SECTION 00 9113 – ADDENDUM NO. 3

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. 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 10/25/2024)

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#9- Scope of Work - SITEWORK

D. 03e - Updated BP#12 - Scope of Work - STRUCTURAL STEEL

E. 03f - Updated BP#13 - Scope of Work - MISC. METAL

F. 03k - Updated BP#18 - Scope of Work – MILLWORK & CASEWORK

G. 03p - Updated BP#23 - Scope of Work – CERAMIC TILE

H. 03z.b - Updated BP#35- Scope of Work – FIRE PROTECTION

I. 03z.c - Updated BP#36 - Scope of Work – PLUMBING

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

K. 03z.e - Updated BP#38 - Scope of Work – ELECTRICAL & FIRE ALARM

1.3 PROJECT MANUAL

L. REPLACE the follow specification section, previously dated September 30, 2024 with the revised section dated October 16, 2024

1.	07 6200	SHEET METAL FLASHINGS AND TRIM
2.	08 4413	GLAZED ALUMINUM CURTAIN WALLS
3.	12 6100	FIXED AUDIENCE SEATING
4.	23 0993	SEQUENCE OF OPERATIONS
5.	23 2123	HYDRONIC PUMPS
6.	23 3100	HVAC DUCT AND CASTINGS
7.	23 3400	HVAC FANS

M. ADD new specification section dated October 16, 2024

1.	21 0433	HEAT TRACING FOR FIRE SUPPRESSION PIPING
2.	21 0533	HEAT TRACING FOR PLUMBING PIPING

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.	C501	SITE STORMWATER MANAGEMENT DETAILS - 1
2.	TC202	SIGNAGE AND PAVEMENT MARKING PLAN

SITE UTILITIES

3.	SU100	MEP SITE UTILITY PLAN
4.	SU501	MEP SITE UTILITY PLAN – DETAILS & SCHEDULES
5.	PSU001	PLUMBING SITE UTILITY PLAN

ARCHITECTURAL

6.	A102A	SECOND FLOOR PLAN – PART A
7.	A102C	SECOND FLOOR PLAN – PART C
8.	A102E	SECOND FLOOR PLAN – PART E
9.	A103A	ROOF PLAN – PART A
10.	A103C	ROOF PLAN – PART C
11.	A103E	ROOF PLAN – PART E
12.	A514	EXTERIOR PLAN & SECTION DETAILS
13.	A515	EXTERIOR PLAN DETAILS
14.	A520	EXTERIOR PLAN DETAILS

FIRE PROTECTION

15.	FP000	FIRE PROTECTION ABBREVIATIONS, NOTES AND SYMBOLS
16.	FP001	FIRE PROTECTION ZONING PLAN
17.	FP101A	FIRE PROTECTION FIRST FLOOR PLAN - PART A
18.	FP101B	FIRE PROTECTION FIRST FLOOR PLAN - PART B
19.	FP101C	FIRE PROTECTION FIRST FLOOR PLAN - PART C
20.	FP101D	FIRE PROTECTION FIRST FLOOR PLAN - PART D
21.	FP101E	FIRE PROTECTION FIRST FLOOR PLAN - PART E

PLUMBING

22.	P100B	PLUMBING FIRST FLOOR UNDERSLAB PLAN - PART B
23.	P100D	PLUMBING FIRST FLOOR UNDERSLAB PLAN - PART D
24.	P100E	PLUMBING FIRST FLOOR UNDERSLAB PLAN - PART E
25.	P100F	PLUMBING FIRST FLOOR UNDERSLAB PLAN - PART F
26.	P101A	PLUMBING FIRST FLOOR PLAN - PART A
27.	P101E	PLUMBING FIRST FLOOR PLAN - PART E
28.	P101F	PLUMBING FIRST FLOOR PLAN - PART F
29.	P402	PLUMBING ENLARGED VIEWS

MECHANICAL

30.	M101D	MECHANICAL FIRST FLOOR PLAN – PART D
31.	M102A	MECHANICAL SECOND FLOOR PLAN – PART A
32.	MP101B	MECHANICAL PIPING FIRST FLOOR PLAN - PART B
33.	MP101C	MECHANICAL PIPING FIRST FLOOR PLAN - PART C
34.	MP102A	MECHANICAL PIPING SECOND FLOOR PLAN - PART A
35.	M502	MECHANICAL DETAILS
36.	M602	MECHANICAL SCHEDULES
37.	M700	MECHANICAL CONTROLS DIAGRAMS
38.	M701	MECHANICAL CONTROLS DIAGRAMS

ELECTRICAL

39.	EL101E	ELECTRICAL LIGHTING FIRST FLOOR PLAN - PART E
40.	EP101B	ELECTRICAL POWER FIRST FLOOR PLAN - PART B
41.	EP101D	ELECTRICAL POWER FIRST FLOOR PLAN - PART D
42.	EP101E	ELECTRICAL POWER FIRST FLOOR PLAN - PART E
43.	EP103A	ELECTRICAL POWER ROOF PLAN – PART A
44.	EP103B	ELECTRICAL POWER ROOF PLAN – PART B
45.	E400	ELECTRICAL ENLARGED PLANS - KITCHEN
46.	E502	ELECTRICAL DETAILS
47.	E600	ELECTRICAL SCHEDULES DIAGRAM
48.	E604	ELECTRICAL PANEL SCHEDULES
49.	E700	ELECTRICAL RISER DIAGRAM

B. NEW Drawing, issued on 10/23/2024 as part of Addendum No. 3

1.	E505	ELECTRICAL DETAILS

END OF DOCUMENT 00 9113 - ADDENDUM No. 3

END OF SECTION 01 09113

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GCMS Phase 2 - Bidder's Question Log

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.						
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
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

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GCMS Phase 2 - Bidder's Question Log

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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.						
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.						
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?						
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
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?						

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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.						
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
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.						

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GCMS Phase 2 - Bidder's Question Log

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
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
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

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GCMS Phase 2 - Bidder's Question Log

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
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.	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
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

Turner

GCMS Phase 2 - Bidder's Question Log

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
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.						
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
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.						
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?	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		Closed	10/24/2024
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

Turner

GCMS Phase 2 - Bidder's Question Log

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
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.					
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
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

Turner

GCMS Phase 2 - Bidder's Question Log

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
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
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.	The two required fleld tests are outlined in part 3.4 Field Qulaity Control to be included by BP #19.	10/13/2024	SLAM			

Turner

GCMS Phase 2 - Bidder's Question Log

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
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
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.				Yes -- Substitution Request		
90				BQ NOT UTILIZED						

Turner

GCMS Phase 2 - Bidder's Question Log

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
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										
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

Turner

GCMS Phase 2 - Bidder's Question Log

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
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?						
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.				Yes -- Substitution Request		
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
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

Turner

GCMS Phase 2 - Bidder's Question Log

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
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.		10/23/2024	CES			
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.		10/23/2024	CES			
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?						
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.				Yes -- Substitution Request		
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?						
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.						
122	SLAM	S210	10/15/24	2.Please provide a detail for the chiller and generator pads. The detail callout of 7/S210 doesn’t seem to be correct.						
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						
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						

Turner

GCMS Phase 2 - Bidder's Question Log

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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	10/25/2025
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.						
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?						
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

Turner

GCMS Phase 2 - Bidder's Question Log

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
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?						
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?						
140	SLAM	A901D	10/15/24	Are AWP panels in rooms 1119 and 1110 to extend floor to ceiling?						
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?						
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?						
143	SLAM	A911	10/15/24	Are perforations and acoustical felt required for ADC1 panels?						
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?						
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
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

Turner

GCMS Phase 2 - Bidder's Question Log

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
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.						
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.						
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
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

Turner

GCMS Phase 2 - Bidder's Question Log

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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
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.						
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

Turner

GCMS Phase 2 - Bidder's Question Log

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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?						
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.				yes - substitution request		
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.						
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.						
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?						

Turner

GCMS Phase 2 - Bidder's Question Log

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
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
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.						
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

Turner

GCMS Phase 2 - Bidder's Question Log

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.						
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.						
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).						
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.						
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.						
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.						
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.						
189	SLAM		10/22/24	For site pavers, Unilock Artline has (7) different sized blocks. Can you please clarify what size is required?						
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?						
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.						
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.						
196	SLAM	Structural Series	10/23/24	Please confirm that only the Gym roof will be acoustical cellular deck.						
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.						
198	SLAM	GC11	10/23/24	Please confirm that the only colored galvanizing required is for the HSS canopy columns shown on GC11.						

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GCMS Phase 2 - Bidder's Question Log

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
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						
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.						
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.						
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?						

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GCMS Phase 2 - Bidder's Question Log

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
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.						
210	SLAM	122401	10/24/24	Please confirm if it acceptable to provide the window shades per the attached Substitution Request Form.				yes - substitution request		
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.						
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	CES	276010	10/24/24	Please confirm what kind of system is needed for the DAS System (i.e. UHF, VHF, 700/800).						
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.						
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	10/25/2025
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.						
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.						
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.						
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).						
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?						
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?						

Turner

GCMS Phase 2 - Bidder's Question Log

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.						
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?						
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?						
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?						
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?						
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?						
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?						
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.						
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	10/25/2025

Turner

GCMS Phase 2 - Bidder's Question Log

BQ #	Responsible Consultant	Reference	Date	Question	Answer	Date Item Responded	Answered By (Name / Company)	Attachment (SK# or Spec Section)	Status ("Closed")	Date Closed
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.						
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.						
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	10/25/2025
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?						
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.						

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

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)

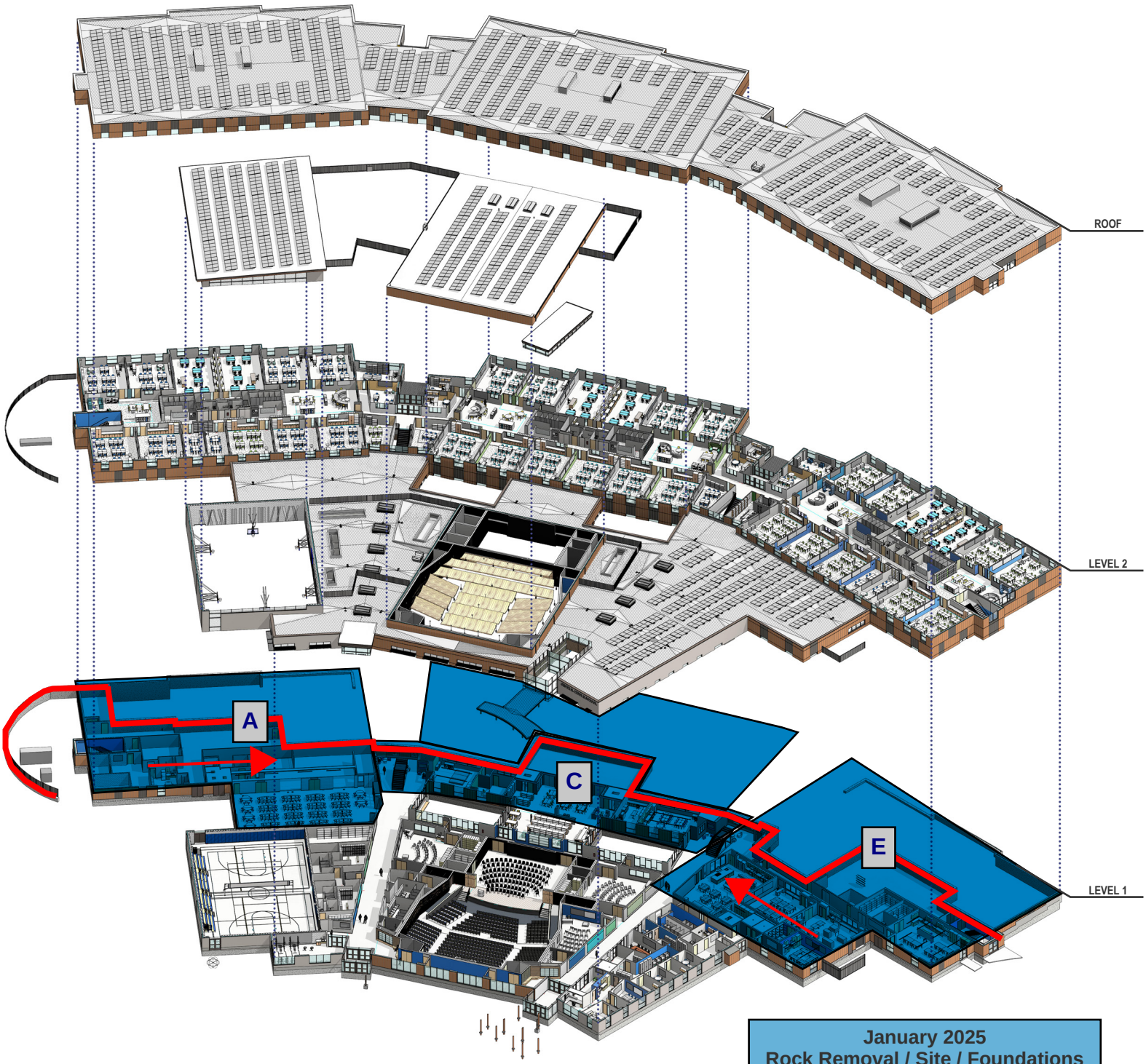
TYPE 'D.1'

1/4" = 1'-0"

BQ#153 sketch

Turner Construction
Greenwich Central Middle School
Crew Flow
10.25.24

Bid RFI #236
Response



January 2025
Rock Removal / Site / Foundations

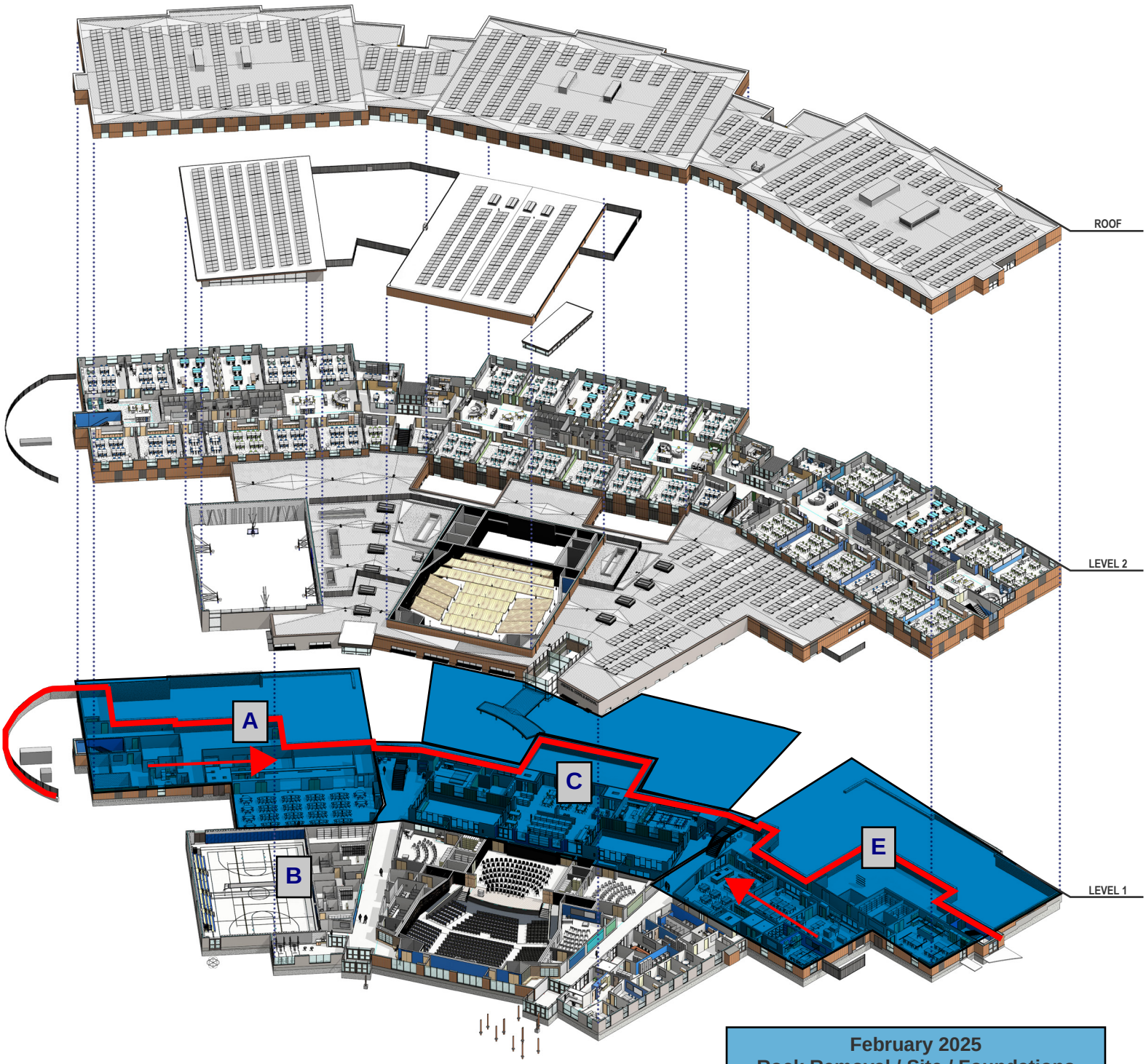
Rock Removal: A / C / E
Excavate: A / E
Retaining Wall: E

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

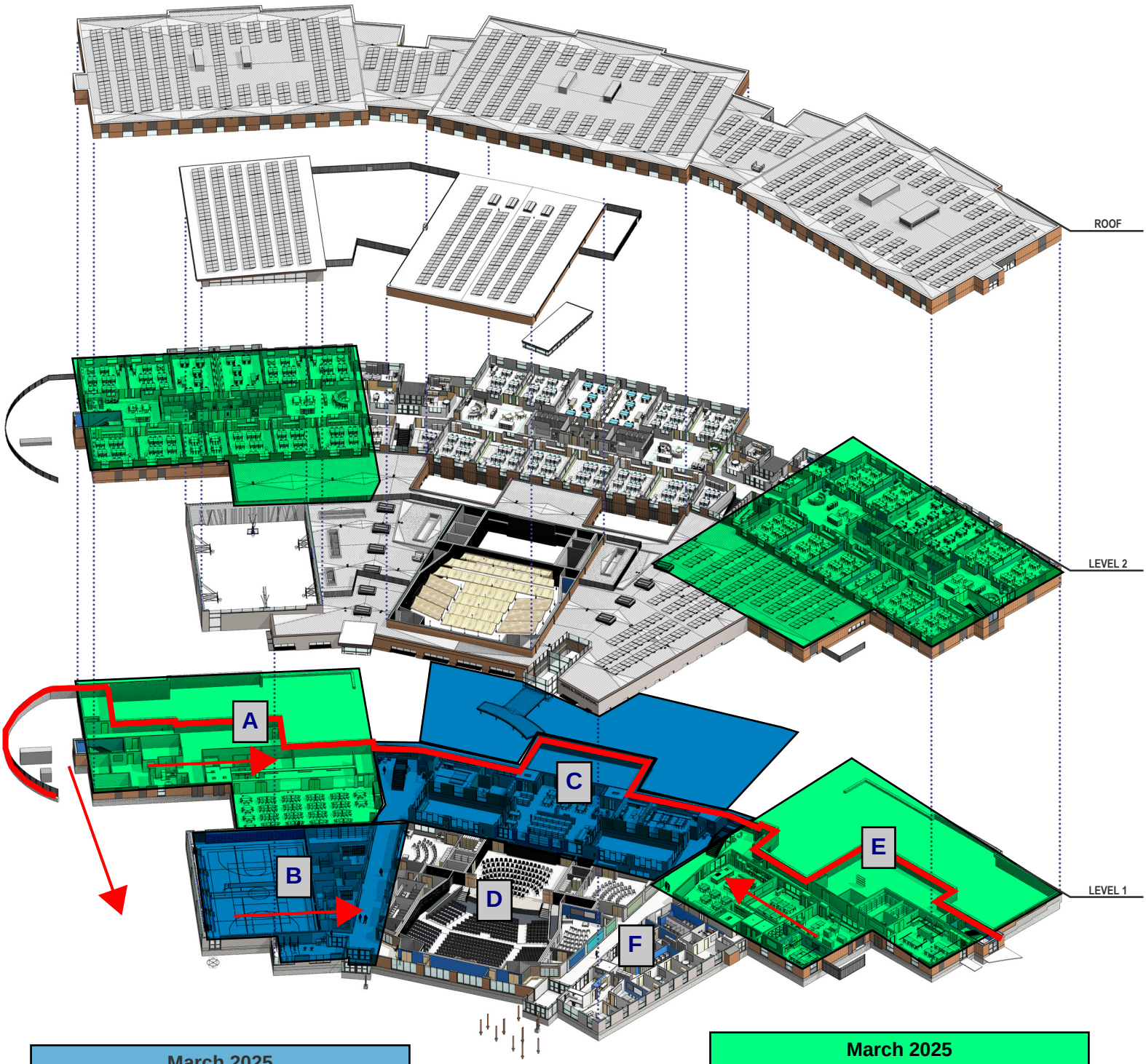
Excavate: A / E / C
Retaining Wall: A / C / E
Foundation Walls & Spread Footings: A / E

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

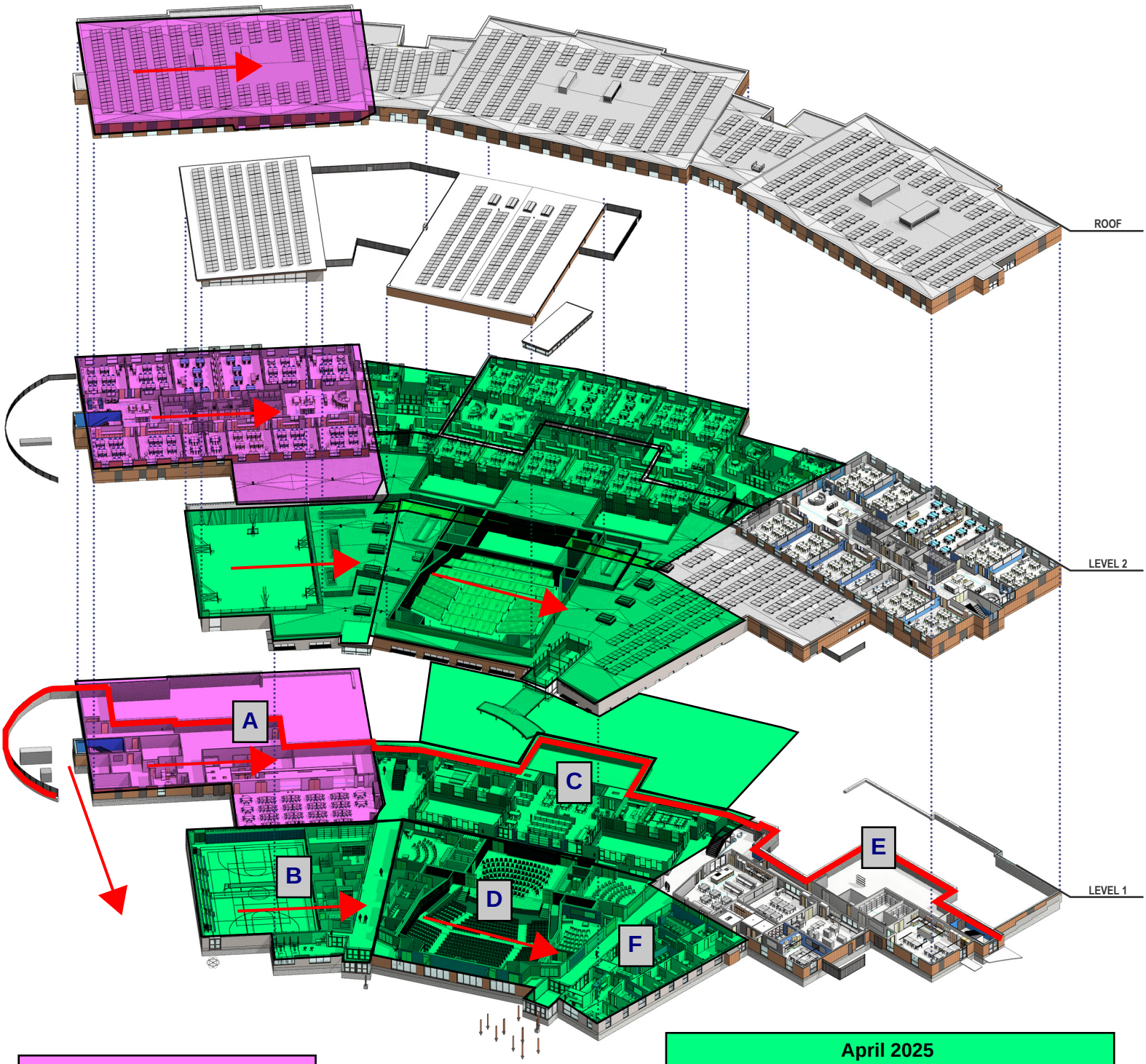
Foundation Walls & Spread Footings: A / E
Backfill: A / E
MEP Underground: A / E
SOG: A / E

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

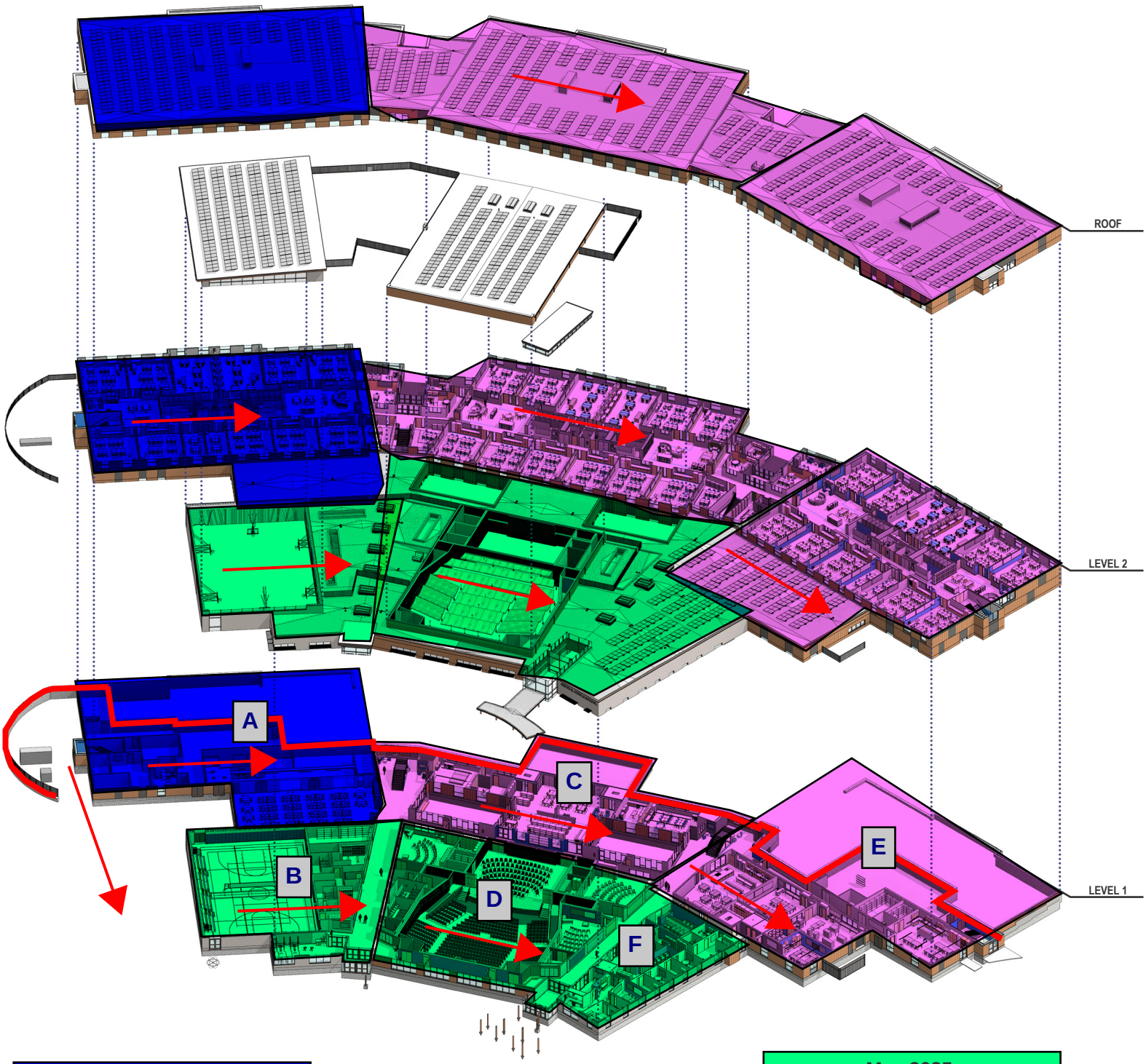
Excavate: D / F
Foundation Walls: B / D / F
Spread Footings: B / D / F
MEP Underground: B
SOG: C

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

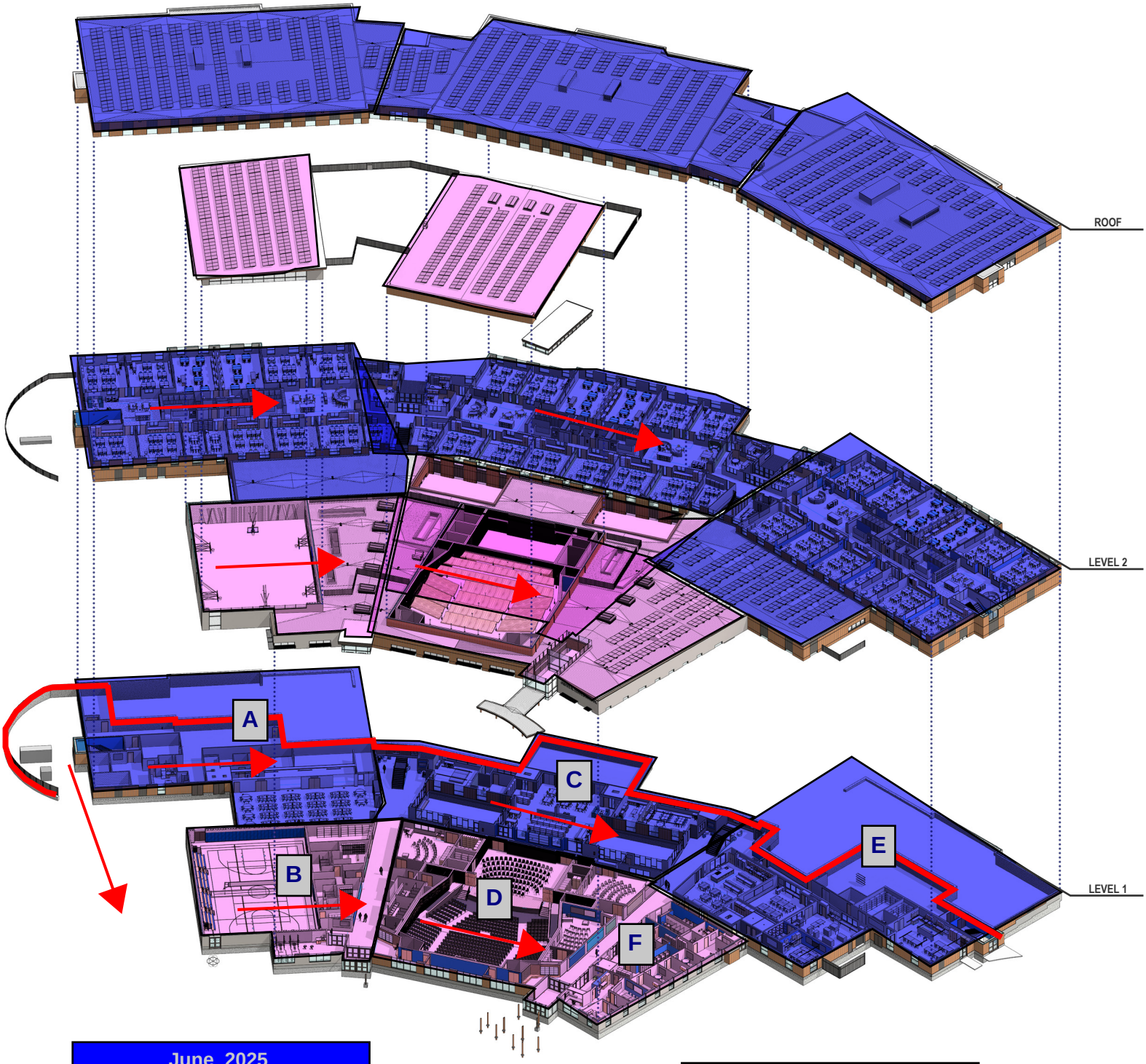
May 2025
Underground MEP / SOG
MEP Underground: B / D / F
SOG: B
Masonry Walls: B

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 #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"

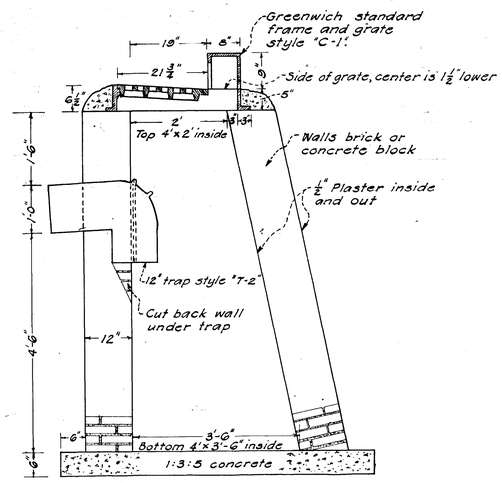
SHERWOOD, WELLS AND SMITH
Architects and Engineers

S.E. MINOR & CO.
CONSULTING ENGINEERS
GREENWICH, CONN.

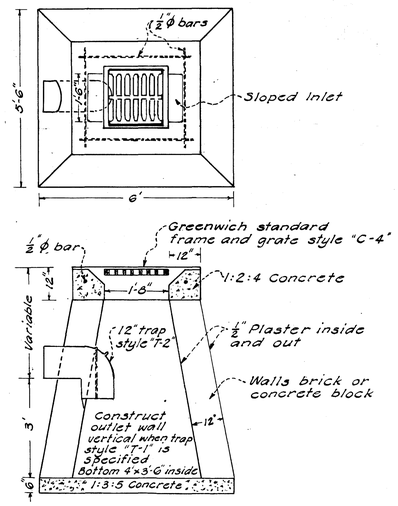
BYE & HERRMANN
LANDSCAPE CONSULTANTS, RYE, N.Y.

46

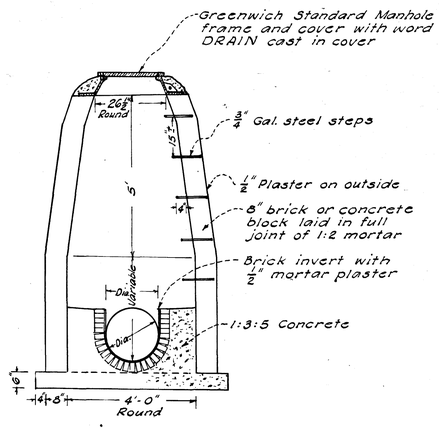
BQ #70 & 125 Attachment



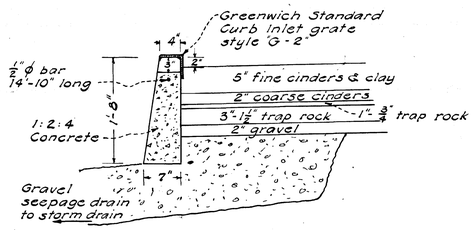
DETAIL OF CATCH BASIN STYLE "C-1"
SCALE: ¾" = 1'-0"

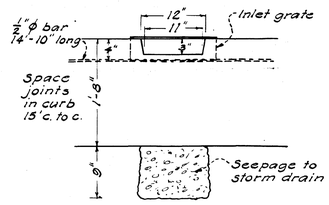


DETAIL OF CATCH BASIN STYLE "C-4"
SCALE: ½" = 1'-0"

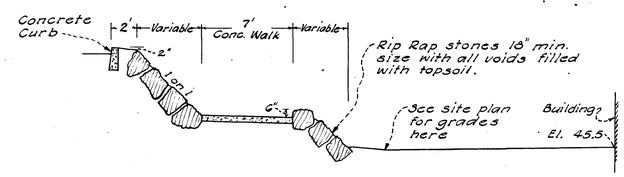


DETAIL OF DRAIN MANHOLE
SCALE: ½" = 1'-0"

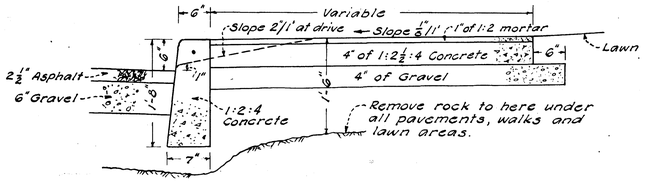




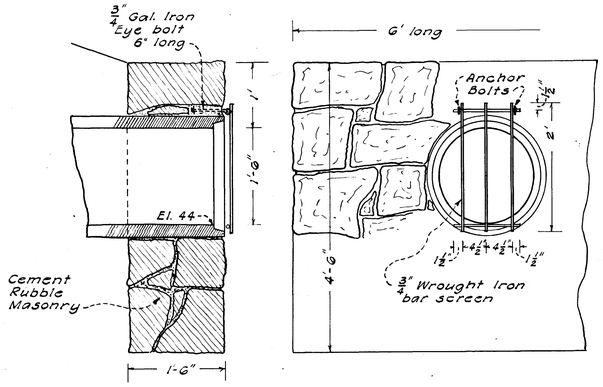
DETAIL OF INLET, CURB & RUNNING TRACK
SCALE: 1" = 1'-0"



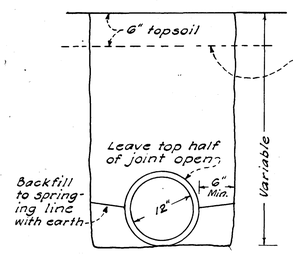
DETAIL OF RIPRAP PAVING AT SECTION A-A
SCALE: 1" = 5'-0"



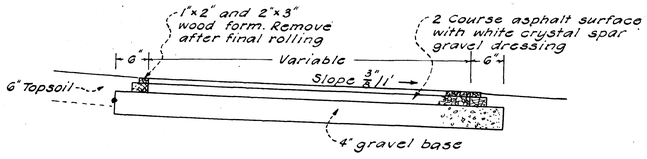
DETAIL OF PAVEMENT, CONCRETE CURB & WALK
SCALE: 1" = 1'-0"



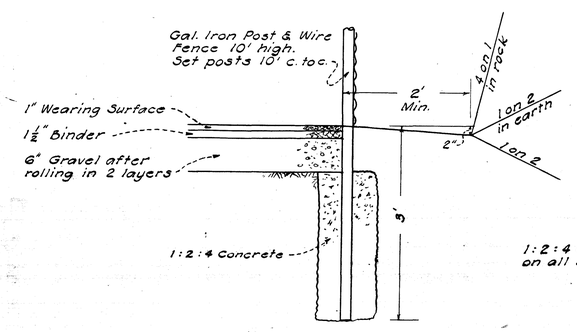
DETAIL OF HEADWALL & SCREEN
SCALE: 1" = 1'-0"



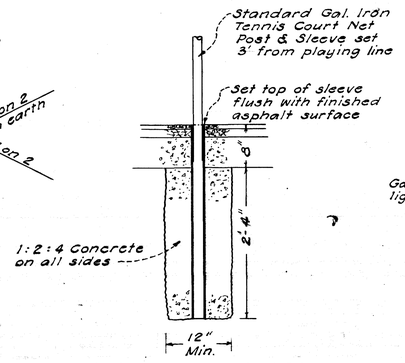
DETAIL OF SEEPAGE DRAIN
SCALE: 1" = 1'-0"



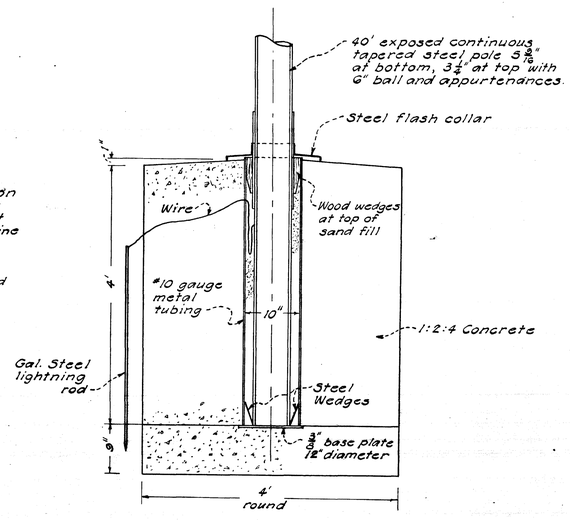
DETAIL OF ASPHALT WALK
SCALE: 1" = 1'-0"



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

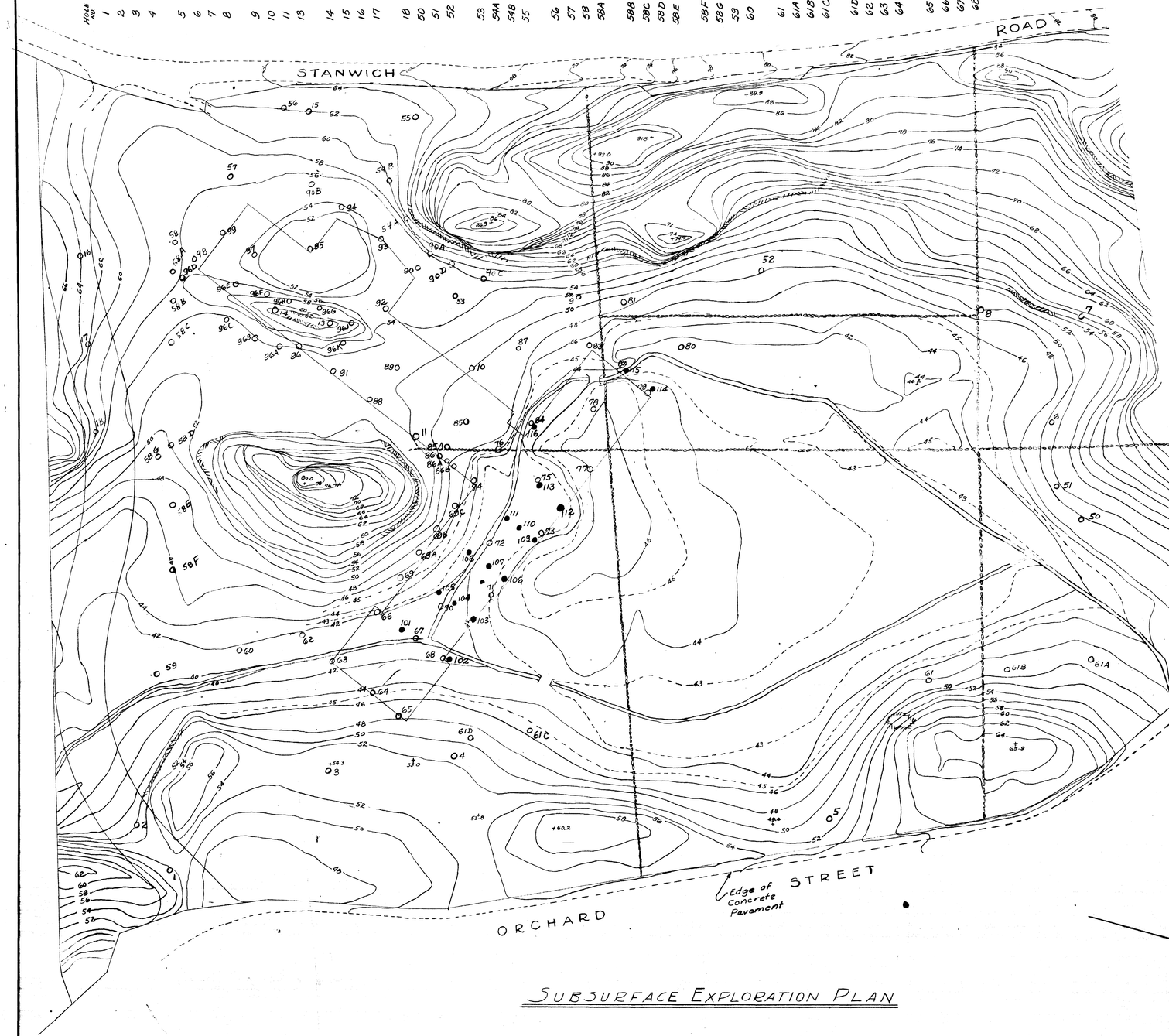
SHERWO
Architects

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

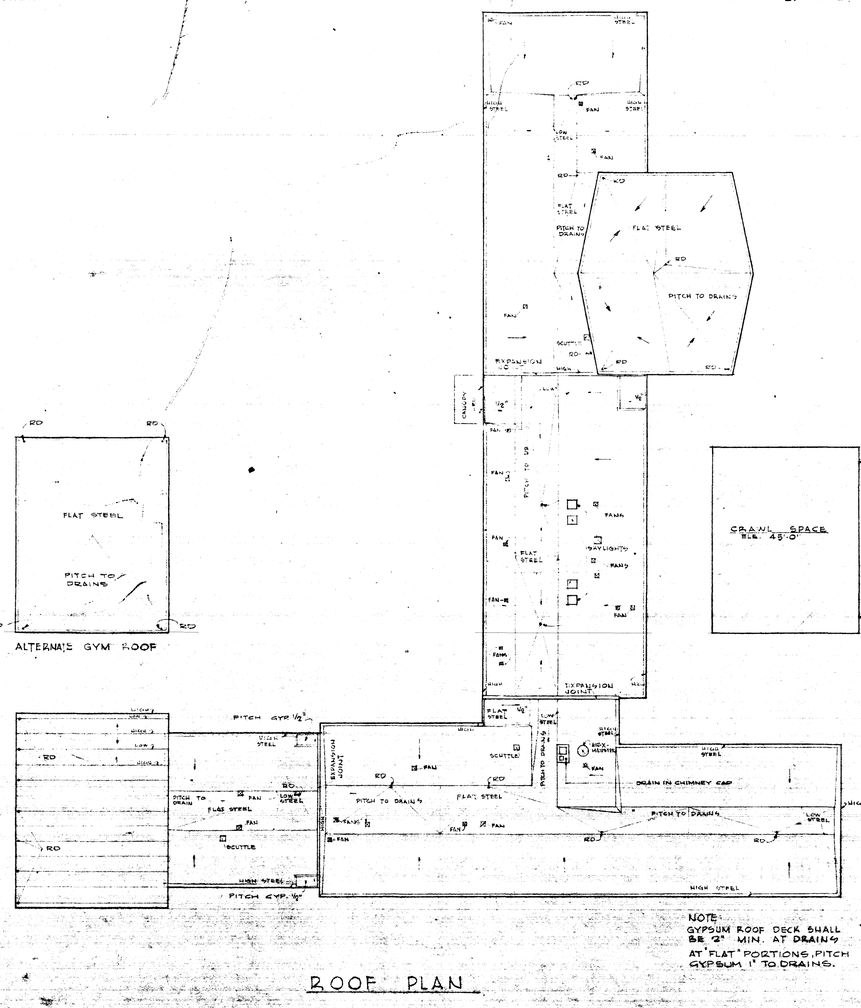
830-D1 WINDOW DETAILS
830-D2 GYMNASIUM WINDOW DETAILS
830-D3 SPECIAL HOLLOW METAL BUCKS & DETAILS
830-D4 DOOR, BUCK & SADDLE TYPES
830-D5 METHODS OF BUCK ATTACHMENT
830-D6 METHODS OF BUCK ATTACHMENT & LIBRARY PART.
830-D7 WOOD BUCK & PARTITION DETAILS
830-D8 DOOR SCHEDULE
830-D9 DOOR SCHEDULE
830-D10 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

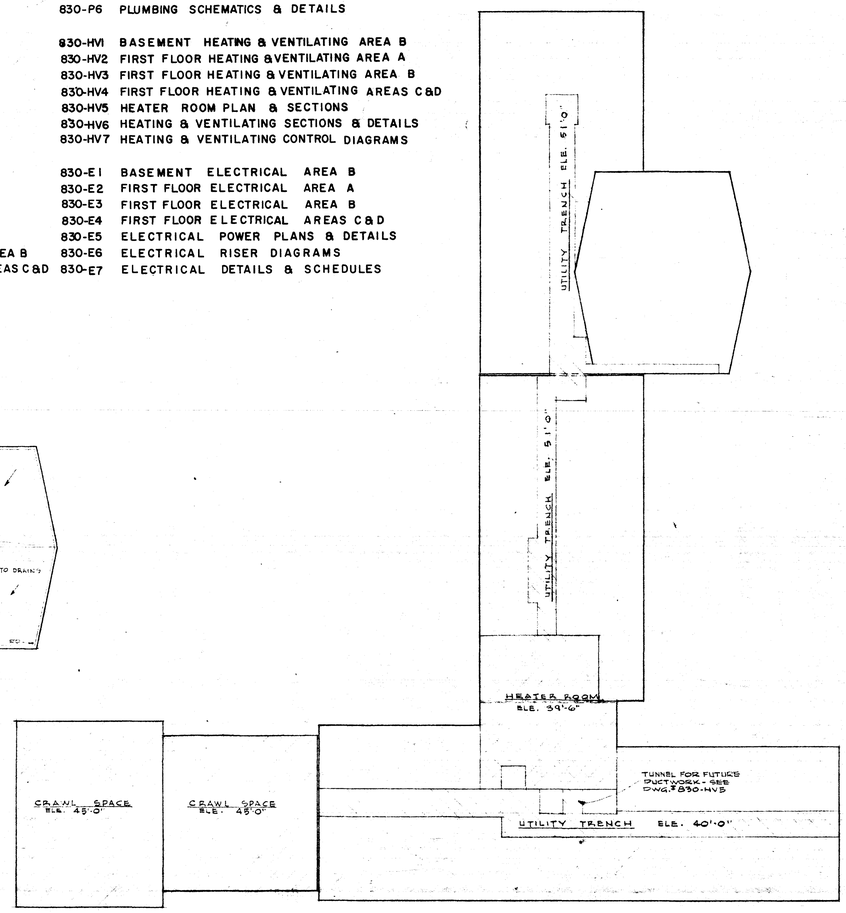
830-U1 SITE UTILITY PLAN
830-P1 BASEMENT PLUMBING AREA B
830-P2 FIRST FLOOR PLUMBING AREA A
830-P3 FIRST FLOOR PLUMBING AREA B
830-P4 FIRST FLOOR PLUMBING AREAS C & D
830-P5 PLUMBING SCHEDULES & KITCHEN PLANS
830-P6 PLUMBING SCHEMATICS & DETAILS

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

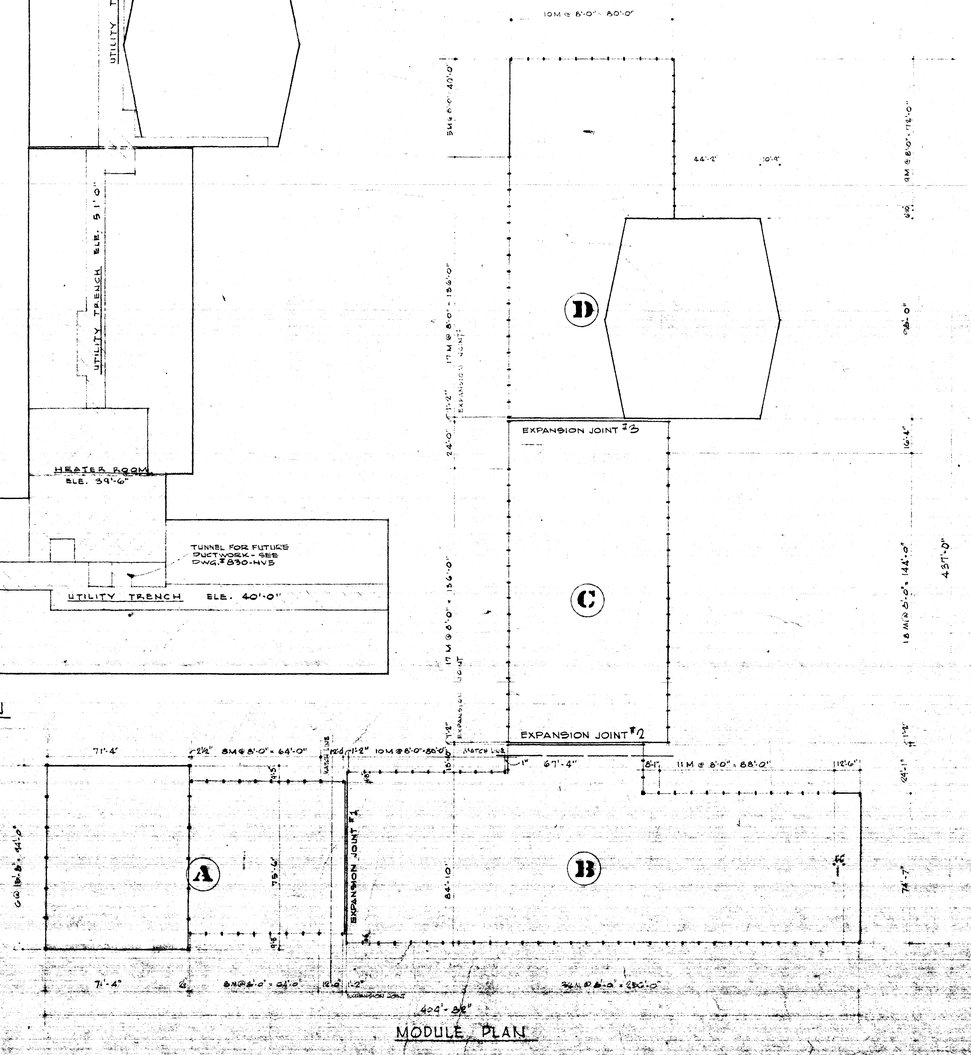
830-E1 BASEMENT ELECTRICAL AREA B
830-E2 FIRST FLOOR ELECTRICAL AREA A
830-E3 FIRST FLOOR ELECTRICAL AREA B
830-E4 FIRST FLOOR ELECTRICAL AREAS C&D
830-E5 ELECTRICAL POWER PLANS & DETAILS
830-E6 ELECTRICAL RISER DIAGRAMS
830-E7 ELECTRICAL DETAILS & SCHEDULES



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

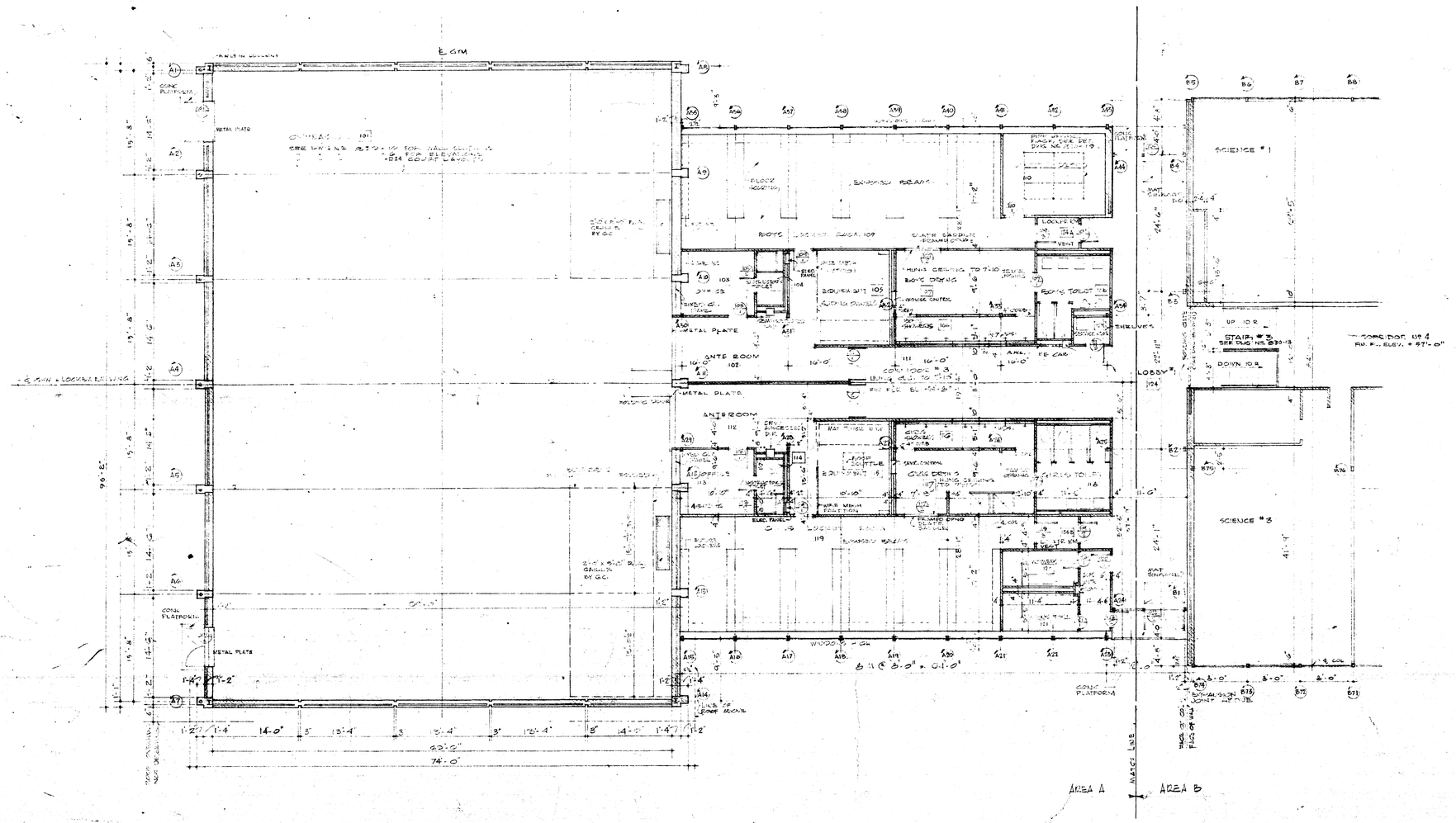
830-2

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

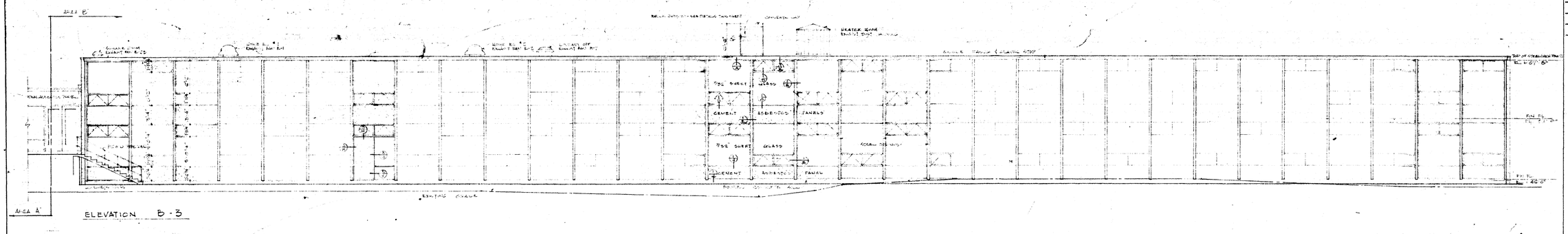
830-5

Date 30APR 57 | Scale 1/8"=1'-0"

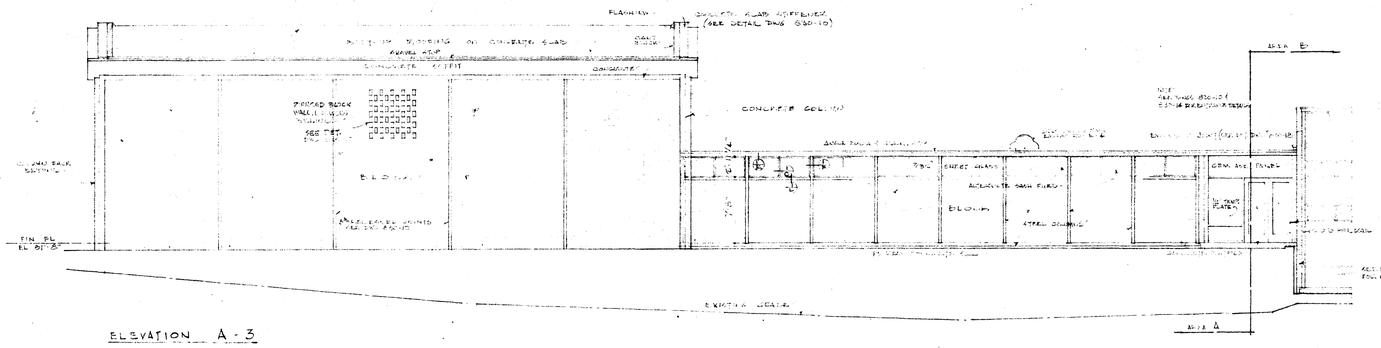
SHERWOOD, WELLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

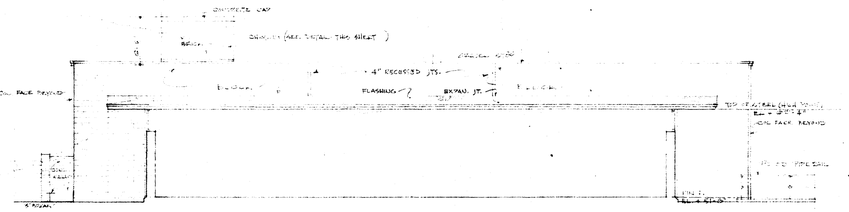
DATE	ISSUE OR REVISION	No.



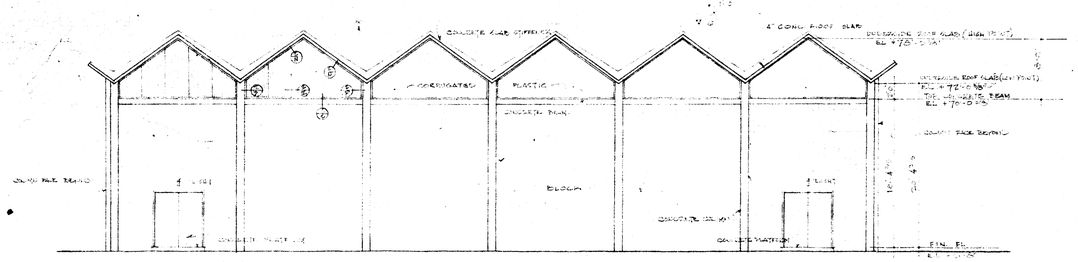
ELEVATION B-3



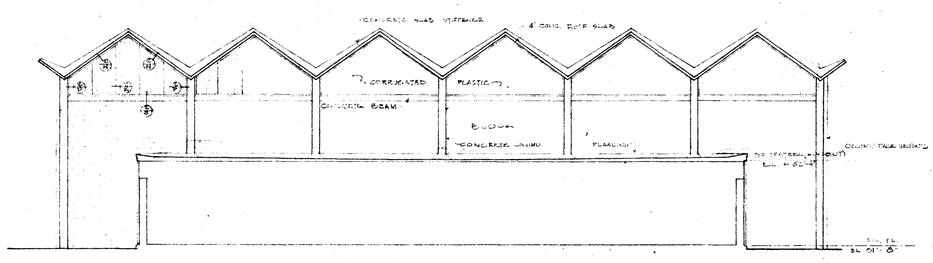
ELEVATION A-3



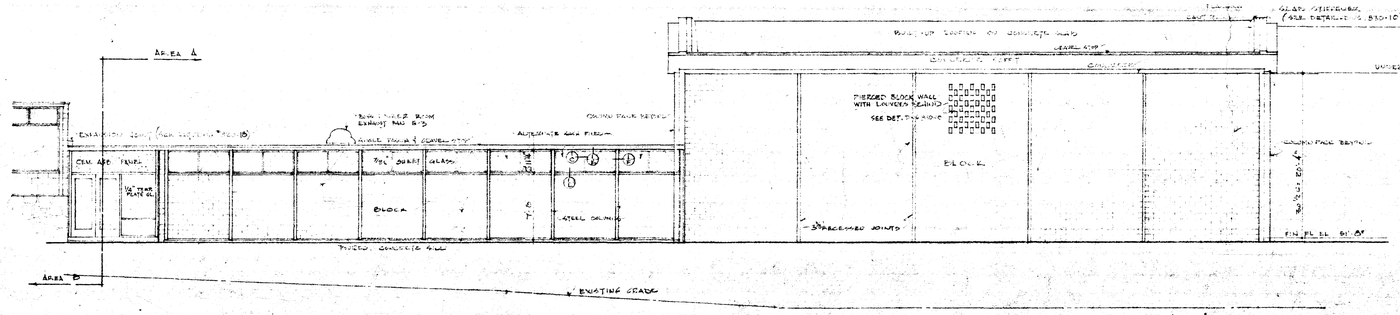
ELEVATION B-2



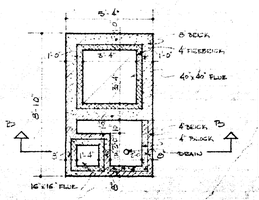
ELEVATION A-2



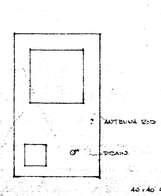
ELEVATION A-4



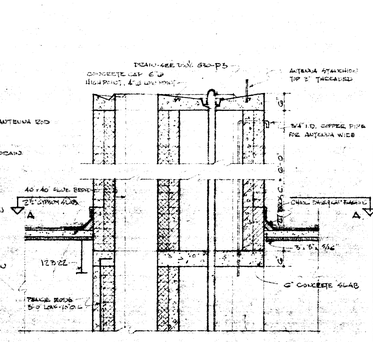
ELEVATION A-1



SECTION A-A
SCALE - 1/4"=1'-0"

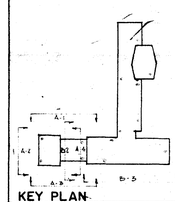


CHIMNEY CAP PLAN
SCALE - 1/4"=1'-0"
NOTE:
GIVE SPLITS AT EDGE OF CHIMNEYS & FLUES. SLOPE TO LEAD POINT @ DRAIN



CHIMNEY DETAILS
SCALE - AS LISTED

SECTION B-B
SCALE 1/2" = 1'-0"



KEY PLAN

ELEVATIONS

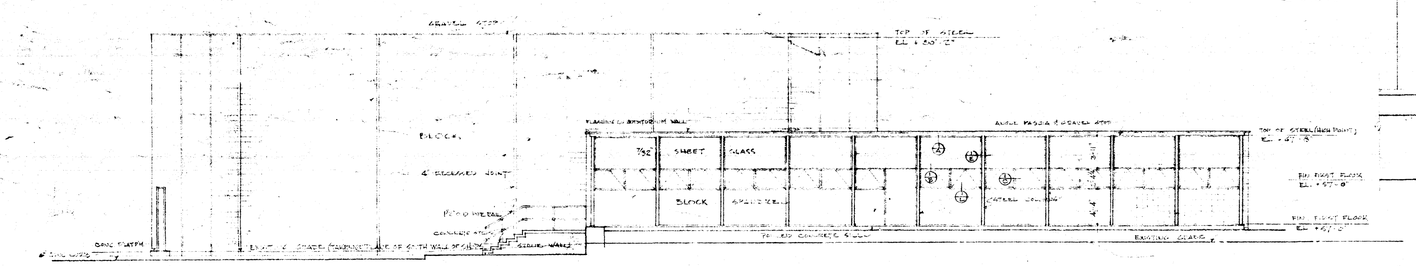
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-6

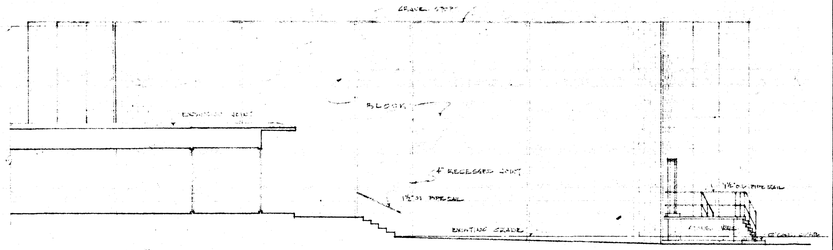
Date: 30 APR 57 | Scale: 1/8"=1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

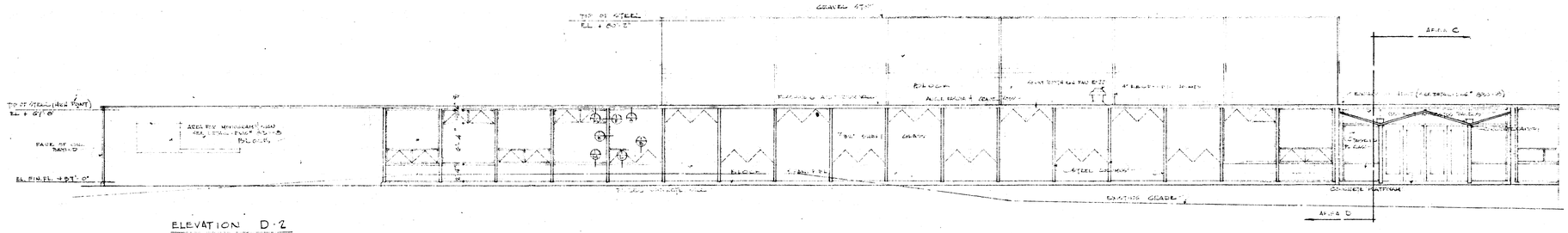
BQ #70 & 125 Attachment



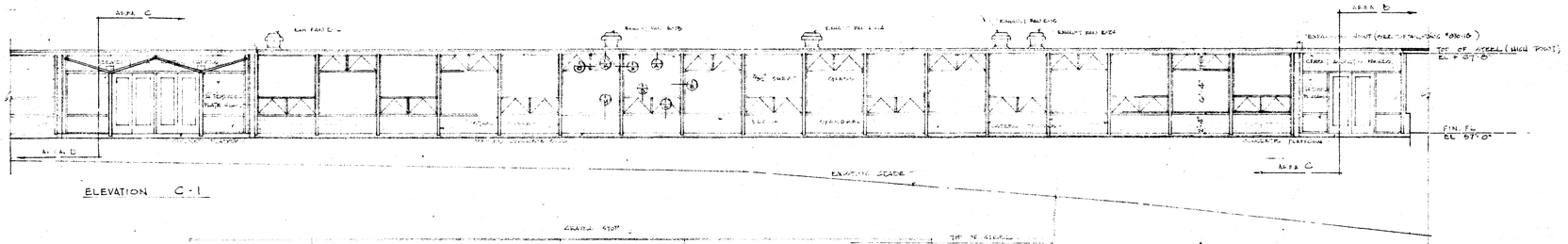
ELEVATION D-1



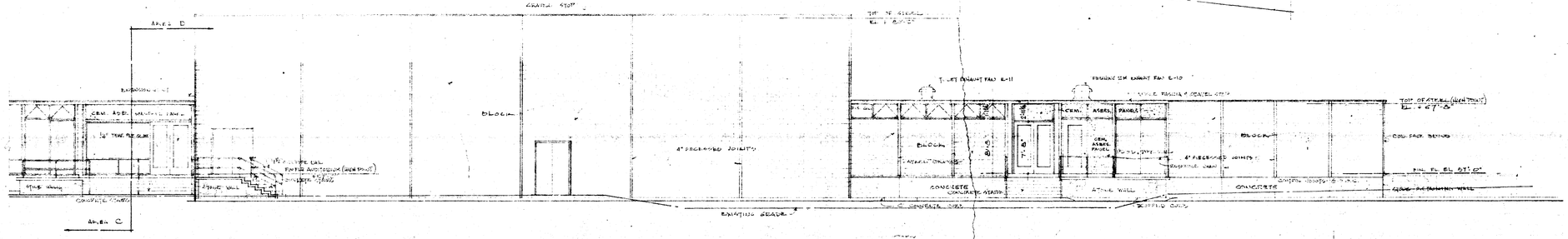
ELEVATION D-3



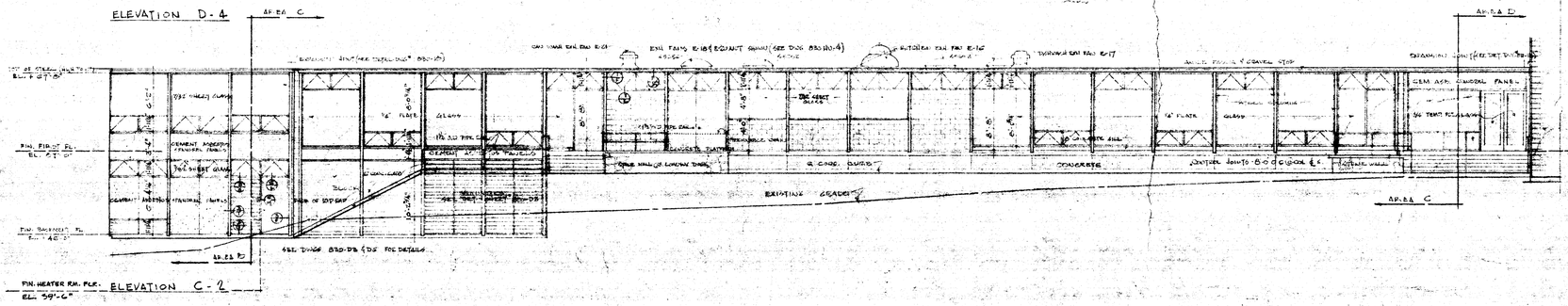
ELEVATION D-2



ELEVATION C-1

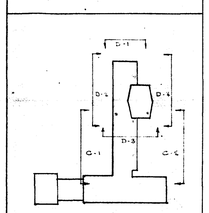


ELEVATION D-4



ELEVATION C-2

DATE	ISSUE OR REVISION	No.



KEY PLAN

ELEVATIONS

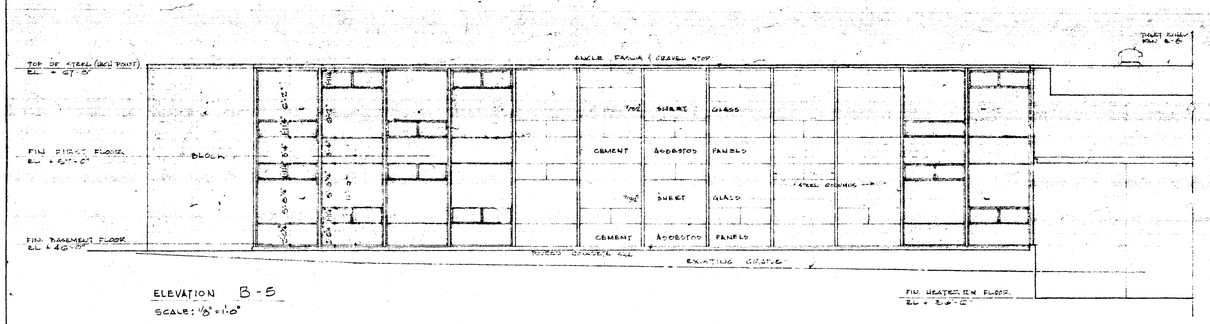
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-7

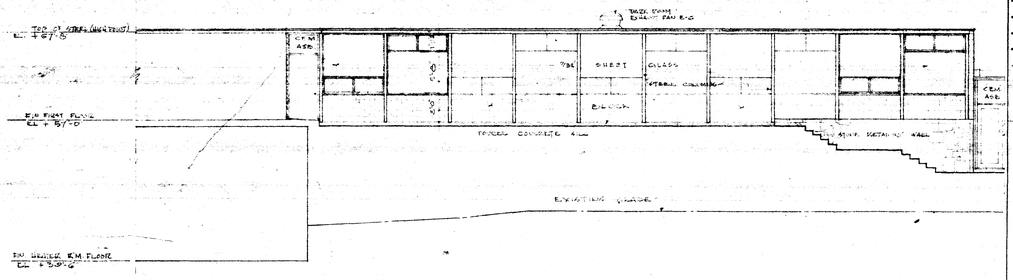
Date	Scale
30APR 57	1/8"=1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

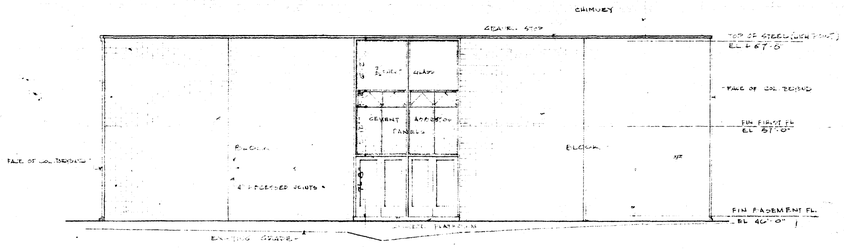
BQ #70 & 125 Attachment



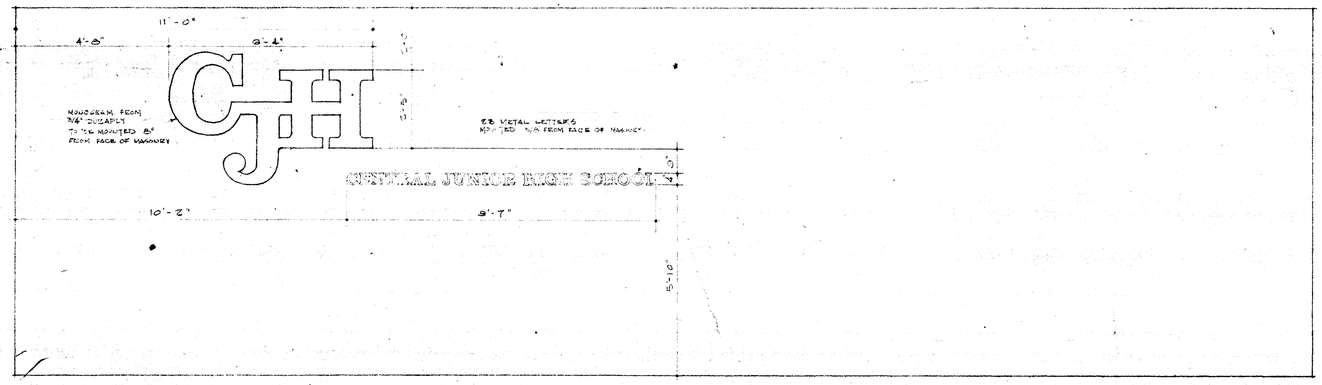
ELEVATION B-5
SCALE: 1/8" = 1'-0"



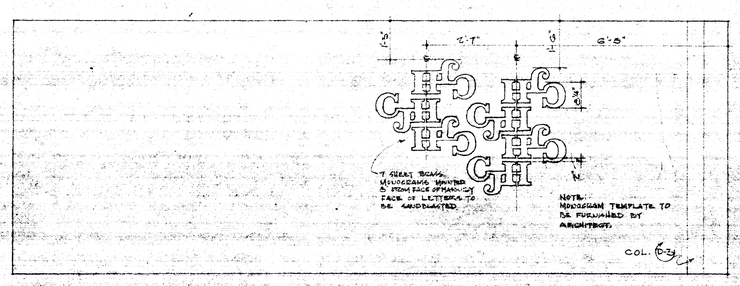
ELEVATION B-1
SCALE: 1/8" = 1'-0"



ELEVATION B-4
SCALE: 1/8" = 1'-0"



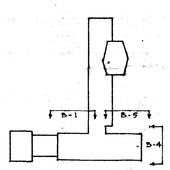
EXTERIOR LETTERING (SEE ELEVATION D-2, DRAWING 830-7)
SCALE 1/2" = 1'-0"



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

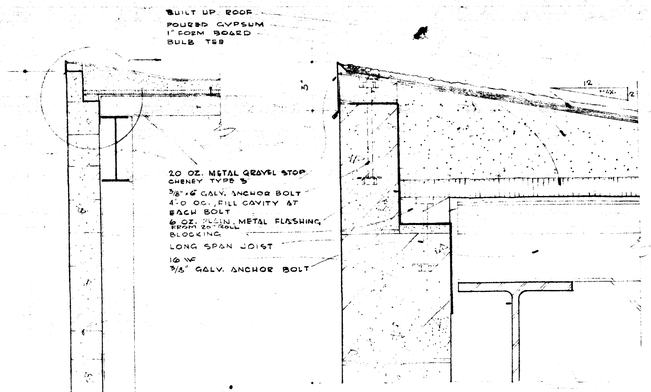
830-10-F
LOBBY #1 AT
STAIR #3

830-10-G
Boys' TOILET #108
& LAUNDRY #1

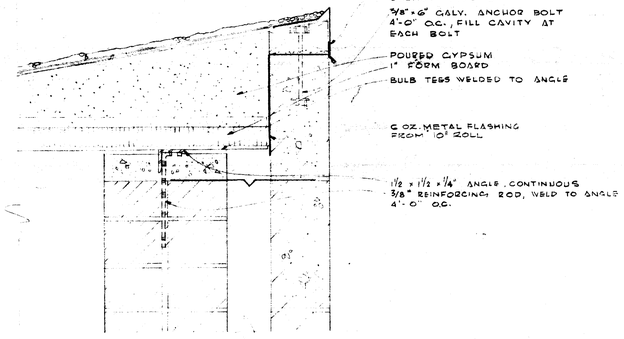
830-10-H
LOBBY #1
& STORAGE #001

BQ #70 & 125 Attachment

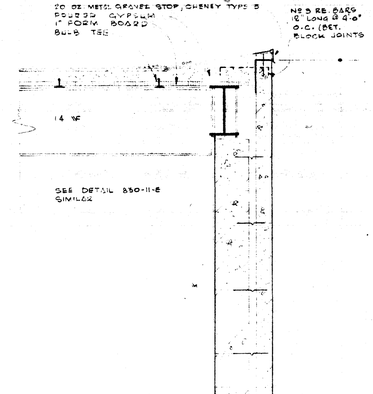
DATE	ISSUE OR REVISION	No.

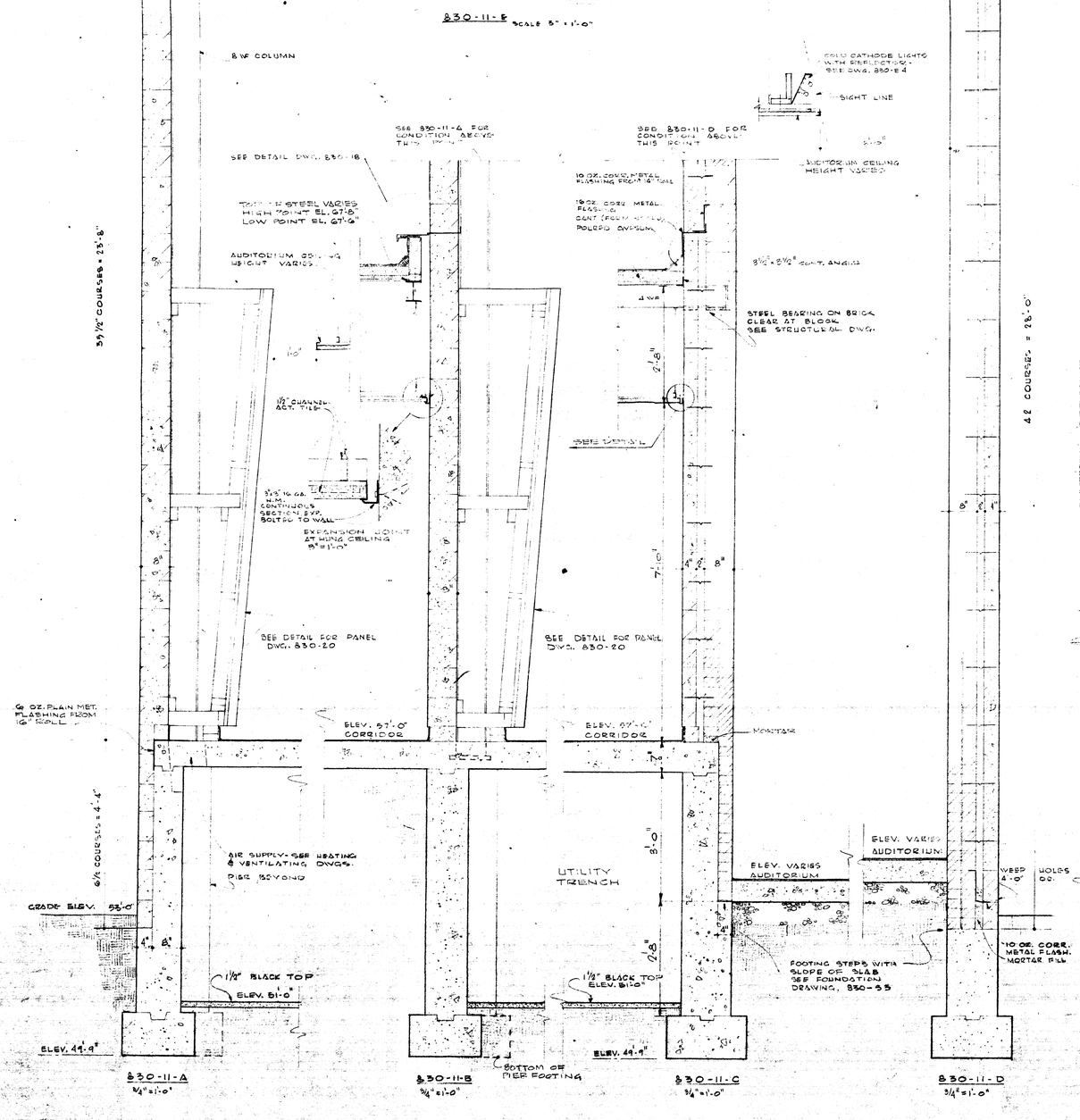


830-11-E SCALE 3" = 1'-0"

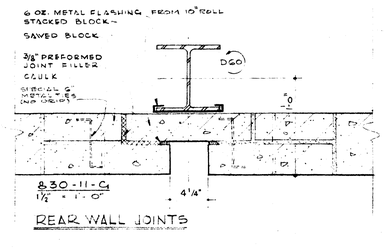


830-11-F SCALE 3" = 1'-0"



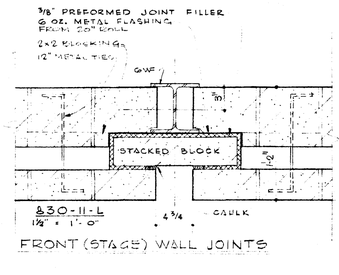


830-11-A 3/4"=1'-0" | 830-11-B 3/4"=1'-0" | 830-11-C 3/4"=1'-0" | 830-11-D 3/4"=1'-0"



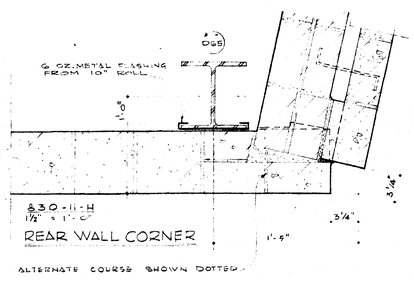
830-11-G 1½" = 1'-0"

REAR WALL JOINTS



830-11-L 1½" = 1'-0"

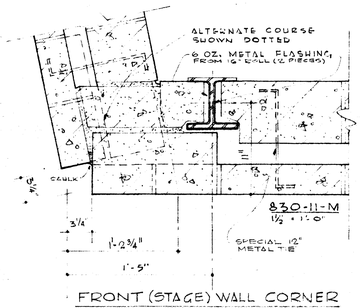
FRONT (STAGE) WALL JOINTS



830-11-H 1½" = 1'-0"

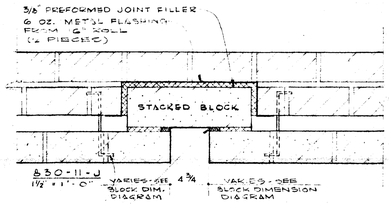
REAR WALL CORNER

ALTERNATE COURSE SHOWN DOTTED



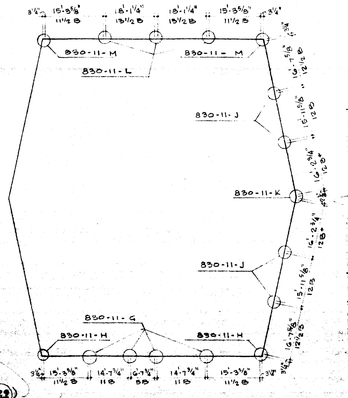
830-11-M 1½" = 1'-0"

FRONT (STAGE) WALL CORNER

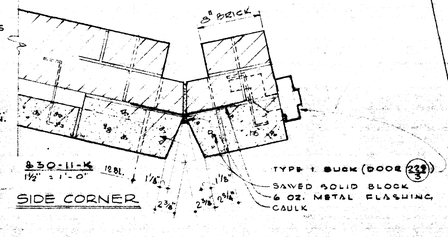


830-11-J 1½" = 1'-0" VARIES-SEE BLOCK DIM. DIAGRAM 4¾ VARIES-SEE BLOCK DIMENSION DIAGRAM

SIDE WALL JOINT

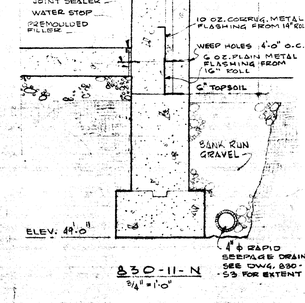


BLOCK DIMENSION DIAGRAM SCALE: 1"=20'-0" (APROX.)



830-11-K 1½" = 1'-0"

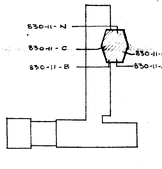
SIDE CORNER



830-11-N 3/4"=1'-0"

NOTE: SEE DET. 830-10-E FOR SIMILAR CONDITION AT ROOF BEYOND





KEY PLAN

WALL SECTIONS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

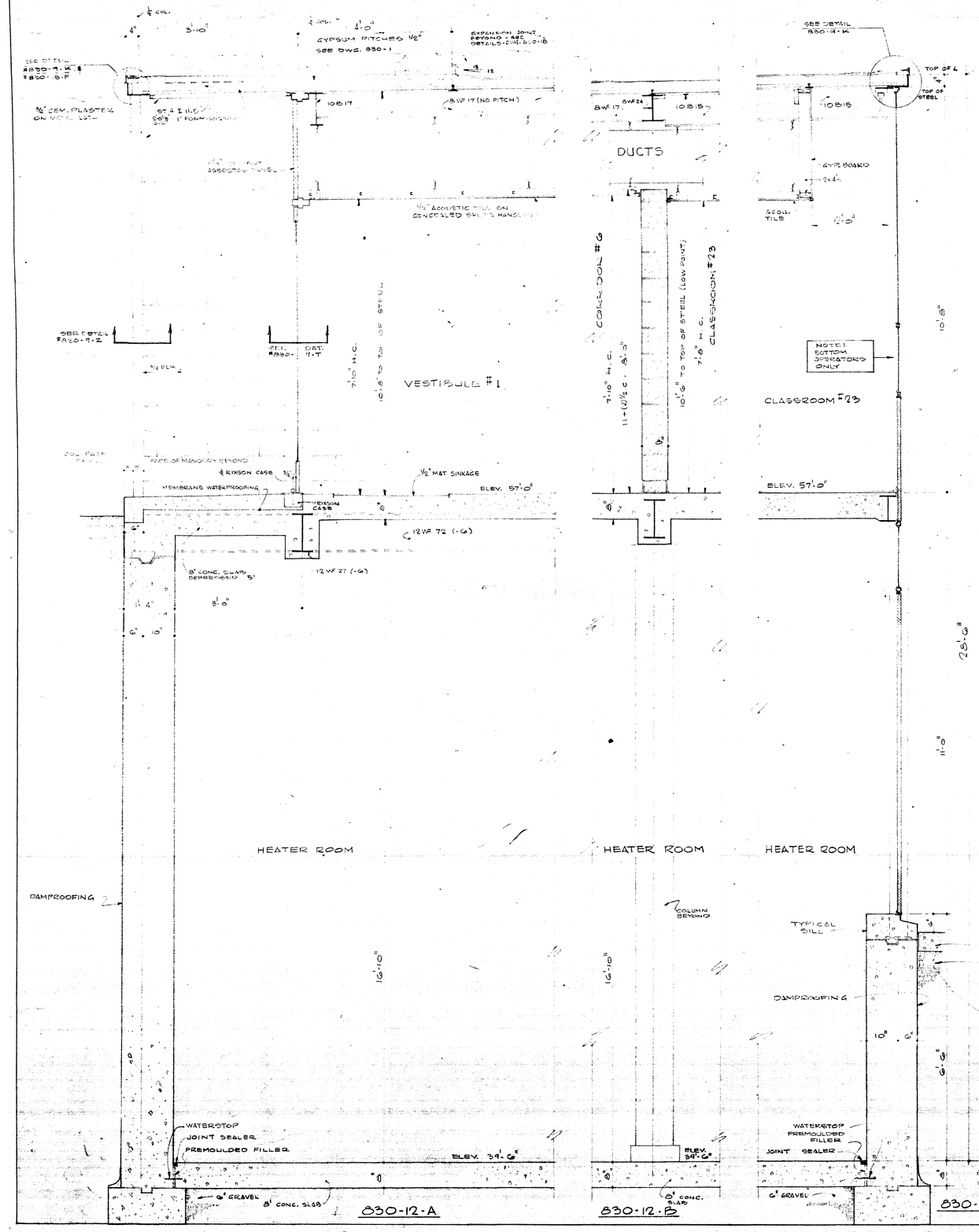
830.11

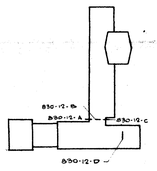
Date 30APR57 Scale AS NOTED

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No.





KEY PLAN

WALL SECTIONS

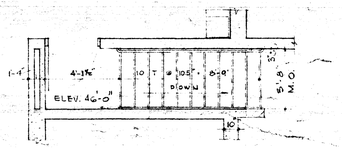
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-12
Date: 30 APR 57
Scale: 3/4" = 1'-0"

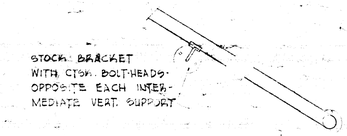
SHERWOOD, MILLS AND SMITH
Architects 69 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

DATE	ISSUE OR REVISION	No.

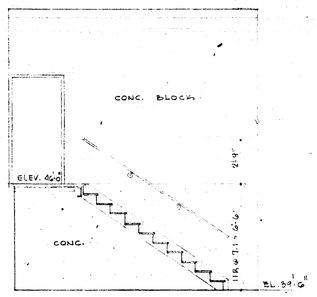


STAIR #4

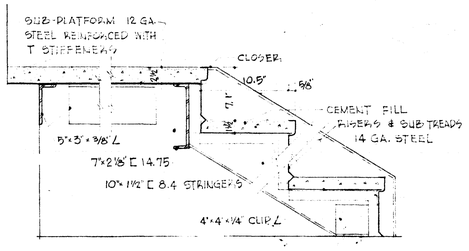


STOCK BRACKET WITH CTSK. BOLTHEADS OPPOSITE EACH INTERMEDIATE VERT. SUPPORT

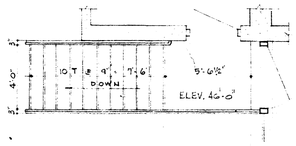
WALL RAIL DETAIL
TYPICAL FOR ALL STAIRS



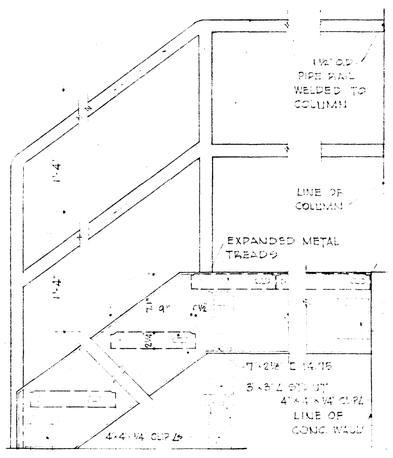
SECTION 4



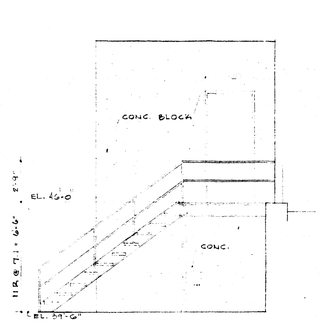
DETAIL SECTION 4



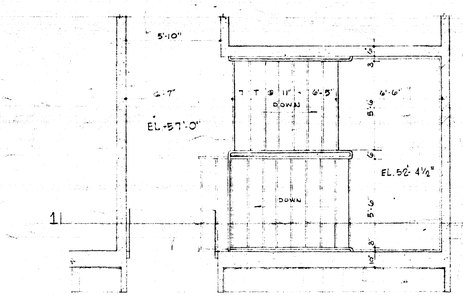
STAIR #5



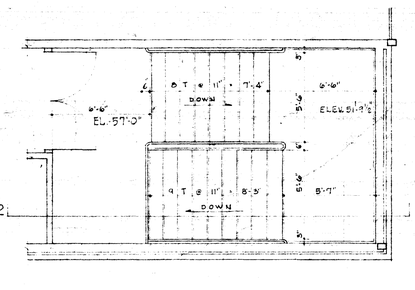
DETAIL SECTION 5



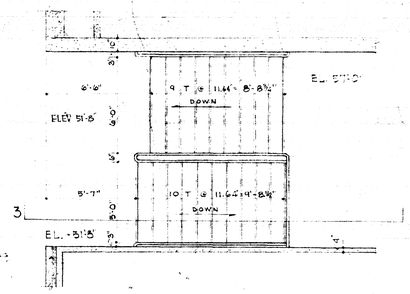
ELEVATION 5



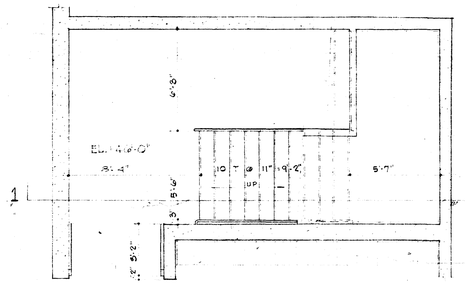
STAIR #1 PLAN AT FIRST FLOOR



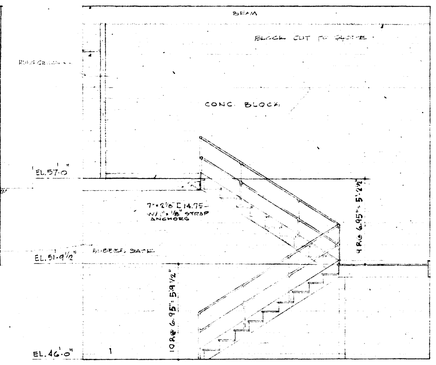
STAIR #2 PLAN AT FIRST FLOOR



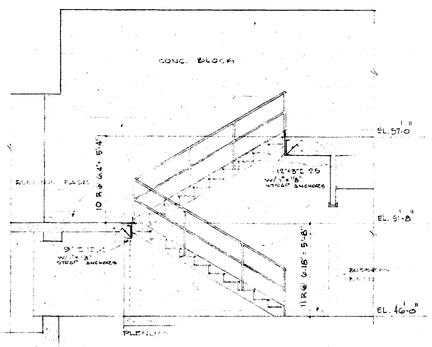
STAIR #3 PLAN AT FIRST FLOOR



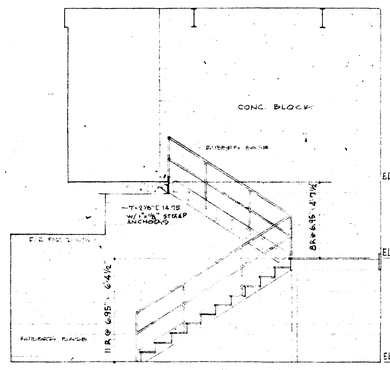
STAIR #1 PLAN AT BASEMENT



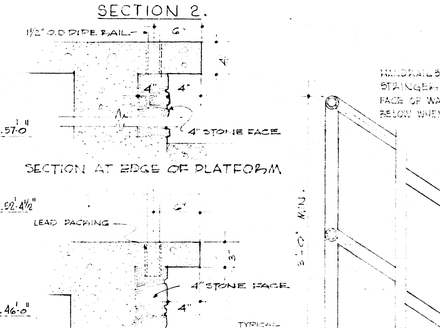
SECTION 2.

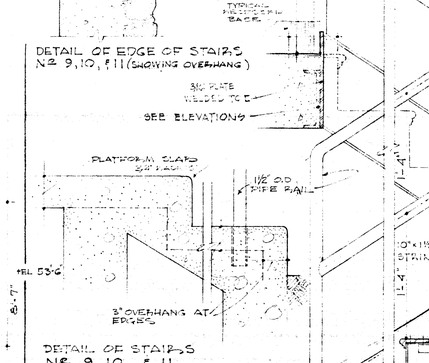


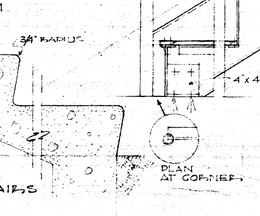
SECTION 3



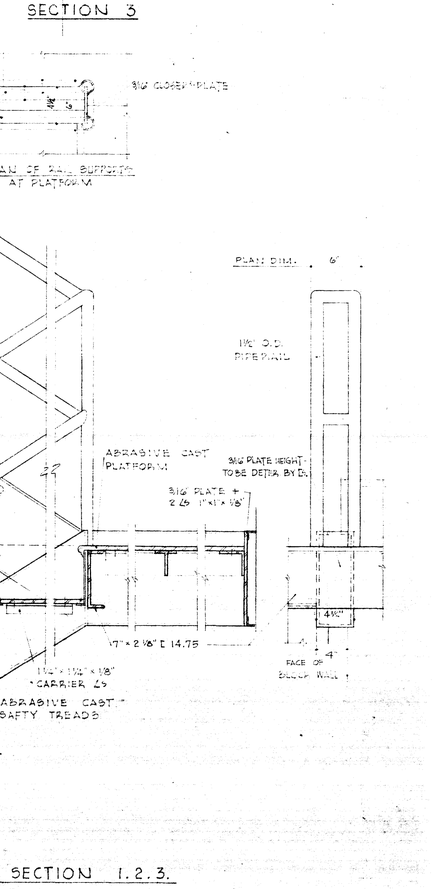
SECTION 1



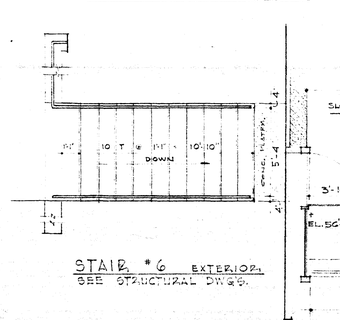




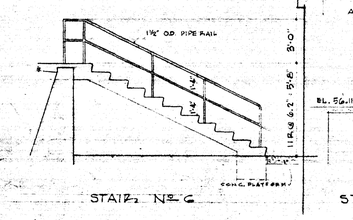
DETAIL OF STAIRS Nº 6, 7 & 8



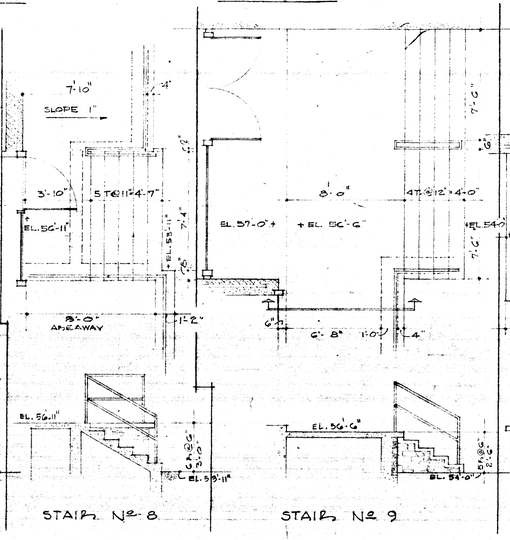
DETAIL SECTION 1.2.3.



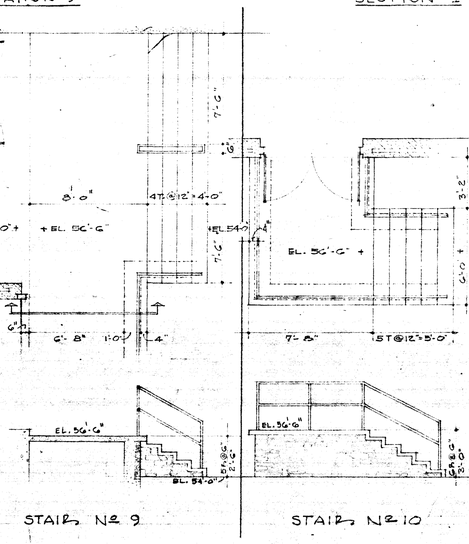
STAIR #6 EXTERIOR
SEE STRUCTURAL DWGS.



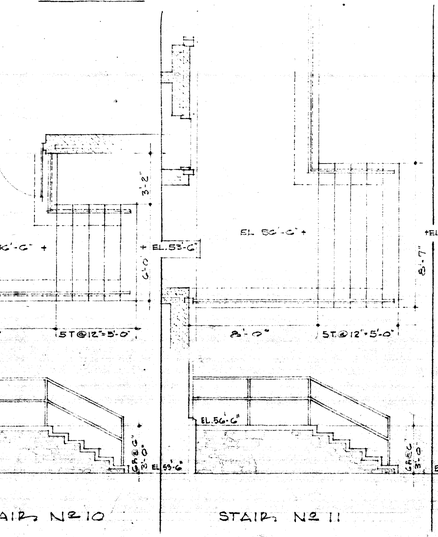
STAIR Nº 6



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

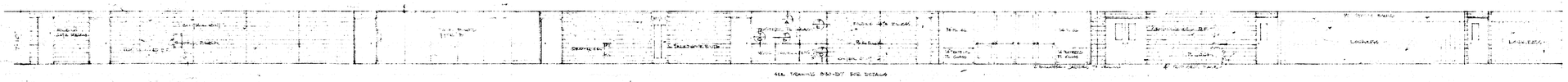
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-16

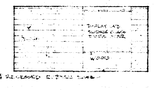
Date: 30APR 57 | Scale: 1/4"=1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 East Main Street, Stamford, Connecticut

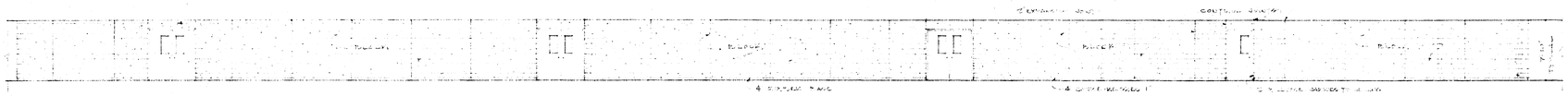
BQ #70 & 125 Attachment



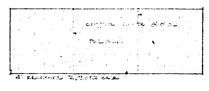
CORRIDOR *147 - EAST WALL - *147



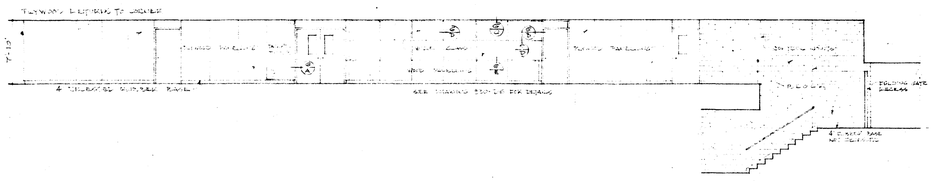
CORRIDOR *3 - SOUTH WALL - *216



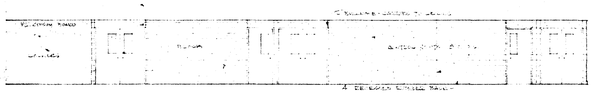
CORRIDOR *3 - WEST WALL - *157



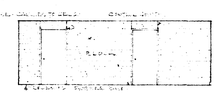
CORRIDOR *6 SOUTH WALL - *220



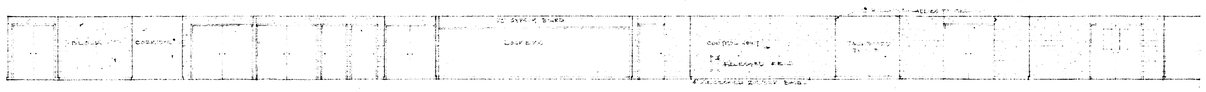
CORRIDOR *4 - NORTH WALL - *176



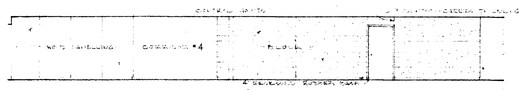
CORRIDOR *7 - EAST WALL - *202



CORRIDOR *6 - NORTH WALL - *220



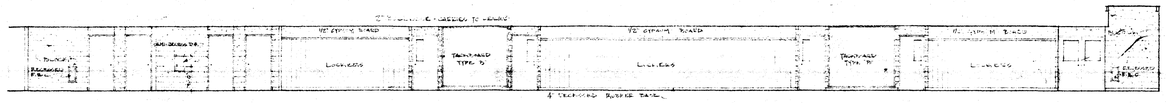
CORRIDOR *7 - WEST WALL - *202



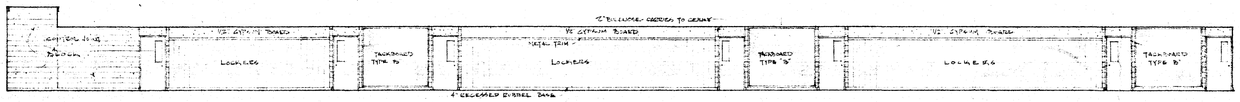
CORRIDOR *5 - EAST WALL - *153



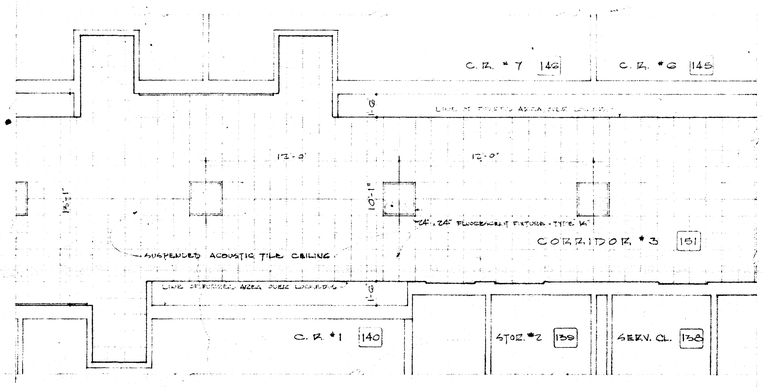
CORRIDOR *4 - SOUTH WALL - *156



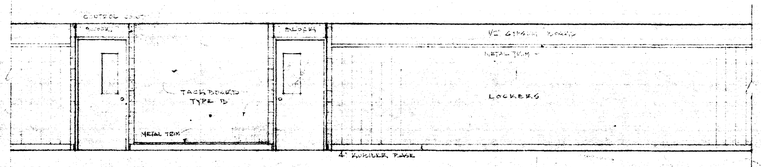
CORRIDOR *5 - SOUTH WALL - *153



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

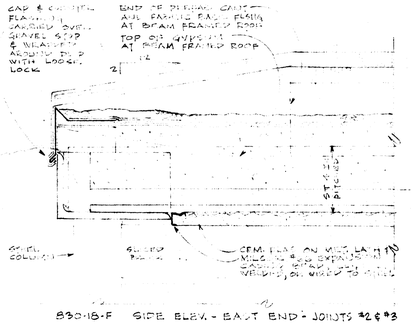
CORRIDOR #1 & #3 - SOUTH WALL - #128

CORRIDOR #1 - NORTH WALL - #128

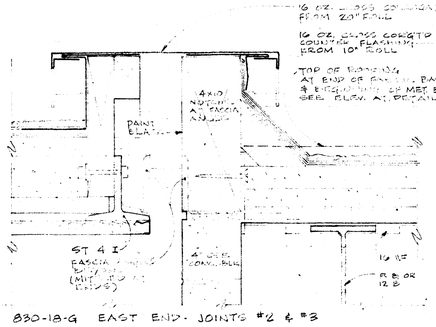
KITCHEN WEST WALL
ELEVATIONS - SCALE: 1/8"=1'-0"

KITCHEN NORTH WALL

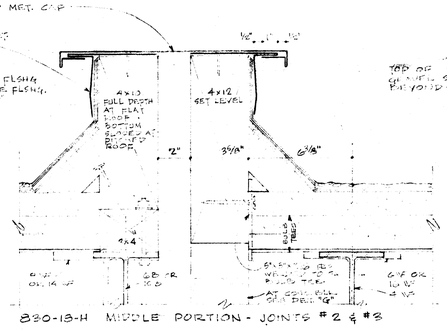
KITCHEN SOUTH WALL



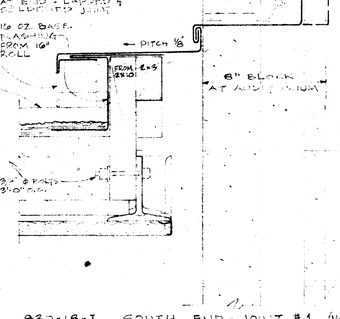
830-18-F SIDE ELEV. - EAST END - JOINTS #2 & #3



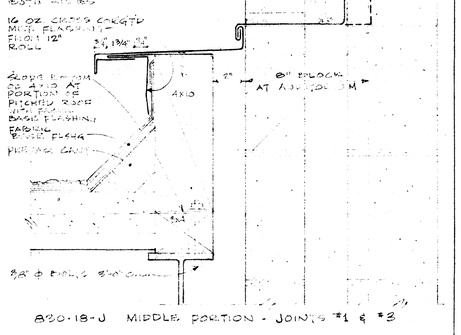
830-18-G EAST END - JOINTS #2 & #3



830-18-H MIDDLE PORTION - JOINTS #2 & #3

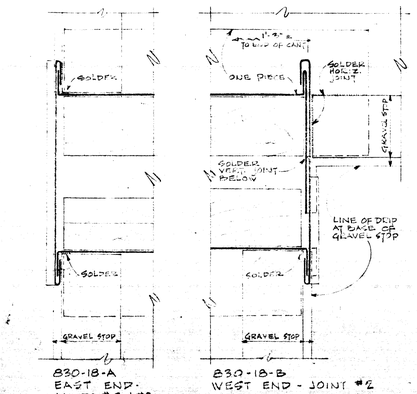


830-18-I SOUTH END - JOINT #1 (NORTH REV.)
WEST END - JOINT #3, REVERSED



830-18-J MIDDLE PORTION - JOINTS #1 & #3

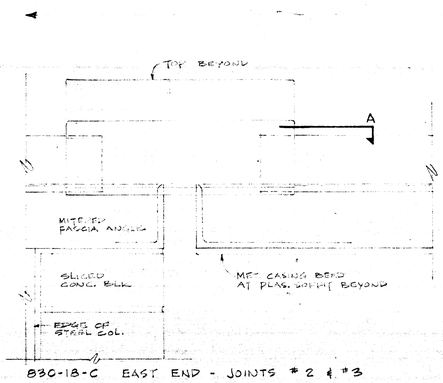
SECTIONS



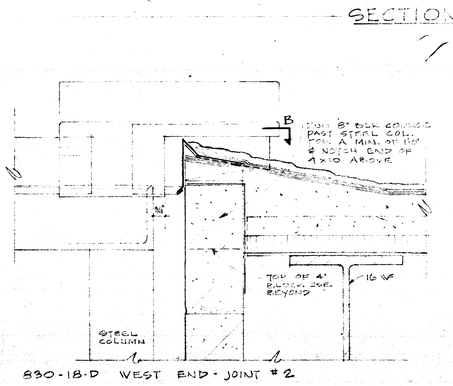
830-18-A
EAST END -
JOINTS #2 & #3

830-18-B
WEST END - JOINT #2

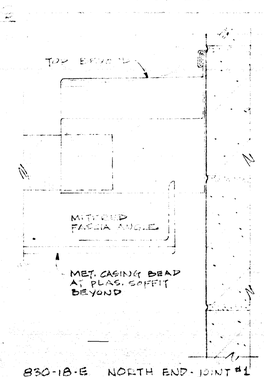
PLAN SECTIONS
ROOFING NOT SHOWN



830-18-C EAST END - JOINTS #2 & #3



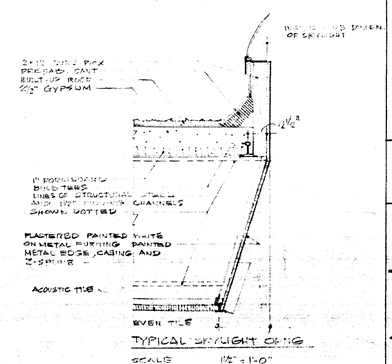
830-18-D WEST END - JOINT #2



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"

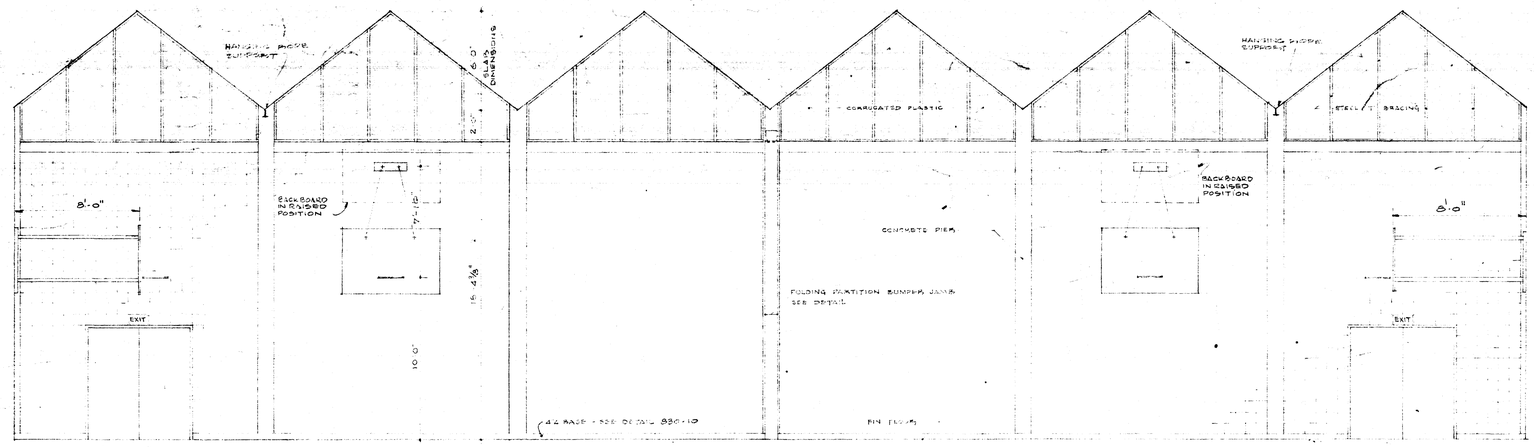
CORRIDOR & ELEVATIONS DETAILS

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

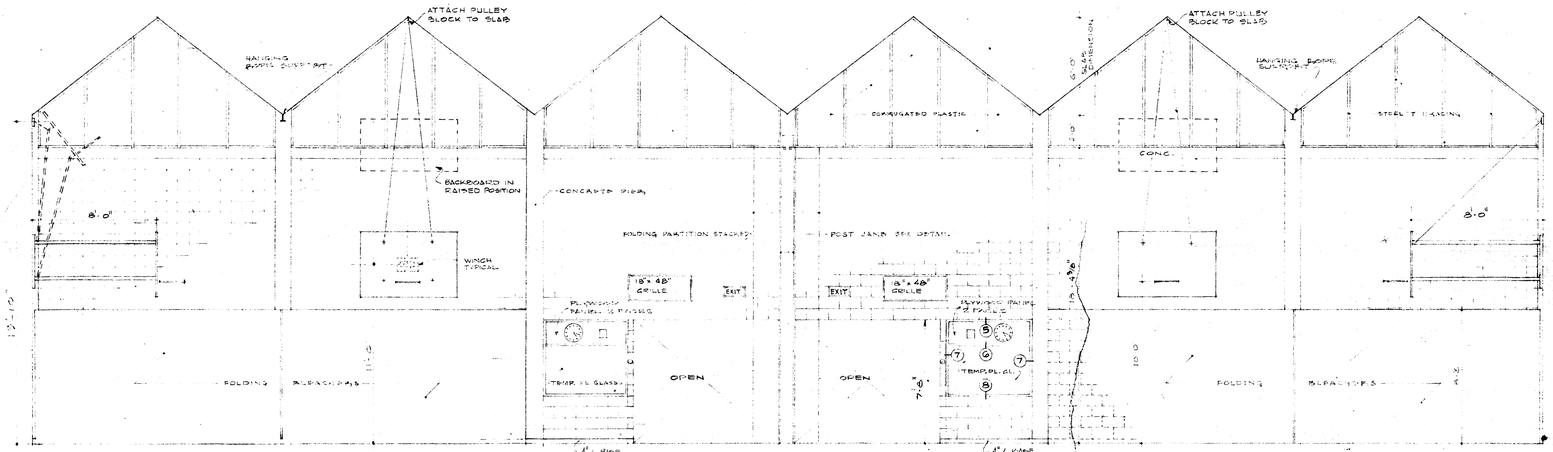
830-18
Date 30APR 57 Scale AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

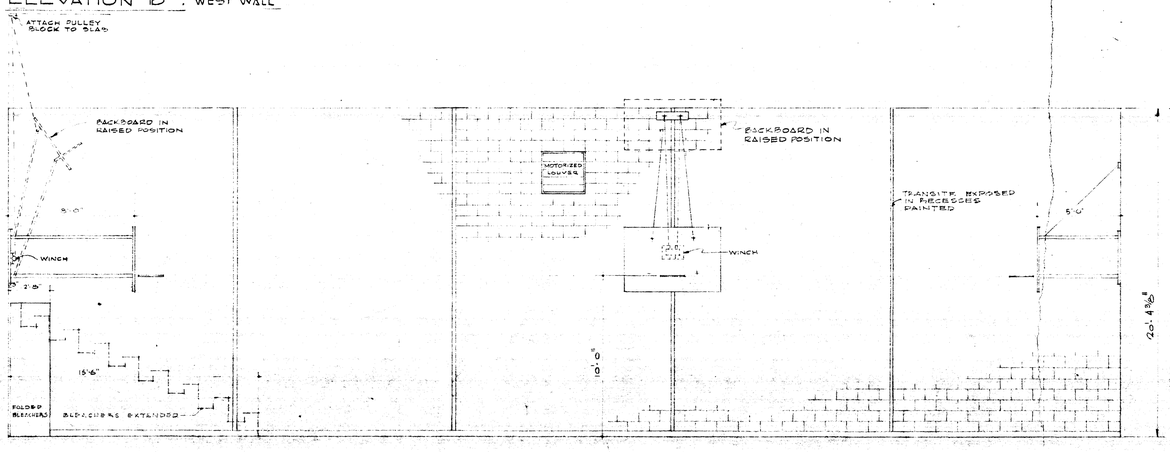
BQ #70 & 125 Attachment



ELEVATION "A" : EAST WALL

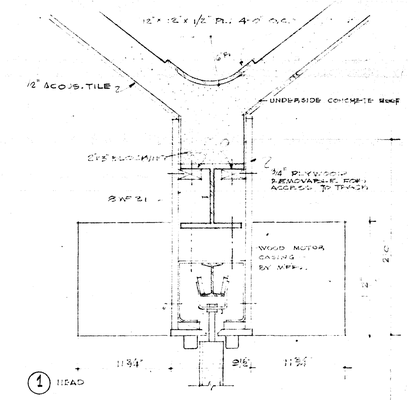


ELEVATION "B" : WEST WALL



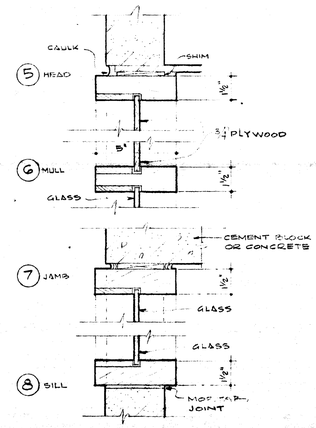
ELEVATION "C" : NORTH WALL SHOWN
SOUTH WALL SIM. TO OPP. HAND

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

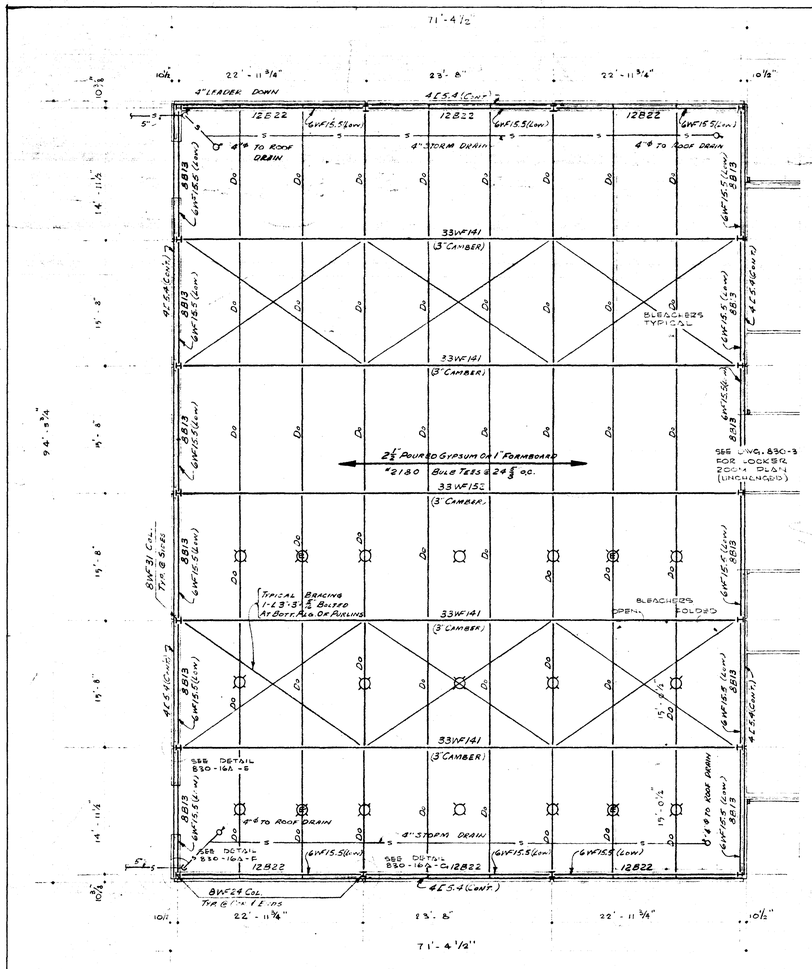
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

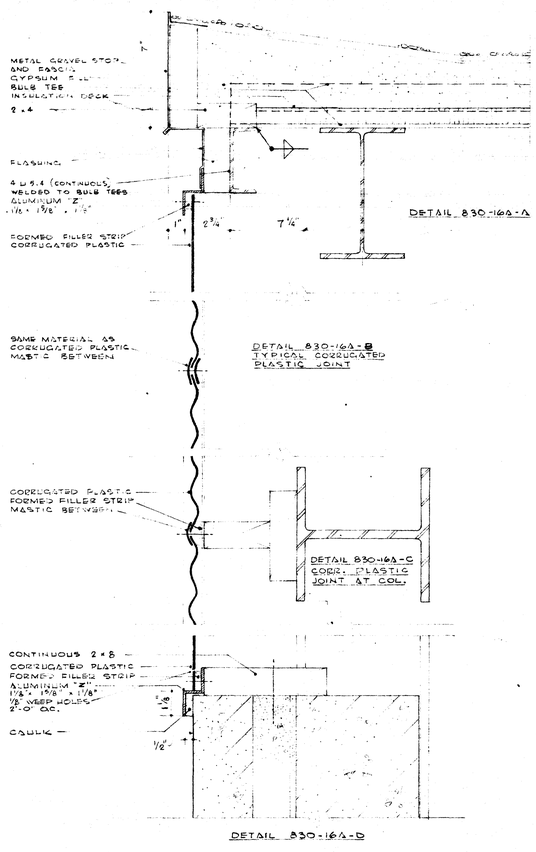
830-19

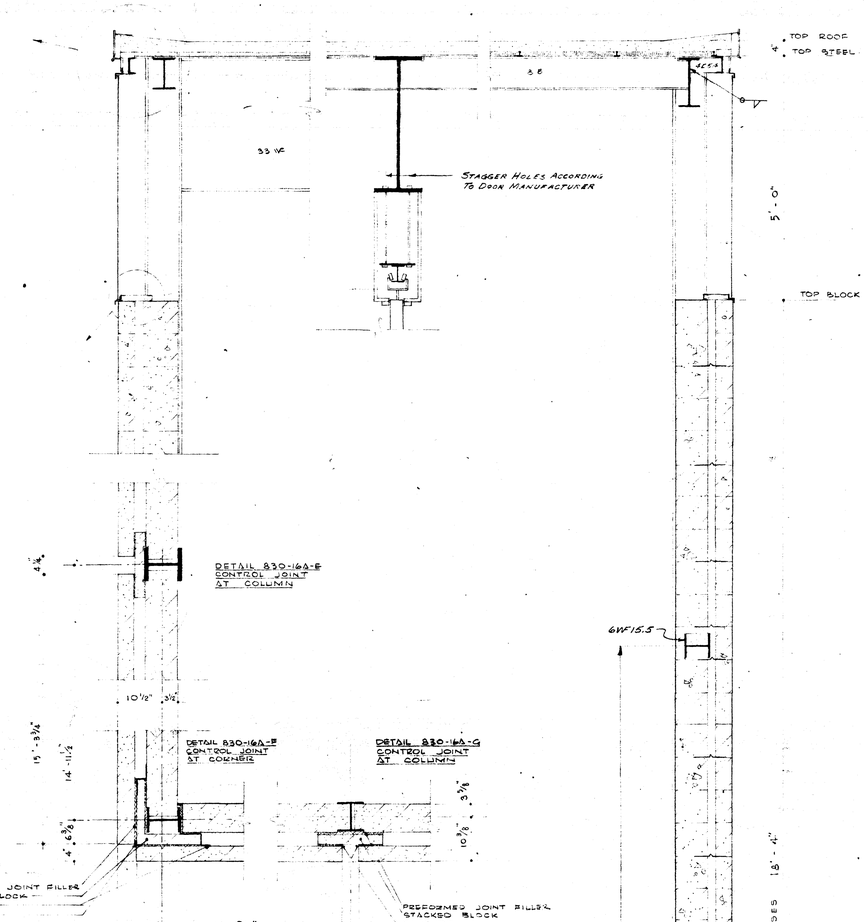
Date: 30 APR 57 | Scale: AS SHOWN

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BQ #70 & 125 Attachment

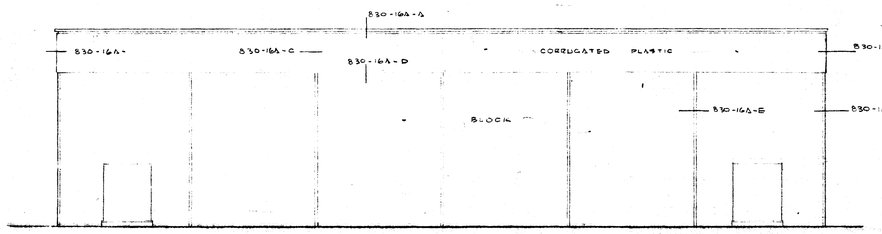




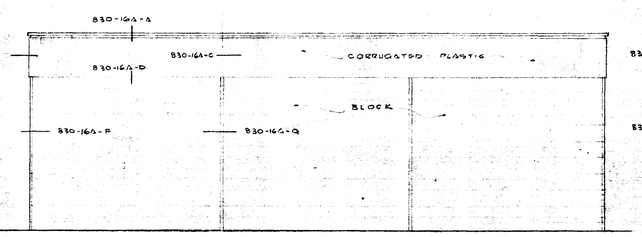


NOTES.

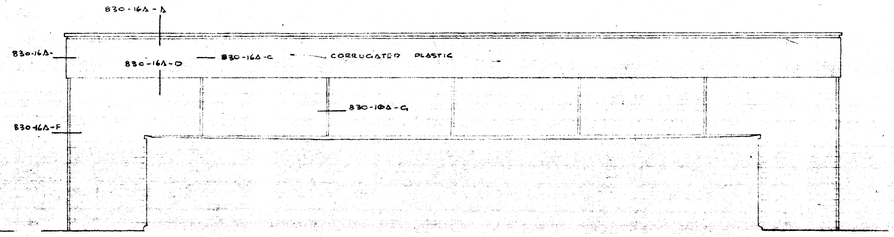
1. THE FOUNDATION PLAN OF GYMNASIUM (DWG. B30-5), MAY BE USED TO SHOW DIMENSIONS & DETAILS FOR THIS ALTERNATE.
2. SHOWN BOILERS, PIPING, AND OTHER EQUIPMENT FOR THIS ALTERNATE ARE SAME AS SHOWN IN BASE BID.
3. HEAT IS INSTALLING NEW CONTROLS FOR THIS ALTERNATE TO MAKE AS SHOWN IN BASE BID.
4. PLUMBING 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

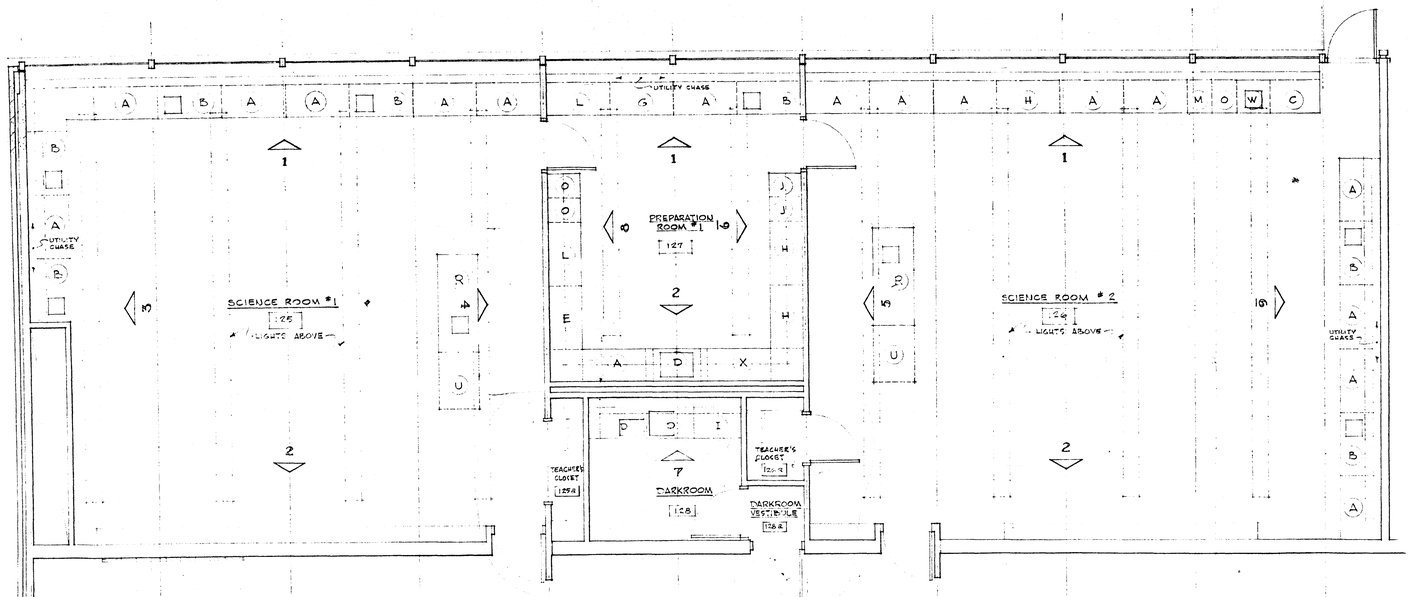
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-20

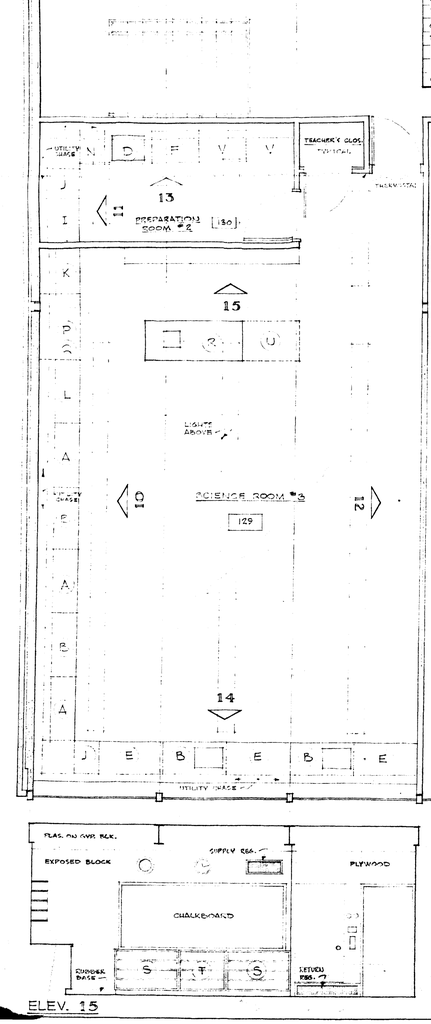
Date 30 APR 57 | Scale AS NOTED

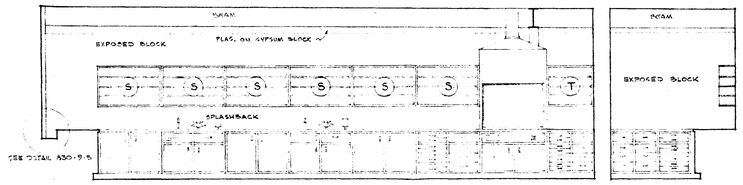
SHERWOOD, MILLS AND SMITH
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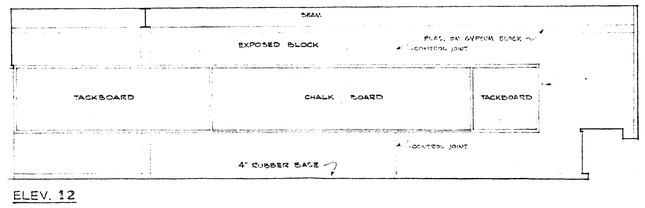
BQ #70 & 125 Attachment

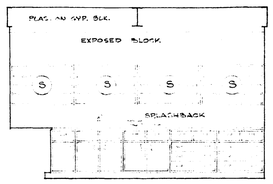


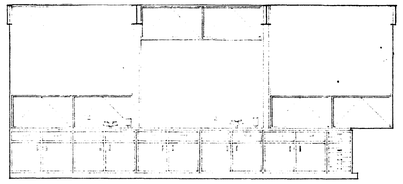
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A	BASE CABINET	EQUIP. MANUF.	#647	H	BASE CABINET	EQUIP. MANUF.	#647	O	BASE CABINET	EQUIP. MANUF.	#8x17	V	BASE CABINET	EQUIP. MANUFACTR.	#937
B	BASE CABINET & SINK	DO	#647	I	DO	DO	#687	P	FUME HOOD	DO	#MCT47	W	BASE CABINET & SINK	DO	#687
C	BASE CABINET	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.				

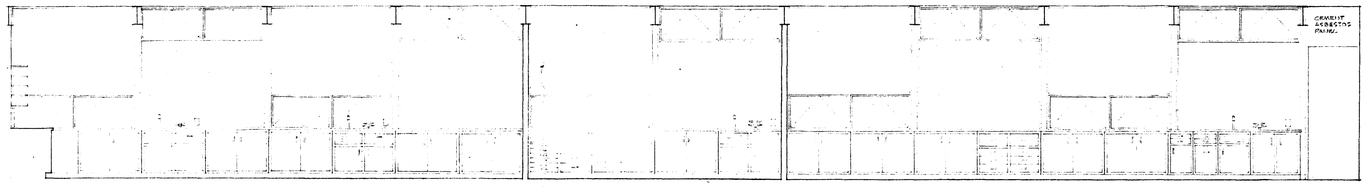


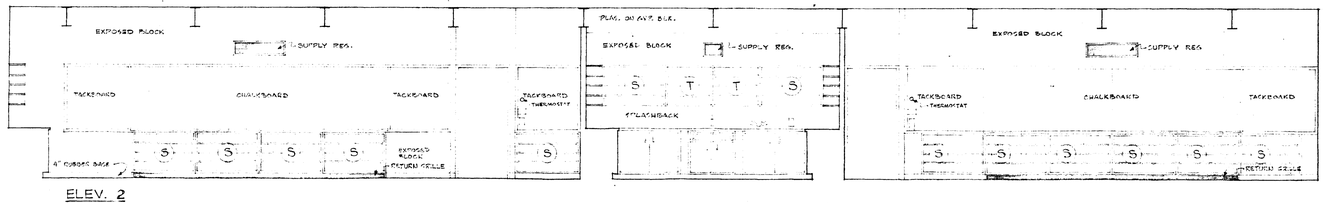


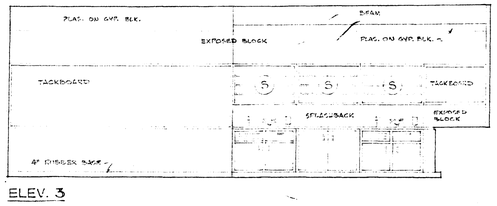


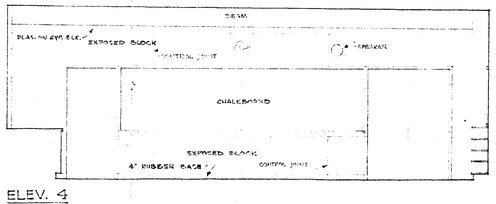


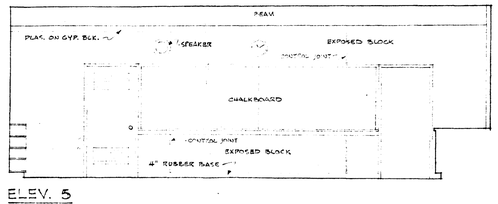


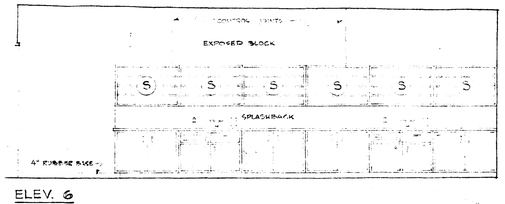


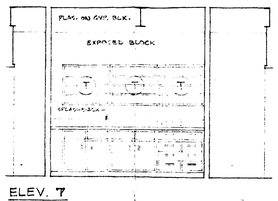


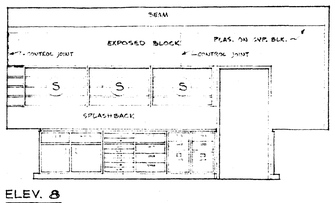


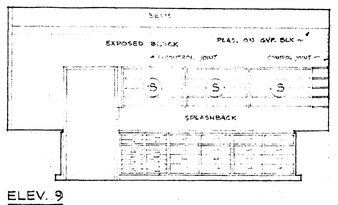












DATE	ISSUE OR REVISION	No.

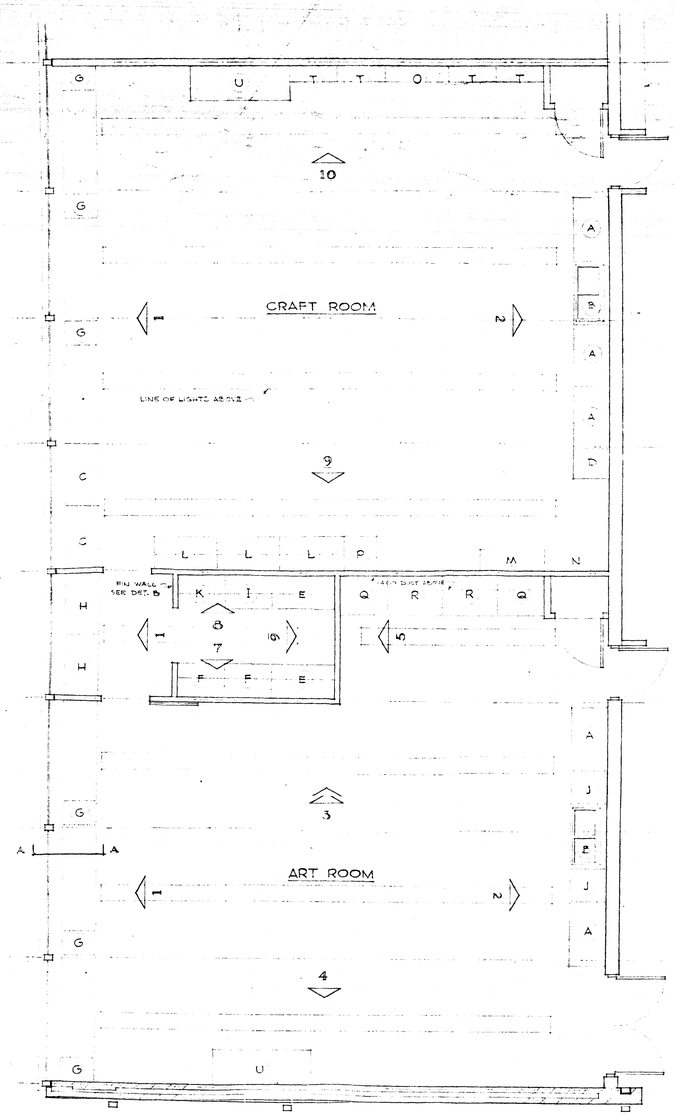
SCIENCE ROOMS

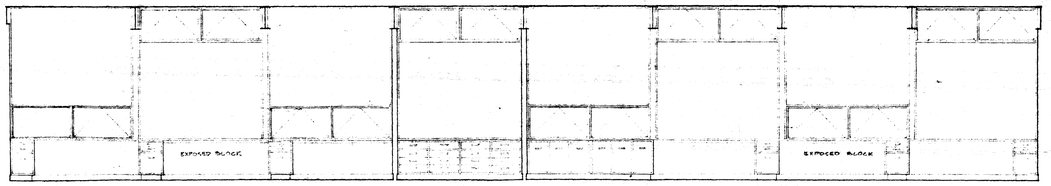
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

330-21
30APR57
1/4"=1'-0"

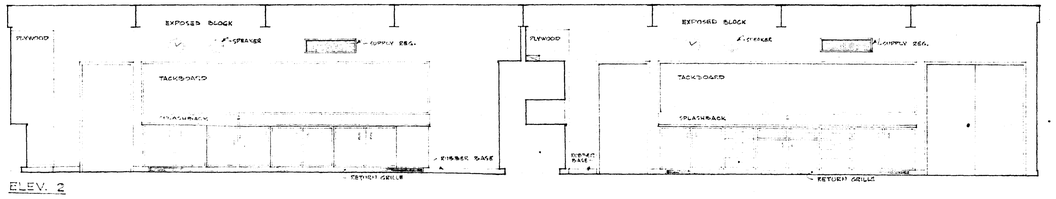
SHERWOOD, MEAD AND SMITH
Architects

BQ #70 & 125 Attachment

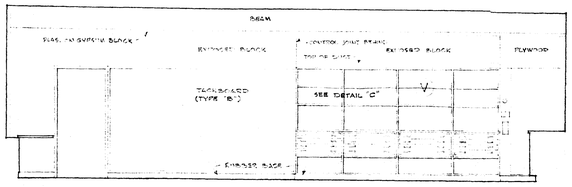




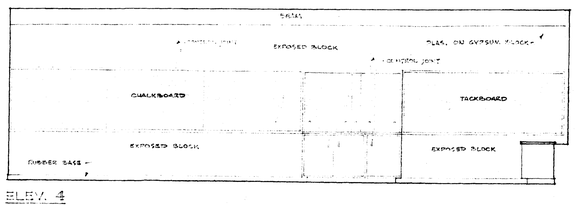
ELEV. 1



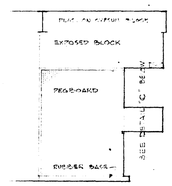
ELEV. 2



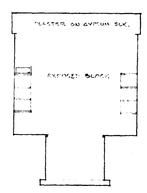
ELEV. 3



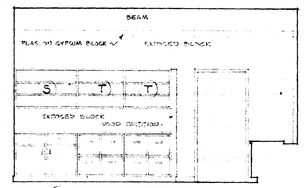
ELEV. 4



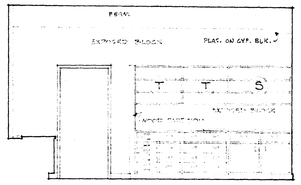
ELEV. 5



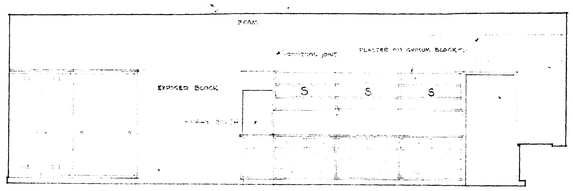
ELEV. 6



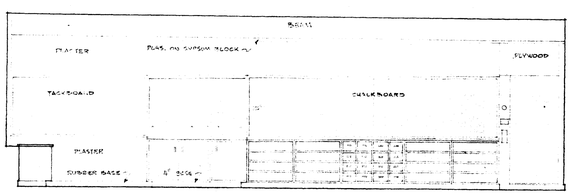
ELEV. 7



ELEV. 8

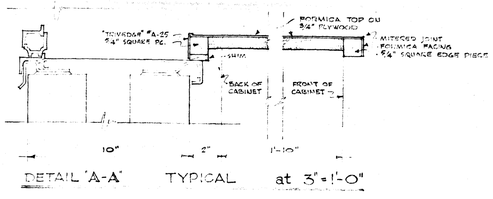


ELEV. 9

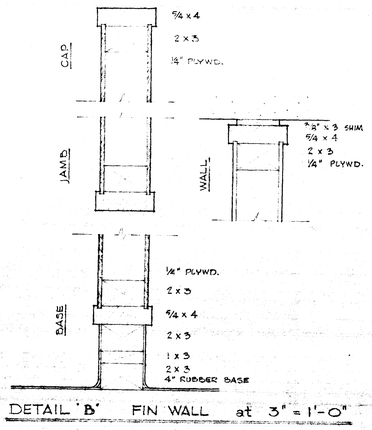


ELEV. 10

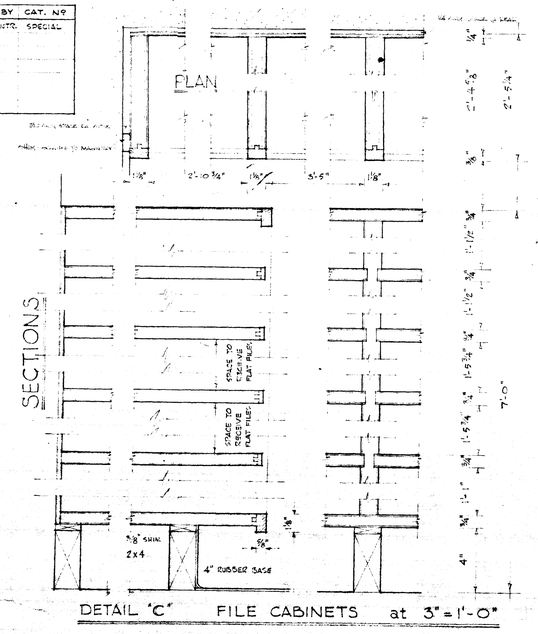
ITEM	DESCRIPTION	FURNISHED BY	CAT. Nº	ITEM	DESCRIPTION	FURNISHED BY	CAT. Nº	ITEM	DESCRIPTION	FURNISHED BY	CAT. Nº	ITEM	DESCRIPTION	FURNISHED BY	CAT. Nº
A	BASE CABINET	EQUIP. MANUF.	#147	H	BASE CABINET	EQUIP. MANUF.	#841	O	BASE CABINET	EQUIP. MANUF.	SPECIAL	V	WOOD SHELVING	GENERAL CONTR.	SPECIAL
B	DO	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

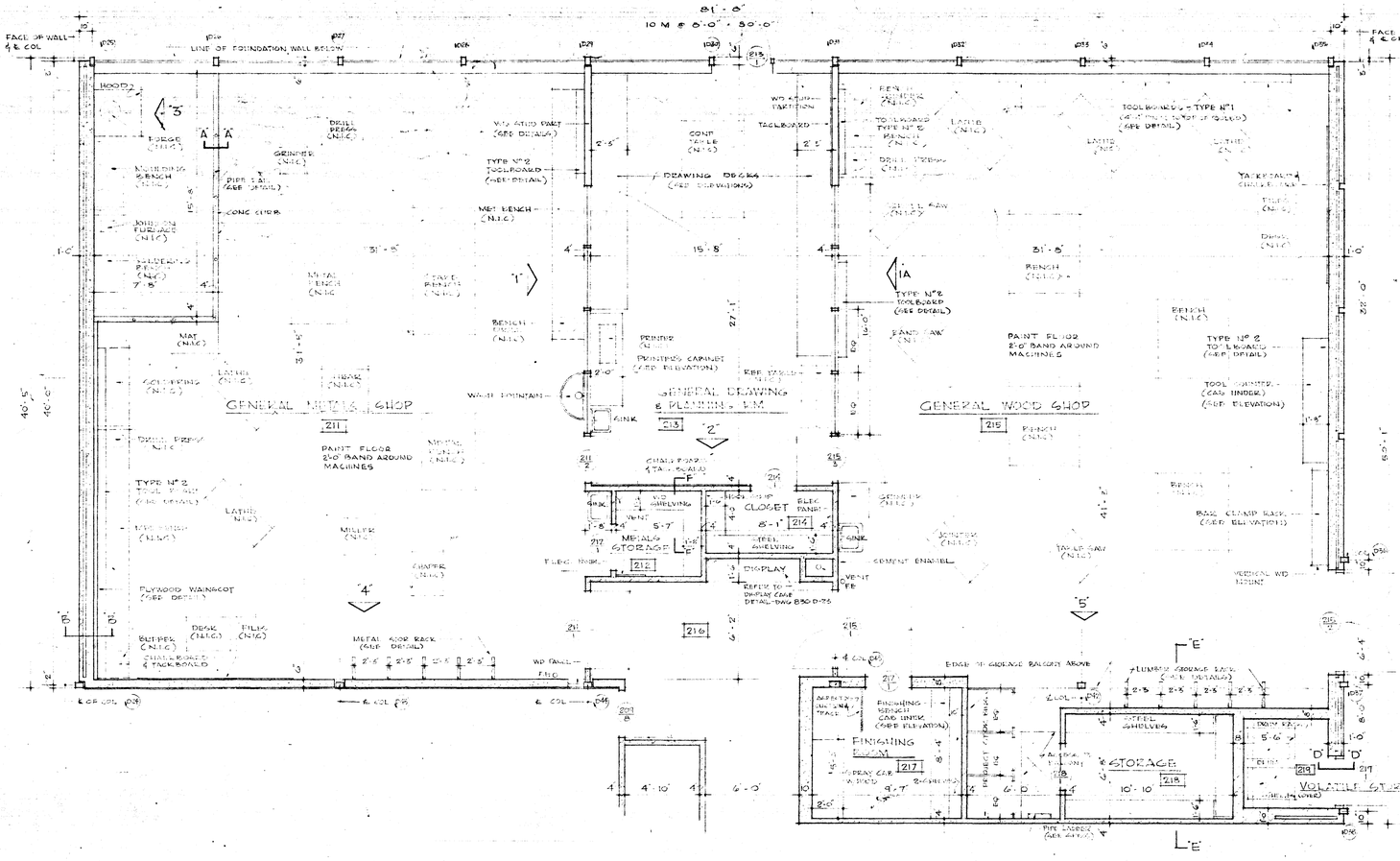
KITCHEN

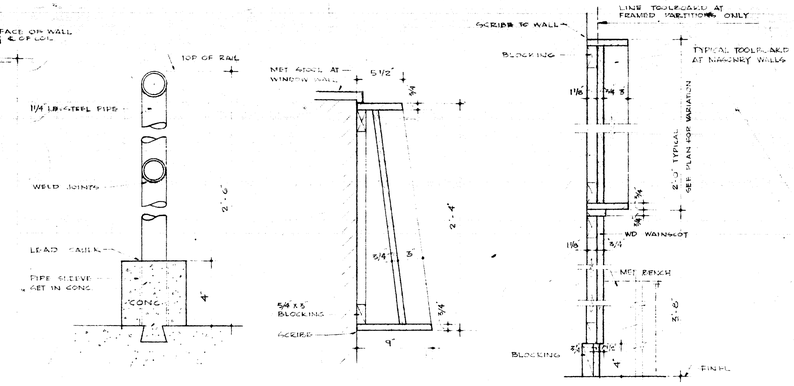
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-25
Date 30APR 57 Scale AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects and Town Planners, Litchfield, Connecticut

BQ #70 & 125 Attachment

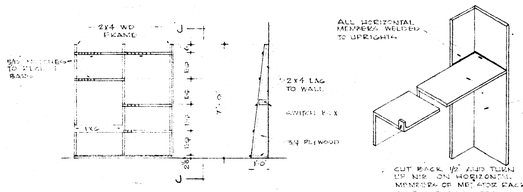




SECTION A-A
SCALE: 1"=1'-0"

SECTION THRU TOOLBOARD TYPE N° 1
SCALE = 1½"=1'-0"

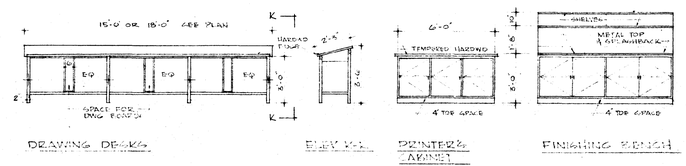
SECTION B-B
TYPE N° 2 TOOLBOARD
(W/O WAINSCOT WHERE NOTED)
SCALE: 1½"=1'-0"



FRONT ELEVATION
BASE CLAMP RACK
SCALE: 1½"=1'-0"

ELEVATION J-J

TYPICAL RACK FRAME DETAIL
SCALE: 3"=1'-0"



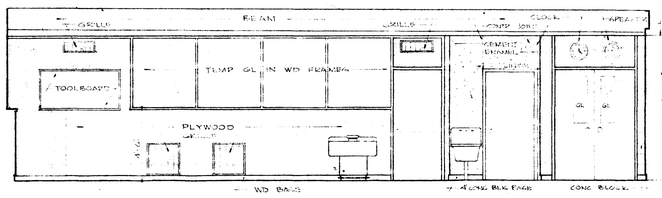
DRAWING DESKS

ELEVATION

PRINTERS CABINET

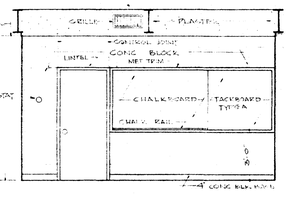
FINISHING BENCH

PLAN & ELEVATIONS
SCALE: 1/4"=1'-0"

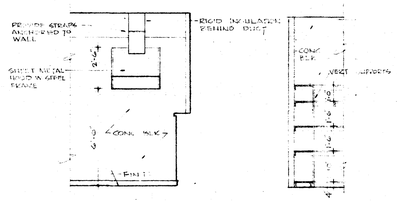


ELEVATION #1

ELEVATION 1A
SIMILAR BUT OPPOSITE HAND

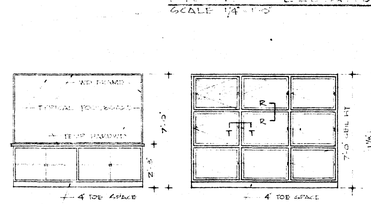


ELEVATION #2



ELEVATION #3
HOOD IN FINISHING RM SIMILAR

SECTION E-E
SCALE: 1/4"=1'-0"

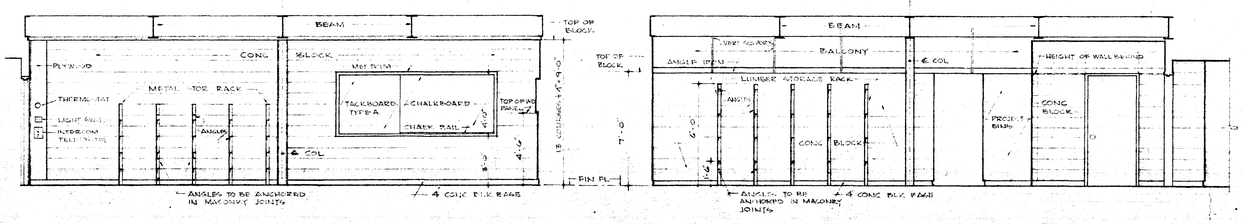


FRONT ELEVATION
TOOL COUNTERS
SCALE: 1/4"=1'-0"

FRONT ELEVATION
PROJECT VISOR RING
SCALE: 1/4"=1'-0"

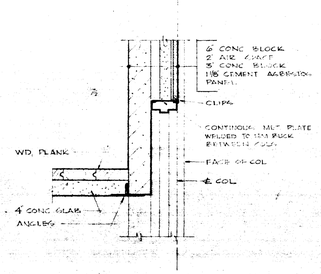
SECTION T-T

SECTION R-R
SCALE: 3"=1'-0"

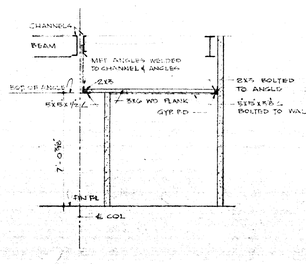


ELEVATION #4

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

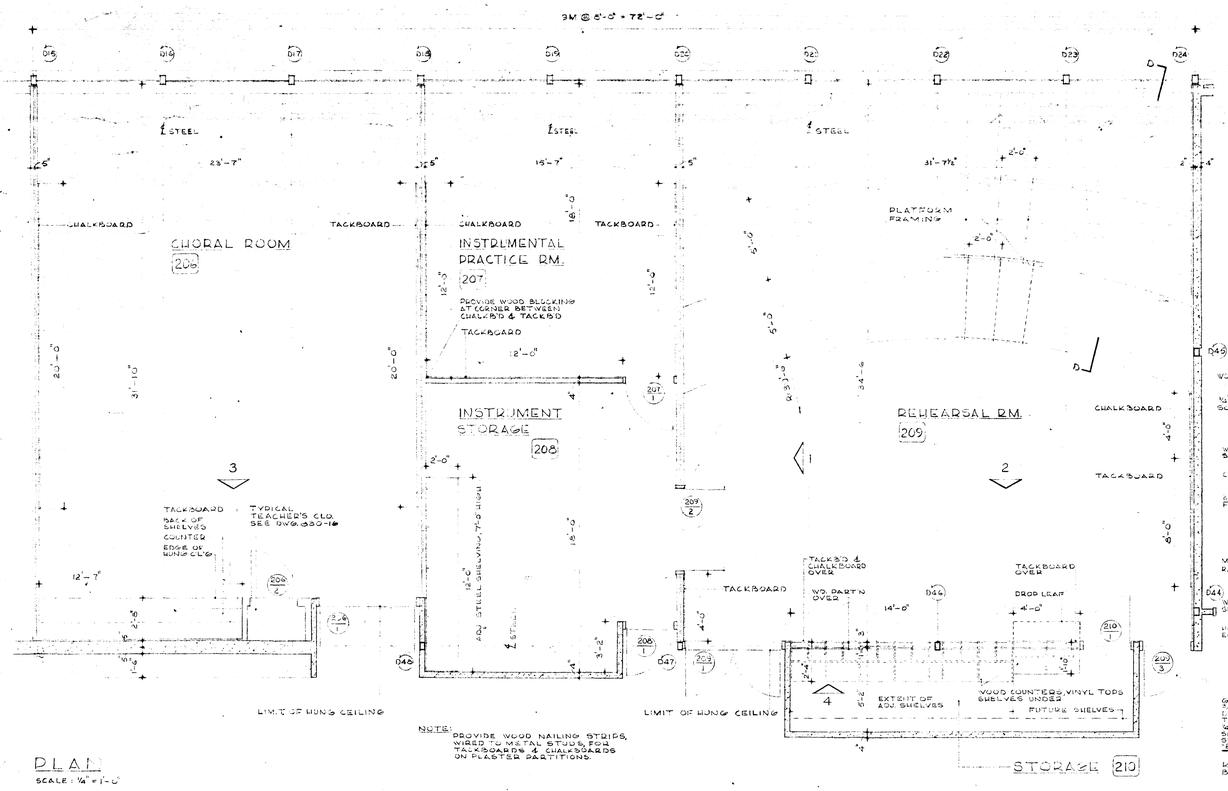
830-26

Date: 30APR 57
Scale: AS SHOWN

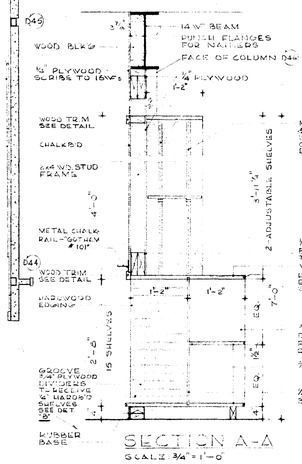
N

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

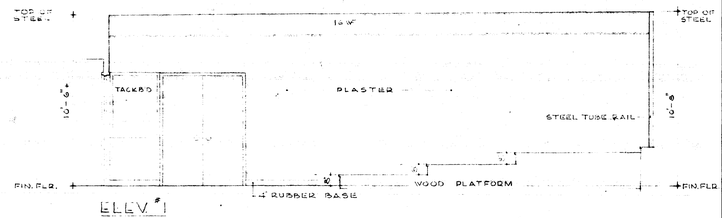
BQ #70 & 125 Attachment



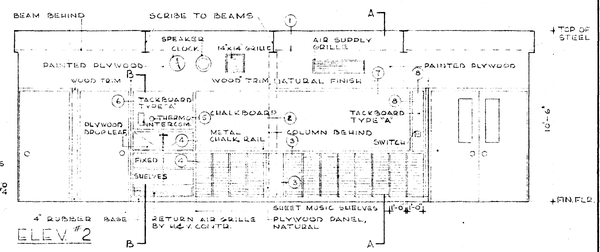
PLAN
SCALE: 1/4" = 1'-0"



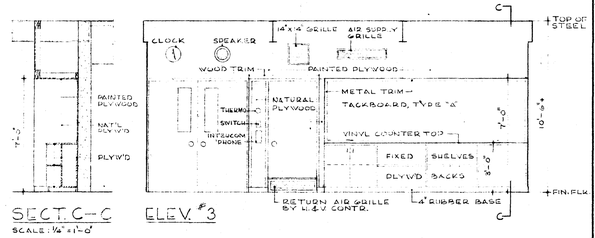
SECTION A-A
SCALE: 3/4" = 1'-0"



ELEV. #1



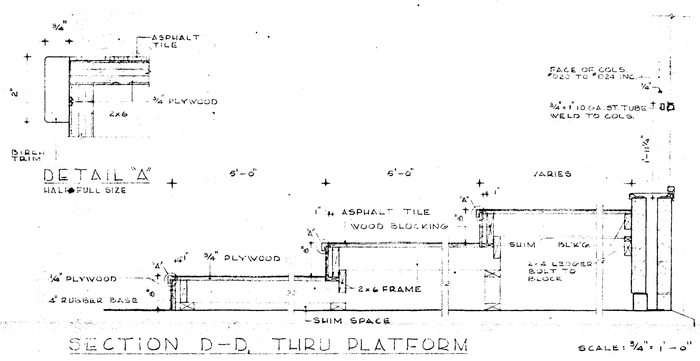
ELEV. #2



SECT. C-C
SCALE: 1/4" = 1'-0"

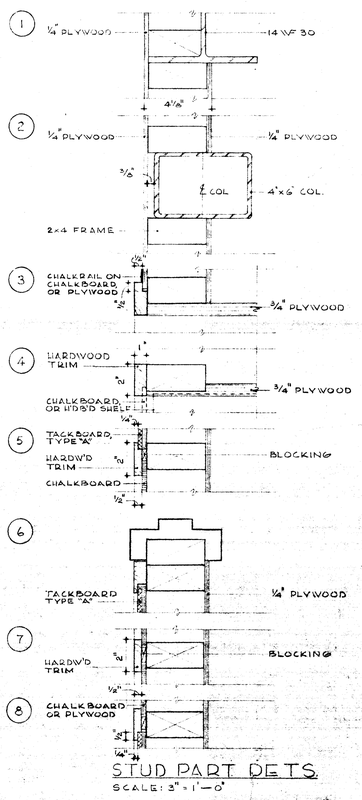
ELEV. #3

NOTE: ELEVS #2 & #3 — HEIGHT ℄ CLOCK & SPEAKERS TO FIN. FLR. = 8'-6"

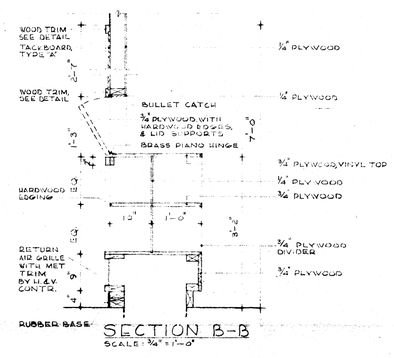


DETAIL "A"
HALF FULL SIZE

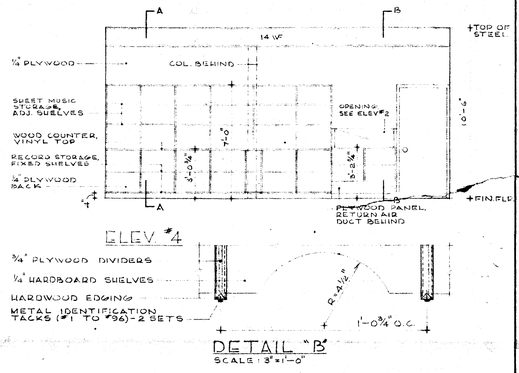
SECTION D-D THRU PLATFORM
SCALE: 3/4" = 1'-0"



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

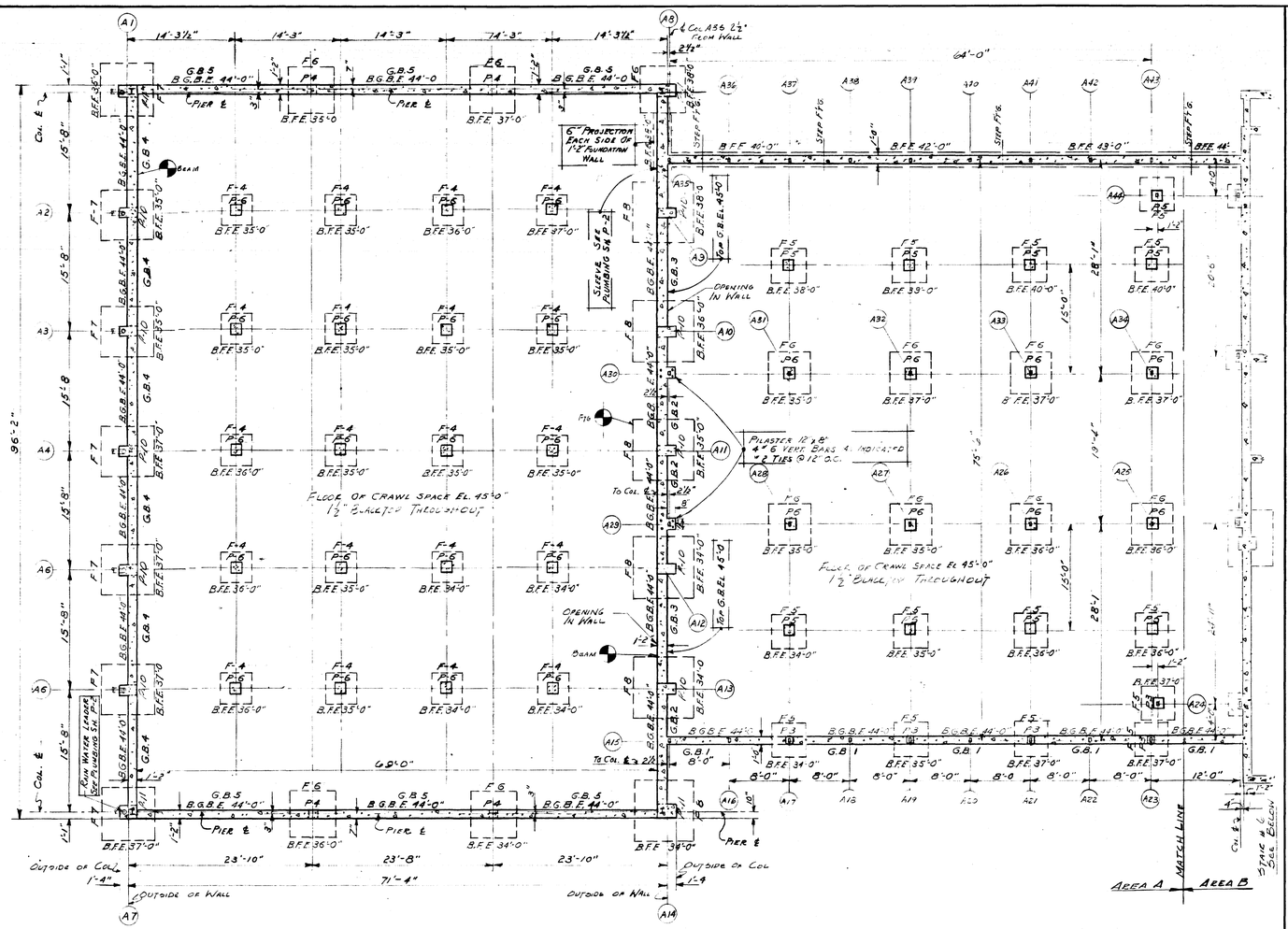
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-27

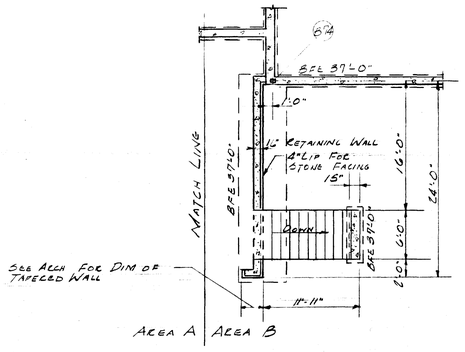
Date: 30 APR 57 | Scale: AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

BQ #70 & 125 Attachment

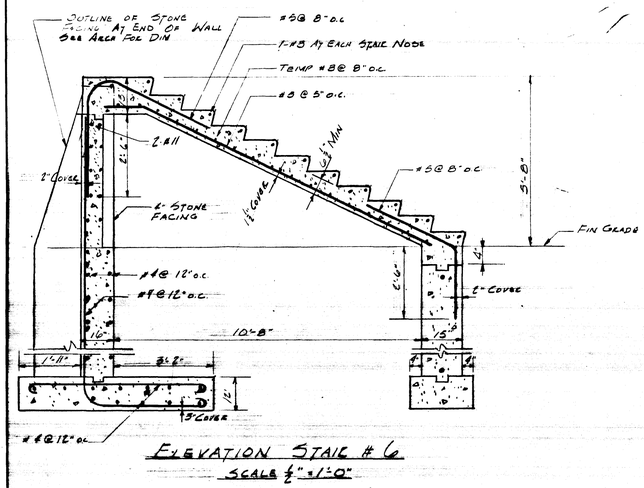


FOUNDATION PLAN

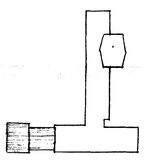


FOUNDATION PLAN
STAIR #6
SCALE 3/8" = 1'-0"

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

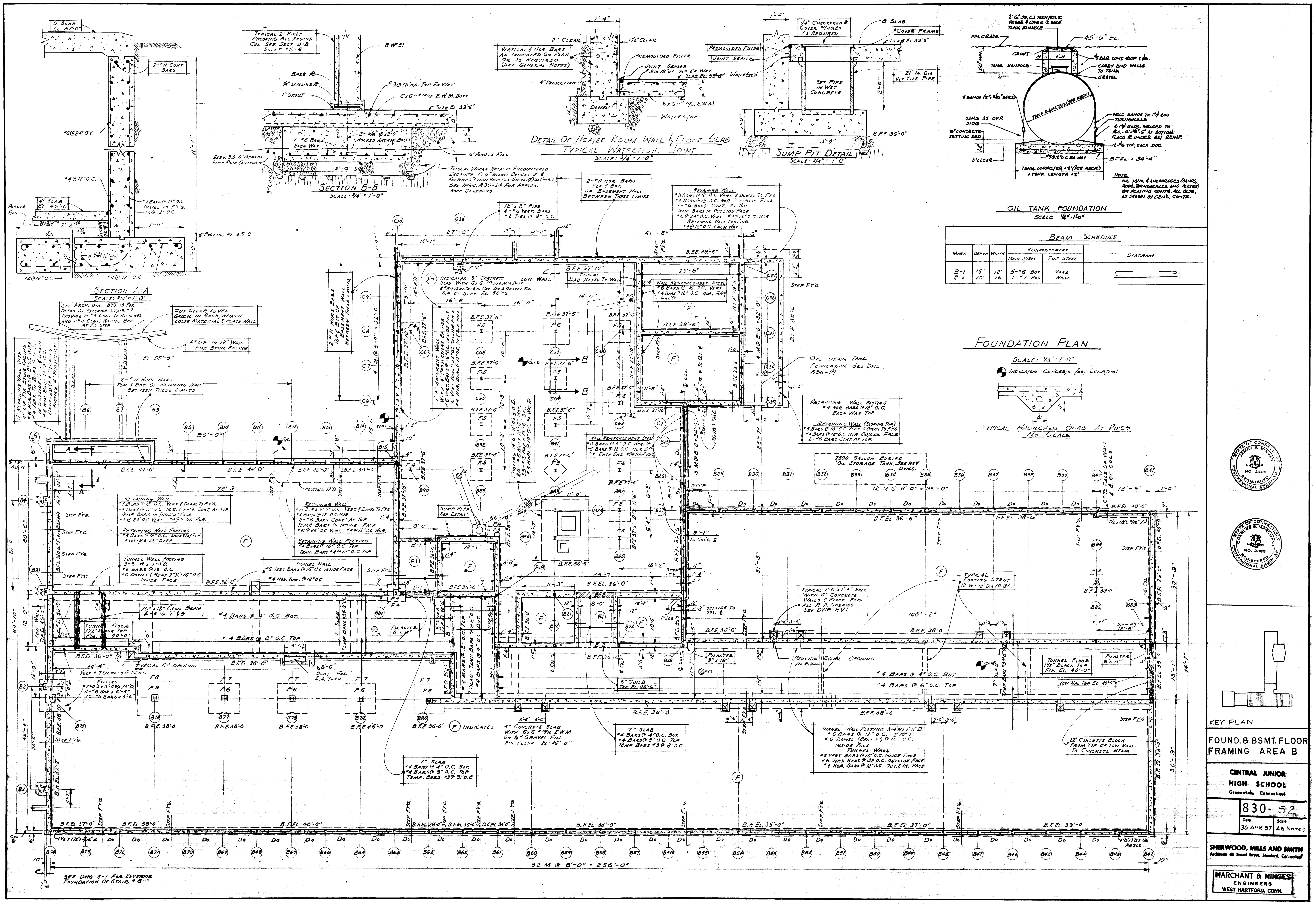
830-51

Date 30 APR 57 | Scale 1/8" = 1'-0"

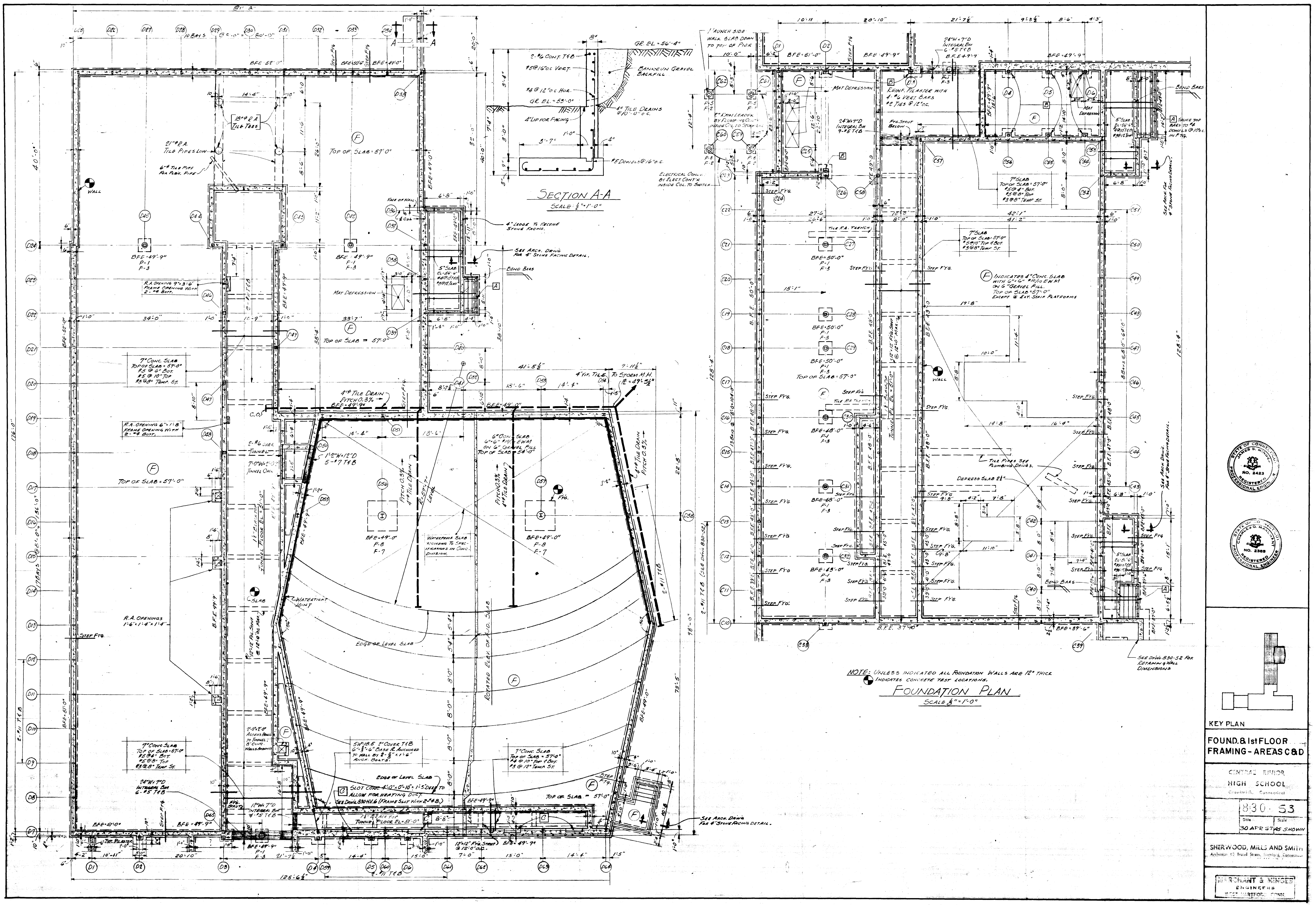
SHERWOOD, MILLS AND SMITH
Architects, 65 Broad Street, Stamford, Conn.

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	

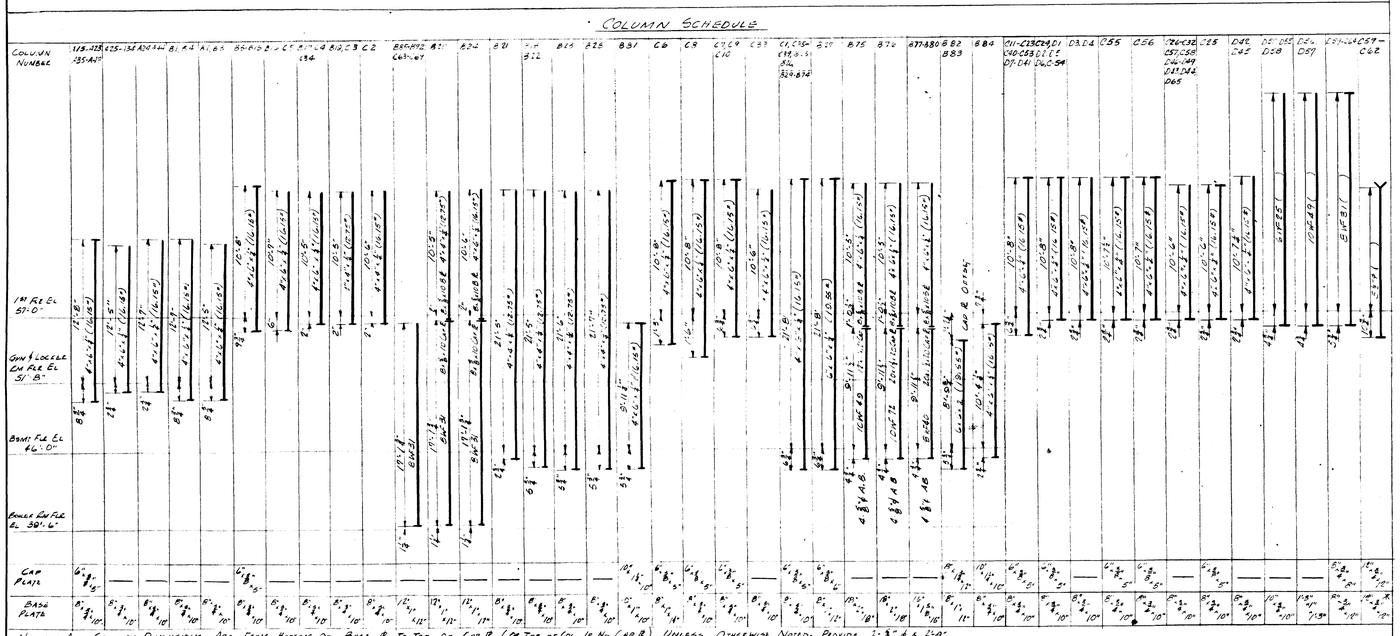
FOOTING SCHEDULE

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
Office ..... 50 "
Classrooms & Toilets ..... 60 "
Cafeteria & Wood Shop ..... 80 "
Corr., Exitways, Stairs, Gym & Projection Rm., Assembly .. 100 "
Book Stacking Area ..... 120 "
Retail Shr 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]
[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 #6 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:

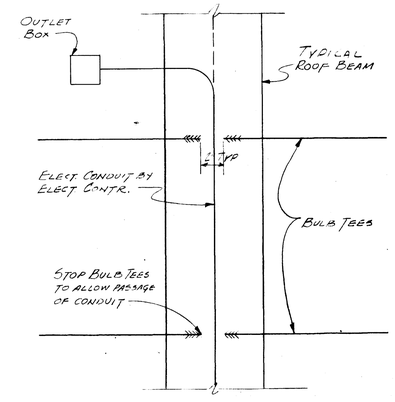
A. FURNISH LOOSE ANGLE LINTELS OVER ALL OPENINGS IN MASONRY WALLS AND PARTITIONS INCLUDING OPENINGS AT DOORS, WINDOWS, RECESSES, DUCTS, VENTS, ETC.
B. PROVIDE ONE ANGLE FOR EACH 4" OF MASONRY THICKNESS AS FOLLOWS:

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"

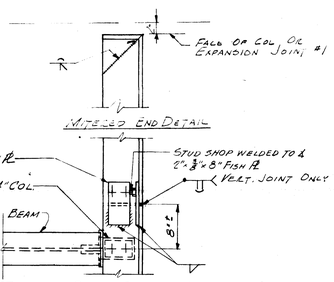
PROVIDE 3" HORIZONTAL LEG ON ANGLES IF REQUIRED AT CERTAIN METAL DOOR BUCKS. WHERE TOTAL THICKNESS OF WALL TO BE SUPPORTED BY LINTEL IS 4" AND ARCHITECTURAL FINISHES REQUIRE EXPOSED MASONRY ON EACH SIDE, LINTEL SHALL BE AN ST3X3.25 WITH 2" OF MASONRY EACH SIDE OF WEB. FURNISH SIMILAR TREATMENT FOR 6" WALLS USING 2 L'S 3-1/2" X 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 ⅝" X 2'-0" (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:

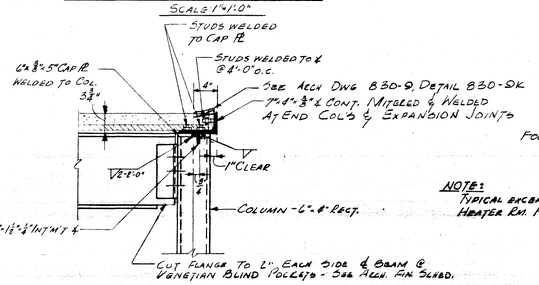
S-SERIES, CHANNELS, TS, AND 4 WF'S	6" X 3/8" X 6"
8 WF	8" X 3/4" X 10"
10 WF, 12 WF	8" X 7/8" X 1'-0"
14 WF, 16 WF, 18 WF	8" X 1" X 1'-2"
21 WF, 24 WF	10" X 1" X 1'-2"

D. PUNCH OR DRILL STEEL FOR ⅞" 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.

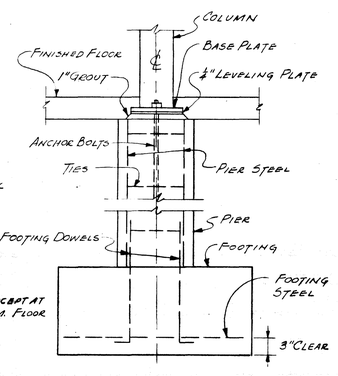


TYPICAL PLAN OF BULB TEE
BREAK FOR PASSAGE OF ELEC. CONDUIT TO OUTLET BOXES IN AREAS OF EXPOSED ROOF CONSTRUCTION
No Scale

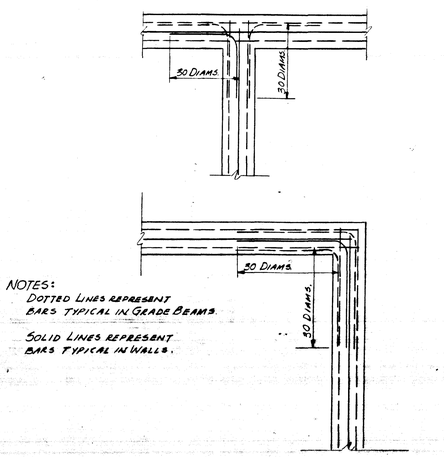




NOTE: TYPICAL EXCEPT AT HEATER RM. FLOOR

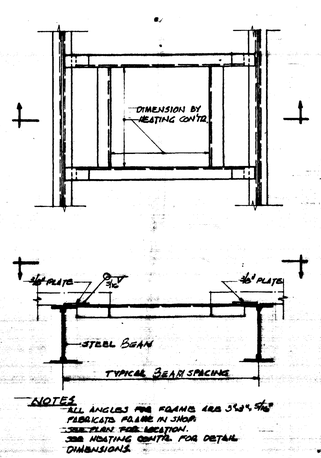


TYPICAL COLUMN BASE, PIER AND FOOTING DETAIL
No Scale
FOR SIZES, SEE KEY NOS. ON PLAN, & SCHEDULE ABOVE



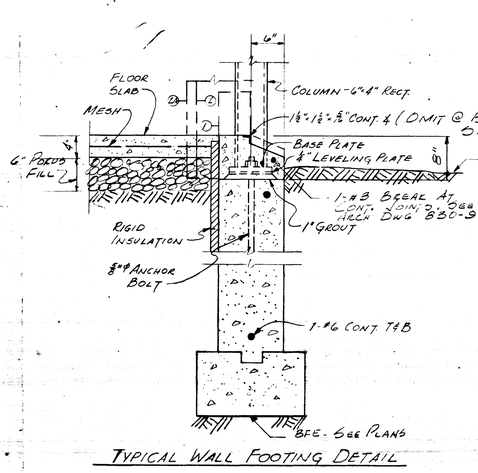
NOTES:
DOTTED LINES REPRESENT BARS TYPICAL IN GRADE BEAMS.
SOLID LINES REPRESENT BARS TYPICAL IN WALLS.

TYPICAL BAR SPLICES AT CORNERS AND INTERSECTIONS OF ALL WALLS AND GRADE BEAMS
No Scale



NOTES:
ALL ANGLES FOR FRAMING ARE 3½"x3½"x5/16" FABRICATED SQUARE IN SHOP.
SEE PLAN FOR LOCATION.
SEE HEATING CONTR. FOR DETAIL DIMENSIONS.

TYPICAL FAN OPENING IN ROOF
SCALE: ½"=1'-0"



TYPICAL WALL FOOTING DETAIL
SCALE: 1"=1'-0"
OTHER CONDITIONS SHOWN DOTTED
① CAFETERIA
② 10" BLOCK SPANDREL
③ 1'-0" BOBBE SPANDREL

STATE OF CONNECTICUT JAMES K. MINGES NO. 2423 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT CHARLES G. MANCHANT NO. 2389 REGISTERED PROFESSIONAL ENGINEER

STRUCTURAL DET'LS. & SCHEDULES

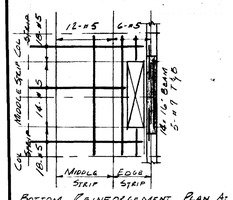
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

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

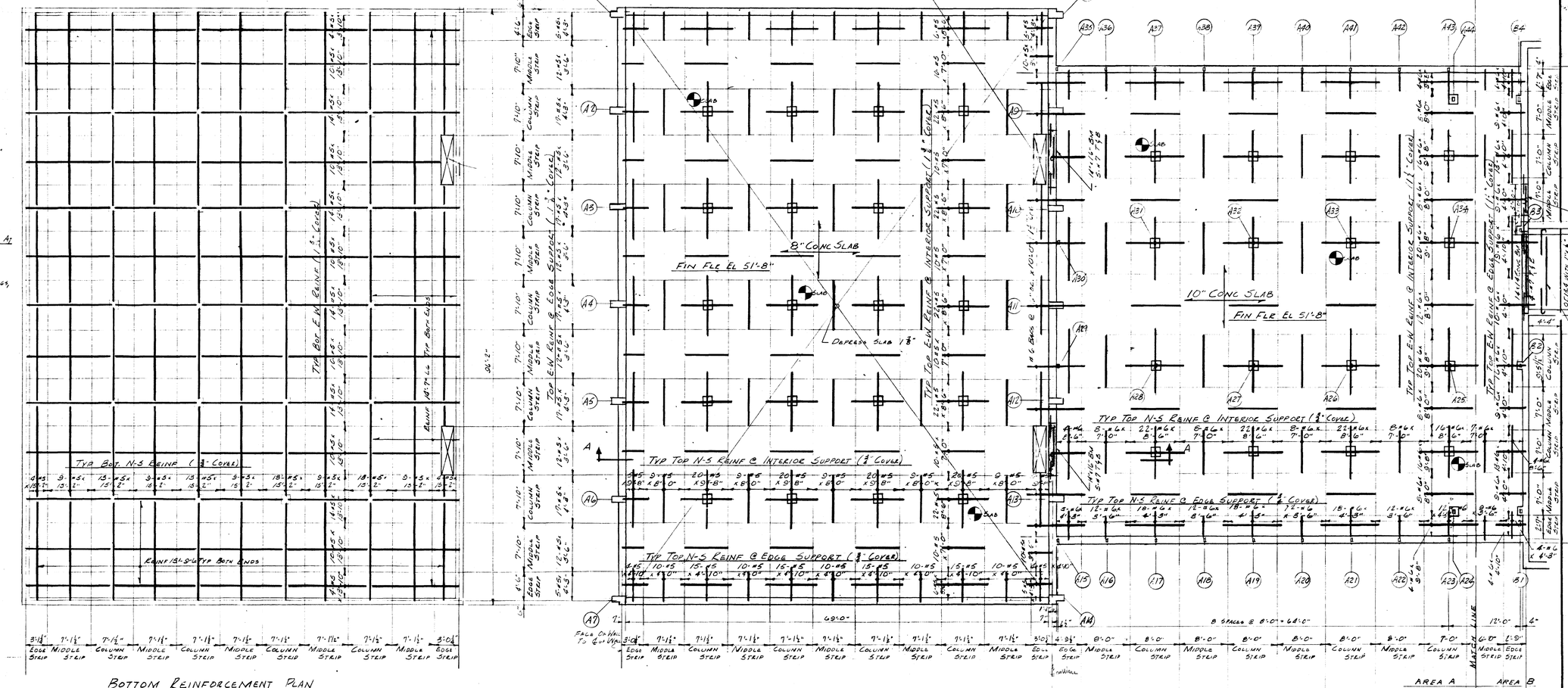


BOTTOM REINFORCEMENT PLAN AT GYM SLAB OPENING

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"

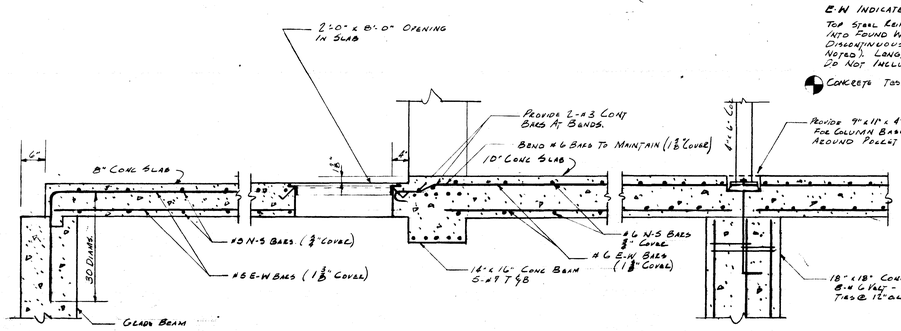
NOTES:

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.

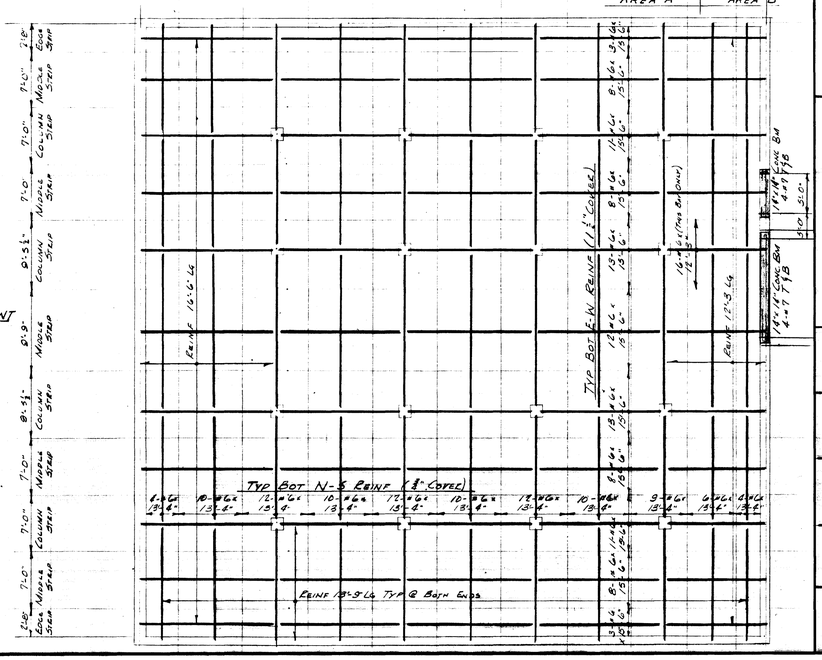
● CONCRETE TEST LOCATIONS



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

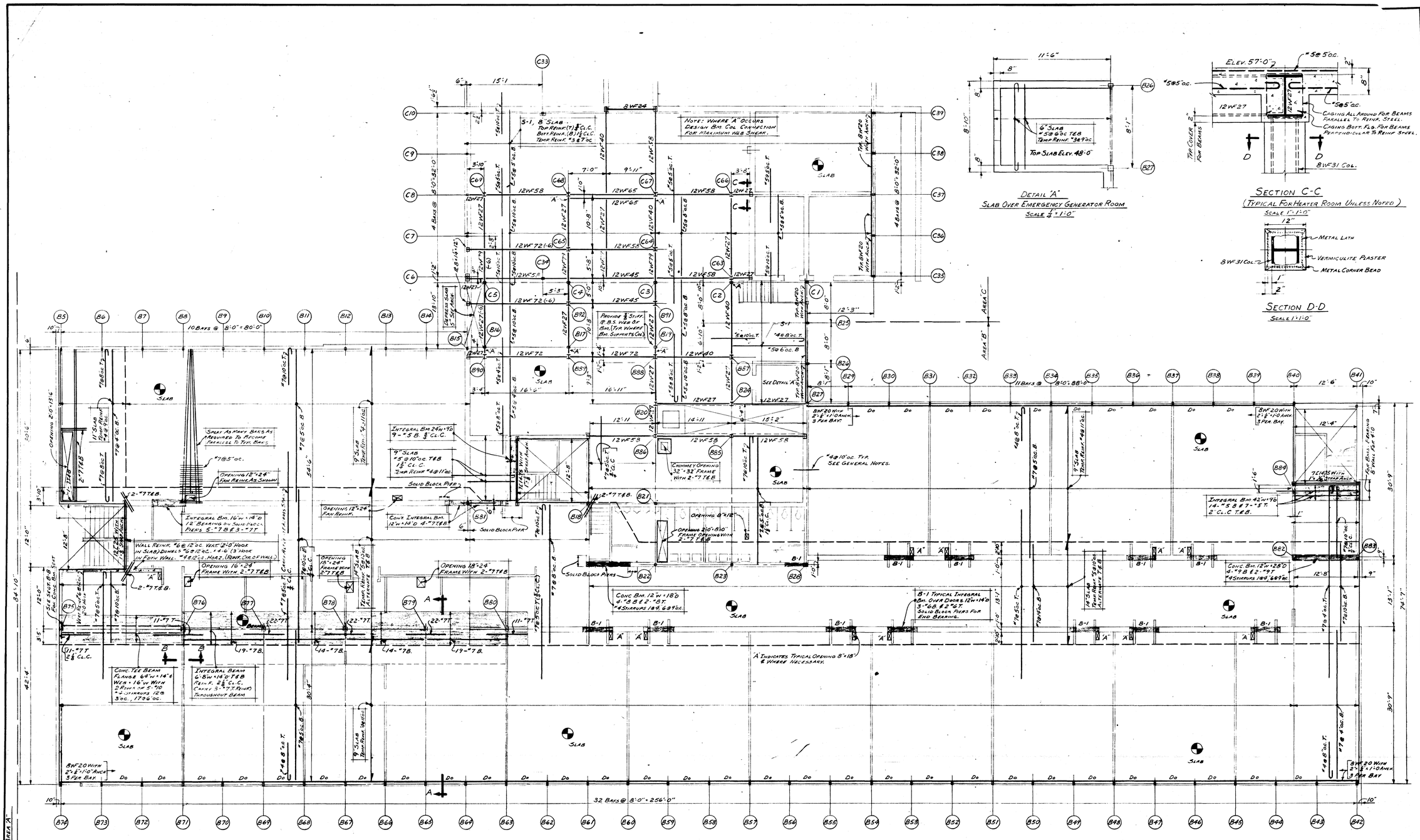
STATE OF CONNECTICUT CHARLES S. MARCHANT NO. 2388 REGISTERED PROFESSIONAL ENGINEER

BQ #70 & 125 Attachment

First Floor Framing Plan Unit "B"

Top Slab Elev. 57:0"

Scale 1/8" = 1:0"



Detail "A"

Slab over Emergency Generator Room

Scale 1/4" = 1:0"

Section C-C

(Typical for Heater Room Unless Noted)

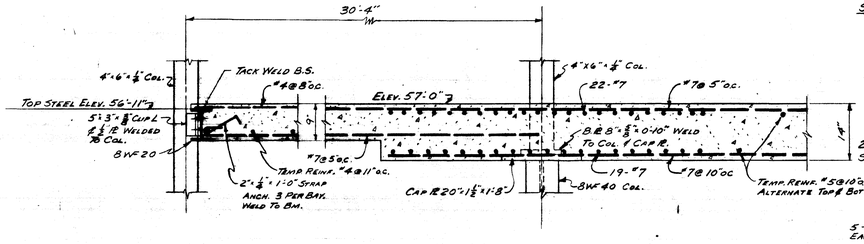
Scale 1"=1'-0"

Section D-D

Scale 1"=1'-0"

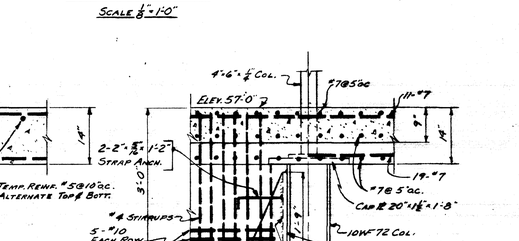
Section A-A

Scale 3/4" = 1:0"



Section B-B

Scale 3/4" = 1:0"



Notes:

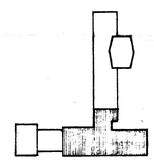
See General Notes for reinforcement not shown on plan.

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.

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

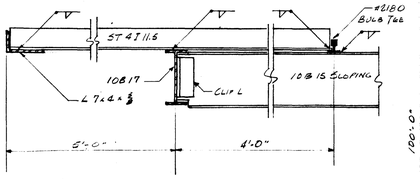
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment

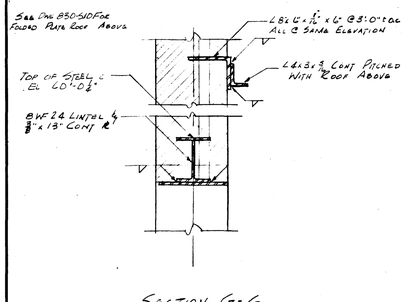
NOTES:

SEE DWG. B30-510 FOR DIMENSIONS & EQUIP FOR CONC. COLUMNS.

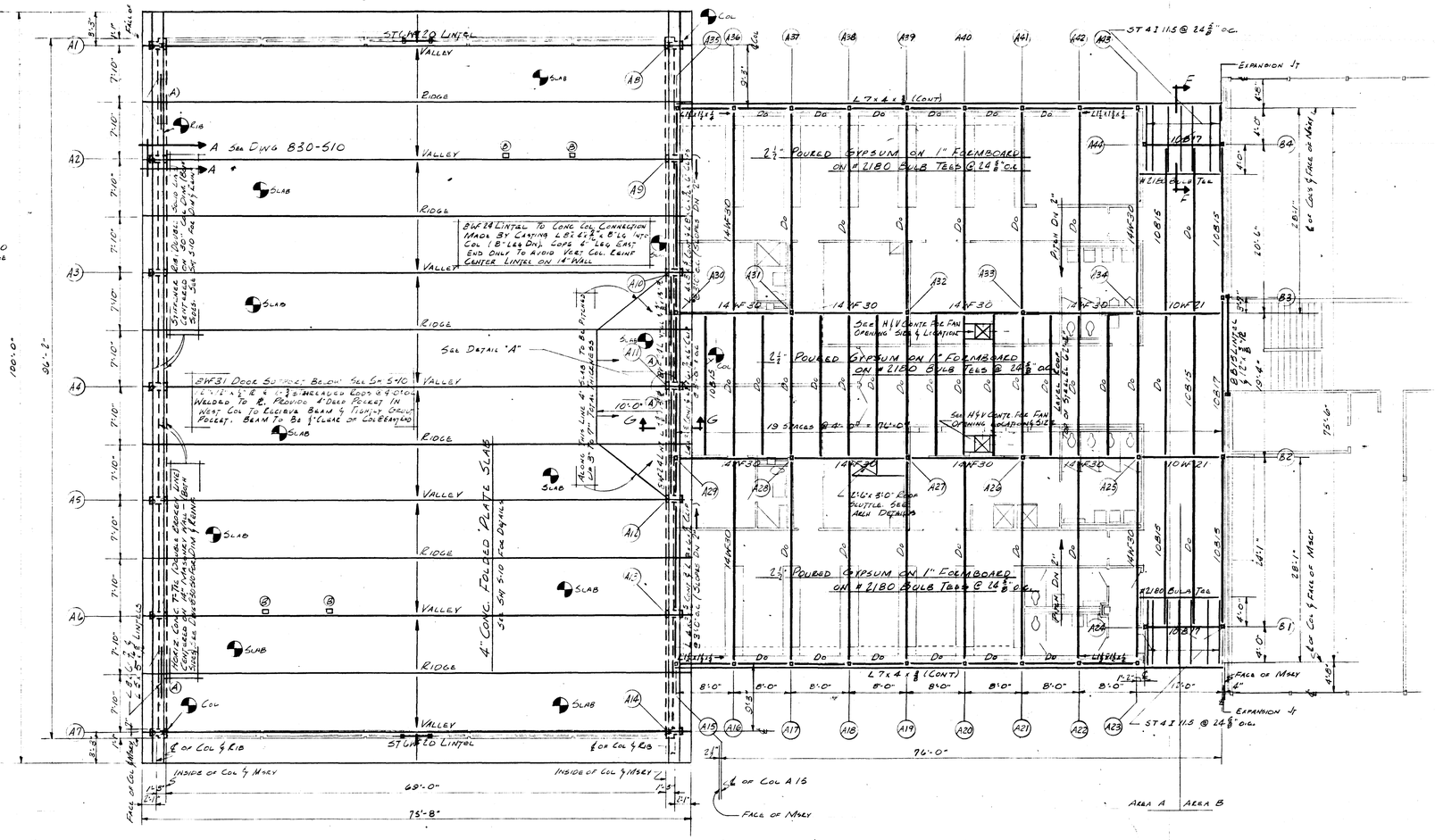
COLUMNS A1, A7, A8, & A14 HAVE INTERIOR STEEL COLUMNS CAST IN CONCRETE SECTION. STEEL COLUMNS CONSIST OF 8WF31 & 6WF15.5 SPLICED AS SHOWN ON DWG. B30-510 PROVIDE 8"x $\frac{3}{8}$"x 8" BASE PL FOR 6WF15.5. USE 2-$\frac{3}{4}$"ø x 1'-9" ANCHOR BOLTS AT EACH COLUMN BASE. BOTTOM BASE PL EL 51'-0"



SECTION F-F
SCALE 1"=1'-0"



SECTION G-G
SCALE 1"=1'-0"



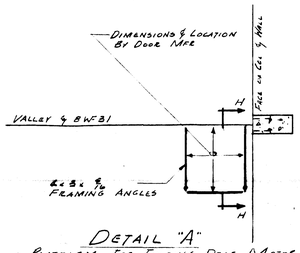
ROOF FRAMING PLAN - UNIT A
SCALE ⅛"=1'-0"

NOTE:

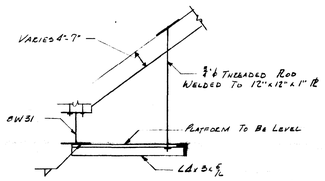
(A) INDICATES LOCATION OF SPECIAL LINTELS (4 PLACES) LINTELS ARE L 8"x 6"x ½" & L 5"x 3½"x ⅜"

(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



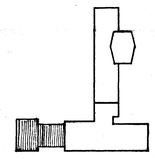
DETAIL "A"
PLATFORM FOR FOLDING DOOR MOTOR
NO SCALE



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

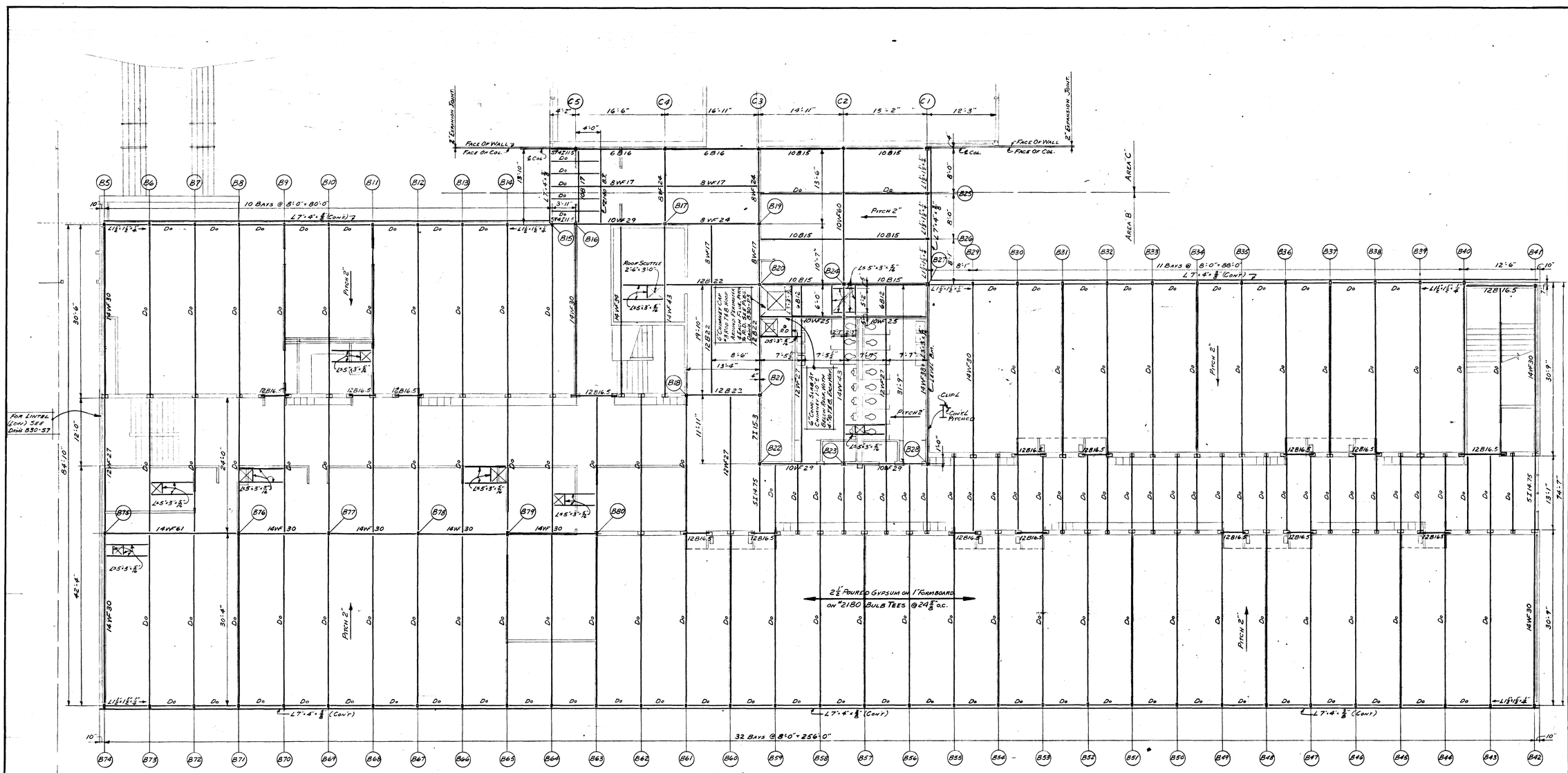
830-57

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

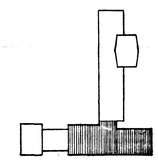


Roof Framing Plan Unit "B"

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"

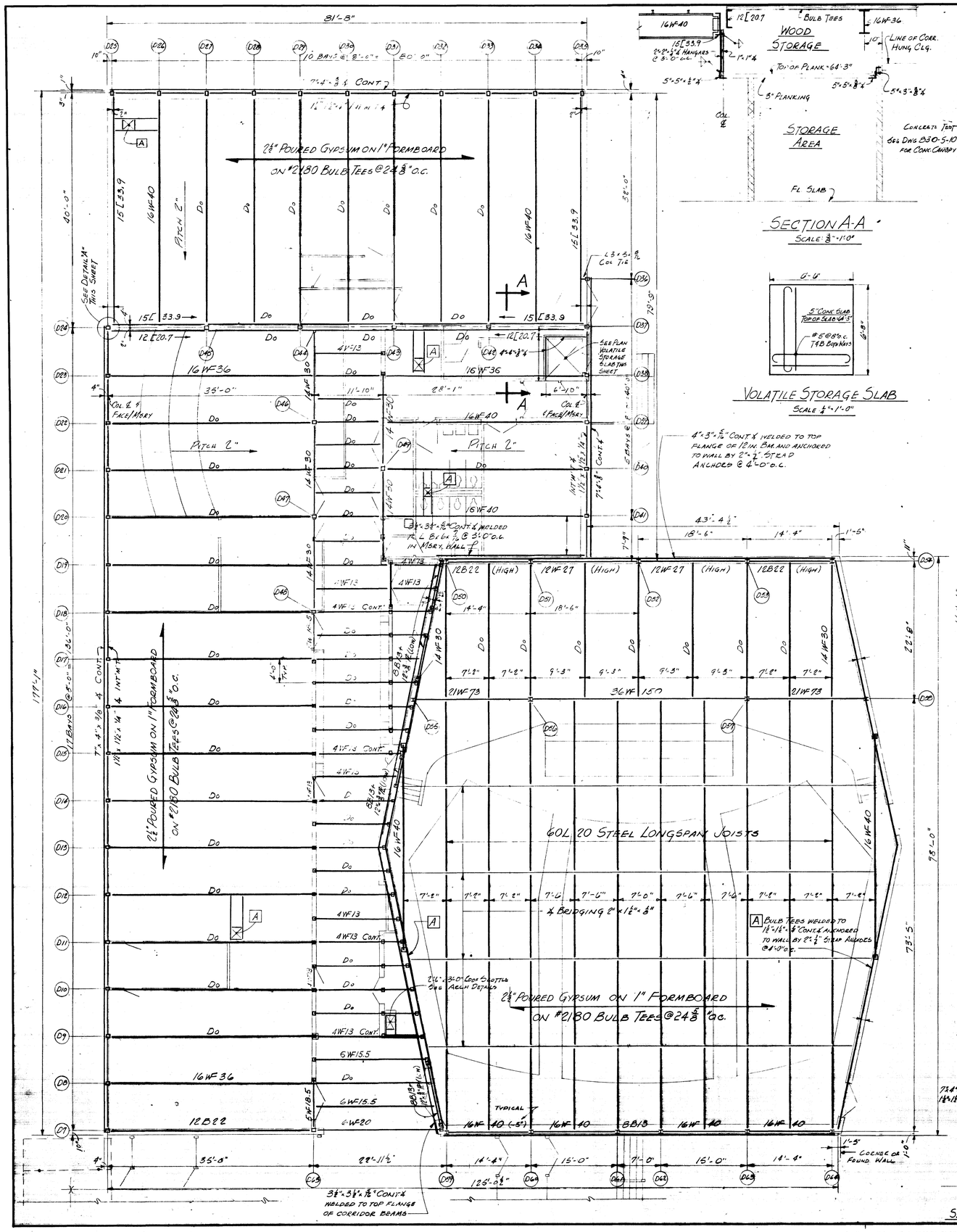
SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

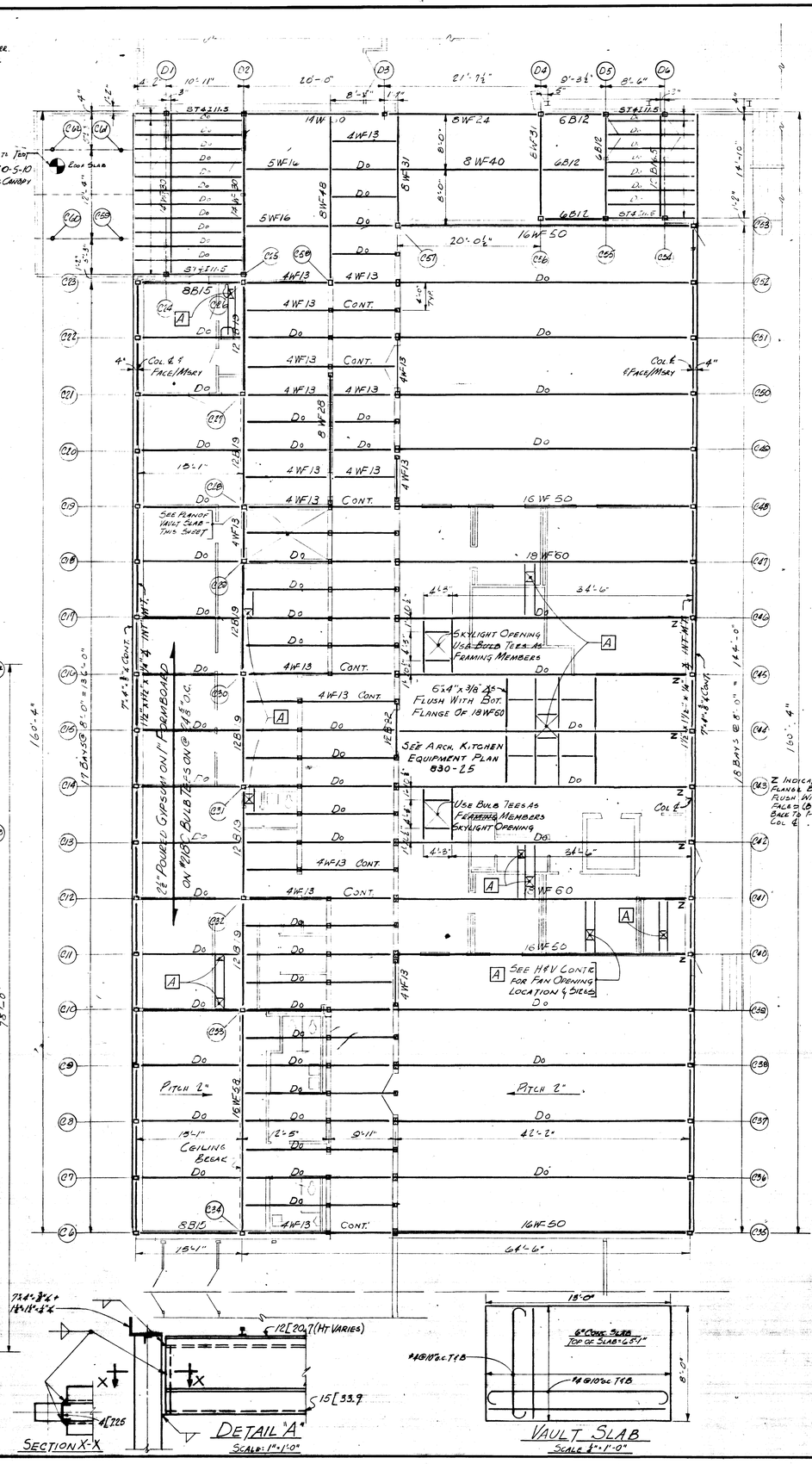
MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

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

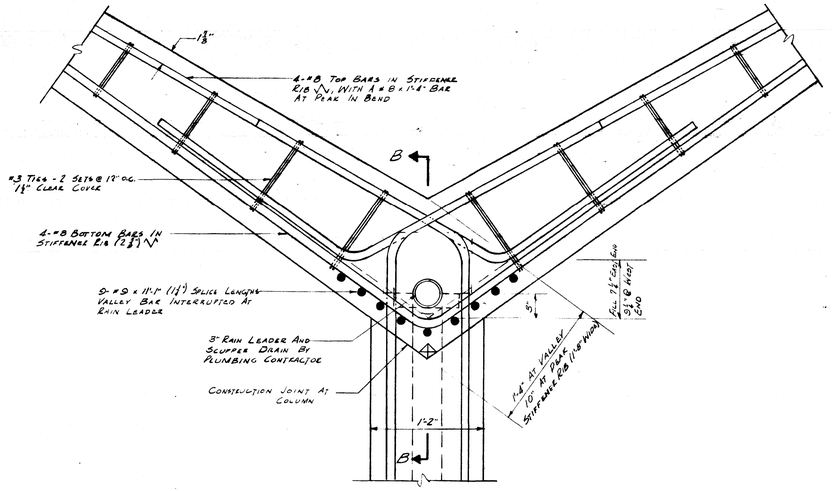
830- S9

Date	Scale
30 APR 57	AS SHOWN

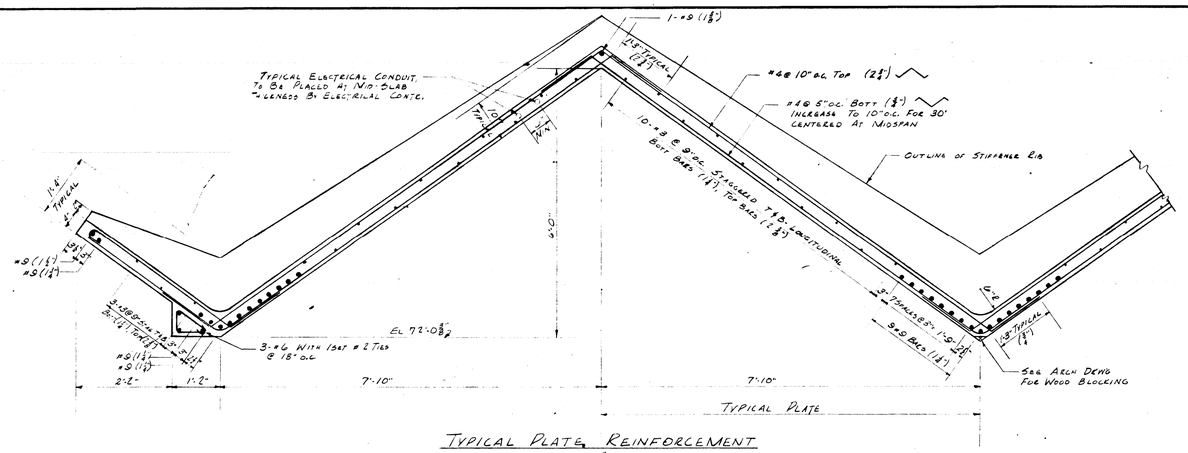
SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

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:

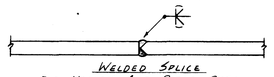
Dimensions In Parenthesis, i.e. (1⅛"), Indicate Support Distance For Bottom Of Bar Above Bottom Of Slab.

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.

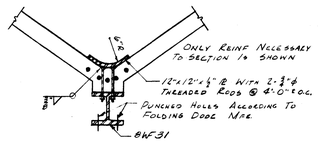
All Forms Must Be Left In Place A Minimum Of 7 Days. Provide 1½" Camber At Midspan. Forms Shall Be Removed In Sections To Insure That Shores In Longitudinal Direction At No Time Exceed 12' O.C., Throughout, For A Duration Not Less Than 28 Days After Final Concrete Placement. Temp Bents Or Longitudinal 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.

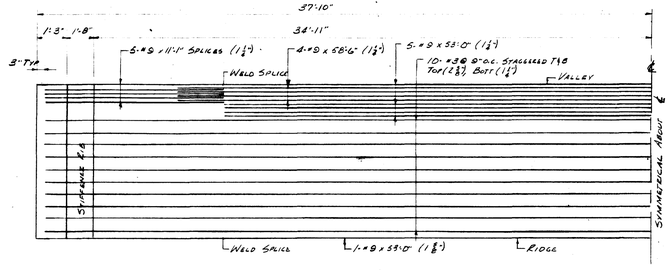
Shores At North And South End Valleys Must Not Be Removed Until Masonry Walls Are Mortared Up Tight.



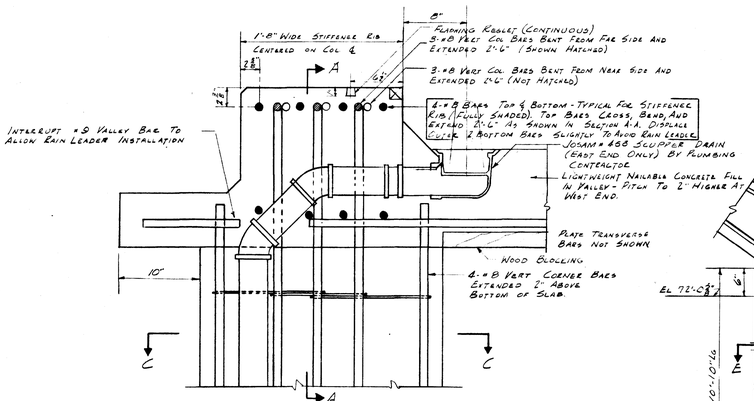
WELDED SPLICE
FOR VALLEY AND RIDGE BARS
NO SCALE



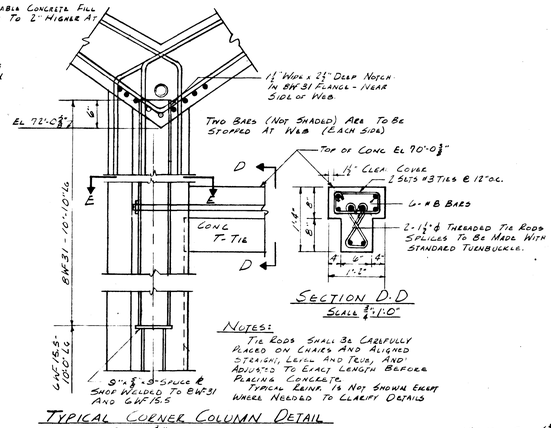
FOLDING DOOR SUPPORT
SCALE ¾" = 1'-0"



PLAN OF LONGITUDINAL STEEL IN PLATE
SCALE ¾" = 1'-0"



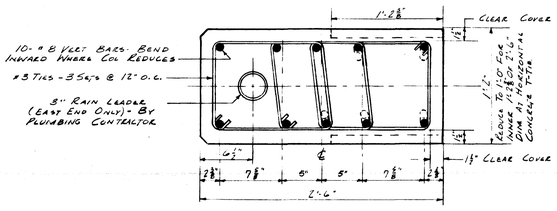
SECTION B-B
SCALE 1½" = 1'-0"



SECTION D-D
SCALE ¾" = 1'-0"

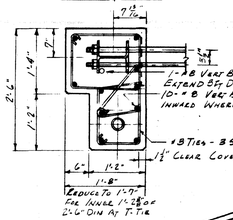
NOTES:

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

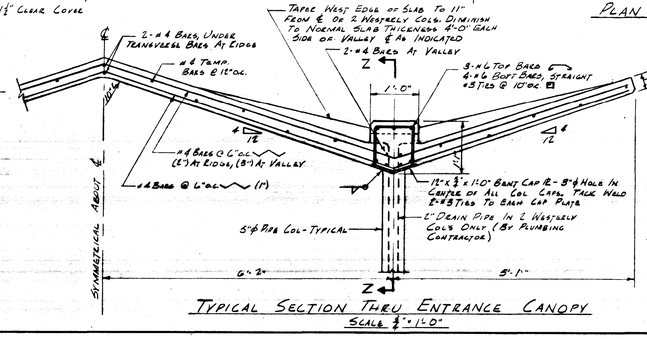


SECTION C-C
SCALE 1½" = 1'-0"

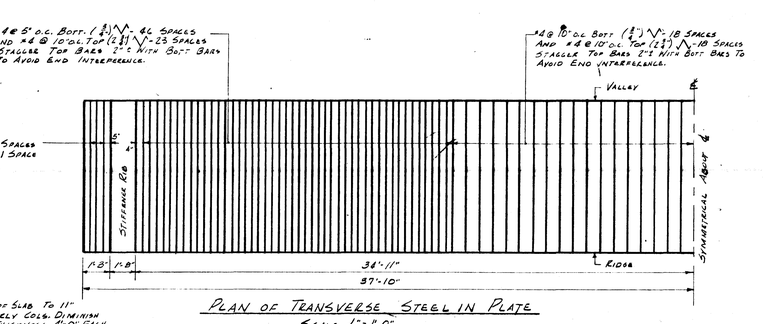
TYPICAL CORNER COLUMN DETAIL
SCALE ¾" = 1'-0"



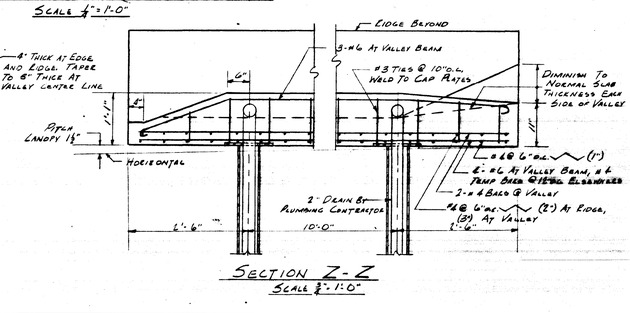
SECTION E-E
SCALE ¾" = 1'-0"



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

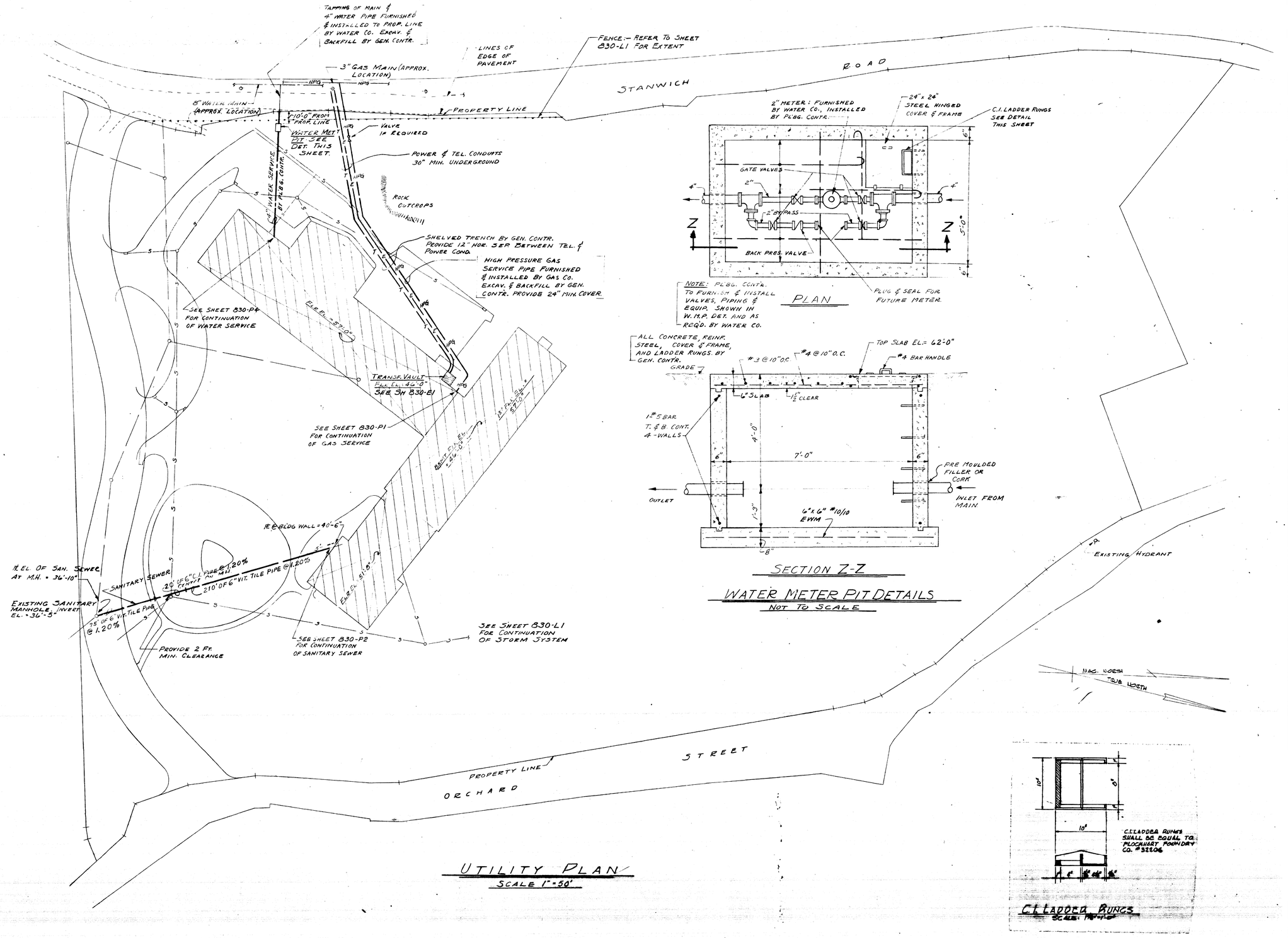
830-510

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

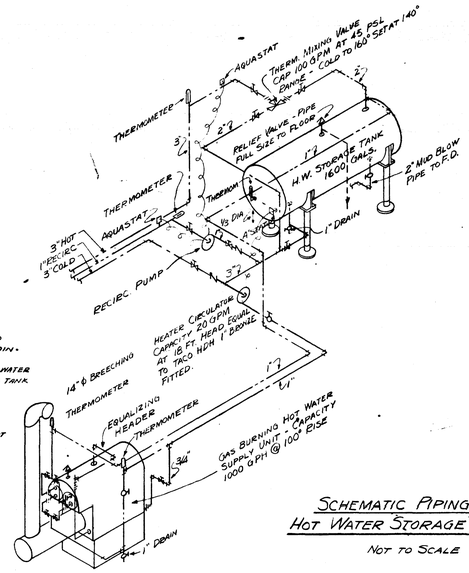
NOTE
RACK PIPING ON EAST WALL AT ENTRANCE TO TUNNEL TO AVOID R.A. DAMPERS. SEE H&V DWGS. FOR SPACE AVAILABLE

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

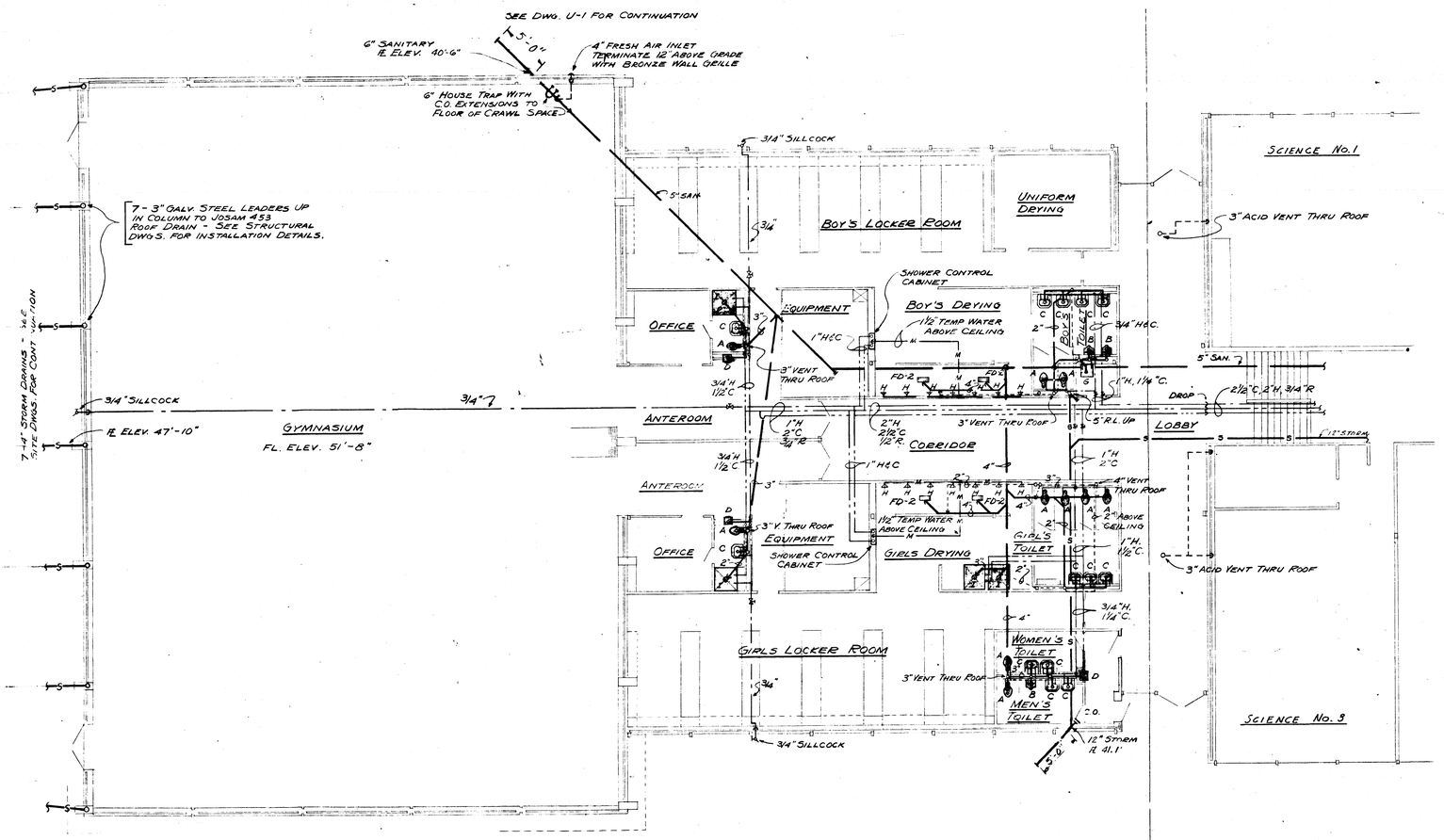
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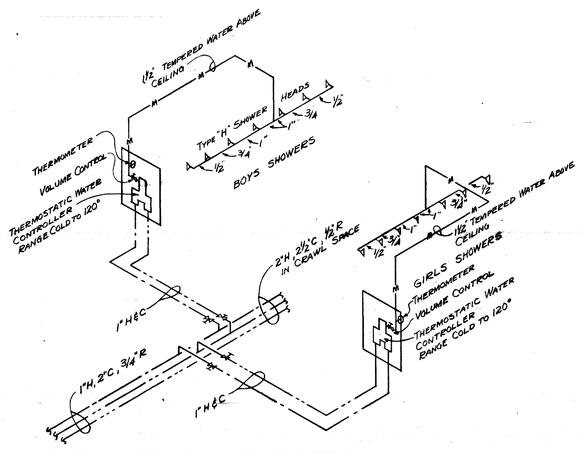
SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
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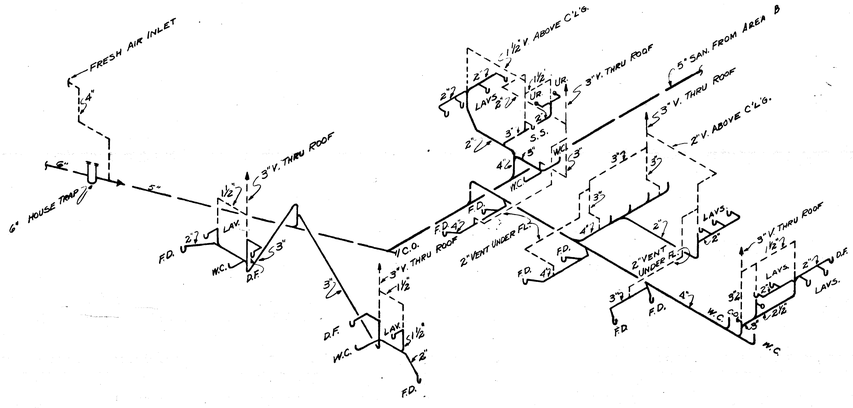
BQ #70 & 125 Attachment



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

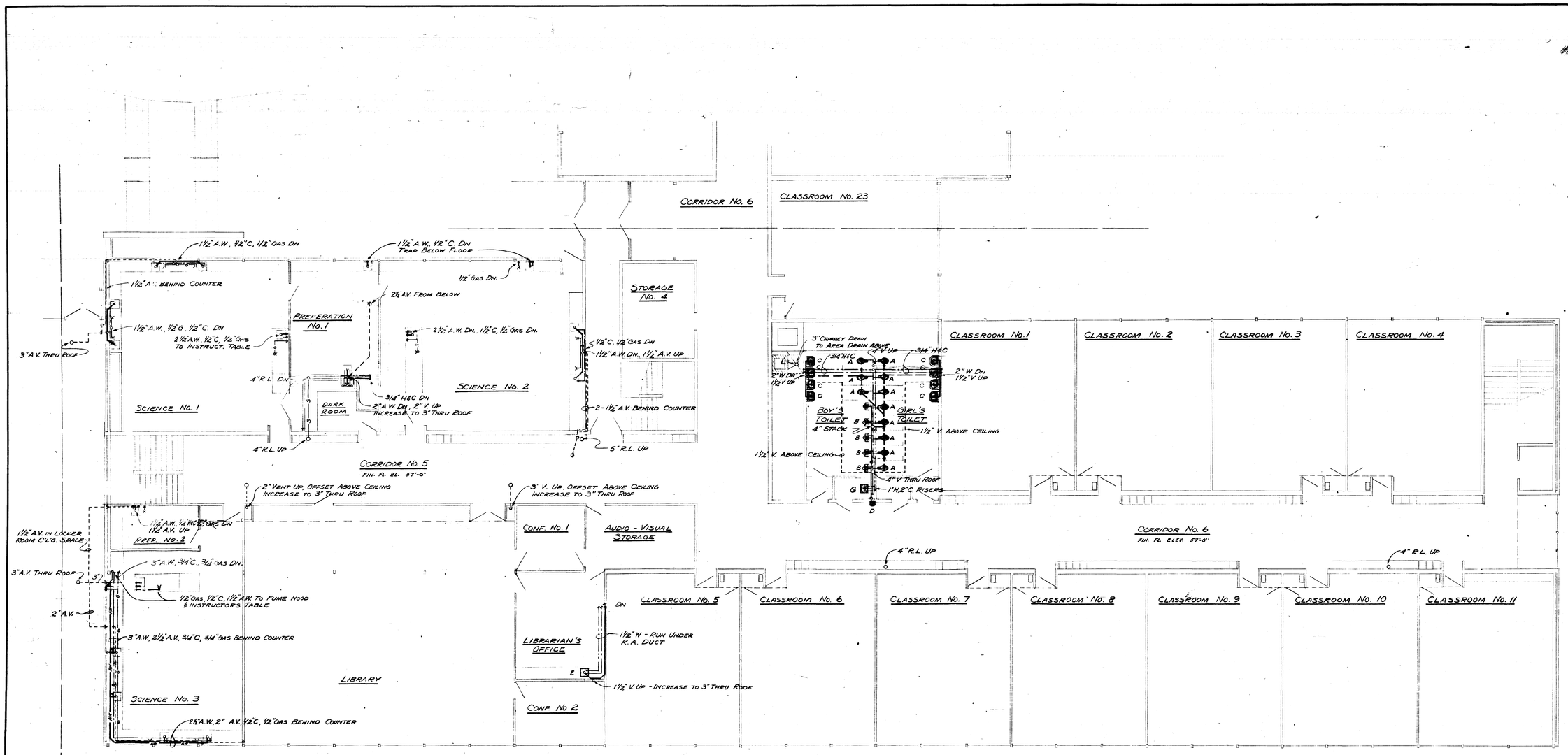
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Date: 30 APR. 57
Scale: 1/8" = 1'-0"

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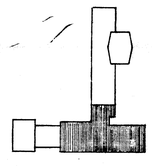
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NOTE

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"

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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

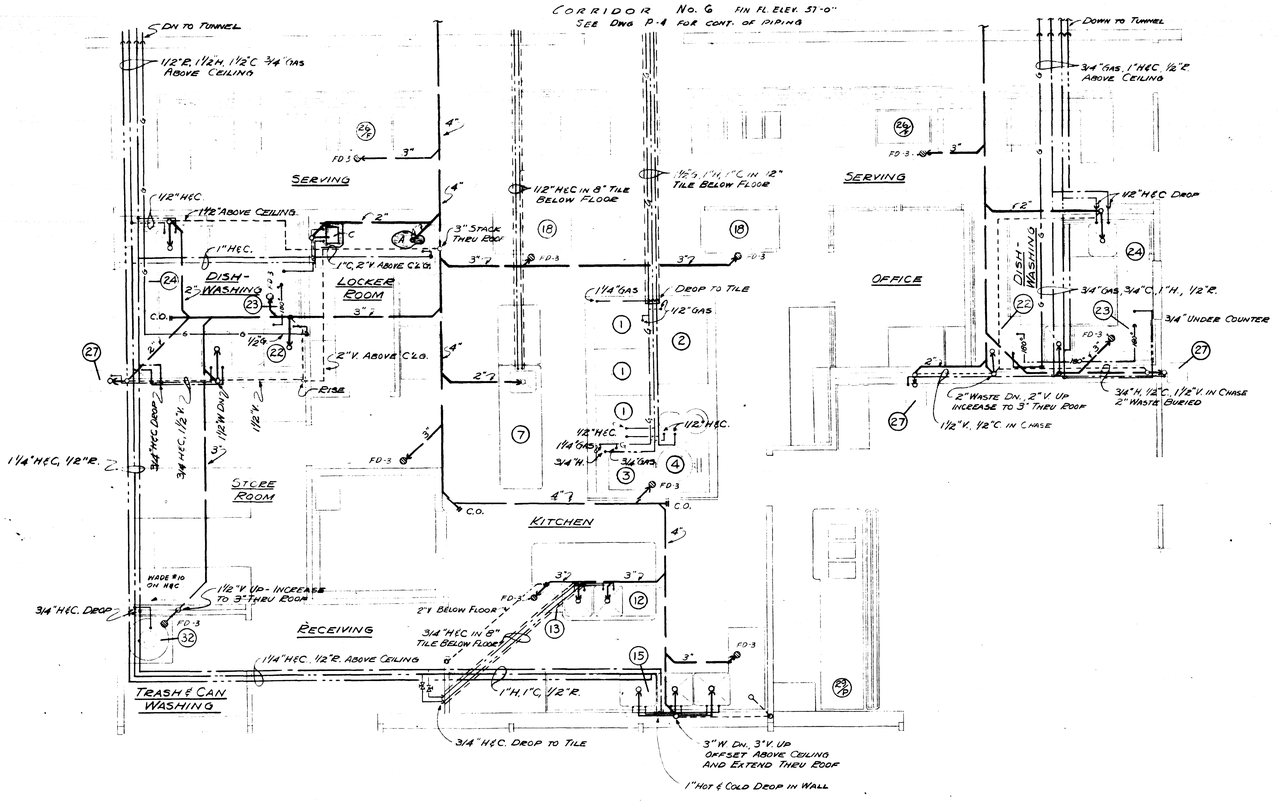
CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830- P4
Date 30 APR 57
Scale 1/8"=1'-0"

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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

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PLUMBING SCHEDULES
KITCHEN PLAN

CENTRAL JUNIOR HIGH SCHOOL
Greenwich, Connecticut

830-P5

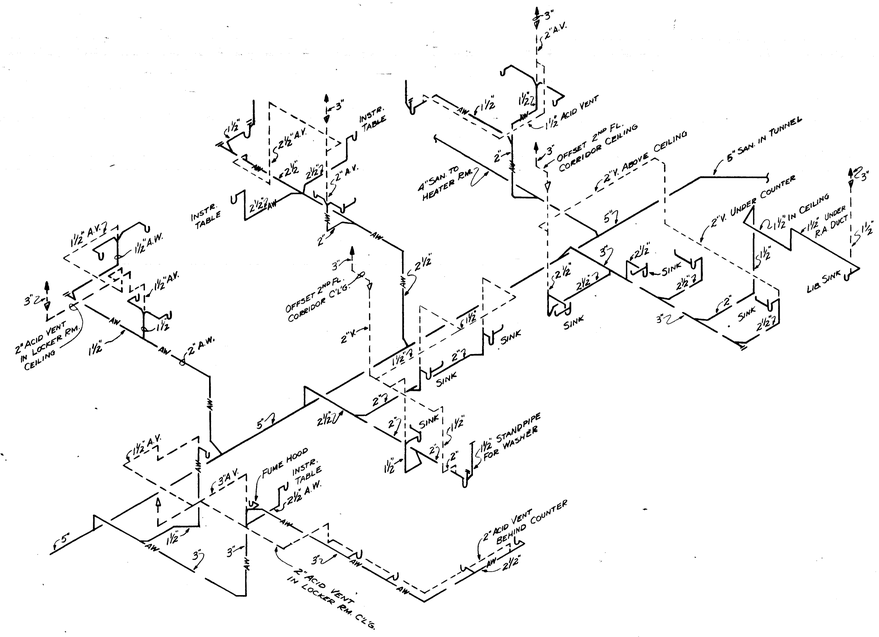
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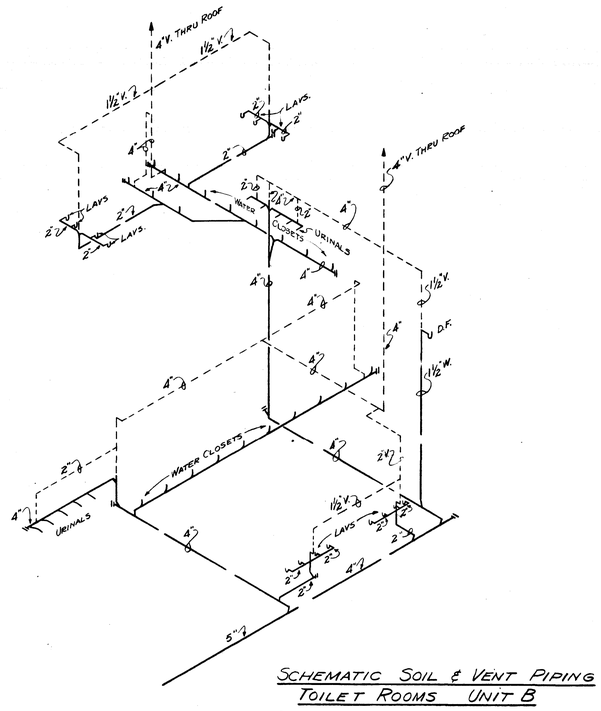
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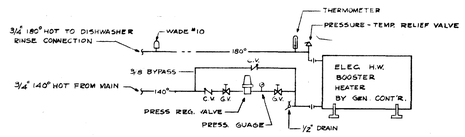
BQ #70 & 125 Attachment



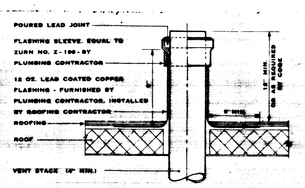
SCHEMATIC SOIL WASTE & VENT PIPING
LABORATORIES UNIT B
NOT TO SCALE



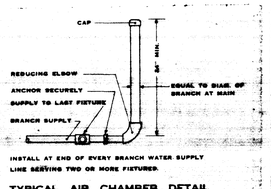
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TOILET ROOMS UNIT B
NOT TO SCALE



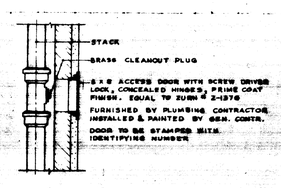
HOT WATER BOOSTER HEATER
SCHEMATIC PIPING DIAGRAM
NOT TO SCALE



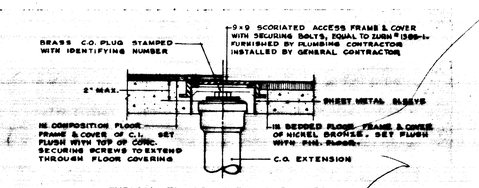
TYPICAL VENT FLASHING DETAIL
NOT TO SCALE



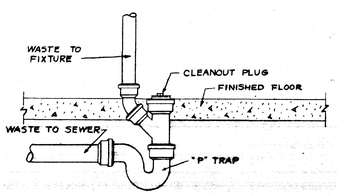
TYPICAL AIR CHAMBER DETAIL
NOT TO SCALE



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

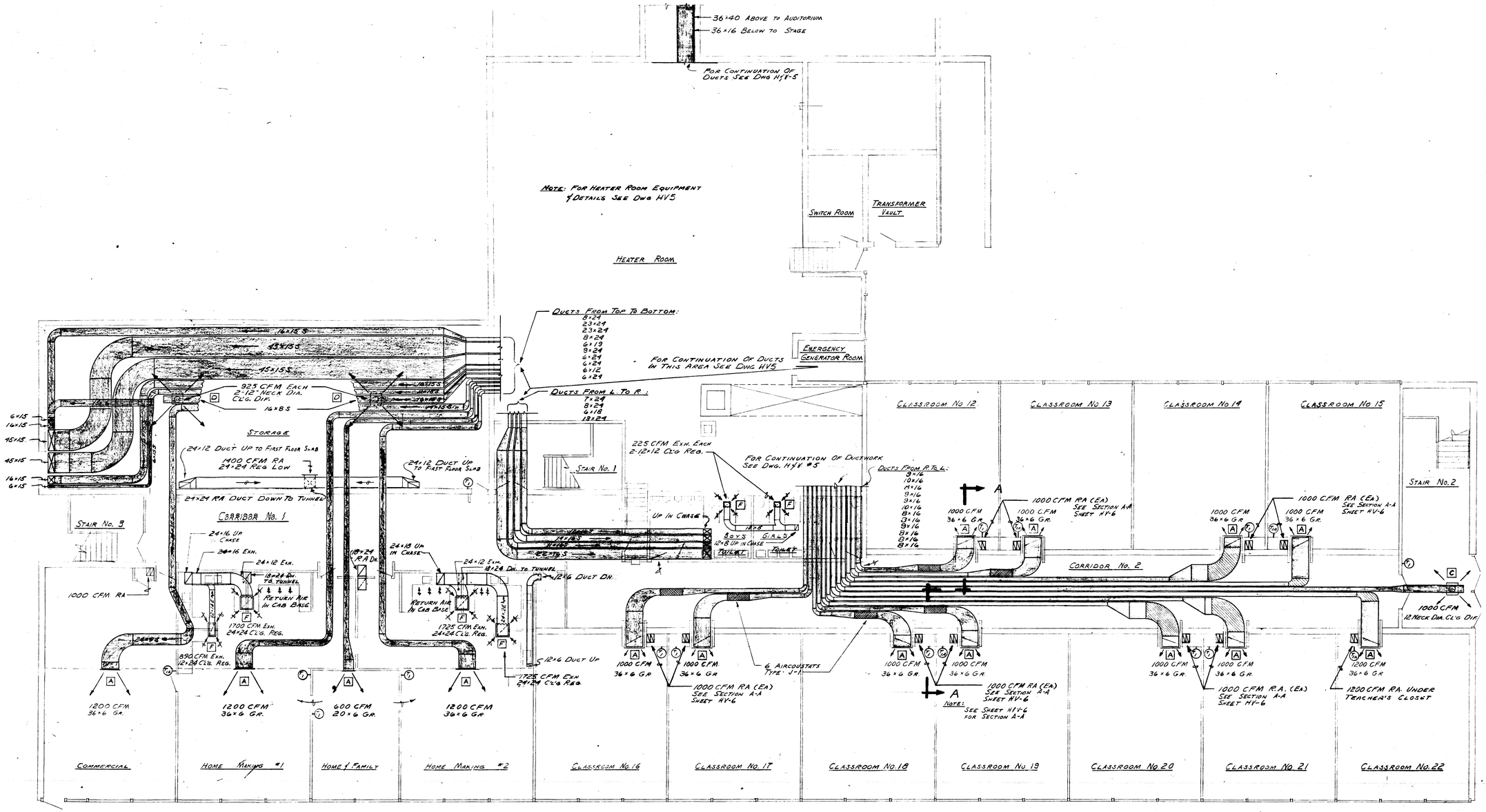
830- P6

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Scale: AS NOTED

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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

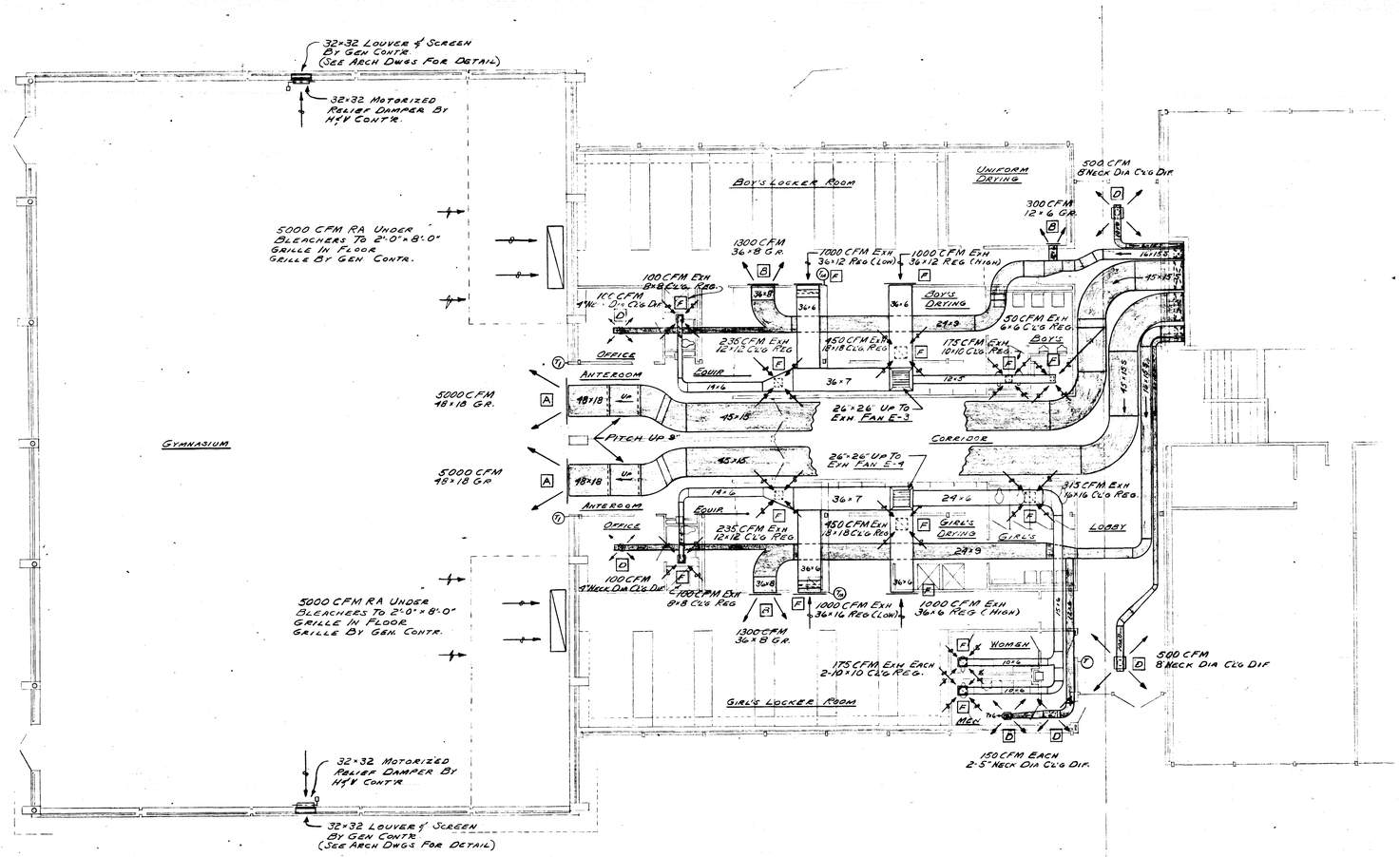
1830 - HV-1

30 APR. 67 1/8"=1'-0"

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Architects 60 Broad Street, Stamford, Connecticut

MARCHANT & MINGES ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment



GYMNASIUM FLOOR PLAN
SCALE: 1/8"=1'-0"

STATE OF CONNECTICUT JAMES S. MINGES NO. 2423 REGISTERED PROFESSIONAL ENGINEER

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

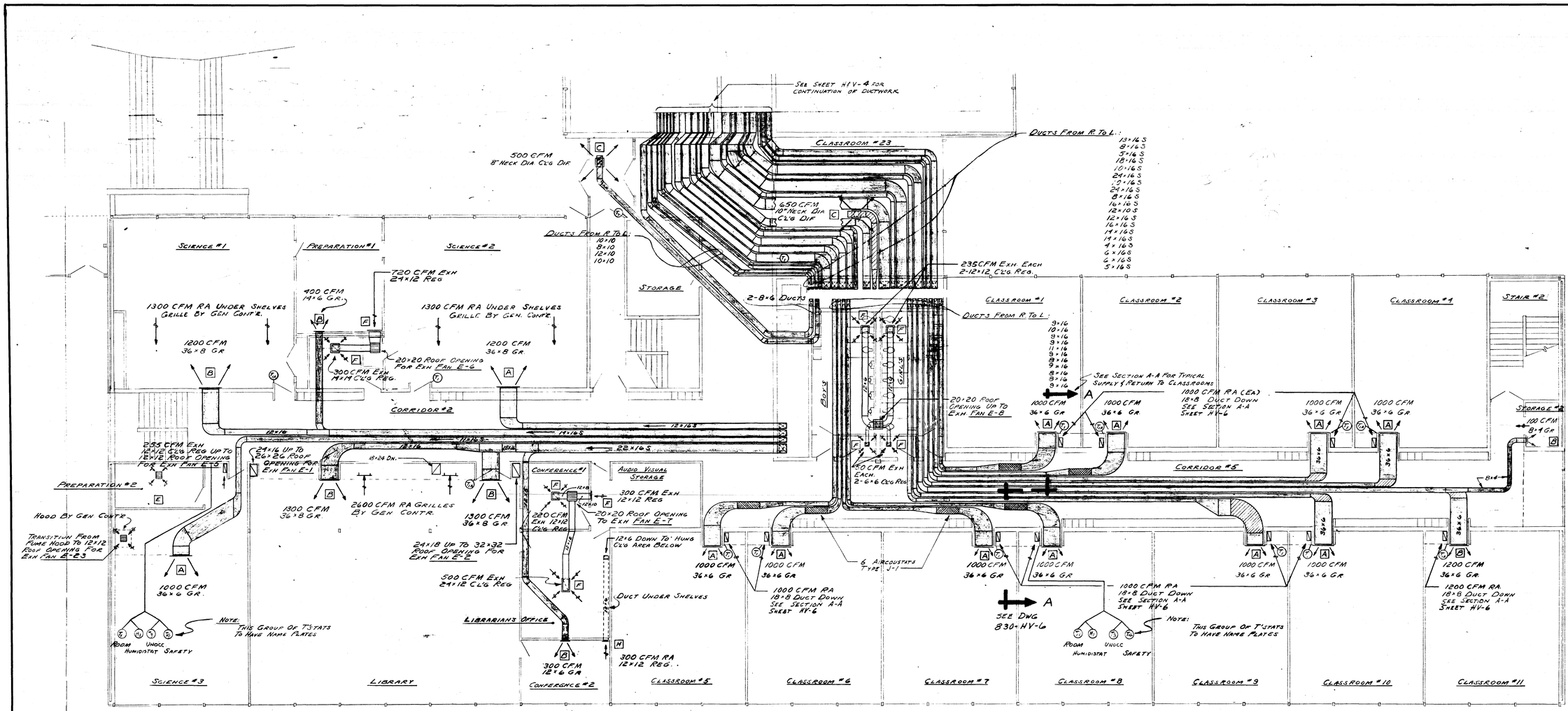
Date 30 APR. 57

Scale 1/8"=1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

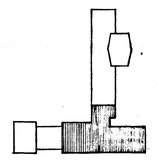
BQ #70 & 125 Attachment



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"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment

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

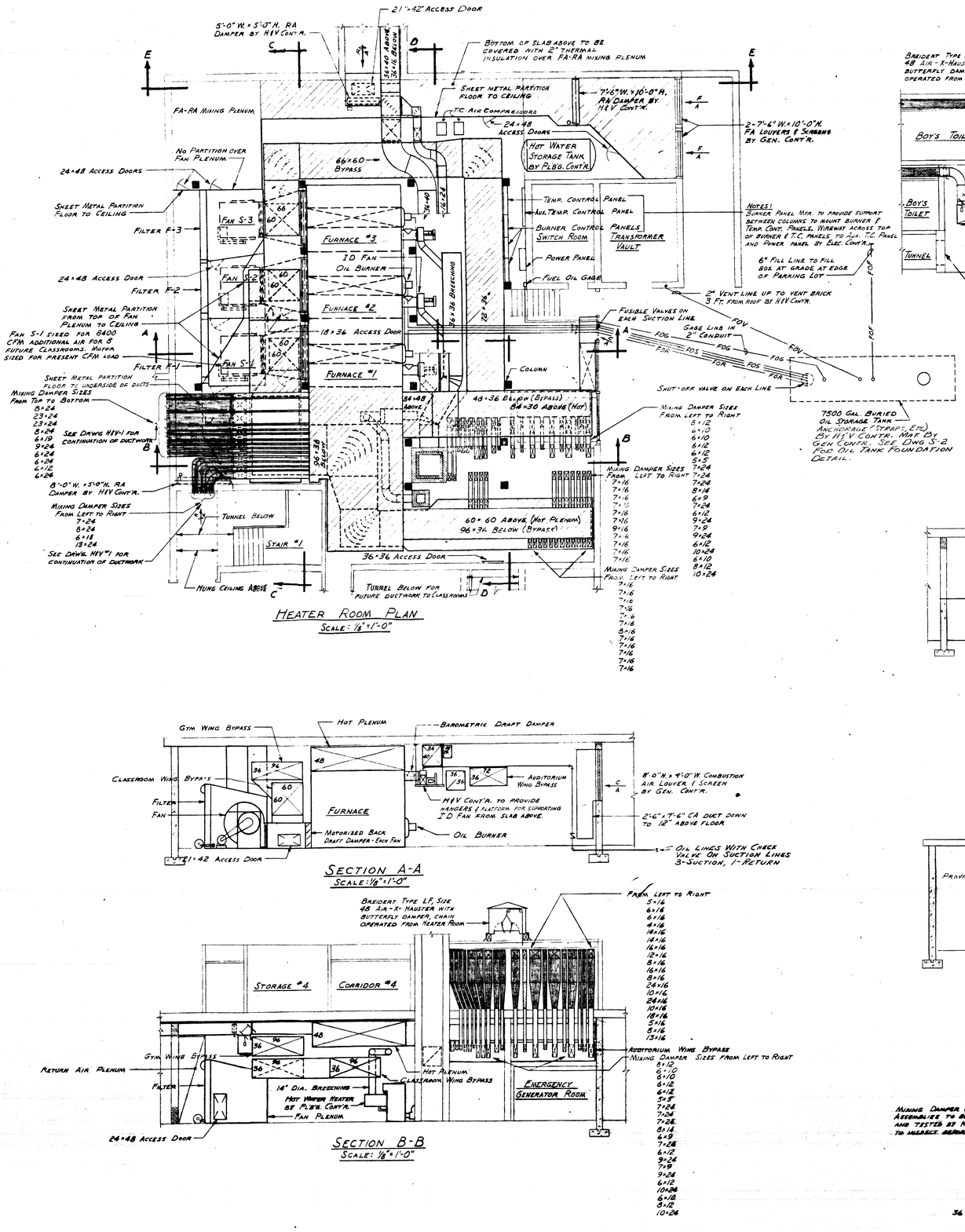
Date 30 APR. '57

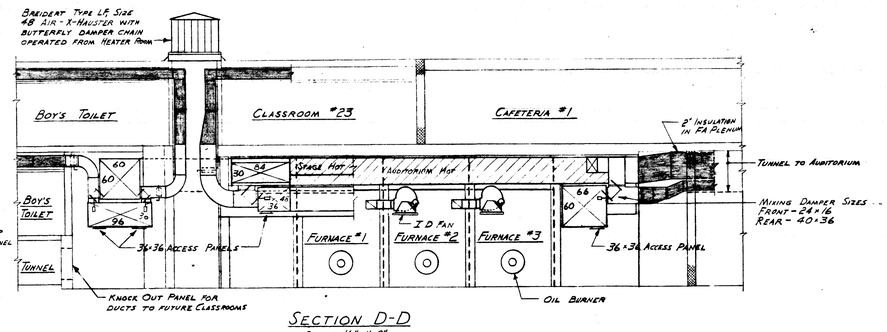
Scale AS NOTED

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

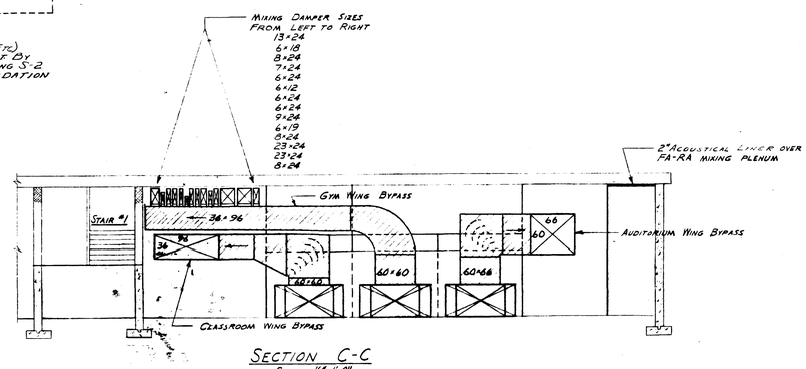
MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment





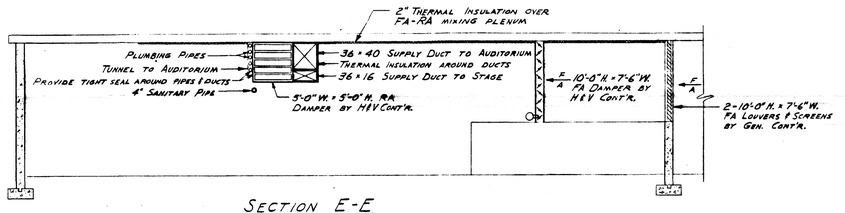
Section D-D
Scale: 1/8" = 1'-0"



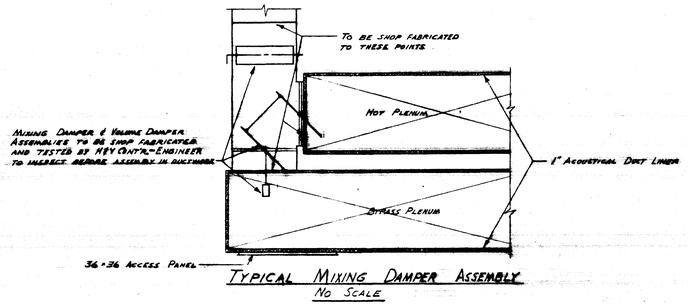
Section C-C
Scale: 1/8" = 1'-0"

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

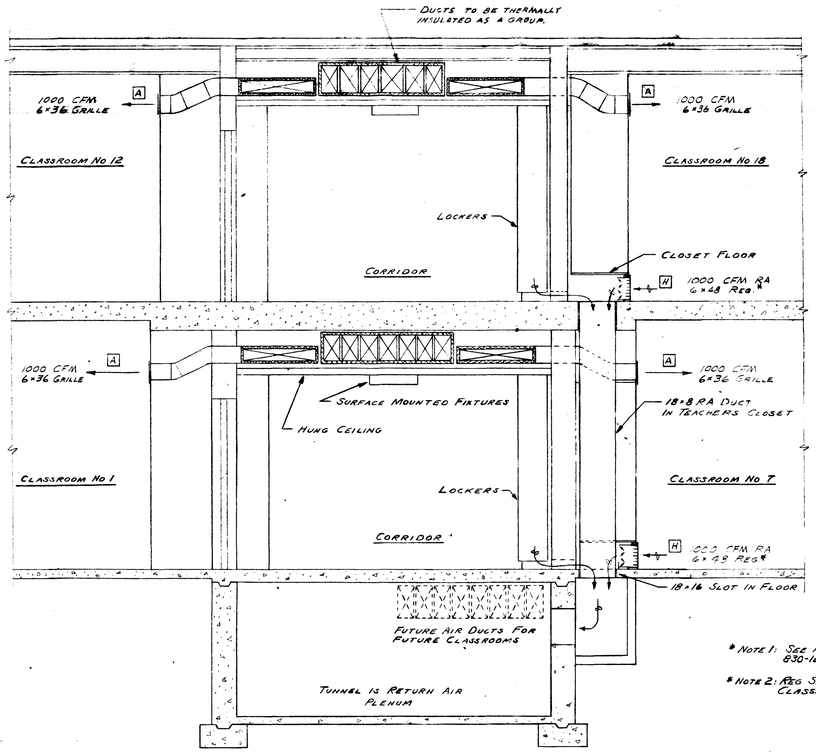
830 - HV-5

Date: 30 APR 57
Scale: As Noted

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

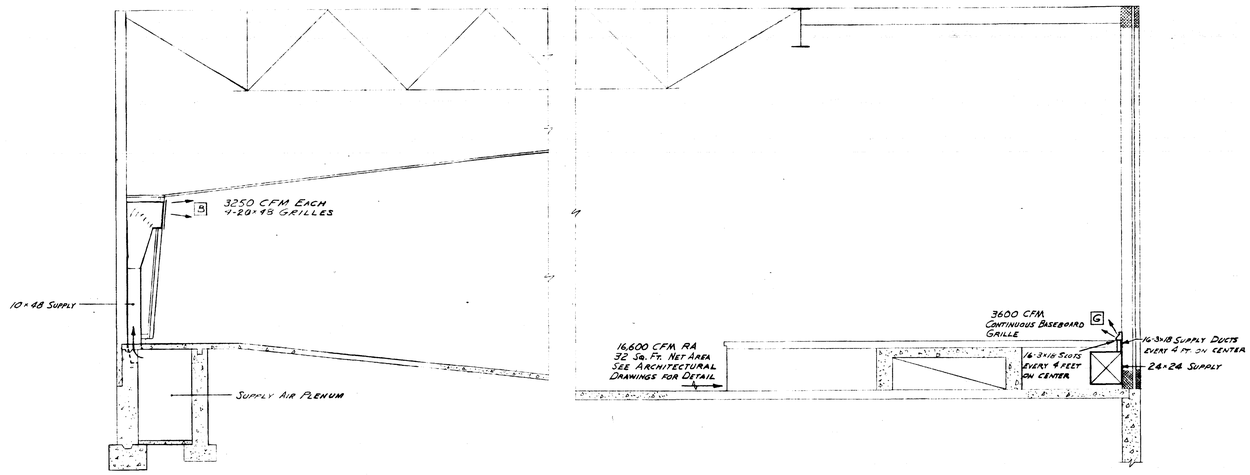
BQ #70 & 125 Attachment



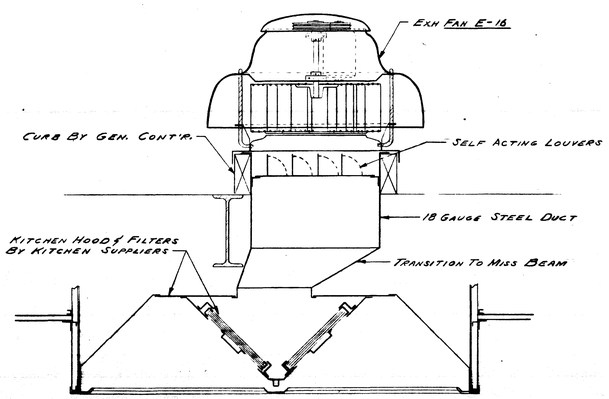
* NOTE 1: SEE ARCHITECTURAL SECTION 830-12-D FOR RA REG DETAIL

* NOTE 2: REG SIZE TO BE 7"×18" IN CLASSROOMS #11 & #22

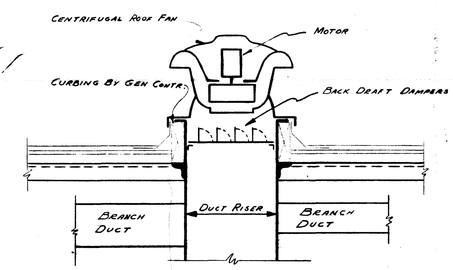
SECTION A-A
TYPICAL CLASSROOM SUPPLY AND RETURN
NO SCALE



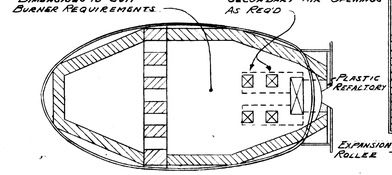
SECTION B-B
SCALE: 1/4"=1'-0"



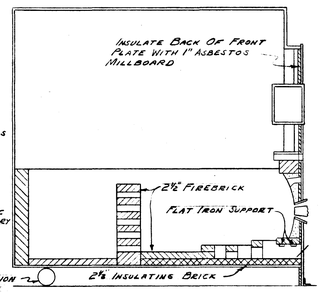
KITCHEN HOOD EXH. FAN DETAIL
SECTION D-D
NO SCALE



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

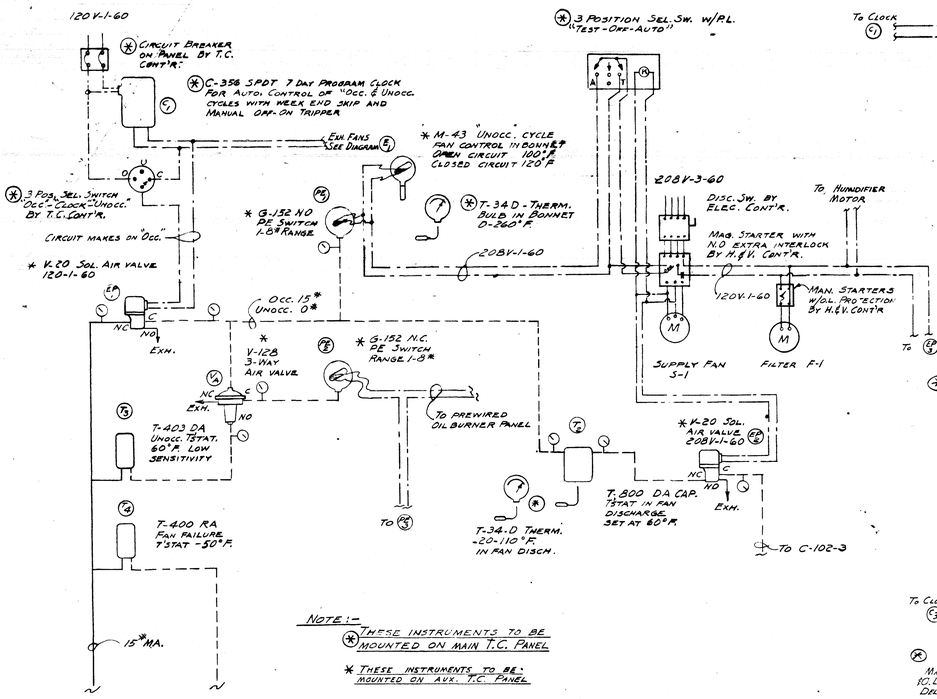
830-HVL

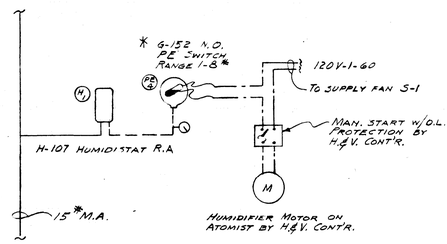
Date: 30 APR. 67 | Scale: AS NOTED

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

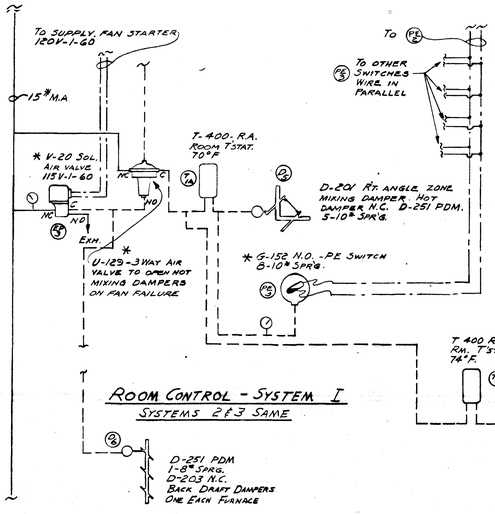
TYPE	DUTY	MFG. & STYLE	FINISH	SPECIAL FEATURES
A	Supply	Tuttle & Bailey #T-64 Grille	Prime	
B	Supply	Tuttle & Bailey #T-647 Grille	Prime	Key operated volume damper
C	Supply	Anemostat Type E-1	Aluminum	Equalizing Deflector
D	Supply	Anemostat Type E-1	Aluminum	Combo Unit Type CU-2
E	Exhaust	Tuttle & Bailey 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

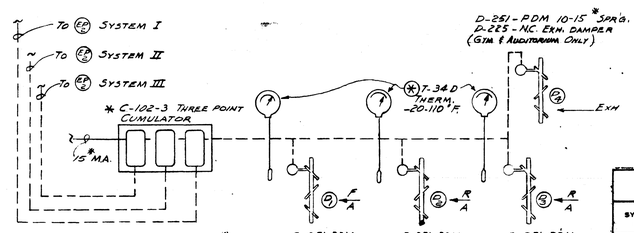
Filter Schedule

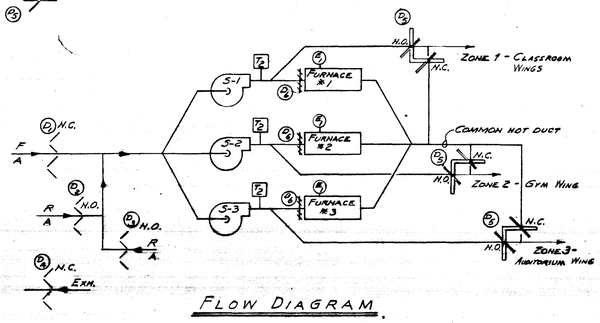
SYSTEM NO.	FILTER NO.	MFG. & STYLE	CFM	FILTER SIZE
1	F-1	American Air Filter Roll-O-Matic #8-100	24,650	10'-0" H. x 8'-0" W
2	F-2	American Air Filter Roll-O-Matic #8-100	27,000	10'-0" H. x 8'-0" W
3	F-3	American Air Ficter Roll-O-Matic #12-100	40,000	10'-0" H. x 12'-0" W

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

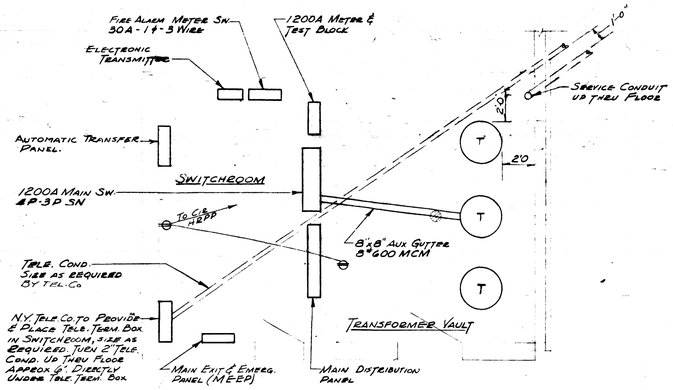
830 - HV-7

Date 30 APR. 57 | Scale No Scale

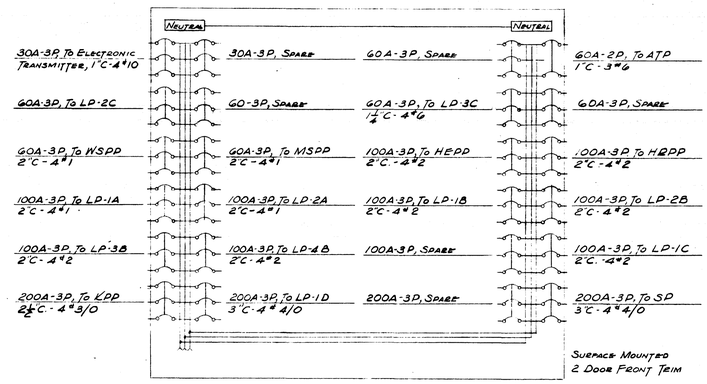
SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

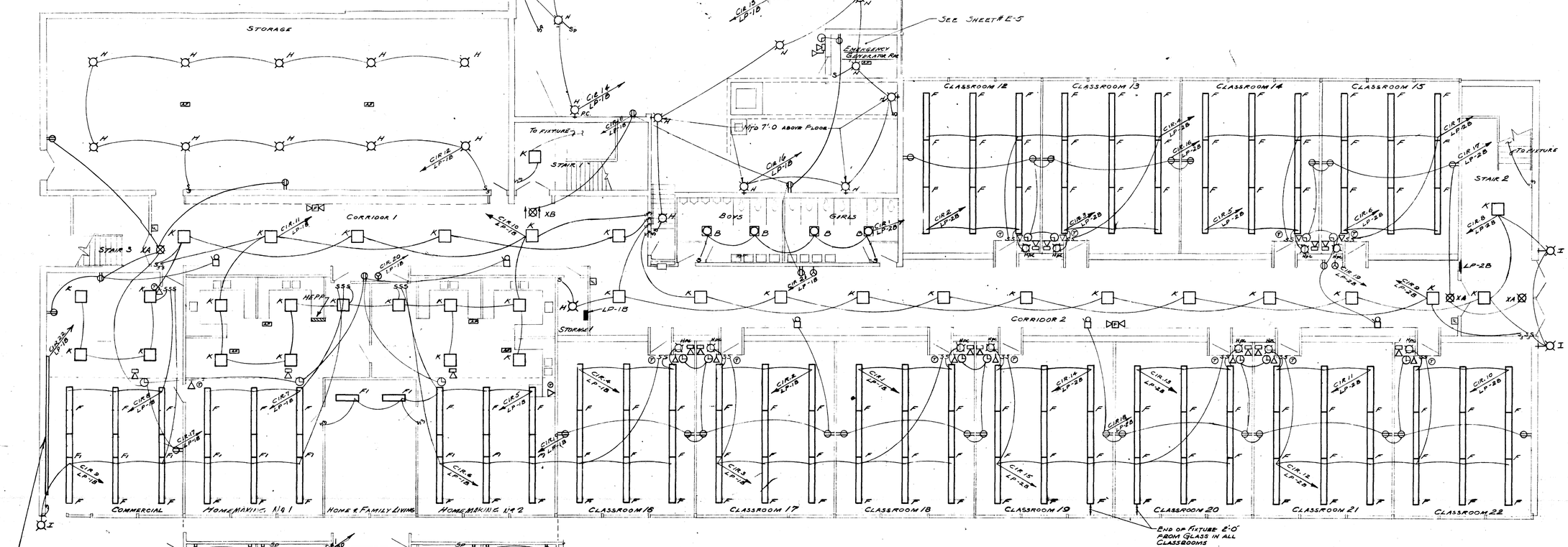
BQ #70 & 125 Attachment



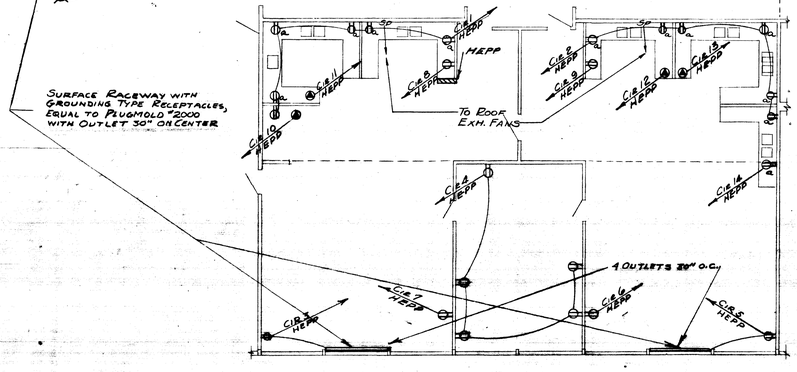
SWITCH ROOM & TRANSFORMER
SCALE 1/4" = 1'-0"



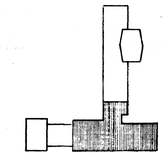
MAIN DISTRIBUTION PANEL DETAIL
SWITCH - FUSE TYPE
208/120 VOLTS, 3 PHASE, 4 WIRES
NO SCALE



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

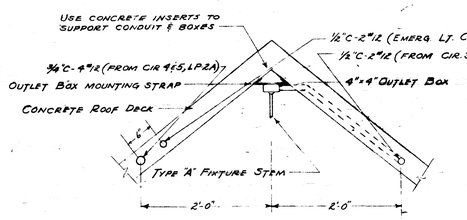
MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

STATE OF CONNECTICUT JAMES S. MINGES No. 1640 REGISTERED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT JAMES S. MARCHANT NO. 2423 REGISTERED PROFESSIONAL ENGINEER

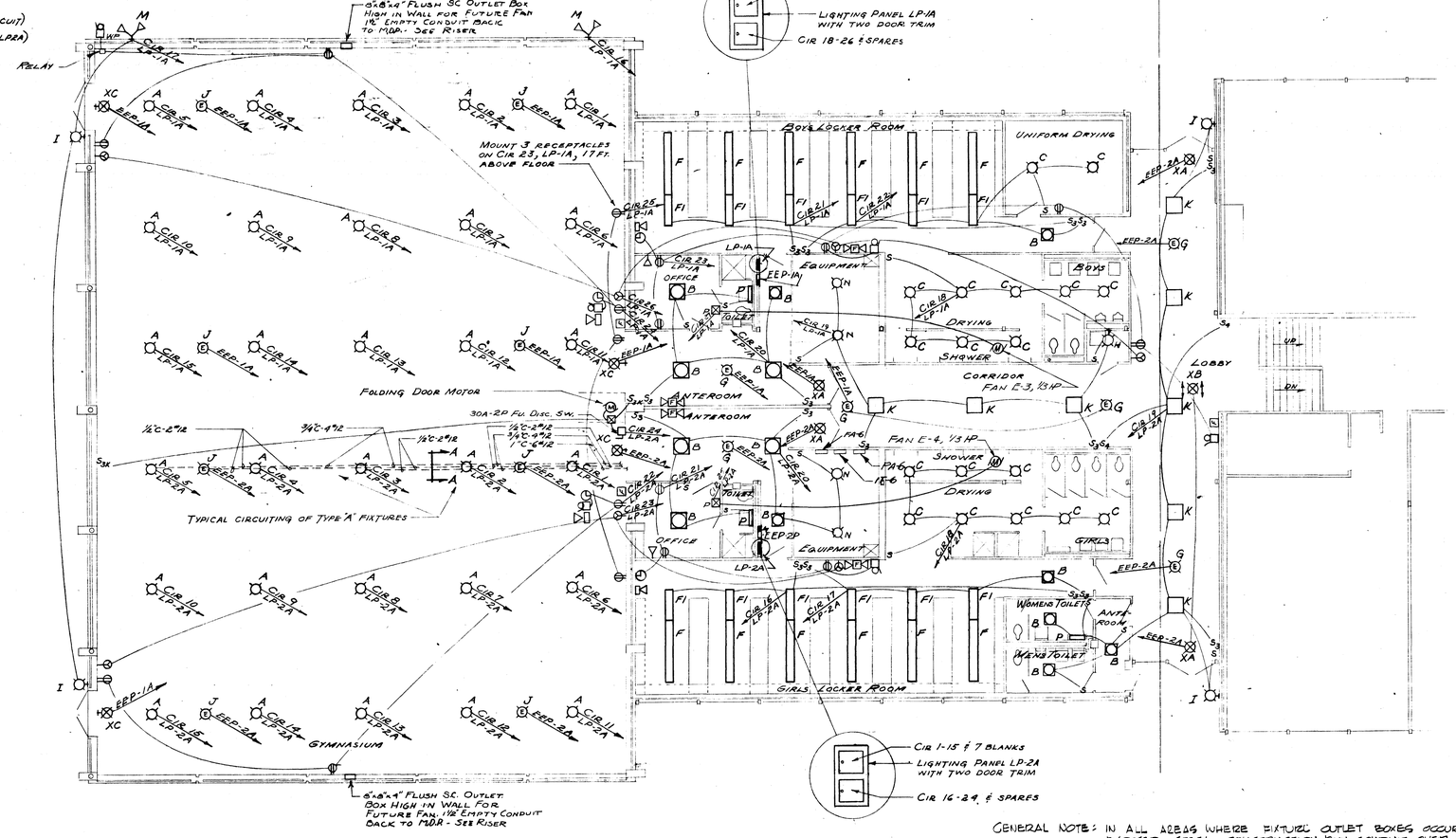
STATE OF CONNECTICUT CHARLES B. MARCHANT NO. 2388 REGISTERED PROFESSIONAL ENGINEER

BQ #70 & 125 Attachment



ELEVATION A-A

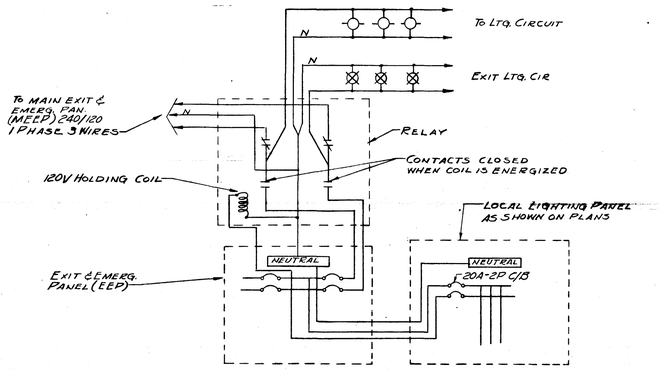
SCALE 1"=1'-0"



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	

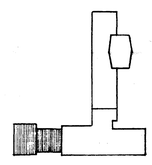
ELECTRICAL SYMBOLS

	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

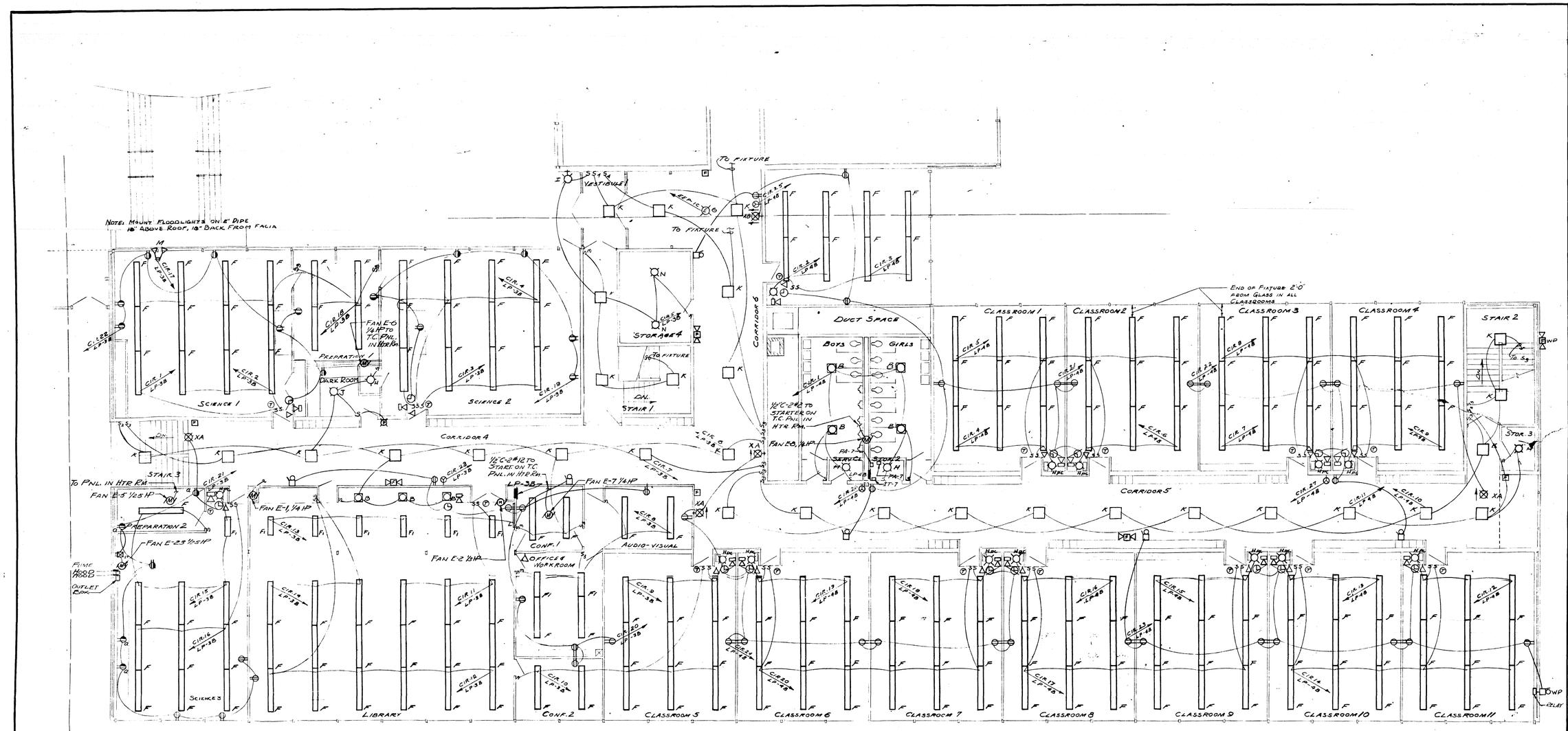
SHERWOOD, MILLS AND SMITH

Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES ENGINEERS

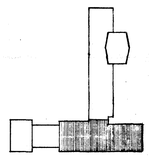
WEST HARTFORD, CONN.

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

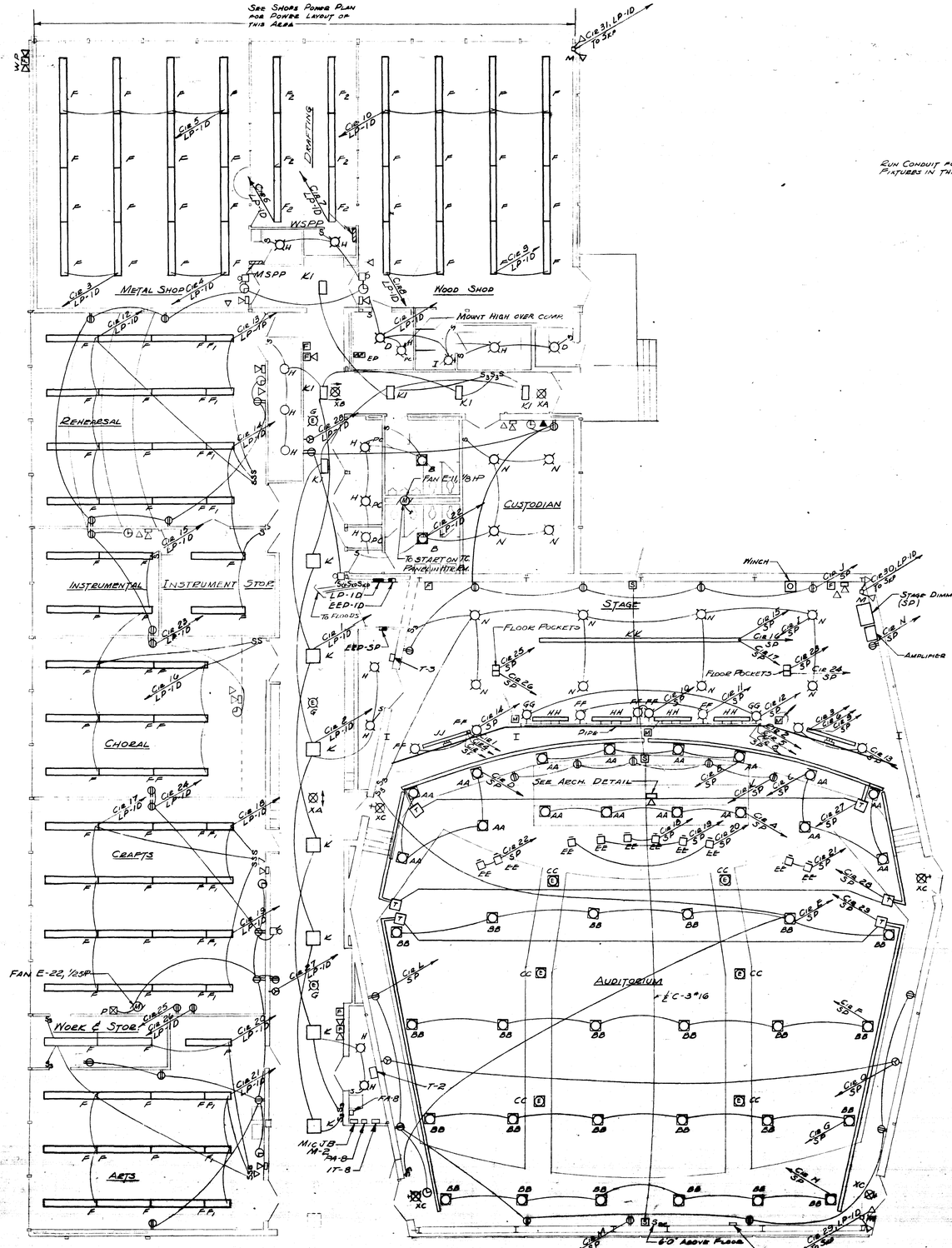
830-E3

Date 30 APR 57 | Scale 1/8" = 1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

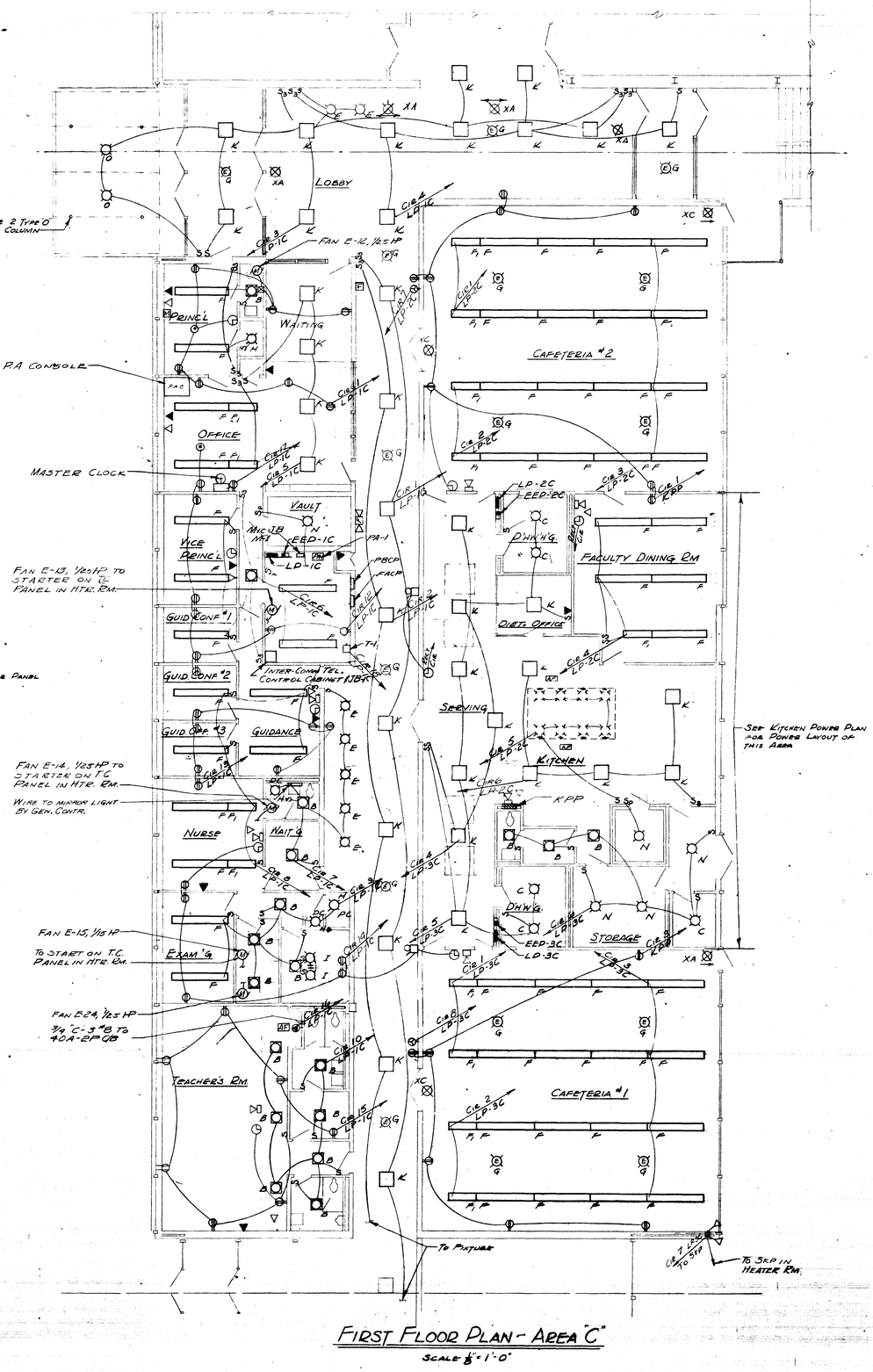
MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

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

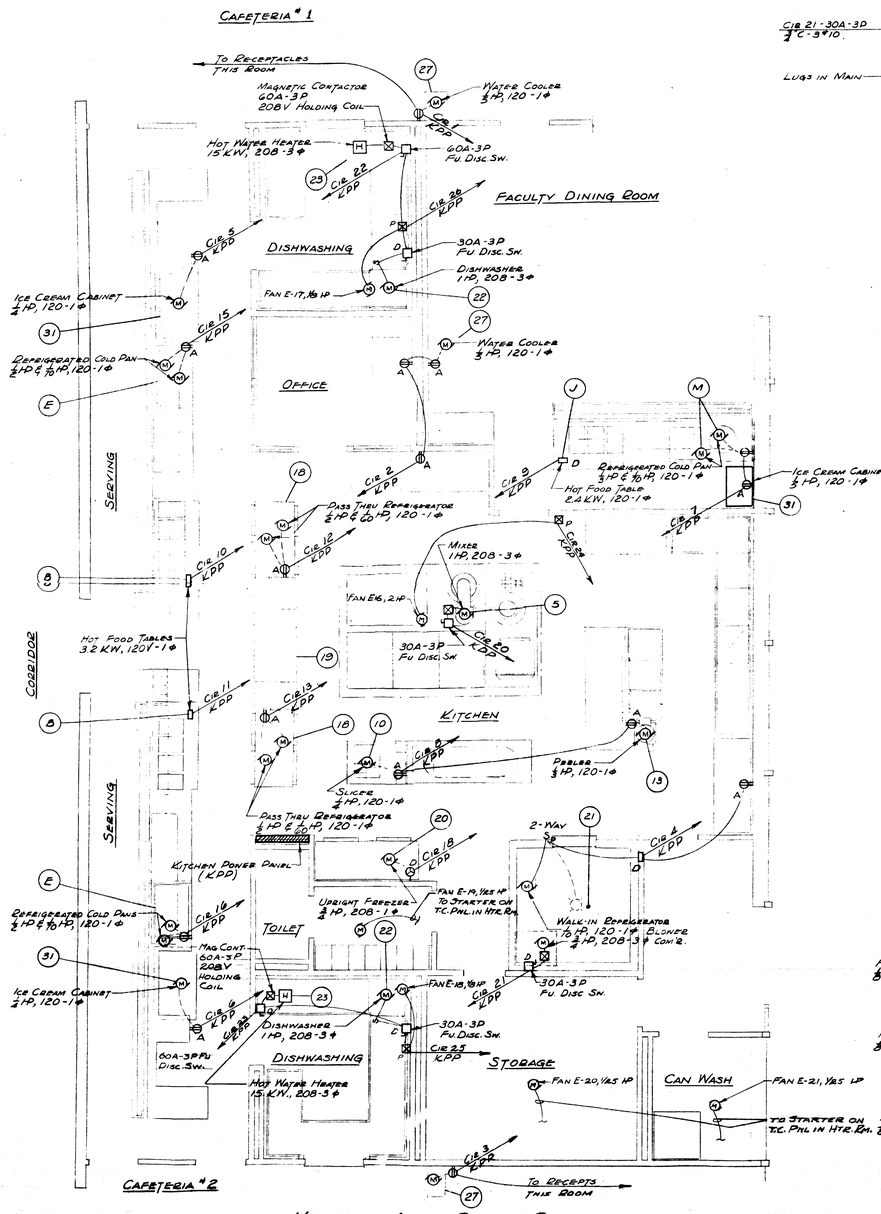
830-E4

Date 30 APR 67 | Scale ⅛" = 1'-0"

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

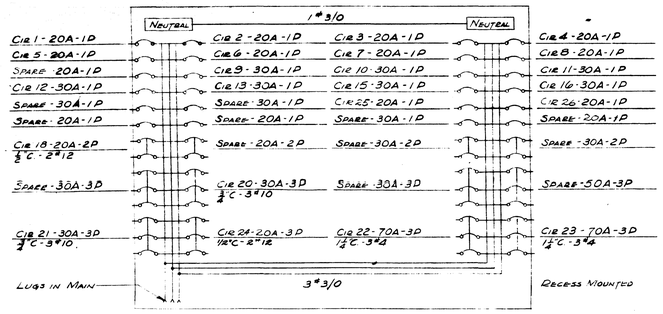
BQ #70 & 125 Attachment



Kitchen Area Power Plan

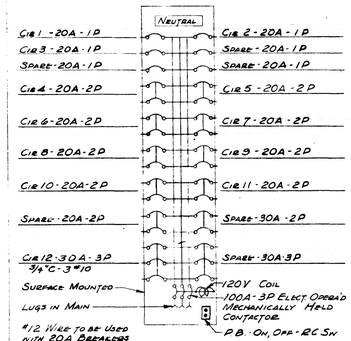
Scale ¼"-1'-0"

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



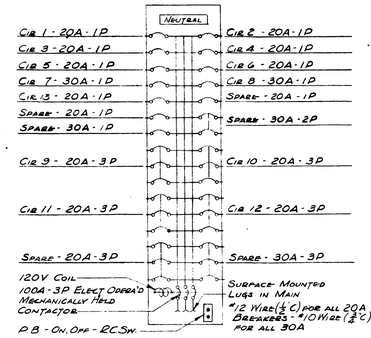
Kitchen Power Panel (KPP)

Circuit Breaker Type
120/208 Volts 3 Phase 4 Wires



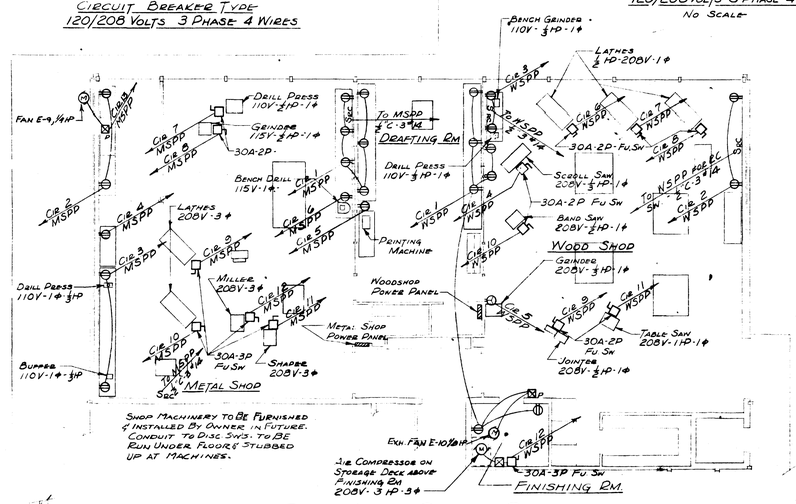
Wood Shop Power Panel

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

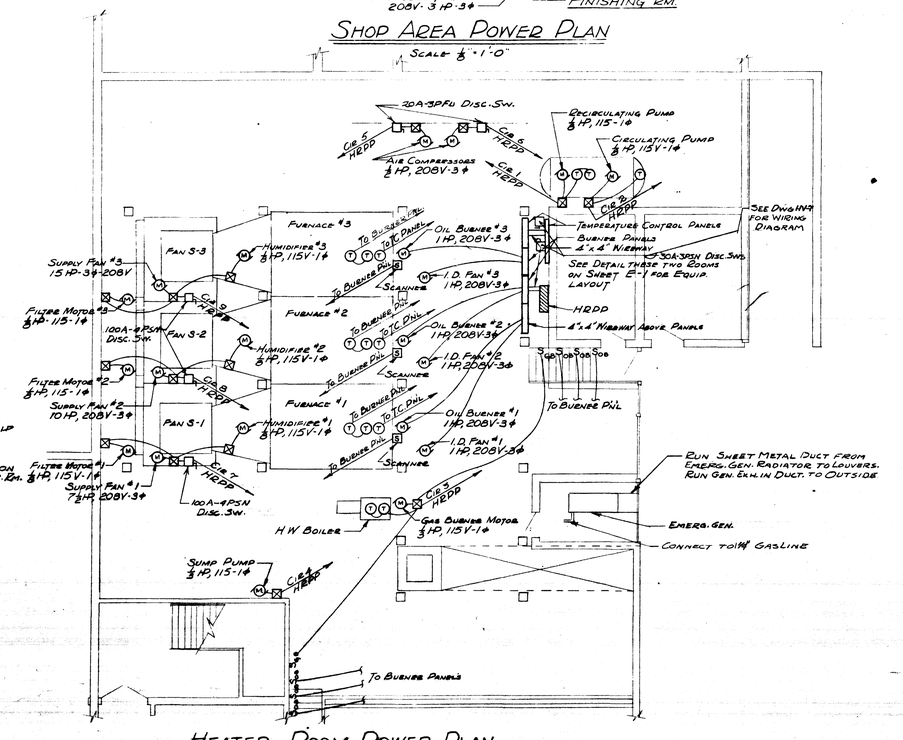


Shop Area Power Plan

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

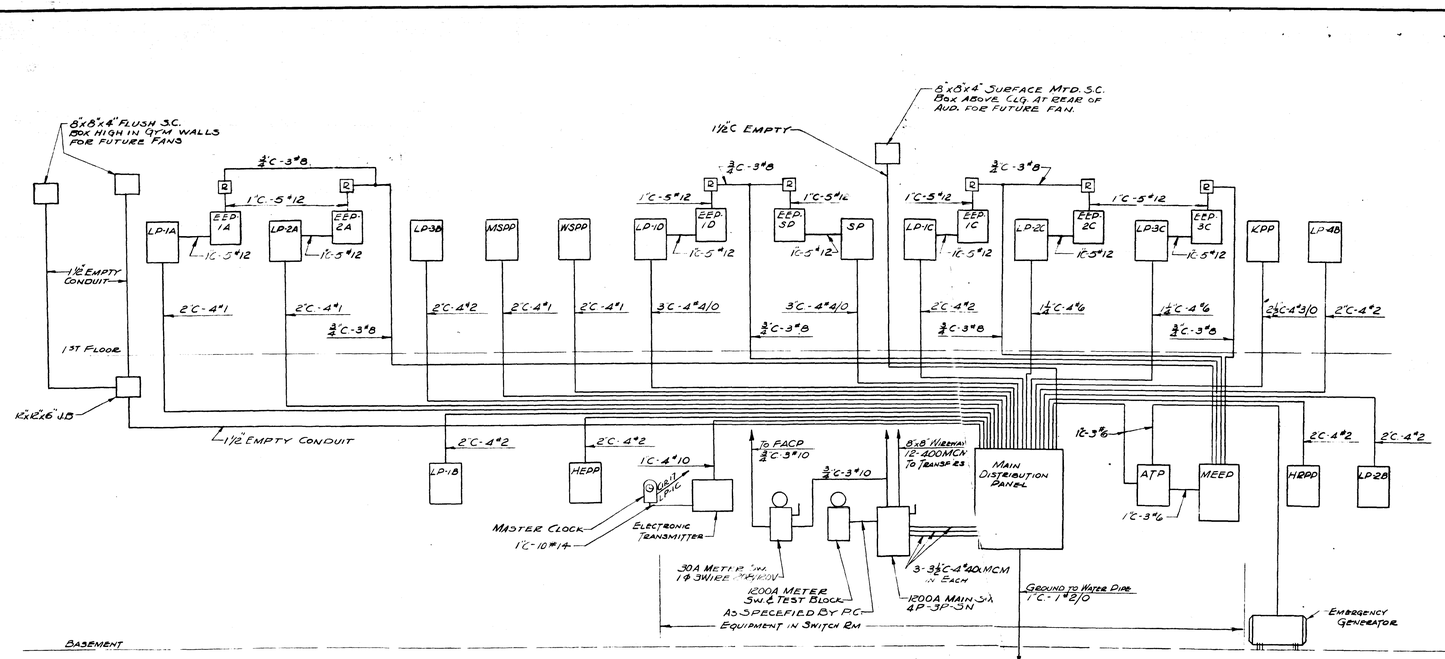
830-E5

Date: 30 APR 57 | Scale: AS SHOWN

SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Conn.

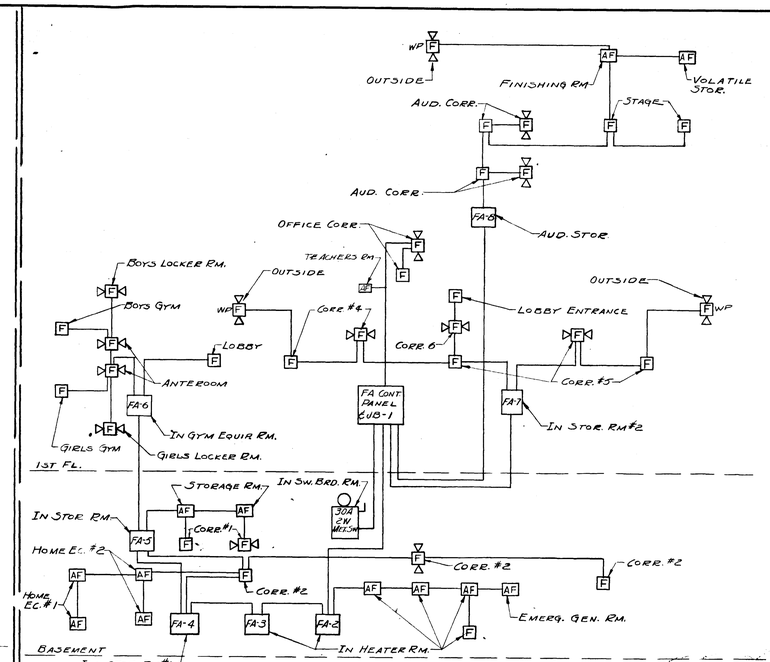
MARCHANT & M... ENGINEERS
WEST HARTFORD, CONN.

BQ #70 & 125 Attachment



MAIN LIGHT, POWER, & EMERGENCY SYSTEM RISER DIAGRAM

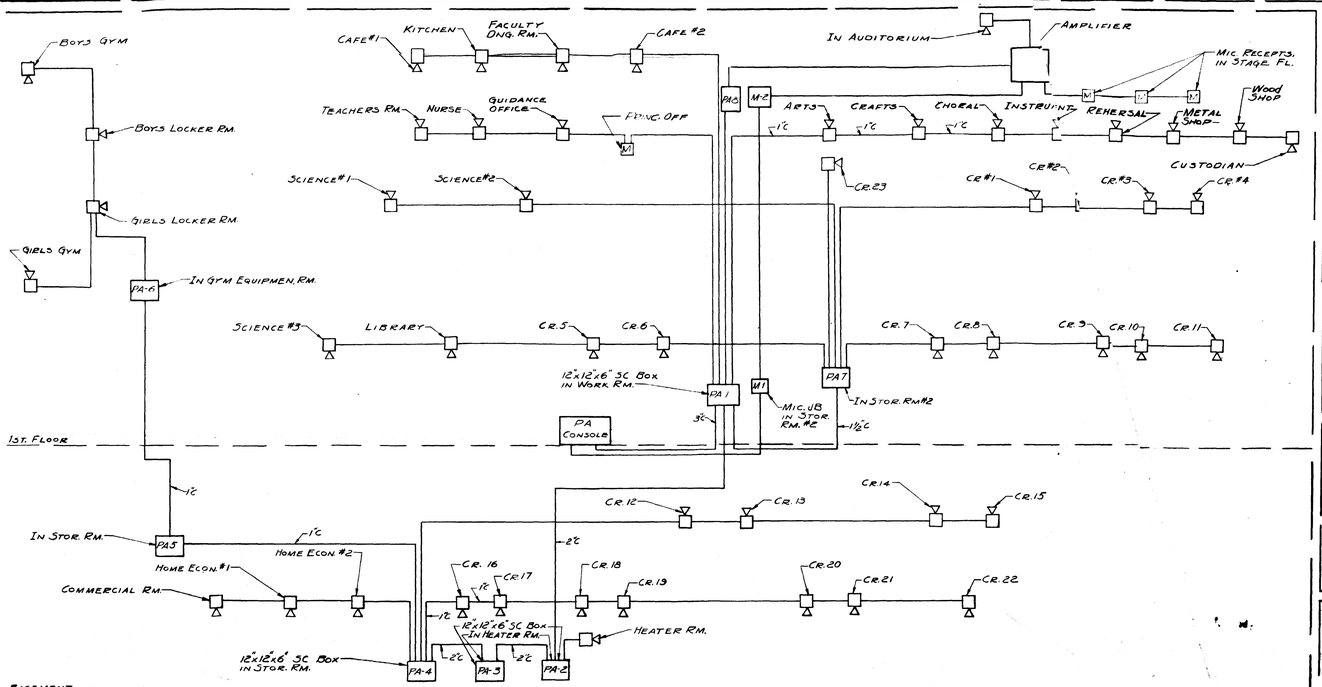
No Scale



NOTE: ALL CONDUITS ¾"

FIRE ALARM RISER DIAGRAM

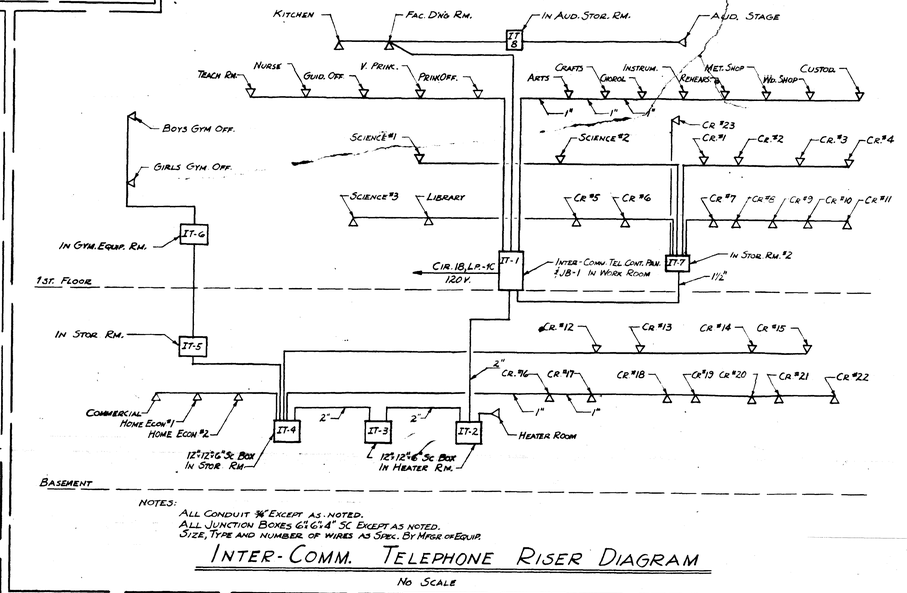
No Scale



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

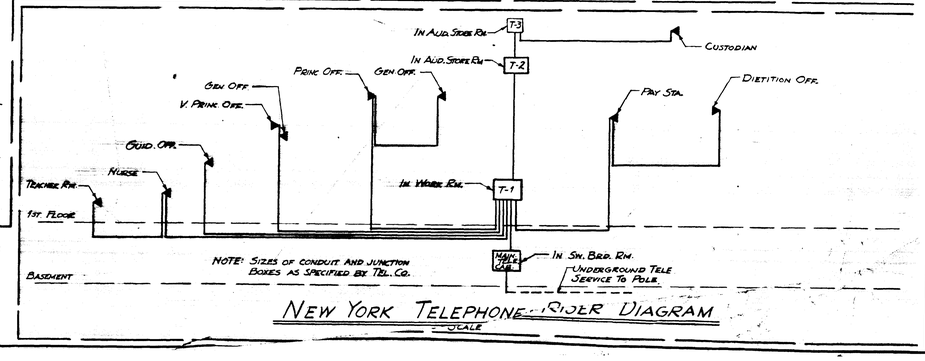
No Scale



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

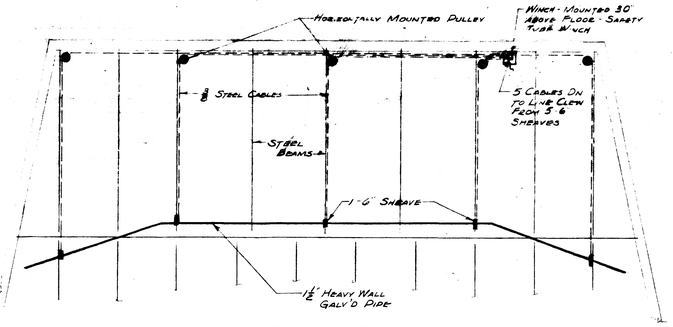
830-E6

Date: 30 APR 57 | Scale: AS SHOWN

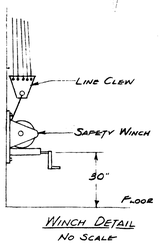
SHERWOOD, MILLS AND SMITH
Architects 65 Broad Street, Stamford, Connecticut

MARCHANT & MINGES
ENGINEERS
WEST HARTFORD, CONN.

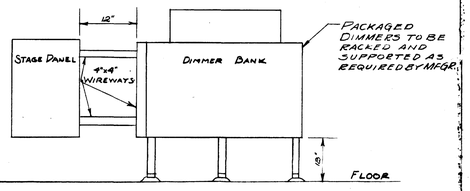
BQ #70 & 125 Attachment



RIGGING PLAN
FOR RAISING & LOWERING OF BORDER LIGHTS
NO SCALE



WINCH DETAIL
NO SCALE

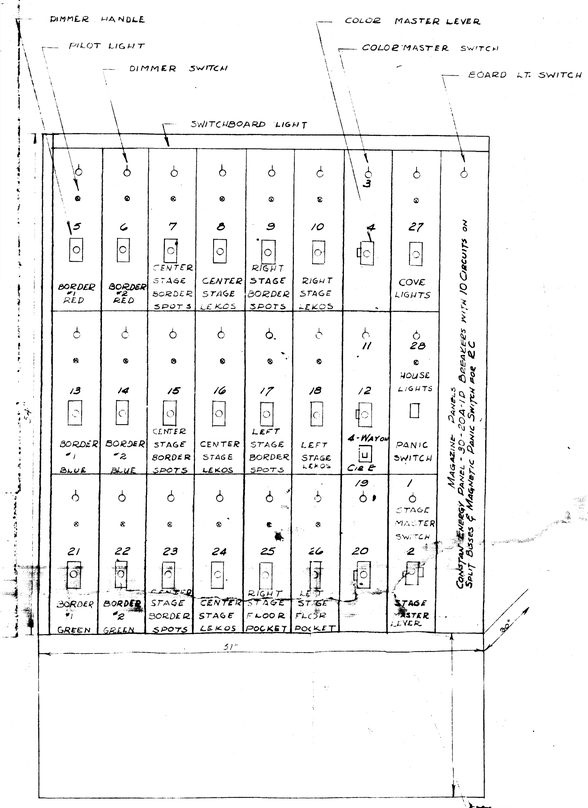


STAGE PANEL (SP) & PACKAGE DIMMER BANK INSTALLATION-ALTERNATE
NO SCALE

LIGHTING FIXTURE SCHEDULE

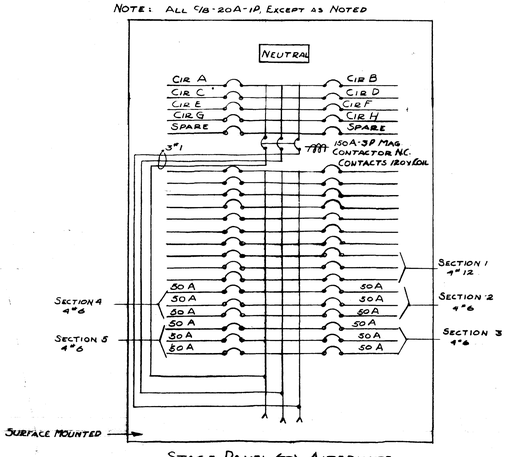
TYPE	MANUFACTURER AND DESCRIPTION	LAMP		MOUNT	REMARKS
A	Holophane #692-AL-HS High Bay unit with #0256 wire guard	I	1-1000W	30"Stem	Swivel on outlet box
B	Litecraft #E312 housing with #E24 opal glass lens and frame	I	1-150W	Ceiling Recess	
C	Perfeclite #1517 vapor proof with aluminum baby and round opal 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



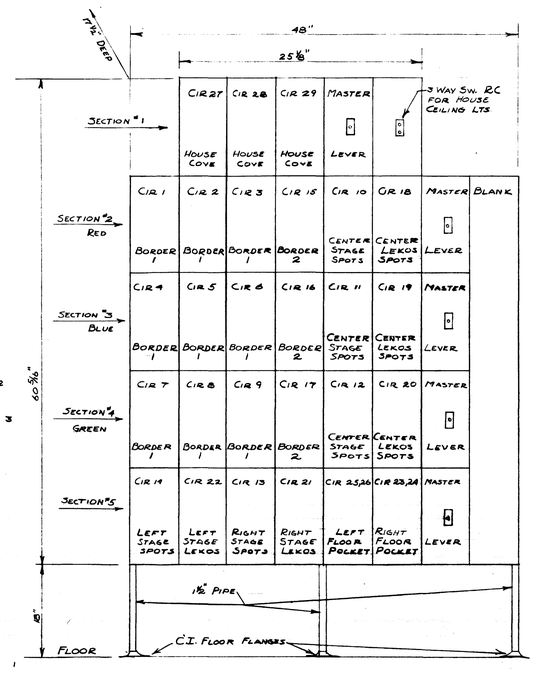
STAGE DIMMER PANEL PLAN
NO SCALE

NOTE: ALL C/B-20A-1P. EXCEPT AS NOTED

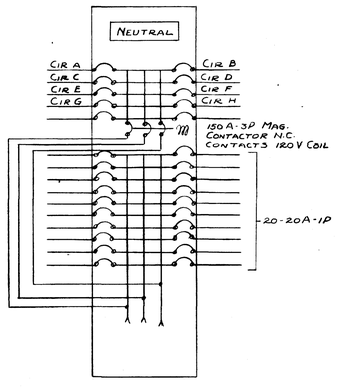


STAGE PANEL (SP) ALTERNATE
CIRCUIT BREAKER TYPE
208-120 VOLTS 3 PHASE 4 WIRE
NO SCALE

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

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ABBREVIATIONS

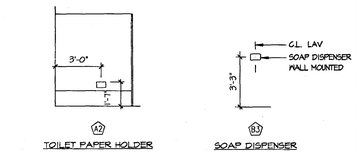
A.DR.	ACCESS DOOR	K.E.C.	KITCHEN EQUIPMENT CONTRACTOR
A.F.F.	ABOVE FINISH FLOOR		
A.F.R.	ABOVE FINISH ROOF	L.P.	LOW POINT
A.P.	ACCESS PANEL	LAB.	LABORATORY
A.S.	ALUMINUM SADDLE	LAD.	LADDER
A.V.	AUDIO VISUAL	LAM.	LAMINATED
AC.	ACOUSTIC, ACOUSTICAL	LAV.	LAVATORY
AC.BD.	ACOUSTICAL BOARD	LDR.	LEADER
AC.T.	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

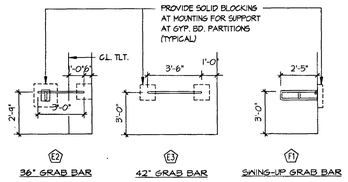
NOTES

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.

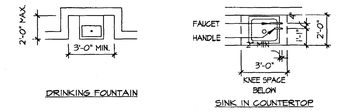
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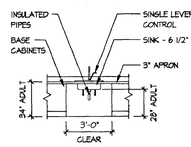
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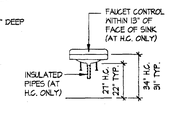


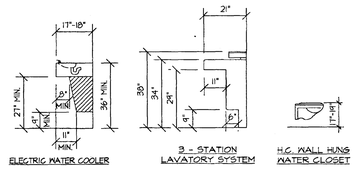


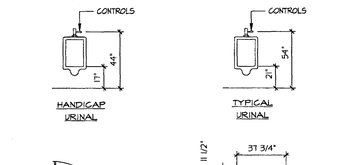
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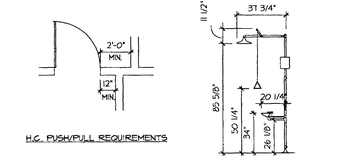






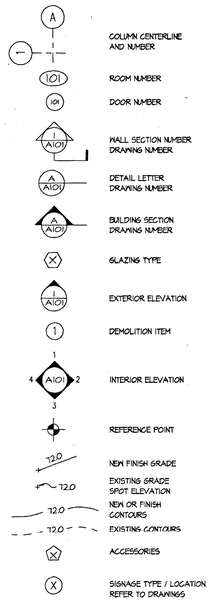




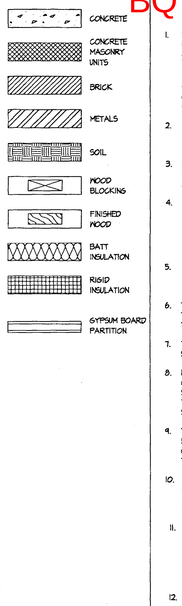


SYMBOLS

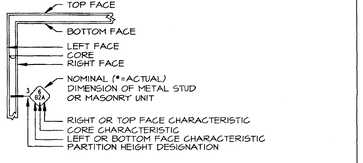
GRAPHIC



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.

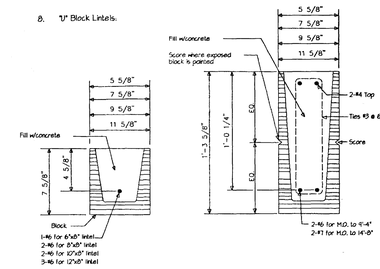
MAX. M.O.	WALL THICKNESS	LINTEL SIZE	BEARING PLATE
6'-0"	8"	(3) 3 1/2"X6"X3/8"(LLV)	7"X8"X1/2"
9'-0"	8"	W8X18 + 5/16" PLATE	7"X8"X1/2"
12'-0"	8"	W8X28 + 5/16" PLATE	7"X8"X1/2"

   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

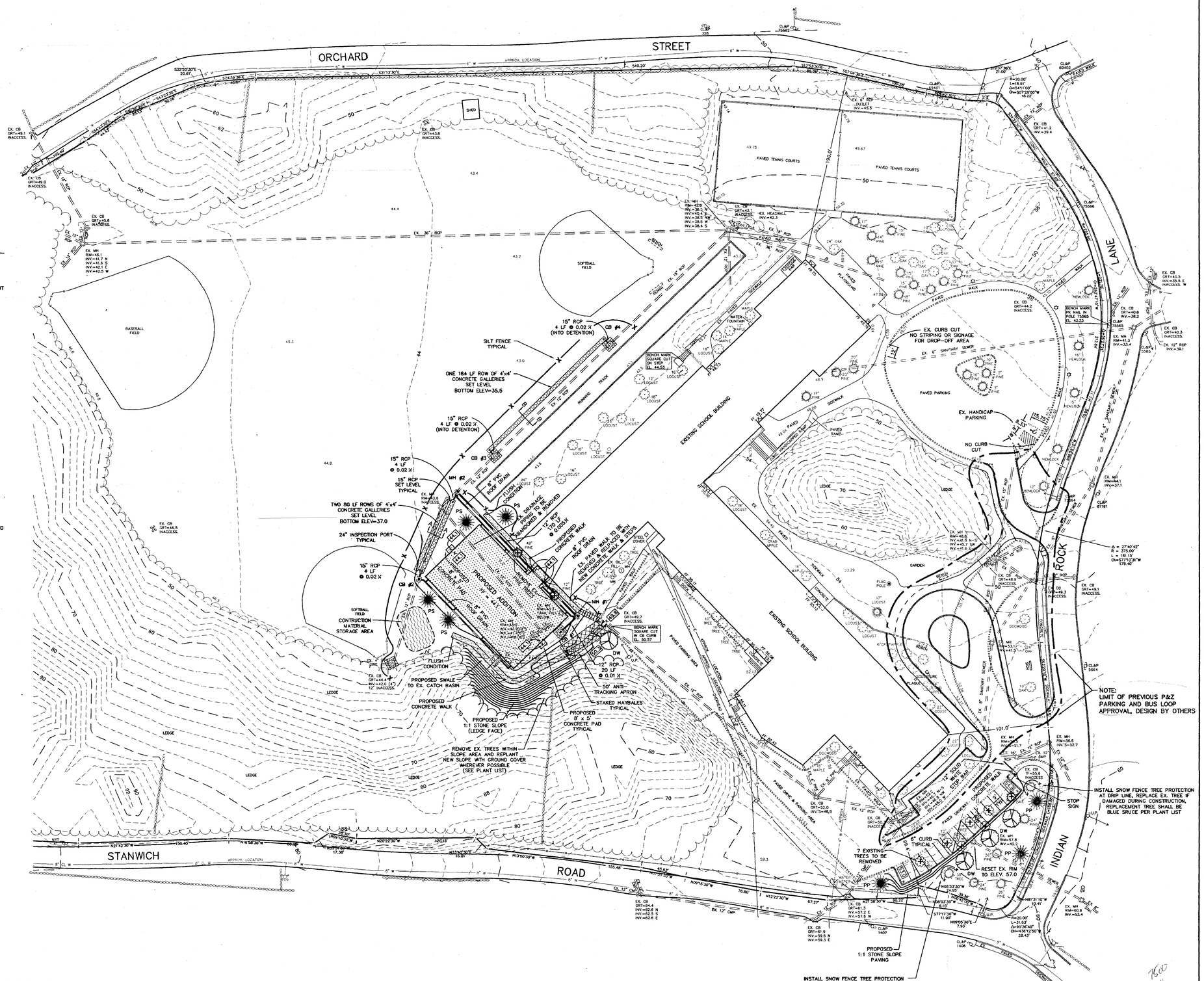
STRUCTURE	GRT/RIM	INV. IN	INV. OUT	TYPE
CB #1	43.5	41.7	41.7	"C-L"
CB #2	43.8	41.0(EX.) 39.6	39.6	"C-L"
CB #3	42.6	41.0(ROOF) 40.4(EX.) 38.2(DET.)	40.3(EX.)	"C-L"(EX.)
CB #4	42.6	39.4(EX.) 38.2(DET.)	39.3(EX.)	"C-L"(EX.)
MH #1	43.9	41.5(CB #1) 41.8(ROOF)	41.5	"STORM"
MH #2	43.1	40.8(ROOF) 40.7(MH #1) 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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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.

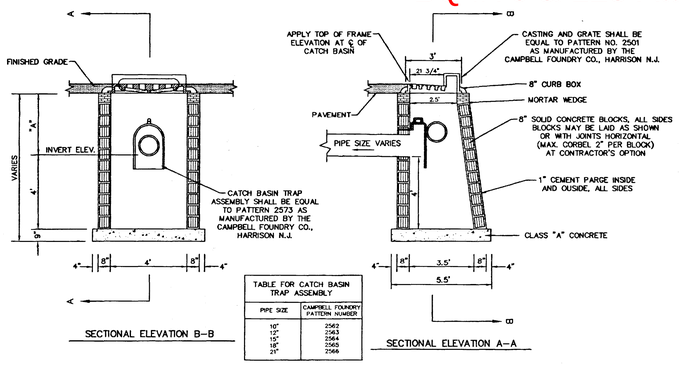
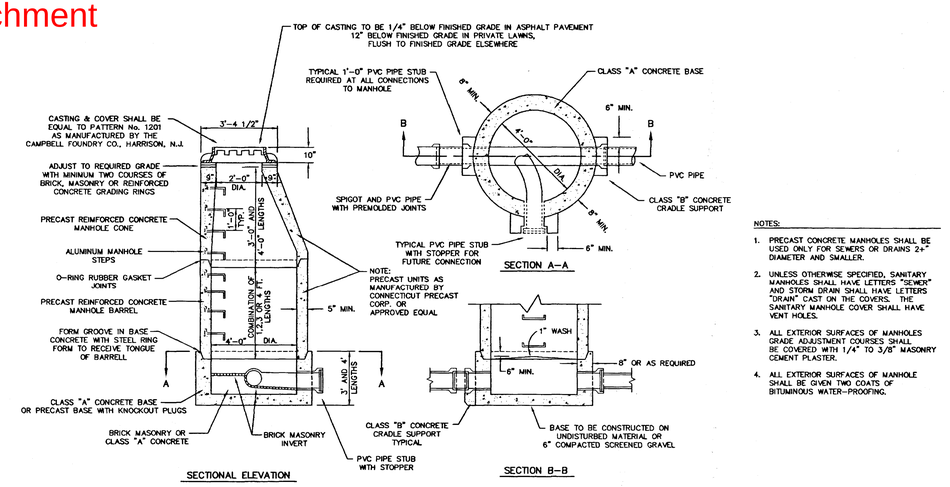


TABLE FOR CATCH BASIN TRAP ASSEMBLY

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".

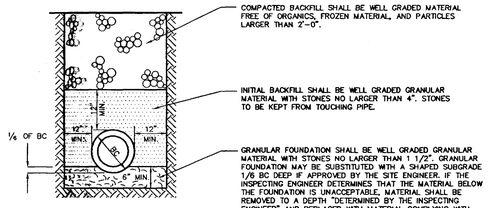
CATCH BASIN TYPE "C-1"
N.T.S.



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.

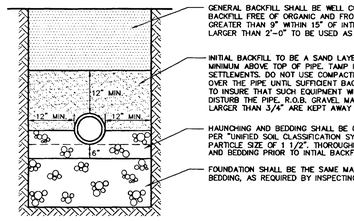
PRECAST CONCRETE MANHOLE TYPE P2
N.T.S.

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.

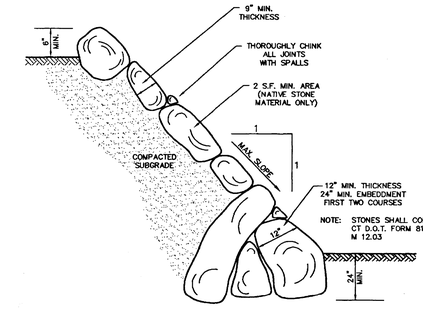


RCP PIPE TRENCH BEDDING DETAIL
N.T.S.

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.



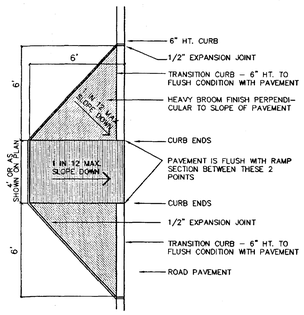
PVC TRENCH BEDDING DETAIL
N.T.S.



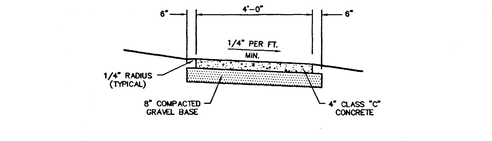
NOTE: STONES SHALL CONFORM TO CT D.O.T. FORM 814, SECTION M 12.03

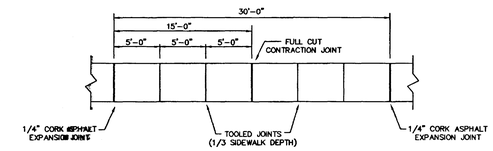
STONE SLOPE PAVING DETAIL
N.T.S.

NOTE: ALL WORK SHALL CONFORM TO CT D.O.T. FORM 814 SECTION 7.05

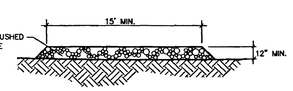


ACCESSIBLE CURB/RAMP
N.T.S.

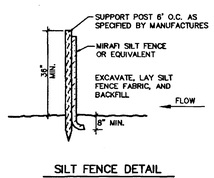




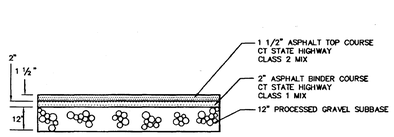
CONCRETE SIDEWALK DETAIL
N.T.S.



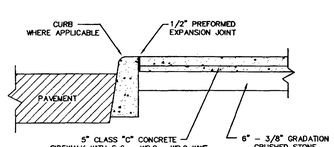
TYPICAL ANTI-TRACKING APRON
N.T.S.



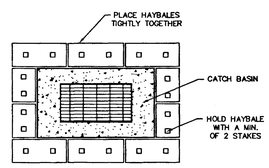
SILT FENCE DETAIL
N.T.S.



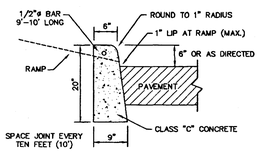
PAVEMENT DETAIL
N.T.S.



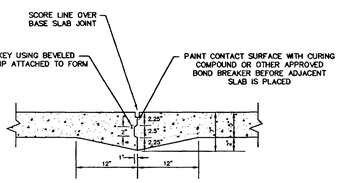
REINFORCED CONCRETE SIDEWALK
N.T.S.



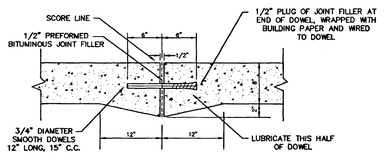
HAYBALE RING DETAIL
N.T.S.



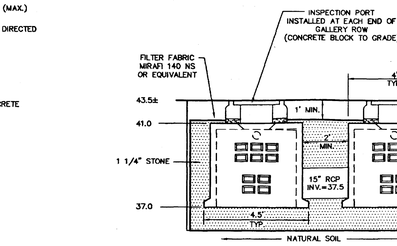
CONCRETE CURB
N.T.S.



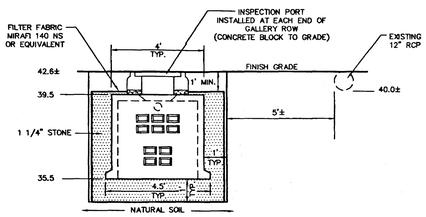
CONTRACTION JOINT DETAIL
N.T.S.



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
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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.

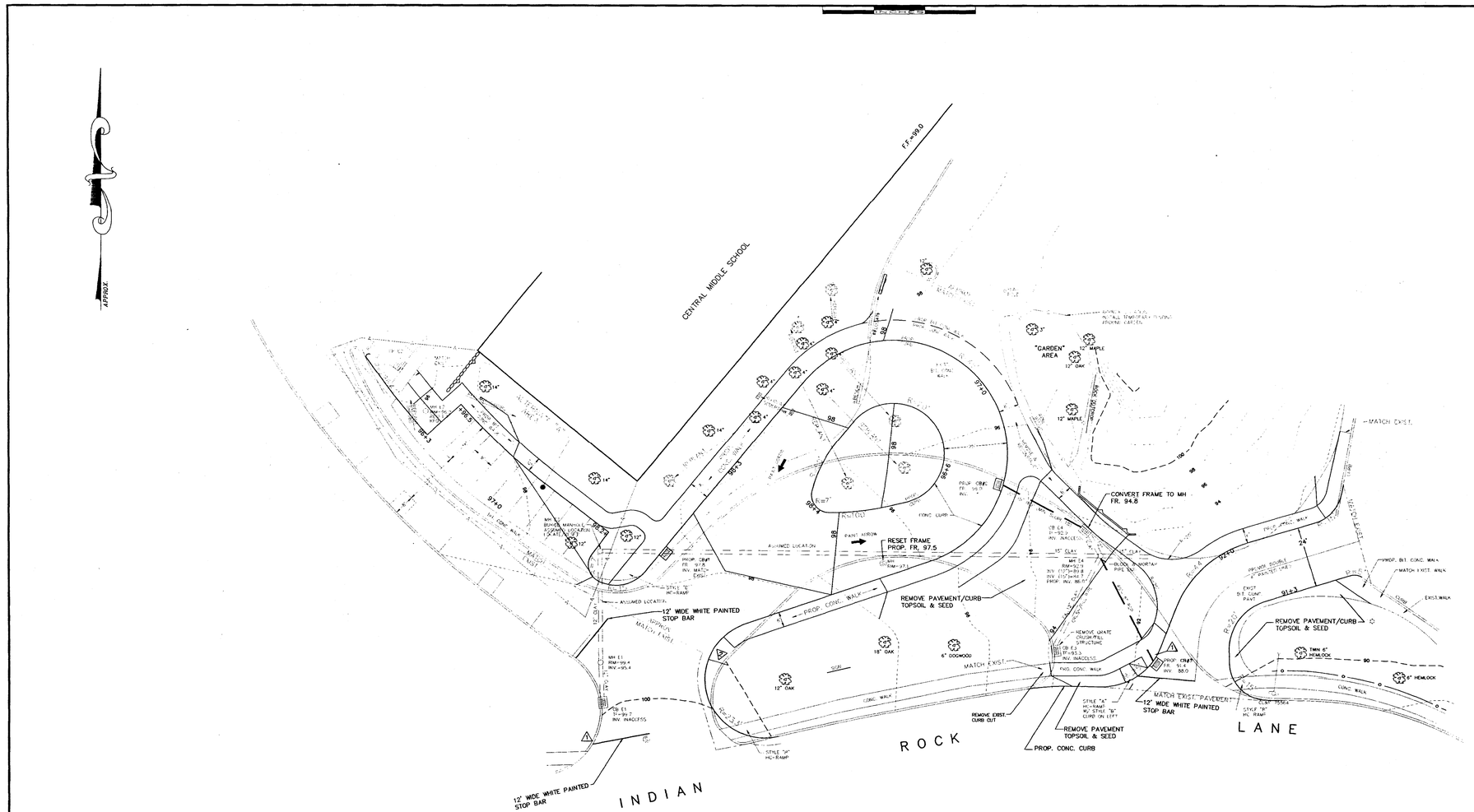
I HEREBY DECLARE THAT TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON. THIS SURVEY CONFORMS TO THE STANDARDS OF A CLASS A-2 SURVEY AND WAS PREPARED IN ACCORDANCE WITH SECTIONS 20-300b-1 THROUGH 20-300b-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES AND THE MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

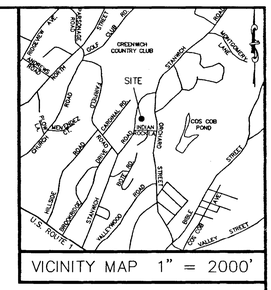
STEPHEN R. LATOUR, R.L.S. CT LIC. #15456
NOT VALID WITHOUT EMBOSSED SEAL

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

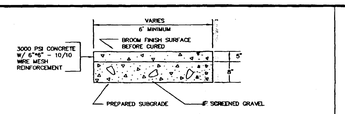
CENTRAL MIDDLE SCHOOL
GREENWICH , CONNECTICUT

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

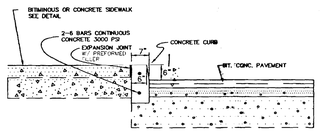
NOT VALID WITHOUT ORIGINAL SEAL

Date	Revisions

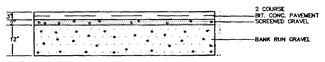


SIDEWALK DETAIL
N.T.S.

- PROVIDE EXPANSION JOINT W/ PREFORMED FILLER EVERY 25' MAXIMUM.
- PROVIDE TROWLED JOINTS EVERY 5'.
- ALL CONSTRUCTION JOINTS TO HAVE A KEY CONSTRUCTED.

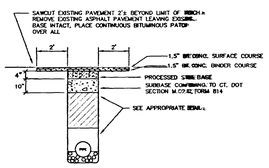


CONCRETE SIDEWALK, PARKING & DRIVEWAY DETAIL
N.T.S.

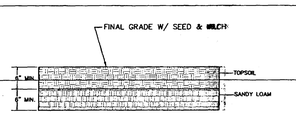


PARKING AND DRIVEWAY DETAIL
N.T.S.

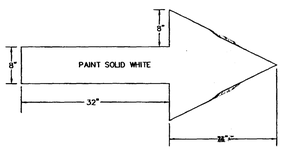
PAVEMENT MATCHING DETAIL
N.T.S.



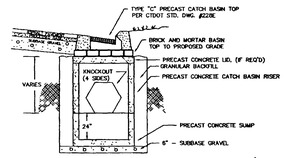
TYPICAL DETAIL
PAVEMENT PATCHING
N.T.S.



TOPSOIL DETAIL IN PAVEMENT REMOVAL AREAS
N.T.S.

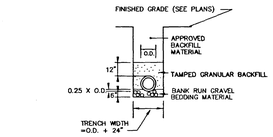


PAVEMENT MARKING DETAIL
N.T.S.



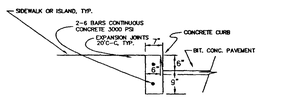
NOTE - 1) ALL PRECAST COMPONENTS TO BE ABLE TO WITHSTAND HS-20 WHEEL LOADING.
- 2) BACKFILL TO BE COMPACTED IN 8" LIFTS AROUND BASIN
- 3) TYPE C-1, OR C-G BASIN TOP MAY SUBSTITUTED ABOVE WHERE CALLED FOR ON THE PLANS.

DETAIL - PRECAST CATCH BASIN
WITH TYPE "C" CATCH BASIN TOP
SCALE 1/4"=1'-0"

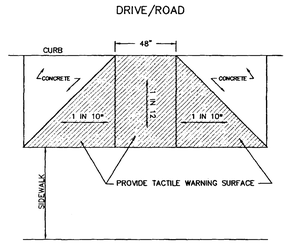


NOTE: 1) - PIPE SECTIONS TO BE JOINED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.
2) - INSTALL ADDITIONAL 6" OF BEDDING MATERIAL FOR TRENCH IN LEDGE.

TYPICAL TRENCH SECTION
NTS

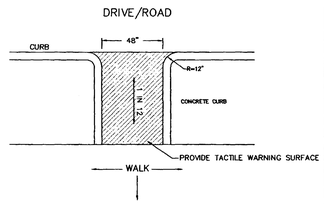


TYPICAL CONCRETE CURB
N.T.S.

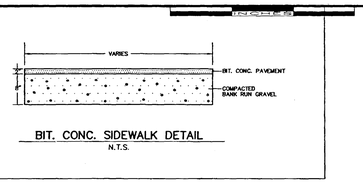


* IF ADJACENT SIDEWALK IS LESS THAN 4' WIDE THIS SLOPE SHALL BE 1IN 12.

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
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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

NOT VALID WITHOUT ORIGINAL SEAL

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

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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.

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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'

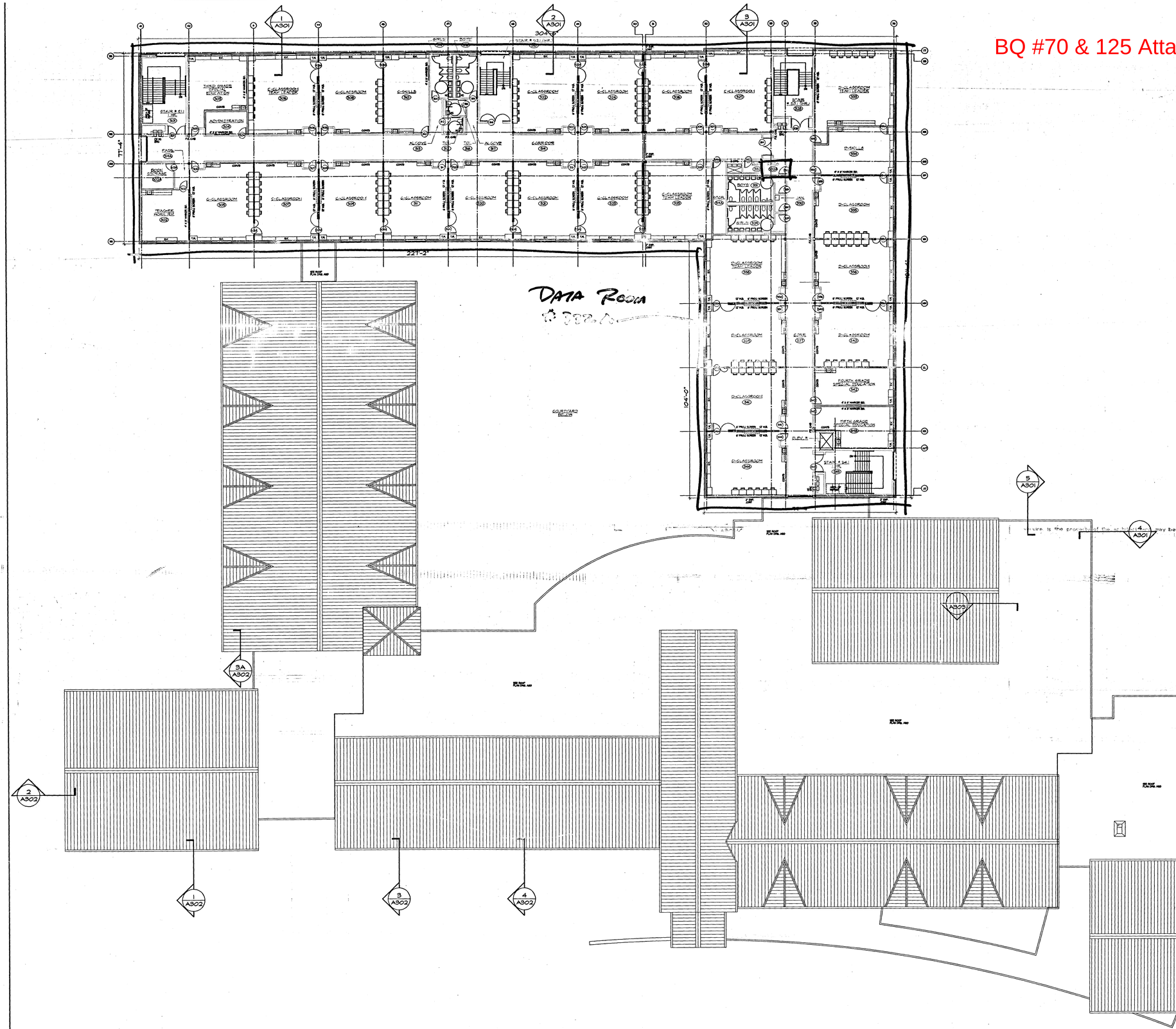
DATE: MARCH 15, 1995

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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CONSULTANTS

NOTES:

1. FOR ARCHITECTURAL ELEVATIONS, PARTITION TYPES AND SCHEDULE, SEE DRAWINGS 6/A7
2. XXXXX XXXXX

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PROJECT MANAGER: P. MYLER
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STAMFORD, CONNECTICUT

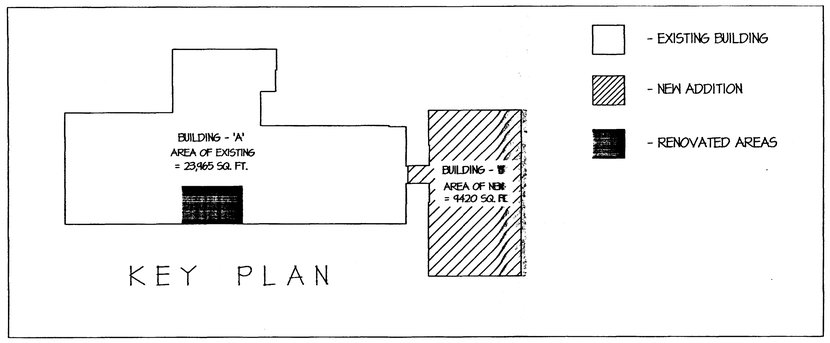
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DRAWING NO.: A102



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

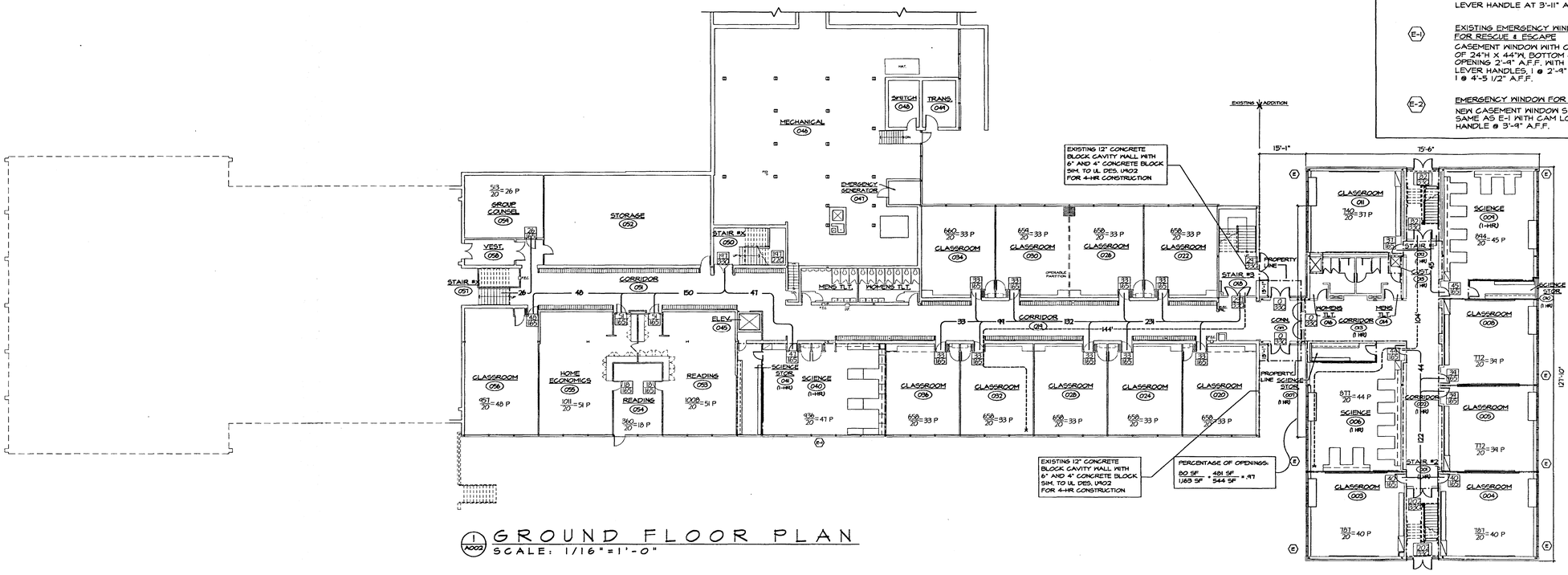
SMOKE BARRIER

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

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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 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

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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

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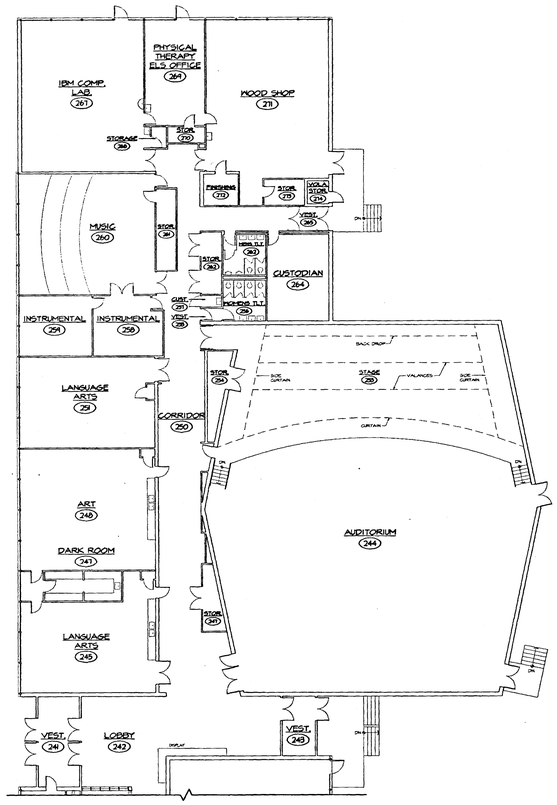
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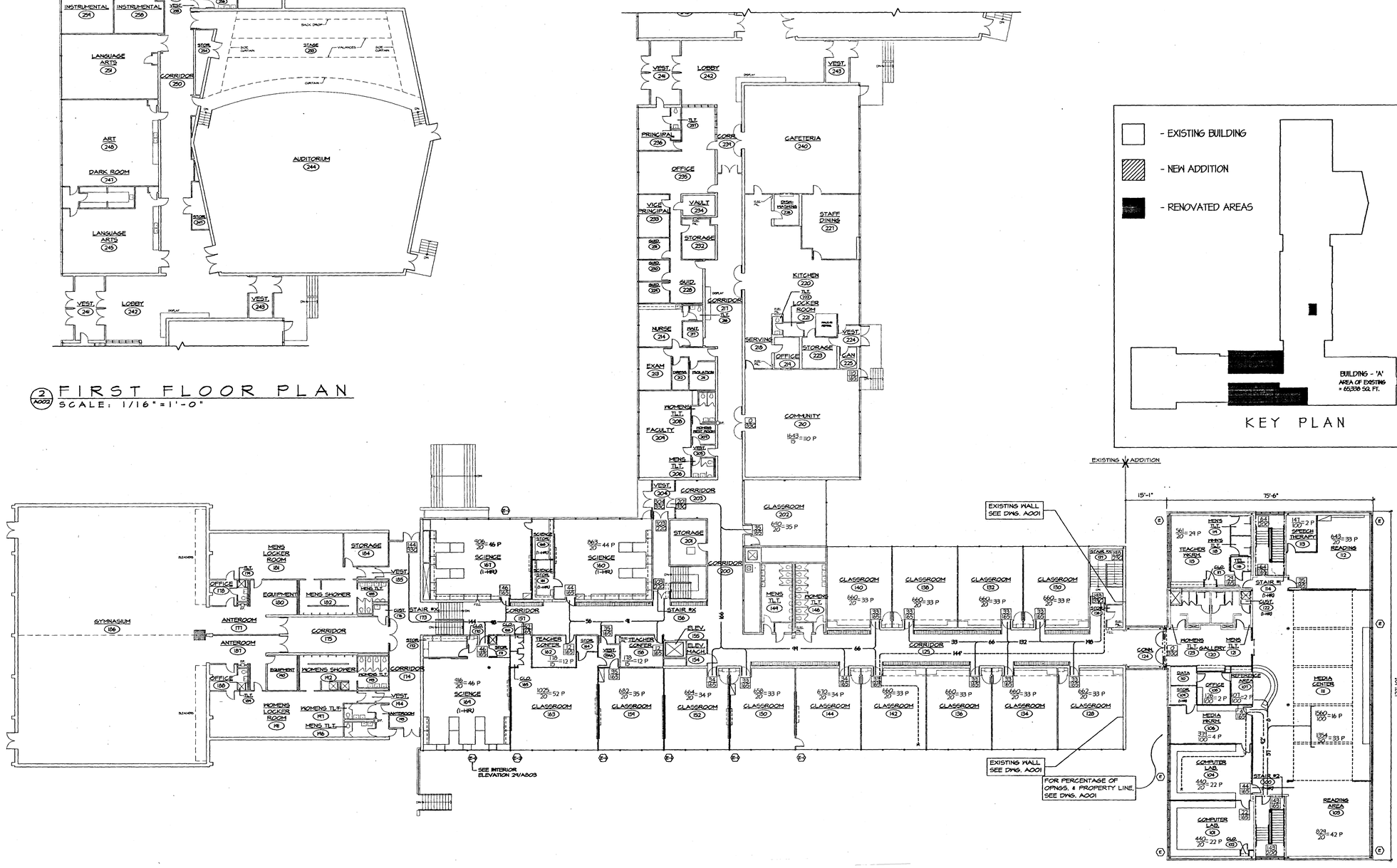
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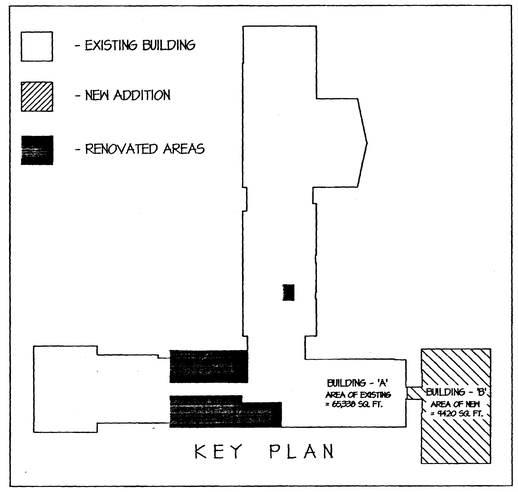
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2 A002 FIRST FLOOR PLAN
SCALE: 1/16"=1'-0"



1 A002 FIRST FLOOR PLAN
SCALE: 1/16"=1'-0"



KEY PLAN

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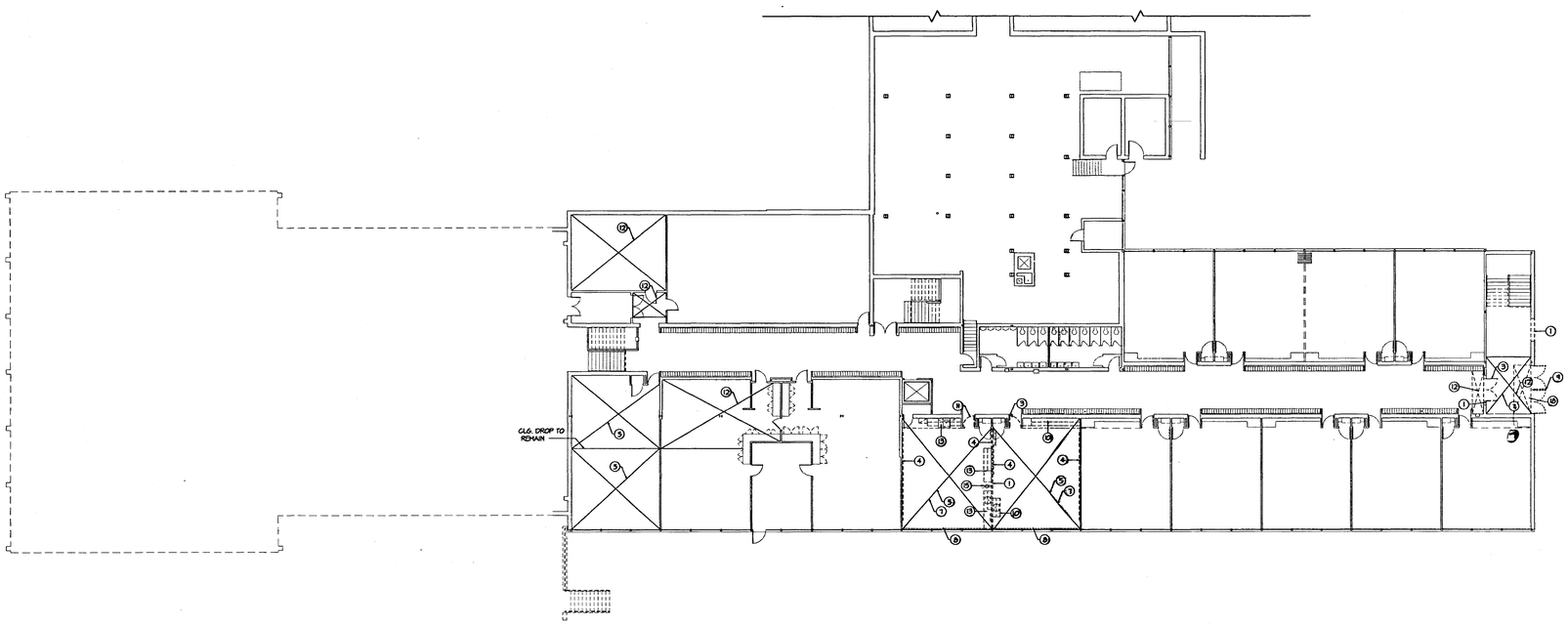
GENERAL DEMOLITION NOTES:

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.
9. PRIOR TO STARTING DEMOLITION COORDINATE WITH OWNER ANY SALVAGE REQUIREMENTS OF EQUIPMENT, MATERIALS, ETC.
10. IN ALL SPACES WHERE DEMOLITION IS INDICATED REMOVE WINDOW BLINDS AND PROJECTION SCREENS.
11. WHERE ONE WALL IS BEING REMOVED AND AN ADJACENT ONE IS TO REMAIN, THE CONTRACTOR SHALL PATCH THE WALL TO REMAIN TO MATCH EXISTING CONSTRUCTION.
12. SOME DEMOLITION OF MATERIALS INDICATED ON THIS DRAWING MAY BE INCLUDED IN THE HAZARDOUS MATERIALS DEMOLITION SECTION OF THE SPECIFICATIONS. THE CONTRACTOR SHALL COORDINATE THIS WORK PRIOR TO SUBMITTING HIS BID.

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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DATE: **MARCH 16, 1998**
SCALE: **1/16" = 1'-0"**
PROJECT NO.: **50950.06**
DRAWING NO.: **A099**

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BQ #70 & 125 Attachment

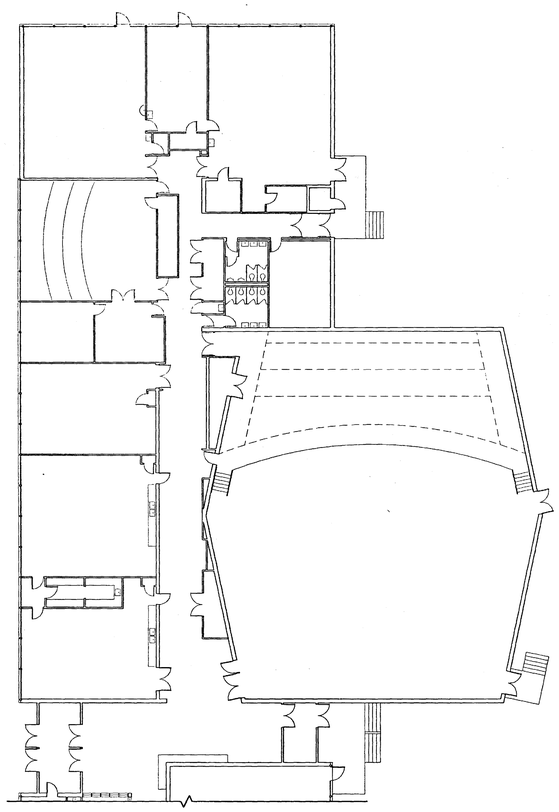
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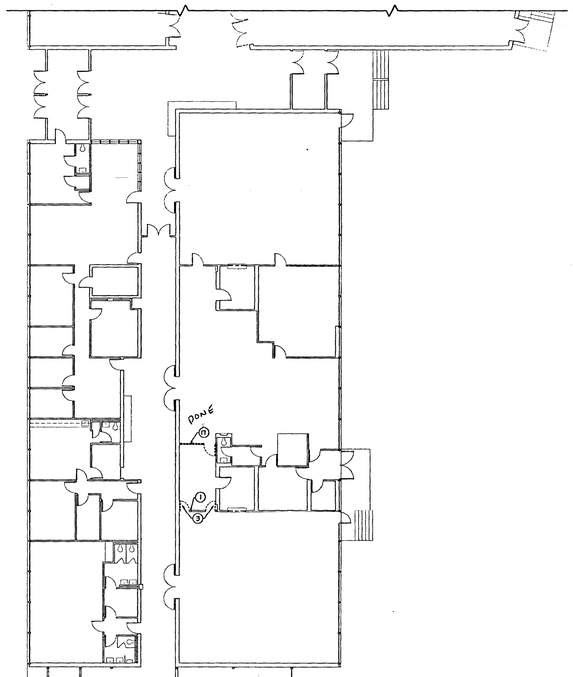
DEMOLITION NOTES:

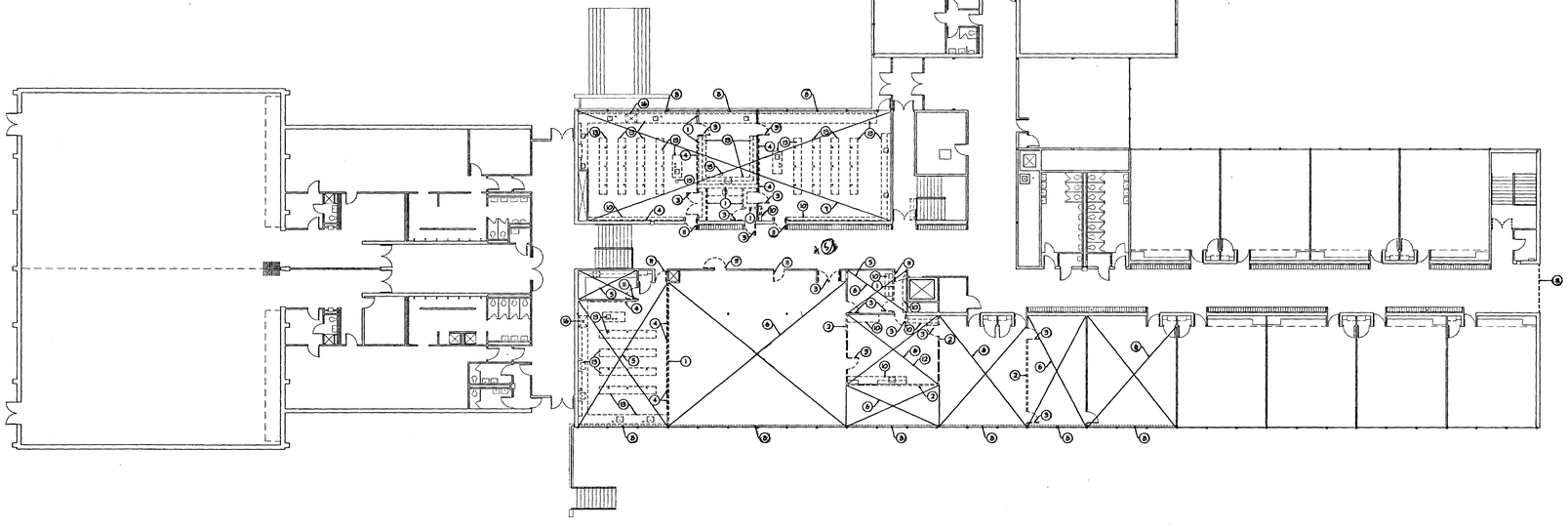
ITEMS TO BE DEMOLISHED AND REMOVED

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



(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.
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

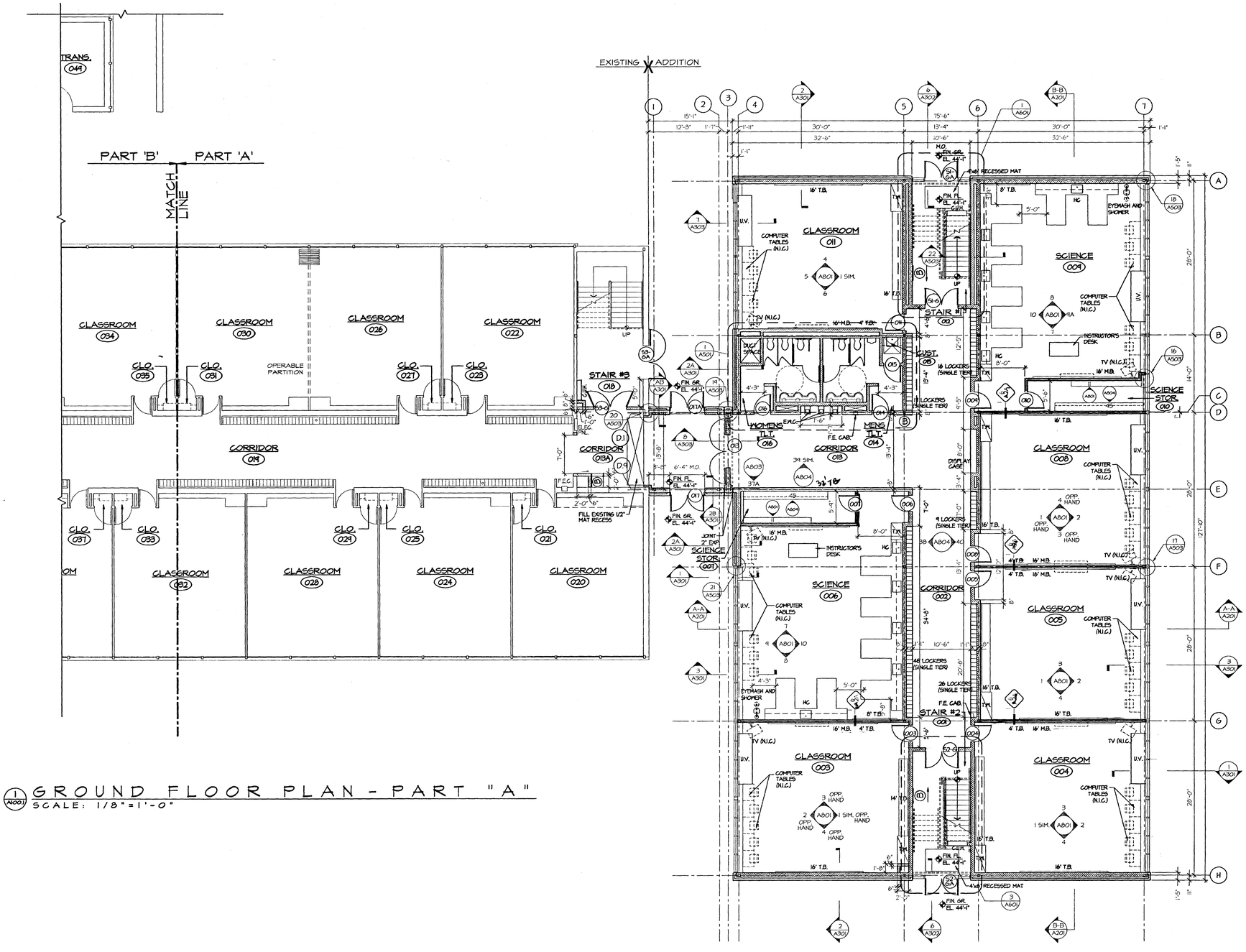
0 8' 16' 32'
SCALE: 1/16" = 1'-0"

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: 1/16" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A099.1

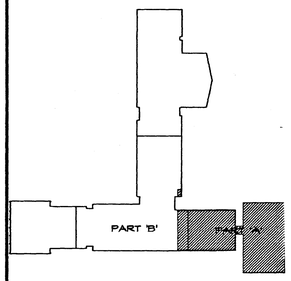
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BQ #70 & 125 Attachment



1 A100.1 GROUND FLOOR PLAN - PART "A"
SCALE: 1/8"=1'-0"

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KEY PLAN

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PROFESSIONAL SEAL

PROJECT MANAGER	L.J. FREE
ARCHITECT/ENGINEER	S.E. McNEECE
DRAWN BY	S. FENNELL

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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

GROUND FLOOR PLAN PART "A"

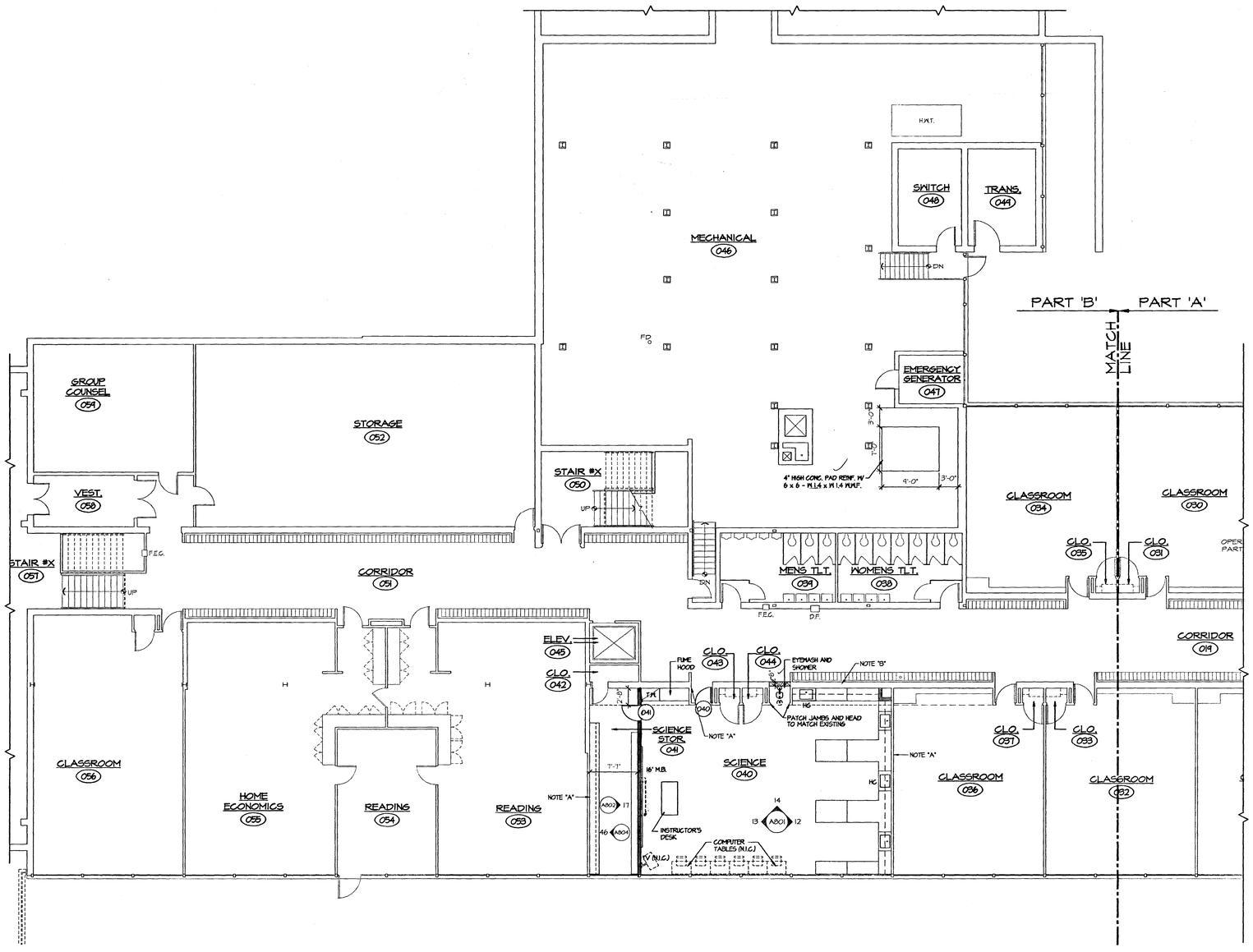
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SCALE: 1/8" = 1'-0"

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.	A100.1

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BQ #70 & 125 Attachment



1 A100.2 GROUND FLOOR PLAN - PART "B"
SCALE: 1/8" = 1'-0"

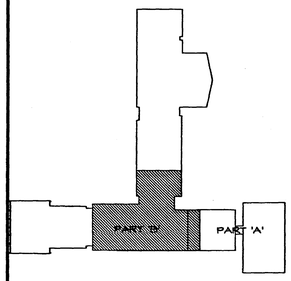
NOTE "A"

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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ARCHITECT/ENGINEER: S.E. McNEECE
DRAWN BY: S. FENNELL

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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 PLAN PART "B"

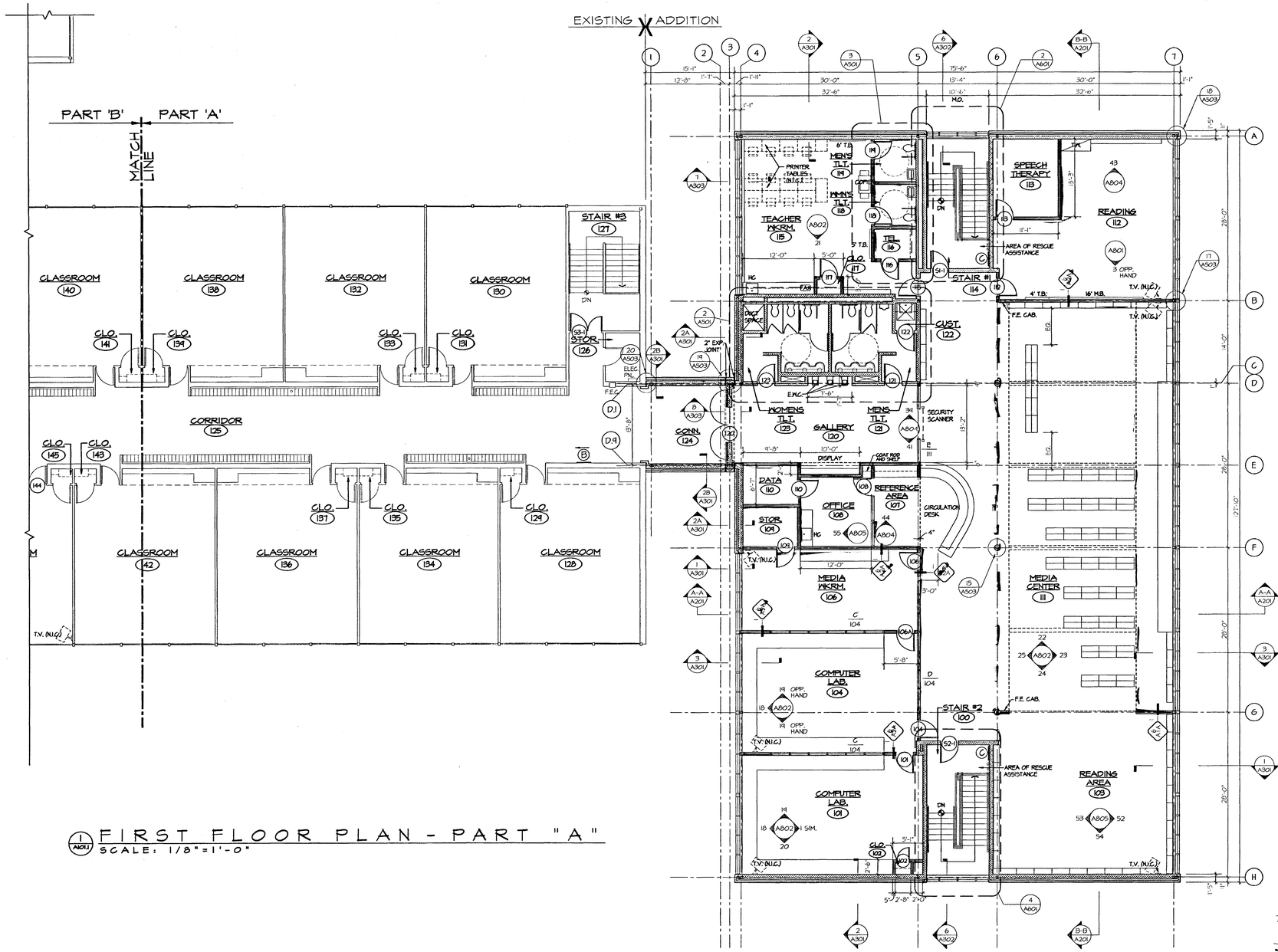
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SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY
1	6/19/98	D.O.E. REVISIONS	J.C.

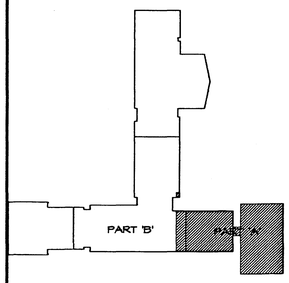
DATE: MARCH 16, 1998
SCALE: 1/8" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A100.2

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BQ #70 & 125 Attachment



1 A101.1 FIRST FLOOR PLAN - PART "A"
SCALE: 1/8"=1'-0"



KEY PLAN

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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.

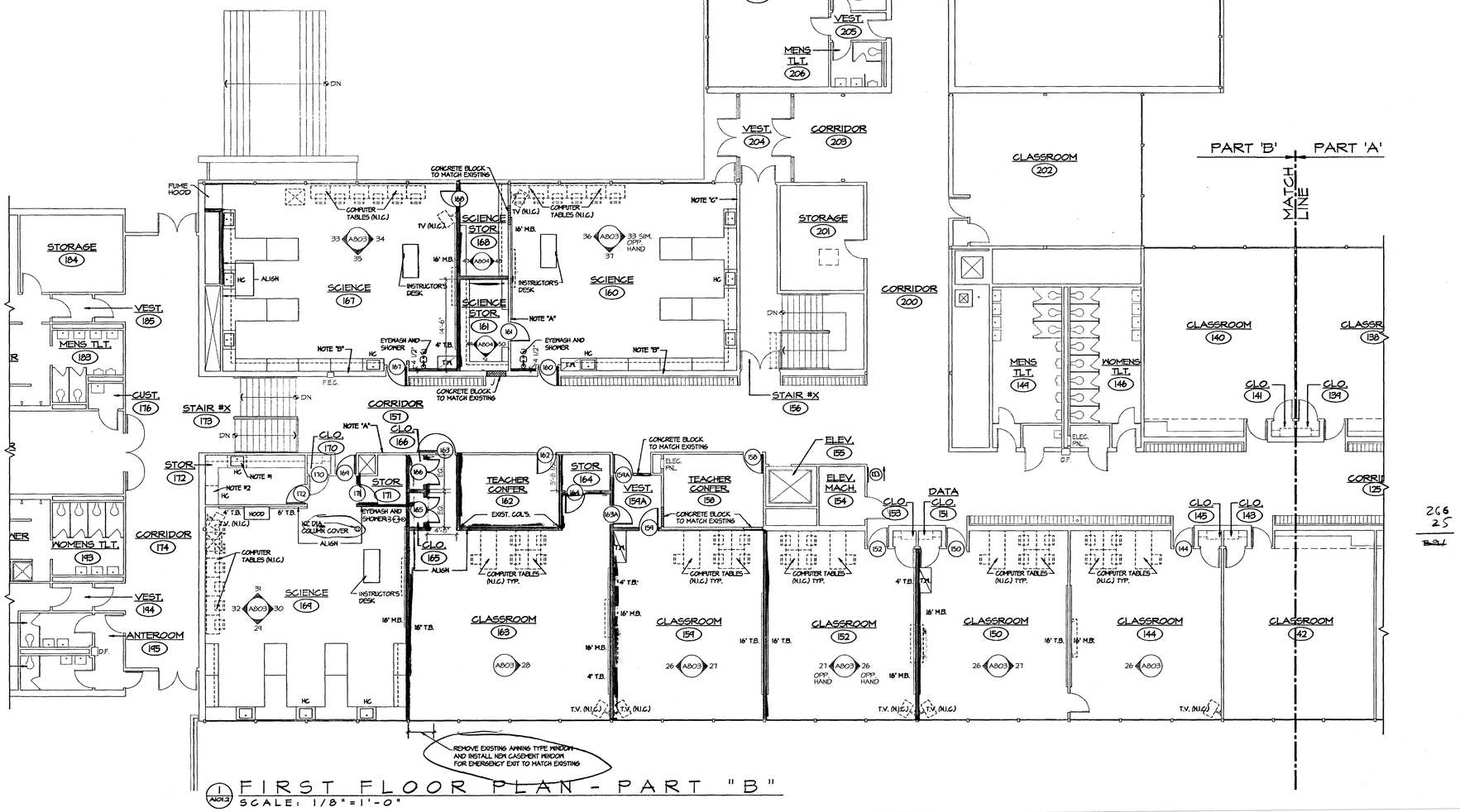
NOTE #1

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

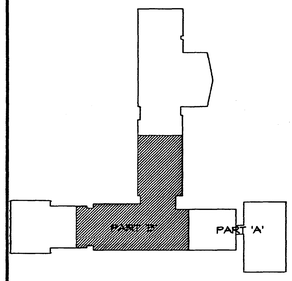


A101.2 FIRST FLOOR PLAN - PART "B"

SCALE: 1/8" = 1'-0"

266
25
B-21

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KEY PLAN

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PROFESSIONAL SEAL

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 "B"

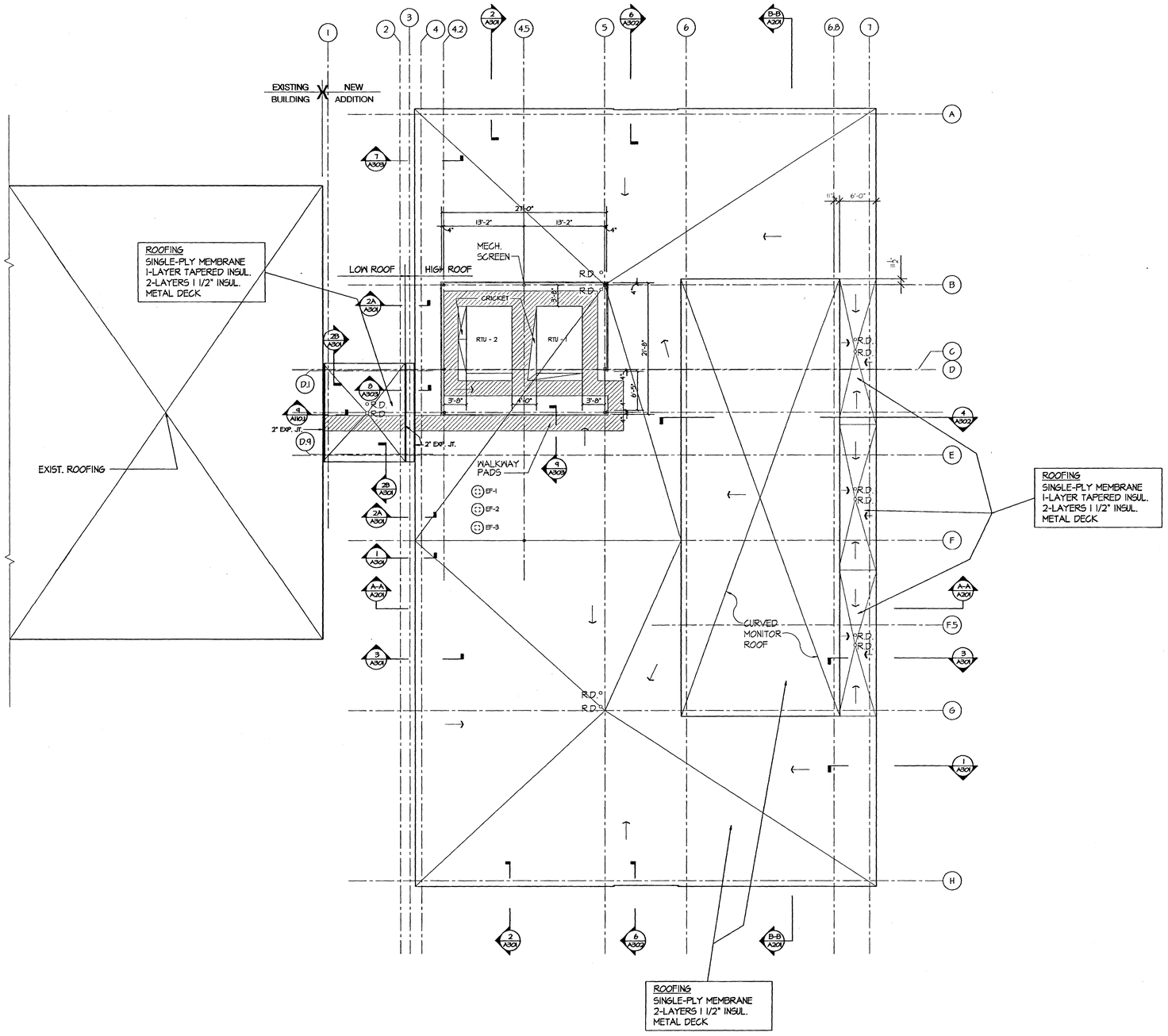
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SCALE: 1/8" = 1'-0"

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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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

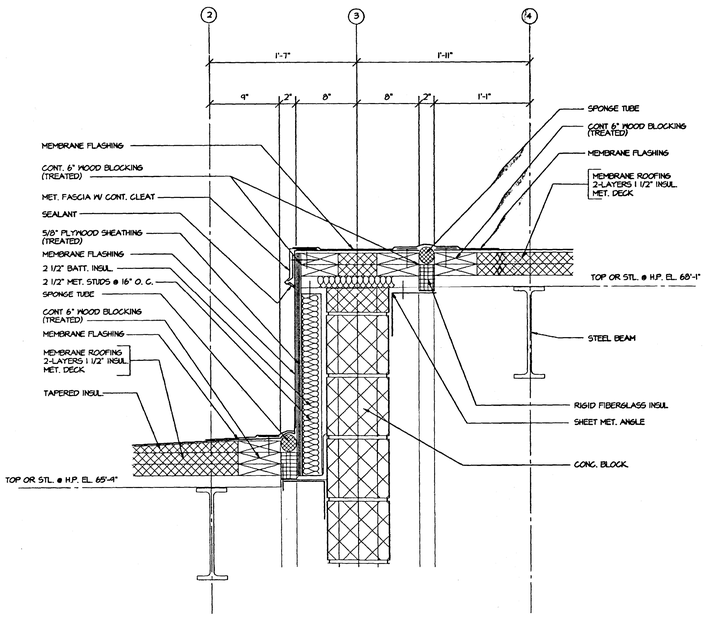
ROOF PLAN

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

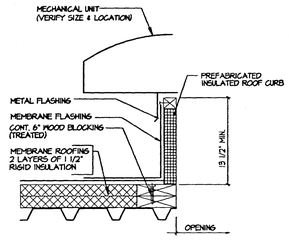
DATE: **MARCH 16, 1998**
SCALE: **1/8" = 1'-0"**
PROJECT NO.: **50950.06**
DRAWING NO.: **A110**

BQ #70 & 125 Attachment

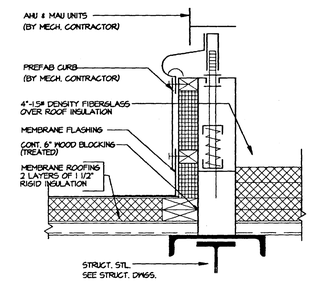


1 A110.1 ROOF EXPANSION JOINT DETAIL
SCALE: 1 1/2" = 1'-0"

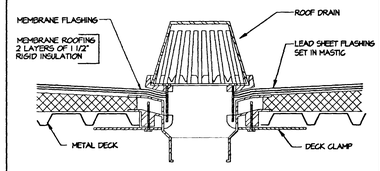
NOTE
PROVIDE NEW FLASHING AT 3 - NEW FUME HOOD EXHAUST FANS IN EXISTING BUILDING. NEW FLASHING SHALL BE COMPATIBLE WITH EXISTING FOAM ROOFING.



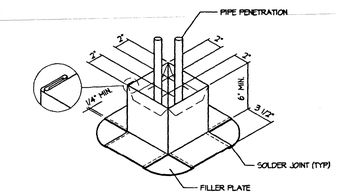
2 A110.1 TYPICAL MECHANICAL CURB DETAIL
SCALE: 1 1/2" = 1'-0"



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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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

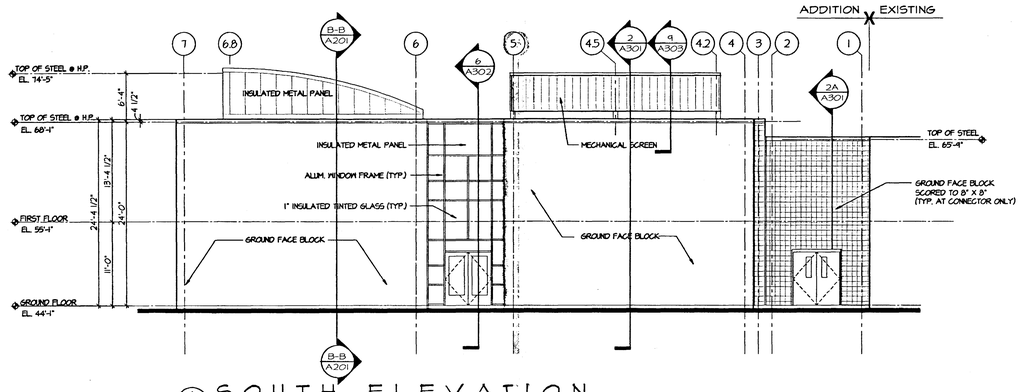
STATE PROJECT NO. 057-106EA

DRAWING TITLE

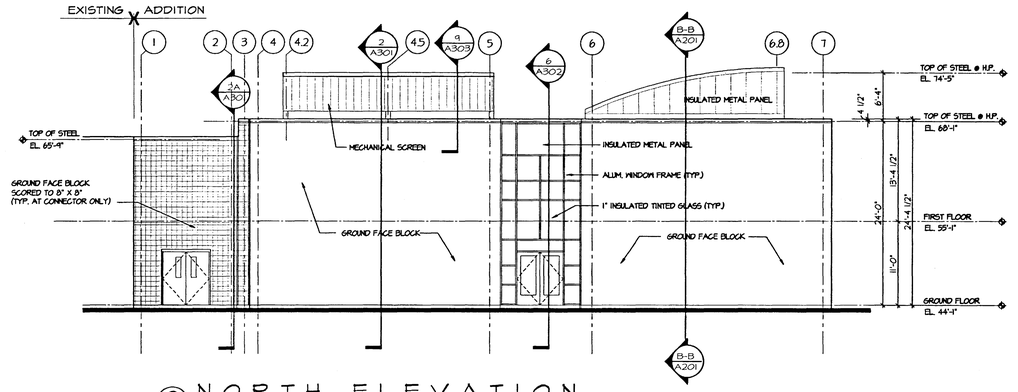
ROOFING DETAILS

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: 1 1/2" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A110.1

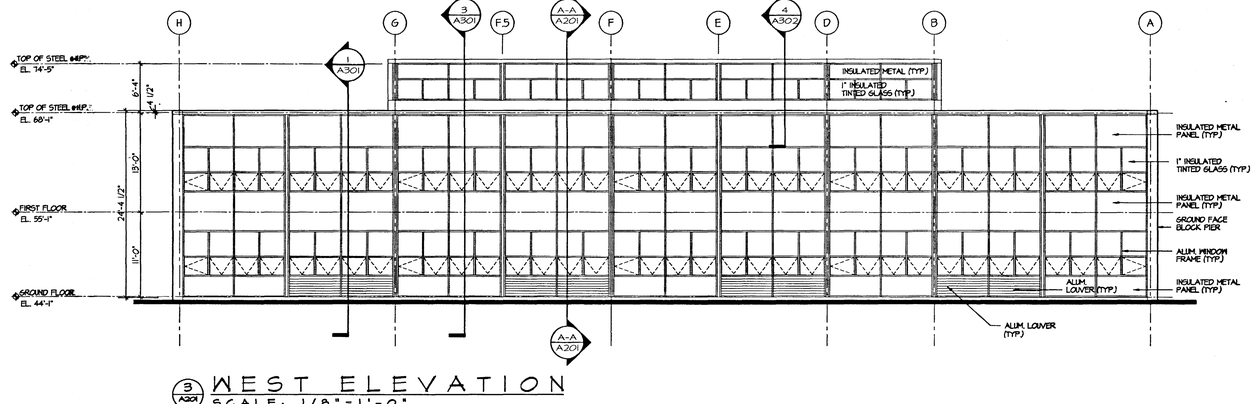


1 A201 SOUTH ELEVATION
SCALE: 1/8"=1'-0"

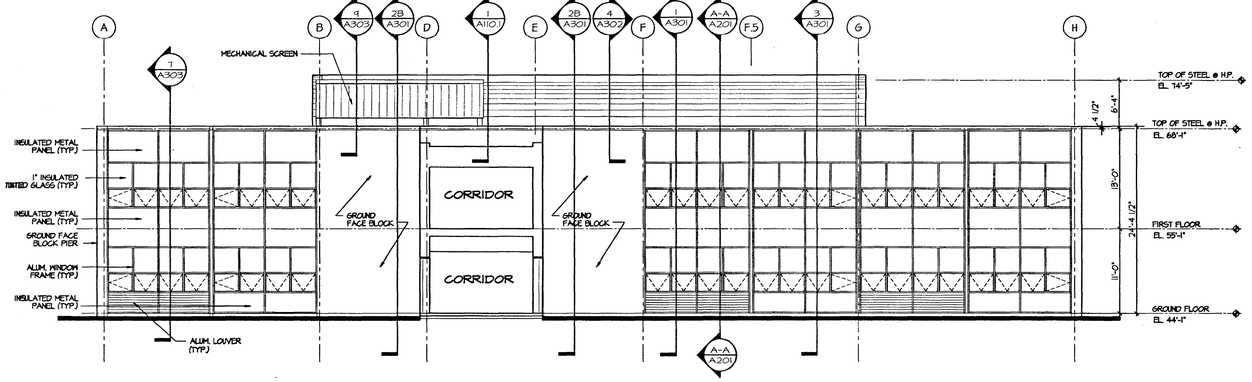


2 A201 NORTH ELEVATION
SCALE: 1/8"=1'-0"

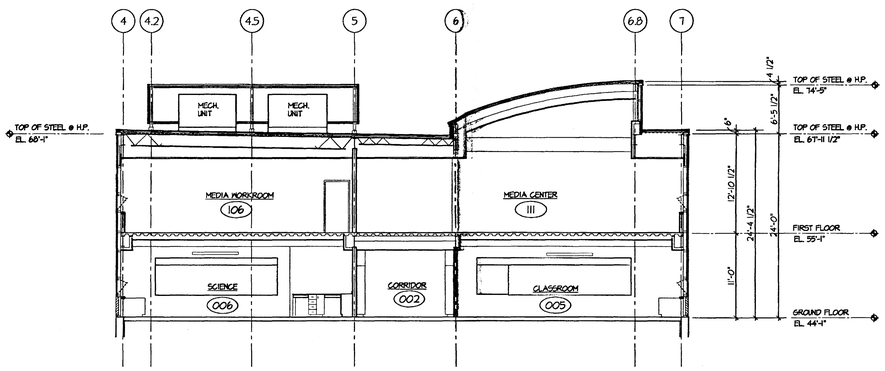
BQ #70 & 125 Attachment



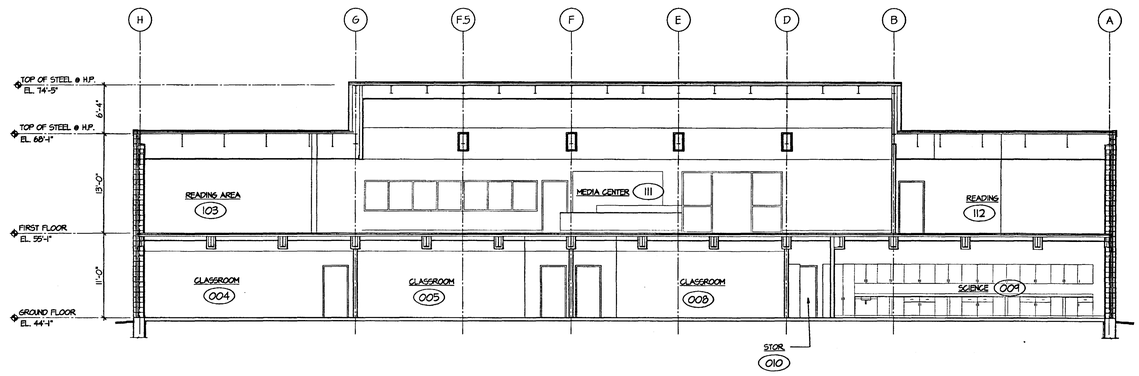
3 A201 WEST ELEVATION
SCALE: 1/8"=1'-0"



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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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

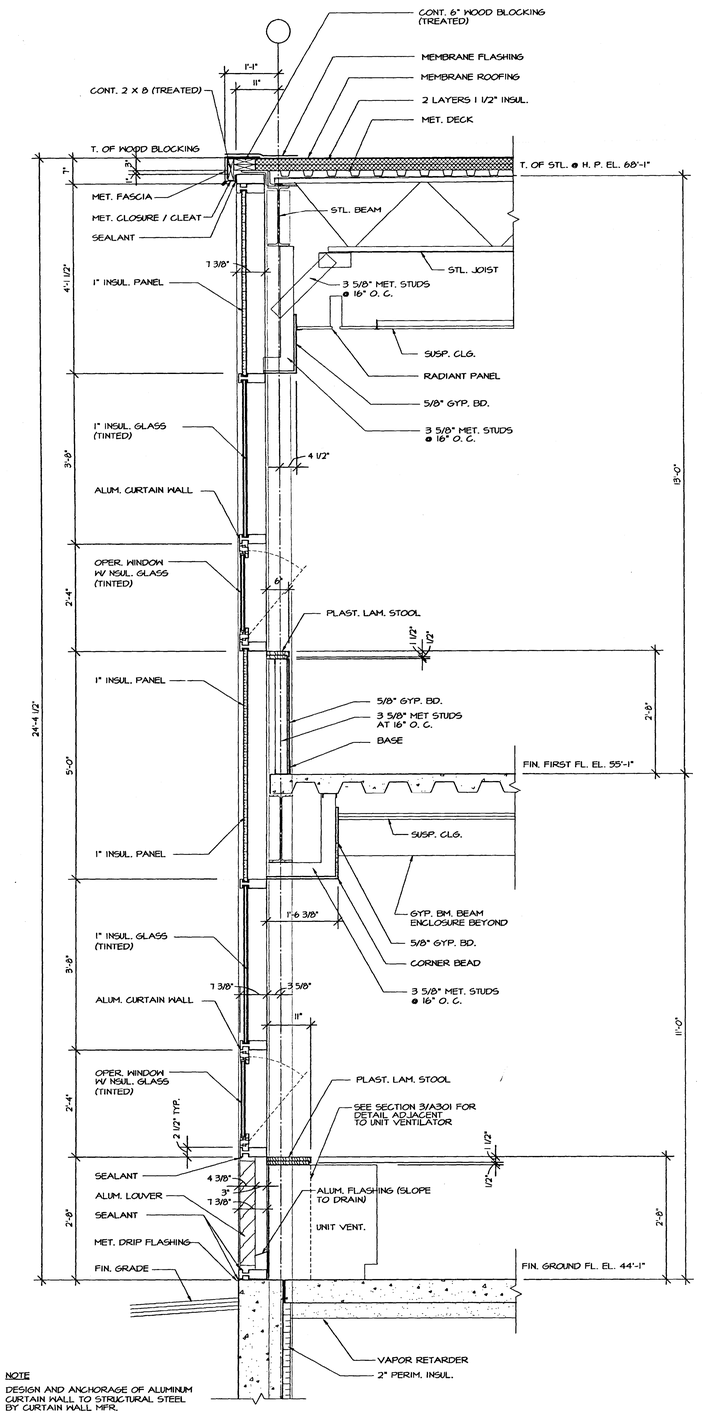
NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: 1/8" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A201

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BQ #70 & 125 Attachment

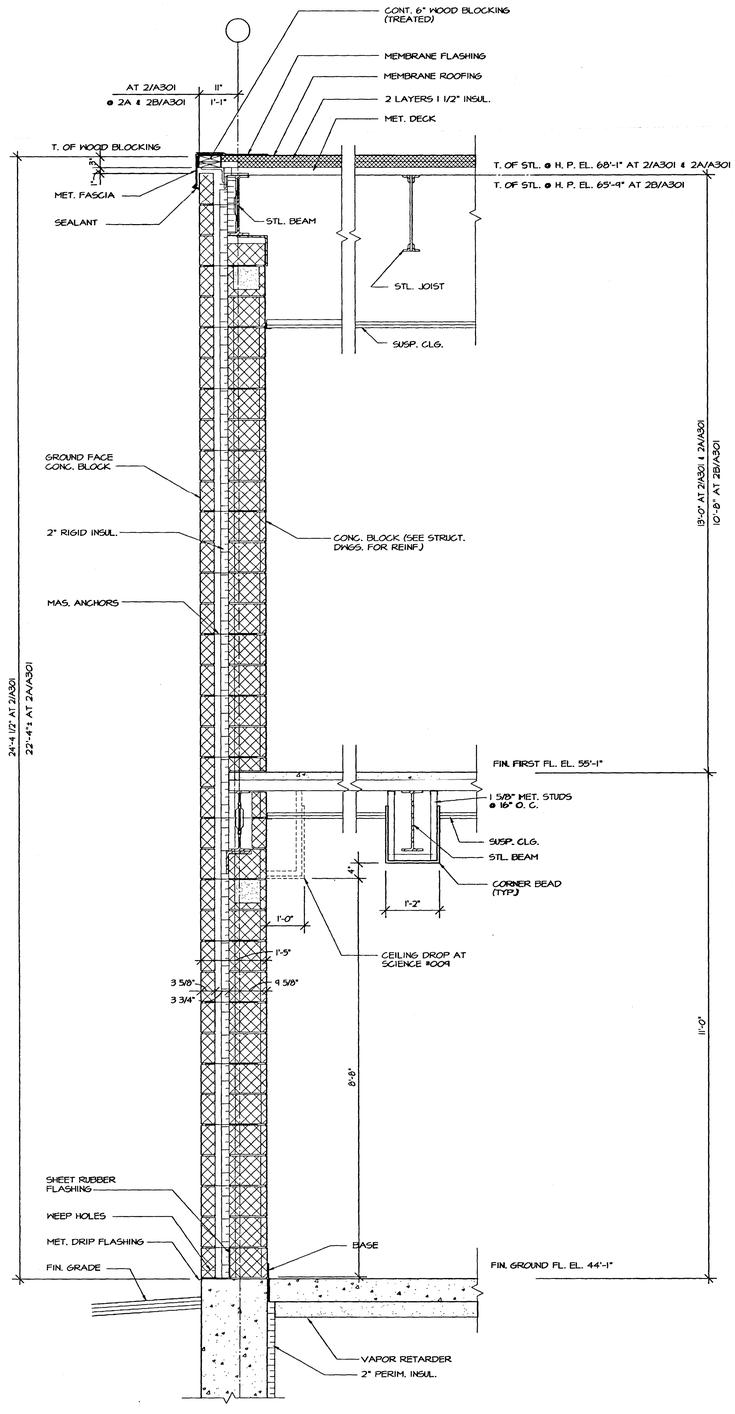


NOTE

DESIGN AND ANCHORAGE OF ALUMINUM CURTAIN WALL TO STRUCTURAL STEEL BY CURTAIN WALL MFR.

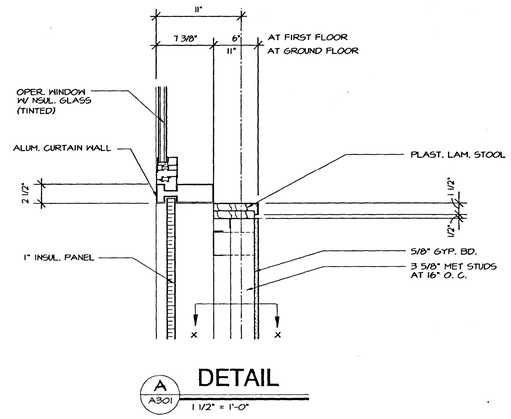
1/A301 SECTION

3/4" = 1'-0"



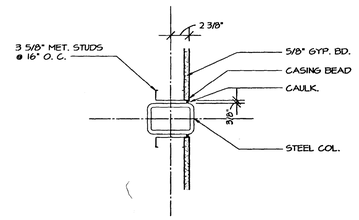
2/A301 & 2A/A301 & 2B/A301 SECTION

3/4" = 1'-0"



A/A301 DETAIL

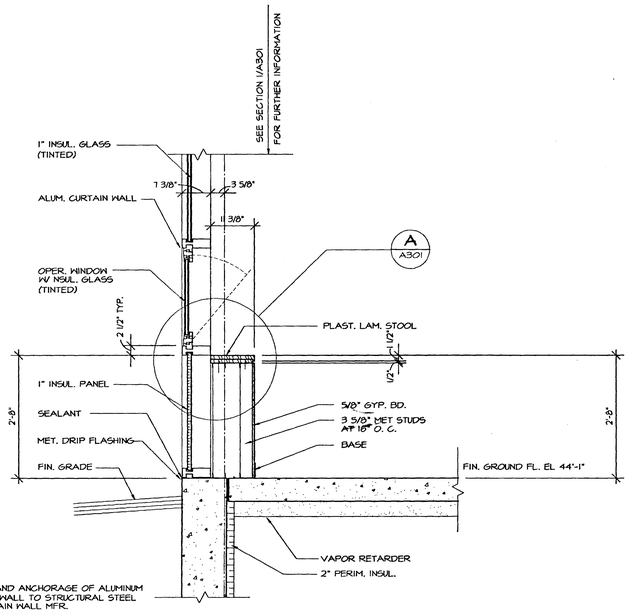
1 1/2" = 1'-0"



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"

This drawing and details on it, as an instrument of service is the property of the architect and may be used for the specific project and shall not be loaned, copied or reproduced without written consent of the architect.

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

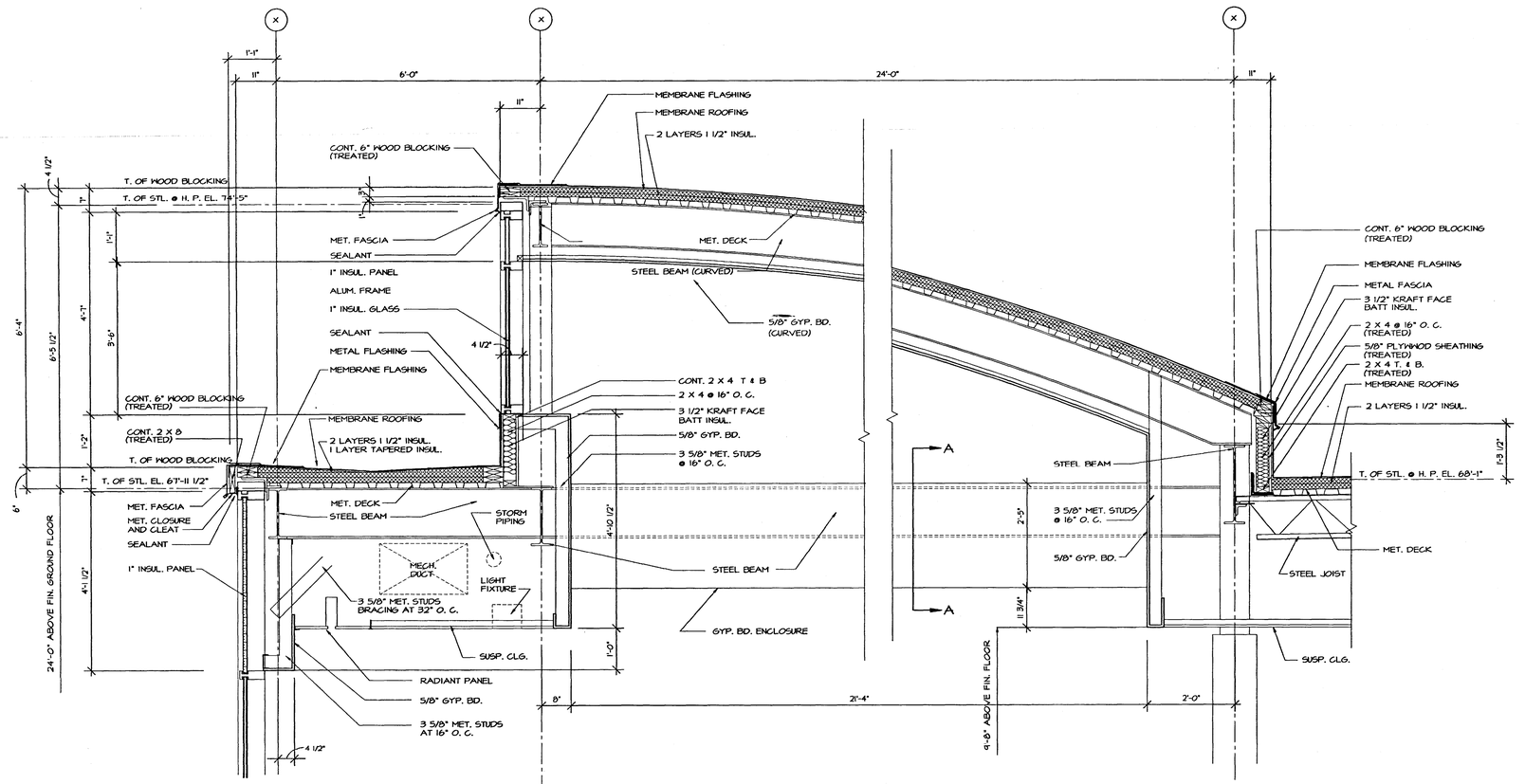
DATE: MARCH 16, 1998

SCALE: AS NOTED

PROJECT NO.: 50950.06

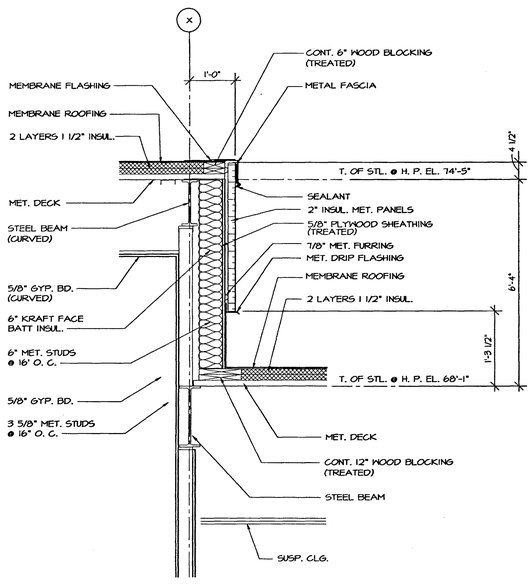
DRAWING NO.: A301

BQ #70 & 125 Attachment



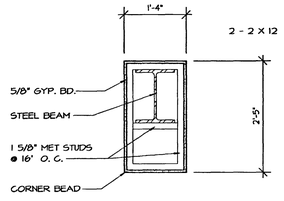
4 / A302 SECTION

3/4" = 1'-0"



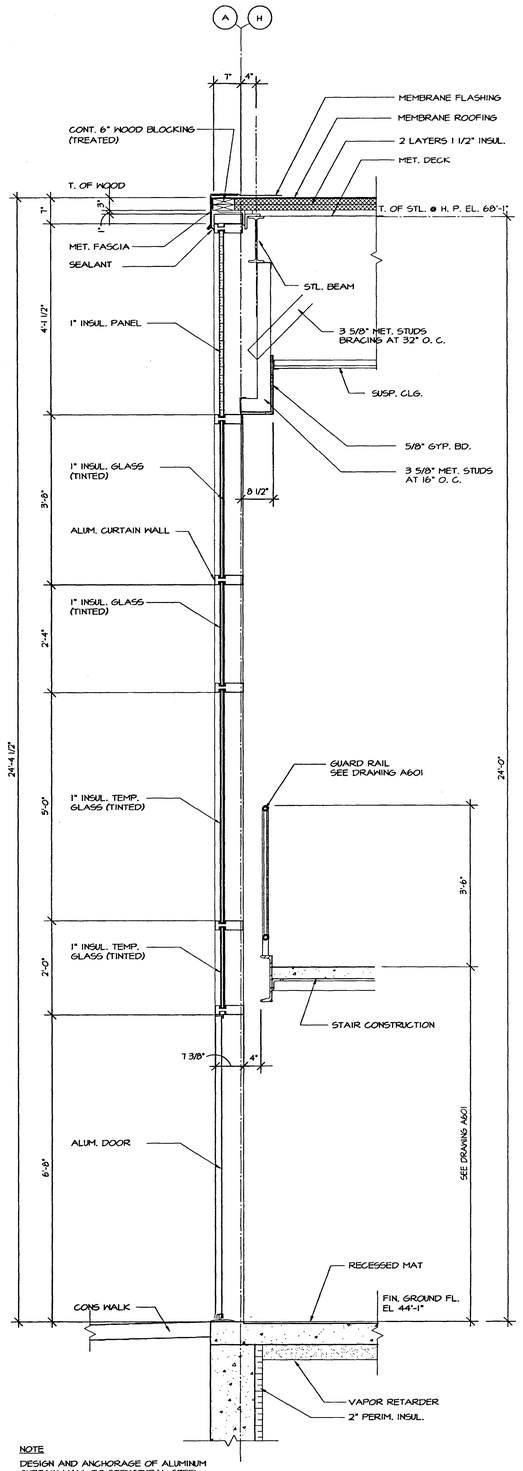
5 / A302 SECTION

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

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

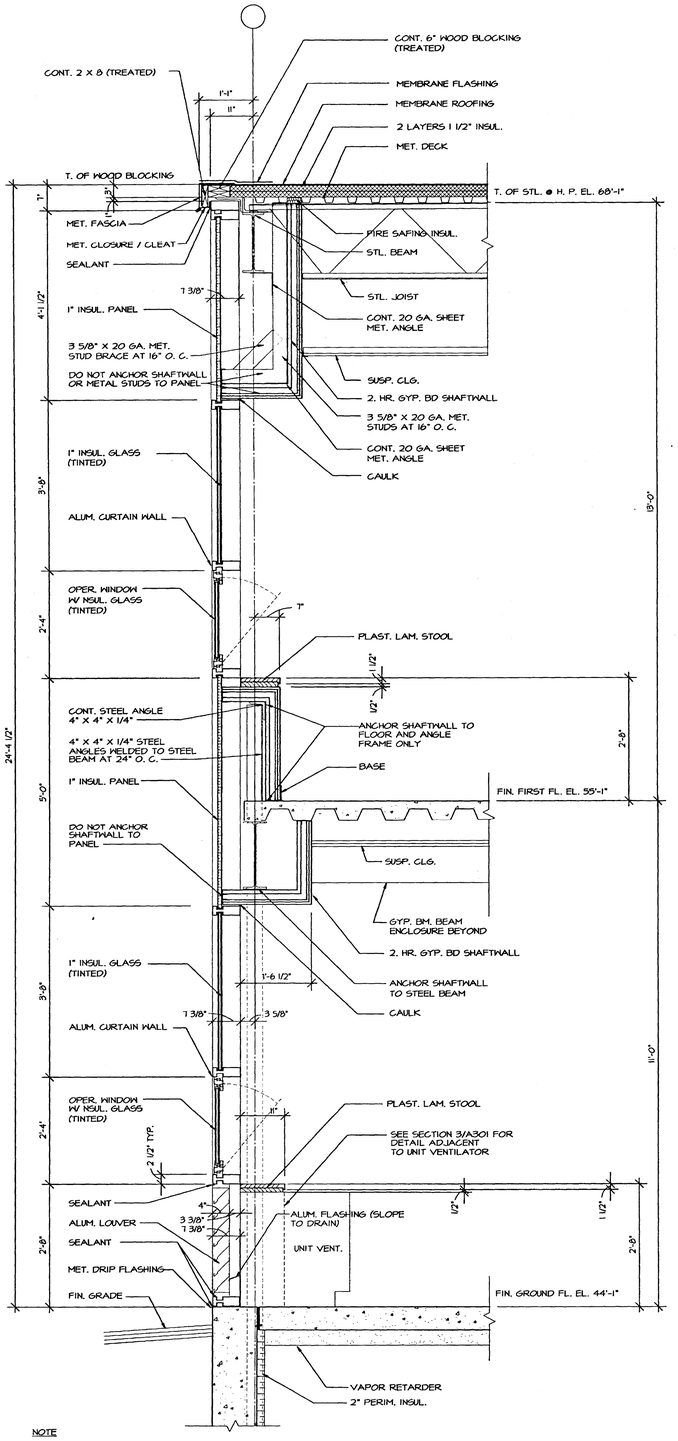
DATE: MARCH 16, 1998

SCALE: 3/4" = 1'-0"

PROJECT NO.: 50950.06

DRAWING NO.: A302

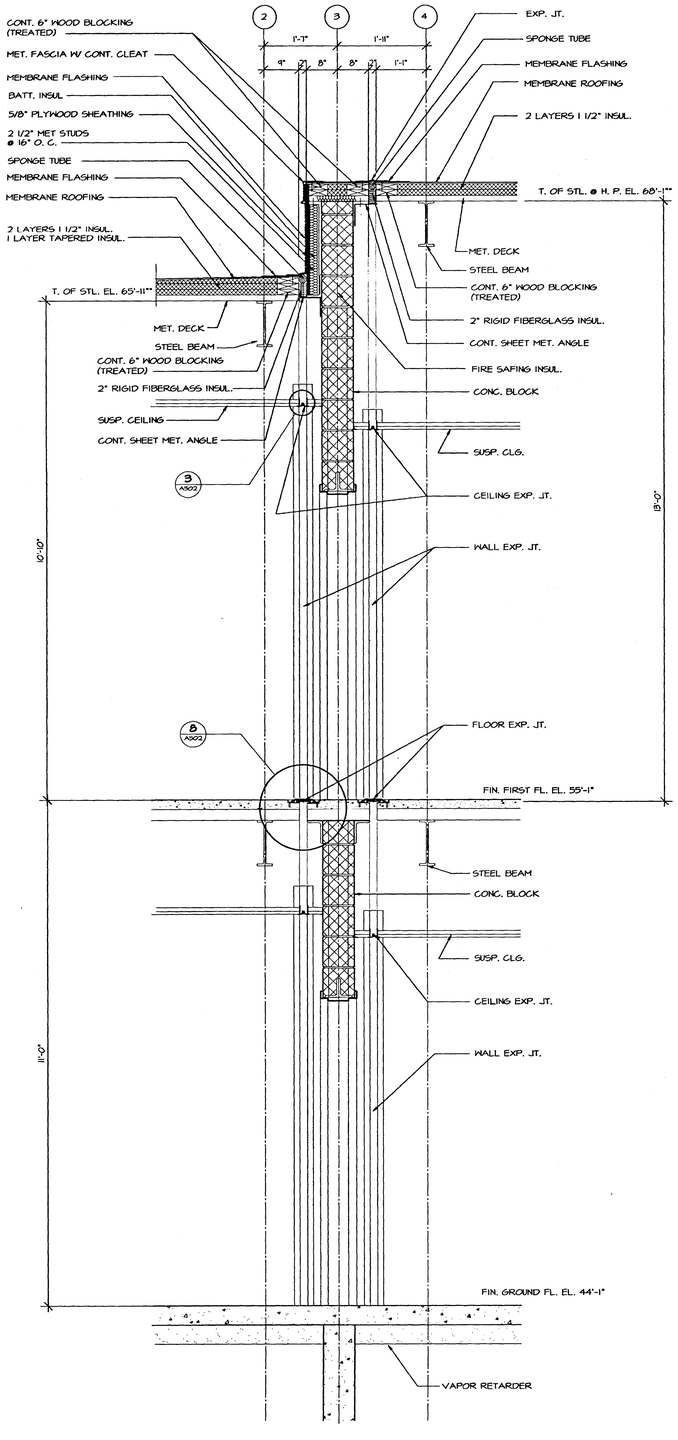
BQ #70 & 125 Attachment



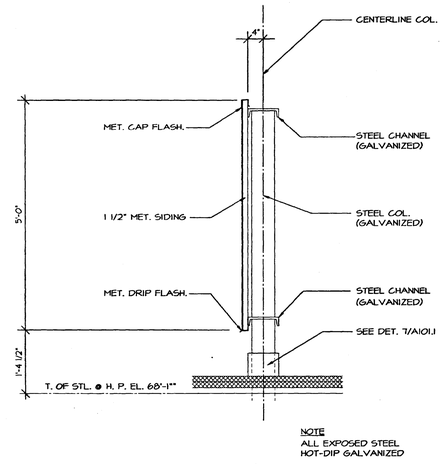
NOTE
DESIGN AND ANCHORAGE OF ALUMINUM CURTAIN WALL TO STRUCTURAL STEEL BY CURTAIN WALL MFR.

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

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CENTRAL MIDDLE SCHOOL
9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

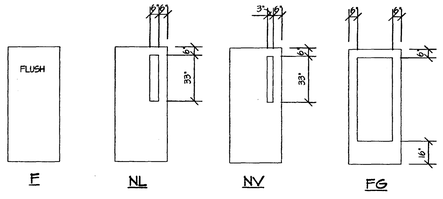
WALL SECTIONS

NO	DATE	REVISION	BY

DATE	MARCH 16, 1998
SCALE	3/4" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	A303

DOOR SCHEDULE

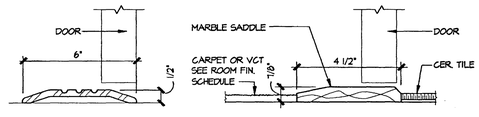
FLOOR DESIGNATION	DRAWING DESIGNATION	DOOR NUMBER	DOOR: DOOR SIZE: DOUBLE LEAF DOOR	4'-0"W X 6'-8"H	3'-0"W X 6'-8"H	14'-0"W X 6'-10"H	3'-0"W X 7'-1 3/4"H	2'-6"W X 6'-8"H	TYPE / MATERIAL: TYPE	MATERIAL	FRAME: DETAIL/SHEET NUMBER: TYPE - SEE FRAME ELEV.	HEAD DETAIL	JAMB DETAIL	SADDLE DETAIL	FIRE RATING: 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

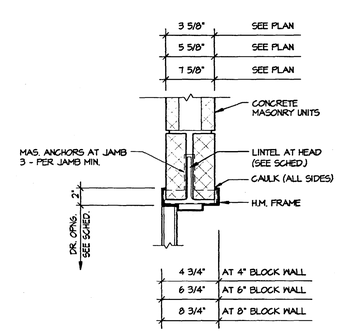
SCALE: 1/4" = 1'-0"



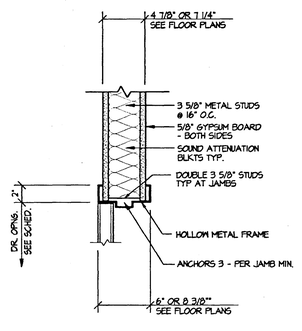
A B

SADDLE TYPES

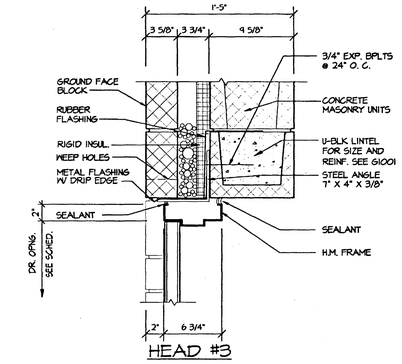
N.T.S.



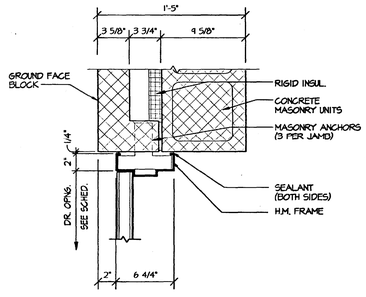
HEAD #1
JAMB #1 SIMILAR



HEAD #2
JAMB #2 SIMILAR



HEAD #3

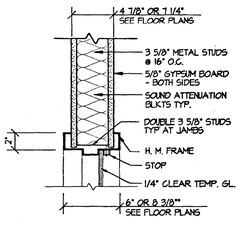


JAMB #4

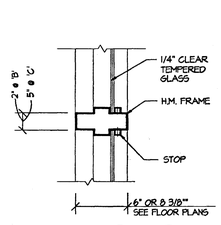
HEAD & JAMB DETAILS

SCALE: 1 1/2" = 1'-0"

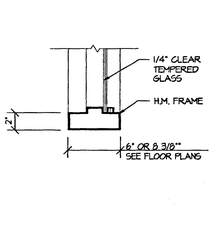
BQ #70 & 125 Attachment



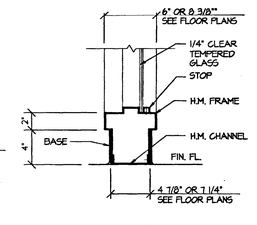
DET. A



DET. B & C



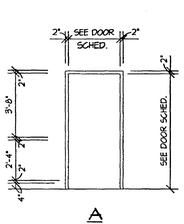
DET. D



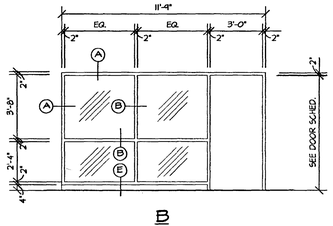
DET. E

FRAME DETAILS

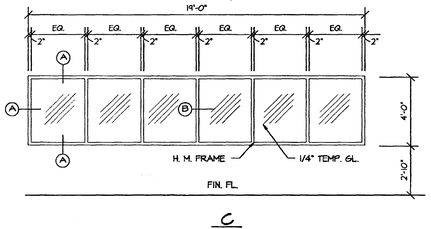
SCALE: 1 1/2" = 1'-0"



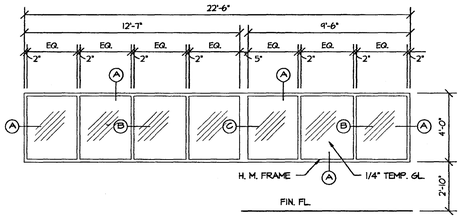
A



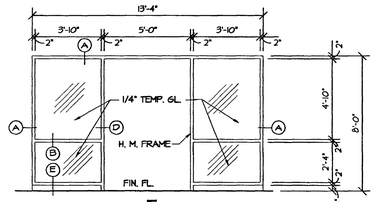
B



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

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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

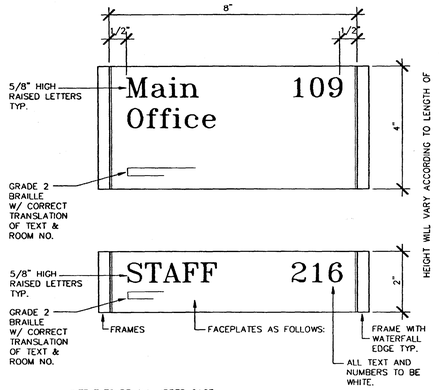
DATE: **MARCH 16, 1998**

SCALE: **AS NOTED**

PROJECT NO.: **50950.06**

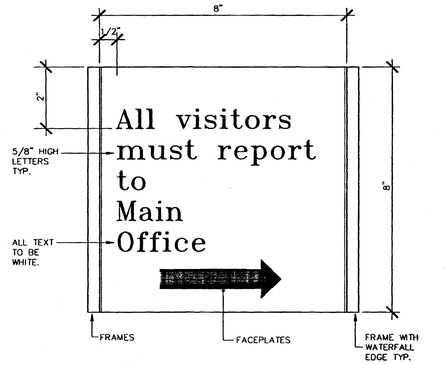
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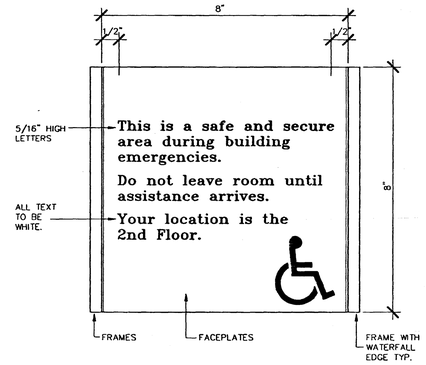
- TEXT TO BE ALL UPPER CASE.
- ROOM NAME TO BE LEFT JUSTIFIED, ROOM NUMBER TO BE RIGHT JUSTIFIED.
- TEXT SHOWN ON THIS SHEET ARE NOT REPRESENTATIVE OF ANY ACTUAL SIGN. REFER TO SCHEDULE FOR MESSAGES.
- COORDINATE WITH OWNER ACTUAL NUMBERS OF ROOMS.

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.

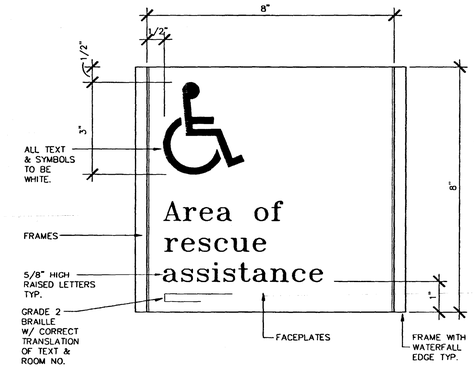
SIGN TYPE B



- TEXT TO BE ALL UPPER AND LOWER CASE AS SHOWN.
- TEXT SHOWN IS REPRESENTATIVE OF ACTUAL SIGN MESSAGE

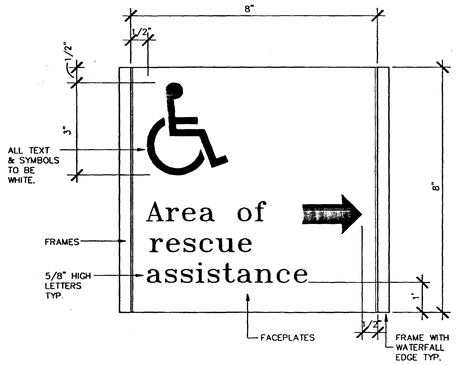
SIGN TYPE C

BQ #70 & 125 Attachment



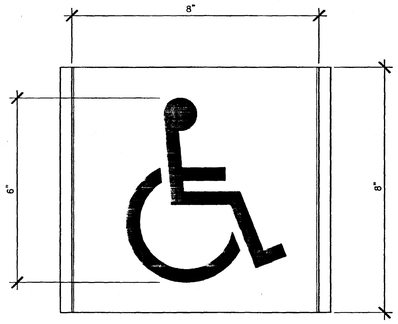
- TEXT TO BE ALL UPPER AND LOWER CASE AS SHOWN.
- TEXT TO BE RIGHT JUSTIFIED.
- TEXT SHOWN IS REPRESENTATIVE OF ACTUAL SIGN MESSAGE.

SIGN TYPE D

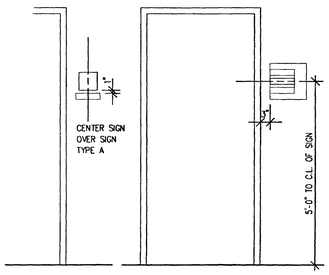


- TEXT TO BE ALL UPPER AND LOWER CASE AS SHOWN.
- TEXT TO BE RIGHT JUSTIFIED.
- SEE FLOOR PLAN FOR ARROW DIRECTION.

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

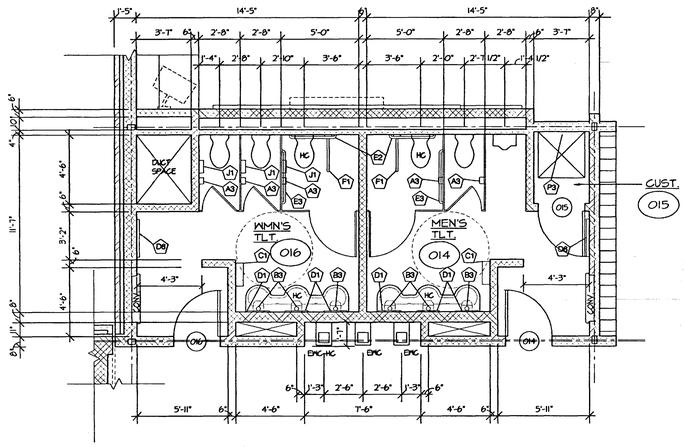
SCALE: N. T. S.

PROJECT NO.: 50950.06

DRAWING NO.: A411

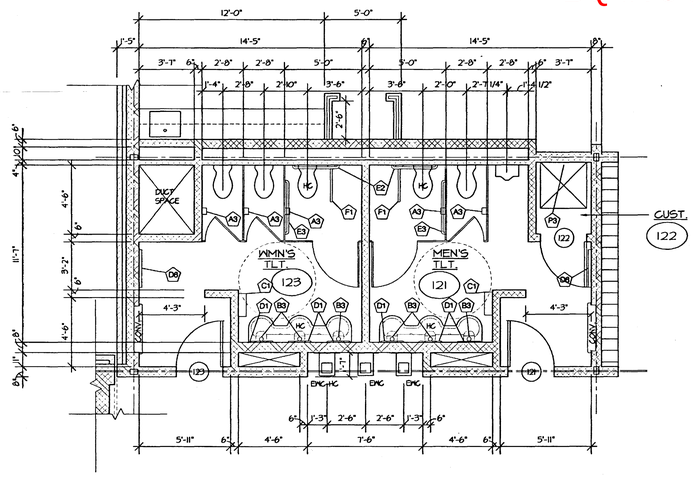
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BQ #70 & 125 Attachment



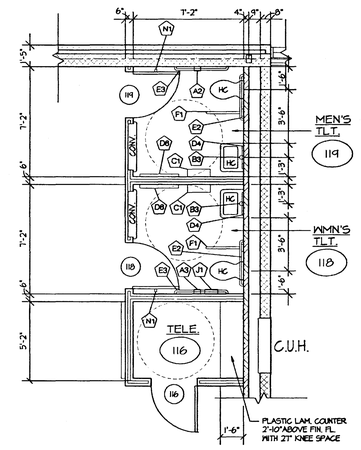
1 A501 PLAN AT TOILET ROOMS #014 & #016

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

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PROJECT TITLE

ADDITIONS AND RENOVATIONS TO

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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**

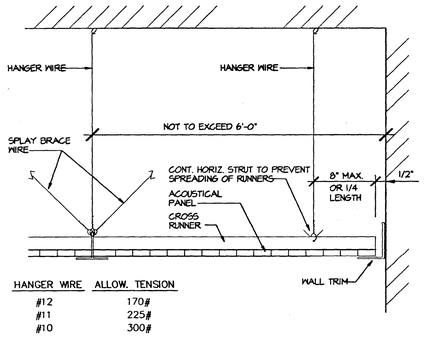
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PROJECT NO.: **50950.06**

DRAWING NO.: **A501**

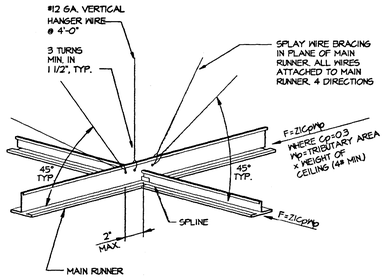
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BQ #70 & 125 Attachment

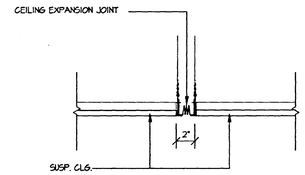


HANGER WIRE	ALLOW. TENSION
#12	170#
#11	225#
#10	300#

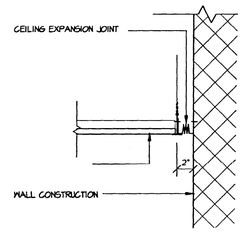
1 A502 CEILING BRACING DETAIL
SCALE 1 1/2" = 1'-0"



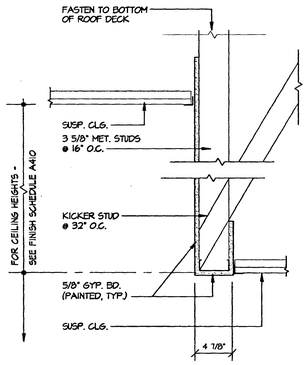
2 A502 CEILING BRACING DETAIL
SCALE 1 1/2" = 1'-0"



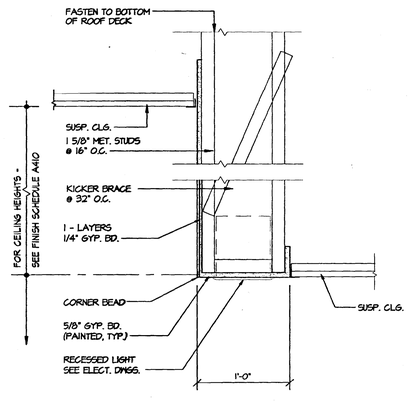
3 A502 CEILING EXP. JT. DETAIL
SCALE 3/4" = 1'-0"



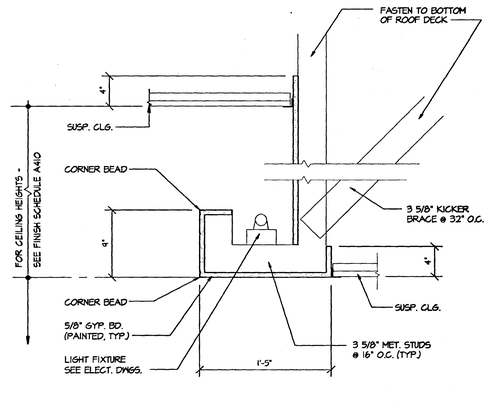
4 A502 CEILING EXP. JT. DETAIL
SCALE 3/4" = 1'-0"



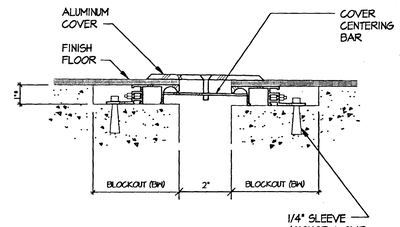
5 A502 CEILING DROP DETAIL
SCALE 1 1/2" = 1'-0"



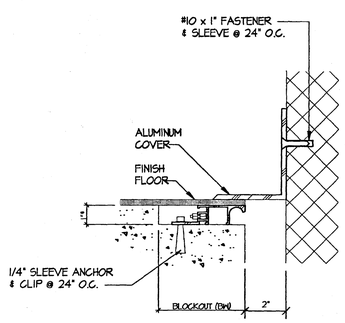
6 A502 CLG. DROP DET. @ MEDIA CENTER CIRCULATION DESK
SCALE 1 1/2" = 1'-0"



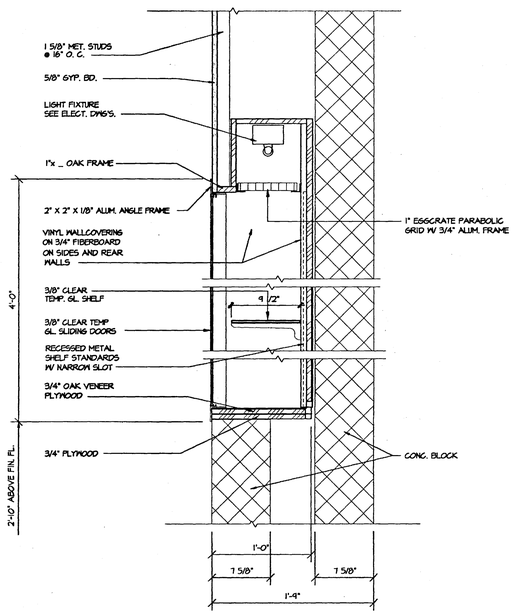
7 A502 CLG. DROP DET. @ GALLERY #120
SCALE 1 1/2" = 1'-0"



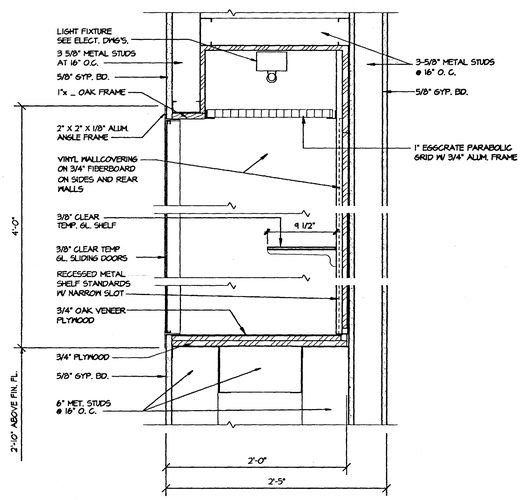
8 A502 SEISMIC FLOOR EXP. JT. DETAIL
SCALE 3"=1'-0"



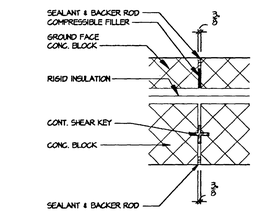
9 A502 SEISMIC FLOOR EXP. JT. AT WALL DETAIL
SCALE 3"=1'-0"



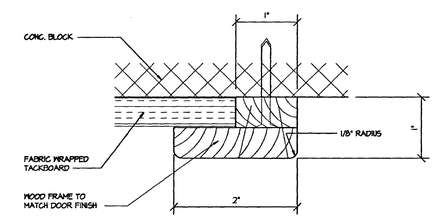
10 A502 DISPLAY CASE DETAIL IN CORRIDOR #002
SCALE 1 1/2" = 1'-0"



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

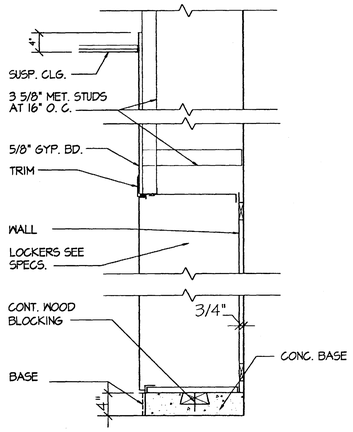
DRAWING TITLE

MISCELANEOUS DETAILS

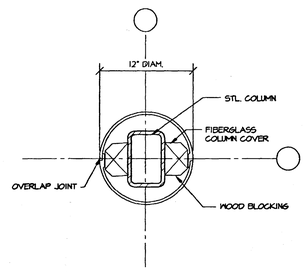
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DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: A502

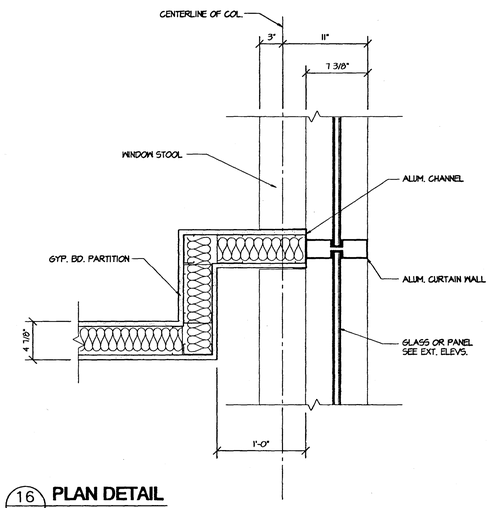
BQ #70 & 125 Attachment



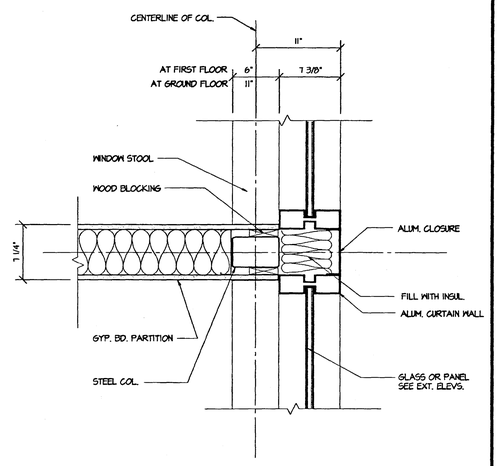
14 A503 **TYP. LOCKER DETAIL**
SCALE 1 1/2" = 1'-0"



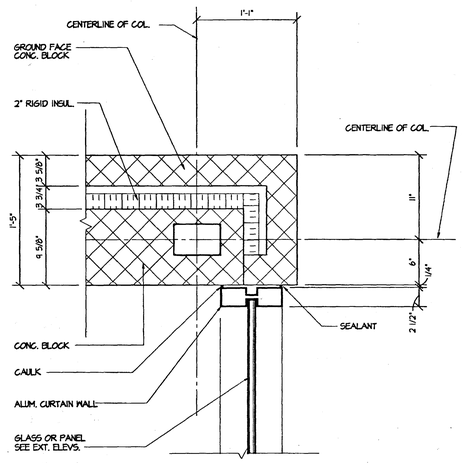
15 A503 **FIBERGLASS COLUMN COVER**
SCALE 1 1/2" = 1'-0"



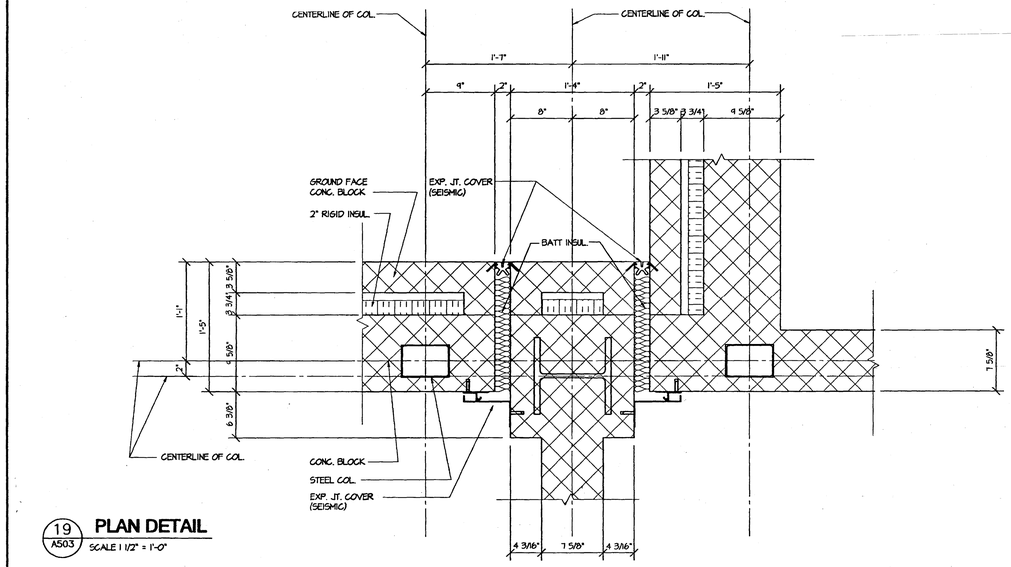
16 A503 **PLAN DETAIL**
SCALE 1 1/2" = 1'-0"



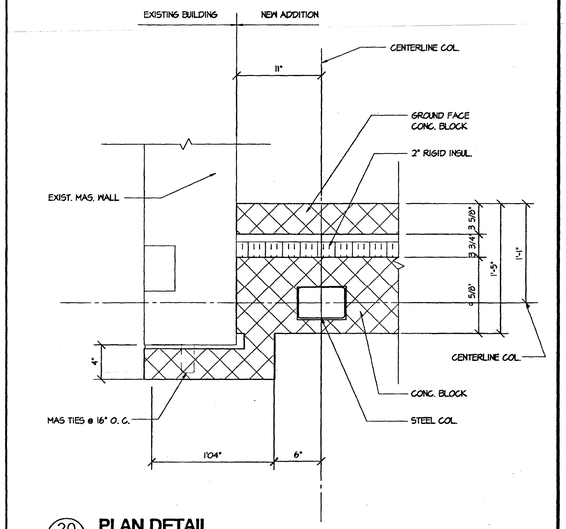
17 A503 **PLAN DETAIL**
SCALE 1 1/2" = 1'-0"



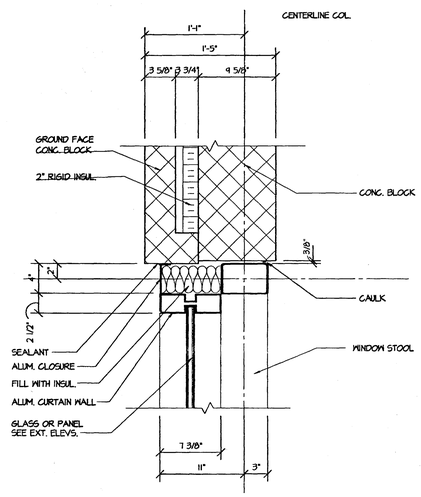
18 A503 **PLAN DETAIL**
SCALE 1 1/2" = 1'-0"



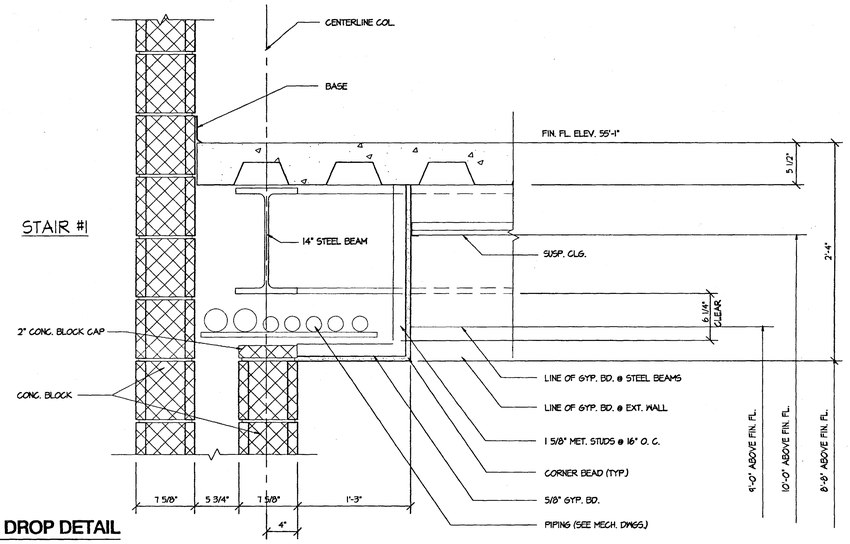
19 A503 **PLAN DETAIL**
SCALE 1 1/2" = 1'-0"



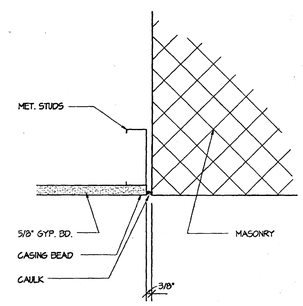
20 A503 **PLAN DETAIL**
SCALE 1 1/2" = 1'-0"



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
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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

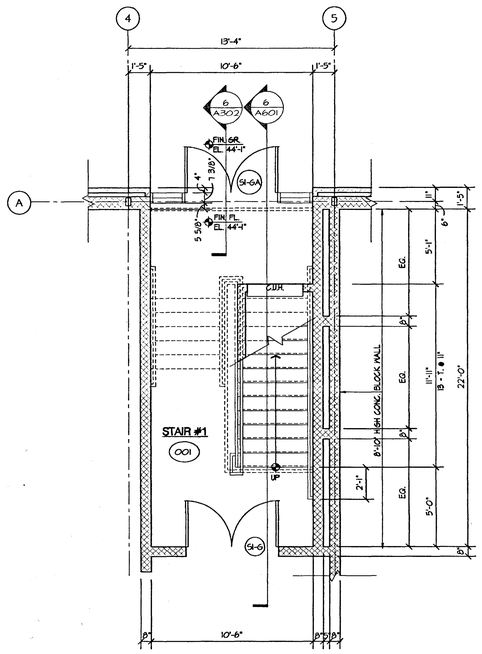
MISCELANEOUS DETAILS

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: **A503**

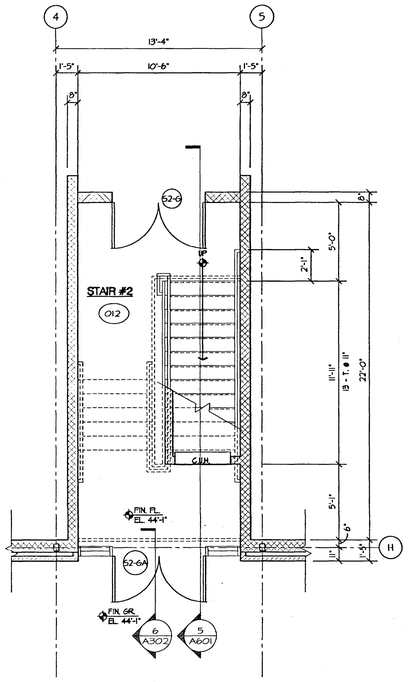
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BQ #70 & 125 Attachment



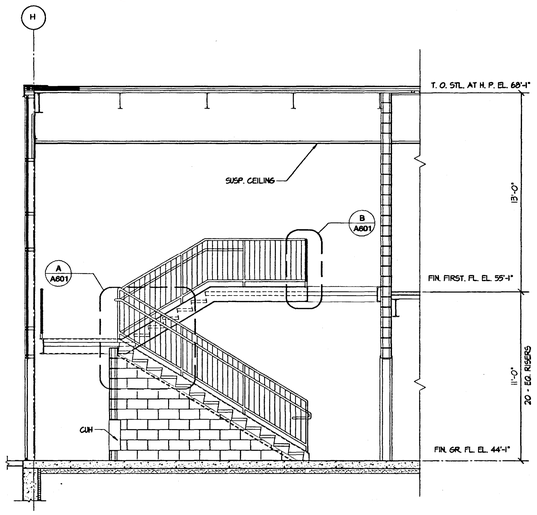
1 A601 STAIR #1 - GROUND FLOOR

1/4" = 1'-0"



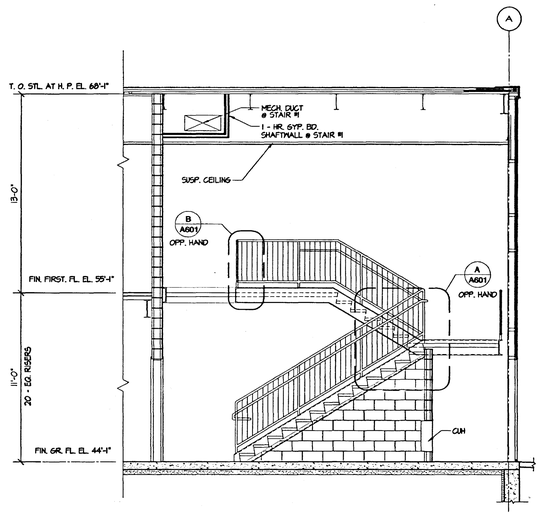
3 A601 STAIR #2 - GROUND FLOOR

1/4" = 1'-0"



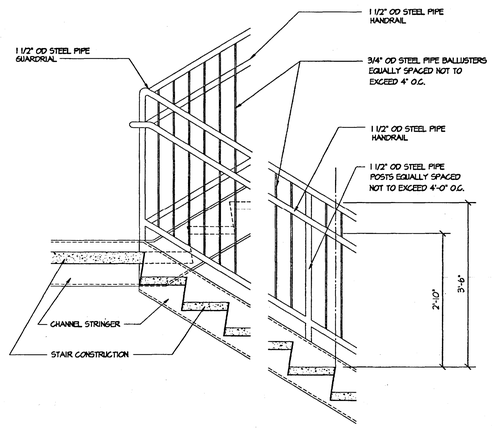
5 A601 SECTION - STAIR #2

1/4" = 1'-0"



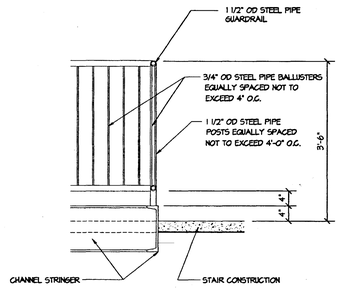
6 A601 SECTION - STAIR #1

1/4" = 1'-0"



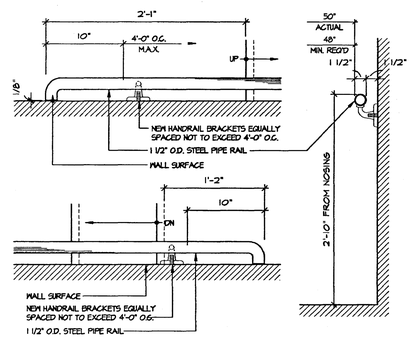
A A601 DETAIL

3/4" = 1'-0"



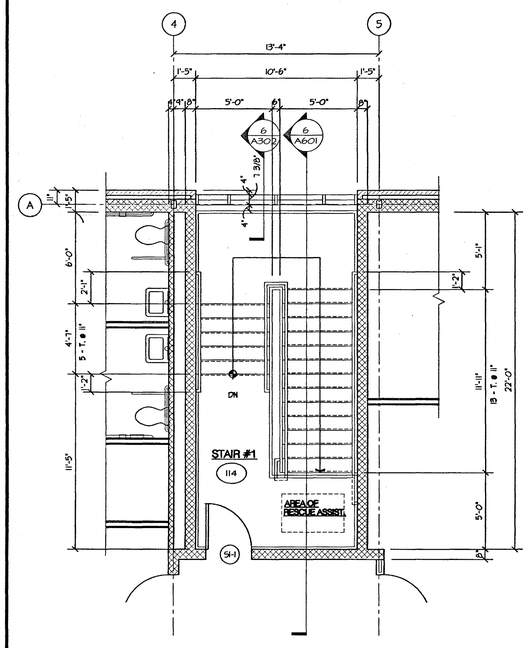
B A601 DETAIL

3/4" = 1'-0"



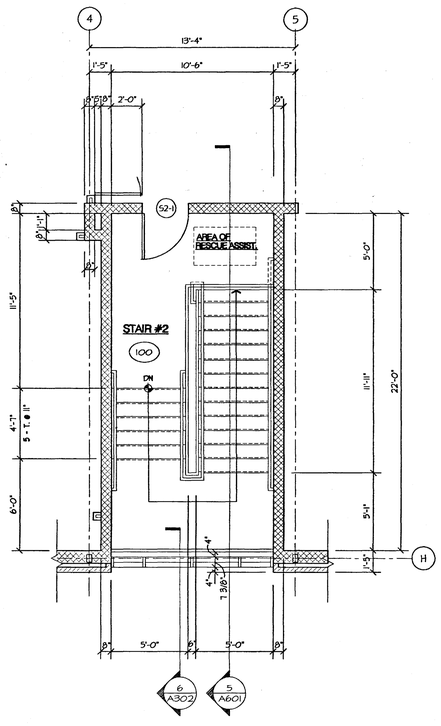
C A601 TYPICAL HANDRAIL DETAIL

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

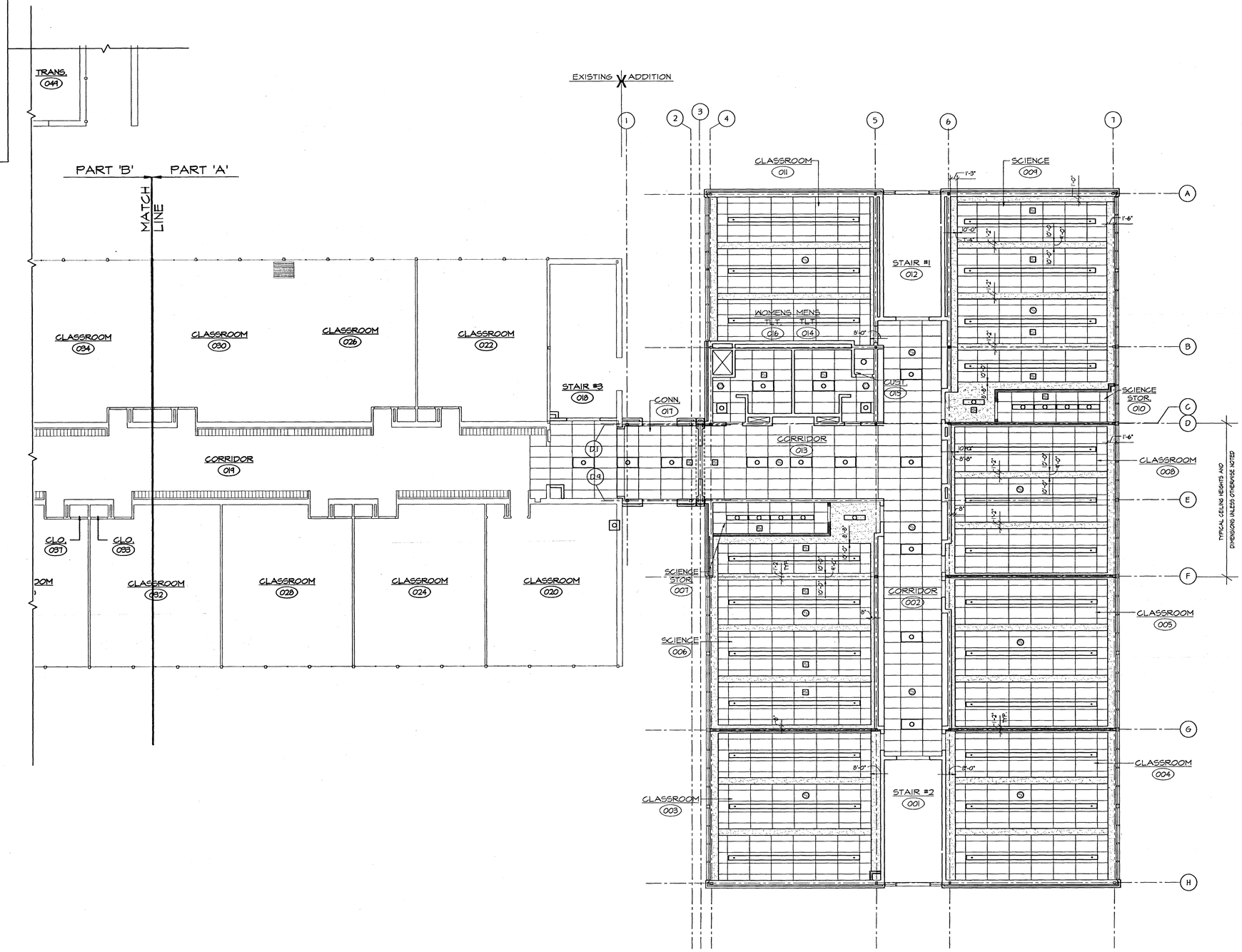
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BQ #70 & 125 Attachment

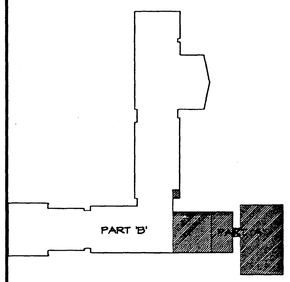
LEGEND

- 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

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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 REFLECTED CEILING PLAN - PART "A"

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

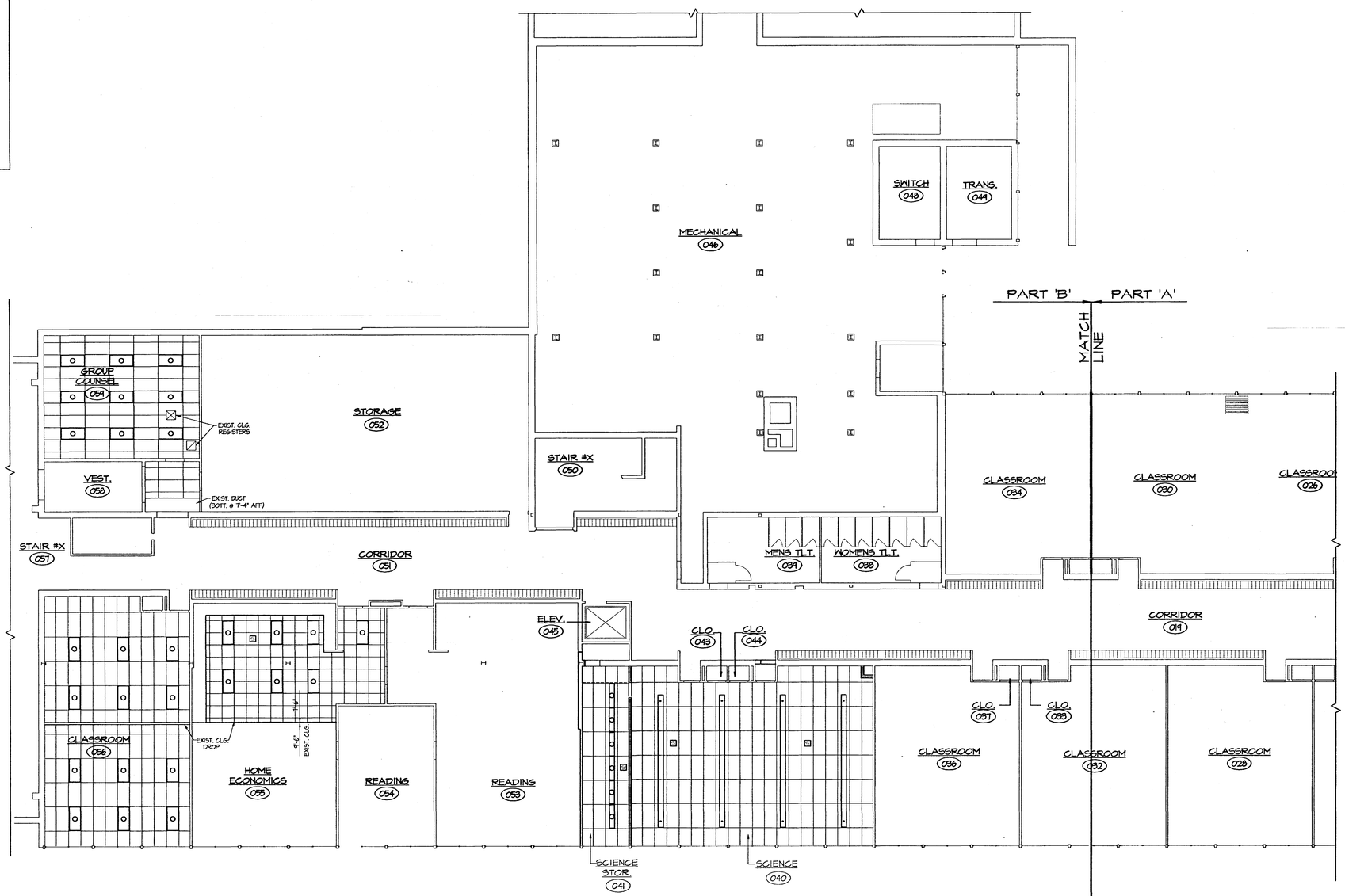
NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: 1/8" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A700.1

BQ #70 & 125 Attachment

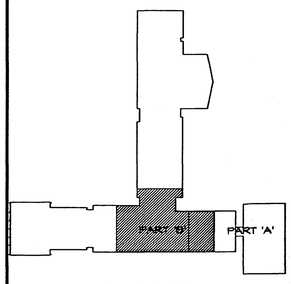
LEGEND

- 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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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

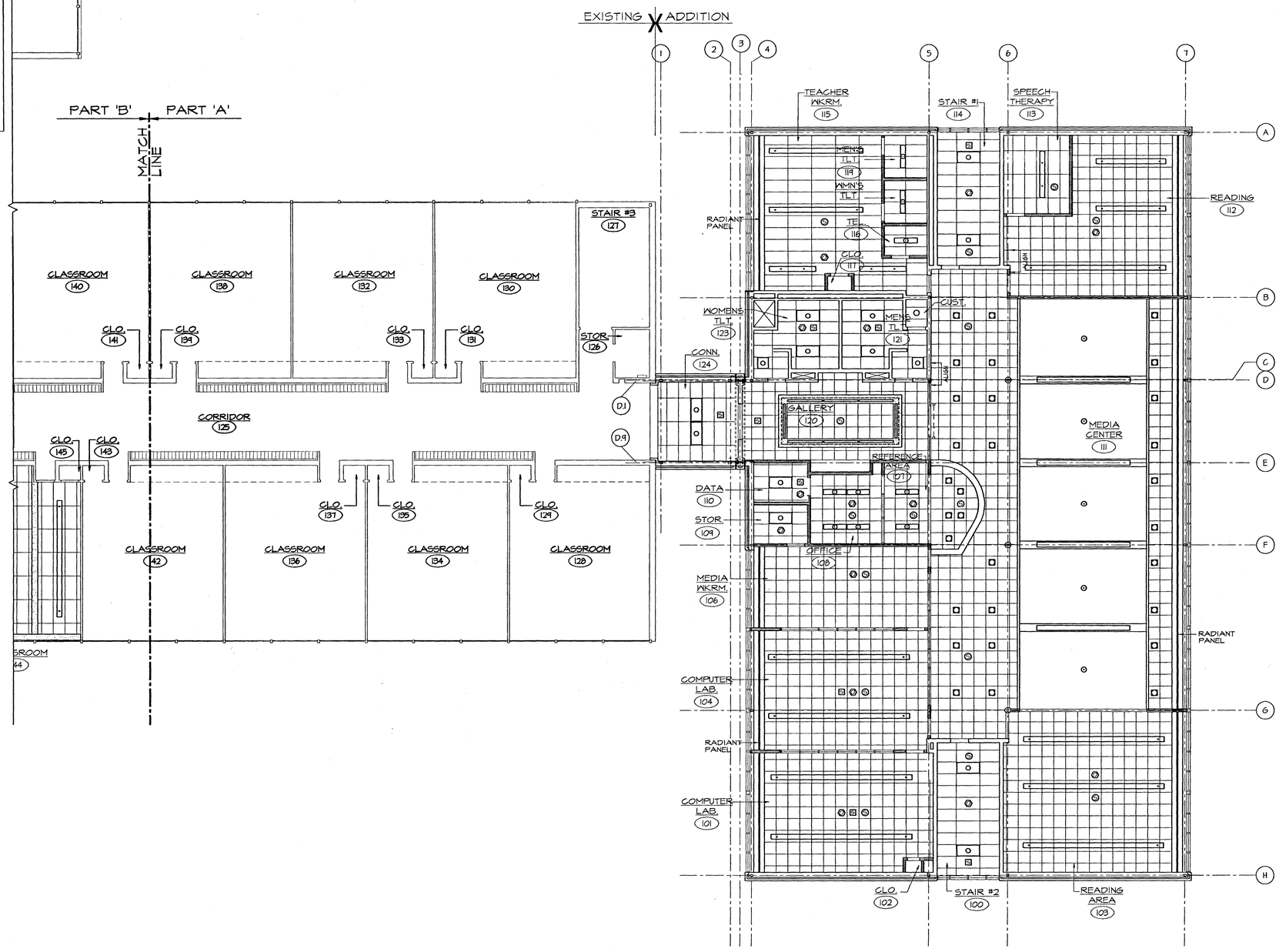
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PROJECT NO.	50950.06
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BQ #70 & 125 Attachment

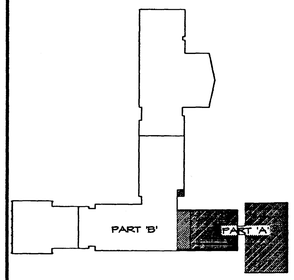
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- LIGHT FIXTURES (SEE ELECTRICAL DWGS)
- DIFFUSERS, REGISTERS, GRILLES (SEE HVAC DWGS)
- SPRINKLER
- EXIT SIGN
- SPEAKER
- SMOKE DETECTOR
- HEAT DETECTOR
- OCCUPANCY SENSOR
- POWER REEL
- E.I.F.S.
- RELOCATED EXISTG TRACKS
- ACOUSTICAL SUSPENDED CEILING
- 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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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

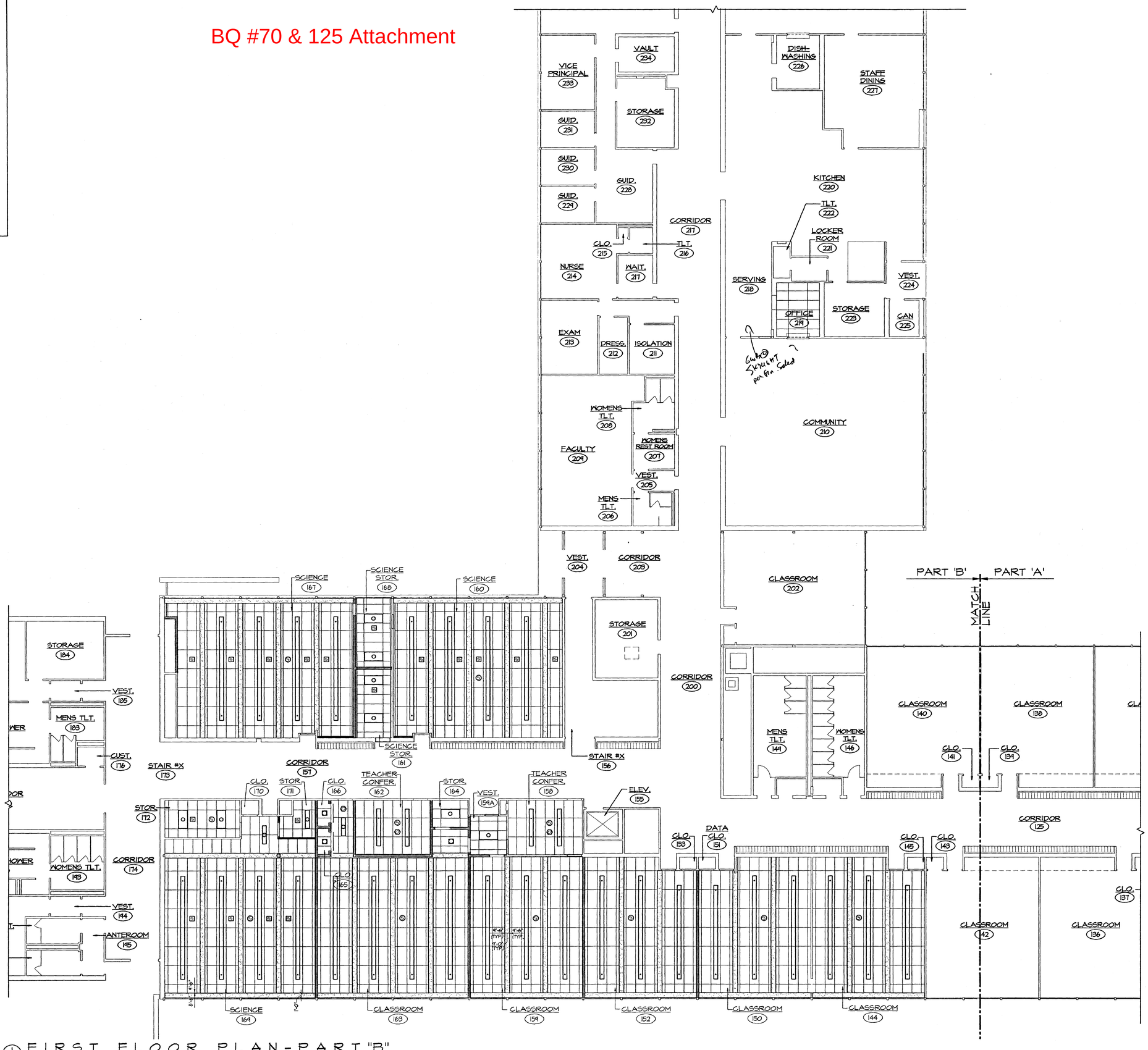
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SCALE	1/8" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	A701.1

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BQ #70 & 125 Attachment

LEGEND

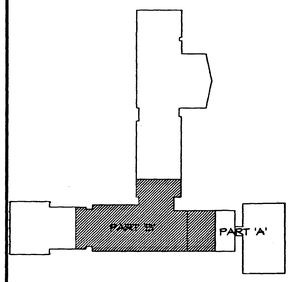
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- DIFFUSERS, REGISTERS, GRILLES (SEE HVAC DWGS)
- SPRINKLER
- EXIT SIGN
- SPEAKER
- SMOKE DETECTOR
- HEAT DETECTOR
- OCCUPANCY SENSOR
- POWER REEL
- E.I.F.S.
- RELOCATED EXISTG TRACKS
- ACOUSTICAL SUSPENDED CEILING
- GYPSUM BOARD



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.
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9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

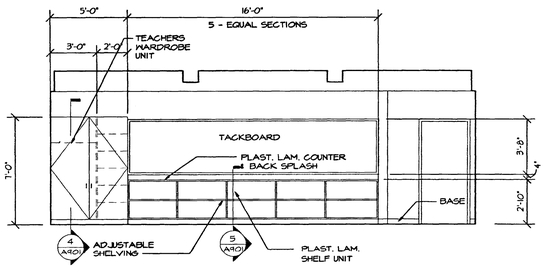
FIRST FLOOR REFLECTED CEILING PLAN - PART "B"

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

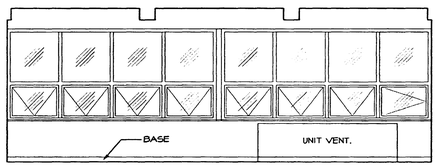
NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: 1/8" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A701.2

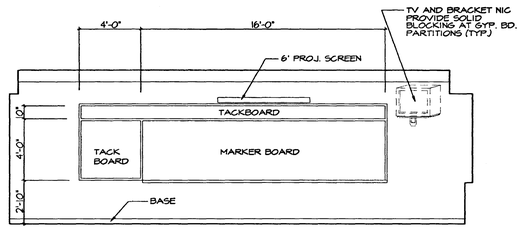
BQ #70 & 125 Attachment



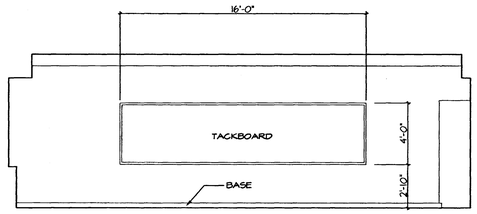
1 A801 CLASSROOM
1/4" = 1'-0"



2 A801 CLASSROOM
1/4" = 1'-0"

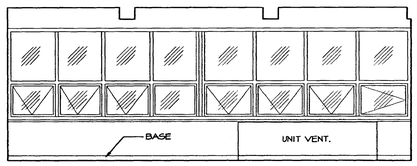


3 A801 CLASSROOM
1/4" = 1'-0"

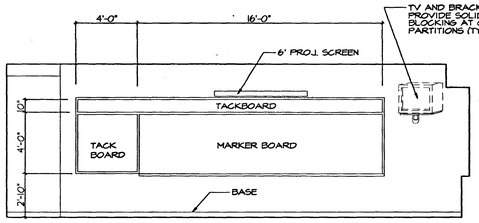


4 A801 CLASSROOM
1/4" = 1'-0"

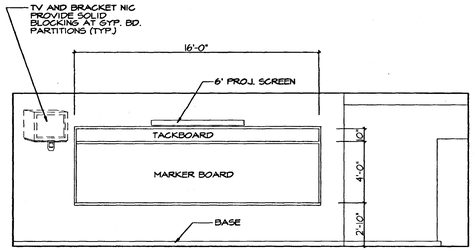
DRIP PAN



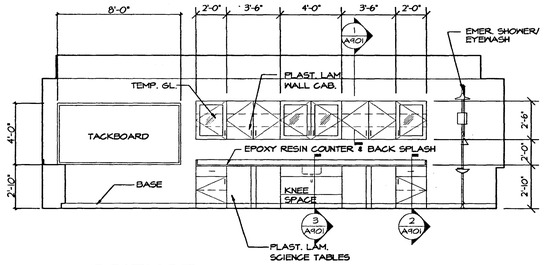
5 A801 CLASSROOM
1/4" = 1'-0"



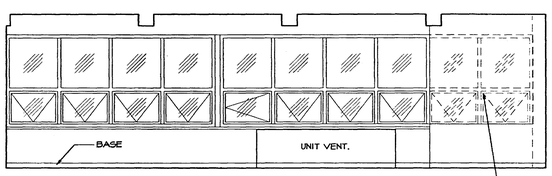
6 A801 CLASSROOM
1/4" = 1'-0"



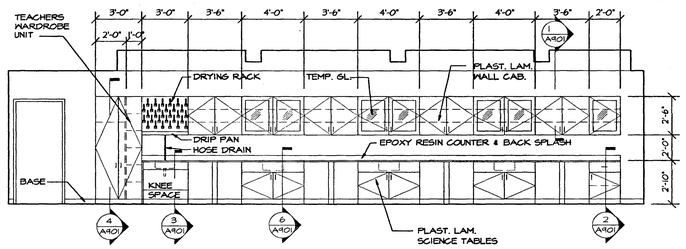
7 A801 SCIENCE
1/4" = 1'-0"



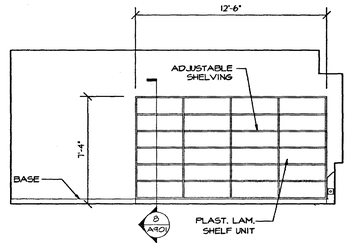
8 A801 SCIENCE
1/4" = 1'-0"



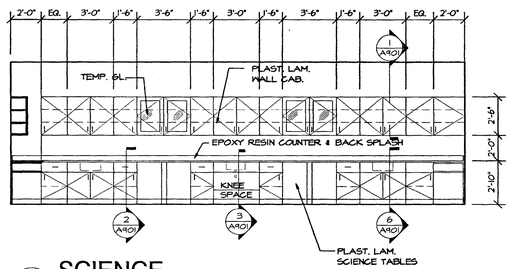
9 A801 & 9A A801 SCIENCE
1/4" = 1'-0"



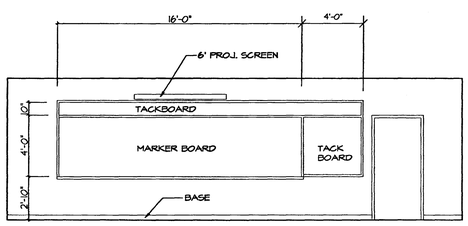
10 A801 SCIENCE
1/4" = 1'-0"



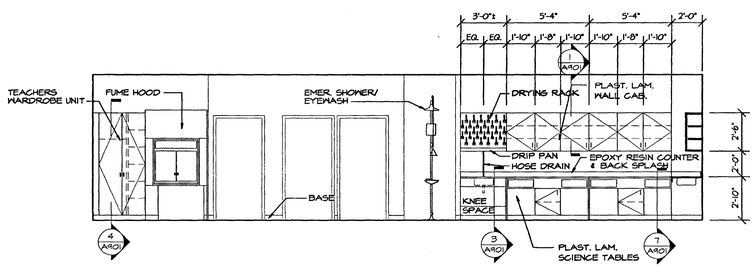
11 A801 SCIENCE STOR.
1/4" = 1'-0"



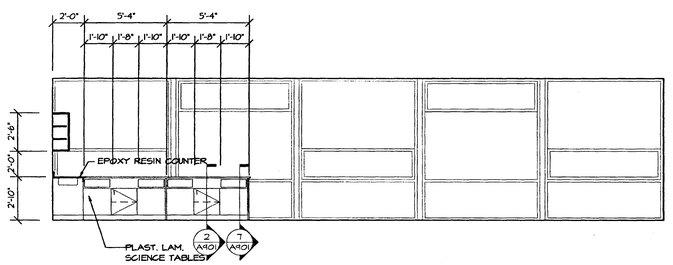
12 A801 SCIENCE
1/4" = 1'-0"



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.

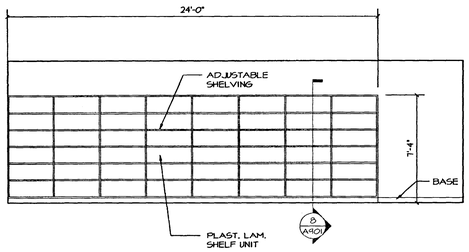
DATE: MARCH 16, 1998

SCALE: 1/4" = 1'-0"

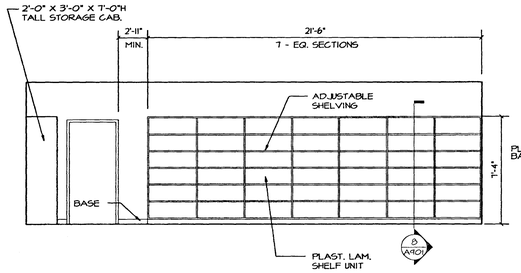
PROJECT NO.: 50950.06

DRAWING NO.: **A801**

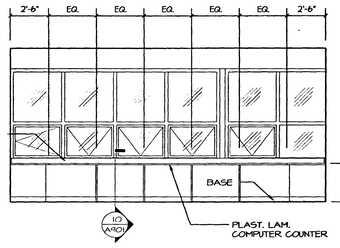
BQ #70 & 125 Attachment



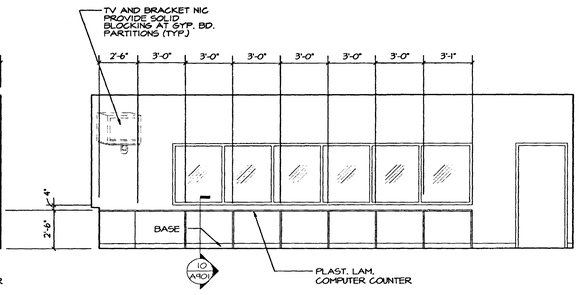
16 A802 STORAGE
1/4" = 1'-0"



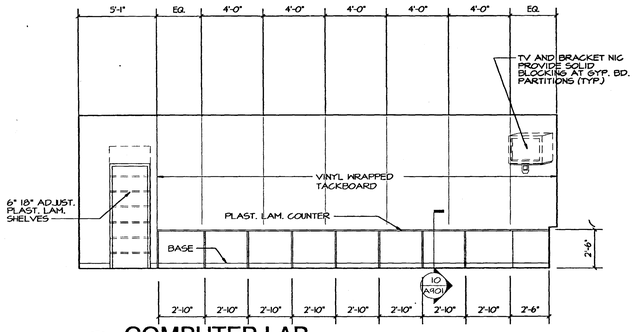
17 A802 STORAGE
1/4" = 1'-0"



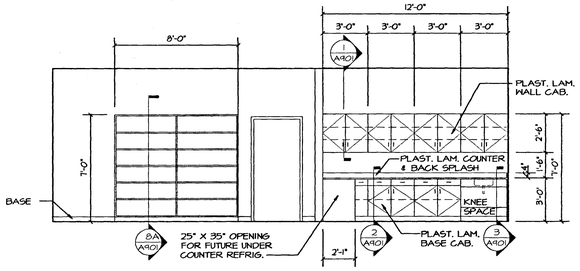
18 A802 COMPUTER LAB
1/4" = 1'-0"



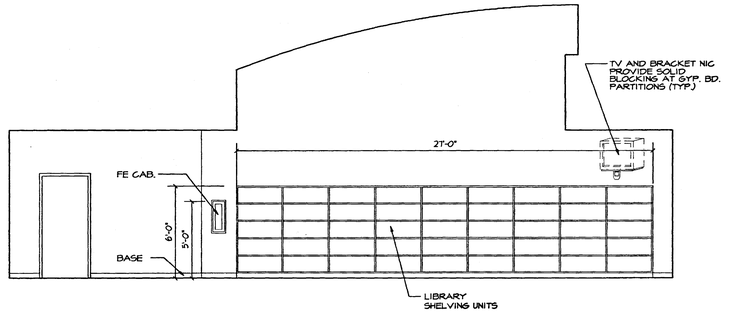
19 A802 COMPUTER LAB
1/4" = 1'-0"



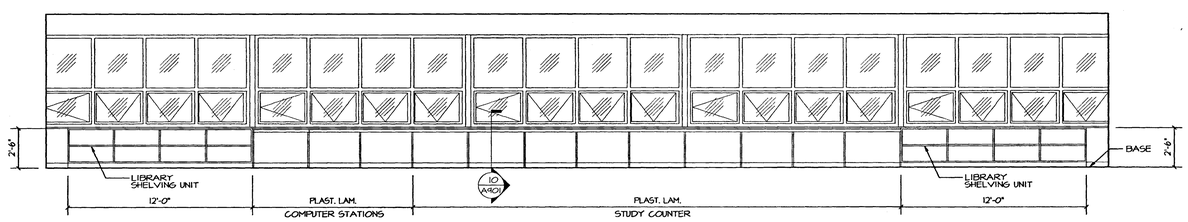
20 A802 COMPUTER LAB
1/4" = 1'-0"



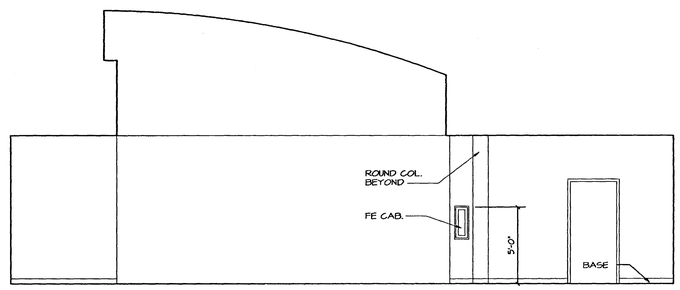
21 A802 TEACHERS WORKROOM
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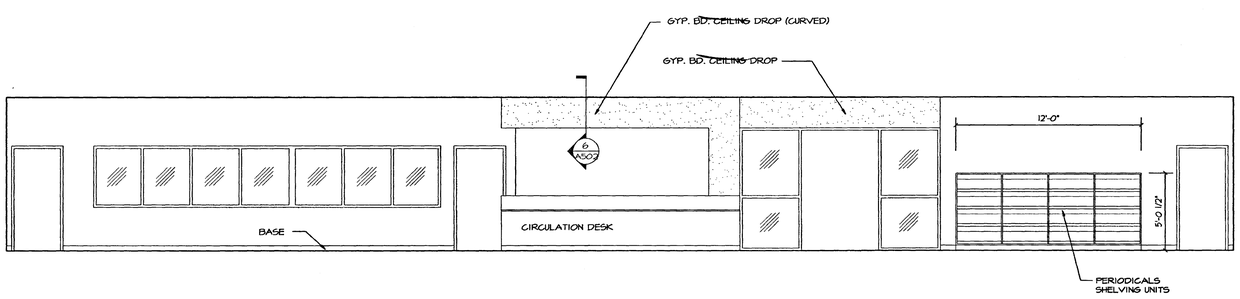
22 A802 MEDIA CENTER
1/4" = 1'-0"



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

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STATE PROJECT NO. 057-106EA

DRAWING TITLE

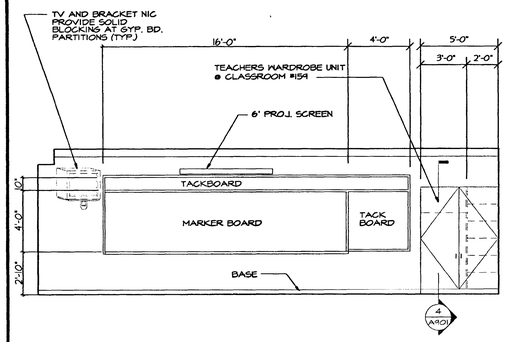
INTERIOR ELEVATIONS

NO	DATE	REVISION	BY

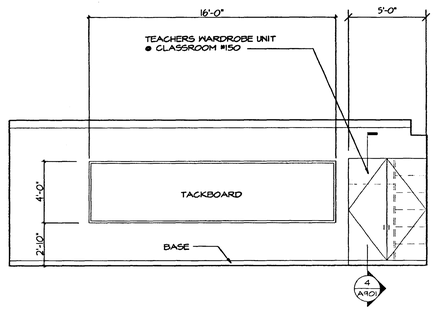
DATE: **MARCH 16, 1998**
SCALE: **1/4" = 1'-0"**
PROJECT NO.: **50950.06**
DRAWING NO.: **A802**

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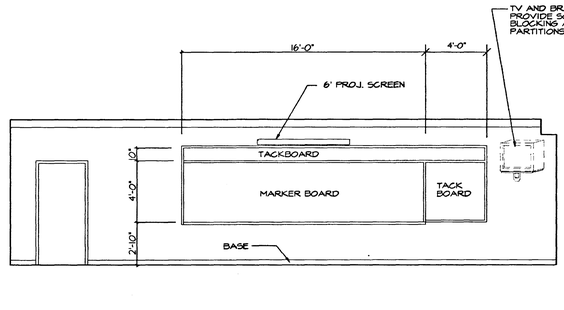
BQ #70 & 125 Attachment



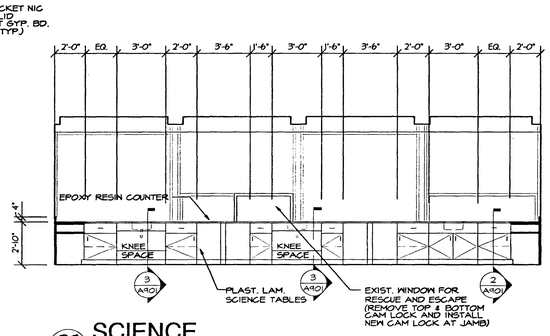
26 A803 CLASSROOM
1/4" = 1'-0"



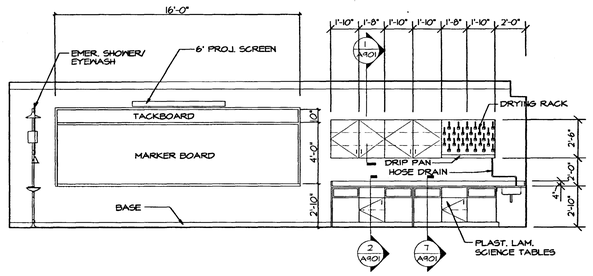
27 A803 CLASSROOM
1/4" = 1'-0"



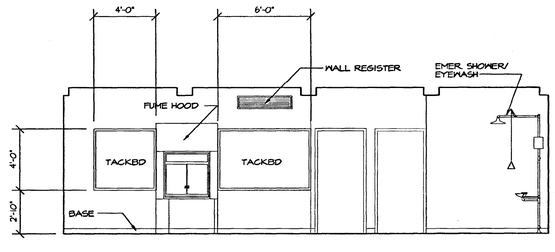
28 A803 CLASSROOM
1/4" = 1'-0"



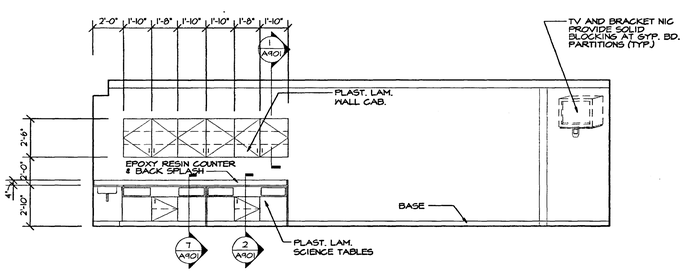
29 A803 SCIENCE
1/4" = 1'-0"



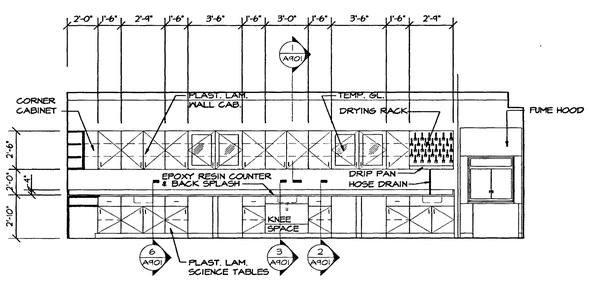
30 A803 SCIENCE
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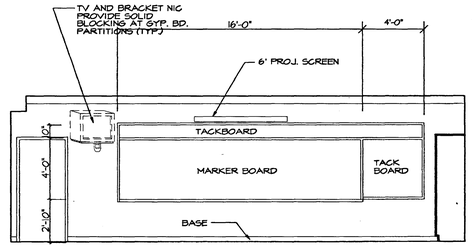
31 A803 SCIENCE
1/4" = 1'-0"



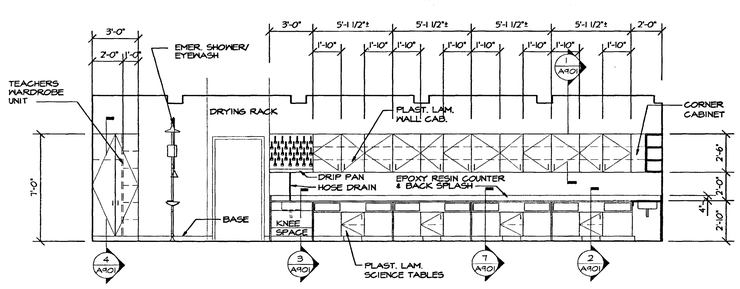
32 A803 SCIENCE
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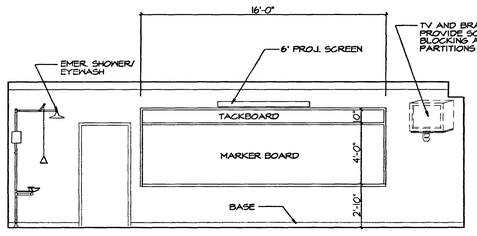
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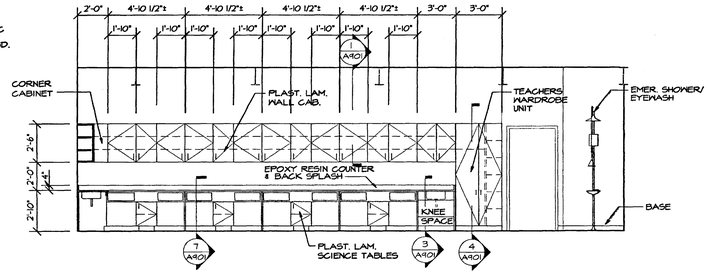
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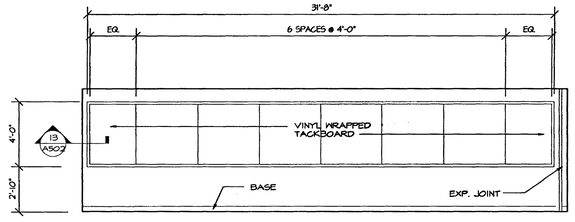
35 A803 SCIENCE
1/4" = 1'-0"



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

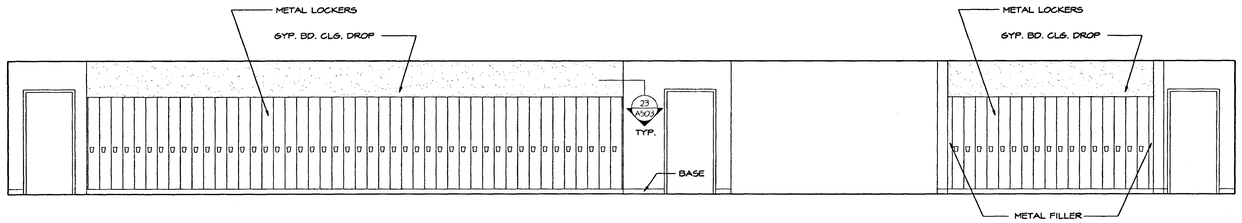
INTERIOR ELEVATIONS

NO	DATE	REVISION	BY

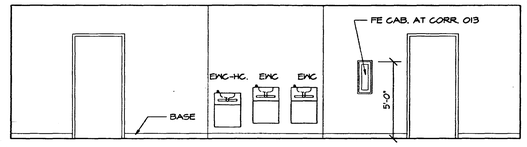
DATE: MARCH 16, 1998
SCALE: 1/4" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A803

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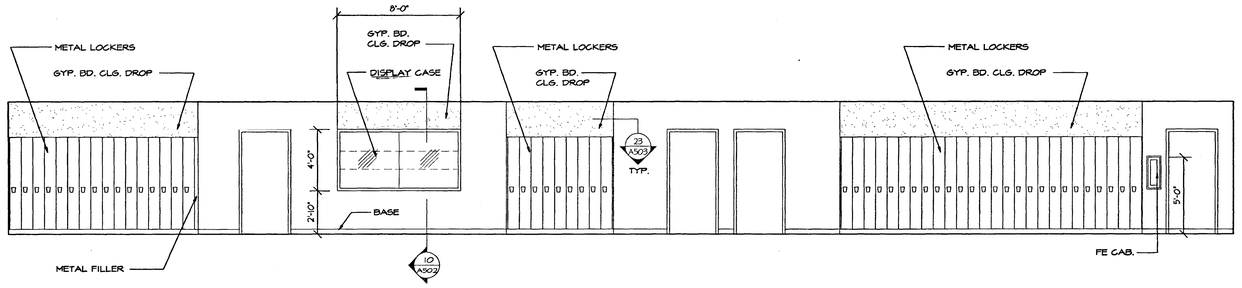
BQ #70 & 125 Attachment



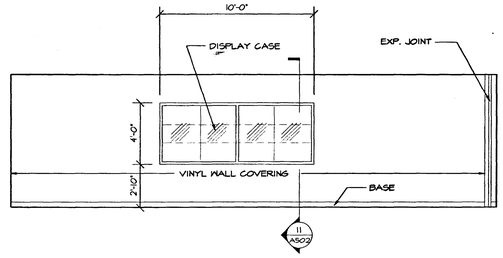
38 A804 CORRIDOR
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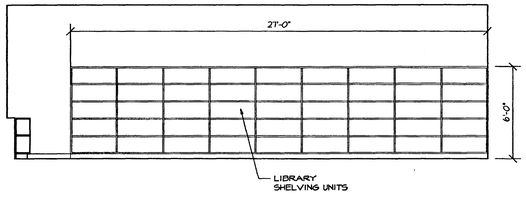
39 A804 CORRIDOR
1/4" = 1'-0"



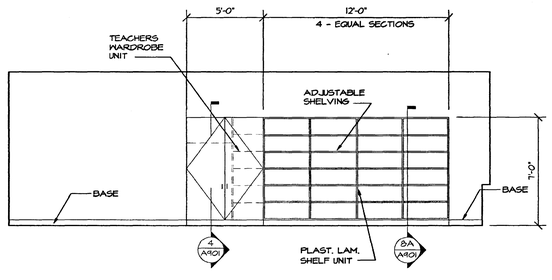
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1/4" = 1'-0"



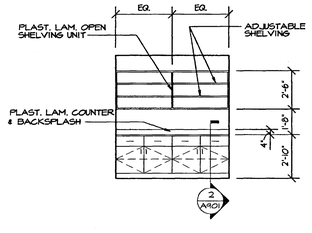
41 A804 GALLERY
1/4" = 1'-0"



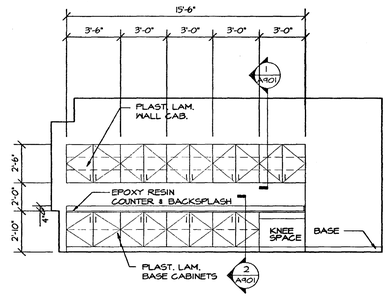
42 A804 READING AREA
1/4" = 1'-0"



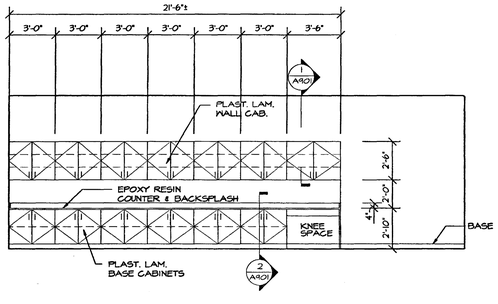
43 A804 READING
1/4" = 1'-0"



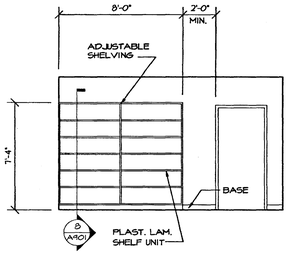
44 A804 REFERENCE AREA
1/4" = 1'-0"



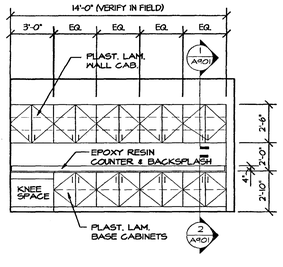
45 A804 SCIENCE STOR.
1/4" = 1'-0"



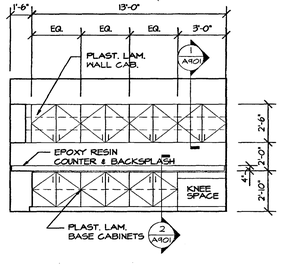
46 A804 SCIENCE STOR.
1/4" = 1'-0"



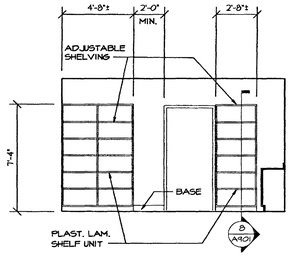
47 A804 SCIENCE STOR.
1/4" = 1'-0"



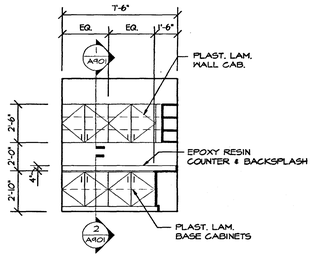
48 A804 SCIENCE STOR.
1/4" = 1'-0"



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

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

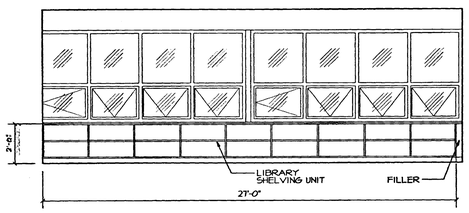
INTERIOR ELEVATIONS

NO	DATE	REVISION	BY
1	6/19/98	D. O. E. REVISIONS	J.C.

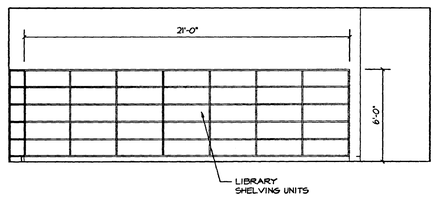
DATE: MARCH 16, 1998
SCALE: 1/4" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A804

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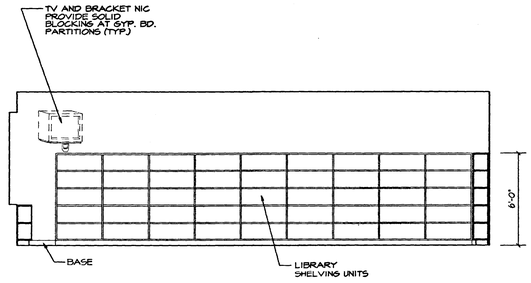
BQ #70 & 125 Attachment



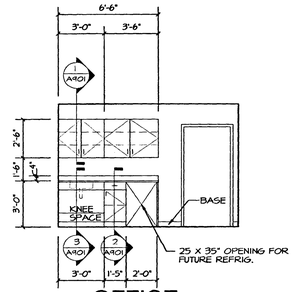
52 A805 READING AREA
1/4" = 1'-0"



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

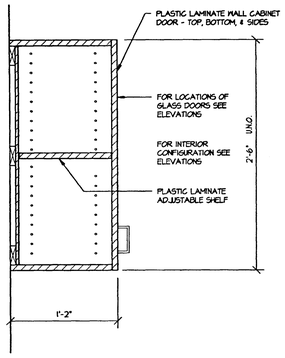
DRAWING TITLE

INTERIOR ELEVATIONS

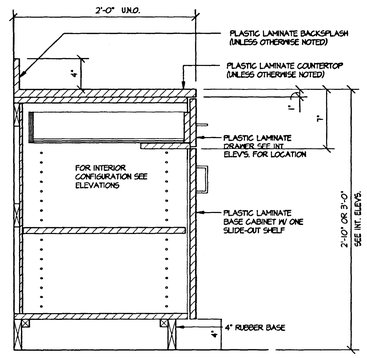
NO	DATE	REVISION	BY
1	6/19/98	D.O.E. REVISIONS	J.G.

DATE: MARCH 16, 1998
SCALE: 1/4" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: A805

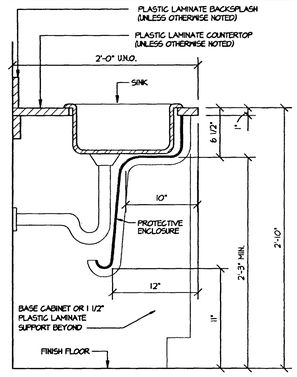
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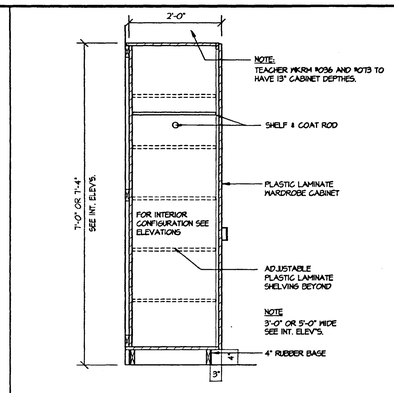
1 A901 WALL CABINET - TYPICAL
SCALE: 1 1/2" = 1'-0"



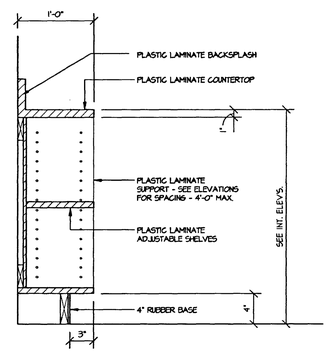
2 A901 BASE CABINET DETAIL
SCALE: 1 1/2" = 1'-0"



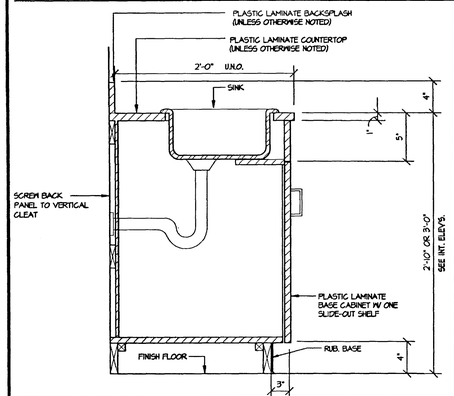
3 A901 HC. SINK COUNTER DETAIL
SCALE: 1 1/2" = 1'-0"



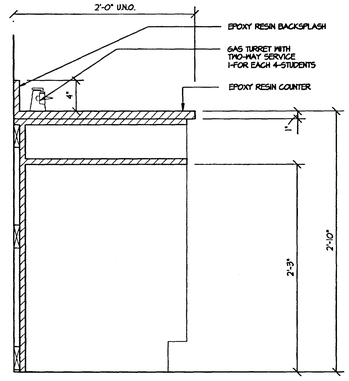
4 A901 CABINET DETAIL - TYPICAL
SCALE: 3/4" = 1'-0"



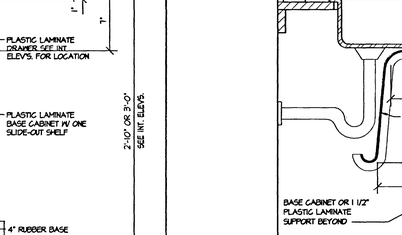
5 A901 OPEN SHELF CABINET DETAIL - TYPICAL
SCALE: 1 1/2" = 1'-0"



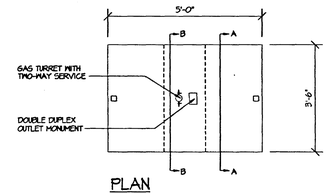
6 A901 HC. SINK COUNTER WITH DOOR DETAIL
SCALE: 1 1/2" = 1'-0"



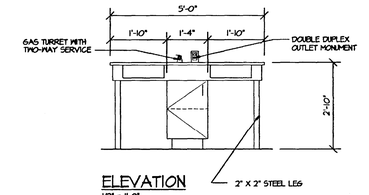
SECTION C-C
1 1/2" = 1'-0"



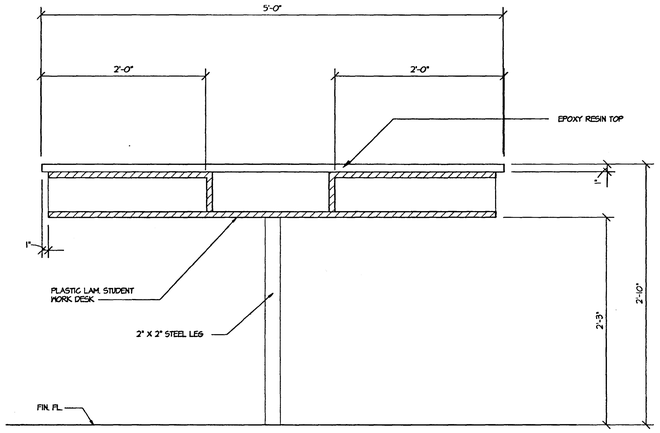
PLAN
1/2" = 1'-0"



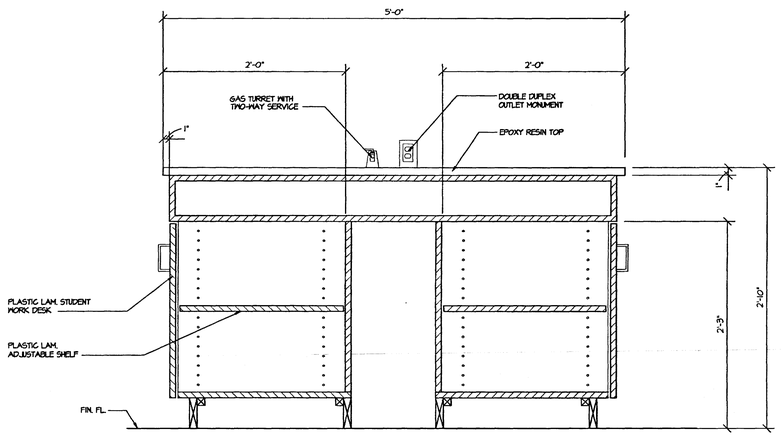
PLAN
1/2" = 1'-0"



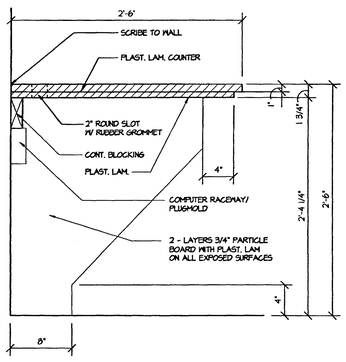
ELEVATION
1/2" = 1'-0"



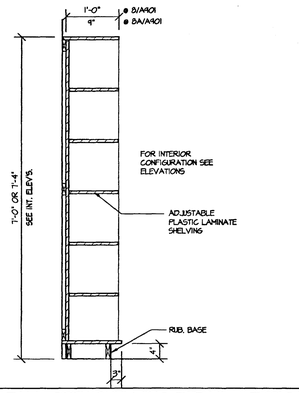
SECTION A-A
1 1/2" = 1'-0"



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

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

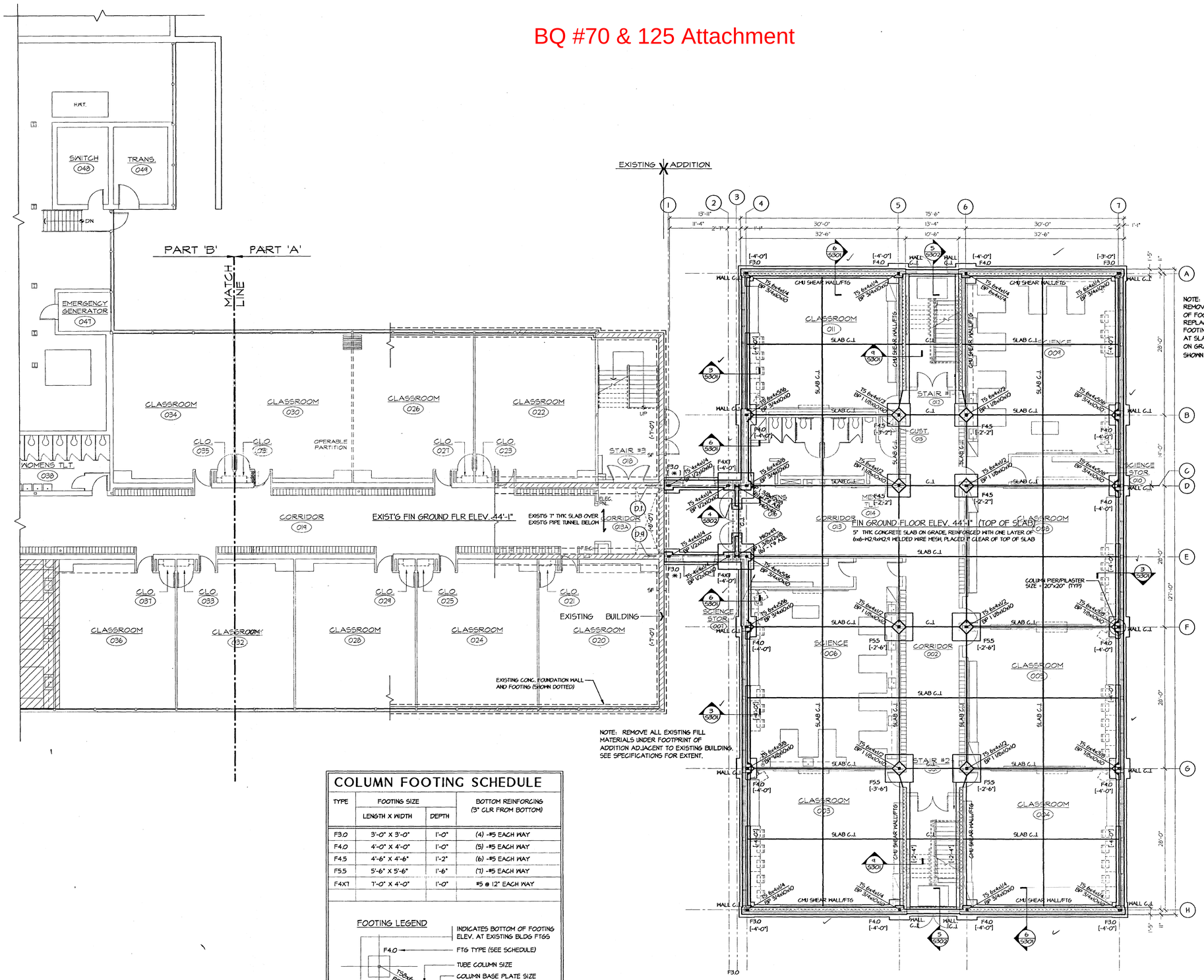
DRAWING TITLE

CASEWORK DETAILS

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: A901

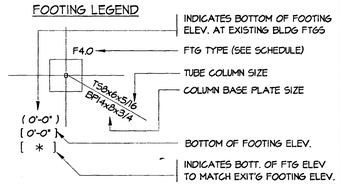
BQ #70 & 125 Attachment



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

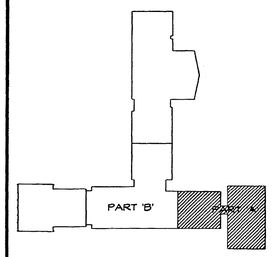
FOOTING LEGEND



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

FLETCHER-THOMPSON, INC.
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9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

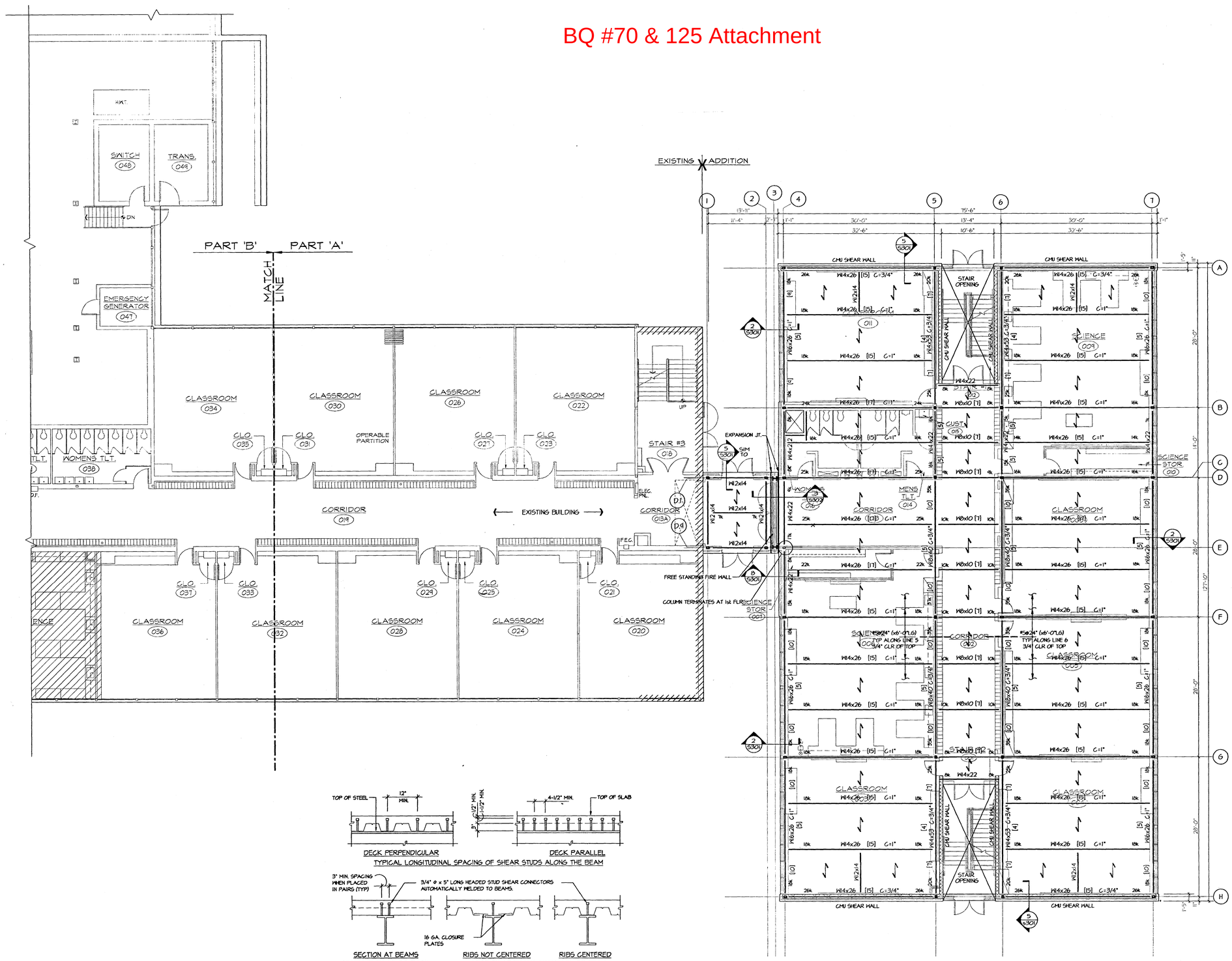
FOUNDATION PLAN - PART "A"

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

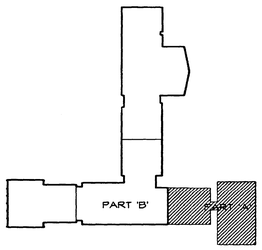
FIRST FLOOR FRAMING

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

FLETCHER THOMPSON
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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 FRAMING PLAN PATR - "A"

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

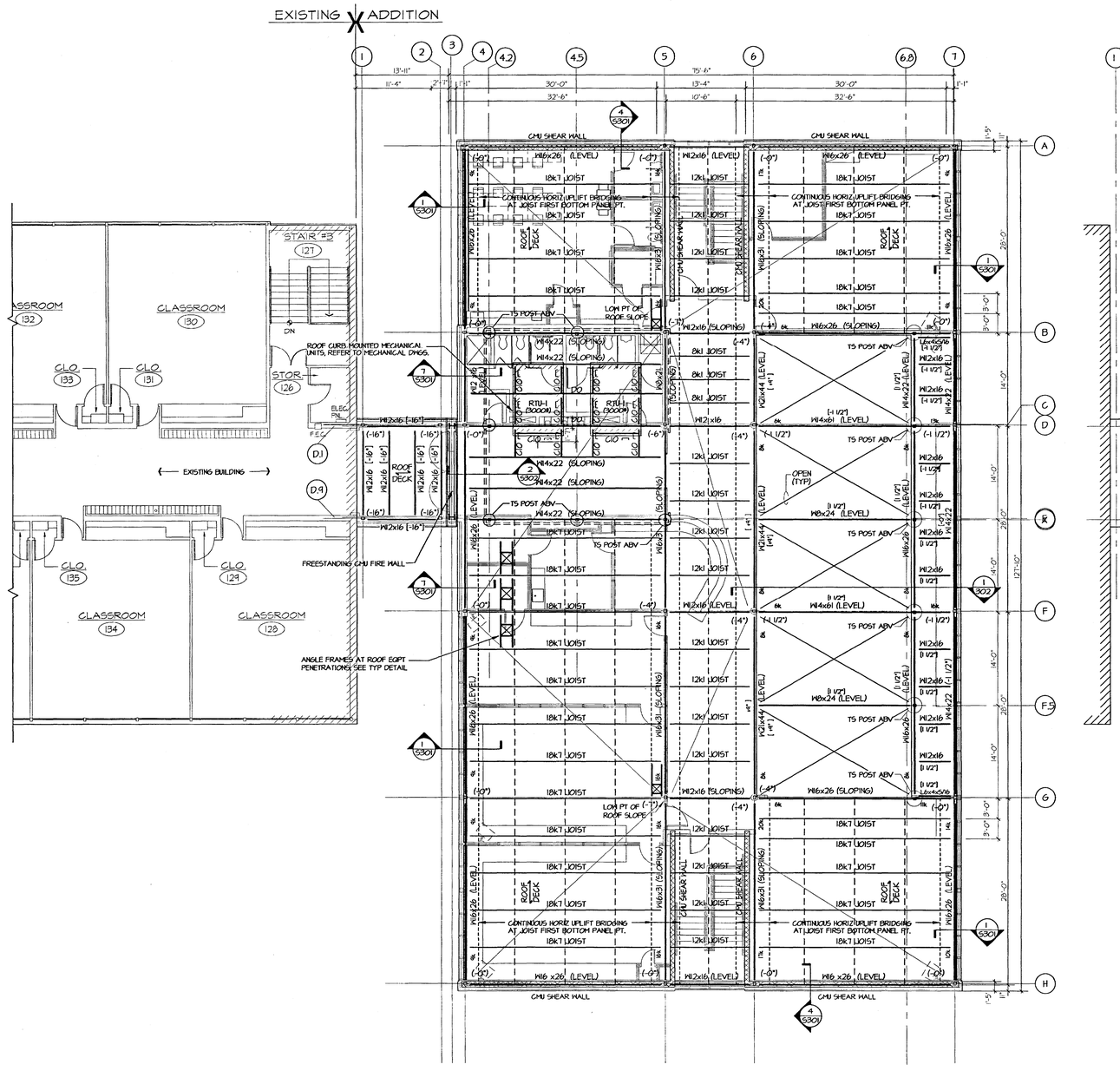
NO	DATE	REVISION	BY

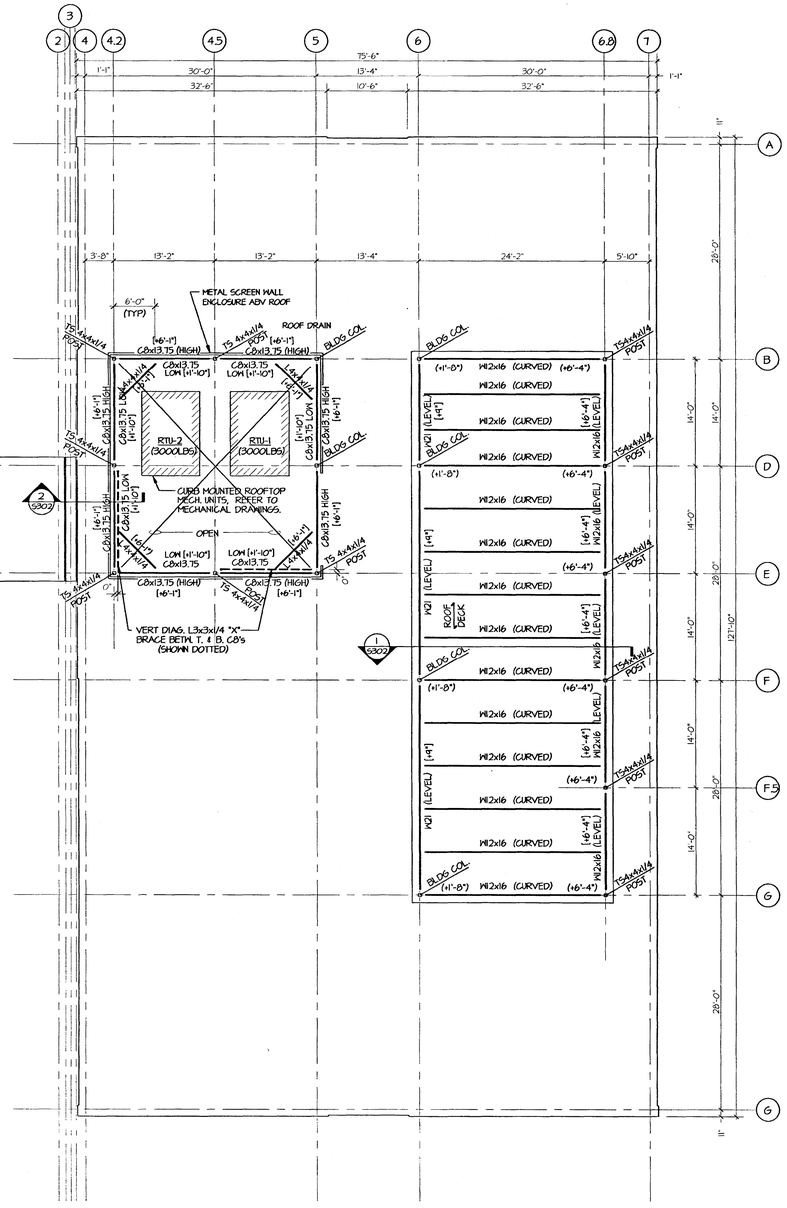
DATE	MARCH 16, 1998
SCALE	1/8" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	S101.1

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projects\50950\dwg\Struct\S101-1 7-2-98 8:57:01 am EST

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.

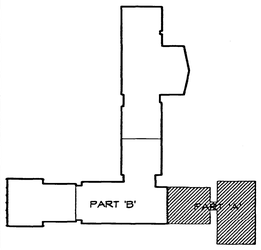
MEDIA CENTER ROOF & EQPT SCREEN FRAMING

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

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 FRAMING PLAN - PART "A"

SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

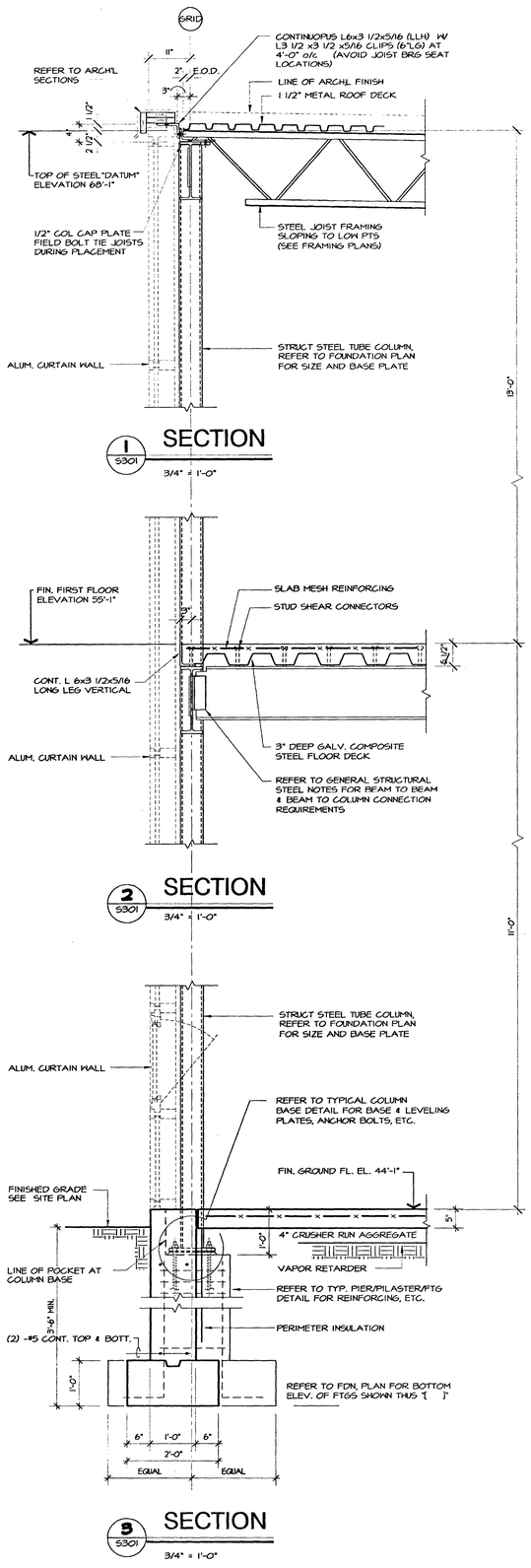
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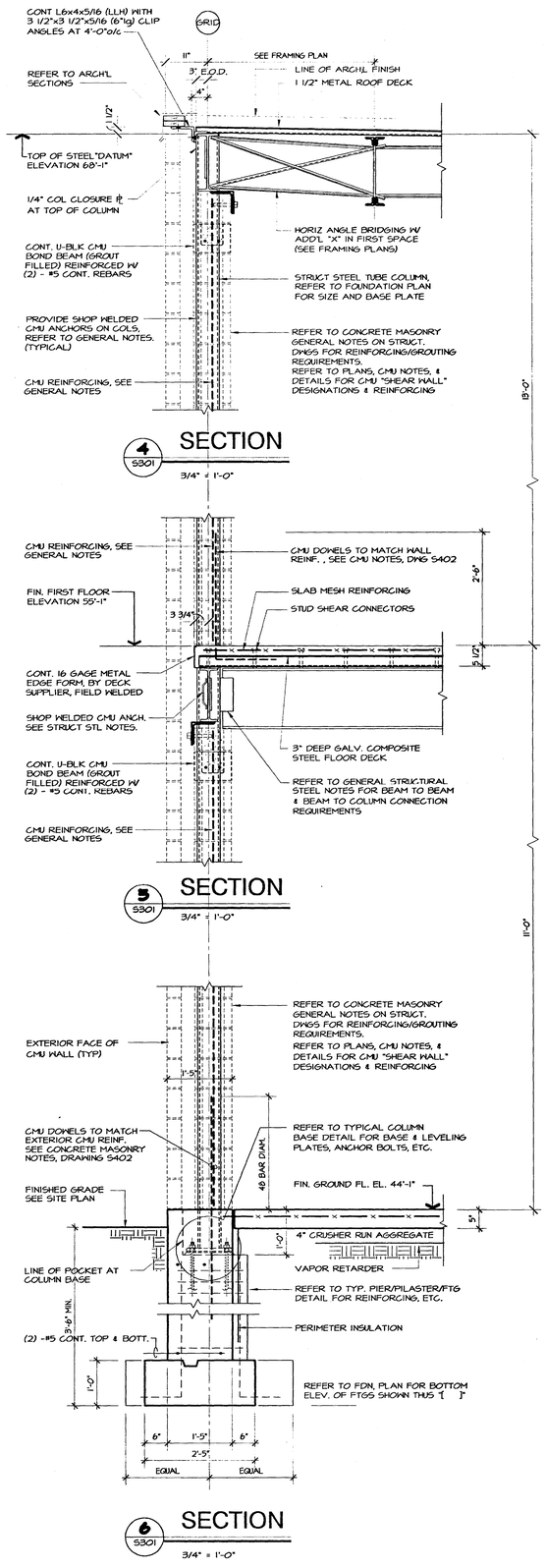
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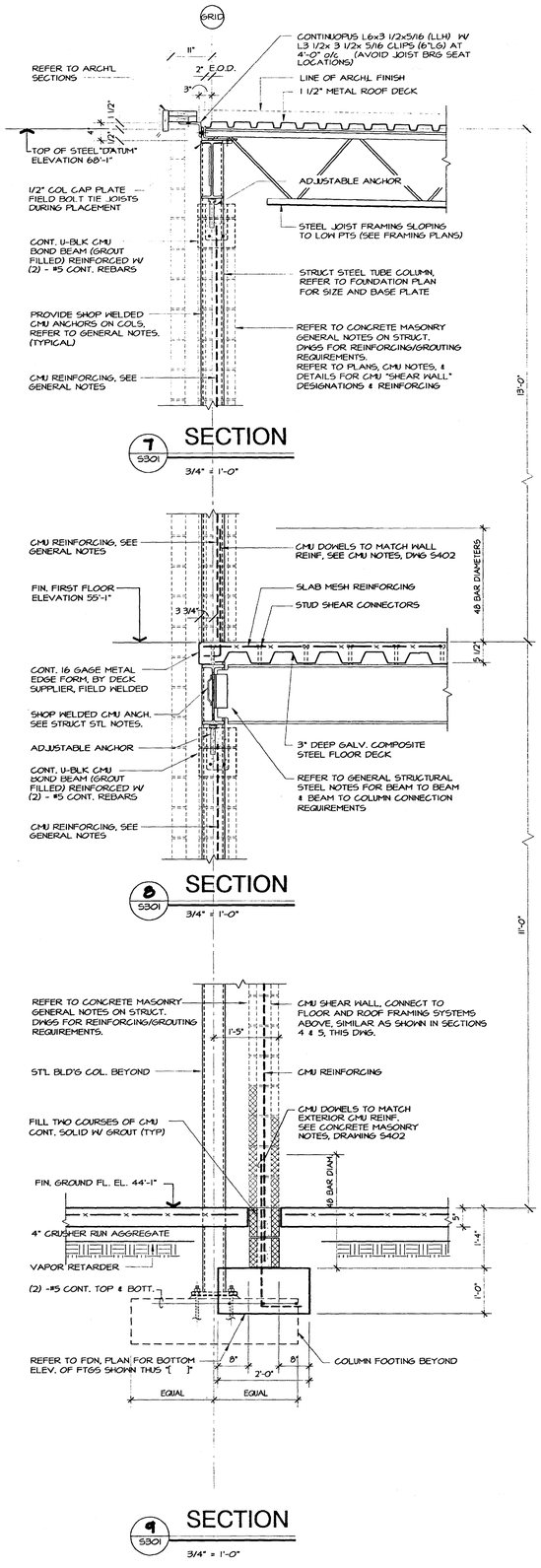
PROJECT NO.: 50950.06

DRAWING NO.: **S102.1**

BQ #70 & 125 Attachment







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FRAMING SECTIONS AND DETAILS

NO	DATE	REVISION	BY

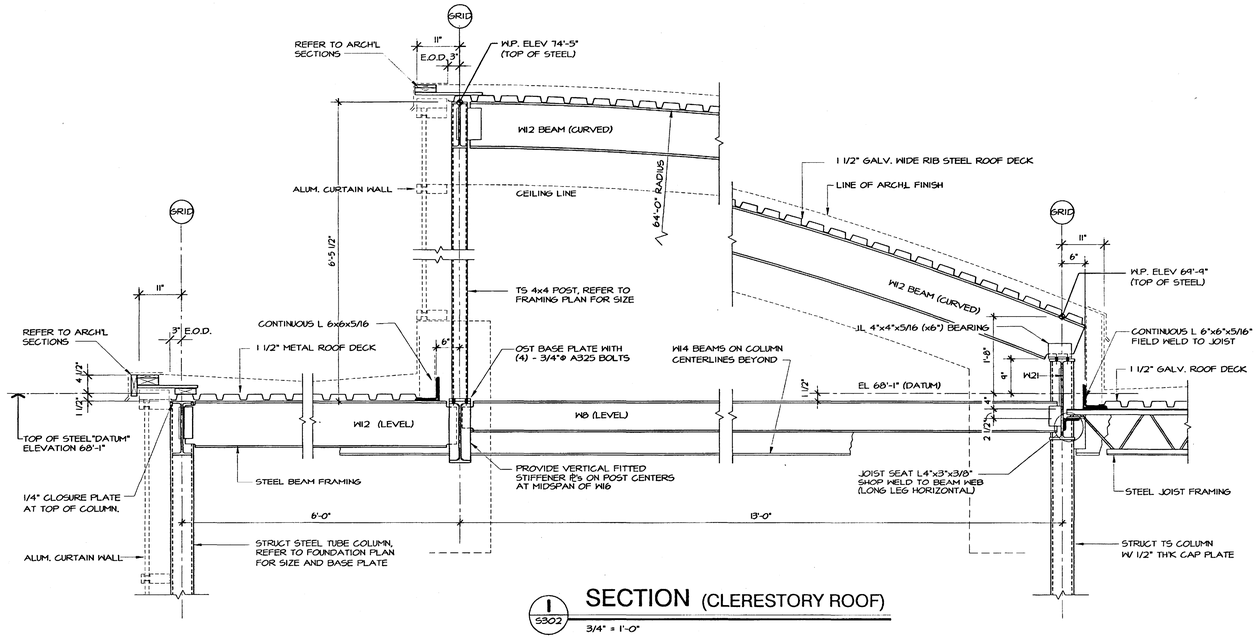
DATE: MARCH 16, 1998

SCALE: 3/4" = 1'-0"

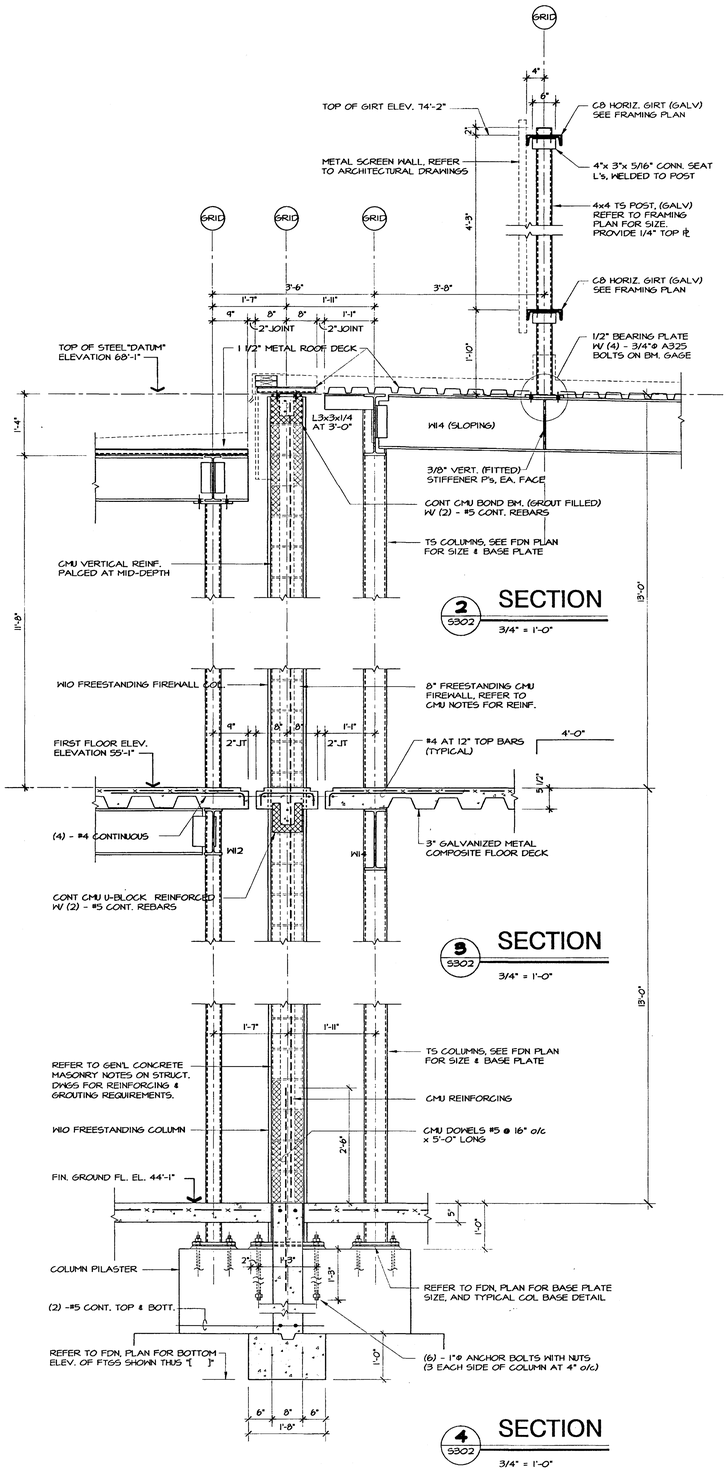
PROJECT NO.: 50950.06

DRAWING NO.: S301

BQ #70 & 125 Attachment

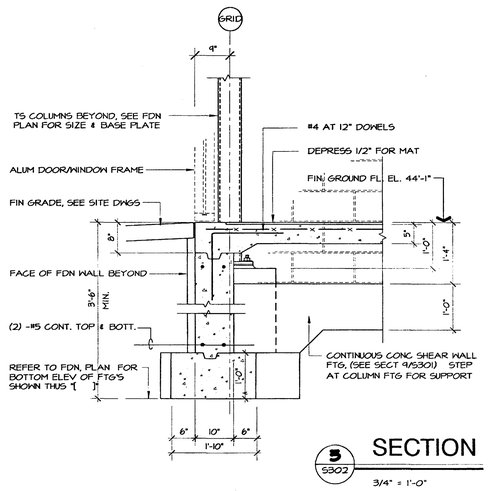


1 / S302 SECTION (CLERESTORY ROOF)
3/4" = 1'-0"



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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NO	DATE	REVISION	BY

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

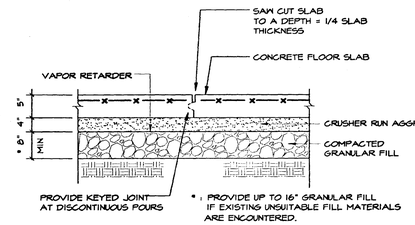
1. MATERIALS:
   TYPICAL METAL DECK SHALL BE 1 1/2" GALVANIZED WIDE RIB TYPE WITH NESTING SIDE SEAMS OF GAGE INDICATED ON THE DRAWINGS.
   DECK SHALL CONFORM TO "BASIC DESIGN SPECIFICATION" AS ADOPTED BY THE STEEL DECK INSTITUTE.
   METAL ROOF DECK SHALL BE FURNISHED IN SHEET LENGTHS SUFFICIENT TO EXTEND 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

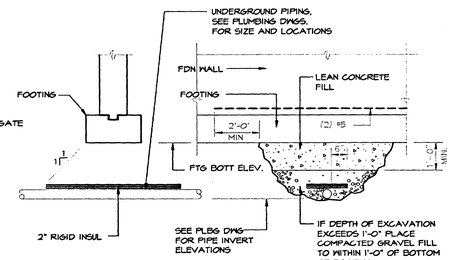
1. MATERIALS:
   METAL FLOOR DECK SHALL BE GALVANIZED AND OF DEPTH AND GAGE INDICATED ON THE DRAWINGS. METAL FLOOR DECK SHALL BE FORMED WITH EMBOSSMENTS TO PROVIDE A MECHANICAL LOCK BETWEEN THE STEEL FLOOR AND CONCRETE SLAB.
   METAL FLOOR DECK SHALL BE FURNISHED IN SHEET LENGTHS SUFFICIENT TO EXTEND 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

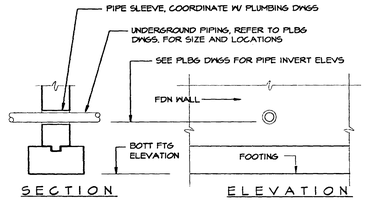
1. STEEL JOISTS SHALL CONFORM TO AND BE ERECTED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS AND CODE OF STANDARD PRACTICE OF THE STEEL JOIST INSTITUTE AND AS SHOWN ON THE DRAWINGS.
2. BRIDGING FOR STEEL JOISTS SHALL BE AS SHOWN AND NOT LESS THAN CALLED FOR BY THE STEEL JOIST INSTITUTE SPECIFICATION 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.



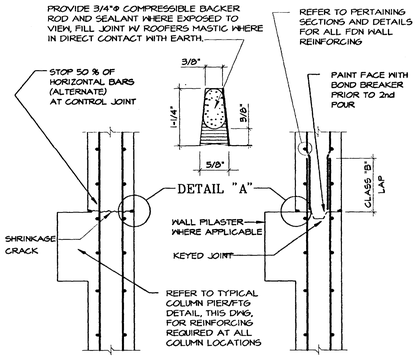
TYP. SLAB ON GRADE CONTROL JT. DETAIL
NOT TO SCALE



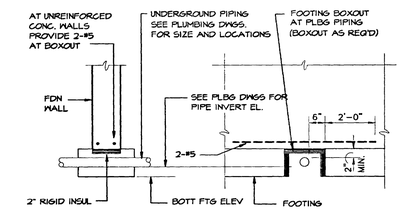
EARTHWORK DET. AT PIPE TRENCHING BENEATH FTGS.
NOT TO SCALE



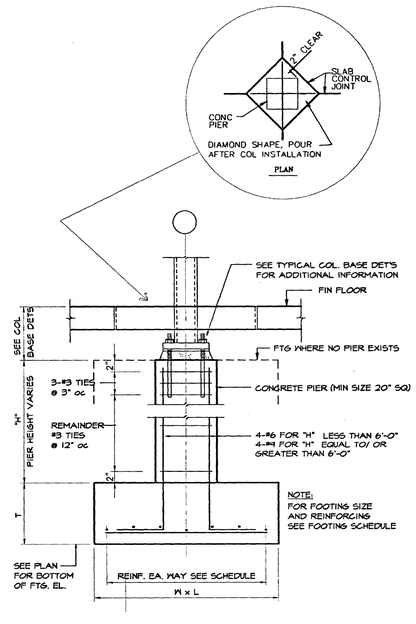
FOUNDATION WALL PIPE SLEEVE DETAIL
NOT TO SCALE



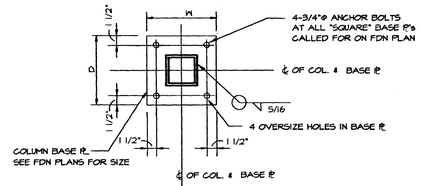
TYPICAL CONCRETE FOUNDATION WALL CONTROL/CONSTRUCTION JOINT DETAIL
NOT TO SCALE

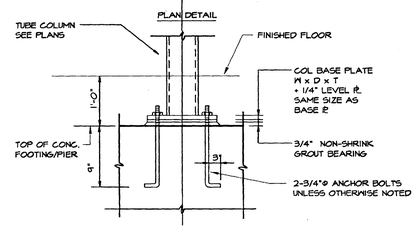


FOUNDATION WALL /FTG PIPE BOXOUT DET.
NOT TO SCALE

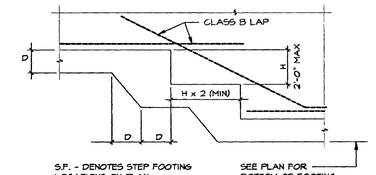


TYPICAL COLUMN PIER/PILASTER/FTG DETAIL
NOT TO SCALE





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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projects\50950\dwg\Struct\S401 7-1-98 2:59:37 pm EST

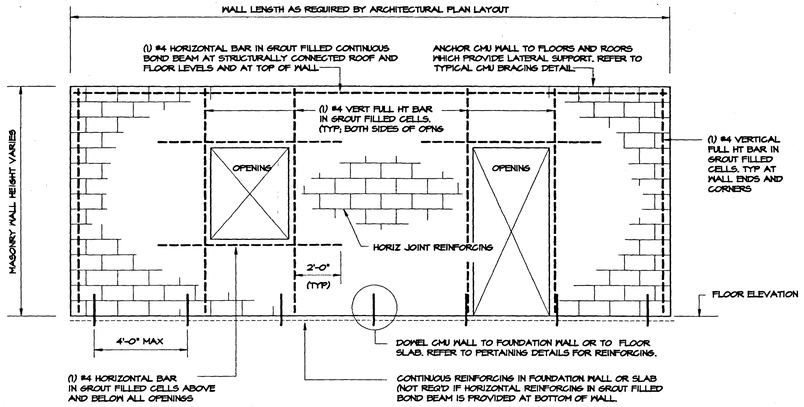
CONCRETE MASONRY NOTES

CONCRETE MASONRY

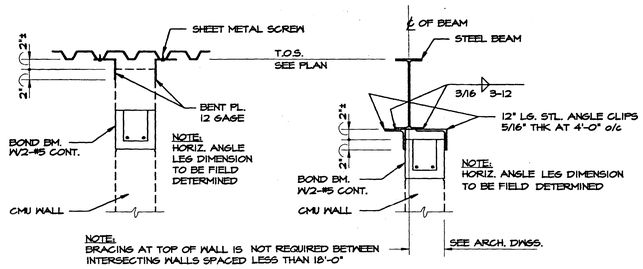
MATERIALS:

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.

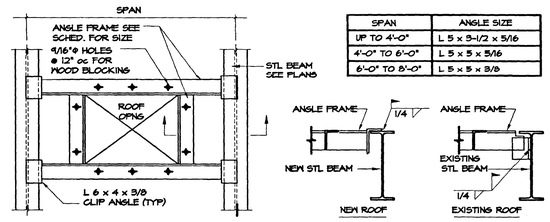


MINIMUM REINFORCING REQUIREMENTS FOR CMU WALLS
NOT TO SCALE



CMU WALL @ UNDERSIDE OF DECK CMU WALL @ STEEL BEAM/JOIST

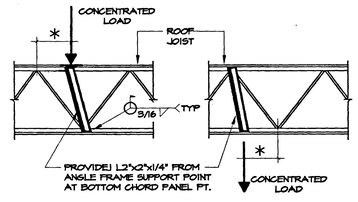
TYP. BRACING AT TOP OF INTERIOR CMU WALLS
NOT TO SCALE



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

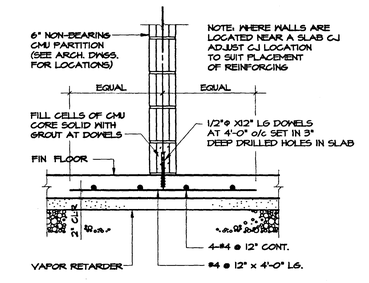
NOTES: 1. SEE ARCH. AND MECH. DWGS. FOR SIZE AND LOCATION OF ALL ROOF PENETRATIONS
2. PROVIDE SUPPORT FRAMES FOR ALL OPNS. 8" OR GREATER IN SIZE. COORDINATE WITH MECH'L AND ARCH'L DWGS FOR SIZE AND LOCATION.
3. AT EXISTING CONCRETE BUILDING, PROVIDE FRAMES BOLTED TO SIDE OF PERIMETER CONCRETE WITH 2 - 3/4"ø EXPANSION ANCHORS AT EACH ANGLE.

TYPICAL FRAME DETAIL AT ROOF DECK PENETRATIONBRATIONS
NOT TO SCALE



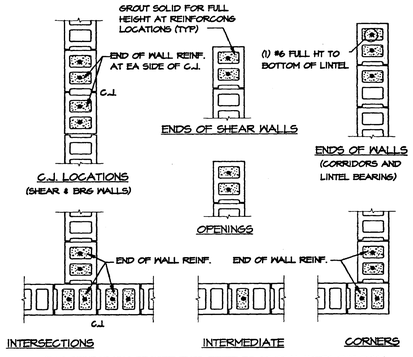
* WHEN CONCENTRATED LOADS OCCUR AT A DISTANCE MORE THAN 4" FROM A PANEL POINT PROVIDE AN ANGLE STRUT FROM POINT OF SUPPORT TO JOIST PANEL POINT.

TYP. JOIST REINFORCING DETAIL
NOT TO SCALE



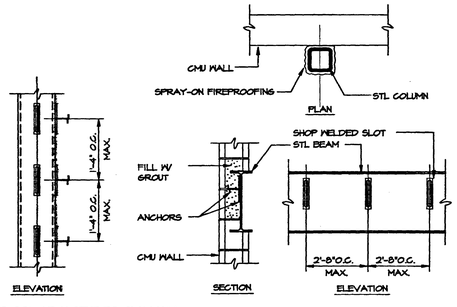
NOTE: PROVIDE SLAB DOWELS BETWEEN CONC FLR SLAB AND CMU WALLS THAT ARE SUPPORTED ON ELEVATED SLABS ALSO.

SLAB ON GRADE REINF. AT CMU PARTITIONS
NOT TO SCALE



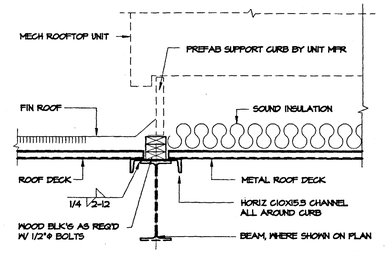
(FOR REINFORCING REQUIREMENTS, REFER TO GENERAL NOTES, THIS DWG.)

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
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DRAWN BY: L. CZUBATYJ

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PROJECT TITLE

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STATE PROJECT NO. 057-106EA

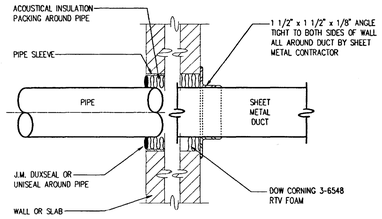
DRAWING TITLE

GENERAL NOTES AND TYPICAL DETAILS

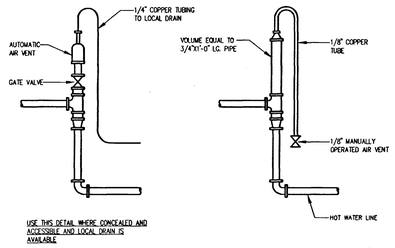
NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: S402

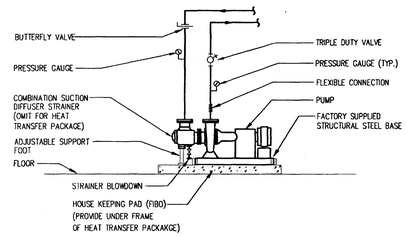
BQ #70 & 125 Attachment



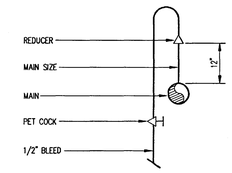
1 DETAIL OF ACOUSTIC CAULKING OF DUCTS AND PIPES PIERCING WALLS, SLABS, SHAFT WALLS, ETC.
NOT TO SCALE



2 TYPICAL VENT AT PIPING DROPS IN DIRECTION OF FLOW
NOT TO SCALE

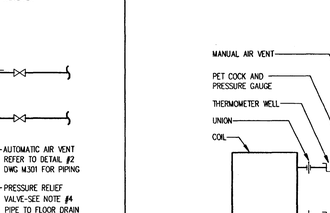


3 BASE MOUNTED PUMP PIPING DETAIL
NOT TO SCALE

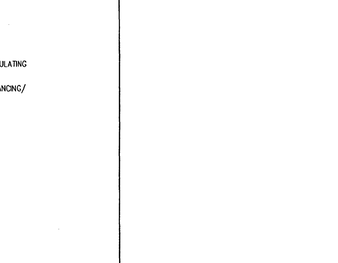


4 MAIN SYSTEM AIR VENT DETAIL
NOT TO SCALE

5 FLEXIBLE EXPANSION LOOP DETAIL
NOT TO SCALE

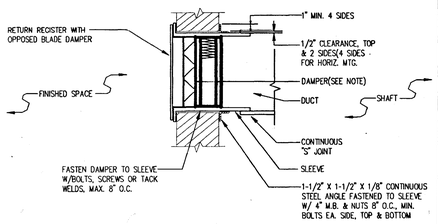


6 CABINET UNIT HEATER HOT WATER PIPING DETAIL
NOT TO SCALE



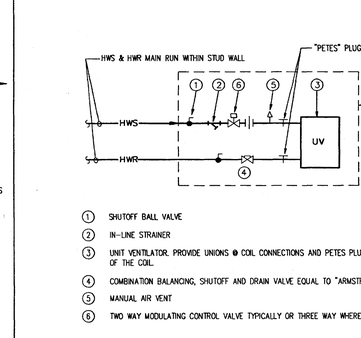
7 DETAIL OF HOT WATER DUCT COIL PIPING
NOT TO SCALE

8 HOT WATER CONVECTOR PIPING DETAIL
NOT TO SCALE



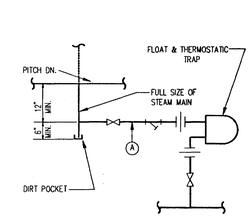
NOTES:
1. DAMPER STYLE & SLEEVE CONFIGURATION IS GOVERNED BY MAINTAINING A MAX. .06 STATIC PRESSURE @ 2500 F.P.M. FACE VELOCITY.
2. DEPTH OF DAMPER TO BE COORDINATED WITH WALL THICKNESS.
3. INSTALLATIONS & MATERIALS PER U.L. 555.

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.

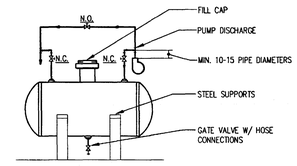
10 UNIT VENTILATOR PIPING DIAGRAM
NOT TO SCALE



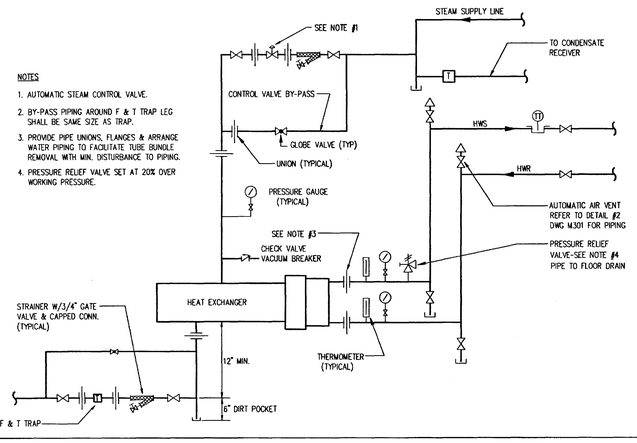
MIN. SIZES, TRAP & LINE	
STM. LOAD LBS HR	TRAP SIZE AND LINE SIZE (A)
0-70	3/4"
71-175	1"
176-425	1-1/4"
426-850	1-1/2"
851-1775	2"
1775 & UP	USE MULTIPLE 2" TRAPS

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

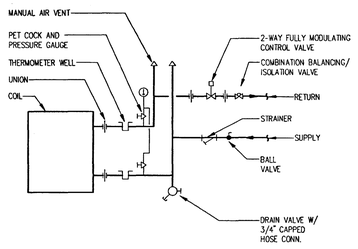


12 BYPASS FEEDER SYSTEM DETAIL
NOT TO SCALE



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

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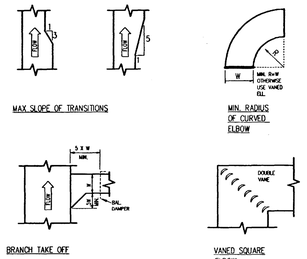
DRAWING TITLE

DETAILS - HVAC

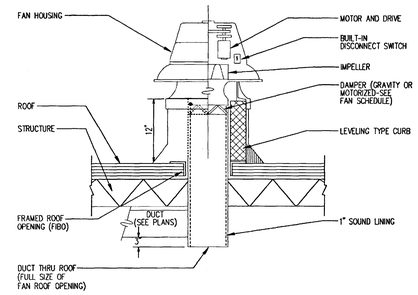
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DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: M301

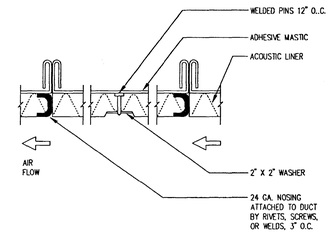
BQ #70 & 125 Attachment



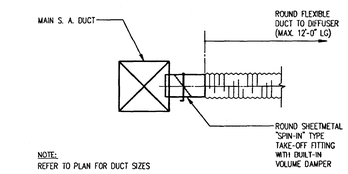
1 DUCT CONSTRUCTION DETAIL
NOT TO SCALE



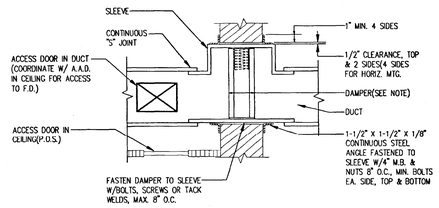
2 ROOF CURB MOUNTED EXHAUST FAN DETAIL
NOT TO SCALE



3 DETAIL OF ACOUSTIC LINING
NOT TO SCALE

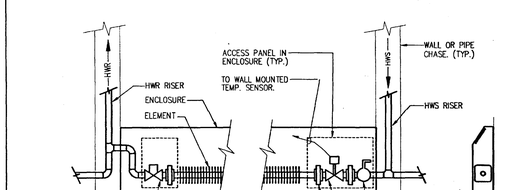


4 FLEXIBLE DUCT TAKE-OFF DETAIL
NOT TO SCALE

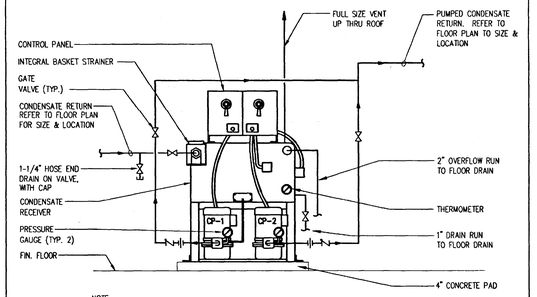


NOTES:
1. DAMPER STYLE & SLEEVE CONFIGURATION IS GOVERNED BY MAINTAINING A MAX. .06 STATIC PRESSURE @ 2500 F.P.M. FACE VELOCITY.
2. DEPTH OF DAMPER TO BE COORDINATED WITH WALL THICKNESS.
3. INSTALLATIONS & MATERIALS PER U.L. 555.

5 VERTICAL FIRE DAMPER DETAIL
NOT TO SCALE

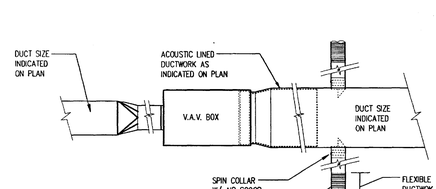


6 TYPICAL RADIATION PIPING DIAGRAM DOWNFEED
NOT TO SCALE

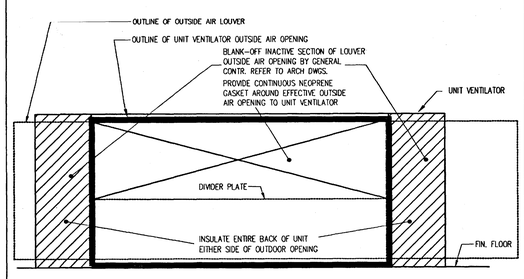


NOTE:
REFER TO THIS SHEET FOR CONDENSATE RECEIVER SPECIFICATION.

7 CONDENSATE TRANSFER PUMP PIPING DETAIL
NOT TO SCALE

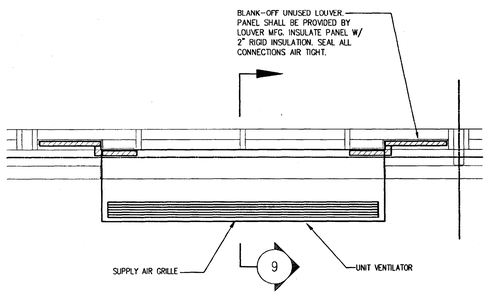


8 TYPICAL V.A.V. BOX DETAIL
NOT TO SCALE



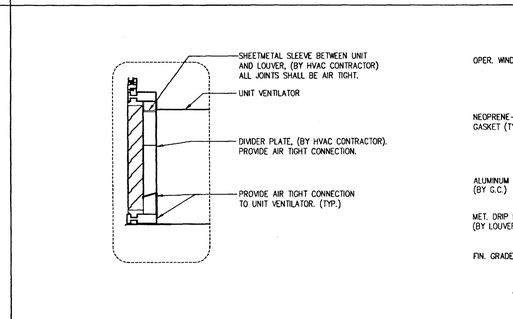
NOTE: REFER TO ARCH DWG. A.301 FOR CROSS SECTION OF UNIT VENTILATORS.

7 DETAIL AT BACK OF UNIT VENTILATOR
NOT TO SCALE



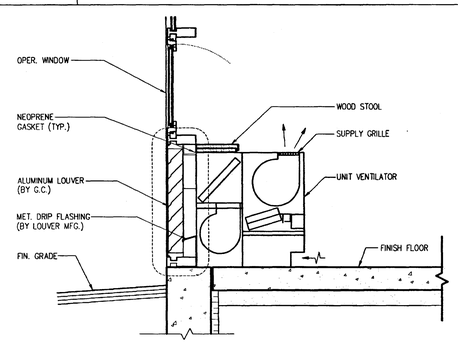
REFER TO DETAIL ON M.301 FOR PIPING ARRANGEMENT

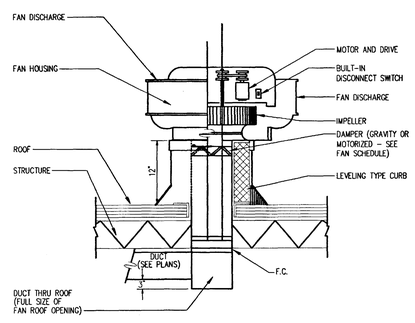
8 UNIT VENTILATOR INSTALLATION DETAIL – PLAN VIEW
NOT TO SCALE



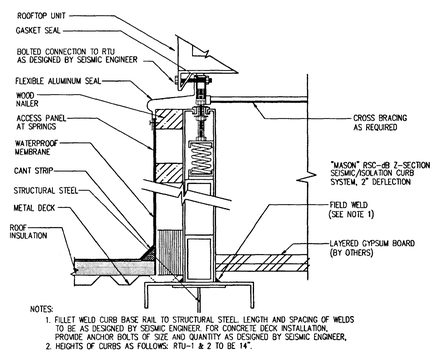
9 UNIT VENTILATOR INSTALLATION DETAIL – SECTION
NOT TO SCALE

15730268



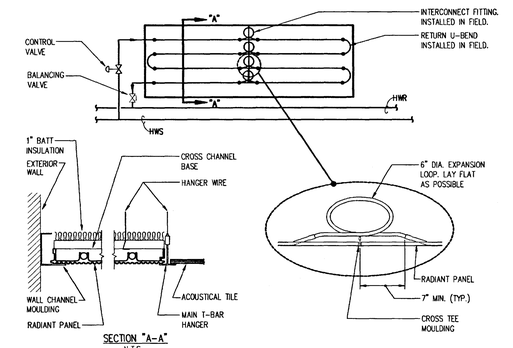


11 ROOF CURB MOUNTED UP-BLAST EXHAUST FAN DETAIL
NOT TO SCALE



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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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

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

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

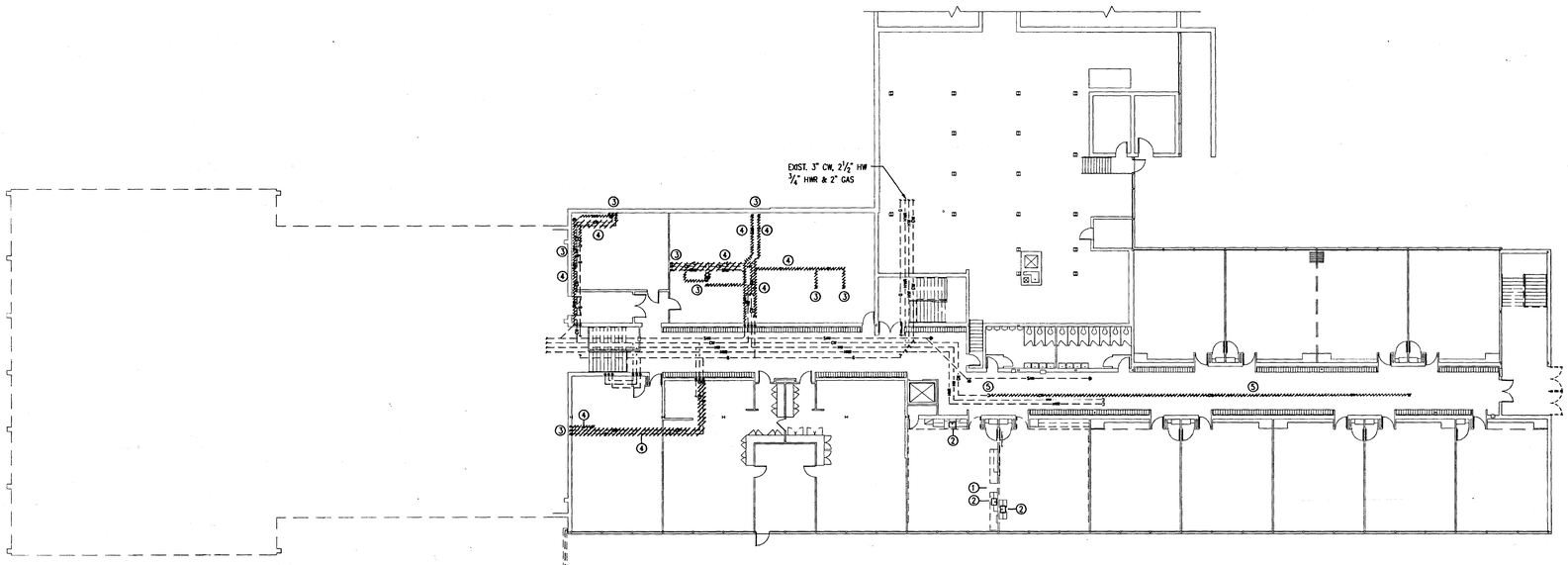
DRAWING TITLE

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:

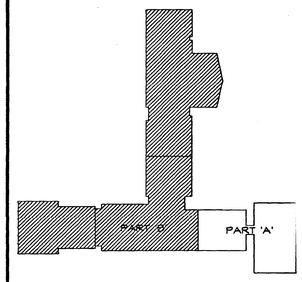
1. THE DEMOLITION NOTES ARE FOR DESCRIPTIVE GUIDE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL QUANTITIES OF EACH ITEM. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING HIS WORK WITH ALL TRADES, MECHANICAL, ELECTRICAL AND PLUMBING. SEE SPECIFICATIONS FOR ADDITIONAL DEMOLITION REQUIREMENTS.
2. DISPOSE 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"

This drawing and details on it, as an instrument of service, is the property of the architect and may be used for this specific project and shall not be loaned, copied or reproduced without written consent of the architect.



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

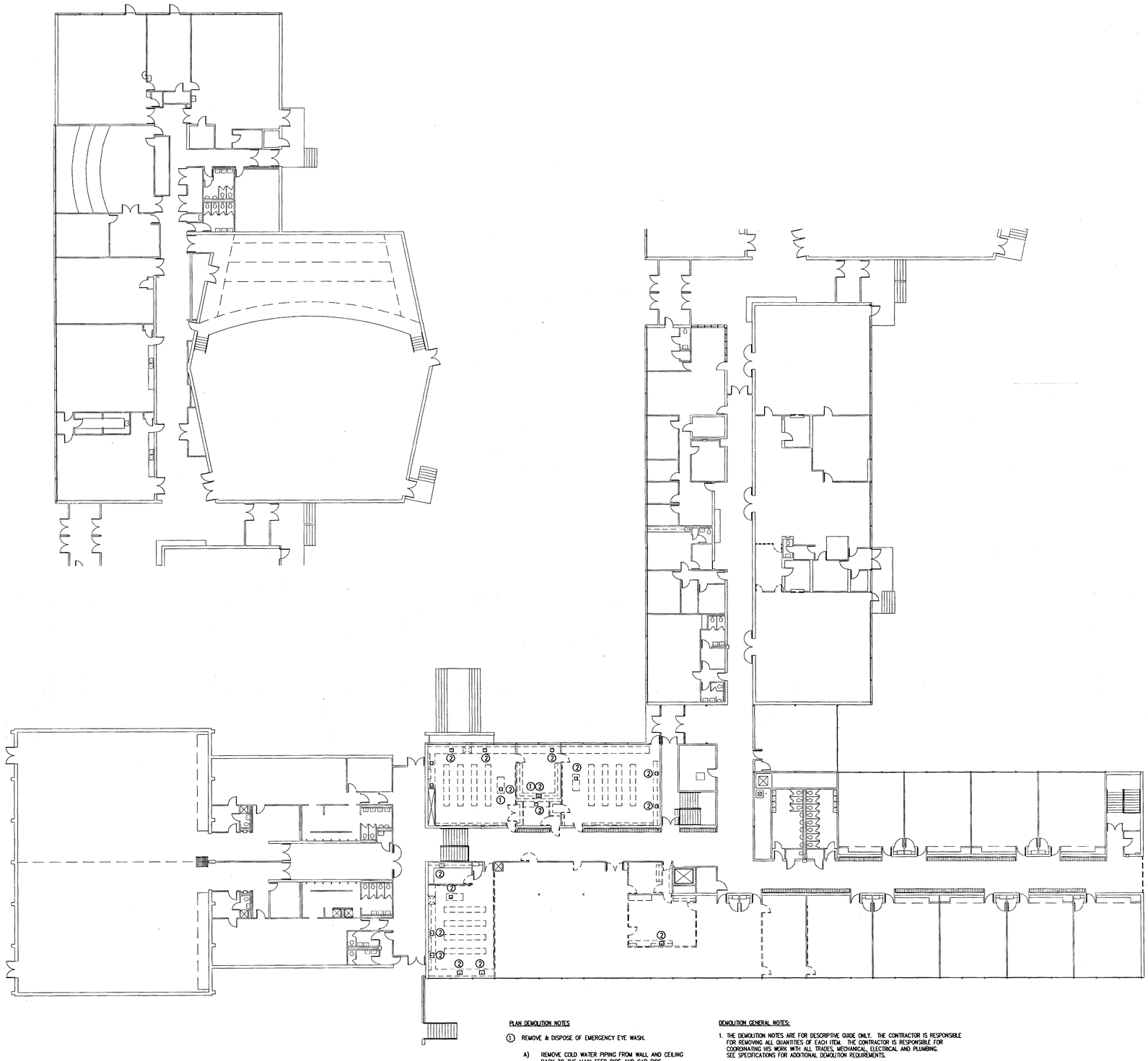
0 8' 16' 32'
SCALE: 1/16" = 1'-0"

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.
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:

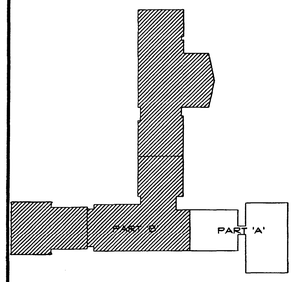
   AN EPA APPROVED ASBESTOS SURVEY HAS BEEN MADE OF THE BUILDING WHERE THE WORK WILL BE PERFORMED.
   THE EPA HAS BEEN NOTIFIED THAT DEMOLITION AND/OR RENOVATION WORK WILL OCCUR IN THE BUILDING WHERE THE WORK WILL BE PERFORMED.

5. CROSSHATCHED LINES INDICATE EXISTING PIPING TO BE DEMOLISHED AND REMOVED.
6. SOLID LINES INDICATE EXISTING PIPING TO REMAIN.

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

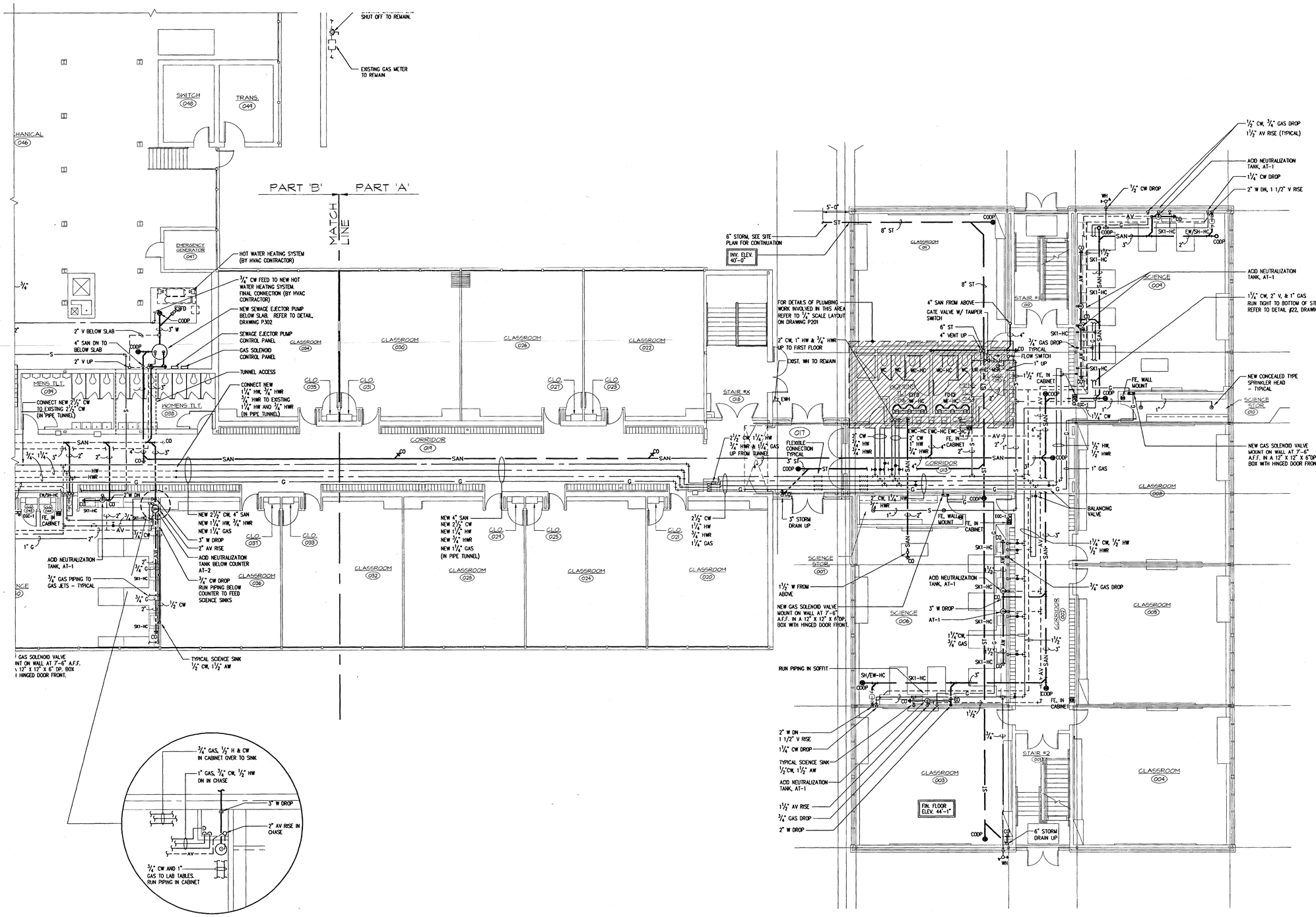
0 8' 16' 32'
SCALE: 1/16" = 1'-0"

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: 1/16" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: **P099.1**

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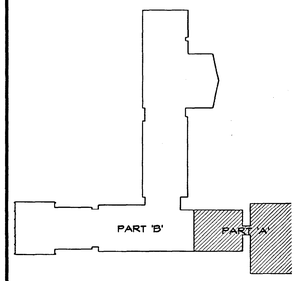
BQ #70 & 125 Attachment



GROUND FLOOR PLAN - PART "A"

SCALE: 1/8"=1'-0"

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KEY PLAN

N

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

GROUND FLOOR PLAN PART "A" - PLUMBING & FIRE PROTECTION

0 4' 8' 16'

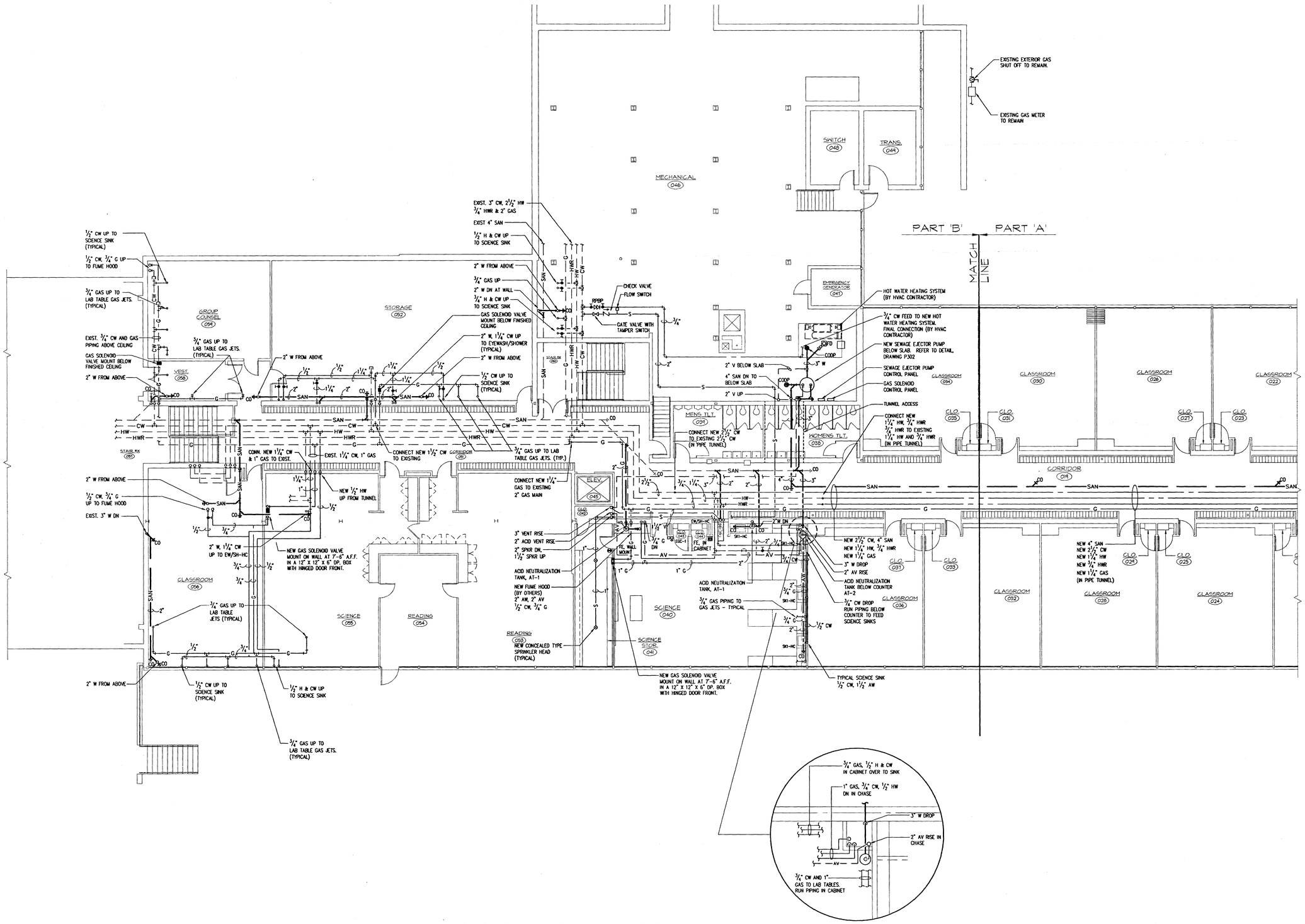
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE	MARCH 16, 1998
SCALE	1/8" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	PFP100.1

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BQ #70 & 125 Attachment

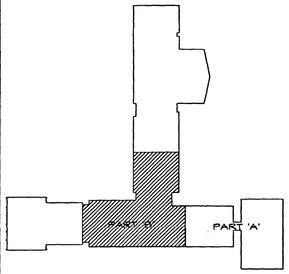


GROUND FLOOR PLAN - PART "B"

SCALE: 1/8" = 1'-0"

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KEY PLAN

N

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

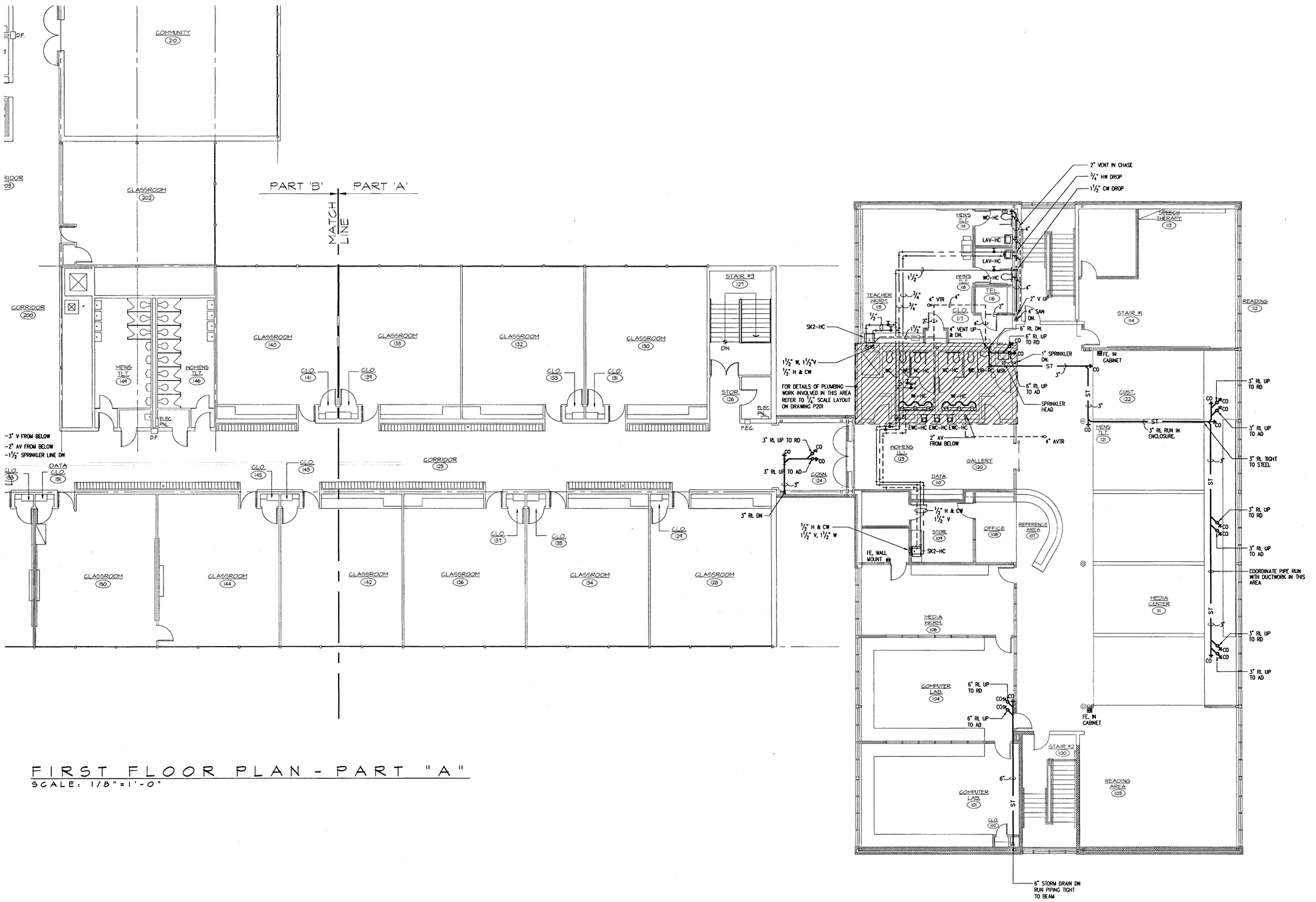
GROUND FLOOR PLAN PART "B" - PLUMBING & FIRE PROTECTION

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

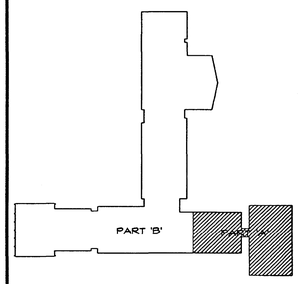
BQ #70 & 125 Attachment



FIRST FLOOR PLAN - PART "A"

SCALE: 1/8"=1'-0"

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KEY PLAN

N

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

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

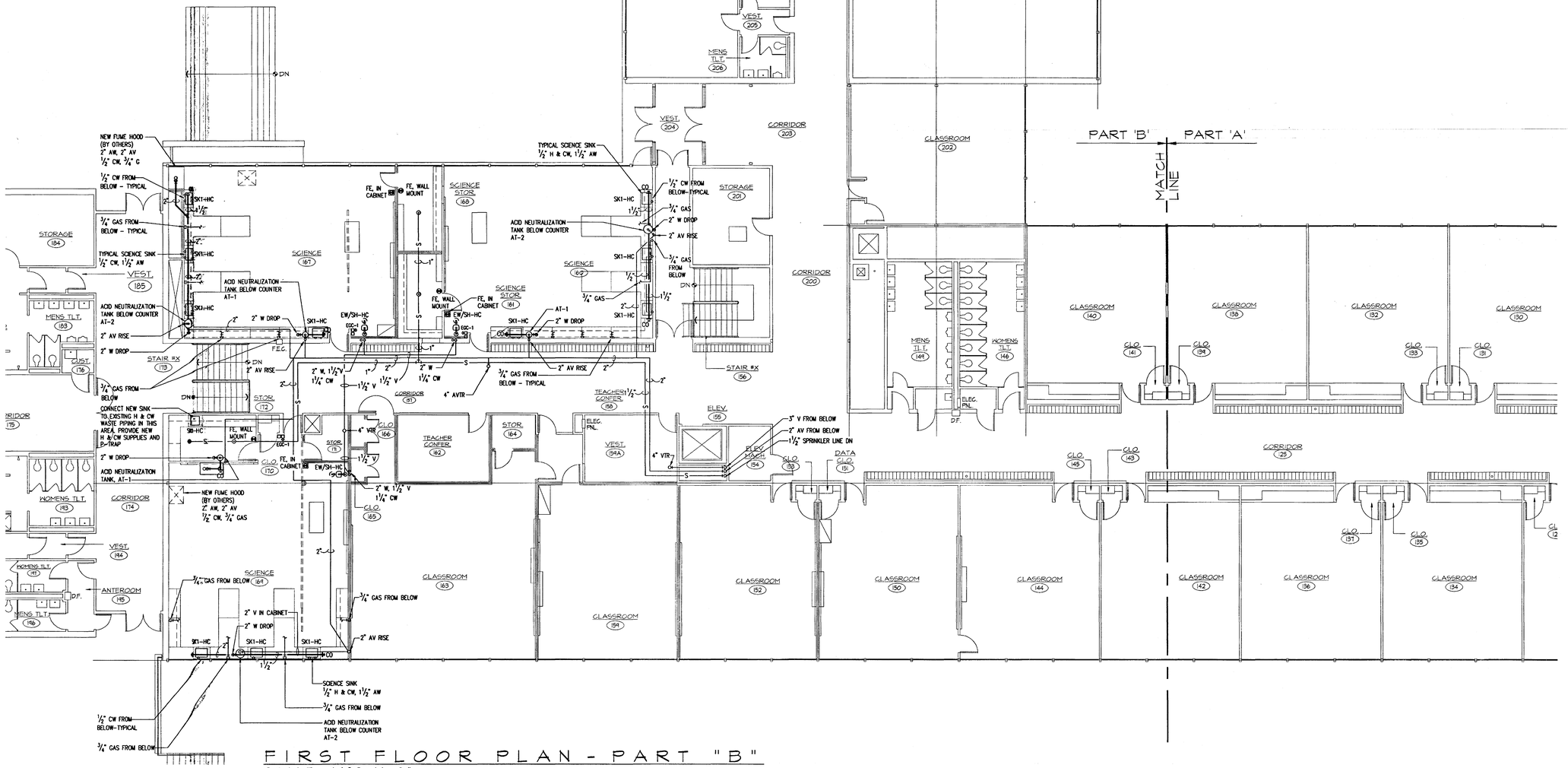
SCALE: 1/8" = 1'-0"

PROJECT NO.: 50950.06

DRAWING NO.: **PFP101.1**

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BQ #70 & 125 Attachment

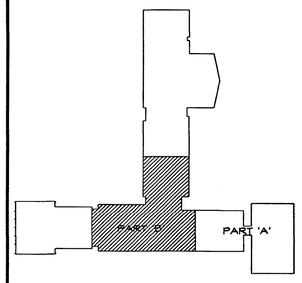


FIRST FLOOR PLAN - PART "B"

SCALE: 1/8" = 1'-0"

K:\50 projects\50950\dwg\Plumb-FPP101-2 6-29-98 10:40:51 pm EST

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KEY PLAN

N

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

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.

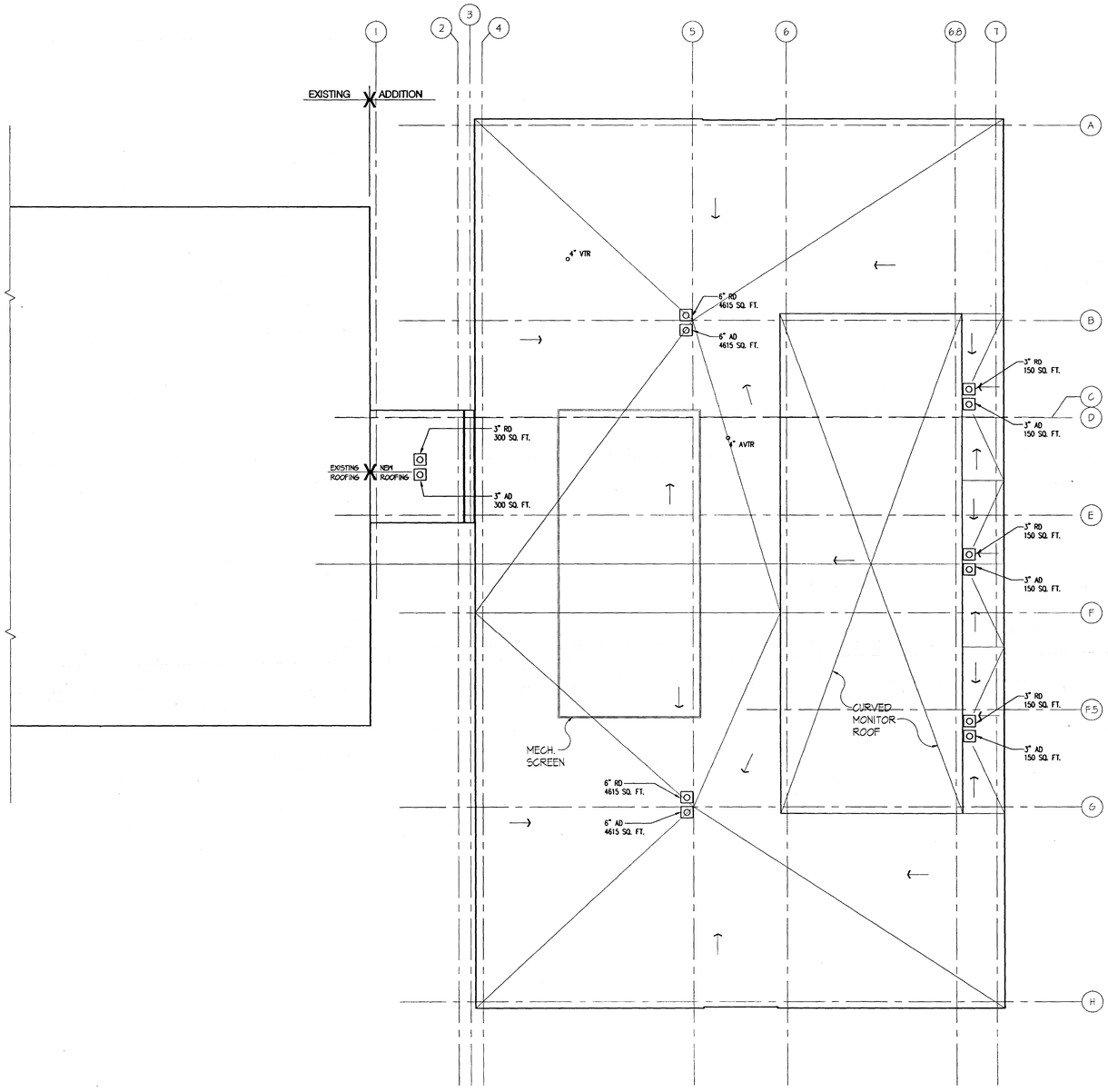
DATE: MARCH 16, 1998

SCALE: 1/8" = 1'-0"

PROJECT NO.: 50950.06

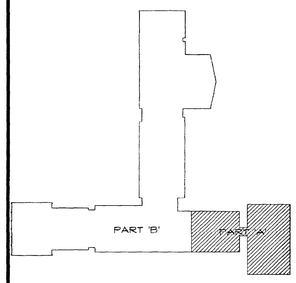
DRAWING NO.: **PFP101.2**

BQ #70 & 125 Attachment



ROOF PLAN
SCALE: 1/8"=1'-0"

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KEY PLAN

N

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

ROOF PLAN - PLUMBING

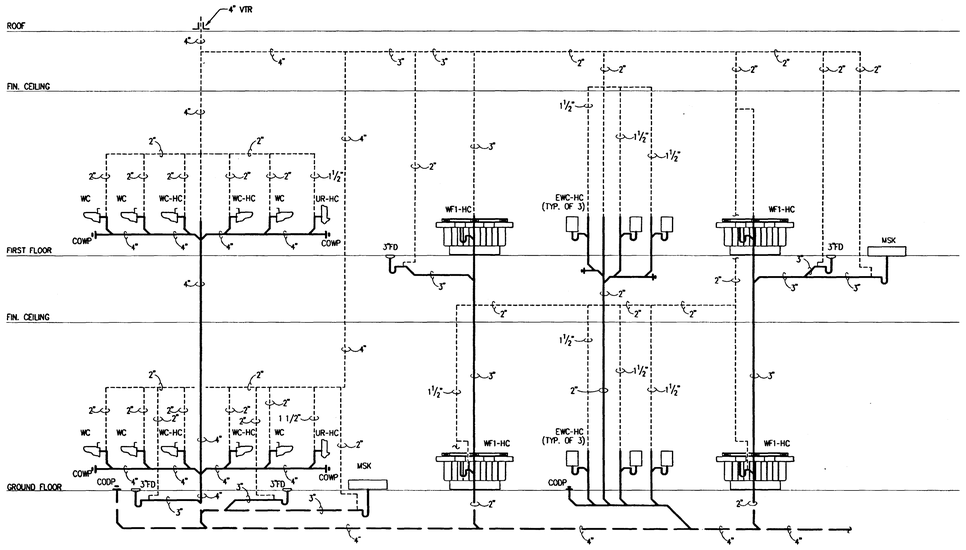
0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE: **MARCH 16, 1998**
SCALE: **1/8" = 1'-0"**
PROJECT NO.: **50950.06**
DRAWING NO.: **P110**

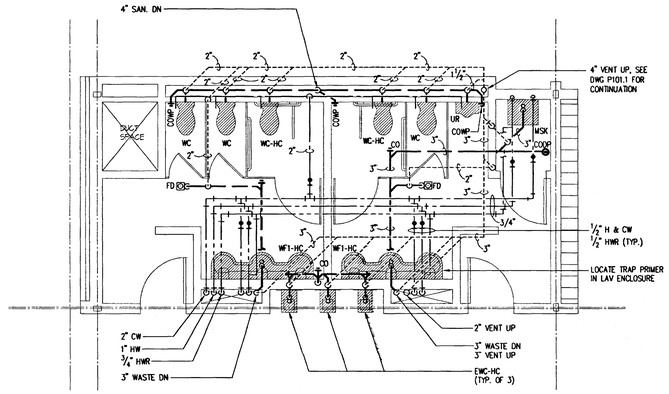
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BQ #70 & 125 Attachment



SANITARY RISER DIAGRAM
FIRST FLOOR AND SECOND FLOOR - PART A

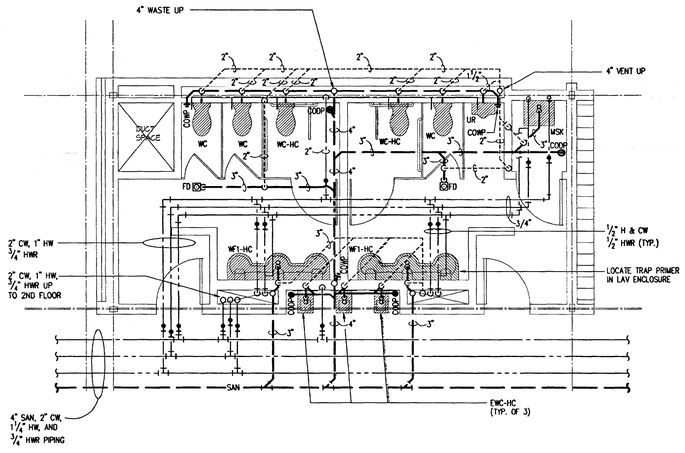
1 / P301 SCALE: NONE



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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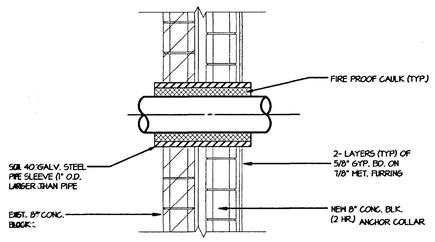
DRAWING TITLE

ENLARGED TOILET ROOM LAYOUT & RISER DIAGRAMS - PLUMBING

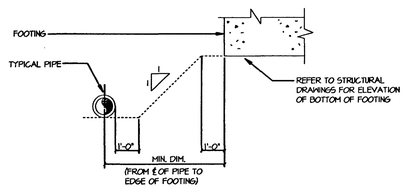
NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: P201

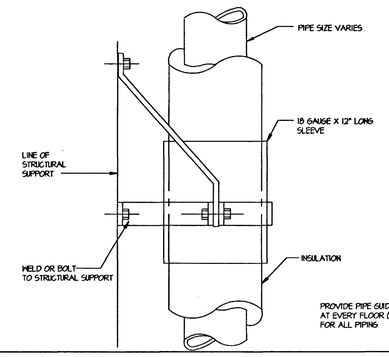
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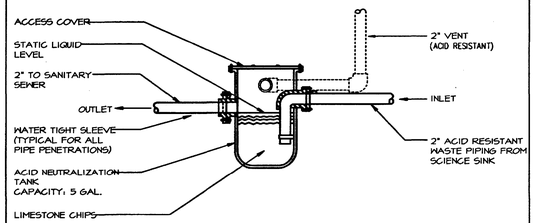
1 DETAIL OF PENETRATION W/ SLEEVE THRU FIRE WALL
NOT TO SCALE



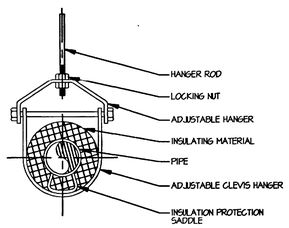
2 DETAIL OF UNDERGROUND PIPING
NOT TO SCALE



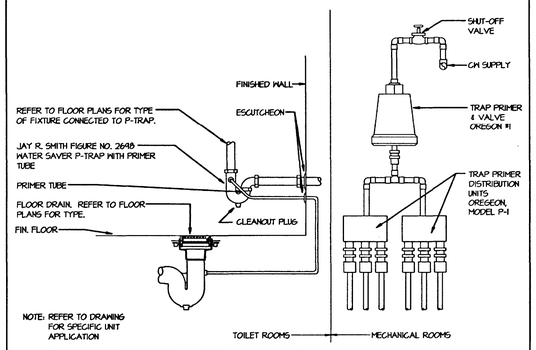
3 DETAIL OF VERTICAL PIPE GUIDE
NOT TO SCALE



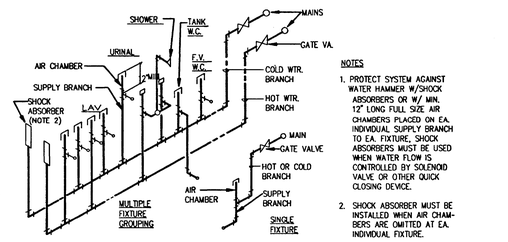
4 DETAIL OF ACID NEUTRALIZATION TANK
NOT TO SCALE



5 CLEVIS HANGAR WITH SADDLE
NOT TO SCALE

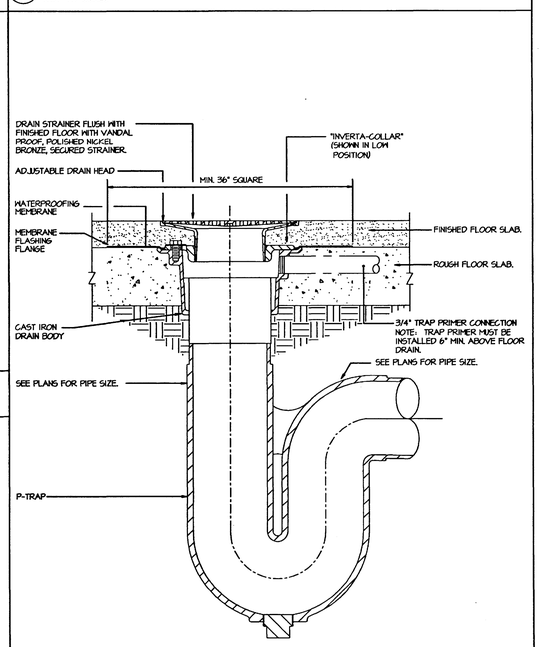


6 TRAP PRIMER DETAIL
NOT TO SCALE

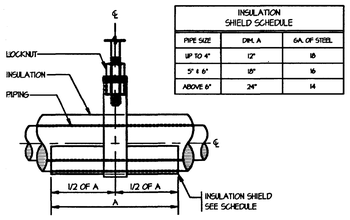


NOTES
1. PROTECT SYSTEM AGAINST WATER HAMMER W/SHOCK ABSORBERS OR W/ MIN. 12" LONG FULL SIZE AIR CHAMBERS PLACED ON E.A. INDIVIDUAL SUPPLY BRANCH TO E.A. FIXTURE, SHOCK ABSORBERS MUST BE USED WHEN WATER FLOW IS CONTROLLED BY SOLENOID VALVE OR OTHER QUICK CLOSING DEVICE.
2. SHOCK ABSORBER MUST BE INSTALLED 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

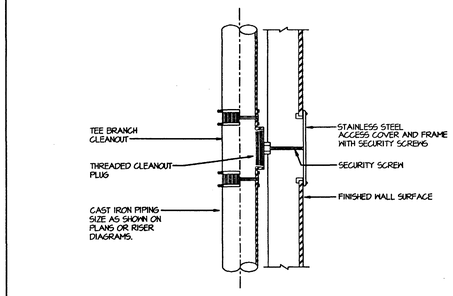


4 DETAIL OF ACID NEUTRALIZATION TANK
NOT TO SCALE

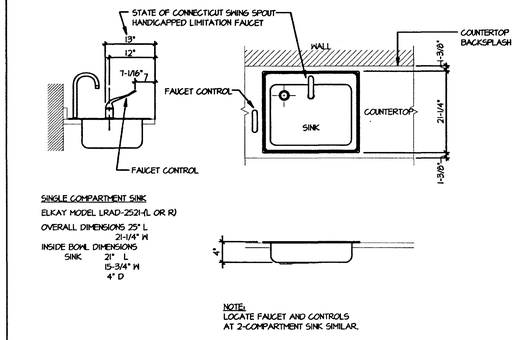


INSULATION SHIELD SCHEDULE		
PIPE SIZE	DIM. A	GA. OF STEEL
1/2" TO 4"	12"	18
5" & 6"	18"	16
ABOVE 6"	24"	14

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.

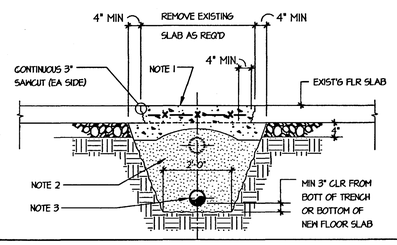
10 DETAIL OF HANDICAPPED ACCESSIBLE SINK & FAUCET LAYOUT
NOT TO SCALE

RPD SIZE	DRAIN SIZE
3/4"	1"
1"	1"
1 1/2"	2"
2"	2"

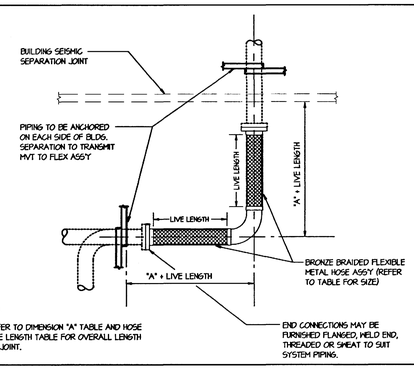
NOTE:
THIS DETAIL IS APPROPRIATE FOR PIPE SIZES 3/4" THRU 2".

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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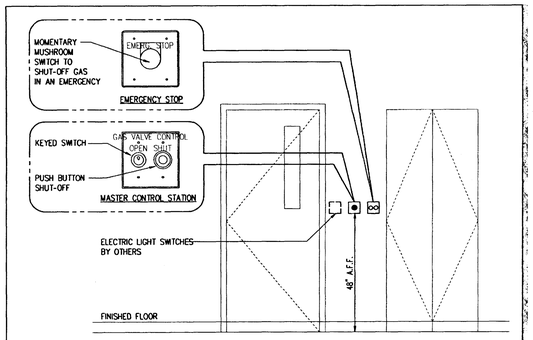
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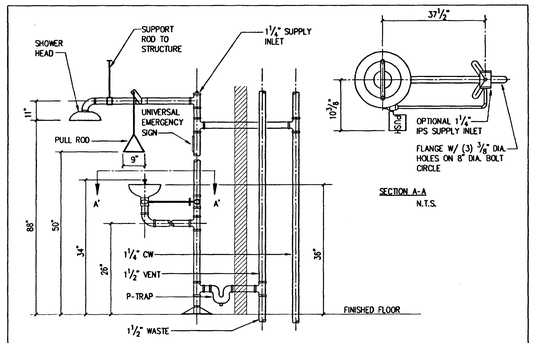
DRAWING TITLE
DETAILS - PLUMBING

NO	DATE	REVISION	BY

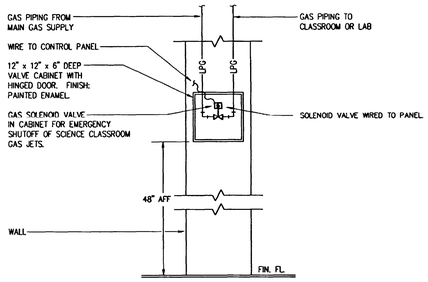
DATE: MARCH 16, 1998
SCALE: NOT TO SCALE
PROJECT NO.: 50950.06
DRAWING NO.: P301



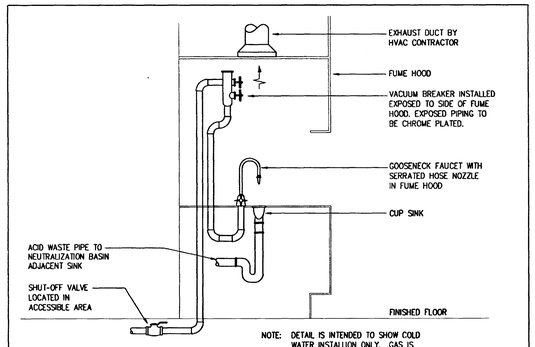
1 DETAIL OF EMERGENCY GAS CONTROL SHUTOFF
SCALE : 1/2" = 1'-0"



2 DETAIL OF EMERGENCY SHOWER/EYE WASH (FREE STANDING)
NOT TO SCALE

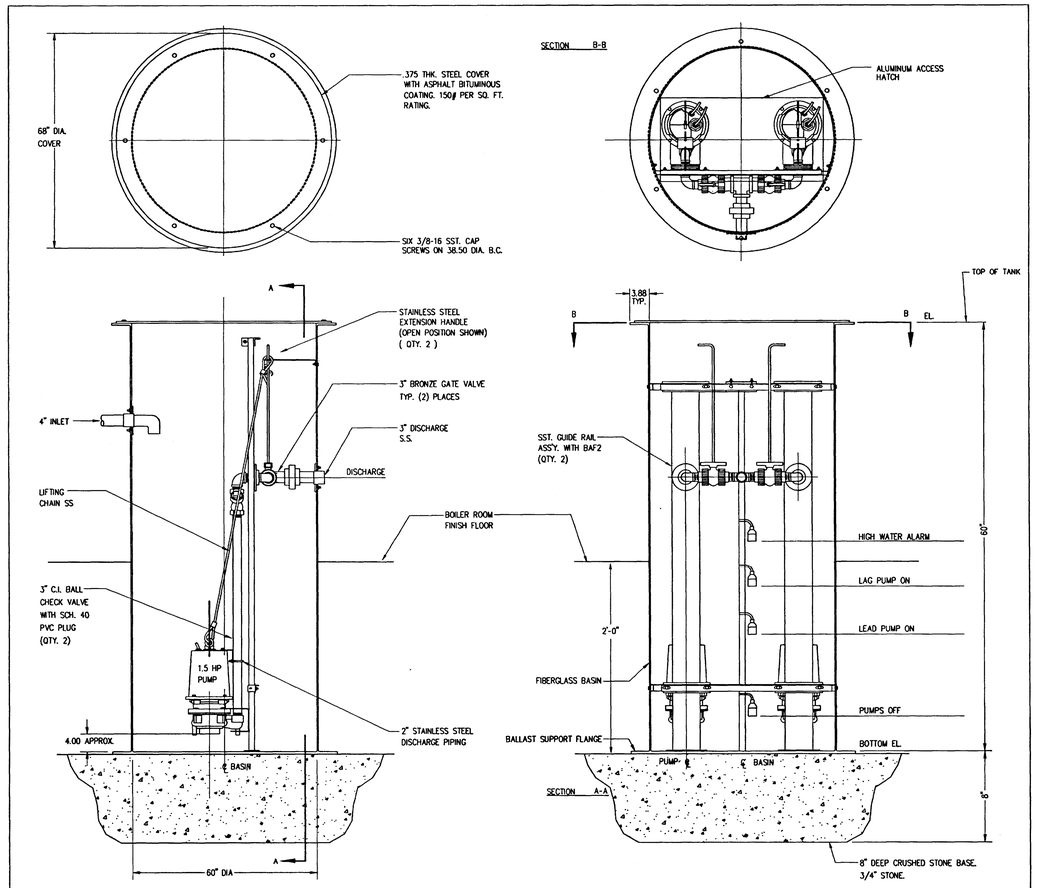


3 DETAIL OF GAS SOLENOID VALVE IN CABINET
NOT TO SCALE



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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DRAWING TITLE

DETAILS - PLUMBING

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: NOT TO SCALE
PROJECT NO.: 50950.06
DRAWING NO.: P302

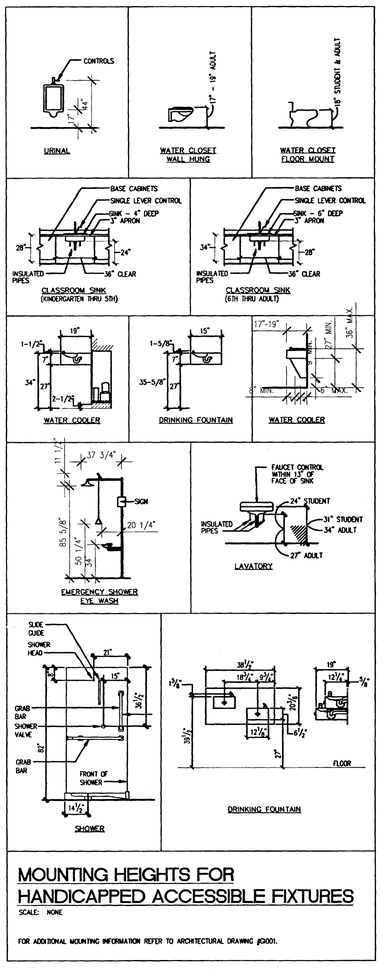
FIXTURE CONNECTION SCHEDULE

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

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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

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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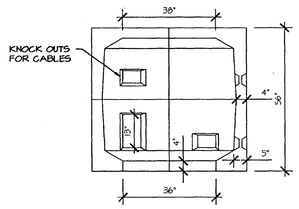
ELECTRICAL NOTE LEGEND:

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

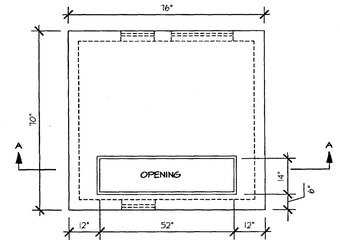


SECTION A-A

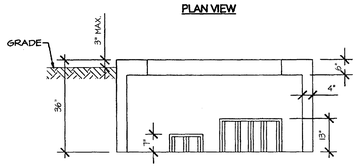
HANDHOLE - HEXAGONAL - PRECAST CONCRETE 60" WIDE X 56" HIGH OUTSIDE (N.U. SPC H-019)

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.
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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

SITE ELECTRICAL PLAN

0 40' 80' 120'

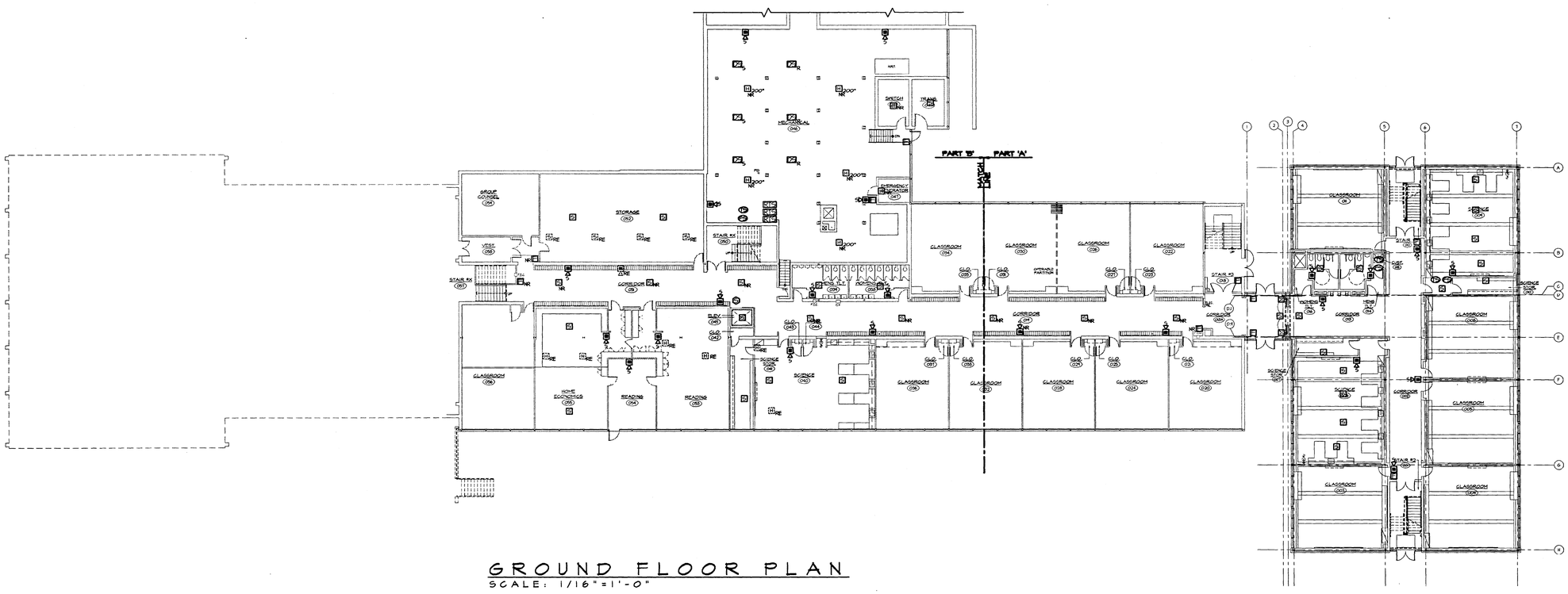
NO	DATE	REVISION	BY

DATE	MARCH 16, 1998
SCALE	AS NOTED
PROJECT NO.	50950.06
DRAWING NO.	E001

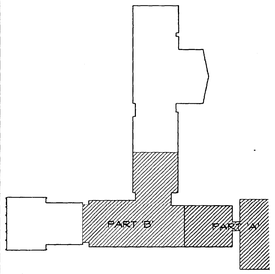
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BQ #70 & 125 Attachment

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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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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

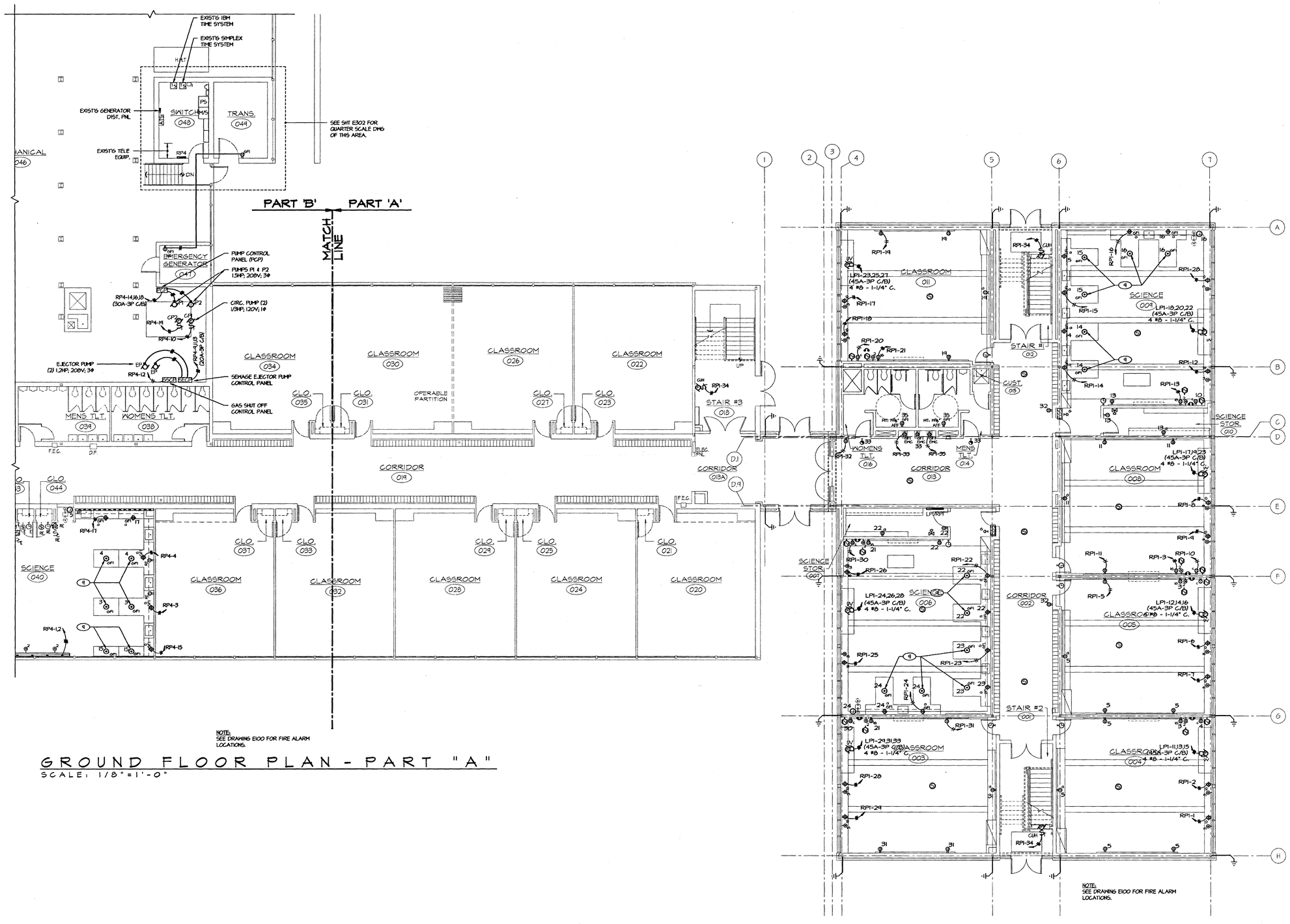
GROUND FLOOR FIRE ALARM PLAN

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

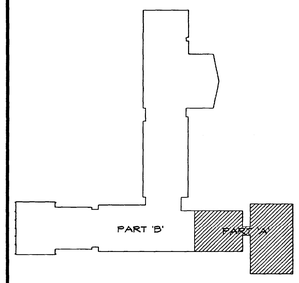
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GROUND FLOOR PLAN - PART "A"

SCALE: 1/8" = 1'-0"

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KEY PLAN

N

PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE

ARCHITECT/ENGINEER: W.D. BOLAND

DRAWN BY: F. AGOSTINI

FLETCHER THOMPSON

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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 PART "A" ELECTRICAL PLAN

0 4' 8' 16'

SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998

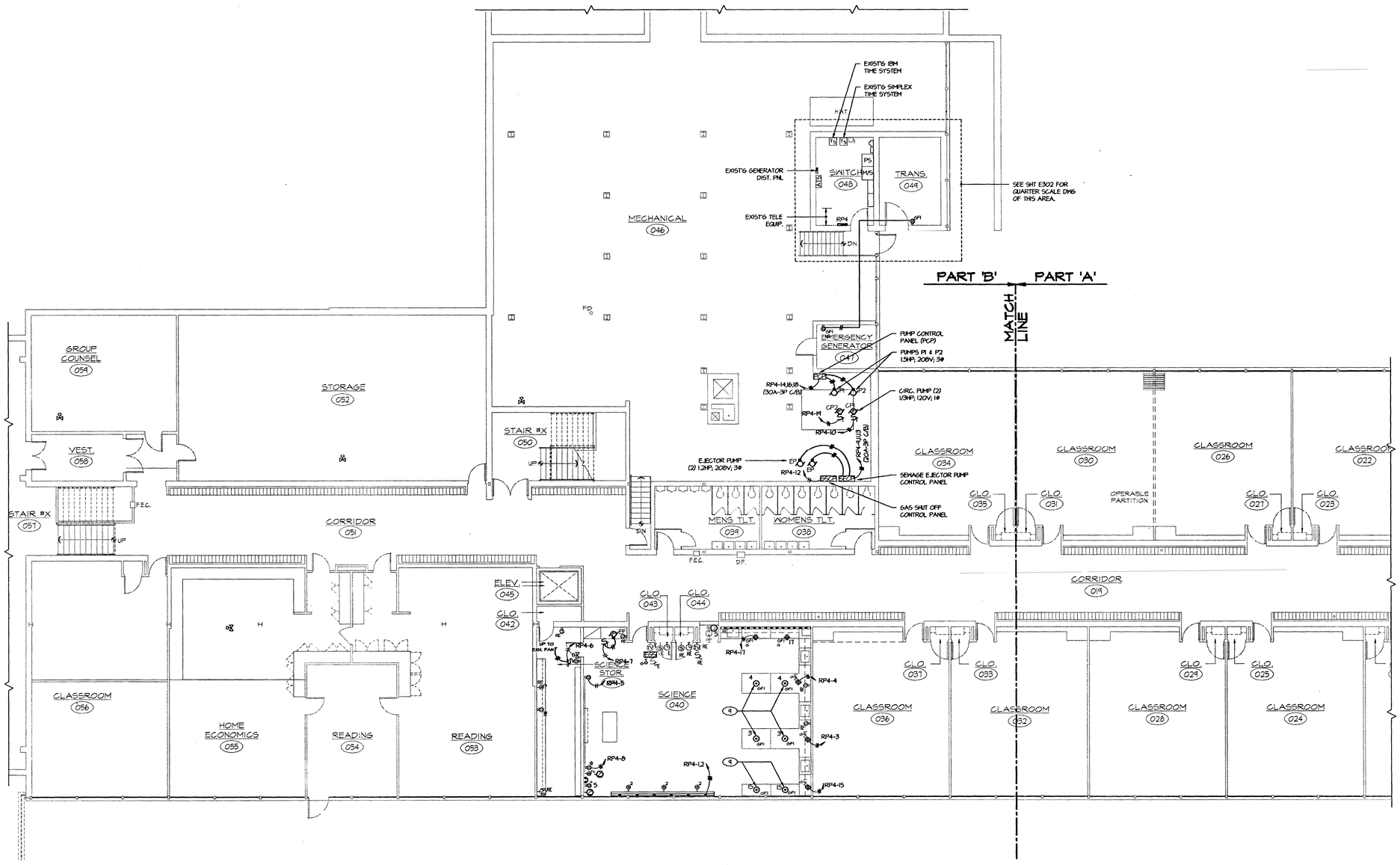
SCALE: 1/8" = 1'-0"

PROJECT NO.: 50950.06

DRAWING NO.: **E100.1**

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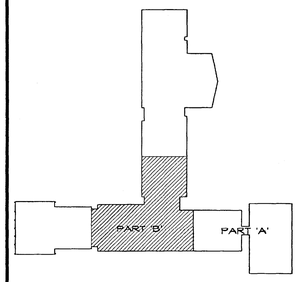
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GROUND FLOOR PLAN - PART "B"

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. ACOSTINI

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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 PART "B" ELECTRICAL PLAN

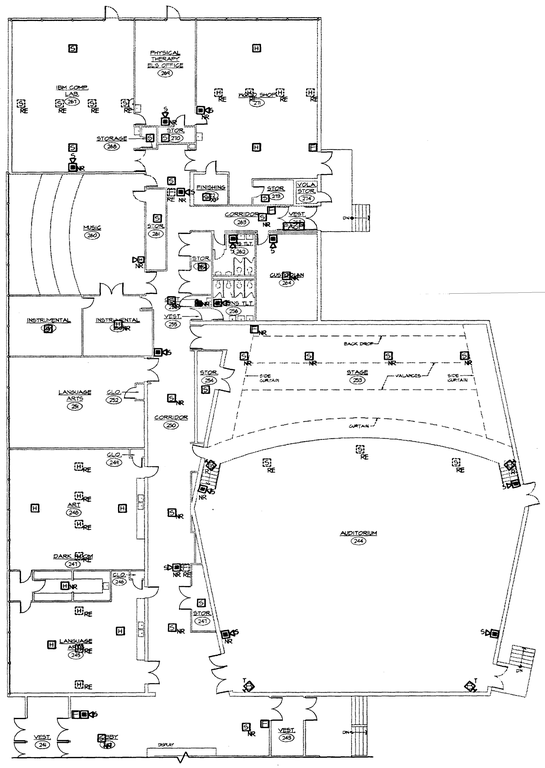
0 4' 8' 16'

SCALE: 1/8" = 1'-0"

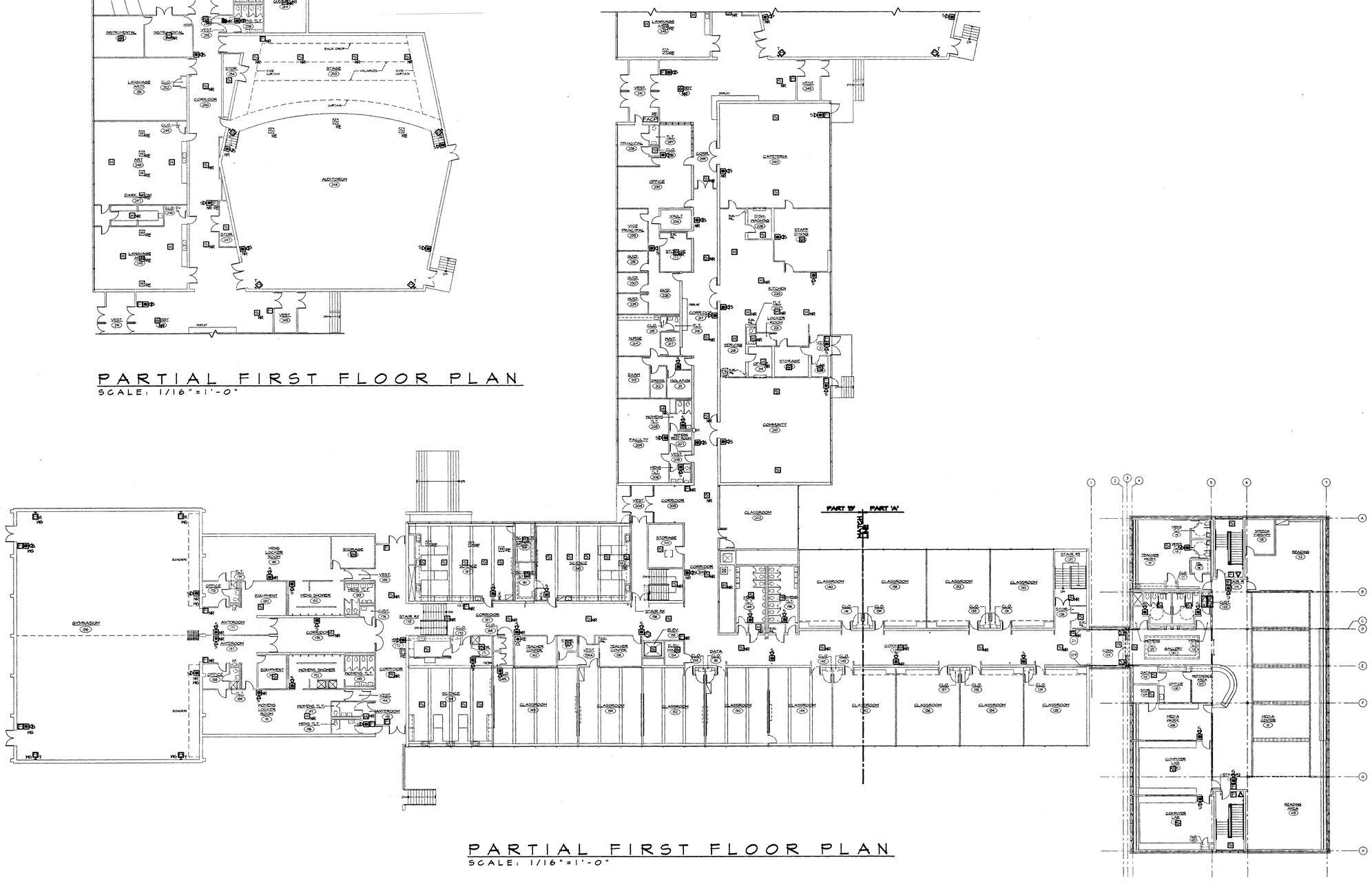
NO	DATE	REVISION	BY

DATE	MARCH 16, 1998
SCALE	1/8" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	E100.2

BQ #70 & 125 Attachment

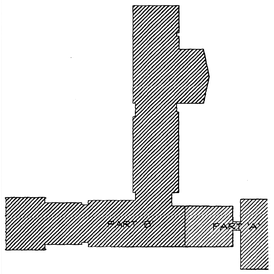


PARTIAL FIRST FLOOR PLAN
SCALE: 1/16"=1'-0"



PARTIAL FIRST FLOOR PLAN
SCALE: 1/16"=1'-0"

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KEY PLAN

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 FIRE ALARM PLAN

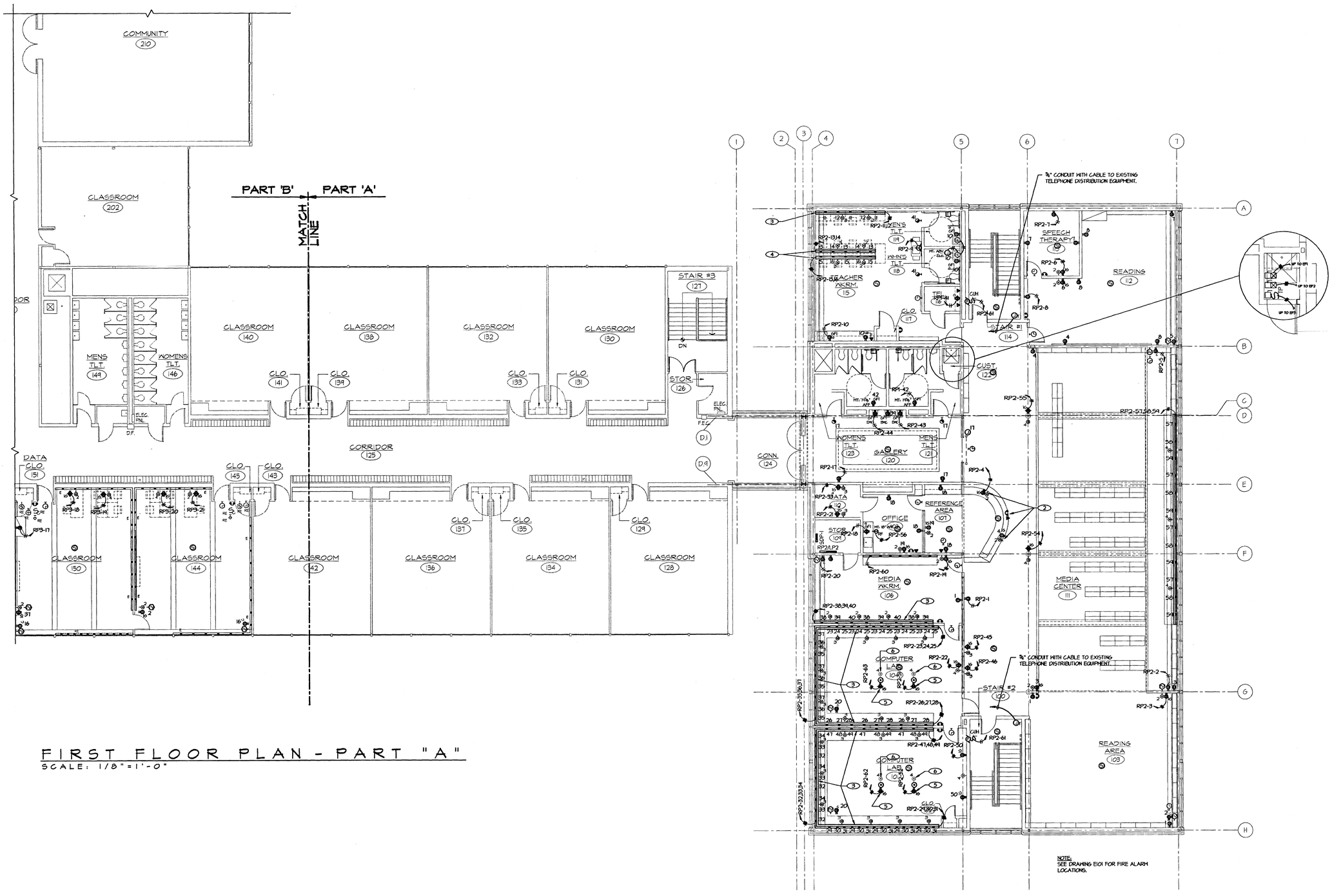
0 4' 8' 16'
SCALE: 1/8" = 1'-0"

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

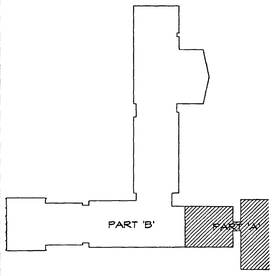
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BQ #70 & 125 Attachment



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

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" 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**

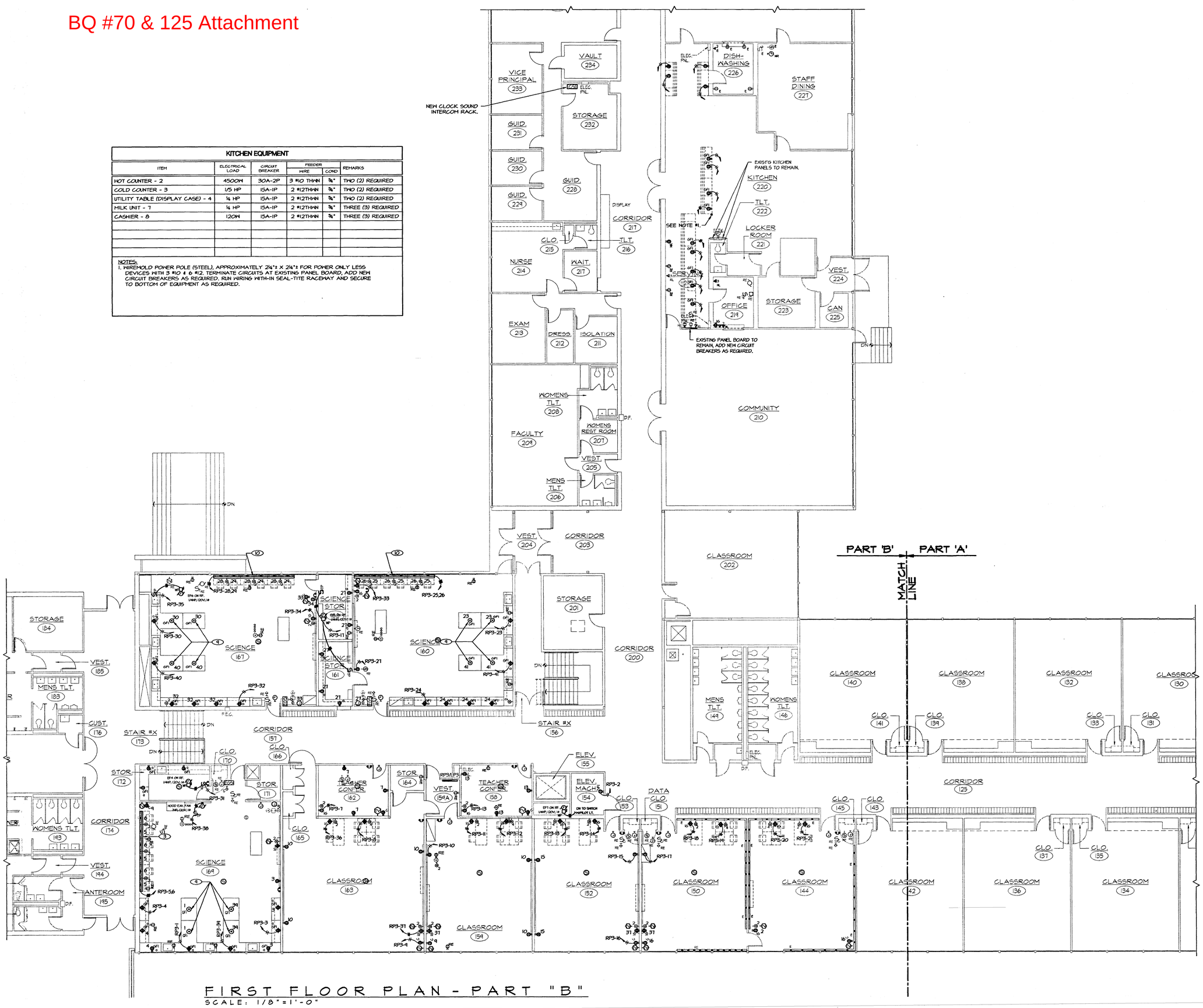
K:\50 projects\50950\dwg\Elec\E101-1 7-13-98 10:04:09 am EST

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

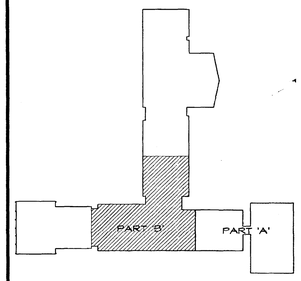
NOTES:
1. WIREMOLD POWER POLE (STEEL), APPROXIMATELY 2¼"± X 2¼"± FOR POWER ONLY LESS DEVICES WITH 3 #10 & 6 #12. TERMINATE CIRCUITS AT EXISTING PANEL BOARD, ADD NEW CIRCUIT BREAKERS AS REQUIRED. RUN WIRING WITH-IN SEAL-TITE RACEWAY AND SECURE TO BOTTOM OF EQUIPMENT AS REQUIRED.



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

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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

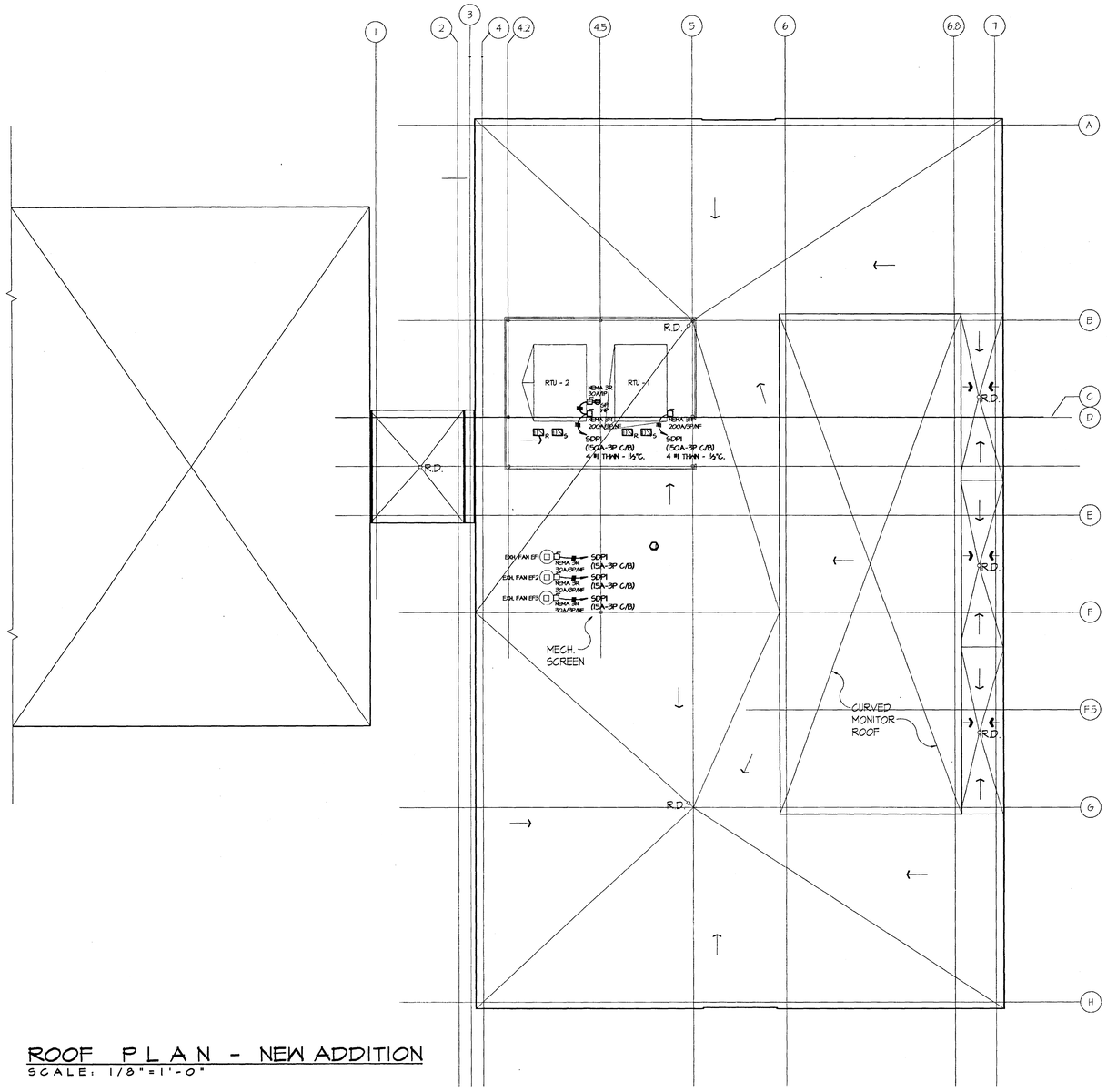
FIRST FLOOR PART "B" ELECTRICAL PLAN

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

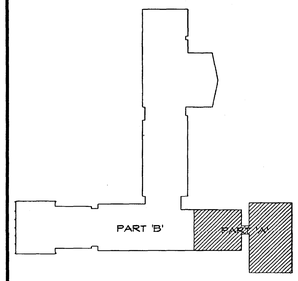
DATE: MARCH 16, 1998
SCALE: 1/8" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: E101.2

BQ #70 & 125 Attachment



ROOF PLAN - NEW ADDITION
SCALE: 1/8"=1'-0"

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KEY PLAN

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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

NEW ADDITION
ROOF
ELECTRICAL
PLAN

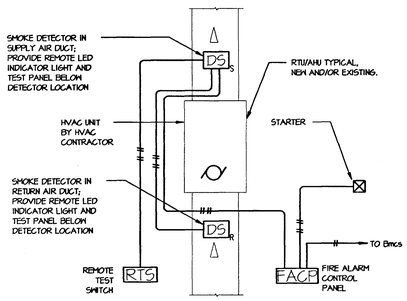
0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE: **MARCH 16, 1998**
SCALE: **1/8" = 1'-0"**
PROJECT NO.: **50950.06**
DRAWING NO.: **E110**

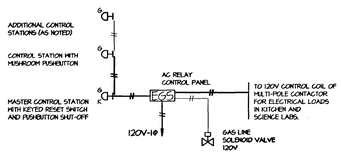
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BQ #70 & 125 Attachment



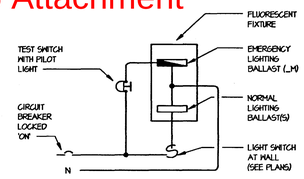
NOTE:
UPON ACTIVATION OF FIRE ALARM SYSTEM RTU SHALL BE SHUT OFF, TYPICALLY, OR AS DIRECTED BY FIRE MARSHAL.

WIRING DIAGRAM: DUCT SMOKE DETECTORS
NOT TO SCALE:



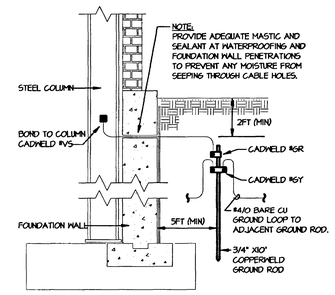
NOTES:
1. ALL PANELS, VALVES, AND CONTROL STATIONS TO BE FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR.
2. ALL CONDUIT AND WIRE TO BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR; USE #12AWG, 3/4"C MIN.

WIRING DIAGRAM: EMERGENCY GAS SHUT-OFF
SCALE: NONE

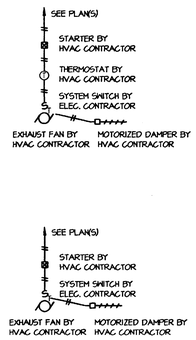


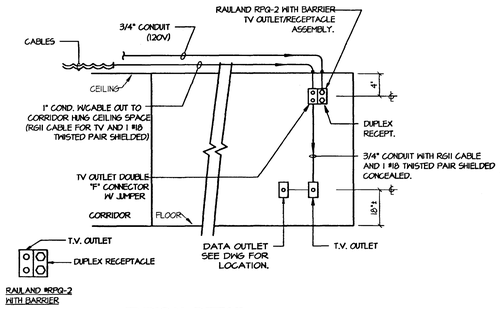
NOTE: EMERGENCY LAMPS SWITCHABLE; ON DURING A POWER FAILURE.

WIRING DIAGRAM: EMERGENCY FLUORESCENT LIGHTING
NOT TO SCALE:



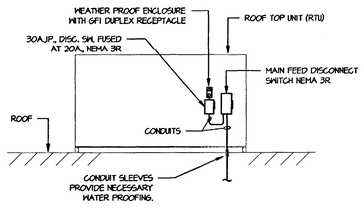
GROUNDING LOOP DETAIL
NOT TO SCALE:



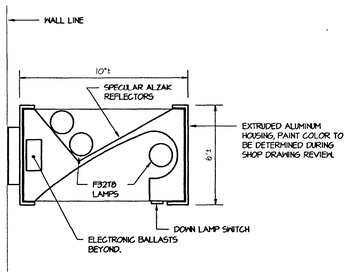


RAULAND #RPG-2 WITH BARRIER

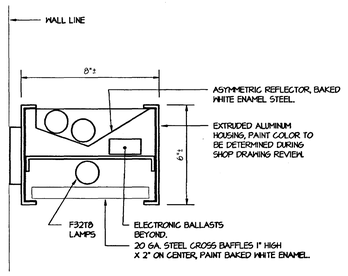
TYPICAL DETAIL: CLASSROOM T.V. WIRING
NOT TO SCALE:



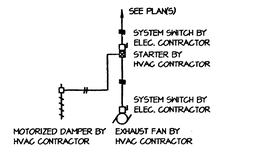
ROOF TOP UNIT DETAIL
NOT TO SCALE:



CROSS SECTION DETAIL: FIXTURE TYPE "K1" SERIES
NOT TO SCALE

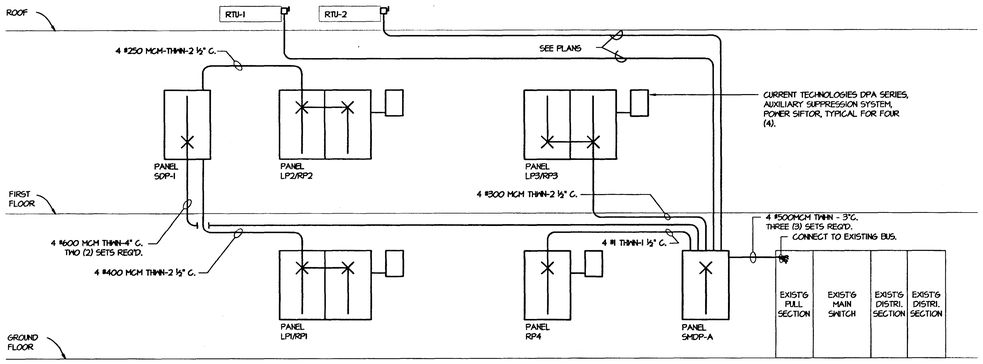


CROSS SECTION DETAIL: FIXTURE TYPE "H1A" SERIES
NOT TO SCALE

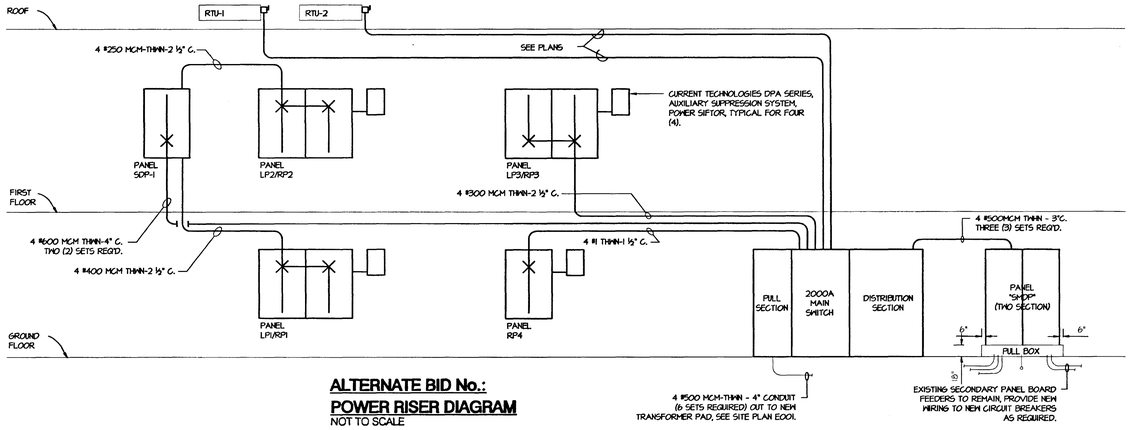


NOTES:
1. ALL EQUIPMENT BY HVAC CONTRACTOR (UON).
2. ALL WIRING BY ELECTRICAL CONTRACTOR.
3. ALL WIRING TO BE #12 (MIN) IN 3/4"C (MIN).
4. REFER TO PLAN(S) FOR LOCATIONS AND QUANTITIES OF EXHAUST FANS AND COMPONENTS.

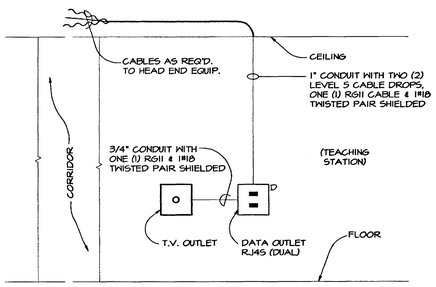
WIRING DIAGRAM: HVAC EXHAUST FANS
NOT TO SCALE:



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

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

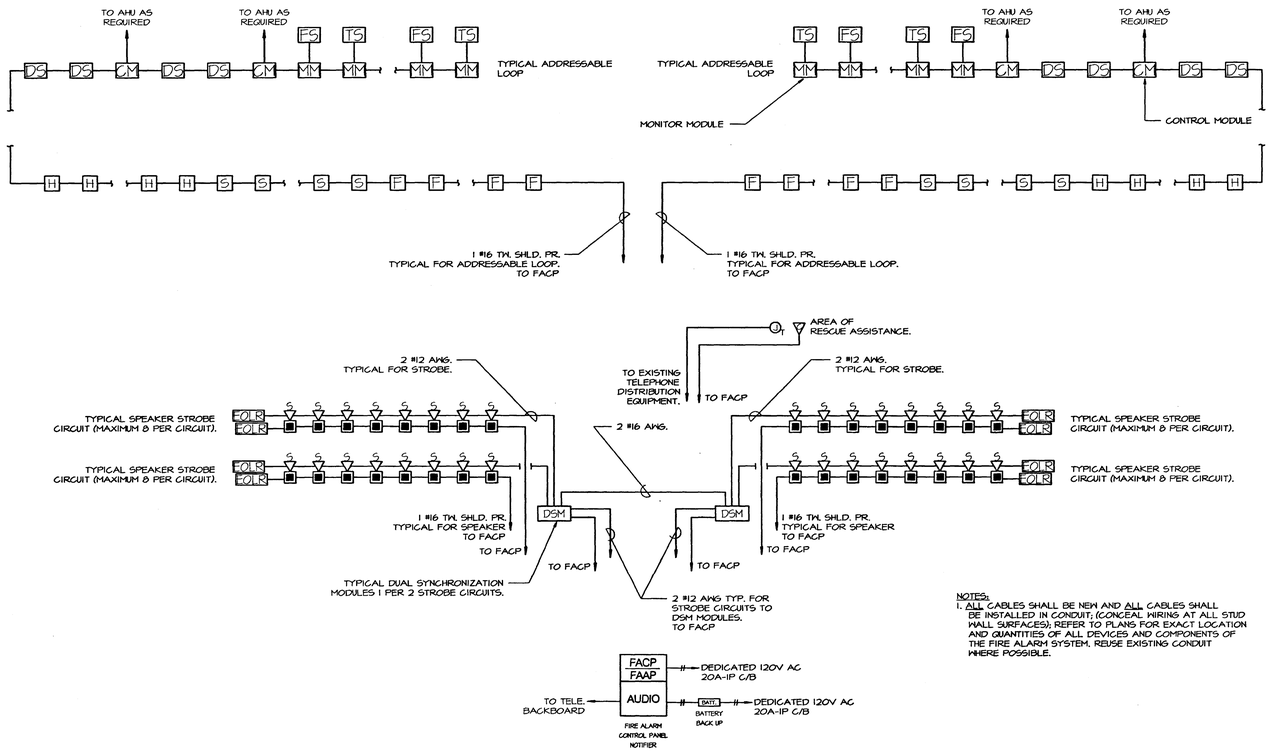
ELECTRICAL WIRING AND RISER DIAGRAMS AND DETAILS

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: **E301**

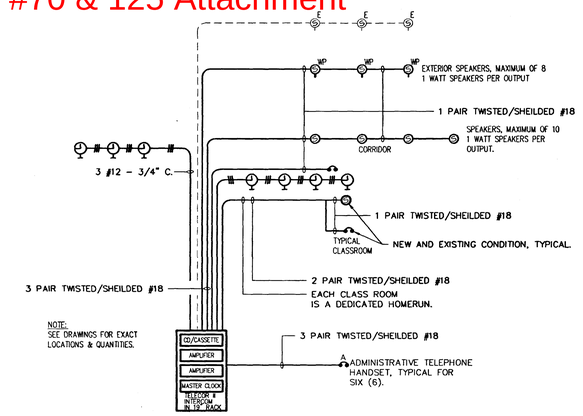
K:\projects\06050\dwg\files\E301 1-13-98 10:13:18 pm EST

BQ #70 & 125 Attachment

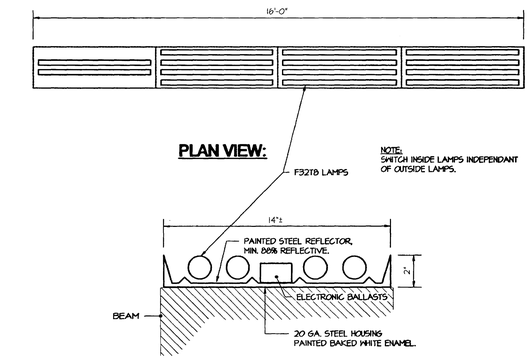


NOTES:
1. ALL CABLES SHALL BE NEW AND ALL CABLES SHALL BE INSTALLED IN CONDUIT; (CONCEAL WIRING AT ALL STUD WALL SURFACES). REFER TO PLANS FOR EXACT LOCATION AND QUANTITIES OF ALL DEVICES AND COMPONENTS OF THE FIRE ALARM SYSTEM. REUSE EXISTING CONDUIT WHERE POSSIBLE.

WIRING DIAGRAM: FIRE ALARM SYSTEM
NOT TO SCALE

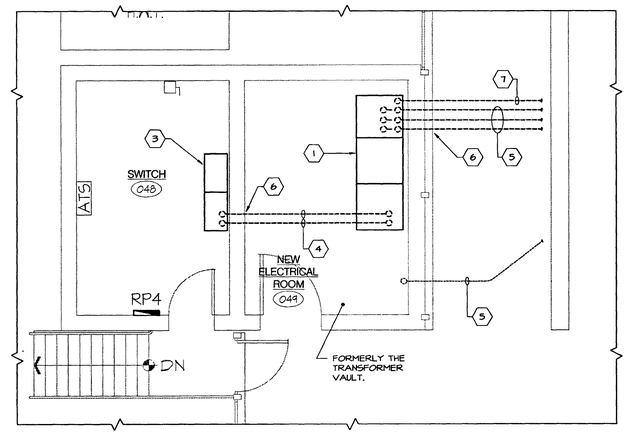


WIRING DIAGRAM: CLOCK-SOUND-INTERCOM
NOT TO SCALE



CROSS SECTION:

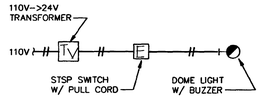
LUMINAIRE DETAIL:
FIXTURE TYPE "H1/H1M" SERIES
NOT TO SCALE



ELECTRICAL ROOM LAYOUT
SCALE: 1/4" = 1'-0"

ELECTRICAL NOTE LEGEND:

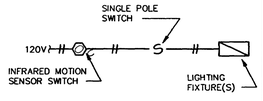
1. NEW 2000A MAIN SWITCH AND SECONDARY DISTRIBUTION SWITCHBOARD (EXACT LOCATION TO BE DETERMINED FROM FINAL SHOP DRAWING DIMENSIONS.)
2. NEW UNDERGROUND SECONDARY FEEDERS, SEE SHEET E001.
3. NEW SUB-DISTRIBUTION PANEL, SEE SHEET E301.
4. NEW SECONDARY FEEDERS, SEE SHEET E301.
5. APPROXIMATE LOCATION 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.

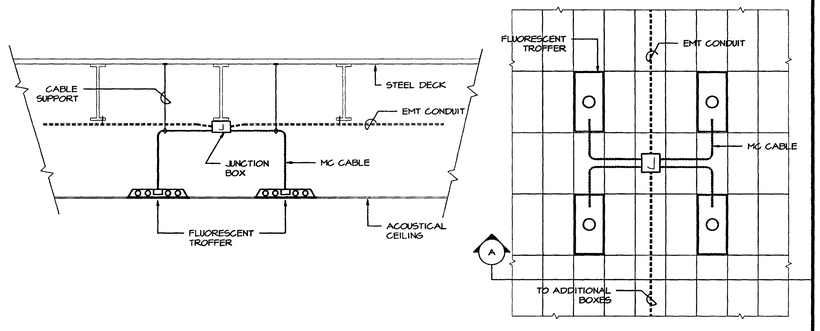
WIRING DIAGRAM: CALL FOR AID SYSTEM
NOT TO SCALE



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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DRAWN BY: F. AGOSTINI

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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

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

E:\50_projects\50950\cad\dwg\E302 7:13:48, 10/14/01 on FST

BQ #70 & 125 Attachment

SCHEDULE OF LUMINAIRES

TYPE VOLTS	MANUFACTURER CATALOG NUMBER	LAMPS SOURCE	DESCRIPTION	REMARKS
A1 120V	Hubbel # RS36NA02-B1, 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 # RS36NA02-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 # RA26NA02-A1	(2) 32W	Similar to Type "A1" except 2'x2' housing size and "U" shaped	Recessed
A1AM 120V	Hubbel # RA26NA02-EM	(2) 32W	Similar to Type "A1A" except one (1) lamp on self-contained emergency ballast.	Recessed
A2 120V	Hubbel # RC26NA02-B1	(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 # RC26NA02-EM	(2) 32W	Similar to Type "A2" except one (1) lamp on self-contained emergency ballast.	Recessed
B1 120V	Ledalite # 2526T025-24-1-12-E0	(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-E0-EM	(12) 32W	Similar to Type "B1" except one (1) lamp on self-contained emergency ballast.	Pendant
B1A 120V	Ledalite # 2526T025-20-1-12-E0	(10) 32W	Similar to Type "B1" except twenty foot (20'-0") long housing.	Pendant
B1B 120V	Ledalite # 2526T025-08-1-12-E0	(10) 32W	Similar to Type "B1" except twenty foot (20'-0") long housing.	Pendant
B1C 120V	Ledalite # 2526T025-8-1-12-E0	(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 # CCA12854GT8-CWM-TW-EM	(4) 25W	Indirect cove light, two (2) lamp, T8, electronic ballasts 6'-0" Long housing.	Surface
F1M 120V	Lite Control # CCA12854GT8-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	Prudentail #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 "AIM" 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. "AIM" 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)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	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)
M, S	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		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
	CALL FOR AID SWITCH WITH PULL CORD 36" AFF	FS TS	SPRINKLER FLOW SWITCH, TAMPER SWITCH
	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.

This drawing and details on it, as an instrument of service, is the property of the architect and may be used for this specific project and shall not be loaned, copied or reproduced without written consent of the architect.

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
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
DRAWN BY F. ACOSTINI

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 PART "A" LIGHTING PLAN

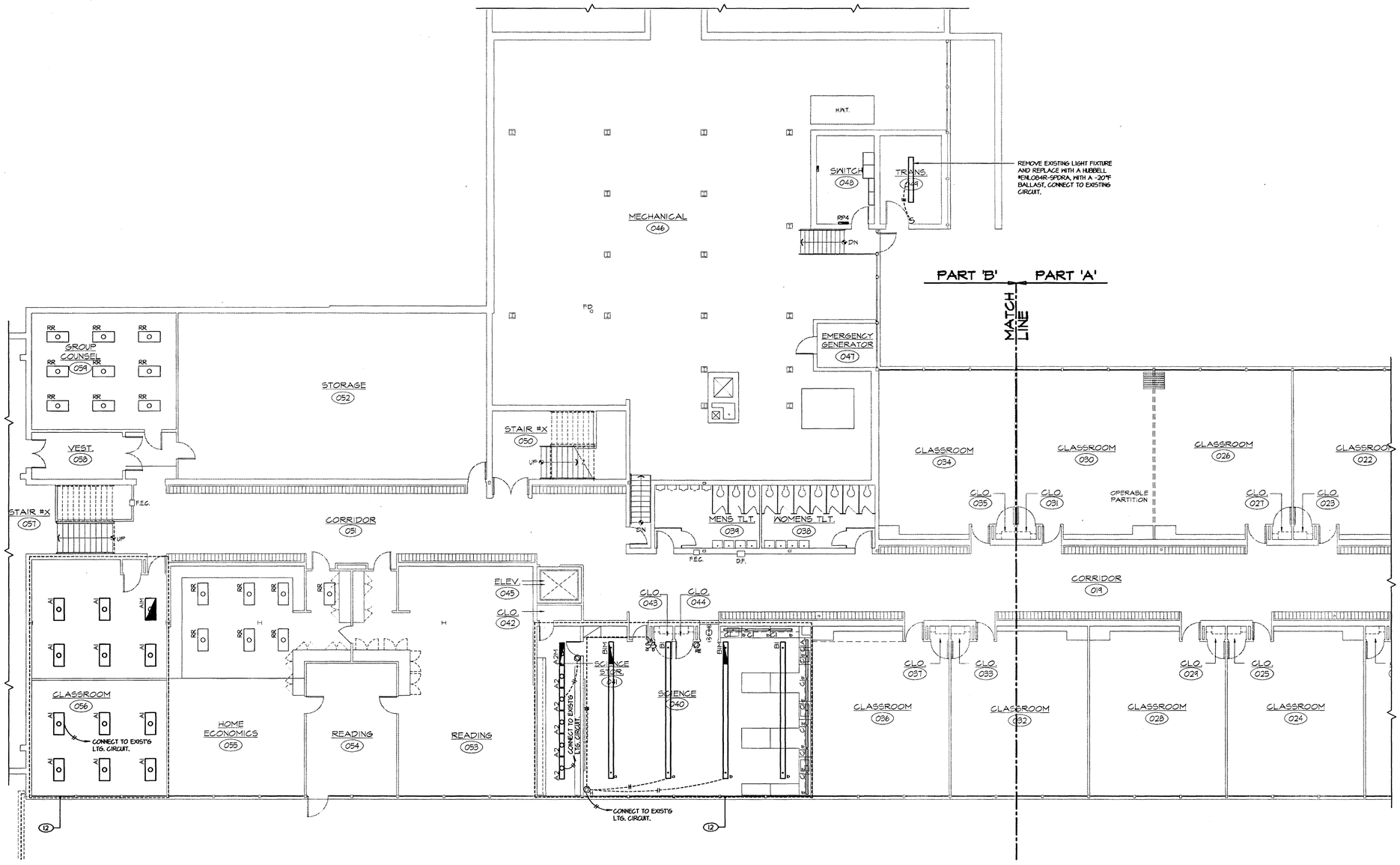
0 4' 8' 16'
SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE MARCH 16, 1998
SCALE 1/8" = 1'-0"
PROJECT NO. 50950.06
DRAWING NO. E700.1

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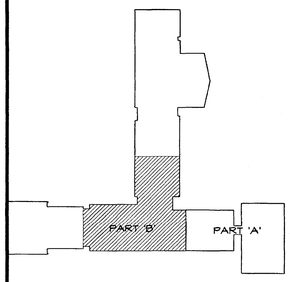
BQ #70 & 125 Attachment



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
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

GROUND FLOOR PART "B" LIGHTING PLAN

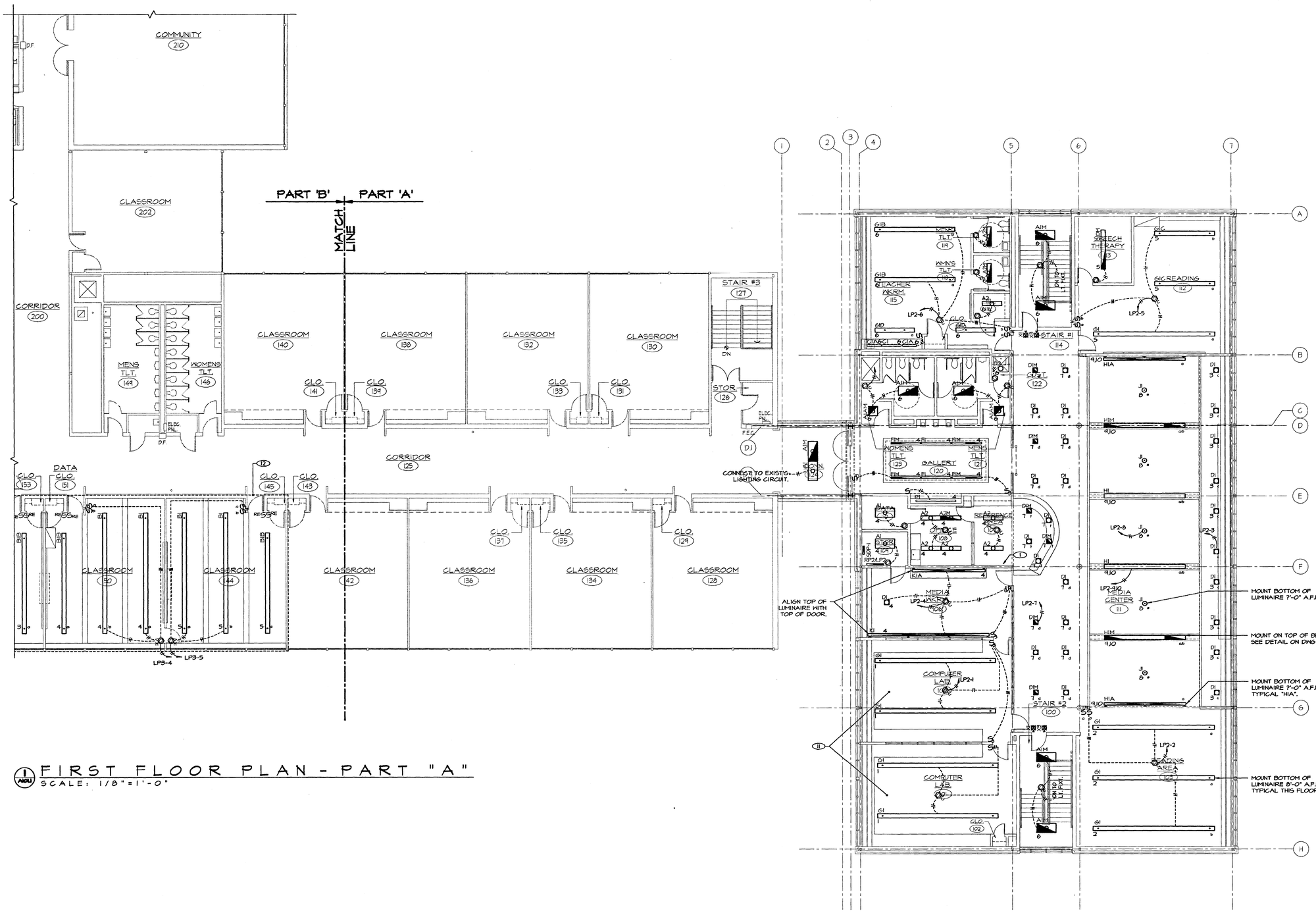
0 4' 8' 16'

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

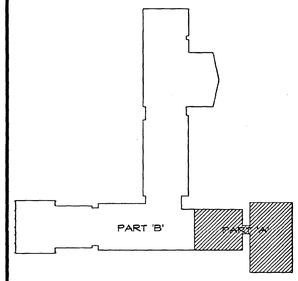
BQ #70 & 125 Attachment



1 A601 FIRST FLOOR PLAN - PART "A"

SCALE: 1/8"=1'-0"

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KEY PLAN

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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 "A" LIGHTING PLAN

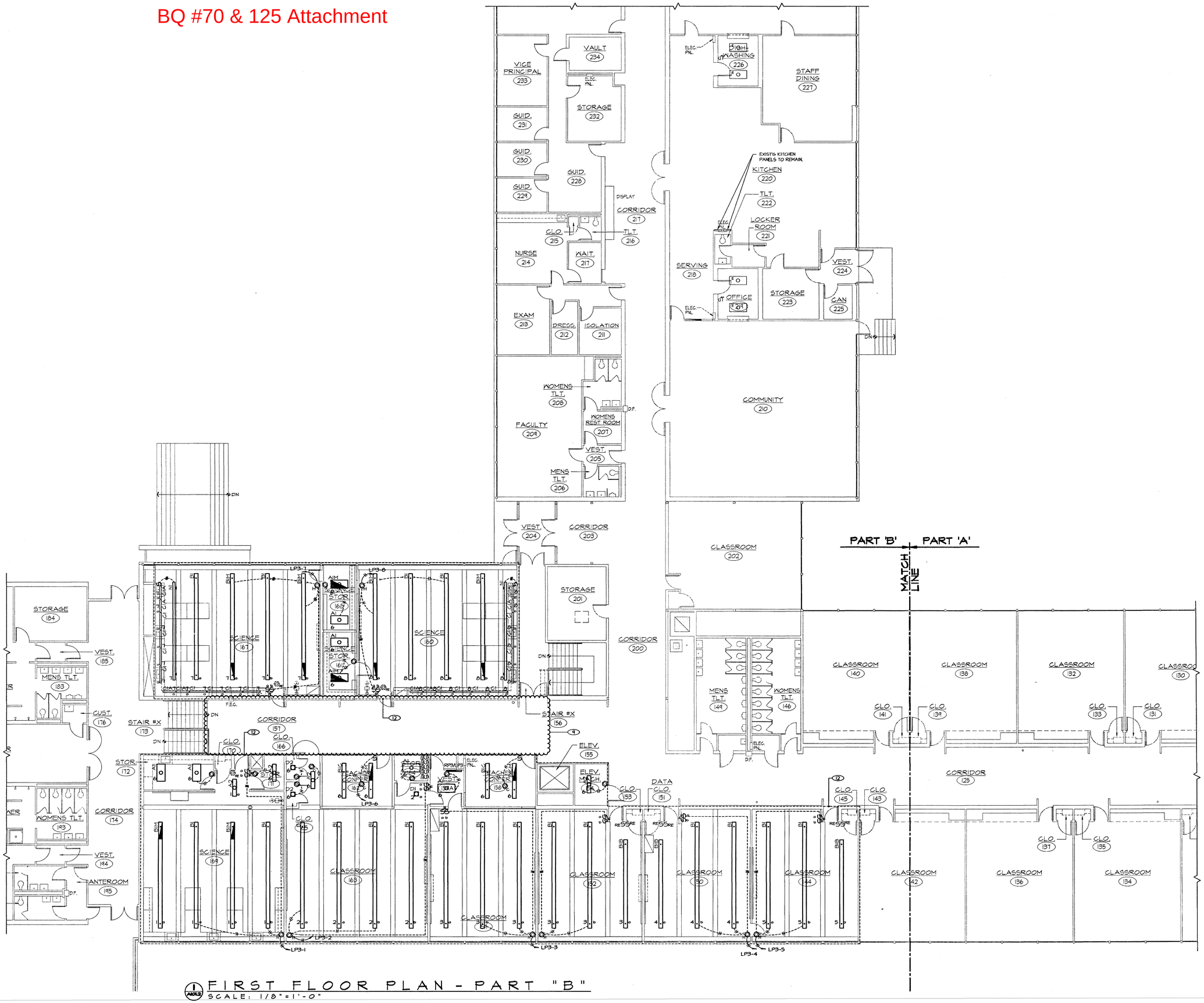
0 4' 8' 16'
SCALE: 1/8" = 1'-0"

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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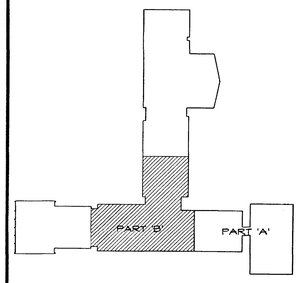
BQ #70 & 125 Attachment



1 A601.2 FIRST FLOOR PLAN - PART "B"
SCALE: 1/8"=1'-0"

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KEY PLAN

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

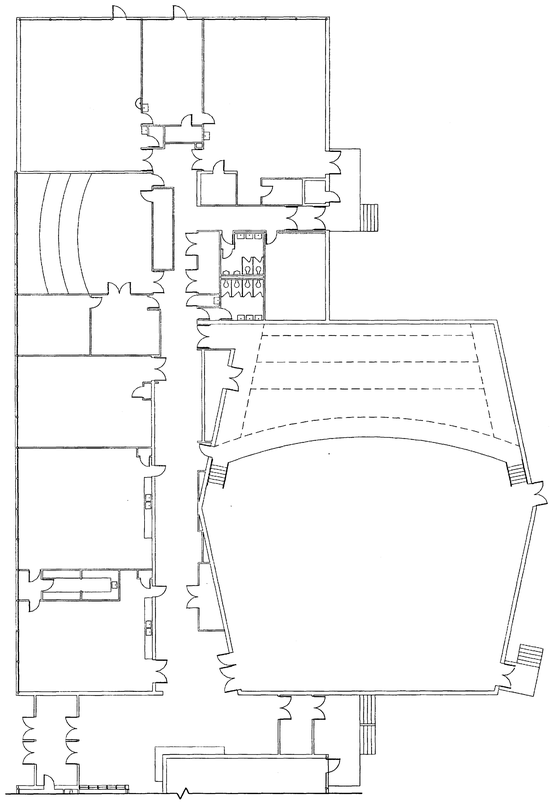
FIRST FLOOR PART "B" LIGHTING PLAN

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

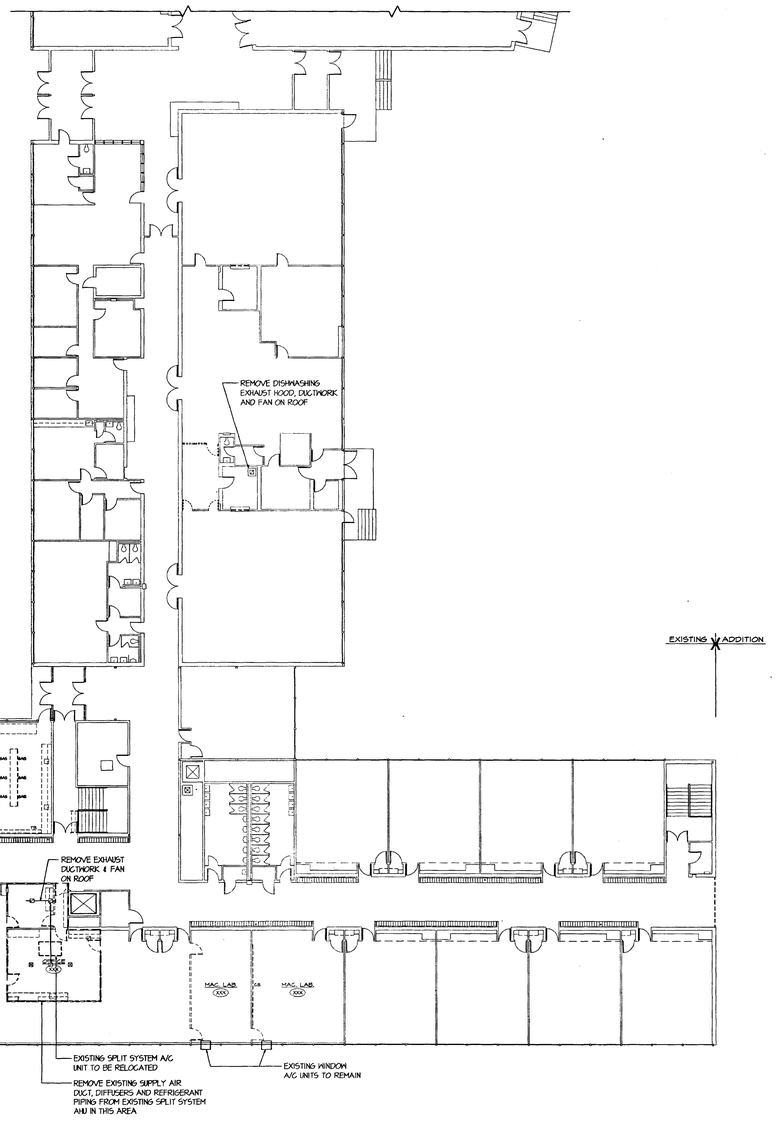
NO	DATE	REVISION	BY

DATE	MARCH 16, 1998
SCALE	1/8" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	E701.2

BQ #70 & 125 Attachment



② FIRST FLOOR DEMOLITION PLAN
SCALE: 1/16"=1'-0"

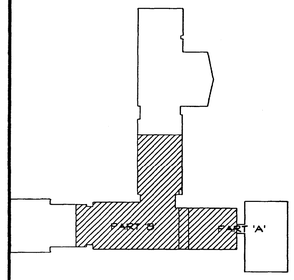


① FIRST FLOOR DEMOLITION PLAN
SCALE: 1/16"=1'-0"

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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

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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 DEMOLITION PLAN - HVAC

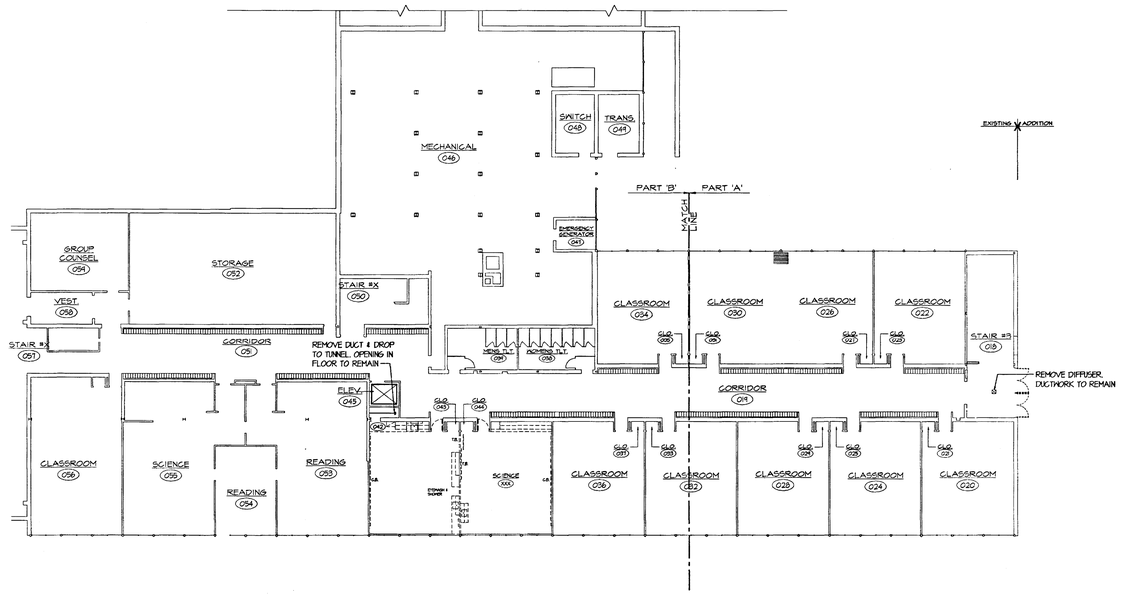
0 4' 8' 16'
SCALE: 1/8" = 1'-0"

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

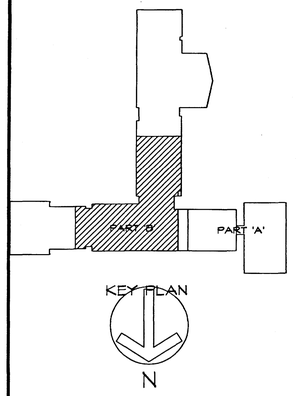


1 A099 GROUND FLOOR DEMOLITION PLAN
SCALE: 1/16"=1'-0"

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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

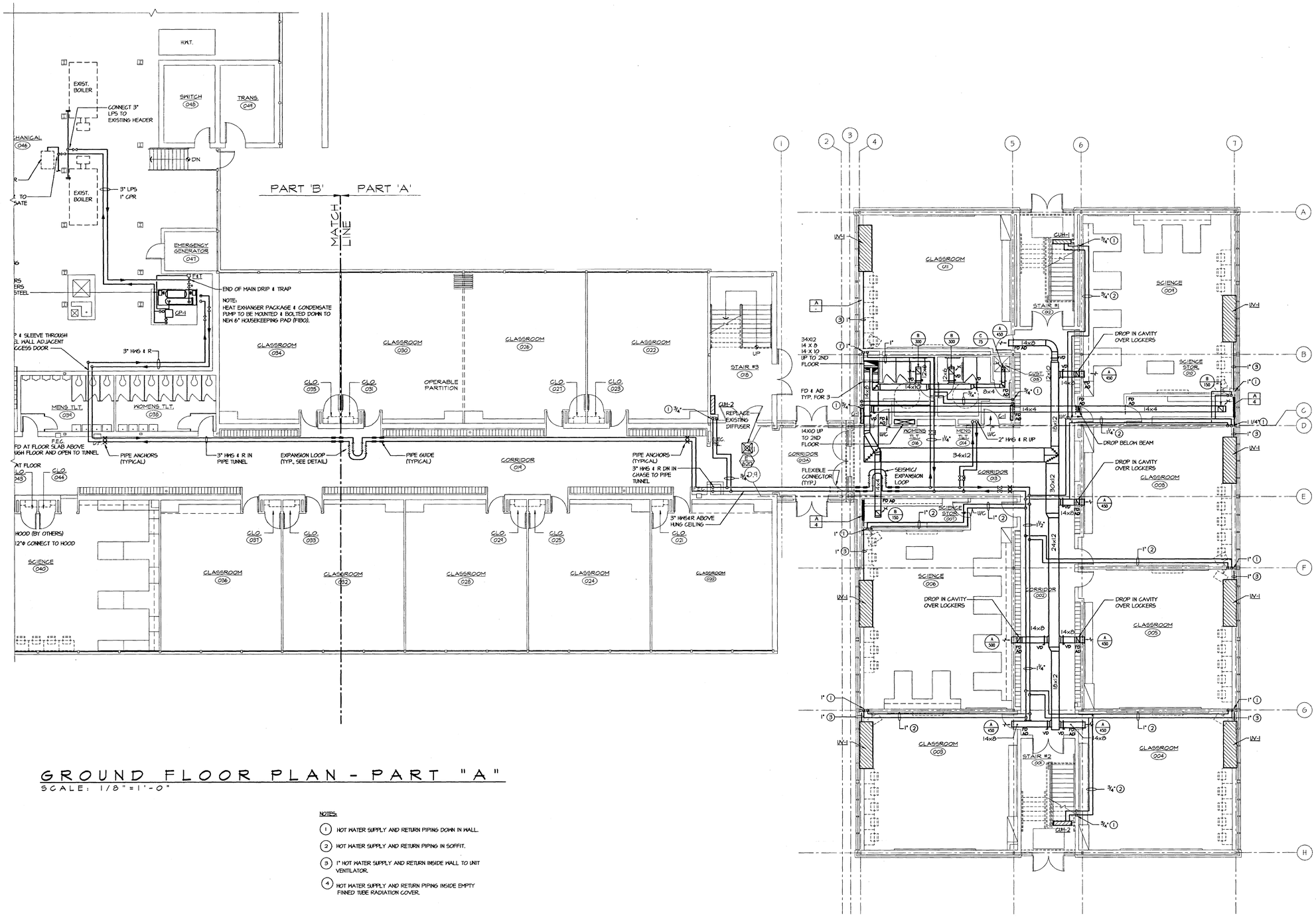
GROUND FLOOR DEMOLITION PLAN - HVAC

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"

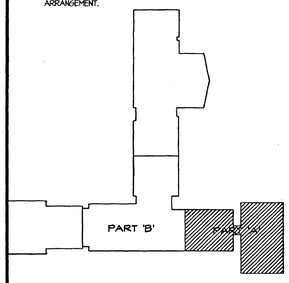
NOTES:

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

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ARCHITECTURE / ENGINEERING / INTERIOR DESIGN

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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 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"

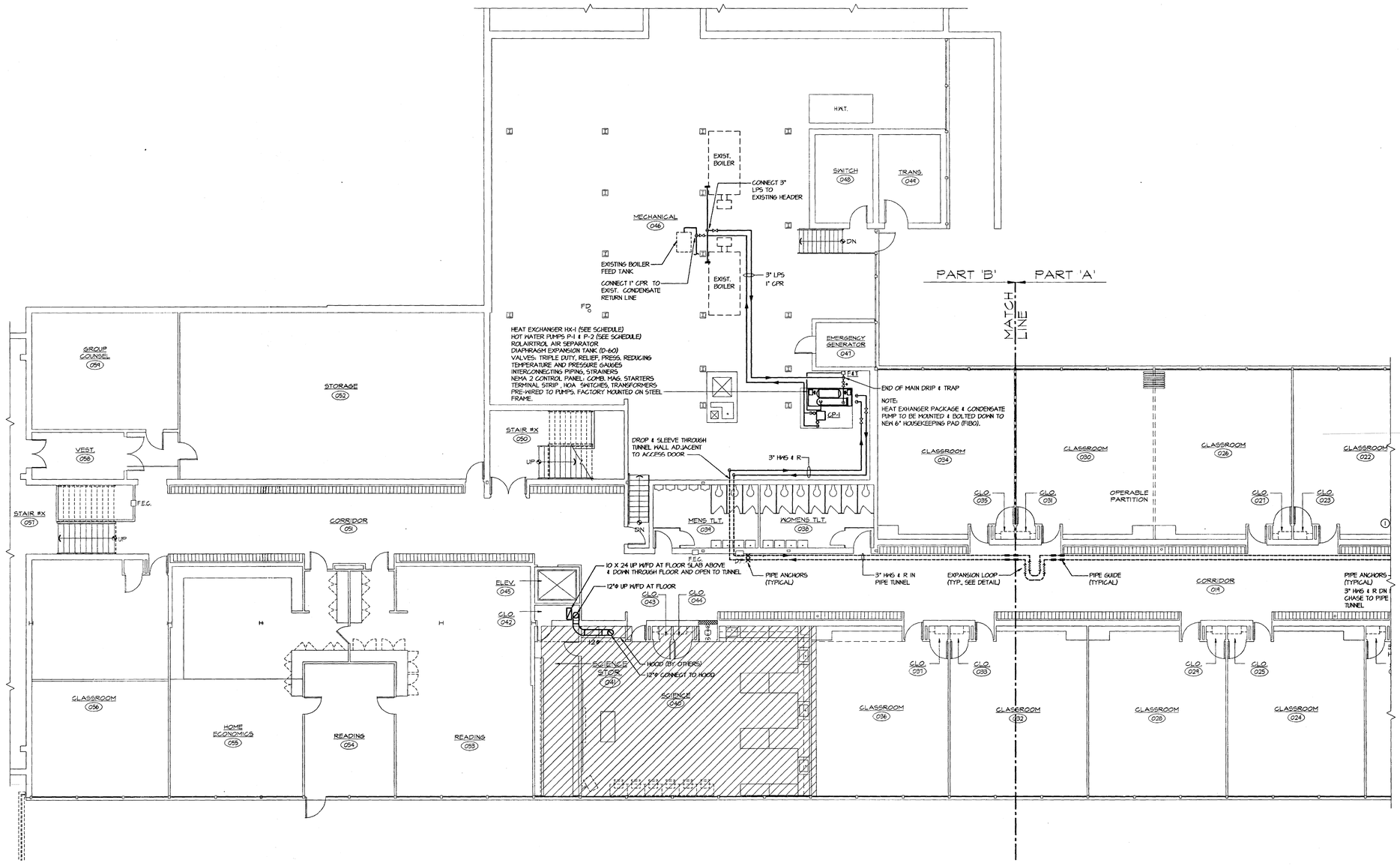
PROJECT NO.: 50950.06

DRAWING NO.: **M100.1**

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AB

BQ #70 & 125 Attachment



GROUND FLOOR PLAN - PART "B"

SCALE: 1/8" = 1'-0"

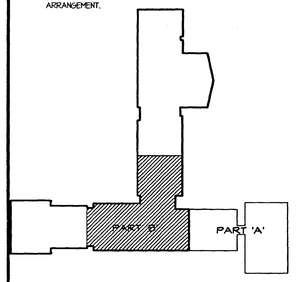
NOTES:

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

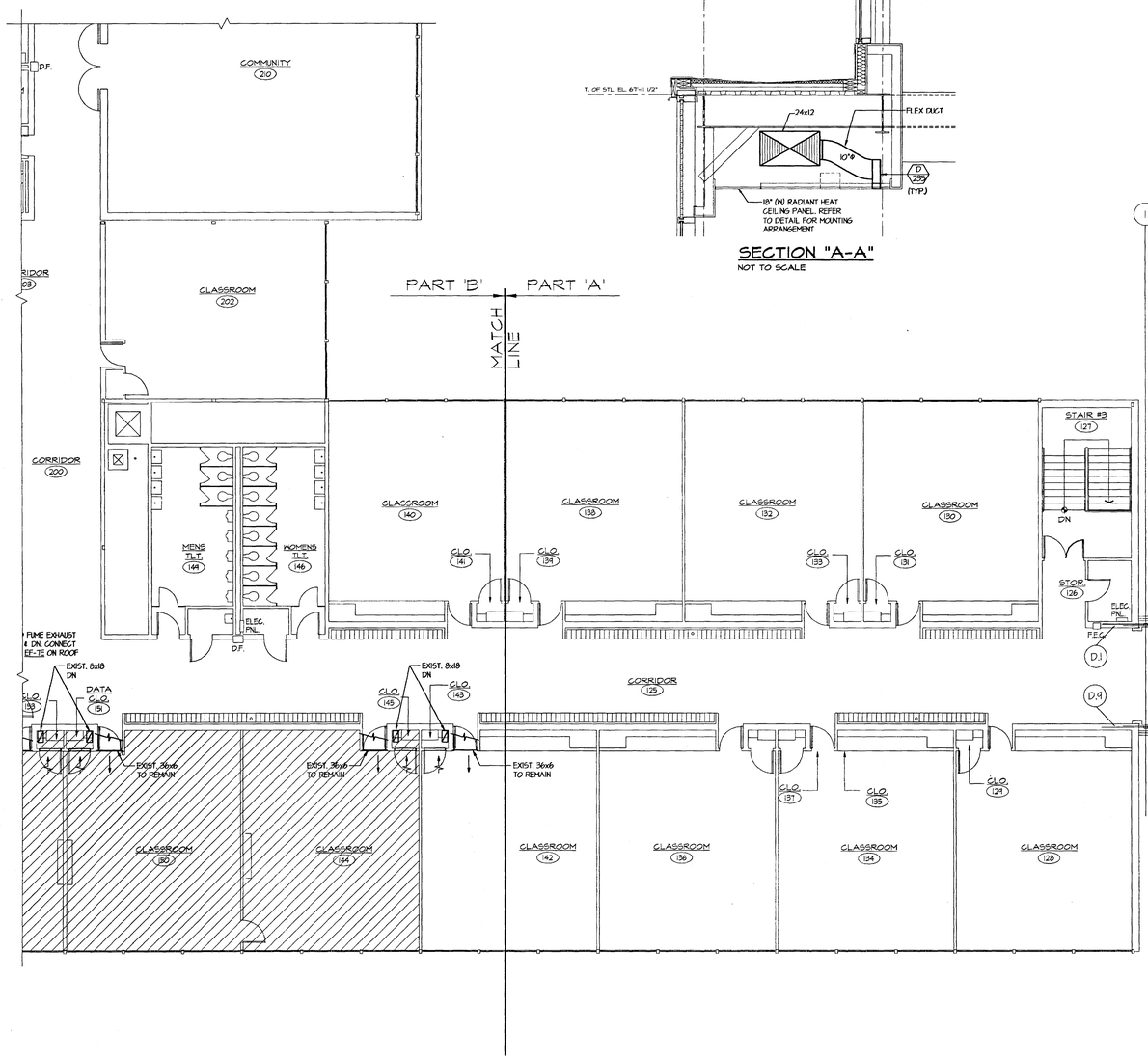
SCALE: 1/8" = 1'-0"

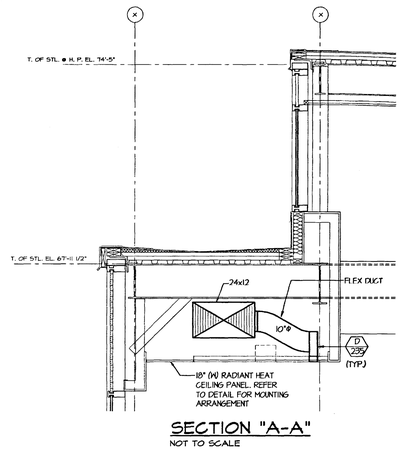
PROJECT NO.: 50950.06

DRAWING NO.: **M100.2**

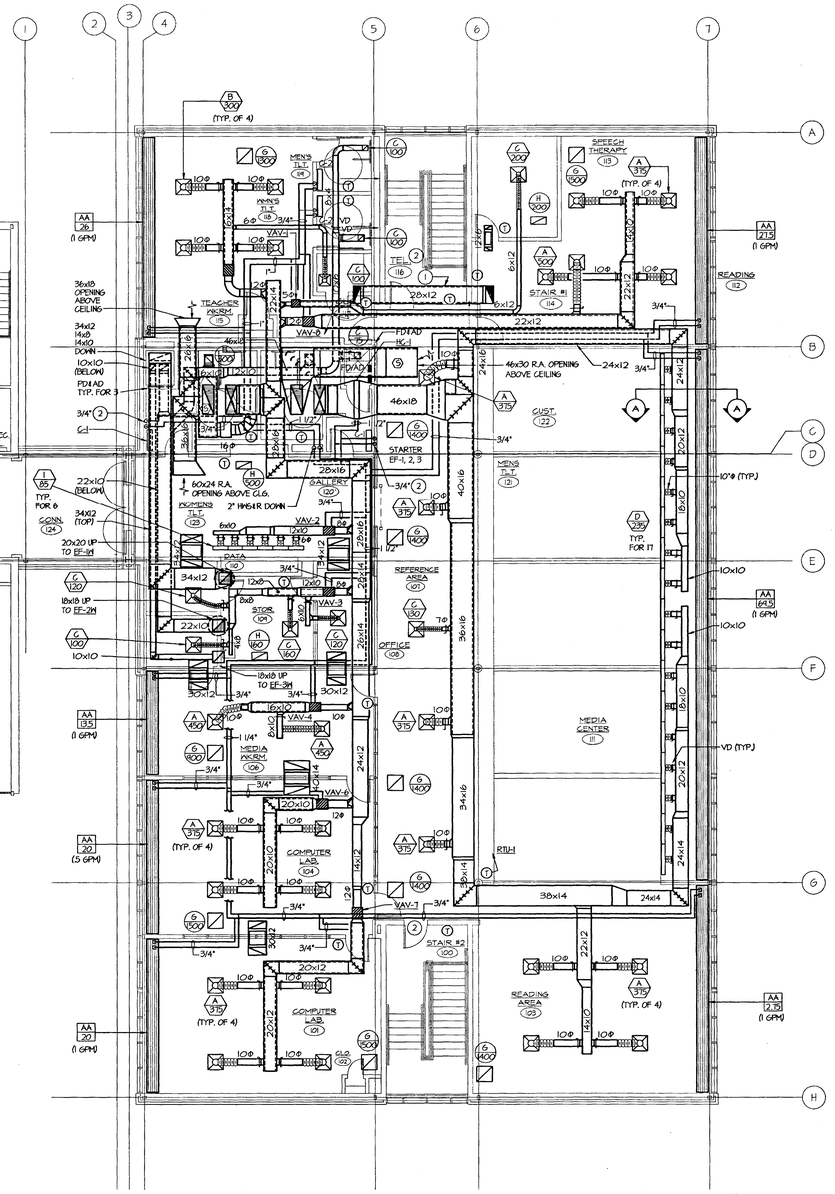
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BQ #70 & 125 Attachment





SECTION "A-A"
NOT TO SCALE



GENERAL NOTES:

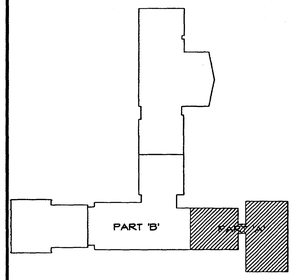
1. RETURN AIR TRANSFER DUCT LOCATED IN FIRE RATED ENCLOSURE ABOVE STAIR CEILING.
2. HOT WATER SUPPLY & RETURN PIPING DOWN IN WALL.

FIRST FLOOR PLAN - PART "A"

SCALE: 1/8"=1'-0"

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

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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

FIRST FLOOR PLAN PART "A" - HVAC

0 4' 8' 16'

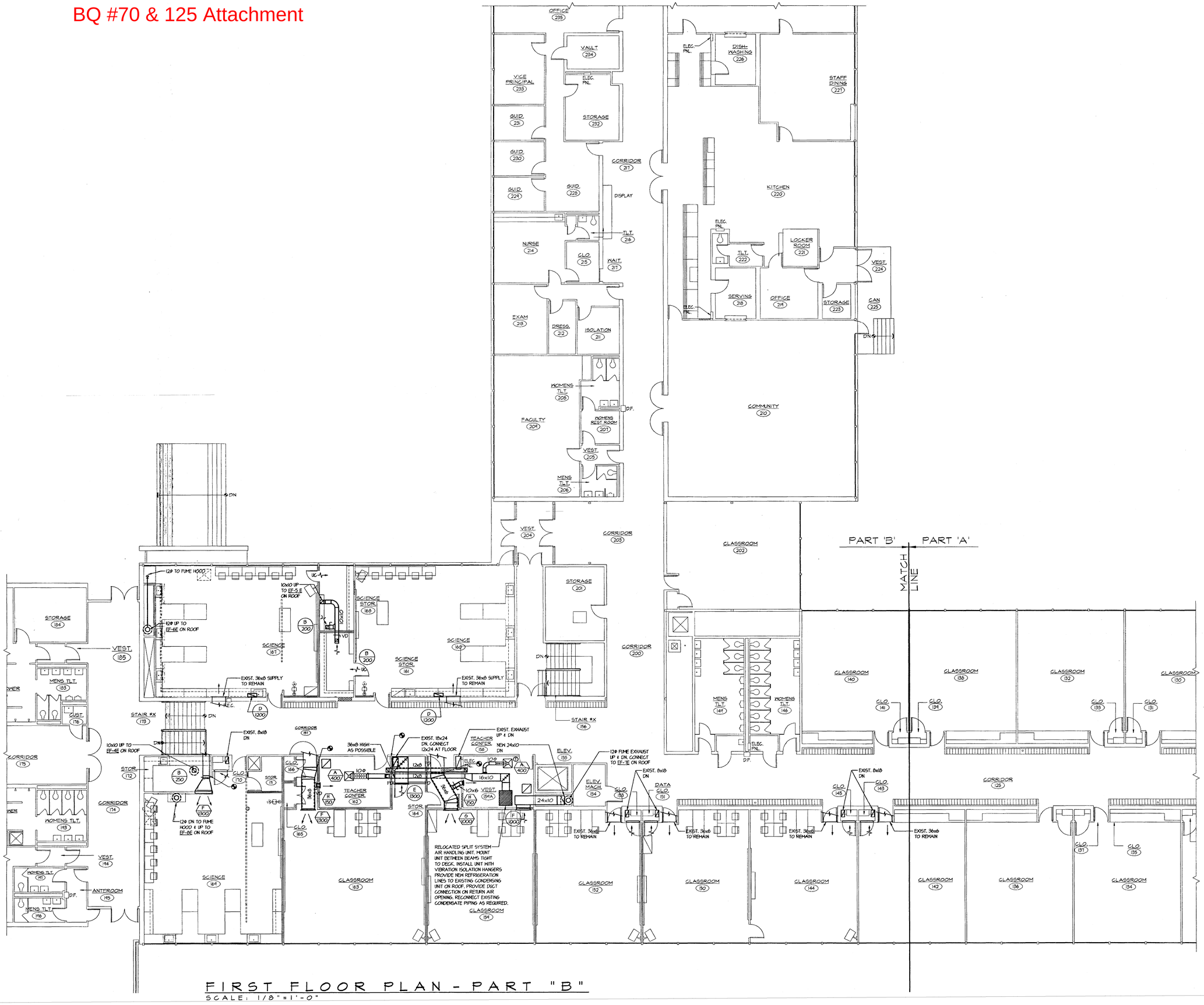
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NO	DATE	REVISION	BY

DATE	MARCH 16, 1998
SCALE	1/8" = 1'-0"
PROJECT NO.	50950.06
DRAWING NO.	M101.1

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BQ #70 & 125 Attachment



FIRST FLOOR PLAN - PART "B"

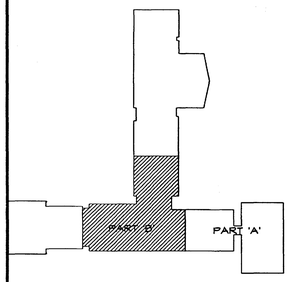
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HVAC PLAN NOTES:

1. REFER TO DRAWING M401 FOR HVAC SCHEDULES.
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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
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ADDITIONS AND RENOVATIONS TO
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9 INDIAN ROCK LANE
GREENWICH, CONNECTICUT

STATE PROJECT NO. 057-106EA

DRAWING TITLE

FIRST FLOOR PLAN PART "B" - HVAC

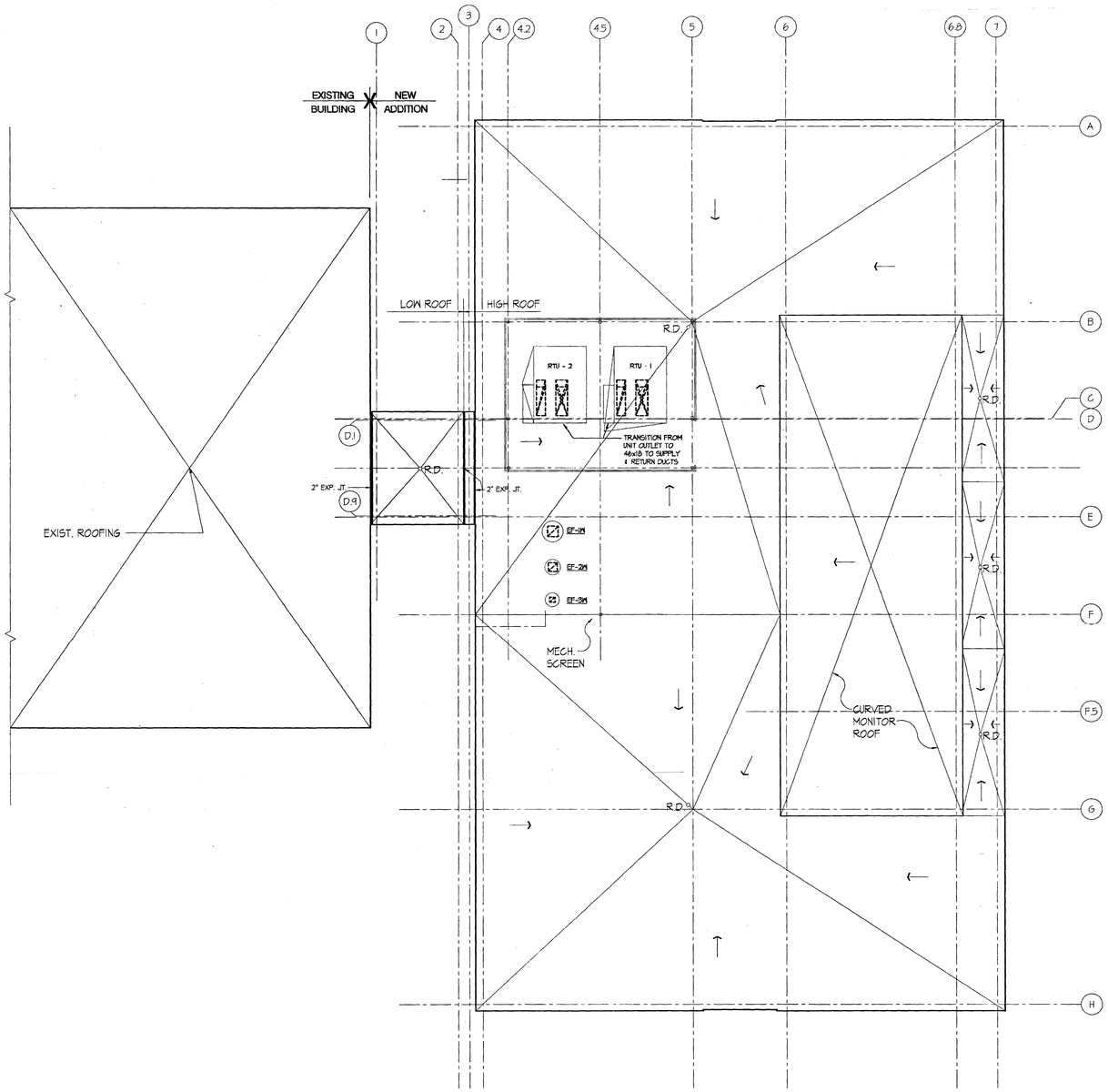
0 4' 8' 16'

SCALE: 1/8" = 1'-0"

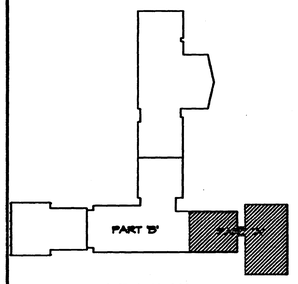
NO	DATE	REVISION	BY

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

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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

ROOF PLAN

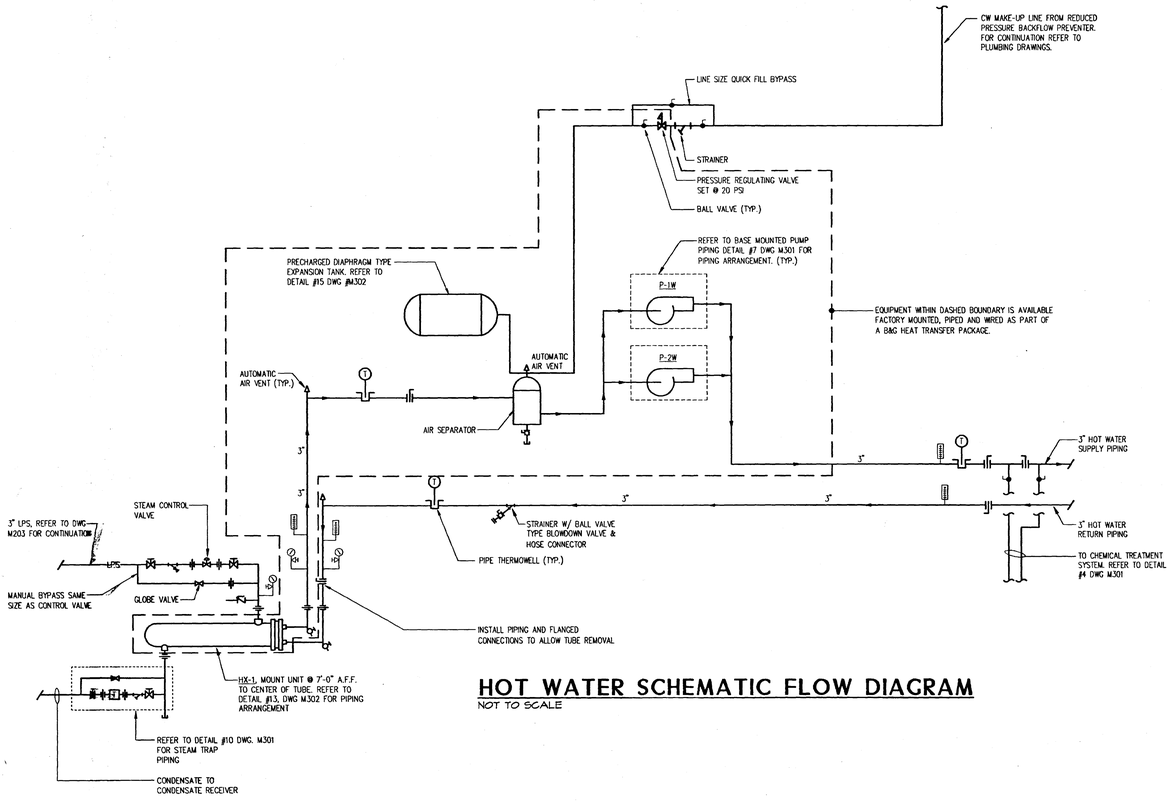
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SCALE: 1/8" = 1'-0"

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: 1/8" = 1'-0"
PROJECT NO.: 50950.06
DRAWING NO.: 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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PROFESSIONAL SEAL

PROJECT MANAGER: L.J. FREE
ARCHITECT/ENGINEER: J. MACALUSO
DRAWN BY: D. EAR

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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

FLOW DIAGRAMS & DETAILS - HVAC

NO	DATE	REVISION	BY

DATE: MARCH 16, 1998
SCALE: AS NOTED
PROJECT NO.: 50950.06
DRAWING NO.: M201

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#9 - Sitework
Dated: 07.08.2024
Revised: 10.24.2024

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 ***Sitework*** 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 ***Sitework*** 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.

02 3000 – Subsurface Investigations
02 4113 – Site Utility Abandonment
10 1453 – Traffic Signage [Landscape]
10 1453 – Traffic Signage [Civil]
10 1454 – Traffic Signage Removal and Relocation
10 7516 – Ground-Set Flagpoles
12 9300 – Site Furnishings
31 1000 – Site Clearing
31 1000 – Selective Clearing and Thinning [Civil]
31 1005 – Athletic Field Site Preparation
31 1006 – Soil Striping and Stocking
31 1200 – Site Utility Preparation
31 2200 - Grading
31 2300 - Excavation, Backfill, Compaction and Dewatering
31 2316.26 – Rock Removal
31 2323 – Borrow Material
31 2333 – Trenching and Backfilling
31 2500 - Soil Erosion and Sediment Controls
31 6616 – Aggregate Piers
32 0529 – Granite Boulders
32 1216 – Asphalt Paving
32 1400 – Unit Pavers
32 1500 – Aggregate Surfacing
32 1613.23 – Precast Concrete Curb
32 1640 – Granite Curbing

32 1823.17 – Natural Infield and Warning Track Surfacing
32 3113 – Chain Link Fences and Gates
32 3118 – Metal Fences and Gates
32 3120 – Vehicle Barrier Gate
32 3223 – Segmental Retaining Walls
32 8415 – Sitework Sleeves
33 0513 - Manholes and Catchbasins
33 0514 - Breaking Into Existing Manholes and Catch Basins
33 1113 – Ductile Iron Pipe and Fittings
33 1300 - Disinfection of Water Distribution Systems
33 1400 - Testing of Water Distribution Systems
33 3113 - Polyvinyl Chloride (PVC) Pipe and Fittings
33 3114 - Testing of Sanitary Sewer and Storm Drainage Systems
33 3115 – Television Inspection of Pipeline
33 4100 – Storm Drainage
33 4113 - High Density Polyethylene Pipe and Fittings
33 4114 - Underground Warning Tape
33 4419 - Stormwater Treatment System
34 0000 – Transportation
34 4114 – Rectangular Rapid Flashing Beacon
34 4115 – LED School Radar Speed Display with Flashing Beacons
34 4117 – Pedestrian Push Button
34 7001 - Traffic Person
34 7002 – Maintenance and Protection of Traffic

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.

Division 00 - Procurement and Contracting Requirements
Division 01 – General Requirements
07 1400 – Fluid-Applied Waterproofing
07 2100 - Thermal Insulation
07 9200 - Joint Sealants

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#9 - Sitework
Dated: 07.08.2024
Revised: 10.24.2024

General Items

2. This Subcontractor has reviewed the Logistics & Phasing Plans and the Construction Schedule and has included all associated costs as relevant to this scope of work. It is extremely important to coordinate your work with the other adjacent Subcontractors during the various phases and perform the work as required by these documents. No come back costs will be entertained.
3. This Subcontractor will provide all pricing for changes within five (5) calendar days of notice of change (without exception). If subcontractor does not submit pricing within these terms, it will be assumed a ZERO cost change. The change orders shall include man-hours, material costs, tax (if applicable) and mark-ups as line items broken out separately.
4. Intent of the project Lean initiative is that all items that are to be installed are to prefabricated, arranged and shipped to project for ease of installation. Deliveries are to be packaged and labeled by room/area for ease of installation (kit-of-parts).
5. This Subcontractor shall be responsible to provide out of sequence work at no additional costs when required in coordination with other trades.
6. 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.
7. This Subcontractor's Project Manager/Foreman shall participate in Pull Planning Sessions which affect their scope of work. This Project Manager/Foreman shall provide input to further develop the accurate sequence and timing for completion of the work.
8. 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.
9. This Subcontractor shall include multiple mobilizations as required by the latest issuance of the project schedule.
10. This Subcontractor shall organize and neatly place all materials, tools, etc.. This Subcontractor shall remove all debris resulting from their work on a daily basis to a trash Rubbermaid tilt truck provided by Others while working inside the building. This Subcontractor shall be responsible for all debris removal and disposal outside of the building. No trash or debris will remain in the work areas at the end of the shift. If debris is left in the work areas, it will be removed to the dumpster by others, and the labor expense back-charged to the responsible Subcontractor. Large sections of debris shall be disposed of to a dumpster provided by others by this Subcontractor.
11. For any materials stored inside the building, this Subcontractor shall be required to store all onsite material on racks, carts or pallets capable of being easily moved and shall coordinate the delivery of and location of stored material with the Turner Superintendent. If material is stored on pallets, this Subcontractor is responsible to have a pallet jack onsite at all times. This Subcontractor shall include relocation and consolidation of materials as directed by Turner.
12. 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 that this document is project specific and all provisions must be included in this Subcontractors' bid.
13. 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.

14. 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.
15. This Subcontractor shall be responsible for the removal and proper legal disposal of all rubbish and/or materials associated with the site demolition (exterior of the buildings) and all other work performed by this subcontractor.
16. 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.
17. This Subcontractor shall furnish, remove, and dispose of the contents of 150 ea. thirty cubic yard dumpsters for the entire duration of the project above and beyond that of which is required by this subcontractor for the Sitework scope of work. This Subcontractor shall remove and replace dumpsters per the direction of Turner's Superintendent and shall have Turner sign the hauler's ticket for each load. Unsigned tickets will not be charged against this allowance and any unused portion of these allowances will be credited to the project upon the completion of each phase. Additional dumpsters in excess of the defined allowances for general debris will be reimbursed per the unit cost included with this bid proposal. This Subcontractor shall provide their own dumpsters for the sitework debris, which are not included as part of this allowance.
18. Any and all excavations or trenching outside the construction fence MUST be covered up and protected each night and work coordinated with Turner to ensure that no unnecessary hardships are imposed on the school or the community.
19. This Subcontractor shall include all casual dewatering of all excavations, trenches, or footings from the start of the foundations to project completion. Water discharged from the dewatering operation shall be discharged into the dewatering basin or unless otherwise indicated.
20. This Subcontractor shall assume that temporary electric will not be available for this Subcontractor's use during the various stages of Sitework. This Subcontractor shall include the use of generators as required for the duration of their Work.

21. This Subcontractor shall include an Initial Baseline Survey (with Control Points for lay-out) for the Project and line and grade layout for the building provided by a licensed surveyor. Prior to beginning construction of the new foundation work, a review meeting on site of these layout points must be held. Subsequent to this initial survey control and the provision of two X axis and four Y axis and 3 benchmark elevations for each phase of the project, this Subcontractor shall provide five (5) additional days for each phase (1,2, and 3 equals 15 additional days and 18 days total) for the installation of control in the building for use by Turner. The control points shall be established on a monument or a permanent surface that will protected and not be lost or altered. These point locations shall also be transferred and memorialized on a drawing to be submitted to Turner. This Subcontractor shall be responsible for all of their own surveying and layout using Total Station or a licensed surveyor after the initial control is established.
22. This Subcontractor shall include an underground utility survey with ground penetrating radar at the complete scope area to locate the existing utilities and immediately document same on the site utility drawings. This survey shall include the entire construction zone and shall be performed prior to the installation of the construction fence. This Subcontractor shall also contact "Call BeforeYou Dig" for each phase, prior to beginning excavation.
23. This Subcontractor's work shall be tested and inspected by an independent testing agency hired by the Owner, in accordance with the specifications. Such testing agency shall be selected by the Owner and all compensation for the testing agency shall by borne by Owner. This Subcontractor shall schedule all inspections 72 hours in advance of the time of the inspection.
24. This Subcontractor shall include furnishing, installing, and removing orange temporary construction fencing around any open trench within or outside of the construction fence at the end of each day or when work at the trench is suspended and the manpower and equipment is removed from the work zone. This Subcontractor shall install hard barriers for excavations deeper than 5'. For example, but not limited to temporary protection for the new sanitary line schedule for the summer of 2025, refer to page #3 of the Turner Logistics Plan as well as contract documents.
25. This Subcontractor shall provide steel plating over all utility trenching in the parking lots or roadways, outside the construction fence, at the end of each day or when the work is suspended and the manpower or equipment is removed from the work zone. Include provisions including but not limited to road plates, trench boxes, and/or sequence or work, etc, to allow for vehicle and personal access to parking areas, building footprint, site bathroom and Turner trailers during excavation for site utilities.
26. This Subcontractor shall be responsible for all site snow removal, including but not limited to Subcontractor access to the building, Subcontractor parking areas and trailer / tent entrances/exits and general construction circulation within the construction fence and at the Center School satellite parking lot for all phases of the project, as directed and to the satisfaction of Turner, on the day of each clean-up event. This Subcontractor shall also furnish and maintain three 5 gallon buckets of ice melt at the entryways to the building under construction over the course of the project, include spreading as required during snow/ice events. This Subcontractor shall remove all snow from excavated trenches and protect the trenches until formwork is installed, at which point the concrete Subcontractor shall protect his work. The Municipality will be responsible for all driveways, parking lots, and walkways outside the construction fence. This subcontractor shall provide breakout pricing for Weather Protection by phase in Application for Payment.
27. This Subcontractor shall include the furnishing, maintaining, and the removal of the temporary toilets as defined below and per the site logistics scope of work and as required for durations per the Project Schedule.

a. This subcontractor shall provide, for the duration of the project schedule, self-contained temporary toilet trailer consisting of a minimum of 8 stall bathroom trailer – 2 women stall, 6 men stall, and 4 urinal restroom trailer (with flushable toilets) and hot water handwash stations similar to those provided by United Site Services, Bonavita Luxury Lavatories, WILLSCOTT (or approved equal) including delivery, set up, rental and removal at the completion of the project.

b. This subcontractor shall provide excavation and backfill for temporary power.

c. Trailer to include sanitary tanks that allow for pumpout and domestic water tank for self-contained toilet trailer complex. Include domestic water tank until this subcontractor furnish and installs tie in of a temporary water line from the onsite temp hydrant – include heat trace as required for water line to prevent freezing. Include sanitary tanks & pumpout until the sanitary line can tied in along Indian Rock Lane in June 2025, this subcontractor shall then tie in toilet trailer by furnish and installing temporary sanitary line from toilet trailer to new sanitary manhole. Once these temp tie ins are in place domestic water tank and regular tank pumping are no longer required. This subcontractor shall include required hand soap refill, toilet tissue and paper towels at toilet trailer, and cleaning services at a minimum of 3 times per week. Include cap and remain in place the temporary sewer connection piping when toilet trailer is removed at the end of the project.

28. This Subcontractor shall include the furnishing, maintaining, and the removal of the Turner's Site Trailer(s) and as required for durations per the Project Schedule and per below.

a. This Subcontractor shall furnish, install, maintain and remove temporary trailer for Turner similar or equal to WILLSCOTT Redi-plex, triple 60x36 trailer (56x36 box), min 8' ceiling height, metal clad insulated panel exterior walls, combination through wall heating and cooling unit(s). All lighting and data to be included with unit. See plans for required layout and furniture requirements. Include window/door security bundle, 3 data hubs, 15 manager chairs, 38 stackable side chairs with arms, 31 standard desks (5ftx2.5ft), 15 Pedestal filing cabinets (3 drawer), 5 small white boards (3ft x 4ft), 9 large white boards (4ftx6ft), 13 L-desk privacy shields.

b. This Subcontractor shall furnish, install and maintain 4 stairs and platforms at Turner's office trailer with Canopy. Include all required support and rails to meet the requirements of the local AHJ. Include complex anchor setup and associated anchors, and complex vinyl skirting.

c. This Subcontractor shall provide and maintain a 4 CY closed top dumpster at the Turner Office Trailer.

d. This subcontractor shall provide excavation and backfill for temporary power and internet to trailer complex including the excavation/backfill as required for eventual removal of temp power. Include furnish and install of 4" pvc conduit for power service and 2" pvc conduit for internet to the jobsite from Orchard Street or Stanwich Road (tbd by utility). In addition, This subcontractor shall excavate and backfill as required for a 2" below grade conduit (F&I by electrical) to bring internet cable from Turner Trailer to the media center room 1055. Assume all conduits to be 3' below finish grade.

e. This Subcontractor shall include 3 - ten person conference tables and 1 – 4 person conference table.

f. This Subcontractor shall include cleaning the construction manager's construction trailer once per week by a professional cleaning company. Cleaning shall include vacuum and/or sweep, wet mop, trash removal, cleaning of all exposed surfaces and toilets and sinks.

g. This Subcontractor shall include relocation of Turner Trailer to Demolition area – Phase 2 per logistics plans in July 2026 until the completion of the project. Include single 36ft trailer for Phase 2 portion of the project with similar layout to WILLSCOTT Redi-Plex per Phase 1 requirements.

29. This Subcontractor shall furnish, install and continuously maintain the anti-tracking pads indicated on the Logistics Plans in conformance with the details included in the contract documents, including a wheel wash station and water hook-ups at the Main Exit. This subcontractor shall furnish, install and continuously maintain the 15' wide crushed stone drive, crushed stone Subcontractor parking area, and weed-block/crushed stone at Turner's Office Trailer at the sizes/depths/coverage areas indicated. This Subcontractor shall include continuous maintenance of the anti-tracking pads, wheel wash station, and crushed stone for the duration of this Phase of Work. This subcontractor to provide high pressure washers at each exit location for tire washing purposes. This subcontractor is to provide all materials necessary to hook up and retrieve water and a water truck must be provided by this subcontractor if water is not available on site. This subcontractor shall be responsible for street sweeping to maintain clear roadways around the site as directed by Turner. It is the intent of this scope that the sitework subcontractor manages the site to limit the amount of mud to exit the site on any truck or vehicle. Include removal and disposal of stone and anti-tracking pad at the time, and as required, for new work to be put in place.
30. This Subcontractor is responsible for all the Sitework scope clarified in the final Bidder's Question Log, which includes, but is not limited to, the items identified for the Sitework Bid Package #9.
31. This Subcontractor shall provide the final A-2 Site Survey at the completion of each phase, and provide the comprehensive survey at the completion of the entire project.
32. This Subcontractor shall furnish and install 2 each worker break heavy duty outdoor event tents inclusive of tables and seating for the duration of the project. Tents shall allow 50 workers each a place to eat lunch and take breaks.
    a. Include required tie down points to prevent damage to tent and to properly hold in place.
    b. Include 1 – microwave at each tent for use by workers.
    c. Include outdoor picnic tables with integral benches capable of seating 50 workers per tent.
    d. Include retractable sidewalls (or walls cable of being tied to vertical posts when not required for use) with entrances at two ends.
    e. In lieu of 2 tents, this subcontractor can install an Allshelter between the 40' connex provided under this agreement plus 1 additional as required for support and use by this subcontractor. All shelter to be fully enclosed and include full Endwall at one end and doorway endwall & doors at the other.
33. This Subcontractor shall follow and include all Town of Greenwich Standard Construction Notes including but not limited to soil tilling 12-16 inches and amended used for all construction equipment and used for contractor parking per note #10 on drawing C001.

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#9 - Sitework
Dated: 07.08.2024
Revised: 10.24.2024

34. This Subcontractor shall be responsible for the demolition, removal, and disposal of all existing site demolition as indicated on the contract documents. This includes, but is not limited to, the removal of existing concrete pads, benches, flagpoles, athletic/sports equipment, sheds, posts, concrete stairs, ramps, handrails, retaining walls, fencing, trees, paving, sidewalks, curbs, storm water structures and associated piping, sanitary structure and associated piping, water systems, piping, electrical systems as indicated in the contract documents. This Subcontractor shall coordinate any service suspensions with the utility company and pay for any associated permits or fees.
35. Given the limited space for storage on the site, this Subcontractor shall export from the site all topsoil compiled as part of the clearing and grubbing process in accordance with the contract documents.
36. This Subcontractor shall be responsible for the protection of any underground or above ground utilities or structures within construction area or adjacent to new construction affected by this subcontractors scope.
37. This Subcontractor shall remove paving, walks and curbing as required to install site utilities and replace/restore in kind.
38. This Subcontractor shall salvage items as indicated on the contract documents including but not limited to plaque and bolder and plaque and bench, per drawing L101B. This Subcontractor shall also survey any memorial plaques that are not identified on the drawings, and turn them over to the Owner.
39. This Subcontractor shall provide the tree protection identified on the contract document.
40. This Subcontractor shall be responsible for removing any preexisting materials from the athletic field area as indicated on the contract documents including but not limited to the 32 9119.29 Athletic Field Root Zone.
41. This Subcontractor shall not store, clean or service equipment within 100’ of the wetlands. This Subcontractor shall create a fueling area with a liner or pavement in a location that is coordinated with Turner’s site logistics plan and this scope of work.
42. Any work performed by this Subcontractor for curb cuts, street work, all work outside property line, our outside of the construction temporary fence will require temporary fence protection installed, maintained and eventually removed by this Subcontractor.
43. This Subcontractor shall prepare the subgrade at the slabs on grade to accommodate the requirements for the haunches for the slab on grade indicated on the structural drawings.
44. This Subcontractor shall furnish, install and maintain wood framed platform and stairs at Turner’s office trailer. Include all required support and rails to meet the requirements of the local AHJ.
45. 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 necessarily associated with particular subcontractor ***(cardboard, plastic bottles, misc. trash item, general sweeping, etc.)***
46. 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.
47. This Subcontractor shall include multiple mobilizations as required by the latest issuance of the project schedule.

48. 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.
49. 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.
50. 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.
51. This Subcontractor shall include multiple mobilizations as required by the latest issuance of the project schedule.
52. 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.
53. 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.
54. This Subcontractor shall furnish and install the project sign for the Department of Administrative Services as noted in spec section 01 5000. The location and details of the sign shall be coordinated with TCCO.

Site Logistics

55. This Subcontractor shall include the rental of a 40 ft connex box for Turner use to the site scope with the dates Phase 1, from January 2025 to March 2026 or at a minimum 15 months.
56. This Subcontractor shall furnish and install 2 ea. color, exterior grade project sign approx. 48'x96" (Graphics will be provided by others) including posts set into concrete and relocated 2 additional times for phasing. Include furnish and install of an additional 16 aluminum signs for use at vehicle gate locations and as directed by Turner(Graphics will be provided-include provisions for fence mounting).
57. This Subcontractor furnish, install and maintain 8-**Foot-High** temporary construction fence with full height blue scrim per the Turner Logistics Plans. The post shall be driven posts and this subcontractor shall include GPR or other non-destructive testing to scan for underground utilities prior to install driven posts. Temp fence details shall include but not be limited to the details on drawing C418. Additionally, beyond the details on the contract documents, this Subcontractor shall include top and bottom rails on temporary fence and include providing scrim with graphics that includes Greenwich BOE & CMS name and logo repeated on the scrim.
58. This Subcontractor shall furnish and install 20-foot slide style construction gates at locations designated by the Turner Logistics Plans. Construction Entrance/Anti Tracking Pads shall be installed and maintain at construction entrance gates. All Sliding gate posts shall be cast into below grade 3' deep concrete sonotube base for support.
    a. This subcontractor shall furnish (10) – 5' length stainless steel chain link for locking gates and (10) – 2" Master Combination outdoor lock, shakel, resettable.

59. This Subcontractor shall furnish and install 1 ea. pedestrian gate and pedestrian entry portal at each temporary fence vehicular slide gate unless otherwise shown on the logistics plans. This subcontractor shall include 2 additional pedestrian gates at upper portion of the site opposite of the entrance gates to be located by Turner Construction. Include hardware for latching and locking of gates.
60. This Subcontractor shall furnish install and maintain temporary construction drives as indicated on the contract documents and the Turner Logistics Plans, drives shall consist of a minimum of 6 inches of crushed stone or unless otherwise noted.
61. Per the Turner Logistics Plans, at emergency egress from existing building, this Subcontractor shall provide and maintain overhead protection. Temporary overhead protection shall maintain minimum 15' distance from new building for construction vehicles and allow for egress from the existing building. Include ¾" minimum plywood barrier at Construction side of overhead protection locations.
62. This Subcontractor shall provide post driven temporary wood poles for the site security cameras to be mounted at locations identified on the Turner Logistics Plans. (Cameras by others) This subcontractor shall include GPR or other non-destructive testing to scan for underground utilities prior to install driven posts.
63. This Subcontractor shall furnish and maintain grading and temporary crushed stone at 6-inch minimum depth as required for contractor parking area per the Turner Logistics Plans.
64. This Subcontractor shall furnish, install and maintain a minimum of 6 crane pads per the Turner Logistics Plans, crane pads shall include compaction of subgrade and minimum of 12" of crushed stone and measure 40ft by 40ft.
65. This Subcontractor shall include the removal and relocation of all temp fence, gates, construction entrances, security camera posts, construction drives, construction gates, anti-tracking pads, crane pads, contractor parking areas and relocation of temporary trailer and temp trailer bathroom complexes or proving new as required for the phasing, refer to the Turner Logistics Plans for specifics.
66. This Subcontractor shall include eventual removals of all temporary sitework logistics scope and temporary erosion controls at the completion of the project and restoration as required.
67. This Subcontractor shall furnish and install Metered Yard Hydrant with hose bib manifold at approx. location per the Logistics Plans, 100 lf of buried HDPE pipe for pathways of hoses for Phase 1. At phase 2 include relocating yard hydrant into out construction space to help facilitate demolition and furnish and install (2ea) 300 Gallon HDPE Containers with ball valves for distribution around site for other trade use.
68. This Subcontractor shall furnish and install the expansion of the heavy-duty concrete to accommodate temporary road access including but not limited to as shown on page 5 of the Turner Logistics Plans.
69. This Subcontractor shall include the creation of a temporary sidewalk including but not limited to as shown on page 5 of the Turner Logistics Plans. This Subcontractor shall also include the removal at the completion of the phase and removal/restoration.
70. This Subcontractor shall furnish, install and maintain asphalt millings, including removal for 50' around perimeter of building post foundations in phase 1 including but not limited to as shown on page 4 of the Turner Logistics Plans. Intent is that this Subcontractor shall be responsible for providing a uniform and level compacted grade around the building perimeter suitable for the support of scaffolding and lifts.

71. This Subcontractor shall furnish, install and maintain temporary 4-foot-wide stone walkways from Turner trailers, toilet trailer and parking area locations to the two entrances located each side of the Auditorium. Coordinate final layout with Turner superintendent. Assume 6" depth of ¾" stone. This Subcontractor shall remove all temporary sidewalks at the direction of Turner.
72. This Subcontractor to furnish, install and remove (4) Jersey barriers for protection against vehicular traffic at any and all O2, Flammable Gas and LPG storage tanks within the construction area, location tbd.
73. This Subcontractor will provide 30 traffic cones with telescoping cone bars to be used in areas designated at the direction of Turner.
74. This Subcontractor shall furnish, install, relocate and remove (6) additional jersey barriers in locations directed by Turner.
75. This Subcontractor shall furnish to the jobsite a Stihl Kombi system KM 131 R with Power Sweep, Bristle Bush and FS-KM Line Head Trimmer. Unit to be run-ready and include a 5.0-gallon safety gas can filled with mixed gas.
76. This Subcontractor shall furnish to the jobsite one Stihl BR 800 C-e Magnum backpack blower. Blower shall be run-ready.
77. This Subcontractor shall furnish to the jobsite one Toro Power Clear 721 R Snow Blower. Snow blowers shall be run-ready.

Erosion Control and Stormwater Management

78. This Subcontractor shall provide grading as required to create and maintain temporary swales as indicated on the contract documents.
79. This Subcontractor shall furnish install and maintain temporary water bars on construction drives as indicated on the contract documents.
80. This Subcontractor shall furnish and install all temporary sediment basins including but not limited to stone, drainage pipe/structures, dams, and connections to existing drainage systems as indicated on the contract documents.
81. This Subcontractor shall include cleaning / mechanical sweeping of any soil or debris from the construction site on the adjacent streets and the school's driveways and parking lot areas as required or within 24 hours of a request by Turner during the entire duration of the project.
82. This Subcontractor shall include dust control as required per the contract documents for duration of the Project. This Subcontractor shall provide a water truck, buffalo misters, or other means of dust control as needed to control the dust on site.
83. This Subcontractor shall tarp the stockpiles of onsite material, as required, to protect it from saturation during a rain event and to control dust migration on windy days with wind speeds over 10 mph.
84. This Subcontractor shall furnish, install and maintain all geotextile silt fence, inlet protection, silt sacks, hay bales/hay bale barriers, erosion control blankets and temporary sediment traps as indicated on the contract documents. Any stockpiled areas shall be surrounded in additional silt fencing.

85. This Subcontractor shall furnish, install and continuously maintain Erosion Control Measures required per the contract documents. This Subcontractor shall include all costs to remove and dispose of Erosion Control Measures at the end of the Project. Note that the quantity of anti-tracking pads shall be installed per Turner's site logistics plan and not the civil drawings.
86. This Subcontractor shall coordinate/cooperate with the Greenwich authorities and the independent inspector, as necessary, to ensure proper erosion control methods/practices are in place at all times. This Subcontractor shall inspect the erosion control measures on a weekly basis and as required per the SWPPP. This Subcontractor shall maintain a log book documenting the condition and/or repairs implemented following each inspection. This Subcontractor shall also provide a rain gauge and maintain a daily log documenting the actual rainfall on site on a daily basis.
87. This Subcontractor shall furnish and install all storm water management structures, chambers, isolators, drains, inlets/outlets, manholes, manhole accessories, cleanouts, hydrodynamic separator(s) and accessories including but not limited to excavate and backfill required for installation, bedding materials, piping and connections to existing piping as indicated on the contract documents.
88. This Subcontractor shall furnish and install all Rain Gardens and Swales including but not limited to filter fabric, pipe, crushed stone, bedding materials, subgrade, grading, soils and scarifying and tilling soil beneath gardens. Refer to Rain Garden Typical Cross Section and 5' Wide Stone Swale With 6" Underdrain details on drawing C504.
89. This Subcontractor shall furnish and install all below grade under drainage piping, roof leader drain piping and the above grade downspout boots between roof leaders and drain piping. Building mounted roof leaders are by others. Refer to drawing C504.
90. This Subcontractor shall furnish and install the below Second floor slab storm piping from 5' outside of the foundation (retaining) wall. Reference multiple locations as shown on PSU001 and associated scope shown on the Civil drawings.
91. This Subcontractor shall provide Greenwich soil mix as indicated on the contract documents including but not limited to where shown on drawing C504 beneath rain garden(s).

Excavation, Backfill and Trenching

92. This Subcontractor shall furnish and install fill materials as required by the contract documents to fill excavation at demolished building(s). Coordinate with Demolition Subcontractor and specification section 024100 3.1.
93. This Subcontractor shall include all of the excavation and backfill for the foundation system per the contract documents. With the use of the geotechnical information, the excavation is considered to be unclassified and this Subcontractor shall be responsible for all rock removal and the removal and replacement of unsuitable soils necessary for the installation of the new structures and the associated site utilities. No additional compensation will be made to complete work as shown on the Contract Documents
    a. This subcontractor shall assume line drilling of rock along the Emergency Path rock face (at the rear of the new building). Intent would be to achieve a clean wall of rock where visible.
94. This Subcontractor shall provide the fill material necessary to achieve the designated grades on site, as well as the fill material identified inside the building including as required by the contract documents.
95. This Subcontractor shall include all trench excavation, bedding and backfill for removal of existing and installation of all new underground utilities beneath slabs-on-grade (see Fire Protection, Plumbing, Mechanical, & Electrical drawings) in accordance with the contract documents.

96. This Subcontractor shall furnish and install the bedding material, filter fabric, and crushed stone required per the contract documents for all installations performed by this Subcontractor. Under-slab vapor barrier will be furnished and installed by the Concrete Subcontractor after this Subcontractor shall furnish and install the crushed stone under slab as indicated on the contract documents.
97. This Subcontractor shall ensure that all excavations are properly sloped or laid back per OSHA regulations to avoid any collapses or cave-ins. Shoring will be required for all trenches over 5' deep. Materials shall not be stockpiled within 4' of an open excavation edge. This Subcontractor to provide trench boxes as required for any excavation requiring workers to enter the trench(es).

Site Utilities

98. This Subcontractor shall furnish and install all drainage, water, gas, sewer, and fire protection services outside of the building foundation walls and extend to 5 feet from foundation walls. These site utilities 5 feet from the building and closer shall be by respective MEP trades. This Subcontractor shall include any these site utilities shown under slabs but outside of the foundations walls that are shown on civil drawings for example: drainage piping on drawings C102 from grid 2 to 3, D to E.
99. This Subcontractor shall demolish and dispose of all existing site utilities as indicated on the contract documents including but not limited to drainage/drainage structures, sewer, light pole bases, overhead electrical/telecom poles, gas, water and fire services and components.
100. This Subcontractor shall provide excavation and back fill to expose any electrical / communications conduits / services scheduled for demolition. Removal of conduit in soil shall be by this subcontractor, any concrete encased ductback scheduled for demolition shall be removed by this Subcontractor after the electrical subcontractor cuts and makes safes.
101. This Subcontractor shall abandon existing utilities including but not limited to plugging piping, filling piping with pumpable controlled low strength materials, removing portions of manholes, removing manhole frames and covers, breaking existing structures and filling with material as indicated on the contract documents.
102. This Subcontractor shall provide warning tapes for all underground utilities as indicated on the contract documents.
103. This Subcontractor shall saw cut / patch and restore any existing finish including but not limited to lawn, concrete sidewalk/curb or bituminous pavement/curb scheduled to remain as required to demolish, provide or otherwise access trenches for all proposed underground utilities.
104. This Subcontractor shall furnish and install all gas piping up to and including meter and manifold, connection to existing main, excavate and back fill and provide bedding materials for all gas piping as indicated on the contract documents. This Scope shall include contacting and coordinating with local utility and providing any gas connection fees.
105. This Subcontractor shall furnish and install all the site utilities including but not limited to Sanitary Sewer piping, manholes, structures, connections to existing, trenching and backfilling, and bedding materials as indicated on the contract documents. Include any sewer connection fees to local utility/municipality. Additionally, this scope shall include coring / patching existing sanitary structures as required for connections, refer to E303 for example. This subcontractor shall include and submit a MOP for review and approval by design team and the Town of Greenwich Sanitary sewer department of the new sanitary work, including any by-pass of existing for the work at Indian Rock Lane and Stanwich Road.

106. This Subcontractor shall provide all concrete encasement for sanitary sewers as indicated on the contract documents including but not limited to what is shown on drawing C303.

107. This Subcontractor shall furnish and install all fire protection and water service piping, connections to existing, taps, valves, trust blocks, air vents, blow off boxes/covers, piping restraints, providing trenching and backfilling, and bedding materials as indicated on the contract documents.

108. This Subcontractor shall flush and chlorinate the water lines prior to putting them into service. This Subcontractor shall coordinate with the plumber and the fire protection contractors prior to performing this work.

109. This Subcontractor shall coordinate with Aquarion for the installation of new and removal of existing water service and the tapping of all new water lines to the project. This Subcontractor shall provide all fees associated with this work and shall perform the taps or hire an approved subcontractors to perform this work. This Subcontractor shall furnish and install all vaults/water meter pits per Aquarion's requirements for the new water connections to the buildings. This Subcontractor shall install the domestic water service lines to within 5' of the foundation wall, all fire protection piping shall be extended through the foundation wall by this Subcontractor. The fire protection line shall have a flanged connections or otherwise coordinated with fire protection Subcontractor.

110. This Subcontractor shall provide excavation and backfill, including furnishing and install bedding materials for the fire protection service and any new hydrants as indicated on the contract documents. Coordinate with the local fire department for the thread connection requirements for these hydrants. This subcontractor shall furnish and install all piping, automatic ball drip and Siamese connection scope at the exterior of the building, reference detail 8/FP500.

111. This Subcontractor shall coordinate with the Gas Company for the installation of the new or relocated services to the buildings including any underground gas piping scheduled for removal. This Subcontractor shall excavate and backfill per the gas company's specifications for the primary piping to be installed by the gas company. ~~This subcontractor shall furnish and install the gas meter pads per the Gas Company's specifications.~~

112. This Subcontractor shall excavate and backfill for temporary 4" x 4" x 20' power poles to be installed by the electrician as defined in the logistics plan and scope of work. At the end of the project, this Subcontractor shall remove these poles, backfill the hole, and grade the area in preparation for the site improvements and landscaping for this area.

113. This Subcontractor shall coordinate with the various utility companies (power, telephone, cable) regarding the installation of new utility poles, the relocation of existing utility poles, and the removal of utility poles as defined in the contract documents. This Subcontractor shall include all fees associated with this work.

114. This Subcontractor shall obtain the proper permits for all utility work and provide the police for traffic control at any street opening as required by Greenwich.

115. This Subcontractor shall hand dig around existing utilities to ensure that they are not damaged or broken by excavating equipment.

116. This Subcontractor shall excavate and backfill all electrical, security, and communication conduits including but not limited to the primary and secondary electric services as indicated the contract documents.

117. This Subcontractor shall coordinate with the power company ~~and shall furnish and install the concrete transformer pad(s) in accordance with the power company's specifications~~. The electrical contractor shall furnish and install all underground conduits.

118. This Subcontractor shall furnish and install all electrical manholes including the primary electrical manhole and include patching around the knockouts once the EC runs the conduits/ductbank.

119. This Subcontractor shall encase all underground conduits in concrete as indicated on the contract documents and install warning tape in accordance with the contract documents.

120. This Subcontractor shall excavate and backfill all the electrical conduits between the building and the emergency generator. The electrical subcontractor shall furnish and install all conduits/ductbanks. ~~This Subcontractor shall furnish and install the concrete pad(s) for the generator(s).~~

121. This Subcontractor shall excavate and backfill for all the telecom ductbanks between the utility poles and the buildings. The electrical subcontractor shall furnish and install all conduits/ductbanks. This Subcontractor shall encase these conduits and install a warning tape in accordance with the contract documents.

122. This Subcontractor shall excavate and backfill for the site power, EV charging, lighting conduits and the traffic control gates / motorized gate controller conduits as indicated on the contract documents, including but not limited to what is indicated on drawing SU100.

123. This Subcontractor shall also furnish and install the concrete light pole bases, blue light concrete bases, and site entrance sign (A924) as indicated on the contractor documents. This Subcontractor shall coordinate with the electrical contractor (or Vendor) for the anchor bolts layouts and the installation of the conduit, prior to pouring the concrete.

124. This Subcontractor shall furnish and install all anchor bolt for concrete bases that are indicated to be "by Site Contractor" including but not limited to site lighting concrete bases, refer to details on SU501, EV charging station concrete base anchor bolts, refer to detail 3/SU500 for example and blue light concrete base anchor bolts per 7/SU500.

125. This Subcontractor shall excavate, backfill, rig and set electrical/telcom vaults / hand-holes and electrical / telcom manholes provided by the electrical subcontractor or utility as indicated on the contract documents. This scope shall also include preparing subgrade and bedding materials for vaults/hand holes/manholes as required by the contract documents.

126. This Subcontractor shall excavate and backfill, provide bedding materials for and furnish and install all grease waste, connections, structures, grease traps and oil/water separators, and inspections as indicated by the contract documents.

127. This Subcontractor shall furnish and install all exterior grease traps as indicated on the contract documents.

128. This Subcontractor shall furnish and install the footing underdrain system and the defined enclosure (filter fabric and crushed stone) around these pipes at all the new foundations, and as indicated on the contract documents. These drains shall connect to the storm system as indicated on the contract documents.

Site Paving, Curbing, and Pavement Marking

129. This Subcontractor shall furnish and install all bituminous concrete pavements and walks shown on the Contract Documents. This scope includes all pavement patching associated with the installation of all utilities. See Turner's Sitework/Hardscape & Utility Phasing Plan, dated 3/22/17, for out of sequence utility work and paving requirements.

130. This Subcontractor will be responsible for all new or replacement Pavement Markings required for roadways, walkways and parking lots. This Subcontractor shall also furnish and install the transverse rumble strips and the speed humps with pavement markings, as indicated in the contract documents.

Site Concrete

131. This Subcontractor shall be responsible for the site concrete including but is not limited to; fence and gate footings, light pole bases, thrust blocks, encasement of ductbanks. This Subcontractor shall include sub-grade preparation for the concrete Subcontractor. This Subcontractor shall coordinate with the concrete Subcontractor for the connections of the sitework walkways to the concrete contractor's step and walkways.

132. This Subcontractor shall furnish and install rigid insulation between frost pads and adjacent construction including but not limited to detail 5 on drawing S200.

133. This Subcontractor shall furnish and install vertical rigid insulation and required protection board on interior & exterior side of foundation walls as indicated on the contract documents including but not limited to details 1D, 2D, 3D/A410, 3E, 1E, 1C, 2C/A412, all details on A413 and A418, 4D, 5D, 6D, 3E, 2E/A414, 2D, 3D/A415,1E, 3E, 4E, 5E/A417, 1E, 2E, 3E, 4E/A416 and 1D, 2D, 5D, 4E/A411. Include per typical foundation wall vertical insulation, ref A501.

134. This Subcontractor shall furnish and install decorative boulder selected from the site coordinate with Owner, Architect and Landscape Architect and furnish and install all concrete for signage including the foundation/footing for Street Front Signage. Refer to drawing A924

135. This Subcontractor shall furnish and install a 15' x 20'x 5" concrete pad for a free-standing mock in a location to follow. The removal of the mock-up and the pad will be by the demolition contractor. This scope of work shall also include but not be limited to subsurface prep of gravel below the slab as reference of drawing A315 and furnishing and installing a mockup of the louver screen wall.

Site Improvements

136. This Subcontractor shall remove, store and re-install existing batting cage scheduled for re-use as indicated on the contract documents.

137. This Subcontractor shall furnish and install the dumpster enclosures as indicated on the contact documents including but not limited to all slab(s) walls, fencing and doors/gates and associated hardware at dumpster enclosure. Reference drawing L504.

138. This Subcontractor shall furnish and install all metal screen fencing as indicated on the contract documents including but not limited to fencing per details 3A, 3D, 1D on drawing L503.

139. This Subcontractor shall furnish and install the site and traffic signage, wayfinding and parking signage, and pavement markings as indicated in the contract documents including but not limited to demolishing, relocating any existing traffic signage and/or eradicating any existing conflicting pavement markings.

140. This Subcontractor shall furnish and install all unit pavers on sand bed with metal edge restraint and the flagpole(s) per the contract documents.

141. This subcontractor shall provide a value for Alternate #3 as defined in the form of proposal.

142. This Subcontractor shall furnish and install all ADA traffic Control Bollards, Electronic ADA stanchions, site planters, site benches, bicycle racks, steppingstones, stone mulch and metal edging, seating and tables, live edge wood benches and boulders as indicated on the contract documents.

143. This Subcontractor shall furnish and install all gates including but not limited to vehicular double swing gate per detail 3B on drawing L502 and Cantilever chain-link fence sliding gate (if this alternate is accepted) per detail 3A on drawing L601. Include any required painting of gate per documents.

144. This Subcontractor shall furnish and install all combination sign/boards, steel concrete filled and removable type bollards (including the footings, concrete fill and painting), timber guiderails, vehicles access gates, automatic traffic control gates (along with the footing specified by the manufacturer) , and chain link fencing as indicated in the contract documents. This Subcontractor shall coordinate with the Landscaper for the installation of the timber rails relative to their access for the installation of the landscaping.

145. This subcontractor shall engineer, furnish and install the segmental block retaining walls indicated in the contract documents including but not limited to Diamond Pro PS Block – Victorian Face per detail 1D/L503 and Metal Screen Fence(s) including but not limited to details shown on L503.

146. This Subcontractor shall furnish and install all exterior litter receptacles as indicated in the contract documents.

147. This Subcontractor shall furnish and install all Safety Netting as indicated on the contract documents, reference detail 1A on drawing L601.

148. This Subcontractor furnish and install all baseball and softball backstop systems as indicated on the contract documents including but not limited to the details on drawing L602.

149. This Subcontractor furnish and install the baseball/softball shade enclosures including but not limited to the benches and corrugated roofing the as indicated on the contract documents including but not limited to the details on drawing L602.

150. This Subcontractor shall provide all metal fencing, metal screen fencing, shade enclosures, bollards, backstop assemblies, stanchions, safety netting support metal, dumpster enclosure gates, vehicle gates, and foul ball poles in a painted or factory applied finish. All finish painting or providing in factory finish shall be included for exposed metals supplied by this Subcontractor.

151. This Subcontractor shall furnish and install the raised planters as indicated on the contract documents including but not limited to raised concrete planters per detail 3E on drawing L501.

152. This Subcontractor shall include the follow **Trade Allowances**: 120 hours of machine time (assume small wheel loader similar to CAT 930) and 320 hours of a laborer for required site logistic modifications associated with phasing and restoration of areas. 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.

Additional Items

153. This Subcontractor shall relocate the existing two (2) storage sheds on the property. Reference drawing L101A and Drawing L301A at grid line E & 1 for shaded rectangle intended to show existing sheds location. Please note – sheds will not be demolished, shed will be relocated per Owner's direction on the property.
154. This Subcontractor will not participate in the Contractor Controlled Insurance Program (CCIP). This subcontractor shall provide a General Liability Insurance program inclusive of a $20 MM per occurrence and $20MM per aggregate for Blasting Operations. Refer to CCIP Manual for additional information.
155. This Subcontractor shall provide to the jobsite, at start of construction activities, for use by the Turner Staff during the project and will be turned over and the property of the Town of Greenwich the following Utility Terrian Vehicle: POLARIS RANGER CREW XP 1000 NorthStar Edition Premium with Fixed Windshield, equipped with all the capabilities of RANGER CREW XP 1000, plus a factory-installed Pro Shield cab system, heating and air conditioning—with seating for 6 and doors. Include pedal-start feature to reduce unnecessary idling if available, and (3)-5 gallon gas cans for refueling. Assume refueling cans weekly for the course of the project.
156. This Subcontractor shall adhere to the included schedule specifically the duration on rock removal and sitework to allow for following activities. A minimum of two crews made up of the appropriate number of individuals shall be working on sitework and rock removal operations to adhere to the indicated durations and meet production levels necessary to complete as scheduled.
157. This subcontractor 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).
158. This Subcontractor shall remove any existing gravel course or footing / slab-on-grade subgrade prep materials (assume 12" depth).
159. This subcontractor shall backfill, slope, and excavated areas to achieve the correct final elevation and conditions.

D. Exclusions

1. Exclude fiber mulch. (by Landscape)
2. Exclude polymer Concrete handholes (by EC)
3. Exclude heat trace at exterior sanitary piping.
4. Exclude furnishing and installing under-slab sanitary piping (By Plumbing Bid Package)
5. Exclude Soil Preparation specification 32 9113 (By Landscape Bid Package)
6. This Subcontractor shall exclude the following flatwork concrete unless otherwise indicated above including frost pads, sidewalks, sidewalk ramps and curbing as indicted on the contract documents which shall include the detectable warning strips. Exclude spec sections 32 1313 – Concrete Paving and 32 1373 – Concrete Paving Joint Sealants.
7. Excludes concrete washout.
8. Exclude placing Concrete and Concrete Reinforcing for Transformer Pad(s), Gas Meter Pad(s), and Generator Pad(s).

E. Safety

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#9 - Sitework
Dated: 07.08.2024
Revised: 10.24.2024

1. This Subcontractor shall excavate all trenches assuming all soil to be Type C. Meaning all excavations shall be continuously sloped at a 34-degree angle in accordance to the OSHA standards. Sloping cannot exceed 20 feet without verification by a PE. BENCHING NOT ALLOWED IN TYPE C SOIL. This Subcontractor shall provide a detailed sheeting and soil retention plan for the work to be undertaken. This requirement does not attempt to characterize soil suitability for the support of structures or equipment but is only recommended for the purposes of trench collapse prevention.
2. This Subcontractor to provide a fall protection plan for all excavations 6 feet or greater in depth. This Subcontractor shall ensure excavation fall exposures are guarded by a hard barrier that meets OSHA's definition of guard railing. Orange fencing, danger or caution tape will not be acceptable.
3. This Subcontractor shall furnish, install and maintain an OSHA compliant wire rope guardrail system atop ALL site perimeter H pile soil retention systems. This is to be installed before any mass excavation begins to eliminate fall hazards during its installation. This Subcontractor will furnish and install a 3x3 steel angle posts atop each H pile sized to accommodate a toprail cable at 42" inches above walking surface and a midrail cable at 21" above the walking surface, terminated by 3 appropriately sized and spaced forged steel wire rope clips (Crosby or equal) torqued to manufacturers specifications. All steel posts, cabling, hardware and turnbuckles are to be furnished and installed by this Subcontractor. The minimum allowable cable size will be 3/8ths only if aircraft rated cable is used. The perimeter cable system is to include turnbuckles spaced at no more than every 100 feet with terminations made at all corners. This Subcontractor to also furnish, install and maintain orange mesh secured to the top rail and terminated into the top piece of lagging. This Subcontractor is to inspect and maintain all guardrails and mesh on a daily basis until backfilling is complete and railing no longer necessary for fall protection. Daily inspections shall be documented by this Subcontractor and made available to Turner upon request. Removal of safety cabling systems will be by others. This Subcontractor to incorporate four (4) pedestrian access/material loading areas independent of perimeter protection with removable cables and tie-off points for three (3) workers. These material loading areas to be located by Turner's Superintendent. This subcontractor to use the top edge of the lagging as a toe board and means to secure orange mesh, it is important that this Subcontractor allow for the height of the H-pile to be at least 6 inches above the adjacent walking surface elevation.
4. This Subcontractor shall provide (prior to arriving on site) all tabulated data for shoring boxes utilized for soil retention, including soil retention at the site utilities. This Subcontractor must ensure that they furnish, install, maintain and remove guard railing (includes a continuous top rail at 42 inches above grade, a midrail at 21 inches above grade, a toe board 4 inches above grade) at all sheeting, soldier pile or trench box that terminates 6 feet or greater above a lower level. This Subcontractor to furnish, install, maintain and remove such guard railing as well as provide daily documented inspections.
5. This Subcontractor shall have a 40-hour Hazwoper trained employee on site at all times. (for projects with the requirement outlined in the soils management plan.)
6. This Subcontractor to provide snow removal for the entire site including all areas identified within the Turner site logistics plan. Removal must be continuous throughout all areas within the site fencing and all access paths to all entries into the building including any areas in the building impacted by snow and ice. Snow removal is not allowed to free fall from upper levels of buildings, scaffolding or platforms. This Subcontractor shall sand and de-ice as required to maintain safe conditions on site including: egress from each building, trailers and to the Site Emergency Rally / Muster location per the Crisis Management Plan. The snow removal will be accomplished prior to commencement of the days work shift to allow for safe entry without delay into the jobsite. This subcontractor is required to maintain at all times roadways and foot paths in a safe traversable condition by plowing, shoveling and utilizing surface treatments.

7. This Subcontractor shall ensure the grade differential between any (concrete) surface and adjacent rough grade is no more than 10 inches below finish floor elevation during all phases of construction. This Subcontractor shall be responsible for providing a uniform and level compacted grade around the building perimeter suitable for the support of scaffolding and lifts.
8. This Subcontractor shall provide and maintain anti-tracking pads and tire wash stations per the Turner Site Logistics Plan or as required by Turner. Each anti-tracking pad shall be constructed as specified by the contract documents or Turner. Tracking pads as defined by the site logistics plan or site improvement plan will prevail if more stringent than this requirement or if the area is required to be greater in size. This subcontractor to provide high pressure washers at each location for tire washing purposes. This Subcontractor shall provide the appropriate manpower to ensure ALL vehicular traffic is washed at these locations before entering onto municipal streets. These areas must be isolated from coming in contact with any soil remediation areas where required. This subcontractor is to provide all materials necessary to hook up and retrieve water and a water truck must be provided by this subcontractor if water is not available on site. This subcontractor shall be responsible for street sweeping to maintain clear roadways around the site as directed by Turner.
9. This subcontractor shall perform inspections of the erosion/stormwater control measure for the project, this Subcontractor is responsible to furnish, install, repair and remove all stormwater/erosion control measures, devices, fixtures, etc. per the Project SWPPP (Stormwater Pollution Prevention Plan) and all terms and conditions associated with this work. This includes responsibility for all corrective action required to remediate the stormwater controls per the inspections by Turner and by all 3rd party inspectors and maintain a documentation log confirming all corrective actions. See Turner Construction Company Stormwater Compliance Program for additional requirements.
10. This Subcontractor will be required to maintain a lined concrete wash out for their concrete work and will be responsible for removing all surplus concrete from the job site in accordance with contract documents. Concrete surplus must be removed on a weekly basis or as directed by Turner.
11. This Subcontractor shall ensure safe access in and around all footings by providing ramps at every footing and every 25’ along the foundation walls. If trenches are to be traversed ensure that walkways are at least 18 inches wide and are secured together when using two planks to make up the required width. If the height of the walkway exceeds 4 feet vertically this subcontractor will install guardrails to prevent falls from same walkway.
12. This subcontractor shall excavate around footings to allow for an unobstructed 2 foot wide clear path around all footings during wall construction, drainage and waterproofing installation activities. The adjacent footing grade must be maintained no lower than 16 inches below top of footing.
13. This Subcontractor shall coordinate with Turner Superintendent and backfill to within 2” the top of all footings, compacted and leveled prior to the commencement of wall forming operations.
14. This Subcontractor shall verify the presence of all existing underground utilities that may be affected by their work. This includes the use of non-intrusive methods such as hand digging or vacuum excavation of pot holes every 15' to locate known utilities per the Surface Penetrating Request Permit. This includes areas where fence posts for site containment fences are to be driven. This Subcontractor will contact “Call before You Dig” for layout of existing utilities and coordinate with the facilities department. This subcontractor will be responsible for maintaining utility markings.

15. This Subcontractor shall hire an independent GPR Subcontractor approved by Turner to grid out, locate and mark all existing underground utilities in all areas of disturbance. This GPR Subcontractor shall provide subsurface utility profiles in plan and elevation as built by a licensed surveyor with dimensions off existing site benchmarks that will remain throughout the project and submit copies to Turner. This subcontractor will be responsible to maintain with updated as builts and remark utilities for the duration of the project when needed. This subcontractor shall utilize hand digging and/or vacuum excavation when excavating within 12' of existing utilities to identify their locations below grade.
16. This Subcontractor shall ensure that the soil/ fill conditions under any equipment i.e. SCAFFOLDING/HYDROMOBILES/CRANES have been coordinated with the Subcontractor providing the equipment to ensure suitable soil bearing capacity.
17. All building and structure shoring/underpinning systems must be designed by a professional engineer. Plans and calculations must be submitted to the engineer of record for approval prior to undertaking the work. Inspections must be performed daily by a qualified party designated by the subcontractor and maintain a documentation log confirming any corrective actions required.
18. This subcontractor shall ensure that if self-supporting temporary fence is required tube bases that project into adjacent walkways will not be permitted. Temporary fencing must be supported by one sided fence bases (either steel and/or sand bagged) or low profile high-visibility bases shall be used to eliminate tripping hazards to the public side. In general, scrim shall be wind resistant scrim.
19. This Subcontractor shall ensure that all temporary fence panels are free from protruding wires or other components that could scratch, catch or snag pedestrians as the pass by the fence.
20. This subcontractor is to furnish, install, maintain and remove all fencing, scrim covering, and gates for the full duration of the project as outlined in the project schedule and layout defined by Turner's Site Logistics Plan. Fence must be inspected for integrity and this contractor will perform any necessary repairs identified.
21. All designated walking paths must be temporarily graveled and regularly maintained using ¾" stone maximum. A path must be furnished and maintained from the site entry gate to the building perimeter entry location at all times.
22. This Subcontractor must provide daily dust control for all sitework so that dust is controlled to the point that it is not visible. This subcontractor shall provide their own water connection.
23. Excavator cabs windshield must be protected with both a suitable cage covering and safety glass when the excavator is being used in conjunction with a hydraulic breaker, hoe ram and during clearing and grubbing operations.
24. This contractor will coordinate with Turner to determine the location of air intakes into other buildings that could be adversely affected by exhaust fumes from its machinery. This contractor will be expected to protect the fresh air intake of existing buildings from exhaust, mists or dusts generated by their work.
25. This Subcontractor will provide 80 traffic cones with telescoping cone bars to be used in areas designated at the direction of Turner.
26. This subcontractor shall furnish, install, relocate and remove (10) additional jersey barriers in locations directed by Turner.
27. This subcontractor shall furnish, install, maintain, relocate as needed and remove jersey barriers or dead men along ramp excavation inclines as guardrail protection for motor vehicles and construction equipment.
28. This Subcontractor shall ensure all street plates have anti-skid surfaces with no open lift holes.

29. Blasting Operations to be governed OSHA and the Manual of Accident Prevention in Construction of the Associated General Contractors of America. This contractor will be required to submit blasting plans to be reviewed by a 3rd Party. A Pre-Blast Permit will be required to be completed for each blast sequence. Include all Town permits and associated cost as required for Blasting.
30. This Subcontractor shall develop, implement and maintain a road closure plan that follows MUTCD requirements for any road/lane closures or work adjacent to public roadways.
31. This subcontractor shall provide "Danger Construction Do Not Enter" on the exterior scrim of the site fence every 20'.
32. This Subcontractor to furnish, install and remove concrete barriers for protection against vehicular traffic at any and all O2, Flammable Gas and LPG storage tanks within the construction area as further defined by Turner's Site Logistics Plan. Also provide grading and 3/4" stone as a base for these enclosures.
33. ~~This Subcontractor shall relocate the existing two (2) storage sheds on the property. Reference drawing L101A and Drawing L301A at grid line E & 1 for shaded rectangle intended to show existing sheds location. Please note – sheds will not be demolished, shed will be relocated per Owner's direction on the property.~~ See Above.

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 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
State Project No. 057-0114 N
Greenwich, CT
BP12 – Structural Steel
Dated: 07.08.2024
Revised: 10.24.2024

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 #12 Structural Steel 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, detailed references are included for convenience but are not intended to identify all applicable details.

1. Includes performing all of the ***BP #12 Structural Steel 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
051200	Structural Steel Framing
052100	Structural Joist Framing
053100	Steel Decking
072163	Fluid Applied Insulative Coating

Shared Specifications

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP12 – Structural Steel
Dated: 07.08.2024
Revised: 10.24.2024

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
033250	Concrete Post-Installed Anchors
050805	Factory-Applied Coatings for Metal
055000	Metal Fabrications

Bid Package Specific Scope

General

2. This subcontractor shall fully participate in all 3-D coordination - All work per 3-D MEP Coordination Additional Provisions. This shall include modeling all roof joists. This subcontractor is responsible for coordinating with all the MEP trades and resolve any conflicts or coordination issues.
3. This Subcontractor is aware that this is a High-Performance Building and submittals should be submitted according to these standards. This Subcontractor has included all costs associated with meeting these requirements as set forth in the Division 1 Specifications.
4. This Subcontractor will provide the necessary written documentation for meeting the CT High Performance requirements as outlined in the Division 1 specifications.
5. This Subcontractor is responsible for distributing material to all floors as required and its protection from damage during delivery, handling, storage, and installation.
6. Temporary power will not be available for Structural Steel erection. It is agreed and understood that this Subcontractor shall utilize gasoline-powered welders or similar in order to perform the welding associated with erection of the Structural Steel for this Project. In addition, this Subcontractor shall assume that temporary electric will not be available for this Subcontractor's use during steel erection. This Subcontractor shall include the use of generators as required for the duration of their Work.
7. Prior to entering the site this Subcontractor shall submit all fitness for use / inspection certifications required for cranes to the Construction Manager. This Subcontractor shall be responsible for all crane permits for his work. This matter is a very important safety requirement to follow, and no crane will be allowed to be used unless this paperwork is submitted and up to date. There shall be a pre-planning meeting prior to erecting the crane on site.

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP12 – Structural Steel
Dated: 07.08.2024
Revised: 10.24.2024

8. This Subcontractor shall be responsible for ordering, scheduling, and sequencing of steel deliveries required for the work. This shall include any premium time.
9. No truck parking/idling is allowed on streets adjacent to project site while waiting to unload. This Subcontractor shall include accommodations as required to adhere to "just in time" deliveries. Refer to Turner's "Logistic Plans – Scope of Work" for delivery restrictions.
10. This Subcontractor shall include all costs for two (2) round trip inspection visits for two (2) individuals at the structural steel fabrication plant. These costs should include travel, meals, lodging, and round-trip airfare if necessary, from Greenwich, CT.
11. 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 that this document is project specific, and all provisions must be included in this Subcontractor's bid.
12. This Subcontractor is responsible for leaving the metal deck cleaned of all debris resulting from erection of structural steel and metal deck including removal of stud ferrules. Due to dust concerns, blowers and compressed air are prohibited. Prior to turnover, the Construction Manager shall review and accept metal deck cleanliness.
13. This Subcontractor shall provide snow/ice removal as required to perform the work of this trade. Provide all preheating of welds, covering etc. to work during winter conditions. Site Access/egress snow removal will be by Sitework Subcontractor.
14. The Sitework Subcontractor (BP #09) shall provide 5 crane pads (40'x40'each of 12" crushed stone). This Subcontractor shall coordinate locations and sizes with the Sitework Subcontractor. This subcontractor shall furnish & install their own additional pads, and any cribbing, dunnage, etc. that may be required for their crane set-up and steel erection.
15. This Subcontractor shall coordinate with the Owner's Special Inspections Testing Agency (TBD) as required per the plans and specifications including those referenced in The Statement of Special Inspections. This Subcontractor shall provide the Construction Manager with seventy-two (72) hour advance notice for all required inspections. This subcontractor shall provide means for the inspector to access work, including but not limited to appropriate lifts, ladders, scaffold, etc.
16. This Subcontractor shall furnish and install decking with support framing for a 6' x 6' Slab-On-Deck mock-up for firestopping penetrations.
17. This subcontractor shall provide PE stamped drawings, calculations, & all delegated design as indicated in the contract documents.
18. This subcontractor shall design, furnish, & install the roof safety tie off system. For an example see sheet A103D.
19. This subcontractor is responsible for pulling all permits as required for their scope of work. Any filing of permits associated with this scope to be performed by this subcontractor including associated filing fees to be paid by this subcontractor, permit fees by others.

20. 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 associated with particular subcontractor (cardboard, plastic bottles, misc. trash item, general sweeping, etc.)
21. This Subcontractor shall furnish and install "Safe-T-Strap" systems in accordance with Turner Safety Additional Provisions.
22. This Subcontractor shall provide holes in structural steel required by other trades including, but not limited to the Gymnasium folding partition, Auditorium rigging beams, etc. Coordinate work with applicable Subcontractors. Include 20 shop installed beam penetrations (assume no plate reinforcing required) with maximum diameter of 4", location TBD.
23. This subcontractor shall remove the fall protection at the level two slab on grade areas for the entire length of the retaining installed by the Concrete subcontractor prior to the installation of metal decking adjacent to this area.
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.
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.

050805 Factory-Applied Coatings for Metal

28. This Subcontractor shall furnish and install all hot-dipped galvanized structural steel as shown on the contract drawings, and as specified and required for complete systems regardless of details shown on drawings. This subcontractor shall include high performance factory applied primer and color topcoat, including but not limited to the structural members indicated on the GC series of drawings.
29. This subcontractor shall repair any damage to the applied steel coatings that occurs during the course of delivery, rigging, and installation. Welds made on architecturally exposed steel shall be ground smooth by this subcontractor for finishes. This Subcontractor shall also provide field touch up of galvanizing due to field welds and areas adjacent to welds as required.
30. This subcontractor shall furnish & install mock-ups of all exposed steel finishes, including but not limited to colored galvanized steel.

051200 Structural Steel Framing

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP12 – Structural Steel
Dated: 07.08.2024
Revised: 10.24.2024

31. This Subcontractor shall be responsible to furnish and install all Structural Steel and Exterior Wall Support Steel Work on the Structural & Architectural Drawings as required for complete systems regardless of detail, unless otherwise specifically called out in this scope of work. This work shall include, but not be limited to, all structural steel, angles, braces, bent plates, HSS steel framing, HSS steel posts, hung lintels, deck support angles, support angles bolted to CMU, embeds, fasteners, accessories including shims, clips, bolts, and studs, etc. This Subcontractor shall **exclude** loose lintels not attached to structural steel unless specifically called out in this scope of work.
32. This Subcontractor shall be responsible for designing, furnish and install all steel connections unless noted otherwise.
33. This Subcontractor shall be required to coordinate all Structural Steel Work with all other Subcontractors having work adjacent to or connecting to the Structural Steel Scope of Work.
34. This Subcontractor shall furnish all anchor bolts and other embedded items that are required for this scope of work. These are required to be on site at the start of the concrete operation with a complete set of layout drawings and templates. This Subcontractor shall coordinate with the Concrete and Masonry Subcontractors and the project schedule for the timing of this work. This Subcontractor shall document transfer of care and custody of embedded items to the Concrete and Masonry Subcontractor's and provide the Construction Manager with a copy upon request. This subcontractor is solely responsible for the care & custody of their materials.
35. This subcontractor must field verify & confirm that all cast in and embed layout & types are correctly installed before & after concrete or grout placement. This survey must be performed prior to the start of Structural Steel erection, by a licensed registered surveyor and be independent of any other survey performed by the Concrete Subcontractor. Notify the Construction Manager in writing of any deviations so that corrections can be made in ample time so as not to delay the Structural Steel erection.
36. This Subcontractor shall provide all necessary survey layout, etc. in order to properly perform their work. This includes, but is not limited to, a preconstruction survey for areas where interfacing with existing construction occurs. Surveys shall be submitted before related shop drawings are prepared. All Surveys shall be performed by a licensed surveyor or by Total Station as modeled.
37. This Subcontractor shall provide a Certified Survey of the plumbness of all columns as well as the elevations of all the column splices for submission to the Engineer & Turner to document compliance with Specifications.
38. This Subcontractor shall provide a Certified Survey of all framing members and metal deck, including but not limited to their elevations and indication that they are installed per allowable tolerances, for submission to the Engineer & Turner to document compliance with Specifications including prior to concrete placement where applicable.
39. This Subcontractor shall be responsible for providing framed openings in structural slabs. For example, refer to typical details on Drawing S400.
40. This subcontractor shall furnish & install all dunnage steel for mechanical equipment per the contract documents.
41. This subcontractor shall furnish & install all steel stub-ups for the louvered roof screens, for example see detail 12 on S410, coordinate final locations with exterior wall subcontractor.
42. This subcontractor shall furnish & install all lateral framing indicated on the contract drawings, including but not limited to all lateral brace frame connections (for examples see S500 & S501).
43. This subcontractor shall furnish & install temporary erection bracing as needed for all structural steel.

44. This Subcontractor shall furnish and install all support steel (i.e., channels and angles) and deck reinforcing / support (i.e. bent plates) required. For example, refer to the details on the S400 series of drawings. This Subcontractor shall coordinate with the Exterior Wall, Roofing and MEP Subcontractors for installation requirements. This subcontractor must confirm all steel is fully coordinated with the exterior wall prior to installation.
45. This Subcontractor shall coordinate steel coatings such as spray-on fireproofing, intumescent paint, thermal coatings, or concrete encasement with associated trades for primer requirements per the project specifications. Reference fireproofing plans for locations.
46. This Subcontractor shall coordinate with the painting specifications for steel that is exposed to view regarding paint finish. This Subcontractor shall coordinate with partition plans for steel columns exposed to view and shall be conscience of where factory labeling is placed so as not to require additional prep work by the painter.
47. This Subcontractor shall stencil column identification on all columns on all 4 sides approximately 7-8 ft. above floor. Stencils shall be in inconspicuous locations and compatible with finish and fireproofing material on columns. The stencil marks must be a minimum of 6" tall. Coordinate final locations during shop drawing submission.
48. This subcontractor shall make all pour stops and supplemental support steel adjustable to allow for flexibility during installation where possible and allowed / approved by the design team & the EOR.
49. This subcontractor shall furnish & install all steel supports required for the exterior wall mock-up shown on A315, including but not limited to HSS members, steel angles, connections, etc. Members required should be the same as those shown in similar permanent steel details, such as hung lintels.
50. ~~This subcontractor shall furnish & install bituminous paint on structural steel members as indicated in the contract documents, for example see detail 4 on S200.~~
51. This subcontractor shall furnish & install all CMU supports that are required to be welded to structural steel, including but not limited to angles, bent plates, epoxy anchors into CMU, etc. This subcontractor shall coordinate with the Mason (BP #11) for layout of supports. For an example see detail 1A on A605.
52. This subcontractor shall furnish & install the Auditorium rigging beams, including not limited to connections to the roof joists. For examples see S301D and detail ~~6~~ 5 on S402. This subcontractor must coordinate layout and locations of the rigging beams with the Theatrical Lighting Subcontractor (BP #38) and Theatrical Equipment Subcontractor (BP #31).

052100 Steel Joist

53. This Subcontractor shall design, furnish, and install all steel joists as shown on the contract drawings, and as specified and required for complete systems regardless of details shown on drawings.

053100 Steel Decking

54. This Subcontractor shall design, furnish, and install all steel decking as shown on the contract drawings, and as specified and required for complete systems regardless of details shown on drawings. The metal deck must be able to accommodate and be compatible to receive SOFP and or painted finish per the contract documents.

55. This Subcontractor shall furnish and install all metal deck & composite deck components for a complete floor system including but not limited to shear studs, connectors, flashings, metal closures, concrete stops, accessories, and fittings.
56. This subcontractor shall furnish & install acoustical insulation within flutes of acoustical metal deck to provide a complete acoustical deck system. This subcontractor must coordinate with the Roofing Subcontractor, General Trades, and MEP subcontractors to ensure there are no compatibility issues or conflicts.
57. This Subcontractor shall furnish and install roof drain sump pans. Coordinate installation locations of roof sump pans with Plumbing Subcontractor.
58. This Subcontractor shall deck over all framed openings, and coordinate & remobilize to cut the decking back for the MEP Subcontractors prior to the start of their MEP installations.
59. This Subcontractor shall survey perimeter pour stops with Total Station prior to deck pours and provide written confirmation to the construction Manager that all pour stops are within allowable tolerances.
60. This Subcontractor shall include metal deck layout and thickness so that shoring during of the deck is not required during concrete placement.

055000 Metal Fabrication

61. This Subcontractor shall furnish all loose bearing and leveling plates that are required for this scope of work. These are required to be on site at the start of the concrete operation with a complete set of layout drawings and templates. This Subcontractor shall coordinate with the Concrete and Masonry Subcontractor (BP #10 & 11) and the project schedule for the timing of this work. This Subcontractor shall document transfer of care and custody of embedded items to the Concrete Subcontractor and provide the Construction Manager with a copy upon request.
62. This Subcontractor shall furnish and install all steel required for the support of the exterior wall and window systems, including but not limited to HSS tubes, angles, bent plates, channels, hung lintels, etc. For example, see structural details on S410 through S430 and architectural detail 2A/A641.

072163 Fluid-Applied Insulative Coating

63. This Subcontractor shall furnish and install all spray-applied insulative coating systems for structural steel as shown on the contract drawings, and as specified and required for complete systems regardless of details shown on drawings, including but not limited to primer, insulative coating, and topcoat. For examples of where this system is required see the GC series of drawings and detail 2B on A521.
64. This subcontractor shall repair any damage to the applied steel coatings that occurs during the course of delivery, rigging, and installation.

D. Safety - See Safety Additional Provisions

1. This Subcontractor shall furnish & install (2) temporary stair towers for means of egress during construction. Stair towers to provide access to all floor levels and the roof.
2. This subcontractor shall furnish & install a scaffold platform at the deck height of their trailers for unloading steel. This platform must include adequate stairs for access.

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP12 – Structural Steel
Dated: 07.08.2024
Revised: 10.24.2024

3. 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.
4. This Subcontractor shall provide a site-specific plan on how they will comply with Turner's Ladder's Last Program.
5. This subcontractor shall ensure that any Lulls used on site are equipped with hydraulic fork positioners.
6. 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.
7. This Subcontractor shall ensure all connections involving washer plates are made final while the steel is still supported by the crane. Washer plates must be installed at the time of initial connection at all slap connections.
8. This Subcontractor shall furnish and install at locations of Structural Steel Framing, a complete safety cable guardrail system around all elevators, stair shafts and any openings of size 2 inches x 2 inches or greater and the entire building perimeter at each level including the ground floor and any other locations with elevation changes of more than 4 feet. A reusable guardrails system shall be of equal performance or greater than Perimeter Protection Products system. The posts shall be installed no more than ten feet apart. The post shall be "reusable type system" with adjustable cable guides. The cable heights of 42 and 21 inches must be maintained by this subcontractor. **Perimeter and shaft way beams that are to receive posts shall be hole punched in the fabrication shop and the under-mount post receiver is to be welded under the flange at the fabrication shop and shipped to the job ready for post installation.** Steel columns will be equipped with column clips of adjustable type to facilitate cable heights on column. Be sure to coordinate enough length into the posts in order to maintain rail height at the finish floor level and the finished roof elevation. Posts will need to be longer than 42 inches to accommodate the concrete thickness of the finished slabs and the composite roofing thickness. The Perimeter Protection Products 5'-6" post is to be used. This Subcontractor to install the cables into the posts and they shall be terminated by 3 appropriately sized and spaced forged steel wire rope clips (Crosby or equal) torqued to manufacturers specifications. The minimum allowable cable size will be 3/8ths only if aircraft rated cable is used. The perimeter cable system is to include turnbuckles spaced at no more than every three (3) columns. This Subcontractor is to inspect and maintain all guardrails on a daily basis until Structural Steel Work is complete and this subcontractor has demobilized from the site. Daily inspections shall be documented. Removal of safety cabling systems will be by others. This Subcontractor to incorporate four (4) material loading areas independent of perimeter protection with removable cables and tie-off points for three (3) workers. These material loading areas are to be located by Turner's Superintendent.
9. This subcontractor shall include furnish and install an additional (20) 3"x3" angle post welded at designated access points by Turner to secure temporary rails.
10. This Subcontractor shall detail and fabricate beam connections and column splices for safe erection as outlined in OSHA 1926, Subpart R, Section 1926.756 (c)(1). Include all costs for engineering and detailing as required. There shall be NO double live connections at columns or beams.

11. This Subcontractor shall furnish, install and maintain at all shaft openings and stair openings at every other level debris net capable of supporting a person for the purposes of fall arrest and left in place. Nets shall be inspected daily until this contractor demobilizes from the site. This subcontractor shall remove nets when directed by Turner for other trades to complete their work at shafts and stair openings.
12. This Subcontractor is required to prevent and contain all slag from hitting the ground and levels below. Flame resistant blankets and other suitable means are acceptable.
13. This subcontractor shall furnish and install all stairways in pace with the erection of each floor. All stairways will be shipped to the project with the necessary tread infills attached. The interior guardrails are to be installed in pace with the erection of each floor.
14. This Subcontractor shall investigate and review deck/beam capacity prior to loading any floors with its materials and provide an engineered loading plan/drawing. This may include additional supports required to utilize any floor/deck and or identifying specific areas that can be utilized to pick from. This plan should account for tripping of columns not to exceed or point load structural assemblies. Loading plan must be reviewed and approved by the structural engineer prior to delivery. Post material loading specs on each floor and at location of a critical nature.
15. This Subcontractor shall provide all new rigging at the start of the project. Monthly documented inspections of all rigging shall be completed by this Subcontractor and provided to Turner upon request.
16. This Subcontractor shall provide a man basket on site at all times during the scope of work. The basket shall comply with all Turner and OSHA requirements and a test pick shall be performed once a week.

E. Exclusions

1. Demolition of existing structure (by Demolition Subcontractor, BP #08)
2. CFMF exterior wall clip / slip connections to base building steel (by General Trade Subcontractor, BP #21)
3. Furnishing and installing of loose lintels (by Masonry Subcontractor, BP #11)
4. Typical CFMF Seismic Restraint Details at Tops of Masonry Walls (By Masonry Subcontractor, BP #11), for an example see detail 1B on A605.
5. Expansion & Seismic joints (by Concrete, Roofing, and Exterior Wall Subcontractors (BP #10, 15, 19)
6. Exterior bollards (by Sitework Subcontractor, BP #09)
7. Steel for Street Signage, for example details 4, 5, & 6 on S212 (by Misc. Metals Subcontractor BP #13)
8. Miscellaneous Metals (by Miscellaneous Metals Subcontractor, BP #13), such as the metal stairs, elevator pit ladders, elevator hoist beams, areaway grating, vanity supports, overhead coiling door supports, Street sign framing (S212), and elevator pit ladders.
9. Exterior chain link fence (by Sitework Subcontractor, BP #09)
10. Roof screen at rooftop MEP equipment (by Roofing Subcontractor, BP #15)
11. Grouting of elevator sill angles, column baseplates, and beam bearing plates (by Concrete Subcontractor, BP #10)

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP12 – Structural Steel
Dated: 07.08.2024
Revised: 10.24.2024

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	

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP13 – Miscellaneous Metals
Dated: 07.08.2024
Revised: 10.24.2024

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 #13 Miscellaneous Metals 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 #13 Miscellaneous Metals 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
055100	Metal Stairs
057000	Decorative Metal Railings
057100	Monumental Metal Stairs

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.

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP13 – Miscellaneous Metals
Dated: 07.08.2024
Revised: 10.24.2024

Spec. #	Specification Name
Div 00	Division 00 – Procurement and Contracting Requirements
Div 01	Division 01 – General Requirements
033250	Concrete Post-Installed Anchors
050805	Factory-Applied Coatings for Metal
055000	Metal Fabrications
079200	Joint Sealants

Bid Package Specific Scope

General

2. This Subcontractor shall include all 3D modelling in accordance with Turner's BIM Coordination Additional Provisions; this shall also include modeling all miscellaneous metals steel that is part of this subcontractor's scope of work. This subcontractor is responsible to coordinate with all the MEP trades and resolve any conflicts or coordination issues.
3. This Subcontractor is aware that this is a High-Performance Building and submittals should be submitted according to these standards. This Subcontractor has included all costs associated with meeting these requirements as set forth in the Division 1 Specifications.
4. This Subcontractor will provide the necessary written documentation for meeting the CT High Performance requirements as outlined in the Division 1 specifications.
5. This Subcontractor is responsible for distributing material to all floors as required and its protection from damage during delivery, handling, storage, and installation.
6. Temporary power will not be available for Misc Metal installation. It is agreed and understood that this Subcontractor shall utilize gasoline-powered welders or similar in order to perform the welding associated with erection of the Misc. Metal for this Project. In addition, this Subcontractor shall assume that temporary electric will not be available for this Subcontractor's use during steel erection. This Subcontractor shall include the use of generators as required for the duration of their Work.
7. Prior to entering the site this Subcontractor shall submit all fitness for use / inspection certifications required for cranes to the Construction Manager. This Subcontractor shall be responsible for all crane permits for his work. This matter is a very important safety requirement to follow and no crane will be allowed to be used unless this paperwork is submitted and up to date. There shall be a pre-planning meeting prior to erecting the crane on site.
8. This Subcontractor shall be responsible for ordering, scheduling and sequencing of steel deliveries required for the work. This shall include any premium time.
9. No truck parking/idling is allowed on streets adjacent to project site while waiting to unload. This Subcontractor shall include accommodations as required to adhere to "just in time" deliveries. Refer to Turner's "Logistic Plans – Scope of Work" for delivery restrictions.
10. This Subcontractor shall include all costs for two (2) round trip inspection visits for two (2) individuals at the structural steel fabrication plant. These costs should include travel, meals, lodging, and round-trip airfare if necessary, from Greenwich, CT.

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP13 – Miscellaneous Metals
Dated: 07.08.2024
Revised: 10.24.2024

11. 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 that this document is project specific, and all provisions must be included in this Subcontractor's bid.
12. This Subcontractor shall perform all field touchup of finishes as it relates to this scope of work.
13. This Subcontractor shall provide snow/ice removal as required to perform work of this trade. Provide all preheating of welds, covering etc. to work during winter conditions. Access /egress snow removal will be by Sitework Subcontractor. This subcontractor shall provide breakout pricing for Weather Protection in Application for Payment.
14. This subcontractor shall furnish & install their own pads, cribbing, dunnage, etc. that may be required for the rigging associated with the Miscellaneous Metals scope of work.
15. This Subcontractor shall coordinate with the Owner's Special Inspections Testing Agency (TBD) as required per the plans and specifications including those referenced in The Statement of Special Inspections. This Subcontractor shall provide the Construction Manager with a minimum of seventy-two (72) hour advance notice for all required inspections. This subcontractor shall provide means for the inspector to access work, including but not limited to appropriate lifts, ladders, scaffold, etc.
16. This subcontractor is solely responsible for the care & custody of their materials.
17. This subcontractor shall provide PE stamped drawings, calculations, & all delegated design as indicated in the contract documents.
18. This subcontractor is responsible to pull all permits as required for their scope of work. Any filing of permits associated with this scope to be performed by this subcontractor including associated filing fees to be paid by this subcontractor, permit fees by others.
19. 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 associated with particular subcontractor (cardboard, plastic bottles, misc. trash item, general sweeping, etc.)
20. This Subcontractor shall coordinate all Miscellaneous Metals with all other Subcontractors having work adjacent to or connecting to the Miscellaneous Metals scope of work.
21. This Subcontractor shall provide holes in Miscellaneous Metals required by other trades including, but not limited to the, vanity supports, etc. Coordinate work with applicable Subcontractors.
22. 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.
23. This Subcontractor shall include multiple mobilizations as required by the latest issuance of the project schedule.
24. 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.

25. 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.

050805 Factory-Applied Coatings for Metal

26. This Subcontractor shall furnish and install all hot-dipped galvanized Miscellaneous Metals as shown on the contract drawings, and as specified and required for complete systems regardless of details shown on drawings.

27. This subcontractor shall repair any damage to the applied steel coatings that occurs during the course of delivery, rigging, and installation. Welds made on architecturally exposed steel shall be ground smooth by this subcontractor for finishes. This Subcontractor shall also provide field touch up of galvanizing due to field welds and areas adjacent to welds as required.

055000 Metal Fabrication

28. This Subcontractor shall design, furnish and install all miscellaneous metals, including but not limited to vanity supports, basketball hoop support steel, metal ladders, elevator hoist beam, elevator sump pump grating, gymnasium dividing partition support, etc. Note miscellaneous support steel framing includes framing and supports that are not specified in other specification sections but required for installation and are indicated on the contract documents. This subcontractor must coordinate with all other trades that are being supported by the miscellaneous metal.
29. This subcontractor shall furnish & install all necessary miscellaneous metals components, including but not limited to all connections, bearing plates, anchor bolts, embeds, etc. This subcontractor must coordinate with the concrete and or masonry subcontractor regarding embed layout and transfer of care & custody of these embedded components.

30. This Subcontractor shall be responsible to design, furnish and install all miscellaneous metals unless noted otherwise. This Subcontractor shall also be responsible to design, furnish and install all miscellaneous metals connections unless noted otherwise.

31. This subcontractor shall furnish & install miscellaneous metal support beams as needed for the divider curtain partition in the Gym.
32. This subcontractor shall furnish & install miscellaneous steel supports for the basketball hoops at the Gym.
33. This subcontractor shall furnish & install roof hatch ladders. For an example see A102C and A103C. Roof hatches themselves shall be **excluded** by this Subcontractor, as they will be furnished and installed by the roofing subcontractor.
34. This Subcontractor shall furnish and install the elevator sill support angles at each floor required but may not be shown on drawings.
35. This Subcontractor shall furnish and install the elevator hoist beam. This Subcontractor shall coordinate size and installation with Elevator Subcontractor.
36. This Subcontractor shall furnish and install the elevator sump pit covers and supports.

37. This Subcontractor shall furnish and install the elevator pit ladder.
38. This subcontractor shall furnish & install all radon pit framing, including but not limited to angles, deck, etc. See Detail ~~3~~ 2 on S201 on sheet for an example. The radon pit framing must be expedited to not delay underground work and placing the slabs on grade per the contract schedule. Coordinate piping requirements with Plumbing subcontractor.
39. This subcontractor shall furnish & install all steel framing, components, and connections necessary for the street signage. For examples see details 4, 5, & 6 on S212. This subcontractor must coordinate with the signage subcontractor prior to creating shop drawings, engineering, furnishing & installing.
40. This Subcontractor shall furnish all loose bearing and leveling plates that are required for this scope of work. These are required to be on site at the start of the concrete operation with a complete set of layout drawings and templates. This Subcontractor shall coordinate with the Concrete and Masonry Subcontractor and the project schedule for the timing of this work. This Subcontractor shall document transfer of care and custody of embedded items to the Concrete Subcontractor and provide the Construction Manager with a copy upon request.

055100 Metal Stairs, 057000 Decorative Metal Railings, & 057100 Monumental Metal Stairs

41. This Subcontractor shall design, furnish, and install all metal stairs, all guardrails and all handrails as complete systems, as shown on the contract documents and as specified. This shall include the appropriate design calculations for the stairs, railings, guardrails, and all supplemental support steel required beyond the structural members indicated on the contract documents.
42. This subcontractor shall design, furnish & install all connections required for metal stairs, handrails, guardrails, etc., including but not limited to any supplemental steel that may be required.
43. This subcontractor must expedite Stair 1 & Stair 2 per the contract schedule so that these stairs can be utilized for construction access and egress.
44. This subcontractor shall repair any damage to the applied steel coatings that occurs during the course of delivery, rigging, and installation. Welds made on architecturally exposed steel shall be ground smooth by this subcontractor for finishes. This Subcontractor shall also provide field touch up of galvanizing due to field welds and areas adjacent to welds as required.
45. This subcontractor shall furnish & install mock-ups of all exposed steel finishes, including but not limited to stainless steel rails.

079200 Joint Sealants

46. This Subcontractor shall furnish and install all joint sealants related to the miscellaneous metals scope as shown on the contract drawings

D. Safety - See Safety Additional Provisions

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 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.

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 all connections involving washer plates are made final while the steel is still supported by the crane. Washer plates must be installed at the time of initial connection at all slap connections.
6. ~~This Subcontractor shall furnish, install and maintain at all shaft opening for stairs at every other level debris nets capable of supporting a person for the purposes of fall arrest and left in place. Nets shall be inspected daily until this contractor demobilizes from the site.~~
7. This Subcontractor is required to prevent and contain all slag from hitting the ground and levels below. Flame resistant blankets and other suitable means are acceptable.
8. This subcontractor shall furnish and install all stairways in pace with the erection of each floor. All stairways will be shipped to the project with the necessary tread infills attached. The interior guardrails are to be installed in pace with the erection of each floor.
9. This Subcontractor to investigate and review deck/beam capacity prior to loading any floors with its materials and provide an engineered loading plan/drawing. **This may include additional supports required to utilize any floor/deck and or identifying specific areas that can be utilized to pick** from. This plan should account for tripping of columns not to exceed or point load structural assemblies. The loading plan must be reviewed and approved by the structural engineer prior to delivery. Post material loading specs on each floor and at location of a critical nature.
10. This Subcontractor shall provide all new rigging at the start of the project. Monthly documented inspections of all rigging shall be completed by this Subcontractor and provided to Turner upon request.

E. Exclusions

1. Demolition of existing structure (by Demolition Subcontractor, BP #08)
2. Furnishing and installing of loose lintels (by Masonry Subcontractor, BP #11)
3. Typical Seismic Restraint Details at Tops of Walls Under Metal Deck (By Masonry & Steel Subcontractors, BP #11 & 12)
4. Expansion & Seismic joints (by Concrete, Roofing, and Exterior Wall Subcontractors (BP #10, 15, 19)
5. Exterior bollards (by Sitework Subcontractor, BP #09)
6. Structural Steel (by Structural Steel Subcontractor, BP #12), such as the floor framing, roof joists, lateral bracing, and mechanical equipment dunnage
7. Concrete fill at stairs (by Concrete Subcontractor, BP #10)
8. Exterior fence & rails (by Sitework Subcontractor, BP #09)
9. Roof screen at rooftop MEP equipment (by Roofing Subcontractor, BP #15)

10. Grouting of elevator sill angles, column baseplates, and beam bearing plates (by Concrete Subcontractor, BP #10)
11. Overhead Coiling Door Supports (by General Trades BP #21)

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#18 – Millwork & Casework
Dated: 07.08.2024
Revised: 10.24.2024

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 ***Millwork & Casework 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 ***Millwork & Casework 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
06 2000	Finish Carpentry
06 4100	Architectural Wood Casework
06 4200	Wood Paneling
06 6116	Solid Surfacing Fabrications
09 7800	Interior Wall Paneling
10 1100	Visual Display Units
10 1416	Plaques
10 5502	Mail Sorter
12 3553.19	Wood Laboratory Casework
12 3600	Countertops

Shared Specifications

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#18 – Millwork & Casework
Dated: 07.08.2024
Revised: 10.24.2024

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
Division 00	Procurement and Contracting Requirements
Division 1	General Requirements
07 9200	Joint Sealants
09 8430	Sound-Absorbing Wall and Ceiling Units
09 8416	Fixed Sound Reflective Panels
07 9513	Expansion Joint Cover Assemblies

Bid Package Specific Scope

Millwork and Casework

1. This Subcontractor shall furnish a blocking schedule indicating the exact locations of all in wall blocking required for the installation of new millwork, casework, counters 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.
2. This Subcontractor shall include field verification of all installation locations prior to fabrication. Any discrepancies shall be brought to the attention of Turner Superintendent immediately.
3. 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 for the millwork.
4. This Subcontractor shall furnish and install all grommets in all counters as indicated. Coordinate exact locations with Owner Representative as located in the field. This Subcontractor shall include a 2nd mobilization for the installation of grommets in locations as required by the Owner.
5. This Subcontractor shall provide all cut outs in millwork cabinets, counters, etc. as required for the installation of items by others including, but not limited to, sinks, electrical devices, etc.
6. This Subcontractor shall be responsible for the shimming of the new millwork as required for a level and plumb installation. This Subcontractor shall include all field scribing as required for a tight installation.

7. This Subcontractor shall broom sweep the entire work area where millwork operations are occurring at the end of each shift. This subcontractor shall utilize "dust-less" equipment while on the project.
8. This Subcontractor shall furnish and install all wood blocking required outside the GWB. This shall include counters mounted to plywood and all wood cleats. In wall blocking to be furnished and installed by the Drywall Subcontractor.
9. This subcontractor shall provide all wood paneling, trim, etc. in the auditorium, for example as shown on details A111.7. This subcontractor shall also include all out of GWB blocking for example as shown on detail 4B A111.7.
10. This Subcontractor shall furnish and install all counter, seating, and shelf support brackets, including, but not limited to, Rakks brackets, continuous aluminum angles, etc. This subcontractor shall coordinate with the Drywall subcontractor.
11. This Subcontractor shall include the costs for three full days of OFS to perform touch-ups of millwork and existing items throughout the project space. Turner / Owner / Architect will provide a list of items requiring touch-up including, but not limited to, doors, millwork, existing items.
12. This Subcontractor shall furnish and install protection over all horizontal and vertical items supplied by this Subcontractor. This subcontractor shall assume all protection is plastic corrugated board (correx) and is to be installed on an angle to avoid installed work being used as a surface to place material on. This Subcontractor shall maintain while your forces are onsite and prevent damage from dust, subsequent work, storage of materials, etc. as approved by Turner. This subcontractor shall provide a protection plan to Turner prior to installation.
13. This Subcontractor shall coordinate with the plumbing, mechanical, electrical, fire protection, low voltage and security subcontractors for final connections and equipment mounting in and through casework.
14. This Subcontractor shall furnish and install all trim/filler/etc. pieces required at built in appliances shown at this casework.
15. This subcontractor shall furnish and install all countertops, solid surfaces, windowsills, etc. This subcontractor shall coordinate and install all required cut outs with the MEP subcontractors.
16. This Subcontractor shall include all metal integral to the millwork and casework including, but not limited to trim, reveals, base, louvers, shelf channels, etc.
17. This Subcontractor shall include all glass integral to the millwork and casework including, but not limited to, shelves, sliding doors, etc.
18. This subcontractor shall furnish and install all display cases and all associated components, for example as shown on details 2E & 3E A805. This subcontractor shall include but not limited to all wood trim, ¾" plywood, shelving, glass, clad plywood, hardwood veneer, out of wall blocking/ shimming, etc. BP21 Drywall to install all framing, gypsum wall board, in wall blocking, GWB trim, and ½" plywood.
19. This subcontractor shall furnish and install all wire management systems, for example as shown on 1E/A803.
20. This subcontractor shall furnish and install all metal trim TRM2 through TRM3 as indicated on the plans. This subcontractor shall coordinate this work with adjacent trades work.
21. This subcontractor shall furnish and install all wood railings, wood shelves, wood base and brackets, for example as shown on detail 4A and 5A A805.
22. This subcontractor shall furnish and install all wood slats, shelf channels, etc. for a complete system. For example, as shown on 1E A804.

23. This subcontractor shall furnish and install all whiteboards and tack boards per plans.
24. This subcontractor shall furnish and install all plaques as indicated on the plans.
25. This subcontractor shall furnish and install all sound absorbing wall panels. This shall include but not limited to all panels, clips, blocking, shimming, etc. to complete the system and install.
26. This subcontractor shall furnish and install all wood wall paneling, for example as shown on 2D A111.2.
27. This subcontractor shall furnish and install all wood benches for example as shown on 3B/A804, include wood framing for all wood bench supports.
28. This subcontractor shall furnish all Rakks brackets and any other brackets that are called out to be installed in wall. These are to be turned over to BP21 Drywall to install. For example, as shown on 5E/ A805 & 1B/A801.
29. This subcontractor shall furnish and install all support brackets out of wall for example as shown on 1C/A803.
30. This subcontractor shall furnish and install the plastic laminate fascia ¾" plywood laminated for example as shown on detail 2E/A211, include sealant and backer rod.
31. This subcontractor shall furnish and install all visual display boards and associated trim. For example, TRM3.
32. This subcontractor shall furnish and install all brackets, millwork etc. associated with the display shelfs. Concealed blocking by BP21 Drywall. For example, as shown on 5A/A805.
33. This subcontract shall furnish and install EQ11 Mail Sorter.
34. 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.
35. This Subcontractor shall include multiple mobilizations as required by the latest issuance of the project schedule.
36. 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.
37. 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.
38. This subcontractor shall provide all acoustical diffusion wall panels ADP1 & ADP2.

Joint Sealants

39. This Subcontractor shall furnish and install all caulk joints within and to the adjacent surfaces as required for the complete installation of their work. This includes, but is not limited to, new counters, cabinets, backsplashes, etc.

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#18 – Millwork & Casework
Dated: 07.08.2024
Revised: 10.24.2024

D. ***Exclusions***

40. This subcontractor shall exclude trash bins in millwork (By owner)
41. This Subcontractor shall exclude sound absorbing ceiling panels- SAC1- (By BP#22)
42. This Subcontractor shall exclude furnish and install of wood doors (Furnish by BP#20 & Install by BP#21)
43. This subcontractor shall exclude installing Rakks Brackets. (Install By BP#21) This subcontractor shall furnish only the rakks brackets.
44. This subcontractor shall exclude TRM1 (BY Painting BP23) TRM4 & TRM5 (By Tile BP23).

E. **Safety - See Safety Additional Provisions**

F. **Logistics & 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#23 – Ceramic Tile
Dated: 07.08.2024
Revised: 10.24.2024

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 ***Ceramic Tile 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 ***Ceramic Tile 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
09 3000	Tiling

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
Division 00	Procurement and Contracting Requirements
Division 1	General Requirements

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#23 – Ceramic Tile
Dated: 07.08.2024
Revised: 10.24.2024

09 0561 Common Work Results for Flooring Preparation

Bid Package Specific Scope

General

1. 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 associated with particular subcontractor (cardboard, plastic bottles, misc. trash item, general sweeping, etc.)
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.

Specific Scope

6. This Subcontractor shall include the costs to provide smooth transitions at all flooring and wall intersections.
7. This Subcontractor shall coordinate with the Concrete Subcontractor for all areas requiring a recessed slab.
8. 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.
9. This Subcontractor shall provide, install and maintain floor and wall protection at the following locations where flooring is installed by this Subcontractor:
    (a) Ceramic Tile: 100% coverage of tear and water-resistant covering (Cover guard or approved equal)

    All floor and wall protection is to be secured to prevent slips and trips as well as in such manner to not damage or impair flooring and flooring warranties. This subcontractor shall maintain floor protection until building turnover.
10. This Subcontractor shall furnish and install all transition and edge strips at all wall tile installations.
11. This Subcontractor shall furnish and install all transition and edge strips at all floor tile installations.
12. This Subcontractor shall seal and bridge cracks and control joints in concrete floors and walls in accordance with the manufacturer's recommendations.

13. This Subcontractor shall slope finished floor to achieve proper drainage. This Subcontractor shall include all necessary preparation and mud set required to infill at recessed slab areas.
14. This Subcontractor shall furnish and install all waterproofing, crack suppression membrane, etc. at flooring and walls installed by this subcontractor. Coordinate with Plumbing Subcontractor at drain locations.
15. This Subcontractor shall furnish and install all flooring transitions and thresholds that occur at flooring installed by this Subcontractor.
16. This subcontractor shall furnish and install all porcelain stair treads and metal nosing trim. This subcontractor shall coordinate with the steel subcontractor for requirements and provide any required shimming, backerrod, and caulking etc. For example, as shown on detail 5E A125. Provide protection at wire mesh stair risers to prevent water and grout from penetrating into the mesh product. Submit protection plan to Turner prior to installation at stairs.
17. This subcontractor shall provide the metal trim and metal corner beads where required, for example as shown on detail 4E and 5E A806. This subcontractor shall furnish and install all TRM4 and TRM5.
18. This subcontractor shall provide all waterproofing at tiled areas where required.
19. This subcontractor shall provide all applicable testing requirements per spec section 09 0561 for all products installed by this subcontractor.

D. Exclusions: N/A

E. Safety

1. This Subcontractor shall repair and patch the floor at all of the locations of the removed fall protection posts installed by the steel subcontractor.
2. This Subcontractor shall ensure proper disposal and removal of all flammable or combustible materials including but not limited to rags, brushes, etc. immediately after they have been used. These materials are to be removed from the job daily.
3. This Subcontractor will be required to use carpet dollies and other mobile means of transporting flooring materials.
4. This subcontractor shall provide air monitoring, personnel sampling or adequate historical data to determine if PEL/Action levels are being reached (chemical adhesives/Silica).

F. Logistics & 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

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#23 – Ceramic Tile
Dated: 07.08.2024
Revised: 10.24.2024

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#35 – Fire Protection
Dated: 07.08.2024
Revised: 10.24.2024

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 ***Fire Protection 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 ***Fire Protection 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
21 0400	General Conditions for Fire Protection Trades
21 0516	Expansion Fittings and Loops for Fire Suppression Piping
21 0548	Vibration and Seismic Controls for Fire Suppression Piping and Equipment
21 1313	Wet Pipe Sprinkler Systems
21 3000	Fire Pumps

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.

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#35 – Fire Protection
Dated: 07.08.2024
Revised: 10.24.2024

Spec. #	Specification Name
DIV 00	Division 00 - Procurement and Contracting Requirements
DIV 01	Division 01 - General Requirements
079200	Joint Sealants
210433	Heat Tracing for Fire Suppression Piping

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 design, furnish and install a complete system including all sprinkler heads, valves and / or other devices as required to provide a complete and functional system. This Subcontractor is responsible for a complete design of the Fire Protection system including hydraulic calculations reviewed and stamped by a licensed Professional Engineer registered in the State of Connecticut. Furthermore, it is mutually agreed upon that this design will be based on the satisfactory review and acceptance of the design submitted by this Subcontractor from the local Building Official(s), Fire Marshal, Fire Protection designing engineer, and Owner's Insurance Underwriter. Note that this subcontract is not based on the head count on the current Contract Documents; it is based on an acceptable design conforming to the Contract Drawings and approval by the above parties.
7. This Subcontractor shall include all engineering, detailing, shop drawings, calculations, samples and certificates as required by the Contract Documents. Shop drawings shall show all dimensions and clearances in coordination with other trades. All attachments must be designed and detailed on said shop drawings.
8. This Subcontractor shall include all Work related to seismic isolation and restraints and sway bracing as required for new work only. Provide seismic shop drawings prepared and stamped by a PE licensed in the State of Connecticut all work must be in accordance with NFPA requirements. Provide final certifications that all seismic work was installed per the Engineer's design.
9. This Subcontractor shall include furnishing and installing all Fire Protection related signage as detailed on the Contract Documents and/or required by local authorities.
10. This Subcontractor shall closely coordinate with the respective Electrical / Fire Alarm Subcontractors for interconnect for switches and controls as required for the Fire Protection Work.

11. This Subcontractor shall furnish and install all Fire Alarm Devices associated with the Fire Protection System including but not limited to tamper, flow, supervisor switches and Fire Protection Bell as required for the fire protection system whether indicated or not. Wiring of these items is to be by BP #38.
12. This Subcontractor shall furnish and install Fire Pump ATS and Fire Pump Controller as shown on E700. All exterior wiring of these items shall be by BP#38.
13. This subcontractor shall furnish and install additional sprinkler heads as required to meet code.
14. This Subcontractor shall be required to continuously record the progress of the Fire Protection 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.
15. This Subcontractor shall provide all surveying and layout for the work of this package. Survey will be by Total Station or a Licensed Surveyor.
16. 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.)

Submittals and Coordination

17. Provide penetration drawings for interior, exterior, foundation and floor penetrations. This should include dimensions off columns, elevations above finish floor, and required opening size. Layout as required for proper field coordination is included under this scope.
18. 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 Fire Protection 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.
19. This Subcontractor shall fully coordinate his work with other trades for construction sequence and methods. This Subcontractor shall be prepared to participate in extensive coordination meetings with other subcontractors to accomplish this. Changes to details as a result of this coordination and out-of-sequence work necessitated by this coordination shall be included.
20. This Subcontractor will provide the necessary written documentation for meeting the CT high performance requirements as outlined in the specifications.

21. This Subcontractor shall coordinate all installations with ceiling heights as per shown in the Contract Documents. All conflicts must be made in writing to Turner Construction immediately so that a corrective action can take place without delaying the work of any other Trade Subcontractor.
22. This subcontractor shall fully participate in all 3-D coordination. Each Subcontractor, in addition to this effort, shall coordinate and provide a coordinated Reflective Ceiling Plan for review by the design team for all ceiling mounted devices.
23. This subcontractor shall coordinate all installations to meet accessibility requirements as noted in the contract documents.
24. This Subcontractor will be required to relocate any piping, supports, or other part of the Fire Protection 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 Cx agent.
25. This Subcontractor shall design, furnish & install an independent support system for all hung equipment, fixtures 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. 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.
26. 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. Fire Protection systems shall not run in or pass through stairways.
27. 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.
28. This Subcontractor shall be responsible to core all penetrations required with this scope of work, this includes where sleeves were not installed prior to placing of concrete.
29. 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.

Demolition

30. This subcontractor shall make safe all Fire Protection 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 demo this shall be at the upstream location at the source (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. The Demolition subcontractor will remove and dispose all piping, accessories and materials.

Piping Systems

31. This Subcontractor shall Furnish and install all Fire Protection piping, hangers, equipment, valves, accessories, valve tags and signage as shown in the contract documents.
32. This Subcontractor will not be allowed to lay out pipe or any other material on the floor prior to installation. All pipes and fittings shall be stored on mobile pipe racks or carts with wheels.

33. This Subcontractor shall install UG Piping from 5' outside the building into the Fire Pump Room. This Subcontractor shall provide testing and coordination to meet NFPA and specification requirements.
34. This Subcontractor shall include under slab MEP coordination in the model.
35. This Subcontractor shall furnish and install all hangers installed prior to fireproofing. Any patching of fireproofing due to missing hangers will be at this Subcontractor's cost.
36. This Subcontractor shall furnish and install all Labeling and identification (stenciling) of all systems.
37. This Subcontractor shall furnish and install sleeves for all penetrations for this scope of work. Coordinate with the Concrete, General Trades, Masonry and Firestopping Subcontractors. Any sleeves not installed at the time of wall construction will be installed later at this Subcontractors cost.
38. This subcontractor shall furnish and install all required drain piping as shown on the Contract Documents.
39. This Subcontractor shall coordinate all cutouts for installation of Sprinkler Heads with the Finish Trade Subcontractors prior to installation. All heads shall be centered in acoustic tile where installed in an acoustical ceiling, or as approved by the design team.
40. This Subcontractor shall furnish and install all acoustical sealant of all wall and floor penetrations per specification section 079200. Firestopping will be by BP #17.
41. This Subcontractor shall furnish and install siamese Fire Department Connection per the contract documents. Exterior piping for connection will be furnished and installed by Site Contractor up to 5' outside the building.
42. This Subcontractor shall furnish the heat trace for the exterior piping to the dust collector including but not limited to the controller and insulation (reference note on FP18 on drawing FP101E). Electrical subcontractor to receive and install heat trace.
43. 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 Fire Protection 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.

Commissioning

44. This Subcontractor shall perform all required equipment testing and hydrostatic testing in accordance with the Building Design Guidelines, Construction Specifications, Drawings, and Building Management Guidelines. Testing is to be performed in a manner so as to complement the schedule and procedure of construction, phasing, and the Work of others. Partial Tests of systems may be needed to meet the schedule, ie Schedule Breakdown and Shafts. Any and all manpower, temporary connections, etc. required to accomplish this work in this manner are included. Correct all defective work as a result of the hydrostatic testing in accordance with the Contract Documents. This Subcontractor shall include in their bid all necessary overtime and / or off-hour shift work for testing so as not to delay other trade subcontractors. This shall include but not be limited to testing in conjunction with any other trade's work those ties into this Subcontractor's work. NOTE: This Subcontractor will test every piece of piping/equipment in the presence of Turner and / or the Engineer and provide a full report to Turner and the Engineer accordingly.
45. This Subcontractor shall coordinate with the proper AHJ for witnessing of testing. This subcontractor shall coordinate with the AHJ as required per the plans, specifications, Local and NFPA requirements. This subcontractor shall provide Turner seventy-two (72) hour advance notice for all required inspections.
46. This Subcontractor shall test all systems with air prior to filling with water. This Subcontractor shall provide documentation of air pre-test of all wet systems via completed flow permit for all systems
47. This subcontractor will include multiple tests per floor based on the requirements of the schedule.

D. Safety

1. 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.
2. 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.
3. This Subcontractor shall utilize a threaded rod cutter in lieu of a porta band or grinder to cut all threaded rod.
4. This Subcontractor shall protect all downward protruding threaded rod with rubber caps to prevent injury to employees while working around rods.
5. 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.
6. This Subcontractor shall provide a stamped engineered rigging plan for any prefabricated vertical risers to be picked with a crane.

E. Exclusions

1. This subcontractor shall exclude exterior Siamese piping and scope from 5' outside of the building (By Sitework BP#09).

F. Logistics and Schedule

1. This subcontractor shall include the requirements of the Project Logistics Plan and Project Schedule.

G. Unit Prices

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#35 – Fire Protection
Dated: 07.08.2024
Revised: 10.24.2024

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#36 - Plumbing
Dated: 07.08.2024
Revised: 10.24.2024

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 ***Plumbing 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 ***Plumbing 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
22 0400	General Conditions for Plumbing Trades
22 0516	Expansion Fittings and Loops for Plumbing Piping
22 0517	Sleeves and Sleeve Seals for Plumbing Piping
22 0519	Meters and Gauges for Plumbing Piping
22 0523	General Duty Valves for Plumbing Piping
22 0529	Hangers and Supports for Plumbing Piping and Equipment
22 0548	Vibration and Seismic Controls for Plumbing Piping and Equipment
22 0553	Identification for Plumbing Piping and Equipment
22 0700	Plumbing Insulation
22 1005	Plumbing Piping
22 1123	Fuel Gas Piping
22 1124	Domestic Water Pumps
22 3000	Plumbing Equipment [Water Heaters]
22 4000	Plumbing Fixtures and Specialties
22 1500	General Compressed Air Systems

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP#36 - Plumbing
Dated: 07.08.2024
Revised: 10.24.2024

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
079200	Joint Sealants
210533	Heat Tracing for Plumbing Piping

Bid Package Specific Scope

Submittals & Coordination

2. This subcontractor shall submit dimenstioned shop drawings and coordinate the layout in the field all equipment pads with concrete subcontractor.

3. Provide penetration drawings for interior, exterior, foundation and floor penetrations. This should include dimensions off columns, elevations above finish floor, and required opening size. Layout as required for proper field coordination is included under this scope.

4. 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 Plumbing 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.

5. This Subcontractor shall fully coordinate his work with other trades for construction sequence and methods. This Subcontractor shall be prepared to participate in extensive coordination meetings with other subcontractors to accomplish this. Changes to details as a result of this coordination and out-of-sequence work necessitated by this coordination shall be included.
6. This Subcontractor will provide the necessary written documentation for meeting the CT high performance requirements as outlined in the specifications.
7. This Subcontractor shall coordinate all installations with ceiling heights as per shown in the Contract Documents. All conflicts must be made in writing to Turner Construction immediately so that a corrective action can take place without delaying the work of any other Trade Subcontractor.
8. This subcontractor shall fully participate in all 3-D coordination. Each Subcontractor, in addition to this effort, shall coordinate and provide a coordinated Reflective Ceiling Plan for review by the design team for all ceiling mounted devices.
9. This subcontractor shall coordinate all installations to meet accessibility requirements as noted in the contract documents.
10. This Subcontractor will be required to relocate any piping, supports, or other part of the Plumbing 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 Cx agent.
11. 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. 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.
12. 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. Plumbing systems shall not run in or pass through stairways.
13. Utilize Total Station system to layout and set hanger supports and layout risers/ boxes/ penetrations/ underslab infrastructure.
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 be responsible to core all penetrations required with this scope of work, this includes in the existing foundations, walls and slabs as well as where sleeves where not installed prior to placing of concrete.
16. 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.

Demolition

17. This subcontractor shall make safe all Plumbing piping, equipment and accessories scheduled to be demolished, refer to MEPD000 and MEPD001. This subcontractor shall cut and leave an air gap at the location of the start of the demo this shall be at the upstream location at the source (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. The Demolition subcontractor will remove and dispose all piping, accessories and materials
18. This Subcontractor shall furnish, install and maintain 4 hose bid locations per Turner superintendant for use during the demolition and abatement of the existing building.

Plumbing

19. 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.
20. This Subcontractor shall include multiple mobilizations as required by the latest issuance of the project schedule.
21. 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.
22. 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.
23. This Subcontractor shall furnish and install all under slab plumbing systems in coordination with the Site Subcontractor, Demolition and Concrete Subcontractor. Excavation and backfill for under slab plumbing systems shall be performed by others.
24. This Subcontractor shall furnish and install the storm, sanitary and water services from 5' outside of the foundation footprint to the point of use. This includes the sleeves and link seals for each penetration of the foundation wall and connections to the piping outside the foundation wall installed by others.
25. This Subcontractor shall furnish and install caulking of all plumbing fixtures to walls and floors with a pre-approved colored caulk this includes but not limited to lavatories, water closets, shower enclosures, etc. Colors may vary by location/application.
26. This Subcontractor shall layout, furnish and install all sleeves and inserts required for their work.
27. This Subcontractor shall store roof drain baskets and install after roof installation. Provide 5% spare roof drain baskets. Additionally, clean out roof baskets every 3 months while on the project until substantial completion.
28. This Subcontractor shall furnish all heat trace and controllers as indicated on the plumbing drawings by the Contract Documents for installation by the Electrical Subcontractor. Include heat trace to the grease trap on site. This Subcontractor shall coordinate with the Electrical Subcontractor for power requirements and locations. Installation, circuiting, and terminations shall be provided by the Electrical Subcontractor. This Subcontractor shall furnish and install any insulation that is required per the manufacturer. This Subcontractor will obtain heat trace manufacturer inspection and sign-off certificate prior to the installation of insulation on all pipes with heat trace.

29. 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 Plumbing 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.
30. This Subcontractor shall coordinate trap primer headers in an accessible location for the end user facilities.
31. This Subcontractor install all indirect drain lines at floor drains in a manner which minimizes splashing and overflow opportunity of water to the area floor area.
32. This Subcontractor shall coordinate and provide proper rough to millwork an casework. This subcontractor shall furnish and install all lavatories and sinks within millwork and casework locations. For millwork islands, ensure proper venting and operation per code.
33. This Subcontractor shall coordinate and provide proper rough and drain locations for Kitchen Equipment. This Subcontractor shall Furnish and install all piping and equipment connections, per plumbing and Food Service Documents, greater quantity and scope to prevail. Include all branch sanitary, grease waste, gas, hot water, cold water, hangers, valves, caulking, sealants, etc.
34. This Subcontractor shall provide final connections to all Food Service Equipment including but not limited to all domestic water, gas, sanitary and waste. Furnish and install all mixing valves associated with the Kitchen Equipment, assume this subcontractor shall have representative in attendance at Department of Health and AHJ inspection of Food Service Equipment. This subcontractor shall coordinate and set required temperature settings per local DOH for all sinks within the Food Service area.
35. This Subcontractor shall Furnish and install all floor drains, trench drains, floor sinks as indicated on the floor plans, and at locations indicated on the enlarged plans on the Food Service Drawings.
36. This Subcontractor shall coordinate with the Ansul system furnished by the Food Service subcontractor. This subcontractor shall furnish and install all components of the emergency gas shut off station enclosure.
37. This Subcontractor shall provide installation of all mockups identified in the project documents as well as materials for each type of wall/ slab penetration to complete a firestopping mockup for review and approval by AHJ and Design Team. Assume exterior wall penetration mockup will be required for wall hydrant and coordatied with A315. Include requirement for first install mockup of science classroom prior to start of remaining areas.
38. This Subcontractor shall coordinate all exterior wall penetration and hose bid installations with exterior wall contractors. All flashing requirements, cavity depth and freeze protection coordination must be performed to ensure the exterior wall thermal and moisture specifications are maintained with these penetrations.
39. This Subcontractor shall coordinate equipment voltages with the Electrical Design. Identify accessories requiring power in addition to those indicated on the documents at the submittal phase for design team confirmation and coordination.
40. This Subcontractor shall provide all final gas and plumbing connections to equipment provided by others including but not limited to Food Service and HVAC Equipment.

41. The Structural Steel Subcontractor shall deck over all framed openings and the MEP Subcontractors shall cut and remove the deck for their installations and penetrations. Cutting of deck will not be permitted prior to installation of scope of work.
42. This Subcontractor shall coordinate with all toilet accessory installations. Pay attention to locations of flushometers in coordination with grab bars and water supply rough in elevations.
43. This Subcontractor shall ensure proper support of plumbing connections to devices and fixtures and should not utilize the fixture as a support to avoid loosening of connection over time due to fixture movement.
44. This Subcontractor shall provide adequate support for all in-wall plumbing to ensure restraint of movement within the wall cavity. This includes but is not limited to supports at slab penetrations as well as on vertical lengths of piping to prevent movement within stud cavity.
45. This Subcontractor shall furnish, install and maintain 3 Mop sinks locations, 5 hose bid locations and 4 hand washing stations with hot water and sanitary hook up, to be located within the building per the direction of the Turner Superintendent. All temporary sanitary lines shall have a strainer included and cleaned buy this subcontractor once a week. Any Temporary water lines shall be insulated.
46. All above ceiling seismic and required sway bracing shall be installed and inspected minimum 4 weeks prior to any scheduled ceiling grid installation.
47. This Subcontractor shall furnish and install all components of the air compressor system as shown on the contract documents.
48. 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.

Commisioning

49. This Subcontractor shall fully cooperate with the Owner's Commissioning Agent for commissioning of systems furnished and/or installed by this Subcontractor.
50. This Subcontractor will provide a dedicated engineer / staff person on site dedicated to the contractor commissioning of all systems prior to occupancy. This includes documenting, organizing and submitting to the owner all startup reports, pre-functional checklists and any performance reports that may be required for each piece of equipment.
51. This Subcontractor's Project Manager and Commissioning engineer shall attend a weekly Commissioning/MEP coordination meeting for the duration of the project.
52. This subcontractor shall include sufficient time to fully commission all systems. Adequate man power shall be available to fully meet the commissioning requirements.
53. Start-up reports shall be submitted to Turner within (3) days of startup.
54. This Subcontractor shall submit fully filled out Pre-Functional and Functional test reports to TCCo.
55. This Subcontractor shall provide testing and balancing as it applies to this scope of work.
56. This Subcontractor shall provide documentation of air pre-test of all wet systems via completed flow permit for all systems.

57. This Subcontractor shall perform all required testing in accordance with the specifications. Testing is to be performed in a manner so as to complement the 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.
58. This subcontractor shall coordinate with the Authority Having Jurisdiction as required per the plans and specifications including those referenced in The Statement of Special Inspections. This subcontractor shall provide Turner seventy two (72) hour advance notice for all required inspections.
59. This Subcontractor shall include all necessary shutdowns and / or tie-ins for your specific systems. This subcontractor shall assume all shutdowns and tie-ins are to be performed premium time; provide proper notification and coordination with all affected parties (Owner, Turner, local agencies, utilities, etc.).
60. This Subcontractor shall complete all identification, labeling and tagging prior to the installation of the ceiling grid by others so as to allow for proper inspections as to thoroughness of these items. Coordinate end user requirements per Specification 220553.
61. 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.
62. This subcontractor shall include 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.
63. 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 piping 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.
64. This Subcontractor shall participate in rough-in inspection coordination with other trades and Turner utilizing color coded framing identification to illustrate completion and inspection ready areas. Color code key and inspection sequencing will be identified by Turner Superintendent.

Miscellaneous

65. Maintain and operate all systems installed under this package from start-up thru substantial completion and turn-over to Owner. Perform maintenance per manufacturer's recommendations.
66. This Subcontractor shall maintain utmost care so as not to damage 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.
67. This subcontractor shall receive, install all Owner plumbing equipment and appliances including connections as identified on the equipment contract documents.
68. This Subcontractor shall provide training as specified for all of the equipment and systems furnished by this Subcontractor by phases. This Subcontractor shall include two (2) man-days of additional training be used at Turner Construction Company's discretion.
69. This Subcontractor shall submit a fully detailed MOP (Method of Procedure) to TCCo two (2) Weeks prior to start up and/or testing of any piece of equipment.

70. This Subcontractor has included all additional fittings as required for a complete system. The drawings may NOT fully dictate the number of fittings/ valves required for a complete system.
71. This Subcontractor shall be responsible to protect all plumbing equipment. Any damage as a result to equipment not being protected will be at this subcontractor's expense.
72. This subcontractor shall grout with non-shrink grout all base plates that are used to support piping and/or equipment.
73. This subcontractor shall be responsible for all cost associated with rigging their equipment into the building.
74. This Subcontractor shall secure covers over waterclosets to prevent use during construction.
75. Through wall and floor to floor fire stopping is included in a separate bid package. This subcontractor must coordinate all penetrations with the fire stopping subcontractor.
76. This Subcontractor shall furnish and install the higher quantity of fixtures if a discrepancy occurs between the architectural and plumbing drawings.
77. 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 associated with particular subcontractor (cardboard, plastic bottles, misc. trash item, general sweeping, etc.)
78. 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.
79. 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.
80. This Subcontractor shall coordinate with the Mechanical drawings and Mechanical Subcontractor for indirect drain connections into storm piping. This Subcontractor shall furnish and install all storm piping, backwater valves and J.R. Smith Model No. 3950 (or equal) air gaps as required for the mechanical condensate piping per 7/P501. BP#37 – Mechanical to furnish and install condensate drain pipe into the air gap, adjust the inlet set screw and furnish the necessary access doors.

D. Safety

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. 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.

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 pre-fabricated 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.

E. Exclusions

1. This Subcontractor shall exclude Firestopping

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 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
State Project No. 057-0114 N
Greenwich, CT
BP#36 - Plumbing
Dated: 07.08.2024
Revised: 10.24.2024

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: 10.24.2024

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. 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.

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, 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, counter flashing, etc. required for their work. This Subcontractor shall coordinate roofing depths and blocking requirements furnished and installed by the BP#15 Roofing Subcontractor.
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 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.

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

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.

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 #38 – Electrical & Fire Alarm
Dated: 07.08.2024
Revised: 10.24.2024

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 #38 Electrical & Fire Alarm 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 #38 Electrical & Fire Alarm 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
260400	General Conditions for Electrical Trades
260503	Equipment Wiring Connections
260519	Electrical Power Conductors and Cables
260526	Grounding and Bonding for Electrical Systems
260529	Hangers and Supports for Electrical Systems
260533	Raceway and Boxes for Electrical Systems
260534	Floor Boxes for Electrical Systems
260536	Cable Trays for Electrical Systems
260553	Identification for Electrical Systems
260923	Lighting Control Devices
262653	Electric Vehicle Charging Equipment
262716	Electrical Cabinets and Enclosures
262726	Wiring Devices
262813	Fuses
264113	Lightning Protection for Structures
265100	Lighting
265561	Theatrical Lighting
283100	Fire Detection and Alarm

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP #38 – Electrical & Fire Alarm
Dated: 07.08.2024
Revised: 10.24.2024

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
210433	Heat Trace for Fire Suppression Piping
210533	Heat Trace for Plumbing Piping
260573	Overcurrent Protective Device Coordination Study
262200	Low-Voltage Transformers
262413	Switchboards
262416	Panelboards
262819	Enclosed Switches
262823	Enclosed Circuit Breakers
262826	Enclosed Transfer Switches
263213	Engine Generators

Bid Package Specific Scope

General / Phasing & Logistics

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. The drawings are diagrammatic and may not be complete in every detail. They reflect the intent of the Arch/Engineer to provide a complete working system in compliance with all codes as shown by the documents. This contractor shall include any other equipment or devices necessary to provide a complete functioning system. This Trade Contractor shall include, as part of his work, the cost of relocating his work, due to the coordination procedure as part of his trade agreement price.
7. 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. This Subcontractor shall submit a complete organization chart indicating the title and names of the people that will staff the project. Submit resumes of each person on the organization chart for Turner's approval. This shall include Project Managers, Commissioning Manager, Foreman, Superintendents and other key personnel as required by Turner Construction.
8. This Subcontractor shall be required to continuously record the progress of the Electrical 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.
9. This Subcontractor shall examine the work of others, which will affect this subcontractor work and notify Turner well in advance of any condition, which will prevent the proper execution of this subcontractor's work. This shall include but not be limited to this subcontractor reviewing 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. Any notice must provide sufficient time to repair conditions without impacting the overall schedule. Commencement of this subcontractor's work will constitute this subcontractor's acceptance of the existing conditions.
10. This Subcontractor is aware that this is a High-Performance Building and submittals should be submitted according to these standards. This Subcontractor has included all costs associated with meeting these requirements as set forth in the Division 1 Specifications.
11. This Subcontractor will provide the necessary written documentation for meeting the CT High Performance requirements as outlined in the Division 1 Specifications.
12. This Subcontractor shall provide all necessary layout including benchmarks, extending of control lines, etc. in order to properly perform the Work.
13. This Subcontractor shall be responsible for providing out of sequence work at no additional costs when required in coordination with other trades.
14. Utilize Total Station system to layout all electrical distribution including but not limited to set hanger supports and layout risers/ boxes/ penetrations etc. for under slab and within slab on deck, cast in slab locations required for electrical infrastructure.
15. This subcontractor shall furnish and install all supports and support systems for Electrical equipment and piping including if not indicated on the structural drawings. Systems shall meet the requirements of seismic and sway parameters per the local building code and project specifications.
16. Each Subcontractor understands that Quality Control and Quality Assurance is a specific commitment and attitude, which is required during the implementation of the work. The focus required to establish a quality level, by developing in-place mock-ups, by providing skilled supervision and by monitoring daily production quality are all expected to be carried out during the execution on this Contract.

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP #38 – Electrical & Fire Alarm
Dated: 07.08.2024
Revised: 10.24.2024

17. It is understood that the specific warrantee/guarantee period will start when the equipment/system is accepted by the Owner for their operation/use at this time of Substantial Completion. Any gap between the scheduled start up of equipment and owner acceptance of the system shall be included.
18. This Subcontractor has reviewed the On-Site Phasing & Logistics Plans and the Construction Schedule and has included all associated costs as relevant to this scope of work. It is extremely important to coordinate your work with the other adjacent Subcontractors during the various phases and perform the work as required by these documents. No come back costs will be entertained.
19. This subcontractor shall provide and maintain all temporary light and power as per OSHA standards, Turner safety Manual and the Temporary Light and Power Additional Provisions for Construction purposes issued within the Procurement manual. This is in addition to temporary scope indicated on the Contract Documents and phasing requirements. This Subcontractor shall provide relocation and cut over of this temporary system to the permanent power source as soon as source is available in each area and removal all temporary devices and wiring.
20. This subcontractor shall furnish & install complete metering system for all temporary electric panels provided under their scope of work, including but not limited to all metering devices, wiring, etc., reference the Jobsite Metering Components & Fuel Tracking Log for additional information.
21. This subcontractor shall furnish & install temporary solar powered lighting along the temporary sidewalk per the On-Site Phasing & Logistics Plans.
22. This Subcontractor shall include multiple mobilizations as required by the latest issuance of the project schedule.
23. No truck parking/idling is allowed on streets adjacent to the project site while waiting to unload. This Subcontractor shall include accommodations as required to adhere to “just in time” deliveries. Refer to Turner’s “Logistic Plans – Scope of Work” for delivery restrictions.
24. All Change Order quotes shall include labor per NECA Column 1 and Full breakdown of all pricing is required and should be broken out separately for each drawing. Pricing shall be provided in accordance with the expected project conditions, breaking out any premium installations required at the time of the installation i.e.: closed ceiling, furniture, additional cleaning etc. No additional compensation will be considered for logistics, staging, inefficiencies and/or coordination with other contractors if not clearly broken out in the Change Order Proposal.
25. 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.
26. This Subcontractor’s Project Manager/Foreman shall participate in Pull Planning Sessions which affect their scope of work. This Project Manager/Foreman shall provide input to further develop the accurate sequence and timing for completion of the work.
27. This Subcontractor shall provide their own lifts and access for construction. No scaffolding will be provided.
28. This Subcontractor shall be responsible to core all penetrations required with this scope of work, this includes but is not limited to foundations, walls and slabs as well as where sleeves where not installed prior to placing of concrete.
29. This subcontractor is responsible to pull all permits as required for their scope of work. Any filing of permits associated with this scope to be performed by this subcontractor including associated filing fees to be paid by this subcontractor, building permit fees by others. This subcontractor to include special permits such as Generator Permits, EV chargers, etc.

30. 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.)

Demolition

31. This subcontractor is responsible for all tracing of existing circuits prior to disconnect. Any circuits found to feed areas of the building or other other buildings that are to remain active shall be rerouted to ensure occupied spaces remain active. This subcontractor understands that the demolition will be performed in multiple phases and will perform the demolition work according to these phases.
32. This subcontractor shall cut, cap, and make safe all Electrical, equipment and accessories scheduled to be demolished, including but not limited to the exterior electrical service, existing Low Voltage Systems, existing Fire Alarm, etc. Coordinate with the utility company & AHJ as required. For an example see sheet notes on MEPD000 & MEPD001. This subcontractor shall cut and leave an air gap at the location of the start of the demo; this shall be at the upstream location at the source (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. The Demolition subcontractor (BP #08) will remove and dispose of all materials.
33. The Demolition Subcontractor (BP #08) 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. The Demolition Subcontractor (BP #08) will remove and dispose of all the demolished material and equipment from the basement.

Power Distribution

34. This Subcontractor shall furnish and install a complete and fully functional power distribution system including but not limited to all raceways, supports, backboxes, receptacles, outlets, junction boxes, busway, disconnects, wire mold, floor boxes, etc. This Subcontractor shall furnish & install all electrical devices as it relates to your work on all Drawings, including but not limited to all receptacles, switches, overhead power reels, etc. Greater quantities and quality prevails.
35. This subcontractor shall furnish & install all site electrical infrastructure, including but not limited to handholes, conduit pathways / ductbanks, site lighting, emergency blue light communication stations, EV charging stations, receptacles, low voltage pathways & handholes / manholes, etc., reference SU100 for example of these electrical scope items. This subcontractor shall exclude excavation and backfill which will be performed by the Sitework Subcontractor.
36. This subcontractor shall furnish & install all Emergency Blue Light Communication Stations. For example, conduit pathways, pole, and fixtures provided by this Subcontractor. This subcontractor must coordinate requirements with the Low Voltage Subcontractor. The Low Voltage subcontractor shall perform all low voltage cabling, terminations, and low voltage testing as required.

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP #38 – Electrical & Fire Alarm
Dated: 07.08.2024
Revised: 10.24.2024

37. This Subcontractor shall provide Site lighting templates for anchor bolts and conduit layout to sitework contractor. This subcontractor shall furnish site lighting anchor bolts & conduit for the sitework contractor to install within the concrete bases. Concrete bases will be furnished and installed by the sitework contractor.
38. This subcontractor shall furnish and install power for all equipment on the equipment schedules and shown on the Contract Documents.
39. This Subcontractor shall furnish and install all necessary mounting hardware, hangers, brackets, seismic supports, pull boxes, etc. for a complete electrical distribution and lighting system.
40. This subcontractor shall provide PE stamped drawings, calculations, & all delegated design as indicated in the contract documents.
41. This Subcontractor shall provide and Coordinate equipment voltages with Plumbing/mechanical equipment and identify accessories requiring power in the submittal phase for design team confirmation.
42. This Subcontractor shall coordinate and provide power for leak detection equipment as required per the Contract Documents.
43. This subcontractor shall furnish & install all final electrical power connections and terminations as required to items furnished by others, including but not limited to security doors, fire doors/gates, automatic door entrances and gates, overhead coiling doors, mechanical blinds/ shades, screens, kitchen equipment, seating, theater equipment, signage etc. Regardless if circuitry is identified on plans.
44. This Subcontractor shall provide wiring of all Plumbing and HVAC Equipment, including but not limited to circulator pumps, aquastats, motors, electronic valves, meters, emergency control valves, monitoring stations, shunt trip interconnect requirements for gas shut off, etc. This subcontractor shall furnish & install dedicated circuits for equipment as needed.
45. This Subcontractor shall coordinate and install all final connections for power to Food Service Equipment. This subcontractor shall include all interconnections for food service equipment in the field. This subcontractor must be present and participate in all DOH and AHJ inspections.
46. This subcontractor shall furnish, install, and wire all EPO and emergency shutoff systems. This subcontractor shall wire, terminate, and test all valves and equipment furnished by others, including but not limited to solenoid valves. This subcontractor shall review and coordinate with all drawing & specification disciplines for EPO requirements, including but not limited to the mechanical, food service, & plumbing disciplines.
47. This subcontractor must notify all trades and Turner a minimum of (10) days in advance, and receive approval to proceed, before performing any shutdowns.
48. This subcontractor shall install all heat tracing and control panels to be furnished by others. This subcontractor shall furnish and install final connections, terminations, and circuiting for heat tracing. This subcontractor shall be responsible for testing all heat traces prior to concealing and/or burying the system.
49. This Subcontractor shall Coordinate any phased existing to remain lighting requirements indicated on the documents and associated temporary infrastructure required by the phase construction.
50. This Subcontractor shall coordinate all requirements of the new electrical service and UTILITY METER with the local power company, Turner and Owner.

51. This Subcontractor shall coordinate and provide required power for Division 8 Hardware requirements per the hardware schedule and Contract Documents.
52. This subcontractor shall provide panel schedules for any existing or new panels modified or installed by this subcontractor.
53. This Subcontractor shall coordinate with the Controls Subcontractor (BP #37) and provide source and breakers for 120V power to controls devices and all BMS / DDC panels. 120V raceway and circuit shall be provided complete by this Subcontractor. This subcontractor shall include 6 (120V) dedicated circuits for controls power in addition to the power shown on the documents. This subcontractor shall reference the Mechanical series of drawings for BMS control panel locations.
54. This subcontractor shall furnish & install all wiring associated with the fire pump ATS and fire pump controller. The Fire Protection subcontractor (BP #35) will furnish and set this equipment in place.
55. This subcontractor shall furnish & install the fire pump ~~disconnect~~ main service switch (FP-DS) shown on E700, including but not limited to all associated wiring.
56. SourceBlue shall provide the Power Studies as described and required in spec section 260573. This subcontractor shall provide all required feeder sizing, feeder lengths and any other information based on this subcontractor's work required to complete these studies. Within two weeks of award, this subcontractor must provide anticipated feeder sizes and lengths for use with initial study. Final sizes and lengths to be provided when MEP coordination is complete.
57. This subcontractor shall furnish & install all ARC Flash Hazard Labeling of electrical equipment.
58. This Subcontractor shall design, furnish & install an independent support system for all, but not limited to, hung equipment, fixtures, ~~ceiling and piping~~ electrical systems, conduit, cable tray, etc. 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, 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.
59. This Subcontractor shall design, furnish, and install all, but not limited to, hangers, supports, channel support systems, heavy duty steel trapezes, seismic restraint hangers, etc. required for all Electrical systems as indicated in the Contract Documents. All above ceiling scope shall be installed and inspected 4 weeks prior to any scheduled ceiling grid installation.
60. This subcontractor shall furnish & install overhead cord reels.
61. This subcontractor shall coordinate, furnish, & install a typical exterior conduit penetration and exterior back box at each different exterior wall material type, as part of the exterior wall mock-up process for Design Team review. Reference A315 for the intended exterior wall mock-up.
62. This subcontractor shall prioritize and maximize the under slab 3D BIM modeling for utilization of below slab conduit raceways prior to concrete placement.
63. This Subcontractor shall Utilize Total Station layout of all seating boxes at the auditorium, all boxes located within concrete slabs, and conduit stub ups within walls.

Lightning Protection & Grounding

64. This Subcontractor shall furnish and install a complete grounding and bonding system as indicated on the contract documents from grounding source (ground loop, building steel, rebar, etc.) up to and including main grounding bus bars and connection any equipment requiring ground connection. This subcontractor shall furnish & install all grounding bars in telecommunications rooms.
65. This Subcontractor shall design, furnish and install a complete lightning protection system in conformance with the contract documents and applicable codes, including but not limited to conduit pathways, conductors, grounding rods, air terminals, etc. This subcontractor is responsible for providing a lighting protection system, UL Master Label. Note this system is delegated design for the lighting protection systems as indicated in the contract documents by this subcontractor.

Lighting

66. This subcontractor shall furnish & install all lighting as called for on the Contract Documents, including but not limited to all exterior lighting, signage lighting, athletic field lighting, landscape lighting, etc. Lighting may be shown on several drawings including but not limited to RCPs and Electrical Lighting plans. This Subcontractor shall provide lighting with the understanding that when documents indicate differences the greater quantity and quality prevails. This includes but is not limited to specialty lighting such as theatrical and aisle lighting.
67. This subcontractor shall furnish & install a complete and fully functioning theatrical lighting system for the auditorium, including but not limited to all rigging equipment, pipe & clamp support system, etc. This subcontractor must coordinate and fully integrate the AV & all other stage / auditorium system components for a complete system.
68. This subcontractor must identify all light fixtures that are installed in sheetrock ceilings and submit them for early release to ensure they are available prior to the start of sheetrock ceilings per the project schedule.
69. This subcontractor shall include coordination with general trades (BP #21) for modeling of all lighting fixtures and associated manufacturer clearances. Coordinate ceiling types, materials, soffits, architectural features, detailed locations, FFE and equipment. This subcontractor must model all light fixtures, as well as all electrical equipment provided by others and installed by this subcontractor, to ensure a fully coordinated electrical system with all other trades.
70. This Subcontractor shall provide shop drawing for all exit lighting & exit signs (low level and typical overhead) for approval by AHJ.
71. This subcontractor shall furnish and install a complete and fully functioning lighting control system, including but not limited to all modules, switches, sensors, panels, time clocks, photocells, conduit, wiring, connectors, circuitry, etc., as required to complete the system whether or not shown on the drawings. Reference for examples E500 & E501. This subcontractor shall furnish & install all wiring and infrastructure necessary to provide network connectivity to lighting controls devices and components, including but not limited to network cabling, terminations, patch panels, etc.
72. This Subcontractor shall coordinate directly with all other trades providing auditorium & stage equipment for all lighting and power requirements, for example theatrical seating & motorized curtain rigging vendors.
73. This Subcontractor shall coordinate under slab electrical infrastructure with all Subcontractors to ensure proper rough in requirements are installed for approved equipment, fixtures, devices, etc.
74. This Subcontractor shall coordinate and store lighting materials off site in an appropriate facility. It should not be assumed the building will be secure nor large enough to store lighting materials.

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP #38 – Electrical & Fire Alarm
Dated: 07.08.2024
Revised: 10.24.2024

Low Voltage and Security System Rough-in & Coordination

75. This Subcontractor shall provide all in-wall conduit raceways and back boxes for all low voltage, telecom, security and AV systems as indicated on the contract documents. Any specialty AV or Telecom backboxes shall be furnished by the Telecom and/or AV subcontractor respectively and installed by this Subcontractor (i.e. Chief PAC boxes). This subcontractor shall provide all standard back boxes, NEMA rated boxes, and conduit pathways to an accessible location. This subcontractor shall furnish & install all grounding of LV pathways installed per the scope of work herein.
76. This subcontractor shall furnish & install all low voltage and security site underground raceways & ductbank required, including but not limited to ductbank for new telecom service, underground raceways / conduit for site cameras, all handholes, etc. For a reference see sheet SU100.
77. This subcontractor must expedite their 3D BIM model and shop drawings of low voltage and AV rough in order to ensure this is reviewed and fully coordinated with the low voltage and AV subcontractor.
78. Where low voltage, tele/data, AV & Security jacks share a common floor box with 120vac power, this contractor is required to furnish and install the back box, cover plate, and appropriate sized conduit with a pull string (coordinated with the respective Tel/data sub-contractor) which will be routed to the nearest accessible ceiling in accordance with typical installations throughout the project. The tel/data, Security & AV subcontractor (BP #39) will pull the data lines and terminate the jacks.
79. This subcontractor shall furnish & install all in-wall raceways & junction boxes required for access controlled & secured doors, automatic door operators, overhead coiling doors, etc. including but not limited to junction boxes, back boxes, conduit for power, conduit for low voltage cabling, pull strings, etc. This includes conduit raceway through the door frame up to an accessible location in the ceiling. For example, reference drawing TY302. Please note that references of electrical components being installed by "General Contractor" will be by this subcontractor. Raceways within the door slab shall be provided by the Doors/Hardware Subcontractor (BP #20).
80. This subcontractor shall furnish & install all line side power (i.e. 120V) from electrical panels to power supplies / transformers & equipment required for any access controlled & secured doors, overhead coiling doors, and/or auto-opening doors. Power supplies and transformers shall by furnished and installed by the Door Hardware Subcontractor and/or Low Voltage Subcontractor for their respective systems.
81. This subcontractor must coordinate and integrate with the BDA / DAS / ERRCS system(s), including but not limited to fire alarm integration. This subcontractor is solely responsible for furnishing & installing all fire alarm infrastructure. Rough-in for DAS / BDA / ERRCS systems will be furnished and installed by the Low Voltage Contractor (BP #39), since this is a delegated design and the drawings do not indicate the system requirements and device count.

BMS / ATC Coordination

82. This Subcontractor shall provide power to HVAC ATC Subcontractors Control Panels. Any and all other electrical power connections beyond ATC/DDC Control Panel devices shall be furnished and wired by the ATC Contractor, at no additional cost to the project. This requirement includes the furnishing and installing of 120V, circuit breakers in electric panelboards, wire, conduit junction boxes, etc.

Fire Alarm

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP #38 – Electrical & Fire Alarm
Dated: 07.08.2024
Revised: 10.24.2024

83. This subcontractor shall furnish and install a complete and fully functioning, code-compliant fire alarm system per the documents.
84. This subcontractor shall furnish and install paging speakers associated with the fire alarm system as shown in the fire alarm drawings and specifications.
85. This subcontractor shall furnish and install conduit and raceway for the fire alarm system.
86. This subcontractor shall coordinate, furnish and install and terminate all fire alarm requirements associated with the Building Temperature Controls (BAS / BMS) Vendor (BP #37) including but not limited to the sequence of operations.
87. This subcontractor shall coordinate, furnish, install and terminate all fire alarm components necessary for fire smoke dampers that are provided by others.
88. Coordinate locations of all Fire Alarm devices, including but not limited to pull stations, horn strobes, etc. shown on the contract documents with the Architect/Engineer and with Turner to resolve any conflicts with the Work of other trades and to confirm exact locations.
89. This subcontractor shall furnish & install all the power required to operate a complete Fire Alarm system. For example, if multiple control panels need individual power circuits, and only one is shown, any additional circuits for this equipment will be this subcontractor's responsibility. Any additional circuits will be detailed, quantified, and reported to the Design Team.
90. This Subcontractor will furnish and wire all duct smoke detectors consistent with the Fire Alarm Specifications and per Contract Documents. This subcontractor will coordinate locations, orientations, layout & size of duct smoke detectors in conjunction with the HVAC contractor (BP #37). HVAC Subcontractor (BP #37) will install the duct smoke detectors. This subcontractor will furnish and install any necessary transformers and low voltage wiring. All fire alarm terminations will be by this subcontractor.
91. This Subcontractor shall wire smoke detectors that are factory installed and integral to HVAC units (and furnish and install fire alarm modules as required). This subcontractor shall wire all smoke/fire dampers furnished and installed by others. This subcontractor shall wire and make final connections to all the duct mounted smoke detectors & FSD's for a fully functioning and complete system. This subcontractor shall review and include any devices shown on Mechanical Drawings in addition to the Electrical/Fire Alarm drawings.
92. This Subcontractor shall furnish and install wiring and connection of sprinkler system equipment & components to the Fire Alarm system, including but not limited to water flow and supervisory switches. The Fire Alarm drawings may not show all devices, this subcontractor shall review and include any devices shown on Fire Protection Drawings in addition to the Electrical drawings. Fire Protection / Sprinkler subcontractor (BP #35) shall furnish and install the switches.
93. This Subcontractor shall coordinate with the Security (BP #39) & Door Hardware Subcontractor (BP #20) to furnish & install all power and fire alarm integration for access controlled & secure doors, automatic door operators, overhead coiling doors, etc. including but not limited to all fire alarm cabling, relays, control modules, terminations, etc. This subcontractor shall furnish & install all final power & fire alarm connections and terminations as required to items furnished by others, including but not limited to connections from equipment to fire alarm modules. This Subcontractor shall coordinate Door holders or closers withhold-open provided as part of door hardware and security specifications.
94. This Subcontractor shall coordinate with the Low Voltage subcontractor (BP #39) for integration of the BDA / Emergency Responder Radio Communication System (ERRCS) as it pertains to providing a complete, fully functioning, and compliant fire alarm system.

95. This Subcontractor shall Coordinate FA device depth requirements with architectural finishes, depths and clearances and notify the Design team of any conflicts via the RFI process.
96. This Subcontractor shall coordinate, furnish and install all FA devices required in the elevator hoist ways to meet the design documents, NFPA and Authority Having Jurisdiction.
97. This Subcontractor shall coordinate and provide all required components and interconnect wiring for the operation and monitoring of the Food Service Equipment Ansul System. (Reference drawing E400 for location)
98. This subcontractor shall coordinate and provide all required components for the operation and monitoring of the natural gas detection systems.
99. This subcontractor shall coordinate, furnish, & install all wiring and components necessary for the operation and monitoring of roof smoke / heat vents, for an example see A103D.
100. This subcontractor shall coordinate, furnish, & install all wiring and components necessary to mute all AV, sound systems, and theatrical systems, for an example see the sequence of operations on E701.
101. This Subcontractor shall include pretesting 100% of the fire alarm devices PRIOR to performing acceptance testing with Turner and the AHJ. The pretesting shall be performed during off hours.
102. This Subcontractor shall coordinate elevator recall and elevator shunt trip Systems with Elevator Contractor indicated on Electrical Drawings.

Commissioning and Testing

103. This Subcontractor shall fully cooperate with the Owner's Commissioning Agent for commissioning of systems furnished and/or installed by this Subcontractor.
104. This Subcontractor will provide a dedicated engineer / staff person on site dedicated to the contractor commissioning of all systems prior to occupancy. This includes documenting, organizing and submitting to the owner all startup reports, pre-functional checklists and any performance reports that may be required for each piece of equipment.
105. This Subcontractor's Project Manager and Commissioning engineer shall attend a weekly Commissioning/MEP coordination meeting for the duration of the project.
106. This subcontractor shall include sufficient time to fully commission all systems. Adequate manpower shall be available to fully meet the commissioning requirements.
107. Start-up reports shall be submitted to Turner within (3) days of startup.
108. This Subcontractor shall submit fully filled out Pre-Functional and Functional test reports to TCCo.
109. This Subcontractor shall perform all required testing in accordance with the specifications. Testing is to be performed in a manner so as to complement the 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.
110. This subcontractor shall coordinate with the Authority Having Jurisdiction as required per the plans and specifications including those referenced in The Statement of Special Inspections. This subcontractor shall provide Turner a minimum of seventy-two (72) hour advance notice for all required inspections.

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP #38 – Electrical & Fire Alarm
Dated: 07.08.2024
Revised: 10.24.2024

111. This Subcontractor shall include all necessary shutdowns and / or tie-ins for your specific systems. This subcontractor shall assume all shutdowns and tie-ins are to be performed premium time; provide proper notification and coordination with all affected parties (Owner, Turner, local agencies, utilities, etc.).

112. This Subcontractor shall complete all identification, labeling and tagging prior to the installation of the ceiling grid by others so as to allow for proper inspections as to thoroughness of these items.

113. 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.

114. 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 piping 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

115. This Subcontractor shall participate in rough-in inspection coordination with other trades and Turner utilizing color coded framing identification to illustrate completion and inspection ready areas. Color code key and inspection sequencing will be identified by Turner Superintendent.

116. This Subcontractor shall provide fuel for the Generator testing and Commissioning as well as ensure a full tank of fuel is present at time of substantial completion acceptance by the Owner. This subcontractor must provide all components necessary to fully test the generator, including but not limited to temporary load bank as needed.

117. This Subcontractor shall provide training as specified for all of the equipment and systems furnished by this Subcontractor by phases. This Subcontractor shall include two (2) man-days of additional training be used at Turner Construction Company's discretion.

118. This subcontractor shall include all training required for systems installed by this subcontractor, including but not limited to videotaping the training sessions for turnover to the Owner.

SourceBlue Coordination

119. This subcontractor has received and understands the SourceBlue Equipment List and Coordination Matrices. This subcontractor accepts and agrees to perform the scope identified as this subcontractors responsibility in these matrices.

120. This Subcontractor shall coordinate, receive, offload, hoist, protect, store, set in place, install, wire, & test all electrical distribution equipment being furnished by SourceBlue or others. This shall include start up requirements and commissioning. Once this subcontractor receives and accepts delivery of equipment provided by others, it is in their sole care & custody. This subcontractor is responsible to inspect and identify any damages or deficiencies prior to accepting delivery & taking custody. If any equipment or component is damaged or lost after taking custody, it will be the responsibility of this subcontractor to repair or replace it at their expense.

121. This subcontractor shall provide off-site storage for electrical equipment furnished by SourceBlue. Materials shall be brought on site per "Just In Time Delivery" provisions. This subcontractor shall include **6 months** of offsite storage for all equipment supplied by SourceBlue.

122. This subcontractor shall furnish & install all electrical distribution equipment and components **not** identified as being furnished by SourceBlue.

123. This subcontractor is responsible for the means & methods of rigging and fitting electrical distribution equipment through existing & new conditions (i.e. doorways). This subcontractor shall assume the generator and main electrical switchgear will be rigged and installed in place on premium time.

Coordination & Miscellaneous

124. The intent of the project Lean initiative is that all items that are to be installed are to prefabricated, arranged and shipped to project for ease of installation. Devices installed with partitions will be prefabricated with conduits/ piping as coordinated in the BIM model. These devices are to be packaged and labeled by room for ease of installation (kit-of-parts).

125. This subcontractor shall fully participate in all 3-D coordination, this Contractor stall take the lead on modeling the ceilings and developing with the other Subcontractors a comprehensive coordinated Reflective Ceiling Plan for all ceiling devices, light fixtures, soffit conditions and special framing support systems.

126. This subcontractor shall provide shop drawings and models showing blocking requirements for their systems and scope of work. Blocking will be furnished & installed by the General Trades Subcontractor. This subcontractor is responsible for coordination in order to ensure the correct type & size of blocking is provided in the correct locations.

127. This subcontractor shall coordinate all installations to meet accessibility requirements as noted in the contract documents and all NEC clearance required for maintenance and code.

128. This Subcontractor will be required to relocate any conduit, wire, or other part of the Electrical 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 Cx agent.

129. This Subcontractor will coordinate, furnish and install their work within millwork & casework in accordance with the contract documents and building code. This subcontractor shall include pathways, wiring, devices and cover plates within finished walls, millwork panels, desks, etc.

130. This subcontractor shall receive, rig, install, and power all motor starters and VFD's for equipment furnished by owner and other subcontractors.

131. This subcontractor shall receive, rig, install, and power all owner furnished equipment as indicated in the contract documents.

132. This Subcontractor shall coordinate, furnish and install all electrical power & controls to motorized shades and shade controllers, including but not limited to interconnecting low voltage wiring, wall switches, all wiring associated with integrating motorized shades and the lighting control system, etc... The shades, motors, and motor controllers will be furnished & mounted by the Shade Subcontractor (BP #33). This subcontractor shall be responsible for assisting the Shade Subcontractor (BP #33) with testing the motorized shade systems upon completion.

133. This subcontractor shall make all internal connections between shipping splits needed for mechanical equipment.

134. This Subcontractor shall maintain utmost care so as not to damage 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.

135. 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.

136. This Subcontractor shall provide installation of all mockups identified in the project documents as well as materials for each type of wall/ slab penetration to complete a firestopping mockup for review and approval by AHJ and Design Team.

137. This subcontractor shall provide a concrete housekeeping pad layout to the concrete subcontractor for all required locations of concrete equipment pads.

138. This Subcontractor is required to cut ceiling pads for ceiling mounted devices installed under this scope of work. Ceiling pads shall be furnished by the Ceiling Subcontractor (BP #22).

139. The 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.

140. Additional drawings required during the coordination process are as follows:

    a) Space allocations and equipment paths for future equipment shall be planned for and included within all coordination drawings presented during the construction phases. This area shall not be utilized for any other means when equipment is installed.

    b) Provide penetration drawings for interior, exterior, foundation and floor penetrations. This should include dimensions off columns, elevations above the finish floor, and required opening size. Layout as required for proper field coordination is included under this scope.

    c) Provide equipment loading drawing showing loading paths of all equipment and required access. This includes any equipment purchased by others but received under this scope. This does not replace any Turner scheduling or logistics plan.

    d) Provide rigging plan for all equipment requiring the use of a crane. Plan does not replace any Turner Logistics plan.

141. This Subcontractor shall be responsible for complete coordination of all generator, UPS, ATS and Switchgear Controls. This shall include all coordination and wiring required between manufacturers and interconnection requirements.

142. In addition to all other protection requirements listed elsewhere in the project documents, this Subcontractor is responsible for complete protection of equipment installed under this scope. This shall include protection from external dust, debris, and adjacent construction activities. Additionally, all sensitive exposed components such as controls, meters, displays, etc. shall be individually covered with protective material to avoid damage and/or scratching. The protection plan shall be reviewed with Turner prior to implementation and all resulting damage from improper protection shall be the responsibility of this subcontractor.

143. This Subcontractor will be required to develop a Method of Procedure (MOP) for various specific operations occurring during construction, testing and commissioning of this project. The MOP must itemize in step-by-step, detailed fashion, each work task and time frame for a complete and safe procedure for execution of specific work activities. Examples of work activities requiring a written MOP may include, but not limited to, operations that present heightened safety concern, tie-in or shutdown of live/energized equipment, equipment/system testing, etc. The MOP must be prepared by This Subcontractor and submitted to Turner Construction for review and approval prior to the start of associated work.

144. This Subcontractor shall provide all permanent identification/labels for equipment, systems and components provided under this scope of work and per the specification requirements. Provide complete submittal of all identification components such as nameplates, tags, special signage, type, size, material, fastening/mounting methods, text, font and color for review and coordination prior to release. The submittal shall also include a table of all identification items clearly indicating the above characteristics for each and referencing associated cut-sheets/product literature.

145. This Subcontractor shall be responsible for the review of equipment submittals provided by other trades requiring external power connection and/or controls as part of this scope of work. Provide comments for coordination of adequate cable entrance space, method of connection, and conformance with required electrical installation and the project documents.

146. This Subcontractor shall coordinate all locations of equipment power supplies and disconnects with equipment locations installed by the other MEP Subcontractors

147. This Subcontractor shall provide equipment grounding infrastructure requirements. This will include but not limited to lighting, cable tray, SDT Flooring, IT/ AV/ Telecomm/ Plumbing/ Mechanical equipment per manufacturer, LV racks, all grounding bus bars, and devices and all other ground requirements weather indicated or not on the contract documents.

148. This Subcontractor shall coordinate with Roof Subcontractor to ensure penetrations meet specifications and layout requirements to maintain the required roofing manufacturer's warranty.

149. This Subcontractor shall layout, furnish and install all sleeves and inserts required for their work. This includes coordinating with Firestopping Subcontractor (BP #17) for receipt and install of pre-manufactured firestopped sleeves. Sound sealing shall be by this Subcontractor, including but not limited to acoustical putty pads. Firestopping will be by Fire Stopping Subcontractor.

150. Through wall and floor to floor fire stopping is included in a separate bid package. This subcontractor must coordinate all penetrations with the fire stopping subcontractor. This subcontractor will receive and install any in slab/cast in place sleeves or assemblies required for this subcontractor's scope of work.

151. This subcontractor shall ensure that the nothing hits the ground policy is followed during underground electrical infrastructure installation, as well as above grade.

152. This subcontractor shall furnish & install all submetering required per the contract documents, including but not limited to all associated pathways, conductors, etc. For an example see the submetering schedule on E700.

153. 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.

154. 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 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.

155. This Subcontractor shall furnish & install all cellular gateway modules needed for the Electric Vehicle Charging Pedestals, including but not limited to all conduit, conductors, terminations, testing, etc. For example, see detail 4 on SU501.

156. This subcontractor shall furnish & install all NEMA rated enclosures, including but not limited to the NEMA 4 rated enclosure for Panels EVLP1, EVLP2, & EVHP shown in detail 4 on SU501.

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 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.
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 to eliminate slip/trip/fall hazards to surrounding trades or 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.
6. This Subcontractor is to mark with labels all Temporary Electrical Power Panels and circuit breakers. All electrical panels (temporary or otherwise) shall be governed by an external main disconnect switch at the panel.
7. All temporary power receptacles shall be protected by Ground Fault Circuit Interrupters (GFCI).

8. The electrical contractor must perform and document monthly testing and inspection of all temporary power installations.
9. This subcontractor to provide a minimum of Battery Charging Stations with 8 outlets in 2 locations per each floor of new construction and each shall be designated only for charging tool batteries. Battery charging stations shall be constructed as a shelf or rack.
10. All temporary lighting shall be completely protected on all sides to eliminate the potential of the bulb coming in contact with anything.
11. All temporary lighting shall be run with sheathed multi-conduction wire. No single strand wiring is allowed. Temporary lighting must never be put on the same circuit as temporary or permanent receptacles; temporary lights must be on a dedicated circuit and cannot be used for power.
12. Temporary lighting must be at least 8 feet AFF, LED and generate a minimum of 8-foot candles in all construction work areas. There shall be at least one bulb per room throughout the building.
13. This Subcontractor, prior to concrete slab on deck placements shall install temporary lighting from the deck above by pulling temporary lights up through the deck.
14. All temporary power connections must be either 8 feet AFF or installed in a junction box. Monkey fists are not allowed below 8 feet.
15. This Subcontractor must have all energized switches and outlets covered with wall plates prior to energizing these circuits.
16. This subcontractor shall provide a written plan showing the temporary lighting and power receptacles.
17. This subcontractor shall hardwire an evacuation horn and strobe at Three locations per floor with two pull stations on the ground level. Locations shall be reviewed by the Turner Superintendent.
18. This subcontractor shall install emergency lighting in stairwells, lamps shall remain lit for 1 hour in the event of a loss of power to the building.
19. This subcontractor shall utilize a threaded rod cutter in lieu of a porta band or grinder to cut all threaded rods.
20. This Subcontractor shall protect all downward protruding threaded rods with rubber caps to prevent injury to employees while working around rods.

E. Logistics and Schedule

1. This subcontractor shall include the requirements of the Project Logistics Plan and Project Schedule.

F. Exclusions

1. This Subcontractor shall EXCLUDE Trenching, excavation & backfill (by Sitework Subcontractor (BP #09))
2. This Subcontractor shall EXCLUDE concrete bases for site light fixtures (by Sitework Subcontractor (BP #09))
3. This Subcontractor shall EXCLUDE wood backer boards in Electrical rooms (By General Trades (BP #21))
4. This Subcontractor shall EXCLUDE Penetration Firestopping as it will be performed by Firestopping Subcontractor (BP #17). This Subcontractor shall provide an add alternate on the Bid Form of Proposal to perform penetration firestopping related to this scope of work.

Additional Provisions/Scope of Work

New Central Middle School Project
State Project No. 057-0114 N
Greenwich, CT
BP #38 – Electrical & Fire Alarm
Dated: 07.08.2024
Revised: 10.24.2024

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	

SECTION 07 6200 - SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings, counterflashings, and masonry through-wall flashing.

B. Sealants for joints within sheet metal fabrications.

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 - Rough Carpentry: Wood nailers for sheet metal work and Field fabricated roof curbs.

D. Section 07 7100 - Roof Specialties: Manufactured metal roof specialties, including roof edge fascia, gutters, and downspouts.

1.3 REFERENCE STANDARDS

A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2017a.

B. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications; 2020a.

C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2023.

D. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

E. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.

F. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2018).

G. NRCA (RM) - The NRCA Roofing Manual; 2019.

H. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

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. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

D. Samples: Submit two samples, 4 by 4 inches in size, illustrating metal finish color.

1.6 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) requirements, except as otherwise indicated.

B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with minimum five years of documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. See Section 01 7419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

C. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General: Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.

B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA (RM) and SMACNA (ASMM) requirements for dimensions and profiles shown unless more stringent requirements are indicated.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

2.2 SHEET MATERIALS

A. Pre-Finished Aluminum: ASTM B209/B209M, 3005 alloy, H12 or H14 temper; 18 gauge, 0.040 inch thick; plain finish shop pre-coated with silicone modified polyester coating.
   1. Application: Gutters and downspouts.
   2. Fluoropolymer Coating: High performance organic powder coating, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system.
   3. Color: To match approved sample.

B. Stainless Steel: ASTM A240/A240M or ASTM A666, Type 304 alloy, dead soft temper, 26 gage, 0.019 inch thick; smooth flat surface, cold-rolled No. 2D - Dull finish.
   1. Application: Through-wall flashing, overflow scuppers, roof counterflashing,

2.3 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest possible lengths.

C. Hem exposed edges on underside 1/2 inch; miter and seam corners.

D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

E. Fabricate corners from one piece with minimum 18-inch long legs; seam for rigidity, seal with sealant.

F. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

2.4 ACCESSORIES

A. Fasteners: Stainless steel, with soft neoprene washers.

B. Primer Type: Zinc chromate.

C. Concealed Sealants: Non-curing butyl sealant.

D. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.

E. Asphalt Roof Cement: ASTM D4586/D4586M, Type I, asbestos-free.

F. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.

B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.2 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil, 0.015 inch.

3.3 INSTALLATION

A. Comply with drawing details and approved shop drawings.

B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer's written installation instructions.

C. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..

D. Apply plastic cement compound between metal flashings and felt flashings.

E. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

F. Seal metal joints watertight.

G. Slope gutters 1/4 inch per 10 feet, minimum.

3.4 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements for field inspection requirements.

B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

END OF SECTION 07 6200

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. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.

I. Designer's Qualification Statement.

J. Manufacturer's Qualification Statement.

K. Installer's Qualification Statement.

L. 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.

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

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SECTION 12 6100 - FIXED AUDIENCE SEATING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fixed, upholstered audience seating.

B. Seating accessories.

1.2 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.

C. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2023.

D. ASTM A879/A879M - Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface; 2012 (Reapproved 2017).

E. ASTM D3597 - Standard Specification for Woven Upholstery Fabrics--Plain, Tufted, or Flocked; 2002, with Editorial Revision (2018).

F. ASTM E1352 - Standard Test Method for Cigarette Ignition Resistance of Mock-Up Upholstered Furniture Assemblies; 2016.

G. ASTM E1537 - Standard Test Method for Fire Testing of Upholstered Furniture; 2016.

H. BIFMA X5.4 - Public and Lounge Seating; 2020.

I. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; 2016.

J. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

K. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

L. NFPA 261 - Standard Method of Test for Determining Resistance of Mock-Up Upholstered Furniture Material Assemblies to Ignition by Smoldering Cigarettes; 2018.

M. UL 10B - Standard for Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination with Electrical Work: Coordinate installation of wiring to ensure that floor-mounted junction boxes are completely beneath seats and free of aisle spaces.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's printed data sheets for products specified.

C. Shop Drawings: Provide plans, elevations, sections, and attachment details. Include fabrication and installation details, chair layouts and dimensions and seat numbering scheme.
   1. Field Measurements: Verify seating layout by field measurements and record field dimensions on shop drawings.
   2. Seating Layout: Show seating layout, aisle widths, aisle-end alignment or stepping, row-lettering and chair-numbering scheme, chair widths, and chair spacing in each row.
   3. Accessories: Show locations and features of accessories, including electrical devices , and accessibility provisions.

D. Selection Samples: Manufacturer's color charts and swatches for fabric upholstery, indicating full range of materials, colors, and patterns available.

E. Verification Samples: Two swatches of each different upholstery fabric specified, minimum 3 inches by 3 inches.

F. Material Certificates: For each type of flame-retardant treatment of upholstery fabric.

G. Installer's qualification statement.

H. Warranty: Submit installer warranty and ensure that forms have been completed in Owner's name and registered with installer.

I. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

J. Maintenance Materials:
   1. See Section 01 6000 - Product Requirements, for additional provisions.
   2. Extra Fabric: Quantity sufficient for reupholstering 5 percent of installed seating.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer certified in writing by the seating manufacturer to be qualified for installation of specified seating.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver seats to project site in unopened containers clearly labeled with manufacturer's name and identification of contents.

B. Store seating units in dry and clean location until needed for installation. During installation, handle in a manner that will prevent marring and soiling of finished surfaces.

1.7 FIELD CONDITIONS

A. Ambient Conditions: Do not install seating until space is enclosed and weatherproof, wet-work in space is complete and nominally dry, installation of finishes including painting is complete, and ceilings are complete.

B. Ambient Conditions: Continuously maintain ambient temperature and humidity conditions at values near those indicated for final occupancy for minimum of one week before, during, and after installation of seating.

1.8 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Manufacturer Warranty: Provide 5-year manufacturer warranty for interior fixed audience seating. Complete forms in Owner's name and register with manufacturer.

C. Installer Warranty: Correct defective Work within a [one] year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Fixed Audience Seating:
   1. **Basis-of-Design**: Hussey Seating Company**; Quattro Chair System**: www.husseyseating.com/#sle.
      a) Model - Chair Type: **Quattro Traditional**.
      b) Series: **Classic.**
      c) Back Foam: 2 inches.
      d) Armrest Type: Polymer.
      e) Standards: Traditional.
      f) Chair Mount: Floor mount.
      g) End Panels: Plastic laminate, Tapered Style.
      h) Bottom Cover: Standard.
      i) Seat Foam: Standard, 3 inches thick.
      j) Seat Cover Tailoring: Waterfall.
      k) Seat Back Shape: Soft Square Polymer, 33 inches.
   2. Other Acceptable Manufacturers:
      a) Interkal LLC: www.interkal.com.
      b) Irwin Seating Company: www.irwinseating.com.

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

C. Provide all fixed audience seating by one manufacturer.

2.2 UPHOLSTERED SEATING

A. Description: Fixed seating system designed to permit radial installation using common middle support standards in each row and aisle standards aligned as indicated on drawings. Width of seats not less than 22 inches, except exit seat locations may be reduced to 20 inches to complete specific row dimensions.

B. Performance Criteria:
   1. Structural Performance: Engineer, fabricate and install fixed audience seating to the following structural loads without exceeding allowable design working stresses of materials involved, including anchors and connection. Apply each load to produce maximum stress in each respective component of each audience seat unit.
      a) Seat shall withstand an evenly distributed 600 lb. static load without failure or irregularities that would impair usefulness.
      b) Armrests shall withstand, without failure, a 200 lb static load applied both perpendicular to and vertically down on the arm.
      c) Back shall withstand an evenly distributed front or rear static load of 450 lbs.
   2. Fire Retardance of Upholstered Seating: Self-extinguishing when mock-up is exposed to smoldering cigarettes in accordance with ASTM E1352 or NFPA 261.
   3. ~~Fire Retardance of Fixed Audience Seating: Maximum instantaneous net peak rate of heat release of 250 kW or less, and total energy released during first 5 minutes of 40 mJ or less, when tested in accordance with ASTM E1537.~~
   4. Flammability:
      a) Upholstery materials shall meet requirements as set forth in the state of California Bureau of Home Furnishings Technical Bulletin 117.
      b) Fire-performance Characteristics of Seat Padding: Provide seating that complies with test method: California Technical Bulletin 117
      c) Cushioning and padding shall be self-extinguishing as defined in the requirements as set forth in the State of California Bureau of Home Furnishings Technical Bulletin 117.
   5. Strength and Durability: Comply with BIFMA X5.4 standards for seats, backs, armrests, and standards.

C. Backs: Fixed type; two-panel construction with fabric covering over padding and protective back panel, with installed height not less than 32 inches above finished floor.
   1. Structural Support (Inner Back): Molded hardwood plywood, not less than 11-ply, 5/8 inch thick.
   2. Padding: Polyurethane foam not less than 2 inches thick bonded to structural support.
   3. Covering: Fabric bonded to padding and fastened by upholstery technique that facilitates replacement.
      a) Seat Fabric **UPH2**: Custom selection by Architect. Refer to the "Finish Product List" on the drawings for specific fabric products, colors, and patterns.
   4. Outer Back: One-piece injection molded high-impact plastic, with scuff-resistant textured surface.

D. Seats: Hinged type, constructed to permit reupholstering without removing seat from chair.
   1. Seat Assembly: Padded and upholstered top surface, a polypropylene bottom shell with dual contours, and a dual sprung lifting mechanism. Seat shall have the ability to achieve a full fold position when rearward pressure is applied.

2. Bottom Cover: Polypropylene plastic, covering the mechanical parts of the lifting hinge and upholstered seat topper.

E. Standards: 1" x 3" x 16 gauge seamless oval mechanical tubing. Standards utilizing an open seam (not welded) are not acceptable.
   1. Floor Mounted: Floor mounted standards shall have a 7 gauge formed steel foot, full perimeter welded to the upright tubular member. The floor mount standards shall be manufactured to match floor inclines in order to maintain proper seat height and angle.

F. Hinges: Self-lubricating, noiseless steel hinges with brass alloy bearings or nylon bushings, equipped with spring mechanism that causes unoccupied seat to rise automatically to uniform 3/4 fold, with 100 percent fold when additional pressure is applied.

G. Arm Rests: Locate at aisles and between chairs; mount to support standard with concealed fasteners; exposed surfaces of molded high-impact plastic.
   1. Provide swing-up armrests at end standards for ADA compliance, at not less than five percent of fixed seats. Each accessible chair shall include the universal accessibility symbol on the end aisle standard for clear identification.

H. End Panels: One piece panels fastened securely to aisle standards with concealed fasteners, configured as follows:
   1. Shape: As noted in Article 2.1.
   2. Finish: Plastic laminate.

I. Aisle Lights: Integral low voltage aisle light system operating from a transformer system supplied by fixed seating manufacturer. "Low Voltage Luminaire" electrical system approved by Underwriters Laboratories Inc. Aisle lights to be mounted onto end panel or aisle standard and furnished with cover as an integral part of the chair standard.
   1. Mounting Height: As selected by Architect from fixed seating manufacturer's standard options.

2.3 MATERIALS

A. Sheet Steel: ASTM A879/A879M, Commercial Steel (CS) or Drawing Steel (DS) electrogalvanized sheet, 04Z (12G) coating class on both surfaces; chemically treated for baked enamel finish.

B. Steel Plates and Bars: ASTM A36/A36M; minimum 1/4 inch thick.

C. Steel Tubes: AISI/SAE1008/1010/1015, ASTM A500/A500M, Grade B cold-formed structural tubing; minimum wall thickness of 0.083 inch.

D. Hardwood Plywood: HPVA HP-1; face veneers for exposed surfaces Grade A as selected by Architect from the manufacturer's standard options, with no visible defects; concealed surface veneers of sound grade hardwood.

E. Plastic Laminate: NEMA LD 3, Type 1, Grade GP 50, nominal thickness 0.050 inch; colors and patterns as selected from manufacturer's standards.

F. Polypropylene Sheet: Molded high density plastic with minimum tensile strength of 3300 psi, integral color pigments, and textured, scuff-resistant surface finish.

G. Polyurethane Foam: Density not less than 1.8 lb/cu ft, fire retardant, non-hardening and non-oxidizing, with high resistance to alkalis, oils, moisture, and mildew.

H. Upholstery Fabric: ASTM D3597 heavy-duty plain woven nylon fabric, treated to resist cigarette ignition and staining; color(s) and pattern(s) as indicated on the Finish Product List on the drawings.

2.4 FINISHES

A. Ferrous Metals: Manufacturer's standard electrostatic epoxy-polyester oven baked powder coating in semi luster black color textured finish, applied over conversion coating appropriate to base metal.

B. Hardwood Plywood: Manufacturer's standard clear low-gloss finish.

C. Finish Colors: For polymer components, metal components, and plastic laminates - refer to "Finishes for Miscellanous Items" on the "Finish Product List" on the drawings.

2.5 ACCESSORIES

A. Seat and Aisle Numbers: Manufacturer's standard seat numbers securely fastened to front edge of folding seats and row numbers securely fastened to aisle arm rests; anodized aluminum finish, with letters and numbers countersunk and filled with black paint; recessed mounting.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates for conditions detrimental to installation of fixed audience seating. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's installation instructions and approved shop drawings.

B. Anchor support standards securely to substrate with at least two anchoring devices recommended by manufacturer.
   1. Vary width of seats and backs as required to optimize sightlines, and comply with the ADA Standards for row and aisle widths.
   2. In curved rows, install standards to form smooth radius, without breaks or angled chords

3.3 ADJUSTING

A. Adjust seat mechanisms to ensure that seats in each row are aligned when unoccupied.

B. Repair minor abrasions and imperfections in painted finishes with a coating that matches factory-applied finish; replace units that cannot be repaired to unblemished appearance.

C. Replace upholstery fabric damaged or soiled during installation.

END OF SECTION 12 6100

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SECTION 21 0433 - HEAT TRACING FOR FIRE SUPPRESSTION PIPING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Self-regulating freeze protection electric heating cable for fire suppression piping.

B. Controls.

C. Connection kits.

D. 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. Division 21 – Fire Suppression

C. Division 26 – Electrical

1.3 REFERENCE STANDARDS (follow the most currently adopted amended version)

A. Canadian Standards Association
   1. CSA C22.2 NO. 130 – Requirements for Electrical Resistance Trace Heating and Heating Device Sets.

B. Institute of Electrical and Electronics Engineers
   1. IEEE 515.1 – Standard for the Testing, Design, Installation, and Maintenance of Electrical Resistance Trace Heating for Commercial Applications.

C. National Fire Protection Association
   1. NFPA 13 – Standard for the Installation of Sprinkler Systems.
   2. NFPA 13D – Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings.
   3. NFPA 13R – Standard for the Installation of Sprinkler Systems in Low Rise Residential Occupancies.
   4. NFPA 14 – Standard for the Installation of Standpipe and Hose Systems.
   5. NFPA 70 – National Electric Code (NEC).

D. Underwriters Laboratories Inc.
   1. UL 508 – Standard for Industrial Control Equipment
   2. UL 515A - Outline of Investigation for Electrical Resistance Tracing Heating and Associated Controls for use in Sprinkler and Standpipe Systems
   3. UL864 – Standard for Control Units and Accessories for Fire Alarm Systems

4. UL 1053 – Standard for Safety Ground-Fault Sensing and Relaying Equipment

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.

B. Sequencing: Ensure that utility connections are achieved in an orderly and expeditious manner.

C. Coordinate the work with other trades to provide ground fault protection for electric heat tracing circuits as required by NFPA 70.

D. Coordinate the work with other trades to provide circuit breaker ratings suitable for installed circuit lengths.

1.5 SUBMITTALS

A. See Division 01 - Administrative Requirements, for submittal procedures.

B. Product Data: For each type of product.
   1. Include the following:
      a. Heating cable data sheet.
      b. Fire sprinkler freeze protection design guide.
      c. System installation and operation manual.
      d. System installation details.
      e. Connection kits and accessories data sheet.
      f. Controller data sheet.
      g. Controller wiring diagram.
   2. Include rated capacities, operating characteristics, and furnished specialties and accessories.
   3. Schedule heating capacity, length of cable, and electrical power requirement for each electric heating cable required.
   4. Include heat loss calculations for each pipe including pipe and insulation characteristics, heat loss, and watts per foot supplied by the heating cable.

C. Shop Drawings: For electric heating cable.
   1. Include plans, elevations, sections, and attachment details.
   2. Include diagrams for power, signal, and control wiring.
   3. Manufacturer to produce detailed design as described below.

D. Testing Instructions and Reporting Form: Provide documentation for use in preinstallation testing of heat-tracing system.

E. Delegated-Design Submittal: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation. Delegated design submittals include:

1. Heat Trace Circuit Layout Drawings, including:
   a. Location/Identification of area to be traced.
   b. Heater circuit number.
   c. Electrical load.
   d. Heater catalog numbers.
   e. Heater termination points.
   f. Start-up temperature.
   g. Location of all components.
   h. Material list and quantities of all components.
   i. Heating cable layout.
2. Heat Trace Isometric, including:
   a. Location of line.
   b. Piping line numbers.
   c. Valves, pumps, flanges, fittings, instruments.
   d. Heat loss and heater output.
   e. Electrical load.
   f. Heater catalog number.
   g. Heater termination points.
   h. Design parameters.
   i. Insulation type and thickness.
   j. Position of all components.
   k. Material schedule listing all components and quantities used.
   l. Panel ID number.
3. Pipe Freeze Protection Detail Drawings: Project-specific Detail Drawings, including details showing:
   a. Installation and positioning of all components.
   b. Proper amounts of tracing for valves, pumps, flanges, fittings, instruments, etc.
   c. Junction box layouts.
4. Control Panel Drawings: Drawings for each control panel shall include the following:
   a. Physical arrangement and structural detail drawings.
   b. Complete power and control wiring diagrams showing all internal wiring connections for electrical and instrument components in each control panel. All wires, terminals, and devices shall be numbered and tagged in accordance with system elementary diagrams.
5. System Wiring Diagram: Project-specific drawings (if applicable) including:
   a. Interconnect of all major components.
   b. Assignment of circuiting.
   c. Connection of circuit wiring in terminal blocks.
   d. Connection of sensor wiring.
   e. Connection of external alarm wiring.
6. Controller Setpoint Schedule (if applicable) showing the following:
   a. Circuit addresses.
   b. Circuit set points.
   c. Circuit alarms and settings.

1.6 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For electric heating cables to include in operation and maintenance manuals.

B. Testing: Completed system test report.

C. Project Record Documents: Record actual locations of electric heat tracing lines and controls.

D. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.8 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Company specializing in manufacturing products specified in this section with minimum three years of experience.
   2. ISO-09001 registered.
   3. Provide products compliant with UL 515A, CSA 22.2 No 130-16, and IEEE 515.1 requirements.

B. Installer Qualifications:
   1. Company specializing in performing work of the type specified and with at least three years of experience.
   2. Electrical connections to be performed by licensed electrician.

C. Certification: Entire system (Heating Cable, Connection Kits and Controls) shall be UL listed and marked for freeze protection of standpipes, mains, and branch fire sprinkler piping.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying the following:
   1. Product and Manufacturer.
   2. Length/Quantity.
   3. Lot Number.
   4. Installation and Operation Manual.
   5. Material Safety Data Sheet (MSDS).

B. Store heating cable in clean, dry location with a temperature range of 0 to 140 deg F.

C. Protect heating cable ends from moisture ingress until final termination of the heating cable is complete.

1.10 WARRANTY

A. See Division 01 - Closeout Submittals, for additional warranty requirements.

B. Provide two-year manufacturer warranty for cables, connection kits, accessories, and controls.

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Complete pipe freeze protection system for insulated pipes exposed to the risk of freezing. System consists of a self-regulating heating cable, connection kits, accessories, and energy-efficient control and monitoring controller. The heating cable shall have a polyolefin jacket for aboveground fire sprinkler piping, including standpipes, mains, and branch fire sprinkler piping,

2.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage manufacturer to design complete and functional heat-tracing system as required by Project documents.

2.3 SELF-REGULATING FREEZE PROTECTION ELECTRIC HEATING CABLE

A. Manufacturers:
1. Chromalox CPR Self-Regulating, Heating Cable
2. RAYCHEM, a brand of nVent; XL-Trace Edge Pipe Freeze/Flow Maintenance
3. Thermon Manufacturing Company; FLX Series.
4. Substitutions: See Division 01 - Product Requirements.

B. Source Limitations: Obtain heat-tracing components and controllers from single manufacturer. To ensure system integrity and meet warranty requirements, only components and controllers supplied by cable manufacturer are to be used.

C. Comply with UL 515A, CSA 22.2 No 130-16, and IEEE 515.1 requirements.

D. Provide products listed, classified, and labeled by FM and UL specifically for use in fire suppression systems.

E. Heating Element:
1. Provide pair of parallel No.16 tinned or nickel coated stranded copper bus wires embedded in cross-linked conductive polymer core with varying heat output in response to temperature along its length.
2. Terminations: Waterproof, factory assembled, non-heating leads with connector at one end and watertight seal at opposite end.
3. Cable shall be capable of crossing over itself without overheating.

F. Electrical Insulating Jacket: Flame retardant polyolefin.

G. Ground Braid: Tinned-copper braid. Minimum 70 percent for ground path and mechanical ruggedness.

H. Outer Jacket: Provide polyolefin outer jacket with UV inhibitor. Outer jacket to be printed with the following information:
1. Name of manufacturer, trademark, or other recognized symbol of identification.
2. Catalog number, reference number, or model.
3. Month and year of manufacture, date coding, applicable serial number, or equivalent.
4. Agency listing or approval.
5. Applicable environmental or area use requirements, such as NEMA 4, Type 4, IP ratings, and hazardous (classified) location markings including temperature rating.
6. Any applicable warning/caution statements such as "WARNING: De-energize circuit before removing cover.

I. 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.

J. Capacities and Characteristics:
a. Refer to drawings.

K. Electrical Characteristics:
1. Refer to drawings for electrical information.
2. Refer to Division 26.

2.4 CONTROLS

A. Single-Circuit Local Digital Controller.

1. Control self-regulating heating cable via programmable single-circuit controller to provide adjustable maintained temperatures in the range of 32 to 104 deg F.
2. Provide one controller for each heat-tracing circuit, [as indicated on heat-tracing schedule].
3. Controller must have two temperature sensor inputs.
4. Controller shall be able to use two temperature sensors per circuit with ability to assign any of them for high temperature cut-out function.
5. External thermostatic control devices for high limit or high temperature cutout are not permitted.
6. Controller shall include user-defined filters for temperature alarms to avoid nuisance alarms.
7. Controller shall have ground fault current sensing and relaying equipment that complies with UL1053 requirements.
8. External ground fault devices are not permitted.
9. Controller shall have user-defined settings for ground fault alarm and trip levels.
10. Controller shall store at least 100 past events/alarms to aid maintenance.
11. Controller Capabilities:
a. Supply Voltage: 100 to 277 V ac.

b. Enclosure: Type 12 (indoor use).
c. Operating Temperature Range: 32 to 104 deg F (0 to 40 deg C).
d. Display: 5" touchscreen color display.
e. Control: DP mechanical relay type.
f. Control Algorithms: [Ambient On/Off. Line Sensing.] [Proportional Ambient Sensing Control for energy savings.]
g. Monitoring:
    1) Temperature:
        a) Low Alarm: -40 to 190 deg F.
        b) High Alarm: 32 to 190 deg F.
    2) Ground Fault:
        a) Alarm Range: 20 to 200 mA.
        b) Trip Range: 20 to 200 mA.
    3) Current:
        a) Low Alarm: Built-in 0.25 A
    4) Autocycle Diagnostics: Built-in (Daily)
h. Temperature Sensor Inputs:
    1) Quantity: Two.
    2) Type: Thermistor 2 K-Ohm / 77°F (25°C), 2-wire.
i. Alarm Outputs:
    1) AC Relay: Single pole double throw relay, volt-free; maximum switching capacity (resistive load only) 1 A/24 VDC, 1A/24 VAC.
    2) Outputs: Normally Open or Normally Closed.
j. Stored Parameters:
    1) Time stamp.
    2) Warning.
    3) Event description.
    4) Device ID.
    5) Language.
    6) Country.
    7) Control mode.
    8) Cable type.
    9) Supply voltage.
    10) Sensor 1 and 2.
    11) Setpoint.
    12) Deadband.
    13) Minimum expected ambient temperature.
    14) Power adjustment.
    15) GFCI current.
    16) Load current.
    17) Board temperature.
k. Alarm Conditions:
    1) Low and High temperature.
    2) Ground fault alarm and trip.
    3) RTD failure.
l. Communications:
    1) Alarm relay to fire alarm panel
m. Temperature Sensors: [Select One]

1) Fire sprinkler control – Contractor shall use one sensor provided for ambient temperature sensing and second sensor provided for pipe temperature sensing for each 465 controller.
2) Contractor shall be able to program the controller to keep the heating cable powered in case of temperature sensor failure.

12. Approval: The complete heat trace system (heating cable, connection kits, and controller) shall be UL Listed (VGNJ) and marked for intended use of freeze protection of standpipes, mains and branch fire sprinkler piping.

B. Multi-Circuit Distributed Digital Control System:
1. Control and monitor pipe freeze protection for fire protection circuits using a centralized control system with distributed power and control modules.
2. Multi-application: Distributed digital control system shall be pre-programmed with parameters to provide concurrent control for heating cables used for pipe freeze protection, flow maintenance, fire sprinkler piping, hot water temperature maintenance, surface snow melting, roof and gutter de-icing, freezer frost heave prevention, and floor heating applications.
3. Central User Interface Terminal: For all programming.
   a. Certification: CSA Certified.
   b. Terminal Display: Color LCD display with password protection to prevent unauthorized system access.
   c. Capable of communicating with up to 52 power control panels, where each panel can control up to five circuits and accept up to five temperature inputs.
   d. Digital control system shall be capable of assigning up to four temperature inputs per heat-tracing circuit.
   e. Capable of communicating with up to 16 remote monitoring modules, where each module can accept up to eight temperature inputs.
   f. USB port to allow for quick and easy software update.
   g. Programmable Alarm Contacts: Three, including an alarm light on enclosure cover.
   h. Provide separate offline software tool to allow users to preprogram digital control system and transfer program via USB drive or Ethernet.
   i. Enclosure: NEMA 4 for indoor or outdoor locations.
4. Power Control Panels:
   a. Certification: UL Listed.
   b. Enclosure: NEMA 4/12 enclosure approved for nonhazardous indoor and outdoor locations.
   c. Provide ground-fault and line current sensing alarming, switching and temperature inputs for five heat-tracing circuits.
   d. Contactors: Five 3-pole, 30A contactors, EMR type.
   e. Capable of operating at 120 to 277 V.
   f. Alarm contact, including alarm light on panel cover.
5. Digital Controller:
   a. Integrated adjustable GFPD (10 to 200 mA).
   b. Capable of being configured for On/Off, ambient sensing, PASC, and timed duty cycle control modes based on application. PASC control

proportionally energizes power to heating cable to minimize energy based on ambient sensed conditions.

c. Upon communication loss with user interface terminal, panels shall control with last downloaded set point.

d. Include built-in self-test feature to verify proper functionality of heating cable system.

e. BMS Communication Protocol: By [Modbus] [BACnet or Metasys N2].

f. Variables monitored by digital controller and reported back to BMS include:

1) Temperature.
2) Ground-fault.
3) Current draw.
4) Power consumption.
5) Associated alarms.

6. Approval: Complete heat trace system (heating cable, connection kits, and controller) shall be listed by a Nationally Recognized Testing Laboratory (NRTL), and marked for intended freeze protection of standpipes, mains, and branch fire sprinkler piping.

2.5 CONNECTION KITS

A. Provide power connection, splice/tee, and end seal kits compatible with the heating cable and without requiring cutting of the cable core to expose bus wires.

B. Provide with NEMA 4X rating for prevention of corrosion and water ingress.

C. Provide UV stabilized components.

D. Certification: UL Listed.

2.6 ACCESSORIES

A. Cable Installation Accessories: Fiberglass tape, cable ties, connection kits, and end seals all furnished by manufacturer or as recommended in writing by manufacturer.

B. Identification: Provide and install "Electric Heat Traced" labels on exterior of pipe insulation every 10 ft. on opposite sides of pipe, and on all splices, tees, crosses, and power connections for the entire length of heat traced piping.

C. Thermal Pipe Insulation:

1. Pipes to be thermally insulated in accordance with manufacturer's written requirements.
2. Thermal Insulation: Flame retardant, [closed-cell] [or] [fiberglass] with waterproof covering.

D. Control Accessories

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine surfaces and substrates to receive electric heating cables for compliance with requirements for installation tolerances and other conditions affecting performance.
   1. Prior to installation of heating cable system, verify that all piping, to be heat traced has passed all hydrostatic/pressure test and is signed off by plumbing inspector.
   2. Ensure surfaces and pipes in contact with electric heating cables are free of burrs and sharp protrusions.

B. Preinstallation Testing:
   1. Prior to installation of heating cable on piping, an insulation resistance test shall be performed by installing contractor to ensure integrity of heating cable as describe in installation and maintenance manual.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

D. Verify fire suppression piping sizing, lengths and sprigs are as shown on the drawings.

E. Verify required power is available, in proper location, and ready for use.

F. Installer to verify that all fire sprinkler piping has been properly prepared for heating cable installation. Notify General Contractor or Construction Manager if unsatisfactory conditions exist prior to installation of Fire Suppression Piping Heat Tracing System.

3.2 PREPARATION

A. Clean exposed surfaces prior to installation.

B. Prepare surfaces using approved methods as recommended by manufacturer.

C. Protect all heating cable ends from moisture ingress until cable is terminated with end seals.

3.3 INSTALLATION

A. Install electric heating cable where indicated and in accordance with IEEE 515.1, UL515A, NFPA 70 and NFPA 13.

B. Install in accordance with manufacturer's written installation instructions.

C. Comply with applicable local building codes and requirements of authorities having jurisdiction.

D. All heat-tracing components including power connections, splices, tees, and crosses or end seal, must be installed above grade and protected from abuse or damage. In accordance with NEC and CEC, electrical connections are not permitted to be installed below grade.

E. In the field, all heating cables shall be tested with a Megohmmeter at the following intervals.
   1. When received at Project site before installation.
   2. After installation, but before insulation is installed.
   3. After insulation is installed.
   4. At final commissioning prior to being energized.
   5. Insulation resistance must exceed 1,000 megohms at 2,500 V dc.
   6. All results must meet manufacturer's specification.

F. Install electric heating cables after piping has passed all hydrostatic pressure testing and before insulation is installed.

G. Install insulation over piping with electric cables in accordance with Section 210700 – Fire-Suppression Systems Insulation.

H. Identification:
   1. After thermal insulation installation, apply external pipeline decals to indicate presence of the heat tape to thermal insulation cladding at intervals not to exceed 20 ft including cladding over each valve or other equipment that may require maintenance.
   2. Refer to Division 21.

I. Set field-adjustable switches and circuit-breaker trip ranges.

3.4 CONNECTIONS

A. Ground equipment in accordance with Division 26.

B. Connect wiring in accordance with Division 26.

C. Connect heat-tracing controls to fire-alarm system in accordance with NFPA 13. Comply with requirements in Division 28.

3.5 FIELD QUALITY CONTROL

A. See Division 01 - Quality Requirements, for additional requirements.

B. Manufacturer's Field Service: Initial start-up and field testing (commissioning) of system shall be performed by factory technician in accordance with Owner's requirements.
   1. System shall be commissioned in accordance with manufacturer’s installation and operation manual.
   2. Field Visits to be scheduled at the following intervals:
      a. Preinstallation training.
      b. Final electrical insulation resistance (megger) testing of heating cable after insulation has been installed.
      c. Final commissioning including controller programming (if applicable).
   3. Technician to verify:
      a. Controller parameters are set to the application requirements.

b. Controller alarm contacts are properly connected to the BMS, as applicable.

C. Controls:
1. Verify control parameters are set to the application requirements.
2. Verify factory provided digital temperature controller is correctly configured with the building automation system.

D. Submit written test and inspection reports showing values measured on each test for each cable.

3.6 CLOSEOUT ACTIVITIES

A. See Division 01 - General Requirements.

B. Demonstrate operation of controls.

3.7 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

END OF SECTION

SECTION 21 0533 - HEAT TRACING FOR PLUMBING PIPING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Self-regulating freeze protection electric heating cable

B. Self-regulating hot water maintenance electric heating cable

C. Self-regulating grease waste flow maintenance heating cable

D. Cable outer jacket markings.

E. Connection kits.

F. Accessories.

G. Controls.

1.2 RELATED REQUIREMENTS

A. Section 220400 – General conditions for Plumbing Trades

B. Section 220500 – Common Work Results for Plumbing

C. Section 220700 - Plumbing Insulation.

D. Section 221005 - Plumbing Piping.

E. Section 223000 - Plumbing Piping Specialties.

F. Division 26 – Electrical

1.3 REFERENCE STANDARDS (follow the most currently adopted amended version)

A. IEEE 515.1 - IEEE Standard for the Testing, Design, Installation, and Maintenance of Electrical Resistance Trace Heating for Commercial Applications.

B. ITS (DIR) - Directory of Listed Products.

C. NFPA 70 - National Electrical Code.

D. FM Global:

E. Underwriters Laboratories Inc.: UL515 Electric Resistance Trace Heating for Commercial Applications

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.

B. Sequencing: Ensure that utility connections are achieved in an orderly and expeditious manner.

C. Coordinate the work with other trades to provide ground fault protection for electric heat tracing circuits as required by NFPA 70.

D. Coordinate the work with other trades to provide circuit breaker ratings suitable for installed circuit lengths.

1.5 SUBMITTALS

A. See Division 01 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for electric heat tracing.

C. Shop Drawings: Indicate electric heat tracing layout, electrical terminations, thermostats, controls, and branch circuit connections.

D. Manufacturer's Installation Instructions: Indicate installation instructions and recommendations.

E. Field Quality Control Submittals: Indicate test reports and inspection reports.

F. Project Record Documents: Record actual locations of electric heat tracing lines and thermostats.

G. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions of equipment and controls, maintenance and repair data, and parts listings.

H. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

C. Copies of Documents at Project Site: Maintain at the project site a copy of each referenced document that prescribes execution requirements.

1.7 WARRANTY

A. See Division 01 - Closeout Submittals, for additional warranty requirements.

B. Provide two-year manufacturer warranty for cables, connection kits, accessories, and controls.

PART 2 PRODUCTS

2.1 SELF-REGULATING FREEZE PROTECTION ELECTRIC HEATING CABLE

A. Manufacturers:
1. Chromalox, Inc; SRL Series
2. Raychem; XL-Trace Series
3. Thermon Manufacturing Company; BSX Series.
4. Substitutions: See Division 01 - Product Requirements.

B. Provide products listed, classified, and labeled by FM and UL, or testing firm acceptable to authorities having jurisdiction (AHJ).

C. Factory Rating and Testing: Comply with IEEE 515.1.

D. Heating Element:
1. Provide pair of parallel No.16 tinned or nickel coated stranded copper bus wires embedded in cross-linked conductive polymer core with varying heat output in response to temperature along its length.
2. Terminations: Waterproof, factory assembled, non-heating leads with connector at one end and watertight seal at opposite end.
3. Capable of crossing over itself without overheating.

E. Insulated Jacket: Flame retardant polyolefin.

F. Cable Cover: Provide tinned copper and polyolefin outer jacket with UV inhibitor.

G. Electrical Characteristics:
1. Refer to drawings for electrical information.
2. Refer to Division 26.

2.2 SELF-REGULATING HOT WATER MAINTENANCE ELECTRIC HEATING CABLE

A. Manufacturers:
1. Chromalox, Inc; HWM Series
2. Raychem; HWAT-R2 Series
3. Thermon Manufacturing Company; HSX Series.
4. Substitutions: See Division 01 - Product Requirements.

B. Provide products listed, classified, and labeled by FM and UL, or testing firm acceptable to authorities having jurisdiction (AHJ).

C. Factory Rating and Testing: Comply with IEEE 515.1.

D. Verify the operating and maximum system temperature for domestic hot water applications is compatible with the manufacturer's trace heater rating.

E. Insulated Jacket: Flame retardant fluoropolymer or polyolefin.

F. Cable Cover: Provide tinned copper and fluoropolymer or polyolefin outer jacket with UV inhibitor

G. Electrical Characteristics:
1. Refer to drawings for electrical information.
2. Refer to Division 26.

2.3 SELF-REGULATING GREASE WASTE FLOW MAINTENANCE HEATING CABLE

A. Manufacturers:
1. Chromalox; SRF Series
2. Thermon Manufacturing Company; BSX Series
3. Raychem; XL-Trace Series
4. Substitutions: See Division 01 - Product Requirements.

B. Provide products listed, classified, and labeled by FM and UL, or testing firm acceptable to authorities having jurisdiction (AHJ).

C. Factory Rating and Testing: Comply with IEEE 515.1.

D. Verify the operating and maximum system temperature needed for grease waste applications are compatible with the manufacturer's trace heater rating.

E. Cable Cover: Provide Tinned Copper braid and silicon or thermoplastic fluoropolymer outer jacket.

F. Electrical Characteristics:
1. Refer to drawings for electrical information.
2. Refer to Division 26.

2.4 CABLE OUTER JACKET MARKINGS

A. Name of manufacturer, trademark, or other recognized symbol of identification.

B. Catalog number, reference number, or model.

C. Month and year of manufacture, date coding, applicable serial number, or equivalent.

D. Agency listing or approval.

E. Applicable environmental or area use requirements, such as NEMA 4, Type 4, IP ratings, and hazardous (classified) location markings including temperature rating.

F. Any applicable warning/caution statements such as "WARNING: De-energize circuit before removing cover.

2.5 CONNECTION KITS

A. Provide power connection, splice/tee, and end seal kits compatible with the heating cable and without requiring cutting of the cable core to expose bus wires.

B. Provide with NEMA 4X rating for prevention of corrosion and water ingress.

C. Provide UV stabilized components.

2.6 ACCESSORIES

A. Provide Accessories As Indicated or As Required for Complete Installation, Including but Not Limited To:
   1. High temperature, glass filament tape for attachment of heating cable to metal piping.
   2. Aluminum self-adhesive tape for attachment of heating cable to plastic piping.
   3. Heat-conductive putty.
   4. Cable ties.
   5. Silicone end seals and splice kits.
   6. Installation clips.
   7. Warning labels for attachment to exterior of piping insulation. Refer to Division 22.

2.7 CONTROLS

A. Pipe Mounted Thermostats:
   1. Remote bulb unit with adjustable temperature range from 30 to 50 degrees F.
   2. Snap-action, open-on-rise, single pole switch with minimum current rating adequate for the connected cable.
   3. Remote bulb on capillary, resistance temperature device (RTD) or thermistor for direct sensing of pipe wall temperature.
   4. Control Enclosure: Corrosion resistant and waterproof.

B. Provide minimum 30 ampere contactor to indicate operational status and on/off control.

C. Line sensing high-limit temperature control and high-limit alarm.

D. Programmable Controller:
   1. Micro-processor based.
   2. Capable of four separate schedules.
   3. On/Off/Auto switch.
   4. 365 day calendar with 20 programmable holidays.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that piping and equipment are ready to receive work.

B. Verify field measurements are as shown on shop drawings.

C. Verify required power is available, in proper location, and ready for use.

3.2 PREPARATION

A. Clean exposed surfaces prior to installation.

B. Prepare surfaces using approved methods as recommended by manufacturer.

3.3 INSTALLATION

A. Install in accordance with manufacturer's written installation instructions.

B. Comply with installation requirements of IEEE 515.1 and NFPA 70, Article 427.

C. Apply heating cable on pipe with fiberglass tape only after piping has successfully completed any required pressure testing.

D. Comply with applicable local building codes and requirements of authorities having jurisdiction.

E. Grounding: Refer to Division 26.

F. Identification:
   1. After thermal insulation installation, apply external pipeline decals to indicate presence of the thermal insulation cladding at intervals not to exceed 20 ft (6 m) including cladding over each valve or other equipment that may require maintenance.
   2. Refer to Division 22.

G. Equipment Wiring: Refer to Division 26.

H. Electrical Connections: Refer to Division 26.

3.4 FIELD QUALITY CONTROL

A. See Division 01 - Quality Requirements, for additional requirements.

B. Perform start-up by factory technician or factory representative as per Owner's requirements.

C. Field Testing and Inspections:
   1. Commission system in accordance with installation and operation manual.

2. Inspect for sources of water entry and proper sealing.
3. Inspect weather barrier to confirm that no sharp edges are contacting the trace heating.
4. Insulation Resistance: Greater than 20 megohms at a test voltage of 2500 VDC for polymer insulated trace heaters.
5. Test heating cable integrity with megohmmeter at the following intervals:
   a. Before installing the cable.
   b. After cable has been installed onto the piping.
   c. After installing the connection kits.
   d. After the installation of thermal insulation onto the piping.
   e. Prior to initial start-up (commissioning).
6. Measure voltage and current at each unit.
7. Controls:
   a. Verify control parameters are set to the application requirements.
   b. Verify factory provided digital temperature controller is correctly configured with the building automation system.
8. Submit written test report showing values measured on each test for each cable.

3.5 CLOSEOUT ACTIVITIES

A. See Division 01 - General Requirements.

B. Demonstrate operation of controls.

3.6 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

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 ~~(EF-2):~~
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.

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 Hot Water Pumps)
   1. General
      a. Pumps shall be configured in a lead/lag configuration. The lead and lag designations shall be rotated weekly.
      b. The lead pump shall operate continuously at temperatures below 65 degrees F.
      c. The speed of the lead pump shall modulate to maintain the system differential pressure setpoint.
      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 (Chilled Water 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
      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 (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.

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 HWS pressure	×					

CHWP-1, 2 pump distribution HWR pressure	×					
CBWP-1, 2 pump distribution HWS pressure	×					
CBWP-1, 2 pump distribution HWR pressure	×					
HXP-1, 2 pump distribution HWS pressure	x					
HXP-1, 2 pump distribution HWR pressure	x					
HWP-1 pump enable command, Typical point for HWP-2, CHWP-1, 2, CBWP-1, 2, HXP-1,2				×		
HWP-1 pump VFD speed control. Typical point for HWP-2, CHWP-1, 2, CBWP-1, 2, HXP-1,2		×				
HWP-1 pump VFD speed feedback. Typical point for HWP-2, CHWP-1, 2, CBWP-1, 2, HXP-1,2					x	
HWP-1 pump VFD speed fault. Typical point for HWP-2, CHWP-1, 2, CBWP-1, 2, HXP-1,2			×			
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-1, 2 differential pressures Setpoint					×	
CHWP-1, 2 differential pressures Setpoint					×	
CBWP-1, 2 differential pressures Setpoint					×	
HWP-1, 2 low differential pressures alarm					×	
CHWP-1, 2 low differential pressures alarm					×	
CBWP-1, 2 low differential pressures alarm					×	
HWP-1, 2 high differential pressures alarm					×	
CHWP-1, 2 high differential pressures alarm					×	
CBWP-2A, 2 high differential pressures alarm					×	
HXP-1,2, 2 high differential pressures alarm					x	
HXP-1,2, 2 low differential pressures alarm					x	
HWP-1 pump run status alarm. Typical point for HWP-2, CHWP-1, 2, CHWP-1, 2, HXP-1,2						×
HWP-1 pump VFD fault alarm. Typical point for HWP-2, CHWP-1, 2, CHWP-1, 2, HXP-1,2						×

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.

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. Twenty points shall be made available for monitoring/control at the DDC workstation points will be determined by engineer when Chiller Make is determined.

F. 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.

G. 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 2123 - HYDRONIC PUMPS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. In-line circulators.

B. Vertical in-line pumps.

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 03 - Cast-in-Place Concrete related sections.

C. Section 23 0548 - Vibration and Seismic Controls for HVAC Piping and Equipment.

D. Section 23 0700 - HVAC Insulation.

E. Section 23 2113 - Hydronic Piping.

F. Section 23 2114 - Hydronic Specialties.

G. Section 26 0503 - Equipment Wiring Connections.

1.3 REFERENCE STANDARDS (follow the most currently adopted amended version)

A. NEMA MG 1 - Motors and Generators

B. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.

C. NFPA 70 - National Electrical Code.

D. UL 778 - Standard for Motor-Operated Water Pumps.

E. NEMA 250- Enclosures for Electrical Equipment (1000 Volts Maximum)

1.4 SUBMITTALS

A. Product Data: Provide certified pump curves showing performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable. Include electrical characteristics and connection requirements. Submit also, manufacturer model number, dimensions, service clearances and finishes.

B. Millwright's Certificate: Certify that base mounted pumps have been aligned.

C. Manufacturer's Installation Instructions: Indicate hanging and support requirements and recommendations.

D. Operation and Maintenance Data: Include installation instructions, assembly views, lubrication instructions, and replacement parts list.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
1. See Division 01 - General Requirements.
2. Extra Pump Seals: (1) for each type and size of pump.
3. Extra Cartridges for Side-Stream Filters: One set for each filter.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacture, assembly, and field performance of pumps, with minimum three years of documented experience.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Armstrong Pumps Inc.

B. Bell & Gossett.

C. Grundfos.

D. Taco Inc.

E. Wilo

2.2 HVAC PUMPS - GENERAL

A. Provide pumps that operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, and operate within 25 percent of midpoint of published maximum efficiency curve.

B. Minimum Quality Standard: UL 778.

C. Products Requiring Electrical Connection: Listed and classified by UL or testing agency acceptable to Authority Having Jurisdiction as suitable for the purpose specified and indicated.

2.3 IN-LINE CIRCULATORS

A. Type: Horizontal shaft, single stage, direct connected, with resiliently mounted motor for in-line mounting, oil lubricated, for 125 psig maximum working pressure unless otherwise indicated on the pump schedule.

B. Casing: Cast iron, with flanged pump connections.

C. Impeller: Non-ferrous keyed to shaft.

D. Bearings: Oil-lubricated bronze sleeve.

E. Shaft: Alloy steel with bronze sleeve, integral thrust collar.

F. Seal: Mechanical seal, 225°F maximum continuous operating temperature unless otherwise indicated on the pump schedule.

G. Drive: Flexible coupling.

H. Performance & Electrical Characteristics: See Pump Schedule on drawings.

I. Electrical Characteristics:
1. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Enclose terminal lugs in terminal box sized to NFPA 70.

2.4 VERTICAL IN-LINE PUMPS

A. Type: Vertical, single stage, close coupled, radially or horizontally split casing, for in-line mounting, for 175 psi working pressure unless otherwise indicated on the pump schedule.

B. Casing: Cast iron, with suction and discharge gage port, casing wear ring, seal flush connection, drain plug, flanged suction and discharge.

C. Impeller: Bronze, fully enclosed, keyed directly to motor shaft or extension.

D. Shaft: Carbon steel with stainless steel impeller cap screw or nut and bronze sleeve.

E. Seal: Mechanical seal, 225°F maximum continuous operating temperature unless otherwise indicated on the pump schedule.

F. Performance & Electrical Characteristics: See Pump Schedule on drawings.

G. Electrical Characteristics:
1. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Enclose terminal lugs in terminal box sized to NFPA 70.

2.5 DUAL VERTICAL IN-LINE PUMPS

A. Description:
1. Single stage, single suction type, dual vertical inline design pump with integrated intelligent controls. The cast casing with equal size suction and discharge flanges, each having separate tapped flush line and pressure gauge connections, shall incorporate two radially split, single stage centrifugal pumps.
2. The inlet and outlet ports on the casing shall be a common size, so that both units may operate in parallel or individually in duty / standby operation

3. The discharge port shall be fitted with a component that allows each unit to operate independently, without bypassing fluid through the idle pump and for duty / standby operation
4. Mechanical Seals: Split-coupled serviceable without disturbing motor, controls or piping connections.

B. Design Criteria
1. Design pump for variable flow applications and selected for hydraulic design conditions and minimum system pressure with BMS control.
2. Meet or exceed energy saving requirements of ASHRAE 90.1 2013 by pump selection, based on optimum performance at part load, to save 70% of design flow energy at 50% part-load
3. Design pumping units to UL STD 778 & CSA STD C22.2 No.108

C. Casing:
1. Ductile iron ASTM A536 Grade 65-45-12, e-coated
2. Test casing to 150 % maximum working pressure.
3. Ensure casing is radially split to allow for removal of rotating element without disturbing pipe connections.
4. Casing wetted surfaces shall be e-coated to prevent seizing of impeller to casing after periods of inactivity
5. Drill and tap casing for gauge ports on both suction and discharge connections.
6. Drill and tap casing at lowest point for drain port.

D. Impeller:
1. To ASTM A743 CF8M, stainless steel 316, fully enclosed and dynamically balanced to ANSI G6.3 and fitted to shaft with key. Use two-plane balancing when installed impeller diameter is less than 6 times impeller width.

E. Pump Shafts:
1. Split-coupled: Stainless steel to ASTM A582/A582M, Grade 416.

F. Coupling
1. Rigid spacer type, high tensile aluminum.
2. Design coupling for easy removal on site to reveal space between pump and motor shaft.
3. Ensure revealed space is sufficient for removal of mechanical seal components without disturbing pump, controls or motor.
4. Include an OSHA compliant coupling guard.
5. Include lower seal chamber throttle bushing to ensure seals maintain positive cooling and lubrication.

G. Flanges: To ANSI/ASME B16.5, Class 125.

H. Flush Line: 3/8 inch braided stainless steel complete with vent.

I. Casing O-ring: EPDM.

J. Mechanical Seal: Non-potable, Outside balanced seal design and rated to 200°F maximum

1. Rotating face: Resin bonded carbon
2. Stationary face: Sintered Silicon Carbide
3. Seal rotating hardware: Stainless Steel
4. Secondary / shaft seal elastomer: Viton

K. Permanent Magnet Motor: To IE5 efficiency
1. Enclosure: TEFC.
2. Efficiency: IE5 efficiency To IEC 60034-30-1

L. Controls:
1. Integrated with UL type 12 minimum enclosure rating, sensorless controls complete with fused disconnect switch and menu-driven graphical touchscreen interface.
2. Provide near unity displacement power factor (cos Ø) without need for external power factor correction capacitors at all loads and speeds using VVC-PWM type integrated controls
   a. Incorporate DC link reactors for reduction of mains borne harmonic currents and DC link ripple current to increase DC link capacitor lifetime.
   b. Fit RFI filters as standard to ensure integrated controls meets low emission and immunity requirements.
   c. Ensure additional 3 % AC line reactor is available for controls with saturating (non linear) DC link reactors.
3. Orientation: Controls face pump discharge.
4. Protocol: BACnet™ MS/TP
5. Sensorless override for BAS/BMS control signal.
6. Enclosure: UL Type 12
7. EMI/RFI Control: Integrated filter designed to DIN EN61800-3.
8. Harmonic suppression: Equivalent: 5% impedance AC line reactor to mitigate harmonics to support IEEE 519 system requirements.
9. Cooling: Fan cooled, surface cooling.
10. Ambient working conditions: 14°F to +113°F, up to 3300 feet above sea level.
11. Analog I/O: 2 inputs minimum, 1 output minimum.
12. Digital I/O: 2 inputs minimum, 2 outputs minimum.
13. Pulse inputs: 2 programmable minimum.
14. Relay outputs: 2 programmable minimum.
15. Communications ports: 1- RS485.
16. One volt free contact.
17. Auto alarm reset.
18. Software: Ensure software for sensorless control includes automatic speed control in variable volume systems without need for pump mounted (internal/external) or remotely mounted differential pressure sensor.
    a. Operating mode under sensorless control: Quadratic Pressure Control (QPC).
       1) Ensure head reduction with reducing flow conforms to quadratic control curve.
       2) Head at zero flow: 40 % minimum of design duty head.
    b. Linear or Proportional Pressure Control without sensor is unacceptable.
    c. Ensure control mode setting and minimum/maximum head setpoints are user adjustable using built-in programming interface.

d. Ensure integrated control software is capable of controlling pump performance for non-overloading power at every point of operation.
e. Ensure integrated control software is capable of flow rate display and data output of ± 5% accuracy to BAS/BMS.
f. Ensure the controls can display and digitally transmit real-time flow & head values
g. For multiple pump configuration ensure duty/standby is applied

M. Pump Motor And Controls Protection
1. Include protection as follows:
a. Motor phase to phase fault.
b. Motor phase to ground fault.
c. Loss of supply phase.
d. Over voltage.
e. Under voltage.
f. Motor over temperature.
g. Inverter overload.
h. Over current
2. Ensure controls run automatic motor adaptation (AMA) for superior motor protection and control.

PART 3 EXECUTION

3.1 PREPARATION

A. Verify that electric power is available and of the correct characteristics.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Provide access space around pumps for service. Provide no less than minimum space recommended by manufacturer.

C. Provide pumps to operate at specified system fluid temperatures without vapor binding and cavitation. Pumps shall be non-overloading where indicated on the pump schedule.

D. Provide separate inlet and outlet shut-off valves. See 23 2114 for valve kits for system lubricated circulators.

E. Full Line size is the piping size shown on the drawings for the inlet and outlet of each pump and is NOT the pump inlet and outlet connection size.

F. Provide full line size isolation valve, pressure gauge, strainer and flex connector on inlet of all pumps. Provide full line size flex connector, check valve, balance valve, pressure gauge and isolation valve on outlet of all pumps. These items are to be provided for all cases whether indicated on not. Provide pipe reducer on outlet to connect full line size to pump outlet size. Balance valve on VFD driven pumps are not required. Provide pump

suction diffuser on all base mounted pumps. See valve section for specific valve requirements.

G. Provide air cock and drain connection on horizontal pump casings.

H. Provide drains for bases and seals, piped to and discharging into floor drains.

I. Check, align, and certify alignment of base-mounted pumps prior to start-up.

J. Install close-coupled and base-mounted pumps on concrete housekeeping base, with anchor bolts, set and level, and grout in place. Refer to Division 03 concrete related sections.

K. Lubricate pumps before start-up.

END OF SECTION

SECTION 23 3100 - HVAC DUCTS AND CASINGS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Duct Materials.

B. Duct Liner

C. Non-Insulated Flexible ducts.

D. Insulated flexible ducts.

E. Single wall spiral round ducts.

F. Double wall spiral insulated round ducts.

G. Transverse duct connection system.

H. Kitchen hood exhaust ductwork fabrication.

I. Fabric Ductwork

J. Dust collection exhaust duct and fittings

1.2 RELATED SECTIONS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this section.

1.3 REFERENCES

A. ASTM International:
1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
2. ASTM A90/A90M - Standard Test Method for Weight Mass of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings.
3. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
4. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
5. ASTM A568/A568M - Standard Specification for Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for.
6. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

7. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
8. A1011/A1011M-07 Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
9. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
10. ASTM C14 - Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.
11. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
12. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. National Fire Protection Association:
1. NFPA 90A - Standard for the Installation of Air Conditioning and Ventilating Systems.
2. NFPA 90B - Standard for the Installation of Warm Air Heating and Air Conditioning Systems.
3. NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.

C. Sheet Metal and Air Conditioning Contractors:
1. SMACNA - Fibrous Glass Duct Construction Standards.
2. SMACNA - HVAC Air Duct Leakage Test Manual.
3. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

D. Underwriters Laboratories Inc.:
1. UL 181 - Factory-Made Air Ducts and Connectors.

1.4 PERFORMANCE REQUIREMENTS

A. Delegated Duct Design: Duct construction, including sheet metal thicknesses, seam and joint construction, reinforcements, and hangers and supports, shall comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and performance requirements and design criteria indicated in "Duct Schedule" Article.

B. Structural Performance: Duct hangers and supports shall withstand the effects of gravity loads and stresses within limits and under conditions described in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible"

C. Variation of duct configuration or sizes other than those of equivalent or lower loss coefficient is not permitted except by written permission. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts.

1.5 SUBMITTALS

A. Shop Drawings: Submit duct fabrication drawings, drawn to scale not smaller than 1/4 inch equals 1 foot, on drawing sheets same size as Contract Documents, indicating:
   1. Fabrication, assembly, and installation details, including plans, elevations, sections, details of components, and attachments to other work.
   2. Duct layout, indicating pressure classifications and sizes in plan view. For exhaust duct systems, indicate classification of materials handled as defined in this section.
   3. Fittings.
   4. Reinforcing details and spacing.
   5. Seam and joint construction details.
   6. Penetrations through fire rated and other walls.
   7. Terminal unit, coil, and humidifier installations.
   8. Hangers and supports, including methods for building attachment, vibration isolation, and duct attachment.

B. Product Data: Submit data for duct materials, duct liner, duct connectors.

C. Test Reports: Indicate pressure tests performed. Include date, section tested, test pressure, and leakage rate, following SMACNA HVAC Air Duct Leakage Test Manual.

1.6 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of ducts and duct fittings. Record changes in fitting location and type. Show additional fittings used.

1.7 QUALITY ASSURANCE

A. Perform Work in accordance with SMACNA - HVAC Duct Construction Standards - Metal and flexible.

B. Construct ductwork to NFPA 90A, NFPA 90B and NFPA 96 standards as applicable.

1.8 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.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Do not install duct sealant when temperatures are less than those recommended by sealant manufacturers.

B. Maintain temperatures during and after installation of duct sealant.

1.10 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

PART 2 PRODUCTS

2.1 DUCT MATERIALS

A. Galvanized Steel Ducts: ASTM A653/A653M galvanized steel sheet, lock-forming quality, having G90 (zinc coating of in conformance with ASTM A90/A90M.

B. Steel Ducts: ASTM A1008/A1008M, with oiled, matte finish for exposed ducts.

C. Aluminum Ducts: ASTM B209; aluminum sheet, alloy 3003-H14. Aluminum Connectors and Bar Stock: Alloy 6061-T6 or of equivalent strength. Mill finish for concealed ducts, and standard, one-side bright finish for duct surfaces exposed to view.

D. Stainless Steel Ducts: ASTM A480/A480M, Type 316 Exposed surface finish shall be No. 2B, No. 2D, No. 3, or No. 4 as indicated in the "Duct Schedule" Article

E. Fasteners: Rivets, bolts, or sheet metal screws.

F. Hanger Rod: ASTM A36/A36M; steel, galvanized; threaded both ends, threaded one end, or continuously threaded.

2.2 DUCT LINER

A. Fibrous-Glass Duct Liner
   1. Manufacturers:
      a. CertainTeed Corporation; Insulation Group.
      b. Johns Manville.
      c. Knauf Insulation.
      d. Owens Corning.
   2. Comply with ASTM C 1071, NFPA 90A, or NFPA 90B; and with NAIMA AH124, "Fibrous Glass Duct Liner Standard."
   3. Antimicrobial Erosion-Resistant Coating: Apply to the surface of the liner that will form the interior surface of the duct to act as a moisture repellent and erosion-resistant coating. Antimicrobial compound shall be tested for efficacy by an NRTL and registered by the EPA for use in HVAC systems.
   4. Water-Based Liner Adhesive: Comply with NFPA 90A or NFPA 90B and with ASTM C 916.
      a. For indoor applications, adhesive shall have a VOC content of 80 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Flexible Elastomeric Duct Liner:
   1. Manufacturers:
      a. Aeroflex USA Inc.
      b. Armacell LLC
      c. K-Flex
   2. Description: Elastomeric foam duct liner, integral EPA registered antimicrobial agent, complying with NFPA 90A or NFPA 90B.
   3. Thermal Conductivity: 0.27 Btu x in./h x sq. ft. x deg F at 75 deg F mean temperature.
   4. Surface-Burning Characteristics: Maximum flame-spread index of 25 and maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.
   5. Liner Adhesive: As recommended by insulation manufacturer and complying with NFPA 90A or NFPA 90B.
      a. For indoor applications, adhesive shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.3 NON-INSULATED FLEXIBLE DUCTS

A. Manufacturers:
   1. Thermaflex Technaflex
   2. Tuttle + Bailey
   3. Flexmaster

B. Product Description: UL 181, Class 1, aluminum laminate and polyester film with latex adhesive supported by helical-wound spring steel wire.
   1. Pressure Rating: 10 inches wg positive and 1.0 inches wg negative.
   2. Maximum Velocity: 4000 fpm.
   3. Temperature Range: -20 degrees F to 210 degrees F.

2.4 INSULATED FLEXIBLE DUCTS

A. Manufacturers:
   1. Thermaflex
   2. Technaflex
   3. Tuttle + Bailey
   4. Flexmaster

B. Product Description: UL 181, Class 1, aluminum laminate and polyester film with latex adhesive supported by helical wound spring steel wire; fiberglass insulation; polyethylene or aluminized vapor barrier film.
   1. Pressure Rating: 10 inches wg positive and 1.0 inches wg negative.
   2. Maximum Velocity: 4000 fpm.
   3. Temperature Range: -20 degrees F to 210 degrees F.
   4. Thermal Resistance: 6square feet-hour-degree F per BTU.
   5. Vapor Barrier Permeance: 0.05 perm per ASRM E96, Procedure A

2.5 SEALANTS AND GASKETS

A. General Sealant and Gasket Requirements: Surface-burning characteristics for sealants and gaskets shall be a maximum flame-spread index of 25 and a maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.

B. Water-Based Joint and Seam Sealant:
1. General: Brush-on, water-resistant, mold and mildew resistant, indoor and outdoor use, compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum sheets.
2. Solids Content: Minimum 65 percent.
3. Shore A Hardness: Minimum 20.
4. VOC: Maximum 75 g/L (less water).
5. Maximum Static-Pressure Class: 10-inch wg, positive and negative.

C. Flanged Joint Sealant: Comply with ASTM C 920.
1. General: Single-component, acid-curing, silicone, elastomeric.
2. For indoor applications, sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

D. Flange Gaskets: Butyl rubber, neoprene, or EPDM polymer with polyisobutylene plasticizer.

E. Round Duct Joint O-Ring Seals:
1. Seal shall provide maximum leakage class of3 cfm/100 sq. ft. at 1-inch wg and shall be rated for10-inch wg static-pressure class, positive or negative.

2.6 SINGLE WALL SPIRAL ROUND DUCTS

A. Manufacturers include, but are not limited to:
1. McGill AirFlow Corporation
2. Semco Incorporated
3. Tangent Air Corp
4. Spiral Mfg. Co., Inc.

B. Product Description: UL 181, Class 1, round spiral lockseam duct constructed of galvanized steel.

C. Construct ducts and fittings gauge per the latest edition of SMACNA.

2.7 DOUBLE WALL SPIRAL INSULATED ROUND DUCTS

A. Manufacturers include, but are not limited to:
1. McGill AirFlow Corporation
2. Semco Incorporated

3. Tangent Air Corp
4. Spiral Mfg. Co., Inc.

B. Product Description: Machine made from round spiral lock seam duct with light reinforcing corrugations, galvanized steel outer wall, 2 inch thick glass fiber insulation, perforated galvanized steel inner wall; fittings manufactured with perforated inner wall.

C. Construct round duct with the following minimum gages:

Diameter	Gauge
3 inches to 14 inches	26
15 inches to 26 inches	24
28 inches to 36 inches	22
38 inches to 50 inches	20
52 inches to 84 inches	18

D. Construct round fittings with the following minimum gages:

Diameter	Gauge
3 inches to 14 inches	24
15 inches to 26 inches	22
28 inches to 36 inches	20
38 inches to 50 inches	20
52 inches to 60 inches	18
62 inches to 84 inches	16

2.8 TRANSVERSE DUCT CONNECTION SYSTEM

A. Manufacturers:
1. United McGill
2. Semco
3. ACME
4. Nufab

B. Product Description: [SMACNA "E" rated] [SMACNA "F" rated] [or] [SMACNA "J" rated] rigidity class connection, interlocking angle and duct edge connection system with sealant, gasket, cleats, and corner clips.

2.9 DUCTWORK FABRICATION

A. Fabricate and support rectangular ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible . Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

B. Fabricate and support round ducts with longitudinal seams in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible (Round Duct Construction Standards). Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

C. TDC connections on all ductwork where any dimension exceeds 12 inches. Slip and drive connection acceptable on duct sizes less than 12" x 12".

D. Construct T's, bends, and elbows with minimum radius 1-1/2 times centerline duct width. Where not possible and where rectangular elbows are used, provide [airfoil] turning vanes. Where acoustical lining is indicated, furnish turning vanes of perforated metal with glass fiber insulation.

E. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.

F. Fabricate continuously welded round and oval duct fittings two gages heavier than duct gages indicated in SMACNA Standard. Minimum 4 inch cemented slip joint, brazed or electric welded. Prime coat welded joints.

G. Provide standard 45-degree lateral wye takeoffs. When space does not allow 45-degree lateral wye takeoff, use 90-degree conical tee connections.

H. Seal joints between duct sections and duct seams with welds, gaskets, mastic adhesives, mastic plus embedded fabric systems.
   1. Sealants, Mastics: Conform to UL 181A. Provide products bearing appropriate UL 181A markings.
   2. Do not provide sealing products not bearing UL approval markings.

2.10 KITCHEN HOOD EXHAUST DUCTWORK FABRICATION

A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible and NFPA 96.

B. Exposed Kitchen Hood Exhaust Ducts: Construct of stainless steel ASTM A240/A240M OR ASTM 666, type 316using continuous external welded joints.

C. Concealed Kitchen Hood Exhaust Ducts: Construct of 16 gage carbon steel or 18 gage stainless steel ASTM ASTM A240/A240M OR ASTM 666, type 316 using continuous external welded joints.

D. Grease Duct: Provide factory built commercial grease ducts labeled and listed in accordance with UL 1978.

2.11 FABRIC DUCTWORK

A. Manufacturers:
1. FabricAir Combi-70
2. DuctSox
3. KE Fibertec
4. No Substitutions Acceptable.

B. Product Description: Non-metal ductwork as indicated on drawings and by requirements of this section.

C. Colors: The colors of the fabric duct shall be as follows:
1. Colors Gymnasium B – 3001 Blue
2. Gymnasium E – 3001 Blue
3. Multipurpose Room D103 – 3003 Dark Gray
4. Corridor D201 - 3002 Orange
5. Cafeteria A104 – 3002 Orange

D. Fabric is a woven fire retardant and permeable fabric complying with the following characteristics:
1. Fabric: 100% Flame Retardant Polyester
2. Weight: 8.5 oz./yd² per ASTM D3776
3. Shrinkage: Max. 0,5% per DIN EN 26 630
4. Color: By Architect
5. Temperature Range: -40°F to +284°F
6. Permeability: 2 (+/- 5%) per ASTM D737, Frazier – calandering of fabric NOT accepted
7. Fire Retardancy: Must meet the requirements in NFPA 90-A, ICC AC-167 and UL2518

E. SYSTEMS FABRICATION REQUIREMENTS
1. Fabric duct installed 20 feet or more above finished floor shall have the “Oriflow” dispersion option with rows of 1” diameter holes at 4 o’clock and 8 o’clock positions.
2. Fabric Duct installed in the 8 to 12 foot above finished floor range shall have the “microflow” dispersion option.
3. Color of nozzles must match color of fabric.
4. Location and number of nozzles to be specified and approved by manufacturer.
5. The system is made of permeable fabric. Permeability of fabric must be reached based on weave construction only and weave must have gone through thermo fixation in order to secure same permeability after wash. Fabric with permeability obtained based on calandering is not accepted.
6. Provide system in sections optimized for maintenance, connected by zippers. Zippers must provide closure completely around the circumference to prevent leakage. Required number of zippers as specified by manufacturer.
7. Each section to have a unique tag including information about: manufacturers order number, position, diameter of section, length of section, maintenance instruction, code compliance and contact details for spare parts.

8. Fabric system shall include connectors to attach to suspension system listed below.

F. DESIGN PARAMETERS
1. Use fabric air diffusers only for positive pressure air distribution.
2. Do not use fabric air diffusers in concealed locations.
3. Fabric diffusers shall be designed from minimum 0.25" water gage to 3" as the maximum – 0.5" being the standard.
4. Design temperatures between –40°F and 284°F
5. Manufacturer shall approve all technical design parameters.

G. HANGERS AND SUPPORT
1. Provide all hangers and support for complete system. All hangers shall be by ductwork manufacturer. Provide all hangers so when ductwork is unpressurized ductwork will not lose shape.

2.12 DUST COLLECTION EXHAUST DUCT AND FITTINGS

A. Manufacturers:
1. Nordfab Ducting, LLC; Quick Fit (QF)
2. Duct Inc.
3. Easy Duct.
4. KB Duct.
5. Substitutions: Division 1 - Product Requirements.

B. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Ch. 3, "Round, Oval, and Flexible Duct," based on indicated static-pressure class unless otherwise indicated.

C. Construct T's, bends, and elbows with minimum radius 1-1/2 times centerline duct width.

D. Connection Joints: Joint types are fabricated in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

E. Clamped joints in Ducts 3 to 24 inches in diameter. Clamps shall be stainless steel with O-ring gasket.

F. Flanged Joints in All Ducts Greater than 24 inches in diameter.

G. Longitudinal Seams: Seam types are fabricated in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-2, "Round Duct Longitudinal Seams," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
1. Fabricated round ducts 3 to 24 inches (76 to 510 mm) in diameter to have laser-welded or plasma-welded longitudinal seams.

2. Fabricated round ducts above 24 inches (610 mm) in diameter to have plasma-welded longitudinal seams.

H. Elbows: Fabricated in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-4, "Round Duct Elbows," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

I. Tees and Laterals: Fabricated in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-5, "90 Degree Tees and Laterals," and Figure 3-6, "Conical Tees," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

J. Construct ducts of galvanized sheet steel unless otherwise indicated.

K. Manufacturer's accessories shall include blast gates, floor sweeps, end caps, flexible hose (maximum 36" long sections for connections to wood machines) and hangers.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify sizes of equipment connections before fabricating transitions.

3.2 INSTALLATION

A. General:
1. Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for air-handling equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved on Shop Drawings and Coordination Drawings.
2. Install and seal ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible.
3. During construction, install temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.
4. Use crimp joints with or without bead or beaded sleeve couplings for joining round duct sizes 8inch and smaller.
5. Install duct hangers and supports in accordance with Section 23 05 29.
6. Use double nuts and lock washers on threaded rod supports.
7. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.
8. Install ducts with a clearance of 1 inch (25 mm), plus allowance for insulation thickness.

9. Do not route ducts through transformer vaults or electrical equipment rooms and enclosures.
10. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches (38 mm).
11. Where ducts pass through fire-rated interior partitions and exterior walls, install fire dampers. Comply with requirements in Division 23, Air Duct Accessories for fire and smoke dampers.

B. Flexible ductwork
1. When located above ceilings, support flexible duct from above; flexible duct shall not touch the ceiling.
2. Minimize kinks and sags
3. Flexible duct shall be located only where concealed and accessible.
4. Non-insulated flexible ductwork: Provide when the metal ductwork connected to is not insulated.
5. Insulated flexible ductwork: Provide when the metal ductwork connected to is insulated. R-value of flexible ductwork insulation shall meet or exceed the R-value of the metal ductwork insulation.
6. Elbow supports: Provide above flexible ductwork connections to ceiling diffusers. Use cable ties as indicated in the manufacturer's installation instructions.
7. Connections to rigid ductwork: Provide both a drawband and two layers of duct tape lapped approximately 25% at each connection of flexible ductwork to rigid ductwork. Drawbands shall be the non-metallic type listed and labeled in accordance with UL 181B. Duct tape shall be listed and labeled in accordance with UL 181B.

C. Kitchen Hood Exhaust Ducts
1. Install kitchen range hoods in accordance with NFPA 96. Refer to Section 11 40 00.
2. Install residue traps in kitchen hood exhaust ducts at base of vertical risers with provisions for clean out.
3. Kitchen hood exhaust ducts: Use stainless steel for ductwork exposed to view and stainless steel or carbon steel where ducts are concealed.

D. For outdoor ductwork, protect ductwork, ductwork supports, linings and coverings from weather.

3.3 DUCT SEALING

A. Duct Seal Level Description

Seal Level	Sealing Requirements*
A	All transverse joints, longitudinal seams, and duct wall penetrations. Pressure sensitive tape shall not be used as the primary sealant, unless it has been certified to comply with UL-181A or UL0181B by an independent testing laboratory and the tape is used in accordance with that certification
B	All transverse joints, longitudinal seams. Pressure sensitive tape shall not be used as the primary sealant, unless it has been certified to comply with UL-181A or UL0181B by an independent testing laboratory and the tape is used in accordance with that certification.
C	Transverse joints only.
Notes: Longitudinal seams are joints oriented in the direction of flow. Transverse joints are connections of two duct sections oriented perpendicular to airflow. Duct wall penetrations are openings made by any screw fastener, pipe, rod, or wire. Spiral lock seams in a round or flat oval duct need not be sealed. All other connections are considered transverse joints, including but not limited to spin-ins, taps, and other branch connections, access door frames and jambs, duct connections to equipment, etc.	

B. Minimum Duct Seal Levels

Duct Type				
Duct Location	Supply		Exhaust	Return
	2-in. or less (1)	Greater than 2-in. (1)		
Outdoor	A	A	C	A
Unconditioned Space (2)	B	A	C	B
Conditioned Space	C	B	B	C
Notes: Duct design static pressure classification Includes indirectly conditioned spaces such as return air plenums				

3.4 INTERFACE WITH OTHER PRODUCTS

A. Install openings in ductwork where required to accommodate thermometers and controllers. Install pitot tube openings for testing of systems. Install pitot tube complete

with metal can with spring device or screw to prevent air leakage. Where openings are provided in insulated ductwork, install insulation material inside metal ring.

B. Connect air terminal units to supply ducts directly or with five foot maximum length of flexible duct. Do not use flexible duct to change direction.

3.5 CONCEALED GREASE DUCT TESTING

A. Prior to concealing, wrapping, or insulating grease ductwork, or placing grease duct in service, perform leakage test in accordance with ICC IMC, in presence of authority having jurisdiction.

B. Perform light test by pulling minimum 100 W light through duct and observing for light leaks at duct joints.

C. Test complete extent of duct installed, including joint at which duct connects to exhaust hood.

3.6 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.

B. Duct cleaning is required if test sections of metal duct system, chosen randomly by Owner, for cleanliness according to "Vacuum Test" in NADCA ACR, "Assessment, Cleaning and Restoration of HVAC Systems." do not meet the following criteria:
   1. Cleanliness Level: Net weight of debris collected on the filter media shall not exceed 0.75 mg/100 sq. cm.

C. Clean duct system and force air at high velocity through duct to remove accumulated dust. To obtain sufficient air flow, clean one half of system completely before proceeding to other half. Protect equipment with potential to be harmed by excessive dirt with temporary filters, or bypass during cleaning.

D. Clean duct systems with high power vacuum machines. Protect equipment with potential to be harmed by excessive dirt with filters, or bypass during cleaning. Install access openings into ductwork for cleaning purposes.

3.7 DUCTWORK LEAKAGE TESTING

A. The following ductwork systems shall be pressure/leakage tested:
   1. All ductwork to be concealed in a sheetrock, concrete block or other permanent chase shall be pressure tested before ductwork is concealed.

2. 2012 IECC REQUIREMENTS
   a. All ductwork systems listed below that are constructed and installed for 3" w.c. or more (positive or negative).
3. For ductwork leakage testing: "Ductwork main" shall be defined as all ductwork serving more than one grille or diffuser.
4. All ductwork outside of the building insulation envelope shall be pressure tested.

B. Testing shall conform to the following:
1. Test static pressure must be the lower of 125% of the external static pressure of the air moving equipment or the construction static pressure class of the ductwork.
2. Test in accordance with SMACNA HVAC Air Duct Leakage Test Manual. Maximum Allowable Leakage shall be in accordance with Duct Pressure Class rating listed below and Leakage Class listed here-in.
3. For Ductwork Pressure Class 3" w.c: Leakage Class shall be 8.
4. For Ductwork Pressure Class 2" w.c or less: Leakage Class shall be 16.
5. Testing shall occur after ductwork has been cleaned, but before duct insulation is applied or ductwork is concealed.

C. Duct Leakage Test Report shall include:
1. Date of test.
2. Name of company and person conducting the test.
3. Name of company and person witnessing the test.
4. Description of ductwork tested. Provide drawings to indicate section of ductwork being tested. Labeling on the drawings shall correspond to labeling in the report.
5. Surface area (square feet) of section of ductwork being tested.
6. Duct design operating pressure (inches w.c.)
7. P = Duct design test static pressure (inches w.c.)
8. Duct capacity, air flow
9. CL= Specified Leakage Class.
10. F = Leakage factor (CFM / 100 sf of duct area)
11. Maximum allowable leakage (CFM)
12. Test apparatus
    a. Blower
    b. Orifice tube size
    c. Orifice size
    d. Calibrated
13. Test orifice differential pressure (inches w.c.)

3.8 SCHEDULES

A. Ductwork Material Schedule:

AIR SYSTEM	MATERIAL
Supply (Heating Systems)	Galvanized Steel, Aluminum,
Supply (System with Cooling Coils)	Galvanized Steel, Aluminum,
Buried Supply or Return	Pre-engineered HDPE system, Fiber Reinforced Plastic
Return and Relief	Galvanized Steel, Aluminum
General Exhaust	Galvanized Steel, Aluminum
Kitchen Hood Exhaust	Steel, Stainless Steel
Dishwasher Exhaust	Stainless Steel, Aluminum
Fume Hood Exhaust	Stainless Steel
Outside Air Intake	Galvanized Steel
Combustion Air	Galvanized Steel
Emergency Generation Ventilation	Galvanized Steel

B. Ductwork Pressure Class Schedule:

AIR SYSTEM	PRESSURE CLASS
Supply Ductwork (upstream of VAV boxes terminal units and/or final balancing damper)	3 inch wg
Supply Ductwork (downstream of VAV boxes and terminal units)	1 inch wg regardless of velocity.
Return and Relief	2 inch wg regardless of velocity.
General Exhaust	1 inch wg regardless of velocity.
Dishwasher Exhaust	2 inch wg
Fume Hood Exhaust	2 inch wg
All Others Not Identified	1.5x maximum anticipated system pressure

C. Ductwork Liner Schedule:

AIR SYSTEM	THICKNESS
10 ft downstream of VAV box	1 inch
10 ft upstream / downstream of fan coil unit	1 inch
First 10 ft of supply and return/ exhaust from AHU/ERV/DOAS	1 inch
Transfer air ducts	1 inch

END OF SECTION

SECTION 23 3400 - HVAC FANS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Cabinet exhaust fans.

B. Ceiling exhaust fans.

C. Downblast roof exhausters

D. Inline centrifugal fans

E. Kitchen hood upblast roof exhausters.

F. Motors and drives.

G. Fan accessories.

H. HVLS (High Volume Low Speed) Fans

I. Dryer Booster Fans

J. Dust collectors

K. Air Filtration Unit

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. Section 23 0548 - Vibration and Seismic Controls for HVAC Piping and Equipment.

C. Section 23 0700 - HVAC Insulation.

D. Section 23 3300 - Air Duct Accessories: Dampers.

E. Section 26 0503 - Equipment Wiring Connections.

F. REFERENCE STANDARDS (follow the most currently adopted amended version)ABMA STD 9 - Load Ratings and Fatigue Life for Ball Bearings.

G. ABMA STD 11 - Load Ratings and Fatigue Life for Roller Bearings.

H. AMCA (DIR) - (Directory of) Products Licensed Under AMCA International Certified Ratings Program.

I. AMCA 99 - Standards Handbook.

J. AMCA 210 - Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating.

K. AMCA 300 - Reverberant Room Method for Sound Testing of Fans.

L. AMCA 301 - Methods for Calculating Fan Sound Ratings from Laboratory Test Data;.

M. NEMA MG 1 - Motors and Generators.

N. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible.

O. UL-705 – Standard for Safety for Power Ventilators

1.3 SUBMITTALS

A. Product Data: Provide data on centrifugal fans and accessories including fan curves with specified operating point clearly plotted, power, RPM, sound power levels for both fan inlet and outlet at rated capacity, and electrical characteristics and connection requirements.

B. Shop Drawings: Indicate assembly of centrifugal fans and accessories including fan curves with specified operating point clearly plotted, sound power levels for both fan inlet and outlet at rated capacity, and electrical characteristics and connection requirements.

C. Manufacturer's Instructions: Include complete installation instructions.

D. Maintenance Data: Include instructions for lubrication, motor and drive replacement, spare parts list, and wiring diagrams.

E. Maintenance Materials: Furnish for Owner's use in maintenance of project.

F. Extra Materials:
1. Fan Belts: One set for each individual fan.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect motors, shafts, and bearings from weather and construction dust.

1.6 FIELD CONDITIONS

A. Permanent fans may not be used for ventilation during construction.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. The following list of manufacturers applies to all fans unless otherwise noted in sections below.
   1. Greenheck Fan Corporation
   2. Loren Cook Company
   3. PennBarry
   4. Twin City Fan & Blower

2.2 STARTERS, DRIVES & DISCONNECTS

A. Provide starters and disconnect switches for fans not scheduled to be controlled by a variable speed controller..

B. Provide belt or direct drive fans as indicated on project schedules. Where belt drives are indicated provide the following:
   1. Belts, pulleys, and keys oversized for a minimum of 150 percent of driven horsepower.
   2. Belts: Static free and oil resistant.
   3. Fully machined cast iron type, keyed and securely attached to the wheel and motor shafts.
   4. Motor pulley adjustable for final system balancing.
   5. Readily accessible for maintenance.
   6. Sheaves: For V-belt drives, provide cast iron or steel, dynamically balanced, bored to fit shafts and keyed; variable and adjustable pitch motor sheaves selected so required rpm is obtained with sheaves set at mid-position; fan shaft with self-aligning pre-lubricated ball bearings.

C. Disconnect Switches:
   1. Factory mounted and wired.
   2. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
      a. Indoor Clean, Dry Locations: Type 1.
      b. Outdoor Locations: Type 3R.
   3. Finish for Painted Steel Enclosures: Provide manufacturer's standard, factory applied gray, unless otherwise indicated.
   4. Positive electrical shutoff.
   5. Wired from fan motor to junction box installed within motor compartment.

2.3 ROOF CURBS

A. Provide roof curbs for roof-mounted fans with bottom duct connections. Provide equipment curbs or rails for roof-mounted fans with side duct connections.

B. Self-flashing of galvanized steel with continuously welded seams, built-in cant strips, insulation and curb bottom, curb bottom, factory installed nailer strip. Provide pitched roof curb for sloped roofs so that the tops of curbs are level and such that the lowest clearances from the tops of the roof curbs to the roofs conform to the height requirements below.

C. Curb Height: 24 inches for intakes and 14 inches for exhausts.

2.4 CABINET AND CEILING EXHAUST FANS

A. Manufacturers, Starters, Drives, Disconnects, and Roof Curbs
   1. Refer to Section 2.1.

B. Centrifugal Fan Unit: V-belt or direct driven with galvanized steel housing lined with acoustic insulation, resilient mounted motor, gravity backdraft damper in discharge.

C. Grille: Molded white plastic.

2.5 DOWNBLAST ROOF EXHAUSTERS

A. Manufacturers, Starters, Drives, Disconnects, and Roof Curbs
   1. Refer to Section 2.1.
      a. Housing:
         1) Construct of heavy gage aluminum including curb cap, windband, and motor compartment.
         2) Rigid internal support structure.
         3) One-piece fabricated or fully welded curb-cap base to windband for leak proof construction.
         4) Construct drive frame assembly of heavy gage steel, mounted on vibration isolators.
         5) Provide breather tube for fresh air motor cooling and wiring.

B. Shafts and Bearings:
   1. Fan Shaft:
      a. Ground and polished steel with anti-corrosive coating.
      b. First critical speed at least 25 percent over maximum cataloged operating speed.
   2. Bearings:
      a. Permanently sealed or pillow block type.
      b. Minimum L10 life in excess of 100,000 hours (equivalent to L50 average life of 500,000 hours), at maximum cataloged operating speed.
      c. 100 percent factory tested.

C. Accessories:
   1. Automatic Belt Tensioner: Automatic device that adjusts for correct belt tension.

1. Birdscreen: Provide galvanized steel construction.
2. Dampers: Provide motorized type.
3. Finishes: Factory primed.
4. Hinge Kit:
   a. Aluminum hinges.
   b. Hinges and restraint cables mounted to base.
5. Tie-down Points: Four brackets located on windband secures fan in heavy wind applications.
6. External motor speed controllers for field mounting.

2.6 INLINE CENTRIFUGAL FANS

A. Manufacturers, Starters, Drives, Disconnects, and Roof Curbs
   1. Refer to Section 2.1.

B. Centrifugal Fan Unit: V-belt or direct driven with galvanized steel housing lined with acoustic insulation, resilient mounted motor, gravity backdraft damper in discharge.

2.7 KITCHEN HOOD UPBLAST ROOF EXHAUSTERS

A. Manufacturers, Starters, Drives, Disconnects, and Roof Curbs
   1. Refer to Section 2.1.

B. Belt Drive Fan:
   1. Fan Wheel:
      a. Type: Non-overloading, backward inclined centrifugal.
      b. Material: Aluminum.
      c. Statically and dynamically balanced.
   2. Motors:
      a. Open drip-proof (ODP).
      b. Heavy duty ball bearing type.
      c. Mount on vibration isolators or resilient cradle mounts, out of air stream.
      d. Fully accessible for maintenance.
   3. Housing:
      a. Construct of heavy gage aluminum including curb cap, windband, and motor compartment.
      b. Rigid internal support structure.
      c. One-piece fabricated or fully welded curb-cap base to windband for leak proof construction.
      d. Construct drive frame assembly of heavy gage steel, mounted on vibration isolators.
      e. Provide breather tube for fresh air motor cooling and wiring.

C. Shafts and Bearings:
   1. Fan Shaft:
      a. Ground and polished steel with anti-corrosive coating.
      b. First critical speed at least 25 percent over maximum cataloged operating speed.
   2. Bearings:

a. Permanently sealed or pillow block type.
b. Minimum L10 life in excess of 100,000 hours (equivalent to L50 average life of 500,000 hours), at maximum cataloged operating speed.
c. 100 percent factory tested.

D. Drain Trough: Allows for single-point drainage of water, grease, and other residues.

E. Accessories:
1. Automatic Belt Tensioner: Automatic device that adjusts for correct belt tension for single drives.
2. Clean Out Port: Removable grease repellent compression rubber plug allows access for cleaning wheel through wind band.
3. Roof Curb Extension: Vented curb extension where required for compliance with minimum clearances required by NFPA 96.
4. Dampers: Provide motorized type.
5. Drain Connection:
   a. Aluminum construction.
   b. Allows single-point drainage of grease, water, or other residues.
6. Finishes: Factory primed.
7. Grease Trap:
   a. Aluminum.
   b. Includes drain connection.
   c. Collects grease residue.
8. Hinge Kit:
   a. Aluminum hinges.
   b. Hinges and restraint cables mounted to base (sleeve).
   c. Allows fan to tilt away for access to wheel and ductwork for inspection and cleaning.
9. Heat Baffle: Prevents heat from radiating into motor compartment.
10. Tie-down Points: Four brackets located on wind band secures fan in heavy wind applications.
11. External motor speed controllers for field mounting.
12. UL-762 Rating.

2.8 HVLS (HIGH VOLUME LOW SPEED) FANS

A. Manufacturers:
1. Hunter Industrial
2. MacroAir Fans
3. Big Ass Fans
4. Substitutions: Section 01 60 00 - Product Requirements.

B. Fans shall be supported from structure, direct drive permanent split capacitor type; with rolled edge design fan blade set.

C. Provide with accessories as shown on plans.

D. Provide with (1) wall mounted controller to control (4) fans. Furnish and install control panel with Bacnet card and fire alarm relay.

E. Color selected by architect.

2.9 DRYER BOOSTER INLINE FANS

A. Manufacturers:
1. Fantech
2. Enervex
3. US Draft

B. Fan: Inline fan with galvanized steel housing and baked powder-coat finish. Backward inclined blades of the motorized impeller allow lint to pass through the fan. Fan shall be UL 705.

C. Pressure Switch: pressure switch automatically activates the booster fan when dryer comes on. Includes 18" of pressure sensing tubing with mounting grommet.

D. Indicator Panel: Wall-mount, low voltage indicator panel features an LED light that indicates to the owner that the fan is working properly. The indicator panel will alert of problems such as no power, blocked duct, locked motor rotor and low speed conditions. A 50 foot cable is included to connect the indicator panel to the booster fan. Panel shall have Bacnet compatibility for monitoring and alarms.

2.10 DUST COLLECTOR

A. Manufacturers:
1. Sternvent, DKPD Series.
2. American Air Filter Arrestall.
3. Donaldson DFE Series.
4. Substitutions: Section 01 60 00 – Product Requirements.

B. Furnish and install, where shown on plans, a high efficiency filter type dust collector with integral blower sized for design air flow as shown on the schedule.

C. Dust collector shall be self-cleaning fabric type complete with cotton filters, backward inclined blower, motorized shaker, factory wired controller and external discharge silencer. Manufacturer's literature shall state that dust collector and selected filter spacing is designed for the collection of wood dust.

D. Dust collector shall be airtight, all steel construction with sealed seams and gasketed quick opening doors with 1/4 turn knobs. Housing shall be a minimum of 14-ga. mild steel. Unit shall consist of a filter section, with sloped roof to shed rain and a funnel bottom section without slide gates or doors to allow downflow of dust directly into (2) 55-gallon drum assemblies furnished by manufacturer. Inlet, with baffle, shall be centered for even distribution of dust to the drums. Designs with inlet on narrow side shall not be accepted. Include an explosion relief vent, in the dirty section of the filter housing, per NFPA 664.

E. Unit to include a multi-pocket filter modules, which is sewn from 8-ounce cotton sateen fabric designed to deliver in excess of 99.5% efficiency by weight on industrial dusts. The filters shall have closed bottom and open top pockets, for the wood waste to remain on the

outside surfaces of the filter media. Inside of each pocket shall be a rigid insert separator to prevent collapse of filters and loss of the effective filter area. Flat shaker fingers located at the bottom of the filter module shall prevent adjoining pockets from touching one another and blanking off. The filter pocket spacing shall be wide spacing to permit the collected dust to be shaken off the exterior of the filters and recommended by the manufacturer for the collection of wood dust. Total airflow to filter fabric area (air to cloth ratio) shall not exceed 10 CFM per square foot.

1. Filter designs with open bottoms that allow wood waste to enter the inside of the filters will not be accepted, because of the potential for wood waste to bridge and not shake down.
2. Each filter module shall be secured in place by two lever, operated over-center, locking mechanisms to assure a positive seal and allow for easy removal of filters from outside of unit. Designs which require entry into unit (confined space) or require hand tools to remove the filters, for filter maintenance, are not acceptable.

F. Filters will be cleaned automatically after a fifteen second delay following the shutdown of the blower, by the oscillating action delivered by the motorized eccentric driven shaker assembly, which imparts a rapid and strong vibratory force throughout the entire surface of each individual filter pocket to dislodge the dust. Filters that are suspended from bungee cords or rubber bands are not acceptable.

G. Operation of the automatic shaker shall be controlled by a solid state, dual mode timer with adjustable shaker cycle range from 1.8 - 180 seconds. ABB VFD with manual bypass for blower motor, magnetic starter with overload relay for shaker motor and transformer in a NEMA12 control panel for indoor mounting & wiring by contractor. Outdoor NEMA 3R safety disconnect switch shipped loose for field mounting & wiring by contractor. Also included shall be a push button station for remote mounting.

1. Provide BACnet interface control to BMS.

H. The control panel wiring shall be either UL or ETL labeled for compliance with 508A. Control panels not labeled by dust collector manufacturer shall be labeled, in field, by a certified UL or ETL representative, prior to placing equipment in operation.

I. The integral non-sparking AMCA Type C direct drive blower shall be located on the clean air side of the filters, top mounted at the factory and be of the backward inclined design with a dynamically balanced impeller. It shall be driven by 3450 RPM, TEFC motor. The blower shall be tested in accordance with AMCA Standard 210. A factory-supplied cover shall protect the motor cooling fan from ice.

J. Discharge noise from the blower shall be attenuated by an external field supported duct silencer fabricated with 4.75 lb. density inorganic mineral or glass fiber. This media shall be protected from erosion by the air flow through the use of galvanized perforated metal with aerodynamic leading and trailing edges to insure maximum acoustical insertion loss at minimum static pressure drop. Lining of the fan scroll, instead of an external silencer, shall not be accepted.

K. Interior and exterior carbon steel surfaces shall be coated with two-part epoxy primer and exterior painted with two-part urethane enamel. Final color chosen by architect.

2.11 AIR FILTRATION UNIT

A. Manufacturers:
1. Monoxivent 3000 Series
2. Parker Hannifin Dust Hog DA Series
3. Camfil CamCleaner CCH Series
4. Substitutions: Section 01 – Product Requirements.

B. Furnish and install, where shown on plans, an air filtration unit with integral blower sized for design air flow as shown on the schedule.

C. Unit Casing
1. The unit casing shall be fabricated of minimum 20 gauge galvanized steel panels.
2. Unit casing shall be painted. Final color chosen by architect from manufacturers' standard paint chart.
3. The unit casing shall allow for access to the filter media through the front of the unit.

D. Blower:
1. The blower shall be a direct drive, dynamically balanced, forward curved, double width/double inlet (DWDI) or airfoil blade plenum centrifugal type, installed on the clean air side of the filter.
2. The blower shall discharge through a double deflection grille with adjustable blades.

E. Filters:
1. The unit shall include a filter static pressure gauge or indicator to indicate filter dirt loading.
2. The unit shall be equipped with the following filters tested in accordance with ASHRAE 52.2:
   a. MERV 7, Pleated Panel Type Pre-filter
   b. MERV 14, Multi-Pocket Bag Type Primary Filter

F. Electrical:
1. Units shall be furnished with single point power connection.
2. Units shall be furnished with a NEMA 250, Type 1 electrical enclosure.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install fans with resilient mountings and flexible electrical leads. Refer to Section 23 0548.

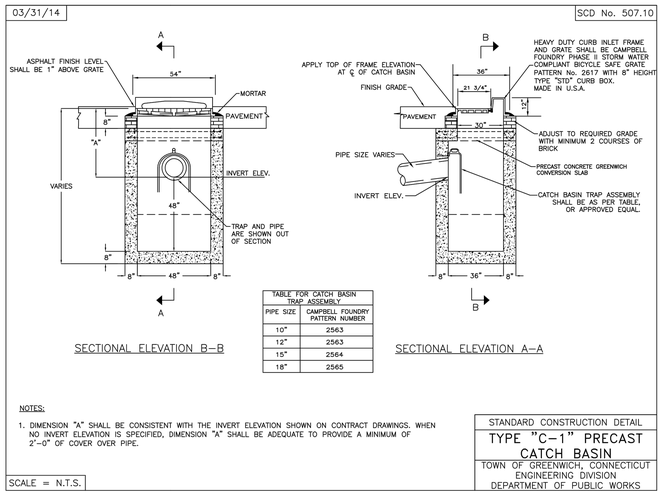
C. Install flexible connections between fan inlet and discharge ductwork; refer to Section 23 0548. Ensure metal bands of connectors are parallel with minimum one inch flex between ductwork and fan while running.

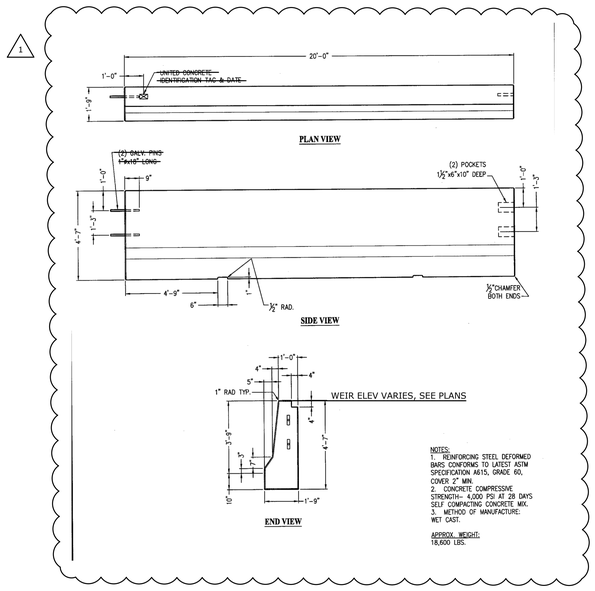
D. Install fan restraining snubbers; refer to Section 23 0548. Adjust snubbers to prevent tension in flexible connectors when fan is operating.

E. Provide safety screen where inlet or outlet is exposed.

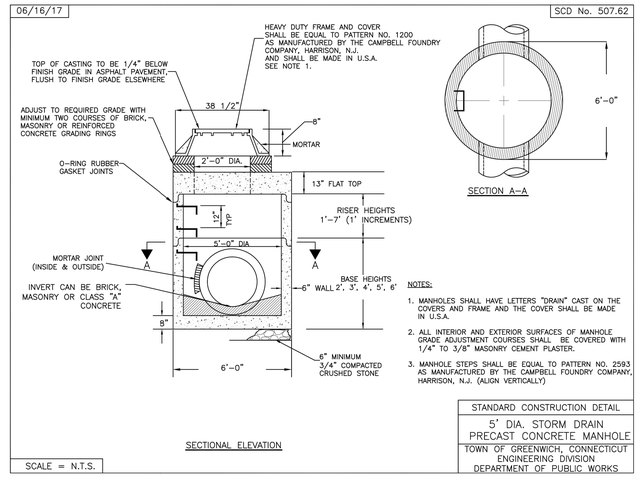
F. Provide motorized dampers on discharge of exhaust fans and as indicated; refer to Section 23 3100.

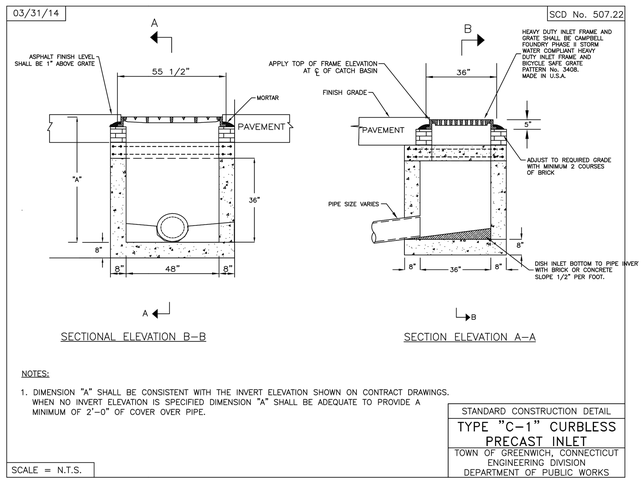
END OF SECTION

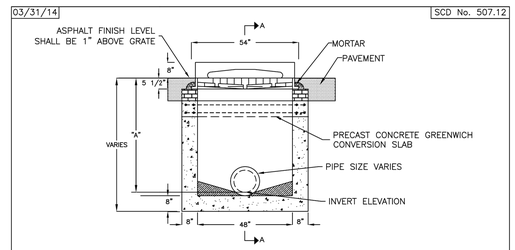


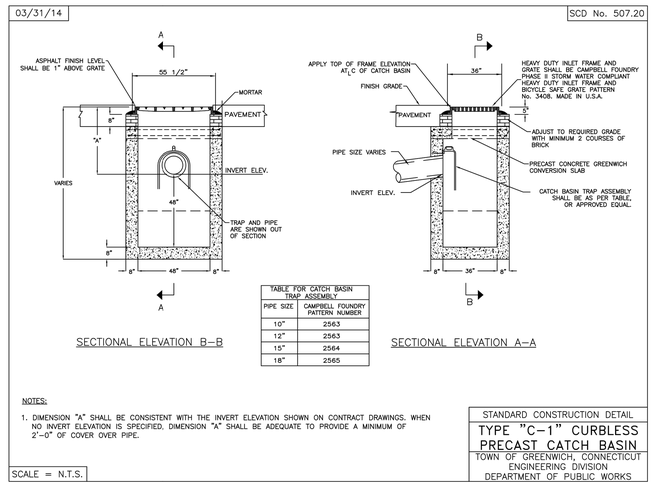


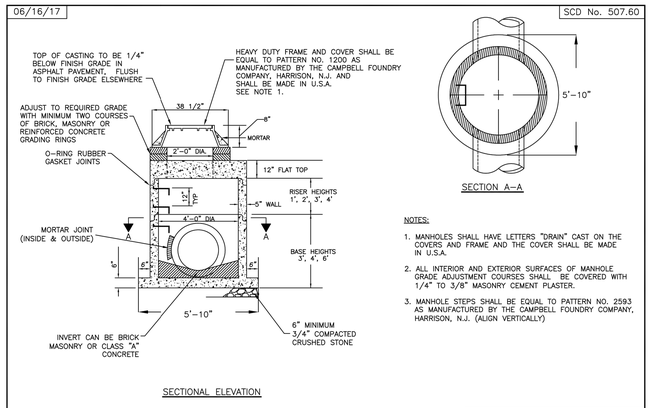
CTDOT TYPE SINGLE-F BARRIER
POROUS ASPHALT WEIR WALL DETAIL
NO SCALE

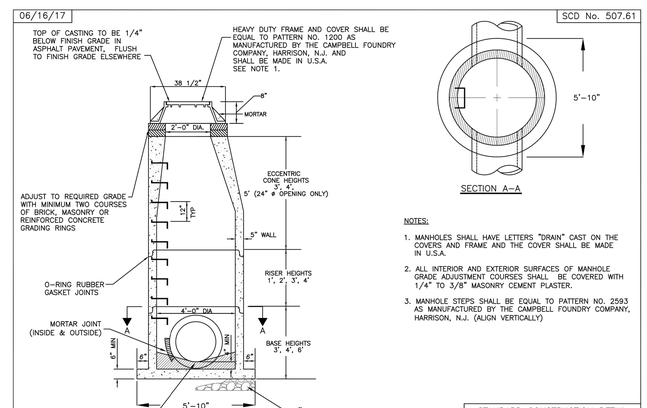












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EG
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APW

Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N

NORTH
EAST
WEST
SOUTH

KEYPLAN

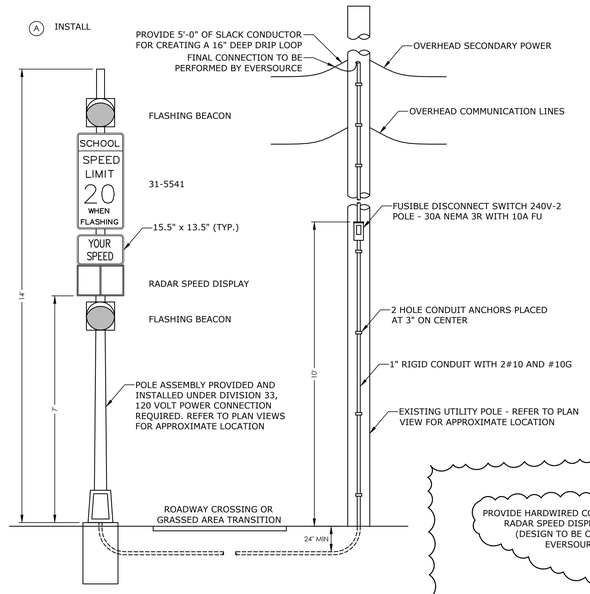
Number	Date	Issued For
1	10/23/2024	ADDENDUM #3
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

SITE STORMWATER MANAGEMENT DETAILS - 1

Date
07/08/2024
Scale
AS SHOWN
Proj. Number
22367.00
Drawing Number
C501

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SIGN LEGEND:

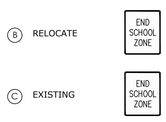


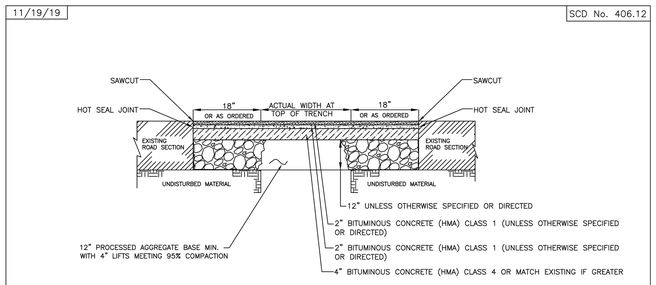
NOTE:

1. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR MATERIAL DIMENSIONS, LAYOUT, AND ASSEMBLY.

RADAR SPEED DISPLAY

NO SCALE



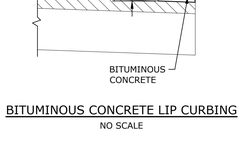


BITUMINOUS CONCRETE (HMA) PAVEMENT RECONSTRUCTION

NOTE:
PAVING WILL BE CURB TO CURB FOR LENGTH OF PROJECT WHEN ROADWAY HAS BEEN PAVED WITHIN THE LAST 5 YEARS OR HAS A PCI VALUE GREATER THAN OR EQUAL TO 80

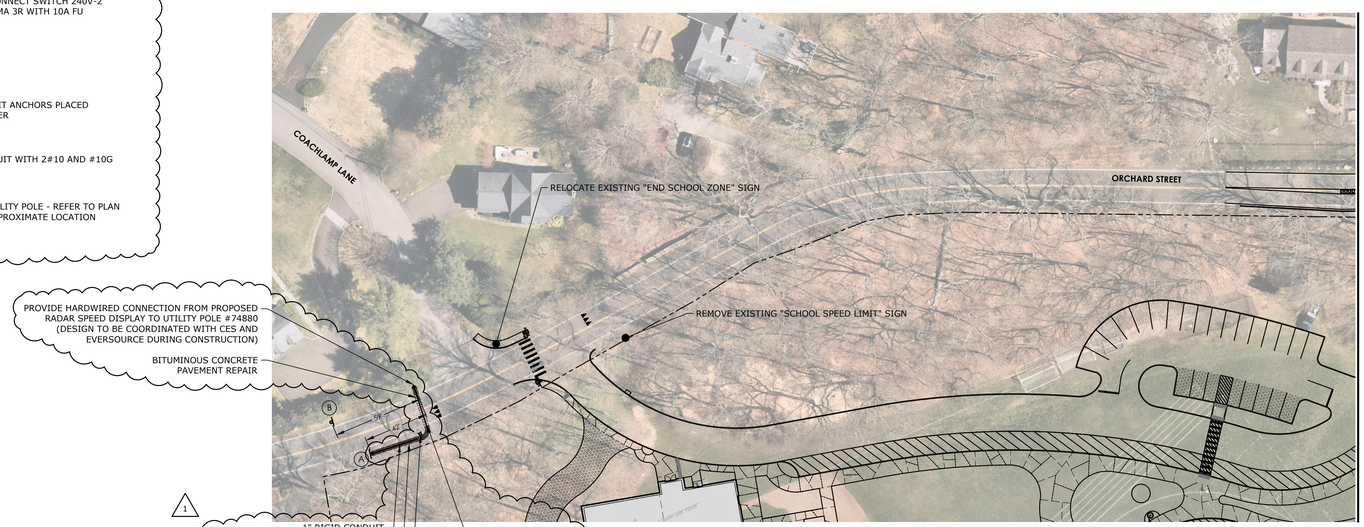
SCALE = N.T.S.

STANDARD CONSTRUCTION DETAIL
BITUMINOUS CONCRETE (HMA) PAVEMENT RECONSTRUCTION
TOWN OF GREENWICH, CONNECTICUT ENGINEERING DIVISION DEPARTMENT OF PUBLIC WORKS



BITUMINOUS CONCRETE LIP CURBING

NO SCALE





LEGEND:

- PROPOSED SIGN
- EXISTING UTILITY POLE

NOTES:

1. ALL SIGNS TO BE INSTALLED 7' ABOVE THE GROUND ON BREAKAWAY POSTS. SIGN PLACEMENT TO BE VERIFIED IN THE FIELD WITH THE ENGINEER AND LOCATED ACCORDING TO TR-1208_01.
2. ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE FOLLOWING CURRENT D.O.T. DOCUMENTS WHICH CAN BE ACCESSED ON THE CTDOT WEBSITE:
   - 2.1. STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION (FORM 818)
   - 2.2. SUPPLEMENTAL SPECIFICATIONS TO FORM 818
   - 2.3. STANDARD INSTALLATION AND GUIDE DETAIL SHEETS

0 40' 80'

SCALE: 1" = 40'

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Drawn TJW
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

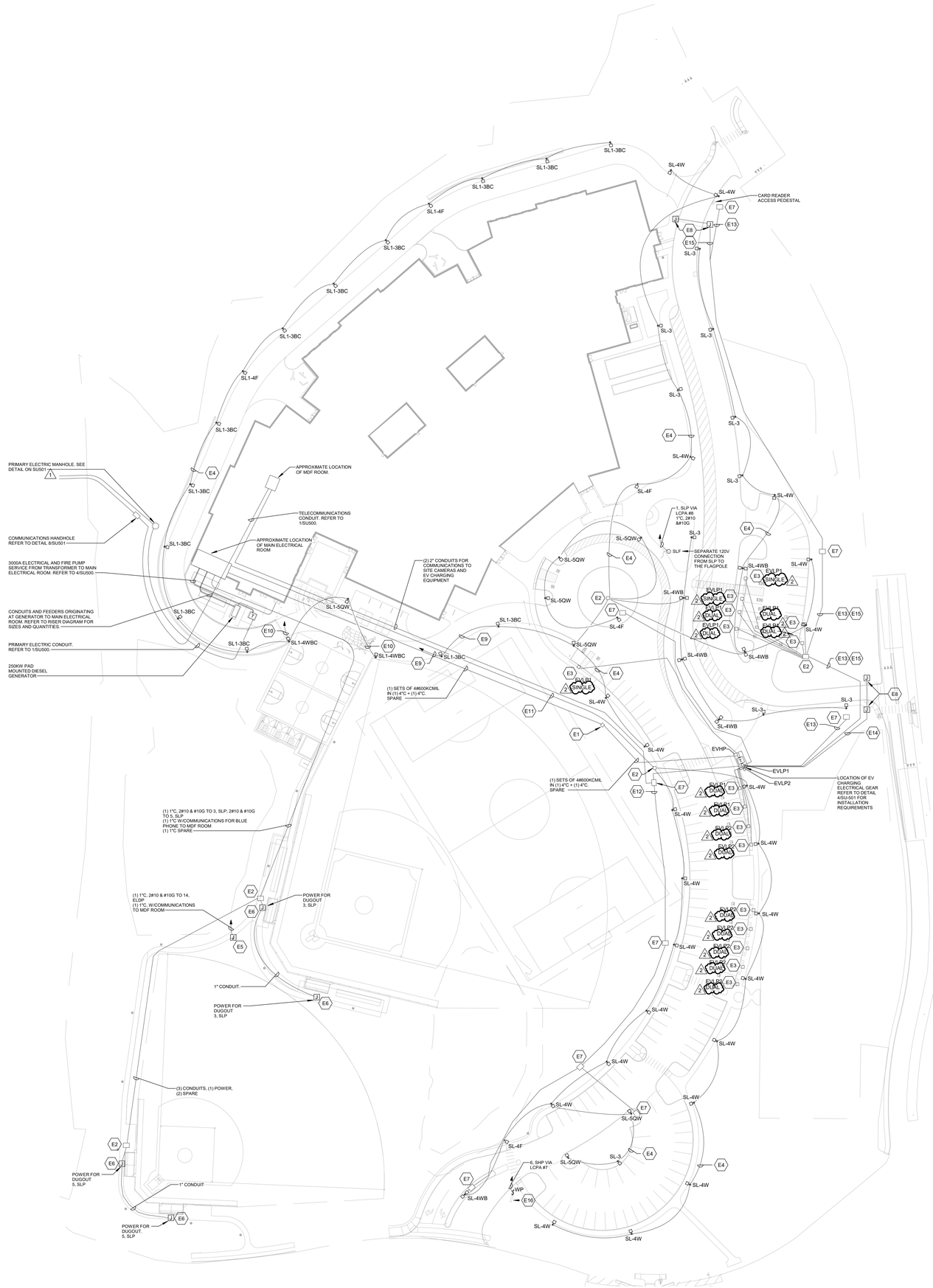
Number	Date	Issued For
1	10/23/2024	ADDENDUM #3
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

SIGNAGE AND PAVEMENT MARKING PLAN

Date 07/08/2024
Scale 1" = 40'
Proj. Number 22367.00

Drawing Number TC202

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1 MEP SITE UTILITY PLAN
1" = 45'-0"

GENERAL SITE ELECTRICAL NOTES

1. REFER TO DRAWING E000 FOR SYMBOLS LIST.
2. COORDINATE SITE LIGHTING LOCATIONS WITH SITE LANDSCAPING PLANS.
3. REFER TO DRAWING SU500 & SU501 FOR SITE ELECTRICAL DETAILS.
4. REFER TO SU501 FOR LIGHT FIXTURE AND SITE POLE SCHEDULES.
5. WHERE UNDERGROUND UTILITIES ARE LIKELY TO BE ENCOUNTERED THE CONTRACTOR SHALL EXCAVATE BY HAND.
6. REFER TO LANDSCAPE & CIVIL SITE PLANS FOR FINAL LOCATIONS OF LIGHTING FIXTURES, FLAGPOLES AND OTHER SITE UTILITIES.
7. WHERE 277V & 120V CIRCUITS OCCUPY THE SAME HANDHOLE/RACEWAY, IDENTIFY NEUTRAL CONDUCTORS PER NEC.
8. PROVIDE CONDUIT PLUGS WITH 1/4" NYLON DRAG LINE ATTACHED IN ALL EMPTY CONDUITS.
9. EXISTING OVERHEAD UTILITIES NOT SHOWN. COORDINATE WITH UTILITY COMPANY AS REQUIRED.

UNDERGROUND UTILITY NOTE

THE CONTRACTOR IS TO BE FULLY RESPONSIBLE FOR CONTACTING THE LOCAL CABLE TELEVISION COMPANY, POWER COMPANY, TELEPHONE COMPANY, GAS COMPANY, WATER AND SEWER COMPANY AND ANY OTHER UTILITY COMPANY WITHIN THE AREA PRIOR TO PROCEEDING WITH ANY EXCAVATION. BY LAW, THE CONTRACTOR IS REQUIRED TO CALL BEFORE DOING ANY EXCAVATION, DIGGING HOLES OR DRIVING POSTS REGARDLESS OF WHETHER IT IS WITHIN THE STREET LINE OR ON PRIVATE PROPERTY. OBTAIN INFORMATION REGARDING THE EXISTENCE AND LOCATION OF ANY UNDERGROUND FACILITIES BY CALLING 811.

WATER PREVENTION MEASURES

1. PITCH ALL UNDERGROUND CONDUITS SUCH THAT THEY ARE ANGLED DOWNWARDS AWAY FROM THE BUILDING. CONDUITS SHALL NOT BE PITCHED DOWNWARDS TOWARD THE BUILDING, ALLOWING GROUND WATER TO ENTER BUILDING.
2. PROVIDE FOAM SEALANT FOR ALL ACTIVE ELECTRIC CONDUITS CONTAINING CONDUCTORS, EQUAL TO POLYWATER FST. LOCATE AT INTERIOR END OF EACH ACTIVE CONDUIT (AT EXTERIOR ENCLOSURE AND WHERE CONDUIT TERMINATES IN BUILDING). FOR SPARE CONDUITS WITHOUT CONDUCTORS, PROVIDE CAP AT EACH END.
3. ALL CONDUITS (ACTIVE AND SPARE) SHALL SWEEP UPWARD A MINIMUM OF 12" ABOVE THE BASE OF HANDHOLES OR OTHER EXTERIOR STRUCTURES.
4. COORDINATE SWEEP AT TRANSFORMER PADS WITH UTILITY COMPANY DETAILS AND STANDARDS.

ELECTRICAL SITE UTILITY KEY NOTES

- E1 FURNISH AND INSTALL A POLYMER CONCRETE HANDHOLE WITH SECURABLE STAMPED COVER IDENTIFYING "ELECTRICAL" THAT IS 36"X36"X24" WITH OPEN BOTTOM
- E2 FURNISH AND INSTALL A POLYMER CONCRETE HANDHOLE WITH SECURABLE STAMPED COVER IDENTIFYING "ELECTRICAL" THAT IS 18"X18"X24" WITH OPEN BOTTOM
- E3 EV CHARGING STATION - SHALL BE SINGLE PEDESTAL MOUNT FOR ADA PARKING SPACES AND DUAL PEDESTAL MOUNT FOR TANDEM CHARGING STATION LOCATIONS. EC SHALL PROVIDE AND INSTALL CHARGEPOINT #CPF25-L23-PD (SINGLE PORT) AND #CPF25-L23-PD-DUAL (DUAL-PORT). REFER TO DETAIL #3 / SU500 FOR THE CONCRETE BASE MOUNTING DETAIL.
- E4 1"C, 4#8 & 8 GND (TYPICAL 277V SITE LIGHTING)
- E5 EMERGENCY BLUE LIGHT COMMUNICATION STATION REFER TO DETAIL 7/SU500 FOR BASE AND MOUNTING DETAIL. PROVIDE AND INSTALL A CODE BLUE CORPORATION #CB-1S SERIES EMERGENCY PHONE TOWER. THE PROVIDED UNIT SHALL HAVE THE FOLLOWING FEATURES: LS2000 FULL DUPLEX SIP COMPATIBLE VOIP PHONE; BEACON/STROBE; SAFETY BLUE;
- E6 PROVIDE GFCI DUPLEX RECEPTACLE WITH IN-USE WEATHERPROOF COVER INSIDE NEMA 4X LOCKABLE ENCLOSURE, EQUAL TO HOFFMAN COMLINE, 12"X12"X6" IN ISZE. MOUNT ON SIDE OF DUGOUT, 42" ABOVE GRADE. PROVIDE 2#10+1#10G, 1"C
- E7 FURNISH AND INSTALL A POLYMER CONCRETE HANDHOLE WITH SECURABLE STAMPED COVER IDENTIFYING "COMMUNICATION" THAT IS 18"X18"X24" WITH OPEN BOTTOM
- E8 POWER FOR MOTORIZED GATE CONTROLLER
- E9 1"C, 4#8 & #8G (277V SITE LIGHTING) "SHP", 1,3 VIA LCPA #1, LCPA #2
- E10 1"C, 4#8 & #8G (277V SITE LIGHTING) "SHP", 2,4 VIA LCPA #3, LCPA #4
- E11 1"C, 4#8 & #8G (277V SITE LIGHTING) "SHP", 5,7 VIA LCPA #5, LCPA #6
- E12 (1) 2" CONDUIT FOR FUTURE COMMUNICATIONS (1) 1" C, 2#10 & #10G (SITE CAMERAS) "EVLP", 1
- E13 (1) 2" CONDUIT FOR FUTURE COMMUNICATIONS (1) 1" C, 2#10 & #10G (SITE CAMERAS) "EVLP", 2
- E14 1"C, 2#10 & #10G (MOTORIZED GATE CONTROLLER), "EVLP", 3
- E15 1"C, 2#10 & #10G (MOTORIZED GATE CONTROLLER), "EVLP", 4
- E16 PROVIDE 6'-0" RECESSED LINEAR LIGHT FIXTURE EACH SIDE OF MONUMENT AND ELECTRICAL BACKBOX WITH WEATHERPROOF SERVICE SWITCH. COORDINATE EXACT MOUNTING LOCATION WITH ARCHITECTURAL DETAILS.

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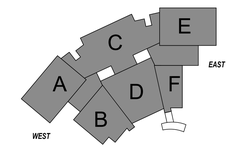
Greenwich Public Schools

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
2	10/23/2024	ADDENDUM NO. 3
1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

MEP SITE UTILITY PLAN

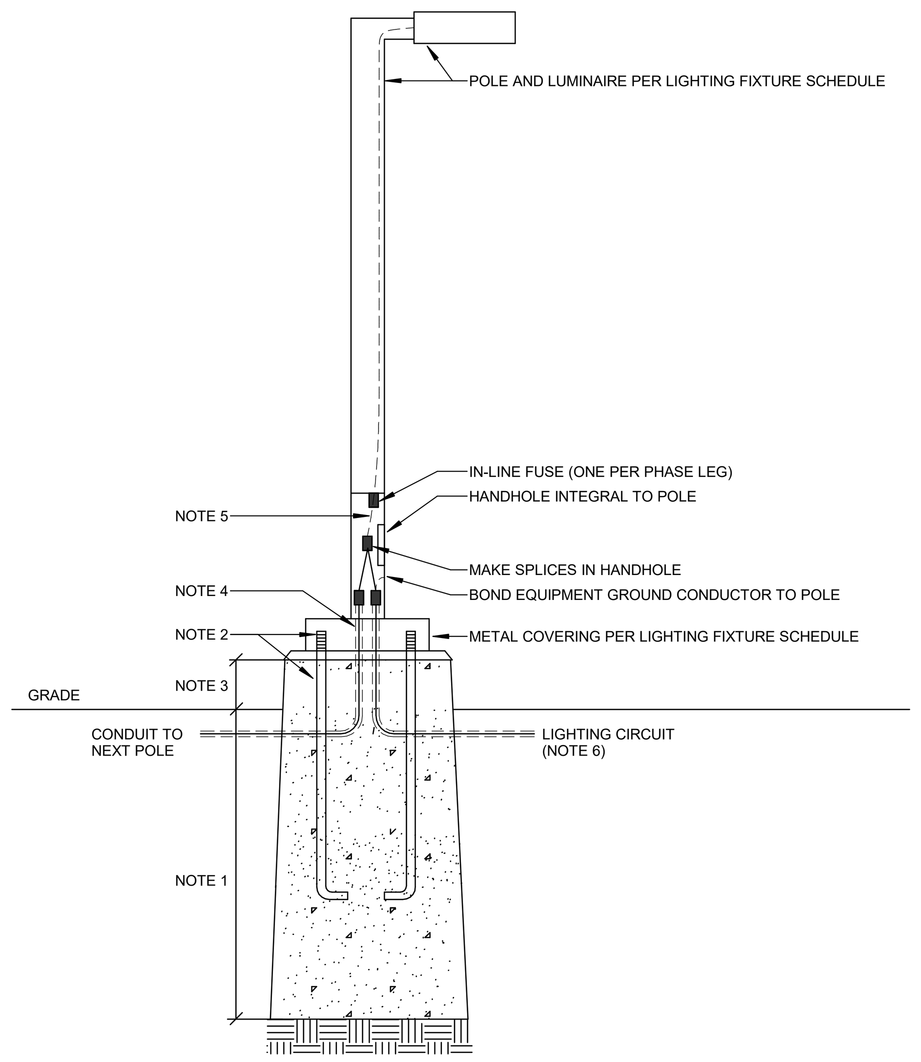
Date: 07/08/2024
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Proj. Number: 22367.00
Drawing Number: SU100

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SITE LIGHTING FIXTURE SCHEDULE

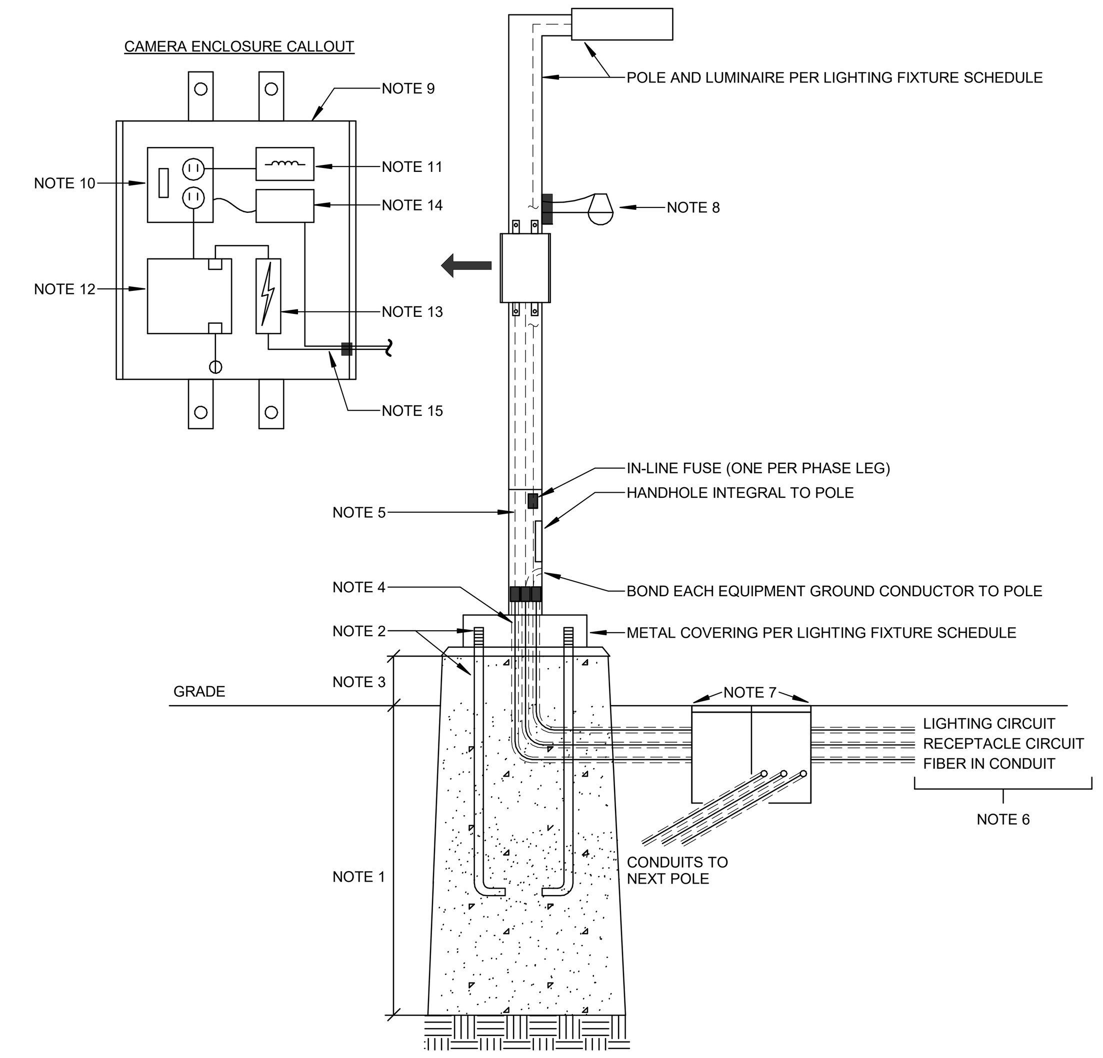
TYPE	BASIS OF DESIGN MANUFACTURER / MODEL	VOLTAGE	SOURCE	FIXTURE DESCRIPTION - BASIS OF DESIGN
SL1-3BC	EXO / SLING ASL1-80L-25-3K7-3-UNV-BC-BLT	UNV	5500LM, 37W 3000K LED	POLE MOUNTED EXTERIOR LED LIGHTING FIXTURE WITH 24 INCH X 11.7 INCH HEAD, MOUNTED T.O.F. AT 12 FEET ABOVE FINISHED GRADE: CORROSION RESISTANT, DIE-CAST ALUMINUM HOUSING WITH POWDER COAT FINISH; 70 CRI; L70 AT 400,000+ HOURS; 0-10V STANDARD DIMMING DRIVER; BACKLIGHT CONTROL. **COLOR:** TO BE SELECTED BY ARCHITECT
SL1-4F	EXO / SLING ASL1-80L-25-3K7-4F-UNV-BC-BLT	UNV	5500LM, 74W 3000K LED	SAME AS TYPE "SL1-3BC" EXCEPT WITH "TYPE 4F" OPTIC STRIKE PHOTOMETRY. **COLOR:** TO BE SELECTED BY ARCHITECT
SL1-4WBC	EXO / SLING ASL1-80L-25-3K7-4W-UNV-BC-BLT	UNV	5500LM, 37W 3000K LED	SAME AS TYPE "SL1-3BC" EXCEPT WITH "TYPE 4W" OPTIC STRIKE PHOTOMETRY. **COLOR:** TO BE SELECTED BY ARCHITECT
SL1-5QW	EXO / SLING ASL1-80L-25-3K7-5QW-UNV-BLT	UNV	5500LM, 37W 3000K LED	SAME AS TYPE "SL1-3BC" EXCEPT WITH "TYPE 5QW" OPTIC STRIKE PHOTOMETRY AND WITHOUT BACKLIGHT CONTROL. **COLOR:** TO BE SELECTED BY ARCHITECT
SL-3	EXO / SLING ASL1-80L-39-3K7-3-UNV-BLT	UNV	4971LM, 38W 3000K LED	POLE MOUNTED EXTERIOR LED LIGHTING FIXTURE WITH 24 INCH X 11.7 INCH HEAD, MOUNTED T.O.F. AT 14 FEET ABOVE FINISHED GRADE: CORROSION RESISTANT, DIE-CAST ALUMINUM HOUSING WITH POWDER COAT FINISH; 70 CRI; L70 AT 400,000+ HOURS; 0-10V STANDARD DIMMING DRIVER. **COLOR:** TO BE SELECTED BY ARCHITECT
SL-4F	EXO / SLING ASL1-80L-39-3K7-4F-UNV-BLT	UNV	4885LM, 39W 3000K LED	SAME AS TYPE "SL-3" EXCEPT WITH "TYPE 4F" OPTIC STRIKE PHOTOMETRY. **COLOR:** TO BE SELECTED BY ARCHITECT
SL-4W	EXO / SLING ASL1-80L-39-3K7-4W-UNV-BLT	UNV	4879LM, 38W 3000K LED	SAME AS TYPE "SL-3" EXCEPT WITH "TYPE 4W" OPTIC STRIKE PHOTOMETRY. **COLOR:** TO BE SELECTED BY ARCHITECT
SL-4WB	EXO / SLING ASL1-80L-39-3K7-4W-UNV-BLT	UNV	(2) 4879LM, 38W 3000K LED	SAME AS TYPE "SL-4W" EXCEPT WITH DUAL HEAD LAYOUT. **COLOR:** TO BE SELECTED BY ARCHITECT
SL-5QW	EXO / SLING ASL1-80L-39-3K7-5QW-UNV-BLT	UNV	4975LM, 38W 3000K LED	SAME AS TYPE "SL-3" EXCEPT WITH "TYPE 5QW" OPTIC STRIKE PHOTOMETRY. **COLOR:** TO BE SELECTED BY ARCHITECT
SLF	POLETOP MOUNTED LED FLAGPOLE LIGHT - PROVIDED WITH THE FLAGPOLE - WIRED UNDER DIVISION 26	120V	1000LM, 15W 3000K LED	PROVIDE POWER AND CONTROL TO A SELF CONTRAINED LIGHTING FIXTURE PROVIDED WITH THE FLAGPOLE.

NOTES:
1. LIGHT FIXTURES IN THE SCHEDULE SHALL BE CONSIDERED BASIS OF DESIGN. EQUAL FIXTURE SUBSTITUTIONS ARE ACCEPTABLE FOR ALL FIXTURES IN THE LIGHTING FIXTURE SCHEDULE, UNLESS INDICATED OTHERWISE. EQUAL FIXTURE APPROVAL SHALL BE AS JUDGED BY THE ENGINEER AND THE ARCHITECT. IN ADDITION TO THE REQUIREMENTS LISTED IN THE LIGHTING FIXTURE SCHEDULE AND IN THE SPECIFICATIONS, THE PROPOSED EQUAL FIXTURES SHALL:
   A. BE THE SAME GENERAL SIZE, STYLE AND SHAPE, INCLUDING BUT NOT LIMITED TO LENS CONSTRUCTION AND SHADING.
   B. BE OF EQUAL QUALITY CONSTRUCTION AND FINISH.
   C. BE SUPPLIED WITH ALL REQUIRED ACCESSORIES TO MATCH THE SPECIFIED (BASIS OF DESIGN) FIXTURE.
   D. PROVIDE THE SAME DISTRIBUTION, EFFICACY AND SOURCE LUMEN OUTPUT.
   E. HAVE THE SAME LISTINGS AS THE BASIS OF DESIGN FIXTURE, INCLUDING DLC AND ENERGY STAR QUALIFICATIONS.
2. ALL FIXTURES SHALL BE UL LISTED.
3. ALL NECESSARY MOUNTING HARDWARE SHALL BE FURNISHED AND INSTALLED.
4. REFER TO ARCHITECTURAL DRAWINGS FOR SPECIFIC DETAILS, ARRANGEMENT, MOUNTING HEIGHTS, SUSPENSION LENGTHS, CEILING CONSTRUCTION, ETC. ALL COLORS AND FINISHES SHALL BE SELECTED BY ARCHITECT.
5. FIXTURES SHALL BE SEISMICALLY SUPPORTED AS REQUIRED BY THE APPLICABLE BUILDING CODE. FIXTURES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE AND SHALL BE INDEPENDENT OF DUCTS, PIPES, CEILINGS AND THEIR SUPPORTING MEMBERS. FIXTURES SHALL BE SUPPORTED WITH A MINIMUM OF 2 SUPPORTS.
6. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.



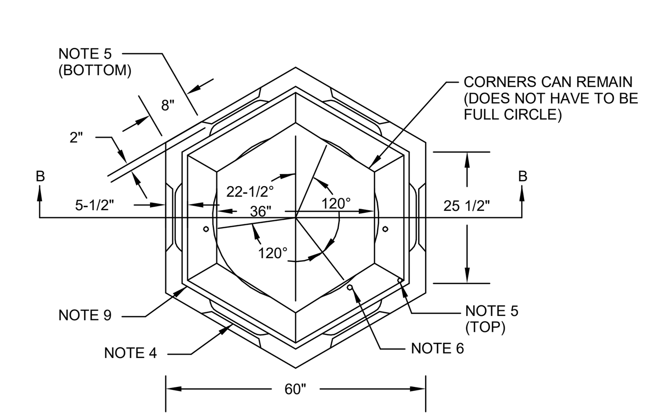
NOTES:
1. CONCRETE POLE BASE SHALL BE PROVIDED BY SITE CONTRACTOR. REFER TO STRUCTURAL POLE BASE DETAILS FOR REQUIRED DEPTH AND CONCRETE SPECIFICATIONS. POLE BASE SHALL BE SET ON UNDISTURBED SOIL. DIAMETER OF POLE BASE SHALL BE COORDINATED WITH BASE PLATE COVER DIMENSIONS, AS SPECIFIED. CONCRETE BASE SHALL BE LARGE ENOUGH TO ACCOMMODATE BASE PLATE WITH NO OVERHANG.
2. ANCHOR BOLTS SHALL BE PROVIDED IN POLE BASE BY SITE CONTRACTOR, ADHERING TO STRUCTURAL POLE BASE DETAILS AND SPECIFICATIONS. COORDINATE EXACT BOLT PATTERN WITH ELECTRICAL CONTRACTOR AND APPROVED POLE MANUFACTURER PRIOR TO INSTALLATION.
3. IN GRASSY AREAS NOT WITHIN PARKING AREAS, SIDEWALKS OR OTHER AREAS WITHOUT VEHICLE PARKING, **3 INCHES** OF CONCRETE SHALL BE EXPOSED ABOVE GRADE. IN PARKING AREAS, **36 INCHES** OF CONCRETE SHALL BE EXPOSED ABOVE GRADE. PROVIDE 1 INCH CHAMFER AROUND TOP OF CONCRETE BASE.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE SCHEDULE 40 PVC CONDUIT SWEEPS WITHIN CONCRETE POLE BASE. COORDINATE EXACT STUB-UP LOCATION OF ALL CONDUITS WITH APPROVED POLE MANUFACTURER BOLT PATTERN PRIOR TO INSTALLATION.
5. ELECTRICAL CONTRACTOR SHALL PROVIDE FLEXIBLE METAL CONDUIT WITHIN POLE TO LIGHT FIXTURE.
6. ELECTRICAL CONTRACTOR SHALL PROVIDE UNDERGROUND CONDUITS TO THE LIGHT POLE AS SPECIFIED ON SITE PLAN. REFER TO TRENCHING DETAILS FOR MINIMUM BURIAL DEPTH AND ADDITIONAL INFORMATION. MINIMUM SIZE/QUANTITY SHALL BE:
   - LIGHTING CIRCUIT: PROVIDE 2#10+1#10G, 1-1/4"C. SCH.40 PVC.

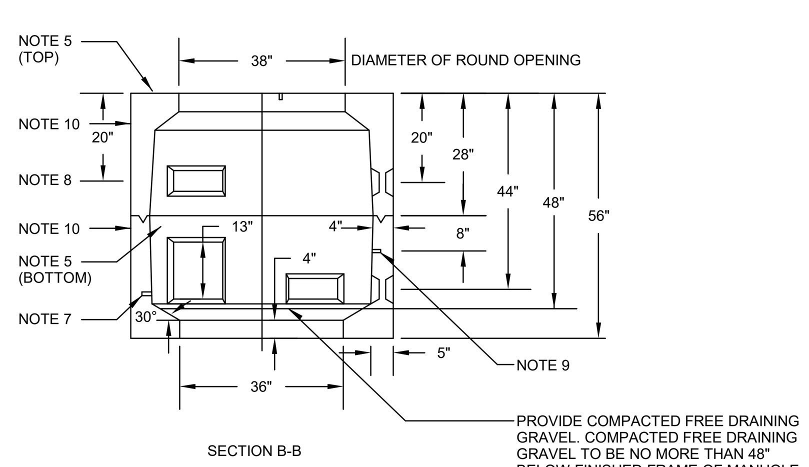
(2) SITE LIGHTING POLE DETAIL
NTS



NOTES:
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3. IN GRASSY AREAS IN PARKING AREAS, SIDEWALKS OR OTHER AREAS WITHOUT VEHICLE PARKING, **3 INCHES** OF CONCRETE SHALL BE EXPOSED ABOVE GRADE. IN PARKING AREAS, **36 INCHES** OF CONCRETE SHALL BE EXPOSED ABOVE GRADE. PROVIDE 1 INCH CHAMFER AROUND TOP OF CONCRETE BASE.
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5. ELECTRICAL CONTRACTOR SHALL PROVIDE FLEXIBLE METAL CONDUIT WITHIN POLE TO LIGHT FIXTURE AND CAMERA ENCLOSURE.
6. ELECTRICAL CONTRACTOR SHALL PROVIDE UNDERGROUND CONDUITS TO THE LIGHT POLE AS SPECIFIED ON SITE PLAN. REFER TO TRENCHING DETAILS FOR MINIMUM BURIAL DEPTH AND ADDITIONAL INFORMATION. MINIMUM SIZE/QUANTITY SHALL BE:
   - LIGHTING CIRCUIT: PROVIDE 2#10+1#10G, 1-1/4"C. SCH.40 PVC.
   - RECEPTACLE CIRCUIT: PROVIDE 2#10+1#10G, 1-1/4"C. SCH.40 PVC.
   - FIBER: PROVIDE 2-STRAND OM4 MM FIBER OPTIC CABLE (OUTDOOR RATED) IN 2"C. SCH.40 PVC. PROVIDE INDIVIDUAL 2-STRAND FIBER FOR EACH CAMERA ON CIRCUIT, ROUTED IN SAME CONDUIT, MAXIMUM OF 10 CAMERAS. REFER TO SITE PLAN FOR CAMERAS ON FIBER CIRCUIT. AT EACH POLE, ONE 2-STRAND FIBER CABLE SHALL BRANCH OFF TO MEDIA CONVERTER/ CAMERA AND REMAINING CABLES SHALL CONTINUE TO NEXT POLE.
7. ELECTRICAL CONTRACTOR SHALL PROVIDE 24"L x 24"W x 36"D PRECAST POLYMER CONCRETE ENCLOSURE WITH ANSI 77 TIER 15 OR 22 COVER RATED FOR TRAFFIC APPLICATIONS. PROVIDE WITH DIVIDED INTERIOR TO SEPARATE POWER AND FIBER WIRING. REFER TO SITE HANDHOLE DETAIL FOR ADDITIONAL INFORMATION.
8. SECURITY SUBCONTRACTOR SHALL PROVIDE CAMERA PER SECURITY SPECIFICATIONS AND/OR CAMERA SCHEDULE. PROVIDE WITH POLE MOUNTING KIT AS REQUIRED BY MANUFACTURER. MOUNTING HEIGHT OF CAMERA SHALL BE PER SECURITY SPECIFICATIONS/ CAMERA SCHEDULE. WHERE NOT NOTED, CAMERA SHALL BE MOUNTED 2 FEET BELOW BOTTOM OF LUMINAIRE.
9. EC SHALL PROVIDE NEMA 4X ENCLOSURE ON POLE EQUAL TO HOFFMAN NVENT/COMLINE SERIES, 16"H x 16"W x 8"D IN DIMENSION. PROVIDE WITH MANUFACTURER APPROVED MOUNTING KIT FOR POLE APPLICATIONS. PROVIDE WITH GASKETED, LOCKABLE HINGED FRONT DOOR. LOCATE OPPOSITE OF CAMERA AT SAME MOUNTING HEIGHT ON POLE.
10. EC SHALL PROVIDE GFCI DUPLEX RECEPTACLE WITH INTEGRAL TOGGLE SWITCH POWERED VIA 120VAC CIRCUIT TO POLE. PROVIDE WITH WEATHERPROOF BACKBOX WITHIN ENCLOSURE ON POLE.
11. EC SHALL PROVIDE ELECTRIC HEATER FOR ENCLOSURE, EQUAL TO HOFFMAN NVENT SERIES (20W, 120VAC INPUT, 3.9"H x 1.5"W x 3.0"D.) POWER VIA RECEPTACLE IN ENCLOSURE. PROVIDE WITH THERMOSTAT BY SAME MANUFACTURER.
12. SECURITY SUBCONTRACTOR SHALL PROVIDE IP-TO-FIBER MEDIA CONVERTER FOR CAMERA, PER SECURITY SPECIFICATIONS. POWER VIA RECEPTACLE IN ENCLOSURE. TERMINATE FIBER AT MEDIA CONVERTER USING MANUFACTURER APPROVED CONNECTORS.
13. SECURITY SUBCONTRACTOR SHALL PROVIDE ETHERNET SURGE PROTECTIVE DEVICE FOR CAMERA CABLING, BONDED TO METAL POLE.
14. WHERE APPLICABLE PER CAMERA SPECIFICATIONS, IF CAMERA REQUIRES AN EXTERNAL POWER SUPPLY FOR PTZ FUNCTIONALITY, LENS HEATER, ETC., POWER SUPPLY SHALL BE PROVIDED BY SECURITY SUBCONTRACTOR IN ENCLOSURE. PROVIDE POWER SUPPLY PER CAMERA MANUFACTURER REQUIREMENTS. POWER VIA LINE SIDE OF RECEPTACLE CIRCUIT.
15. SECURITY SUBCONTRACTOR SHALL PROVIDE SHIELDED CAT.6 CABLING TO CAMERA (AND 24VDC CABLING FROM EXTERNAL POWER SUPPLY IF REQUIRED BY CAMERA SPECIFICATIONS). PROVIDE BUSHING/ GROMMET THROUGH ENCLOSURE. CABLING SHALL BE ROUTED IN LIQUID TIGHT FLEXIBLE METAL CONDUIT, SECURED TIGHT TO POLE, AND TERMINATED IN CAMERA MOUNTING KIT PER MANUFACTURER'S REQUIREMENTS.

(3) SITE LIGHTING POLE DETAIL WITH CAMERA
NTS

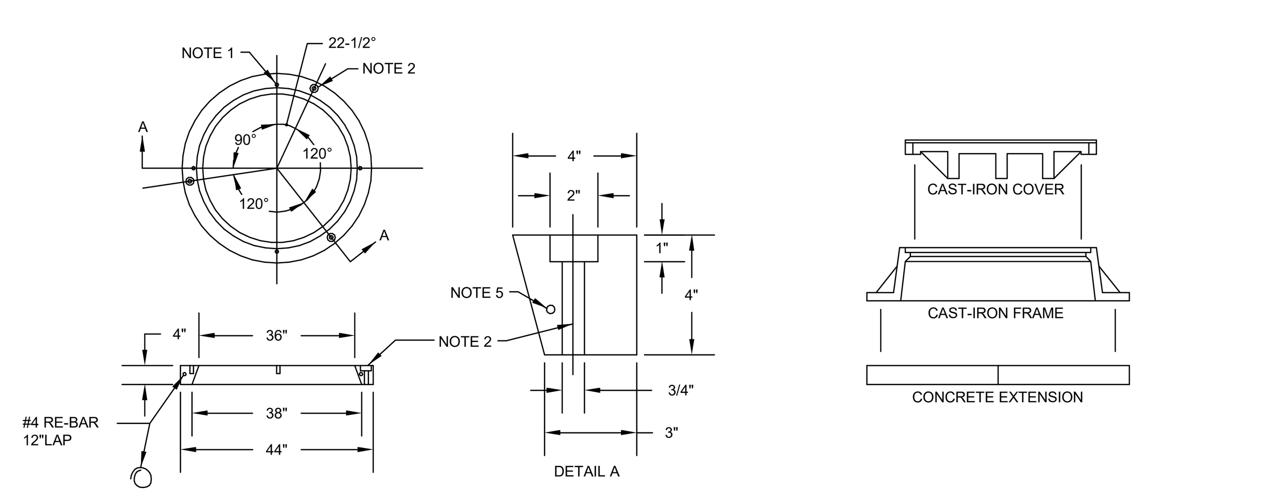




SECTION B-B

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 SRENGTH 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. 3/4 INCH-COIL LOOP INSERTS-6 INCH-(DAYTON B-16) WITH INSERT LOCATOR PLUG (DAYTON T-21). TWO EACH IN TOP AND BOTTOM SECTIONS FOR LIFTING WITH SWIVEL PLATE. INSERTS ARE TO BE SECURED IN PLACE WITH REBAR.
6. ZINC ALLOY INSERTS 3/8 INCH-11x1-1/2 INCHES FOR EXTENSION (3) ON 41 INCH BOLT CIRCLE.
7. ZINC ALLOY INSERTS 3/4 INCH-10x3 INCHES, WITH GALVANIZED SHOULDERED MACHINERY EYE BOLTS 3/4 INCH-10x2 INCHES, FOR CABLE PULLING (4) OPPOSITE KOCKOUTS IN BOTTOM SECTION. MINIMUM STRENGTH OF EYE BOLTS TO BE 5000 lbs.
8. ZINC ALLOY INSERTS 1/2 INCH-13x1-1/2 INCHES (6) FOR MOUNTING JUNCTION CONNECTORS.
9. ZINC ALLOY INSERTS 3/8 INCH-16x1-1/2 INCHES (6) FOR SUPPORTING GROUND BUS.
10. MANUFACTURER'S IDENTIFICATION AND MONTH/YEAR WHEN MANUFACTURED SHALL BE LEGIBLY MARKED IN/ON CONCRETE ON THE OUTSIDE UPPER PART.
11. PROVIDE (2) 3/4" DIAMETER x 8' COPPERCLAD DRIVEN GROUND RODS AT OPPOSITE CORNERS WITH A #2 COPPER CONDUCTOR CONNECTED TO EACH ROD WITH 5'-0" PIGTAIL COILED INSIDE THE STRUCTURE.

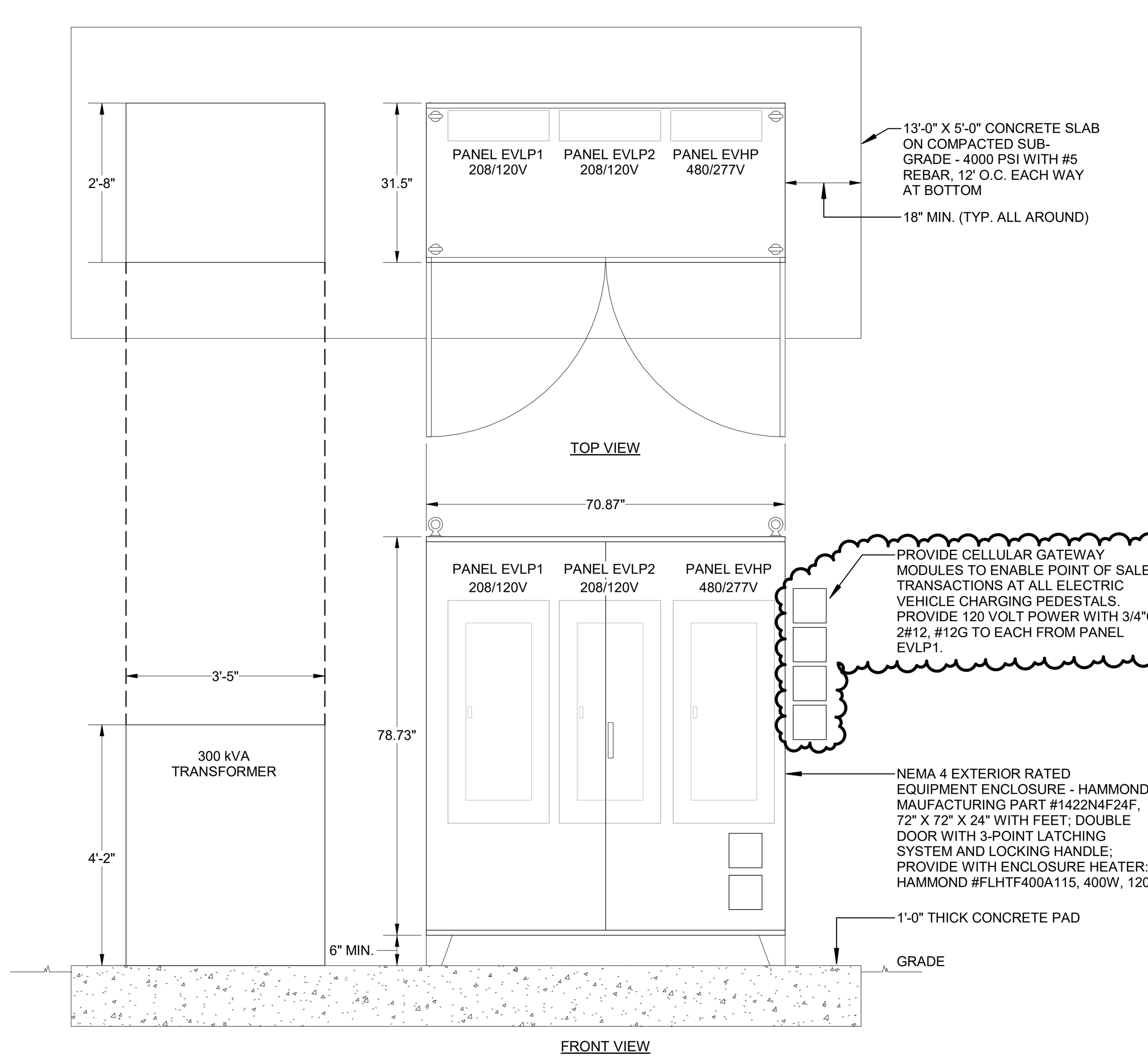
NORTHEAST UTILITIES
REF: SPC H-019.01



NOTES:
1. FOUR 3/8" INCH - 16 X 1-1/2 INCHES ZINC ALLOY INSERTS EQUALLY SPACED ON 38-1/2" INCH BOLT CIRCLE.
2. THREE HOLES EQUALLY SPACED ON 41 INCH BOLT CIRCLE.
3. FINAL 28 DAY CONCRETE STRENGTH 5000 psi.
4. CONCRETE AND CONCRETE DESIGN SHALL BE IN ACCORDANCE WITH ACI 318-1986 (OR LATEST REVISION THEREOF).
5. MANUFACTURER'S IDENTIFICATION AND MONTH/YEAR WHEN MANUFACTURED SHALL BE LEGIBLY MARKED IN/ON CONCRETE ON THE INNER SIDE.

NORTHEAST UTILITIES
REF: SPC E-946

(5) EVERSOURCE HEX MANHOLE DETAIL
NTS



(4) ELECTRICAL SERVICE EQUIPMENT ENCLOSURE1
NTS

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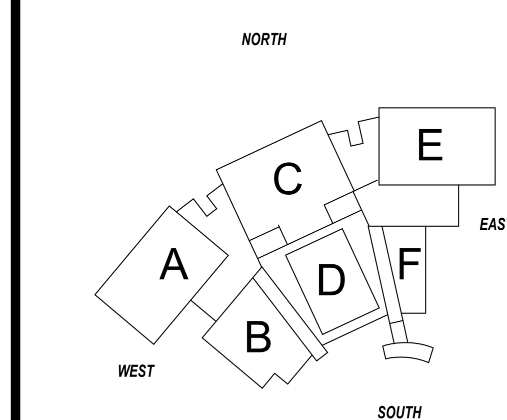
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ceseng.com
CES #2023095.00

Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane,
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N



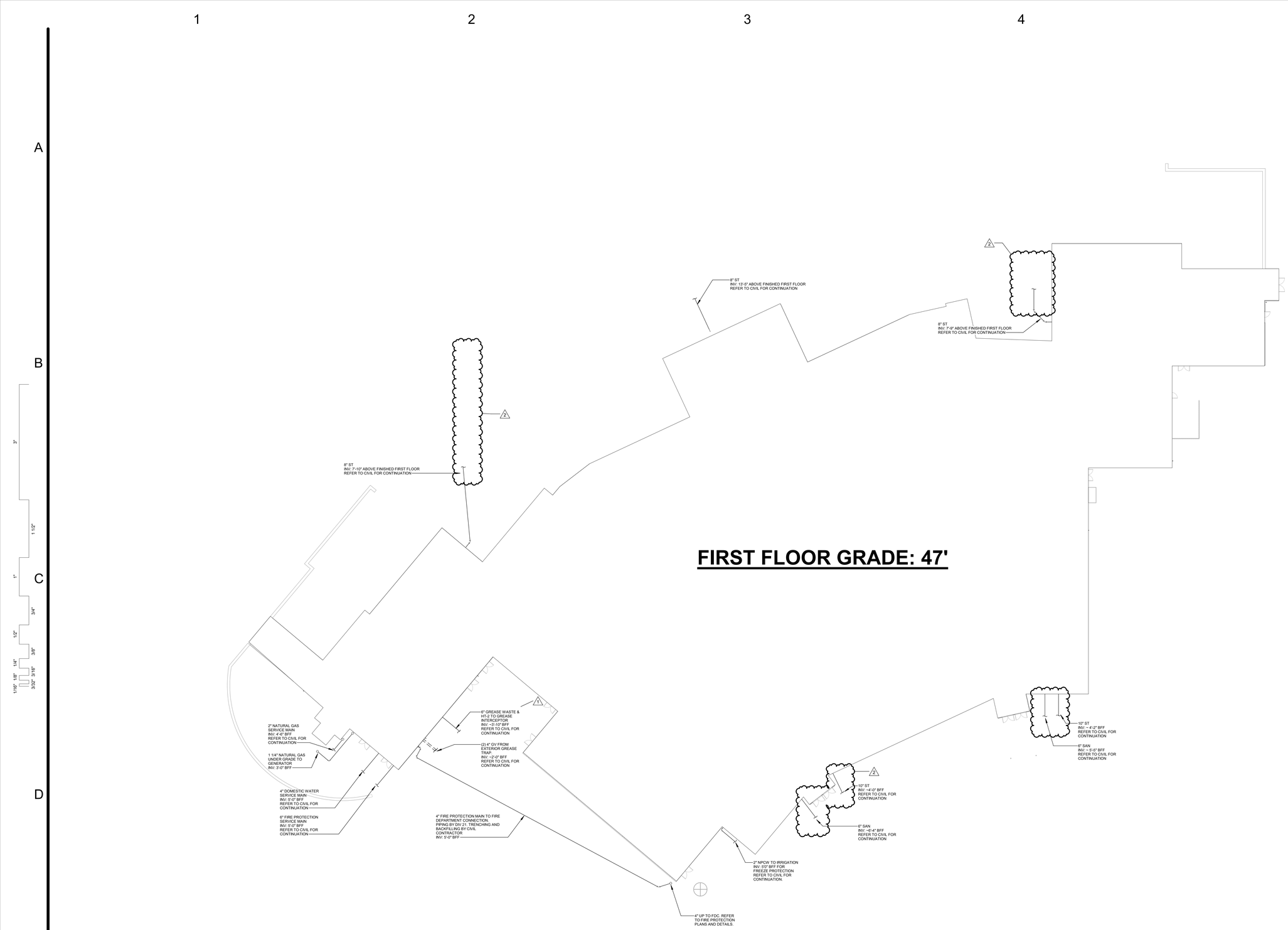
KEYPLAN

Number	Date	Issued For
2	10/23/2024	ADDENDUM NO. 3
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

MEP SITE UTILITY PLAN - DETAILS & SCHEDULES

Date 07/08/2024
Scale NTS
Proj. Number 22367.00
Drawing Number SU501

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1 PLUMBING SITE UTILITY PLAN
1" = 20'-0"

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S / L / A / M Architects, Landscape Architects & Engineers, P.C.
80 Glastonbury Boulevard
Glastonbury, CT 06033-4410
Phone: 860 657.8077
www.slamcoll.com

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JMB
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Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane,
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STATE PROJECT NO: 057-0114 N

NORTH
EAST
WEST
SOUTH
A B C D E F

KEYPLAN

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2	10/23/2024	ADDENDUM NO. 3
1	10/16/2024	ADDENDUM NO. 2
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	07/08/2024	PHASE 2

PLUMBING SITE UTILITY PLAN

Date
07/08/2024
Scale
1" = 20'-0"
Proj. Number
22367.00

Drawing Number
PSU001

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1E SECOND FLOOR PLAN - A
1/8" = 1'-0"

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.

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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 / SOUTH / WEST

KEYPLAN

Number	Date	Issued For
1	10/23/2024	ADDENDUM NO. 3
	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

SECOND FLOOR PLAN - PART A

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00
Drawing Number: A102A

Autodesk Docs://22367.00 - Greenwich Central Middle School\A_22367_GREENWICH_CENTRAL_M3_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
- FCO — 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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Greenwich Public Schools

Greenwich Central Middle School

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Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N

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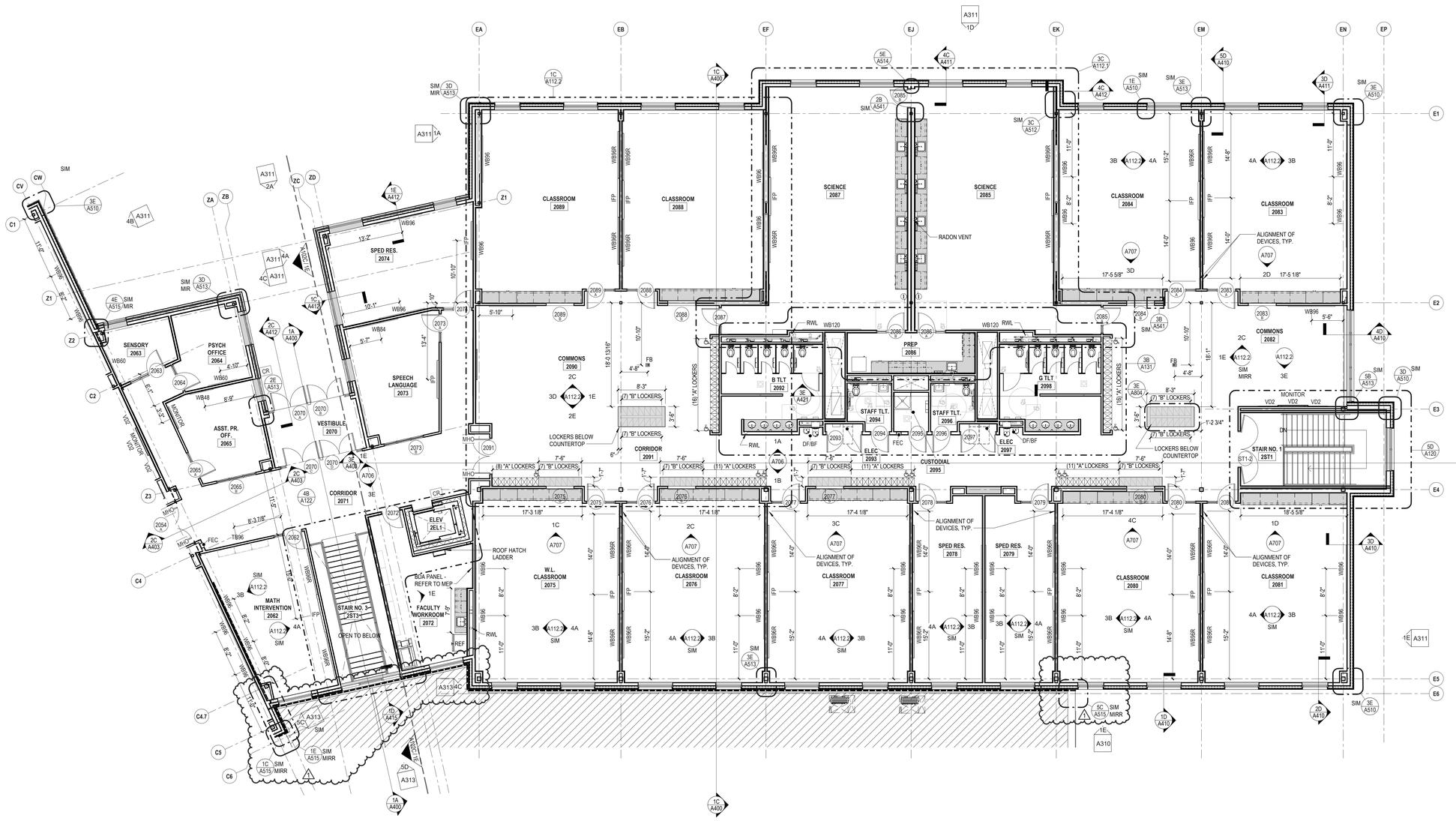
KEYPLAN

Number	Date	Issued For
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" + 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.

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.

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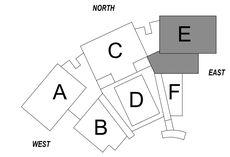
Greenwich Public Schools

Greenwich Central Middle School

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KEYPLAN

Number	Date	Issued For
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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10/23/2024 11:45:53 AM

ROOF PLAN GRAPHIC LEGEND

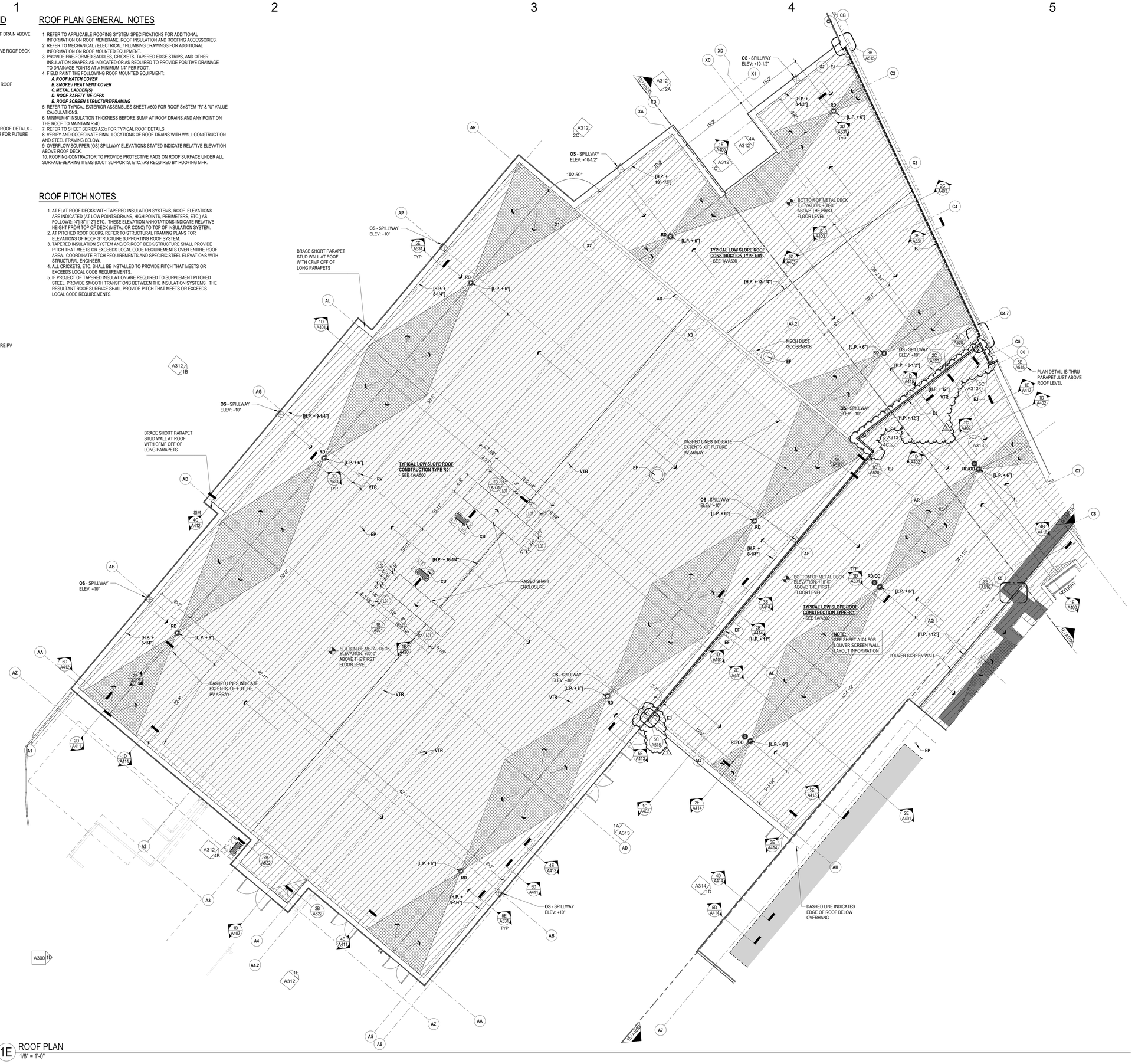
[+X"]	MINIMUM INSULATION THICKNESS AT ROOF DRAIN ABOVE ROOF DECK (METAL OR CONCRETE)
OS	OVERFLOW SCUPPER - ELEVATION IS ABOVE ROOF DECK (REFER TO ROOF DETAIL **1D & 5E/A531**)
RD/OD	PRIMARY & OVERFLOW ROOF DRAINS (REFER TO ROOF DETAILS **3D/A531**)
VTR	PLUMBING / MECHANICAL VENT THROUGH ROOF (REFER TO ROOF DETAILS)
CU	CONDENSING UNIT (REFER TO ROOF DETAILS)
EF	EXHAUST FAN (REFER TO ROOF DETAILS)
RV	RADON VENT THROUGH ROOF (REFER TO ROOF DETAILS - REFER TO ELECTRICAL FOR POWER RISER FOR FUTURE EXHAUST FAN)
RH	ROOF HATCH (REFER TO ROOF DETAILS)
RTU	ROOF TOP MECHANICAL UNIT WITH CURB (REFER TO ROOF DETAILS)
SV	SMOKE / HEAT VENT (REFER TO ROOF DETAILS)
EJ	ROOF EXPANSION JOINT (REFER TO ROOF DETAILS)
	DIRECTION OF PITCH
AD	AREA DIVIDER (REFER TO ROOF DETAILS)
	TAPERED INSULATION @ 1/4" / FT
	TAPERED CRICKETS @ 1/2" / FT
	ROOF WALKWAY PADS
R1	ROOF SYSTEM TYPES
RSTO	ROOF SAFETY TIE OFF REFER TO DETAIL SD/A531
HB	HOSE BIB **RE**: PLUMBING
EO	ELECTRICAL OUTLET **RE**: ELECTRICAL
EP	ELECTRICAL CONDUIT STUB-UP (FOR FUTURE PV ARRAY **RE**: ELECTRICAL)

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 ROOF PLAN
1/8" = 1'-0"

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KEYPLAN

Number	Date	Issued For
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	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

ROOF PLAN - PART A

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00
Drawing Number: A103A

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10/23/2024 11:51:21 AM

ROOF PLAN GRAPHIC LEGEND

[+X"]		MINIMUM INSULATION THICKNESS AT ROOF DRAIN ABOVE ROOF DECK (METAL OR CONCRETE)
OS		OVERFLOW SCUPPER - ELEVATION IS ABOVE ROOF DECK (REFER TO ROOF DETAIL **1D & 5E/A531**)
RD/OD		PRIMARY & OVERFLOW ROOF DRAINS (REFER TO ROOF DETAILS **3D/A531**)
VTR		PLUMBING / MECHANICAL VENT THROUGH ROOF (REFER TO ROOF DETAILS)
CU		CONDENSING UNIT (REFER TO ROOF DETAILS)
EF		EXHAUST FAN (REFER TO ROOF DETAILS)
RV		RADON VENT THROUGH ROOF (REFER TO ROOF DETAILS - REFER TO ELECTRICAL FOR POWER RISER FOR FUTURE EXHAUST FAN)
RH		ROOF HATCH (REFER TO ROOF DETAILS)
RTU		ROOF TOP MECHANICAL UNIT WITH CURB (REFER TO ROOF DETAILS)
SV		SMOKE / HEAT VENT (REFER TO ROOF DETAILS)
EJ		ROOF EXPANSION JOINT (REFER TO ROOF DETAILS)
		DIRECTION OF PITCH
AD		AREA DIVIDER (REFER TO ROOF DETAILS)
		TAPERED INSULATION @ 1/4" / FT
		TAPERED CRICKETS @ 1/2" / FT
		ROOF WALKWAY PADS
R1		ROOF SYSTEM TYPES
RSTO		ROOF SAFETY TIE OFF REFER TO DETAIL 5D/A531
HB		HOSE BIB **RE**: PLUMBING
EO		ELECTRICAL OUTLET **RE**: ELECTRICAL
EP		ELECTRICAL CONDUIT STUB-UP (FOR FUTURE PV ARRAY **RE**: ELECTRICAL)

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 ROOF PLAN
1/8" = 1'-0"

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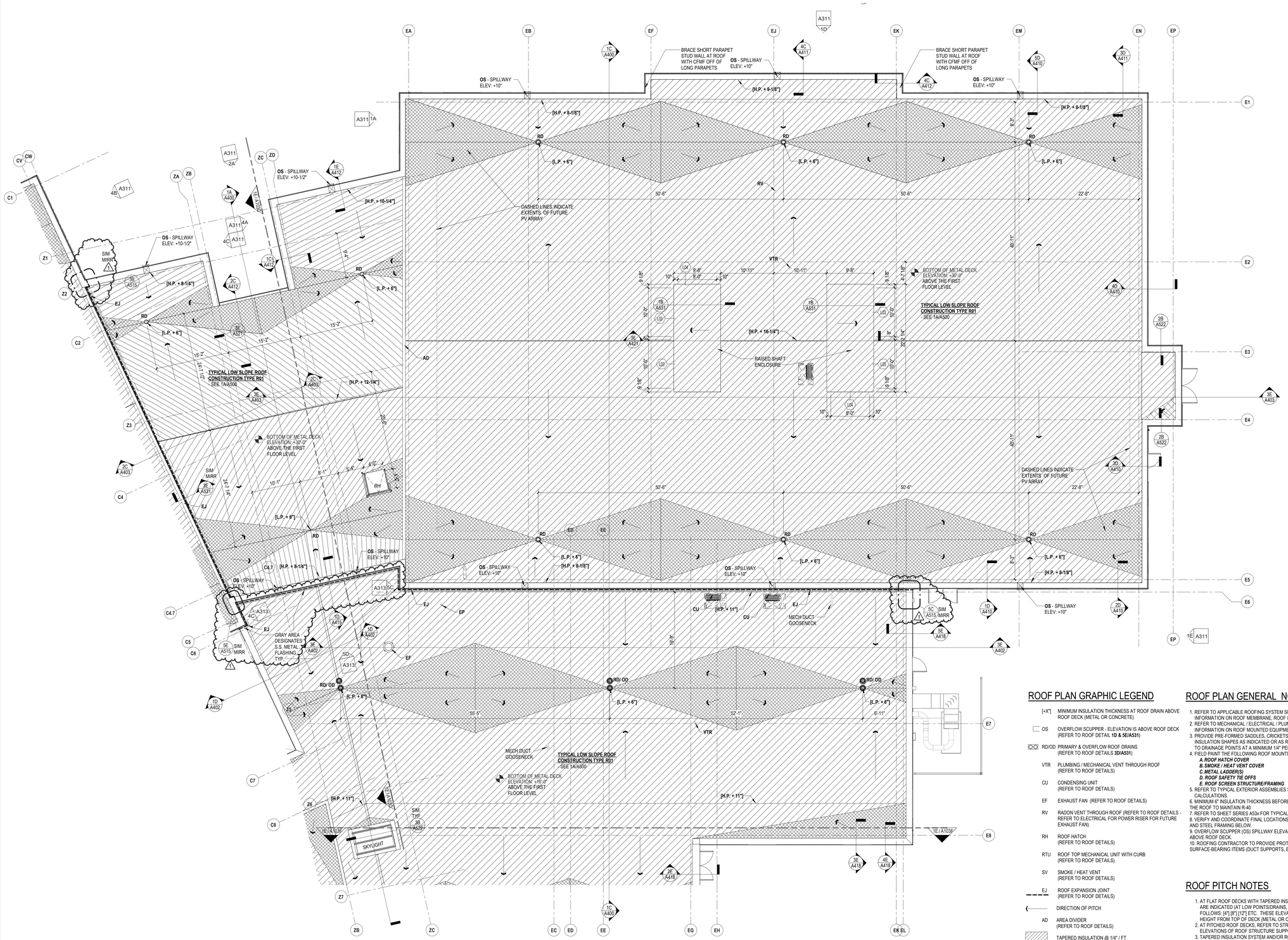
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	09/30/2024	BIDDING/ PERMIT
	07/08/2024	PHASE 2

ROOF PLAN - PART C

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00
Drawing Number: A103C

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1E ROOF PLAN
1/8" = 1'-0"

ROOF PLAN GRAPHIC LEGEND

- [+X"] MINIMUM INSULATION THICKNESS AT ROOF DRAIN ABOVE ROOF DECK (METAL OR CONCRETE)
- OS OVERFLOW SCUPPER - ELEVATION IS ABOVE ROOF DECK (REFER TO ROOF DETAIL **1D & 5E/A531**)
- RD/OD PRIMARY & OVERFLOW ROOF DRAINS (REFER TO ROOF DETAILS **3D/A531**)
- VTR PLUMBING / MECHANICAL VENT THROUGH ROOF (REFER TO ROOF DETAILS)
- CU CONDENSING UNIT (REFER TO ROOF DETAILS)
- EF EXHAUST FAN (REFER TO ROOF DETAILS)
- RV RADON VENT THROUGH ROOF (REFER TO ROOF DETAILS - REFER TO ELECTRICAL FOR POWER RISER FOR FUTURE EXHAUST FAN)
- RH ROOF HATCH (REFER TO ROOF DETAILS)
- RTU ROOF TOP MECHANICAL UNIT WITH CURB (REFER TO ROOF DETAILS)
- SV SMOKE / HEAT VENT (REFER TO ROOF DETAILS)
- EJ ROOF EXPANSION JOINT (REFER TO ROOF DETAILS)
- DIRECTION OF PITCH
- AD AREA DIVIDER (REFER TO ROOF DETAILS)
- TAPERED INSULATION @ 1/4" / FT
- TAPERED CRICKETS @ 1/2" / FT
- ROOF WALKWAY PADS
- R1 ROOF SYSTEM TYPES
- RSTO ROOF SAFETY TIE OFF REFER TO DETAIL 5D/A531
- HB HOSE BIB **RE**: PLUMBING
- EO ELECTRICAL OUTLET **RE**: ELECTRICAL
- EP ELECTRICAL CONDUIT STUB-UP (FOR FUTURE PV ARRAY **RE**: ELECTRICAL)

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.

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NORTH / EAST / WEST / SOUTH

KEYPLAN

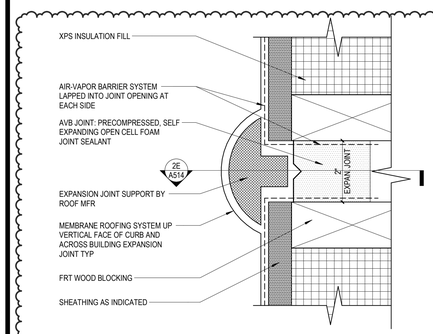
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ROOF PLAN - PART E

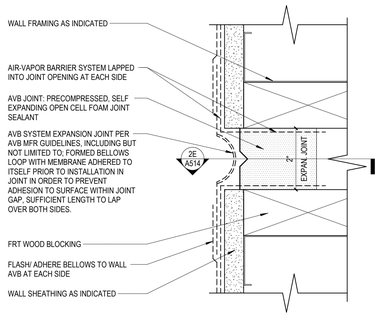
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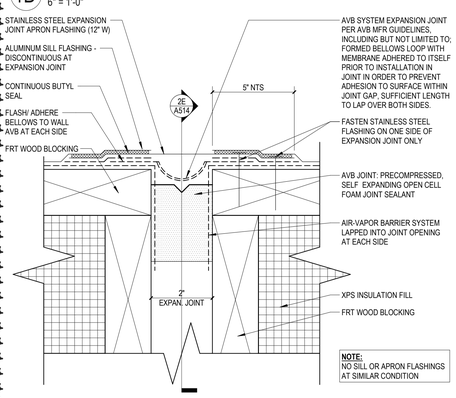
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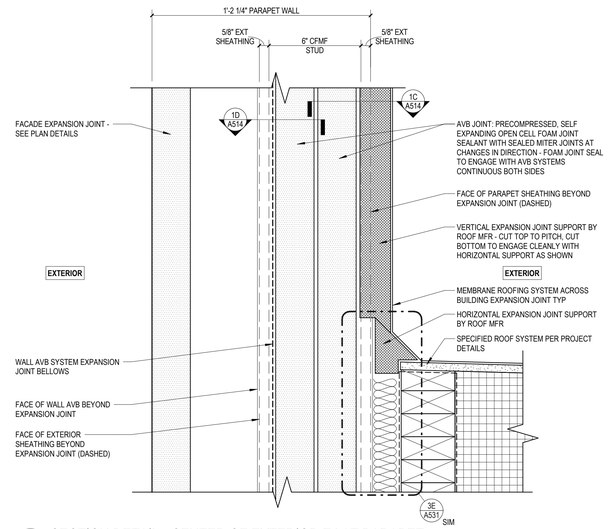
1C PLAN DETAIL - VERT. ROOF EXPANSION JOINT
6" = 1'-0"



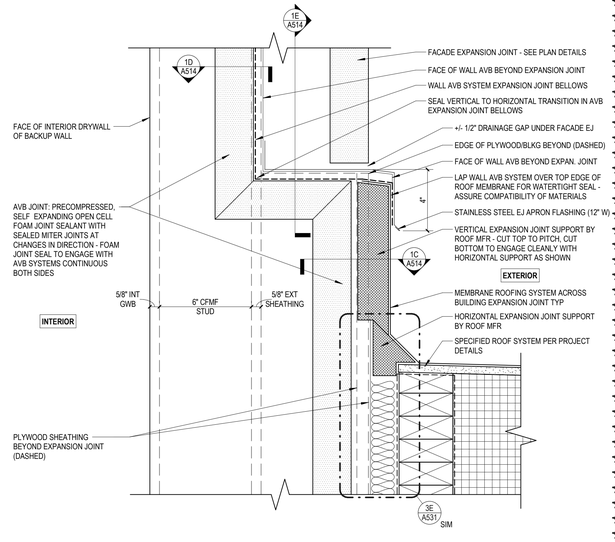
1D PLAN DETAIL - WALL AVB EXPANSION JOINT
6" = 1'-0"



1E SECTION DETAIL - HORIZ AVB EXPAN JT
6" = 1'-0"

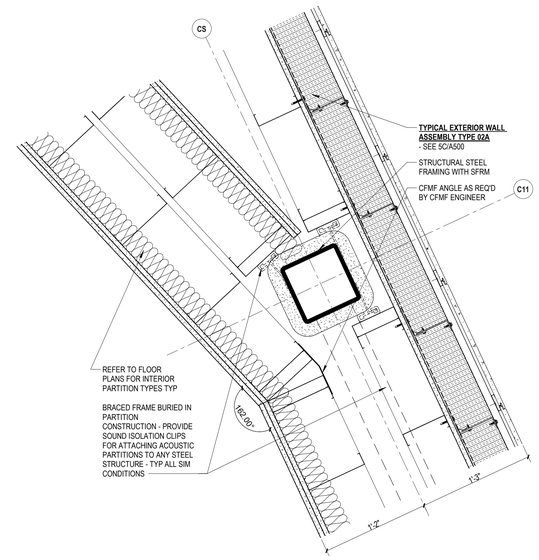


2C SECTION DETAIL - CENTER OF EXTERIOR EJ AT PARAPET
3" = 1'-0"

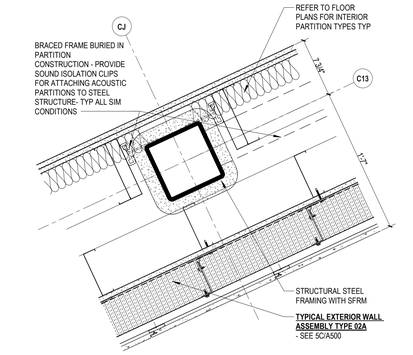


2E SECTION DETAIL - CENTER OF EXTERIOR EJ AT RISING WALL
3" = 1'-0"

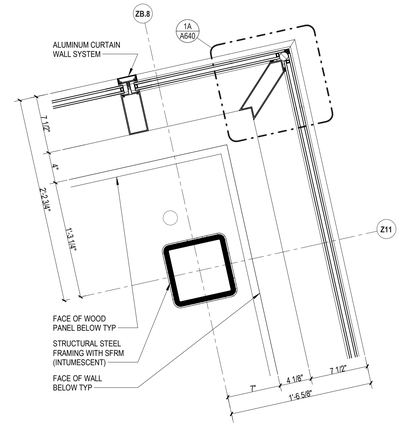
DETAIL REMOVED 1



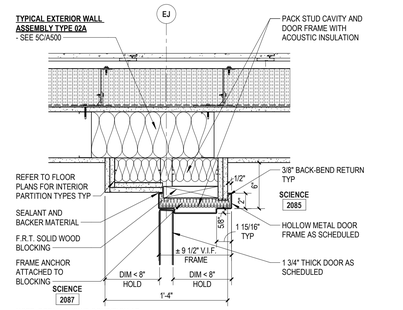
3E PLAN DETAIL - PART D - SECOND FLOOR @ GRID CS / C11
1 1/2" = 1'-0"



5B PLAN DETAIL - PART D - SECOND FLOOR @ GRID CJ / C13
1 1/2" = 1'-0"



5D PLAN DETAIL - PART D - SECOND FLOOR @ ZB.8 / Z11
1 1/2" = 1'-0"



5E PLAN DETAIL - PART E - SECOND FLOOR @ DOOR FRAME IN DOUBLE WALL
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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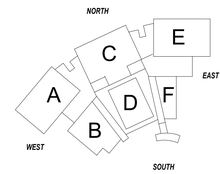
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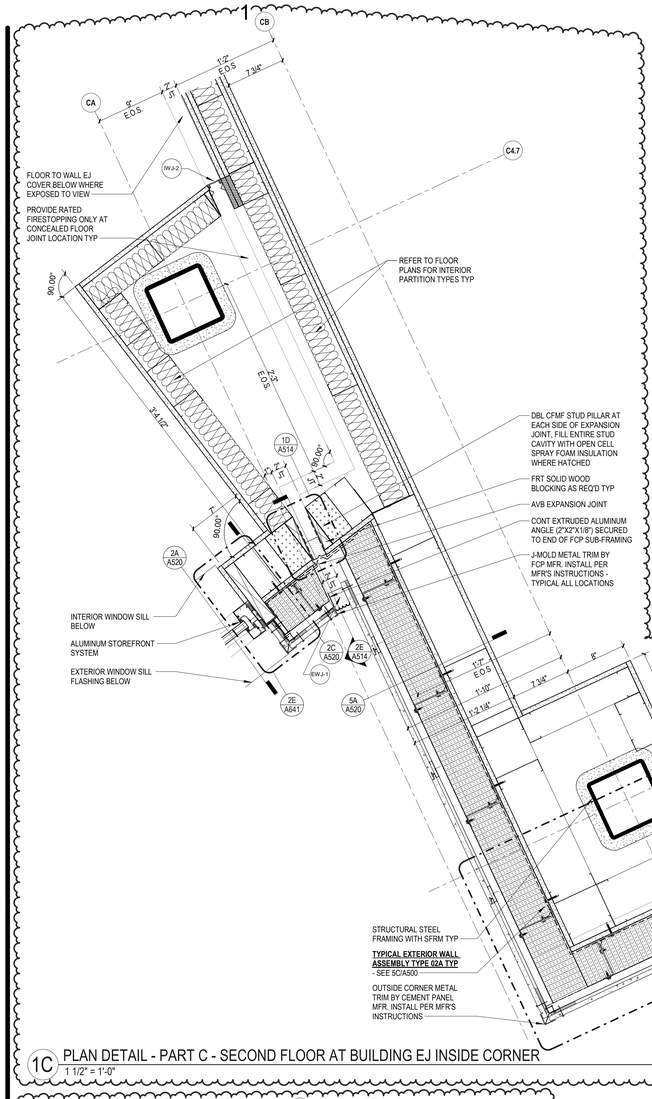
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	07/08/2024	PHASE 2

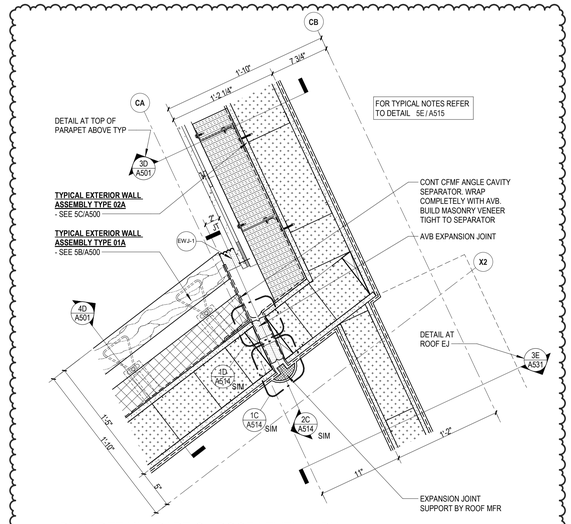
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Drawing Number A514

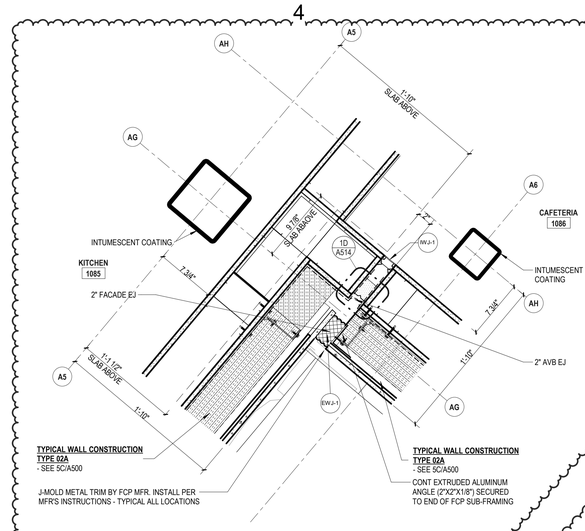
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1C PLAN DETAIL - PART C - SECOND FLOOR AT BUILDING EJ INSIDE CORNER
1 1/2" = 1'-0"

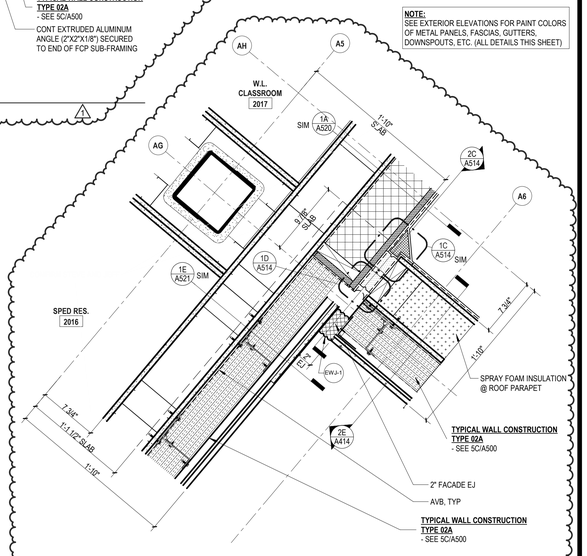


3B PLAN DETAIL - PART C - ROOF LEVEL THRU PARAPET AND BUILDING EJ - NORTH SIDE
1 1/2" = 1'-0"



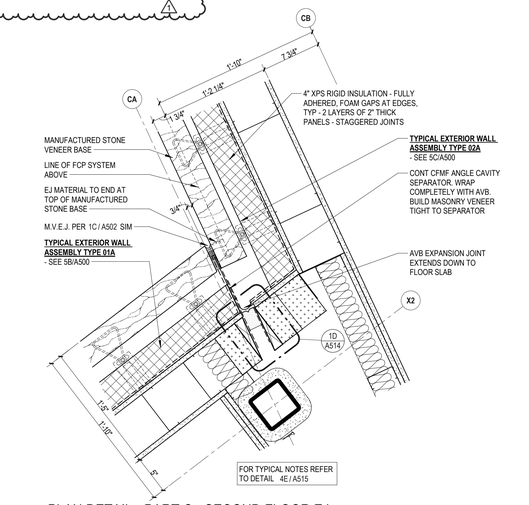
4B PLAN DETAIL - PART A - FIRST FLOOR
1 1/2" = 1'-0"

DETAIL RELOCATED

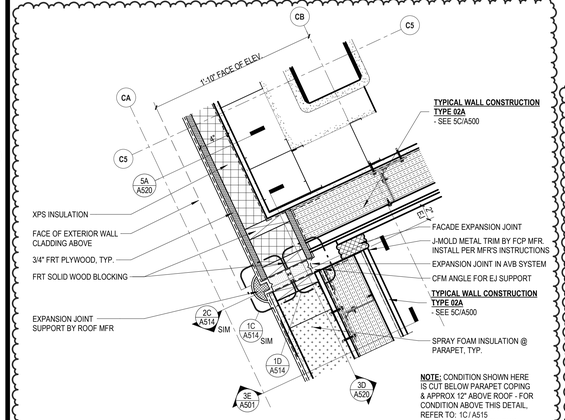


NOTE: SEE EXTERIOR ELEVATIONS FOR PAINT COLORS OF METAL PANELS, FASCIAS, GUTTERS, DOWNSPOUTS, ETC. (ALL DETAILS THIS SHEET)

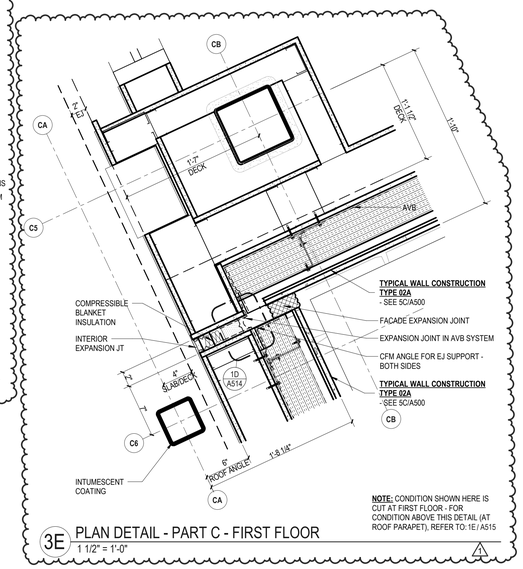
5C PLAN DETAIL - PART A - SECOND FLOOR AT PARAPET
1 1/2" = 1'-0"



4D PLAN DETAIL - PART C - SECOND FLOOR EJ AT GRID CA / X2 - STONE BASE BELOW
1 1/2" = 1'-0"

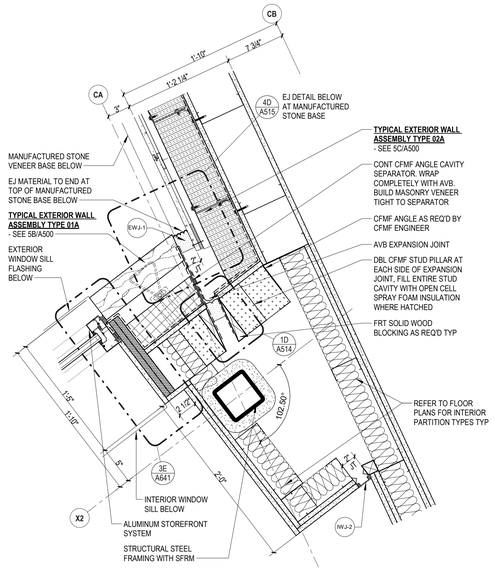


1E PLAN DETAIL - PART C - SECOND FLOOR AT PARAPET
1 1/2" = 1'-0"

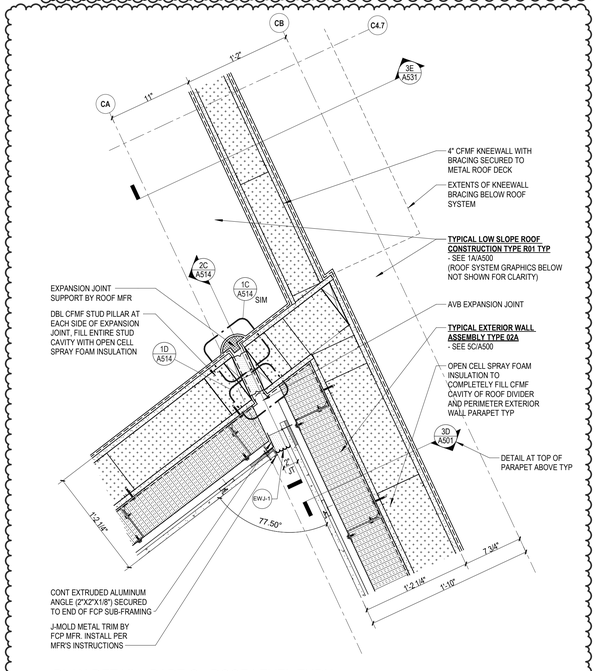


NOTE: CONDITION SHOWN HERE IS CUT AT FIRST FLOOR - FOR CONDITION ABOVE THIS DETAIL (AT ROOF PARAPET), REFER TO: 1E / A515

3E PLAN DETAIL - PART C - FIRST FLOOR
1 1/2" = 1'-0"



4E PLAN DETAIL - PART C - SECOND FLOOR EJ AT GRID CA / X2
1 1/2" = 1'-0"



5E PLAN DETAIL - PART C - ROOF LEVEL THRU PARAPET AND BUILDING EJ - SOUTH SIDE
1 1/2" = 1'-0"

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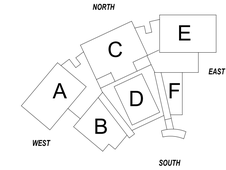
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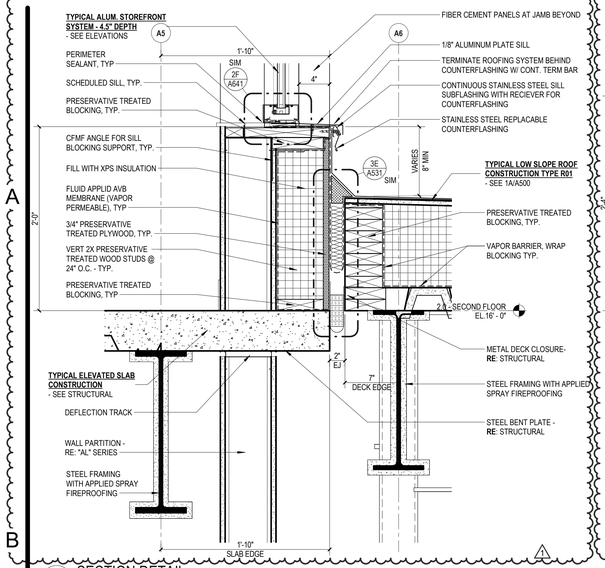
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Number	Date	Issued For
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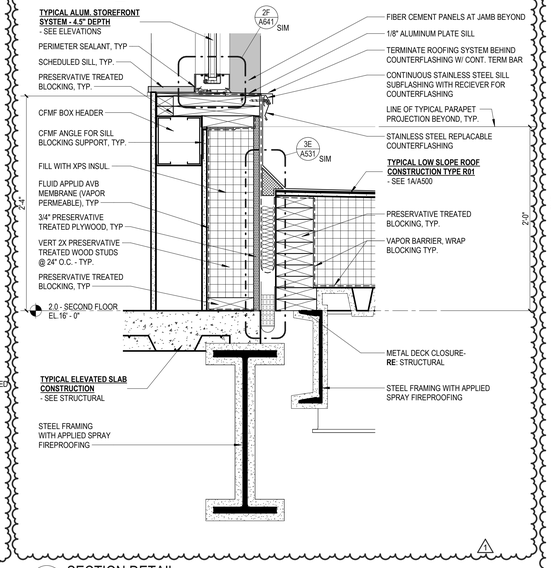
EXTERIOR PLAN DETAILS

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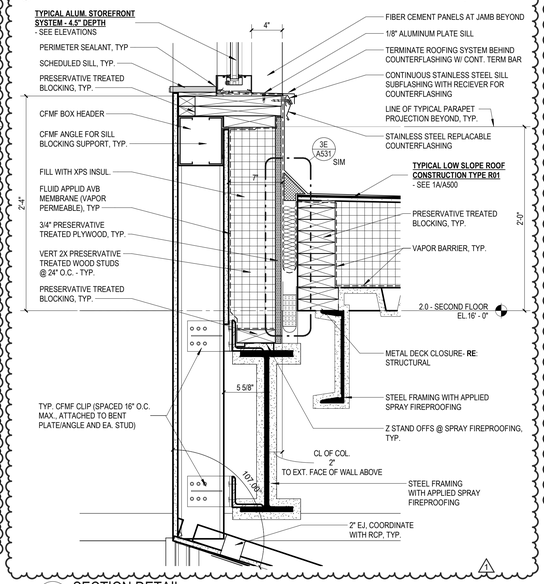
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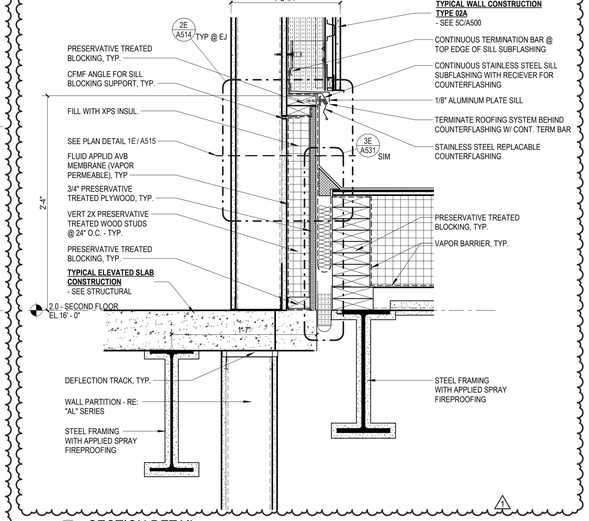
1A SECTION DETAIL
1 1/2" = 1'-0"



2A SECTION DETAIL
1 1/2" = 1'-0"

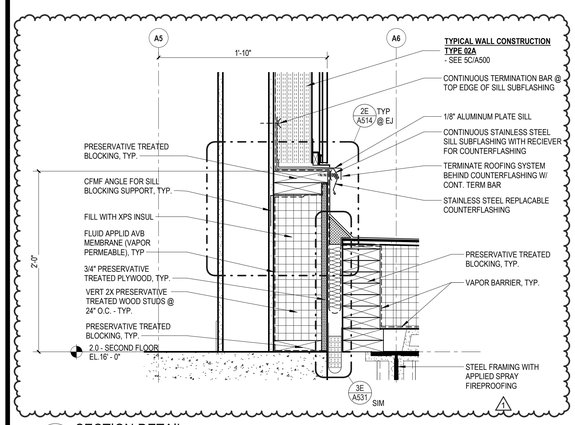


3A SECTION DETAIL
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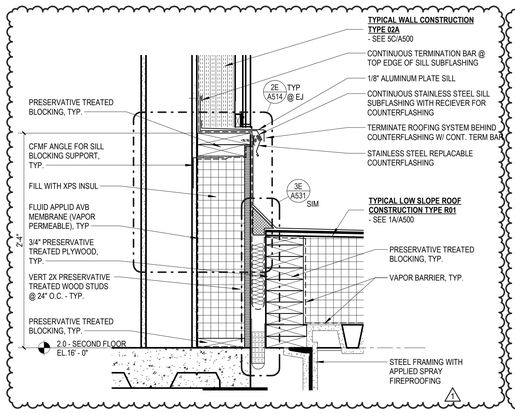


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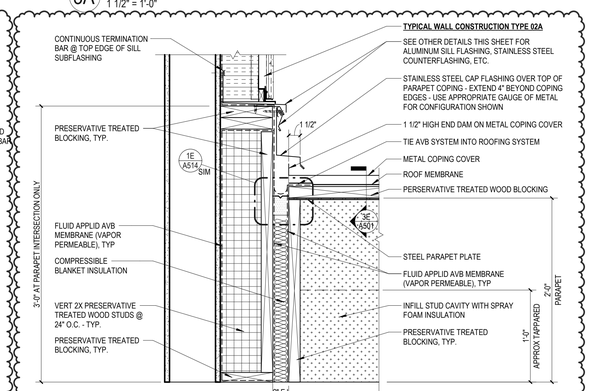
NOTE:
SEE EXTERIOR ELEVATIONS FOR PAINT COLORS OF METAL PANELS, FASCIAS, GUTTERS, DOWNSPOUTS, ETC. (ALL DETAILS THIS SHEET)



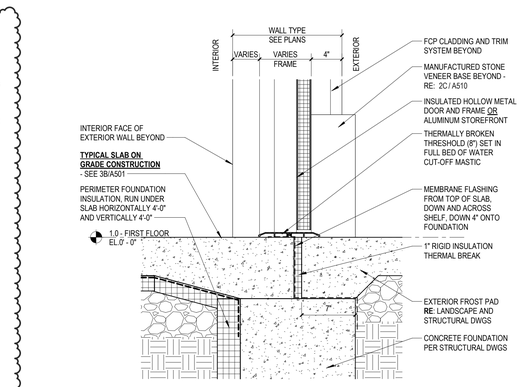
1C SECTION DETAIL
1 1/2" = 1'-0"



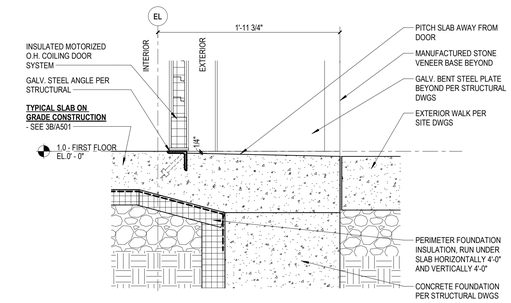
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1 1/2" = 1'-0"



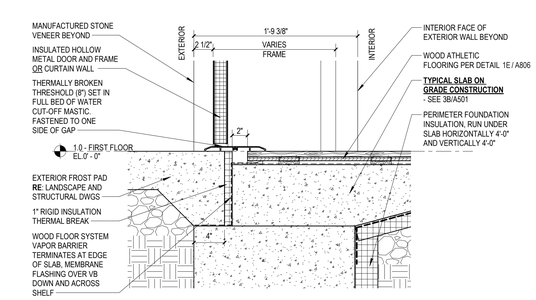
3D SECTION DETAIL
1 1/2" = 1'-0"



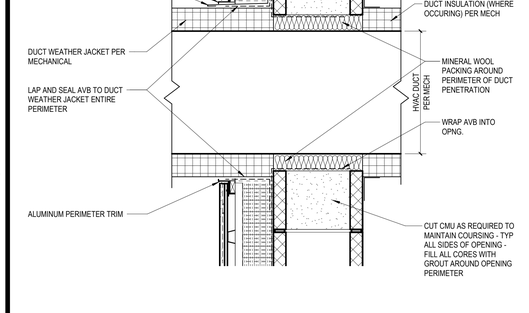
5C EXTERIOR SECTION DETAIL - THRESHOLD AT HM OR SF FRAME IN FCP
1 1/2" = 1'-0"



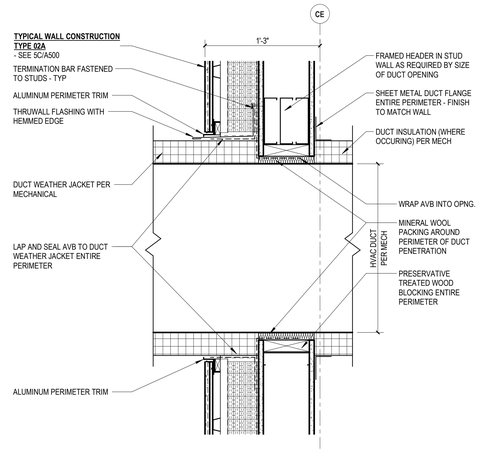
4D EXTERIOR SECTION DETAIL - THRESHOLD AT O.H. DOOR
1 1/2" = 1'-0"



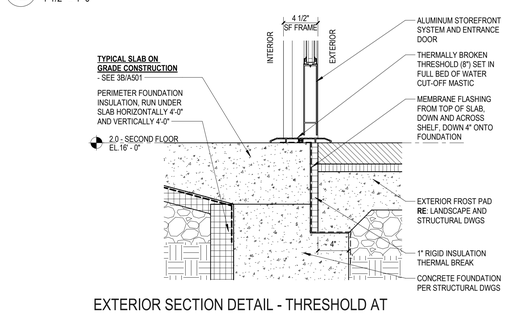
5D EXTERIOR SECTION DETAIL - THRESHOLD AT HM OR CW FRAME AT GYM
1 1/2" = 1'-0"



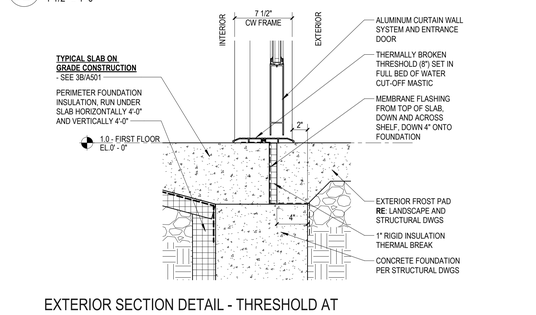
1E SECTION DETAIL - GYMNASIUM DUCT PENETRATION
1 1/2" = 1'-0"



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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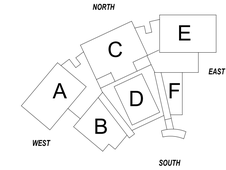
Drawn: MG
Checked: JZ

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	10/23/2024	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

Autodesk Docs://22367.00 - Greenwich Central Middle School/A_22367_GREENWICH_CENTRAL_MS_R22.rvt
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BACKFLOW PREVENTION SCHEDULE

TAG	MANUFACTURER	MODEL #	HAZARD CLASS	DESCRIPTION	COMPONENTS AND ACCESSORIES	APPLICATION	APPLICABLE STANDARDS	REMARKS
BFP-1	WATTS	LF757DCDA	NON-HEALTH HAZARD	DOUBLE CHECK VALVE ASSEMBLIES: CAST COPPER SILICONE/EPOXY COATED CAST IRON/ BRONZE C89836/ STAINLESS STEEL/BODY, CONTINUOUS PRESSURE, TESTABLE	TWO CHECK VALVES, TWO SHUTOFF VALVES, FOUR TEST COCKS, STRAINER, AND RUBBER CHECK DISC	BACKSIPHONAGE & BACKPRESSURE, FIRE SPRINKLER SYSTEMS, FOOD PROCESSING, STEAM KETTLES SIZES 2-1/2"-10"	ASSE 1015 & NSF 61-G	#1

REMARKS:
1. INSTALL IN ACCORDANCE WITH THE WATER AUTHORITY REQUIREMENTS.

COMMERCIAL SPRINKLER HEAD SCHEDULE

SYMBOL	K-FACTOR	STANDARD (SR) OR QUICK RESPONSE (QR)	UPRIGHT	PENDENT	RECESSED	CONCEALED	HORIZONTAL SIDEWALL	WITH GUARD	ABOVE CEILING	DRY	INSTITUTIONAL	EXTENDED COVERAGE	UL-LISTED	FM-APPROVED	MANUFACTURER & MODEL	MAXIMUM LISTED COVERAGE AREA L x W (FT)	MINIMUM REQUIRED PRESSURE (PSI)	GENERAL LOCATION OF SPRINKLER HEADS (REFER TO DRAWINGS FOR ACTUAL LOCATIONS)	NOTE: *ALL FINISHES ARE SUBJECT TO APPROVAL BY ARCHITECT. FINISH*	CLASSIFICATION
◉	5.6	QR				○							○	○	VIKING MODEL# VK462	15 x 15	7 PSI	SPACES & CORRIDORS WITH HUNG CEILINGS	COVER PLATE FACTORY-PAINTED WHITE.	LIGHT & ORDINARY HAZARD
◉C	5.6	QR				○							○	○	VIKING MODEL# VK462	15 x 15	7 PSI	SPACES & CORRIDORS WITH CLOUD CEILINGS	COVER PLATE FACTORY-PAINTED TO MATCH COLOR OF CLOUD	LIGHT & ORDINARY HAZARD
●D	5.6	QR		○						○			○	○	VIKING MODEL# VK176	15 x 15	7 PSI	KITCHEN FREEZER & COOLER	BRASS	LIGHT & ORDINARY HAZARD
○	5.6	QR	○										○	○	VIKING MODEL# VK300	15 x 15	7 PSI	SPACES & CORRIDORS WITHOUT HUNG CEILINGS	BRASS	LIGHT & ORDINARY HAZARD
○A	5.6	QR	○						○				○	○	VIKING MODEL# VK300	15 x 15	7 PSI	SPACES & CORRIDORS WITH CLOUD CEILINGS	BRASS	LIGHT & ORDINARY HAZARD
⊠	5.6	QR	○					○					○	○	VIKING MODEL# VK300	15 x 15	7 PSI	SPACES & CORRIDORS WITHOUT HUNG CEILINGS	BRASS	LIGHT & ORDINARY HAZARD
⊠D	5.6	QR	○					○		○			○		VIKING MODEL# VK184	15 x 15	7 PSI	PARKING GARAGE	BRASS	LIGHT & ORDINARY HAZARD
⊠ITC	5.6	QR	○					○					○	○	VIKING MODEL# VK310 INTERMEDIATE TEMPERATURE RATING	15 x 15	7 PSI	SKYLIGHT	BRASS	LIGHT & ORDINARY HAZARD
▽	5.6	QR					○						○	○	VIKING MODEL# VK305	15 x 15	7 PSI	ELECTRICAL, MDF & IDF CLOSETS	BRASS	LIGHT & ORDINARY HAZARD
▽EC	8.0	QR					○					○	○	○	VIKING MODEL# VK630	28 x 14	15 PSI	VESTIBULES	BRASS	LIGHT & ORDINARY HAZARD
▽D	5.6	QR				○		○			○		○	○	VIKING MODEL# VK182	15 x 15	7 PSI	BELOW OVERHANGS	BRASS	LIGHT & ORDINARY HAZARD

NOTES:
1. ALL TYPES OF SPRINKLER HEADS SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.
2. PROVIDED SPRINKLER GUARDS IN MECHANICAL ROOMS, ELECTRICAL & TELECOM (I.T.) CLOSETS, UPS ROOMS AND ALL ROOMS WHERE SPRINKLERS MAY BE SUBJECT TO ACCIDENTAL DAMAGE.
3. ALL SPRINKLER HEADS THROUGHOUT SHALL BE OF ORDINARY TEMPERATURE RATING (135 - 170 DEG. F.), WITH THE FOLLOWING EXCEPTIONS:
   A. SPECIFIED IN TABLE BELOW AS INTERMEDIATE OR HIGH TEMPERATURE RATING.
   B. SPRINKLER HEADS LOCATED CLOSE TO KITCHEN EQUIPMENT, HEATERS, LOW-PRESSURE BLOW-OFF VALVE SHALL BE OF THE TEMPERATURE RATING AS REQUIRED BY APPLICABLE EDITION OF NFPA - 13, DRAWINGS, PREPARED BY THE FIRE PROTECTION CONTRACTOR SHALL BE COORDINATED WITH THE HVAC CONTRACTOR AND ALL HVAC EQUIPMENT WHICH CAN AFFECT THE RATING OF THE SPRINKLER HEADS. SPRINKLER HEADS SHALL BE CLEARLY IDENTIFIED ON THE SHOP DRAWINGS PRIOR TO SUBMISSION FOR APPROVAL.
4. ALL SPRINKLER HEAD SYMBOLS NOT SHOWN ON PLANS, REFER TO "GENERAL LOCATION" COLUMN FOR ESTIMATING.
5. SPRINKLER SELECTIONS ARE BASED ON PRODUCTS MANUFACTURED BY VIKING. RELIABLE AND/OR TYCO PRODUCTS SHALL BE CONSIDERED APPROVED EQUAL PRODUCTS AND ARE SUBJECT TO THE APPROVAL OF THE ENGINEER AND ARCHITECT.
6. SPRINKLER CONTRACTOR SHALL COORDINATE THE LOCATIONS OF SPRINKLER HEADS WITH STRUCTURAL ELEMENTS AND HVAC DUCTWORK.

FIRE PUMP SCHEDULE - ELECTRIC

SYMBOL	MANUFACTURER/ MODEL NUMBER	TYPE	LOCATION	SYSTEM SERVING	MEDIA	POWER	FLOW RATE (GPM)	HEAD (PSI)	PUMP EFF (%)	HP	RPM	WEIGHT LBS	REMARKS
FP-1	ARMSTRONG PUMP ES 5x4x11.5FM	ES	FIRE SERVICE ROOM	FIRE PROTECTION	W	460V 3PH	400	40	-	25	1800	655	1, 2
JP-1	ARMSTRONG PUMP 4700 VMS-01.11B	JP	FIRE SERVICE ROOM	FIRE PROTECTION	W	460V 3PH	7.5	115	-	1.5	3600	84	3

TYPE:
JP = JOCKEY PUMP
ES = END SUCTION

MEDIA:
W = WATER

REMARKS:
1. SOFT START
2. FIRETROL FP CONTROL WITH TRANSFER SWITCH. LED VISUAL INDICATOR, PUMP OPERATING, WEEKLY TEST TIMER, DIGITAL PRESSURE RECORDING, USB HOST CONTROLLER AND PORT.
3. JOCKEY CONTROLLER WITH MIN RUN TIMER, FIRETROL FIRE PUMP CONTROLLER, FUSED DISCONNECT SWITCH. JOCKEY PUMPS SHALL BE FURNISHED AND INSTALLED AS PART OF FIRE PUMP PACKAGE

GENERAL NOTES:
THE PUMP FURNISHED FOR FIRE PROTECTION SERVICE SHALL BE SUPPLIED WITH SPECIFIED DRIVERS, CONTROLS AND PUMP ACCESSORY ITEMS BY THE PUMP MANUFACTURER. THE PUMP DRIVER AND CONTROL SHALL BE FOR FIRE PROTECTION SERVICE. THE PUMPING EQUIPMENT SHALL BE INSTALLED AS RECOMMENDED IN THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 20, STANDARD FOR THE INSTALLATION OF CENTRIFUGAL FIRE PUMPS.

- THE FIRE PUMP SHALL BE DESIGNED TO DELIVER 1000 US GPM AT A TOTAL DIFFERENTIAL PRESSURE OF 105 PSI.
- THE FIRE PUMP SHALL ALSO BE CAPABLE OF DELIVERING NOT LESS THAN 150% OF RATED FLOW AT NOT LESS THAN 65% OF RATED HEAD.
- THE PUMP SHALL BE ARMSTRONG PUMP COMPANY AS SPECIFIED AND SHALL BE FURNISHED WITH DRIVER, CONTROLLERS AND ACCESSORIES AS INDICATED.
- PUMP MANUFACTURER SHALL HAVE UNIT RESPONSIBILITY FOR THE PROPER OPERATION OF THE COMPLETE UNIT ASSEMBLY AS INDICATED BY FIELD ACCEPTANCES TESTS.

HEAT TRACE SCHEDULE

SYMBOL	APPLICATION	MANUFACTURER/ MODEL NUMBER	PIPE SIZE	HEAT LOSS (W/FT)	AMBIENT TEMPERATURE (°F)	PIPE TEMPERATURE (°F)	INSULATION K-FACTOR BTU-IN/HR-FT²-°F	INSULATION THICKNESS	MAXIMUM ALLOWABLE CABLE LENGTH (FT)	ELECTRICAL DATA V/PH/A	NOTES
HT-3	FREEZE PROTECTION	RAYCHEM/ 5XLE2-CR	1"	5	0	40	0.224	1.5"	414	208V/20A	ALL

NOTES:
1. REFER TO FLOOR PLANS FOR PIPE SIZE.
2. PROVIDE SINGLE-POINT HEAT-TRACING CONTROL SYSTEM 465.
3. INSTALL PER MANUFACTURERS GUIDELINES.
4. REFER TO MANUFACTURERS GUIDELINES FOR PIPE INSULATION REQUIREMENTS.
5. CABLE SHALL BE INSTALLED BY A LICENSED PLUMBING CONTRATOR WITH FINAL ELECTRICAL CONNECTIONS PERFORMED BY THE ELECTRICAL SUBCONTRACTOR. INSTALLATION TRAINING PROVIDED BY AUTHORIZED MANUFACTURER'S REPRESENTATIVE MUST BE COMPLETED PRIOR TO WORK MOBILIZATION. SYSTEM MUST INCLUDE PIPE INSULATION THAT FOLLOWS MANUFACTURER'S INSTRUCTIONS FOR CORRECT PERFORMANCE.
6. THE HEATING CABLE IS PERMANENTLY SECURED TO METAL PIPES WITH GT-66 GLASS TAPE, OR TO PLASTIC PIPES USING AT-180 ALUMINUM TAPE.
7. ALL HEATING CABLE SPLICES OR TEES ARE MADE ABOVEGROUND, NO BURIED OR IN-CONDUIT SPLICES OR TEES ARE ALLOWED. THE POWER CONNECTION AND END SEAL ARE MADE IN UL LISTED AND CSA CERTIFIED JUNCTION BOXES ABOVE GRADE.
8. THE HEATING CABLE IS PROTECTED FROM THE PIPE TO THE POWER CONNECTION BOX IN UL LISTED AND CSA CERTIFIED CONDUIT (MINIMUM 2/4-INCH DIAMETER) SUITABLE FOR THE LOCATION.
9. CLOSED-CELL, WATERPROOF THERMAL INSULATION WITH FIRE-RETARDANT.
10. TEST INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION, INCLUDING: RESISTANCE TESTING WITH 2500 VDC MEGOHMMETER AND CAPACITANCE TESTING.
11. PROVIDE DETAILED CIRCUIT LAYOUT WITH SUBMITTALS.
12. REGISTER INSTALLATION WITH MANUFACTURER FOR 10 YR WARRANTY.
13. ~~PROVIDE SUPERVISED CONTROLLERS WITH ALARM RELAY CONNECTED TO THE FIRE CONTORL PANEL. REFER TO FIRE ALARM PLANS. MONITOR FOR HI ALARM, LOW ALARM, LOSS~~ OF POWER, AND GFI TRIP.

PIPING LEGEND

SYMBOL	DESCRIPTION
FP-STP	STANDPIPE PIPING
FP-TH	FIRE PUMP TEST HEADER PIPING
FP-FDC	FIRE DEPARTMENT CONNECTION
FP-FDC-	FIRE DEPARTMENT CONNECTION BELOW GROUND
FP-DRAIN	DRAIN PIPING
FP-WET	SPRINKLER MAIN (WET)
	PIPE RISE
	PIPE DROP
	PIPE TEE TOWARDS (UP IN PLAN)
	PIPE TEE AWAY (DOWN IN PLAN)
	PIPE DROP AND RUN
	DIRECTION OF FLOW
	BLIND FLANGE
	END CAP
	REDUCER (ECCENTRIC)
	REDUCER (CONCENTRIC)
	FLEXIBLE CONNECTION

VALVE AND SYMBOL LEGEND

SYMBOL	DESCRIPTION
	BALL VALVE
	BALL VALVE WITH HOSE BIBB, CAP & CHAIN (DRAIN VALVES)
	BUTTERFLY VALVE
	GATE VALVE
	OS&Y VALVE
	PRESSURE REDUCING VALVE
	CHECK VALVE
	STRAINER W/BALL VALVE, HOSE BIBB & CAP
	SAFETY RELIEF VALVE
	FLOW SWITCH
	PRESSURE GAUGE
	THERMOMETER
	DOUBLE CHECK VALVE ASSEMBLY
	ALARM BELL
	"WET" ALARM VALVE RISER
	ANGLE VALVE
	SIGHT GLASS
	FIRE DEPARTMENT CONNECTION
	FLUSH MOUNTED FIRE PUMP TEST HEADER
	POST MOUNTED FIRE DEPARTMENT CONNECTION
TS	TAMPER SWITCH
PS	PRESSURE SWITCH
ATS	AUTOMATIC TRANSFER SWITCH
FPC	FIRE PUMP CONTROLLER
JPC	JOCKEY PUMP CONTROLLER
HVC	HOSE VALVE CABINET

SPRINKLER SYSTEM NOTES

1. THESE GENERAL NOTES ARE APPLICABLE TO ALL FIRE PROTECTION DRAWINGS.
2. DRAWINGS ARE DIAGRAMMATIC AND SHOW THE GENERAL INTENT OF WORK, SEE DETAILS, RISERS, AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. THE DRAWINGS INDICATE A SUGGESTED SPRINKLER HEAD LAYOUT AND THAT EACH AREA IS COVERED BY SPRINKLER PROTECTION AS REQUIRED BY ALL APPLICABLE CT BUILDING AND FIRE CODES. THE SPRINKLER QUANTITIES SHALL NOT BE COUNTED AS A TAKE OFF OR AS EXACT LOCATIONS. EXACT SPACING, DENSITY, AND LOCATION REQUIREMENTS SHALL BE AS DICTATED BY NFPA 13. FINAL LOCATIONS OF SPRINKLER HEADS SHALL BE COORDINATED WITH THE ARCHITECT.
4. FLOW DATA PERFORMED ON 02/12/2024 AT A HYDRANT LOCATED AT STANWICH RD WAS RECORDED AS FOLLOWS:
   A. STATIC PRESSURE: 110 PSI
   B. RESIDUAL PRESSURE: 55 PSI
   C. FLOW RATE: 1095 GPM
5. THIS FLOW DATA SHALL BE USED AS A GUIDE BY THE CONTRACTOR. THE CONTRACTOR SHALL PERFORM AN ADDITIONAL FLOW TEST TO VERIFY THIS INFORMATION. INFORMATION FROM THE CONTRACTOR'S FLOW TEST SHALL BE USED FOR HYDRAULIC CALCULATIONS.
6. FIRE PROTECTION CONTRACTOR SHALL PROVIDE HYDRAULIC CALCULATIONS. HYDRAULIC CALCULATIONS SHALL INCLUDE A SAFETY FACTOR OF 10 %. COMBINED INSIDE AND OUTSIDE HOSE STREAM ALLOWANCE FOR HYDRAULIC CALCULATIONS SHALL BE 250 GPM.
7. THE CONTENT OF THESE DRAWINGS IS INTENDED TO SATISFY THE BUILDING CODE REQUIREMENTS FOR CONSTRUCTION DOCUMENTS. WHEN STAMPED AND SEALED BY THE ENGINEER OF RECORD, THEY ARE INTENDED TO BE USED AS PART OF THE BUILDING PERMIT APPLICATION ONLY.
8. FIRE SUPPRESSION SYSTEM SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW AND APPROVED PRIOR TO CONSTRUCTION. PROVIDE A COMPLETE SHOP DRAWING SUBMITTAL INCLUSIVE OF ALL INFORMATION REQUIRED BY STATE BUILDING CODE, NFPA 13 AND THE CONSTRUCTION DOCUMENTS.
9. PREPARE A COMPLETE RECORD SUBMITTAL INCLUSIVE OF ALL FIELD CHANGES AND ALL INFORMATION REQUIRED BY THE STATE BUILDING CODE AND CONSTRUCTION DOCUMENTS.
10. SHOP DRAWINGS AND RECORD DRAWING SUBMITTALS SHALL BE PREPARED BY THE CONTRACTORS QUALIFIED DESIGNER AND SHALL INDICATE THE DESIGNER'S NICET CERTIFICATION NUMBER OR PROFESSIONAL ENGINEERING SEAL AND SIGNATURE.
11. THE ENGINEER OF RECORD WILL NOT SIGN AND SEAL SHOP DRAWINGS OR RECORD DRAWINGS PREPARED BY THE CONTRACTOR. WHERE THE AUTHORITY HAVING JURISDICTION REQUIRES SHOP DRAWING OR RECORD DRAWING SUBMITTALS TO BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, THE SUBMITTALS SHALL BE PREPARED BY A QUALIFIED PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR.
12. THE SHOP DRAWINGS, SUPPLEMENTAL CALCULATIONS AND MATERIAL SUBMITTALS SHALL BE REVIEWED AND APPROVED BY THE ENGINEER OF RECORD PRIOR TO SUBMITTAL TO THE STATE DIVISION OF ENGINEERING AND BUILDINGS.
13. INSTALLATION OF SPRINKLERS SHALL BE BASED ON THE DESIGN CRITERIA BELOW

AREA	OCCUPANCY CLASSIFICATION	DENSITY (GPM/SF)	AREA OF APPLICATION (SF)
MECHANICAL ROOM	ORDINARY HAZARD GROUP 1	0.15	1500
STORAGE ROOMS	ORDINARY HAZARD GROUP 1	0.15	1500
STAGE	ORDINARY HAZARD GROUP 2	0.20	1500
WOOD SHOP	ORDINARY HAZARD GROUP 2	0.20	1500
REMAINDER OF THE BUILDING	LIGHT HAZARD	0.10	1500
KITCHEN	ORDINARY HAZARD GROUP 1	0.15	1500

FIRE PROTECTION ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AFF	ABOVE FINISHED FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
CR	CORROSION RESISTANT
D	DRY
DCV	DOUBLE CHECK VALVE
EC	EXTENDED COVERAGE
ELEV	ELEVATION
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FD	FIRE DEPARTMENT
FDC	FIRE DEPARTMENT CONNECTION
FHV	FIRE HOSE VALVE
FP	FIRE PROTECTION
FPC	FIRE PUMP CONTROLLER
FPM	FEET PER MINUTE
FS	FLOW SWITCH
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HD	TOTAL DEVELOPED HEAD
HTC	HIGH TEMPERATURE CLASSIFICATION
HVC	HOSE VALVE CABINET
ITC	INTERMEDIATE TEMPERATURE CLASSIFICATION
JP	JOCKEY PUMP
JPC	JOCKEY PUMP CONTROLLER
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NTS	NOT TO SCALE
OS&Y	OUTSIDE SCREW AND YOLK
PA	PREACTION
PAC	PREACTION ALARM VALVE CABINET
PD	PRESSURE DROP
PIV	PRESSURE INDICATOR VALVE
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
RPM	REVOLUTIONS PER MINUTE
SS	SUPERVISORY SWITCH
TS	TAMPER SWITCH
TYP	TYPICAL
V	VOLTS
VEL	VELOCITY
WG	WIRE GUARD

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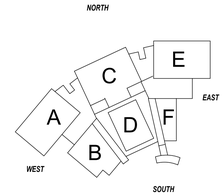
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CES #2023095.00

Greenwich Public Schools

Greenwich Central Middle School

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STATE PROJECT NO: 057-0114 N



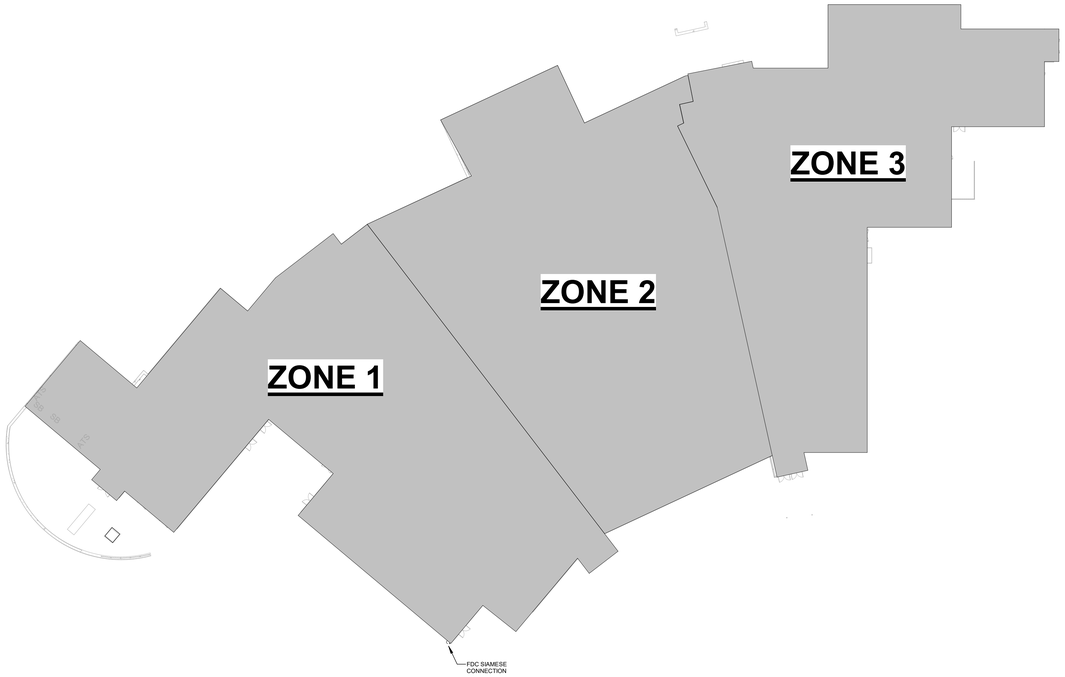
KEYPLAN

Number	Date	Issued For
2	10/23/2024	ADDENDUM NO. 3
1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

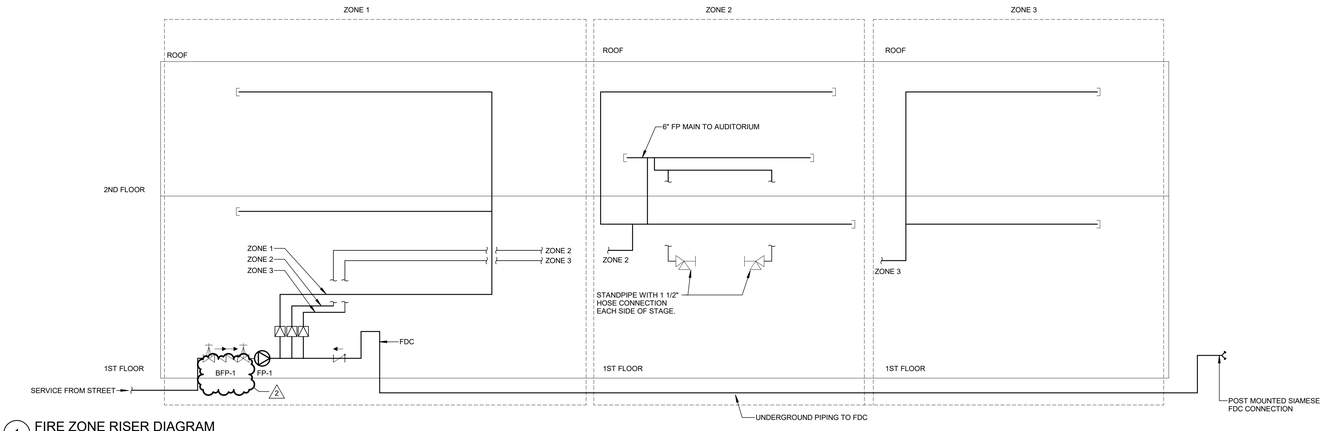
FIRE PROTECTION ABBREVIATIONS, NOTES AND SYMBOLS

Date 07/08/2024
Scale As indicated
Proj. Number 22367.00
Drawing Number **FP000**

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2 FIRE PROTECTION FIRST FLOOR ZONING PLAN
1/32" = 1'-0"



1 FIRE ZONE RISER DIAGRAM
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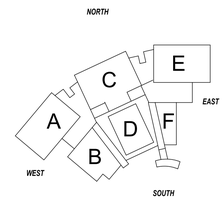
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KEYPLAN

Number	Date	Issued For
2	10/23/2024	ADDENDUM NO. 3
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

FIRE PROTECTION ZONING PLAN

Date
07/08/2024
Scale
As indicated
Proj. Number
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KEYNOTES - FIRE PROTECTION

Key Value	Keynote Text
FP1	6" FP SERVICE FROM THE STREET. REFER TO FIRE SERVICE DETAIL.
FP2	ELECTRIC FIRE PUMP. REFER TO FIRE PUMP DETAIL.
FP5	PROVIDE UPRIGHT SPRINKLERS WITH GUARD BELOW STAIRWELL AND STAIR LANDINGS TO PROVIDE COMPLETE COVERAGE PER NFPA 13. SPRINKLERS TO BE SUPPLIED FROM MAIN ON EACH RESPECTIVE FLOOR.
FP6	PROVIDE UPRIGHT SPRINKLERS ABOVE CLOUD CEILING AND CONCEALED PENDANT SPRINKLERS IN CLOUD CEILING. TYPICAL FOR ALL SPRINKLERS IN CAFETERIA AREA. MATCH CONCEALED SPRINKLER PLATE WITH FINISH COLOR OF CLOUD CEILING.
FP14	FIRE PUMP TEST HEADER CONNECTION. REFER TO FIRE PUMP TEST HEADER DETAIL.
FP20	WET SPRINKLER PIPE SHALL NOT BE ROUTED DIRECTLY ABOVE ELECTRICAL PANELS.
FP22	PROVIDE FLEXIBLE COUPLINGS WHERE PIPES CONNECT AT ANGLES NOT EQUAL TO 45 OR 90 DEGREES. PENETRATE WALLS AT 90 DEGREES WHENEVER POSSIBLE (TYPICAL).



1 FIRE PROTECTION FIRST FLOOR PLAN - A
1/8" = 1'-0"

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KEYPLAN

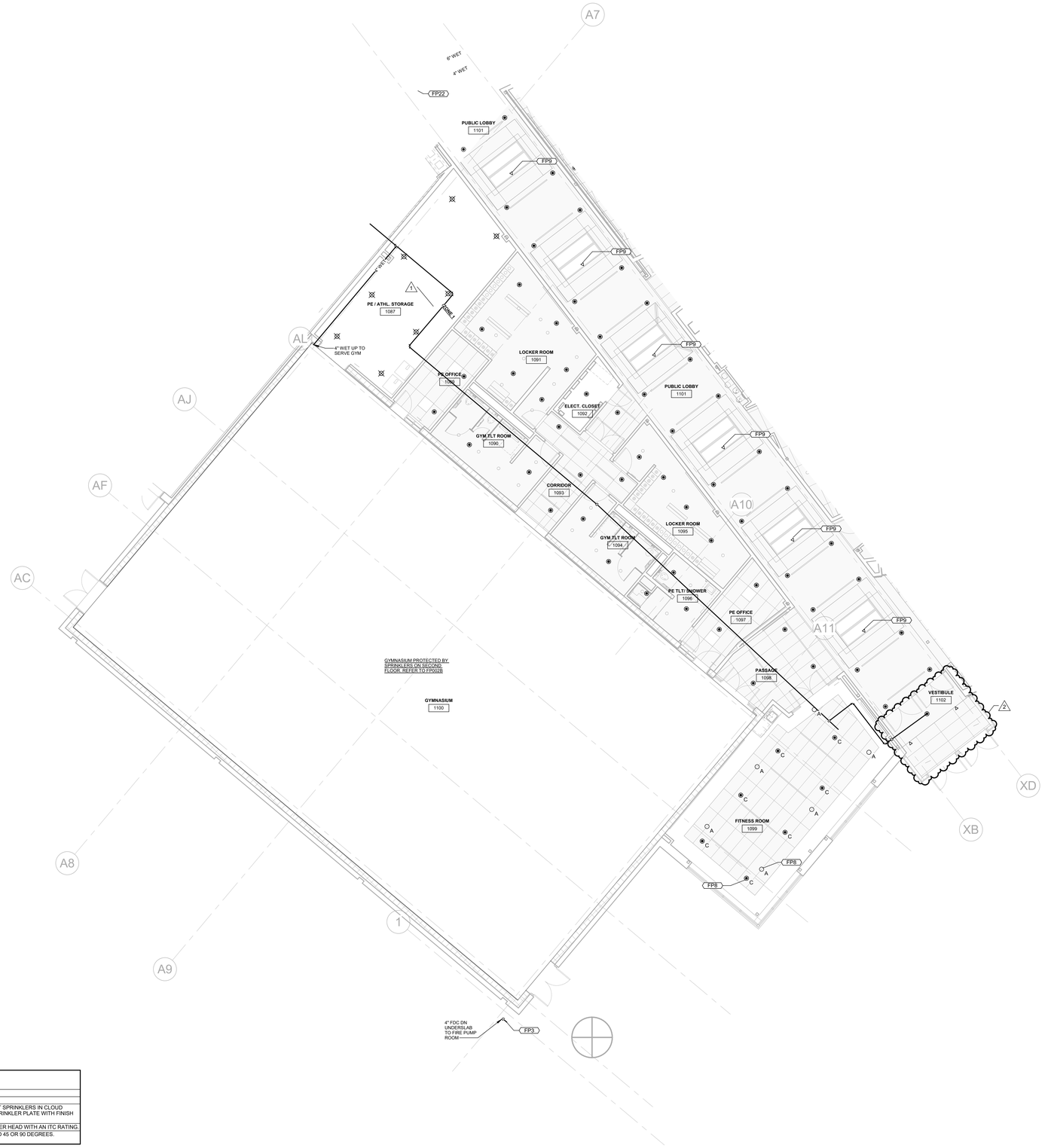
Number	Date	Issued For
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1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

FIRE PROTECTION FIRST FLOOR PLAN - PART A

Date: 07/08/2024
Scale: 1/8" = 1'-0"
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Drawing Number: FP101A

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KEYNOTES - FIRE PROTECTION

Key Value	Keynote Text
FP3	REFER TO GRADE MOUNTED FIRE DEPARTMENT CONNECTION.
FP8	PROVIDE UPRIGHT SPRINKLERS ABOVE CLOUD CEILING AND CONCEALED PENDANT SPRINKLERS IN CLOUD CEILING. TYPICAL FOR ALL SPRINKLERS IN FITNESS ROOM. MATCH CONCEALED SPRINKLER PLATE WITH FINISH COLOR OF CLOUD CEILING.
FP9	REFER TO #1/FP400 FOR SKYLIGHT SIDEWALL SPRINKLER HEAD. PROVIDE SPRINKLER HEAD WITH AN ITC RATING.
FP22	PROVIDE FLEXIBLE COUPLINGS WHERE PIPES CONNECT AT ANGLES NOT EQUAL TO 45 OR 90 DEGREES. PENETRATE WALLS AT 90 DEGREES WHENEVER POSSIBLE (TYPICAL).

1 FIRE PROTECTION FIRST FLOOR PLAN - B
1/8" = 1'-0"

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FIRE PROTECTION FIRST FLOOR PLAN - PART B

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Drawing Number: FP101B

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KEYNOTES - ELECTRICAL SITE UTILITY	
Key Value	Keynote Text
FP5	PROVIDE UPRIGHT SPRINKLERS WITH GUARD BELOW STAIRWELL AND STAIR LANDINGS TO PROVIDE COMPLETE COVERAGE PER NFPA 13. SPRINKLERS TO BE SUPPLIED FROM MAIN ON EACH RESPECTIVE FLOOR.
FP9	REFER TO #1/FP400 FOR SKYLIGHT SIDEWALL SPRINKLER HEAD. PROVIDE SPRINKLER HEAD WITH AN ITC RATING.
FP10	PROVIDE UPRIGHT SPRINKLERS ABOVE CLOUD CEILING AND CONCEALED PENDANT SPRINKLERS IN CLOUD CEILING. TYPICAL FOR ALL SPRINKLERS IN MEDIA CENTER. MATCH CONCEALED SPRINKLER PLATES WITH FINISH COLOR OF CLOUD CEILING.
FP19	PROVIDE UPRIGHT SPRINKLER WITH GUARD UNDER OBSTRUCTIONS AND DUCTWORK OVER 48" IN WIDTH AS PER NFPA 13. TYPICAL OF ALL SPRINKLERS IN MECHANICAL ROOMS
FP22	PROVIDE FLEXIBLE COUPLINGS WHERE PIPES CONNECT AT ANGLES NOT EQUAL TO 45 OR 90 DEGREES. PENETRATE WALLS AT 90 DEGREES WHENEVER POSSIBLE (TYPICAL).



1 FIRE PROTECTION FIRST FLOOR PLAN - C
1/8" = 1'-0"

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FIRE PROTECTION FIRST FLOOR PLAN - PART C

Date: 07/08/2024
Scale: 1/8" = 1'-0"
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Drawing Number: FP101C

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KEYNOTES - FIRE PROTECTION

Key Value	Keynote Text
FP9	REFER TO #1/FP400 FOR SKYLIGHT SIDEWALL SPRINKLER HEAD. PROVIDE SPRINKLER HEAD WITH AN ITC RATING.
FP21	COORDINATE SPRINKLER LAYOUT WITH DUCTWORK TO COORDINATE AROUND OBSTRUCTIONS PER NFPA 13.
FP22	PROVIDE FLEXIBLE COUPLINGS WHERE PIPES CONNECT AT ANGLES NOT EQUAL TO 45 OR 90 DEGREES. PENETRATE WALLS AT 90 DEGREES WHENEVER POSSIBLE (TYPICAL).

1 FIRE PROTECTION FIRST FLOOR PLAN - D
1/8" = 1'-0"

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1	10/16/2024	ADDENDUM NO. 2
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	07/08/2024	PHASE 2

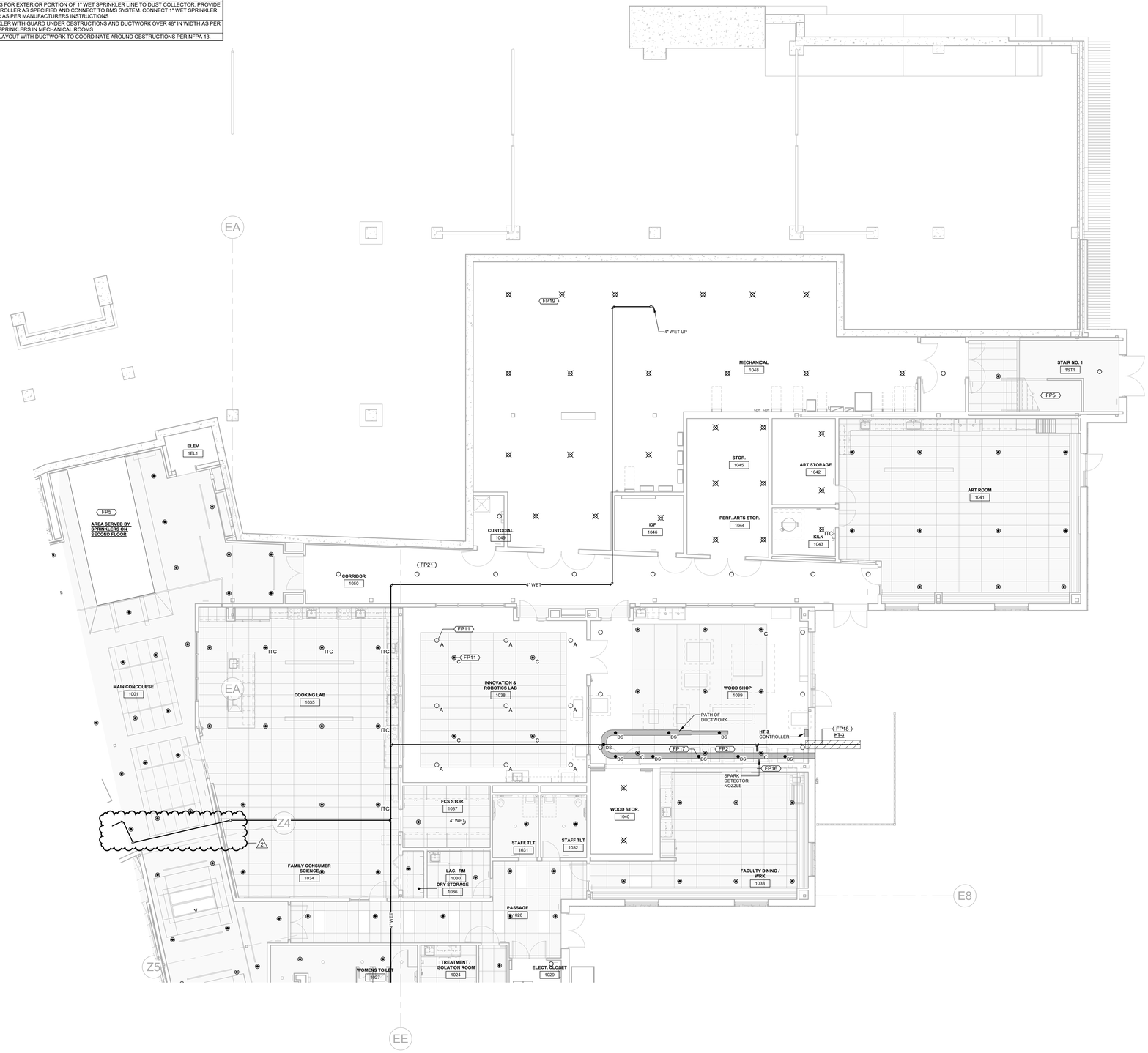
FIRE PROTECTION FIRST FLOOR PLAN - PART D

Date 07/08/2024
Scale 1/8" = 1'-0"
Proj. Number 22367.00
Drawing Number FP101D

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KEYNOTES - FIRE PROTECTION

Key Value	Keynote Text
FP5	PROVIDE UPRIGHT SPRINKLERS WITH GUARD BELOW STAIRWELL AND STAIR LANDINGS TO PROVIDE COMPLETE COVERAGE PER NFPA 13. SPRINKLERS TO BE SUPPLIED FROM MAIN ON EACH RESPECTIVE FLOOR.
FP11	PROVIDE UPRIGHT SPRINKLERS ABOVE CLOUD CEILING AND CONCEALED PENDANT SPRINKLERS IN CLOUD CEILING. TYPICAL FOR ALL SPRINKLERS IN WOOD SHOP. MATCH CONCEALED SPRINKLER PLATE WITH FINISH COLOR OF CLOUD.
FP16	2" WET FP PIPE SHALL CONNECT TO SPARK DETECTOR NOZZLE. SPARK DETECTOR NOZZLE BY DIV 23
FP17	QUICK RESPONSE PENDANT SPRINKLER WITH CORROSION RESISTANT FINISHINSIDE DUST COLLECTION DUCTWORK 9" OR LARGER. PROVIDE ALL SPRINKLERS IN DUCTWORK WITH CELLOPHANE BAGS. PROVIDE MIN 19 GPM AT 50 PSI FOR EACH NOZZLE. TYP WHERE TAGGED "DS".
FP18	PROVIDE HEAT TRACE HT-3 FOR EXTERIOR PORTION OF 1" WET SPRINKLER LINE TO DUST COLLECTOR. PROVIDE INSULATION AND HT CONTROLLER AS SPECIFIED AND CONNECT TO BMS SYSTEM. CONNECT 1" WET SPRINKLER LINE TO DUST COLLECTOR AS PER MANUFACTURERS INSTRUCTIONS
FP19	PROVIDE UPRIGHT SPRINKLER WITH GUARD UNDER OBSTRUCTIONS AND DUCTWORK OVER 48" IN WIDTH AS PER NFPA 13. TYPICAL OF ALL SPRINKLERS IN MECHANICAL ROOMS
FP21	COORDINATE SPRINKLER LAYOUT WITH DUCTWORK TO COORDINATE AROUND OBSTRUCTIONS PER NFPA 13.



2 FIRE PROTECTION FIRST FLOOR PLAN - E
1/8" = 1'-0"

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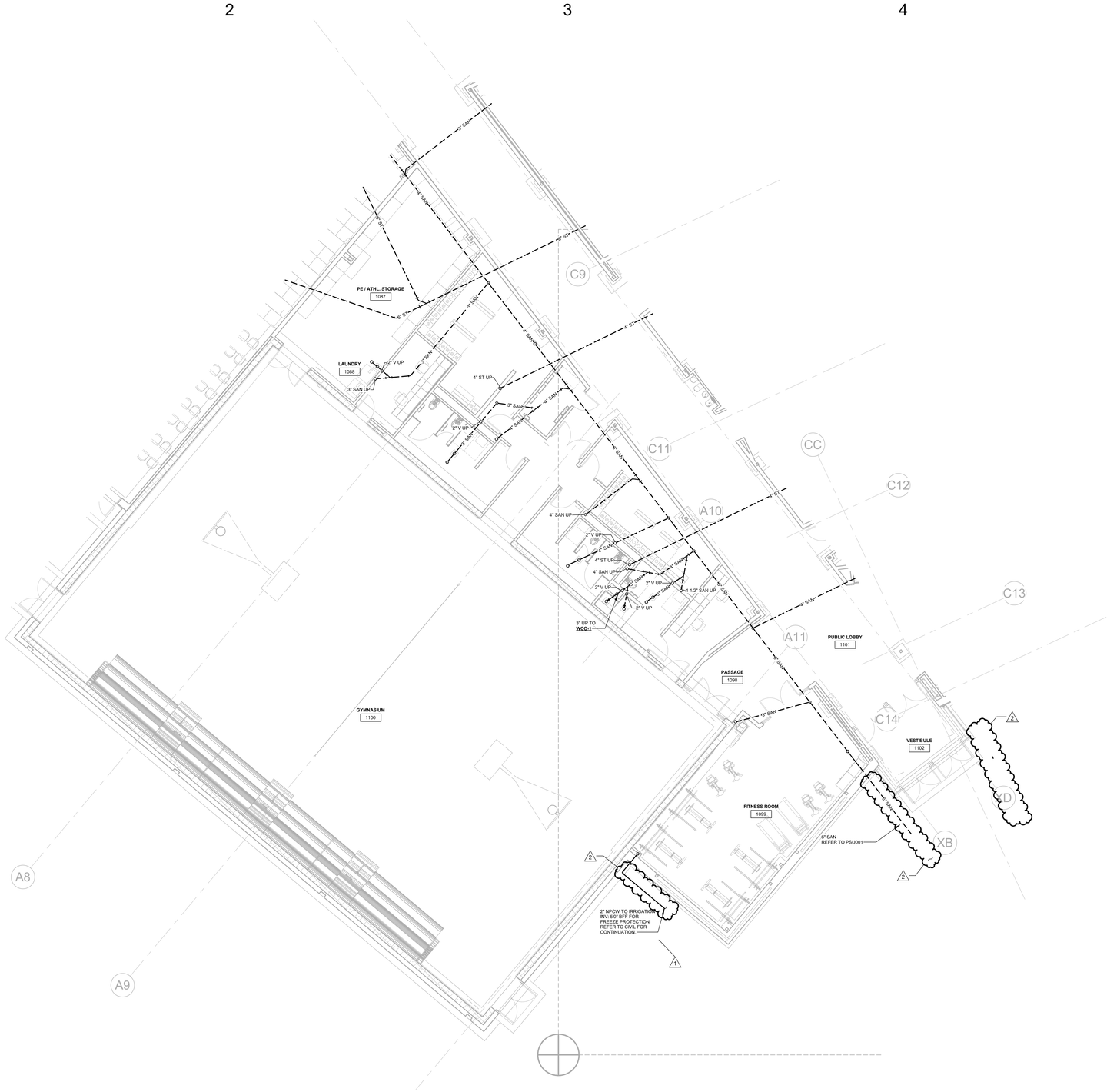
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FIRE PROTECTION FIRST FLOOR PLAN PART - E

Date: 07/08/2024
Scale: 1/8" = 1'-0"
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Drawing Number: FP101E

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1 PLUMBING FIRST FLOOR UNDERSLAB PLAN - B
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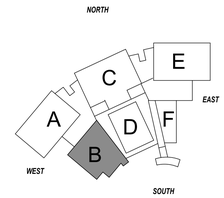
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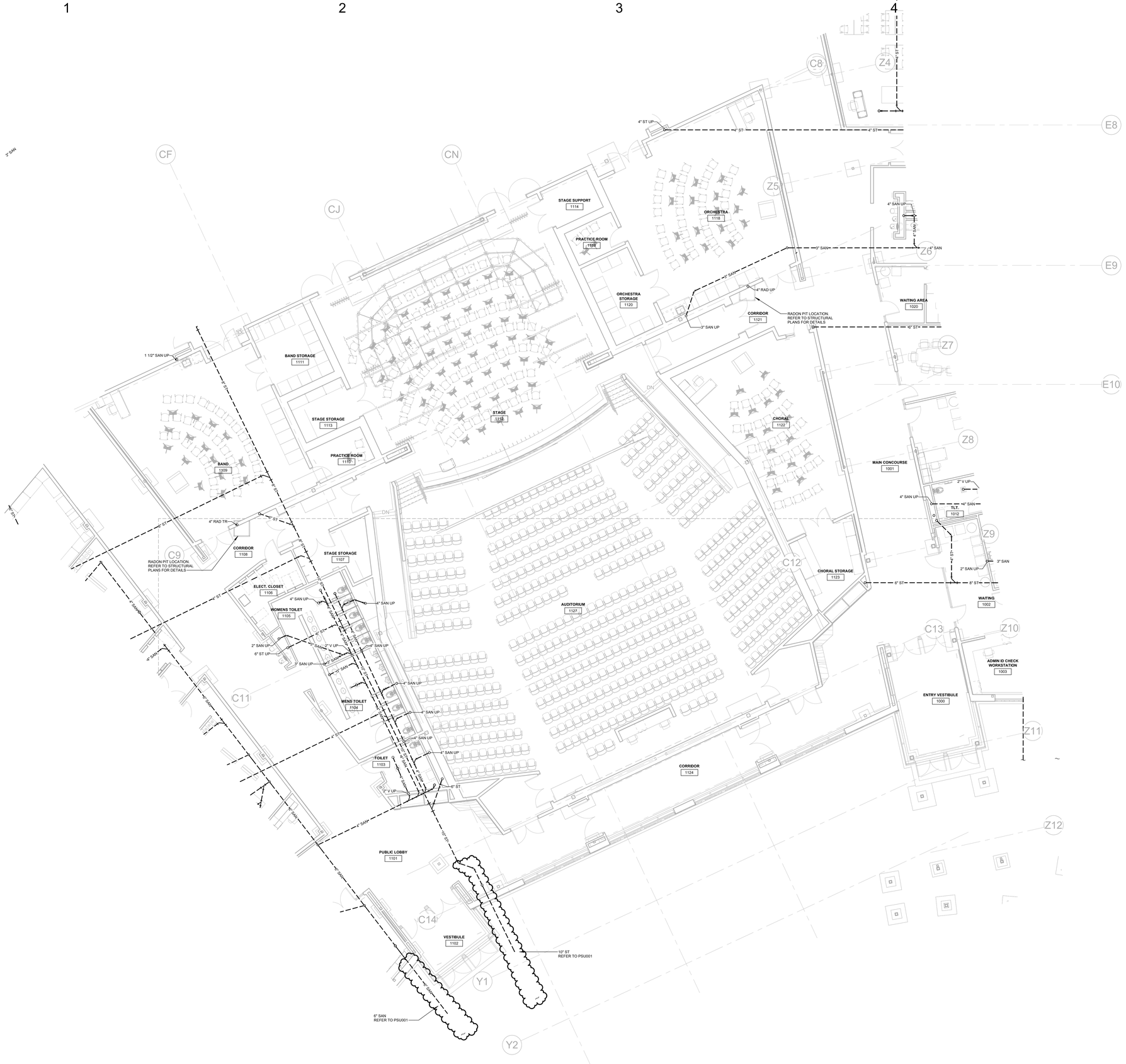
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PLUMBING FIRST FLOOR UNDERSLAB PLAN - PART B

Date: 07/08/2024
Scale: 1/8" = 1'-0"
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1 PLUMBING FIRST FLOOR UNDERSLAB PLAN - D
1/8" = 1'-0"

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KEYPLAN

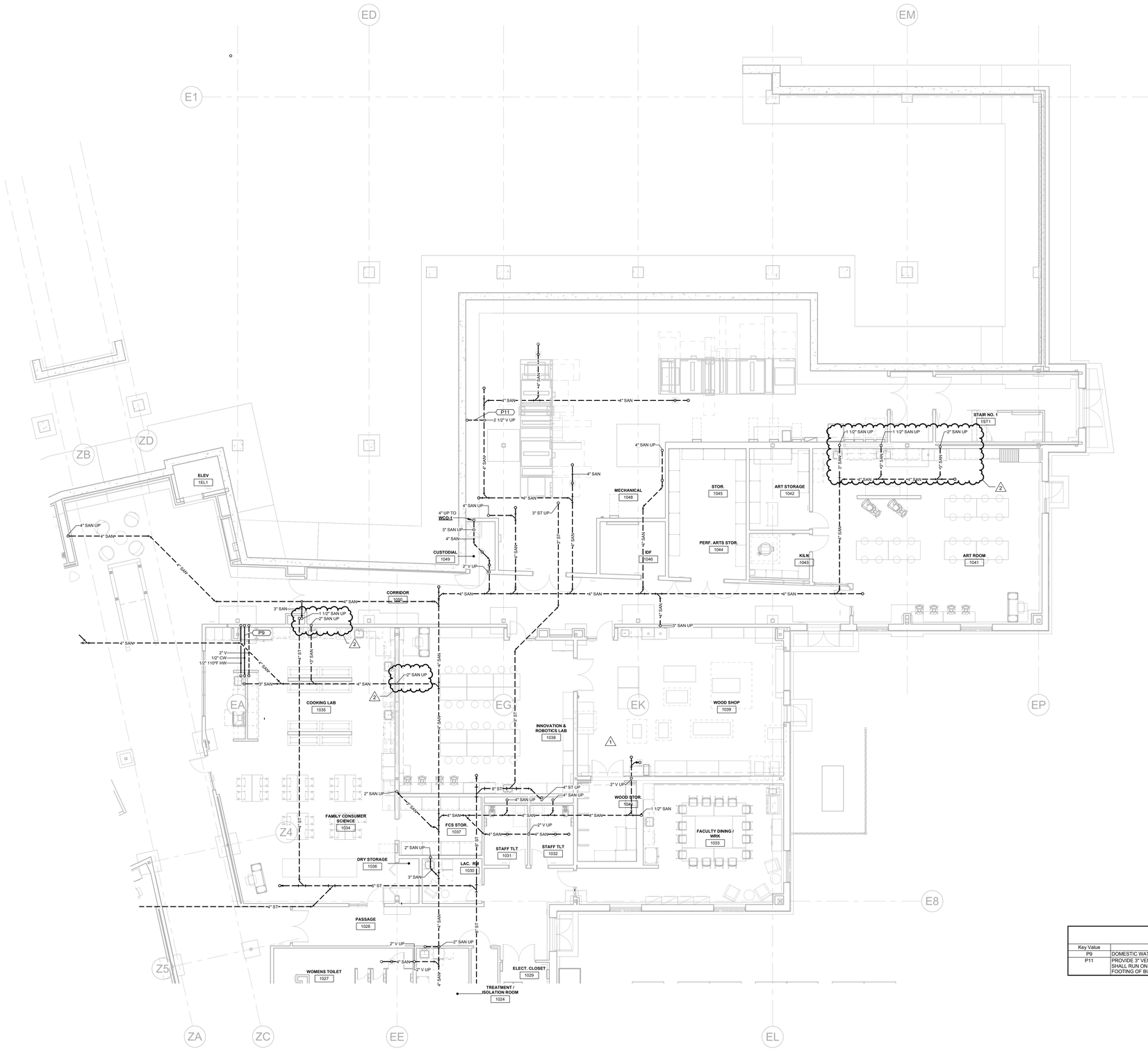
Number	Date	Issued For
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	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

PLUMBING FIRST FLOOR UNDERSLAB PLAN - PART D

Date: 07/08/2024
Scale: 1/8" = 1'-0"
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1 PLUMBING FIRST FLOOR UNDERSLAB PLAN - E
1/8" = 1'-0"

KEYNOTES - PLUMBING

Key Value	Keynote Text
P9	DOMESTIC WATER PIPING BENEATH SLAB. PIPING SHALL BE TYPE K COPPER WITH ELASTOMERIC INSULATION.
P11	PROVIDE 3" VENT FOR FLOOR DRAINS IN MECHANICAL ROOM FROM UNDERSLAB SANITARY LINE. VENT LINE SHALL RUN ON 45 DEGREE VERTICAL ANGLE UNTIL IT IS ABOVE SLAB. COORDINATE VENT WITH FOUNDATION FOOTING OF BUILDING.

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1	10/16/2024	ADDENDUM NO. 2
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	07/08/2024	PHASE 2

PLUMBING FIRST FLOOR UNDERSLAB PLAN - PART E

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00
Drawing Number: P100E

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1 PLUMBING FIRST FLOOR UNDERSLAB PLAN - F
1/8" = 1'-0"

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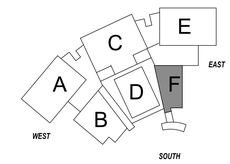
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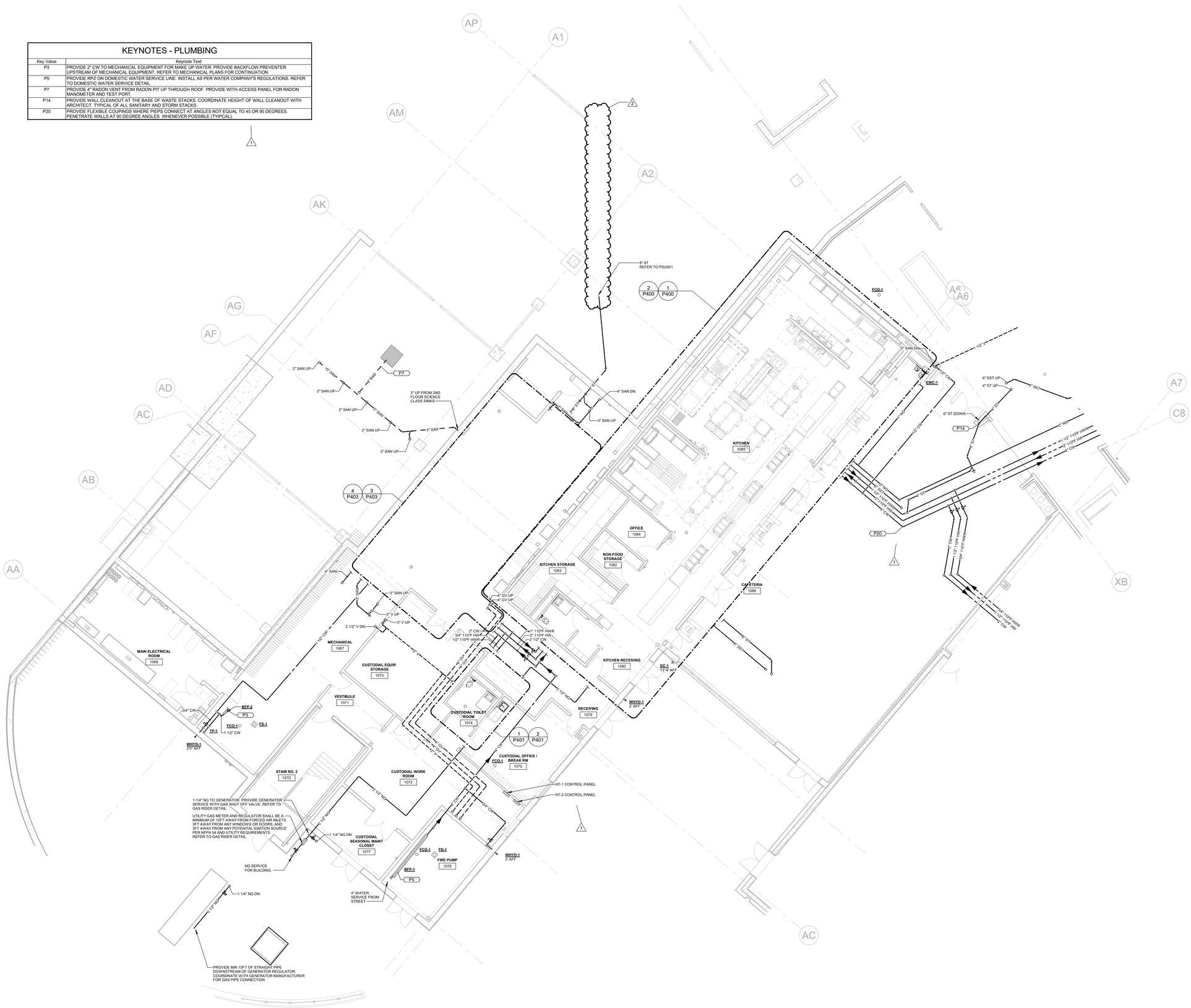
PLUMBING FIRST FLOOR UNDERSLAB PLAN - PART F

Date: 07/08/2024
Scale: 1/8" = 1'-0"
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Drawing Number: P100F

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KEYNOTES - PLUMBING	
Key Value	Keynote Text
P3	PROVIDE 2" CW TO MECHANICAL EQUIPMENT FOR MAKE UP WATER. PROVIDE BACKFLOW PREVENTER UPSTREAM OF MECHANICAL EQUIPMENT. REFER TO MECHANICAL PLANS FOR CONTINUATION.
P5	PROVIDE RPZ ON DOMESTIC WATER SERVICE LINE. INSTALL AS PER WATER COMPANY'S REGULATIONS. REFER TO DOMESTIC WATER SERVICE DETAIL.
P7	PROVIDE 4" RADON VENT FROM RADON PIT UP THROUGH ROOF. PROVIDE WITH ACCESS PANEL FOR RADON MANOMETER AND TEST PORT.
P14	PROVIDE WALL CLEANOUT AT THE BASE OF WASTE STACKS. COORDINATE HEIGHT OF WALL CLEANOUT WITH ARCHITECT. TYPICAL OF ALL SANITARY AND STORM STACKS.
P20	PROVIDE FLEXIBLE COUPINGS WHERE PIEPS CONNECT AT ANGLES NOT EQUAL TO 45 OR 90 DEGREES. PENETRATE WALLS AT 90 DEGREE ANGLES. WHENEVER POSSIBLE (TYPICAL).



1 PLUMBING FIRST FLOOR PLAN - A
1/8" = 1'-0"

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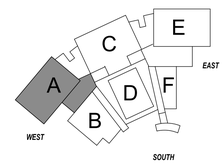
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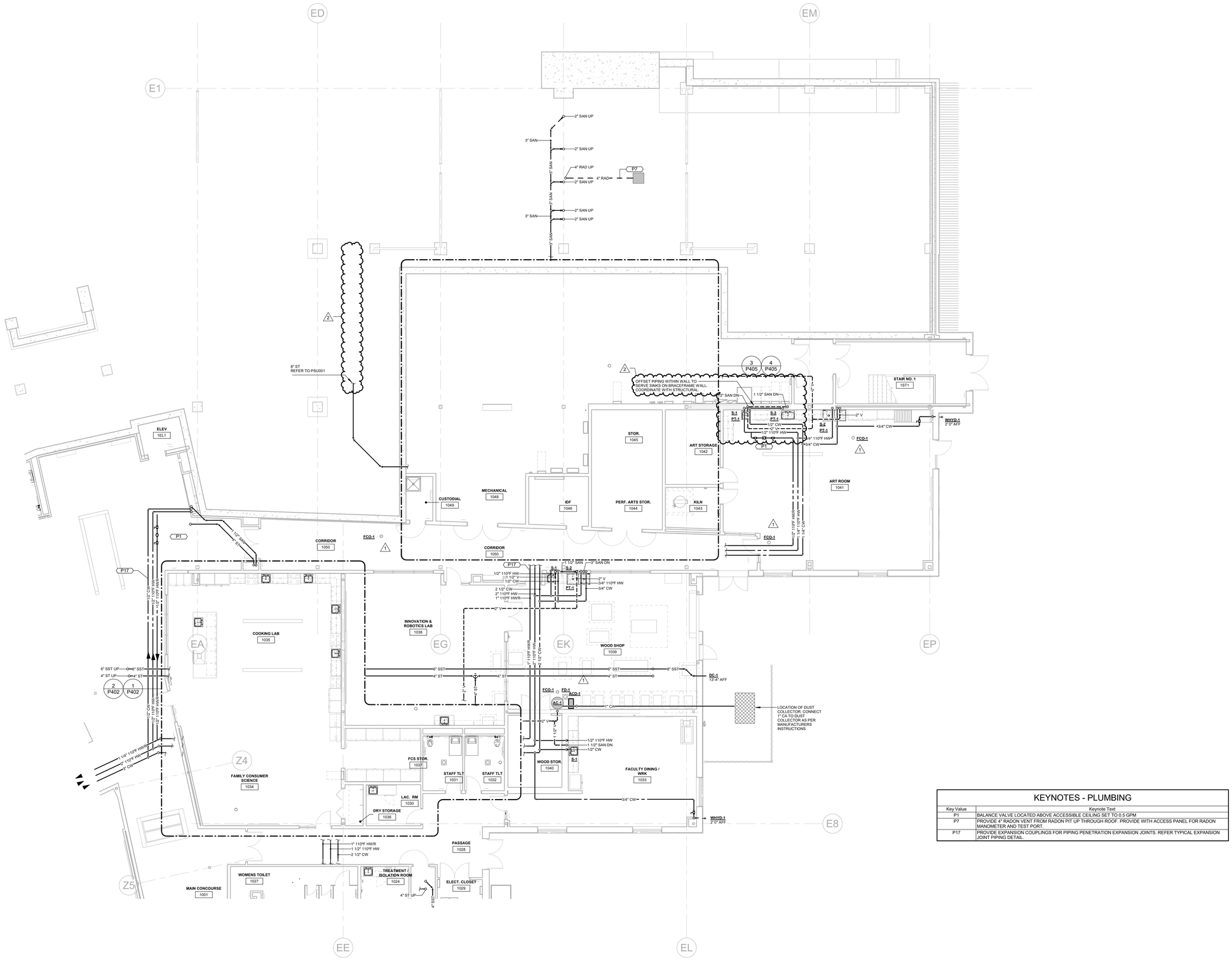
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PLUMBING FIRST FLOOR PLAN - PART A

Date: 07/08/2024
Scale: 1/8" = 1'-0"
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Drawing Number: P101A

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1 PLUMBING FIRST FLOOR PLAN - E
1/8" = 1'-0"

KEYNOTES - PLUMBING

Key Value	Keynote Text
P1	BALANCE VALVE LOCATED ABOVE ACCESSIBLE CEILING SET TO 0.5 GPM
P7	PROVIDE 4" RADON VENT FROM RADON PIT UP THROUGH ROOF. PROVIDE WITH ACCESS PANEL FOR RADON MANOMETER AND TEST PORT.
P17	PROVIDE EXPANSION COUPLINGS FOR PIPING PENETRATION EXPANSION JOINTS. REFER TYPICAL EXPANSION JOINT PIPING DETAIL.

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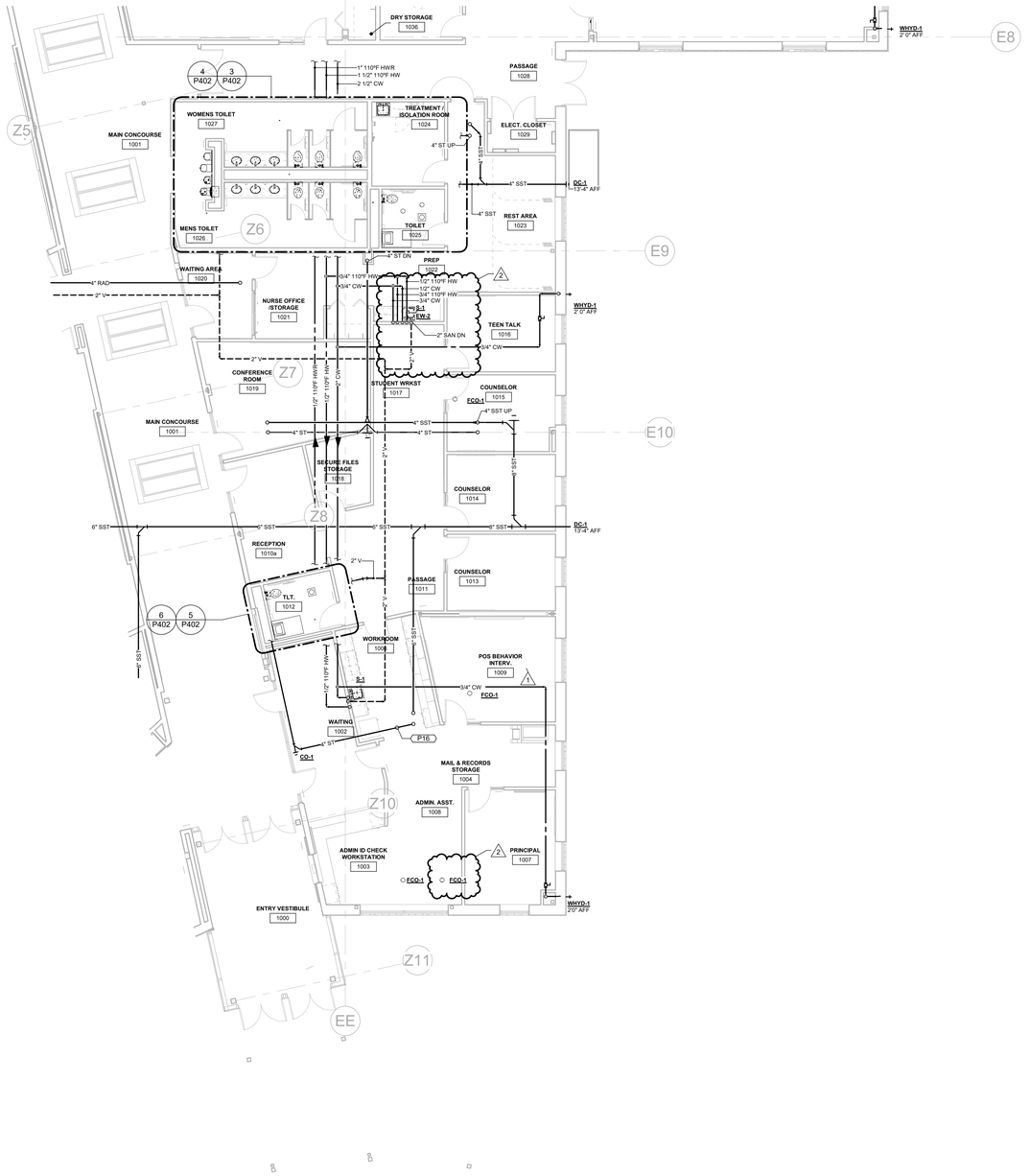
NORTH
EAST
WEST
SOUTH
KEYPLAN

Number	Date	Issued For
2	10/23/2024	ADDENDUM NO. 3
1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

PLUMBING FIRST FLOOR PLAN - PART E

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00
Drawing Number: P101E

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1 PLUMBING FIRST FLOOR PLAN - F
1/8" = 1'-0"

KEYNOTES - PLUMBING	
Key Value	Keynote Text
P16	PROVIDE 3" CONNECTION TO STORM SYSTEM FOR 1-1/4" INDIRECT CONDENSATE CONNECTION. COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATION. REFER TO CONDENSATE TO STORM DETAIL AND INDIRECT WASTE PIPING TO FLOOR DRAIN/FLOOR SINK DETAIL.

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NORTH
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A B C D E F

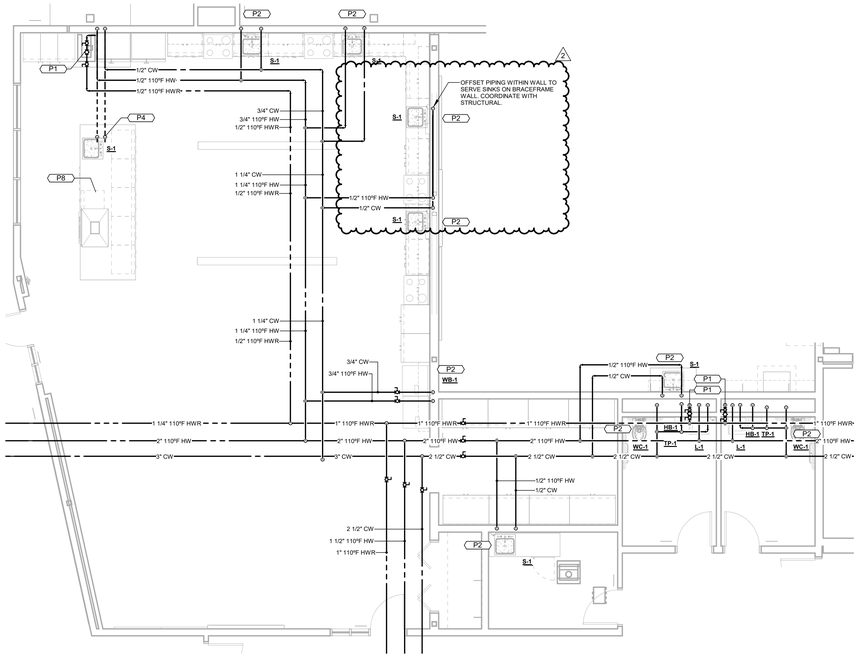
KEYPLAN

Number	Date	Issued For
2	10/23/2024	ADDENDUM NO. 3
1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

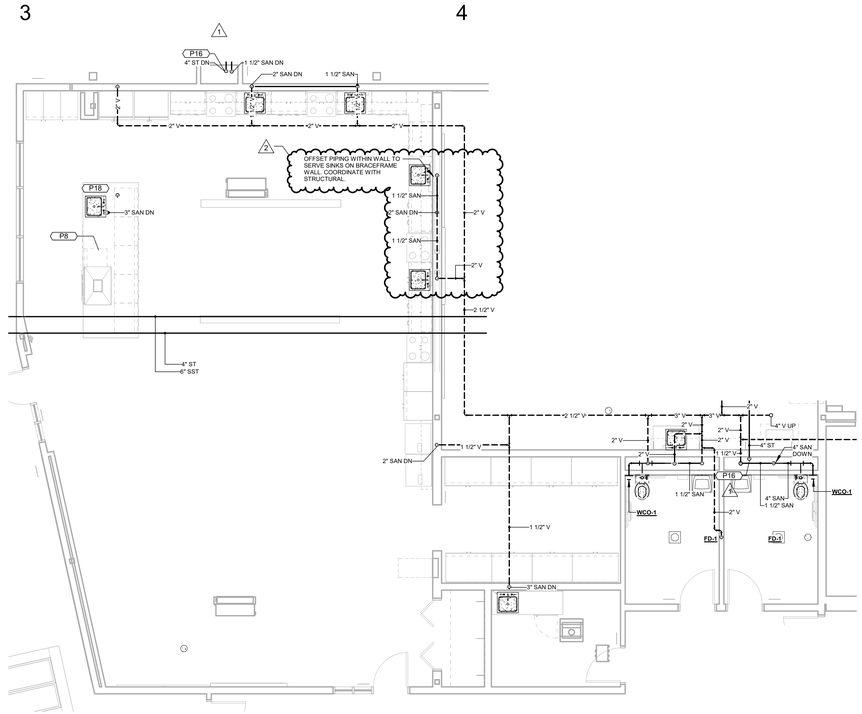
PLUMBING FIRST FLOOR PLAN - PART F

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00
Drawing Number: P101F

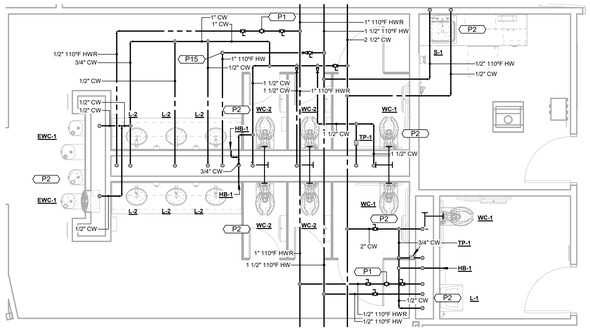
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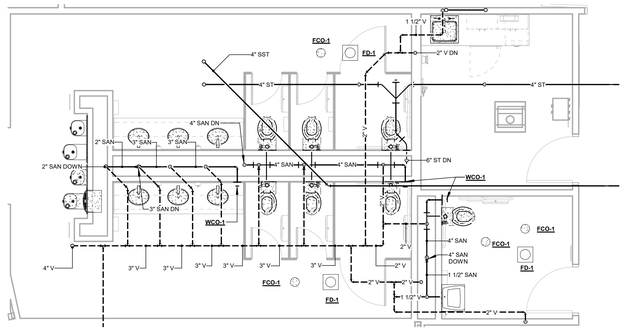
1 PLUMBING ENLARGED PLAN - 1E FAM CON SCI 1034 SUPPLY
3/16" = 1'-0"



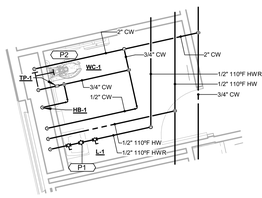
2 PLUMBING ENLARGED PLAN - 1E FAM CON SCI 1034 WASTE & VENT
3/16" = 1'-0"



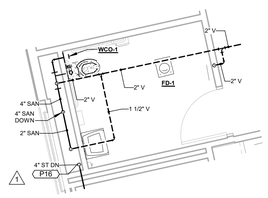
3 PLUMBING ENLARGED PLAN - 1F TLT ROOM 1026 SUPPLY
1/4" = 1'-0"



4 PLUMBING ENLARGED PLAN - 1F TLT ROOM 1026 WASTE & VENT
1/4" = 1'-0"



5 PLUMBING ENLARGED PLAN - 1F TLT RM 1012 SUPPLY
1/4" = 1'-0"



6 PLUMBING ENLARGED PLAN - 1F TLT RM 1012 WASTE & VENT
1/4" = 1'-0"

KEYNOTES - PLUMBING

Key Value	Keynote Text
P1	BALANCE VALVE LOCATED ABOVE ACCESSIBLE CEILING SET TO 0.5 GPM
P2	PROVIDE SUPPLY, WASTE, AND VENT CONNECTIONS TO PLUMBING FIXTURES ACCORDING TO PLUMBING FIXTURE CONNECTION SCHEDULE.
P4	ISLAND SINK SHALL BE CONNECTED TO CW AND HW THROUGH BELOW SLAB PIPING. VENT SHALL BE THROUGH A COMBINATION WASTE AND VENT WITH OTHER SINKS IN COOKING LAB. SEE SHEET P100E FOR PIPING.
P8	USE WATER SUPPLY FROM SINK TO FEED DISHWASHER. SANITARY FROM DISHWASHER SHALL DISCHARGE INTO SINK WASTE STACK. REFER TO PLUMBING FIXTURE CONNECTION SCHEDULE.
P15	1" HW TO SERVE GROUP OF LAVS. REFER TO RECIRCULATION AT PUBLIC LAVATORIES DETAIL.
P16	PROVIDE 3" CONNECTION TO STORM SYSTEM FOR 1-1/4" INDIRECT CONDENSATE CONNECTION. COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATION. REFER TO CONDENSATE TO STORM DETAIL AND INDIRECT WASTE PIPING TO FLOOR DRAIN/FLOOR SINK DETAIL.
P18	REFER TO ISLAND SINK DETAIL FOR VENTING SANITARY AND VENT PIPING.

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NORTH
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WEST
SOUTH
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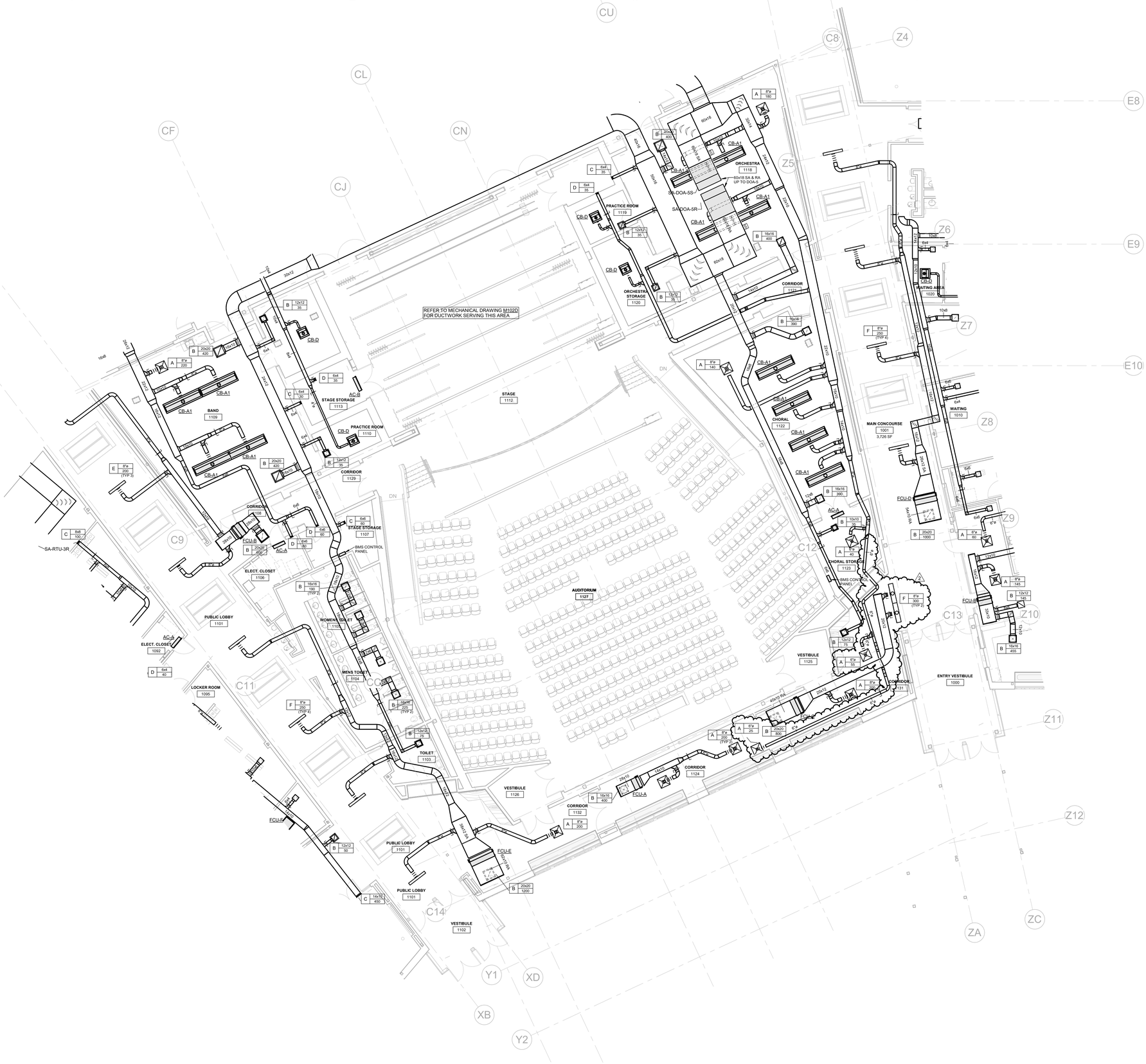
KEYPLAN

Number	Date	Issued For
2	10/23/2024	ADDENDUM NO. 3
1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

PLUMBING ENLARGED VIEWS

Date: 07/08/2024
Scale: As indicated
Proj. Number: 22367.00
Drawing Number: P402

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1 MECHANICAL DUCTWORK FIRST FLOOR PLAN - D
1/8" = 1'-0"

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SOUTH

KEYPLAN

Number	Date	Issued For
2	10/23/2024	ADDENDUM NO. 3
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

MECHANICAL FIRST FLOOR PLAN - PART D

Date
07/08/2024
Scale
1/8" = 1'-0"
Proj. Number
22367.00

Drawing Number
M101D

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1 MECHANICAL DUCTWORK SECOND FLOOR OVERALL PLAN - A
1/8" = 1'-0"

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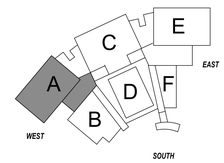
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KEYPLAN

Number	Date	Issued For
2	10/23/2024	ADDENDUM NO. 3
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

MECHANICAL SECOND FLOOR PLAN - PART A

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00

Drawing Number: M102A

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KEYNOTES - MECHANICAL	
Key Value	Keynote Text
M1	ROUTE CONDENSATE PIPING TO THE NEAREST STORM PIPE AND CONNECT WITH AN INDIRECT DRAIN CONNECTION. REFER TO PLUMBING PLANS FOR STORM PIPING COORDINATION AND INDIRECT CONNECTION DETAIL.

1 MECHANICAL PIPING FIRST FLOOR PLAN - B
1/8" = 1'-0"

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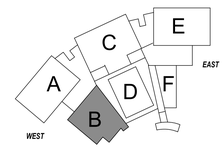
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KEYPLAN

Number	Date	Issued For
2	10/23/2024	ADDENDUM NO. 3
1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

MECHANICAL PIPING FIRST FLOOR PLAN - PART B

Date
07/08/2024
Scale
1/8" = 1'-0"
Proj. Number
22367.00

Drawing Number
MP101B

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10/23/2024 8:56:08 AM



1 MECHANICAL PIPING FIRST FLOOR PLAN - C
1/8" = 1'-0"

KEYNOTES - MECHANICAL

Key Value	Keynote Text
M1	ROUTE CONDENSATE PIPING TO THE NEAREST STORM PIPE AND CONNECT WITH AN INDIRECT DRAIN CONNECTION. REFER TO PLUMBING PLANS FOR STORM PIPING COORDINATION AND INDIRECT CONNECTION DETAIL.
M3	PROVIDE CONDENSATE DRAIN AND TRAP, AND ROUTE DOA CONDENSATE PIPING TO THE NEAREST STORM PIPE LOCATED AT THE MECHANICAL ROOM FLOOR. PROVIDE AN INDIRECT PIPE CONNECTION TO THE STORM PIPE AND SIZE THE CONDENSATE PIPE AND TRAP PER THE MANUFACTURER'S REQUIREMENTS. REFER TO PLUMBING PLANS FOR STORM PIPING COORDINATION AND INDIRECT CONNECTION DETAIL.

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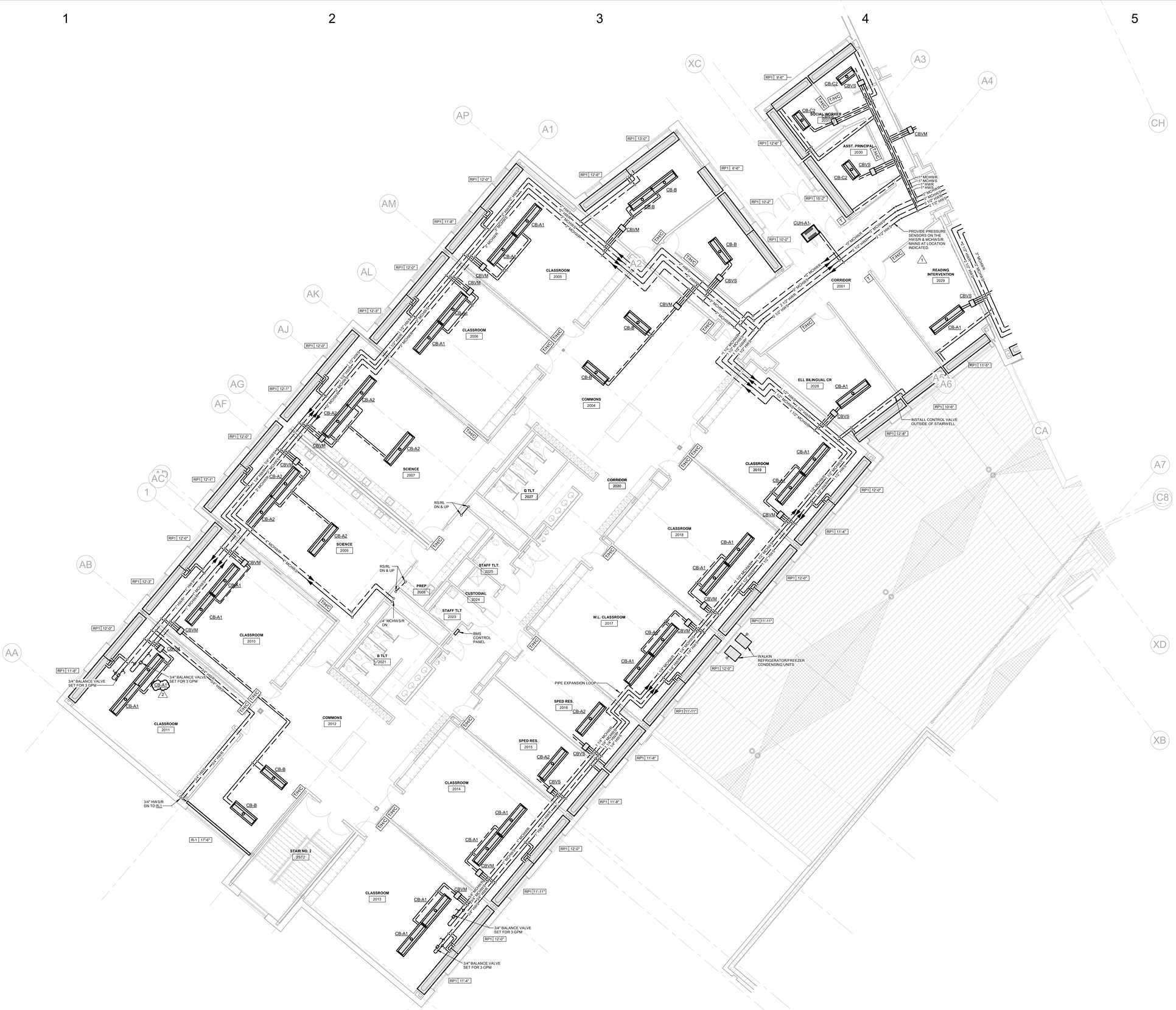
NORTH
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KEYPLAN

Number	Date	Issued For
2	10/23/2024	ADDENDUM NO. 3
1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

MECHANICAL PIPING FIRST FLOOR PLAN - PART C

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00
Drawing Number: MP101C

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1 MECHANICAL PIPING SECOND FLOOR PLAN - A
1/8" = 1'-0"

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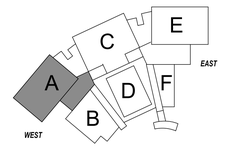
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KEYPLAN

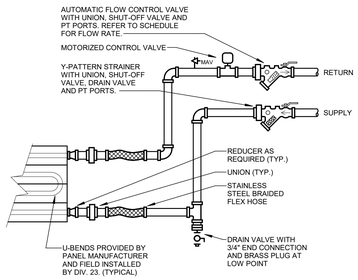
Number	Date	Issued For
2	10/23/2024	ADDENDUM NO. 3
1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

MECHANICAL PIPING SECOND FLOOR PLAN - PART A

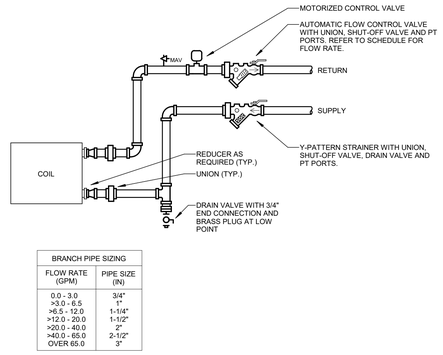
Date
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Scale
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Proj. Number
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Drawing Number
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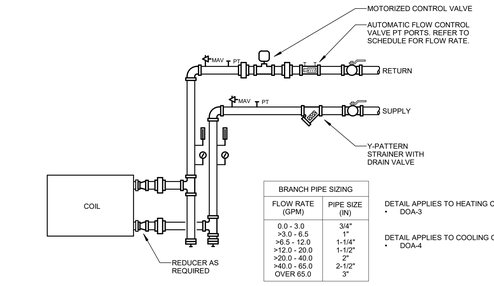


8 COIL HOOKUP - RADIANT CEILING PANEL
12" = 1'-0"



BRANCH PIPE SIZING	
FLOW RATE (GPM)	PIPE SIZE (IN)
0.0 - 3.0	3/4"
>3.0 - 6.5	1"
>6.5 - 12.0	1-1/4"
>12.0 - 20.0	1-1/2"
>20.0 - 40.0	2"
>40.0 - 65.0	2-1/2"
OVER 65.0	3"

5 COIL HOOKUP - TERMINAL UNIT COIL PIPING 2-WAY
NTS

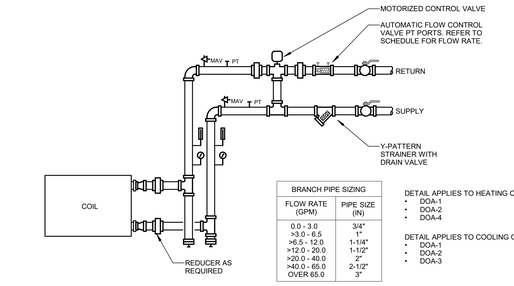


BRANCH PIPE SIZING	
FLOW RATE (GPM)	PIPE SIZE (IN)
0.0 - 3.0	3/4"
>3.0 - 6.5	1"
>6.5 - 12.0	1-1/4"
>12.0 - 20.0	1-1/2"
>20.0 - 40.0	2"
>40.0 - 65.0	2-1/2"
OVER 65.0	3"

DETAIL APPLIES TO HEATING COILS ON:
- DOA-3

DETAIL APPLIES TO COOLING COILS ON:
- DOA-4

1 COIL HOOKUP - INDOOR DOA SINGLE COIL
NTS

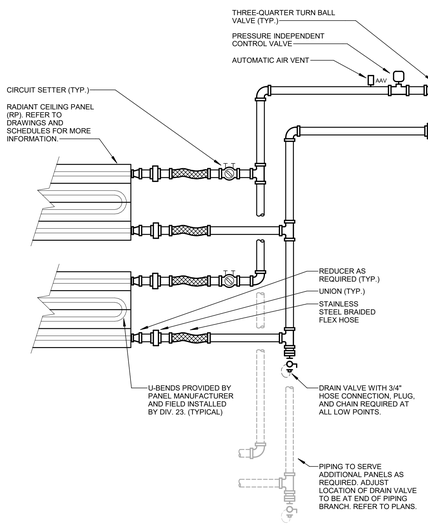


BRANCH PIPE SIZING	
FLOW RATE (GPM)	PIPE SIZE (IN)
0.0 - 3.0	3/4"
>3.0 - 6.5	1"
>6.5 - 12.0	1-1/4"
>12.0 - 20.0	1-1/2"
>20.0 - 40.0	2"
>40.0 - 65.0	2-1/2"
OVER 65.0	3"

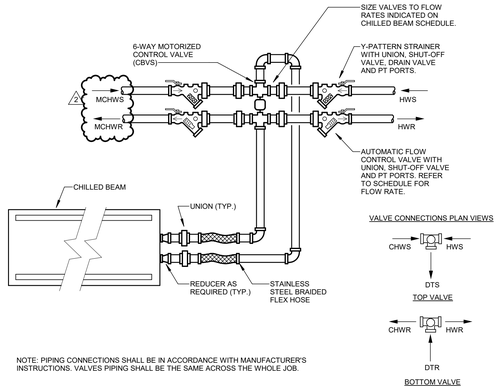
DETAIL APPLIES TO HEATING COILS ON:
- DOA-1
- DOA-2
- DOA-4

DETAIL APPLIES TO COOLING COILS ON:
- DOA-1
- DOA-2
- DOA-3

2 COIL HOOKUP - INDOOR DOA SINGLE COIL - 3-WAY VALVE PIPING
NTS

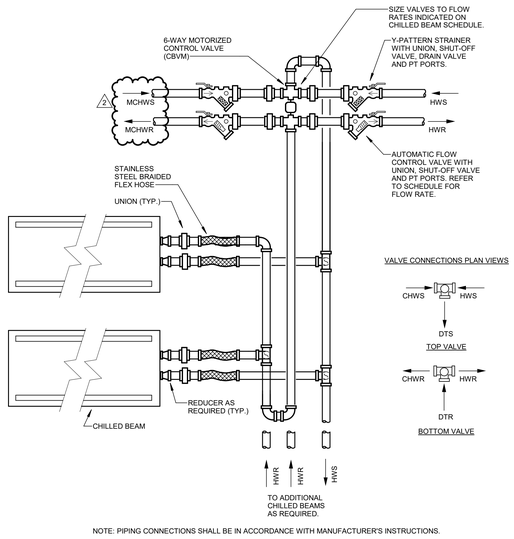


9 RADIANT CEILING PANEL - MULTIPLE PANELS
12" = 1'-0"



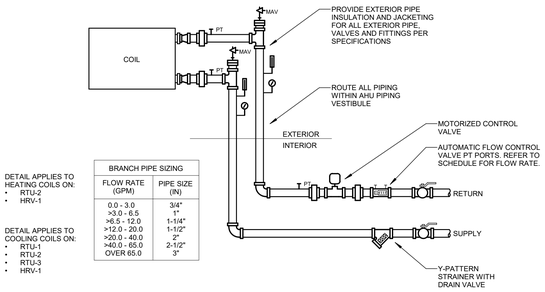
NOTE: PIPING CONNECTIONS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. VALVES PIPING SHALL BE THE SAME ACROSS THE WHOLE JOB.

6 COIL HOOKUP - CHILLED BEAM 6-WAY SINGLE
12" = 1'-0"



NOTE: PIPING CONNECTIONS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

7 COIL HOOKUP - CHILLED BEAM 6-WAY MULTIPLE
NTS

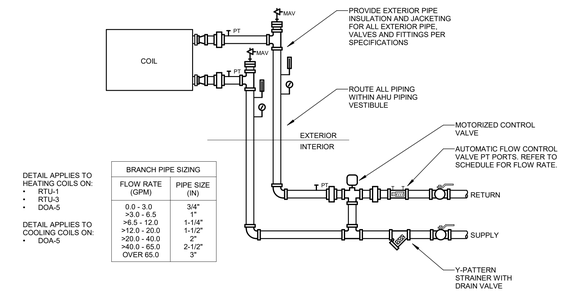


BRANCH PIPE SIZING	
FLOW RATE (GPM)	PIPE SIZE (IN)
0.0 - 3.0	3/4"
>3.0 - 6.5	1"
>6.5 - 12.0	1-1/4"
>12.0 - 20.0	1-1/2"
>20.0 - 40.0	2"
>40.0 - 65.0	2-1/2"
OVER 65.0	3"

DETAIL APPLIES TO HEATING COILS ON:
- RTU-2
- HRV-1

DETAIL APPLIES TO COOLING COILS ON:
- RTU-1
- RTU-2
- RTU-3
- HRV-1

3 COIL HOOKUP - RTU SINGLE COIL
NTS



BRANCH PIPE SIZING	
FLOW RATE (GPM)	PIPE SIZE (IN)
0.0 - 3.0	3/4"
>3.0 - 6.5	1"
>6.5 - 12.0	1-1/4"
>12.0 - 20.0	1-1/2"
>20.0 - 40.0	2"
>40.0 - 65.0	2-1/2"
OVER 65.0	3"

DETAIL APPLIES TO HEATING COILS ON:
- RTU-1
- RTU-3
- DOA-5

DETAIL APPLIES TO COOLING COILS ON:
- DOA-5

4 COIL HOOKUP - RTU SINGLE COIL - 3-WAY VALVE PIPING
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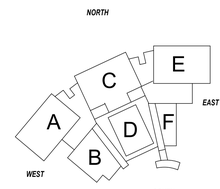
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Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane,
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N



KEYPLAN

Number	Date	Issued For
2	10/23/2024	ADDENDUM NO. 3
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

MECHANICAL DETAILS

Date: 07/08/2024
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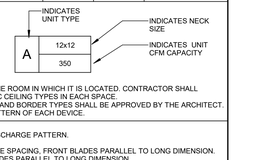
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DIFFUSER AND REGISTER SCHEDULE

SYMBOL	MANUFACTURER/ MODEL NUMBER	DUTY	TYPE	BORDER TYPE	CONSTRUCTION			REMARKS
					OBD	FRAME	BLADES	
A	TITUS OMNI	SUPPLY	SP	LAY-IN	NONE	STEEL	STEEL	1,6,7,8,9,10
B	TITUS 50R	RETURN/ EXHAUST	EG	LAY-IN	NONE	STEEL	STEEL	2,7,8
C	TITUS 350RL	RETURN/ EXHAUST	SD	SURFACE	NONE	STEEL	STEEL	4,6,7,8
D	TITUS 300RL	SUPPLY	DD	SURFACE	NONE	STEEL	STEEL	3,7,8
E	TITUS FL-15-HT	SUPPLY	LS	LAY-IN/ SURFACE	NONE	STEEL	STEEL	11,14,16,17,18
F	TITUS FL-15-HT	SUPPLY	LS	LAY-IN/ SURFACE	NONE	STEEL	STEEL	12,14,16,17,18
G	TITUS ML-39	RETURN/ EXHAUST	LS	SURFACE	NONE	STEEL	STEEL	13,15,16,17
H	TITUS R-OMNI	SUPPLY	RP	SURFACE	NONE	STEEL	STEEL	5,7,8

TYPES:
SP - SQUARE PLAQUE
EG - 1/2" x 1/2" x 1/2" EGGCRATE
LF - LOUVERED FACE
LS - LINEAR SLOT
DD - DOUBLE DEFLECTION, BLADES PARALLEL TO LONG DIMENSION.
RP - ROUND PLAQUE
SD - SINGLE DEFLECTION, BLADE PARALLEL TO LONG DIMENSION.



1. PERFORMANCE DATA LISTED IS AT MAX AIRFLOW.
2. BORDER TYPES SHALL BE COMPATIBLE WITH THE CEILING TYPE FOR THE ROOM IN WHICH IT IS LOCATED. CONTRACTOR SHALL REVIEW THE ARCHITECTURAL REFLECTED CEILING PLANS FOR SPECIFIC CEILING TYPES IN EACH SPACE.
3. PROVIDE WHITE FINISH UNLESS OTHERWISE NOTED. FINISHES, COLOR, AND BORDER TYPES SHALL BE APPROVED BY THE ARCHITECT.
4. REFER TO PLANS FOR LOCATION, AIR QUANTITIES, TYPE, AND BLOW PATTERN OF EACH DEVICE.

REMARKS:
1. SQUARE PLAQUE DIFFUSER, ADJUSTABLE INDUCTION, 360-DEGREE DISCHARGE PATTERN.
2. SQUARE EGGCRATE GRILLE, LAY-IN OR SURFACE MOUNT.
3. SUPPLY GRILLE, ADJUSTABLE DOUBLE DEFLECTION BLADES, 3/4" BLADE SPACING, FRONT BLADES PARALLEL TO LONG DIMENSION.
4. LOUVERED GRILLE WITH 35-DEGREE FIXED BLADES, 3/4" SPACING, BLADES PARALLEL TO LONG DIMENSION.
5. ROUND PLAQUE DIFFUSER, ADJUSTABLE INDUCTION, 360-DEGREE DISCHARGE PATTERN.
6. PROVIDE HEAVY DUTY TYPE GRILLE WHERE INSTALLED IN THE GYMNASIUM.
7. PROVIDE ALUMINUM CONSTRUCTION FOR DEVICES INSTALLED IN HIGH MOISTURE AREAS INCLUDING TOILET ROOMS, SHOWER ROOMS, KITCHEN, ETC.
8. PROVIDE HARD DUCT CONNECTION WHERE DIFFUSER IS NOT INSTALLED IN A CEILING.
9. PROVIDE MANUFACTURER'S BLANKOFF STRIPS FOR 1,2 OR 3-WAY DISCHARGE FLOW INDICATED BY SUPPLY ARROWS ON THE PLAN.
10. FOR 4" AND 6" ROUND CONNECTIONS PROVIDE A 12"x12" FACE SIZE. FOR ALL OTHER CONNECTIONS PROVIDE THE MANUFACTURER'S RECOMMENDED FACE SIZE.
11. PROVIDE AS 4'-0" LINEAR SLOT WITH (2) 1.0" SLOTS.
12. PROVIDE AS 4'-0" LINEAR SLOT WITH (2) 1.5" SLOTS.
13. PROVIDE AS 4'-0" LINEAR SLOT WITH (4) 1.0" SLOTS.
14. ADJUSTABLE THROW PATTERS.
15. VERTICAL DISCHARGE THROW.
16. PROVIDE CABLE OPERATED DAMPER WITH REMOTE ACTUATOR FOR VOLUME DAMPERS LOCATED ABOVE GYP AND INACCESSIBLE CEILINGS.
17. PROVIDE LAY-IN FRAMED PLENUM WHERE REQUIRED.
18. PROVIDE WITH MUD FLANGE WHERE INSTALLATION IS WITHIN SHEETROCK.

DUCT SILENCER SCHEDULE

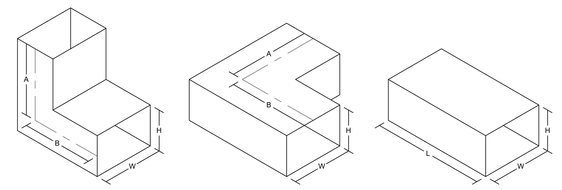
TAG	MANUFACTURER	MODEL	LOCATION	SERVICE	PHYSICAL				PERFORMANCE											REMARKS		
					ROUND	RECTANGULAR		LENGTH 'L' (IN)	AIRFLOW				DYNAMIC INSERTION LOSS (dB) BY OCTAVE BAND (Hz)									
					DIAMETER 'D' (IN)	WIDTH 'W' (IN)	HEIGHT 'H' (IN)		CFM	AREA (SQ FT)	FPM	DIRECTION	APD (IN WG)	63	125	250	500	1000	2000	4000	8000	TYPE	RATINGS	FEATURES
SA-DOA-1S	VIBRO-ACOUSTICS	RD-MV-AY31617	MECHANICAL 1048	DOA-1 SUPPLY	N/A	44	20	36	6,000	N/A	982	SUPPLY	0.16	3	6	11	18	21	16	11	8	2	ALL	ALL
SA-DOA-1R	VIBRO-ACOUSTICS	RD-MV-AY31617	MECHANICAL 1048	DOA-1 RETURN	N/A	44	20	36	6,000	N/A	982	RETURN	0.18	5	9	14	12	15	9	10	8	2	ALL	ALL
SA-DOA-2S	VIBRO-ACOUSTICS	RD-MV-AY31617	MECHANICAL 1048	DOA-2 SUPPLY	N/A	48	22	36	7,500	N/A	1023	SUPPLY	0.19	5	10	14	12	12	9	9	8	2	ALL	ALL
SA-DOA-2R	VIBRO-ACOUSTICS	RD-LV-AY31617	MECHANICAL 1048	DOA-2 RETURN	N/A	48	22	36	7,500	N/A	1023	RETURN	0.27	6	12	17	14	14	11	10	9	2	ALL	ALL
SA-DOA-3S	VIBRO-ACOUSTICS	RED-HV-AY31617	MECHANICAL 1060	DOA-3 SUPPLY	N/A	48	22	60	7,800	N/A	1064	SUPPLY	0.20	9	9	12	18	19	22	18	14	1	ALL	ALL
SA-DOA-3R	VIBRO-ACOUSTICS	RED-HV-AY31617	MECHANICAL 1060	DOA-3 RETURN	N/A	48	22	72	7,800	N/A	1064	RETURN	0.18	9	12	11	20	18	21	16	14	1	ALL	ALL
SA-DOA-4S	VIBRO-ACOUSTICS	RED-UHV-AY31617	MECHANICAL 1067	DOA-4 SUPPLY	N/A	52	22	72	8,500	N/A	980	SUPPLY	0.17	6	10	12	25	29	30	24	20	1	ALL	ALL
SA-DOA-4R	VIBRO-ACOUSTICS	RED-MHV-AY31617	MECHANICAL 1067	DOA-4 RETURN	N/A	52	22	72	8,500	N/A	980	RETURN	0.23	10	12	11	21	20	22	19	13	1	ALL	ALL
SA-DOA-5S	VIBRO-ACOUSTICS	RED-MHV-AY31617	ORCHESTRA 1118	DOA-5 SUPPLY	N/A	62	20	72	7,000	N/A	813	SUPPLY	0.20	8	11	13	22	23	26	21	17	1	ALL	ALL
SA-DOA-5R	VIBRO-ACOUSTICS	RED-HV-AY31617	ORCHESTRA 1118	DOA-5 RETURN	N/A	62	20	84	7,000	N/A	813	RETURN	0.23	9	12	18	30	28	29	21	19	1	ALL	ALL
SA-RTU-1S	VIBRO-ACOUSTICS	RED-MHV-AY31617	ROOF	RTU-1 SUPPLY	N/A	38	24	60	6,000	N/A	947	SUPPLY	0.24	9	11	13	23	21	23	20	15	1	ALL	ALL
SA-RTU-1R	VIBRO-ACOUSTICS	RED-MHV-AY31617	ROOF	RTU-1 RETURN	N/A	26	34	60	6,000	N/A	1059	RETURN	0.34	12	14	10	21	17	18	18	13	1	ALL	ALL
SA-RTU-2S	VIBRO-ACOUSTICS	RD-HV-AY31617	ROOF	RTU-2 SUPPLY	N/A	58	30	72	10,500	N/A	869	SUPPLY	0.15	5	10	18	20	21	16	14	12	2	ALL	ALL
SA-RTU-2R	VIBRO-ACOUSTICS	RD-MHV-AY31617	ROOF	RTU-2 RETURN	N/A	56	32	60	10,500	N/A	844	RETURN	0.16	4	7	12	15	15	13	11	9	2	ALL	ALL
SA-RTU-3S	VIBRO-ACOUSTICS	RED-UHV-AY31617	PE/ ATHL. STORAGE 1087	RTU-3 SUPPLY	N/A	44	20	60	7,000	N/A	1145	SUPPLY	0.35	5	7	12	18	31	37	23	21	1	ALL	ALL
SA-RTU-3R	VIBRO-ACOUSTICS	RED-UHV-AY31617	PE/ ATHL. STORAGE 1087	RTU-3 RETURN	N/A	44	20	60	7,000	N/A	1145	RETURN	0.27	6	8	14	19	31	27	24	19	1	ALL	ALL

REMARKS - TYPE
1. RECTANGULAR ELBOW, GLASS FIBER MEDIA
2. RECTANGULAR IN-LINE, GLASS FIBER MEDIA

REMARKS - RATINGS
1. AIR PRESSURE DROP (APD) AND ACOUSTICAL DATA ARE IN ACCORDANCE TO ASTM E477

REMARKS - FEATURES
1. ACOUSTIC MEDIA SHALL COMPLY WITH UL 181 AND ASHRAE 90A, SHALL BE 100% NATURAL COTTON FIBERS TREATED WITH AN EPA RATED NON-TOXIC BORATE SOLUTION, "FLASH DRIED" TO PROVIDE RESISTANCE TO MOLD, MILDEW, AND FUNGI, SHALL BE PACKED TO A MINIMUM COMPRESSION OF 15% DURING SILENCER ASSEMBLY, AND SHALL NOT CAUSE OR ACCELERATE CORROSION OF ALUMINUM OR STEEL. GLASS FIBER AND ROCK WOOL ARE NOT ACCEPTABLE SUBSTITUTES FOR THE ACOUSTIC MEDIA.
2. ADJUST DIMENSIONS 'A' & 'B' SUCH THAT 'A' + 'B' = 'L', AND SUCH THAT THE SILENCER FITS AS INTENDED; 'A' & 'B' NEED NOT BE THE SAME LENGTH
3. LENGTH SHOWN FOR ELBOW SILENCERS IS CENTERLINE LENGTH
4. AIR PRESSURE DROP = SILENCER PRESSURE DROP PER ASTM E477-13 + SYSTEM EFFECT FOR NEARBY DUCT ELEMENTS
5. CONTRACTOR SHALL PROVIDE CONSULTANT PRESSURE DROP CALCULATIONS WITH PE STAMP INCLUDING SYSTEM EFFECTS.
6. CONTRACTOR SHALL PROVIDE CONSULTANT ACOUSTICAL CALCULATIONS WITH PE STAMP DEMONSTRATING THE RESULTANT DUCTBORNE FAN SOUND LEVEL IN THE OCCUPIED SPACES MEET PROJECT BACKGROUND NOISE REQUIREMENT.
7. PROVIDE NOISE CALCULATIONS FROM MANUFACTURER DEMONSTRATING THE RESULTANT SOUND LEVEL IN THE OCCUPIED SPACES MEET PROJECT BACKGROUND NOISE REQUIREMENTS.

CONFIGURATION



ACTIVE CHILLED BEAM SCHEDULE

SYMBOL	MANUFACTURER MODEL NUMBER	DIMENSIONS (L x W)	DISCHARGE PATTERN	AIR INLET (IN)	PRIMARY AIRFLOW (CFM)	TOTAL AIRFLOW (CFM)	COOLING PERFORMANCE									HEATING PERFORMANCE								
							TOTAL COOLING CAPACITY (BTU/H)	PRIMARY AIR SENSIBLE CAPACITY (BTU/H)	PRIMARY AIR LATENT CAPACITY (BTU/H)	BEAM SENSIBLE COOLING CAPACITY (BTU/H)	FLOW RATE (GPM)	PRESSURE DROP (FT)	PRIMARY AIR CONDITIONS (DB/WB °F)	EWT/LWT (°F)	SUPPLY AIR TEMPERATURE (°F)	TOTAL HEATING CAPACITY (BTU/H)	BEAM HEATING CAPACITY (BTU/H)	PRIMARY AIR HEATING OFFSET (BTU/H)	FLOW RATE (GPM)	PRESSURE DROP (FT)	PRIMARY AIR CONDITIONS (DB °F)	EWT/LWT (°F)	SUPPLY AIR TEMPERATURE (°F)	PRIMARY AIR INLET (INCH)	MEDIA	REMARKS
CB-A1	DADANCO MODEL # ACB40	8' x 2'	2 WAY	8	175	755	12,184	3,802	2,672	9,512	1.5	2.6	55.0/50.0	57/64.6	63.4	11,759	8,952	2,807	0.75	0.7	60	130/98.7	84.3	8 - ELLIPTICAL	30% PPG	ALL
CB-A2	DADANCO MODEL # ACB40	8' x 2'	2 WAY	8	140	649	10,626	3,269	2,191	8,435	1.4	2.3	55.0/50.0	57/64.4	63.0	10,981	8,229	2,752	0.70	0.6	60	130/98.7	85.6	8 - ELLIPTICAL	30% PPG	ALL
CB-B	DADANCO MODEL # ACB40	6' x 2'	2 WAY	8	120	511	8,468	2,802	1,878	6,590	1.1	7.0	55.0/50.0	57/63.9	63.1	8,862	7,667	1,195	0.50	1.6	60	130/94.6	86.0	8 - ELLIPTICAL	30% PPG	ALL
CB-C1	DADANCO MODEL # ACB40	4' x 2'	2 WAY	6	80	327	5,472	1,868	1,252	4,220	0.70	2.3	55.0/50.0	57/63.7	63.1	6,966	6,358	608	0.50	1.1	60	130/102.2	89.6	6 - ROUND	30% PPG	ALL
CB-C2	DADANCO MODEL # ACB40	4' x 2'	2 WAY	6	60	279	4,563	1,401	939	3,624	0.70	2.3	55.0/50.0	57/63.3	63.0	6,626	6,189	437	0.50	1.1	60	130/103.6	91.9	6 - ROUND	30% PPG	ALL
CB-D	DADANCO MODEL # ACB40	2' x 2'	2 WAY	4	40	153	2,703	467	313	2,077	0.50	0.80	55.0/50.0	57/61.6	62.5	3,812	3,346	466	0.50	0.70	60	130/114.8	92.9	4 - ROUND	30% PPG	ALL

NOTES:
A. EACH CHILLED BEAM SHALL BE TWO (2) PIPE CONFIGURATION FOR A SINGLE COIL RECEIVING CHILLED WATER OR HOT WATER; COIL PERFORMANCE FOR COOLING AND HEATING SHOWN.
B. COOLING CAPACITY BASED ON INDOOR DESIGN CONDITIONS OF 75°F DB / 50%RH
C. HEATING CAPACITY BASED ON INDOOR DESIGN CONDITIONS OF 70°F DB.
D. COORDINATE BEAM MOUNTING WITH CEILING BEING INSTALLED PROVIDE ALL NECESSARY TRIM PIECES FOR FLUSH MOUNTING IN SUSPENDED CEILING.
E. PROVIDE COANDA WING TRIM ACCESSORY FOR MOUNTING WHERE INSTALLED WITHOUT A CEILING. CONFIRM WITH ARCHITECTURAL REFLECTED CEILING PLAN.

REMARKS:
1. PROVIDE NPT PIPING CONNECTION TO CHILLED BEAM
2. PROVIDE WITH BEAM PLENUM DUCT PRESSURE TAPS AND CFM PERFORMANCE CHART FOR BALANCING LOCATE ON BEAM HOUSING.
3. COORDINATE BEAM FRAME WITH CEILING TYPE TO ENSURE THERE IS NO CAPS AROUND BEAM WHEN SET IN CEILING GRID.
4. CHILLED BEAMS SHALL BE EXPOSED TYPE WHEN NOT LOCATED IN HARD OR DROPPED CEILINGS. COORDINATE EXACT LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS.
5. COLOR OF CHILLED BEAMS SHALL BE COORDINATED WITH ARCHITECT.
6. PROVIDE HARD DUCT CONNECTION WHERE BEAMS ARE EXPOSED WITHOUT BEING LOCATED IN A CEILING.
7. PROVIDE 3/4" FLEX PIPE CONNECTION WHERE PIPING CONNECTS TO EACH BEAM.
8. PROVIDE 6-WAY VALVE CONNECTIONS (CBVS = CHILLED BEAM VALVE SINGLE, CBMV = CHILLED BEAM VALVE MULTIPLE).

MEDIA:
HW = HOT WATER
PPG = 30% PROPYLENE GLYCOL/WATER SOLUTION.

SOUND LEVELS	
UNIT TAG	NC
CB-A1	21
CB-A2	15
CB-B	17
CB-C1	15
CB-C2	15
CB-D	15

AIR FILTRATION UNIT SCHEDULE

TAG	MANUFACTURER	MODEL	GENERAL		FAN DATA			DRIVE TYPE	PRE-FILTER				PRIMARY FILTER				ELECTRICAL		REMARKS
			WEIGHT (LBS)	L x W x H (IN.)	TYPE	CFM	MOTOR HP		TYPE	SIZE WxH (IN.)	DEPTH (IN.)	ASHRAE 52.2 MERV RATING	TYPE	SIZE WxH (IN.)	DEPTH (IN.)	ASHRAE 52.2 MERV RATING	VOLTAGE	PHASE	
AFU-A	MONOXIVENT	3025	160	59x24x24	FORWARD INCLINE	2,500	3/4	DIRECT	PANEL	24x24	4	N/A	MULTI-POCKET BAG	24x24	36	N/A	115	1	ALL

REMARKS:
1. UNIT SHALL BE CONTROLLED BY BMS, COORDINATE WITH ATC.
2. HUNG FROM STRUCTURE.

DUCT MOUNTED HOT WATER REHEAT COIL SCHEDULE

UNIT	MANUFACTURER MODEL #	UNIT LOCATION	TOTAL CAP (MBH)	MAXIMUM FACE VELOCITY (FPM)	AIR SIDE				HOT WATER COIL DATA				SIZE/ ROWS (WxH/QTY)	REMARKS
					FLOW (CFM)	EDB (°F)	LDB (°F)	MAX PD (IN WG)	FLOW (GPM)	EWT (°F)	LWT (°F)	MAX PD (FT HD)		
RHC-A	TRANE #DT0B	HRV-1 SUPPLY DUCT	31.50	628	1,700	55	72	0.165	2.37	130	100	5.55	26x15 / 1	ALL

REMARKS:
1. WATER/ GLYCOL SOLUTION SHALL BE 30% PROPYLENE GLYCOL SOLUTION.
2. PROVIDE DUCT MOUNTED COILS WITH ALUMINUM FINS AND COPPER TUBING.
3. FURNISH ALL ACCESSORIES AND MATERIALS NEEDED FOR PROPERLY INSTALLING HOT WATER COIL IN SUPPLY DUCTWORK.
4. FURNISH WITH FLANGED CONNECTIONS

HEAT EXCHANGER SCHEDULE

SYMBOL	MANUFACTURER/ MODEL NUMBER	TYPE	LOCATION	COLD SIDE FLOW (GPM)	COLD SIDE TEMP IN/OUT DEG. F	WATER PD FT. W.G.	HOT SIDE FLOW (GPM)	HOT SIDE TEMP IN/OUT DEG. F	WATER PD FT. W.G.	CAPACITY (MBH)	REMARKS
HX-1	ARMSTRONG S17NG-150-72-600	PF	MECH. ROOM	91	42/57	1.62	170	65/57	4.82	650	ALL

TYPE:
PF=PLATE AND FRAME

REMARKS:
1. CAPACITY BASED ON 30% PROPYLENE GLYCOL SOLUTION.
2. PERFORMANCE CERTIFIED IN ACCORDANCE WITH AHRI 400.
3. ASME STAMPED
4. 304 STAINLESS STEEL PLATES
5. EPDM GASKETS.
5. 150 PSIG DESIGN PRESSURE
6. MIN. OF 111.51 SF OF HEAT TRANSFER SURFACE AREA.
7. 72 PLATES.
8. 446 LB. FLOODED WEIGHT.

PUMP SCHEDULE

SYMBOL	MANUFACTURER/ MODEL NUMBER	TYPE	LOCATION	SYSTEM SERVING	MEDIA	FLOW RATE (GPM)	TDH (FT)	FLUID TEMP (°F)	PUMP EFF (%)	MOTOR DATA				REMARKS
										HP	RPM	VOLTS	PHASE	
HWP-1 HWP-2	ARMSTRONG 4380 2505-001.5	IL	MECHANICAL 1060	HOT WATER	PPG	130	18	130	73	1.5	2314	460	3	1-4
HWP-3A/3B	ARMSTRONG 4372 0305-010.0	DIL	MECHANICAL 1060	HOT WATER	PPG	300	75	130	78	(2) 10	3437	460	3	1-4
CHWP-1 CHWP-2	ARMSTRONG 4380 0305-003.0	IL	MECHANICAL 1067	CHILLED WATER	PPG	255	30	42	75	3	3008	460	3	1-4
CHWP-3A/3B	ARMSTRONG 4302 0606-015.0	DIL	MECHANICAL 1067	CHILLED WATER	PPG	450	70	42	75	(2) 15	3111	460	3	1-3,5
MCHWP-1A/1B	ARMSTRONG 4372 0205-010.0	DIL	MECH ROOM	CHILLED BEAM COLD WATER	PPG	175	130	57	75	(2) 10	4409	460	3	1-4

TYPE:
ES = END SUCTION
IL = VERTICAL IN-LINE, SPLIT COUPLED
DIL = DUAL VERTICAL IN-LINE, SPLIT COUPLED

MEDIA:
W = WATER
PPG = 30% PROPYLENE GLYCOL WATER SOLUTION

REMARKS:
1. PROVIDE PUMP MOTOR WITH INTEGRAL VFD AND SENSORLESS PUMP CONTROLLER WITH NATIVE BACNET COMMUNICATION.
2. PROVIDE WITH FLOOR SUPPORT STAND.
3. PROVIDE WITH SUCTION DIFFUSER.
4. PROVIDE WITH EC MOTORS.
5. PREMIUM EFFICIENT ODP INDUCTION MOTOR, OUTSIDE MECHANICAL SEALS, CUNO SEAL FLUSH LINE FILTER WITH SIGHT GLASS.

SLAM
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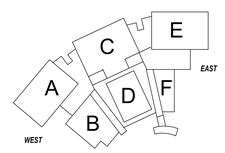
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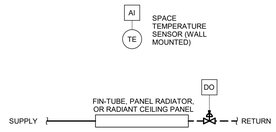
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2	10/23/2024	ADDENDUM NO. 3
1	10/16/2024	ADDENDUM NO. 2
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	07/08/2024	PHASE 2

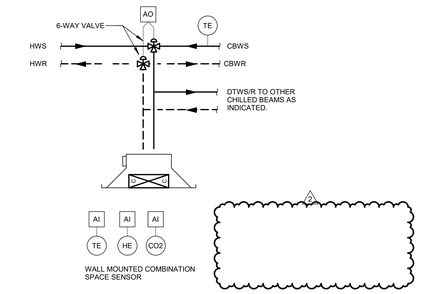
MECHANICAL SCHEDULES

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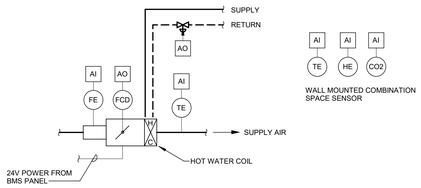
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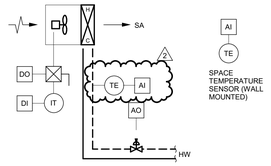
5 PERIMETER RADIATION CONTROL DIAGRAM
NTS



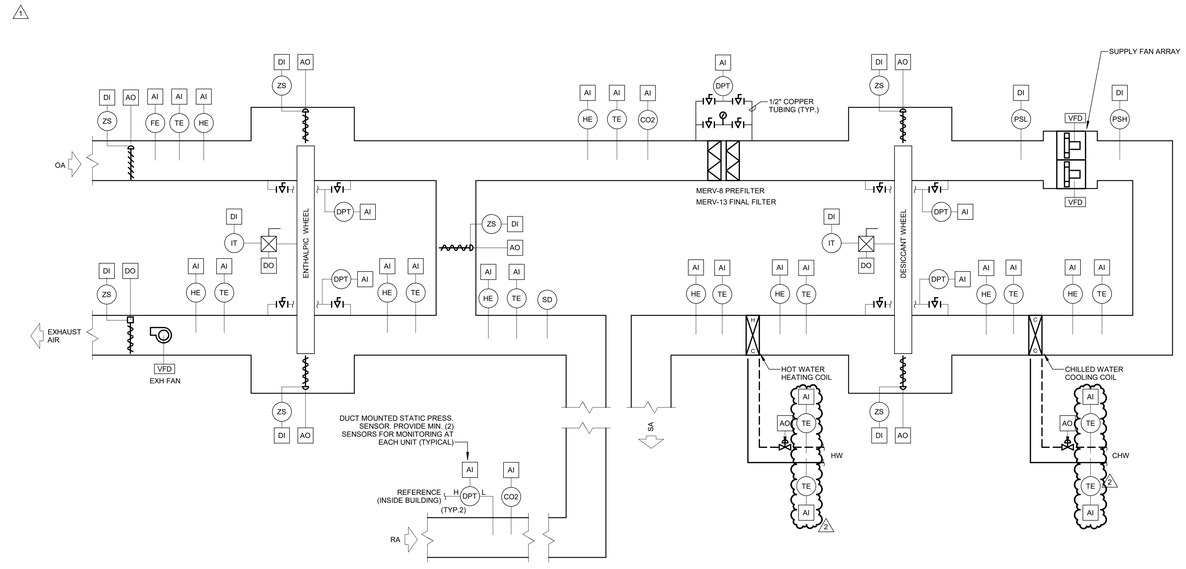
4 CHILLED BEAM CONTROL DIAGRAM
NTS



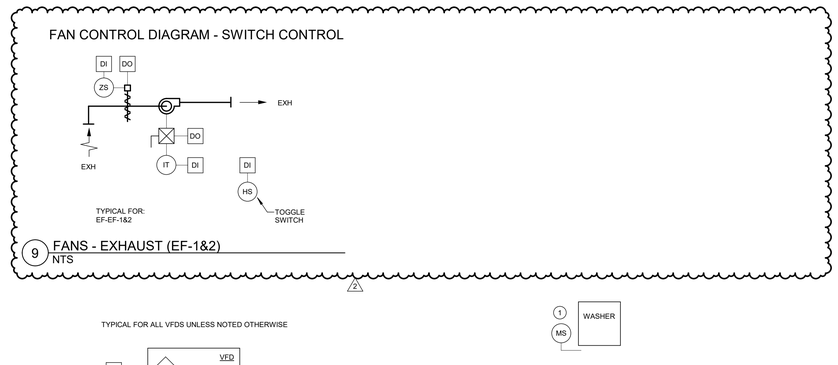
7 VAV AIR TERMINAL UNIT WITH HOT WATER REHEAT CONTROL DIAGRAM
NTS



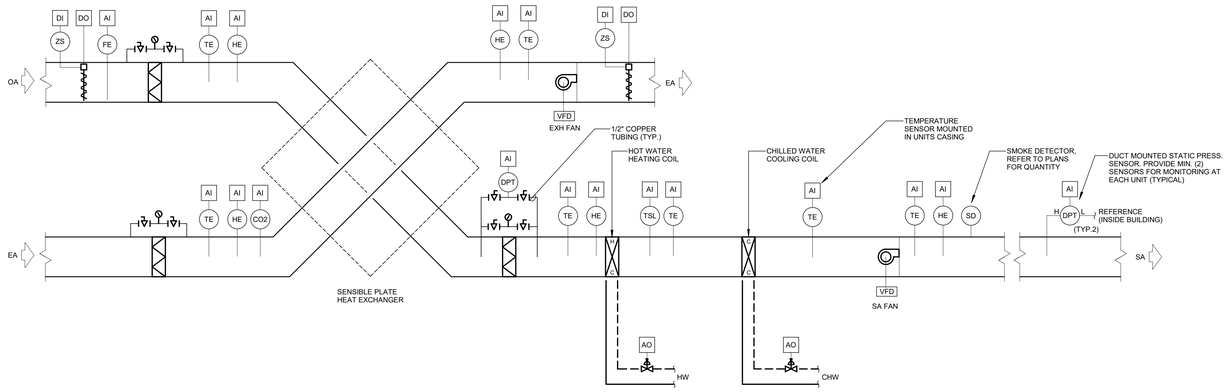
6 HOT WATER UNIT HEATER CONTROL DIAGRAM
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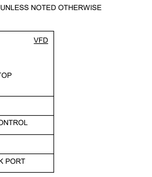
1 DEDICATED OUTDOOR AIR (DOA) UNIT CONTROL DIAGRAM (DOA-1 THRU 5)
NTS



9 FANS - EXHAUST (EF-1&2)
NTS



2 HEAT RECOVERY VENTILATOR (HRV-1) CONTROL DIAGRAM
NTS



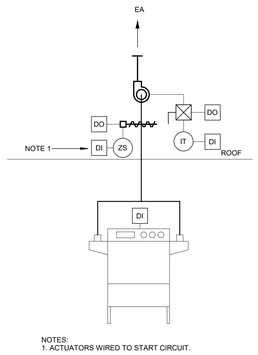
NOTES ON VARIABLE FREQUENCY DRIVES

1. THE HAND-OFF-AUTOMATIC SWITCH ON THE VFD SHALL PROVIDE FOR THE FOLLOWING BASIS OF CONTROL:
   A. HAND POSITION: THE BAS SHALL HAVE NO CONTROL OVER THE MOTOR SPEED NOR SHALL IT BE ABLE TO START OR STOP THE MOTOR (EXCEPT FOR SAFETY PURPOSES WHERE THE MOTOR SHALL SHUT DOWN). THE MOTOR SHALL RUN UNDER SPEED CONTROL FROM THE HAND POTENTIOMETER ON THE VSD. ALL SAFETIES CONTROLLING THE SHUTDOWN SHALL BE OPERATIONAL (i.e. SMOKE DETECTORS, PRESSURE SWITCHES, ETC). TEMPERATURE AND HUMIDITY CONTROL SHALL BE AVAILABLE THROUGH THE BAS.
   B. OFF POSITION: THE MOTOR SHALL BE OFF. THE BAS SHALL NOT CONTROL THE MOTOR. ALL OTHER CONTROL POINTS SHALL BE IN THEIR FAIL-SAFE POSITION.
   C. AUTOMATIC POSITION: THE MOTOR SHALL BE CONTROLLED BY THE BAS.
2. ELECTRICAL DISCONNECTS SHALL REPORT DISCONNECT POSITION VIA RELAY OUTPUTS.
3. START/STOP, ALARM, SPEED CONTROL AND STATUS POINTS SHALL BE HARDWIRED
4. THE FOLLOWING POINTS SHALL BE COMMUNICATED TO THE BAS VIA THE VFD'S MANUFACTURER'S STANDARD NETWORK COMMUNICATION PORT:
   - SPEED INDICATION
   - AUTO / OUT OF AUTO INDICATION
   - FAULT / FAULT CODE
   - MOTOR CURRENT
   - DRIVE TEMPERATURE
   - DC BUS VOLTAGE
   - POWER DEMAND (kW)

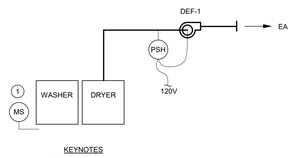
12 VFD CONTROL DIAGRAM
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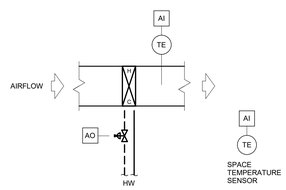
10 CLOTHES WASHER CONTROL DIAGRAM
NTS



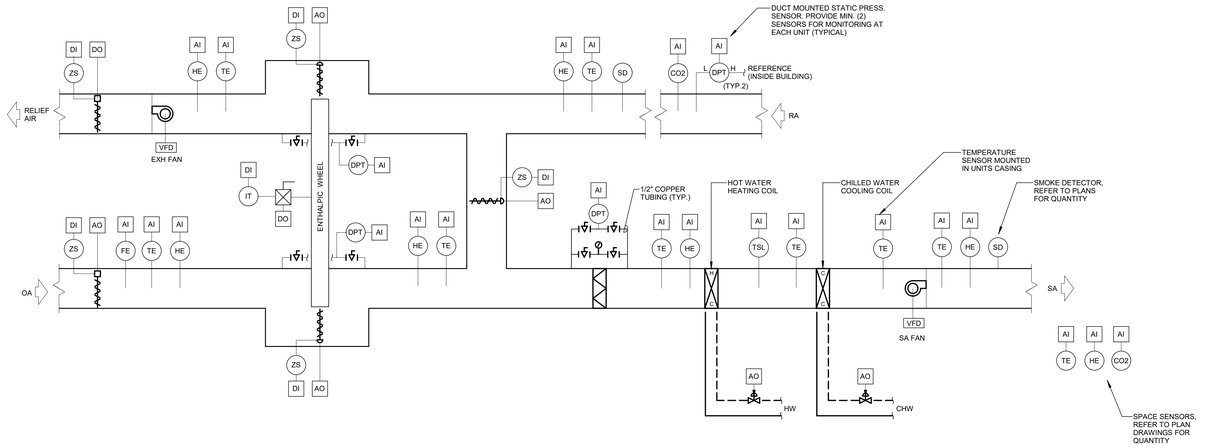
11 DISHWASHER EXHAUST FAN CONTROL DIAGRAM (DWEF-1)
NTS



14 DRYER BOOSTER FAN CONTROLS
NTS



13 DUCT MOUNTED COIL - HW COIL SPACE TEMP CONTROL
NTS



3 SINGLE ZONE VAV AHU WITH RELIEF FAN AND ENERGY WHEEL CONTROL DIAGRAM (RTU-1,2&3)
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KEYPLAN

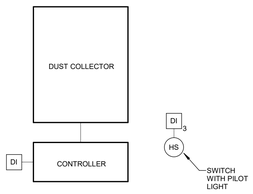
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	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

MECHANICAL CONTROLS DIAGRAMS

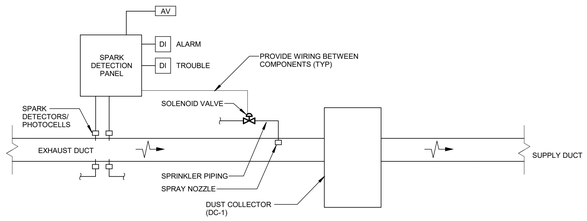
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07/08/2024
Scale
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Proj. Number
22367.00

Drawing Number
M700

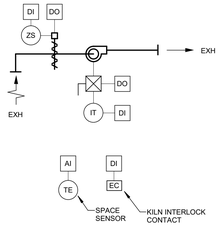
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10 DUST COLLECTOR CONTROL DIAGRAM (DC-1)
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5 DUST COLLECTOR (DC-1) SPARK DETECTION/ EXTINGUISHING CONTROL DIAGRAM
NTS



SEQUENCE OF OPERATION

GENERAL

1. PROVIDE BAS CONTROLS

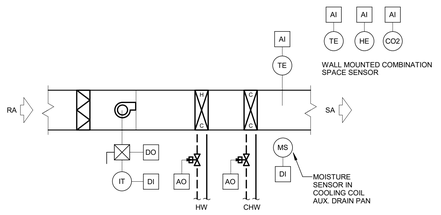
SAFETIES AND ALARMS

1. IF THE FAN IS COMMANDED ON AND IT DOES NOT ACTIVATE, AN ALARM SHALL BE GENERATED THROUGH THE BAS.

OPERATION

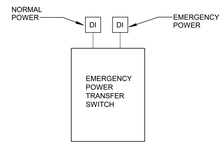
1. FAN SHALL OPERATE CONTINUOUSLY DURING THE OCCUPIED PERIOD. THE EXHAUST AIR CONTROL DAMPER (LOCATED IN EXHAUST DUCTWORK) SHALL BE CLOSED WHEN THE EXHAUST FAN IS OFF AND OPEN WHEN THE EXHAUST FAN IS ON. THE EXHAUST FAN SHALL NOT START UNTIL PROOF (BY END SWITCH) THAT THE EXHAUST AIR CONTROL DAMPER IS OPEN

4 FANS - LIFE SAFETY AND SPECIALTY (KILN)
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2 FAN COIL UNIT CONTROL DIAGRAM
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EMERGENCY GENERATOR CONTROL DIAGRAM



GENERAL

1. PROVIDE A MONITORING CONNECTION OF THE BAS TO THE GENERATOR. IN ACCORDANCE WITH THE GENERATOR MANUFACTURER'S COMMUNICATIONS PROTOCOL.

TYPICAL DOMESTIC HOT WATER CIRCULATING PUMP



GENERAL

PROVIDE BAS MONITORING OF THE POINTS LISTED BELOW.

1. PUMP STATUS (ON/OFF)

DOMESTIC WATER BOOSTER PUMP CONTROLLER

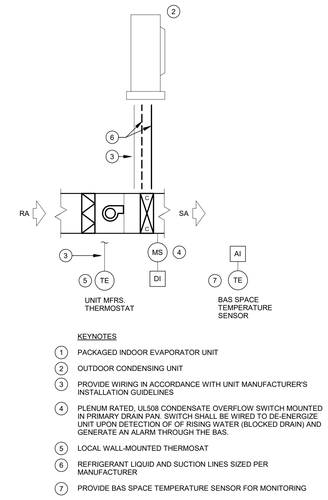


GENERAL

PROVIDE BAS MONITORING OF THE POINTS LISTED BELOW.

1. FAULT ALARM

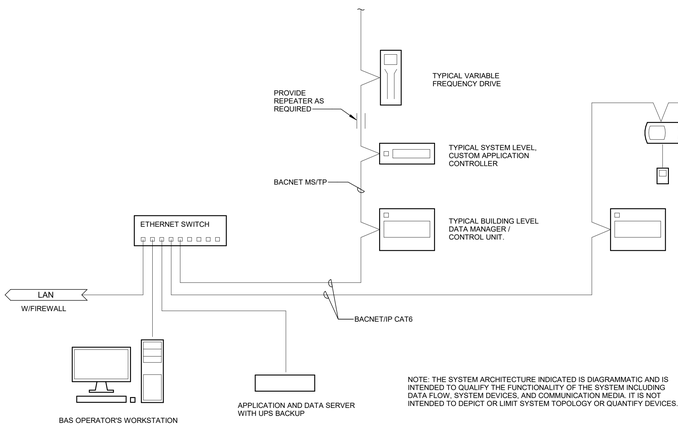
3 MISC ELECTRICAL, FA, & PLUMBING MONITORING CONTROL DIAGRAM
NTS

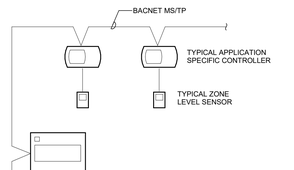


KEYNOTES

1. PACKAGED INDOOR EVAPORATOR UNIT
2. OUTDOOR CONDENSING UNIT
3. PROVIDE WIRING IN ACCORDANCE WITH UNIT MANUFACTURER'S INSTALLATION GUIDELINES
4. PLENUM RATED, UL508 CONDENSATE OVERFLOW SWITCH MOUNTED IN PRIMARY DRAIN PAN. SWITCH SHALL BE WIRED TO DE-ENERGIZE UNIT UPON DETECTION OF OF RISING WATER (BLOCKED DRAIN) AND GENERATE AN ALARM THROUGH THE BAS.
5. LOCAL WALL-MOUNTED THERMOSAT
6. REFRIGERANT LIQUID AND SUCTION LINES SIZED PER MANUFACTURER
7. PROVIDE BAS SPACE TEMPERATURE SENSOR FOR MONITORING

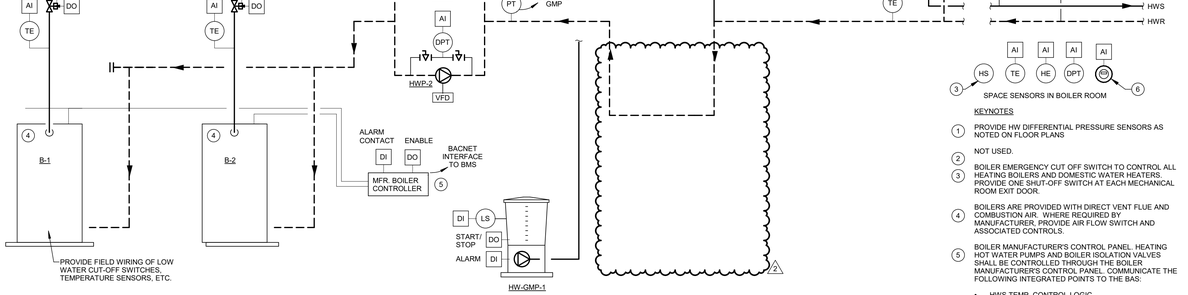
1 AC SPLIT SYSTEM CONTROL DIAGRAM
NTS





NOTE: THE SYSTEM ARCHITECTURE INDICATED IS DIAGRAMMATIC AND IS INTENDED TO QUALIFY THE FUNCTIONALITY OF THE SYSTEM INCLUDING DATA FLOW, SYSTEM DEVICES, AND COMMUNICATION MEDIA. IT IS NOT INTENDED TO DEPICT OR LIMIT SYSTEM TOPOLOGY OR QUANTIFY DEVICES.

8 BAS SYSTEM ARCHITECTURE DIAGRAM
NTS

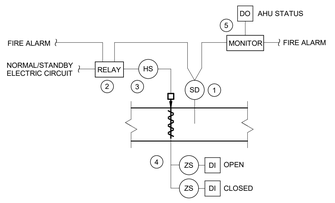


PROVIDE FIELD WIRING OF LOW WATER CUT-OFF SWITCHES, TEMPERATURE SENSORS, ETC.

KEYNOTES

1. PROVIDE HW DIFFERENTIAL PRESSURE SENSORS AS NOTED ON FLOOR PLANS
2. NOT USED.
3. BOILER EMERGENCY CUT OFF SWITCH TO CONTROL ALL HEATING BOILERS AND DOMESTIC WATER HEATERS. PROVIDE ONE SHUT-OFF SWITCH AT EACH MECHANICAL ROOM EXIT DOOR.
4. BOILERS ARE PROVIDED WITH DIRECT VENT FLUE AND COMBUSTION AIR. WHERE REQUIRED BY MANUFACTURER, PROVIDE AIR FLOW SWITCH AND ASSOCIATED CONTROLS.
5. BOILER MANUFACTURER'S CONTROL PANEL. HEATING HOT WATER PUMPS AND BOILER ISOLATION VALVES SHALL BE CONTROLLED THROUGH THE BOILER MANUFACTURER'S CONTROL PANEL. COMMUNICATE THE FOLLOWING INTEGRATED POINTS TO THE BAS:
   - HWS TEMP. CONTROL LOGIC
   - TEMP RESET CONTROL LOGIC
   - SYSTEM START/STOP CONTROL LOGIC
   - BOILER STATUS (TYP. EA BOILER)
   - BOILER ALARM (TYP. EA BOILER)
   - BOILER % MODULATION (TYP. EA BOILER)

6 HOT WATER PLANT CONTROL DIAGRAM
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GENERAL NOTES

1. REFER TO MECHANICAL RISER DIAGRAMS AND FLOOR PLANS FOR QUANTITY AND LOCATION OF FIRE/SMOKE DAMPERS.

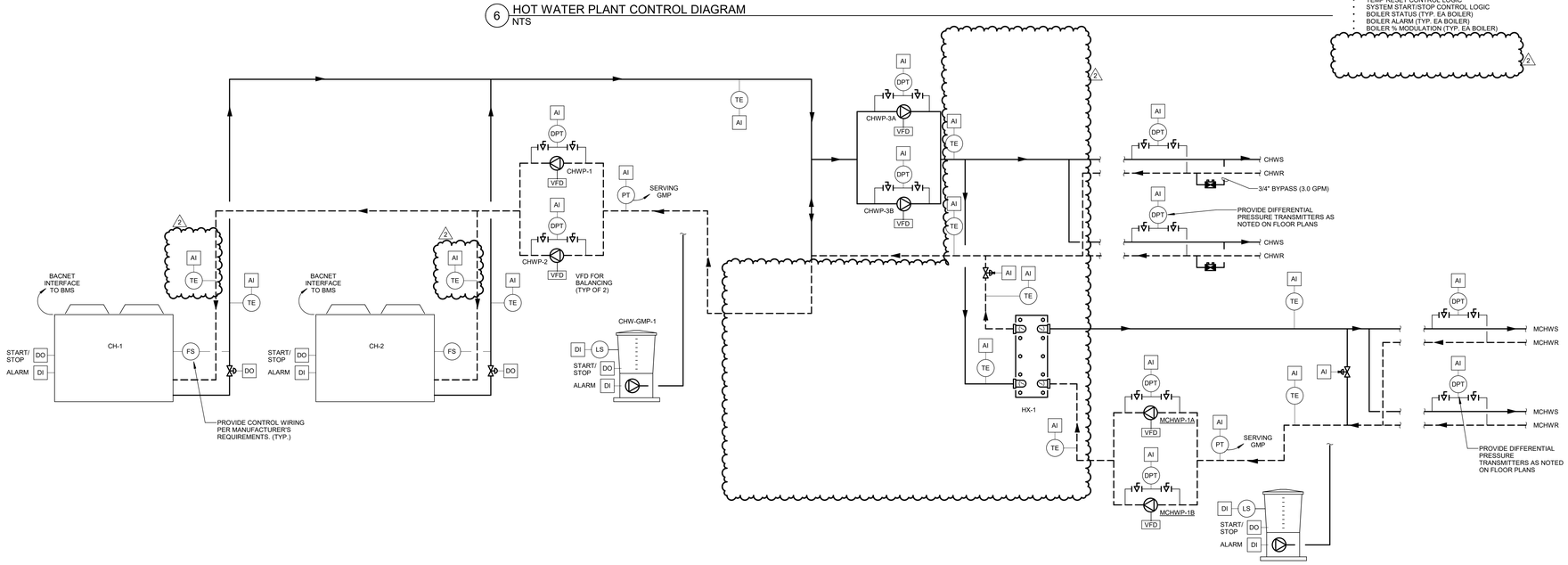
KEYNOTES (#)

1. SMOKE DETECTOR(S) FOR FIRE/SMOKE DAMPER ACTIVATION PROVIDED BY DIVISION 28. INSTALLED BY DIVISION 23. INSTALL DUCT DETECTORS WITHIN 5 FEET OF ASSOCIATED FIRE/SMOKE DAMPER.
2. FIRE ALARM RELAY MODULE FOR FIRE/SMOKE DAMPER CONTROL FURNISHED, INSTALLED AND WIRED BY DIVISION 28.
3. SINGLE OR MULTI-DAMPER TEST SWITCH REMOTE-MOUNTED WITH MOMENTARY TEST SWITCH AND DAMPER POSITION FEEDBACK INDICATOR LIGHTS FURNISHED BY DIVISION 23 AND INSTALLED/WIRED BY DIVISION 26. INSTALL TEST SWITCH DIRECTLY BELOW DAMPER(S) OR AS INDICATED ON MECHANICAL DRAWINGS.
4. FIRE/SMOKE DAMPER BLADE END SWITCHES FURNISHED AND INSTALLED BY DIVISION 23 AND WIRED BY DIVISION 26. BAS MONITORING OF END SWITCHES FURNISHED, INSTALLED AND WIRED BY DIVISION 23.
5. RELAY MODULE FOR SUPERVISION OF AIR HANDLING SYSTEM STATUS FURNISHED, INSTALLED AND WIRED BY DIVISION 28.

SEQUENCE OF OPERATION

1. IF ASSOCIATED AIR HANDLING SYSTEM IS ACTIVATED, DAMPER SHALL OPEN.
2. IF ASSOCIATED AIR HANDLING SYSTEM IS DEACTIVATED, DAMPER SHALL CLOSE.
3. UPON ACTIVATION OF DUCT DETECTOR(S) DAMPER SHALL CLOSE VIA FACTORY WIRED CONNECTION.
4. BAS SHALL MONITOR STATUS OF DAMPER END SWITCHES

9 FIRE SMOKE DAMPER CONTROL DIAGRAM
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PROVIDE CONTROL WIRING PER MANUFACTURER'S REQUIREMENTS. (TYP.)

PROVIDE DIFFERENTIAL PRESSURE TRANSMITTERS AS NOTED ON FLOOR PLANS

7 CHILLED WATER PLANT - AIR-COOLED PRIMARY SECONDARY
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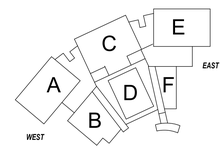
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MECHANICAL CONTROLS DIAGRAMS

Date 07/08/2024
Scale NTS
Proj. Number 22367.00
Drawing Number **M701**

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1 ELECTRICAL LIGHTING FIRST FLOOR PLAN - E
1/8" = 1'-0"

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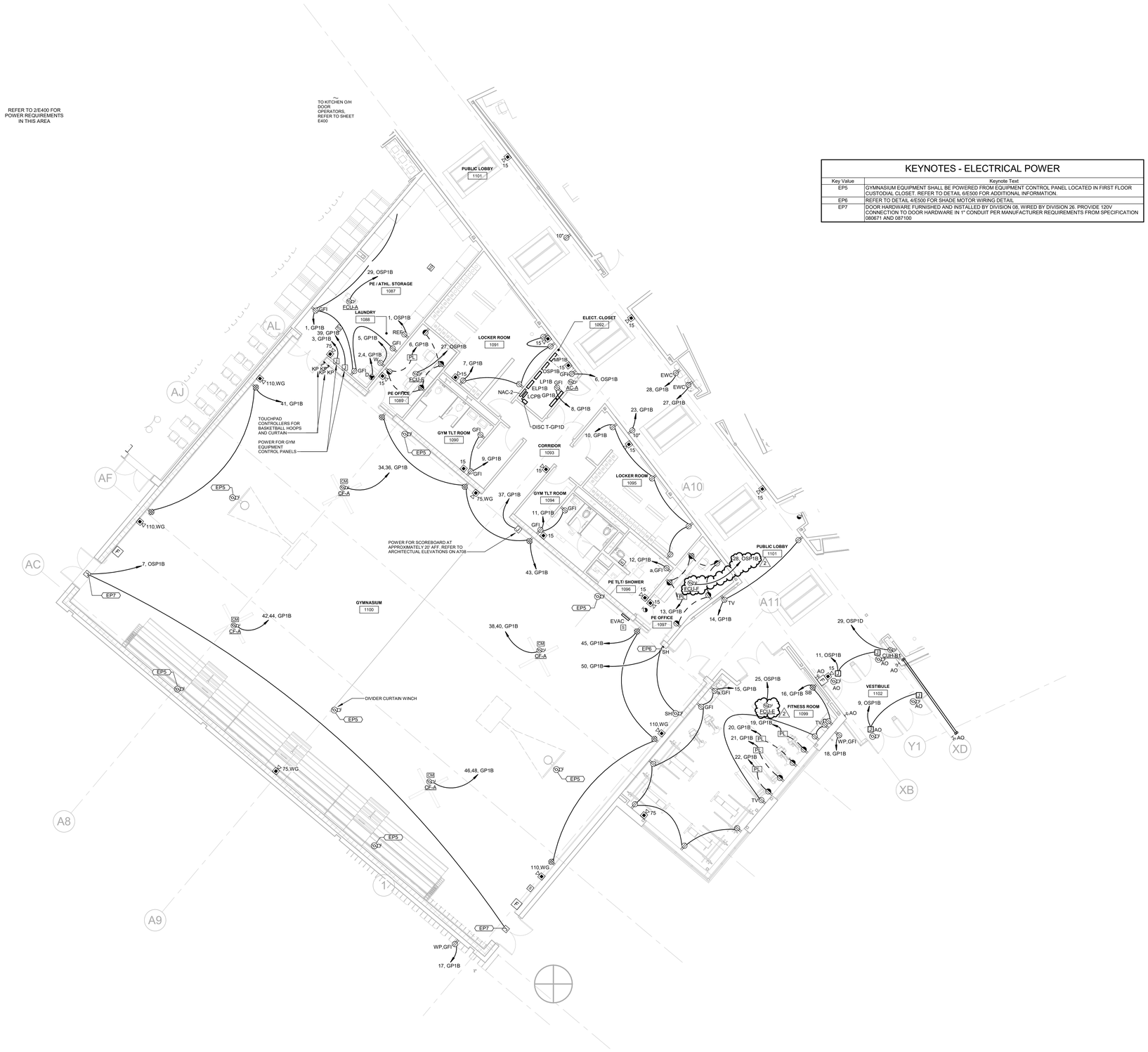
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ELECTRICAL LIGHTING FIRST FLOOR PLAN - PART E

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07/08/2024
Scale
1/8" = 1'-0"
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Drawing Number
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KEYNOTES - ELECTRICAL POWER	
Key Value	Keynote Text
EP5	GYMNASIUM EQUIPMENT SHALL BE POWERED FROM EQUIPMENT CONTROL PANEL LOCATED IN FIRST FLOOR CUSTODIAL CLOSET. REFER TO DETAIL 6/E500 FOR ADDITIONAL INFORMATION.
EP6	REFER TO DETAIL 4/E500 FOR SHADE MOTOR WIRING DETAIL
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 - B
1/8" = 1'-0"

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ELECTRICAL POWER FIRST FLOOR PLAN - PART B

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Scale: 1/8" = 1'-0"
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Drawing Number: EP101B

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1 ELECTRICAL POWER FIRST FLOOR PLAN - D
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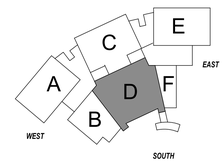
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KEYPLAN

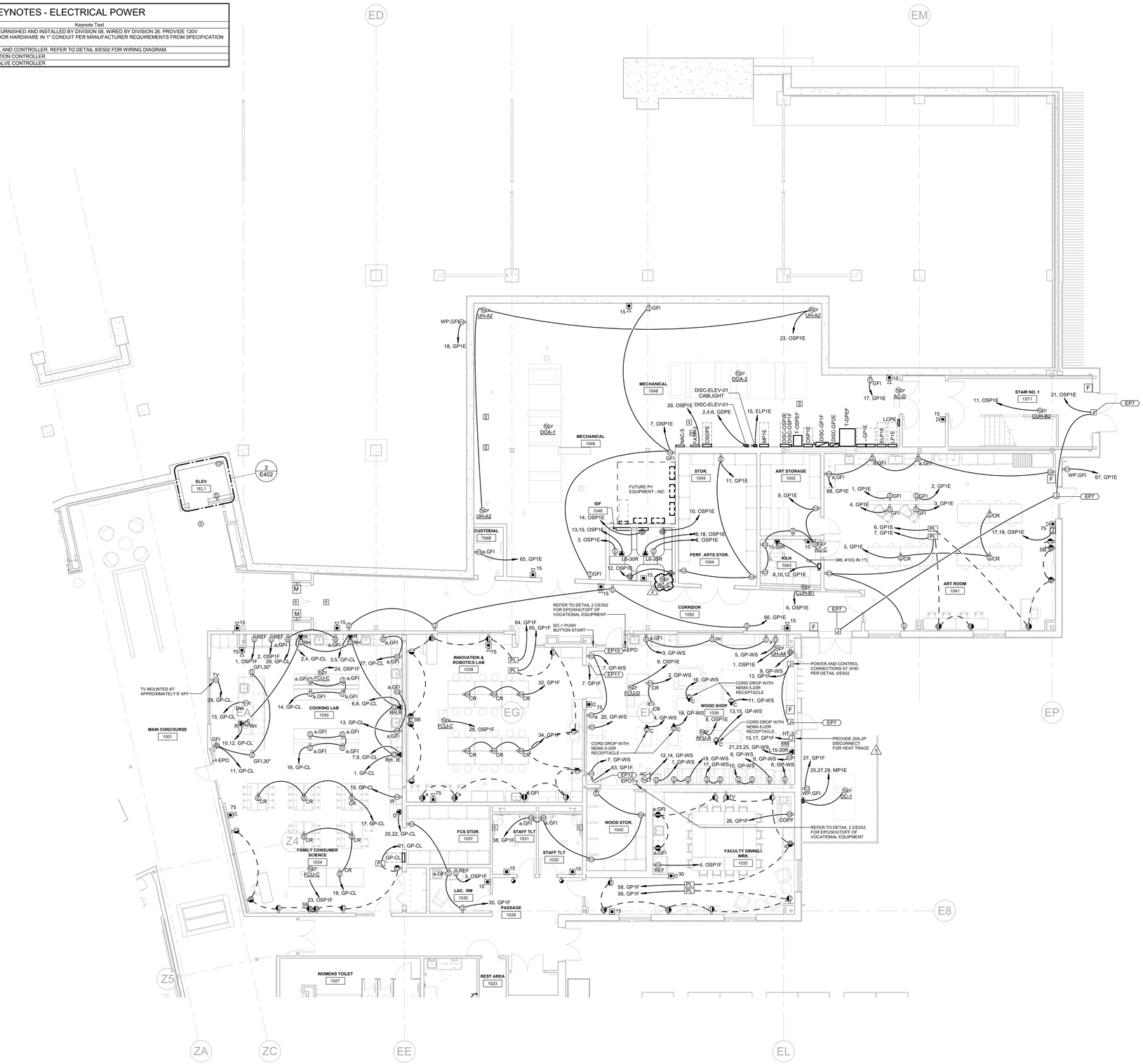
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1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

ELECTRICAL POWER FIRST FLOOR PLAN - PART D

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Scale: 1/8" = 1'-0"
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Drawing Number: EP101D

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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
EP10	DC-1 VFD, STARTER, AND CONTROLLER. REFER TO DETAIL 8/E502 FOR WIRING DIAGRAM.
EP11	DC-1 SPARK DETECTION CONTROLLER.
EP12	DC-1 NO-RETURN VALVE CONTROLLER



1 ELECTRICAL POWER FIRST FLOOR PLAN - E
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SOUTH

KEYPLAN

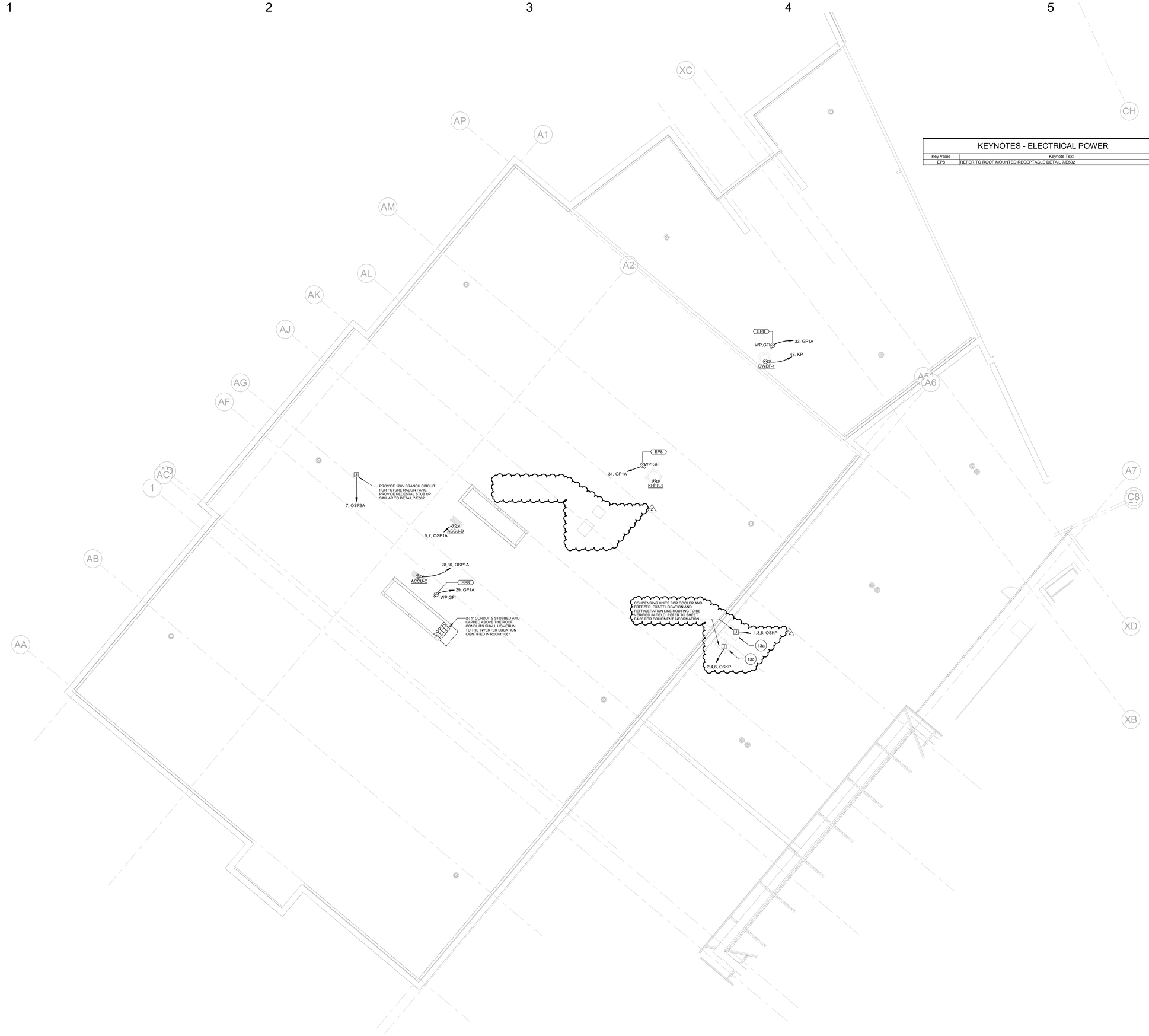
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2	10/23/2024	ADDENDUM NO. 3
1	10/16/2024	ADDENDUM NO. 2
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

ELECTRICAL POWER FIRST FLOOR PLAN - PART E

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00

Drawing Number: EP101E

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KEYNOTES - ELECTRICAL POWER

Key Value	Keynote Text
EP8	REFER TO ROOF MOUNTED RECEPTACLE DETAIL 7/E502

1 ELECTRICAL POWER ROOF FLOOR PLAN - A
1/8" = 1'-0"

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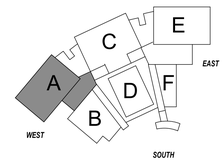
Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane,
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N

NORTH



KEYPLAN

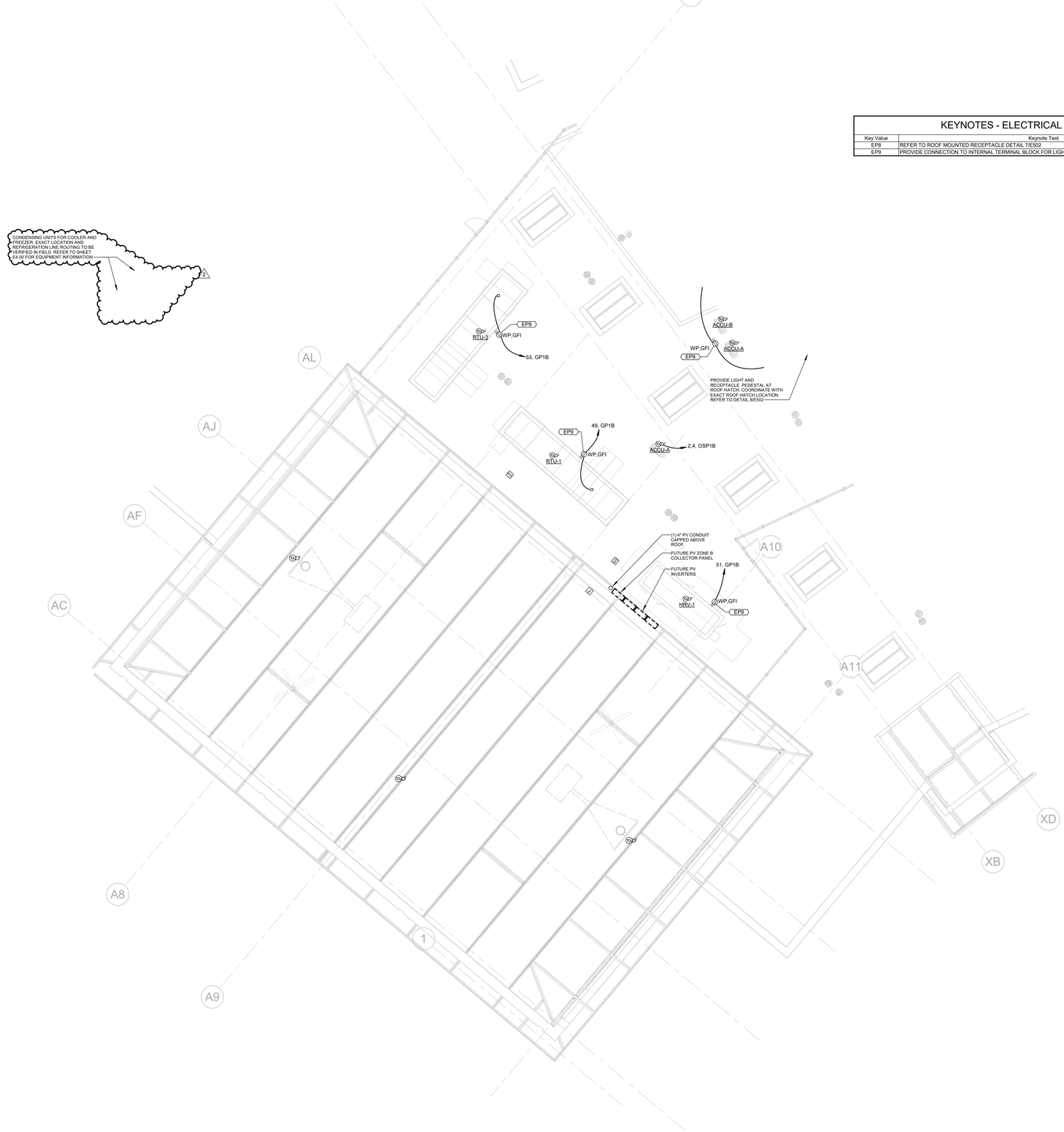
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2	10/23/2024	ADDENDUM NO. 3
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	07/08/2024	PHASE 2

ELECTRICAL POWER ROOF PLAN - PART A

Date: 07/08/2024
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Proj. Number: 22367.00

Drawing Number: EP103A

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KEYNOTES - ELECTRICAL POWER	
Key Value	Keynote Text
EP8	REFER TO ROOF MOUNTED RECEPTACLE DETAIL 7/E502
EP9	PROVIDE CONNECTION TO INTERNAL TERMINAL BLOCK FOR LIGHTS AND RECEPTACLES

1 ELECTRICAL POWER ROOF FLOOR PLAN - B
1/8" = 1'-0"

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NORTH
EAST
WEST
SOUTH
A B C D E F

KEYPLAN

Number	Date	Issued For
2	10/23/2024	ADDENDUM NO. 3
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	07/08/2024	PHASE 2

ELECTRICAL POWER ROOF PLAN - PART B

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00
Drawing Number: EP103B

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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	CORD & PLUG (PROVIDE NEMA L14-20R)	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 2	N/A	#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 1	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 1	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 1	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

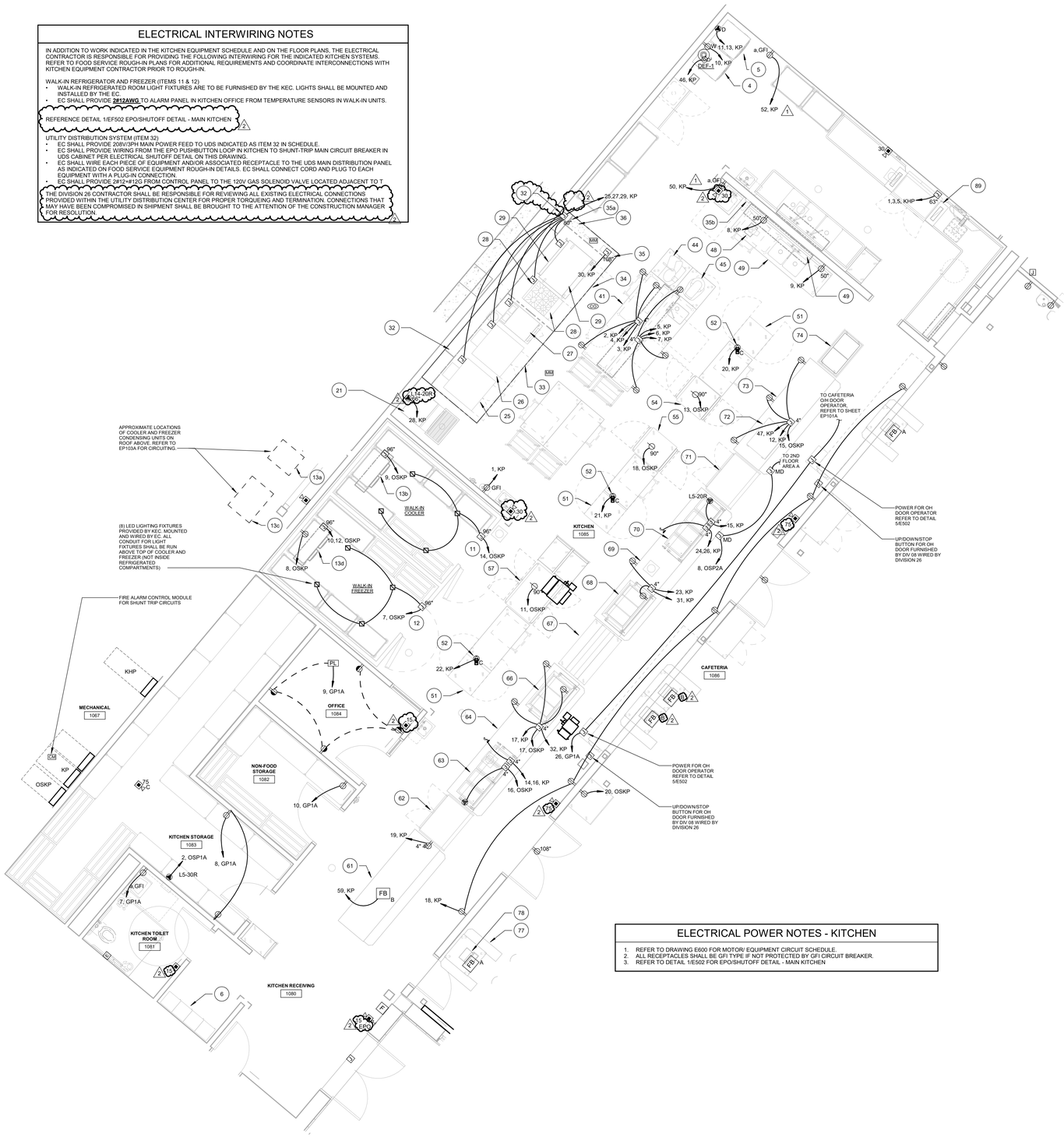
IN ADDITION TO WORK INDICATED IN THE KITCHEN EQUIPMENT SCHEDULE AND ON THE FLOOR PLANS, THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE FOLLOWING INTERWIRING FOR THE INDICATED KITCHEN SYSTEMS. REFER TO FOOD SERVICE ROUGH-IN PLANS FOR ADDITIONAL REQUIREMENTS AND COORDINATE INTERCONNECTIONS 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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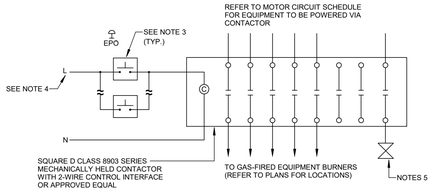
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ELECTRICAL ENLARGED PLANS - KITCHEN

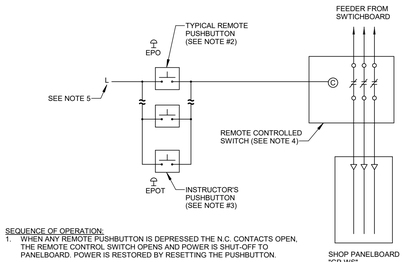
Date 07/08/2024
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NOTES:
1. PROVIDE CONTACTOR WITH QUANTITY OF POLES REQUIRED TO SHUT POWER DOWN TO EQUIPMENT LISTED PLUS (3) SPARE POLES. COORDINATE LOCATION IN EQUIPMENT ROOM IN FIELD.
2. COORDINATE CONNECTIONS TO EQUIPMENT/ CONTROL PANELS IN FIELD
3. STI MODEL #SS202-4-PO-EN PUSHBUTTON, QUANTITY SHOWN ON PLANS:
   A. WITH (1) N.O. AND (1) N.C. CONTACT COMPATIBLE WITH CONTACTOR
   B. RED COLOR WITH "EMERGENCY POWER OFF" LEGEND
   C. NON-ALARMED FLIP UP FLUSHED COVER
   D. MOMENTARY OPERATION
4. POWER VIA LOCAL 120VAC RECEPTACLE CIRCUIT IN EQUIPMENT ROOM.
5. NORMALLY OPEN 120VAC GAS SOLENOID VALVE IN ROOM SHALL BE DE-ENERGIZED UPON EPO SYSTEM ACTIVATION. SOLENOID VALVE AND ENCLOSURE SHALL BE FURNISHED AND INSTALLED BY DIV. 22 PLUMBING CONTRACTOR AND WIRED THROUGH CONTACTOR BY DIV. 26 EC. POWER VIA DEDICATED 20A-1P CIRCUIT BREAKER IN SAME PANEL AS BOILER MAIN FEEDS.

3 BOILER ROOM EPO DETAIL
NTS

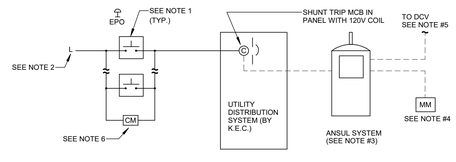


SEQUENCE OF OPERATION:
1. WHEN ANY REMOTE PUSHBUTTON IS DEPRESSED THE N.C. CONTACTS OPEN, THE REMOTE CONTROL SWITCH OPENS AND POWER IS SHUT-OFF TO PANELBOARD. POWER IS RESTORED BY RESETTING THE PUSHBUTTON.

2. WHEN THE INSTRUCTOR'S PUSHBUTTON IS DEPRESSED THE N.C. CONTACTS OPEN, THE REMOTE CONTROL SWITCH OPENS AND POWER IS SHUT-OFF TO PANELBOARD. POWER IS RESTORED BY KEY RELEASE OF THE INSTRUCTOR'S PUSHBUTTON.

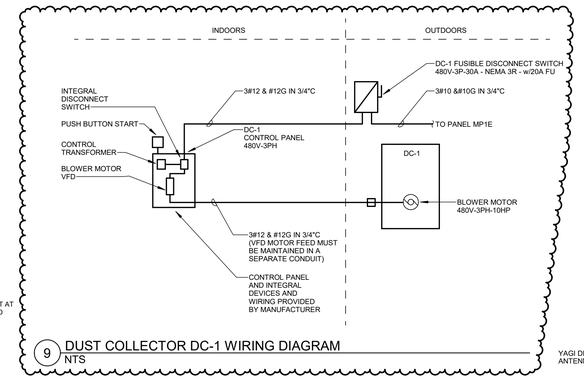
NOTES:
1. COORDINATE LOCATIONS OF EPO MUSHROOM HEAD PUSHBUTTONS WITH OWNER IN FIELD.
2. REMOTE EPO: STI MODEL #SS202-9-PO-EN PUSHBUTTON, QUANTITY SHOWN ON PLANS:
   A. WITH (1) N.O. AND (1) N.C. CONTACT COMPATIBLE WITH CONTACTOR
   B. RED COLOR WITH "EMERGENCY POWER OFF" LEGEND
   C. NON-ALARMED FLIP UP FLUSHED COVER
   D. TURN-TO-RESET OPERATION WITH ILLUMINATION WHEN PRESSED
3. INSTRUCTOR'S EPO: STI MODEL #SS202-2-PO-EN PUSHBUTTON:
   A. WITH (1) N.O. AND (1) N.C. CONTACT COMPATIBLE WITH CONTACTOR
   B. RED COLOR WITH "EMERGENCY POWER OFF" LEGEND
   C. NON-ALARMED FLIP UP FLUSHED COVER
   D. KEY-TO-RESET OPERATION WITH ILLUMINATION WHEN PRESSED
4. SQUARE D 8950SGG11V02P45R6 REMOTE CONTROL SWITCH WITH TWO-WIRE AUXILIARY CONTROL RELAY AND OPEN/CLOSE INDICATING LIGHTS, RATING AS INDICATED ON PLANS.
5. POWER VIA LOCAL 120VAC RECEPTACLE CIRCUIT NOT CONNECTED TO PANEL THAT IS SHUT OFF (NEUTRAL WIRING NOT SHOWN)

2 EPO/SHUTOFF DETAIL - VOCATIONAL AREAS WITH REMOTE SHUTOFF SWITCH
NTS

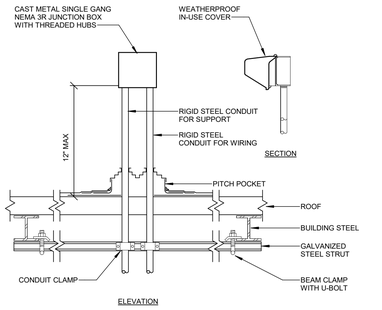


NOTES:
1. STI MODEL #SS202-4-PO-EN PUSHBUTTON, QUANTITY SHOWN ON PLANS:
   A. WITH (1) N.O. AND (1) N.C. CONTACT COMPATIBLE WITH SHUNT TRIP PANELBOARD
   B. RED COLOR WITH "EMERGENCY POWER OFF" LEGEND
   C. NON-ALARMED FLIP UP FLUSHED COVER
   D. MOMENTARY OPERATION
2. POWER VIA LOCAL 120VAC RECEPTACLE CIRCUIT NOT CONNECTED TO PANEL THAT IS SHUT OFF (NEUTRAL WIRING NOT SHOWN)
3. FIRE SUPPRESSION/ ANSUL CABINET SHALL BE WIRED TO UTILITY DISTRIBUTION SYSTEM FOR AUTOMATIC SHUTOFF IN THE EVENT OF A FIRE. PROVIDE INTERCONNECTIONS AS REQUIRED BY MANUFACTURER.
4. SYSTEM SHALL REPORT TO FIRE ALARM MONITOR MODULE TO SEND BUILDING INTO ALARM STATE AS INDICATED ON FIRE ALARM RISER DIAGRAM.
5. ANSUL SYSTEM SHALL BE INTERWIRED WITH DEMAND CONTROL VENTILATION SYSTEM TO AUTOMATICALLY TURN ON EXHAUST FANS DURING A FIRE. PROVIDE INTERCONNECTIONS AS REQUIRED BY MANUFACTURER.
6. PROGRAM FIRE ALARM CONTROL RELAY TO ACTIVATE SHUNT-TRIP CIRCUIT UPON ACTIVATION OF ALARM OUTPUT OF GENERAL FIRE ALARM IN THE KITCHEN (I.E. ACTIVATION OF ANY SYSTEM SMOKE OR HEAT DETECTOR SHOWN ON FLOOR PLANS WITHIN KITCHEN AREA).

1 EPO/SHUTOFF DETAIL - MAIN KITCHEN
NTS

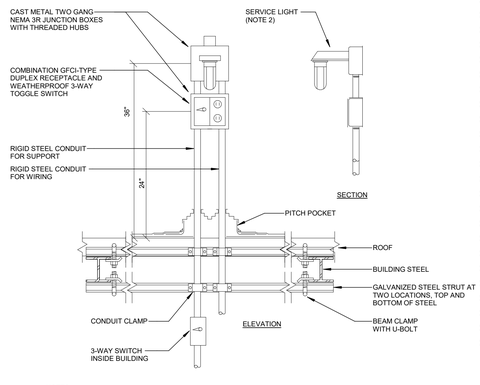


9 DUST COLLECTOR DC-1 WIRING DIAGRAM
NTS



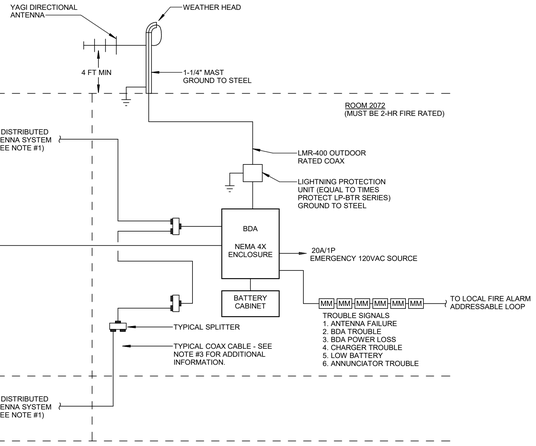
NOTES:
1. WHERE APPLICABLE MOUNT ROOF RECEPTACLE TO MECHANICAL EQUIPMENT ENCLOSURES.
2. COORDINATE WITH ROOFING CONTRACTOR FOR ALL ROOF PENETRATIONS AND SEALING TO MAINTAIN ROOF WARRANTY.

7 ROOF MOUNTED RECEPTACLE DETAIL
NTS

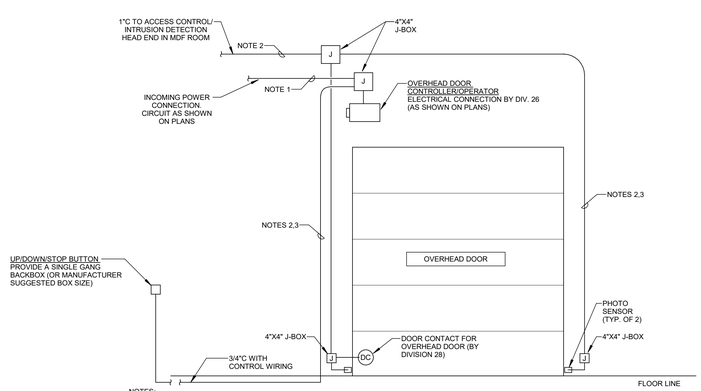


NOTES:
1. COORDINATE WITH ROOFING CONTRACTOR FOR ALL ROOF PENETRATIONS AND SEALING TO MAINTAIN ROOF WARRANTY.
2. PROVIDE SERVICE LIGHT FIXTURE WITH IP66 LISTING, EQUAL TO HUBBELL VAPORTITE "VWGL-1" WITH "VGL-GUARD' WIREGUARD ACCESSORY. PROVIDE ALL REQUIRED MOUNTING ACCESSORIES FOR A COMPLETE INSTALLATION.

8 ROOF MOUNTED RECEPTACLE AND LIGHT DETAIL
NTS

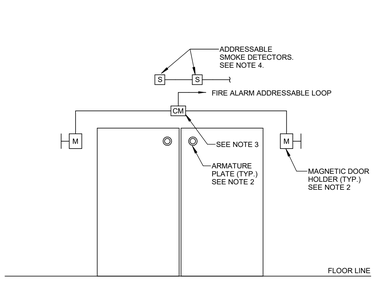


4 BI-DIRECTIONAL AMPLIFICATION SYSTEM RISER DIAGRAM
NTS



NOTES:
1. **POWER CONNECTION INFRASTRUCTURE:** PROVIDE POWER CONNECTION AS SHOWN ON PLANS. THIS CONNECTION SHALL INCLUDE WIRING, CONDUIT, ASSOCIATED BOXES, HANGERS, AND SUPPORT.
2. **CONDUIT INFRASTRUCTURE (LOW VOLTAGE ONLY):** PROVIDE 1" C RUNS WITH NYLON PULL STRING. CONDUIT SHALL INCLUDE VERTICAL RUNS FOR COMPLETE COVERAGE AND INSTALLATION OF ALL RELATED ITEMS AND SENSORS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE OR REQUEST INFORMATION RELATED TO THE DOOR SIZE AND OPENINGS FOR PROPER INSTALLATION. PROVIDE ALL ASSOCIATED BOXES, HANGERS, AND SUPPORTS FOR A COMPLETE INSTALLATION.
3. **OVER HEAD DOOR CONTROL WIRING, BUTTONS, AND ACCESORIES:** ITEMS SUCH AS CONTROL BUTTONS AND PHOTO SENSORS SHALL BE FURNISHED BY THE DOOR INSTALLER FOR DIVISION 26 TO INSTALL. THE CONTRACTOR SHALL PROVIDE CONTROL WIRING AS FOLLOWS, ROUTED VIA CONDUIT PATHWAYS SHOWN (UNLESS PROVIDED AS PART OF THE OVERHEAD DOOR PACKAGE):
   A. CONTROL BUTTON: 4#18AWG (TYPICAL PER BUTTON)
      a. *PROVIDE SIMILAR QUANTITY OF WIRING FOR DAISY CHAIN CONFIGURATIONS.*
   B. PHOTO SENSOR: 2#18AWG (TYPICAL PER SENSOR)
4. **GENERAL REQUIREMENTS:**
   A. PROVIDE CONNECTIONS TO DOOR OPENER/CONTROLLER FROM ACCESS CONTROL SYSTEM PER MANUFACTURER REQUIREMENTS AND PER DIVISION 27 GUIDELINES.
   B. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ELEVATIONS OF ALL DEVICES WITH THE ARCHITECT PRIOR TO ROUGH IN. REFERENCE SHEET A620 FOR INTERIOR ELEVATIONS OF OVERHEAD DOORS.

5 TYPICAL OVERHEAD DOOR DETAIL - WITHOUT RED/GREEN LIGHT
NTS



NOTES
1. TYPICAL DOUBLE DOOR SHOWN. SEE DRAWINGS AND SPECIFICATIONS FOR DOOR TYPES, FRAMES AND HARDWARE REQUIREMENTS.
2. MAGNETIC DOOR HOLDERS, ARMATURE PLATES, AND ACCESSORY HARDWARE PROVIDED BY DIV. 8. COORDINATE POWER REQUIREMENTS AND FINAL CONNECTIONS WITH DIV. 8. PROVIDE 120VAC POWER FROM LOCAL UNSWITCHED RECEPTACLE CIRCUIT.
3. FIRE ALARM CONTROL MODULE/RELAY TO RELEASE MAGNETIC HOLD OPENS UPON ACTIVATION. COORDINATE PROGRAMING WITH THE OWNER AND AUTHORITY HAVING JURISDICTION.
4. PROVIDE ADDRESSABLE FIRE ALARM SMOKE DETECTORS ON EITHER SIDE PER NFPA 72 REQUIREMENTS. CONNECT TO NEAREST FIRE ALARM ADDRESSABLE DEVICE WITH ADDRESSABLE LOOP WIRING PER THE MANUFACTURERS REQUIREMENTS.

6 MAGNETIC DOOR HOLDER INSTALLATION DETAIL
NTS

BDA SYSTEM NOTES

1. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE DISTRIBUTED ANTENNA SYSTEM THROUGHOUT THE BUILDING TO MEET THE PERFORMANCE REQUIREMENTS OF THE SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR COMPLETING A SYSTEM LAYOUT AND SUBMITTING SHOP DRAWINGS OF THE SYSTEM COMPONENTS OVERLAYED ON THE FLOOR PLANS FOR REVIEW AND APPROVAL BY THE OWNER AND ENGINEER. COORDINATE ALL COMMUNICATION REQUIREMENTS WITH THE OWNER PRIOR TO INSTALLATION.
2. SYSTEM SHALL HAVE THE ABILITY TO SUPPORT THE FOLLOWING FREQUENCIES:
   A. GREENWICH FIRE DEPARTMENT
   B. GREENWICH POLICE DEPARTMENT
3. 50-OHM PLENUM RATED COAX CABLE (EQUAL TO TRILOGY AIR CELL APH012J50).
   RISER COAXIAL CABLE (WHEN CROSSING BETWEEN FLOORS) SHALL BE EITHER OF THE FOLLOWING:
   A. BASIS OF DESIGN: PROVIDE 2-HOUR FIRE RATED COAXIAL CABLE, AMERICAN FIRE WIRE AFW-2HFR-3 OR EQUAL.
   B. ALTERNATE SOLUTION: CABLE SHALL BE ROUTED IN RIGID STEEL CONDUIT AND WRAPPED IN ENDOTHERMIC MAT (EQUAL TO 3M INTERAM E-5A-4), PER MANUFACTURER'S RECOMMENDATION.

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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
2	10/23/2024	ADDENDUM NO. 3
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

ELECTRICAL DETAILS

Date 07/08/2024
Scale NTS
Proj. Number 22367.00
Drawing Number E502

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LIGHTING CONTROL RELAY PANEL SCHEDULE

RELAY PANEL	RELAY	LOAD	SOURCE PANEL	CONTROL	REMARKS
LCPA	1	OUTDOOR EQUIPMENT YARD NORMAL LIGHTING CONTROL ZONE 'z1'	LP1B	LINE VOLTAGE SWITCH	RELAY GROUP WITH WEATHERPROOF LINE VOLTAGE SWITCH FOR ON/OFF.
	2	AREA A,B,E EXTERIOR EMERGENCY LIGHTING CONTROL ZONE 'z2'	ELP1B	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL. LOW VOLTAGE OVERRIDE SWITCH AT LOCATION SHOWN ON FLOOR PLAN.
	3	VESTIBULE 1071 & STAIR NO. 2 1ST2 NORMAL LIGHTING CONTROL ZONE 'z3'	LP1B	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	4	VESTIBULE 1071 & STAIR NO. 2 1ST2 EMERGENCY LIGHTING CONTROL ZONE 'z4'	ELP1B	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	5	ENTRANCE EXTERIOR NORMAL LIGHTING CONTROL ZONE 'z5'	LP1B	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	6	MAIN ENTRANCE EXTERIOR EMERGENCY LIGHTING CONTROL ZONE 'z6'	ELP1B	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	7	CORRIDOR 2020, STAIR NO. 2 2ST2 NORMAL LIGHTING CONTROL ZONE 'z7'	LP1B	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	8	CORRIDOR 2020, STAIR NO. 2 2ST2 EMERGENCY LIGHTING CONTROL ZONE 'z8'	ELP1B	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	9	SPARE	LP1B		
	10	SPARE	LP1B		
	11	SPARE	LP1B		
	12	SPARE	LP1B		
	13	SPARE	LP1B		
	14	SPARE	LP1B		
	15	SPARE	LP1B		
	16	SPARE	LP1B		
	17	SPARE	ELP1B		EMERGENCY RELAY AT PANEL.
	18	SPARE	ELP1B		EMERGENCY RELAY AT PANEL.
	19	SPARE	ELP1B		EMERGENCY RELAY AT PANEL.
	20	SPARE	ELP1B		EMERGENCY RELAY AT PANEL.
	21	SPARE	ELP1B		EMERGENCY RELAY AT PANEL.
	22	SPARE	ELP1B		EMERGENCY RELAY AT PANEL.
	23	SPARE	ELP1B		EMERGENCY RELAY AT PANEL.
	24	SPARE	ELP1B		EMERGENCY RELAY AT PANEL.
LCPB	1	PASSAGE 1098, PUBLIC LOBBY 1101, VESTIBULE 1102 NORMAL LIGHTING CONTROL ZONE 'z1'	LP1B	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	2	PASSAGE 1098, PUBLIC LOBBY 1101, VESTIBULE 1102 EMERGENCY LIGHTING CONTROL ZONE 'z2'	ELP1B	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	3	PUBLIC LOBBY 1101 DISPLAY CASE LIGHTING CONTROL ZONE 'z3'	LP1B	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	4	ENTRANCE EXTERIOR EMERGENCY LIGHTING CONTROL ZONE 'z4'	ELP1B	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	5	SPARE	LP1B		
	6	SPARE	LP1B		
	7	SPARE	LP1B		
	8	SPARE	LP1B		
	9	SPARE	ELP1B		EMERGENCY RELAY AT PANEL.
	10	SPARE	ELP1B		EMERGENCY RELAY AT PANEL.
	11	SPARE	ELP1B		EMERGENCY RELAY AT PANEL.
	12	SPARE	ELP1B		EMERGENCY RELAY AT PANEL.
LCPC	1	CORRIDOR 1115 NORMAL LIGHTING CONTROL ZONE 'z1'	LP1C	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	2	CORRIDOR 1115 EMERGENCY LIGHTING CONTROL ZONE 'z2'	ELP1C	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	3	CORRIDOR 2001 NORMAL LIGHTING CONTROL ZONE 'z3'	LP1C	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	4	VESTIBYLE 2000, CORRIDOR 2001 EMERGENCY LIGHTING CONTROL ZONE 'z4'	ELP1C	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	5	CORRIDOR 2054 NORMAL LIGHTING CONTROL ZONE 'z5'	LP1C	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	6	CORRIDOR 2054 EMERGENCY LIGHTING CONTROL ZONE 'z6'	ELP1C	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	7	AREA C EXTERIOR LIGHTING CONTROL ZONE 'z7'	ELP1C	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	8	AREA C EXTERIOR LIGHTING CONTROL ZONE 'z8'	ELP1C	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	9	COURTYARD 1116 LIGHTING CONTROL ZONE 'z9'	ELP1C	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	10	COURTYARD 1116 LIGHTING CONTROL ZONE 'z10'	ELP1C	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	11	SPARE	LP1C		
	12	SPARE	LP1C		
	13	SPARE	LP1C		
	14	SPARE	LP1C		
	15	SPARE	LP1C		
	16	SPARE	ELP1C		EMERGENCY RELAY AT PANEL.
LCPD	1	CORRIDOR 1124, CORRIDOR 1131, CORRIDOR 1132 NORMAL AND DISPLAY CASE LIGHTING CONTROL ZONE 'z1'	LP1D	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	2	CORRIDOR 1124, CORRIDOR 1131, CORRIDOR 1132 EMERGENCY LIGHTING CONTROL ZONE 'z2'	ELP1D	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	3	ENTRY VESTIBULE 1000 NORMAL LIGHTING CONTROL ZONE 'z3'	LP1D	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	4	ENTRY VESTIBULE 1000 EMERGENCY LIGHTING CONTROL ZONE 'z4'	ELP1D	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	5	SPARE	LP1D		
	6	SPARE	LP1D		
	7	SPARE	LP1D		
	8	SPARE	LP1D		
	9	SPARE	ELP1D		EMERGENCY RELAY AT PANEL.
	10	SPARE	ELP1D		EMERGENCY RELAY AT PANEL.
	11	SPARE	ELP1D		EMERGENCY RELAY AT PANEL.
	12	SPARE	ELP1D		EMERGENCY RELAY AT PANEL.

RELAY PANEL	RELAY	LOAD	SOURCE PANEL	CONTROL	REMARKS
LCPE	1	MAIN CONCOURSE 1001 NORMAL LIGHTING CONTROL ZONE 'z1'	LP1E	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	2	MAIN CONCOURSE 1001 EMERGENCY LIGHTING CONTROL ZONE 'z2'	ELP1E	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	3	CORRIDOR 1050 NORMAL LIGHTING CONTROL ZONE 'z3'	LP1E	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	4	CORRIDOR 1050 EMERGENCY LIGHTING CONTROL ZONE 'z4'	ELP1E	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	5	PASSAGE 1028 NORMAL LIGHTING CONTROL ZONE 'z5'	LP1E	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	6	CORRIDOR 1050 EMERGENCY LIGHTING CONTROL ZONE 'z6'	ELP1E	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	7	MAIN CONCOURSE 1001 DISPLAY CASE LIGHTING CONTROL ZONE 'z7'	LP1E	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	8	VESTIBULE 1047, STAIR NO. 1 1ST1 NORMAL LIGHTING CONTROL ZONE 'z8'	LP1E	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	9	STAIR NO. 1 1ST1 EMERGENCY LIGHTING CONTROL ZONE 'z9'	ELP1E	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	10	CORRIDOR 2071 NORMAL LIGHTING CONTROL ZONE 'z10'	LP1E	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	11	VESTIBULE 2070, CORRIDOR 2071 EMERGENCY LIGHTING CONTROL ZONE 'z11'	ELP1E	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	12	CORRIDOR 2091, STAIR NO. 1 2ST1 NORMAL LIGHTING CONTROL ZONE 'z12'	LP1E	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER.
	13	CORRIDOR 2091, STAIR NO. 1 2ST1 EMERGENCY LIGHTING CONTROL ZONE 'z13'	ELP1E	TIME CLOCK	RELAY GROUP CONTROLLED BY ASTRONOMICAL TIME CLOCK. COORDINATE TIME SETTINGS WITH OWNER. EMERGENCY RELAY AT PANEL.
	14	SPARE	LP1E		
	15	SPARE	LP1E		
	16	SPARE	LP1E		
	17	SPARE	LP1E		
	18	SPARE	LP1E		
	19	SPARE	ELP1E		EMERGENCY RELAY AT PANEL.
	20	SPARE	ELP1E		EMERGENCY RELAY AT PANEL.
	21	SPARE	ELP1E		EMERGENCY RELAY AT PANEL.
	22	SPARE	ELP1E		EMERGENCY RELAY AT PANEL.
	23	SPARE	ELP1E		EMERGENCY RELAY AT PANEL.
	24	SPARE	ELP1E		EMERGENCY RELAY AT PANEL.

NOTES:
1. DESCRIPTIONS LISTED ARE BASED ON HUBBELL NX SERIES LIGHTING RELAY PANELS AND CONTROLS. EQUAL PRODUCTS BY ACUITY BRANDS (NLIGHT)
2. PROVIDE UL 924 EMERGENCY LIGHTING RELAYS AT PANEL FOR EMERGENCY LIGHTING CIRCUITS.
3. TYPE LVD SWITCHES: FOUR BUTTON SWITCHES WITH INDICATOR LIGHTS AND ENGRAVED BUTTONS. PROVIDE MODEL BASED ON GANGED SWITCHES AT A GIVEN LOCATION. PROVIDE OFF BUTTONS ONLY WHERE INDICATED IN SCHEDULE.
4. COORDINATE PROGRAMMING OF ALL LIGHTING GROUPS/CHANNELS/ZONES WITH THE OWNER, INCLUDING BLINK WARNINGS AND TIME SCHEDULES.
5. 50% ON (HALF #1). DAYLIGHTING AND EMERGENCY ON BUTTONS TO EXTEND TIMER FOR 2 HOURS FOLLOWING BLINK WARNING.
6. ALL ON BUTTONS TO OVERRIDE TIMER UNTIL NEXT SCEDULED TIMED EVENT.
7. ALL ON BUTTONS SHALL BE GREEN WITH CUSTOM ENGRAVING. ALL OFF BUTTONS SHALL BE RED WITH CUSTOM ENGRAVING.
8. PROGRAM SYSTEM TO SWEEP ALL LIGHTS "OFF" WITH BLINK WARNING EVERY TWO HOURS AFTER A PROGRAM "OFF" EVENT UNTIL NEXT SCHEDULED TIMED "ON" EVENT.

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Checked: SJM

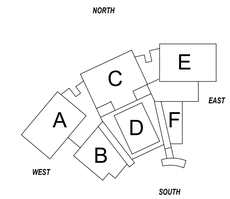
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Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane, Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N



KEYPLAN

Number	Date	Issued For
2	10/23/2024	ADDENDUM NO. 3
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

ELECTRICAL DETAILS

Date: 07/08/2024
Scale: 1/8" = 1'-0"
Proj. Number: 22367.00

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MOTOR / EQUIPMENT CIRCUIT SCHEDULE

EQUIPMENT	OCPD	PANEL	LOAD HP	LOAD MCA	LOAD KW	LOAD PH	LOAD VOLT	LOCAL DISC. SW	MOTOR STARTER SIZE	MOTOR STARTER TYPE	MOTOR STARTER LOCATION	WIRING	REMARKS
AC-1	-	GP-WS	5	-	-	1	230	60A-3P/ 40AF	-	SPC	AT UNIT	2#8, #10G, 1"C	
AC-A	-	ACCU-A	-	-	.03	1	208	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	SEE REMARKS 2, 4
AC-B	-	ACCU-B	-	-	.03	1	208	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	SEE REMARK 2, 4
AC-C	-	ACCU-C	-	-	.07	1	208	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	SEE REMARK 2, 4
AC-D	-	ACCU-D	-	-	.07	1	208	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	SEE REMARK 2, 4
ACCU-A	15A-2P	OS, VARIES	-	11	-	1	208	MAN	-	SPC	AT UNIT	2#10, #10G, 3/4"C	SEE REMARK 4
ACCU-B	15A-2P	OS, VARIES	-	11	-	1	208	MAN	-	SPC	AT UNIT	2#10, #10G, 3/4"C	SEE REMARK 4
ACCU-C	2 25A-2P	OSP2A	-	19	-	1	208	30A-2P	-	SPC	AT UNIT	2#10, #10G, 3/4"C	SEE REMARK 4
ACCU-D	30A-2P	OS, VARIES	-	19	-	1	208	30A-2P 2	-	SPC	AT UNIT	2#10, #10G, 3/4"C	SEE REMARK 4
AFU-A	25A-1P	OSP1E	3/4	-	-	1	120	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	
DC-1	25A-3P	MP1E	10	-	-	3	480	30A-3P	-	SPC	AT UNIT	2#12, #12G, 3/4"C	SEE REMARKS 11, 12
B-1	15A-1P	OSP1C	-	13	-	1	120	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	SEE REMARK 7
B-2	15A-1P	OSP1C	-	13	-	1	120	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	SEE REMARK 7
BP-1A&1B	15A-3P	MP1C	(2)1	5	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	
CF-A	15A-2P	MP1B	-	6.5	-	1	208	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	
CHILLER CH-1	450A-3P	MSB-1	-	459.8	-	3	480	600A-3P	-	SPC	AT UNIT	(2)3#350KCMIL, #1G, (2)3"C	SEE REMARKS 6, 9
CHILLER CH-2	450A-3P	MSB-1	-	459.8	-	3	480	600A-3P	-	SPC	AT UNIT	(2)3#350KCMIL, #1G, (2)3"C	SEE REMARKS 6, 9
HWP-1	15A-3P	MP1C	1.5	-	-	3	480	30A-3P	-	VFD	AT UNIT	3#12, #12G, 3/4"C	
HWP-2	15A-3P	MP1C	1.5	-	-	3	480	30A-3P	-	VFD	AT UNIT	3#12, #12G, 3/4"C	
HWP-3A/3B	(2) 25A-3P	MP1C	(2)10	-	-	3	480	30A-3P	-	VFD	AT UNIT	(2) 3#10, #10G, 3/4"C	
CHWP-1	15A-3P	MP1A	3	-	-	3	480	30A-3P	-	VFD	AT UNIT	3#12, #12G, 3/4"C	
CHWP-2	15A-3P	MP1A	3	-	-	3	480	30A-3P	-	VFD	AT UNIT	3#12, #12G, 3/4"C	
CHWP-3A/3B	(2) 40A-3P	MP1A	(2) 15	-	-	3	480	60A-3P	-	VFD	AT UNIT	(2) 3#8, #10G, 1"C	
MCHWP-1A/1B	(2) 25A-3P	MP1A	(2) 10	-	-	3	480	30A-3P	-	VFD	AT UNIT	(2) 3#10, #10G, 3/4"C	
RP-1	15A-1P	OSP1C	-	1/25	-	1	120	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	
WH-1	15A-1P	OSP1C	-	-	-	1	120	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	SEE REMARK 7
FP-1	175A-3P	MSB-2	50	-	-	3	480	200A-3P	-	SPC	AT UNIT	3#2/0, #6G, 2"C	SEE REMARK 13 2
JP-1	15A-3P	MSB-2	1.5	-	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	
DOA-1 (SF)	45A-3P	MP1E	-	26.25	-	3	480	60A-3P	-	SPC	AT UNIT	3#8, #10G, 3/4"C	
DOA-1 (EF)	20A-3P	MP1E	-	13.75	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	
DOA-1 (WHEEL)	15A-3P	MP1E	-	1.85	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	
DOA-1 (CDQ)	15A-3P	MP1E	-	.37	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	
DOA-2 (SF)	60A-3P	MP1E	-	33.75	-	3	480	60A-3P	-	SPC	AT UNIT	3#6, #10G, 1"C	
DOA-2 (EF)	30A-3P	MP1E	-	26.25	-	3	480	30A-3P	-	SPC	AT UNIT	3#10, #10G, 3/4"C	
DOA-2 (WHEEL)	15A-3P	MP1E	-	1.85	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	
DOA-2 (CDQ)	15A-3P	MP1E	-	.37	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	
DOA-3 (SF)	60A-3P	MP1C	-	33.75	-	3	480	60A-3P	-	SPC	AT UNIT	3#6, #10G, 1"C	
DOA-3 (EF)	30A-3P	MP1C	-	26.25	-	3	480	30A-3P	-	SPC	AT UNIT	3#10, #10G, 3/4"C	
DOA-3 (WHEEL)	15A-3P	MP1C	-	1.85	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	
DOA-3 (CDQ)	15A-3P	MP1C	-	.37	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	
DOA-4 (SF)	60A-3P	MP1A	-	33.75	-	3	480	60A-3P	-	SPC	AT UNIT	3#6, #10G, 1"C	
DOA-4 (EF)	30A-3P	MP1A	-	17.5	-	3	480	30A-3P	-	SPC	AT UNIT	3#10, #10G, 3/4"C	
DOA-4 (WHEEL)	15A-3P	MP1A	-	1.85	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	
DOA-4 (CDQ)	15A-3P	MP1A	-	.37	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	
DOA-5 (SF)	60A-3P	MP1D	-	33.75	-	3	480	60A-3P	-	SPC	AT UNIT	3#6, #10G, 1"C	SEE REMARK 5
DOA-5 (EF)	30A-3P	MP1D	-	17.5	-	3	480	30A-3P	-	SPC	AT UNIT	3#10, #10G, 3/4"C	N/A
DOA-5 (WHEEL)	15A-3P	MP1D	-	1.85	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	N/A
DOA-5 (CDQ)	15A-3P	MP1D	-	.37	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	N/A
HRV-1	15A-3P	MP1B	-	9.7	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	SEE REMARK 5
RTU-1 (SF)	30A-3P	MP1B	-	17.5	-	3	480	30A-3P	-	SPC	AT UNIT	3#10, #10G, 3/4"C	SEE REMARK 5
RTU-1 (EF)	20A-3P	MP1B	-	13.75	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	N/A
RTU-1 (WHEEL)	15A-3P	MP1B	-	.55	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	N/A
RTU-2 (SF)	45A-3P	MP1D	-	26.25	-	3	480	60A-3P	-	SPC	AT UNIT	3#8, #10G, 3/4"C	SEE REMARK 5
RTU-2 (EF)	45A-3P	MP1D	-	26.25	-	3	480	60A-3P	-	SPC	AT UNIT	3#8, #10G, 3/4"C	N/A
RTU-2 (WHEEL)	15A-3P	MP1D	-	.55	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	N/A
RTU-3 (SF)	30A-3P	MP1B	-	17.5	-	3	480	30A-3P	-	SPC	AT UNIT	3#10, #10G, 3/4"C	SEE REMARK 5
RTU-3 (EF)	30A-3P	MP1B	-	17.5	-	3	480	30A-3P	-	SPC	AT UNIT	3#10, #10G, 3/4"C	N/A
RTU-3 (WHEEL)	15A-3P	MP1B	-	1.63	-	3	480	30A-3P	-	SPC	AT UNIT	3#12, #12G, 3/4"C	N/A
FCU-A,B	2 20A-1P	VARIES	1/2 2	-	-	1	120	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	SEE REMARKS 1, 2
FCU-C,D,E,F,G	20A-1P	VARIES	1/2	-	-	1	120	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	SEE REMARKS 1, 2
KHEF-1	20A-3P	KP	3	-	-	3	208	30A-3P	-	VFD	HOOD	3#12, #12G, 3/4"C	SEE REMARK 8
DWEF-1	15A-1P	KP	1/2	-	-	1	120	MAN	-	VFD	HOOD	2#12, #12G, 3/4"C	SEE REMARK 8
EF-1	15A-1P	OSP1F	1/4	-	-	1	120	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	
EF-2	15A-1P	OSP1F	1/4	-	-	1	120	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	
DEF-1	15A-1P	KP	1/4	-	-	1	120	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	
CUH-A1,A2,B1,B2,B3	15A-1P	OS, VARIES	1/4	-	-	1	120	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	SEE REMARK 1
UH-A1,A2	15A-1P	OS, VARIES	1/30	-	-	1	120	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	SEE REMARK 1
UH-A3,A4	15A-1P	OS, VARIES	1/15	-	-	1	120	MAN	-	SPC	AT UNIT	2#12, #12G, 3/4"C	SEE REMARK 1

GENERAL NOTES:
1. DISCONNECT SWITCHES SHALL BE HEAVY-DUTY TYPE AND SHALL BE LOCATED AT EQUIPMENT LOCATION UNLESS OTHERWISE NOTED.
2. ABBREVIATIONS:
   - MAN: MANUAL STARTER (TOGGLE SWITCH WITH THERMAL OVERLOADS)
   - FVNR: COMBINATION FULL VOLTAGE NON-REVERSING STARTER/ DISCONNECT SWITCH
   - VFD: VARIABLE FREQUENCY DRIVE, FURNISHED BY DIV. 23, WIRED BY DIV. 26. PROVIDE POWER WIRING FROM SOURCE PANELBOARD TO VFD AND FROM VFD TO MOTOR(S). COORDINATE EXACT LOCATION IN FIELD WITH DIV.23.
   - DIV.21: EQUIPMENT FURNISHED BY DIVISION 21 FIRE PROTECTION CONTRACTOR
   - DIV.22: EQUIPMENT FURNISHED BY DIVISION 22 PLUMBING CONTRACTOR
   - DIV.23: EQUIPMENT FURNISHED BY DIVISION 23 HVAC CONTRACTOR
   - SPC: SINGLE POINT CONNECTION (STARTERS INTEGRAL TO EQUIPMENT). COORDINATE EXACT POINT OF CONNECTION IN FIELD.
3. OVERCURRENT PROTECTION DEVICES (OCPD) SHALL BE MOLDED CASE CIRCUIT BREAKERS UNLESS NOTED WITH AN "F" FOR FUSE.
4. DISCONNECT SWITCHES AND STARTERS SHALL BE NEMA 3R RATED WHEN LOCATED OUTSIDE.
5. REFER TO PANEL SCHEDULES FOR SOURCE PANEL/ CIRCUIT INFORMATION.
6. REFER TO ELECTRICAL AND MECHANICAL PLANS FOR EXACT LOCATIONS OF EQUIPMENT.
7. STARTERS SHALL BE SQUARE D CLASS 8536 OR APPROVED EQUAL.

REFERENCED REMARKS:
1. REFER TO FLOOR PLANS FOR CIRCUITING. ALL UNITS INDICATED ON PLANS SHALL BE DAISY-CHAINED TOGETHER. PROVIDE SEPARATE DISCONNECT SWITCH FOR EACH UNIT ON CIRCUIT.
2. CONDENSATE PUMP FOR AC/ FAN COIL UNIT SHALL BE FURNISHED/INSTALLED BY DIV.23. ELECTRICAL CONTRACTOR SHALL PROVIDE HARDWIRED CONNECTION TO PUMP VIA DEDICATED CIRCUIT POWERED FROM SAME UNIT AS AC/ FAN COIL UNIT. PROVIDE MOTOR RATED TOGGLE SWITCH AT PUMP FOR DISCONNECTING MEANS.
3. CONDENSATE PUMP FOR AC/ FAN COIL UNIT SHALL BE FURNISHED/INSTALLED BY DIV.23. ELECTRICAL CONTRACTOR SHALL PROVIDE DUPLEX RECEPTACLE FOR PUMP, POWERED VIA LOCAL UNSWITCHED RECEPTACLE CIRCUIT. COORDINATE EXACT LOCATION WITH DIV.23.
4. PROVIDE POWER WIRING FROM SOURCE PANELBOARD TO OUTDOOR UNIT. PROVIDE INTERCONNECT WIRING IN 3/4"C. FROM OUTDOOR UNIT TO INDOOR UNIT. WIRE SIZE AND TYPE SHALL BE PER MANUFACTURER'S REQUIREMENTS. PROVIDE SEPARATE DISCONNECT SWITCH FOR EACH OF THE TWO UNITS.
5. PROVIDE SEPARATE 20A/120V/1PH CONNECTION TO UNIT FOR INTEGRAL LIGHTS AND RECEPTACLES. POWER VIA CIRCUIT INDICATED ON PLANS.
6. UNIT IS LOCATED OUTSIDE BUILDING ON PAD. CIRCUIT SHALL RUN UNDER SLAB FROM PANEL TO UNIT LOCATION. COORDINATE EXACT STUB-UP LOCATION IN FIELD WITH HVAC CONTRACTOR PRIOR TO ROUGH-IN.
7. POWER VIA EPO/ SHUTOFF SYSTEM AS SPECIFIED ON ELECTRICAL DETAILS.
8. VFD FURNISHED AND INSTALLED BY KITCHEN EQUIPMENT CONTRACTOR. PROVIDE WIRING FROM SOURCE PANEL TO VFD, AND FROM VFD TO MOTOR(S). PROVIDE CONTROL WIRING AS DICTATED ON FOOD SERVICE DETAILS AND ELECTRICAL DRAWINGS.
9. NEMA 3R DISCONNECT SWITCH FOR CHILLER SHALL BE MOUNTED IN AN ACCESSIBLE LOCATION ADJACENT TO UNIT. COORDINATE EXACT LOCATION OF STARTER/VFD AND CONTROL PANEL IN FIELD WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION.
10. DUPLEX PUMP ASSEMBLY - PROVIDE POWER WIRING TO CONTROL PANEL AND FROM CONTROL PANEL TO EACH OF THE TWO PUMPS.
11. PROVIDE SEPARATE 20A/120V/1PH CONNECTION TO NO-RETURN VALVE CONTROL PANEL AND VFD. POWER VIA CIRCUIT INDICATED ON PLANS.
12. PROVIDE SEPARATE 20A/120V/1PH CONNECTION TO SPARK DETECTION SYSTEM CONTROL PANEL AND VFD. POWER VIA CIRCUIT INDICATED ON PLANS.
13. FIRE PUMP CONTROLLER IS SEPERATE OF FIRE PUMP SKID. ELECTRICAL CONTRACTOR TO WIRE FIRE PUMP FEEDER THROUGH THE FIRE PUMP CONTROLLER TO THE FIRE PUMP MOTOR TERMINAL. ELECTRICAL CONTRACTOR RESPONSIBLE FOR ALL CONNECTIONS FROM FIRE PUMP CONTROLLER TO FIRE PUMP MOTOR

2

ELECTRICAL FEEDER SCHEDULE

COPPER CONDUCTORS

CIRCUIT SYMBOL	CONDUCTORS (1 PH, 2W) WITH GROUND	CONDUIT SIZE	CONDUCTORS (1 OR 3 PH, 3 WIRE) WITH GROUND	CONDUIT SIZE	CONDUCTORS (3 PH, 4 WIRE) WITH GROUND	CONDUIT SIZE	OVERCURRENT RATING
1	2#12 & 1#12G	3/4"	3#12 & 1#12G	3/4"	4#12 & 1#12G	3/4"	15A
2	2#12 & 1#12G	3/4"	3#12 & 1#12G	3/4"	4#12 & 1#12G	3/4"	20A
2.5	2#10 & 1#10G	3/4"	3#10 & 1#10G	3/4"	4#10 & 1#10G	3/4"	25A
3	2#10 & 1#10G	3/4"	3#10 & 1#10G	3/4"	4#10 & 1#10G	3/4"	30A
3.5	2#8 & 1#10G	1"	3#8 & 1#10G	1"	4#8 & 1#10G	1"	35A
4	2#8 & 1#10G	1"	3#8 & 1#10G	1"	4#8 & 1#10G	1"	40A
4.5	2#8 & 1#10G	1"	3#8 & 1#10G	1"	4#8 & 1#10G	1"	45A
5	2#8 & 1#10G	1"	3#8 & 1#10G	1"	4#8 & 1#10G	1"	50A
6	2#6 & 1#10G	1"	3#6 & 1#10G	1"	4#6 & 1#10G	1"	60A
7	2#4 & 1#8G	1 1/4"	3#4 & 1#8G	1 1/4"	4#4 & 1#8G	1 1/4"	70A
8	2#4 & 1#8G	1 1/4"	3#4 & 1#8G	1 1/4"	4#4 & 1#8G	1 1/4"	80A
9	2#3 & 1#8G	1 1/4"	3#3 & 1#8G	1 1/4"	4#3 & 1#8G	1 1/4"	90A
10	2#3 & 1#8G	1 1/4"	3#3 & 1#8G	1 1/4"	4#3 & 1#8G	1 1/4"	100A
11			3#2 & 1#6G	1 1/4"	4#2 & 1#6G	1 1/2"	110A
12			3#1 & 1#6G	1 1/2"	4#1 & 1#6G	2"	125A
15			3#1/0 & 1#6G	2"	4#1/0 & 1#6G	2"	150A
17			3#2/0 & 1#6G	2"	4#2/0 & 1#6G	2"	175A
20			3#3/0 & 1#6G	2"	4#3/0 & 1#6G	2 1/2"	200A
22			3#4/0 & 1#4G	2 1/2"	4#4/0 & 1#4G	2 1/2"	225A
25			3#250KCMIL & 1#4G	3"	4#250KCMIL & 1#4G	3"	250A
30			3#350KCMIL & 1#4G	3"	4#350KCMIL & 1#4G	4"	300A
35			3#500KCMIL & 1#3G	4"	4#500KCMIL & 1#3G	4"	350A
40			3#600KCMIL & 1#3G	4"	4#600KCMIL & 1#3G	4"	400A
45			(2)3#4/0 & 1#2G	(2) 2 1/2"	2 SETS OF 4#4/0 & 1#2G	(2) 2 1/2"	450A
50			(2)3#250KCMIL & 1#2G	(2) 3"	2 SETS OF 4#250KCMIL & 1#2G	(2) 3"	500A
60			(2)3#350KCMIL & 1#1G	(2) 3"	2 SETS OF 4#350KCMIL & 1#1G	(2) 4"	600A
70			(2)3#500KCMIL & 1#1/0G	(2) 4"	2 SETS OF 4#500KCMIL & 1#1/0G	(2) 4"	700A
80			(2)3#600KCMIL & 1#1/0G	(2) 4"	2 SETS OF 4#600KCMIL & 1#1/0G	(2) 4"	800A
90			(3)3#350KCMIL & 1#2/0G	(3) 3"	3 SETS OF 4#350KCMIL & 1#2/0G	(3) 4"	900A
100			(3)3#500KCMIL & 1#2/0G	(3) 4"	3 SETS OF 4#500KCMIL & 1#2/0G	(3) 4"	1000A
120			(4)3#350KCMIL & 1#3/0G	(4) 3"	4 SETS OF 4#350KCMIL & 1#3/0G	(4) 4"	1200A
160			(4)3#600KCMIL & 1#4/0G	(4) 4"	4 SETS OF 4#600KCMIL & 1#4/0G	(4) 4"	1600A
200			(5)3#600KCMIL & 1#250G	(5) 4"	5 SETS OF 4#600KCMIL & 1#250G	(5) 4"	2000A
250			(6)3#600KCMIL & 1#350G	(6) 4"	6 SETS OF 4#600KCMIL & 1#350G	(6) 4"	2500A
300			(8)3#500KCMIL & 1#500G	(8) 4"	8 SETS OF 4#500KCMIL & 1#500G	(8) 4"	3000A

NOTES:

1. CONDUIT SIZES ARE BASED ON THE NEC ANNEX C TABLES FOR EMT/SCH.40 WITH THHN/THWN CONDUCTORS. CONDUCTOR SIZES USED IN CONDUIT CALCULATION ARE BASED ON THE SIZE OF THE HOT CONDUCTORS OF CIRCUIT. EXAMPLE: 40A 3PH, 4W CONDUIT SIZE IS BASED ON 4#8 + 1#8G + 1#8 'SPACE'. FOR ACTUAL WIRE INSTALL USE QUANTITY AND SIZES WITHIN SCHEDULE.
2. UNLESS OTHERWISE INDICATED, CONDUCTOR SIZING SHALL MATCH THE SIZE INDICATED ABOVE FOR THE APPLICABLE OVERCURRENT DEVICE. PROVIDE LARGER CIRCUIT WHERE INDICATED.
3. PROVIDE MINIMUM SIZE CONDUIT INDICATED IN THE SPECIFICATIONS OR ON THE DRAWINGS.
4. FOR SINGLE PHASE FEEDERS, PROVIDE A 3-WIRE CIRCUIT UNLESS DEVICE SERVED DOES NOT HAVE PROVISIONS FOR A NEUTRAL. FOR THREE PHASE FEEDERS, PROVIDE A 4-WIRE CIRCUIT UNLESS DEVICE SERVED DOES NOT HAVE PROVISIONS FOR A NEUTRAL.
5. PROVIDE TYPE OF RACEWAY OR CABLE AS INDICATED IN THE SPECIFICATIONS OR ON THE DRAWINGS.
6. REFER TO PANELBOARD SCHEDULES AND ONE-LINE RISER DIAGRAM DRAWINGS FOR CONDUCTOR AND CONDUIT SIZE REQUIREMENTS.
7. ALL CONDUCTOR SIZES ARE BASED ON 75°C (167°F), ALL EQUIPMENT CONNECTED TO WIRES SHALL BE RATED OR 75°C (167°F)

FLOOR BOX SCHEDULE

SYMBOL	DESCRIPTION	CONDUIT/ FLOOR BOX	CABLING	NOTES
FB A	FLOOR BOX WITH POWER	LEGRAND #RFB2E-OG OR EQUAL WITH (1) 3/4"C FOR POWER TRENCHED TO NEAREST ACCESSIBLE WALL AND ABOVE CEILING.	POWER ONLY	PROVIDE WITH (2) INTEGRAL DUPLEX RECEPTACLES. PROVIDE WITH SURFACE STYLE ROUND COVER ASSEMBLY.
FB B	FLOOR BOX WITH POWER, DATA	LEGRAND #RFB4E-OG OR EQUAL WITH (1) 3/4"C FOR POWER AND (1) 1-1/4"C FOR DATA TRENCHED TO NEAREST ACCESSIBLE WALL AND ABOVE CEILING.	(1) CAT.6 CABLE TO DATA PATCH PANEL (1) CAT.6 CABLE TO VOIP PATCH PANEL	PROVIDE WITH (2) INTEGRAL DUPLEX RECEPTACLES. PROVIDE WITH SURFACE STYLE ROUND COVER ASSEMBLY.
FB C	FLOOR BOX WITH POWER, DATA, AV	LEGRAND #EFB6-OG OR EQUAL WITH (1) 3/4"C FOR POWER AND (1) 1-1/4"C FOR DATA TRENCHED TO NEAREST ACCESSIBLE WALL AND ABOVE CEILING. PROVIDE ADDITIONAL 1-1/4"C. TO LOCAL AV DISPLAY BOX IN ROOM.	(1) CAT.6 CABLE TO DATA PATCH PANEL (1) CAT.6 CABLE TO VOIP PATCH PANEL REFER TO AV DETAILS FOR CABLING	PROVIDE WITH (2) INTEGRAL DUPLEX RECEPTACLES. PROVIDE WITH SURFACE STYLE ROUND COVER ASSEMBLY.
FB D	FLOOR BOX WITH POWER, DATA, AV (HIGH CAPACITY)	LEGRAND #EFB8-OG OR EQUAL WITH (1) 3/4"C FOR POWER AND (1) 1-1/4"C FOR DATA TRENCHED TO NEAREST ACCESSIBLE WALL AND ABOVE CEILING. PROVIDE ADDITIONAL 1-1/4"C. TO LOCAL AV DISPLAY BOX IN ROOM.	(1) CAT.6 CABLE TO DATA PATCH PANEL (1) CAT.6 CABLE TO VOIP PATCH PANEL REFER TO AV DETAILS FOR CABLING	PROVIDE WITH (2) INTEGRAL DUPLEX RECEPTACLES. PROVIDE WITH SURFACE STYLE ROUND COVER ASSEMBLY.
FB FF (X,Y)	FLOOR BOX WITH POWER AND DATA FURNITURE FEED	LEGRAND #EFBFF-OG OR EQUAL WITH (1) 1-1/4"C FOR POWER AND (1) 1-1/4"C FOR DATA TRENCHED TO NEAREST ACCESSIBLE WALL AND ABOVE CEILING.	(X) CAT.6 CABLES TO DATA PATCH PANEL (Y) CAT.6 CABLES TO VOIP PATCH PANEL	PROVIDE WITH FLEXIBLE WHIP CONNECTIONS TO MODULAR FURNITURE, MINIMUM 1-1/4". LOCATE BOX IN KNEE SPACE UNDER FURNITURE. COORDINATE EXACT LOCATION IN FIELD WITH FURNITURE INSTALLER PRIOR TO INSTALLATION.

GENERAL NOTES:
1. ALL CONDUITS FOR FLOOR BOXES SHALL BE TRENCHED TO THE NEAREST WALL AND SHALL STUB ABOVE ACCESSIBLE CEILING, OR IN A LOCATION INDICATED ON PLANS.
2. ALL POKE-THROUGH DEVICES SHALL BE PROVIDED WITH SEPARATE CONDUIT SLEEVES TO FLOOR BELOW FOR POWER, DATA AND AV CABLING. PROVIDE ALL NECESSARY FIRESTOPPING OF CONDUIT SLEEVES TO MATCH FIRE RATING OF FLOOR.
3. PROVIDE INTERNAL BARRIER KITS TO SEPARATE POWER, DATA AND AV COMPARTMENTS IN ALL FLOOR BOXES AND POKE-THROUGH DEVICES.
4. ALL FINISHES, COLORS AND COVER MATERIALS SHALL BE SELECTED BY ARCHITECT.
5. PROVIDE MOUNTING BRACKETS AS RECOMMENDED BY MANUFACTURER FOR ALL DEVICES MOUNTED IN FLOOR BOXES AND POKE-THROUGH DEVICES.
6. DATA CABLING SHALL BE ROUTED TO PATCH PANELS IN I.T. ROOMS INDICATED ON FLOOR PLANS. TERMINATE CABLING AT SPECIFIC PATCH PANELS INDICATED IN I.T. RACK ELEVATIONS.
7. CONTRACTOR SHALL LABEL EACH DEVICE TERMINATION POINT AND CORRESPONDING PATCH PANEL PORT WITH THE SAME, UNIQUE LABEL. REFER TO SPECIFICATIONS FOR MORE INFORMATION. ALL LABELS SHALL BE FINALIZED WITH AND APPROVED BY OWNER'S I.T. STAFF PRIOR TO INSTALLATION.
8. PROVIDE ALL NECESSARY CONNECTORS, ADAPTERS, KEYSTONES, ATTACHMENTS AND OTHER ACCESSORIES REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
9. TERMINATE ALL STRUCTURED CABLING CABLES IN RJ45 CONNECTORS UNLESS OTHERWISE NOTED.

SLAM
The S/L/A/M Collaborative

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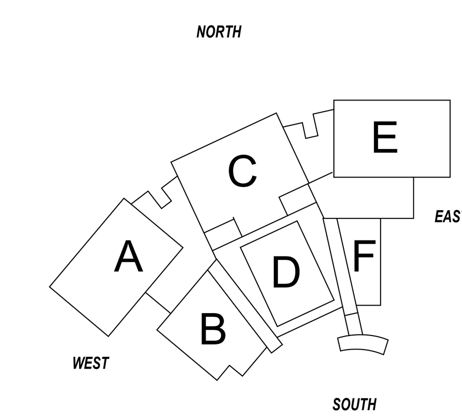
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Greenwich Public Schools

Greenwich Central Middle School

9 Indian Rock Lane,
Greenwich, CT 06830

STATE PROJECT NO: 057-0114 N



KEYPLAN

Number	Date	Issued For
2	10/23/2024	ADDENDUM NO. 3
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

ELECTRICAL SCHEDULES AND DIAGRAMS

Date
07/08/2024
Scale
NTS
Proj. Number
22367.00

Drawing Number
E600

Autodesk Docs://22367.00 - Greenwich Central Middle School/R22-2023095-MEP Central - Greenwich Central Middle School.rvt
10/23/2024 10:03:05 AM

Branch Panel: OSP1A

Location: MECHANICAL 1067 | **Volts:** 120/208 Wye | **A.I.C. Rating:** 22k AIC
Supply From: T-OSPAB | **Phases:** 3 | **Bus Material:** CU
Mounting: Surface | **Wires:** 4 | **Bus Rating:** 225 A
Enclosure: Type 1 | | **MCB Rating / MLO:** 175 A MCB

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	*FRIDGE CUST. OFF/BRK RM 1075	20 A	1	0.18	0.18					1	30 A	AV RACK POWER IN ROOM 1083	2
3	AV RACK POWER IN ROOM 1082	20 A	1			0.18	4.55			3	60 A	OSKP	4
5	CU-3	30 A	2					1.98	3.85	--	--	--	6
7	--	--	--	1.98	3.28					--	--	--	8
9	CONV. RECEPTS. MDF 1068	20 A	1			0.72	0.18			1	20 A	IT RACK RECPT. MDF 1068	10
11	IT EQUIPMENT MDF 1068	20 A	1					0.36	2.50	2	30 A	UPS POWER MDF 1068	12
13	IT EQUIPMENT MDF 1068	20 A	1	0.36	2.50					--	--	--	14
15	IT RACK RECEPT. MDF 1068	20 A	1			0.18	0.18			1	20 A	IT EQUIPMENT MDF 1068	16
17	HT-1	30 A	2					2.50	0.18	1	20 A	RECEPT. MAIN ELECTRICAL ROOM...	18
19	--	--	--	2.50	2.50					2	30 A	UPS POWER MDF 1068	20
21	HT-2	30 A	2			2.50	2.50			--	--	--	22
23	--	--	--					2.50	2.05	2	25 A	ACCU-C, UTILITY COURTYARD	24
25	DOORS 1077,1078,1079,1080A	20 A	1	1.88	1.98					--	--	--	26
27	UNIT HEATERS CUSTODIAL, FIRE...	15 A	1			0.26	1.98			2	15 A	ACCU-A AREA ROOF	28
29	UNIT HEATERS CUSTODIAL MECH.	15 A	1					1.08	1.98	--	--	--	30
31	EMERGENCY BLUE LIGHT/PHONE	20 A	1	0.15	0.15					1	20 A	FATP-1	32
33	FIRE ALARM PANEL - FACP	20 A	1			0.15	0.00			1	20 A	SPARE	34
35	FIRE ALARM PANEL - FATP/NAC	20 A	1					0.15	0.00	1	20 A	FACP	36
37	ALERTUS SYSTEM	20 A	1	0.15	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:	17.77 kVA		13.37 kVA		19.10 kVA					
			Phase...	153.7 A		111.4 A		164.8 A					
			Total Load:	50.25 kVA									
			Total Amps:	139.47 A									

Notes:
*PROVIDE GFCI CIRCUIT BREAKER

Branch Panel: OSP1B

Location: ELECT. CLOSET 1092 | **Volts:** 120/208 Wye | **A.I.C. Rating:**
Supply From: T-OSPAB | **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	*REFRIGERATOR LAUNDRY/ICE 1088	20 A	1	0.18	1.14					2	30 A	CU-1	2
3	SPARE	30 A	2			0.00	1.14			--	--	--	4
5	--	--	--					0.00	0.18	1	20 A	RECEPTACLE ELECT. CLOSET 1092	6
7	DOORS 1100B, 1100C	20 A	1	0.75	0.00					2	15 A	CF-A	8
9	DOOR OPERATOR VESTIBULE 1102	20 A	1			0.36	0.00			--	--	--	10
11	DOOR OPERATOR PUBLIC LOBBY 1101	20 A	1					0.36	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	FCU-D, FITNESS ROOM 1099	20 A	1	0.79	0.00					1	20 A	SPARE	26
27	FCU PE OFFICE	20 A	1			1.18	1.18			1	15 A	FCU-F PE OFFICE	28
29	FCU PE STORAGE	20 A	1					0.86	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:	2.75 kVA		3.86 kVA		1.34 kVA					
			Phase...	24.7 A		33.9 A		11.1 A					
			Total Load:	7.86 kVA									
			Total Amps:	21.81 A									

Notes:
*PROVIDE GFCI CIRCUIT BREAKER

Branch Panel: OSP1C

Location: MECHANICAL 1060 | **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	*FRIDGE LIFE SKILLS 1051	20 A	1	0.18	0.18					1	20 A	*FRIDGE MEDIA 1057	2
3	COPIER IT 1058	20 A	1			0.18	0.00			1	15 A	WH-1	4
5	HWRP-1	15 A	1					0.00	0.00	1	15 A	WH-2	6
7	EPO SHUTDOWN CONTACTOR	20 A	1	0.18	0.18					1	20 A	RECEPT. MECHANICAL 1060	8
9	DOORS 1116A, 1116B	20 A	1			1.00	0.15			1	20 A	FATP-2	10
11	DOORS 1117A, 1117B	20 A	1					1.00	0.18	1	20 A	MIXING VALVE TV-1	12
13	BMS CONTROL PANEL	20 A	1	0.18	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	30 A	SPARE	24
25	ACCU-D ROOF C	30 A	2	1.98	0.00					1	15 A	B-1	26
27	--	--	--			1.98	0.00			1	15 A	B-2	28
29	UNIT HEATERS, MECHANICAL 1060	15 A	1					0.24	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:	2.88 kVA		3.31 kVA		1.42 kVA					
			Phase...	25.8 A		29.4 A		11.8 A					
			Total Load:	7.60 kVA									
			Total Amps:	21.1 A									

Notes:

Branch Panel: OSP1D

Location: ELECT. CLOSET 1106 | **Volts:** 120/208 Wye | **A.I.C. Rating:** 10 KAIC
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	CU-2	30 A	2	1.14	1.14					2	30 A	CU-2	2
3	--	--	--			1.14	1.14			--	--	--	4
5	SPARE	30 A	1					0.00	0.00	1	30 A	SPARE	6
7	SPARE	30 A	2	0.00	1.18					1	20 A	FCU-B CORRIDOR 1108	8
9	--	--	--			0.00	0.00			1	20 A	SPARE	10
11	RECEPT. ELECT. CLOSET 1106	20 A	1					0.18	0.00	1	20 A	SPARE	12
13	RADON FAN ROOF D	20 A	1	0.50	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	FCU-E CORRIDOR 1132	20 A	1			0.05	0.86			1	20 A	FCU-B CORRIDOR 1124	28
29	CUH-B1 CORRIDOR 1132	15 A	1					0.70	1.18	1	20 A	FCU-C CORRIDOR 1131	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:	3.79 kVA		3.07 kVA		1.95 kVA					
			Phase...	33.1 A		27 A		16.2 A					
			Total Load:	8.79 kVA									
			Total Amps:	24.39 A									

Notes:

Branch Panel: OSP1E

Location: MECHANICAL 1048 | **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:** 225 A
Enclosure: Type 1 | | **MCB Rating / MLO:** 100A MCB

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	UH-A4 WOOD SHOP 1039	20 A	1	0.00	0.18					1	20 A	DATA RACK RECEPT. IDF 1046	2
3	DATA RACK RECEPT. IDF 1046	20 A	1			0.18	0.50			1	20 A	RADON FAN ROOF E	4
5	BDA	20 A	1					0.50	0.70	1	15 A	CUH IN CORRIDOR 1050	6
7	RECEPT. MECHANICAL 1048	20 A	1	0.54	1.66					1	25 A	AFU-A WOOD SHOP 1039	8
9	FCU WOOD SHOP 1039	20 A	1			1.18	0.36			1	20 A	IT EQUIPMENT IDF 1046	10
11	CUH STAIR NO.1 1ST1	15 A	1					0.70	0.72	1	20 A	CONV. RECEPTS. IDF 1046	12
13	UPS POWER IDF 1046	30 A	2	2.50	0.36					1	20 A	IT EQUIPMENT IDF 1046	14
15	--	--	--			2.50	2.50			2	30 A	UPS POWER IDF 1046	16
17	HT-3	20 A	2					1.66	2.50	--	--	--	18
19	--	--	--	1.66	1.98					2	30 A	ACCU-C AREA E ROOF	20
21	DOORS 1041B, 1050A	20 A	1			1.50	1.98			--	--	--	22
23	UNIT HEATERS MECH 1048	15 A	1					0.36	1.98	2	30 A	ACCU-C AREA E ROOF	24
25	SPARE	30 A	2	0.00	1.98					--	--	--	26
27	--	--	--			0.00	1.98			2	30 A	ACCU-C AREA E ROOF	28
29	FATP-3	20 A	1					0.15	1.98	--	--	--	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:	10.85 kVA		12.45 kVA		11.24 kVA					
			Phase...	90.4 A		104.3 A		94.1 A					
			Total Load:	34.53 kVA									
			Total Amps:	95.85 A									

Notes:

Branch Panel: OSP1F

Location: ELECT. CLOSET 1029 | **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	*FRIDGE COOKING 1035	20 A	1	0.18	0.18					1	20 A	*FRIDGE COOKING 1035	2
3	*FRIDGE LAC. 1030	20 A	1			0.18	0.18			1	20 A	*FRIDGE FACULTY 1033	4
5	EF-2	20 A	1					1.20	1.14	2	30 A	ACCU-A ROOF D	6
7	RECEPT ELECT. CLOSET 1029	20 A	1	0.18	1.14					--	--	--	8
9	DOOR 1028B	20 A	1			3.33	0.50			1	20 A	RADON FAN D ROOF	10
11	ADA DOOR OPERATORS	20 A	1					1.00	0.18	1	20 A	RECEPTACLE ELEVATOR	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	ADA DOOR OPERATORS	20 A	1			1.00	0.70			1	15 A	EF-1 ROOF	22
23	CUH, CULINARY	15 A	1					1.18	1.18	1	15 A	CUH CULINARY	24
25	CUH, PASSAGE 1028	15 A	1	0.70	1.18					1	15 A	CUH WOOD SHOP	26
27	FCU-A, WAITING 1002	20 A	1			0.86	1.18			1	20 A	FCU-D, MAIN CONCOURSE 1001	28
29	CUH, ENTRY VESTIBULE 1000	15 A	1					0.70	0.86	1	20 A	FCU, MAIL 1004	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:	3.39 kVA		7.62 kVA		7.06 kVA					
			Phase...	28.3 A		68.2 A		63.5 A					
			Total Load:	18.05 kVA									
			Total Amps:	50.09 A									

Notes:

Branch Panel: OSP2A

Location: ELEC 2022 | **Volts:** 120/208 Wye | **A.I.C. Rating:** 10k AIC
Supply From: T-OSPAB | **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 2026	6
7	RADON FANS ROOF A	20 A	1	0.50	0.72					1	20 A	MOTORIZED DAMPERS AREA A	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	15 A	1			0.00	0.00			1	15 A	SPARE	28
29	SPARE	15 A	1					0.00	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:	1.22 kVA		0.00 kVA		0.18 kVA					
			Phase...	10.4 A		0 A		1.7 A					
			Total Load:	1.40 kVA									
			Total Amps:	3.89 A									

Notes:

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									
			Total Amps:	23.29 A									

Notes:

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									
			Total Amps:	22.91 A									

Notes:

Branch Panel: OSKP

Location: MECHANICAL 1067 | **Volts:** 120/208 Wye | **A.I.C. Rating:** 22k AIC
Supply From: OSP1A | **Phases:** 3 | **Bus Material:** CU
Mounting: Surface | **Wires:** 4 | **Bus Rating:** 225 A
Enclosure: Type 1 | | **MCB Rating / MLO:** 60A MLO

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	*COOLER CONDENSING UNIT	15 A	3	0.57	1.05					3	15 A	FREEZER CONDENSING UNIT	2
3	--	--	--			0.57	1.05			--	--	--	4
5	--	--	--					0.57	1.05	--	--	--	6
7	FREEZER LIGHTING	20 A	1	1.30	0.18					1	20 A	**FREEZER DRAIN LINE HEAT TRACE	8
9	COOLER EVAPORATOR COIL	15 A	1			0.22	0.95			2	15 A	FREEZER EVAPORATOR COIL	10
11	*PASS-THRU REFRIGERATOR	20 A	1					0.18	0.95	--	--	--	12
13	*PASS-THRU REFRIGERATOR	20 A	1	0.18	1.10					1	20 A	*COOLER LIGHTING	14
15	*NOVELTY ICE CREAM DISP. FREEZER	20 A	1			0.58	0.50			1	20 A	*REFRIGERATED GRAB & GO CASE	16
17	*MILK COOLER	20 A	1					0.36	0.18	1	20 A	*PASS-THRU REFRIGERATOR	18
19	SPARE	20 A	1	0.00	0.18					1	20 A	*WORKTOP GLASS DOOR DISP....	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:	4.55 kVA		3.85 kVA		3.28 kVA					
			Phase...	38.7 A		32.8 A		27.3 A					
			Total Load:	11.68 kVA									
			Total Amps:	32.43 A									

Notes:
*PROVIDE GFCI CIRCUIT BREAKER
**PROVIDE GFPE CIRCUIT BREAKER

Branch Panel: OSDP

Location: MAIN ELECTRICAL ROO... | **Volts:** 480/277 Wye | **A.I.C. Rating:** 65k AIC
Supply From: ATS-2 | **Phases:** 3 | **Bus Material:**
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	OSDPC	150 A	3	13.78	20.84					3	150 A	OSDPE	2
3	--	--	--			7.04	20.04			--	--	--	4
5	--	--	--					3.84	19.72	--	--	--	6
7	T-OSPAB	150 A	3	21.70	0.00					3	60 A	SPARE	8
9	--	--	--			17.23	0.00			--	--	--	10
11	--	--	--					20.52	0.00	--	--	--	12
13	JOCKEY PUMP	15 A	3	0.83	0.00					3	60 A	SPARE	14
15	--	--	--			0.83	0.00			--	--	--	16
17	--	--	--					0.83	0.00	--	--	--	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:	57.15 kVA		45.10 kVA		44.86 kVA					
			Phase...	206.5 A		162.9 A		162 A					
			Total Load:	147.10 kVA									
			Total Amps:	176.93 A									

Notes:

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Drawn: KCM
Checked: SJM

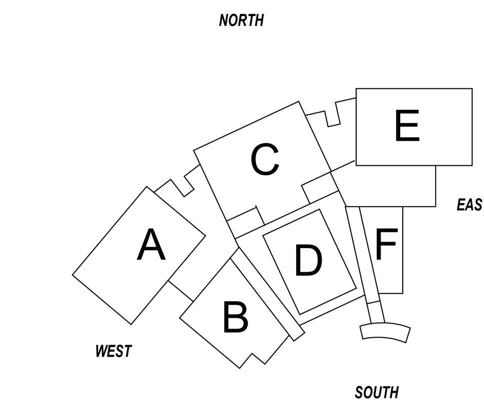
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811 Middle Street
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CES #2023095.00

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	10/23/2024	ADDENDUM NO. 3
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

ELECTRICAL PANEL SCHEDULES

Date: 07/08/2024
Scale:
Proj. Number: 22367.00
Drawing Number: **E604**

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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 EMERGENCY ATS ELECTRICAL ROOM.
- 1"C. WITH WIRING PER MFR. REQUIREMENTS TO GENERATOR ANNUNCIATOR PANEL, LOCATED PER ELECTRICAL FLOOR PLANS.
- 1"C. WITH WIRING PER MFR. REQUIREMENTS TO REMOTE EPO PUSHBUTTON, LOCATED PER ELECTRICAL FLOOR PLANS.
- PROVIDE GENERATOR MODULE FOR ENGINE START MONITORING SYSTEM AT GENERATOR. 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).

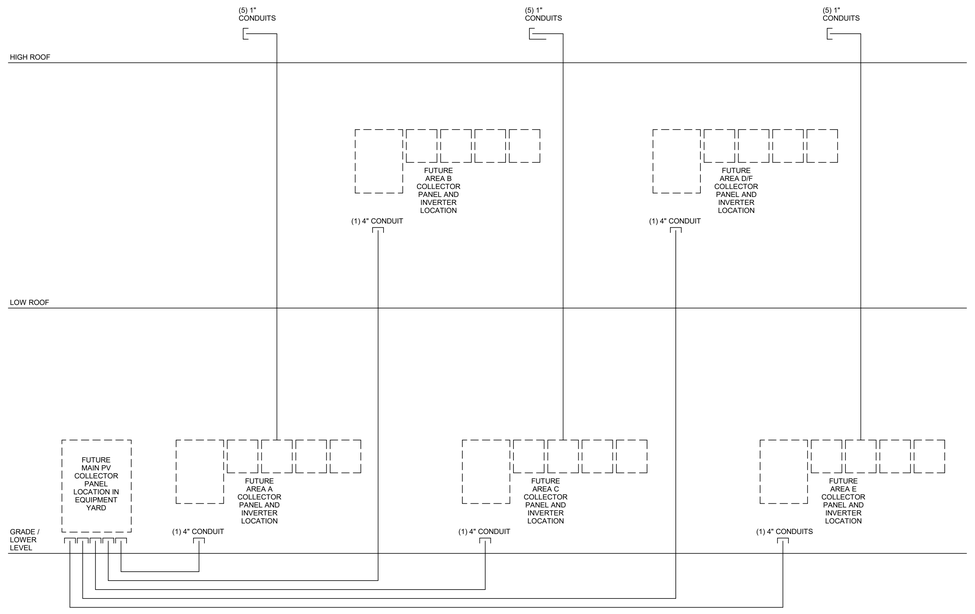
DRY TYPE TRANSFORMER SCHEDULE

COPPER CONDUCTORS

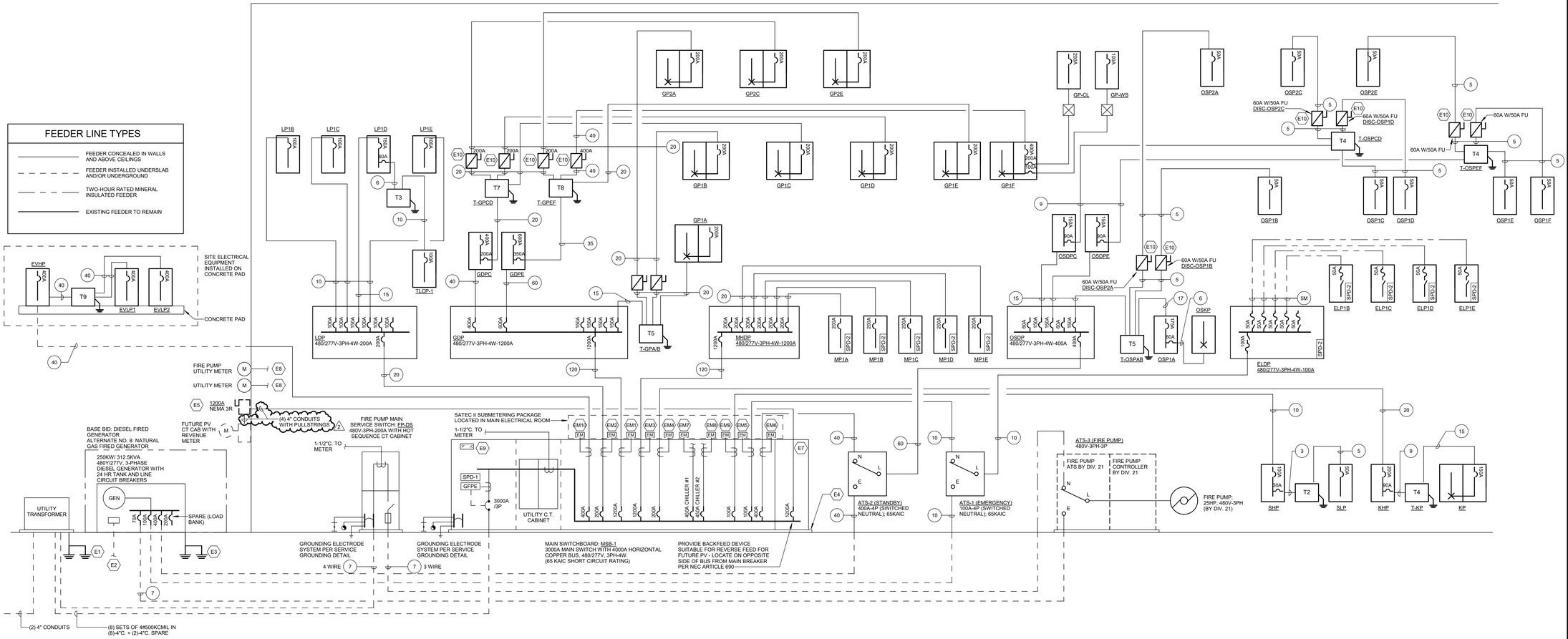
SIZE	KVA	PRIMARY AMPS	SECONDARY AMPS	480 VOLT OVERCURRENT	208 VOLT (NOTE 4) OVERCURRENT	480 VOLT FEEDER	208/120 VOLT FEEDER	GEC (NOTE 5)	SSBJ (NOTE 6)
T1	9	11	25	20A, 3P	30A, 3P	3#12 & 1#12G - 3/4"C	4#10 - 3/4"C	1#8 - 3/4"C	1#8
T2	15	18	42	30A, 3P	50A, 3P	3#10 & 1#10G - 3/4"C	4#8 - 1"C	1#8 - 3/4"C	1#8
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 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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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	10/23/2024	ADDENDUM NO. 3
	09/30/2024	BIDDING/PERMIT
	07/08/2024	PHASE 2

ELECTRICAL RISER DIAGRAM

Date: 07/08/2024
Scale: NTS
Proj. Number: 22367.00
Drawing Number: E700

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