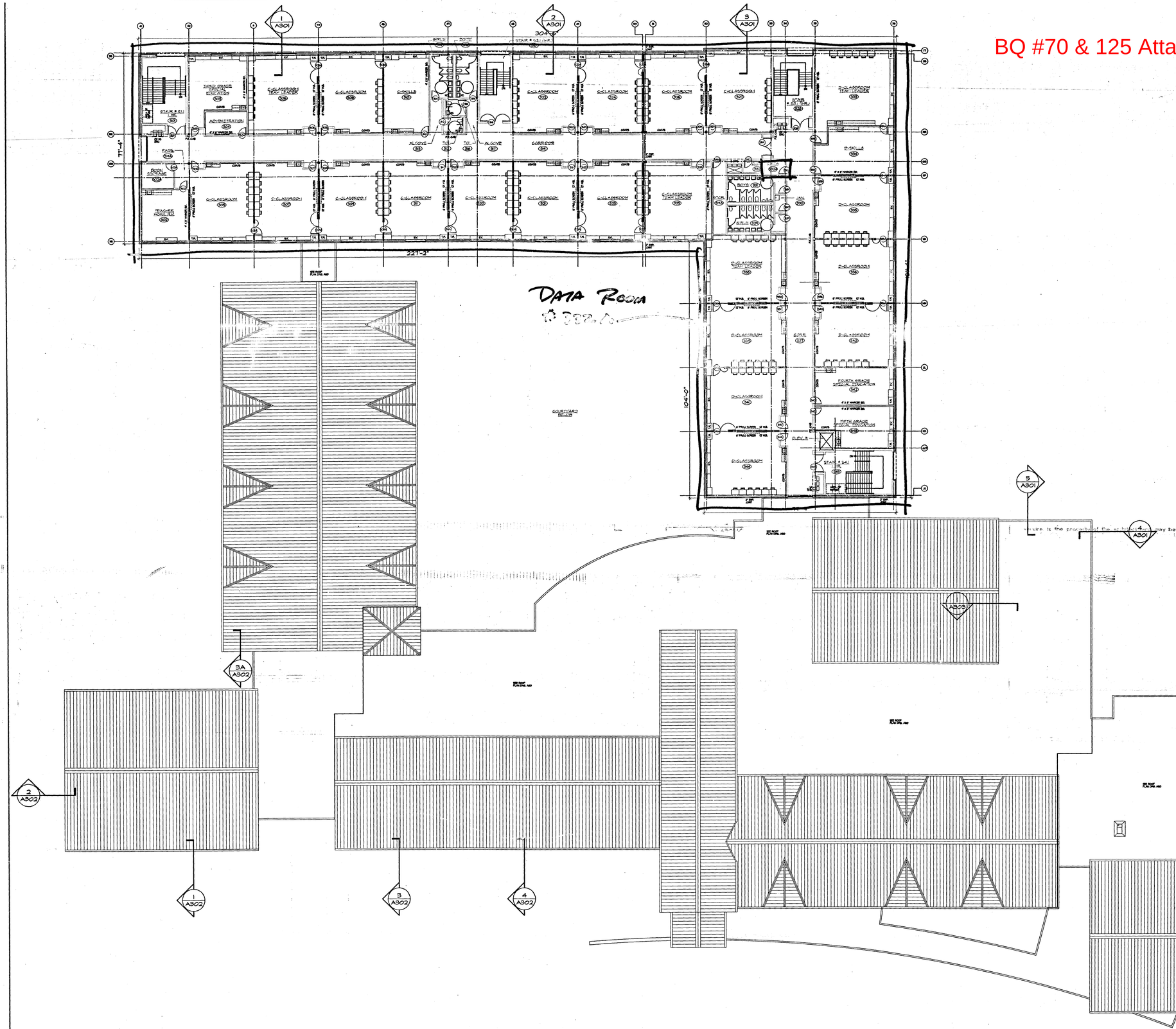
DATE: MARCH 15, 1995

SCALE: 1/16" = 1'-0"

PROJECT NO.: 48100.06

DRAWING NO.: A101

BQ #70 & 125 Attachment



SECOND FLOOR OVERALL PLAN

SCALE: 1/16" = 1'-0"

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:olects\48100\dng\Arch\A102 4-28-98 6:40:00 am EST

CONSULTANTS

NOTES:

1. FOR ARCHITECTURAL ELEVATIONS, PARTITION TYPES AND SCHEDULE, SEE DRAWINGS 6/A7
2. XXXXX XXXXX

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J. Michael Driffel & Associates — RECEIVED
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FY | MAY 19 1998 | SS
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PROJECT MANAGER: P. MYLER
PROJECT ARCHITECT OR ENGINEER: J. KANCPO
DESIGN ARCHITECT: J. A. SELLS
DRAWN BY: S. E. McNEECE

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TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

NEW WESTOVER ELEMENTARY SCHOOL

STILLWATER ROAD
STAMFORD, CONNECTICUT

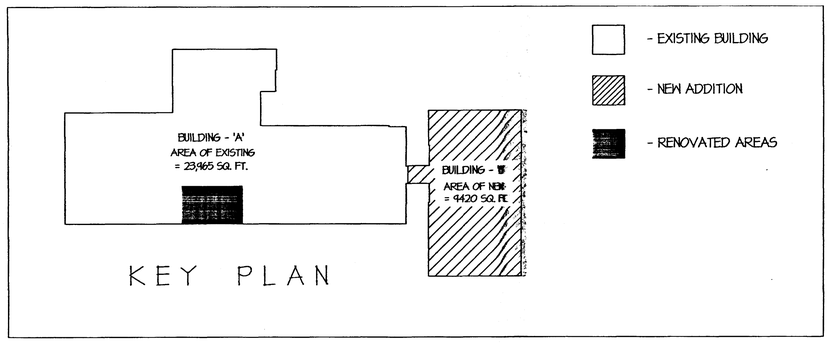
REGIONAL MAGNET SCHOOL
STATE PROJECT NO. 135-178

DRAWING TITLE

SECOND FLOOR OVERALL PLAN

0 16' 32' 56'

DATE: MARCH 15, 1995
SCALE: 1/16" = 1'-0"
PROJECT NO.: 48100.06
DRAWING NO.: A102



KEY PLAN

BQ #70 & 125 Attachment

EXISTING PASSENGER ELEVATOR INFORMATION

THE GROUND AND FIRST FLOOR OF THE ACADEMIC BUILDING IS ACCESSIBLE BY MEANS OF AN EXISTING PASSENGER ELEVATOR. THE PASSENGER ELEVATOR HAS AUTOMATIC OPERATION, SELF-LEVELING WITHIN 1/2-INCH OF THE FLOOR, DOOR REOPENING DEVICE, INTERIOR CAB SIZE OF 51 INCHES IN DEPTH BY 69 INCHES IN WIDTH AND A LEFT SIDE CAB DOOR WITH A CLEAR OPENING WIDTH OF 36 INCHES. THE CAR CONTROLS ARE LOCATED ON THE FRONT WALL RIGHT OF THE CAB DOOR, 3/4 INCHES IN SIZE WITH RAISED BUTTONS WHICH LIGHT WHEN CALL IS REGISTERED AND EXTINGUISHED WHEN ANSWERED, AND ARE IDENTIFIED WITH RAISED ARABIC CHARACTERS FOR NUMBERS WITH BRAILLE RIGHT OF THE BUTTON. THE VISUAL CAR POSITION INDICATOR IS LOCATED ABOVE THE CAR CONTROL PANEL. THE HALL CALL BUTTON IS KEY AND BUTTON OPERATION (3/4 INCHES IN SIZE WITH RAISED BUTTONS WHICH LIGHT WHEN CALL IS REGISTERED AND EXTINGUISHED WHEN ANSWERED) LOCATED ON THE WALL ADJACENT TO THE ELEVATOR HOISTWAY JAMBS AT 46 INCHES TO CENTERLINE ABOVE THE FLOOR. THE VISUAL SIGNALS ARE LOCATED ON THE WALL ABOVE THE CAB DOOR AND ARE ARROWS WHICH INDICATE THE DIRECTION OF TRAVEL. RAISED 2-INCH HIGH ALPHABET OR ARABIC CHARACTERS AND BRAILLE FLOOR DESIGNATIONS ARE PROVIDED AT 60 INCHES ABOVE THE FLOOR ON ONE SIDE OF THE HOISTWAY JAMB.

SYMBOLS LEGEND

CLASSROOM — ROOM NAME

(XXX) — ROOM NUMBER

154 / 20 = 30 P — ROOM OCCUPANCY LOAD
AREA IN SQUARE FEET
OCCUPANCY LOAD FACTOR

EXIT CAPACITY
36 / 165 — ACTUAL EGRESS OCCUPANCY OF DOOR OR STAIR
MAXIMUM ALLOWABLE EGRESS OCCUPANCY OF DOOR OR STAIR

AREA OF REFUGE
DIRECTIONAL SIGNAGE
WITH BATTERY BACKUP

—15— DIRECTION OF TRAVEL
WITH ACCUMULATED LOAD

—145'— MAXIMUM TRAVEL DISTANCE
FROM FURTHEST POINT

1 (ONE) HOUR FIRE RATED WALL
(TIGHT TO DECK ABOVE WHERE REQUIRED)

2 (TWO) HOUR FIRE RATED WALL
(TIGHT TO DECK ABOVE WHERE REQUIRED)
2 HOUR FIRE WALL WHERE NOTED

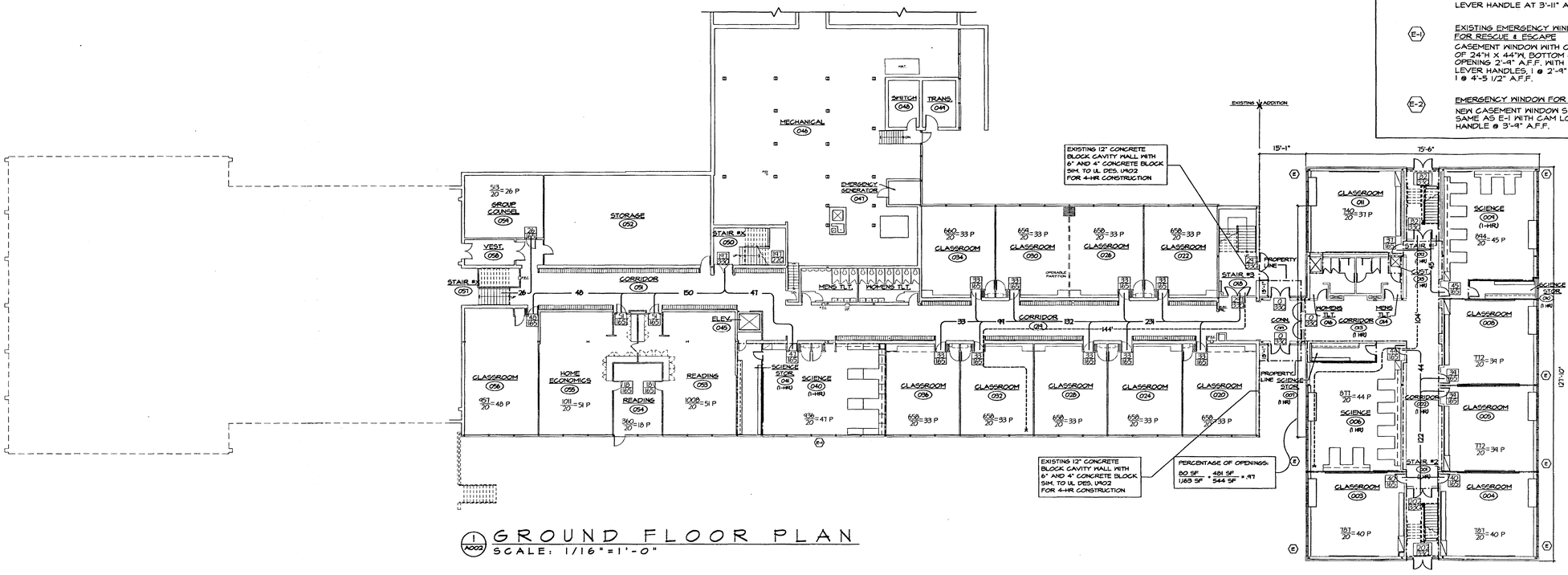
SMOKE BARRIER

PARTITION TO PREVENT THE PASSAGE OF SMOKE
REFER TO SHEET G1001 NOTE #16

(E) EMERGENCY WINDOW FOR RESCUE & ESCAPE
CASEMENT WINDOW WITH CLEAR OPENING OF 24"H X 36"W, BOTTOM OF CLEAR OPENING 2'-11" A.F.F. WITH CAM LOCKING LEVER HANDLE AT 3'-11" A.F.F.

(E-1) EXISTING EMERGENCY WINDOW FOR RESCUE & ESCAPE
CASEMENT WINDOW WITH CLEAR OPENING OF 24"H X 44"W, BOTTOM OF CLEAR OPENING 2'-9" A.F.F. WITH 2-CAM LOCKING LEVER HANDLES, 1 @ 2'-9" A.F.F. AND 1 @ 4'-5 1/2" A.F.F.

(E-2) EMERGENCY WINDOW FOR RESCUE & ESCAPE
NEW CASEMENT WINDOW SIZE AND HEIGHT SAME AS E-1 WITH CAM LOCKING LEVER HANDLE @ 3'-9" A.F.F.



(1/A002) GROUND FLOOR PLAN
SCALE: 1/16" = 1'-0"

CODE INFORMATION

BUILDING "A" - EXISTING

DATE OF ORIGINAL CONSTRUCTION: 1957 - (APPROX.)

1. USE GROUP CLASSIFICATION (302.0 - 313.0)
(Primary) USE GROUP "E" EDUCATIONAL
(Incidental) USE GROUP "A3" ASSEMBLEY
2. CONSTRUCTION TYPE (401.0)
TYPE 2-C UNPROTECTED, NON COMBUSTIBLE
Non Construction — TYPE 2-C UNPROTECTED, NON-COMBUSTIBLE
3. BUILDING HEIGHT (501.0, 503.0)
Existing Height (story/feet) — 2 STORIES / 22'-4"
4. BUILDING AREA (501.0 - 503.0)
Gross Building Area (Per Floor)

	EXISTING
Ground Floor	23,965 SF
First Floor	63,338 SF
Total	87,303 SF

5. EXISTING BUILDING IS NON-CONFORMING

BUILDING "B" - NEW

1. USE GROUP CLASSIFICATION (302.0 - 313.0)
(Primary) USE GROUP "E" EDUCATIONAL
2. CONSTRUCTION TYPE (401.0)
Minimum Type Required: TYPE 2-C UNPROTECTED, NON-COMBUSTIBLE
Actual Type Provided: TYPE 2-C UNPROTECTED, NON-COMBUSTIBLE
3. BUILDING HEIGHT (501.0, 503.0)
Allowable Height (story/feet) — 2 STORIES / 30'-0"
Actual Height (story/feet) — 2 STORIES / 22'-4"
4. BUILDING AREA (501.0 - 503.0)
Ground Floor 9,420 SF
Ground Floor 9,420 SF
Total 18,840 SF

5. AREA TABULATION - BUILDING "B"

Open Space:	75 FT N	112 FT E	128 FT W	75 FT S	
PERIMETER: 406 FT	OPEN PERIMETER:		390 FT (390/406 FT) =		79%
% Perimeter = (Open Perimeter/ Perimeter)					
% Tabular Area Increase 2 x (% Open Perimeter - 25%) =			(2)(79% - 25%) =		106%
% of Allowable Tabular Area (Table 501)					100%
% Reduction for Height (501.4)					-0%
% Increase for Open Perimeter (502.2)					+106%
% Increase for Full Fire Suppression (502.3)					+0%
Total Percentage Factor					=206%
Conversion Factor (% Factor/100)					2.06

A) Adjusted Tabular Area: 4,573 SF
(Actual Floor Area/Conversion Factor)(7,500/1.96)
B) Allowable Building Area per Floor:
(Conversion Factor x Tabular Area)
USE GROUP E-EDUCATIONAL (14,400 X 2.06) 29,664 SF
C) Actual Floor Area: (largest floor) 9,420 SF

6. MIXED-USE / SEPARATED USES (313.0):
NO MIXED USE

7. OCCUPANCY LOAD

DESIGN GROUND FLOOR	284 PERSONS
DESIGN FIRST FLOOR	205 PERSONS
DESIGN TOTAL FOR BUILDING	484 PERSONS

EXIT CAPACITY

GROUND FLOOR	990 PERSONS
FIRST FLOOR	660 PERSONS
TOTAL FOR BUILDING	1,650 PERSONS

NUMBER OF EXITS	# Required	# Provided
GROUND FLOOR:	2	3
FIRST FLOOR:	2	3
TOTAL:	4	6

TRAVEL DISTANCE

Allowable	150 FT
Provided	144 FT (MAX)

8. FIRE RESISTANT RATING OF STRUCTURE ELEMENTS - CONSTRUCTION TYPE 2-C

A) Exterior Walls (Load Bearing)	0 HRS
B) Fire Walls	2 HRS
C) Fire Separations	2 HRS
D) Smoke Barriers	1 HRS
E) Enclosures of Exits	1 HRS
F) Shafts	1 HRS
G) Exit Access Corridors	1 HRS
H) Separations	1 HRS
I) Interior Bearing Walls and Columns	0 HRS
J) Structural Members Supporting Wall	0 HRS
K) Floor Construction including Beams	0 HRS
L) Roof Construction	0 HRS

9. FIRE PROTECTION SYSTEMS
A) Suppression System ____ Full __X__ Limited
If limited, where: NEW JANITORS CLOSETS & STORAGE ROOMS
B) Notification/ Alarms
SPEAKER/STROBE , VOICE EVACUATION
C) Detection
SMOKE AND HEAT

10. MODIFICATIONS
A) Existing/ Approved — __X__ NONE
____ __X__ NONE

11. ACCESSIBLE BUILDING — __X__ Designated ____ Non-designated

12. MINIMUM PLUMBING FIXTURE COUNT (P-1202)

	REQUIRED	PROVIDED
W/C	10	14
LAVS	10	14
URN		
D/F	5	6

13. CODES TO WHICH THIS PROJECT WAS DESIGNED

	DATED
STATE BUILDING CODE W/SUPPLEMENT(S) (BUILDING, MECHANICAL & PLUMBING)	BOCA 1990, 1992(SUPP.), 1994 CT(SUPP.)
(ELECTRIC CODE)	1993, 1994(SUPP.)
STATE FIRE CODE W/SUPPLEMENT(S)	NFPA 101-1991, 1994(SUPP.)
STATE HEALTH CODE	1992
OSHA	TITLE 29/LABOR
SECTION 504	REHABILITATION ACT, 1973

14. THRESHOLD LIMIT BUILDING — ____ YES __X__ NO
If yes, why?

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PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	S.E. McNEECE
DRAWN BY	J.C. OTTO

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN
FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

GROUND FLOOR PLAN CODE COMPLIANCE & LIFE SAFETY

0 8' 16' 32'
SCALE: 1/16" = 1'-0"

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: 1/16" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A001

PRINTED BY NATIONAL DIRECT - 618-372-3495 - (EMP#48) (LL - 7/15/98 4:16:49 PM)

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BQ #70 & 125 Attachment

SYMBOLS LEGEND

CLASSROOM — ROOM NAME

(XXX) — ROOM NUMBER

ROOM OCCUPANCY LOAD
- 134 = 38 P — AREA IN SQUARE FEET
- 20 — OCCUPANCY LOAD FACTOR

EXIT CAPACITY
- 38 — ACTUAL EGRESS OCCUPANCY OF DOOR OR STAIR
- 165 — MAXIMUM ALLOWABLE EGRESS OCCUPANCY OF DOOR OR STAIR

AREA OF REFUSE DIRECTIONAL SIGNAGE WITH BATTERY BACKUP

15 — DIRECTION OF TRAVEL WITH ACCUMULATED LOAD

145' — MAXIMUM TRAVEL DISTANCE FROM FURTHEST POINT

1 (ONE) HOUR FIRE RATED WALL (TIGHT TO DECK ABOVE WHERE REQUIRED)

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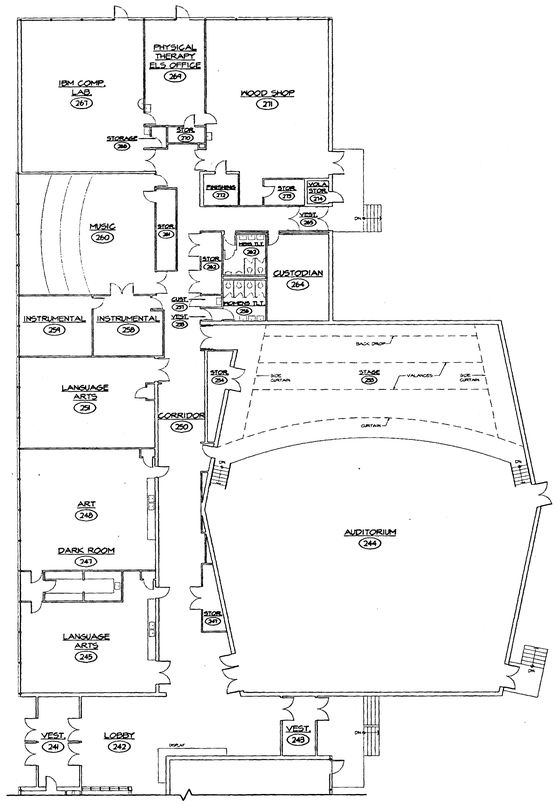
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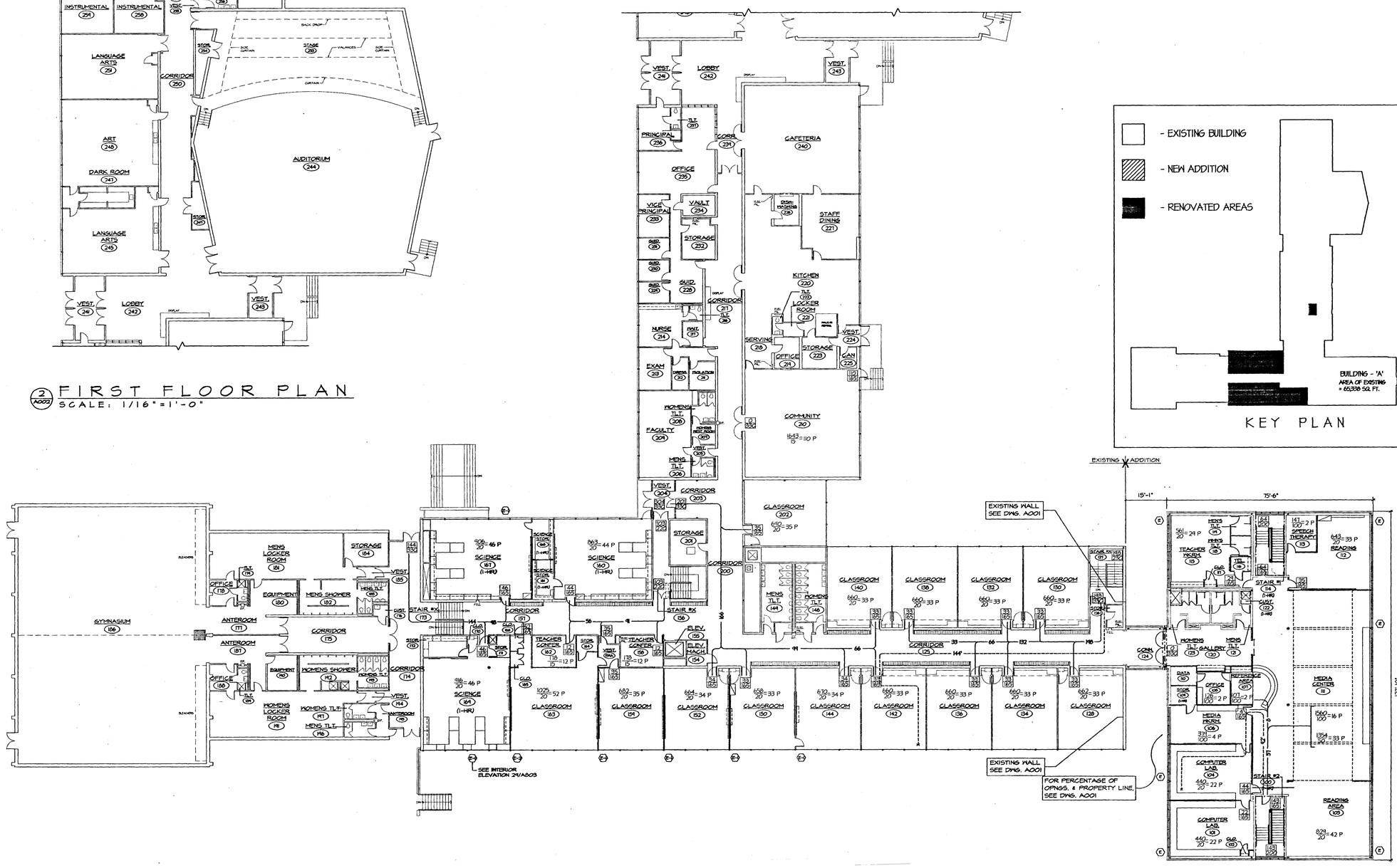
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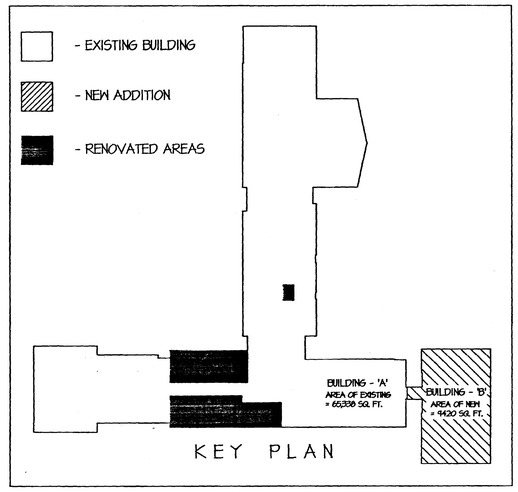
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2 A002 FIRST FLOOR PLAN
SCALE: 1/16"=1'-0"



1 A002 FIRST FLOOR PLAN
SCALE: 1/16"=1'-0"



KEY PLAN

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E. McNEECE
DRAWN BY: J.C. OTTO

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

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9 INDIAN ROCK LANE
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STATE PROJECT NO. 057-106EA

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NO	DATE	REVISION	BY

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PROJECT NO.: 50950.06
DRAWING NO.: A002

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BQ #70 & 125 Attachment

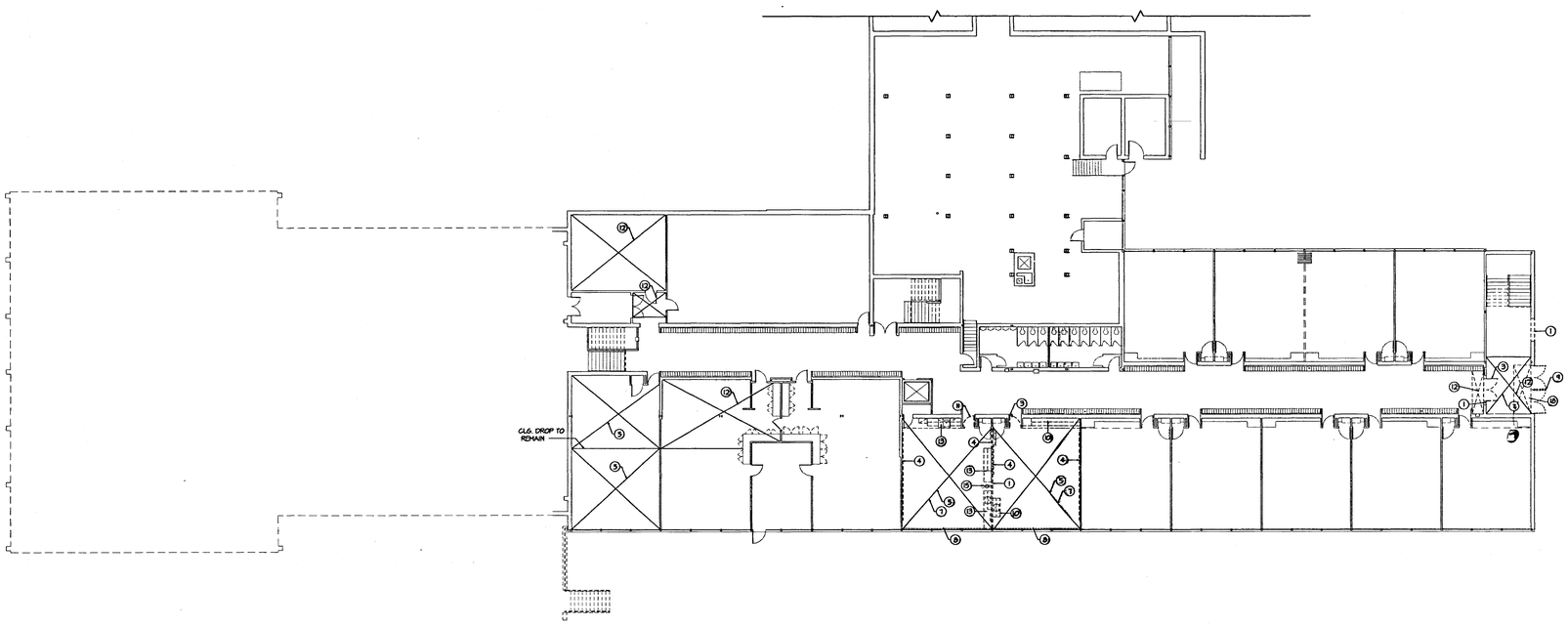
GENERAL DEMOLITION NOTES:

1. THE DEMOLITION NOTES ARE FOR A DESCRIPTIVE GUIDE ONLY. IT IS NOT THE INTENT TO POINT TO EACH AND EVERY ITEM. THE G.C. WILL BE RESPONSIBLE FOR REMOVING ALL QUANTITIES OF EACH ITEM. WHERE NEW WORK IS RUN THROUGH EXISTING AREAS, THE G.C. IS TO DO ALL CUTTING AND PATCHING FOR ALL TRADES OF ALL ADJACENT SURFACES. COORDINATE W/ STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.
2. COORDINATE DEMOLITION WITH CONSTRUCTION DOCUMENTS. DO NOT OVERDEMOLISH
3. SEE SPECIFICATIONS FOR ADDITIONAL DEMOLITION REQUIREMENTS.
4. SEE MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS PERTAINING TO THEIR TRADES.
5. DASHED LINES INDICATE CONSTRUCTION TO BE DEMOLISHED AND REMOVED.
6. PROVIDE SAW CUTTING AND SLAB REMOVAL FOR NEW BELOW FLOOR SANITARY, STORM, WATER-LINES, AND DRAINS. SEE PLUMBING DRAWINGS FOR EXTENT AND LOCATION.
7. SEE FLOOR PLANS FOR NEW LOCATIONS OF EXISTING EQUIPMENT / SHELVING / FURNITURE NOTED TO BE RELOCATED.
8. VERIFY EXISTING CONSTRUCTION IN THE FIELD.
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DEMOLITION NOTES:

ITEMS TO BE DEMOLISHED AND REMOVED

1. MASONRY WALLS
2. METAL/WOOD STUDS - GYPSUM OR PLASTER PARTITION
3. DOOR, FRAME, GLAZING AND ASSOCIATED HARDWARE
4. BLACKBOARD/ TACKBOARD
5. 1' X 1' CEILING TILE AND ASSOCIATED WOOD FURRING, SUPPORTS / SUSPENSION SYSTEM
6. CARPET, BASE, ADHESIVE, & V.A.T. / ADHESIVE BELOW CARPET
7. VINYL FLOORING, BASE, ADHESIVE
8. WINDOW BLINDS AND HARDWARE
9. EXTERIOR WINDOW AND DOOR SYSTEM
10. WALL HUNG AND/OR FLOOR MOUNTED WOOD CASEWORK
11. DOORS AND HARDWARE (FRAME REMAINS)
12. SUSPENDED ACOUSTIC TILE CEILING SYSTEM
13. SCIENCE ROOM WALL HUNG AND/OR FLOOR MOUNTED CASEWORK INCLUDING MECHANICAL UTILITIES
14. NOT USED
15. EMERGENCY SHOWER/EYE WASH AND ASSOCIATED PIPING
16. FUME HOOD AND ASSOCIATED DUCTWORK
17. DOOR, FRAME, SIDELIGHTS, GLASS AND ASSOCIATED HARDWARE
18. RECESSED MAT AND FRAME



1 / A099 GROUND FLOOR DEMOLITION PLAN

SCALE: 1/16" = 1'-0"

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STATE PROJECT NO. 057-106EA

DRAWING TITLE

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NO	DATE	REVISION	BY
1	6/19/98	D.O.E. REVISIONS	J. C.

DATE: **MARCH 16, 1998**
SCALE: **1/16" = 1'-0"**
PROJECT NO.: **50950.06**
DRAWING NO.: **A099**

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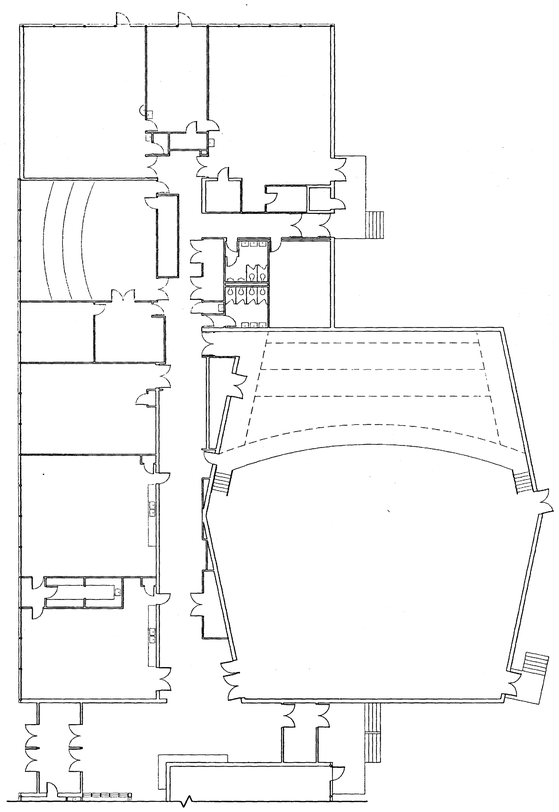
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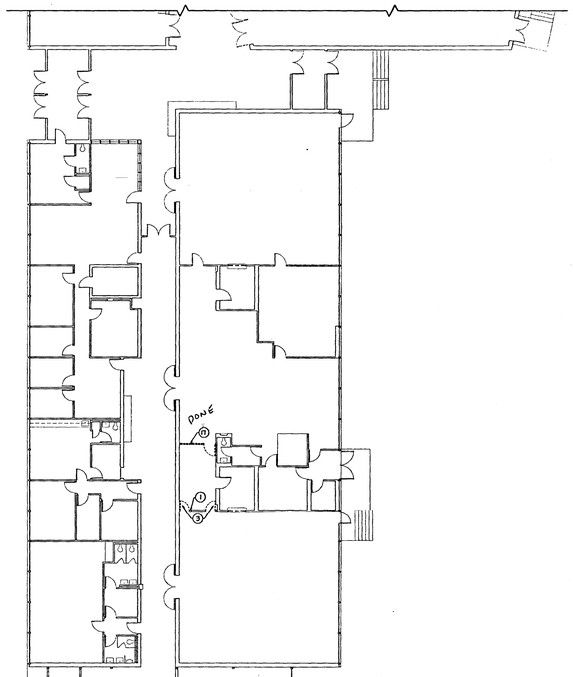
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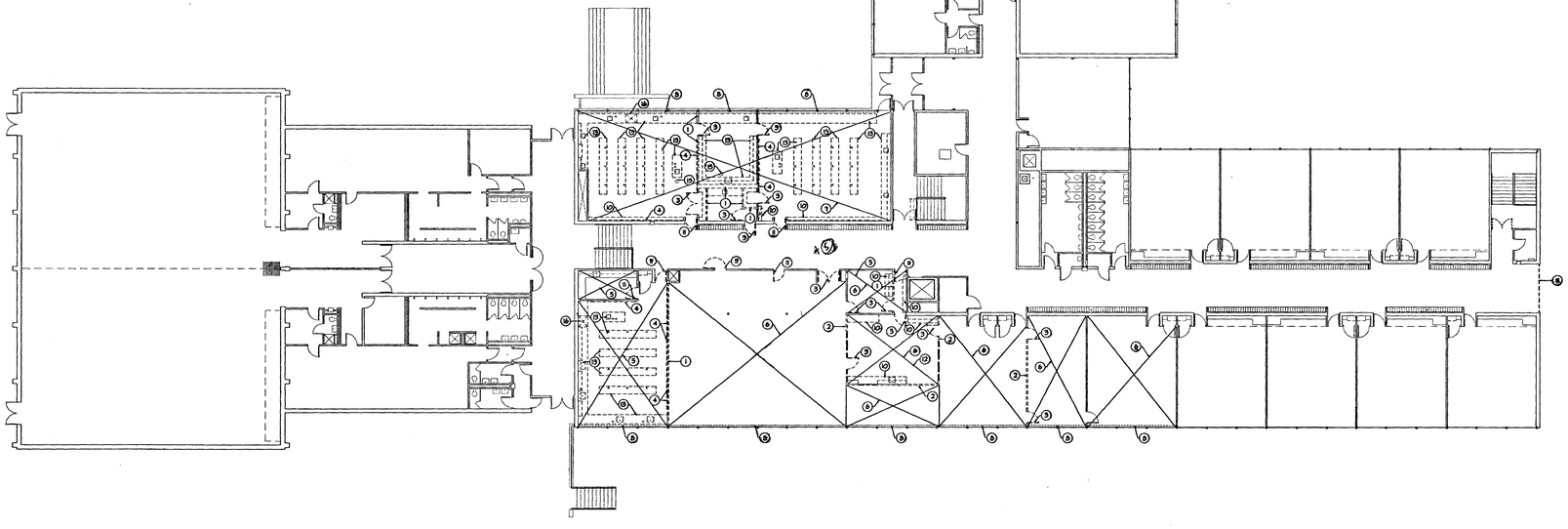
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14. NOT USED
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16. FUME HOOD AND ASSOCIATED DUCTWORK
17. DOOR, FRAME, SIDELIGHTS, GLASS AND ASSOCIATED HARDWARE



(2/A099.1) FIRST FLOOR DEMOLITION PLAN
SCALE: 1/16"=1'-0"





(1/A099.1) FIRST FLOOR DEMOLITION PLAN
SCALE: 1/16"=1'-0"

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E. McNEECE
DRAWN BY: J.C. OTTO

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
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BRIDGEPORT, CT 06604-3944

PROJECT TITLE

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9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

FIRST FLOOR DEMOLITION PLAN

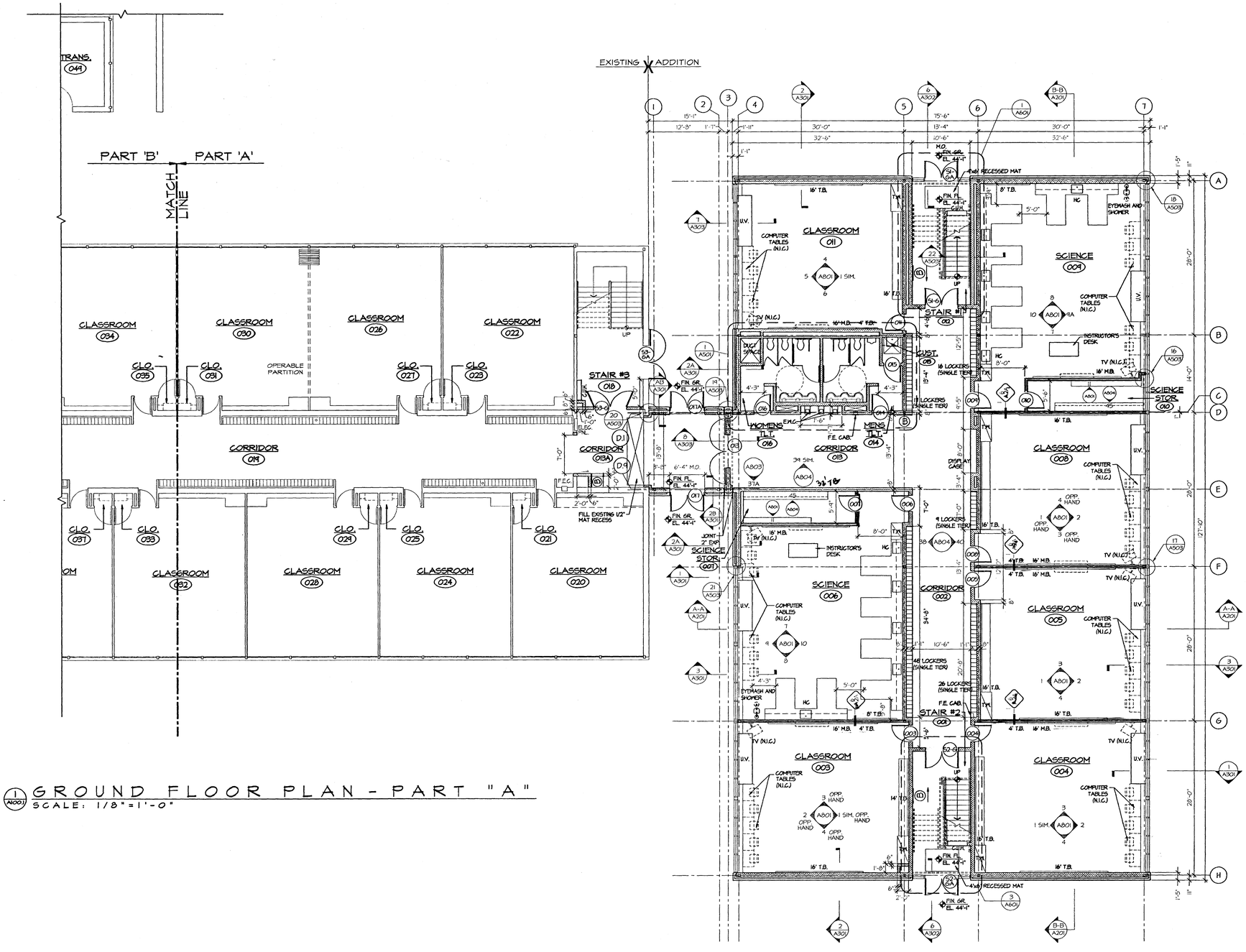
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NO	DATE	REVISION	BY

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DRAWING NO.: A099.1

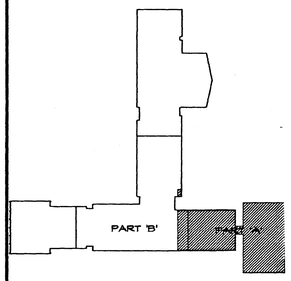
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BQ #70 & 125 Attachment



1 A100.1 GROUND FLOOR PLAN - PART "A"
SCALE: 1/8"=1'-0"

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KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	S.E. McNEECE
DRAWN BY	S. FENNELL

FLETCHER THOMPSON
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GROUND FLOOR PLAN PART "A"

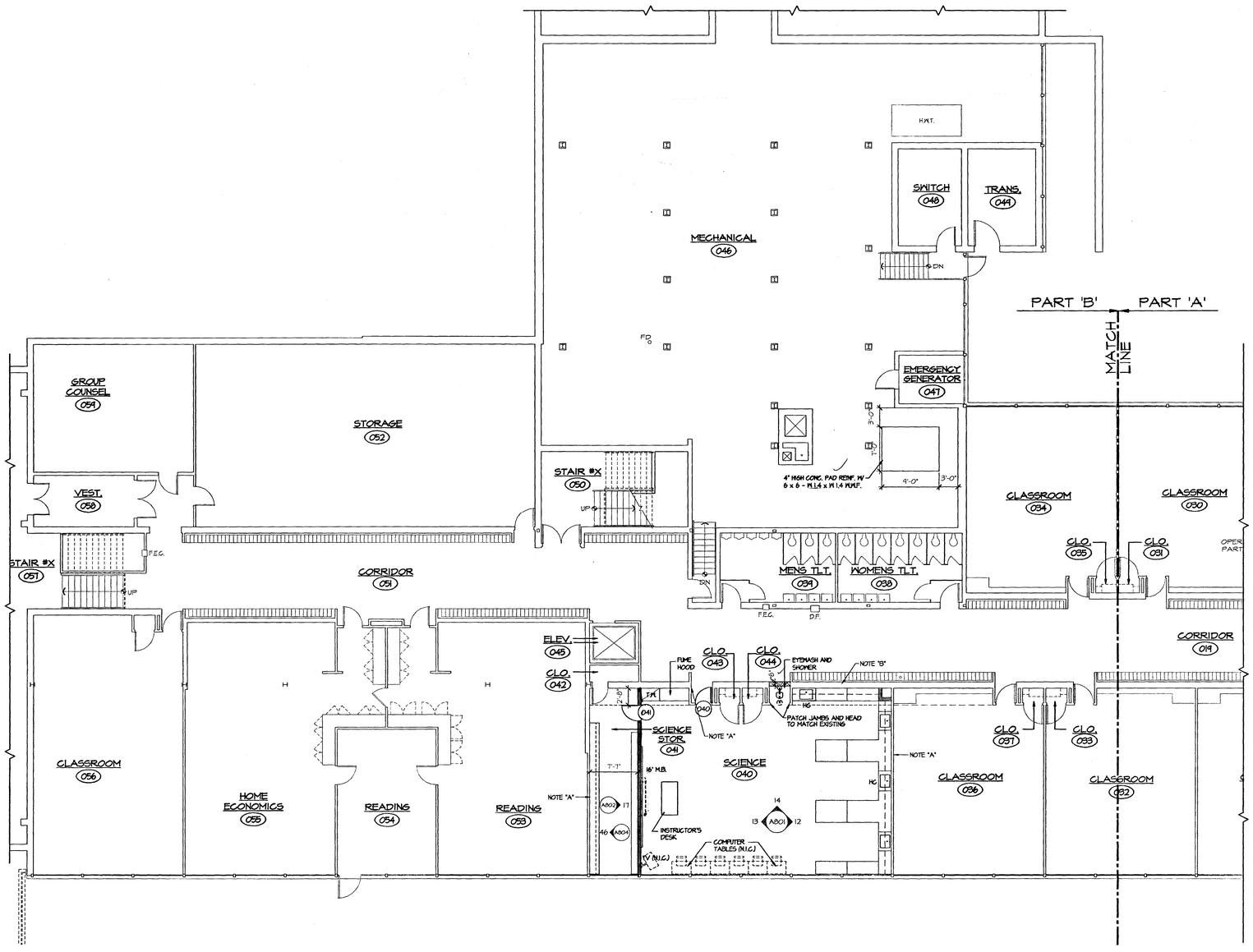
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DATE	MARCH 16, 1998
SCALE	1/8" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	A100.1

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BQ #70 & 125 Attachment



1 A100.2 GROUND FLOOR PLAN - PART "B"
SCALE: 1/8" = 1'-0"

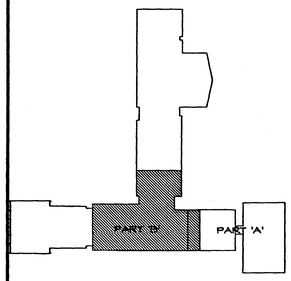
NOTE "A"

EXISTING 4" CONCRETE BLOCK WALL SIM. TO 1-HOUR RATED 4", 3 CORE REGULAR CONCRETE BLOCK PER "FIRE RATINGS FOR MASONRY UNITS", USING EQUIVALENT THICKNESS METHOD CONFORMING TO "BASIC NATIONAL BUILDING CODE (BOCA), BUILDING OFFICIALS CONFERENCE OF AMERICA INC." 1988.

NOTE "B"

EXISTING 10" CONCRETE BLOCK WALL SIM. TO UL DESIGN U906 FOR 2-HR. CONSTRUCTION.

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KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E. McNEECE
DRAWN BY: S. FENNELL

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

GROUND FLOOR PLAN PART "B"

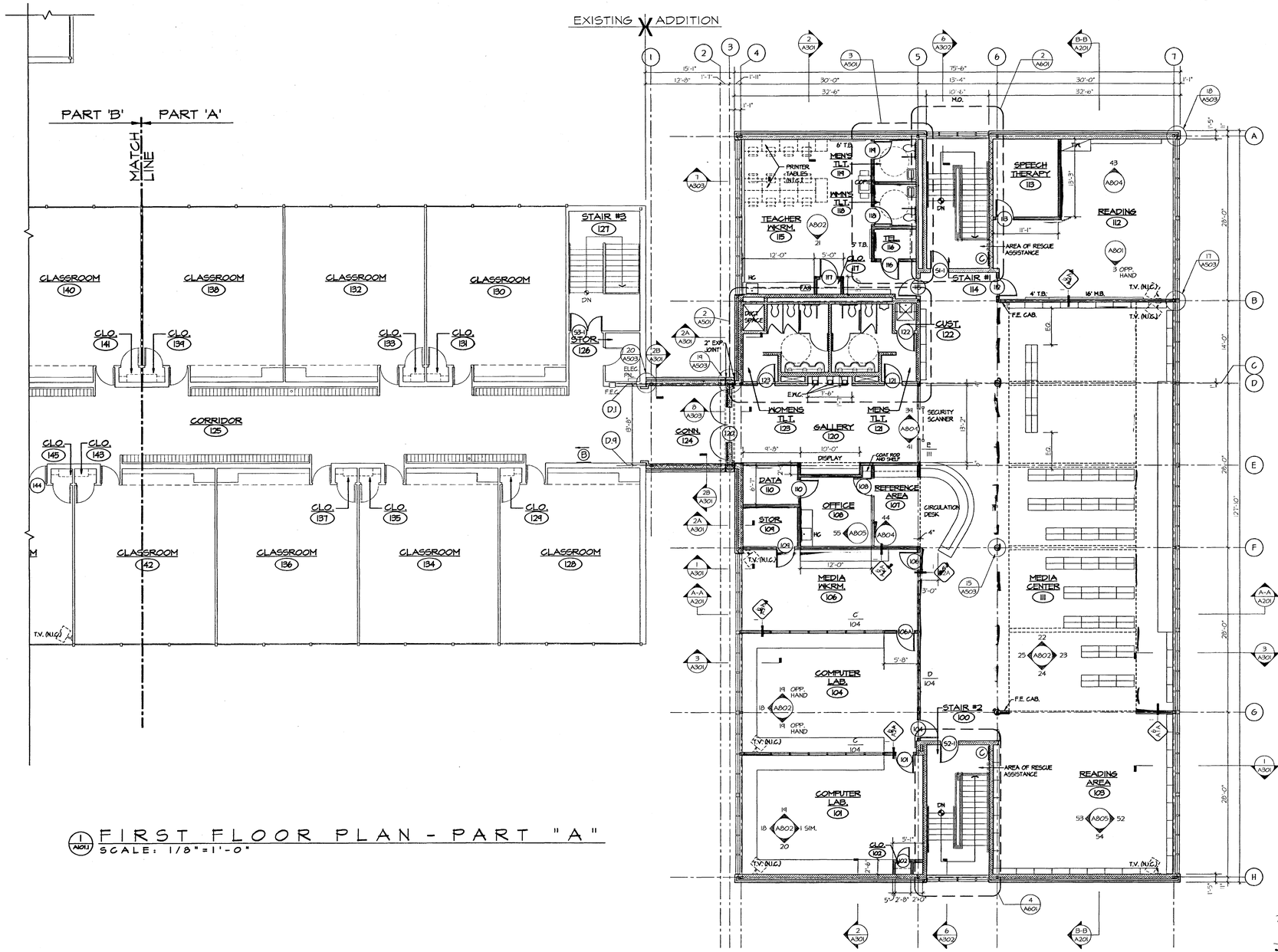
0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY
1	6/19/98	D.O.E. REVISIONS	J.C.

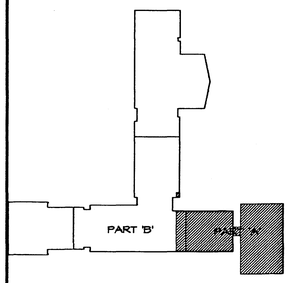
DATE: MARCH 16, 1998
SCALE: 1/8" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A100.2

K:\50 projects\50950\dwg\Arch\A100-2 6-22-98 2:34:54 pm EST

BQ #70 & 125 Attachment



1 A101.1 FIRST FLOOR PLAN - PART "A"
SCALE: 1/8"=1'-0"



KEY PLAN

N

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PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E. McNEECE
DRAWN BY: S. FENNELL

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ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

FIRST FLOOR PLAN PART "A"

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY
1	6/19/98	D.O.E. REVISIONS	J.C.

DATE: MARCH 16, 1998
SCALE: 1/8" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A101.1

270
37
6
51 3

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NOTE "A"

EXISTING 4" CONCRETE BLOCK WALL SIM. TO 1-HOUR RATED 4", 3 CORE REGULAR CONCRETE BLOCK PER "FIRE RATINGS FOR MASONRY UNITS" USING EQUIVALENT THICKNESS METHOD CONFORMING TO "BASIC NATIONAL BUILDING CODE (BOCA), BUILDING OFFICIALS CONFERENCE OF AMERICA INC." 1988.

NOTE "B"

EXISTING 10" CONCRETE BLOCK WALL SIM. TO UL DESIGN U906 FOR 2-HR. CONSTRUCTION.

NOTE "C"

EXISTING 6" CONCRETE BLOCK WALL, UL DES. SIM. TO U906 FOR 2-HOUR CONSTRUCTION.

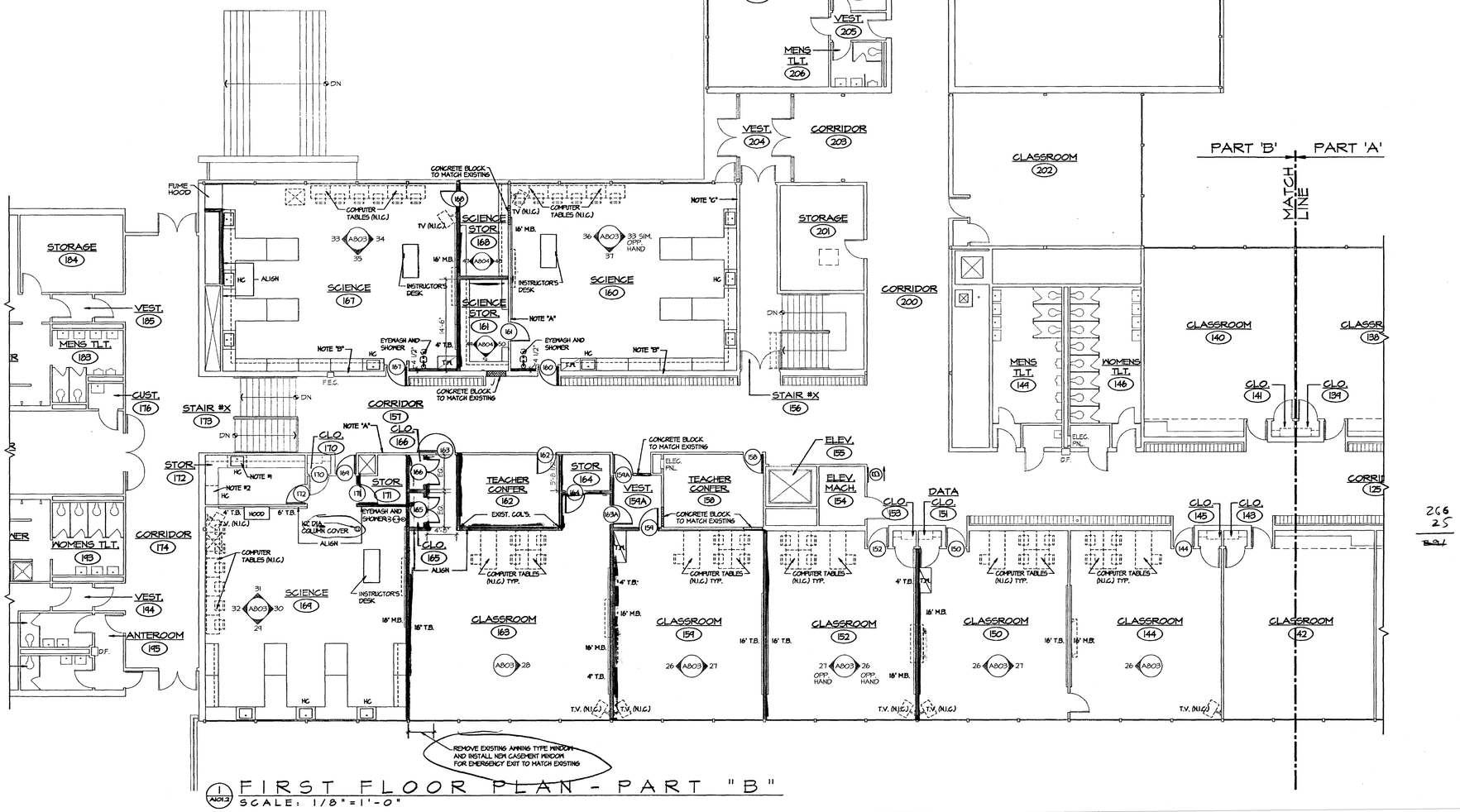
NOTE #1

REMOVE EXISTING SINK AND BASE CABINET. INSTALL NEW SINK AND CONTROLS, SEE PLUMBING DRAWINGS. INSTALL NEW END PANELS AT EXISTING ADJACENT BASE CABINETS. MIN. KNEE SPACE 36" WIDE X 27" HIGH. PATCH WALL, FLOOR AND INSTALL NEW BASE.

NOTE #2

SAME AS NOTE #1, EXCEPT NO SINK REQUIRED.

BQ #70 & 125 Attachment

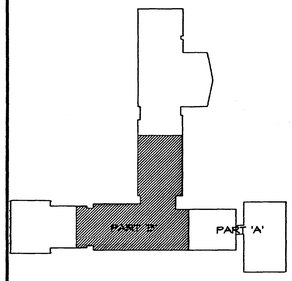


A101.2 FIRST FLOOR PLAN - PART "B"

SCALE: 1/8" = 1'-0"

266
25
B-21

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KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E. McNEECE
DRAWN BY: S. FENNELL

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TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

FIRST FLOOR PLAN PART "B"

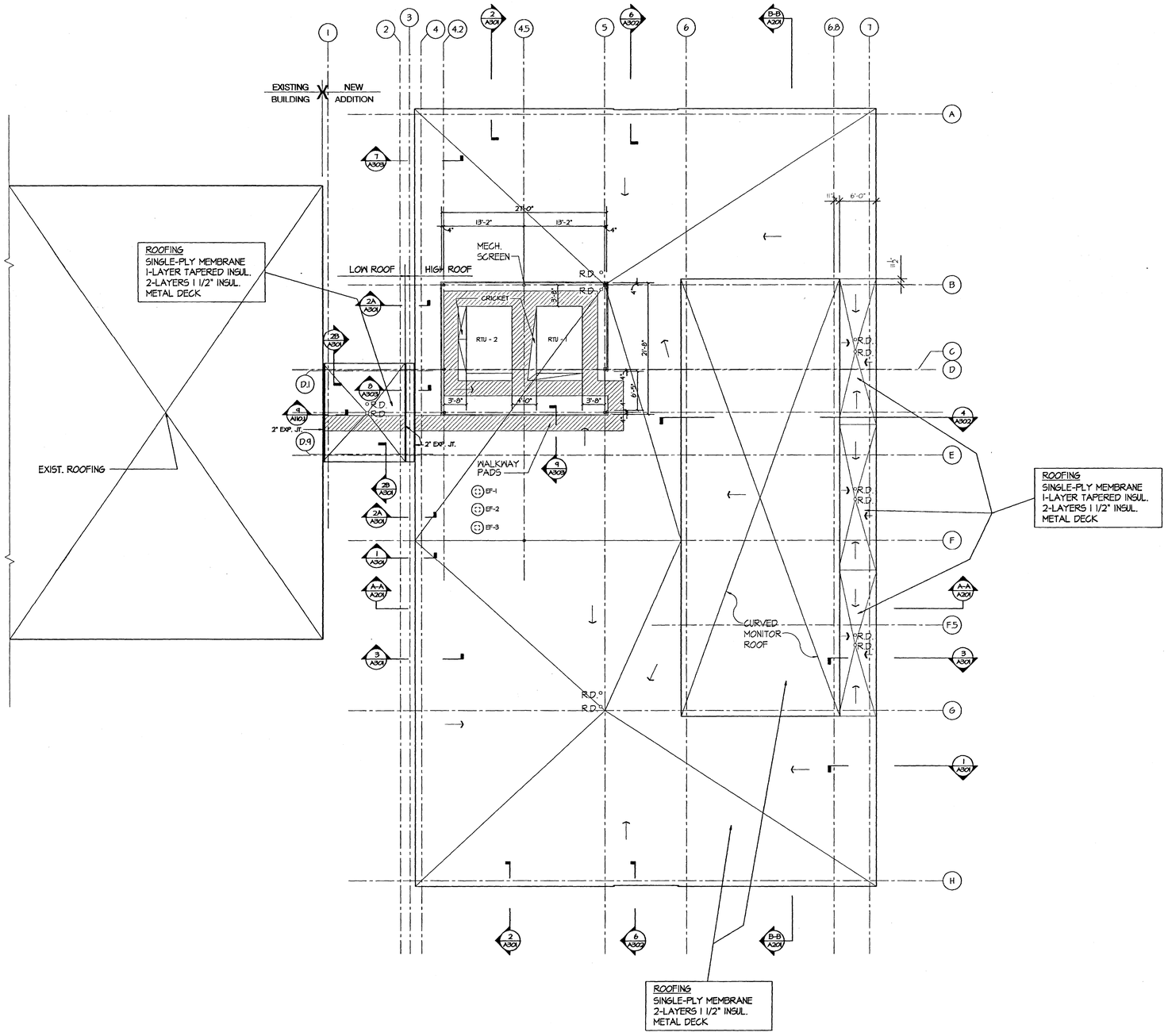
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SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY
1	6/19/98	D.O.E. REVISIONS	J.C.

DATE: MARCH 16, 1998
SCALE: 1/8" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A101.2

K:\50 projects\50950\dwg\Arch\A101-2 8-19-98 10:24:01 am EST

BQ #70 & 125 Attachment



1 A110 ROOF PLAN
SCALE: 1/8"=1'-0"

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E. McNEECE
DRAWN BY: J.C. OTTO

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ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

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TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

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CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

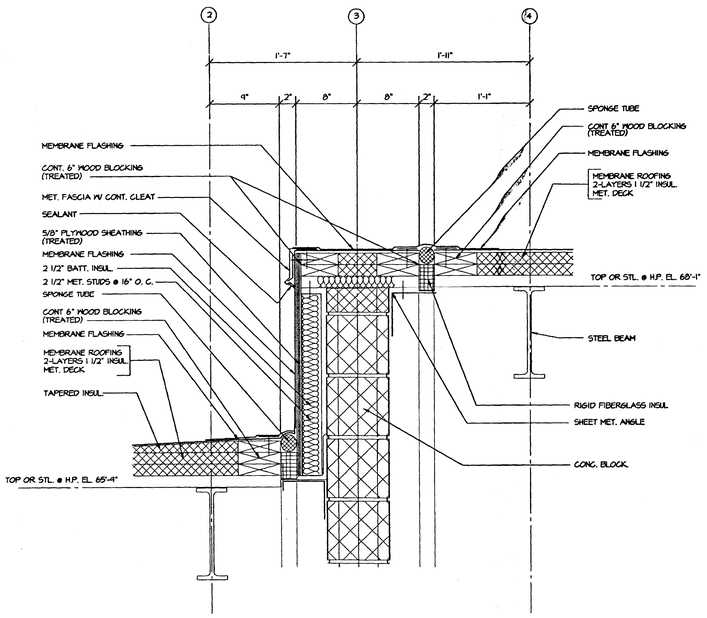
ROOF PLAN

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

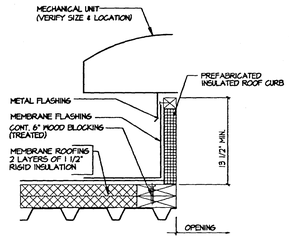
DATE: **MARCH 16, 1998**
SCALE: **1/8" = 1'-0"**
PROJECT NO.: **50950.06**
DRAWING NO.: **A110**

BQ #70 & 125 Attachment

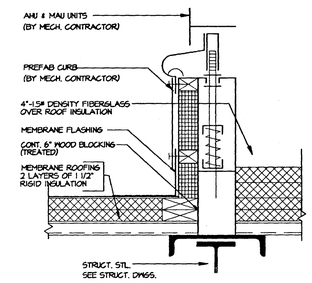


1 A110.1 ROOF EXPANSION JOINT DETAIL
SCALE: 1 1/2" = 1'-0"

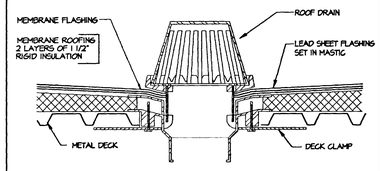
NOTE
PROVIDE NEW FLASHING AT 3 - NEW FUME HOOD EXHAUST FANS IN EXISTING BUILDING. NEW FLASHING SHALL BE COMPATIBLE WITH EXISTING FOAM ROOFING.



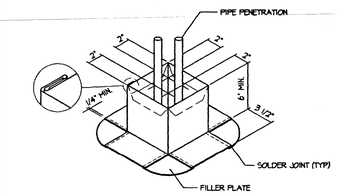
2 A110.1 TYPICAL MECHANICAL CURB DETAIL
SCALE: 1 1/2" = 1'-0"



3 A110.1 MECH. ROOF TOP UNIT CURB DETAIL
SCALE: 1 1/2" = 1'-0"



4 A110.1 TYPICAL ROOF DRAIN DETAILS
SCALE: 1 1/2" = 1'-0"



ISOMETRIC VIEW

5 A110.1 PENETRATION POCKET DETAIL
SCALE: 1 1/2" = 1'-0"

6 A110.1 TYPICAL PENETRATION POCKET DETAIL
SCALE: 1 1/2" = 1'-0"

7 A110.1 TYPICAL PENETRATION POCKET DETAIL
SCALE: 1 1/2" = 1'-0"

8 A110.1 TYPICAL VENT STACK DETAIL
SCALE: 1 1/2" = 1'-0"

9 A110.1 EXPANSION JT. DETAIL
SCALE: 1 1/2" = 1'-0"

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PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E. McNEECE
DRAWN BY: J. CZUBATYJ

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ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

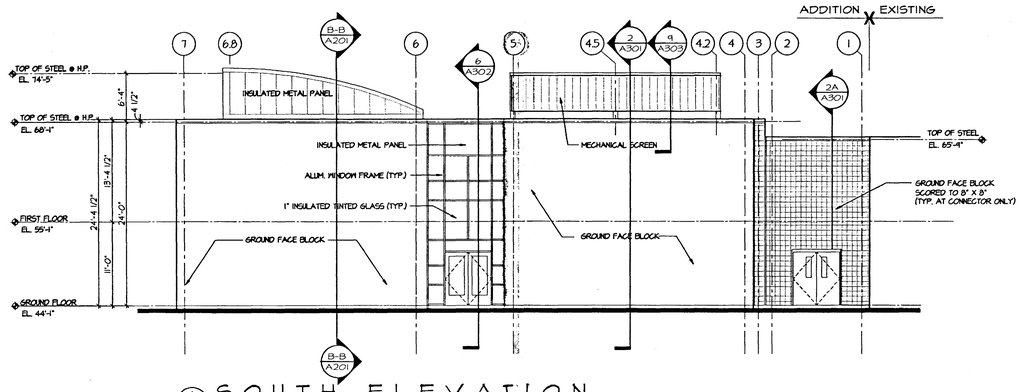
STATE PROJECT NO. 057-106EA

DRAWING TITLE

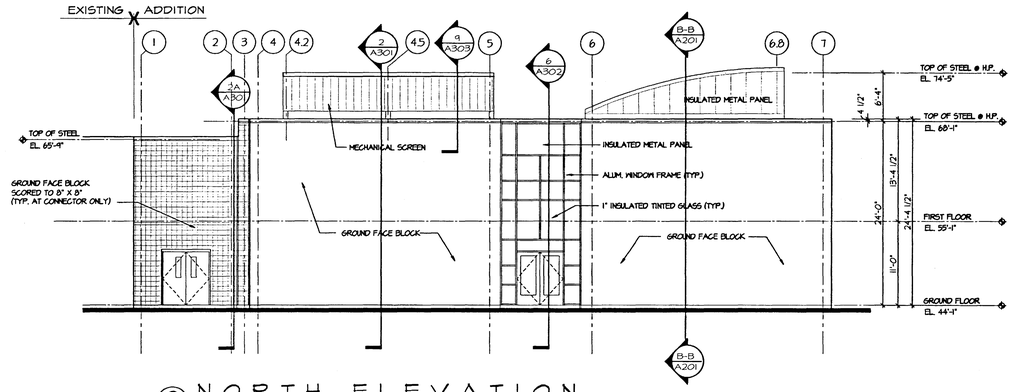
ROOFING DETAILS

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: 1 1/2" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A110.1

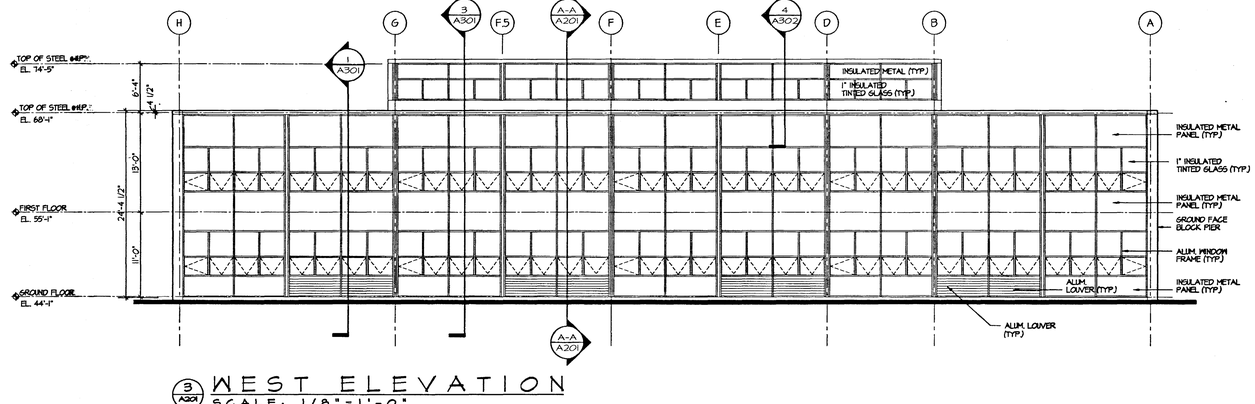


1 A201 SOUTH ELEVATION
SCALE: 1/8"=1'-0"

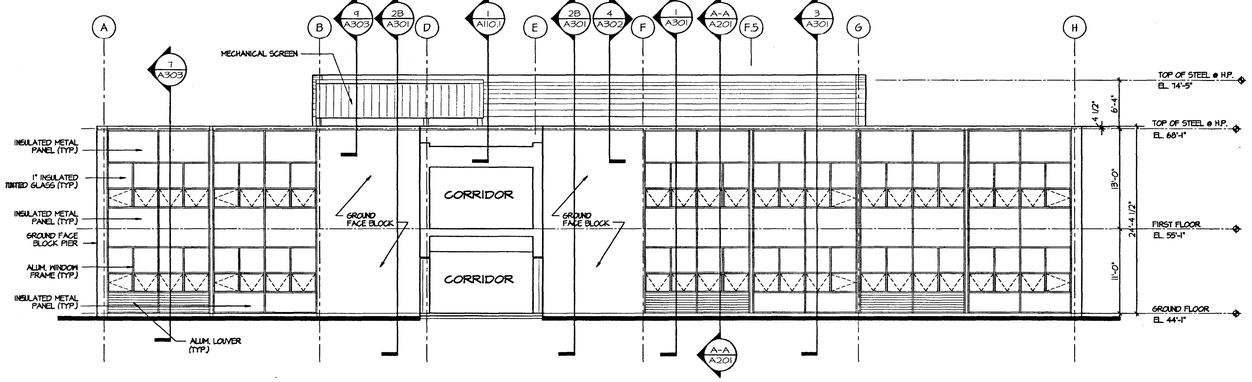


2 A201 NORTH ELEVATION
SCALE: 1/8"=1'-0"

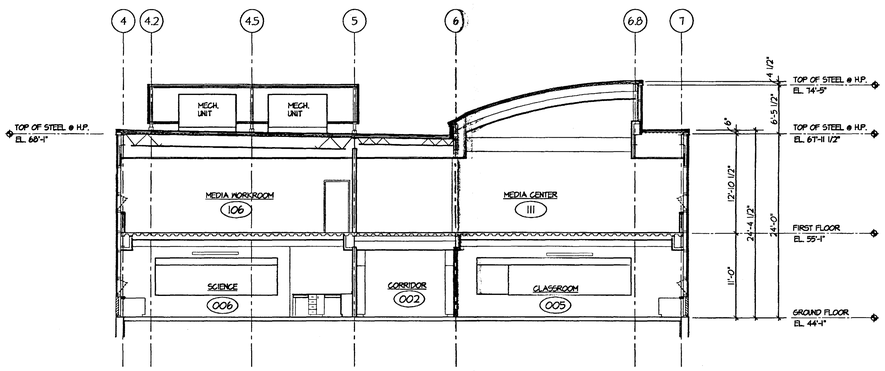
BQ #70 & 125 Attachment



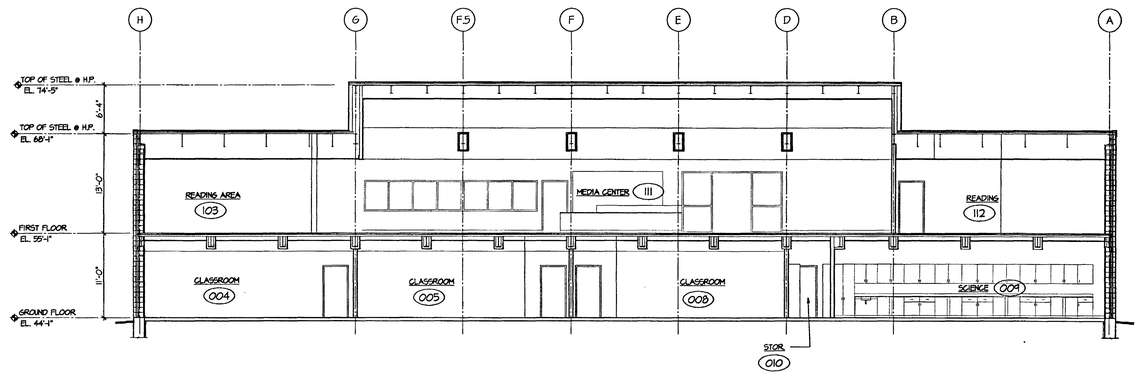
3 A201 WEST ELEVATION
SCALE: 1/8"=1'-0"



4 A201 EAST ELEVATION
SCALE: 1/8"=1'-0"



A-A A201 BUILDING SECTION
SCALE: 1/8"=1'-0"



B-B A201 BUILDING SECTION
SCALE: 1/8"=1'-0"

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E. McNEECE
DRAWN BY: S.E. McNEECE

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ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

EXTERIOR ELEVATIONS & BUILDING SECTIONS

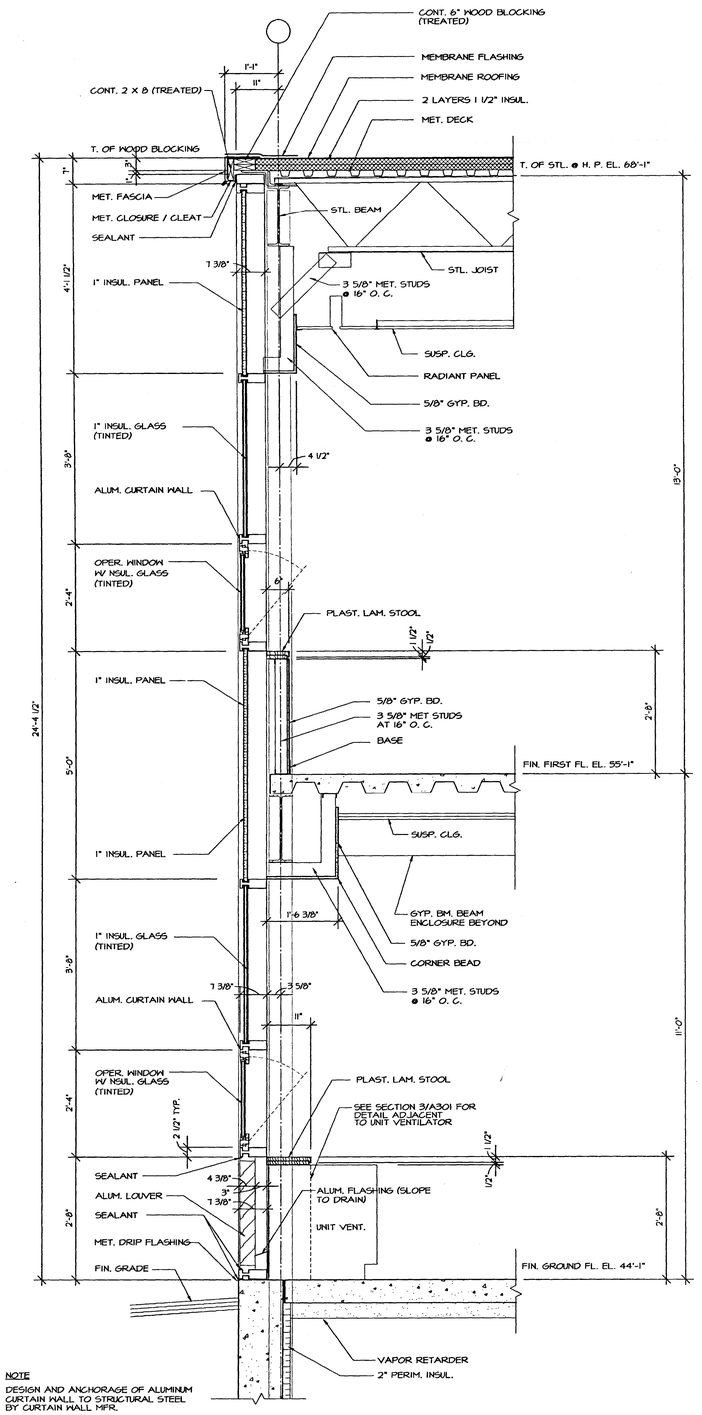
NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: 1/8" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A201

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BQ #70 & 125 Attachment

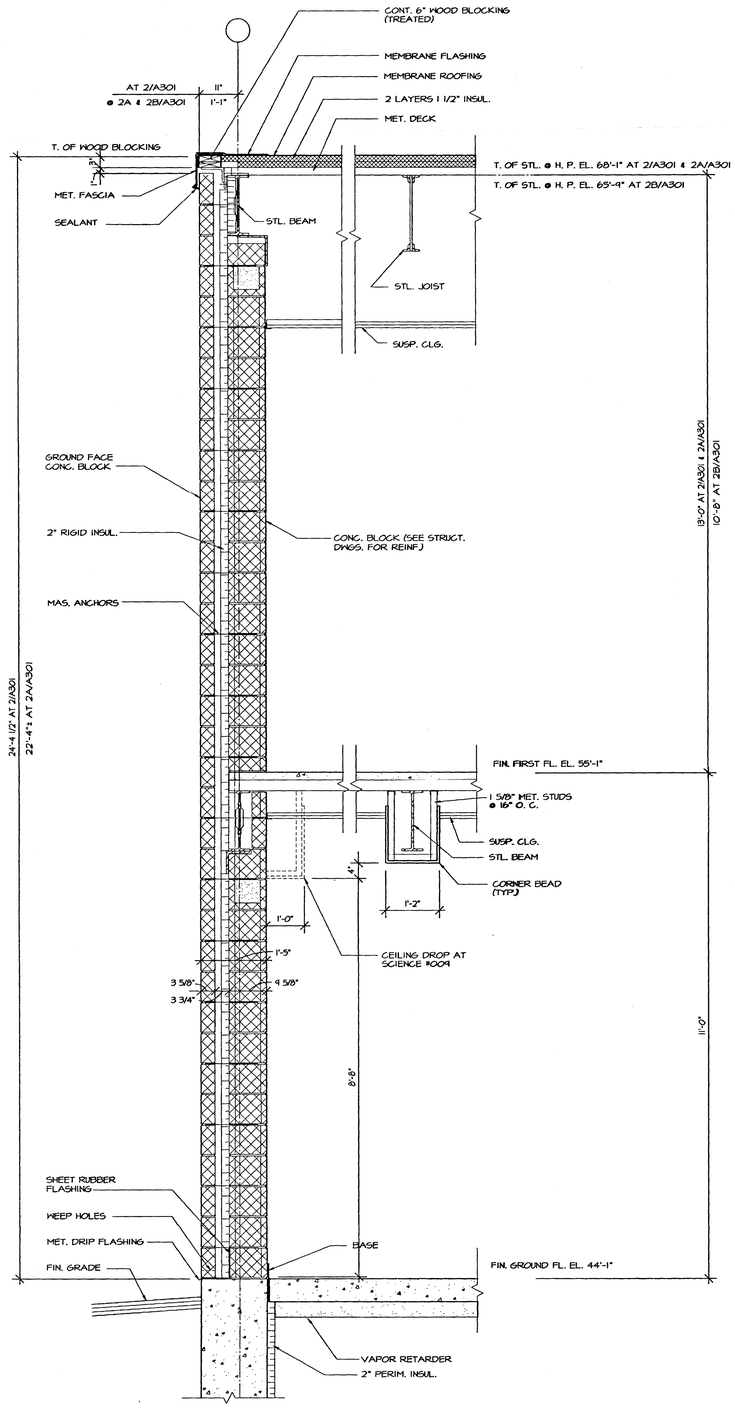


NOTE

DESIGN AND ANCHORAGE OF ALUMINUM CURTAIN WALL TO STRUCTURAL STEEL BY CURTAIN WALL MFR.

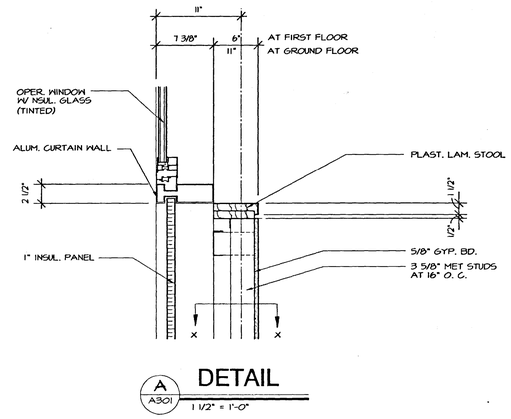
1/A301 SECTION

3/4" = 1'-0"



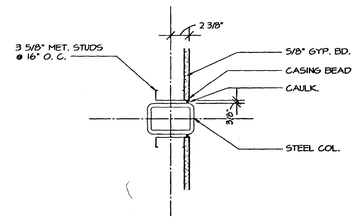
2/A301 & 2A/A301 & 2B/A301 SECTION

3/4" = 1'-0"



A/A301 DETAIL

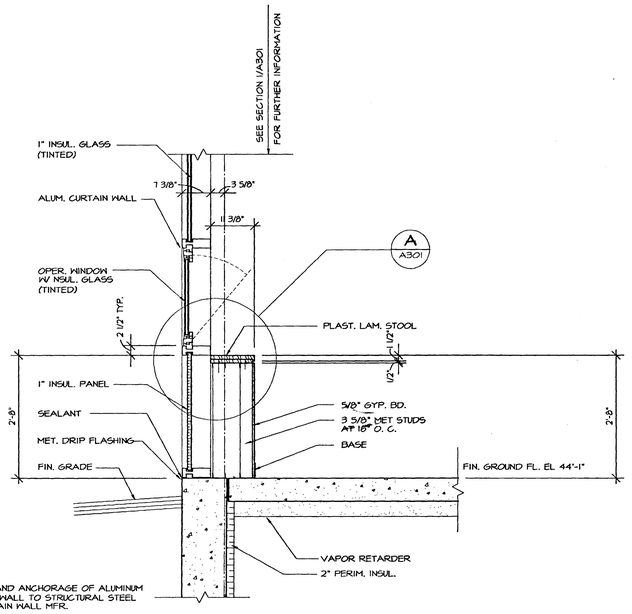
1 1/2" = 1'-0"



SECTION X-X

3" = 1'-0"

(AT FIRST FLOOR)



NOTE

DESIGN AND ANCHORAGE OF ALUMINUM CURTAIN WALL TO STRUCTURAL STEEL BY CURTAIN WALL MFR.

3/A301 SECTION

3/4" = 1'-0"

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE

ARCHITECT/ENGINEER: S.E.McNEECE

DRAWN BY: J. CZUBATY

FLETCHER THOMPSON

ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

WALL SECTIONS

NO	DATE	REVISION	BY

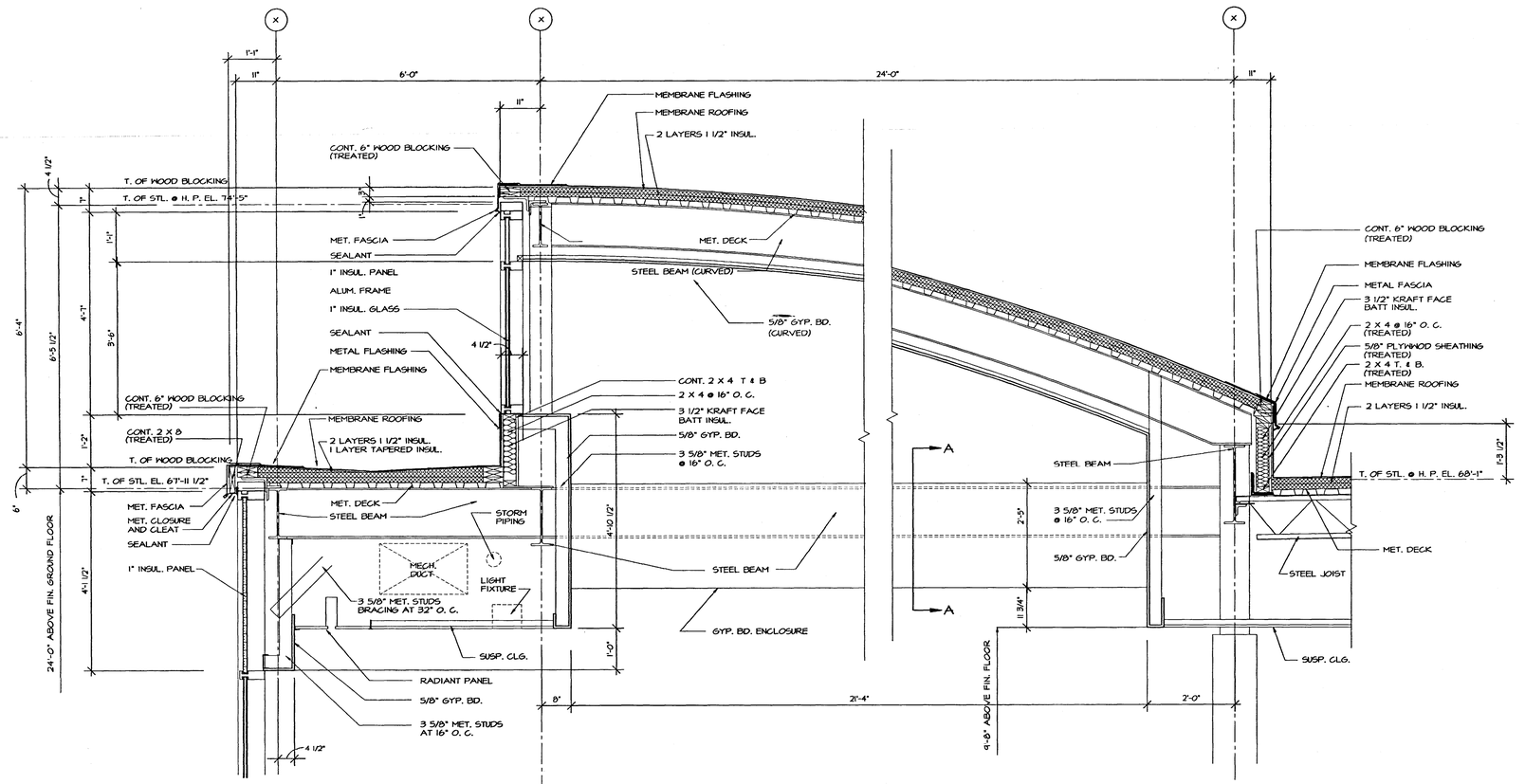
DATE: MARCH 16, 1998

SCALE: AS NOTED

PROJECT NO.: 50950.06

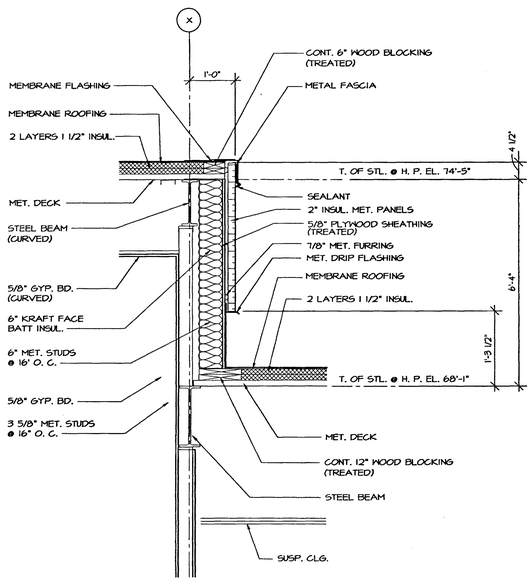
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BQ #70 & 125 Attachment



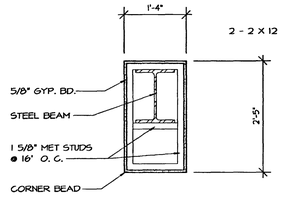
4 / A302 SECTION

3/4" = 1'-0"



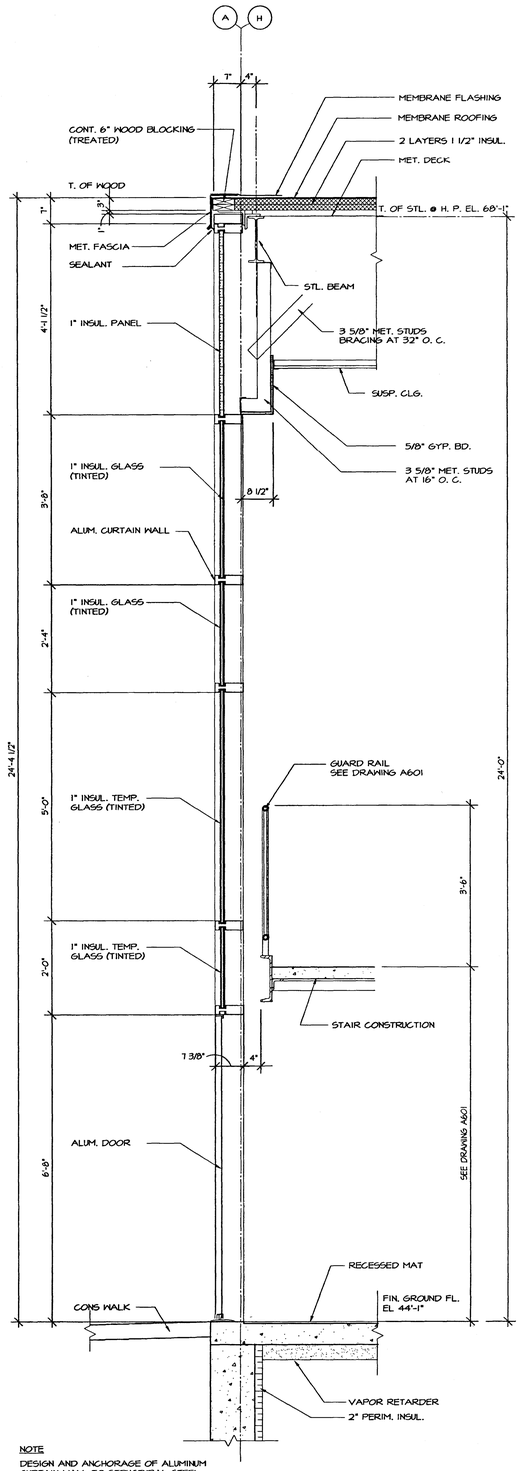
5 / A302 SECTION

3/4" = 1'-0"



SECTION A - A

3/4" = 1'-0"



NOTE

DESIGN AND ANCHORAGE OF ALUMINUM CURTAIN WALL TO STRUCTURAL STEEL BY CURTAIN WALL MFR.

6 / A302 SECTION

3/4" = 1'-0"

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE

ARCHITECT/ENGINEER: S.E.McNEECE

DRAWN BY: J. CZUBATYJ

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ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

WALL SECTIONS

NO	DATE	REVISION	BY

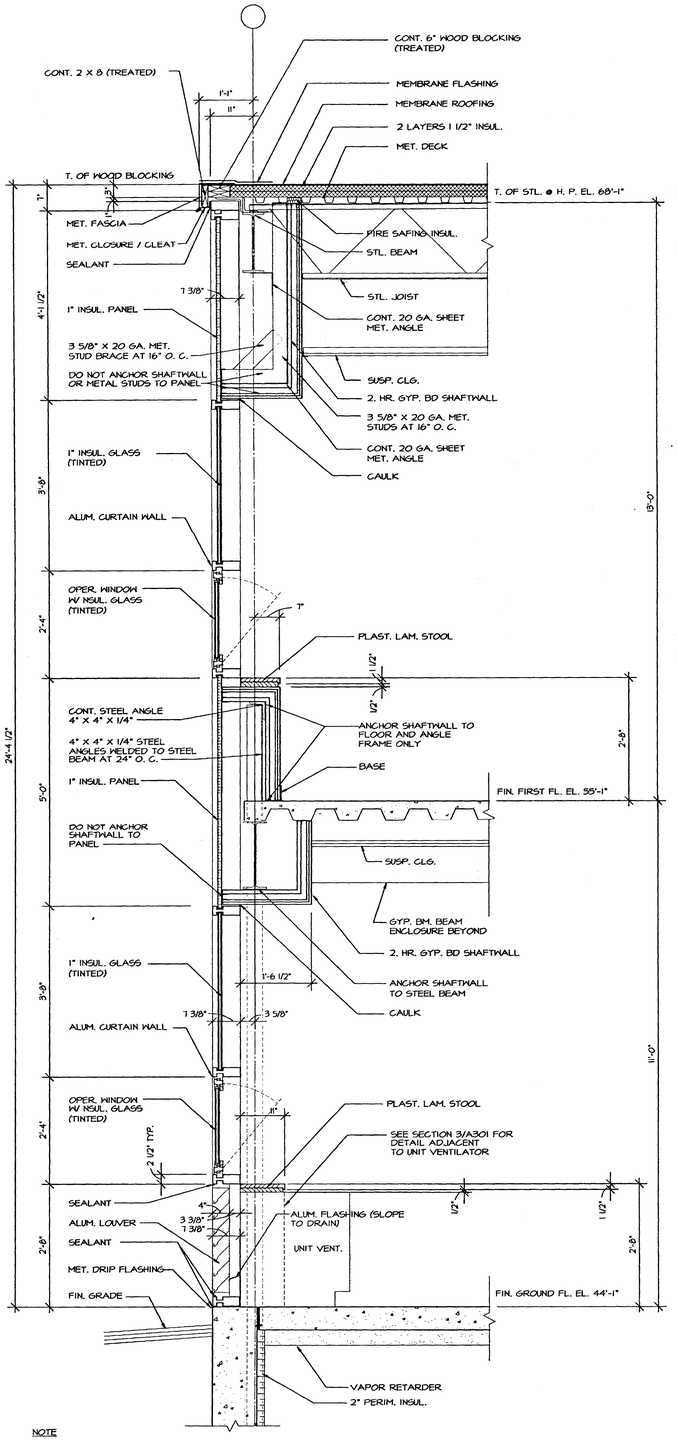
DATE: MARCH 16, 1998

SCALE: 3/4" = 1'-0"

PROJECT NO.: 50950.06

DRAWING NO.: A302

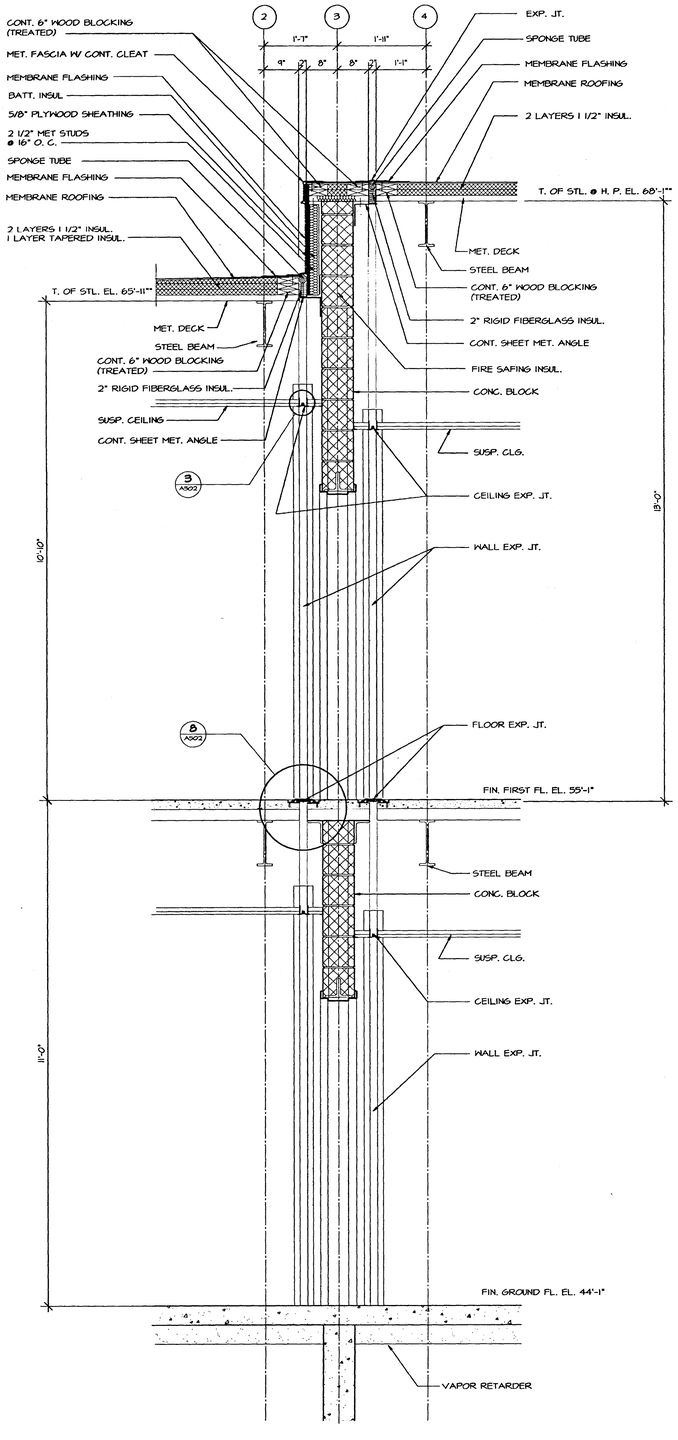
BQ #70 & 125 Attachment



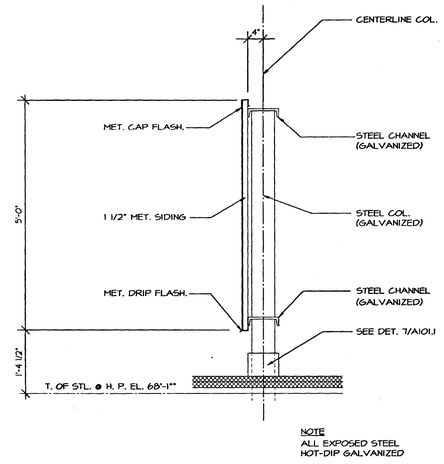
NOTE
DESIGN AND ANCHORAGE OF ALUMINUM CURTAIN WALL TO STRUCTURAL STEEL BY CURTAIN WALL MFR.

7 / A303 SECTION
3/4" = 1'-0"

TYP. AT EXTERIOR WALL
OF CLASSROOM #011
& TEACHERS WORKROOM #115



8 / A303 SECTION
3/4" = 1'-0"
2 - HR. FIRE WALL



NOTE
ALL EXPOSED STEEL
HOT-DIP GALVANIZED

9 / A303 SECTION
3/4" = 1'-0"

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PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	S.E.McNEECE
DRAWN BY	J. CZUBATY

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

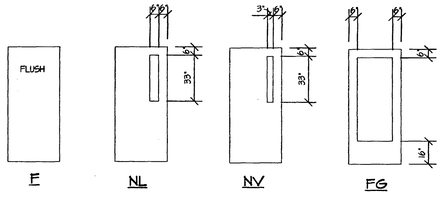
WALL SECTIONS

NO	DATE	REVISION	BY

DATE	MARCH 16, 1998
SCALE	3/4" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	A303

DOOR SCHEDULE

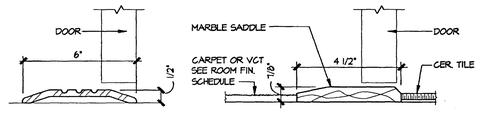
FLOOR DESIGNATION	DRAWING DESIGNATION	DOOR NUMBER	DOOR: DOOR SIZE: DOUBLE LEAF DOOR	4'-0"W X 6'-8"H	3'-0"W X 6'-8"H	14'-0"W X 6'-10"H	3'-0"W X 7'-1 3/4"H	2'-6"W X 6'-8"H	TYPE / MATERIAL: TYPE	MATERIAL	FRAME: DETAIL/SHEET NUMBER: TYPE - SEE FRAME ELEV.	HEAD DETAIL	JAMB DETAIL	SADDLE DETAIL	FIRE RATING: 20 MINUTES	45 MINUTES	60 MINUTES	90 MINUTES	HARDWARE: FIRE CODE: PANIC RELEASE LATCH	LATCHING	AUTOMATIC CLOSER	ELECTRO-MAG. H.O.	DELAYED ACTION CLOSER	PUSH / PULL ADA	PHYSICALLY CHALLENGED: LEVER HANDLES	KICK PLATES	TACTILE WARNING	ACCESSIBLE THRESHOLD	180 DEGREE HINGES	VERTICAL PULL ADA	VT. PULL W/ THUMBLATCH	SIGNAGE TYPE	SIGNAGE MOUNTING HEIGHT: 60" A.F.F.	HARDWARE SET	REMARKS
GROUND FLOOR — PART - 'A'		003		●					NL	WD	A	1	1	-		●			●	●				●							A	Classroom	2	1/4" WIRE GL.
		004		●					NL	WD	A	1	1	-		●			●	●				●							A	Classroom	2	1/4" WIRE GL.
		005		●					NL	WD	A	1	1	-		●			●	●				●							A	Classroom	2	1/4" WIRE GL.
		006		●					NL	WD	A	1	1	-			●		●	●				●							A	Science	2	1/4" WIRE GL.
		007		●					F	WD	A	2	2	-			●		●	●				●		●					A	Storage	2	1/4" WIRE GL. 3/4" UNDERCUT
		008		●					NL	WD	A	1	1	-		●			●	●				●							A	Classroom	2	1/4" WIRE GL.
		009		●					NL	WD	A	1	1	-			●		●	●				●							A	Science	2	1/4" WIRE GL.
		010		●					F	WD	A	1	1	-			●		●	●				●		●					A	Storage	2	3/4" UNDERCUT
		011		●					NL	WD	A	1	1	-		●			●	●				●							A	Classroom	2	1/4" WIRE GL.
		013	●	●					F	WD	A	1	1	-				●	●	●	●			●	●			●			-		4	1/4" WIRE GL.
		014		●					F	WD	A	1	1	C.B						●			●	●		●				A & F	Men's Toilet	5	3/4" UNDERCUT
		015		●					F	WD	A	1	1	-			●		●	●				●	●						A	Custodian Closet	3	3/4" UNDERCUT
		016		●					F	WD	A	1	1	B						●			●	●		●				A & F	Women's Toilet	5	3/4" UNDERCUT
		017	●				●		NL	HM	A	3	4	A					●	●	●			●	●		●				-		6	1/4" TEMP. GL. (TINTED)
		017A	●				●		NL	HM	A	3	4	A					●	●	●			●	●		●				-		6	1/4" TEMP. GL. (TINTED)
		51-6	●	●					NV	WD	A	1	1	-				●	●	●	●			●	●						A	Stair	7	1/4" WIRE GL.
		51-6A	●	●					FG	AL	-	SECT 6/A302	SECT 6/A302	A					●	●	●			●	●		●						14	1" INSUL. TEMP. GL. (TINTED)
		52-6	●	●					NV	WD	A	1	1	-				●	●	●	●			●	●						A	Stair	7	1/4" WIRE GL.
		52-6A	●	●					FG	AL	-	SECT 6/A302	SECT 6/A302	A					●	●	●			●	●		●						14	1" INSUL. TEMP. GL. (TINTED)
		53-6	●	●					NV	WD	A	1	1	-				●	●	●	●			●	●						A	Stair	7	1/4" WIRE GL.
		53-6A	●			●			NV	HM	A	SIM. 3	SIM. 4	A					●	●	●			●	●		●				-		6	1/4" WIRE GL.
		040		●					NL	WD	-	-	-	-				●	●		●			●	●						A	Science	2	1/4" WIRE GL. EXIST. FRAME (VERIFY SIZE IN FIELD)
		041		●					F	WD	A	2	2	-				●	●		●			●		●							2	3/4" UNDERCUT
		101		●					NL	WD	A	2	2	-					●					●							A	Computer Lab	1	1/4" TEMP. GL.
		102				●			F	WD	A	2	2	-					●					●							-		1	
		104		●					NL	WD	A	2	2	-					●					●							A	Computer Lab	1	1/4" TEMP. GL.
		106		●					NL	WD	A	2	2	-					●					●							A	Media Mark Room	1	1/4" TEMP. GL.
		106A		●					NL	WD	A	2	2	-					●					●							A	Media Mark Room	1	1/4" TEMP. GL.
		108		●					F	WD	B	2	2	-					●					●							A	Office	12	
		109		●					F	WD	A	2	2	-		●			●	●				●		●					A	Storage	3	
		110		●					F	WD	A	2	2	-					●					●							A	Data	1	
		112		●					NL	WD	A	2	2	-					●					●							A	Reading	1	1/4" TEMP. GL.
		113		●					F	WD	A	2	2	-					●					●							A	Speech Therapy	1	
		115		●					NL	WD	A	1	1	-					●					●							A	Teacher's Workroom	1	1/4" TEMP. GL.
		116		●					F	WD	A	2	2	-					●					●							A	Telephone	8	
		117		●					F	WD	A	2	2	-					●					●									1	
		118		●					F	WD	A	2	2	B					●					●	●		●				A & F	Women's Toilet	9	3/4" UNDERCUT
		119		●					F	WD	A	2	2	B					●					●	●		●				A & F	Men's Toilet	9	3/4" UNDERCUT
		120	●	●					F	WD	A	1	1	-				●	●	●	●			●	●			●			-		4	1/4" WIRE GL.
		121		●					F	WD	A	1	1	B						●			●	●		●				A & F	Women's Toilet	5	3/4" UNDERCUT
		122		●					F	WD	A	1	1	-		●			●	●				●		●					A	Custodian Closet	3	3/4" UNDERCUT
		123		●					F	WD	A	1	1	B						●			●	●		●				A & F	Men's Toilet	5	3/4" UNDERCUT
		51-1		●					NV	WD	A	1	1	-				●	●	●	●			●	●						A & D	Stair	11	1/4" WIRE GL. - SECURITY ALARM LOCKABLE FROM STAIR SIDE
		52-1		●					NV	WD	A	1	1	-				●	●	●	●			●	●						A & D	Stair	11	1/4" WIRE GL. - SECURITY ALARM LOCKABLE FROM STAIR SIDE
		53-1	●	●		●			NV	WD	-	-	-	-				●	●	●	●			●	●						A	Stair	7	1/4" WIRE GL. EXIST. FRAME (VERIFY SIZE IN FIELD)
		144		○					-	-	-	-	-	-					●					●							A	Classroom 144	13	REMOVE EXIST. LOCKSET
		150		○					-	-	-	-	-	-					●					●							A	Classroom 150	13	REMOVE EXIST. LOCKSET
		152		○					-	-	-	-	-	-					●					●							A	Classroom 152	13	REMOVE EXIST. LOCKSET
		158		●					F	WD	A	1	1	-		●			●	●				●							A	Conference Room	2	
		159		●					NL	WD	A	2	2	-					●					●							A	Classroom	1	1/4" TEMP. GL.
		159A		●					NL	WD	A	1	1	-		●			●	●				●							A	Classroom	2	1/4" WIRE GL.
		160		●					NL	WD	-	-	-	-			●		●	●				●							A	Science	2	1/4" WIRE GL. EXIST. FRAME (VERIFY SIZE IN FIELD)
		161		●					F	WD	A	1	1	-			●		●	●				●		●					A	Storage	2	3/4" UNDERCUT
		162		●					F	WD	-	-	-	-		●			●	●				●							A	Conference Room	2	EXIST. FRAME (VERIFY SIZE IN FIELD)
		163		●					NL	WD	-	-	-	-		●			●	●				●							A	Classroom	2	1/4" WIRE GL. EXIST. FRAME (VERIFY SIZE IN FIELD)
		163A		●					NL	WD	A	2	2	-					●					●							A	Classroom	1	1/4" TEMP. GL.
		164		●					F	WD	A	2	2	-		●			●	●				●		●					A	Storage	2	3/4" UNDERCUT
		165	●	●					F	WD	A	2	2	-					●					●									10	
		166	●	●					F	WD	A	2	2	-					●					●							-		10	
		167		●					NL	WD	-	-	-	-			●		●	●				●							A	Science	2	1/4" WIRE GL. EXIST. FRAME (VERIFY SIZE IN FIELD)
		168		●					F	WD	A	2	2	-		●			●	●				●		●					A	Storage	2	3/4" UNDERCUT
		169		●					NL	WD	-	-	-	-		●			●	●				●							A	Science	2	1/4" WIRE GL. EXIST. FRAME (VERIFY SIZE IN FIELD)
		170		●					NL	WD	-	-	-	-		●			●	●				●							A	Science	2	1/4" WIRE GL. EXIST. FRAME (VERIFY SIZE IN FIELD)
		171		●					F	WD	A	2	2	-					●	●				●	●						A	Storage	2	3/4" UNDERCUT
		172		●					F	WD	-	-	-	-		●			●	●				●	●						A	Storage	2	3/4" UNDERCUT EXIST. FRAME (VERIFY SIZE IN FIELD)
FIRST FLOOR — PART - 'B'		218		●					F	WD	A	1	1	-					●	●				●	●						A	Serving	2	



F NL NV FG

DOOR TYPES

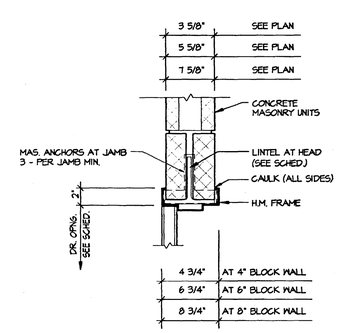
SCALE: 1/4" = 1'-0"



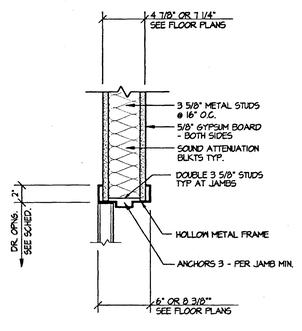
A B

SADDLE TYPES

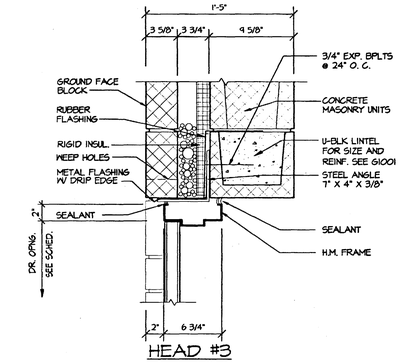
N.T.S.



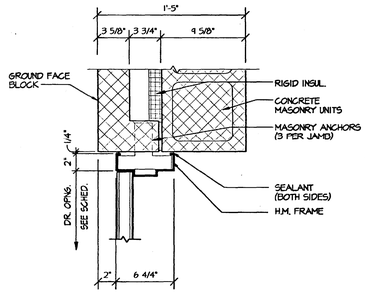
HEAD #1
JAMB #1 SIMILAR



HEAD #2
JAMB #2 SIMILAR



HEAD #3

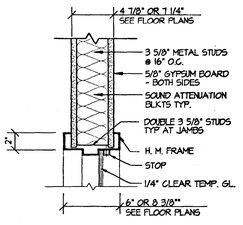


JAMB #4

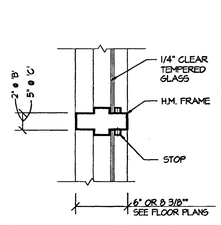
HEAD & JAMB DETAILS

SCALE: 1 1/2" = 1'-0"

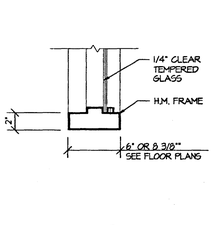
BQ #70 & 125 Attachment



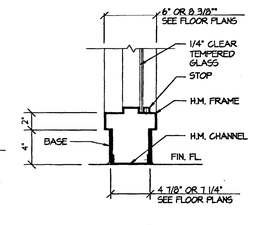
DET. A



DET. B & C



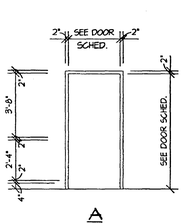
DET. D



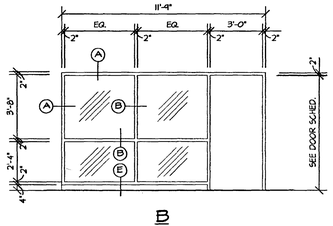
DET. E

FRAME DETAILS

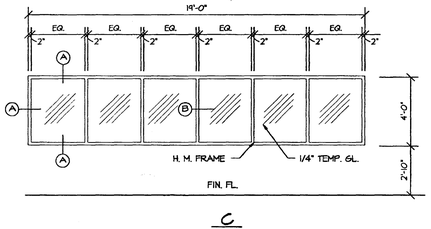
SCALE: 1 1/2" = 1'-0"



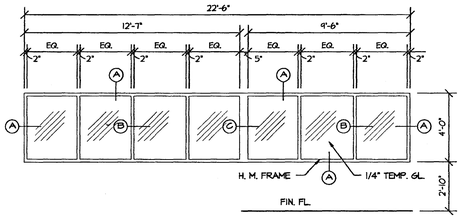
A



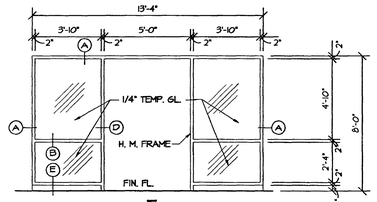
B



C
104



D
104



E
111

HOLLOW METAL FRAME ELEVATIONS

SCALE: 1/4" = 1'-0"

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LEGEND

● - NEW WORK 101A - DOOR NUMBER
○ - EXISTING

GENERAL DOOR NOTES

1. ALL DOORS SHALL BE 1 3/4" THICK UNLESS OTHERWISE NOTED
2. ALL RATED DOORS AND DOORS FRONTING CORRIDORS EXCEPT RESTROOM DOORS SHALL HAVE POSITIVE LATCHING LOCKSETS OR LATCHSETS AND CLOSERS.
3. ALL RATED DOORS AND DOORS TO HAZARDOUS AREAS SHALL HAVE POSITIVE LATCHING LOCKSETS OR LATCHSETS AND CLOSERS.
4. ALL DOORS LEADING TO HAZARDOUS SPACES SHALL HAVE TACTILE MARKING.
5. ALL DOORS EXITING 100 OR MORE PERSONS SHALL HAVE PANIC EXIT DEVICES.
6. DOOR HARDWARE ACCESSIBLE TO PERSONS WITH DISABILITIES SHALL BE PROVIDED TO COMPLY WITH UNIFORM FEDERAL ACCESSIBILITY STANDARDS.
7. HAZARDOUS AREAS INCLUDE: CUSTODIAN SPACES, STORAGE ROOMS, MECHANICAL ROOMS, ELECTRICAL ROOMS, DOOR OPERATIONAL HARDWARE TO STUDENT SPACES DOES NOT REQUIRE TACTILE MARKINGS, HOWEVER, SOME STAGE DOORS DO.
8. THE CONTRACTOR SHALL INSURE THAT 1 THROUGH 5 ARE IMPLEMENTED IN NEW BUILDING AREAS.
9. ALL HOLLOW METAL DOORS AND FRAMES SHALL BE PAINTED.
10. ALL EXTERIOR DOORS SHALL HAVE WEATHERSTRIPPING.
11. DOORS 013, 120, 163 SHALL HAVE 180 DEGREE CLOSERS.
12. SEE EXTERIOR ELEVATION DRAWING # A403 FOR GLAZING TY
13. ALL CEILING HIGH ALUM. AND HOLLOW METAL FRAMES WITH NO WALL ABOVE SHALL BE BRACED TO STRUCTURE ABOVE WITH 3 5/8" METAL STUDS AT 16" O.C.

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E.McNEECE
DRAWN BY: J. CZUBATY

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

DOOR SCHEDULE AND DETAILS

NO	DATE	REVISION	BY
1	6/19/98	D. O. E. REVISIONS	J.C.

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: A401

K:\50 projects\50950\dwg\Arch\A401 6-22-98 8:31:32 am EST

BQ #70 & 125 Attachment

ROOM FINISH SCHEDULE

	ROOM NO.	DESIGNATION	FLOOR TYPE	BASE TYPE	WALL TYPE	CEILING TYPE	CEILING HEIGHT	REMARKS
GROUND FLOOR PART 'A'	001	STAIR #2	1, 4 & 5	1	1	-	-	
	002	CORRIDOR	1	1	3	2	8'-0"	
	003	CLASSROOM	2	1	1	1 & 4	10'-0"	
	004	CLASSROOM	2	1	1	1 & 4	10'-0"	
	005	CLASSROOM	2	1	1	1 & 4	10'-0"	
	006	SCIENCE	1	1	1	1 & 4	10'-0"	
	007	SCIENCE STOR.	1	1	1	1	8'-8"	
	008	CLASSROOM	2	1	1	1 & 4	10'-0"	
	009	SCIENCE	1	1	1	1 & 4	10'-0"	
	010	SCIENCE STOR.	1	1	1	1	8'-8"	
	011	CLASSROOM	2	1	1	1 & 4	10'-0"	
	012	STAIR #1	1, 4 & 5	1	1	-	-	
	013	CORRIDOR	1	1	2	2	8'-0"	
	013A	CORRIDOR	1	1	3	2	8'-0"	
	014	MEN'S TOILET	3	2	2 & 3	1	8'-0"	
	015	CUSTODIAN	3	2	2 & 3	1	8'-0"	
	016	WOMEN'S TOILET	3	2	2 & 3	1	8'-0"	
	017	CONN.	1	1	1	2	8'-6"	
	018	STAIR #3	*1	**1	**1	2	-	* PATCH TO MATCH EXIST. ** ON NEW CONSTRUCTION TO MATCH EXIST.
PART 'B'	040	SCIENCE	1	1	1	1	9'-6"	
	041	SCIENCE STORAGE	1	1	1	1	8'-8"	
	051	CORRIDOR	0	0	0	1	7'-10"	
	055	HOME ECON.	0	0	0	5	7'-6"	
	056	CLASSROOM	0	0	0	1	7'-6" / 9'-6"	
	059	GROUP COUNCIL	0	0	0	1	7'-4"	
FIRST FLOOR PART 'A'	100	STAIR #2	1 & 4	1	1	2	9'-8"	
	101	COMPUTER LAB	2	1	1	3	8'-8"	
	102	CLOSET	2	1	1	1	8'-0"	
	103	READING AREA	2	1	1	3	9'-8"	
	104	COMPUTER LAB	2	1	1	3	9'-8"	
	106	MEDIA WORKROOM	2	1	1	1	9'-8"	
	107	REFERENCE AREA	2	1	1	3	8'-0"	
	108	OFFICE	2	1	1	3	8'-0"	
	109	STORAGE	1	1	1	1	8'-0"	
	110	DATA	1	1	1	1	8'-0"	
	111	MEDIA CENTER	2	1	1	3	9'-8"	
	112	READING CLASSROOM	2	1	1	3	9'-8"	
	113	SPEECH THERAPY	2	1	1	1	8'-0"	
	114	STAIR #1	1 & 4	1	1	2	9'-8"	
	115	TEACHERS WORKROOM	1 & 2	1	1	1	9'-8"	
	116	TELEPHONE	2	1	1	1	8'-0"	
	117	CLOSET	2	1	1	1	8'-0"	
	118	WOMEN'S TOILET	3	2	2 & 3	1	8'-0"	
	119	MEN'S TOILET	3	2	2 & 3	1	8'-0"	
	120	GALLERY	2	1	1 & 4	3	8'-0" / 10'-6"	FABRIC WALL COV. ON NORTH WALL
	121	MEN'S TOILET	3	2	2 & 3	1	8'-0"	
	122	CUSTODIAN CLOSET	3	2	2 & 3	1	8'-0"	
	123	WOMEN'S TOILET	3	2	2 & 3	1	8'-0"	
	124	CONN.	1	1	1	2	8'-6"	
PART 'B'	144	CLASSROOM	2	1	1	1 & 4	9'-6"	
	145	CLOSET	2	1	1	1	8'-0"	
	150	CLASSROOM	2	1	1	1 & 4	9'-6"	
	151	DATA CLOSET	2	1	1	1	8'-0"	
	152	CLASSROOM	2	1	1	1 & 4	9'-6"	
	153	CLOSET	2	1	1	1	8'-0"	
	158	TEACHERS CONFERENCE	2	1	1	1	8'-0"	
	159	CLASSROOM	2	1	1	1 & 4	9'-6"	
	159A	VESTIBULE	2	1	1	1	8'-0"	
	160	SCIENCE	1	1	1	1 & 4	9'-6"	
	161	SCIENCE STORAGE	1	1	1	1	8'-8"	
	162	TEACHERS CONFERENCE	2	1	1	1	8'-0"	
	163	CLASSROOM	2	1	1	1 & 4	9'-6"	
	164	STORAGE	1	1	1	1	8'-0"	
	165	CLOSET	2	1	1	1	8'-0"	
	166	CLOSET	2	1	1	1	8'-0"	
	167	SCIENCE	1	1	1	1 & 4	9'-6"	
	168	SCIENCE STORAGE	1	1	1	1	8'-8"	
	169	SCIENCE	1	1	1	1 & 4	9'-6"	
	170	CLOSET	1	1	1	1	8'-0"	
	171	STORAGE	1	1	1	1	8'-8"	
	172	SCIENCE STORAGE	1	1	1	1	8'-8"	
	213	SERVING	0	0	1	4	-	SEE DD CEILING DROP AT SKYLIGHT
	219	OFFICE	1	1	1	1	8'-8"	

ROOM FINISH LEGEND

FLOOR TYPES

0. - EXISTING TO REMAIN
1. - VINYL COMPOSITION TILE
2. - CARPET
3. - CERAMIC TILE
4. - RUBBER NOSING, TREAD, & RISER
5. - RECESSED ENTRANCE MAT

BASE TYPES

0. - EXISTING TO REMAIN
1. - RUBBER
2. - CERAMIC TILE

WALL TYPES

0. - EXISTING TO REMAIN
1. - PAINTED
2. - VITREOUS WALL SURFACING
3. - CERAMIC TILE WAINSCOT 4'-0" HIGH
4. - VINYL WALL COVERING

CEILING TYPES

0. - EXISTING TO REMAIN
1. - 2' X 4' ACOUSTICAL CLG. BD. (TYPE - 1)
2. - 2' X 4' ACOUSTICAL CLG. BD. - (TYPE - 2)
3. - 2' X 4' ACOUSTICAL CLG. BD. (TYPE - 3)
4. - PAINTED GYPSUM BOARD
5. - 2' X 2' ACOUSTICAL CLG. BD. TO MATCH EXIST.

GENERAL NOTES

1. INTERIOR FINISHES IN ALL EXITS SHALL BE CLASS "A".
2. INTERIOR FINISHES AT ALL ACCESS TO EXITS SHALL BE CLASS "A OR CLASS "B".
3. INTERIOR FINISHES AT ALL OTHER SPACES SHALL BE CLASS "A OR CLASS "B".
4. WHERE WALLS, CEILINGS & EXPOSED CONSTRUCTION ARE INDICATED ON ROOM FINISH SCHEDULE TO BE PAINTED, ALL NEW MISCELLANEOUS METAL, INCLUDING STAIR CONSTRUCTION, HANDRAILS, EXPOSED LINTELS, PRIMED FINISH MECH'L EQUIPMENT, EXPOSED PIPING, DUCTWORK, CONDUIT, ETC., SHALL ALSO BE PAINTED.
5. IN SPACES WHERE NO NEW FINISHES ARE INDICATED, FINISH NEW OR PATCHED CONSTRUCTION TO MATCH EXISTING.
6. ALL GYP. BD. CEILING DROPS, BEAM ENCLOSURES, ETC. SHALL BE PAINTED.

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE

ARCHITECT/ENGINEER: S.E.McNEECE

DRAWN BY: J. CZUBATY

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

ROOM FINISH SCHEDULE

NO	DATE	REVISION	BY

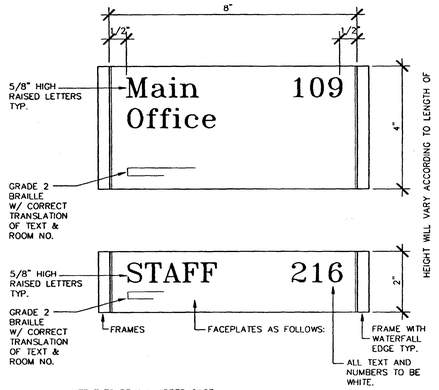
DATE: **MARCH 16, 1998**

SCALE: **AS NOTED**

PROJECT NO.: **50950.06**

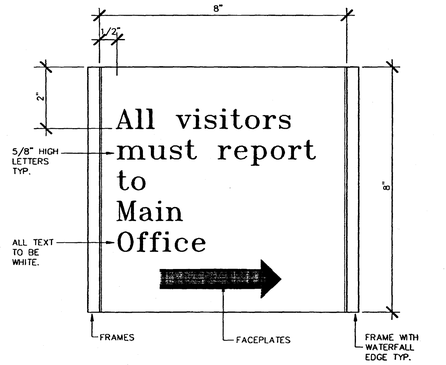
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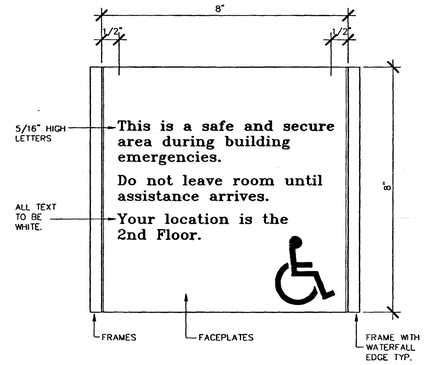
- TEXT TO BE ALL UPPER CASE.
- ROOM NAME TO BE LEFT JUSTIFIED, ROOM NUMBER TO BE RIGHT JUSTIFIED.
- TEXT SHOWN ON THIS SHEET ARE NOT REPRESENTATIVE OF ANY ACTUAL SIGN. REFER TO SCHEDULE FOR MESSAGES.
- COORDINATE WITH OWNER ACTUAL NUMBERS OF ROOMS.

SIGN TYPE A



- TEXT TO BE ALL UPPER AND LOWER CASE AS SHOWN.
- TEXT SHOWN IS REPRESENTATIVE OF ACTUAL SIGN MESSAGE.
- SEE FLOOR PLANS FOR ARROW DIRECTION.

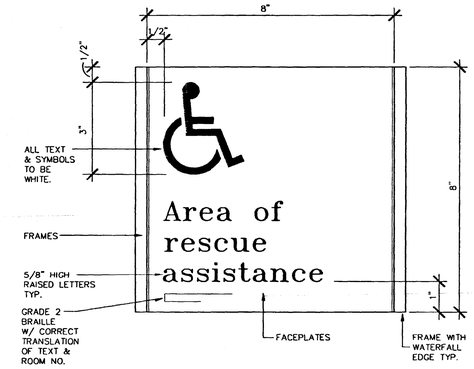
SIGN TYPE B



- TEXT TO BE ALL UPPER AND LOWER CASE AS SHOWN.
- TEXT SHOWN IS REPRESENTATIVE OF ACTUAL SIGN MESSAGE

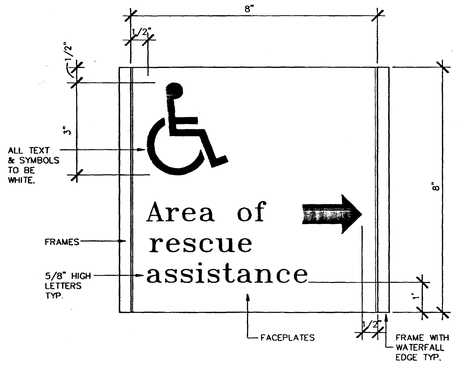
SIGN TYPE C

BQ #70 & 125 Attachment



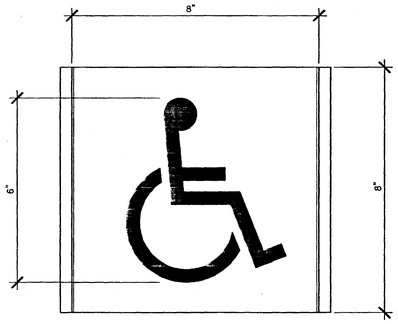
- TEXT TO BE ALL UPPER AND LOWER CASE AS SHOWN.
- TEXT TO BE RIGHT JUSTIFIED.
- TEXT SHOWN IS REPRESENTATIVE OF ACTUAL SIGN MESSAGE.

SIGN TYPE D

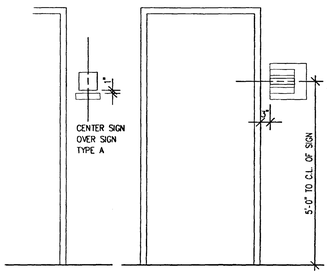


- TEXT TO BE ALL UPPER AND LOWER CASE AS SHOWN.
- TEXT TO BE RIGHT JUSTIFIED.
- SEE FLOOR PLAN FOR ARROW DIRECTION.

SIGN TYPE E



SIGN TYPE F



- SIGNS TO BE INSTALLED ON LATCH SIDE OF DOOR.
- DO NOT INSTALL SIGN ON GLASS.
- WHERE THERE IS NO WALL SPACE TO THE LATCH SIDE OF THE DOOR, SIGNS SHALL BE PLACED ON NEAREST ADJACENT WALL.
- SEE DOOR SCHEDULE A401 FOR LOCATIONS OF SIGN TYPES A, D AND F.
- SEE FLOOR PLANS FOR LOCATIONS OF SIGNAGE NOT LOCATED ON DOOR SCHEDULES
- FRAME AS SELECTED BY ARCHITECT COLOR OF TEXT AS INDICATED. CONTRASTING COLOR FOR FACEPLATE
- FINAL ROOM NUMBERING AND TEXT TO BE VERIFIED BY OWNER.
- SIGNAGE LOCATED ON FLOOR PLANS SHOWN THUS (B)

1/A411 **DOOR INFORMATION**

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PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	S.E. McNEECE
DRAWN BY	J. CZUBATY

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

INTERIOR SIGNAGE

NO	DATE	REVISION	BY
1	6/19/98	D. O. E. REVISIONS	J. C.

DATE: MARCH 16, 1998

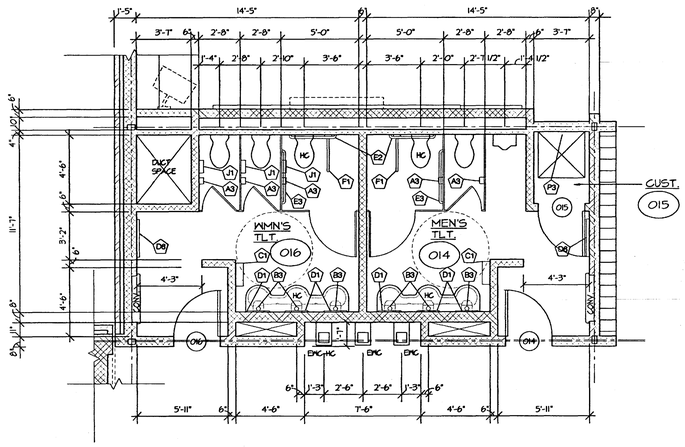
SCALE: N. T. S.

PROJECT NO.: 50950.06

DRAWING NO.: A411

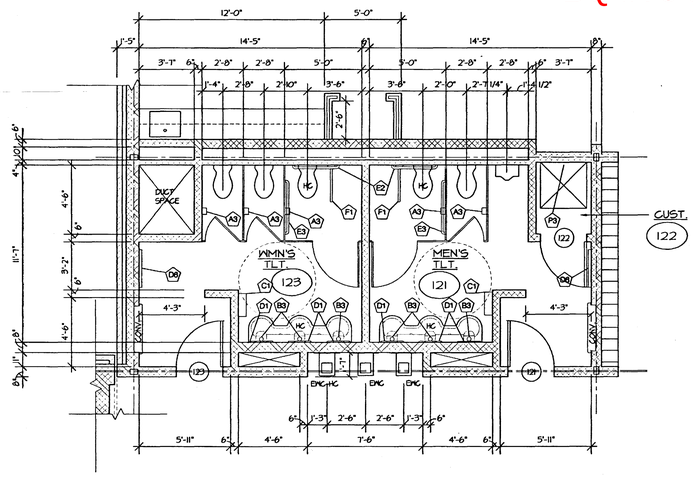
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BQ #70 & 125 Attachment



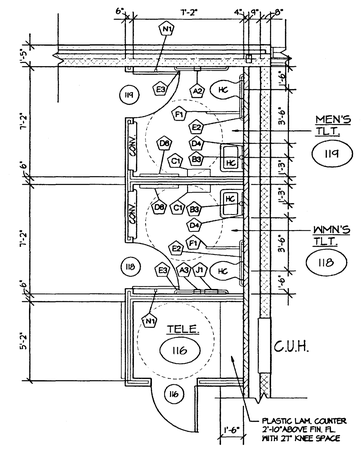
1 A501 PLAN AT TOILET ROOMS #014 & #016

1/4" = 1'-0"



2 A501 PLAN AT TOILET ROOMS #121 & # 123

1/4" = 1'-0"



3 A501 PLAN AT TOILET ROOMS #118 & 119

1/4" = 1'-0"

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TOILET ACCESSORIES LEGEND

- A2 - JUMBO ROLL TOILET PAPER HOLDER
- B3 - SOAP DISPENSER
- C1 - PAPER TOWEL DISPENSER
- D1 - SMALL MIRROR
- D4 - HANDICAP MIRROR
- D8 - FULL HEIGHT MIRROR
- E2 - 36" GRAB BAR
- E3 - 42" GRAB BAR
- F1 - SWING UP GRAB BAR
- J1 - SANITARY NAPKIN DISPOSAL UNIT
- N1 - SINGLE HOOK
- P3 - JANITORIAL MOP RACK

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE

ARCHITECT/ENGINEER: S.E. McNEECE

DRAWN BY: J.C. OTTO

FLETCHER THOMPSON

ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

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PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

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9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

ENLARGED TOILET PLANS

NO	DATE	REVISION	BY
1	6/19/98	D. O. E. REVISIONS	J.C.

DATE: **MARCH 16, 1998**

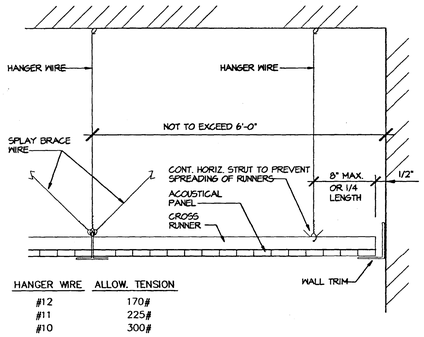
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PROJECT NO.: **50950.06**

DRAWING NO.: **A501**

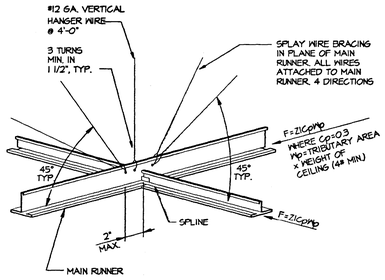
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BQ #70 & 125 Attachment

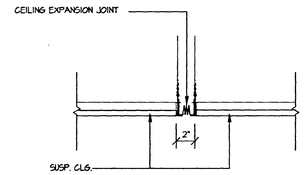


HANGER WIRE	ALLOW. TENSION
#12	170#
#11	225#
#10	300#

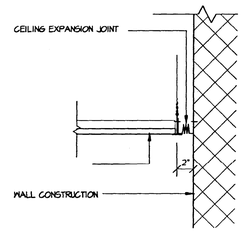
1 A502 CEILING BRACING DETAIL
SCALE 1 1/2" = 1'-0"



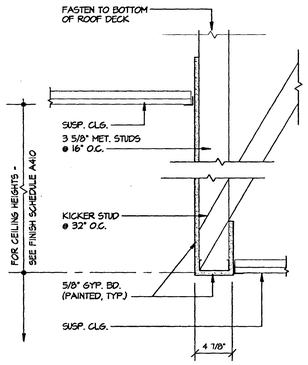
2 A502 CEILING BRACING DETAIL
SCALE 1 1/2" = 1'-0"



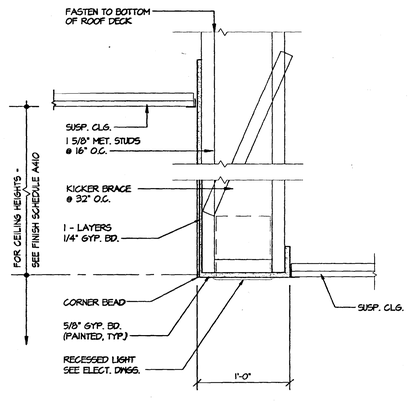
3 A502 CEILING EXP. JT. DETAIL
SCALE 3/4" = 1'-0"



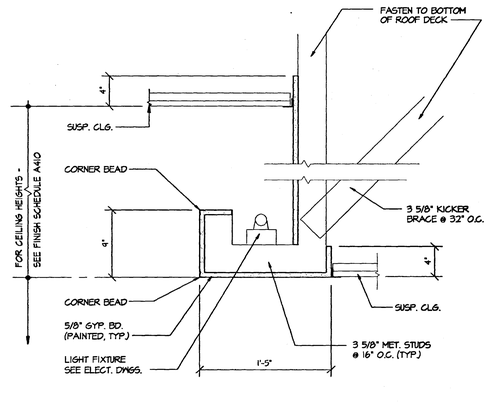
4 A502 CEILING EXP. JT. DETAIL
SCALE 3/4" = 1'-0"



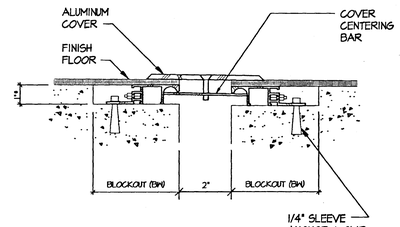
5 A502 CEILING DROP DETAIL
SCALE 1 1/2" = 1'-0"



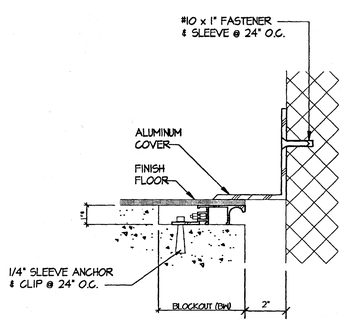
6 A502 CLG. DROP DET. @ MEDIA CENTER CIRCULATION DESK
SCALE 1 1/2" = 1'-0"



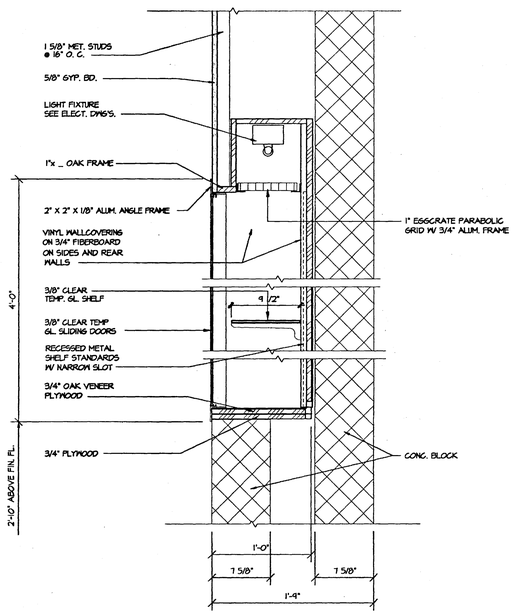
7 A502 CLG. DROP DET. @ GALLERY #120
SCALE 1 1/2" = 1'-0"



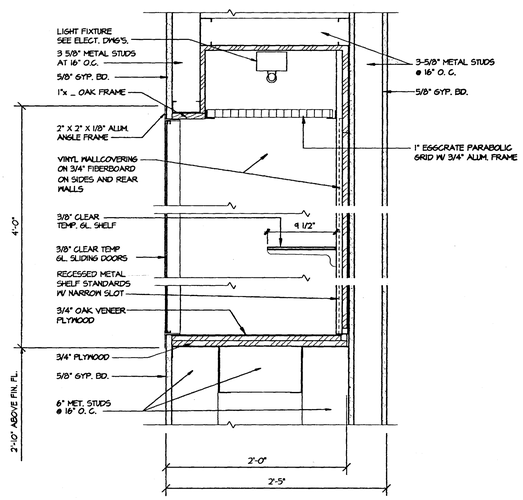
8 A502 SEISMIC FLOOR EXP. JT. DETAIL
SCALE 3"=1'-0"



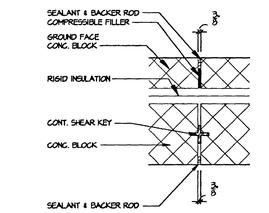
9 A502 SEISMIC FLOOR EXP. JT. AT WALL DETAIL
SCALE 3"=1'-0"



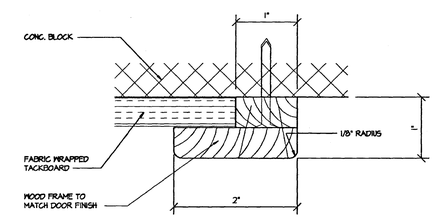
10 A502 DISPLAY CASE DETAIL IN CORRIDOR #002
SCALE 1 1/2" = 1'-0"



11 A502 DISPLAY CASE DETAIL IN GALLERY 120
SCALE 1 1/2" = 1'-0"



12 A502 TYP. CONTROL JOINT DETAIL (CJ)
SCALE 1 1/2" = 1'-0"



13 A502 TACKBOARD FRAME DETAIL
FULL SIZE

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E. McNEECE
DRAWN BY: J. CZUBATYJ

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

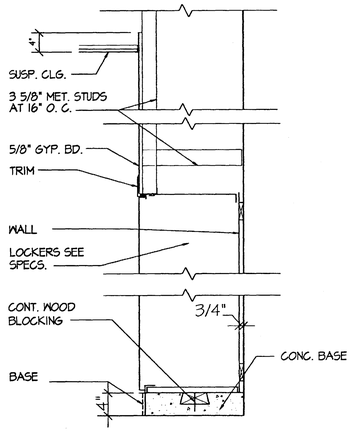
DRAWING TITLE

MISCELANEOUS DETAILS

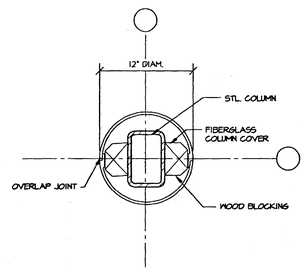
NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: A502

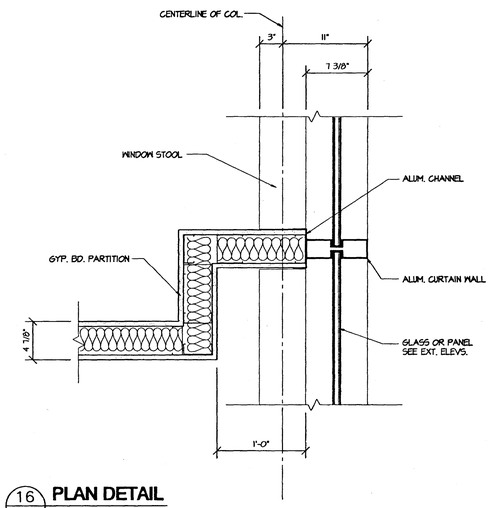
BQ #70 & 125 Attachment



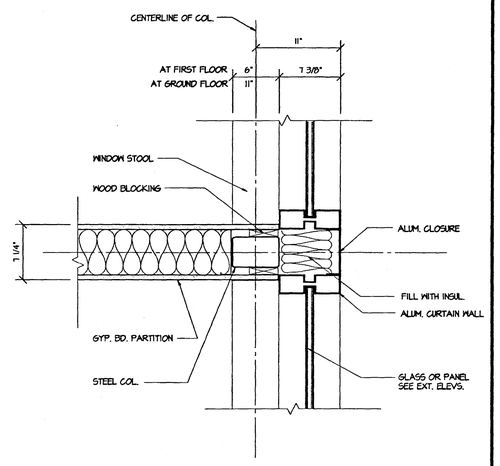
14 A503 **TYP. LOCKER DETAIL**
SCALE 1 1/2" = 1'-0"



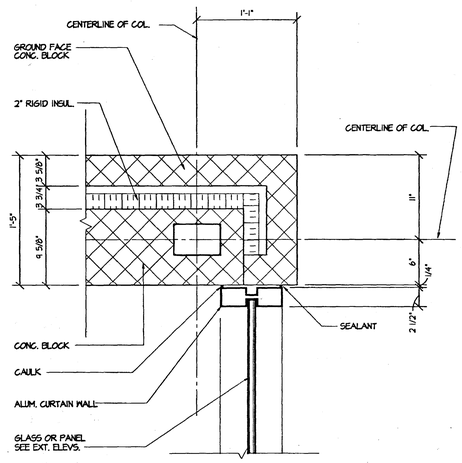
15 A503 **FIBERGLASS COLUMN COVER**
SCALE 1 1/2" = 1'-0"



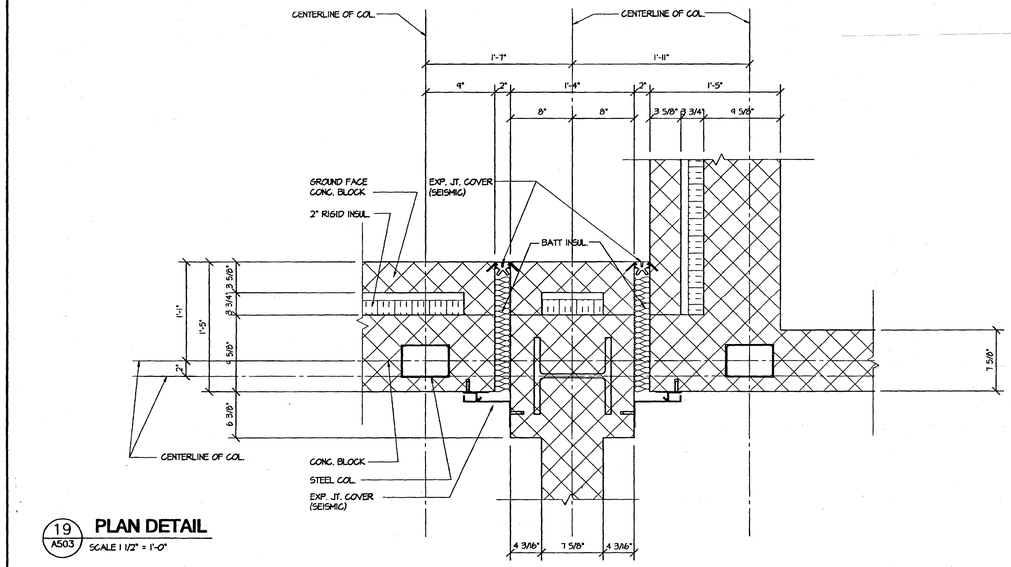
16 A503 **PLAN DETAIL**
SCALE 1 1/2" = 1'-0"



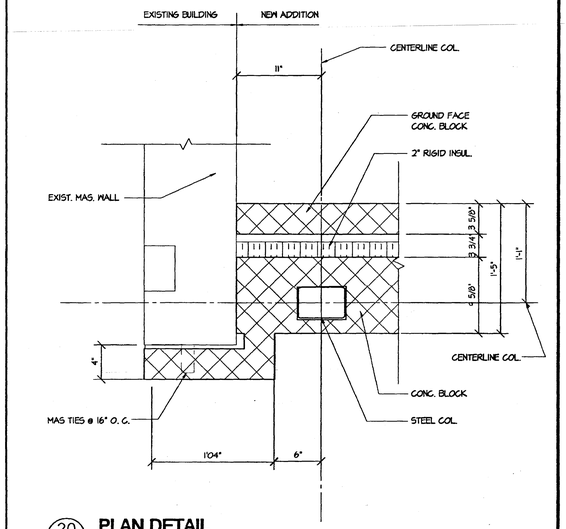
17 A503 **PLAN DETAIL**
SCALE 1 1/2" = 1'-0"



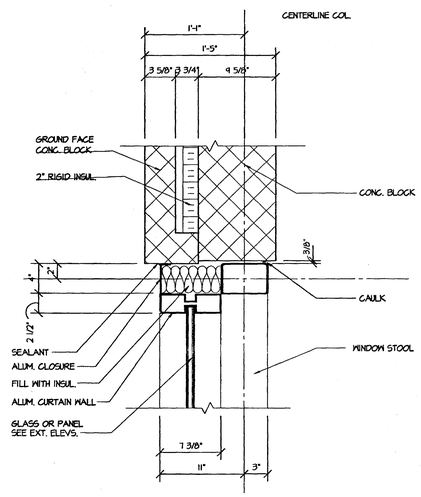
18 A503 **PLAN DETAIL**
SCALE 1 1/2" = 1'-0"



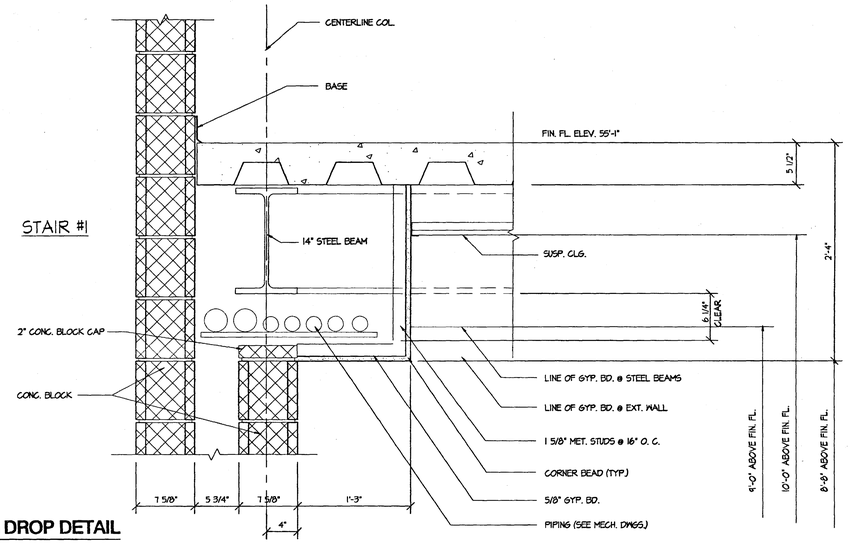
19 A503 **PLAN DETAIL**
SCALE 1 1/2" = 1'-0"



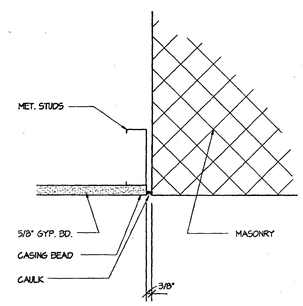
20 A503 **PLAN DETAIL**
SCALE 1 1/2" = 1'-0"



21 A503 **PLAN DETAIL**
SCALE 1 1/2" = 1'-0"



22 A503 **CEILING DROP DETAIL**
SCALE 1 1/2" = 1'-0"



23 A503 **GYP. BD. / MAS. DETAIL**
SCALE 3" = 1'-0"

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E. McNEECE
DRAWN BY: J. CZUBATYJ

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

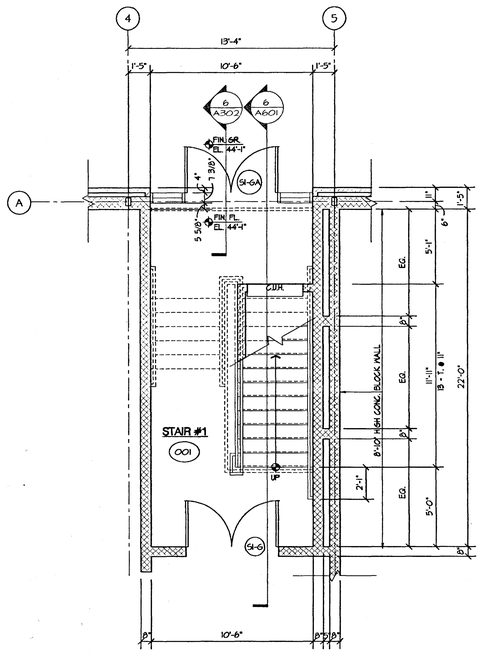
MISCELANEOUS DETAILS

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: **A503**

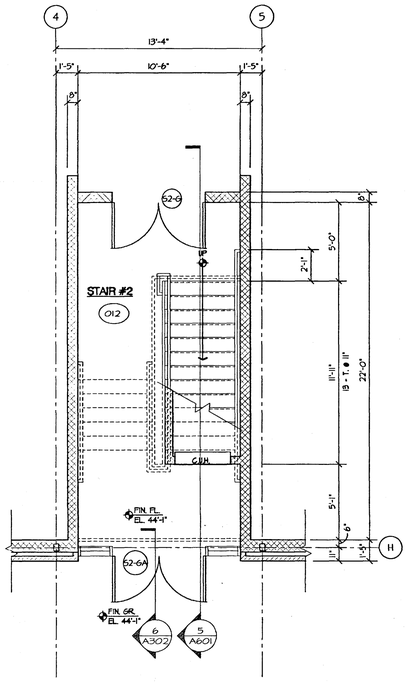
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BQ #70 & 125 Attachment



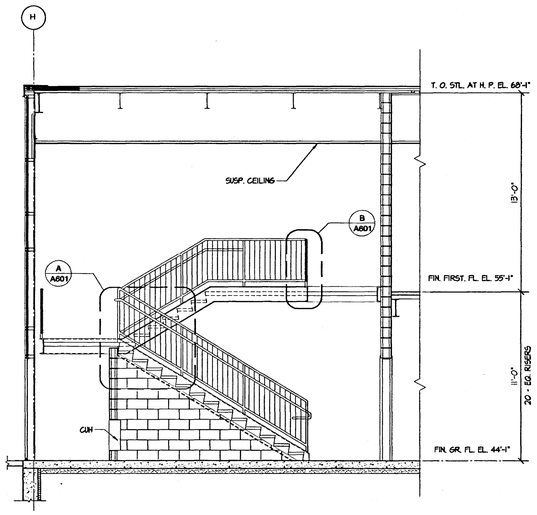
1 A601 STAIR #1 - GROUND FLOOR

1/4" = 1'-0"



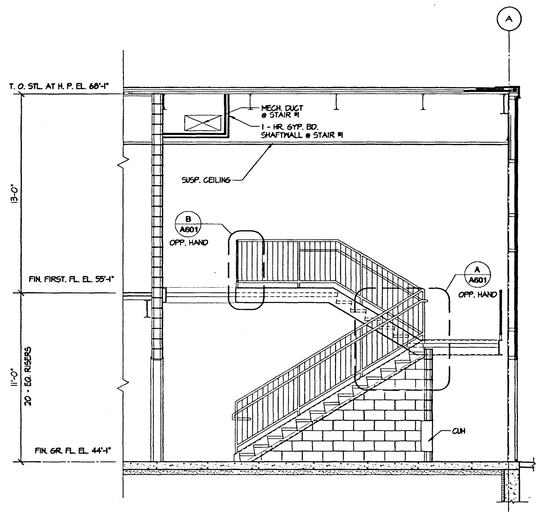
3 A601 STAIR #2 - GROUND FLOOR

1/4" = 1'-0"



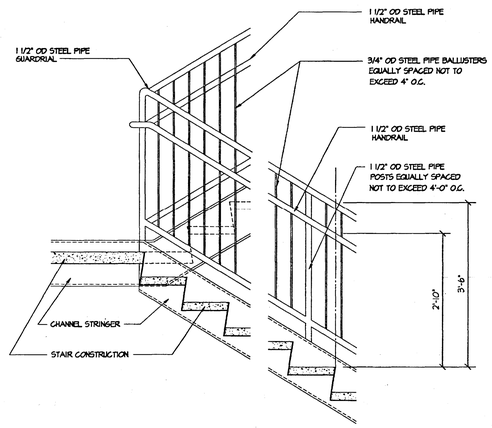
5 A601 SECTION - STAIR #2

1/4" = 1'-0"



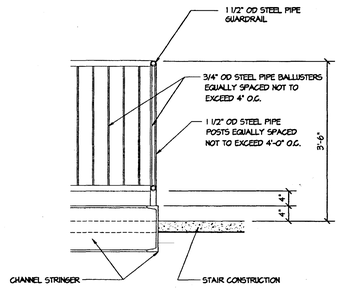
6 A601 SECTION - STAIR #1

1/4" = 1'-0"



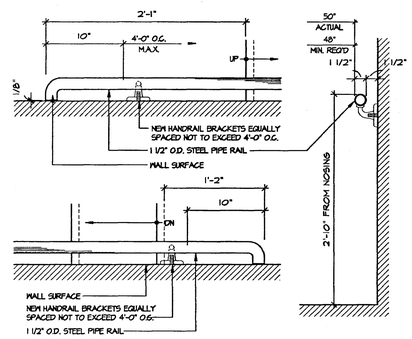
A A601 DETAIL

3/4" = 1'-0"



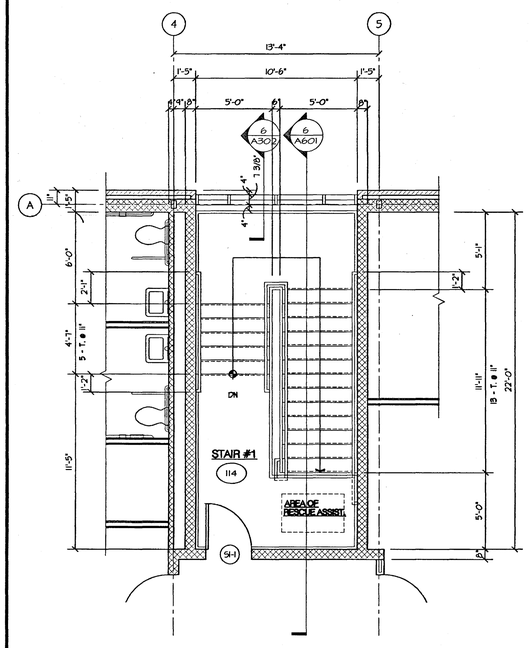
B A601 DETAIL

3/4" = 1'-0"



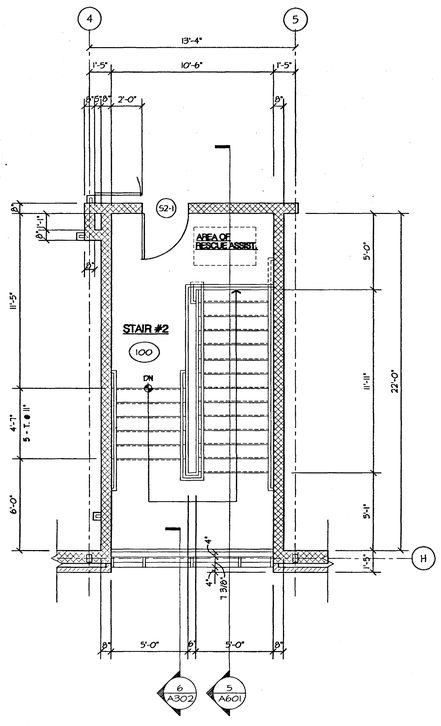
C A601 TYPICAL HANDRAIL DETAIL

1 1/2" = 1'-0"



2 A601 STAIR #1 - FIRST FLOOR

1/4" = 1'-0"



4 A601 STAIR #2 - FIRST FLOOR

1/4" = 1'-0"

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PROFESSIONAL SEAL

PROJECT MANAGER L.J. FREE

ARCHITECT/ENGINEER S.E. McNEECE

DRAWN BY J.C. OTTO

FLETCHER THOMPSON

ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106A

DRAWING TITLE

STAIR PLANS, SECTIONS & DETAILS

NO	DATE	REVISION	BY
1	6/19/98	D.O.E. REVISIONS	J.C.

DATE MARCH 16, 1998

SCALE 1/4" = 1'-0"

PROJECT NO. 50950.06

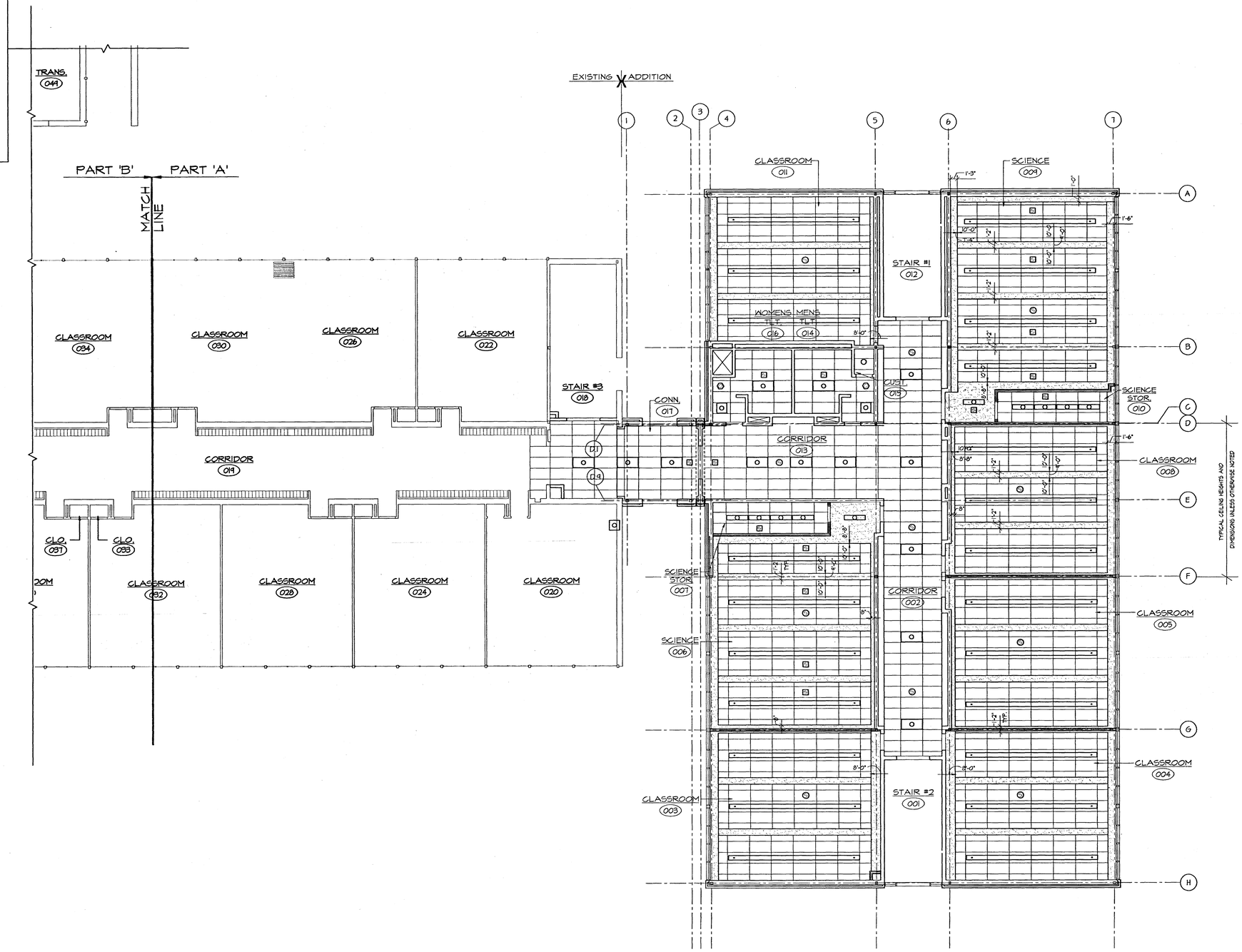
DRAWING NO. A601

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BQ #70 & 125 Attachment

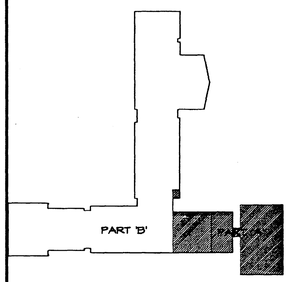
LEGEND

- LIGHT FIXTURES (SEE ELECTRICAL DWGS)
- DIFFUSERS, REGISTERS, GRILLES (SEE HVAC DWGS)
- SPRINKLER
- EXIT SIGN
- SPEAKER
- SMOKE DETECTOR
- HEAT DETECTOR
- OCCUPANCY SENSOR
- POWER REEL
- E.I.F.S.
- RELOCATED EXIST'G TRACKS
- ACOUSTICAL SUSPENDED CEILING
- GYPSUM BOARD



1 A700.1 GROUND FLOOR PLAN - PART "A"
SCALE: 1/8" = 1'-0"

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KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E. McNEECE
DRAWN BY: J.C. OTTO

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

GROUND FLOOR REFLECTED CEILING PLAN - PART "A"

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

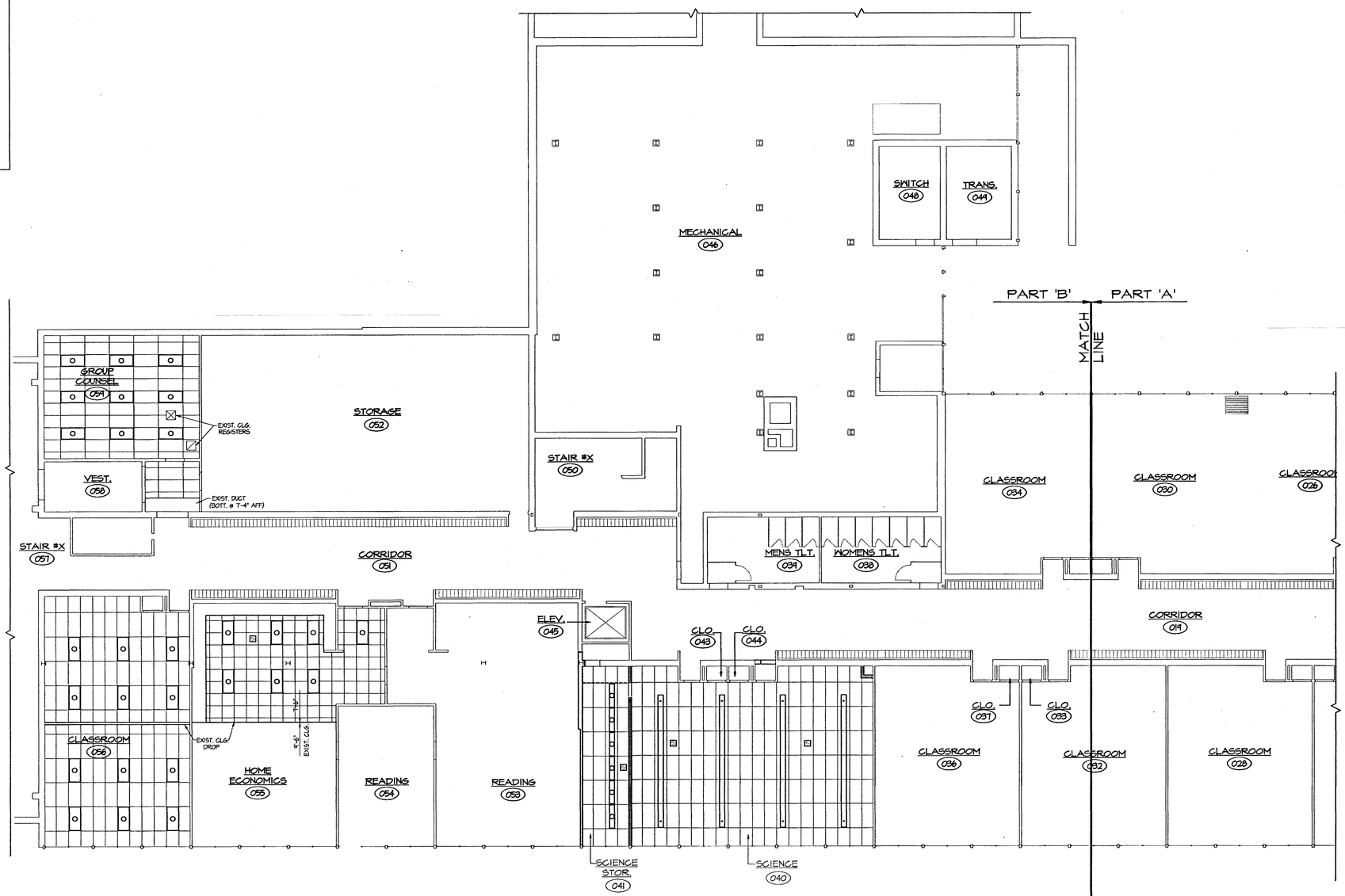
NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: 1/8" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A700.1

BQ #70 & 125 Attachment

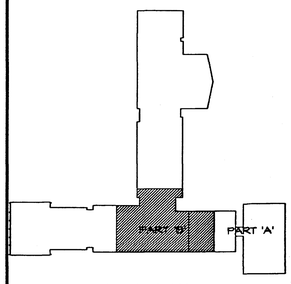
LEGEND

- LIGHT FIXTURES (SEE ELECTRICAL DWGS)
- DIFFUSERS, REGISTERS, GRILLES (SEE HVAC DWGS)
- SPRINKLER
- EXIT SIGN
- SPEAKER
- SMOKE DETECTOR
- HEAT DETECTOR
- OCCUPANCY SENSOR
- POWER REEL
- E.I.F.S.
- RELOCATED EXISTG TRACKS
- ACOUSTICAL SUSPENDED CEILING
- GYPSUM BOARD



1 A700.2 GROUND FLOOR PLAN-PART "B"
SCALE: 1/8"=1'-0"

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KEY PLAN

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PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	S.E. McNEECE
DRAWN BY	J.C. OTTO

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PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

GROUND FLOOR REFLECTED CEILING PLAN - PART "B"

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

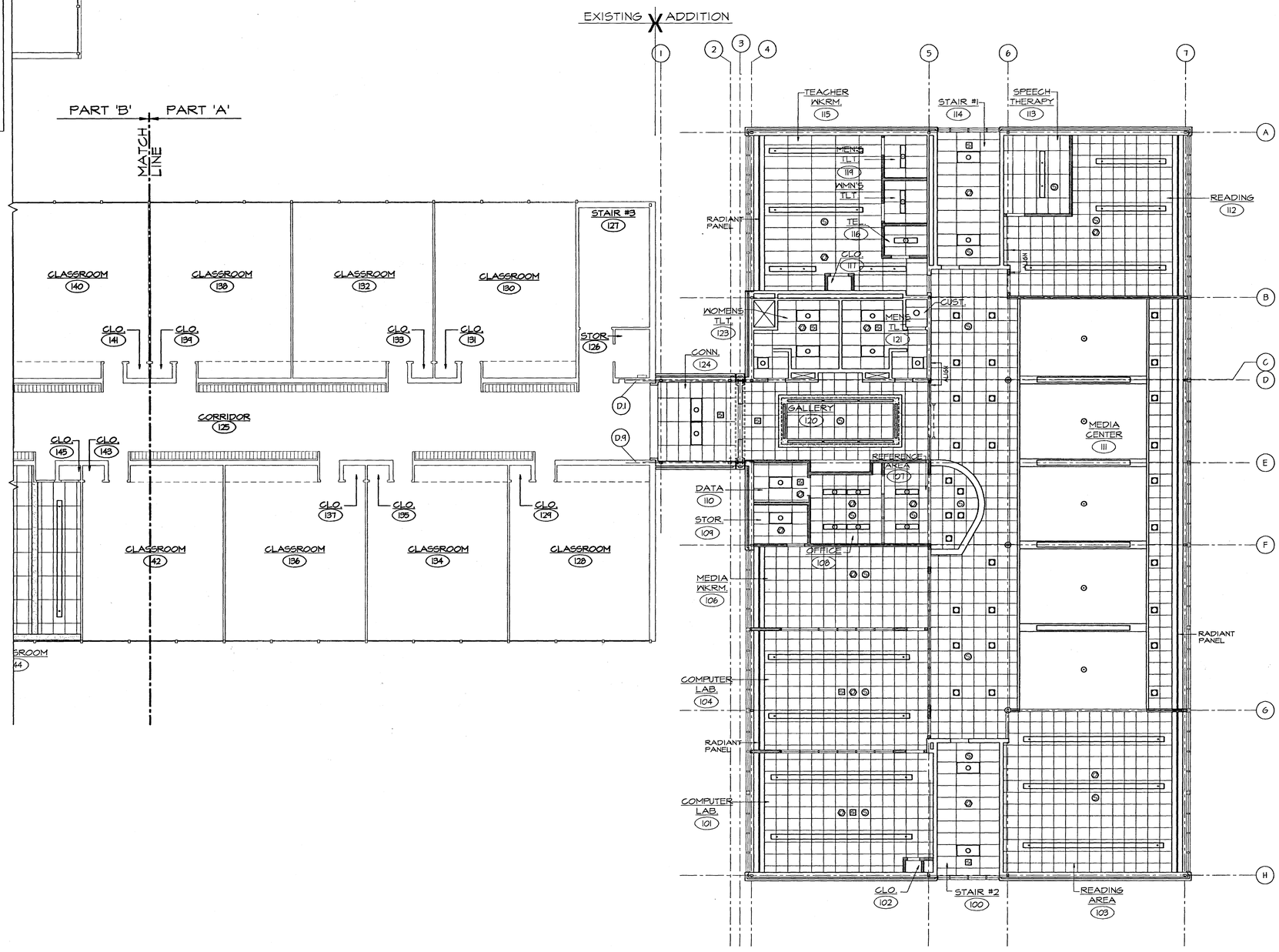
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PROJECT NO.	50950.06
DRAWING NO.	A700.2

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BQ #70 & 125 Attachment

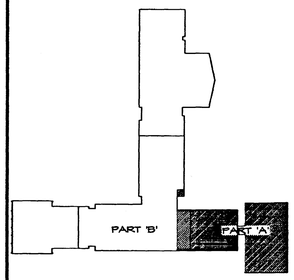
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- LIGHT FIXTURES (SEE ELECTRICAL DWGS)
- DIFFUSERS, REGISTERS, GRILLES (SEE HVAC DWGS)
- SPRINKLER
- EXIT SIGN
- SPEAKER
- SMOKE DETECTOR
- HEAT DETECTOR
- OCCUPANCY SENSOR
- POWER REEL
- E.I.F.S.
- RELOCATED EXISTG TRACKS
- ACOUSTICAL SUSPENDED CEILING
- GYPSUM BOARD



1 A701.1 FIRST FLOOR PLAN - PART "A"
SCALE: 1/8" = 1'-0"

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KEY PLAN

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PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	S.E. McNEECE
DRAWN BY	J.C. OTTO

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ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

FIRST FLOOR REFLECTED CEILING PLAN - PART "A"

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

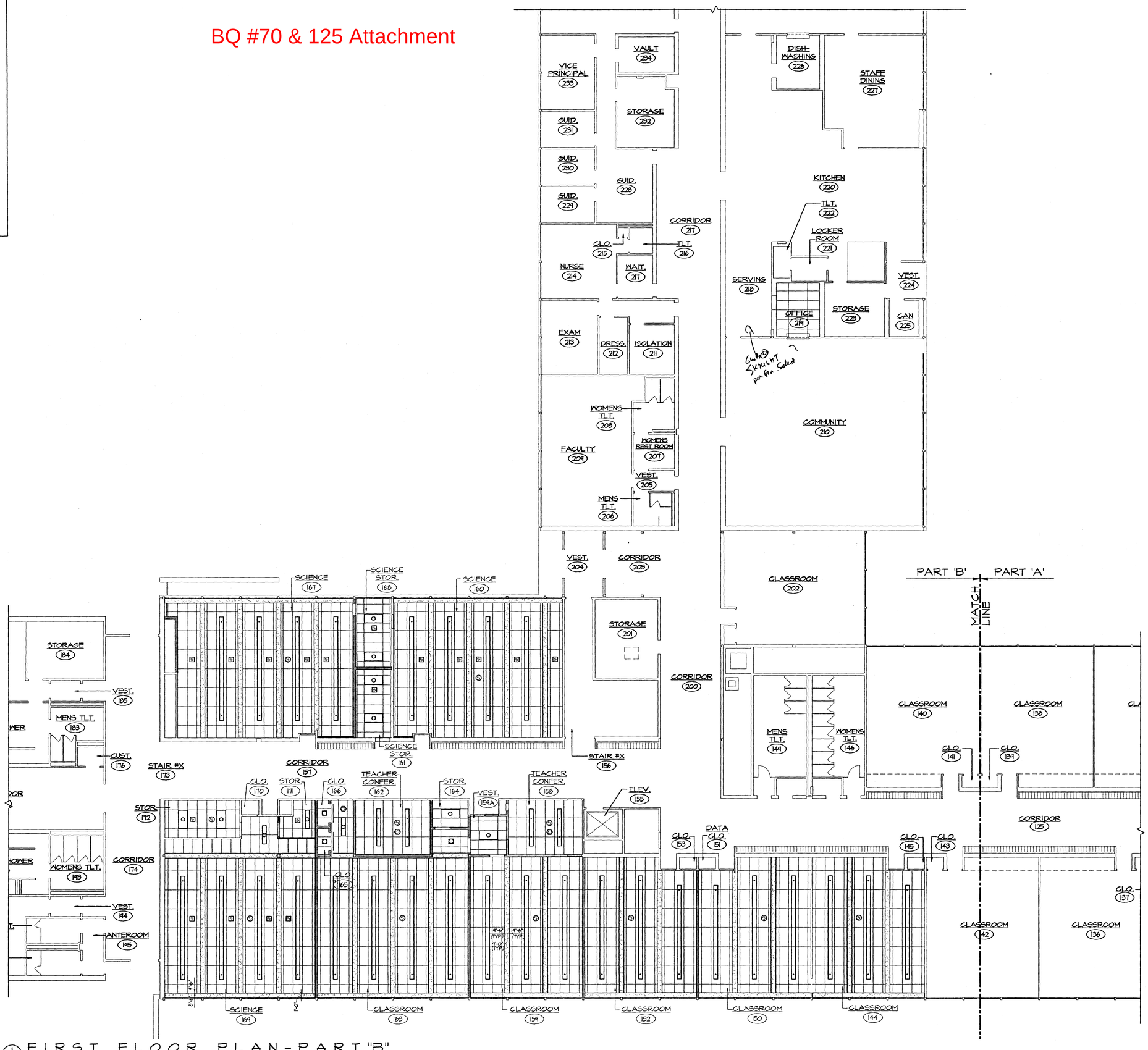
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BQ #70 & 125 Attachment

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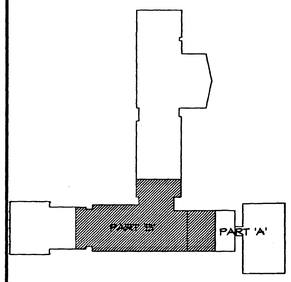
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- DIFFUSERS, REGISTERS, GRILLES (SEE HVAC DWGS)
- SPRINKLER
- EXIT SIGN
- SPEAKER
- SMOKE DETECTOR
- HEAT DETECTOR
- OCCUPANCY SENSOR
- POWER REEL
- E.I.F.S.
- RELOCATED EXISTG TRACKS
- ACOUSTICAL SUSPENDED CEILING
- GYPSUM BOARD



1 / A701.2 FIRST FLOOR PLAN - PART "B"
SCALE: 1/8" = 1'-0"

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KEY PLAN

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E. McNEECE
DRAWN BY: J.C. OTTO

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

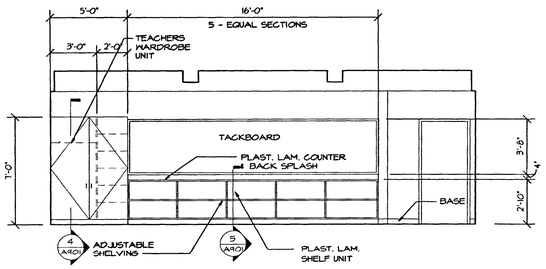
FIRST FLOOR REFLECTED CEILING PLAN - PART "B"

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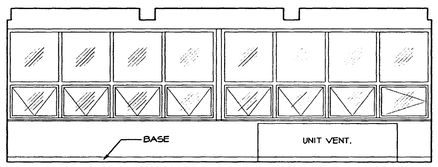
NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
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PROJECT NO.: 50950.06
DRAWING NO.: A701.2

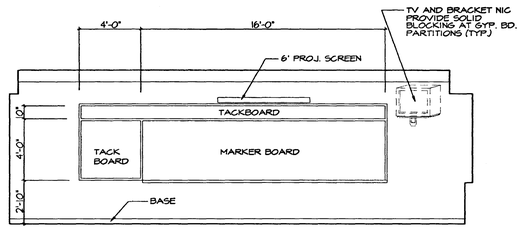
BQ #70 & 125 Attachment



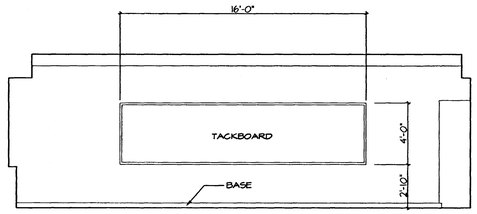
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1/4" = 1'-0"



2 A801 CLASSROOM
1/4" = 1'-0"

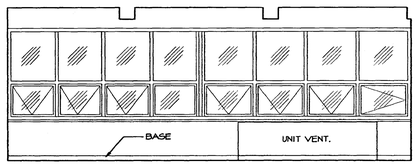


3 A801 CLASSROOM
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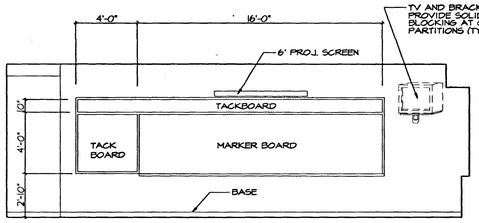


4 A801 CLASSROOM
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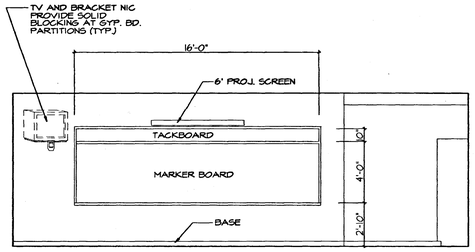
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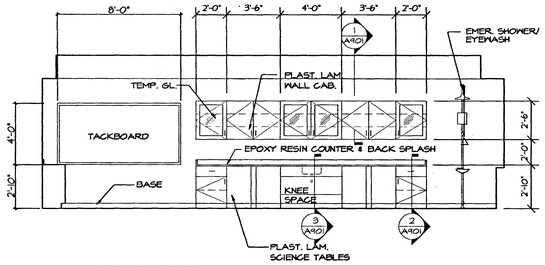
5 A801 CLASSROOM
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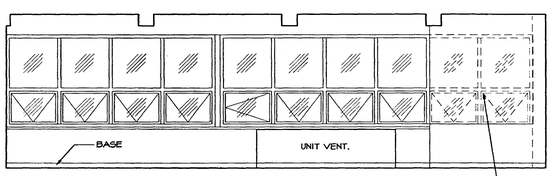
6 A801 CLASSROOM
1/4" = 1'-0"



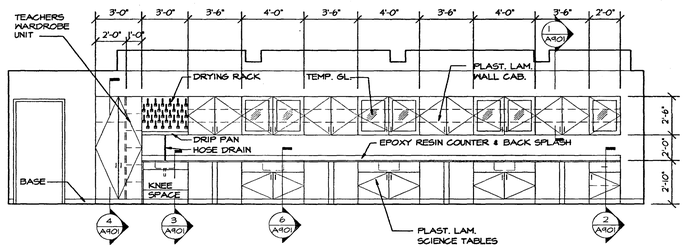
7 A801 SCIENCE
1/4" = 1'-0"



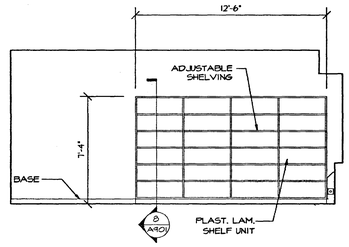
8 A801 SCIENCE
1/4" = 1'-0"



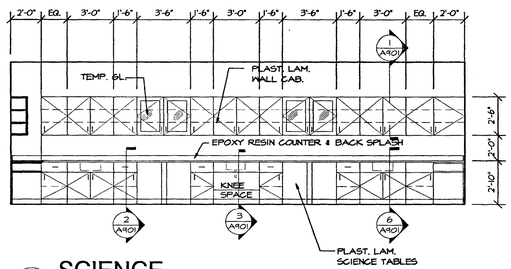
9 A801 & 9A A801 SCIENCE
1/4" = 1'-0"



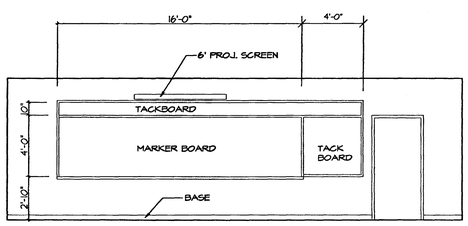
10 A801 SCIENCE
1/4" = 1'-0"



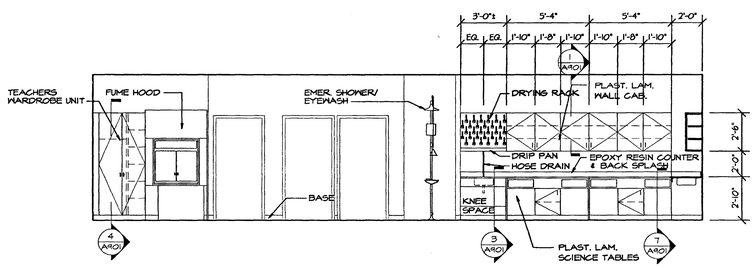
11 A801 SCIENCE STOR.
1/4" = 1'-0"



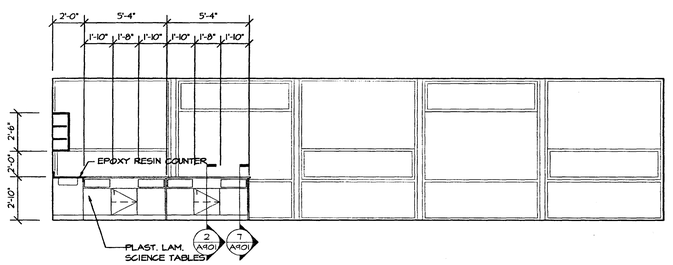
12 A801 SCIENCE
1/4" = 1'-0"



13 A801 SCIENCE
1/4" = 1'-0"



14 A801 SCIENCE
1/4" = 1'-0"



15 A801 SCIENCE
1/4" = 1'-0"

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PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	S.E.McNEECE
DRAWN BY	J. CZUBATYJ

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

INTERIOR ELEVATIONS

NO	DATE	REVISION	BY
1	6/19/98	D. O. E. REVISIONS	J.C.

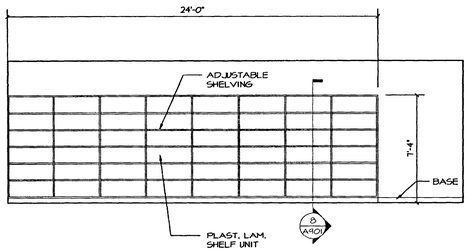
DATE: MARCH 16, 1998

SCALE: 1/4" = 1'-0"

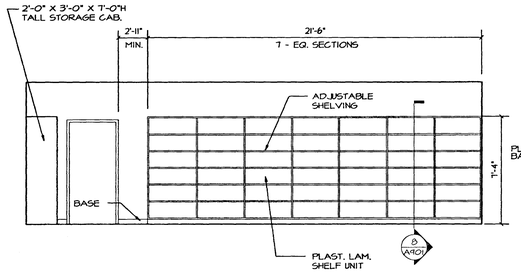
PROJECT NO.: 50950.06

DRAWING NO.: **A801**

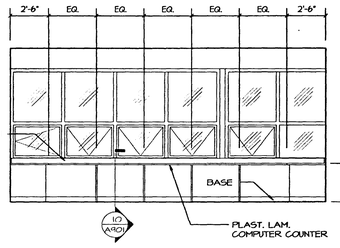
BQ #70 & 125 Attachment



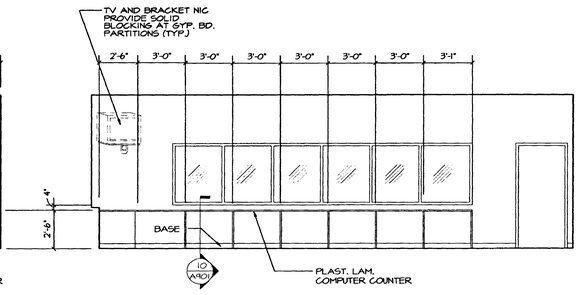
16 A802 STORAGE
1/4" = 1'-0"



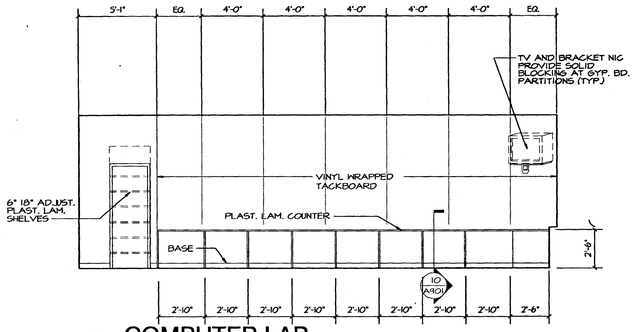
17 A802 STORAGE
1/4" = 1'-0"



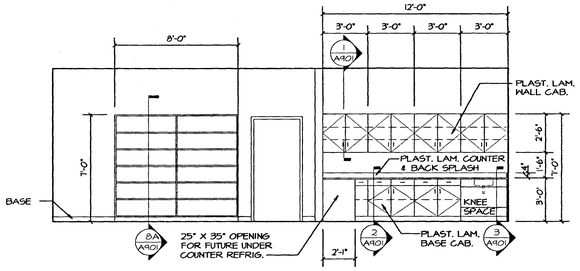
18 A802 COMPUTER LAB
1/4" = 1'-0"



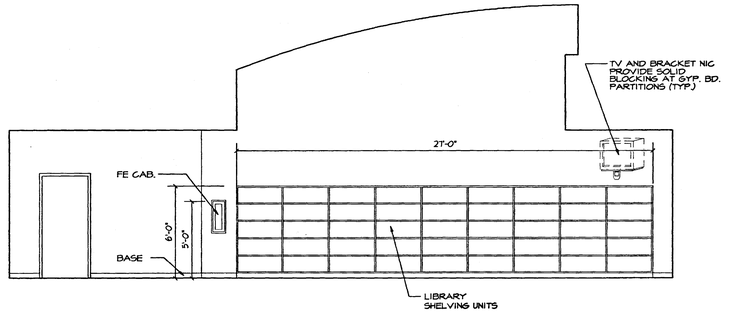
19 A802 COMPUTER LAB
1/4" = 1'-0"



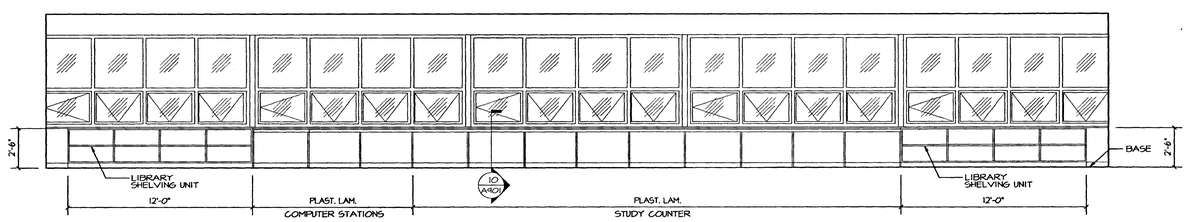
20 A802 COMPUTER LAB
1/4" = 1'-0"



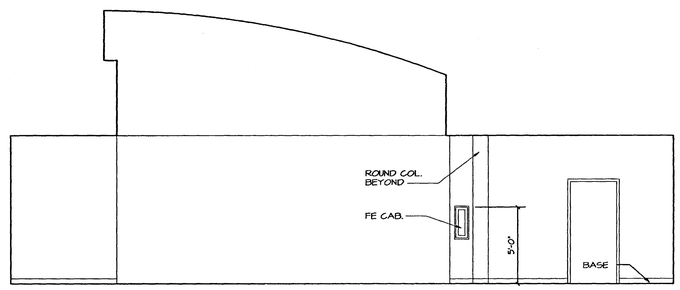
21 A802 TEACHERS WORKROOM
1/4" = 1'-0"



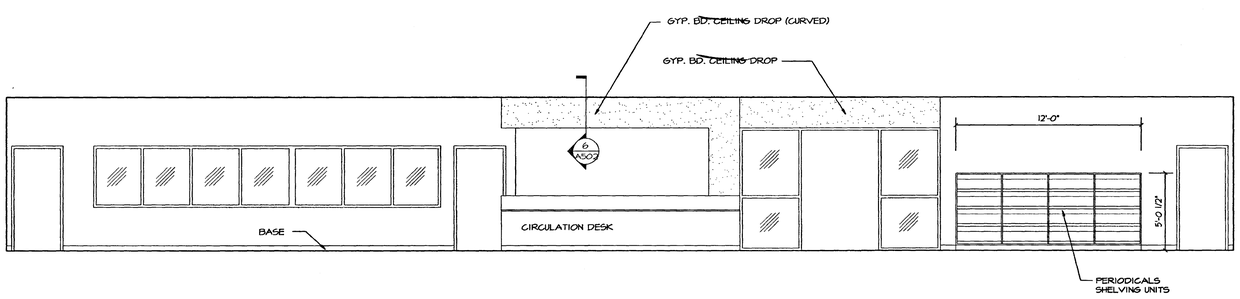
22 A802 MEDIA CENTER
1/4" = 1'-0"



23 A802 MEDIA CENTER
1/4" = 1'-0"



24 A802 MEDIA CENTER
1/4" = 1'-0"



25 A802 MEDIA CENTER
1/4" = 1'-0"

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E.McNEECE
DRAWN BY: J. CZUBATY

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL
MIDDLE
SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

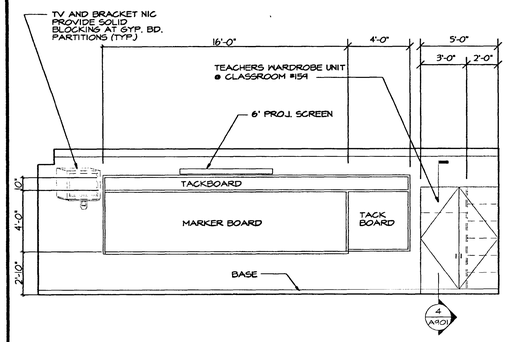
INTERIOR ELEVATIONS

NO	DATE	REVISION	BY

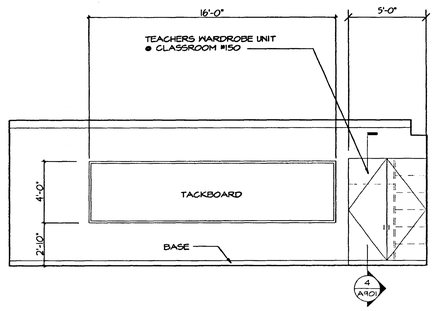
DATE: **MARCH 16, 1998**
SCALE: **1/4" = 1'-0"**
PROJECT NO.: **50950.06**
DRAWING NO.: **A802**

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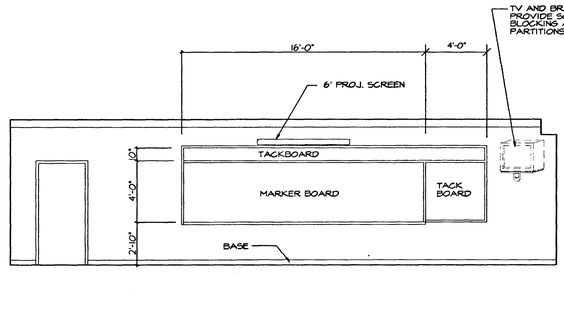
BQ #70 & 125 Attachment



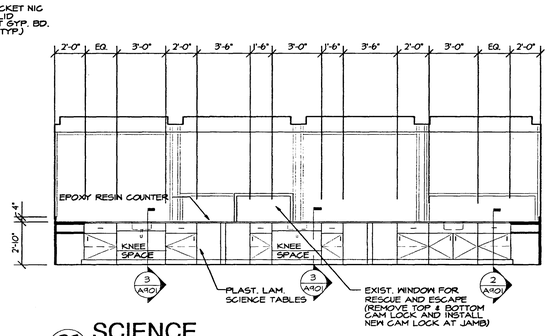
26 A803 CLASSROOM
1/4" = 1'-0"



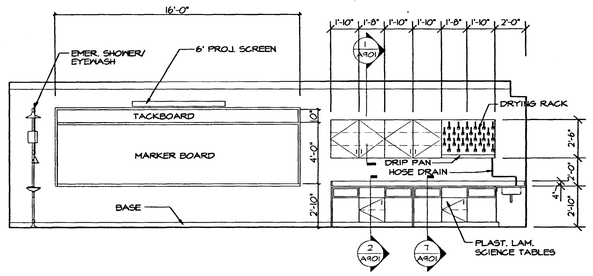
27 A803 CLASSROOM
1/4" = 1'-0"



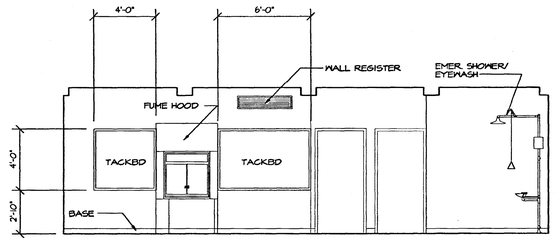
28 A803 CLASSROOM
1/4" = 1'-0"



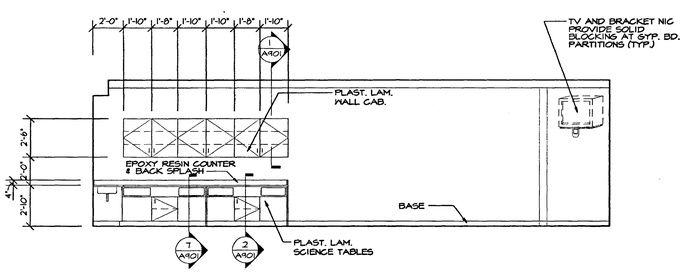
29 A803 SCIENCE
1/4" = 1'-0"



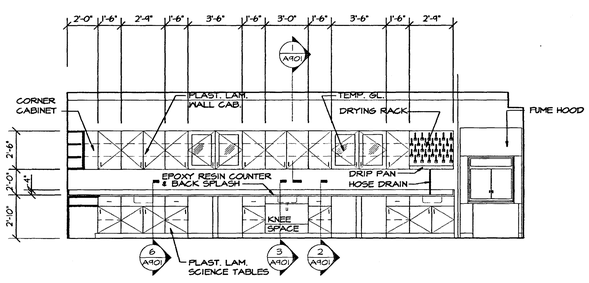
30 A803 SCIENCE
1/4" = 1'-0"



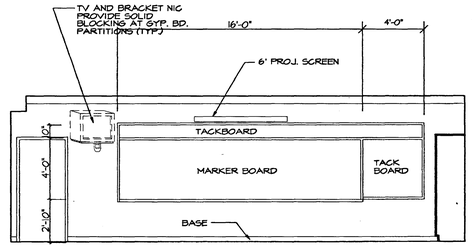
31 A803 SCIENCE
1/4" = 1'-0"



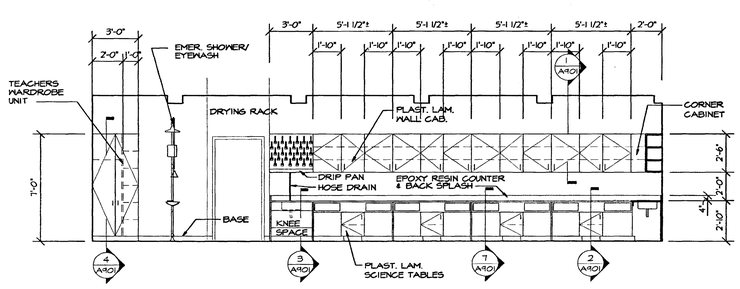
32 A803 SCIENCE
1/4" = 1'-0"



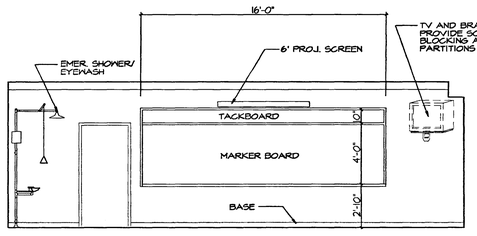
33 A803 SCIENCE
1/4" = 1'-0"



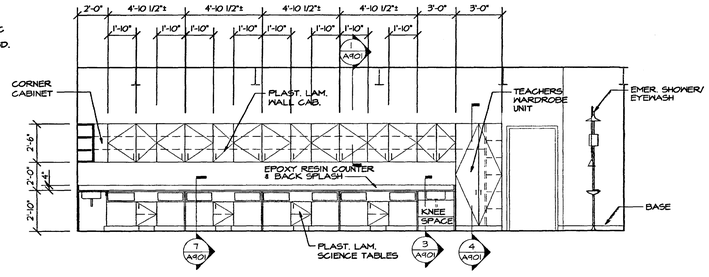
34 A803 SCIENCE
1/4" = 1'-0"



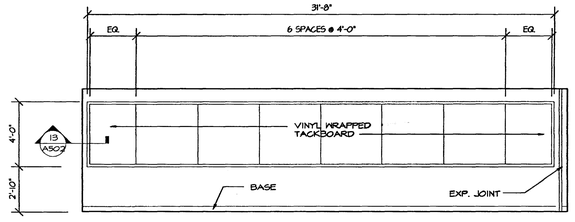
35 A803 SCIENCE
1/4" = 1'-0"



36 A803 SCIENCE
1/4" = 1'-0"



37 A803 SCIENCE
1/4" = 1'-0"



37A A803 CORRIDOR
1/4" = 1'-0"

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E.McNEECE
DRAWN BY: J. CZUBATYJ

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

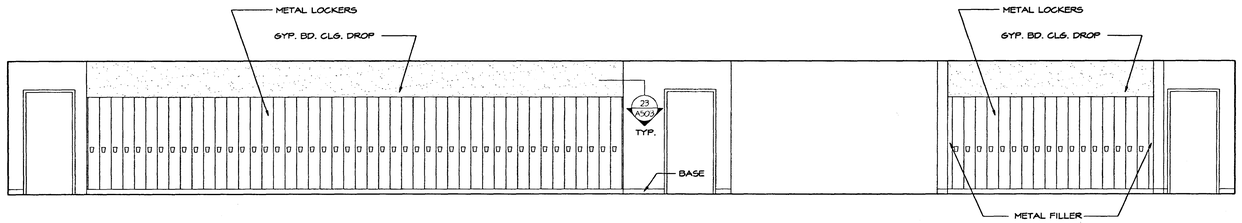
INTERIOR ELEVATIONS

NO	DATE	REVISION	BY

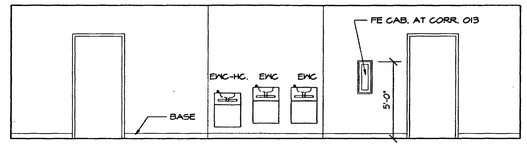
DATE: MARCH 16, 1998
SCALE: 1/4" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A803

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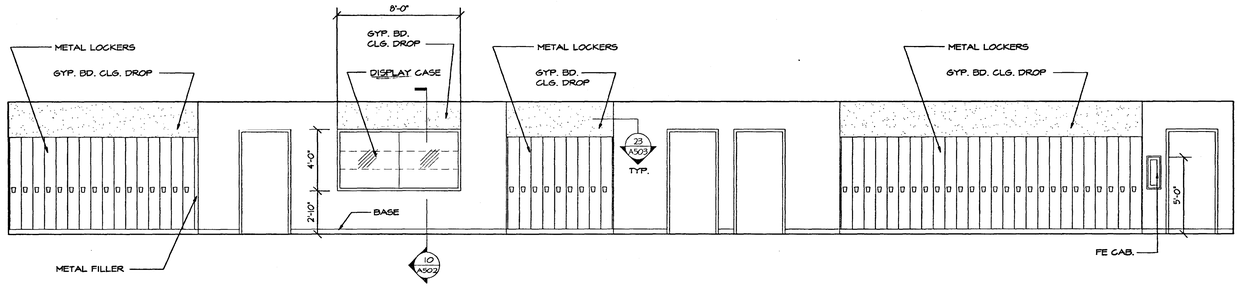
BQ #70 & 125 Attachment



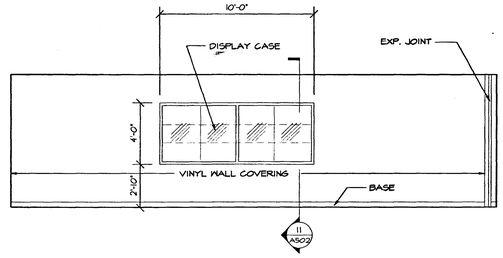
38 A804 CORRIDOR
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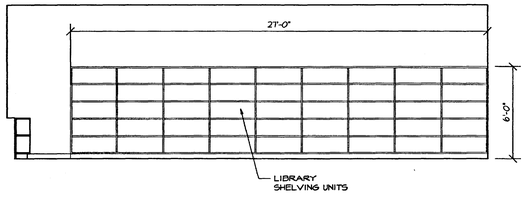
39 A804 CORRIDOR
1/4" = 1'-0"



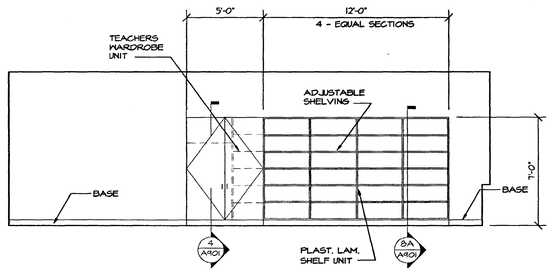
40 A804 CORRIDOR
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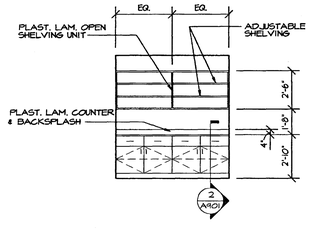
41 A804 GALLERY
1/4" = 1'-0"



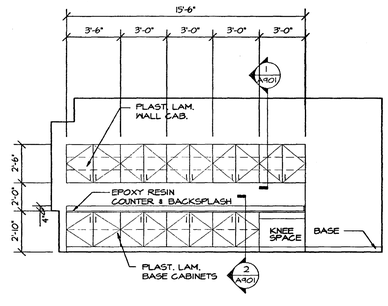
42 A804 READING AREA
1/4" = 1'-0"



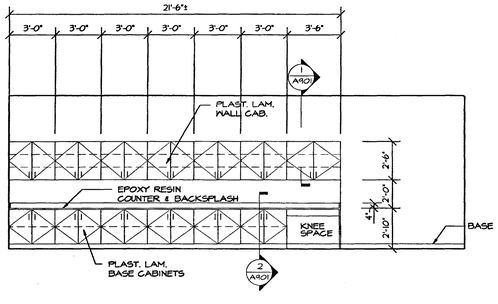
43 A804 READING
1/4" = 1'-0"



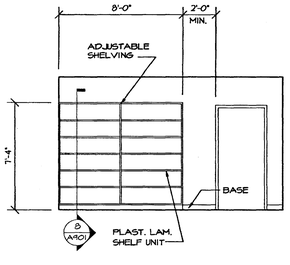
44 A804 REFERENCE AREA
1/4" = 1'-0"



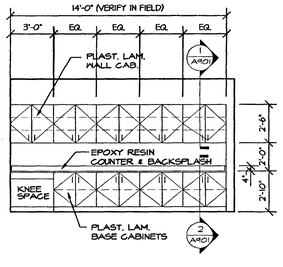
45 A804 SCIENCE STOR.
1/4" = 1'-0"



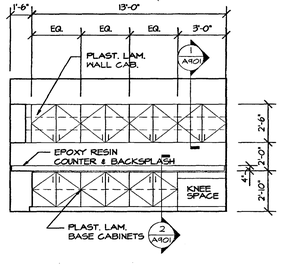
46 A804 SCIENCE STOR.
1/4" = 1'-0"



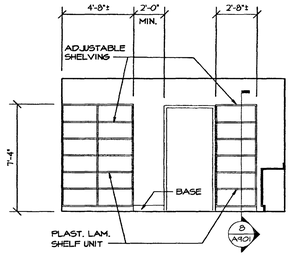
47 A804 SCIENCE STOR.
1/4" = 1'-0"



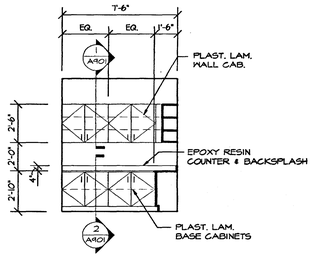
48 A804 SCIENCE STOR.
1/4" = 1'-0"



49 A804 SCIENCE STOR.
1/4" = 1'-0"



50 A804 SCIENCE STOR.
1/4" = 1'-0"



51 A804 SCIENCE STOR.
1/4" = 1'-0"

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E.McNEECE
DRAWN BY: J. CZUBATY

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9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

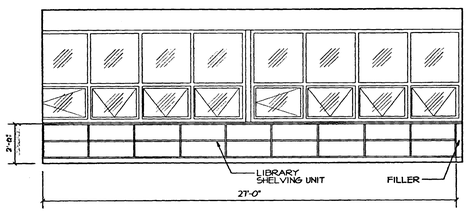
INTERIOR ELEVATIONS

NO	DATE	REVISION	BY
1	6/19/98	D. O. E. REVISIONS	J.C.

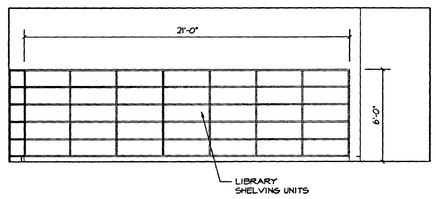
DATE: MARCH 16, 1998
SCALE: 1/4" = 1'-0"
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DRAWING NO.: A804

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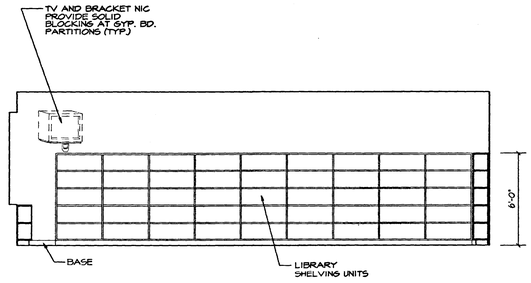
BQ #70 & 125 Attachment



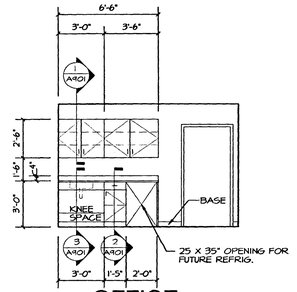
52 A805 READING AREA
1/4" = 1'-0"



53 A805 READING AREA
1/4" = 1'-0"



54 A805 READING AREA
1/4" = 1'-0"



55 A805 OFFICE
1/4" = 1'-0"

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E.McNEECE
DRAWN BY: J. CZUBATY

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

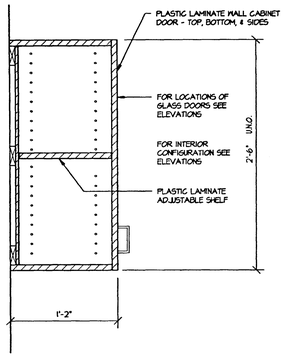
DRAWING TITLE

INTERIOR ELEVATIONS

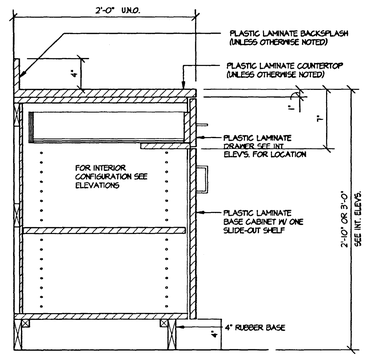
NO	DATE	REVISION	BY
1	6/19/98	D.O.E. REVISIONS	J.G.

DATE: MARCH 16, 1998
SCALE: 1/4" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A805

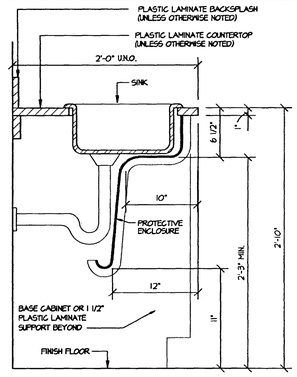
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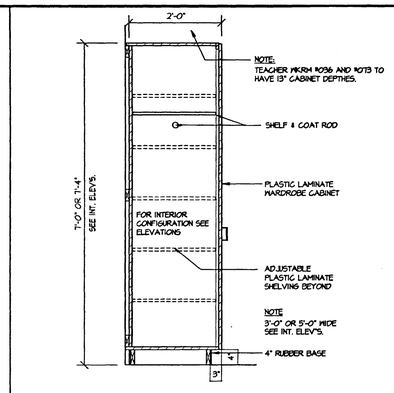
1 A901 WALL CABINET - TYPICAL
SCALE: 1 1/2" = 1'-0"



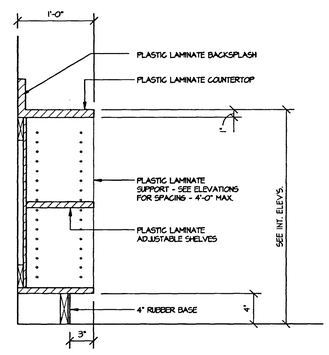
2 A901 BASE CABINET DETAIL
SCALE: 1 1/2" = 1'-0"



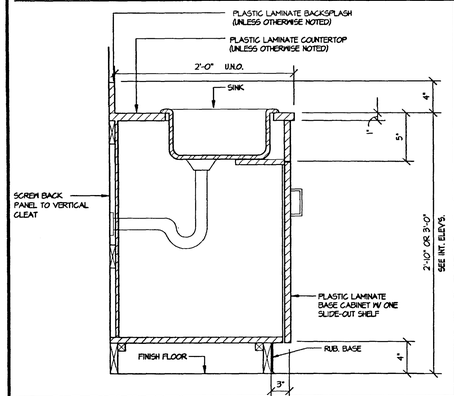
3 A901 HC. SINK COUNTER DETAIL
SCALE: 1 1/2" = 1'-0"



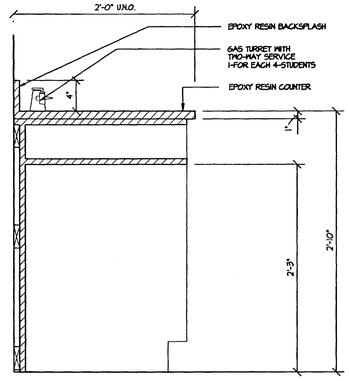
4 A901 CABINET DETAIL - TYPICAL
SCALE: 3/4" = 1'-0"



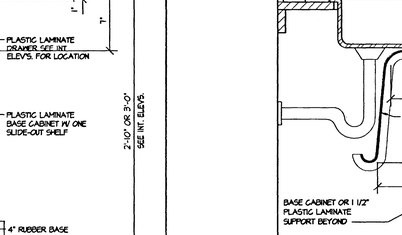
5 A901 OPEN SHELF CABINET DETAIL - TYPICAL
SCALE: 1 1/2" = 1'-0"



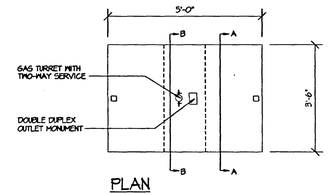
6 A901 HC. SINK COUNTER WITH DOOR DETAIL
SCALE: 1 1/2" = 1'-0"



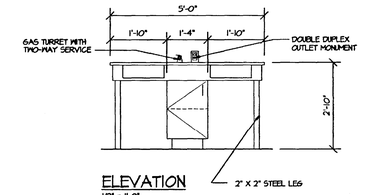
SECTION C-C
1 1/2" = 1'-0"



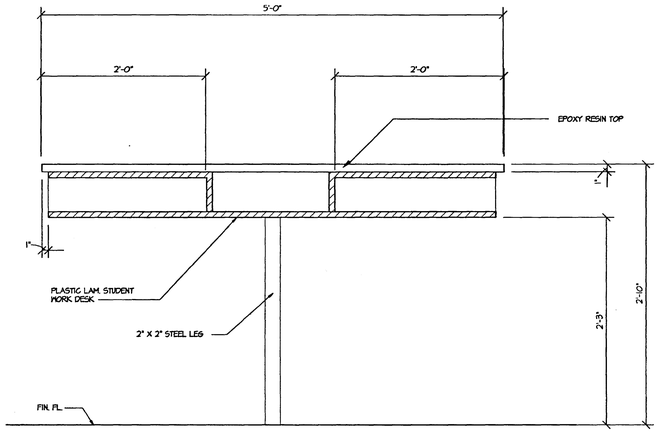
PLAN
1/2" = 1'-0"



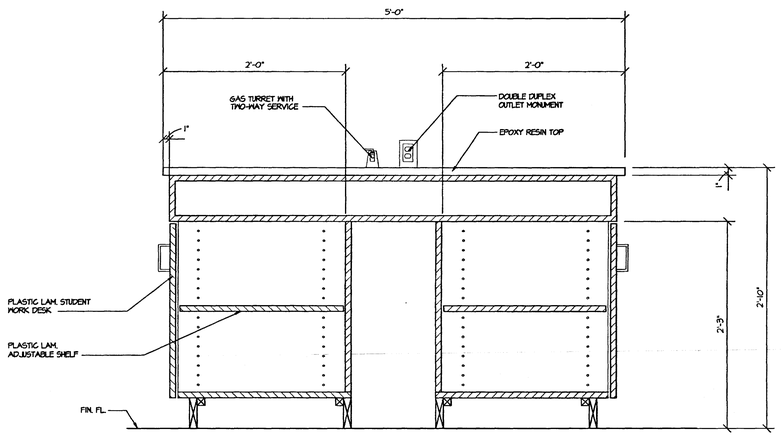
PLAN
1/2" = 1'-0"



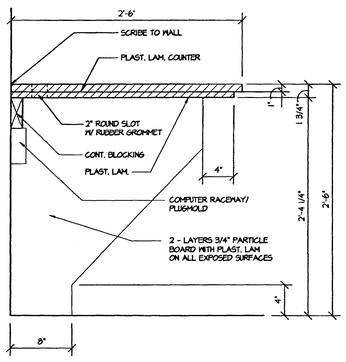
ELEVATION
1/2" = 1'-0"



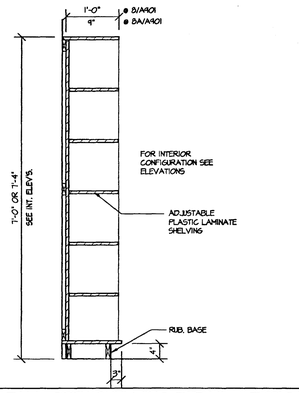
SECTION A-A
1 1/2" = 1'-0"



SECTION B-B
1 1/2" = 1'-0"



10 A901 COMPUTER STATION DETAIL
SCALE: 1 1/2" = 1'-0"



9 A901 & 9A A901 TALL OPEN SHELVING DETAIL - TYPICAL
SCALE: 3/4" = 1'-0"

7 A901 SCIENCE WORK STATION DETAIL
AS NOTED

BQ #70 & 125 Attachment

9 A901 FOUR STUDENT SCIENCE WORK DESK DETAIL
SCALE: 3/4" = 1'-0"

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PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: S.E. McNEECE
DRAWN BY: J. CZUBATYJ

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ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
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9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

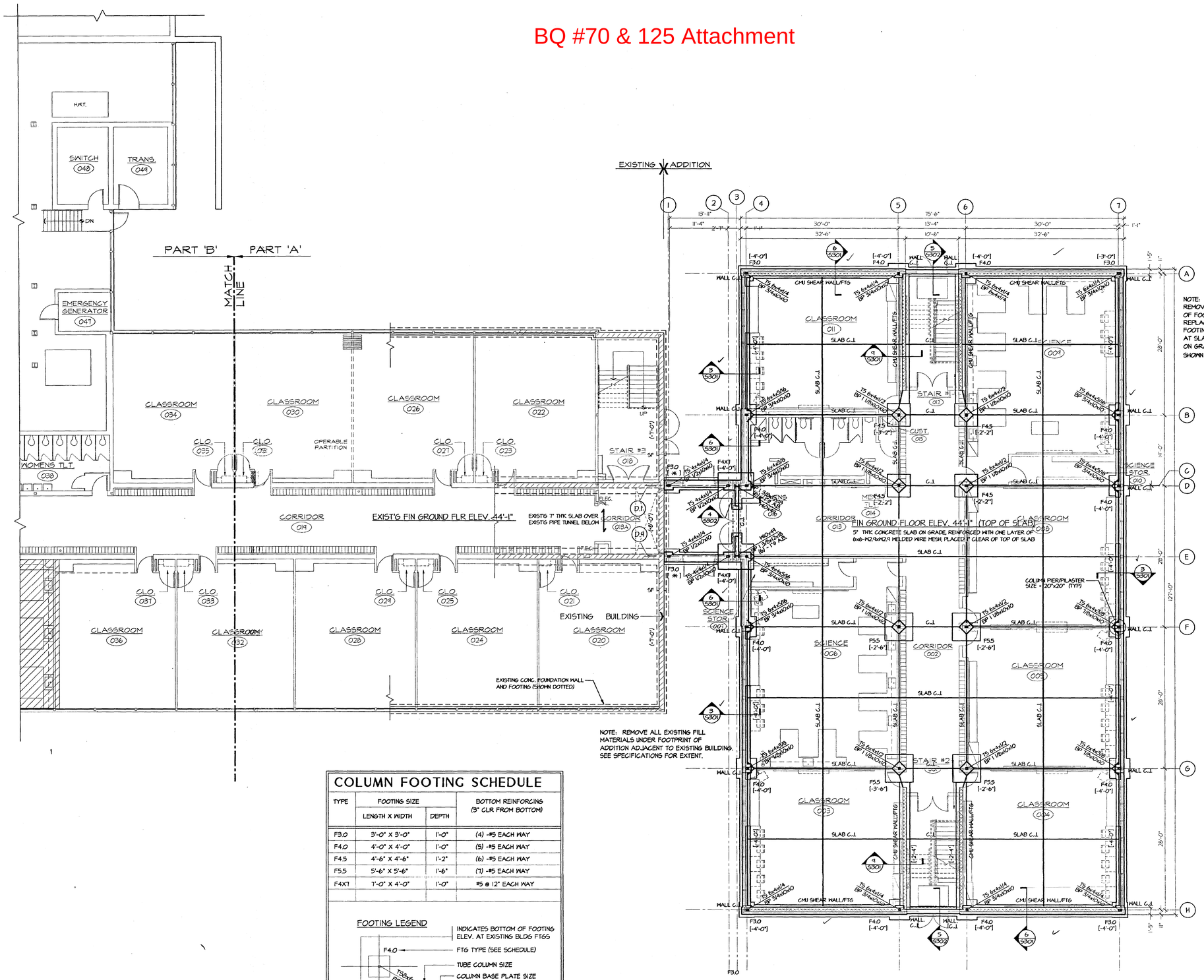
DRAWING TITLE

CASEWORK DETAILS

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: A901

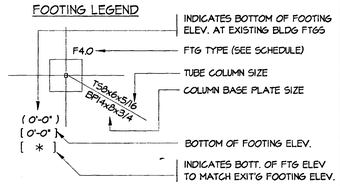
BQ #70 & 125 Attachment



COLUMN FOOTING SCHEDULE

TYPE	FOOTING SIZE		BOTTOM REINFORCING (3" CLR FROM BOTTOM)
	LENGTH X WIDTH	DEPTH	
F3.0	3'-0" X 3'-0"	1'-0"	(4) -#5 EACH WAY
F4.0	4'-0" X 4'-0"	1'-0"	(5) -#5 EACH WAY
F4.5	4'-6" X 4'-6"	1'-2"	(6) -#5 EACH WAY
F5.5	5'-6" X 5'-6"	1'-6"	(7) -#5 EACH WAY
F4X7	7'-0" X 4'-0"	1'-0"	#5 @ 12" EACH WAY

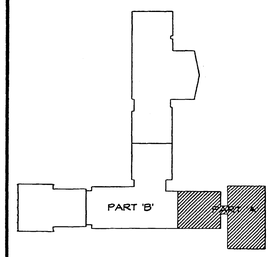
FOOTING LEGEND



FOUNDATION PLAN - PART "A"

1/8" = 1'-0"

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KEY PLAN

FOR DWG. REF.

N

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: R. C. BOGGS, P.E.
DRAWN BY: L. CZUBATY

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

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CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

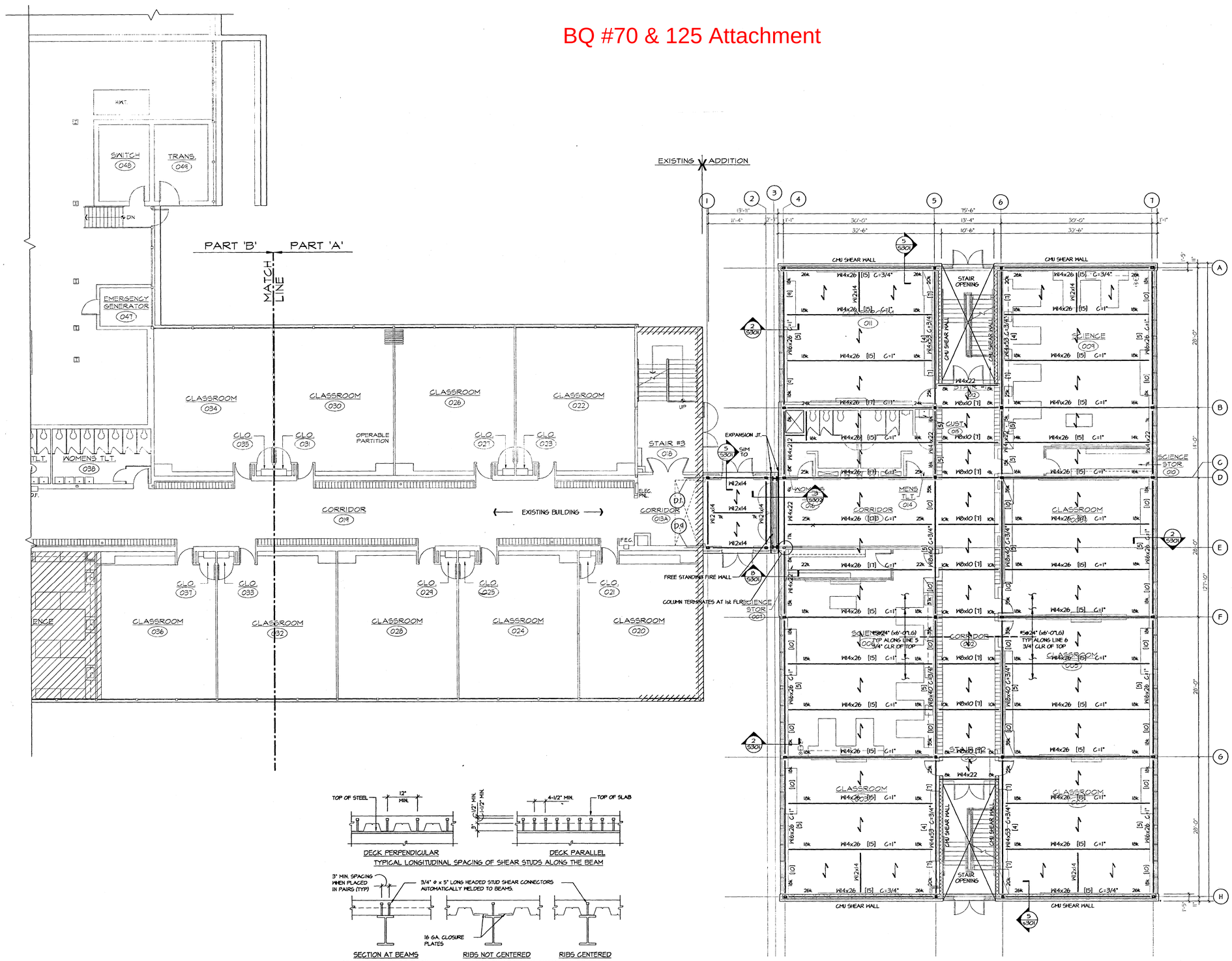
FOUNDATION PLAN - PART "A"

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE: **MARCH 16, 1998**
SCALE: **1/8" = 1'-0"**
PROJECT NO.: **50950.06**
DRAWING NO.: **S100.1**

BQ #70 & 125 Attachment



1. PL x__ [10] : INDICATES QUANTITY OF STUD SHEAR CONNECTORS PER FRAMING MEMBER, AS INDICATED ON FLOOR FRAMING PLAN.
2. WHEN THE QUANTITY OF STUDS EXCEEDS THE QUANTITY OF AVAILABLE DECK RIBS, THEN THE EXCESS QUANTITY OF STUDS SHALL BE PLACED IN PAIRS STARTING AT EACH END OF THE BEAM.
3. IT IS THE INTENT THAT THE STUDS SHALL BE UNIFORMLY SPACED ALONG THE FULL BEAM LENGTH, OR PORTION OF BEAM AS INDICATED ON PLAN, ON THE ℄ OF WEB, UNLESS THE QUANTITY OF STUDS EXCEEDS THE MIN. SPACING, IN WHICH CASE STUDS WILL BE UNIFORMLY SPACED IN PAIRS STARTING AT EA. END.
4. SLAB MESH REINFORCING NOT SHOWN. SEE DATUM NOTES.

COMPOSITE METAL FLOOR DECK / SHEAR STUD PLACEMENT DET.

NOT TO SCALE

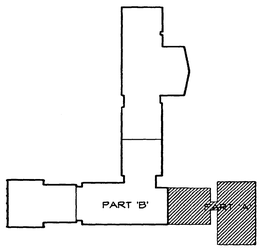
FIRST FLOOR FRAMING

1/8" = 1'-0"

FLOOR CONSTRUCTION:
2 1/2" CONCRETE OVER 3" DEEP x 20 GA. GALVANIZED COMPOSITE METAL FLOOR DECK. (5 1/2" TOTAL SLAB THICKNESS), REINFORCED WITH 6x6-W1.4xW1.4 WWF., PLACED 1" CLEAR OF TOP OF SLAB, OVER STEEL BEAM AND COLUMN CONSTRUCTION.

REFERENCE DATUM:
REFERENCE DATUM FOR FIRST FLOOR TOP OF STEEL (UNDERSIDE OF FLOOR DECK) SHALL BE FIN. FIRST FLOOR ELEV 55'-1". TOP OF ALL STEEL FRAMING MEMBERS SHALL BE 5 1/2" BELOW DATUM, UNLESS OTHERWISE NOTED ABOVE (+), OR BELOW (-) THE DATUM.

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KEY PLAN

FOR DWG. REF. N

PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	R. C. BOGGS, P.E.
DRAWN BY	L. CZUBATYJ

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TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

FIRST FLOOR FRAMING PLAN PATR - "A"

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

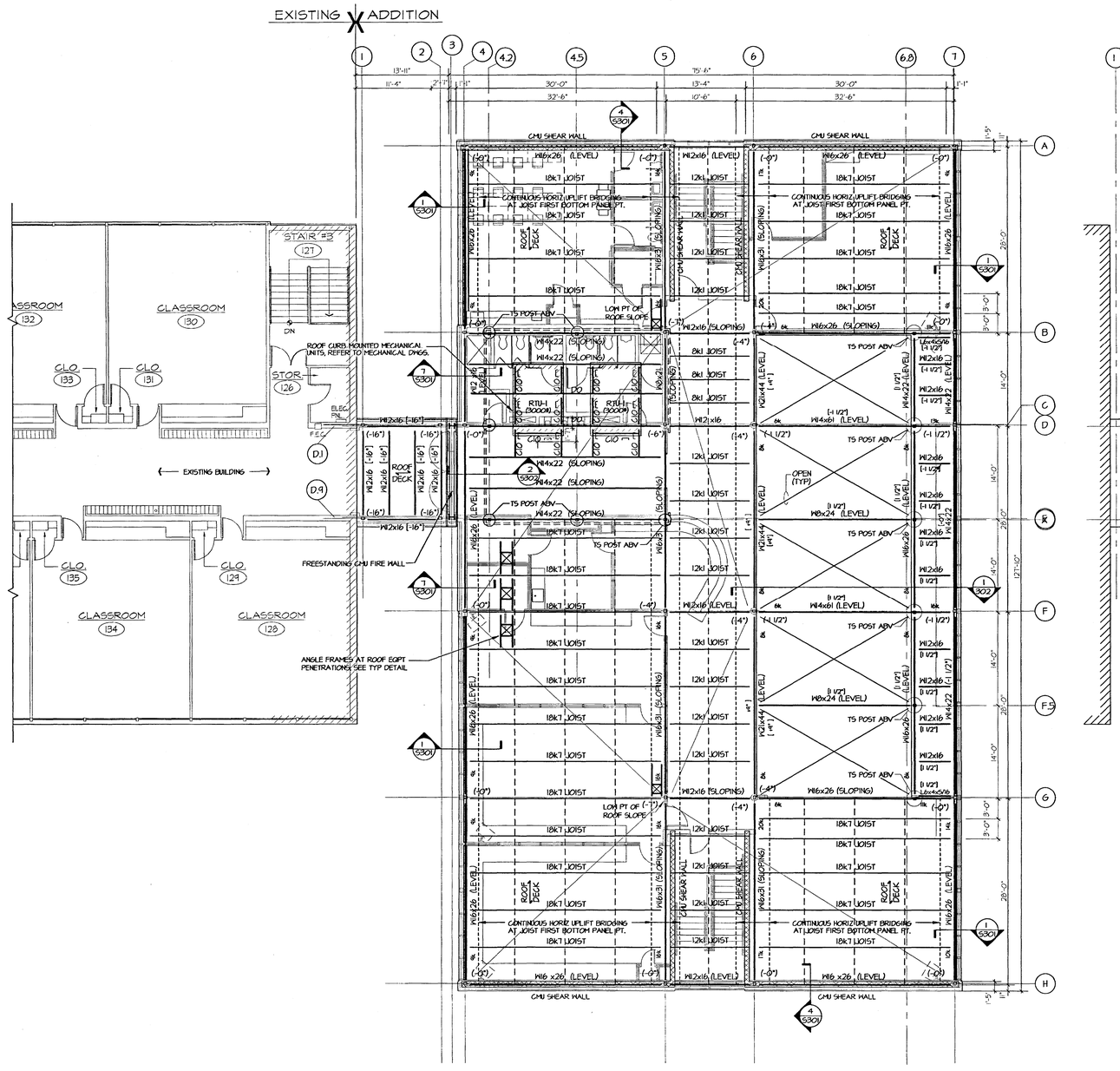
NO	DATE	REVISION	BY

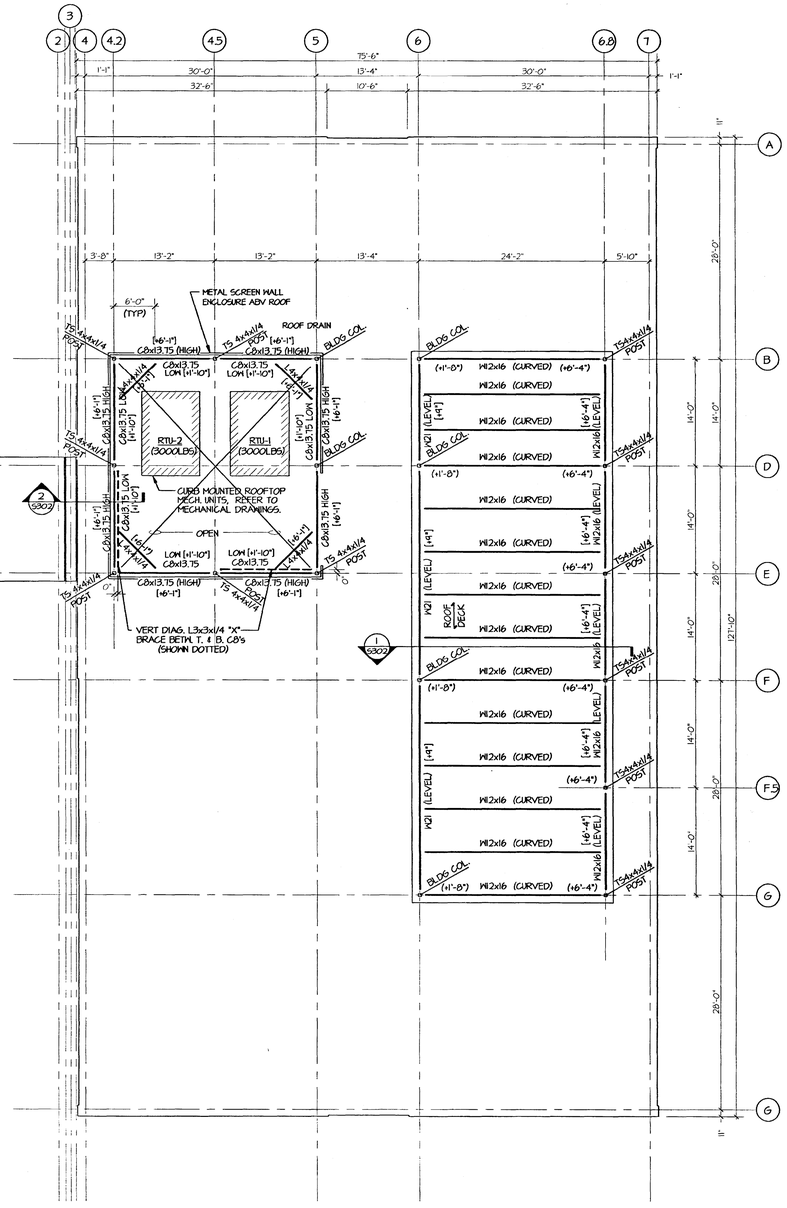
DATE	MARCH 16, 1998
SCALE	1/8" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	S101.1

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BQ #70 & 125 Attachment





ROOF FRAMING PLAN

1/8" = 1'-0"

ROOF CONSTRUCTION:
1 1/2" DEEP x 20 GA. GALVANIZED WIDE RIB METAL ROOF DECK OVER "K" SERIES OPEN WEB STEEL JOIST, BEAM & COLUMN CONSTRUCTION. ALL ROOF FRAMING MEMBERS SHALL SLOPE FROM HIGH POINT AT PERIMETER OF ROOF TO LOW POINTS AT ROOF DRAIN LOCATIONS.

TOP OF STEEL (DATUM) ELEVATION:
TOP OF STEEL "UNDERSIDE OF ROOF DECK" AT HIGH POINT OF ROOF SLOPE SHALL BE ELEVATION 68'-1" ALONG THE ROOF PERIMETER. ROOF FRAMING SHALL SLOPE TO LOW POINTS AT ROOF DRAINS. FIGURES SHOWN THUS "(-)", AT COLUMNS, REFER TO TOP OF STEEL ELEV. BELOW (-) OR ABOVE (+) THE DATUM ELEVATION.

ROOF FRAMES:
LOCATION, SIZE, AND QUANTITY OF STEEL ANGLE ROOF FRAMES, SHOWN ON FRAMING PLAN, AT ROOF DECK PENETRATIONS, ARE TO BE VERIFIED WITH ARCH'L. AND MECH'L DWGS. REFER TO "TYPICAL ANGLE FRAME" DETAIL ON STRUCTURAL DRAWINGS.

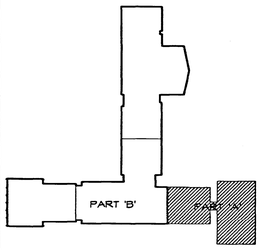
MEDIA CENTER ROOF & EQPT SCREEN FRAMING

1/8" = 1'-0"

MEDIA ROOF CONSTRUCTION:
1 1/2" DEEP x 20 GA. GALVANIZED WIDE RIB METAL ROOF DECK OVER STEEL BEAM, COLUMN, AND STEEL POST FRAMING

TOP OF STEEL ELEVATIONS
REFER TO DATUM ELEVATION NOTE AT ROOF FRAMING PLAN FOR TOP OF STEEL FIGURES "( )".

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KEY PLAN

FOR DWG. REF.

N

PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	R. C. BOGGS, P.E.
DRAWN BY	L. CZUBATYJ

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FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
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9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

ROOF FRAMING PLAN - PART "A"

SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

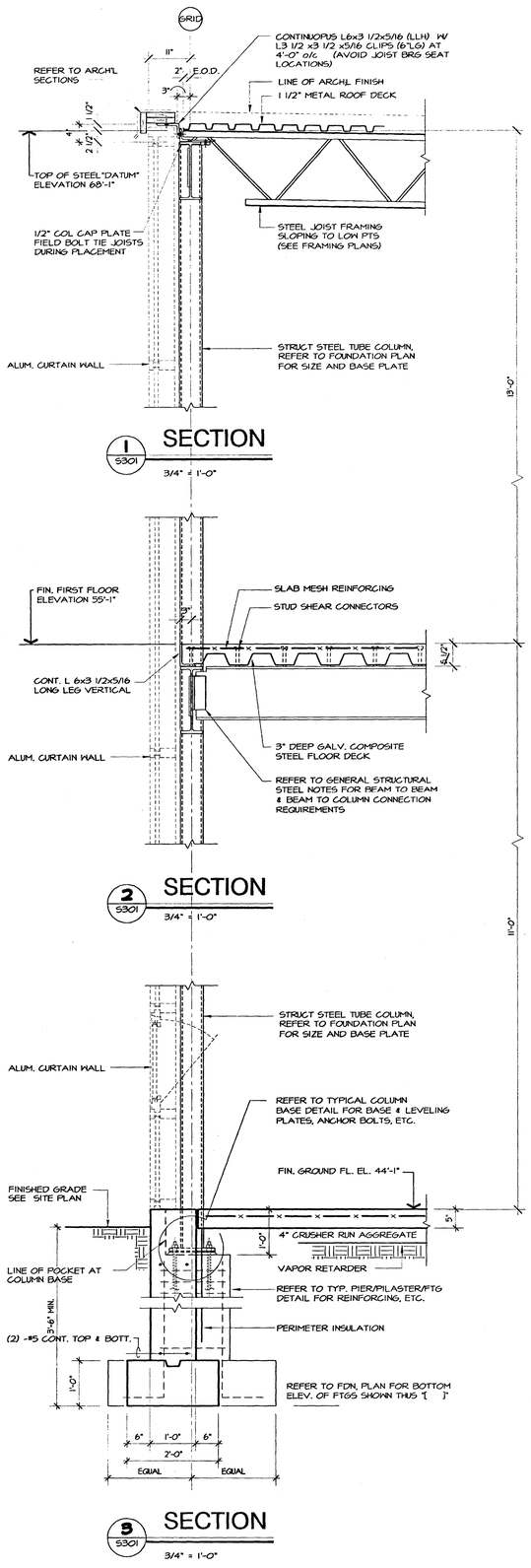
DATE: MARCH 16, 1998

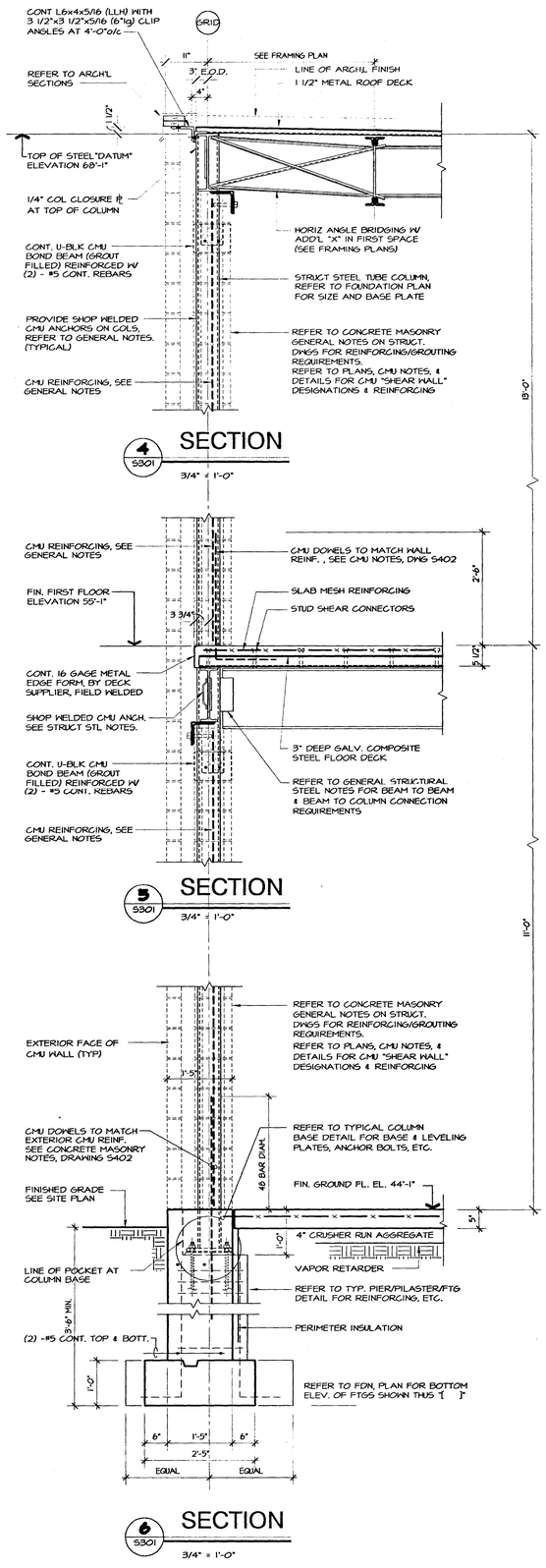
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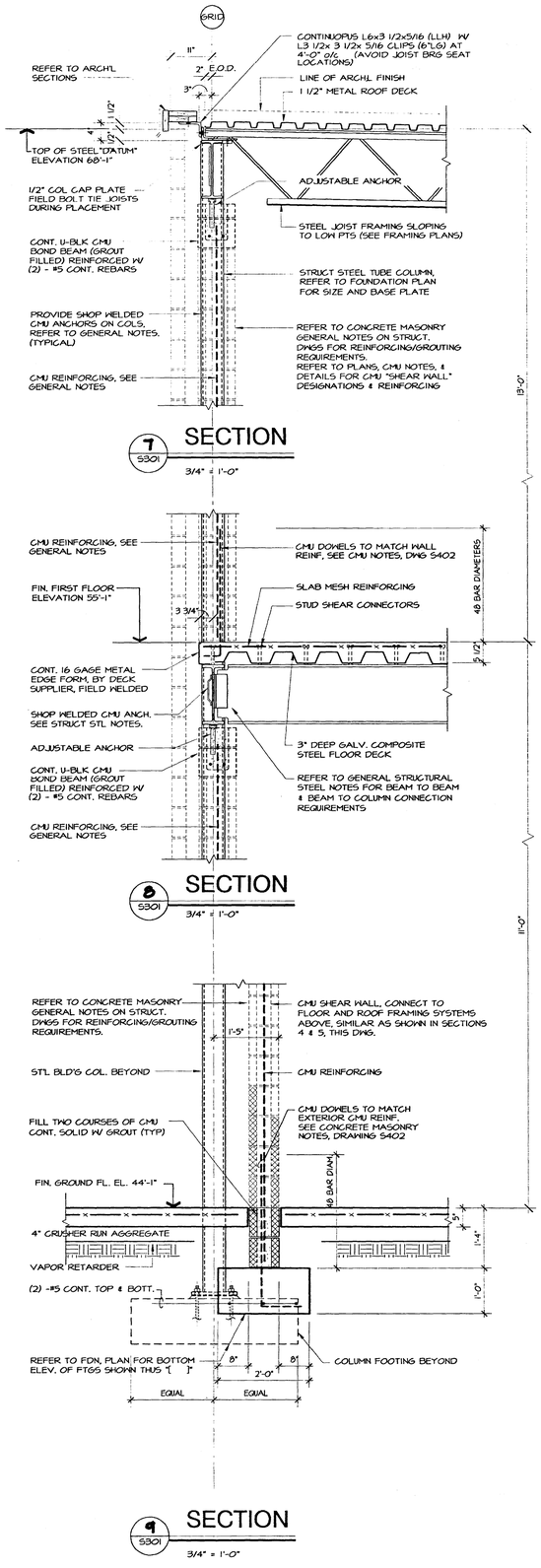
PROJECT NO.: 50950.06

DRAWING NO.: **S102.1**

BQ #70 & 125 Attachment







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STATE PROJECT NO. 057-106EA

DRAWING TITLE

FRAMING SECTIONS AND DETAILS

NO	DATE	REVISION	BY

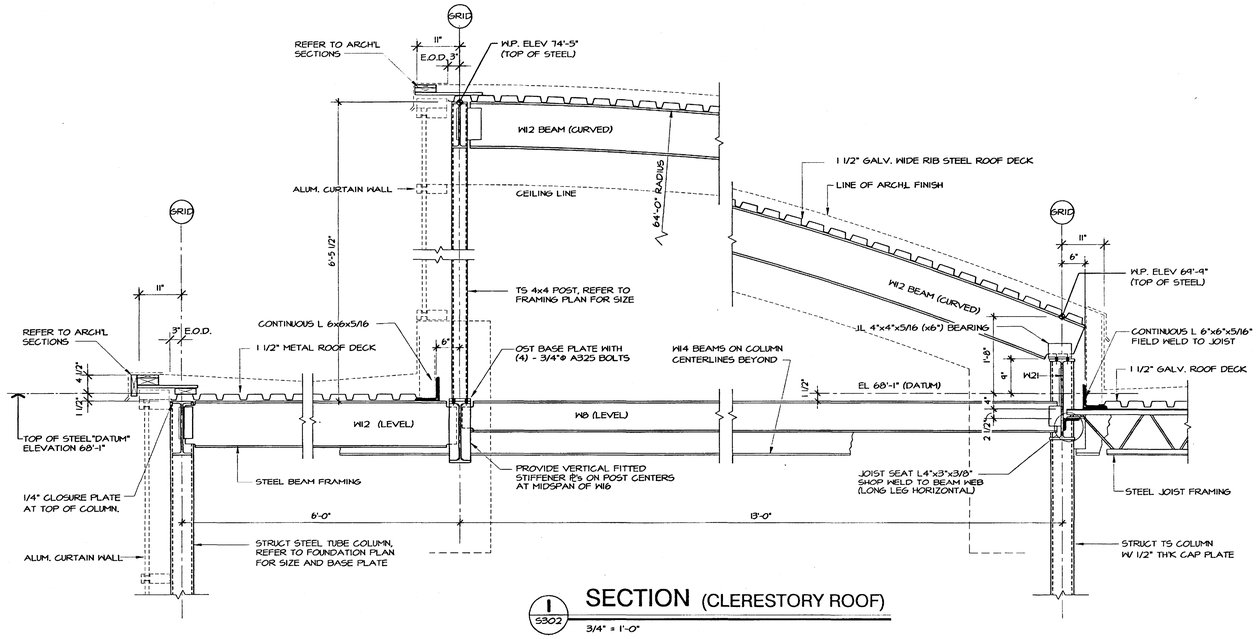
DATE: MARCH 16, 1998

SCALE: 3/4" = 1'-0"

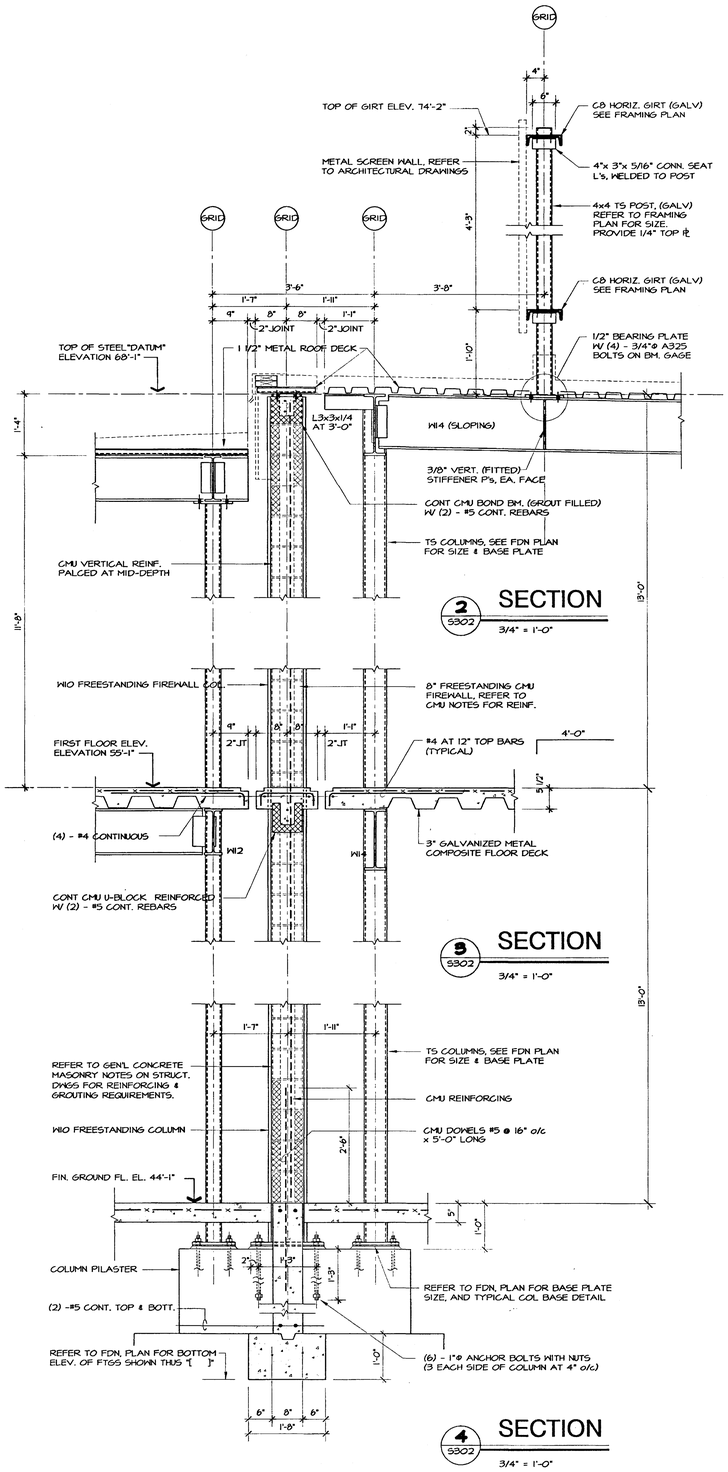
PROJECT NO.: 50950.06

DRAWING NO.: S301

BQ #70 & 125 Attachment

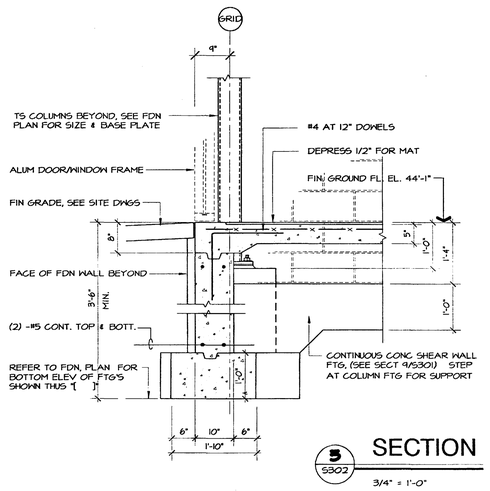


1 / S302 SECTION (CLERESTORY ROOF)
3/4" = 1'-0"



2 / S302 SECTION
3/4" = 1'-0"

3 / S302 SECTION
3/4" = 1'-0"



5 / S302 SECTION
3/4" = 1'-0"

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ARCHITECT/ENGINEER: R.C. BOGGS, P.E.
DRAWN BY: L. CZUBATYJ

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STATE PROJECT NO. 057-106EA

DRAWING TITLE

FRAMING SECTIONS AND DETAILS

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DATE: MARCH 16, 1998
SCALE: 3/4" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: S302

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BQ #70 & 125 Attachment

GENERAL STRUCTURAL NOTES

GENERAL

GOVERNING CODE: 1994 STATE OF CONNECTICUT BASIC BUILDING CODE (BOCA BASIC NATIONAL BUILDING CODE 1990, BOCA ACCUMULATIVE SUPPLEMENT 1992).

DESIGN LOADS:

NEW FLOOR AREAS: CORRIDORS: DEAD LOAD 65 PSF, LIVE LOAD 80 PSF
CLASSROOMS: DEAD LOAD 65 PSF +20 PSF PARTITIONS, LIVE LOAD 40 PSF

ROOF LOAD:

ROOF SNOW LOAD CRITERIA: Pg = 30 PSF, Ce = 0.7 AND I = 1.0, WITH INCREASES FOR SNOW DRIFTING, UNBALANCES AND SLIDING PER SECTION 1111 (1990 BOCA).

MINIMUM ROOF LIVE LOAD = 30 PSF

ROOF DEAD LOAD = 20 PSF

WIND LOAD CRITERIA: SECTION 1112 (1990 BOCA) WITH BASIC WIND SPEED = 80 MPH, BUILDING CATEGORY I, I = 1.03, EXPOSURE CLASSIFICATION "B".

MINIMUM WIND LOAD ON PRIMARY STRUCTURE = 18 PSF

WIND LOADS ON SECONDARY ELEMENTS SHALL CONFORM WITH ASCE 7-88.

TYPICAL WIND LOAD ON EXTERIOR WALLS = 24 PSF
MAXIMUM WIND LOAD AT CORNERS = 29 PSF
NET WIND UPLIFT ON STEEL JOIST ROOFS = 9 PSF

SEISMIC LOAD CRITERIA: AS PER SECTION 1113 (1990 BOCA SUPPLEMENT) WITH Av = .13, Aa = .13, S = 1.0, R = 4.5.

SEISMIC LOAD ON PRIMARY STRUCTURE = 7% OF MASS

ASSUMED BEARING PRESSURE ON UNDISTURBED SOIL: 5000 PSF
ASSUMED BEARING PRESSURE ON COMPACTED FILL: 5000 PSF

1. SHOULD ANY OF THE DETAILED INSTRUCTIONS SHOWN ON THE PLANS CONFLICT WITH THE GENERAL STRUCTURAL NOTES, THE SPECIFICATIONS, OR WITH EACH OTHER, THE STRICTEST PROVISION SHALL GOVERN.
2. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS FULLY COMPLETED. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIEDOWNS MIGHT BE NECESSARY. SUCH MATERIAL SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER COMPLETION OF THE PROJECT.
3. THE STRUCTURE UTILIZES SHEAR WALLS TO PROVIDE LATERAL STABILITY. THEREFORE, TEMPORARY BRACING, GUYS, ETC. MUST BE MAINTAINED UNTIL ALL MASONRY SHEAR WALLS HAVE BEEN ERECTED AND ATTACHED TO STEEL FRAMING.
4. LOADS, OPENINGS AND STRUCTURE IN ANY WAY RELATED TO REQUIREMENTS OF OTHER (NON-STRUCTURAL) DISCIPLINES ARE SHOWN FOR BIDDING PURPOSES ONLY. THE CONTRACTOR SHALL OBTAIN FROM THE HEATING AND VENTILATING, ELECTRICAL, PLUMBING AND OTHER SUBCONTRACTORS THE FINAL APPROVED SIZE AND LOCATION OF ALL OPENINGS AND WORK TO BE PROVIDED FOR THEIR TRADE IN ROOFS, FLOORS AND WALLS, WHETHER SHOWN OR NOT SHOWN ON STRUCTURAL DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR TRANSMISSION OF REQUIREMENTS, LOCATIONS AND DETAILS TO STRUCTURAL SUBCONTRACTORS. EXCESS COST RELATED TO VARIATION IN MECHANICAL REQUIREMENTS ARE NOT TO BE BORNE BY THE OWNER.
5. MECHANICAL EQUIPMENT WEIGHTS USED IN DESIGN OF SUPPORTING ELEMENTS HAVE BEEN INDICATED ON THE DRAWINGS. CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO INSTALLATION IF ACTUAL WEIGHT EXCEEDS WEIGHT SHOWN ON DRAWINGS.
6. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION.
7. SHOP DRAWINGS ARE TO BE CHECKED BY THE CONTRACTOR AND SUBCONTRACTOR AND BEAR CHECKER'S INITIALS BEFORE BEING SUBMITTED TO THE ARCHITECT FOR APPROVAL.
8. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS BEFORE PROCEEDING WITH ANY WORK.
9. ALL SECTIONS AND DETAILS SHALL BE CONSIDERED TYPICAL AND APPLY FOR THE SAME AND SIMILAR SITUATIONS THROUGHOUT THE BUILDING, UNLESS OTHERWISE SPECIFICALLY NOTED.

FOUNDATIONS

1. BACKFILLING SHALL BE ACCOMPLISHED TO EQUAL HEIGHTS ON BOTH SIDES OF FOUNDATION WALLS TO PREVENT MOVEMENTS DUE TO UNBALANCED EARTH PRESSURE. WHERE EARTH IS ON ONE SIDE ONLY, BACKFILLING AND COMPACTION SHALL NOT START UNTIL FLOOR SLAB OR ADEQUATE BRACING IS PROVIDED FOR WALL SUPPORT (EXCEPT AT RETAINING WALLS).
2. ALL FOOTINGS ARE TO REST ON UNDISTURBED NATURAL SOIL, AS DEFINED IN THE SPECIFICATIONS, OR CONTROLLED COMPACTED FILL, REGARDLESS OF ELEVATIONS SHOWN ON DRAWINGS. FOOTING BOTTOM ELEVATIONS SHALL NOT BE HIGHER THAN INDICATED ON THE FOUNDATION PLAN.
3. ALL SOIL SURROUNDING AND UNDER ALL FOOTINGS SHALL BE PROTECTED FROM FREEZING AND FROST ACTION DURING THE COURSE OF CONSTRUCTION.
4. BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE AT LEAST 3'-6" BELOW FINISHED GRADE.
5. FOOTING BOTTOMS SHALL STEP WHERE INDICATED AT THE RATE OF 1 UNIT VERTICAL TO 2 UNITS HORIZONTAL WITH A MAXIMUM VERTICAL STEP OF 2'-0".
6. WHERE FOOTINGS ARE IN CLOSE PROXIMITY OF SUBSURFACE PIPING, BOTTOM OF FOOTINGS SHALL BE AT LEAST 6" BELOW INVERT ELEVATION OF PIPING, UNLESS OTHERWISE SHOWN ON DRAWINGS.
7. KEEP FOUNDATION EXCAVATIONS FREE OF WATER AT ALL TIMES.
8. USE LEAN CONCRETE (f'c=1500) OR CONTROLLED COMPACTED FILL FOR OVER-EXCAVATION OF FOOTINGS.
9. PLACEMENT OF ALL COMPACTED FILL MUST BE UNDER SUPERVISION OF AN APPROVED TESTING LABORATORY (SEE SPECIFICATIONS). CONCRETE FOUNDATIONS SHALL NOT BE PLACED UNTIL SUBBASE HAS BEEN CHECKED IN PLACE AND APPROVED BY TESTING LABORATORY.
10. CONTROL JOINT SPACING IN FOUNDATION WALLS SHALL NOT EXCEED 30 FEET. 50% OF HORIZONTAL REINFORCEMENT SHALL EXTEND THROUGH JOINT AND HAVE A CLASS "B" SPLICE (PER ACI 318-89).
11. WHERE REQUIRED, CONSTRUCTION JOINTS SHALL BE KEYED AND OCCUR AT CONTROL JOINT INTERVALS.
12. THE LOCATION AND ELEVATION OF EXISTING FOOTINGS INDICATED ARE BASED ON DRAWINGS BY: MARCHANT & MINGES ENGINEERS, DATED APRIL 30, 1957, WHICH HAVE BEEN PROVIDED TO THE DESIGNERS BY THE OWNER. THIS INFORMATION IS PROVIDED FOR BIDDING PURPOSES ONLY. ACTUAL EXISTING FOUNDATIONS MAY VARY FROM WHAT IS INDICATED, AND MUST BE VERIFIED IN FIELD PRIOR TO PREPARATION OF SHOP DRAWINGS. NOTIFY ARCHITECT IF EXISTING CONDITIONS PRECLUDE USE OF DETAILS AS SHOWN.

SLAB ON GRADE

1. CONTROL JOINTS ARE TO BE CREATED IN SLABS ON GRADE. JOINTS SHALL BE SAW CUT 1/8" WIDE AND TO A DEPTH EQUAL TO 1/4 OF THE SLAB THICKNESS. LOCATE JOINTS 15'-0" ON CENTER (PLUS OR MINUS 5'-0") IN EACH DIRECTION, UNLESS OTHERWISE SHOWN ON DRAWINGS. CONSTRUCTION JOINTS AS REQUIRED SHALL BE KEYED AND LOCATED AT CONTROL JOINT INTERVALS.
2. SEE ARCHITECTURAL DRAWINGS FOR LOCATION AND SIZE OF DEPRESSED AREAS IN CONCRETE SLABS AND FOR CONCRETE PADS. MAINTAIN FULL SLAB THICKNESS IN DEPRESSED AREAS, UNLESS OTHERWISE SHOWN.
3. SEE ARCHITECTURAL DRAWINGS FOR LOCATION OF ALL MASONRY WALLS FOR WHICH NO FOOTING IS SHOWN. SEE DETAILS FOR SLAB REINFORCING REQUIREMENTS AT ALL WALL LOCATIONS.

CONCRETE

MATERIALS:

CONCRETE SHALL DEVELOP STRENGTH IN 28 DAYS AS FOLLOWS:

LOCATION		STRENGTH (PSI)
	FOUNDATIONS	3000
	WALLS	3000
	SLABS ON GRADE	4000
	SLABS ON METAL DECK	4000

1. ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS MUST FOLLOW THE LATEST ACI CODE AND THE LATEST ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".
2. REINFORCING STEEL SHALL BE 60,000 PSI YIELD.
3. NO TACK WELDING OF REINFORCING WILL BE PERMITTED.
4. UNLESS NOTED OTHERWISE, ALL LAP SPLICES SHALL BE CLASS B, IN ACCORDANCE WITH ACI 318-89.
5. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185.
6. WIRE MESH REINFORCEMENT MUST LAP ONE MESH SIZE AT SIDES AND ENDS AND BE WIRED TOGETHER.
7. WELDED WIRE FABRIC SIDE LAPS SHALL BE STAGGERED TO AVOID FOUR MESH THICKNESS AT COINCIDING END LAP AND SIDE LAP LOCATION.
8. NO CALCIUM CHLORIDE OR ADMIXTURES CONTAINING MORE THAN 0.1% CHLORIDE BY WEIGHT OF ADMIXTURE SHALL BE USED IN THE CONCRETE.
9. CONTRACTOR SHALL ANTICIPATE DEFLECTION OF UNCAMBERED STEEL AT SUPPORTED SLABS, AND PROVIDE ADDITIONAL CONCRETE AS REQUIRED.
10. AT INTERSECTIONS OF REINFORCED CONCRETE WALLS, PROVIDE CORNER DOWELS OF SAME SIZE AND AT THE SAME SPACING AS THE SMALLER HORIZONTAL REINFORCING. DOWELS SHALL HAVE A CLASS B LAP WITH HORIZONTAL REINFORCING IN EACH DIRECTION.
11. PROVIDE CORROSION RESISTANT ACCESSORIES IN ALL EXPOSED CONSTRUCTION.
12. ALL KEYS IN CONCRETE WALLS SHALL BE 2 X 4 UNLESS NOTED OTHERWISE.
13. CONCRETE PIERS: PLACE CONCRETE PIERS AND WALLS TO SOLIDLY SET PIER REINFORCING AND SET WALL REINFORCING THROUGH PIER VERTICAL BARS. PROVIDE DOWELS WITH STANDARD HOOK FROM FOOTING AT ALL PIERS. SIZE AND QUANTITY OF DOWELS TO MATCH VERTICAL PIER REINFORCING (CLASS "B" SPLICE).
14. SEE ARCHITECTURAL, MECHANICAL AND EQUIPMENT DRAWINGS FOR CONCRETE PADS, SLEEVES, OPENINGS, RECESSES, AND BUILT-IN WORK IN CONCRETE ELEMENTS.
15. THE CONTRACTOR SHALL FURNISH, LOCATE AND INSTALL ALL ACCESSORIES FOR PROPER ANCHORAGE OF WOOD AND METAL FRAMING, WOOD BLOCKING, BRICK WORK AND MASONRY UNITS. HE SHALL BE SOLELY RESPONSIBLE FOR FURNISHING, LOCATING AND ENSURING PROPER QUANTITY OF ALL FASTENING DEVICES.
16. ALL CONCRETE TO REMAIN EXPOSED TO VIEW SHALL RECEIVE A SMOOTH RUBBED FINISH (SEE SPECIFICATIONS).
17. ALL CONCRETE CORNERS WITH BOTH SIDES EXPOSED TO VIEW SHALL BE SQUARE UNLESS OTHERWISE SHOWN OR NOTED. THE EDGE SHALL BE RUBBED, PRODUCING A SMOOTH, DENSE SURFACE WITHOUT PITS OR IRREGULARITIES.
18. PROVIDE CONTINUOUS VERTICAL DOVETAIL SLOTS AT 16 INCH CENTERS HORIZONTALLY FOR ALL CONCRETE WALLS ABUTTING A MASONRY WALL OR VENEER, UNLESS OTHERWISE NOTED.
19. PROVIDE CLEARANCE FROM EDGE OF REINFORCING TO EDGE OF CONCRETE AS FOLLOWS:

FOOTINGS (AGAINST EARTH)	3"
COLUMNS AND PIERS (VERTICAL REINFORCING)	2"
WALLS, INTERIOR FACE	3/4"
WALLS, EXTERIOR FACE (#5 AND SMALLER)	1 1/2"
SLABS (INTERIOR)	3/4"
SLABS (EXTERIOR)	1 1/2"
SLABS ON GRADE (MAT.)	1/3 X THK. FROM TOP SURFACE

20. PROVIDE THE FOLLOWING AT OPENINGS IN ALL CONCRETE WALLS AND FRAMED SLABS, UNLESS OTHERWISE INDICATED:

1-#5 AT EACH FACE ON EACH SIDE OF OPENING, EXTENDING 2'-0" BEYOND OPENING.
1-#5 X 4'-0" LONG AT EACH FACE DIAGONALLY AT EACH CORNER.

STRUCTURAL STEEL

MATERIALS:

WIDE FLANGE STRUCTURAL STEEL SHAPES	ASTM A 572, GR.50
STEEL PLATES AND ANGLES	ASTM A 36
STRUCTURAL STEEL TUBING	ASTM A500, GRADE B
BOLTS:	ASTM A325
ANCHOR BOLTS	ASTM A307
WELDING ELECTRODE	ASTM E 70

1. DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO CURRENT AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION.
2. WELDING SHALL CONFORM TO THE CODE FOR "ARC AND GAS WELDING IN BUILDING CONSTRUCTION" OF THE AMERICAN WELDING SOCIETY.
3. ALL LOOSE BEAM LINTELS SHALL HAVE 8" MINIMUM BEARING. SEE ARCHITECTURAL JAMB DETAILS FOR LENGTHS.
4. FOR MISCELLANEOUS STEEL SEE ARCHITECTURAL DRAWINGS.
5. ALL WELDING SHALL BE DONE BY A CERTIFIED WELDER IN ACCORDANCE WITH AWS STANDARDS.
6. CONNECTIONS:
   CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE A.I.S.C. MANUAL OF STEEL CONSTRUCTION. CONNECTIONS SHALL BE PROVIDED TO CONFORM TO THE REQUIREMENTS OF TYPE 2 CONSTRUCTION UNLESS OTHERWISE DETAILED.
   CONNECTIONS SHALL BE DESIGNED TO ACCOMMODATE REACTIONS INDICATED ON THE DRAWINGS.
   IF NO REACTION IS INDICATED AT A PARTICULAR BEAM END, DESIGN CONNECTION FOR 6 KIPS.
   MINIMUM CONNECTION ANGLE THICKNESS SHALL BE 5/16".
   IN ADDITION TO PROVIDING ADEQUATE BOLTS TO ACCOMMODATE REACTIONS, THE FOLLOWING MINIMUM NUMBER OF BOLT ROWS SHALL BE USED:

MEMBER DEPTH	MINIMUM BOLT ROWS
12" or Less	2
14" to 18"	3
21" to 24"	4
27" to 30"	5
Over 30"	6

   CONNECTIONS SHALL BE MADE USING 3/4" DIAMETER ASTM A325 BOLTS (SNUG TIGHT OR SLIP CRITICAL) OR WELDS, UNLESS NOTED OTHERWISE. IF TENSION CONTROL BOLTS ARE USED, CONNECTIONS SHALL BE DESIGNED FOR SLIP CRITICAL BOLT ALLOWABLE LOAD VALUES.
   PROVIDE SLOTTED BOLTED CONNECTIONS WHERE SHOWN WITH 13/16" X 1 7/8" SLOTTED HOLES USING ASTM A 325 BOLTS WITH WASHERS. NUTS SHALL BE FASTENED SNUG TIGHT, THEN UNTIGHTENED BY ONE-HALF TURN. PEEN THREADS TO PREVENT FURTHER LOOSENING OF NUT.
   USE LARGER OF 1/4" FILLET WELDS OR MINIMUM SIZE PER AISC REQUIREMENTS WHERE NO WELD SIZE IS SHOWN ON DRAWINGS.
   WELDS IN EXCESS OF 24" IN LENGTH SHALL BE 3" STITCH WELDS AT 12" ON CENTERS, UNLESS SPECIFICALLY SHOWN ON DRAWINGS TO BE CONTINUOUS.
   MOMENT CONNECTIONS SHALL BE DESIGNED TO DEVELOP FULL MOMENT CAPACITY OF THE ELEMENTS CONNECTED, UNLESS SPECIFIC MOMENT IS INDICATED ON THE DRAWINGS.
7. NO WELDING OR FINAL BOLTING SHALL BE DONE UNTIL AS MUCH OF THE STRUCTURE THAT WILL BE STIFFENED THEREBY HAS BEEN PROPERLY ALIGNED.
8. SEQUENCE OF PLACING WELDS SHALL BE SUCH AS TO AVOID DISTORTION OF MEMBERS.
9. SUBSTITUTION OF STRUCTURAL STEEL MEMBERS IS PERMITTED TO FACILITATE DELIVERY AT NO ADDITIONAL COST TO THE OWNER. SUBSTITUTED MEMBERS MUST BE OF THE SAME NOMINAL DEPTH AS THE MEMBER ORIGINALLY INDICATED AND HAVE A WEIGHT GREATER THAN THAT INDICATED. BEAM FLANGES MUST NOT INFRINGE ON ADJACENT ARCHITECTURAL ELEMENTS.

STRUCTURAL STEEL (CONTINUED)

10. ALL STRUCTURAL STEEL BEAMS AND COLUMNS ADJACENT TO MASONRY SHALL HAVE THE FOLLOWING MASONRY ANCHORAGE:
    16 GAGE GALVANIZED CHANNEL SLOTS (DUR-O-WAL INC. D/A 401) WELDED TO COLUMNS AND BEAMS WITH 1/4" GALVANIZED STRAP ANCHORS (DUR-O-WAL INC. D/A 914) SPACED 1'-4" O.C. AT COLUMNS AND 1'-4" AT BEAMS (UNLESS OTHERWISE NOTED). INSTALL PER MANUFACTURER'S SPECIFICATIONS.
11. STEEL MEMBERS SHOWN CONNECTED TO MASONRY WITH EXPANSION ANCHORS SHALL HAVE 3/4" DIAMETER EXPANSION ANCHORS AT 2'-8" ON CENTERS IN VERTICALLY SLOTTED HOLES, UNLESS OTHERWISE INDICATED.
12. PROVIDE 9/16" DIAMETER HOLES FOR WOOD NAILERS AS REQUIRED BY ARCHITECTURAL DRAWINGS.
13. PROVIDE BITUMASTIC PROTECTION COATING FOR ALL STRUCTURAL STEEL BELOW GRADE.
14. EXISTING STEEL SURFACES TO RECEIVE FIELD WELDS SHALL BE THOROUGHLY CLEANED UNTIL FREE FROM PAINT, RUST, GREASE, ETC.

METAL ROOF DECK

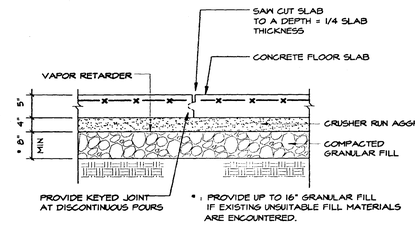
1. MATERIALS:
   TYPICAL METAL DECK SHALL BE 1 1/2" GALVANIZED WIDE RIB TYPE WITH NESTING SIDE SEAMS OF GAGE INDICATED ON THE DRAWINGS.
   DECK SHALL CONFORM TO "BASIC DESIGN SPECIFICATION" AS ADOPTED BY THE STEEL DECK INSTITUTE.
   METAL ROOF DECK SHALL BE FURNISHED IN SHEET LENGTHS SUFFICIENT TO EXTEND OVER FOUR SUPPORTS (3 SPANS) WHEREVER POSSIBLE.
2. ATTACHMENT:
   METAL DECK SHALL BE WELDED TO SUPPORTING STEEL WITH PUDDLE WELDS (5/8" DIAMETER MINIMUM) SPACED NOT MORE THAN 12" ON CENTER.
   WELD METAL ROOF DECK TO STEEL MEMBERS PARALLEL TO SPAN OF DECK USING 5/8" DIAMETER PUDDLE WELDS AT 12" ON CENTER.
   INTERMEDIATE SIDE CONNECTIONS SHALL BE MADE WITH #10 SELF TAPPING SCREWS. THE MAXIMUM SPACING OF SIDE LAP CONNECTIONS SHALL BE 3'-0".

COMPOSITE FLOOR DECK

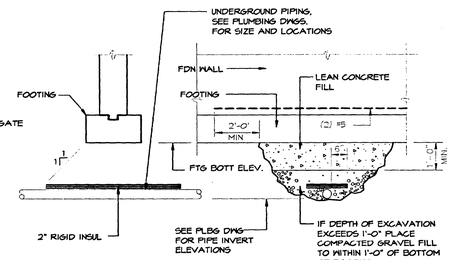
1. MATERIALS:
   METAL FLOOR DECK SHALL BE GALVANIZED AND OF DEPTH AND GAGE INDICATED ON THE DRAWINGS. METAL FLOOR DECK SHALL BE FORMED WITH EMBOSSMENTS TO PROVIDE A MECHANICAL LOCK BETWEEN THE STEEL FLOOR AND CONCRETE SLAB.
   METAL FLOOR DECK SHALL BE FURNISHED IN SHEET LENGTHS SUFFICIENT TO EXTEND OVER 4 SUPPORTS (3 SPANS).
2. ATTACHMENT:
   METAL FLOOR DECK SHALL BE FASTENED TO SUPPORTING STEEL, INCLUDING CAST IN PLACE PERIMETER STEEL ANGLES, WITH ATTACHMENTS EQUIVALENT TO 3/4" DIAMETER PUDDLE WELDS SPACED NOT MORE THAN 12" ON CENTER. ADJACENT DECK UNITS SHALL BE FASTENED TOGETHER AT SIDE LAPS SUCH THAT THE CONNECTION SPACING DOES NOT EXCEED 36" ON CENTER.

STEEL JOISTS

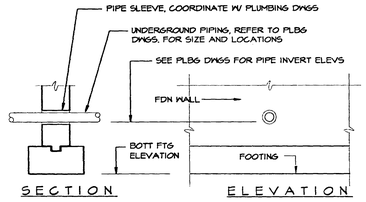
1. STEEL JOISTS SHALL CONFORM TO AND BE ERECTED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS AND CODE OF STANDARD PRACTICE OF THE STEEL JOIST INSTITUTE AND AS SHOWN ON THE DRAWINGS.
2. BRIDGING FOR STEEL JOISTS SHALL BE AS SHOWN AND NOT LESS THAN CALLED FOR BY THE STEEL JOIST INSTITUTE SPECIFICATION AND CODE OF STANDARD PRACTICE.
3. HEADERS AND/OR FASTENERS BETWEEN JOISTS SHALL BE FASTENED TO TOP CHORD AND LOCATED OVER AN UPPER PANEL POINT OF A JOIST, UNLESS OTHERWISE SHOWN.
4. EXTEND ALL JOISTS 1" PAST CENTERLINE OF SUPPORTING MEMBER WHERE POSSIBLE.
5. ADJACENT JOISTS OF THE SAME DEPTH SHALL HAVE WEB MEMBERS IN LINE TO PERMIT PASSAGE OF MECHANICAL DUCTS.
6. ANCHOR ALL STEEL JOIST BRIDGING LINES TO INTERSECTING CONCRETE WALLS, MASONRY WALLS, AND/OR STEEL BEAMS WITH LATERAL ANCHORS UNLESS SHOWN OTHERWISE.
7. JOISTS AND JOIST EXTENDED ENDS, WHETHER CANTILEVERED OR SUPPORTED, SHALL BE DESIGNED TO SUSTAIN UNIFORM LOAD CAPACITY OVER FULL SPAN INDICATED IN THE SJI LOAD TABLES FOR STEEL JOISTS, UNLESS NOTED OTHERWISE ON DRAWINGS WITH "SP" DESIGNATION.
8. JOISTS ON COLUMN LINES SHALL BE ANCHORED BY BOLTING. IF THERE IS NO JOIST ON COLUMN CENTERLINE, THE JOIST NEAREST THE COLUMN CENTERLINE SHALL BE ANCHORED BY BOLTING.
9. WELD ALL JOISTS TO SUPPORTING STEEL WITH 1 1/2" OF 3/16" FILLET WELD EACH SIDE OF BEARING, UNLESS OTHERWISE SHOWN.
10. MAXIMUM LIVE LOAD DEFLECTION SHALL BE 1/360 OF JOIST SPAN, UNLESS OTHERWISE NOTED ON DRAWINGS.
11. WHERE DIAGONAL BRIDGING INTERFERES WITH MECHANICAL INSTALLATIONS, REMOVE CROSS BRIDGING AFTER TOTAL DEAD LOAD IS APPLIED AND REPLACE WITH HORIZONTAL ANGLES 2" X 2" x 3/16" AT TOP AND BOTTOM CHORDS.



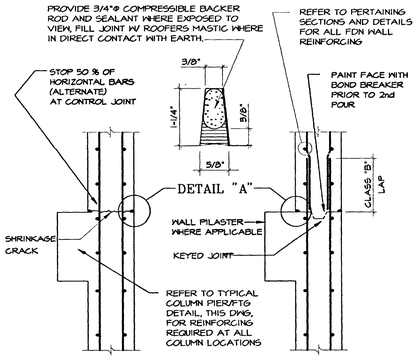
TYP. SLAB ON GRADE CONTROL JT. DETAIL
NOT TO SCALE



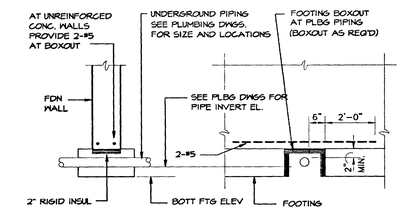
EARTHWORK DET. AT PIPE TRENCHING BENEATH FTGS.
NOT TO SCALE



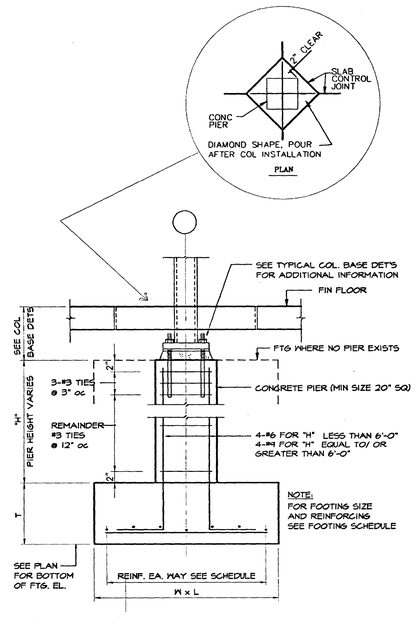
FOUNDATION WALL PIPE SLEEVE DETAIL
NOT TO SCALE



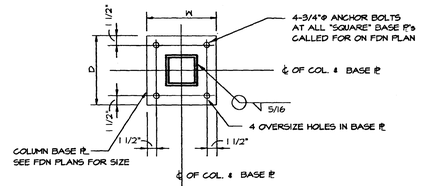
TYPICAL CONCRETE FOUNDATION WALL CONTROL/CONSTRUCTION JOINT DETAIL
NOT TO SCALE

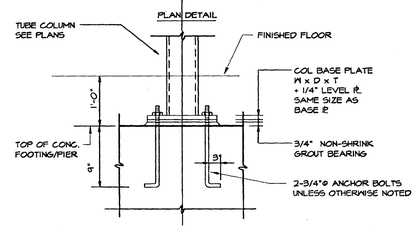


FOUNDATION WALL /FTG PIPE BOXOUT DET.
NOT TO SCALE

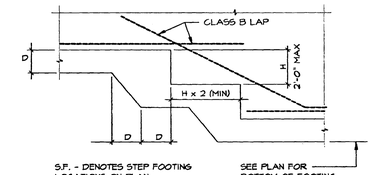


TYPICAL COLUMN PIER/PILASTER/FTG DETAIL
NOT TO SCALE





TYPICAL COLUMN BASE DETAIL
NOT TO SCALE



TYPICAL STEPPED FOOTING DETAIL
NOT TO SCALE

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: R. C. BOGGS, P.E.
DRAWN BY: L. CZUBATYJ

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN
FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT
STATE PROJECT NO. 057-106EA

DRAWING TITLE

GENERAL NOTES AND TYPICAL DETAILS

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: S401

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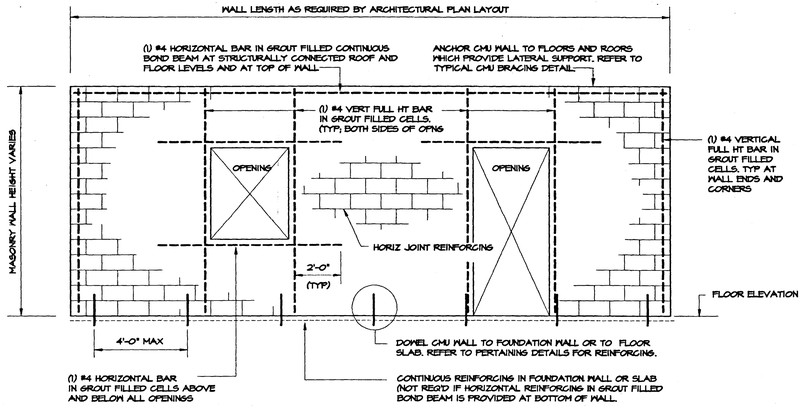
CONCRETE MASONRY NOTES

CONCRETE MASONRY

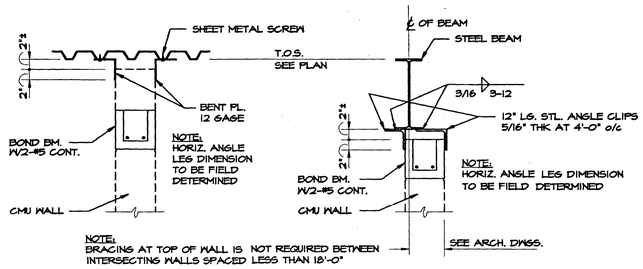
MATERIALS:

HOLLOW LOAD BEARING UNITS: ASTM C 90
MORTAR: (TYPE S) ASTM C 270
GROUT FOR REINFORCED MASONRY: ASTM C 476

1. WALLS INDICATED ON STRUCTURAL DRAWINGS ARE FOR REFERENCE ONLY. SEE ARCHITECTURAL DRAWINGS FOR LOCATION, THICKNESS AND COMPOSITION OF MASONRY WALLS.
2. ALL EXTERIOR MASONRY WALLS SHALL CONTAIN THE FOLLOWING REINFORCING:
   - 1-#6 BAR AT 48" ON CENTER.
   - 1-#6 BAR AT BOTH SIDES OF DOOR AND WINDOW OPENINGS.
   - 1-#4 BAR MINIMUM ABOVE AND BELOW ALL WINDOW OPENINGS AND ABOVE ALL DOOR OPENINGS. PROVIDE ADDITIONAL BARS ABOVE DOORS AND WINDOWS AS REQUIRED IN ACCORDANCE WITH LINTEL SCHEDULE.
   - 1-#4 AT TOP OF ALL WALLS, UNLESS OTHERWISE INDICATED.
   - 2-#6 BAR AT ENDS OF ALL WALLS.
   - STANDARD LADUR TYPE DESIGN DUR-O-WAL HORIZONTAL REINFORCING AT 16" O.C. VERTICAL.
3. INTERIOR SHEAR WALLS, WHERE INDICATED, SHALL CONTAIN THE SAME REINFORCING AS EXTERIOR WALLS.
4. ALL OTHER INTERIOR MASONRY WALLS SHALL CONTAIN THE FOLLOWING MINIMUM REINFORCING:
   - 1-#4 AT ALL SIDES OF DOOR AND WINDOW OPENINGS.
   - 1-#4 AT TOP AND ENDS OF ALL WALLS.
   - STANDARD LADUR TYPE DESIGN DUR-O-WAL HORIZONTAL REINFORCING AT 16" O.C. VERTICAL.
5. ALL VERTICAL REINFORCING SHALL EXTEND FOR THE FULL HEIGHT OF THE MASONRY, AND SHALL PASS INTO OR THROUGH BOND BEAMS.
6. CELLS CONTAINING REINFORCING BARS AND ALL CELLS BELOW GRADE SHALL BE GROUTED SOLID. ALL OTHER CELLS SHALL REMAIN HOLLOW EXCEPT WHERE NOTED.
7. ALL BOLTS OR ANCHORS SHALL BE SOLIDLY EMBEDDED IN MORTAR OR GROUT. IF BOND BEAM IS NOT LOCATED AT BOLT OR ANCHOR ELEVATION, PROVIDE LATH AND FILL CELL LOCALLY TO PROVIDE SUBSTRATE FOR BOLT OR ANCHOR.
8. ALL COLUMNS WITHIN SHEAR WALLS AND EXTERIOR WALLS SHALL BE SOLIDLY EMBEDDED IN GROUT.
9. USE 2 COURSES (16") OF SOLID MASONRY BELOW EACH BEAM OR LINTEL BEARING EXCEPT AS NOTED.
10. PROVIDE CONTINUOUS GROUTED BOND BEAM WHERE MASONRY TIES CONCRETE MASONRY TO STEEL FRAMING.
11. HOLLOW UNITS SHALL BE LAID WITH FULL MORTAR COVERAGE ON HORIZONTAL AND VERTICAL FACE SHELLS, EXCEPT THAT WEBS SHALL ALSO BE BEDDED IN ALL COURSES OF BEARING WALLS, PIERS, COLUMNS AND PILASTERS, AND IN THE STARTING COURSE ON FOOTINGS AND SOLID FOUNDATION WALLS, AND WHERE ADJACENT TO CELLS OR CAVITIES WHICH ARE TO BE REINFORCED AND / OR FILLED WITH GROUT.
12. MORTAR PROTRUSIONS EXTENDING INTO CELLS OR CAVITIES TO BE REINFORCED AND/OR GROUTED SHALL BE REMOVED.
13. ALL MASONRY WALLS SHALL BE BRACED AT THE TOP UNLESS BRACED HORIZONTALLY BY COLUMNS OR INTERSECTING WALLS AT A MAXIMUM SPACING OF 12 FEET.

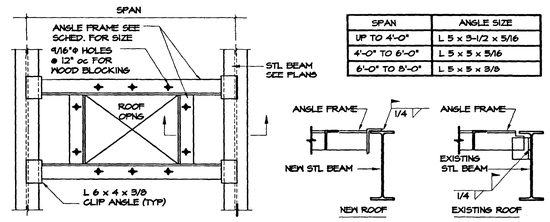


MINIMUM REINFORCING REQUIREMENTS FOR CMU WALLS
NOT TO SCALE



CMU WALL @ UNDERSIDE OF DECK CMU WALL @ STEEL BEAM/JOIST

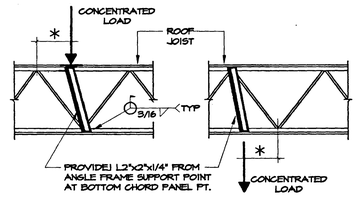
TYP. BRACING AT TOP OF INTERIOR CMU WALLS
NOT TO SCALE



SPAN	ANGLE SIZE
UP TO 4'-0"	L 5 x 3-1/2 x 5/16
4'-0" TO 6'-0"	L 5 x 5 x 5/16
6'-0" TO 8'-0"	L 5 x 5 x 3/8

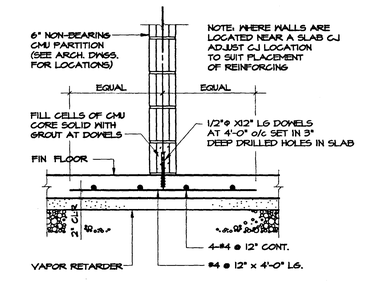
NOTES: 1. SEE ARCH. AND MECH. DWGS. FOR SIZE AND LOCATION OF ALL ROOF PENETRATIONS
2. PROVIDE SUPPORT FRAMES FOR ALL OPNS. 8" OR GREATER IN SIZE. COORDINATE WITH MECH'L AND ARCH'L DWGS FOR SIZE AND LOCATION.
3. AT EXISTING CONCRETE BUILDING, PROVIDE FRAMES BOLTED TO SIDE OF PERIMETER CONCRETE WITH 2 - 3/4"ø EXPANSION ANCHORS AT EACH ANGLE.

TYPICAL FRAME DETAIL AT ROOF DECK PENETRATIONBRATIONS
NOT TO SCALE



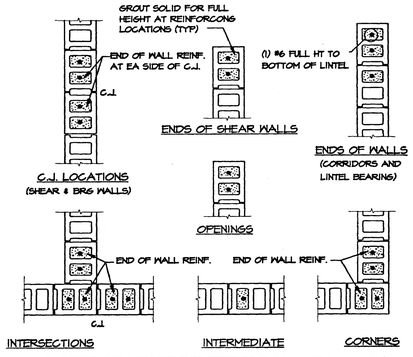
* WHEN CONCENTRATED LOADS OCCUR AT A DISTANCE MORE THAN 4" FROM A PANEL POINT PROVIDE AN ANGLE STRUT FROM POINT OF SUPPORT TO JOIST PANEL POINT.

TYP. JOIST REINFORCING DETAIL
NOT TO SCALE



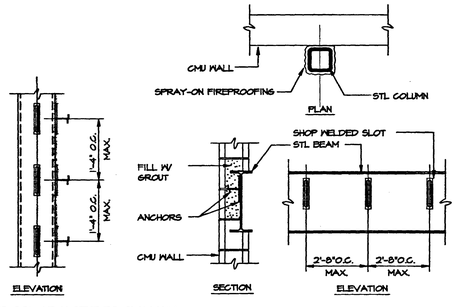
NOTE: PROVIDE SLAB DOWELS BETWEEN CONC FLR SLAB AND CMU WALLS THAT ARE SUPPORTED ON ELEVATED SLABS ALSO.

SLAB ON GRADE REINF. AT CMU PARTITIONS
NOT TO SCALE



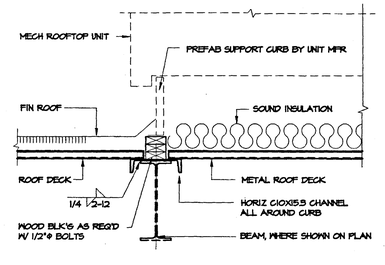
(FOR REINFORCING REQUIREMENTS, REFER TO GENERAL NOTES, THIS DWG.)

TYPICAL CMU REINFORCING PLAN DETAILS
NOT TO SCALE



TS COL ADJACENT TO CMU WALL BEAM ADJACENT TO CMU WALL

TYPICAL MASONTY ANCHORAGE DETAILS
NOT TO SCALE



ROOFTOP MECH. UNIT CURB SUPPORT DETAIL
NOT TO SCALE

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: R. C. BOGGS, P.E.
DRAWN BY: L. CZUBATYJ

FLETCHER THOMPSON
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FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT
STATE PROJECT NO. 057-106EA

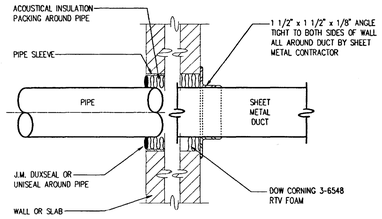
DRAWING TITLE

GENERAL NOTES AND TYPICAL DETAILS

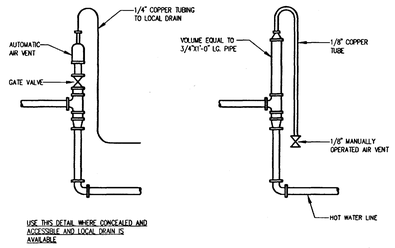
NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: S402

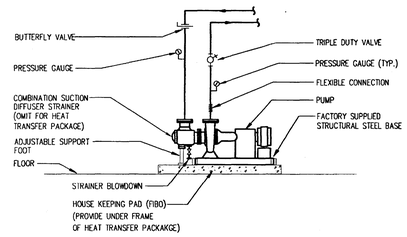
BQ #70 & 125 Attachment



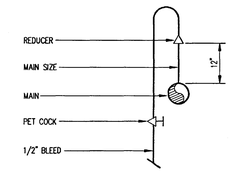
1 DETAIL OF ACOUSTIC CAULKING OF DUCTS AND PIPES PIERCING WALLS, SLABS, SHAFT WALLS, ETC.
NOT TO SCALE



2 TYPICAL VENT AT PIPING DROPS IN DIRECTION OF FLOW
NOT TO SCALE

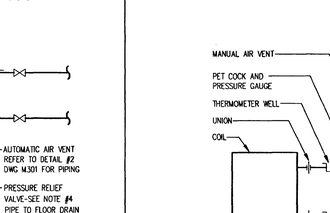


3 BASE MOUNTED PUMP PIPING DETAIL
NOT TO SCALE

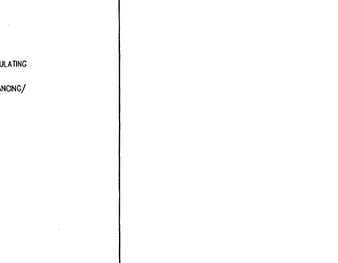


4 MAIN SYSTEM AIR VENT DETAIL
NOT TO SCALE

5 FLEXIBLE EXPANSION LOOP DETAIL
NOT TO SCALE

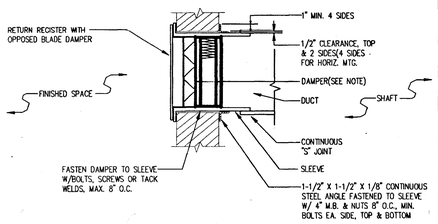


6 CABINET UNIT HEATER HOT WATER PIPING DETAIL
NOT TO SCALE



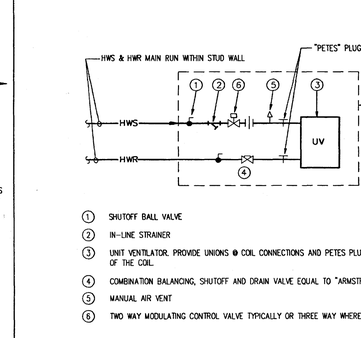
7 DETAIL OF HOT WATER DUCT COIL PIPING
NOT TO SCALE

8 HOT WATER CONVECTOR PIPING DETAIL
NOT TO SCALE



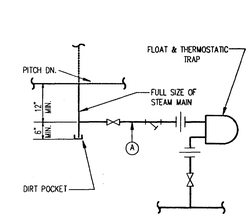
NOTES:
1. DAMPER STYLE & SLEEVE CONFIGURATION IS GOVERNED BY MAINTAINING A MAX. .06 STATIC PRESSURE @ 2500 F.P.M. FACE VELOCITY.
2. DEPTH OF DAMPER TO BE COORDINATED WITH WALL THICKNESS.
3. INSTALLATIONS & MATERIALS PER U.L. 555.

9 VERTICAL FIRE DAMPER
NOT TO SCALE



1. SHUTOFF BALL VALVE
2. IN-LINE STRAINER
3. UNIT VENTILATOR. PROVIDE UNIONS @ COIL CONNECTIONS AND PETES PLUGS ON EACH SIDE OF THE COIL.
4. COMBINATION BALANCING, SHUTOFF AND DRAIN VALVE EQUAL TO "ARMSTRONG" MODEL CV-1
5. MANUAL AIR VENT
6. TWO WAY MODULATING CONTROL VALVE TYPICALLY OR THREE WAY WHERE INDICATED ON PLAN.

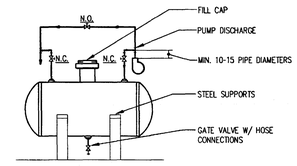
10 UNIT VENTILATOR PIPING DIAGRAM
NOT TO SCALE



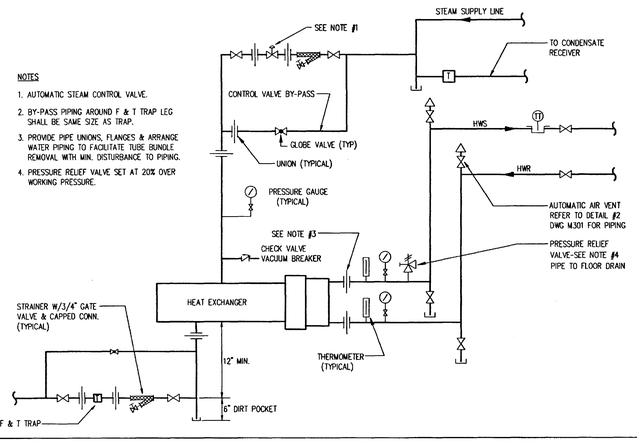
MIN. SIZES, TRAP & LINE	
STM. LOAD LBS HR	TRAP SIZE AND LINE SIZE (A)
0-70	3/4"
71-175	1"
176-425	1-1/4"
426-850	1-1/2"
851-1775	2"
1775 & UP	USE MULTIPLE 2" TRAPS

NOTES
1. THE ENTIRE TRAP RIG AS SHOWN HERE IS DENOTED ON PLANS BY THE SYMBOL: T
2. STEAM LOAD FOR ALL TRAPS BASED ON CAPACITY OF EQUIPMENT SERVED. DRIP TRAP MIN. CAPACITY 70 LBS/HR

11 STEAM TRAP DETAIL
NOT TO SCALE

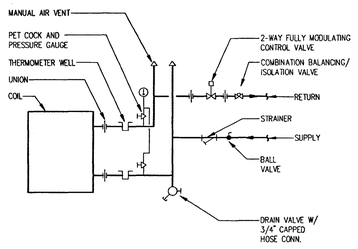


12 BYPASS FEEDER SYSTEM DETAIL
NOT TO SCALE



NOTES
1. AUTOMATIC STEAM CONTROL VALVE.
2. BY-PASS PIPING AROUND F & T TRAP LEG SHALL BE SAME SIZE AS TRAP.
3. PROVIDE PIPE UNIONS, FLANGES & ARRANGE WATER PIPING TO FACILITATE TUBE BUNDLE REMOVAL WITH MIN. DISTURBANCE TO PIPING.
4. PRESSURE RELIEF VALVE SET AT 20% OVER WORKING PRESSURE.

13 STEAM TO WATER CONVERTOR PIPING DETAIL
NOT TO SCALE



14 DETAIL OF VAV HOT WATER REHEAT COIL PIPING
NOT TO SCALE

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HVAC PLAN NOTES:

1. REFER TO DRAWING M401 FOR HVAC SCHEDULES.
2. REFER TO DRAWING M201 FOR SYMBOL LIST AND LIST OF ABBREVIATIONS FOR THESE HVAC DRAWINGS.

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: J. MACALUSO
DRAWN BY: D. EAR

FLETCHER THOMPSON
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FLETCHER-THOMPSON, INC.
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PROJECT TITLE

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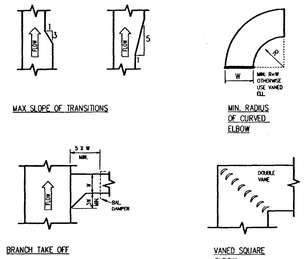
DRAWING TITLE

DETAILS - HVAC

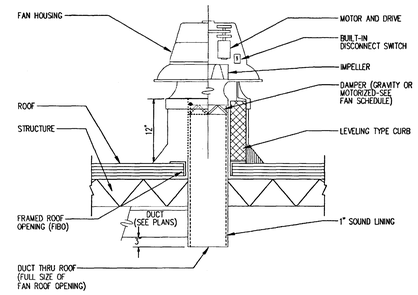
NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: M301

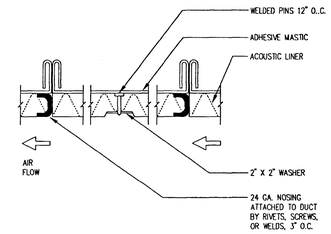
BQ #70 & 125 Attachment



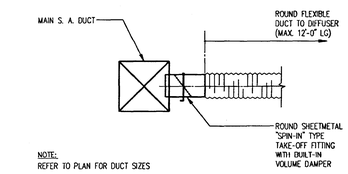
1 DUCT CONSTRUCTION DETAIL
NOT TO SCALE



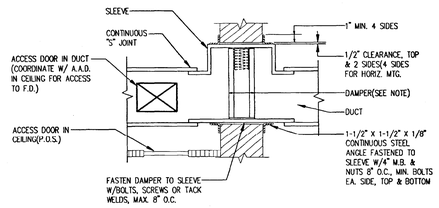
2 ROOF CURB MOUNTED EXHAUST FAN DETAIL
NOT TO SCALE



3 DETAIL OF ACOUSTIC LINING
NOT TO SCALE

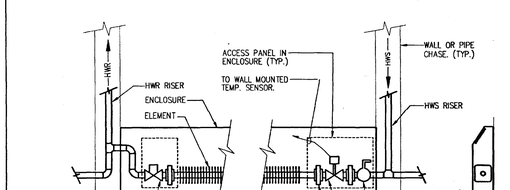


4 FLEXIBLE DUCT TAKE-OFF DETAIL
NOT TO SCALE

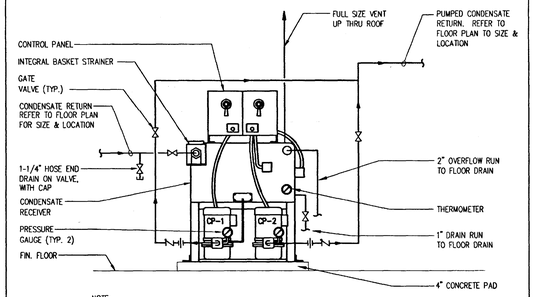


NOTES:
1. DAMPER STYLE & SLEEVE CONFIGURATION IS GOVERNED BY MAINTAINING A MAX. .06 STATIC PRESSURE @ 2500 F.P.M. FACE VELOCITY.
2. DEPTH OF DAMPER TO BE COORDINATED WITH WALL THICKNESS.
3. INSTALLATIONS & MATERIALS PER U.L. 555.

5 VERTICAL FIRE DAMPER DETAIL
NOT TO SCALE

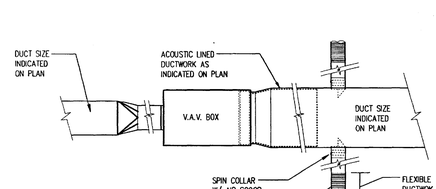


6 TYPICAL RADIATION PIPING DIAGRAM DOWNFEED
NOT TO SCALE

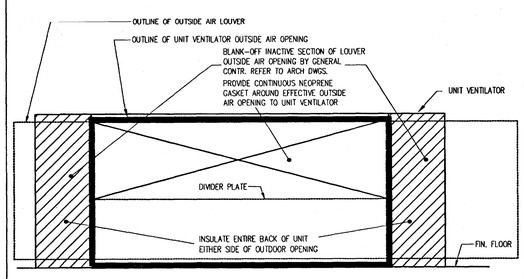


NOTE:
REFER TO THIS SHEET FOR CONDENSATE RECEIVER SPECIFICATION.

7 CONDENSATE TRANSFER PUMP PIPING DETAIL
NOT TO SCALE

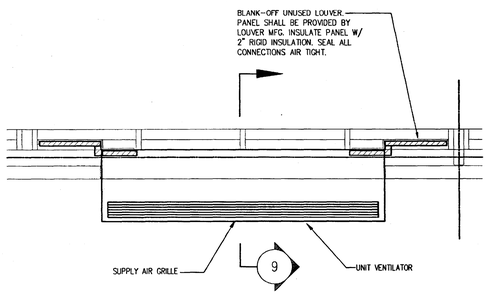


8 TYPICAL V.A.V. BOX DETAIL
NOT TO SCALE



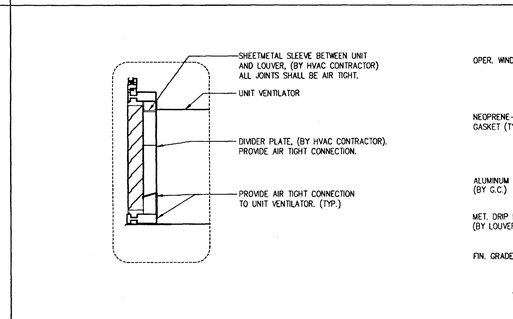
NOTE: REFER TO ARCH DWG. A.301 FOR CROSS SECTION OF UNIT VENTILATORS.

7 DETAIL AT BACK OF UNIT VENTILATOR
NOT TO SCALE



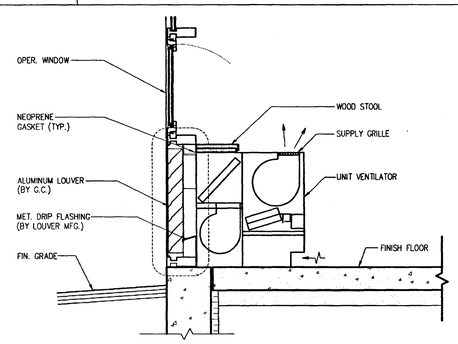
REFER TO DETAIL ON M.301 FOR PIPING ARRANGEMENT

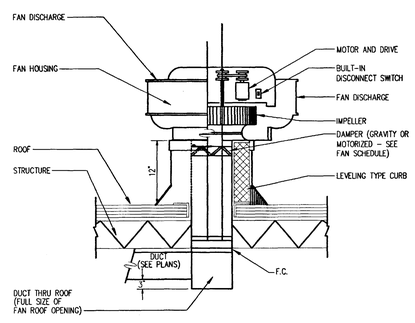
8 UNIT VENTILATOR INSTALLATION DETAIL – PLAN VIEW
NOT TO SCALE



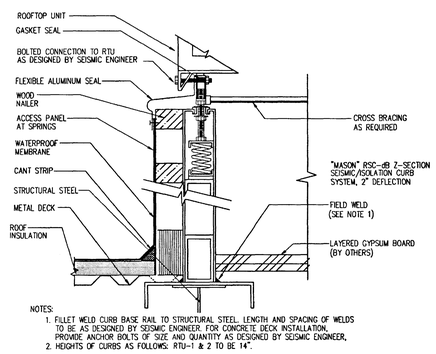
9 UNIT VENTILATOR INSTALLATION DETAIL – SECTION
NOT TO SCALE

15730268



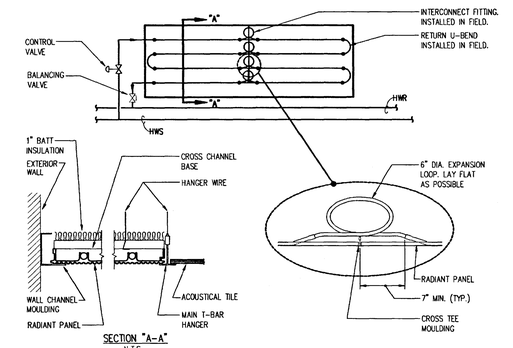


11 ROOF CURB MOUNTED UP-BLAST EXHAUST FAN DETAIL
NOT TO SCALE



NOTES:
1. FILLET WELD CURB BASE RAIL TO STRUCTURAL STEEL. LENGTH AND SPACING OF WELDS TO BE AS DESIGNED BY SEISMIC ENGINEER. FOR CONCRETE DECK INSTALLATION, PROVIDE ANCHOR BOLTS OF SIZE AND QUANTITY AS DESIGNED BY SEISMIC ENGINEER.
2. HEIGHTS OF CURBS AS FOLLOWS: RTU-1 & 2 TO BE 14".

13 ROOFTOP UNIT ISOLATION SEISMIC CURB
NOT TO SCALE



14 RADIANT PANEL DETAIL
NOT TO SCALE

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2. REFER TO DRAWING M201 FOR SYMBOL LIST AND LIST OF ABBREVIATIONS FOR THESE HVAC DRAWINGS.

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: J. MACALUSO
DRAWN BY: D. EAR

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PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

DETAILS - HVAC

NO	DATE	REVISION	BY

DATE: **MARCH 16, 1998**
SCALE: **AS NOTED**
PROJECT NO.: **50950.06**
DRAWING NO.: **M302**

HOT WATER COIL SCHEDULE (BASED ON MCQUAY EQUAL IS TRANE)

SYMBOL	UNIT SERVED	AREA SERVED	CAPACITY TOTAL MBH	AIR DATA CFM	AIR DATA MAX. P. D. IN. W. G.	AIR DATA TEMP. ENT. AIR °F	AIR DATA TEMP. LVG. AIR °F	WATER DATA GPM	WATER DATA MAX. P. D. (FT)	WATER DATA TEMP. ENT. °F	WATER DATA TEMP. LVG. °F	COIL DATA SIZE	COIL DATA ROWS	REMARKS
HC-1	RTU-1	MEDIA CENTER	237.3	7000	.2	48°	80°	16	3'	190	160	60x24	1	①

① PROVIDE COIL W/ DUCTWORK TRANSITION. EACH HEATING COIL WITH 2 WAY MODULATING CONTROL VALVE.
② COIL TYPE TT

HOT WATER CONVECTOR (BASED ON VULCAN, EQUAL ARE TRANE, MODINE OR RITTLING)

SYMBOL	LOCATION	MFR.	MODEL/TYPE	CAPACITY (MBH)	WATER DATA GPM	WATER DATA MAX. P. D. (FT)	WATER DATA TEMP. ENT.	WATER DATA TEMP. LVG.	CABINET DATA LENGTH (IN.)	CABINET DATA HEIGHT (IN.)	CABINET DATA DEPTH (IN.) REC.	CABINET DATA DEPTH (IN.) PROJ.	REMARKS
C-1	LARGE TOILET ROOMS	VULCAN	PW-A	4.0	.5	.5	190	160	36	20	4	2 1/4	①
C-2	TOILET ROOMS	VULCAN	FWC-A	1.9	.5	.5	190	160	28	20	4	1/8	②

① SEMI-RECESSED 4 SIDE OVERLAP ② RECESSED UNIT

PUMP SCHEDULE (BASED ON "BELL & GOSSETT", EQUAL ARE TACO OR WEINMAN)

DESIGNATION	SERVICE	LOCATION	FLOW RATE (GPM)	TOTAL PUMP HEAD (FT. OF WATER)	IMPELLER DIAMETER (INCHES)	MOTOR DATA MIN. MOTOR H.P	MOTOR DATA RPM	MOTOR DATA VOLT/PHASE	MOTOR CONTROLLER TYPE	MOTOR CONTROLLER CONTROL	MOTOR CONTROLLER PILOT DEVICE	MOTOR CONTROLLER MODEL NO.	PUMP TYPE	REMARKS
P-1	HOT WATER	BOILER ROOM	75	40	7"	1 1/2	1750	208/3	MAG	HOA	PE	1 1/2 AB	BASE MOUNTED	① ②
P-2	HOT WATER	BOILER ROOM	75	40	7"	1 1/2	1750	208/3	MAG	HOA	PE	1 1/2 AB	BASE MOUNTED	① ②

① ONE PUMP OPERATING AND ONE PUMP STANDBY
② FACTORY MOUNTED ON HTP2-90 HEAT TRANSFER PACKAGE

STEAM TO WATER HEAT EXCHANGER SCHEDULE (BASED ON B&G)

SYMBOL	LOCATION	AREA SERVED	CAPACITY (MBH)	SHELLSIDE DATA LB/HR	SHELLSIDE DATA PRESS. PSI	TUBESIDE DATA FLUID	TUBESIDE DATA GPM	TUBESIDE DATA TEMP. F° IN	TUBESIDE DATA TEMP. F° OUT	MAX. P. D. (FT.)	NO. PASS.	REMARKS
HX-1	MECHANICAL ROOM	ADDITION	1098	1161	15	WATER	75	160	190	.5	2	①

① FACTORY MOUNTED ON HTP2-90 HEAT TRANSFER PACKAGE.

HOT WATER CABINET UNIT HEATER SCHEDULE (BASED ON VULCAN, EQUAL ARE TRANE, DUNHAM BUSH, MODINE OR NESBITT)

SYMBOL	LOCATION	MAKE	MODEL/ TYPE	CAPACITY (MBH)	WATER DATA GPM	WATER DATA MAX. P. D. (FT)	WATER DATA TEMP. ENT.	WATER DATA TEMP. LVG.	AIR DATA CFM	AIR DATA TEMP. ENT.	AIR DATA TEMP. LVG.	FAN MOTOR DATA HP	FAN MOTOR DATA RPM	FAN MOTOR DATA VOLT	FAN MOTOR DATA PH	CABINET DATA STYLE/ ARR.	CABINET DATA LENGTH (IN.)	CABINET DATA HEIGHT OR WIDTH (IN.)	CABINET DATA DEPTH (IN.) REC.	CABINET DATA DEPTH (IN.) PROJ.	REMARKS
CUH-1	STAIRS	VULCAN	RW1120	15.1	1.0	.06	190	160	230	60	125	1/15	1050	120	1	REC. WALL	35	25	9"	1/2"	①

① PROVIDE WALL MOUNTED TSTAT WITH GUARD AND UNIT MOUNTED SPEED SELECTOR SWITCH

FAN SCHEDULE (BASED ON GREENHECK EQUAL ARE COOK OR PENN)

SYMBOL	LOCATION	AREA SERVED	FAN TYPE	SONES	MODEL	DAMPER TYPE	CFM	S.P. (IN W.G.)	FAN RPM	DRIVE	MOTOR DATA HP	MOTOR DATA VOLT	MOTOR DATA PH	MOTOR CONTROLLER TYPE	MOTOR CONTROLLER CONTROL	MOTOR CONTROLLER PILOT DEVICE	APPROX. WT.(LBS.)	REMARKS
EF-1W	ADDITION ROOF	GROUND FLOOR GENERAL EXHAUST	CRCE	14.7	GB-180	MOTORIZED	3200	1.25	1185	BELT	1 1/2	208	3	MAG	HOA	PE	101	① ③
EF-2W	ADDITION ROOF	ADDITON TOILET EXHAUST	CRCE	9.8	GB-140	MOTORIZED	1350	1.0	1300	BELT	1/2	208	3	MAG	HOA	PE	85	① ③
EF-3W	ADDITION ROOF	SCIENCE STORAGE ROOMS	CRCU	9.3	CUBE-140 HP	MOTORIZED	420	.75	1125	BELT	1/4	120	1	TT	---	--	60	① ③ ④
EF-4E	EXISTING ROOF	SCIENCE STORAGE 172	CRCE	6.8	GB-80	MOTORIZED	400	.5	1290	BELT	1/4	120	1	TT	---	--	30	① ③ ④ ⑤
EF-5E	EXISTING ROOF	SCIENCE STORAGE 161, 168	CRCE	6.8	GB-80	MOTORIZED	400	.5	1290	BELT	1/4	120	1	TT	---	--	30	① ③ ④ ⑤
EF-6E	EXISTING ROOF	FUME HOOD SCIENCE 167	CRCU	9.4	CUBE-100	MOTORIZED	770	1.0	1645	BELT	1/4	120	1	TT	---	--	52	① ② ③ ⑤
EF-7E	EXISTING ROOF	FUME HOOD SCIENCE	CRCU	9.4	CUBE-100	MOTORIZED	770	1.0	1645	BELT	1/4	120	1	TT	---	--	52	① ② ③ ⑤
EF-8E	EXISTING ROOF	FUME HOOD SCIENCE 169	CRCU	9.4	CUBE-100	MOTORIZED	770	1.0	1645	BELT	1/4	120	1	TT	---	--	52	① ② ③ ⑤

① PROVIDE WITH MANUFACTURERS PRE-FAB INSULATED ROOF CURB, 12" (H) AND DISCONNECT SWITCH.
② PUSH BUTTON STATION BY DIVISION 16 AT HOOD
③ INTERLOCK WITH MOTORIZED DAMPER
④ CONSTANT OPERATION
⑤ COORDINATE ROOF FLASHING OF EXISTING ROOF WITH ARCHITECTURAL DRAWINGS.

FAN TYPES:
CRCE = CENTRIFUGAL ROOF CURB MOUNTED EXHAUSTER
PRCS = PROPELLER ROOF CURB MOUNTED SUPPLY FAN
CRCU = CENTRIFUGAL ROOF CURB UPBLAST
CAF = CENTRIFUGAL AIR FOIL
CBI = CENTRIFUGAL, BACKWARD INCLINED
KUB = KITCHEN UPBLAST
IL = IN-LINE CENTRIFUGAL
CFC = CENTRIFUGAL FORWARD CURVED
VA = VANE AXIAL
CE = CEILING MOUNTED EXHAUSTER
TC = TUBULAR CENTRIFUGAL
BMCS = BUILDING MANAGEMENT CONTROL SYSTEMS
US = UTILITY SET

V. A. V. BOX SCHEDULE (BASED ON ENVIRO-TEC. EQUAL IS TRANE, TITUS OR TEMP MASTER)

SYMBOL	UNIT SERVED	AREA SERVED	CFM MAX.	CFM MIN.	P.D. (IN W.G.)	N.C. RADIATED/ DISCHARGE	INLET SIZE ø	CAPACITY TOTAL MBH	WATER DATA GPM	WATER DATA MAX. P.D. FT.	AIR DATA TEMP. ENT.	AIR DATA TEMP. LVG.	COIL DATA MIN. FACE AREA (SF)	COIL DATA ROWS	REMARKS
VAV-1	RTU-2	SPEECH	200	100	.13	20/20	5"	5.2	.5	.2	48	80	.7	1	① ② ③
VAV-2	RTU-2	GALLERY	500	250	.21	20/20	8"	13.0	1	.8	48	80	.8	1	① ② ③
VAV-3	RTU-2	OFFICE	500	250	.21	20/20	8"	13.0	1	.8	48	80	.8	1	① ② ③
VAV-4	RTU-2	MEDIA WKRM	900	450	.27	20/20	10"	23.4	1.5	2.4	48	80	1.2	1	① ② ③
VAV-5	RTU-2	TEACH. WKRM	1,300	650	.31	20/21	12"	33.9	2	4.6	48	80	1.7	1	① ② ③
VAV-6	RTU-2	COMP. LAB. 101	1500	750	.36	20/22	12"	39.1	2.5	.7	48	80	1.7	1	① ② ③
VAV-7	RTU-2	COMP. LAB. 104	1500	750	.36	20/22	12"	39.1	2.5	.7	48	80	1.7	1	① ② ③
VAV-8	RTU-2	READING 112	1500	750	.36	20/22	12"	39.1	2.5	.7	48	80	1.7	1	① ② ③
BPV-1	RTU-2	BYPASS	3325	0	.15	29/32	16"	-	-	-	-	-	-	-	① ④

① CONTROLS BY ETVT SYSTEM. EACH COIL WITH 2 WAY MODULATING CONTROL VALVE.
② COIL CAPACITY BASED ON 190°F EWT 30° DROP, AND 75% AIRFLOW.
③ NC AT 1" INLET STATIC PRESSURE.
④ NC AT 3" INLET STATIC PRESSURE .

DIFFUSER, REGISTER, & GRILLE SCHEDULE (BASED ON TITUS EQUAL ARE TUTTLE & BAILEY OR METALAIRE)

SYMBOL	MODEL	MAX. CFM	INLET SIZE	N.C. @ MAX CFM	BLOW DEG. & FT.	CEILING TYPE	REMARKS
A	TMS	500	10"	25	8'	LAY-IN	② ⑤
B	TMS	300	8"	20	6'	LAY-IN	② ⑤
C	TMS	200	6"	23	5'	LAY-IN	② ⑤
D	MPI-38	235	8"	27	21'	LAY-IN	② ⑦
E	TMSA	620	12"	31	8'	LAY-IN	②
F	272 RS	1300	36x8	26	22.5° 31'	-	① ②
G	272 RS	1000	36x6	25	22.5° 32'	-	① ②
H	272 RS	150	10x6			-	① ②
I	MPI-38	85	6"	25	16'	LAY-IN	⑩
A	350 RL	500	14x8	30	35°	-	① ②
B	350 RL	300	10x10	25	35°	LAY-IN	① ②
C	350 RL	100	6x6	18	35°	LAY-IN	① ②
D	CT 540	1200	24x12	32	0°	-	⑧ ⑨
E	350 ZRL	1300	36x8	24	0°	-	① ②
F	350 ZRL	1000	36x6	23	0°	-	① ②

TG-1 TYPE (DIFFUSER) CFM - SEE DWGS.
TG-1 TYPE (REGISTER/GRILLE) CFM - SEE DWGS.

① PROVIDE ODD for BALANCING
② COLOR SELECTED BY ARCHITECT
③ TYPE 3 ADJUSTMENT
④ SAFETY CHAIN
⑤ 24X24 MODULE SIZE
⑥ 12X12 MODULE SIZE
⑦ INTEGRATED W/RADIANT PANEL
⑧ TYPE 5 FRAME, FLOOR MOUNTED
⑨ TYPE A FASTENING
⑩ 2-3/4" SLOT, 2' LONG INSULATED PLENUM

FIN TUBE RADIATION SCHEDULE (BASED ON VULCAN, EQUAL ARE TRANE, MODINE OR RITTLING)

DESIGNATION	MINIMUM HEATING CAPACITY (BTUH PER UNIT.)	HEATING ELEMENT @ 175° F AVERAGE WATER TEMP. FIN SIZE (INCHES)	FIN MATERIAL	FINS PER FOOT	NUMBER OF ROWS	PIPE SIZE (INCHES)	PIPE MATERIAL	ENCLOSURE DATA STYLE	ENCLOSURE DATA HEIGHT (INCHES)	ENCLOSURE DATA DEPTH (INCHES)	REMARKS
A 00	1106	2 3/4" x 4 1/4"	AL	48	1	3/4"	CU	DS	12	5 5/16"	① ② ③ ④
B 00											

X XX — TYPE OF FINTUBE
X XX — LENGTH OF FINTUBE

① FINTUBE COVERS ARE TO BE WALL TO WALL MINIMUM MOUNTING HEIGHT IS 4" A.F.F. PROVIDE 24" ACCESS SECTION FOR VALVE ACCESS.
② PROVIDE WITH 14 GAUGE COVER.
③ PROVIDE WITH FULL BACK PLATE.
④ .02" FIN THICKNESS

GENERAL NOTES:

1. THE BMCS CONTRACTOR SHALL RUN LOW VOLTAGE WIRING FROM THE FIRE ALARM CONTROL PANEL TO ALL BMCS PANEL. THE FIRE ALARM CONTRACTOR SHALL PROVIDE SPACES AND ZONE DESIGNATIONS FOR THE BMCS CONTRACTOR.
2. THE BMCS CONTRACTOR SHALL RUN 120V CIRCUITS FROM SPARE CIRCUIT BREAKERS IN THE NEAREST ELECTRICAL PANEL TO POWER EACH LOW VOLTAGE TRANSFORMER OR CONTROL PANEL USED FOR CONTROLS.
3. THE BMCS CONTRACTOR SHALL PROVIDE ALL AUTOMATICALLY OPERATED: DAMPERS, SMOKE DAMPERS & VALVES. PROVIDE TRANSFORMERS AND LOW VOLTAGE WIRING.
4. COORDINATE WITH BMCS CONTRACTOR FOR LOCATIONS OF ALL CONTROL ACCESSORIES TO BE INSTALLED IN PIPING AND DUCTWORK. PROVIDE ALL REQUIRED TAPPINGS. CONTROL VALVES, WELLS, FITTINGS & DAMPERS WILL BE FURNISHED BY BMCS CONTRACTOR INSTALLED UNDER THE MECHANICAL CONTRACTOR SCOPE OF WORK.
5. THE CEILING VOID IN THE ADDITION AND THE EXISTING TUNNEL ARE USED AS RETURN AIR PLENUMS. ALL ITEMS INSTALLED IN THESE AREAS MUST BE APPROVED FOR SUCH USE.
7. SEAL PIPE & DUCT PENETRATIONS OF WALLS & FLOORS.
8. MECHANICAL EQUIPMENT OR REGISTERS MOUNTED IN BLOCK WALLS SHALL CONFORM TO BLOCK COURSING. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION & MOUNTING HEIGHTS.
9. STARTERS ARE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
10. REFER TO MANUFACTURER'S CERTIFIED DRAWINGS FOR EQUIPMENT DIMENSIONS AND MAINTAIN RECOMMENDED CLEARANCES.
11. DRAWINGS AND SKETCHES ARE DIAGRAMMATIC AND INTENDED TO SHOW APPROXIMATE ROUTING OF PIPING AND LOCATION OF EQUIPMENT. IT IS THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL FIELD CONDITIONS AND MAKE PROVISIONS TO PERFORM THE WORK ACCORDINGLY.
12. SEISMIC CERTIFICATION AND ANALYSIS:
SEISMIC RESTRAINT CALCULATIONS MUST BE PROVIDED FOR ALL CONNECTIONS OF EQUIPMENT TO THE STRUCTURE. CALCULATIONS TO SUPPORT SEISMIC RESTRAINT DESIGNS MUST BE STAMPED BY A REGISTERED PROFESSIONAL ENGINEER WITH AT LEAST FIVE YEARS OF SEISMIC DESIGN EXPERIENCE. ANALYSIS MUST INDICATE CALCULATED DEAD LOADS, DERIVED LOADS AND MATERIALS UTILIZED FOR CONNECTIONS TO EQUIPMENT AND STRUCTURE. ANALYSIS MUST DETAIL ANCHORING METHODS, BOLT DIAMETER, EMBEDMENT AND/OR WELD LENGTH. A SEISMIC DESIGN ERRORS AND OMISSIONS INSURANCE CERTIFICATE MUST ACCOMPANY SUBMITTALS.
PROCURE THE SERVICES OF A MANUFACTURER'S SEISMIC REPRESENTATIVE TO REVIEW THE PIPING INSTALLATION, PROVIDE SEISMIC CALCULATIONS AND DIRECT THE CONTRACTOR AS TO LOCATION AND AND TYPE OF SEISMIC SUPPORTS REQUIRED FOR NEW PIPING, DUCTWORK & EQUIPMENT.
13. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF DIFFUSERS & REGISTERS.

CONDENSATE PUMP AND RECEIVER SCHEDULE (DOMESTIC)

DESIGNATION	SERVICE	LOCATION	WATER FLOW RATE (GPM)	PUMP DISCHARGE PRESSURE (PSIG)	MOTOR DATA MOTOR HP	MOTOR DATA RPM	MOTOR DATA VOLTS/PHASE	RECEIVER CAPACITY (GALLONS)	MODEL NO.	OPERATING WEIGHT (LBS)	REMARKS
CP-1	CONDENSATE RETURN	MER	9	15	1/3	3500	120/1	23	23CB9-15		①

① UNIT TO BE COMBINATION CONDENSATE RETURN PUMPING/RECEIVER WITH (2) SETS OF DUPLEX PUMPS. REFER TO SPECIFICATIONS.

RADIANT PANEL SCHEDULE (BASED ON AIRTEX)

DESIGNATION	MINIMUM HEATING CAPACITY (BTUH PER UNIT.)	HEATING ELEMENT @ 175° F AVERAGE WATER TEMP. PANEL WIDTH (INCHES)	PANEL MATERIAL	NUMBER OF TUBES	TUBE I.D. (INCHES)	PIPE MATERIAL	MODEL	REMARKS
AA XX	307	18	AL	4	1/2	CU	HEF 18	① ② ③

XX — TYPE OF PANEL
XX — LENGTH OF PANEL

① RADIANT PANEL SHALL BE WALL TO WALL OR COLUMN TO COLUMN. CUT OUT FOR COLUMN ENCLOSURE
② T-BAR CEILING INSTALLATION
③ FOUR PASS CONFIGURATION

ROOFTOP UNIT SCHEDULE (BASED ON MCQUAY EQUAL ARE TRANE OR AAON)

SYMBOL	AREA SERVED	LOCATION	FILTER (AAF AS STANDARD) MIN. % EFF.	FILTER (AAF AS STANDARD) INITIAL PD IN IN. WTR.	FILTER (AAF AS STANDARD) FINAL PD IN IN. WTR.	FILTER (AAF AS STANDARD) TYPE	REFRIGERATION SYSTEM CAP. NET TOTAL (MBH)	REFRIGERATION SYSTEM CAP. NET SENS. (MBH)	REFRIGERATION EVAPORATOR COIL ENTERING AIR TEMP. T db/T dwb	REFRIGERATION EVAPORATOR COIL LEAVING AIR TEMP. T db/T dwb	NOMINAL CAPACITY (TONS)	SUPPLY FAN CFM	SUPPLY FAN MIN. OSA %	SUPPLY FAN ESP IN. WC	SUPPLY FAN TOTAL S.P.	SUPPLY FAN FAN (RPM)	SUPPLY FAN WHEEL # & DIAM. INCHES	SUPPLY FAN TYPE	SUPPLY FAN MOTOR BHP	SUPPLY FAN MOTOR MIN. HP	SUPPLY FAN MOTOR RPM	SUPPLY FAN MOTOR VOLTS	SUPPLY FAN MOTOR ø	EXHAUST FAN CFM	EXHAUST FAN EXT. S.P. IN. WC.	EXHAUST FAN RPM	EXHAUST FAN # & TYPE	EXHAUST FAN MOTOR BHP	EXHAUST FAN MOTOR MIN. HP	EXHAUST FAN MOTOR RPM	EXHAUST FAN MOTOR VOLTS	EXHAUST FAN MOTOR ø	UNIT ELECTRICAL VOLT/ PH.	UNIT ELECTRICAL MCA (AMPS)	UNIT ELECTRICAL MFS (AMPS)	STAND-ARD AIR EER	UNIT WEIGHT LBS.	MFR	MODEL
RTU-1	MEDIA CENTER	PART A ROOF	30	.12	.5	2" TA	218	159.1	80	67	59.1	57.3	17 1/2	7000	25	2.0	2.7	1085	(2) 15x15	FC	5.45	7.5	1750	208	3	6470	.2	-	(2) PROP	-	1/3	-	208	1	208/3	98	110	11.2	3000	MCQUAY	LCA 210H ① ② ③ ⑤
RTU-2	FIRST FLOOR	PART A ROOF	30	.12	.5	2" TA	218	159.1	80	67	59.1	57.3	17 1/2	7000	25	2.0	2.7	1085	(2) 15x15	FC	5.45	7.5	1750	208	3	6470	.2	-	(2) PROP	-	1/3	-	208	1	208/3	98	110	11.2	3000	MCQUAY	LCA 210H ① ③ ④ ⑤

① FURNISH UNIT WITH LOW LEAK DAMPERS, HIGH EFFICIENCY MOTORS, FULLY MODULATING ECONOMIZER, POWER EXHAUST FAN AND MASON SEISMIC CURB.
② CONSTANT VOLUME UNIT.
③ ALL UNITS SHALL HAVE MULTIPLE COMPRESSORS.
④ VARIABLE VOLUME UNIT
⑤ START/STOP THROUGH PNEUMATIC CONTROL SYSTEM

UNIT VENTILATOR SCHEDULE (BASED ON A.A.F. EQUAL ARE TRANE OR NESBITT)

SYMBOL	AIR DATA AIR FLOW RATE (CFM)	AIR DATA OUTDOOR AIR FLOW RATE (CFM)	HEATING DATA AIR DATA EAT (°F)	HEATING DATA AIR DATA LAT (°F)	HEATING DATA HEATING COIL WATER DATA EWT (°F)	HEATING DATA HEATING COIL WATER DATA LWT (°F)	HEATING DATA HEATING COIL WATER DATA CAPACITY (MBH)	HEATING DATA HEATING COIL WATER DATA WATER FLOW RATE (GPM)	HEATING DATA HEATING COIL WATER DATA P. D. (FT)	HEATING DATA HEATING COIL WATER DATA ROWS	FAN DATA MOTOR DATA H.P.	FAN DATA MOTOR DATA RPM HI SPEED	FAN DATA MOTOR DATA ELECTRICAL VOLT	FAN DATA MOTOR DATA ELECTRICAL ø	GENERAL TOTAL MBH	GENERAL SENSIBLE MBH	GENERAL EER	COOLING DATA CONDENSER COND. FANS AMBIENT TEMP. (°F)	COOLING DATA CONDENSER COND. FANS NUMBER OF FANS	COOLING DATA CONDENSER COND. FANS HORSEPOWER PER FAN	COOLING DATA COMPRESSOR NUMBER OF COMPRESSORS	COOLING DATA COMPRESSOR FLA./EA.	COOLING DATA COMPRESSOR LRA./EA.	COOLING DATA UNIT ELECTRICAL CHARACTERISTICS MCA (AMPS)	COOLING DATA UNIT ELECTRICAL CHARACTERISTICS MFS (AMPS)	COOLING DATA UNIT ELECTRICAL CHARACTERISTICS VOLTAGE /PHASE	CABINET DIMENSIONS LENGTH (IN.)	CABINET DIMENSIONS HEIGHT (IN.)	CABINET DIMENSIONS DEPTH (IN.)	OUTDOOR AIR INLET SIZE (LxH) (INTAKE)	UNIT WEIGHT (LBS)	MFG. MODEL	UNIT CONFIG. H - HORIZONTAL V - VERTICAL	REMARKS
UH-1	1400	450	50	100	190	170	69.5	5	6.6	1	1/4	970	208	1	53.3	34.1	9.1	95	1	3/4	1	8.5	123	30.1	45	208/1	112	30	28	REFER TO ARCH. DRAWINGS	1100	AAF A254	VERTICAL		

NOTES: 12 EACH UNIT VENTILATOR SHALL BE FURNISHED WITH THE FOLLOWING EQUIPMENT:
MICROTECH UNIT MOUNTED CONTROLLER WITH OPEN PROTOCOL ASHRAE II CYCLE CONTROL, WALL MOUNTED SPACE SENSOR WITH ROOM OVERRIDE CONTROL & 2 HR. BY-PASS, 2-WAY MODULATING VALVES OR 3-WAY MODULATING VALVES WERE INDICATED ON DRAWINGS. (SHIPPED LOOSE FOR FIELD INSTALLATION).

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HVAC PLAN NOTES:

1. REFER TO DRAWING M401 FOR HVAC SCHEDULES.
2. REFER TO DRAWING M201 FOR SYMBOL LIST AND LIST OF ABBREVIATIONS FOR THESE HVAC DRAWINGS.

PROFESSIONAL SEAL

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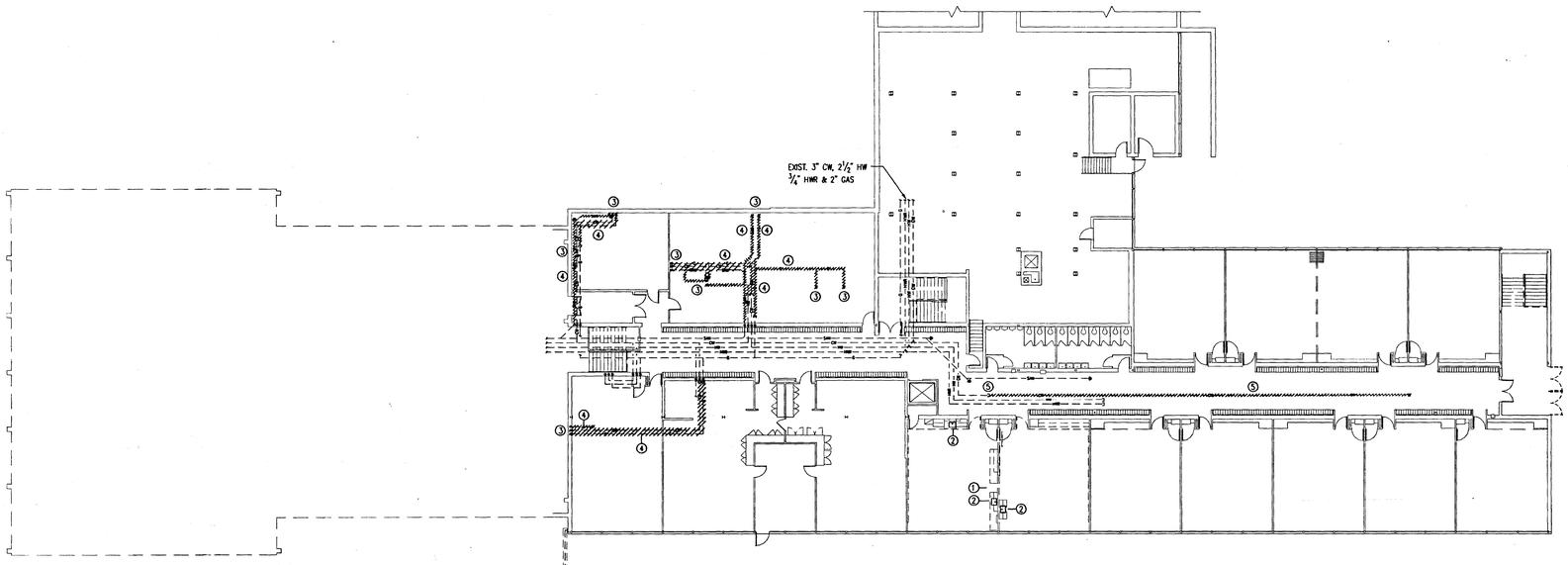
DRAWING TITLE

SCHEDULES & NOTES - HVAC

NO.	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: M401

BQ #70 & 125 Attachment



PLAN DEMOLITION NOTES

1. REMOVE & DISPOSE OF EMERGENCY EYE WASH.
   - A) REMOVE COLD WATER PIPING FROM WALL AND CEILING BACK TO THE MAIN FEED PIPE AND CAP PIPE.
2. REMOVE & DISPOSE OF COUNTERTOP SINK AND ALL TRIM.
   - A) REMOVE HOT WATER AND COLD WATER PIPING BACK INTO WALL CAVITY AND CAP IN WALL CAVITY.
   - B) REMOVE WASTE PIPING BACK TO SANITARY RISER AND PLUG FITTING IN WALL CAVITY.
3. REMOVE EXISTING PIPING SERVING EXISTING PLUMBING FIXTURES ON FIRST FLOOR. CAP OR PLUG PIPING AT EXISTING MAIN AS REQUIRED.
4. REMOVE EXISTING PIPING BACK TO POINT SHOWN AND PLUG OR CAP.
5. REMOVE EXISTING 1½" CW PIPING BACK TO EXISTING 2½" CW PIPING AND TEMPORARALY CAP.

DEMOLITION GENERAL NOTES:

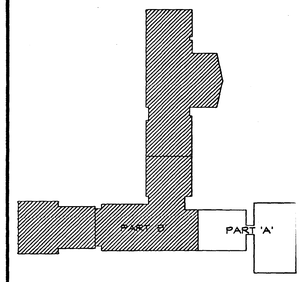
1. THE DEMOLITION NOTES ARE FOR DESCRIPTIVE GUIDE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL QUANTITIES OF EACH ITEM. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING HIS WORK WITH ALL TRADES, MECHANICAL, ELECTRICAL AND PLUMBING. SEE SPECIFICATIONS FOR ADDITIONAL DEMOLITION REQUIREMENTS.
2. DISPOSE OF ALL REMOVED ITEMS OFF SITE OR IN ON SITE DUMPSTER PROVIDED SPECIFICALLY FOR THIS WORK.
3. SEE ARCHITECTURAL DRAWINGS FOR ANY ADDITIONAL DEMOLITION REQUIREMENTS.
4. HAZARDOUS AND/OR ASBESTOS MATERIALS TO BE REMOVED BY OWNER UNDER SEPARATE CONTRACT. BEFORE STARTING ANY WORK UNDER THE CONTRACT, VERIFY WITH THE GENERAL CONTRACTOR AND NOTIFY THE ARCHITECTS IN WRITING, THAT, IN ACCORDANCE WITH THE LATEST REVISION OF THE FEDERAL ASBESTOS NESHAP (NATIONAL EMISSION STANDARD FOR HAZARDOUS AIR POLLUTANTS), THE FOLLOWING ITEMS HAVE BEEN COMPLETED:

   AN EPA APPROVED ASBESTOS SURVEY HAS BEEN MADE OF THE BUILDING WHERE THE WORK WILL BE PERFORMED.
   THE EPA HAS BEEN NOTIFIED THAT DEMOLITION AND/OR RENOVATION WORK WILL OCCUR IN THE BUILDING WHERE THE WORK WILL BE PERFORMED.

5. CROSSHATCHED LINES INDICATE EXISTING PIPING TO BE DEMOLISHED AND REMOVED.
6. SOLID LINES INDICATE EXISTING PIPING TO REMAIN.

GROUND FLOOR DEMOLITION PLAN
SCALE: 1/16"=1'-0"

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KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	R.M. DECARLO
DRAWN BY	R.M. DECARLO

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

GROUND FLOOR DEMOLITION PLAN - PLUMBING

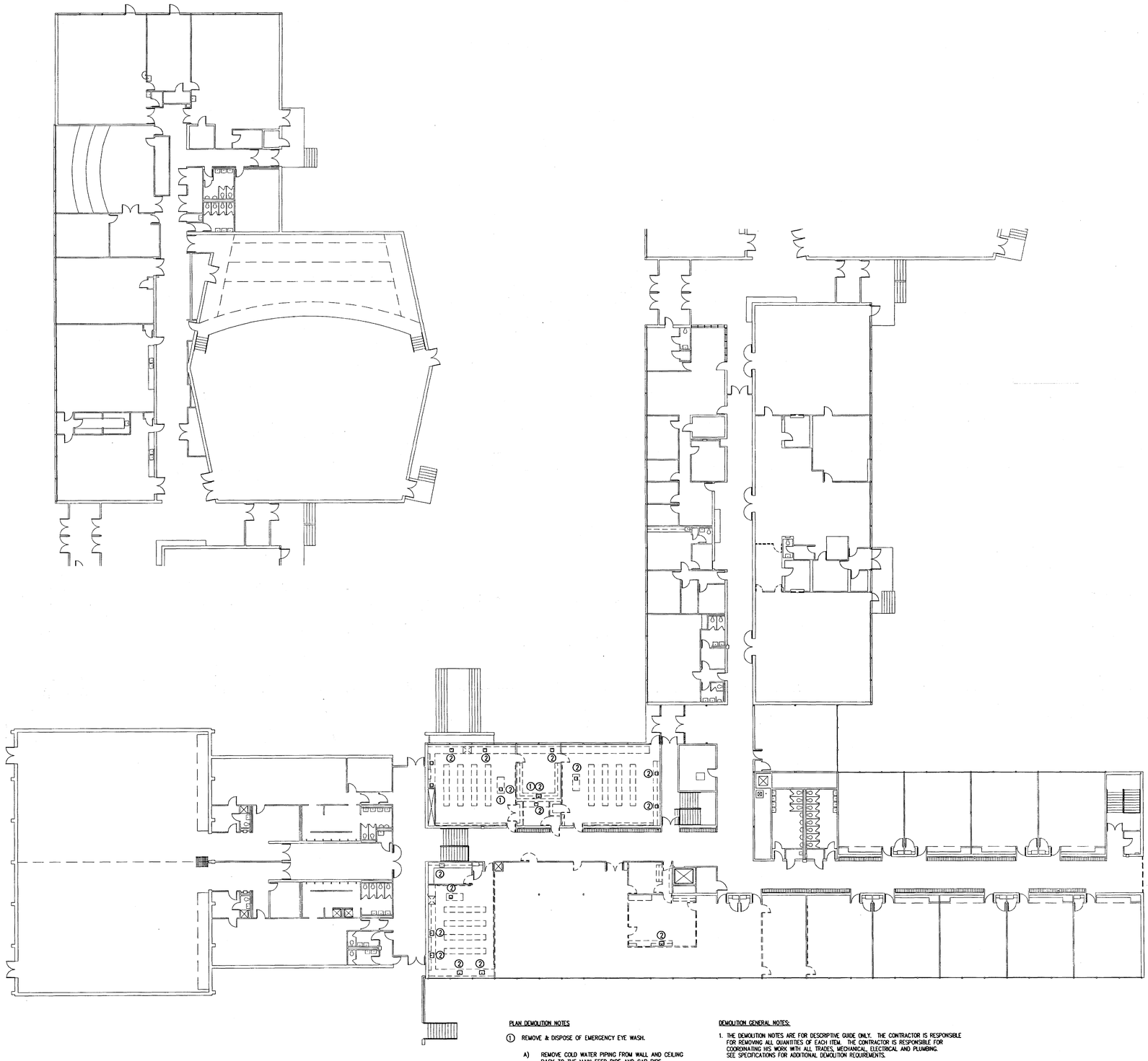
0 8' 16' 32'
SCALE: 1/16" = 1'-0"

NO	DATE	REVISION	BY

DATE	MARCH 16, 1998
SCALE	1/16" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	P099

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BQ #70 & 125 Attachment



PLAN DEMOLITION NOTES

① REMOVE & DISPOSE OF EMERGENCY EYE WASH.

A) REMOVE COLD WATER PIPING FROM WALL AND CEILING BACK TO THE MAIN FEED PIPE AND CAP PIPE.

② REMOVE & DISPOSE OF COUNTERTOP SINK AND ALL TRIM.

A) REMOVE HOT WATER AND COLD WATER PIPING BACK INTO WALL CAVITY AND CAP IN WALL CAVITY.

B) REMOVE WASTE PIPING BACK TO SANITARY RISER AND PLUG FITTING IN WALL CAVITY.

DEMOLITION GENERAL NOTES:

1. THE DEMOLITION NOTES ARE FOR DESCRIPTIVE GUIDE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL QUANTITIES OF EACH ITEM. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING HIS WORK WITH ALL TRADES, MECHANICAL, ELECTRICAL AND PLUMBING. SEE SPECIFICATIONS FOR ADDITIONAL DEMOLITION REQUIREMENTS.
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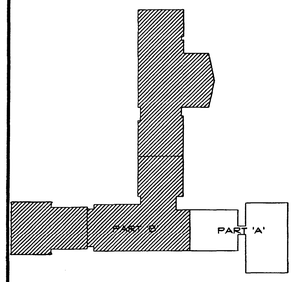
   AN EPA APPROVED ASBESTOS SURVEY HAS BEEN MADE OF THE BUILDING WHERE THE WORK WILL BE PERFORMED.
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FIRST FLOOR DEMOLITION PLAN

SCALE: 1/16"=1'-0"

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KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: R.M. DECARLO
DRAWN BY: R.M. DECARLO

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

FIRST FLOOR DEMOLITION PLAN - PLUMBING

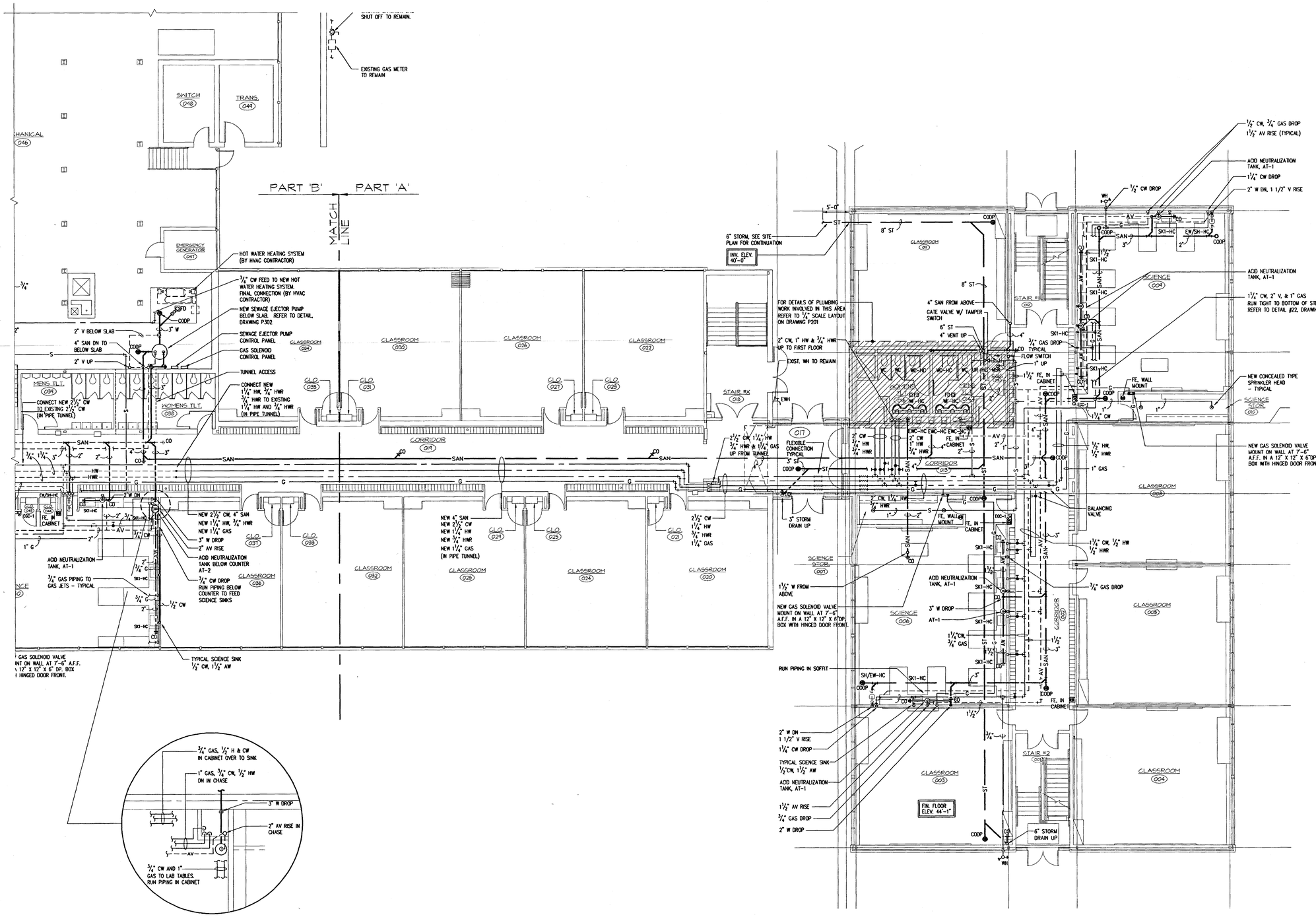
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SCALE: 1/16" = 1'-0"

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: 1/16" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: **P099.1**

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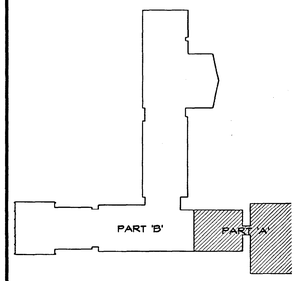
BQ #70 & 125 Attachment



GROUND FLOOR PLAN - PART "A"

SCALE: 1/8"=1'-0"

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KEY PLAN

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PLUMBING PLAN NOTES:

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3. REFER TO DRAWING P401 FOR ACCESSIBILITY PLUMBING FIXTURE SCHEDULE FOR THESE PLUMBING DRAWINGS.

PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	R.M. DECARLO
DRAWN BY	R.M. DECARLO

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN
FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

GROUND FLOOR PLAN PART "A" - PLUMBING & FIRE PROTECTION

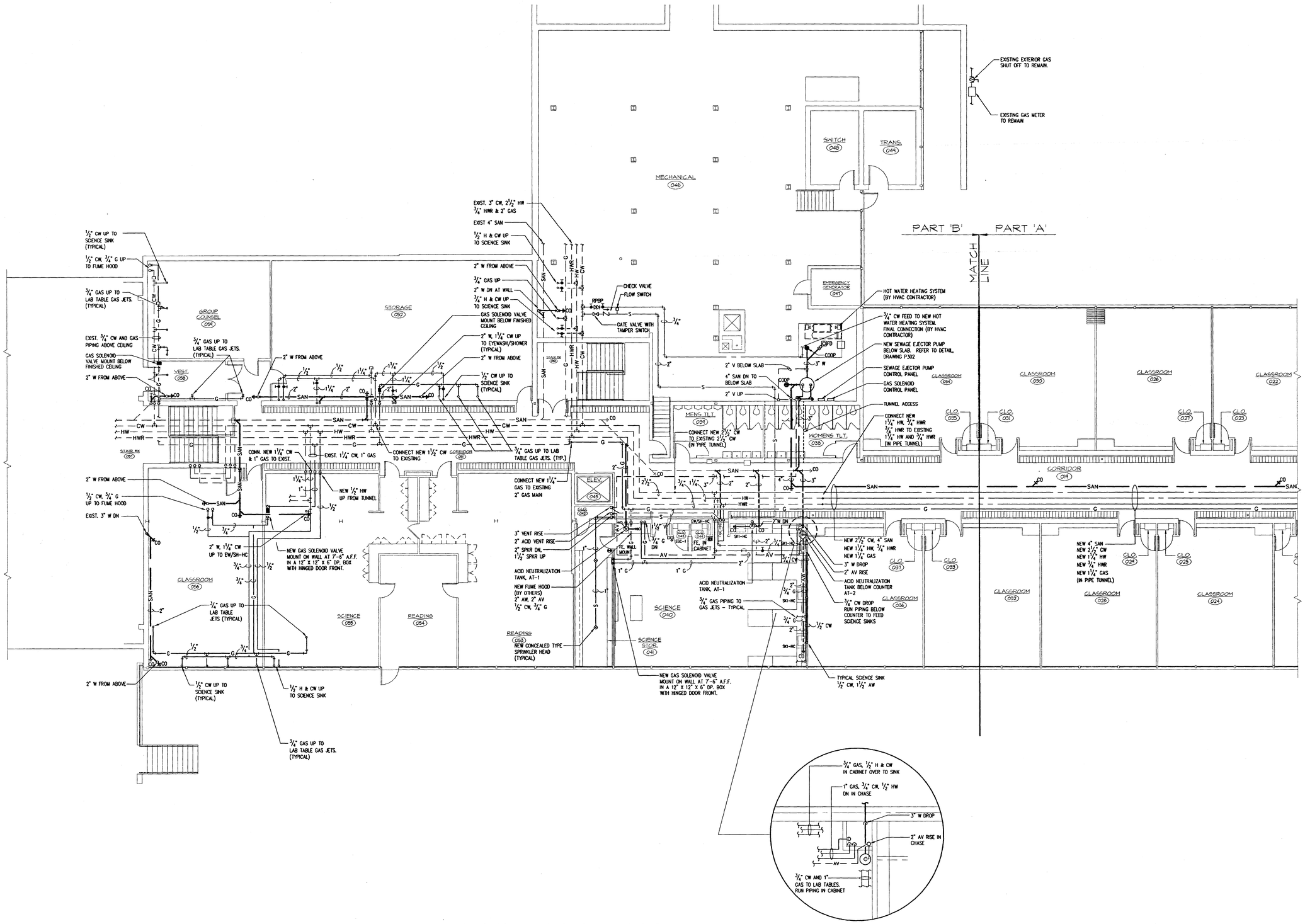
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SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE	MARCH 16, 1998
SCALE	1/8" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	PFP100.1

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BQ #70 & 125 Attachment

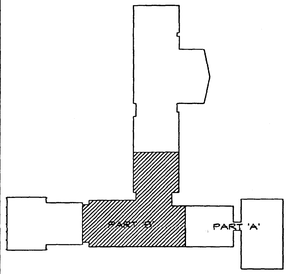


GROUND FLOOR PLAN - PART "B"

SCALE: 1/8" = 1'-0"

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PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	R.M. DECARLO
DRAWN BY	R.M. DECARLO

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

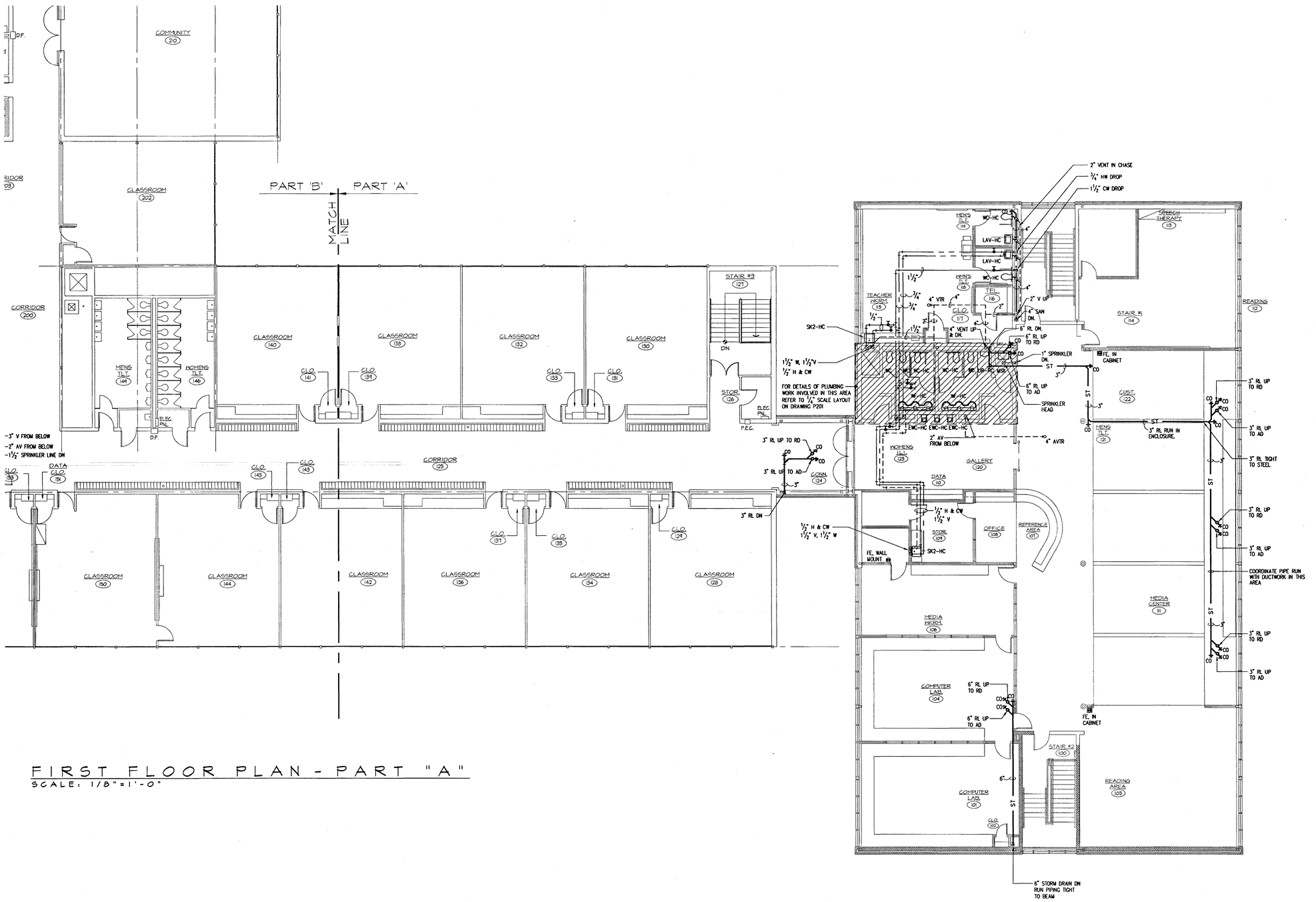
GROUND FLOOR PLAN PART "B" - PLUMBING & FIRE PROTECTION

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE	MARCH 16, 1998
SCALE	1/8" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	PFP100.2

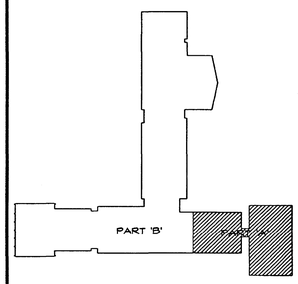
BQ #70 & 125 Attachment



FIRST FLOOR PLAN - PART "A"

SCALE: 1/8"=1'-0"

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KEY PLAN

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE

ARCHITECT/ENGINEER: R.M. DECARLO

DRAWN BY: R. M. DECARLO

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TWO LAFAYETTE SQUARE
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PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

FIRST FLOOR PLAN PART "A" - PLUMBING & FIRE PROTECTION

0 4' 8' 16'

SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998

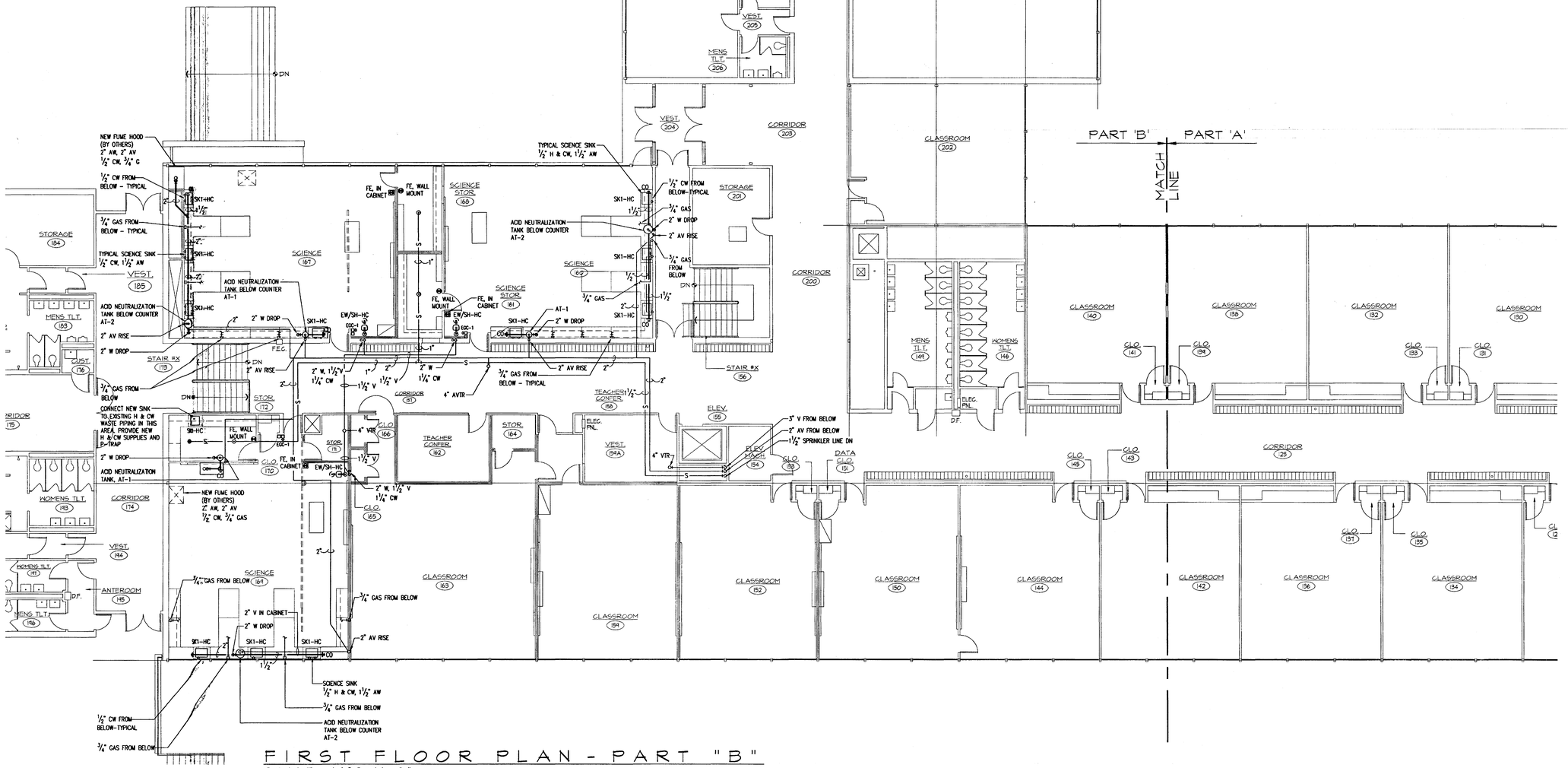
SCALE: 1/8" = 1'-0"

PROJECT NO.: 50950.06

DRAWING NO.: **PFP101.1**

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BQ #70 & 125 Attachment

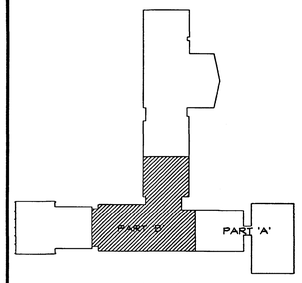


FIRST FLOOR PLAN - PART "B"

SCALE: 1/8" = 1'-0"

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KEY PLAN

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE

ARCHITECT/ENGINEER: R.M. DECARLO

DRAWN BY: R. M. DECARLO

FLETCHER THOMPSON

ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

FIRST FLOOR PLAN PART "B" - PLUMBING & FIRE PROTECTION

0 4' 8' 16'

SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY
1	6/19/98	D.O.E. REVISIONS	N.S.

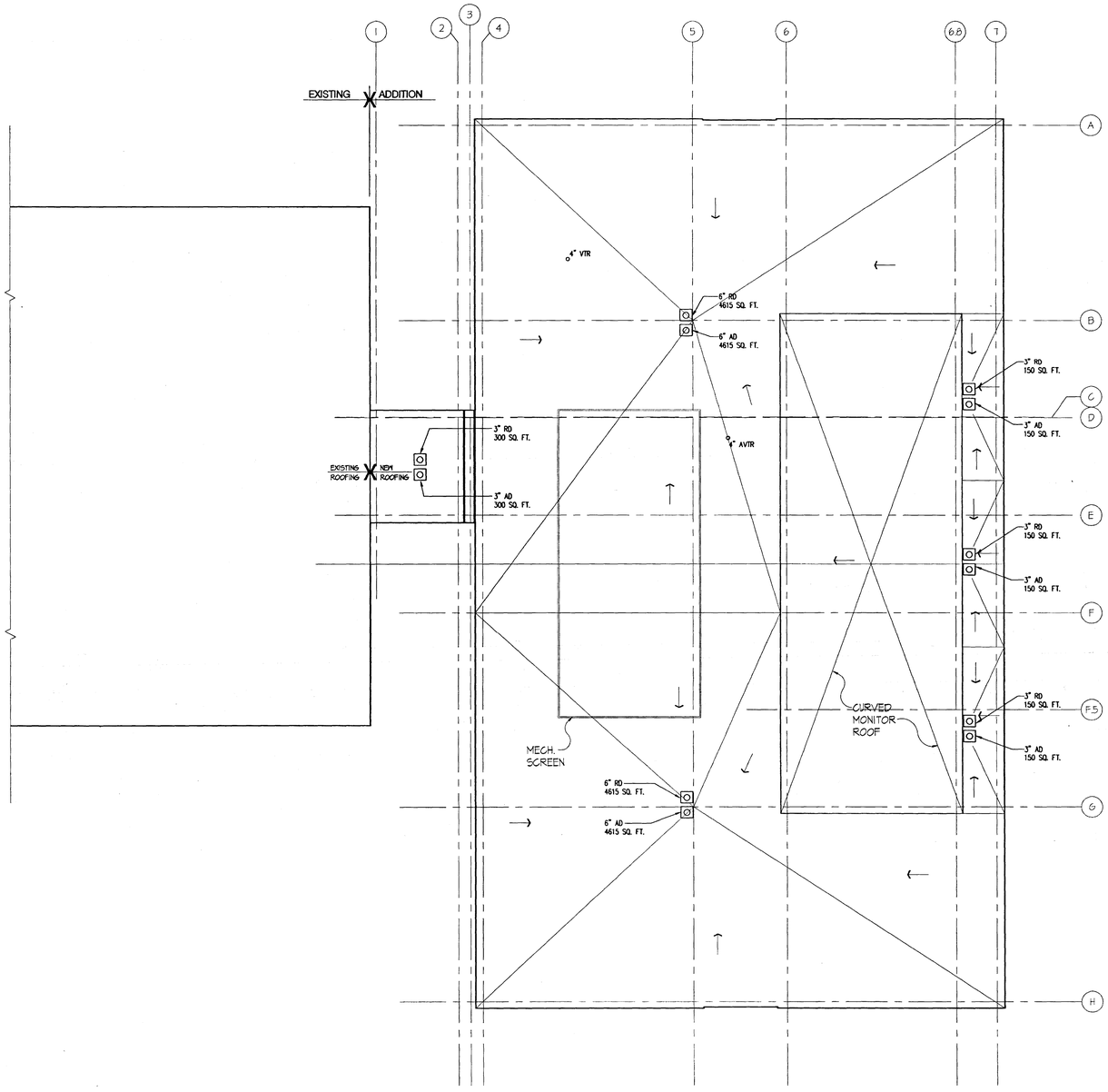
DATE: MARCH 16, 1998

SCALE: 1/8" = 1'-0"

PROJECT NO.: 50950.06

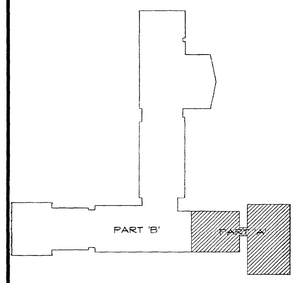
DRAWING NO.: **PFP101.2**

BQ #70 & 125 Attachment



ROOF PLAN
SCALE: 1/8"=1'-0"

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KEY PLAN

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: R.M. DECARLO
DRAWN BY: R.M. DECARLO

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

ROOF PLAN - PLUMBING

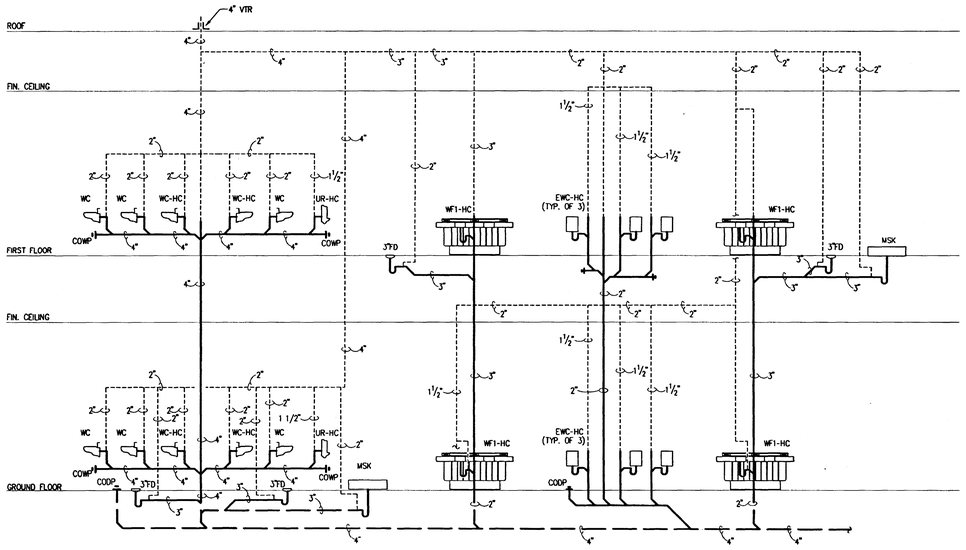
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SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE: **MARCH 16, 1998**
SCALE: **1/8" = 1'-0"**
PROJECT NO.: **50950.06**
DRAWING NO.: **P110**

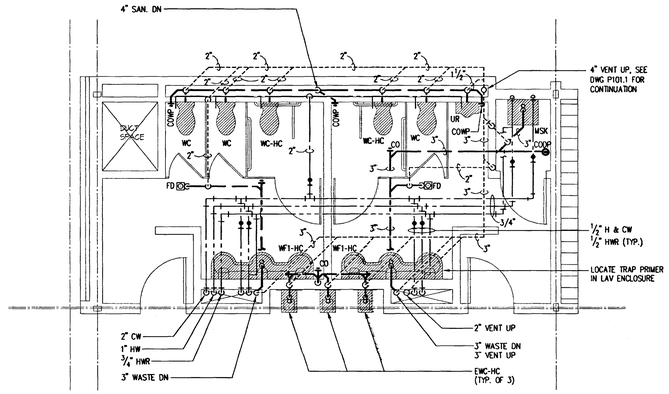
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BQ #70 & 125 Attachment



SANITARY RISER DIAGRAM
FIRST FLOOR AND SECOND FLOOR - PART A

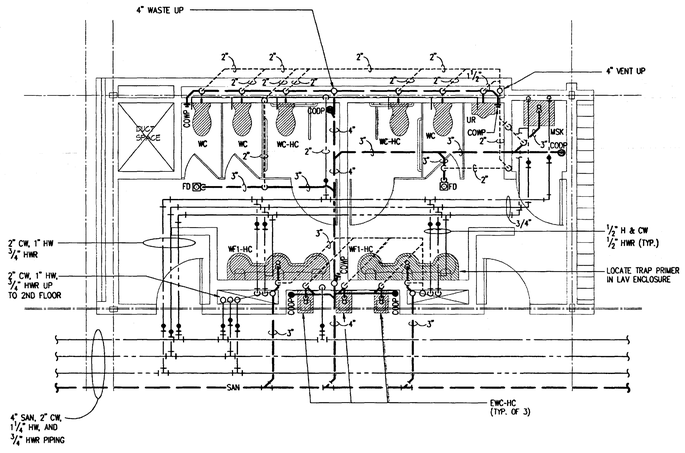
1 / P301 SCALE: NONE



1 / P201 **LARGE SCALE TOILET ROOM PLAN - SECOND FLOOR**
SCALE: 1/4" = 1'-0"

WATER RISER DIAGRAM
FIRST FLOOR AND SECOND FLOOR - PART A

2 / P301 SCALE: NONE



1 / P201 **LARGE SCALE TOILET ROOM PLAN - FIRST FLOOR**
SCALE: 1/4" = 1'-0"

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PLUMBING PLAN NOTES:

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: R.M. DECARLO
DRAWN BY: R.M. DECARLO

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

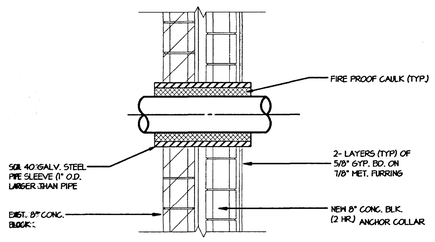
DRAWING TITLE

ENLARGED TOILET ROOM LAYOUT & RISER DIAGRAMS - PLUMBING

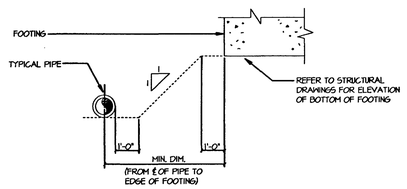
NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: P201

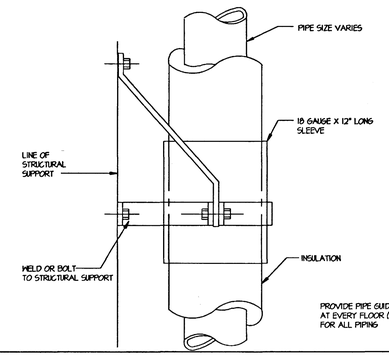
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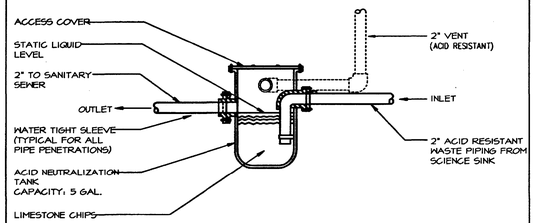
1 DETAIL OF PENETRATION W/ SLEEVE THRU FIRE WALL
NOT TO SCALE



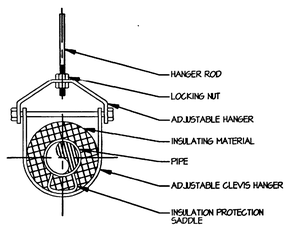
2 DETAIL OF UNDERGROUND PIPING
NOT TO SCALE



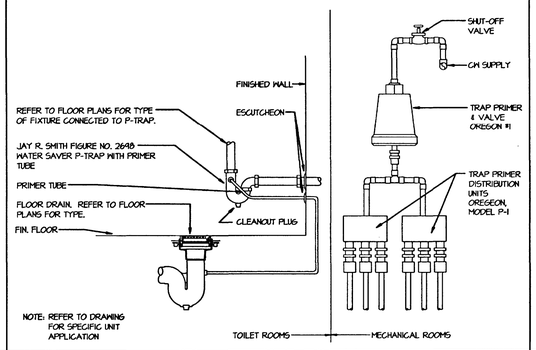
3 DETAIL OF VERTICAL PIPE GUIDE
NOT TO SCALE



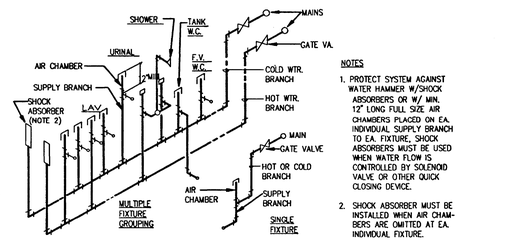
4 DETAIL OF ACID NEUTRALIZATION TANK
NOT TO SCALE



5 CLEVIS HANGAR WITH SADDLE
NOT TO SCALE

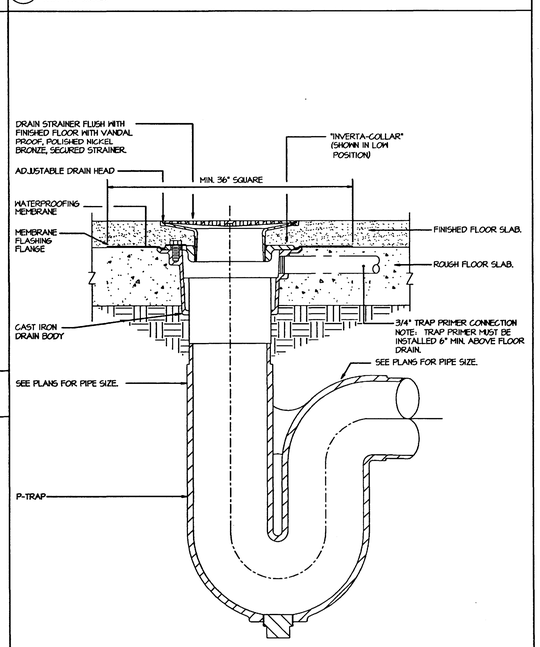


6 TRAP PRIMER DETAIL
NOT TO SCALE

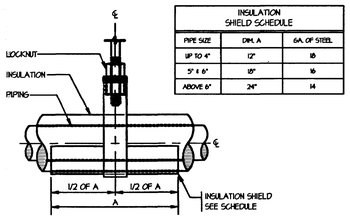


NOTES
1. PROTECT SYSTEM AGAINST WATER HAMMER W/SHOCK ABSORBERS OR W/ MIN. 12" LONG FULL SIZE AIR CHAMBERS PLACED ON E.A. INDIVIDUAL SUPPLY BRANCH TO E.A. FIXTURE, SHOCK ABSORBERS MUST BE USED WHEN WATER FLOW IS CONTROLLED BY SOLENOID VALVE OR OTHER QUICK CLOSING DEVICE.
2. SHOCK ABSORBER MUST BE INSTALLED WHEN AIR CHAMBERS ARE OMITTED AT E.A. INDIVIDUAL FIXTURE.
3. AT SHOCK ABSORBERS, ACCESS PANEL REQUIRED
4. SEE RISER DIAGRAMS AND PLUMBING DRAWINGS FOR ARRANGEMENT OF PIPING AND FIXTURES.

7 DETAIL OF AIR CHAMBER & SHOCK ABSORBER LOCATIONS
NOT TO SCALE

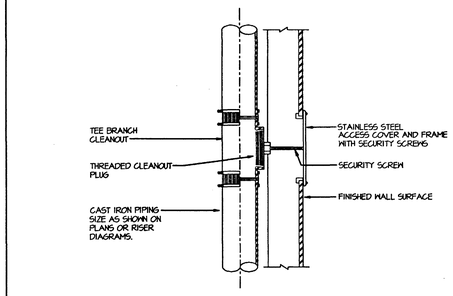


4 DETAIL OF ACID NEUTRALIZATION TANK
NOT TO SCALE

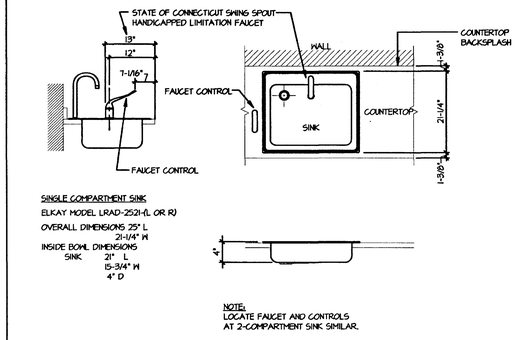


INSULATION SHIELD SCHEDULE		
PIPE SIZE	DIM. A	GA. OF STEEL
1/2" TO 4"	12"	18
5" & 6"	18"	16
ABOVE 6"	24"	14

8 PIPE HANGAR/SHIELD DETAIL
NOT TO SCALE



9 WALL CLEANOUT DETAIL
NOT TO SCALE



SINGLE COMPARTMENT SINK
ELKAY MODEL LRAD-2521-(L OR R)
OVERALL DIMENSIONS 25" L
21-1/4" H
INSIDE BOWL DIMENSIONS
SINK 21" L
15-3/4" H
4" D

NOTE:
LOCATE FAUCET AND CONTROLS AT 2-COMPARTMENT SINK SIMILAR.

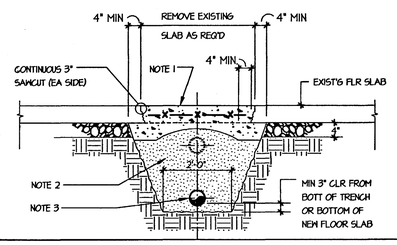
10 DETAIL OF HANDICAPPED ACCESSIBLE SINK & FAUCET LAYOUT
NOT TO SCALE

RPD SIZE	DRAIN SIZE
3/4"	1"
1"	1"
1 1/2"	2"
2"	2"

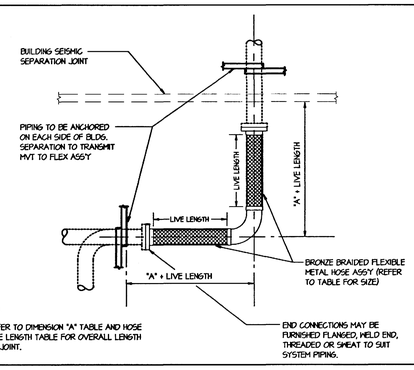
NOTE:
THIS DETAIL IS APPROPRIATE FOR PIPE SIZES 3/4" THRU 2".

11 ADJUSTABLE FLOOR DRAIN DETAIL
NOT TO SCALE

1. REPLACE CONCRETE SLAB WITH 4000 PSI CONCRETE, FINISH NEW SLAB FLUSH WITH EXISTING FLOOR SLAB. REINFORCE W/ 6x6-W2.9xW2.9 WWF.
2. COMPACTED FINE AGGREGATE FILL CONFORMING TO STATE OF CONN. DOT FORM 814 1988, SECTION M.03, ARTICLE M.03.01, PARAGRAPH 2. COMPACT TO 95% MAX DRY DENSITY IN ACCORDANCE WITH ASTM D1557. PLACE BACKFILL IN MAXIMUM 8" DEEP LAYERS.
3. NEW PIPE OR ELECTRICAL CONDUIT. REFER TO PLUMBING AND ELECTRICAL DRAWINGS FOR LOCATION, EXTENT, AND PITCH REQUIREMENTS.



12 DETAIL OF NEW UNDERSLAB PIPING AT EXISTING FLOOR SLAB
NOT TO SCALE



NOTES:
1) REFER TO DIMENSION "A" TABLE AND HOSE LIVE LENGTH TABLE FOR OVERALL LENGTH OF JOINT.

BRONZE BRAIDED METAL HOSE LIVE LENGTH											
HOSE SIZE (ID)											
1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	8"
13-3/4"	15-1/4"	16"	17-1/2"	18-1/2"	20-3/4"	22-1/4"	24"	26-3/4"	29-1/2"	42-1/2"	48-1/4"

DIMENSION "A" TABLE				
PIPE SIZE	TYPE OF END FITTING			
	THD'D NIPPLE	HELD NIPPLE	COPPER SWEAT	150# FLANGE
1/2"	4"	4-1/4"	2-9/16"	3-1/8"
3/4"	4-3/8"	4-1/8"	3-1/2"	3"
1"	5"	4-3/4"	4-1/16"	3-9/16"
1-1/4"	5-1/8"	5-1/16"	4-3/4"	4-1/16"
1-1/2"	6-1/4"	6"	5-3/8"	5-1/8"
2"	7-1/2"	6-3/4"	6-1/2"	6"
2-1/2"	8-3/4"	7-1/2"	7-3/8"	6-7/8"
3"	9-1/2"	8-1/4"	8-5/16"	7-1/16"
4"	12"	9-3/4"	10-1/2"	9-5/16"
5"	—	12-3/4"	—	11-5/16"
6"	—	14-1/4"	—	13-1/16"
8"	—	17-1/4"	—	16-5/8"

NOTE:
TO DETERMINE APPROXIMATE OVERALL LENGTH (OAL) OF EACH LEG, ADD DIMENSION "A" TO THE LIVE LENGTH.

13 DETAIL OF SEISMIC SEPARATION JOINT PIPING DETAIL
NOT TO SCALE

14 DETAIL OF BACKFLOW PREVENTER (RPBP)
NOT TO SCALE

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PLUMBING PLAN NOTES:
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2. REFER TO DRAWING P401 FOR SYMBOL LIST AND LIST OF ABBREVIATIONS FOR THESE PLUMBING DRAWINGS.
3. REFER TO DRAWING P401 FOR ACCESSIBILITY PLUMBING FIXTURE SCHEDULE FOR THESE PLUMBING DRAWINGS.

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: R.M. DECARLO
DRAWN BY: R.M. DECARLO

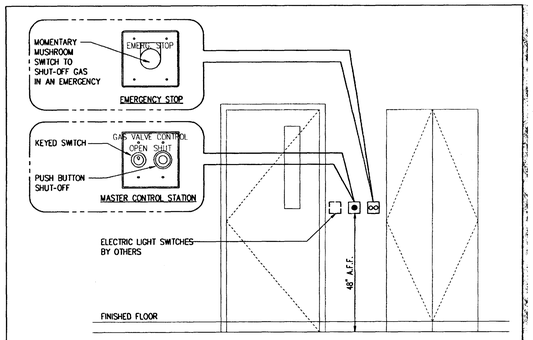
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TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE
ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT
STATE PROJECT NO. 057-106EA

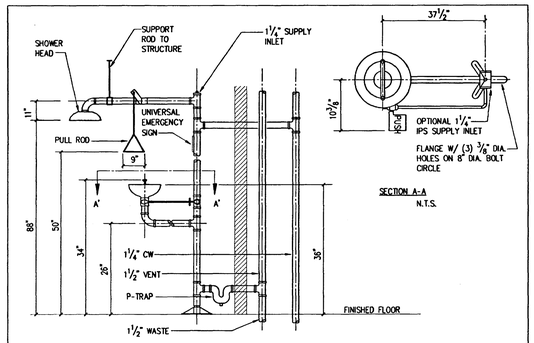
DRAWING TITLE
DETAILS - PLUMBING

NO	DATE	REVISION	BY

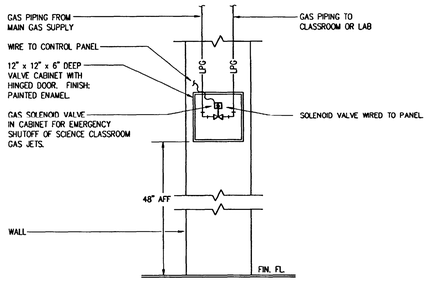
DATE: MARCH 16, 1998
SCALE: NOT TO SCALE
PROJECT NO.: 50950.06
DRAWING NO.: P301



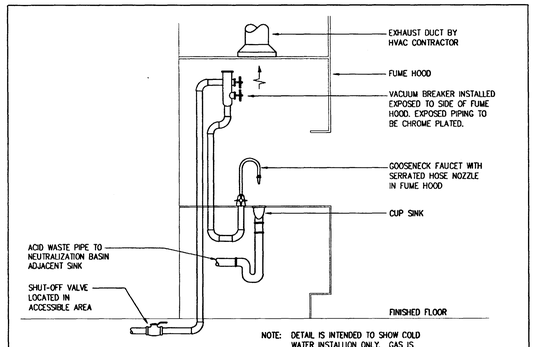
1 DETAIL OF EMERGENCY GAS CONTROL SHUTOFF
SCALE : 1/2" = 1'-0"



2 DETAIL OF EMERGENCY SHOWER/EYE WASH (FREE STANDING)
NOT TO SCALE

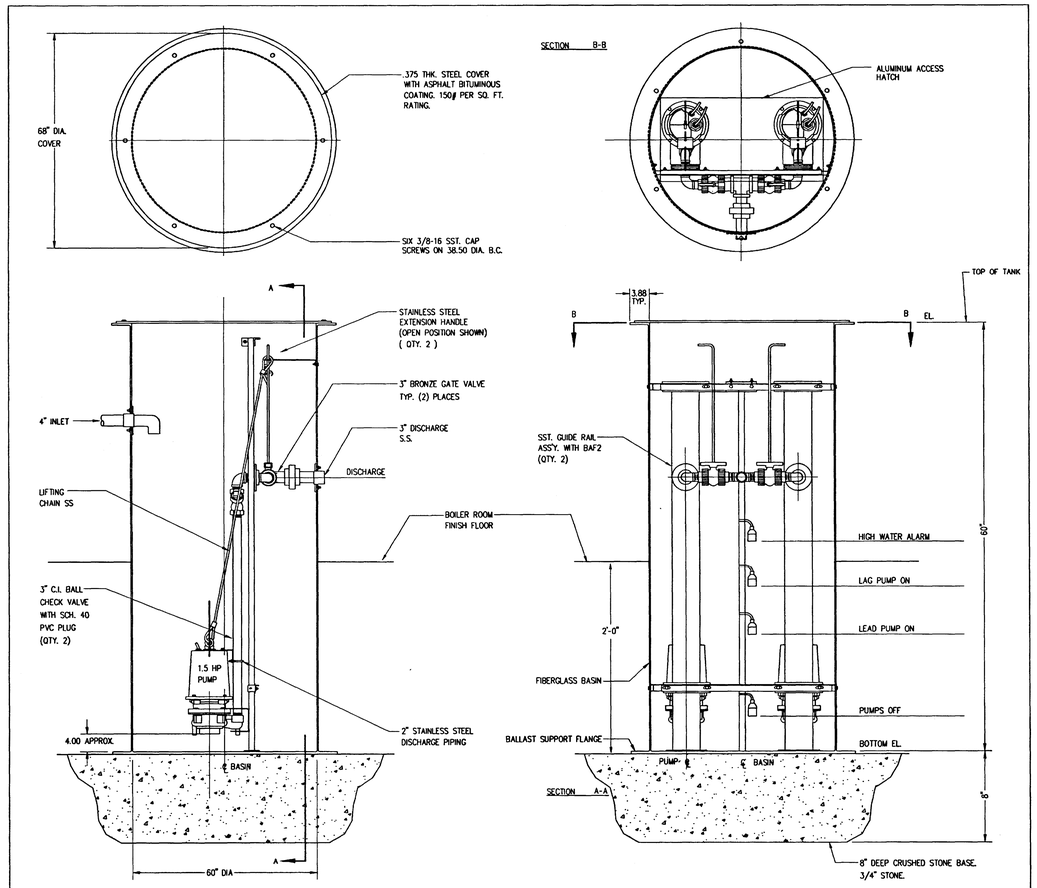


3 DETAIL OF GAS SOLENOID VALVE IN CABINET
NOT TO SCALE



NOTE: DETAIL IS INTENDED TO SHOW COLD WATER INSTALLION ONLY. GAS IS ALSO REQUIRED, REFER TO PLANS.

4 DETAIL OF TYPICAL FUME HOOD
NOT TO SCALE



5 SEWAGE EJECTOR PIPING DETAIL
NOT TO SCALE

BQ #70 & 125 Attachment

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PROFESSIONAL SEAL

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STATE PROJECT NO. 057-106EA

DRAWING TITLE

DETAILS - PLUMBING

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: NOT TO SCALE
PROJECT NO.: 50950.06
DRAWING NO.: P302

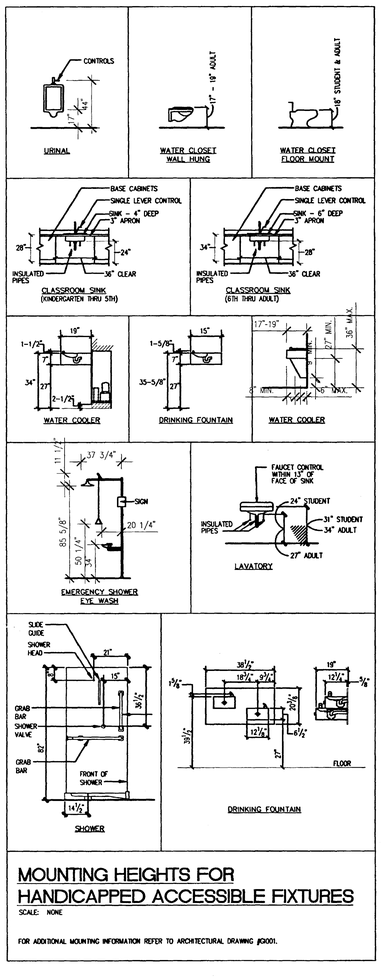
FIXTURE CONNECTION SCHEDULE

SYMBOL	DESCRIPTION	SUPPLY SIZE	TRAP SIZE	MINIMUM BRANCH SIZE				REMARKS
				WASTE	VENT	HOT	COLD	
WC	WATERCLOSET	1"	- -	4"	2"	- -	1"	
WC-HC	WATERCLOSET (HANDICAP ACCESSIBLE)	1"	- -	4"	2"	- -	1"	
UR	URINAL	3/4"	- -	2"	1-1/2"	- -	3/4"	
UR-HC	URINAL (HANDICAPPED ACCESSIBLE)	3/4"	- -	2"	1-1/2"	- -	3/4"	
EWC	ELECTRIC WATER COOLER	3/8"	1-1/2"	1-1/2"	1-1/2"	-	1/2"	
LAV	LAVATORY	3/8"	1-1/2"	1-1/2"	1-1/2"	1/2"	1/2"	
LAV-HC	LAVATORY (HANDICAP ACCESSIBLE)	3/8"	1-1/2"	1-1/2"	1-1/2"	1/2"	1/2"	
SK#	SINK (HANDICAP ACCESSIBLE)	3/8"	1-1/2"	1-1/2"	1-1/2"	1/2"	1/2"	
DF#-HC	DRINKING FOUNTAIN (HANDICAP ACCESSIBLE)	3/8"	1-1/4"	1-1/2"	1-1/2"	- -	1/2"	
MSK	MOP SINK	1/2"	3"	3"	2"	3/4"	3/4"	
SH/EW-HC	SHOWER/EYE WASH (HANDICAP)	1-1/4"	- -	2"	1-1/2"	- -	1-1/4"	

HANDICAPPED ACCESSIBLE PLUMBING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	MFG.	MODEL	SIZE (OVERALL DIMENSIONS) (L=LENGTH, W=WIDTH, D=DEPTH, H=HIGH)	DESCRIPTION
WC-HC	WATER CLOSET	KOHLER	K-4268	19" HIGH x 14" W x 29 5/8" L	WHITE VITREOUS CHINA, FLOOR SET, ELONGATED, SIPHON JET BOWL. SEE FIXTURE SCHEDULE ABOVE FOR MOUNTING HEIGHTS
UR-HC	URINAL	KOHLER	K-4960-T	28"H x 18"W	SEE MOUNTING HEIGHT DIAGRAM ABOVE
LAV-HC	LAVATORY	KOHLER	K-2032	20"L x 18"W	SEE MOUNTING HEIGHT DIAGRAM ABOVE
SK1-HC	SINK (SCIENCE SINK)	ELKAY	LRAD-3321	33"L x 21 1/2"W x 6 1/2"D	TWO COMPARTMENT, STAINLESS STEEL, 18 GAUGE, TYPE 302, SELF-RIMMING.
SK2-HC	SINK (STUDENT SINK 4") (ADULT SINK 6-1/2")	ELKAY	LRAD-2521	25"L x 21 1/4"W x 4"D	SINGLE COMPARTMENT, STAINLESS STEEL, 18 GAUGE, TYPE 302, SELF-RIMMING.
WF-HC	WASH FOUNTAIN (HANDICAP)	BRADLEY	SS-3	80"L x 21"W x 38"H	3 PERSON, SOLID SURFACE MATERIAL
EWC-HC	ELECTRIC WATER COOLER (HANDICAP)	ELKAY	LISEA-8-C	18-5/16" x 23-1/4" OVERALL	UL LISTED, STAINLESS STEEL BASIN & CABINET, LEAD FREE, SINGLE LEVEL

BQ #70 & 125 Attachment



MOUNTING HEIGHTS FOR HANDICAPPED ACCESSIBLE FIXTURES

SCALE: NONE

FOR ADDITIONAL MOUNTING INFORMATION REFER TO ARCHITECTURAL DRAWING #0001.

PLUMBING GENERAL NOTES

1.) CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO STARTING WORK. REFER PROBLEMATIC CONDITIONS TO ENGINEER.

2.) MAKE SUBMITTALS OF SHOP DRAWINGS AS SPECIFIED.

3.) DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK. BASIC DESIGN CONCEPTS INDICATED ARE MINIMAL AND MUST BE FOLLOWED OR BETTERED. DO NOT SCALE DRAWINGS.

4.) WORK IS NOT SHOWN IN FINITE DETAIL BUT IS INTENDED TO INCLUDE ITEMS NECESSARY FOR COMPLETION AND PROPER OPERATION.

5.) PROVIDE REQUIRED SUPPORTS AND HANGERS FOR PIPING, FIXTURES AND EQUIPMENT, SO LOADING WILL NOT EXCEED ALLOWABLE LOADINGS OF STRUCTURE.

6.) ALL EQUIPMENT, FIXTURES, PIPING, ETC., TO BE REMOVED, SHALL NOT BE REMOVED FROM THE PREMISES WITHOUT THE OWNER'S APPROVAL.

7.) ALL PIPING TO BE REMOVED SHALL BE PROPERLY PLUGGED AND CAPPED.

8.) NO DEAD ENDS SHALL BE LEFT ON ANY PIPING UPON COMPLETION OF WORK.

9.) ALL SYSTEMS SHALL BE LEFT IN PERFECT WORKING ORDER UPON COMPLETION OF ALL NEW WORK.

10.) FIXTURES (GENERAL): "FIRST QUALITY", NEW COMPLETE WITH TRIMMINGS AND FITTINGS, INCLUDING FAUCETS, SUPPLIES, STOPS, TRAPS, TAILPIECES, WASTE PLUGS, CASINGS, HANGERS, PLATES, BRACKETS, ANCHORS, SUPPORTS, HARDWARE AND FASTENING DEVICES.

11.) WHERE FIXTURES OR TRIM ARE DAMAGED OR BROKEN DURING THE INSTALLATION, THEY SHALL BE REPLACED WITH NEW FIXTURES.

12.) TRIMMINGS AND FITTINGS: CONSTRUCTED OF FORGED, CAST, ROLLED OR EXTRUDED BRASS OR BRONZE WITH MONEL AND OTHER SUITABLE NON-CORROSIVE PARTS: DESIGNED WITH PARTS SUBJECT TO WEAR OR DETERIORATION EASILY RENEWABLE. NO DIE CASTINGS AND STAMPINGS OTHER THAN BRASS OR STAINLESS STEEL.

13.) EXAMINE ROUGH-IN WORK OF POTABLE WATER AND WASTE PIPING SYSTEMS TO VERIFY ACTUAL LOCATIONS OF PIPING CONNECTIONS PRIOR TO INSTALLING FIXTURES. CORRECT ANY INCORRECT LOCATION OF PIPING, AND OTHER UNSATISFACTORY CONDITIONS FOR INSTALLATION OF PLUMBING FIXTURES.

14.) EXERCISE CARE IN HANDLING OF FIXTURES, TRIM, PIPE, AND FITTINGS. USE TOOLS DESIGNED TO PREVENT DAMAGE TO SURFACE FINISHES.

15.) SET FIXTURES LEVEL AND UNIFORMLY, WITH CONNECTIONS AT RIGHT ANGLES TO WALL AND PROPERLY CENTERED. LAY OUT ROUGHING ACCURATELY AND IN COORDINATION WITH SPACE AND FINISH REQUIREMENTS. IF FIELD CUT-OUTS AND HOLES ARE REQUIRED, USE PROPER CUTTING AND DRILLING TOOLS TO MAINTAIN INTEGRITY OF FINISHED SURFACE. PROVIDE CUT-OUT TEMPLATES FOR COUNTERTOP INSERT ITEMS.

16.) LOCATE WASTE OUTLETS AND WATER SUPPLIES AT CONSTANT HORIZONTAL LEVELS, WITH WASTE OUTLET CENTERED ON FIXTURE DRAIN CONNECTION AND WATER SUPPLIES SPACED EQUALLY RIGHT TO LEFT.

17.) SUPPORT WALL HUNG FIXTURES RIGIDLY FROM BUILDING CONSTRUCTION, NOT FROM PIPING, BY MEANS OF CONCEALED METAL SUPPORTING MEMBERS DESIGNED TO CARRY WEIGHT OF FIXTURE UNDER CONDITIONS OF UNUSUAL LOADING, WITH NO STRESS PLACED ON WASTE CONNECTION OR ANY OTHER PART OF SYSTEM.

18.) SECURE FLOOR MOUNT SUPPORTS TO SLAB. SECURE WALL MOUNT SUPPORTS TO 1/4" THICK METAL BACKUP PLATE SECURED TO WALL CONSTRUCTION. DO NOT USE WIRE, NAILS, OR OTHER MAKESHIFT DEVICES TO SECURE SUPPORTING MEMBERS.

19.) USE VANDALPROOF DEVICES TO SECURE FIXTURES, TRIMMINGS AND FITTINGS TO DETER UNAUTHORIZED REMOVAL. PROVIDE CHROME PLATED BRASS WASHERS AND CAP NUTS FOR EXPOSED BOLT ENDS.

20.) PROVIDE ESCUTCHEONS, THREADED OR HELD IN PLACE WITH THREADED PART OR SET SCREW, ON PIPING AND FIXTURE SUPPORTS PROTRUDING FROM WALL OR FLOOR, AND ON WSBLE CONNECTIONS TO FIXTURES.

21.) MAKE CONNECTION BETWEEN INTEGRAL TRAPPED FIXTURES AND DRAINAGE PIPING GAS AND WATERTIGHT, WITH CLOSET COUPLING OR FLANGE, CLOSET RING GASKET AND NON-CORROSIVE BOLTING MATERIALS.

22.) USE SPACING DEVICES TO SUPPORT AND STABILIZE WATER PIPING.

23.) PAINT NON-CORROSIVE FERROUS METAL SURFACES OF FIXTURES, INCLUDING BRACKETS, HANGERS, AND PLATES WITH PRIME COAT OF PAINT.

24.) UPON COMPLETION OF WORK, REMOVE PROTECTIVE COVERS AND THOROUGHLY CLEAN SURFACES, TRAPS AND STRAINERS. CHECK ALL ITEMS FOR PROPER OPERATION. TIGHTEN PACKINGS AND RETAINING DEVICES.

25.) ADJUST FLUSH VALVES TO PROVIDE MINIMUM FLOW CONSISTENT WITH CLEANING REQUIREMENTS OF FIXTURES. ADJUST SUPPLIES TO PROVIDE ADEQUATE FLOW WITHOUT SPLASHING, AND WITH FLOW RATE OF HOT AND COLD WATER EQUAL IN VELOCITY, EXCEPT AS OTHERWISE REQUIRED.

26.) SECURE AND PAY COSTS OF PERMITS, CERTIFICATES, LICENSES, INSPECTIONS AND APPROVALS.

27.) OBTAIN CERTIFICATE OF APPROVAL FROM RESPONSIBLE BUILDING OFFICIAL.

28.) SUPPLY TWO COPIES OF A WARRANTY COUNTERSIGNED AND GUARANTEED BY CONTRACTOR, STATING THAT IMPERFECT SYSTEM OPERATION AND ALL DEFECTS IN LABOR AND MATERIALS OF PLUMBING WORK WILL BE REPAIRED WITHOUT COST TO OWNER FOR A PERIOD OF ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION, AND STATING THAT ALL PLUMBING EQUIPMENT HAS BEEN FULLY SERVICED AND LEFT IN PROPER OPERATING CONDITION.

29.) GUARANTEE THAT SERVICING WILL BE PROVIDED WITHOUT COST DURING GUARANTEE PERIOD.

30.) TEST PLUMBING SYSTEMS TO SATISFACTION OF BUILDING OFFICIAL. DO NOT CLOSE IN, CONCEAL, OR COVER UP ANY PLUMBING WORK UNTIL IT HAS BEEN TESTED, INSPECTED AND APPROVED.

31.) FLUSH PIPING, PRIOR TO TESTING, TO REMOVE FOREIGN MATERIALS WHICH MAY HAVE ENTERED DURING COURSE OF INSTALLATION. CLEAN FILTERS AND STRAINERS AFTER FLUSHING.

32.) ALL PIPING PENETRATIONS THRU NEW RATED WALLS SHALL BE SEALED WITH LISTED FIREPROOFING MATERIALS. SEE ARCHITECTURAL PLANS FOR EXACT LOCATIONS.

33.) PLUMBERS WORK SHALL END 5'-0" AWAY FROM EXTERIOR FOUNDATION AND SITE CONTRACTORS WORK SHALL BEGIN AT THAT POINT.

34.) PROVIDE SEISMIC BRACING AND SUPPORTS FOR ALL PIPING AND EQUIPMENT PER BOCA BUILDING CODE. SEE HVAC DRAWINGS FOR DETAILS.

35.) LOCATION OF ALL FULL-OPEN VALVES AND SHUTOFF VALVES SHALL BE INSTALLED PER BOCA PLUMBING CODE SECTION P-1504.1 AND P-1504.2 WHETHER SPECIFICALLY SHOWN ON DRAWINGS OR NOT.

36.) ITEMS NEEDING SAWCUTTING AND PATCHING SHALL BE COORDINATED BETWEEN TRADES. ONLY MAJOR PIECES ARE SHOWN ON DRAWINGS AND DO NOT INDICATE ALL LOCATIONS. PLUMBER SHALL BE RESPONSIBLE FOR CONCEALING ALL NEW WORK, UNLESS NOTED OTHERWISE.

37.) SET AND CONNECT ALL FIXTURES WITH HOT AND COLD WATER, VENT AND DRAINAGE AS REQUIRED AND PROTECT FIXTURES UNTIL FINAL ACCEPTANCE AND TEST.

38.) CLEAN ALL FLUSH VALVES AFTER TWO WEEKS OPERATION.

39.) FIXTURES SHALL BE COMPLETE WITH CHROME PLATING ON EXPOSED IRON OR PIPE, TRAPS, ANCHOR BOLTS, HANGERS, STRAINERS, STOP VALVES AT EVERY FIXTURE AND OTHER INCIDENTAL ITEMS FURNISHED AS STANDARD.

40.) ALL FIXTURES SHALL BE CAULKED TIGHT TO WALLS AND FINISHED SURFACES SO THAT NO VOIDS SHALL REMAIN.

41.) ALL FLOOR DRAINS SHALL RECEIVE WATER FROM TRAP PRIMER VALVES - TYPICAL. SEE DETAIL J ON DRAWING P.501.

42.) ALL PLUMBING FIXTURE'S BACK PLATES AND ESCUTCHEONS RECTANGULAR IN NATURE SHALL BE INSTALLED FLUSH WITH THE WALL SURFACE. THE VERTICAL EDGE SHALL BE INSTALLED IN A VERTICAL POSITION PERPENDICULAR TO A HORIZONTAL PLANE AND THE HORIZONTAL EDGE SHALL BE INSTALLED IN A HORIZONTAL (LEVEL) POSITION.

43.) TRADE CONTRACTOR'S NOTE:
ALL EQUIPMENT SHOWN ON THESE DRAWINGS AND IN PROJECT SPECIFICATION IS BASED ON SPECIFIED MANUFACTURERS. ANY MODIFICATION AND/OR SUBSTITUTION OF SAID EQUIPMENT IS SUBJECT TO COMPLETE COORDINATION OF ALL CONNECTIONS, SERVICES, OPENING SIZES, AND ANY OTHER CONSTRUCTION RELATED REQUIREMENTS BY THE TRADE CONTRACTOR PROVIDING THE EQUIPMENT.

PIPE AND FITTING SCHEDULE

DESCRIPTION	SIZE	TEST P.S.I.	PIPE		FITTING		REMARKS
			TYPE	SCHED.	TYPE	RATING	
WASTE & VENT PIPING (ABOVE GRADE)	UNDER 2"	CODE	S1 GALV.	40	S1 GALV.	40	
WASTE, & VENT PIPING (ABOVE GRADE)	OVER 2"	CODE	C. I.	SV	C. I.	SV	NO-HUB WITH 4 BAND "HUSKEY" OR EQUAL "CLAMP ALL" CLAMPS
WASTE, & VENT PIPING (BELOW GRADE)	ALL	CODE	C. I.	SV	C. I.	SV	HUB AND SPIGOT
STORM DRAIN (ABOVE GRADE)	ALL	CODE	C. I.	SV	C. I.	SV	NO-HUB WITH 4 BAND "HUSKEY" OR EQUAL "CLAMP ALL" CLAMPS
STORM DRAIN (BELOW GRADE)	ALL	CODE	C. I.	SV	C. I.	SV	HUB AND SPIGOT
DOMESTIC COLD WATER	ALL	200	CUL	STD.	CUS	STD.	
DOMESTIC HOT WATER	ALL	200	CUL	STD.	CUS	STD.	
CONDENSATE DRAIN	ALL	200	DWV	STD.	CUS	STD.	COPPER
GAS PIPING (PROPANE)	UP TO 2"	50	S2 BLK	40	M.I.	40	
FUEL OIL PIPING	ALL	200	CUL	STD.	CUS	STD.	

INSULATION SCHEDULE

DESCRIPTION	TYPE	PIPE SIZE	THICKNESS	REMARKS
DOMESTIC COLD WATER	P-10		1"	
DOMESTIC HOT WATER	P-10	3/4"-1"	1"	
		1-1/4"-2"	1"	
		2-1/2"-4"	1-1/2"	
DOMESTIC HOT WATER CIRC	P-10		1"	
STORM HORIZ. RUNS ABOVE GRADE	P-10		1/2"	ALSO INSULATE FIRST TWO (2) FEET OF VERTICAL RISER
ROOF DRAIN BODY	P-45		1"	INCLUDE VERTICAL SECTION UP TO ROOF DRAIN
LAVATORY HANDICAPPED ACCESSIBLE INSULATION FOR UNDER HANDICAPPED LAV.	P-10A		3/16"	INSULATE TRAP, CW & HW PIPING UNDER HANDICAPPED ACCESSIBLE LAVATORY/SINKS
CONDENSATE DRAIN	P-10		1/2"	(INSIDE BUILDING ABOVE CEILING ONLY)

PLUMBING LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	S OR W	NEW SOIL OR WASTE ABOVE FLOOR OR GRADE
S	S OR W	NEW SOIL OR WASTE BELOW FLOOR OR GRADE
S	S	EXIST. SANITARY LINE ABOVE FLOOR OR GRADE
S	S	EXIST. SANITARY LINE BELOW FLOOR OR GRADE
ST	ST	NEW STORM DRAIN ABOVE FLOOR OR GRADE
ST	ST	NEW STORM DRAIN BELOW FLOOR OR GRADE
ST	ST	EXIST. STORM DRAIN PIPING
V	V	NEW VENT PIPING
CW	CW	NEW COLD WATER PIPING
HW	HW	NEW HOT WATER PIPING
HWR	HWR	NEW HOT WATER RECIRCULATION PIPING
V	V	EXIST. VENT PIPING
CW	CW	EXIST. COLD WATER PIPING
HW	HW	EXIST. HOT WATER PIPING
HWR	HWR	EXIST. HOT WATER RECIRCULATION PIPING
G	G	NEW GAS SERVICE ABOVE GRADE
G	G	EXIST. GAS SERVICE
	CO/COWP	CLEANOUT/CLEANOUT WALL PLATE
	CODP	CLEANOUT DECKPLATE
		TRAP
	BV	BALL VALVE
	CV	CHECK VALVE
	GV	GATE VALVE
	RPBP	REDUCED PRESS. BACKFLOW PREVENTER
		GAS COCK
	WH	WALL HYDRANT W/ VACUUM BREAKER(NON FREEZE)
		UNION
		CAP
	P.O.C.	POINT OF CONNECTION
	INV. EL.	INVERT ELEVATION
	V.T.R.	VENT THRU ROOF
	EXIST.	EXISTING
	FD	FLOOR DRAIN
	RD	ROOF DRAIN
	L-WC, EWC-HC, WC, WC-HC	EXISTING WATER CLOSET (HANDICAPPED ACCESSIBLE) WATER CLOSET (HANDICAPPED ACCESSIBLE)
	EUR, EUR-HC, UR, UR-HC	EXISTING URINAL (HANDICAPPED ACCESSIBLE) URINAL (HANDICAPPED ACCESSIBLE)
	ELAV, ELAV-HC, LAV, LAV-HC	EXISTING LAVATORY (HANDICAPPED ACCESSIBLE) LAVATORY (HANDICAPPED ACCESSIBLE)
	ESK, SK-#	EXISTING SINK, SINK
	EMSR, MSR	EXISTING MOLDED STONE RECEPTOR MOLDED STONE RECEPTOR
	EDF, DF, DF-HC	EXISTING DRINKING FOUNTAIN (HANDICAPPED ACCESSIBLE) DRINKING FOUNTAIN (HANDICAPPED ACCESSIBLE)
	ESH, SH, SH-HC	EXISTING SHOWER, SHOWER (HANDICAPPED ACCESSIBLE)
	EXEWC, EXEWC-HC EWC, EWC-HC	EXIST. ELECT. WATER COOLER (HANDICAPPED ACCESSIBLE ELECTRIC WATER COOLER (HANDICAPPED ACCESSIBLE)
	ES/EEW	EMERGENCY SHOWER/EMERGENCY EYEWASH
	EWF, WF	EXISTING WASH FOUNTAIN, WASH FOUNTAIN

FIRE PROTECTION LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
S	SPKR.	SPRINKLER PIPING
		SEMI-RECESSED PENDENT SPRINKLER HEAD
		CONCEALED SPRINKLER HEAD
		UPRIGHT SPRINKLER HEAD
	O S & Y W/ TAMP SW	OUTSIDE SCREW & YOKE VALVE WITH TAMPER SWITCH
	F.E. WITH CAB.	FIRE EXTINGUISHER WITH CAB
	F.E.	FIRE EXTINGUISHER - WALL MOUNT
	F.S.	FLOW SWITCH
	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
		PIPING DOWN
		PIPING DOWN
		SEISMIC SEPARATION ASSEMBLY

VALVE SCHEDULE

DESCRIPTION	SIZE	TYPE					REMARKS
		GATE	GLOBE	CHECK	BALL	PLUG	
DOMESTIC COLD WATER	TO 3"	GVT	GLVT	CVT	BVB		
DOMESTIC HOT WATER	TO 3"	GVT	GLVT	CVT	BVB		
DOMESTIC COLD WATER	ABV. 3"	GVF		CVF	BVF		
DOMESTIC HOT WATER	ABV. 3"	GVF		CVF	BVF		
BACKFLOW PREVENTER (RPBP)	ALL	GVT					
GAS	ALL	GVF				PVG	

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PLUMBING PLAN NOTES:

1. REFER TO DRAWING P401 FOR PLUMBING NOTES PERTAINING TO THIS AND ALL PLUMBING DRAWINGS.
2. REFER TO DRAWING P401 FOR SYMBOL LIST AND LIST OF ABBREVIATIONS FOR THESE PLUMBING DRAWINGS.
3. REFER TO DRAWING P401 FOR ACCESSIBILITY PLUMBING FIXTURE SCHEDULE FOR THESE PLUMBING DRAWINGS.

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: R.M. DECARLO
DRAWN BY: R.M. DECARLO

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN
FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

LEGEND, NOTES AND SCHEDULES - PLUMBING

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: NOT TO SCALE
PROJECT NO.: 50950.06
DRAWING NO.: P401

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BQ #70 & 125 Attachment

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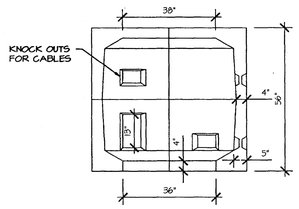
ELECTRICAL NOTE LEGEND:

1. EXISTING UTILITY COMPANY POLE WITH ONE (1) RISER CONDUIT FOR PRIMARY SERVICE AND ONE (1) POLE RISER CONDUIT STUBBED 18" A.F.G..
2. TWO (2) 4" PVC CONDUITS UNDERGROUND, ONE (1) FOR NEW PRIMARY SERVICE CABLE AND ONE (1) SPARE CONDUIT. PROVIDE CONCRETE ENCASEMENT FOR CONDUITS BELOW PARKING AND ROAD-WAYS.
3. NEW ELECTRICAL HAND HOLE, SEE DETAIL.
4. NEW PAD MOUNTED TRANSFORMER AND PAD, SEE DETAIL.
5. SIX SETS OF UNDERGROUND SECONDARY FEEDERS, EACH 4 #500 MCM-THHN - 4" GALVANIZED STEEL CONDUITS TO NEW MAIN SWITCH AND SECONDARY DISTRIBUTION SWITCHBOARD. SEAL AND WATERPROOF CONDUITS AT BOTH THE BUILDING ENTRANCE AND TRANSFORMER LOCATION.
6. UPON COMPLETION OF THE NEW ELECTRICAL SERVICE THE EXISTING TRANSFORMER SHALL BE REMOVED AS WELL AS THE EXISTING PRIMARY CABLES. CAP CONDUIT AT BOTH ENDS AND ABANDON IN PLACE.

ELECTRICAL SITE PLAN
SCALE: 1" = 40'-0"



PLAN VIEW

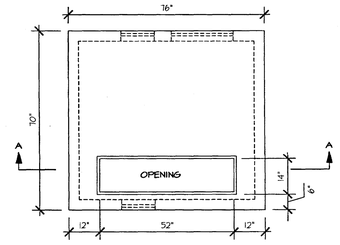


SECTION A-A

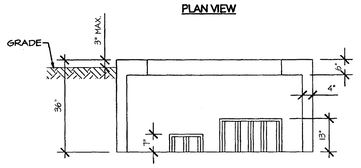
HANDHOLE - HEXAGONAL - PRECAST CONCRETE 60" WIDE X 56" HIGH OUTSIDE (N.U. SPC H-019)

NOT TO SCALE

NOTES:
1. DESIGN LOADING SHALL BE IN ACCORDANCE WITH AASHTO HS20-1983.
2. CONCRETE AND CONCRETE DESIGN SHALL BE IN ACCORDANCE WITH ACI 318-1986.
3. CONCRETE SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 4000 PSI AND A MAXIMUM 28 DAY STRENGTH OF 5000 PSI.
4. FIVE INCH X 12 INCH KNOCKOUTS, (3) IN THE TOP, (3) IN THE BOTTOM AND (1) 12 INCH X 13 INCH KNOCKOUT IN THE BOTTOM SHALL BE CLEAR OF REINFORCEMENT.
5. ¾ INCH - COIL LOOP INSERTS - 6 INCH - (DAYTON B-16) WITH INSERT LOCATOR PLUG (DATTON T-21). TWO EACH IN TOP AND BOTTOM SECTIONS FOR LIFTING WITH SWIVEL PLATE. INSERTS ARE TO BE SECURED IN PLACE WITH REBAR.



PLAN VIEW



SECTION A-A

1. CONCRETE - 4000 P.S.I. 28 DAYS
2. COMPLY WITH PROVISIONS OF NORTHEAST UTILITIES SPECIFICATIONS #SPC P-015 FOR 500-2500 KVA TRANSFORMER PAD.

PRECAST CONCRETE TRANSFORMER PAD 3 PHASE, 500 - 2500 KVA (N.U.)

NOT TO SCALE

PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	W.D. BOLAND
DRAWN BY	F. AGOSTINI

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

SITE ELECTRICAL PLAN

0 40' 80' 120'

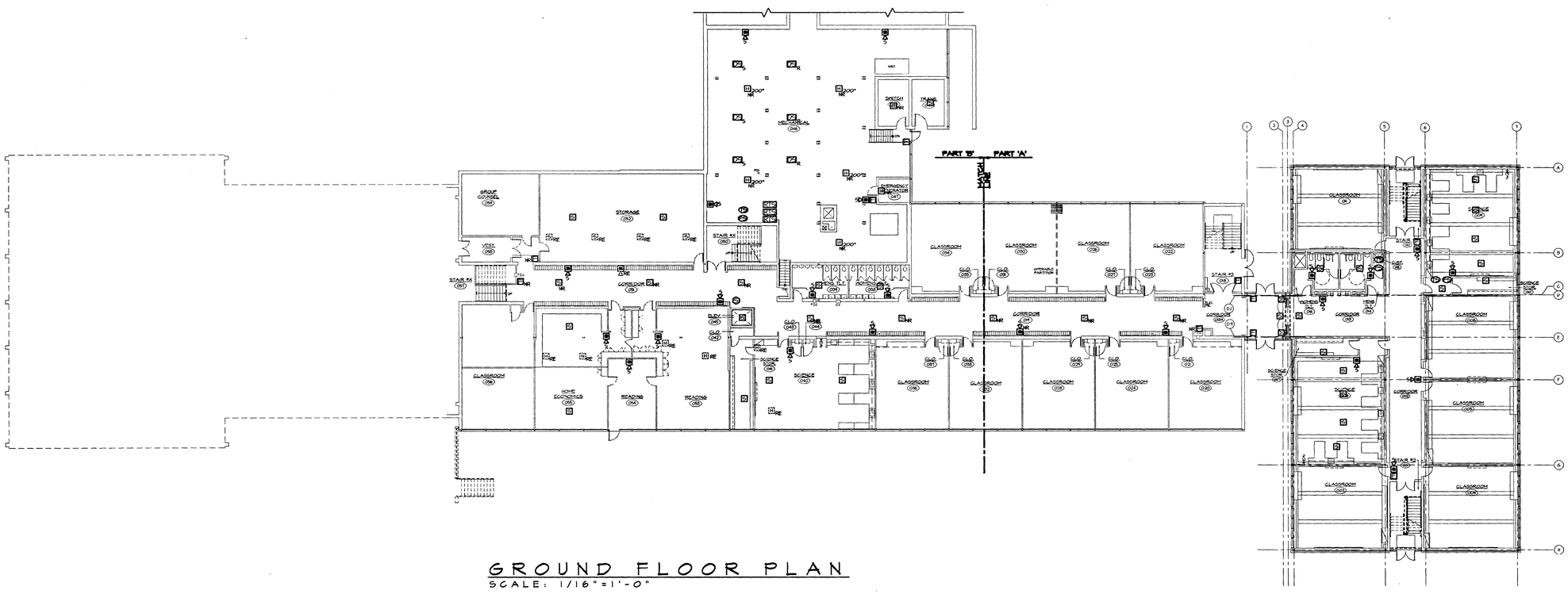
NO	DATE	REVISION	BY

DATE	MARCH 16, 1998
SCALE	AS NOTED
PROJECT NO.	50950.06
DRAWING NO.	E001

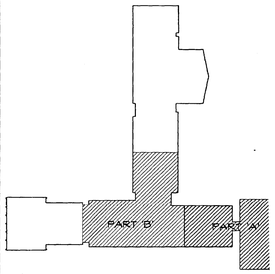
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BQ #70 & 125 Attachment

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GROUND FLOOR PLAN
SCALE: 1/16"=1'-0"



KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: W.D. BOLAND
DRAWN BY: F. AGOSTINI

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ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

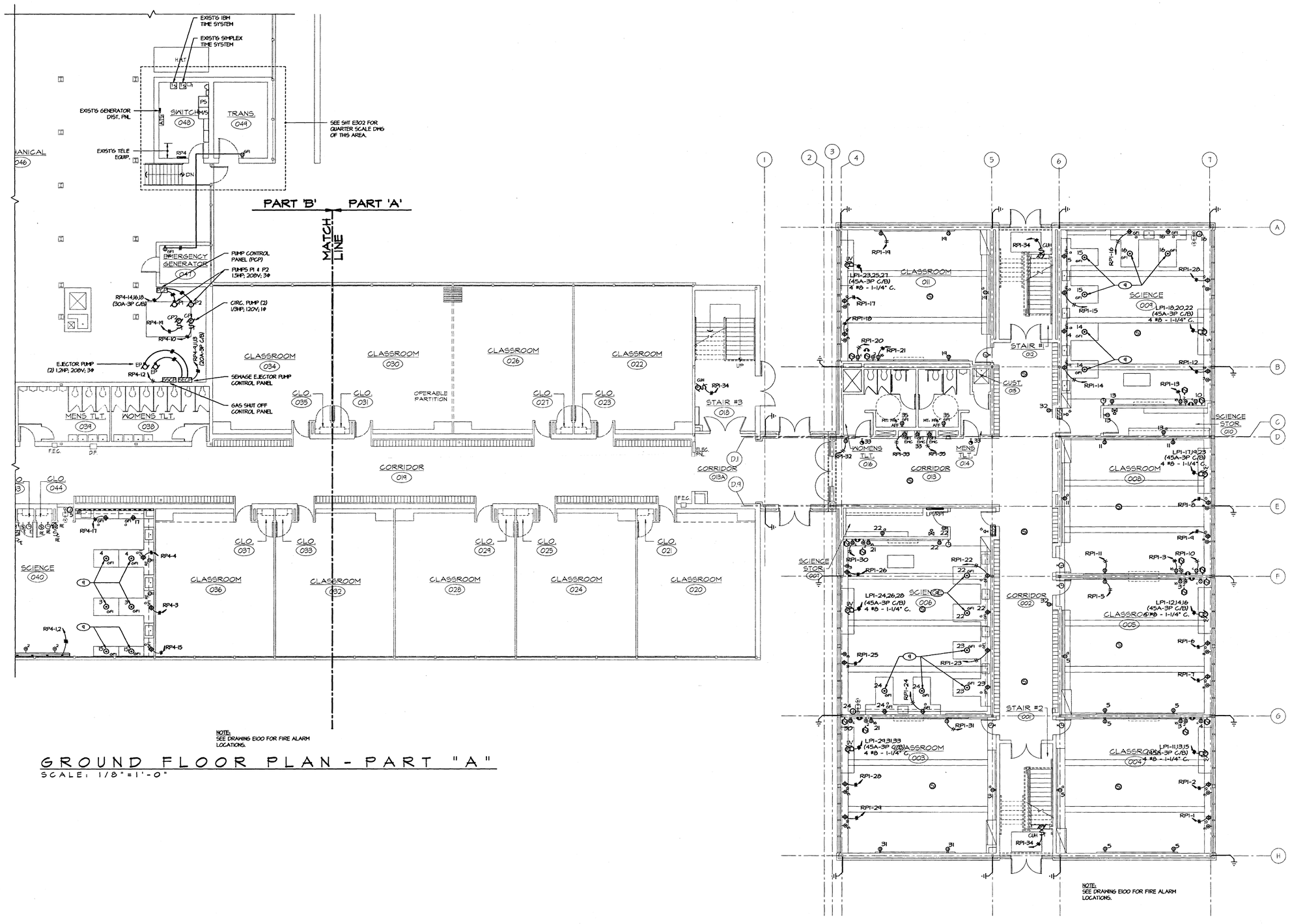
GROUND FLOOR FIRE ALARM PLAN

0 8' 16' 32'
SCALE: 1/16" = 1'-0"

NO	DATE	REVISION	BY
1	6/19/98	D.O.E. REVISIONS	F.A.

DATE: MARCH 16, 1998
SCALE: 1/16" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: E100

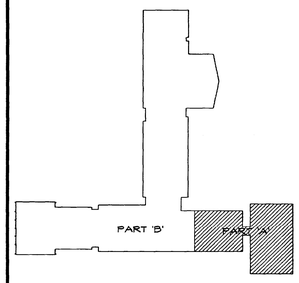
BQ #70 & 125 Attachment



GROUND FLOOR PLAN - PART "A"

SCALE: 1/8" = 1'-0"

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KEY PLAN

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE

ARCHITECT/ENGINEER: W.D. BOLAND

DRAWN BY: F. AGOSTINI

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ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

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BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

GROUND FLOOR PART "A" ELECTRICAL PLAN

0 4' 8' 16'

SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998

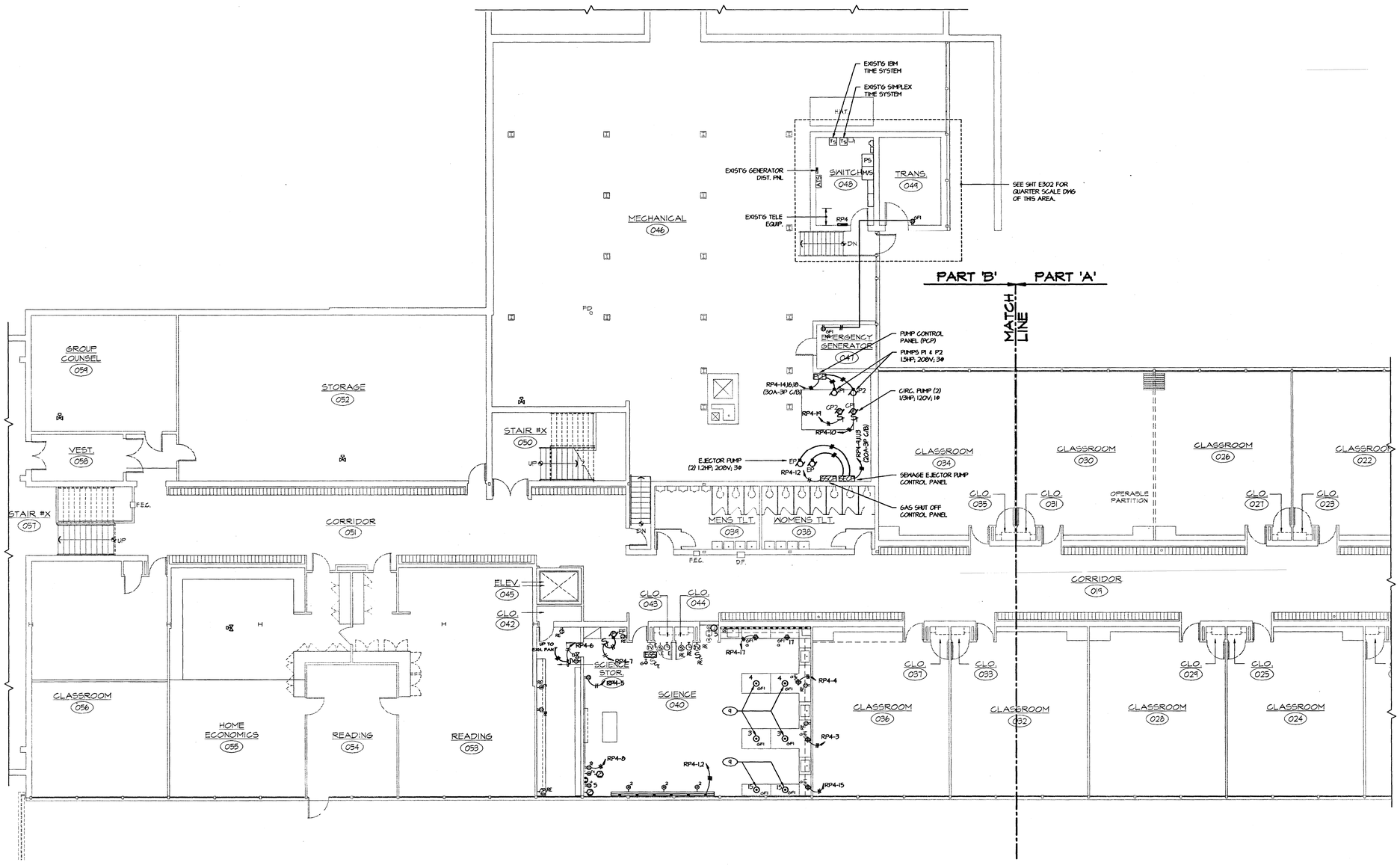
SCALE: 1/8" = 1'-0"

PROJECT NO.: 50950.06

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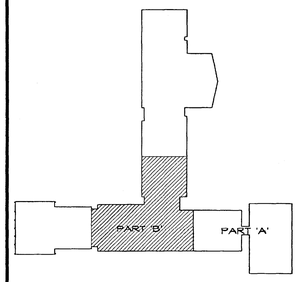
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GROUND FLOOR PLAN - PART "B"

SCALE: 1/8" = 1'-0"

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KEY PLAN

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PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	W.D. BOLAND
DRAWN BY	F. ACOSTINI

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BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

GROUND FLOOR PART "B" ELECTRICAL PLAN

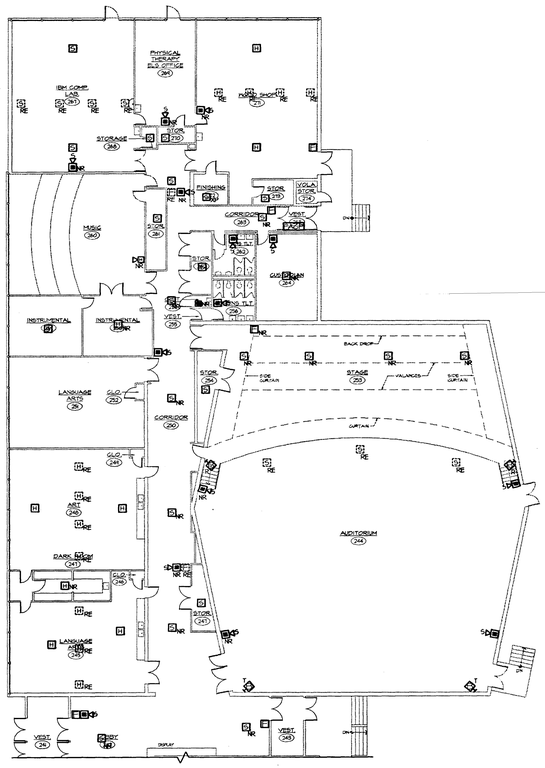
0 4' 8' 16'

SCALE: 1/8" = 1'-0"

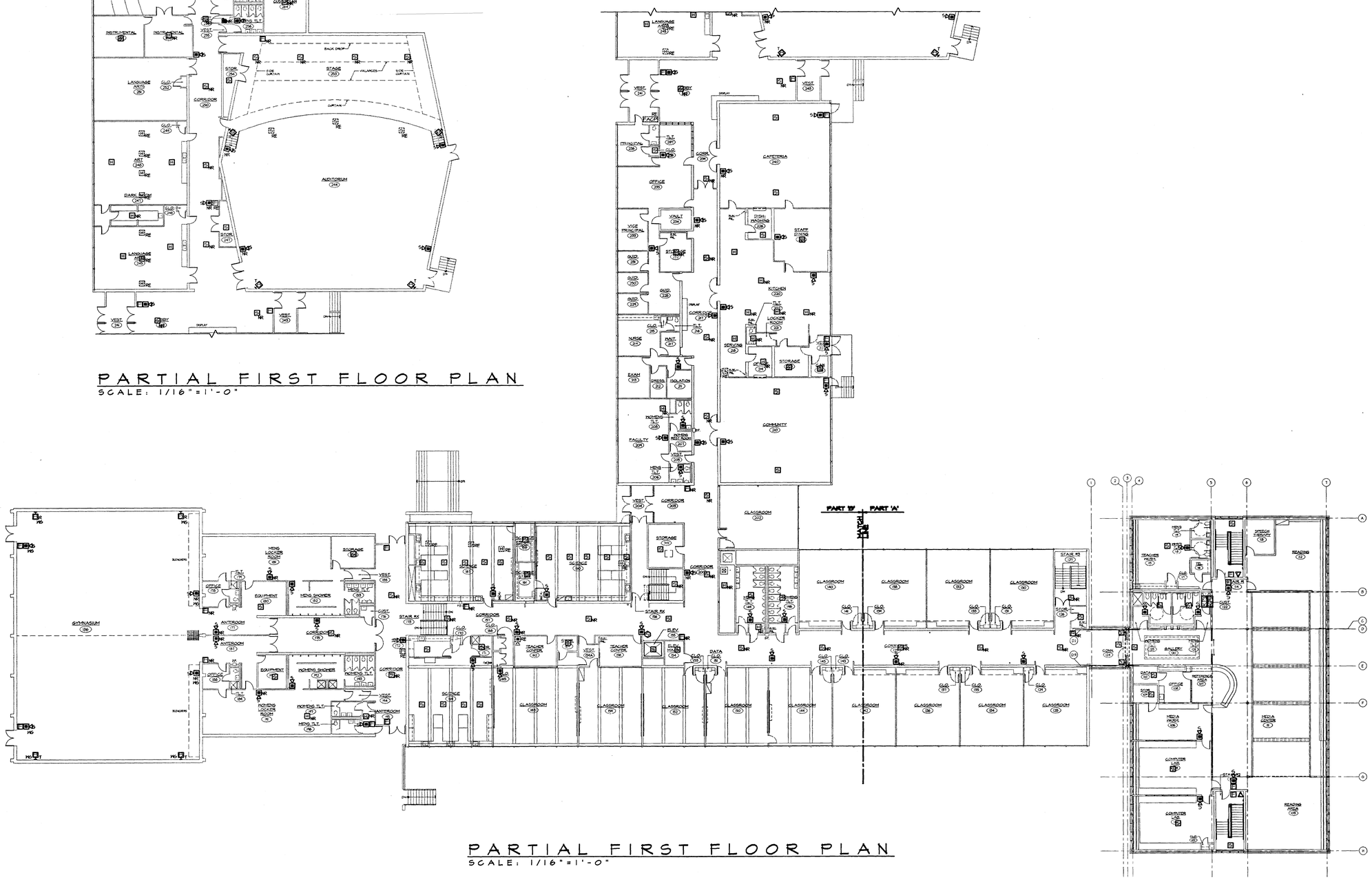
NO	DATE	REVISION	BY

DATE	MARCH 16, 1998
SCALE	1/8" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	E100.2

BQ #70 & 125 Attachment

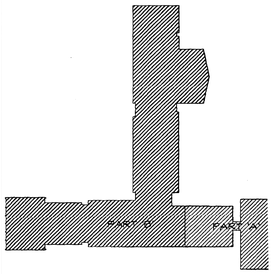


PARTIAL FIRST FLOOR PLAN
SCALE: 1/16"=1'-0"



PARTIAL FIRST FLOOR PLAN
SCALE: 1/16"=1'-0"

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KEY PLAN

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PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	W.D. BOLAND
DRAWN BY	F. AGOSTINI

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ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC
TWO LAFAYETTE SQUARE
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PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

FIRST FLOOR FIRE ALARM PLAN

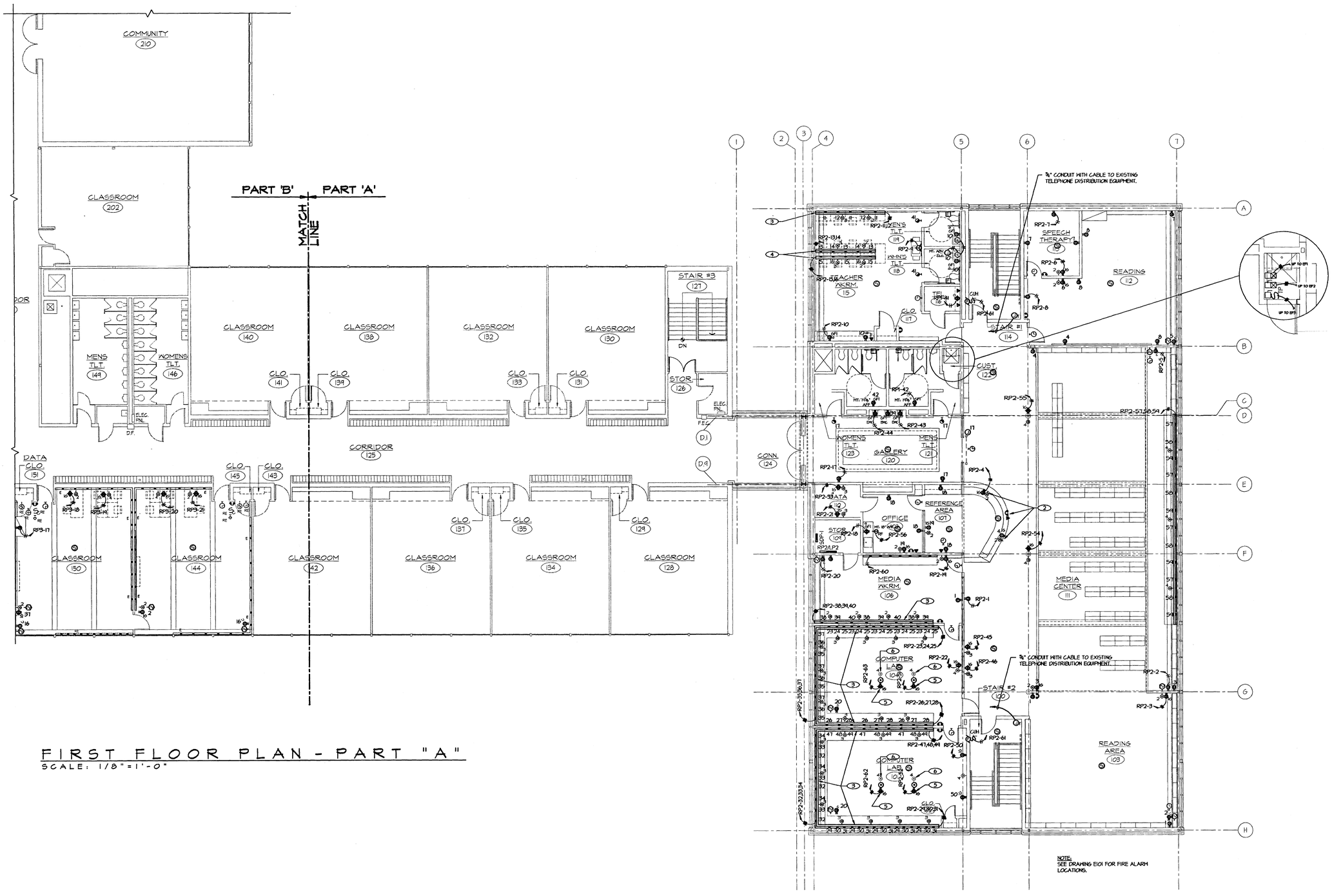
0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY
1	6/19/98	D.O.E. REVISIONS	F.A.

DATE: MARCH 16, 1998
SCALE: 1/16" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: E101

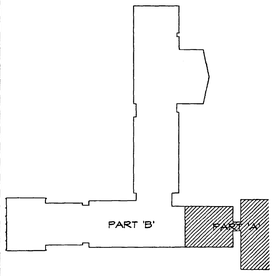
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BQ #70 & 125 Attachment



FIRST FLOOR PLAN - PART "A"
SCALE: 1/8"=1'-0"

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KEY PLAN

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: W.D. BOLAND
DRAWN BY: F. AGOSTINI

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ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

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TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

FIRST FLOOR PART "A" ELECTRICAL PLAN

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: 1/8" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: **E101.1**

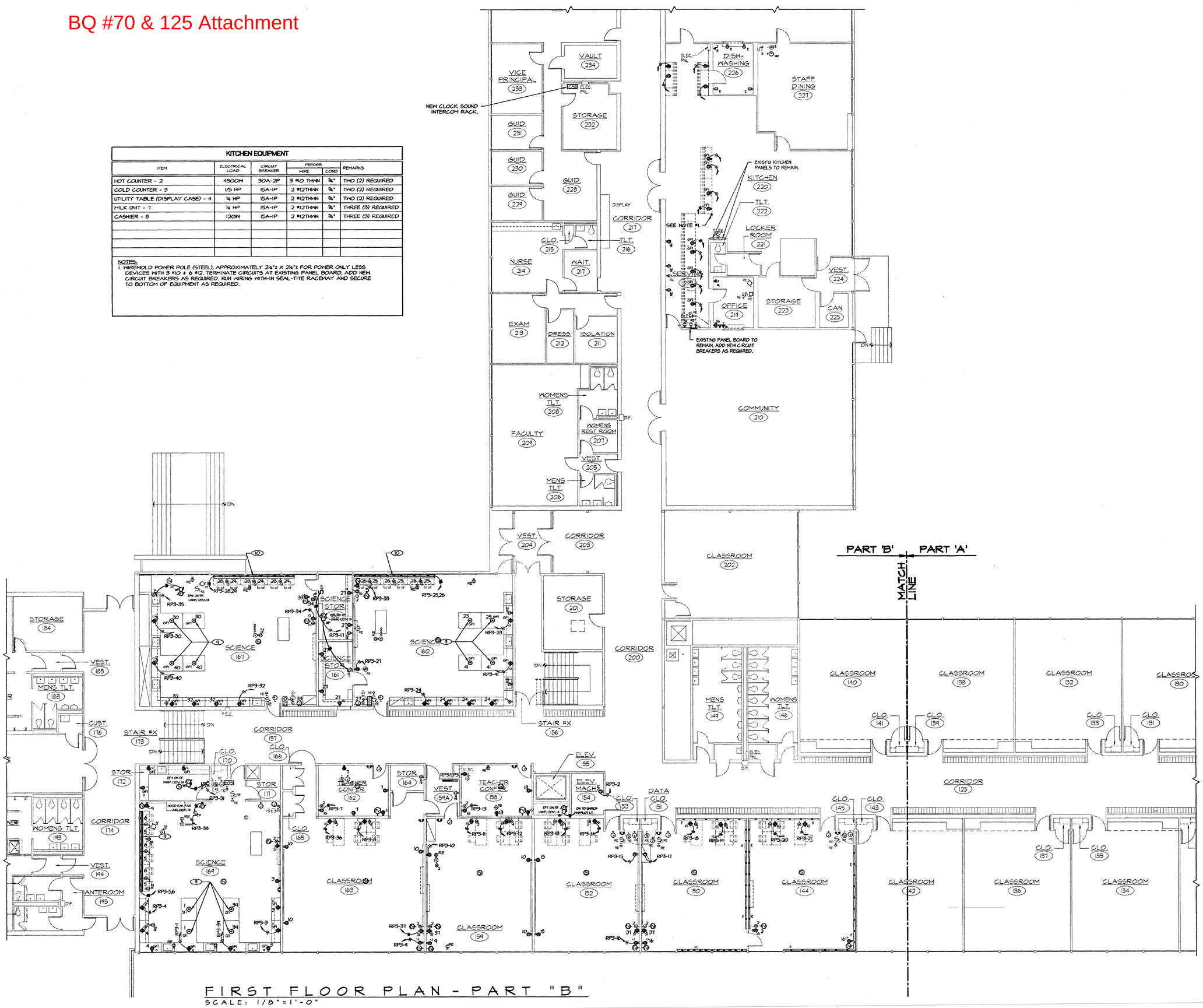
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BQ #70 & 125 Attachment

KITCHEN EQUIPMENT

ITEM	ELECTRICAL LOAD	CIRCUIT BREAKER	FEEDER WIRE	FEEDER CONDT	REMARKS
HOT COUNTER - 2	4500W	30A-2P	3 #10 THWN	¾"	TWO (2) REQUIRED
COLD COUNTER - 3	1/5 HP	15A-1P	2 #12THWN	¾"	TWO (2) REQUIRED
UTILITY TABLE (DISPLAY CASE) - 4	¼ HP	15A-1P	2 #12THWN	¾"	TWO (2) REQUIRED
MILK UNIT - 7	¼ HP	15A-1P	2 #12THWN	¾"	THREE (3) REQUIRED
CASHIER - 8	120W	15A-1P	2 #12THWN	¾"	THREE (3) REQUIRED

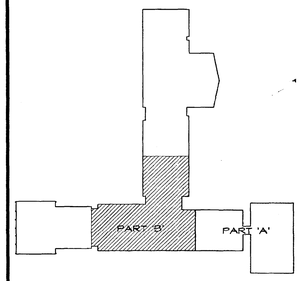
NOTES:
1. WIREMOLD POWER POLE (STEEL), APPROXIMATELY 2¼"± X 2¼"± FOR POWER ONLY LESS DEVICES WITH 3 #10 & 6 #12. TERMINATE CIRCUITS AT EXISTING PANEL BOARD, ADD NEW CIRCUIT BREAKERS AS REQUIRED. RUN WIRING WITH-IN SEAL-TITE RACEWAY AND SECURE TO BOTTOM OF EQUIPMENT AS REQUIRED.



FIRST FLOOR PLAN - PART "B"
SCALE: 1/8"=1'-0"

K:\50 projects\50950.dwg\Elec\E101-2 6-24-98 10:34:11 am EST

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KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: W.D. BOLAND
DRAWN BY: F. AGOSTINI

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

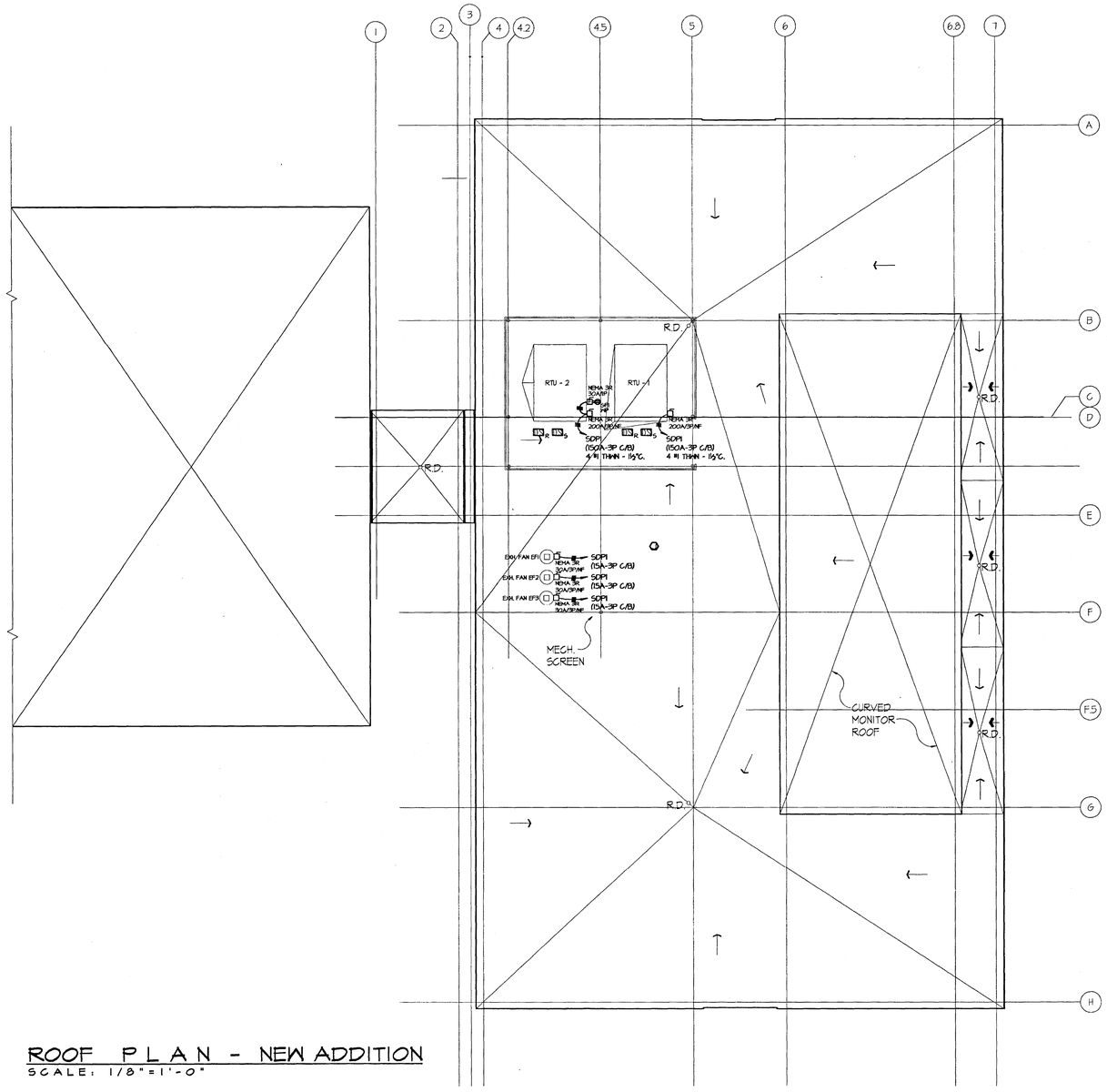
FIRST FLOOR PART "B" ELECTRICAL PLAN

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

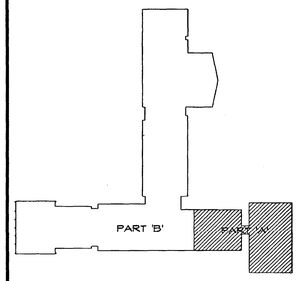
DATE: MARCH 16, 1998
SCALE: 1/8" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: E101.2

BQ #70 & 125 Attachment



ROOF PLAN - NEW ADDITION
SCALE: 1/8"=1'-0"

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KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: W.D. BOLAND
DRAWN BY: F. AGOSTINI

FLETCHER
THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

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RENOVATIONS TO

CENTRAL
MIDDLE
SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

NEW ADDITION
ROOF
ELECTRICAL
PLAN

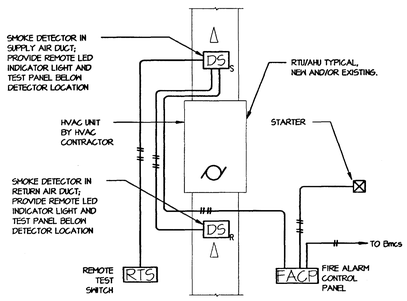
0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE: **MARCH 16, 1998**
SCALE: **1/8" = 1'-0"**
PROJECT NO.: **50950.06**
DRAWING NO.: **E110**

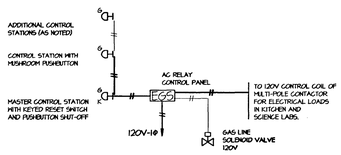
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BQ #70 & 125 Attachment



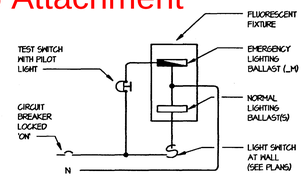
NOTE:
UPON ACTIVATION OF FIRE ALARM SYSTEM RTU SHALL BE SHUT OFF, TYPICALLY, OR AS DIRECTED BY FIRE MARSHAL.

WIRING DIAGRAM: DUCT SMOKE DETECTORS
NOT TO SCALE:



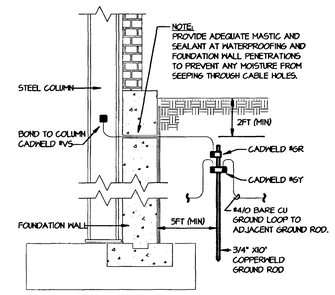
NOTES:
1. ALL PANELS, VALVES, AND CONTROL STATIONS TO BE FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR.
2. ALL CONDUIT AND WIRE TO BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR; USE #12AWG, 3/4"C MIN.

WIRING DIAGRAM: EMERGENCY GAS SHUT-OFF
SCALE: NONE

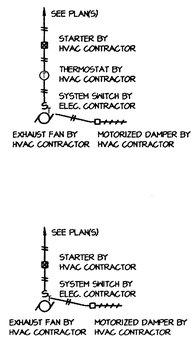


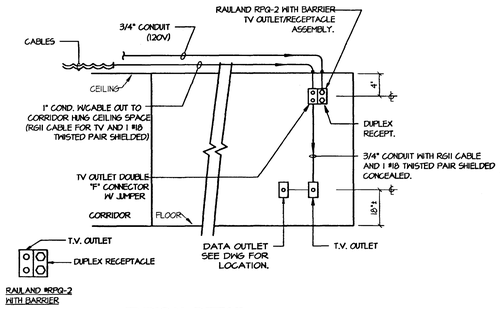
NOTE: EMERGENCY LAMPS SWITCHABLE; ON DURING A POWER FAILURE.

WIRING DIAGRAM: EMERGENCY FLUORESCENT LIGHTING
NOT TO SCALE:



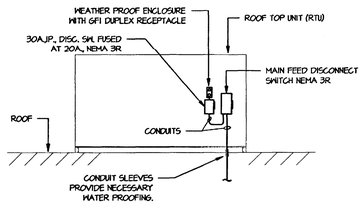
GROUNDING LOOP DETAIL
NOT TO SCALE:



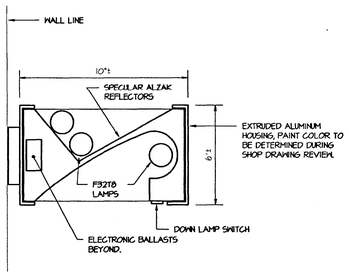


RAULAND #RPG-2 WITH BARRIER

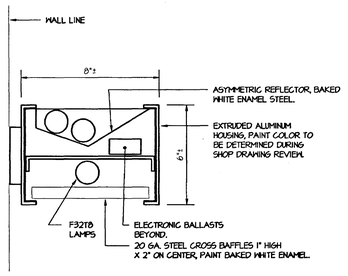
TYPICAL DETAIL: CLASSROOM T.V. WIRING
NOT TO SCALE:



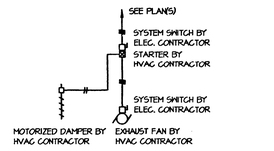
ROOF TOP UNIT DETAIL
NOT TO SCALE:



CROSS SECTION DETAIL: FIXTURE TYPE "K1" SERIES
NOT TO SCALE

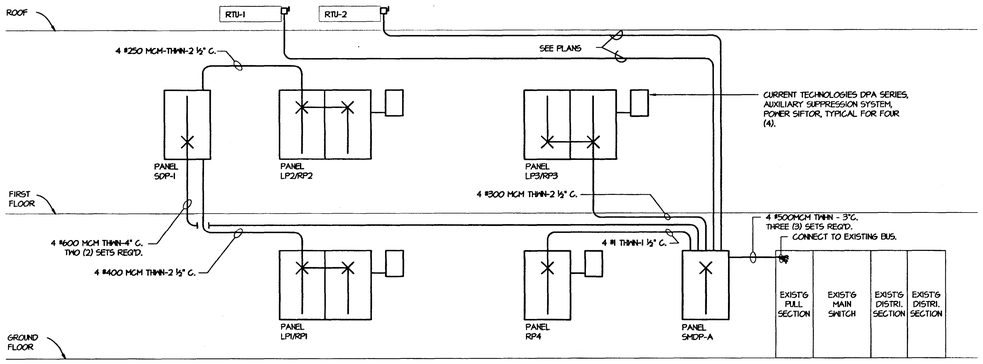


CROSS SECTION DETAIL: FIXTURE TYPE "H1A" SERIES
NOT TO SCALE

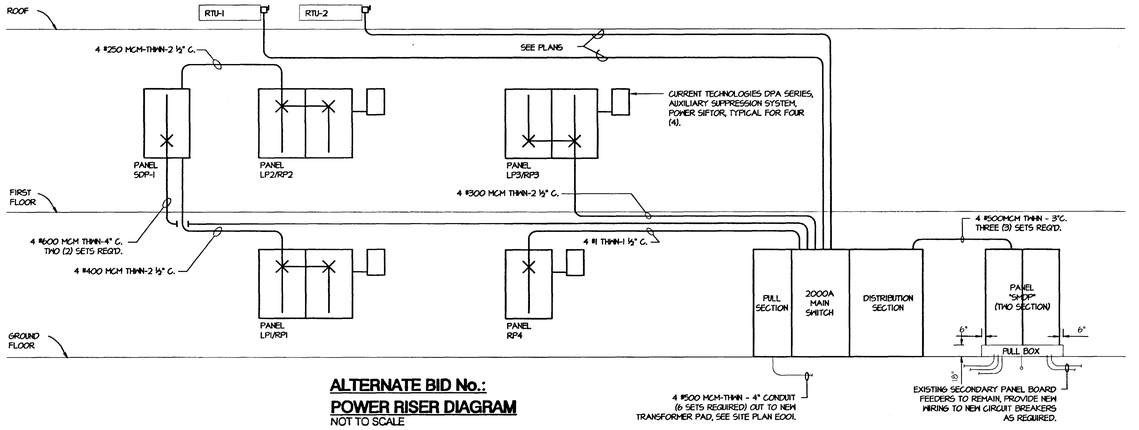


NOTES:
1. ALL EQUIPMENT BY HVAC CONTRACTOR (UON).
2. ALL WIRING BY ELECTRICAL CONTRACTOR.
3. ALL WIRING TO BE #12 (MIN) IN 3/4"C (MIN).
4. REFER TO PLAN(S) FOR LOCATIONS AND QUANTITIES OF EXHAUST FANS AND COMPONENTS.

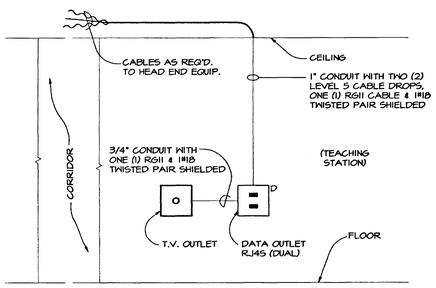
WIRING DIAGRAM: HVAC EXHAUST FANS
NOT TO SCALE:



BASE BID: POWER RISER DIAGRAM
NOT TO SCALE



ALTERNATE BID No.: POWER RISER DIAGRAM
NOT TO SCALE



TYPICAL DETAIL: DATA AND T.V. OUTLET LOCATIONS
NOT TO SCALE

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PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	W.D. BOLAND
DRAWN BY	F. AGOSTINI

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PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
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STATE PROJECT NO. 057-106EA

DRAWING TITLE

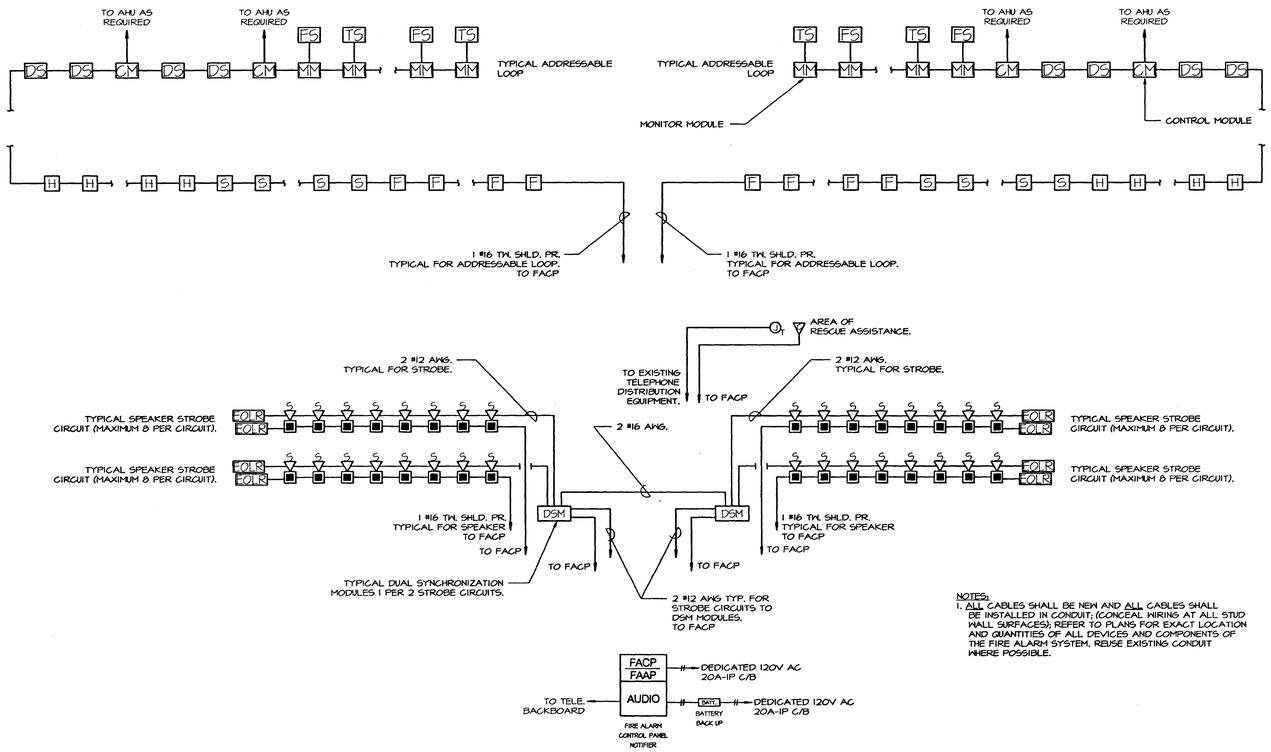
ELECTRICAL WIRING AND RISER DIAGRAMS AND DETAILS

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: **E301**

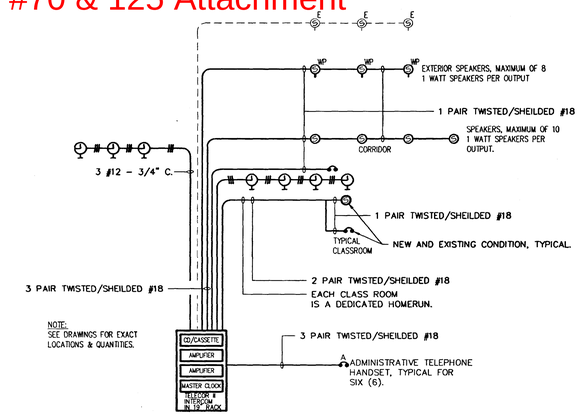
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BQ #70 & 125 Attachment

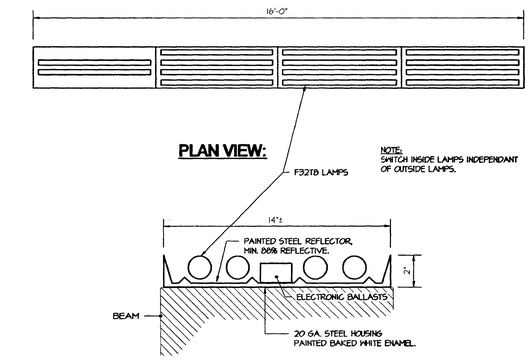


NOTES:
1. ALL CABLES SHALL BE NEW AND ALL CABLES SHALL BE INSTALLED IN CONDUIT; (CONCEAL WIRING AT ALL STUD WALL SURFACES). REFER TO PLANS FOR EXACT LOCATION AND QUANTITIES OF ALL DEVICES AND COMPONENTS OF THE FIRE ALARM SYSTEM. REUSE EXISTING CONDUIT WHERE POSSIBLE.

WIRING DIAGRAM: FIRE ALARM SYSTEM
NOT TO SCALE

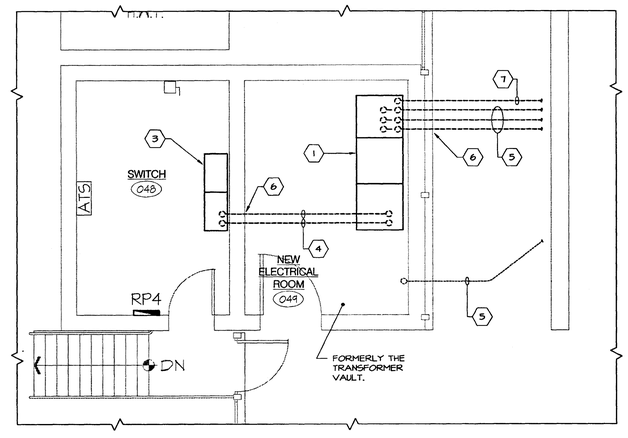


WIRING DIAGRAM: CLOCK-SOUND-INTERCOM
NOT TO SCALE



CROSS SECTION:

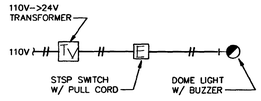
LUMINAIRE DETAIL:
FIXTURE TYPE "H1/H1M" SERIES
NOT TO SCALE



ELECTRICAL ROOM LAYOUT
SCALE: 1/4" = 1'-0"

ELECTRICAL NOTE LEGEND:

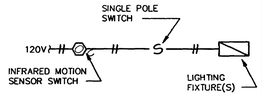
1. NEW 2000A MAIN SWITCH AND SECONDARY DISTRIBUTION SWITCHBOARD (EXACT LOCATION TO BE DETERMINED FROM FINAL SHOP DRAWING DIMENSIONS.)
2. NEW UNDERGROUND SECONDARY FEEDERS, SEE SHEET E001.
3. NEW SUB-DISTRIBUTION PANEL, SEE SHEET E301.
4. NEW SECONDARY FEEDERS, SEE SHEET E301.
5. APPROXIMATE LOCATION OF EXISTING PRIMARY SERVICE, SEE SHEET E001.
6. CUT AND PATCH WALL AND FLOOR SLABS AS REQUIRED.
7. NEW GROUND, CUT TO TRANSFORMER PAD.



ALL CONNECTIONS SHALL BE PER MANUFACTURER'S WIRING DIAGRAM(S).

ENTIRE SYSTEM, EXCLUDING CONDUIT AND WIRE, SHALL BE COMPONENTS OF A SINGLE SYSTEM AS PRODUCED BY ONE MANUFACTURER.

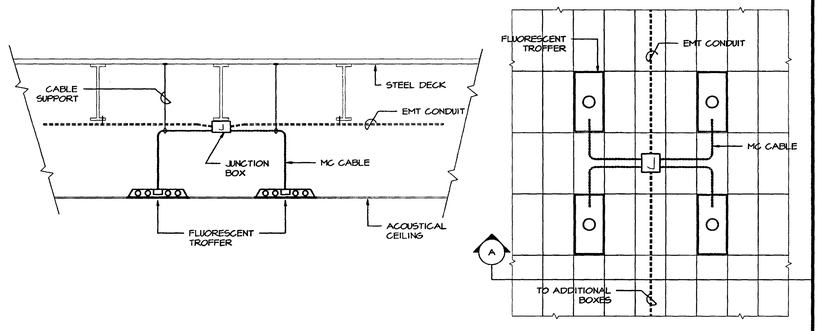
WIRING DIAGRAM: CALL FOR AID SYSTEM
NOT TO SCALE



ALL CONNECTIONS SHALL BE PER MANUFACTURER'S WIRING DIAGRAM(S).

SINGLE POLE SWITCH TO BE AN INTEGRAL COMPONENT OF WALL MOUNTED SENSORS; SWITCH REQUIRED FOR CEILING MOUNTED SENSORS.

WIRING DIAGRAM: OCCUPANCY SENSOR SWITCH
NOT TO SCALE



SECTION A
SCALE: NONE

PLAN VIEW
SCALE: NONE

FLUORESCENT TROFFER WIRING DETAIL AND CONDUIT
SCALE: NONE

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: W.D. BOLAND
DRAWN BY: F. AGOSTINI

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CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

ELECTRICAL WIRING AND RISER DIAGRAMS AND DETAILS

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: E302

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BQ #70 & 125 Attachment

SCHEDULE OF LUMINAIRES

TYPE VOLTS	MANUFACTURER CATALOG NUMBER	LAMPS SOURCE	DESCRIPTION	REMARKS
A1 120V	Hubbel # RS3GNA02-BI, Daybrite or Williams	(3) 32 W	Fluorescent 2'x4' lay-in Troffer, Three (3) lamps (T8), electronic ballast, hinged door frame, acrylic plastic lens panel (.125 thick)	Recessed
A1M 120V	Hubbel # RS3GNA02-EM, Daybrite or Williams	(3) 32 W	Fluorescent 2'x4' lay-in Troffer, Similar to Type "A1" except center lamp on self-contained emergency ballast.	Recessed
A1A 120V	Hubbel # RA2GNA02-AI	(2) 32W	Similar to Type "A1" except 2'x2' housing size and "U" shaped	Recessed
A1AM 120V	Hubbel # RA2GNA02-EM	(2) 32W	Similar to Type "A1A" except one (1) lamp on self-contained emergency ballast.	Recessed
A2 120V	Hubbel # RC2GNA02-BI	(2) 32W	Fluorescent 1'x4' lay-in Troffer, two (2) lamps (T8), electronic ballast, hinged door frame, acrylic plastic lens panel (.125 thick)	Recessed
A2M 120V	Hubbel # RC2GNA02-EM	(2) 32W	Similar to Type "A2" except one (1) lamp on self-contained emergency ballast.	Recessed
B1 120V	Ledalite # 2526T025-24-1-12-EO	(12) 32W	Fluorescent luminaire, two (2) lamps with direct/indirect distribution (30% DN/70% UP), twenty four (24'-0") foot, one-piece aluminum extrusion open top and specular parabolic louver down. Air-craft cable suspension, flat canopy. Electronic ballast. Exact housing/canopy color to be determined during shop drawing	Pendant Provide 21" suspension.
B1M 120V	Ledalite # 2526T025-24-1-12-EO-EM	(12) 32W	Similar to Type "B1" except one (1) lamp on self-contained emergency ballast.	Pendant
B1A 120V	Ledalite # 2526T025-20-1-12-EO	(10) 32W	Similar to Type "B1" except twenty foot (20'-0") long housing.	Pendant
B1B 120V	Ledalite # 2526T025-08-1-12-EO	(10) 32W	Similar to Type "B1" except twenty foot (20'-0") long housing.	Pendant
B1C 120V	Ledalite # 2526T025-8-1-12-EO	(4) 32W	Fluorescent luminaire, two (2) lamps with direct/indirect distribution, similar to Type "B1" except eight foot (8'-0") long housing.	Pendant
B1CM 120V	Ledalite #	(4) 32W	Fluorescent luminaire, two (2) lamps with direct/indirect distribution, similar to Type "B1C" except one (1) lamp on self-contained emergency ballast.	Pendant
C1 120V	Alkco # SF332	(1) 32W	Under cabinet task light, solid front, flat lens panel, 4'-0" long housing.	Surface
C1A 120V	Alkco # SF325	(1) 25W	Under cabinet task light, similar to fixture type "C1" except 3'-0" long housing.	Surface
D1 120V	Kurt Versen #634EB	(2) 26W	Fluorescent down-light, two (2) lamps, specular clear alzak reflector, electronic ballast.	Recessed
D1M 120V	Kurt Versen # 634EB-EM	(2) 26W	Similar to Type "D1" except one (1) lamp on self-contained emergency ballast.	Recessed
D2 120V	Kurt Versen # P672-EB	(1) 26W	Fluorescent down-light, one (1) lamp, specular clear alzak reflector.	Recessed
F1 120V	Lite Control # CCA128546T8-CWM-TW-EM	(4) 25W	Indirect cove light, two (2) lamp, T8, electronic ballasts 6'-0" Long housing.	Surface
F1M 120V	Lite Control # CCA128546T8-CWM-TW Linear Lighting or I.C.E.	(4) 25W	Indirect cove light, two (2) lamp, Similar to Type "F1" except one (1) lamp on self-contained emergency ballast.	Surface
G1 120V	Linear Lighting # S38P-1-2-T8-120-NS-C21-CC-NO-24, Peerless, ICE or PAL	(12) 32W	Indirect fluorescent luminaire, two (2) T8 lamps, electronic ballast. One (1) piece extruded aluminum 24'-0" long housing with perforated upper housing, air-craft cable suspension, flat canopy. Exact color to be determined during shop-drawing review.	Pendant Provide 21" suspension.
G1A 120V	Linear Lighting	(10) 32W	Similar to Type "G1" except 20'-0" long housing.	Pendant
G1B 120V	Linear Lighting	(8) 32W	Similar to Type "G1" except 16'-0" long housing	Pendant
G1C 120V	Linear Lighting	(6) 32W	Similar to Type "G1" except 12'-0" long housing.	Pendant
G1D 120V	Linear Lighting	(4) 32W	Similar to Type "G1" except 8'-0" long housing.	Pendant
G1DM 120V	Linear Lighting	(4) 32W	Similar to Type "G1" except one (1) lamp on emergency battery ballast, Bodine #B50.	Pendant
H1 120V	Day-O-Lite # DLS-1099A	(14) 32W	Indirect fluorescent luminaire (mounts on top of wood beam) steel housing, 16'-0" long row. See details.	Surface
H1A 120V	Day-O-Lite # WM-DLS-1099A	(8) 32W UP (4) 32W DN	Direct/Indirect Fluorescent luminaire, Asymmetric reflector up, Two (2) lamp up & one (1) lamp dn w/ cross baffle shielding. 16'-0" lg. Extruded aluminum housing. Exact color to be determined during shop-dwg review.	Wall
H1M 120V	Day-O-Lite # DLS-1099A-EM	(14) 32W	Similar to Type "H1" except two (2) lamps on emergency ballast battery unit.	Surface
J1 120V	Louis Poulsen #PH6-184 White	(1) 300w	Decorative Chandelier, 25.6" dia. X 19.7 over all hgt. graduated reflector shades.	Pendant
K1 120V	Day-O-Lite Linear Lighting or I.C.E.	(12) 32W UP (6) 32W DN	Direct/Indirect fluorescent luminaire, Two (2) lamps up w/asymmetric reflector and one (1) lamp down. Extruded aluminum housing, 24'-0" long. See details.	Wall
K1A 120V	Day-O-Lite	(8) 32W UP (4) 32W DN	Direct/Indirect fluorescent luminaire, Similar to Type "K1" except 15'-0" long housing.	Wall
L1 120V	Hubbell # NRG-308-4W-PC-EM	(1) 28W	Exterior light fixture, prismatic reflector, -20° F ballast operation, with emergency ballast.	Wall
N1 120V	Day-O-Lite Adam Series Linear Lighting or I.C.E.	(6) 32W	Continuous fluorescent wall washer, extruded aluminum housing, 24'-0' long row, acrylic ribbed lens at bottom and at wall side, electronic ballast. Exact paint color to be determined at the site.	Wall
P1 120V	Prudential #P-101-48-CTE	(1) 32W	Single lamp strip light, 4'-0" long housing w/½" eggcrate acrylic plastic cube & mounting grid. See dwg A502.	Surface
Q1M 120V	Hubbell #WM42-WAC	(2) 32W	Wrap-around, 4'-0" long fluorescent luminaire, acrylic plastic, two (2) lamp, one (1) lamp on emergency batteryt ballast, Bodine #B50.	Surface Electronic Ballast.
X1 120V	PRESCOLITE #LED-R-1-NB-W,	(1) 1.5W LED	EMERGENCY TYPE EXIT LIGHT, SINGLE FACE EITHER WALL OR CEILING MOUNTED, ALUMINUM HOUSING, WHITE FINISH.	SURFACE DUAL LITE OR HIGH-LITES
X2 120V	PRESCOLITE #LED-R-2-NB-W	(2) 1.5W LED	SIMILAR TO TYPE "X1" EXCEPT DOUBLE-FACE.	SURFACE DUAL LITE OR HIGH-LITES
X3 120V	PRESCOLITE #LED-R-1-NB-W,	(1) 1.5W LED	"AREA OF RESCUE ASSISTANCE" SIGN SINGLE FACE COMPLETE WITH NI-CAD BATTERY.	SURFACE DUAL LITE OR HIGH-LITES

NOTES:
1. ALL LAMPS SHALL BE EITHER F25T8/SPX35/RS OR F32T8/SPX35/RS.
2. ALL BALLAST SHALL BE ELECTRONIC, MOTOROLA, MAGNATEK OR TRIAD.
3. PROVIDE BODINE #B30 EMERGENCY BALLAST IN ALL "A1M" FIXTURES LOCATED IN CORRIDORS AND STAIR WELLS AND BODINE #B50 IN REMAINING AREAS.
4. ALL FLUORESCENT FIXTURES SHOWN ALIGNED IN TANDEM TO BE INSTALLED TO APPEAR AS A SINGLE CONTINUOUS LUMINAIRE.
5. ALL INCANDESCENT LAMPS SHALL BE RATED FOR 130 VOLTS.
6. ALL EXIT LIGHTS SHALL BE WALL MOUNTED, U.O.N., OR CEILING MOUNTED AS CLOSE TO WALL AS POSSIBLE.
7. UNLESS OTHERWISE NOTED, ALL LUMINAIRES INDICATED WITH THE LETTER..M PRECEDING THE FIXTURE TYPE, ie. "A1M" SHALL BE USED FOR EMERGENCY LIGHTING. WHERE MULTIPLE LAMPS ARE PRESENT ONLY ONE (1) LAMP SHALL BE USED FOR EMERGENCY.

ALTERNATE BID PANEL: MDP 2000A MAIN SWITCH 120 / 208V 3 PHASE 4 WIRE

CKT	EQUIPMENT	LOAD	FRAME	TRIP	POLE	FEEDER WIRE	FEEDER COND	NOTES
1	PANEL SMDP	200,000	800A	800A	3	SEE RISER DIAGRAM		
2	PANEL RP4	18,644	225A	100A	3			
3	PANEL SDP-1	154,032	-	600A	3			
4	PANEL LP3/RP3	44,374	225A	225A	3			
5	RTU-1	35,280	225A	150A	3			
6	RTU-2	35,280	225A	150A	3			
7	SPARE		225A	225A	3			
8	SPACE		225A	100A	3			
9	SPACE		225A	100A	3			
10								
11								
12								

NOTES:
1. CONNECT AHEAD OF MAIN.
2. MAIN BREAKER 100,000A I.C., FEEDER BREAKER 65,000A I.C..
3. ALL CABLE SHALL BE THWN.
4. ALL CONDUIT SHALL BE GALVANIZED STEEL IN FLOOR SLAB AND E.M.T. IN OPEN AREAS.

SCHEDULE OF PANEL BOARDS

PANEL DESIGNATION	VOLTAGE	MAINS	BRANCH CIRCUITS FRAME	BRANCH CIRCUITS TRIP	BRANCH CIRCUITS POLE	ACTIVE	SPARE	TOTAL	REMARKS
SDP-1	120/208 3Φ.4W	600A MCB	400A 225A 100A 100A 100A 100A 100A	400A 225A 100A 20A 15A 20A 15A	3 3 3 3 3 1 1	1 1 - 1 2 - 1	- - 1 2 - 4 -	1 1 1 2 2 4 1	- - - - - - -
LP1/RP1 DBLE SECT. PNL	120/208 3Φ.4W	300A MLO	100A 100A 100A	45A 20A 15A	3 1 1	7 44 1	- 12 -	7 56 1	- - -
LP2/RP2 DBLE SECT. PNL	120/208 3Φ.4W	300A MLO	100A	20A	1	61	11	72	-
LP3/RP3 DBLE SECT. PNL	120/208 3Φ.4W	225A MLO	100A 100A	15A 20A	1 1	4 44	- 8	4 52	- -
RP4	120/208 3Φ.4W	150A MLO	100A 100A 100A 100A	30A 20A 20A 15A	3 3 1 1	1 1 9 4	- - 5 -	1 1 14 4	- - - -
SMDP ALTERNATE BID	120/208 3Φ.4W	800A MLO	200A 100A 100A 100A	200A 100A 60A 30A	3 3 3 3	2 10 9 1	1 2 - -	3 12 9 1	- - - -

NOTES:
1. MCB; MAIN CIRCUIT BREAKER, MLO; MAIN LUGS ONLY, MFS; MAIN FUSED SWITCH.
2.
3.

ELECTRICAL NOTE LEGEND:

(1) LOCATE SWITCHES HERE FOR CONTROL OF SWITCH CONTROL A THROUGH F WITHIN MEDIA CENTER.

(2) LOCATE DEVICES WITHIN CHARGING DESK, EXACT LOCATION TO BE DETERMINED AT THE SITE AND/OR DURING SHOP DRAWING REVIEW.

(3) #4000 WIREMOLD RACEWAY COMPLETE WITH CENTER DIVIDER AND CONTINUOUS COVER. PROVIDE HUBBELL #IG5362S SINGLE SUPPRESSION TYPE RECEPTACLES LOCATED AS INDICATED. IN ADDITION PROVIDE CATEGORY 5 DATA OUTLETS LOCATED AS INDICATED AND CATEGORY 5 DATA CABLES, TERMINATE DATA CABLES IN DATA ROOM #110. LOCATE RACEWAY BELOW COUNTER, 18" A.F.F..

(4) SIMILAR TO NOTE #3, EXCEPT MOUNT WIREMOLD RACEWAY TO FURNITURE, EXACT MOUNTING METHOD TO BE DETERMINED AT THE SITE.

(5) FLUSH FLOOR BOX WITH THREE (3) DUPLEX RECEPTACLES, #IG5362S, SURGE SUPPRESSION TYPE AND BRASS COVER PLATES.

(6) FLUSH FLOOR BOX WITH FOUR (4) RJ45, CATEGORY FIVE (5) DATA OUTLETS

(7) UNLESS OTHERWISE NOTED, DISCONNECT AND REMOVE ALL EXISTING LIGHTING FIXTURES, RECEPTACLES, FIVE ALARM EQUIPMENT, ETC. AND REPLACE WITH NEW. REUSE EXISTING WIRING WHERE EVER POSSIBLE.

(8) TECHNOLOGY NOTES:
EACH INSTRUCTIONAL AREA SHOULD HAVE A WALL PLATE WITH RF MASTER ANTENNA VIDEO OUTLET, RF OUTLET CONNECTED BY CONDUIT TO THE CLASSROOM COMPUTER AREA BY IN-WALL CONDUIT (WITH AN RF OUTLET ALSO AT THE COMPUTER END TO BE USED WITH A COMPUTER DISPLAY ADAPTER), AND TWO ELECTRICAL OUTLETS MOUNTED AT WHATEVER STANDARD HEIGHT YOU USE FOR WALL MOUNTING (70"). WE REQUIRE A MOUNTED WALL OR CEILING DEVICE THAT WILL HOLD BOTH A 27 PLUS INCH DISPLAY MONITOR AS WELL AS A VCR (THE REASON FOR THE SECOND AC OUTLET).

TV WALL PLATES: BLONDER TONGUE #V-IGF-FT, OFO TYPE

FEED COVERS: MULBERRY #84101 IVORY ENAMELED METAL.

TV CABLE: ALPHA OR EQUIVALENT RG-6 TRIPPLE-SHIELD COAX WITH BRAIDED AND FOIL SHIELD. THIS DIVISION OF AT&T IS KNOWN AS LUCENT

DATA WALL PLATES: AT&T M28A-246 (8 POSITION), M14A-246 (4 POSITION) OR M12A-246 (2 POSITION). NOTE: 8 POSITION PLATES REQUIRE A 2 GANG BOX. OTHERS ARE SINGLE GANG.

DATA OUTLETS (JACK ASSEMBLIES): AT&T M100BH-246 (RJ45). NOW MPS 100BH.

DATA CABLE: AT&T #1061C, 4 PAIR, LEVEL 5 UTP (UNLESS PLENUM CABLE IS REQUIRED).

RACK: CHATSWORTH 190W X 380H X 180D, WALL MOUNTED, OPEN FRAME RACK, SWING OUT TYPE FOR REAR ACCESS:
PATCH PANEL: ATT 1100CAT5-48 OR 96
CONCENTRATOR CHASSIS: ASANTE AH2072
12 PORT MODULES: ASANTE AH2072-RJ45
MANAGEMENT MODULE: ASANTE AH2072-NMM

(9) PEDESTAL TYPE, DOUBLE DUPLEX, MOUNTED TO TOP OF WORK STATION. WIRING FROM CONDUIT STUB-UP BELOW. EXACT ROUTING TO BE DETERMINED AT THE SITE.

(10) DISCONNECT AND REMOVE EXISTING LIGHT FIXTURES AND REPLACE IN ORIGINAL LOCATION TO FACILITATE REMOVAL OF ANY EXISTING CEILING TILES TO ACCOMMODATE NEW HVAC, PLUMBING PIPING. RECONNECT TO EXISTING WIRING.

(11) PROVIDE DIMMING BALLASTS FOR EACH TYPE "G1" LIGHT FIXTURE IN COMPUTER LABS, LUTRON ELECTRONIC HI-LUME SERIES WITH NOVA, SLIDE STYLE DIMMER SWITCHES AS REQUIRED.

(12) DISCONNECT AND REMOVE EXISTING LIGHT FIXTURES INCLUDING ALL WIRING, etc. AND REPLACE WITH NEW AS INDICATED PROVIDE NEW WIRING, RACEWAYS, SWITCHING AND NEW HOME RUNS AS REQUIRED.

TYPICAL ELECTRICAL PLAN NOTES:

1. WHEREVER POSSIBLE, RE-USE EXISTING BRANCH CIRCUIT(S) FOR NEW EQUIPMENT (UON); EXISTING CIRCUIT(S) THAT ARE ABANDONED SHALL BE CLEARLY IDENTIFIED AT PANELBOARD DIRECTORY AS 'SPARE' AND ALL CONDUCTORS ASSOCIATED WITH SPARE CIRCUIT(S) SHALL BE REMOVED.
2. EXACT LOCATION OF ALL 'EXISTING TO REMAIN' MATERIAL AND ALL 'EXISTING TO BE RELOCATED' MATERIAL SHALL BE ESTABLISHED AND VERIFIED IN FIELD.
3. FOR EXACT LOCATION OF ALL MECHANICAL, PLUMBING, FIRE PROTECTION, AND OWNER FURNISHED EQUIPMENT, REFER TO DRAWINGS OF THOSE TRADES, AND COORDINATE ALL ELECTRICAL WORK WITH THOSE RESPECTIVE CONTRACTORS.
4. ELECTRICAL CONTRACTOR TO PROVIDE ALL NECESSARY NEW CIRCUIT BREAKERS IN EXISTING PANELBOARDS AS REQUIRED BY THESE DRAWINGS.
5. ALL NEW DUPLEX RECEPTACLES SHALL BE TIED TO NEAREST AVAILABLE 20A-1P, 120V BRANCH CIRCUIT (UON); NO CIRCUIT IS TO BE LOADED TO MORE THAN 80% OF BREAKER RATING.
6. ALL NEW OUTLETS SHALL MATCH EXISTING DEVICES (IN THAT SPACE) FOR STYLE, COLOR, AND MOUNTING HEIGHT (UON).
7. ALL ITEMS INDICATED ON ELECTRICAL PLANS SHALL BE NEW, UNLESS OTHERWISE INDICATED AS EXISTING TO REMAIN (E) OR EXISTING TO BE RELOCATED (RL) OR (RR).
8. FOR EXACT LOCATION OF LIGHTING FIXTURES AND ALL OTHER CEILING MOUNTED MATERIAL, REFER TO REFLECTED CEILING PLAN(S).
9. ALL NEW AND RELOCATED LIGHTING FIXTURES SHALL BE TIED TO EXISTING BRANCH CIRCUITS AND CONTROL, UNLESS INDICATED OTHERWISE.
10. IN AREAS WHERE NO ELECTRICAL WORK IS INDICATED, ALL EXISTING LIGHTING, CONTROL, AND BRANCH CIRCUIT(S) AND WIRING DEVICES ARE EXISTING (TO REMAIN).
11. IN AREAS WHERE ONE FIXTURE IS SHOWN TO BE CONTROLLED BY A SWITCH OR SWITCH(ES), ALL OTHER CEILING MOUNTED FIXTURES IN THAT SPACE SHALL BE CONTROLLED BY THE SAME SWITCH(ES).
12. ALL EXISTING, RELOCATED, AND NEW EMERGENCY LIGHTING FIXTURES AND EXIT SIGNS SHALL MONITOR NEAREST LIGHTING BRANCH CIRCUIT AHEAD OF ANY CONTROL DEVICES (UON); FEED FIXTURES FROM SAME BRANCH CIRCUIT.
13. ALL SALVAGEABLE EQUIPMENT, FIXTURES, DEVICES, ETC. NOT BEING REUSED SHALL BE TURNED OVER TO BUILDING OWNER'S REPRESENTATIVE FOR STORAGE AND/OR FOR USE IN NEW WORK.
14. WHERE THE REMOVAL OF ANY DEVICE, FIXTURE, AND/OR EQUIPMENT INTERRUPTS THE CONTINUITY OF AN EXISTING (TO REMAIN) CIRCUIT, PROVIDE ALL CONNECTIONS, CONDUIT, AND CONDUCTORS NECESSARY TO MAINTAIN AND/OR EXTEND EXISTING CIRCUIT CONTINUITY.
15. WHERE BOXES REMAIN AFTER REMOVAL OF FIXTURES AND ELECTRICAL DEVICES FROM EXISTING (TO REMAIN) CONSTRUCTION, PROVIDE BLANK COVER FOR EACH OUTLET BOX.
16. REMOVAL OF ANY ELECTRICAL MATERIAL SHALL INCLUDE THE REMOVAL OF ALL CONTROL (INCLUDING SWITCHES), WIRES, AND CONDUIT (WHERE PRACTICAL) ASSOCIATED WITH SUCH MATERIAL, UNLESS OTHERWISE NOTED.
17. RELOCATION OF ANY ELECTRICAL MATERIAL SHALL INCLUDE THE EXTENSION OF ALL BRANCH CIRCUIT FEEDERS AND ALL CONTROL CIRCUITS TO NEW LOCATION.
18. ALL EXISTING DUPLEX RECEPTACLES LOCATED WITHIN 6'-0" OF ANY WATER SOURCE (SUCH AS SINKS, WATER COOLERS, OR GRADE, ETC.) TO BE REPLACED WITH NEW GFI TYPE DUPLEX RECEPTACLE (WHETHER INDICATED OR NOT).
19. IT IS THE INTENT OF THESE DRAWINGS THAT THE ENTIRE EXISTING FIRE ALARM SYSTEM SHALL BE REMOVED AND REPLACED WITH A NEW COMPLETE SYSTEM; HOWEVER, THIS BUILDING MUST REMAIN PROTECTED AT ALL TIMES.
20. WHERE NEW DEVICES AND/OR EQUIPMENT ARE INDICATED ON EXISTING (TO REMAIN) MASONRY WALLS, USE WIREMOLD SURFACE BOXES AND WIREMOLD SERIES 700 RACEWAY(S); WHERE NEW DEVICES AND/OR EQUIPMENT ARE INDICATED ON EXISTING (TO REMAIN) STUD WALLS (SHEETROCK OR GYPSUM BOARD SURFACES), USE FLUSH BOXES AND CONCEAL ALL RACEWAYS WITHIN WALL CONSTRUCTION.
21. ALL EXISTING TO REMAIN DIRECTIONAL EMERGENCY LIGHTING FIXTURES SHALL BE RE-AIMED TO PROVIDE EMERGENCY ILLUMINATION AT PATH OF EGRESS.

SYMBOL LIST
(STATE OF CONNECTICUT)

	SURFACE MOUNT LUMINAIRE SUBSCRIPT DENOTES FIXTURE TYPE		SINGLE RECEPTACLE MOUNT AT 18" AFF (UON)
	RECESSED MOUNT DOWNLIGHT LUMINAIRE SUBSCRIPT DENOTES FIXTURE TYPE		DUPLEX RECEPTACLE MOUNT 18" AFF (UON) c - MOUNT AT 80" AFF (REFER TO DETAIL)
	LUMINAIRE USED FOR EMERGENCY LIGHTING W/ A SELF-CONTAINED, BODINE, EMERGENCY BATTERY BALLAST. SUBSCRIPT DENOTES FIXTURE TYPE	a,b	a - MOUNT 6" ABOVE COUNTERTOP OR 48" AFF b - MOUNT WITHIN ARCHITECTURAL MILLWORK
	PENDANT SUSPEND LUMINAIRE SUBSCRIPT DENOTES FIXTURE TYPE		DOUBLE DUPLEX RECEPTACLE MTD 18" AFF (UON)
	CEILING MOUNT FLUORESCENT TROFFER SUBSCRIPT DENOTES FIXTURE TYPE		DUPLEX SAFETY RECEPTACLE MTD 18" AFF (UON)
	FLUORESCENT TROFFER (WIRE FOR TWO CIRCUITS) SUBSCRIPT DENOTES FIXTURE TYPE	AC	DUPLEX RECEPTACLE FOR UNIT AIR CONDITIONER MOUNT AS NOTED ON PLAN
	LUMINAIRE USED FOR EMERGENCY LIGHTING W/ A SELF-CONTAINED, BODINE, EMERGENCY BATTERY BALLAST. SUBSCRIPT DENOTES FIXTURE TYPE	CD	SINGLE RECEPTACLE FOR CLOTHES DRYER MOUNT AT 12" AFF (UON)
	PENDANT SUSPEND FLUORESCENT LUMINAIRE SUBSCRIPT DENOTES FIXTURE TYPE	DW	SINGLE RECEPTACLE FOR DISHWASHER MOUNT AT 12" AFF (UON)
	WALL MOUNT LUMINAIRE SUBSCRIPT DENOTES FIXTURE TYPE	EWC GFI	GFI TYPE DUPLEX RECEPTACLE FOR ELECTRIC WATER COOLER; MOUNT AT 18" AFF (UON)
	WALL MOUNT FLUORESCENT LUMINAIRE SUBSCRIPT DENOTES FIXTURE TYPE	FZR	SINGLE RECEPTACLE FOR FREEZER MOUNT AT 48" AFF (UON)
	LINEAR FLUORESCENT CHANNEL LUMINAIRE SUBSCRIPT DENOTES FIXTURE TYPE	GFI	GFI TYPE DUPLEX RECEPTACLE MOUNT AT 18" AFF (UON)
	TRACK WITH LIGHTING FIXTURES AS INDICATED SUBSCRIPTS DENOTE TRACK AND FIXTURE TYPES	IG	DUPLEX RECEPTACLE MOUNT AT 18" AFF (UON) WITH INSULATED ISOLATED GROUND CONDUCTOR TO PANEL. SURGE SUPPRESSION OUTLET HUBBELL #653525
A1 a 1	LIGHTING FIXTURE ATTRIBUTES LEGEND -LIGHTING CONTROL CIRCUIT -LIGHTING FIXTURE TYPE (SEE SCHEDULE) -POWER BRANCH CIRCUIT	REF	DUPLEX RECEPTACLE FOR REFRIGERATOR MOUNT AT 48" AFF (UON)
	SELF-CONTAINED EMERGENCY EXIT SIGNS WITH DIRECTIONAL ARROWS AS INDICATED	RF	SINGLE RECEPTACLE FOR REFRIGERATOR/FREEZER MOUNT AT 48" AFF (UON)
	SELF-CONTAINED EMERGENCY LIGHTING UNITS WIRE TO NEAREST LIGHTING BRANCH CIRCUIT	RNG	SINGLE RECEPTACLE FOR ELECTRIC RANGE MOUNT AT 12" AFF (UON)
	SELF-CONT MASTER/SATELLITE EMERG LTG UNITS WIRE TO NEAREST LIGHTING BRANCH CIRCUIT	TC	SINGLE RECEPTACLE FOR TRASH COMPACTOR MOUNT AT 12" AFF (UON)
		VM	DUPLEX RECEPTACLE FOR VENDING MACHINE MOUNT AT 48" AFF (UON)
S	SINGLE POLE SWITCH MOUNT AT 48" AFF	WM	GFI DUPLEX RECEPTACLE FOR WASHING MACHINE MOUNT AT 48" AFF (UON)
S_3	THREE-WAY SWITCH MOUNT AT 48" AFF		SPECIAL PURPOSE OUTLET; CONFIGURATION TO MATCH EQUIPMENT CONNECTION ASSEMBLY
S_4	FOUR-WAY SWITCH MOUNT AT 48" AFF		FLOOR MOUNTED TOMBSTONE MONUMENT WITH OUTLETS AS INDICATED
S_P	SINGLE POLE SWITCH WITH PILOT LIGHT 48" AFF		FLUSH MOUNT FLOOR RECEPTACLE PROVIDE FLANGE TO SUIT FLOOR FINISH MATERIAL
S_{3P}	THREE-WAY SWITCH WITH PILOT LIGHT 48" AFF		PLUGMOLD WITH OUTLETS 18" OC (UON) MOUNT AT 18" AFF (UON)
S_D	SINGLE POLE 1000W DIMMER SWITCH 48" AFF		PLUGMOLD WITH OUTLETS 36" OC (UON) AND RACEWAY (FOR DATA) MOUNT AT 18" AFF (UON) WIREMOLD #4000 WITH HUBBELL #653525 SURGE SUPRESSION OUTLETS, SEE OTHER NOTES ALSO.
S_{D3}	THREE-WAY 1000W DIMMER SWITCH 48" AFF		
S_{be}	BOILER EMERGENCY SWITCH MOUNT AT 60" AFF		JUNCTION BOX (SEE PLAN FOR APPLICATION)
	OCCUPANCY MOTION SENSOR LIGHT SWITCH 48" AFF, UON. (C DENOTES CEILING MOUNT ASSEMBLY) (H DENOTES MOUNT HIGH ON WALL)		JUNCTION BOX FOR ELECTRONIC PLUMBING FIXTURE COORDINATE MOUNTING WITH PLUMBING DRAWINGS
			12" SYSTEM CLOCK
S_T	SWITCH W/ THERMAL OVERLOAD PROTECTION 48" AFF		TELEPHONE OUTLET MTD 18" AFF (F-FAX 18" AFF) (P-PAY PHONE 48" AFF; W-WALL PHONE 48" AFF)
S_K	KEY OPERATED SINGLE POLE SWITCH 48" AFF		COMBINATION DATA/TELEPHONE OUTLET 18" AFF REFER TO DETAIL DIAGRAM
S_{3K}	KEY OPERATED THREE-WAY SWITCH 48" AFF		FLOOR MOUNTED TELEPHONE/DATA OUTLET
ES	ELECTRIC DOOR STRIKE		DATA OUTLET MOUNT AT 18" AFF, SEE NOTES BELOW NUMBER INDICATES QUANTITY OF DATA OUTLETS/CABLES
	DOOR CONTACT SWITCH		DATA OUTLET MOUNT AT 18" AFF (D-DUPLEX) REFER TO DETAIL DIAGRAM OR LOCATED WITH-IN WIREMOLD
	VIDEO CAMERA WITH MOUNTING HARDWARE		TELEVISION SYSTEM OUTLET MOUNT AT 18" AFF REFER TO DETAIL DIAGRAM
VM VR	VIDEO MONITOR, VIDEO RECORDER		COMBINATION OUTLET FOR COMMUNICATION, COMPUTER, AND CABLE TV MOUNT AT 18" AFF (SEE DETAIL)
K	CARD READER MOUNT AT 48" AFF		
	CEILING OR WALL MOUNTED MOTION DETECTOR		MASTER FIRE ALARM PULL BOX 48" AFF
	SECURITY SYSTEM INFARED BEAM	F	MANUAL FIRE ALARM PULL STATION 48" AFF
			FIREFIGHTER'S TELEPHONE JACK MOUNT AT 48" AFF
	CEILING MOUNTED SPEAKER		FIRE ALARM CEILING OR WALL MOUNT SPEAKER
	WALL OR COLUMN MOUNTED SPEAKER		FIRE ALARM HORN/LIGHT COMBINATION 80" AFF (UON)
	WALL MOUNTED MICROPHONE OUTLET (18" AFF)		FIRE ALARM SPEAKER/STROBE 80" AFF FOR VOICE EVACUATION SYSTEM
VC	SOUND SYSTEM VOLUME CONTROL MOUNT AT 48" AFF		FIRE ALARM HORN (ONLY) 80" AFF (UON)
AMP	SOUND SYSTEM AMPLIFIER		FIRE ALARM FLASHING LIGHT 80" AFF (UON)
	PA/SOUND SYSTEM/CLOCK IN COMMON ENCLOSURE MOUNT AT 80" AFF	S	FIRE ALARM SMOKE DETECTOR
	PA/PAGING SYSTEM HANDSET MOUNT AT 48" AFF	H	FIRE ALARM HEAT DETECTOR (135° F UON) BOILER ROOM DETECTORS TO BE 200° F
	ADMINISTRATIVE HANDSET		ELEVATOR RECALL SMOKE DETECTOR
S_C	3 POSITION SELECTOR SWITCH 48" AFF (P-PRIVACY; N-NORMAL; C-CALL-IN)	T/R	INFARED BEAM TYPE SMOKE DETECTOR 12" BFC R-RECEIVER; T-TRANSMITTER
BQ	PROGRAM BELL MOUNT AT 80" AFF		FIRE ALARM MAGNETIC DOOR HOLDER/RELEASE F DENOTES FLOOR MOUNTED ASSEMBLY
	CALL FOR AID BEACON WITH BUZZER 80" AFF	SD_R	DUCT MOUNTED SMOKE DETECTOR R-RETURN; S-SUPPLY
E	CALL FOR AID SWITCH WITH PULL CORD 36" AFF	FS TS	SPRINKLER FLOW SWITCH, TAMPER SWITCH
C P V	AUDIO-VISUAL SYSTEM OUTLETS (C-CAMERA) (P-PAN/TILT/ZOOM; V-VIDEO PROJECTOR)	FAA	FIRE COMMAND CENTER WITH FIRE ALARM ANNUNCIATOR PANEL
	DEDICATED 'HOMERUN' TO PANELBOARD BREAKER CONDUCTORS AS INDICATED OR SCHEDULED	FACP	FIRE ALARM CONTROL PANEL WITH FIREFIGHTERS COMMAND CENTER
	EMERGENCY LIGHTING 'HOMERUN' TO BATTERY VOLTAGE AND CAPACITY TO MATCH BATTERY	VEP	FIRE ALARM VOICE EVACUATION PANEL
	#4/0 AWG COPPER GROUND FROM COLUMN STEEL TO 3/4"x10' COPPERWELD GROUND ROD (ALL CADWELD)		AREA OF REFUGE COMMUNICATION PHONE TO FIRE COMMAND CENTER (MOUNT AT 42" AFF)
	PANELBOARD (277/480V, 3PH, 4W)		
T	DRY TYPE TRANSFORMER		CONNECTION TO MOTORIZED EQUIPMENT
	PANELBOARD (120/208V, 3PH, 4W)		UNFUSED SAFETY DISCONNECT SWITCH 60" AFF
	EMERGENCY SHUT-OFF SWITCH 42" AFF G-GAS; L-ELECTRIC; U-BOTH UTILITIES		FUSED SAFETY DISCONNECT SWITCH 60" AFF
	MULTI-POLE CONTACTOR IN NEMA 1 ENCLOSURE MTD AT 60" AFF (REFER TO WIRING DIAGRAM)		MOTOR STARTER (FURNISHED WITH EQUIPMENT)
EGS	EMERGENCY GAS SHUT-OFF CONTROL PANEL	S_F	CONTROL SWITCH FURNISHED WITH FAN 60" AFF
	GAS LINE SHUT-OFF SOLENOID VALVE	T	THERMOSTAT (BY HVAC CONTRACTOR) 60" AFF
HFSP	HOOD FIRE SUPPRESSION PANEL FURNISHED BY FIRE PROTECTION CONTRACTOR	P	LIGHTING CONTROL PHOTOCELL
SD	SMOKE DAMPER BY DIVISION 15 WIRED BY ELECTRICAL CONTRACTOR	TC	TIME CLOCK
MD	MOTORIZED DAMPER BY DIVISION 15 WIRED BY ELECTRICAL CONTRACTOR	c	COMBINATION T.V. OUTLET AND DUPLEX RECEPTACLE AT 4" BELOW CEILING AND A TV OUTLET 18" AFF SEE DETAIL ON DRAWING E301
BD	BY-PASS DAMPER BY DIVISION 15 WIRED BY ELECTRICAL CONTRACTOR		
		d	COMBINATION T.V. OUTLET AND DUPLEX RECEPTACLE AT 4" BELOW CEILING SEE DETAIL ON DRAWING E301
AFF	ABOVE FINISHED FLOOR	E	EXISTING TO REMAIN
BFC	BELOW FINISHED CEILING	RE	EXISTING TO BE REMOVED
UON	UNLESS OTHERWISE NOTED	RL	EXISTING TO BE RELOCATED
WG	PROVIDE APPLIANCE WITH WIRE GUARD	NL	NEW LOCATION OF EXISTING TO BE RELOCATED
WP	WEATHERPROOF PROTECTION (ENCLOSURE)	NR	NEW TO REPLACE EXISTING
XP	EXPLOSION PROOF ENCLOSURE	RR	REMOVE AND REPLACE ON NEW SURFACE

NOTES:
1. THIS LIST OF SYMBOLS IS COMPREHENSIVE; NOT ALL SYMBOLS WILL APPEAR ON ALL DRAWINGS WITHIN THIS SET.
2. PROVIDE WIRE GUARDS FOR ALL NEW AND EXISTING FIRE ALARM DEVICES, EXIT SIGNS, AND EMERGENCY LIGHTING FIXTURES IN ALL GYMNASIUMS, LOCKER ROOMS, AND SHOWER ROOMS.

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PROFESSIONAL SEAL

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ARCHITECT/ENGINEER W.D. BOLAND
DRAWN BY F. AGOSTINI

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

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BRIDGEPORT, CT 06604-3944

PROJECT TITLE
ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE
ELECTRICAL SPECIFICATIONS, SCHEDULES AND NOTES

NO	DATE	REVISION	BY

DATE MARCH 16, 1998
SCALE AS NOTED
PROJECT NO. 50950.06
DRAWING NO. **E401**

BQ #70 & 125 Attachment

REMOVE EXISTING LIGHT FIXTURE AND REPLACE WITH A HUBBELL #ENL08AR-SPDRA, WITH A -20°F BALLAST, CONNECT TO EXISTING CIRCUIT.

PART 'B' PART 'A'

MATCH LINE

EXISTG

1 (A100) GROUND FLOOR PLAN - PART "A"
SCALE: 1/8"=1'-0"

LOCATE TOP OF LUMINAIRE 8'-0" A.F.F. TYPICAL.

MOUNT BOTTOM OF LUMINAIRE 8'-0" A.F.F., TYPICAL THIS FLOOR.

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PART 'B' PART 'A'

KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER L.J. FREE
ARCHITECT/ENGINEER W.D. BOLAND
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FLETCHER THOMPSON
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GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

GROUND FLOOR PART "A" LIGHTING PLAN

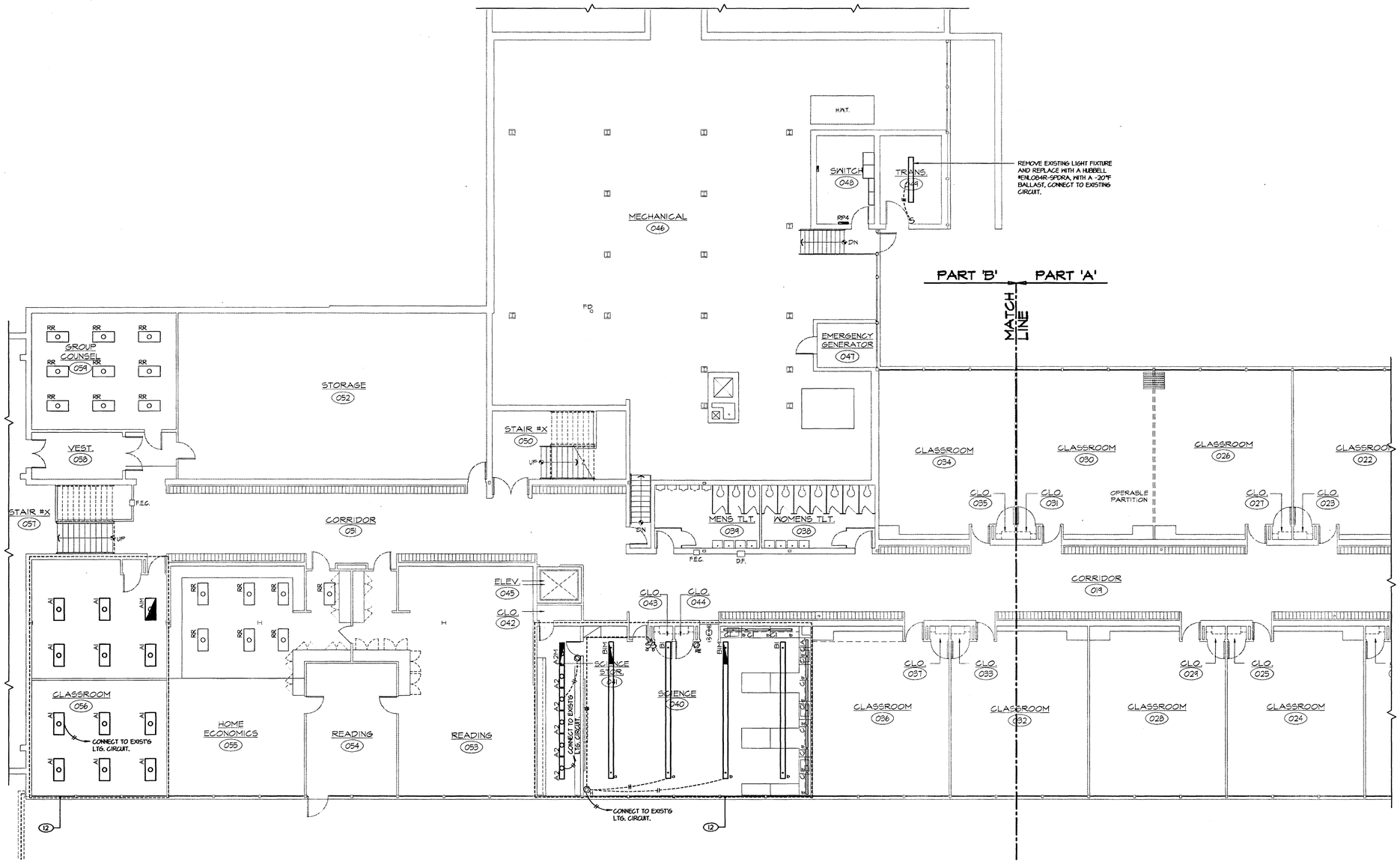
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SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE MARCH 16, 1998
SCALE 1/8" = 1'-0"
PROJECT NO. 50950.06
DRAWING NO. E700.1

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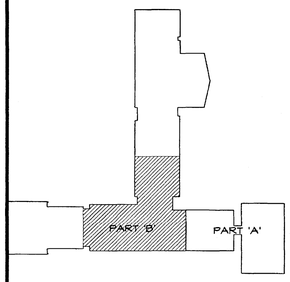
BQ #70 & 125 Attachment



GROUND FLOOR PLAN - PART "B"

A100.3 SCALE: 1/8" = 1'-0"

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KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
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TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

GROUND FLOOR PART "B" LIGHTING PLAN

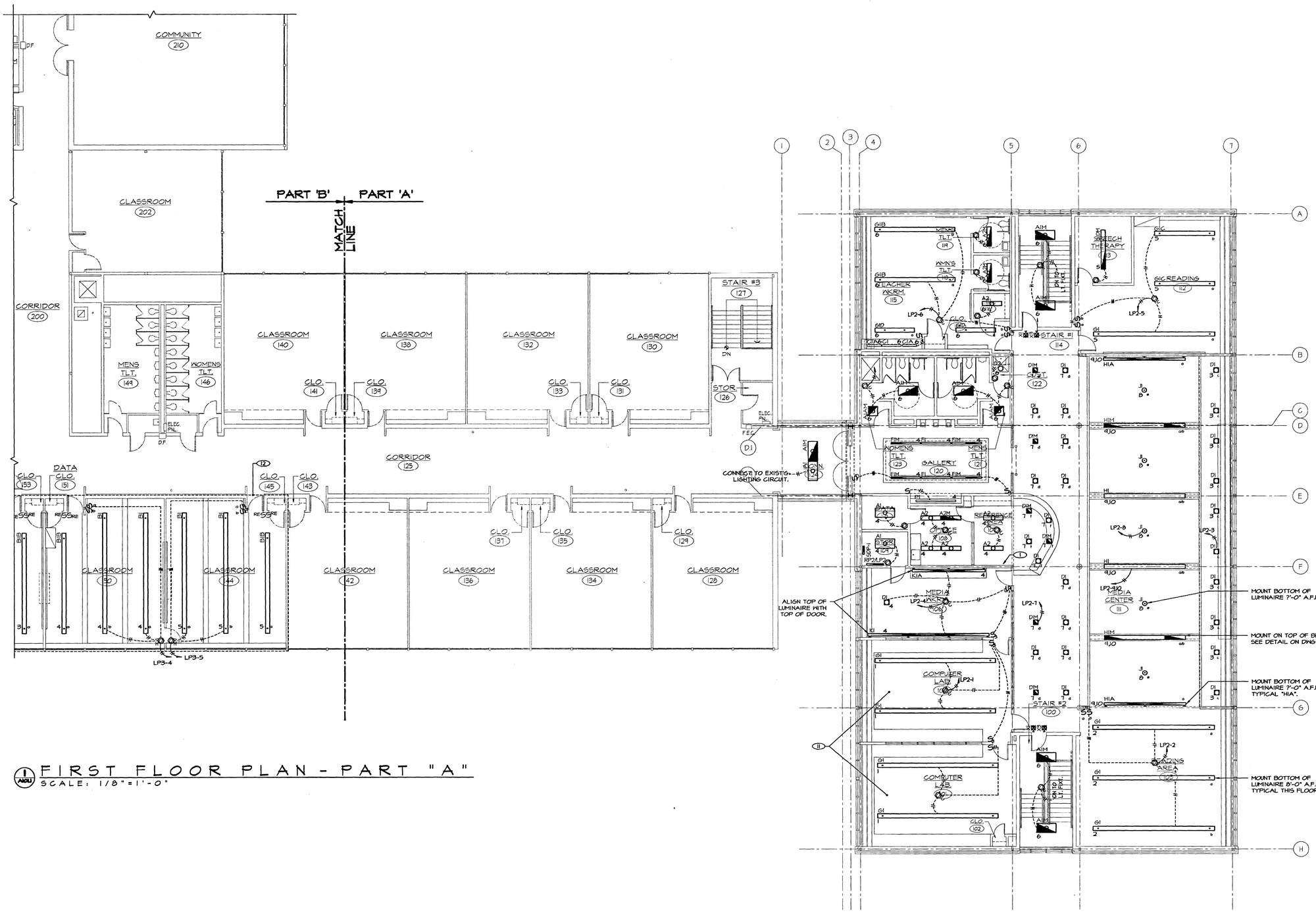
0 4' 8' 16'

SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE	MARCH 16, 1998
SCALE	1/8" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	E700.2

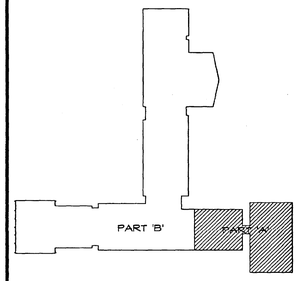
BQ #70 & 125 Attachment



1 A601 FIRST FLOOR PLAN - PART "A"

SCALE: 1/8"=1'-0"

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KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: W.D. BOLAND
DRAWN BY: F. AGOSTINI

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

FIRST FLOOR PART "A" LIGHTING PLAN

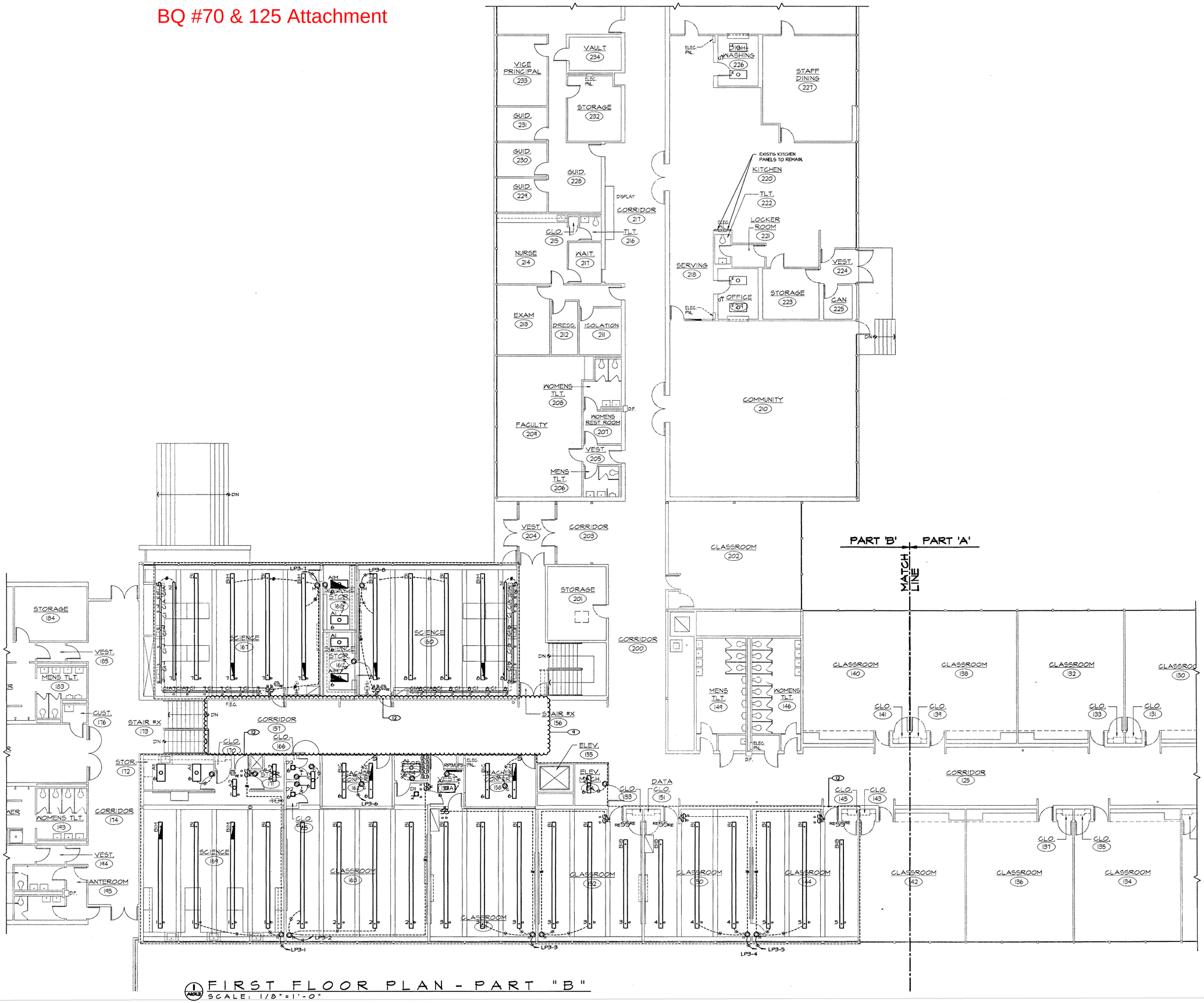
0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE: **MARCH 16, 1998**
SCALE: **1/8" = 1'-0"**
PROJECT NO.: **50950.06**
DRAWING NO.: **E701.1**

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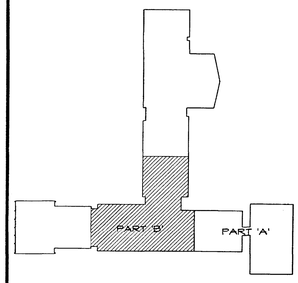
BQ #70 & 125 Attachment



1 A601.2 FIRST FLOOR PLAN - PART "B"
SCALE: 1/8"=1'-0"

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KEY PLAN

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PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	W.D. BOLAND
DRAWN BY	F. AGOSTINI

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

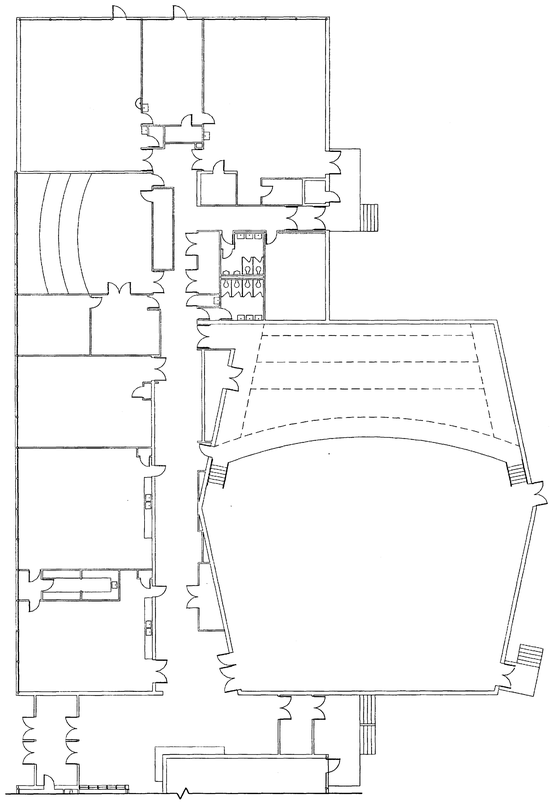
FIRST FLOOR PART "B" LIGHTING PLAN

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

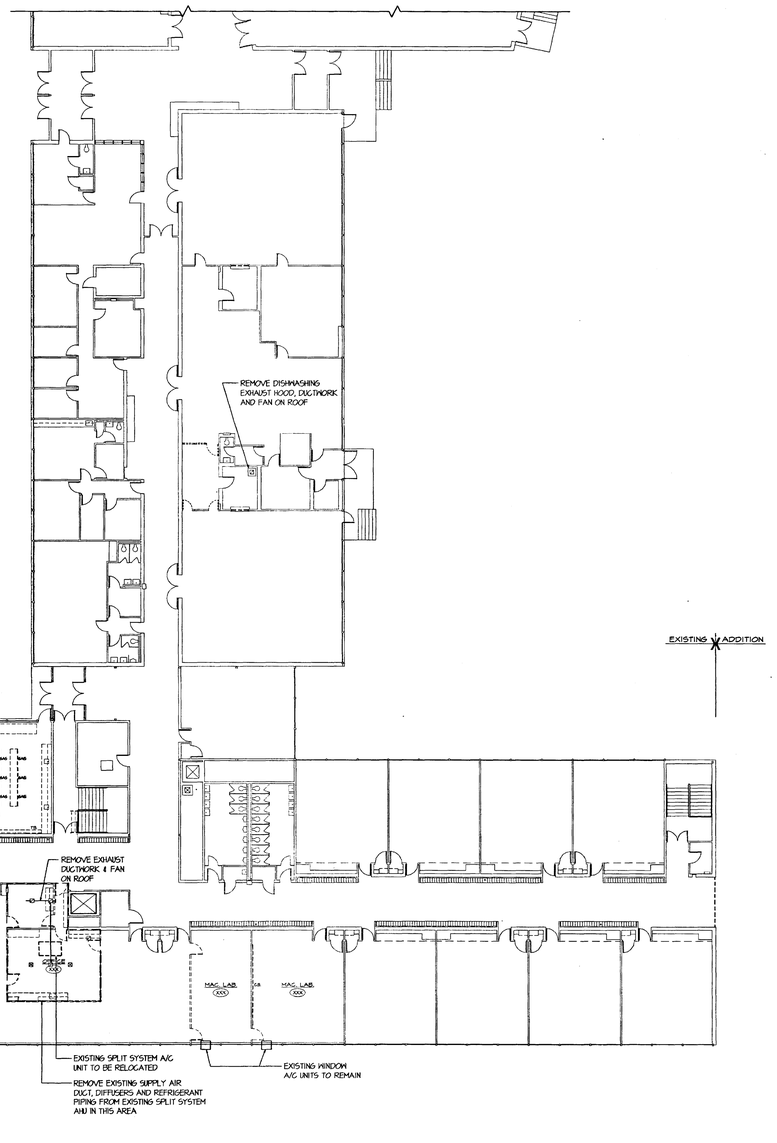
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DATE	MARCH 16, 1998
SCALE	1/8" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	E701.2

BQ #70 & 125 Attachment



② FIRST FLOOR DEMOLITION PLAN
SCALE: 1/16"=1'-0"

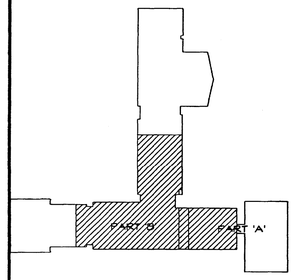


① FIRST FLOOR DEMOLITION PLAN
SCALE: 1/16"=1'-0"

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HVAC PLAN NOTES:

1. REFER TO DRAWING M001 FOR HVAC SCHEDULES.
2. REFER TO DRAWING M201 FOR SYMBOL LIST AND LIST OF ABBREVIATIONS FOR THESE HVAC DRAWINGS.



KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: J. MACALUSO
DRAWN BY: D. EAR

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

FIRST FLOOR DEMOLITION PLAN - HVAC

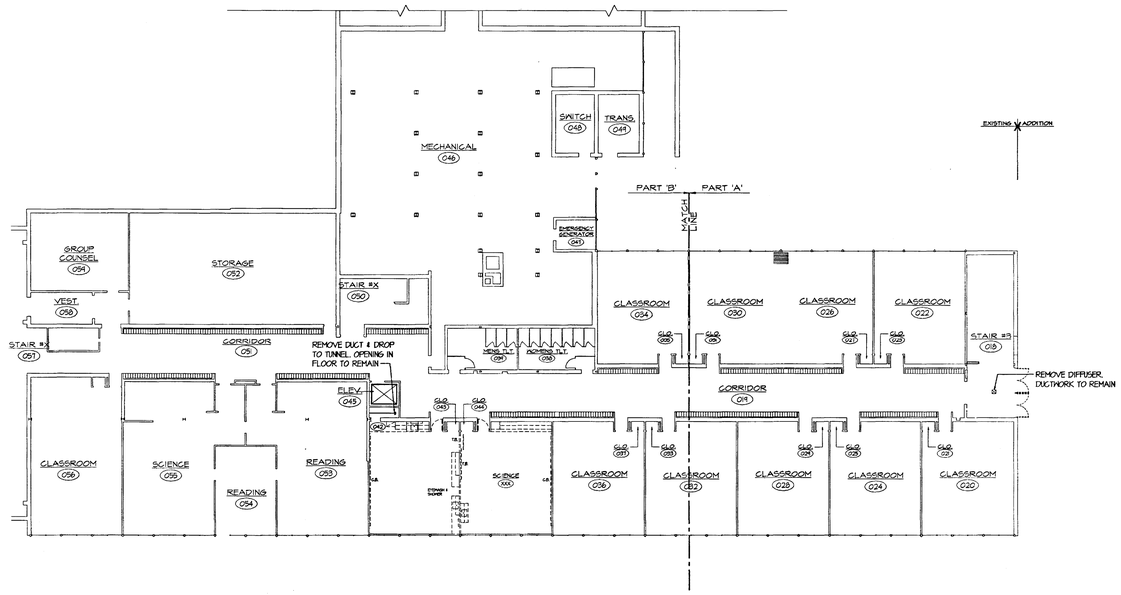
0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE: **MARCH 16, 1998**
SCALE: **1/16" = 1'-0"**
PROJECT NO.: **50950.06**
DRAWING NO.: **M099.1**

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BQ #70 & 125 Attachment

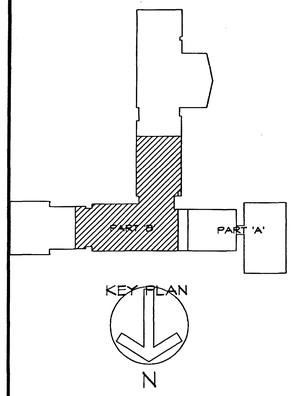


1 A099 GROUND FLOOR DEMOLITION PLAN
SCALE: 1/16"=1'-0"

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HVAC PLAN NOTES:

1. REFER TO DRAWING M001 FOR HVAC SCHEDULES.
2. REFER TO DRAWING M001 FOR SYMBOL LIST AND LIST OF ABBREVIATIONS FOR THESE HVAC DRAWINGS.



PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	J. MACALUSO
DRAWN BY	D. EAR

FLETCHER THOMPSON
ARCHITECTURE/ENGINEERING/INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

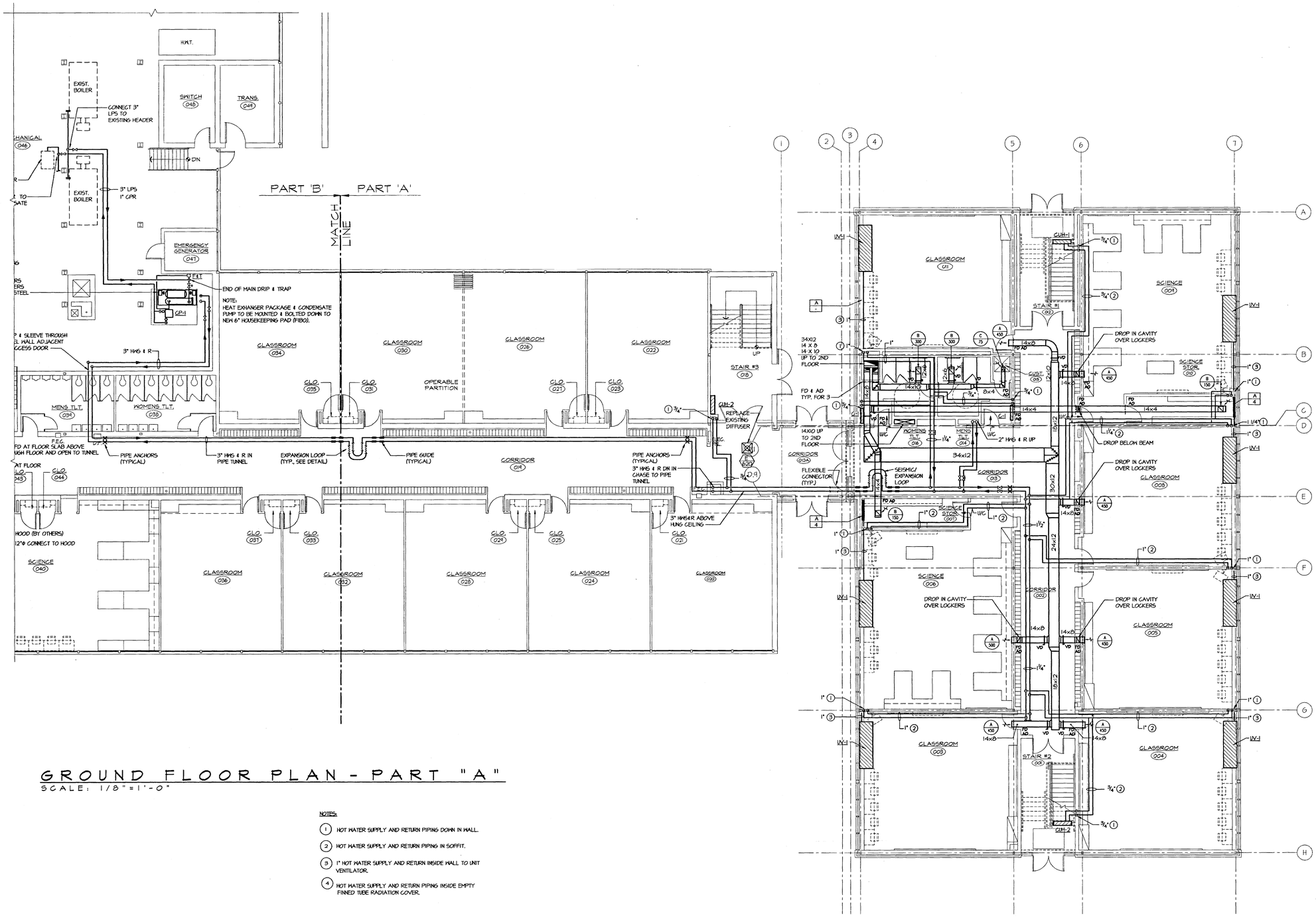
GROUND FLOOR DEMOLITION PLAN - HVAC

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE	MARCH 16, 1998
SCALE	1/16" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	M099.2

BQ #70 & 125 Attachment



GROUND FLOOR PLAN - PART "A"

SCALE: 1/8"=1'-0"

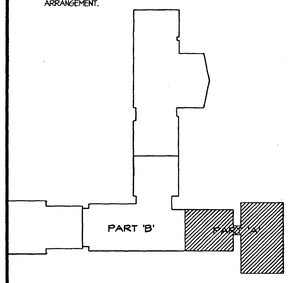
NOTES:

1. HOT WATER SUPPLY AND RETURN PIPING DOWN IN WALL.
2. HOT WATER SUPPLY AND RETURN PIPING IN SOFFIT.
3. 1" HOT WATER SUPPLY AND RETURN INSIDE WALL TO UNIT VENTILATOR.
4. HOT WATER SUPPLY AND RETURN PIPING INSIDE EMPTY FINNED TUBE RADIATION COVER.

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HVAC PLAN NOTES:

1. REFER TO DRAWING M401 FOR HVAC SCHEDULES.
2. REFER TO DRAWING M201 FOR SYMBOLS LIST AND LIST OF ABBREVIATIONS FOR THESE HVAC DRAWINGS.
3. PROVIDE AIR VENTS ON ALL PIPING DROPS, HIGH POINTS OR CHANGES OF ELEVATION. REFER TO DETAIL FOR PIPING ARRANGEMENT.



KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE

ARCHITECT/ENGINEER: J. MACALUSO

DRAWN BY: D. EAR

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

GROUND FLOOR PLAN PART "A" - HVAC

0 4' 8' 16'

SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998

SCALE: 1/8" = 1'-0"

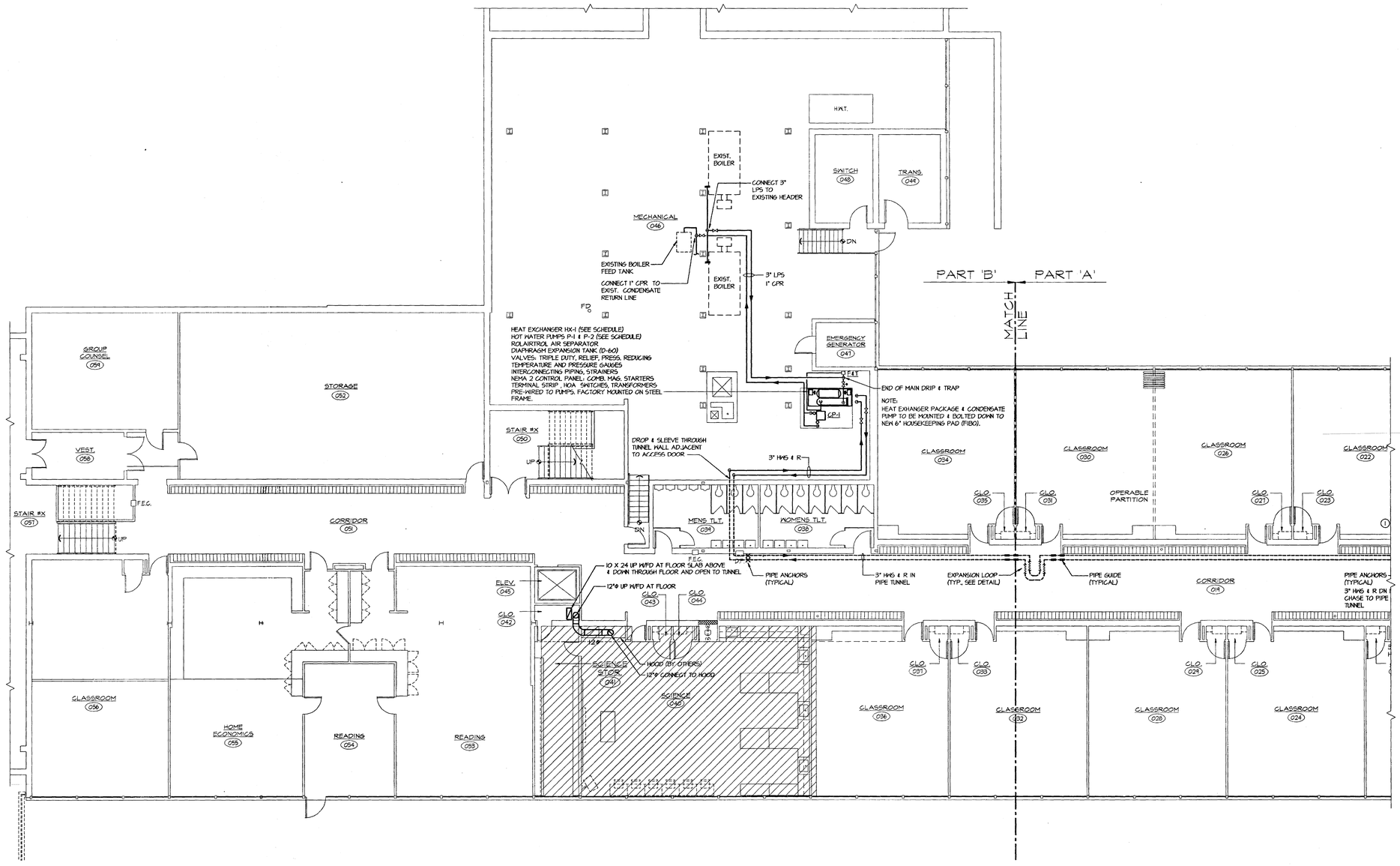
PROJECT NO.: 50950.06

DRAWING NO.: **M100.1**

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AB

BQ #70 & 125 Attachment



GROUND FLOOR PLAN - PART "B"

SCALE: 1/8" = 1'-0"

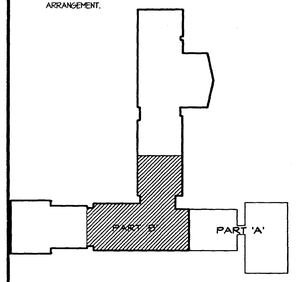
NOTES:

1. HOT WATER SUPPLY AND RETURN PIPING DOWN IN CHASE. REFER TO ARCHITECTURAL DRAWING AND COORDINATE WITH ALL TRADES.
2. HOT WATER SUPPLY AND RETURN PIPING IN SOFFIT.
3. 1" HOT WATER SUPPLY AND RETURN ALONG WALL TO UNIT VENTILATOR.
4. 1" HOT WATER SUPPLY AND RETURN UP TO SECOND FLOOR UNIT VENTILATOR.
5. HOT WATER SUPPLY AND RETURN PIPING DOWN IN WALL.
6. HOT WATER SUPPLY AND RETURN PIPING UP FROM FIRST FLOOR.

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HVAC PLAN NOTES:

1. REFER TO DRAWING M401 FOR HVAC SCHEDULES.
2. REFER TO DRAWING M201 FOR SYMBOLS LIST AND LIST OF ABBREVIATIONS FOR THESE HVAC DRAWINGS.
3. PROVIDE AIR VENTS ON ALL PIPING DROPS, HIGH POINTS OR CHANGES OF ELEVATION. REFER TO DETAIL FOR PIPING ARRANGEMENT.



KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE

ARCHITECT/ENGINEER: J. MACALUSO

DRAWN BY: D. EAR

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

GROUND FLOOR PLAN PART "B" - HVAC

0 4' 8' 16'

SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998

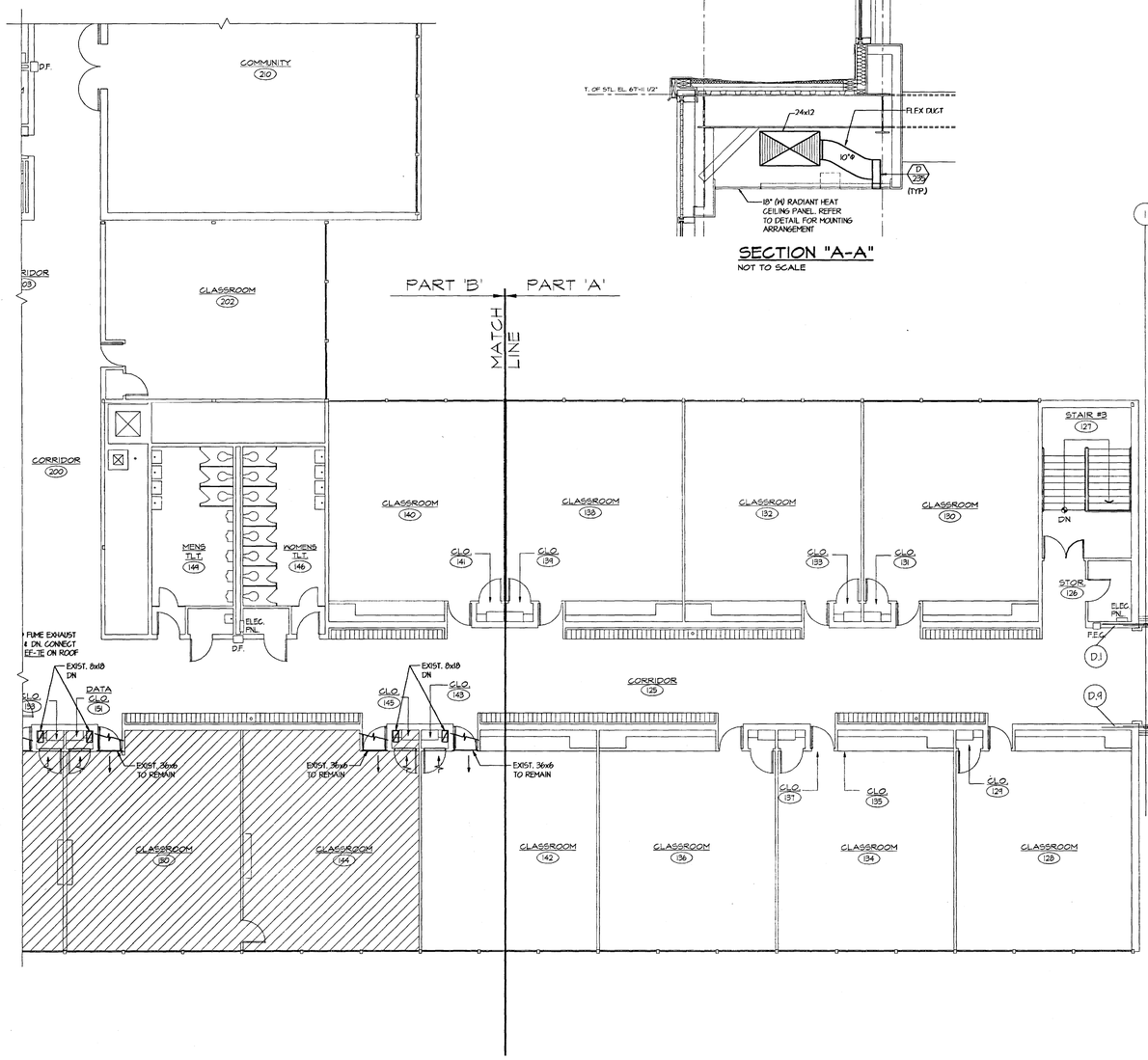
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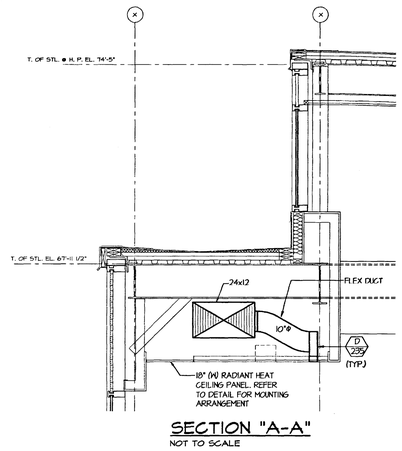
PROJECT NO.: 50950.06

DRAWING NO.: **M100.2**

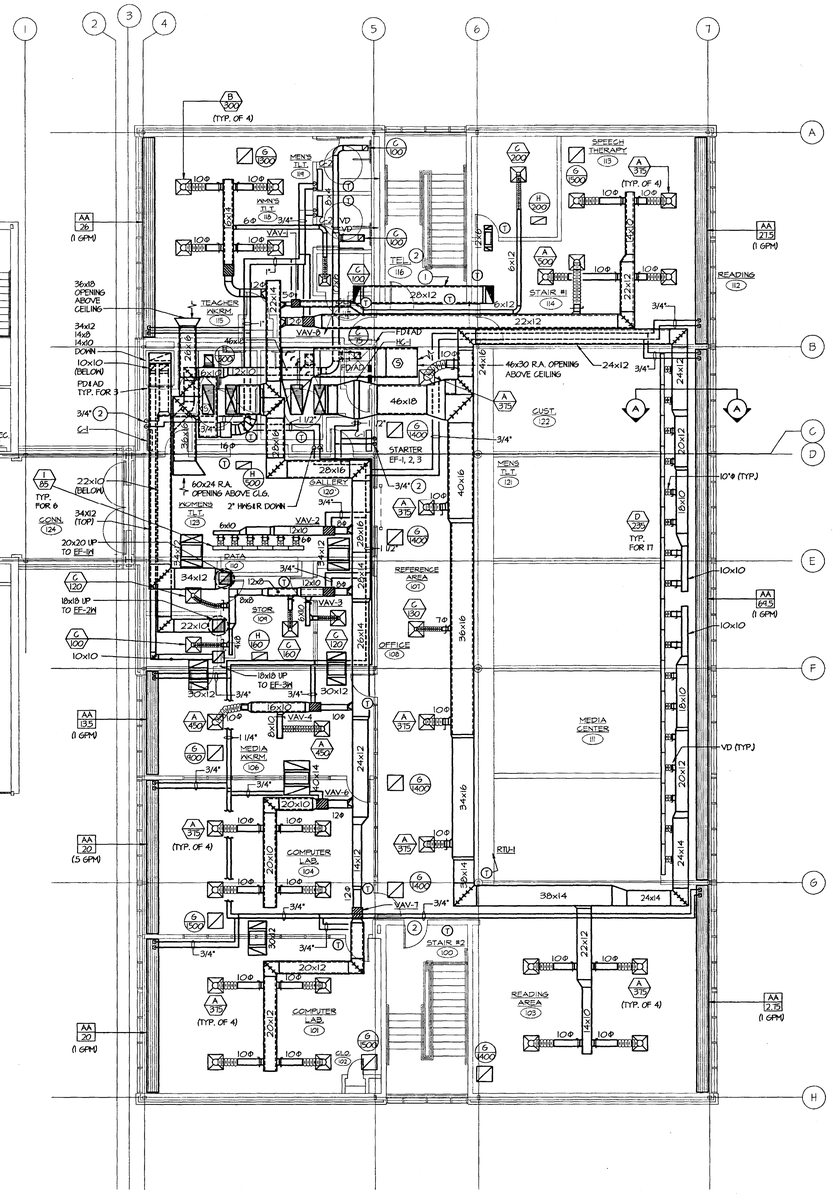
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BQ #70 & 125 Attachment





SECTION "A-A"
NOT TO SCALE



FIRST FLOOR PLAN - PART "A"
SCALE: 1/8"=1'-0"

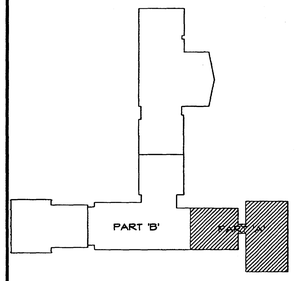
GENERAL NOTES:

1. RETURN AIR TRANSFER DUCT LOCATED IN FIRE RATED ENCLOSURE ABOVE STAIR CEILING.
2. HOT WATER SUPPLY & RETURN PIPING DOWN IN WALL.

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HVAC PLAN NOTES:

1. REFER TO DRAWING M401 FOR HVAC SCHEDULES.
2. REFER TO DRAWING M201 FOR SYMBOLS LIST AND LIST OF ABBREVIATIONS FOR THESE HVAC DRAWINGS.
3. PROVIDE AIR VENTS ON ALL PIPING DROPS, HIGH POINTS OR CHANGES OF ELEVATION. REFER TO DETAIL FOR PIPING ARRANGEMENT.



KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	J. MACALUSO
DRAWN BY	D. EAR

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

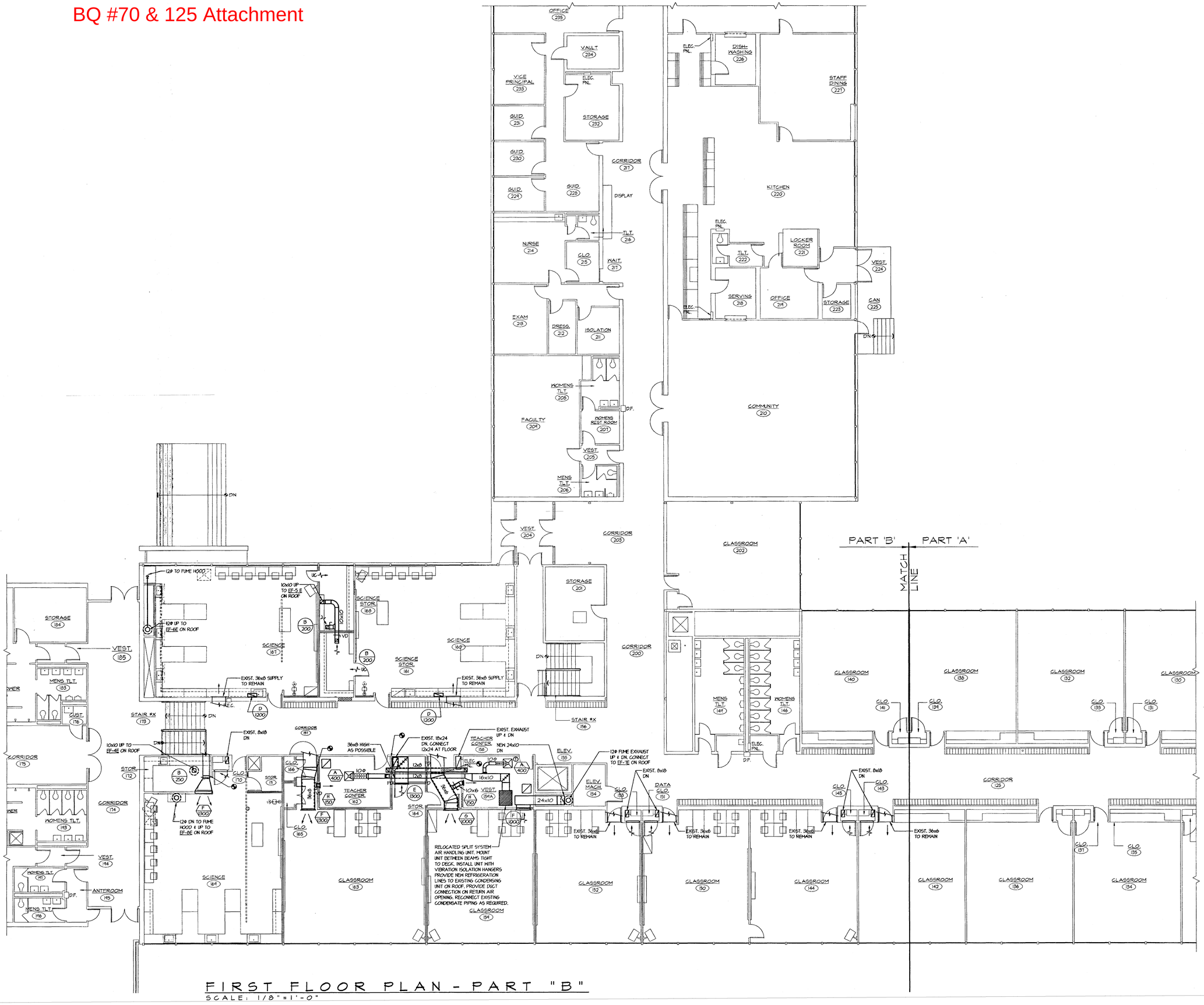
FIRST FLOOR PLAN PART "A" - HVAC

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE	MARCH 16, 1998
SCALE	1/8" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	**M101.1**

BQ #70 & 125 Attachment



FIRST FLOOR PLAN - PART "B"

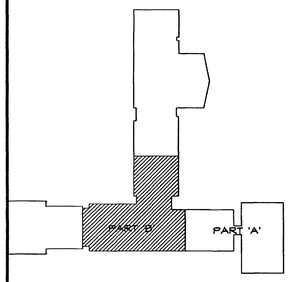
SCALE: 1/8"=1'-0"

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HVAC PLAN NOTES:

1. REFER TO DRAWING M401 FOR HVAC SCHEDULES.
2. REFER TO DRAWING M301 FOR SYMBOLS LIST AND LIST OF ABBREVIATIONS FOR THESE HVAC DRAWINGS.
3. PROVIDE AIR VENTS ON ALL PIPING DROPS, HIGH POINTS OR CHANGES OF ELEVATION. REFER TO DETAIL FOR PIPING ARRANGEMENT.



KEY PLAN

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: J. MACALUSO
DRAWN BY: D. EAR

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9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

FIRST FLOOR PLAN PART "B" - HVAC

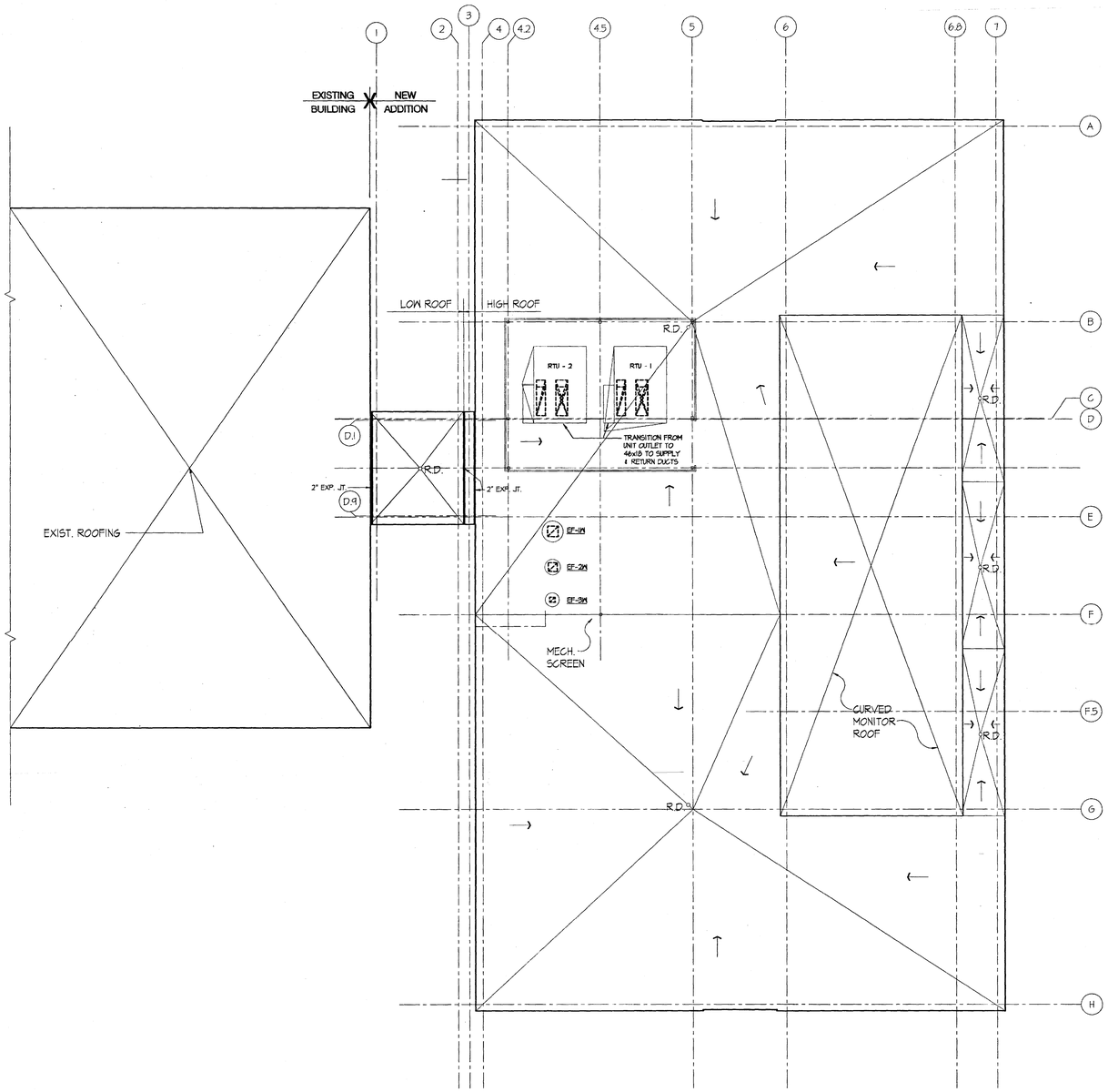
0 4' 8' 16'

SCALE: 1/8" = 1'-0"

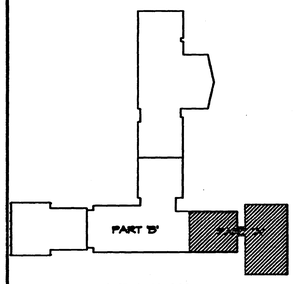
NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: 1/8" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: M101.2

BQ #70 & 125 Attachment



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KEY PLAN

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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: J. MACALUSO
DRAWN BY: D. EAR

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

ROOF PLAN

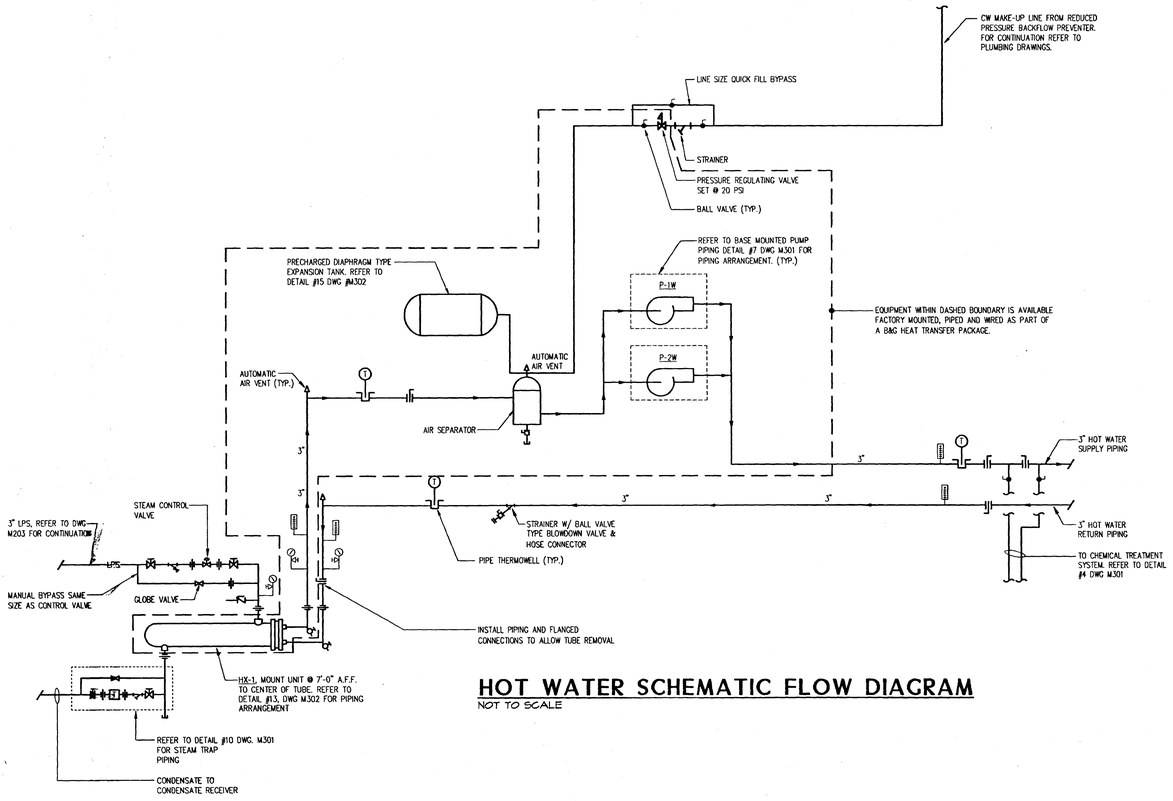
0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: 1/8" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: M110

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BQ #70 & 125 Attachment



HOT WATER SCHEMATIC FLOW DIAGRAM

NOT TO SCALE

ABBREVIATIONS

(###)	CFM	FA	FACE AREA	NO	NORMALLY OPEN
ABV	ABOVE	FBO	FURNISHED BY OTHERS	NTS	NOT TO SCALE
AC	AIR COMPRESSOR		INSTALLED BY HVAC SUBCONTRACTOR	OA	OUTSIDE AIR
ACU-#	AIR CONDITIONING UNIT	FC	FORWARD CURVE	OAT	OUTDOOR AIR TEMPERATURE
AD	ACCESS DOOR	FCU	FAN COIL UNIT	OAI	OUTDOOR AIR INTAKE
AF	AIRFOIL	FD	FIRE DAMPER WITH ACCESS DOOR	OBD	OPPOSED BLADE DAMPER
AFC	ADJUSTABLE FREQUENCY CONTROLLER	FF	FINAL FILTER	OD	OUTSIDE DIMENSION
AFF	ABOVE FINISHED FLOOR	FIBO	FURNISHED AND INSTALLED BY OTHERS	O.E. T.D.	OPEN END TRANSFER DUCT
AFMS	AIR FLOW MEASURING STATION	FIN FL	FINISH FLOOR	P-#	PUMP
AHU-#	AIR HANDLING UNIT	FL	FLOOR	PB	PUSH BUTTON
AL	ACOUSTIC LINING	FLA	FULL LOAD AMPERES	PBD	PARALLEL BLADE DAMPER
ALD	AUTOMATIC LOUVER DAMPER	FLEX	FLEXIBLE	PD	PRESSURE DROP
APD	AIR PRESSURE DROP	FPF	FINS PER FOOT	PF	PREFILTER
AUTO	AUTOMATIC	FPV	FAN POWERED VAV BOX	PH	PHASE
B-#	BOILER	FT	FEET	PHC	PREHEAT COIL
BC	BACKWARD CURVED	F.T.	FLOAT & THERMOSTATIC TRAP	PPH	POUND PER HOUR
BD	BELT DRIVE	FTR	FIN TUBE RADIATION	PRV	PRESSURE REDUCING VALVE
BMCS	BUILDING MANAGEMENT & CONTROL SYSTEM	FV	FACE VELOCITY	PSI	POUND PER SQUARE INCH
BIT	INVERTED BUCKET TRAP	GC	GENERAL CONTRACTOR	RA	RETURN AIR
BTU	BRITISH THERMAL UNIT	GH	GRAVITY INTAKE HOOD	RAF-#	RETURN AIR FAN
C-#	CHILLER	GPH	GALLONS PER HOUR	RAT	RETURN AIR TEMPERATURE
CAP	CAPACITY	GPM	GALLONS PER MINUTE	REG	REGISTER
CB-#	CONTROL BOX	H/C	HEATING/COOLING	RH	RELATIVE HUMIDITY
CC-#	COOLING COIL	H-#	HUMIDIFIER	RHC	REHEAT COIL
CD	CEILING DIFFUSER	H-O-A	HAND-OFF-AUTOMATIC	RM	ROOM
CFM	CUBIC FEET PER MINUTE	HC-#	HEATING COIL	RPM	REVOLUTIONS PER MINUTE
CG	CEILING GRILLE	hd	FEET OF HEAD	RS	RISE
CLG	CEILING	HP	HORSEPOWER	RTU-#	ROOFTOP AIR CONDITIONING UNIT
CONV-#	HOT WATER CONVECTOR	HTG	HEATING	SA	SUPPLY AIR
CP	CONDENSATE RECEIVER/PUMPING SYSTEM	HTR	HEATER	SAF-#	SUPPLY AIR FAN
CR	CEILING REGISTER	HV-#	HEATING AND VENTILATING UNIT	SAT	SUPPLY AIR TEMPERATURE
CT-#	COOLING TOWER	HVAC	HEATING, VENTILATING & AIR CONDITIONING	SB	SECURITY BARS
CTD	CEILING TRANSFER DUCT			VSC	VERTICAL SPLIT CASE
CUH-#	CABINET UNIT HEATER HOT WATER	HX-#	HEAT EXCHANGER CONVERTOR	HSC	HORIZONTAL SPLIT CASE
CV	CONTROL VALVE	ID	INSIDE DIMENSION	SD	SMOKE DAMPER
CW	COLD WATER	IN	INCHES	SG	SUPPLY GRILLE
D&T	DRIP AND TRAP	IV	INLET GUIDE VANES	SP	STATIC PRESSURE
db	DECIBELS	KW	KILOWATT	SQ FT	SQUARE FOOT (AREA)
DB	DRY BULB	KWH	KILOWATT HOUR	ST	SINGLE POLE SWITCH W/THERMAL OVERLOAD
DD	DIRECT DRIVE	IL	INLINE	SWR	SIDE WALL REGISTER
DDC	DIRECT DIGITAL CONTROL	LAT	LEAVING AIR TEMPERATURE	TSTAT	THERMOSTAT
DIFF	DIFFUSER	LD	LINEAR DIFFUSER	TD	TEMPERATURE DIFFERENCE
DL	DOOR LOUVER	LIN	LINEAR	TEMP	TEMPERATURE
DN	DOWN	LRA	LOCKED ROTOR AMPERES	TG	AIR TRANSFER GRILLE
DP	DEWPOINT TEMPERATURE	LPR	LOW PRESSURE RETURN	TOT	TOTAL
DR	DROP	LPS	LOW PRESSURE SUPPLY	TN-HR	TON HOUR REFRIGERATION
DX	DIRECT EXPANSION	LVG	LEAVING	TRD	TRANSFER DUCT
E-#	EXHAUST FAN	LWT	LEAVING WATER TEMPERATURE	TT	THERMOSTATIC TRAP
EAT	ENTERING AIR TEMPERATURE	MAN	MANUAL	TYP	TYPICAL
EER	ENERGY EFFICIENCY RATIO	MAT	MIXED AIR TEMPERATURE	UC	UNDERCUT DOOR
EG	EXHAUST GRILLE	MAX	MAXIMUM	UH-#	UNIT HEATER HOT WATER
EHC-#	ELECTRIC HEATING COIL	MBH	1000 BTU'S	UV-#	UNIT VENTILATOR
ENT	ENTERING	MCA	MINIMUM CIRCUIT AMPACITY	VAV-#	VARIABLE AIR VOLUME
HEPA	HIGH EFFICIENCY PARTICULATE FILTER	MD	MOTORIZED DAMPER	VD	VOLUME DAMPER
ER	EXHAUST REGISTER	MER	MECHANICAL EQUIPMENT ROOM	VE	VOLUME EXTRACTOR
ES	END SUCTION	MEZZ	MEZZANINE	VI	VIBRATION ISOLATOR
ESP	EXTERNAL STATIC PRESSURE	MFS	MAXIMUM FUSE SIZE	VSF	VARIABLE SPEED FAN SWITCH
ET-#	EXPANSION TANK	MIN	MINIMUM	W/	WITH
EUH-#	ELECTRIC UNIT HEATER	MOT	MOTOR	WB	WET BULB
EWT	ENTERING WATER TEMPERATURE	MUA	MAKE-UP AIR	WFM	WATER FLOW MEASURING STATION
EX	EXISTING	MV	MOTORIZED VALVE	WMS	WIRE MESH SCREEN
EXH	EXHAUST	NC	NORMALLY CLOSED	WPD	WATER PRESSURE DROP
EXT	EXTERNAL	NC	NOISE CRITERIA	WT	WEIGHT (LBS)
F	DEGREES FAHRENHEIT	NFA	NET FREE AREA	ZD	ZONE DAMPER
F&B	FACE & BYPASS DAMPER	NIC	NOT IN THIS CONTRACT		

SYMBOLS

PIPING SYMBOLS

- CHILLED WATER SUPPLY PIPING (CWS)
- CHILLED WATER RETURN PIPING (CWR)
- CONDENSER WATER SUPPLY PIPING (CWS)
- CONDENSER WATER RETURN PIPING (CWR)
- GLYCOL WATER SUPPLY (GWS)
- GLYCOL WATER RETURN (GWR)
- DOMESTIC COLD WATER MAKE-UP (CW)
- HOT WATER (HEATING) SUPPLY PIPING (HWS)
- HOT WATER (HEATING) RETURN PIPING (HWR)
- HIGH PRESSURE STEAM SUPPLY PIPING (HPS)
- HIGH PRESSURE STEAM CONDENSATE RETURN PIPING (HPR)
- LOW PRESSURE STEAM SUPPLY PIPING (LPS)
- LOW PRESSURE STEAM CONDENSATE RETURN PIPING (LPR)
- PUMPED CONDENSATE RETURN PIPING (PC)
- CONDENSATION DRAIN PIPING (D)
- DUAL TEMPERATURE SUPPLY PIPING (DTS)
- DUAL TEMPERATURE RETURN PIPING (DTR)
- DIRECTION OF FLOW IN PIPE
- PITCH PIPE DOWN IN DIRECTION OF ARROW
- PIPE ELBOW UP; DOWN
- PIPE TOP CONNECTION
- PIPE BOTTOM CONNECTION
- PIPE CAPPED
- PIPE UNION
- PIPE ANCHOR
- PIPE GUIDES
- PIPE EXPANSION JOINTS
- FLEXIBLE PIPE CONNECTOR
- PIPE EXPANSION LOOP (LENGTH X WIDTH)
- SEISMIC OR EXPANSION LOOP
- PRESSURE GAUGE WITH PETCOCK
- PIPE REDUCER OR INCREASER
- THERMOMETER WITH THERMO WELL
- PIPE WELL (FOR CONTROLS OR TEST)
- PIPE AIR VENT (M-MANUAL, A-AUTOMATIC)
- PET COCK
- GLOBE VALVE
- GATE VALVE
- BUTTERFLY VALVE
- BALANCING CIRCUIT SETTER TYPE VALVE WITH 100% SHUT OFF
- PLUG VALVE
- BALL VALVE
- DRAIN VALVE W/ HOSE COUPLING W/CAP
- CHECK VALVE
- THREE-WAY MOTORIZED CONTROL VALVE
- TWO-WAY MOTORIZED CONTROL VALVE
- SUMMER/WINTER VALVE
- RELIEF VALVE
- ANGLE RELIEF VALVE
- PRESSURE REDUCING VALVE (PRV)
- RADIATION PIPING CONTROL VALVE
- STRAINER W/ BLOWDOWN BALL VALVE
- STEAM TRAP RIG
- WATER FLOW MEASURING STATION
- O S & Y GATE VALVE

DUCTWORK SYMBOLS

- S.A. OR O.A. DUCT UP; DN
- R.A. OR EXH. DUCT UP; DN
- DOUBLE LINE DUCTWORK W/ INTERNAL ACOUSTICAL INSULATION AND INDICATION OF INSIDE DIMENSION
- SINGLE LINE DUCTWORK W/ INDICATION OF INSIDE DIMENSIONS
- SINGLE LINE DUCTWORK W/ INTERNAL ACOUSTICAL INSULATION AND INDICATION OF INSIDE DIMENSION
- ACCESS DOOR IN DUCT
- ROUND DUCT DIAMETER SIZE
- FLEXIBLE DUCT CONNECTION
- DUCT MOUNTED COIL
- FLEXIBLE ROUND DUCT
- DIRECTION OF AIR FLOW
- FIRE DAMPER
- SMOKE DAMPER
- MANUAL VOLUME DAMPER
- MOTORIZED DAMPER
- ELBOW WITH AIRFOIL TURNING VANES
- TEMPERATURE SENSOR OR THERMOSTAT (G DENOTES WITH GUARD)
- STATIC PRESSURE SENSOR
- SMOKE DETECTOR IN DUCT (FIBO)
- RELATIVE HUMIDITY SENSOR OR HUMIDISTAT
- CEILING DIFFUSER
- CEILING DIFFUSER (3-WAY BLOW)
- CEILING DIFFUSER (2-WAY BLOW)
- CEILING DIFFUSER (1-WAY BLOW)
- WALL GRILLE OR REGISTER AS NOTED
- LINEAR DIFFUSER
- RETURN OR EXHAUST GRILLE
- FIN-TUBE RADIATION W/ COVER
- AIR TERMINAL UNIT
- DOOR UNDERCUTS
- DUCT STATIC PRESSURE CLASSIFICATION
- ADJUSTABLE FREQUENCY CONTROLLER
- VARIABLE SPEED FAN SWITCH
- MOTOR STARTER
- EQUIPMENT DISCONNECT

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HVAC PLAN NOTES:

1. REFER TO DRAWING M401 FOR HVAC SCHEDULES.
2. REFER TO DRAWING M201 FOR SYMBOL LIST AND LIST OF ABBREVIATIONS FOR THESE HVAC DRAWINGS.

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: J. MACALUSO
DRAWN BY: D. EAR

FLETCHER THOMPSON
ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

FLETCHER-THOMPSON, INC.
TWO LAFAYETTE SQUARE
BRIDGEPORT, CT 06604-3944

PROJECT TITLE

ADDITIONS AND RENOVATIONS TO
CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

FLOW DIAGRAMS & DETAILS - HVAC

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: M201

LIST OF CONTRACT DRAWINGS, SPECIFICATIONS

Spec Section	*Description*	*Date*	*Addendum #1*	*Addendum #2*	*Addendum #3*	*Addendum #4*	*Comments*
SPECIFICATIONS							
Volume 1 - Division 00							
DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS							
00 0110	TABLE OF CONTENTS	9/30/2024					
00 3132	GEOTECHNICAL DATA	9/30/2024		10/16/2024		10/30/2024	*Addendum #2, Addendum #4*
00 4000	TURNER CONSTRUCTION: PHASE 2 OF 3 PROCUREMENT MANUAL	9/30/2024					
Volume 2 - Divisions 01-14							
DIVISION 01 - GENERAL REQUIREMENTS							
01 1000	SUMMARY	9/30/2024					
01 2000	PRICE AND PAYMENT PROCEDURES	9/30/2024					
01 2000A	SUPPLEMENTAL INSTRUCTIONS FORM	9/30/2024					
01 2000B	PROPOSAL REQUEST FORM	9/30/2024					
01 2000C	CONSTRUCTION CHANGE DIRECTIVE FORM	9/30/2024					
01 2100	ALLOWANCES	9/30/2024					
01 2201	UNIT PRICES	9/30/2024					
01 2300	ALTERNATES	9/30/2024					
	SUBSTITUTION PROCEDURES ATTACHMENT – CSI FORM 1.5C	9/30/2024					
01 2500	ATTACHMENT – CSI FORM 13.1A						
01 3000	ADMINISTRATIVE REQUIREMENTS	9/30/2024					
01 3302	FORM B CADD EFT FORM REVD	9/30/2024					
01 3303	FORM C BIM ACCESS LICENSE AGREEMENT	9/30/2024					
	SUSTAINABILITY COMPLIANCE PROCEDURES – CTHPB WORKING	9/30/2024					
01 3566.42	COMPLIANCE CHECKLIST W/ LEED						
01 3566.43	CTHPB SUBMITTAL COVER	9/30/2024					
01 3566.44	CTHPB MATERIAL CALCULATOR	9/30/2024					
01 3566.45	CTHPB VOC FORM	9/30/2024					
01 3566.46	IAQ FIELD REPORT FORM	9/30/2024					
01 3573	DELEGATED DESIGN PROCEDURES	9/30/2024					
01 4000	QUALITY REQUIREMENTS	9/30/2024					
01 4219	REFERENCE STANDARDS	9/30/2024					
01 4339	MOCK-UPS	9/30/2024					
01 4533	CODE-REQUIRED SPECIAL INSPECTIONS AND PROCEDURES	9/30/2024					
	TEMPORARY FACILITIES AND CONTROLS -- ATTACHMENT FORM SCG-	9/30/2024					
01 5000	3021 PROJECT SIGN						
01 5639	TEMPORARY TREE AND PLANT PROTECTION	9/30/2024					
01 5719	TEMPORARY ENVIRONMENTAL CONTROLS	9/30/2024					
01 6000	PRODUCT REQUIREMENTS	9/30/2024					
01 6116	VOLATILE ORGANIC COMPOUND (VOC) CONTENT RESTRICTIONS	9/30/2024					
01 7000	EXECUTION AND CLOSEOUT REQUIREMENTS	9/30/2024					
01 7419	CONSTRUCTION WASTE AND MANAGEMENT DISPOSAL	9/30/2024					
01 7419A	ATTACHMENT: CW&MD CONSTRUCTION WASTE MANAGEMENT FORM	9/30/2024					
01 7800	CLOSEOUT SUBMITTALS	9/30/2024					
01 7900	DEMONSTRATION AND TRAINING	9/30/2024					
01 9113	GENERAL COMMISSIONING REQUIREMENTS	9/30/2024					
	ATTACHMENT: COMMISSIONING PLAN	9/30/2024					
DIVISION 02 - EXISTING CONDITIONS							
02 3000	SUBSURFACE INVESTIGATIONS	9/30/2024					
02 4100	DEMOLITION	9/30/2024					
02 4113	SITE UTILITY ABANDONMENT	9/30/2024					
02 8200	SELECTIVE HAZARDOUS BUILDING MATERIALS ABATEMENT DEMOLITION	9/30/2024					
02 8213	ASBESTOS ABATEMENT	9/30/2024					
	ATTACHMENT: FORM SCG-3011 – ASBESTOS CHECKLIST – CENTRAL MIDDLE SCHOOL	9/30/2024					
02 8313	LEAD-BASED PAINT AWARENESS	9/30/2024					
02 8416	UNIVERSAL WASTE REMOVAL AND RECYCLING	9/30/2024					
02 8432	PCBS GREATER THAN 50PPM REMEDIATION	9/30/2024					
	ATTACHMENT: FORM SCG-3012 PCB CHECKLIST – CENTRAL MIDDLE SCHOOL	9/30/2024					
	ATTACHMENT: FORM SCG-9008 PCB I CAULK - CENTRAL MIDDLE SCHOOL	9/30/2024					
DIVISION 03 - CONCRETE							
03 0516	UNDER-SLAB VAPOR RETARDER	9/30/2024					
03 1000	CONCRETE FORMING AND ACCESSORIES	9/30/2024					
03 2000	CONCRETE REINFORCING	9/30/2024					
03 3000	CAST-IN-PLACE CONCRETE	9/30/2024					
03 3250	CONCRETE POST-INSTALLED ANCHORS	9/30/2024					
03 3511	CONCRETE FLOOR FINISHES	9/30/2024					
03 6213	NON-METALLIC NON-SHRINK GROUTING	9/30/2024					
DIVISION 04 - MASONRY							
04 2000	UNIT MASONRY	9/30/2024					
04 4313	STONE MASONRY VENEER					10/30/2024	*Addendum #4*
04 7323	MANUFACTURED BUILDING STONE MASONRY	9/30/2024					
DIVISION 05 - METALS							
05 0805	FACTORY-APPLIED COATINGS FOR METAL	9/30/2024					
05 1200	STRUCTURAL STEEL FRAMING	9/30/2024					
05 2100	STEEL JOIST FRAMING	9/30/2024					
05 3100	STEEL DECKING	9/30/2024					
05 4000	COLD-FORMED METAL FRAMING	9/30/2024					
05 5000	METAL FABRICATIONS	9/30/2024		10/16/2024			*Addendum #2*
05 5100	METAL STAIRS	9/30/2024					

LIST OF CONTRACT DRAWINGS, SPECIFICATIONS

Spec Section	Description	Date	Addendum #1	Addendum #2	Addendum #3	Addendum #4	Comments
05 7000	DECORATIVE METAL RAILINGS	9/30/2024					
05 7100	MONUMENTAL METAL STAIRS	9/30/2024					
DIVISION 06 - WOOD, PLASTICS AND COMPOSITES							
06 1000	ROUGH CARPENTRY	9/30/2024					
06 2000	FINISH CARPENTRY	9/30/2024					
06 4100	ARCHITECTURAL WOOD CASEWORK	9/30/2024					
06 4200	WOOD PANELING	9/30/2024					
06 6116	SOLID SURFACING FABRICATIONS	9/30/2024					
06 8316	FIBERGLASS REINFORCED PANELING	9/30/2024					
DIVISION 07 - THERMAL AND MOISTURE PROTECTION							
07 1400	FLUID-APPLIED WATERPROOFING	9/30/2024					
07 2100	THERMAL INSULATION	9/30/2024					
07 2119	FOAMED-IN-PLACE INSULATION	9/30/2024					
07 2163	FLUID-APPLIED INSULATIVE COATING	9/30/2024					
07 2410	DIRECT-APPLIED EXTERIOR FINISH SYSTEMS	9/30/2024					
07 2726	FLUID-APPLIED MEMBRANE AIR BARRIERS	9/30/2024					
07 4213.23	METAL COMPOSITE MATERIAL WALL PANELS	9/30/2024					
07 4646	FIBER-CEMENT WALL PANELS	9/30/2024					
07 5423	THERMOPLASTIC POLYOLEFIN (TPO) ROOFING	9/30/2024					
07 6200	SHEET METAL FLASHING AND TRIM	9/30/2024			10/23/2024		*Addendum #3*
07 7100	ROOF SPECIALTIES	9/30/2024					
07 7200	ROOF ACCESSORIES	9/30/2024					
07 8100	APPLIED FIRE PROTECTION	9/30/2024					
07 8123	INTUMESCENT FIRE PROTECTION	9/30/2024					
07 8400	FIRESTOPPING	9/30/2024					
07 9200	JOINT SEALANTS	9/30/2024					
07 9513	EXPANSION JOINT COVER ASSEMBLIES	9/30/2024					
DIVISION 08 - OPENINGS							
08 1113	HOLLOW METAL DOORS AND FRAMES	9/30/2024					
08 1416	FLUSH WOOD DOORS	9/30/2024					
08 3323	OVERHEAD COILING DOORS	9/30/2024					
08 3326	OVERHEAD COILING GRILLES	9/30/2024					
08 4313	ALUMINUM-FRAMED STOREFRONTS	9/30/2024			10/23/2024		*Addendum #3*
08 4413	GLAZED ALUMINUM CURTAIN WALLS	9/30/2024				10/30/2024	*Addendum #4*
08 5653	SECURITY AND SERVICE WINDOWS	N/A		10/16/2024			*Addendum #2*
08 6300	METAL-FRAMED SKYLIGHTS	9/30/2024					
08 7100	DOOR HARDWARE	9/30/2024		10/16/2024			*Addendum #2*
08 7101	DOOR HARDWARE SCHEDULE	9/30/2024					
08 8000	GLAZING	9/30/2024					
08 8300	MIRRORS	9/30/2024					
08 9100	LOUVERS	9/30/2024					
08 9200	LOUVERED EQUIPMENT ENCLOSURE	9/30/2024					
DIVISION 09 - FINISHES							
09 0561	COMMON WORK RESULTS FOR FLOORING PREPARATION	9/30/2024					
09 2116	GYPSUM BOARD ASSEMBLIES	9/30/2024					
09 2216	NON-STRUCTURAL METAL FRAMING	9/30/2024					
09 3000	TILING	9/30/2024					
09 5100	ACOUSTICAL CEILINGS	9/30/2024					
09 6429	WOOD STRIP AND PLANK FLOORING	9/30/2024					
09 6466	WOOD ATHLETIC FLOORING	9/30/2024					
09 6500	RESILIENT FLOORING	9/30/2024					
09 6566	RESILIENT ATHLETIC FLOORING	9/30/2024					
09 6700	FLUID-APPLIED FLOORING	9/30/2024					
09 6813	TILE CARPETING	9/30/2024					
09 7200	WALL COVERINGS	9/30/2024					
09 7800	INTERIOR WALL PANELING	9/30/2024					
09 8300	ACOUSTIC FINISHES	9/30/2024					
09 8416	FIXED SOUND REFLECTIVE PANELS	9/30/2024					
09 8430	SOUND-ABSORBING WALL AND CEILING UNITS	9/30/2024					
09 9123	INTERIOR PAINTING	9/30/2024					
DIVISION 10 - SPECIALTIES							
10 1100	VISUAL DISPLAY UNITS	9/30/2024					
10 1416	PLAQUES	9/30/2024					
10 1419	DIMENSIONAL LETTER SIGNAGE	9/30/2024					
10 1423	PANEL SIGNAGE	9/30/2024					
10 1453	TRAFFIC SIGNAGE [LANDSCAPE]	9/30/2024					
10 1453	TRAFFIC SIGNAGE [CIVIL]	9/30/2024					
10 1454	TRAFFIC SIGNAGE REMOVAL AND RELOCATION	9/30/2024					
10 1473	PAINTED SIGNAGE	9/30/2024					
10 2113.19	PLASTIC TOILET COMPARTMENTS	9/30/2024					
10 2123	CUBICLE CURTAINS AND TRACK	9/30/2024					
10 2800	TOILET ACCESSORIES	9/30/2024				10/30/2024	*Addendum #4*
10 4400	FIRE PROTECTION SPECIALTIES	9/30/2024					
10 5113	METAL LOCKERS	9/30/2024				10/30/2024	*Addendum #4*
10 5502	MAIL SORTER	9/30/2024					
10 7516	GROUND-SET FLAGPOLES	9/30/2024					

LIST OF CONTRACT DRAWINGS, SPECIFICATIONS

Spec Section	*Description*	*Date*	*Addendum #1*	*Addendum #2*	*Addendum #3*	*Addendum #4*	*Comments*
DIVISION 11 - EQUIPMENT							
11 0610	STAGE RIGGING AND CURTAINS	9/30/2024					
11 3013	APPLIANCES	9/30/2024					
11 4000	FOODSERVICE EQUIPMENT	9/30/2024					
11 5400	ART EQUIPMENT	9/30/2024					
11 5410	TECHNICAL EDUCATION EQUIPMENT	9/30/2024					
11 6623	GYMNASIUM EQUIPMENT	9/30/2024					
11 6643	INTERIOR ELECTRONIC SCOREBOARD	9/30/2024					
11 6833	ATHLETIC FIELD EQUIPMENT	9/30/2024					
11 7300	PATIENT CARE EQUIPMENT	9/30/2024					
DIVISION 12 - FURNISHINGS							
12 2401	WINDOW SHADES	9/30/2024					
12 3553.19	WOOD LABORATORY CASEWORK	9/30/2024		10/16/2024			*Addendum #2*
12 3600	COUNTERTOPS	9/30/2024					
12 6100	FIXED AUDIENCE SEATING	9/30/2024			10/23/2024		*Addendum #3*
12 6613	TELESCOPING BLEACHERS	9/30/2024				10/30/2024	*Addendum #4*
12 9300	SITE FURNISHINGS	9/30/2024					
DIVISION 13 - SPECIAL CONSTRUCTION [Not Used]							
DIVISION 14 - Conveying Equipment							
14 2100	ELECTRIC TRACTION ELEVATORS	9/30/2024		10/16/2024			*Addendum #2*
Volume 3 - Divisions 21-26							
DIVISION 21 - FIRE SUPPRESION							
21 0400	GENERAL CONDITIONS FOR FIRE PROTECTION TRADES	9/30/2024					
21 0433	HEAT TRACE FOR FIRE SUPPRESSION PIPING	N/A			10/23/2024		*Addendum #3*
21 0516	EXPANSION FITTINGS AND LOOPS FOR FIRE SUPPRESSION PIPING	9/30/2024					
21 0533	HEAT TRACE FOR PLUMBING PIPING	N/A			10/23/2024		*Addendum #3*
21 0548	VIBRATION AND SEISMIC CONTROLS FOR FIRE SUPPRESSION PIPING AND EQUIPMENT	9/30/2024					
21 1313	WET PIPE SPRINKLER SYSTEMS	9/30/2024					
21 3000	FIRE PUMPS	9/30/2024					
DIVISION 22 - PLUMBING							
22 0400	GENERAL CONDITIONS FOR PLUMBING TRADES	9/30/2024					
22 0516	EXPANSION FITTINGS AND LOOPS FOR PLUMBING PIPING	9/30/2024					
22 0517	SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING	9/30/2024					
22 0519	METERS AND GAUGES FOR PLUMBING PIPING	9/30/2024					
22 0523	GENERAL DUTY VALVES FOR PLUMBING PIPING	9/30/2024					
22 0529	HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT	9/30/2024					
22 0548	VIBRATION AND SEISMIC CONTROLS FOR PLUMBING PIPING AND EQUIPMENT	9/30/2024					
22 0553	IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT	9/30/2024					
22 0700	PLUMBING INSULATION	9/30/2024					
22 1005	PLUMBING PIPING	9/30/2024					
22 1123	FUEL GAS PIPING	9/30/2024					
22 1124	DOMESTIC WATER PUMPS	9/30/2024					
22 1500	GENERAL SERVICE COMPRESSED-AIR SYSTEMS	9/30/2024					
22 3000	PLUMBING EQUIPMENT	9/30/2024					
22 4000	PLUMBING FIXTURES AND SPECIALTIES	9/30/2024					
DIVISION 23 - HEATING, VENTILATING AND AIR CONDITIONING (HVAC)							
23 0400	GENERAL CONDITIONS FOR MECHANICAL TRADES	9/30/2024					
23 0516	EXPANSION FITTINGS AND LOOPS FOR HVAC PIPING	9/30/2024					
23 0517	SLEEVES AND SLEEVE SEALS FOR HVAC PIPING	9/30/2024					
23 0523	GENERAL DUTY VALVES FOR HVAC PIPING	9/30/2024					
23 0529	HANGERS AND SUPPORTS FOR HVAC PIPING, DUCTWORK, AND EQUIPMENT	9/30/2024					
23 0548	VIBRATION AND SEISMIC CONTROLS FOR HVAC PIPING AND EQUIPMENT	9/30/2024					
23 0553	IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT	9/30/2024					
23 0593	TESTING, ADJUSTING, AND BALANCING FOR HVAC	9/30/2024					
23 0700	HVAC INSULATION	9/30/2024					
23 0900	INSTRUMENTATION AND CONTROLS FOR HVAC	9/30/2024				10/30/2024	*Addendum #4*
23 0993	SEQUENCE OF OPERATIONS	9/30/2024			10/23/2024	10/30/2024	*Addendum #3, Addendum #4*
23 2113	HYDRONIC PIPING	9/30/2024					
23 2114	HYDRONIC SPECIALTIES	9/30/2024					
23 2123	HYDRONIC PUMPS	9/30/2024			10/23/2024		*Addendum #3*
23 2500	HVAC WATER TREATMENT	9/30/2024					
23 3100	HVAC DUCTS AND CASINGS	9/30/2024			10/23/2024		*Addendum #3*
23 3300	AIR DUCT ACCESSORIES	9/30/2024					
23 3400	HVAC FANS	9/30/2024			10/23/2024		*Addendum #3*
23 3600	AIR TERMINAL UNITS	9/30/2024					
23 3700	AIR OUTLETS AND INLETS	9/30/2024					
23 5100	BREECHINGS, CHIMNEYS, AND STACKS	9/30/2024					
23 5239	FIRE-TUBE BOILERS	9/30/2024					
23 5700	HEAT EXCHANGERS FOR HVAC	9/30/2024					
23 6411	PACKAGED WATER CHILLERS - SCROLL	9/30/2024					
23 7413	MODULAR CENTRAL-STATION AIR-HANDLING UNITS	9/30/2024					
23 8126	SPLIT-SYSTEM AIR-CONDITIONERS	9/30/2024					
23 8200	CONVECTION HEATING AND COOLING UNITS	9/30/2024				10/30/2024	*Addendum #4*
DIVISION 25 - INTEGRATED AUTOMATION [Not Used]							

LIST OF CONTRACT DRAWINGS, SPECIFICATIONS

Spec Section	Description	Date	Addendum #1	Addendum #2	Addendum #3	Addendum #4	Comments
DIVISION 26 - ELECTRICAL							
26 0400	GENERAL CONDITIONS FOR ELECTRICAL TRADES	9/30/2024					
26 0503	EQUIPMENT WIRING CONNECTIONS	9/30/2024					
26 0519	ELECTRICAL POWER CONDUCTORS AND CABLES	9/30/2024					
26 0526	GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS	9/30/2024					
26 0529	HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS	9/30/2024					
26 0533	RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS	9/30/2024					
26 0534	FLOOR BOXES FOR ELECTRICAL SYSTEMS	9/30/2024					
26 0536	CABLE TRAYS FOR ELECTRICAL SYSTEMS	9/30/2024					
26 0553	IDENTIFICATION FOR ELECTRICAL SYSTEMS	9/30/2024					
26 0573	OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY	9/30/2024					
26 0923	LIGHTING CONTROL DEVICES	9/30/2024					
26 2200	LOW-VOLTAGE TRANSFORMERS	9/30/2024					
26 2413	SWITCHBOARDS	9/30/2024					
26 2416	PANELBOARDS	9/30/2024					
26 2653	ELECTRIC VEHICLE CHARGING EQUIPMENT	9/30/2024					
26 2716	ELECTRICAL CABINETS AND ENCLOSURES	9/30/2024					
26 2726	WIRING DEVICES	9/30/2024		10/16/2024			*Addendum #2*
26 2813	FUSES	9/30/2024					
26 2819	ENCLOSED SWITCHES	9/30/2024					
26 2823	ENCLOSED CIRCUIT BREAKERS	9/30/2024					
26 2826	ENCLOSED TRANSFER SWITCHES	9/30/2024					
26 3213	ENGINE GENERATORS	9/30/2024					
26 4113	LIGHTNING PROTECTION FOR STRUCTURES	9/30/2024					
26 5100	LIGHTING	9/30/2024					
26 5561	THEATRICAL LIGHTING	9/30/2024					
Volume 4 - Divisions 27-34							
DIVISION 27 - COMMUNICATIONS							
27 0536	CABLE TRAYS FOR COMMUNICATION SYSTEMS	9/30/2024					
27 1000	STRUCTURED CABLING	9/30/2024					
27 4100	AUDIO VIDEO SYSTEMS	9/30/2024					
27 5116	PUBLIC ADDRESS SYSTEM	9/30/2024					
27 5313	CLOCK SYSTEM	9/30/2024					
27 6010	EMERGENCY RESPONDER RADIO COVERAGE SYSTEM	9/30/2024					
DIVISION 28 - ELECTRONIC SAFETY AND SECURITY							
28 0500	SECURITY CONDUCTOR CABLES	9/30/2024					
28 0528	PATHWAYS FOR SECURITY SYSTEMS	9/30/2024					
28 1300	ACCESS CONTROL SYSTEM	9/30/2024					
28 1600	INTRUSION DETECTION	9/30/2024					
28 2300	VIDEO SURVEILLANCE SYSTEM	9/30/2024					
28 3100	FIRE DETECTION AND ALARM	9/30/2024					
DIVISION 31 - EARTHWORK							
31 1000	SITE CLEARING	9/30/2024					
31 1000	SELECTIVE CLEARING AND THINNING [CIVIL]	9/30/2024					
31 1005	ATHLETIC FIELD SITE PREPARATION	9/30/2024					
31 1006	SOIL STRIPPING AND STOCKPILING	9/30/2024					
31 1200	SITE UTILITY PREPARATION	9/30/2024					
31 2200	GRADING	9/30/2024					
31 2300	EXCAVATION, BACKFILL, COMPACTION AND DEWATERING	9/30/2024					
31 2316.26	ROCK REMOVAL	9/30/2024					
31 2323	BORROW MATERIAL	9/30/2024					
31 2333	TRENCHING AND BACKFILLING	9/30/2024					
31 2500	SOIL EROSION AND SEDIMENT CONTROLS	9/30/2024					
31 6616	AGGREGATE PIERS	9/30/2024					
DIVISION 32 - EXTERIOR IMPROVEMENTS							
32 0529	GLACIAL BOULDERS FOR EXTERIOR IMPROVEMENTS	9/30/2024		10/16/2024		10/30/2024	*Addendum #2, Addendum #4*
32 1216	ASPHALT PAVING	9/30/2024					
32 1313	CONCRETE PAVING	9/30/2024					
32 1373	CONCRETE PAVING JOINT SEALANTS	9/30/2024					
32 1400	UNIT PAVERS	9/30/2024				10/30/2024	*Addendum #4*
32 1500	AGGREGATE SURFACING	9/30/2024					
~~32 1613.23~~	~~PRECAST CONCRETE CURB~~	9/30/2024				10/30/2024	Specification Section Removed in Addendum #4
32 1640	GRANITE CURBING	9/30/2024				10/30/2024	*Addendum #4*
32 1726	TACTILE WARNING SURFACES	9/30/2024					
32 1823.17	NATURAL INFIELD AND WARNING TRACK SURFACING	9/30/2024					
32 3113	CHAIN LINK FENCES AND GATES	9/30/2024		10/16/2024			*Addendum #2*
32 3118	METAL FENCES AND GATES	9/30/2024					
32 3120	VEHICLE BARRIER GATES	9/30/2024					
32 3223	SEGMENTAL RETAINING WALLS	9/30/2024					
32 8415	SITEWORK SLEEVES	9/30/2024					
32 8423	IRRIGATION SYSTEMS	9/30/2024					
32 9113	SOIL PREPARATION	9/30/2024					
32 9113.29	ATHLETIC FIELD ROOT ZONE	9/30/2024					
32 9200	TURF AND GRASSES	9/30/2024					
32 9219.22	ATHLETIC FIELD SEEDING AND SODDING	9/30/2024					
32 9300	PLANTS	9/30/2024					
DIVISION 33 - UTILITIES							
33 0513	MANHOLES AND CATCH BASINS	9/30/2024				10/30/2024	*Addendum #4*
33 0514	BREAKING INTO EXISTING MANHOLES AND CATCH BASINS	9/30/2024				10/30/2024	*Addendum #4*
33 1113	DUCTILE IRON PIPE AND FITTINGS	9/30/2024					
33 1300	DISINFECTION OF WATER DISTRIBUTION SYSTEMS	9/30/2024					
33 1400	TESTING OF WATER DISTRIBUTION SYSTEMS	9/30/2024					
33 3113	POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS	9/30/2024				10/30/2024	*Addendum #4*
33 3114	TESTING OF SANITARY SEWER AND STORM DRAINAGE SYSTEMS	9/30/2024				10/30/2024	*Addendum #4*
33 3115	TELEVISION INSPECTION OF PIPELINES	N/A		10/16/2024			*Addendum #2*
33 4100	STORM DRAINAGE	9/30/2024					
33 4113	HIGH DENSITY POLYETHYLENE PIPE AND FITTINGS	9/30/2024					
33 4114	UNDERGROUND WARNING TAPE	9/30/2024				10/30/2024	*Addendum #4*
33 4419	STORMWATER TREATMENT SYSTEM	9/30/2024					
DIVISION 34 - TRANSPORTATION							
34 0000	TRANSPORTATION	9/30/2024					
34 4114	RECTANGULAR RAPID FLASHING BEACON	9/30/2024					
34 4115	LED SCHOOL RADAR SPEED DISPLAY WITH FLASHING BEACONS	9/30/2024					
34 4117	PEDESTRIAN PUSH BUTTON	9/30/2024					
34 7001	TRAFFIC PERSON	9/30/2024					
34 7002	MAINTENANCE AND PROTECTION OF TRAFFIC	9/30/2024					

Board of Education of the Town of Greenwich
Central Middle School Project -
State Project No. 057-0114N
Greenwich, CT

Turner Construction Company
7/8/2024
Revised: 10/31/2024

LIST OF CONTRACT DRAWINGS, SPECIFICATIONS

Spec Section	*Description*	*Date*	*Addendum #1*	*Addendum #2*	*Addendum #3*	*Addendum #4*	*Comments*
DIVISION 40 - PROCESS INTEGRATION [Not Used]							
DIVISION 46 - WATER AND WASTEATER EQUIPMENT [Not Used]							
APPENDICES - tbd							
DRAWINGS							
VOLUME 1							
[01] GENERAL							
C1	COVER SHEET (VOLUME 1)	9/30/2024					
GI01.1	DRAWING LIST	9/30/2024					
GI02.1	GENERAL INFORMATION	9/30/2024					
GC0A	CODE INFORMATION	9/30/2024					
GC0B	BUILDING AREA PLANS	9/30/2024					
GC01	FIRST FLOOR FIRE SAFETY PLAN	9/30/2024					
GC02	SECOND FLOOR FIRE SAFETY PLAN	9/30/2024					
GC11	FIRST FLOOR FIRE PROOFING AND STEEL TREATMENT PLAN	9/30/2024					
GC12	SECOND FLOOR FIRE PROOFING AND STEEL TREATMENT PLAN	9/30/2024					
GC13	ROOF LEVEL FIRE PROOFING AND STEEL TREATMENT PLAN	9/30/2024					
[02] HAZARDOUS MATERIALS							
HBM-01	HAZARDOUS BUILDING MATERIALS ABATEMENT PLAN - FIRST FLOOR	9/30/2024					
HBM-02	HAZARDOUS BUILDING MATERIALS ABATEMENT PLAN - SECOND FLOOR	9/30/2024					
HBM-03	HAZARDOUS BUILDING MATERIALS ABATEMENT PLAN - ROOF	9/30/2024					
[03] SURVEY							
23-011	PROPERTY/BOUNDARY AND TOPOGRAPHIC SURVEY 1 OF 5	9/30/2024					
23-012	PROPERTY/BOUNDARY AND TOPOGRAPHIC SURVEY 2 OF 5	9/30/2024					
23-013	PROPERTY/BOUNDARY AND TOPOGRAPHIC SURVEY 3 OF 5	9/30/2024					
23-014	PROPERTY/BOUNDARY AND TOPOGRAPHIC SURVEY 4 OF 5	9/30/2024					
23-015	PROPERTY/BOUNDARY AND TOPOGRAPHIC SURVEY 5 OF 5	9/30/2024					
[04] CIVIL							
C001	GENERAL NOTES, ABREVIATIONS, AND LEGEND	9/30/2024					
C101	OVERALL SITE STORMWATER MANAGEMEN PLAN	9/30/2024		10/16/2024			*Addendum #2*
C102	SITE STORMWATER MANAGEMEN PART PLAN	9/30/2024					
C103	SITE STORMWATER MANAGEMEN PART PLAN	9/30/2024					
C104	SITE STORMWATER MANAGEMEN PART PLAN	9/30/2024		10/16/2024			*Addendum #2*
C105	SITE STORMWATER MANAGEMEN PART PLAN	9/30/2024					
C106	SITE STORMWATER MANAGEMEN PART PLAN	9/30/2024					
C107	SITE STORMWATER MANAGEMEN PART PLAN	9/30/2024					
C201	OVERALL SITE LOW IMPACT DEVELOPMENT PLAN	9/30/2024					
C202	SITE LOW IMPACT DEVELOPMENT PART PLAN	9/30/2024				10/30/2024	*Addendum #4*
C203	SITE LOW IMPACT DEVELOPMENT PART PLAN	9/30/2024				10/30/2024	*Addendum #4*
C204	SITE LOW IMPACT DEVELOPMENT PART PLAN	9/30/2024					
C205	SITE LOW IMPACT DEVELOPMENT PART PLAN	9/30/2024				10/30/2024	*Addendum #4*
C206	OVERALL SOIL TEST LOCATIONS PLAN	9/30/2024				10/30/2024	*Addendum #4*
C301	OVERALL SITE UTILITY PLAN	9/30/2024		10/16/2024		10/30/2024	*Addendum #2, Addendum #4*
C302	SITE UTILITY PART PLAN	9/30/2024				10/30/2024	*Addendum #4*
C303	SITE UTILITY PART PLAN	9/30/2024				10/30/2024	*Addendum #4*
C304	SITE UTILITY PART PLAN	9/30/2024				10/30/2024	*Addendum #4*
C305	SITE UTILITY PART PLAN	9/30/2024				10/30/2024	*Addendum #4*
C306	SANITARY SEWER EXISTING PLAN AND PROFILE	9/30/2024					
C307	SANITARY SEWER PROPOSED PLAN AND PROFILE	9/30/2024				10/30/2024	*Addendum #4*
C308	SITE UTILITY PROFILES	9/30/2024					
C401	OVERALL PHASE 1 DEMOLITION, ENABLING AND SITE SOIL EROSION AND SEDIMENTATION CONTROL PLAN	9/30/2024					
C402	PHASE 1 DEMOLITION, ENABLING AND SITE SOIL EROSION AND SEDIMENTATION CONTROL PART PLAN	9/30/2024					
C403	PHASE 1 DEMOLITION, ENABLING AND SITE SOIL EROSION AND SEDIMENTATION CONTROL PART PLAN	9/30/2024					
C404	PHASE 1 DEMOLITION, ENABLING AND SITE SOIL EROSION AND SEDIMENTATION CONTROL PART PLAN	9/30/2024					
C405	PHASE 1 DEMOLITION, ENABLING AND SITE SOIL EROSION AND SEDIMENTATION CONTROL PART PLAN	9/30/2024					
C406	PHASE 1 IMPROVED CONDITIONS SOIL EROSION AND SEDIMENTATION CONTROL PLAN	9/30/2024					
C407	PHASE 1 IMPROVED CONDITIONS SOIL EROSION AND SEDIMENTATION CONTROL PART PLAN	9/30/2024					
C408	PHASE 1 IMPROVED CONDITIONS SOIL EROSION AND SEDIMENTATION CONTROL PART PLAN	9/30/2024					
C409	PHASE 1 IMPROVED CONDITIONS SOIL EROSION AND SEDIMENTATION CONTROL PART PLAN	9/30/2024					
C410	PHASE 1 IMPROVED CONDITIONS SOIL EROSION AND SEDIMENTATION CONTROL PART PLAN	9/30/2024					
C411	PHASE 2 DEMOLITION SOIL EROSION AND SEDIMENTATION CONTROL PLAN	9/30/2024					
C412	PHASE 2 DEMOLITION SOIL EROSION AND SEDIMENTATION CONTROL PART PLAN	9/30/2024					
C413	PHASE 2 DEMOLITION SOIL EROSION AND SEDIMENTATION CONTROL PART PLAN	9/30/2024					
C414	PHASE 2 IMPROVED CONDITIONS SOIL EROSION AND SEDIMENTATION CONTROL PLAN	9/30/2024					
C415	PHASE 2 IMPROVED CONDITIONS SOIL EROSION AND SEDIMENTATION CONTROL PART PLAN	9/30/2024					
C416	PHASE 2 IMPROVED CONDITIONS SOIL EROSION AND SEDIMENTATION CONTROL PART PLAN	9/30/2024					
C417	SOIL EROSION AND SEDIMENTATION CONTROL NOTES, CONSTRUCTION SEQUENCE AND DETAILS - 1	9/30/2024					
C418	SOIL EROSION AND SEDIMENTATION CONTROL NOTES, CONSTRUCTION SEQUENCE AND DETAILS - 2	9/30/2024					
C501	SITE STORMWATER MANAGMENT DETAILS - 1	9/30/2024			10/23/2024		*Addendum #3*
C502	SITE STORMWATER MANAGMENT DETAILS - 2	9/30/2024					
C503	SITE STORMWATER MANAGMENT DETAILS - 3	9/30/2024					
C504	SITE STORMWATER MANAGMENT DETAILS - 4	9/30/2024					
C505	SITE STORMWATER MANAGMENT DETAILS - 5	9/30/2024					
C506	SANITARY SEWER DETAILS	9/30/2024				10/30/2024	*Addendum #4*
C507	SITE UTILITY DETAILS - 1	9/30/2024					
C508	SITE UTILITY DETAILS - 2	9/30/2024					
C601	PARENT DRIVEWAY PROFILE 01	9/30/2024					
C602	PARENT DRIVEWAY PROFILE 02	9/30/2024					
C603	EMERGENCY PATH PROFILE 01	9/30/2024					
C604	EMERGENCY PATH PROFILE 02	9/30/2024					

LIST OF CONTRACT DRAWINGS, SPECIFICATIONS

Spec Section	*Description*	*Date*	*Addendum #1*	*Addendum #2*	*Addendum #3*	*Addendum #4*	*Comments*
C605	BUS DRIVEWAY PROFILE	9/30/2024					
C605A	SIGHT LINE PROFILES	9/30/2024					
C606	SIGHT LINE PROFILES	9/30/2024					
C607	BUS TURNING MOVEMENT PLAN	9/30/2024					
C608	FIRE TRUCK TURNING MOVEMENT PLAN	9/30/2024					
C609	SU-30 TURNING MOVEMENT PLAN	9/30/2024					
C610	WB-50 TURNING MOVEMENT PLAN	9/30/2024					
TC101	TRAFFIC CONTROL SIGNAL PLAN	9/30/2024					
TC101A	TRAFFIC CONTROL SIGNAL PLAN	9/30/2024					
TC102	TRAFFIC CONTROL SIGNAL PLAN	9/30/2024					
TC201	SIGNAGE AND PAVEMENT MARKING PLAN	9/30/2024					
TC202	SIGNAGE AND PAVEMENT MARKING PLAN	9/30/2024			10/23/2024		*Addendum #3*
TC203	OVERALL ON-SITE TRAFFIC SIGNAGE, PAVEMENT MARKINGS, AND PARKING SPACE LAYOUT PLAN	9/30/2024					
TC204	ON-SITE TRAFFIC SIGNAGE, PAVEMENT MARKINGS, AND PARKING SPACE LAYOUT PART PLAN	9/30/2024					
TC205	ON-SITE TRAFFIC SIGNAGE, PAVEMENT MARKINGS, AND PARKING SPACE LAYOUT PART PLAN	9/30/2024					
TC206	ON-SITE TRAFFIC SIGNAGE, PAVEMENT MARKINGS, AND PARKING SPACE LAYOUT PART PLAN	9/30/2024					
TC207	ON-SITE TRAFFIC SIGNAGE, PAVEMENT MARKINGS, AND PARKING SPACE LAYOUT PART PLAN	9/30/2024					
TC301	TRAFFIC DETAIL PLAN	9/30/2024					
TC302	TRAFFIC DETAIL PLAN	9/30/2024					
TC303	TRAFFIC DETAIL PLAN	9/30/2024					
TC304	TRAFFIC DETAIL PLAN	9/30/2024					
TC305	TRAFFIC DETAIL PLAN	9/30/2024					
TC306	TRAFFIC DETAIL PLAN	9/30/2024					
TC307	TRAFFIC DETAIL PLAN	9/30/2024					
TC308	TRAFFIC DETAIL PLAN	9/30/2024					
TC309	TRAFFIC DETAIL PLAN	9/30/2024					
TC310	TRAFFIC DETAIL PLAN	9/30/2024					
TC311	TRAFFIC DETAIL PLAN	9/30/2024					
TC312	TRAFFIC DETAIL PLAN	9/30/2024					

LIST OF CONTRACT DRAWINGS, SPECIFICATIONS

Spec Section	Description	Date	Addendum #1	Addendum #2	Addendum #3	Addendum #4	Comments
[06] SITE UTILITIES							
SU100	MEP SITE UTILITY PLAN	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
SU500	MEP SITE UTILITY PLAN - DETAILS & SCHEDULES	9/30/2024					
SU501	MEP SITE UTILITY PLAN - DETAILS & SCHEDULES	9/30/2024			10/23/2024		*Addendum #3*
PSU001	PLUMBING SITE UTILITY PLAN	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
[10] LANDSCAPE							
L001	GENERAL SITE INFORMATION	9/30/2024					
L002	VICINITY MAP	9/30/2024					
L101	SITE DEMOLITION AND PREPARATION OVERALL	9/30/2024					
L101A	SITE DEMOLITION AND PREPARATION NORTHEAST	9/30/2024					
L101B	SITE DEMOLITION AND PREPARATION SOUTHEAST	9/30/2024		10/16/2024			*Addendum #2*
L101C	SITE DEMOLITION AND PREPARATION SOUTHWEST	9/30/2024					
L101D	SITE DEMOLITION AND PREPARATION NORTHWEST	9/30/2024					
L201	SITE LAYOUT OVERALL	9/30/2024					
L201A	SITE LAYOUT NORTHEAST	9/30/2024					
L201B	SITE LAYOUT SOUTHEAST	9/30/2024					
L201C	SITE LAYOUT SOUTHWEST	9/30/2024					
L201D	SITE LAYOUT NORTHWEST	9/30/2024					
L202	SITE MATERIALS OVERALL	9/30/2024					
L202A	SITE MATERIALS NORTHEAST	9/30/2024		10/16/2024		10/30/2024	*Addendum #2, Addendum #4*
L202B	SITE MATERIALS SOUTHEAST	9/30/2024				10/30/2024	*Addendum #4*
L202C	SITE MATERIALS SOUTHWEST	9/30/2024		10/16/2024		10/30/2024	*Addendum #2, Addendum #4*
L202D	SITE MATERIALS NORTHWEST	9/30/2024					
L301	SITE GRADING	9/30/2024					
L301A	SITE GRADING NORTHEAST	9/30/2024					
L301B	SITE GRADING SOUTHEAST	9/30/2024					
L301C	SITE GRADING SOUTHWEST	9/30/2024		10/16/2024			*Addendum #2*
L301D	SITE GRADING NORTHWEST	9/30/2024					
L401	SITE PLANTING OVERALL	9/30/2024					
L401A	SITE PLANTING PLAN NORTHEAST	9/30/2024					
L401B	SITE PLANTING PLAN SOUTHEAST	9/30/2024					
L401C	SITE PLANTING PLAN SOUTHWEST	9/30/2024					
L401D	SITE PLANTING PLAN NORTHWEST	9/30/2024					
L402	PLANT MATERIAL LIST	9/30/2024					
L403	PLANTING DETAILS	9/30/2024					
L404	SITE IRRIGATION PLAN	9/30/2024		10/16/2024			*Addendum #2*
L501	SITE DETAILS	9/30/2024				10/30/2024	*Addendum #4*
L502	SITE DETAILS	9/30/2024					
L503	SITE DETAILS	9/30/2024					
L504	SITE DETAILS	9/30/2024					
L601	ATHLETIC FIELD SITE DETAILS	9/30/2024				10/30/2024	*Addendum #4*
L602	ATHLETIC FIELD SITE DETAILS	9/30/2024					
STRUCTURAL							
S001	GENERAL NOTES AND ABBREVIATIONS	9/30/2024					
S002	SCHEDULES AND DETAILS	9/30/2024					
S101A	FOUNDATION PLAN - PART A	9/30/2024		10/16/2024			*Addendum #2*
S101B	FOUNDATION PLAN - PART B	9/30/2024					
S101C	FOUNDATION PLAN - PART C	9/30/2024		10/16/2024			*Addendum #2*
S101D	FOUNDATION PLAN - PART D	9/30/2024					
S101E	FOUNDATION PLAN - PART E	9/30/2024		10/16/2024			*Addendum #2*
S101F	FOUNDATION PLAN - PART F	9/30/2024					
S200	TYPICAL FOUNDATION DETAILS	9/30/2024					
S201	TYPICAL FOUNDATION DETAILS	9/30/2024					
S210	FOUNDATION DETAILS	9/30/2024					
S211	FOUNDATION DETAILS	9/30/2024		10/16/2024			*Addendum #2*
S212	FOUNDATION DETAILS	9/30/2024					
S301A	SECOND FLOOR FRAMING PLAN - PART A	9/30/2024					
S301B	LOW ROOF FRAMING PLAN - PART B	9/30/2024					
S301C	SECOND FLOOR FRAMING PLAN - PART C	9/30/2024					
S301D	LOW ROOF FRAMING PLAN - PART D	9/30/2024				10/30/2024	*Addendum #4*
S301E	SECOND FLOOR FRAMING PLAN - PART E	9/30/2024					
S301F	LOW ROOF FRAMING PLAN - PART F	9/30/2024					
S302A	ROOF FRAMING PLAN - PART A	9/30/2024					
S302B	HIGH ROOF FRAMING PLAN - PART B	9/30/2024					
S302C	ROOF FRAMING PLAN - PART C	9/30/2024					
S302D	HIGH ROOF FRAMING PLAN - PART D	9/30/2024					
S302E	ROOF FRAMING PLAN - PART E	9/30/2024					
S400	TYPICAL FRAMING DETAILS	9/30/2024					
S401	BUILDING SECTIONS	9/30/2024					
S402	BUILDING SECTIONS	9/30/2024					
S403	BUILDING SECTIONS	9/30/2024					
S410	FRAMING DETAILS	9/30/2024				10/30/2024	*Addendum #4*
S411	FRAMING DETAILS	9/30/2024				10/30/2024	*Addendum #4*
S420	FRAMING DETAILS	9/30/2024					
S421	FRAMING DETAILS	9/30/2024					
S430	FRAMING DETAILS	9/30/2024					
S500	LATERAL FRAME ELEVATIONS	9/30/2024					
S501	LATERAL FRAME ELEVATIONS AND DETAILS	9/30/2024					
S502	SHEAR WALL ELEVATIONS AND DETAILS	9/30/2024					
S600	COLUMN SCHEDULE	9/30/2024					
S601	COLUMN SCHEDULE	9/30/2024					
S700	SNOW DRIFT LOADING PLAN	9/30/2024					
S701	WALL & ROOF WIND PRESSURE PLANS	9/30/2024					

LIST OF CONTRACT DRAWINGS, SPECIFICATIONS

Spec Section	Description	Date	Addendum #1	Addendum #2	Addendum #3	Addendum #4	Comments
VOLUME 2							
[28] GENERAL							
C2	COVER SHEET (VOLUME 2)	9/30/2024					
GI01.2	DRAWING LIST	9/30/2024					
GI02.2	GENERAL INFORMATION	9/30/2024					
[29] ARCHITECTURAL DEMOLITION							
AD101A	FIRST FLOOR DEMOLITION PLAN PART A	9/30/2024					
AD102A	SECOND FLOOR DEMOLITION PLAN PART A	9/30/2024					
AD102B	SECOND FLOOR DEMOLITION PLAN PART B	9/30/2024					
AD103A	ROOF DEMOLITION PLAN PART A	9/30/2024					
AD103B	ROOF DEMOLITION PLAN PART B	9/30/2024					
AD301	DEMOLITION ELEVATIONS	9/30/2024					
AD401	DEMO BUILDING SECTIONS	9/30/2024					
[30] ARCHITECTURAL							
A091	FIRST FLOOR SLAB EDGE PLAN	9/30/2024					
A092	SECOND FLOOR & LOWER ROOF SLAB EDGE PLAN	9/30/2024				10/30/2024	*Addendum #4*
A093	ROOF SLAB EDGE PLAN	9/30/2024					
AL000	GEOMETRY LAYOUT PLAN	9/30/2024					
A101	OVERALL FIRST FLOOR PLAN	9/30/2024					
AL101A	FIRST FLOOR LAYOUT PLAN - PART A	9/30/2024					
A101A	FIRST FLOOR PLAN - PART A	9/30/2024				10/30/2024	*Addendum #4*
AL101B	FIRST FLOOR LAYOUT PLAN - PART B	9/30/2024					
A101B	FIRST FLOOR PLAN - PART B	9/30/2024					
AL101C	FIRST FLOOR LAYOUT PLAN - PART C	9/30/2024					
A101C	FIRST FLOOR PLAN - PART C	9/30/2024					
AL101D	FIRST FLOOR LAYOUT PLAN - PART D	9/30/2024					
A101D	FIRST FLOOR PLAN - PART D	9/30/2024					
AL101E	FIRST FLOOR LAYOUT PLAN - PART E	9/30/2024					
A101E	FIRST FLOOR PLAN - PART E	9/30/2024					
AL101F	FIRST FLOOR LAYOUT PLAN - PART F	9/30/2024					
A101F	FIRST FLOOR PLAN - PART F	9/30/2024					
A102	OVERALL SECOND FLOOR PLAN	9/30/2024					
AL102A	SECOND FLOOR LAYOUT PLAN - PART A	9/30/2024					
A102A	SECOND FLOOR PLAN - PART A	9/30/2024			10/23/2024		*Addendum #3*
AL102B	SECOND FLOOR LAYOUT PLAN - PART B	9/30/2024					
A102B	SECOND FLOOR PLAN - PART B	9/30/2024					
AL102C	SECOND FLOOR LAYOUT PLAN - PART C	9/30/2024					
A102C	SECOND FLOOR PLAN - PART C	9/30/2024			10/23/2024	10/30/2024	*Addendum #3, Addendum #4*
AL102D	SECOND FLOOR LAYOUT PLAN - PART D	9/30/2024					
A102D	SECOND FLOOR PLAN - PART D	9/30/2024					
AL102E	SECOND FLOOR LAYOUT PLAN - PART E	9/30/2024					
A102E	SECOND FLOOR PLAN - PART E	9/30/2024			10/23/2024	10/30/2024	*Addendum #3, Addendum #4*
A103	OVERALL ROOF PLAN	9/30/2024					
A103A	ROOF PLAN - PART A	9/30/2024			10/23/2024		*Addendum #3*
A103B	ROOF PLAN - PART B	9/30/2024					
A103C	ROOF PLAN - PART C	9/30/2024			10/23/2024		*Addendum #3*
A103D	ROOF PLAN - PART D	9/30/2024					
A103E	ROOF PLAN - PART E	9/30/2024			10/23/2024		*Addendum #3*
A103F	ROOF PLAN - PART F	9/30/2024					
A104	ROOF SCREEN LAYOUT PLAN	9/30/2024					
A111.1	ENLARGED PLAN & ELEVATIONS - CAFETERIA	9/30/2024					
A111.2	ENLARGED CEILING PLAN & DETAILS - CAFETERIA	9/30/2024					
A111.3	ENLARGED PLAN & ELEVATION - GYMNASIUM	9/30/2024					
A111.4	ENLARGED PLAN & ELEVATIONS - GYMNASIUM	9/30/2024				10/30/2024	*Addendum #4*
A111.5	ENLARGED PLAN - AUDITORIUM	9/30/2024					
A111.6	ENLARGED PLAN & ELEVATIONS - AUDITORIUM	9/30/2024					
A111.7	ENLARGED PLAN & DETAILS - AUDITORIUM	9/30/2024					
A111.8	ENLARGED CEILING PLAN - AUDITORIUM	9/30/2024					
A111.9	ENLARGED PLAN & ELEVATIONS - MEDIA CENTER	9/30/2024				10/30/2024	*Addendum #4*
A111.10	ENLARGED PLAN, ELEVATIONS & CEILING PLAN - MEDIA CENTER & OT/PT	9/30/2024					
A111.11	ENLARGED PLAN & ELEVATIONS - ORCHESTRA & FITNESS	9/30/2024					
A111.12	ENLARGED PLAN & ELEVATIONS - BAND & CHORAL	9/30/2024					
A111.13	ENLARGED PLAN & ELEVATIONS - ART ROOM & LIFE SKILLS	9/30/2024					
A111.14	ENLARGED PLAN & ELEVATIONS - INNOVATION / ROBOTICS / WOODSHOP	9/30/2024					
A111.15	ENLARGED PLAN & ELEVATIONS - FAMILY CONSUMER SCIENCE	9/30/2024					
A111.16	ENLARGED PLAN & ELEVATIONS - ADMIN SUITE, HEALTH SUITE & GUIDANCE SUITE	9/30/2024				10/30/2024	*Addendum #4*
A112.1	ENLARGED PLAN & ELEVATIONS - TYPICAL SCIENCE CLASSROOMS & PREP	9/30/2024					
A112.2	ENLARGED PLAN & ELEVATIONS - TYPICAL CLASSROOM, COMMONS	9/30/2024					
A120	ENLARGED STAIR PLANS AND SECTIONS	9/30/2024					
A121	ENLARGED STAIR PLANS AND SECTIONS	9/30/2024					
A122	ENLARGED STAIR AND ELEVATOR PLAN AND SECTIONS	9/30/2024					
A123	ENLARGED STAIR PLANS AND SECTIONS	9/30/2024					
A124	STAIR DETAILS	9/30/2024					
A125	STAIR DETAILS	9/30/2024					
A126	ELEVATOR DETAILS	9/30/2024					
A130	ENLARGED TOILET ROOM PLANS AND ELEVATIONS	9/30/2024				10/30/2024	*Addendum #4*
A131	ENLARGED TOILET ROOM PLANS AND ELEVATIONS	9/30/2024				10/30/2024	*Addendum #4*
A132	ENLARGED TOILET ROOM PLANS AND ELEVATIONS COPY 1	9/30/2024				10/30/2024	*Addendum #4*
A150	GYM PRACTICE COURT LAYOUT & TYPICAL COURT LINE LAYOUT	9/30/2024					
A201A	FIRST FLOOR REFLECTED CEILING PLAN - PART A	9/30/2024					
A201B	FIRST FLOOR REFLECTED CEILING PLAN - PART B	9/30/2024				10/30/2024	*Addendum #4*
A201C	FIRST FLOOR REFLECTED CEILING PLAN - PART C	9/30/2024					
A201D	FIRST FLOOR REFLECTED CEILING PLAN - PART D	9/30/2024					
A201E	FIRST FLOOR REFLECTED CEILING PLAN - PART E	9/30/2024					
A201F	FIRST FLOOR REFLECTED CEILING PLAN - PART F	9/30/2024					
A202A	SECOND FLOOR REFLECTED CEILING PLAN - PART A	9/30/2024					
A202B	SECOND FLOOR REFLECTED CEILING PLAN - PART B	9/30/2024					
A202C	SECOND FLOOR REFLECTED CEILING PLAN - PART C	9/30/2024					
A202D	SECOND FLOOR REFLECTED CEILING PLAN - PART D	9/30/2024					
A202E	SECOND FLOOR REFLECTED CEILING PLAN - PART E	9/30/2024					
A210	CEILING DETAILS	9/30/2024					
A211	CEILING DETAILS	9/30/2024					
A212	CEILING DETAILS - SHAFT WALL	9/30/2024					
A300	BUILDING ELEVATIONS	9/30/2024					
A301	AXON 3D VIEWS	9/30/2024					
A302	AXON 3D VIEWS	9/30/2024					
A310	EXTERIOR ELEVATIONS	9/30/2024					
A311	EXTERIOR ELEVATIONS	9/30/2024					
A312	EXTERIOR ELEVATIONS	9/30/2024					
A313	EXTERIOR ELEVATIONS	9/30/2024					

LIST OF CONTRACT DRAWINGS, SPECIFICATIONS

Spec Section	Description	Date	Addendum #1	Addendum #2	Addendum #3	Addendum #4	Comments
A314	EXTERIOR ELEVATIONS	9/30/2024					
A315	EXTERIOR STAND ALONE MOCK-UP	9/30/2024					
A400	BUILDING SECTIONS	9/30/2024					
A401	BUILDING SECTIONS	9/30/2024					
A402	BUILDING SECTIONS	9/30/2024					
A403	BUILDING SECTIONS	9/30/2024					
A410	EXTERIOR WALL SECTIONS	9/30/2024					
A411	EXTERIOR WALL SECTIONS	9/30/2024					
A412	EXTERIOR WALL SECTIONS	9/30/2024					
A413	EXTERIOR WALL SECTIONS	9/30/2024					
A414	EXTERIOR WALL SECTIONS	9/30/2024					
A415	EXTERIOR WALL SECTIONS	9/30/2024					
A416	EXTERIOR WALL SECTIONS	9/30/2024					
A417	EXTERIOR WALL SECTIONS	9/30/2024					
A418	EXTERIOR WALL SECTIONS	9/30/2024					
A420	INTERIOR WALL SECTIONS	9/30/2024					
A421	INTERIOR WALL SECTIONS	9/30/2024					
A500	TYPICAL EXTERIOR ASSEMBLIES	9/30/2024					
A501	TYPICAL EXTERIOR DETAILS	9/30/2024					
A502	EXTERIOR SECTION DETAILS OF NON-PROJECTED THROUGH WALL FLASHINGS	9/30/2024				10/30/2024	*Addendum #4*
A510	EXTERIOR PLAN DETAILS	9/30/2024					
A511	EXTERIOR PLAN DETAILS	9/30/2024				10/30/2024	*Addendum #4*
A512	EXTERIOR PLAN DETAILS	9/30/2024					
A513	EXTERIOR PLAN DETAILS	9/30/2024					
A514	EXTERIOR PLAN DETAILS	9/30/2024			10/23/2024		*Addendum #3*
A515	EXTERIOR PLAN DETAILS	9/30/2024			10/23/2024		*Addendum #3*
A516	EXTERIOR PLAN DETAILS	9/30/2024					
A520	EXTERIOR SECTION DETAILS	9/30/2024			10/23/2024	10/30/2024	*Addendum #3,* *Addendum #4*
A521	EXTERIOR SECTION DETAILS	9/30/2024				10/30/2024	*Addendum #4*
A522	EXTERIOR SECTION DETAILS	9/30/2024				10/30/2024	*Addendum #4*
A530	TYPICAL MEMBRANE ROOFING DETAILS	9/30/2024				10/30/2024	*Addendum #4*
A531	TYPICAL MEMBRANE ROOFING DETAILS	9/30/2024				10/30/2024	*Addendum #4*
A540	INTERIOR PLAN DETAILS	9/30/2024					
A541	INTERIOR PLAN DETAILS	9/30/2024					
A600	TYPICAL FRAMED PARTITION TYPES AND DETAILS	9/30/2024					
A601	METAL STUD PARTITION FRAMING - TYPICAL DETAILS	9/30/2024					
A602	SPECIALTY PARTITION DETAILS	9/30/2024					
A605	TYPICAL MASONRY PARTITION TYPES AND DETAILS	9/30/2024					
A606	TYPICAL MASONRY PARTITION DETAILS	9/30/2024					
A610	DOOR AND FRAME TYPES	9/30/2024					
A611	DOOR SCHEDULE	9/30/2024				10/30/2024	*Addendum #4*
A620	TYPICAL HOLLOW METAL DOOR FRAME DETAILS	9/30/2024					
A621	TYPICAL HOLLOW METAL DOOR & FRAME DETAILS	9/30/2024					
A622	TYPICAL HOLLOW METAL DOOR & FRAME DETAILS	9/30/2024					
A630	ALUMINUM FRAME ELEVATIONS - CURTAIN WALLS	9/30/2024					
A631	ALUMINUM FRAME ELEVATIONS - STOREFRONTS	9/30/2024					
A632	ALUMINUM FRAME ELEVATIONS - CURTAIN WALLS AND STOREFRONTS	9/30/2024				10/30/2024	*Addendum #4*
A640	TYPICAL ALUMINUM FRAME DETAILS	9/30/2024				10/30/2024	*Addendum #4*
A641	ALUMINUM FRAME WINDOW DETAILS	9/30/2024	10/10/2024				*Addendum #1*
A642	ALUMINUM FRAME SECTION DETAILS	9/30/2024					
A701	TYPICAL MOUNTING HEIGHTS	9/30/2024					
A702	INTERIOR ELEVATIONS - PUBLIC LOBBY	9/30/2024					
A703	INTERIOR ELEVATIONS - FIRST FLOOR	9/30/2024					
A704	INTERIOR ELEVATIONS - MAIN CONCOURSE	9/30/2024					
A705	INTERIOR ELEVATIONS - MAIN CONCOURSE	9/30/2024					
A706	2ND FLOOR ELEVATIONS - CORRIDORS	9/30/2024					
A707	INTERIOR ELEVATIONS	9/30/2024					
A708	INTERIOR ELEVATIONS - GYMNASIUM - CUSTOM GRAPHIC DESIGN	9/30/2024					
A801	CASEWORK - TYPICAL DETAILS & GENERAL NOTES	9/30/2024					
A802	CASEWORK - TYPICAL DETAILS	9/30/2024					
A803	CASEWORK - TYPICAL DETAILS	9/30/2024					
A804	INTERIOR DETAILS	9/30/2024					
A805	INTERIOR DETAILS	9/30/2024		10/16/2024		10/31/2024	*Addendum #2,* *Addendum #4*
A806	INTERIOR DETAILS	9/30/2024					
A901A	FIRST FLOOR FINISH PLAN - PART A	9/30/2024					
A901B	FIRST FLOOR FINISH PLAN - PART B	9/30/2024					
A901C	FIRST FLOOR FINISH PLAN - PART C	9/30/2024					
A901D	FIRST FLOOR FINISH PLAN - PART D	9/30/2024					
A901E	FIRST FLOOR FINISH PLAN - PART E	9/30/2024					
A901F	FIRST FLOOR FINISH PLAN - PART F	9/30/2024					
A902A	SECOND FLOOR FINISH PLAN - PART A	9/30/2024					
A902C	SECOND FLOOR FINISH PLAN - PART C	9/30/2024					
A902E	SECOND FLOOR FINISH PLAN - PART E	9/30/2024					
A903	FLOOR PATTERN DETAILS	9/30/2024					
A910	FINISH PRODUCT LIST - PART A	9/30/2024					
A911	FINISH PRODUCT LIST -PART B AND FINISH NOTES	9/30/2024		10/16/2024			*Addendum #2*
A912	SPECIALTY EQUIPMENT LIST	9/30/2024					
A920	SIGNAGE SCHEDULE AND NOTES	9/30/2024					
A921A	FIRST FLOOR SIGNAGE PLAN - PART A	9/30/2024					
A921B	FIRST FLOOR SIGNAGE PLAN - PART B	9/30/2024					
A921C	FIRST FLOOR SIGNAGE PLAN - PART C	9/30/2024					
A921D	FIRST FLOOR SIGNAGE PLAN - PART D	9/30/2024					
A921E	FIRST FLOOR SIGNAGE PLAN - PART E	9/30/2024					
A921F	FIRST FLOOR SIGNAGE PLAN - PART F	9/30/2024					
A922A	SECOND FLOOR SIGNAGE PLAN - PART A	9/30/2024					
A922C	SECOND FLOOR SIGNAGE PLAN - PART C	9/30/2024					
A922E	SECOND FLOOR SIGNAGE PLAN - PART E	9/30/2024					
A923	SIGN TYPES	9/30/2024					
A924	EXTERIOR SIGN TYPES	9/30/2024					
[31] FURNITURE							
I101	OVERAL FIRST FLOOR FURNITURE PLAN	9/30/2024					
I101A	FIRST FLOOR FURNITURE PLAN - PART A	9/30/2024					
I101B	FIRST FLOOR FURNITURE PLAN - PART B	9/30/2024					
I101C	FIRST FLOOR FURNITURE PLAN - PART C	9/30/2024					
I101D	FIRST FLOOR FURNITURE - PART D	9/30/2024					
I101E	FIRST FLOOR FURNITURE PLAN - PART E	9/30/2024					
I101F	FIRST FLOOR FURNITURE PLAN - PART F	9/30/2024					
I102	OVERALL 2ND FLOOR FURNITURE PLAN	9/30/2024					
I102A	2ND FLOOR FURNITURE PLAN - PART A	9/30/2024					
I102C	2ND FLOOR FURNITURE PLAN - PART C	9/30/2024					
I102E	2ND FLOOR FURNITURE PLAN - PART E	9/30/2024					
[32] FOOD SERVICE							
FS001	FOODSERVICE EQUIPMENT SCHEDULE	9/30/2024					
FS101A	FIRST FLOOR - PART A - FOODSERVICE EQUIPMENT PLAN	9/30/2024					

LIST OF CONTRACT DRAWINGS, SPECIFICATIONS

Spec Section	Description	Date	Addendum #1	Addendum #2	Addendum #3	Addendum #4	Comments
FS111	FOODSERVICE EQUIPMENT PLAN	9/30/2024					
FS121	FOODSERVICE EQUIPMENT ROUGH-IN PLAN	9/30/2024					
FS131	FOODSERVICE EQUIPMENT VENTILATION ROUGH-IN PLAN	9/30/2024					
FS141	FOODSERVICE EQUIPMENT SPECIAL CONDITIONS PLAN	9/30/2024					
FS201	FOODSERVICE EQUIPMENT ELEVATIONS	9/30/2024					
FS301	FOODSERVICE EQUIPMENT DETAILS	9/30/2024					
[38] THEATRICAL							
TR1	THEATRICAL RIGGING	9/30/2024					
TR2	THEATRICAL RIGGING RISER AND SCHEDULES	9/30/2024					
VOLUME 3							
[39] GENERAL							
C3	COVER SHEET (VOLUME 3)	9/30/2024					
GI01.3	DRAWING LIST	9/30/2024					
GI02.3	GENERAL INFORMATION	9/30/2024					
FIRE PROTECTION							
FP000	FIRE PROTECTION ABBREVIATIONS, NOTES AND SYMBOLS	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
FP001	FIRE PROTECTION ZONING PLAN	9/30/2024			10/23/2024		*Addendum #3*
FP101A	FIRE PROTECTION FIRST FLOOR PLAN - PART A	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
FP101B	FIRE PROTECTION FIRST FLOOR PLAN - PART B	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
FP101C	FIRE PROTECTION FIRST FLOOR PLAN - PART C	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
FP101D	FIRE PROTECTION FIRST FLOOR PLAN - PART D	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
FP101E	FIRE PROTECTION FIRST FLOOR PLAN PART - E	9/30/2024					
FP101F	FIRE PROTECTION FIRST FLOOR PLAN - PART F	9/30/2024		10/16/2024			*Addendum #2*
FP102A	FIRE PROTECTION SECOND FLOOR PLAN - PART A	9/30/2024		10/16/2024			*Addendum #2*
FP102B	FIRE PROTECTION SECOND FLOOR PLAN - PART B	9/30/2024					
FP102C	FIRE PROTECTION SECOND FLOOR PLAN - PART C	9/30/2024		10/16/2024			*Addendum #2*
FP102D	FIRE PROTECTION SECOND FLOOR PLAN - PART D	9/30/2024					
FP102E	FIRE PROTECTION SECOND FLOOR PLAN - PART E	9/30/2024		10/16/2024			*Addendum #2*
FP400	FIRE PROTECTION ENLARGED PLANS	9/30/2024					
FP500	FIRE PROTECTION DETAILS	9/30/2024					
[50] PLUMBING							
P000	PLUMBING ABBREVIATIONS, NOTES AND SYMBOLS	9/30/2024					
P100A	PLUMBING FIRST FLOOR UNDERSLAB PLAN - PART A	9/30/2024		10/16/2024			*Addendum #2*
P100B	PLUMBING FIRST FLOOR UNDERSLAB PLAN - PART B	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
P100C	PLUMBING FIRST FLOOR UNDERSLAB PLAN - PART C	9/30/2024					
P100D	PLUMBING FIRST FLOOR UNDERSLAB PLAN - PART D	9/30/2024			10/23/2024		*Addendum #3*
P100E	PLUMBING FIRST FLOOR UNDERSLAB PLAN - PART E	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
P100F	PLUMBING FIRST FLOOR UNDERSLAB PLAN - PART F	9/30/2024			10/23/2024		*Addendum #3*
P001	PLUMBING FIRST FLOOR OVERALL PLAN	9/30/2024					
P101A	PLUMBING FIRST FLOOR PLAN - PART A	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
P101B	PLUMBING FIRST FLOOR PLAN - PART B	9/30/2024		10/16/2024			*Addendum #2*
P101C	PLUMBING FIRST FLOOR PLAN - PART C	9/30/2024					
P101D	PLUMBING FIRST FLOOR PLAN - PART D	9/30/2024		10/16/2024			*Addendum #2*
P101E	PLUMBING FIRST FLOOR PLAN - PART E	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
P101F	PLUMBING FIRST FLOOR PLAN - PART F	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
P002	PLUMBING SECOND FLOOR OVERALL PLAN	9/30/2024					
P102A	PLUMBING SECOND FLOOR PLAN -PART A	9/30/2024		10/16/2024			*Addendum #2*
P102C	PLUMBING SECOND FLOOR PLAN - PART C	9/30/2024					
P102E	PLUMBING SECOND FLOOR PLAN - PART E	9/30/2024					
P003	PLUMBING ROOF OVERALL PLAN	9/30/2024					
P103A	PLUMBING ROOF PLAN - PART A	9/30/2024		10/16/2024			*Addendum #2*
P103B	PLUMBING ROOF PLAN - PART B	9/30/2024					
P103C	PLUMBING ROOF PLAN - PART C	9/30/2024					
P103D	PLUMBING ROOF PLAN - PART D	9/30/2024					
P103E	PLUMBING ROOF PLAN - PART E	9/30/2024					
P103F	PLUMBING ROOF PLAN - PART F	9/30/2024		10/16/2024			*Addendum #2*
P400	PLUMBING ENLARGED VIEWS - KITCHEN	9/30/2024					
P401	PLUMBING ENLARGED VIEWS	9/30/2024		10/16/2024			*Addendum #2*
P402	PLUMBING ENLARGED VIEWS	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
P403	PLUMBING ENLARGED VIEWS	9/30/2024					
P404	PLUMBING ENLARGED VIEWS	9/30/2024					
P405	PLUMBING ENLARGED VIEWS	9/30/2024		10/16/2024			*Addendum #2*
P500	PLUMBING DETAILS	9/30/2024					
P501	PLUMBING DETAILS	9/30/2024		10/16/2024			*Addendum #2*
P600	PLUMBING SCHEDULES AND DIAGRAMS	9/30/2024					
P601	PLUMBING SCHEDULES AND DIAGRAMS	9/30/2024		10/16/2024			*Addendum #2*
[60] MECHANICAL							
MEPD000	MEP DEMOLITION ABBREVIATIONS, NOTES, AND SYMBOLS	9/30/2024					
MEPD001	MEP DEMO PLAN VIEW	9/30/2024					
M0.00	MECHANICAL ABBREVIATIONS, NOTES AND SYMBOLS	9/30/2024					
M001	OVERALL MECHANICAL FIRST FLOOR PLAN	9/30/2024					
M101A	MECHANICAL FIRST FLOOR PLAN - PART A	9/30/2024					
M101B	MECHANICAL FIRST FLOOR PLAN - PART B	9/30/2024		10/16/2024			*Addendum #2*
M101C	MECHANICAL FIRST FLOOR PLAN - PART C	9/30/2024		10/16/2024			*Addendum #2*
M101D	MECHANICAL FIRST FLOOR PLAN - PART D	9/30/2024			10/23/2024		*Addendum #3*
M101E	MECHANICAL FIRST FLOOR PLAN - PART E	9/30/2024		10/16/2024			*Addendum #2*
M101F	MECHANICAL FIRST FLOOR PLAN - PART F	9/30/2024					
M002	OVERALL MECHANICAL SECOND FLOOR PLAN	9/30/2024					
M102A	MECHANICAL SECOND FLOOR PLAN - PART A	9/30/2024			10/23/2024		*Addendum #3*
M102B	MECHANICAL SECOND FLOOR PLAN - PART B	9/30/2024					
M102C	MECHANICAL SECOND FLOOR PLAN - PART C	9/30/2024					
M102D	MECHANICAL SECOND FLOOR PLAN - PART D	9/30/2024					
M102E	MECHANICAL SECOND FLOOR PLAN - PART E	9/30/2024					
M003	OVERALL MECHANICAL ROOF PLAN	9/30/2024					
M103A	MECHANICAL ROOF PLAN - PART A	9/30/2024				10/30/2024	*Addendum #4*
M103B	MECHANICAL ROOF PLAN - PART B	9/30/2024				10/30/2024	*Addendum #4*
M103C	MECHANICAL ROOF PLAN - PART C	9/30/2024				10/30/2024	*Addendum #4*
M103D	MECHANICAL ROOF PLAN - PART D	9/30/2024				10/30/2024	*Addendum #4*
M103E	MECHANICAL ROOF PLAN - PART E	9/30/2024				10/30/2024	*Addendum #4*
M103F	MECHANICAL ROOF PLAN - PART F	9/30/2024					
MP101A	MECHANICAL PIPING FIRST FLOOR PLAN - PART A	9/30/2024		10/16/2024			*Addendum #2*
MP101B	MECHANICAL PIPING FIRST FLOOR PLAN - PART B	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
MP101C	MECHANICAL PIPING FIRST FLOOR PLAN - PART C	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
MP101D	MECHANICAL PIPING FIRST FLOOR PLAN - PART D	9/30/2024		10/16/2024			*Addendum #2*
MP101E	MECHANICAL PIPING FIRST FLOOR PLAN - PART E	9/30/2024		10/16/2024			*Addendum #2*
MP101F	MECHANICAL PIPING FIRST FLOOR PLAN - PART F	9/30/2024					
MP102A	MECHANICAL PIPING SECOND FLOOR PLAN - PART A	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
MP102B	MECHANICAL PIPING SECOND FLOOR PLAN - PART B	9/30/2024					
MP102C	MECHANICAL PIPING SECOND FLOOR PLAN - PART C	9/30/2024		10/16/2024			*Addendum #2*
MP102D	MECHANICAL PIPING SECOND FLOOR PLAN - PART D	9/30/2024					

LIST OF CONTRACT DRAWINGS, SPECIFICATIONS

Spec Section	Description	Date	Addendum #1	Addendum #2	Addendum #3	Addendum #4	Comments
MP102E	MECHANICAL PIPING SECOND FLOOR PLAN - PART E	9/30/2024		10/16/2024			*Addendum #2*
M500	MECHANICAL DETAILS	9/30/2024				10/30/2024	*Addendum #4*
M501	MECHANICAL DETAILS	9/30/2024				10/30/2024	*Addendum #4*
M502	MECHANICAL DETAILS	9/30/2024			10/23/2024		*Addendum #3*
M503	MECHANICAL DETAILS	9/30/2024					
M504	MECHANICAL DETAILS	9/30/2024					
M505	MECHANICAL DETAILS	9/30/2024					
M600	MECHANICAL SCHEDULES	9/30/2024					
M601	MECHANICAL SCHEDULES	9/30/2024		10/16/2024			*Addendum #2*
M602	MECHANICAL SCHEDULES	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
M700	MECHANICAL CONTROLS DIAGRAMS	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
M701	MECHANICAL CONTROLS DIAGRAMS	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
[70] ELECTRICAL							
E000	ELECTRICAL ABBREVIATIONS, NOTES AND SYMBOLS	9/30/2024		10/16/2024		10/30/2024	*Addendum #2, Addendum #4*
EL001	ELECTRICAL LIGHTING FIRST FLOOR OVERALL PLAN	9/30/2024					
EL101A	ELECTRICAL LIGHTING FIRST FLOOR PLAN - PART A	9/30/2024		10/16/2024			*Addendum #2*
EL101B	ELECTRICAL LIGHTING FIRST FLOOR PLAN - PART B	9/30/2024		10/16/2024			*Addendum #2*
EL101C	ELECTRICAL LIGHTING FIRST FLOOR PLAN - PART C	9/30/2024		10/16/2024			*Addendum #2*
EL101D	ELECTRICAL LIGHTING FIRST FLOOR PLAN - PART D	9/30/2024		10/16/2024			*Addendum #2*
EL101E	ELECTRICAL LIGHTING FIRST FLOOR PLAN - PART E	9/30/2024			10/23/2024		*Addendum #3*
EL101F	ELECTRICAL LIGHTING FIRST FLOOR PLAN - PART F	9/30/2024		10/16/2024			*Addendum #2*
EL002	ELECTRICAL LIGHTING SECOND FLOOR OVERALL PLAN	9/30/2024					
EL102A	ELECTRICAL LIGHTING SECOND FLOOR PLAN - PART A	9/30/2024		10/16/2024			*Addendum #2*
EL102B	ELECTRICAL LIGHTING SECOND FLOOR PLAN - PART B	9/30/2024		10/16/2024			*Addendum #2*
EL102C	ELECTRICAL LIGHTING SECOND FLOOR PLAN - PART C	9/30/2024		10/16/2024			*Addendum #2*
EL102D	ELECTRICAL LIGHTING SECOND FLOOR PLAN - PART D	9/30/2024					
EL102E	ELECTRICAL LIGHTING SECOND FLOOR PLAN - PART E	9/30/2024		10/16/2024			*Addendum #2*
EP001	ELECTRICAL POWER FIRST FLOOR OVERALL PLAN	9/30/2024					
EP101A	ELECTRICAL POWER FIRST FLOOR PLAN - PART A	9/30/2024		10/16/2024		10/30/2024	*Addendum #2, Addendum #4*
EP101B	ELECTRICAL POWER FIRST FLOOR PLAN - PART B	9/30/2024			10/23/2024		*Addendum #3*
EP101C	ELECTRICAL POWER FIRST FLOOR PLAN - PART C	9/30/2024		10/16/2024			*Addendum #2*
EP101D	ELECTRICAL POWER FIRST FLOOR PLAN - PART D	9/30/2024			10/23/2024	10/30/2024	*Addendum #3, Addendum #4*
EP101E	ELECTRICAL POWER FIRST FLOOR PLAN - PART E	9/30/2024		10/16/2024	10/23/2024		*Addendum #2, Addendum #3*
EP101F	ELECTRICAL POWER FIRST FLOOR PLAN - PART F	9/30/2024					
EP002	ELECTRICAL POWER SECOND FLOOR OVERALL PLAN	9/30/2024					
EP102A	ELECTRICAL POWER SECOND FLOOR PLAN - PART A	9/30/2024					
EP102B	ELECTRICAL POWER SECOND FLOOR PLAN - PART B	9/30/2024					
EP102C	ELECTRICAL POWER SECOND FLOOR PLAN - PART C	9/30/2024					
EP102D	ELECTRICAL POWER SECOND FLOOR PLAN - PART D	9/30/2024					
EP102E	ELECTRICAL POWER SECOND FLOOR PLAN - PART E	9/30/2024					
EP003	ELECTRICAL POWER ROOF OVERALL PLAN	9/30/2024					
EP103A	ELECTRICAL POWER ROOF PLAN - PART A	9/30/2024			10/23/2024		*Addendum #3*
EP103B	ELECTRICAL POWER ROOF PLAN - PART B	9/30/2024			10/23/2024		*Addendum #3*
EP103C	ELECTRICAL POWER ROOF PLAN - PART C	9/30/2024					
EP103D	ELECTRICAL POWER ROOF PLAN - PART D	9/30/2024					
EP103E	ELECTRICAL POWER ROOF PLAN - PART E	9/30/2024					
EP103F	ELECTRICAL POWER ROOF PLAN - PART F	9/30/2024					
E400	ELECTRICAL ENLARGED PLANS - KITCHEN	9/30/2024		10/16/2024	10/23/2024	10/30/2024	*Addendum #2, Addendum #3, Addendum #4*
E401	ELECTRICAL ENLARGED PLANS - AUDITORIUM	9/30/2024		10/16/2024			*Addendum #2*
E402	ELECTRICAL ENLARGED PLANS - ELEVATORS	9/30/2024					
E500	ELECTRICAL DETAILS	9/30/2024					
E501	ELECTRICAL DETAILS	9/30/2024		10/16/2024			*Addendum #2*
E502	ELECTRICAL DETAILS	9/30/2024			10/23/2024		*Addendum #3*
E503	ELECTRICAL DETAILS	9/30/2024					
E504	ELECTRICAL DETAILS	9/30/2024					
E505	ELECTRICAL DETAILS	N/A			10/23/2024		*Addendum #3*
E600	ELECTRICAL SCHEDULES AND DIAGRAMS	9/30/2024			10/23/2024		*Addendum #3*
E601	ELECTRICAL SCHEDULES AND DIAGRAMS	9/30/2024					
E602	ELECTRICAL PANEL SCHEDULES	9/30/2024					
E603	ELECTRICAL PANEL SCHEDULES	9/30/2024		10/16/2024			*Addendum #2*
E604	ELECTRICAL PANEL SCHEDULES	9/30/2024			10/23/2024		*Addendum #3*
E605	ELECTRICAL PANEL SCHEDULES	9/30/2024					
E606	ELECTRICAL PANEL SCHEDULES	9/30/2024					
E607	ELECTRICAL PANEL SCHEDULES	9/30/2024				10/30/2024	*Addendum #4*
E700	ELECTRICAL RISER DIAGRAM	9/30/2024			10/23/2024	10/30/2024	*Addendum #3, Addendum #4*
E701	FIRE ALARM RISER DIAGRAM	9/30/2024		10/16/2024		10/30/2024	*Addendum #2, Addendum #4*
[80] TECHNOLOGY							
T000	TECHNOLOGY SYMBOL LEGEND & GENERAL NOTES	9/30/2024		10/16/2024			*Addendum #2*
T001	TECHNOLOGY OVERALL FIRST FLOOR PLAN CABLING DELINIATION PLAN	9/30/2024					
T002	TECHNOLOGY OVERALL SECOND FLOOR PLAN CABLE DELINIATION PLAN	9/30/2024					
T101A	TECHNOLOGY FIRST FLOOR PLAN A	9/30/2024		10/16/2024			*Addendum #2*
T101B	TECHNOLOGY FIRST FLOOR PLAN B	9/30/2024		10/16/2024			*Addendum #2*
T101C	TECHNOLOGY FIRST FLOOR PLAN C	9/30/2024		10/16/2024			*Addendum #2*
T101D	TECHNOLOGY FIRST FLOOR PLAN D	9/30/2024		10/16/2024			*Addendum #2*
T101E	TECHNOLOGY FIRST FLOOR PLAN E	9/30/2024		10/16/2024			*Addendum #2*
T101F	TECHNOLOGY FIRST FLOOR PLAN F	9/30/2024		10/16/2024			*Addendum #2*
T102A	TECHNOLOGY SECOND FLOOR PLAN A	9/30/2024		10/16/2024			*Addendum #2*
T102B	TECHNOLOGY SECOND FLOOR PLAN B	9/30/2024					
T102C	TECHNOLOGY SECOND FLOOR PLAN C	9/30/2024		10/16/2024			*Addendum #2*
T102D	TECHNOLOGY SECOND FLOOR PLAN D	9/30/2024					
T102E	TECHNOLOGY SECOND FLOOR PLAN E	9/30/2024		10/16/2024			*Addendum #2*
T201	TECHNOLOGY MDF 1066 DETAILS	9/30/2024					
T202	TECHNOLOGY IDF 1046 & 1023 DETAILS	9/30/2024					
T301	TECHNOLOGY DETAILS	9/30/2024					
T302	TECHNOLOGY DETAILS	9/30/2024					
T400	TECHNOLOGY WIRING DIAGRAM	9/30/2024					
[81] AUDIO VISUAL							
TA000	AUDIO VISUAL SYMBOL LEGEND & GENERAL NOTES	9/30/2024		10/16/2024			*Addendum #2*
TA101A	AUDIO VISUAL FIRST FLOOR PLAN A	9/30/2024					
TA101B	AUDIO VISUAL FIRST FLOOR PLAN B	9/30/2024					
TA101C	AUDIO VISUAL FIRST FLOOR PLAN C	9/30/2024					
TA101D	AUDIO VISUAL FIRST FLOOR PLAN D	9/30/2024					
TA101E	AUDIO VISUAL FIRST FLOOR PLAN E	9/30/2024					
TA101F	AUDIO VISUAL FIRST FLOOR PLAN F	9/30/2024					
TA102A	AUDIO VISUAL SECOND FLOOR PLAN A	9/30/2024					
TA102B	AUDIO VISUAL SECOND FLOOR PLAN B	9/30/2024					
TA102C	AUDIO VISUAL SECOND FLOOR PLAN C	9/30/2024					
TA102D	AUDIO VISUAL SECOND FLOOR PLAN D	9/30/2024					
TA102E	AUDIO VISUAL SECOND FLOOR PLAN E	9/30/2024					
TA201	AUDIO VISUAL DETAILS	9/30/2024					
TA300	AUDIO VISUAL SIGNAL FLOW	9/30/2024					
TA301	AUDIO VISUAL AUDITORIUM SIGNAL FLOW	9/30/2024					

LIST OF CONTRACT DRAWINGS, SPECIFICATIONS

Spec Section	*Description*	*Date*	*Addendum #1*	*Addendum #2*	*Addendum #3*	*Addendum #4*	*Comments*
TA400	AUDIO VISUAL AUDITORIUM ELEVATIONS	9/30/2024					
TA401	AUDIO VISUAL ELEVATIONS	9/30/2024					
[82] SECURITY							
TY000	SECURITY SYMBOL LEGEND & GENERAL NOTES	9/30/2024		10/16/2024			*Addendum #2*
TY100	SECURITY SITE PLAN	9/30/2024					
TY101A	SECURITY FIRST FLOOR PLAN A	9/30/2024		10/16/2024			*Addendum #2*
TY101B	SECURITY FIRST FLOOR PLAN B	9/30/2024					
TY101C	SECURITY FIRST FLOOR PLAN C	9/30/2024		10/16/2024			*Addendum #2*
TY101D	SECURITY FIRST FLOOR PLAN D	9/30/2024					
TY101E	SECURITY FIRST FLOOR PLAN E	9/30/2024					
TY101F	SECURITY FIRST FLOOR PLAN F	9/30/2024					
TY102A	SECURITY SECOND FLOOR PLAN A	9/30/2024					
TY102B	SECURITY SECOND FLOOR PLAN B	9/30/2024					
TY102C	SECURITY SECOND FLOOR PLAN C	9/30/2024					
TY102D	SECURITY SECOND FLOOR PLAN D	9/30/2024					
TY102E	SECURITY SECOND FLOOR PLAN E	9/30/2024					
TY301	SECURITY DETAILS	9/30/2024					
TY302	SECURITY DETAILS	9/30/2024					
TY401	SECURITY WIRING DIAGRAMS	9/30/2024					

ADDITIONAL DOCUMENTS AND SKETCHES

1651	Plan and Profile of Sewer in Stanwich Road & Fairfield Road (Greenwich, Conn) -- Issued to address Bidder RFI #91			9/6/1961			*Addendum #2: Provided as a for-reference-only document*
00 9113-1	Appendix A – Phase 1 Environmental Site Assessment. Dated May 30, 2023, authored by Langan Engineering			5/30/2023			*Addendum #2*
00 9113-2	Appendix B – Underground Storage Tank Investigation Report, Dated November 16, 2023, authored by Langan Engineering			11/16/2023			*Addendum #2*
00 9113-3	Appendix C – Limited In-Siti Soil Sampling, Dated April 1, 2024			4/1/2024			*Addendum #2*
00 9113-4	Appendix D – Stormwater Pollution Control Plan for Greenwich Central Middle School (Issued in response to Bidder RFI #93), authored by Tighe & Bond			10/16/2024			*Addendum #2*

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BID PACKAGE BREAKDOWN

	Spec Number	Bid Package	Comments
	8	**Demolition & Abatement**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	01 2200	Unit Prices - Hazardous Building Materials	Exclusive
	02 4100	Demolition	Exclusive
	02 8200	Selective Hazardous Building Materials Abatement Demolition	Exclusive
	02 8213	Asbestos Abatement	Exclusive
	02 8313	Lead-Based Paint Awareness	Exclusive
	02 8416	Universal Waste Removal and Recycling	Exclusive
	02 8432	PCBs Greater than 50ppm Remediation	Exclusive
	9	**Sitework**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	02 3000	Subsurface Investigations	Exclusive
	02 4113	Site Utility Abandonment	Exclusive
	07 2100	Thermal Insulation	Shared
	07 9200	Joint Sealants	Shared
	10 1453	Traffic Signage [Landscape]	Exclusive
	10 1453	Traffic Signage [Civil]	Exclusive
	10 1454	Traffic Signage Removal and Relocation	Exclusive
	10 7516	Ground-Set Flagpoles	Exclusive
	12 9300	Site Furnishings	Exclusive
	31 1000	Site Clearing	Exclusive
	31 1000	Selective Clearing and Thinning [Civil]	Exclusive
	31 1005	Athletic Field Site Preparation	Exclusive
	31 1006	Soil Striping and Stockpiling	Exclusive
	31 1200	Site Utility Preparation	Exclusive
	31 2200	Grading	Exclusive
	31 2300	Excavation, Backfill, Compaction and Dewatering	Exclusive
	31 2316.26	Rock Removal	Exclusive
	31 2323	Borrow Material	Exclusive
	31 2333	Trenching and Backfilling	Exclusive
	31 2500	Soil Erosion and Sediment Controls	Exclusive
	31 6616	Aggregate Piers	Exclusive
	32 0529	Glacial Boulers for Exterior Improvements	Exclusive
	32 1216	Asphalt Paving	Exclusive
	32 1400	Unit Pavers	Exclusive
	32 1500	Aggregate Surfacing	Exclusive
	~~32 1613.23~~	~~Precast Concrete Curb~~	~~Exclusive~~
	32 1640	Granite Curbing	Exclusive
	32 1823.17	Natural Infield and Warning Track Surfacing	Exclusive
	32 3113	Chain Link Fences and Gates	Exclusive
	32 3118	Metal Fences and Gates	Exclusive
	32 3120	Vehicle Barrier Gates	Exclusive
	32 3223	Segmental Retaining Walls	Exclusive
	32 8415	Sitework Sleeves	Exclusive
	33 0513	Manholes and Catchbasins	Exclusive
	33 0514	Breaking Into Existing Manholes and CatchBasins	Exclusive
	33 1113	Ductile Iron Pipe and Fittings	Exclusive
	33 1300	Disinfection of Water Distribution Systems	Exclusive
	33 1400	Testing of Water Distribution Systems	Exclusive
	33 3113	Polyvinyl Cholride (PVC) Pipe and Fittings	Exclusive
	33 3114	Testing of Sanitary Sewer and Storm Drainage Systems	Exclusive
	33 3115	Television Inspection of Pipelines	Exclusive
	33 4100	Storm Drainage	Exclusive
	33 4113	High Density Polythylene Pipe and Fittings	Exclusive

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BID PACKAGE BREAKDOWN

	Spec Number	Bid Package	Comments
	33 4114	Underground Warning Tape	Exclusive
	33 4419	Stormwater Treatment System	Exclusive
	34 0000	Transportation	Exclusive
	34 4114	Rectangular Rapid Flashing Beacon	Exclusive
	34 4115	LED School Radar Speed Display with Flashing Beacons	Exclusive
	34 4117	Pedestrian Push Button	Exclusive
	34 7001	Traffic Person	Exclusive
	34 7002	Maintenance and Protection of Traffic	Exclusive
	10	**Concrete**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	03 0156	Under-Slab Vapor Retarder	Exclusive
	03 1000	Concrete Forming and Accessories	Shared
	03 2000	Concrete Reinforcing	Shared
	03 3000	Cast-in-Place Concrete	Shared
	03 3250	Concrete Post-Installed Anchors	Shared
	03 6213	Non-Metallic Non-Shrink Grouting	Shared
	07 2100	Thermal Insulation	Shared
	07 9200	Joint Sealants	Shared
	11	**Masonry & Precast**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	03 3250	Concrete Post-Installed Anchors	Shared
	03 6213	Non-Metallic Non-Shrink Grouting	Shared
	04 2000	Unit Masonry	Exclusive
	04 4313	Stone Masonry Veneer	Exclusive
	04 7323	Manufactured Building Stone Masonry	Exclusive
	05 5000	Metal Fabrications	Shared
	07 2100	Thermal Insulation	Shared
	07 2726	Fluid-Applied Membrane Air Barriers	Shared
	07 6200	Sheet Metal Flashing and Trim	Shared
	07 9200	Joint Sealants	Shared
	07 9513	Expansion Joint Cover Assmeblies	Shared
	12	**Structural Steel**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	03 3250	Concrete Post-Installed Anchors	Shared
	05 0805	Factory-Applied Coatings for Metal	Shared
	05 1200	Structural Steel Framing	Exclusive
	05 2100	Steel Joist Framing	Exclusive
	05 3100	Steel Decking	Exclusive
	05 5000	Metal Fabrications	Shared
	07 2163	Fluid-Applied Insulative Coating	Exclusive
	13	**Misc. Metal**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	03 3250	Concrete Post-Installed Anchors	Shared
	05 0805	Factory-Applied Coatings for Metal	Shared
	05 5000	Metal Fabrications	Shared
	05 5100	Metal Stairs	Exclusive

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BID PACKAGE BREAKDOWN

	Spec Number	Bid Package	Comments
	05 7000	Decorative Metal Railings	Exclusive
	05 7100	Monumental Metal Stairs	Exclusive
	07 9200	Joint Sealants	Shared
	14	**Waterproofing**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	07 1400	Fluid-Applied Waterproofing	Exclusive
	15	**Roofing**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	07 5423	Thermoplastic Polyolefin (TPO) Roofing	Exclusive
	07 6200	Sheet Metal Flashing and Trim	Shared
	07 7100	Roof Specialties	Exclusive
	07 7200	Roof Accessories	Exclusive
	07 9513	Expansion Joint Cover Assmeblies	Shared
	16	**Fireproofing**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	07 8100	Applied Fire Protection	Exclusive
	07 8123	Intumescent Fire Protection	Exclusive
	17	**Firestopping**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	07 8400	Firestopping	Exclusive
	18	**Millwork & Casework**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	06 2000	Finish Carpentry	Exclusive
	06 4100	Architectural Wood Casework	Exclusive
	06 4200	Wood Paneling	Exclusive
	06 6116	Solid Surfacing Fabrications	Exclusive
	07 9200	Joint Sealants	Shared
	07 9513	Expansion Joint Cover Assmeblies	Shared
	09 7800	Interior Wall Paneling	Exclusive
	09 8416	Fixed Sound Reflective Panels	Shared
	09 8430	Sound-Absorbing Wall and Ceiling Units	Shared
	10 1100	Visual Display Units	Exclusive
	10 1416	Plaques	Exclusive
	10 5502	Mail Sorter	Exclusive
	12 3553.19	Wood Laboratory Casework	Exclusive
	12 3600	Countertops	Exclusive
	19	**Glass, Glazing & Metal Panels/Rainscreen**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	03 3250	Concrete Post-Installed Anchors	Shared
	07 2100	Thermal Insulation	Shared
	07 2726	Fluid-Applied Membrane Air Barriers	Shared

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	Spec Number	Bid Package	Comments
	07 4213.23	Metal Composite Material Wall Panels	Exclusive
	07 6200	Sheet Metal Flashing and Trim	Shared
	07 9200	Joint Sealants	Shared
	07 9513	Expansion Joint Cover Assmeblies	Shared
	08 4313	Aluminum-Framed Storefronts	Exclusive
	08 4413	Glazed Aluminum Curtain Walls	Exclusive
	08 5653	Security & Service Windows	Exclusive
	08 6300	Metal-Framed Skylights	Exclusive
	08 7100	Door Hardware	Shared
	08 7101	Door Hardware Schedule	Shared
	08 8000	Glazing	Exclusive
	08 8300	Mirrors	Exclusive
	08 9100	Louvers	Exclusive
	08 9200	Louvered Equipment Enclosures	Exclusive
	20	**Doors, Frames & Hardware**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	08 1113	Hollow Metal Doors and Frames	Shared
	08 1416	Flush Wood Doors	Shared
	08 7100	Door Hardware	Shared
	08 7101	Door Hardware Schedule	Shared
	21	**Drywall & General Trades**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	03 3250	Concrete Post-Installed Anchors	Shared
	05 5400	Cold-Formed Metal Framing	Exclusive
	06 1000	Rough Carpentry	Exclusive
	06 8316	Fiberglass Reinforced Paneling	Exclusive
	07 2100	Thermal Insulation	Shared
	07 2119	Foamed-In-Place Insulation	Exclusive
	07 23410	Direct-Applied Exterior Finish Systems	Exclusive
	07 2726	Fluid-Applied Membrane Air Barriers	Shared
	07 4646	Fiber-Cement Wall Panels	Exclusive
	07 9200	Joint Sealants	Shared
	07 9513	Expansion Joint Cover Assmeblies	Shared
	08 1113	Hollow Metal Doors and Frames	Shared
	08 1416	Flush Wood Doors	Shared
	08 3323	Overhead Coiling Doors	Exclusive
	08 3326	Overhead Coiling Grilles	Exclusive
	08 7100	Door Hardware	Shared
	08 7101	Door Hardware Schedule	Shared
	09 2116	Gypsum Board Assemblies	Exclusive
	09 2216	Non-Structural Metal Framing	Exclusive
	10 2113.19	Plastic Toilet Compartments	Exclusive
	10 2123	Cubicle Curtains and Track	Exclusive
	10 2800	Toilet Accessories	Exclusive
	10 4400	Fire Protection Specialties	Exclusive
	11 3013	Appliances	Exclusive
	11 5400	Art Equipment	Exclusive
	11 5410	Technical Education Equipment	Exclusive
	11 6623	Gymnasium Equipment	Exclusive
	11 6643	Interior Electronic Scoreboard	Exclusive
	11 7300	Patient Care Equipment	Exclusive

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	Spec Number	Bid Package	Comments
	22	**Acoustical Ceilings**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	07 9200	Joint Sealants	Shared
	07 9513	Expansion Joint Cover Assmeblies	Shared
	09 5100	Acoustical Ceilings	Exclusive
	09 8416	Fixed Sound Reflective Panels	Shared
	09 8430	Sound-Absorbing Wall and Ceiling Units	Shared
	23	**Ceramic Tile**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	09 0561	Common Work Results for Flooring Preparation	Shared
	09 3000	Tiling	Exclusive
	24	**Resilient Flooring**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	09 0561	Common Work Results for Flooring Preparation	Shared
	09 6500	Resilient Flooring	Exclusive
	09 6566	Resilient Athletic Flooring	Exclusive
	09 6700	Fluid-Applied Flooring	Exclusive
	25	**Carpet**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	09 0561	Common Work Results for Flooring Preparation	Shared
	09 6813	Tile Carpeting	Exclusive
	26	**Wood Flooring**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	07 9200	Joint Sealants	Shared
	09 0561	Common Work Results for Flooring Preparation	Shared
	09 6429	Wood Strip and Plank Flooring	Exclusive
	09 6466	Wood Athletic Flooring	Exclusive
	27	**Painting & Wall Covering**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	03 3511	Concrete Floor Finishes	Exclusive
	07 9200	Joint Sealants	Shared
	09 7200	Wall Coverings	Exclusive
	09 8300	Acoustic Finishes	Exclusive
	09 9123	Interior Painting	Exclusive
	28	**Signage**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	10 1419	Dimensional Letter Signage	Exclusive
	10 1423	Panel Signage	Exclusive
	10 1473	Painted Signage	Exclusive

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	Spec Number	Bid Package	Comments
	29	**Lockers**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	10 5113	Metal Lockers	Exclusive
	30	**Food Service Equipment**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	07 9200	Joint Sealants	Shared
	11 4000	Foodservice Equipment	Exclusive
	31	**Stage Extension, Draperies, Rigging, Acoustic Doors & Panels**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	11 0610	Stage Rigging and Curtains	Exclusive
	32	**Fixed Seating**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	12 6100	Fixed Audience Seating	Exclusive
	12 6613	Telescoping Bleachers	Exclusive
	33	**Window Treatment**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	12 2401	Window Shades	Exclusive
	34	**Elevators**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	14 2100	Electric Traction Elevators	Exclusive
	35	**Fire Protection**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	07 9200	Joint Sealants	Shared
	21 0400	General Conditions for Fire Protection Trades	Exclusive
	21 0433	Heat Trace for Fire Suppression Piping	Shared
	21 0516	Expansion Fittings and Loops for Fire Suppression Piping	Exclusive
	21 0548	Vibration and Seismic Controls for Fire Suppression Piping and Equipment	Exclusive
	21 1313	Wet Pipe Sprinkler Systems	Exclusive
	21 3000	Fire Pumps	Exclusive
	36	**Plumbing**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	07 9200	Joint Sealants	Shared
	21 0533	Heat Trace for Plumbing Piping	Shared
	22 0400	General Conditions for Plumbing Trades	Exclusive
	22 0516	Expansion Fittings and Loops for Plumbing Piping	Exclusive
	22 0517	Sleeves and Sleeve Seals for Plumbing Piping	Exclusive
	22 0519	Meters and Gauges for Plumbing Piping	Exclusive
	22 0523	General Duty Valves for Plumbing Piping	Exclusive
	22 0529	Hangers and Supports for Plumbing Piping and Equipment	Exclusive

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	Spec Number	Bid Package	Comments
	22 0548	Vibration and Seismic Controls for Plumbing Piping and Equipment	Exclusive
	22 0553	Identification for Plumbing Piping and Equipment	Exclusive
	22 0700	Plumbing Insulation	Exclusive
	22 1005	Plumbing Piping	Exclusive
	22 1123	Fuel Gas Piping	Exclusive
	22 1124	Domestic Water Pumps	Exclusive
	22 1500	General Compressed Air Systems	Exclusive
	22 3000	Plumbing Equipment	Exclusive
	22 4000	Plumbing Fixtures and Specialties	Exclusive
	37	**HVAC & Controls**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	07 9200	Joint Sealants	Shared
	23 0400	General Conditions for Mechanical Trades	Exclusive
	23 0516	Expansion Fittings and Loops for HVAC Piping	Exclusive
	23 0517	Sleeves and Sleeve Seals for HVAC Piping	Exclusive
	23 0523	General Duty Valves for HVAC Piping	Exclusive
	23 0529	Hangers and Supports for HVAC Piping, Ductwork, and Equipment	Exclusive
	23 0548	Vibration and Seismic Controls for HVAC Piping and Equipment	Exclusive
	23 0553	Identification for HVAC Piping and Equipment	Exclusive
	23 0593	Testing, Adjusting, and Balancing for HVAC	Exclusive
	23 0700	HVAC Insulation	Exclusive
	23 0900	Instrumentation and Controls for HVAC	Exclusive
	23 0993	Sequence of Operations	Exclusive
	23 2113	Hydronic Piping	Exclusive
	23 2114	Hydronic Specialties	Exclusive
	23 2123	Hydronic Pumps	Exclusive
	23 2500	HVAC Water Treatment	Exclusive
	23 3100	HVAC Ducts and Casings	Exclusive
	23 3300	Air Duct Accessories	Exclusive
	23 3416	Centrifugal HVAC Fans	Exclusive
	23 3600	Air Terminal Units	Exclusive
	23 3700	Air Outlets and Inlets	Exclusive
	23 5100	Breechings, Chimneys, and Stacks	Exclusive
	23 5239	Fire-Tube Boilers	Exclusive
	23 5700	Heat Exchangers for HVAC	Exclusive
	23 6411	Packaged Water Chillers- Scroll	Shared
	23 7413	Modular Central Station Air Handing Units	Shared
	23 8126	Split-System Air-Conditioners	Exclusive
	23 8200	Convection Heating and Cooling Units	Exclusive
	38	**Electrical & Fire Alarm**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	07 9200	Joint Sealants	Shared
	21 0433	Heat Trace for Fire Suppression Piping	Shared
	21 0533	Heat Trace for Plumbing Piping	Shared
	26 0400	General Conditions for Electrical Trades	Exclusive
	26 0503	Equipment Wiring Connections	Exclusive
	26 0519	Electrical Power Conductors and Cables	Exclusive
	26 0526	Grounding and Bonding for Electrical Systems	Exclusive
	26 0529	Hangers and Supports for Electrical Systems	Exclusive
	26 0533	Raceway and Boxes for Electrical Systems	Exclusive
	26 0534	Floor Boxes for Electrical Systems	Exclusive
	26 0536	Cable Trays for Electrical Systems	Exclusive

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	Spec Number	Bid Package	Comments
	26 0553	Identification for Electrical Systems	Exclusive
	26 0573	Overcurrent Protective Device Coordination Study	Shared
	26 0923	Lighting Control Devices	Exclusive
	26 2200	Low-Voltage Transformers	Shared
	26 2413	Switchboards	Shared
	26 2416	Panelboards	Shared
	26 2653	Electric Vehicle Charging Equipment	Exclusive
	26 2716	Electrical Cabinets and Enclosures	Exclusive
	26 2726	Wiring Devices	Exclusive
	26 2813	Fuses	Exclusive
	26 2819	Enclosed Switches	Shared
	26 2823	Enclosed Circuit Breakers	Shared
	26 2826	Enclosed Transfer Switches	Shared
	26 3213	Engine Generators	Shared
	26 4113	Lightning Protection for Structures	Exclusive
	26 5100	Lighting	Exclusive
	26 5561	Theatrical Lighting	Exclusive
	28 3100	Fire Detection and Alarm	Exclusive
	39	**Low Voltage & AV**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	07 9200	Joint Sealants	Shared
	27 0536	Cable Trays For Communication Systems	Exclusive
	27 1000	Structured Cabling	Exclusive
	27 4100	Audio Video Systems	Exclusive
	27 5116	Public Address System	Exclusive
	27 5313	Clock System	Exclusive
	27 6010	Emergency Responder Radio Coverage System	Exclusive
	28 0500	Security Conductor Cables	Exclusive
	28 0528	Pathways for Security Systems	Exclusive
	28 1300	Access Control System	Exclusive
	28 1600	Intrusion Detection	Exclusive
	28 2300	Video Surveillance System	Exclusive
	40	**Concrete Flatwork**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	03 1000	Concrete Forming and Accessories	Shared
	03 2000	Concrete Reinforcing	Shared
	03 3000	Cast-in-Place Concrete	Shared
	32 1313	Concrete Paving	Exclusive
	32 1373	Concrete Paving Joint Sealants	Exclusive
	32 1726	Tactile Warning Surfaces	Exclusive
	41	**Landscaping**	
	DIV 00	Division 00 - Procurement and Contracting Requirements	Shared
	DIV 01	Division 01 - General Requirements	Shared
	11 6833	Athletic Field Equipment	Exclusive
	32 8423	Irrigation Systems	Exclusive
	32 9113	Soil Preparation	Exclusive
	32 9113.29	Athletic Field Root Zone	Exclusive
	32 9200	Turf and Grasses	Exclusive
	32 9219.22	Athletic Field Seeding and Sodding	Exclusive
	32 9300	Plants	Exclusive

Additional Provisions/Scope of Work

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C.1 Specific Scope of Work

Without the intent of limiting the Scope of Work to be performed by the Subcontractor, included is the furnishing and installing of the ***Masonry Work*** in accordance with the contract documents and as further enumerated within these Additional Provisions. The items listed herein are NOT intended to be a complete list of work items to be performed under this agreement. Furthermore, detail references are included for convenience but are not intended to identify all applicable details.

1. Includes performing all of the ***Masonry Work*** in accordance with the Contract Documents and as established in the Project Specifications and Document List. This includes the following Specification Sections specifically but does not limit the Subcontractor from the responsibility of the entire Project Documents Scope of Work:

Exclusive Specifications

Specification Sections listed below as 'Exclusive' shall be considered the sole responsibility of this Subcontractor. This Subcontractor shall furnish and install all products listed within these specification sections in conformance with all requirements and as indicated in the Contract Documents, including coordination with other related sections as listed within these specification sections and in reference to the entire Contract Specifications and Drawings. This Subcontractor shall be responsible for performing a complete and thorough review of the Contract Documents and include in their lump sum bid amount all costs to complete the entire scope of work for products listed within these specification sections. This includes, but is not limited to, the review of all drawings, details, notes, keys, keynotes, legends, symbols, abbreviations, schedules, callouts, and all applications of the products listed within these exclusive specification sections for a complete system which are reasonably inferable (i.e. similar detail/symbol/illustration, adjacent construction, means & methods, etc.) from the Contract Documents. No additional costs will be considered without clear and definitive substantiation.

Spec. #	Specification Name
04 2000	Unit Masonry
04 4313	Stone Masonry Veneer
04 7323	Manufactured Building Stone Masonry

Shared Specifications

Specification Sections listed below as 'Shared' shall be considered the mutual responsibility of two (2) or more Subcontractors. This Subcontractor shall furnish and install products listed within these specification sections in conformance with all requirements and as indicated in the Contract Documents, including coordination with other related sections as listed within these specification sections and in reference to the entire Contract Specifications and Drawings. This Subcontractor shall be responsible to perform a complete and thorough review of the Contract Documents and include in their lump sum bid amount all costs to complete the specific scope, as defined below, for products listed within these specification sections. This includes, but is not limited to, the review of all drawings, details, notes, keys, keynotes, legends, symbols, abbreviations, schedules, callouts, and all applications of the products listed within these shared specification sections for a complete system which are reasonably inferable (i.e. similar detail/symbol/illustration, adjacent construction, means & methods, etc.) from the Contract Documents. No additional costs will be considered without clear and definitive substantiation.

Spec. #	Specification Name
DIV 00	Division 00 – Procurement and Contracting Requirements
DIV 01	Division 01 – General Requirements

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03 6213	Non-Metallic Non-Shrinking Grouting
05 5000	Metal Fabrications
07 2100	Thermal Insulation
07 2726	Fluid-Applied Membrane Air Barriers
07 6200	Sheet Metal Flashing and Trim
07 9200	Joint Sealants
07 9513	Expansion Joint Cover Assemblies

Bid Package Specific Scope

1. This subcontractor shall include all costs for access to work including, but not limited to, scaffolding, stair towers, lifts, etc. This subcontractor shall furnish, install, inspect, maintain and remove all scaffolding required for the performance of the work of this Contract. This Subcontractor shall provide protection under work access to protect slabs. All other subcontractors requiring access shall complete liability waivers as determined by this subcontractor.
2. This subcontractor shall leave all work areas broom clean at the completion of this subcontractor's daily work this includes continuous housekeeping at the base of any scaffolding system.
3. This Subcontractor includes all blocking, brackets, fixtures, shims, connections, and other items necessary for a complete system.
4. This Subcontractor shall include all cutting, coring & sleeving for penetrations relative to your trade for a complete system.
5. This Subcontractor shall be responsible for all testing required per the drawings, specs, and state requirements.
6. This Subcontractor shall include all Sustainability requirements, including but not limited to CTHB Documentation.
7. This subcontractor shall receive, store and install all embeds, sleeves, access doors, louvers, vents, etc. within masonry partitions. This subcontractor shall coordinate with the MEP/FP and Elevator Subcontractors for the installation of electrical conduits and mechanical sleeves/pipes within masonry partitions. All embeds and sleeves are to be furnished by the respective trades requiring such, along with dimensioned shop drawings indicating locations. This subcontractor shall not accept material without formal transfer of care and custody paperwork. This subcontractor shall provide copies to Turner upon request. This subcontractor shall coordinate with respective subcontractors for, including but not limited to, all in-wall rough-in for electrical, elevator, and controls devices.
8. This subcontractor shall perform all layout of masonry partitions including locations of door openings. This subcontractor shall use a laser to ensure that all masonry walls are level and plumb. This subcontractor shall verify that door frames have been installed plumb and level and shall ensure they remain plumb and level during the masonry installation. The setting of hollow metal frames shall be by BP #21 Drywall & General Trades and aluminum frames by BP #19 Glass, Glazing, & Metal Panels.
9. This Subcontractor shall provide all surveying and layout for the work of this package. Survey will be by a Total Station or a Licensed Surveyor.
10. This Subcontractor shall include consistent and complete scheduling and coordination with all other trades to properly sequence the work and for the complete scope under this agreement.
11. This Subcontractor shall furnish all the standard, special, finish, etc. warranties identified in the specifications.

Additional Provisions/Scope of Work

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12. This subcontractor shall furnish and install all Exterior and Interior Masonry and Architectural Precast Concrete Work as required for complete systems. This shall include, but is not limited to, furnishing and installing all CMU, Masonry Veneer, Glass Unit Masonry, Cast Stone, Precast Architectural Concrete, accessories, etc. as shown on the Contract Documents.
13. This subcontractor will be responsible for any temporary connections, shoring or bracing and additional miscellaneous structural support not indicated on Contract Documents and required for a complete masonry system.
14. This subcontractor shall furnish, install, maintain and remove all weather protection required for the completion of the masonry work in accordance with the Project Schedule. This work shall include, but is not be limited to, shrink wrap (similar to Global Wrap or equal), enclosures, temporary heaters with fuel, admixtures, etc. and costs for hot water. This subcontractor shall include all heated enclosures, as required, for installation of masonry work in compliance with the specifications. The heated enclosure shall adhere to ALL safety policies required by the Safety Additional Provisions, and all safety requirements by Authorities Having Jurisdiction. If required for open flame heating source, this shall include 24-hour safety standby monitoring of the heating equipment and enclosures while in operation. This subcontractor shall provide breakout pricing for Weather Protection by phase in Application for Payment.
15. This subcontractor is required to provide a mixing station in a location acceptable to Turner and the Owner. This subcontractor shall keep mixing station clean and organized including, but not limited to, stockpile material, controlling dust, and daily removal of debris this subcontractor's dumpster. This subcontractor shall include weather protection as required.
16. This Subcontractor shall clean all items installed by this Subcontractor and install, secure and maintain appropriate protection of unfinished and finished work to prohibit damage from subsequent work. Protection must be approved by Turner.
17. This Subcontractor shall include the follow **Trade Allowance**: 80 hours of labor time for 5S and safety, protection and logistics requirements as directed by TCCo Superintendent. Laborer Time to be included as journeyman rate including any required supervision. This will be billed based on the final agreed contractual wage rates and may only be expended by written authorization of Turner Construction and any unspent portion of this unused scope hours will be credited at the end of your contract based on approved labor rate.
18. This Subcontractor shall coordinate all work with all other Subcontractors having work adjacent to or connecting to the work of this Subcontract.
19. This subcontractor shall protect roofing and metal deck, as per Roofing Subcontractor's recommendations, while performing work on upper masonry walls. Where this subcontractor is working on a finished roof, this subcontractor shall provide photographic documentation of the roof condition prior to the start of work. Failure to provide documentation will result in this subcontractor's responsibility to pay for costs associated with exterior and interior damage.
20. This subcontractor shall coordinate with MEP trades for locating and installing block outs in new masonry walls for duct and MEP raceways. This Contractor shall furnish and install lintels in masonry walls where block outs for MEPs are required. This Contractor shall coordinate these openings with the MEP contractors prior to wall construction, if this does not occur this Contractor shall cut and patch the partition at their own expense. See the MEP drawings for the extent of the new penetrations.
21. This Subcontractor shall furnish and install all mock-ups required for this scope of work per the contract documents, for example as shown on Drawing A-315.

22. This Subcontractor shall provide engineering stamp drawings and calculations of all delegated design items as indicated on the contract drawings.
23. This Subcontractor shall include 1 laborer per 10-person workforce while working on site but no less than 1 person for a composite cleanup crew. The composite cleanup crew will be required for 2 hours each Friday from 12:30-2:30 p.m. while the subcontractor is performing work on site. Composite crew is intended to clean up general debris not necessary associated with particular subcontractor (cardboard, plastic bottles, misc. trash item, general sweeping, etc.)
24. This Subcontractor shall examine the layout and installation of all adjacent work performed by others at weekly intervals leading up to the date of installation and shall report to Turner in writing any discrepancies that may affect the installation or operation of the scope provided under this agreement to avoid any delay in starting work as scheduled.
25. This Subcontractor shall include multiple mobilizations as required by the latest issuance of the project schedule. Include separate early mobilization for install of all CMU that supports structural steel.
26. This Subcontractor must meet the latest issuance of the project schedule. To this end, this Subcontractor understands that all adjacent work may not be 100% complete at the time of field dimension verification and this Subcontractor shall coordinate with other trades and accept reasonable hold-to dimensions which may be required to meet the delivery and installation dates.
27. This Subcontractor shall clean all items installed by this Subcontractor and install, secure and maintain appropriate protection to prohibit damage from subsequent work. Protection must be approved by Turner.
28. This Subcontractor shall furnish and install all masonry components of the front signage as shown on documents, including but not limited to masonry veneer and flashing, for example as shown on 5D/A924.

Exclusive Specifications

Spec. 04 2000 Unit Masonry

29. This Subcontractor shall furnish and install all unit masonry and accessories as shown on the contract documents required for a complete system, including but not limited to grouting, masonry ties, anchorage, reinforcing steel, flashing, termination bars, drip edges, movement joints, weeps, etc.
30. This Subcontractor shall coordinate, furnish and install anchors as required, for example 13/S410 connection to steel tube.
31. This Subcontractor shall furnish and install all acoustical concrete masonry units as shown on documents for a complete system, for example as shown at Gymnasium A111.4.
32. This Subcontractor shall furnish and install all top of wall anchors for connecting interior masonry to underside of structure for joint stabilization, for example, as shown on Detail 1B/A605.
33. This Subcontractor shall exclude welded L anchorage at slab edge, for example 1A/A605. To be furnished and installed by BP #12 Structural Steel.
34. The BP #10 Concrete Subcontractor will furnish and install reinforcing steel dowels shown to be installed in cast-in-place concrete for reinforced CMU partitions. This subcontractor shall coordinate layout of masonry partitions with BP #10 Concrete Subcontractor.

Spec. 04 7323 Manufactured Building Stone Masonry

35. This Subcontractor shall furnish and install all manufactured stone masonry as shown on the contract documents for a complete system, including but not limited to anchor system, angles, mortar net, drainage mat, masonry ties, flashing, continuous metal flashing and sill drip edge, etc.
36. This Subcontractor shall design, furnish, and install anchors as shown on contract documents, for example ashlar stone anchor system as shown at detail 5B/A500.

Shared Specifications

Spec. 03 6213 Non-Metallic Non-Shrinking Grouting

37. This Subcontractor shall furnish and install all grout as shown on the contract documents for a complete system of this subcontractor's work. This Subcontractor shall furnish and install all grout except at Steel Column and Base Plate locations (By BP#10 Concrete).
38. This Subcontractor shall grout all new interior and exterior door frames installed in masonry interior and exterior walls. This subcontractor shall protect hinges from grouting operations in order to ensure a smooth door installation. Upon completion of grouting, this subcontractor shall clean excess grout to prepare for painting.

Spec. 05 5000 Metal Fabrications

39. This Subcontractor shall furnish and install all steel loose lintels as required per the contract documents, for example as shown on drawings A641 -A642 and lintel schedules on A606.

Spec. 07 2100 Thermal Insulation

40. This Subcontractor shall furnish and install insulation at all exterior veneer locations provided as part of this bid package scope of work. This includes but is not limited to all exterior wall assemblies with CMU back-up, concrete back-up, or stud and sheathing back-up with veneer provided by this subcontractor.

Spec. 07 2726 Fluid-Applied Membrane Air Barriers

41. This Contractor shall furnish and install **ALL** fluid-applied membrane air barriers as shown on the Contract Documents, including but not limited to masonry, FCP, skylight, louvers, curtainwall/storefront, rainscreen system, and metal panel locations with a minimum 1-foot overlap or per manufacturers requirements on vertical face with adjacent work. For example, this Subcontractor shall install membrane air barrier per detail 3A/A520.
42. This subcontractor shall provide all required termination bars as required per the Contract Documents for example as shown on 3D/A641.
43. This subcontractor shall furnish and install sealant at all through-wall penetrations and attachments that penetrate the air/vapor barrier as per manufacturer's requirements.

Spec. 07 6200 Sheet Metal Flashing and Trim

44. This Subcontractor shall furnish and install all formed wall flashings and trim within or adjacent (including at all perimeters) to exterior wall veneer provided by this Subcontractor.

Spec. 07 9200 Joint Sealants

45. This Subcontractor shall furnish and install all joint sealants, control joints and joint sealant assemblies within and at the perimeter of this subcontractor's work.
46. This Subcontractor shall furnish and install all joint sealants including but not limited to door frames, louvers, access doors and other items installed within masonry partitions and stone veneer by this subcontractor.

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP11 – Masonry
Dated: 07.08.2024
Revised: 10.31.2024

Add'l Items

47. At the tops of all Masonry walls, this subcontractor shall include all required compressible filler, AVB and associated lapping requirements, infill of roof deck flutes with preformed mineral wool, refence details 1B&2B&3B/A521 as examples.
48. This Subcontractor shall furnish and install all movement and expansion joints within and at Perimeter of CMU Block and exterior wall systems installed by this subcontractor.

D. Safety

1. The Sitework Contractor shall be responsible for snow removal of the site, access roads and walkways to the building. This subcontractor will be responsible to remove snow and ice from all other areas for their work including but not limited to their work areas, material areas, storage conex's and trailers. Snow and ice removal is not allowed to free fall from upper levels of buildings, scaffolding or platforms.
2. This Subcontractor shall provide a site-specific plan on how they will comply with Turner's Ladder's Last Program.
3. This Subcontractor shall ensure that any Lulls used on site are equipped with hydraulic fork positioners.
4. This Subcontractor shall engage a 3rd Party to complete a GPR Survey to mark out existing utilities under and in the general area of any proposed Mobile Crane locations.
5. This subcontractor shall ensure scaffolding more than 4 tiers high is installed with debris netting covering the entirety of the non- working sides of the scaffolding full height extending to the top guardrail height of the upper most platform. All working platforms to include a guardrail, mid-rail and toe board per OSHA specifications. All scaffold bases will be installed on wood mudsills regardless if on level concrete. All scaffolding sections to be fully pinned and coupled. Stair towers are the required method of scaffold access. Others means such as ladders will be acceptable only when stair towers are not feasible. Fall protection must be provided at all scaffold access points by temporary gates, offset guardrails or other means to eliminate the fall hazard at access opening. All components are to be compatible. This subcontractor is responsible for a fully engineered scaffolding system that accounts for wind loading that may be imposed by scrim or tarp enclosures.

6. This Subcontractor shall ensure that Mortar tubs and other materials are prohibited from being landed on scaffold extended bracket support platforms. The subcontractor will be required to construct a separate scaffold bay/section bump out for which to receive material on. Workers must be protected from fall exposures should top or mid rails be removed when landing material on the scaffold structure. This Subcontractor shall provide a comprehensive scaffold and fall protection plan rendered by a qualified person. Plan should include plan and elevation renderings of the scaffold structure and key assembly and connection details. Scaffold erection and dismantling procedures must obey all regulations set forth by OSHA Subpart L 1926.451 and Turner's Site Safety Program. Maximum loading requirements must be provided for each bay. In the event the scaffolding needs to be built on an existing structure it shall be the responsibility of this Subcontractor to perform an engineering survey to determine if it can support the load of the scaffolding. In the event the existing structure needs to be shored or supported it shall be the responsibility of this Subcontractor to do so. The structure must be designed by an engineer to sustain potential wind loads produced from the encapsulating debris scrim or any winter weather protection barriers.
7. This Subcontractor shall ensure mixer staging areas if elevated above 2 feet have guard rails and stairs for access. The platform must be of solid construction and not a stack of pallets. All guards to mixers must be in place.
8. This Subcontractor is responsible to ensure that the perimeter protection of each floor that is affected by their work be maintained on a daily basis. If Guardrail systems need to be modified or removed to install the work this Subcontractor must ensure that they protect the floor edge by replacing the guardrails or installing a separate standard guardrail system. Open sided floors cannot be unprotected at any time. If this subcontractor's work replaces the guardrail edge protection this contractor will be responsible for removing and coordinating the return of the reusable guardrail/fall protection system (posts, cables, turnbuckles, clips,) to the concrete or structural steel subcontractors. Material should be palletized and returned in an orderly fashion.
9. This Subcontractor shall utilize a rebar shear in lieu of a chop saw or grinder to cut rebar.
10. This Subcontractor shall ensure stair access is provided for all scaffolding.
11. This Subcontractor shall ensure that all guardrails on scaffold systems are manufacturer fabricated standard fall protection rails.
12. The Sitework Contractor shall be responsible for snow removal of the site, access roads and walkways to the building. This subcontractor will be responsible to remove snow and ice from all other areas for their work including but not limited to their work areas, material areas, storage conex's and trailers. Snow and ice removal is not allowed to free fall from upper levels of buildings, scaffolding or platforms.

E. Exclusions

1. This Subcontractor shall exclude welded L anchorage at slab edge, for example 1A/A605 (By BP #12 Structural Steel).
2. This Subcontractor shall exclude hung lintels (By BP #12 Structural Steel).
3. This Subcontractor shall exclude masonry dowels cast in concrete and slab reinforcement at masonry partitions (By BP#10 Concrete).

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F. Logistics and Schedule

1. This subcontractor shall include the requirements of the Project Logistics Plan and Project Schedule.

G. Unit Prices

The following Unit Prices reflect the work of this bid package under which the bid proposal was submitted, and all unit prices shall remain valid for the life of the project and include all costs for a complete installation. Unit prices which do not affect the work of this bid package have been filled in "not applicable (n/a)". ***UNIT PRICES ARE GOOD FOR BOTH ADDS AND DEDUCTS.***

Unit Prices:	**Amount**
Refer to Form of Proposal	

H. Alternate Prices

The following Alternate Prices reflect the work of this bid package under which the bid proposal was ***submitted, and these alternates shall remain valid for the life of the project and include all costs for a*** complete installation.

Alternates:	**Amount**
Refer to Form of Proposal	

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#19 – Glass, Glazing, & Metal Panels
Dated: 07.08.2024
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C.1 Specific Scope of Work

Without the intent of limiting the Scope of Work to be performed by the Subcontractor, included is the furnishing and installing of the ***Glass, Glazing, & Metal Panels Work*** in accordance with the contract documents and as further enumerated within these Additional Provisions. The items listed herein are NOT intended to be a complete list of work items to be performed under this agreement. Furthermore, detail references are included for convenience but are not intended to identify all applicable details.

1. Includes performing all of the ***Glass, Glazing, & Metal Panels Work*** in accordance with the Contract Documents and as established in the Project Specifications and Document List. This includes the following Specification Sections specifically but does not limit the Subcontractor from the responsibility of the entire Project Documents Scope of Work:

Exclusive Specifications

Specification Sections listed below as 'Exclusive' shall be considered the sole responsibility of this Subcontractor. This Subcontractor shall furnish and install all products listed within these specification sections in conformance with all requirements and as indicated in the Contract Documents, including coordination with other related sections as listed within these specification sections and in reference to the entire Contract Specifications and Drawings. This Subcontractor shall be responsible for performing a complete and thorough review of the Contract Documents and include in their lump sum bid amount all costs to complete the entire scope of work for products listed within these specification sections. This includes, but is not limited to, the review of all drawings, details, notes, keys, keynotes, legends, symbols, abbreviations, schedules, callouts, and all applications of the products listed within these exclusive specification sections for a complete system which are reasonably inferable (i.e. similar detail/symbol/illustration, adjacent construction, means & methods, etc.) from the Contract Documents. No additional costs will be considered without clear and definitive substantiation.

Spec. #	Specification Name
07 4213.23	Metal Composite Material Wall Panels
08 4313	Aluminum-Framed Storefronts
08 4413	Glazed Aluminum Curtain Walls
08 5653	Security and Service Windows
08 6300	Metal-Framed Skylights
08 8000	Glazing
08 8300	Mirrors
08 9100	Louvers
08 9200	Louvered Equipment Enclosures

Additional Provisions/Scope of Work

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Shared Specifications

Specification Sections listed below as 'Shared' shall be considered the mutual responsibility of two (2) or more Subcontractors. This Subcontractor shall furnish and install products listed within these specification sections in conformance with all requirements and as indicated in the Contract Documents, including coordination with other related sections as listed within these specification sections and in reference to the entire Contract Specifications and Drawings. This Subcontractor shall be responsible to perform a complete and thorough review of the Contract Documents and include in their lump sum bid amount all costs to complete the specific scope, as defined below, for products listed within these specification sections. This includes, but is not limited to, the review of all drawings, details, notes, keys, keynotes, legends, symbols, abbreviations, schedules, callouts, and all applications of the products listed within these shared specification sections for a complete system which are reasonably inferable (i.e. similar detail/symbol/illustration, adjacent construction, means & methods, etc.) from the Contract Documents. No additional costs will be considered without clear and definitive substantiation.

Spec. #	Specification Name
DIV 00	Procurement and Contracting Requirements
DIV01	General Requirements
03 3250	Concrete Post-Installed Anchors
07 2100	Thermal Insulation
07 2726	Fluid-Applied Membrane Air Barriers
07 6200	Sheet Metal Flashing and Trim
07 9200	Joint Sealants
08 7100	Door Hardware
08 0671	Door Hardware Schedule
07 9513	Expansion Joint Cover Assemblies

Bid Package Specific Scope

1. This Subcontractor shall be responsible for all testing required per the drawings, specs, and state requirements.
2. This Subcontractor shall include all Sustainability requirements, including but not limited to CTHPB Documentation.
3. This Subcontractor shall include the cost of all surveying and layout (baseline survey to be provided by others).
4. This Subcontractor shall include field Measurement as required prior to fabrications. This Subcontractor shall have the responsibility to field verify dimensions of existing openings prior to start of fabrication. This Subcontractor shall also coordinate dimensions with other Subcontractors installing work adjacent to items installed under this Subcontract. This Subcontractor shall be required to attend multiple coordination meetings scheduled by Turner to review shop drawings, existing conditions and tie-in locations.
5. This Subcontractor includes all blocking, brackets, fixtures, shims, connections, and other items necessary for a complete system.

6. This Subcontractor shall include all cutting, coring, sleeving, & firestopping for penetrations relative to your trade for a complete system.
7. This Subcontractor shall furnish all the standard, special, finish, etc. warranties identified in the specifications.
8. This Subcontractor shall be responsible to remove any temporary protection at window/door openings to perform their work and ensuring its weather tight at the end of each shift.
9. This Subcontractor shall be responsible for the removal of all factory stickers, emblems, and grease pencil marks, etc. adhered to the glass or frames. Final cleaning of the glass is by others.
10. This Subcontractor shall install shims as necessary to align and support their work in the proper location. In no case shall the shims interfere with or protrude into the caulking assembly identified in the design documents.
11. This Subcontractor shall take precautions where dissimilar metals will contact each other or corrosive substrates and protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricators or manufacturers of dissimilar metals.
12. This Subcontractor shall provide a complete operating system for scope of work.
13. This Subcontractor shall coordinate all work with all other Subcontractors having work adjacent to or connecting to the work of this Subcontract.
14. This Subcontractor shall include consistent and complete scheduling and coordination with all other trades to properly sequence the work and for the complete scope under this agreement.
15. This Subcontractor shall provide engineering stamp drawings and calculations of all delegated design items as indicated on the contract drawings.
16. This Subcontractor shall furnish and install all mock-ups required for this scope of work per the contract documents, for example as shown on Drawing A-315.
17. This Subcontractor shall include 1 laborer per 10-person workforce while working on site but no less than 1 person for a composite cleanup crew. The composite cleanup crew will be required for 2 hours each Friday from 12:30-2:30 p.m. while the subcontractor is performing work on site. Composite crew is intended to clean up general debris not necessary associated with particular subcontractor (cardboard, plastic bottles, misc. trash item, general sweeping, etc.)
18. This Subcontractor shall examine the layout and installation of all adjacent work performed by others at weekly intervals leading up to the date of installation and shall report to Turner in writing any discrepancies that may affect the installation or operation of the scope provided under this agreement to avoid any delay in starting work as scheduled.
19. This Subcontractor shall include multiple mobilizations as required by the latest issuance of the project schedule.
20. This Subcontractor must meet the latest issuance of the project schedule. To this end, this Subcontractor understands that all adjacent work may not be 100% complete at the time of field dimension verification and this Subcontractor shall coordinate with other trades and accept reasonable hold-to dimensions which may be required to meet the delivery and installation dates.
21. This Subcontractor shall clean all items installed by this Subcontractor and install, secure and maintain appropriate protection to prohibit damage from subsequent work. Protection must be approved by Turner.

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Exclusive Specifications

Spec. 07 4213.23 Metal Composite Material Wall Panels

22. This Subcontractor shall design, furnish and install metal composite wall panels as shown on documents for a complete system. This scope of work shall include, but is not limited to, clips, fastening and support required. This Subcontractor shall coordinate with BP #21 Drywall and BP #15 Roofing.
23. This Subcontractor shall include any internal supports for the metal panels as required to withstand the designed loads for the project.
24. This Subcontractor shall include full coordination of membrane flashing(s) and composite metal panels glazed into the window system as indicated.
25. This Subcontractor shall design, furnish and install Exterior Wall Assembly Type 07 & Type 06, including metal wall panel system, CFMF subgirt furring, fluid applied vapor barrier 4" Mineral Wool insulation, thermally broken wall bracket, CFMF "Z" Furring, and vertical L-girt. This Subcontractor shall exclude the wall back up, that includes the gypsum sheathing, CFMF, and gyp board, to be by BP #21 (Drywall & General Trades).
26. This Subcontractor shall design, furnish and install metal panels at soffits, including but not limited to Type S3 and Type S2. This scope of work includes metal composite panel, cold form metal hat channels, insulation, fluid applied membrane air and vapor barrier, and cladding support system. Gypsum sheathing and cold form metal framing hung from structure by BP #21 (Drywall and General Trades).
27. This Subcontractor shall exclude wood blocking at gym overhang, for example as shown on 4C/A521, by #21 (Drywall & General Trades).
28. This Subcontractor shall design, furnish and install metal panels at front signage as shown on documents, for example as shown on 5C/A924.

Spec. 08 4313 & 08 4413 Aluminum-Framed Storefronts & Glazed Aluminum Curtain Walls

29. This Subcontractor shall furnish and install all exterior and interior aluminum doors, door hardware, glazing and frames as indicated on the contract drawings for a complete operating system
30. This Subcontractor shall include coordination and make provisions to accommodate all raceways internal to the storefront and curtainwall system as required for others including but not limited to electrical, tele/data and security.
31. This Subcontractor shall furnish and install all security glazing and Bullet Resistant (BWSR) scope within storefronts and curtainwalls, including doors with corresponding hardware, glazing, and frame as shown on documents.
32. This Subcontractor shall design, furnish and install complete exterior and interior aluminum storefront & curtainwall systems. This Subcontractor shall include the engineering and performance criteria associated with the aluminum storefront & curtain wall systems as required by project specifications. All connections and reinforcement shall be indicated on the shop drawings. The scope of work shall include, but is not limited to, supports, angles, blocking, fasteners, cover pieces, anchorage & internal reinforcement as well as shadow boxes. For example, this Subcontractor shall provide anchorage at curtain wall header, as shown on 6C/A640.

33. This Subcontractor shall tie-in AVB into glazing pocket at required locations, for example, details as shown on drawing A641. Include stripping in AVB within all storefront and curtainwall pockets and minimum 1 foot overlap or per manufacturer minimum requirements on vertical face with adjacent work.
34. This Subcontractor shall furnish and install all extruded sunshade louvers per contract documents, including but not limited to finish, mounting brackets/sunshade clips, trims and sills, for example as shown on 1D/A640.

Spec. 08 6300 Metal-Framed Skylights

33. This Subcontractor shall design, furnish and install scheduled skylight system, including but not limited to support bracket, loose fill mineral wool, perimeter flashing, foam seal, and steel plate attachment, for a complete system per contract documents, for example as shown on 3B/A522. This Subcontractor shall coordinate skylight size, and design requirements with Roofer (BP #15) and Drywall (BP #21). Include AVB at perimeter of skylight per details.

Spec. 08 8000 Glazing

34. This Subcontractor shall furnish and install all glazing per contract documents. The scope of work includes, but is not limited to, windows, aluminum doors, glazed curtain walls, glazed entrances, interior borrowed lites, storefronts, security glazing, fire protection rated glazing, laminated glass interlayers and accessories, HM sidelites and transoms.
35. This Subcontractor shall furnish and install schoolguard glazing at required locations per contract documents. For example, as shown and noted on Aluminum Frame Elevations A630 – A632.
36. This Subcontractor shall furnish and install friction fit mineral wool insulation at all spandrel glazing for insulated coated spandrel glazing (ICS) per Glazing Graphic Legend A630 – A632.

Spec. 08 8300 Mirrors

35. This Subcontractor shall provide and install all glass mirror, for example as shown in Fitness Room. The scope of work shall include, but not limited to, blocking drawing, trim, edge sealer, mastic, fasteners, anchors and inserts.
36. This Subcontractor shall exclude toilet accessory mirror units, to be provided by BP#21 Drywall and General Trades.

Spec. 08 9100 Louvers

36. This Subcontractor shall furnish and install all interior and exterior louvers, for example as shown on roof plans, ~~and~~ schedule on A610, M103A, and 1B/A531A.
37. This Subcontractor shall exclude the louvered air return and doors.

Spec. 08 9200 Louvered Equipment Enclosures

38. This Subcontractor shall design, furnish and install all louvered equipment enclosures/louver screen wall as a complete system with specified finishes & color. This subcontractor shall provide louver screen panel, post, and post base plate, for example as shown on 1A/A531. This subcontractor shall exclude structural support post below post base for louver screen wall, by BP #12 (Structural Steel).
39. This Subcontractor shall furnish and install access gates, for example 3E/A516 and 4E/A516.
40. This Subcontractor shall provide delegated design submittals with Professional Engineer stamp as specified in 1.4-D & 1.4-C-1.

Shared Specifications

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Spec. 07 2100 Thermal Insulation

41. This Subcontractor shall furnish and install thermal insulation between the work of this bid package both similar and dissimilar materials including but not limited to metal panels, insulated coated spandrel glazing, and skylights.

Spec. 07 2726 Fluid-Applied Membrane Air Barriers

42. This Subcontractor shall furnish and install fluid-applied where AVB terminates into scope furnished and installed by this subcontractor. Include stripping in AVB within all work provided by this subcontractor including but not limited to storefront and curtainwall pockets, louvers, skylight with a minimum of 1 foot overlap or per manufacturer minimum requirements with adjacent work.

Spec. 07 6200 Sheet Metal Flashing and Trim

43. This Subcontractor shall furnish and install sheet metal flashing and trim at perimeter, head, sill, and integral withing the work of this bid package both similar and dissimilar materials.
44. This Subcontractor shall include flashing at 3E/A522, similar to typical curtain wall at sill slab-on grade 3A/A641.

Spec. 07 9200 Joint Sealants

45. This Subcontractor shall provide and install all joint sealants, including but not limited to backer rod and sealant, within this subcontractors systems and between the work of this bid package both similar and dissimilar materials.
46. This Subcontractor shall be responsible for providing all compatibility tests for sealants to adjoining materials.

Spec. 08 7100 & 08 0671 Door Hardware & Door Hardware Schedule

47. This Subcontractor shall furnish and install all hardware associated with the aluminum (interior & exterior) doors as indicated on the contract documents. This Subcontractor shall provide construction cylinders for all doors. Furnishing of final cylinders & keying is by D/F/H Subcontractor; installation of final cylinders is by Drywall & General Trades Subcontractor. This Subcontractor shall coordinate with the Electrical Subcontractor for installation and power and security requirements.
48. This Subcontractor shall furnish and install the automatic door operators and the remote activation paddles, mag locks, etc. specified for the aluminum doors including but not limited to wiring, start up by manufacturers authorized vendor of all electrical hardware devices, testing, troubleshooting with security and fire alarm. This Subcontractor is responsible for all the low voltage wiring between the operator and the remote paddles. Coordinate with the Electrical Subcontractor for the line voltage connection to this system.
49. This Subcontractor shall exclude the furnish of electronic security hardware (card readers) as it will be supplied and installed by the Security Subcontractor. This Subcontractor shall coordinate required cutouts and installation with Security Subcontractor.

Add'l Items

50. This Subcontractor shall furnish a blocking schedule indicating the exact locations of all in wall blocking required for the installation of this subcontractors work including but not limited to , metal panels, storefront, curtainwall, pass through, mirrors and other items furnished and installed by this Subcontractor. Any blocking not indicated on this blocking schedule will be the responsibility of this Subcontractor. The blocking schedule & associated submittals must be approved by the design team prior to the start of exterior wall framing.

51. This Subcontractor shall furnish and install the bullet resistant aluminum pass thru window and the 2-pane sliding window(nurse's office).
52. This Subcontractor shall furnish and install all movement and expansion joints within and at Perimeter of Curtainwall, storefront and exterior wall systems installed by this subcontractor.
53. This Subcontractor shall furnish and install insulation in storefront & curtain wall systems as required, for example Detail 3D/A511.

D. Safety

54. This Subcontractor shall provide a site-specific plan on how they will comply with Turner's Ladder's Last Program.
55. This subcontractor shall ensure that any Lulls used on site are equipped with hydraulic fork positioners.
56. This subcontractor shall engage a 3rd Party to complete a GPR Survey to mark out existing utilities under and in the general area of any proposed Mobile Crane locations.
57. This Subcontractor is responsible to ensure that the perimeter protection of each floor that is affected by their work be maintained on a daily basis. Temporary perimeter guard railing systems that are required to be removed to allow for the installation of the exterior wall, will be replaced by this subcontractor who will provide a separate standard guardrail system, such as a Guardian or Garlock system, to protect the floor edge while the exterior wall is being installed. There shall not be any unprotected slab edges at any time.
58. During the installation this Subcontractor shall provide a secondary redundant means of material support in case the primary means of support fails.
59. This Subcontractor is to have all glass and glazing bulk materials labeled with the weight and is to coordinate with Turner the safe storage of materials to mitigate overload to any part of the structure.
60. This Subcontractor is to utilize Leading Edge fall protection in all circumstances where installation is done from the inside of the building.
61. This Subcontractor shall install a Controlled Access Zone below elevated work areas.
62. The Sitework Contractor shall be responsible for snow removal of the site, access roads and walkways to the building. This subcontractor will be responsible to remove snow and ice from all other areas for their work including but not limited to their work areas, material areas, storage conex's and trailers. Snow and ice removal is not allowed to free fall from upper levels of buildings, scaffolding or platforms.

E. Exclusions

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1. This Subcontractor shall exclude furnish and installing glazing at HM and wood Doors (By BP #20 Doors, Frames, & Hardware).
2. This Subcontractor shall exclude metal copings and fascia (By BP #15 Roofing).
3. This Subcontractor shall exclude gutters, downspouts, and recessed rainwater leader (By BP #15 Roofing).
4. This Subcontractor shall exclude flush sound barrier mullion cap (By BP #21 Drywall).
5. This Subcontractor shall exclude bathroom stainless framed mirrors (By BP #21 General Trades).
6. This Subcontractor shall exclude the louvered air return within HM doors.
7. This Subcontractor shall exclude structural support post below post base for louver screen wall (By BP #12 Structural Steel).
8. This Subcontractor shall exclude furnishing final door cylinders. To be furnished by BP#20 and installed by this subcontractor.
9. This Subcontractor shall exclude line voltage power for door hardware (By BP #38 Electrical).

F. Unit Prices

The following Unit Prices reflect the work of this bid package under which the bid proposal was submitted, and all unit prices shall remain valid for the life of the project and include all costs for complete installation. Unit prices which do not affect the work of this bid package have been filled in "not applicable (n/a)". ***UNIT PRICES ARE GOOD FOR BOTH ADDS AND DEDUCTS.***

Unit Prices:	**Amount**
Refer to Form of Proposal	

G. Alternate Prices

The following Alternate Prices reflect the work of this bid package under which the bid proposal was ***submitted, and these alternate shall remain valid for the life of the project and include all costs for a*** complete installation.

Alternates:	**Amount**
Refer to Form of Proposal	

Additional Provisions/Scope of Work

New Central Middle School Project
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BP#37 – HVAC & Controls
Dated: 07.08.2024
Revised: 10.31.2024

C.1 Specific Scope of Work

Without the intent of limiting the Scope of Work to be performed by the Subcontractor, included is the furnishing and installing of the ***BP#37 – HVAC & Controls Work*** in accordance with the contract documents and as further enumerated within these Additional Provisions. The items listed herein are NOT intended to be a complete list of work items to be performed under this agreement. Furthermore, detail references are included for convenience but are not intended to identify all applicable details.

1. Includes performing all of the ***BP#37 – HVAC & Controls Work*** in accordance with the Contract Documents and as established in the Project Specifications and Document List. This includes the following Specification Sections specifically but does not limit the Subcontractor from the responsibility of the entire Project Documents Scope of Work:

Exclusive Specifications

Specification Sections listed below as 'Exclusive' shall be considered the sole responsibility of this Subcontractor. This Subcontractor shall furnish and install all products listed within these specification sections in conformance with all requirements and as indicated in the Contract Documents, including coordination with other related sections as listed within these specification sections and in reference to the entire Contract Specifications and Drawings. This Subcontractor shall be responsible to perform a complete and thorough review of the Contract Documents and include in their lump sum bid amount all costs to complete the entire scope of work for products listed within these specification sections. This includes, but is not limited to, the review of all drawings, details, notes, keys, keynotes, legends, symbols, abbreviations, schedules, callouts, and all applications of the products listed within these exclusive specification sections for a complete system which are reasonably inferable (i.e. similar detail/symbol/illustration, adjacent construction, means & methods, etc.) from the Contract Documents. No additional costs will be considered without clear and definitive substantiation.

Spec. #	Specification Name
230400	General Conditions for Mechanical Trades
230516	Expansion Fittings and Loops for HVAC Piping
230517	Sleeves and Sleeve Seals for HVAC Piping
230523	General-Duty Valves for HVAC Piping
230529	Hangers and Supports for HVAC Piping, Ductwork and Equipment
230548	Vibration and Seismic Controls for HVAC Piping and Equipment
230553	Identification for HVAC Piping and Equipment
230593	Testing, Adjusting, and Balancing for HVAC
230900	Instrumentation and Controls for HVAC
230993	Sequence of Operations
232113	Hydronic Piping
232114	Hydronic Specialties
232123	Hydronic Pumps
232500	HVAC Water Treatment
233100	HVAC Ducts and Casings
233300	Air Duct Accessories
233400	HVAC Fans
233600	Air Terminal Units
233700	Air Outlets and Inlets

235100	Breechings, Chimneys, and Stacks
235239	Fire-Tube Boilers
235700	Heat Exchangers for HVAC
238126	Split-System Air-Conditioners
238200	Convection Heating and Cooling Units

Shared Specifications

Specification Sections listed below as 'Shared' shall be considered the mutual responsibility of two (2) or more Subcontractors. This Subcontractor shall furnish and install products listed within these specification sections in conformance with all requirements and as indicated in the Contract Documents, including coordination with other related sections as listed within these specification sections and in reference to the entire Contract Specifications and Drawings. This Subcontractor shall be responsible to perform a complete and thorough review of the Contract Documents and include in their lump sum bid amount all costs to complete the specific scope, as defined below, for products listed within these specification sections. This includes, but is not limited to, the review of all drawings, details, notes, keys, keynotes, legends, symbols, abbreviations, schedules, callouts, and all applications of the products listed within these shared specification sections for a complete system which are reasonably inferable (i.e. similar detail/symbol/illustration, adjacent construction, means & methods, etc.) from the Contract Documents. No additional costs will be considered without clear and definitive substantiation.

Spec. #	Specification Name
DIV 00	Division 00 – Procurement and Contracting Requirements
DIV 01	Division 01 – General Requirements
019113	General Commissioning Requirements
079200	Joint Sealant
230700	HVAC Insulation
236411	Packaged Water Chillers – Scroll
237413	Modular Central Station Air-Handling Units

Bid Package Specific Scope

2. This Subcontractor shall examine the layout and installation of all adjacent work performed by others at weekly intervals leading up to the date of installation and shall report to Turner in writing any discrepancies that may affect the installation or operation of the scope provided under this agreement to avoid any delay in starting work as scheduled.
3. This Subcontractor shall include multiple mobilizations as required by the latest issuance of the project schedule.
4. This Subcontractor must meet the latest issuance of the project schedule. To this end, this Subcontractor understands that all adjacent work may not be 100% complete at the time of field dimension verification and this Subcontractor shall coordinate with other trades and accept reasonable hold-to dimensions which may be required to meet the delivery and installation dates.
5. This Subcontractor shall clean all items installed by this Subcontractor and install, secure and maintain appropriate protection to prohibit damage from subsequent work. Protection must be approved by Turner.

6. This Subcontractor shall furnish and install all mechanical systems, including but not limited to, associated piping, fittings, ductwork, fire/smoke dampers, hangers, supports, insulation, valves, actuators, identification, controls, and specialties as shown on the Contract Documents and in the Specifications. This Subcontractor is to include items not specifically shown but required for the operation of systems shown within this bid package.
7. This Subcontractor shall coordinate and provide all final Mechanical connections to equipment provided by others, including but not limited to, Food Service Equipment, Pre-Purchased Equipment, etc.
8. This Subcontractor shall file and pull all permits required for their Scope of Work. Utility connection coordination and cost shall also be included by this Subcontractor.
9. This Subcontractor shall provide rigging plans for all equipment and/or installations requiring the use of a crane at a minimum of one (1) month prior to the rigging operation. This Subcontractor shall include, but not limited to, all road plans, signage, traffic controls, etc. This Subcontractor shall coordinate crane pad locations with the BP#09 Sitework Subcontractor.
10. This Subcontractor shall include all costs for escalation on materials, labor, equipment, etc. for the durations indicated on the project schedule.
11. This Subcontractor shall provide all necessary layout including benchmarks, extending of control lines, etc. to properly perform their Work.
12. This Subcontractor shall provide a full-time competent Project Manager for the duration of the project. This individual must have the authority to make all decisions for this Subcontractor, attend all weekly meetings, and be responsible for all lower tier subcontractors and vendors.
13. This Subcontractor shall be required to continuously record the progress of the HVAC and Controls Work on a record set of Drawings, to be maintained on the jobsite at all times. The Architect, Engineer and Turner will review these Documents on a monthly basis in conjunction with their monthly payment application review; this shall be a condition of approval of each progress payment.
14. This Subcontractor understands the specific warrantee/guarantee period will start when the equipment/system is accepted by the Owner for their operation/use at the time of Substantial Completion. This Subcontractor shall include, but not limited to, ownership, preventative maintenance, protection, care, operation, cleaning, etc. for all HVAC equipment/systems, whether furnished by this Subcontractor or others, any gap duration between the scheduled start up of such equipment and owner acceptance of the equipment/system. This Subcontractor shall perform maintenance per equipment manufacturer's recommendations.
15. This Subcontractor shall be responsible for protecting all Mechanical equipment, whether furnished by this Subcontractor or by others. Any damage as a result to equipment not being properly protected will be repaired at this Subcontractor's expense.
16. This Subcontractor shall furnish and install all supports and support systems for mechanical equipment and piping if not indicated on the structural or mechanical drawings. Systems shall meet the requirements of seismic and sway parameters per the local building code and project specifications.
17. This Subcontractor shall provide their own lifts and access for construction. No scaffolding will be provided.
18. This Subcontractor shall submit shop drawings as well as layout and mark housekeeping pads for equipment provided and/or installed under this scope of work. Installation of housekeeping pads will be by BP#10 – Concrete.

19. This Subcontractor shall be responsible for coring all penetrations required with this scope of work. This includes, but not limited to, foundations, walls, slabs, etc. as well as where sleeves were not installed prior to placing of concrete.

20. This Subcontractor shall coordinate, layout, furnish and install all sleeves and inserts required for their work. Sound sealing shall be by this Subcontractor. Firestopping will be by the BP#17 Firestopping Subcontractor. Throughout the entirety of the construction progress/schedule, this Subcontractor shall review all sleeve locations installed within, but not limited to, gypsum partitions, masonry partitions, concrete foundation walls, steel decking, etc. and confirm the sleeves are located and installed where needed as progress continues for the other associated Subcontractors (i.e. confirm sleeve locations prior to the Masonry Subcontractor setting masonry blocks and/or grout). Commencement of this Subcontractor's work will constitute this Subcontractor's acceptance of the existing conditions.

21. This Subcontractor shall provide locations of all HVAC pipe sleeves and penetrations to the BP#17 Firestopping Subcontractor so they can properly seal/stop the HVAC pipe sleeves, penetrations. This Subcontractor shall coordinate duct and pipe insulation with firestopping, sleeves, and penetrations.

22. This Subcontractor shall furnish and install all expansion fittings and expansion loop material, size and spacing. Reference specification table, 23 0516 page – 9.

23. This Subcontractor shall furnish, F.O.B. jobsite, all access doors for all valves and other equipment requiring access and which may become inaccessible at a later date in the drywall and masonry assemblies. This Subcontractor shall arrange their work in such a manner to minimize the quantity of access doors required. All items requiring accessibility shall be located in already accessible areas, such as above lay-in ceilings, etc. if at all possible. It is the responsibility of the Mechanical Subcontractor to coordinate and provide information regarding the location, sizes and quantities of access doors, panels, etc. required for their Work as well as furnish same. Failure to furnish the access doors and / or coordinated locations such that other Subcontractors (e.g., masonry, drywall, etc.) must go back to complete work, shall result in a back-charge to this Subcontractor for out of sequence Work accordingly. Also note that all required access doors and / or panels shall be furnished from one (1) manufacturer with their ratings consistent with the respective partition / ceiling / floor ratings and must be keyed alike. Access door type will be per the architect's direction in each location. This Subcontractor shall provide access door shop drawings indicating locations, types and sizes in architectural ceilings and partitions for design team review and approval.

24. This Subcontractor shall furnish and install all HVAC and Controls equipment along with, but not limited to, all associated piping, insulation, conduit, wire, terminations, start-up, commissioning, etc. indicated in the Contract Documents **not** being furnished by SourceBlue.

25. This Subcontractor shall furnish and install Boilers B-1 and B-2. This Subcontractor shall include all costs for, but not limited to, rigging, protection, connections, startup, commissioning, controls, etc. This Subcontractor shall refer to all Contract Drawings and specifications to furnish and install a complete operating system including, but not limited to, pressure relief valves, solenoid valves, electronic spark ignitions, low water cut-off switches, temperature sensors, manufacturer accessories, etc. Associated EPO's to be furnished and installed by the BP#38 Electrical Subcontractor.

26. The BP#12 Structural Steel Subcontractor shall deck over all framed openings and this Subcontractor shall cut and remove the deck for their installations and penetrations.

27. Open ends of ductwork are NOT acceptable. ALL ductwork (whether or not installed or stored) are required to be covered at all times (especially its openings) even during transport by this Subcontractor. This Subcontractor shall inspect and protect the open ends of all installed ductwork daily. All duct work must be stored on movable carts and protected. This Subcontractor shall issue reports of investigations and corrective action of open ends of ductwork to Turner Construction on a weekly basis.
28. This Subcontractor shall furnish and install all Hydronic Radiant Ceiling Panels and Active Chilled Beam units per the associated schedules on Drawings M601 and M602. This shall include all, but limited to, associated pipes, valves, fittings, control valves, etc. per Details 7, 8, 9, and 10 on Drawing M502 as an example. This Subcontractor shall coordinate mounting of these units with the scheduled ceilings as well as furnish and install all components required to support, hang and finish these units including, but not limited to, hangers, rods, finish trim, t-bars, Coanda wing trims, etc. This Subcontractor shall coordinate installation and support of these units with the BP#22 Acoustical Ceilings Subcontractor.
29. This Subcontractor shall utilize a Total Station system for surveying and layout as well as setting hanger supports and layout risers/ boxes/ penetrations/ under slab infrastructure, etc. This Subcontractor shall include utilizing the Total Station system by downloading the MEP Coordination and/or Design model and using such model to layout the points. The Total Station system shall not be utilized solely as a transit.
30. This Subcontractor shall include consistent and complete scheduling and coordination with all other trades to properly sequence the work and for the complete scope under this agreement.
31. This Subcontractor shall provide Turner Construction with twenty-five (25) USB Data Loggers to record temperature and humidity. These Data Loggers are to be Bluetooth compatible and interface with a cell phone application provided by the manufacturer.
32. This Subcontractor shall furnish and install all identification, labeling and tagging defined in the Contract Documents prior to the installation of the ceiling grid by others so as to allow for proper inspections as to thoroughness of these items.
33. This Subcontractor shall furnish and install all fire, smoke and combination dampers with actuators at locations indicated on the Contract Documents. ~~Required quantity of dampers to be fully coordinated and included by this Subcontractor with the Architectural Partition and slab rating plans.~~
34. This Subcontractor shall paint the interior of metal ducts that are visible through registers and grilles and that do not have duct liner. Apply one coat of flat, black, latex paint over a compatible galvanized-steel primer.
35. This Subcontractor shall include all necessary shutdowns and / or tie-ins for your specific systems. This includes all required premium time, proper notification and coordination with all affected parties (Owner, Turner, local agencies, utilities, etc.).
36. This Subcontractor shall furnish and install all specialty ductwork including kitchen hood exhaust ductwork, and fabric ductwork.
37. This Subcontractor shall furnish and install all breeching, chimneys, and vents for equipment including but not limited to, boilers, water heater, generator, etc.
38. This Subcontractor shall grout with non-shrink grout all base plates that are used to support piping and/or equipment.

39. This Subcontractor shall include all costs to provide delegated design criteria and submittals per the following, but not limited to, Delegated Design Table on Drawing GC0A. This Subcontractor has thoroughly read all Specification Sections regardless of what is indicated on the Delegated Design Table on Drawing GC0A and included all costs for delegated design scope of work.

40. This Subcontractor shall design, furnish & install an independent support system for all, but not limited to, hung equipment, fixtures, ~~ceiling and~~ piping systems, ductwork, registers, grilles, diffusers, etc. that are ~~directly below the~~ typically supported from a metal roof deck. This support system must attach to structural steel framing members as the metal roof deck cannot be utilized for support, either above or below the roof deck. Refer to A200 series drawings General Note #12 for criteria. This Subcontractor shall provide delegated design and include shop drawings and calculations indicating, but not limited to, load carrying capacities, point loads, etc. This Subcontractor shall include adding miscellaneous metal supports into the 3D model for coordination with all MEP trades.

41. This Subcontractor shall design and install all, but not limited to, channel support systems, heavy duty steel trapezes, seismic restraint hangers, etc. required for all Mechanical systems as indicated in the Contract Documents. All above ceiling seismic and required sway bracing shall be installed and inspected 4 weeks prior to any scheduled ceiling grid installation.

42. This Subcontractor shall include 1 laborer per 10-person workforce while working on site but no less than 1 person for a composite cleanup crew. The composite cleanup crew will be required for 2 hours each Friday from 12:30-2:30 p.m. while the subcontractor is performing work on site. Composite crew is intended to cleanup general debris not ~~necessary~~ necessarily associated with particular subcontractor (cardboard, plastic bottles, misc. trash item, general sweeping, etc.)

43. This Subcontractor shall furnish and install all acoustical sealant of all wall and floor penetrations by this subcontractor per specification section 079200. Firestopping will be by BP #17.

44. This subcontractor shall furnish and install all aluminum fabricated duct plenum boxes ~~& louvers~~ on all associated roofs. For example, reference 1B/ A531 & M103A. This Subcontractor shall also furnish and install all insulation requirements associated with these plenum boxes per Key Note M10 on the Mechanical Roof Plans. This Subcontractor shall connect their aluminum fabricated duct plenum box to the architectural louvers located within each doghouse. This Subcontractor shall coordinate locations and sizes of architectural louvers with the BP #19 Glass, Glazing & Metal Panels Subcontractor, who is furnishing and installing these architectural louvers.

45. This Subcontractor shall include 2 complete cleanings of equipment and systems provided under this scope. Cleanings shall be performed prior to initial energizing equipment and again prior to turnover to the Owner. Cleanings shall include complete debris, dust removal and wiping of all internal and external components and shall be in accordance with manufacturers approved methods.

46. This subcontractor shall provide video recording of owner demonstrations and trainings for all installed equipment.

Early Equipment Use

47. This subcontractor shall provide all labor and material for early start-up and use of HVAC systems for early heating & cooling. Provide extended warranties & cleaning of all systems for like-new turn-over conditions at time of Substantial Completion. Please include the following in your bid:

    A. Include labor and materials for filter changes at VRF, HR and roof top units. One (1) at final cleaning and one (1) final set of filters in each piece of equipment used for early cooling / dehumidification as needed. This is in addition to what is specified.

B. Include time to assist in additional start up by manufacturer if required for equipment used for early cooling / dehumidification.

C. Include any routine maintenance required per the O & M manuals.

D. Include furnishing, installing and maintaining filter media on RGD's and before VRF, HR and RTU Unit pre-filters.

E. Include furnish and installation of means to bypass any heat or energy recovery wheels within major Mechanical Equipment (i.e. RTUs, DOAs, etc.). Heat or energy recovery wheels cannot get dirty.

Logistics

48. Temporary power will be provided in accordance with Turner's Temporary Light and Power Additional Provisions. This Subcontractor shall be responsible for any additional power requirements not provided in this document for the work of your trade.

49. This Subcontractor is required to provide neat rack storage of materials on the working floors. Space is limited, therefore, a neat and organized work area is required to be maintained by all trades.

50. This Subcontractor shall coordinate and plan all large deliveries, whether equipment, materials or any other items, with Turner Construction to determine impact of the Project's logistics and identify any obstacles such as, but not limited to, requiring larger gates, larger exterior wall leave-outs, etc. to ensure the delivery is successful and does not impact the overall Project Schedule.

51. This Subcontractor shall review all areas of high roofs and confirm access can be achieved with the lift and/or crane they intend to utilize at a minimum of two (2) weeks prior to the installation date. This review shall include, but not limited to, all types of obstructions, site grading, already installed materials/systems, etc.

52. This Subcontractor shall provide temporary heating for the winter of 2025-2026 (Beginning October 2025 to the end of March 2026) for the interior construction of the new school. Assume fifteen (15) 480V electric units, similar to Heat Wagon P6000, located per Turner's Temporary Heating Additional Provisions. This Subcontractor shall size accordingly to provide a minimum of 50-degree ambient air temperature. Coordinate quantity of units required and include distribution to each floor level. Coordinate Electrical requirements and points of connection with the BP#38 Electrical Subcontractor accordingly.

Submittals & Coordination

53. This Subcontractor shall provide penetration drawings for, but not limited to, interior, exterior, foundation, roof, partition and floor penetrations. This shall include dimensions off columns, elevations above finish floor, and required opening size. Layout as required for proper field coordination is included under this scope.

54. This Subcontractor shall coordinate all Mechanical and Controls equipment voltages with the Electrical Design. Identify accessories requiring power in addition to those indicated on the documents during the submittal phase for design team confirmation and coordination.

55. This Subcontractor shall examine the layout and installation of all adjacent work performed by others at weekly intervals leading up to the date of installation and shall report to Turner in writing, one (1) week in advance, any discrepancies that may prevent the proper execution, installation or operation of the scope provided under this agreement to avoid any delay in starting work as scheduled. This notice should provide sufficient time to repair conditions without impacting the overall Project Schedule. Commencement of this Subcontractor's work will constitute this Subcontractor's acceptance of the existing conditions.
56. This Subcontractor shall coordinate installation height and dimensions of all, but not limited to, roof top equipment, curbs, supports, ducts, pipes, insulation, conduit, etc. with the BP#15 Roofing contractor to ensure minimum clearances for flashings, pitch pockets, etc. are maintained.
57. This Subcontractor shall furnish and install a complete insulated piping system through all roof penetrations. This includes, but not limited to, all required Counter Flashing, Rigid insulation, link seals, Anchor/Stop plates, Pipe sleeves, Pipe guides, etc. Start and stop point locations of counter flashing shall be coordinated with Turner Construction and the BP#15 Roofing Subcontractor.
58. This Subcontractor shall furnish and install all roof supports for their work, including but not limited to, all roofing pads and other necessary materials. This Subcontractor shall coordinate with the BP#15 Roofing Subcontractor all details and installations to comply with the roofing warranty.
59. This Subcontractor shall coordinate and perform all roof penetrations when the BP#15 Roofing Subcontractor is on-site and present so the penetrations can be flashed/closed properly and in accordance with the roofing warranty requirements.
60. This Subcontractor shall maintain utmost care so as not to damage the Spray-on Insulating materials. Any and all damages and / or over-scraped areas, which may require repair, shall be back charged to the Subcontractor that causes the damage. Hangers and supports shall be installed prior to SOFP operations to minimize scraping after the fact.
61. This Subcontractor shall coordinate all domestic water tie-ins with the Plumbing Subcontractor.
62. This Subcontractor shall coordinate all exterior wall penetration installations with the exterior wall contractors. All, but not limited to, details, flashing requirements, cavity depth and freeze protection coordination(s) must be performed to ensure the exterior wall thermal and moisture specifications are maintained with these penetrations.
63. This Subcontractor will be required to relocate any piping, supports, or other parts of the Mechanical system installed by this Subcontractor that deviates from the coordinated drawings that prohibits access to any equipment, valve, damper, junction box or anything else requiring access in the future. Acceptable access shall be deemed by Turner, Owner, Engineer, or Commissioning Agent.
64. This Subcontractor shall participate in rough-in inspection coordination with other trades and Turner Construction utilizing color-coded framing identification to illustrate completion and inspection ready areas. Color-code key and inspection sequencing will be identified by Turner Superintendent.
65. Duct-mounted smoke detectors shall be furnished by the BP#38 Electrical and Fire Alarm Subcontractor. This Subcontractor shall coordinate locations, sizes, orientation and layout of all Duct-mounted smoke detectors with the BP#38 Electrical and Fire Alarm Subcontractor. This Subcontractor shall install all Duct-mounted smoke detectors. This Subcontractor shall reseal all associated penetrations and ensure sealing and insulation are adequate. Power wiring of Duct Smoke & Fire/Smoke dampers will be by the BP#38 Electrical and Fire Alarm Subcontractor. This Subcontractor shall furnish and install all interconnecting control wiring between the duct-mounted smoke detector and fire/smoke damper including but not limited to alarm points, status/position, shut down of Mechanical equipment, notification by BMS subcontractor, etc.

66. This intent is for no mechanical systems to be installed over electrical equipment, however, this Subcontractor shall furnish and install drain pans that are properly slopped and piped to nearest drain as indicated on the contract documents for Mechanical equipment and/or for any piping which is coordinated over electrical components. This Subcontractor shall ensure proper code clearances are maintained for installations over and around MEP equipment, this includes but is not limited to NEC Clear access requirements. In addition, if a drip pan is being utilized, this subcontractor shall furnish and install a full leak detection system including but not limited to, power, control wiring, BMS monitoring etc. All costs for such leak detection systems shall be burdened by this subcontractor.
67. This Subcontractor shall coordinate installations with the BP#21 Drywall & General Trades and BP#22 Acoustical Ceiling Subcontractors of all equipment and systems, including but not limited to, registers, diffusers, grilles, hydronic radiant ceiling panels, active chilled beams, fan coil units, etc. to ensure proper fit and finish at all ceilings and walls.
68. This Subcontractor shall review and confirm all, but not limited to, Mechanical, Controls, Electrical, Fire Alarm, etc., necessary penetrations and connections are installed within the curb prior to the installation of any rooftop equipment. This Subcontractor shall provide sign-off sheets to Turner Construction.
69. This Subcontractor shall provide access within all equipment curbs to allow for any under-unit connections (i.e. duct, gas, electric, condensate, etc.) so these services don't need to be connected while the unit(s) are suspended during the rigging/installation process.
70. This Subcontractor shall include all labor and material to coordinate locations of pipe runs so as not to interfere with egress passages, Electrical Rooms and stairwells. Piping systems shall not run in or pass through Electrical Rooms or stairways.
71. This Subcontractor shall furnish and install all roof curbs, stands, duct/pipe supports, equipment rails, counter flashing, etc. required for their work. This should include, but not be limited to, all roof pipe penetrations, roof duct penetrations, roof pipe supports, roof duct supports, condensing units, roof-mounted exhaust fans, etc. This Subcontractor shall coordinate roofing depths and blocking requirements furnished and installed by the BP#15 Roofing Subcontractor. This Subcontractor shall review all Contract Drawings to include a complete scope of work. Reference M500, M501 and all applicable Architectural drawings.
72. This subcontractor shall coordinate with the BP#38 electrical and BP#30 food service subcontractors to provide the required sequence of operations for the ansul system. This subcontractor shall include all but not limited to wiring, conduit, devices, testing, etc. for a complete operational system. For example, refer to 1/E502, E701 & 5/P501.

Coordination with SourceBlue

73. This Subcontractor understands SourceBlue will be furnishing the following HVAC equipment: Dedicated Outdoor Air Units DOA-1, DOA-2, DOA-3, DOA-4 and DOA-5; Rooftop Units RTU-1, RTU-2 and RTU-3; Heat Recovery Ventilator HRV-1; Air Cooled Chillers CH-1 and CH-2. This Subcontractor has received, reviewed, included costs and understands the scope of work to be performed in the Equipment Coordination Matrix(ces). This Subcontractor is responsible for all work to be performed under the Trade Partner – MECH, Trade Partner – BMS, and where applicable, Trade Partner – OTHER roles and responsibilities.
74. This Subcontractor shall review the submittals for all equipment furnished by SourceBlue and shall furnish and install any HVAC and/or Controls components not provided by SourceBlue to provide a complete and operational system.

75. This Subcontractor shall include receiving and storing the above-referenced SourceBlue-furnished equipment in an insured and suitable location as per the associated equipment manufacturer's directions for up to a year's time. This Subcontractor shall include all costs to transport this equipment to the jobsite.
76. Upon arrival to the jobsite, all, but not limited to, marshaling, hoisting, rigging, setting and associated costs shall be provided by this Subcontractor for the pre-purchased HVAC equipment. All costs to protect and ensure no damage occurs during the storage, transportation, rigging and installation phases shall be included.
77. This Subcontractor understands SourceBlue will be furnishing seismic curbs for the following, but not limited to, HVAC equipment: Dedicated Outdoor Air Units DOA-1, DOA-2, DOA-3, DOA-4 and DOA-5; Rooftop Units RTU-1, RTU-2 and RTU-3; Heat Recovery Ventilator HRV-1. This Subcontractor shall contract a third-party engineer licensed in the State the work is being performed to design curb attachment to building structure. This Subcontractor shall include all costs associated with coordinating, installing and attaching these curbs. This engineer shall review installed field conditions and issue a report confirming all attachment of rooftop equipment and/or curbs to the structure are adequate prior to setting the unit(s).

Demolition

78. This Subcontractor has included all Mechanical Demolition notes and scope of work identified on the Contract Documents including, but not limited to, Drawings MEPD000 and MEPD001.
79. This Subcontractor shall make safe all HVAC and Controls piping, equipment and accessories scheduled to be demolished. This subcontractor shall cut and leave an air gap at the location of the start of the demolition at the upstream source/location (i.e. equipment, valve, distribution point, etc.). All material to be removed shall be painted green by this Subcontractor, green markings must be no more than 5' apart. Any material to remain will be painted red with markings no more than 5' apart. Removal and disposal of all piping, accessories and materials will be provided by the BP#08 Demolition & Abatement Subcontractor.
80. The BP#08 Demolition & Abatement Subcontractor will perform all MEP mass demolition and removals (piping, conduits, wire, equipment, etc.) for all phases of the work after the services have been cut, capped and made safe by the MEP trades. This Subcontractor will be responsible for capturing and properly disposing of the refrigerant of all Mechanical equipment from the existing Building.
81. This Subcontractor has received, reviewed and included all costs for phased demolition of the existing Building and associated HVAC and Controls per the Phasing & Logistics Plans. This Subcontractor acknowledges and understands portions of the existing Building will be abated and demolished prior to the entire Building. This Subcontractor shall coordinate with the BP#08 Demolition and Abatement Subcontractor with respect to the sequencing of the work relative to the zoning and shutdown or continued operation of the existing HVAC and Controls systems.

Controls

82. This Subcontractor shall furnish and install, but not limited to, all labor, materials, services, equipment and transportation necessary for a complete and operational system of automatic temperature control and BMS (Building Management System) along with required control wiring in accordance with provisions of the contract documents. This Subcontractor shall include all, but not limited to, computer hardware/software, input/output devices, controllers, local area networks, sensors, control devices, actuators, control units, etc. required for a complete operating system.
83. This Subcontractor is required to furnish and install, but not limited to, all conduit, boxes, devices, wiring, terminations, etc., for a complete and operational low voltage Controls system as well as equipment interlocks between fans, dampers, detection devices, actuators, etc. This Subcontractor shall verify voltages are compatible between components, whether furnished under this scope of work or by others (i.e. SourceBlue pre-purchased equipment).
84. This Subcontractor will be responsible for all costs associated with the reopening and patching of ceilings and/or walls required for corrective work. All required testing must be scheduled and completed before ceilings are installed or walls are closed.
85. This Subcontractor shall coordinate, furnish, install, wire, test, startup and commission all sensors such as but not limited to temperature, humidity, carbon dioxide, combination temperature/humidity/CO2, etc. required for a complete operating system. This Subcontractor shall produce and submit shop drawings indicating exact locations of sensors which will be reviewed and approved by the Design Team prior to any wall rough-in.
86. This Subcontractor shall generate, test and confirm functioning BMS graphics and all equipment Sequence of Operations prior to the start of Commissioning, Owner Training and Owner acceptance/occupancy.
87. The BP#38 Electrical & Fire Alarm Subcontractor will provide power to all Controls DDC Panels. This Subcontractor shall provide power to all control devices downstream of the DDC Panels per the plans and specifications.
88. This Subcontractor shall include all, but not limited to, cabling, terminations, patch panels, etc. to provide network connections to their BMS/Controls system required for a complete operating system. This Subcontractor shall include both temporary and permanent installations to comply with the Project Schedule.
89. This Subcontractor shall review all contract drawings and specifications to furnish and install all required BMS integrations, programming, etc. For example, reference Keynote FP18 on Drawing FP101E, 2/P500, 1/E500, 1/E501, 1/E701, etc.

Commissioning and Testing

90. This Subcontractor shall include, but not limited to, all necessary piping, valves, fittings, and terminations as required for partial testing of systems as required by the needs of the project. Temporary isolations of phased or multi-level, area systems shall be included.
91. This Subcontractor shall fully cooperate with the Owner's Commissioning Agent for commissioning of systems furnished and/or installed by this Subcontractor. This Subcontractor's Project Manager and Commissioning Engineer shall attend a weekly Commissioning/MEP Coordination meeting for the duration of the project. This Subcontractor shall include sufficient time to fully commission all systems. This Subcontractor shall be responsible for Controls commissioning until each system is fully operational and accepted by the independent Commissioning Agent and/or Owner.

92. This Subcontractor will provide a dedicated engineer / staff person on site dedicated to the commissioning of all systems prior to occupancy. This includes, but is not limited to, documenting, organizing and submitting startup reports, pre-functional checklists, functional checklists and any performance reports that may be required for each piece of equipment within three (3) days of startup. This Subcontractor shall provide adequate manpower to fully meet the commissioning requirements.

93. This Subcontractor shall perform all required testing in accordance with the specifications. Testing is to be performed in a manner to complement the Project Schedule and procedure of construction, and the Work of others. Test reports shall identify the system, infrastructure and area testing with specified test requirements. Any and all manpower, temporary connections, etc. required to accomplish this work in this manner are included. NOTE: This Subcontractor will test every piece of equipment in the presence of Turner and / or the Engineer and provide a full report to Turner and the Engineer accordingly.

94. This Subcontractor will be responsible for all costs associated with the reopening and patching of ceilings or walls required for corrective work. All required testing of HVAC and Controls systems must be scheduled and completed before ceilings are installed. This subcontract includes any out of sequence work and testing required to complete the work before ceiling work starts.

95. This Subcontractor shall include in their scope of Work, the proper starting, testing, and water / air balancing of the HVAC system. This is to include all costs associated with working with the Controls Subcontractor for starting, stopping, adjusting, and modifying all equipment with the Balancing Subcontractor (i.e., the Balancing and Control Subcontractors are to work together simultaneously full-time during the balancing phase). Any repair and / or replacement costs for ceiling tiles damaged during this phase shall be this Subcontractor's responsibility.

96. This Subcontractor will be responsible for all sheave changes for any HVAC equipment on the project that does not meet the design CFM.

97. This Subcontractor shall coordinate the Mechanical installation sequence, provide and execute a building flush-out schedule/procedure to meet the CT High Performance Building Requirements identified in Specification Section 230500. This Subcontractor shall provide the necessary written documentation including, but not limited to, confirmation of balancing completion, flush-out procedure, hourly trend logs, etc. as well as furnish and install new filtration media on all associated HVAC equipment.

98. This Subcontractor shall perform and document all pressure tests for all ductwork, piping and equipment as required by the contract documents, commissioning and QA/QC requirements. This Subcontractor shall visually mark all tested sections of ductwork. Testing is to be scheduled according to the needs of the project. This Subcontractor shall coordinate with the associated trades and pressure test all ductwork and/or piping scheduled to be concealed in a chase or behind partitions prior to being permanently concealed.

99. This Subcontractor shall include in their Bid all necessary overtime and / or off-hour work for testing so as not to delay the Work of other Trade Subcontractors. This includes testing in conjunction with any other Trade that tie-in to this Subcontractor’s scope of Work.

Additional Scope Clarifications

100. This Subcontractor shall include, but not limited to, all design, furnishing and installation of metal support stands for all exterior ductwork associated with Dust Collector DC-1. This Subcontractor shall also include, but not limited to, all design, furnish and installation of Dust Collector DC-1 supports. See Drawing ME for reference.

101. This Subcontractor shall furnish and install all condensate piping, traps, supports, clean outs, insulation, etc., associated with all equipment requiring such. This Subcontractor shall coordinate with the Plumbing drawings and Plumbing Subcontractor for indirect drain connections into storm piping. Refer to 7/P501 for coordination purposes; BP#36 – Plumbing to furnish and install all storm piping, backwater valves and J.R. Smith Model No. 3950 (or equal) air gaps; This Subcontractor shall install their condensate drain pipe into the air gap and adjust the inlet set screw; This Subcontractor shall furnish all access doors for these applications to either BP#11 – Masonry or BP#21 – Drywall and General Trades for installation, depending on the ceiling and/or partition type.

102. This Subcontractor shall furnish, rig, install, connect, test, commission, etc., all Mechanical equipment indicated on the Contract Documents NOT being furnished by SourceBlue. This shall include, but not be limited to, finned tube radiators, hydronic radiant ceiling panels, HVLS fans, fan coils, VAVs, exhaust fans, Duct Collector DC-1, split system AC units and outdoor units, cabinet unit heaters, unit heaters, duct silencers, active chilled beams, diffusers, registers, air filtration units, heat exchangers, duct mounted hot water reheat coils, mechanical pumps, etc.

103. This Subcontractor shall include, but not limited to, furnishing, coordinating, installing, wiring, testing, etc., all pressure sensors on the mechanical piping system indicated on the Contract Documents.

104. The HVAC Subcontractor (BP #37) shall furnish and install DC-1 and associated control panel, VFD, push button start, and interconnecting control wiring/devices/etc. ~~This~~ The Electrical Subcontractor (BP #38) shall furnish and install all other electrical scope, including but not limited to:

a. Feeder (conduit, wire, terminations, testing, etc.) from MP1E to fusible disconnect switch.
b. Fusible disconnect switch.
c. Feeder (conduit, wire, terminations, testing, etc.) from fusible disconnect switch to control panel/VFD.
d. Feeder (conduit, wire, terminations, testing, etc.) from control panel/VFD to DC-1.

105. This Subcontractor shall furnish and install all duct sleeves and associated mineral wool packing where ductwork penetrates the exterior walls. Reference 1E/A520 and Key Note M10 on the Mechanical Roof Plans as examples. This Subcontractor shall coordinate this scope of work with the BP #11 Masonry Subcontractor who is furnishing and installing associated AVB.

D. Exclusions

1. This Subcontractor shall exclude Division 22 Plumbing Scope of work (By BP#36 – Plumbing).
2. This Subcontractor shall exclude furnish and installation of concrete housekeeping pads beneath equipment (By BP#10 – Concrete).
3. This Subcontractor shall exclude trenching, excavation and backfilling of any exterior below-grade scope of work (By BP#09 – Sitework).
4. This Subcontractor shall exclude Penetration Firestopping (By BP#17 – Firestopping).
5. This Subcontractor shall exclude rigging, furnishing or installation of the walk-in refrigerator and freezer condensing units as well as associated refrigerant piping and insulation (By BP#30 – Food Service Equipment).

E. Safety

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#37 – HVAC & Controls
Dated: 07.08.2024
Revised: 10.31.2024

1. This Subcontractor to air test all wet systems prior to filling with water.
2. This Subcontractor is to control water used in pressure testing at all times. Water will not be allowed to be dumped out onto the building floors.
3. This Subcontractor shall provide a containment method for cutting oils and shavings that consists of a pan and absorbent material or equivalent (cardboard is not sufficient). A plan on how cutting oil will be handled and disposed of shall be provided. Plan should not allow for any oil to stain or penetrate the concrete slab or finished surfaces, this subcontractor shall be responsible for any damage to installed material.
4. This subcontractor shall ensure all stub ups extend a minimum of 3' above the slab or walking surface. If this is not possible, a 3' or higher cone must be placed over the stub up. Impalement protection is required on all stub up, when a hazard exists.
5. This subcontractor shall utilize a threaded rod cutter in lieu of a porta band or grinder to cut all threaded rod.
6. This Subcontractor shall protect all downward protruding threaded rod with rubber caps to prevent injury to employees while working around rods.
7. This Subcontractor shall submit on and use only rounded edged saddle for all pipe support in lieu of saddles with 90-degree corners equal or similar to the Buckaroo Saddle.
8. This subcontractor shall provide a stamped engineered rigging plan for any prefabricated vertical risers to be picked with a crane.
9. This Subcontractor shall supply at a minimum one spill kit per floor for interior demolition adjacent to active space, containing the following: 3 Kibosh 3/4" pipe menders, 3 Kibosh 1" pipe menders, 1 shut gun, 2 (3/4" & 1") shark bite fitting with ball valve, portable electric submersible pump with 3/4" threaded hose nipple, 50 feet of 3/4" hose, Rubbermaid with castors labeled with cover, a water diversion tarp and water barriers, and a shop vacuum.
10. This Subcontractor shall review, conform to, and furnish and install all requirements included in the Safety Additional Provisions included in this Agreement. This Subcontractor understands this document is project specific and all provisions must be included in this Subcontractors' bid.

F. Logistics and Schedule

1. This subcontractor shall include the requirements of the Project Logistics Plan and Project Schedule.

G. Unit Prices

The following Unit Prices reflect the work of this bid package under which the bid proposal was submitted, and all unit prices shall remain valid for the life of the project and include all costs for complete installation. Unit prices which do not affect the work of this bid package have been filled in "not applicable (n/a)". ***UNIT PRICES ARE GOOD FOR BOTH ADDS AND DEDUCTS.***

Unit Prices:	**Amount**
Refer to Form of Proposal	

H. Alternate Prices

The following Alternate Prices reflect the work of this bid package under which the bid proposal was ***submitted, and these alternates shall remain valid for the life of the project and include all costs for a*** complete installation.

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#37 – HVAC & Controls
Dated: 07.08.2024
Revised: 10.31.2024

Alternates:	Amount
Refer to Form of Proposal	

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#40 – Concrete Flatwork
Dated: 07.08.2024
Revised: 10.31.2024

C.1 Specific Scope of Work

Without the intent of limiting the Scope of Work to be performed by the Subcontractor, included is the furnishing and installing of the ***Concrete Flat Work*** in accordance with the contract documents and as further enumerated within these Additional Provisions. The items listed herein are NOT intended to be a complete list of work items to be performed under this agreement. Furthermore, detail references are included for convenience but are not intended to identify all applicable details.

1. Includes performing all of the ***Concrete Flat Work*** in accordance with the Contract Documents and as established in the Project Specifications and Document List. This includes the following Specification Sections specifically but does not limit the Subcontractor from the responsibility of the entire Project Documents Scope of Work:

Exclusive Specifications

Specification Sections listed below as 'Exclusive' shall be considered the sole responsibility of this Subcontractor. This Subcontractor shall furnish and install all products listed within these specification sections in conformance with all requirements and as indicated in the Contract Documents, including coordination with other related sections as listed within these specification sections and in reference to the entire Contract Specifications and Drawings. This Subcontractor shall be responsible for performing a complete and thorough review of the Contract Documents and include in their lump sum bid amount all costs to complete the entire scope of work for products listed within these specification sections. This includes, but is not limited to, the review of all drawings, details, notes, keys, keynotes, legends, symbols, abbreviations, schedules, callouts, and all applications of the products listed within these exclusive specification sections for a complete system which are reasonably inferable (i.e. similar detail/symbol/illustration, adjacent construction, means & methods, etc.) from the Contract Documents. No additional costs will be considered without clear and definitive substantiation.

Spec. #	Specification Name
32 1313	Concrete Paving
32 1373	Concrete Paving and Joint Sealants
32 1726	Tactile Warning Surfaces

Shared Specifications

Specification Sections listed below as 'Shared' shall be considered the mutual responsibility of two (2) or more Subcontractors. This Subcontractor shall furnish and install products listed within these specification sections in conformance with all requirements and as indicated in the Contract Documents, including coordination with other related sections as listed within these specification sections and in reference to the entire Contract Specifications and Drawings. This Subcontractor shall be responsible to perform a complete and thorough review of the Contract Documents and include in their lump sum bid amount all costs to complete the specific scope, as defined below, for products listed within these specification sections. This includes, but is not limited to, the review of all drawings, details, notes, keys, keynotes, legends, symbols, abbreviations, schedules, callouts, and all applications of the products listed within these shared specification sections for a complete system which are reasonably inferable (i.e. similar detail/symbol/illustration, adjacent construction, means & methods, etc.) from the Contract Documents. No additional costs will be considered without clear and definitive substantiation.

Spec. #	Specification Name
DIV 00	Procurement and Contracting Requirements

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#40 – Concrete Flatwork
Dated: 07.08.2024
Revised: 10.31.2024

DIV 01	General Requirements
03 1000	Concrete Forming and Accessories
03 2000	Concrete Reinforcing
03 3000	Cast-in-Place Concrete
~~32 1726~~	~~Tactile Warning Surfaces~~

General Items

2. This Subcontractor will make every effort possible to ensure that their waste is properly sorted and disposed of to divert as much waste as possible from disposal in a landfill. This Subcontractor will track this recycling effort using the Online Waste Tracking System established by Turner Construction Company. Each dumpster ticket is to be logged into this system and its recycled content reported as a means of tracking the total percentage of construction and demolition debris diverted from landfills. There is a $50 per month fee for use of this website and this Subcontractor shall include all costs in his bid for use of this service. Refer to the attached User's Manual for more information about this system. Refer to the Turner Tracker Manual in the referenced "Forms and Policies," dated January 2015, in Turner's Project Manual.
3. This Subcontractor shall examine the layout and installation of all adjacent work performed by others at weekly intervals leading up to the date of installation and shall report to Turner in writing any discrepancies that may affect the installation or operation of the scope provided under this agreement to avoid any delay in starting work as scheduled.
4. This Subcontractor shall include multiple mobilizations as required by the latest issuance of the project schedule.
5. This Subcontractor must meet the latest issuance of the project schedule. To this end, this Subcontractor understands that all adjacent work may not be 100% complete at the time of field dimension verification and this Subcontractor shall coordinate with other trades and accept reasonable hold-to dimensions which may be required to meet the delivery and installation dates.
6. This Subcontractor shall clean all items installed by this Subcontractor and install, secure and maintain appropriate protection to prohibit damage from subsequent work. Protection must be approved by Turner.

Bid Package Specific Scope

7. This Subcontractor shall examine the layout and installation of all adjacent work performed by others at weekly intervals leading up to the date of installation and shall report to Turner in writing any discrepancies that may affect the installation or operation of the scope provided under this agreement to avoid any delay in starting work as scheduled.

8. This Subcontractor shall include all measures needed for winter concrete installation as required based on the construction schedule timing of this work, including but not limited to tarps, blankets, heaters, enclosures, etc. This Subcontractor shall protect all concrete from freezing temperatures per the specifications. Upon finishing grading and turnover from the Sitework Subcontractor, this Subcontractor shall include any snow removal and protect the subbase from winter weather.

9. This Subcontractor shall provide a lined dumpster for the purposes of wash out to be available for cleaning trucks. Any concrete truck not using this for clean-out will be noted and the clean-up back-charge from the Site Subcontractor will be the Concrete Subcontractor's responsibility. Any excess

concrete due to over placement shall be the responsibility of this Subcontractor to remove to this lined dumpster.

10. This Subcontractor shall repair, clean or restore any areas that are disturbed by concrete operations to the satisfaction of the Owner and Construction Manager. This includes immediately cleaning all concrete splatter and spills due to concrete placement by this Subcontractor on all finish surfaces or landscaped areas.

11. This Subcontractor shall attend a pre-installation meeting 30 working days prior to any concrete being placed. The meeting will be organized by Turner and the following people should be in attendance; the building official, Testing Agency, Special Inspector, Structural Engineer, Architect, Concrete Supplier and this Subcontractor. The purpose of the meeting is to review proposed concrete mix designs as well as project specific requirements and how they are to be achieved.

12. This Subcontractor shall submit cold weather and hot weather concrete placement plans in accordance with ACI and include all costs to implement these plans.

13. This Subcontractor shall furnish and install all layout, concrete formwork, concrete reinforcement and cast-in- place concrete placement per the documents for the following items. This shall include all accessories and means and methods required to provide a completed product per the documents.

    a. Concrete Sidewalk Pavement
    b. Concrete Footing for Bleachers
    c. Heavy Duty Concrete Pavement
    d. Concrete Utility Pads
    ~~e. Concrete Curbs~~ Per Bidders Question#162 response
    f. Concrete Edge at Synthetic Track Trench Drain
    g. Concrete Edge at Synthetic Sports Field
    h. ADA detectable warning tiles

14. This Subcontractor shall furnish and install all type “2A” pedestrian concrete pavement as shown on but not limited to the Landscape and Civil drawings both within the project fenceline and along abutting roads (see 2A/L501 for details). This Subcontractor is to include tactile warning strips, transitions, ramps and ensuring that all sidewalks meet ADA and local requirements.

15. This Subcontractor shall furnish and install all type “2B” heavy duty concrete pavement as shown on but not limited to the Landscape and Civil drawings (see 2B/L501 for details).

16. This Subcontractor shall furnish and install all exterior concrete utility pads, including but not limited to transformer pads, dumpster enclosure pads, gas meter pads, dust collection system pads and generator pad(s).

17. This Subcontractor shall furnish and install any structural grade rigid filler material at applicable locations.

18. This Subcontractor shall furnish and install any exterior cast in place concrete curbing.

19. This Subcontractor shall layout, form and place concrete and reinforcement for all stepped concrete where indicated.

20. This Subcontractor shall monitor the formwork during and after concrete placement to ensure the plumbness of edges and make adjustments as necessary.

21. This Subcontractor shall receive, distribute, and install any concrete embedded items supplied by others, including but not limited to anchor bolts, bearing pads, embedded angles, pad sleeves, etc.

22. This Subcontractor shall remove all snap ties, cut concrete fins and fill voids in the concrete surfaces within two weeks of concrete placement at exposed surfaces.
23. This Subcontractor shall provide all surveying and layout required for the work included with this package.
24. Immediately prior to the placement of concrete slabs, this Subcontractor shall thoroughly clean all areas to receive concrete. Compressed air shall not be used. This Subcontractor shall use vacuums or other methods that minimize dust.
25. This Subcontractor shall furnish and install haunched slabs where required. Reference details in the Structural drawings.
26. This Subcontractor shall furnish and install all outdoor concrete pads required for mechanical, electrical, and plumbing equipment including but not limited to those shown on the Civil and Landscape drawings. See list of exclusions at end of this document.

Coordination with Other Trades

27. This Subcontractor shall coordinate all requirements for Testing and Inspection in accordance with Field Quality Control section found in the Division 1 specifications and Concrete Specifications. This Subcontractor shall furnish any required cure box (or boxes) of sufficient capacity for concrete placement schedule. Inspections will be scheduled through the Construction Manager.
28. This Subcontractor shall be responsible for ordering, scheduling and sequencing of concrete deliveries required for the work. This shall include any premium time and standby labor required for continuous work (including the concrete supplier if required).
29. This Subcontractor will work closely with the Sitework Subcontractor to coordinate the scheduling of excavation for concrete flatwork areas as shown.
30. This Subcontractor shall coordinate all concrete work with all other subcontractors having work adjacent to or embedded within the concrete.
31. This Subcontractor shall coordinate and provide all openings in formwork for other trades as required. This includes box-outs and/or sleeves in slabs for MEP trades or other work that penetrates the concrete. Layout and sleeves shall be furnished by others and installed by this Subcontractor.
32. This Subcontractor shall coordinate with the Sitework Subcontractor for any drains, cleanouts, hand holes or valve caps within hardscaped areas to be maintained during the concrete pour.

Joint Sealants:

33. This Subcontractor will furnish and install all Joint Sealants within and at perimeter of work abutting adjacent work where required per the contract documents.

Expansion Control:

34. This Subcontractor will furnish and install Expansion Control where required within the concrete flatwork.

D. Exclusions

1. This Subcontractor shall exclude concrete lightpole bases or concrete fill for bollards (By BP #9 Sitework)

2. This Subcontractor shall exclude foundation walls, strip footings, interior spread footings, piers, frost pads, recessed frost pads, interior slabs on grade, slabs on decks, elevator pits, sump pits, radon pits, interior housekeeping pads and any other interior structural concrete items (By BP #10 Concrete).
3. This Subcontractor shall exclude fence footings, gate footings, furniture footings, bench footings, athletic field equipment footings, signage footings, light pole bases, thrust blocks, encasement of ductbanks and bituminous concrete (By BP #9 Sitework).
4. This Subcontractor shall exclude type "2C" concrete pedestrian pavers (By BP #9 Sitework).
5. This Subcontractor shall exclude excavation, surface preparation and backfill (By BP #9 Sitework).
6. This Subcontractor shall exclude the frost walls beneath the exterior Chiller pads (By BP #10 Concrete).

E. **Safety**

1. This Subcontractor and its Contractors (rod busters) shall eliminate impalement and puncture hazards attributable to exposed rebar and anchor bolts. This Subcontractor is to utilize rebar that is candy caned (or bent to 180 degrees) to eliminate impalement hazards when approved by the Engineer of Record. If this is not possible, this Subcontractor is responsible for any rebar protection that may pose an impalement or laceration hazard to workers. This Subcontractor shall provide, maintain and remove all necessary rebar impalement protection. This Subcontractor, at the request of Turner, from time to time may be asked to bend steel bars over to eliminate impalement hazards. It will be this Subcontractors responsibility to comply with and complete these requests.

2. This Subcontractor shall provide daily clean up and removal of surplus concrete spoils from within the building and jobsite immediately following concrete operations and placed in dumpster that is approved for concrete disposal.

3. This Subcontractor shall ensure safe access/egress in and around all their work areas. If trenches are to be traversed ensure that walkways are at least 18 inches wide and are secured together when using to planks to make up the required width. If the travel height of the walkway exceeds 4 feet vertically this Contractor will install guardrails to prevent falls from same walkway. FORMWORK is not to be used for any type of walkway, ladder, scaffolding or any other type of support platform other than the intended use for which it was manufactured. Concrete formed and decked areas must have a continuous access corridor running through the work area to prevent employees from stepping over material.

4. This Subcontractor shall provide temporary portable generators or other power supply sources for their use until such time the temporary power has been brought to the site by others. Temporary portable power sources being used must be GFCI protected.

5. This Subcontractor to provide, install and maintains a safe, secured transition strip with beveled edges around the entire perimeter between all elevated and depressed slabs. This Subcontractor shall remove and dispose of the transition strip as directed by Turner.

6. Winter weather tarps are not allowed to be hung from the perimeter guardrail cables. This Subcontractor to furnish an independent means to secure the tarps. All tarps must be fire rated.

7. This Subcontractor shall utilize a rebar shear in lieu of a chop saw or grinder to cut rebar.

8. The Sitework Contractor shall be responsible for snow removal of the site, access roads and walkways to the building. This subcontractor will be responsible for removing snow and ice from all other areas for their work including but not limited to their work areas, material areas, storage conex's and trailers. Snow and ice removal is not allowed to free fall from upper levels of buildings, scaffolding or platforms.

9. This Subcontractor shall provide a site-specific plan on how they will comply with Turner's Ladder's Last Program.

10. This subcontractor shall ensure that any Lulls used on site are equipped with hydraulic fork positioners.

11. This subcontractor shall engage a 3rd Party to complete a GPR Survery to mark out existing utilities under and in the general area of any proposed Mobile Crane locations.

F. Logistics and Schedule

1. This subcontractor shall include the requirements of the Project Logistics Plan and Project Schedule.

G. Unit Prices

The following Unit Prices reflect the work of this bid package under which the bid proposal was submitted, and all unit prices shall remain valid for the life of the project and include all costs for complete installation. Unit prices which do not affect the work of this bid package have been filled in "not applicable (n/a)". ***UNIT PRICES ARE GOOD FOR BOTH ADDS AND DEDUCTS.***

Unit Prices:	**Amount**
Refer to Form of Proposal	

H. Alternate Prices

The following Alternate Prices reflect the work of this bid package under which the bid proposal was ***submitted, and these alternates shall remain valid for the life of the project and include all costs for a*** complete installation.

Alternates:	**Amount**
Refer to Form of Proposal	

BQ LOG

Greenwich Central Middle School Bidders Questions
Phase 1 of 3 PCR - Pre-Purchase Equipment
8/13/2024

Incomplete or draft response
Response Update

BQ #	Bid Package	Reference	Date	TCCo.	Question	Answer	Date Item Closed	Answered By	Updated for Constr.
1	6	263213.	8/2/24	EER	Please advise if Caterpillar and MTU can be considered an approved manufacturers for the Generator or advise if any additional approved manufacturers can be added to the specification.	MTU or Caterpillar can be considered as long s they can meet the project specifcation.		CES/SLAM	
2	7	237413.0	8/2/24	EER	Please advise if Nortek can be considered an approved HRV manufacturer or advise if any additional approved manufacturers can be added to the specification.	Nortek can be considered as long as they can meet the project Specifcation.		CES/SLAM	
3	01, 02, 03, 04, 05, 06, 07	Phase 1 PCR Project Manual	8/2/24	EER	The following specifications are listed as a "related specification" of the provided Phase 1 PCR specifications however are not found within the Phase 1 PCR Project Manual. Please confirm the following specifications are not required for Phase 1 Pre-Purchased Equipment bidding. We believe the following specifications may include relevant information. Please review and advise. - 230547 Vibration and Seismic Controls for HVAC Piping and Equipment - 235100 Breechings, Chimneys and Stacks - 23 0900 Sequence of Operations for HVAC Controls -26 0553 Identification for Electrical Systems -26 2500 Enclosed Bus Assemblies - 26 2813 Fuses - Divison 14 Elevators	The “related specifications” in no way are intended to explicitly require the provisions identified in the related section, they are purely pointed out as an informational link. The project team has those related spec section for a refernce if the Contractor wants to provide them to bidders.		CES/SLAM	
4	01,02	237413-2.1, 237413-2.2	8/7/24	JV	Please advise if Nortek can be considered an approved DOAS and RTU manufacturer or advise if any additional approved manufacturers can be added to the specification.	Nortek is not a listed manufacturer	8/12/2024	CES	
5	01,02	237413-2.2	8/7/24	JV	Please advise if the indoor units are to be provided as modules or full "knock down" construction.	Units are to be provided in modular construction	8/12/2024	CES	
6	01,02	237413-2.1, 237413-2.2, M-600	8/7/24	JV	The schedule mentions no purge, but the spec requires it. Which guideline should the manufacturers follow?	follow guidelines listed under Section 3.4, Part A.	8/12/2024	CES	
7	01,02	237413-2.1, 237413-2.2	8/7/24	JV	Please advise if the Manufacturer should provide Energy wheel control, or the BMS contractor.	Manufacturer to provide energy wheel control	8/12/2024	CES	
8	01,02	237413-2.1, 237413-2.2	8/7/24	JV	Please provide specification for Curbs.	Roof curbs are provided in specification 230548- Vibration and Seismic Controls for HVAC Piping and Equipment. Specification section will be added in Addednum No. 1	8/12/2024	SLAM	
9	01,02	237413-2.1, 237413-2.2	8/7/24	JV	Please provide direction on who is to provide the curbs. Should the MC provide the Curbs, or the Manufacturer?	Intent is for manufacturer to provide curb. Design team to provide spec per bidder question 9. Specification section will be added in Addednum No. 1	8/12/2024	Turner/SLAM	
10	01,02	237413-2.1, 237413-2.2	8/7/24	JV	Please confirm if ECM fans be allowed in lieu of VFD Controlled fans.	Provide VFD controlled fans	8/12/2024	CES	
11	01,02	237413-2.1, 237413-2.2	8/7/24	JV	Specification 237413 states Manufacturer's standard paint. Schedule on M600 states custom paint. Please advise on which to follow.	Custom paint to be provided. Architect will match to a future selected exteriro finish material unavaible at this time.	8/12/2024	CES	
12	7	237413-2.3	8/7/24	JV	Please confirm if Thermal Break can be omitted on the HRV doors.	no	8/12/2024	CES	
13	7	237413-2.3	8/7/24	JV	Please confirm if lights, and convenience outelts can be omitted on the HRV.	no, lights and convenience outlet to be provided.	8/12/2024	CES	
14	03	236411	8/7/24	EER	Please confirm Chillers are intended to be provided with Screw compressors as the title of this specification 23 6411 references scroll compressors as "Packaged Water Chillers - Scroll."	Yes, Screw compressors	8/12/2024	CES	

BQ LOG

Greenwich Central Middle School Bidders Questions
Phase 1 of 3 PCR - Pre-Purchase Equipment
8/13/2024

Incomplete or draft response
Response Update

15	03	236411-2.4 C	8/7/24	EER	Please confirm if ambient conditions of 32 deg F to 105 deg F is an acceptable range in lieu of the specified 14 deg F to 115 deg F.	32 to 105 is acceptable	8/12/2024	CES	
16	03	236411-2.7B.10	8/7/24	EER	Please confirm if R-513A refrigerant is acceptable in lieu of the specified R134A refrigerant as R134A refrigerant is being phased out.	Depending on shipment date of the units, different refrigerants can be submitted on and reviewed by engineer.	8/12/2024	CES	
17	03	236411-2.12	8/7/24	EER	If 100% A-weighted DBA is 98 DBA with manufacturer factory installed compressor attenuation and condenser for speed control provided for acoustic attenuation, please confirm 98 DBA is acceptable and meets specification intent of 97 DBA and does not require additional field modifications.	no field modifications required.	8/12/2024	CES	
18	03	236411-2.11	8/7/24	EER	Provide requirements for factory witness tests for the Chillers per spec section 236411 2.11E or confirm this can be excluded.	this can be excluded	8/12/2024	CES	
19	05	262416-2.2D	8/8/02	AW	Please confirm if panel boards need to be bottom or top fed?	This is typically a sub-contractor decision based on the preferred method of underground or overhead feed to a given panel. CES does not typically decide this but can offer suggestions.	8/12/2024	CES	
20	05	262416	8/8/24	AW	The smallest breaker amperage available is 15A. Please confirm if exception can be taken to the 6A?	A 15A breaker as the lowest rating is acceptable.	8/12/2024	CES	
21	05	262416	8/8/24	AW	Please confirm if all breakers under 1200A are thermal magnetic in the panelboards?	Per 26 2416 Para 2.3 (F) breakers under 1200 amp can be thermal mag. The feeder breaker to the PV array should be bi-directionalsolid state type as noted.	8/12/2024	CES	
22	05	262416	8/8/24	AW	Please confirm if 20A 1P breakers should be provided for blank spaces shown in the panelboard schedule	This is not necessary. Spares that were previously indicated were sufficient to cover the remaining circuits and future spare provisions.	8/12/2024	CES	
23	05	262416	8/8/24	AW	Please confirm if a fuse switch is to be provided where fused breaker are requested?	If this question is related to fusible panelboards all life safety (Panel EL series) panels shall be fusible with fusible main device and fusible branch devices per 262416 Para 2.5. Manufacturers: Fusible Panelboards shall be Cooper Bussmann™ Quik-Spec™ Coordination Panelboards type QSCP. (Eaton) Alternate Manufacturers: Mersen Fused Coordination Panels Littlefuse Fusible Panels	8/12/2024	CES	
24	05	262416	8/8/24	AW	Panel SHP is showing 80A bus rating with 100A MCB. Please confirm if the main breaker needs to be 100AF/80AT?	The 100A MCB is correct with a 100AT. A 100 amp MCB will require minimum 100 amp mains rating.	8/12/2024	CES	
25	05	262416	8/8/24	AW	25A 2P GFCI and 20A 1P GFPE breakers are not available at 22kA. Please confrim what kA should be provided?	The affected panels, which should be Panel KP, Panel OSKP, and Panel OSP1A should be protected with a series rated combination that would allow 10k branch breakers to be utilized, if possible.	8/12/2024	CES	
26	05	262413-2.2Q & R	8/8/24	AW	The specification state phase failure relay and power metering switchboard, but the drawing do not indicate phase failure and power metering. Please confirm if this is required?	All specifications are required elements. The phase failure protection relay and customer meter	8/12/2024	CES	
27	06	263213-2.3H	8/8/24	AW	Please confirm if sound levels of 71.4dbA @ 23ft is acceptable?	This is acceptable. C&T has confirmed there is no need to go with the Level 3 enclosure.	8/12/2024	CES	
28	06	263213-2.3-F.4	8/8/24	AW	Please confirm if 100% load step results are 26.2% VDIP and 13..5% in lieu of the specified 15% VDIP and 15% FDIP is acceptable?	The identified voltage dip would be acceptable provided the fire pump does not have difficulty starting under across the line conditions. (emergency manual start). Please confirm with the manufacturer being selected.	8/12/2024	CES	
29	04	235239-2.2C	8/8/24	EER	Please confirm it is acceptable for the exhaust manifold to not be a water backed design. All Heat is extracted prior to hitting the manifold and is not necessary to be a heat transfer.	Exhaust manifold shall be water- backed design to enhance heat transfer	8/12/2024	CES	

BQ LOG

Greenwich Central Middle School Bidders Questions
Phase 1 of 3 PCR - Pre-Purchase Equipment
8/13/2024

Incomplete or draft response
Response Update

30	04	235239-2.2 I	8/8/24	EER	Aerco Benchmark Series 2000 MPH are not manufacturered with UV Scanners. Please confirm flame rods are acceptable as this is the Aerco standard. This is a proven and reliable means of detection for boilers of this size.	Flame rods are not acceptable. Provide with UV scanner	8/12/2024	CES	
31	04	235239-2.2J	8/8/24	EER	Please confirm if a de-coiupled combustion air inlet is acceptable.	Combustion Air: Factory mounted air filter directly coupled to the blower inlet	8/12/2024	CES	
32	04	235239-2.2	8/8/24	EER	Please confirm if .3125" steel thickness is acceptable in lieu of specified .375" thickness.	The shell shall be a minimum 0.375" thick steel.	8/12/2024	CES	
33	04	235239-2.2C	8/8/24	EER	Please confirm that "Flame-By-Wire" combustion control is acceptable in lieu of the specified Fuel/Air Mixture Combustion System. This is a Fulton Endura + standard combustion control.	Manufactures controls shall meet the specifications and sequence of operations per the contract documents. Any boiler controller that can meet these requirements is acceptable.	8/12/2024	CES	

SECTION 003132 – GEOTECHNICAL DATA

PART 1 GENERAL

1.1 SUMMARY

A. For the preparation of Bidding Documents, Engineer has relied upon the following reports and tests of subsurface and latent physical conditions of the site. The location of all bore holes and test pits is shown on the Drawings.

1. Geotechnical report, Soil boring and test pit data, and laboratory test results (attached)

a. The subsurface data are not guaranteed as to accuracy or completeness, nor are they a part of the Contract Documents.

b. Bidders are cautioned that the subsurface data have been utilized for general design purposes only. No explicit or implicit representation is made as to the nature of the materials which may be encountered below the surface of the ground.

c. The making available of this subsurface data to Bidders is not intended to relieve them from their responsibility to familiarize themselves with the subsurface and other site conditions.

2. Plan and Profile of Sewer in Stanwich Road & Fairfield Road Greenwich, CT dated Sept. 6 1961 (attached)

a. The subsurface information provided is not guaranteed as to accuracy or completeness, nor are they a part of the Contract Documents.

b. Bidders are cautioned that the information provided is for general design purposes only. No explicit or implicit representation is made as to the nature of the materials which may be encountered below the surface of the ground.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

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16-5068-003
January 26, 2024 (Revised October 29, 2024)

Kemp A. Morhardt, AIA, NCARB
Principal Architect
The SLAM Collaborative
80 Glastonbury Blvd
Glastonbury, CT 06033

Re: **Geotechnical Evaluation – Greenwich Central Middle School, Greenwich, CT**

Dear Mr. Morhardt:

Tighe & Bond is pleased to present this geotechnical evaluation for the proposed new Central Middle School at 9 Indian Rock Lane in Greenwich, Connecticut. A preliminary geotechnical evaluation report dated October 17, 2023 was previously prepared by Tighe & Bond for the project This geotechnical report was prepared to present supplemental subsurface data and geotechnical recommendations, and is intended to supersede the preliminary geotechnical evaluation report in its entirety.

A Site Locus is presented as Figure 1 of Appendix A. This evaluation was completed in general accordance with our agreement dated February 2, 2023. Elevations in this report reference the North American Vertical Datum of 1988 (NAVD 88).

Executive Summary

Tighe & Bond conducted a subsurface exploration program in August and November 2023 consisting of nine geotechnical borings and thirteen geotechnical test pits. For this evaluation, Tighe & Bond also incorporated 20 borings and 12 test pits performed by ATANE in 2022. In general, subsurface conditions encountered in the explorations consisted of surficial topsoil, forest mat or recreational field sand underlain by native granular soils and bedrock, or in the eastern portion of the proposed building and to the east/southeast of the proposed building the surficial materials were underlain by existing granular fill followed by a layer of buried sand with organics, followed by native granular soils, a discontinuous layer of sandy clay that was 0.5 to 3 feet thick, and bedrock.

The existing fill and underlying sand with organics layers are not suitable to remain in place below the proposed building footprint (slab and foundations) due to the potential for intolerable settlement of the building foundations and/or slab that may result from additional load on the uncontrolled fill of variable composition and density, and organic-containing layers that are expected to decompose over the life of the structure. Existing fill and underlying sand with organics should be completely over-excavated from below the proposed building footprint and foundation bearing zones (defined as the 1 horizontal to 1 vertical [1H:1V] lines extending down and away from the bottom of footing elevation starting at 1 foot away from the footing edge) to the top of suitable native soils, and be replaced with suitable compacted backfill. After completion of over-excavation and replacement of the unsuitable materials, the proposed building can be supported on conventional shallow soil-supported footings and a soil-supported slab-on-grade bearing on native soils or suitable compacted backfill placed over native soils. A maximum net allowable bearing pressure of 4 kips per square foot (ksf)

is recommended for footings. Total and differential settlements are anticipated to be less than 1 inch and ½ inch, respectively.

Permanent slopes and/or retaining walls are planned to the west of the proposed building, with maximum cuts of up to 22 feet. The thickness of overburden soils in the existing hillside where the permanent slopes and/or retaining walls are planned was approximately 3 to 14.5 feet, with an average thickness of approximately 7 feet. It is anticipated that the proposed permanent slopes and/or retaining walls could consist of a combination of permanent rock and soil slopes, or modular block or mechanically-stabilized earth (MSE) retaining walls. These areas were not accessible during our exploration program due to dense tree growth.

Once access is available at the actual locations of proposed permanent slopes and/or retaining walls, at least 2 borings are recommended along the alignment of the proposed permanent slope and/or retaining wall to the west of the southern portion of the proposed building to estimate the thickness of overburden soil and composition/quality of bedrock. A bedrock core is recommended to be collected for the full elevation range of the potential rock cut.

Site Conditions

Existing – The site is located at 9 Indian Rock Lane in Greenwich, Connecticut, and is currently developed with the existing Central Middle School. The existing site includes an approximately 76,000 square foot school building in the southern portion of the site, parking and driveway areas to the south of the existing building, recreational fields to the north of the existing building, and wooded areas to the west and north of the existing building and recreational fields. Indian Rock Lane borders the site to the south, and Stanwich Road and Orchard Street border the site to the west and east, respectively.

Based on the Property / Boundary & Topographic Survey dated May 22, 2023, and prepared by Martin Surveying Associates, LLC (Martin), ground surface topography in the above-referenced recreational field area is approximately elevation 45 feet, and then slopes upward to the west (toward Stanwich Road) and north to approximately elevation 85 feet to 110 feet at a typical steepness of 4 horizontal to 1 vertical (4H:1V).

Proposed – The proposed project generally consists of demolishing the existing building and construction of a new approximately 110,000 square-foot, multi-story school building in the northern portion of the site. The proposed building is planned to be located partially in the existing recreational field, and to the west into the existing wooded, upward sloping area. The proposed building is planned to have a lowest floor at elevation 47 feet, and a second floor level with a slab at elevation 63 feet. The western portion of the proposed building is planned to be single-story with the slab at elevation 63 feet (i.e., no lower level in the western portion of the building). The eastern-portion of the building with a FFE at elevation 47 feet will require approximately 1 to 4 feet of fill to achieve the FFE, and the western portion of the building with a FFE at elevation 63 feet will require approximately 2 to 18 feet of fill to achieve the FFE.

In addition to the proposed new building, proposed construction includes new parking/driveway areas, retaining walls or cut slopes to the west of the proposed building (cutting into the existing slope for the lower finished roadway grades), new recreational fields to the south of the proposed building (in the footprint of the existing building to be demolished), and stormwater management features. Two primary retaining walls or cut slopes

are planned to the west of the proposed building: the northern wall / cut slope is proposed to be approximately 140 feet in length and is expected to be cut into the existing slope and will have a maximum height of approximately 9 feet; and the southern wall / cut slope is proposed to be approximately 340 feet in length and is expected to be cut into the existing slope and will have a maximum height of approximately 22 feet.

Subsurface Conditions

The generalized subsurface conditions described in the text below summarize trends observed in the explorations. The boundaries between soil strata are approximate and are based on interpretations of widely spaced explorations and samples. Actual conditions could be more variable.

Tighe & Bond Borings and Test Pits – Nine geotechnical borings (T&B-B-1 through T&B-B-9) were drilled by General Borings, Inc. (General Borings) between August 28 and 30, 2023. Borings were advanced with 3.25-inch inside-diameter hollow-stem augers. Split-spoon sampling and Standard Penetration Tests (SPTs) were conducted semi-continuously to a depth of up to 7 feet below ground surface (bgs), and at 5-feet intervals thereafter to the termination depths of the borings. Auger refusal on presumed bedrock was encountered in each of the borings at depths ranging from approximately 3 to 29 feet bgs. At borings T&B-B-4 and T&B-B-8, auger refusal was encountered and the borings were off-set and drilled to deeper depths, and the offset borings were identified as T&B-B-4A and T&B-B-8A, respectively. Bedrock core samples were collected at two borings: T&B-B-1 from a depth of 6.5 to 11.5 feet bgs; and T&B-B-2 from a depth of 3 to 8 feet bgs. Borings were backfilled upon completion with cuttings.

Thirteen geotechnical test pits (TP-101 through TP-113) were excavated on November 11 through 17, 2023 by General Borings using a Volvo EC55L excavator to depths ranging from approximately 3 to 8 feet bgs. After completion of the test pits, the pits were backfilled with excavated material in controlled lifts and compacted with the heel of the bucket.

Boring and test pit locations are shown on Figure 2 of Appendix A. Tighe & Bond boring and test pit logs are included in Appendix B.

Explorations by Others – Borings and test pits were performed by ATANE that were documented in a report titled Preliminary Geotechnical Investigation for Central Middle School, dated October 10, 2022. Twenty borings (B-1 through B-20) were drilled by Soil Testing, Inc. on August 23 through 25, 2022, and on September 3, 2022. The borings were drilled using 4.25-inch inside-diameter hollow-stem augers. Split-spoon sampling SPTs were typically conducted continuously or semi-continuously to the termination depths of the borings. Borings were advanced to maximum depths ranging from 3 to 16 feet bgs, and auger refusal was noted on the boring logs at 12 of the borings at depths ranging from 3 to 12 feet bgs.

Twelve test pits (TP-1 through TP-12) were excavated by JJK Electric on August 12, 2022 using a Bobcat E35. Test pits were excavated to maximum depths ranging from 3 to 10 feet bgs.

The ATANE borings logs did not include ground surface elevations, and the test pit logs included ground surface elevations that vary significantly from the existing ground surface

elevations shown on the Martin Property / Boundary & Topographic Survey. Therefore, for this evaluation the ground surface at each of the ATANE borings and test pits were interpolated based on an overlay of the ATANE exploration location plan on the Martin Property / Boundary & Topographic Survey. This assumes there have not been any significant grade changes since ATANE's explorations and the Martin Property / Boundary & Topographic Survey.

Boring and test pit locations are shown on Figure 2 of Appendix A, based on the above-referenced overlay. The ATANE boring and test pit logs are included in Appendix C.

Laboratory Testing – Laboratory tests were performed as part of the ATANE exploration program consisting of nine sieve analysis tests (ASTM C136), eight specific gravity tests (ASTM D854) and two Atterberg limits tests (ASTM D4318). Additionally, laboratory tests were performed on soil and rock samples collected from the Tighe & Bond borings and test pits consisting of four mechanical Particle Size Analysis tests (ASTM D6913), six organic content tests (ASTM D2974), six natural moisture content tests (ASTM D2216) and two uniaxial compressive strength tests (ASTM D7012D). Tighe & Bond and ATANE laboratory test results are included in Appendix D.

Summary of Subsurface Conditions – In general, subsurface conditions encountered in the explorations consisted of surficial topsoil, forest mat or recreational field sand underlain by native granular soils and bedrock, or in the eastern portion of the proposed building and to the east/southeast of the proposed building the surficial materials were underlain by existing granular fill followed by a layer of buried sand with minor organics, followed by native granular soils, a discontinuous layer of sandy clay that was 0.5 to 3 feet thick, and bedrock. The native granular soils were typically medium dense to very dense, with the exception of the upper 2 to 3 feet that was occasionally very loose to loose. The existing fill was variable in density, ranging from very loose to very dense where SPTs were performed. The buried sand with minor organics was loose to medium dense where SPTs were performed.

Table 1 below presents the general stratigraphy encountered at the subsurface exploration locations in descending depth from the ground surface. A tabular summary of subsurface conditions is included as Table B1 in Appendix B.

Table 1
Description of Subsurface Conditions

Strata (In Descending Depth)	General Description [1]
FILL[2,3]	Loose to very dense, brown, gray or black, fine to coarse SAND (portions of which are only fine SAND), up to 50% Gravel, up to 50% Silt, trace Roots, trace Asphalt or trace "debris," *or* SILT, trace Gravel, trace Clay; fill contains Cobbles and Boulders
SAND WITH MINOR ORGANICS[2,3,4]	Loose, brown or tan, fine to coarse or fine to medium SAND, up to 50% Silt, up to 50% Gravel, trace to little Organics; layer contains Cobbles
NATIVE GRANULAR SOIL[5]	Medium dense to very dense, brown, gray or black, fine to coarse SAND (portions of which are only fine SAND), up to 50% Gravel, up to 50% Silt *or* GRAVEL, some fine to coarse Sand, little Silt *or* SILT, some fine to medium Sand; layer contains Cobbles and Boulders
SANDY CLAY[6]	Gray, low plasticity CLAY or Clayey SILT, with minor proportions of Sand, Gravel or Sand-Clay mixtures

1. Definition of Soil Description Terms: "trace" = 0-10%, "little" = 10-20%, "some" = 20-35%, "and" = 35-50%, by weight
2. Encountered at T&B-B-5 and T&B-B-8, TP-101 through TP-111, and interpreted to have been encountered at TP-1, TP-6, and TP-8 through TP-11.
3. The borings and test pits performed by ATANE do not explicitly identify fill, sand with minor organics, and native soils on each of the logs. Fill at the ATANE borings and test pits, as well as the sand with minor organics layer, where not explicitly identified as fill was interpreted by Tighe & Bond as part of this evaluation.
4. Based on six laboratory organic and moisture content tests of soil samples collected from the sand with minor organics layer, the organic content and moisture content of the layer ranged from 1.1% to 10.5% and 20.7% to 52.1%, respectively.
5. The upper 2 feet of the native soil where present directly below ground surface was very loose to loose at some locations, likely the result of seasonal freeze/thaw.
6. Encountered at TP-104, B-4, TP-3, TP-4, and TP-7 through TP-11.

Of the 52 total subsurface explorations, 21 of the explorations terminated upon encountering refusal on presumed bedrock at depths ranging from approximately 3 to 29 feet bgs. A 0.5- to 3.5-feet thick weathered bedrock zone was encountered before apparent intact bedrock at four of the Tighe & Bond borings. In general, refusal elevations were shallower in the western portion of the site (the existing hillside) and deeper in the central portion of the site (south-central portion of the proposed building footprint). Two 5-foot long bedrock cores were collected at borings drilled in the northern portion of the site (T&B-B-1 and T&B-B-2). Based on the rock cores and consistent with the 1985 Bedrock Geological Map of Connecticut, bedrock underlying the site consists of gneiss as part of the Hawley Formation. The Rock Quality Designation (RQD) of samples collected ranged from 70 to 78 percent, indicating fair to good rock quality.

Groundwater was encountered at depths ranging from approximately 6 to 10 feet bgs, corresponding to approximately elevation 39 feet to 33 feet, in explorations performed in the existing recreational field area; groundwater was not encountered in borings drilled on the

existing hillside. Water levels were taken during or shortly after drilling/excavating and may not reflect stabilized conditions. Water levels can fluctuate with season, precipitation, and nearby construction or other below grade activities, such as excavation, dewatering, wells, infiltration basins, etc. The possibility of groundwater level fluctuations should be considered during design.

Geotechnical Evaluation and Recommendations

The analyses and recommendations submitted in this evaluation are based upon the data obtained from the relatively widely spaced subsurface explorations. Subsurface explorations included as part of this evaluation were performed by others (ATANE), not under the observation of Tighe & Bond. The evaluation and recommendations provided herein should be considered only as reliable as the information on which they were based. The nature and extent of variations between explorations may not become evident until construction. If significant variations from these descriptions appear during construction, it will be necessary to re-evaluate these recommendations.

Subsurface conditions encountered in the borings within the footprint of the proposed building generally consisted of native granular soils underlain by bedrock, or (in the eastern portion of the proposed building footprint) existing fill with minor organics underlain by a layer of granular soil with minor organics, followed by native granular soils, a discontinuous layer of sandy clay, and bedrock. The thickness of the organic-containing layer was observed to range from approximately 0.5 to 3.5 feet. Based on six laboratory organic and moisture content tests of soil samples collected from the sand with minor organics layer from Tighe & Bond borings and test pits, the organic content and moisture content of the layer ranged from 1.1% to 10.5% and 20.7% to 52.1%, respectively. ATANE explorations describe "some organic materials" within the fill and granular soil with minor organics layers.

The existing fill and underlying sand with organics layers are not suitable to remain in place below the proposed building footprint (slab and foundations) due to the potential for intolerable settlement of the building foundations and/or slab that may result from the presence of uncontrolled fill of variable composition and density, and organic-containing layers that are expected to decompose over the life of the structure. Existing fill and underlying sand with organics should be completely over-excavated from below the proposed building footprint and foundation bearing zones (defined as the 1H:1V lines extending down and away from the bottom of footing elevation starting at 1 foot away from the footing edge) to the top of suitable native soils, and be replaced with suitable compacted backfill. After completion of over-excavation and replacement of the unsuitable materials, the proposed building can be supported on conventional shallow soil-supported footings and a soil-supported slab-on-grade bearing on native soils or suitable compacted backfill placed over native soils.

In areas outside the proposed building footprint (such as pavement and landscaped areas), the existing fill and underlying sand with organics layers are considered suitable to remain in place.

Foundation and Slab Design – It is recommended the proposed building be designed with conventional soil-supported spread and continuous footing foundations. Per the 2022 Connecticut State Building Code, footings should bear a minimum of 3.5 feet below adjacent ground surface exposed to freezing temperatures for frost protection. Interior footings not

exposed to freezing temperatures should bear a minimum of 1.5 feet below the slab; however, possible building shut downs or power failures should be considered.

Foundations are recommended to bear on native granular soil or compacted Granular Fill, Gravel Borrow or Crushed Stone wrapped in a non-woven geotextile separation fabric, placed over native granular soil after over-excavation of the existing fill and underlying sand with organics layers.

Bedrock is not expected to be encountered at or within 12 inches of footing bearing elevations. Although not expected, if bedrock is encountered above or within 12 inches of footing bearing elevations, the bedrock should be removed to 12 inches below the bottom of footing and be replaced with compacted Crushed Stone. This will help limit differential settlement or concrete cracking that may occur due to bearing on dissimilar materials (bedrock versus soil).

A maximum net allowable bearing pressure of 4 ksf is recommended for footings. The net allowable bearing pressure is based on column and wall footings having a minimum width of 3 feet and 2 feet, respectively. At the recommended bearing pressure, total and differential settlements are anticipated to be less than 1 inch and ½ inch, respectively. Most settlement will occur during construction as dead load is applied.

Where footings are stepped, the maximum steepness of the steps should be 2H:1V.

An ultimate coefficient of friction equal to 0.45 ($\delta = 24$ degrees) should be used for concrete on existing granular soils or on compacted Granular Fill, Gravel Borrow or Crushed Stone. The recommended ultimate passive earth pressure against the sides of footings is 400 pounds per cubic foot as an equivalent fluid unit weight. A factor of safety of 2.0 is recommended to be applied to the ultimate passive earth pressure value.

The floor slab may be designed as a slab-on-grade bearing on 12 inches of compacted Gravel Borrow or Crushed Stone placed over native granular soil or compacted Granular Fill if used as backfill after removal and replacement of the existing fill and underlying sand with organics layers.

Subgrades and required fill to achieve proposed grade should be prepared, placed, and compacted as recommended later in this letter.

Foundation and Underslab Drainage – Groundwater was encountered at depths ranging from 6 to 10 feet bgs, corresponding to approximately elevation 39 feet to 33 feet. Based on this information, foundation and underslab drainage is not likely necessary, with the exception of the foundation/retaining wall that will provide transition between the lower portion of the building with FFE at elevation 47 feet and the upper portion of the building with FFE at 63 feet, which should include a foundation perimeter drain. The foundation perimeter drain should consist of a perforated PVC drain, at least 6 inches in diameter, and should be surrounded by appropriate filters such as crushed stone, gravel, and/or geotextiles. Water collected in pipes should be conveyed to properly filtered sump pumps for discharge or daylighted by gravity, if possible.

Lateral Earth Pressures – Earth-retaining structures should be designed to resist lateral pressures generated by soil backfill material and any temporary or permanent surcharge loads. At-rest conditions can be used for design of walls that are not free to deflect or rotate

(braced walls). Walls that are free to deflect or rotate (unbraced walls) should be designed using active conditions.

Table 2, below, provides recommended lateral loads.

Table 2
Lateral Earth Pressures

Condition	Recommended Value
Braced / At-Rest	At Rest Earth Pressure Coefficient (k_o): 0.50 Equivalent Fluid Pressure: 65 pcf[1] Surcharge: 0.5 times the vertical surcharge load uniformly distributed over the height of the wall (in psf[1])
Unbraced / Active[2]	Active Earth Pressure Coefficient (k_a): 0.33 Equivalent Fluid Pressure: 45 pcf Surcharge: 0.33 times the vertical surcharge load uniformly distributed over the height of the wall

1. pcf = pounds per cubic foot; psf = pounds per square foot
2. For active conditions to be developed, the wall must rotate about its base with lateral top movement of approximately 0.002H, where H is the height of the wall.

The recommended earth pressures above are based on level ground surface at the top of the wall. These design values were calculated using a soil unit weight of 130 pcf and a friction angle of 30 degrees, assuming the use Granular Fill or Gravel Borrow as backfill against the wall. The design values above do not include unbalanced hydrostatic loads; the values provided assume drainage will be included in the design of earth retaining structures. Where the calculated lateral earth pressure is less than 200 psf, it should be increased to 200 psf (as a surcharge) to account for compaction induced stresses.

The resultant earth pressure should be applied at a location of H/3 from the bottom of the wall.

According to the Connecticut State Building Code, seismic lateral earth pressure loads on basement and retaining walls in Seismic Design Categories A through C need not be considered. It is anticipated that Seismic Design Categories A through C will apply for this project, but should be confirmed by the structural engineer.

The recommended minimum factors of safety against sliding and overturning are 1.5. A coefficient of friction equal to 0.45 ($\delta = 24$ degrees) may be used for concrete on existing granular soil or and compacted Granular Fill, Gravel Borrow or Crushed Stone.

Seismic Design – Based on data from the borings, the site is assigned to Site Class D, according to the State of Connecticut Building Code. The design spectral response accelerations at short periods (S_{DS}) and at 1-second period (S_{D1}) are 0.292 and 0.095, respectively. These values were calculated based on mapped spectral response accelerations and the appropriate magnification factors for Site Class D. The structural engineer should determine the Seismic Design Category based upon the assumed seismic use group.

Based on standard penetration test N-values, composition of the soils encountered in the test borings, and depth of groundwater observed, the site soils are not considered susceptible to liquefaction.

Pavement Design – Table 3 provides minimum recommended pavement cross-sections for the proposed pavement areas:

Table 3
Minimum Pavement Sections

Layer Description	Layer Thickness (inches)	
	Light Use	**Heavy Use**
Bituminous Concrete Wearing Course	1.5	2
Bituminous Concrete Binder Course	2	2.5
Processed Aggregate Base (CTDOT M.05.01)	8	12

Permanent Slopes and Site Retaining Walls – Permanent slopes and/or retaining walls are planned to the west of the proposed building. The thickness of overburden soils in the existing hillside where the permanent slopes and/or retaining walls are planned was approximately 3 to 14.5 feet, with an average thickness of approximately 7 feet. It is anticipated that the proposed permanent slopes and/or retaining walls could consist of a combination of permanent rock and soil slopes, or modular block or mechanically-stabilized earth (MSE) retaining walls. Additional subsurface explorations will be necessary to determine the thickness of overburden soil and composition/quality of bedrock at the actual locations of proposed permanent slopes and/or retaining walls. However, preliminary recommendations for permanent soil and rock slopes are as follows.

Permanent soil slopes should be loamed and seeded, and should not be steeper than 2H:1V unless additional slope stabilization measures are provided; however, it is recommended that soil slopes be 3H:1V or flatter as they provide additional slope stability and are easier to mow and maintain.

Bedrock cut slopes should not be steeper than 1H:6V, should be cleared of any loose rock, and should have a 5-foot setback clear of soil at the top of the bedrock before any soil slopes begin. The bedrock should be pre-split for a clean, durable rock face. For rock cut slopes greater than 6 feet in height, the toe of bedrock cut slopes should include a rock fall zone, which should generally consist of a ditch that is at least 12 feet wide and 3.5 feet deep, for rock slopes of up to 20 feet in height. If construction of a rock fall ditch is not feasible due to space limitations, rock fall catchment fencing should be considered.

Additional Subsurface Explorations –Once access is available at the actual locations of proposed permanent slopes and/or retaining walls, at least 2 borings are recommended along the alignment of the proposed permanent slope and/or retaining wall to the west of the southern portion of the proposed building to estimate the thickness of overburden soil and composition/quality of bedrock. A bedrock core is recommended to be collected for the full elevation range of the potential rock cut.

Geotechnical Construction Recommendations

This section provides comments related to foundation construction, earthwork, and other geotechnical aspects of the project that will aid those responsible for preparing construction specifications.

Initial Site Preparation – Initial site preparation should include stripping of vegetation, topsoil and forest mat from areas of proposed work and clearing/grubbing existing trees where they exist in proposed improvement areas. Tree removal should include removal of root systems. Excavations for removal of trees and root systems should be properly backfilled with compacted Granular Fill, Gravel Borrow or Crushed Stone, as described herein.

Excavation and Fill – Conventional heavy construction equipment should be suitable for excavation in existing soil materials. It should be expected that cobbles and boulders will be present within soils at the site. Excavation should conform to OSHA excavation regulations contained in 29 CFR Part 1926, latest edition. Subgrades should be excavated in such a way to minimize disturbance, such as using a smooth faced bucket. Gravel Borrow or Crushed Stone should be used for the slab base course. Other fill needed below the structure, if any, should consist of Granular Fill, Gravel Borrow, or Crushed Stone wrapped in a non-woven geotextile separation fabric. Blast rock fill may be used as fill below the structure, provided it is placed as described in the Reuse of Existing Soils section, herein.

All backfill should be placed in 12-inch maximum lifts and should be compacted to 95 percent of the maximum dry density as determined by the Modified Proctor laboratory test (ASTM D1557). Thinner lifts may be needed depending on the material placed and the type of compactor used. Crushed Stone should be placed in loose lift thicknesses of less than 12 inches and be compacted with heavy compaction equipment to achieve an unyielding subgrade.

Table 4 presents the required gradations for imported materials.

Table 4
Recommended Gradation Requirements for Borrow Materials

Sieve Size	**Percent Finer by Weight**		
	Granular Fill	**Gravel Borrow**	**1-1/2" Crushed Stone**
2/3rd lift thickness	100		
2 inch	--	100	100
1½ inch	--	--	95-100
1 inch	--	--	35-70
¾ inch	--	--	0-25
½ inch	--	50-85	--

Sieve Size	Percent Finer by Weight		
	Granular Fill	**Gravel Borrow**	**1-1/2" Crushed Stone**
No. 4	--	40-75	--
No. 10	30-95	--	--
No. 40	10-70	--	--
No. 50	--	8-28	--
No. 200	0-15	0-10	--

Rock Removal – Bedrock removal should be anticipated to achieve finished grades to the west of the proposed building. It is anticipated that bedrock removal of up to approximately 1 to 2 feet within localized areas can likely be completed efficiently using mechanical methods, such as a hydraulic hoe-ram. Where bedrock removal is required to greater depths (such as the permanent slopes and/or retaining walls are planned to the west of the proposed building), systematic drilling and blasting may be considered in order to efficiently remove rock to reach the required elevations. Controlled blasting with pre-splitting is recommended to form the faces of slopes that will be permanently exposed.

If systematic drilling and blasting is pursued, blast hole depths should be controlled in order to reduce breakage 12 inches below the intended rock removal elevation, to the extent practicable. Controlled blasting procedures are recommended to: limit the charge weight using millisecond delays; limit the peak particle velocity at adjacent structures to acceptable levels; and yield rock sizes suitable for use as fill. Controlled blasting methods also need to maintain vibrations at the nearest residence and nearby existing buildings/utilities within the requirements of State and local codes, with additional consideration given for sensitive structures (if present). A common basis for establishing maximum permissible vibration for residential houses is the criteria published by the United States Bureau of Mines (USBM) "safe levels of blasting vibration for houses using a combination of velocity and displacement."

Pre-blast surveys of existing structures to remain and water supply wells (if any) are recommended within 500 feet of the proposed blast area.

We recommend the contractor familiarize her/himself with bedrock excavation conditions before construction. In addition, project specifications should clearly define bedrock excavation.

Excavation Slopes and Temporary Earth Support – It is anticipated that excavations will be accomplished by sloping or benching the sides of the excavations. Where space is not available to safely lay back excavations, a temporary earth support system will be required. Temporary earth support systems, like slide rail or trench boxes, if required, should be selected by the contractor and be designed by an experienced Professional Engineer registered in the State of Connecticut and retained by the Contractor.

The Owner and the Contractor should make themselves aware of and become familiar with applicable local, state, and federal safety regulations, including the current Occupational

Safety and Health Administration (OSHA) Excavation and Trench Safety Standards. Construction site safety generally is the sole responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations.

The Contractor should be aware that slope height, slope inclination, or excavation depths (including utility trench excavations) should in no case exceed those specified in local, state, or federal safety regulations, e.g. OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations. Such regulations are strictly enforced and, if they are not followed, the Owner, Contractor, and/or earthwork and utility subcontractors could be liable for substantial penalties.

Dewatering – Groundwater may be encountered during excavation to remove existing fill and buried sand with minor organics. If dewatering becomes necessary it can likely be accomplished by pumping from properly filtered sumps and be discharged according to federal, state, and local regulations. If groundwater is encountered, the groundwater level should be temporarily lowered at least two feet below excavations to limit potential "boils", loss of fines, or softening of the ground. Surface water entering the construction area should be diverted away from excavations.

Bearing Surface Preparation – Acceptable subgrades for supporting footings and slabs consist of native granular soil or compacted Granular Fill, Gravel Borrow or Crushed Stone wrapped in a non-woven geotextile separation fabric, placed over native granular soil. Existing fill and sand with organics layers are not suitable to remain in place below the proposed building slab and foundation bearing zones (defined as the 1H:1V lines extending down and away from the bottom of footing elevation starting at 1 foot away from the footing edge) and should be over-excavated to the top of suitable native soils, and be replace with compacted backfill.

The existing fill and sand with organics layers are expected to be suitable to remain in place below landscaped areas, pavements and light ancillary structures (such as transformer pads, dumpster pads or similar).

Prior to placement of fill or backfill, the native granular soil subgrades (within the building footprint or exterior of the building footprint, where present) or existing fill subgrades (outside the building footprint, only) should be proof compacted with either 10 passes of a 10-ton vibratory drum roller for open excavations or 6 passes of a large, reversible, walk behind vibratory compactor capable of exerting a minimum force of 2,000 lbs in trench or pit excavations. Any subgrades that are soft or yielding under proof compaction efforts should be removed to expose suitable subgrades, and should be replaced with compacted Granular Fill, Gravel Borrow or compacted Crushed Stone wrapped in a non-woven geotextile. Any cobbles or boulders protruding the subgrade should be removed and backfilled with Granular Fill or Gravel Borrow prior to proof compaction to ensure proper ground contact with the compaction equipment.

Due to the relatively high fines (silt) content, some of the bearing surfaces may be easily disturbed during foundation construction activities should they become wet from precipitation or groundwater. If desired, the bearing surfaces may be over-excavated by 6 to 12 inches and replaced by a layer of compacted Crushed Stone wrapped in a separation geotextile to provide a stable working surface.

Soil bearing surfaces should be protected against freezing and the elements before and after concrete placement. If construction is performed during freezing weather, footings and foundation walls should be backfilled as soon as possible after they are constructed. Alternatively, insulating blankets or other means may be used for protection against freezing.

Reuse of Existing Soils – Existing subsurface materials, excluding topsoil/forest mat, may be re-used as Granular Fill, regardless of its gradation, provided it is environmentally appropriate, free of organics, debris, stones greater than two thirds the lift thickness in diameter, or other unsuitable material, and they are placed to the required degree of compaction. It should be noted that some of the existing site soils have a relatively high fine-grained content, which could make them difficult to place and compact to the required degree of compaction when excessively wet.

Existing site soils may not be re-used as Gravel Borrow or Crushed Stone unless it meets the gradation requirements presented above, which is unlikely. Existing topsoil/subsoil may be reused in landscaped areas but should be tested for pH, percent organics, and nutrient content and modified as needed to support vegetative growth. It was not within Tighe & Bond's scope of work to evaluate the potential for soil contamination with regard to suitability for reuse or for off-site disposal purposes.

Rock generated during bedrock removal may be used as Blast Rock Fill. Blast Rock Fill should not be used within 12 inches of building foundations, slabs, and utilities. Blast Rock Fill may be used below pavement subbase course and landscape areas, provided it is well graded. If re-used on site, Blast Rock Fill should meet the gradation provided in Table 5. Blast Rock Fill should be placed in loose lift thicknesses of less than 18 inches and be compacted with heavy compaction equipment. A minimum of 12 inches of compacted "choke stone" should be placed over the Blast Rock Fill. Choke stone should be a well-graded mixture of blast rock fragments less than 6 inches in size and Granular Fill, such that it can be readily compacted to fill voids in the Blast Rock Fill below.

Table 5
Gradation Requirements for Blast Rock Fill

Sieve Size	Percent Finer by Weight
12 inch	100
4 inch	0-25
3 inch	--
1½ inch	--
1¼ inch	--
¾ inch	0-10
½ inch	--
No. 4	--
No. 10	--
No. 40	--
No. 50	--
No. 200	--

Closing

The preceding recommendations provided herein are for specific application to the Central Middle School at 9 Indian Rock Lane in Greenwich, Connecticut, in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made. In the event that any changes in the design or location of the proposed structure are made, the conclusions and recommendations in this report should not be considered valid unless verified in writing. This report is for design purposes only and may not be sufficient to prepare accurate quantity take-offs. It is discouraged that this report in its entirety be included in the construction documents or be provided to a contractor. Rather, the construction recommendations should be incorporated appropriately into the construction specifications as well as exploration locations, exploration logs, and laboratory test results for the contractor's use under informational purposes only.

Thank you for the opportunity to provide these services. Please contact Brian Nereson at (603) 978-5826 or bnereson@tighebond.com if you should have any questions, comments, or require additional information.

Very truly yours,

TIGHE & BOND, INC.

Brian T. Nereson, PE
Principal Engineer

Charles J. Croce, PE
Vice President

Enclosures: Appendix A – Figures
Appendix B – Tighe & Bond Exploration Logs
Appendix C – ATANE Exploration Logs
Appendix D – Laboratory Test Results

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Appendix A
Figures

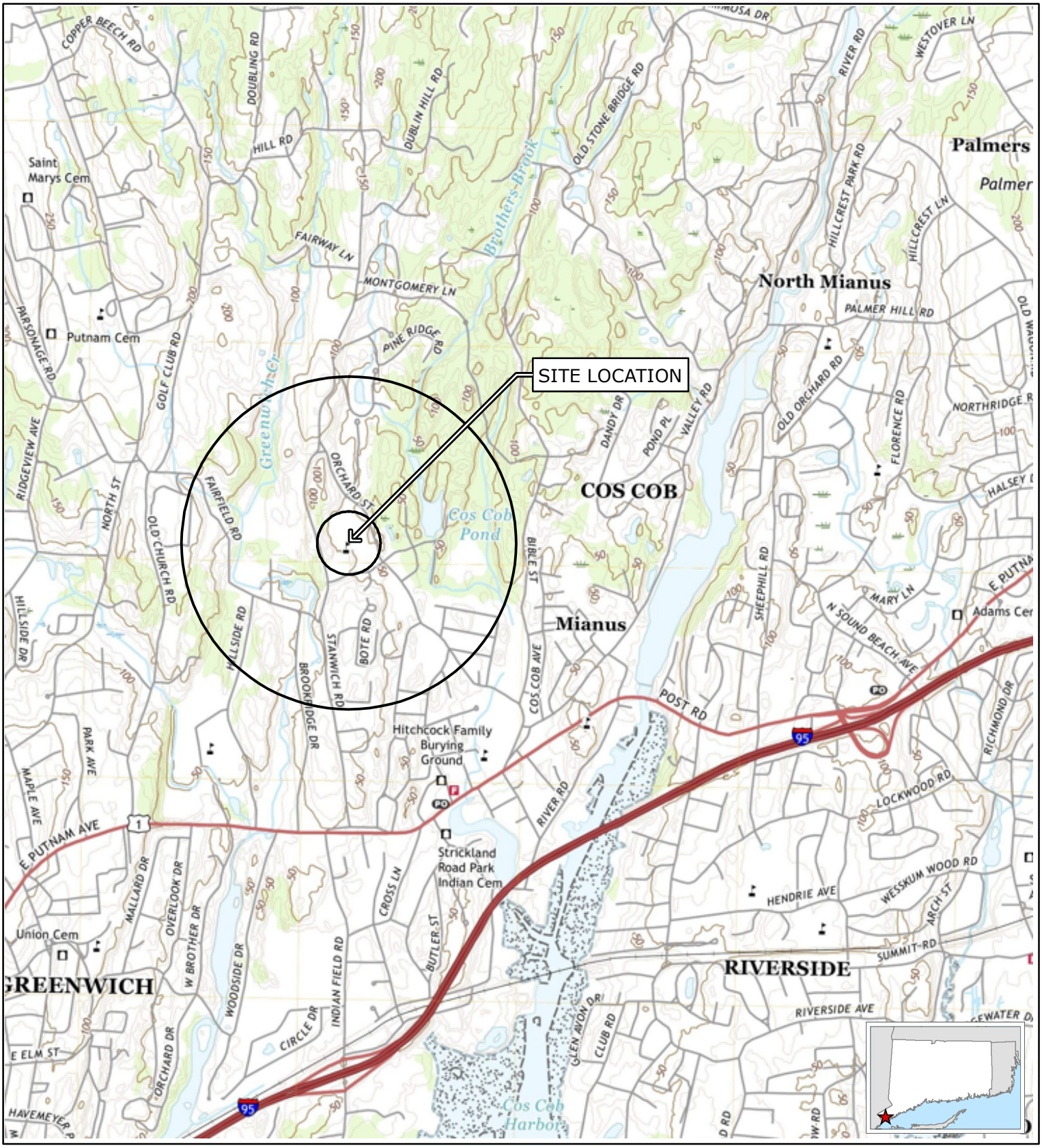


FIGURE 1
SITE LOCATION

Greenwich Central Middle School
9 Indian Rock Lane
Greenwich, Connecticut

Tighe&Bond

Based on USGS Topographic Map for Stamford, CT Revised 2021.
Contour Interval Equals 10-feet.
Circles indicate 500-foot and half-mile radii.

1:24,000
0 1,000 2,000
Feet

October 2023

G-5086



GENERAL NOTES:

1. EXISTING CONDITIONS SHOWN BASED ON "PROPERTY / BOUNDARY & TOPOGRAPHIC SURVEY" BY MARTIN SURVEYING ASSOCIATES, LLC AND DATED MAY 22, 2023.
2. ELEVATIONS SHOWN REFERENCE NAVD88.
3. TIGHE & BOND EXPLORATION LOCATIONS WERE LAID OUT BY TIGHE & BOND REPRESENTATIVES USING A HANDHELD GPS. LOCATIONS SHOULD BE CONSIDERED APPROXIMATE.
4. ATANE BORINGS AND TEST PITS WERE LOCATED ON THIS PLAN BY OVERLAYING A "BORING AND TEST PIT LOCATION PLAN" ON THE BASE PLAN REFERENCED HEREON. THE LOCATIONS SHOULD BE CONSIDERED APPROXIMATE.
5. REFER TO BORING LOGS FOR DETAILED INFORMATION.

LEGEND:

T&B-B5	APPROXIMATE LOCATION OF BORING BY TIGHE & BOND
TP-101	APPROXIMATE LOCATION OF TEST PIT BY TIGHE & BOND
B-02	APPROXIMATE LOCATION OF BORING BY ATANE
TP-03	APPROXIMATE LOCATION OF TEST PIT BY ATANE

GREENWICH CENTRAL MIDDLE SCHOOL
GREENWICH, CT

BORING LOCATION PLAN

DATE:	10/29/2024
SCALE:	AS SHOWN
FIGURE:	BLP-01

Tighe&Bond

Plotted On:Oct 29, 2024-1:39pm By: BNereson
Tighe & Bond:J:\G\G5068 Greenwich Public Schools\003 Central Middle School\Drawings\AutoCAD\figures\BLP-01_120423_rev base.dwg

Appendix B
Tighe & Bond
Exploration Logs

Greenwich Central
Middle School, Greenwich, CT

Table B1
Summary of Subsurface Data

Exploration Identification	Existing Ground Surface Elevation[1] (ft)	Depth to Groundwater (ft bgs)	Groundwater Elevation (ft)	Thickness of Fill (ft)[2]	Thickness of Sand with Minor Organics[3] (ft)	Depth to Refusal (ft bgs)	Refusal Elevation (ft)
T&B-B1	50	--	--	--	--	6.5	43.5 (C) [4]
T&B-B2	69	--	--	--	--	3	66 (C) [4]
T&B-B3	48.5	--	--	--	--	9	39.5
T&B-B4	43	--	--	--	--	--	--
T&B-B4A	43	--	--	--	--	18.5	24.5
T&B-B5	44	8.5	35.5	5.5	2	29	15
T&B-B6	57	--	--	--	--	5	52
T&B-B7	66	--	--	--	--	14.5	51.5
T&B-B8	45.5	--	--	5.5	2	--	--
T&B-B8A	45.5	10	35.5	--	--	15.5	30
T&B-B9	46	7.5	38.5	--	--	15	31
TP-101	46	8	38	3	2	--	--
TP-102	43	6 [5]	37 [5]	2.5	>3.5	--	--
TP-103	45	6 [5]	39 [5]	5	>2	--	--
TP-104	44.5	6 [5]	38.5 [5]	5	0.5	--	--
TP-105	44	5 [5]	39 [5]	3.5	--	--	--
TP-106	42.5	6 [5]	36.5 [5]	4	1	--	--
TP-107	43	7 [5]	36 [5]	4	1	--	--
TP-108	42.5	8 [5]	34.5 [5]	4	1	--	--
TP-109	43	6 [5]	37 [5]	4	--	--	--
TP-110	46	--	--	2.5	>1.5	--	--
TP-111	44	--	--	>3	--	--	--
TP-112	45.5	--	--	--	--	--	--
TP-113	45	--	--	--	--	--	--
B01	42	7	35	--	--	10.3	31.7
B02	42	9	33	--	--	>14	<28
B03	44.5	10	34.5	--	--	>14	<30.5
B04	42	7	35	--	--	>16	<26
B05	44.5	8	36.5	--	--	>16	<28.5
B06	42	8	34	--	--	>14	<28
B07	43	8	35	--	--	>11.3	<31.7
B08	45	10	35	11.5	--	>16	<29
B09	46	--	--	--	--	11.5	34.5
B10	46	--	--	--	--	10	36
B11	49	--	--	--	--	7	42
B12	46	--	--	--	--	7	39
B13	44	--	--	--	--	7	37
B14	50	--	--	6	--	12	38
B15	52	--	--	--	--	9	43
B16	52	--	--	6	--	12	40
B17	48	--	--	--	--	8	40
B18	46	9	37	10	--	>13.8	<22.2
B19	42	--	--	--	--	7.3	34.7
B20	44	--	--	--	--	3	41
TP01	42.5	6.5	36	2	1	>10	<32.5
TP02	42	6.5	35.5	3	--	>10	<32
TP03	43	7	36	4	--	>10	<33
TP04	45	8	37	--	--	>10	<35
TP05	42	6.2	35.8	6	--	>10	<32
TP06	43.5	7.5	36	3	2	>10	<33.5
TP07	45	9.5	35.5	--	--	>10	<35
TP08	43	9	34	6.5	0.5	>10	<33
TP09	44	8.5	35.5	2	0.5	>10	<34
TP10	45.5	--	--	5.5	1.5	>10	<35.5
TP11	45	9	36	3	2	>10	<35
TP12	46	--	--	--	--	>3	<46

1. Existing ground surfaces elevations rounded to the nearest 0.5-foot
2. Includes surficial topsoil thickness
3. Sand with minor organics layer is typically of mix of granular soil with minor organic materials
4. (C) indicates rock core collected at refusal elevation
5. Indicates depth / elevation of water seeping into test pit; seepage may or may not represent the groundwater level

Tighe&Bond
Engineers | Environmental Specialists

Boring No. **T&B - B-1**
Page 1 of 1
File No. G-5068-003
Checked by: B Nereson

Project: Greenwich Central Middle School
Location: Greenwich, CT
Client: The SLAM Collaborative

Drilling Co. General Borings, Inc.
Foreman: J. Casson
T&B Rep.: N. Marchetti
Date Start: 08/29/23 End: 08/29/23
Location See Exploration Location Plan
GS. Elev. 50' Datum: NAVD88

	Casing	Sampler
Type	HSA	Split Spoon
I.D./O.D.	3-1/4"/ 6-3/4"	1-3/8"/2"
Hammer Wt.	140#	140#
Hammer Fall	30"	30"
Rig Make/Model	Diedrich D50 ATV	

Groundwater Readings

Date	Time	Depth	Casing	Sta. Time
No Groundwater observed				

Depth (ft.)	Casing Blows Per Ft.	Sample No. / Rec.(in)	Sample Depth (ft.)	Blows Per 6"	PID Reading (ppm)	Sample Description	General Stratigraphy	Notes	Well Construction
		S-1 / 12	0-2	2-1		2" Forest Mat	0.2' **FOREST MAT**	2	
				2-3		10" Very loose, brown, SILT, some fine Sand, trace Roots	**SAND**		
		S-2 / 18	2-4	3-5		Medium dense, brown, fine to coarse SAND, little Silt, trace Gravel	3.5'		
				6-25			**GLACIAL TILL**		
5		S-3 / 13	5-6.3	30-45		Very dense, gray to brown, fine to coarse SAND and GRAVEL, little Silt	6.5'		
				50/3					
		C-1 / 60	6.5-11.5	2 min		Hard, slightly to moderate severely weathered, sound to moderately fractured, fine grained, gray, GNEISS, very close to close, shallow to moderate dipping REC: 60"/60" = 100% RQD: 42"/60" = 70%	**BEDROCK**		
				3 min					
10				3 min					
				3 min					
				3 min					
						End of Boring at 11.5 feet			
15									
20									
25									
30									

Notes:
1. Samples taken with a split spoon sampler driven by an autohammer.
2. Auger refusal at 6.5 feet. Switched to 3" I.D. flush joint casing.

Proportions Used

TRACE (TR.)	0 - <10%
LITTLE (LI.)	10 - <20%
SOME (SO.)	20 - <35%
AND	35 - <50%

Density/Consistency

VERY LOOSE	0-4	VERY SOFT	<2
LOOSE	4-10	SOFT	2-4
MEDIUM DENSE	10-30	MEDIUM	4-8
DENSE	30-50	STIFF	8-15
VERY DENSE	>50	VERY STIFF	15-30
		HARD	>30

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Boring No. **T&B - B-2**
Page 1 of 1
File No. G-5068-003
Checked by: B Nereson

Project: Greenwich Central Middle School
Location: Greenwich, CT
Client: The SLAM Collaborative

Drilling Co. General Borings, Inc.
Foreman: J. Casson
T&B Rep.: N. Marchetti
Date Start: 08/29/23 End: 08/29/23
Location See Exploration Location Plan
GS. Elev. 69' Datum: NAVD88

	Casing	Sampler
Type	HSA	Split Spoon
I.D./O.D.	3-1/4"/ 6-3/4"	1-3/8"/2"
Hammer Wt.	140#	140#
Hammer Fall	30"	30"
Rig Make/Model	Diedrich D50 ATV	

Groundwater Readings

Date	Time	Depth	Casing	Sta. Time
No Groundwater observed				

Depth (ft.)	Casing Blows Per Ft.	Sample No. / Rec.(in)	Sample Depth (ft.)	Blows Per 6"	PID Reading (ppm)	Sample Description	General Stratigraphy	Notes	Well Construction
		S-1 / 12	0-2	2-2		2" Forest Mat 10" Loose, brown, fine to coarse SAND, some Gravel, little Silt, trace Roots	0.2' **FOREST MAT** **SAND** 2'	2	
				2-2					
		S-2 / 4	2-2.5	50-50/0		Very dense, gray, GRAVEL	**WX ROCK** 3'		
		C-1 / 60	3-8	3 min		Hard to moderatly hard, moderately to very severely weathered, sound to moderately fractured, fine to coarse grained, gray, GNEISS, very close to close, shallow to moderate dipping REC: 60"/60" = 100% RQD: 47"/60" = 78%	**BEDROCK**		
5				4 min					
				3.5 min					
				3 min					
				5.5 min					
						End of boring at 8 feet			
10									
15									
20									
25									
30									

Notes:
1. Samples taken with a split spoon sampler driven by an autohammer.
2. Auger refusal at 3 feet. Switched to core barrel.

Proportions Used

TRACE (TR.)	0 - <10%
LITTLE (LI.)	10 - <20%
SOME (SO.)	20 - <35%
AND	35 - <50%

Density/Consistency

VERY LOOSE	0-4	VERY SOFT	<2
LOOSE	4-10	SOFT	2-4
MEDIUM DENSE	10-30	MEDIUM	4-8
DENSE	30-50	STIFF	8-15
VERY DENSE	>50	VERY STIFF	15-30
		HARD	>30

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Boring No. **T&B - B-3**
Page 1 of 1
File No. G-5068-003
Checked by: B Nereson

Project: Greenwich Central Middle School
Location: Greenwich, CT
Client: The SLAM Collaborative

Drilling Co. General Borings, Inc.
Foreman: J. Casson
T&B Rep.: N. Marchetti/K. Gagnon
Date Start: 08/30/23 End: 08/30/23
Location See Exploration Location Plan
GS. Elev. 48.5' Datum: NAVD88

	Casing	Sampler
Type	HSA	Split Spoon
I.D./O.D.	3-1/4"/ 6-3/4"	1-3/8"/2"
Hammer Wt.	140#	140#
Hammer Fall	30"	30"
Rig Make/Model	Diedrich D50 ATV	

Groundwater Readings

Date	Time	Depth	Casing	Sta. Time
No Groundwater observed				

Depth (ft.)	Casing Blows Per Ft.	Sample No. / Rec.(in)	Sample Depth (ft.)	Blows Per 6"	PID Reading (ppm)	Sample Description	General Stratigraphy	Notes	Well Construction
		S-1 / 13	0-2	2-2		3" Forest Mat 10" Loose, brown, fine to medium SAND, some Silt, trace Gravel, trace Roots	0.2' **FOREST MAT** **SILTY SAND**	2	
				3-4					
		S-2 / 14	2-4	5-6		Medium dense, brown, SILT, some fine to medium Sand	2'		
				9-14			**GLACIAL TILL**		
5									
		S-3 / 7	5-5.8	48-50/4		4" Very dense, brown, GRAVEL, some fine to coarse Sand, little Silt 3" Very dense, gray, GRAVEL	5.5'		
							WEATHERED BEDROCK		
						End of Boring at 9 feet. Auger Refusal.			
10									
15									
20									
25									
30									

Notes:
1. Samples taken with a split spoon sampler driven by an autohammer.
2. Auger refusal at 9 feet.

Proportions Used

TRACE (TR.)	0 - <10%
LITTLE (LI.)	10 - <20%
SOME (SO.)	20 - <35%
AND	35 - <50%

Density/Consistency

VERY LOOSE	0-4	VERY SOFT	<2
LOOSE	4-10	SOFT	2-4
MEDIUM DENSE	10-30	MEDIUM	4-8
DENSE	30-50	STIFF	8-15
VERY DENSE	>50	VERY STIFF	15-30
		HARD	>30

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Boring No. **T&B - B-4**
Page 1 of 1
File No. G-5068-003
Checked by: B Nereson

Project: Greenwich Central Middle School
Location: Greenwich, CT
Client: The SLAM Collaborative

Drilling Co. General Borings, Inc.
Foreman: J. Casson
T&B Rep.: N. Marchetti
Date Start: 08/28/23 End: 08/29/23
Location See Exploration Location Plan
GS. Elev. 43' Datum: NAVD88

	Casing	Sampler
Type	HSA	Split Spoon
I.D./O.D.	3-1/4"/ 6-3/4"	1-3/8"/2"
Hammer Wt.	140#	140#
Hammer Fall	30"	30"
Rig Make/Model	Diedrich D50 ATV	

Groundwater Readings

Date	Time	Depth	Casing	Sta. Time
No Groundwater observed				

Depth (ft.)	Casing Blows Per Ft.	Sample No. / Rec.(in)	Sample Depth (ft.)	Blows Per 6"	PID Reading (ppm)	Sample Description	General Stratigraphy	Notes	Well Construction
		S-1 / 23	0-2	2-5		6" Topsoil 17" Medium dense, brown, fine to coarse SAND, some Gravel, little Silt	0.5' **TOPSOIL**	2	
				8-12					
		S-2 / 2	2-2.2	50/2		Very dense, brown, fine to coarse SAND and GRAVEL, little Silt	**SAND**		
5						End of Boring at 4.5 feet. Auger Refusal.			
10									
15									
20									
25									
30									

Notes:
1. Samples taken with a split spoon sampler driven by an autohammer.
2. Auger refusal at 4.5 feet in B-12. Boring was offset 8 feet northwest (See B-12A).

Proportions Used

TRACE (TR.)	0 - <10%
LITTLE (LI.)	10 - <20%
SOME (SO.)	20 - <35%
AND	35 - <50%

Density/Consistency

VERY LOOSE	0-4	VERY SOFT	<2
LOOSE	4-10	SOFT	2-4
MEDIUM DENSE	10-30	MEDIUM	4-8
DENSE	30-50	STIFF	8-15
VERY DENSE	>50	VERY STIFF	15-30
		HARD	>30

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Boring No. **T&B - B-4A**
Page 1 of 1
File No. G-5068-003
Checked by: B Nereson

Project: Greenwich Central Middle School
Location: Greenwich, CT
Client: The SLAM Collaborative

Drilling Co. General Borings, Inc.
Foreman: J. Casson
T&B Rep.: N. Marchetti
Date Start: 08/28/23 End: 08/29/23
Location See Exploration Location Plan
GS. Elev. 43' Datum: NAVD88

	Casing	Sampler
Type	HSA	Split Spoon
I.D./O.D.	3-1/4"/ 6-3/4"	1-3/8"/2"
Hammer Wt.	140#	140#
Hammer Fall	30"	30"
Rig Make/Model	Diedrich D50 ATV	

Groundwater Readings

Date	Time	Depth	Casing	Sta. Time
No Groundwater observed				

Depth (ft.)	Casing Blows Per Ft.	Sample No. / Rec.(in)	Sample Depth (ft.)	Blows Per 6"	PID Reading (ppm)	Sample Description	General Stratigraphy	Notes	Well Construction
						Borehole advanced to 5 feet without sampling. Refer to B-4.	0.5' **TOPSOIL**		
5		S-1 / 9	5-7	10-12		Medium dense, gray, fine to coarse SAND and GRAVEL, little Silt	**SAND**		
				10-7			8'		
10		S-2 / 13	10-12	15-19		Dense, brown, fine to coarse SAND and GRAVEL, little Silt	**GLACIAL TILL**		
				20-18					
15		S-3 / 12	15-17	20-42		Very dense, brown, fine to coarse SAND and GRAVEL, little Silt			
				29-28					
20						End of Boring at 18.5 feet. Auger Refusal.			
25									
30									

Notes:
1. Samples taken with a split spoon sampler driven by an autohammer.
2. Auger refusal at 18.5 feet.

Proportions Used

TRACE (TR.)	0 - <10%
LITTLE (LI.)	10 - <20%
SOME (SO.)	20 - <35%
AND	35 - <50%

Density/Consistency

VERY LOOSE	0-4	VERY SOFT	<2
LOOSE	4-10	SOFT	2-4
MEDIUM DENSE	10-30	MEDIUM	4-8
DENSE	30-50	STIFF	8-15
VERY DENSE	>50	VERY STIFF	15-30
		HARD	>30

Tighe&Bond
Engineers | Environmental Specialists

Boring No. **T&B - B-5**
Page 1 of 1
File No. G-5068-003
Checked by: B Nereson

Project: Greenwich Central Middle School
Location: Greenwich, CT
Client: The SLAM Collaborative

Drilling Co. General Borings, Inc.
Foreman: J. Casson
T&B Rep.: N. Marchetti
Date Start: 08/28/23 End: 08/29/23
Location See Exploration Location Plan
GS. Elev. 44' Datum: NAVD88

	Casing	Sampler
Type	HSA	Split Spoon
I.D./O.D.	3-1/4"/ 6-3/4"	1-3/8"/2"
Hammer Wt.	140#	140#
Hammer Fall	30"	30"
Rig Make/Model	Diedrich D50 ATV	

Groundwater Readings

Date	Time	Depth	Casing	Sta. Time
8/28		8.5'	29'	

Depth (ft.)	Casing Blows Per Ft.	Sample No. / Rec.(in)	Sample Depth (ft.)	Blows Per 6"	PID Reading (ppm)	Sample Description	General Stratigraphy	Notes	Well Construction
		S-1 / 17	0-2	2-3		6" Topsoil 11" Loose, brown, fine to coarse SAND, some Gravel, trace Silt	0.5' **TOPSOIL**		
				6-13					
		S-2 / 24	2-4	10-17		6" Dense, brown, fine to medium SAND, trace Gravel, trace Roots	**FILL**		
				19-16		18" Dense, gray, fine to coarse SAND and GRAVEL, trace Silt			
5									
		S-3 / 13	5-7	6-4		Loose, brown, fine to medium SAND, trace Gravel, trace Silt, trace Organics (2.0%)	5.5' **SAND WITH MINOR ORGANICS**		
				2-5			7.5'		
10									
		S-4 / 21	10-12	5-7		Medium dense, brown, fine to coarse SAND, little Gravel, little Silt			
				10-12					
		S-5 / 24	15-17	5-11		Dense, brown, fine to coarse SAND, little Gravel, little Silt			
15				22-36					
							GLACIAL TILL		
20		S-6 / 24	20-22	3-3		Medium dense, brown, fine to coarse SAND, some Silt			
				8-12					
25		S-7 / 3	25-25.3	50/4		Very dense, brown, fine to coarse SAND, little Silt, trace Gravel, Weathered Rock in spoon tip	25.5' **WEATHERED ROCK**	2	
30						End of Boring at 29 feet. Auger Refusal.			

Notes:
1. Samples taken with a split spoon sampler driven by an autohammer.
2. Auger refusal at 29 feet.

Proportions Used

TRACE (TR.)	0 - <10%
LITTLE (LI.)	10 - <20%
SOME (SO.)	20 - <35%
AND	35 - <50%

Density/Consistency

VERY LOOSE	0-4	VERY SOFT	<2
LOOSE	4-10	SOFT	2-4
MEDIUM DENSE	10-30	MEDIUM	4-8
DENSE	30-50	STIFF	8-15
VERY DENSE	>50	VERY STIFF	15-30
		HARD	>30

Tighe&Bond
Engineers | Environmental Specialists

Boring No. **T&B - B-6**
Page 1 of 1
File No. G-5068-003
Checked by: B Nereson

Project: Greenwich Central Middle School
Location: Greenwich, CT
Client: The SLAM Collaborative

Drilling Co. General Borings, Inc.
Foreman: J. Casson
T&B Rep.: N. Marchetti/K. Gagnon
Date Start: 08/30/23 End: 08/30/23
Location See Exploration Location Plan
GS. Elev. 57' Datum: NAVD88

	Casing	Sampler
Type	HSA	Split Spoon
I.D./O.D.	3-1/4"/ 6-3/4"	1-3/8"/2"
Hammer Wt.	140#	140#
Hammer Fall	30"	30"
Rig Make/Model	Diedrich D50 ATV	

Groundwater Readings

Date	Time	Depth	Casing	Sta. Time
No Groundwater observed				

Depth (ft.)	Casing Blows Per Ft.	Sample No. / Rec.(in)	Sample Depth (ft.)	Blows Per 6"	PID Reading (ppm)	Sample Description	General Stratigraphy	Notes	Well Construction
		S-1 / 8	0-2	2-2		2" Forest Mat 6" Loose, brown, fine to medium SAND, some Silt, trace Gravel, trace Roots	0.2' **FOREST MAT** **SILTY SAND** 2'		
				5-4					
		S-2 / 2	2-4	6-9		Medium dense, brown, fine to medium SAND and GRAVEL, little Silt	**GLACIAL TILL**		
				10-11					
							5'	2	
5						End of Boring at 5 feet. Auger Refusal.			
10									
15									
20									
25									
30									

Notes:
1. Samples taken with a split spoon sampler driven by an autohammer.
2. Auger refusal at 5 feet.

Proportions Used

TRACE (TR.)	0 - <10%
LITTLE (LI.)	10 - <20%
SOME (SO.)	20 - <35%
AND	35 - <50%

Density/Consistency

VERY LOOSE	0-4	VERY SOFT	<2
LOOSE	4-10	SOFT	2-4
MEDIUM DENSE	10-30	MEDIUM	4-8
DENSE	30-50	STIFF	8-15
VERY DENSE	>50	VERY STIFF	15-30
		HARD	>30

Tighe&Bond
Engineers | Environmental Specialists

Boring No. **T&B - B-7**
Page 1 of 1
File No. G-5068-003
Checked by: B Nereson

Project: Greenwich Central Middle School
Location: Greenwich, CT
Client: The SLAM Collaborative

Drilling Co. General Borings, Inc.
Foreman: J. Casson
T&B Rep.: N. Marchetti/K. Gagnon
Date Start: 08/30/23 End: 08/30/23
Location See Exploration Location Plan
GS. Elev. 66' Datum: NAVD88

	Casing	Sampler
Type	HSA	Split Spoon
I.D./O.D.	3-1/4"/ 6-3/4"	1-3/8"/2"
Hammer Wt.	140#	140#
Hammer Fall	30"	30"
Rig Make/Model	Diedrich D50 ATV	

Groundwater Readings

Date	Time	Depth	Casing	Sta. Time
No Groundwater observed				

Depth (ft.)	Casing Blows Per Ft.	Sample No. / Rec.(in)	Sample Depth (ft.)	Blows Per 6"	PID Reading (ppm)	Sample Description	General Stratigraphy	Notes	Well Construction
		S-1 / 12	0-2	1-2		1" Forest Mat 11" Medium dense, brown, fine to coarse SAND, little Silt, trace Roots	0.1' **FOREST MAT** **SILTY SAND**		
				15-21					
		S-2 / 13	2-4	10-9		6" Medium dnese, brown, fine to coarse SAND, little Silt	2.5'		
				15-18		7" Medium dense, gray, fine to coarse SAND and GRAVEL, little Silt			
5		S-3 / 13	5-7	15-15		Very dense, gray, fine to coarse SAND, some Gravel, little Silt			
				45-24					
							GLACIAL TILL		
10		S-4 / 15	10-12	15-20		Dense, gray, fine to coarse SAND, little Gravel, little Silt, Weathered Rock in spoon tip			
				23-36					
								2	
15						End of boring at 14.5 feet. Auger Refusal.			
20									
25									
30									

Notes:
1. Samples taken with a split spoon sampler driven by an autohammer.
2. Auger refusal at 14.5 feet.

Proportions Used

TRACE (TR.)	0 - <10%
LITTLE (LI.)	10 - <20%
SOME (SO.)	20 - <35%
AND	35 - <50%

Density/Consistency

VERY LOOSE	0-4	VERY SOFT	<2
LOOSE	4-10	SOFT	2-4
MEDIUM DENSE	10-30	MEDIUM	4-8
DENSE	30-50	STIFF	8-15
VERY DENSE	>50	VERY STIFF	15-30
		HARD	>30

Tighe&Bond
Engineers | Environmental Specialists

Boring No. **T&B - B-8**
Page 1 of 1
File No. G-5068-003
Checked by: B Nereson

Project: Greenwich Central Middle School
Location: Greenwich, CT
Client: The SLAM Collaborative

Drilling Co. General Borings, Inc.
Foreman: J. Casson
T&B Rep.: N. Marchetti
Date Start: 08/28/23 End: 08/28/23
Location See Exploration Location Plan
GS. Elev. 45.5' Datum: NAVD88

	Casing	Sampler
Type	HSA	Split Spoon
I.D./O.D.	3-1/4"/ 6-3/4"	1-3/8"/2"
Hammer Wt.	140#	140#
Hammer Fall	30"	30"
Rig Make/Model	Diedrich D50 ATV	

Groundwater Readings

Date	Time	Depth	Casing	Sta. Time
No Groundwater observed				

Depth (ft.)	Casing Blows Per Ft.	Sample No. / Rec.(in)	Sample Depth (ft.)	Blows Per 6"	PID Reading (ppm)	Sample Description	General Stratigraphy	Notes	Well Construction
		S-1 / 21	0-2	2-4		8" Topsoil 13" Medium dense, brown, fine to coarse SAND, some Gravel, little Silt	0.5' **TOPSOIL**	2	
				8-23					
		S-2 / 9	2-4	20-26		Very dense, gray, fine to coarse SAND and GRAVEL, little Silt	**FILL**		
				30-20					
5									
		S-3 / 7	5-7	23-6		3" Medium dense, gray, GRAVEL 4" Medium dense, brown, fine to coarse SAND and SILT, trace Organics (3.8%)	5.5' **SAND WITH MINOR ORGANICS**		
				4-10			7.5'		
							GLACIAL TILL		
10						End of Boring at 9 feet. Auger Refusal.			
15									
20									
25									
30									

Notes:
1. Samples taken with a split spoon sampler driven by an autohammer.
2. Auger refusal at 9 feet in B-10. Boring was offset 5 feet southwest (See B-10A).

Proportions Used

TRACE (TR.)	0 - <10%
LITTLE (LI.)	10 - <20%
SOME (SO.)	20 - <35%
AND	35 - <50%

Density/Consistency

VERY LOOSE	0-4	VERY SOFT	<2
LOOSE	4-10	SOFT	2-4
MEDIUM DENSE	10-30	MEDIUM	4-8
DENSE	30-50	STIFF	8-15
VERY DENSE	>50	VERY STIFF	15-30
		HARD	>30

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Boring No. **T&B - B-8A**
Page 1 of 1
File No. G-5068-003
Checked by: B Nereson

Project: Greenwich Central Middle School
Location: Greenwich, CT
Client: The SLAM Collaborative

Drilling Co. General Borings, Inc.
Foreman: J. Casson
T&B Rep.: N. Marchetti
Date Start: 08/28/23 End: 08/28/23
Location See Exploration Location Plan
GS. Elev. 45.5' Datum: NAVD88

	Casing	Sampler
Type	HSA	Split Spoon
I.D./O.D.	3-1/4"/ 6-3/4"	1-3/8"/2"
Hammer Wt.	140#	140#
Hammer Fall	30"	30"
Rig Make/Model	Diedrich D50 ATV	

Groundwater Readings

Date	Time	Depth	Casing	Sta. Time
8/29		10'	15'	

Depth (ft.)	Casing Blows Per Ft.	Sample No. / Rec.(in)	Sample Depth (ft.)	Blows Per 6"	PID Reading (ppm)	Sample Description	General Stratigraphy	Notes	Well Construction
						Borehole advanced to 10 feet without sampling. Refer to B-8.			
10		S-1 / 12	10-11.1	12-30		Very dense, brown, fine to coarse SAND, some Gravel, little Silt	**GLACIAL TILL**		
				50/1					
15		S-2 / 2	15-15.3	50/4		Very dense, brown, WEATHERED ROCK	15' **WEATHERED ROCK**	2	
						End of Boring at 15.5 feet. Auger Refusal.			

Notes:
1. Samples taken with a split spoon sampler driven by an autohammer.
2. Auger refusal at 15.5 feet.

Proportions Used

TRACE (TR.)	0 - <10%
LITTLE (LI.)	10 - <20%
SOME (SO.)	20 - <35%
AND	35 - <50%

Density/Consistency

VERY LOOSE	0-4	VERY SOFT	<2
LOOSE	4-10	SOFT	2-4
MEDIUM DENSE	10-30	MEDIUM	4-8
DENSE	30-50	STIFF	8-15
VERY DENSE	>50	VERY STIFF	15-30
		HARD	>30

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Boring No. **T&B - B-9**
Page 1 of 1
File No. G-5068-003
Checked by: B Nereson

Project: Greenwich Central Middle School
Location: Greenwich, CT
Client: The SLAM Collaborative

Drilling Co. General Borings, Inc.
Foreman: J. Casson
T&B Rep.: N. Marchetti
Date Start: 08/29/23 End: 08/29/23
Location See Exploration Location Plan
GS. Elev. 46' Datum: NAVD88

	Casing	Sampler
Type	HSA	Split Spoon
I.D./O.D.	3-1/4"/ 6-3/4"	1-3/8"/2"
Hammer Wt.	140#	140#
Hammer Fall	30"	30"
Rig Make/Model	Diedrich D50 ATV	

Groundwater Readings

Date	Time	Depth	Casing	Sta. Time
8/29		7.5'		

Depth (ft.)	Casing Blows Per Ft.	Sample No. / Rec.(in)	Sample Depth (ft.)	Blows Per 6"	PID Reading (ppm)	Sample Description	General Stratigraphy	Notes	Well Construction
		S-1 / 18	0-2	5-6		6" Medium dense, brown, fine to medium SAND, trace Silt	0.5' **FIELD SAND**		
				8-8		12" Medium dense, brown, fine to coarse SAND, little Gravel, little Silt	**SILTY SAND**		
		S-2 / 8	2-4	14-13		Medium dense, brown, fine to coarse SAND, some Gravel, some Silt			
				7-9			4.5'		
5		S-3 / 10	5-6.3	38-9		Medium dense, gray, fine to coarse SAND and GRAVEL, little Silt			
				5-50/2					
10		S-4 / 12	10-12	12-16		Dense, gray, fine to coarse SAND and GRAVEL, some Silt	**GLACIAL TILL**		
				18-27					
15						End of boring at 15 feet. Auger Refusal.		2	
20									
25									
30									

Notes:
1. Samples taken with a split spoon sampler driven by an autohammer.
2. Auger refusal at 15 feet.

Proportions Used

TRACE (TR.)	0 - <10%
LITTLE (LI.)	10 - <20%
SOME (SO.)	20 - <35%
AND	35 - <50%

Density/Consistency

VERY LOOSE	0-4	VERY SOFT	<2
LOOSE	4-10	SOFT	2-4
MEDIUM DENSE	10-30	MEDIUM	4-8
DENSE	30-50	STIFF	8-15
VERY DENSE	>50	VERY STIFF	15-30
		HARD	>30

Tighe&Bond
Engineers | Environmental Specialists

G-5068-003 / Greenwich CMS

Greenwich Central Middle School
Greenwich, Connecticut

Test Pit No. **TP-101**
Page No. 1 of 1
Photo Log No. --
Checked By: B. Nereson

T&B Rep.	C.Watts	Contractor	General Borings			Date	11/10/23
		Operator	John Wyatt			Ground Elev.	46.0
Weather	Cloudy, 50s	Make	Volvo	Model	EC55L	Time Started	--
		Capacity	1/3yd	Reach	10 ft.	Time Completed	--

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulder Count/ Class	Note No.
0	0-0.4': Brown, fine to coarse SAND, some Silt, little Roots, moist (Topsoil)			E	A	
1'	0.4-1.5': Brown, fine to coarse SAND and fine to coarse GRAVEL, little Silt, little Wood, frequent Boulders, moist			M	A/B	
2'	1.5-3.0': Light brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt, frequent Boulders, trace Roots at 2', moist (Fill)			M	A	
3'	3.0-5.0: Tan, fine to medium SAND, some Silt, occasional Boulders, trace Roots, moist			M	A	
4'	(Sand with Minor Organics)			M	A	
5'	5.0-8.0': Brown, fine to coarse SAND and fine to coarse GRAVEL, little Silt, frequent Boulders, moist			M	A	
6'				M	A	
7'	(Glacial Till)			M	B	1
8'	End of Test Pit - 8.0'. Refusal not encountered.					
9'						
10'						
11'						
12'						
13'						
14'						
15'						
16'						

Notes:
1. Groundwater encountered at 8'.
2. TP ID for civil design is 1-01.

Test Pit Plan

Volume = _____ cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" +

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
(x) Encountered
( ) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

Tighe&Bond
Engineers | Environmental Specialists

G-5068-003 / Greenwich CMS

Greenwich Central Middle School
Greenwich, Connecticut

Test Pit No.	**TP-102**
Page No.	1 of 1
Photo Log No.	--
Checked By:	B. Nereson

T&B Rep.	C.Watts	Contractor	General Borings			Date	11/10/23
		Operator	John Wyatt			Ground Elev.	42.8
Weather	Cloudy, 50s	Make	Volvo	Model	EC55L	Time Started	--
		Capacity	1/3yd	Reach	10 ft.	Time Completed	--

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulder Count/ Class	Note No.
0	0-0.5': Brown, fine to coarse SAND, some Silt, little Roots, moist (Topsoil)			E		
1'	0.5-1.0': Brown, fine to coarse SAND, some Silt, little fine to coarse Gravel, moist			M	A	
2'	1.0-2.0': Light brown, fine to coarse SAND and fine to coarse GRAVEL, trace Silt, occasional Boulders (Fill)			M	A	
3'	2.0-6.0': Gray, fine to coarse SAND and fine GRAVEL, little Silt, trace Roots, frequent Boulders, moist			M	A	
4'				M	A/B	
5'				M	A/B	
6'	(Sand with Minor Organics) End of Test Pit - 6.0'. Refusal not encountered.					
7'						
8'						
9'						
10'						
11'						
12'						
13'						
14'						
15'						
16'						

Notes:
1. Water seeping into test pit at 6'.
2. TP ID for civil design is 1-18.

Test Pit Plan

Volume = _____ cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" +

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(x) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

J:\G\G5068 Greenwich Public Schools\003 Central Middle School\Geotechnical\Explorations\[Test Pit Logs.xls]TP-102

Tighe&Bond
Engineers | Environmental Specialists

G-5068-003 / Greenwich CMS

Greenwich Central Middle School
Greenwich, Connecticut

Test Pit No. **TP-103**
Page No. 1 of 1
Photo Log No. --
Checked By: B. Nereson

T&B Rep.	C.Watts	Contractor	General Borings			Date	11/10/23
		Operator	John Wyatt			Ground Elev.	45.0
Weather	Cloudy, 50s	Make	Volvo	Model	EC55L	Time Started	--
		Capacity	1/3yd	Reach	10 ft.	Time Completed	--

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulder Count/ Class	Note No.
0	0-0.5': Brown, fine to coarse SAND, some Silt, little Roots, moist (Topsoil)			E		
1'	0.5-1.0': Brown, fine to coarse SAND and fine GRAVEL, little Silt, moist 1.0-2.0': Light brown, fine to medium SAND, little Silt, trace fine Gravel, moist			E		
2'	2.0-3.0': Brown, fine to coarse SAND and fine to coarse GRAVEL, trace Silt, occasional Boulders, moist			M	B/C	
3'	3.0-5.0': Gray, fine to coarse SAND and fine GRAVEl, little Silt, frequent Boulders, moist			M	B/C	
4'	(Fill)			M	C	
5'	5.0-7.0': Brown, fine to medium SAND, some Silt, little Organics, moist			E		
6'	(Sand with Minor Organics)					1
7'	End of Test Pit - 7.0'. Refusal not encountered.					
8'						
9'						
10'						
11'						
12'						
13'						
14'						
15'						
16'						

Notes:
1. Water seeping into test pit at 6'.
2. TP ID for civil design is 1-03.

Test Pit Plan

Volume = _____ cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" +

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
( ) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

J:\G\G5068 Greenwich Public Schools\003 Central Middle School\Geotechnical\Explorations\[Test Pit Logs.xls]TP-103

Tighe&Bond
Engineers | Environmental Specialists

G-5068-003 / Greenwich CMS

Greenwich Central Middle School
Greenwich, Connecticut

Test Pit No.	**TP-104**
Page No.	1 of 1
Photo Log No.	--
Checked By:	B. Nereson

T&B Rep.	C.Watts	Contractor	General Borings			Date	11/10/23
		Operator	John Wyatt			Ground Elev.	44.4
Weather	Cloudy, 50s	Make	Volvo	Model	EC55L	Time Started	--
		Capacity	1/3yd	Reach	10 ft.	Time Completed	--

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulder Count/ Class	Note No.
0	0-0.5': Brown, fine to coarse SAND, some Silt, little Roots, moist (Topsoil)			E		
1'	0.5-1.0': Brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt, moist			E	A	
2'	1.0-4.0': Light brown, fine to coarse SAND and fine to coarse GRAVEL, little Silt, frequent Boulders, moist			M	A	
3'				M	A	
4'	4.0-5.0': Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt, frequent Boulders, moist (Fill)			H	B/C	
5'	5.0-6.0': Dark brown, fine to medium SAND, some Silt, little Organi (Sand with Minor Organics)			H		
6'	6.0-8.0': Gray, Clayey SILT, some fine to medium Sand, moist			H		1
7'				H		
8'	(Glacial Till) End of Test Pit - 8.0'. Refusal not encountered.					
9'						
10'						
11'						
12'						
13'						
14'						
15'						
16'						

Notes:
1. Water seeping into test pit at 6'.
2. TP ID for civil design is 1-02.

Test Pit Plan

Volume = _____ cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" +

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(x) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

J:\G\G5068 Greenwich Public Schools\003 Central Middle School\Geotechnical\Explorations\[Test Pit Logs.xls]TP-104

Tighe&Bond
Engineers | Environmental Specialists

G-5068-003 / Greenwich CMS

Greenwich Central Middle School
Greenwich, Connecticut

Test Pit No. **TP-105**
Page No. 1 of 1
Photo Log No. --
Checked By: B. Nereson

T&B Rep.	C.Watts	Contractor	General Borings			Date	11/10/23
		Operator	John Wyatt			Ground Elev.	43.8
Weather	Cloudy, 50s	Make	Volvo	Model	EC55L	Time Started	--
		Capacity	1/3yd	Reach	10 ft.	Time Completed	--

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulder Count/ Class	Note No.
0	0-0.5': Brown, fine to coarse SAND, some Silt, little Roots, moist (Topsoil)			M		
1'	0.5-3.5': Light brown, fine to coarse SAND and fine GRAVEL, little Silt, frequent Boulders, moist			M	A/B	
2'				M	A/B	
3'	(Fill)			M		
4'	3.5-5.0': Gray, fine to coarse SAND, little fine to coarse Gravel, trace Silt, frequent Boulders, moist			M	B/C	1
5'	(Glacial Till) End of Test Pit - 5.0'. Refusal on apparent Boulders.					
6'						
7'						
8'						
9'						
10'						
11'						
12'						
13'						
14'						
15'						
16'						

Notes:
1. Water seeping into test pit at 5'.
2. TP ID for civil design is 1-04.

Test Pit Plan

Volume = _____ cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" +

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
( ) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

J:\G\G5068 Greenwich Public Schools\003 Central Middle School\Geotechnical\Explorations\[Test Pit Logs.xls]TP-105

Tighe&Bond
Engineers | Environmental Specialists

G-5068-003 / Greenwich CMS

Greenwich Central Middle School
Greenwich, Connecticut

Test Pit No. **TP-106**
Page No. 1 of 1
Photo Log No. --
Checked By: B. Nereson

T&B Rep.	C.Watts	Contractor	General Borings			Date	11/13/23
		Operator	John Wyatt			Ground Elev.	42.3
Weather	Cloudy, 50s	Make	Volvo	Model	EC55L	Time Started	--
		Capacity	1/3yd	Reach	10 ft.	Time Completed	--

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulder Count/ Class	Note No.
0	0-0.5': Brown, fine to coarse SAND, some Silt, little Roots, moist (Topsoil)			E	A	
1'	0.5-2.0': Brown, fine to coarse SAND and fine to coarse GRAVEL, little Silt, trace Roots, occasional Boulders, moist			M	A	
2'	2.0-4.0': Brown, fine to coarse SAND and fine to coarse GRAVEL, trace Silt, frequent Boulders, moist			M	A/B	
3'	(Fill)			M	A/B	
4'	4.0-5.0': Gray, fine to medium SAND, some Silt, trace Roots, moist (Sand with Minor Organics)			M	A/B	
5'	5.0-6.0': Brown, fine to coarse SAND and fine to coarse GRAVEL, trace Silt, frequent Boulders, moist (Glacial Till)			M	A/B	1
6'	End of Test Pit - 6.0'. Refusal on apparent Boulders.					
7'						
8'						
9'						
10'						
11'						
12'						
13'						
14'						
15'						
16'						

Notes:
1. Water seeping into test pit at 6'.
2. TP ID for civil design is 1-08.

Test Pit Plan

Volume = _____ cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" +

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
( ) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

J:\G\G5068 Greenwich Public Schools\003 Central Middle School\Geotechnical\Explorations\[Test Pit Logs.xls]TP-106

Tighe&Bond
Engineers | Environmental Specialists

G-5068-003 / Greenwich CMS

Greenwich Central Middle School
Greenwich, Connecticut

Test Pit No. **TP-107**
Page No. 1 of 1
Photo Log No. --
Checked By: B. Nereson

T&B Rep.	C.Watts	Contractor	General Borings			Date	11/13/23
		Operator	John Wyatt			Ground Elev.	43.2
Weather	Cloudy, 50s	Make	Volvo	Model	EC55L	Time Started	--
		Capacity	1/3yd	Reach	10 ft.	Time Completed	--

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulder Count/ Class	Note No.
0	0-0.5': Brown, fine to coarse SAND, little Silt, little Roots, trace fine Gravel, moist (Topsoil)			E	A	
1'	0.5-4.0': Brown, fine to coarse SAND and fine to coarse GRAVEL, trace Silt, frequent Boulders, moist			M	A/B	
2'				M	A/B	
3'				M	A/B	
4'	(Fill) 4.0-5.0': Dark brown, fine to medium SAND, some Silt, little Roots, apparent organic odor, moist (Sand with Minor Organics)			M	A/B	
5'	5.0-8.0': Gray, fine to medium SAND, some Silt, little fine to coarse Gravel, occasional Boulders, moist			M	A/B	
6'				M	A/B	1
7'				M	A/B	
8'	(Glacial Till) End of Test Pit - 8.0'. Refusal not encountered.					
9'						
10'						
11'						
12'						
13'						
14'						
15'						
16'						

Notes:
1. Water seeping into test pit at 7'.
2. TP ID for civil design is 1-05.

Test Pit Plan

Volume = _____ cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" +

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(x) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

Tighe&Bond
Engineers | Environmental Specialists

G-5068-003 / Greenwich CMS

Greenwich Central Middle School
Greenwich, Connecticut

Test Pit No. **TP-108**
Page No. 1 of 1
Photo Log No. --
Checked By: B. Nereson

T&B Rep.	C.Watts	Contractor	General Borings			Date	11/13/23
		Operator	John Wyatt			Ground Elev.	42.7
Weather	Cloudy, 50s	Make	Volvo	Model	EC55L	Time Started	--
		Capacity	1/3yd	Reach	10 ft.	Time Completed	--

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulder Count/ Class	Note No.
0	0-0.5': Brown, fine to coarse SAND, some Silt, little Roots, moist (Topsoil)			E		
1'	0.5-4.0': Light brown, fine to coarse SAND and fine to coarse GRAVEL, little Silt, frequent Boulders, moist			E	A	
2'				E	A	
3'				E	A	
4'	(Fill)			M	A	
5'	4.0-5.0': Dark brown, fine to medium SAND, some Silt, little Roots, apparent organic odor, moist (Sand with Minor Organics)			M	A/B	
6'	5.0-6.0': Gray, fine to coarse SAND and fine to coarse GRAVEL, little Silt, frequent Boulders, moist			M	A/B	
7'	6.0-8.0': Gray, fine to medium SAND, some Silt, trace Roots, occasional Boulders, moist			M	A/B	1
8'	(Glacial Till)					
9'	End of Test Pit - 8.0'. Refusal not encountered.					
10'						
11'						
12'						
13'						
14'						
15'						
16'						

Notes:
1. Water seeping into test pit at 8'.
2. TP ID for civil design is 1-06.

Test Pit Plan

Volume = _____ cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" +

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(x) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

Tighe&Bond
Engineers | Environmental Specialists

G-5068-003 / Greenwich CMS

Greenwich Central Middle School
Greenwich, Connecticut

Test Pit No. **TP-109**
Page No. 1 of 1
Photo Log No. --
Checked By: B. Nereson

T&B Rep.	C.Watts	Contractor	General Borings			Date	11/13/23
		Operator	John Wyatt			Ground Elev.	43.0
Weather	Cloudy, 50s	Make	Volvo	Model	EC55L	Time Started	--
		Capacity	1/3yd	Reach	10 ft.	Time Completed	--

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulder Count/ Class	Note No.
0	0-0.5': Brown, fine to coarse SAND, little Silt, little Roots, moist (Topsoil)			E	A	
1'	0.5-4.0': Brown, fine to coarse SAND and fine to coarse GRAVEL, trace Silt, frequent Boulders, moist			D	B/C	
2'				D	B/C	
3'				D	B/C	
4'	(Fill)			D	B	
5'	4.0-5.0': Gray, fine to coarse SAND and fine to coarse GRAVEL, trace Silt, frequent Boulders, moist			M	A	
6'	5.0-8.0': Brown, fine to coarse SAND and fine GRAVEL, little Silt, occasional Boulders, moist			M	A	1
7'				M		
8'	(Glacial Till)					
9'	End of Test Pit - 8.0'. Refusal not encountered.					
10'						
11'						
12'						
13'						
14'						
15'						
16'						

Notes:
1. Water seeping into test pit at 6'.
2. TP ID for civil design is 1-07.

Test Pit Plan

Volume = _____ cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" +

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(x) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

Tighe&Bond
Engineers | Environmental Specialists

G-5068-003 / Greenwich CMS

Greenwich Central Middle School
Greenwich, Connecticut

Test Pit No. **TP-110**
Page No. 1 of 1
Photo Log No. --
Checked By: B. Nereson

T&B Rep.	N. Greto	Contractor	General Borings			Date	11/17/23
		Operator	John Wyatt			Ground Elev.	45.8
Weather	Clear, 50s	Make	Volvo	Model	EC55L	Time Started	--
		Capacity	1/3yd	Reach	10 ft.	Time Completed	--

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulder Count/ Class	Note No.
0	0-0.5': Brown, fine to coarse SAND, little Silt, little Roots, moist (Topsoil)			E	A	
1'	0.5-2.5': Brown, fine to coarse SAND, some Silt, frequent Cobbles, moist			M	A	
2'	(Fill)			M	A	
3'	2.5-4.0': Gray, fine to medium SAND, some Silt, trace Roots, apparent organic odor, moist			M		
4'	(Sand with Minor Organics)					
5'	End of Test Pit - 4.0'. Refusal not encountered.					
6'						
7'						
8'						
9'						
10'						
11'						
12'						
13'						
14'						
15'						
16'						

Notes:
1. TP ID for civil design is 1-19.

Test Pit Plan

Volume = _____ cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" +

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(x) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

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Tighe&Bond
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G-5068-003 / Greenwich CMS

Greenwich Central Middle School
Greenwich, Connecticut

Test Pit No. **TP-111**
Page No. 1 of 1
Photo Log No. --
Checked By: B. Nereson

T&B Rep.	N. Greto	Contractor	General Borings			Date	11/17/23
		Operator	John Wyatt			Ground Elev.	44.2
Weather	Clear, 50s	Make	Volvo	Model	EC55L	Time Started	--
		Capacity	1/3yd	Reach	10 ft.	Time Completed	--

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulder Count/ Class	Note No.
0	0-0.5': Brown, fine to coarse SAND, little Silt, little Roots, moist (Topsoil)			E	A	
1'	0.5-3.0': Brown, fine to coarse SAND, some Silt, frequent Cobbles, moist			M	A	
2'				M	A	
3'	(Fill) End of Test Pit - 3.0'. Refusal not encountered.			M		
4'						
5'						
6'						
7'						
8'						
9'						
10'						
11'						
12'						
13'						
14'						
15'						
16'						

Notes:
1. TP ID for civil design is 1-20.

Test Pit Plan

Volume = _____ cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" +

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(x) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

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Tighe&Bond
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G-5068-003 / Greenwich CMS

Greenwich Central Middle School
Greenwich, Connecticut

Test Pit No.	**TP-112**
Page No.	1 of 1
Photo Log No.	--
Checked By:	B. Nereson

T&B Rep.	N. Greto	Contractor	General Borings			Date	11/17/23
		Operator	John Wyatt			Ground Elev.	45.7
Weather	Clear, 50s	Make	Volvo	Model	EC55L	Time Started	--
		Capacity	1/3yd	Reach	10 ft.	Time Completed	--

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulder Count/ Class	Note No.
0	0-0.5': Brown, fine to coarse SAND, little Silt, little Roots, moist (Topsoil)			E	A	
1'	0.5-2.5': Brown, fine to coarse SAND, some Silt, some Gravel, frequent Boulders, moist			M	A	
2'				M	A	
3'	2.5-7.0': Brown, fine to coarse SAND, some Silt, frequent Cobbles/Boulders, moist			M	A	
4'				M	A	
5'				M	A	
6'				M	A	
7'	(Glacial Till)					
8'	End of Test Pit - 7.0'. Refusal not encountered.					
9'						
10'						
11'						
12'						
13'						
14'						
15'						
16'						

Notes:

Test Pit Plan

Volume = _____ cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" +

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(x) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

J:\G\G5068 Greenwich Public Schools\003 Central Middle School\Geotechnical\Explorations\[Test Pit Logs.xls]TP-112

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G-5068-003 / Greenwich CMS

Greenwich Central Middle School
Greenwich, Connecticut

Test Pit No.	TP-113
Page No.	1 of 1
Photo Log No.	--
Checked By:	B. Nereson

T&B Rep.	N. Greto	Contractor	General Borings			Date	11/17/23
		Operator	John Wyatt			Ground Elev.	44.8
Weather	Clear, 50s	Make	Volvo	Model	EC55L	Time Started	--
		Capacity	1/3yd	Reach	10 ft.	Time Completed	--

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulder Count/ Class	Note No.
0	0-0.5': Brown, fine to coarse SAND, little Silt, little Roots, moist (Topsoil)			E	A	
1'	0.5-1.5': Brown, fine to coarse SAND, some Silt, some Gravel, frequent Boulders, moist			M	A	
2'	1.5-5.0': Light brown, SILT and fine to medium SAND, occasional Cobbles, moist			M	A	
3'				M	A	
4'				M	A	
5'	5-7.0': Brown, fine to coarse SAND, some Silt, occasional Cobbles, moist			M	A	
6'				M	A	
7'	(Glacial Till) End of Test Pit - 7.0'. Refusal not encountered.					
8'						
9'						
10'						
11'						
12'						
13'						
14'						
15'						
16'						

Notes:

Test Pit Plan

Volume = _____ cu. yd.

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" +

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(x) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

J:\G\G5068 Greenwich Public Schools\003 Central Middle School\Geotechnical\Explorations\[Test Pit Logs.xls]TP-113

Appendix C
ATANE
Exploration Logs

LOG OF TEST PIT – TP-01

ATANE
EXCEL.TOGETHER.
40 Wall Street, 11th Floor, New York, NY 10005
(212) 747-1997 | www.ATANEConsulting.com

PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-01
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 8:00 a.m.
Time Test Pit Ended: 8:35 a.m.

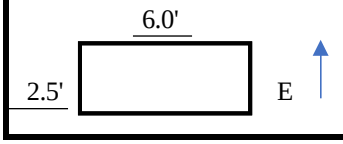
Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022

Depth Below Ground Surface (BGS) in feet	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Comments
1	**TOPSOIL**	Black; SILT; dry; loose to medium dense; with some fine Sand, with little Organics.	E	None	
2	**FILL**	Brown; fine to medium SAND and SILT; dry; loose to medium dense; with some gravel.	E	None	
3	**Silty SAND**	Black; fine to coarse SAND; dry; loose to medium dense; with some silt, with some organic material.	E	None	
4	**Silty SAND**	Gray; fine to coarse SAND; dry; loose to medium dense; with some silt; with some gravel.	E	None	
5	**Silty SAND**	Gray; fine to coarse SAND; moist to saturated; loose to medium dense; with some silt; with some gravel.			Grab Sample collected at ±6 feet BGS
6	▼				
7					
8					
9					
10					
11		Bottom of Exploration ±10.0'			
12					

Note 1: Short-term equilibrium groundwater level measured at approximately 6.5 feet below ground surface.
Note 2: Test pit backfilled with excavated soils and compacted with excavator bucket at ground surface.
Note 3: Some cave-in was noticed in the sand at about 7 feet below ground surface.

Water Symbols ▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT

E = Easy
M = Moderate
D = Difficult

LOG OF TEST PIT – TP-01

ATANE
EXCEL.TOGETHER.
40 Wall Street, 11th Floor, New York, NY 10005
(212) 747-1997 | www.ATANEConsulting.com

PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-01
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10’3”

Weather: Sunny, 84 F
Time Test Pit Started: 8:00 a.m.
Time Test Pit Ended: 8:35 a.m.

Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022



In progress TP-01



Mixture of fine to coarse Sand, some Silt, and some Gravel



Short-term equilibrium groundwater level measured at approximately 6.5 feet below ground surfaces

LOG OF TEST PIT – TP-02

ATANE
EXCEL.TOGETHER.
40 Wall Street, 11th Floor, New York, NY 10005
(212) 747-1997 | www.ATANEConsulting.com

PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-02
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 8:40 a.m.
Time Test Pit Ended: 9:27 a.m.

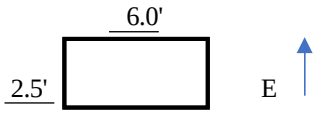
Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022

Depth Below Ground Surface (BGS) in feet	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Comments
1	**TOPSOIL**	Light brown; SILT; dry; loose to medium dense; with some fine Sand, with little Organics.	E	None	
2	**FILL**	Light brown and gray; fine to medium SAND; dry; loose to medium dense; with some silt; with some gravel.	E	None	
3			E	None	
4	**Gravelly SAND**	Dark yellowish brown; mixture of SAND and GRAVEL; dry; loose to medium dense; trace of silt; trace of cobbles.	E	None	
5	**Gravelly SAND**	Dark yellowish brown; mixture of SAND and GRAVEL; moist to saturated; loose to medium dense; trace of silt; trace of cobbles.	E	None	Grab Sample collected at ±6 feet BGS
6	▼				
7					
8					
9					
10					
11		Bottom of Exploration ±10.0'			
12					

Note 1: Short-term equilibrium groundwater level measured at approximately 6.5 feet below ground surface.
Note 2: Test pit backfilled with excavated soils and compacted with excavator bucket at ground surface.

Water Symbols ▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT

E = Easy
M = Moderate
D = Difficult

LOG OF TEST PIT – TP-02

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-02
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10’3”

Weather: Sunny, 84 F
Time Test Pit Started: 8:40 a.m.
Time Test Pit Ended: 9:27 a.m.

Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022



In progress TP-02. – Short-term equilibrium groundwater level measured at approximately 6.5 feet below ground surfaces



Mixture of fine to coarse Sand, some Silt, some Gravel, and trace of cobbles



Trace of cobbles in mixture of sand and gravel

LOG OF TEST PIT – TP-03

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-03
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 9:30 a.m.
Time Test Pit Ended: 10:14 a.m.

Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022

Depth Below Ground Surface (BGS) in feet	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Comments
1	**TOPSOIL**	Light brown; SAND, GRAVEL, and SILT; dry; medium dense; with little Organics.	E	None	
2	**Silty GRAVEL**	Light brown; Mixture of GRAVEL, SAND, and SILT; dry; medium dense; with little cobbles.	E	None	
3	**Silty GRAVEL**	Light brown; Mixture of GRAVEL, SAND, and SILT; dry; medium dense; with little cobbles; with some boulders	M	2/C	
4	**Silty GRAVEL**	Light brown; Mixture of GRAVEL, SAND, and SILT; dry; medium dense; with little cobbles; with some boulders; trace of debris	M	2/C	
5	**SILTS & CLAYS** ▼	Gray; CLAYS of low to medium plasticity; little gravelly clays; little sandy clays; little silty clays; trace of cobbles.	E	None	Grab Sample collected at ±6 feet BGS
6					
7					
8	**Gravelly SAND**	Gray; gravel-SAND-silt mixtures; moist to saturated; medium dense; trace of cobbles.			
9					
10					
11		Bottom of Exploration ±10.0'			
12					

Note 1: Short-term equilibrium groundwater level measured at approximately 7.0 feet below ground surface.
Note 2: Test pit backfilled with excavated soils and compacted with excavator bucket at ground surface.

Water Symbols ▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT

E = Easy
M = Moderate
D = Difficult

LOG OF TEST PIT – TP-03

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-03
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 9:30 a.m.
Time Test Pit Ended: 10:14 a.m.

Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022



In progress TP-03. – Short-term equilibrium groundwater level measured at approximately 7 feet below ground surfaces



Mixture of fine to coarse Sand, some Silt, some clay, some Gravel, little cobbles, little boulders



Boulder ±4.0 feet long



Gravel-sand-silt mixtures; little cobbles

LOG OF TEST PIT – TP-04

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-04
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 10:15 a.m.
Time Test Pit Ended: 11:10 a.m.

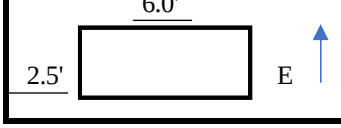
Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022

Depth Below Ground Surface (BGS) in feet	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Comments
1	**TOPSOIL**	Light brown; SILT; dry; loose to medium dense; with some fine Sand, with some Organics; trace of gravel.	E	None	
2	**Silty SAND**	Light brown; fine to medium SAND and SILT; dry; medium dense; with some gravel; with some cobbles; trace of boulders.	M	1/B	
3			M	1/B	
4			M	1/B	
5			M	None	Grab Sample collected at ±6 feet BGS
6					
7					
8 – 8.5	**Clayey SAND** ▼	Gray; sand-clay mixtures; moist; loose to medium dense; with some silt; with some gravel.			
8.5 – 9	**Silty SAND**	Dark yellowish brown; fine to coarse SAND; moist to saturated; loose to medium dense; with some silt; with some gravel; trace of cobbles.			
10					
11		Bottom of Exploration ±10.0'			
12					

Note 1: Short-term equilibrium groundwater level measured at approximately 8.0 feet below ground surface.
Note 2: Test pit backfilled with excavated soils and compacted with excavator bucket at ground surface.

Water Symbols ▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT

E = Easy
M = Moderate
D = Difficult

LOG OF TEST PIT – TP-04

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-04
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 10:15 a.m.
Time Test Pit Ended: 11:10 a.m.

Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022



In progress TP-04. – Short-term equilibrium groundwater level measured at approximately 8 feet below ground surfaces



Mixture of fine to coarse sand, some silt, and some gravel, trace of clay, some cobbles, trace of boulders



Mixture of sand and gravel, trace of silt, some cobbles, trace of boulders

LOG OF TEST PIT – TP-05

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PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-05
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 11:25 a.m.
Time Test Pit Ended: 11:50 a.m.

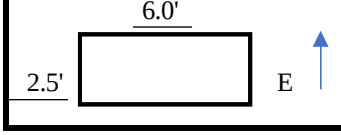
Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022

Depth Below Ground Surface (BGS) in feet	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Comments
1	**TOPSOIL**	Light brown; SILT; dry; loose to medium dense; with some fine Sand, with little Organics.	E	None	
1 – 2.5	**Silty SAND**	Light brown; fine to medium SAND and SILT; dry; loose to medium dense; with some gravel.	E	None	
2.5 – 3	**Silty SAND**	Gray; fine to coarse SAND; dry to moist; loose to medium dense; with some silt; trace of debris and organics; slightly odorous; trace of gravel; trace of cobbles.	E	None	
4			E	None	
5			E	None	Grab Sample collected at ±6 feet BGS
6	▼				
7	**Silty SAND**	Gray; fine to coarse SAND; saturated; loose to medium dense; with some silt; trace of clay; trace of gravel.	E	None	
8	**Silty SAND**	Gray; fine to coarse SAND; saturated; loose; with some silt; trace of gravel.	E	None	
9					
10					
11		Bottom of Exploration ±10.0'			
12					

Note 1: Short-term equilibrium groundwater level measured at approximately 6.2 feet below ground surface. Water flows from Northwest to Southeast before short-term equilibrium.
Note 2: Test pit backfilled with excavated soils and compacted with excavator bucket at ground surface.
Note 3: Some cave-in was noticed in the sand at about 7 feet below ground surface.

Water Symbols ▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT

E = Easy
M = Moderate
D = Difficult

LOG OF TEST PIT – TP-05

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-05
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10’3”

Weather: Sunny, 84 F
Time Test Pit Started: 11:25 a.m.
Time Test Pit Ended: 11:50 a.m.

Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022



In progress TP-05. – Short-term equilibrium groundwater level measured at approximately 6.2 feet below ground surfaces



Mixture of fine to coarse Sand, some Silt, some Gravel, some cobbles



Mixture of sand and gravel, trace of silt, trace of cobbles, trace of clay

LOG OF TEST PIT – TP-06

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-06
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 11:50 a.m.
Time Test Pit Ended: 12:10 p.m.

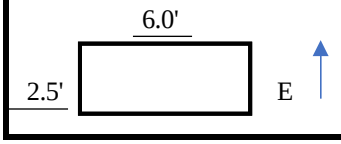
Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022

Depth Below Ground Surface (BGS) in feet	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Comments
1	**TOPSOIL**	Light brown; SILT; dry; loose to medium dense; with some fine Sand, with little Organics.	E	None	
2	**Silty SAND**	Light brown; fine to medium SAND and SILT; dry; loose to medium dense; with some gravel; trace of cobbles.	E	None	
3			E	None	
4	**Silty SAND**	Black and gray; SAND and silt mixture; dry; loose to medium dense; with some organics; trace of gravel.	E	None	
5					
6	**Silty SAND** ▼	Gray; fine to coarse SAND; moist to saturated; loose to medium dense; with some silt; with some gravel; trace of cobbles.	E	None	Grab Sample collected at ±6 feet BGS
7					
8					
9	**Silty SAND**	Gray; fine to coarse SAND; saturated; loose to medium dense; with some silt; with some gravel; trace of cobbles.			
10					
11		Bottom of Exploration ±10.0'			
12					

Note 1: Short-term equilibrium groundwater level measured at approximately 7.5 feet below ground surface.
Note 2: Test pit backfilled with excavated soils and compacted with excavator bucket at ground surface.
Note 3: Some cave-in was noticed in the sand at about 6 feet below ground surface.

Water Symbols ▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT

E = Easy
M = Moderate
D = Difficult

LOG OF TEST PIT – TP-06

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-06
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 11:50 a.m.
Time Test Pit Ended: 12:10 p.m.

Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022



In progress TP-06. – Short-term equilibrium groundwater level measured at approximately 7.5 feet below ground surfaces



Mixture of fine to coarse sand, some silt, some gravel; some cobbles



Mixture of sand, silt, gravel, cobbles, trace of organics



Mixture of sand, silt, gravel, and cobbles

LOG OF TEST PIT – TP-07

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-07
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 12:20 p.m.
Time Test Pit Ended: 01:15 p.m.

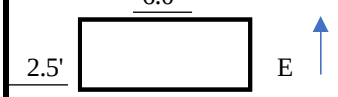
Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022

Depth Below Ground Surface (BGS) in feet	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Comments
1	**TOPSOIL**	Light brown; SILT; dry; loose to medium dense; with some fine Sand, with little Organics.	E	None	
2	**Silty SAND**	Light brown; fine to medium SAND and SILT; dry; loose to medium dense; with some gravel, trace of cobbles, trace of boulders.	M	4/A	
3					
4					
5					Grab Sample collected at ±6 feet BGS
6					
7					
8					
9	**SILT & CLAY** ▼	Gray; sandy and silty CLAY; low to medium plasticity;	E	None	
10					
11		Bottom of Exploration ±10.0'			
12					

Note 1: Short-term equilibrium groundwater level measured at approximately 9.5 feet below ground surface.
Note 2: Test pit backfilled with excavated soils and compacted with excavator bucket at ground surface.

Water Symbols ▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT

E = Easy
M = Moderate
D = Difficult

LOG OF TEST PIT – TP-07

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PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-07
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 12:20 p.m.
Time Test Pit Ended: 1:15 p.m.

Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022



In progress TP-07. – Short-term equilibrium groundwater level measured at approximately 9.5 feet below ground surfaces



Mixture of fine to coarse Sand, some Silt, some Gravel, Trace of cobbles, trace of boulders



Trace of cobbles and boulders

LOG OF TEST PIT – TP-08

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-08
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 3:35 p.m.
Time Test Pit Ended: 4:03 p.m.

Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022

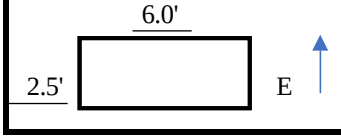
Depth Below Ground Surface (BGS) in feet	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Comments
1	**TOPSOIL**	Light brown; SILT; dry; loose to medium dense; with some fine Sand, with little Organics.	E	None	
2	**Silty SAND**	Light brown; fine to medium SAND and SILT; dry; loose to medium dense; with some gravel.	E	None	
2.5	**Silty SAND**	Black and gray; Mixture of SAND and Silt; dry; loose to medium dense; with some organic materials.	E	None	
3	**Silty SAND**	Light brown; fine to medium SAND and SILT; dry; loose to medium dense; with some gravel.			
4			E	None	
5					Grab Sample collected at ±6 feet BGS
6					
6.5					
7	**Silty SAND**	Black and Gray; fine to coarse SAND; dry; loose to medium dense; with some silt; with trace of organics.			
8	**Silty SAND**	Light brown; fine to medium SAND and SILT; dry; loose to medium dense; with some gravel.			
9	**SILT & CLAY** ▼	Gray; CLAYS of low to medium plasticity; moist to saturated; little sandy clays; little silty clays;			
10					
11		Bottom of Exploration ±10.0'			
12					

Note 1: Short-term equilibrium groundwater level measured at approximately 9.0 feet below ground surface.

Note 2: Test pit backfilled with excavated soils and compacted with excavator bucket at ground surface.

Water Symbols ▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT

E = Easy
M = Moderate
D = Difficult

LOG OF TEST PIT – TP-08

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-08
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10’3”

Weather: Sunny, 84 F
Time Test Pit Started: 3:35 p.m.
Time Test Pit Ended: 4:03 p.m.

Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022



In progress TP-08. – Short-term equilibrium groundwater level measured at approximately 9.0 feet below ground surfaces



Mixture of fine to coarse Sand, some Silt, and some Gravel, some clay



Mixture of Clay, silt, sand, trace of organics



Mixture of Sand, some Silt, some Gravel, some clay

LOG OF TEST PIT – TP-09

ATANE
EXCEL.TOGETHER.
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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-09
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 4:04 p.m.
Time Test Pit Ended: 4:20 p.m.

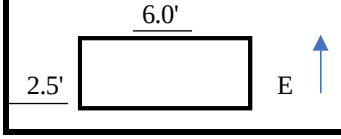
Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022

Depth Below Ground Surface (BGS) in feet	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Comments
1	**TOPSOIL**	Light brown; SILT; dry; loose to medium dense; with some fine Sand, with little Organics.	E	None	
2	**Silty SAND**	Light brown; fine to medium SAND and SILT; dry; loose to medium dense; with some gravel.	E	None	
2.5	**Silty SAND**	Dak brown; Mixture of SAND and Silt; dry; loose to medium dense; with roots and some organic materials.			
3	**Silty SAND**	Light brown; fine to medium SAND and SILT; dry; loose to medium dense; with some gravel; trace of cobbles.	E	None	
4			E	None	
5					
6					Grab Sample collected at ±6 feet BGS
7	**SILT & CLAY**	Gray; SILTS and CLAYS; dry to moist; low to medium plasticity; little sandy clays; little silty clays; trace of cobbles.	E	None	
8					
9	▼	Gray; CLAYS of low to medium plasticity; moist to saturated; little sandy clays; little silty clays;			
10	**SILT & CLAY**		E	None	
11		Bottom of Exploration ±10.0'			
12					

Note 1: Short-term equilibrium groundwater level measured at approximately 8.5 feet below ground surface.
Note 2: Test pit backfilled with excavated soils and compacted with excavator bucket at ground surface.

Water Symbols ▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT

E = Easy
M = Moderate
D = Difficult

LOG OF TEST PIT – TP-09

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-09
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 4:04 p.m.
Time Test Pit Ended: 4:20 p.m.

Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022



In progress TP-09. – Short-term equilibrium groundwater level measured at approximately 8.5 feet below ground surfaces



Mixture of fine to coarse Sand, some Silt, some Gravel; some Cobbles, trace of Clay.



Mixture of Sand, Silt, Gravel, and Cobbles



Mixture of Sand, Silt, Gravel, Cobbles, and trace of Clay

LOG OF TEST PIT – TP-10

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-10
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 1:35 p.m.
Time Test Pit Ended: 2:39 p.m.

Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022

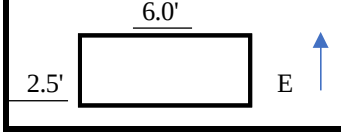
Depth Below Ground Surface (BGS) in feet	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Comments
1	**TOPSOIL**	Light brown; SILT; dry; loose to medium dense; with some fine Sand, with little Organics.	E	None	
2	**Silty SAND**	Light brown; fine to medium SAND and SILT; dry; loose to medium dense; with some gravel, with some cobbles, with some boulders.	M	>4/C	
3					
4					
5.5					
6.5	**Silty SAND**	Dark gray and black; fine to coarse SAND; dry; loose to medium dense; with some silt, with some organic material.	E	None	
7					
8	**SILT & CLAY**	Gray; CLAYS of low to medium plasticity; dry to slightly moist; little sandy clays; little silty clays.	E	None	
9					
10					
11		Bottom of Exploration ±10.0'			
12					

Note 1: No groundwater encountered.

Note 2: Test pit backfilled with excavated soils and compacted with excavator bucket at ground surface.

Water Symbols ▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT

E = Easy
M = Moderate
D = Difficult

LOG OF TEST PIT – TP-10

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-10
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 1:35 p.m.
Time Test Pit Ended: 2:39 p.m.

Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022



In progress TP-10



Mixture of fine to coarse Sand, some Silt, some Gravel, some Cobbles, some Boulders, little Clay, trace of Organics.



Class C Boulders



Mixture of Clay, Silt, Sand, and Gravel.

LOG OF TEST PIT – TP-11

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-11
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 4:22 p.m.
Time Test Pit Ended: 4:50 p.m.

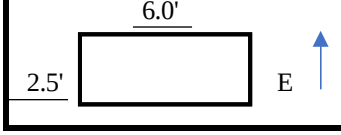
Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022

Depth Below Ground Surface (BGS) in feet	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Comments
1	**TOPSOIL**	Light brown; SILT; dry; loose to medium dense; with some fine Sand, with little Organics.	E	None	
2	**Silty SAND**	Light brown; fine to medium SAND and SILT; dry; loose to medium dense; with some gravel; with some cobbles; some boulders.	E	None	
3			E	>2/A	
4	**Silty SAND**	Light brown; fine to medium SAND and SILT; dry; loose to medium dense; with some gravel; with some cobbles; with some roots.	E	None	
5			M	None	
6	**Silty SAND**	Light brown; fine to medium SAND and SILT; dry; loose to medium dense; with some gravel; with some cobbles;	M	None	Grab Sample collected at ±6 feet BGS
7	**Silty SAND**	Gray; fine to coarse SAND; dry; loose to medium dense; with some silt; with some gravel.	E	None	
8					
9	▼ **SILT & CLAY**	Gray; CLAYS of low to medium plasticity; moist to saturated; little sandy clays; little silty clays.			
10					
11		Bottom of Exploration ±10.0'			
12					

Note 1: Short-term equilibrium groundwater level measured at approximately 9.0 feet below ground surface.
Note 2: Test pit backfilled with excavated soils and compacted with excavator bucket at ground surface.

Water Symbols ▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT

E = Easy
M = Moderate
D = Difficult

LOG OF TEST PIT – TP-11

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-01
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 4:22 p.m.
Time Test Pit Ended: 4:50 p.m.

Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022



In progress TP-11. – Short-term equilibrium groundwater level measured at approximately 9.0 feet below ground surfaces



Mixture of fine to coarse Sand, some Silt, some Gravel, some Cobbles; some Boulders



Mixture of Clay, Silt, Sand, Gravel

LOG OF TEST PIT – TP-12

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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-12
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 1:20 p.m.
Time Test Pit Ended: 1:35 p.m.

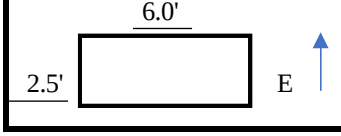
Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022

Depth Below Ground Surface (BGS) in feet	Strata Change & Water Level	Subsurface Description	Excavation Effort	Boulder Qty/Class	Comments
1	**TOPSOIL**	Light brown; SILT; dry; loose to medium dense; with some fine Sand, with little Organics.	M	None	
2	**Silty SAND**	Light brown; fine to medium SAND and SILT; dry; medium dense; with some gravel; with some cobbles; with some boulders.	M	None	
3			D	>3/C	Grab Sample collected at ±3 feet BGS
4		Bottom of Exploration ±3.0'			
5					
6					
7					
8					
9					
10					
11					
12					

Note 1: No groundwater encountered.
Note 2: Test pit backfilled with excavated soils and compacted with excavator bucket at ground surface.
Note 3: Excavation stopped at about 3 feet below ground surface. Excavator could not remove the boulders.

Water Symbols ▼ = Groundwater

Test Pit Dimensions & Orientation



BOULDER COUNT

Boulder	Class
12"-24"	A
24"-36"	B
>36"	C

PROPORTIONS USED

< 10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

EXCAVATION EFFORT

E = Easy
M = Moderate
D = Difficult

LOG OF TEST PIT – TP-12

ATANE
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PROJECT

PRELIMINARY GEOTECHNICAL INVESTIGATION
Greenwich Public Schools – Central Middle School
9, Indian Rock Lane, Greenwich, CT 06830

Test Pit No: TP-12
Surface Elevation: ~ 50 Feet
Drilling Method: Trench Excavation
Sampling Method: Grab
Completion depth: 10.0 Feet BGS

Test Pit Subcontractor: J.J.K. Electric
Compact Excavators: Bobcat E35
Excavator Dig Depth in feet: 10'3"

Weather: Sunny, 84 F
Time Test Pit Started: 1:20 p.m.
Time Test Pit Ended: 1:35 p.m.

Date Test Pit Started: 08/12/2022
Date Test Pit Completed: 08/12/2022



In progress TP-12. – Class C Boulders



Mixture of fine to coarse Sand, some Silt, some Gravel; some Cobbles



Class C Boulders



Mixture of Sand, some Silt, some Gravel; some Cobbles

Phone
(203) 262-9328

Telefax
(203) 264-3414

WHITE PLAINS, N.Y.
(914) 946-4850

SOILTESTING, INC.

90 DONOVAN ROAD - OXFORD, CONN. 06478-1028

GEOTECHNICAL / ENVIRONMENTAL SUBSURFACE INVESTIGATIONS - Test Borings - Core Drilling
Monitoring Wells - Recovery Wells - Direct Push/Probe Sampling
UNDERPINNING - HELICAL PILES - SOIL NAILS

September 19, 2022

ATANE Engineers
40 Wall St., 11th FL
New York NY 10005
Attn.: Paul Sousa

G189-2236-22

Re: 9 Indian Rock Ln.
Greenwich CT

Dear Mr. Sousa,

Attached please find the Test Boring Logs, and location plan for work in Greenwich CT.

If you have any questions, please do not hesitate to contact us.

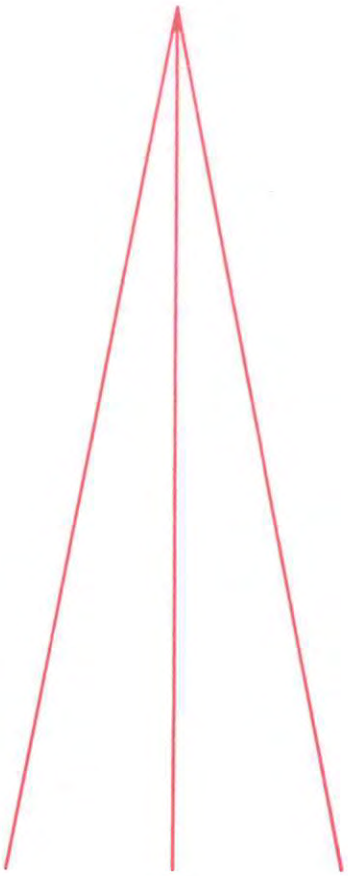
Very truly yours,

James DeAngelis

James A. DeAngelis
President
JAD:mv

SOILTESTING, INC.

TO	ATANE Engineers	DATE	19-Sep-22
ADDRESS	40 Wall St., New York NY 10005		
SITE LOCATION	9 Indian Roack Ln., Greenwich CT		
REPORT SENT TO	Paul Sousa		
SAMPLES SENT TO	Storage (Max 60 days)		



90 Donovan Road
Oxford, Connecticut 06478-1028
203-262-9328

Branch Office:
White Plains, New York 10607
914-946-4850

JOB NO.
G189-2236-22

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-1
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER AO/aa	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 8/23/22
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 8/23/22
AT 7 FT AFTER 0 HOURS	HAMMER WT.: 140# / BIT	SURFACE ELEV.
AT __ FT AFTER __ HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE Type	SAMPLE PEN	SAMPLE REC.	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
5		1	ss	24"	4"	6'0"	17 / 29		dense		
							20 / 20		dry		Blk F sand, F-C gravel
		2	ss	24"	14"	8'0"	40 / 41		v dense		
							49 / 27		moist/wet		Brn F sand & silt, F-C gravel, trace cobbles
		3	ss	23"	14"	9'11"	14 / 25		dense	9'6"	
10							22 / 100/5"		wet		Poss partly weathered Bedrock or Boulder
		4	ss	4"	4"	10'4"	100/4"		v dense/wet	10'4"	Partly weathered Bedrock
											EOB 10'4"
15											
20											
25											
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-1**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50%

C = COARSE

M = MEDIUM

F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-2
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER AO/aa	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 8/23/22
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 8/23/22
AT 9 FT AFTER 0 HOURS	HAMMER WT.: 140# / BIT	SURFACE ELEV.
AT FT AFTER HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC.	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
										4"	Topsoil
5		1	ss	24"	16"	6'0"	5 / 5		compact		
							10 / 14		dry		Gry F sand & silt, some F gravel, trace clay
		2	ss	24"	16"	8'0"	35 / 4		dense		
							44 / 31		wet		Gry F-M sand, F-C gravel, trace silt
		3	ss	24"	18"	10'0"	15 / 44		v dense		
10							56 / 72		wet		Gry F sand & silt, F-C gravel, trace cobbles
		4	ss	24"	16"	12'0"	7 / 32		v dense		
							34 / 21		wet		Brn F sand & silt, trace cobbles
		5	ss	24"	14"	14'0"	20 / 28		v dense		
							27 / 27		wet	14'	Brn F-C sand, F-C gravel
15											EOB 14'
20											
25											
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-2**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-3
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER AO/aa	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 8/23/22
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 8/23/22
AT 10_FT AFTER_0_HOURS	HAMMER WT.: 140# / BIT	SURFACE ELEV.
AT__FT AFTER__HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC.	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12- 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
5		1	ss	24"	14"	6'0"	12	32			dense		
							10	10			dry		Gry/brn F sand & silt, F-C gravel
		2	ss	24"	18"	8'0"	12	6			compact		
							14	17			dry/moist		Brn F-M sand, F-C gravel, some silt
		3	ss	24"	14"	10'0"	13	88			v dense		
10							30	32			dry		Same & cobbles, boulders
		4	ss	24"	14"	12'0"	14	14			dense		
							27	19			wet		Brn F sand & silt, F-C gravel
		5	ss	24"	8"	14'0"	18	17			dense		
							20	23			wet	14'	Same
15													EOB 14'
20													
25													
30													
35													
40													

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-3**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-4
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER AO/aa	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 8/23/22
GROUND WATER OBSERVATIONS AT 7 * FT AFTER 0 HOURS AT __ FT AFTER __ HOURS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 8/23/22
	HAMMER WT.: 140# BIT	SURFACE ELEV.
	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
												8"	Topsoil
5		1	ss	24"	22"	6'0"	13	11			compact		
							17	19			moist		Brn F sand & silt, F-C gravel
		2	ss	24"	20"	8'0"	42	53			v dense		
							40	34			wet		Brn F-C snd, F-C gravel, some silt
		3	ss	24"	16"	10'0"	12	14			dense		
10							24	2			wet		Brn F-C sand, F-C gravel, trace cobbles, trace silt
		4	ss	24"	10"	12'0"	5	5			compact		
							7	5			wet		Same
		5	ss	24"	22"	14'0"	10	7			compact		
							7	8			wet		Gry F-C sand, F-C gravel
15		6	ss	24"	24"	16'0"	15	10			compact		
							10	30			wet	16'	Same, gry silt, trace clay
													EOB 16'
20													
25													
30													
35													
40													* Note: Driller log noted 3' observation.

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. HOLE NO. B-4

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50%

C = COARSE
M = MEDIUM
F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-5
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER AO/aa	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 8/23/22
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 8/23/22
AT 8 FT AFTER 0 HOURS	HAMMER WT.: 140# / BIT	SURFACE ELEV.
AT FT AFTER HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC.	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
5		1	ss	24"	24"	6'0"	8 / 9		compact		
							7 / 8		dry		Brn F sand, F-C gravel, some silt
		2	ss	24"	16"	8'0"	16 / 20		dense		
							11 / 10		moist		Gry/brn F sand & silt, trace clay
		3	ss	24"	18"	10'0"	14 / 14		dense		
10							17 / 19		wet		Gry F sand, some silt
		4	ss	24"	24"	12'0"	20 / 14		compact		
							14 / 22		wet		Gry F-M sand, F-C gravel, some silt
		5	ss	24"	24"	14'0"	12 / 23		dense		
							23 / 25		wet		Same
15		6	ss	24"	24"	16'0"	15 / 25		v dense		
							46 / 23		wet	16'	Same
											EOB 16'
20											
25											
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-5**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-6
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER AO/aa	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 8/23/22
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 8/23/22
AT 8 FT AFTER 0 HOURS	HAMMER WT.: 140# / BIT	SURFACE ELEV.
AT FT AFTER HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE Type	SAMPLE PEN	SAMPLE REC.	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
												8"	Topsoil
5		1	ss	24"	14"	6'0"	4	6			compact		
							22	10			dry		Brn F sand, F-C gravel
		2	ss	24"	16"	8'0"	8	9			compact		
							10	13			dry		Gry F sand & silt
		3	ss	24"	10"	10'0"	10	15			dense		
10							20	16			wet		Brn F sand & silt, F-C gravel
		4	ss	24"	24"	12'0"	19	25			v dense		
							34	23			wet		Same
		5	ss	24"	24"	14'0"	10	19			dense		
							31	31			wet	14'	Same
15													EOB 14'
20													
25													
30													
35													
40													

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-6**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-7
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER AO/aa	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 8/24/22
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 8/24/22
AT 8 FT AFTER 0 HOURS	HAMMER WT.: 140# BIT	SURFACE ELEV.
AT FT AFTER HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC.	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
5		1	ss	24"	16"	6'0"	12 / 11		compact		
							16 / 31		dry		Brn/lt brn F sand, F-C gravel, some silt
		2	ss	24"	16"	8'0"	95 / 44		v dense		
							40 / 39		moist		Brn F-C sand, F-C gravel, trace cobbles
		3	ss	24"	18"	10'0"	35 / 57		v dense		
10							42 / 38		wet		Brn F sand & silt, F-C gravel, trace cobbles
		4	ss	15"	10"	11'3"	135 / 133		v dense		
							100/3"		wet	11'3"	Same
											EOB 11'3"
15											
20											
25											
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-7**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-8
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER AO/aa	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 8/24/22
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 8/24/22
AT 10 FT AFTER 0 HOURS	HAMMER WT.: 140# BIT	SURFACE ELEV.
AT __FT AFTER __HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC.	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12- 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
5		1	ss	24"	14"	6'0"	15 / 9		compact		
							8 / 15		moist		Gry F sand & silt, F-C gravel
		2	ss	24"	14"	8'0"	105 / 64		v dense		
							65 / 17		dry		Same, cobbles
		3	ss	24"	12"	10'0"	16 / 5		loose		
10							3 / 3		moist		Gry silt, trace F gravel, trace clay
		4	ss	24"	10"	12'0"	4 / 9		compact		Gry F-C sand, some silt
							9 / 10		wet	11'6"	Gry silt, trace clay
		5	ss	24"	20"	14'0"	10 / 8		compact		
							7 / 6		wet		Gry F-C sand & silt, F-C gravel, trace clay
15		6	ss	24"	24"	16'0"	11 / 65		v dense		
							19 / 45		wet	16'	Gry F sand & silt, trace cobbles
											EOB 16'
20											
25											
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-8**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-9
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER AO/aa	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 8/24/22
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 8/24/22
AT none FT AFTER 0 HOURS	HAMMER WT.: 140# BIT	SURFACE ELEV.
AT FT AFTER HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE Type	SAMPLE PEN	SAMPLE REC.	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
5		1	ss	19"	19"	6'7"	95 / 75		v dense		
							95 / 100/1"		dry		Brn F sand, F-C gravel, trace cobbles
											Cobbles & boulders
10										10'	Cobbles & boulders 6'6" - 10'
		2	ss	4"	4"	10'4"	100/4"		v dense/dry		Partly weathered Bedrock
										11'6"	Auger Refusal
											EOB 11'6"
15											
20											
25											
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-9**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-10
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER AO/aa	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 8/24/22
GROUND WATER OBSERVATIONS AT none FT AFTER 0 HOURS AT FT AFTER HOURS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 8/24/22
	HAMMER WT.: 140# / BIT	SURFACE ELEV.
	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC.	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
5		1	ss	24"	12"	7'0"	25 / 34		v dense / dry		Brn F-M sand, F-C gravel, some silt, trace cobbles
							26 / 26				
		2	ss	24"	14"	9'0"	35 / 64		v dense / dry		Same
10							76 / 65			10'	Auger Refusal
											EOB 10'
15											
20											
25											
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-10**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-11
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER AO/aa	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 8/24/22
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 8/24/22
AT none FT AFTER 0 HOURS	HAMMER WT.: 140# BIT	SURFACE ELEV.
AT __FT AFTER __HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE Type	SAMPLE PEN	SAMPLE REC.	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
5		1	ss	22"	22"	6'8"	18 / 19 52 / 150/4"		v dense dry	7'	Brn/lt brn F sand, F-C gravel, trace cobbles Auger Refusal
											EOB 7'
10											
15											
20											
25											
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-11**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-12
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER AO/aa	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR TYPE: HSA / SS / SIZE I.D.: 4 ¼" / 1 3/8" / HAMMER WT.: / 140# / BIT HAMMER FALL: / 30" /	OFFSET DATE START 8/24/22 DATE FINISH 8/24/22 SURFACE ELEV. GROUND WATER ELEV.
GROUND WATER OBSERVATIONS AT none FT AFTER 0 HOURS AT __ FT AFTER __ HOURS		

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE Type	SAMPLE PEN	SAMPLE REC.	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12- 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
5										7'	Boulders from 2' to 7' Auger Refusal
10											EOB 7'
15											
20											
25											
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-12**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-13
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER SD/cp	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 9/3/22
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 9/3/22
AT none FT AFTER 0 HOURS	HAMMER WT.: 140# / BIT	SURFACE ELEV.
AT__FT AFTER__HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE Type	SAMPLE PEN	SAMPLE REC.	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12- 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
5		1	ss	24"	18"	6'0"	9	13			dense	5'	Brn F-M sand & F gravel, lit silt
							33	45			dry		Bedrock or Boulder Fragments
												7'	Cobbles and/or fractured Bedrock 5-7'
													EOB 7'
10													
15													
20													
25													
30													
35													
40													

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-13**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-14
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER AO/aa	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 8/25/22
GROUND WATER OBSERVATIONS AT none FT AFTER 0 HOURS AT FT AFTER HOURS	SIZE I.D.: 4 ¼" / 1 3/8" HAMMER WT.: 140# / BIT HAMMER FALL: 30"	DATE FINISH 8/25/22 SURFACE ELEV. GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC.	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
5		1	ss	24"	4"	6'0"	15 / 6		compact / dry		
							7 / 12				Brn F sand, F-C gravel, trace silt, trace asphalt (fill)
		2	ss	24"	16"	8'0"	12 / 12		dense / dry		
							17 / 32				Brn F sand, F-C gravel, trace silt, trace cobbles
		3	ss	24"	18"	10'0"	28 / 25		v dense / dry		
10							30 / 39			10'	Brn F sand, F-C gravel, some silt, some weathered Bedrock frag
		4	ss	4"	4"	10'4"	100/4"		v dense/dry		Partly weathered Bedrock or Boulders
										12'	Auger Refusal
											EOB 12'
15											
20											
25											
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-14**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-15
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER AO/aa	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 8/25/22
GROUND WATER OBSERVATIONS AT none FT AFTER 0 HOURS AT __FT AFTER __HOURS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 8/25/22
	HAMMER WT.: 140# / BIT	SURFACE ELEV.
	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC.	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
5		1	ss	24"	14"	6'0"	18 / 85		v dense dry		Weathered Bedrock fragments
							110 / 102				
		2	ss	3"	0"	6'3"	100/3"		v dense/dry		No recovery
										9'	Auger Refusal
10											EOB 9'
15											
20											
25											
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-15**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50%

C = COARSE
M = MEDIUM
F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-16
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER AO/aa	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 8/25/22
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 8/25/22
AT none FT AFTER 0 HOURS	HAMMER WT.: 140# BIT	SURFACE ELEV.
AT FT AFTER HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE Type	SAMPLE PEN	SAMPLE REC.	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12- 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
5		1	ss	24"	18"	6'0"	20	29			v dense		
							25	9			dry		Brn F sand, F-C gravel, trace asphalt (fill)
		2	ss	24"	18"	8'0"	9	15			v dense	7'6"	Brn F sand & silt, F-C gravel
							39	83			moist/dry		Partly weathered Bedrock
		3	ss	24"	12"	10'0"	20	15			dense		
10							32	31			dry		Boulders or partly weathered Bedrock
		4	ss	22"	20"	11'10"	44	19			v dense		
							32	100/4"			dry	12'	Brn F-M sand, F-C sand, trace cobbles (parly weathered Bedrock)
													EOB 12'
15													
20													
25													
30													
35													
40													

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-16**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-17
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER SD	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR TYPE: HSA / SS SIZE I.D.: 4 ¼" / 1 3/8" HAMMER WT.: 140# BIT HAMMER FALL: 30"	OFFSET DATE START 9/3/22 DATE FINISH 9/3/22 SURFACE ELEV. GROUND WATER ELEV.
GROUND WATER OBSERVATIONS AT none FT AFTER 0 HOURS AT __FT AFTER __HOURS		

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE Type	SAMPLE PEN	SAMPLE REC.	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
												3'	Auger Refusal at 3' (on Boulder) offset 5' to B-17A
	B-17A												
5		1	ss	24"	12"	6'0"	4	3			loose		
							2	4			dry		Brn F-M sand & silt, some F gravel
		2	ss	23"	14"	7'11"	4	31			v dense	7'3"	Same
							33	50/5"			dry	8'	Bedrock or boulder fragments Auger Refusal
10													EOB 8'
15													
20													
25													
30													
35													
40													

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-17**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50%

C = COARSE

M = MEDIUM

F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-18
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER SD/cp	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 9/3/22
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 9/3/22
AT 9 FT AFTER 0 HOURS	HAMMER WT.: 140# / BIT	SURFACE ELEV.
AT __FT AFTER __HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE Type	SAMPLE PEN	SAMPLE REC.	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12- 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
5		1	ss	24"	24"	6'0"	14	13			compact		
							10	10			dry		Gry F-M sand & F gravel, lit silt
		2	ss	21"	12"	8'0"	11	14			compact	7'6"	Same
							7	5			dry		Gry/blk F sand & silt (gry/blk) trace organics, F gravel-Cobbles 9'-10' (poss fill)
10												10'	
		3	ss	24"	16"	12'0"	9	11			compact		
							8	9			wet		Brn/tan F-M sand & F gravel, lit silt
		4	ss	22"	20"	13'10"	7	13			dense		
							20	50/4"			wet	13'10"	Same
15													EOB 13'10"
20													
25													
30													
35													
40													

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-18**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50%

C = COARSE

M = MEDIUM

F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-19
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER SD	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 9/3/22
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 9/3/22
AT none FT AFTER 0 HOURS	HAMMER WT.: 140# / BIT	SURFACE ELEV.
AT FT AFTER HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE Type	SAMPLE PEN	SAMPLE REC.	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12- 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
5		1	ss	24"	18"	6'0"	9	14			compact		
							14	14			dry		Brn F-M sand & silt, lit F gravel
		2	ss	16"	16"	7'4"	30	33			v dense		Same, cobbles, boulders and/or decomposed Bedrock
							50/4"				moist	7'4"	Spoon Refusal
10													EOB 7'4"
15													
20													
25													
30													
35													
40													

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-19**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: ATANE Engineers	SHEET 1 OF 1 HOLE NO. B-20
	PROJECT NO. G189-2236-22	
	PROJECT NAME Central Middle School	BORING LOCATIONS Per Plan
FOREMAN - DRILLER SD	LOCATION 9 Indian Rock Lane Greenwich CT	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 9/3/22
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 9/3/22
AT none FT AFTER 0 HOURS	HAMMER WT.: 140# BIT	SURFACE ELEV.
AT FT AFTER HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	SAMPLE Type	SAMPLE PEN	SAMPLE REC.	SAMPLE DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
										3'	Auger Refusal
											EOB 3' Poss Bedrock
5											
10											
15											
20											
25											
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-20**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

Appendix D
Laboratory Test Results

Thielsch DIVISION OF THE RISE GROUP	195 Frances Avenue Cranston RI, 02910 Phone: (401)-467-6454 Fax: (401)-467-2398 cts.thielsch.com *Let's Build a Solid Foundation*	Client Information: Tighe & Bond Portsmouth, NH Project Manager: B. Nereson Assigned By: B. Nereson Collected By: Client	Project Information: **Central Middle School** **Greenwich, CT** Project Number: G5068 Summary Page: 1 of 1 Report Date: 09.29.23

LABORATORY TESTING DATA SHEET, Report No.: 7423-J-188

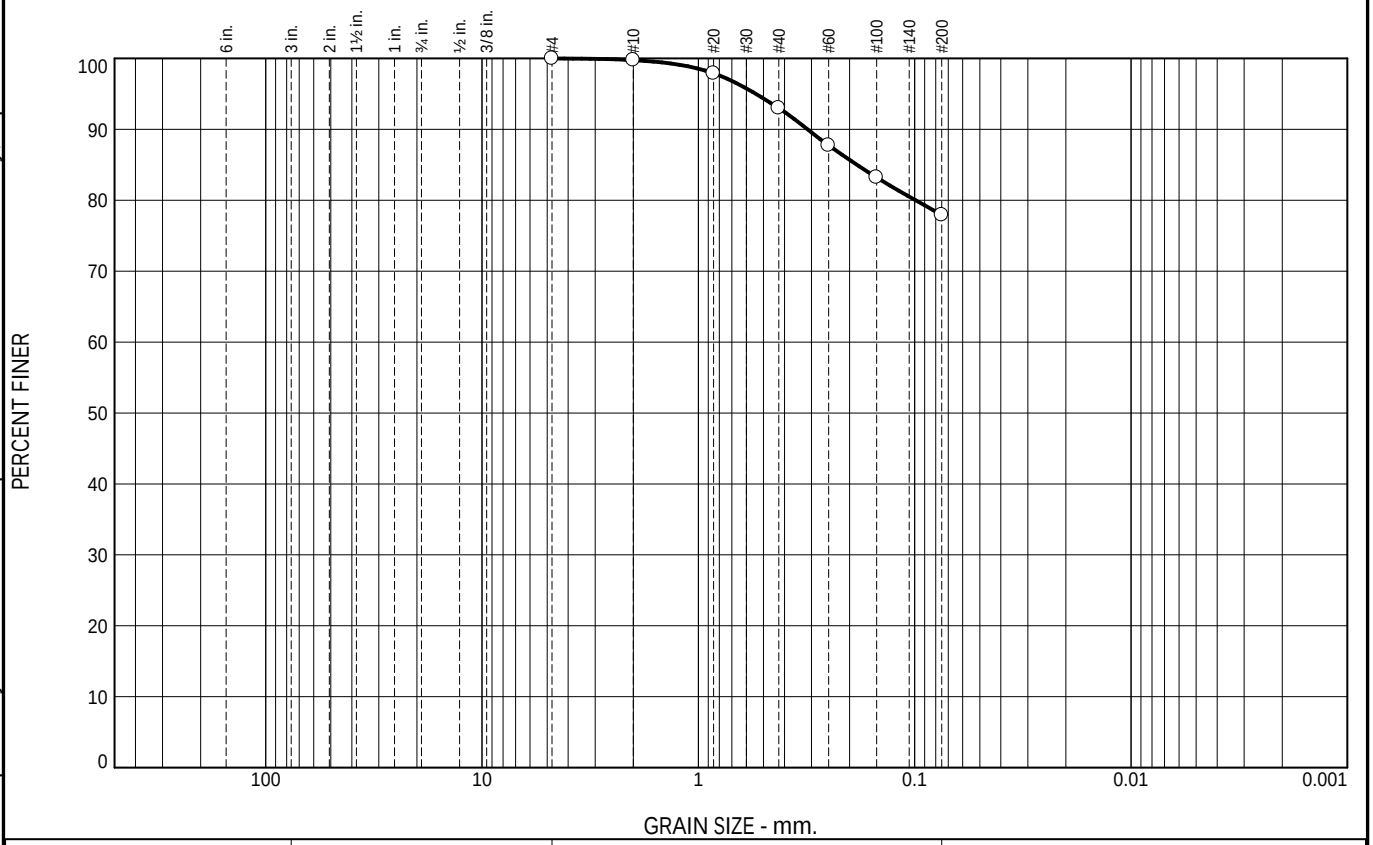
Boring No.	Sample ID	Depth (ft)	Laboratory No.	Identification Tests									Proctor / CBR / Permeability Tests								Laboratory Log and Soil Description
				As Rcvd Moisture Content %	LL %	PL %	OD LL	Gravel %	Sand %	Fines %	Org. %	pH	g_d MAX (pcf) W_{opt} (%)	g_d MAX (pcf) W_{opt} (%) (Corr.)	Dry unit wt. (pcf)	Test Moisture Content %	Target Test Setup as % of Proctor	CBR @ 0.1"	CBR @ 0.2"	Permeability cm/sec	
				D2216	D4318			D6913			D2974	D4792	D1557								
B5	-	5.5-7	23-S-3929	42.2							2.0										Organic Content Only
B8	-	5.5-7	23-S-3930	25.1							3.8										Organic Content Only
B-3	-	2-4	23-S-3931					0.0	22.1	77.9											Brown silt with sand
B-4A	-	10-12	23-S-3932					42.0	47.7	10.3											Brown poorly graded sand with silt and gravel
B-7	-	5-7	23-S-3933					20.8	63.1	16.1											Brown silty sand with gravel
B-9	-	5-6.3	23-S-3934					39.0	47.5	13.5											Brown silty sand with gravel
Organic Contents tested by RB on 09.28.23																					

Date Received: **09.26.23** Reviewed By: Date Reviewed: **10.02.23**

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Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	6.8	15.1	77.9	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.8		
#20	97.9		
#40	93.0		
#60	87.7		
#100	83.2		
#200	77.9		

* (no specification provided)

Soil Description

Brown silt with sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 0.3129 D_{85}= 0.1849 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Sample visually classified as non-plastic.

Source of Sample: Boring Depth: 2-4'
Sample Number: B-3

Date: 09.29.23

Thielsch Engineering Inc.

Cranston, RI

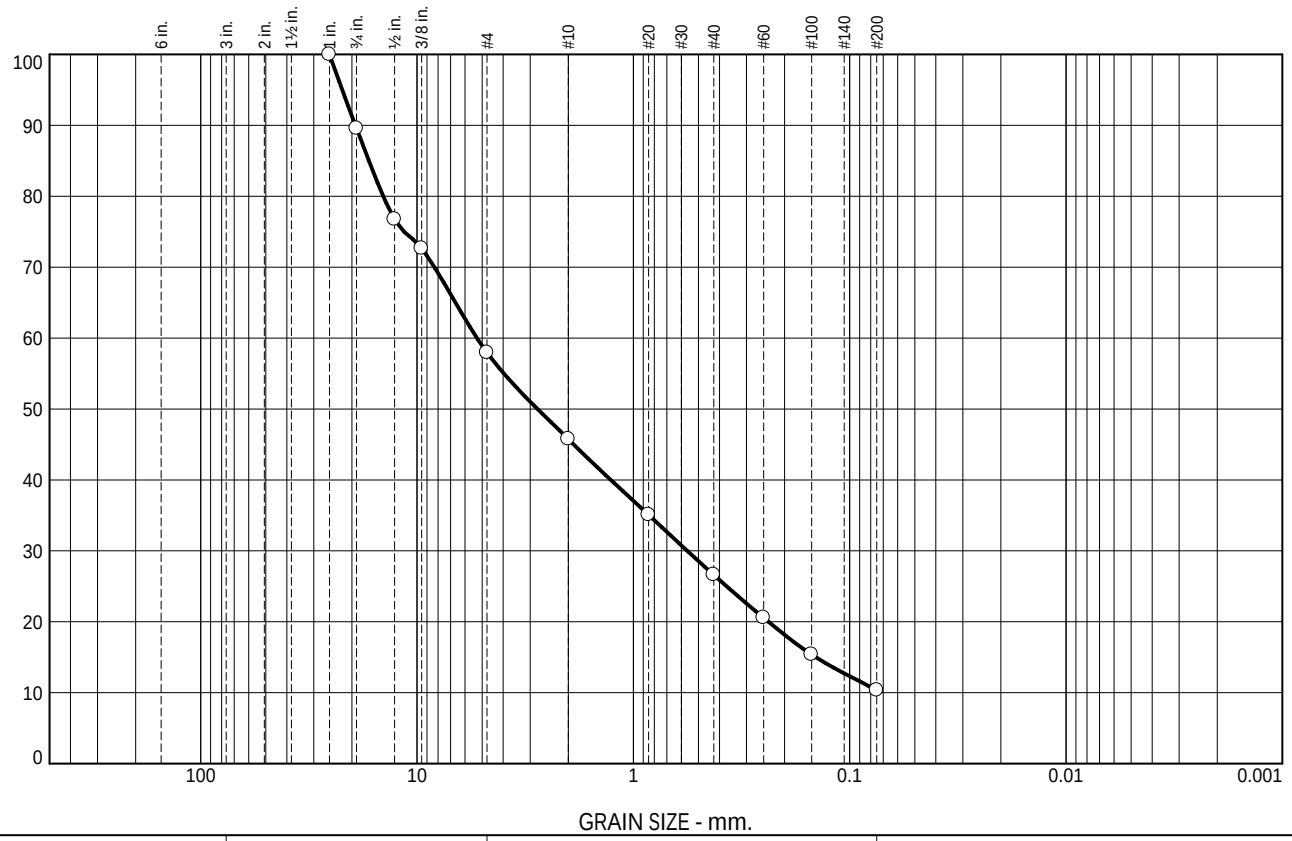
Client: Tighe & Bond
Project: Central Middle School
Greenwich, CT
Project No: G5068

Figure 23-S-3931

Tested By: RB Checked By: Andrew Vanasse

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspect and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	10.4	31.6	12.2	19.2	16.3	10.3	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	89.6		
1/2"	76.7		
3/8"	72.6		
#4	58.0		
#10	45.8		
#20	35.1		
#40	26.6		
#60	20.6		
#100	15.4		
#200	10.3		

* (no specification provided)

Source of Sample: Boring Depth: 10-12'
Sample Number: B-4A

Date: 09.29.23

Soil Description

Brown poorly graded sand with silt and gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 19.2877 D_{85}= 16.6904 D_{60}= 5.2868
D_{50}= 2.7742 D_{30}= 0.5633 D_{15}= 0.1436
D_{10}= C_u= C_c=

Classification

USCS= SP-SM AASHTO= A-1-a

Remarks

Thielsch Engineering Inc.

Cranston, RI

Client: Tighe & Bond
Project: Central Middle School
Greenwich, CT
Project No: G5068 Figure 23-S-3932

Tested By: RB Checked By: Andrew Vanasse

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspect and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	13.7	7.1	5.5	21.7	35.9	16.1	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	86.3		
1/2"	86.3		
3/8"	84.3		
#4	79.2		
#10	73.7		
#20	65.2		
#40	52.0		
#60	36.8		
#100	25.9		
#200	16.1		

* (no specification provided)

Soil Description

Brown silty sand with gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 21.4531 D_{85}= 10.3553 D_{60}= 0.6205
D_{50}= 0.3930 D_{30}= 0.1858 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Source of Sample: Boring Depth: 5-7'
Sample Number: B-7

Date: 09.29.23

Thielsch Engineering Inc.

Cranston, RI

Client: Tighe & Bond
Project: Central Middle School
Greenwich, CT
Project No: G5068 Figure 23-S-3933

Tested By: RB Checked By: Andrew Vanasse

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Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	13.2	25.8	9.0	17.4	21.1	13.5	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2"	100.0		
1"	94.3		
3/4"	86.8		
1/2"	79.8		
3/8"	72.1		
#4	61.0		
#10	52.0		
#20	42.5		
#40	34.6		
#60	27.3		
#100	20.3		
#200	13.5		

* (no specification provided)

Source of Sample: Boring Depth: 5-6.3'
Sample Number: B-9

Date: 09.29.23

Soil Description

Brown silty sand with gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 21.5122 D_{85}= 17.3087 D_{60}= 4.3766
D_{50}= 1.6689 D_{30}= 0.3031 D_{15}= 0.0883
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Thielsch Engineering Inc.

Cranston, RI

Client: Tighe & Bond
Project: Central Middle School
Greenwich, CT
Project No: G5068 Figure 23-S-3934

Tested By: RB Checked By: Andrew Vanasse

Thielsch DIVISION OF THE RISE GROUP	195 Frances Avenue Cranston RI, 02910 Phone: (401)-467-6454 Fax: (401)-467-2398 cts.thielsch.com *Let's Build a Solid Foundation*	Client Information: Tighe & Bond Portsmouth, NH 03801 Project Manager: Assigned By: Collected By:	Project Information: **Central Middle School** **Greenwich, CT** Project Number: G5068 Summary Page: 1 of 1 Report Date: 12.10.23

LABORATORY TESTING DATA SHEET, Report No.: 7423-M-107

Material Source	Sample ID	Depth (ft)	Laboratory No.	Identification Tests									Proctor / CBR / Permeability Tests								Laboratory Log and Soil Description
				As Rcvd Moisture Content %	LL %	PL %	OD LL	Gravel %	Sand %	Fines %	Org. %	pH	g_d MAX (pcf) W_{opt} (%)	g_d MAX (pcf) W_{opt} (%) (Corr.)	Dry unit wt. (pcf)	Test Moisture Content %	Target Test Setup as % of Proctor	CBR @ 0.1"	CBR @ 0.2"	Permeability cm/sec	
				D2216	D4318			D6913			D2974	D4792	D1557								
	TP103	5-7	23-S-4871	52.1							10.5										Organic Content Only
	TP104	5-6	23-S-4872	29.0							3.6										Organic Content Only
	TP106	4-5	23-S-4873	20.7							1.1										Organic Content Only
	TP107	4-5	23-S-4874	40.6							5.4										Organic Content Only
Organic Content tested by RB on 12/6/23.																					

Date Received: **12.04.23** Reviewed By: Date Reviewed: **12.10.23**

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Thielsch
DIVISION OF THE RISE GROUP

195 Frances Avenue
Cranston RI, 02910
Phone: (401)-467-6454
Fax: (401)-467-2398
thielsch.com
Let's Build a Solid Foundation

Client Information:		Project Information:	
Tighe & Bond		**Central Middle School**	
Portsmouth, NH		**Greenwich, CT**	
Project Manager:	Brian Nereson	Project Number:	G5068
Assigned By:	Brian Nereson	Summary Page:	1 of 1
Collected By:	Client	Report Date:	10.17.23

LABORATORY TESTING DATA SHEET, Report No.: 7423-J-189

Boring No.	Sample No.	Depth (ft/in)	Laboratory No.	Specimen Data						Compressive Strength Tests								Rock Formation or Description or Remarks
				Mohs Hard-ness	Diameter (in)	Length (in)	(1) Unit Weight (PCF)	(2) Wet Density (PCF)	Bulk G_s	(3) Other Tests	(4) Strength PSI	(5) Strain %	(6) E sec PSI EE+06	(7) Poisson's Ratio	st PSI	Is_{50} PSI	(8) s_c PSI	
B1	Core 6.5-11.5	6.5-11.5	23-S-3935		1.982	4.533	164.3				9859	0.326	2.91	0.04				Grey Granite Schist
Fresh Break																		
B2	Core 3-8'	3-8	23-S-3936		1.985	4.465	162.8				10188	1.334	1.13	0.67				Grey Pegmatite
Fresh Break - minor break at about 1617 psi resulting in a high calculation for Poisson's Ratio																		

(1) Volume Determined By Measuring Dimensions	Notes	(3) PLD=Point Load (diametrical),	Notes	(5) Strain at Peak Deviator Stress
(2) Determined by Measuring Dimensions and Weight of Saturated Sample		PLA= Point Load (Axial) ST= Splitting Tensile		(6) Represents Secant Modulus at 50% of Total Failure Stress
		U= Unconfined Compressive Strength		(7) Represents Secant Poisson's Ratio at 50% of Total Failure Stress
		(4) Taken at Peak Deviator Stress		(8) Estimated UCS from Table 1 of ASTM D5731 for NX cores (Is x 24)

Date Received: **09.26.23** Reviewed By: Date Review **10.17.23**

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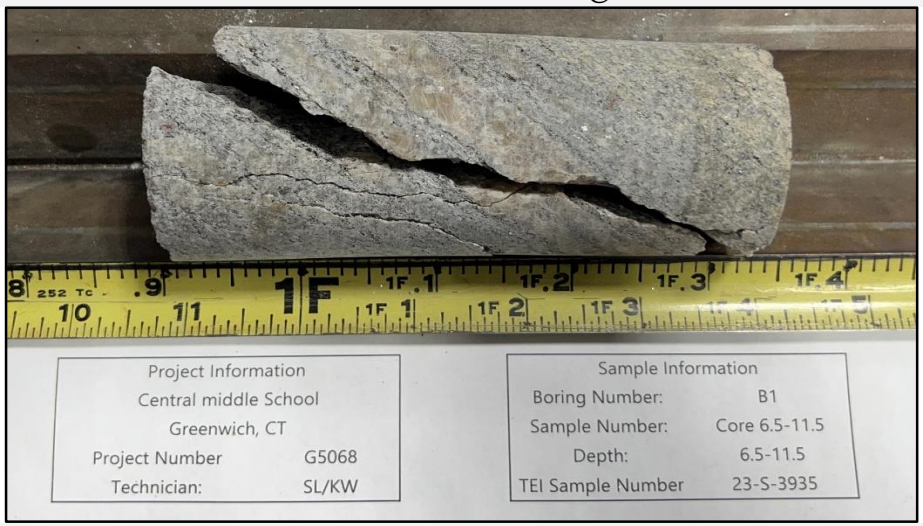
195 Frances Avenue
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Phone: (401) 467-6454
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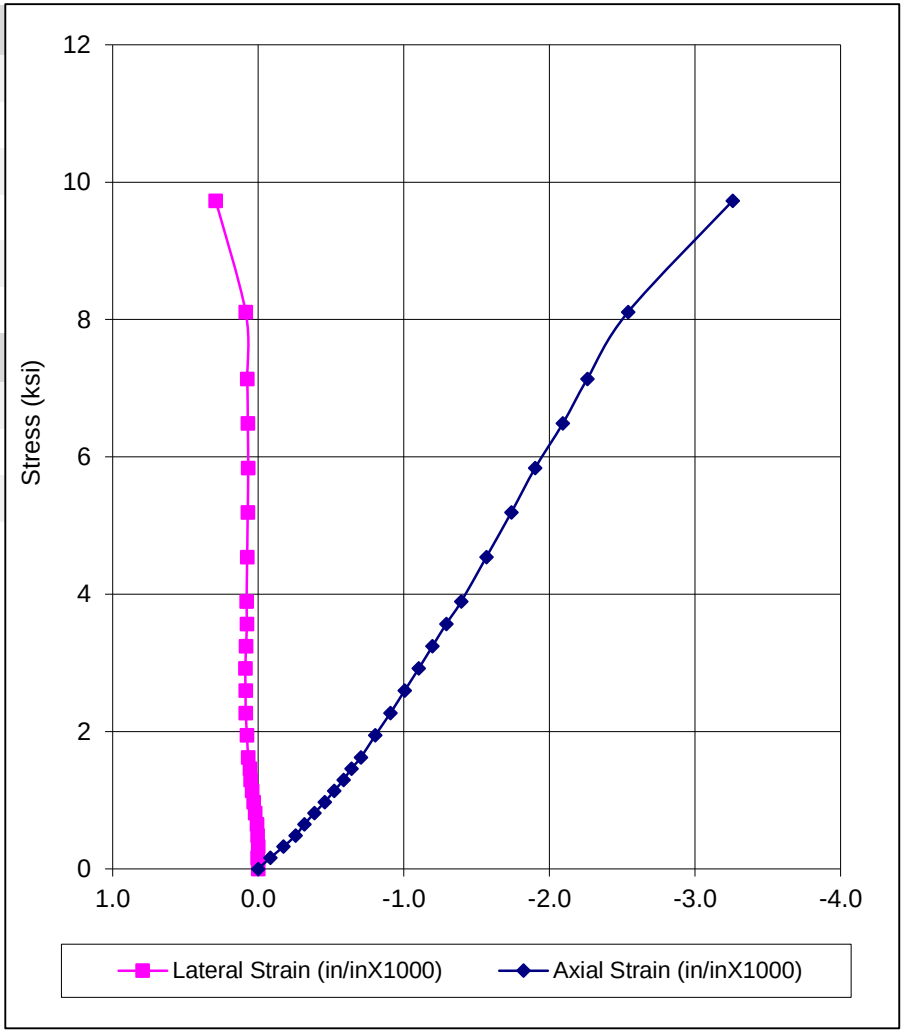
Client Information:	
Tighe & Bond	
Portsmouth, NH	
Project Manager:	Brian Nereson
Assigned by:	Brian Nereson
Collected by:	Client

Project Information:	
Central Middle School	
Greenwich, CT	
Project Number:	G5068
Technician:	KW
Report Date:	10.16.23

ASTM D7012 Compressive Strength and Elastic Moduli of Intact Rock Core Specimens

Sample Information		**Compressive Test Information**	
Boring ID:	B1	**Unit Weight (pcf):**	164.3
Sample #:	Core 6.5-11.5	**Failure Stress (psi):**	9,859
Depth (ft):	6.5-11.5	**Failure Mode:**	Fresh
Tested Depth (ft):	6.9-7.28	**Time to Failure (min)**	8.10
Rock Type:	Grey Granite Schist		
Features:	Fresh Break		
Test Specimen Information		**Elastic Moduli Test Information**	
Diameter, D (in):	1.982	**Poisson's Ratio @ 50%:**	0.04
Length, L (in):	4.533	**Strain %:**	0.326
L:D Ratio:	2.29	**E sec PSI @ 50%:**	2.91E+06





Testing Notes:

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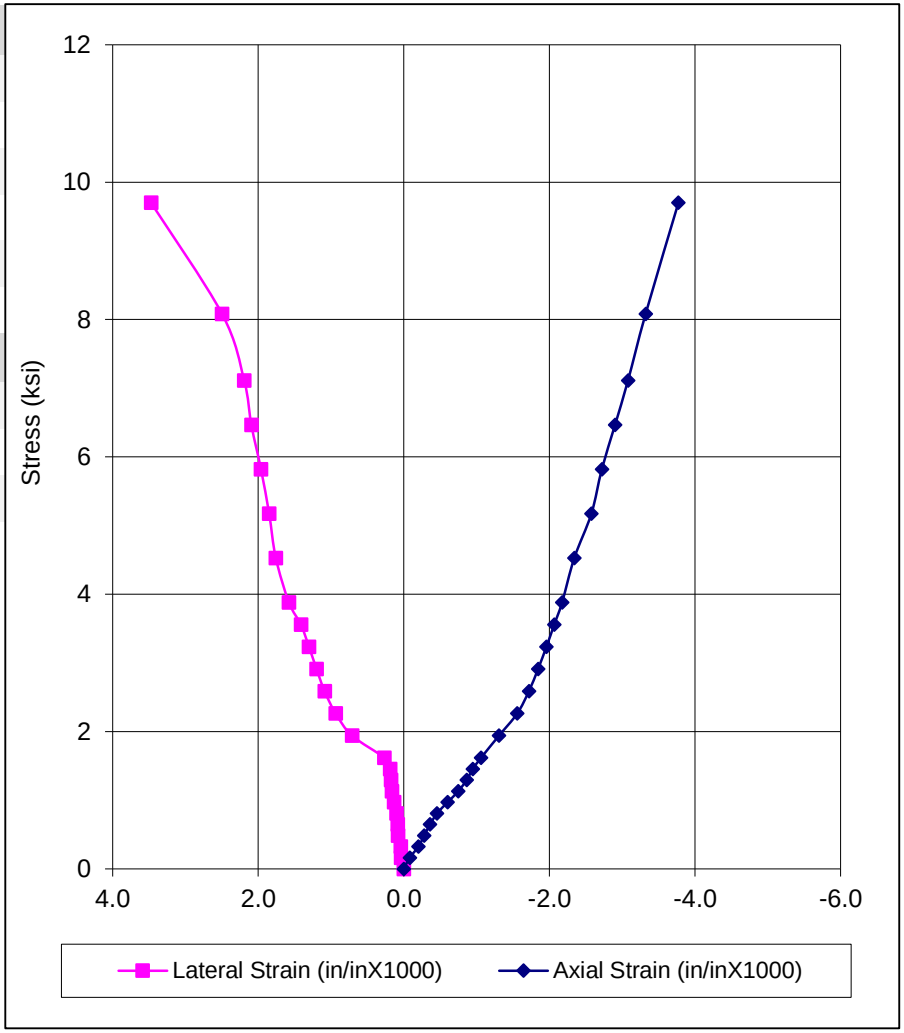
Client Information:	
Tighe & Bond	
Portsmouth, NH	
Project Manager:	Brian Nereson
Assigned by:	Brian Nereson
Collected by:	Client

Project Information:	
Central Middle School	
Greenwich, CT	
Project Number:	G5068
Technician:	KW
Report Date:	10.16.23

ASTM D7012 Compressive Strength and Elastic Moduli of Intact Rock Core Specimens

Sample Information		**Compressive Test Information**	
Boring ID:	B2	**Unit Weight (pcf):**	162.8
Sample #:	Core 3-8	**Failure Stress (psi):**	10,188
Depth (ft):	3-8	**Failure Mode:**	Fresh
Tested Depth (ft):	3.17-3.54	**Time to Failure (min)**	9.72
Rock Type:	Grey Pegmatite		
Features:	Fresh Break		
Test Specimen Information		**Elastic Moduli Test Information**	
Diameter, D (in):	1.985	**Poisson's Ratio @ 50%:**	0.67
Length, L (in):	4.465	**Strain %:**	1.334
L:D Ratio:	2.25	**E sec PSI @ 50%:**	1.13E-06





Testing Notes: **Minor break at about 1617 psi, due to this, the calculated Poisson's Ratio is high**

ATANE

ENGINEERS,

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SIEVE ANALYSIS ASTM DESIGNATION C136

Client: ***Town of Greenwich*** *101 Field Point Road* *Greenwich , CT 06830* ***Project:*** ***Greenwich Cen. Middle Sch.*** ***9 Indian Rock Lane*** ***Greenwich, CT 06830*** ***Project #: 2021-11-0386A02***	***Sample Source:*** ***Test Pit #1***	**Sample Date:** *08/12/22* **Sample #:** ***220812-1*** **Lab Tech:** *PJM* **Sampled by:** *MH*
	Sample Use: *Subgrade*	***Material Type:*** *Tan Gravel*

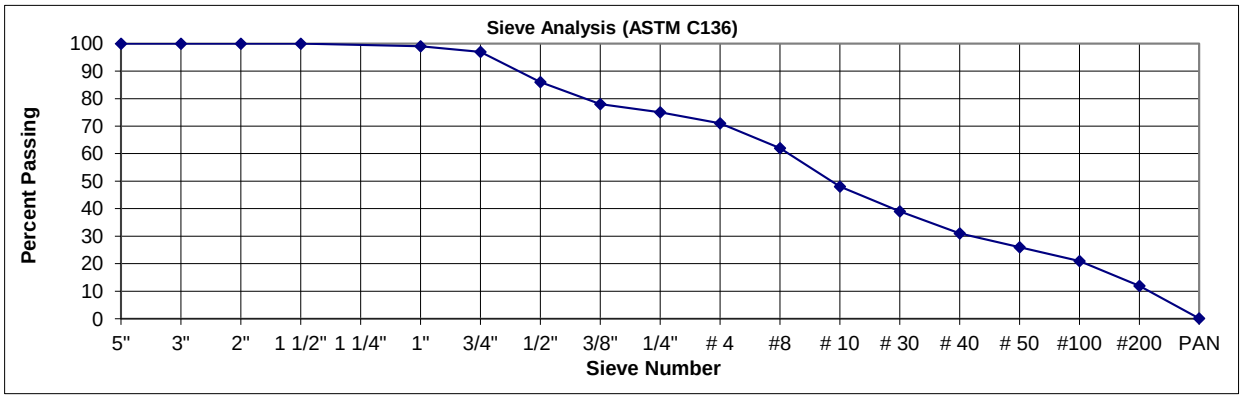
ATANE Report #: MA0386081222-1

SIEVE SIZE (IN / NO.)	WEIGHT (Retained)	% PASSING (Total Sample)	SPECIFICATIONS
5"	0.0	100	
3"	0.0	100	
2"	0.0	100	
1 1/2"	0.0	100	
1 1/4"	--		
1"	80.7	99	
3/4"	242.1	97	
1/2"	1022.1	86	
3/8"	1586.4	78	
1/4"	1810.8	75	
# 4	2108.5	71	
#8	2828.6	62	
# 10	3837.5	48	
# 30	4515.2	39	
# 40	5085.9	31	
# 50	5418.1	26	
#100	5854.5	21.0	
#200	6490.6	11.9	
PAN	7358.2	0.1	

Wet Wash: *No*

% Over #4, Under 3": ***29.0***

Reviewed by:



REVIEW **FAIL** **PASS**

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SIEVE ANALYSIS ASTM DESIGNATION C136

Client: ***Town of Greenwich***
101 Field Point Road
Greenwich, CT 06830

Project: ***Greenwich Cen. Middle Sch.***
9 Indian Rock Lane
Greenwich, CT 06830

Project #: 2021-11-0386A01

Sample Source:	**Sample Date:** *08/12/22*
Test Pit #2	**Sample #:** ***220812-7***
	Lab Tech: *PJM*
	Sampled by: *MH*
Sample Use:	***Material Type:***
Subgrade	*Dark Brown Gravel*

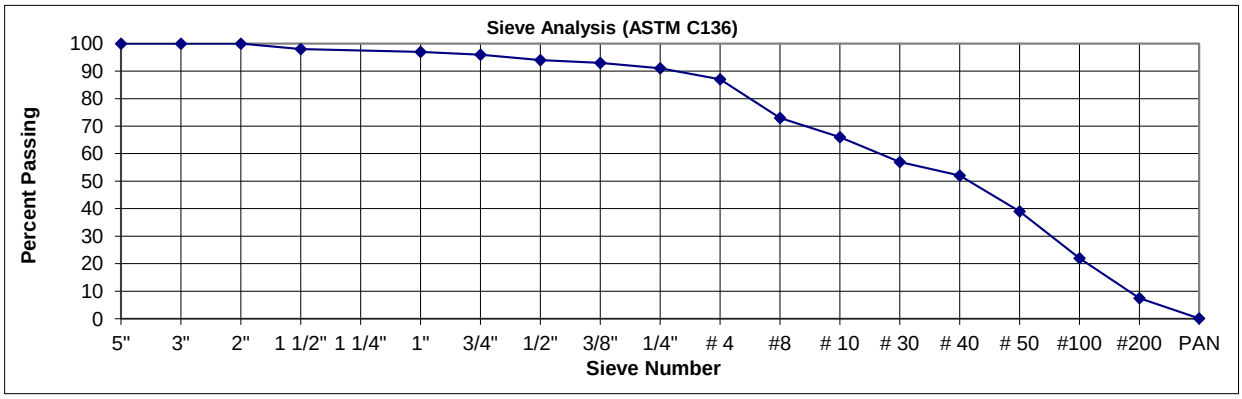
ATANE Report #: MA0386081222-7

SIEVE SIZE (IN / NO.)	WEIGHT (Retained)	% PASSING (Total Sample)	SPECIFICATIONS EARTH MOVING 31 20 00 2.01.G.4
5"	0.0	100	
3"	0.0	100	**70-100**
2"	52.1	100	
1 1/2"	212.4	98	
1 1/4"	--		
1"	439.3	97	
3/4"	573.2	96	**45-95**
1/2"	782.1	94	
3/8"	884.7	93	
1/4"	1208.7	91	
# 4	1646.7	87	**30-90**
#8	3508.5	73	
# 10	4334.4	66	**25-80**
# 30	5526.9	57	
# 40	6199.2	52	**10-50**
# 50	7770.4	39	
#100	9997.2	22.0	
#200	11872.6	7.5	**0-10**
PAN	12814.1	0.1	

Wet Wash: *No*

% Over #4, Under 3": ***13.0***

Reviewed by:



REVIEW X **FAIL** **PASS**

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ATANE SIEVE ANALYSIS ASTM DESIGNATION C136 Split Sample

Lab Work Sheet

Client: ***Town of Greenwich*** *101 Field Point Road* *Greenwich, CT 06830* ***Project:*** ***Greenwich Cen. Middle Sch.*** ***9 Indian Rock Lane*** ***Greenwich, CT 06830*** ***Project #: 2021-11-0386A02***	***Sample Source:*** ***Test Pit #3***	**Sample Date:**	8/12/2022
		Sample #:	220812-8
		Lab Tech:	PJM
		Sampled by:	MH
	Sample Use:	***Material Type:***	
	Subgrade	*Tan Gravel*	

ATANE Report #: MA00386081222-8

Sample Initial Dry Weight: 15,289.40

SIEVE SIZE (IN / NO.)	WEIGHT (Retained)	% PASSING (Total Sample)
5"	0.0	100.0
3"	0.0	100.0
2"	50.1	99.7
1 1/2"	173.8	98.9
1 1/4"	--	
1"	748.9	95.1
3/4"	878.4	94.3
1/2"	1095.2	92.8
3/8"	1268.1	91.7

Split sample to size appropriate for smaller sieves here

Wt of -3/8":	14021.3
Weight of New Split Sample:	692.7

SIEVE SIZE (IN / NO.)	WEIGHT (Retained)	%Passing (Split Sample)	% Passing (Total Sample)
Split Sample			
1/4"	45.3	93.5	85.7
# 4	72.4	89.5	82.1
# 8	169.5	75.5	69.3
# 10	215.3	68.9	63.2
# 30	299.5	56.8	52.1
# 40	338.5	51.1	46.9
# 50	425.7	38.5	35.3
#100	517.8	25.2	23.2
#200	624.7	9.8	9.0
PAN	692.3	0.1	0.1

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SIEVE ANALYSIS ASTM DESIGNATION C136

Client: ***Town of Greenwich*** *101 Field Point Road* *Greenwich , CT 06830* ***Project:*** ***Greenwich Cen. Middle Sch.*** ***9 Indian Rock Lane*** ***Greenwich, CT 06830*** ***Project #: 2021-11-0386A02***	***Sample Source:*** ***Test Pit #4*** ***Sample Use:*** *Subgrade*	**Sample Date:** *08/12/22* **Sample #:** ***220812-2*** **Lab Tech:** *PJM* **Sampled by:** *MH* ***Material Type:*** *Tan Gravel*

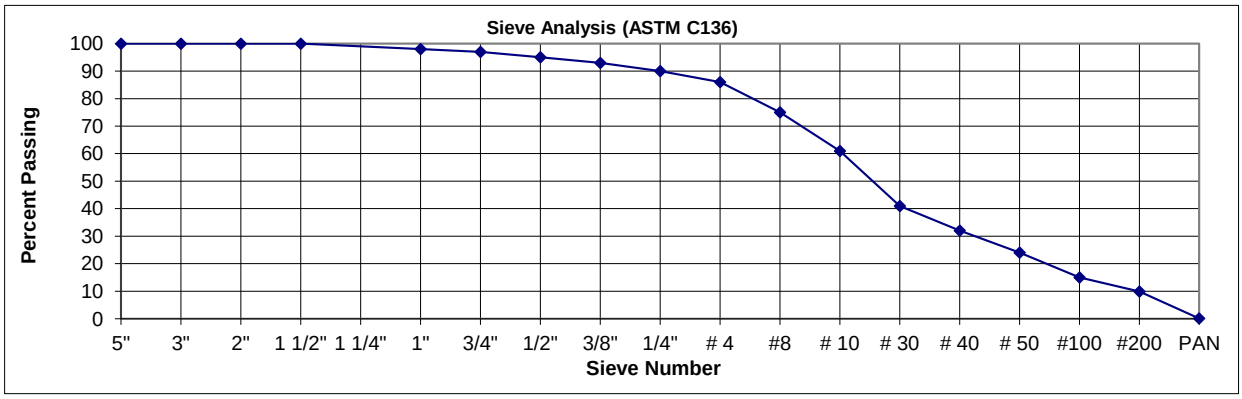
ATANE Report #: MA0386081222-2

SIEVE SIZE (IN / NO.)	WEIGHT (Retained)	% PASSING (Total Sample)	SPECIFICATIONS
5"	0.0	100	
3"	0.0	100	
2"	0.0	100	
1 1/2"	0.0	100	
1 1/4"	--		
1"	190.2	98	
3/4"	266.3	97	
1/2"	412.8	95	
3/8"	516.4	93	
1/4"	774.4	90	
# 4	1134.4	86	
#8	1958.4	75	
# 10	3089.4	61	
# 30	4671.9	41	
# 40	5391.8	32	
# 50	6000.5	24	
#100	6742.3	15.0	
#200	7145.0	9.9	
PAN	7927.4	0.1	

Wet Wash: *No*

% Over #4, Under 3": ***14.0***

Reviewed by:



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SIEVE ANALYSIS ASTM DESIGNATION C136

Client: ***Town of Greenwich***
101 Field Point Road
Greenwich, CT 06830

Project: ***Greenwich Cen. Middle Sch.***
9 Indian Rock Lane
Greenwich, CT 06830

Project #: ***2022-32-0386A02***

Sample Source:	**Sample Date:** *08/12/22*
Test Pit #6	**Sample #:** ***220812-11***
	Lab Tech: *PJM*
	Sampled by: *MH*
Sample Use:	***Material Type:***
Subgrade	*Brown Gravel*

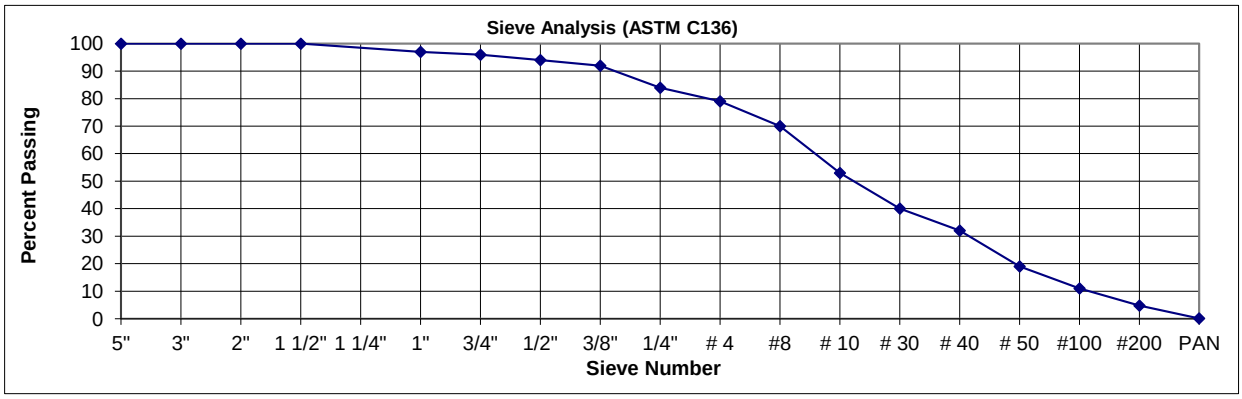
ATANE Report #: MA0386081222-11

SIEVE SIZE (IN / NO.)	WEIGHT (Retained)	% PASSING (Total Sample)	SPECIFICATIONS
5"	0.0	100	
3"	0.0	100	
2"	0.0	100	
1 1/2"	0.0	100	
1 1/4"	--		
1"	378.3	97	
3/4"	612.7	96	
1/2"	831.4	94	
3/8"	1072.8	92	
1/4"	2138.9	84	
# 4	2903.8	79	
#8	4136.0	70	
# 10	6483.5	53	
# 30	8181.2	40	
# 40	9338.6	32	
# 50	11169.6	19	
#100	12193.7	11.0	
#200	13073.6	4.8	
PAN	13717.9	0.1	

Wet Wash: *No*

% Over #4, Under 3": ***21.0***

Reviewed by:



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SIEVE ANALYSIS ASTM DESIGNATION C136

Client: ***Town of Greenwich*** *101 Field Point Road* *Greenwich , CT 06830* ***Project:*** ***Greenwich Cen. Middle Sch.*** ***9 Indian Rock Lane*** ***Greenwich, CT 06830*** ***Project #: 2021-11-0386A02***	***Sample Source:*** ***Test Pit #8***	**Sample Date:** *08/12/22* **Sample #:** ***220812-3*** **Lab Tech:** *PJM* **Sampled by:** *MH*
	Sample Use: *Subgrade*	***Material Type:*** *Tan Gravel*

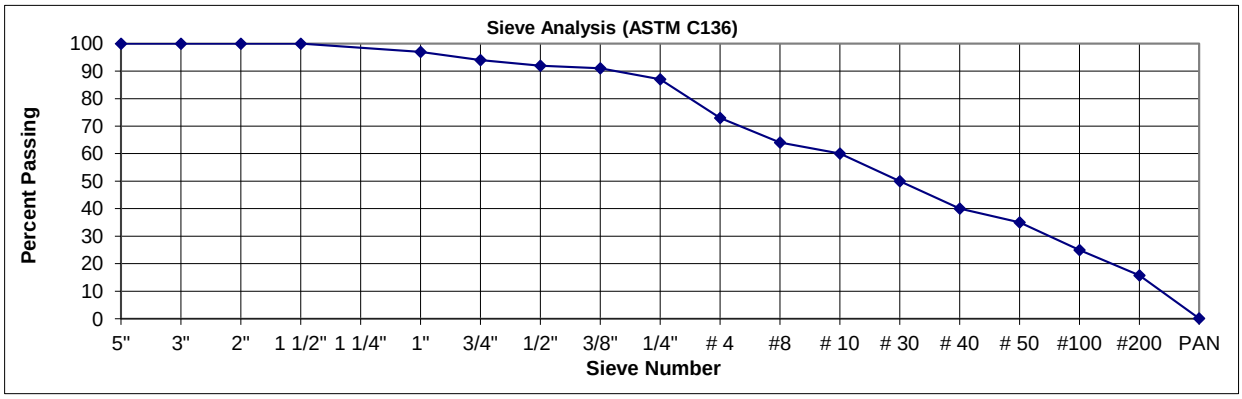
ATANE Report #: MA0386081222-3

SIEVE SIZE (IN / NO.)	WEIGHT (Retained)	% PASSING (Total Sample)	SPECIFICATIONS
5"	0.0	100	
3"	0.0	100	
2"	0.0	100	
1 1/2"	0.0	100	
1 1/4"	--		
1"	239.2	97	
3/4"	548.1	94	
1/2"	703.2	92	
3/8"	845.7	91	
1/4"	1232.8	87	
# 4	2556.1	73	
#8	3399.1	64	
# 10	3784.9	60	
# 30	4636.4	50	
# 40	5591.2	40	
# 50	6102.3	35	
#100	6983.4	25.0	
#200	7879.1	15.8	
PAN	9347.5	0.1	

Wet Wash: *No*

% Over #4, Under 3": ***27.0***

Reviewed by:



REVIEW **FAIL** **PASS**

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SIEVE ANALYSIS ASTM DESIGNATION C136

Client: ***Town of Greenwich***
101 Field Point Road
Greenwich, CT 06830

Project: ***Greenwich Cen. Middle Sch.***
9 Indian Rock Lane
Greenwich, CT 06830

Project #: 2021-11-0386A02

Sample Source:	**Sample Date:** *08/12/22*
Test Pit #9	**Sample #:** ***220812-9***
	Lab Tech: *PJM*
	Sampled by: *MH*
Sample Use:	***Material Type:***
Subgrade	*Brown Gravel*

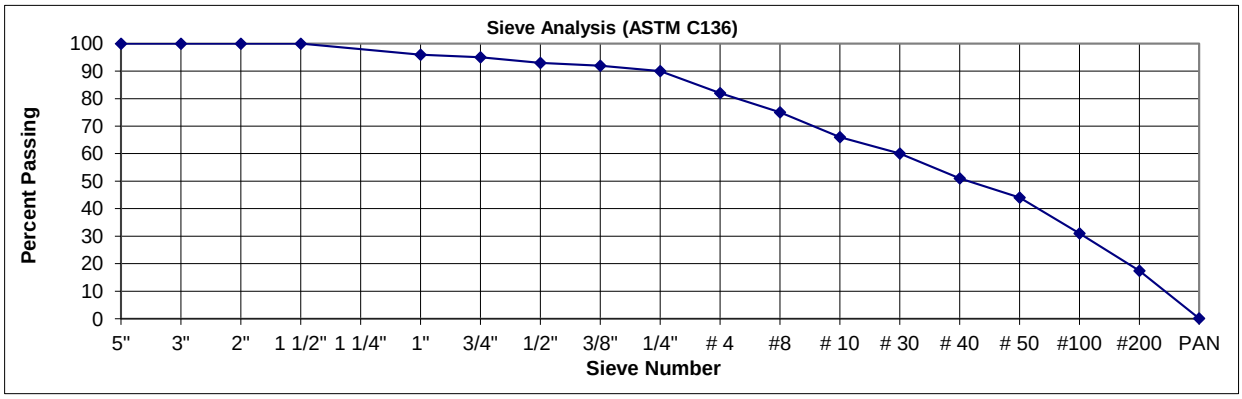
ATANE Report #: MA0386081222-9

SIEVE SIZE (IN / NO.)	WEIGHT (Retained)	% PASSING (Total Sample)	SPECIFICATIONS
5"	0.0	100	
3"	0.0	100	
2"	0.0	100	
1 1/2"	0.0	100	
1 1/4"	--		
1"	482.3	96	
3/4"	567.8	95	
1/2"	789.2	93	
3/8"	893.1	92	
1/4"	1074.0	90	
# 4	2077.5	82	
#8	2813.3	75	
# 10	3840.6	66	
# 30	4498.6	60	
# 40	5496.1	51	
# 50	6311.1	44	
#100	7797.6	31.0	
#200	9315.5	17.4	
PAN	11261.0	0.1	

Wet Wash: *No*

% Over #4, Under 3": ***18.0***

Reviewed by:



REVIEW | X **FAIL** | **PASS**

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SIEVE ANALYSIS ASTM DESIGNATION C136

Client: ***Town of Greenwich***
101 Field Post Road
Greenwich, CT 06830

Project: ***Greenwich Cen. Middle Sch.***
9 Indian Rock Lane
Greenwich, CT 06830

Project #: 2021-11-0386A02

Sample Source:	**Sample Date:** *08/12/22*
Test Pit #12	**Sample #:** ***220812-12***
	Lab Tech: *PJM*
	Sampled by: *MH*
Sample Use:	***Material Type:***
Subgrade	*Tan Gravel*

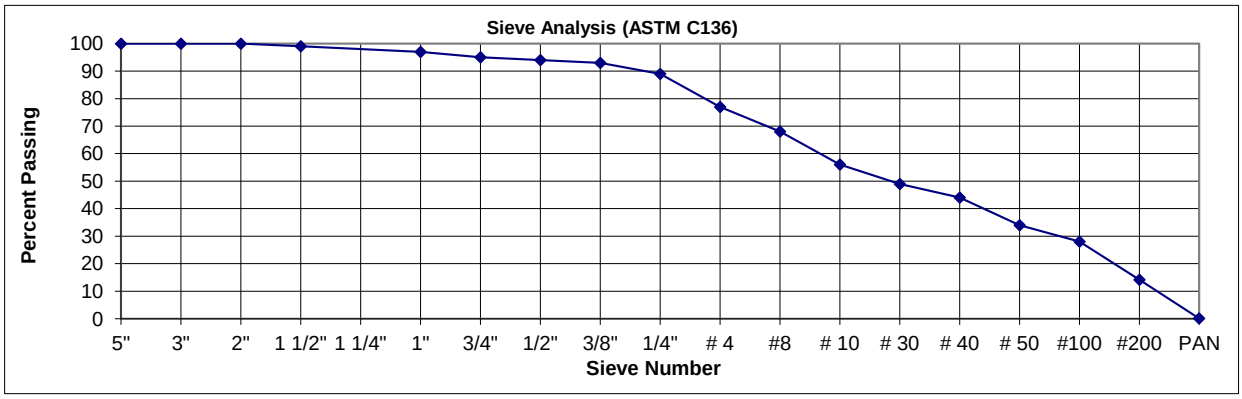
ATANE Report #: MA0386081222-12

SIEVE SIZE (IN / NO.)	WEIGHT (Retained)	% PASSING (Total Sample)	SPECIFICATIONS
5"	0.0	100	
3"	0.0	100	
2"	0.0	100	
1 1/2"	143.2	99	
1 1/4"	--		
1"	387.1	97	
3/4"	589.2	95	
1/2"	677.3	94	
3/8"	802.4	93	
1/4"	1338.8	89	
# 4	2699.6	77	
#8	3702.3	68	
# 10	5218.0	56	
# 30	6042.4	49	
# 40	6523.3	44	
# 50	7707.2	34	
#100	8421.9	28.0	
#200	10067.7	14.2	
PAN	11731.1	0.1	

Wet Wash: *No*

% Over #4, Under 3": ***23.0***

Reviewed by:



REVIEW **FAIL** **PASS**

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MATERIAL TESTING GROUP

47 HUDSON STREET
OSSINING, NY 10562

TEL: (914) 945- 9010
FAX: (914) 945-9012

SIEVE ANALYSIS

Report: G-008
Sample Date
Test Date: 10/7/2022
Sample Id: Sample #8
Source: Composite/ combined sample B-17-B-18& B-19

ATANE Project #: 2111-386A02
General Location: Greenwich Central Middle School Greenwich CT

Sieve #	Weight, gms	% Retained	% Passing
2"	0.0	0.0	100
11/2"	0.0	0.0	100
1"	0.0	0.0	100
3/4"	60.4	3.8	96.2
1/2"	96.9	6.2	90.0
3/8"	64.0	4.1	85.9
1/4"	81.5	5.2	80.7
#4	47.8	3.0	77.7
#8	105.1	6.7	71.0
#16	109.4	*7.0*	*64.0*
#20	64.6	*4.1*	*59.9*
#30	66.7	4.2	55.7
#40	94.6	6.0	49.7
#60	151.0	9.5	40.2
#80	28.5	1.8	38.4
#100	99.3	6.3	32.0
#200	232.1	14.7	17.3
Material passing No 200 sieve by washing	258.6		
PAN	12.4	17.3	
TOTAL	1573.9		

Nature: Natural Soil. (Moisture Content # 5.3 %)
Color/ Odor / Impurities: Brownish /None /None
Sample free from larger gravel, debris, waste vegetation, frozen materials, organic materials & other deleterious matter.

Submitted by ATANE

ATANE **MATERIAL TESTING GROUP**

47 HUDSON STREET, TEL: (914)945-9010
OSSINING, NY 10562 FAX: (914)945-9012

SPECIFIC GRAVITY SOILS TEST REPORT (ASTM D 854)

Client:	Town of Greenwich
Project:	Greenwich Central Middle School
Address:	9, Indian rock Lane, Greenwich CT.
Date Sampled:	Various Dates
Test Date:	10/05/22 & 10/06/22
Report #:	01
HAKS Project #	2021-11-0386A02

SAMPLE No.	LOCATION	Specific Gravity
1	Test Pit # 1	2.653
2	Test Pit # 2	2.659
3	Test Pit # 3	2.681
4	Test Pit # 4	2.677
5	Test Pit # 5	2.668
6	Test Pit # 9	2.680
7	Test Pit # 12	2.678
8	Composite / Combined Sample of B-17, B-18 & B-19	2.695

Lab Tech: __NK___ **Lab Director: ___SG_____**

ATANE

MATERIAL TESTING GROUP

47 HUDSON STREET,
OSSINING, NY 10562

TEL: (914)945-9010
FAX: (914)945-9012

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX OF SOILS TEST REPORT (ASTM D 4318)

Client:	Town of Greenwich
Project:	Greenwich Central Middle School
Address:	9, Indian rock Lane, Greenwich CT.
Date Sampled:	Various Dates
Test Date:	10/07/22 & 10/10/22
Report #:	02
HAKS Project #	2021-11-0386A02

LOCATION	Test Pit # 8	Test Pit # 9
Liquid Limit	21.1	22.5
Plastic Limit	18.3	19.1
Plasticity Index	2.8	3.4

Lab Tech: __NK___ **Lab Director: ____SG_____**

SECTION 04 4313 - STONE MASONRY VENEER

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Dolomitic limestone masonry units.

1.2 RELATED REQUIREMENTS

A. Section 04 2000 - Unit Masonry: Joint reinforcement, Ties, Anchors, and Through-wall flashing.

1.3 REFERENCE STANDARDS

A. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2019.

B. ASTM C568/C568M - Standard Specification for Limestone Dimension Stone; 2015.

C. ASTM C1515 - Standard Guide for Cleaning of Exterior Dimension Stone, Vertical And Horizontal Surfaces, New or Existing; 2020.

D. ASTM C1714/C1714M - Standard Specification for Preblended Dry Mortar Mix for Unit Masonry; 2016.

E. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2016.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on stone units, mortar, and reinforcement.

C. CTHPB Documentation Submittals: Comply with Section 01 3566.42 - Sustainability Compliance Procedures and provide the following in addition to other submittals:
   1. Product Data for Credit d8: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
   2. Product Data for Credit d10: For products and materials required to comply with requirements for regional materials, documentation indicating location and distance from Project of manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.

D. Samples: Submit two stone samples illustrating color range, texture, and markings.

E. Samples: Submit mortar color samples.

F. Installer's Qualification Statement.

1.5 QUALITY ASSURANCE

A. Stone Fabricator Qualifications: Company specializing in fabricating cut stone with minimum ten years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type required by this section, with minimum seven (7) years of experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver masonry units in protective film. Prevent damage to units.

B. Protect stone from discoloration during storage on site.

C. Place polyethylene or other plastic film between wood and other finished surfaces of masonry units when stored for extended periods of time.

D. Cover stored masonry units with protective enclosure if exposed to weather.

E. Do not use salt or calcium-chloride to remove ice from masonry surfaces.

1.7 FIELD CONDITIONS

A. Cold Weather Requirements: Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers of dolomitic limestone having product considered acceptable for use:
   1. Basis of Design: **Arriscraft International**; **Adair Limestone Marble**.
   2. Substitutions: See Section 01 6000 - Product Requirements.

2.2 MATERIALS

A. Dolomitic Limestone: complying with ASTM C568/C568M Classification III - High Density; special shapes as indicated; having the following typical average properties when tested to the identified standard:
   1. Compressive Strength: 22,900 psi, to ASTM C170.
   2. Absorption: 0.75 percent, to ASTM C97.
   3. Density: 167 lbs/ft^3, to ASTM C97.
   4. Modulus of Rupture: 2,250 psi, to ASTM C99.
   5. Flexural Strength: 1,600 psi to ASTM C880.
   6. Abrasion Resistance: 18.0 to ASTM C241.

2.3 FABRICATED UNITS

A. Limestone Masonry Units: Dolomitic limestone masonry units, special; shapes as indicated; as described below:
   1. Bed Thickness: 3-5/8" thick.
   2. Unit Length: 15-5/8" long, unless otherwise indicated on drawings.
   3. Unit Height: 7-5/8" high.
   4. Finish Texture: As selected by Architect from limestone masonry fabricator's full range of finishes.
   5. Color and Pattern: As selected by Architect from limestone masonry fabricator's full range of colors and patterns.
   6. Backs: Sawn.

2.4 MORTAR MIXES

A. Packaged Dry Material for Mortar for Unit Masonry: Premixed Portland cement, hydrated lime, and sand; complying with ASTM C1714/C1714M and capable of producing mortar of the specified strength in accordance with ASTM C270 with the addition of water only.
   1. Type: Type S.
   2. Color: Mineral pigments added as required to produce approved color sample.

2.5 ACCESSORIES - ANCHORED VENEER

A. Mortar: 1:1:6 Portland cement-hydrated lime-sand mix, as specified in Section 04 2000.

B. Grout: maximum 6,500 psi at 28 days, as specified in Section 04 2000.

C. Horizontal Joint Reinforcement: See Section 04 2000.

D. Wall Ties and Anchorages: as specified in Section 04 2000.

E. Joint Sealants and Backer Rods: non-staining type, as specified in Section 07 9200.

F. Flashings: See Section 04 2000.

G. Weep/Cavity Vents: See Section 04 2000..

H. Cleaning Solution: Type that will not harm stone, joint materials, or adjacent surfaces.

2.6 FABRICATION TOLERANCES

A. Fabricate dolomitic limestone masonry units to the following tolerances:
   1. Unit Length: plus or minus 1/8 inch.
   2. Unit Height: plus or minus 1/8 inch.
   3. Deviation From Square: plus or minus 1/8 inch, with measurement taken using the longest edge as the base.
   4. Bed Depth: plus or minus 1/8 inch.
   5. Custom Unit Dimensions: plus or minus 1/8 inch.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that support work and site conditions are ready to receive work of this section.

B. Inspect materials for fit and finish prior to installation. Do not set unacceptable units.

C. Verify that items built-in under other sections are properly located and sized.

D. Beginning of installation means acceptance of existing conditions.

3.2 COURSING

A. Place masonry to lines and levels indicated.

B. Maintain masonry courses to uniform width. Make vertical and horizontal joints equal and of uniform thickness.

C. Lay limestone masonry units in running bond.

D. Course one limestone masonry unit and one mortar joint to equal 8 inches.

E. Tool joints when thumbprint hard, to a concave finish.

3.3 PLACING AND BONDING

A. Lay masonry in full bed of mortar, properly jointed with other work. Buttering corners of joints, and deep or excessive furrowing of mortar joints are not permitted.

B. Fully bond intersections, and external corners.

C. Do not adjust masonry units after laying. Where resetting of masonry is required, remove, clean units and reset in new mortar.

D. Where applicable, install wall ties and anchorages as specified in Section 04 2000.

E. Where applicable, install flashings, vents, and masonry accessories as specified in Section 04 2000.

3.4 TOLERANCES

A. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.

B. Maximum Variation from Plane of Wall: 1/4 inch in 10 feet and 1/2 inch in 20 feet or more.

C. Maximum Variation of Joint Thickness: 1/8 inch in 3 feet.

3.5 ADJUSTING AND CLEANING

A. Remove excess mortar as work progresses, and upon completion of work.

B. Replace defective mortar. Match adjacent work.

C. Repair chips with patch kits furnished by manufacturer.

D. Clean soiled surfaces with cleaning solution.

E. Clean exterior stone per ASTM C1515.

F. Use non-metallic tools in cleaning operations.

3.6 PROTECTION

A. During temporary storage on site, at the end of working day, and during rainy weather, cover stone work exposed to weather with non-staining waterproof coverings, securely anchored.

B. Protect units from damage resulting from subsequent construction operations.

C. B. Use protection materials and methods which will not stain or damage units.

D. C. Remove protection materials upon Substantial Completion, or when risk of damage is no longer present.

END OF SECTION 04 4313

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SECTION 08 4413 - GLAZED ALUMINUM CURTAIN WALLS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Aluminum-framed curtain wall, with vision glazing and glass infill panels.

B. Vertical sunshade devices.

C. Firestopping between curtain wall and edge of floor slab.

1.2 RELATED REQUIREMENTS

A. Section 01 3566.42 - Sustainability Compliance Procedures.

B. Section 01 7419 – Construction Waste Management and Disposal.

C. Section 05 1200 - Structural Steel Framing: Steel attachment members.

D. Section 07 2500 - Weather Barriers: Sealing framing to water-resistive barrier installed on adjacent construction.

E. Section 07 8400 - Firestopping: Firestop at system junction with structure.

F. Section 07 9200 - Joint Sealants: Sealing joints between frames and adjacent construction.

G. Section 08 8000 - Glazing.

1.3 REFERENCE STANDARDS

A. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site; 2015.

B. AAMA 501.1 - Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure; 2017.

C. AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems; 2015.

D. AAMA 503 - Voluntary Specification for Field Testing of Newly Installed Storefronts, Curtain Walls and Sloped Glazing Systems; 2014.

E. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document); 2015.

F. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections; 2009.

G. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2017a.

H. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

I. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

J. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.

K. ASTM C794 - Standard Test Method for Adhesion-In-Peel of Elastomeric Joint Sealants; 2018.

L. ASTM E283/E283M - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2019.

M. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors; 2002 (Reapproved 2018).

N. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference; 2015.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordinate with installation of other components that comprise the exterior enclosure.

B. Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, internal drainage details, glazing, and infill.

C. CTHPB Documentation Submittals: Comply with Section 01 3566.42 - Sustainability Compliance Procedures and provide the following in addition to other submittals:
   1. Product Data for Credit 5d: For adhesives and sealants, documentation including printed statement of VOC content.
   2. Product Data for Credit d8: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.

3. Product Data for Credit d10: For products and materials required to comply with requirements for regional materials, documentation indicating location and distance from Project of manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.

D. Shop Drawings: Provide project-specific elevations, plans, sections, and details. Indicate system dimensions, framed opening requirements and tolerances, attachments to related Work, expansion and contraction joint location and details, and field welding required.
   1. Include design engineer's stamp or seal on shop drawings for attachments and anchors.
   2. Include details for integration with adjacent building materials.
   3. Include details of provisions for assembly expansion and contraction and for draining moisture occurring withi the assembly to the exterior.
   4. Include full-size isometric details of each vertical-to-horizontal intersection of glazed aluminum curtain walls, showing the following:
      a) Joinery, including concealed welds.
      b) Anchorage.
      c) Expansion provisions.
      d) Glazing.
      e) Flashing and drainage.

E. Samples: Submit two samples 6 by 6 inches in size illustrating finished aluminum surface, for each color specified.

F. Design Data: Provide framing member structural and physical characteristics and engineering calculations, and identify dimensional limitations; include load calculations at points of attachment to building structure. All analysis data to be signed and sealed by the qualified professional engineer responsible for their preparation.

G. Test Reports: Submit results of full-size mock-up testing. Reports of tests previously performed on the same design are acceptable.

H. Test Reports: Test reports showing compliance with specified requirements, including ballistic resistance. Frame and glazing may be tested separately, provided that curtain wall test sample adequately simulates the glazing to be used.
   1. Security-strengthened glazing (Type ISG) for curtain wall frames is specified in Section 08 8000.
   2. Bullet resistant curtain wall is limited to specific curtain wall assemblies indicated on drawings.

I. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.

J. Designer's Qualification Statement.

K. Manufacturer's Qualification Statement.

L. Installer's Qualification Statement.

M. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.6 QUALITY ASSURANCE

A. Designer Qualifications: Design curtain wall and its structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed at the State in which the Project is located.

B. Full-Size Mock-up Testing: Have a specimen representative of project conditions tested by an independent testing agency for compliance with specified thermal, structural, air infiltration, and water penetration criteria.

C. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with not less than five years of documented experience.

D. Installer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Handle products of this section in accordance with AAMA CW-10.

B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.8 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

1.9 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Correct defective Work within a one-year period after Date of Substantial Completion.

C. Manufacturer Warranty: Provide 5-year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units. Complete forms in Owner's name and register with installer.

D. Finish Warranty: Provide ten-year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking. Complete forms in Owner's name and register with warrantor.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Glazed Aluminum Curtain Walls Manufacturers:
   1. Basis of Design: **EFCO Corporation**: www.efcocorp.com.
   2. Alternate Acceptable Manufacturers: Subject to compliance with specified requirements.
      a) Kawneer North America: www.kawneer.com/#sle.
      b) Oldcastle Building Envelope: www.oldcastlebe.com/#sle.
      c) Tubelite, Inc: www.tubeliteinc.com/#sle.
      d) YKK AP America, Inc: www.ykkap.com/commercial/#sle.
   3. Substitutions: See Section 01 6000 - Product Requirements.
      a) For any product not identified as "Basis of Design", submit information as specified for substitutions.

2.2 BASIS OF DESIGN - CURTAIN WALL SYSTEMS

A. Pressure Cap Four Sides; Not Unitized, Field Assembled:
   1. Basis of Design: EFCO Corporation; **System 5600, with Duracast Fiberglass Pressure Plate,** 2 1/4 inch (57 mm) wide face: www.efcocorporation.com.

B. Other Manufacturers: Provide either product identified as "Basis of Design" or an equivalent product of one of the manufacturers listed below.
   1. Kawneer: www.kawneer.us.com.
   2. Oldcastle Building Envelope: www.obe.cm.
   3. YKK AP: www.ykkap.com.

C. Substitutions: See Section 01 6000 - Product Requirements.
   1. For any product not identified as "Basis of Design", submit information as specified for substitutions.

2.3 CURTAIN WALL

A. Aluminum-Framed Curtain Wall: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
   1. Outside glazed, with pressure plate and mullion cover.
   2. Fabrication Method: Field fabricated stick system.
   3. Glazing Method: Field glazed system.
   4. Finish: Superior performing organic coatings.
   5. Provide flush joints and corners, weathersealed, accurately fitted and secured; prepared to receive anchors; fasteners and attachments concealed from view; reinforced as required for imposed loads.
   6. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
   7. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.

8. Maintain continuous air barrier and/or vapor retarder seal throughout assembly, primarily in line with inside pane of glazing and inner sheet of infill panel and heel bead of glazing compound.

B. Structural Performance Requirements: Design and size components to withstand the following load requirements without damage or permanent set.
   1. Design Wind Loads: Comply with structural design criteria indicated on Drawing S001 .
      a) Member Deflection: For spans less than 13 feet 6 inches, limit member deflection to flexure limit of glass in any direction, and maximum of 1/175 of span or 3/4 inch, whichever is less and with full recovery of glazing materials.
      b) Member Deflection: For spans over 13 feet 6 inches and less than 40 feet, limit member deflection to flexure limit of glass in any direction, and maximum of 1/240 of span plus 1/4 inch, with full recovery of glazing materials.
   2. Movement: Accommodate the following movement without damage to components or deterioration of seals:
      a) Expansion and contraction caused by 180 degrees F surface temperature.
      b) Expansion and contraction caused by cycling temperature range of 170 degrees F over a 12 hour period.
      c) Movement of curtain wall relative to perimeter framing.
      d) Deflection of structural support framing, under permanent and dynamic loads.

C. Water Penetration Resistance on Manufactured Assembly: No uncontrolled water on indoor face when tested as follows:
   1. Test Pressure Differential: 15 psf.
   2. Test Method: AAMA 501.1.

D. Air Leakage: 0.06 cfm/sq ft maximum leakage of wall area when tested in accordance with ASTM E283/E283M at 6.24 psf pressure difference across assembly.

E. Thermal Performance Requirements:
   1. Condensation Resistance Factor of Framing: 50, minimum, measured in accordance with AAMA 1503.
   2. Overall U-value Including Glazing: 0.32 Btu/(hr sq ft deg F), maximum.

F. Ballistic Resistance (Frames): Tested to meet UL 752, Level 3.

2.4 COMPONENTS

A. Aluminum Framing Members: Tubular aluminum sections, thermally broken with interior section insulated from exterior, drainage holes and internal weep drainage system.
   1. Framing members for interior applications need not be thermally broken.
   2. Cross-Section: As indicated on drawings.

B. Glazing: See Section 08 8000.

C. Fiberglass Pressure Plate: Fiberglass composite for enhanced thermal performance.
   1. Flexural strength: Minimum 82 ksi along the lineal's major axis.
   2. Material thermal conductivity: Maximum 2 BTU·in/hr·ft²·°F.

D. Sun Shades: Shop fabricated, shop finished, extruded aluminum sunshade louvers, free of defects impairing strength, durability or appearance.
   1. Sun Shade Configuration: As indicated on drawings.
   2. Louver Type: Tube. See drawings for profile.
   3. Materials: Aluminum, 6063-T6.
   4. Mounting Brackets: Same material and finish as sunshade louvers.
   5. Design Criteria: Design and fabricate to resist the same loads as curtain wall system as well as the following loads without failure, damage, or permanent deflection:
      a) Thermal Movement: Plus/minus 1/8 inch, maximum.
   6. Sizes: As indicated on drawings.
   7. Finish: Same as curtain wall mullion sections.
   8. Products:
      a) Same as manufacturer of curtain wall.
         1) Basis of Design: **EFCO; X-Therm E-Shades**.
      b) Substitutions: See Section 01 6000 - Product Requirements.

E. Trims and Sills: Miscellaneous metal trim pieces and exposed sills, finished to match curtain wall framing.
   1. Material: Aluminum, 6063-T6.
      a) Thickness: As indicated on drawings.
   2. Profiles: As indicated on drawings.

2.5 MATERIALS

A. Extruded Aluminum: ASTM B221 (ASTM B221M).

B. Sheet Aluminum: ASTM B209/B209M.

C. Structural Supporting Anchors: See Section 05 1200.

D. Structural Supporting Anchors Attached to Structural Steel: Design for bolted attachment.

E. Fasteners: Stainless steel; type as required or recommended by curtain wall manufacturer.

F. Exposed Flashings: Aluminum sheet, 20-gauge, 0.032-inch minimum thickness; finish to match framing members.

G. Concealed Flashings: Stainless steel, 26-gauge, 0.0187-inch minimum thickness.

H. Firestopping: See Section 07 8400.

I. Weatherseal Sealant: Silicone, with adhesion in compliance with ASTM C794; compatible with glazing accessories.

J. Sill Flashing Sealant: Elastomeric, silicone or polyurethane, and compatible with flashing material.

K. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.

L. Glazing Accessories: See Section 08 8000.

2.6 FINISHES

A. Superior Performing Organic Coatings System: Manufacturer's standard multi-coat superior performing organic coatings system complying with AAMA 2605, including at least 70 percent polyvinylidene fluoride (PVDF) resin, and at least 80 percent of aluminum extrusion and panels surfaces having minimum total dry film thickness (DFT) of 1.2 mils, 0.0012 inch.

B. Color, Basis-of-Design: **EFCO Ultrapon "Mineral Brown".**

C. Touch-Up Materials: As recommended by coating manufacturer for field application.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify dimensions, tolerances, and method of attachment with other related work.

B. Verify that curtain wall openings and adjoining water-resistive and air barrier seal materials are ready to receive work of this section.

C. Verify that anchorage devices have been properly installed and located.

3.2 INSTALLATION

A. Install curtain wall system in accordance with manufacturer's instructions and approved shop drawings.

B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

C. Provide alignment attachments and shims to permanently fasten system to building structure.

D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

E. Provide thermal isolation where components penetrate or disrupt building insulation.

F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.

G. Coordinate installation of firestopping at each floor slab edge.

H. Pressure Plate Framing: Install glazing and infill panels using exterior dry glazing method; see Section 08 8000.

I. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.3 TOLERANCES

A. Maximum Variation from Plumb: 0.06 inch per 3 feet noncumulative or 0.5 inches per 100 feet, whichever is less.

B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

C. Sealant Space Between Curtain Wall Mullions and Adjacent Construction: Maximum of 3/4 inch and minimum of 1/4 inch.

3.4 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements for general testing and inspection requirements.

B. Water-Spray Test: Provide water spray quality test of installed curtain wall components in accordance with AAMA 501.2 during construction process and before installation of interior finishes.
   1. Perform a minimum of two tests in each designated area as indicated on drawings.
   2. Conduct tests in each area prior to 10 percent and 50 percent completion of this work.

C. Provide field testing of installed curtain wall system by independent laboratory in accordance with AAMA 503 during construction process and before installation of interior finishes.
   1. Perform a minimum of two tests in each designated area as indicated on drawings.
   2. Conduct tests in each area prior to 10 percent and 50 percent completion of this work.
   3. Field test for water penetration in accordance with ASTM E1105 with uniform static air pressure difference (Procedure A) not less than 4.18 psf.
      a) Maximum allowable rate of water penetration in 15-minute test is 0.5 ounce that is not contained in an area with provisions to drain to exterior, or collected on surface of interior horizontal framing member.
   4. Field test for air leakage in accordance with ASTM E783 with uniform static air pressure difference of 1.57 psf.

D. Repair or replace curtain wall components that have failed designated field testing, and retest to verify performance complies with specified requirements.

3.5 CLEANING

A. Remove protective material from pre-finished aluminum surfaces.

B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, take care to remove dirt from corners, and wipe surfaces clean.

C. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.

3.6 PROTECTION

A. Protect installed products from damage until mm-dd-yyyy.

END OF SECTION 08 4413

SECTION 10 2800 - TOILET ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Commercial toilet accessories.

B. Commercial shower and bath accessories.

C. Diaper changing stations.

D. Utility room accessories.

1.2 RELATED REQUIREMENTS

A. Section 01 3566.42 - Sustainability Compliance Procedures.

B. Section 01 7419 - Construction Waste Management and Disposal.

C. Section 06 1000: Concealed supports for accessories, including in wall framing and plates.

D. Section 10 2113.19 - Plastic Toilet Compartments.

1.3 REFERENCE STANDARDS

A. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2015a (Reapproved 2019).

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2023.

D. ASTM B86 - Standard Specification for Zinc and Zinc-Aluminum (ZA) Alloy Foundry and Die Castings; 2018.

E. ASTM B456 - Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium; 2017.

F. ASTM C1036 - Standard Specification for Flat Glass; 2016.

G. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2018.

H. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2018.

I. ASTM D4802 - Standard Specification for Poly(Methyl Methacrylate) Acrylic Plastic Sheet; 2016.

J. ASTM D5047 - Standard Specification for Polyethylene Terephthalate Film and Sheeting; 2017.

K. ASTM F2285 - Standard Consumer Safety Performance Specification for Diaper Changing Tables for Commercial Use; 2004, with Editorial Revision (2016).

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit data for each toilet accessory specified, describing size, finish, details of function, and attachment methods.

C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For accessories to include in maintenance manuals.

PART 2 PRODUCTS

2.1 OWNER-FURNISHED MATERIALS

A. Owner-Furnished Materials: Toilet paper dispensers, paper towel dispensers, soap/sanitizer dispensers, pad/tampon dispenser, and cleaning fluid dilution and dispensing system .

2.2 PERFORMANCE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Structural Performance: Design accessories and fasteners to comply with the following requirements:
   1. Grab Bars: Installed units are able to resist 250 lbf concentrated load applied in any direction and at any point.
   2. Shower Seats: Installed units are able to resist 250 lbf applied in any direction and at any point.

2.3 MATERIALS

A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.

B. Stainless Steel Sheet: ASTM A666, Type 304.

C. Stainless Steel Tubing: ASTM A269/A269M, Grade TP304 or TP316.

D. Galvanized Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G90/Z275 coating.

E. Zinc Alloy: Die cast, ASTM B86.

F. Acrylic Plastic Sheet: ASTM D4802.

G. PETG Plastic Sheet: ASTM D5047.

H. Mirror Glass: Annealed float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.

I. Fasteners, Screws, and Bolts: Hot dip galvanized; tamper-proof; security type.

2.4 FINISHES

A. Stainless Steel: Satin finish, unless otherwise noted.

B. Chrome/Nickel Plating: ASTM B456, SC 2, polished finish, unless otherwise noted.

C. Baked Enamel: Pretreat to clean condition, apply one coat primer and minimum two coats epoxy baked enamel.

D. Powder-Coated Steel: Clean, degrease, and neutralize. Follow immediately with a phosphatizing treatment, prime coat, and two finish coats of powder coat enamel.

2.5 COMMERCIAL TOILET ACCESSORIES

A. Toilet Paper Dispenser **Tx**: Double roll, surface mounted, for coreless type rolls.
   1. Owner furnished, Contractor installed.
   2. Products:
      a) **Georgia Pacific; Compact 2-Roll SIde-by-Side Coreless High-Capacity Toilet Paper Dispenser by GP Pro.**
         1) Color: Black.

B. Toilet Paper Dispenser **Tx**: Four roll, surface mounted, for coreless type rolls.
   1. Owner furnished, Contractor installed.
   2. Products:
      a) **Georgia Pacific; Compact Quad 4-Roll Coreless High-Capacity Toilet Paper Dispenser by GP Pro.**
         1) Color: Black.

C. Automatic Paper Towel (Roll) Dispenser Type **Tx:** Automatic motion sensing mechanism with user-adjustable delay and paper towel length; battery powered.
   1. Owner furnished, Contractor installed.
   2. Mounting: Surface mounted.
   3. Minimum Capacity: 8-inch wide, 1150-foot long roll.

4. Product:
    a) **Georgia Pacific; Pacific Blue Ultra 8" Water Resistant High-Capacity Mechanical Touchless Paper Towel Dispenser by GP Pro**.

D. Automated Soap Dispenser - **Tx**: Liquid soap dispenser, wall-mounted, with stainless steel cover and window to gauge soap level, tumbler lock.
1. Minimum Capacity: 48 ounces.
2. Owner furnished, contractor installed.
3. Product:
    a) Georgia Pacific; **Pacific Blue Ultra Wall Mounted Manual Dispenser for Foaming Hand Soap and Hand Sanitizer by GP Pro**.
        1) Cover Color: Bl
            (a) Tx: Black
            (b) Tx: Stainless steel.

E. Mirror Unit Type **T4**: 0.05 inch (1.3 mm) thick stainless steel angle frame with manufacturer's standard corners; 1/4 inch thick annealed float glass; ASTM C1036 with silvering, protective and physical characteristics in compliance with ASTM C1503.
1. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below.
2. Size: As indicated on Drawings.
3. Basis-of-Design Product: Subject to compliance with requirements, provide **Bobrick Washroom Equipment, Inc; B-290 Series** or a comparable product by one of the following:
    a) American Specialties, Inc.; insert model number.
    b) Bradley Corporation; insert model number.

F. Mirror Unit Type **T8**: Full height mirror; 0.05 inch (1.3 mm) thick stainless steel angle frame with manufacturer's standard corners; 1/4 inch thick annealed float glass; ASTM C1036 with silvering, protective and physical characteristics in compliance with ASTM C1503.
1. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below.
2. Size: 24 inches wide by 60 inches high.
3. Basis-of-Design Product: Subject to compliance with requirements, provide **Bobrick Washroom Equipment, Inc; B-290 Series** or a comparable product by one of the following:
    a) American Specialties, Inc.; insert model number.
    b) Bradley Corporation; insert model number.

G. Grab Bar Types **T11 - T14**:
1. Mounting: Flanges with concealed fasteners.
2. Material and Finish: Stainless steel, 0.05-inch thick; smooth, No. 4 (satin) finish.
3. Outside Diameter: 1-1/2 inches.
4. Configurations and Lengths: As indicated on Drawings.
5. Basis-of-Design Product: Subject to compliance with requirements, **Bobrick Washroom Equipment, Inc.; Model No. 6806 Series Grab Bars**, or one of the following:
    a) American Specialties, Inc.; Model No. 3800.
    b) Bradley Corporation; Model No. 812.

c) Substitutions: Section 01 6000 - Product Requirements.

H. Partition-Mounted Two-Compartment Sanitary-Napkin Disposal Unit Type **T7A**: Stainless steel construction, mounted in partition between toilet compartments; self-closing, disposal-opening covers and hinged face panels with tumbler locksets; removable receptacles; No. 4 (satin) finish.
1. Basis-of-Design Product: Subject to compliance with requirements, provide **Bobrick Washroom Equipment, Inc; Model No. B-354 Partition-Mounted Sanitary Napkin Disposal** or comparable product by one of the following:
a) American Specialties, Inc.; Model No. 0472-1.
b) Bradley Corporation; Model No. 4721-15.
c) Substitutions: Section 01 6000 - Product Requirements.

I. Surface-Mounted Sanitary-Napkin Disposal Unit Type **T7B**: Stainless steel construction, surface-mounted sanitary-napkin disposal with self-closing, disposal-opening cover and hinged face panel with tumbler lockset; removable receptacle; No. 4 (satin) finish.
1. Basis-of-Design Product: Subject to compliance with requirements, provide **Bobrick Washroom Equipment, Inc; Model No. B-254 Surface-Mounted Sanitary Napkin Disposal** or comparable product by one of the following:
a) American Specialties, Inc.; Model No. 0473-1A.
b) Bradley Corporation; Model No. 4722-15.
c) Substitutions: Section 01 6000 - Product Requirements.

J. Surface-Mounted Sanitary Napkin/Tampon Vendor Type **T8A**: Steel cabinet and door; surface mounting; minimum 14 napkins and 22 tampons capacity; ADA-compliant push button dispensing; tumbler type lockset with separate lock and key for coin box, where applicable.
1. Owner furnished, Contractor installed.
2. Operation: No coin (free).
3. Product: **Hospeco; EvoGen EV1 Dual Pad/Tampon Dispenser.**
a) Finish**: Stainless steel**
b) Dimensions: 14" wide x 26" high x 5-5/8" deep.

2.6 COMMERCIAL SHOWER AND BATH ACCESSORIES

A. Shower Curtain Rod Type **T19**: Stainless steel tube, 1-1/4 inch outside diameter, 0.05 inch wall thickness, satin-finished, with 3 inch outside diameter, minimum 0.04 inch thick satin-finished stainless steel flanges, for installation with exposed fasteners.
1. Basis-of-Design Product: Subject to compliance with requirements, provide **Bobrick Washroom Equipment, Inc.; Model No. B-207 Heavy-Duty Shower Curtain Rod** or one of the following:
a) American Specialties, Inc; Model No. 1204: www.americanspecialties.com/#sle.
b) Bradley Corporation; Model No. 9539.
c) Substitutions: Section 01 6000 - Product Requirements.

B. Shower Curtain Type **T19A**:
1. Material: Nylon reinforced vinyl, 0.008 inch thick, matte finish, with integral antibacterial treatment, flameproof and stain-resistant.
2. Basis-of-Design Product: Subject to compliance with requirements, provide **Bobrick Washroom Equipment, Inc.; Model No. 204-2** or one of the following:

a) American Specialties, Inc.; Model No. 1200-V.
b) Bradley Corporation; Model No. 9537.
c) Substitutions: Section 01 6000 - Product Requirements.

C. Folding Shower Seat Type **T16:** Wall-mounted surface; welded tubular seat frame, structural support members, hinges, and mechanical fasteners of Type 304 stainless steel, L-shaped, right hand seat.
1. Seat: 0.500-inch thick solid Phenolic of one-piece construction; white color.
2. Size: 21 inches wide by 33 inches long.
3. Basis-of-Design Product: Subject to compliance with requirements, provide **Bobrick Washroom Equipment, Inc.; Model No. B-5181 Reversible Solid Phenolic Folding Shower Seat** or one of the following:
a) American Specialties, Inc.; Model No. 8206.
b) Bradley Corporation; Model No. 9569.
c) Substitutions: Section 01 6000 - Product Requirements.

D. Clothes Hook Type **T15**: Single-prong unit; 0.031-inch stainless steel flange and support arm, 0.063-inch stainless steel concealed wall plate, 0.142-inch stainless steel cap; No. 4 (satin) finish.
1. Application: ~~Typical at all offices.~~See drawings for locations.
2. Basis-of-Design Product: Subject to compliance with requirements, provide **Bobrick Washroom Equipment, Inc.; Model No. B-2116 Heavy-Duty Clothes Hook** or one of the following:
a) American Specialties, Inc.; Model No. 0751.
b) Bradley Corporation; Model No. 9119 (satin chrome finish).
c) Substitutions: Section01 6000-Product Requirements.

E. ~~Coat Hook Type T15A: Heavy-duty stainless steel, multi-prong, metal cleat panel and cover caps for concealed attachment, satin finish.~~
1. ~~Number of Hooks: Three (3).~~
2. ~~Dimensions: 18 inches long by 3-1/2 inches high nominal (cleat panel); 3-5/8 inches deep.~~
3. ~~Finish Material/Color: As selected by Architect from manufacturer's standard range.~~
4. ~~Product: **TAG Hardware; Coat Hook 300.3193**.~~
a) ~~Substitutions: Section 01 6000 - Product Requirements.~~

2.7 DIAPER CHANGING STATIONS

A. Baby Changing Station **T22**: Wall-mounted, folding, anti-microbial, baby changing station for use in commercial toilet facilities, meeting or exceeding ASTM F2285.
1. Unit to include a built-in liner dispenser.
2. Material: Polyethylene, with stainless steel front surface.
3. Mounting: Surface.
4. Color: As selected.
5. Minimum Rated Load: 250 pounds.
6. Basis of Design Product: Subject to compliance with requirements, provide **Koala Kare; KB200-SS Horizontal Mounted Baby Changing Station**, or a comparable product by one of the following;
a) American Specialties, Inc: wwww.americanspecialties.com.

b) Bradley Corporation: www.bradleycorp.com.
c) Include optional Braille label.
d) Substitutions: 01 6000 - Product Requirements.

2.8 UTILITY ROOM ACCESSORIES

A. Dilution and Dispensing System: Lockable storage and dispensing cabinet for up to 4 container, with dial control for dilution and dispensing of cleaning materials.
1. Owner furnished, Contractor installed.
2. Water pressure requirements: 25-80 psi, 40 preferred for optimal performance.
a) Flow Rate:
1) Bucket Fill: 3.5 gpm.
2) Bottle Fill: 1 gpm.
b) Fill Connections: Up to 4 bottle or bucket fills.
3. Product: **Spartan; VersaFill 3**.
a) Provide complete set of accessories with each unit, including but not limited to, procedures charts, labeling systems, bottle/bucket fill chart, and empy container replacement chart.

B. Combination Utility Shelf/Mop and Broom Holder T21: 0.05 inch thick stainless steel, Type 304, with 1/2 inch returned edges, 0.06 inch steel wall brackets.
1. Hooks: Two, 0.06 inch stainless steel rag hooks at shelf front.
2. Mop/broom holders: Three spring-loaded rubber cam holders at shelf front.
3. Length: 36 inches.
4. Products:
a) Basis of Design: Subject to compliance with requirements, provide **Bobrick; Model No. B-239 Utility Shelf with Mop/Broom Holders and Rag Hooks** or a comparable product by one of the following:
1) American Specialties, Inc: www.americanspecialties.com/#sle.
2) Bradley Corporation: www.bradleycorp.com.
3) _____.
4) Substitutions: 01 6000 - Product Requirements.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify exact location of accessories for installation.

3.2 PREPARATION

A. Deliver inserts and rough-in frames to site for timely installation.

B. Provide templates and rough-in measurements as required.

3.3 INSTALLATION

A. Install accessories in accordance with manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

B. Grab Bars: Install to comply with specified structural-performance requirements.

C. Shower Seats: Install to comply with specified structural-performance requirements.

D. Mounting Heights: As required by accessibility regulations and as indicated on Drawing A701 - Typical Mouting Heights.

3.4 PROTECTION

A. Protect installed accessories from damage due to subsequent construction operations.

3.5 ADJUSTING AND CLEANING

A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.

B. Clean and polish exposed surfaces in accordance with manufacturer's written instructions.

END OF SECTION 10 2800

SECTION 10 5113 - METAL LOCKERS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Metal lockers.

B. Locker benches.

1.2 RELATED REQUIREMENTS

A. Section 01 3566.42 - Sustainability Compliance Procedures.

B. Section 06 1000 - Rough Carpentry: Wood blocking and nailers.

1.3 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2023, with Editorial Revision.

C. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's published data on locker construction, sizes, and accessories.

C. CTHPB Documentation Submittals: Comply with Section 01 3566.42 - Sustainability Compliance Procedures and provide the following in addition to other submittals:
   1. Product Data for Credit d8: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
   2. Product Data for Credit d10: For products and materials required to comply with requirements for regional materials, documentation indicating location and distance from Project of manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.

D. Shop Drawings: Indicate locker plan layout, numbering plan and combination lock code. Provide plans, elevations, sections, and details. Show locations of ADA-compliant lockers.

E. Samples: Submit two samples 3 by 6 inches in size minimum showing color and finish of metal locker material, for each locker color specified.

F. Manufacturer's Installation Instructions: Indicate component installation assembly.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect locker finish and adjacent surfaces from damage.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Metal Lockers:
   1. Basis of Design: Penco; Welded Gen2.

B. Other Acceptable Manufacturers: Subject to compliance with requirements.
   1. Lyon Workspace Products: www.lyonworkspace.com/#sle.
   2. Republic Storage Systems Co: www.republicstorage.com/#sle.
   3. Substitutions: See Section 01 6000 - Product Requirements.

2.2 LOCKER APPLICATIONS

A. Student Lockers: **Types A and B**. Metal lockers, free-standing with matching closed base.
   1. Width: 9 inches 12 inches.
   2. Depth: 15 inches 18 inches.
   3. Height:
      a) Type A: 72 inches.
      b) Type B: 40 inches, nominal.
   4. Configurations: As indicated below.
      a) **Type A**: ~~Four-tier~~. Double-tier.
      b) **Type B**: Single-tier.
   5. Fittings: Size and configuration as indicated on drawings.
      a) Provide additional shelf for accessibility compliance, as indicated on drawings. Provide at 5% of each locker type, or (1) minimum, whichever is greater.
      b) Hooks: One single prong.
   6. Ventilation: Louvers at top and bottom of door panel.
   7. Locking: Recessed lift handles with built-in padlock hasp.
      a) Accessible Lockers: Provide a built-in digital keypad lock.
   8. Provide sloped top, to the extent indicated on drawings.
   9. Color: To be selected from manufacturer's full range by Architect and allow for (3) additional custom accent colors, as indicated on the "Finish Product List - Finishes for Miscellaneous Items" on the drawings.

B. Custodial Lockers: **Type C**. Metal lockers, free-standing with matching closed base.
   1. Width: 18 inches.
   2. Depth: 18 inches.
   3. Height: 72 inches.
   4. Configuration: Single tier.
   5. Fittings: Size and configuration as indicated on drawings.

a) Hat shelf.
b) Hooks: One single prong.
c) Provide additional shelf for accessibility compliance, as indicated on drawings. Provide at 5% of each locker type, or (1) minimum, whichever is greater.

6. Locking: Recessed lift handles with built-in padlock hasp.
   a) Accessible Lockers: Provide a built-in digital keypad lock.
7. Provide sloped top, to extent indicated on drawings.
8. Color: To be selected from manufacturer's full range by Architect. Refer to "Finishes for Miscellaneous Items" on the "Finish Product List" on the drawings for additional information.

C. Athletic Lockers: **Types D and E**. Metal lockers, free-standing with matching closed base.
1. Width: 12 inch.
2. Depth: 18 inches.
3. Height: 72 inches.
4. Configurations:
   a) **Type D**: Two tier.
   b) **Type E**: Four tier.
5. Fittings: Size and configuration as indicated on drawings.
   a) Provide additional shelf for accessibility compliance, as indicated on drawings. Provide at 5% of lockers, or (1) minimum, whichever is greater - for Type D only,
6. Ventilation: Perforated side panels and doors.
7. Locking: Recessed lift handles with built-in padlock hasp at two-tier lockers.
   a) Four-tier lockers: Built-in padlock hasp.
   b) Accessible Lockers: Provide a built-in digital keypad lock.
8. Provide sloped top, to the extend indicated on drawings.
9. Color: To be selected from manufacturer's full range by Architect. Refer to "Finishes for Miscellaneous Items" on the "Finish Product List" on the drawings for additional information.

2.3 METAL LOCKERS

A. Accessibility: Design units indicated on drawings as 'accessible' to comply with ICC A117.1 and ADA Standards.

B. Locker Case Construction:
1. Heavy-Duty, Welded Construction: Made of formed and welded together sheet steel; metal edges finished smooth without burrs; baked enamel or powder coat finished inside and out.
   a) Assembly: Do not use bolts, screws, or rivets to assemble locker bodies.
   b) Locker Body Components: Formed and flanged from steel sheet of the following type and minimum thicknesses:
      1) Unperforated Steel Sheet: Commercial Steel (CS), Type B, supplied for exposed applications and complying with ASTM A1008/A1008M and the following:
         (a) Uncoated.
      2) Perforated Steel Sheet: Commercial Steel (CS), Type B, supplied for exposed applications and complying with ASTM A1008/A1008M and the following:

(a) Uncoated.
3) Body and Shelves: 16 gauge, 0.0598 inch.
4) Backs: 18 gauge, 0.0478 inch.
c) Frames: Formed channel shape, welded and ground flush, welded to body, resilient gaskets and latching for quiet operation.
1) Door Frame: 16 gauge, 0.0598 inch, minimum.
d) Where ends or sides are exposed, provide flush panel closures.
e) Provide filler strips where indicated or required, securely attached to lockers.

C. Latches and Door Handles: Manufacturer's standard.
1. Latching: Manufacturer's standard for locking arrangement selected.
a) Three-Point Lift Handle Gravity Latch: Pocket-mounted, provide for doors 18 inches or taller.
1) Handle Pocket, Recess: Stainless steel flush-mounted cup recessed into face of door.
2) Handle: Steel finger lift mechanism with exposed portion encased in molded plastic trigger.
(a) Padlock Eye: Integral with lift trigger, sized for use with 9/32 inch diameter padlock shackles.
3) Latching Mechanism: Spring activated nylon slide latch enclosed in steel latch channel allows closing of door while padlock or built-in lock is in position.
4) Lock Hole Filler Plate: Manufacturer's standard. Provide for lockers intended to be unsecured or secured with padlocks.
5) Rubber bumpers riveted to door stops for silent operation.

D. Hinges: Continuous piano hinge with powder coat finish to match locker color.

E. Sloped Top: 20 gauge, 0.0359 inch, with closed ends.

F. Coat Hooks: Stainless steel or zinc-plated steel.

G. Built-In Digital Keypad Locks:
1. Built-In Digital Keypad Lock: Battery-powered lock with alphanumeric keypad for 4-digit access code; optional access with programming, manager bypass, or user key.
a) Latch: Deadbolt.

2.4 LOCKER BENCHES

A. Locker Benches: Stationary type; bench top of laminated maple; painted steel pedestals.
1. Accessibility: Comply with ICC A117.1 and ADA Standards.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that prepared bases are in correct position and configuration.

B. Verify bases are properly sized.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved shop drawings.

B. Place and secure on prepared base.

C. Install lockers plumb and square.

D. Secure lockers with anchor devices to suit substrate materials. Minimum Pullout Force: 100 pounds.

E. Bolt adjoining locker units together to provide rigid installation.

F. Install end panels, filler panels, and sloped tops.

G. Install fittings if not factory installed.

H. Replace components that do not operate smoothly.

3.3 CLEANING

A. Clean locker interiors and exterior surfaces.

END OF SECTION 10 5113

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SECTION 12 6613 - TELESCOPING BLEACHERS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Telescoping bleachers.

1.2 RELATED REQUIREMENTS

A. Section 01 3566.42 - Sustainability Compliance Procedures.

1.3 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ASTM D635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position; 2018.

C. ASTM D1929 - Standard Test Method for Determining Ignition Temperature of Plastics; 2020.

D. ASTM D2843 - Standard Test Method for Density of Smoke from the Burning or Decomposition of Plastics; 2019.

E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023d.

F. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2021.

G. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020, with Errata (2023).

H. AWS D1.3/D1.3M - Structural Welding Code - Sheet Steel; 2018, with Errata (2022).

I. NFPA 102 - Standard for Grandstands, Folding and Telescopic Seating, Tents, and Membrane Structures; 2016.

J. PS 1 - Structural Plywood; 2023.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage handling and requirements.
   3. Installation methods.

C. CTHPB Documentation Submittals: Comply with Section 01 3566.42 - Sustainability Compliance Procedures and provide the following in addition to other submittals:
   1. Product Data for Credit d8: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
   2. Product Data for Credit d10: For products and materials required to comply with requirements for regional materials, documentation indicating location and distance from Project of manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.

D. Shop Drawings: For telescoping stands in both stacked and extended positions. Provide plans, elevations, sections, and details. Show seat heights, row spacing and rise, aisle widths and locations, assembly dimensions, anchorage to supporting structure, material types and finishes.
   1. Provide drawings customized to this project.
   2. Include Professional Engineer certification.

E. Verification Samples: For each seat color finish, submit samples of actual finish or product, for verification of color selection.

F. Product Test Reports: Load test to all loads, observed by a qualified independent testing laboratory, and certified by a registered professional structural engineer verifying the integrity of the manufacturer's design.

G. Professional Engineer's certification statement - or - Professional Engineer's seal on each sheet of shop drawing submittal(s).

H. Operation and Maintenance Data: Manufacturer's operation and maintenance instructions, including annual inspection and maintenance and bi-annual inspection by a Professional Engineer or manufacturer factory service personnel.

I. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.

J. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than ten years of documented experience.

B. Installer Qualifications: Manufacturer's installation crew.

C. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M, AWS D1.3/D1.3M, and no more than 12 months before the start of scheduled welding work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver telescoping stands in manufacturers packaging clearly labeled with manufacturer name and content.

B. Store, in original packaging, under cover and elevated above grade.

C. Handle bleacher equipment in a manner to prevent damage.

D. Deliver the telescoping stands at a scheduled time for installation that will not interfere with other trades operating in the building when at all possible.

1.7 PROJECT CONDITIONS

A. Field Measurements: Coordinate actual dimensions of construction affecting telescoping stands installation by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid delay of Work.

1.8 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Manufacturer's Warranty: Includes the repair or replacement of the defective product; or defective component thereof, with a comparable product; or component thereof, or a refund of the purchase price prorated over the warranty period.
   1. Includes: Labor, materials, and freight for replacement or repairs.
   2. Structural Component parts of Understructure Warranty Period: 10 years from Date of Acceptance
   3. Decking systems, seating collections, portable and integral dolly systems, end closure curtains, surface material finishes Warranty Period 5 years from Date of Substantial Completion.

C. Correct defective Work within a five year period after Date of Substantial Completion. Replace parts that fail under normal use at no extra charge to Owner.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Telescoping Bleachers:
   1. Basis-of-Design: Hussey Seating Company**; MAXAM Telescopic Gym Seat System:** www.husseyseating.com/#sle.
   2. Alternate Acceptable Manufacturers:
      a) Interkal LLC: www.interkal.com.
      b) Irwin Seating Company: www.irwinseating.com.
   3. Substitutions: See Section 01 6000 - Product Requirements.

2.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Engineer, fabricate and install telescopic gym seating systems to the following structural loads without exceeding allowable design working stresses of materials involved, including anchors and connections. Apply each load to produce maximum stress in each respective component of each telescoping stand unit according to ICC 300, current edition.

B. System Design Criteria:
   1. Gymnasium seat assembly: Design to support and resist, in addition to its own weight, the following forces:
   2. Live load of 120 lbs. per linear foot on seats and decking
   3. Uniformly distributed live load of not less than 100 psf of gross horizontal projection.
   4. Parallel sway load of 24 lbs. per linear foot of row combined with (b.) above
   5. Perpendicular sway load of 10 lbs. per linear foot of row combined with uniformly distributed live load above.
   6. Parallel and Perpendicular sway loads are not applied concurrently.
   7. Hand Railings, Posts and Supports: Engineered to withstand the following forces applied separately:
      a) Concentrated load of 200 lbs. applied at any point and in any direction.
      b) Uniform load of 50 lbs. per foot applied in any direction.
   8. Guard Railings, Post and Supports: Engineered to withstand the following forces applied separately:
      a) Concentrated load of 200 lbs. applied at any point and in any direction along top rail.
      b) Uniform load of 50 lbs. per foot applied in any direction at top rail
      c) Uniform load of 50 lbs. applied on an area equal to 1 ft^2 applied on all guardrail infill panels.
      d) Vertical: 100 pounds per linear foot, applied vertically to top of guardrail.

2.3 TELESCOPING BLEACHERS

A. Wall-Attached Telescoping Bleachers: Forward-folding system with the rear of the understructure permanently attached to the floor and to the rear wall. Rear wall provides structural support and must support loads imposed by the bleacher.
   1. Provide a design certified by a licensed Professional Engineer licensed in the State in which the Project is located.
   2. Design to comply with applicable requirements of NFPA 102 and requirements of code authorities having jurisdiction; where conflicts between requirements occur, comply with whichever is more stringent.
   3. Standard Extension: Top row fixed to floor, adjacent to wall under overhang, forward extension (away from wall); attachment to wall prohibited.
   4. Wheelchair Spaces: Allow portions of first row, as indicated, to be manually retracted without affecting other rows; provide removable railings at row two behind wheelchair spaces in compliance with ADA Standards.
      a) Basis of Design: **Hussey Seating Company**; **Flex-Row**.
      b) Refer to drawings for quantity of wheelchair spaces to be provided.
   5. Cutouts: Fit units to irregular wall surfaces, columns, pilasters, roof drain leaders, and other obstructions; take field measurements prior to fabrication.

6. Operation: Manual. User operates system by manually pulling/pushing each section with operating handles

B. Dimensions:
1. See drawings for overall banklength.
2. Tiers: ~~Three (3)~~. **See Drawings**
3. Rise Per Row: 9 5/8 inches.
4. Row Spacing: 22 inches.
5. Aisle Width: 54 inches.
6. Closed Dimension: 4 feet 5 inches nominal.
7. Open Dimension: 6 feet nominal.

C. Structural Supports/Understory: Steel or aluminum; manufacturer's standard wheeled carriages supporting each tier separately, with moving parts permanently lubricated and metal parts cushioned to prevent metal-to-metal contact during operation.
1. Design so that each row carriage so that it will individually support the design loads and is self supporting when fully assembled without dependence on platform panels or boards, seats, or fascia.
2. Welding: In accordance with AWS D1.1/D1.1M and AWS D1.3/D1.3M.
3. Bolting: Use lock-washers or locknuts.
4. Wheels: Minimum 5 inch diameter by 1-1/8 inch wide, with non-marring rubber tires; ball, roller, or oil-impregnated metal bearings; minimum of 2 wheels at each floor support.
5. Finish: Manufacturer's standard rust-inhibitive powder coating.
6. Row Locking: Automatically mechanically lock each carriage to adjacent carriages when fully extended.
7. Unlocking: Provide single manual release mechanism to allow retraction of all carriages, concealed behind skirt board of first row.
a) Provide adjustable stops to allow field adjustment of row spacings.

2.4 SEAT AND PLATFORM COMPONENTS

A. Seat/Fascia Assembly: Continuous, molded UV-stabilized high-density polyethylene plastic, seat minimum 1 inch thick, homogeneous color throughout.
1. Shape: Ergonomically contoured, with internal ribs spaced for natural flexibility; rear edge cantilevered to provide toe room of not less than 3 inches; no openings to trap debris.
2. Fire Retardance: Self-ignition temperature of 650 degrees F or greater when tested in accordance with ASTM D1929; smoke developed index of 450 or less, when tested in accordance with ASTM E84, or 75 or less when tested in thickness intended for use in accordance with ASTM D2843; and burning extent of 1 inch or less when tested in thickness intended for use in accordance with ASTM D635.
3. Provide integally molded end caps of same material and finish on each exposed end.
4. Provide ntegrally molded end caps at aisle end locations.
5. Provide integrally molded rear closure panel at back of seat
6. ~~Seat and Row Numbers: Provide integrally molded recessed pockets and number plates.~~
7. Basis of Design: **Hussey Seating: Courtside Collection XC10**.

B. Platform, Tread, and Step Structure: Plywood decking continuously supported on front and rear with side joints tongue-and-grooved.

1. Plywood: PS 1, 5-ply southern pine or polyethylene-overlaid douglas fir or southern pine, Grade A-C.
   a) Plywood Thickness: 5/8 inch, minimum.
   b) Plywood Finish: Clear urethane, high gloss finish.
2. Front (Nose), Rear, and Intermediate Supports: Steel channel or tube, hot-dipped galvanized.
   a) Finish: Rust-inhibiting black finish.
3. Steps:
   a) Removeable Front Aisle Steps: At each vertical aisle location front aisle step. Front steps shall engage with front row to prevent accidental separation or movement. Provide four non-skid rubber feet each 1 inchin diameter. Full radius end caps on all four edges.
   b) Provide end caps of same material and finish on each exposed end.

2.5 HANDRAILS AND RAILINGS

A. Provide the following railings:
   1. Aisle Handrails: Single post folding railing segment mounted in center of aisle at every other row beginning at row 2.
   2. End of Row Guardrails: Self-storing, at open ends of sections beginning at row 2.
   3. ~~Top Row Rear Guardrail: Non-removable self-storing, mounted behind rear seat with tubular supports, running full width of section.~~
   4. Height: 42 inches above adjacent platform or tread.

B. Railing Construction: Round steel pipe or tube, with formed elbows at corners and caps at ends of straight runs.
   1. Steel: 1-1/2 inch minimum outside diameter, with 11 gauge, 0.12 inch minimum wall thickness; powder coated.
   2. Color: Black.

2.6 FABRICATION

A. Fabricate understructure from structural-steel members in size, spacing, and form required to support design loads specified in referenced safety standard.

B. Weld understructure to comply with applicable AWS standards.

C. Round corners and edges of components and exposed fasteners to reduce snagging and pinching hazards.

2.7 ACCESSORIES

A. Fillers and Closures:
   1. Top Row: Provide seat level rear filler panels to close openings between top row seat and wall; finish to match platforms.
   2. Sides of Extended Units: Vinyl curtains.
   3. Vinyl Curtains: 18 ounce vinyl with grommets; color as selected from manufacturer's standard palette.

B. Fasteners: Provide hardware and fasteners in accordance with manufacturer's recommendations.

C. Anchorage: As indicated on drawings; provide hardware in accordance with manufacturer's recommendations.

2.8 FINISHES

A. Finish Colors: Refer to "Finishes for Miscellanous Items" on the "Finish Product List" on the drawings.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas where telescoping stands are to be installed, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the work.

B. Do not begin installation until substrates have been properly prepared and area has been cleared of obstructions.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's written instructions and approved shop drawings.

B. Do not field cut or alter seats, fascia, or structural members without approval.

C. Provide manufacturer's field representative to inspect completed installation.

3.4 ADJUSTING

A. Lubricate, test, and adjust each moving assembly to ensure proper operation in compliance with manufacturer's written operating instructions.

3.5 CLEANING

A. Clean exposed and semi-exposed assembly surfaces.

B. Touch up finishes on damaged or soiled areas.

3.6 CLOSEOUT ACTIVITIES

A. Demonstration and Training: Provide manufacturer's field representative to demonstrate to and train Owner's operating personnel in proper operation, adjustment, and maintenance of telescoping bleachers.
   1. Location: On site using installed equipment.
   2. Time: As agreed between Owner and Contractor.

3.7 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair, or replace damaged products before Date of Substantial Completion.

END OF SECTION 12 6613

SECTION 23 0900 - INSTRUMENTATION AND CONTROLS FOR HVAC

PART 1 GENERAL

1.1 SECTION INCLUDES

A. System Description

B. Operator Interface

C. General Purpose Digital Controllers

D. Unitary Or Terminal Digital Controllers

E. Input/Output Interface

F. Bridges And Routers

G. Gateways

H. Panels

I. Power Supplies And Line Filtering

J. Local Area Network (Lan)

K. System Software

L. Controller Software

M. Input Hardware

N. Thermostats

O. Humidistats

P. Time Clocks

Q. Control Valves

R. Dampers

S. Actuators

T. Wire, Cable And Network Accessories

1.2 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. This Section includes provision of control sequences for HVAC systems, subsystems, and equipment indicated on the drawings and other Division 23 specification sections.

C. Section 23 0400 – General Conditions for Mechanical Trades.

D. Section 26 2717 - Equipment Wiring: Electrical characteristics and wiring connections.

E. Section 28 3100 - Fire Detection and Alarm.

1.3 REFERENCE STANDARDS (follow the most currently adopted amended version)

A. ANSI/CEA 709.1.D - Control Network Protocol Specification.

B. ASHRAE Std 135 - BACnet - A Data Communication Protocol for Building Automation and Control Networks.

C. MIL-STD-810 - Environmental Engineering Considerations and Laboratory Tests; Revision G.

D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

E. UL (DIR) - Online Certifications Directory.

1.4 DEFINITIONS

A. Backbone: The high traffic density connectivity portion of the communication network.

B. Bridge: A device that connects two or more LAN segments at the physical and data link layers. This device may also perform message filtering if programmed to do so.

C. Browser: A computer program that accesses and displays information from the Internet or intranet.

D. Client: A system or device that makes use of another device for some particular purpose through a system request.

E. Device (BACnet): A device, real or virtual, that supports digital communication using the BACnet protocol. Examples would be an operator terminal, router, unitary controller, etc.

F. Ethernet: Ethernet is a widely used Local Area Network (LAN). Ethernet, which conforms to IEEE Standard 802.3.

G. Events: Changes in the state of an object, typically between Normal, Off-Normal, and Fault Condition. Events may be reported to other BACnet devices.

H. Firewall: A security mechanism placed at the connection between networks and/or at networks outside connections. The firewall restricts access to the network.

I. Gateway: A device that connects two or more dissimilar networks by message translation and signal conditioning, permitting information exchange among them. A gateway would be necessary to translate LonWorks messages to the BACnet form.

J. Gbps: Gigabits per second. A unit of data transfer speed equal to 1024 Mbps.

K. GUI: Graphical User Interface, a type of Operator Interface Device for a BAS.

L. Hertz: A unit of measure equal to an oscillation per second.

M. HTML: The source form used for documents on the Internet or on an intranet. HTML embeds commands that determine formatting along with the text to be displayed.

N. Instance: A number which uniquely identifies an object within a device (e.g., Analog Input No.1, No. 2, etc.). Device Objects are required to have an instance number that is unique to their internetwork. Instance numbers may range from 0 to 4194303.

O. ID: Identification (name, number, plate, or tag).

P. IP: Internet Protocol. The protocol that defines both the format of packets used on a TCP/IP internet or intranet and the mechanism for routing a packet to its destination.

Q. IP address: A 32-bit address assigned to a device that uses TCP/IP protocols.

R. Kbps: A unit of data transfer equal to 1024 bits per second.

S. LAN: A LAN is a network of interconnected hardware devices sharing resources within a relatively small geographic area.

T. Mbps: A unit of data transfer equal to 1024 Kbps.

U. MS/TP: The Master-Slave/Token-Passing EIA-485 LAN developed for BACnet by ASHRAE. Operates at 9600, 19.2K, 38.4K and 76.8 K BPS. Master nodes (devices) pass around a speaking token which entitles the holder to initiate BACnet messages. Slave nodes can only respond to messages from Masters.

V. Native BACnet: A Building Automation System that uses the BACnet protocol for its data transfer between hardware devices and operator interface devices.

W. Object Identifier: A 32-bit number which uniquely identifies an object within a device, or the device object internetwork-wide. 10 bits represent the object type and 22 bits the instance number.

X. PC: Personal Computer.

Y. Peer-to-Peer Communication: Communication between equals. In BACnet, application programs (performing the functions of the BACnet devices on which they run) in devices of the appropriate conformance class talk to each other as peers, using the Protocol Stacks to deliver their message to each other. Likewise, Network Layers may talk as peers to determine how to route messages.

Z. Physical Segment: A single continuous medium 9-wire to which BACnet nodes are attached.

AA. PID: Proportional Integral and Derivative.

BB. Protocol: A design that specifies the details of how digital devices interact.

CC. Repeater: A device that connects two or more physical segments of a LAN at the physical layer and exactly reproduces the electrical signals on either side so that nodes on either side of the repeater are considered to be on the same network.

DD. Router: A device which connects two or more networks, of same or different types, so that a BACnet message may be transferred across the appropriate networks to reach its destination.

EE. RS-232-C: The technical name of the standard for serial data connections such as those between a computer and a keyboard.

FF. Server: A computer or hardware device which stores the resources accessed by other computers or hardware devices (clients).

GG. TCP/IP: The protocol suite used in the Internet. Although the suite contains many protocols, TCP and IP are two of the most important.

HH. Unitary Controller: Devices which controls and/or monitors a single piece of equipment.

II. WEB: A synonym for the World Wide Web. In modern usage pertains to both the Internet and to intranets using the TCP/IP Protocol.

1.5 GENERAL REQUIREMENTS

A. All work of this section shall be coordinated and provided by the single Building Management System (BMS) Contractor.

B. The BMS work shall consist of the provision of all labor, materials, tools, equipment, software, software licenses, software configurations and database entries, interfaces, wiring, tubing, installation, labeling, engineering, calibration, documentation, samples, submittals, testing, commissioning, training services, permits and licenses, transportation, shipping, handling, administration, supervision, management, insurance, temporary protection, cleaning, cutting and patching, warranties, services, and items, even though these may not be specifically mentioned in these Division documents which are required for the complete, fully functional and commissioned BMS.

C. The BMS shall perform all sequences of operation which may be listed on control drawings. Controls supplier shall provide all devices necessary to completely perform sequences whether such devices are explicitly shown on the drawings specified, or not shown or specified.

D. Where other Sections include a requirement for manufacturer equipment controllers (e.g. chillers, boilers, packaged units that are specified with packaged controls), this Section shall be responsible for provision of control components and software required to perform sequences of operation outlined that are in addition to the capabilities of the controllers provided with the manufacturer equipment. Coordinate and integrate all equipment controllers.

E. Each component of the system, including the LANs and software, shall be in full compliance with ASHRAE Standard 135, commonly referred to as BACnet.

F. Provide the services of control manufacturer's representative to be on site during startup, testing and balancing procedures, detailed in Part 3 of this specification. Representative shall be part of manufacturer's service organization and shall be skilled in the adjustment and calibration of all control devices as well as being capable of modifying and checking system software.

1.6 ADMINISTRATIVE REQUIREMENTS

A. The work of this Division shall be scheduled, coordinated, and interfaced with the associated work of other trades.

B. If the Contractor believes there are conflicts or missing information in the project documents, the Contractor shall promptly request clarification and instruction from the design team.

C. Pre-installation Meeting: Conduct a pre-installation meeting one week prior to the start of the work of this section; require attendance by all affected installers.

D. Scheduling: Coordinate with Owner and General Contractor. Manage and coordinate the BMS work in a timely manner in consideration of the Project schedules. Coordinate with the associated work of other trades so as to not impede or delay the work of associated trades.

1.7 COORDINATION

A. Coordinate locations of thermostats, humidistats, and other exposed control sensors with plans and room details before installation.

B. Coordinate work under provisions of General Conditions and Division 1 as applicable.

C. Coordinate material delivery to comply with project schedule.

D. Coordinate conduit, and wiring installation with other trades to avoid conflicts.

E. Coordinate panel locations and installation with other trades to avoid conflicts and to provide power and other requirements.

1.8 SUBMITTALS

A. Product Data: Include manufacturer's technical literature for each control device. Indicate dimensions, capacities, performance characteristics, electrical characteristics, finishes for materials, and installation and startup instructions for each type of product indicated.
1. DDC System Hardware: Bill of materials of equipment indicating quantity, manufacturer, and model number. Include technical data for operator workstation equipment, interface equipment, control units, transducers/transmitters, sensors, actuators, valves, relays/switches, control panels, and operator interface equipment.
2. Control System Software: Include technical data for operating system software, operator interface, color graphics, information on programmability and other third-party applications.
3. Controlled Systems: Instrumentation list with element name, type of device, manufacturer, model number, and product data.

B. Shop Drawings: Submit shop drawings containing the following information for each control system:
1. System architecture diagram: Indicate programmable control unit locations, and trunk data conductors.
2. Schematic control diagrams: Submit diagrams of each controlled system with control points labeled and control elements graphically shown, with wiring.
3. Floor plans: Show sizes and locations of components, horizontal routing and risers.
4. Points list: List connected data points, including connected control unit and input device.
5. Sequence of operation: Written detailed operational description of sequences
6. Schedule of dampers: Include size, leakage, pressure drop and other flow characteristics.
7. Schedule of valves: Including flow, pressure drop, valve coefficient (CV), shut-off head, maximum controllable differential pressure range and other flow characteristics.

C. Wiring Diagrams: Submit wiring diagrams, detailing wiring for power, signal, and control systems and differentiating clearly between manufacturers installed and field installed wiring.

D. Sample Covers: Submit samples of each type of space sensor cover for approval prior to ordering the covers.

E. Warranty: Submit manufacturer's warranty and ensure forms have been filled out in Owners name and registered with manufacturer.

1.9 RECORD DOCUMENTATION

A. General: Manuals shall be furnished as files in portable document format (PDF). One complete set of manuals shall be furnished before the contract is complete. The manuals shall include the name, address and telephone number of each subcontractor installing equipment and systems and of the local representative for each specific item of equipment and each system provided. A logically organized table of contents shall be included with dynamic links to view all data sheets.

B. Hardware Manual: The hardware manual shall describe the system and each piece of equipment provided.

C. Software Manual: The software manual shall describe programming and testing, starting with a system overview and proceeding to a detailed description of each software module. The manual shall be oriented to programmers and shall describe calling requirements, data exchange requirements, data file requirements, and other information necessary to enable proper integration, loading, testing, and program execution.

D. Operations Manual: The Operations manual shall describe the operations of the complete system.

E. Maintenance Manual: The maintenance manual shall provide descriptions of maintenance for each piece of equipment, including inspection, periodic preventative maintenance, fault diagnosis, and repair or replacement of defective components.

F. Project Drawings: Record actual locations of control components, including panels, thermostats, and sensors. Accurately record actual location of control components, including panels, thermostats, and sensors. Revise shop drawings to reflect actual installation and operating sequences.

1.10 QUALITY ASSURANCE

A. Products shall be standard manufacturer products having been in commercial or industrial use for at least one year prior to the bid date for this project. Products shall comply with the following as a minimum:
   1. NFPA 90A, “Installation of Air Conditioning and Ventilation Systems.”
   2. NISTIR 6392 for digital system control components.
   3. ANSI/ASHRAE Standard 135-1995 for BACnet compatible system control components.
   4. Applicable provisions of NFPA code.
   5. Applicable provisions of NEC.

B. Designer Qualifications: Perform design of system software under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

C. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.

D. Installer Qualifications: Company specializing in performing work of the type specified and with minimum three years of documented experience.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and certified and marked for intended use.

F. Comply with ASHRAE 135 for DDC system components.

1.11 PERFORMANCE REQUIREMENTS

A. Accuracy: Report values and maintain measured variables within tolerances as follows:
1. Water Temperature: Plus or minus 1 deg F.
2. Water Flow: Plus or minus 5 percent of full scale.
3. Water Pressure: Plus or minus 2 percent of full scale.
4. Space Temperature: Plus or minus 1 deg F.
5. Ducted Air Temperature: Plus or minus 1 deg F.
6. Outside Air Temperature: Plus or minus 2 deg F.
7. Dew Point Temperature: Plus or minus 3 deg F.
8. Temperature Differential: Plus or minus 0.25 deg F.
9. Relative Humidity: Plus or minus 5 percent.
10. Airflow (Pressurized Spaces): Plus or minus 3 percent of full scale.
11. Airflow (Measuring Stations): Plus or minus 5 percent of full scale.
12. Airflow (Terminal): Plus or minus 10 percent of full scale.
13. Air Pressure (Space): Plus or minus 0.01-inch wg.
14. Air Pressure (Ducts): Plus or minus 0.1-inch wg.
15. Carbon Monoxide: Plus or minus 5 percent of reading.
16. Carbon Dioxide: Plus or minus 50 ppm.
17. Electrical: Plus or minus 5 percent of reading.

B. Alarm Response Time: Annunciate alarm at workstation within 45 seconds. Multiple workstations must receive alarms within five seconds of each other.

1.12 WARRANTY

A. Correct defective Work within a five year period after Substantial Completion.

B. Provide five year manufacturer's warranty for field programmable micro-processor based units.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Provide operator workstation software, controller software, and custom application programming language, building controllers, programmable application controllers and application specific controllers from only one of the following manufacturers.
1. Distech Controls- CTC (Town of Greenwich Controls System)

B. Other products specified herein (such as sensors, valves, dampers and actuators) need not be manufactured by the above manufacturers, unless otherwise noted.

2.2 SYSTEM DESCRIPTION

A. The system shall consist of a series of digital controllers interconnected by the LAN. One or more operator interface devices shall be connected to the LAN to provide access to the controllers for the purpose of receiving information or issuing commands. The controllers shall be located adjacent to the equipment they monitor or control and shall be sized for the task assigned to them. The system shall utilize distributed processing architecture and one controller shall be provided for each major piece of equipment controlled or monitored except that the equipment associated with the chiller plant and the heating plant shall be controlled from multiple controllers if necessary.

B. The communication network between building controllers shall be BACnet over Ethernet or BACnet over IP. The communication network between unitary or terminal unit controllers shall be BACnet MS/TP over EIA-485. BACnet Point-To-Point may be used for communication between the network and modems, line drivers or other data communication equipment.

C. The BAS software shall be designed around the open standards of web technology. The BAS server shall communicate using the ASHRAE BACnet/IP protocol. The Server shall be accessed using a web browser. The web browser Graphical User Interface shall support Microsoft browsers, and Windows as well as non-Windows operating systems. No special software shall be required for the PC's/PDA's used to access the BAS via a web browser.

D. Input devices such as temperature sensors, humidity sensors, pressure sensors, motor current sensors, relays and other devices to sense or measure conditions of equipment or space, shall be provided as part of the system to meet the requirements of the sequences of operation.

E. Output devices such as valves, dampers, damper operators, relays, solenoids, transducers, or other devices to control equipment, shall be provided as part of the system to meet the requirements of the sequences of operation.

F. System Software:
1. Provide and install the software indicated in Part 2 of this specification. The database required for implementation shall be provided, including point description, alarm limit, calibration variable graphics, report, and point summaries.
2. The system described herein is a distributed processing system, which utilizes DDC to perform each logic and control decision and operation for each piece of equipment. An OID shall not be required to operate the system. Each item of large equipment, such as air handling units, boilers and PDDU units, shall be provided with a separate digital controller panel (DCP) with readout capability. Each equipment shall be controlled by a separate application-specific field controller (ASC).

G. Labeling: Provide a comprehensive labeling system for each wiring and component using the designations shown on the approved submittals.

H. Electrical Work: Provide the BAS power and control wiring required. This shall include power requirements for control panels, field controllers, sensors and other control devices. Provide transformers necessary to step down from the available voltage to the voltage required to operate the control system products and control devices.

I. Other Work: The work included under this Division shall include the drawings, specifications, submittals, equipment, labor, materials, technical supervision, transportation, training services, documentation, warranty, and other appurtenant work as required to furnish and install a fully operational system to monitor and control, set forth, in strict accordance with these specifications and subject to the terms and conditions of the Contract. An apparatus, appliance, material or work not shown on the drawings but mentioned in the specifications, or vice versa, or incidental accessories necessary to make the work entirely complete and ready for operation, even if not particularly specified, shall be furnished, delivered and installed by the Contractor without additional expense to the Owner.

J. Completion: It is the intention of the specifications and drawings to call for furnished work, tested, and ready for operation. Wherever the word "provide" is used, it shall mean "provide and install complete and ready for use."

K. Omissions: Minor details not usually shown or specified but necessary for proper installation and operations shall be included, as if herein specified and/or shown.

2.3 OPERATOR INTERFACE

A. General:
1. PC Based Work Station shall reside on high speed network with building controllers and be connected to server for full access to all system information
2. Workstation, controllers, and control backbone shall communicate using BACnet protocol and addressing.

B. Personal Computer: PC compatible with sufficient memory and hard drive storage to support graphics, reports, and communication requirements. Furnish with the following minimum requirements:
1. Processor: Intel i5 4.0 GHz.
2. Hard Drive: 1 TB
3. Memory: 8 Gigabyte DDR4 SDRAM.
4. Mouse And keyboard.
5. Monitor: Minimum of 24 inch color, flat panel display.
6. Operating System: Windows 10
7. Printer: Furnish each operator workstation with color ink jet printer and associated cables. Printer capable of minimum of 14 pages per minute (PPM) operation and compatible with standard parallel or USB communications or network capable.

C. Laptop: PC compatible with sufficient memory and hard drive storage to support graphics, reports, and communication requirements. Furnish with the following minimum requirements:
1. Processor: Intel i5 4.0 GHz.
2. Hard Drive: 1 TB
3. Memory: 8 Gigabyte DDR4 SDRAM.
4. Mouse: two-button optical type wireless.
5. Keyboard: 104 key.

2.4 GENERAL PURPOSE DIGITAL CONTROLLERS

A. General Purpose Digital Controllers shall be BTL listed.

B. Communication Speed: Controllers shall communicate using Ethernet or BACnet/IP using an unshielded twisted pair at the Data Link Layer.

C. General Specification: Each General Purpose Digital Controller shall be capable of stand-alone DDC operation utilizing its own minimum 16-bit processor, non-volatile flash memory, input/output, 10-bit A to D conversion, hardware clock/calendar, and voltage transient and lightning protection devices. Firmware revisions to the controller shall be made from the BAS server or remotely over the intranet or Internet. Controllers shall not require component changes to implement firmware revisions.

D. Self-Test Diagnostics: Each controller shall include self-test diagnostics, enabling the controller to automatically report malfunctions to the server.

E. Each General Purpose Multiple Application Digital Controller shall contain both software and firmware to perform full DDC Proportional, Integral, and Derivative (PID) control loops and programs.

F. Input/Output Processing:
1. Digital outputs shall be relays, each configured as normally open or normally closed. Each output shall have a manual Hand-Off-Auto switch to allow for override and a LED to indicate the operating mode of the output.
2. Universal inputs shall be Thermistor, RTD 0-10VDC, 0-20 mA, resistive and dry contact.
3. Analog output shall be electronic, voltage mode 0-10 VDC, current mode 4-20mA.

G. Power and Noise Immunity:
1. Maintain operation at 90 to 110 percent of nominal voltage rating.
2. Perform orderly shutdown below 80 percent of nominal voltage.
3. Operation protected against electrical noise of 5 to 120 Hz and from keyed radios up to 5 W. at 3 feet.

2.5 UNITARY OR TERMINAL DIGITAL CONTROLLERS

A. BACnet BIBBs: The Unitary Controllers shall use BACnet as the native communications protocol between controllers on the unitary controller network and shall be classified as AACs, ASCs, or SAs by the BACnet Testing Laboratory.

B. Communication Speed: The communication between unitary controllers shall be 38.4 Kbps, minimum, over EIA-485, using MS/TP architecture.

C. Sensor Support: Each unitary controller shall be able to support various types of zone temperature sensors, such as temperature sensor only, temperature sensor with built-in local override switch, and temperature sensor with built-in set point adjustment switch.

D. Each Unitary Controller for VAV application shall have a built-in air flow transducer for accurate air flow measurement in order to provide the pressure independent VAV operation, and an integral direct-coupled electronic actuator.

E. Visual Status: Each unitary controller and unitary controller interface shall have LED indication for visual status of communication, power, and each output.

F. Standalone Algorithm: In the event of a loss of communication, each Unitary Controller shall control from a stand-alone algorithm to maintain the assigned space temperature until communication with the unitary control module interface is restored.

G. Input/Output Processing:
1. Digital Outputs shall be relays, 24 Volts AC or DC maximum, having 3-amp maximum current. Each relay shall be configured as normally open or normally closed, and either dry contact or bussed.
2. Universal Inputs shall be Thermistor, RTD, dry contacts or 0-5VDC.
3. Enhanced Zone Sensor Input: The input shall provide one Thermistor input, one local setpoint adjustment, one timed local override switch, and one occupancy LED indicator.
4. Analog Output electronic, voltage made 0-10VDC or current mode 4-20mA or 3-wire floating.

2.6 INPUT/OUTPUT INTERFACE

A. Hardwired inputs and outputs tie into the DDC system through building, custom application, or application specific controllers.

B. All Input/Output Points:
1. Protect controller from damage resulting from any point short-circuiting or grounding and from voltage up to 24 volts of any duration.
2. Provide universal type for building and custom application controllers where input or output is software designated as either binary or analog type with appropriate properties.

C. Binary Inputs:
1. Allow monitoring of On/Off signals from remote devices.
2. Provide wetting current of 12 mA minimum, compatible with commonly available control devices and protected against the effects of contact bounce and noise.
3. Sense dry contact closure with power provided only by the controller.

D. Pulse Accumulation Input Objects: Conform to all requirements of binary input objects and accept up to 10 pulses per second.

E. Analog Inputs:
1. Allow for monitoring of low voltage 0 to 10 VDC, 4 to 20 mA current, or resistance signals (thermistor, RTD).
2. Compatible with and field configurable to commonly available sensing devices.

F. Binary Outputs:
1. Used for On/Off operation or a pulsed low-voltage signal for pulse width modulation control.
2. Outputs provided with three position (On/Off/Auto) override switches.
3. Status lights for building and custom application controllers to be selectable for normally open or normally closed operation.

G. Analog Outputs:
1. Monitoring signal provides a 0 to 10 VDC or a 4 to 20 mA output signal for end device control.
2. Provide status lights and two position (AUTO/MANUAL) switch for building and custom application controllers with manually adjustable potentiometer for manual override on building and custom application controllers.

H. Tri State Outputs:
1. Coordinate two binary outputs to control three point, floating type, electronic actuators without feedback.
2. Limit the use of three point, floating devices to the following zone and terminal unit control applications:
   a. VAV terminal units.
   b. Duct mounted heating coils.
   c. Zone dampers.
   d. Radiation.
3. Control algorithms run the zone actuator to one end of its stroke once every 24 hours for verification of operator tracking.

I. System Object Capacity:
1. System size to be expandable to twice the number of input output objects required by providing additional controllers, including associated devices and wiring.
2. Hardware additions or software revisions for the installed operator interfaces are not to be required for future, system expansions.

2.7 BRIDGES AND ROUTERS

A. The controller network shall use BACnet as its native communication protocol. Network bridges and routers must be of a modular design to ensure reliability and system performance. Routers and bridges must be used between system LANs and between the system and third party devices requiring interfaces.

B. BACnet Router: The central system shall use the building's Local Area Network (LAN) for communication. The communication between the central server and the controllers shall be BACnet/IP. A router shall be provided as required to bridge BACnet/IP and the data link used between controllers (BACnet Ethernet and BACnet MS/TP). Proprietary networks and proprietary protocols are not acceptable. The BACnet routers shall utilize flash memory to allow firmware upgrades to be performed remotely.

C. Unitary Controller Router: A router shall be provided as required to bridge between the unitary controller network and the main controller network.

2.8 GATEWAYS

A. Bi-Directional Protocol Translator (BPT): The Building Automation System shall establish an interconnection, which appears to the operator to be seamless, between the building's electrical and/or mechanical subsystems, as well as other manufacturers' control systems as may be installed in the future. These systems shall be controlled, monitored, and programmed with the same programming language used for the other control modules.

1. The BPT shall be a microprocessor-based communication device to provide seamless, two-way translation between two or more standard or non-standard protocols.
2. The BPT shall be available for a variety of Data Link/Physical Layer configurations, including PTP (point-to-point) via EIA-232, MS/TP via EIA-485, and ARCNET.
3. In addition to BACnet, the BPT shall also support other protocols including Modbus, JBus and other protocols as specified herein for electrical/mechanical subsystems.
4. The BPT shall have at least three communications ports: One shall be for communication between native BACnet controllers residing on the controller network; the other two ports shall have the ability to be configured for different protocols.
5. The BPT shall provide full custom programmability of the data flowing between the networks, using the same graphic programming as specified herein. The system shall have the ability to create custom building control strategies using global data between networks.

2.9 PANELS

A. Cabinet: Each DDC Controller shall be enclosed in a field panel or equipment enclosure with relays and controls mounted in cabinet and temperature indicators, pressure gauges, pilot lights, push buttons and switches flush on cabinet panel face. The field panel cabinet shall be general purpose utility enclosures with enameled finished face panel. Provide sufficient access for wire and conduit to enter the cabinet. Each of the field control panel locks for the project shall be keyed alike.
1. Locations outdoors and/or in wet ambient conditions: Provide waterproof enclosure rated for operation at 32-122 degrees F.
2. Locations in conditioned space: Provide dustproof enclosure

B. Each panel shall include the following:
1. Receptacles: Provide a 20 ampere duplex receptacle inside or immediately adjacent to the field control panel.
2. Master Disconnect Switch: Provide a master electrical power disconnect switch inside the field control panel to disconnect the external power to the cabinet for maintenance and repair. The disconnect switch shall not affect the duplex receptacle hereinbefore specified.
3. Terminal Strips: Provide screw type terminal strips in the field control panel for the termination of field wiring. Lay out terminal strips in a neat and orderly fashion and label each termination. Wiring entering the panel shall be routed through the panel wire-ways in a neat and workmanlike manner, properly tied or laced and terminated.

2.10 POWER SUPPLIES AND LINE FILTERING

A. Power Supplies:
1. Provide UL listed control transformers with Class 2 current limiting type or over-current protection in both primary and secondary circuits for Class 2 service as required by the NEC.
2. Limit connected loads to 80 percent of rated capacity.
3. Match DC power supply to current output and voltage requirements.
4. Unit to be full wave rectifier type with output ripple of 5.0 mV maximum peak to peak.
5. Regulation to be 1 percent combined line and load with 100 microsecond response time for 50 percent load changes.
6. Provide over-voltage and over-current protection to withstand a 150 percent current overload for 3 seconds minimum without trip-out or failure.
7. Operational Ambient Conditions: 32 to 120 degrees F.
8. EM/RF meets FCC Class B and VDE 0871 for Class B and MIL-STD 810 for shock and vibration.
9. Line voltage units UL recognized and CSA approved.

B. Power Line Filtering:
1. Provide external or internal transient voltage and surge suppression component for all workstations and controllers.
2. Minimum surge protection attributes:
a. Dielectric strength of 1000 volts minimum.
b. Response time of 10 nanoseconds or less.
c. Transverse mode noise attenuation of 65 dB or greater.
d. Common mode noise attenuation of 150 dB or greater at 40 to 100 Hz.

2.11 LOCAL AREA NETWORK (LAN)

A. Provide communication between control units over local area network (LAN).
1. LAN Capacity: Not less than 60 stations or nodes.
2. Break in Communication Path: Alarm and automatically initiate LAN reconfiguration.
3. LAN Data Speed: Minimum 100 MBps
4. Communication Techniques: Allow interface into network by multiple operation stations and by auto-answer/auto-dial modems. Support communication over telephone lines utilizing modems.
5. Transmission Median: Fiber optic or single pair of solid 24 gage twisted, shielded copper cable.
6. Network Support: Time for global point to be received by any station, shall be less than 3 seconds. Provide automatic reconfiguration if any station is added or lost. If transmission cable is cut, reconfigure two sections with no disruption to system's operation, without operator intervention.
7. Where used, LAN controller cards shall be standard “off the shelf” products available through normal PC vendor channels.

2.12 SYSTEM SOFTWARE

A. System Software Overview: The BAS Contractor shall provide the OID software required for efficient operation of the BAS specified herein. Software shall be modular in design to provide maximum flexibility, expandability, and to permit future revision of the system. The functionality described herein shall be regarded as a minimum. The system software shall include the following, as a minimum:
1. Complete database entry.
2. Configuration of the controller and operator workstation application programs to provide the sequence of operation indicated.
3. Dynamic color Graphics of each system.
4. Configuration of the reports and point summaries indicated.
5. Event/alarms comprised of Urgent Alarms, Alarms, and Messages as specified.

B. Graphical User Interface (GUI) Software
1. The GUI shall be a 32-bit full-featured software application compatible with Windows 10. The intent of the GUI is to provide an easy to use graphical OID that enables operators to manage their facilities on a day-to-day basis. The user may navigate within the system to check on environmental conditions, setpoints, schedules, etc. Using a mouse, it shall be possible to easily navigate through floor plans and different areas within a facility or multiple facilities. In addition,

manual commands may be used to navigate directly to each point in the system and a tree structure shall show the control system hierarchy.

C. Workstation Applications Editors:
1. Database Creation and Modification. Changes shall be done utilizing standard procedures and while the system is on-line and operating. The system shall allow changes to be made either at the local site through a portable computer or at the central OID.
2. The system shall permit the operator to perform the following, as a minimum:
a. Add and delete BACnet objects and points
b. Assign BACnet Object/Device Instance numbers and Network numbers
c. Modify point parameters, control sequences and programs
d. Reconfigure application programs
e. Create and/or modify graphics

2.13 CONTROLLER SOFTWARE

A. The system shall continuously perform DDC functions at the local control module in a stand alone mode. The operator shall be able to design and modify the control loops to meet the requirements of the system being operated. The operators shall use system-provided displays for tuning of PID loops. These displays shall include the past three input variable values, the setpoint for the loop, the sample interval and the results of the PID effects on the final output.

B. Each control module shall perform the following functions:
1. Identify and report alarm condition.
2. Execute each application programs indicated in the sequences of operation.
3. Execute DDC algorithms.
4. Trend and store data.
5. Maintain time-of-day schedules.

C. Software Integration: The programs should be integrated into a single working system and each of the above functions should be executed in real time and automatically when needed, such as to optimize the controlled equipment.

D. System Security: User access secured via user passwords and user names.

E. Object or Object Group Scheduling:
1. Weekly Schedules Based on Separate, Daily Schedules:
a. Include start, stop, optimal stop, and night economizer.
b. 10 events maximum per schedule.
c. Start/stop times adjustable for each group object.
2. Exception Schedules:
a. Based on any day of the year.
b. Defined up to one year in advance.
c. Automatically discarded and replaced with standard schedule for that day of the week upon execution.

3. Holiday or Special Schedules:
   a. Capability to define up to 99 schedules.
   b. Repeated annually.
   c. Length of each period is operator defined.

F. Provide standard application for equipment coordination and grouping based on function and location to be used for scheduling and other applications.

G. Alarms:
1. Binary object is set to alarm based on the operator specified state.
2. Analog object to have high/low alarm limits.
3. All alarming is capable of being automatically and manually disabled.
4. Alarm Reporting:
   a. Operator determines action to be taken for alarm event.
   b. Alarms to be routed to appropriate workstation.

H. Maintenance Management: System monitors equipment status and generates maintenance messages based upon user-designated run-time limits.

I. Sequencing: Application software based upon specified sequences of operation

J. PID Control Characteristics:
1. Direct or reverse action.
2. Anti-windup.
3. Calculated, time-varying, analog value, positions an output or stages a series of outputs.
4. User selectable controlled variable, set-point, and PED gains.

K. Power Failure/Automatic Restart:
1. Power failures shall cause the control module to go into an orderly shutdown with no loss of program memory.
2. Upon resumption of power, the Control module shall automatically restart and printout the time and date of the power failure and restoration at the respective OID.
3. Prior to taking action, the controller shall look at the actual time-of-day and the programmed schedule for the controlled systems. If systems are operating, the restart program shall automatically restart affected field equipment. The operator shall be able to define an automatic power up time delay for each piece of equipment under control.

L. Staggered Start Application:
1. Prevents all controlled equipment from simultaneously restarting after power outage.
2. Order of equipment startup is user selectable.

M. Energy Calculations:
1. Accumulated instantaneous power or flow rates are converted to energy use data.
2. Algorithm calculates a rolling average and allows window of time to be user specified in minute intervals.

3. Algorithm calculates a fixed window average with a digital input signal from a utility meter defining the start of the window period that in turn synchronizes the fixed-window average with that used by the power company.

N. Anti-Short Cycling:
1. All binary output objects protected from short-cycling.
2. Allows minimum on-time and off-time to be selected.

O. On-Off Control with Differential:
1. Algorithm allows binary output to be cycled based on a controlled variable and set-point.
2. Algorithm to be direct-acting or reverse-acting incorporating an adjustable differential.

P. Run-Time Totalization:
1. Totalize run-times for all binary input objects.
2. Provides operator with capability to assign high run-time alarm.

2.14 INPUT HARDWARE

A. Temperature Sensors: Vibration and corrosion resistant, for wall, immersion, or duct mounting as required.
1. General purpose temperature sensors
   a. Accuracy: +/-0.5 degrees F at calibration point.
2. Outside Air Temperature Sensors
   a. Description: Designed to withstand the environmental conditions to which they will be exposed. They shall also be provided with a solar shield. Sensors exposed to wind velocity pressures shall be shielded by a perforated plate that surrounds the sensor element. Temperature transmitters shall be of NEMA 3R construction and rated for ambient temperatures.
   b. Accuracy: within +/- 1 degrees F in the range of -52 degrees F to 120 degrees F.
3. Room Temperature Sensors:
   a. Description: Steel cover plate with insulated back and security screws. Color per architect.
4. Room temperature sensors with slide switch
   a. Description: Construct for surface mounting. Provide setpoint reset slide switch with an adjustable temperature range.
   b. Accuracy: +/-0.5 degrees F in the range of 32 degrees F to 96 degrees F.
5. Room Temperature Sensors with Integral Digital Display:
   a. Description: Construct for surface mounting with four button keypad with the following capabilities:
      1) Indication of space temperature.
      2) Setpoint adjustment to accommodate room setpoint,
      3) Display and control fan operation status.
      4) Manual occupancy override and indication of occupancy status.
      5) Controller mode status.

6. Chilled water and condenser water sensors
   a. Accuracy: +/-0.25 degrees F in the range 30 degrees F to 70 degrees F.
7. Hot water temperature sensors
   a. Accuracy: +/-0.75 degrees F over the range of 50 degrees F to 250 degrees F.
8. Thermo wells:
   a. When thermo wells are required, the sensor and well shall be supplied as a complete assembly, including wellhead and Greenfield fitting. Thermo wells shall be pressure rated and constructed in accordance with the system working pressure. Thermo wells and sensors shall be mounted in a threadolet or 1/2" NFT saddle and allow access to the sensor for repair or replacement. Thermo wells shall be constructed of 316 stainless steel.
9. Ceiling and Recessed Mount Temperature Sensors:
   a. Description: Ceiling-mounted sensor in a low-profile housing.
10. Temperature Averaging Elements
   a. Accuracy: +/- 1 degrees F.
   b. Applications: Use on duct sensors for ductwork 10 sq ft or larger, where prone to stratification and for all mixed air and heating coil discharge sensors regardless of duct size.
11. Duct Mount Sensors
   a. Description: Duct mount sensors shall mount in an electrical box through a hole in the duct, and be positioned so as to be easily accessible for repair or replacement. Duct sensors shall be insertion type and constructed as a complete assembly, including lock nut and mounting plate. For outdoor air duct applications, a weatherproof mounting box with weatherproof cover and gasket shall be used.

B. Humidity Sensors: Vibration and corrosion resistant, for wall, immersion, or duct mounting as required.
1. Room Sensors
   a. Description With locking cover, matching room temperature sensors, span of 25% to 90% R.H.
   b. Accuracy: ± 3% of operating range, with linear output
2. Duct and Outside Air Sensors
   a. Description: With element guard and mounting plate, range of 0% to 100% R.H., with repeatable accurate readings from 10% to 90% R.H.
   b. Accuracy: ± 1% of operating range, with linear output

C. Differential Water Pressure Sensors
1. Manufacturers:
   a. Setra
   b. Mamac
   c. Automation Components Inc. (ACI)
   d. Greystone
2. Description: Industrial quality probe with pressure transducer designed to transmit a proportional 4 to 20 mA or 0-10VDC output in response to variation of differential pressure at water pressure sensing points. Pressure transmitters shall be selected with suitable range for expected input, temperature compensated, and constructed to withstand 100% pressure over-range without damage, and to hold

calibrated accuracy when subject to a momentary 40% over-range input. A minimum of a NEMA 1 housing shall be provided for the transmitter. Differential pressure transmitters used for flow measurement shall be sized to the flow sensing device, and shall be supplied with Tee fittings and shut-off valves in the high and low sensing pick-up lines.

3. Transmitters shall be located in accessible local control panels wherever possible.
4. Accuracy: 1% of full scale, maintain up to 20 to 1 ratio turndown.

D. Differential Air Pressure Sensors
1. Manufacturers:
   a. Setra
   b. Mamac
   c. Automation Components Inc. (ACI)
   d. Greystone
2. Description: Air Static Pressure and Differential Pressure Sensors shall consist of a probe with pressure transducer designed to transmit a proportional 4 to 20 mA or 0-10VDC output in response to variation of differential pressure at air pressure sensing points. Pressure transmitters shall be selected with suitable range for expected input, temperature compensated, and constructed to withstand 100% pressure over-range without damage, and to hold calibrated accuracy when subject to a momentary 40% over-range input. A minimum of a NEMA 1 housing shall be provided for the transmitter. Transmitters shall be located in accessible local control panels wherever possible.
3. Accuracy: 2% of full scale with repeatability of 0.5%.
4. Range:
   a. Building Static Pressure Range: 0 inch to 0.25 inch wg.
   b. Duct Static Pressure Range: 0 inch to 5 inches wg.
   c. End of Line Primary Fan System Discharge Duct Static Pressure Range: 0 to 4 inches wg.
   d. Return Air and Outside Air Static Pressure Range: -2 to +2 inches wg.

E. Fluid Flow Monitoring
1. Electromagnetic type (Pipes 3” or larger)
   a. Manufacturer and model: Onicon F3500
   b. Description: Electromagnetic type with integral microprocessor-Based electronics, NEMA 4 enclosure, and 316L stainless steel wetted components, analog output signal. The meter shall have an accuracy of +/-1.0% from 2 to 20 ft/sec. Provide remote mounted LCD read-out panel or unit mounted.
2. Electromagnetic type (Pipes smaller than 3”)
   a. Manufacturer and model: Onicon F3100
   b. Electromagnetic type with integral microprocessor-Based electronics, NEMA 4 enclosure, analog output signal. The meter shall have an accuracy of +/-0.4% ft/sec from 3.3 to 33 ft/sec. Provide remote mounted LCD read-out panel or unit mounted.

F. BTU Monitoring
1. Manufacturer and model: Onicon System 10
2. Description: Two matched temperature sensors and flow meter, microprocessor-based controller, designed to provide full energy, flow and temperature data at local LCD panel and over a serial network interface. Calibrated using application specific flow and temperature data and provided with a certificate of calibration.

G. Airflow Measuring Sensors (AFMS)
1. Thermal Dispersion Type
a. Description: Thermal airflow stations with one or more bead-in-glass thermistor sensor nodes mounted in a probe with a stainless steel mounting bracket, and a remotely mounted microprocessor-based transmitter at each measurement location compatible with BMS. Provide the number of independent sensor nodes as recommended by the airflow station manufacturer based on the duct size.
b. Sensing-Node Temperature Accuracy: Within 0.15 deg F (0.08 deg C) over an operating range of minus 20 to plus 160 deg F (minus 28.9 to plus 71.1 deg C) and humidity range of 0 to 100 percent RH.
c. Airflow Station Accuracy: Within 3 percent of reading for ducted applications, and within 5 percent of reading for non-ducted applications.
2. Pitot-Tube Type
a. Description: Multiple total- and static-pressure sensors positioned at the center of equal area of the station cross section and interconnected by respective averaging manifolds. Provide the number of independent sensors recommended by the airflow station manufacturer in written instructions based on the duct size.
b. Casing: Galvanized sheet steel at least 0.079 inch (2.0 mm) thick with coating complying with ASTM A653/A653M, G90 (Z275). Casings shall be stainless steel, 0.0781 inch (2.0 mm) thick, when connected to stainless duct and aluminum, 0.063 inch (1.6 mm) thick, when connected to aluminum duct.
c. Straightener or equalizer: Type 3003 aluminum or Type 316 stainless steel, depending on casing material. Use stainless steel for units with stainless-steel casings.
d. Pressure sensor array: Drawn copper or stainless-steel tubing. Use stainless steel for units with stainless-steel casings. Copper tubing shall comply with ASTM B75 and ASTM B280. Minimum tube wall thickness shall be 0.030 inch (0.8 mm). Include internal piping and external pressure transmitter ports.
e. Performance:
1) Pressure Loss: 0.015-inch wg (3.8 Pa) at 1000 fpm (5 m/s), or 0.085-inch wg (22.5 Pa) at 2000 fpm (10 m/s).
2) Accuracy: Within 2 percent of actual airflow.
3) Self-Generated Sound: NC 40 and sound level within the duct shall not be amplified.
4) Performance rated and tested according to AMCA 610. Each station shall bear the AMCA seal.

3. Piezometer Ring Fan Inlet Airflow Sensor
   a. Description: Multiple pressure sensor points strategically placed along the circumference of the inlet cone and internally connected to an averaging ring manifold located behind the inlet cone. Sensor points shall not protrude beyond the surface of the inlet cone nor be adversely affected by particle contamination present in the airstream. Sensor shall be non-intrusive and not impact fan performance. Product shall be a standard offering of the fan manufacturer and include published literature with supporting test data to validate sensor performance.
   b. Accuracy: within 5 percent of actual airflow.

H. Status and Safety Switches
1. General Requirements and application: Switches shall be provided to monitor equipment status, safety conditions, and generate alarms at the BMS when a failure or abnormal condition occurs. Safety switches shall be provided with two sets of contacts and shall be interlock wired to shut down respective equipment.
   a. Status Inputs for Fans: Differential-pressure switch with adjustable range of 0 to 5 inches wg. or current sensing switch, as indicated on the control diagrams.
   b. Status Inputs for Pumps: Differential-pressure switch piped across pump with adjustable pressure-differential range of 5 psig to 1.5 times the design pump operating pressure differential, or current sensing switch, as indicated on the control diagrams.
   c. Status Inputs for Electric Motors: Current-sensing relay with current transformers, adjustable and set to 175 percent of rated motor current.
2. Current Sensing Switches
   a. The current sensing switch shall be self-powered with solid-state circuitry and a dry contact output. It shall consist of a current transformer, a solid state current sensing circuit, adjustable trip point, solid state switch, SPDT relay, and an LED indicating the on or off status. A conductor of the load shall be passed through the window of the device. It shall accept over-current up to twice its trip point range.
   b. Current sensing switches shall be calibrated to show a positive run status only when the motor is operating under load. A motor running with a broken belt or coupling shall indicate a negative run status.
3. Air Filter Status Switches
   a. Differential pressure switches used to monitor air filter status shall be of the automatic reset type with SPDT contacts rated for 2 amps at 120VAC.
   b. A complete installation kit shall be provided, including: static pressure tops, tubing, fittings, and air filters.
   c. Provide appropriate scale range and differential adjustment for intended service.
4. Air Flow Switches
   a. Differential pressure flow switches shall be bellows actuated mercury switches or snap acting micro-switches with appropriate scale range and differential adjustment for intended service.
5. Air Pressure Safety Switches

a. Air pressure safety switches shall be of the manual reset type with SPDT contacts rated for 2 amps at 120VAC.
b. Pressure range shall be adjustable with appropriate scale range and differential adjustment for intended service.

6. Water Flow Switches
   a. Bellows-actuated mercury or snap-acting type, with appropriate scale range and differential adjustment, with stainless-steel or bronze paddle. For chilled-water applications, provide vapor-proof type.
7. Low Temperature Limit Switches
   a. The low temperature limit switch shall be of the manual reset type with Double Pole/Single Throw snap acting contacts rated for 16 amps at 120VAC.
   b. The sensing element shall be a minimum of 15 feet in length and shall react to the coldest 18-inch section. Element shall be serpentined across the leaving side of the coil surface in accordance with manufacturers recommended installation procedures.
   c. For large duct areas where the sensing element does not provide full coverage of the air stream, additional switches shall be provided as required to provide full protection of the air stream.
8. Damper Position Indication
   a. Potentiometer mounted in enclosure with adjustable crank arm assembly connected to damper to transmit 0 - 100 percent damper travel.

I. Vibration Switches: Designed to provide vibration protection for rotating machinery operating within the range of 120 to 60,000 rpm. Provide two limit set points, one set for the maximum allowable vibration (in/sec), and the other set for a percentage of that setting, tripping the alarm relay when that percentage is reached. Provide a built-in, adjustable time delay to prevent trips due to transient vibrations. Switch shall be wired for automatic remote reset and enclosed in water-tight housing.

J. Water Detectors: External tape-style sensor with contacts to connect to a monitoring system. Gold-plated probes and microchip technology for detection of conductive liquids. Weatherproof enclosure with LED indication if water detected.

K. Power Monitoring Devices:
1. Manufacturers:
   a. Veris Industries
2. Current measurement shall be by a combination current transformer and a current transducer. The current transformer shall be sized to reduce the full amperage of the monitored circuit to a maximum 5 Amp signal, which will be converted to a 4-20 mA DDC compatible signal for use by the BAS.
3. Current Transformer: A split core current transformer shall be provided to monitor motor amps.
   a. Operating frequency – 50 - 400 Hz.
   b. Insulation – 0.6 Kv class 10Kv BIL.
   c. UL recognized.
   d. Five amp secondary.
   e. Select current ration as appropriate for application.

4. Current Transducer: A current to voltage or current to mA transducer shall be provided. The current transducer shall include:
   a. 6X input over amp rating for AC inrushes of up to 120 amps.
   b. Manufactured to UL 1244.
   c. Accuracy: +.5%, Ripple +1%.
   d. Minimum load resistance 30kOhm.
   e. Input 0-20 Amps.
   f. Output 4-20 mA.
   g. Transducer shall be powered by a 24VDC regulated power supply (24 VDC +5%).

L. Carbon Dioxide Sensors: Electronic, designed to monitor CO2 levels in HVAC systems for use in demand controlled ventilation systems according to ASHRAE Standard 62. Units shall have linear analog output of 0-10VDC/4-21mA, over a range of 0-3000 ppm of CO2. Units shall be furnished with a 5-year calibration guarantee.

M. Oxygen Sensor: Wall-mounted, single detectors, using solid-state zircon cell sensing, suitable over a temperature range of minus 32 to plus 1100 deg F (0 to 593 deg C), calibrated for 0 to 5 percent, with continuous or averaged reading, 4 to 20 mA output.

N. Occupancy Sensor: Passive infrared, with time delay, daylight sensor lockout, sensitivity control, and 180-degree field of view with vertical sensing adjustment, flush mounting for finished areas (offices, entries, etc.), and wall mounted for storage areas, garages, shops, etc.

2.15 THERMOSTATS

A. General: Refer to control sequences and diagrams for application requirements. Manufacturer's standard thermostats shall meet the applicable requirements listed below, unless thermostat is specified in other sections.

B. Combination Thermostat and Fan Switches: Line-voltage thermostat with two-, three-, or four-position, push-button or lever-operated fan switch. Label switches "FAN ON-OFF," "FAN HIGH-LOW-OFF," or "FAN HIGH-MED-LOW-OFF." Provide unit for mounting on two-gang switch box. Separate heating and cooling setpoint with locking exposed setpoint adjustment. Automatic switching from heating to cooling.

C. Electric microcomputer-based room thermostats: 7-day programmable with automatic switching from heating to cooling, short-cycle protection, battery replacement without program loss, LCD display including room temperature, setpoint and mode.

D. Low-Voltage, On-Off Thermostats: NEMA DC 3, 24-V, bimetal-operated mercury-switch type, with adjustable anticipation heater.

E. Line-Voltage, On-Off Thermostats: Bimetal-actuated, open contact or bellows-actuated, enclosed, snap-switch type, or equivalent solid-state type, with heat anticipator, integral manual on-off-auto selector switch. Thermostats that control electric heating loads directly shall be provided with off position on dial wired to break ungrounded conductors.

F. Remote-Bulb Thermostats: On-off or modulating type, liquid filled to compensate for changes in ambient temperature, with copper capillary and bulb, unless otherwise indicated.
1. Bulbs in water lines with separate wells of same material as bulb.
2. Bulbs in air ducts with flanges and shields.
3. Averaging Elements: Copper tubing with either single- or multiple-unit elements, extended to cover full width of duct or unit, adequately supported.
4. Scale settings and differential settings are clearly visible and adjustable from front of instrument.
5. On-Off Thermostat: With precision snap switches, with electrical ratings required by application.
6. Modulating Thermostats: Construct so complete potentiometer coil and wiper assembly is removable for inspection or replacement without disturbing calibration of instrument.

G. Fire-Protection Thermostats: UL listed with fixed or adjustable settings to operate at not less than 75 deg F above normal maximum operating temperature, with the following:
1. Compliant with latest issue of NFPA 90A.
2. Reset: Manual
3. Dual-Temperature Thermostats: Automatic changeover from normal setting to lower unoccupied setting, with manual-reset lever to permit return to normal temperatures during unoccupied cycles, with automatic reset to normal during next cycle of operation.

H. Immersion Thermostats: Remote-bulb or bimetal rod-and-tube type, proportional acting with adjustable throttling range and adjustable set point.

I. Airstream Thermostats: Two-pipe, fully proportional, single-temperature type, with adjustable set point in middle of range and adjustable throttling range, plug-in air gauge test fitting or permanent pressure gage, remote bulb, bimetal rod and tube, or averaging element.

J. Heating/Cooling Valve-Top Thermostats: Proportional acting for modulating flow, molded-rubber diaphragm, remote-bulb liquid-filled element, direct or reverse acting with minimum valve shutoff differential pressure of 25 psig, and cast housing with position indicator and adjusting knob.

2.16 HUMIDISTATS

A. Electric Duct-Mounted Humidistats: Insertion, 2-position type with adjustable 2 percent throttling range, 20 to 80 percent operating range, single- or double-pole contacts.

2.17 TIME CLOCKS

A. Seven day programming switch timer with synchronous timing motor and seven day dial, continuously charged Ni-cad battery driven power failure 8 hour carry over and multiple switch trippers to control systems for minimum of two and maximum of eight signals per day with two normally open and two normally closed output switches.

B. Solid state programmable time control, 24 hour battery carry over, duty cycling.

2.18 CONTROL VALVES

A. General: All automatic control valves shall be factory fabricated, of type, body material, and pressure class based on maximum pressure and temperature rating of the piping system in which the valve is being installed, and be suitable for the system flow conditions and close against the differential pressures involved. Valves shall be fully proportioning and provide near linear heat transfer control. The valves shall be quiet in operation and fail-safe open, closed, or in their last position. All valves shall operate in sequence with another valve when required by the sequence of operations. All control valves shall be sized by the control manufacturer, and shall be guaranteed to meet the heating and cooling loads, as specified.

B. Sizing and application: Valves shall be globe, ball, and/or butterfly, as required by the specific application. Modulating water valves shall be sized per manufacturer's recommendations for the given application.
   1. Liquid Control Valves (water and glycol)
      a. Two-position service: Line size unless otherwise indicated.
      b. Two-way modulating service (non-pressure independent): Pressure drop shall be equal to the pressure drop through heat exchanger (load), 50 percent of the pressure difference between supply and return pipe mains, or 5 psi whichever is greater. Minimum Cv shall be calculated at 10 percent of design flow, with a coincident pressure differential equal to the system design pump head.
      c. Three-way modulating service: Pressure drop equal to the pressure drop through the coil exchanger (load), 5 psi maximum.
      d. For pressure independent valves, select for a differential pressure range of 5 to 50 psig.
      e. Close-off (differential) Pressure Rating: Valve actuator and trim shall be furnished to provide the following minimum close-off pressure ratings:
         1) Two-way: 150 percent of total system (pump) head.
         2) Three-way: 300 percent of pressure differential between ports A and B at design flow or 100 percent of total system (pump) head.

C. Ball Valves NPS 2 and Smaller:
   1. Description: Forged brass body with nickel plating, characterized stainless steel ball and trim, and Teflon seats and seals.
   2. Application: Characterized Ball valves shall be used for hot and condenser water applications, water terminal reheat coils, radiant panels, unit heaters, package air conditioning units, and fan coil units except those described hereinafter.
   3. Manufacturers:
      a. Belimo CCV
      b. Siemens
      c. Johnson Controls

D. Globe Pattern:
1. Application: Modulating valves of the single-seat type with equal percentage flow characteristics shall be used for all AHU, ERU and special applications as indicated.
2. Manufacturers:
   a. Belimo
   b. Siemens
   c. Johnson Controls
3. Up to 2 inches (50 mm): Bronze body, bronze trim, rising stem, renewable composition disc, screwed ends with backseating capacity repackable under pressure.
4. Over 2 inches: Iron body, bronze trim, rising stem, plug-type disc, flanged ends, renewable seat and stainless steel disc.
5. Hydronic Systems:
   a. Rate for service pressure of 125 psig at 250 degrees F.
   b. Replaceable plugs and seats of stainless steel.
   c. Two way valves shall have equal percentage characteristics, three way valves linear characteristics. Size two way valve operators to close valves against pump shut off head.
6. Steam Systems:
   a. Rate for service pressure of 125 psig at 250 degrees F.
   b. Replaceable plugs and seats of stainless steel. Pressure drop across any steam valve at maximum flow shall be as shown on the Drawings.
   c. Valves shall have modified linear characteristics.

E. Butterfly Pattern:
1. Application: High Performance Butterfly valves shall be acceptable for modulating large flow applications greater than modulating plug valves, and for all two-position, open/close applications. In-line and/or three-way butterfly valves shall be heavy-duty pattern with a body rating comparable to the pipe rating, replaceable lining suitable for temperature of system, and a stainless steel vane.
2. Sizing: Valves for modulating service shall be sized and travel limited to 50 degrees of full open. Valves for isolation service shall be the same as the pipe. Valves in the closed position shall be bubble-tight.
3. Manufacturers:
   a. Nibco, Inc.
   b. Crane Co.
   c. Grinnell
   d. Hammond Valve
   e. Milwaukee Valve Co.
   f. Bray International
4. Lug type: Bi-directional dead end service without downstream flange.
   a. Body: Carbon steel, cast iron, ductile Iron or stainless steel.
   b. Seat: Metal or reinforced PTFE.
   c. Offset stem: Stainless steel.
   d. Disc: 316 Stainless Steel

F. Pressure Independent Control Valves

1. Application: Provide pressure independent flow control valves as specified within the drawings and schedules.
2. Description:
   a. Body: Forged brass, nickel plated body
   b. Packing: EPDM O-rings, lubricated.
   c. Trim: Chrome plated brass stem, chrome plated brass ball with equal percentage flow characteristics, fiberglass reinforced Teflon PTFE seats.
   d. Pressure Rating: 600 psi (1/2" to 1") and 400 psi (1-1/4" to 2")
   e. Temperature Ratings: Media temperature range 0ºF to 212ºF
   f. Close Off Pressure Rating: 200 PSI
3. Manufacturers:
   a. Griswold
   b. Belimo
   c. FDI
4. Accuracy: The flow shall not vary more than +/- 5% due to system static pressure fluctuations across the valve with a minimum of 5 PSID across the valve from 0 to 100% full rated flow with an equal percentage characteristic.
5. Sizing: sized by the maximum coil capacity in GPM, not the conventional Cv method.
6. Provide PT ports to verify flow.
7. The manufacturer shall warranty all components for a period of 5 years from the date of production, with the first two years unconditional.

G. Terminal Unit Control Valves:
1. Bronze or brass body, bronze trim, two- or three-port as indicated, stainless steel ball union and threaded ends, 100 psi close-off rating.
2. Rating: Class 125 for service at 862 kPa (125 psig) and 121 deg C (250 deg F) operating conditions.
3. Flow Characteristics: Two-way valves shall have equal percentage characteristics; three-way valves shall have linear characteristics.

H. 6-Way Ball Valve with Characterizing Discs (CBVS & CBVM):
1. Materials:
   a. Body: Nickel plated brass
   b. Ball: Chrome plated brass
   c. Stem/Extension/Seals: Nickel plated brass, double EPDM O-rings
   d. Seat/Seals: PTFE (Teflon)/EPDM O-rings
   e. Characterizing Disc: Chrome Plated Steel
2. Piping Connections: NPS ½ (DN 15) through NPS 1 (DN 25): (6), female NPT
3. Media: Water (maximum 60% glycol solution)
4. Performance:
   a. Media Temperature: 43 deg F to 180 deg F (6 deg C to 82 deg C)
   b. Pressure:
      1) Body: 232 psig (16kPa)
      2) Maximum Operating Differential: 15 psid (103kPa)
      3) Close-off (valve and actuation assembly): 50 psid (345kPa)
   c. Leakage: 0%
5. The valve shall incorporate a loop pressure relief to release any pressure build up in the loop when the valve is in the isolated position.

6. Labeling: Valve body shall be furnished with a label containing the following date:
   a. Manufacturer's name and model number
   b. Nominal size

2.19 DAMPERS

A. General: The BMS Contractor shall furnish all automatic dampers unless provided as standard from equipment manufacturer. All automatic dampers shall be sized for the application by the BMS Contractor or as specifically indicated on the Drawings.

B. Sizing and Application: All dampers used for throttling airflow shall be of the opposed blade type arranged for normally open or normally closed operation, as required. The damper is to be sized so that, when wide open, the pressure drop is a sufficient amount of its close-off pressure drop to shift the characteristic curve to near linear. All dampers used for two-position, open/close control and mixing boxes shall be parallel blade type arranged for normally open or closed operation, as required.

C. Airfoil Blade Dampers
   1. General: Double skin construction with linkage out of the air stream
   2. Manufacturers:
      a. Johnson Controls D-7250 D-1250 or D-1300
      b. Ruskin CD50
      c. Vent Products 5650.
      d. Tamco
   3. Application: whenever the damper face velocity exceeds 1500 FPM or system pressure exceeds 2.5" w.g., but no more than 4000 FPM or 6" w.g.

D. One-Piece Rolled Blade Damper
   1. Manufacturers:
      a. Johnson Controls D-1600
      b. Ruskin CD36
      c. Vent Products 5800
      d. Tamco
   2. Performance: Dampers shall be tight closing, low leakage type, with synthetic elastomer seals on the blade edges and flexible stainless steel side seals. Dampers of 48"x48" size shall not leak in excess of 8.0 cfm per square foot when closed against 4" w.g. static pressure when tested in accordance with AMCA Std. 500.
   3. Construction:
      a. Frames: Galvanized steel, welded or riveted with corner reinforcement, minimum 12 gage, 0.1046 inch.
      b. Blades: Galvanized steel, maximum blade size 8 inches wide, 48 inches long, minimum 22 gage, 0.0299 inch, attached to minimum 1/2 inch shafts with set screws.
      c. Blade Seals: Synthetic elastomeric inflatable mechanically attached, field replaceable.
      d. Jamb Seals: Spring stainless steel.
      e. Shaft Bearings: Oil impregnated sintered bronze.
      f. Linkage Bearings: Oil impregnated sintered bronze.

4. Application: face velocities of 1500 FPM or below.

2.20 ACTUATORS

A. General: Size to operate with sufficient reserve power to provide smooth modulating action or two-position action over the entire operating range. Provide proportional or two-position type as indicated in the sequence of operation, with current limiting circuitry or microprocessor overload protection.

B. Manufacturers:
1. Johnson Controls
2. Honeywell
3. Belimo
4. Siemens

C. Electronic Damper Actuators
1. Modulating and two-position actuators shall be provided as required by the sequence of operations and as indicated on drawings. Damper sections shall be sized based on actuator manufacturer's recommendations for face velocity, differential pressure and damper type. The actuator mounting arrangement and spring return feature shall permit normally open or normally closed positions of the dampers, as required. All actuators (except terminal units) shall be furnished with mechanical spring return unless otherwise specified in the sequences of operations. All actuators shall have external adjustable stops to limit the travel in either direction and a gear release to allow manual positioning.
2. Modulating actuators shall accept 24 VAC or VDC power supply, consume no more than 15 VA, and be UL listed. The control signal shall be 2-10 VDC or 4-20 mA, and the actuator shall provide a clamp position feedback signal of 2-10 VDC. The feedback signal shall be independent of the input signal and may be used to parallel other actuators and provide true position indication. The feedback signal of one damper actuator for each separately controlled damper shall be wired back to a terminal strip in the control panel for trouble-shooting purposes.
3. Two-position or open/closed actuators shall accept 24 or 120 VAC power supply and be UL listed. Isolation, smoke, exhaust fan, and other dampers, as specified in the sequence of operations, shall be furnished with adjustable end switches to indicate open/closed position or be hard wired to start/stop associated fan. Two-position actuators, as specified in sequences of operations as "quick acting," shall move full stroke within 20 seconds. All smoke damper actuators shall be quick acting.
4. Electronic damper actuators shall be direct shaft mount.

D. Electronic Valve Actuators:
1. Modulating and two-position actuators shall be provided as required by the sequence of operations. Actuators shall provide the minimum torque required for proper valve close-off against the system pressure for the required application. The valve actuator shall be sized Based on valve manufacturer's recommendations for flow and pressure differential. All actuators shall fail in the last position unless specified with mechanical spring return in the sequence of

operations. The spring return feature shall permit normally open or normally closed positions of the valves, as required. All direct shaft mount rotational actuators shall have external adjustable stops to limit the travel in either direction.

2. Modulating Actuators shall accept 24 VAC or VDC and 120 VAC power supply and be UL listed. The control signal shall be 2-10 VDC or 4-20 mA and the actuator shall provide a clamp position feedback signal of 2-10 VDC. The feedback signal shall be independent of the input signal, and may be used to parallel other actuators and provide true position indication. The feedback signal of each valve actuator (except terminal valves) shall be wired back to a terminal strip in the control panel for trouble-shooting purposes.
3. Two-position or open/closed actuators shall accept 24 or 120 VAC power supply and be UL listed. Butterfly isolation and other valves, as specified in the sequence of operations, shall be furnished with adjustable end switches to indicate open/closed position or be hard wired to start/stop the associated pump or heat exchanger.

2.21 WIRE, CABLE AND NETWORK ACCESSORIES

A. Exposed cables installed in air plenums shall be specifically listed for air plenum use. (See specifications for specific wire and cable installation requirements.)

B. Cables, both fiber and copper, shall be as recommended by the manufacturer of the BAS, and shall be as required to support the specified LAN BACnet transmission type.

C. Network Repeater: Provide network repeaters as required to isolate and boost RS-485 signals. Provide power connection and NEMA enclosure as required.

PART 3 EXECUTION

2.22 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that conditioned power supply is available to the control units and to the operator work station. Verify that field end devices, wiring, and pneumatic tubing is installed prior to installation proceeding.

2.23 INSTALLATION

A. Provide a complete, neat and workmanlike installation. Use only manufacturer employees who are skilled, experienced, trained, and familiar with the specific equipment, software, standards and configurations to be provided for this Project.

B. Install control units and other hardware in position on permanent walls where not subject to excessive vibration.

C. Install software in control units and in operator work station. Implement all features of programs to specified requirements and appropriate to sequence of operation.

D. Provide with 120v AC, 15 amp dedicated emergency power circuit to each programmable control unit.

E. Provide conduit and electrical wiring in accordance with Section 26. Electrical material and installation shall be in accordance with appropriate requirements of Division 26.

F. Combination fire Smoke dampers shall be installed by division 23, powered by division 26, interconnecting control wiring between duct mounted smoke detector and fire/smoke damper by BMS contractor, alarm points, status/position, shut down of unit and notification by BMS contractor.

G. Furnish and install all access doors.

H. BMS Wiring
1. All conduit, wiring, accessories and wiring connections required for the installation of the Building Management System, as herein specified, shall be provided by the BMS Contractor unless specifically shown on the Electrical Drawings under Division 26 Electrical. All wiring shall comply with the requirements of applicable portions of Division 26 and all local and national electric codes, unless specified otherwise in this section.
2. All BMS wiring materials and installation methods shall comply with BMS manufacturer recommendations.
3. The sizing, type and provision of cable, conduit, cable trays, and raceways shall be the design responsibility of the BMS Contractor. If complications arise, however, due to the incorrect selection of cable, cable trays, raceways and/or conduit by the BMS Contractor, the Contractor shall be responsible for all costs incurred in replacing the selected components.
4. Class 2 Wiring
   a. All exposed Class 2 (24VAC or less) wiring shall be installed in conduit unless otherwise specified.
   b. Conduit is not required for Class 2 wiring in concealed accessible locations. Class 2 wiring not installed in conduit shall be supported every 5’ from the building structure utilizing metal hangers designed for this application. Wiring shall be installed parallel to the building structural lines. All wiring shall be installed in accordance with local code requirements.
   c. The use of plenum rated cable, not in conduit, in areas such as drop ceilings and wall cavities is acceptable.
   d. Class 2 signal wiring and 24VAC power can be run in the same conduit. Power wiring 120VAC and greater cannot share the same conduit with Class 2 signal wiring.
5. Provide for complete grounding of all applicable signal and communications cables, panels and equipment so as to ensure system integrity of operation. Ground cabling and conduit at the panel terminations. Avoid grounding loops.

I. BMS Line Voltage Power Source

1. 120-volt AC circuits used for the Building Management System shall be taken from panel boards and circuit breakers provided by Division 26.
2. Circuits used for the BMS shall be dedicated to the BMS and shall not be used for any other purposes.
3. DDC terminal unit controllers may use AC power from motor power circuits.

J. BMS Raceway
1. All wiring shall be installed in conduit or raceway except as noted elsewhere in this specification. Minimum control wiring conduit size 3/4".
2. All conduits and raceways shall be installed level, plumb, at right angles to the building lines and shall follow the contours of the surface to which they are attached.
3. Flexible Metal Conduit shall be used for vibration isolation and shall be limited to 3 feet in length when terminating to vibrating equipment. Flexible Metal Conduit may be used within partition walls. Flexible Metal Conduit shall be UL listed.

K. Penetrations
1. Provide fire stopping for all penetrations used by dedicated BMS conduits and raceways.
2. All openings in fire proofed or fire stopped components shall be closed by using approved fire resistive sealant.
3. All wiring passing through penetrations, including walls shall be in conduit or enclosed raceway.
4. Penetrations of floor slabs shall be by core drilling. All penetrations shall be plumb, true, and square.

L. BMS Identification Standards
1. Node Identification. All nodes shall be identified by a permanent label fastened to the enclosure. Labels shall be suitable for the node location.
   a. Cable types specified in Item A shall be color coded for easy identification and troubleshooting.

M. BMS Panel Installation
1. The BMS panels and cabinets shall be located as indicated at an elevation of not less than 2 feet from the bottom edge of the panel to the finished floor. Each cabinet shall be anchored per the manufacturer's recommendations.
2. The BMS contractor shall be responsible for coordinating panel locations with other trades and electrical and mechanical contractors.

2.24 COMMISSIONING

A. Start and commission systems. Allow sufficient time for start-up and commissioning prior to placing control systems in permanent operation.

B. The Contractor shall provide the services of a factory authorized service representative to assist an independent commissioning agent to start up the BAS, and to commission each component included in the BAS.

C. Controls and Safeties: Test, and set each of the digital and analog sensing and actuating devices. Test each instrumentation device by making a comparison between the central computer or field control panel display and the reading at the device, using an instrument traceable to the National Bureau of Standards, which shall be at least twice as accurate as the device to be tested. Record the measured value and displayed value for each device in the Commissioning Report.

D. Operational Tests: The Contractor shall conduct an operational test of each system and subsystem, including each of the associated field control panels, components, and field devices, to verify the proper sequence of operation and the actual performance of the installed BAS subsystem.

E. Documentation: Provide written documentation of the system commissioning and performance verification processes described above, including an itemized inspection and validation report complete with dates and second test results, and a performance test report for each system and each Sequence of Operation.

2.25 DEMONSTRATION AND INSTRUCTIONS

A. General: The contractor shall demonstrate the operation of the BAS hardware, software, and each of the related components, systems and subsystems to the satisfaction of the Owner. The Contractor shall schedule the demonstration with the Owner's representative at least 2 weeks in advance of the proposed demonstration. Demonstration shall not be scheduled until each of the hardware and software submittals, and the Commissioning Test Report are received and approved. If the work fails to conform to Contract specifications, scheduling of additional site visits by the Contractor for re-demonstration is required.

B. Personnel and Equipment: The Contractor shall supply the required personnel and equipment for the demonstration, including, but not limited to, instruments, ladders, paper, etc. The contractor-supplied personnel shall be competent with and knowledgeable of the project-specific hardware, software, and the HVAC systems. Complete training documentation and a complete copy of the BAS submittals shall be on file at the job site.

C. Physical Demonstration of Response to System Conditions: System acceptance shall include demonstrations that each of the components function properly by actual response to system conditions that may be encountered. The Contractor shall furnish the materials such as sources of temporary heating and cooling necessary to cause the system components to go through the required sequences. Computer simulations of possible operating conditions are not acceptable for demonstration of system performance. Proposed methods of demonstrating component operation shall be submitted to the Owner. Representatives of Owner will also witness the tests.

D. Orientation and training: Provide services of qualified technical personnel for three 6-hour days at project site to instruct Owner's personnel in operation and maintenance of the installed BAS.

2.26 ACCEPTANCE

A. Upon completion of the installation and commissioning of the systems, the contractor shall notify the owner's representative in writing, together with a copy of the commissioning report, that the system is complete and ready for acceptance testing. The owner's representative shall schedule a starting day for system acceptance testing. The contractor shall demonstrate calibration, testing, and adjusting of points or systems selected by the owner's representative. After an adequate sampling of points and sequences have been verified to satisfy the owner's representative that the system is performing in accordance with the contract documents, the system shall be accepted and the warranty period shall begin.

2.27 MAINTENANCE

A. See Section 01 - Execution and Closeout Requirements, for additional requirements relating to maintenance service.

B. Provide service and maintenance of energy management and control systems for one years from Date of Substantial Completion.

C. Provide two complete inspections, one in each season, to inspect, calibrate, and adjust controls as required, and submit written reports.

D. Provide complete service of systems, including service calls to inspect, calibrate, and adjust controls, and submit written reports.

END OF SECTION

SECTION 23 0993 - SEQUENCE OF OPERATIONS

PART 1 GENERAL

1.1 SUMMARY

A. Related Sections:
1. Section 23 0400 – General Conditions for Mechanical Trades
2. Section 23 0900 - Instrumentation and Control for HVAC: For equipment, devices, and system components to implement sequences of operation.
3. Section 23 09 00 - Direct-Digital Control System for HVAC: For equipment, devices, system components, and software to implement sequences of operation.
4. Division 26 - Electrical
5. Division 27 - Communication
6. Division 28 - Electronic Safety and Security.

1.2 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Indicate mechanical system controlled and control system components.
1. Label with settings, adjustable range of control and limits. Submit written description of control sequence.
2. Submit flow diagrams for each control system, graphically depicting control logic.
3. Submit draft copies of graphic displays indicating mechanical system components, control system components, and controlled function status and value.
4. Coordinate submittals with information requested in Section 23 0900 and 23 0923.

1.3 CLOSEOUT SUBMITTALS

A. Section 01 77 00 - Closeout Procedures.

B. Project Record Documents: Record actual locations of components and set points of controls, including changes to sequences made after submission of shop drawings.

PART 2 PRODUCTS

A. Not Used.

PART 3 EXECUTION

3.1 GENERAL

A. Provide all controls, low voltage control wiring, hardware points (analog in, analog out, binary in, binary out) and accessories as required to perform the control sequences indicated. Additionally, provide hardware points indicated regardless that such points may not be required to perform the control sequences indicated.

B. Unless otherwise indicated, setpoints and values listed in the sequence of controls shall be adjustable by the Owner thru the DDC(direct digital controls) or BMS(Building Management System)(BMS and DDC are used interchangeably and share same meaning) graphical interface; the Owner shall not be required to edit operating code in order to change any of the setpoints and values.

C. Heating shall only be enabled when the system is indexed to heating mode (shall occur when outside air temperature is below 65 degrees F). Devices such as CUH and UH shall operate on a soft permissive, only allowing fans to start and control valves to open when system is in heating mode, use of aquastats is not acceptable.

D. Temperature Sensors
   1. General
      a. Where temperature ranges, reset temperatures, setback temperatures, setup temperatures, deadbands, override times, etc. are indicated, those values shall be adjustable both globally and locally.
      b. There shall be two independent interfaces for global settings for the following space categories.
         1) Corridors, restrooms, vestibules, storage rooms, janitor closets, electrical closets, data closets/rooms, and mechanical rooms
         2) Other spaces
      c. Each temperature control zone shall be initially set to default to the global settings, with a flag or similar to override the global setting for each of the values for that zone.
      d. The values indicated herein shall be the initial global settings.
   2. Corridors, restrooms, vestibules, storage rooms, janitor closets, electrical closets, data closets/rooms, and mechanical rooms
      a. Unless otherwise indicated, temperature sensors shall be the brushed chrome dead front type sensors.
      b. Occupied Global Setpoint
         1) Heating (defined as outside air temperature is below 65 degrees F): 68 degrees F.
         2) Cooling (defined as outside air temperature is above 68 degrees F): 75 degrees F.
      c. Unoccupied Global Setpoint
         1) Heating: 62 degrees F.
         2) Cooling: 82 degrees F.

3. Other spaces
   a. The space temperature, humidity sensor and CO2 sensor shall be a combination 3 in 1 sensor where all 3 are serving the same space. Include an extra 20 combination sensors as attic stock for immediate backup.
   b. Provide separate CO2 space sensors where combination 3 in 1 sensors are not used.
   c. The space sensor shall communicate via analog control signal or BACnet communicating control signal.
   d. This sensor shall not have display.
   e. The sensor shall have a setpoint resistive slider for temperature adjustment.
   f. The sensor shall have an override push button for unoccupied over-ride where noted. Upon activation of the occupied override, the space will go to occupied mode for a specific period of time. Set override time at 3 hours initially (configurable).
   g. Occupied Global Setpoint
      1) The space temperature setpoint shall be at 68 degrees F when the outside air temperature is below 65 degrees F, and shall be at 75 degrees F when the outside air temperature is above 68 degrees F.
   h. Occupied Global Setpoint
      1) Heating: 62 degrees F.
      2) Cooling: 82 degrees F.
   i. Occupied Override
      1) Where occupancy sensors (refer to electrical power drawings for occupancy sensor quantities and locations) are located in the same space as a temperature sensor, the auxiliary contacts of the occupancy sensors shall be connected to the BMS for occupied override purposes.
         a) Occupied mode
            (1) Spaces indexed to occupied mode shall remain in occupied mode unless the occupancy sensors do not detect occupancy for 10 minutes continuously. At 10 minutes since the last detection of occupancy, the cooling and heating setpoints of the spaces shall be reset to 3°F higher and 3°F lower than the setpoint respectively.
            (2) Once in unoccupied mode, the cooling and heating setpoints shall remain at the reset temperatures (3°F higher and lower) until the occupancy sensors detect occupancy for 5 minutes continuous. At 5 minutes continuous occupancy, the occupied setpoint shall be restored.
         b) Unoccupied mode
            (1) Spaces indexed to unoccupied mode shall remain in unoccupied mode unless the occupancy sensors detect occupancy for 10

minutes continuously. At 10 minutes continuous occupancy, the occupied setpoint shall be used.

(2) Once in the occupied mode, the setpoint shall remain at the occupied setpoint until the occupancy sensors do not detect occupancy for 5 minutes continuous. At 5 minutes since the last

(3) detection of occupancy, the unoccupied setpoints shall be restored.

c) See the lighting plans for the locations of the occupancy sensors.

E. Occupied/Unoccupied Programming

1. The HVAC equipment shall be indexed to warm-up and cool-down modes via the BMS, optimal start/stop shall be programmed in for all equipment so that equipment start and start times are determined based on outside air conditions and system learns based on past building history. The operator station software configuration shall allow the Owner to easily select the occupied and unoccupied hours by individual zone, global by air handler, or global by building. The BMS shall trend the outside air temperature with respect to the warm-up times, and shall optimize the warm-up times such that the spaces reach occupied temperature by the time selected.
2. Terminal heating and cooling units
   a. Warm-up (morning): Units shall operate in the warm-up mode until the space reaches the occupied temperature setpoint, at which point the unit shall be indexed to the occupied mode.
   b. Cool-down (evening): Units shall operate in the cool-down mode until the space reaches the unoccupied temperature setpoint, at which point the unit shall be indexed to the unoccupied mode.

F. Air handling units: Shall remain in the warm-up mode until all spaces served reach occupied temperature setpoints, at which point the units shall be indexed to occupied mode.

3.2 CONTROL DEVICES

A. All devices and sensors shall be adjustable. BMS shall display setpoints and actual conditions/status of all control devices and position of all actuators (damper and valve, with the exception of at Fin Tube, CUH, FCU and UH where position/status of actuators is not required at control valve) at the central personal computer (PC) thru the use of end switches and potentiometers integral to actuators.

B. Motorized dampers shall be 120V power. BMS contractor shall provide a RIB relay or similar at all locations to control the 120 volt circuit.

3.3 TERMINAL UNIT SEQUENCING

A. Where there are more than one heating source per zone, perimeter fin-tube radiation shall be the 1st heating stage during unoccupied and occupied mode.

3.4 ECONOMIZER COOLING

A. Where economizer cooling is indicated as the first stage of cooling, the economizer cooling sequence of control shall be as follows:
   1. Economizer cooling shall be enabled when all of the following are true (see also paragraph 2.):
      a. The outside air temperature is less than 65 degrees F.
      b. The outside air temperature is less than the return air temperature.
      c. The outside air enthalpy is less than 22 btu/lb.
      d. The outside air enthalpy is less than the return air enthalpy.
   2. The BMS system operator shall, via single click editing, be easily able to select any or all of items a. thru d. of the previous paragraph for economizer enabling, for individual air handling systems and for air handling systems globally. Additionally, the BMS system operator shall be easily able to globally change the setpoints for items a. and c. of the previous paragraph.
   3. Economizer cooling shall be integrated; economizer cooling shall continue to operate during stages of mechanical cooling as long as all four of the conditions indicated in paragraph 1 are true (or as selected by the system operator per paragraph 2).
   4. When both mechanical cooling is anticipated to be required the next day (by trending the outside air enthalpy), and economizer cooling is available during the unoccupied cycle, economizer cooling shall be operated during the unoccupied cycle to pre-cool the spaces served by the air handler to 70 degrees F.

3.5 HEATING HOT WATER COILS

A. Integral to Air Handling Units & Dedicated Outdoor Air Units: See sequence of operation for air handling units and dedicated outdoor air units.

3.6 CHILLED WATER COILS

A. Integral to Air Handling Units & Dedicated Outdoor Air Units: See sequence of operation for air handling units and dedicated outdoor air units.

3.7 HIGH VOLUME LOW SPEED FANS (HVLS) (CF-A)

A. General: Units shall maintain space temperature setpoint through manufacturers supplied controllers with BACnet interface.

B. Limits and Alarms:
   1. Unit fault code input from BACnet interface. Alarm shall be generated at operator work station. Alarm shall identify code and brief verbal description.

C. Point List:
   1. All points shall be shown on graphics.
   2. All BACnet point shall be made available by the equipment control system

3.8 CHILLED BEAM CONTROL:

A. General: BMS shall command zone into morning warmup mode, unoccupied mode and occupied mode.

B. Zone consist of the following:
   1. Chilled beam control
   2. Perimeter heat control

C. Morning warm-up mode:
   1. BMS shall enable morning warm-up mode based on schedule and when outdoor air temperature is less than 65 °F and morning dewpoint mode is not enabled. BMS shall enable the following morning warm-up control sequence:
      a. 6-way valve shall modulate open to maintain space temperature set point.

D. Morning warm-up mode:
   1. BMS shall enable morning warm-up mode based on schedule and when outdoor air temperature is less than 65 °F and morning dewpoint mode is not enabled. BMS shall enable the following morning warm-up control sequence:
      a. 6-way valve shall modulate open to maintain space temperature set point.

E. Unoccupied mode with perimeter heat:
   1. BMS shall enable unoccupied mode based on schedule.
   2. Unoccupied heating mode:
      a. 6-way valve shall modulate to maintain unoccupied space temperature set point.

F. Unoccupied mode:
   1. BMS shall enable unoccupied mode based on schedule.
      a. 6-way valve shall modulate to maintain unoccupied space temperature set point.

G. Occupied mode:
   1. BMS shall enable occupied mode based on schedule. In occupied mode, space shall be in either heating mode or cooling mode or high limit dewpoint mode or stand-by mode.
   2. Reset space temperature setpoints based occupancy sensor or vacancy sensor status.
   3. Unoccupied / Occupied heating mode:
      a. Heating mode shall be enabled when space temperature is below setpoint and space dewpoint temperature is not above set point.
      b. In heating mode, 6-way valve shall modulate to maintain space temperature set point.
   4. Unoccupied / Occupied cooling mode
      a. Cooling mode shall be enabled when space temperature is above setpoint and space dewpoint temperature is not above set point.
      b. In cooling mode, modulate chilled water flow through chilled beam.

5. Unoccupied / Occupied high limit dewpoint mode
   a. High limit dewpoint mode shall be enabled when space temperature dewpoint is above setpoint.
   b. In high limit dewpoint mode, BMS shall command the 6-way control valve closed if the supply air dewpoint temperature is greater than space dewpoint temperature.

H. Limits and Alarms:
1. DOA discharge air dewpoint temperature shall be less than CHWS water temperature. If DOA discharge air temperature dew point is within a 2°F approach of the CHWS water temperature, BMS shall enable the following control sequence:
   a. All 6-way valve serving associated DOA unit shall be commanded to fully closed position
   b. Alarm issued to the operator's work station.
2. Space dewpoint shall be less than CHWS water temperature. If space dew point is within a 2°F approach of the CHWS water temperature, BMS shall enable the following control sequence:
   a. 6-way valve in associated zone shall be commanded to fully closed position.
   b. Alarm issued to the operator's work station.
3. If pipe condensate sensor is activated, BMS shall enable the following control sequence:
   a. 6-way valve in associated zone shall be commanded to fully closed position.
4. If space temperature does not match setpoint for a predetermined time period, alarm shall be generated at the operator workstation.

I. Points List
1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.

CHILLED BEAM ZONE POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
Occupancy/Vacancy sensor(s) status, see drawings for qty.			×			
Space sensor unoccupied over-ride			×			
space temperature	×					
space humidity	×					
Setpoint adjustment	×					
Space CO2	×					
DTS pipe temp	×					
6-way control valve control		×				
Pipe condensate sensor (mount on DTS)			×			

Enable chilled beam or perimeter heat as stage 1 heat or stage 2 heat						×
Morning warm-up heating space temp setpoint					×	
Morning space dewpoint setpoint					×	
occupied cooling space temp setpoint					×	
occupied standby cooling space temp setpoint					×	
unoccupied cooling space temp setpoint					×	
occupied heating space temp setpoint stage 1					×	
unoccupied heating space temp setpoint stage 1					×	
occupied heating space temp setpoint stage 2					×	
occupied standby heating space temp setpoint					×	
unoccupied heating space temp setpoint stage 2					×	
space dewpoint setpoint					×	
DOA discharge air dewpoint temp / CHWS water temperature 2˚F approach setpoint.					×	
Space dewpoint / CHWS water temperature 2˚F approach setpoint.					×	
morning warm-up space temperature alarm					×	
morning dewpoint space temperature alarm					×	
occupied cooling space temperature alarm					×	
unoccupied cooling space temperature alarm					×	
occupied heating space temperature alarm					×	
unoccupied heating space temperature alarm					×	
space dewpoint alarm					×	
DOA discharge air dewpoint temp / CHWS water temperature 2˚F approach Alarm.					×	
Space dewpoint / CHWS water temperature 2˚F approach alarm.					×	
Condensate switch alarm						×
Window switch alarm						×
DTS temperature setpoint limit (Heating)					×	
DTS temperature alarm (Heating)						×
DTS temperature setpoint limit (Cooling)					×	
DTS temperature alarm (Cooling)						×

3.9 FANS

A. General: Each fan shall have status provided at the DDC (direct digital controls system) display as well as generate an alarm at the DDC display if fan failure occurs.

B. Kitchen Exhaust Fans (KHEF-1)
   1. Run Conditions - Interlocked:
      a. The fan shall be interlocked to run whenever the associated hood runs unless shutdown on safeties.
   2. Operation:
      a. The fan shall be commanded on when kitchen hood is turned on. The motorized dampers on the return ductwork shall close and AHU return

fan serving space shall turn down to match reduced CFM. The exhaust fan shall not start until proof (by end switch) that the motorized dampers on the return is open.

b. The fan shall have a user definable (adj.) minimum runtime.

C. Dishwasher Exhaust Fan (DWEF-1)
1. Run Conditions - Interlocked:
   a. The fan shall be interlocked to run whenever the associated dishwasher runs unless shutdown on safeties.
2. Fan:
   a. The fan shall have a user definable (adj.) minimum runtime.

D. General Exhaust Fans (EF-1 & EF-2): Fan shall be turned on/ off via wall switch. Location of switch to be coordinated with teacher preferred location.

E. Kiln Exhaust Fan:
1. Run Conditions - Interlocked:
   a. The fan shall be interlocked to run whenever the associated kiln runs unless shutdown on safeties.
2. Fan:
   a. The fan shall have a user definable (adj.) minimum runtime.

F. Dryer Exhaust Ventilator (DEF-1):
1. Run Conditions - Interlocked:
   a. The fan shall be interlocked to run whenever the associated dryer runs unless shutdown on safeties.
2. Fan:
   a. The fan shall have a user definable (adj.) minimum runtime.

G. Radon Exhaust Fans: Shall operate continuously (24 hours a day, 7 days a week)

H. Limits and Alarms:
1. If fan command does not match fan operating status, BMS shall enable the following control sequence:
   a. Command fan to not operate.
   b. Close damper
   c. alarm shall be generated at the operator workstation
2. If damper command does not match damper position status, BMS shall enable the following control sequence:
   a. Command fan to not operate.
   b. Close damper
   c. alarm shall be generated at the operator workstation

I. Points List
1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.

FAN POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
Fan enable command				×		
Fan run status			×			
Damper actuator command				×		
Damper actuator closed position status			×			
Fan run status alarm						×
Damper position alarm						×

3.10 CABINET UNIT HEATER / UNIT HEATER

A. General: BMS shall command zone into morning warmup mode, unoccupied mode and occupied mode.

B. Morning warm-up mode:
1. BMS shall enable morning warm-up mode based on schedule.
2. Fan shall operate
3. Valve shall cycle as required to maintain morning warmup heating set point.

C. Unoccupied heating mode:
1. BMS shall enable unoccupied mode based on schedule.
2. Fan shall operate
3. Valve shall modulate as required to maintain unoccupied heating set point.

D. Occupied heating mode:
1. BMS shall enable unoccupied mode based on schedule.
2. Fan shall operate
3. Valve shall modulate as required to maintain occupied heating set point.

E. Limits and Alarms:
1. If space temperature does not match setpoint for a predetermined time period, alarm shall be generated at the operator workstation.

F. Points List
1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.

CABINET UNIT HEATERS POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
Space temperature	×					
Fan enable command				×		
Fan run status			×			
HW control valve command		x				
Morning warm-up space temperature setpoint					×	
Unoccupied space temperature setpoint					×	
Occupied space temperature setpoint					×	
Fan run status alarm						×
Morning warm-up space temperature alarm					×	
Unoccupied space temperature alarm					×	
Occupied space temperature alarm					×	

3.11 PERIMETER HEAT (RADIANT CEILING PANEL & FINNED TUBE RADIATORS).

A. General: BMS shall command zone into morning warmup mode, unoccupied mode and occupied mode.

B. Morning warm-up mode:
1. BMS shall enable morning warm-up mode based on schedule.
2. Valve shall cycle as required to maintain morning-warm-up heating set point.

C. Unoccupied heating mode:
1. BMS shall enable unoccupied mode based on schedule.
2. Valve shall cycle as required to maintain unoccupied heating set point.

D. Occupied heating mode:
1. BMS shall enable unoccupied mode based on schedule.
2. Valve shall cycle as required to maintain occupied heating set point.

E. Limits and Alarms:
1. If space temperature does not match setpoint for a predetermined time period, alarm shall be generated at the operator workstation.

F. Points List
1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.

PERIMETER HEAT POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
Occupancy/Vacancy sensor(s) status, see drawings for qty.			×			
Space sensor unoccupied over-ride			×			
space temperature	×					
Setpoint adjustment	×					
Perimeter heat control valve control		×				
Moring warm-up heating space temp setpoint					×	
occupied heating space temp setpoint					×	
unoccupied heating space temp setpoint					×	
morning warm-up space temperature alarm					×	
occupied heating space temperature alarm					×	
unoccupied heating space temperature alarm					×	

3.12 GLYCOL MAKE UP PACKAGES

A. General: BMS shall monitor glycol make-up system regardless of heating of cooling plant operation.

B. Connect to the alarm contacts of the glycol make-up package.
1. Provide the following points and controls for the glycol make-up package.
a. Alarm.

C. Limits and Alarms:
1. If glycol package general alarm is, alarm shall be generated at the operator workstation.
2. If the glycol level drops below setpoint, an alarm shall be generate at the operator workstation.

D. Points List
1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.

GLYCOL MAKE-UP POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
Glycol general alarm contact status			×			
Glycol general alarm						×
Glycol level alarm			x			

3.13 GLYCOL REFRACTOMETER

A. General: BMS shall read glycol value in percentage regardless of heating of cooling plant operation.

B. Limits and Alarms:
1. When glycol reading is less than 27% or less, alarm shall be generated at the operator workstation.

C. Point List:
1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.

GLYCOL REFRACTOMETER POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
Glycol reading					×	
Glycol percentage					×	
Glycol low percentage alarm					×	

3.14 FAN COIL UNIT

A. General: BMS shall command zone into morning warmup mode, unoccupied mode, and occupied mode if any of the following devises are not activated.
1. Internal safety devices.
2. Fire Alarm Control Panel.

B. ATC shall be responsible for providing all controls on fan coil unit. Intent is to have ATC provide and field mount all controllers and end-devices unless otherwise noted.

C. Unoccupied Control:
1. BAS shall enable unoccupied heating mode when the unit is scheduled accordingly and the heating plant is enabled.

2. Fan Control:
   a. Unoccupied mode: Supply fan shall be off unless unoccupied heating mode or unoccupied cooling mode is activated.
3. Heating Mode Control:
   a. When space temperature decreases below setpoint, BMS shall command the following control sequence.
      1) Supply fan shall be commanded to operate continuously.
      2) Hot water control valve shall modulate as required to maintain discharge air temperature setpoint.
4. Cooling Mode Control:
   a. When space temperature increases above setpoint, BMS shall command the following control sequence.
      1) Supply fan shall be commanded to operate continuously.
      2) Chilled water control valve shall modulate as required to maintain discharge air temperature setpoint.
5. Morning Warm-Up Mode Control:
   a. BAS shall enable morning warm-up mode when the unit is scheduled accordingly and the heating plant is enabled.
6. Fan Control:
   a. Unoccupied mode: Supply fan shall be commanded to operate continuously.
7. Heating Mode Control:
   a. When space temperature decreases below setpoint, Hot water control valve shall modulate as required to maintain discharge air setpoint
8. Morning Cool-down Mode Control:
   a. BAS shall enable morning cool-down mode when the unit is scheduled accordingly and the chiller plant is enabled.
9. Fan Control:
   a. Unoccupied mode: Supply fan shall be commanded to operate continuously.
10. Cooling Mode Control:
    a. When space temperature increases above setpoint, Chilled water control valve shall modulate as required to maintain discharge air setpoint

D. Occupied Control:
1. Occupied Fan Control:
   a. Supply fan shall be off unless occupied heating mode or occupied cooling mode is activated.
2. Occupied Heating Mode Control:
   a. BAS shall enable occupied heating mode when the unit is scheduled accordingly and the heating plant is enabled.
   b. When space temperature decreases below setpoint, hot water control valve shall modulate as required to maintain discharge air temperature setpoint.
3. Occupied Cooling Mode Control:
   a. BAS shall enable occupied cooling mode when the unit is scheduled accordingly and the chiller plant is enabled.

b. When space temperature increases above setpoint, chilled water control valve shall modulate as required to maintain discharge air temperature setpoint.

E. Limits and Alarms:
1. If space temperature does not match setpoint for a predetermined time period, alarm shall be generated at the operator workstation.
2. If fan command does not match fan operating status, BMS shall enable the following control sequence:
   a. Command fan to not operate.
   b. alarm shall be generated at the operator workstation
3. If clog filter condition is activated, alarm shall be generated at the operator workstation.

F. Point List:
1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.

FCU POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
Occupancy/Vacancy sensor(s) status, see drawings for qty.			×			
space temperature	×					
Space sensor unoccupied over-ride			×			
Setpoint adjustment	×					
Space humidity	×					
Space CO2 sensor	×					
Supply fan enable command				×		
Supply fan run status			×			
Chilled water valve control		×				
Hot water valve control		×				
Duct temp setpoint (heating/cooling)					×	
Duct temp alarm (heating/cooling)						×
Occupied cooling space temp setpoint					×	
unoccupied cooling space temp setpoint					×	
occupied heating space temp setpoint stage					×	
unoccupied heating space temp setpoint stage					×	
Heating discharge air setpoint					×	
Cooling discharge air setpoint					×	
morning warm-up space temperature alarm					×	
occupied cooling space temperature alarm					×	
unoccupied cooling space temperature alarm					×	
occupied heating space temperature alarm					×	
unoccupied heating space temperature alarm					×	
Heating discharge air temperature alarm					×	

Cooling discharge air temperature alarm					×	
Supply fan run status alarm						×
Hot water valve position alarm					×	
Chilled water valve position alarm					×	

3.15 SINGLE ZONE VARIABLE VOLUME AIR HANDLING UNIT (RTU-1 & RTU-2)

A. General: BMS shall command zone into morning warmup mode, unoccupied mode, occupied mode and demand control ventilation mode if any of the following devises are not activated.
   1. Internal safety devices.
   2. Fire Alarm Control Panel.
   3. Low temperature limit.

B. Zone consist of the following:
   1. Air handling unit (AHU) control
   2. Demand control ventilation

C. ATC shall be responsible for providing all controls on air handling unit. Intent is to have ATC provide and field mount all controllers and end-devices unless otherwise noted.

D. Unoccupied and Morning Warm-Up Control:
   1. Unoccupied damper actuator control:
      a. Outside air damper shall be fully closed.
      b. Exhaust air damper shall be fully closed.
      c. Return air damper fully opened.
   2. Unoccupied and Morning Warm-Up Energy Wheel Control:
      a. Energy wheel shall not operate.
   3. Unoccupied and Morning Warm-Up Fan Control:
      a. Supply fan VFD shall be off unless unoccupied heating mode or unoccupied cooling mode is activated.
      b. Relief fan VFD shall be off.
   4. Unoccupied Heating Mode Control:
      a. BAS shall enable unoccupied heating mode when the unit is scheduled accordingly and the heating plant is enabled.
      b. When space temperature decreases below setpoint, Hot water control valve shall modulate as required to maintain discharge air temperature setpoint.
   5. Morning Warm-Up Mode Control:
      a. BAS shall enable morning warm-up heating mode when the unit is scheduled accordingly and the heating plant is enabled.
         1) When space temperature decreases below setpoint, BMS shall command the following control sequence.
         2) Cycle perimeter heat valve open
         3) Supply fan VFD shall modulate the supply fan to predetermined frequency setpoint
         4) Hot water control valve shall modulate as required to maintain discharge air temperature setpoint.

6. Unoccupied Cooling Mode Control:
   a. BAS shall enable unoccupied cooling mode when the unit is scheduled accordingly and either the chiller plant is enabled or outdoor air temperature is consistent with economizer operations.
   b. When space temperature increases above setpoint, BMS shall command the following control sequence.
      1) Supply fan VFD shall modulate the supply fan to predetermined frequency setpoint
      2) Chilled water control valve shall modulate as required to maintain discharge air temperature setpoint.

E. Occupied Mode Control:
1. Occupied damper actuator control:
   a. Outside air damper shall open to minimum ventilation damper position.
   b. Relief air damper shall fully open.
   c. Return air damper shall open to minimum ventilation damper position.
   d. Minimum damper position shall be determined by TAB contractor.
2. Occupied Mode Energy Wheel Control:
   a. Energy wheel shall operate continuously unless unit is in economizer mode.
3. Occupied Mode Fan Control:
   a. Supply fan VFD shall modulate the supply fan to predetermined frequency setpoint
   b.
   c. Relief VFD fan speed shall track outdoor airflow.
   d. When outdoor airflow value measured at the OA AFMS is < 25% of the schedule outdoor airflow capacity, exhaust fan shall be commanded off.
   e. When outdoor airflow value measured at the OA AFMS is ≥ 25% of the scheduled outdoor airflow capacity, exhaust fan speed shall modulate as required to maintain exhaust airflow setpoint measured at the exhaust fan inlet AFMS. Exhaust air setpoint shall be determined as follows:
      1) EA Setpoint = OA airflow measured at the OA AFMS x 0.95%
4. Occupied Heating Mode Control:
   a. BAS shall enable occupied heating mode when the unit is scheduled accordingly and the heating plant is enabled.
   b. When space temperature decreases below setpoint, Hot water control valve and supply fan VFD shall modulate as required to maintain discharge air temperature setpoint.
5. Occupied Cooling Mode Control:
   a. BAS shall enable occupied cooling mode when the unit is scheduled accordingly and the chiller plant is enabled.
   b. When space temperature increases above setpoint, BMS shall command the following control sequence.
      1) Economizer cooling mode: When all of the outdoor air conditions are true as stated in the economizer cooling description section, Economizer cooling shall enable.
      2) When space temperature increases above setpoint and economizer mode is enabled, BMS shall command the following control sequence.

a) Exhaust air damper shall fully open.
b) Modulate outdoor air damper, return air damper, and supply fan VFD as required to maintain discharge air temperature set point.
c) Modulate exhaust fan as required to maintain space pressure differential as related to adjacent space.

3) Mechanical cooling mode: When any of the outdoor air conditions are not true as stated in the economizer cooling description section, Mechanical cooling shall enable.

4) When space temperature increases above setpoint and mechanical mode is enabled, BMS shall command the following control sequence.
a) Reset air dampers to normal operating mode.
b) Modulate chilled water control valve and supply fan VFD as required to maintain discharge air temperature setpoint.

6. Occupied Dehumidification Mode Control:
a. When the mixed air dewpoint is above setpoint and heating or cooling mode is not activated, BAS shall enable the following control sequence:
1) Modulate cooling coil to maintain discharge air dewpoint setpoint.
2) Command wrap around heat pipe solenoids to open or close, or coil bypass damper to modulate as required to maintain discharge air temperature setpoint.

F. Demand control ventilation:
1. BAS shall enable demand control ventilation (DCV) shall be enabled during occupied mode. DCV shall be locked out from operating when economizer cooling is enabled. DCV shall be allowed to operate simultaneously with cooling and heating control sequence.
2. When space CO2 level decrease below setpoint, BAS shall command the following control sequence:
a. Exhaust air damper shall fully open.
b. Modulate outdoor air damper and mixed air damper as required to maintain space CO2 setpoint.
c. Modulate exhaust fan as required to maintain space pressure differential as related to adjacent space.

G. Limits and Alarms:
1. If discharge air temperature does not match setpoint for a predetermined time period, alarm shall be generated at the operator workstation.
2. If space temperature does not match setpoint for a predetermined time period, alarm shall be generated at the operator workstation.
3. If space CO2 does not match setpoint for a predetermined time period, alarm shall be generated at the operator workstation.
4. If space pressure does not match setpoint for a predetermined time period, alarm shall be generated at the operator workstation.
5. If fan command does not match fan operating status, BMS shall enable the following control sequence:

a. Command fan to not operate.
b. Close damper
c. alarm shall be generated at the operator workstation

6. If fan VFD fault in activated, BMS shall enable the following control sequence:
7. alarm shall be generated at the operator workstation
8. If low limit freeze-stat is activated, BMS shall enable the following control sequence:
   a. Command fan to not operate
   b. Command mixed air damper to fully open, OA damper and exhaust air damper to close
   c. Fully open Hot water control valve.
   d. Alarm shall be generated at the operator workstation
9. If valve command does not match valve position status, BMS shall enable the following control sequence:
   a. alarm shall be generated at the operator workstation
10. If damper command does not match damper position status, BMS shall enable the following control sequence:
    a. Command fan to not operate.
    b. alarm shall be generated at the operator workstation
11. If clog filter condition is activated, alarm shall be generated at the operator workstation.
12. If energy wheel command does not match operating status, alarm shall be generated at the operator work station.

H. Point List:
1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.
3. Coordinate wrap-around heat pipe hardware point types and quantities with equipment furnished by manufacturer.

SINGLE ZONE VARIABLE AIR VOLUME AIR HANDLING UNIT (AHU)						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
Space sensor unoccupied over-ride			×			
space temperature	×					
space humidity	×					
Setpoint adjustment	×					
Space CO2	×					
Space Pressure	×					
High pressure discharge air pressure switch			×			
Discharge air temperature sensor	×					
Discharge air humidity sensor	×					
Return air temperature sensor	×					
Return air humidity sensor	×					
FAS status			×			
Supply fan enable command				×		
Supply fan VFD speed control		×				

Supply fan VFD speed feedback					x	
Supply fan VFD speed fault			×			
Supply fan run status			×			
Relief fan enable command				×		
Relief fan VFD speed control		×				
Relief fan VFD speed feedback					x	
Relief fan VFD speed fault			×			
Exhaust fan run status			×			
Wrap-around coil solenoid valve (circuit-01) (3)				x		
Wrap-around coil solenoid valve (circuit-02) (3)				x		
Wrap-around coil solenoid valve (circuit-03) (3)				x		
Wrap-around coil bypass damper (3)		x				
Chilled water valve control		×				
Chilled water valve position	×					
Hot water valve control		×				
Hot water valve position	×					
Low limit freeze stat			x			
Mixed air averaging temperature sensor	x					
Mixed air humidity sensor	×					
Energy wheel enable				x		
Energy wheel run status			x			
Energy wheel damper control (Exhaust air)				x		
Energy wheel damper end-switch (Exhaust air)			x			
Energy wheel damper control (Outdoor air)				x		
Energy wheel damper end-switch (Exhaust air)			x			
Return air damper control		x				
Return air damper feedback	x					
Exhaust air damper control		x				
Exhaust air damper feedback	x					
Outdoor air damper control		x				
Outdoor air damper feedback	x					
Outdoor airflow (CFM)	x					
Duct temperature setpoint (heating/cooling)					×	
Duct temperature alarm (heating/cooling						×
Occupied cooling space temp setpoint					×	
unoccupied cooling space temp setpoint					×	
occupied heating space temp setpoint stage 1					×	
unoccupied heating space temp setpoint stage 1					×	
occupied heating space temp setpoint stage 2					×	
unoccupied heating space temp setpoint stage 2					×	
occupied space CO2 setpoint					×	
occupied space pressure setpoint					×	
Heating discharge air setpoint					×	
Cooling discharge air setpoint					×	
Economizer – mechanical cooling change over						×
Supply fan minimum airflow speed (value determined by TAB), value not adjustable					×	

Exhaust fan minimum airflow speed (value determined by TAB), value not adjustable					×	
Supply fan maximum airflow speed (value determined by TAB), value not adjustable					×	
Exhaust fan maximum airflow speed (value determined by TAB), value not adjustable					×	
morning warm-up space temperature alarm					×	
occupied cooling space temperature alarm					×	
unoccupied cooling space temperature alarm					×	
occupied heating space temperature alarm					×	
unoccupied heating space temperature alarm					×	
occupied space CO2 alarm					×	
occupied space pressure alarm					×	
Heating discharge air temperature alarm					×	
Cooling discharge air temperature alarm					×	
FAS alarm						×
Supply fan run status alarm						×
Supply fan VFD fault alarm						×
Relief fan run status alarm						×
Relief fan VFD fault alarm						×
Low limit freeze-stat alarm						×
Hot water valve position alarm					×	
Chilled water valve position alarm					×	
Mixed air damper position alarm					×	
Outdoor air damper position alarm					×	
Relief air damper position alarm					×	
Clog filter alarm						×
Energy wheel alarm						×
Relief airflow setpoint					×	
Energy wheel bypass damper position alarm						×

3.16 MULTIZONE VARIABLE VOLUME AIR HANDLING UNIT (RTU-3)

A. General:

1. ATC shall be responsible for providing all controls on air handling unit. Intent is to have ATC provide and field mount all controllers
2. Other than damper actuators and VFDs, ATC shall provide all end devices required to provide the sequence of operation.
3. Upon detection of smoke by any of the duct mount smoke detectors or by any other signal from the fire alarm system, the supply fan and the exhaust fan shall be shut off, the energy recovery wheel shall be shut off, the outside air dampers shall close, the exhaust air dampers shall close, and the control valves shall close.
4. Provide with static pressure sensor at discharge of supply fan and exhaust fan, display reading on BMS graphic.

B. Supply fan control:
   1. General:
      a. The outside air control damper shall be closed when the supply fan is off and during unoccupied mode; the damper shall be open when the supply fan is on during occupied mode. The supply fan shall not start until proof (by end switch) that either the outside air control damper or the return air bypass damper is open.
      b. When operating in unoccupied mode, a variable frequency drive shall modulate the supply fan to maintain a constant supply duct static pressure of 1.0" wg. The supply duct static pressure sensor shall be located approximately 2/3 the distance from the supply fan to the furthest motorized damper served by the air handling unit. Under normal occupied mode, supply fan shall be controlled to maintain duct static pressure determined during testing and balancing
   2. Morning warm-up: The supply fan shall be on.
   3. Occupied: The supply fan shall be on.
   4. Unoccupied: The supply fan shall be off except when 25% of the VAV zones fall below unoccupied space temperature setpoint at which point the variable frequency drive shall modulate the supply fan to 30% power. If, after 10 minutes, the temperature in the critical space is still dropping, VFD shall modulate fan between minimum and maximum power to maintain the space heating setpoint.

C. Return Fan:
   1. The return fan shall run whenever the supply fan runs.
   2. Occupied: The return fan shall be on.
   3. Unoccupied: The return fan shall be off.
   4. Occupied Mode Fan Control:
      a. The controller shall measure return plenum static pressure and modulate the return fan VFD speed to maintain a return plenum static pressure setpoint of 0.2 in H2O (adj.). The return fan VFD speed shall not drop below 20% (adj.).

D. Outside Air (OA), Return Air (RA) and Exhaust Air (EA) Energy Wheel Bypass (EWB) Control Dampers
   1. Morning warm-up mode:
      a. RA and EWB damper shall be open.
      b. OA and EA Damper shall be closed
   2. Unoccupied mode:
      a. RA and EWB damper shall be open.
      b. OA and EA Damper shall be closed
   3. Occupied mode (Economizer):
      a. RA and OA damper modulate to maintain DAT setpoint.
      b. EA damper shall be open.
      c. EWB damper shall be open.
   4. Occupied mode (Mechanical Cooling):
      a. RA and OA damper modulate to pre-determined minimum ventilation position.
      b. EA damper shall be open.

E. Supply Air Temperature Control
   1. General: The heating coil control valve, the chilled water control valve, and energy wheel shall be controlled to maintain a supply air temperature sequence.
   2. Heating Mode:
      a. Hot Water valve operation when outside ambient temperature is <36F. HW valve shall maintain minimum 25% open when outside ambient temperature is <36F.
      b. Morning-up (morning): The control valve shall modulate to maintain a discharge air temperature of 90°F until the space served is at heating setpoint.
      c. Occupied Heating Mode: The return air sensor shall reset discharge air temperature to maintain the following schedule:
         1) An inversely proportional linear algorithm shall modulate the heating coil control valve to maintain a discharge air temperature of 62°F at 75°F return air temperature or greater and 68°F at 70°F return air temperature or less.
      d. Cool-down (evening): The control valve shall be closed.
      e. Unoccupied: The control valve shall be closed except upon call for unoccupied heating; the control valve shall modulate to maintain a discharge air temperature of 90°F until the spaces served are at heating setpoint.
   3. Cooling Mode:
      a. General: Chilled water coil cooling shall be enabled only when the economizer, if enabled, is at 100% outside air, the hot water control valve is closed, the building is indexed to cooling mode and the outside air is above 55F.
      b. Occupied Cooling Mode: The return air sensor shall reset discharge air temperature to maintain the following schedule:
         1) An inversely proportional linear algorithm shall modulate the chilled water coil control valve to maintain a discharge air temperature of 55°F at 75°F return air temperature or greater and 62°F at 70°F return air temperature or less.
      c. Cool-down (evening): The chilled water control valve shall be closed.

F. Dehumidification Mode Control:
   1. During occupied mode, when the mixed air dewpoint is above setpoint and heating or cooling mode is not activated, BAS shall enable the following control sequence:
      a. Modulate cooling coil to maintain discharge air dewpoint setpoint.
      b. Command wrap around heat pipe solenoid valves to open or close, or coil bypass damper to modulate as required to maintain discharge air temperature setpoint.

G. Demand control ventilation:
   1. Demand control ventilation (DCV) shall be enabled during occupied mode. DCV shall be locked out from operating when economizer cooling is enabled.
   2. DCV shall be allowed to operate simultaneously with cooling and heating control sequence.

3. When space CO2 levels decrease below setpoint, BAS shall command the following control sequence:
   a. Exhaust air damper shall fully open.
   b. Modulate outdoor air damper and mixed air damper as required to maintain space CO2 setpoint.
   c. Modulate exhaust fan as required to maintain space pressure differential as related to adjacent space.

H. Point List:
1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.
3. Coordinate wrap-around heat pipe hardware point types and quantities with equipment furnished by manufacturer.

VARIABLE VOLUME AIR HANDLING UNIT (AHU)						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
discharge air temperature sensor	×					
discharge air humidity sensor	×					
energy wheel discharge air temperature	×					
energy wheel discharge air humidity	×					
High pressure discharge air pressure switch			×			
Duct pressure sensor	×					
Return air temperature sensor	×					
Return air humidity sensor	×					
Return air CO2 sensor	×					
Return air plenum static pressure	×					
Space pressure sensor	×					
Space pressure sensor	×					
FAS status			×			
Supply fan enable command				×		
Supply fan VFD speed control		×				
Supply fan VFD speed feedback					x	
Supply fan VFD speed fault			×			
Supply fan run status			×			
Exhaust fan enable command				×		
Exhaust fan VFD speed control		×				
Exhaust fan VFD speed feedback					x	
Exhaust fan VFD speed fault			×			
Exhaust fan run status			×			
Chilled water valve control		×				
Chilled water valve position	×					
Hot water valve control		×				
Hot water valve position	×					
Low limit freeze stat			x			

Mixed air damper control		x				
Mixed air damper feedback	x					
Energy wheel enable				x		
Energy wheel run status			x			
Energy Wheel EA damper control		x				
Energy Wheel OA damper control		x				
Energy wheel EA damper feedback	x					
Exhaust air damper control		x				
Exhaust air damper feedback	x					
Outdoor air damper control		x				
Outdoor air damper feedback	x					
Outdoor airflow (CFM)	x					
CHWS temperature	x					
CHWR temperature	x					
HWS temperature	x					
HWR temperature	x					
Wrap-around coil solenoid valve (circuit-01) (3)				x		
Wrap-around coil solenoid valve (circuit-02) (3)				x		
Wrap-around coil solenoid valve (circuit-03) (3)				x		
Wrap-around coil bypass damper (3)		x				
Energy wheel damper control (Exhaust air)				x		
Energy wheel damper end-switch (Exhaust air)			x			
Energy wheel damper control (Outdoor air)				x		
Energy wheel damper end-switch (Exhaust air)			x			
Space pressure setpoint					x	
duct temperature sensor setpoint (heating, cooling)					×	
duct temperature sensor alarm (heating, cooling)						×
Economizer – mechanical cooling change over						×
Supply fan minimum airflow speed (value determined by TAB), value not adjustable					×	
Exhaust fan minimum airflow speed (value determined by TAB), value not adjustable					×	
Supply fan maximum airflow speed (value determined by TAB), value not adjustable					×	
Exhaust fan maximum airflow speed (value determined by TAB), value not adjustable					×	
Supply fan run status alarm						×
Supply fan VFD fault alarm						×
Exhaust fan run status alarm						×
Exhaust fan VFD fault alarm						×
Low limit freeze-stat alarm						×
Hot water valve position alarm					×	
Chilled water valve position alarm					×	
Mixed air damper position alarm					×	
Outdoor air damper position alarm					×	
Exhaust air damper position alarm					×	

Clog filter alarm						×
Energy wheel alarm						×
Exhaust air flow setpoint					×	
Energy wheel bypass damper position alarm						×

3.17 DEDICATED OUTSIDE AIR HANDLING UNITS (DOA-1, DOA-2, DOA-3, DOA-4, DOA-5)

A. General:
1. ATC shall be responsible for providing all controls on air handling unit. Intent is to have ATC provide and field mount all controllers
2. Other than damper actuators and VFDs, ATC shall provide all end devices required to provide the sequence of operation.
3. Upon detection of smoke by any of the duct mount smoke detectors or by any other signal from the fire alarm system, the supply fan and the exhaust fan shall be shut off, the energy recovery wheel shall be shut off, the outside air dampers shall close, the exhaust air dampers shall close, and the control valves shall close.
4. Provide with static pressure sensor at discharge of supply fan and exhaust fan, display reading on BMS graphic.

B. Supply fan control:
1. General:
   a. The outside air control damper shall be closed when the supply fan is off and during unoccupied mode; the damper shall be open when the supply fan is on during occupied mode. The supply fan shall not start until proof (by end switch) that either the outside air control damper or the return air bypass damper is open.
   b. When operating in unoccupied mode, a variable frequency drive shall modulate the supply fan to maintain a constant supply duct static pressure of 1.0” wg. The supply duct static pressure sensor shall be located approximately 2/3 the distance from the supply fan to the furthest motorized damper served by the air handling unit. Under normal occupied mode, supply fan shall be controlled to maintain duct static pressure determined during testing and balancing
2. Morning warm-up: The supply fan shall be on.
3. Morning Dewpoint high limit: The supply fan shall be on.
4. Occupied: The supply fan shall be on.
5. Cool-down (evening): The supply fan shall be off.
6. Unoccupied: The supply fan shall be off except upon a call for 2nd stage of heating (any chilled beam heating control valve open for 10 minutes or greater shall be 1st stage) at which point the variable frequency drive shall modulate the supply fan to 30% power. If, after 10 minutes, the temperature in the critical space is still dropping, VFD shall modulate fan between minimum and maximum power to maintain the space heating setpoint.
7. Outside Air Damper operation when outside ambient temperature is <36F. Sequence below is in order of operation:
   a. Open heating valve to 80% for 3 minutes (adj.).
   b. Open OA damper.

c. Start supply fan.
d. Release heating valve to normal heating operation.

8. Hot Water valve operation when outside ambient temperature is <36F. HW valve shall maintain minimum 25% open when outside ambient temperature is <36F.

C. Exhaust Fan and Exhaust Air Control Damper
1. Morning warm-up: The exhaust fan shall be off.
2. Morning dewpoint high limit: The exhaust fan shall be off.
3. Occupied: The exhaust fan shall be on.
4. Cool-down (evening): The exhaust fan shall be off.
5. Unoccupied: The exhaust fan shall be off.
6. Occupied Mode Fan Control:
   a. Exhaust VFD fan speed shall track supply airflow as follow:
   b. Exhaust fan speed shall modulate as required to maintain exhaust airflow setpoint measure at the exhaust fan inlet AFMS. Exhaust air setpoint shall be determined as follows:
   c. EA Setpoint = SA airflow measured at the supply fan inlet AFMS x 0.95% (positive pressure factor) x 0.95% (wheel bypass factor)

D. Return Air and Exhaust Air Bypass Control Dampers
1. Morning warm-up: The return air bypass damper shall be open.
2. Morning dewpoint high limit: The return air bypass damper shall be open.
3. Occupied: The return air bypass damper and the exhaust air bypass damper shall be closed, except upon the following conditions:
   a. When the wheel is operating, the exhaust air bypass damper shall operate to limit the exhaust air temperature to minimum 25□F, for frost control. The return air bypass damper shall remain closed during frost control.
   b. When the wheel is off, the exhaust air bypass damper shall be open.
4. Cool-down (evening): The return air bypass damper shall be open and the exhaust air bypass damper shall be closed.
5. Unoccupied: The return air bypass damper shall be open and the exhaust air bypass damper shall be closed.

E. Occupied mode: the unit will operate with 100% outside air.

F. Supply Air Temperature Control
1. General: The heating coil control valve, the chilled water control valve, the heat wheel and passive dehumidification wheel shall be controlled to maintain a supply air temperature/dewpoint sequence.
2. Heating Mode:
   a. Hot Water valve operation when outside ambient temperature is <36F. HW valve shall maintain minimum 25% open when outside ambient temperature is <36F.
   b. Morning-up (morning): The control valve shall modulate to maintain a discharge air temperature of 90°F until the space served is at heating setpoint.
   c. Occupied Heating Mode: The return air sensor shall reset discharge air temperature to maintain the following schedule:

1) An inversely proportional linear algorithm shall modulate the heating coil control valve to maintain a discharge air temperature of 55°F at 75°F return air temperature and 62°F at 70°F return air temperature.

d. Cool-down (evening): The control valve shall be closed.

e. Unoccupied: The control valve shall be closed except upon call for unoccupied heating; the control valve shall modulate to maintain a discharge air temperature of 90°F until the spaces served are at heating setpoint.

1) The supply fan shall cycle as needed to maintain and CO2 levels below 1000 ppm, maintain the heating setback temperature at 60deg (adj) when economizer is available.

3. Cooling Mode:

a. General: Chilled water coil cooling shall be enabled only when the economizer, if enabled, is at 100% outside air, the hot water control valve is closed, the building is indexed to cooling mode and the outside air is above 55 degrees F.

b. Morning dewpoint high limit mode: The chilled water control valve shall modulate as the passive dehumidification wheel turns so that supply air dewpoint of 52°F is achieved. The unit shall remain in warm dewpoint mode until all space dewpoint sensors achieve a setpoint of 55 degrees F.

c. Occupied Cooling Mode: The return air sensor shall reset discharge air temperature to maintain the following schedule:

1) An inversely proportional linear algorithm shall modulate the chilled water coil control valve to maintain a discharge air temperature of 55°F at 75°F return air temperature and 62°F at 70°F return air temperature.

2) Should the supply air dewpoint exceed 52°F, a dewpoint algorithm shall modulate the chilled water coil control valve to maintain 52°F supply air dewpoint.

d. Cool-down (evening): The chilled water control valve shall be closed.

e. Unoccupied: The chilled water control valve shall be closed.

1) The supply fan shall cycle as needed to maintain and CO2 levels below 1000 ppm, maintain the cooling setback temperature at 60deg (adj) when economizer is available.

G. Transition from Unoccupied to Occupied - When the unit transitions from unoccupied mode to the occupied mode, morning warm-up / morning cool-down / morning high limit dewpoint routines shall be activated. The morning warm-up / morning cool-down / morning high limit dewpoint routine shall be active for a minimal 1-hour(adj.) period. During morning warm-up or morning cool down or morning high limit dewpoint periods, if the building has reached the occupied temperature before the 1-hour minimum time has elapsed, the DOA shall continue to operate the supply fan to maintain duct static pressure, keep the VAV boxes open 100%, and control Supply Air Temperature to the building temperature setpoint to avoid over heating or cooling the building. The morning warm-up / cool down routines shall terminate when the building is indexed to occupied mode.

1. Morning Warm-Up - When morning high limit dewpoint is not enabled there is a call for heating and space temperature is 2°F or more below the occupied heating setpoint a morning warm-up sequence shall be activated. During warm-up the supply fan shall be turned on and shall modulate to maintain the supply air static pressure, the exhaust fan shall remain off, the outside air damper shall remain closed, the recirculation damper shall be commanded open, and the heating capacity shall be enabled at full capacity, and the VAV zone dampers shall be commanded to 100% open.
   a. Outside Air Damper operation when outside ambient temperature is <36F. Sequence below is in order of operation:
      1) Open heating valve to 80% for 3 minutes.
      2) Open OA damper.
      3) Start supply fan.
      4) Release heating valve.
   b. Hot Water valve operation when outside ambient temperature is <36F. HW valve shall maintain minimum 25% open when outside ambient temperature is <36F.
2. Morning Cool-down - When morning warm-up high limit is not enabled and there is a call for cooling and space temperature is 2°F or more over the occupied cooling setpoint a morning cool-down sequence shall be activated. During morning cool-down, the supply fan shall be turned on and shall modulate to maintain the supply air static pressure, the exhaust fan shall remain off, the outside air damper shall remain closed, the recirculation damper shall be commanded open, and the cooling capacity shall be enabled at full capacity, and the VAV zone dampers shall be commanded to 100% open.
3. Morning high Limit Dewpoint – If the outdoor air dewpoint temperature is above setpoint, the supply fan and dehumidification wheel shall be commanded on. If the supply fan or the dehumidification wheel status does not match the commanded value after a delay (30 sec. adj.) the wheel shall be commanded off, and an alarm shall be generated at the OWS. The Chilled Water Coil shall modulate to maintain the Supply Air Dewpoint at Setpoint (52F adj.) and the Reheat Coil Control Valve shall modulate to maintain the Supply Air Temperature at Setpoint (68 °F)

H. Dehumidification Control: The Air Handling Unit Controller Shall Operate the Dehumidification Wheel, Energy Recovery Wheel, Chilled Water Coil Control Valve, and Heating Coil Control Valve in series to maintain zone relative humidity.
1. When Outside Air Dewpoint Temperature is above Supply Air Dewpoint Setpoint (52F adj.), and the economizing mode is not active, The Energy Recovery Wheel shall be commanded on and the Energy Recovery Wheel bypass damper shall be open to the Recovery Wheel position. If the energy recovery wheel status does not match the commanded value after a delay (30 sec. adj.) the wheel shall be commanded off, the bypass dampers shall be commanded open to the bypass position, and an alarm shall be generated at the OWS. The dehumidification wheel shall be commanded on. If the Dehumidification wheel status does not match the commanded value after a delay (30 sec. adj.) the wheel shall be commanded off, and an alarm shall be generated at the OWS. The Chilled Water Coil shall modulate to maintain the Supply Air Dewpoint at

Setpoint (52F adj.) and the Reheat Coil Control Valve shall modulate to maintain the Supply Air Temperature at Setpoint (55F cooling, adj., 80F heating, adj.)

2. When Outside Air Dewpoint Temperature is above Supply Air Dewpoint Setpoint (52F adj.), and the economizing mode is active, The Energy Recovery Wheel shall be commanded off and the Energy Recovery Wheel bypass damper shall be open to the bypass position. The dehumidification wheel shall be commanded on. If the Dehumidification wheel status does not match the commanded value after a delay (30 sec. adj.) the wheel shall be commanded off, and an alarm shall be generated at the OWS. The Chilled Water Coil shall modulate to maintain the Supply Air Dewpoint at Setpoint (52F adj.) and the Reheat Coil Control Valve shall modulate to maintain the Supply Air Temperature at Setpoint (55F cooling, adj., 80F heating, adj.) If Chilled Water Coil Control Valve is 100% open for 10 min. (adj.) and Supply Air Dewpoint remains above setpoint, the Energy Recovery Wheel Shall be commanded on. And the bypass dampers will modulate open to the energy recovery wheel to maintain Supply Air Dewpoint at setpoint. If the energy recovery wheel status does not match the commanded value after a delay (30 sec. adj.) the wheel shall be commanded off, the bypass dampers shall be commanded open to the bypass position, and an alarm shall be generated at the OWS.
3. When Outside Air Dewpoint Temperature is below Supply Air Dewpoint Setpoint (52F adj.), and the economizing mode is not active, The Energy Recovery Wheel shall be commanded on and the Energy Recovery Wheel bypass damper shall modulate to maintain the Supply Air Dewpoint at Setpoint (52F adj.) If the energy recovery wheel status does not match the commanded value after a delay (30 sec. adj.) the wheel shall be commanded off, the bypass dampers shall be commanded open to the bypass position, and an alarm shall be generated at the OWS. The dehumidification wheel shall be commanded off. The Chilled Water and Hot Water Coils shall modulate to maintain the Supply Air Temperature at Setpoint (55F cooling, adj., 80F heating, adj.)
4. When Outside Air Dewpoint Temperature is below the Supply Air Dewpoint Setpoint (52F adj.), and the economizing mode is active, The Energy Recovery Wheel shall be commanded off and the Energy Recovery Wheel bypass damper shall modulate in series with the Chilled Water and Hot Water Coil Control Valves to maintain Supply Air Temperature at Setpoint (55F cooling, adj., 80F heating, adj.). The dehumidification wheel shall be commanded off.
5. When both the Outside Air Dewpoint and Drybulb Temperatures are below the Supply Air Setpoints, The Energy Recovery Wheel shall be commanded on and the Energy Recovery Wheel bypass damper shall modulate to maintain the Supply Air Temperature at Setpoint (55F cooling, adj., 80F heating, adj.) and Supply Air Dewpoint at or below Setpoint (52F, adj.). If the energy recovery wheel status does not match the commanded value after a delay (30 sec. adj.) the wheel shall be commanded off, the bypass dampers shall be commanded open to the bypass position, and an alarm shall be generated at the OWS. The dehumidification wheel shall be commanded off. If the Energy Wheel Bypass Damper is 100% open to the Energy Recovery Wheel, and Supply Air Temperature remains below Setpoint, the Heating Coil Control valve shall modulate to maintain the Supply Air Temperature Setpoint.

I. Point List:

1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.

DOA POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
DOA discharge air temperature sensor	×					
DOA discharge air humidity sensor	×					
DOA SA energy wheel discharge air temperature	×					
DOA SA energy wheel discharge air humidity	×					
Duct pressure sensor	×					
Return air temperature sensor	×					
Return air CO2 sensor	×					
FAS status			×			
Supply fan enable command				×		
Supply fan VFD speed control		×				
Supply fan VFD speed feedback					x	
Supply fan VFD speed fault			×			
Supply fan run status			×			
Exhaust fan enable command				×		
Exhaust fan VFD speed control		×				
Exhaust fan VFD speed feedback					x	
Exhaust fan VFD speed fault			×			
Exhaust fan run status			×			
Chilled water valve control		×				
Hot water valve control		×				
Low limit freeze stat			x			
Mixed air damper control		x				
Mixed air damper feedback	x					
Energy wheel enable				x		
Energy wheel run status			x			
Dehumidification wheel enable				x		
Dehumidification wheel speed control		x				
Dehumidification wheel run status			x			
Dehumidification wheel EA damper control		x				
Dehumidification wheel EA damper feedback	x					
Exhaust air damper control		x				
Exhaust air damper feedback	x					
Outdoor air damper control		x				
Outdoor air damper feedback	x					
Outdoor airflow (CFM)	x					
CHWS temperature	x					
CHWR temperature	x					
HWS temperature	x					
HWR temperature	x					

Duct temperature setpoint (cooling, heating, dehumidification)					×	
Duct temperature Alarm (cooling, heating, dehumidification)						×
Economizer – mechanical cooling change over						×
Supply fan minimum airflow speed (value determined by TAB), value not adjustable					×	
Exhaust fan minimum airflow speed (value determined by TAB), value not adjustable					×	
Supply fan maximum airflow speed (value determined by TAB), value not adjustable					×	
Exhaust fan maximum airflow speed (value determined by TAB), value not adjustable					×	
Supply fan run status alarm						×
Supply fan VFD fault alarm						×
Exhaust fan run status alarm						×
Exhaust fan VFD fault alarm						×
Low limit freeze-stat alarm						×
Hot water valve position alarm					×	
Chilled water valve position alarm					×	
Mixed air damper position alarm					×	
Outdoor air damper position alarm					×	
Exhaust air damper position alarm					×	
Clog filter alarm						×
Energy wheel alarm						×
Dehumidification wheel alarm						×
Exhaust Airflow Setpoint					×	

J. CDQ and ERV wheel controls: Occupied Control Modes for CDQ in a Dedicated Outdoor-Air System with Total-Energy Recovery and Preheat. Refer to the following table.

Control Mode		Psychrometric Conditions[1]	Control Actions
O1a	Full recovery, dehumidification[8] (stage 1)	*h*oa > *h*ra DPToa > target DPTca	• Rotate the total-energy wheel • Close both the supply- side and exhaust-side total-energy wheel bypass dampers • Rotate the CDQ wheel • Close the CDQ wheel bypass dampers • Modulate the cooling coil to meet target DPTca • Preheat coil is off

O1b	Full recovery, dehumidification[8] (stage 2)	*h*oa > *h*ra DPToa > target DPTca and Cooling valve is 100% open for 10 min[8]	• Rotate the total-energy wheel • Close both the supply- side and exhaust-side total-energy wheel bypass dampers • Rotate the CDQ wheel • Close the CDQ wheel bypass dampers • Open the cooling coil valve to 100% • Modulate the preheat coil to meet target DPTca, but do not allow DBTcc > DBTcc,design • Operate in this mode until preheat coil valve has been closed for 10 minutes
O2b	Full recovery, dehumidification[8] (stage 1)	*h*oa < *h*ra DPToa > target DPTca	• Rotate the total-energy wheel • Close both the supply- side and exhaust-side total-energy wheel bypass dampers • Rotate the CDQ wheel • Close the CDQ wheel bypass dampers • Modulate the cooling coil to meet target DPTca • Preheat coil is off

O2c	Full recovery, dehumidification[8] (stage 2)	*h*oa < *h*ra DPToa > target DPTca and Cooling valve is 100% open for 10 min[8]	• Rotate the total-energy wheel • Close both the supply- side and exhaust-side total-energy wheel bypass dampers • Rotate the CDQ wheel • Close the CDQ wheel bypass dampers • Open the cooling coil valve to 100% • Modulate the preheat coil to meet target DPTca, but do not allow DBTcc > DBTcc,design • Operate in this mode until preheat coil valve has been closed for 10 minutes
03	Partial recovery, cooling	DPToa < target DPTca DBToa > DBTra	• Rotate the total-energy wheel • Modulate the exhaust-side bypass damper to control wheel capacity and maintain target DPTca • Stop the CDQ wheel (but operate it for 12 minutes once every 4 hours) • Keep the CDQ wheel bypass dampers closed • Modulate the cooling coil to meet target DBTca • Preheat coil is off •

O4	No recovery, cooling	DPToa < target DPTca DBTca < DBToa < DBTra	• Stop the total-energy wheel (but operate it for 2 minutes once every 4 hours)[6] • Fully open both the supply-side and exhaust-side bypass dampers[4] • Stop the CDQ wheel (but operate it for 12 minutes once every 4 hours) • Keep the CDQ wheel bypass dampers closed • Modulate the cooling coil to meet target DBTca • Preheat coil is off •
O5	Partial recovery (heating)	DPToa < target DPTca DBToa < DBTca	• Rotate the total-energy wheel • Close the supply-side total-energy wheel bypass damper • Modulate the exhaust- side total-energy wheel bypass damper to control wheel capacity and maintain target DBTca, and maintain DPTca at or below target • Stop the CDQ wheel (but operate it for 12 minutes once every 4 hours) • Open the CDQ wheel bypass dampers • Cooling coil is off • Preheat coil is off •

O6	Full recovery, supplemental heating	DPToa < target DPTca and exhaust-side bypass damper has reached the fully-closed position	• Rotate the total-energy wheel • Close both the supply- side and exhaust-side total-energy wheel bypass dampers • Stop the CDQ wheel (but operate it for 12 minutes once every 4 hours) • Open the CDQ wheel bypass dampers • Cooling coil is off • Modulate the preheat coil as needed to meet target DBTca
O7	Full recovery, supplemental heating, frost prevention	DBToa <= DBT frost threshold	• Rotate the total-energy wheel • Close the exhaust-side total-energy wheel bypass damper • Modulate the supply- side total-energy wheel bypass damper to maintain the DBT leaving the exhaust side of the total-energy wheel at setpoint • Stop the CDQ wheel (but operate it for 12 minutes once every 4 hours) • Open the CDQ wheel bypass dampers • Cooling coil is off • Modulate the preheat coil as needed to meet target DBTca

K. Unoccupied Control Modes for CDQ in a Dedicated Outdoor-Air System with Total-Energy Recovery and Preheat

Control Mode		Psychrometric Conditions[1]	Control Actions
U1	Off	DPTspace < unoccupied DPTsetpoint[2]	• Stop both supply and exhaust fans • Close the OA and EA dampers • Open the RA damper • Stop the total-energy wheel • Stop the CDQ wheel • Cooling coil is off • Preheat coil is off
U2a	Unoccupied dehumidification (stage 1)	DPTspace > unoccupied DPTsetpoint[3] and DPToa > target DPTca	• Turn on the supply fan • Stop the exhaust fan • Close the OA and EA dampers • Open the RA damper • Stop the total-energy wheel • Rotate the CDQ wheel • Close the CDQ wheel bypass dampers • Open cooling coil valve to 100% • Preheat coil is off • Operate in this mode until DPTspace drops 3°F below the unoccupied DPTsetpoint
U2b	Unoccupied dehumidification (stage 2)	DPTspace > unoccupied DPTsetpoint + 2°F[3] and DPToa > target DPTca	• Turn on the supply fan • Stop the exhaust fan • Close the OA and EA dampers • Open the RA damper • Stop the total-energy wheel • Rotate the CDQ wheel • Close the CDQ wheel bypass dampers • Open cooling coil valve to 100% • Open preheat coil valve to 100% • Operate in this mode until DPTspace drops 3°F below the unoccupied DPTsetpoint

U3	Unoccupied economizer dehumidification	DPTspace > unoccupied DPTsetpoint and DPToa < target DPTca[4]	• Turn on both the supply and exhaust fans • Open both the OA and EA dampers • Close the RA damper • Stop the CDQ wheel • Open the CDQ wheel bypass dampers • Cooling coil is off • Modulate the preheat coil as needed to meet target DBTca • Operate in this mode until DPTspace drops 3°F below the unoccupied DPTsetpoint
U4	Unoccupied cooling	DBTspace > unoccupied cooling setpt and DPTspace < unoccupied DPTsetpoint	• Turn on the supply fan • Stop the exhaust fan • Close the OA and EA dampers • Open the RA damper • Stop the total-energy wheel • Rotate the CDQ wheel • Close the CDQ wheel bypass dampers • Cooling coil if off • Preheat coil is off
U5	Unoccupied heating	DBTspace < unoccupied heating setpt and DPTspace < unoccupied DPTsetpoint	• Turn on the supply fan • Stop the exhaust fan • Close the OA and EA dampers • Open the RA damper • Stop the total-energy wheel • Rotate the CDQ wheel • Close the CDQ wheel bypass dampers • Cooling coil if off • Preheat coil is off

[1] OA = outdoor air, RA = return air, CA = air leaving cooling coil, SA = supply air, PH = preheat, DBT = dry-bulb temperature, DPT = dew-point temperature, RH = relative humidity

[2] The primary concern with humidity during unoccupied periods is to avoid condensation on surfaces of the chilled beams upon startup. Keeping the space dew point from becoming extremely high during the unoccupied mode helps minimize the risk of condensation when the system starts back up in cooling mode.

[3] This system has two stages of dehumidification: Stage 1 is to turn on the CDQ wheel, Stage 2 is to activate the preheat coil to increase the dehumidification capacity of the CDQ wheel. Stage 1 is activated when the space DPT reach a certain

threshold, defined here as unoccupied DPTsetpoint. Stage 2 is activated when the space DPT reaches unoccupied DPTsetpoint + 2°F, which occurs because stage 1 did not provide enough dehumidification under the current conditions. The 2°F offset is only suggestions and can be adjusted for the specific application.
[4] When the outdoor dewpoint is dry, it can be used to dehumidify the space. How much drier the outdoor air needs to be depends on the current latent load in the space and the airflow.

3.18 BOILERS

A. The boilers shall be enabled when the system is indexed to heating mode.

B. The Building Automation System will Communicate with Boiler Manufacturer Supplied Control Panels (ACS and Boiler valve Controller) via BacNet.

C. This division shall wire manufacturer supplied control panels and boiler isolation valves so as to provide a complete and operational system.
1. Once the hot water system flow is established, the BMS shall enable the Boiler Manufacturer Control Panel via the BACnet communication interface. The BMS shall monitor the boilers status and alarms via the communication interface, and monitor the dry contact alarm at the central Boiler Control Panel. The BMS contractor shall be responsible for installation and wiring of the Boiler Manufacturer Control Panel, Outdoor, System Supply and Return Temperature, and Individual Boiler Supply and Return Temperature sensors, and interlock wiring of the primary pumps and individual boiler isolation valves.
2. Once enable, the boiler manufacturer control panel will command the associated primary pump and enable and modulate the boilers in sequence based on its on outdoor air reset curve (adj.) to maintain supply water temperature at the reset setpoint.

D. Boilers B-1, B-2 shall be configured by on board integral boiler controls in a defined by manufacturer as parallel firing operation, such that B-1 shall fire and ramp up to 50 % fire, if at this time the heating hot water supply loop water temperature continues to drop B-1 shall lower to 35% fire and B-2 shall fire and ramp up to 50 % fire then the two boilers shall adjust firing rate as to maintain heating hot water supply temperature in accordance with water reset schedule below.

E. Alarms: Boiler failure alarm condition from the boiler internal control panel.

F. The heating hot water supply temperature shall be reset based on outside air temperature in accordance with:
1. Warm Up: Heating hot water supply temperature shall be 160F at 0F (and below) and shall reset to 125F at 60F.
2. Occupied: Heating hot water supply temperature shall be 120F at 0F (and below) and shall reset to 100F at 60F.
3. Unoccupied: Heating hot water supply temperature shall be 135F at 0F (and below) and shall reset to 125F at 60F.

G. Limits and Alarms:

1. If boiler enable status does not match command, alarm shall be generated at the operator workstation.
2. Boiler fault code input from Boiler BACnet interface. Alarm shall be generated at operator work station. Alarm shall identify code and brief verbal description.

H. Point List:
1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.
3. All BACnet point shall be made available by the equipment control system

BOILER PLANT POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
Boiler controller enable				×		
Boiler HWS Setpoint		×				
Boiler 1 HWS temperature	×					
Boiler 2 HWS temperature	×					
HWS Header temperature	×					
HWR Header temperature	×					
Boiler 1 Fault Status			×			
Boiler 2 Fault Status			×			
Boiler 1 Isolation Valve End-Switch Status			×			
Boiler 2 Isolation Valve End-Switch Status			×			
Water Flow Rate	×					
OA temperature	×					
HWS Header temperature, wired to boiler controller					×	
Boiler low flow set point					×	
OA temperature, wired to boiler controller					×	
HWS Header temperature setpoint					×	
HWS Header temperature setpoint, Boiler controller BACnet input					×	
OA temperature setpoint, Boiler controller BACnet input					×	
Boiler status, Boiler controller BACnet input, point per boiler						×
Boiler firing rate in, boiler controller BACnet input, point per boiler					×	
Boiler firing rate out, boiler controller BACnet input, point per boiler					×	
Boiler run low cycles, boiler controller BACnet input, point per boiler					×	
Boiler run low hours, boiler controller BACnet input, point per boiler					×	
# of boilers firing, boiler controller BACnet input						×

Boiler fire rate (%), boiler controller BACnet input, point per boiler					×	
Boiler low flow alarm					×	
HWS Header temperature alarm					×	
Boiler fault log code alarm, boiler controller BACnet input						×

3.19 WATER HEATERS

A. The Building Automation System will communicate with Water Heater Manufacturer Supplied Control Panel via Bacnet.

B. This division shall wire manufacturer supplied control panels so as to provide a complete and operational system.

C. The following points will be made available for monitoring/control of each boiler:
1. Status
2. Water Temp
3. Firing Rate out
4. Run cycles low
5. Run hours low
6. Fire rate in
7. % rate of fire

D. Limits and Alarms:
1. If water heater enable status does not match command, alarm shall be generated at the operator workstation.
2. Water heater fault code input from Water Heater BACnet interface. Alarm shall be generated at operator work station. Alarm shall identify code and brief verbal description.

E. Point List:
1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.
3. All BACnet point shall be made available by the equipment control system.

WATER HEATER POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
Water heater controller enable				×		
Water heater status, Boiler controller water heater controller BACnet input, point per water heater						×
Water heater firing rate in, water heater controller BACnet input, point per water heater					×	
Water heater firing rate out, water heater controller BACnet input, point per water heater					×	

Water heater run low cycles, water heater controller BACnet input, point per water heater					×	
Boiler run low hours, water heater controller BACnet input, point per water heater					×	
# of water heater firing, water heater controller BACnet input,						×
Water heater fire rate (%), water heater controller BACnet input, point per water heater					×	
Water heater fault log code alarm, water heater controller BACnet input						×

3.20 PUMPS

A. Pumps HWP-1 & HWP-2 (~~Building Heating~~ Primary Hot Water Pumps)

1. General

a. ~~Pumps shall be configured in a lead/lag configuration. The lead and lag designations shall be rotated weekly.~~ When a boiler is enabled, BMS shall start respective primary hot water pump. Boiler shall not start until flow is proven through respective flow switches. If flow status is not proven, lead boiler shall not be energized, lag boiler shall be energized and an alarm shall be activated at the central PC. Pumps are equipped with VFD's for balancing purposes.

b. ~~The lead pump shall operate continuously at temperatures below 65 degrees F.~~ BMS shall command the primary pumps and modulate speeds per boiler manufacturer control signal.

c. ~~The speed of the lead pump shall modulate to maintain the system differential pressure setpoint.~~ The BMS shall monitor hot water supply and return temperatures at locations shown on the floor plans independent form the boiler controls.

d. All setpoints shall be field adjusted during the commissioning period to meet the requirements of actual field conditions

~~e. The lag pump shall be off, except shall operate upon failure of the lead pump. Pump failure shall be by current sensor.~~

2. Alarms

a. High hot water temperature supply (HWS) temperature: 180F.

b. Low hot water temperature supply (HWS) temperature: 60F.

c. High hot water supply/return pressure difference: 25% greater than setpoint.

d. Low hot water supply/return pressure difference: 25% lower than setpoint.

e. ~~Lead~~ pump failure.

B. Pumps CHWP-1 & CHWP-2 (Primary Chilled Water Pumps)

1. General

a. ~~Pumps shall be configured in a lead/lag configuration. The lead and lag designations shall be rotated weekly.~~ When a chiller is enabled, respective primary chilled water pump shall start. Chiller shall not start until flow is proven through respective flow switches. If flow status is

not proven, lead chiller shall not be energized, lag chiller shall be energized and an alarm shall be activated at the central PC. Pumps are equipped with VFD's for balancing purposes.

b. ~~The speed of the lead pump shall modulate to maintain the system differential pressure setpoint.~~ BMS shall command the primary pumps and modulate speeds per chiller manufacturer control signal.

c. ~~All setpoints shall be field adjusted during the commissioning period to meet the requirements of actual field conditions.~~ Shut down: When chiller is de-energized, respective pumps shall continue to run for 5 minutes and then turn off. Pumps shall not stop until confirmation that respective chiller's compressor has shut down (chiller stop confirmation).

d. Minimum pump speed shall be limited using pressure sensors across chiller barrels shown on piping diagrams, curves from specific chiller shall be utilized to determine minimum flow, minimum flow thru chillers shall be manufactures recommendation plus 10%. Bypass valve shown on piping plans shall be modulated to maintain minimum flow thru chiller.

2. Alarms

~~a. Dual supply temperature sensor error: If two temperature sensors on CBCS before pumps read greater that 10% different.~~

b. High ~~chilled beam~~ chilled water supply/return pressure difference: 25% greater than setpoint.

c. Low chilled beam chilled water supply/return pressure difference: 25% lower than setpoint.

3. Hardware Points (in addition to those required by the sequence of control)

a. Binary In: Pump variable frequency drive fault.

b. Analog In: Pump variable frequency drive speed.

C. Pumps ~~CBWP-1 & CBWP-2~~ MCHWP-1A & MCHWP-1B (chilled beam chilled water system pumps)

1. General

a. Pumps shall be configured in a lead/lag configuration. The lead and lag designations shall be rotated weekly.

b. The speed of the lead pump shall modulate to maintain the system differential pressure setpoint.

c. All setpoints shall be field adjusted during the commissioning period to meet the requirements of actual field conditions

2. Alarms

a. Dual supply temperature sensor error: If two temperature sensors on CWCS before pumps read greater that 10% different.

b. High chilled beam chilled water supply/return pressure difference: 25% greater than setpoint.

c. Low chilled beam chilled water supply/return pressure difference: 25% lower than setpoint.

3. Hardware Points (in addition to those required by the sequence of control)

a. Binary In: Pump variable frequency drive fault.

b. Analog In: Pump variable frequency drive speed.

~~D. Pumps HXP-1 & HXP-2 (Heat Exchanger pumps)~~

~~1. General~~
~~a. Pumps shall be configured in a lead/lag configuration. The lead and lag designations shall be rotated weekly.~~
~~b. The speed of the lead pump shall modulate to maintain the system differential pressure setpoint.~~
~~c. All setpoints shall be field adjusted during the commissioning period to meet the requirements of actual field conditions~~
~~2. Alarms~~
~~a. Dual supply temperature sensor error: If two temperature sensors on CBCS before pumps read greater that 10% different.~~
~~b. High chilled beam chilled water supply/return pressure difference: 25% greater than setpoint.~~
~~c. Low chilled beam chilled water supply/return pressure difference: 25% lower than setpoint.~~
~~3. Hardware Points (in addition to those required by the sequence of control)~~
~~a. Binary In: Pump variable frequency drive fault.~~
~~b. Analog In: Pump variable frequency drive speed.~~

E. Pumps HWP-3A/HWP-3B & CHWP-3A/CHWP-3B (Secondary Pumping Systems)
1. Lead hot water pump or lead chilled water pump shall start per sequences of operation described in other sections of this specification.
2. To prevent short cycling, the pump shall run for a minimum time and be off for a minimum time (both user adjustable).
3. Designation of lead, lag, and standby pump shall be automatically alternated based on user defined run times or day of the week.
4. When the lead pump is enabled, the pump VFD status determines if the motor is operating. After an operator definable feedback time delay, if there is an indication that the pump is not operating, the standby pump shall be enabled and an alarm shall be generated. Conversely, if status is detected while pump is turned off, a separate alarm shall be generated.
5. The three variable speed hot water pumps shall operate in a lead/lag/stand by fashion.
   a. The lead pump shall run first.
   b. If any pump fails, the next available pump shall stage on and the failed pump shall be removed from operation.
   c. Additional pumps shall stage on as required to maintain hot/chilled water differential pressure. If the lead pump reached 90% capacity, and couldn't maintain the desired set point for more than 10 min (adj.), the lead pump shall ramp down to 50% and the lag pump shall ramp up to 50% to match the lead. The pumps shall work in conjunction to meet the differential pressure set point. If the two operating pumps (lead and lag) maintain the desire set point at 40% capacity each for 10min (adj), the lag pump shall be disabled, and the lead pump shall ramp up to maintain the deferential pressure set point.
6. Alarms shall be provided for each pump as follows:
   a. Failure: Commanded on, but the status is off.
   b. Running in Hand: Commanded off, but the status is on.
   c. Runtime Exceeded: Status runtime exceeds a user definable limit.
   d. VFD Fault.

7. Hot Water Differential Pressure Control:
   a. The controller shall measure the hot water differential pressure and modulate the lead/lag hot/chilled water pump VFDs in sequence to maintain its hot/chilled water differential pressure setpoint. All setpoints shall be field adjusted during the commissioning period to meet the requirements of actual field conditions.
8. The lead pump shall run anytime the manager is enabled. On dropping hot/chilled water differential pressure, additional pumps shall stage on and modulate to maintain setpoint as follows:
   a. The controller shall modulate the lead pump to maintain setpoint.
   b. If the lead pump cannot maintain setpoint and its speed rises above 90% (adj.), the second pump shall stage on and modulate in unison with the lead pump.
9. Alarms shall be provided as follows:
   a. High Hot/chilled Water Differential Pressure: If the hot water differential pressure is 25% (adj.) greater than setpoint.
   b. Low Hot Water Differential Pressure: If the hot/chilled water differential pressure is 25% (adj.) less than setpoint.
10. Pump VFD Operation - Hot/chilled Water Differential Pressure (DP) Reset.
   a. BMS shall reset the differential pressure (DP) setpoint based on control valve positions. There are multiple DPT's. BMS contractor shall assign each control valve to a specific DPT that it is served by.
   b. Differential setpoint shall operate between a low limit and an upper limit. The baseline operating setpoints shall be based on values determined during Testing, Adjusting and Balancing (TAB).
      1) DP operating setpoint.
      2) DP Low limit.
      3) DP upper limit.
   c. BMS shall command DP setpoint to either increase or decrease or remain at present value.
   d. BMS shall poll position of all control valves every five (5) minutes.
   e. If any of the following are true, operating DP setpoint shall increase by 10% per polling interval until the upper limit is reached.
   f. More than 60% of the 2-position control valves are fully open.
   g. Any modulating control valve is 80% open or greater.
   h. If all of the following are true, operating DP setpoint shall decrease by 10% per polling interval until the lower limit is reached.
   i. Less than 40% of the 2-position control valves are fully opened
   j. All modulating control valves are less than 60% open.
   k. BMS shall trend the DP command setpoint and actual DP value.
   l. If DP value decreases 25% below the low limit or increases 25% above high limit for a period of 15 minutes, BMS shall issue alarm at the operator work station.

PUMPS POINT LIST		
Control Point Name	Hardware Points	Software Points

	AI	AO	BI	BO	AV	BV
HWP-1, 2 pump distribution HWS pressure	×					
HWP-1, 2 pump distribution HWR pressure	×					
CHWP-1, 2 pump distribution CHWS pressure	×					
CHWP-1, 2 pump distribution CHWR pressure	×					
~~CBWP~~ MCHWP-1A, 1B pump distribution MCHWS pressure	×					
~~CBWP~~ MCHWP-1A, 1B pump distribution MCHWR pressure	×					
~~HXP-1, 2~~ HWP-3A, 3B pump distribution HWS	x					
~~HXP-1, 2~~ HWP-3A, 3B pump distribution HWR	x					
CHWP-3A, 3B pump distribution CHWS pressure	x					
CHWP-3A, 3B pump distribution CHWR pressure	x					
HWP-1 pump enable command, Typical point for HWP-2, CHWP-1, 2, ~~CBWP-1, 2, HXP-1,2~~ HWP-3A/3B, CHWP-3A/3B, MCHWP-1A/1B				×		
HWP-1 pump VFD speed control. Typical point for HWP-2, CHWP-1, 2, ~~CBWP-1, 2, HXP-1,2~~ HWP-3A/3B, CHWP-3A/3B, MCHWP-1A/1B		×				
HWP-1 pump VFD speed feedback. Typical point for HWP-2, CHWP-1, 2, ~~CBWP-1, 2, HXP-1,2~~ HWP-3A/3B, CHWP-3A/3B, MCHWP-1A/1B					x	
HWP-1 pump VFD speed fault. Typical point for HWP-2, CHWP-1, 2, ~~CBWP-1, 2, HXP-1,2~~ HWP-3A/3B, CHWP-3A/3B, MCHWP-1A/1B			×			
HWP-1 current switch pump run status. Typical point for HWP-2, CHWP-1, 2, ~~CBWP-1, 2, HWRP-1, HWRP-2, HXP-1,2~~ HWP-3A/3B, CHWP-3A/3B, MCHWP-1A/1B			×			
HWP-1, 2 differential pressures Setpoint					×	
CHWP-1, 2 differential pressures Setpoint					×	
~~CBWP-1, 2~~ MCHWP-1A/1B differential pressures Setpoint					×	
HWP-3A/3B differential pressures Setpoint					×	
CHWP-3A/3B differential pressures Setpoint					×	
HWP-1, 2 low differential pressures alarm					×	
CHWP-1, 2 low differential pressures alarm					×	
~~CBWP-1, 2~~ MCHWP-1A/1B low differential pressures alarm					×	
HWP-3A/3B low differential pressures alarm					×	
CHWP-3A/3B low differential pressures alarm					×	
HWP-1, 2 high differential pressures alarm					×	
CHWP-1, 2 high differential pressures alarm					×	
~~CBWP-2A, 2~~ MCHWP-1A/1B high differential pressures alarm					×	

~~HXP-1,2, 2~~ HWP-3A/3B high differential pressures alarm					x	
~~HXP-1,2, 2~~ CHWP-3A/3B low differential					x	
HWP-1 pump run status alarm. Typical point for HWP-2, CHWP-1, 2, ~~CHWP-1, 2, HXP-1,2~~ HWP-3A/3B, CHWP-3A/3B, MCHWP-1A/1B						×
HWP-1 pump VFD fault alarm. Typical point for HWP-2, CHWP-1, 2, ~~CHWP-1, 2, HXP-1,2~~ HWP-3A/3B, CHWP-3A/3B, MCHWP-1A/1B						×

3.21 HEAT EXCHANGER CONTROL VALVE

A. General
1. Valve shall be enabled when chiller plant is enabled. When enabled, valve shall modulate as required to maintain chilled beam supply water temperature.

B. Point List:
1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.

HEAT EXCHANGER POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
Heat exchanger valve control		×				
Valve position	×					
CBWS temperature	×					
CBWR temperature	×					
CHWS temperature	×					
CHWR temperature	×					
Valve position alarm						×
CBCS temperature alarm					×	

3.22 CHILLER PLANT

A. General
1. The chiller plant shall be enabled when the system is indexed to cooling mode. Minimum ON/OFF times will prevent short-cycling of chillers and pumps. When chiller plant is enabled, lead secondary chilled water pump shall start (see Secondary Pumping Systems Description above).
   a. Chiller shall not operate at more then 50% capacity during nighttime hours between 10pm and 7am to keep sound levels under the local nighttime ordinance limit.
2. When a chiller is enabled, respective primary chilled water pump shall start. Chiller shall not start until flow is proven through respective flow switches. If flow status is not proven, lead chiller shall not be energized, lag chiller shall be

energized and an alarm shall be activated at the central PC. Pumps are equipped with VFD's for balancing purposes.

3. Chillers shall be sequenced as required to maintain desired set point through a lead/lag array. Alternation of chiller lead/lag designation shall be based on operator defined run times. BMS shall monitor secondary chilled water flow rates and temperatures and chiller control panel for demand to start and stop lag chiller.
4. Each chiller shall stage through its internal controls to maintain chilled water supply setpoint. Chiller shall monitor CHW return temperature to determine staging.
5. Shut down: When chiller is de-energized, respective pumps shall continue to run for 5 minutes and then turn off. Pumps shall not stop until confirmation that respective chiller's compressor has shut down (chiller stop confirmation).
6. Chilled water supply temperature shall be maintained between minimum setpoint of remains 42°F and maximum of 55°F.
7. CHW supply temperature setpoint shall be reset based upon position and demand at each CHW valve. If no zone is in the maximum cooling position, the CHW supply temperature setpoint shall be increased. This reset function is based on the following operator changeable variables. They are:
   a. The length of time between reset adjustments.
   b. The decrease in CHW supply temperature setpoint that is desired when the CHW valve its maximum open position.
   c. The increase in CHW supply temperature setpoint that is desired when none of the CHW valves are in a maximum open position.
   d. Demand for dehumidification.
8. If the ambient temperature dropped below 0ºF, primary pumps shall run at 40% capacity.

B. The Building Automation System will Communicate with Chiller Manufacturer Supplied Control Panels via BacNet Protocol.
   1. The operation of the chiller shall be by controls integral to the chiller, including but not limited to controlling of the control valves installed on the discharge of the chillers. Chillers shall not start until proof by end switch that control valves have opened. The DDC shall enable the chillers and shall determine the chilled water supply temperature.

C. BMS shall monitor chilled water flow rate through each chiller

D. Chiller factory controller shall command automatic isolation valve to open. ATC shall furnish and wire isolation valve.

E. Chiller Demand Limiting: Chiller sequencing through chillers or BMS shall be capable of monitoring and reducing peak power demand through the limiting of chiller system capacity.

F. Twenty points shall be made available for monitoring/control at the DDC workstation points will be determined by engineer when Chiller Make is determined.

G. Limits and Alarms:

1. If chilled water supply (CHWS) temperature serving AHU/DOA/FCU does not match setpoint for a predetermined time period, alarm shall be generated at the operator workstation.
2. If chilled water supply temperature (CHWS) serving chilled beam does not match setpoint for a predetermined time period, alarm shall be generated at the operator workstation.
3. If chilled water supply temperature (CHWS) serving chilled beam drop below low temperature setpoint, BMS shall enable the following control sequence:
   a. CWP-2A and CWP-2B shall be commanded off
   b. 6-way chilled beam valve shall be commanded to the fully closed position
4. If chiller enable status does not match command, alarm shall be generated at the operator workstation.
5. If water flow rate via water flow meter is less than minimum flow rate set point, BMS shall enable the following control sequence:
   a. Disable chiller control system
   b. Issue alarm to operator workstation
6. Chiller fault code input from BACnet interface. Alarm shall be generated at operator work station. Alarm shall identify code and brief verbal description.

H. Point List:
1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.
3. All BACnet point shall be made available by the equipment control system

CHILLER PLANT POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
OA temperature	x					
OA Humidity	x					
OA CO2	x					
Chiller Control Panel enable				x		
Chiller Control Panel Alarm				x		
Chiller CHWS Setpoint		x				
CHWS temperature (Chiller-1)	x					
CHWS temperature (Chiller-2)	x					
~~CHWS temperature (Chiller-3)~~	~~x~~					
CHWS temperature (Chiller Header)	x					
CHWR temperature (Chiller Header)	x					
CBWS temperature (Chiller Header)	x					
CBWR temperature (Chiller Header)	x					
CHWS (flow meter)	x					
CH-1 Water flow rate (flow meter)	x					
CH-2 Water flow rate (flow meter)	x					
CH-1 Isolation Valve Control		x				
CH-1 Isolation Valve position	x					

CH-2 Valve 1 Isolation Control		x				
CH-2 Isolation Valve position	x					
Chiller BACnet Factory Control Enable				x		
CHWS temperature setpoint (AHU/DOA/FCU)					x	
CHWS temperature setpoint (chilled beam)					x	
CHWS low temperature setpoint (chilled beam), not adjustable					x	
CH-1 low flow setpoint, not adjustable					x	
CH-2 low flow setpoint, not adjustable					x	
CHWS header temperature alarm					x	
CHWS header temperature alarm					x	
CH-1 low flow alarm, not adjustable					x	
CH-2 low flow alarm, not adjustable					x	
CH-1 CHWS temperature alarm					x	
CH-2 CHWS temperature alarm					x	
Chiller fault log code alarm, chiller controller BACnet input						×

3.23 SPLIT SYSTEM AC UNIT SYSTEMS

A. General: Units shall maintain space temperature setpoint through manufacturers supplied BACnet controllers Limits and Alarms:
   1. If space temperature setpoint for a predetermined time period, alarm shall be generated at the operator workstation.
   2. AC unit fault code input from BACnet interface. Alarm shall be generated at operator work station. Alarm shall identify code and brief verbal description.

B. Point List:
   1. All points shall be shown on graphics.
   2. All setpoints shall be adjustable unless otherwise noted.
   3. All BACnet point shall be made available by the equipment control system

3.24 GENERATOR

A. Monitor Generator and provide the following:
   1. Generator Run Status
   2. Generator Alarm Status

B. Point List:
   1. All points shall be shown on graphics.
   2. All setpoints shall be adjustable unless otherwise noted.

GENERATOR POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV

Generator run status			×			
Generator alarm input control signal			×			

3.25 WALK-IN COOLER / WALK-IN FREEZER

A. Mount a temperature sensor in both the freezer and refrigerator. Provide an alarm condition at the DDC user workstation when either reaches 10 degrees above the set point.

B. Point List:
1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.

REFRIGERATOR - FREEZER POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
Refrigerator temperature, provide point for each refrigerator	×					
Freezer temperature, provide point for each	×					
refrigerator						
Refrigerator temperature setpoint, provide point for each refrigerator					×	
Freezer temperature setpoint, provide point for each refrigerator					×	
Refrigerator temperature alarm, provide point for each refrigerator					×	
Freezer temperature alarm, provide point for each refrigerator					×	

3.26 DOMESTIC HOT WATER

A. Domestic Hot Water Recirculation Pumps:
1. Refer to plumbing drawings for location of pumps.
2. Pump shall be allowed to operate during occupied periods, including occupied override periods.
3. When return water temperature is 5 degrees F lower than supply temperature pump shall run until temperature is equal to hot water supply temperature.
4. Alarm: Pump Failure.

B. Domestic Hot Water Heaters:
1. Refer to plumbing drawings for location of water heaters and associated aquastats
2. The Building Automation System will communicate with Water Heater Manufacturer Supplied Control Panel via Bacnet.
3. Monitor hot water supply temperature.

C. Master Mixing valve:
1. The Building Automation System will communicate with Master Mixing Valve Manufacturer Supplied Control Panel via Bacnet.
2. Monitor: inlet hot water temperature, inlet cold water temperature, return water temperature.
3. Alarm: loss of power, blocked temperature probe, out of range temperature, maintenance required

3.27 GAS PRESSURE REGULATOR

A. Monitor gas pressure regulator and provide status

3.28 KILN & ASSOCIATED EXHAUST FAN CONTROL

A. Provide control wiring between the manufacturers kiln controller and the associated exhaust fan. Provide status and alarm for fan back to BMS.

3.29 LIGHTING CONTROLS INTERLOCK

A. Corridor Lighting:
1. BMS to provide building time schedule to corridor lighting control. Coordinate with Division 26.

B. Exterior lighting:
2. BMS to provide building time schedule to corridor lighting control. Coordinate with Division 26.

3.30 UTILITY MONITORING

C. BAS shall monitor, totalize, and trend the following utilities:
1. Natural Gas service pressure sensor after gas regulator shall be monitored and provided by ATC.
   a. Gas pressure sensor shall be NOSHOK, Series 625 or equivalent.
   b. Sensor shall be connected to the BMS.
   c. Sensor shall monitor and trend gas pressure.
   d. Provide (5) pressure sensors, coordinate locations with plumbing contractor.
2. Electric metering:
   a. BMS meters shall be installed by Division 26.
   b. Meters shall be provided by Division 26, wiring required to monitor meter provided by Division 23. Totalizing and programming by the Division 23 Contractor.
   c. Meter control wiring shall be provided by ATC and programming to display totalized metering within the BMS graphical display. Metering shall include the following. Please also note, for each category listed below there may be several meters that will need to be totalized and displayed. Refer to Electrical Drawings (Power Riser Diagram) for total quantity of meters for each category:
      1) Meter Total Building Electrical Load

2) Meter Lighting panelboards
3) Meter Power panelboards
4) Meter General Purpose panelboards
5) Meter Elevator
6) EV Charging

3.31 HEAT RECOVERY VENTILATION UNIT (HRV-1)

A. General:
1. ATC shall be responsible for providing all controls on air handling unit. Intent is to have ATC provide and field mount all controllers
2. Other than damper actuators and VFDs, ATC shall provide all end devices required to provide the sequence of operation.
3. Upon detection of smoke by any of the duct mount smoke detectors or by any other signal from the fire alarm system, the supply fan and the exhaust fan shall be shut off, the outside air dampers shall close, the exhaust air dampers shall close, and the control valves shall close.
4. Provide with static pressure sensor at discharge of supply fan, display reading on BMS graphic.

B. Supply fan control:
1. General:
   a. The outside air control damper shall be closed when the supply fan is off and during unoccupied mode; the damper shall be open when the supply fan is on during occupied mode. The supply fan shall not start until proof (by end switch) that either the outside air control damper or the return air bypass damper is open.
   b. Supply fan VFD shall modulate the supply fan to predetermined frequency setpoint
2. Morning warm-up: The supply fan shall be on.
3. Occupied: The supply fan shall be on.
4. Unoccupied: The supply fan shall be off except when unoccupied heating mode is enabled.

C. Exhaust Fan
1. Morning warm-up: The exhaust fan shall be off.
2. Occupied: The exhaust fan shall be on.
3. Unoccupied: The exhaust fan shall be off.
4. Occupied Mode Fan Control: Fan VFD shall modulate the supply fan to predetermined frequency setpoint

D. Outside Air (OA), Return Air (RA) and Exhaust Air (EA) Energy Wheel Bypass (EWB) Control Dampers
1. Morning warm-up mode:
   a. RA and EWB damper shall be open.
   b. OA and EA Damper shall be closed
2. Unoccupied mode:
   a. RA and EWB damper shall be open.

b. OA and EA Damper shall be closed

3. Occupied mode (Economizer):
   a. RA and OA damper modulate to maintain DAT setpoint.
   b. EA damper shall be open.
   c. EWB damper shall be open.
4. Occupied mode (Mechanical Cooling):
   a. RA and OA damper modulate to predetermined minimum ventilation position.
   b. EA damper shall be open.

E. Supply Air Temperature Control
1. General: The heating coil control valve, the chilled water control valve, and energy wheel shall be controlled to maintain a supply air temperature sequence.
2. Heating Mode:
   a. Hot Water valve operation when outside ambient temperature is <36F. HW valve shall maintain minimum 25% open when outside ambient temperature is <36F.
   b. Morning-up (morning): The control valve shall modulate to maintain a discharge air temperature of 90°F until the space served is at heating setpoint.
   c. Occupied Heating Mode: The return air sensor shall reset discharge air temperature to maintain the following schedule:
      1) An inversely proportional linear algorithm shall modulate the heating coil control valve to maintain a discharge air temperature of 62°F at 75°F return air temperature or greater and 68°F at 70°F return air temperature or less.
   d. Cool-down (evening): The control valve shall be closed.
   e. Unoccupied: The control valve shall be closed except upon call for unoccupied heating; the control valve shall modulate to maintain a discharge air temperature of 90°F until the spaces served are at heating setpoint.
3. Cooling Mode:
   a. General: Chilled water coil cooling shall be enabled only when the economizer, if enabled, is at 100% outside air, the hot water control valve is closed, the building is indexed to cooling mode and the outside air is above 55F.
   b. Occupied Cooling Mode: The return air sensor shall reset discharge air temperature to maintain the following schedule:
      1) An inversely proportional linear algorithm shall modulate the chilled water coil control valve to maintain a discharge air temperature of 55°F at 75°F return air temperature or greater and 62°F at 70°F return air temperature or less.
   c. Cool-down (evening): The chilled water control valve shall be closed.

F. Occupied Dehumidification Mode Control:
1. When the mixed air dewpoint is above setpoint and heating or cooling mode is not activated, BAS shall enable the following control sequence:
   a. Modulate cooling coil to maintain discharge air dewpoint setpoint.

b. Command wrap around heat pipe solenoids to open or close, or coil bypass damper to modulate as required to maintain discharge air temperature setpoint.

G. Point List:

1. All points shall be shown on graphics.
2. All setpoints shall be adjustable unless otherwise noted.
3. Coordinate wrap-around heat pipe hardware point types and quantities with equipment furnished by manufacturer.

HEAT RECOVERY VENTILATION UNIT						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
discharge air temperature sensor	×					
discharge air humidity sensor	×					
HX Core discharge air temperature	×					
HX Core discharge air humidity	×					
High pressure discharge air pressure switch			×			
Duct pressure sensor	×					
Return air temperature sensor	×					
Return air humidity sensor	×					
Return air CO2 sensor	×					
FAS status			×			
Supply fan enable command				×		
Supply fan VFD speed control		×				
Supply fan VFD speed feedback	×				x	
Supply fan VFD speed fault			×			
Supply fan run status			×			
Exhaust fan enable command				×		
Exhaust fan VFD speed control		×				
Exhaust fan VFD speed feedback	×				x	
Exhaust fan VFD speed fault			×			
Exhaust fan run status			×			
Chilled water valve control		×				
Chilled water valve position	×					
Hot water valve control		×				
Hot water valve position	×					
Low limit freeze stat			x			
Mixed air damper control		x				
Mixed air damper feedback	x					
Energy Wheel EA damper control		x				
Energy Wheel OA damper control		x				
Energy wheel EA damper feedback	x					
Exhaust air damper control		x				
Exhaust air damper feedback	x					

Outdoor air damper control		x				
Outdoor air damper feedback	x					
Outdoor airflow (CFM)	x					
CHWS temperature	x					
CHWR temperature	x					
HWS temperature	x					
HWR temperature	x					
HX Core damper control (Exhaust air)				x		
HX Core damper end-switch (Exhaust air)			x			
HX Core damper control (Outdoor air)				x		
HX Core damper end-switch (Exhaust air)			x			
Wrap-around coil solenoid valve (circuit-01) (3)				x		
Wrap-around coil solenoid valve (circuit-02) (3)				x		
Wrap-around coil solenoid valve (circuit-03) (3)				x		
Wrap-around coil bypass damper (3)		x				
Discharge temp setpoint					×	
Discharge temp alarm						×
Economizer – mechanical cooling change over						×
Supply fan minimum airflow speed (value determined by TAB), value not adjustable					×	
Exhaust fan minimum airflow speed (value determined by TAB), value not adjustable					×	
Supply fan maximum airflow speed (value determined by TAB), value not adjustable					×	
Exhaust fan maximum airflow speed (value determined by TAB), value not adjustable					×	
Supply fan run status alarm						×
Supply fan VFD fault alarm						×
Exhaust fan run status alarm						×
Exhaust fan VFD fault alarm						×
Low limit freeze-stat alarm						×
Hot water valve position alarm					×	
Chilled water valve position alarm					×	
Mixed air damper position alarm					×	
Outdoor air damper position alarm					×	
Exhaust air damper position alarm					×	
Clog filter alarm						×
Exhaust air flow setpoint					×	

3.32 AIR FILTRATION UNITS (AFU-A)

A. General: Each unit shall have status provided at the DDC (direct digital controls system) display as well as generate an alarm at the DDC display if fan failure occurs.

B. AFU unit shall be turned on/ off via wall switch. Refer to drawings for switch location.

C. Limits and Alarms:

1. If fan command does not match fan operating status, BMS shall enable the following control sequence:
   a. Command fan to not operate.
   b. alarm shall be generated at the operator workstation

Points List:

2. All points shall be shown on graphics.
3. All setpoints shall be adjustable unless otherwise noted.

AIR FILTRATION UNIT POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
Fan enable command				×		
Fan run status			×			
Clog filter alarm						×

3.33 DUST COLLECTOR

A. General: Dust Collector shall have status provided at the DDC (direct digital controls system) display as well as generate an alarm at the DDC display if fan failure occurs.

B. Run Conditions - Interlocked:
   a. The dust collector shall be interlocked to run whenever the associated equipment runs unless shutdown on safeties.

2. Operation:
   a. The unit shall be commanded on when any of the connected dust collection equipment is energized.
   b. .

DUST COLLECTOR POINT LIST						
Control Point Name	Hardware Points				Software Points	
	AI	AO	BI	BO	AV	BV
Fan enable command				×		
Fan run status			×			
Clog filter alarm						×
Duct pressure sensor	x					
Return air temperature sensor	x				×	

END OF SECTION

SECTION 23 8200 - CONVECTION HEATING AND COOLING UNITS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Active Chilled Beams

B. Air coils.

C. Convectors.

D. Cabinet unit heaters.

E. Fan coil units.

~~F. Unit ventilators.~~

G. Hydronic radiant heaters.

H. Unit Heaters

I. Hydronic radiant ceiling panel radiators

J. Hydronic panel radiators

1.2 RELATED REQUIREMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this section.

B. Division 23 specifications

1.3 REFERENCE STANDARDS (follow the most currently adopted amended version)

A. Air-Conditioning and Refrigeration Institute:
1. ARI 410 - Forced-Circulation Air-Cooling and Air-Heating Coils.

B. Sheet Metal and Air Conditioning Contractors:
1. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

C. ASHRAE Std 138 - Method of Testing for Rated Ceiling Panels for Sensible Heating and Cooling.

D. ASTM B75 - Standard Specification for Seamless Copper Tube.

E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

F. ASTM F876 - Standard Specification for Crosslinked Polyethylene (PEX) Tubing.

G. ASTM F1281 - Standard Specification for Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene (PEX-AL-PEX) Pressure Pipe.

H. ASTM F1807 - Standard Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-Linked (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing.

I. ASTM F1974 - Standard Specification for Metal Insert Fittings for Polyethylene/Aluminum/ Polyethylene and Crosslinked Polyethylene/Aluminum/ Crosslinked Polyethylene Composite Pressure Pipe.

J. DIN EN 4726 - Warm Water Surface Heating Systems and Radiator Connecting Systems - Plastics Piping Systems and Multilayer Piping Systems.

K. DIN 14037-2 - Ceiling Mounted Radiant Panels Supplied with Water at a Temperature Below 120 Degrees C; Part 2: Test Method for Thermal Output.

L. DIN 14037-3 - Ceiling Mounted Radiant Panels Supplied with Water at a Temperature Below 120 Degrees C; Part 3: Rating Method and Evaluation of Radiant Thermal Output.

M. NFPA 70 - National Electrical Code.

1.4 SUBMITTALS

A. Shop Drawings: Indicate cross sections of cabinets, grilles, bracing and reinforcing, and typical elevations. Indicate schedules of equipment and enclosures typically indicating length and number of pieces of element and enclosure, corner pieces, end caps, cap strips, access doors, pilaster covers.

B. Product Data: Submit coil and frame configurations, dimensions, materials, rows, connections, and rough-in dimensions. Submit mechanical and electrical service locations, capacities and accessories or optional items.

C. Manufacturer's Installation Instructions: Submit assembly, support details, and connection requirements.

D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.5 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of components and locations of access doors in radiation cabinets required for access to valves.

B. Operation and Maintenance Data: Submit manufacturer’s descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listings.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Accept units on site in factory packing. Inspect for damage. Store under roof.

B. Protect coil fins from crushing and bending by leaving in shipping cases until installation, and by storing indoors. Protect coils from entry of dirt and debris with pipe caps or plugs.

1.9 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.10 EXTRA MATERIALS

A. Furnish two sets of filters

PART 2 PRODUCTS

2.1 ACTIVE CHILLED BEAMS

A. Manufacturers:
1. Dadanco
2. Price
3. Titus
4. Swegon
5. Substitutions: Section 01 60 00 - Product Requirements

B. The Active Chilled Beams shall be ceiling-mounted cassette (1-way, 2-way and 4-way discharge) models as scheduled or approved equal in configurations as detailed on the drawings with performance per the unit schedule.

C. All units shall be selected and sized for a Noise Criteria rating below 25.

D. Casing

1. Construct the Active Chilled Beam from minimum 24 GA galvanized steel with a primary air plenum, secondary water coil frame, mixing chamber, grille assembly and mounting bracket support provisions.
2. All sheet metal joints in the primary air plenum are sealed airtight.

E. Primary Air Connection
1. Provide a round or oval primary air inlet connection at the side of the unit in the sizes and quantity as shown on the drawings.

F. Nozzles
1. Primary air shall be discharged into the mixing chamber through induction nozzles. Nozzles shall be of a fixed size, selected based on cooling and heating requirement. The nozzle plate shall be painted with a flat black finish

G. Cooling / Heating Water Coil
1. Provide a single water coil with capacities as shown on the unit schedule constructed of galvanized steel frame with ½" copper tubes mechanically expanded into aluminum fins. Coils shall be leak tested by manufacturer to 450 PSI and have a working pressure of 250 psi and shall be AHRI 410 certified. Provide ½" stubbed coil connections suitable for solder compression fittings, push-on fittings or threaded connections. Fin spacing shall be no greater than 10 fins per inch to prevent dust bridging. The coil shall be removable from the room side without requiring the removal of the beam casing from the ceiling. The coil shall include a vent and drain to facilitate maintenance on the unit. The coil pipe shall be upturned 90 degrees.

H. Grill Assembly
1. The secondary air is to be induced directly from the room.
2. Provide a powder coat baked-on enamel finish on the grille assembly integral to the unit. Paint color shall be selected by the owner. The supply air discharge shall be a linear slot(s) constructed of extruded aluminum along the longitudinal side(s) of the unit and the return air grille is constructed of perforated steel.
3. The return air grille is designed to allow the return air grille to swing-down or slide-out providing access to the coil by one person without removal of the grille.
4. The supply/return grille assemblies shall be of the lengths shown on the drawings and unit schedule.
5. Room side accessible controls enclosure shall be furnished where indicated.
6. Integrated return section shall be furnished where indicated.

I. Ceiling
1. The border of the grille assembly shall be compatible for mounting in standard T-bar lay-in ceilings as shown on the plans and unit schedule. Prior to ordering chilled beams coordinate with exact ceiling grid to be supplied for project.

J. Options
1. The units shall be compatible for mounting in a (specify) ceiling design. Or accommodate exposed mounting by the addition of wing extensions to exposed casing.

2. Grille assembly shall be special color (specify). At rooms with no ceiling provide custom color finish as per architects approved color/finish.

K. Accessories
1. ½ inch diameter 12 or 18 inch long flexible hose coil connectors constructed of EPDM hose with stainless steel braiding rated for a maximum operating pressure of not less than 125 psi (with sweat or NPT threaded or push fit) connections as shown on the drawings.
2. Trim kit for installation in dry wall or plaster ceilings as required by ceiling subcontractor.

L. Installation
1. To properly install the Active Chilled Beams, ensure that the unit is level and properly supported from above.
2. Connection to the main primary air duct with straight or a gentle radius flexible duct in accordance with local codes. Provide any and all necessary duct transitions for connection per manufacturer recommendations.
3. Make all joints airtight.
4. Connect the water inlet and outlet piping to the water coil, including installation of isolating, balancing and control valves as specified.
5. Refer and conform to the recommendations in the manufacturer's Installation, Operation and Maintenance manual.
6. Verify any controls and control enclosures are accessible.
7. Verify control connections are complete to control valves as needed.
8. Verify controls respond to inputs as specified.

M. Commissioning
1. The unit shall incorporate a commissioning port to measure the static pressure in the primary air plenum for adjustment of the primary airflow in accordance with the commissioning chart provided with each unit. The port is to be sealed airtight to the unit's primary air plenum.

2.2 AIR COILS

A. Manufacturers:
1. Vulcan
2. Trane
3. Carrier
4. York
5. USA Coil
6. Temtrol

B. Fabrication:
1. Tubes: Minimum 1/2 inch OD seamless copper arranged in parallel or staggered pattern, expanded into fins, brazed joints.
2. Fins: Aluminum or copper continuous plate type with full fin collars or individual helical spiral finned tube type wound under tension.
3. Casing: Die formed channel frame of minimum 16 gage galvanized steel. Provide stainless steel casing for cooling applications. Furnish intermediate tube supports

for spiral fin coils at manufacturer's recommended intervals to eliminate sagging during operation.

C. Water and Glycol Coils:
1. Headers: Seamless copper tube with silver brazed joints.
2. Leak Testing: Air test under water to a minimum of 400 psig for working pressure of 200 psig and 200 degrees F.
3. Configuration: Self draining circuitry, with threaded plugs for drain and vent; serpentine type with return bends on smaller sizes and return headers on larger sizes.

D. Refrigerant Cooling Coils:
1. Headers: Seamless copper tubes with silver brazed joints.
2. Liquid Distributors: Brass or copper venturi or orifice type or removable nozzle type distributor with seamless copper distributor tubes.
3. Leak testing: Air test under water at 450 psig for working pressure of 300 psig; dehydrate, and seal with dry air or nitrogen charge.
4. Configuration: Self-draining, down feed with bottom non-oil trapping connection.

2.3 CONVECTORS

A. Manufacturers:
1. Trane
2. Vulcan
3. McQuay
4. Modine

B. Heating Elements: Seamless copper tubing mechanically expanded into evenly spaced aluminum fins and cast iron headers, steel side plates and supports, factory air pressure tested at 100 psi under water, with means of adjusting pitch of element.

C. Cabinet 0.0598 inch thick steel front and top, 0.0478 inch steel back and ends; exposed corners rounded; easily secured removable front panels, adequately braced and reinforced for stiffness.

D. Finish: Factory applied baked enamel of color as selected.

E. Damper: Where heating media is not thermostatically controlled, furnish knob-operated internal damper at enclosure air outlet.

F. Access Doors: For otherwise inaccessible valves, furnish factory-made permanently hinged access doors, 6 x 7 inch minimum size, integral with cabinet.

2.4 CABINET UNIT HEATERS

A. Manufacturers:
1. Trane
2. Rittling

3. Vulcan
4. Sterling
5. Modine

B. Coils: Evenly spaced aluminum fins mechanically bonded to copper tubes, designed for 100 psi and 220 degrees F.

C. Cabinet: 0.0598 inch thick steel with exposed corners and edges rounded, easily removed panels, glass fiber insulation and integral air outlet and inlet grilles.

D. Finish: Factory applied baked enamel of color as selected on visible surfaces of enclosure or cabinet.

E. Fans: Centrifugal forward-curved double-width wheels, statically and dynamically balanced, direct driven.

F. Motor: Tap wound multiple speed ECM with sleeve bearings, resiliently mounted.

G. Control: Multiple speed switch, factory wired, located in cabinet.

H. Filter: Easily removed 1 inch thick glass fiber throw-away type, located to filter air before coil.

I. Mixing Dampers: Where indicated, mixing sections with dampers.

2.5 FAN COIL UNITS

A. Manufacturers:
1. Trane
2. Carrier
3. International Environmental Corporation (IEC)
4. JCI/Enviro-Tec
5. Daikin/McQuay
6. Williams

B. Coils: Evenly spaced aluminum fins mechanically bonded to copper tubes, designed for 200 psi and 220 degrees F. [Furnish drain pan under cooling coil, easily removable for cleaning, with drain connection.

C. Cabinet: 0.0598 inch thick steel with exposed corners and edges rounded, easily removed panels, glass fiber insulated, and integral air outlet and inlet grilles where exposed cabinet is specified.

D. Finish: Factory apply baked enamel of color as selected on visible surfaces of enclosure or cabinet.

E. Fans: Centrifugal forward-curved double-width wheels, statically and dynamically balanced, direct driven.

F. Motor: Tap wound multiple speed ~~[PSC]~~ [ECM] with sleeve bearings, resiliently mounted.

G. Control: Multiple speed switch, factory wired, located in cabinet.

H. Filter: Easily removed 1 inch thick glass fiber throw-away type, located to filter air before coil.

I. Mixing Dampers: As indicated on Drawings, provide mixing sections with dampers.

~~2.6 UNIT VENTILATORS~~

~~A. Manufacturers:~~
~~1. Trane~~
~~2. Carrier~~
~~3. McQuay~~

~~B. Coils:~~
~~1. Type: [Chilled water cooling] [DX cooling] [Hot water heating] [Steam heating].~~
~~2. Copper tubes mechanically expanded into evenly spaced aluminum fins tested to operate at 150 psig. [Furnish drain pan under cooling coil, easily removable for cleaning, with drain connection.]~~

~~C. Electric Heating Coil: [Enclosed copper tube, aluminum finned element of coiled nickel-chrome resistance wire centered in tubes and embedded in refractory material.] [Exposed helical coil of nickel-chrome resistance wire with refractory ceramic support bushings.]~~

~~D. Cabinet: 0.0747 inch thick steel on solid base pan with exposed edges rounded. Furnish removable front panels with quick-acting, key-operated cam locks. Furnish removable die-cast or fabricated steel discharge grilles. [For units having cooling coils, insulate internal parts and surfaces exposed to conditioned air stream with moisture resistant insulation.]~~

~~E. Cabinet Accessories: Matching steel construction, reinforced, for use with unit ventilators or finned radiation, with steel alignment pins, adjustable kick plates with leveling bolts, shelves and sliding doors [with locks] as indicated on Drawings, [sinks,] [bubbler faucets and bowls,] corner, end, and wall filler sections [as indicated on Drawings].~~

~~F. Finish: Factory apply baked enamel of color as selected on visible surfaces of enclosure or cabinet.~~

~~G. Fans: Centrifugal forward-curved double-width wheels, statically and dynamically balanced, direct driven, arranged to draw air through coil.~~

~~H. Wall Louvers: [Anodized aluminum] [Galvanized steel] wall intake box and louvers removable from frame with 1/2 inch square mesh galvanized screen in back of louver.~~

~~I. Motor: Tap wound multiple speed [permanent split capacitor] [ECM] with sleeve bearings, resiliently mounted.~~

~~J. Air Cooled Condensing Unit: Corrosion resistant cabinet, with hermetically sealed~~

~~compressor with internal spring isolation, external isolation, permanent split capacitor motor and overload protection, copper tube aluminum fin condenser coil, direct drive propeller fan with [permanently lubricated ball bearing] single phase motor with internal overload protection.~~

~~K. Control: Multiple speed switch, factory wired, located in cabinet.~~

~~L. Filter: Easily removed 1 inch [thick glass fiber throw away] [permanent washable] type, located to filter air before coil.~~

~~M. Mixing Dampers: Multi blade with compressible seal, capable of varying proportion of mixed air from 100 percent room air to 100 percent outside air.~~

2.7 HYDRONIC RADIANT HEATERS

A. Manufacturers:
1. Sun-El
2. Aero Tech
3. Shelley
4. Air Tech
5. Sterling

B. Ceiling Panels: Constructed of modular aluminum extrusions with interlocking edges, manufactured and assembled to sizes and configurations indicated.

C. Pipe Coil: incorporate continuous 1/2 inch copper pipe into extruded void. Furnish return bends for two water connections to each panel.

D. Cross brace entire assembly with structural members and insulate with 1 inch thick fiberglass insulation. Configure panels within T-bar ceiling module and run wall to wall.

2.8 UNIT HEATERS

A. Manufacturers:
1. Vulcan
2. Rittling
3. Sterling
4. Modine
5. Trane

B. Coils: Seamless copper tubing, 0.025 inch minimum wall thickness, silver brazed to steel headers, and with evenly spaced aluminum fins mechanically bonded to tubing.

C. Casing: 0.0478-inch thick steel with threaded pipe connections for hanger rods.

D. Finish: Factory applied baked enamel of color as selected.

E. Fan: Direct drive propeller type, statically and dynamically balanced, with fan guard; horizontal models with permanently lubricated sleeve bearings; vertical models with grease lubricated ball bearings.

F. Air Outlet: Adjustable pattern diffuser on projection models and four-way louvers on horizontal throw models.

G. Motor: Permanently lubricated sleeve bearings on horizontal models, grease lubricated ball bearings on vertical models.

H. Control: Local disconnect switch.

2.9 HYDRONIC RADIANT CEILING PANEL HEATERS

A. Manufacturers:
1. Barcol-Air USA Ltd.
2. Price Industries.
3. Armstrong Airtite
4. TWA Panel Systems, inc.
5. Substitutions: See Division 01 - General Requirements and 23 04 00 General Conditions for Mechanical Trades.

B. Modular Radiant Ceiling Panels: Heat sinks located behind panel, transfer heat between copper tubes and panel face, and radiate heat to zone.
1. Water Tubes:
   a. ASTM B75/B75M copper tubing, 1/2 inch minimum nominal diameter.
   b. Water Connections:
      1) Same end only.
      2) Suitable for solder, compression fittings, push-on fittings, or threaded connection.
      3) Protect with removable seals. Prevent introduction of dirt and dust during shipping.
2. Heat Sink Construction:
   a. Mechanically fasten extruded aluminum and copper pipe to heat sink.
   b. Provide non-hardening heat transfer paste between tubing, heat sink, and panel.
3. Panel Face: Construct of minimum 18 gage (0.0403 inches) thick aluminum.
4. Finish:
   a. Apply polyester paint, manufacture's standard finish.
   b. Color: As shown on drawings.
   c. Color: As selected by Architect from manufacturer's standard range.
   d. Maintain optimal radiative properties, durability, and cleanability.
5. Water Pressure Drop and Heating Output Data: Derive from factory testing in accordance with ASHRAE Std 138 or DIN 14037, Parts 2 and 3.
6. Accessories:
   a. 12 inch stainless steel braided hose with isolation ball valves for supply and return connections.

C. Heating Capacity: As scheduled, based on 180 degrees F average water temperature, 70 degrees F space temperature.

2.10 HYDRONIC PANEL RADIATORS

A. Manufacturers:
1. Runtal R2F
2. Substitutions: See Division 01 - General Requirements and 23 04 00 General Conditions for Mechanical Trades.

B. General: Provide steel double panel radiators of the lengths and in locations as indicated, and of capacities, style and having accessories as scheduled. The double heating panel radiation shall be of one-piece all-welded steel construction, consisting of a pair of flattened water tube panels welded to headers at each end. Welded to the inside of each panel shall be steel corrugated fins to increase the convective output of the radiator. The fins shall start at no less than 3" from the end of the radiator, and shall have no less than 32 fins per foot. The radiators shall include an integral heavy gauge (0.09" minimum) all-welded perforated top grille, which will cover the top of all of the finned areas (for curved radiators the grille is omitted).

C. The headers shall include all necessary inlet, outlet and vent connections as required. Standard connection sizes are ½" NPT tapered thread for supply and return piping, and 1/8" for the vent connection. Internal baffling is provided where required for proper water flow. The radiant heating panels shall be available in lengths from 2'-0" to 29'-6" in two inch even increments without the need for splicing. The panel radiation shall be capable of being mounted to typical stud wall construction without additional blocking or strapping. Appropriate wall mounting brackets shall be provided with the radiation. The panel radiation shall be manufactured in the USA.

D. The double panel radiators (up to four tubes tall) are to be provided with floor-mounted pedestals in lieu of the wall mounting brackets where installed in front of metal storefront windows.

E. Pressure Ratings: Pressure ratings for the radiation shall be as follows:
1. Working pressure - 128 PSI maximum
2. Test Pressure - 184 PSI maximum

F. Panel radiation expansion shall not exceed 1/64" per foot of radiation at 215ºF. The installer shall provide adequate expansion compensation for each radiator.

G. Finishes: The panel radiation shall be cleaned and phosphatized in preparation for the powder coat finish. The radiation is then finish painted with a gloss powder coat finish, for a total paint thickness of 2-3 mils (0.002" - 0.003"). The color shall be selected by the Architect form the manufacturer's standard colors

PART 3 EXECUTION

2.1 EXAMINATION

A. For recessed units, verify recess dimensions are correct size.

B. Verify wall construction is ready for installation.

C. Verify ductwork is ready for installation.

D. Verify concealed blocking and supports are in place and connections are correctly located.

E. Hydronic Radiant Ceiling Panel Heaters:
1. Examine areas to receive radiant heating units for compliance with requirements for installation tolerances and other conditions affecting performance.
2. Examine roughing-in for hydronic piping connections to verify actual locations prior to installation.
3. Ensure surfaces in contact with radiant heating panels are free of burrs and sharp protrusions.
4. Ensure surfaces are level and plumb.
5. Proceed with installation only after unsatisfactory conditions have been corrected.

2.2 INSTALLATION

A. Install air coils in ducts and casings in accordance with SMACNA HVAC Duct Construction Standards, Metal and Flexible.

B. Support air coil sections independent of piping on steel channel or double angle frames and secure to casings. Furnish frames for maximum three coil sections. Arrange supports to avoid piercing drain pans. Install with airtight seal between coil and duct or casing.

C. Protect coils to prevent damage to fins and flanges. Comb out bent fins.

D. Install coils level.

E. Make connections to coils with unions and flanges.

F. On water coils, install shut-off valve on supply piping and balancing valve on return piping. Locate water supply at bottom of supply header and return water connection at top. Install manual air vents at high points. Install water coils to be drainable and install drain connection at low points.

G. On water and glycol heating coils, and chilled water cooling coils, connect water supply piping to leaving airside of coil (counter flow arrangement).

~~H. In steam coils, install vacuum breaker in steam piping at or in header. Install steam traps with outlet minimum 12 inches below coil return connection.~~

I. Insulate headers located outside airflow, insulate as specified for piping.

J. Wire electric duct coils.

K. Install equipment exposed to finished areas after walls and ceilings are finished and painted. Avoid damage.

L. Protection: Install finished cabinet units with protective covers during remainder of construction.

M. Convectors: Coordinate to assure correct recess size for recessed convectors.

N. Cabinet Unit Heaters: Coordinate to assure correct recess size for recessed units.

O. Fan-Coil Units: Coordinate to ensure correct recess size for recessed units.

P. Hydronic Units: Install with shut-off valve on supply piping and balancing valve on return piping. Where not accessible, extend vent to exterior surface of cabinet for servicing.

Q. Units with Cooling Coils: Install drain piping to drain.

R. Hydronic Radiant Ceiling Panel Heaters:
1. Install level and plumb.
2. Suspend from structure.
3. Support in grid-type suspended ceiling using grid as support element as follows:
   a. Install a minimum of four ceiling support system rods or wires for each panel, located not more than 6 inches from panel corners.
   b. Fasten support clips to panel and to ceiling grid members at or near each panel corner with clips designed for the application.
   c. For panels of sizes less than ceiling grid, install as indicated on reflected ceiling plan(s) or center of acoustical panel, and support panels independently with at least two 3/4 inch metal channels spanning and secured to ceiling tees.
   d. Install at least one independent support rod or wire from structure to tab on panel with breaking strength of the weight of panel at a safety factor of 3.
4. Unless otherwise indicated, install shutoff valve and union or flange at each connection.
5. Provide tamper-proof, balancing valve with memory stop on return piping.
6. Provide float operated automatic air vents with stop valve.
7. Refer to Section 23 2113 and Section 23 2114 for additional requirements.

S. Hydronic Radiant Panel Heaters: Consult manufacturer's installation manual for panels not installed in ceiling systems.

2.3 CLEANING

A. After construction is completed, including painting, clean exposed surfaces of units. Vacuum clean coils and inside of cabinets.

B. Touch-up marred or scratched surfaces of factory-finished cabinets, using finish materials

furnished by manufacturer.

C. Install new filters after commissioning.

D. Clean all surfaces prior to installation.

2.4 CLOSEOUT ACTIVITIES

A. See Division 01 - General Requirements.

B. Demonstrate Operation of Controls for the following Equipment:
1. Active Chilled Beams
2. Air Coils
3. Convectors
4. Fan Coil Units
5. Hydronic Radiant heaters
6. Unit Heaters
7. Hydronic Radiant Ceiling Panel Heaters.
8. Hydronic Panel Radiators

2.5 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

B. Outdoor Equipment: Touch-up, repair, or replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 32 0529 - GLACIAL BOULDERS FOR EXTERIOR IMPROVEMENTS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Glacial Boulders.

2. <u>Stepping Stones.</u>

B. Related Requirements:

1. Section 017419 - Construction and Demolition Waste Management and Disposal.

2. Division 01 Section(s) "Construction Waste Management and Disposal" and "Sustainability Compliance Procedures" for sustainability requirements

3. Section 31 2200 - Grading: Preparation of site for boulder placement.

4. Section 31 2300 Excavation, Backfill, Compaction and Dewatering: Excavation for installing concrete footings.

1.3 SUBMITTALS

A. CTHPB Documentation Submittals: Comply with Section 01 3566.42 – Sustainability Compliance Procedures and provide the following in addition to other submittals:

1. Product Data for Credit d8: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
2. Product Data for Credit d10: For products and materials required to comply with requirements for regional materials, documentation indicating location and distance from Project of manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.

B. ~~Photographs for~~ **<u>Initial Selection: Landscape Architect to walk the site with contractor to complete initial selection and tagging of boulders during demolition stage of project.</u>**

1. **<u>Notify Landscape Architect seven days prior to intended date for boulder selection site walk.</u>**

~~For each source of glacial boulders, provide at least ten photographs of all sizes of boulders. Provide at least three sources from which the Landscape Architect is to select.~~

C. ~~Photographs for Verification:~~
   1. ~~For each boulder indicated, include at least four photographs of three potential boulders considered for use. Photographs are to exhibiting extremes of the full range of color and other visual characteristics. If fewer than the required number of boulders are selected from the submitted photographs, additional photographs shall be submitted for selection.~~

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain boulders on site**.** ~~through one source from a single supplier.~~ **Obtain stepping stones from on site or from locally single source quarry.**

B. Boulder Review and Selection: Landscape Architect ~~may~~ **shall** observe review and select individual boulders at site before placement for compliance with requirements and may reject unsatisfactory boulders at any time during progress of work. Remove rejected boulders immediately from Project site.

   1. ~~Notify Landscape Architect of sources of boulders seven days in advance of delivery to site.~~

C. Stepping Stone Review and Selection: Landscape Architect shall observe review and select individual stepping stones at site before placement for compliance with requirements and may reject unsatisfactory stepping stones at any time during progress of work. Remove rejected stepping stones immediately from Project site. Offsite stepping stones shall be reviewed and selected at the source. Notify Landscape Architect of sources of stepping stones a minimum of seven days prior to intended selection date.

D. Pre-installation conference: Conduct conference at project site to comply with requirements in Section 01 3000 - Administrative Requirements. The purpose of the conference is to meet with Landscape Architect on-site to select boulders to be used.

PART 2 PRODUCTS

2.1 LEED PERFORMANCE REQUIREMENTS

A. For all permanently installed products and materials related to the work of this Section, provide products and materials that meet the Project's LEED performance criteria as outlined in PART 2–PRODUCTS of Section 018113 – Sustainable Design Requirements.

2.2 STONE SOURCE

A. Varieties and Sources: Boulders to be sourced on site, as possible. ~~If insufficient quality or quantity can be extracted from the site, obtain materials of each type from same source for the entire project. Approval of stone supplier is required prior to purchase.~~

2.3 GLACIAL BOULDERS

A. Boulders: Shall be selected from on-Site boulders and shall be randomly sized. Boulder size shall vary from the maximum size to the minimum size. No boulders shall be obtained from off-site unless approved by the Landscape Architect.
   1. Boulders shall be naturally rounded glacial erratics as found in glacial till deposits on-site, and to be of solid basalt, sedimentary or granitic naturally occurring stone, free from flaking, decomposition or weathering.
   2. **If insufficient quantity of glacial erratics can be extracted, weathered boulders from sections of material harvested by blasting Indian Rock Outcropping and other on-site outcroppings may be submitted. Any sharp angles must be buried or ground down to eliminate safety rist of finished exposed surfaces of boulders.**
   ~~3. Boulders shall not be stone material from ledge excavations.~~
   4. Minimum Size: 4 feet by 3 feet by 3 feet.
   5. Maximum Size: No maximum however some of the largest should be at least be 8 feet by 6 feet by 6 feet.

B. **Stepping Stones: Shall be selected from on-site and shall be randomly sized. Stepping stones size shall vary from maximum size to minimum size. Stepping stones may be obtained off-site from single source local quarry such as Liberty Stone or approved equal.**
   1. **Stepping stones shall be 2-4 inches thick natural cleft material.**
   2. **Minimum size: 2 feet by 2 feet**
   3. **Maximus size: 4 feet by 3 feet**
   4. **Color: to match boulder gradation of color, as selected by Landscape Architect.**

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance.
   1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 GLACIAL BOULDERS

A. Install boulders at locations, elevations and height as indicated on the Drawings and as directed by Landscape Architect.

B. Set firmly in place with approximately half the boulder exposed as indicated on the Drawings.

3.3 CLEANUP AND PROTECTION

A. After completing installation of boulders, remove spots, dirt, and debris.

END OF SECTION

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SECTION 32 1400 - UNIT PAVERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and Volume 1 Project Contract Manual apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Pedestrian Concrete Unit Pavers
2. Edge restraints for unit pavers.

B. Related Requirements:

1. Division 31 Section “Excavation, Backfill, Compaction and Dewatering”

2. Division 32 Section for compacted subgrade and subbase course, if any, under unit pavers.

3. Division 32 Section "Joint Sealants" for sealing control and expansion joints in unit pavers with elastomeric sealants.

1.3 SUBMITTALS

A. Product Data: For the following:

1. Concrete pavers.
2. Edge restraints.

B. CTHPB Documentation Submittals: Comply with Section 01 3566.42 – Sustainability Compliance Procedures and provide the following in addition to other submittals:

1. Product Data for Credit d8: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
2. Product Data for Credit d10: For products and materials required to comply with requirements for regional materials, documentation indicating location and distance from Project of manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.

C. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of unit paver indicated.

D. Samples for Verification: Full-size units of each type of unit paver indicated; in sets for each color, texture, and pattern specified, showing the full range of variations expected in these characteristics.

E. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed unit paver installations similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Source Limitations: Obtain each type of unit paver, joint material, and setting material from one source with resources to provide materials and products of consistent quality in appearance and physical properties.

C. Mockups: Before installing unit pavers, build mockups for each form and pattern of unit pavers required to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for the completed Work, including same base construction, special features for expansion joints, and contiguous work as indicated:

1. Build mockups in the location and of the size indicated or, if not indicated, as directed by Architect.
2. Demonstrate the proposed range of aesthetic effects and workmanship.
3. Obtain Architect's written approval of mockups before starting unit paver installation.
4. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
5. Demolish and remove mockups when directed.
6. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect unit pavers and aggregate during storage and construction against soiling or contamination from earth and other materials.

1. Cover pavers with plastic or use other packaging materials that will prevent rust marks from steel strapping.

1.6 PROJECT CONDITIONS

A. Cold-Weather Protection: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace unit paver work damaged by frost or freezing.

1.7 WARRANTY

A. For products noted in this section, provide manufacturer's standard warranty, minimum of one year.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

2.2 UNIT PAVERS

A. Concrete Pavers: Solid, interlocking paving units, ASTM C 936, made from normal-weight aggregates in sizes and shapes indicated. See drawings for locations.

1. Pedestrian Concrete Unit Pavers Basis of Design – Unilock Artline

a. Thickness: 2 ¾" vehicular, 2 ¼" pedestrian.

b**. Size: Unit G – 7 ½" x 17 ¾"**

c. Color: to be selected by Landscape Architect from full range of colors and finishes.

2.3 ACCESSORIES

A. Paver Edge Restraint Material: Paver edge restraints shall be Pave Edge Rigid, by Pave Tech, Inc. and provided by Ideal Concrete Block, Co., or an approved equal.

B. Geotextile Soil Separator: Shall be Propex 601 as manufactured by Propex, Inc. 6025 Lee Highway, Suite 425, PO Box 22788, Chattanooga, TN 37422 as distributed by Ferguson Water Works, Co., Newington, C T; 124 Costello Road Newington, CT (Connecticut) 06111-5156; Phone: (860) 666-5634 or 1-800-382-4581 or approved equal.

2.4 AGGREGATE SETTING-BED MATERIALS

A. Graded Aggregate for Base: Per manufacturer's specifications

B. Geotextile Fabric: TYPAR 3401-G Geotextile Fabric manufactured by Advanced Drainage Systems (1.800.821.6710) or approved equal.

C. Sand for Leveling Course: Sound, sharp, washed, natural sand or crushed stone complying with gradation requirements of ASTM C 33 for fine aggregate.

D. Sand for Joints: Techni-seal Polymeric Sand as manufactured by Techni-Seal, 1470 rue De Coulomb, Boucherville, Quebec, Canada J4B 7K2 (514) 523-2110 or approved equal.

PART 3 - EXECUTION

3.1 PREPARATION

A. Proof-roll prepared subgrade surface to check for unstable areas and areas requiring additional compaction. Proceed with unit paver installation only after deficient subgrades have been corrected and are ready to receive subbase for unit pavers.

3.2 INSTALLATION, GENERAL

A. Do not use unit pavers with chips, cracks, voids, discolorations, and other defects that might be visible or cause staining in finished work.

B. Mix pavers from several pallets or cubes, as they are placed, to produce uniform blend of colors and textures.

C. Cut unit pavers with motor-driven masonry saw equipment to provide clean, sharp, unchipped edges. Cut units to provide pattern indicated and to fit adjoining work neatly. Use full units without cutting where possible. Hammer cutting is not acceptable.

1. For concrete pavers, a block splitter may be used.

D. Joint Pattern: As indicated.

E. Tolerances: Do not exceed 1/16-inch (1.6-mm) unit-to-unit offset from flush (lippage) nor 1/8 inch in 24 inches (3 mm in 600 mm) and 1/4 inch in 10 feet (6 mm in 3 m) from level, or indicated slope, for finished surface of paving.

F. Expansion and Control Joints: Provide for sealant-filled joints at locations and of widths indicated. Provide joint filler as backing for sealant-filled joints where indicated. Install joint filler before setting pavers. Sealant materials and installation are specified in Division 7 Section "Joint Sealants."

G. Provide edge restraints as indicated. Install edge restraints before placing unit pavers.

1. Install edge restraints to comply with manufacturer's written instructions. Install stakes at intervals required to hold edge restraints in place during and after unit paver installation.
2. For metal edge restraints with top edge exposed, drive stakes at least 1 inch (25 mm) below top edge.

3.3 AGGREGATE SETTING-BED PAVER APPLICATIONS

A. Compact soil subgrade uniformly to at least 95 percent of ASTM D 1557 laboratory density.

B. Place geotextile over prepared subgrade, overlapping ends and edges at least 12 inches (300 mm).

C. Place aggregate base over compacted subgrade. Provide compacted thickness indicated. Compact base to 100 percent of ASTM D 1557 maximum laboratory density and screed to depth required to allow setting of pavers.

D. Place geotextile over compacted base course, overlapping ends and edges at least 12 inches (300 mm).

E. Place leveling course and screed to a thickness of 1 to 1-1/2 inches (25 to 38 mm), taking care that moisture content remains constant and density is loose and constant until pavers are set and compacted.

F. Treat leveling base with soil sterilizer to inhibit growth of grass and weeds.

G. Set pavers with a minimum joint width of 1/16 inch (1.6 mm) and a maximum of 1/8 inch (3 mm), being careful not to disturb leveling base. If pavers have spacer bars, place pavers hand tight against spacer bars. Use string lines to keep straight lines. Fill gaps between units that exceed 3/8 inch (10 mm) with pieces cut to fit from full-size unit pavers.

1. When installation is performed with mechanical equipment, use only unit pavers with spacer bars on sides of each unit.

H. Vibrate pavers into leveling course with a low-amplitude plate vibrator capable of a 3500- to 5000-lbf (16- to 22-kN) compaction force at 80 to 90 Hz. Perform at least three passes across paving with vibrator. Vibrate under the following conditions:

1. After edge pavers are installed and there is a completed surface or before surface is exposed to rain.
2. Before ending each day's work, fully compact installed concrete pavers to within 36 inches (900 mm) of the laying face. Cover open layers with nonstaining plastic sheets overlapped 48 inches (1200 mm) on each side of the laying face to protect it from rain.

I. Spread dry sand and fill joints immediately after vibrating pavers into leveling course. Vibrate pavers and add sand until joints are completely filled, then remove excess sand. Leave a slight surplus of sand on the surface for joint filling.

J. Do not allow traffic on installed pavers until sand has been vibrated into joints.

K. Repeat joint-filling process 30 days later.

3.4 REPAIR, POINTING, CLEANING, AND PROTECTION

A. Remove and replace unit pavers that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units as intended. Provide new units to match adjoining units and install in same manner as original units, with same joint treatment and with no evidence of replacement.

END OF SECTION 32 1400

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SECTION 32 1640 - GRANITE CURBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Form 816 - State of Connecticut Department of Transportation Standard Specifications for Roads, Ramps and Incidental Construction, 2004.

1.2 SUMMARY

A. Section Includes:

1. Granite curbs - vertical.

B. Related Requirements:

1. Division 01 Section(s) "Construction Waste Management and Disposal" and "Sustainability Compliance Procedures" for sustainability requirements

2. Division 31 Section "Excavation, Backfill, Compaction and Dewatering" for fill materials.

3. Division 31 Section "Borrow Materials"

4. Division 03 Section "Cast-in-Place Concrete".

1.3 ACTION SUBMITTALS

A. Product Data: For materials other than water and aggregates.

B. Product Data: For the following:

1. Stone curbs.

C. Documentation Submittals: Comply with Section 01 3566.42 – Sustainability Compliance Procedures and provide the following in addition to other submittals:

1. Product Data for Credit d8: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
2. Product Data for Credit d10: For products and materials required to comply with requirements for regional materials, documentation indicating location and distance from Project of manufacturer and point of extraction, harvest, or recovery for each raw material.

Include statement indicating cost for each regional material and the fraction by weight that is considered regional.

D. Samples for Initial Selection: For the following:

1. Granite for stone curbs.

E. Samples for Verification:

1. Stone curbs.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of stone curb, joint material, and setting material from single source with resources to provide materials and products of consistent quality in appearance and physical properties.

B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

C. Preinstallation Conference: Conduct conference at Project site.

1.5 PROJECT CONDITIONS

A. Cold-Weather Protection: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace unit paver work damaged by frost or freezing.

PART 2 - PRODUCTS

2.1 GRANITE CURBS

A. Granite curbs shall conform to Section M.12.06-1 of Form 816 **and Town of Greenwich standard specifications.**

1. No drill marks will be accepted on any exposed surface.
2. Dimensions shall conform to the Drawings.
3. Granite shall comply with ASTM C 615.
4. Vertical Granite Curbs:

a. Granite Color and Grain: Light gray with medium grain.
b. Top Width: ~~6~~ **5** inches.
c. Face Height: Varies, as shown on drawings.
d. Total Height: ~~2~~' **1'**-6" inches.

e. Length: 4'-0", as shown on drawings.
f. Top Finish: Thermal.
g. Face Finish: ~~Split~~. **¼" buzzed edge**
h. End Finish: Saw cut.

2.2 MORTAR MIX

A. General: Comply with referenced standards and with manufacturers' written instructions for mix proportions, mixing equipment, mixer speeds, mixing containers, mixing times, and other procedures needed to produce joint materials of uniform quality and with optimum performance characteristics. Discard mortars if they have reached their initial set before being used.

B. Mortar Materials: Conform to Article M.11.04 of Form 816.

PART 3 - EXECUTION

3.1 PREPARATION

A. Sweep concrete substrates to remove dirt, dust, debris, and loose particles.

3.2 INSTALLATION, GENERAL

A. Granite curb installation shall conform to Section 8.13 of Form 816 and to the City of **Greenwich** ~~Fairfield's~~ specifications for construction.

B. Do not curb units with chips, cracks, voids, discolorations, or other defects that might be visible or cause staining in finished work.

C. Cut curb units with motor-driven masonry saw equipment to provide clean, sharp, unchipped edges. Cut units to fit adjoining work neatly. Use full units without cutting where possible. Hammer cutting is not acceptable.

3.3 GRANITE CURB

A. Set curb on edge. Settle into place with a heavy wooden hand rammer. Set level, true line, and plumb on compacted base as indicated on the Drawings.

B. Place concrete joint setting beds as shown on the Drawings. Ensure that top exposed edge of curb face is consistent and true to line and grade. Support curb as required until concrete cures and all backfill operations have been completed.

C. Backfill with approved material, compacted to 95 percent modified AASHTO Laboratory density (ASTM D-1557, Method C).

D. Point joints with mortar for the full depth and width of curbing. At approximately 50 foot intervals, a ½ inch joint shall not be filled with mortar but left free for expansion. Conform to the details on the Drawings.

E. Where cobblestone curb embedded in concrete is indicated as edge restraints for concrete pavement on an aggregate setting bed, install curb embedded in concrete and allow concrete to cure before placing aggregate setting bed and pavement. Hold top of concrete below aggregate setting bed.

3.4 REPAIRING, POINTING, AND CLEANING

A. Remove and replace unit pavers that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Provide new units to match adjoining units and install in same manner as original units, with same joint treatment and with no evidence of replacement.

B. Pointing: During tooling of joints, enlarge voids or holes and completely fill with grout. Point joints at sealant joints to provide a neat, uniform appearance, properly prepared for sealant application.

C. Cleaning: Remove excess grout from exposed paver surfaces; wash and scrub clean.

END OF SECTION 32 1640

SECTION 330513 - MANHOLES AND CATCH BASINS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division I Specifications, apply to this section.

1.2 SUMMARY

A. This Section includes the following:

1. Precast concrete manholes.

2. Precast concrete catch basins and yard drains.

3. Cast iron manhole frames and covers.

4. Cast iron catch basin and yard drain frames and grates.

B. Related Sections

1. Section 33 3114 – Testing of Sanitary Sewer and Storm Drainage Systems.

1.3 REFERENCES

A. AASHTO – American Association of State Highway and Transportation Officials, Standard Specifications for Highways and Bridges, most recent edition.

B. ASTM C32 – Standard Specification for Sewer and Manhole Brick (made from clay or shale).

C. ASTM A48 – Standard Specification for Gray Iron Castings.

D. ASTM C150 – Standard Specification for Portland Cement.

E. ASTM C207 – Standard Specification for Hydrated Lime for Masonry Purposes.

F. ASTM C478 – Standard Specification for Precast Reinforced Concrete Manhole Sections.

G. ASTM C443 – Standard Specification for Joints for Circular Concrete Sewer and Culvert Piping Using Rubber Gaskets.

H. ASTM C923 – Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes and Laterals.

I. ASTM C990 – Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.

J. State of Connecticut Department of Transportation "Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 818," as amended.

1.4 SUBMITTALS

A. Submit Shop Drawings, showing details of construction, reinforcing, joints, pipe connections to structures, manhole rungs, manhole frames and covers, dampproofing coating, catch basin frames and grates.

B. Submit weights of manhole frames and covers and catch basin frames and grates.

C. Submit design calculations including verification of adequate anti-flotation features and lateral earth pressures. Calculations shall verify that the manhole structure has been designed to withstand the burial depth, submergence due to flooding, flotation, and dead and live loads.

1.5 QUALITY ASSURANCE

A. The quality of materials, the process of manufacture, and the finished sections shall be subject to inspection and approval by the Engineer, or other representative of the Owner. Such inspection may be made at the place of manufacture, or at the Site after delivery, or at both places, and the materials shall be subject to rejection at any time on account of failure to meet any of the Specification requirements, even though samples may have been accepted as satisfactory at the place of manufacture. Material rejected after delivery to the job shall be marked for identification and shall be removed from the job at once. Materials which have been damaged after delivery will be rejected, and if already installed, shall be acceptably repaired, if permitted, or removed and replaced, at no additional cost to the Owner.

B. At the time of inspection, the materials will be carefully examined for compliance with the latest ASTM designation specified and these Specifications, and with the approved manufacturer's drawings. Manhole sections will be inspected for general appearance, dimension, "scratch-strength," blisters, cracks, roughness, and soundness. The surface shall be dense and close-textured.

C. Imperfections in manhole sections may be repaired, subject to the approval of the Engineer, after demonstration by the manufacturer that strong and permanent repairs result. Repairs will be carefully inspected before final approval. Cement mortar used for repairs shall have a minimum compressive strength of 4,000 psi at 7 days and 5,000 psi at 28 days, when tested in 3 inch by 6

inch cylinders stored in the standard manner. Epoxy mortar may be utilized for repairs subject to the approval of the Engineer.

D. Personnel shall have confined space entry training as appropriate for the work to be performed.

E. Manholes and catch basins shall be designed for lateral earth pressures and to resist flotation.

F. Manholes, catch basins, drainage structures, connections, testing, and acceptances shall conform with the Town of Greenwich Department of Public Works Sewer & Engineering/ Highway Department for drain standards, materials, and requirements.

PART 2 PRODUCTS

2.1 PRECAST CONCRETE MANHOLE AND CATCH BASIN SECTIONS

A. Precast concrete barrel sections and transition top sections, shall conform to ASTM C478 and the following requirements:

1. The wall thickness shall not be less than 5 inches for 48 inch diameter reinforced barrel sections, 6 inches for 60 inch diameter reinforced barrel sections and 7 inches for 72 inch diameter reinforced barrel sections.

2. Top sections shall be eccentric except that flat top sections shall be used where shallow cover requires a top section less than 4 feet as shown on the Drawings.

3. Barrel sections shall have tongue and groove joints.

4. All sections shall be cured by an approved method and shall not be shipped nor subjected to loading until the concrete compressive strength has attained 3,000 psi and not before 5 days after fabrication and/or repair, whichever is longer.

5. Precast concrete barrel sections with precast top slabs and precast concrete transition sections shall be designed for a minimum of AASHTO HS20-44 loading plus the weight of the soil above at 120 pcf.

6. The date of manufacture and the name and trademark of the manufacturer shall be clearly marked on each precast section.

7. Precast concrete bases shall be monolithically constructed. The thickness of the bottom slab of the precast bases shall not be less than the barrel sections or top slab whichever is greater. Precast concrete bases shall be constructed with a 6 inch extended base, unless otherwise shown on the Drawings.

8. Knock out panels for Storm piping only shall be provided in precast sections at the locations shown on the Drawings. They shall be integrally cast with the section, 2½ inches thick and

shall be sized as shown on the Drawings. There shall be no steel reinforcing in knock out panels.

9. No knock out panels shall be allowed for sanitary sewer manholes.

10. The side wall height of the base section shall be a minimum of 12 inches above the top of the pipe coming into the manholes and catch basins.

11. A 2'-0" deep minimum sump shall be provided below catch basin outlet pipes.

2.2 BRICK MASONRY

A. Bricks shall be good, sound, hard and uniformly burned, regular and uniform in shape and size, of compact texture. Underburned or salmon brick will not be acceptable and only whole brick shall be used unless otherwise permitted. In case bricks are rejected by the Engineer, they shall be immediately removed from the site of the work and satisfactory bricks substituted, at no additional cost to the Owner.

1. Bricks for the channels and shelves shall comply with the latest specifications of ASTM C32 for Sewer Brick, Grade SM.

2. Bricks for building up and leveling manhole frames shall conform to ASTM C32 Grade MS.

3. Poured concrete inverts will not be allowed.

B. Mortar used in the brickwork shall be composed of one part Type II portland cement conforming to ASTM C150 to two parts sand to which a small amount of hydrated lime not to exceed 10 lbs. to each bag of cement shall be added.

C. Sand used shall be washed, cleaned, screened, sharp and well graded as to different sizes and with no grain larger than will pass a No. 4 sieve. Sand shall be free from vegetable matter, loam, organic or other materials of such nature or of such quantity as to render it unsatisfactory.

D. Hydrated lime shall conform to ASTM C207, Type S.

2.3 MANHOLE FRAMES AND COVERS

A. Manhole frames and covers shall be of good quality, strong, tough, even grained cast iron, smooth, free from scale, lumps, blisters, sand holes and defects of any kind. Manhole covers and frame seats shall be machined to a true surface. Castings shall be thoroughly cleaned and subject to hammer inspection. Cast iron shall conform to ASTM A48, Class 30B.

B. Sanitary sewer manhole covers shall meet the requirements of the Town Greenwich Department of Public Works standards, materials, and requirements.

C. Sanitary sewer manhole frames and covers shall comply with the detail shown on the Drawings and the Town of Greenwich Department of Public Works Sewer Division standards, requirements, and materials. Manhole frames and covers shall be EJ 2239Z82 8" high manhole frame and EJ2239A2S cover, no venting or Campbell foundry pattern 1200.

D. On-site storm sewer manholes shall be as specified on the Contract Drawings. Storm sewer manholes located within Town right of way shall conform to Town standards.

E. On-site catch basin frame and grates shall comply as specified on the contract drawings. Catch basins located within Town roadway right of way shall conform to Town standards. Catch basins located within State right of way shall conform to the Connecticut Department of Transportation standards.

2.4 CATCH BASIN FRAMES AND GRATES

A. Catch basin frames and grates shall be of good quality, strong, tough, even grained cast iron, smooth, free from scale, lumps, blisters, sand holes and defects of any kind which render them unfit for the service for which they are intended. Grate and frame seats shall be machined to a true surface. Castings shall be thoroughly cleaned and subject to hammer inspection. Cast iron shall conform to ASTM A48, Class 30B.

B. The catch basin frames and grates shall comply with the details shown on the Drawings.

2.5 JOINTING PRECAST MANHOLE SECTIONS

A. Tongue and groove joints of precast manhole sections shall be sealed with a preformed flexible joint sealant. The preformed flexible joint sealant shall conform to ASTM C990.

2.6 MANHOLE RUNGS

A. Manhole rungs shall be drop front design, 14 inches wide with an abrasive step surface, steel reinforced, copolymer, polypropylene, plastic. Manhole rungs shall conform to OSHA requirements.

2.7 FULLY SHEILDED PIPE-TO-PIPE CONNECTORS

A. Fully shielded pipe connector coupling shall be banded rubber (shield couplings) gasketed coupling type with type 316 s.s. hardware and outside sheet ring shall be strong back sewer coupling RC 5000 series by Fernco, or flex-seal adjustable repair coupling (arc) by Mission.

B. The external shielding and bands shall be made entirely of 316 series non-magnetic stainless steel.

2.8 FLEXIBLE PIPE-TO-STRUCTURE CONNECTORS

A. The flexible pipe-to-structure connectors shall be designed to provide a positive seal between the connector and the structure wall and between the connector and the pipe.

B. The flexible boot shall be manufactured of EPDM synthetic rubber in accordance with ASTM C443 and C923 and shall be 3/8 inch thick or greater.

C. The external bands shall be made entirely of 304 series non-magnetic stainless steel.

D. The flexible connectors shall be provided with a wedge-type or toggle-type expander to secure the pipe in the structure opening.

E. The flexible connectors shall meet the following criteria, in accordance with ASTM C923:

1. Shall not leak when subjected to a head pressure of 10 psi for 10 minutes.

2. Shall have the ability to deflect 7 degrees in any direction without leakage under the head pressure conditions described above.

3. Shall not leak when subject to a load of 150 lbs./in. pipe diameter and the head pressure conditions described above.

2.9 DAMPPROOFING

A. Provide two coats of bituminous dampproofing on outer surfaces of precast manholes at the rate of 20-25 square feet per gallon in accordance with manufacturer's instructions.

B. Dampproofing coating shall be a factory-applied asphalt compound specially made to adhere to below grade concrete structures.

C. The dampproofing shall be Sonoshield semi-mastic, as manufactured by BASF; Dehydratine 4 by Euclid Chemical; RIW Marine Liquid by Toch Brothers; or approved equal.

2.10 NON-SHRINK, WATER-PROOF GROUT

A. Non-shrink, water-proof grout shall be Hallemite; Waterplug; Embeco; or approved equal.

PART 3 EXECUTION

3.1 INSTALLATION

A. Installation

1. Construct manholes and catch basins to the dimensions shown on the Drawings and as specified. Protect all work against flooding and flotation.

2. Set precast concrete barrel sections so as to be plumb and with sections in true alignment with a ¼ inch maximum tolerance to be allowed.

3. Install the precast sections in a manner that will result in a watertight joint. Seal the joints of precast concrete barrel sections with the preformed flexible joint sealant used in sufficient quantity to fill 75% of the joint cavity. Fill the outside and inside precast section joints with non-shrink grout and finish flush with the adjoining surfaces. Plug holes in the concrete barrel sections required for handling or other purposes with a non-shrink, water-proof grout or concrete and rubber plugs, and finish flush on the inside.

4. Backfilling shall be done in a careful manner, bringing the fill up evenly on all sides.

5. All precast structures shall be set on a level bed of ¾" crushed stone meeting the requirements of CTDOT Form 818, Article M.01.01 No. 6 stone.

B. Pipe Connections

1. Stubs

   a. Connect pipe stubs for future extensions to the structures as shown on the Drawings and close the stub end by a suitable watertight plug.

2. For pipes with smooth exterior surfaces (PVC, ductile iron, HDPE pressure pipe, steel, etc), use flexible pipe-to-structure connectors.

3. Where flexible pipe-to-structure connectors cannot be used, such as pipes with rough, irregular or corrugated exterior surfaces (concrete, corrugated metal, HDPE drainage pipe, etc):

   a. After the new pipe has been set in place, completely fill the hole around the new pipe and structure with non-shrink, water-proof grout.

   b. Place a 6 inch thick concrete encasement a total of 12 inches in length around the pipe stub adjacent to the exterior wall of the structure. Concrete shall have a 28 day compressive strength of 3,000 psi.

C. Manhole Rung Installation

1. Steel reinforced copolymer polypropylene plastic steps shall be press fitted by hand driven hammer into preformed holes in cured precast sections, on 12 inch centers, by the precast concrete manufacturer.

D. Brickwork

1. Mix mortar only in such quantity as may be required for immediate use and use before the initial set has taken place. Do not retain mortar for more than one and one-half hours and constantly work over with a hoe or shovel until used. Anti-freeze mixtures will not be allowed in the mortar. No masonry shall be laid when the outside temperature is below 40°F

unless provisions are made to protect the mortar, bricks, and finished work from frost by heating and enclosing the work with tarpaulins or other suitable material. The Engineer's decision as to the adequacy of protection against freezing shall be final.

2. Construct channels and shelves of brick as shown on the Drawings. The brick channels shall correspond in shape with the lower half of the pipe. The top of the shelf shall be set at the elevation of the crown of the highest pipe and shall be sloped 1 inch per foot to drain toward the flow through channel. Construct brick surfaces exposed to sewage flow with the nominal 2 inch by 8 inch face exposed (i.e., bricks on edge).

3. Set manhole covers and frames and catch basin frames and grates in a full mortar bed and bricks, a maximum of 12 inches thick for conical tops and 6 inches thick for flat top sections, utilized to assure frame and cover are set to the existing grade. Reset the manhole frames and covers and catch basin frames and grates to final grade prior to placement of final paving.

3.2 LEAKAGE TEST

A. Leak test sewer manholes in conjunction with the pipeline in accordance with Section 33 3114.

3.3 CLEANING

A. Clean all new manholes and catch basins of silt, debris, and foreign matter of any kind, prior to final inspection.

END OF SECTION

SECTION 330514 - BREAKING INTO EXISTING MANHOLES AND CATCH BASINS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division I Specifications, apply to this section.

1.2 SUMMARY

A. Related Section includes

1. Breaking through the walls and inverts of existing manholes and catch basins.

2. Connecting new pipes to existing structures.

3. Ancillary work associated with making the new connections to the existing structures.

1.3 REFERENCES

A. ASTM C443 – Standard Specification for Joints for Circular Concrete Sewer and Culvert Piping Using Rubber Gaskets.

B. ASTM C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.

1.4 SUBMITTALS

A. Submit shop drawings showing pipe connection details.

B. Bypass plans shall be submitted to the Town of Greenwich Department of Public Works Sewer Division for review and approval.

1.5 QUALITY ASSURANCE

A. Personnel shall have confined space entry training as appropriate for the work to be performed.

PART 2 PRODUCTS

2.1 MATERIALS

A. Flexible Pipe-to-Structure Connectors

1. The flexible connectors shall be designed to provide a positive seal between the connector and the structure wall and between the connector and the pipe.

2. The flexible boot shall be manufactured of EPDM synthetic rubber in accordance with ASTM C443 and C923 and shall be 3/8 inch thick or greater.

3. The external bands shall be made entirely of 304 series non-magnetic stainless steel.

4. The flexible connectors shall be provided with a wedge-type or toggle-type expander to secure the pipe in the structure opening.

5. The flexible connectors shall meet the following criteria, in accordance with ASTM C923:

   a. Shall not leak when subjected to a head pressure of 10 psi for 10 minutes.

   b. Shall have the ability to deflect 7 degrees in any direction without leakage under the head pressure conditions described above.

   c. Shall not leak when subject to a load of 150 lbs./in. pipe diameter and the head pressure conditions described above.

B. Non-shrink, water-proof grout

1. Non-shrink, water-proof grout shall be Hallemite; Waterplug; Embeco; or approved equal.

PART 3 EXECUTION

3.1 INSTALLATION

A. General

1. Core drill into existing structures in such a fashion as to make an opening of suitable size to accommodate the connecting pipe without excessive damage to the existing structure.

2. Core drilling and manhole connections shall conform to the Town of Greenwich Public Works requirements.

B. Manholes

1. For manholes, break out and rebuild existing inverts as required to provide an adequate base under the new channels being installed, and shaped to provide smooth continuous hydraulic flow through the manhole.

2. Control existing flows as required during the period of construction. No sewage or drainage will be permitted to flow directly against concrete or other masonry work until it is at least 48 hours old.

   a. Temporary handling of sewage or drainage flows may be accomplished by inserting pipes from the inlet to the outlet of the manhole and by using temporary plugs, where appropriate, provided that such pipes do not interfere with satisfactory completion of the work and shaping of the inverts, nor cause excessive backing-up in the existing system upstream of the diversion. In cases where this type of temporary handling of

flows is not possible, provide the necessary dams, plugs, etc., as required in upstream manholes, and pump the flow around the structure under construction.

b. When sewage is pumped or otherwise diverted around a particular structure, it shall be discharged back into the sewage system through existing downstream manholes. Under no circumstances shall sewage be permitted to run onto the surface of the ground.

c. Any sewer bypass operation shall be staffed by the contractor and field personnel must be present during the operation.

d. All manholes utilized in the bypass operation must remain closed by temporary means to prevent unauthorized access. Contractor shall include temporary closure methods in their bypass plan.

C. Catch Basins

1. All catch basin openings, created as a result of the removal and replacement of the existing drains connected to the catch basins with new drainpipes, shall be sealed. This work shall be performed using masonry to match existing construction, where applicable, and non-shrink grout to provide a neat patch.

D. Pipe Connections

1. Rebuild and tightly close existing manhole walls and inverts and catch basin walls to provide an integral, water-tight structure around the new pipes.

2. For pipes with smooth exterior surfaces (PVC, ductile iron, HDPE, steel, etc), use flexible pipe-to-structure connectors.

3. Where flexible pipe-to-structure connectors cannot be used, such as pipes with rough, irregular, or corrugated exterior surfaces (concrete, corrugated metal or HDPE, etc):

a. After the new pipe has been set in place, completely fill the hole around the new pipe and structure with non-shrink, water-proof grout.

b. Place a 6-inch-thick concrete encasement a total of 12 inches in length around the pipe stub adjacent to the exterior wall of the structure. Concrete shall have a 28-day compressive strength of 3,000 psi.

END OF SECTION

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SECTION 333113 - POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division I Specifications, apply to this section.

1.2 SUMMARY

A. Section Includes

1. PVC Gravity Pipe and Fittings

2. Perforated PVC Drain Pipe

B. Related Sections

1. Section 31 2300 - Excavation, Backfill, Compaction and Dewatering

2. Section 31 2333 – Trenching and Backfilling

3. Section 33 3114 – Testing of Sanitary Sewer and Storm Drainage Systems

1.3 REFERENCES

A. ASTM D2412 - Standard Test Method for External Loading Properties of Plastic Pipe by Parallel-Plate Loading.

B. ASTM D2444 - Standard Test Method for Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight).

C. ASTM D3034 - Specification for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings.

D. ASTM D3212 - Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.

E. ASTM F477 - Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

1.4 SUBMITTALS

A. Submit specifications and shop drawings for materials and equipment furnished under this Section.

B. Prior to first shipment of pipe, submit certified test reports that the pipe for this Contract was manufactured and tested in accordance with the ASTM Standards specified herein.

1.5 QUALITY ASSURANCE

A. Each type of PVC pipe and fittings shall be from a single manufacturer and shall conform with the Town of Greenwich Department of Public Works Sewer & Engineering Division standards, materials, and requirements.

B. Inspection of the pipe will also be made by the Owner after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the Specification requirements. Pipe rejected after delivery shall be marked for identification and shall immediately be removed from the job site. No recycled pipe will be accepted.

1.6 SPARE PARTS

A. Supply 4 tee handle wrench operators suitable to operate the curb stops installed under this section.

PART 2 PRODUCTS

2.1 MATERIALS

A. Gravity Pipe

1. Polyvinyl chloride (PVC) pipe shall be of the size indicated on the Drawings or as specified and shall conform to the latest revision of ASTM D3034, Type SDR 35 for diameters less than or equal to 15-inch diameter and ASTM F679 for pipe greater than 15-inch diameter. Standard laying lengths shall not exceed 14.0 feet.

2. Joints shall be elastomeric gasket joints and shall provide a watertight seal. Assembly of joints shall be in accordance with ASTM D3212.

3. The minimum "pipe stiffness" (load divided by change in inside diameter in direction of load application) at 5% deflection shall be at least 46 psi for pipe tested in accordance with ASTM D2412.

4. No shattering or splitting shall be evident when 150 ft.-lbs. and 210 ft.-lbs. is impacted on 4 inch and 6-inch diameter pipe, respectively, in accordance with ASTM Method of Test D2444.

5. Pipe lengths and fittings to be used on the project shall be clearly marked on the outside in bold type with the name of the manufacturer, pipe size, pipe material, pipe class, and ASTM designation.

6. Gravity Pipe Lateral Connections.

   a. Gravity pipe lateral connection wyes and tees are to be laid in the run of the main pipeline. The wyes and tees shall be the same material as the main line and shall conform in material, joints, and class with the line into which they are to be laid.

   b. Eighth and sixteenth bends and end plugs are to be of the same material and class or strength designation as the pipe for the house connection.

   c. Unless noted on the Drawings, house service piping shall use the same diameter tees, WYEs and lateral pipes as existing to connect existing laterals to new mainline sewer and shall be of the same material as the main line pipe.

7. Lateral Service Chimneys

   a. Pipe and fittings shall use the same diameter tees, WYEs and lateral pipes as existing to connect existing laterals to new mainline sewer and be of the same material as the main line pipe.

   b. Construct service chimneys with precast concrete sections. Cast-in-place chimneys will not be acceptable.

   c. Concrete chimneys shall be designed so that the weight of the chimney is not transferred onto the main line pipe or tee.

   d. Concrete used for construction of chimneys shall be 5,000 psi at 28 days.

B. Perforated Pipe

1. Perforated polyvinyl chloride pipe shall be Type PS-46 PVC and conform to ASTM F758. Perforated pipe shall be furnished in lengths of not more than 20 feet.

2. Alternately, perforated polyvinyl chloride pipe hall conform to ASTM D3034 in sizes 4 through 15 inch. Perforations shall be two rows of ½ inch diameter holes spread longitudinally, 6 inches (maximum) apart and shall be oriented 120 degrees apart (60 degrees either side of the pipe bottom). A maximum tolerance of ¼-inch on hole spacing and size will be allowed. The top of pipe shall be marked for ease of installation.

PART 3 EXECUTION

3.1 HANDLING PIPE AND FITTINGS

A. Take care in loading, transporting, and unloading to prevent injury to the pipe. Do not drop pipe or fittings. Examine pipe and fittings before installing, and no piece shall be installed that is found to be defective.

B. If any defective pipe is discovered after it has been installed, remove, and replace it with a sound pipe in a satisfactory manner. Thoroughly clean pipe and fittings before installing, keep clean until they are used in the work, and conform to the lines, grades and dimensions required when installed.

C. Pipe ends requiring cutting shall be cut square without damage to the remaining pipe. Bevel cut pipe ends 1/8 inch at approximately 30 degrees to provide proper assembly of the joint. Beveling can be done with a coarse file or portable grinder.

D. Support stored pipe from below at not more than 3-foot intervals to prevent deformation. Do not stack pipe higher than 6 feet. Store pipe and fittings in a manner which will keep them at ambient outdoor temperatures. Provide temporary shading as required to meet this requirement. Simply covering of the pipe and fittings which allows temperature buildup when exposed to direct sunlight will not be permitted.

3.2 INSTALLATION

A. No single piece of pipe shall be laid unless it is generally straight. The centerline of the pipe shall not deviate from a straight line drawn between the centers of the openings at the ends of the pipe by more than 1/16 inch per foot of length. If a piece of pipe fails to meet this required check for straightness, it shall be rejected and removed from the site. Laying instructions of the manufacturer shall be explicitly followed.

B. Install piping and fittings true to alignment and grade. If necessary, each length of pipe shall be cleaned out before installation.

C. Excavation, trenching and back filling procedures shall be in accordance with Section 31 2333.

D. All PVC gravity pipe shall be installed on a bed of 3/4-inch crushed stone borrow meeting the requirements of Section 31 2000 and have a minimum depth of 6 inches. The 3/4-inch crushed stone borrow shall also completely encase the pipe and cover the pipe to a grade 6 inches over the top of the pipe for the entire width of the trench. Bell holes shall be made in the 3/4-inch crushed stone borrow bedding such that the pipe shall be uniformly supported throughout the entire length of the barrel section.

E. All sections of gravity sewer pipe will be low pressure air tested in accordance with Section 33 3114.

F. All PVC force main pipe shall be installed with proper bedding using compacted native materials which provide uniform longitudinal support under the pipe. When an unstable subgrade material is encountered which will provide inadequate pipe support, additional trench depth should be excavated and refilled with suitable material. Initial backfill material should be placed to a minimum one foot over the top of the pipe. Pipe backfill material should be selected and placed carefully, avoiding stones, frozen lumps, and debris.

G. Deflections in Pipe Alignment.

1. Wherever it is necessary to deflect pipe from a straight line, either in the vertical or horizontal plane, to avoid obstructions or where long-radius curves are permitted, the amount of deflection allowed shall not exceed that required for satisfactory making of the joint and shall be approved by the Engineer.

2. Prior to deflecting the pipeline, the spigot of the pipeline should be marked flush with the bell end to assure that the spigot is not withdrawn excessively as the result of the deflection. After the pipe is deflected, an adequate depth of jointing material must remain on the side where the spigot is away from home and an adequate width of caulking space must remain on the opposite side of the pipe at the face of the bell.

3. The maximum deflection recommended by the manufacturer when using any pipe system must be observed when deflecting a pipeline.

4. In general, all radius curves called for on the Drawings or permitted at the time of construction are to be made using full lengths of pipe. The use of short lengths of pipe and extra joints in order to make a smaller radius turn will not be allowed without the written approval of Engineer.

H. Unsuitable Laying Conditions

1. No pipe shall be laid in water, in an unsuitable trench or during unsuitable weather conditions.

I. "As-Built" Information

1. Provide "as-built" survey made by a licensed surveyor registered in the State of Connecticut, paid for by the Site Contractor, showing all actual locations, inverts, grades of structures and piping. Furnish one set to the owner and one set to the Site Engineer. As-builts shall meet the Town of Greenwich Public Works Sewer & Engineering Division requirements.

END OF SECTION

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SECTION 333114 - TESTING OF STORM DRAINAGE AND SANITARY SEWER SYSTEMS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division I Specifications, apply to this section.

1.2 SUMMARY

A. Section Includes

1. Testing of Storm Drainage Systems

2. Testing of Gravity Sanitary Sewer Systems

B. Related Sections

1. Section 33 3115 – Television Inspection of Pipelines

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 TESTING OF STORM DRAINAGE SYSTEMS

A. Storm drainage pipes shall be sighted to ensure that pipes are straight between structures, correctly sloped, clean of debris and sediment and generally free flowing. Alignment shall meet the requirements of Paragraph 3.2.G.

B. Storm drainage structures shall be sighted to ensure that all structures are clean of debris and sediment, have frames, covers, grates, inverts, sumps, and other specified appurtenances installed.

C. All PVC or HDPE drainage pipe shall be tested for deflection in accordance with Paragraph 3.2.E after forty-five (45) days from completion of backfill operations.

D. Conform with the Town of Greenwich Sewer Division standards, materials, and requirements.

3.2 TESTING OF GRAVITY SANITARY SEWER SYSTEMS

A. All gravity sewers shall be tested for allowable leakage by low pressure air test or by an infiltration/exfiltration water test as described herein.

B. Low Pressure Air Test

1. After completing backfill of a section of pipe including laterals, conduct a line acceptance test using low-pressure air. The test shall be performed according to the specified procedures and under the supervision of the Engineer. Follow the testing procedures outlined below.

2. Seal test pneumatic plugs before use in the actual test installation. Lay one length of pipe on the ground and seal at both ends with the pneumatic plugs to be checked. Introduce air into the plugs to 25 psig. Pressurize the sealed pipe to 5 psig. The plugs shall hold against this pressure without bracing and without movement of the plugs out of the pipe.

3. After a manhole reach of pipe has been backfilled and cleaned, and the pneumatic plugs have been checked, place the plugs in the line at each manhole and inflate to 25 psig. Introduce low pressure air into this sealed line until the internal air pressure reaches 4 psig greater than the average back pressure of any groundwater that may be over the pipe. Allow a minimum of two minutes for the air pressure to stabilize. After the stabilization period (3.5 psig minimum pressure in the pipe), disconnect the air hose from the control panel to the air supply. The portion of the line being tested has passed the test if the time required in minutes for the pressure to decrease from 3.5 to 2.5 psig (greater than the average back pressure of any groundwater that may be over the pipe) is not be less than the time shown for the given diameters and lengths in Table 1 at the end of this section.

4. Air tests shall cover a 1.0 psig pressure drop; 0.5 psig pressure drop tests are not acceptable.

5. In areas where groundwater is known to exist, install a one-half inch diameter capped pipe nipple, approximately 10 inches long, through the manhole wall on top of one of the sewer lines entering the manhole. The nipple shall be installed at the time the sewer line is installed. Immediately prior to the line acceptance test, determine the elevation of the groundwater by removing the pipe cap, blowing air through the pipe nipple to remove any obstructions, and then connecting clear plastic tube to the nipple. Hold the hose vertically and measure the height after the water has stopped rising in this plastic tube. Divide the height in feet by 2.3 to establish the pressure in pounds per square inch (psig) that will be added to all readings. (For example, if the height of water is 11-1/2 feet, then the added pressure will be 5 psig. This increases the 3.5 psig to 8.5 psig, and the 2.5 psig to 7.5 psig. The allowable drop of one pound per square inch and the timing remain the same.)

6. The maximum starting test pressure should not exceed 9 psig, regardless of groundwater level above the pipe. If the groundwater level is such that the added pressure would be greater than 5.5 psig (12.7 feet), the pipe section may be tested using a starting pressure of 9 psig.

7. Each pipe nipple installed to measure groundwater levels shall be recapped subsequent to the air testing procedure to prevent future infiltration. The plugs shall be removed and properly plugged with a watertight seal.

8. As an alternative to installing a pipe nipple in a manhole to measure the height of groundwater, excavate a test pit over the pipe to determine the height of groundwater.

C. Vacuum Test for Manholes - Gravity Sewer Line.

1. After a manhole has been constructed, conduct a manhole acceptance test using the following vacuum test procedure:

   a. Plug all lift holes with an approved non-shrink grout.

   b. Plug all pipes entering the manhole, taking care to securely brace the plug from being drawn into the manhole.

   c. Place the test head at the inside of the top of the precast concrete cone section and inflate the seal in accordance with the manufacturers' recommendations.

   d. Draw a vacuum of 10 inches of mercury and shut off the vacuum pump. With the valves closed, measure the time for the vacuum to drop to 9 inches. The manhole shall pass if the time is greater than:

      1 min. 0 sec. for 0-ft. to 10-ft. deep manholes

      1 min. 15 sec. for 10-ft. to 15-ft. deep manholes

      1 min. 30 sec. for 15-ft. to 25-ft. deep manholes

   e. If the manhole fails the initial test, make repairs with a non-shrink grout. Retest until a satisfactory test is obtained.

D. Infiltration/Exfiltration Test

1. All gravity type sewers shall be subjected to either an infiltration or an exfiltration test unless otherwise specified. The type of test required will be contingent upon groundwater conditions in the area where lines are to be tested. These tests shall include losses or gains through manholes as well as through pipe walls and joints, as well as through house connection fittings and pipe. No building shall be connected to a newly installed sewer until the sewer has been satisfactorily tested.

2. Where lines are installed in areas having a high groundwater level, conduct an infiltration test of a minimum four-hour duration under the supervision of the Engineer. Isolate various sections of the sewer using of watertight plugs and measure the quantity of water entering the pipe during a predetermined time. If the conditions are such that groundwater table varies depending on surrounding influence and time of the year or if the table elevation is unknown at the time of testing, excavate test holes as directed by the Engineer.

3. Where lines are installed in relatively dry areas, conduct an exfiltration test. Conduct this test by isolating various sections of the line using watertight plugs and filling the line with water to a predetermined level. Determine the loss of water in a predetermined time by measuring the quantity of water required to refill the line to the original level.

4. The Engineer will determine the length of line to be tested at one time, depending on the grade of the sewer.

5. Include losses through manholes in determining the loss in a line. For exfiltration test, fill manholes to the bottom of the cone or flat top section and allow to stabilize before beginning test. Refilling to reference line may be required before commencing test.

6. The maximum acceptable loss, through either infiltration or exfiltration, shall not exceed 100 gallons per mile per 24 hours per inch of diameter of the pipe tested. When two or more pipeline sections are tested at the same time, the allowable leakage for the shortest section shall be used as the acceptable loss for the entire length being tested.

E. Allowable Deflection Test for PVC or HDPE Pipe (Sewer or Drain Pipe) - Unless otherwise specified, all gravity and drain PVC or HDPE pipe shall be tested for allowable deflection in accordance with the procedure noted below.

1. Pipe deflection measured not less than 45 days after the backfill has been completed as specified shall not exceed 5 percent. Deflection shall be computed by multiplying the amount of deflection (average outside diameter less twice the average wall thickness diameter when measured) by 100 and dividing by the nominal diameter of the pipe.

2. Deflection shall be measured with a rigid mandrel (Go-No-Go) device cylindrical in shape and constructed with a minimum of nine or ten evenly spaced arms or prongs. Submit drawings of the mandrel with complete dimensions for each diameter of pipe to be tested. Hand pull the mandrel through all sewer and drain lines.

3. Uncover any section of pipe not passing the mandrel and replace the bedding and backfill to prevent excessive deflection. Retest repaired pipe immediately upon backfilling of trench until acceptable.

4. Retest the repaired section of pipeline from manhole to manhole again after the 45 day backfill period until acceptable.

F. Test Failures

1. In case leakage or deflection exceeds the above specified amount, locate the failure and repair them at no additional cost to the Owner.

2. Pipelines with shear-type breaks, fishmouths or damaged gaskets, cracked bells or couplings, hairline fractures, or structural damage shall be replaced in kind. Mechanical sleeve couplings, poured concrete collars or similar repairs are not permitted. The use of pressure grouting repair techniques will not be allowed without the written consent of the Engineer.

3. After repairs have been made, re-test the line and repeat the process of repairing and re-testing until results within the above specified limits are obtained.

G. Alignment of Gravity Sewers and Drains

1. Lay gravity sewers and drains accurately to line and grade.

2. After the pipe is laid and backfill complete, visually inspect the interior of the pipe from manhole to manhole. If it is not possible to sight from manhole to manhole through the pipe, the alignment is considered unacceptable.

3. CCTV inspections shall be performed per specification 33 3115 upon completion sanitary mains and laterals. Contractor shall clean and jet any construction debris encountered during the CCTV inspections.

4. If the alignment is unacceptable due to vertical displacement, remove and replace the pipe to the proper grade.

3.3 PAYMENT FOR TESTS

1. No separate payment will be made for preparing or carrying out tests of pipelines or structures. Furnish all materials, equipment, gauges, pumps, specials, temporary tappings in line, and water or other things required for making the tests. Test all manholes and pipe installed as part of the Work.

TABLE I

SPECIFICATION TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP

FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q=0.0015

1	2	3	4	Specification Time for Length (L) Shown (min:sec)							
Pipe Diameter (in.)	Minimum Time (min:sec)	Length for Minimum Time (ft)	Time for Longer Length (sec)	100 ft.	150 ft.	200 ft.	250 ft.	300 ft.	350 ft.	400 ft.	450 ft.
4	3:46	597	.380 L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520 L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38

Uni-Bell PVC Pipe
Association Publication
Uni-B-6-90

END OF SECTION

SECTION 334114 - UNDERGROUND WARNING TAPE

PART 1 GENERAL

1.1 RELATED SECTIONS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division I Specifications, apply to this section.

1.2 SUMMARY

A. Section Includes

1. Underground Warning Tape for site water, electric, tel-com, gas, drainage and sanitary sewer.

1.3 SUBMITTALS

A. Shop Drawing Submittals

1. Product Data

PART 2 PRODUCTS

2.1 MATERIALS

A. Metallic warning tape for underground piping shall be polyethylene tape with metallic core for easy detection and location of piping with a metal detector.

B. Tape shall be 6 inches wide.

C. Tape shall be as manufactured by Seton Name Plate Corp., New Haven, CT; Presco Detectable Underground Warning tape, Sherman, Texas; Blackburn Manufacturing, Neligh, NE; Mercotape, Hachensach, NJ; or approved equal.

D. The warning tape shall be heavy gauge 0.004 inch polyethylene and shall be resistant to acids, alkalis and other soil components. It shall be highly visible in the following colors with the associated phrases stamped in black letters and repeated at a maximum interval of 40 inches.

Type of Utility	Color	Warning Message
Sanitary Sewer	Green	CAUTION – SANITARY SEWER BURIED BELOW
Storm Drain	Green	CAUTION - STORM DRAIN BURIED BELOW
Water	Blue	CAUTION – WATER LINE BURIED BELOW
Electric	Red	CAUTION – ELECTRIC LINE BURIED BELOW
Tel-Com	Orange	CAUTION – TELEPHONE LINE BURIED BELOW
Gas	Yellow	CAUTION – GAS LINE BURIED BELOW

E. The tape shall be of the type specifically manufactured for marking and locating utilities.

PART 3 EXECUTION

3.1 INSTALLATION

A. All buried pipe and fittings shall be installed with metallic-lined underground warning tape located approximately 18 inches below grade to allow detection by a metal detector.

END OF SECTION

APPENDIX E - GREENWICH TEST PIT FIELD LOG FORMS (TP101 – TP120) - NEW PER BQ RFI #223 REPORTS DATED 11/17/2023

Town of Greenwich
Department of Public Works - Engineering Division
Town Hall - 101 Field Point Road, Greenwich, CT 06830
Phone 203-622-7767 - Fax 203-622-7747

SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 101 **Ground Elevation:** 45.97'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
45.57'	Topsoil	0" - 5"
44.47'	F-C Sand and F-C Gravel Some Boulders, Little Silt, Little Wood	5" - 18"
42.97'	Light Brown F-C Sand, Some Boulders, Little F-C Gravel, Trace Roots at 2'	18" - 36"
40.97'	F-M Sand, Some Silt, Little Boulders, Trace Roots	36" - 60"
37.97'	Brown F-C Sand and F-C Gravel, Some Boulders, Little Silt	60" - 96"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
37.97'	Groundwater	96"
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
_____ Amoozemeter or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.

* All field infiltration tests must be conducted in the actual location and soil layer where stormwater infiltration is proposed.

TEST CERTIFICATION

I HEREBY CERTIFY THAT THE INFORMATION CONTAINED IN THIS REPORT IS TRUE AND CORRECT.

Elysa Goldberg	Elysa Goldberg	11/17/2023
Name of Test Conductor	Signature of Test Conductor	Date

Town of Greenwich
Department of Public Works - Engineering Division
Town Hall - 101 Field Point Road, Greenwich, CT 06830
Phone 203-622-7767 - Fax 203-622-7747

SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 102 **Ground Elevation:** 46.1'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
45.6'	Topsoil	0" - 6"
45.1'	F-C Brown Sand, Some Silt, Little F-C Gravel	6" - 12"
44.1'	F-C Light Brown Sand and F Gravel, Little Boulders, Little C Gracel, Trace Silt	12" - 24"
40.1'	F-C Gray Sand and F Gravel, Some Boulders, Little Silt, Trace Roots	24" - 72"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
_____ Amoozemeter or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.

* All field infiltration tests must be conducted in the actual location and soil layer where stormwater infiltration is proposed.

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Town of Greenwich
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Phone 203-622-7767 - Fax 203-622-7747

SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 103 **Ground Elevation:** 45'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
44.5'	Topsoil	0" - 6"
44.0'	Brown F-C Sand and F Gravel, Little Silt	6" - 12"
43.0'	Light Brown F-M Sand, Little Silt, Trace F Gravel	12" - 24"
42.0'	Brown F-C Sand and F-C Gravel, Little Boulders	24" - 36"
40.0'	Gray F-C Sand and F Gravel, Some Boulders, Little Silt	36" - 60"
37.5'	Black F-M Sand, Some Silt, Little Organics	60" - 90"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
_____ Amoozemeter or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.

* All field infiltration tests must be conducted in the actual location and soil layer where stormwater infiltration is proposed.

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Town of Greenwich
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Phone 203-622-7767 - Fax 203-622-7747

SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 104 **Ground Elevation:** 44.36'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
43.86'	Topsoil	0" - 6"
43.36'	Brown F-C Sand, Some F-C Gravel, Trace Silt	6" - 12"
40.36'	Light Brown F-C Sand and F-C Gravel, Some Boulders, Little Silt	12" - 48"
39.36'	Gray F-C Sand, some Boulders, Little F-C Gravel, Trace Silt	48" - 60"
38.36'	Black F-M Sand, Some Silt, Little Organics, Seepage at 72"	60" - 72"
36.36'	Gray Clayey Silt, Some F-M Sand	72" - 96"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
_____ Amoozemeter or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.

* All field infiltration tests must be conducted in the actual location and soil layer where stormwater infiltration is proposed.

TEST CERTIFICATION

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Town of Greenwich
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SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 105 **Ground Elevation:** 43.75'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
43.25'	Topsoil	0" - 6"
40.25'	Light Brown F-C Sand and F Gravel, Some Boulders, Little Silt	6" - 42"
38.75'	Gray F-C Sand , Some Boulders, Little F-C Gravel, Trace Silt. Seepage at 60"	42" - 60"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
_____ Amoozemeter or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.

* All field infiltration tests must be conducted in the actual location and soil layer where stormwater infiltration is proposed.

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SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 106 **Ground Elevation:** 42.98'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
42.48'	Topsoil	0" - 6"
38.98'	Brown F-C Sand and F-C Gravel, Some Boulders, Trace Silt	6" - 48"
37.98'	Gray F-C Sand and F-C Gravel, Little Boulders, Trace Silt	48" - 60"
34.98'	Brown F-C Sand and F Gravel, Little Boulders, Little Silt	60" - 96"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
_____ Amoozemeter or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.

* All field infiltration tests must be conducted in the actual location and soil layer where stormwater infiltration is proposed.

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SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 107 **Ground Elevation:** 43.19'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
42.69'	Topsoil	0" - 6"
39.19'	Brown F-C Sand and F-C Gravel, Some Boulders, Trace Silt	6" - 48"
38.19'	Black F-M Sand, Some Silt, Little Roots. Bog Odor	48" - 60"
35.19'	Gray F-M Sand. Some Silt, Little Boulders, Little F-C Gravel. Seepage at 84"	60" - 96"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
_____ Amoozemeter or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.

* All field infiltration tests must be conducted in the actual location and soil layer where stormwater infiltration is proposed.

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Town of Greenwich
Department of Public Works - Engineering Division
Town Hall - 101 Field Point Road, Greenwich, CT 06830
Phone 203-622-7767 - Fax 203-622-7747

SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 108 **Ground Elevation:** 42.65'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
42.15'	Topsoil	0" - 6"
38.65'	Light Brown F-C Sand and F-C Gravel, Some Boulders, Little Silt	6" - 48"
37.65'	Black F-M Sand, Some Silt, Little Cobbles. Bog Odor	48" - 60"
36.65'	Gray F-C Sand and F-C Gravel, Some Boulders, Little Silt	60" - 72"
34.65'	Gray F-M Sand, Some Silt, Trace Roots, Trace Boulders. Seepage at 96"	72" - 96"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
_____ Amoozemeter or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.

* All field infiltration tests must be conducted in the actual location and soil layer where stormwater infiltration is proposed.

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Name of Test Conductor	Signature of Test Conductor	Date

Town of Greenwich
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Phone 203-622-7767 - Fax 203-622-7747

SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 109 **Ground Elevation:** 42.03'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
41.03'	Topsoil	0" - 12"
40.03'	Light Brown Silty Loam and Sand	12" - 24"
38.03'	M Brown Sandy Loam	24" - 48"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
_____ Amoozemeter or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.

* All field infiltration tests must be conducted in the actual location and soil layer where stormwater infiltration is proposed.

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Name of Test Conductor	Signature of Test Conductor	Date

Town of Greenwich
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SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 110 **Ground Elevation:** 45.82'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
45.32'	Topsoil	0" - 6"
43.32'	M Brown Sandy Loam with Some Cobbles	6" - 30"
41.82'	Grey Silty Organic Material	30" - 48"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
_____ Amoozemeter or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.

* All field infiltration tests must be conducted in the actual location and soil layer where stormwater infiltration is proposed.

TEST CERTIFICATION

I HEREBY CERTIFY THAT THE INFORMATION CONTAINED IN THIS REPORT IS TRUE AND CORRECT.

Elysa Goldberg	Elysa Goldberg	11/17/2023
Name of Test Conductor	Signature of Test Conductor	Date

Town of Greenwich
Department of Public Works - Engineering Division
Town Hall - 101 Field Point Road, Greenwich, CT 06830
Phone 203-622-7767 - Fax 203-622-7747

SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 111 **Ground Elevation:** 44.16'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
43.16'	Topsoil	0" - 12"
41.16'	M Brown Sandy Loam with Some Cobbles	12"- 36"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
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Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

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SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 112 **Ground Elevation:** 45.7'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
45.2'	Topsoil	0" - 6"
43.2'	M Brown Sandy Loam and Silt, Some Gravel and Some Boulders	6" - 30"
38.7'	M Brown Sandy Loam and Silt with Some Cobbles, Some Boulders	30" - 84"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
_____ Amoozemeter or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.

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SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 113 **Ground Elevation:** 44.79'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
44.29'	Topsoil	0" - 6"
43.29'	Light Brown Sandy Loam and Silt	6" - 18"
39.79'	Light Brown Silt and Sand with Some Cobbles	18" - 60"
37.79'	M Brown Sandy Loam and Silt with Some Cobbles	60" - 84"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
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Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

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SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 114 **Ground Elevation:** 44.28'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
43.78'	Topsoil	0" - 6"
42.28'	Dark Brown Sandy Loam with Little Roots and Some Cobbles	6" - 24"
39.28'	Light Brown Sandy Loam with Some Cobbles	24" - 60"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
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Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

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SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Project Address: **Greenwich, CT**

Engineering Firm's Nan **Tighe & Bond**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 115 **Ground Elevation:** 44.89'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
44.39'	Topsoil	0" - 6"
42.39'	M Brown Sandy Loam with Some Gravel	6" - 30"
39.89'	M Brown Sandy Loam with Some Gravel, Some Silt, Some Boulders	30" - 60"
37.89'	M Brown Sandy Loam with Some Cobbles and Some Boulders	60" - 84"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
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Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

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SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 116 **Ground Elevation:** 48.05'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
47.55'	Topsoil	0" - 6"
46.55'	M Brown Sandy Loam with Some Gravel and Some Cobbles	6" - 18"
44.55'	Red/Brown Sandy Loam with Some Gravel, Some Cobbles, Some Boulders	18" - 42"
41.05'	M Brown Sandy Loam with Some Gravel and Some Boulders	42" - 84"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
_____ Amoozemeter or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

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SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Project Address: **Greenwich, CT**

Engineering Firm's Nan **Tighe & Bond**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 117 **Ground Elevation:** 47.21'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
46.71'	Topsoil	0" - 6"
43.71'	Light Brown Sandy Loam with Some gravel, Some Cobbles. Some Boulders, and Trace Roots	6" - 42"
41.71'	Red/ Brown Sandy Laom with Some Silt, Some Gravel, Trace Roots	42" - 66"
40.21'	Light Brown Sandy Loam with Some Gravel, and Some Cobbles	66" - 84"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
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Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

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SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 118 **Ground Elevation:** 42.83'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
42.33'	Topsoil	0" - 6"
40.83'	Brown F-C Sand and F-C Gravel, Little Silt, Little Boulders, Trace Roots	6" - 24"
38.83'	Light Brown F-C Sand and F-C Gravel, Some Boulders, Trace Silt	24" - 48"
37.83'	Gray F-M Sand, Some Silt, Trace Roots	48" - 60"
36.83'	Brown F-C Sand and F-C Gravel, Some Boulders, Trace Silt. Seepage at 72"	60" - 72"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
_____ Amoozemeter or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.

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SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Engineering Firm's Nan **Tighe & Bond**

Project Address: **Greenwich, CT**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 119 **Ground Elevation:** 42'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
41.5'	Topsoil	0" - 6"
40.5'	Dark Brown Sandy Loam with Some Gravel, Some Cobbles and Some Boulders	6" - 18"
39.5'	Red/ Brown Silty Loam and Sand with Some Gravel	18" - 30"
37'	Light Brown Sandy Loam with Some Gravel, Some Cobbles, and Some Boulders	30" - 60"
35'	Gray Clay with Some Boulders	60" - 84"

Elevation		Depth in Inches
37'	Mottling (Seasonally High Groundwater)	60"
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
_____ Amoozemeter or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

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SOIL EVALUATION TEST RESULTS

Project Name: **Greenwich Central Middle School**

Project Address: **Greenwich, CT**

Engineering Firm's Nan **Tighe & Bond**

Engineer's Name: **Andrew P. White, PE**

Test Pit or Soil Boring #: 120 **Ground Elevation:** 42'

Elevation	Soil Texture (Percent Sand, Silt and Clay)	Depth Range in Inches
41.5'	Topsoil	0" - 6"
39'	Light Brown Sandy Loam and Silt and Some Gravel	6" - 36"

Elevation		Depth in Inches
	Mottling (Seasonally High Groundwater)	
	Groundwater	
	Ledge	

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: _____

Top Elevation of Proposed Infiltration System: _____

Bottom Elevation of Proposed Infiltration System: _____

Elevation of Test*: _____

Test Method (check one of the following acceptable methods**):

_____ Borehole infiltration test (NHDES, 2008)
_____ Guelph permeameter - ASTM D5126-90 Method
_____ Falling head permeameter – ASTM D5126-90 Method
_____ Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
_____ Amoozemeter or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

Calculated Saturated Hydraulic Conductivity Rate: _____

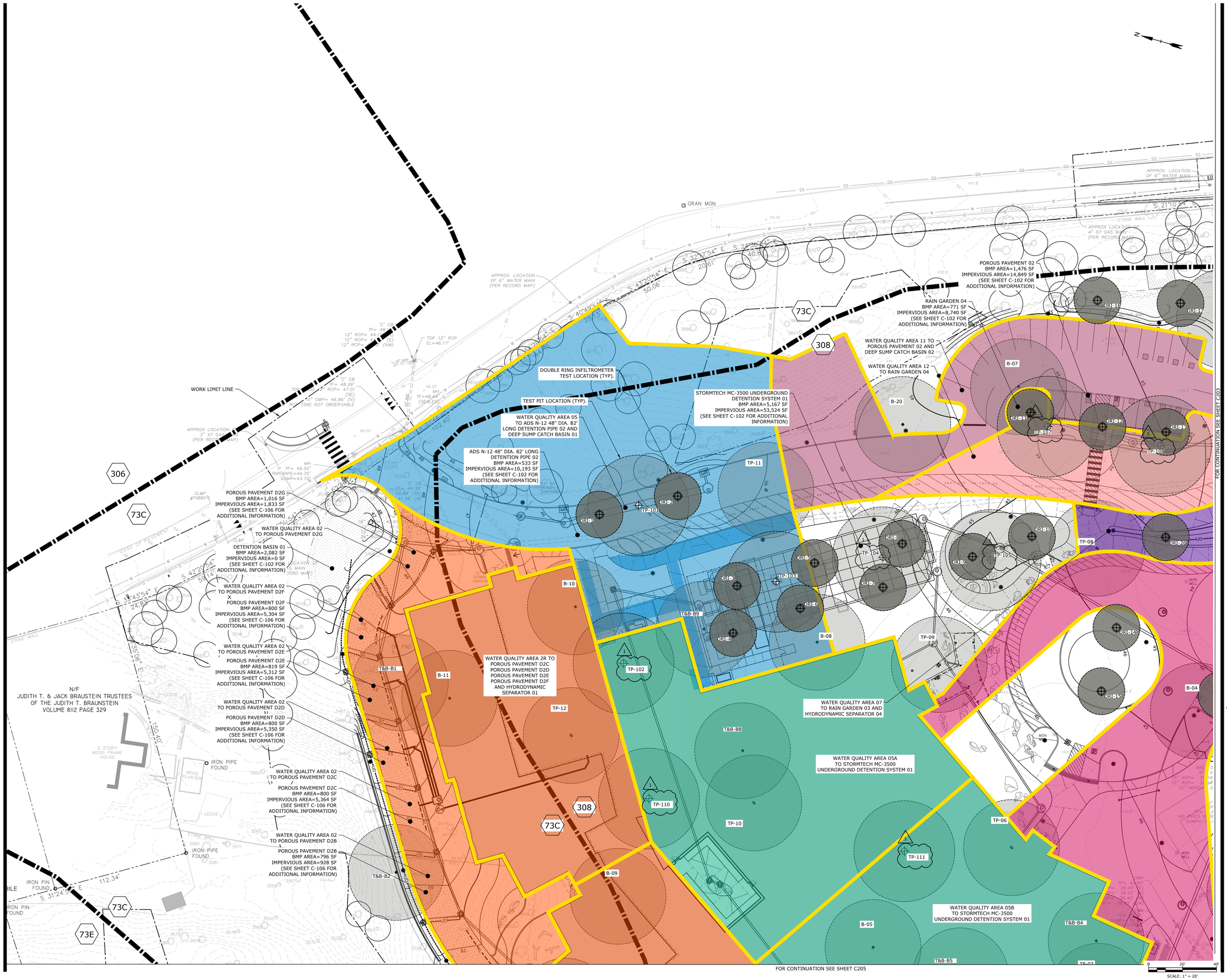
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SLAM
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www.slamcoll.com

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EG
Checked
APW

Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N

NORTH
EAST
WEST
SOUTH

KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM #4
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

SITE LOW IMPACT DEVELOPMENT PART PLAN

Date
07/08/2024
Scale
1" = 20'
Proj. Number
22367.00
Drawing Number
C202

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SLAM

The S/L/A/M Collaborative

80 Glastonbury Boulevard
Glastonbury, CT 06033-4410
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www.slamcoll.com

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Drawn: EG

Checked: APW

Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N

KEYPLAN

NORTH
EAST
WEST
SOUTH

Number	Date	Issued For
1	10/30/2024	ADDENDUM #4
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

SITE LOW IMPACT DEVELOPMENT PART PLAN

Date: 07/08/2024

Scale: 1" = 20'

Proj. Number: 22367.00

Drawing Number: C203

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FOR CONTINUATION SEE SHEET C203



SLAM
The S/L/A/M Collaborative

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Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N

NORTH
EAST
WEST
SOUTH

KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM #4
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

SITE LOW IMPACT DEVELOPMENT PART PLAN

Date
07/08/2024
Scale
1" = 20'
Proj. Number
22367.00

Drawing Number
C205

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NOTES

1. ALL ON-SITE SOILS HAVE BEEN CLASSIFIED AS HYDROLOGIC SOIL GROUP B OR C AS PER USDA NRCS WEB SOIL SURVEY. THE NRCS REPORT CAN BE FOUND AS AN APPENDIX TO THE PROJECT DRAINAGE REPORT.
2. SUBSURFACE SOIL INVESTIGATION RESULTS CAN BE FOUND ON APPENDIX B OF THE DRAINAGE SUMMARY REPORT.
3. REFER TO SHEET PZ-L401 THROUGH PZ-403 FOR INFORMATION REGARDING LANDSCAPING.
4. ESTIMATED LIMITS OF UNSUITABLE SOIL WITHIN THE BUILDING FOOTPRINT IS BASED UPON SUBSURFACE CONDITIONS ENCOUNTERED AT SPECIFIC SUBSURFACE EXPLORATION LOCATIONS, AND INTERPOLATION BETWEEN THE SUBSURFACE CONDITIONS. ACTUAL LIMITS MAY VARY. REFER TO SUBSURFACE EXPLORATION LOGS. CONTRACTOR SHALL PERFORM SUBSURFACE EXPLORATIONS (TEST PITS) DURING CONSTRUCTION TO VERIFY LIMITS.

SOIL TEST LOCATION PLAN LEGEND

- SETBACK LINE
- LIMIT OF DISTURBANCE LINE
- SOIL GROUP BOUNDARY
- ESTIMATED LIMITS OF UNSUITABLE SOIL WITHIN BUILDING FOOTPRINT

DTH-XX - DEEP TEST HOLE LOCATION

B-XX - BORING LOCATION

USDA NRCS SOIL IDENTIFICATION:

- 73C — B - CHALTON-CHATFIELD COMPLEX, 0 TO 15 % SLOPES, VERY ROCKY
- 75E — B - CHALTON-CHATFIELD COMPLEX, 15 TO 45 % SLOPES, VERY ROCKY
- 306 — B - UDORTHENTS-URBAN LAND COMPLEX
- 308 — C - UDORTHENTS, SMOOTHED

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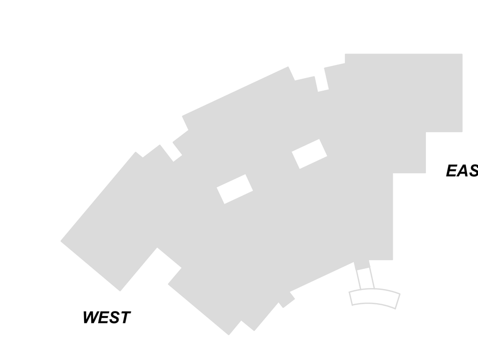
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Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N



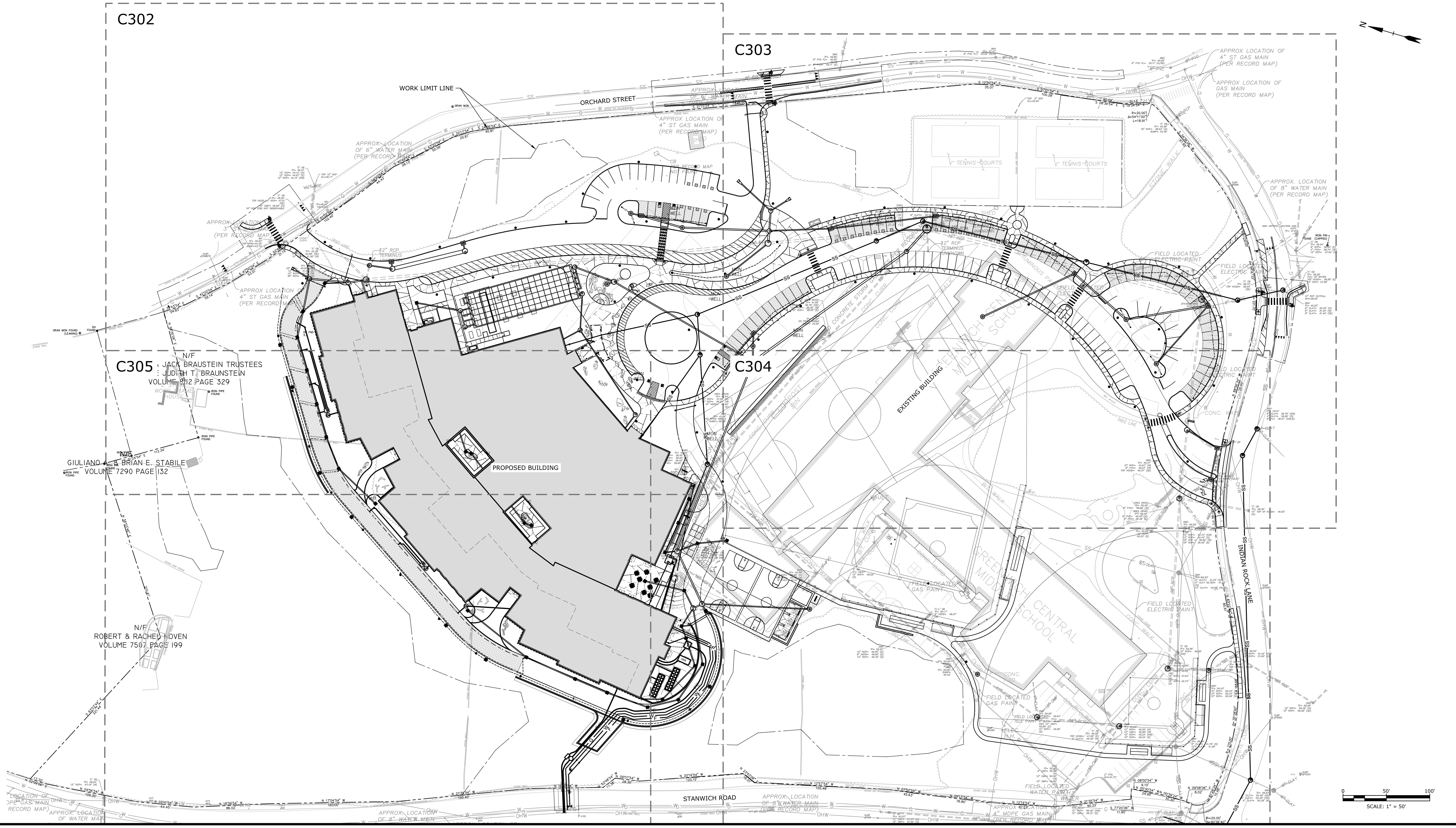
KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM #4
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

OVERALL SOIL TEST LOCATIONS PLAN

Date: 07/08/2024
Scale: 1" = 50'
Proj. Number: 22367.00
Drawing Number: C206

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SITE UTILITY NOTES

1. REFERENCE IS MADE TO PLAN ENTITLED "PROPERTY/ BOUNDARY & TOPOGRAPHIC SURVEY" PREPARED FOR GREENWICH CENTRAL MIDDLE SCHOOL. PREPARED BY MARTIN SURVEYING ASSOCIATES, LLC, DATED MAY 22, 2023.
2. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 - NAVD88.
3. THE CONTRACTOR SHALL COORDINATE/VERIFY THE EXACT SIZES, LOCATIONS, ELEVATIONS, OF ALL PROPOSED BUILDING UTILITY SERVICES WITH THE PROJECT MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS PRIOR TO ANY CONSTRUCTION OPERATIONS.
4. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK DONE BY THE RESPECTIVE UTILITY COMPANIES.
5. INSTALL CLEANOUT TO GRADE 5' OFF FACE OF BUILDING ON ALL ROOF LEADERS AND SANITARY LATERALS. (2)
6. THE CONTRACTOR SHALL MAINTAIN EXISTING STORM SEWER FLOWS BY PUMPING OR OTHER MEANS APPROVED BY THE OWNER'S REPRESENTATIVE DURING CONSTRUCTION OF THE PROPOSED STORM SEWER IN LOCATIONS WHERE SEWERS ARE BEING INSTALLED, REPLACED OR RELOCATED.
7. ALL PROPOSED ROOF DRAINS FOR THE PROPOSED BUILDINGS SHALL BE CONNECTED TO THE PROPOSED STORM DRAINAGE SYSTEMS AS DEPICTED ON SHEETS C-102 - C-105. FINAL LOCATION OF THE PROPOSED ROOF DRAINS SHALL BE COORDINATED BETWEEN THE CONTRACTOR, THE ARCHITECT, AND THE PROJECT ENGINEER.
8. THE PROPOSED BUILDING FOOTING DRAINS SHALL DISCHARGE VIA GRAVITY TO GRADE AS DEPICTED ON SHEET SHEETS C-102 - C-105. THE CONTRACTOR SHALL VERIFY THE EXISTING PIPE INVERT IN THE FILED PRIOR TO START OF CONSTRUCTION.
9. MINIMUM COVER ON ALL PIPES SHALL BE TWO FEET (2') UNLESS OTHERWISE NOTED.
10. ALL PIPE SHALL BE INSTALLED STRAIGHT AND AT THE VERTICAL AND HORIZONTAL ALIGNMENT SHOWN. PIPES SHALL HAVE A UNIFORM SLOPE AS SPECIFIED.
13. INSTALL "FERNCO" STYLE SHIELDED COUPLINGS AT ALL LOCATIONS WHERE JOINING PIPES OF DIFFERENT MATERIALS AND/OR SIZES PER MANUFACTURER'S RECOMMENDATIONS. "FERNCO" STYLE SHIELDED COUPLINGS SHALL BE BANDED RUBBER (SHIELD COUPLINGS) GASKETED COUPLING TYPE WITH TYPE 316 S.S. HARDWARE AND OUTSIDE SHEER RING SHALL BE STRONG BACK SEWER COUPLING RC 5000 SERIES BY FERNCO, FLEX-SEAL ADJUSTABLE REPAIR COUPLING (ARC) BY MISSION RUBER COMPANY, OR APPROVED EQUAL.
15. THE LOCATIONS OF ITEMS NOT DIMENSIONED ON THE DRAWINGS SHALL BE FIELD STAKED BY THE CONTRACTOR AND THEIR LOCATIONS APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
16. THE CONTRACTOR SHALL ADJUST THE TOP OF FRAME/GRATE ELEVATIONS OF ALL EXISTING AND PROPOSED SANITARY/STORM/WATER MANHOLES, CATCH BASINS, AREA DRAINS, VALVE COVERS AND APPURTENANCES, WITHIN THE PROJECT LIMIT LINE TO MEET THE PROPOSED GRADES.
17. WHEN RAISING EXISTING MANHOLES TO FINISHED GRADE, CONTRACTOR SHALL NOT EXCEED THE MAXIMUM AMOUNT OF BRICK COURSES AS SHOWN ON THE DETAILS. CONTRACTOR SHALL RAISE STRUCTURE WITH STANDARD MANHOLE COMPONENTS AS APPROVED BY THE ENGINEER.
18. THE MANHOLE FRAME AND COVER SHALL BE CENTERED ON THE PRECAST OPENING. UNDER NO CIRCUMSTANCES WILL AN OFFSET FRAME AND COVER BE ACCEPTABLE. PRIOR TO FINAL PAVING, THE CONTRACTOR SHALL CHECK ALL MANHOLE STRUCTURES TO ASSURE THE FRAME AND COVER IS CENTERED ON THE PRECAST OPENING. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL WORK REQUIRED TO CENTER FRAME AND COVER.
19. WHEN CONNECTING NEW PIPES TO EXISTING STRUCTURES SUCH AS MANHOLES, THE STRUCTURE SHALL BE COMPLETELY CLEANED OUT. THE HOLE MADE IN THE STRUCTURE SHALL BE MADE AS SMALL AS POSSIBLE. THE STRUCTURE SHALL BE REPAIRED TO MATCH ITS ORIGINAL TYPE OF CONSTRUCTION. THE JOINT BETWEEN THE STRUCTURE AND THE PIPE SHALL BE MADE WATERTIGHT BY UTILIZING AN A-LOK SYSTEM OR KOR-N-SEAL-BOOT CONNECTION.
20. THE CONTRACTOR SHALL MAINTAIN SANITARY SEWER FLOWS BY PUMPING OR OTHER MEANS APPROVED BY THE OWNER'S REPRESENTATIVE DURING CONSTRUCTION OF THE PROPOSED SANITARY SEWER IN LOCATIONS WHERE SEWERS ARE BEING INSTALLED, REPLACED OR RELOCATED.
21. UNDER NO CIRCUMSTANCES SHALL TRENCH WATER BE ALLOWED TO DRAIN OFF THROUGH SANITARY SEWER LINES.
22. ALL CRUSHED STONE SHALL BE GRADATION NO. 6 AS PER CT DOT FORM 818, ARTICLE M.01.01. STONE SHALL CONSIST OF SOUND, TOUGH, DURABLE PARTICLES FREE FROM SOFT, THIN, ELONGATED, LAMINATED, FRIABLE, MICACEOUS, OR DISINTEGRATED PIECES OF MUD, DIRT OR OTHER DELETERIOUS MATERIAL.
23. THE STORM AND SANITARY SEWER SHALL BE ENCASED IN CONCRETE FOR A DISTANCE OF 10 FEET ON EITHER SIDE OF ANY INTERSECTION BETWEEN THE SANITARY SEWER AND STORM SEWER OR SANITARY SEWER AND POROUS ASPHALT. WHERE CONCRETE ENCASEMENT IS REQUIRED, TEMPORARILY SUPPORT THE PIPES IN PLACE. USE SUFFICIENT CONCRETE TO ENCASE PIPING NOT LESS THAN 6 INCHES AT ALL POINTS. THE ENCASEMENT SHALL BE ADEQUATELY SUPPORTED WITH A STONE BASE AND SHALL BE KEYED INTO THE FOUNDATION WALL TO PREVENT DAMAGE FROM SETTLEMENT. (2)
24. UTILITIES SHOWN ON THESE PLANS ARE "NOT GUARANTEED" TO BE COMPLETE OR CORRECT. PRIOR TO ANY SITE ACTIVITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF CLEARANCES OF PROPOSED UTILITIES FROM EXISTING UTILITIES. THIS VERIFICATION SHALL INCLUDE PHYSICAL OBSERVATION BY MEANS OF TEST PITS OF THE LOCATIONS OF AFFECTED UTILITIES. THE CONTRACTOR SHALL NOTIFY THE SITE ENGINEER IMMEDIATELY OF ANY CONFLICT.
25. EASEMENTS MAY BE REQUIRED IN FAVOR OF THE VARIOUS UTILITY COMPANIES.
26. ELECTRIC, TELEPHONE, AND CABLE SERVICES SHALL BE INSTALLED IN CONFORMANCE TO THE REQUIREMENTS OF THE GOVERNING UTILITY COMPANIES.
27. DOMESTIC WATER, FIRE PROTECTION SERVICES, AND ALL WATER MAIN TAPS SHALL CONFORM TO THE REQUIREMENTS OF THE AQUARION WATER COMPANY.
28. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL UTILITIES AS SHOWN ON THIS SHEET. THE CONTRACTOR SHALL WORK WITH THE UTILITY COMPANIES AND SITE ENGINEER TO ENSURE THE INSTALLATION IS IN CONFORMANCE TO THE REQUIREMENTS OF THE GOVERNING UTILITY COMPANY. ALL CONDUITS SHALL BE CONCRETE ENCASED AS MAY BE REQUIRED BY THE GOVERNING UTILITY COMPANY. PROPOSED ELECTRIC, TELEPHONE, CABLE, GAS AND WATER SERVICES ARE SHOWN FOR SCHEMATIC PURPOSES ONLY AND ARE SUBJECT TO CHANGE PENDING UTILITY COMPANY REVIEW. THESE UTILITIES SHALL BE DESIGNED BY OTHERS AND INSTALLED IN CONFORMANCE TO THE REQUIREMENTS OF THE GOVERNING UTILITY COMPANIES.
29. FOR INFORMATION ON THE PRIMARY ELECTRICAL WIRING AND THE SECONDARY ELECTRICAL CONDUITS, WIRING, AND MATERIALS - SEE PROJECT ELECTRICAL DRAWINGS.
30. THE CONTRACTOR MUST SUPPLY AND INSTALL DRAG LINES WITH ALL CONDUITS.
31. IN GENERAL, EACH UTILITY SHALL HAVE A MINIMUM HORIZONTAL CLEARANCE OF THREE FEET TO ANY OTHER UNDERGROUND UTILITY.
32. ALL UTILITIES ABANDONED SHALL BE CAPPED OR REMOVED IN ACCORDANCE WITH UTILITY COMPANIES' REQUIREMENTS.
33. DETECTABLE TAPE SHALL BE USED TO MARK PIPING LISTED BELOW. THE IDENTIFICATION TAPE SHALL BE BURIED AT LEAST 6-INCHES TO 10-INCHES BELOW FINAL GRADE BUT NO CLOSER THAN 12-INCHES TO THE BURIED UTILITY PIPING OR SERVICE.

ELECTRIC	RED	CAUTION ELECTRIC LINE BURIED BELOW
TELEPHONE & CONTROL	ORANGE	CAUTION TELEPHONE LINE BURIED BELOW
NATURAL GAS	YELLOW	CAUTION GAS LINE BURIED BELOW
WATER SYSTEMS	BLUE	CAUTION WATER LINE BURIED BELOW
FIRE PROTECTION SYSTEMS	BLUE	CAUTION FIRE LINE BURIED BELOW
SEWER SYSTEM	GREEN	CAUTION SEWER LINE BURIED BELOW
COMMUNICATION CONDUIT	ORANGE	CAUTION COMMUNICATION LINE BURIED BELOW

UNDERGROUND-TYPE PLASTIC LINE MARKER: MANUFACTURER'S STANDARD PERMANENT, BRIGHT-COLORED DETECTABLE TAPE, CONTINUOUS-PRINTED PLASTIC TAPE, INTENDED FOR DIRECT-BURIAL SERVICE; NOT LESS THAN 6" WIDE X 4 MILS THICK.

34. FOR ADDITIONAL INFORMATION, SEE DETAIL SHEETS. (1)
35. ALL SANITARY SEWER MAINS AND LATERALS SHALL BE VIDEO RECORDED PER SEWER DIVISION PERMIT REQUIREMENTS AND PER SPECIFICATION 33 31 15.

SITE UTILITY LEGEND

	EXISTING	PROPOSED
WORK LIMIT LINE		
PROPERTY LINE		
SETBACK LINE		
SAWCUT		
WATER MAIN	W	W
FIRE SERVICE	F	F-HP
WATER VALVE	WV	WV
OVERHEAD WIRES	oh	
UTILITY POLE		
SANITARY SEWER		
ELECTRIC		E
GAS SERVICE	G	G
GAS GATE VALVE	GV	
COMMUNICATION	UT	T-C
COMMUNICATION HANDHOLE	TELE.	

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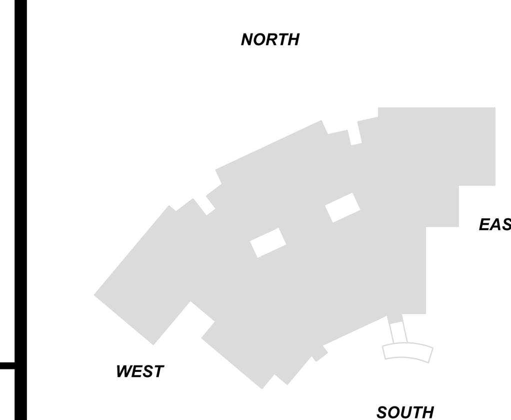
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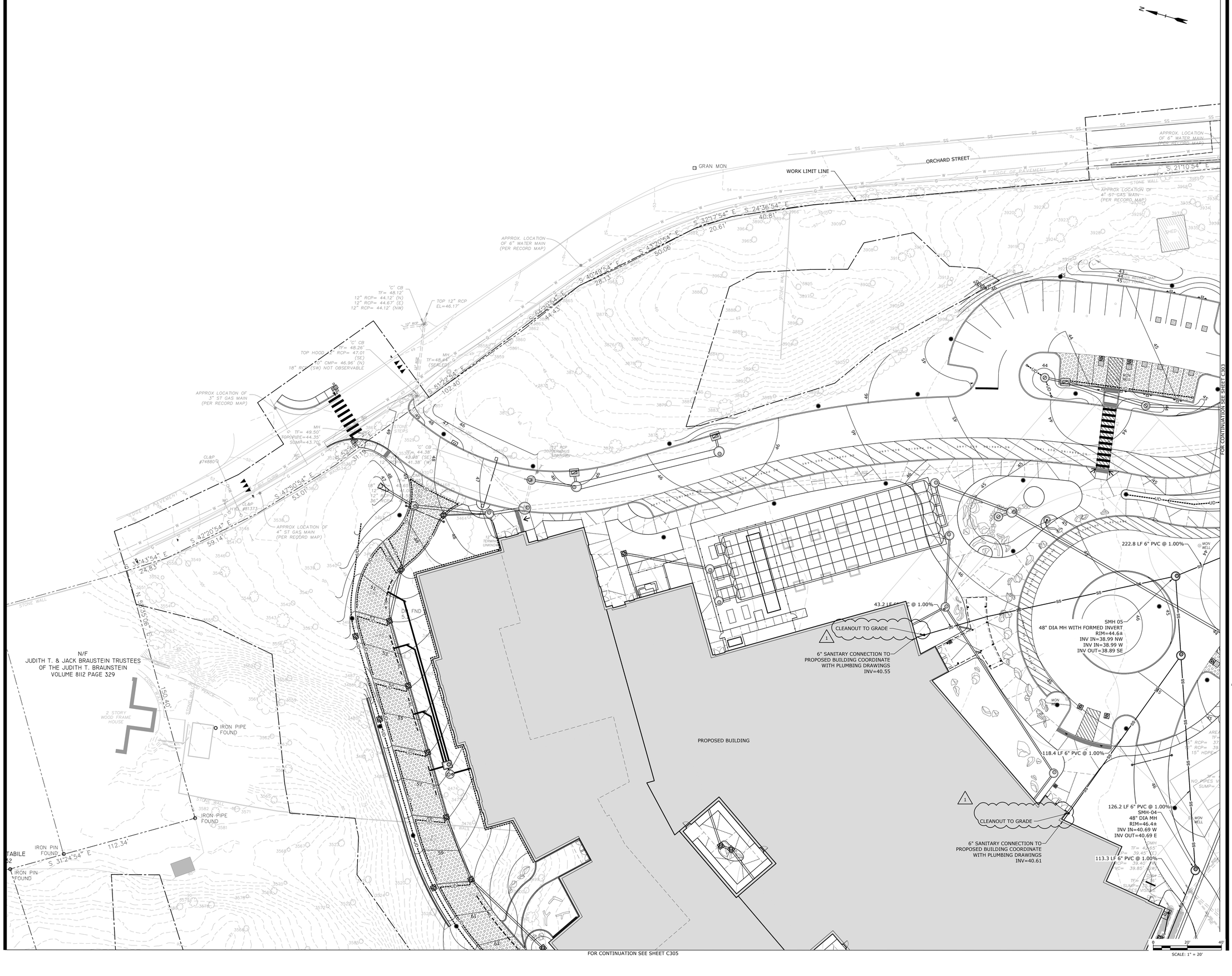
KEYPLAN

Number	Date	Issued For
2	10/30/2024	ADDENDUM #4
1	10/16/2024	ADDENDUM #2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

OVERALL SITE UTILITY PLAN

Date: 07/08/2024
Scale: 1" = 50'
Proj. Number: 22367.00
Drawing Number: **C301**

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NORTH
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WEST
SOUTH

KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM #4
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

SITE UTILITY PART PLAN

Date: 07/08/2024
Scale: 1" = 20'
Proj. Number: 22367.00
Drawing Number: C302

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KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM #4
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

SITE UTILITY PART PLAN

Date
07/08/2024
Scale
1" = 20'
Proj. Number
22367.00

Drawing Number
C303

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FOR CONTINUATION SEE SHEET C303

FOR CONTINUATION SEE SHEET C305

126.2 LF 6" PVC @ 1.00%

SMH-04
48" DIA MH
RIM=46.4±
INV IN=40.69 W
INV OUT=40.69 E

FIRE DEPARTMENT CONNECTION (SEE PROJECT MEP PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION)

113.3 LF 6" PVC @ 1.00%

4" FIRE PROTECTION SERVICE MAIN (SEE PROJECT MEP PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION)

2000 GALLON GREASE TRAP
RIM=46.4±
INV IN=42.07
INV OUT=41.82

52.0 LF 6" PVC @ 2.00%

CONNECT TO PROPOSED BUILDING COORDINATE WITH PLUMBING DRAWINGS
INV=43.11

CONNECT TO PROPOSED BUILDING (SEE PROJECT MEP PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION)

EXISTING BUILDING

ABANDON SANITARY MANHOLE AND SEWER MAINS. SEE SHEET C306 AND C307 FOR ADDITIONAL INFORMATION

SEE SHEET C306 AND C307 FOR ADDITIONAL INFORMATION

REMOVE MANHOLE FRAME AND COVER. SEE SHEET C306 AND C307 FOR ADDITIONAL INFORMATION

STANWICH ROAD

WORK LIMIT LINE

INDIAN ROCK LANE

SCALE: 1" = 20'

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KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM #4
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

SITE UTILITY PART PLAN

Date
07/08/2024
Scale
1" = 20'
Proj. Number
22367.00

Drawing Number
C304

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FOR CONTINUATION SEE SHEET C302

N/F
JUDITH T. & JACK BRAUSTEIN TRUSTEES
OF THE JUDITH T. BRAUNSTEIN
VOLUME 8112 PAGE 329

2 STORY WOOD FRAME HOUSE

WOOD FENCE

IRON PIPE FOUND

IRON PIPE FOUND

IRON PIN FOUND

IRON PIN FOUND

S 31°24'54" E 112.34'

N 56°03'46" E 210.41'

CHAIN LINK FENCE

N/F
RACHEL KOVEN
7507 PAGE 199

STONE WALL WOOD FENCE

PROPOSED BUILDING

SMH-04
48" DIA MH
RIM=46.4±
INV IN=40.69 W
INV OUT=40.69 E

126.2 LF 6" PVC @ 1.00%

113.3 LF 6" PVC @ 1.00%

2000 GALLON GREASE TRAP
RIM=46.4±
INV IN=42.07
INV OUT=41.82

52.0 LF 6" PVC @ 2.00%
REFER TO MEP PLANS FOR
HEAT TRACE INSTALLATION

1 CLEANOUT TO GRADE

6" GREASE WASTE CONNECTION
TO PROPOSED BUILDING
(COORDINATE WITH PLUMBING DRAWINGS)
INV=43.11

1 (2) 4"Ø PVC (SCH 40) GAS VENT FROM EXTERIOR GREASE TRAP
(SEE PROJECT MEP PLANS AND SPECIFICATIONS FOR
ADDITIONAL INFORMATION)

CONNECT TO PROPOSED BUILDING
(SEE PROJECT MEP PLANS AND SPECIFICATIONS
FOR ADDITIONAL INFORMATION)

CONNECT 3" DOMESTIC WATER AND 10"
SPRINKLER FIRE SERVICE TO BUILDING
(SEE PROJECT ARCHITECTURAL AND MEP PLANS AND
SPECIFICATION FOR ADDITIONAL INFORMATION)

PAD MOUNTED TRANSFORMER

CONNECT TO GAS REGULATOR
(SEE PROJECT ARCHITECTURAL AND
MEP PLANS AND SPECIFICATION FOR
ADDITIONAL INFORMATION)

EMERGENCY POWER GENERATOR

SECONDARY ELECTRIC DUCTBANK

CONNECT TO BUILDING
(SEE PROJECT ARCHITECTURAL AND
MEP PLANS AND SPECIFICATION FOR
ADDITIONAL INFORMATION)

GEN

WORK LIMIT LINE

TEL-DATA SERVICE (2) 4"
TYPE "EB" PVC SCH 80
PRIMARY ELECTRIC SERVICE
(2) 4" SCH 80 PVC

AIR-COOLING CHILLER-2

AIR-COOLING CHILLER-1

TEL-DATA SERVICE (2) 4"
TYPE "EB" PVC SCH 40
PRIMARY ELECTRIC SERVICE
(2) 4" SCH 40 PVC

TEL-DATA SERVICE PULL BOX
(SEE DETAIL C-508 FOR ADDITIONAL INFORMATION)

FIRE PROTECTION SERVICE
6" DIP CL52 WITH RESTRAINED JOINTS

DOMESTIC WATER SERVICE
4" DIP CL52 WITH RESTRAINED JOINTS

DOMESTIC WATER SERVICE TEE
(1) - 6" X 6" X 4" TEE, MJ, RESTRAINED
(1) - 4" GATE VALVE AND BOX, MJ, RESTRAINED

2" PLASTIC GAS SERVICE

2" AIR VENT, MJ, RESTRAINED

ELECTRICAL SERVICE PULL BOX
(SEE DETAIL SHEET C-308 FOR ADDITIONAL INFORMATION)

CONNECT TO EXISTING GAS MAIN
COORDINATE WITH CONNECTICUT NATURAL GAS

WATER SERVICE CONNECTION
(1)- 8" X 8" X 6" TAPPING SLEEVE, MJ, RESTRAINED
(1) - 6" GATE VALVE AND BOX, MJ, RESTRAINED
6" DIP CL52 WITH RESTRAINED JOINTS

CONNECT TO EXISTING
UTILITY POLE NYT #39

N 21°39'54" W 150.40'
N 17°04'54" W 150.00'
N 18°39'54" W 86.02'
N 10°41'54" W 64.45'
N 16°39'54" W 82.54'
N 09°07'54" W 82.54'
N 20°19'54" W 120.15'

STANWICH ROAD

EDGE OF PAVEMENT

APPROX. LOCATION OF 8" WATER MAIN

SCALE: 1" = 20'

FOR CONTINUATION SEE SHEET C304

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KEYPLAN

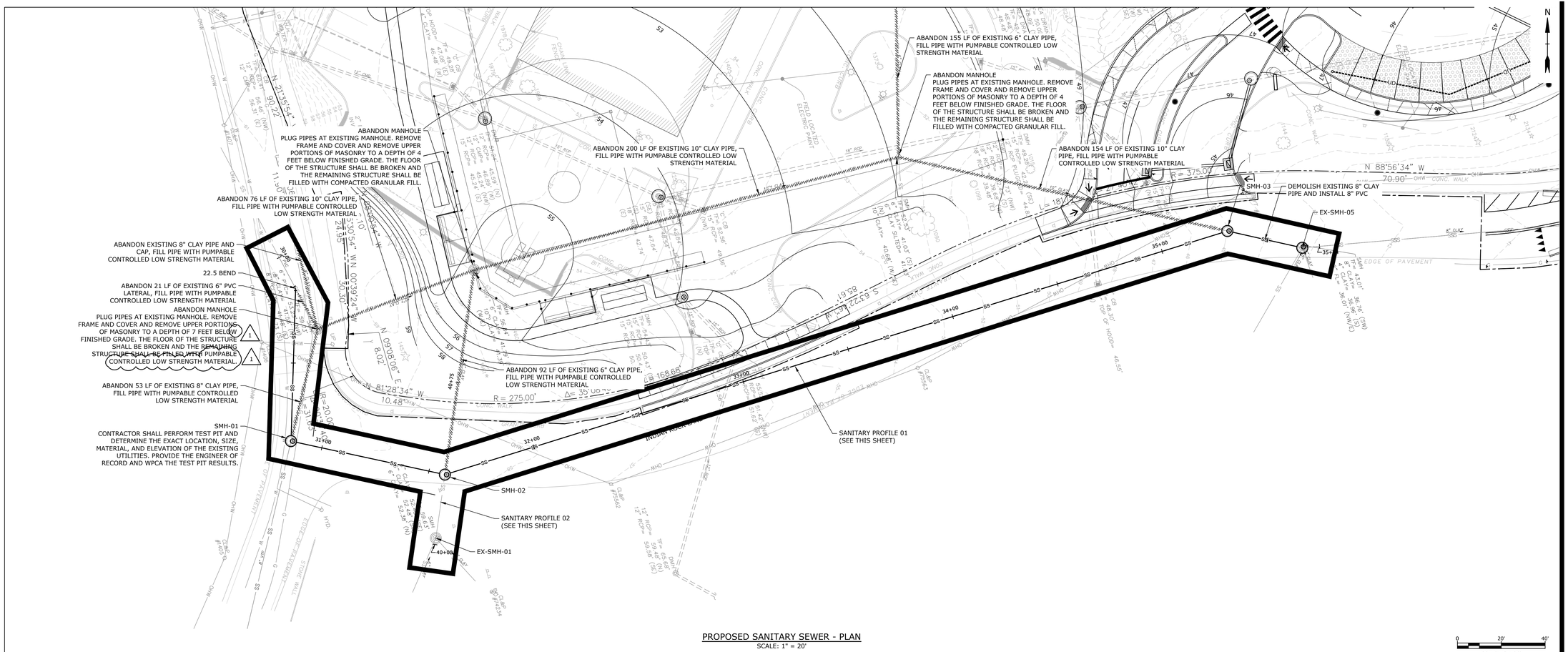
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SITE UTILITY PART PLAN

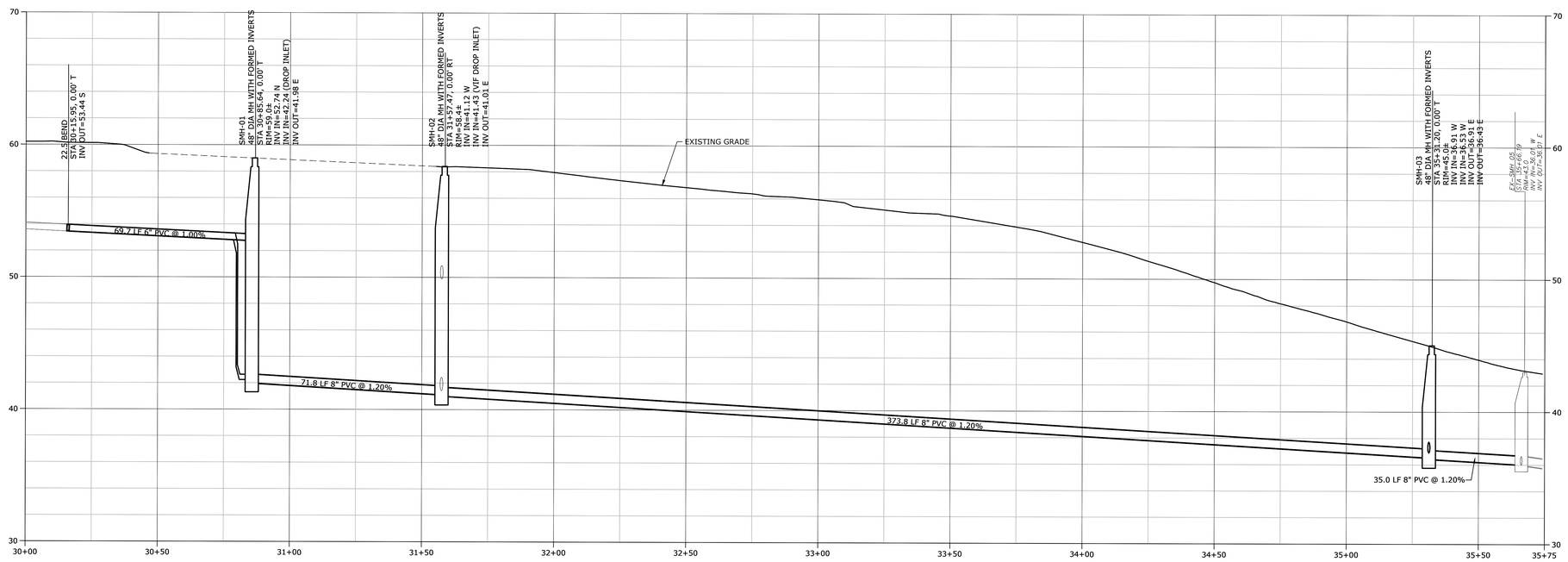
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Proj. Number
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Drawing Number
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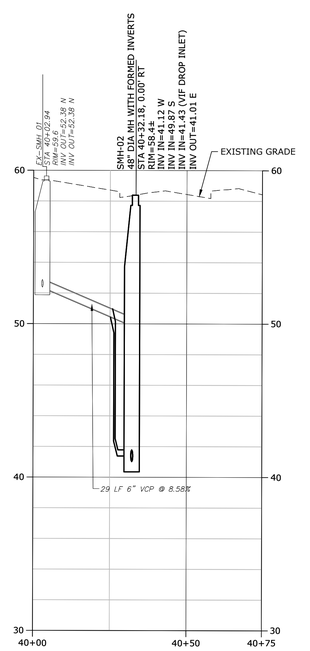


PROPOSED SANITARY SEWER - PLAN
SCALE: 1" = 20'



PROPOSED SANITARY SEWER - PROFILE 01
SCALE: HOR: 1" = 20'; VERT; 1" = 4'

0 20' 40'
SCALE: 1" = 20'



PROPOSED SANITARY SEWER - PROFILE 02
SCALE: HOR: 1" = 20'; VERT; 1" = 4'

0 20' 40'
SCALE: 1" = 20'

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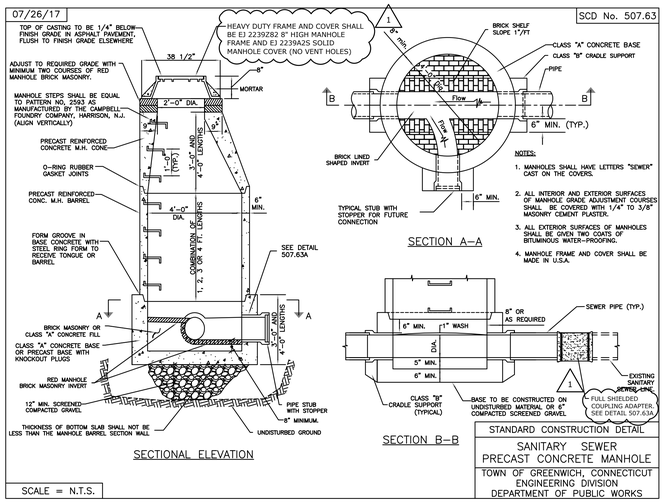
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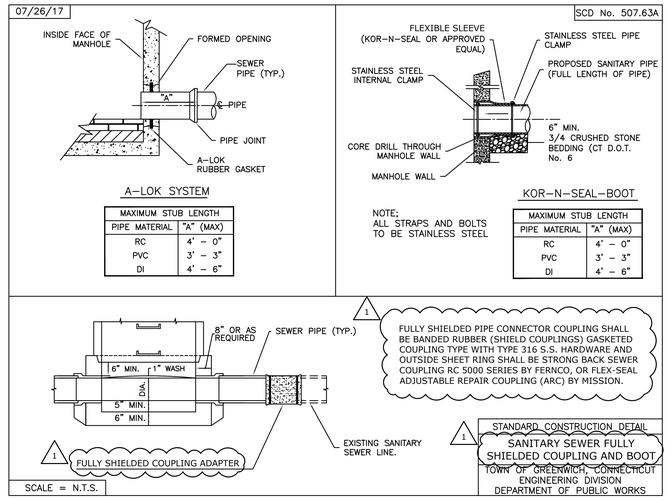
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	07/08/2024	PHASE 2

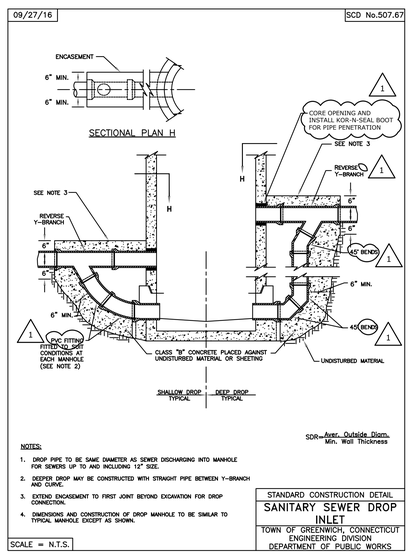
SANITARY SEWER PROPOSED PLAN AND PROFILE

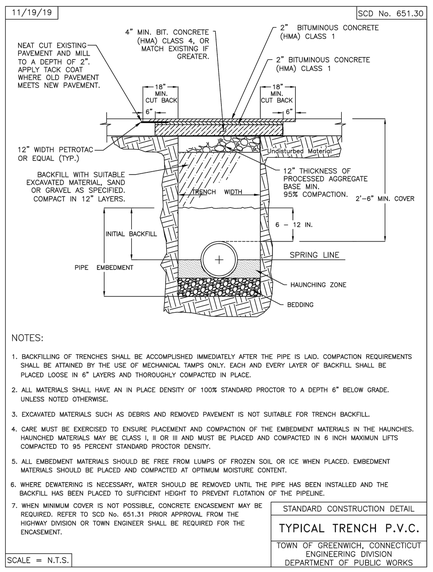
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Drawing Number: C307

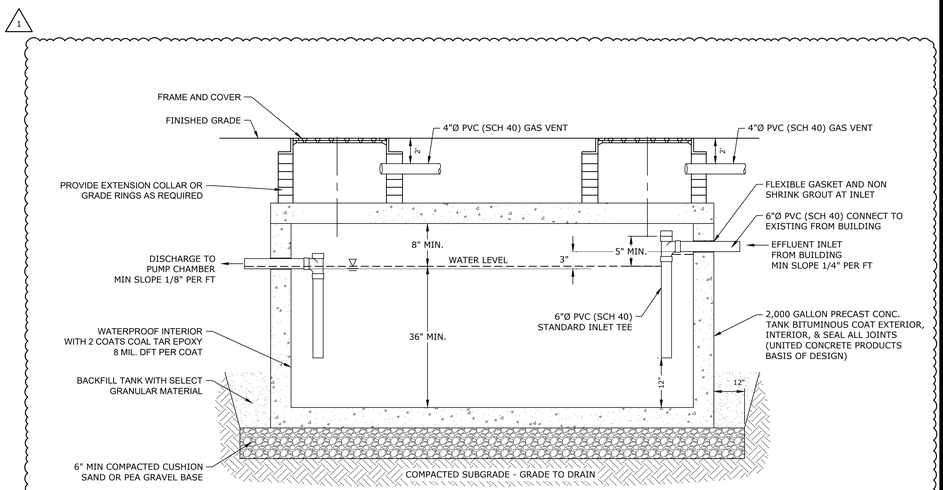
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NOTES:

1. CLEANOUT MANHOLE COVERS SHALL BE ELEVATED TO GRADE WITH WATERTIGHT ACCESS COVERS.
2. HORIZONTAL JOINT SHALL BE ABOVE WATER LINE AT TOP OF TANK.
3. INTERIOR AND EXTERIOR OF TANK SHALL BE COATED WITH A WATERPROOF SEALANT.
4. VOIDS BETWEEN INLET AND/ OR OUTLET PIPING AND CONCRETE WALLS MUST BE FILLED WITH AN APPROVED WATERTIGHT, NON-SHRINKABLE GROUT MATERIAL AND COATED WITH WATER GROUT SEALANT.
5. TANK MUST BE VENTED WITH A 4" PVC VENT.
6. TANK SHALL BE DESIGNED FOR H20 LOADING.
7. ALL CONCRETE GREASE TRAPS/FOG INTERCEPTORS SHALL BE PRODUCED WITH MINIMUM 4,000 PSI CONCRETE PER ASTM STANDARDS WITH FOUR (4) TO SEVEN (7) PERCENT AIR ENTRAINMENT.
8. TANK SHALL COMPLY WITH ALL OF THE CTDEEP GENERAL PERMIT FOR DISCHARGE OF WASTEWATER ASSOCIATED WITH FOOD SERVICE ESTABLISHMENTS REQUIREMENTS.
9. ELEVATION OF THE INLET PIPE SHALL BE 2"-4" ABOVE THE INVERT ELEVATION OF THE OUTLET PIPE.
10. SUBMIT SHOP DRAWING TO GREENWICH SEWER DIVISION FOR REVIEW AND APPROVAL.
11. THE INLET AND OUTLET SHALL UTILIZE A TEE-PIPE FITTING ON THE INTERIOR OF THE GREASE TRAP/ FOG INTERCEPTOR. THE TEE-PIPE OF THE INLET AND OUTLET SHALL EXTEND TO WITHIN 12" OF THE BOTTOM AND AT LEAST 5" ABOVE THE STATIC LIQUID LEVEL OF THE TANK.
12. CONTRACTOR SHALL PERFORM WATERTIGHT LEAKAGE TEST ON SEPTIC TANK AND SUBMIT TEST RESULTS TO THE GREENWICH SEWER DIVISION AND ENGINEER OF RECORD.

2,000 GALLON GREASE TRAP
NO SCALE

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Drawn: EG
Checked: APW

Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N

NORTH
EAST
WEST
SOUTH
KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM #4
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

SANITARY SEWER DETAILS

Date: 07/08/2024
Scale: AS SHOWN
Proj. Number: 22367.00
Drawing Number: C506

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SITE LAYOUT LEGEND

- EJ — EXPANSION JOINT
- EJ1 — EXPANSION JOINT AT FROST PAD (3B L501)
- EJ2 — UNIT PAVER EXPANSION JOINT AT FROST PAD (3C L501)
- EJEX — EXPANSION JOINT AT EXISTING CONCRETE SIDEWALK (3A L501)
- CONTRACTION JOINT
- PAINTED TRAFFIC ARROWS
- PAINTED HANDICAP SYMBOL
- PARKING SPACE QUANTITY
- TREE GRATE
- HANDICAP RAMP TYPE A (1C L502)
- HANDICAP RAMP TYPE B (1D L502)
- HANDICAP RAMP TYPE D (1E L502)
- GC — GRANITE CURB (2E L501)
- F1 — FROST PAD (3B L501)
- F2 — RECESSED FROST PAD (3C L501)

SITE MATERIALS LEGEND

- 1A — BITUMINOUS CONCRETE (REGULAR DUTY) (1A L501)
- 1B — BITUMINOUS CONCRETE (HEAVY DUTY) (1B L501)
- 1C — POROUS BITUMINOUS CONCRETE (1C L501)
- 1D — BITUMINOUS CONCRETE (PEDESTRIAN) (5B L501)
- 2A — CONCRETE PAVEMENT (PEDESTRIAN) (2A L501)
- 2B — CONCRETE PAVEMENT (HEAVY DUTY) (2B L501)
- 2C — CONCRETE PAVERS (PEDESTRIAN) (1D L501)
- 2D — FIBER MULCH (3E L501)

1A BITUMINOUS PAVEMENT (TYP.) (REGULAR DUTY) L501
2A CONCRETE PAVEMENT (TYP.) (PEDESTRIAN) L501
1B BITUMINOUS PAVEMENT (TYP.) (HEAVY DUTY) L501
LIMITS OF MILLING AND REPAVING FOR RUMBLE STRIP INSTALLATION, SEE CIVIL
APPROX. LOCATION OF 6" WATER MAIN (PER RECORD MAP)
EDGE OF PAVEMENT
STONE WALL
GRAN MON
ORCHARD STREET
SEE CIVIL
CONTRACT LIMIT LINE
SECURITY CARD READER (2E L503) SEE DETAIL
CONCRETE FOUNDATION FOR LIFT GATE (2D L503)
LIFT ARM GATES, SEE MEP
5E L502 TRAFFIC CONTROL SIGN (TYP.)
4B L502 FLAG POLE
5C L501 STEPPING STONE
2C L501 BOULDER (TYP.)
3E L503 LIVE EDGE WOOD BENCH
GC
EV SPACE
SITE LIGHT (TYP)
RAISED CONCRETE PLANTERS (TYP OF 8, SEE DETAIL) 3E L501 AND FIBER MULCH
VINYL-COATED CHAIN LINK FENCE (SEE DETAIL) 3D L601
DUST COLLECTOR
RAISED CONCRETE PLANTERS (SEE DETAIL) 3E L501
RAISED PT WOOD COMPOST AREA TO MATCH EXISTING, PROVIDE SHOP DRAWINGS FOR APPROVAL
RELOCATED GARDEN STORAGE SHED
5D L502 SITE LIGHT FOOTING (TYP.)
EXISTING PLAQUE AND BOULDER TO BE SALVAGED FOR RELOCATION
3A L502 RIBBON BIKE RACK
PRIVACY FENCE AT DUST COLLECTOR SEE DETAIL 4E L504
1D L501 UNIT PAVERS ON SAND SETTING BED (SEE DETAIL)
1E L503 ELECTRONIC ENTRY STANCHION SEE DETAIL
2C L501 BOULDER SET IN CONCRETE PAVEMENT
1B L501 BITUMINOUS CONCRETE (TYP.) (HEAVY DUTY)
2B L502 TYPICAL VAN ACCESSIBLE PARKING SPACE
2B L501 CONCRETE PAVEMENT (HEAVY DUTY) TYP.
3B L502 VEHICULAR DOUBLE SWING GATE
3A L502 RIBBON BIKE RACK
3B L502 VEHICULAR DOUBLE SWING GATE
1C L501 POROUS BITUMINOUS CONCRETE
N/F JUDITH T. & JACK BRAUSTEIN TRUSTEES OF THE JUDITH T. BRAUNSTEIN VOLUME 811 PAGE 329
IRON PIPE FOUND
WOOD PLANTER
LEDGE
WOOD FENCE
PROPERTY LINE
CONTRACT LIMIT LINE
5A L501 STONE MULCH
1D L503 TYPICAL SEGMENTAL BLOCK RETAINING WALL
ALTERNATE 3: UNIT PAVERS IN LIEU OF CONCRETE PAVEMENT
BOULDER 2C L501
WHITEBOARD, SEE ARCH
LIVE EDGE WOOD BENCH SHAPES VARY (SEE DETAIL) 3E L503
BOULDER TYP. 2C L501
SCALE: 1" = 20'

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Greenwich Public Schools

GREENWICH CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CT 06830

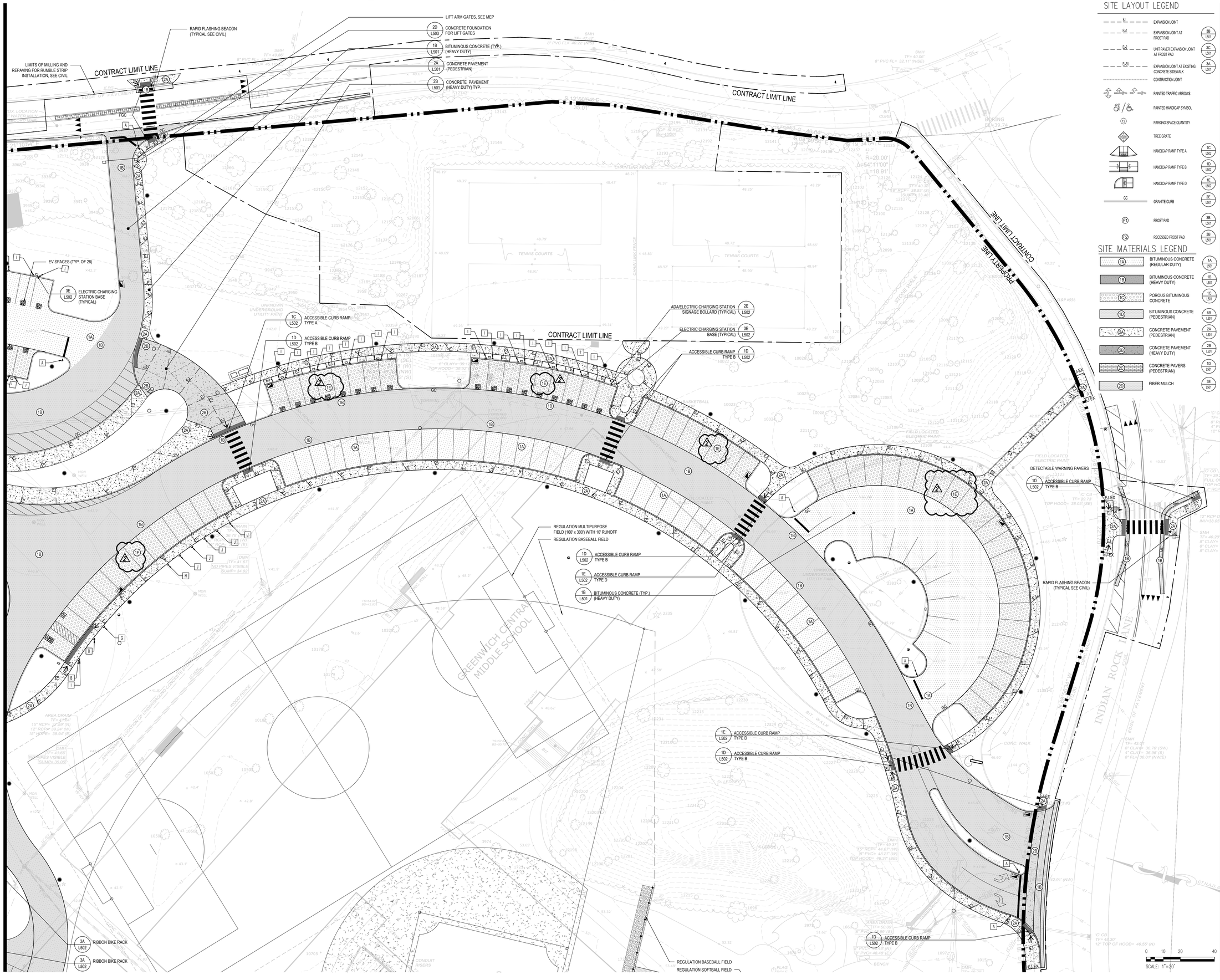
STATE PROJECT NO:057-0114 N

Number	Date	Issued For
2	10/30/2024	ADDENDUM NO. 4
1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

SITE MATERIALS NORTHEAST

Date: 07/08/2024
Scale: 1" = 20'
Proj. Number: 22367.00
Drawing Number: L202A

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SITE LAYOUT LEGEND

- EJ — EXPANSION JOINT
- EJF — EXPANSION JOINT AT FROST PAD — 3B L501
- EJU — UNIT PAVER EXPANSION JOINT AT FROST PAD — 3C L501
- EJEX — EXPANSION JOINT AT EXISTING CONCRETE SIDEWALK — 3A L501
- CONTRACTION JOINT
- PAINTED TRAFFIC ARROWS
- PAINTED HANDICAP SYMBOL
- 12 — PARKING SPACE QUANTITY
- TREE GRATE
- HANDICAP RAMP TYPE A — 1C L502
- HANDICAP RAMP TYPE B — 1D L502
- HANDICAP RAMP TYPE D — 1E L502
- GC — GRANITE CURB — 2E L501
- F1 — FROST PAD — 3B L501
- F2 — RECESSED FROST PAD — 3B L501

SITE MATERIALS LEGEND

- 1A — BITUMINOUS CONCRETE (REGULAR DUTY) — 1A L501
- 1B — BITUMINOUS CONCRETE (HEAVY DUTY) — 1B L501
- 1C — POROUS BITUMINOUS CONCRETE — 1C L501
- 1D — BITUMINOUS CONCRETE (PEDESTRIAN) — 5B L501
- 2A — CONCRETE PAVEMENT (PEDESTRIAN) — 2A L501
- 2B — CONCRETE PAVEMENT (HEAVY DUTY) — 2B L501
- 2C — CONCRETE PAVERS (PEDESTRIAN) — 1D L501
- 2D — FIBER MULCH — 3E L501

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Greenwich Public Schools

GREENWICH CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CT 06830

STATE PROJECT NO:057-0114 N

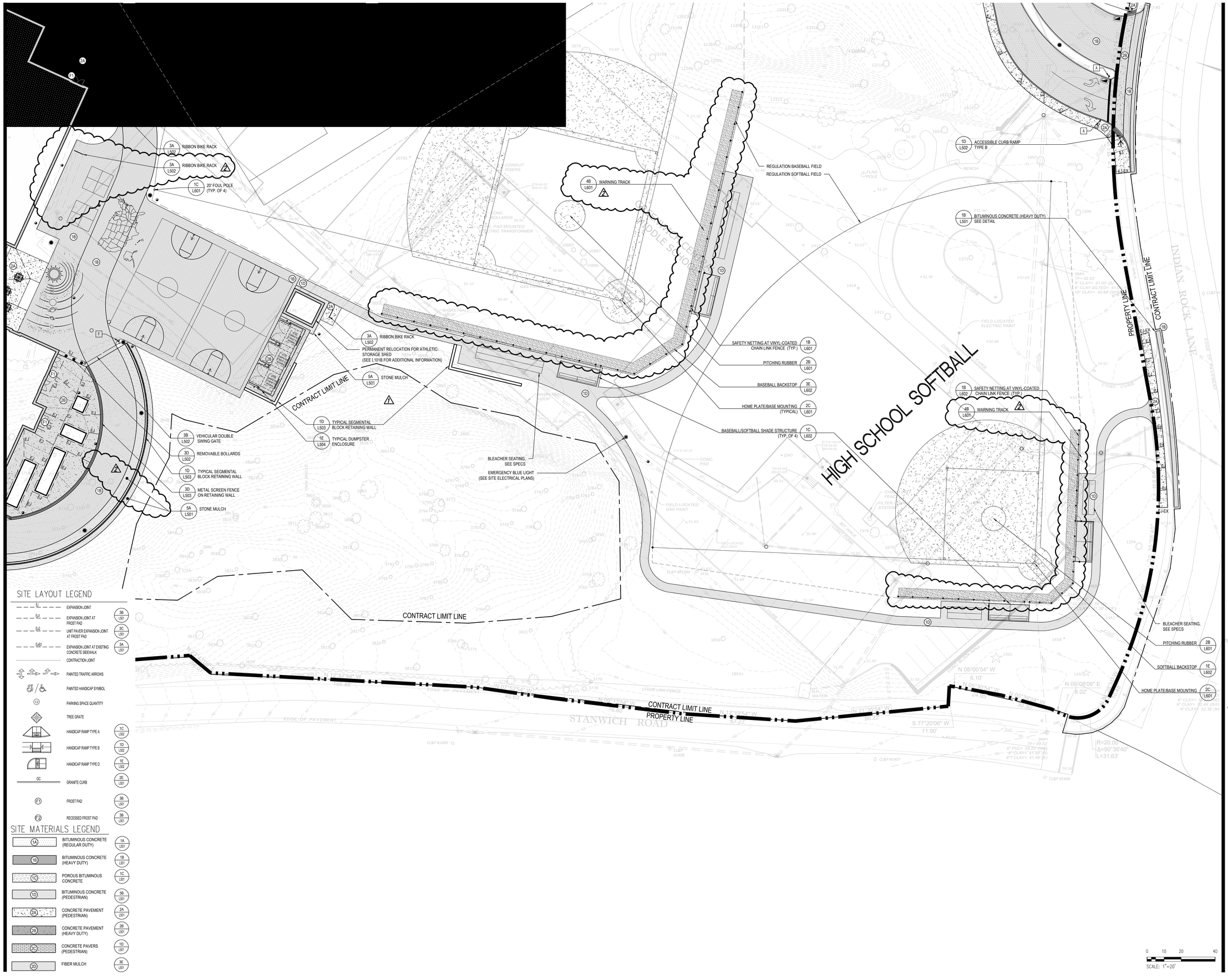
Number	Date	Issued For
1	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

SITE MATERIALS SOUTHEAST

Date
07/08/2024
Scale
1" = 20'
Proj. Number
22367.00

Drawing Number
L202B

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SITE LAYOUT LEGEND

EJ	EXPANSION JOINT	3B L501
EJ1	EXPANSION JOINT AT FROST PAD	3B L501
EJ3	UNIT PAVER EXPANSION JOINT AT FROST PAD	3C L501
EJEX	EXPANSION JOINT AT EXISTING CONCRETE SIDEWALK	3A L501
	CONTRACTION JOINT	
	PAINTED TRAFFIC ARROWS	
	PAINTED HANDICAP SYMBOL	
12	PARKING SPACE QUANTITY	
	TREE GRATE	
	HANDICAP RAMP TYPE A	1C L502
	HANDICAP RAMP TYPE B	1D L502
	HANDICAP RAMP TYPE D	1E L502
GC	GRANITE CURB	2E L501
F1	FROST PAD	3B L501
F2	RECESSED FROST PAD	3B L501

SITE MATERIALS LEGEND

1A	BITUMINOUS CONCRETE (REGULAR DUTY)	1A L501
1B	BITUMINOUS CONCRETE (HEAVY DUTY)	1B L501
1C	POROUS BITUMINOUS CONCRETE	1C L501
1D	BITUMINOUS CONCRETE (PEDESTRIAN)	5B L501
2A	CONCRETE PAVEMENT (PEDESTRIAN)	2A L501
2B	CONCRETE PAVEMENT (HEAVY DUTY)	2B L501
2C	CONCRETE PAVERS (PEDESTRIAN)	1D L501
2D	FIBER MULCH	3E L501

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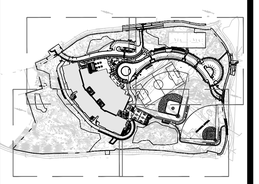
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Checked: HWW

Greenwich Public Schools

GREENWICH CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CT 06830

STATE PROJECT NO:057-0114 N

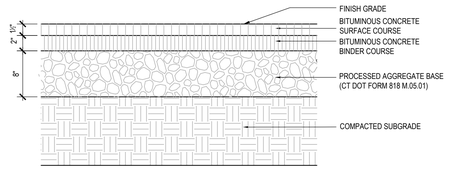


Number	Date	Issued For
2	10/30/2024	ADDENDUM NO. 4
1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

SITE MATERIALS SOUTHWEST

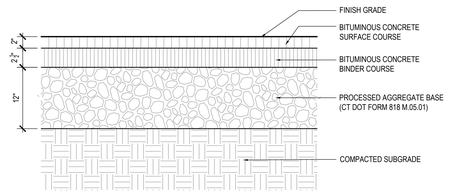
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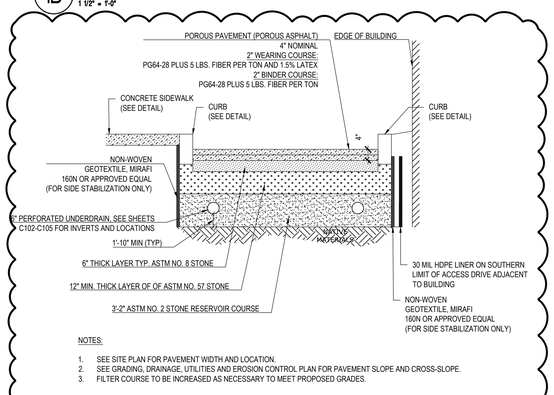
1A BITUMINOUS CONCRETE PAVEMENT (REGULAR DUTY)

1 1/2" = 1'-0"



1B BITUMINOUS CONCRETE PAVEMENT (HEAVY DUTY)

1 1/2" = 1'-0"



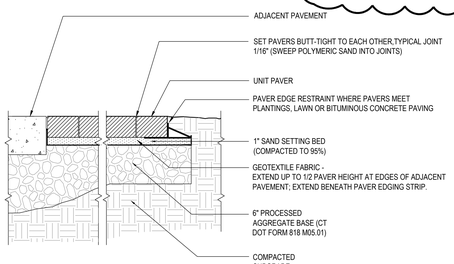
NOTES:

1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE, UTILITIES AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. FILTER COURSE TO BE INCREASED AS NECESSARY TO MEET PROPOSED GRADES.

1C BITUMINOUS CONCRETE PAVEMENT (POROUS) FIRE LANE ONLY ⚠

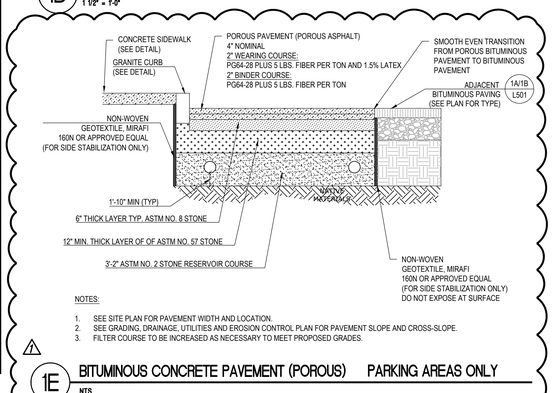
NTS

SEE DETAL 1E FOR BITUMINOUS CONCRETE PAVEMENT (POROUS) IN PARKING AREAS



1D UNIT PAVERS ON SAND SETTING BED WITH EDGE RESTRAINT

1 1/2" = 1'-0"

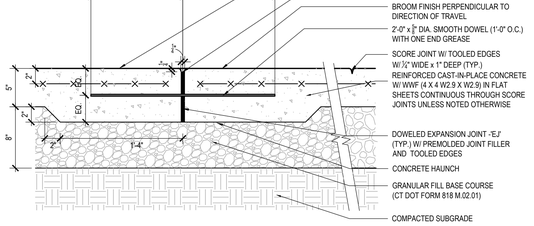


NOTES:

1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE, UTILITIES AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. FILTER COURSE TO BE INCREASED AS NECESSARY TO MEET PROPOSED GRADES.

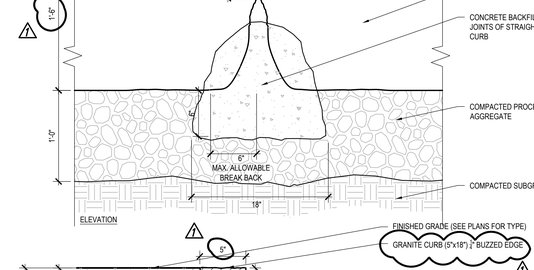
1E BITUMINOUS CONCRETE PAVEMENT (POROUS) PARKING AREAS ONLY ⚠

NTS



2A CONCRETE PAVEMENT (PEDESTRIAN)

1 1/2" = 1'-0"



2B CONCRETE PAVEMENT (HEAVY DUTY)

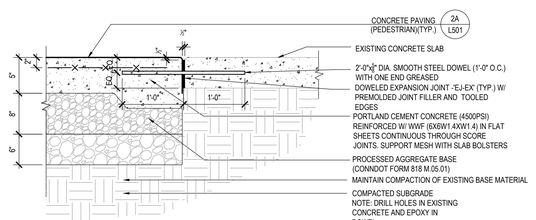
1 1/2" = 1'-0"

2C BOULDER

3/4" = 1'-0"

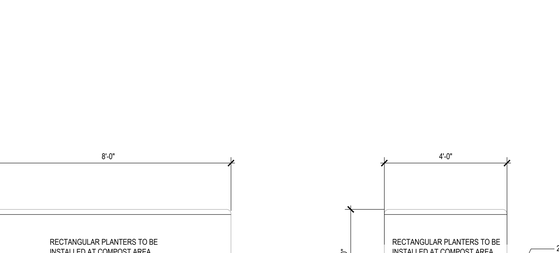
2E GRANITE CURB (GC)

1 1/2" = 1'-0"



3A CONCRETE ADJACENT TO EXISTING CONCRETE SIDEWALK (EJ-EX)

1" = 1'-0"

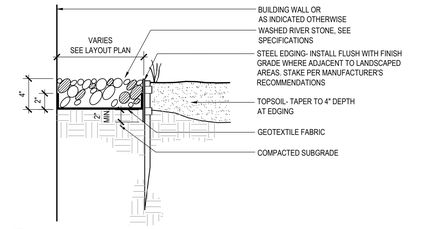


3B FROST PAD (EJ-1)

1" = 1'-0"

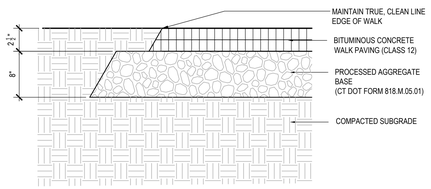
3C FROST PAD AT PEDESTRIAN UNIT PAVERS (EJ-2)

1" = 1'-0"



5A STONE MULCH

1 1/2" = 1'-0"

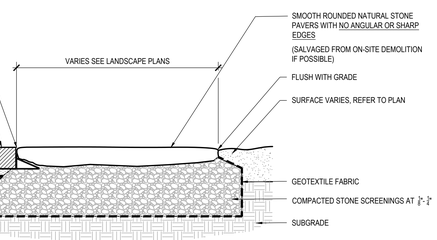


5B BITIMINOUS CONCRETE WALK

1 1/2" = 1'-0"

3E RAISED CONCRETE PLANTERS AND FIBER MULCH

1/2" = 1'-0"



5C STEPPING STONE

3/4" = 1'-0"

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Greenwich Public Schools

GREENWICH CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CT 06830

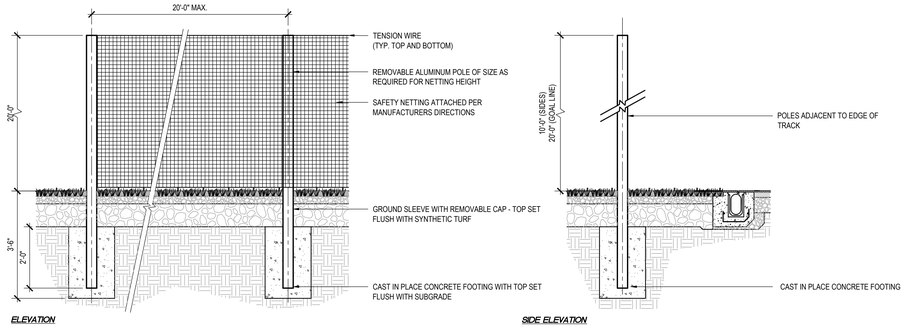
STATE PROJECT NO:057-0114 N

Number	Date	Issued For
1	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

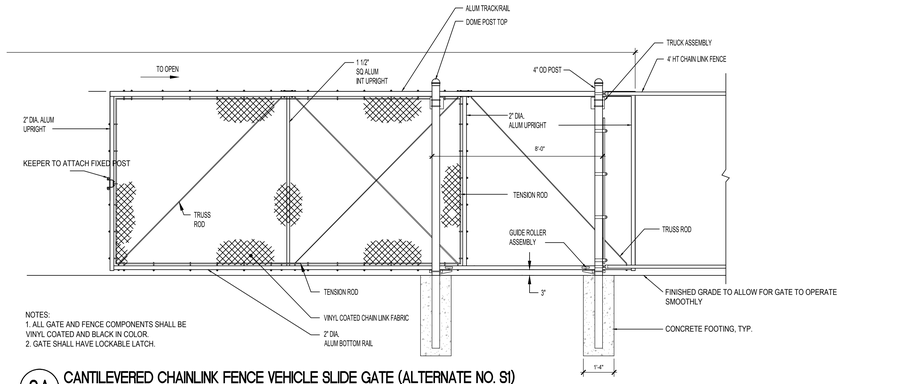
SITE DETAILS

Date: 07/08/2024
Scale: AS SHOWN
Proj. Number: 22367.00
Drawing Number: L501

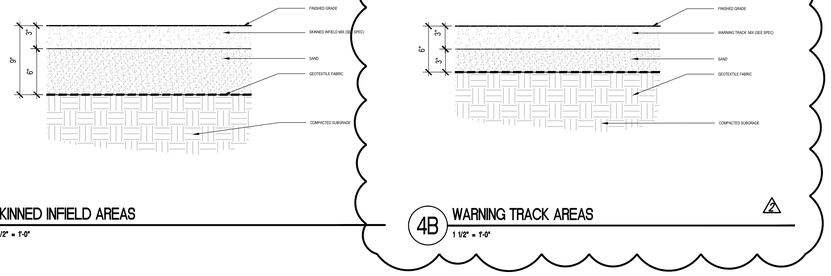
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1A SAFTEY NETTING
1/2" = 1'-0"

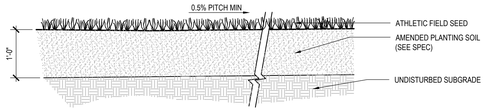


3A CANTILEVERED CHAINLINK FENCE VEHICLE SLIDE GATE (ALTERNATE NO. S1)
N.T.S.



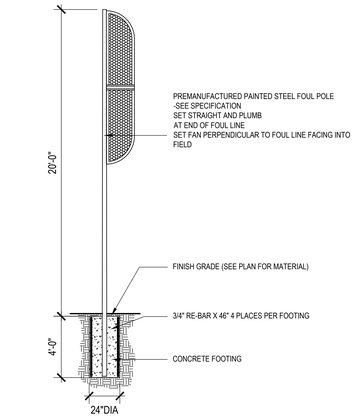
3B SKINNED INFIELD AREAS
1 1/2" = 1'-0"

4B WARNING TRACK AREAS
1 1/2" = 1'-0"

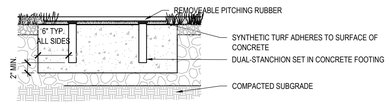


NOTES:
1. GRADE OF SUBGRADE BASE SHALL BE PARALLEL TO FINISHED GRADE OF PLAY FIELD SURFACE.
2. EXTEND NATURAL TURF SECTION TO LIMITS OF SAFETY ZONE OF FIELD.

3C TOPSOIL-BASED NATURAL TURF ATHLETIC FIELD
3/4" = 1'-0"

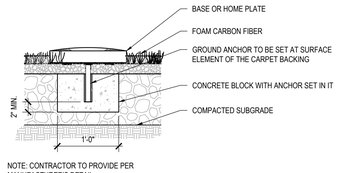


1C 20' FOUL POLE
1/4" = 1'-0"



NOTE: CONTRACTOR TO PROVIDE PER MANUFACTURER'S DETAIL

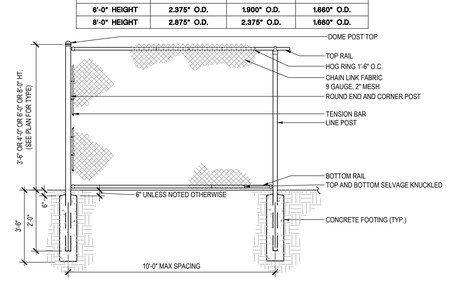
2B PITCHING RUBBER
1" = 1'-0"



NOTE: CONTRACTOR TO PROVIDE PER MANUFACTURER'S DETAIL

2C HOME PLATE / BASE MOUNTING
1" = 1'-0"

CHAIN LINK FRAMEWORK SIZES			
FENCE HEIGHT	END AND CORNER POST	LINE POST	TOP AND BOTTOM RAIL
3'-6" HEIGHT	2.375" O.D.	1.900" O.D.	1.660" O.D.
4'-0" HEIGHT	2.375" O.D.	1.900" O.D.	1.660" O.D.
6'-0" HEIGHT	2.375" O.D.	1.900" O.D.	1.660" O.D.
8'-0" HEIGHT	2.875" O.D.	2.375" O.D.	1.660" O.D.



NOTE:
ALL FENCE COMPONENTS SHALL BE VINYL COATED UNLESS INDICATED OTHERWISE

3D VINYL-COATED CHAIN LINK FENCE
3/8" = 1'-0"

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Greenwich Public Schools

GREENWICH CENTRAL MIDDLE SCHOOL

9 INDIAN ROCK LANE
GREENWICH, CT 06830

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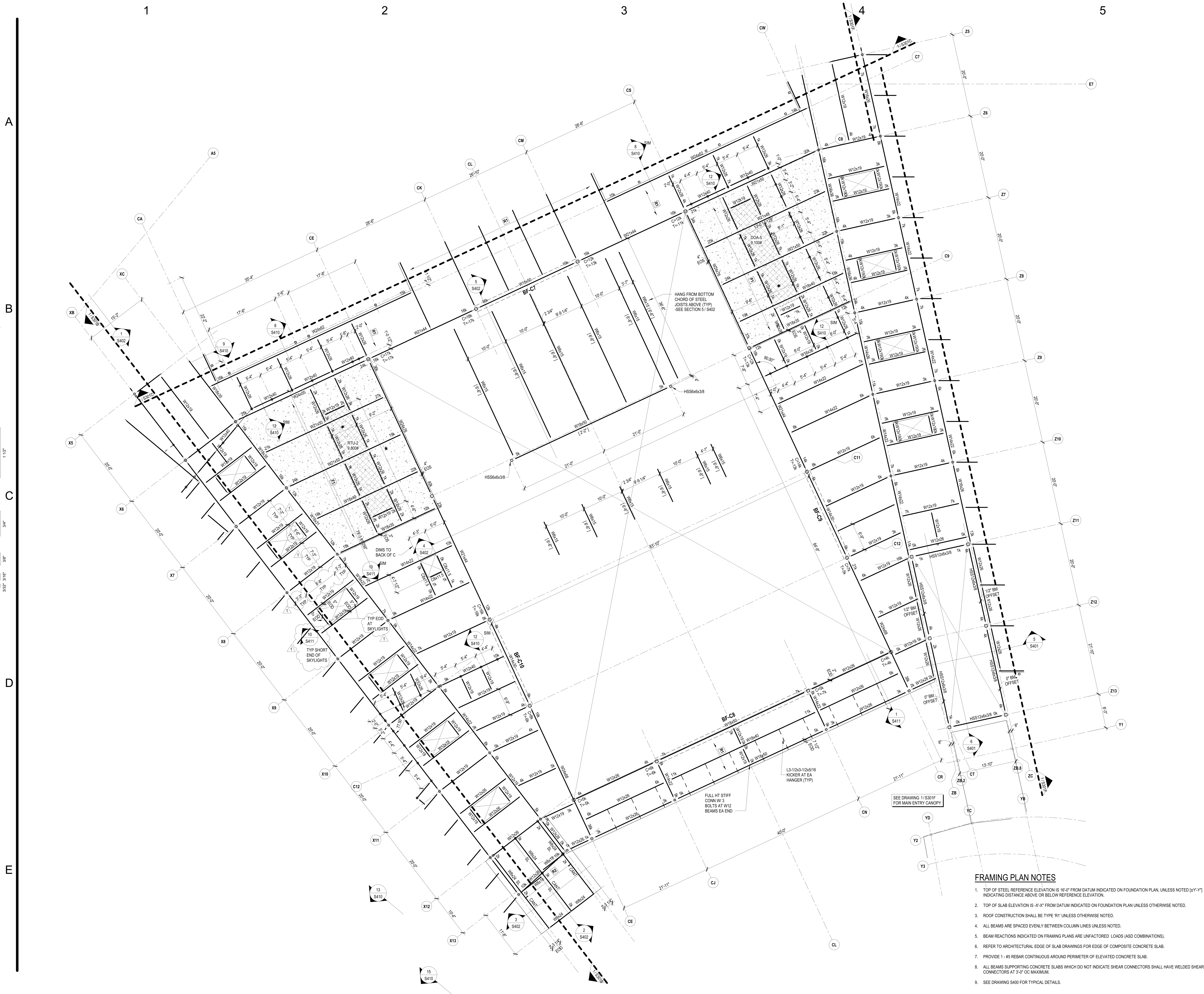
Number	Date	Issued For
1	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

ATHLETIC FIELD SITE DETAILS

Date
07/08/2024
Scale
AS SHOWN
Proj. Number
22367.00

Drawing Number
L601

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1	10/30/2024	ADDENDUM NO. 4
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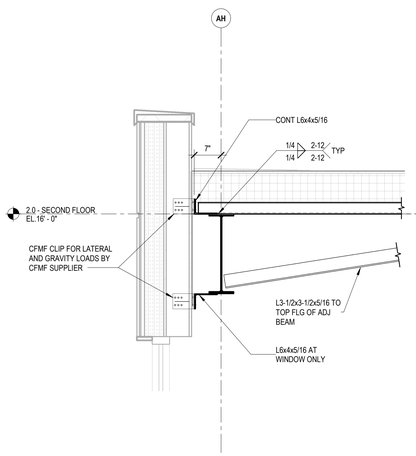
FRAMING PLAN NOTES

1. TOP OF STEEL REFERENCE ELEVATION IS 16'-0" FROM DATUM INDICATED ON FOUNDATION PLAN, UNLESS NOTED [±Y'-Y"] INDICATING DISTANCE ABOVE OR BELOW REFERENCE ELEVATION.
2. TOP OF SLAB ELEVATION IS -X'-X" FROM DATUM INDICATED ON FOUNDATION PLAN UNLESS OTHERWISE NOTED.
3. ROOF CONSTRUCTION SHALL BE TYPE 'R1' UNLESS OTHERWISE NOTED.
4. ALL BEAMS ARE SPACED EVENLY BETWEEN COLUMN LINES UNLESS NOTED.
5. BEAM REACTIONS INDICATED ON FRAMING PLANS ARE UNFACTORED LOADS (ASD COMBINATIONS).
6. REFER TO ARCHITECTURAL EDGE OF SLAB DRAWINGS FOR EDGE OF COMPOSITE CONCRETE SLAB.
7. PROVIDE 1 - #5 REBAR CONTINUOUS AROUND PERIMETER OF ELEVATED CONCRETE SLAB.
8. ALL BEAMS SUPPORTING CONCRETE SLABS WHICH DO NOT INDICATE SHEAR CONNECTORS SHALL HAVE WELDED SHEAR CONNECTORS AT 3'-0" OC MAXIMUM.
9. SEE DRAWING S400 FOR TYPICAL DETAILS.

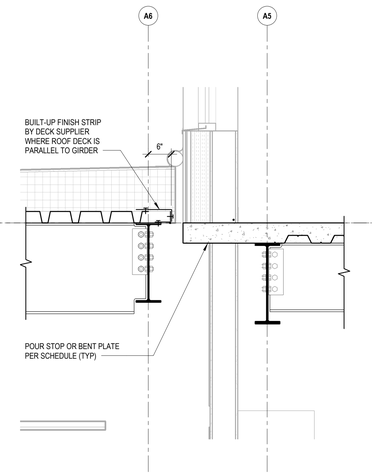
LOW ROOF FRAMING PLAN - PART D

Date 07/08/2024
Scale 1/8" = 1'-0"
Proj. Number 22367.00
Drawing Number **S301D**

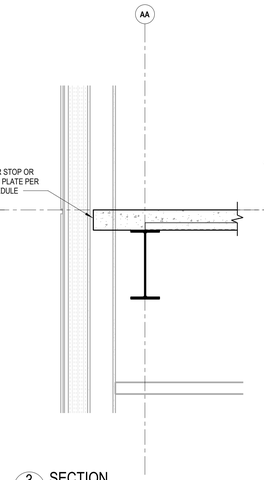
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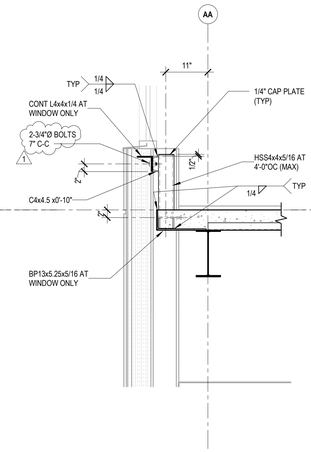
1 SECTION S410 3/4" = 1'-0"



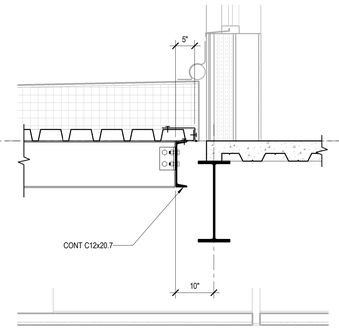
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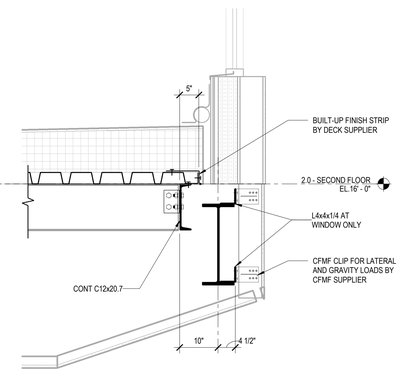
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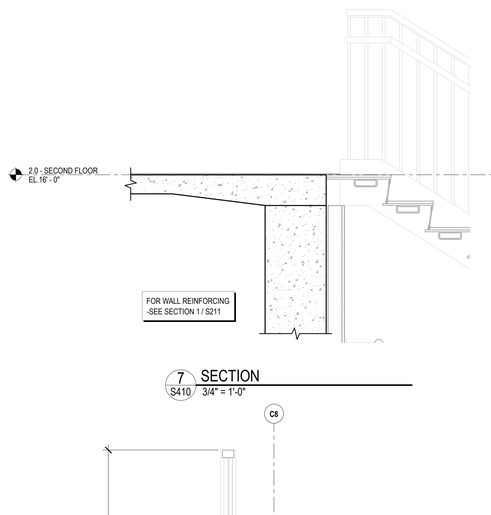
4 SECTION S410 3/4" = 1'-0"



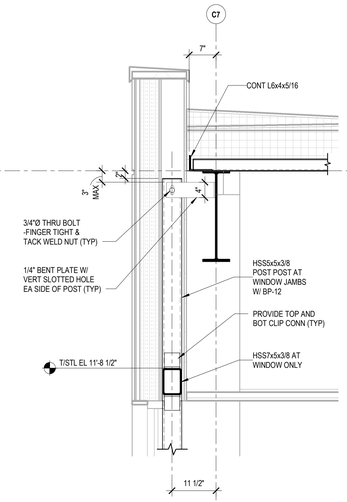
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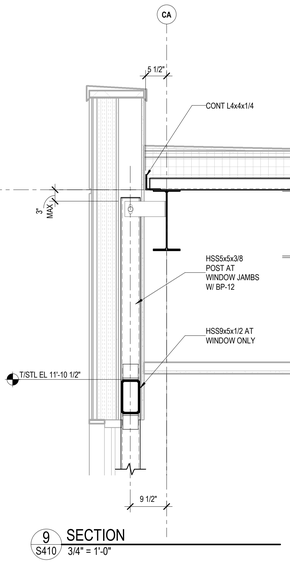
6 SECTION S410 3/4" = 1'-0"



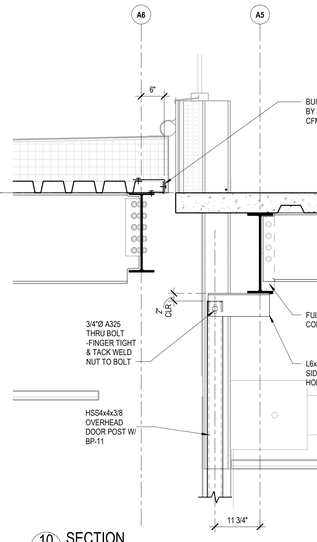
7 SECTION S410 3/4" = 1'-0"



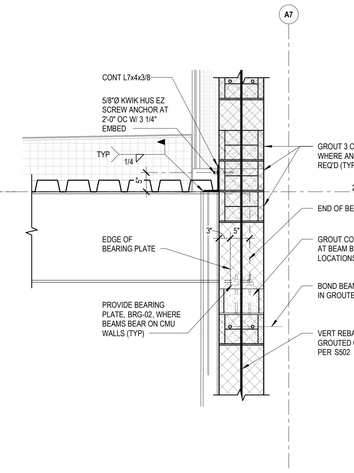
8 SECTION S410 3/4" = 1'-0"



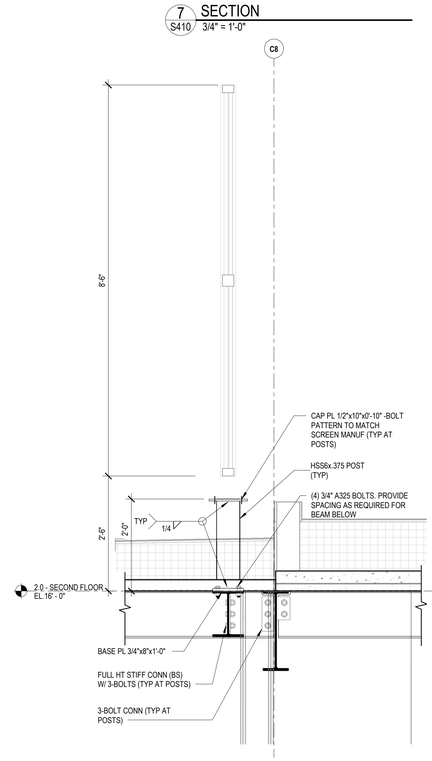
9 SECTION S410 3/4" = 1'-0"



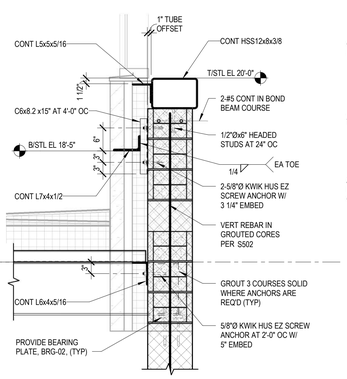
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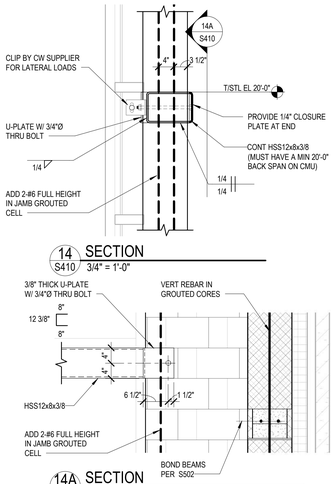
11 SECTION S410 3/4" = 1'-0"



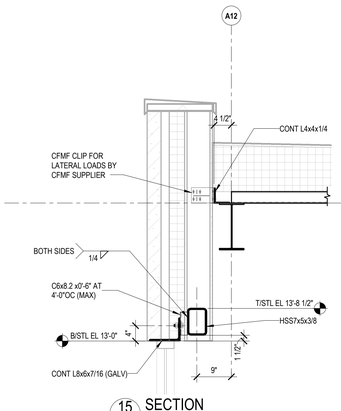
12 SECTION S410 3/4" = 1'-0"



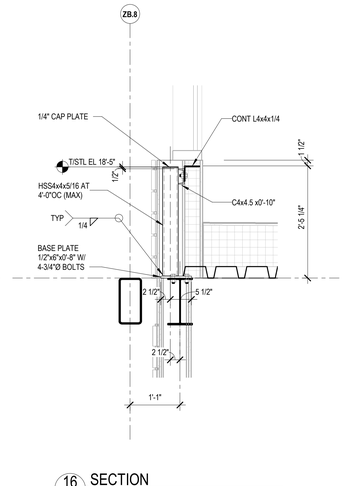
13 SECTION S410 3/4" = 1'-0"



14A SECTION S410 3/4" = 1'-0"



15 SECTION S410 3/4" = 1'-0"



16 SECTION S410 3/4" = 1'-0"

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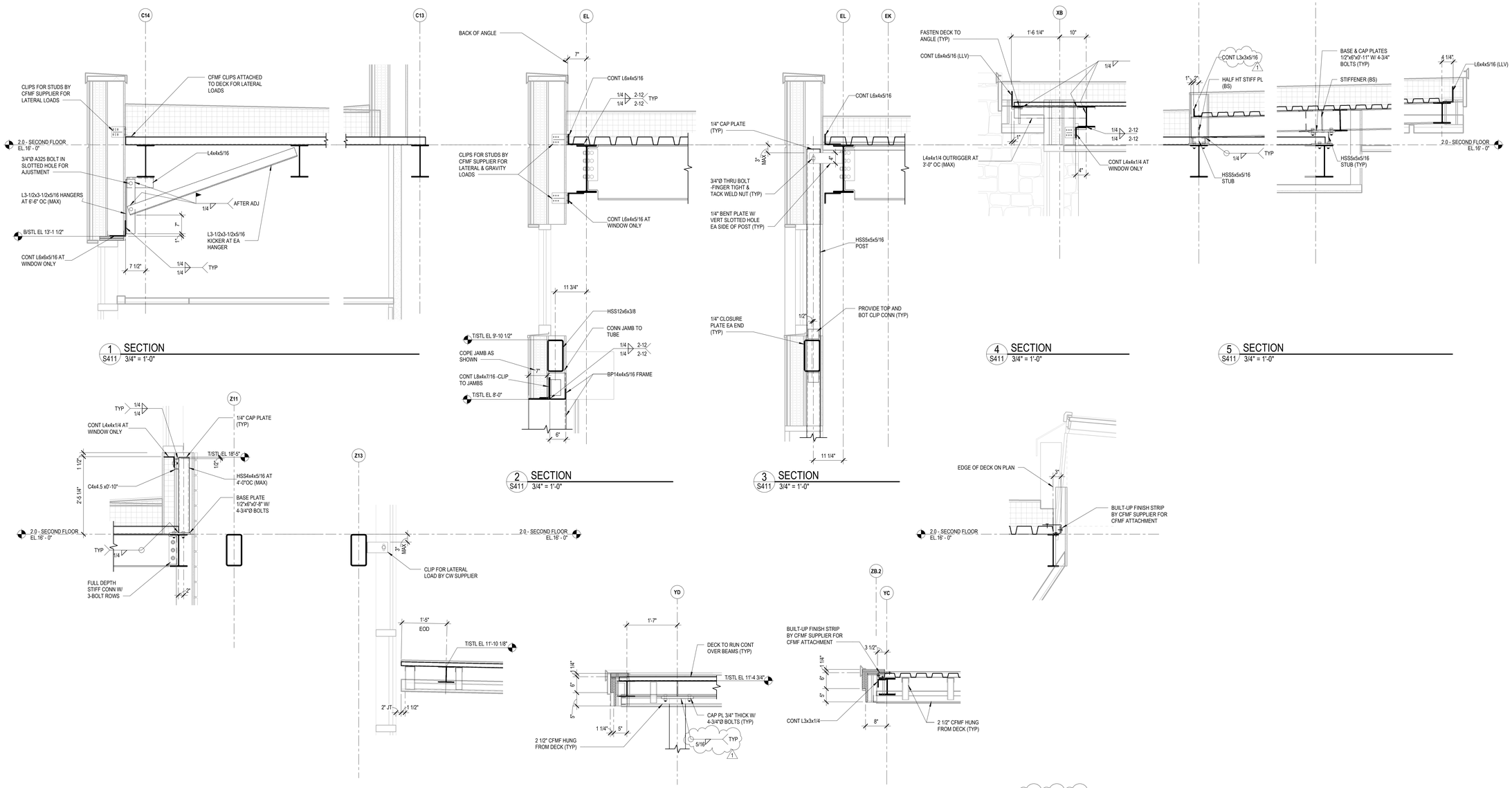
KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING / PERMIT
	07/08/2024	PHASE 2

FRAMING DETAILS

Date 07/08/2024
Scale 3/4" = 1'-0"
Proj. Number 22367.00
Drawing Number **S410**

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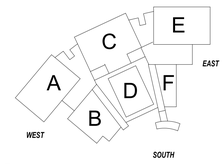
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STATE PROJECT NO: 057-0114 N

NORTH



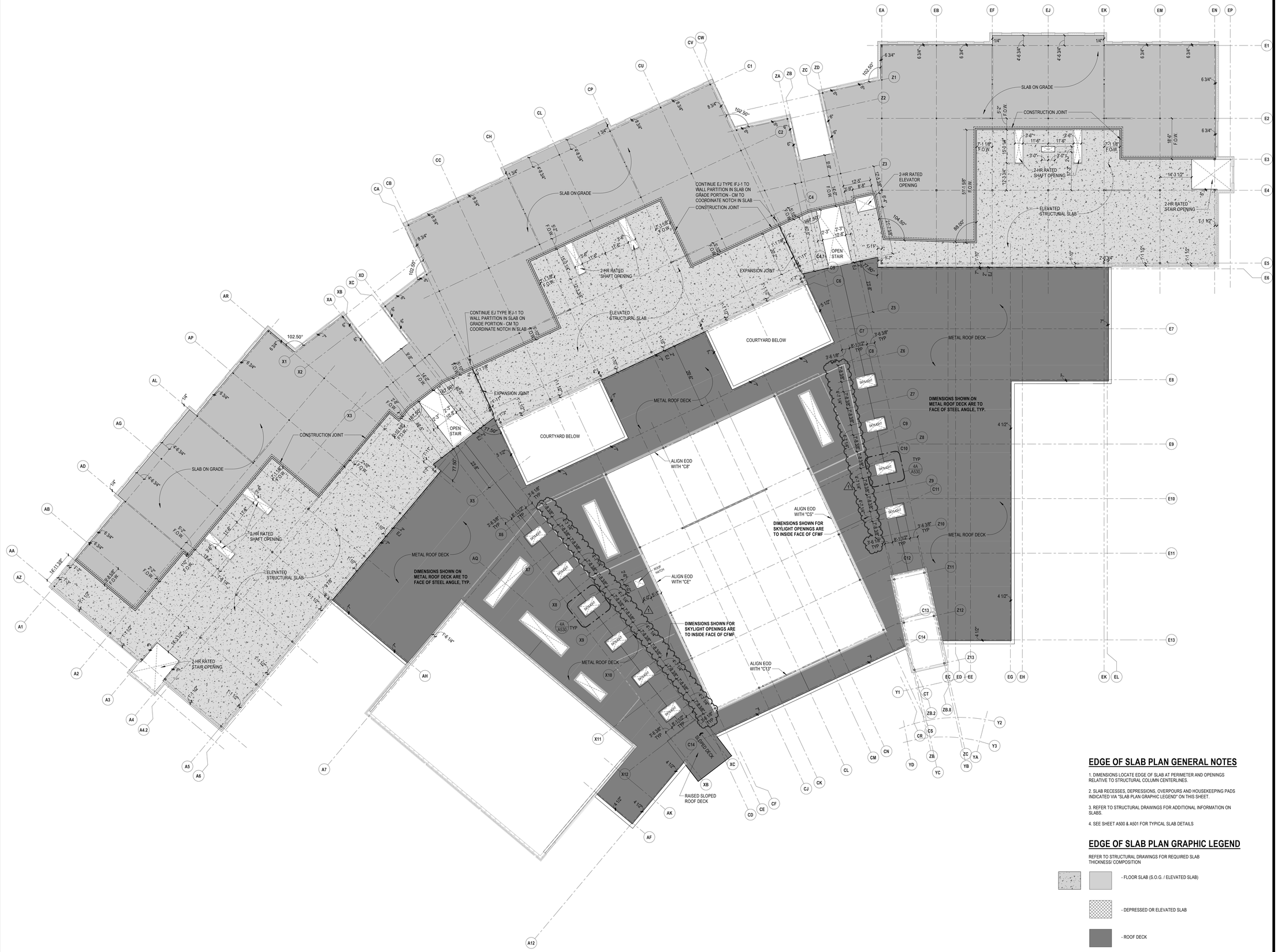
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FRAMING DETAILS

Date: 07/08/2024
Scale: 3/4" = 1'-0"
Proj. Number: 22367.00
Drawing Number: S411

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1E SECOND FLOOR PLAN - A
1/16" = 1'-0"

EDGE OF SLAB PLAN GENERAL NOTES

1. DIMENSIONS LOCATE EDGE OF SLAB AT PERIMETER AND OPENINGS RELATIVE TO STRUCTURAL COLUMN CENTERLINES.

2. SLAB RECESSES, DEPRESSIONS, OVERPOURS AND HOUSEKEEPING PADS INDICATED VIA "SLAB PLAN GRAPHIC LEGEND" ON THIS SHEET.

3. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION ON SLABS.

4. SEE SHEET A500 & A501 FOR TYPICAL SLAB DETAILS

EDGE OF SLAB PLAN GRAPHIC LEGEND

REFER TO STRUCTURAL DRAWINGS FOR REQUIRED SLAB THICKNESS/ COMPOSITION

- FLOOR SLAB (S.O.G. / ELEVATED SLAB)
- DEPRESSED OR ELEVATED SLAB
- ROOF DECK
- (-) X' - X" - SLAB ELEVATION (RELATIVE TO FLOOR LEVEL)

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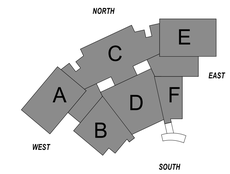
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SECOND FLOOR & LOWER ROOF SLAB EDGE PLAN

Date: 07/08/2024
Scale: As indicated
Proj. Number: 22367.00
Drawing Number: A092

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FLOOR PLAN GRAPHIC LEGEND

- NEW WALL CONSTRUCTION
- NEW MASONRY CONSTRUCTION
- PATH OF EXPANSION JOINT - PROVIDE EXPANSION JOINT COVERS AS SHOWN ON "AL" SERIES AND A200 SERIES
- CASEWORK COUNTER OR SILL; SEE DETAILS & FINISH DRAWINGS
- FE — FIRE EXTINGUISHER
- FEC — FIRE EXTINGUISHER CABINET
- FEL — FIRE EXTINGUISHER LOCKER UNIT
- FEB — FIRE EXTINGUISHER / FIRE BLANKET CABINET
- FVC — FIRE VALVE CABINET
- EP — ELECTRICAL PANEL
- ACCESSIBLE CLEAR FLOOR SPACE
- CR — CARD READER
- PP — AUTOMATIC DOOR OPERATOR PUSH PLATE
- HO — HOLD OPEN
- MHO — MAGNETIC HOLD OPEN
- ES — EMERGENCY SHOWER
- EW — EYE WASH
- EWC — ELECTRIC WATER COOLER
- DF/ BF — DRINKING FOUNTAIN/ BOTTLE FILLER
- FB — FLOOR BOX - **RE:** MEP AND TECH
- P.T. — FLOOR POKE THROUGH - SEE 5B/A602 & ELEC/ TECH
- AED — DEFIBRILLATOR
- FD — FLOOR DRAIN - **RE:** 3E/A806
- CO — FLOOR CLEANOUT
- IFP — INTERACTIVE FLAT PANEL
- FPD — FLAT PANEL DISPLAY
- MPS — MANUAL PROJECTION SCREEN
- PPS — POWERED PROJECTION SCREEN
- WB__ — WHITE BOARD (NUMBER IS LENGTH IN FEET)
- TB__ — TACK BOARD (NUMBER IS LENGTH IN FEET)
- VD1 - VD2 — VISUAL DISPLAY SURFCE - **RE:** FINISH PLANS
- EXTENT OF BELOW GRADE WATERPROOFING AND 3" INSULATION - REFER TO DETAIL **3A/A501**
- 12"w x 18"d x 76"h - 2 TIER STUDENT LOCKER - TYPE "A"
- 12"w x 18"d x 40"h - 1 TIER STUDENT LOCKER - TYPE "B"
- 18"w x 18"d x 72"h - 1 TIER CUSTODIAN LOCKER - TYPE "C"
- 12"w x 18"d x 76"h - 2 TIER ATHLETICS LOCKER - TYPE "D"
- 12"w x 18"d x 76"h - 4 TIER PE LOCKER - TYPE "E"

* REFER TO THE FINISH PRODUCT LIST FOR LIST OF MATERIAL TAGS USED IN THE A700 AND A900 SERIES.

FLOOR PLAN GENERAL NOTES

1. REFER TO GENERAL INFORMATION SHEET FOR LIST OF TYPICAL ABBREVIATIONS AND TYPICAL ARCHITECTURAL GRAPHIC LEGENDS AND SYMBOLS.

2. REFER TO TYPICAL PARTITION TYPES AND DETAILS SHEETS A600 - A606. ALL PARTITIONS SHALL BE TYPE 1 U.O.N. ALL MASONRY PARTITIONS SHALL BE TYPE M8 U.O.N.. FOR ACOUSTIC CONTINUITY AT TOPS OF PARTITIONS CENTERED ON OR DIRECTLY ADJACENT TO STEEL BEAMS, REFER TO SPECTIC DETAILS ON SHEET A602

3. REFER TO CODE INFORMATION AND FIRE SAFETY PLAN DRAWINGS FOR LOCATIONS OF FIRE-RESISTANCE RATED PARTITIONS AND NON-FIRE-RESISTANCE RATED SMOKE PARTITIONS.

4. ALIGN PARTITIONS WITH COLUMN OR MULLION CENTERLINE, UNLESS OTHERWISE NOTED.

5. DIMENSIONS ARE FROM FACE OF WALL TO FACE OF WALL. (I.E. FACE OF GYPSUM BOARD OR MASONRY) OR FROM FACE OF EXISTING CONDITION OR FROM COLUMN CENTERLINE, UNLESS OTHERWISE NOTED. DIMENSIONS NOTED AS "CLEAR" SHALL BE FROM FINISH FACE TO FINISH FACE. (ie. FACE OF CERAMIC TILE TO FACE OF CERAMIC TILE). VERIFY ALL EXISTING DIMENSIONS IN THE FIELD.

6. ALL MASONRY DIMENSIONS, INDICATED "M.O.", ARE NOMINAL DIMENSIONS, UNLESS OTHERWISE NOTED. ACTUAL MASONRY OPENING DIMENSION = NOMINAL MASONRY OPENING DIMENSION + ONE MORTAR JOINT (I.E., 4'-0" M.O. = 4'-0" + 7" ACTUAL OPENING DIMENSION).

7. REFER TO "AL" SERIES AND PLAN ENLARGEMENTS FOR ADDITIONAL DIMENSIONS.

8. REFER TO DOOR AND FRAME DETAILS FOR ADDITIONAL INFORMATION. PROVIDE MINIMUM 4-INCH CLEARANCE FROM FACE OF DOOR JAMB TO FACE OF ADJACENT WALL, UNLESS OTHERWISE NOTED.

9. REFER TO TYPICAL MOUNTING LOCATIONS AND HEIGHTS FOR TOILET ACCESSORIES, EQUIPMENT, WALL SPECIALTY DESIGNATIONS, VISUAL DISPLAY BOARDS, ETC.; TYPICAL TOILET ROOM ELEVATIONS AND TOILET ACCESSORY SCHEDULE.

10. PROVIDE FIRE-TREATED WOOD BLOCKING OR MINIMUM 0.0312-INCH THICK STEEL FLAT STRAP AND BACKING PLATE AT, BUT NOT LIMITED TO, THE FOLLOWING LOCATIONS: TOILET ACCESSORIES, CASEWORK, MILLWORK, DOOR WALL BUMPERS, AND ALL OTHER WALL MOUNTED EQUIPMENT OR DEVICES.

11. REFERENCING THE FIRE SAFETY PLANS, ALL PARTITIONS INDICATED TO SERVE AS FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS OR SMOKE PARTITIONS NEED TO MEET ALL REQUIREMENTS FOR STATED FIRE AND/OR SMOKE RATING.
A) CONSTRUCTION OF PARTITION MUST MATCH REQUIREMENTS FOR STATED RATING AND UL LISTING.
B) EXTENTS OF PARTITION MUST EXTEND FULL HEIGHT, SEALED TO UNDERSIDE OF DECK ABOVE. PARTITION TO EXTEND LATERALLY FULL LENGTH WITHOUT GAPS OR INTERRUPTIONS.
C) FIRESTOPPING MUST BE PROVIDED AT ALL HOLES, PENETRATIONS AND EDGES.

12. REFER TO THE EQUIPMENT PLANS FOR VISUAL DISPLAY BOARD, RESIDENTIAL APPLIANCE, FIXED AUDITORIUM SEATING, PROJECTION SCREEN AND TOILET ACCESSORY LOCATIONS. REFER TO THE EQUIPMENT PLANS FOR EQUIPMENT LOCATIONS AND SCHEDULE.

13. REFER TO THE FINISH PLANS FOR FLOOR PATTERNS.

1E FIRST FLOOR PLAN
1/8" = 1'-0"

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	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

FIRST FLOOR PLAN - PART A

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00
Drawing Number: A101A

Autodesk Docs://22367.00 - Greenwich Central Middle School/A_22367_GREENWICH_CENTRAL_MS_R22.rvt
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FLOOR PLAN GRAPHIC LEGEND

- NEW WALL CONSTRUCTION
- NEW MASONRY CONSTRUCTION
- PATH OF EXPANSION JOINT - PROVIDE EXPANSION JOINT COVERS AS SHOWN ON "AL" SERIES AND A200 SERIES
- CASEWORK COUNTER OR SILL; SEE DETAILS & FINISH DRAWINGS
- FE — FIRE EXTINGUISHER
- FEC — FIRE EXTINGUISHER CABINET
- FEL — FIRE EXTINGUISHER LOCKER UNIT
- FEB — FIRE EXTINGUISHER / FIRE BLANKET CABINET
- FVC — FIRE VALVE CABINET
- EP — ELECTRICAL PANEL
- ACCESSIBLE CLEAR FLOOR SPACE
- CR — CARD READER
- PP — AUTOMATIC DOOR OPERATOR PUSH PLATE
- HO — HOLD OPEN
- MHO — MAGNETIC HOLD OPEN
- ES — EMERGENCY SHOWER
- EW — EYE WASH
- EWC — ELECTRIC WATER COOLER
- DF/ BF — DRINKING FOUNTAIN/ BOTTLE FILLER
- FB — FLOOR BOX - **RE**: MEP AND TECH
- P.T. — FLOOR POKE THROUGH - SEE 5B/A602 & ELEC/ TECH
- AED — DEFIBRILLATOR
- FD — FLOOR DRAIN - **RE**: 3E/A806
- FLOOR CLEANOUT
- IFP — INTERACTIVE FLAT PANEL
- FPD — FLAT PANEL DISPLAY
- MPS — MANUAL PROJECTION SCREEN
- PPS — POWERED PROJECTION SCREEN
- WB__ — WHITE BOARD (NUMBER IS LENGTH IN FEET)
- TB__ — TACK BOARD (NUMBER IS LENGTH IN FEET)
- VD1 - VD2 — VISUAL DISPLAY SURFCE - **RE**: FINISH PLANS
- EXTENT OF BELOW GRADE WATERPROOFING AND 3" INSULATION - REFER TO DETAIL **3A/A501**
- 12"w x 18"d x 76"h - 2 TIER STUDENT LOCKER - TYPE "A"
- 12"w x 18"d x 40"h - 1 TIER STUDENT LOCKER - TYPE "B"
- 18"w x 18"d x 72"h - 1 TIER CUSTODIAN LOCKER - TYPE "C"
- 12"w x 18"d x 76"h - 2 TIER ATHLETICS LOCKER - TYPE "D"
- 12"w x 18"d x 76"h - 4 TIER PE LOCKER - TYPE "E"

* REFER TO THE FINISH PRODUCT LIST FOR LIST OF MATERIAL TAGS USED IN THE A700 AND A900 SERIES.

ROOF PLAN GENERAL NOTES

1. REFER TO APPLICABLE ROOFING SYSTEM SPECIFICATIONS FOR ADDITIONAL INFORMATION ON ROOF MEMBRANE, ROOF INSULATION AND ROOFING ACCESSORIES.
2. REFER TO MECHANICAL / ELECTRICAL / PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION ON ROOF MOUNTED EQUIPMENT.
3. PROVIDE PRE-FORMED SADDLES, CRICKETS, TAPERED EDGE STRIPS, AND OTHER INSULATION SHAPES AS INDICATED OR AS REQUIRED TO PROVIDE POSITIVE DRAINAGE TO DRAINAGE POINTS AT A MINIMUM 1/4" PER FOOT.
4. FIELD PAINT THE FOLLOWING ROOF MOUNTED EQUIPMENT:
   - ***A. ROOF HATCH COVER***
   - ***B. SMOKE / HEAT VENT COVER***
   - ***C. METAL LADDER(S)***
   - ***D. ROOF SAFETY TIE OFFS***
   - ***E. ROOF SCREEN STRUCTURE/FRAMING***
5. REFER TO TYPICAL EXTERIOR ASSEMBLIES SHEET A500 FOR ROOF SYSTEM "R" & "U" VALUE CALCULATIONS.
6. MINIMUM 6" INSULATION THICKNESS BEFORE SUMP AT ROOF DRAINS AND ANY POINT ON THE ROOF TO MAINTAIN R-40
7. REFER TO SHEET SERIES A53x FOR TYPICAL ROOF DETAILS.
8. VERIFY AND COORDINATE FINAL LOCATIONS OF ROOF DRAINS WITH WALL CONSTRUCTION AND STEEL FRAMING BELOW.
9. OVERFLOW SCUPPER (OS) SPILLWAY ELEVATIONS STATED INDICATE RELATIVE ELEVATION ABOVE ROOF DECK.
10. ROOFING CONTRACTOR TO PROVIDE PROTECTIVE PADS ON ROOF SURFACE UNDER ALL SURFACE-BEARING ITEMS (DUCT SUPPORTS, ETC.) AS REQUIRED BY ROOFING MFR.

ROOF PITCH NOTES

1. AT FLAT ROOF DECKS WITH TAPERED INSULATION SYSTEMS, ROOF ELEVATIONS ARE INDICATED (AT LOW POINTS/DRAINS, HIGH POINTS, PERIMETERS, ETC.) AS FOLLOWS: [4"] [8"] [12"] ETC. THESE ELEVATION ANNOTATIONS INDICATE RELATIVE HEIGHT FROM TOP OF DECK (METAL OR CONC) TO TOP OF INSULATION SYSTEM.
2. AT PITCHED ROOF DECKS, REFER TO STRUCTURAL FRAMING PLANS FOR ELEVATIONS OF ROOF STRUCTURE SUPPORTING ROOF SYSTEM.
3. TAPERED INSULATION SYSTEM AND/OR ROOF DECK/STRUCTURE SHALL PROVIDE PITCH THAT MEETS OR EXCEEDS LOCAL CODE REQUIREMENTS OVER ENTIRE ROOF AREA. COORDINATE PITCH REQUIREMENTS AND SPECIFIC STEEL ELEVATIONS WITH STRUCTURAL ENGINEER.
4. ALL CRICKETS, ETC. SHALL BE INSTALLED TO PROVIDE PITCH THAT MEETS OR EXCEEDS LOCAL CODE REQUIREMENTS.
5. IF PROJECT OF TAPERED INSULATION ARE REQUIRED TO SUPPLEMENT PITCHED STEEL, PROVIDE SMOOTH TRANSITIONS BETWEEN THE INSULATION SYSTEMS. THE RESULTANT ROOF SURFACE SHALL PROVIDE PITCH THAT MEETS OR EXCEEDS LOCAL CODE REQUIREMENTS.



1E SECOND FLOOR PLAN - B
1/8" = 1'-0"

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Drawn: CP, SZ, JH
Checked: JZ

Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane,
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N

NORTH / EAST / SOUTH / WEST

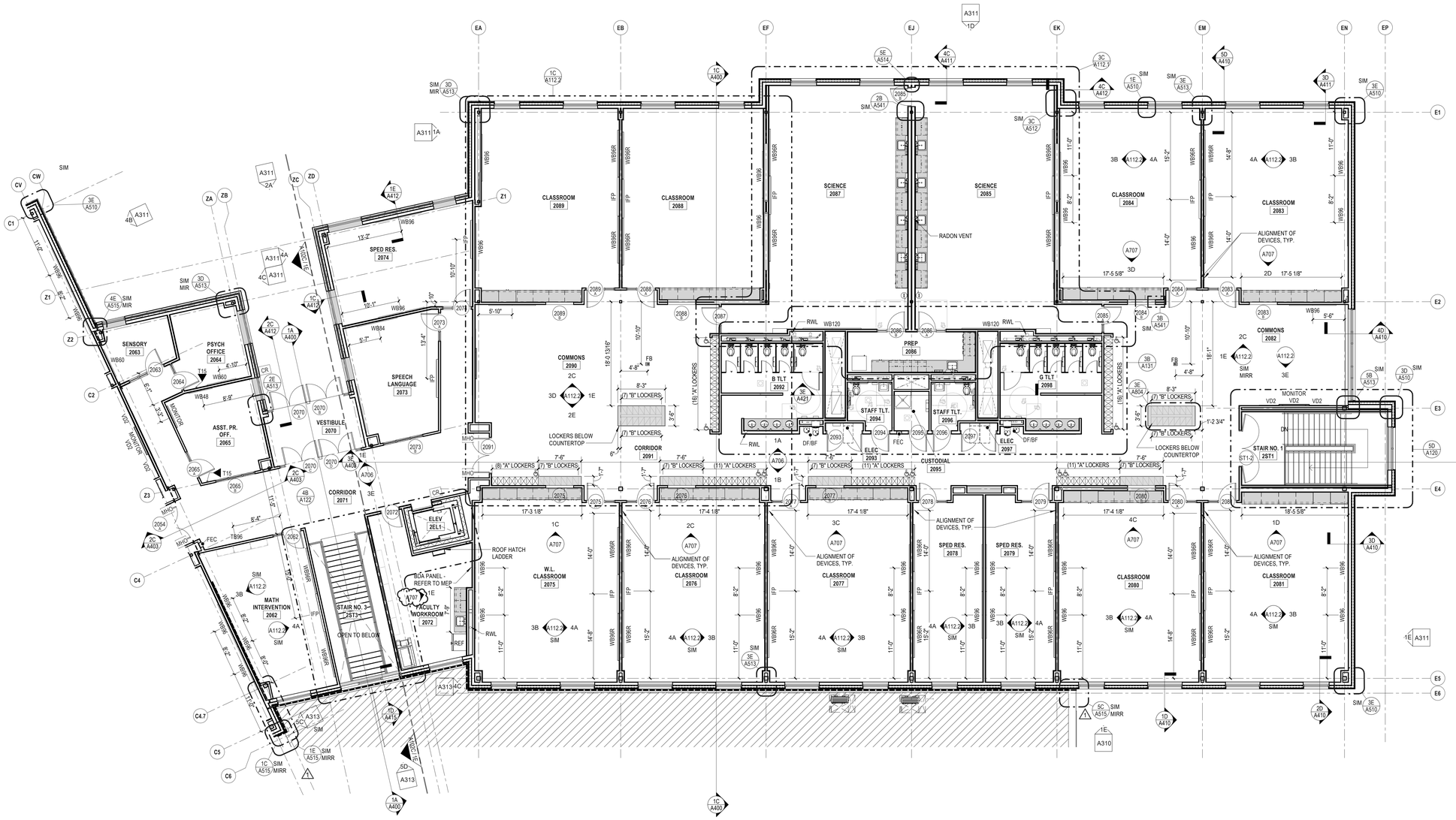
KEYPLAN

Number	Date	Issued For
2	10/30/2024	ADDENDUM NO. 4
1	10/23/2024	ADDENDUM NO. 3
	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

SECOND FLOOR PLAN - PART C

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00
Drawing Number: A102C

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1D SECOND FLOOR PLAN - C

1/8" = 1'-0"

FLOOR PLAN GENERAL NOTES

1. REFER TO GENERAL INFORMATION SHEET FOR LIST OF TYPICAL ABBREVIATIONS AND TYPICAL ARCHITECTURAL GRAPHIC LEGENDS AND SYMBOLS.

2. REFER TO TYPICAL PARTITION TYPES AND DETAILS SHEETS A600 - A606. ALL PARTITIONS SHALL BE TYPE 1 U.O.N. ALL MASONRY PARTITIONS SHALL BE TYPE M8 U.O.N.. FOR ACOUSTIC CONTINUITY AT TOPS OF PARTITIONS CENTERED ON OR DIRECTLY ADJACENT TO STEEL BEAMS, REFER TO SPECTIC DETAILS ON SHEET A602

3. REFER TO CODE INFORMATION AND FIRE-SAFETY PLAN DRAWINGS FOR LOCATIONS OF FIRE-RESISTANCE RATED PARTITIONS AND NON-FIRE-RESISTANCE RATED SMOKE PARTITIONS.

4. ALIGN PARTITIONS WITH COLUMN OR MULLION CENTERLINE, UNLESS OTHERWISE NOTED.

5. DIMENSIONS ARE FROM FACE OF WALL TO FACE OF WALL, (I.E. FACE OF GYPSUM BOARD OR MASONRY) OR FROM FACE OF EXISTING CONDITION OR FROM COLUMN CENTERLINE, UNLESS OTHERWISE NOTED. DIMENSIONS NOTED AS "CLEAR" SHALL BE FROM FINISH FACE TO FINISH FACE, (ie. FACE OF CERAMIC TILE TO FACE OF CERAMIC TILE). VERIFY ALL EXISTING DIMENSIONS IN THE FIELD.

6. ALL MASONRY DIMENSIONS, INDICATED "M.O.", ARE NOMINAL DIMENSIONS, UNLESS OTHERWISE NOTED. ACTUAL MASONRY OPENING DIMENSION = NOMINAL MASONRY OPENING DIMENSION + ONE MORTAR JOINT (I.E., 4'-0" M.O. + 4'-0" + ?" ACTUAL OPENING DIMENSION).

7. REFER TO "AL" SERIES AND PLAN ENLARGEMENTS FOR ADDITIONAL DIMENSIONS.

8. REFER TO DOOR AND FRAME DETAILS FOR ADDITIONAL INFORMATION. PROVIDE MINIMUM 4-INCH CLEARANCE FROM FACE OF DOOR JAMB TO FACE OF ADJACENT WALL, UNLESS OTHERWISE NOTED.

9. REFER TO TYPICAL MOUNTING LOCATIONS AND HEIGHTS FOR TOILET ACCESSORIES, EQUIPMENT, WALL SPECIALTY DESIGNATIONS, VISUAL DISPLAY BOARDS, ETC.; TYPICAL TOILET ROOM ELEVATIONS AND TOILET ACCESSORY SCHEDULE.

10. PROVIDE FIRE-TREATED WOOD BLOCKING OR MINIMUM 0.0312-INCH THICK STEEL FLAT STRAP AND BACKING PLATE AT, BUT NOT LIMITED TO, THE FOLLOWING LOCATIONS: TOILET ACCESSORIES, CASEWORK, MILLWORK, DOOR WALL BUMPERS, AND ALL OTHER WALL MOUNTED EQUIPMENT OR DEVICES.

11. REFERENCING THE FIRE SAFETY PLANS, ALL PARTITIONS INDICATED TO SERVE AS FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS OR SMOKE PARTITIONS NEED TO MEET ALL REQUIREMENTS FOR STATED FIRE AND/OR SMOKE RATING.
A) CONSTRUCTION OF PARTITION MUST MATCH REQUIREMENTS FOR STATED RATING AND UL LISTING.
B) EXTENTS OF PARTITION MUST EXTEND FULL HEIGHT, SEALED TO UNDERSIDE OF DECK ABOVE. PARTITION TO EXTEND LATERALLY FULL LENGTH WITHOUT GAPS OR INTERRUPTIONS.
C) FIRESTOPPING MUST BE PROVIDED AT ALL HOLES, PENETRATIONS AND EDGES.

12. REFER TO THE EQUIPMENT PLANS FOR VISUAL DISPLAY BOARD, RESIDENTIAL APPLIANCE, FIXED AUDITORIUM SEATING, PROJECTION SCREEN AND TOILET ACCESSORY LOCATIONS. REFER TO THE EQUIPMENT PLANS FOR EQUIPMENT LOCATIONS AND SCHEDULE.

13. REFER TO THE FINISH PLANS FOR FLOOR PATTERNS.

FLOOR PLAN GRAPHIC LEGEND

- NEW WALL CONSTRUCTION
- NEW MASONRY CONSTRUCTION
- PATH OF EXPANSION JOINT - PROVIDE EXPANSION JOINT COVERS AS SHOWN ON "AL" SERIES AND A200 SERIES
- CASEWORK COUNTER OR SILL; SEE DETAILS & FINISH DRAWINGS
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- FEC FIRE EXTINGUISHER CABINET
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- FEB FIRE EXTINGUISHER / FIRE BLANKET CABINET
- FVC FIRE VALVE CABINET
- EP ELECTRICAL PANEL
- ACCESSIBLE CLEAR FLOOR SPACE
- CR CARD READER
- PP AUTOMATIC DOOR OPERATOR PUSH PLATE
- HO HOLD OPEN
- MHO MAGNETIC HOLD OPEN
- ES EMERGENCY SHOWER
- EW EYE WASH
- EWC ELECTRIC WATER COOLER
- DF/ BF DRINKING FOUNTAIN/ BOTTLE FILLER
- FB FLOOR BOX - **RE**: MEP AND TECH
- P.T. FLOOR POKE THROUGH - SEE 5B/A602 & ELEC/ TECH
- AED DEFIBRILLATOR
- FD FLOOR DRAIN - **RE**: 3E/A806
- CO FLOOR CLEANOUT
- IFP INTERACTIVE FLAT PANEL
- FPD FLAT PANEL DISPLAY
- MPS MANUAL PROJECTION SCREEN
- PPS POWERED PROJECTION SCREEN
- WB__ WHITE BOARD (NUMBER IS LENGTH IN FEET)
- TB__ TACK BOARD (NUMBER IS LENGTH IN FEET)
- VD1 - VD2 VISUAL DISPLAY SURFCE - **RE**: FINISH PLANS
- EXTENT OF BELOW GRADE WATERPROOFING AND 3" INSULATION - REFER TO DETAIL **3A/A501**
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- 12"w x 18"d x 40"h - 1 TIER STUDENT LOCKER - TYPE "B"
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- 12"w x 18"d x 76"h - 4 TIER PE LOCKER - TYPE "E"

* REFER TO THE FINISH PRODUCT LIST FOR LIST OF MATERIAL TAGS USED IN THE A700 AND A900 SERIES.

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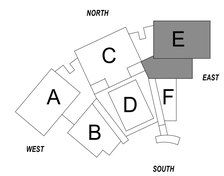
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Checked: JZ

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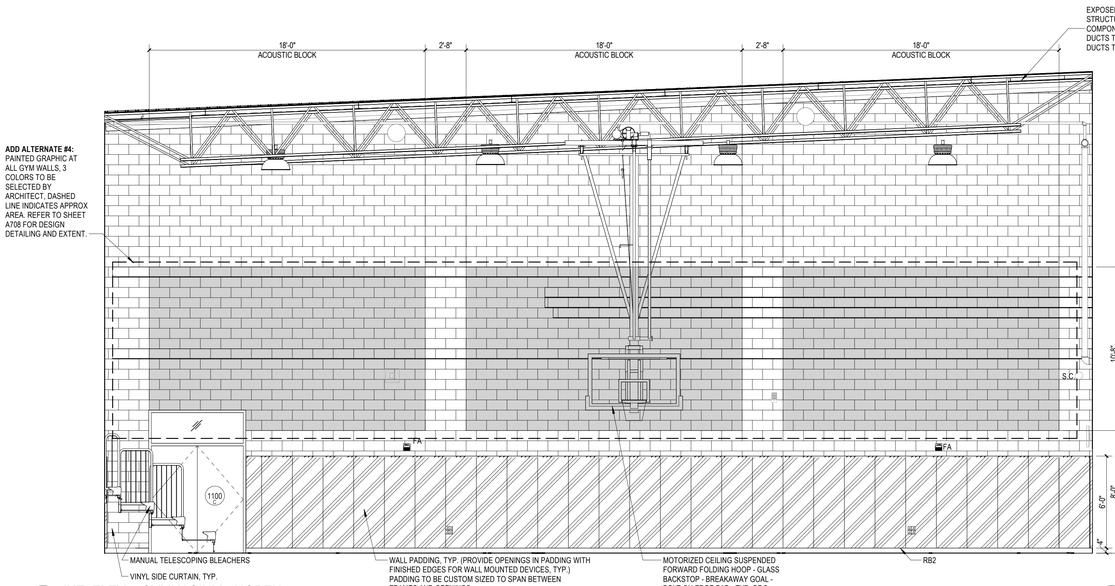
KEYPLAN

Number	Date	Issued For
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1	10/23/2024	ADDENDUM NO. 3
	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

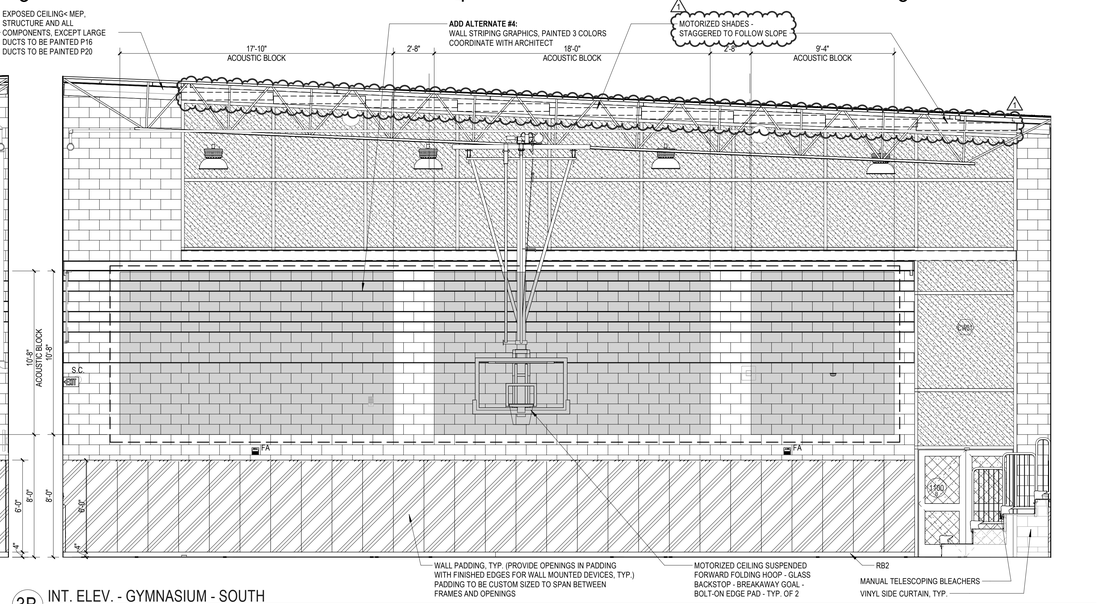
SECOND FLOOR PLAN - PART E

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00
Drawing Number: A102E

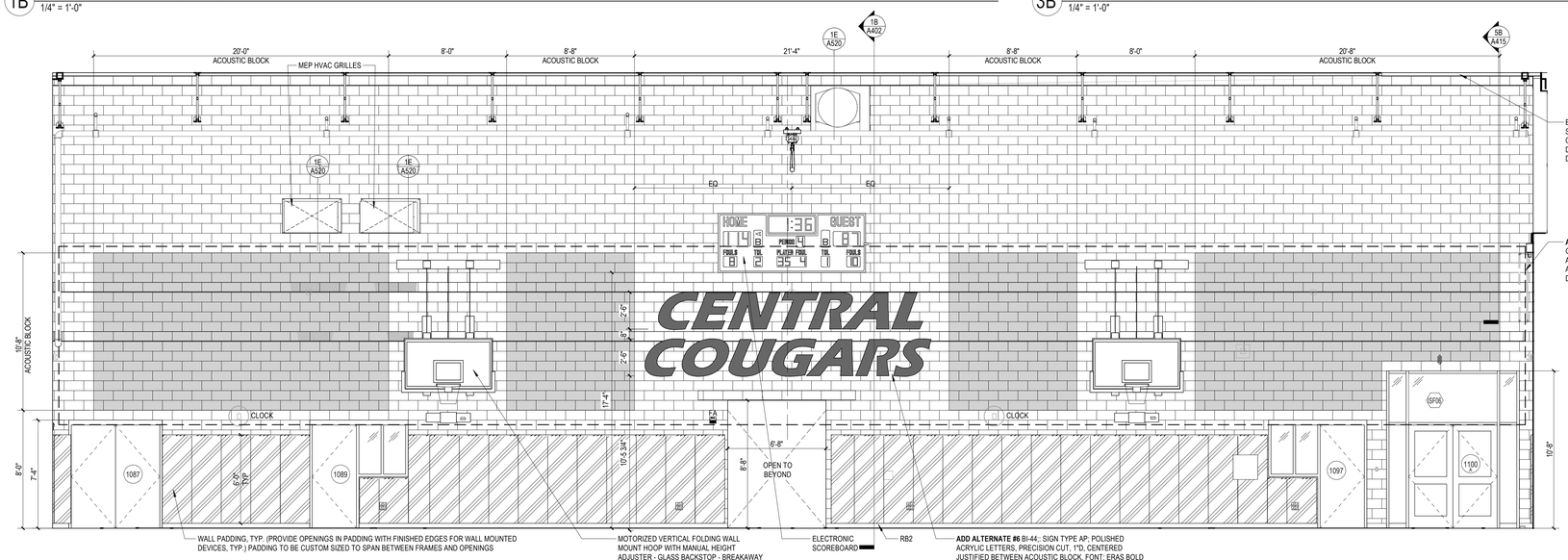
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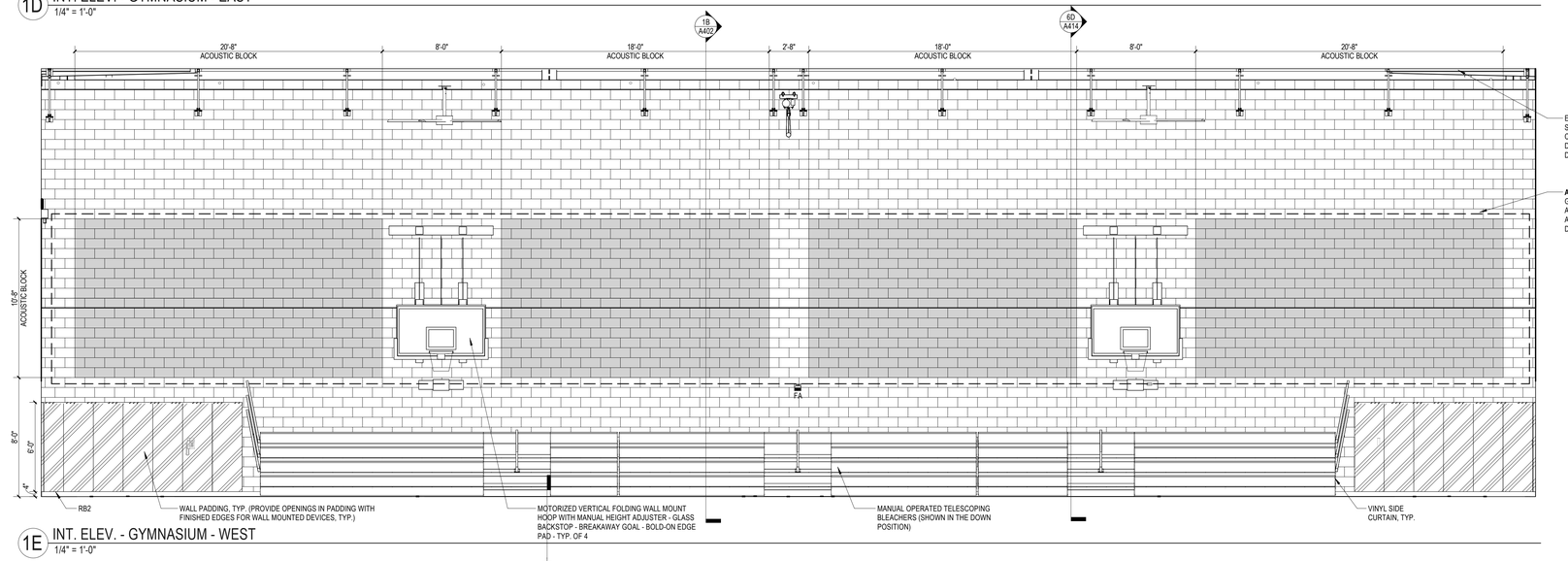
1B INT. ELEV. - GYMNASIUM - NORTH
1/4" = 1'-0"



3B INT. ELEV. - GYMNASIUM - SOUTH
1/4" = 1'-0"



1D INT. ELEV. - GYMNASIUM - EAST
1/4" = 1'-0"



1E INT. ELEV. - GYMNASIUM - WEST
1/4" = 1'-0"

INTERIOR ELEVATION GENERAL NOTES:

1. SEE SHEET **A701** FOR TYPICAL MOUNTING HEIGHTS OF ACCESSORIES, WALL MOUNTED EQUIPMENT & DEVICES & TYPICAL TOILET/ SHOWER ELEVATIONS
2. SEE FURNITURE PLANS, FINISH PLANS & ENLARGED FLOOR PLANS FOR ALL WHITEBOARD, TACKBOARD AND SHELVING LOCATIONS. PROVIDE BLOCKING FOR ALL INTERACTIVE WHITEBOARDS &TACK BOARDS AND PER DETAIL **5B/A602**. COORDINATE LOCATIONS WITH ELECTRICAL AND FURNITURE DRAWINGS.
3. WHERE ACCENT PAINT COLOR IS ON A WALL WITH CASEWORK ANY EXPOSED WALL BELOW CASEWORK IS TO BE PAINTED ACCENT COLOR INDICATED AS WELL.
4. EXPOSED OUTER EDGE OF ANY WALLCOVERING, TO RECEIVE TRIM, AS SHOWN IN **1B/A805**.
5. REFER TO EQUIPMENT SCHEDULES ON **A912** FOR EXTENT OF EQUIPMENT INFO FOR TAGGED EQUIPMENT.
6. REFER TO FINISH PLANS FOR EXTENT OF ACCENT PAINT COLORS AND LOCATIONS OF SPECIALTY WALL FINISHES.
7. REFER TO FINISH PRODUCT LIST FOR PRODUCT INFO ON ALL TAGGED FINISHES. REFER TO FINISH GENERAL NOTES FOR ADDITIONAL INFORMATION.
8. REFER TO A804 FOR LOCKER ELEVATIONS AND DETAILS. PROVIDE FLAT TOPS AT LOCKERS WITH NO SOFFIT, TYPICAL
9. WHERE WHITEBOARD ARE SHOWN NEXT TO IWB THEY ARE TO BE MOUNTED AS CLOSELY AS POSSIBLE TO THE IWB.
10. WHERE WHITEBOARD AND/OR TACKBOARDS ARE SHOWN NEXT TO EACH OTHER THEY ARE TO BE INSTALLED WITH OUTER FRAME TOUCHING.

INTERIOR ELEVATION GRAPHIC LEGEND

FINISH LEGEND

- P1 NO GRAPHIC PATTERN SHOWN - FIELD THROUGHOUT UNLESS OTHERWISE NOTED
- P3-P12 ACCENT PAINT LOCATIONS SHOW AS; REFER TO FINISH PLANS FOR TYPE.
- P8, P13: DARK ACCENT PAINTS SHOWN AS; REFER TO FINISH PLANS TAGS FOR TYPE
- AWP1-10 & 12 ACOUSTIC PANELS SHOWN AS; REFER TO ELEVATIONS FOR TYPE
- AWP11 ACOUSTIC PANELS SHOWN AS;
- VCG1-VCG9 CUSTOM GRAPHIC SHOW AS; REFER TO FINISH PLANS FOR TYPE.
- WWP1 SHOWN AS;
- WP2 SHOWN AS;
- TACKBOARD SHOWN AS;
- LOCKER ACCENT COLOR 1 (GRAY) SHOWN AS
- LOCKER ACCENT COLOR 2, 3 & 4 SHOWN AS
  - ACCENT COLOR 2 AT RIGHT SIDE POD LOCKERS TO MATCH P10
  - ACCENT COLOR 3 AT CENTER POD LOCKERS TO MATCH P11
  - ACCENT COLOR 4 AT LEFT SIDE POD LOCKERS TO MATCH P12
- PAPER TOWEL DISPENSER
- SOAP DISPENSER
- CLOCK

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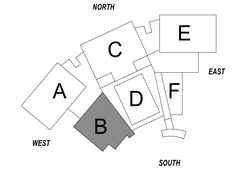
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Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane,
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N



KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

ENLARGED PLAN & ELEVATIONS - GYMNASIUM

Date 07/08/2024
Scale As indicated
Proj. Number 22367.00

Drawing Number A111.4

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INTERIOR ELEVATION GENERAL NOTES:

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2. SEE FURNITURE PLANS, FINISH PLANS & ENLARGED FLOOR PLANS FOR ALL WHITEBOARD, TACKBOARD AND SHELVING LOCATIONS. PROVIDE BLOCKING FOR ALL INTERACTIVE WHITEBOARDS &TACK BOARDS AND PER DETAIL **5B/A602**. COORDINATE LOCATIONS WITH ELECTRICAL AND FURNITURE DRAWINGS.
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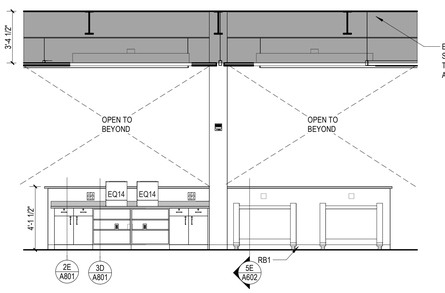
INTERIOR ELEVATION GRAPHIC LEGEND

FINISH LEGEND

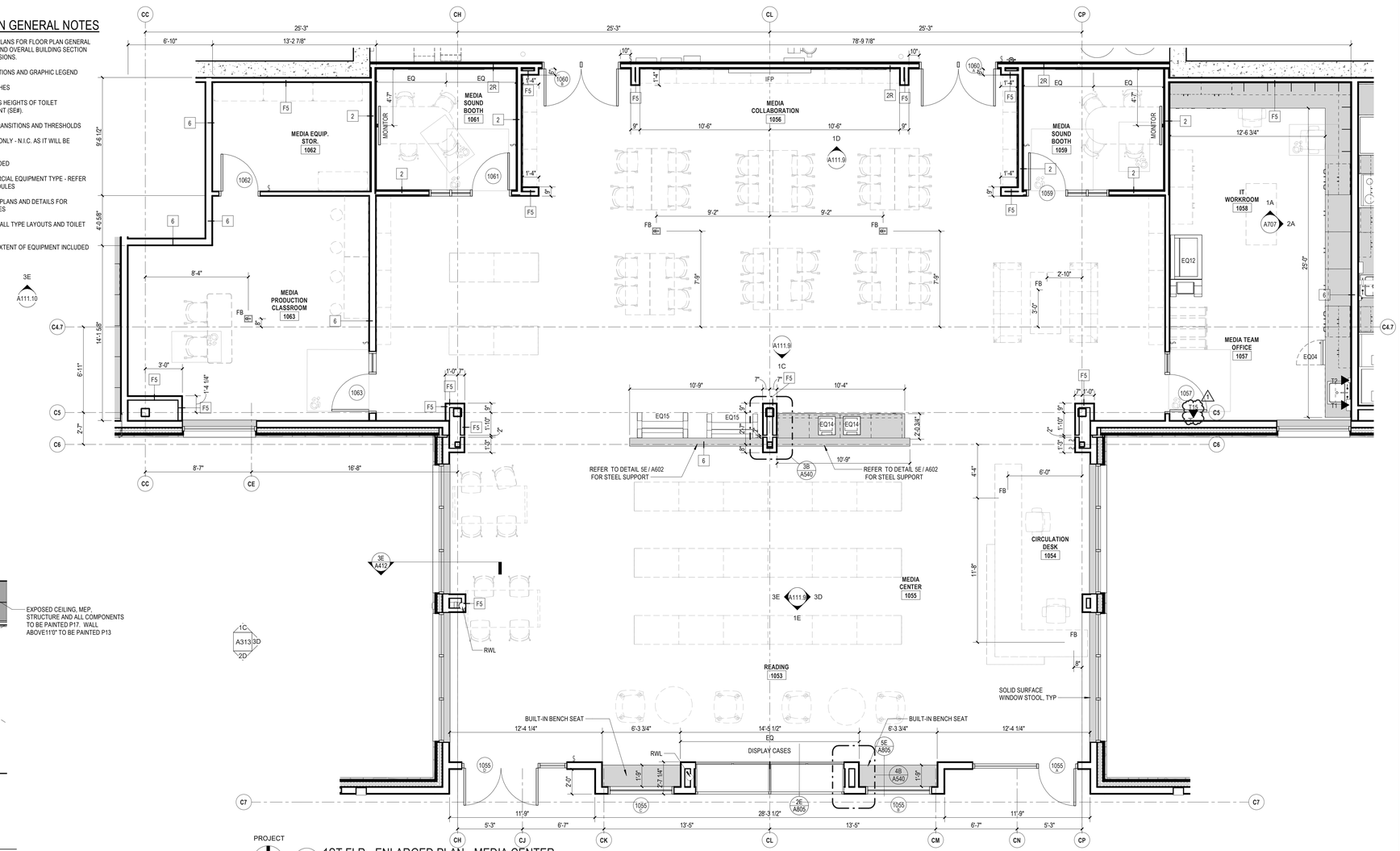
- P1 NO GRAPHIC PATTERN SHOWN - FIELD THROUGHOUT UNLESS OTHERWISE NOTED
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  - ACCENT COLOR 3 AT CENTER POD LOCKERS TO MATCH P11
  - ACCENT COLOR 4 AT LEFT SIDE POD LOCKERS TO MATCH P12
- PAPER TOWEL DISPENSER
- SOAP DISPENSER
- CLOCK

ENLARGED FLOOR PLAN GENERAL NOTES

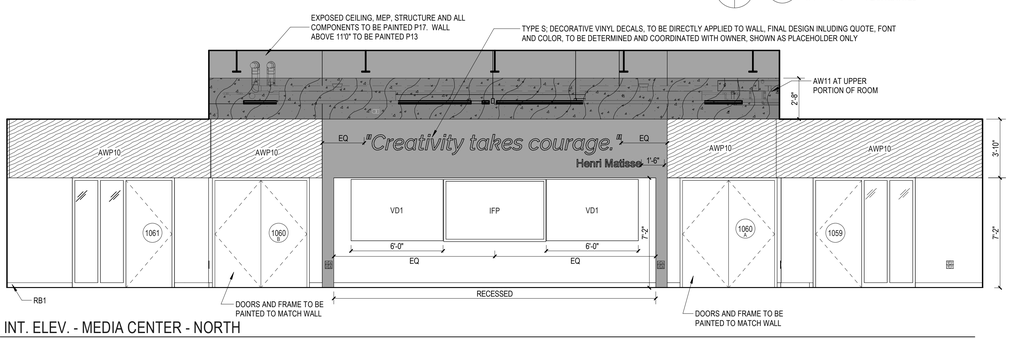
1. REFER TO OVERALL & 1/8" PART FLOOR PLANS FOR FLOOR PLAN GENERAL NOTES, FLOOR PLAN GRAPHIC LEGEND AND OVERALL BUILDING SECTION LOCATIONS AND "AL" SERIES FOR DIMENSIONS.
2. REFER TO **GI01.1 - G102.1** FOR ABBREVIATIONS AND GRAPHIC LEGEND
3. SEE FINISH PLANS FOR EXTENT OF FINISHES
4. SEE SHEET **A701** FOR TYPICAL MOUNTING HEIGHTS OF TOILET ACCESSORIES AND SPECIALTY EQUIPMENT (SE#).
5. SEE FLOOR FINISH PLANS FOR FLOOR TRANSITIONS AND THRESHOLDS
6. FURNITURE IS SHOWN FOR REFERENCE ONLY - N.I.C. AS IT WILL BE PROCURED AT A LATER PHASE.
7. ALL CASEWORK/ MILLWORK SHOWN SHADED
8. EQ## INDICATES APPLIANCE OR COMMERCIAL EQUIPMENT TYPE - REFER TO SHEETS A912 FOR EQUIPMENT SCHEDULES
9. REFER TO AL-SERIES PLANS, ENLARGED PLANS AND DETAILS FOR ADDITIONAL DIMENSIONS AND WALL TYPES
10. REFER TO **A701** FOR TYPICAL TOILET STALL TYPE LAYOUTS AND TOILET ACCESSORY LOCATIONS.
11. REFER TO FOOD SERVICE PLANS FOR EXTENT OF EQUIPMENT INCLUDED IN THE KITCHEN SERVERY.



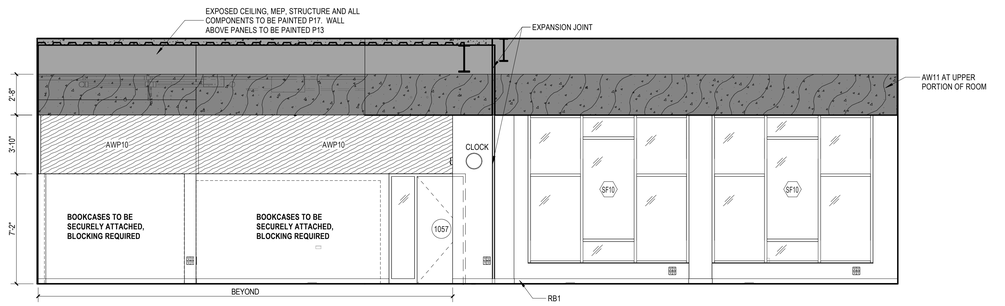
1C INT. ELEV. - MEDIA CENTER CENTER WALL
1/4" = 1'-0"



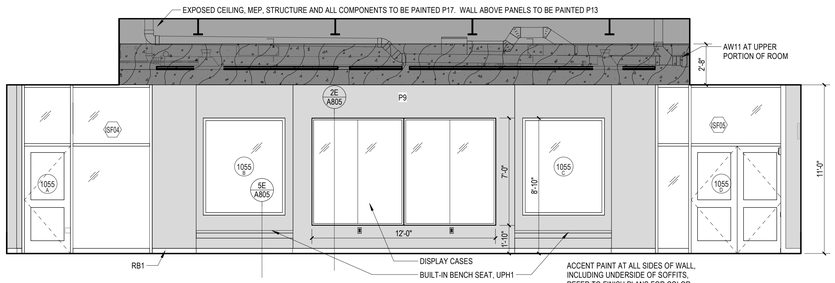
2C 1ST FLR - ENLARGED PLAN - MEDIA CENTER
1/4" = 1'-0" PLAN ROTATED



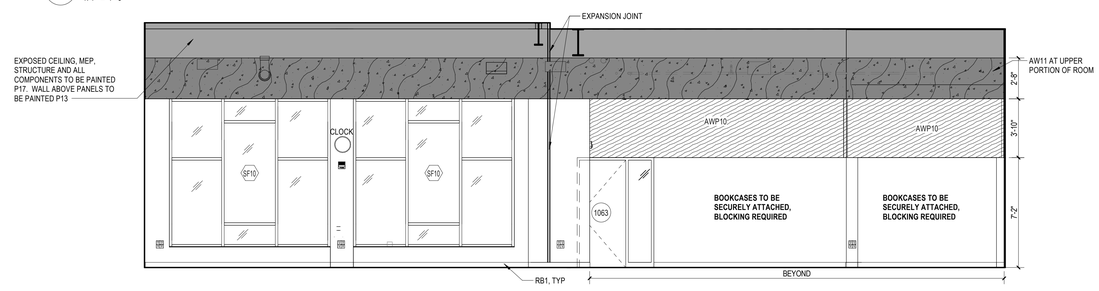
1D INT. ELEV. - MEDIA CENTER - NORTH
1/4" = 1'-0"



3D INT. ELEV. - MEDIA CENTER - EAST
1/4" = 1'-0"



1E INT. ELEV. - MEDIA CENTER - SOUTH
1/4" = 1'-0"



3E INT. ELEV. - MEDIA CENTER - WEST
1/4" = 1'-0"

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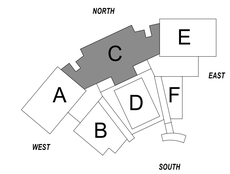
Drawn AHS
Checked JZ

Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane, Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N



KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

ENLARGED PLAN & ELEVATIONS - MEDIA CENTER

Date 07/08/2024
Scale As indicated
Proj. Number 22367.00
Drawing Number **A111.9**

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INTERIOR ELEVATION GENERAL NOTES:

1. SEE SHEET **A701** FOR TYPICAL MOUNTING HEIGHTS OF ACCESSORIES, WALL MOUNTED EQUIPMENT & DEVICES & TYPICAL TOILET/ SHOWER ELEVATIONS
2. SEE FURNITURE PLANS, FINISH PLANS & ENLARGED FLOOR PLANS FOR ALL WHITEBOARD, TACKBOARD AND SHELVING LOCATIONS. PROVIDE BLOCKING FOR ALL INTERACTIVE WHITEBOARDS &TACK BOARDS AND PER DETAIL **5B/A602**. COORDINATE LOCATIONS WITH ELECTRICAL AND FURNITURE DRAWINGS.
3. WHERE ACCENT PAINT COLOR IS ON A WALL WITH CASEWORK ANY EXPOSED WALL BELOW CASEWORK IS TO BE PAINTED ACCENT COLOR INDICATED AS WELL.
4. EXPOSED OUTER EDGE OF ANY WALLCOVERING, TO RECEIVE TRIM, AS SHOWN IN **1B/A805**.
5. REFER TO EQUIPMENT SCHEDULES ON **A912** FOR EXTENT OF EQUIPMENT INFO FOR TAGGED EQUIPMENT.
6. REFER TO FINISH PLANS FOR EXTENT OF ACCENT PAINT COLORS AND LOCATIONS OF SPECIALTY WALL FINISHES.
7. REFER TO FINISH PRODUCT LIST FOR PRODUCT INFO ON ALL TAGGED FINISHES. REFER TO FINISH GENERAL NOTES FOR ADDITIONAL INFORMATION.
8. REFER TO A804 FOR LOCKER ELEVATIONS AND DETAILS. PROVIDE FLAT TOPS AT LOCKERS WITH NO SOFFIT, TYPICAL
9. WHERE WHITEBOARD ARE SHOWN NEXT TO IWB THEY ARE TO BE MOUNTED AS CLOSELY AS POSSIBLE TO THE IWB.
10. WHERE WHITEBOARD AND/OR TACKBOARDS ARE SHOWN NEXT TO EACH OTHER THEY ARE TO BE INSTALLED WITH OUTER FRAME TOUCHING.

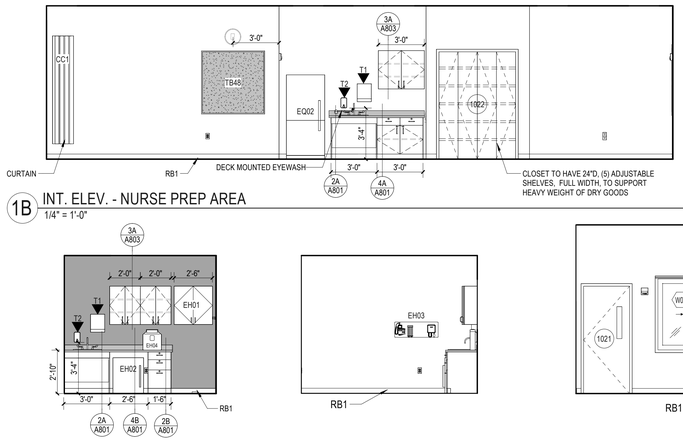
INTERIOR ELEVATION GRAPHIC LEGEND

FINISH LEGEND

- P1 NO GRAPHIC PATTERN SHOWN - FIELD THROUGHOUT UNLESS OTHERWISE NOTED
- P3-P12 ACCENT PAINT LOCATIONS SHOW AS; REFER TO FINISH PLANS FOR TYPE.
- P8, P13; DARK ACCENT PAINTS SHOWN AS; REFER TO FINISH PLANS TAGS FOR TYPE
- AWP1-10 & 12 ACOUSTIC PANELS SHOWN AS; REFER TO ELEVATIONS FOR TYPE
- AWP11 ACOUSTIC PANELS SHOWN AS;
- VCG1-VCG9 CUSTOM GRAPHIC SHOW AS; REFER TO FINISH PLANS FOR TYPE.
- WWP1 SHOWN AS;
- WP2 SHOWN AS;
- TACKBOARD SHOWN AS;
- LOCKER ACCENT COLOR 1 (GRAY) SHOWN AS
- LOCKER ACCENT COLOR 2, 3 & 4 SHOWN AS
  - ACCENT COLOR 2 AT RIGHT SIDE POD LOCKERS TO MATCH P10
  - ACCENT COLOR 3 AT CENTER POD LOCKERS TO MATCH P11
  - ACCENT COLOR 4 AT LEFT SIDE POD LOCKERS TO MATCH P12
- PAPER TOWEL DISPENSER
- SOAP DISPENSER
- CLOCK

ENLARGED FLOOR PLAN GENERAL NOTES

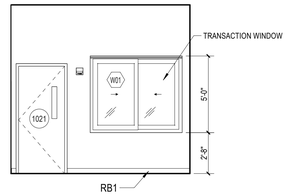
1. REFER TO OVERALL & 1/8" PART FLOOR PLANS FOR FLOOR PLAN GENERAL NOTES, FLOOR PLAN GRAPHIC LEGEND AND OVERALL BUILDING SECTION LOCATIONS AND "AL" SERIES FOR DIMENSIONS.
2. REFER TO **G101.1 - G102.1** FOR ABBREVIATIONS AND GRAPHIC LEGEND
3. SEE FINISH PLANS FOR EXTENT OF FINISHES
4. SEE SHEET **A701** FOR TYPICAL MOUNTING HEIGHTS OF TOILET ACCESSORIES AND SPECIALTY EQUIPMENT (SE#).
5. SEE FLOOR FINISH PLANS FOR FLOOR TRANSITIONS AND THRESHOLDS
6. FURNITURE IS SHOWN FOR REFERENCE ONLY - N.I.C. AS IT WILL BE PROCURED AT A LATER PHASE.
7. ALL CASEWORK/ MILLWORK SHOWN SHADED
8. EQ## INDICATES APPLIANCE OR COMMERCIAL EQUIPMENT TYPE - REFER TO SHEETS A912 FOR EQUIPMENT SCHEDULES
9. REFER TO AL-SERIES PLANS, ENLARGED PLANS AND DETAILS FOR ADDITIONAL DIMENSIONS AND WALL TYPES
10. REFER TO **A701** FOR TYPICAL TOILET STALL TYPE LAYOUTS AND TOILET ACCESSORY LOCATIONS.
11. REFER TO FOOD SERVICE PLANS FOR EXTENT OF EQUIPMENT INCLUDED IN THE KITCHEN SERVERY.



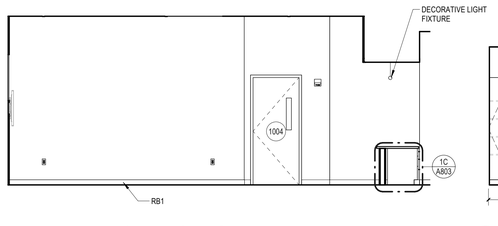
1B INT. ELEV. - NURSE PREP AREA
1/4" = 1'-0"

1C INT. ELEV. - TREATMENT ROOM - NORTH
1/4" = 1'-0"

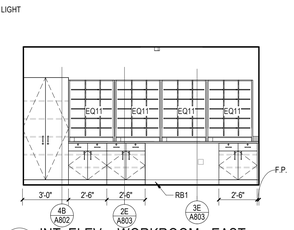
2C INT. ELEV. TREATMENT RM W
1/4" = 1'-0"



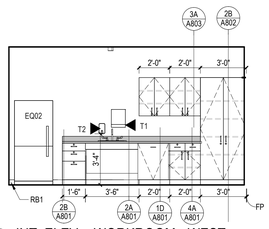
3C INT. ELEV. WAITING AREA
1/4" = 1'-0"



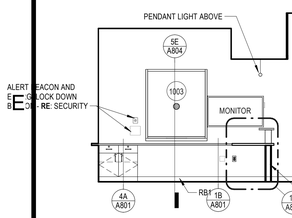
1D INT. ELEV. - ADMIN/ WAITING - EAST
1/4" = 1'-0"



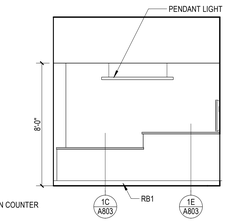
2D INT. ELEV. - WORKROOM - EAST
1/4" = 1'-0"



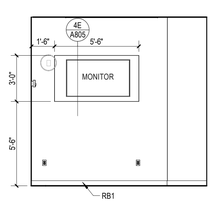
3D INT. ELEV. - WORKROOM - WEST
1/4" = 1'-0"



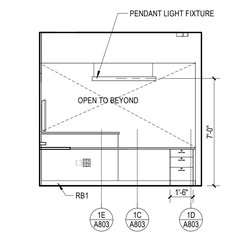
1E INT. ELEV. - ADMIN ID CHECK-IN - W
1/4" = 1'-0"



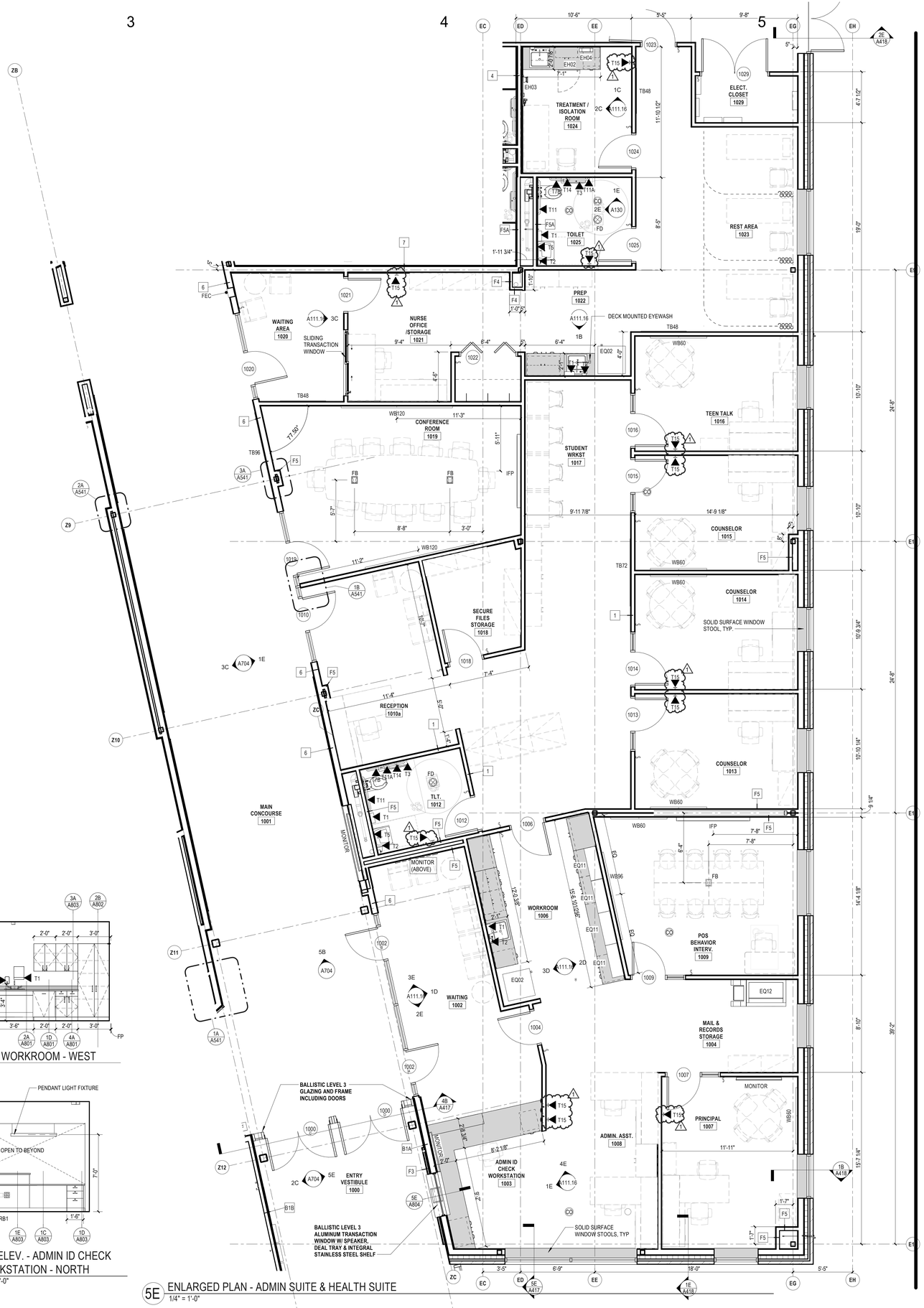
2E INT. ELEV. - ADMIN WAITING /CHECK-IN -
1/4" = 1'-0"



3E INT. ELEV. - ADMIN. WAITING -N
1/4" = 1'-0"



INT. ELEV. - ADMIN ID CHECK WORKSTATION - NORTH
1/4" = 1'-0"



5E ENLARGED PLAN - ADMIN SUITE & HEALTH SUITE
1/4" = 1'-0"

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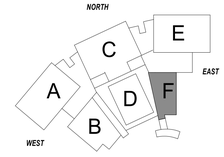
Drawn: AHS
Checked: JZ

Greenwich Public Schools

Greenwich Central Middle School

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STATE PROJECT NO: 057-0114 N



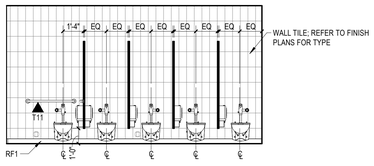
KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

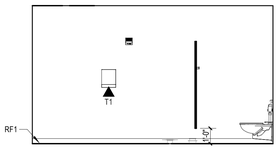
ENLARGED PLAN & ELEVATIONS - ADMIN SUITE, HEALTH SUITE & GUIDANCE SUITE

Date: 07/08/2024
Scale: As indicated
Proj. Number: 22367.00
Drawing Number: A111.16

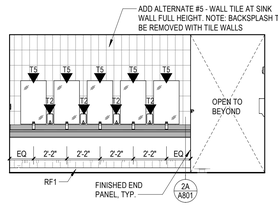
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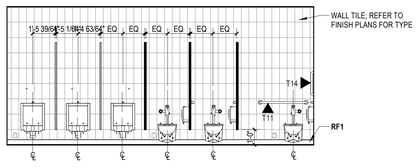
1A FIRST FLOOR TOILET ROOM 1105 - EAST
1/4" = 1'-0"



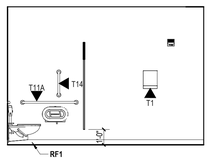
2A FIRST FLOOR TOILET ROOM 1105 - NORTH
1/4" = 1'-0"



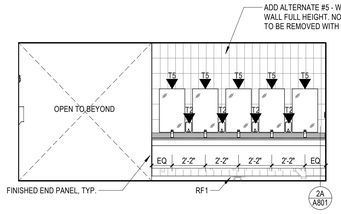
3A FIRST FLOOR TOILET ROOM 1105 - WEST
1/4" = 1'-0"



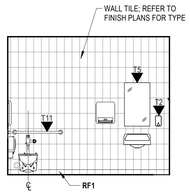
1B FIRST FLOOR TOILET ROOM 1104 - EAST
1/4" = 1'-0"



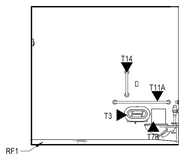
2B FIRST FLOOR TOILET ROOM 1104 - SOUTH
1/4" = 1'-0"



3B FIRST FLOOR TOILET ROOM 1104 - WEST
1/4" = 1'-0"



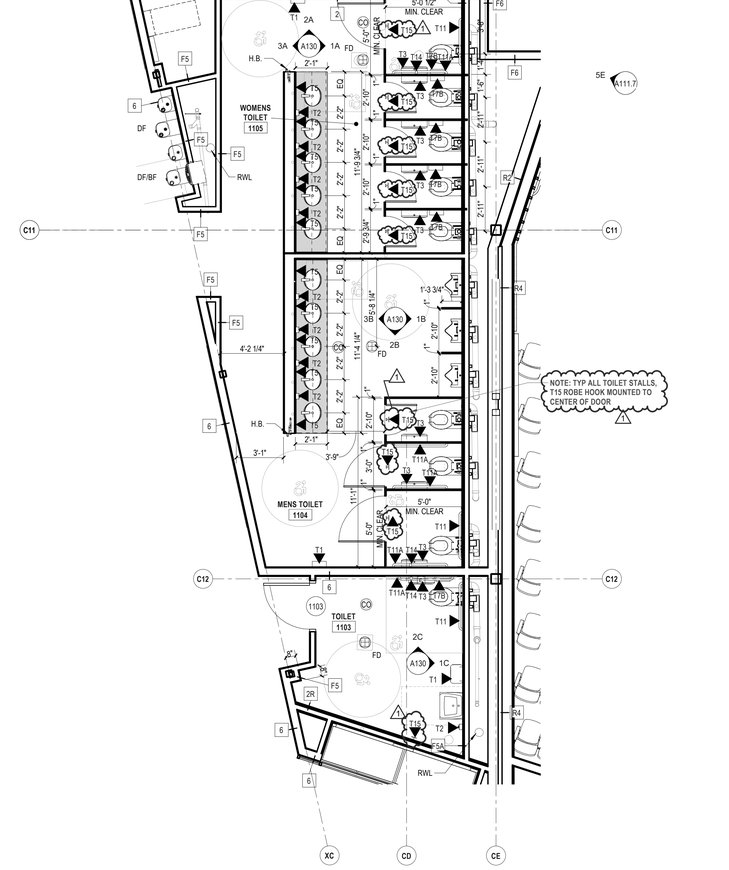
1C FIRST FLOOR TOILET ROOM 1103 - EAST
1/4" = 1'-0"



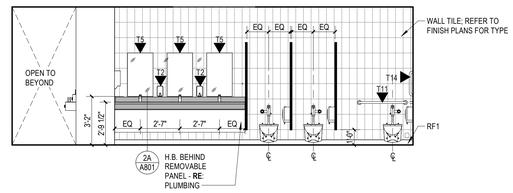
2C FIRST FLOOR TOILET ROOM 1103 - NORTH
1/4" = 1'-0"

TOILET PLAN GENERAL NOTES

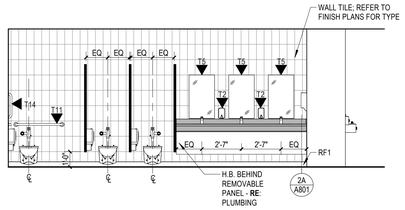
1. REFER TO DWG. **G102.2** FOR LIST OF TYPICAL ABBREVIATIONS AND TYPICAL ARCHITECTURAL GRAPHIC LEGENDS AND SYMBOLS.
2. DIMENSIONS ARE FROM FACE OF WALL TO FACE OF WALL, (I.E. FACE OF GYPSUM BOARD OR MASONRY) OR FROM COLUMN CENTERLINE, UNLESS OTHERWISE NOTED. DIMENSIONS NOTED AS "CLEAR" SHALL BE FROM FINISH FACE TO FINISH FACE, (ie. FACE OF CERAMIC TILE TO FACE OF CERAMIC TILE).
3. REFER TO DWG. **A701** FOR TYPICAL MOUNTING LOCATIONS AND HEIGHTS FOR TOILET ACCESSORIES, CHILD-HEIGHT AND TYPICAL TOILET ROOM ELEVATIONS AND TOILET ACCESSORY SCHEDULE.
4. PROVIDE FIRE-TREATED WOOD BLOCKING OR MINIMUM 0.0312-INCH THICK STEEL FLAT STRAP AND BACKING PLATE AT, BUT NOT LIMITED TO, THE FOLLOWING LOCATIONS: TOILET ACCESSORIES, AND ALL OTHER WALL MOUNTED EQUIPMENT OR DEVICES.
5. REFER TO FINISH SCHEDULE AND FINISH PLANS FOR TILE TYPE AND LOCATIONS. REFER TO THE FINISH PLANS FOR FLOOR PATTERNS AND INSTALLTION.
6. REFER TO DWG. **A600** FOR TYPICAL PARTITION TYPES AND DETAILS INDICATED.
7. REFER TO 1/8" FLOOR PLANS FOR ADDITIONAL FLOOR PLAN GERNERAL NOTES AND LEGENDS



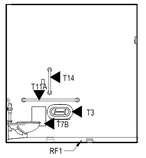
C5 TOILET ROOM 1106/1105/1104 - FLOOR 1
1/4" = 1'-0"



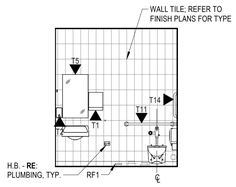
1D FIRST FLOOR TOILET ROOM 1026 - NORTH
1/4" = 1'-0"



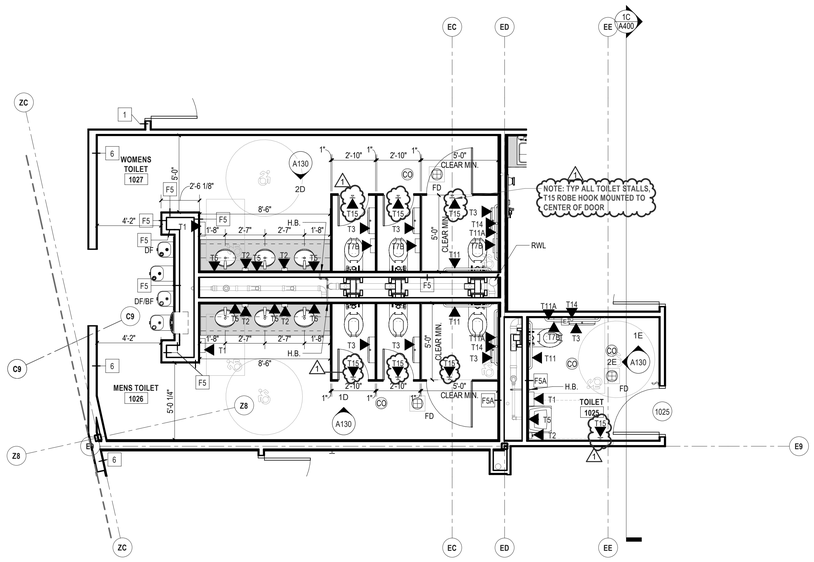
2D FIRST FLOOR TOILET ROOM 1027 - SOUTH
1/4" = 1'-0"



1E FIRST FLOOR TOILET ROOM 1025 - NORTH
1/4" = 1'-0"



2E FIRST FLOOR TOILET ROOM 1025 - WEST
1/4" = 1'-0"



E5 TOILET ROOM 1026/1027/1025 - FLOOR 1
1/4" = 1'-0"

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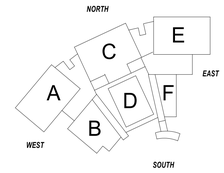
Drawn: JP
Checked: JZ

Greenwich Public Schools

Greenwich Central Middle School

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STATE PROJECT NO: 057-0114 N



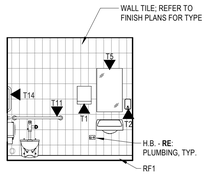
KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

ENLARGED TOILET ROOM PLANS AND ELEVATIONS

Date: 07/08/2024
Scale: As indicated
Proj. Number: 22367.00
Drawing Number: A130

Autodesk Docs://22367.00 - Greenwich Central Middle School/A_22367_GREENWICH_CENTRAL_MS_R22.rvt
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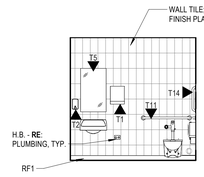
FIRST FLOOR STAFF TOILET ROOM
1031 - NORTH
1A 1/4" = 1'-0"



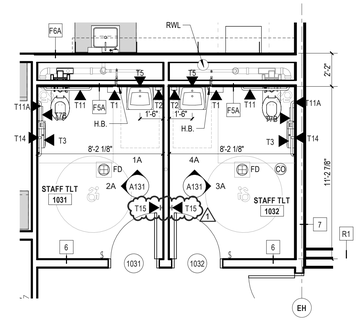
FIRST FLOOR STAFF TOILET ROOM
1031 - WEST
2A 1/4" = 1'-0"



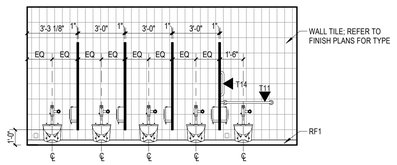
FIRST FLOOR STAFF TOILET ROOM
1032 - EAST
3A 1/4" = 1'-0"



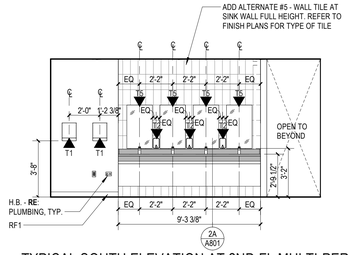
FIRST FLOOR STAFF TOILET ROOM
1032 - N
4A 1/4" = 1'-0"



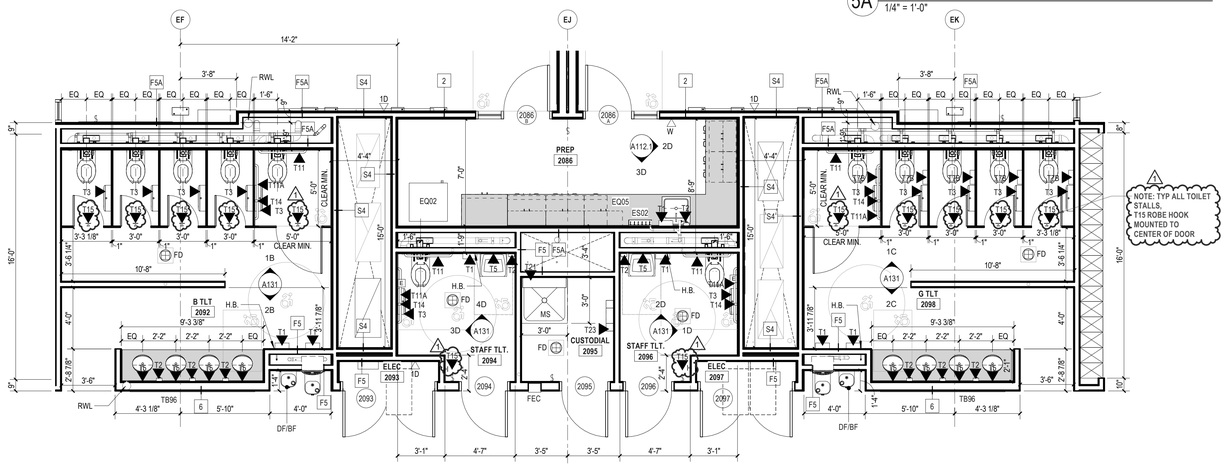
5A STAFF TOILET ROOM 1031/1032 - FLOOR 1
1/4" = 1'-0"



TYPICAL NORTH ELEVATION AT 2ND FL MULTI-PERSON BATHROOMS - 2021 2055 AND 2092
1B 1/4" = 1'-0"



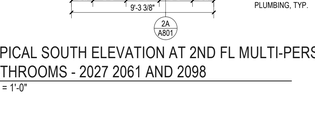
TYPICAL SOUTH ELEVATION AT 2ND FL MULTI-PERSON BATHROOMS - 2021 2055 AND 2092
2B 1/4" = 1'-0"



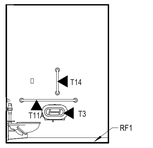
TYPICAL ENLARGED PLAN AT SECOND FLOOR TOILET ROOMS - SIMILAR AT ALL WINGS
3B 1/4" = 1'-0"



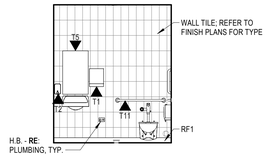
TYPICAL NORTH ELEVATION AT 2ND FL MULTI-PERSON BATHROOMS - 2027 2061 AND 2098
1C 1/4" = 1'-0"



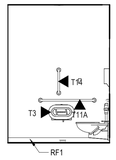
TYPICAL SOUTH ELEVATION AT 2ND FL MULTI-PERSON BATHROOMS - 2027 2061 AND 2098
2C 1/4" = 1'-0"



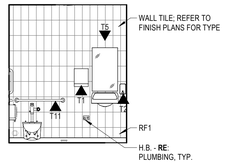
TYPICAL 2ND FL STAFF TOILET ROOM - EAST AT 2023 2057 AND 2094
1D 1/4" = 1'-0"



TYPICAL 2ND FL STAFF TOILET ROOM - NORTH AT 2023 2057 AND 2094
2D 1/4" = 1'-0"



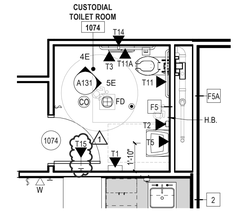
TYPICAL 2ND FL STAFF TOILET ROOM - EAST AT 2025 2059 AND 2096
3D 1/4" = 1'-0"



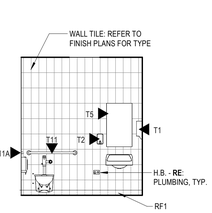
TYPICAL 2ND FL STAFF TOILET ROOM - NORTH AT 2025 2059 AND 2096
4D 1/4" = 1'-0"

TOILET PLAN GENERAL NOTES

1. REFER TO DWG. **GI02.2** FOR LIST OF TYPICAL ABBREVIATIONS AND TYPICAL ARCHITECTURAL GRAPHIC LEGENDS AND SYMBOLS.
2. DIMENSIONS ARE FROM FACE OF WALL TO FACE OF WALL, (I.E. FACE OF GYPSUM BOARD OR MASONRY) OR FROM COLUMN CENTERLINE, UNLESS OTHERWISE NOTED. DIMENSIONS NOTED AS "CLEAR" SHALL BE FROM FINISH FACE TO FINISH FACE, (ie. FACE OF CERAMIC TILE TO FACE OF CERAMIC TILE).
3. REFER TO DWG. **A701** FOR TYPICAL MOUNTING LOCATIONS AND HEIGHTS FOR TOILET ACCESSORIES, CHILD-HEIGHT AND TYPICAL TOILET ROOM ELEVATIONS AND TOILET ACCESSORY SCHEDULE.
4. PROVIDE FIRE-TREATED WOOD BLOCKING OR MINIMUM 0.0312-INCH THICK STEEL FLAT STRAP AND BACKING PLATE AT, BUT NOT LIMITED TO, THE FOLLOWING LOCATIONS: TOILET ACCESSORIES, AND ALL OTHER WALL MOUNTED EQUIPMENT OR DEVICES.
5. REFER TO FINISH SCHEDULE AND FINISH PLANS FOR TILE TYPE AND LOCATIONS. REFER TO THE FINISH PLANS FOR FLOOR PATTERNS AND INSTALLTION.
6. REFER TO DWG. **A600** FOR TYPICAL PARTITION TYPES AND DETAILS INDICATED.
7. REFER TO 1/8" FLOOR PLANS FOR ADDITIONAL FLOOR PLAN GERNERAL NOTES AND LEGENDS

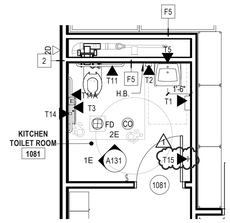


5D CUSTODIAL TOILET ROOM 1074 - FLOOR 1
1/4" = 1'-0"

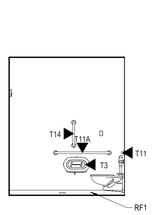


KITCHEN TOILET ROOM
1081 - WEST
1E 1/4" = 1'-0"

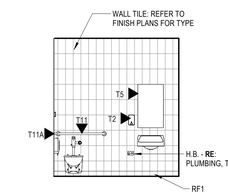
KITCHEN TOILET ROOM
1081 - NORTH
2E 1/4" = 1'-0"



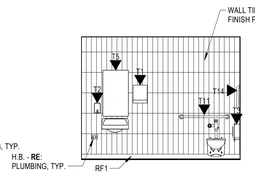
KITCHEN TOILET ROOM 1081 - FLOOR 1
3E 1/4" = 1'-0"



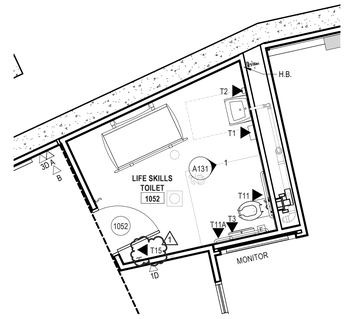
FIRST FLOOR CUSTODIAL TOILET ROOM 1074 - NORTH
4E 1/4" = 1'-0"



FIRST FLOOR CUSTODIAL TOILET ROOM 1074 - EAST
5E 1/4" = 1'-0"



INT. ELEV. - LIFE SKILLS RESTROOM - EAST
1 1/4" = 1'-0"



2 LIFE SKILLS TOILET ROOM 1052 - FLOOR 1
1/4" = 1'-0"

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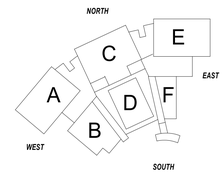
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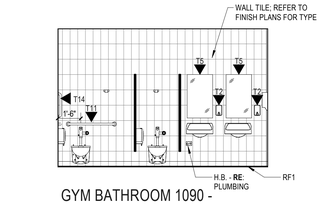
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Number	Date	Issued For
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	09/30/2024	BIDDING PERMIT
	07/08/2024	PHASE 2

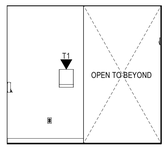
ENLARGED TOILET ROOM PLANS AND ELEVATIONS

Date 07/08/2024
Scale As indicated
Proj. Number 22367.00
Drawing Number A131

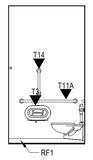
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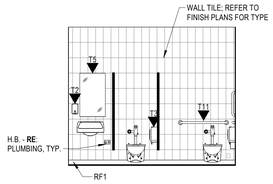
GYM BATHROOM 1090 - NORTH
1A 1/4" = 1'-0"



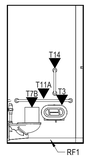
GYM TOILET ROOM 1090 - EAST
2A 1/4" = 1'-0"



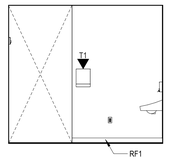
GYM TOILET ROOM 1090 - WEST
3A 1/4" = 1'-0"



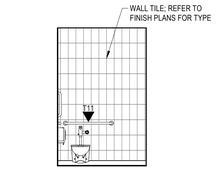
GYM TOILET 1094 - NORTH
1B 1/4" = 1'-0"



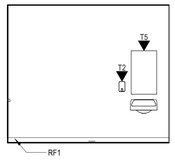
GYM TOILET ROOM 1094 - EAST
2B 1/4" = 1'-0"



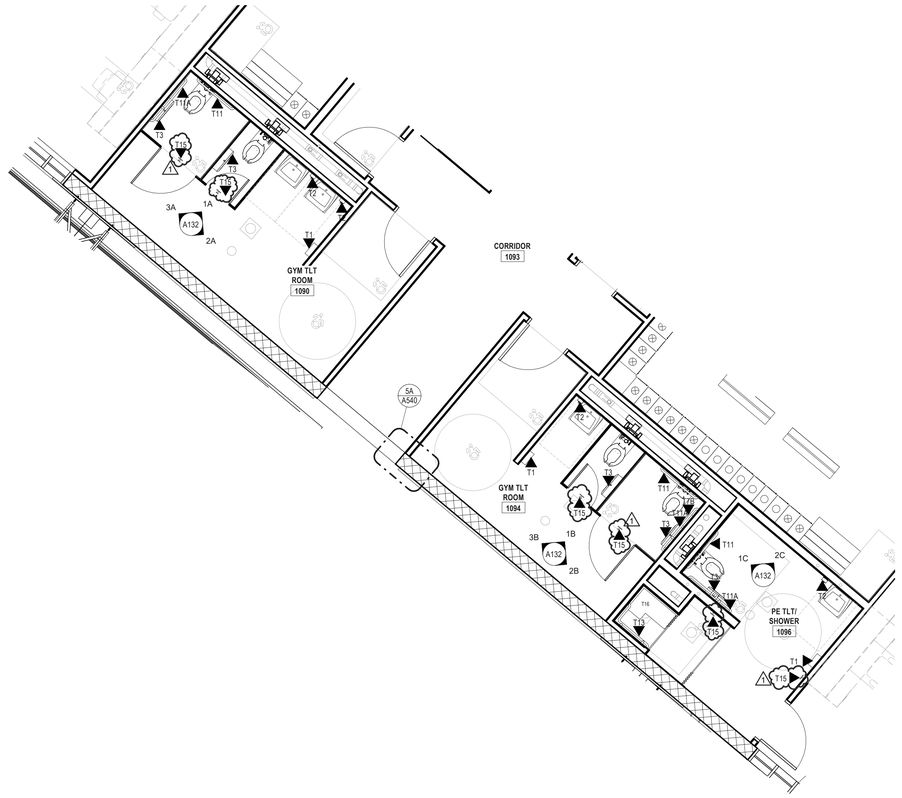
GYM TOILET ROOM 1094 - WEST
3B 1/4" = 1'-0"



GYM TOILET/SHOWER 1096 - NORTH
1C 1/4" = 1'-0"



GYM TOILET ROOM 1096 - EAST
2C 1/4" = 1'-0"



FIRST FLOOR PLAN
3C 1/4" = 1'-0"

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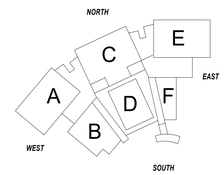
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JP
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JZ

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KEYPLAN

Number	Date	Issued For
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	09/30/2024	BIDDING/ PERMIT
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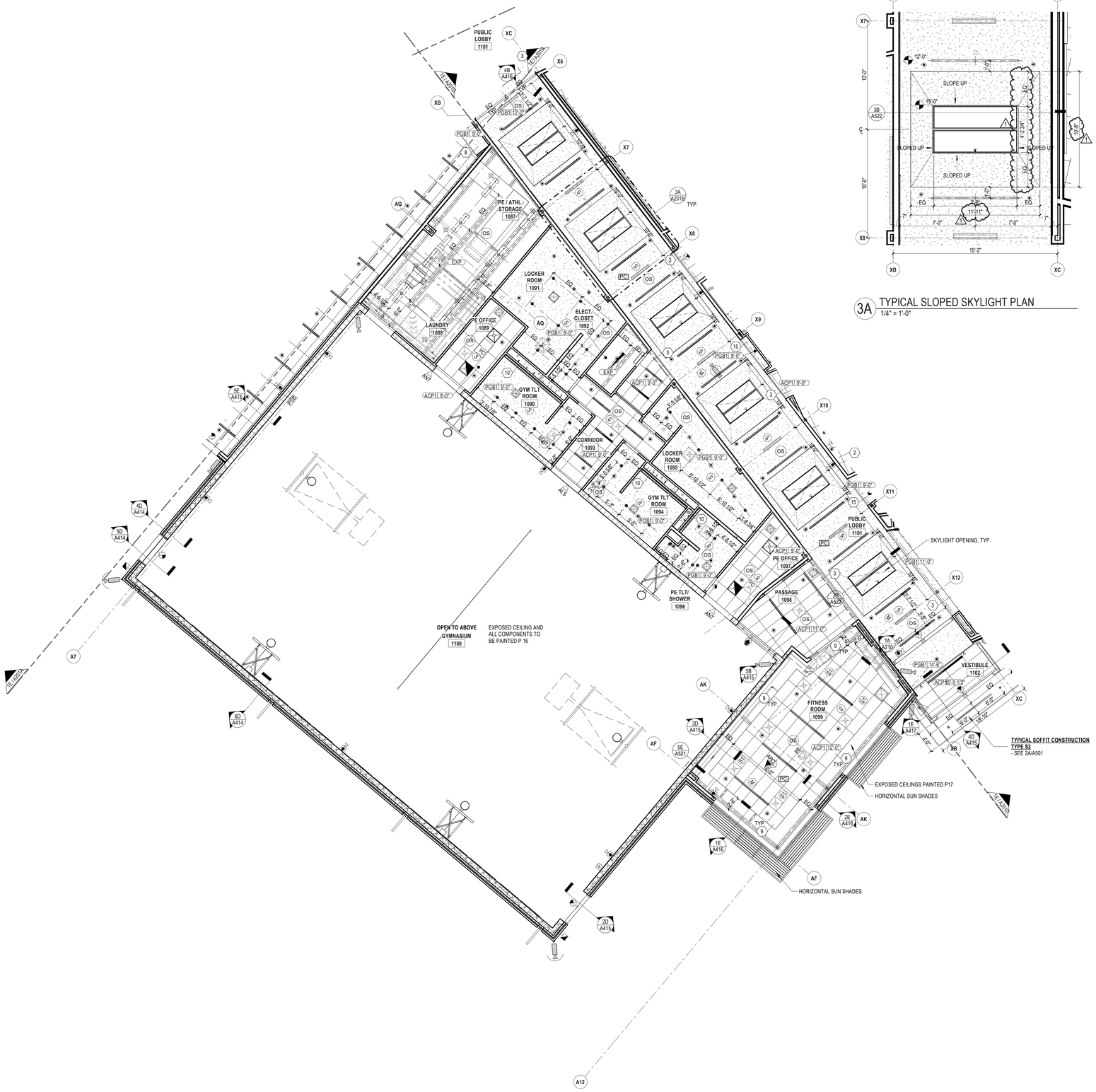
ENLARGED TOILET ROOM PLANS AND ELEVATIONS

Date
07/08/2024
Scale
1/4" = 1'-0"
Proj. Number
22367.00

Drawing Number
A132

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1E 1 - FIRST FLOOR RCP - PART B
1/8" = 1'-0"

3A TYPICAL SLOPED SKYLIGHT PLAN
1/4" = 1'-0"

CEILING PLAN GRAPHIC LEGEND

CEILING TYPES
- 2x2 APC/ATC CEILING
- 2x4 APC/ATC CEILING
- GYP CEILING
- EXPOSED CEILING
- 2 HR HORIZ. SHAFT
- 4" ALUM. CEILING
- ACOUSTIC-THERMAL SPRAY
- WOOD LOOK GYPSUM CEILING CLOUDS
- 2x4 ADC DIFFUSION PANEL
- 4x4 ADC DIFFUSION PANEL

LIGHT FIXTURES
- CONTINUOUS CEILING RECESSED
- CEILING RECESSED LINEAR - VARIABLE LENGTH
- 2 ' X 4' CEILING RECESSED
- 2 ' X 2' CEILING RECESSED
- ROUND CEILING RECESSED
- SQUARE CEILING RECESSED
- CEILING-MOUNTED PENDANT
- WALL-MOUNTED SCONCE
- CEILING-MOUNTED D/I PENDANT - VARIABLE LENGTH
- CEILING-MOUNTED VERTICAL SOUND BLADE
- FEATURE CEILING-MOUNTED PENDANT
- CEILING-MOUNTED FAN

HVAC FIXTURES
- 2X2 SUPPLY DIFFUSER
- 2X2 RETURN DIFFUSER
- LINEAR RETURN DIFFUSER
- ROUND DIFFUSER

CEILING EQUIPMENT
- SPRINKLER HEAD RE: FIRE PROTECTION
- UPRIGHT SPRINKLER HEAD
- EXIT SIGN @ CEILING
- EXIT SIGN @ WALL
- SECURITY CAMERA
- OCCUPANCY SENSOR
- VACANCY SENSOR
- SPEAKER
- MICROPHONE/ MOTION DETECTOR RE: TECHNOLOGY/ SECURITY
- FIRE SPEAKER/STROBE
- PHOTOCELL
- CORD REEL - RE: 1A & 1C/A211 & ELEC.
- PROJECTOR SCREEN
- ACCESS PANEL - REFER TO MEP DRAWINGS AND SPECS FOR LOCATIONS
- EXPANSION JOINT LOCATION
- NUMBERED NOTE LEGEND TAG
- VISUAL / AUDIO NOTIFICATION DEVICE
- SMOKE DETECTOR
- C1 10'-0" HEIGHT OF CEILING ABOVE FINISH FLOOR
- CEILING TYPE DESIGNATION

CEILING PLAN KEYNOTES:

1. SEE DETAIL 2E / A210
2. SEE DETAIL 5E / A210
3. SEE DETAIL 3D / A210
4. SEE DETAIL 2E / A210
5. SEE DETAIL 3E / A211
6. SEE DETAIL 4C / A210
7. SEE DETAIL 4C / A211
8. SEE DETAIL 5F / A210
9. SEE DETAIL 1A / A210
10. SEE DETAIL 3C / A210
11. SEE DETAIL 1B / A111.7
12. SEE DETAIL 1E / A211
13. SEE DETAIL 3E / A210
14. SEE DETAIL 1A / A211 1C / A211
15. SEE DETAIL 2D / A210

CEILING PLAN GENERAL NOTES

1. "EXPOSED CONSTRUCTION" OR "EXP. CONST." INDICATES NO CEILING, EXPOSED TO DECK, PTD.

2. CENTER LIGHT FIXTURES AND OTHER DEVICES IN ACOUSTICAL PANEL "PATTERN" UNLESS OTHERWISE INDICATED. REFER TO DETAIL BELOW.

3. CENTER ACOUSTICAL PANELS OR GRID IN SPACES UNLESS OTHERWISE INDICATED.

4. SEE SPECIFICATIONS FOR INFORMATION ON SEISMIC RESTRAINT OF CEILING SYSTEMS.

5. SEE CEILING DETAIL SHEETS FOR CEILING AND SOFFIT DETAILS.

6. SPRINKLER HEAD LOCATIONS ARE SHOWN FOR COORDINATION PURPOSES ONLY. NOT ALL SPRINKLER HEADS ARE SHOWN. FIRE PROTECTION SYSTEM INSTALLER SHALL COORDINATE SPRINKLER HEADS. IN AREAS WITHOUT SUSPENDED CEILINGS, COORDINATE LOCATIONS OF SPRINKLER HEADS WITH HVAC DUCTS, EQUIPMENT, BEAMS, COLUMNS, LIGHTS, AND ANY OTHER OBSTRUCTIONS IN ACCORDANCE WITH NFPA 13. IN AREAS WITH SUSPENDED CEILINGS, COORDINATE SPRINKLER MAINS, RUNS AND SPRINKLER HEAD LOCATIONS WITH OTHER WORK TO INSURE CEILING HEIGHTS, LIGHTING, DIFFUSER AND OTHER CEILING DEVICE LOCATIONS ARE MAINTAINED AS SHOWN OR AS REQUIRED TO COMPLY WITH APPLICABLE CODE REQUIREMENTS. ADVISE ARCHITECT OF ANY CONFLICTS WHICH MUST BE RESOLVED PRIOR TO INSTALLATION.

7. LIGHT FIXTURES, FIRE PROTECTION DEVICES AND DIFFUSERS ARE SHOWN FOR LOCATION AND COORDINATION PURPOSES ONLY. REFER TO ELECTRICAL AND HVAC DWGS. FOR ACTUAL LIGHT FIXTURE, DIFFUSER AND FIRE PROTECTION SCHEDULES.

8. REFER TO ELECTRICAL, HVAC AND FIRE PROTECTION DWGS. FOR LIGHT FIXTURES, DIFFUSERS AND FIRE PROTECTION DEVICES IN UNFINISHED AREAS OR AREAS WITH EXPOSED STRUCTURE.

9. COORDINATE ACCESS PANEL LOCATIONS WITH MECHANICAL TRADES; SUBMIT PROPOSED LOCATIONS TO ARCHITECT FOR APPROVAL. CONTRACTOR TO LOCATE SERVICEABLE MEP AND AV/IT COMPONENTS OUTSIDE OF HARD CEILING AREAS AND INTO ACCESSIBLE CEILING AREAS TO THE GREATEST EXTENT POSSIBLE.

10. ALL CEILING HEIGHTS SHALL BE 10'-0", UNLESS OTHERWISE NOTED.

11. ALL SOFFIT HEIGHTS SHALL BE 10'-0", UNLESS OTHERWISE NOTED.

12. HANGING SYSTEMS FROM OVERHEAD STRUCTURE:
    - A. FOR BUILDINGS WHERE THE FLOOR & ROOF CONSTRUCTION CONSISTS OF CAST IN PLACE CONCRETE SLABS/BEAMS, PRECAST CONCRETE SLABS/BEAMS, CONCRETE FILLED METAL DECKS (SUPPORTED BY STRUCTURAL STEEL FRAMING), THE FOLLOWING SYSTEMS CAN BE HUNG:
        - a. CEILINGS AND SOFFITS SYSTEMS (INCLUDING HUNG PARTITION SYSTEMS).
        - b. MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION SYSTEMS AND EQUIPMENT.
        - c. FOR ANY HEAVY OR LARGE SYSTEMS OR ITEMS, CONSULT WITH YOUR STRUCTURAL ENGINEER.
    - B. FOR BUILDINGS WHERE THE ROOF STRUCTURE IS SIMPLE METAL ROOF DECK (NO CONCRETE FILL), THE FOLLOWING SYSTEMS CAN BE HUNG:
        - a. ACOUSTIC CEILING SYSTEMS (ACT TILES, ETC.) WEIGHING LESS THAN 5 LBS/SF AND HUNG AT 4'-0" O.C. BOTH DIRECTIONS.
        - b. SINGLE LAYER GYPSUM BOARD CEILING SYSTEMS WEIGHING LESS THAN 5 LBS/SF AND HUNG AT 4'-0" O.C. BOTH DIRECTIONS.
        - c. *DO NOT HANG ANY OTHER SYSTEM OR ITEM DIRECTLY FROM PLAIN ROOF STEEL DECKS* (UNLESS STRUCTURAL E.O.R. CONFIRMS THAT DECK HAS BEEN DESIGNED TO SUPPORT THESE HANGING LOADS). IN LOCATIONS WHERE PLAIN ROOF STEEL DECK (NO CONCRETE FILL) IS OVERHEAD, HANG ONLY FROM STRUCTURAL STEEL FRAMING MEMBERS OR PROVIDE SECONDARY STEEL FRAMING MEMBERS (SLOTTED CHANNEL FRAMING, I.E. "UNISTRUT", ETC.) OF ADEQUATE DESIGN (SPANNING BETWEEN BUILDING STRUCTURAL STEEL FRAMING MEMBERS) AS REQUIRED.
    - C. FOR BUILDINGS CONSTRUCTED OF COLD-FORMED METAL FRAMING SYSTEMS, FOLLOW "SIMPLE METAL ROOF DECKS" ABOVE.
    - D. REVIEW AND DISCUSS ALL UNUSUAL CONDITIONS WITH YOUR STRUCTURAL ENGINEER.

13. WHERE REFERENCED BY THIS NOTE, PROVIDE 1-HR. HORIZONTAL SHAFTWALL CEILING (WITH 4" DEEP 20 GA. FRAMING). INSTALL AS HIGH AS POSSIBLE TO UNDERSIDE OF STEEL FRAMING ABOVE.

14. SEE FINISH SCHEDULE FOR ALL WINDOW SHADE INFORMATION

15. FOR ACOUSTIC CONTINUITY AT TOPS OF PARTITIONS CENTERED ON OR DIRECTLY ADJACENT TO STEEL BEAMS, REFER TO SPECTIC DETAILS ON SHEET A602

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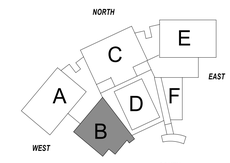
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KEYPLAN

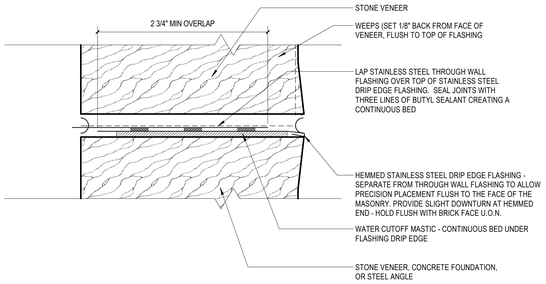
Number	Date	Issued For
1	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

FIRST FLOOR REFLECTED CEILING PLAN - PART B

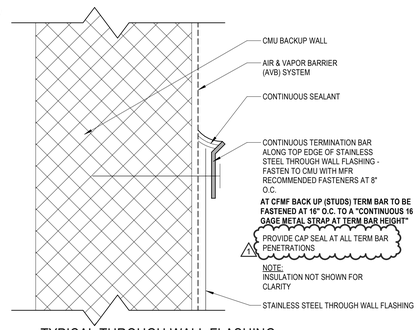
Date: 07/08/2024
Scale: As indicated
Proj. Number: 22367.00
Drawing Number: **A201B**

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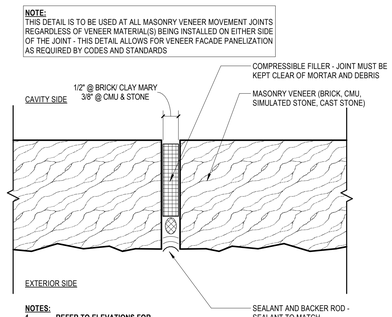


1A TYPICAL FLUSH HEMMED DRIP EDGE DETAIL
12" = 1'-0"



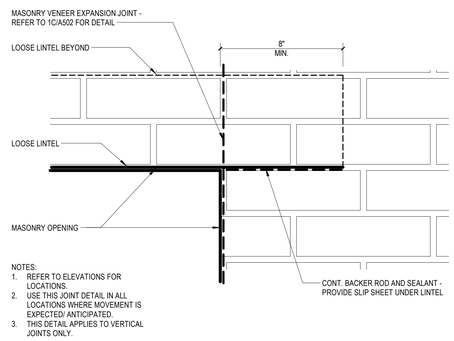
2B TYPICAL THROUGH WALL FLASHING TERMINATION/TRANSITION AT AVB
12" = 1'-0"

NOTE:
THIS DETAIL IS TO BE USED AT ALL MASONRY VENEER MOVEMENT JOINTS REGARDLESS OF VENEER MATERIAL(S) BEING INSTALLED ON EITHER SIDE OF THE JOINT - THIS DETAIL ALLOWS FOR VENEER FACADE PANELIZATION AS REQUIRED BY CODES AND STANDARDS



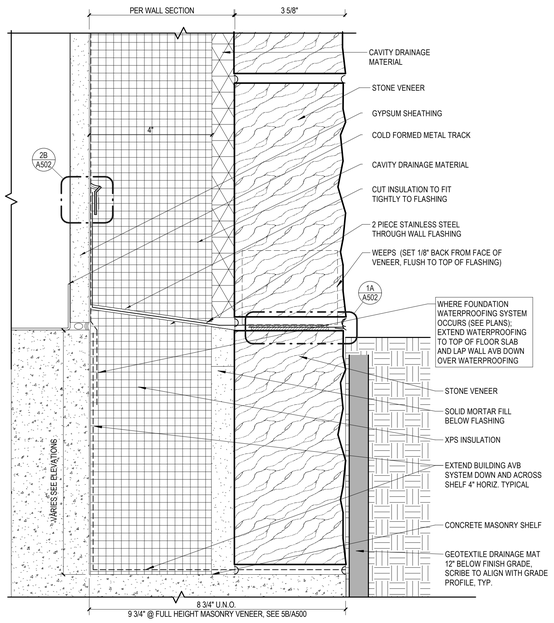
NOTES:
1. **REFER TO ELEVATIONS FOR LOCATIONS.**
2. **USE THIS JOINT DETAIL IN ALL LOCATIONS WHERE MOVEMENT IS EXPECTED/ANTICIPATED.**
3. **THIS DETAIL APPLIES TO VERTICAL JOINTS ONLY.**

1C TYPICAL MASONRY VENEER MOVEMENT JOINT DETAIL
6" = 1'-0"

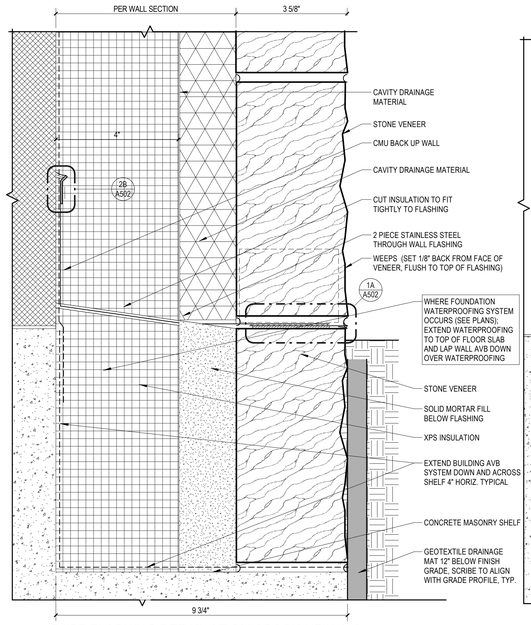


NOTES:
1. REFER TO ELEVATIONS FOR LOCATIONS.
2. USE THIS JOINT DETAIL IN ALL LOCATIONS WHERE MOVEMENT IS EXPECTED/ ANTICIPATED.
3. THIS DETAIL APPLIES TO VERTICAL JOINTS ONLY.

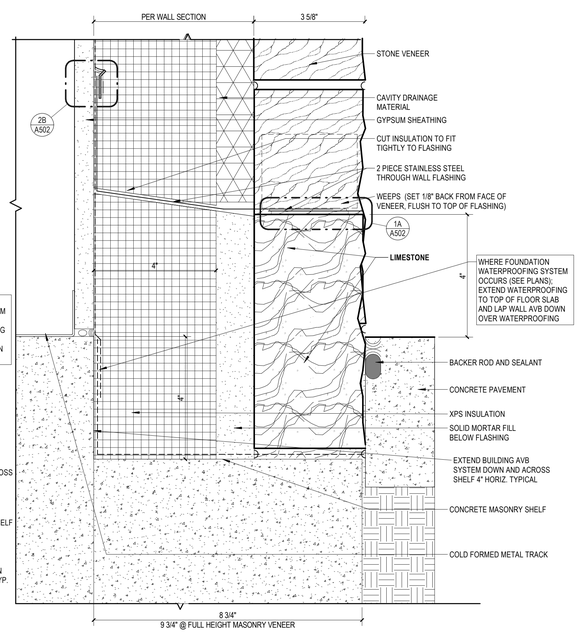
2C TYPICAL MASONRY VENEER MOVEMENT JOINT ELEVATION
3" = 1'-0"



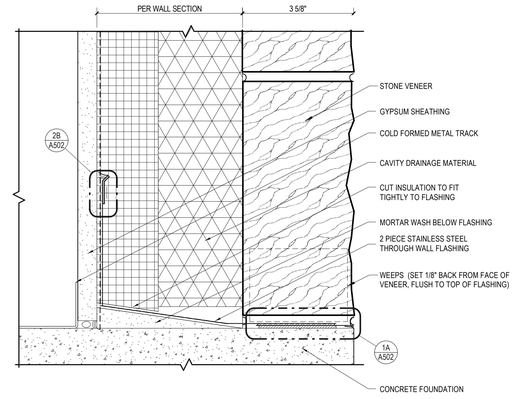
1E BASE FLASHING DETAIL AT METAL STUD BACK-UP WALL - BRICK BELOW FLASHING
6" = 1'-0"



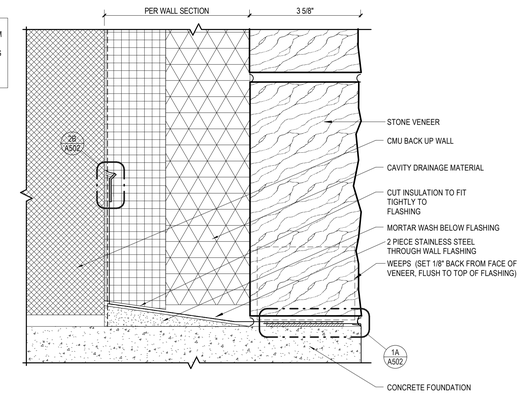
2E BASE FLASHING DETAIL AT CMU BACK-UP WALL - BRICK BELOW FLASHING
6" = 1'-0"



3E BASE FLASHING AT LIMESTONE BELOW FLASHING
6" = 1'-0"



3D TYPICAL BASE FLASHING DETAIL AT METAL STUD BACK-UP WALL
6" = 1'-0"



5E TYPICAL BASE FLASHING DETAIL AT CMU BACK-UP WALL
6" = 1'-0"

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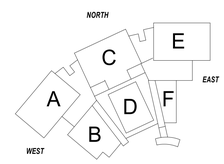
Drawn: JZ
Checked: JZ

Greenwich Public Schools

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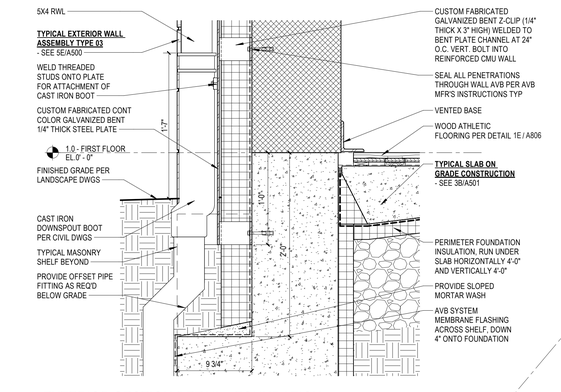
KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM NO. 4
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	07/08/2024	PHASE 2

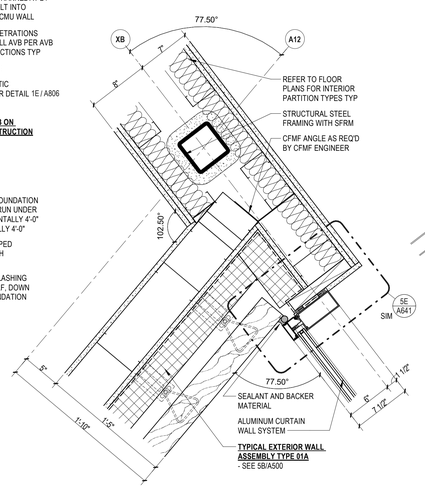
EXTERIOR SECTION DETAILS OF NON-PROJECTED THROUGH WALL FLASHINGS

Date: 07/08/2024
Scale: As indicated
Proj. Number: 22367.00
Drawing Number: A502

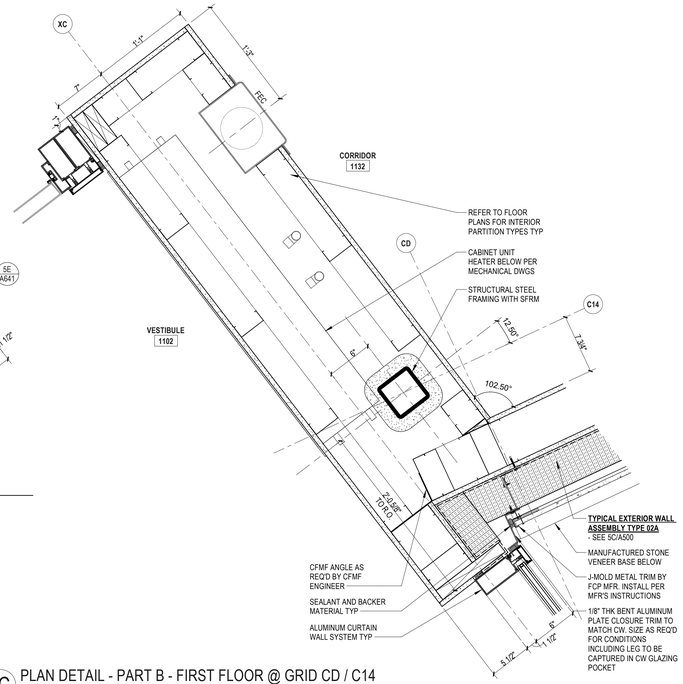
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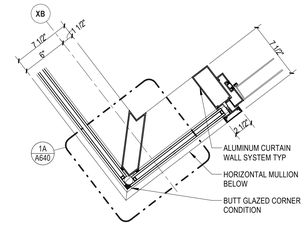
1A EXTERIOR SECTION DETAIL - FOUNDATION NOTCH AT RWL BOOT AT GRADE
1 1/2" = 1'-0"



2B PLAN DETAIL - PART B - FIRST FLOOR @ GRID XB / A12
1 1/2" = 1'-0"

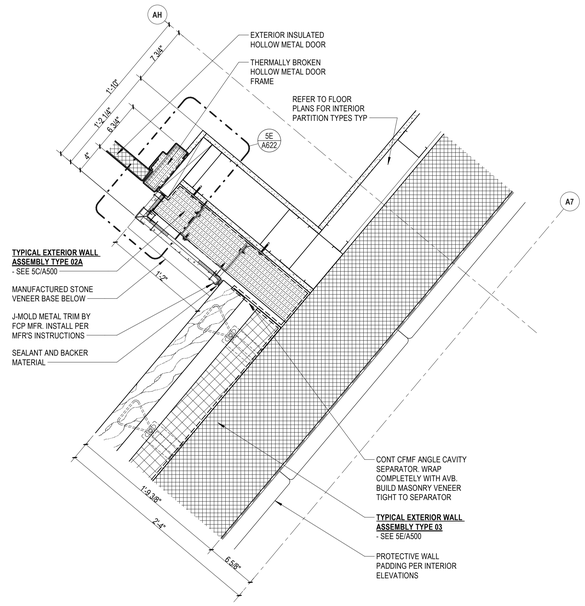


3C PLAN DETAIL - PART B - FIRST FLOOR @ GRID CD / C14
1 1/2" = 1'-0"



NOTE:
SEE EXTERIOR ELEVATIONS FOR PAINT COLORS OF METAL PANELS, FASCIAS, GUTTERS, DOWNSPOUTS, ETC. (ALL DETAILS THIS SHEET)

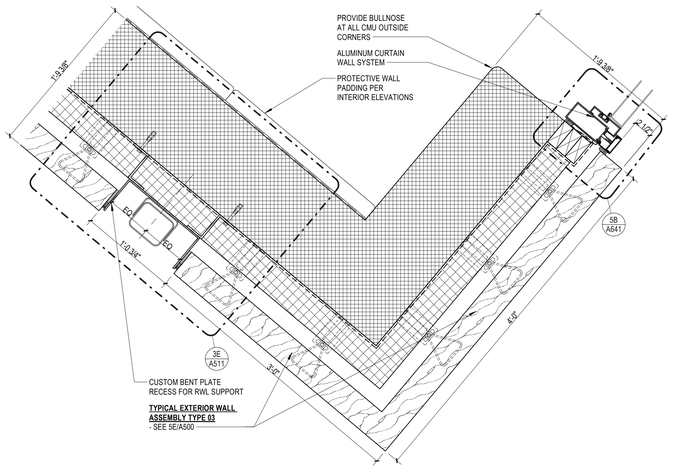
4A PLAN DETAIL - PART B - FIRST FLOOR @ VESTIBULE CORNER MULLION
1 1/2" = 1'-0"



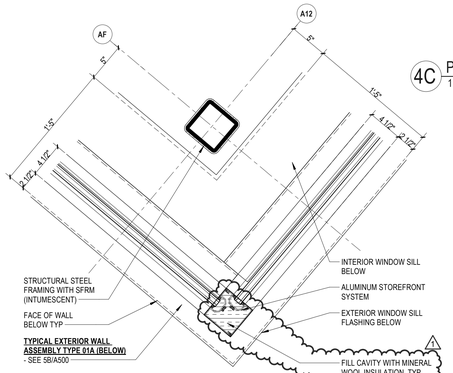
4C PLAN DETAIL - PART B - FIRST FLOOR @ GRID AH / A7
1 1/2" = 1'-0"

1E PLAN DETAIL - PART B - FIRST FLOOR @ STOREFRONT WINDOW JAMB IN MASONRY
1 1/2" = 1'-0"

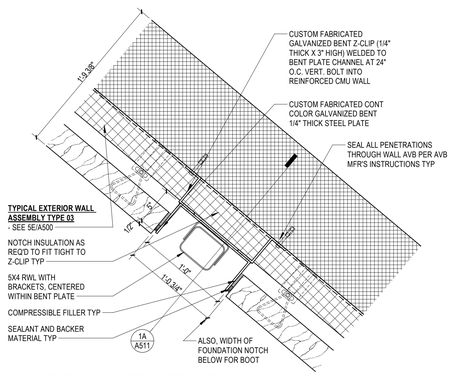
2D PLAN DETAIL - PART B - FIRST FLOOR @ GRID AF AND MASONRY VENEER INSIDE CORNER
1 1/2" = 1'-0"



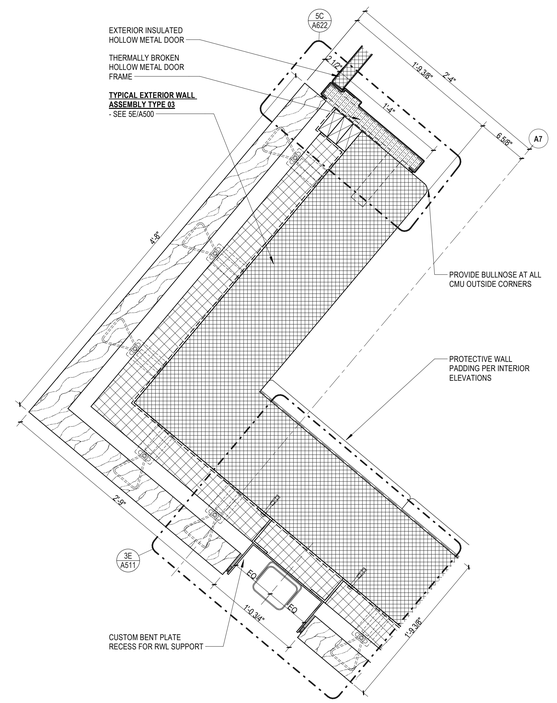
2E PLAN DETAIL - PART B - FIRST FLOOR @ GYM OUTSIDE CORNER AND CURTAIN WALL FRAME
1 1/2" = 1'-0"



3D PLAN DETAIL - PART B - FIRST FLOOR @ GRID AF / A12
1 1/2" = 1'-0"



3E PLAN DETAIL - PART B - FIRST FLOOR @ RECESSED RWL IN MASONRY VENEER
1 1/2" = 1'-0"



4E PLAN DETAIL - PART B - FIRST FLOOR @ GYM OUTSIDE CORNER AND HM DOOR FRAME
1 1/2" = 1'-0"

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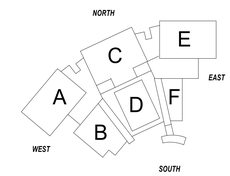
Drawn: MOS
Checked: JZ

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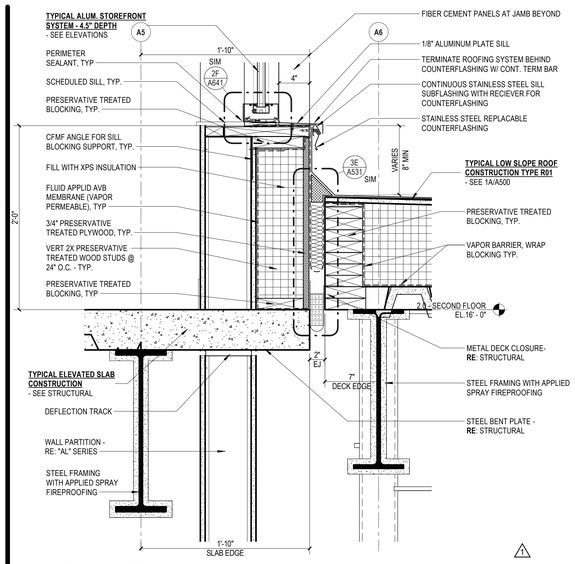
KEYPLAN

Number	Date	Issued For
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	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

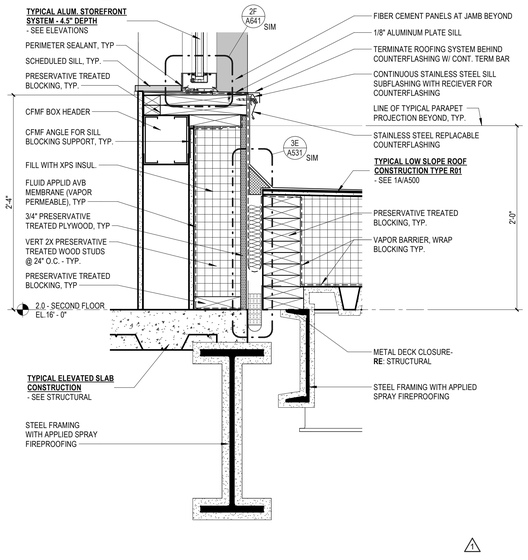
EXTERIOR PLAN DETAILS

Date: 07/08/2024
Scale: 1 1/2" = 1'-0"
Proj. Number: 22367.00
Drawing Number: A511

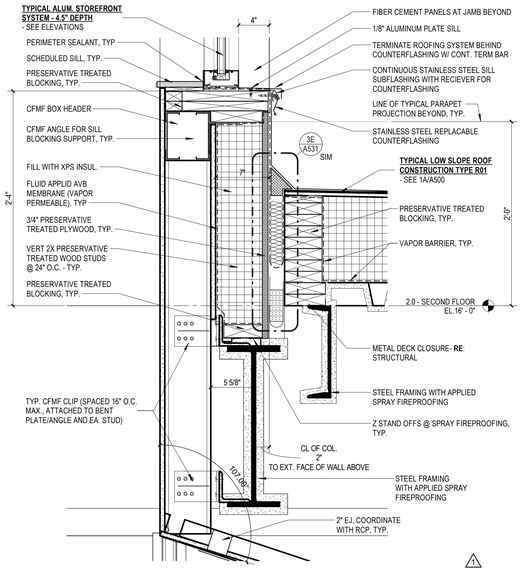
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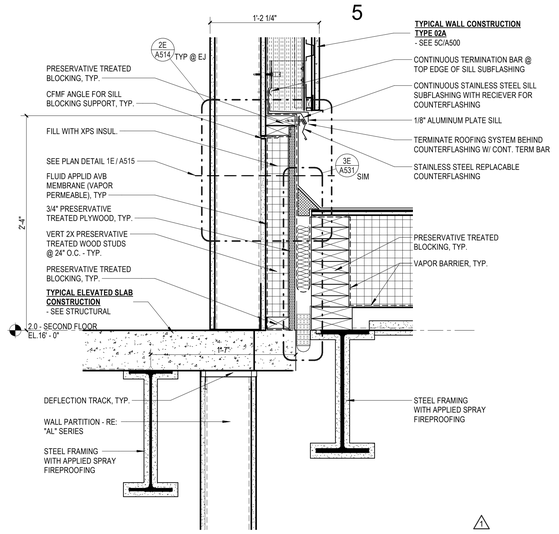
1A SECTION DETAIL
1 1/2" = 1'-0"



2A SECTION DETAIL
1 1/2" = 1'-0"



3A SECTION DETAIL
1 1/2" = 1'-0"



5A SECTION DETAIL
1 1/2" = 1'-0"

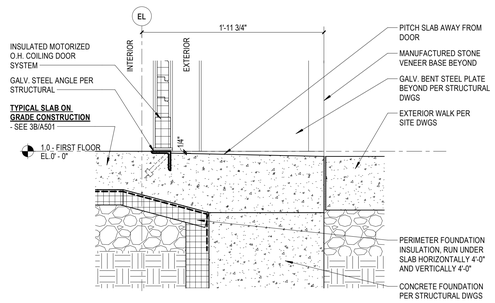
NOTE:
SEE EXTERIOR ELEVATIONS FOR PAINT COLORS OF METAL PANELS, FASCIAS, GUTTERS, DOWNSPOUTS, ETC. (ALL DETAILS THIS SHEET)

1C SECTION DETAIL
1 1/2" = 1'-0"

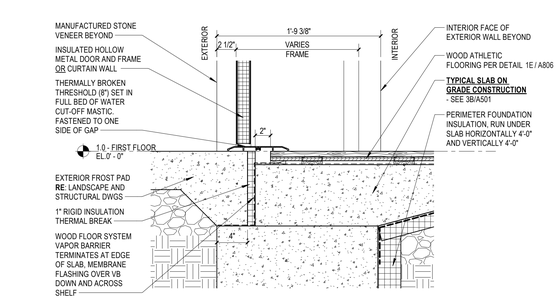
2C SECTION DETAIL
1 1/2" = 1'-0"

3D SECTION DETAIL
1 1/2" = 1'-0"

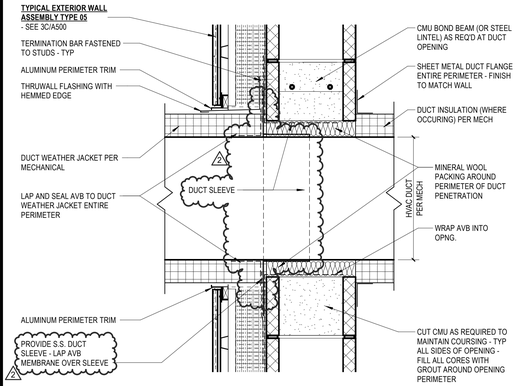
5C EXTERIOR SECTION DETAIL - THRESHOLD AT HM OR SF FRAME IN FCP
1 1/2" = 1'-0"



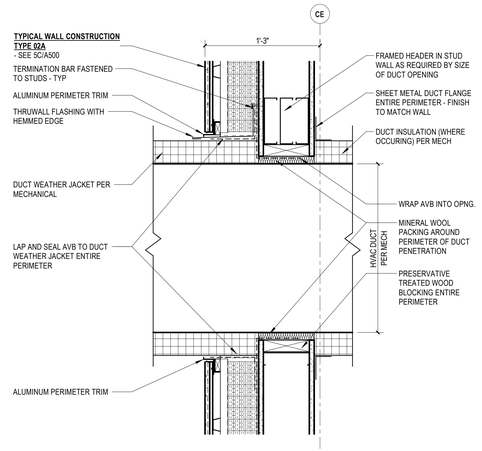
4D EXTERIOR SECTION DETAIL - THRESHOLD AT O.H. DOOR
1 1/2" = 1'-0"



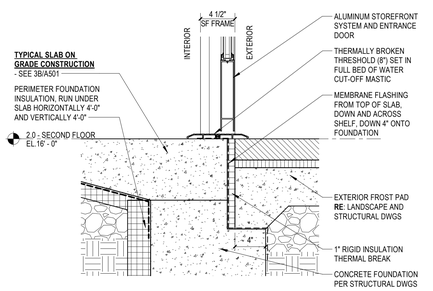
5D EXTERIOR SECTION DETAIL - THRESHOLD AT HM OR CW FRAME AT GYM
1 1/2" = 1'-0"



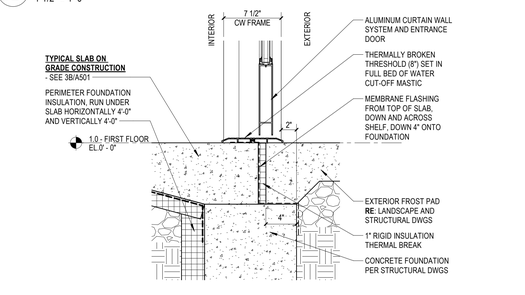
1E SECTION DETAIL - GYMNASIUM DUCT PENETRATION
1 1/2" = 1'-0"



2E SECTION DETAIL - AUDITORIUM DUCT PENETRATION
1 1/2" = 1'-0"



4E EXTERIOR SECTION DETAIL - THRESHOLD AT SF FRAME AND PAVER WALK
1 1/2" = 1'-0"



5E EXTERIOR SECTION DETAIL - THRESHOLD AT CW ENTRANCE AT SOUTH VESTIBULE
1 1/2" = 1'-0"

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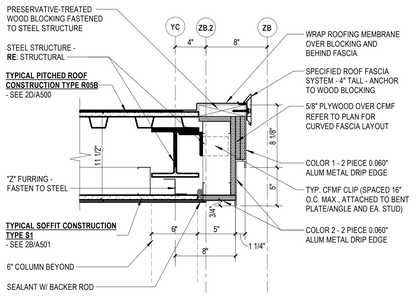
Number	Date	Issued For
2	10/30/2024	ADDENDUM NO. 4
1	10/23/2024	ADDENDUM NO. 3
	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

EXTERIOR SECTION DETAILS

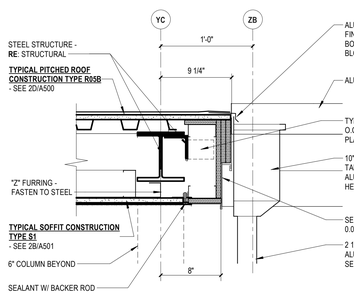
Date 07/08/2024
Scale 1 1/2" = 1'-0"
Proj. Number 22367.00
Drawing Number A520

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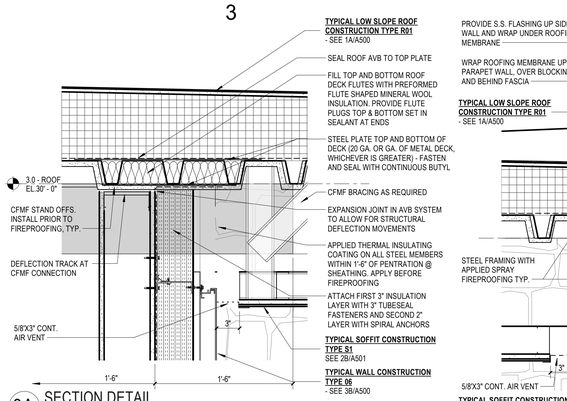
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10/30/2024 3:39:38 PM



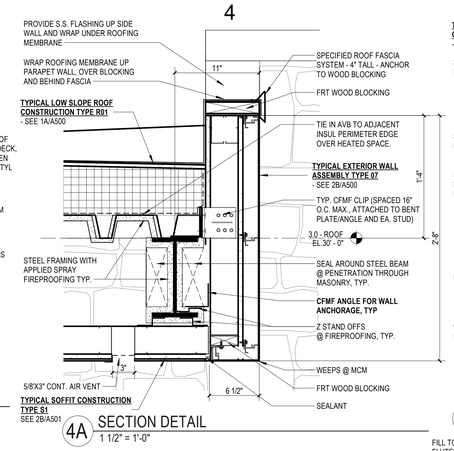
1A SECTION DETAIL - CANOPY FASCIA
1 1/2" = 1'-0"



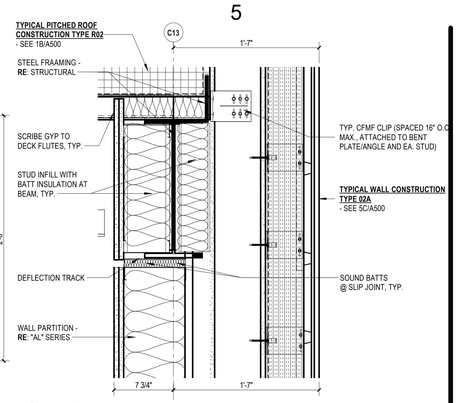
2A SECTION DETAIL
1 1/2" = 1'-0"



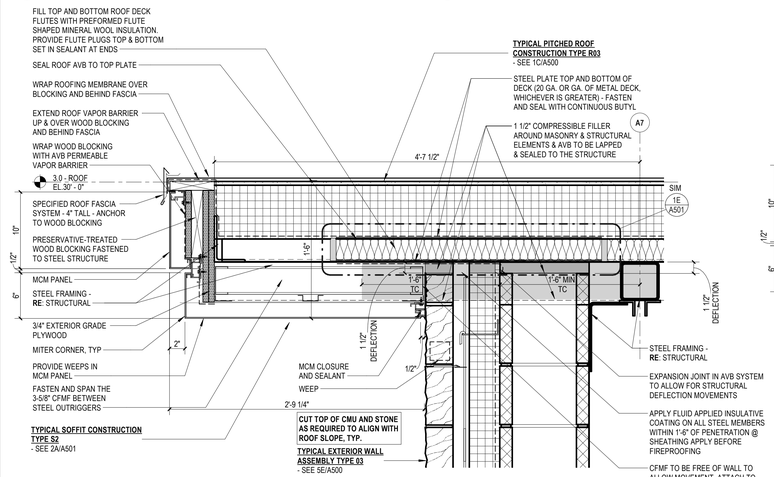
3A SECTION DETAIL
1 1/2" = 1'-0"



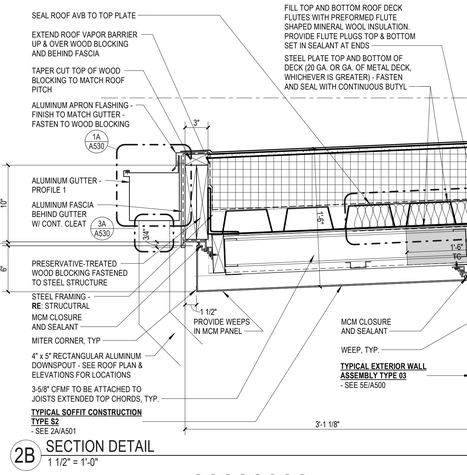
4A SECTION DETAIL
1 1/2" = 1'-0"



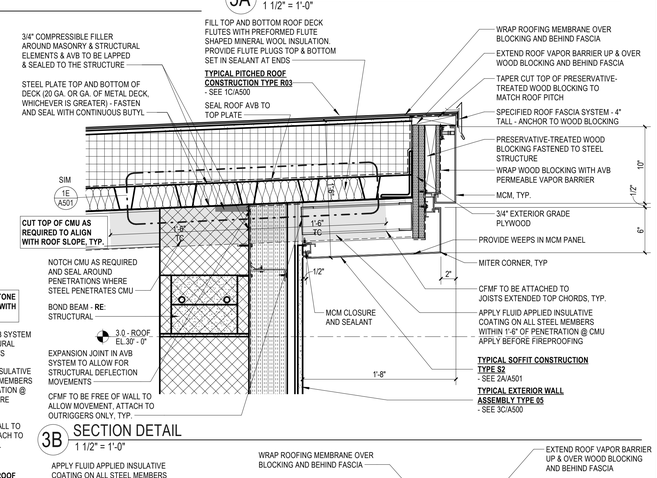
5A SECTION DETAIL
1 1/2" = 1'-0"



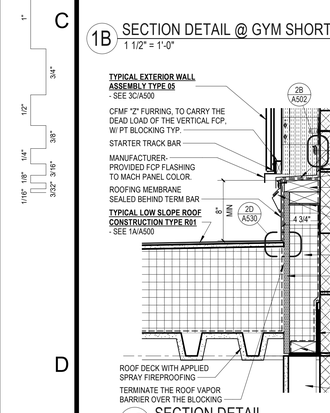
1B SECTION DETAIL @ GYM SHORT WALLS
1 1/2" = 1'-0"



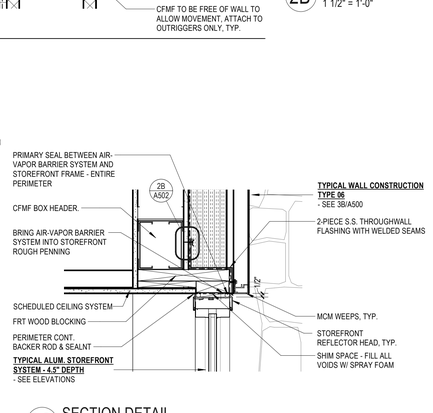
2B SECTION DETAIL
1 1/2" = 1'-0"



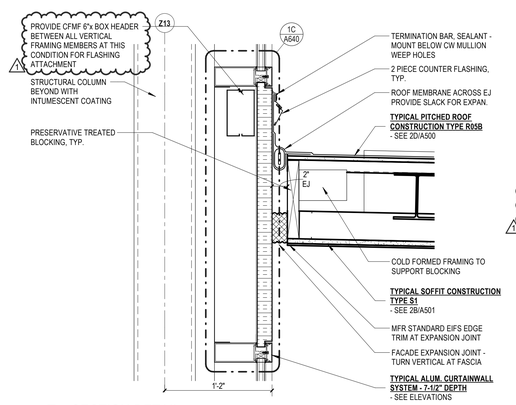
3B SECTION DETAIL
1 1/2" = 1'-0"



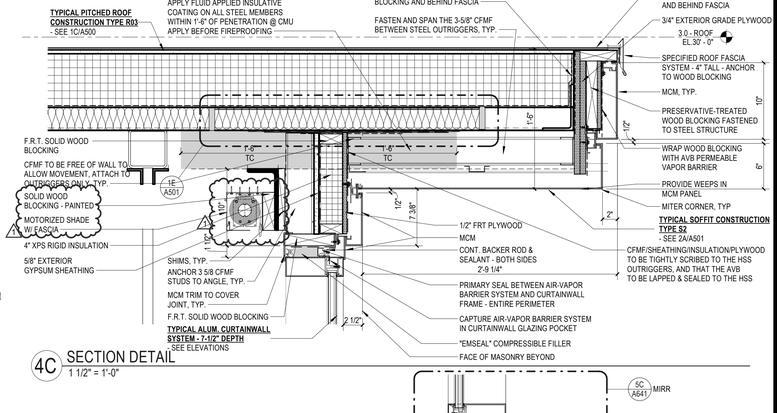
1C SECTION DETAIL
1 1/2" = 1'-0"



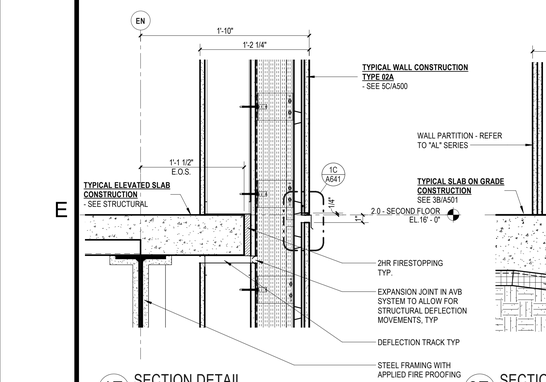
2C SECTION DETAIL
1 1/2" = 1'-0"



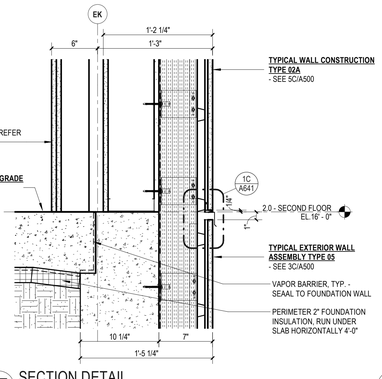
3C SECTION DETAIL
1 1/2" = 1'-0"



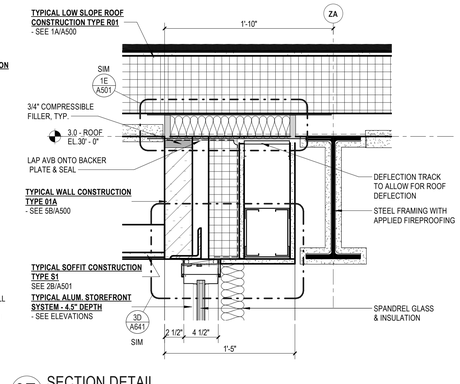
4C SECTION DETAIL
1 1/2" = 1'-0"



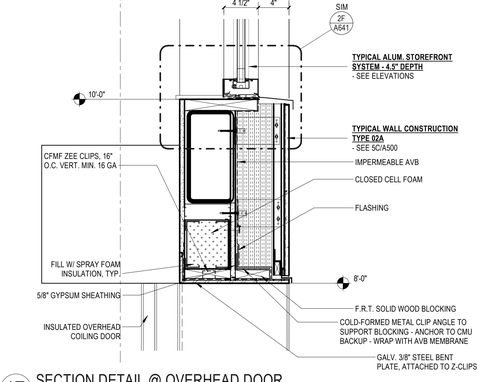
1E SECTION DETAIL
1 1/2" = 1'-0"



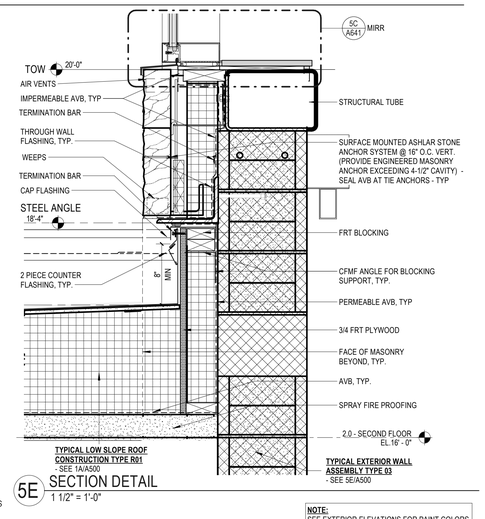
2E SECTION DETAIL
1 1/2" = 1'-0"



3E SECTION DETAIL
1 1/2" = 1'-0"



4E SECTION DETAIL @ OVERHEAD DOOR
1 1/2" = 1'-0"



5E SECTION DETAIL
1 1/2" = 1'-0"

NOTE:
SEE EXTERIOR ELEVATIONS FOR PAINT COLORS OF METAL PANELS, FASCIAS, GUTTERS, DOWNSPOUTS, ETC. (ALL DETAILS THIS SHEET)

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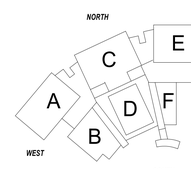
Drawn: MG
Checked: JZ

Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane, Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N



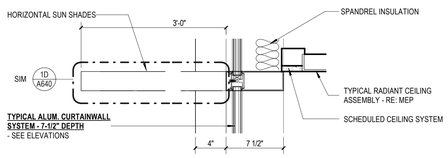
KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

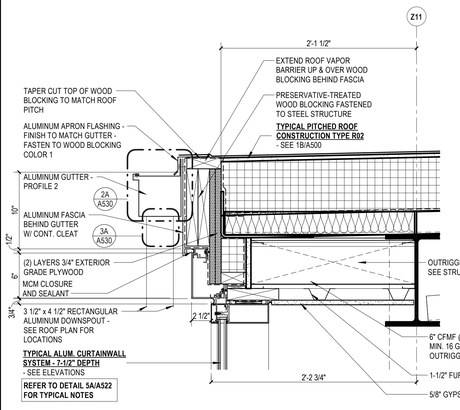
EXTERIOR SECTION DETAILS

Date: 07/08/2024
Scale: 1 1/2" = 1'-0"
Proj. Number: 22367.00
Drawing Number: A521

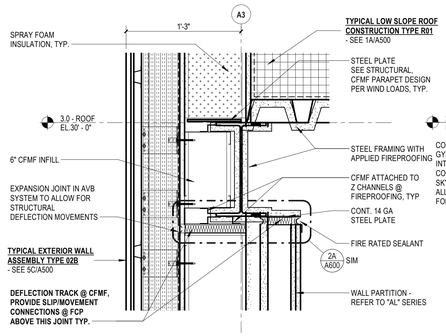
Autodesk Docs://22367.00 - Greenwich Central Middle School/A_22367_GREENWICH_CENTRAL_MS_R22.rvt
10/30/2024 3:39:49 PM



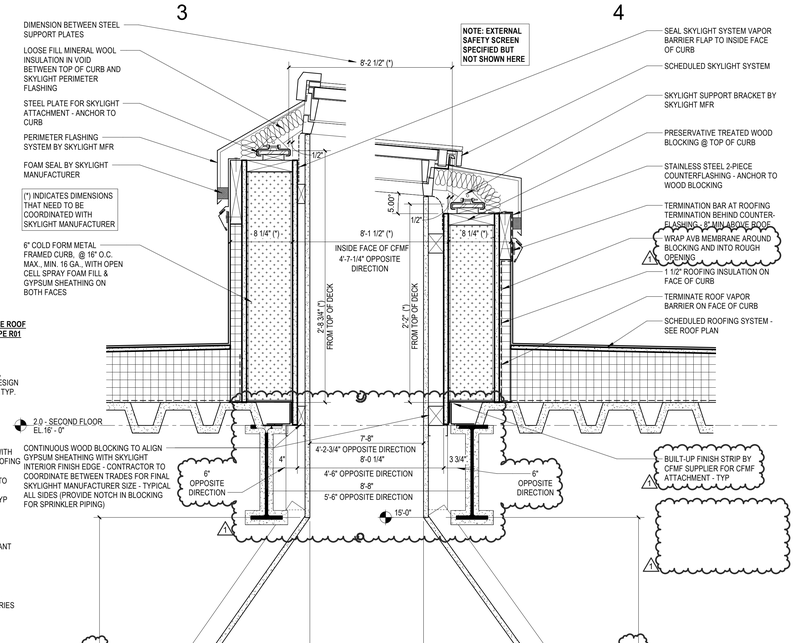
1A SECTION DETAIL
1 1/2" = 1'-0"



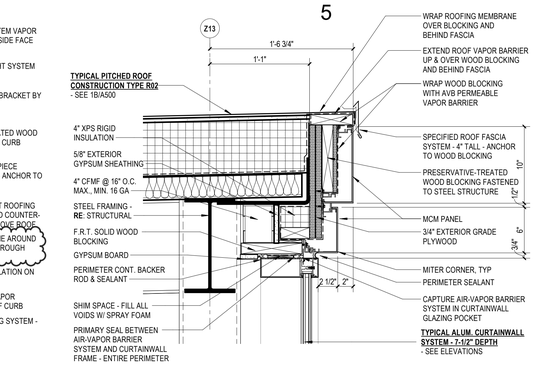
1B SECTION DETAIL @ MAIN ENTRANCE LOBBY REAR
1 1/2" = 1'-0"



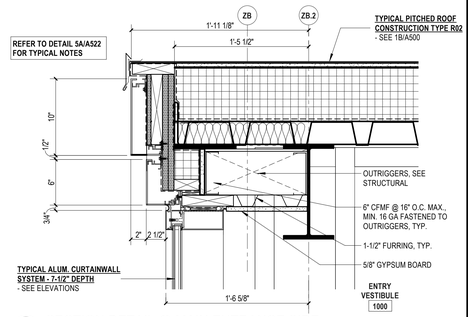
2B SECTION DETAIL
1 1/2" = 1'-0"



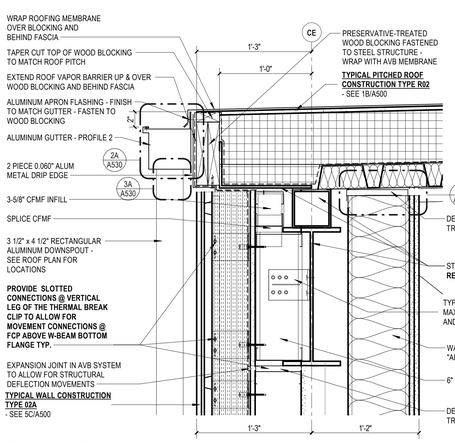
3B SECTION DETAIL
1 1/2" = 1'-0"



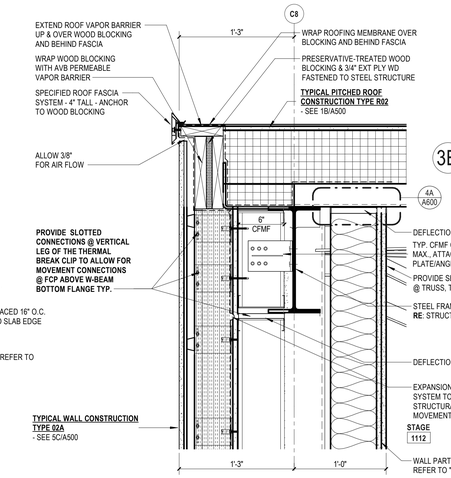
5A SECTION DETAIL @ MAIN ENTRANCE FRONT
1 1/2" = 1'-0"



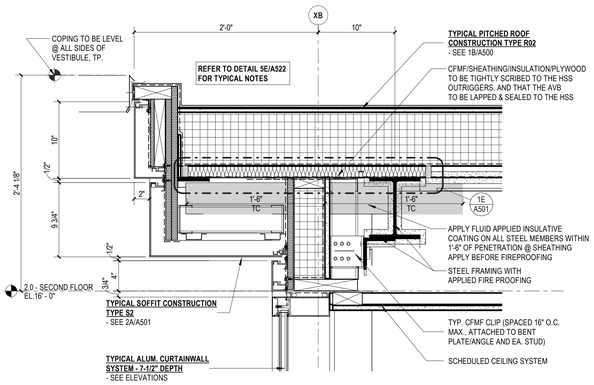
5B SECTION DETAIL @ MAIN ENTRANCE SIDE
1 1/2" = 1'-0"



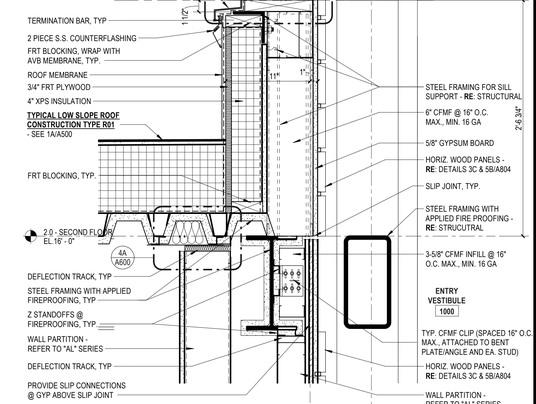
1C SECTION DETAIL
1 1/2" = 1'-0"



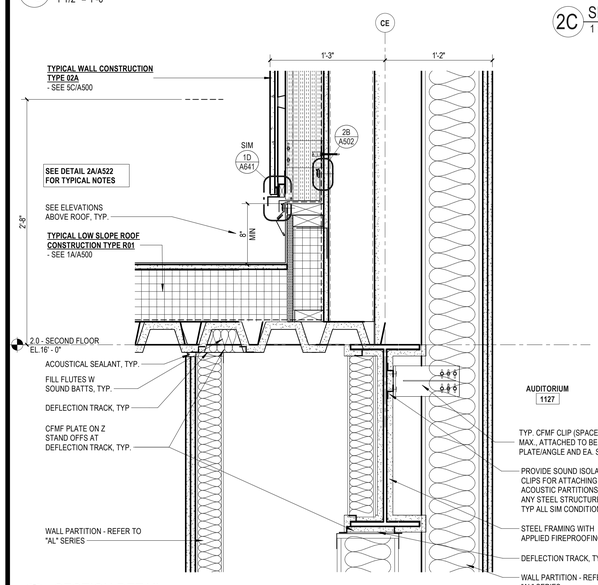
2C SECTION DETAIL
1 1/2" = 1'-0"



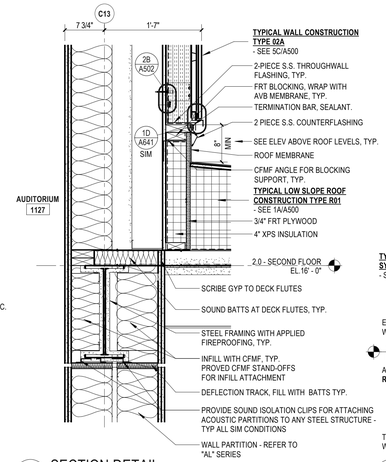
3D SECTION DETAIL @ GYM ENTRANCE SIDE
1 1/2" = 1'-0"



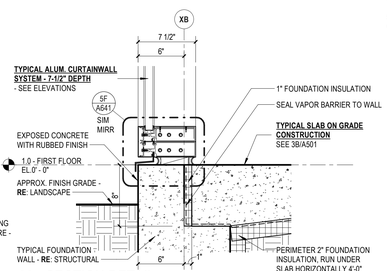
5C SECTION DETAIL @ MAIN LOBBY CLEAR STORY
1 1/2" = 1'-0"



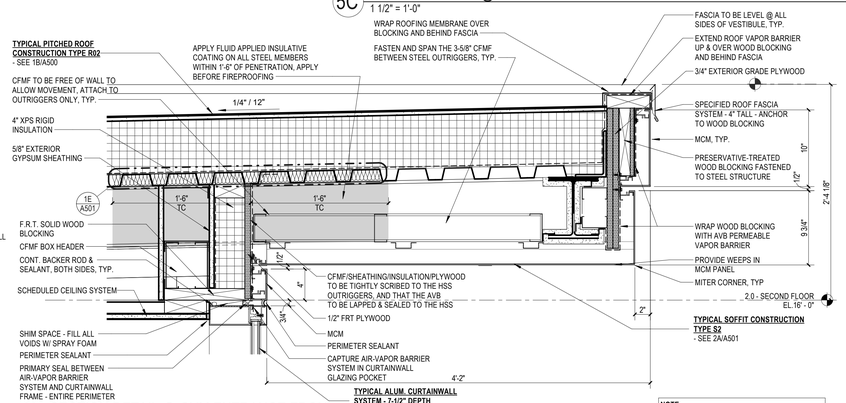
1E SECTION DETAIL
1 1/2" = 1'-0"



2E SECTION DETAIL
1" = 1'-0"



3E SECTION DETAIL
1 1/2" = 1'-0"



5E SECTION DETAIL @ GYM ENTRANCE FRONT
1 1/2" = 1'-0"

NOTE:
SEE EXTERIOR ELEVATIONS FOR PAINT COLORS OF METAL PANELS, FASCIAS, GUTTERS, DOWNSPOUTS, ETC. (ALL DETAILS THIS SHEET)

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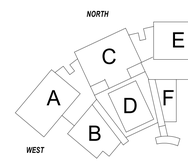
Drawn: MG
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Greenwich Public Schools

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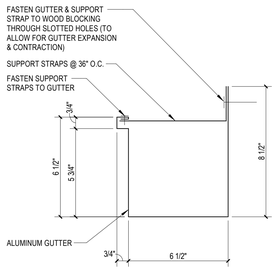
KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

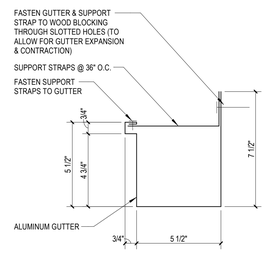
EXTERIOR SECTION DETAILS

Date: 07/08/2024
Scale: As indicated
Proj. Number: 22367.00
Drawing Number: A522

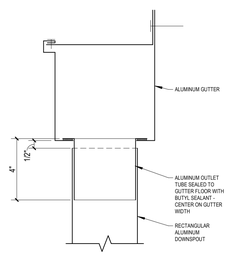
Autodesk Docs://22367.00 - Greenwich Central Middle School/A_22367_GREENWICH_CENTRAL_MS_R22.rvt
10/30/2024 3:39:55 PM



1A TYP GUTTER PROFILE 1 - 6.5"x6.5"
3" = 1'-0"

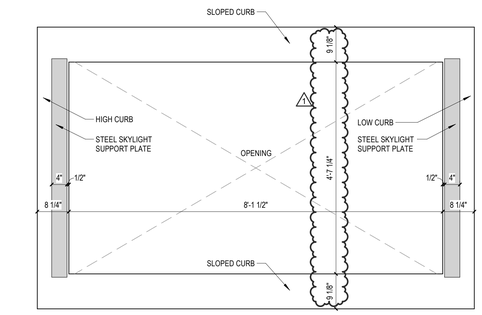


2A TYP GUTTER PROFILE 2 - 5.5"x5.5"
3" = 1'-0"

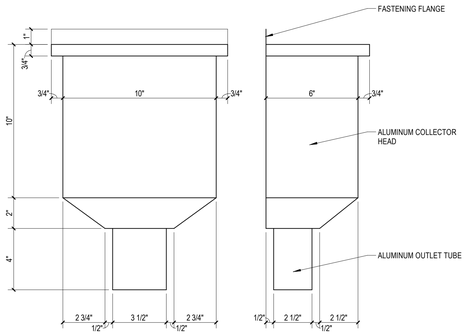


3A TYP GUTTER @ DOWNSPOUT
3" = 1'-0"

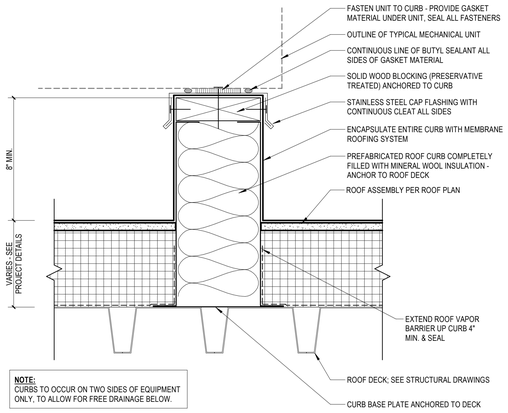
NOTE:
SEE EXTERIOR ELEVATIONS FOR PAINT COLORS OF METAL PANELS, FASCIAS, GUTTERS, DOWNSPOUTS, ETC. (ALL DETAILS THIS SHEET)



4A SKYLIGHT LAYOUT PLAN
3/4" = 1'-0"

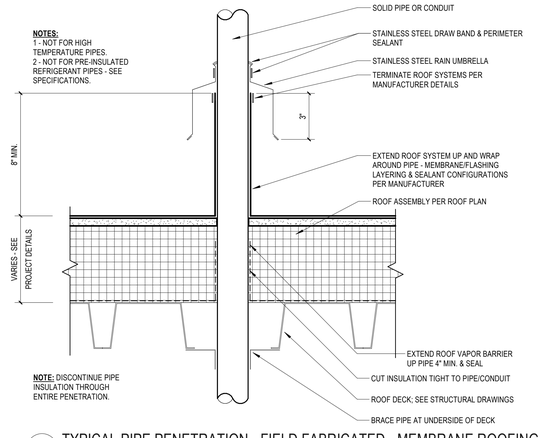


2B TYP COLLECTOR HEAD PROFILE
3" = 1'-0"



NOTE:
CURBS TO OCCUR ON TWO SIDES OF EQUIPMENT ONLY, TO ALLOW FOR FREE DRAINAGE BELOW.

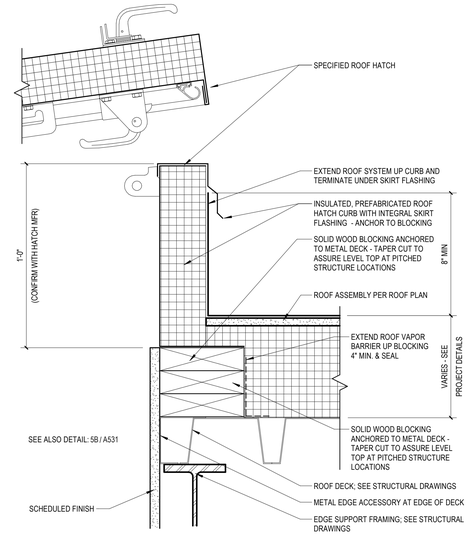
4B TYPICAL EQUIPMENT SUPPORT - MEMBRANE ROOFING
3" = 1'-0"



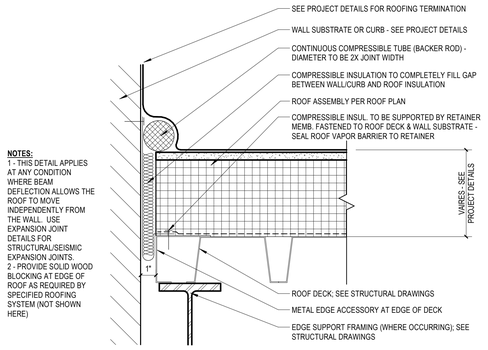
NOTES:
1 - NOT FOR HIGH TEMPERATURE PIPES.
2 - NOT FOR PRE-INSULATED REFRIGERANT PIPES - SEE SPECIFICATIONS.

NOTE: DISCONTINUE PIPE INSULATION THROUGH ENTIRE PENETRATION.

5B TYPICAL PIPE PENETRATION - FIELD FABRICATED - MEMBRANE ROOFING
3" = 1'-0"

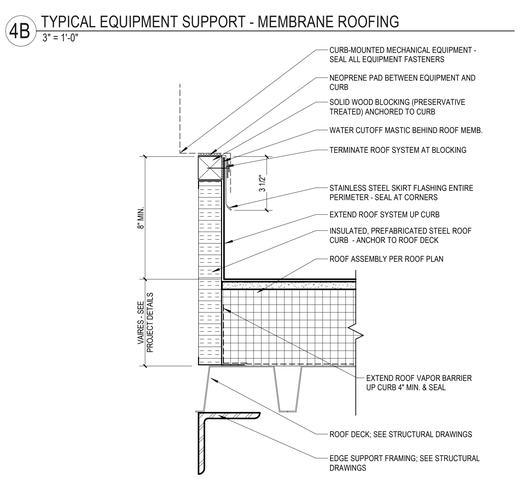


1C TYPICAL ROOF HATCH CURB - MEMBRANE ROOFING SYSTEM
3" = 1'-0"

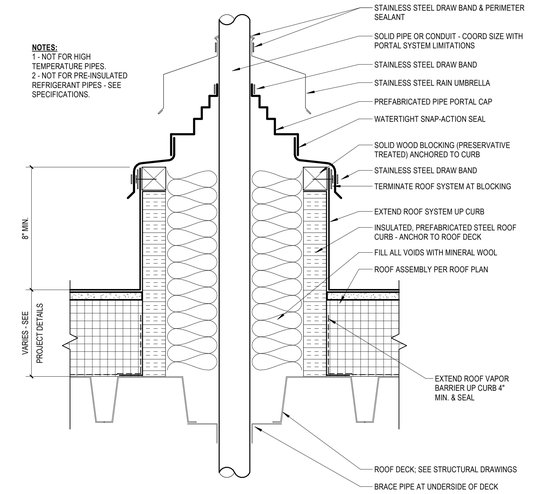


NOTES:
1 - THIS DETAIL APPLIES AT ANY CONDITION WHERE BEAM DEFLECTION ALLOWS THE ROOF TO MOVE INDEPENDENTLY FROM THE WALL. USE EXPANSION JOINT DETAILS FOR STRUCTURAL/SEISMIC EXPANSION JOINTS.
2 - PROVIDE SOLID WOOD BLOCKING AT EDGE OF ROOF AS REQUIRED BY SPECIFIED ROOFING SYSTEM (NOT SHOWN HERE)

2D TYPICAL ROOF MOVEMENT JOINT @ WALL - MEMBRANE ROOFING
3" = 1'-0"



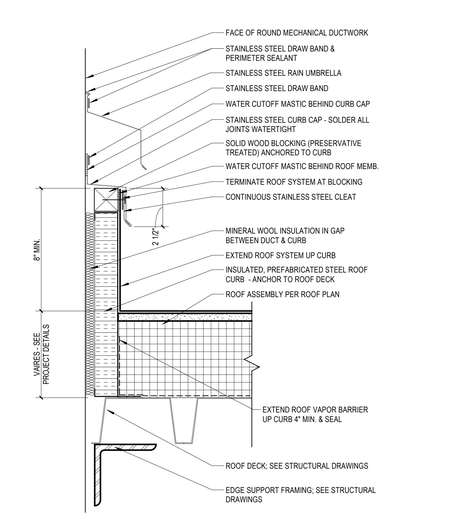
4D TYPICAL MECHANICAL FAN CURB @ MEMBRANE ROOFING
3" = 1'-0"



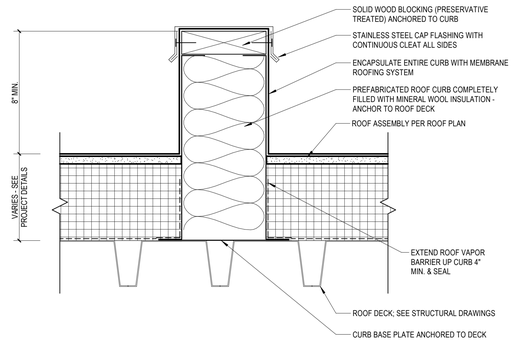
NOTES:
1 - NOT FOR HIGH TEMPERATURE PIPES.
2 - NOT FOR PRE-INSULATED REFRIGERANT PIPES - SEE SPECIFICATIONS.

NOTE: DISCONTINUE PIPE INSULATION THROUGH ENTIRE PENETRATION.

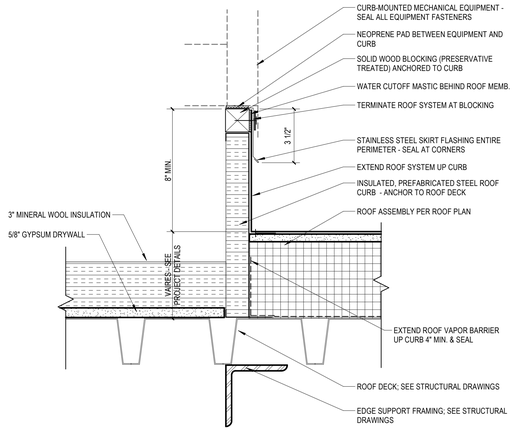
5D TYPICAL PIPE PENETRATION - PORTAL SYSTEM - MEMBRANE ROOFING
3" = 1'-0"



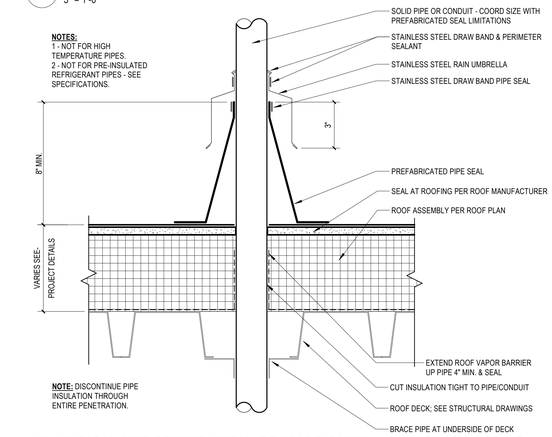
1E TYPICAL MECHANICAL DUCT CURB @ MEMBRANE ROOFING
3" = 1'-0"



2E TYPICAL AREA DIVIDER - MEMBRANE ROOFING
3" = 1'-0"



4E TYPICAL MECHANICAL UNIT CURB @ MEMBRANE ROOFING
3" = 1'-0"



NOTES:
1 - NOT FOR HIGH TEMPERATURE PIPES.
2 - NOT FOR PRE-INSULATED REFRIGERANT PIPES - SEE SPECIFICATIONS.

NOTE: DISCONTINUE PIPE INSULATION THROUGH ENTIRE PENETRATION.

5E TYPICAL PIPE PENETRATION - PREFABRICATED - MEMBRANE ROOFING
3" = 1'-0"

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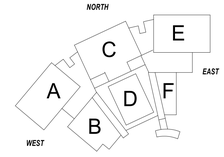
Drawn: TS
Checked: JZ

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STATE PROJECT NO: 057-0114 N



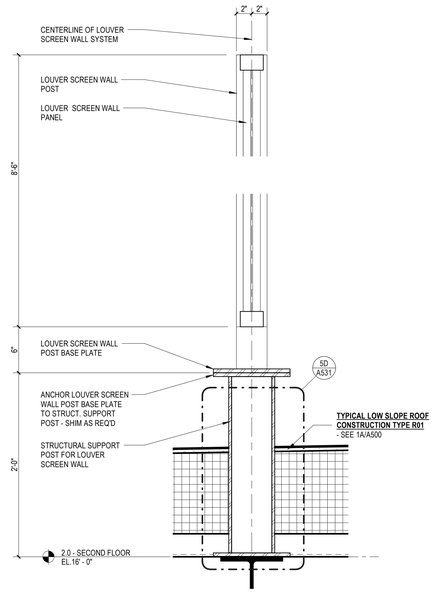
KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

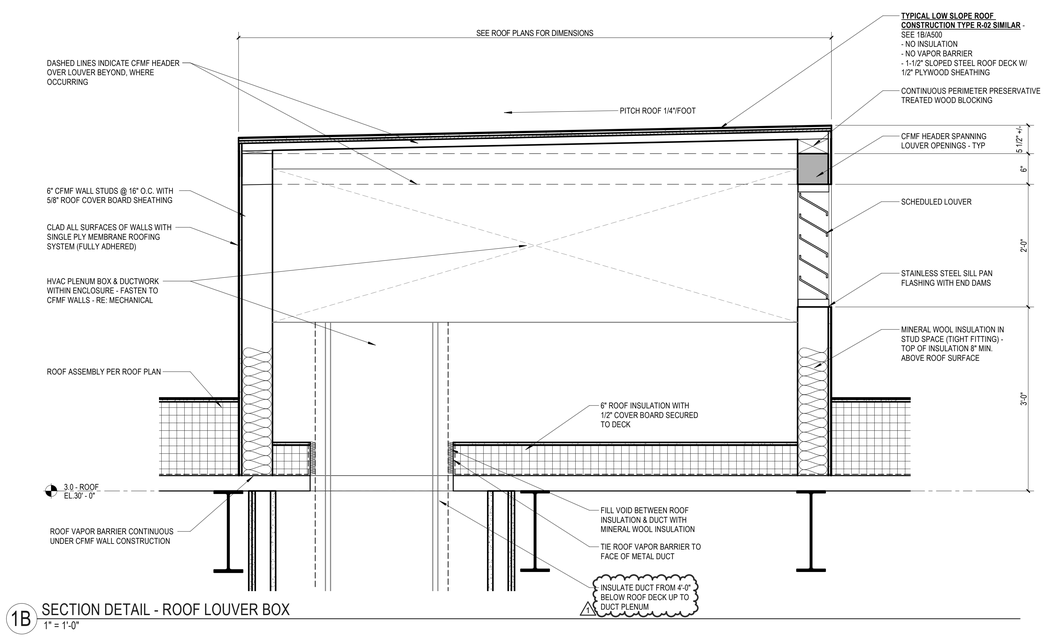
TYPICAL MEMBRANE ROOFING DETAILS

Date: 07/08/2024
Scale: As indicated
Proj. Number: 22367.00
Drawing Number: A530

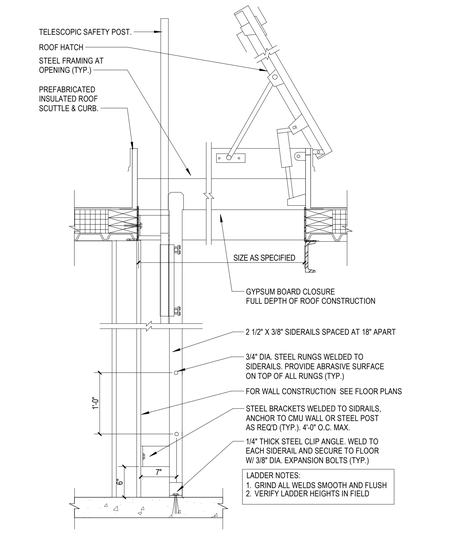
Autodesk Docs://22367.00 - Greenwich Central Middle School/A_22367_GREENWICH_CENTRAL_MS_R22.rvt
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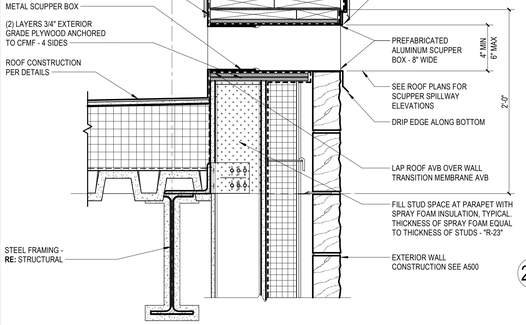
1A SECTION DETAIL - ROOF SCREEN
1 1/2" = 1'-0"



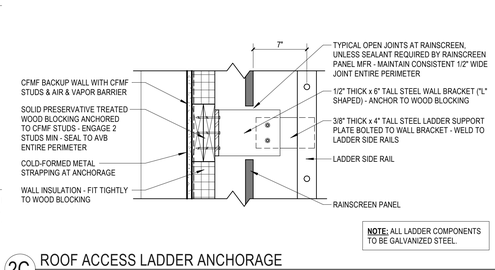
1B SECTION DETAIL - ROOF LOUVER BOX
1" = 1'-0"



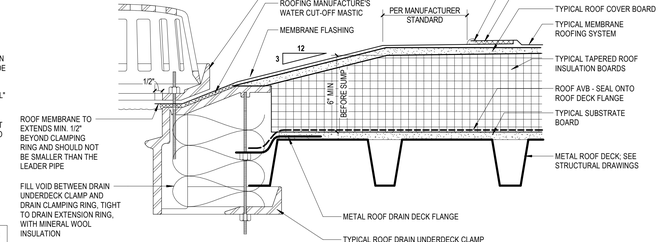
5B TYPICAL ROOF ACCESS LADDER (INTERIOR)
1" = 1'-0"



1D TYPICAL OVERFLOW SCUPPER (OS) DETAIL - MASONRY
1 1/2" = 1'-0"



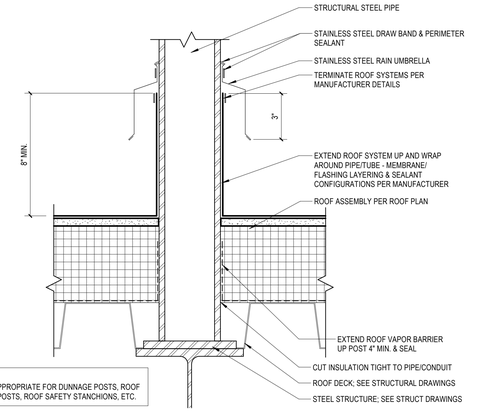
2C ROOF ACCESS LADDER ANCHORAGE
1 1/2" = 1'-0"



NOTES:

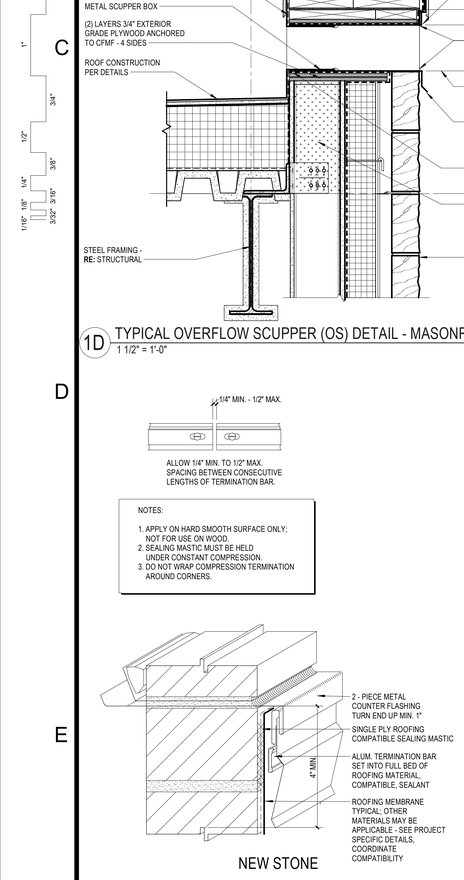
1. ALL BOLTS OR CLAMPS MUST BE IN PLACE TO PROVIDE CONSTANT COMPRESSION ON MANUFACTURER'S WATER CUT-OFF MASTIC.
2. HOLE IN MEMBRANE MUST EXCEED DRAIN PIPE SIZE.
3. EXTEND THE REINFORCING MEMBRANE 5 1/2" MINIMUM OUT OF THE SUMP AREA OR PER ROOFING MANUFACTURE'S DETAIL
4. INSULATION TAPER SHALL NOT BE STEEPER THAN 3 INCHES (VERTICAL) IN 12 INCHES (HORIZONTAL) AT THE SUMP
5. REFER TO STRUCTURAL DRAWINGS FOR ROOF DECK TYPE AND SIZE.
6. OVERFLOW DRAIN SHALL HAVE BUILT-IN WEIR WHICH PREVENTS RAINWATER FROM IMMEDIATELY ENTERING SYSTEM. WEIR ELEVATION TO BE MAINTAINED AT 4" ABOVE SPILLWAY FOR PRIMARY ROOF DRAIN.

3D TYPICAL ROOF DRAIN - TPO ROOFING SYSTEM
3" = 1'-0"

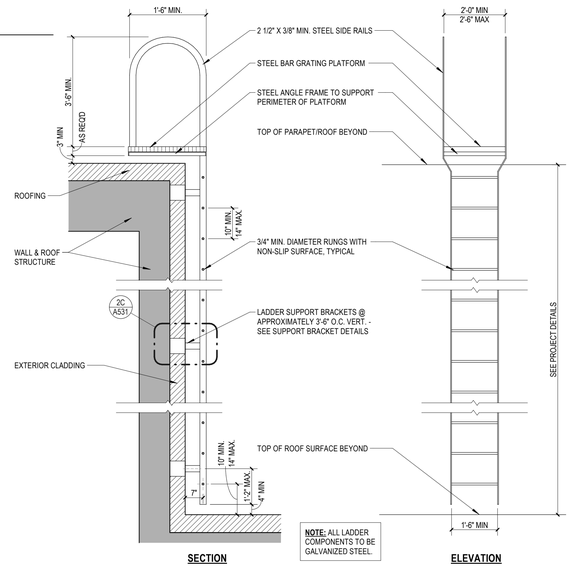


NOTE:
DETAIL APPROPRIATE FOR DUNNAGE POSTS, ROOF SCREEN POSTS, ROOF SAFETY STANCHIONS, ETC.

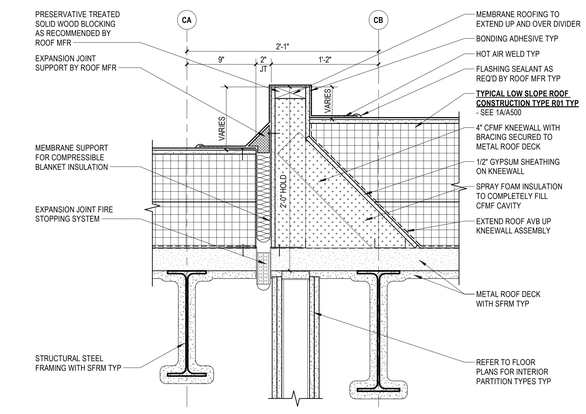
5D TYPICAL STRUCT. POST- FIELD FABRICATED - MEMBRANE ROOFING SYSTEM
3" = 1'-0"



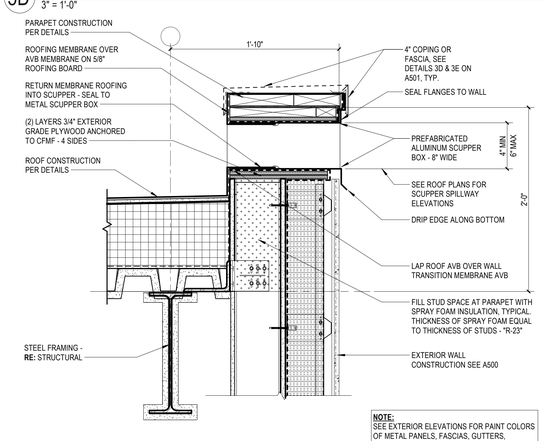
1E TYPICAL COUNTER-FLASHING DETAILS AT WALL
3" = 1'-0"



2E ROOF ACCESS LADDER
1/2" = 1'-0"



3E BUILDING EXPANSION JOINT AT ROOF
1 1/2" = 1'-0"



NOTE:
SEE EXTERIOR ELEVATIONS FOR PAINT COLORS OF METAL PANELS, FASCIAS, GUTTERS, DOWNSPOUTS, ETC. (ALL DETAILS THIS SHEET)

5E TYPICAL OVERFLOW SCUPPER (OS) DETAIL
1 1/2" = 1'-0"

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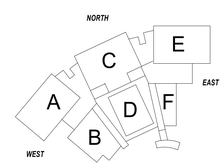
Drawn: JZ, TS
Checked: JZ

Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane, Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N



KEYPLAN

Number	Date	Issued For
1	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

TYPICAL MEMBRANE ROOFING DETAILS

Date: 07/08/2024
Scale: As indicated
Proj. Number: 22367.00
Drawing Number: A531

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DOOR AND FRAME SCHEDULE

REFER TO FINISH PLANS AND A806 FOR THRESHOLD TRANSITIONS DETAILS, U.N.O.

NOTE: DOOR PANEL THICKNESS REVISED (1) — 1000 A–D; 1028 B; 1041 B; 1086 A–B; 1100 B; 1102 A–D; 1116 A–B; 1117 A–B

Bldg	Room No.	Opng	DOOR – OPENING SIZE Width A	Width B	Height	Thk	Type	Material	FRAME – Frame Type	Material	DETAIL – Jamb	Head	Sill	STC	Glazing	Hardware Set	Fire Rating (Mins)	Comments	Rev No.
1.0 - FIRST FLOOR																			
	1000	A	3'-0"	3'-0"	7'-0"	2"	WSR	AL	CW07A	AL					ISG	3.0		RE-1, 7, 8, 26, 29	
	1000	B	3'-0"	3'-0"	7'-0"	2"	WSR	AL	CW07A	AL					ISG	2.0		RE-1, 7, 8, 26, 28, 29	
	1000	C	3'-0"	3'-0"	7'-0"	2"	BWSR	AL	ICW02	AL					BG	10.0		RE-1, 10, 25, 26	
	1000	D	3'-0"	3'-0"	7'-0"	2"	BWSR	AL	ICW02	AL					BG	9.0		RE-1, 10, 25, 26, 28	
	1002	A	3'-0"		7'-0"	1 3/4"	WSR	AL	ISF03	AL					TS	13.0		RE-4, 26	
	1002	B	3'-0"		7'-0"	1 3/4"	WSR	AL	ISF03	AL					TS	13.0		RE-4, 26	
	1003		4'-0"		4'-6"				PT	BR					BG			RE-4, 25, 30	
	1004		3'-0"		7'-0"	1 3/4"	N	WD	A	HM	5E/A620	5E/A620			TS	38.0			
	1006		3'-0"		7'-0"	1 3/4"	N	WD	A	HM	5E/A620	5E/A620			TS	41.0			
	1007		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30 & 40	LS-2	35.0		RE-16, 21: SIDELITE: RE-22	
	1009		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30 & 40	LS-2	38.0		RE-16, 21: SIDELITE: RE-22	
	1010		3'-0"		7'-0"	1 3/4"	WSR	AL	ISF02	AL					TS	13.0		RE-26	
	1012		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	1013		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30 & 40	LS-2	35.0		RE-16, 21: SIDELITE: RE-22	
	1014		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	35.0		RE-16, 21: SIDELITE: RE-22	
	1015		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30 & 40	LS-2	35.0		RE-16, 21: SIDELITE: RE-22	
	1016		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30 & 40	LS-2	35.0		RE-16, 21: SIDELITE: RE-22	
	1018		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				33.0		RE-15	
	1019		3'-0"		7'-0"	1 3/4"	WSR	AL	ISF02	AL					TS	13.0		RE-26	
	1020		3'-0"		7'-0"	1 3/4"	WSR	AL	ISF01	AL					TS	13.0		RE: 26	
	1021		3'-0"		7'-0"	1 3/4"	N	WD	A	HM	5E/A620	5E/A620			TS	38.0			
	1022		2'-6"	2'-6"	7'-0"	1 3/4"	BL	WD	A	HM	5E/A620	5E/A620				44.0			
	1023		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				38.0		RE-18	
	1024		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				38.0			
	1025		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	1028	A	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	AT1A	HM	5E/A620	5E/A620			TS	25.0		RE-5	
	1028	B	3'-0"	3'-0"	7'-2"	2"	WSR	AL	SF24	AL					ISG	5.0		RE-7, 8, 26, 28, 29	
	1029		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				30.0		RE:15	
	1030		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	1031		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	1032		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	1033		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620			TS	38.0			
	1034	A	3'-0"		7'-0"	1 3/4"	F	WD	AF2	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: RE-22	
	1034	B	3'-0"		7'-0"	1 3/4"	F	WD	AF2	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	39.0		RE-16, 21: SIDELITE: RE-22	
	1034	C	12'-0"		6'-0"				B3A	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	1036		3'-0"	3'-0"	7'-0"	1 3/4"	BL	WD	A	HM	5E/A620	5E/A620				44.0			
	1038	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: RE-22	
	1038	B	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620		40		36.0		RE-22	
	1038	C	12'-0"		4'-0"				B3B	HM	5D/A620	5D/A620		45	LS-3			RE-16, 23, 35	
	1038	D	12'-0"		4'-0"				B3B	HM	5D/A620	5D/A620			TS			RE-35	
	1039	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		40, 45	LS-2	38.0		RE-16, 22 - SIDELITE RE-23	
	1039	B	7'-6"		8'-0"		OH1	STL	OH1	STL	2D&2E/A512	4E/A521				46.0		RE-12	
	1039	C	3'-0"		7'-0"	1 3/4"	F	HM	A	HM	5E/A622	5D/A622	5C/A520			6.0		RE-7, 8, 9, 28	
	1039	D	12'-0"		4'-0"				B3B	HM	5D/A620	5D/A620		45	LS-3			RE-16, 23, 35	
	1040		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				31.0		RE-15	
	1041	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		40, 45	LS-2	38.0		RE-16, 22 - SIDELITE RE-23	
	1041	B	3'-0"		7'-0"	2"	WSR	AL	SF03	AL					ISG	1.0		RE-7, 8, 26, 28, 29	
	1041	C	6'-0"		6'-0"				B2	HM	5D/A620	5D/A620		45	LS-3			RE-16, 23, 35	
	1042		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				39.0		RE-15	
	1043		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				39.0		RE-15	
	1044		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				29.0		RE-15, 18	
	1046		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	2E/A620	2E/A620				33.0		RE-15, 18	
	1047		3'-0"	3'-0"	7'-0"	1 3/4"	F	HM	A2	HM	5E/A620	5E/A620				24.0	90	RE-15, 18, 21	
	1048		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	2E/A620	2E/A620		40		17.0	90	RE-15, 18, 22	
	1049		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	2E/A620	2E/A620				33.0		RE-15, 18	
	1050	A	3'-0"	3'-0"	7'-0"	1 3/4"	F	HM	A2	HM	5E/A622	5D/A622	5C/A520			7.0		RE-7, 8, 9, 28	
	1050	B	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	AT1A	HM	5E/A620	5E/A620			TS	25.0		RE-5	
	1051	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: RE-22	
	1051	B	6'-0"		4'-0"				B3C	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	1052		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	1055	A	3'-0"		7'-0"	1 3/4"	WSR	AL	ISF04	AL				30, 45	LS-3	13.0		RE-16, 21, 26: SIDELITE: RE-23, 26	
	1055	B	5'-0"		6'-0"				B1A	HM	5D/A620	5D/A620		45	LS-3			RE-23, 35	
	1055	C	5'-0"		6'-0"				B1A	HM	5D/A620	5D/A620		45	LS-3			RE-23, 35	
	1055	D	3'-0"	3'-0"	7'-0"	1 3/4"	WSR	AL	ISF05	AL				30, 45	LS-3	12.0		RE-16, 21, 26: SIDELITE: RE-23, 26	
	1057		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30	LS-2	38.0		RE-16, 21: SIDELITE: RE-22	
	1059		3'-0"		7'-0"	1 3/4"	F	WD	AF2	HM	5E & 5D/A620	5E & 5D/A620		40, 45	LS-3	40.0		RE-16, 22: SIDELITE RE-23	
	1060	A	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620		40		22.0	90	RE-17, 22	
	1060	B	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620		40		22.0	90	RE-17, 22	
	1061		3'-0"		7'-0"	1 3/4"	F	WD	AF2	HM	5E & 5D/A620	5E & 5D/A620		40, 45	LS-3	40.0		RE-16, 22: SIDELITE RE-23	
	1062		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				40.0		RE-15	
	1063		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		40, 45	LS-3	38.0		RE-16, 22: SIDELITE RE-23	
	1064	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2			RE-16, 21: SIDELITE: RE-22	
	1064	B	6'-0"		4'-0"				B3C	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	1065		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				31.0		RE-15	
	1066		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				33.0		RE-15	
	1068		3'-0"		7'-0"	1 3/4"	F	HM	A	HM	3E/A620	2D/A620				33.0		RE-15	
	1069		3'-6"		7'-0"	1 3/4"	F	HM	A	HM	3E/A620	2D/A620				16.0	90	RE-15	
	1070		3'-0"	3'-0"	7'-0"	1 3/4"	F	HM	A	HM	3E/A620	2D/A620				32.0	90	RE-15	
	1071	A	3'-0"		7'-0"	1 3/4"	F	HM	A	HM	3E/A620	2D/A620				27.0	90	RE-15	
	1071	B	3'-0"		7'-0"	1 3/4"	F	HM	A	HM	3E/A620	2D/A620				16.0			
	1072		3'-0"	3'-0"	7'-0"	1 3/4"	F	HM	A	HM	3E/A620	2D/A620				29.0		RE-15	
	1073	A	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				30.0		RE-15	
	1073	B	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				30.0	90	RE-15	
	1074		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	1075	A	3'-0"		7'-0"	1 3/4"	N	WD	A	HM	5E/A620	5E/A620			TS	38.0			
	1075	B	3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				38.0	90	RE-15	
	1077		3'-0"	2'-8"	7'-0"	1 3/4"	F	HM	A2	HM	5E/A622	5D/A622	5C/A520			8.0		RE-7, 8, 9, 28, 42	
	1078		3'-0"	2'-8"	7'-0"	1 3/4"	F	HM	A2	HM	5E/A622	5D/A622	5C/A520			8.0		RE-7, 8, 9, 42	
	1079		3'-0"	3'-0"	7'-0"	1 3/4"	F	HM	A2	HM	5E/A622	5D/A622	5C/A520			8.0		RE-7, 8, 9	
	1080	A	3'-0"	3'-0"	7'-0"	1 3/4"	F	HM	A2	HM	5E/A622	5D/A622	5C/A520			7.0		RE-7, 8, 9, 28	
	1080	B	3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620		40		38.0	90	RE-17, 22	
	1081		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	1082		3'-6"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				34.0		RE-15	
	1083		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				31.0		RE-15	
	1084	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620			TS	35.0			
	1084	B	3'-0"		4'-0"				B1B	HM	5D/A620	5D/A620			TS			RE-35	
	1085	A	12'-0"		10'-0"		OH2	AL	OH2	AL	2B/A620	3A/A211				45.0		RE-27, 31	
	1085	B	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				21.0			
	1085	C	12'-0"		10'-0"		OH2	AL	OH2	AL	2B/A620	3A/A211				45.0		RE-27, 31	
	1085	D	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				21.0			
	1085	E	3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				38.0			
	1086	A	3'-0"	3'-0"	7'-0"	2"	WSR	AL	ISF08	AL					TS	11.0		RE-26	
	1086	B	3'-0"	3'-0"	7'-0"	2"	WSR	AL	ISF08	AL					TS	11.0		RE-26	
	1086	C	14'-0"		11'-0"		OH3	AL	OH3	AL	1B/A620	2A/A211				45.0		RE-27, 31	
	1086	D	3'-0"	3'-0"	7'-0"	1 3/4"	F	HM	A2	HM	5E/A622	5D/A622	5C/A520			7.0		RE-7, 8, 9	
	1087		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	4E/A620	2D/A620	1E/A806			32.0		RE-15	
	1089		3'-0"		7'-0"	1 3/4"	F	WD	AS2	HM	4E/A620	2D/A620	1E/A806		LS-2	35.0			
	1090		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				42.0			
	1091		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				42.0			
	1092		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				34.0		RE-15	
	1093		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	AT1C	HM	5E/A620	5E/A620			LS-2	18.0			
	1094		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				42.0			
	1095		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				42.0			
	1096		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	1097		3'-0"		7'-0"	1 3/4"	F	WD	AS2	HM	4E/A620	2D/A620	1E/A806		LS-2	35.0			
	1099		3'-0"	3'-0"	7'-0"	1 3/4"	WSR	AL	ISF06	AL					LS-2	14.0			
	1100	A	3'-0"	3'-0"	7'-0"	1 3/4"	WSR	AL	ISF06	AL			1E/A806		LS-2	12.0			
	1100	B	3'-0 7/8"	3'-0 7/8"	7'-0"	2"	WSR	AL	CW01	AL					IFSG	5.0		RE-7, 8, 26, 29	
	1100	C	3'-0"	3'-0"	7'-0"	1 3/4"	F	HM	AT1	HM	5C/A622	5B/A622	5D/A520		IT	7.0		RE-7, 8, 9, 29	
	1102	A	3'-0"	3'-0"	7'-0"	2"	WSR	AL	CW03	AL					ISG	5.0		RE-1, 7, 8, 26, 28, 29	
	1102	B	3'-0"	3'-0"	7'-0"	2"	WSR	AL	CW03	AL					ISG	2.0		RE-1, 7, 8, 26, 29	
	1102	C	3'-0"	3'-0"	7'-0"	2"	WSR	AL	ICW01	AL					SG-1	9.0		RE-1, 26, 28, 29	
	1102	D	3'-0"	3'-0"	7'-0"	2"	WSR	AL	ICW01	AL					SG-1	9.0		RE-1, 26, 29	
	1103		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	1106		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				33.0		RE-15	
	1107		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				37.0	45	RE-15	
	1109	A	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620		40		20.0		RE-16, 22	
	1109	B	3'-6"	3'-6"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620		40		18.0		RE-16, 22	
	1109	C	12'-0"		4'-0"				B3C	HM	5D/A620	5D/A620		45	LS-3			RE-23, 35	
	1110		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620		40		40.0		RE-16, 22	
	1111		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				29.0		RE-15	
	1112	A	3'-6"	3'-6"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620		40		19.0		RE-16, RE-22	
	1112	B	3'-6"	3'-6"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620		40		18.0		RE-16, RE-22	
	1113		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				37.0	45	RE-15	
	1114		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				37.0	45	RE-15	
	1115	A	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	AT1A	HM	5E/A620	5E/A620			TS	25.0		RE-5	
	1115	B	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	AT1A	HM	5E/A620	5E/A620			TS	25.0		RE-5	
	1116	A	3'-0"		7'-0"	2"	WSR	AL	SF09	AL					IG	4.0		RE-7, 8, 26, 28	
	1116	B	3'-0"		7'-0"	2"	WSR	AL	SF11	AL					IG	4.0		RE-7, 8, 26, 28	
	1117	A	3'-0"		7'-0"	2"	WSR	AL	SF14	AL					IG	4.0		RE-7, 8, 26, 28	
	1117	B	3'-0"		7'-0"	2"	WSR	AL	SF13	AL					IG	4.0		RE-7, 8, 26, 28	

DOOR AND FRAME SCHEDULE

REFER TO FINISH PLANS AND A806 FOR THRESHOLD TRANSITION DETAILS, U.N.O.

NOTE: DOOR PANEL THICKNESS REVISED (1) — ST1-1 B

NOTE: DOOR PANEL THICKNESS AND NOTES REVISED (1) — 2000 A–D; 2070 A–D

Bldg	Room No.	Opng	DOOR – OPENING SIZE Width A	Width B	Height	Thk	Type	Material	FRAME – Frame Type	Material	DETAIL – Jamb	Head	Sill	STC	Glazing	Hardware Set	Fire Rating (Mins)	Comments	Rev No.
	1118	A	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620		40		20.0		RE-16, 22	
	1118	B	3'-6"	3'-6"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620		40		21.0		RE-16, 22	
	1118	C	12'-0"		4'-0"				B3C	HM	5D/A620	5D/A620		45	LS-3			RE-23, 35	
	1119		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620		40		40.0.		RE-16, 22	
	1120		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				31.0		RE-15	
	1122		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		40, 45	LS-3	40.0		RE-16, 22: SIDELITE RE-23	
	1123		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				29.0		RE-15	
	1124	A	3'-8"	3'-8"	7'-0"	1 3/4"	F	WD	AT1	HM	5E/A620	5E/A620			TS	25.0		RE-5	
	1124	B	3'-8"	3'-8"	7'-0"	1 3/4"	F	WD	AT1	HM	5E/A620	5E/A620			TS	23.0		RE-5	
	1125	A	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620		40		20.0		RE-16, 22	
	1125	B	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620		40		28.0		RE-16, 22	
	1126	A	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620		40		.20.0		RE-16, 22	
	1126	B	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620		40		28.0		RE-16, 22	
	1128	A	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A2	HM	2D/A540	2D/A540		40		23.0		RE-16, 22	
	1128	B	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620		40		23.0		RE-16, 22	
	1129	A	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A2	HM	2D/A540	2D/A540		40		23.0		RE-16, 22	
	1129	B	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620		40		23.0		RE-16, 22	
	ST1-1	A	3'-0"	3'-0"	7'-0"	1 3/4"	F	HM	A2	HM	5E/A620	5E/A620				24.0	90	RE-15, 18	
	ST1-1	B	3'-7"	3'-7"	7'-0"	2"	WSR	AL	SF25	AL					ISG	5.0		RE-7, 8, 26, 29	
	ST2-1	A	3'-0"		7'-0"	1 3/4"	F	HM	A	HM	2E/A620	2E/A620				27.0	90	RE-15	
	ST2-1	B	3'-7"	3'-7"	7'-0"	1 3/4"	F	HM	A2	HM	5E/A622	5D/A622	5C/A520			8.0		RE-7, 8, 9	
2.0 - SECOND FLOOR																			
	2000	A	3'-0"	3'-0"	7'-0"	2"	WSR	AL	SF20	AL					ISG	5.0		RE-7, 8, 26, 28	
	2000	B	3'-0"	3'-0"	7'-0"	2"	WSR	AL	SF20	AL					ISG	5.0		RE-7, 8, 26, 28	
	2000	C	3'-0"	3'-0"	7'-2"	2"	WSR	AL	ISF07	AL					ISG	15.0		RE-7, 8, 26, 29	
	2000	D	3'-0"	3'-0"	7'-2"	2"	WSR	AL	ISF07	AL					ISG	15.0		RE-7, 8, 26, 29	
	2002		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: RE-22	
	2003	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: RE-22	
	2003	B	6'-8"		4'-0"				B3C	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2005	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2005	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2006	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: 22	
	2006	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2007	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1B	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2007	B	3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A514	5E/A514		40		38.0		RE-16, 22	
	2008	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620			TS	38.0			
	2008	B	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620			TS	38.0			
	2009		3'-0"		7'-0"	1 3/4"	F	WD	AF1B	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2010	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2010	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2011	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: 22	
	2011	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2013		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2014	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: 22	
	2014	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2015		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2016		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2017	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2017	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2018	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2018	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2019	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: 22	
	2019	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2020		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	AT1B	HM	5E/A620	5E/A620			TS	25.0		RE-5	
	2022		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				31.0		RE-15	
	2023		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	2024		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				34.0		RE-15	
	2025		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	2026		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				30.0		RE-15	
	2028		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: RE-22	
	2029		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: RE-22	
	2030	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	35.0		RE-16, 21: SIDELITE: RE-22	
	2030	B	6'-8"		4'-0"				B3C	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2031		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	35.0		RE-16, 21: SIDELITE: RE-22	
	2032		3'-0"		7'-0"	1 3/4"	F	WD	AF2	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: RE-22	
	2039	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2			RE-16, 21: SIDELITE: 22	
	2039	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2040	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: 22	
	2040	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2041	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2041	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2042	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2042	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2043	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2043	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2044	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: 22	
	2044	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2046	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2046	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2047	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: 22	
	2047	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2048	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1B	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2048	B	3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A514	5E/A514		40		38.0		RE-16, 22	
	2049	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620			TS	38.0			
	2049	B	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620			TS	38.0			
	2050	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1B	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2051	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2051	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2052	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: 22	
	2052	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2054	A	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	AT1B	HM	5E/A620	5E/A620			TS	25.0		RE-5	
	2054	B	3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	AT1B	HM	5E/A620	5E/A620			TS	25.0		RE-5	
	2056		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				30.0		RE-15	
	2057		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	2058		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				34.0		RE-15	
	2059		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	2060		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				30.0		RE-15	
	2062		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620			LS-2	40.0		RE-16, 21: SIDELITE: 22	
	2063		3'-0"		7'-0"	1 3/4"	F	WD	AF2A	HM	5E & 5D/A620	5E & 5D/A620			TS	39.0			
	2064		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620			TS	35.0			
	2065	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620			TS	35.0			
	2065	B	6'-8"		4'-0"				BF3	HM	5D/A620	5D/A620			TS			RE-35	
	2070	A	3'-0"	3'-0"	7'-2"	2"	WSR	AL	CW09	AL					ISG	5.0		RE-7, 8, 26, 29	
	2070	B	3'-0"	3'-0"	7'-2"	2"	WSR	AL	CW09	AL					ISG	5.0		RE-7, 8, 26, 29	
	2070	C	3'-0"	3'-0"	7'-2"	2"	WSR	AL	ISF07	AL					ISG	15.0		RE-7, 8, 26, 29	
	2070	D	3'-0"	3'-0"	7'-2"	2"	WSR	AL	ISF07	AL					ISG	15.0		RE-7, 8, 26, 29	
	2072		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				33.0	90	RE-15	
	2073	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620			TS	38.0			
	2073	B	6'-8"		4'-0"				BF3	HM	5D/A620	5D/A620			TS			RE-35	
	2074		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620			TS	35.0			
	2075	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: RE-22	
	2075	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2076	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: RE-22	
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	2077	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: RE-22	
	2077	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2078		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: RE-22	
	2079		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: RE-22	
	2080	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: RE-22	
	2080	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2081		3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: RE-22	
	2083	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: RE-22	
	2083	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2084	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: RE-22	
	2084	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2085	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1B	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: RE-22	
	2085	B	3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A514	5E/A514		40		38.0		RE-16, 22	
	2086	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620			TS	38.0			
	2086	B	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620			TS	38.0			
	2087		3'-0"		7'-0"	1 3/4"	F	WD	AF1B	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: RE-22	
	2088	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	40.0		RE-16, 21: SIDELITE: RE-22	
	2088	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2089	A	3'-0"		7'-0"	1 3/4"	F	WD	AF1A	HM	5E & 5D/A620	5E & 5D/A620		30, 40	LS-2	38.0		RE-16, 21: SIDELITE: RE-22	
	2089	B	4'-6"		3'-2"				B2B	HM	5D/A620	5D/A620		40	LS-2			RE-22, 35	
	2091		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	AT1B	HM	5E/A620	5E/A620			TS	25.0		RE-5	
	2093		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				31.0		RE-15	
	2094		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	2095		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				33.0		RE-15	
	2096		3'-0"		7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				43.0			
	2097		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A	HM	5E/A620	5E/A620				30.0		RE-15	
	ST1-2		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620				26.0	90	RE-15, 18	
	ST2-2		3'-0"	3'-0"	7'-0"	1 3/4"	F	WD	A2	HM	5E/A620	5E/A620				26.0	90	RE-15, 18	

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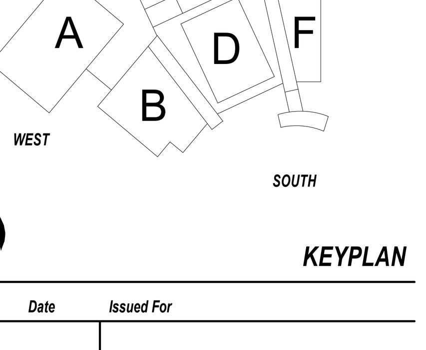
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Checked: JZ

Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane,
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N



KEYPLAN

Number	Date	Issued For
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	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

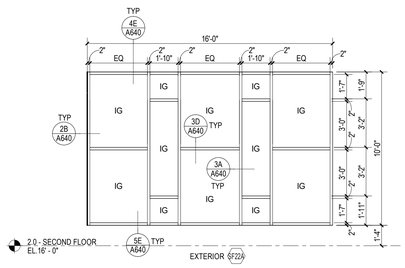
DOOR SCHEDULE

Date: 07/08/2024
Scale:
Proj. Number: 22367.00
Drawing Number: A611

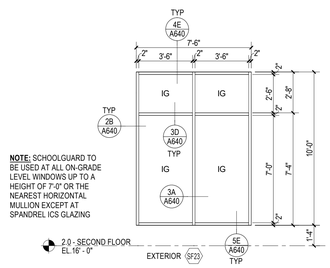
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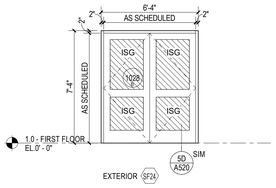


1A SF22A, SF22B
1/4" = 1'-0"
NOTE: SF22B TO HAVE LAMINATE GLAZING

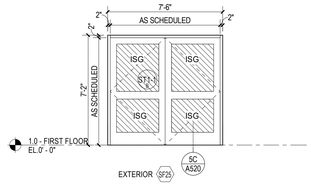


NOTE: SCHOOLGUARD TO BE USED AT ALL ON-GRADE LEVEL WINDOWS UP TO A HEIGHT OF 7'-0" OR THE NEAREST HORIZONTAL MULLION EXCEPT AT SPANDREL ICS GLAZING

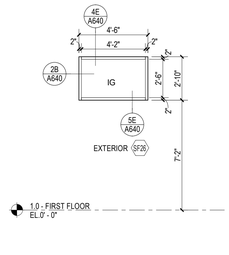
2A SF23
1/4" = 1'-0"



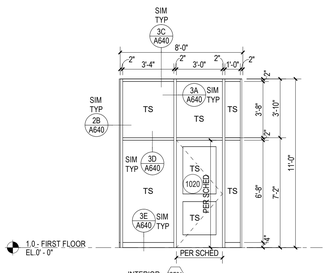
3A SF24
1/4" = 1'-0"



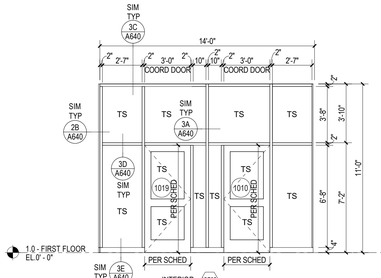
4A SF25
1/4" = 1'-0"



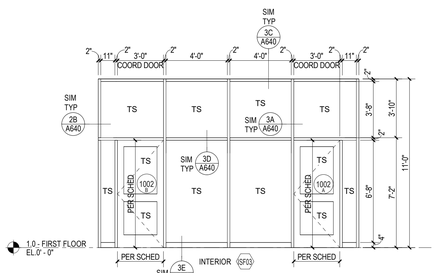
5A SF26
1/4" = 1'-0"



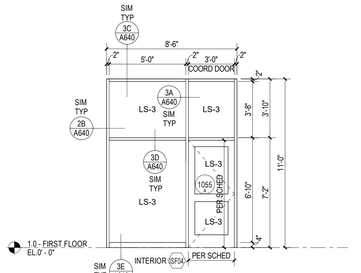
1B ISF01
1/4" = 1'-0"



2B ISF02
1/4" = 1'-0"



3B ISF03
1/4" = 1'-0"

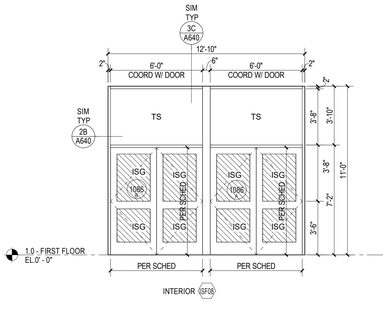


4B ISF04
1/4" = 1'-0"

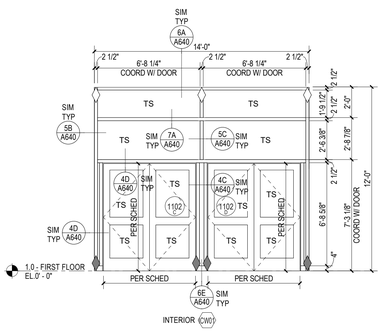
1C ISF05
1/4" = 1'-0"

2C ISF06
1/4" = 1'-0"

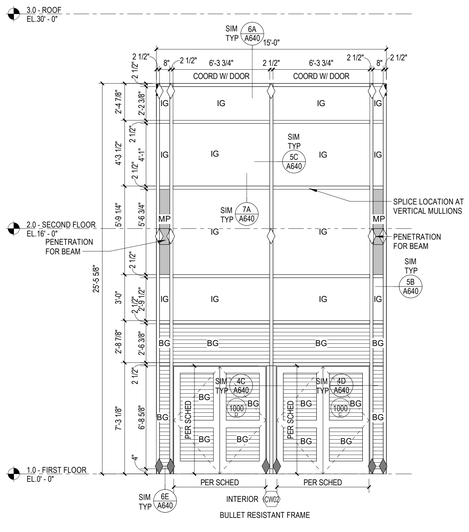
3C ISF07
1/4" = 1'-0"



1E ISF08
1/4" = 1'-0"



2E ICW01
1/4" = 1'-0"



3E ICW02
1/4" = 1'-0"

LEGEND

- CURTAINWALL WINDLOAD ANCHOR
- CURTAINWALL DEADLOAD ANCHOR
- IG-1 GLASS TYPE - SEE A610

GENERAL NOTES

1. OVERALL FRAME DIMENSIONS ARE NOMINAL FRAME DIMENSIONS. COORDINATE ACTUAL FRAME DIMENSIONS - THEY MUST BE CALCULATED BASED ON ROUGH OPENING/MASONRY OPENING SIZES AND PERIMETER SEALANT/SHIM SIZES SHOWN IN TYPICAL ALUMINUM FRAME DETAILS. COORDINATE ALSO WITH ALUMINUM PLATE TRIM PROFILES WHERE OCCURRING.
2. FRAME DEPTH DIMENSIONS PROVIDED ARE BASIS OF DESIGN. DELEGATED DESIGN ENGINEER RESPONSIBLE FOR ANY STEEL REINFORCEMENT OR HEAVY-WALL FRAMES NEEDED TO MEET WIND LOADING CRITERIA. FRAME DEPTHS ARE NOT TO BE INCREASED WITHOUT SPECIFIC PERMISSION BY ARCHITECT.
3. ALL FRAMES DEADLOAD IN BUILDING STRUCTURE (FOUNDATION, SLAB, STEEL FRAMING, CFMF STUD FRAMING, ETC.) UNLESS OTHERWISE NOTED.
4. REFER TO SHEET A640 FOR TYPICAL ALUMINUM FRAME DETAILS. REFER TO WALL SECTIONS, PLAN DETAILS, ENLARGED SECTION DETAILS REFERENCED ELSEWHERE IN THIS PROJECT FOR SPECIFIC WINDOW / WALL ARRANGEMENT.
5. REFER TO DETAIL 4A/A640 FOR VERTICAL CURTAINWALL MULLION NOTCH AT HEAD AND SILL HORIZONTAL CURTAINWALL MULLIONS TO FACILITATE THE AVB TIE-IN INTO GLAZING POCKET. TYPICAL WHERE VERTICAL CURTAINWALL MULLIONS INTERSECT HEAD AND SILL HORIZONTAL MULLIONS.
6. ALIGN ALUM. PLATE SILL JOINTS WITH VERTICAL MULLIONS, TYP.

GLAZING GRAPHIC LEGEND (EXT.)

- ICS - INSULATED COATED SPANDREL GLAZING (PROVIDE FRICTION FIT MINERAL WOOL INSULATION AT ALL SPANDREL GLAZING)
- IG - INSULATED CLEAR GLAZING
- ISG - INSULATED SECURITY GLAZING (SCHOOLGUARD)
- IFG - INSULATED FROSTED GLAZING
- IT - INSULATED TEMPERED SAFETY GLASS
- BG - INSULATED BALLISTIC LEVEL 3 GLAZING
- IFSG - INSULATED FROSTED SAFETY GLASS
- + IL + - INSULATED LAMINATED GLAZING

REFER TO A610 FOR OTHER GLAZING TYPES

CONTRACTOR NOTE:

ALL FIBER CEMENT PANEL DIMENSIONS ARE NOMINAL DIMENSIONS. ACTUAL DIMENSIONS MAY VARY PER MFR. STANDARDS. CONTRACTOR/ CM TO COORDINATE ACTUAL DIMENSIONS WITH OVERALL LAYOUT OF REVEALS, MOVEMENT JOINTS AND C/W/ SF ROUGH OPENINGS SHOWN ON A310 SERIES ELEVATIONS AND "AL" SERIES DIMENSION PLANS. CONTRACTOR/ CM TO COORDINATE WITH CFMF SUB-CONTRACTOR. C/W/SF SUB-CONTRACTOR AND FIBER CEMENT PANEL SUB-CONTRACTOR TO ENSURE PROPER NOMINAL DIMENSIONAL LAYOUT.

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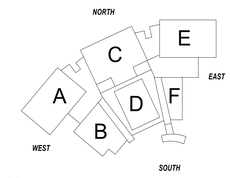
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Checked: JZ

Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane,
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N



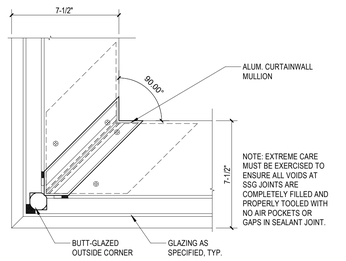
KEYPLAN

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	07/08/2024	PHASE 2

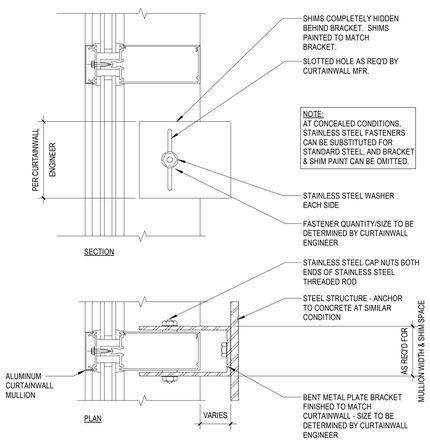
ALUMINUM FRAME ELEVATIONS - CURTAIN WALLS AND STOREFRONTS

Date: 07/08/2024
Scale: As indicated
Proj. Number: 22367.00
Drawing Number: A632

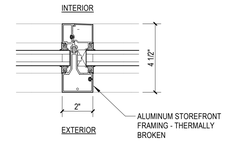
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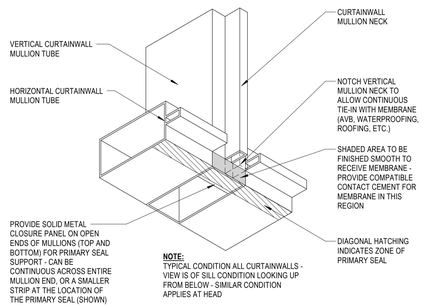
1A CW BUTT-GLAZED CORNER DETAIL - 90 DEGREES
3" = 1'-0"



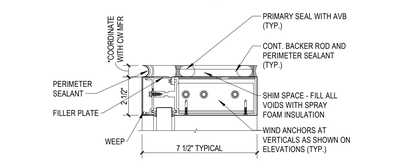
2A TYPICAL CURTAINWALL WINDLOAD ANCHOR
3" = 1'-0"



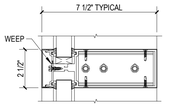
3A STOREFRONT TYPICAL VERTICAL MULLION
3" = 1'-0"



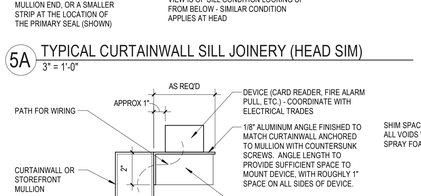
5A TYPICAL CURTAINWALL SILL JOINERY (HEAD SIM)
3" = 1'-0"



6A CW TYPICAL HEAD DETAIL
3" = 1'-0"

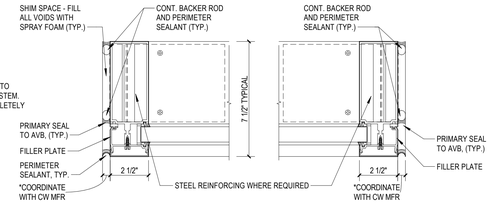


7A CW TYPICAL HORIZONTAL MULLION DETAIL
3" = 1'-0"

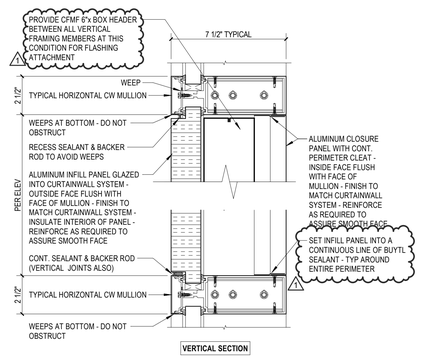


4A STOREFRONT 90 DEGREE OUTSIDE CORNER MULLION
3" = 1'-0"

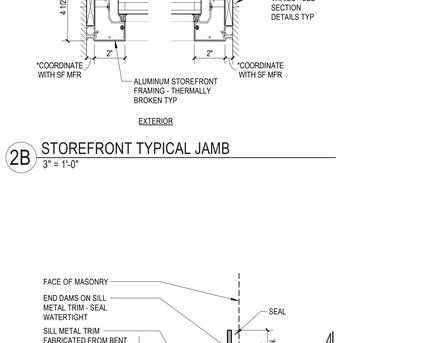
DEVICES MOUNTED ON INTERIOR OF CURTAINWALL



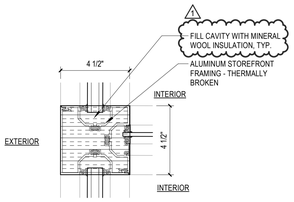
5B CW TYPICAL JAMB DETAIL
3" = 1'-0"



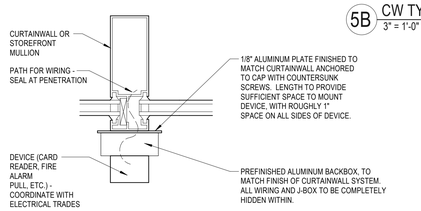
1C CW TYPICAL METAL INFILL PANEL DETAIL
3" = 1'-0"



2B STOREFRONT TYPICAL JAMB
3" = 1'-0"

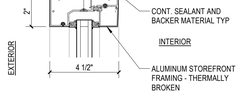


3B STOREFRONT 90 DEGREE CORNER 3-WAY
3" = 1'-0"

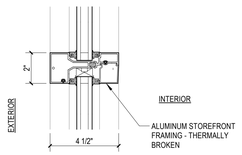


DEVICES MOUNTED ON EXTERIOR OF CURTAINWALL

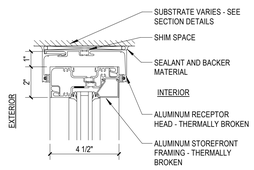
4B TYPICAL CURTAINWALL MULLION WITH DEVICE
3" = 1'-0"



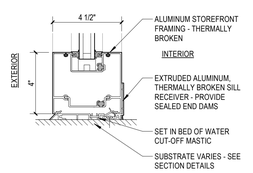
3C STOREFRONT TYPICAL HEAD
3" = 1'-0"



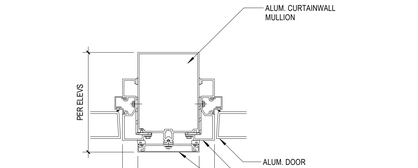
3D STOREFRONT TYPICAL HORIZONTAL MULLION
3" = 1'-0"



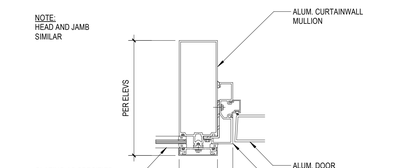
4E TYPICAL STOREFRONT RECEPTOR HEAD
3" = 1'-0" NOTE: TYP. AT ALL SECOND FLOOR STOREFRONTS



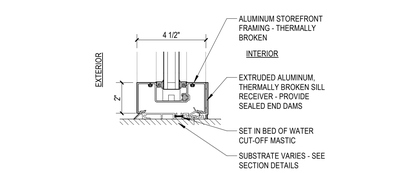
3E TYPICAL STOREFRONT EXTERIOR SILL - 4" HEIGHT
3" = 1'-0"



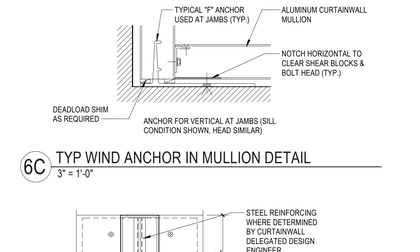
4C TYPICAL CURTAINWALL MULLION BTWN DOORS
3" = 1'-0"



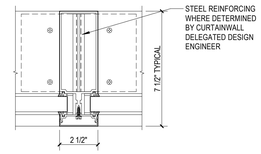
4D TYPICAL CURTAINWALL MULLION @ DOOR
3" = 1'-0"



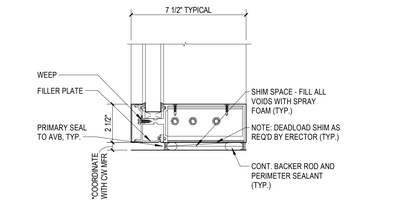
5E TYPICAL STOREFRONT EXTERIOR SILL - 2" HEIGHT
3" = 1'-0"



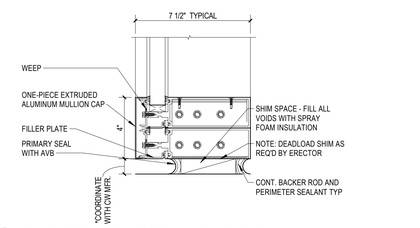
6C TYP WIND ANCHOR IN MULLION DETAIL
3" = 1'-0"



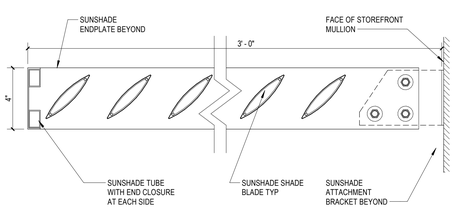
5C CW TYPICAL VERTICAL MULLION DETAIL
3" = 1'-0"



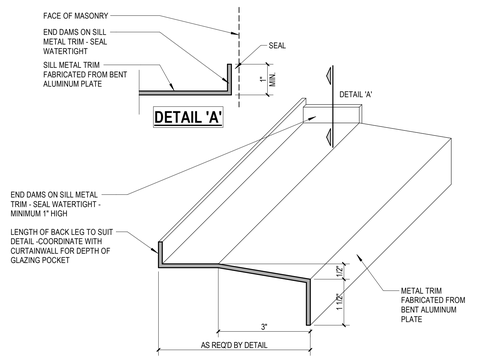
5D CW TYPICAL SILL DETAIL
3" = 1'-0"



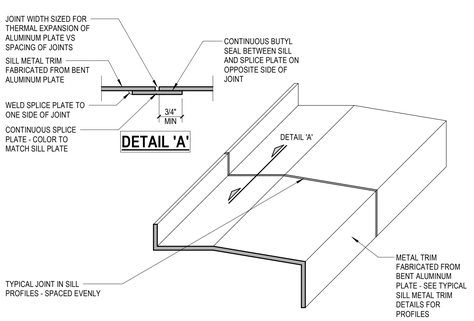
6E CW TYPICAL SILL DETAIL - 4" HEIGHT
3" = 1'-0"



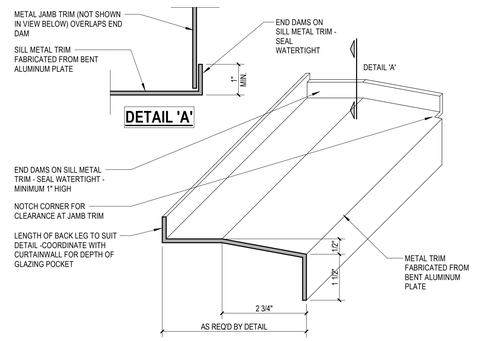
1D STOREFRONT HORIZONTAL SUNSHADE
3" = 1'-0"



2D TYPICAL SILL METAL TRIM DETAIL - MASONRY
6" = 1'-0"



1E TYPICAL SILL METAL TRIM JOINT DETAIL
6" = 1'-0"



2E TYPICAL SILL METAL TRIM DETAIL - FORMED METAL PANEL SYSTEM
6" = 1'-0"

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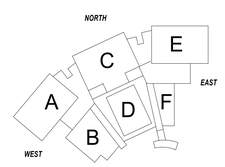
Drawn
JP, JZ
Checked
JZ

Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane,
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N



KEYPLAN

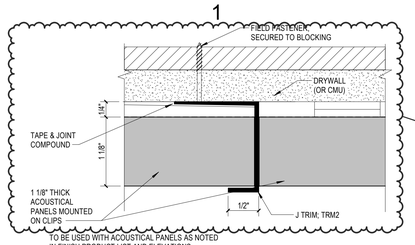
Number	Date	Issued For
1	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

TYPICAL ALUMINUM FRAME DETAILS

Date
07/08/2024
Scale
As indicated
Proj. Number
22367.00

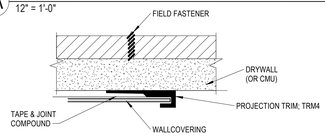
Drawing Number
A640

Autodesk Docs://22367.00 - Greenwich Central Middle School/A_22367_GREENWICH_CENTRAL_MS_R22.rvt
10/30/2024 3:40:57 PM



TO BE USED WITH ACOUSTICAL PANELS AS NOTED IN FINISH PRODUCT LIST AND ELEVATIONS

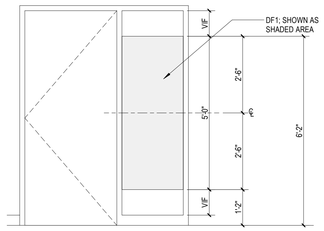
1A TRIM AT CAFETERIA ACOUSTICAL PANELS
12" = 1'-0"



TO BE USED WHERE EDGE OF WALLCOVERING IS EXPOSED

1B TYPICAL EXPOSED EDGE TRIM AT WALLCOVERING
12" = 1'-0"

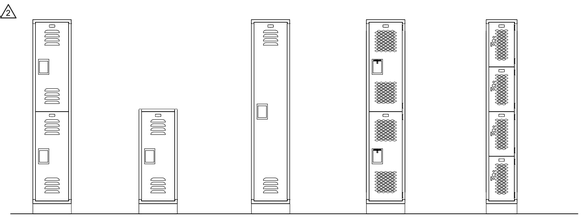
NOTE:
TYPICAL DECORATIVE FILM INSTALLATION AT SIDELITES. TO BE INSTALLED ON THE INTERIOR SIDE (NOT CORRIDOR SIDE) OF EACH ROOM, CENTERED VERTICALLY ON THE SIDELITE, DIMENSIONS TO BE V.I.F



1C TYPICAL DECORATIVE FILM INSTALL
1/2" = 1'-0"

LOCKER TYPE ELEVATION LEGEND:

NOTES:
PROVIDE 4" ZEE BASE AT ALL LOCKER LOCATIONS
PROVIDE FLAT TOPS AT ALL LOCKERS THROUGHOUT
REEFER TO ELEVATIONS FOR ACCENT PAINT COLOR DESIGNATIONS FOR 2ND FLOOR LOCKERS



TYPE: A
12"w X 18"d X 72"h
- DOUBLE TIER
- METAL LOCKER
(TYP. STUDENT)

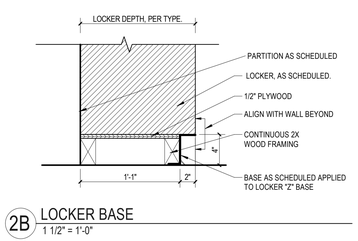
TYPE: B
12"w X 18"d X 41"h
- SINGLE TIER
- S.S COUNTER ON TOP
(TYP. STUDENT)

TYPE: C
18"w X 18"d X 72"h
- SINGLE TIER
- METAL LOCKER
(TYP. CUSTODIAN)

TYPE: D
12"w X 18"d X 72"h
- DOUBLE TIER
- METAL LOCKER
(P.E./ATHLETICS LOCKER RM.)

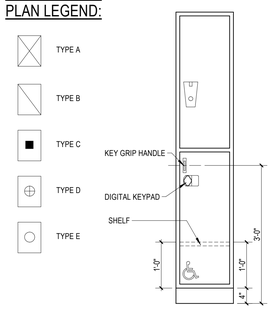
TYPE: E
12"w X 18"d X 72"h
- FOUR TIER
- METAL LOCKER
(P.E./ATHLETICS LOCKER RM.)

LOCKER TYPE LEGEND
1/2" = 1'-0"



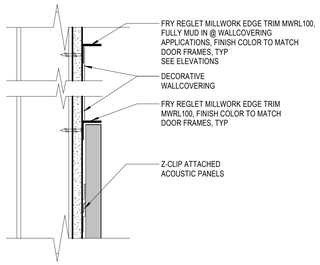
2B LOCKER BASE
1 1/2" = 1'-0"

LOCKER TYPE PLAN LEGEND:

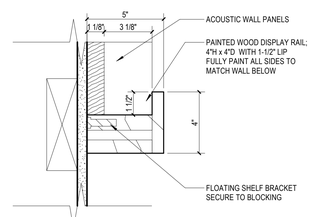


NOTE: PROVIDE AT 5% OF EACH LOCKER TYPE; SEE INTERIOR ELEVATIONS FOR LOCATIONS

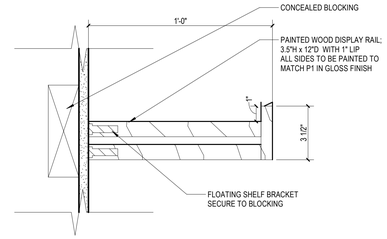
3A ADA LOCKER
3/4" = 1'-0"



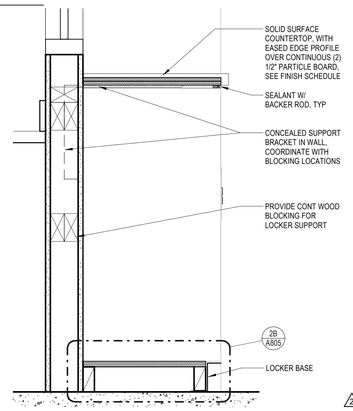
3B INT. DETAIL - ACOUSTIC WALL PANEL
3" = 1'-0"



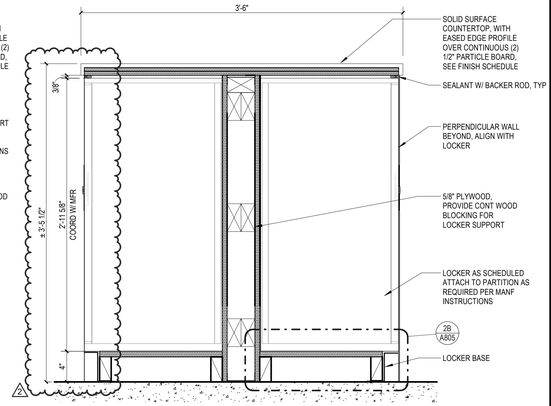
4A MILLWORK - WOOD RAIL
3" = 1'-0"



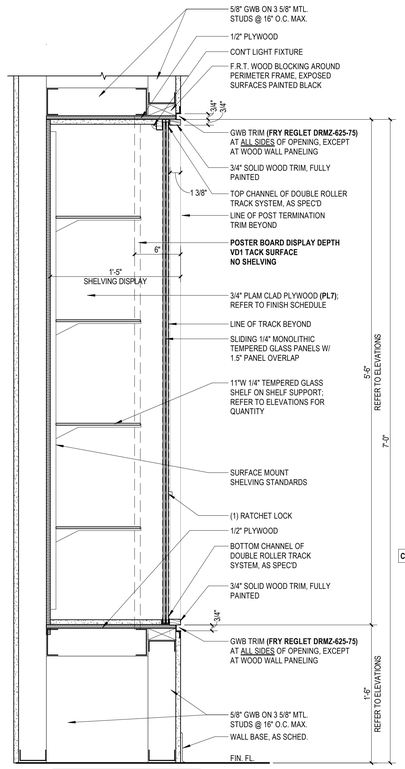
5A MILLWORK - DISPLAY SHELF
3" = 1'-0"



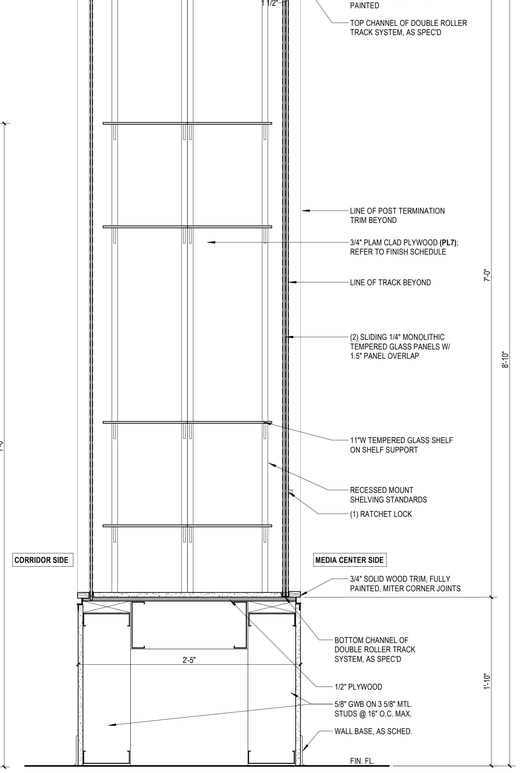
4B LOCKERS AT LOW COUNTER
1 1/2" = 1'-0"



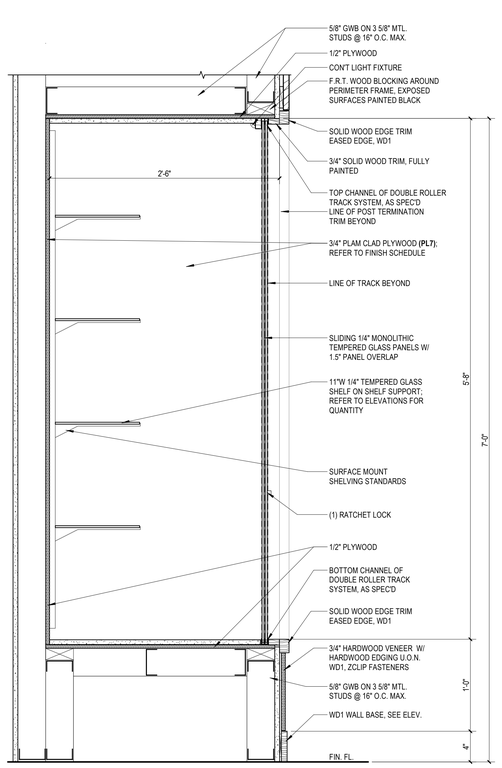
5B LOCKERS AT LOW WALL AND COUNTERTOP
1 1/2" = 1'-0"



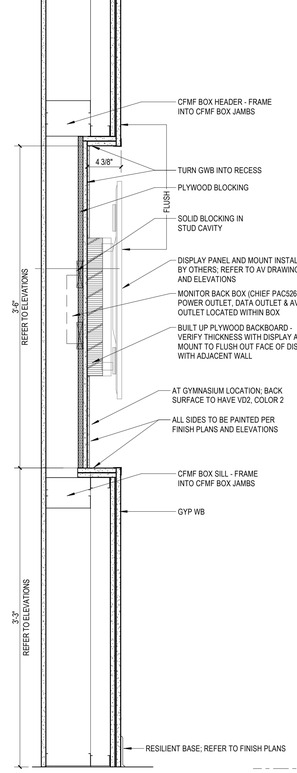
1E RECESSED DISPLAY CASE
1 1/2" = 1'-0"



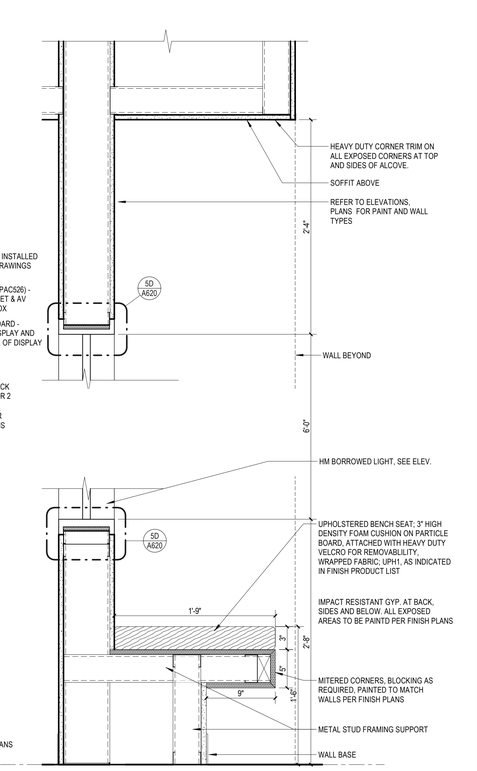
2E RECESSED DISPLAY CASE DBL SIDED SECTION DETAIL
1 1/2" = 1'-0"



3E RECESSED DISPLAY CASE SINGLE SIDED
1 1/2" = 1'-0"



4E RECESSED MONITOR
1 1/2" = 1'-0"



5E BUILT-IN BENCH SEAT
1 1/2" = 1'-0"

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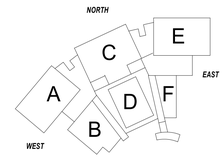
Drawn: AHS, CP
Checked: JZ

Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane,
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N



KEYPLAN

Number	Date	Issued For
2	10/30/2024	ADDENDUM NO. 4
1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING PERMIT
	07/08/2024	PHASE 2

INTERIOR DETAILS

Date: 07/08/2024
Scale: As indicated
Proj. Number: 22367.00
Drawing Number: A805

Autodesk Docs://22367.00 - Greenwich Central Middle School/A_22367_GREENWICH_CENTRAL_MS_R22.rvt
10/30/2024 3:41:05 PM

KEYNOTES - MECHANICAL	
Key Value	Keynote Text
M4	WALKIN REFRIGERATOR & FREEZER CONDENSING UNITS TO BE MOUNTED ON ROOF. MOUNT A MINIMUM OF 14" ABOVE THE ROOF AND ANCHOR SUPPORT STANDS TO THE ROOF STRUCTURAL SUPPORTS. ROUTE REFRIGERANT TO AND FROM THE WALKIN UNITS AND VERIFY EXACT ROUTING IN FIELD. REFER TO THE FOOD SERVICE CONSULTANT DRAWINGS FOR REFRIGERANT PIPE SIZES AND UNIT INFORMATION.
M10	PROVIDE INSULATION ON DUCTWORK PENETRATING THE ROOF UP TO THE ATTACHEMENT TO THE PLENUM BOX AND FOR A MINIMUM OF 4'-0" BELOW THE ROOF DECK INTERIOR OF THE BUILDING. REFER TO SPECIFICATIONS FOR INSULATION REQUIREMENTS.



1 MECHANICAL ROOF FLOOR PLAN - A
1/8" = 1'-0"

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Drawn: LAE
Checked: BH

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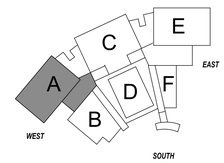
Greenwich Public Schools

Greenwich Central Middle School

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NORTH



KEYPLAN

Number	Date	Issued For
3	10/30/2024	ADDENDUM NO. 4
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	07/08/2024	PHASE 2

MECHANICAL ROOF PLAN - PART A

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00
Drawing Number: M103A

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1 MECHANICAL ROOF FLOOR PLAN - B
1/8" = 1'-0"

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SOUTH
WEST
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	07/08/2024	PHASE 2

MECHANICAL ROOF PLAN - PART B

Date
07/08/2024
Scale
1/8" = 1'-0"
Proj. Number
22367.00

Drawing Number
M103B

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KEYNOTES - MECHANICAL	
Key Value	Keynote Text
M10	PROVIDE INSULATION ON DUCTWORK PENETRATING THE ROOF UP TO THE ATTACHEMENT TO THE PLENUM BOX AND FOR A MINIMUM OF 4'-0" BELOW THE ROOF DECK INTERIOR OF THE BUILDING. REFER TO SPECIFICATIONS FOR INSULATION REQUIREMENTS.
M11	PROVIDE DUCT SLEEVE WHERE DUCT PENETRATES THE EXTERIOR WALL



1 MECHANICAL ROOF FLOOR PLAN - C
1/8" = 1'-0"

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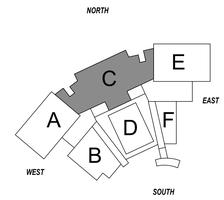
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	07/08/2024	PHASE 2

MECHANICAL ROOF PLAN - PART C

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00

Drawing Number: M103C

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KEYNOTES - MECHANICAL	
Key Value	Keynote Text
M11	PROVIDE DUCT SLEEVE WHERE DUCT PENETRATES THE EXTERIOR WALL.



1 MECHANICAL ROOF FLOOR PLAN - D
1/8" = 1'-0"

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EAST
SOUTH
WEST

KEYPLAN

Number	Date	Issued For
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	07/08/2024	PHASE 2

MECHANICAL ROOF PLAN - PART D

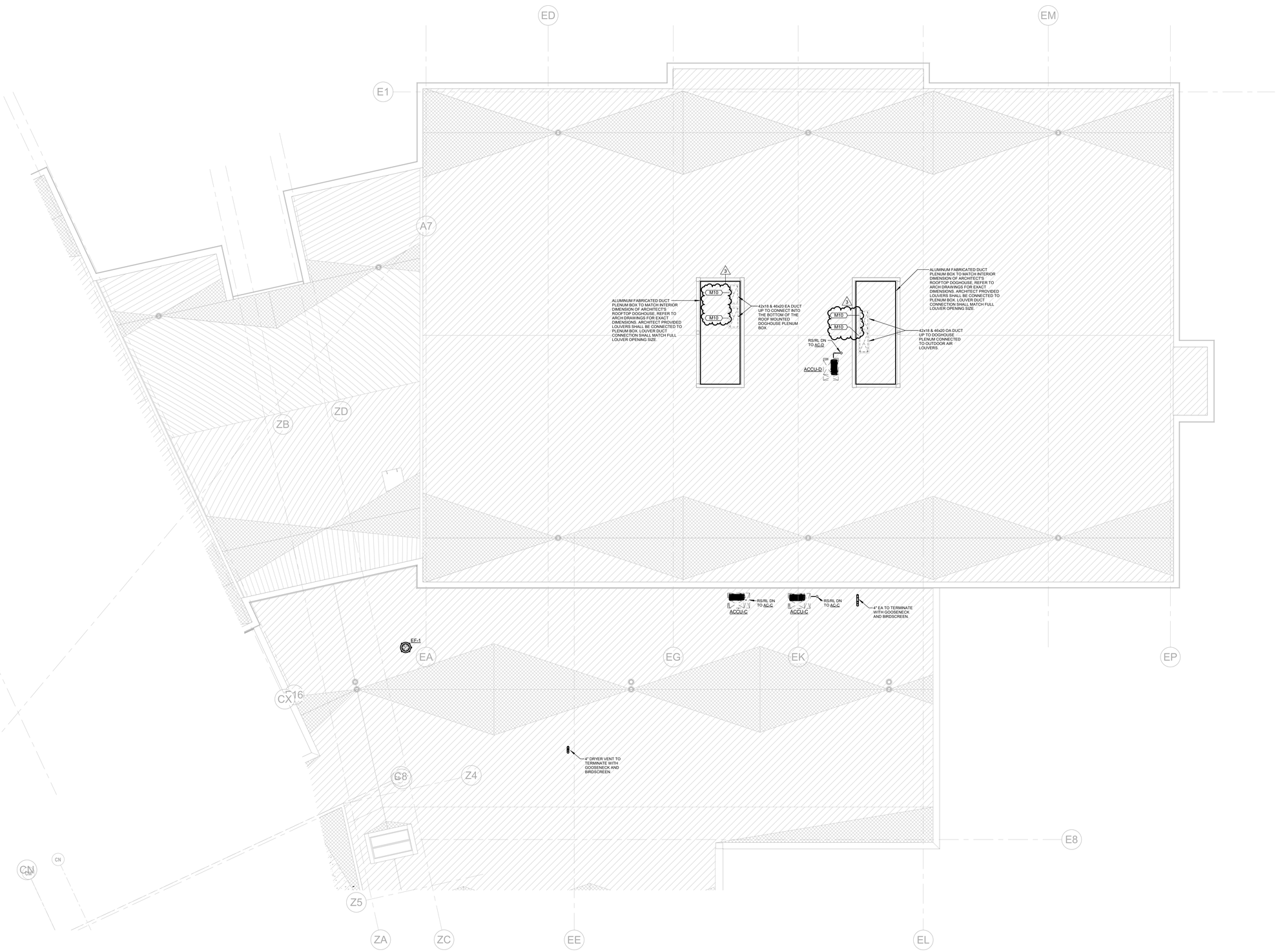
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Drawing Number: M103D

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3

KEYNOTES - MECHANICAL	
Key Value	Keynote Text
M10	PROVIDE INSULATION ON DUCTWORK PENETRATING THE ROOF UP TO THE ATTACHEMENT TO THE PLENUM BOX AND FOR A MINIMUM OF 4'-0" BELOW THE ROOF DECK INTERIOR OF THE BUILDING. REFER TO SPECIFICATIONS FOR INSULATION REQUIREMENTS.



1 MECHANICAL ROOF FLOOR PLAN - E
1/8" = 1'-0"

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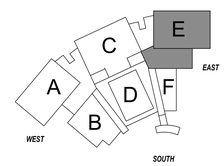
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KEYPLAN

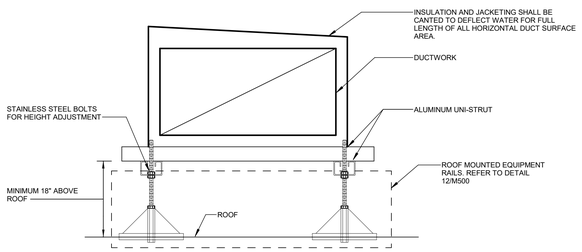
Number	Date	Issued For
3	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING/PERMIT
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MECHANICAL ROOF PLAN - PART E

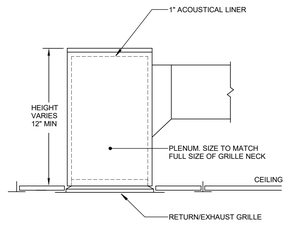
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Drawing Number: M103E

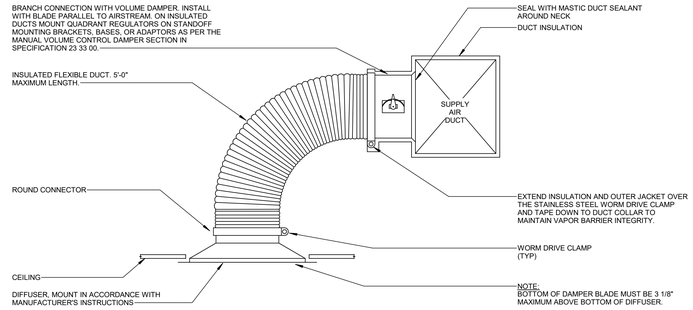
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9 ROOF MOUNTED DUCT SUPPORT DETAIL
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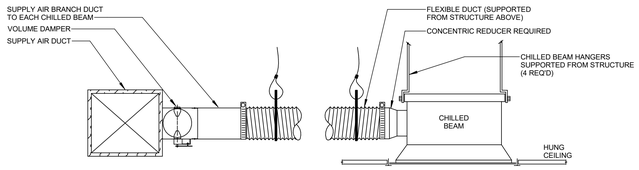


4 TYPICAL RETURN AIR / EXHAUST AIR GRILLE PLENUM DETAIL
NTS



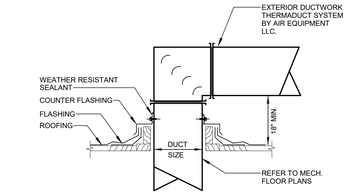
NOTES:
1. SUPPORT FLEXIBLE DUCT FROM STRUCTURE AS SPECIFIED. DUCT SHALL NOT KINK, SAG OR REST ON LIGHT FIXTURES, CEILING SUPPORT TEES OR TILE.
2. PROVIDE REGULATORS WHERE VOLUME DAMPER IS ACCESSIBLE.
3. IN UNCONDITIONED CEILING PLENUMS, INSULATE BACK OF DIFFUSER WITH 1" DUCT WRAP AND SEAL WITH VAPOR BARRIER TAPE.

1 DIFFUSER WITH FLEX DUCT DETAIL
NTS

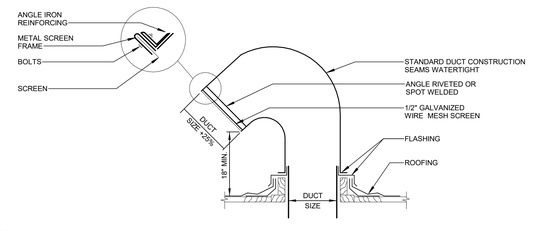


NOTE: REFER TO SCHEDULE FOR SUPPLY BRANCH DUCT SIZES.

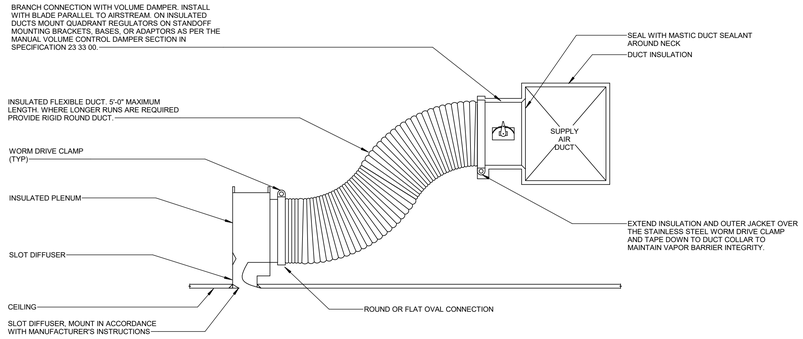
5 CHILLED BEAM DUCT CONNECTION DETAIL
NTS



10 EXTERIOR DUCT ROOF PENETRATION DETAIL
NTS

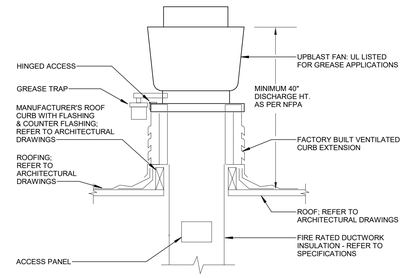


6 GOOSE NECK DETAIL
NTS

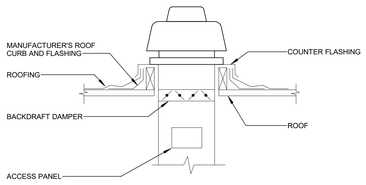


NOTES:
1. ALL INTERIOR EXPOSED SURFACES OF SLOT DIFFUSER/PLENUM ARE TO BE PAINTED FLAT BLACK.
2. SUPPORT FLEXIBLE DUCT FROM STRUCTURE AS SPECIFIED. DUCT SHALL NOT KINK, SAG OR REST ON LIGHT FIXTURES, CEILING SUPPORT TEES OR TILE.
3. PROVIDE REMOTELY ACTIVATED VOLUME DAMPER WHERE VOLUME DAMPER IS INACCESSIBLE. VOLUME DAMPER IS TO BE ADJUSTED THROUGH FACE OF THE DIFFUSER.

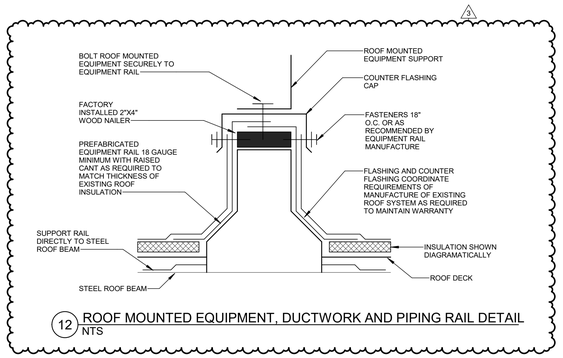
2 DIFFUSER WITH FLEX DUCT DETAIL
NTS



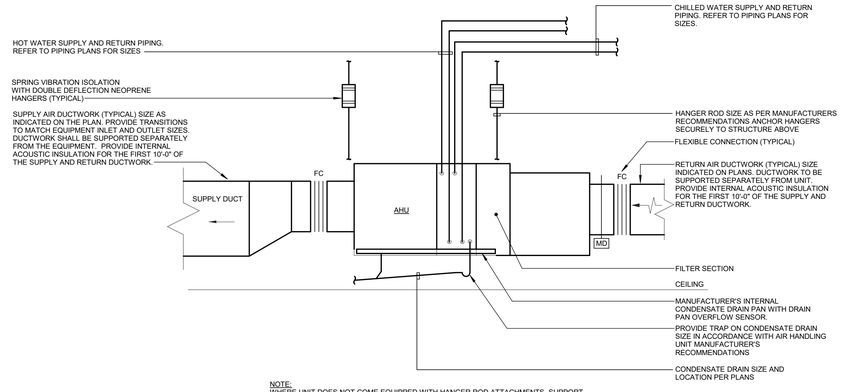
11 UPBLAST FAN DETAIL FOR KITCHEN EXHAUST (KHEF-1)
NTS



7 ROOF MOUNTED FAN DETAIL
NTS

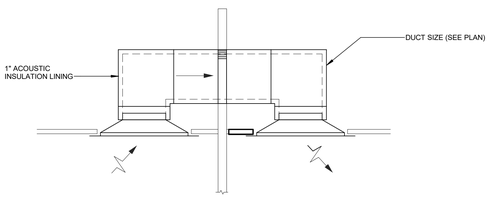


12 ROOF MOUNTED EQUIPMENT, DUCTWORK AND PIPING RAIL DETAIL
NTS

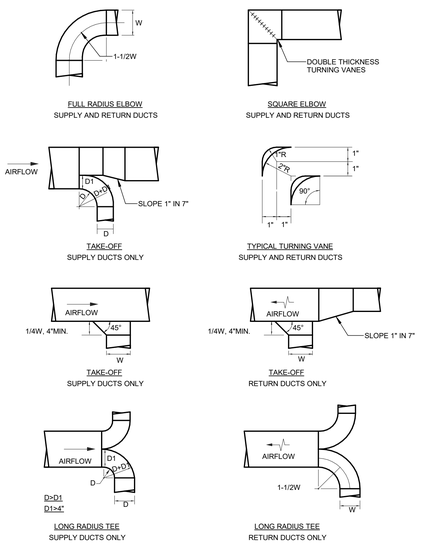


NOTE:
WHERE UNIT DOES NOT COME EQUIPPED WITH HANGER ROD ATTACHMENTS, SUPPORT ON UNISTRUT CHANNELS. PROVIDE NEOPRENE PADS BETWEEN CHANNEL AND EQUIPMENT. SIZE CHANNEL IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS

8 HORIZONTAL / SUSPENDED AIR HANDLING UNIT DETAIL
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13 TRANSFER DUCT DETAIL
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3 TYPICAL DUCT DETAILS
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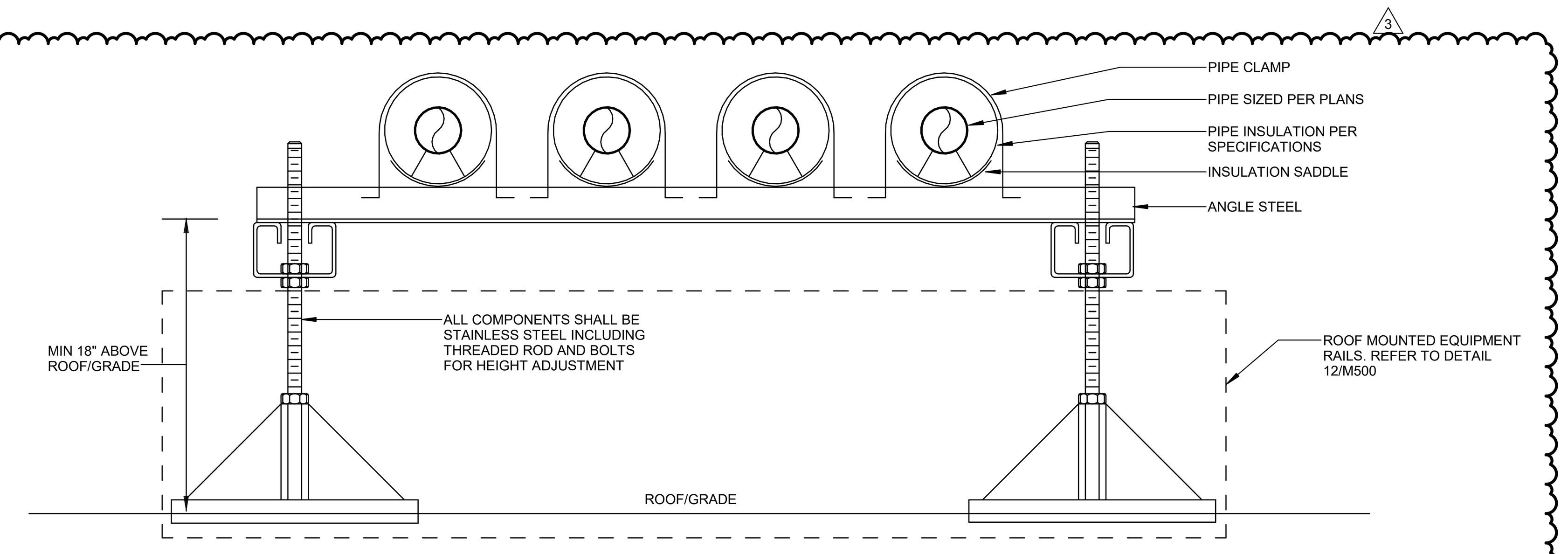
KEYPLAN

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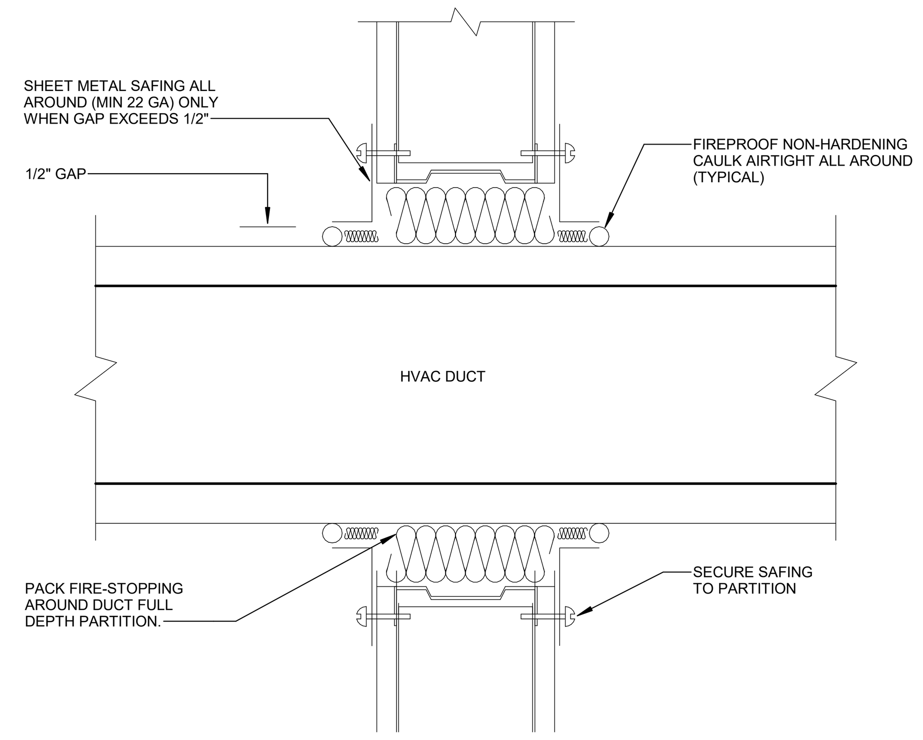
MECHANICAL DETAILS

Date: 07/08/2024
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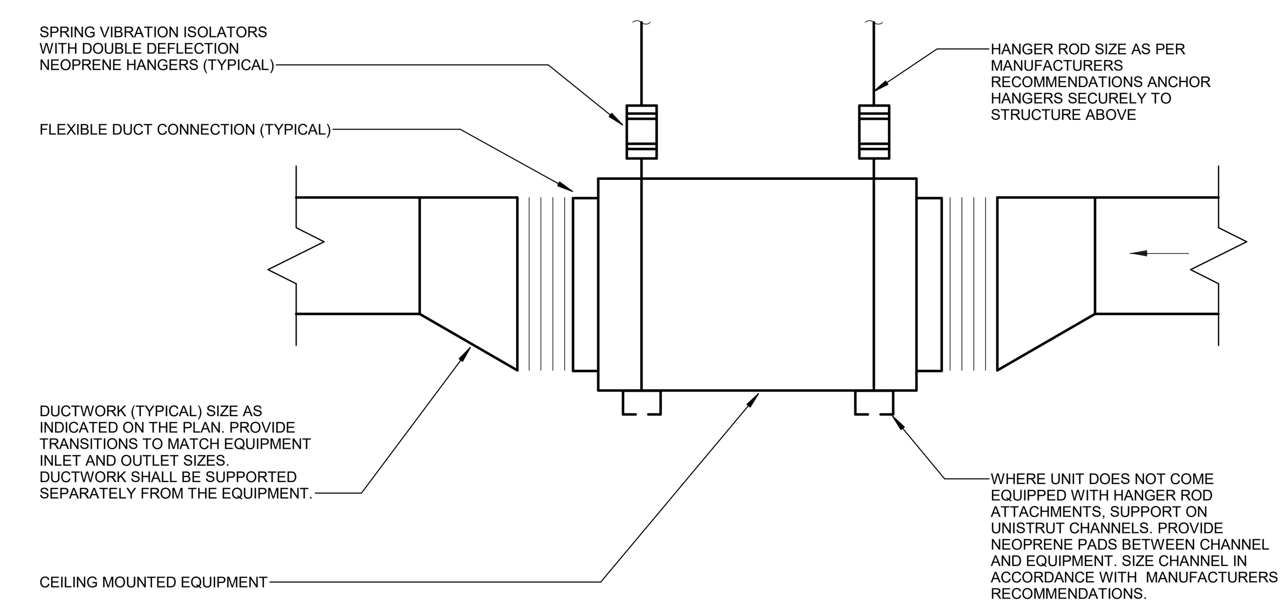
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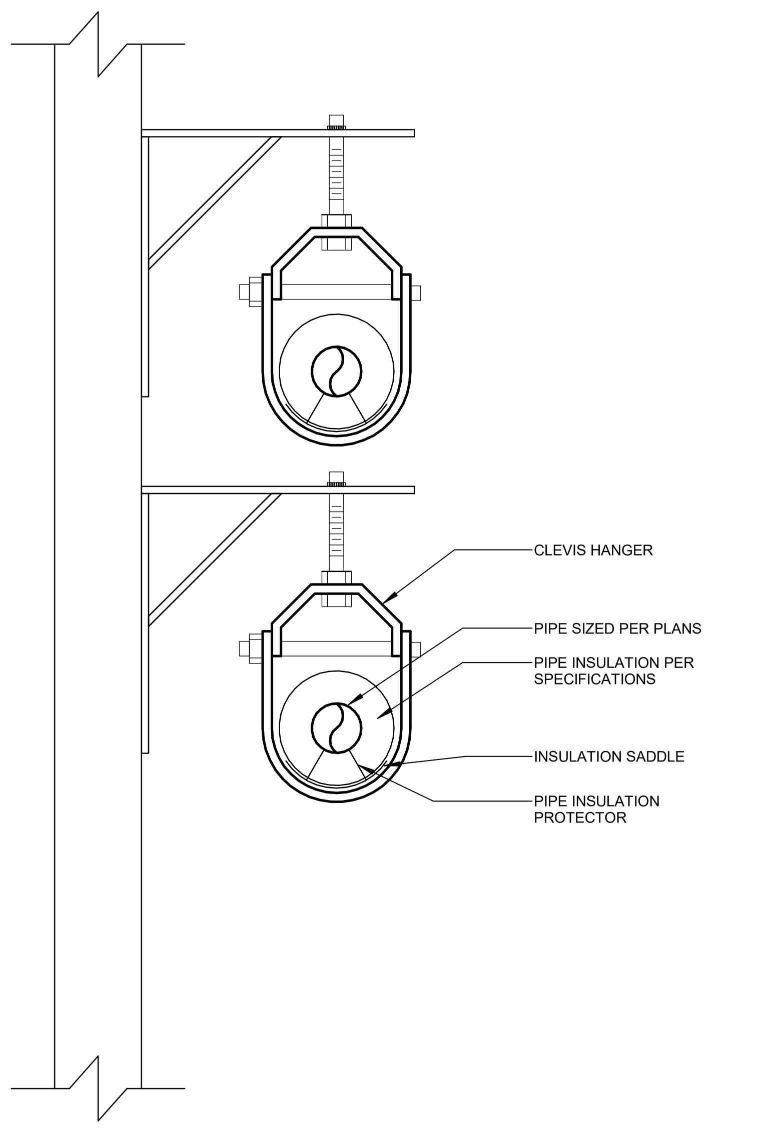
9 PIPE SUPPORTS
NTS



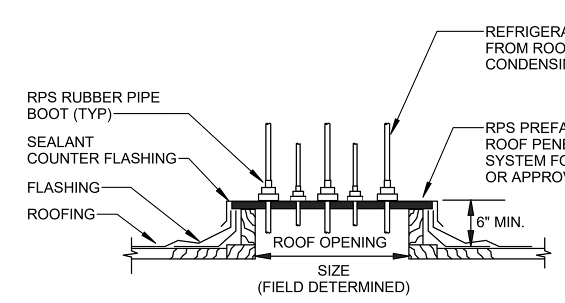
5 DUCT PENETRATION OF WALL/SLAB DETAIL
NTS



1 SUSPENDED IN-LINE FAN
NTS

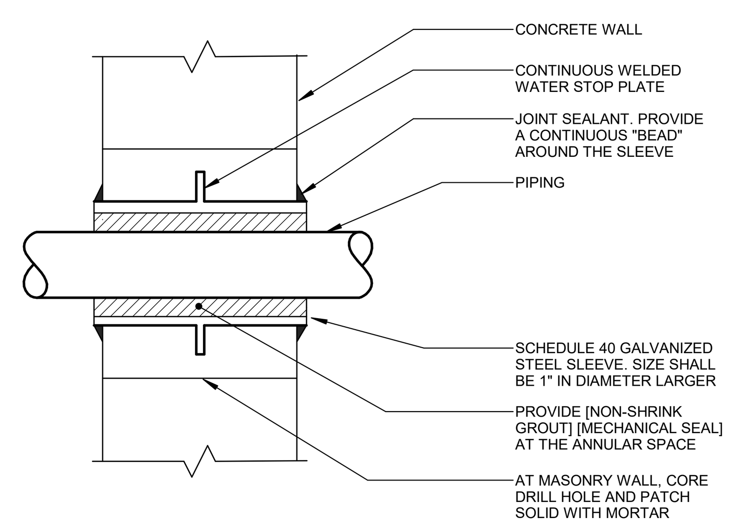


10 DETAIL - PIPE HANGING DETAIL - WALL
NTS

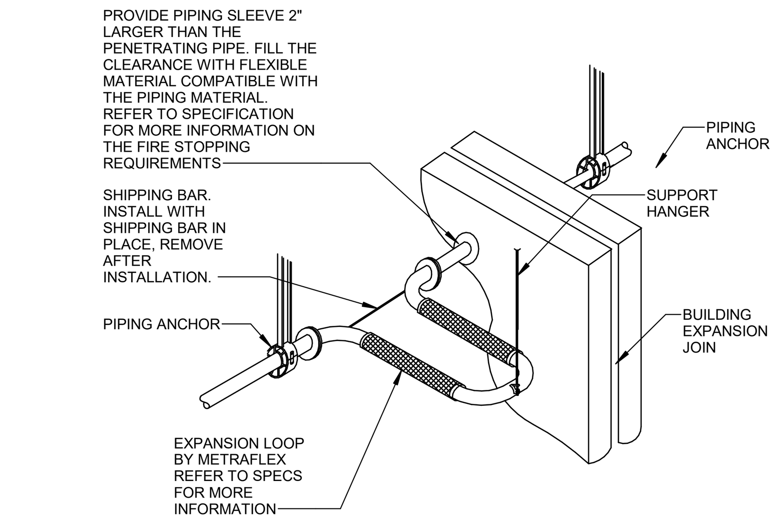


NOTE:
NUMBER OF REFRIG. PIPES VARY PER ROOF PENETRATION;
REFER TO RISER DIAGRAMS FOR PIPING & SIZES

11 PIPE PENETRATION DETAIL - THROUGH ROOF
NTS

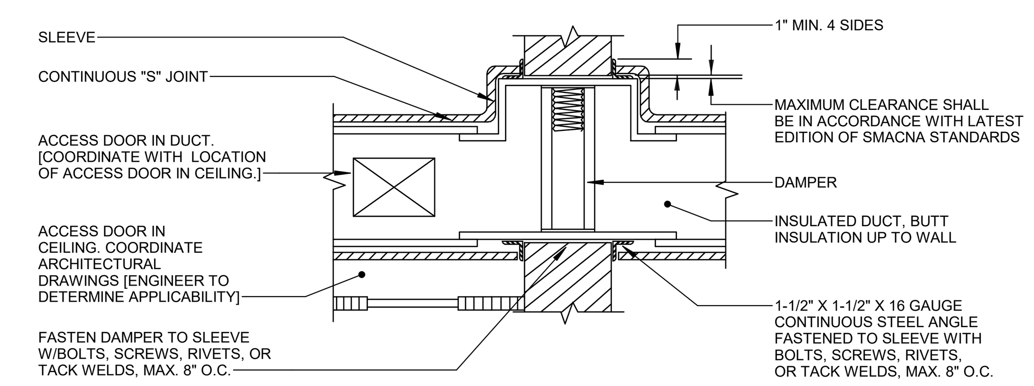


6 FOUNDATION WALL PENETRATION DETAIL
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GENERAL NOTES:
1. INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. INSTALL ARMAFLEX INSULATION ON BRAIDED FLEXIBLE CONNECTIONS. INSULATE REMAINING PIPING AS INDICATED IN THE SPECIFICATIONS.

2 TYPICAL SEISMIC SEPARATION JOINT PIPING DETAIL (COPPER PIPING)
NTS

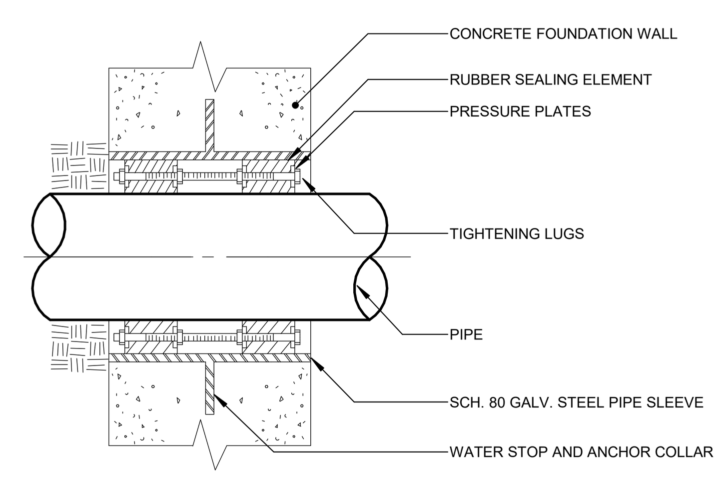


NOTES:
1. DAMPER STYLE & SLEEVE CONFIGURATION IS GOVERNED BY MAINTAINING A MAX. .06 STATIC PRESSURE @ 2500 F.P.M. FACE VELOCITY.
2. DEPTH OF DAMPER TO BE COORDINATED WITH WALL THICKNESS.
3. INSTALLATIONS & MATERIALS PER U.L. 555.

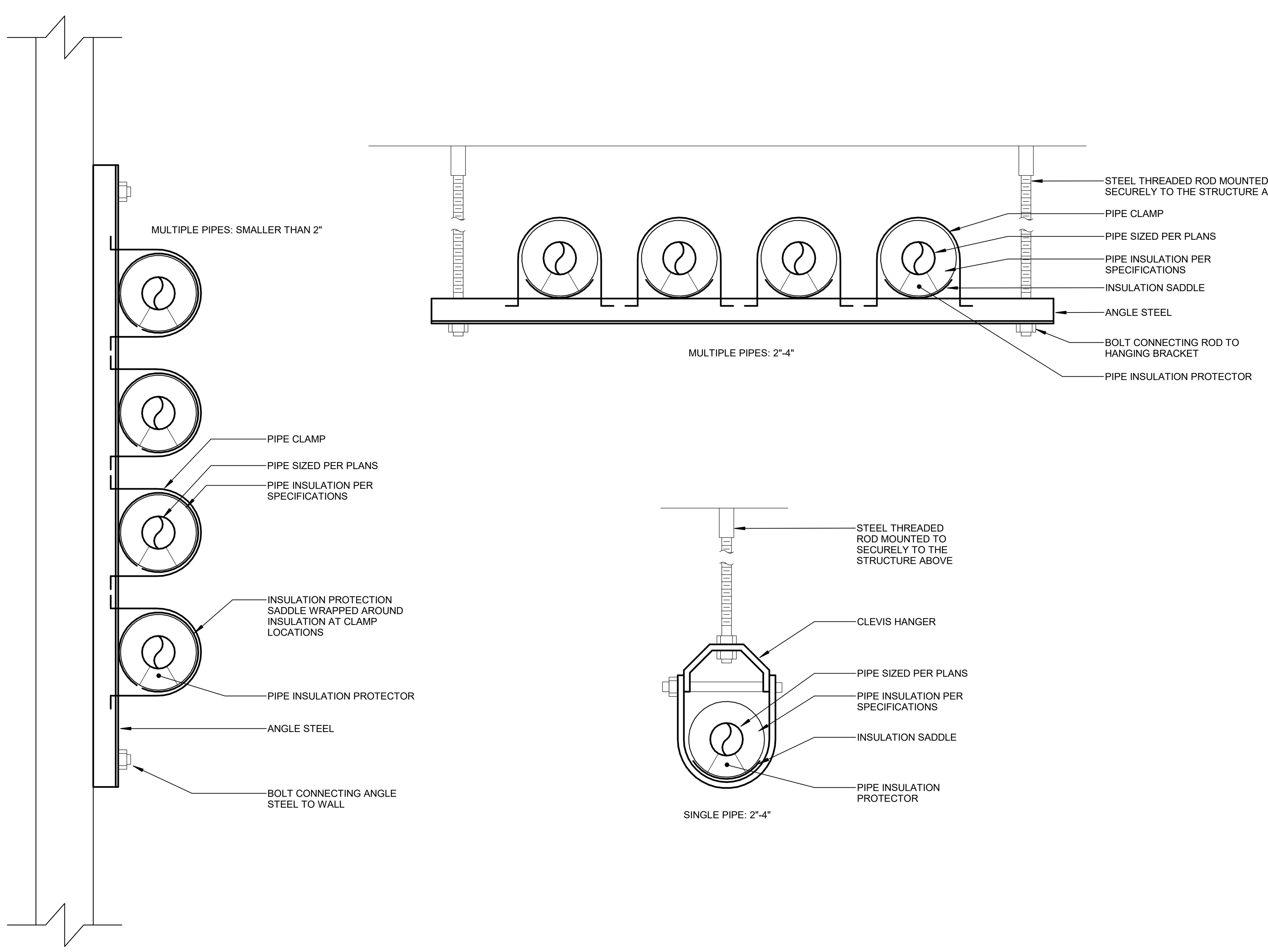
FIRE DAMPER NOTE

PROVIDE FIRE DAMPERS (,COMBINATION FIRE AND SMOKE DAMPERS) (AND SMOKE DAMPERS) AT ALL LOCATIONS WHERE DUCTS AND OUTLETS PASS THROUGH FIRE RATED COMPONENTS, WHERE INDICATED ON CONTRACT DOCUMENTS, AND WHERE REQUIRED BY AUTHORITIES HAVING JURISDICTION. INSTALL WITH REQUIRED PERIMETER MOUNTING ANGLES, SLEEVES, BREAKAWAY DUCT CONNECTIONS, CORROSION RESISTANT SPRINGS, BEARINGS, BUSHINGS AND HINGES.

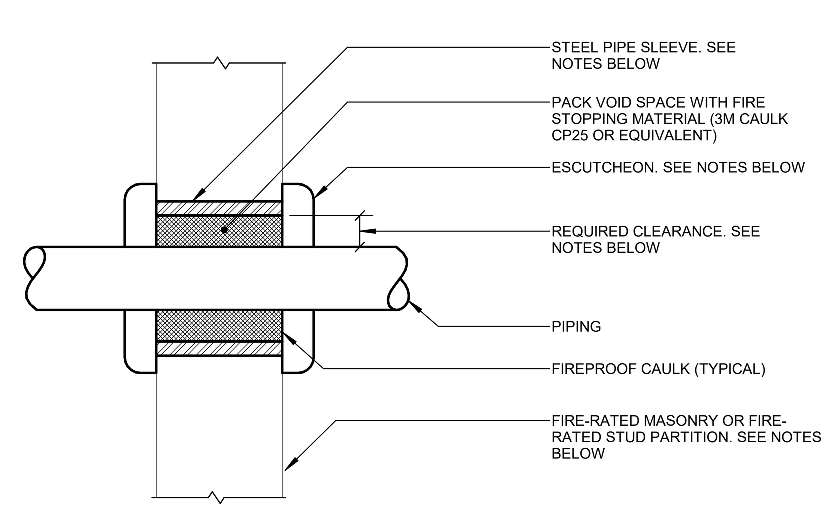
3 FIRE DAMPER DETAIL - HORIZONTAL
NTS



7 PIPE THROUGH EXTERIOR WALL DETAIL
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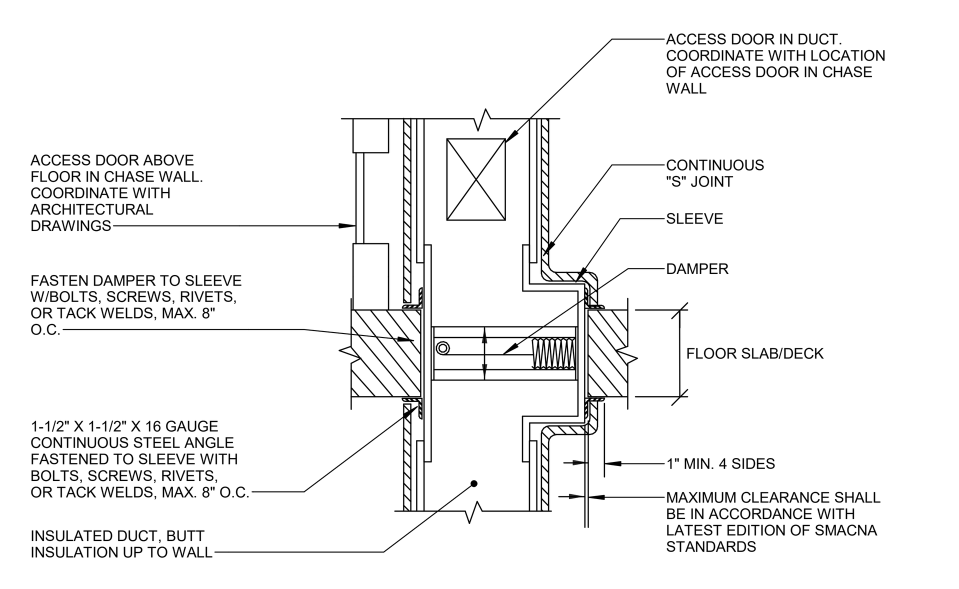


12 PIPE HANGER DETAIL
NTS



NOTES :
1. PIPE SLEEVES
   A. PIPE SLEEVES THROUGH FIRE-RATED MASONRY PARTITIONS OR FOUNDATION WALLS SHALL BE SCHEDULE 40 BLACK STEEL WITH MAXIMUM OF 1/2" CLEARANCE BETWEEN SLEEVE AND PIPE. SLEEVE SHALL BE EQUAL IN LENGTH TO DEPTH OF PARTITION OR WALL.
   B. PIPE SLEEVES THROUGH FIRE-RATED STUD PARTITIONS SHALL BE #18 GAUGE GALVANIZED STEEL WITH MAXIMUM OF 1" CLEARANCE BETWEEN SLEEVE AND PIPE. SLEEVE SHALL BE EQUAL IN LENGTH TO DEPTH OF PARTITION.
2. ESCUTCHEONS
   A. ESCUTCHEONS IN FINISHED SPACES SHALL BE ANODIZED ALUMINUM OR CHROME-PLATED BRASS.
   B. ESCUTCHEONS IN UNFINISHED SPACES SHALL BE PLAIN BRASS, ALUMINUM, GALVANIZED STEEL OR CAST IRON.
   C. ESCUTCHEONS SHALL BE HELD IN PLACE BY INTERNAL SPRING TENSION OR SET SCREW.

8 PIPE PENETRATION OF FIRE-RATED WALL DETAIL
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NOTES:
1. DAMPER STYLE & SLEEVE CONFIGURATION IS GOVERNED BY MAINTAINING A MAX. .06 STATIC PRESSURE @ 2500 F.P.M. FACE VELOCITY.
2. DEPTH OF DAMPER TO BE COORDINATED WITH WALL THICKNESS.
3. INSTALLATIONS & MATERIALS PER U.L. 555.

FIRE DAMPER NOTE

PROVIDE FIRE DAMPERS (,COMBINATION FIRE AND SMOKE DAMPERS) (AND SMOKE DAMPERS) AT ALL LOCATIONS WHERE DUCTS AND OUTLETS PASS THROUGH FIRE RATED COMPONENTS, WHERE INDICATED ON CONTRACT DOCUMENTS, AND WHERE REQUIRED BY AUTHORITIES HAVING JURISDICTION. INSTALL WITH REQUIRED PERIMETER MOUNTING ANGLES, SLEEVES, BREAKAWAY DUCT CONNECTIONS, CORROSION RESISTANT SPRINGS, BEARINGS, BUSHINGS AND HINGES.

4 FIRE DAMPER DETAIL - VERTICAL
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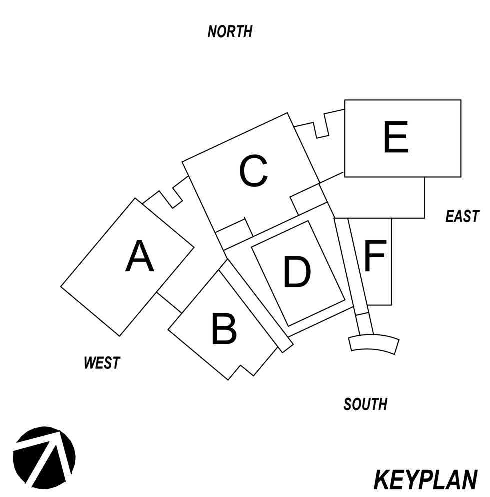
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MECHANICAL DETAILS

Date 07/08/2024
Scale As indicated
Proj. Number 22367.00
Drawing Number **M501**

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ELECTRICAL ABBREVIATIONS

A/AMP	AMPERE
AC	ALTERNATING CURRENT
AFCI	ARC FAULT CIRCUIT INTERRUPTER
ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPS INTERRUPTING CURRENT
AL	ALUMINUM
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BSMT	BASEMENT
C	CONDUIT
CATV	CABLE TELEVISION
C/B	CIRCUIT BREAKER
CKT	CIRCUIT
COMP	COMPRESSOR
CP	CONDENSATE PUMP
CT	CURRENT TRANSFORMER
CU	CONDENSING UNIT OR COPPER
CUH	CABINET UNIT HEATER
D	DRYER
DEG.	DEGREE
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
ETR	EXISTING TO REMAIN
EF	EXHAUST FAN
ELEC	ELECTRICAL
ELEV	ELEVATOR
EM	EMERGENCY
EMT	ELECTRIC METALLIC TUBING
EP	EMERGENCY PANEL
EUH	ELECTRIC UNIT HEATER
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
F	FAHRENHEIT
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FC	FOOT CANDLE
FCU	FAN COIL UNIT
G	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HP	HORSE POWER
HPS	HIGH PRESSURE SODIUM
HR	HOUR
HZ	HERTZ
IG	ISOLATED GROUND
IN	INCHES
JB	JUNCTION BOX
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT AMPERE
KW	KILOWATT
MAX	MAXIMUM
MAU	MAKE-UP AIR UNIT
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCCB	MOLDED CASE CIRCUIT BREAKER
MH	METAL HALIDE OR MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
NA	NOT APPLICABLE
NE	NEW DEVICE INSTALLED IN SAME LOCATION AS EXISTING REMOVED DEVICE
NEC	NATIONAL ELECTRIC CODE
NIC	NOT IN CONTRACT
NL	NEW LOCATION OF RELOCATED DEVICE
NR	NEW TO REPLACE EXISTING
NTS	NOT TO SCALE
P	POLE
PE	PRIMARY ELECTRIC SERVCE
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
PVC	POLYVINYL CHLORIDE CONDUIT
RE.	EXISTING TO BE REMOVED
REF	REFRIGERATOR
RGS	RIGID GALVANIZED STEEL CONDUIT
RL	EXISTING TO BE RELOCATED
RM	ROOM
RN	EXISTING TO BE REMOVED AND REPLACED WITH NEW (EXISTING BACKBOXES, CONDUIT AND WIRING TO REMAIN)
RR	EXISTING TO BE RELOCATED IN SAME LOCATION ON NEW SURFACE
RTU	ROOFTOP UNIT
SE	SECONDARY ELECTRICAL SERVICE
SPEC	SPECIFICATION
SWBD	SWITCHBOARD
SPD	SURGE PROTECTION DEVICE
TELE	TELECOMMUNICATIONS/TELEPHONE
TV	TELEVISION
T/TX	TRANSFORMER
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT AMPERE
VAC	VOLTS ALTERNATING CURRENT
VIF	VERIFY IN FIELD
W	WATT OR TWIRE
WA	WASHER
WG	WIRE GUARD
WP	WEATHERPROOF

FIRE ALARM LEGEND

SYMBOL	DESCRIPTION
EQUIPMENT	
EAS	EMERGENCY 2-WAY COMMUNICATION SYSTEM AREA CALL STATION. REFER TO 2-WAY COMMUNICATION SYSTEM WIRING DIAGRAM FOR ADDITIONAL INFORMATION.
EMS	EMERGENCY 2-WAY COMMUNICATION SYSTEM MASTER STATION. REFER TO 2-WAY COMMUNICATION SYSTEM WIRING DIAGRAM FOR ADDITIONAL INFORMATION.
FACP	FIRE ALARM CONTROL PANEL
FARA	FIRE ALARM REMOTE ANNUNCIATOR PANEL
EVAC	FIRE ALARM VOICE EVACUATION REMOTE MICROPHONE
FATP	FIRE ALARM TRANSPONDER PANEL
BMP	BI-DIRECTIONAL AMPLIFICATION SYSTEM MONITORING PANEL
INITIATING DEVICES	
S	CEILING MOUNTED SMOKE DETECTOR
S SB	CEILING MOUNTED SMOKE DETECTOR WITH SOUNDER BASE
S SB/CO	CEILING MOUNTED SMOKE DETECTOR WITH CARBON MONOXIDE SOUNDER BASE
S 520	CEILING MOUNTED SMOKE DETECTOR WITH LOW FREQUENCY 520HZ SOUNDER BASE
S	CEILING MOUNTED SMOKE DETECTOR WIRED TO ELEVATOR RECALL SYSTEM
	WALL MOUNTED SMOKE DETECTOR
H	CEILING MOUNTED HEAT DETECTOR WITH TEMPERATURE RATING OF 135 DEGREES UNLESS OTHERWISE NOTED
H RR	CEILING MOUNTED COMBINATION FIXED TEMPERATURE / RATE-OF-RISE HEAT DETECTOR
S/D	DUCT MOUNTED SMOKE DETECTOR AND HOUSING
SD FSD	SMOKE OR FIRE/SMOKE DAMPER WITH ASSOCIATED DUCT SMOKE DETECTOR. PROVIDE ALL ITEMS LISTED AS BY DIVISION 26 AND BY DIVISION 28 IN ELECTRICAL SMOKE DAMPER DETAIL. PROVIDE WITH ONE DUCT SMOKE DETECTOR UNLESS OTHERWISE NOTED.
F	WALL MOUNTED FIRE ALARM MANUAL PULL STATION. MOUNT AT 48" AFF
H	HEAT DETECTOR FOR ELEVATOR RECALL CONTROLS
CO	CEILING MOUNTED CARBON MONOXIDE DETECTOR
NOTIFICATION	
XX	WALL MOUNTED COMBINATION SPEAKER / STROBE LIGHT WITH A MULTI-CANDELA STROBE. MOUNT AT 6'-8" AFF. WG= PROVIDE WITH WIREGUARD. "XX"=CANDELA RATING
XX	WALL MOUNTED STROBE-ONLY UNIT WITH A MULTI-CANDELA STROBE. MOUNT AT 6'-8" AFF. WG= PROVIDE WITH WIREGUARD. "XX"=CANDELA RATING.
XX C	CEILING MOUNTED COMBINATION SPEAKER/STROBE LIGHT WITH A MULTI-CANDELA STROBE. "XX"=CANDELA RATING
XX c	CEILING MOUNTED STROBE-ONLY UNIT WITH A MULTI-CANDELA STROBE. "XX"=CANDELA RATING
F	WALL MOUNTED FIRE ALARM MANUAL PULL STATION. MOUNT AT 48" AFF. PROVIDE WITH MANUAL STATION GUARD, STI "STOPPER II" OR EQUAL WHERE REQUIRED.
B	EXTERIOR SPRINKLER BELL. PROVIDE 20A/1P CIRCUIT.
INTERFACE MODULES	
MM	FIRE ALARM MONITOR MODULE
CM	FIRE ALARM CONTROL MODULE
RM	FIRE ALARM RELAY MODULE
MISCELLANEOUS	
RTS	REMOTE DUCT SMOKE DETECTOR TEST SWITCH
TS	FIRE PROTECTION TAMPER SWITCH AND FIRE ALARM MONITOR MODULE
FS	FIRE PROTECTION FLOW SWITCH AND FIRE ALARM MONITOR MODULE
PS	FIRE PROTECTION PRESSURE SWITCH AND FIRE ALARM MONITOR MODULE
M	MAGNETIC DOOR HOLD OPEN. PROVIDE WITH SMOKE DETECTORS WITHIN 5 FEET OF BOTH SIDES OF DOOR. REFER TO DETAIL 6/E502
EOL	END OF LINE RESISTOR

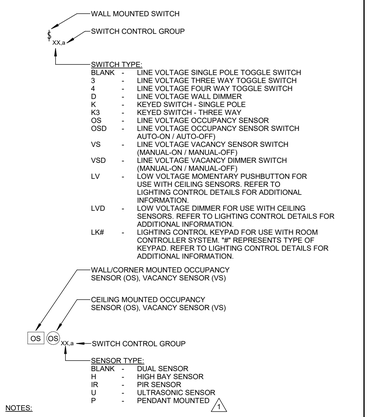
ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
	SURFACE MOUNTED PANELBOARD
	RECESSED PANELBOARD
	DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	COMBINATION STARTER AND DISCONNECT SWITCH
	MOTOR STARTER OR CONTACTOR
M	MANUAL MOTOR STARTER
	MOTOR (REFER TO MOTOR CIRCUIT SCHEDULE FOR POWER REQUIREMENTS)
T	TRANSFORMER
M	ELECTRICAL METER
SPD	SURGE PROTECTIVE DEVICE
VFD	VARIABLE FREQUENCY DRIVE
	BRANCH CIRCUIT WIRING, CONCEALED IN WALLS OR CEILINGS
	HOMERUN TO PANELBOARD
	SWITCHED BRANCH CIRCUIT WIRING
PT #	POKE-THRU DEVICE. SUPERSCRIPT '#' INDICATES TYPE. REFER TO FLOOR BOX DEVICE SCHEDULE FOR TYPE.
FB #	FLOOR BOX. SUPERSCRIPT '#' INDICATES TYPE. REFER TO FLOOR BOX DEVICE SCHEDULE FOR TYPE.
J J	JUNCTION BOX
J MD	POWER CONNECTION TO MOTORIZED DAMPERS. COORDINATE LOCATIONS WITH DIV. 23.
	SURFACE MOUNTED RACEWAY RISER TO NEAREST ACCESSIBLE CEILING
WM	WIREMOLD, LOCATE DEVICES AS INDICATED ON DRAWINGS
	SIMPLEX WALL MOUNTED RECEPTACLE, 18" AFF UNLESS OTHERWISE NOTED
	DUPLEX WALL MOUNTED RECEPTACLE, 18" AFF UNLESS OTHERWISE NOTED
	DUPLEX WALL MOUNTED RECEPTACLE, HALF SWITCHED
	DUPLEX WALL MOUNTED RECEPTACLE, ON CRITICAL BRANCH OF GENERATOR POWER
W	DUPLEX GFCI-TYPE WALL MOUNTED RECEPTACLE FOR WASHING MACHINE. MOUNT 48" AFF UNLESS OTHERWISE NOTED.
M	DUPLEX WALL MOUNTED RECEPTACLE FOR MICROWAVE, COORDINATE WITH MICROWAVE LOCATION. VERIFY EXACT LOCATION AND MOUNTING HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.
DW	DUPLEX WALL MOUNTED RECEPTACLE FOR DISHWASHER. MOUNT 18" AFF UNLESS OTHERWISE NOTED. CONNECT TO GFCI BREAKER IN PANELBOARD.
REF	DUPLEX WALL MOUNTED RECEPTACLE FOR REFRIGERATOR. MOUNT 48" AFF UNLESS OTHERWISE NOTED. CONNECT TO GFCI BREAKER IN PANELBOARD.
EWC	DUPLEX WALL MOUNTED RECEPTACLE FOR ELECTRIC WATER COOLER. MOUNT 18" AFF UNLESS OTHERWISE NOTED. CONNECT TO GFCI BREAKER IN PANELBOARD.
XX*	DUPLEX WALL MOUNTED RECEPTACLE MOUNTED AT XX" ABOVE FINISHED FLOOR
	DOUBLE DUPLEX WALL MOUNTED RECEPTACLE, 18" AFF UNLESS OTHERWISE NOTED
a a	RECEPTACLE, MOUNT 6" ABOVE COUNTER OR CASEWORK
bc bc	RECEPTACLE MOUNTED BELOW FRONT OF COUNTER
GFI GFI	RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTION
WP WP	RECEPTACLE WITH WEATHERPROOF COVER
c c	RECEPTACLE, CEILING MOUNTED
U U	RECEPTACLE WITH INTEGRAL USB OUTLET FOR CHARGING
SR	DOUBLE DUPLEX RECEPTACLE FOR INTERACTIVE DISPLAY. MOUNT IN CHASE BOX AT 60" AFF. COORDINATE WITH DIV. 27
TV TV	RECEPTACLE FOR DIGITAL DISPLAY. MOUNT RECEPTACLE IN BOX PROVIDED BY OTHERS. REFER TO ARCHITECTUAL ELEVATIONS FOR EXACT MOUNTING HEIGHT △3
FB	FLOORBOX. REFER TO FLOORBOX SCHEDULE ON E6.00
CR	DUPLEX RECEPTACLE MOUNTED TO CEILING OR STRUCTURE ABOVE AND PROVIDE DROP-DOWN CORD REEL DEVICE WITH PENDANT 5-20R DUPLEX RECEPTACLE AT END OF CORD, UNLESS OTHERWISE NOTED.
CR	SPECIALTY RECEPTACLE MOUNTED TO CEILING OR STRUCTURE ABOVE AND PROVIDE DROP-DOWN CORD REEL DEVICE WITH SPECIALTY RECEPTACLE AT END OF CORD. RECEPTACLE CONFIGURATION AS NOTED ON PLANS.
	SPECIAL PURPOSE HARDWIRED CONNECTION: WIRING AS INDICATED
RH	HARDWIRED 20A/1P CONNECTION TO RANGE HOOD. MAKE FINAL CONNECTIONS AS REQUIRED BY MANUFACTURER.
HD	HARDWIRED 20A/2P CONNECTION TO HAND DRYER. MAKE FINAL CONNECTIONS AS REQUIRED BY MANUFACTURER.
	SPECIAL PURPOSE RECEPTACLE, NEMA CONFIGURATION AND WIRING AS INDICATED
R	NEMA 14-50R RECEPTACLE FOR ELECTRIC RANGE. PROVIDE 3#8, #10G, 3/4"C. TO INDICATED BREAKER IN PANEL. (2 HOT, 1 NEUTRAL, 1 GROUND)
D	NEMA 14-30R RECEPTACLE FOR ELECTRIC DRYER. PROVIDE 3#10, #10G, 3/4"C. TO INDICATED BREAKER IN PANEL. (2 HOT, 1 NEUTRAL, 1 GROUND) CONNECT TO GFCI BREAKER IN PANELBOARD.
PP	MULTI-SERVICE POWER POLE WITH POWER AND COMMUNICATIONS INSERTS AS INDICATED ON PLANS. REFER TO SPECIFICATIONS AND/OR FLOOR PLANS FOR ACCEPTABLE MANUFACTURERS. SIZE TO ACCOMMODATE ALL CIRCUITS AND COMMUNICATIONS CABLING INDICATED. PROVIDE WITH CEILING FLANGE AND ENTRANCE FITTINGS. COORDINATE AND PROVIDE FITTINGS FOR ANY INDICATED FURNITURE FEEDS IN FIELD.
E	EMERGENCY CALL TOGGLE SWITCH
	EMERGENCY CALL FOR AID COMBINATION BUZZER / LIGHT. REFER TO CALL-FOR-AID WIRING SCHEMATIC FOR MORE INFORMATION.
B	JUNCTION BOX FOR BUILDING MANAGEMENT SYSTEM LOCATED ABOVE CEILING. PROVIDE 20A/1P DEDICATED CIRCUIT. COORDINATE EXACT LOCATION WITH BMS CONTRACTOR PRIOR TO INSTALLATION.
LVT	LOW VOLTAGE TRANSFORMER
GAP	REMOTE GENERATOR ANNUNCIATOR PANEL
EPO	EMERGENCY POWER OFF PUSH BUTTON
AO AO	AUTOMATIC DOOR OPENER AND PUSHBUTTON - FURNISHED AND INSTALLED BY DIV. 8, WIRED BY ELECTRICAL CONTRACTOR. PROVIDE 20A-1P, 120V CONNECTION TO MOTOR AND CONTROL WIRING IN 1" CONDUIT PER MFR. REQUIREMENTS FROM MOTOR TO EACH PUSHBUTTON.
PL	PLUG LOAD CONTROLLER FOR AUTOMATIC RECEPTACLE SHUTOFF, TIED INTO LIGHTING CONTROL SYSTEM. REFER TO LIGHTING CONTROL DETAILS FOR ADDITIONAL INFORMATION. CONTROLLED RECEPTACLES ARE INDICATED WITH SWITCHED WIRING ON PLANS.
AVL	DUPLEX RECEPTACLE WITH INTEGRAL USB CHARGING AND 3A/5VDC OUTPUT AVAILABLE FROM BACK SIDE OF DEVICE - EQUAL TO HUBBELL AVPS152X. MOUNT IN SAME BACKBOX AS ADJACENT "AVL" AUDIO VIDEO DEVICE SHOWN ON TECHNOLOGY PLANS.
AVD	DUPLEX RECEPTACLE WITH INTEGRAL USB CHARGING AND 3A/5VDC OUTPUT AVAILABLE FROM BACK SIDE OF DEVICE - EQUAL TO HUBBELL AVPS152X. MOUNT IN SAME BACKBOX AS ADJACENT "AVD" AUDIO VIDEO DEVICE SHOWN ON TECHNOLOGY PLANS.
CS	CLASSROOM SPEECH REINFORCEMENT SYSTEM. PROVIDE 120V, 20A-1P POWER VIA LOCAL UNSWITCHED RECEPTACLE CIRCUIT. REFER TO CLASSROOM A/V SYSTEM DETAIL FOR ADDITIONAL INFORMATION.

LIGHTING SYMBOLS

SYMBOL	DESCRIPTION
	POLE MOUNTED SITE LIGHTING FIXTURE
	EXTERIOR BUILDING MOUNTED LIGHTING FIXTURE
	EXTERIOR BUILDING MOUNTED EMERGENCY LIGHTING FIXTURE
	SURFACE MOUNTED LIGHTING FIXTURE
	SURFACE MOUNTED EMERGENCY LIGHTING FIXTURE
	PENDANT MOUNTED LIGHTING FIXTURE
	PENDANT MOUNTED EMERGENCY LIGHTING FIXTURE
	RECESSED LIGHTING FIXTURE
	RECESSED EMERGENCY LIGHTING FIXTURE
	INDUSTRIAL OR STRIP TYPE FIXTURE
	TRACK LIGHTING, HEADS AS INDICATED ON DRAWINGS
	RECESSED WALL WASH FIXTURE
	RECESSED DOWNLIGHT FIXTURE
	RECESSED DOWNLIGHT EMERGENCY FIXTURE
	SURFACE MOUNTED ROUND FIXTURE
	SURFACE MOUNTED ROUND EMERGENCY FIXTURE
	PENDANT HUNG LIGHTING FIXTURE
	PENDANT HUNG EMERGENCY LIGHTING FIXTURE
	WALL SCONCE
	EMERGENCY WALL SCONCE
	WALL MOUNTED LIGHTING FIXTURE
	WALL MOUNTED EMERGENCY LIGHTING FIXTURE
	WALL MOUNTED EXIT SIGN, DOUBLE FACED
	WALL MOUNTED EXIT SIGN
	CEILING MOUNTED EXIT SIGN
	CEILING MOUNTED EXIT SIGN, DOUBLE FACED
	SELF CONTAINED EMERGENCY LIGHTING FIXTURE WITH BATTERY
	SELF CONTAINED EMERGENCY LIGHTING FIXTURE WITH REMOTE CAPABILITY
	REMOTE EMERGENCY HEAD
	REMOTE DUAL HEAD EMERGENCY LIGHTING FIXTURE
EB	EMERGENCY BATTERY UNIT FOR USE WITH REMOTE LIGHTING HEADS
R f	UL924 EMERGENCY LIGHTING RELAY. REFER TO EMERGENCY LIGHTING DETAILS FOR ADDITIONAL INFORMATION. SUBSCRIPT "f" INDICATES UL1008 TRANSFER RELAY FUNCTIONALITY.
PC	LIGHT SENSING PHOTOCELL / DAYLIGHT SENSOR
RCN	ROOM CONTROLLER FOR NORMAL POWER LOW VOLTAGE CONTROLS. REFER TO LIGHTING CONTROL DETAILS FOR ADDITIONAL INFORMATION.
RCE	ROOM CONTROLLER FOR EMERGENCY POWER LOW VOLTAGE CONTROLS. REFER TO LIGHTING CONTROL DETAILS FOR ADDITIONAL INFORMATION.
PP	POWER PACK FOR STANDALONE CONTROLS. REFER TO LIGHTING CONTROL DETAILS FOR ADDITIONAL INFORMATION.
PPN	POWER PACK FOR NORMAL POWER LOW VOLTAGE CONTROLS. REFER TO LIGHTING CONTROL DETAILS FOR ADDITIONAL INFORMATION.
PPE	POWER PACK FOR EMERGENCY POWER LOW VOLTAGE CONTROLS. REFER TO LIGHTING CONTROL DETAILS FOR ADDITIONAL INFORMATION.

LIGHTING SWITCH AND SENSOR TAGS



NOTES:

1. FIXTURE(S) SHALL BE CONTROLLED BY SWITCH OR RELAY LOCATED IN THE ROOM UNLESS OTHERWISE NOTED ON PLAN.
2. REFER TO LIGHTING CONTROL DETAILS FOR ADDITIONAL INFORMATION ON WIRING AND SWITCHING.
3. WALL MOUNTED SWITCHES SHALL BE MOUNTED AT 42" AFF UNLESS OTHERWISE NOTED. COORDINATE WITH ARCHITECT.
4. SET ALL OCCUPANCY TYPE SENSORS TO AUTO-ON, AUTO-OFF MODE. SET ALL VACANCY TYPE SENSORS TO MANUAL-ON, AUTO-OFF MODE.
5. REFER TO CONTROL SCHEME NOTES AND CONTROL SCHEDULE FOR ADDITIONAL INFORMATION.
6. REFER TO SYMBOL LIST FOR ADDITIONAL LIGHTING CONTROL DEVICES.
7. WHERE SWITCHES ARE NOT TAGGED WITH CONTROL LETTER ON PLANS, ALL FIXTURES IN ASSOCIATED ROOM SHALL BE CONTROLLED SIMULTANEOUSLY VIA CONTROLS SPECIFIED.

ELECTRICAL LIGHTING NOTES

1. REFER TO DRAWING E601 FOR LIGHTING FIXTURE SCHEDULE.
2. EXIT SIGNS AND EMERGENCY BATTERY UNITS SHALL BE WIRED TO LINE SIDE OF LOCAL LIGHTING BRANCH CIRCUIT, AHEAD OF ALL SWITCHING DEVICES.
3. EMERGENCY LIGHTING RELAY LOCATIONS ARE SHOWN DIAGRAMMATICALLY. CONTRACTOR SHALL INSTALL RELAYS ABOVE NEAREST ACCESSIBLE CEILING, OR IN NEAREST STORAGE ROOM/ UTILITY SPACE, AND SHALL COORDINATE LOCATION WITH OTHER TRADES. REFER TO EMERGENCY LIGHTING WIRING SCHEMATICS FOR ADDITIONAL INFORMATION.
4. REFER TO DRAWING E501 FOR TYPICAL LIGHTING CONTROL WIRING SCHEMATICS.

ELECTRICAL POWER NOTES

1. REFER TO DRAWING E600 FOR MOTOR/ EQUIPMENT CIRCUIT SCHEDULE.
2. RECEPTACLES LOCATED WITHIN 6' FROM WATER SOURCES SHALL BE GFCI TYPE.
3. ELECTRICAL CONTRACTOR SHALL PROVIDE (1) -2" CONDUIT SLEEVE INTO EACH ROOM SHOWN WITH COMMUNICATIONS DEVICE(S). LOCATE ABOVE CEILING WHERE POSSIBLE.
4. SOUND SYSTEM EQUIPMENT SHALL BE POWERED OFF THE SAME PHASE OF SOURCE PANELBOARD.
5. 15A AND 20A, 120V AND 250V NON-LOCKING TYPE RECEPTACLES MOUNTED BELOW 5'-6" AFF SHALL BE LISTED TAMPER-RESISTANT TYPE IN ACCORDANCE WITH NEC 406.12.

ELECTRICAL GENERAL NOTES

1. BRANCH CIRCUITS AND FEEDER CIRCUITS SHALL BE CONCEALED IN WALLS AND ABOVE CEILINGS WHERE POSSIBLE, INCLUDING HOMERUNS TO PANELBOARDS. BRANCH CIRCUITS AND FEEDERS SHALL NOT BE ROUTED IN OR UNDER SLAB UNLESS SPECIFICALLY INDICATED ON ELECTRICAL FLOOR PLANS OR DETAILS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. BRANCH CIRCUITS SHALL BE 2#12,#12G, 3/4"C., TO NEW 20A/1P CIRCUIT BREAKER IN PANEL INDICATED UNLESS NOTED OTHERWISE.
3. 120V, 1-PHASE, 20A BRANCH CIRCUITS EXCEEDING 150' IN LENGTH SHALL BE 2#10,#10G., 3/4"C. UNLESS NOTED OTHERWISE.
4. 277V, 1-PHASE, 20A BRANCH CIRCUITS EXCEEDING 250' IN LENGTH SHALL BE 2#10,#10G., 3/4"C. UNLESS NOTED OTHERWISE.
5. DEVICES SHALL BE LABELED WITH SOURCE PANEL AND CIRCUIT NUMBER(S).
6. REFER TO ARCHITECTS REFLECTED CEILING PLAN FOR EXACT LOCATION OF CEILING MOUNTED ELECTRICAL DEVICES. REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT LOCATION OF WALL MOUNTED ELECTRICAL DEVICES.
7. PROVIDE FIRE STOPPING AND SMOKE BARRIER SEALING OF PENETRATIONS THROUGH FIRE WALLS OR SMOKE BARRIERS AS REQUIRED. REFER TO ARCHITECTURAL FLOOR PLANS AND CODE SHEETS FOR WALLS.
8. COORDINATE LOCATIONS OF ELECTRICAL DEVICES AND CONTROLS WITH RESPECT TO LOCATIONS OF CASEWORK AND EQUIPMENT PRIOR TO ROUGH-IN.
9. WHEN DEVICES ARE SHOWN ON PLANS OFFSET FROM ONE ANOTHER, DEVICES SHALL BE MOUNTED IN LINE, CENTERED ON WALL.
10. SHARED NEUTRAL WIRING IS NOT ACCEPTABLE, UNLESS NOTED OTHERWISE ON DRAWINGS. PROVIDE A DEDICATED NEUTRAL WIRE FOR EACH CIRCUIT, WHERE APPLICABLE.
11. DRAWINGS ARE DIAGRAMMATIC ONLY. DO NOT SCALE ELECTRICAL DRAWINGS. FIELD CONDITIONS AND ARCHITECTURAL ELEVATIONS AND DIMENSIONS SHALL GOVERN EXACT LOCATION AND MOUNTING HEIGHTS OF ELECTRICAL DEVICES AND RACEWAYS.
12. FINISHES AND COLOR OF ELECTRICAL WIRING DEVICES, EXPOSED RACEWAY, LIGHT FIXTURES, AND OTHER ELECTRICAL DEVICES SHALL BE DETERMINED BY THE ARCHITECT.
13. ELECTRICAL WORK SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE (OTHER THAN ROOF DECK).
14. THE ELECTRICAL CONTRACTOR SHALL PERFORM CORES REQUIRED FOR ELECTRICAL WORK.
15. BUILDING WIRE AND CABLE NOT IN RACEWAY SHALL BE PLENUM RATED.
16. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS REGARDING SURFACE MOUNTED RACEWAY APPLICATIONS AND WIRING METHODS.
17. PER NEC ARTICLE 406.12 TAMPER-RESISTANT RECEPTACLES. ALL 15- AND 20-AMPERE, 125- AND 250-VOLT NONLOCKING-TYPE RECEPTACLES IN EDUCATIONAL USE BUILDINGS SHALL BE PROVIDED THROUGHOUT WITH LISTED TAMPER-RESISTANT RECEPTACLES. THE EXCEPTIONS TO THIS REQUIREMENT ARE AS FOLLOWS:
    (1) RECEPTACLES LOCATED MORE THAN 1.7 M (5 ½ FT) ABOVE THE FLOOR.
    (2) RECEPTACLES THAT ARE PART OF AN APPLIANCE.
    (3) A SINGLE RECEPTACLE, OR A DUPLEX RECEPTACLE FOR TWO APPLIANCES, LOCATED WITHIN THE DEDICATED SPACE FOR EACH APPLIANCE THAT, IN NORMAL USE, IS NOT EASILY MOVED FROM ONE PLACE TO ANOTHER AND THAT IS CORD-AND-PLUG-CONNECTED.

LIGHTING FIXTURE TAGS



NOTES

1. FIXTURE CONTROL DESIGNATION REFERS TO ZONE/SWITCH/RELAY CONTROL OF FIXTURES CONTROLLED BY COMMON:
    A. SWITCH FOR LIGHTING IN ROOM, CORRIDOR, OPEN AREA.
    B. ZONE RELAY IN LOCAL LIGHTING CONTROL PANEL OR LIGHTING CONTROL RELAY PANEL.
    C. ALL CONTROL DEVICES (SWITCHES, CONTROL PANELS, OCCUPANCY/VACANCY SENSORS, ETC) WITH CONTROL DESIGNATIONS REFERS TO COMMON CONTROL OF THE SAME ZONE/SWITCH/RELAY CONTROL.
2. WHERE CONTROL DESIGNATION IS NOT SHOWN, ALL FIXTURES IN ASSOCIATED ROOM OR SPACE SHALL BE CONTROLLED SIMULTANEOUSLY VIA THE CONTROL DEVICES INDICATED ON PLANS.
3. WHERE EMERGENCY AND NORMAL FIXTURES ARE CONTROLLED FROM THE SAME ZONE/SWITCH/CONTROL RELAY, UL 924 EMERGENCY BYPASS RELAYS SHOWN WITH SAME CONTROL DESIGNATION BYPASS THAT ZONE/SWITCH/CONTROL RELAY. REFER TO EMERGENCY LIGHTING CIRCUIT SCHEMATICS FOR ADDITIONAL WIRING INFORMATION.
4. UNSWITCHED LIGHTING BRANCH CIRCUIT WIRING IS SHOWN TO A SINGLE FIXTURE IN EACH COMMON CONTROL ZONE. UNLESS OTHERWISE INDICATED, PROVIDE 2#12,#12G,3/4"C FOR SWITCHED WIRING TO ALL COMMON CONTROL FIXTURES.
5. PROVIDE LOW VOLTAGE DIMMING CONTROL WIRING AS INDICATED IN LIGHTING CONTROL DETAILS FOR DIMMABLE LIGHT FIXTURES IN COMMON CONTROL ZONES/SWITCHES/RELAY CONTROL.
6. REFER TO LIGHTING CONTROL DETAILS FOR ADDITIONAL WIRING AND CONTROL INFORMATION.
7. REFER TO LIGHTING CONTROL RELAY PANEL SCHEDULES WHERE APPLICABLE FOR ADDITIONAL CONTROL INFORMATION.

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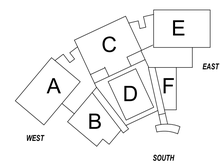
Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane,
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N

NORTH



KEYPLAN

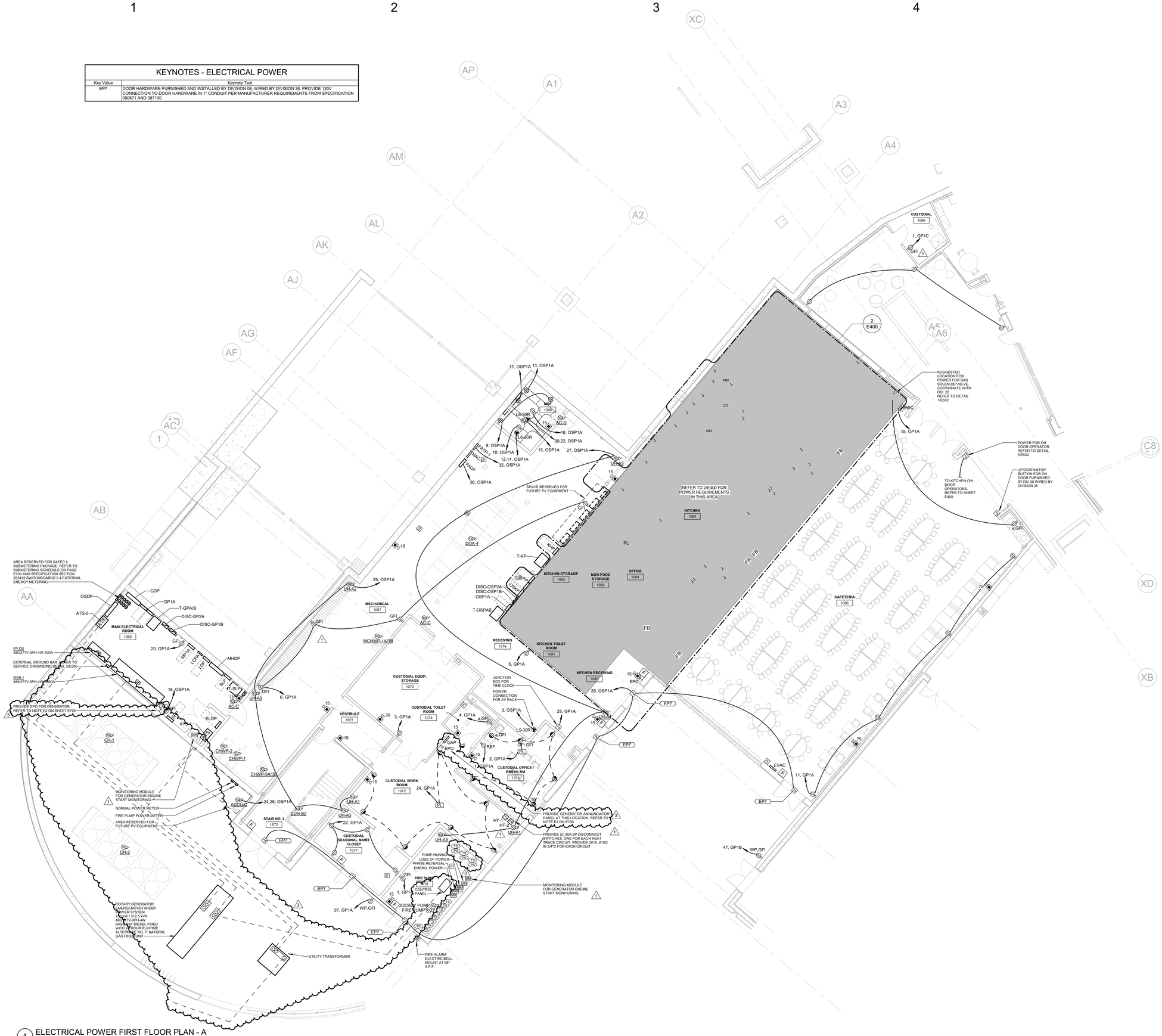
Number	Date	Issued For
3	10/30/2024	ADDENDUM NO. 4
1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

ELECTRICAL ABBREVIATIONS, NOTES AND SYMBOLS

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KEYNOTES - ELECTRICAL POWER	
Key Value	Keynote Text
EP7	DOOR HARDWARE FURNISHED AND INSTALLED BY DIVISION 08. WIRED BY DIVISION 26. PROVIDE 120V CONNECTION TO DOOR HARDWARE IN 1" CONDUIT PER MANUFACTURER REQUIREMENTS FROM SPECIFICATION 080671 AND 087100



1 ELECTRICAL POWER FIRST FLOOR PLAN - A
1/8" = 1'-0"

SLAM
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Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane,
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N

NORTH / EAST / WEST / SOUTH

KEYPLAN

Number	Date	Issued For
3	10/30/2024	ADDENDUM NO. 4
1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

ELECTRICAL POWER FIRST FLOOR PLAN - PART A

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00
Drawing Number: EP101A

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1 ELECTRICAL POWER FIRST FLOOR PLAN - D
1/8" = 1'-0"

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	07/08/2024	PHASE 2

ELECTRICAL POWER FIRST FLOOR PLAN - PART D

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00

Drawing Number: EP101D

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ELECTRICAL KITCHEN EQUIPMENT SCHEDULE

ITEM NO.	QTY.	DESCRIPTION	ELECTRICAL DATA					SOURCE PANEL	CIRCUIT BREAKER	WIRE AND CONDUIT	CONNECTION	DISCONNECT SWITCH	REMARKS
			V	PH	HP	KW	AMP						
4	1	CLOTHES WASHER	120	1	-	-	-	KP	20A/1P	2#12, #12G, 3/4"C	CORD & PLUG (PROVIDE NEMA 5-20R)	N/A	#1
5	1	CLOTHES DRYER	208	1	-	-	-	KP	30A/2P	3#10, #10G, 3/4"C	CORD & PLUG (PROVIDE NEMA 14-30R)	N/A	#1
11	1	WALK-IN COOLER	120	1	-	1.1	-	OSKP	15A/1P	2#12, #12G, 3/4"C	DIRECT CONNECTION	1PTS	#1
12	1	WALK-IN FREEZER	120	1	-	1.3	-	OSKP	20A/1P	2#12, #12G, 3/4"C	DIRECT CONNECTION	1PTS	#1
13a	1	COOLER CONDENSING UNIT	208	3	-	-	4.7	OSKP	15A/3P	3#12, #12G, 3/4"C	DIRECT CONNECTION	30A/3P	#1
13b	1	COOLER EVAPORATOR COIL	120	1	-	-	1.8	OSKP	15A/1P	2#12, #12G, 3/4"C	DIRECT CONNECTION	30A/1P	#1
13c	1	FREEZER CONDENSING UNIT	208	3	-	-	8.7	OSKP	15A/3P	3#12, #12G, 3/4"C	DIRECT CONNECTION	30A/3P	#1
13d	1	FREEZER EVAPORATOR COIL	208	1	-	-	9.1	OSKP	15A/2P	2#12, #12G, 3/4"C	DIRECT CONNECTION	30A/2P	#1
21	1	ICEMAKER WITH BIN	120	1	-	-	11.5	OSKP	20A/1P	2#12, #12G, 3/4"C	DIRECT CONNECTION	N/A	#1
25	1	CONVECTION OVEN DOUBLE	120	1	-	-	8	KP	(2) 15A/1P	(2) 2#12, #12G, 3/4"C	DIRECT CONNECTION	(2) 30A/3P	#7
26	1	CONVECTION OVEN DOUBLE	120	1	-	-	8	KP	(2) 15A/1P	(2) 2#12, #12G, 3/4"C	DIRECT CONNECTION	(2) 30A/3P	#7
27	1	TEN PAN STEAMER	120	1	-	-	3.5	KP	15A/1P	2#12, #12G, 3/4"C	DIRECT CONNECTION	1PTS	#7
28	1	FOUR-BURNER RANGE WITH OVEN	120	1	-	-	0.1	KP	15A/1P	2#12, #12G, 3/4"C	CORD & PLUG (PROVIDE NEMA 5-20R)	N/A	#7
29	1	GRIDDLE WITH MOBILE STAND	120	1	-	-	0.5	KP	15A/1P	2#12, #12G, 3/4"C	DIRECT CONNECTION	1PTS	#7
32	1	UTILITY DISTRIBUTION SYSTEM	208	3	-	-	-	KP [2]	50A/3P	4#8, #10G, 1"C	DIRECT CONNECTION	N/A [2]	#1, #4
33	1	EXHAUST VENTILATOR	-	-	-	-	-	N/A	N/A	N/A	N/A	N/A	#4, #11
34	1	EXHAUST VENTILATOR	-	-	-	-	-	N/A	N/A	N/A	N/A	N/A	#4, #11
35	1	VENTILATOR THERMOSTATIC AUTO-START CONTROL SYSTEM	120	1	-	-	-	KP [2]	15A/1P	2#12, #12G, 3/4"C	DIRECT CONNECTION	30A/1P	#4, #10
35a	1	VENTILATOR CONTROL INTERFACE SCREEN	-	-	-	-	-	N/A	N/A	N/A	N/A	N/A	#10, #12
35b	1	ROOM TEMPERATURE SENSOR	-	-	-	-	-	N/A	N/A	N/A	N/A	N/A	#10, #12
36	1	FIRE SUPPRESSION SYSTEM	120	1	-	-	-	OSKP	20A/1P	2#12, #12G, 3/4"C	DIRECT CONNECTION	30A/1P	#8
41	1	COOK'S WORK TABLE WITH OVERSHELF	120	1	-	-	-	KP	(3) 20A/1P	(3) 2#12, #12G, 3/4"C	N/A	N/A	#3
42	1	ACCESSIBLE PREP STATION TABLE WITH SINK	120	1	-	1	-	KP	(3) 20A/1P	(3) 2#12, #12G, 3/4"C	N/A	N/A	#3
44	1	AUTOMATIC SLICER	120	1	-	-	5	KP	15A/1P	2#12, #12G, 3/4"C	CORD & PLUG (PROVIDE NEMA 5-20R)	1PTS	#13
45	1	TWENTY-QUART MIXER	120	1	-	-	8	KP	15A/1P	2#12, #12G, 3/4"C	CORD & PLUG (PROVIDE NEMA 5-20R)	N/A	#14
48	1	FOOD PROCESSOR	120	1	-	-	12	KP	20A/1P	2#12, #12G, 3/4"C	CORD & PLUG (PROVIDE NEMA 5-20R)	N/A	
49	1	PREP TABLE WITH SINKS	120	1	-	-	-	KP	20A/1P	2#12, #12G, 3/4"C	CORD & PLUG (PROVIDE NEMA 5-20R)	N/A	
51	3	MOBILE HOT FOOD HOLDING CABINET, PASS-THRU	120	1	-	-	13.8	KP [4]	20A/1P	2#12, #12G, 3/4"C	CORD & PLUG	30A/1P	#15
52	3	DROP CORD WITH INLINE GFCI	120	1	-	-	-	KP	20A/1P	2#12, #12G, 3/4"C	N/A	N/A	
54	1	REFRIGERATOR, PASS-THRU	120	1	-	-	6.5	OSKP	15A/1P	2#12, #12G, 3/4"C	CORD & PLUG (PROVIDE NEMA 5-20R)	N/A	#4
55	1	REFRIGERATOR, PASS-THRU	120	1	-	-	6.5	OSKP	15A/1P	2#12, #12G, 3/4"C	CORD & PLUG (PROVIDE NEMA 5-20R)	30A/3P	#4
57	1	REFRIGERATOR, PASS-THRU	120	1	-	-	6.5	OSKP	15A/1P	2#12, #12G, 3/4"C	CORD & PLUG (PROVIDE NEMA 5-20R)	1PTS	#4
61	1	FUTURE SERVING COUNTER	120	1	-	-	-	KP	20A/1P	2#12, #12G, 3/4"C	N/A	N/A	#3
62	1	REFRIGERATED SELF-SERVICE GRAB & GO CASE	120	1	-	-	15.3	OSKP	20A/1P	2#12, #12G, 3/4"C	CORD & PLUG (PROVIDE NEMA L5-20R)	1PTS	#2
63	4	HOT FOOD WELL, DROP IN (MOUNTED IN GROUP)	208	1	-	3.6	-	KP	25A/2P	3#10, #10G, 3/4"C	DIRECT CONNECTION	N/A	#3, #9
64	1	SERVING COUNTER	120	1	-	-	-	OSKP	(4) 20A/1P	(4) 2#12, #12G, 3/4"C	N/A	N/A	#16
66	1	COLD WELL, DROP-IN	120	1	-	-	3.8	KP [4]	20A/1P	2#12, #12G, 3/4"C	CORD & PLUG	N/A	#2
67	1	MILK COOLER	120	1	-	-	3	OSKP	20A/1P	3#12, #12G, 3/4"C	CORD & PLUG	30A/1P	#2
68	1	COLD WELL, DROP-IN	120	1	-	-	3.8	KP [4]	20A/1P	2#12, #12G, 3/4"C	CORD & PLUG	N/A	#2
69	1	SERVING COUNTER	120	1	-	-	-	N/A	(3) 20A/1P	(3) 2#12, #12G, 3/4"C	N/A	N/A	#16
70	4	HOT FOOD WELL, DROP IN (MOUNTED IN GROUP)	208	1	-	3.6	-	KP	2S/2P	3#10, #10G, 3/4"C	DIRECT CONNECTION	30A/3P	#3, #9
71	1	REFRIGERATED SELF-SERVICE GRAB AND GO CASE	120	1	-	-	15.3	OSKP	20A/1P	2#12, #12G, 3/4"C	CORD & PLUG (PROVIDE NEMA L5-20R)	1PTS	#2
72	1	MERCHANDISING DISPLAY WARMERS	120	1	-	-	15.1	KP	20A/1P	2#12, #12G, 3/4"C	CORD & PLUG	N/A	#4
73	1	SERVING COUNTER	120	1	-	-	-	KP	(3) 20A/1P	(3) 2#12, #12G, 3/4"C	N/A	N/A	#16
74	1	NOVELTY ICE CREAM DISPLAY FREEZER	120	1	-	-	4.8	OSKP	20A/1P	2#12, #12G, 3/4"C	CORD & PLUG	N/A	#3
77	1	FUTURE MOBILE CASHIER STAND	120	1	-	-	-	KP	20A/1P	2#12, #12G, 3/4"C	CORD & PLUG (PROVIDE NEMA 5-20R)	N/A	#5
78	1	FUTURE CASHIER TERMINAL	120	1	-	-	-	KP	20A/1P	2#12, #12G, 3/4"C	CORD & PLUG (PROVIDE NEMA 5-20R)	N/A	#5
79	1	WORKTOP GLASS DOOR DISPLAY REFRIGERATOR	120	1	-	-	2.5	OSKP	15A/1P	2#12, #12G, 3/4"C	CORD & PLUG (PROVIDE NEMA 5-20R)	30A/3P	#1
81	3	CASHIER TERMINAL	120	1	-	-	-	KP	20A/1P	2#12, #12G, 3/4"C	CORD & PLUG (PROVIDE NEMA 5-20R)	N/A	#5
89	1	WAREWASHER, RACK CONVEYOR	480	3	-	-	68	KHP	90A/3P	3#3, #8G, 1-1/4"C	DIRECT CONNECTION	N/A	#17

GENERAL NOTES:
1. ABBREVIATIONS:
   - S.T. = SHUNT TRIP CIRCUIT BREAKER WIRED BY E.C.
   - FSC = FOOD SERVICE CONTRACTOR
   - KEC = KITCHEN EQUIPMENT CONTRACTOR
   - C.O. = CONVENIENCE OUTLET. ALL RECEPTACLE SHALL BE GFCI TYPE. "a" INDICATES ABOVE COUNTER
   - C&P = CORD & PLUG
2. COORDINATE ALL CONNECTION TYPES, MOUNTING HEIGHTS, STUB-UP AND DEVICE LOCATIONS AND OTHER ELECTRICAL REQUIREMENTS WITH KEC AND FOOD SERVICE ROUGH-IN PLANS PRIOR TO ROUGH-IN.
3. PROVIDE FINAL CONNECTIONS TO ALL PIECES OF EQUIPMENT SPECIFIED WITH DISCONNECT SWITCHES OR DIRECT CONNECTIONS.
4. ALL NEMA 5-15R AND 5-20R RECEPTACLES IN KITCHEN AND/OR SERVERY (INCLUDING CONVENIENCE RECEPTACLES SHOWN ON PLAN) SHALL BE DUPLEX GFCI-TYPE, UNLESS INDICATED TO HAVE GFCI CIRCUIT BREAKER IN THIS SCHEDULE.
5. ALL RECEPTACLES OTHER THAN NEMA 5-15R AND 5-20R SHALL BE PROTECTED BY A GFCI BREAKER IN SOURCE PANELBOARD.
6. ALL DISCONNECT SWITCHES SHALL BE NEMA 3R RATED.
   - 1PTS = 1-POLE TOGGLE SWITCH
   - 2PTS = 2-POLE TOGGLE SWITCH
7. ALL ACCESSIBLE CONVENIENCE RECEPTACLES SHALL BE GFCI RECEPTACLES. PROVIDE 15mA GFCI BREAKER IN PANELBOARD FOR ALL INACCESSIBLE RECEPTACLES AND RECEPTACLES FOR EQUIPMENT.

REMARKS:
1. PROVIDE 15mA GFCI BREAKER IN PANELBOARD FOR EQUIPMENT. DO NOT PROVIDE GFCI RECEPTACLE.
2. RECEPTACLE MOUNTED WITHIN KITCHEN COUNTER. RECEPTACLE FURNISHED AND MOUNTED BY KEC, WIRED BY EC.
3. EQUIPMENT FED FROM UNDERSLAB, AND MOUNTED ON SUPPORT 24" AFF. REFER TO KITCHEN RAISED RECEPTACLE DETAIL.
4. EQUIPMENT FED FROM ABOVE VIA SJO DROP CORD WITH RECEPTACLE SPECIFIED IN SCHEDULE. EC SHALL FURNISH AND INSTALL DROP CORD WITH STRAIN RELIEF AND ATTACH TO STRUCTURE ABOVE CEILING. DO NOT SUPPORT VIA CEILING. PROVIDE PROTECTIVE COVER PLATE WITH OPENING IN CEILING FOR ROUTING OF CORD TO EQUIPMENT.
5. RECEPTACLE MOUNTED IN FLOOR BOX, FURNISHED AND INSTALLED BY EC.
6. PROVIDE SHUNT TRIP BREAKER IN SOURCE PANEL PER KITCHEN ELECTRIC AND GAS SHUTOFF WIRING DIAGRAM DETAIL.
7. POWER VIA UTILITY DISTRIBUTION SYSTEM PANELBOARD.
8. PROVIDE FIRE ALARM MONITOR MODULE AND CONNECTIONS TO FIRE ALARM SYSTEM. REFER TO FIRE ALARM RISER FOR ADDITIONAL INFORMATION.
9. 120/208V CIRCUIT: PROVIDE 2 HOT, 1 NEUTRAL, 1 GROUND WIRE.
10. COORDINATE EXACT LOCATION OF UNIT WITH DIV. 23 AND KEC.
11. PROVIDE 120V CONNECTION TO LIGHTS IN HOOD FROM VENTILATOR THERMOSTATIC AUTO-START CONTROL SYSTEM (ITEM 35). REFER TO NOTE E-35/FS121.
12. PROVIDE CAT 5 CONNECTION TO REMOTE TOUCH SCREEN FROM VENTILATOR THERMOSTATIC AUTO-START CONTROL SYSTEM (ITEM 35). REFER TO NOTE E-35/FS121.
13. AUTOMATIC SLICER (ITEM 44) IS POWERED FROM DUPLEX RECEPTACLE MOUNTED AT COOK'S WORK TABLE WITH OVERSHELF (ITEM 41).
14. TWENTY-QUART MIXER (ITEM 45) IS POWERED FROM DUPLEX RECEPTACLE MOUNTED AT ACCESSIBLE PREP STATION TABLE WITH SINK (ITEM 42).
15. MOBILE HOT FOOD HOLDING CABINET, PASS-THRU (ITEM 51) IS POWERED FROM DROP CORD WITH INLINE GFCI (ITEM 52).
16. COORDINATE CIRCUIT CONNECTIONS AT SERVING COUNTER WITH KEC FLOOR PLANS.
17. 480V-3PH CIRCUIT: PROVIDE 2 HOT, 1 NEUTRAL, 1 GROUND WIRE.

ELECTRICAL INTERWIRING NOTES

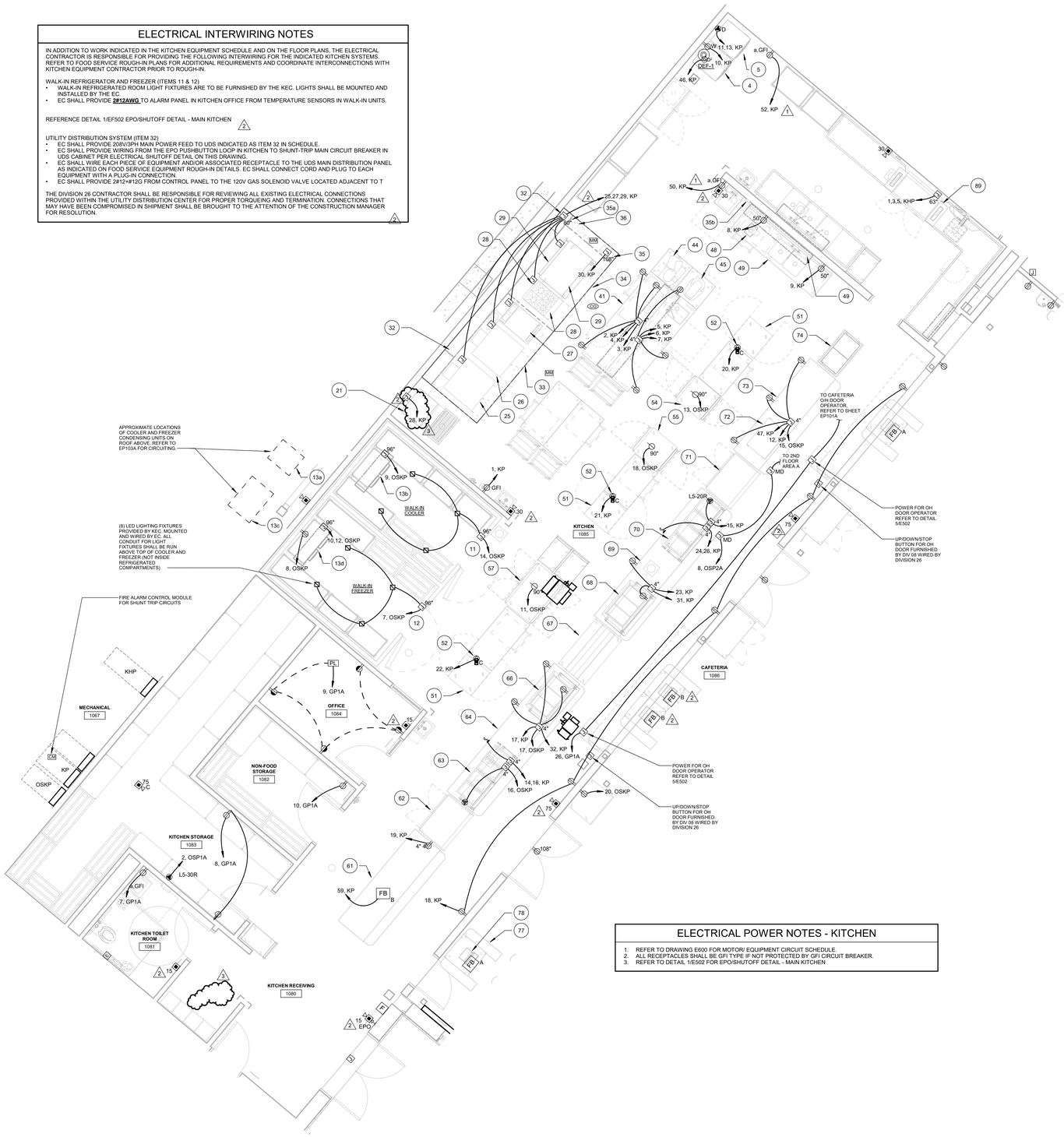
IN ADDITION TO WORK INDICATED IN THE KITCHEN EQUIPMENT SCHEDULE AND ON THE FLOOR PLANS, THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE FOLLOWING INTERWIRING FOR THE INDICATED KITCHEN SYSTEMS. REFER TO FOOD SERVICE ROUGH-IN PLANS FOR ADDITIONAL REQUIREMENTS AND COORDINATE INTERCONNECTIONS WITH KITCHEN EQUIPMENT CONTRACTOR PRIOR TO ROUGH-IN.

WALK-IN REFRIGERATOR AND FREEZER (ITEMS 11 & 12)
- WALK-IN REFRIGERATED ROOM LIGHT FIXTURES ARE TO BE FURNISHED BY THE KEC. LIGHTS SHALL BE MOUNTED AND INSTALLED BY THE EC.
- EC SHALL PROVIDE **2#12AWG** TO ALARM PANEL IN KITCHEN OFFICE FROM TEMPERATURE SENSORS IN WALK-IN UNITS.

REFERENCE DETAIL 1/EF502 EPO/SHUTOFF DETAIL - MAIN KITCHEN [2]

UTILITY DISTRIBUTION SYSTEM (ITEM 32)
- EC SHALL PROVIDE 208V/3PH MAIN POWER FEED TO UDS INDICATED AS ITEM 32 IN SCHEDULE.
- EC SHALL PROVIDE WIRING FROM THE EPO PUSHBUTTON LOOP IN KITCHEN TO SHUNT-TRIP MAIN CIRCUIT BREAKER IN UDS CABINET PER ELECTRICAL SHUTOFF DETAIL ON THIS DRAWING.
- EC SHALL WIRE EACH PIECE OF EQUIPMENT AND/OR ASSOCIATED RECEPTACLE TO THE UDS MAIN DISTRIBUTION PANEL AS INDICATED ON FOOD SERVICE EQUIPMENT ROUGH-IN DETAILS. EC SHALL CONNECT CORD AND PLUG TO EACH EQUIPMENT WITH A PLUG-IN CONNECTION.
- EC SHALL PROVIDE 2#12+#12G FROM CONTROL PANEL TO THE 120V GAS SOLENOID VALVE LOCATED ADJACENT TO T

THE DIVISION 26 CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL EXISTING ELECTRICAL CONNECTIONS PROVIDED WITHIN THE UTILITY DISTRIBUTION CENTER FOR PROPER TORQUEING AND TERMINATION. CONNECTIONS THAT MAY HAVE BEEN COMPROMISED IN SHIPMENT SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER FOR RESOLUTION. [2]



ELECTRICAL POWER NOTES - KITCHEN

1. REFER TO DRAWING E600 FOR MOTOR/ EQUIPMENT CIRCUIT SCHEDULE.
2. ALL RECEPTACLES SHALL BE GFI TYPE IF NOT PROTECTED BY GFI CIRCUIT BREAKER.
3. REFER TO DETAIL 1/E502 FOR EPO/SHUTOFF DETAIL - MAIN KITCHEN

2 ELECTRICAL ENLARGED PLAN - KITCHEN
1/4" = 1'-0"

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ELECTRICAL ENLARGED PLANS - KITCHEN

Date: 07/08/2024
Scale: As indicated
Proj. Number: 22367.00
Drawing Number: E400

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Branch Panel: GDPC

Location: MECHANICAL 1060 | **Volts:** 480/277 Wye | **A.I.C. Rating:** 14k AIC
Supply From: GDP | **Phases:** 3 | **Bus Material:** CU
Mounting: Surface | **Wires:** 4 | **Bus Rating:** 400 A
Enclosure: Type 1 | **MCB Rating / MLO:** 400A MCB

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	T-GPCD	200 A	3	34.39						2
3	--	--	--		31.77					4
5	--	--	--			28.98				6
7										8
9										10
11										12
13										14
15										16
17										18
19										20
21										22
23										24
25										26
27										28
29										30
31										32
33										34
35										36
37										38
39										40
41										42
	Phase Load:			34.39 kVA	31.77 kVA	28.98 kVA				
	Phase...			125.7 A	116.2 A	104.6 A				
	Total Load:			95.14 kVA						
Notes:	**Total Amps:**			114.44 A						

Branch Panel: GDPE

Location: MECHANICAL 1048 | **Volts:** 480/277 Wye | **A.I.C. Rating:** 14k AIC
Supply From: GDP | **Phases:** 3 | **Bus Material:** CU
Mounting: Surface | **Wires:** 4 | **Bus Rating:** 600 A
Enclosure: Type 1 | **MCB Rating / MLO:** 600A MCB

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	T-GPEF	350 A	3	60.43 6.65			3	30 A	DISC-ELEV-01	2
3	--	--	--		59.84 6.65		--	--	--	4
5	--	--	--			61.48 6.65	--	--	--	6
7										8
9										10
11										12
13										14
15										16
17										18
19										20
21										22
23										24
25										26
27										28
29										30
31										32
33										34
35										36
37										38
39										40
41										42
	Phase Load:			67.08 kVA	66.49 kVA	68.13 kVA				
	Phase...			242.5 A	240 A	246.3 A				
	Total Load:			201.69 kVA						
Notes:	**Total Amps:**			242.6 A						

Switchboard: MSB-1

Location: MAIN ELECTRICAL ROOM 1069 | **Volts:** 480/277 Wye | **A.I.C. Rating:** 65k AIC
Supply From: | **Phases:** 3 | **Mains Type:**
Mounting: | **Wires:** 4 | **Mains Rating:**
Enclosure: | **MCB Rating:** 3000 A

Notes:

CKT	Circuit Description	# of Poles	Frame Size	Trip Rating	Load	Remarks
1	EVHP	3	400 A	400 A	208800 VA	
2	LDP	3	250 A	200 A	64224 VA	
3	GDP	3	1200 A	1200 A	371263 VA	
4	MHDP	3	1200 A	1200 A	445923 VA	
5	KHP	3	250 A	200 A	102814 VA	
6	CH-1	3	600 A	450 A	286927 VA	
7	CH-2	3	600 A	450 A	286927 VA	
8	SHP	3	100 A	100 A	0 VA	
9	ATS-1	3	100 A	100 A	15469 VA	
10	ATS-2	3	400 A	400 A	147098 VA	
11	SPARE	3	400 A	400 A	0 VA	
12	SPARE	3	400 A	400 A	0 VA	
13	SPARE	3	250 A	225 A	0 VA	
14	SPARE	3	250 A	225 A	0 VA	
15	SPARE	3	400 A	400 A	0 VA	
16	*PV BACKFEED DEVICE	3	1200 A	1200 A	0 VA	
17						
18						
19						
20						
				Total Conn. Load:	1929268 VA	
				Total Amps:	2320.5 A	

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	51026 VA	100.00%	51026 VA		
Lighting	60445 VA	125.00%	75556 VA	**Total Conn. Load:**	1929268 VA
Other	973574 VA	100.00%	973574 VA	**Total Est. Demand:**	1944380 VA
Power	526308 VA	100.00%	526308 VA	**Total Conn. Current:**	2320.5 A
Cooling	13226 VA	100.00%	13226 VA	**Total Est. Demand Current:**	2338.7 A

Notes:
SUITABLE FOR REVERSE FEED. LOCATE ON OPPOSITE SIDE OF BUS FROM MAIN BREAKER PER NEC ARTICLE 690

Branch Panel: OSP2C

Location: ELEC 2056 | **Volts:** 120/208 Wye | **A.I.C. Rating:** 10k AIC
Supply From: T-OSPCD | **Phases:** 3 | **Bus Material:** CU
Mounting: Surface | **Wires:** 4 | **Bus Rating:** 100 A
Enclosure: Type 1 | **MCB Rating / MLO:** 50A MCB

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	SPARE	30 A	2	0.00 0.00			2	30 A	SPARE	2
3	--	--	--		0.00 0.00		--	--	--	4
5	SPARE	30 A	1			0.00 0.18	1	20 A	RECEPTACLE ELEC 2060	6
7	RADON FANS ROOF C	20 A	1	0.50 6.66			1	20 A	DOORS 2000A, 2000B	8
9	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	10
11	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	12
13	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	14
15	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	16
17	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	18
19	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	20
21	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	22
23	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	24
25	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	26
27	CUH VESTIBULE 2000	20 A	1		0.70 0.00		1	15 A	SPARE	28
29	MOTORIZED DAMPERS AREA C	20 A	1			0.36 0.00	1	15 A	SPARE	30
31	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	32
33	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	34
35	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	36
37	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	38
39	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	40
41	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	42
	Phase Load:			7.16 kVA	0.70 kVA	0.54 kVA				
	Phase...			59.8 A	6 A	4.5 A				
	Total Load:			8.39 kVA						
Notes:	**Total Amps:**			23.29 A						

Branch Panel: OSP2E

Location: ELEC 2093 | **Volts:** 120/208 Wye | **A.I.C. Rating:** 10k AIC
Supply From: T-OSPEF | **Phases:** 3 | **Bus Material:** CU
Mounting: Surface | **Wires:** 4 | **Bus Rating:** 100 A
Enclosure: Type 1 | **MCB Rating / MLO:** 50A MCB

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	SPARE	30 A	2	0.00 0.00			2	30 A	SPARE	2
3	--	--	--		0.00 0.00		--	--	--	4
5	RECEPTACLE ELEC. 2097	20 A	1			0.18 0.72	1	20 A	MOTORIZED DAMPERS AREA E	6
7	DOORS 2070A, 2070B	20 A	1	6.66 0.00			1	20 A	SPARE	8
9	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	10
11	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	12
13	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	14
15	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	16
17	FCU VESTIBULE 2070	20 A	1			0.70 0.00	1	15 A	SPARE	18
19	SPARE	15 A	1	0.00 0.00			1	15 A	SPARE	20
21	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	22
23	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	24
25	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	26
27	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	28
29	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	30
31	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	32
33	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	34
35	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	36
37	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	38
39	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	40
41	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	42
	Phase Load:			6.66 kVA	0.00 kVA	1.60 kVA				
	Phase...			57.5 A	0 A	15.3 A				
	Total Load:			8.25 kVA						
Notes:	**Total Amps:**			22.91 A						

Branch Panel: OSDPC

Location: MECHANICAL 1060 | **Volts:** 480/277 Wye | **A.I.C. Rating:** 14k AIC
Supply From: OSDP | **Phases:** 3 | **Bus Material:** CU
Mounting: Surface | **Wires:** 4 | **Bus Rating:** 225 A
Enclosure: Type 1 | **MCB Rating / MLO:** 150 A MCB

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	T-OSPCD	90 A	3	13.78 0.00			3	60 A	SPARE	2
3	--	--	--		7.04 0.00		--	--	--	4
5	--	--	--			3.84 0.00	--	--	--	6
7	SPARE	30 A	3	0.00 0.00			3	20 A	SPARE	8
9	--	--	--		0.00 0.00		--	--	--	10
11	--	--	--			0.00 0.00	--	--	--	12
13										14
15										16
17										18
19										20
21										22
23										24
25										26
27										28
29										30
31										32
33										34
35										36
37										38
39										40
41										42
	Phase Load:			13.78 kVA	7.04 kVA	3.84 kVA				
	Phase...			51.5 A	27.2 A	13.9 A				
	Total Load:			24.64 kVA						
Notes:	**Total Amps:**			29.63 A						

Branch Panel: SHP

Location: MAIN ELECTRICAL ROO... | **Volts:** 480/277 Wye | **A.I.C. Rating:** 65 KAIC
Supply From: MSB-1 | **Phases:** 3 | **Bus Material:** CU
Mounting: Surface | **Wires:** 4 | **Bus Rating:** 100 A
Enclosure: Type 1 | **MCB Rating / MLO:** 100A MCB

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	WEST PARKING & ENTRY DRIVE	20 A	1	0.00 0.00			1	20 A	EAST PARKING AND ENTRY DRIVE	2
3	W PARK & ENTRY DRIVE - NITE LITES	20 A	1		0.00 0.00		1	20 A	E PARK & ENTRY DRIVE - NITE LITES	4
5	REAR ACCESS DRIVE	20 A	1			0.00 0.00	1	20 A	SPARE	6
7	REAR ACCESS DRIVE - NITE LITES	20 A	1	0.00 0.00			1	20 A	SPARE	8
9	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	10
11	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	12
13	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	14
15	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	16
17	SITE LIGHTING	20 A	2			0.00 0.00	2	20 A	SITE LIGHTING	18
19	--	--	--	0.00 0.00			--	--	--	20
21	SITE LIGHTING	20 A	2		0.00 0.00		2	20 A	SITE LIGHTING	22
23	--	--	--			0.00 0.00	--	--	--	24
25	SITE LIGHTING	20 A	2	0.00 0.00			2	20 A	SITE LIGHTING	26
27	--	--	--		0.00 0.00		--	--	--	28
29	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	30
31	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	32
33	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	34
35	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	36
37	T-SLP	30 A	3	0.00 0.00			1	20 A	SPARE	38
39	--	--	--		0.00 0.00		1	20 A	SPARE	40
41	--	--	--			0.00				42
	Phase Load:			0.00 kVA	0.00 kVA	0.00 kVA				
	Phase...			0 A	0 A	0 A				
	Total Load:			0.00 kVA						
Notes:	**Total Amps:**			0 A						

Branch Panel: SLP

Location: MAIN ELECTRICAL ROO... | **Volts:** 120/208 Wye | **A.I.C. Rating:** 42k AIC
Supply From: T-SLP | **Phases:** 3 | **Bus Material:** CU
Mounting: Surface | **Wires:** 4 | **Bus Rating:** 100 A
Enclosure: Type 1 | **MCB Rating / MLO:** 50A MCB

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	FLAGPOLE LIGHT	20 A	1	0.00 0.00			1	20 A	SPARE	2
3	SOFTBALL FIELD #1 DUGOUTS	20 A	1		0.00 0.00		1	20 A	SPARE	4
5	SOFTBALL FIELD #2 DUGOUTS	20 A	1			0.00 0.00	1	20 A	SPARE	6
7	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	8
9	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	10
11	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	12
13	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	14
15	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	16
17	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	18
19	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	20
21	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	22
23	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	24
25	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	26
27	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	28
29	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	30
31	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	32
33	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	34
35	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	36
37	SPARE	20 A	1	0.00 0.00			1	20 A	SPARE	38
39	SPARE	20 A	1		0.00 0.00		1	20 A	SPARE	40
41	SPARE	20 A	1			0.00 0.00	1	20 A	SPARE	42
	Phase Load:			0.00 kVA	0.00 kVA	0.00 kVA				
	Phase...			0 A	0 A	0 A				
	Total Load:			0.00 kVA						
Notes:	**Total Amps:**			0 A						

Branch Panel: OSDPE

Location: MECHANICAL 1048 | **Volts:** 480/277 Wye | **A.I.C. Rating:** 14k AIC
Supply From: OSDP | **Phases:** 3 | **Bus Material:** CU
Mounting: Surface | **Wires:** 4 | **Bus Rating:** 225 A
Enclosure: Type 1 | **MCB Rating / MLO:** 150A MCB

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	T-OSPEF	90 A	3	20.84 0.00			3	60 A	SPARE	2
3	--	--	--		20.04 0.00		--	--	--	4
5	--	--	--			19.72 0.00	--	--	--	6
7	SPARE	30 A	3	0.00 0.00			3	20 A	SPARE	8
9	--	--	--		0.00 0.00		--	--	--	10
11	--	--	--			0.00 0.00	--	--	--	12
13										14
15										16
17										18
19										20
21										22
23										24
25										26
27										28
29										30
31										32
33										34
35										36
37										38
39										40
41										42
	Phase Load:			20.84 kVA	20.04 kVA	19.72 kVA				
	Phase...			75.4 A	72.5 A	71.2 A				
	Total Load:			60.58 kVA						
Notes:	**Total Amps:**			72.86 A						

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Drawn: KCM
Checked: SJM

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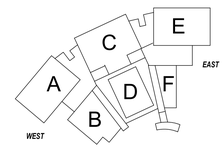
Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane,
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N

NORTH



KEYPLAN

Number	Date	Issued For
3	10/30/2024	ADDENDUM NO. 4
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

ELECTRICAL PANEL SCHEDULES

Date: 07/08/2024
Scale:
Proj. Number: 22367.00
Drawing Number: E607

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ELECTRICAL RISER DIAGRAM KEY NOTES

E1 PROVIDE CONCRETE PAD AND GROUNDING SYSTEM FOR UTILITY TRANSFORMER, PER UTILITY COMPANY REQUIREMENTS. PROVIDE PER ELECTRICAL DETAILS.

E2 PROVIDE THE FOLLOWING GENERATOR AUXILIARY CONNECTIONS ROUTED UNDERGROUND:
- **20A-1P** CIRCUIT FOR BATTERY CHARGER, 2#12+1#12G, 3/4"C. TO BREAKER IN **PANEL OSP1A**
- **30A-2P** CIRCUIT FOR BLOCK HEATER, 2#10+1#10G, 3/4"C. TO BREAKER IN **PANEL OSP1A**
- 1"C. WITH WIRING PER MFR. REQUIREMENTS TO **ATS-1** FOR START CIRCUIT.
- 1"C. WITH WIRING PER MFR. REQUIREMENTS TO **ATS-2** FOR START CIRCUIT - THIS WIRING SHALL TRANSITION TO 2-HOUR RATED M.I. CABLE WHEN ABOVE GROUND INSIDE THE BUILDING, IF ROUTED THROUGH A SPACE OTHER THAN THE FIRE PUMP ROOM.

3 1"C. WITH WIRING PER MFR. REQUIREMENTS TO ATS-3 (FIRE PUMP) FOR START CIRCUIT - THIS WIRING SHALL TRANSITION TO 2-HOUR RATED M.I. CABLE WHEN ABOVE GROUND INSIDE THE BUILDING, IF ROUTED THROUGH A SPACE OTHER THAN THE FIRE PUMP ROOM.
- 1"C. WITH WIRING PER MFR. REQUIREMENTS TO REMOTE EPO PUSHBUTTON, LOCATED PER ELECTRICAL FLOOR PLANS.
- 1"C. WITH WIRING PER MFR. REQUIREMENTS TO REMOTE EPO PUSHBUTTON, LOCATED PER ELECTRICAL FLOOR PLANS.

3 PROVIDE GENERATOR MODULE FOR ENGINE START MONITORING SYSTEM AT GENERATOR FOR ATS-2 AND ATS-3 FIRE PUMP. PROVIDE POWER FROM GENERATOR BATTERY AND CONNECT ONE ALARM OUTPUT TO GENERATOR ANNUNCIATOR ALARM CIRCUIT. CONNECT SECOND ALARM OUTPUT TO FIRE ALARM SYSTEM MONITORING MODULE IN BUILDING.

E3 PROVIDE GROUNDING AS A SEPARATELY DERIVED SYSTEM IN ACCORDANCE WITH NEC. PROVIDE GROUNDING ELECTRODES AT GENERATOR PER NEC.

E4 CONCRETE HOUSEKEEPING PAD BY DIVISION 03 CONTRACTOR. COORDINATE ALL REQUIREMENTS WITH DIVISION 03 CONTRACTOR.

E5 PV DISCONNECT SWITCH AND CT/PT METERING CABINET LOCATION

E6 PV COLLECTOR PANEL LOCATION

E7 LOCATE ON OPPOSITE SIDE OF BUS AS MAIN CIRCUIT BREAKER, PER NEC 690 REQUIREMENTS.

E8 PROVIDE C.T.-RATED UTILITY METER SOCKET PER UTILITY COMPANY REQUIRMENTS. LOCATION SHOWN ON PLANS. PROVIDE 1-1/2"C. WITH NYLON PULLSTRING FROM METER TO SWITCHBOARD C.T. CABINET. COORDINATE METER AND C.T. CABINET PRODUCT AND INSTALLATION REQUIREMENTS WITH UTILITY COMPANY PRIOR TO INSTALLATION.

E9 PROVIDE SIGNAGE AT THE SWITCHBOARD PER SPECIFICATIONS AND NEC FOR ARC FLASH AND FAULT CURRENT INDICATION. IN ADDITION, PROVIDE PERMANENT SIGNAGE INDICATING OTHER SOURCES OF POWER, WHERE APPLICABLE.

E10 TRANSFORMERS MOUNTED REMOTELY FROM PANELBOARDS BEING SERVED SHALL BE PROVIDED WITH SECONDARY OVERCURRENT PROTECTION AT THE TRANSFORMER

ELECTRICAL SUBMETER SCHEDULE

DESIGNATION	VOLTAGE	CURRENT SENSOR RATING	ITEMS METERED	ENCLOSURE
EM1	480/277 3PH	1200A	RECEPTACLES (GDP)	SEE NOTE #1
EM2	480/277 3PH	200A	LIGHTING (LDP)	
EM3	480/277 3PH	1200A	MECHANICAL (MDP)	
EM4	480/277 3PH	200A	KITCHEN (KP)	
EM5	480/277 3PH	100A	EMERG. LIGHTING (ELDP)	
EM6	480/277 3PH	400A	STANDBY (OSDP)	
EM7	480/277 3PH	450A	HVAC EQUIPMENT	
EM8	480/277 3PH	450A	HVAC EQUIPMENT	
EM9	480/277 3PH	450A	SITE	
EM10	480/277 3PH	450A	EV CHARGING	

NOTE:

1. SATEC #BFM-II BRANCH FEEDER MONITOR, WALL MOUNTED IN MAIN ELECTRICAL ROOM, WITH THE FOLLOWING CHARACTERISTICS:
   - A. 6 CHANNEL EXPANSION MODULE.
   - B. BUILT IN RS-485 COMMUNICATIONS CAPABILITY.
   - C. MONITORING/DISPLAY CAPABILITIES FOR KWH, POWER FACTOR PER PHASE, KW DEMAND, REAL TIME LOAD (KW), VOLTS PER PHASE, DATE & TIME, ID CODES FOR COMMUNICATION.
   - D. 0 TO 2 VOLT OUTPUT SPLIT CORE HIGH ACCURACY CURRENT SENSORS (HACS).

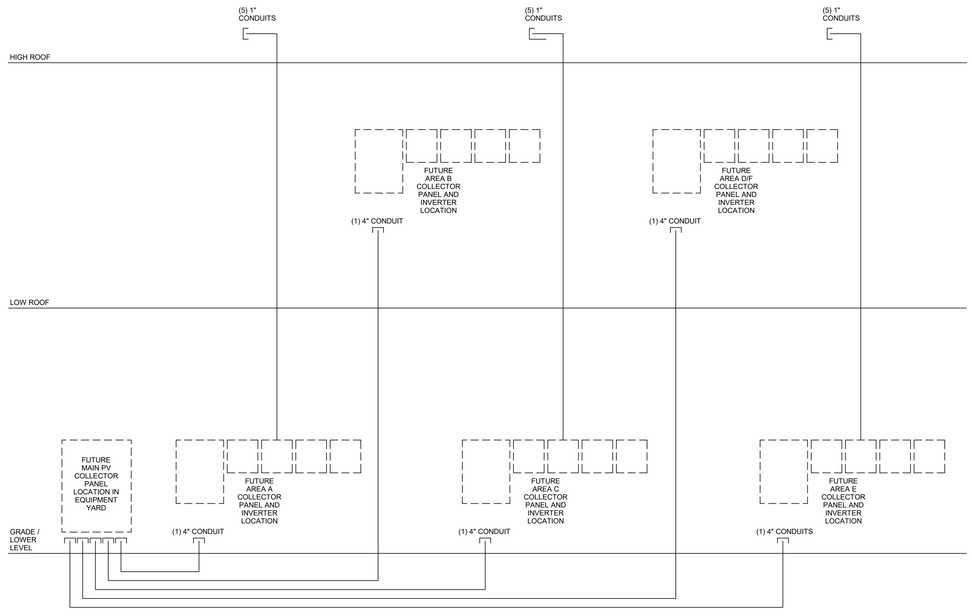
DRY TYPE TRANSFORMER SCHEDULE

COPPER CONDUCTORS

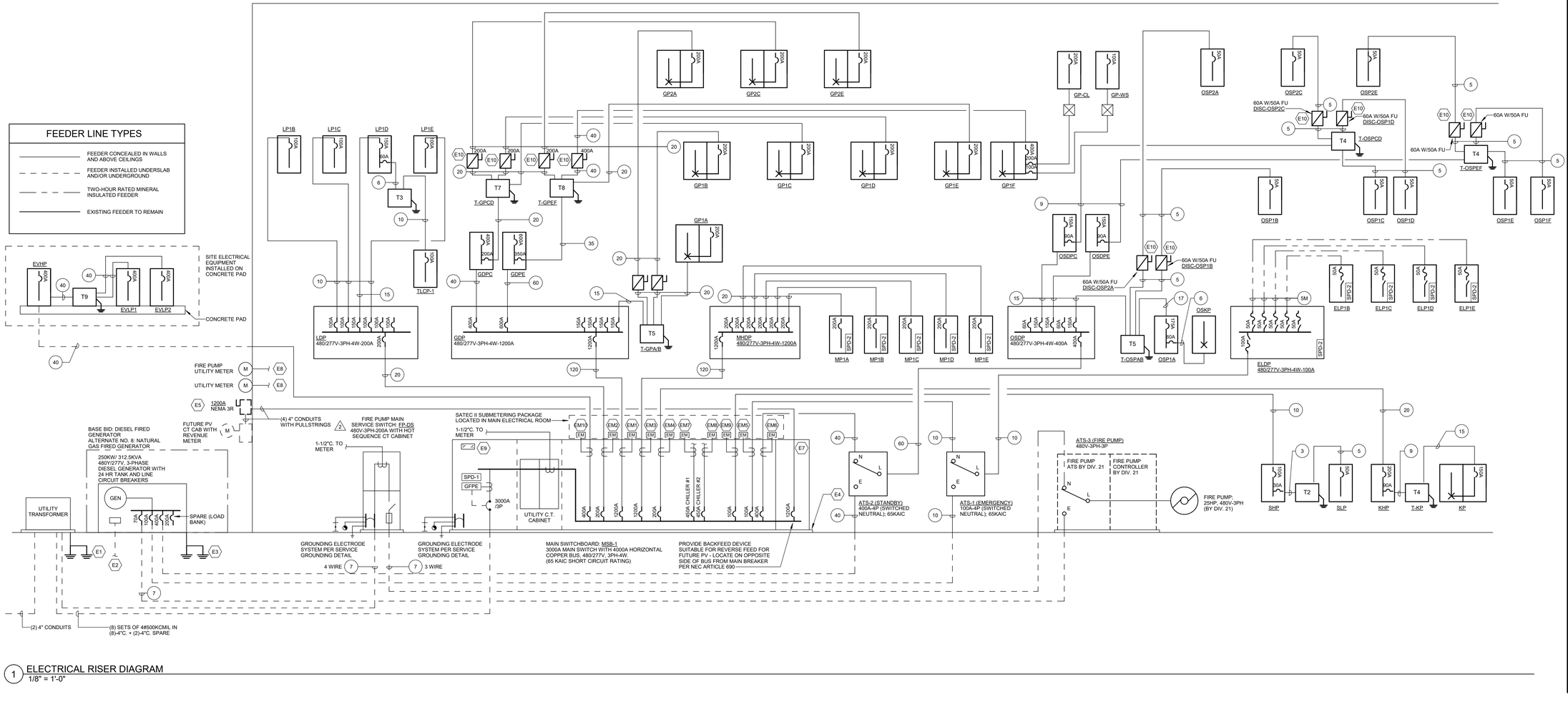
SIZE	KVA	PRIMARY AMPS	SECONDARY AMPS	480 VOLT OVERCURRENT	208 VOLT OVERCURRENT (NOTE 4)	480 VOLT FEEDER	208/120 VOLT FEEDER	GEC (NOTE 5)	SSBJ (NOTE 6)
T1	9	11	25	20A, 3P	30A, 3P	3#12 & 1#12G - 3/4"C	4#10 - 3/4"C	1#8 - 3/4"C	1#8
T2	15	18	42	30A, 3P	50A, 3P	3#10 & 1#10G - 3/4"C	4#8 - 1"C	1#8 - 3/4"C	1#8
T3	30	36	83	60A, 3P	100A, 3P	3#6 & 1#10G - 1"C	4#3 - 1 1/4"C	1#6 - 3/4"C	1#6
T4	45	54	125	90A, 3P	150A, 3P	3#3 & 1#8G - 1 1/4"C	4#1/0 - 2"C	1#6 - 3/4"C	1#6
T5	75	90	208	150A, 3P	250A, 3P	3#1/0 & 1#6G - 2"C	4#250 KCMIL - 3"C	1#2 - 3/4"C	1#2
T6	112.5	135	313	200A, 3P	400A, 3P	3#3/0 & 1#6G - 2"C	4#600 KCMIL - 4"C	1#1/0 - 3/4"C	1#1/0
T7	150	181	417	300A, 3P	500A, 3P	3#350 KCMIL & 1#4G - 3"C	(2) SETS OF: 4#250 KCMIL - (2) 3"C	1#1/0 - 3/4"C	1#1/0
T8	225	270	625	400A, 3P	800A, 3P	3#600 KCMIL & 1#3G - 4"C	(2) SETS OF: 4#600 KCMIL - (2) 4"C	1#3/0 - 3/4"C	1#3/0
T9	300	361	834	600A, 3P	1000A, 3P	(2) SETS OF: 3#350 KCMIL & 1#1G - (2) 3"C	(3) SETS OF: 4#500 KCMIL - (3) 4"C	1#3/0 - 3/4"C	1#3/0
T10	500	600	1400	1000A, 3P	1600A, 3P	(3) SETS OF: 3#500 KCMIL & 1#2/0G - (3) 4"C	(4) SETS OF: 4#600 KCMIL - (4) 4"C	1#300 KCMIL- 1"C	1#300 KCMIL

TRANSFORMER NOTES:

1. BOND NEUTRAL TRANSFORMER SECONDARY TO THE TRANSFORMER GROUND BAR AND CASE WITH SYSTEM BONDING JUMPER.
2. USE NEAREST AVAILABLE EFFECTIVELY GROUNDED WATER PIPE, STRUCTURAL STEEL AND/OR DRIVEN GROUND ROD IN ACCORDANCE WITH N.E.C. 250-81 AND 250-83 FOR THE SEPARATELY DERIVED SYSTEM GROUNDING ELECTRODE.
3. ALL CONDUCTOR SIZES ARE FOR COPPER CONDUCTORS. N.E.C. TABLE 310.15(B)(16).
4. SECONDARY OVERCURRENT PROTECTION SHALL BE LOCATED WITH IN (10) FEET OF THE TRANSFORMER SECONDARY TERMINALS EITHER IN A PANELBOARD (MAIN BREAKER), AN INDIVIDUALLY MOUNTED CIRCUIT BREAKER, OR A FUSIBLE DISCONNECT SWITCH.
5. GROUNDING ELECTRODE CONDUCTOR TO BE RUN FROM GROUND BAR IN TRANSFORMER TO THE GROUNDING ELECTRODE FOR THE SEPARATELY DERIVED SYSTEM.
6. SYSTEM BONDING JUMPER/SUPPLY SIDE BONDING JUMPER TO BE INSTALLED BETWEEN THE TRANSFORMER GROUND BAR AND CASE AND BETWEEN THE GROUND BAR IN THE FIRST SUPPLY SIDE DISCONNECTING MEANS (PANELBOARD, ENCLOSED CIRCUIT BREAKER OR FUSIBLE DISCONNECT SWITCH) AND TRANSFORMER GROUND BAR. INSTALL MULTIPLE SUPPLY SIDE BONDING JUMPERS OF THE SIZE LISTED, (1) IN EACH FEEDER RACEWAY.
7. 600 KCMIL CONDUCTORS SHALL BE PROVIDED WITH MAC ADAPTERS AS REQUIRED TO COORDINATE WITH BREAKER LUG SIZES.



2 FUTURE PV SYSTEM CONDUIT RISER DIAGRAM
1/8" = 1'-0"



1 ELECTRICAL RISER DIAGRAM
1/8" = 1'-0"

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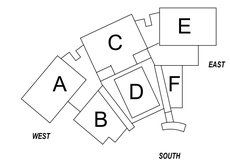
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Greenwich Public Schools

Greenwich Central Middle School

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STATE PROJECT NO: 057-0114 N



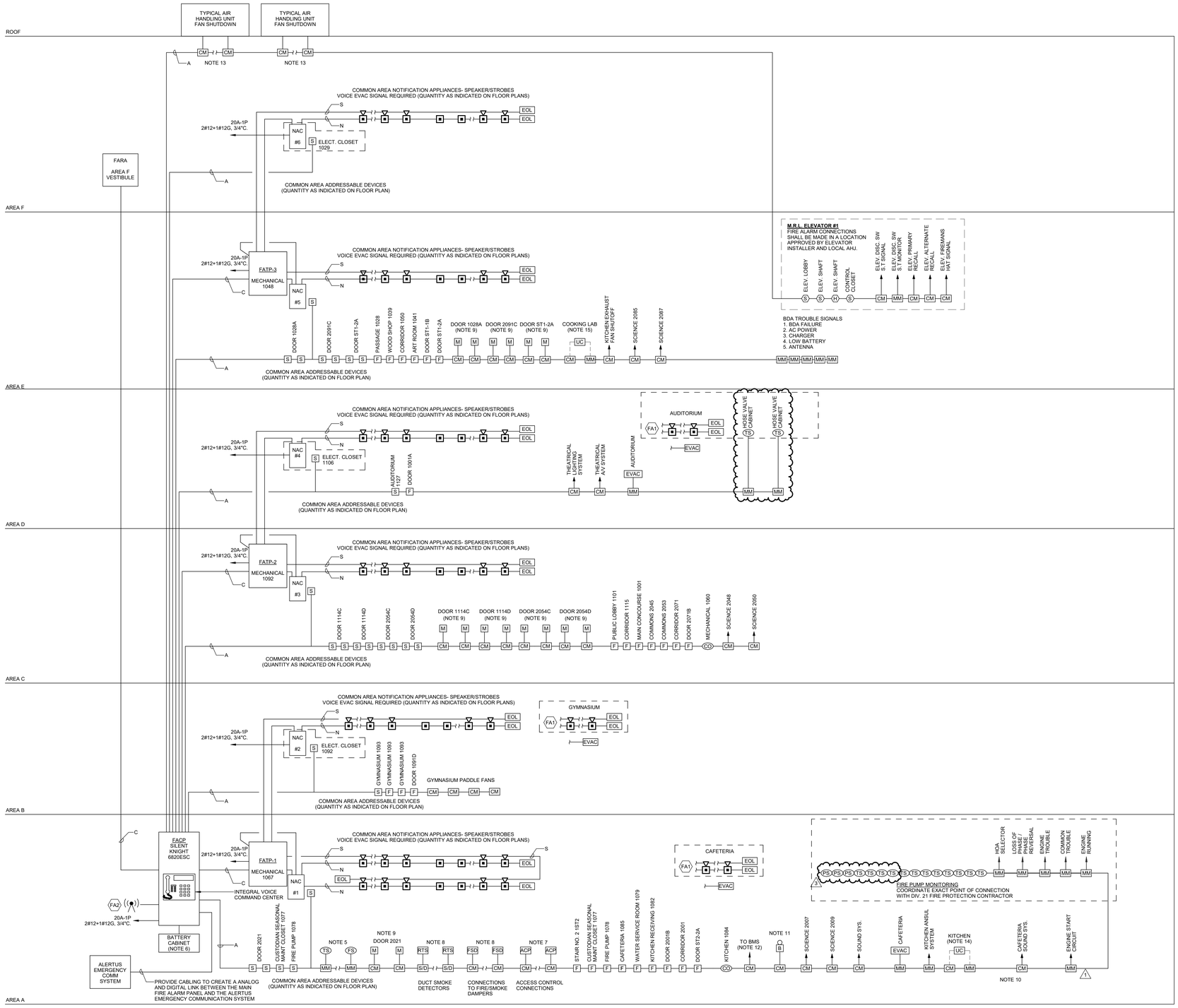
KEYPLAN

Number	Date	Issued For
3	10/30/2024	ADDENDUM NO. 4
2	10/23/2024	ADDENDUM NO. 3
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

ELECTRICAL RISER DIAGRAM

Date: 07/08/2024
Scale: NTS
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1 FIRE ALARM RISER DIAGRAM
NTS

FIRE ALARM GENERAL NOTES

1. REFER TO DRAWING E0.00 FOR DESCRIPTION OF SYMBOLS, ABBREVIATIONS AND NOTES.
2. CABLES SHALL BE ROUTED ABOVE CEILING AND IN STUD WALLS WHENEVER POSSIBLE. FIRE ALARM MC CABLING IS ACCEPTABLE WHEN CABLING IS NOT EXPOSED. WHERE EXPOSED OR ROUTED IN CONCRETE, PROVIDE WIRE IN CONDUIT.
3. PROVIDE EXTRA POWER SUPPLIES AND TRANSPONDERS WHERE REQUIRED BY MANUFACTURER. IF NAC POWER SUPPLIES AND TRANSPONDERS ARE SUPPLIED AT THE DISCRETION OF THE FIRE ALARM INTEGRATOR A SMOKE DETECTOR SHALL BE PROVIDED AT EACH PANEL LOCATION.
4. TYPICAL DEVICES SHOWN IN RISER. REFER TO FLOOR PLANS FOR DEVICE QUANTITIES AND LOCATIONS.
5. REFER TO FIRE PROTECTION DRAWINGS FOR LOCATIONS AND QUANTITIES OF FLOW AND TAMPER SWITCHES.
6. CONTRACTOR IS RESPONSIBLE FOR SIZING BATTERY CABINET CAPABLE OF SUPPORTING BUILDING FIRE ALARM SYSTEM IN THE EVENT OF A POWER FAILURE. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
7. PROVIDE FIRE ALARM CONTROL MODULE AND CONNECTIONS TO FIRE ALARM SYSTEM FOR EACH ACCESS CONTROL PANEL AND DOOR LOCK POWER SUPPLY IN PROJECT. REFER TO TECHNOLOGY DRAWINGS FOR EXACT QUANTITY AND LOCATION REQUIRED.
8. REFER TO HVAC DRAWINGS FOR LOCATIONS AND QUANTITIES OF DUCT SMOKE DETECTORS AND SMOKE DAMPERS. REMOTE TEST SWITCHES SHALL BE FLUSHED IN CEILING DIRECTLY BELOW DUCT SMOKE DETECTOR (OR IN CLOSEST DROPPED CEILING TO DETECTOR), UNLESS OTHERWISE NOTED.
9. REFER TO ARCHITECTURAL CODE DRAWINGS FOR LOCATIONS AND QUANTITIES OF MAGNETIC-HOLD DEVICES FOR FIRE DOORS. MAG-HOLD DEVICES SHALL BE FURNISHED BY DIV. 8 HARDWARE CONTRACTOR, AND INSTALLED/ WIRED BY EC.
10. EXTERIOR RED BEACON LIGHTS FOR FIRE DEPARTMENT NOTIFICATION, PER SPECIFICATIONS.
11. ELECTRIC SPRINKLER BELL FURNISHED BY DIV.21 FIRE PROTECTION CONTRACTOR AND INSTALLED/WIRED BY FIRE ALARM CONTRACTOR.
12. PROVIDE FIRE ALARM CONTROL MODULE(S) AND CONNECTIONS TO BUILDING MANAGEMENT SYSTEM TO REPORT FIRE ALARM CONDITION. COORDINATE EXACT POINT OF CONNECTION AND QUANTITY OF CONNECTIONS REQUIRED WITH HVAC CONTRACTOR AND BUILDING MANAGEMENT SEQUENCE OF OPERATION PRIOR TO INSTALLATION.
13. FIRE ALARM CONTRACTOR SHALL PROVIDE CONTROL MODULE AND HARD WIRED CONNECTION TO EACH AIR HANDLING UNIT FOR SHUTDOWN. COORDINATE EXACT POINT OF CONNECTION WITH DIV. 23 ATC CONTROLS CONTRACTOR PRIOR TO INSTALLATION.
14. REFER TO KITCHEN NATURAL GAS DETECTION SYSTEM DETAIL FOR FIRE ALARM INTERCONNECTIONS.
15. REFER TO SCIENCE LAB ELECTRIC & GAS SHUTOFF SYSTEM DETAIL FOR FIRE ALARM INTERCONNECTIONS. (TYPICAL FOR EACH SCIENCE LAB)
16. REFER TO BOILER ROOM NATURAL GAS DETECTION SYSTEM DETAIL FOR FIRE ALARM INTERCONNECTIONS.
17. THE ALERTUS EMERGENCY COMMUNICATION SYSTEM SHALL BE INTERCONNECTED TO PERFORM THE FOLLOWING FUNCTIONS IN CONFORMANCE WITH THIS PROVIDED SEQUENCE OF OPERATION:
18. ALL ALERTUS GENERATED VOICE COMMUNICATIONS SHALL BE ANNUNCIATED OVER THE FIRE ALARM SYSTEM VOICE EVAC SPEAKER SYSTEM. THIS SHALL INCLUDE PRE-RECORDED MESSAGES AND LIVE MICROPHONE GENERATED VOICE OUTPUT. PROVIDE AN ANALOG COMMUNICATION LINK BETWEEN THE ALERTUS SYSTEM HEAD END AND THE FIRE ALARM PANEL INPUTS. PROVIDE A DIGITAL ETHERNET LINK BETWEEN THE FIRE ALARM PANEL AND THE LOCAL NETWORK FOR ANY DIGITAL BASED COMMUNICATIONS. ALERTUS MESSAGING THAT NEEDS TO BE ANNUNCIATED SHALL OVERRIDE THE FIRE ALARM SYSTEM SHALL SEND ALL FIRE ALARM ANNUNCIATION, CONTROL AND MONITORING COMMANDS TO THE ALERTUS SYSTEM FOR ANNUNCIATION OF FIRE ALARM GENERATED EMERGENCY COMMUNICATIONS ON THE ALERTUS SYSTEM TO THE DISTRICT SELECTED CONNECTED ENTITIES AND END USERS.

FIRE ALARM KEY NOTES

FA1 CONNECT TO FIRE ALARM PANEL AS SEPARATE SPEAKER CIRCUIT TO BE CONTROLLED VIA REMOTE EVAC MICROPHONE IN ASSOCIATED AREA OF ASSEMBLY.

FA2 SECONDARY COMMUNICATION TO CENTRAL STATION MONITORING SHALL BE VIA CELLULAR/ GSM SIGNAL. PROVIDE CELLULAR MODULE COMPATIBLE WITH FIRE ALARM PANEL AND ALL REQUIRED PROGRAMMING TO REPORT TO CENTRAL STATION.

FIRE ALARM CABLING LEGEND

	CIRCUIT DESCRIPTION	CONSTRUCTION/SIZE	CABLE TYPE
N	NOTIFICATION APPLIANCE	14AWG UTP SOLID	M.C. CABLE
C	SERIAL COMM.	14AWG STP SOLID + 2#14 POWER	THHN IN 1"C.
A	ADDRESSABLE INPUT LOOP	16AWG UTP SOLID	M.C. CABLE
S	SPEAKER CIRCUIT	14AWG STP SOLID	M.C. CABLE

NOTE:
1. EXACT CABLE SIZES, TYPES AND QUANTITY SHALL BE AS RECOMMENDED BY MANUFACTURER.

SEQUENCE OF OPERATION

	INITATION	ACTION: A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	V
		OPERATE ALL NOTIFICATION DEVICES (VISIBLE AND VOICE EVAC)	TRANSMIT ALARM SIGNAL TO CENTRAL STATION, ACTIVATE BEACON	TRANSMIT SUPERVISORY SIGNAL TO FIRE ALARM CONTROL PANEL	ACTUATE AUDIBLE SUPERVISORY SIGNAL	SEND DRY CONTACT SIGNAL TO BUILDING MANAGEMENT SYSTEM	TURN ON FIRE PROTECTION BELL	RECALL ELEVATOR TO FIRST FLOOR	RECALL ELEVATOR TO SECOND FLOOR	SEND WARNING TO ELEVATOR CAB / FIREMAN'S HAT	SHUNT-TRIP SIGNAL TO ELEV. DISCONNECT SWITCH	CLOSE ALL FIRE/SMOKE DAMPERS IN BUILDING	ACTUATE HVAC FAN SHUT DOWN INC. HVLS CEILING FANS	CUT POWER TO AND CLOSE MAGNETIC DOOR HOLDS	SEND SIGNAL TO ACCESS CONTROL PANELS	SHUTOFF SIGNAL TO KITCHEN GAS/ELECTRIC CONTROLLER	SHUTOFF SIGNAL TO SCIENCE LAB CONTROL PANELS	SHUTOFF SIGNAL TO BOILER ROOM GAS/ELECTRIC CONTROLLER	FULL-BRIGHT SIGNAL TO LIGHTING CONTROL SYSTEMS (PER DETAILS)	COMMUNICATE OVER SPEAKERS IN ASSOCIATED AREA OF ASSEMBLY	ACTIVATE STAGE FIRE CURTAIN RELEASE	MUTE SIGNAL TO ALL SOUND SYSTEMS AND THEATRICAL SYSTEMS
1	MANUAL PULL STATION	X	X			X							X	X	X		X		X			X
2	SMOKE DETECTOR OR HEAT DETECTOR	X	X			X							X	X	X		X		X			X
3	DUCT SMOKE DETECTOR	X	X			X						X	X	X	X		X		X			X
4	SMOKE DETECTOR - 1ST FLOOR ELEV. LANDING	X	X			X			X	X			X	X	X		X		X			X
5	SMOKE DETECTOR - 2ND ELEV. LANDING	X	X			X		X		X			X	X	X		X		X			X
6	SMOKE DETECTOR - ELEV. SHAFT	X	X			X		X		X			X	X	X		X		X			X
7	SPRINKLER WATER FLOW	X	X			X	X						X	X	X		X		X			X
8	SPRINKLER VALVE TAMPER			X	X												X		X			X
9	CARBON MONOXIDE DETECTOR IN KITCHEN			X	X											X						
10	CARBON MONOXIDE DETECTOR - OTHER THAN KITCHEN			X	X																	
11	KITCHEN ANSUL SYSTEM ACTIVATION	X	X			X							X	X	X	X			X			X
12	NATURAL GAS DETECTION IN KITCHEN			X	X											**						
13	NATURAL GAS DETECTION IN SCIENCE LAB			X	X												**					
14	NATURAL GAS DETECTION IN BOILER ROOM			X	X												**					
15	REMOTE EVAC MICROPHONE																			X		
16	BDA/ DAS SYSTEM TROUBLE			X	X																	
17	FIRE PUMP		X	X																		
18																						

NOTE
1. SEQUENCE OF OPERATION IS TYPICAL. REFER TO PLANS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
** = SHUTOFF SIGNAL SHALL OCCUR DIRECTLY THROUGH THE UTILITY CONTROLLER, NOT VIA FIRE ALARM SYSTEM.

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STATE PROJECT NO: 057-0114 N

NORTH / EAST / SOUTH / WEST

KEYPLAN

Number	Date	Issued For
3	10/30/2024	ADDENDUM NO. 4
1	10/16/2024	ADDENDUM NO. 2
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FIRE ALARM RISER DIAGRAM

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