Inglemoor High School Concert Hall + Music Building

Northshore School District No. 417

Volume III
BID DOCUMENTS

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Drawing Index

BID DOCUMENTS - 04.13.2020

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

Inglemoor High School
15500 Simonds Road NE
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Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
04.08.2019	VALUE ENGINEERING
09.16.2019	SITE PLAN REVIEW
10.18.2019	DESIGN DEVELOPMENT
01.13.2020	CONSTRUCTABILITY REVIEW
03.23.2020	HEALTH DEPARTMENT PERMIT SUBMITTAL
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

Drawing Index & General Information

SHEET NUMBER

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General Structural Notes

(THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE DRAWINGS.)

CRITERIA:

1. ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE INTERNATIONAL BUILDING CODE (IBC) WITH WASHINGTON STATE ADMINISTRATIVE CODE AMENDMENTS, 2015 EDITION.

2. DESIGN LOADING CRITERIA:

RISK CATEGORY IBC TABLE 1604.5	III
ROOF SNOW LOAD	28 PSF (I_S = 1.1)
FLOOR LIVE LOAD CORRIDORS ABOVE FIRST FLOOR	80 PSF
FLOOR LIVE LOAD (CLASSROOMS)	40 PSF
FLOOR LIVE LOAD (FIXED SEATING ASSEMBLY/THEATER AREAS)	60 PSF
FLOOR LIVE LOAD (LEVEL 2 LOBBY)	100 PSF
FLOOR LIVE LOAD (CATWALKS)	40 PSF
STAIR LIVE LOAD	100 PSF
CANOPIES	SAME AS ROOF SNOW LOAD
GUARDRAILS/BALCONY RAILS	50 PLF OR 200 LB CONCENTRATED LOAD
MECHANICAL UNITS	WEIGHTS FURNISHED BY MANUFACTURER
MECHANICAL UNITS	SEE DRAWINGS FOR MAXIMUM ALLOWABLE WEIGHTS
EARTHQUAKE (NEW BUILDING DESIGN)	SEISMIC DESIGN CATEGORY D S_S = 1.25, S_1 = 0.49, S_{DS} = 0.84, S_{D1} = 0.49 MODAL RESPONSE SPECTRUM ANALYSIS STEEL SPECIAL CONCENTRICALLY BRACED FRAMES R = 6, Ω_0 = 2, I_E = 1.25 Cs = 0.174 BASE SHEAR = 306 KIPS STORY DRIFT LIMIT = 0.015 * H CALCULATED MAXIMUM DRIFT = 0.012 * H
WIND	115 MPH, EXPOSURE "B", K_{zt} = 1.16
WIND (CLADDING/ENCLOSURE ELEMENT DESIGN PRESSURES)	52/31 PSF MAX. AT WALLS (LRFD/ASD) 48/29 PSF GROSS UPLIFT AT ROOF (LRFD/ASD)

WIND PRESSURES BASED ON LESS THAN 10 SQUARE FOOT TRIBUTARY AREAS NEAR WALL CORNERS OR ROOF EDGES (EXCLUDING CORNER ZONES AT ROOF). REDUCED DESIGN PRESSURES MAY BE CALCULATED IN ACCORDANCE WITH ASCE 7-10 CHAPTER 30.

SEE DRAWINGS FOR ADDITIONAL LOADING CRITERIA

3. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS AND ALL OTHER CONTRACT DOCUMENTS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS FOR COMPATIBILITY AND SHALL NOTIFY ARCHITECT OF ALL DISCREPANCIES PRIOR TO CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE BUILDING LAYOUT DIMENSIONS (GRID LAYOUTS, SITE COORDINATES, ETC.) AMONGST ALL TRADES, INCLUDING SHOP FABRICATED ITEMS.

4. NOT USED

5. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING, BOTH FOR VERTICAL LOADS AND LATERAL STABILITY, FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE DRAWINGS.

6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK.

7. CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

8. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER.

9. ALL STRUCTURAL SYSTEMS COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

10. SEISMIC BRACING AND/OR GRAVITY SUPPORT AND ANCHORAGE OF ALL MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF WASHINGTON, EXCEPT FOR ELEMENTS SPECIFICALLY SHOWN AND DETAILED ON THE STRUCTURAL DRAWINGS. THE MECHANICAL/ELECTRICAL CONTRACTOR MUST HIRE THE ENGINEER AND IS RESPONSIBLE FOR ALL COSTS RELATED TO THE PURCHASE AND INSTALLATION OF NECESSARY SUPPORTS, BRACING AND ANCHORAGE. SEISMIC BRACING AND ANCHORAGE DESIGN AND CONSTRUCTION SHALL COMPLY WITH CHAPTER 13 OF ASCE 7-10. SEE GENERAL STRUCTURAL NOTE 14 FOR ADDITIONAL INFORMATION.

11. SHOP DRAWINGS FOR REINFORCING STEEL, PRECAST CONCRETE MEMBERS, STRUCTURAL STEEL, OPEN WEB STEEL JOISTS, METAL DECKING, AND COLD-FORMED METAL FRAMING SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS.

12. SHOP DRAWING REVIEW: DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD, AND THEREFORE MUST BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY ENGINEER OF RECORD. SUBMITTALS SHALL INCLUDE A REPRODUCIBLE AND ONE COPY. THE REPRODUCIBLE SHALL BE MARKED AND RETURNED.

    SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT BY INDICATING WHICH MATERIAL IS INTENDED TO BE FURNISHED AND INSTALLED AND BY DETAILING THE INTENDED FABRICATION AND INSTALLATION METHODS. IF DEVIATIONS, DISCREPANCIES, OR CONFLICTS BETWEEN SHOP DRAWING SUBMITTALS AND THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE ENGINEER, THE DESIGN DRAWINGS AND SPECIFICATIONS SHALL CONTROL AND SHALL BE FOLLOWED.

13. DEFERRED SUBMITTALS SHALL BE DESIGNED BY AN ENGINEER REGISTERED IN THE STATE OF WASHINGTON. THE COMPONENT DESIGNER SHALL BE A REGISTERED STRUCTURAL ENGINEER IF REQUIRED BY THE BUILDING OFFICIAL OF THE LOCAL JURISDICTION. BUILDING COMPONENT SUBMITTALS SHALL INCLUDE THE DESIGNING PROFESSIONAL ENGINEER'S STAMP AND SHALL BE APPROVED BY THE COMPONENT DESIGNER PRIOR TO CURSORY REVIEW BY THE ENGINEER OF RECORD FOR LOADS IMPOSED ON THE BASIC STRUCTURE. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE INCLUDING ACCOMMODATION FOR STRUCTURAL DISPLACEMENT PER ASCE 7-10 SECTION 13.3.2. AND ALL NECESSARY CONNECTIONS NOT SPECIFICALLY CALLED OUT ON ARCHITECTURAL OR STRUCTURAL DRAWINGS. DEFERRED SUBMITTALS SHALL INDICATE MAGNITUDE AND DIRECTION OF ALL LOADS IMPOSED ON BASIC STRUCTURE. DESIGN CALCULATIONS SHALL BE INCLUDED IN THE SUBMITTAL. THE CONTRACTOR SHALL FORWARD DEFERRED SUBMITTALS TO THE BUILDING OFFICIAL WHERE REQUIRED.

    THE FOLLOWING BUILDING COMPONENTS SHALL BE DEFERRED SUBMITTALS FOR THIS PROJECT:
    - PREFABRICATED METAL STAIR SYSTEMS
    - PRECAST STAIR TREADS
    - OPEN WEB STEEL JOIST AND JOIST GIRDER FRAMING SYSTEMS (SEE NOTE 37)
    - FALL ARREST ANCHORS (SEE 16/S5.20)

STATEMENT OF SPECIAL INSPECTIONS (STRUCTURAL):

14. STATEMENT OF SPECIAL INSPECTIONS – STRUCTURAL ITEMS (SEISMIC DESIGN CATEGORY D):

    DEFINITIONS:
    THE SEISMIC FORCE RESISTING SYSTEM FOR THIS STRUCTURE CONSISTS PRIMARILY OF BRACED FRAMES, FLOOR/ROOF DIAPHRAGMS, AND STRUT MEMBERS AS SPECIFIED ON THE DRAWINGS. SEE THE LEGEND OF PLAN SHEETS FOR ADDITIONAL INFORMATION DEFINING MEMBER LOCATIONS.

    SPECIAL INSPECTIONS AND TESTING SHALL BE PERFORMED BY THE OWNER APPOINTED INSPECTION AGENCY IN ACCORDANCE WITH CHAPTER 17 OF THE IBC WITH REPORTS PER IBC SECTION 1704.2.4 SUBMITTED TO THE OWNER, ARCHITECT, STRUCTURAL ENGINEER, CONTRACTOR, AND BUILDING OFFICIAL FOR EACH DAY SPECIAL INSPECTIONS OR TESTING IS PERFORMED. THESE INSPECTIONS ARE IN ADDITION TO THE INSPECTIONS SPECIFIED IN IBC SECTION 110. SEE TABLES BELOW FOR ADDITIONAL INFORMATION.

STRUCTURAL ITEMS	SPECIAL INSPECTION FREQUENCY	IBC REFERENCE
STRUCTURAL STEEL FABRICATION,ERECTION, AND NONDESTRUCTIVE TESTING*		

SPECIAL INSPECTION AND NONDESTRUCTIVE TESTING FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE (QA) INSPECTION REQUIREMENTS OF AISC 360-10 CHAPTER N. CONTINUOUS INSPECTION SHALL BE PERFORMED AT "P" TASKS DEFINED IN AISC 360-10; PERIODIC INSPECTION SHALL BE PERFORMED AT "O" TASKS DEFINED IN AISC 360-10. ADDITIONAL SPECIAL INSPECTION AND TESTING REQUIREMENTS FOR THE STRUCTURAL STEEL SEISMIC SYSTEM SHALL BE PER AISC 341-10 CHAPTER J AS INDICATED BELOW.

STRUCTURAL ITEMS	SPECIAL INSPECTION FREQUENCY	IBC REFERENCE
SHOP AND FIELD WELDING	CONTINUOUS/PERIODIC (QA PER AISC 360 CH. N5.4)	1705.2.1
HIGH STRENGTH BOLTING	CONTINUOUS/PERIODIC (QA AISC 360 CH. N5.6)	1705.2.1
METAL DECKING	PERIODIC	1705.2.2
HEADED STUDS (COMPOSITE CONSTRUCTION)	CONTINUOUS (QA PER STEEL DECK INSTITUTE)	1705.2.1
MATERIAL VERIFICATION (IDENTIFICATION MARKS AND MANUFACTURER'S TEST REPORTS)	PERIODIC	1705.2.1
STRUCTURAL STEEL SEISMIC SYSTEM (INSPECTION AND TESTING)	CONTINUOUS/PERIODIC (QA PER AISC 341 CH. J)	1705.12.1 & 1705.13.1
COLD-FORMED STEEL FRAMING		
FIELD WELDING	PERIODIC	1705.11.2, 1705.12.3
CONCRETE (SEE GENERAL STRUCTURAL NOTE 22 FOR ADDITIONAL REQUIREMENTS)**		
REINFORCING PLACEMENT	PERIODIC AND PRIOR TO ALL CONCRETE POURS	TABLE 1705.3 ITEM 1
REINFORCING WELDING	PERIODIC	TABLE 1705.3 ITEM 2c
ANCHOR BOLT PLACEMENT	PERIODIC AND PRIOR TO ALL CONCRETE POURS	TABLE 1705.3 ITEM 3
CONCRETE PLACEMENT***	CONTINUOUS	TABLE 1705.3 ITEM 5,6&7
CURING & FORMWORK PROCEDURES	PERIODIC	TABLE 1705.3 ITEM 8,11&12
EXPANSION BOLTS & INSERTS	PERIODIC INCLUDING TORQUE TESTS IN ACCORDANCE WITH APPROVED ICC-ES REPORTS	TABLE 1705.3 ITEM 4
EPOXY GROUTED RODS OR REBAR	PERIODIC INCLUDING INSPECTION OF EMBEDMENT DEPTH AND HOLE CLEANLINESS PRIOR TO ALL INSTALLATIONS (CONTINUOUS FOR UPWARDLY INCLINED ANCHORS)	TABLE 1705.3 ITEM 4, ACI 318-14 SECTION 17.8
SOIL COMPACTION	CONTINUOUS	1705.6

* STRUCTURAL STEEL QUALITY ASSURANCE INSPECTIONS, EXCEPT NONDESTRUCTIVE TESTING, MAY BE WAIVED IF APPROVED BY THE OWNER AND BUILDING OFFICIAL FOR WORK PERFORMED ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION IN ACCORDANCE WITH IBC SECTION 1704.2.5.1.
** EXCEPTIONS 1 THRU 5 PER IBC SECTION 1705.3 SHALL NOT APPLY TO CONCRETE WORK ON THIS PROJECT.
*** FREQUENCY OF CONCRETE LABORATORY TESTING SHALL BE IN ACCORDANCE WITH ACI 318-14 SECTION 26.12.2 UNLESS OTHERWISE NOTED IN THE PROJECT SPECIFICATIONS.

ARCH, MECH, & ELEC ITEMS	SEISMIC DESIGN REQUIREMENTS (ASCE 7-10 CHAPTER 13)	PERIODIC SPECIAL INSPECTION AS SPECIFIED PER IBC CHAPTER 17
EXTERIOR WALLS, VENEER & CLADDING	ASCE 7-10 SECTION 13.5.3	REQUIRED FOR WALL FRAMING, FOR FASTENING OF VENEER OR CLADDING EXCEEDING 5 PSF (IBC 1705.12.5)
SUSPENDED CEILINGS	ASCE 7-10 SECTION 13.5.6	INSPECTIONS PER IBC SECTION 110 AND ASCE 7 13.5.6.2.2 AS REQUIRED
PARTITION WALLS FASTENING	ASCE 7-10 SECTION 13.5.8	REQUIRED DURING ERECTION AND FOR WALLS > 15 PSF (IBC 1705.12.5)
GLAZING SYSTEMS	ASCE 7-10 SECTION 13.5.9	NOT REQUIRED
LIFE SAFETY COMPONENTS INCLUDING FIRE PUMPS, EMERGENCY GENERATORS, SMOKE EVACUATION FANS, AND COMPONENTS WITH HAZARDOUS COMBUSTIBLE, OR HIGHLY TOXIC CONTENTS (Ip=1.5 PER ASCE 7-10 SECTION 13.1.3)	ASCE 7-10 SECTION 13.6 AND IBC 1705.13.2	REQUIRED FOR VERIFICATION OF CERTIFICATE OF COMPLIANCE LABEL ON COMPONENT (IBC 1705.12.4)
INSTALLATION AND ANCHORAGE OF 1705.12.6) SPRINKLER SYSTEMS, FIRE PUMPS, EMERGENCY GENERATORS, COMPONENTS WITH HAZARDOUS, COMBUSTIBLE, OR HIGHLY TOXIC CONTENTS (Ip=1.5 PER ASCE 7-10 SECTION 13.1.3)	ASCE 7-10 SECTION 13.6 AND IBC 1705.13.2	REQUIRED (IBC 1705.12.4 &
ALL OTHER MECHANICAL AND ELECTRICAL COMPONENTS	ASCE 7-10 SECTION 13.6	NOT REQUIRED

STRUCTURAL OBSERVATION IN ACCORDANCE WITH IBC SECTION 1704.6 WILL BE PERFORMED BY THE STRUCTURAL ENGINEER OF RECORD DURING CONSTRUCTION AT SIGNIFICANT CONSTRUCTION STAGES AND AT COMPLETION OF THE STRUCTURAL SYSTEM. STRUCTURAL OBSERVATION CONSISTS OF VISUAL OBSERVATION FOR GENERAL CONFORMANCE TO THE CONSTRUCTION DOCUMENTS AND DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED BY SECTIONS 110, 1704, OR OTHER SECTIONS OF THE IBC.

CONTRACTOR STATEMENT OF RESPONSIBILITY: CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY IN ACCORDANCE WITH IBC SECTION 1704.4 TO THE BUILDING OFFICIAL AND OWNER PRIOR TO CONSTRUCTION ACKNOWLEDGING THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS.

15. NOT USED:

GEORECHNICAL:

16. FOUNDATION NOTES: SUBGRADE PREPARATION INCLUDING DRAINAGE, EXCAVATION, COMPACTION, AND FILLING REQUIREMENTS, SHALL CONFORM STRICTLY WITH THE CIVIL/STRUCTURAL DRAWINGS AND SPECIFICATIONS OR AS DIRECTED BY THE OWNER APPOINTED GEOTECHNICAL ENGINEER. FOOTINGS SHALL BEAR ON FIRM, UNDISTURBED NATIVE SEDIMENTS OR APPORVED COMPACTED STRUCTURAL FILL AT LEAST 18" BELOW LOWEST ADJACENT FINISHED GRADE. THE OWNER APPOINTED GEOTECHNICAL ENGINEER SHALL APPROVE FOOTING EXCAVATION/PREPARATION PRIOR TO PLACEMENT OF ALL FOOTINGS. BACKFILL BEHIND ALL RETAINING WALLS WITH FREE DRAINING, GRANULAR FILL AND PROVIDE FOR SUBSURFACE DRAINAGE AS NOTED IN THE CIVIL DRAWINGS AND SPECIFICATIONS.

ALLOWABLE SOIL PRESSURE	3,500 PSF
LATERAL EARTH PRESSURE (RESTRAINED/UNRESTRAINED)	50 PCF/35 PCF
SOIL PROFILE TYPE	SITE CLASS D

GEOTECHNICAL REPORT REFERENCE: "ASSOCIATED EARTH SEIENCES, INC., INGLEMOOR HIGH SCHOOL CONCERT HALL AND MUSIC BUILDLING, PROJECT NO. 180364E001 AND DATED: FEBRUARY 25, 2019"

FLOOR AND ROOF DECK OPENINGS:

17. MISCELLANEOUS OPENING ALLOWANCE: THE CONTRACTOR SHALL REINFORCE ALL OPENINGS AT ROOF DECK OR COMPOSITE DECK PER THE DRAWINGS. OPENINGS ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. SEE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ADDITIONAL OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL REVIEW THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS AND SUPPLY OPENING SIZE, LOCATION, AND CONFIGURATION TO THE STEEL FABRICATOR PRIOR TO SHOP DRAWING SUBMITTAL. OPENINGS SHALL OCCUR WHERE ANY DUCT, CONDUIT, PLUMBING, OR OTHER IMPLEMENT PASSES THROUGH THE FLOOR OR ROOF.

    AS AN ALLOWANCE THE CONTRACTOR, FABRICATOR, AND ERECTOR SHALL BUDGET TO PROVIDE AND INSTALL AN ADDITIONAL 250 LINEAR FEET OF ANGLE 5x3x1/4 AND 100 LINEAR FEET OF ANGLE 4x3x1/4 FOR FRAMING OF ROOF DECK OPENINGS THAT ARE NOT SHOWN ON THE DRAWINGS. INSTALL PER 9/S5.01, ASSUMING (20) LOCATIONS FOR ERECTION.

    AS AN ALLOWANCE THE CONTRACTOR, FABRICATOR, AND ERECTOR SHALL BUDGET TO PROVIDE AND INSTALL AN ADDITIONAL 500 LINEAR FEET OF #4 REBAR, 200 LINEAR FEET OF ANGLE 1-3/4x1-3/4x1/4, 150 LINEAR FEET OF C8x11.5, AND 50 LINEAR FEET OF C6x8.2 FOR FRAMING OF COMPOSITE DECK OPENINGS THAT ARE NOT SHOWN ON THE DRAWINGS. INSTALL PER 12/S5.01, ASSUMING (30) ANGLE FRAMED LOCATIONS AND (10) CHANNEL FRAMED LOCATIONS FOR ERECTION.

ANCHORAGE:

18. EXPANSION BOLTS INTO CONCRETE SHALL BE ONE OF THE FOLLOWING INSTALLED IN STRICT ACCORDANCE WITH THE ICC-ES REPORTS INDICATED AND MANUFACTURER'S INSTRUCTIONS: "KWIK BOLT TZ" AS MANUFACTURED BY HILTI, INC. (ICC-ES NO. 1917); OR "STRONG-BOLT 2" AS MANUFACTURED BY SIMPSON STRONG-TIE COMPANY, INC. (ICC-ES NO. 3037); OR "POWERS-STUD+ SD2" AS MANUFACTURED BY DEWALT (ICC-ES NO. 2502). SUBSTITUTES PROPOSED BY CONTRACTOR SHALL BE SUBMITTED FOR REVIEW WITH ICC-ES REPORTS INDICATING EQUIVALENT OR GREATER LOAD CAPACITIES. IN ADDITION, SUBSTITUTIONS SHALL MEET ICC-ES ACCEPTANCE CRITERIA AC193. SPECIAL INSPECTION IS REQUIRED FOR ALL EXPANSION BOLT INSTALLATION. EXPANSION BOLTS SHALL NOT BE USED AS SUBSTITUTES FOR EMBEDDED ANCHOR BOLTS UNLESS SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER. NOTIFY ENGINEER IF BOLT LOCATIONS CONFLICT WITH REINFORCING STEEL – DO NOT CUT REINFORCING OR REDUCE EMBEDMENT DEPTHS WITHOUT PRIOR APPROVAL.

    UNLESS OTHERWISE NOTED, PROVIDE THE FOLLOWING NOMINAL EMBEDMENT DEPTHS FOR EXPANSION BOLTS INTO CONCRETE:

HILTI KWIK BOLT TZ:	
3/8"Ø EXPANSION BOLTS	2 5/16"
1/2"Ø EXPANSION BOLTS	3 5/8"
5/8"Ø EXPANSION BOLTS	4 7/16"
3/4"Ø EXPANSION BOLTS	5 5/16"
SIMPSON STRONG-BOLT 2:	
3/8"Ø EXPANSION BOLTS	2 7/8"
1/2"Ø EXPANSION BOLTS	3 7/8"
5/8"Ø EXPANSION BOLTS	5 1/8"
3/4"Ø EXPANSION BOLTS	5 3/4"
DEWALT/POWERS POWER-STUD+SD2:	
3/8"Ø EXPANSION BOLTS	2 3/8"
1/2"Ø EXPANSION BOLTS	3 3/4"
5/8"Ø EXPANSION BOLTS	4 7/8"
3/4"Ø EXPANSION BOLTS	5 3/4"

19. NOT USED:

20. DRIVE PINS AND OTHER POWDER-ACTUATED FASTENERS SHALL BE ONE OF THE FOLLOWING INSTALLED IN STRICT ACCORDANCE WITH THE ICC-ES REPORTS INDICATED AND MANUFACTURER'S INSTRUCTIONS INCLUDING MINIMUM EMBED REQUIREMENTS: "TE SERIES" (0.157" DIAMETER) AS MANUFACTURED BY ITW RAMSET (ICC-ES NO. 1799); OR "X-P" (0.157" DIAMETER) AS MANUFACTURED BY HILTI, INC. (ICC-ES NO. 2269); OR "STRONG-TIE PDPA" (0.157" DIAMETER) AS MANUFACTURED BY SIMPSON STRONG-TIE COMPANY, INC. (ICC-ES NO. 2138); OR "CSI PIN" (0.157" DIAMETER) AS MANUFACTURED BY DEWALT (ICC-ES NO. 2024); OR AN APPROVED EQUIVALENT IN STRENGTH AND EMBEDMENT. MINIMUM EMBEDMENT IN CONCRETE SHALL BE 1" UNLESS OTHERWISE NOTED. MAINTAIN AT LEAST 3-1/2" TO NEAREST CONCRETE EDGE.

21. EPOXY-GROUTED RODS OR REBAR TO CONCRETE SPECIFIED ON THE DRAWINGS SHALL BE ONE OF THE FOLLOWING INSTALLED IN STRICT ACCORDANCE WITH THE ICC-ES REPORTS INDICATED AND MANUFACTURER'S INSTRUCTIONS INCLUDING MINIMUM EMBED REQUIREMENTS: "SET-XP" AS MANUFACTURED BY SIMPSON STRONG-TIE COMPANY, INC. (ICC-ES NO. 2508); OR "HIT-HY 200" AS MANUFACTURED BY HILTI, INC. (ICC-ES NO. 3187), "SAFE-SET" INSTALLATION WITH HOLLOW CARBIDE DRILL BIT IS PERMITTED; OR "PURE110+" AS MANUFACTURED BY DEWALT (ICC-ES NO. 3298), OR "AC200+" AS MANUFACTURED BY DEWALT (ICC-ES NO. 4027). SUBSTITUTES PROPOSED BY CONTRACTOR SHALL BE SUBMITTED FOR REVIEW WITH ICC-ES REPORTS INDICATING EQUIVALENT OR GREATER LOAD CAPACITIES. IN ADDITION, SUBSTITUTIONS SHALL MEET ICC-ES ACCEPTANCE CRITERIA AC308. SPECIAL INSPECTION OF EPOXY-GROUTED ANCHOR INSTALLATION IS REQUIRED. NOTIFY ENGINEER IF ANCHOR LOCATIONS CONFLICT WITH REINFORCING STEEL – DO NOT CUT REINFORCING OR REDUCE EMBEDMENT DEPTHS WITHOUT PRIOR APPROVAL. INSTALLATION OF ADHESIVE ANCHORS HORIZONTALLY OR UPWARDLY INCLINED TO SUPPORT SUSTAINED TENSION LOADS SHALL BE PERFORMED BY CERTIFIED PERSONNEL IN CONFORMANCE TO ACI 318-14 SECTION 17.8.2.2. HOLES SHALL BE HAMMER DRILLED AND DRY.

    EPOXY GROUTED RODS OR REBAR SHALL NOT BE USED AS SUBSTITUTES FOR CAST-IN-PLACE ANCHOR BOLTS, THREADED RODS, OR REINFORCING STEEL UNLESS SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER. FIELD FIXES OR OTHER CONDITIONS NOT ADDRESSED IN THE DOCUMENTS MUST BE SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER, INCLUDING EMBEDMENT DEPTHS.

    UNLESS OTHERWISE NOTED, PROVIDE THE FOLLOWING EMBEDMENT DEPTHS FOR ANCHORS AT CONCRETE:

3/8"Ø ROD OR #3 BAR	4"
1/2"Ø ROD OR #4 BAR	5"
5/8"Ø ROD OR #5 BAR	7"
3/4"Ø ROD OR #6 BAR	9"
7/8"Ø ROD OR #7 BAR	12"
1"Ø ROD OR #8 BAR	15"

SHEET INDEX

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PROJECT INFORMATION

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04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

GENERAL STRUCTURAL NOTES

SHEET NUMBER

S1.01

General Structural Notes

(THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE DRAWINGS.)

22. CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED AND PLACED IN ACCORDANCE WITH ACI 318-14 CHAPTER 26 AND ACI 301. STRENGTHS AT 28 DAYS AND MIX CRITERIA SHALL BE AS FOLLOWS:

TYPE OF CONSTRUCTION	MIN. 28 DAY STRENGTH (U.O.N.) (f'c)	EXPOSURE CLASSES (ACI 318-14 TABLES 19.3.1.1 AND 19.3.2.1)
A. CONCRETE EXPOSED TO WEATHER	4,500 PSI	(F1, S0, W0, C1)
B. CONCRETE EXPOSED TO EARTH (FOUNDATIONS, BASEMENT WALLS, ETC.)	4,000 PSI	(F0, S0, W0, C1)
C. ALL OTHER CONCRETE (UNLESS LISTED BELOW)	4,000 PSI *	(F0, S0, W0, C0)

* WATER-CEMENTITIOUS MATERIAL RATIO FOR INTERIOR SLABS SHALL BE BETWEEN 0.40 AND 0.44.

CONCRETE MIXES SHALL MEET OR EXCEED THE REQUIREMENTS SPECIFIED ABOVE. MIXES SHALL BE SUBMITTED TO THE ENGINEER AND BUILDING OFFICIAL FOR APPROVAL TWO WEEKS PRIOR TO PLACING ANY CONCRETE AND SHALL INCLUDE THE AMOUNTS OF CEMENT, CEMENTITOUS MATERIAL, FINE AND COARSE AGGREGATE, WATER AND ADMIXTURES, AS WELL AS THE WATER-CEMENT RATIO, SLUMP, CONCRETE YIELD AND SUBSTANTIATING STRENGTH DATA IN ACCORDANCE WITH ACI 318-14, CHAPTER 26 AND 27. REVIEW OF MIX SUBMITTALS BY THE ENGINEER OF RECORD INDICATES ONLY THAT INFORMATION PRESENTED CONFORMS GENERALLY WITH CONTRACT DOCUMENTS. CONTRACTOR OR SUPPLIER MAINTAINS FULL RESPONSIBILITY FOR SPECIFIED PERFORMANCE.

CONCRETE MAY BE PLACED BY THE "SHOTCRETE" METHOD, PROVIDED THE APPROVALS, TESTS, AND INSPECTIONS REQUIRED BY THE BUILDING DEPARTMENT ARE OBTAINED. SHOTCRETE MATERIALS, EQUIPMENT, PROCEDURES, PROPORTIONS, BATCHING AND MIXING, AND PLACEMENT SHALL BE IN ACCORDANCE WITH ACI 506.2 AND IBC SECTION 1908. IF WALLS ARE EXPOSED COORDINATE FINISH REQUIREMENTS WITH ARCHITECT.

23. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, fy = 60,000 PSI. GRADE 60 REINFORCING BARS WHICH ARE TO BE WELDED SHALL CONFORM TO ASTM A706. REINFORCEMENT COMPLYING WITH ASTM A615(S1) MAY BE WELDED ONLY IF MATERIAL PROPERTY REPORTS INDICATING CONFORMANCE WITH WELDING PROCEDURES SPECIFIED IN A.W.S. D1.4 ARE SUBMITTED.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064.

24. REINFORCING STEEL SHALL BE DETAILED (INCLUDING HOOKS AND BENDS) IN ACCORDANCE WITH ACI 315-99 AND 318-14. LAP ALL CONTINUOUS REINFORCEMENT IN ACCORDANCE WITH "REINFORCEMENT SPLICE AND DEVELOPMENT LENGTH SCHEDULE" OF 30/S3.01. PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS. LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 12" AT SIDES AND ENDS.

NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS OTHERWISE NOTED ON THE DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER.

25. CONCRETE PROTECTION (COVER) FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

FOOTINGS AND OTHER UNFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH . . . . . . 3"
FORMED SURFACES EXPOSED TO EARTH (i.e. WALLS BELOW GROUND) OR WEATHER (#6 BARS OR LARGER). . . 2"
(#5 BARS OR SMALLER). . . 1 1/2"
SLAB-ON-GRADE BOTTOM REINFORCING (WITH VAPOR BARRIER BELOW) . . . . 1 1/2"
COLUMN TIES OR SPIRALS AND BEAM STIRRUPS . . . . 1 1/2"
SLABS AND WALLS (INTERIOR FACE) . . . . (#11 BARS OR SMALLER) . . 1"

26. CAST-IN-PLACE CONCRETE: SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND DIMENSIONS OF DOOR AND WINDOW OPENINGS IN ALL CONCRETE WALLS. SEE MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF MISCELLANEOUS MECHANICAL OPENINGS THROUGH CONCRETE WALLS. SEE ARCHITECTURAL DRAWINGS FOR ALL GROOVES, NOTCHES, CHAMFERS, FEATURE STRIPS, COLOR, TEXTURE, AND OTHER FINISH DETAILS AT ALL EXPOSED CONCRETE SURFACES.

27. SLABS-ON-METAL DECK: AT SLABS-ON-METAL DECK, ACCOUNT FOR DEFLECTION OF METAL DECK DURING PLACEMENT OF WET CONCRETE SUCH THAT TOP OF SLAB ELEVATION IS SCREEDED OFF LEVEL BETWEEN ADJACENT DECK SUPPORTS. REFER TO DECK MANUFACTERER'S LITERATURE FOR APPROXIMATE DECK DEFLECTION VALUES. NOTIFY STRUCTURAL ENGINEER IF DECK DEFLECTION EXCEEDS 3/4". AT CAMBERED SUPPORTS, SET SCREED PINS ALONG EACH SUPPORT TO A UNIFORM HEIGHT BASED ON THE SPECIFIED SLAB THICKNESS.

28. BONDING AGENT SHALL BE "MASTEREMACO ADH 326" BY BASF CORPORATION. OR EQUIVALENT, AND SHALL BE USED WHERE NEW CONCRETE IS PLACED AGAINST HARDENED CONCRETE. PLACE IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, INCLUDING PREPARATION OF EXISTING SURFACES. CONCRETE SHALL BE CONSIDERED HARDENED AFTER 56 DAYS.

29. NON-SHRINK GROUT SHALL BE FURNISHED BY AN APPROVED MANUFACTURER AND SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. GROUT STRENGTH SHALL BE AT LEAST EQUAL TO THE MATERIAL ON WHICH IT IS PLACED (6,000 PSI MINIMUM).

30. RIGID INSULATION BELOW TOPPING SLABS, IF USED SHALL BE CLOSED-CELL, LIGHTWEIGHT FOAM WITH A COMPRESSIVE STRENGTH AS INDICATED BELOW WITH A MAXIMUM DENSITY SHALL BE 2.5 POUNDS PER CUBIC FOOT. CONTRACTOR TO SUBMIT DATA FOR ENGINEER'S REVIEW.

LOCATION	COMPRESSIVE STRENGTH
INTERIOR SLABS	3 PSI AT 1% DEFORMATION, 10 PSI AT 10% DEFORMATION
EXTERIOR SLABS	10 PSI AT 1% DEFORMATION, 25 PSI AT 10% DEFORMATION

STEEL:

31. STRUCTURAL STEEL DESIGN, FABRICATION, AND ERECTION SHALL BE BASED ON THE LATEST EDITIONS OF THE A.I.S.C. SPECIFICATIONS AND CODES:

    1. SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS-ALLOWABLE STRESS AND PLASTIC DESIGN, OR LOAD AND RESISTANCE FACTOR DESIGN SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.

    2. CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES, ADOPTED APRIL 14, 2010.

       IN REFERENCE TO SECTIONS 3.1.2 AND 4.4.1, THE CONTRACT DOCUMENTS (DESIGN DRAWINGS) SHOW COMPLETE CONNECTION DETAILS FOR ALL MEMBERS EXCEPT THOSE NOTED TO BE DESIGN-BUILD ITEMS. ALTERNATE CONNECTION DETAILS REQUESTED BY THE FABRICATOR SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR APPROVAL VIA A REQUEST FOR INFORMATION (RFI) PRIOR TO COMPLETION OF SHOP DRAWINGS.

       IN REFERENCE TO SECTION 3.1.6, FABRICATOR SHALL ALSO REVIEW PROJECT SPECIFICATIONS AND ARCHITECTURAL DRAWINGS TO DETERMINE PAINTING AND GALVANIZING REQUIREMENTS. MEMBERS EMBEDDED IN CONCRETE, MASONRY OR TO RECEIVE SPRAY-ON FIREPROOFING SHALL NOT BE PAINTED. DO NOT PAINT OR GALVANIZE AREAS OF PIECES TO BE FIELD WELDED, OR REMOVE PAINT AND GALVANIZING IN FIELD PRIOR TO WELDING.

       IN REFERENCE TO SECTION 3.3, IN THE EVENT OF DISCREPANCIES BETWEEN DESIGN DRAWINGS AND SPECIFICATIONS, THE DESIGN DRAWINGS GOVERN.

       IN REFERENCE TO SECTION 4.1, THE FABRICATOR SHALL NOT ASSUME BID PACKAGES CONSTITUTE RELEASING THE DRAWINGS FOR CONSTRUCTION WITHOUT EXPLICIT DIRECTION TO DO SO BY THE OWNER.

    3. SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.

    4. QUALITY CONTROL SHALL BE IN ACCORDANCE WITH AISC 360 CHAPTER N (AISC 341 CHAPTER J FOR STEEL SEISMIC SYSTEM).

CONTRACTOR SHALL ALSO COMPLY WITH OSHA REGULATION 29 CFR PART 1926 SUBPART R - STEEL ERECTION, PUBLISHED JANUARY 18, 2001. MISCELLANEOUS PLATES FOR GUYING CABLE ATTACHMENTS, TEMPORARY JOIST BRACING, ETC. SHALL BE ADDED AS REQUIRED. CONTRACTOR SHALL EVALUATE COLUMNS AND PROVIDE ADEQUATE BASE PLATE SHIMS, ADDITIONAL TEMPORARY ERECTION BOLTS/CLIPS, GUYS, OR TEMPORARY BRACING AS REQUIRED PER SECTION 1926.755.

32. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

TYPE OF MEMBER	ASTM SPECIFICATION	Fy
A. WIDE FLANGE AND WT SHAPES	A992	50 KSI
B. PLATES, ANGLES, CHANNELS, AND RODS	A36	36 KSI
C. PLATES (NOTED GRADE 50 ON DRAWINGS)	A572	50 KSI
D. PIPE MEMBERS	A53 (TYPE E OR S, GRADE B)	35 KSI
E. STRUCTURAL TUBING (HSS - SQUARE OR RECTANGULAR)	A500 (GRADE B)	46 KSI
F. ANCHOR BOLTS OR ANCHOR RODS	F1554 (GRADE 36)	36 KSI
G. CONNECTION BOLTS	A325-N	
H. THREADED RODS FOR EPOXY GROUTED CONNECTIONS	A36 OR F1554	36 KSI

HEAVY SECTIONS THAT ARE PART OF THE SEISMIC FORCE RESISTING SYSTEM SHALL CONFORM WITH AISC 341-10 SECTION A3.3. HOT ROLLED SHAPES WITH FLANGES 1.5 INCH THICK AND THICKER SHALL HAVE A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FT-LBS AT 70 DEGREES F, TESTED IN THE ALTERNATE CORE LOCATION AS DESCRIBED IN ASTM A6 SUPPLEMENTARY REQUIREMENT S30. PLATES 2 INCHES AND THICKER SHALL HAVE A MINIMUM CHARPY V-NOTCH TOGHNESS OF 20 FT-LBS AT 70 DEGREES F, MEASURED AT ANY LOCATION PERMITTED BY ASTM A673, FREQUENCY P.

33. DIMENSIONAL TOLERANCE FOR STRUCTURAL STEEL MEMBERS SHALL BE PER THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES, SECTION 6.4 AND ASTM SPECIFICATION A6. UNLESS SPECIFICALLY ALLOWED BY THE ENGINEER, COLUMN MEMBERS SHALL NOT BE MODIFIED BY THE ROTARY STRAIGHTENING PROCESS.

34. ARCHITECTURALLY EXPOSED STRUCTURAL STEEL SHALL CONFORM TO SECTION 10 OF THE A.I.S.C. CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES, ADOPTED APRIL 14, 2010. ANY STEEL THAT IS TO BE EXPOSED TO VIEW UPON COMPLETION OF THE PROJECT SHALL BE CONSIDERED ARCHITECTURALLY EXPOSED. SEE SPECIFICATIONS FOR SPECIFIC FABRICATION AND ERECTION REQUIREMENTS FOR ARCHITECTURALLY EXPOSED STRUCTURAL STEEL.

35. BOLTS IN CONNECTIONS NOT SPECIFIED AS SLIP-CRITICAL NEED ONLY BE TIGHTENED TO THE SNUG TIGHT CONDITION. THE SNUG TIGHT CONDITION IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN ALL PLIES IN A JOINT ARE IN FIRM CONTACT. IF A SLOTTED HOLE OCCURS IN AN OUTER PLY, A FLAT HARDENED WASHER OR COMMON PLATE WASHER SHALL BE INSTALLED OVER THE SLOT.

ALL SLIP-CRITICAL CONNECTION BOLTS SHALL BE APPROVED SELF LOAD INDICATING TYPES (SUCH AS BETHLEHEM INDICATOR BOLTS, LeJEUNE TENSION CONTROL BOLTS, ETC.), AND SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CONNECTED PLIES SHALL BE PREPARED TO MEET THE REQUIREMENTS FOR CLASS A FAYING SURFACES.

36. HOLE SIZES IN STEEL MEMBERS FOR CONNECTIONS TO CONCRETE OR MASONRY SHALL BE AS FOLLOWS UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS:

ANCHOR TYPE	MAXIMUM HOLE DIA. OVER NOMINAL BOLT DIA. OTHER THAN COL. BASE PLATES	COL. BASE PLATES
CAST-IN-PLACE ANCHOR BOLTS	1/16" *	TABLE 14-2 OF AISC STEEL CONSTR. MANUAL, 14TH ED.
EXPANSION BOLTS	1/16" *	5/16"
EPOXY GROUTED BOLTS	1/8" *	5/16"

* USE OF LARGER HOLES WOULD REQUIRE THE USE OF WELDED PLATE WASHERS AND WOULD REQUIRE PRIOR APPROVAL BY THE STRUCTURAL ENGINEER.

HARDENED OR COMMON PLATE WASHERS ARE REQUIRED BELOW ALL NUTS WHERE OVERSIZED HOLES ARE USED AND SHALL BE SIZED TO COVER ENTIRE HOLE. MINIMUM WASHER SIZES FOR COLUMN BASE PLATES SHALL BE IN ACCORDANCE WITH TABLE 14-2 OF THE AISC STEEL CONSTRUCTION MANUAL, 14TH EDITION.

37. OPEN WEB STEEL JOISTS (INCLUDING BRIDGING) SHALL CONFORM TO THE SPECIFICATIONS OF THE STEEL JOIST INSTITUTE, LATEST EDITION, AND IBC SECTION 2207. SEE PLANS AND DETAILS FOR LOADING REQUIREMENTS. AT JOISTS, THE PLANS INDICATE THE UNIFORM POUND PER FOOT LINE LOADS SHOWN AS (TOTAL LOAD, LIVE LOAD) WHICH INCLUDE AN ALLOWANCE FOR THE WEIGHT OF JOISTS, UNLESS OTHERWISE NOTED. CONCENTRATED LOADS SPECIFIED ON THE PLANS OR DETAILS SHALL BE ADDITIVE TO THE SPECIFIED LINE LOADS. IN ADDITION, ALL MEMBERS SHALL BE DESIGNED TO SUPPORT A SINGLE 500 LB. ADDITIVE DOWNWARD POINT LOAD FROM ANY TOP OR BOTTOM CHORD PANEL POINT TO ACCOUNT FOR MISCELLANEOUS ARCHITECTURAL AND MECHANICAL ITEMS. CONTRACTOR SHALL COORDINATE WITH MECHANICAL CONTRACTOR AND JOIST MANUFACTURER FOR LOADS EXCEEDING THIS ALLOWANCE. WHERE CONCENTRATED LOADS/HANGERS DO NOT OCCUR AT PANEL POINTS, CONTRACTOR SHALL INSTALL ADDITIONAL WEB MEMBERS PER THE INSTALLATION DETAILS OF THE JOIST MANUFACTURER WHERE REQUIRED. REVIEW PROPOSED FIELD SPLICE LOCATIONS AND DETAILS WITH ARCHITECT, AND COORDINATE LOCATIONS WITH THE ERECTOR.

JOIST MANUFACTURER SHALL CHECK ROOF MEMBERS AND PROVIDE UPLIFT BRIDGING AS REQUIRED TO ADEQUATELY BRACE THE BOTTOM CHORD AGAINST LATERAL MOVEMENT UNDER A NET WIND UPLIFT PRESSURE (ASD) OF 17 PSF AT INTERIOR LOCATIONS. CONTRACTOR SHALL COORDINATE BRIDGING LAYOUT PRIOR TO JOIST ERECTION TO AVOID CONFLICTS WITH MECHANICAL DUCTWORK, FLOOR/ROOF OPENINGS (INCLUDING SKYLIGHTS), OR OTHER MISCELLANEOUS ITEMS. ENDS OF BRIDGING ROWS SHALL BE FIELD WELDED TO STRUCTURAL STEEL MEMBERS OR TO PLATES BOLTED TO CONCRETE OR MASONRY WALLS UNLESS OTHERWISE NOTED.

CAMBER JOISTS IN ACCORDANCE WITH THE STEEL JOIST INSTITUTE STANDARDS, UNLESS OTHERWISE NOTED. SIZE MEMBERS TO MEET THE FOLLOWING LIVE LOAD DEFLECTION CRITERIA UNLESS OTHERWISE NOTED: L/360 FOR SIMPLE SPAN ROOF MEMBERS.

JOISTS THAT OCCUR WITHIN 3'-0" OF STEEL COLUMNS AND ALL JOISTS EXCEEDING 40'-0" IN LENGTH SHALL BE BOLTED TO WIDE FLANGE OR JOIST GIRDER SUPPORTS IN LIEU OF THE SPECIFIED FIELD WELDING, EXCEPT AT JOISTS MARKED 'STRUT' AND WHERE NOTED ON DETAILS WHERE THE FIELD WELDING SHALL ALSO APPLY. USE (2)1/2" DIAMETER A307 BOLTS FOR K-SERIES JOISTS AND (2)3/4" DIAMETER A307 BOLTS FOR LH AND DLH-SERIES JOISTS (VERIFY BOLT SIZE/SPACING WITH JOIST SUPPLIER). BOLTING REQUIREMENT MAY BE OMITTED FOR JOISTS LESS THAN 40'-0" IN LENGTH WHERE WIDE FLANGE BEAMS FRAME INTO STEEL COLUMNS IN AT LEAST TWO DIRECTIONS.

SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS TO THE ARCHITECT, STRUCTURAL ENGINEER, AND BUILDING DEPARTMENT FOR REVIEW PRIOR TO FABRICATION. SUBMITTALS SHALL INDICATE ALL CHORD AND WEB MEMBER SIZES AND SHOW ALL END CONNECTIONS. DESIGN CALCULATIONS SHALL BEAR THE STAMP AND SIGNATURE OF A REGISTERED PROFESSIONAL ENGINEER, STATE OF WASHINGTON.

38. ALL WELDING SHALL BE IN CONFORMANCE WITH A.I.S.C. AND A.W.S. STANDARDS AND SHALL BE PERFORMED BY W.A.B.O. CERTIFIED WELDERS USING E70XX ELECTRODES. ONLY PREQUALIFIED WELDS (AS DEFINED BY A.W.S.) SHALL BE USED. DO NOT PAINT OR GALVANIZE AREAS OF PIECES TO BE FIELD WELDED, OR REMOVE PAINT AND GALVANIZING IN FIELD PRIOR TO WELDING. WELDING OF GRADE 60 REINFORCING BARS (IF REQUIRED) SHALL BE PERFORMED USING LOW HYDROGEN ELECTRODES. WELDING WITHIN 4" OF COLD BENDS IN REINFORCING STEEL IS NOT PERMITTED. SEE REINFORCEMENT NOTE FOR MATERIAL REQUIREMENTS OF WELDED BARS.

THE WELD SYMBOLS SHOWN ON THE DRAWINGS ARE INTENDED ONLY TO AID THE CONTRACTOR IN THE DETERMINATION OF FIELD VERSUS SHOP WELDING. THE CONTRACTOR SHALL WORK WITH THE FABRICATOR AND ERECTOR TO COORDINATE THE FINAL DETERMINATION OF FIELD VERSUS SHOP WELDS TO ACCOMMODATE THE CONSTRUCTION SEQUENCING OF THE PROJECT.

ALL WELDS SHALL BE MADE WITH A FILLER WELD METAL THAT HAS A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FT.-LBS. AT 0 DEGREES F. WELDS SPECIFICALLY DENOTED AS "DEMAND CRITICAL" SHALL BE MADE WITH FILLER WELD METAL THAT ADDITIONALLY HAS A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 40 FT-LBS AT 70 DEGREES F. SEE AISC 341-10 CHAPTER A3 (4B) AND AWS D1.8 SECTION 6.3 FOR ADDITIONAL REQUIREMENTS. PROPOSED FILLER MATERIAL FOR BOTH SHOP AND FIELD WELDS SHALL BE SUBMITTED FOR REVIEW PRIOR TO CONSTRUCTION.

39. METAL FLOOR AND ROOF DECKING: PROVIDE SIZE, TYPE, GAGE, AND ATTACHMENT TO THE SUPPORTING STRUCTURE AS SHOWN ON THE DRAWINGS. ALTERNATES MUST BE CONNECTED ACCORDING TO PUBLISHED ICC-ES CRITERIA FOR DIAPHRAGM SHEARS SHOWN. PROVIDE SHORING WHERE REQUIRED PER MANUFACTURER'S PUBLISHED CRITERIA. ALL DECKING SHALL CONFORM TO THE REQUIREMENTS OF THE STEEL DECK INSTITUTE. SUBMIT DECK INFORMATION TO ARCHITECT AND ENGINEER PRIOR TO BEGINNING SHOP DRAWINGS.

40. COLD-FORMED STEEL FRAMING MEMBERS SHALL BE OF THE SHAPE, SIZE, AND GAGE SHOWN ON THE DRAWINGS. NOTATIONS ON THE DRAWINGS, RELATING TO MEMBER TYPES AND SIZES OR MISCELLANEOUS FRAMING ITEMS, REFER TO CATALOG NUMBERS OF THE "STEEL STUD MANUFACTURER'S ASSOCIATION" STANDARD SPECIFICATIONS, AND ICC-ESR REPORT NO. 3064P. ALTERNATE FRAMING SHALL BE SUBJECT TO REVIEW BY THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO FABRICATION. ALL COLD-FORMED STEEL FRAMING SHALL ALSO CONFORM TO THE AISI "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" AND THE AISI "CODE OF STANDARD PRACTICE FOR COLD-FORMED STRUCTURAL FRAMING." SEE 30/S7.01 FOR METAL FRAMING NOTES.

41. HEADED STUDS FOR COMPOSITE CONNECTION OF STRUCTURAL STEEL TO CONCRETE AND THREADED STUDS (CPL'S OR CFL'S) FOR CONNECTION OF STRUCTURAL STEEL TO OTHER ELEMENTS SHALL BE MANUFACTURED FROM MATERIAL CONFORMING TO ASTM A29 GR. 1010 THROUGH 1020 (TYPE 2, Fu = 60 KSI MIN.). HEADED STUDS SHALL BE WELDED IN CONFORMANCE WITH THE REQUIREMENTS OF A.W.S D1.1 CHAPTER 7. UNLESS OTHERWISE NOTED, STUDS SHALL BE WELDED BY THE AUTOMATIC MACHINE WELDING PROCESS IN CONFORMANCE WITH A.W.S. REQUIREMENTS.

STUD TYPES SHALL BE MANUFACTURED BY NELSON STUD WELDING, INC. OR EQUIVALENT. HEADED STUDS SHALL BE TYPE S3L SHEAR CONNECTORS, THREADED STUDS SHALL BE TYPE CPL PARTIALLY THREADED STUDS OR TYPE CFL FULLY THREADED STUDS.

42. DEFORMED BAR ANCHORS (D2L's) SHALL BE TYPE D2L ANCHORS BY NELSON STUD WELDING, INC., OR EQUIVALENT. ANCHORS SHALL BE MADE FROM COLD ROLLED, DEFORMED STEEL CONFORMING TO ASTM A-496.

AT NON-BRACED/MOMENT FRAME AND NON-STRUT CONNECTIONS, A706 GRADE 60 REINFORCING BARS OF AN EQUAL DIAMETER AND LENGTH OF THE SPECIFIED D2L's MAY BE USED PROVIDED THEY ARE WELDED TO THE SUPPORTING STEEL IN ACCORDANCE WITH THE TABLE BELOW:

BAR SIZE	ALL-AROUND FILLET WELD SIZE
#4	5/16"
#5	3/8"
#6	7/16"

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04/07/20

PROJECT INFORMATION

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PROJECT NUMBER: S190390-01

SHEET NAME

GENERAL STRUCTURAL NOTES

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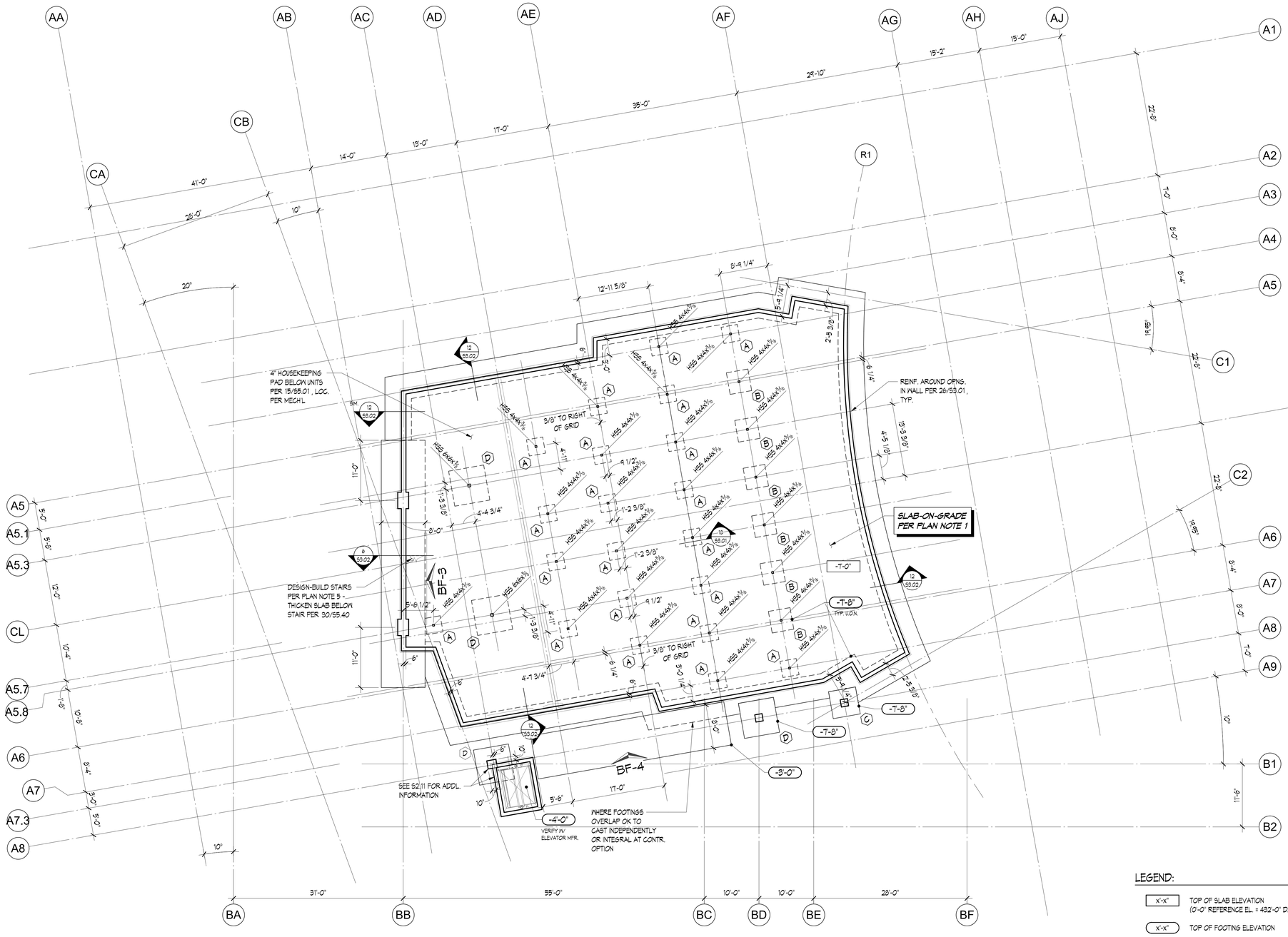
S1.02



1 AREA A - BASEMENT LEVEL

1/8" = 1'-0"

0" 1" 2"

NORTH

FOUNDATION PLAN NOTES:

1. SLAB ELEVATION SHALL BE AS SHOWN IN PLAN. SLAB-ON-GRADE SHALL BE 4" THICK WITH 6x6 W1.4xW1.4 WWM AT CENTER, U.O.N. WHERE 6" SLAB-ON-GRADE NOTED, REFINFORCE WITH #4 @ 14'OC E/W. PROVIDE VAPOR BARRIER PER SPECIFICATIONS BELOW SLAB AT INTERIOR SPACES OVER FREE-DRAINING CAPILLARY BREAK MATERIAL PER SPECIFICATIONS.

   SEE ARCHITECTURAL DRAWINGS FOR SLAB DEPRESSION AND SLOPE REQUIREMENTS

2. PROVIDE CONSTRUCTION/CONTROL JOINTS IN SLABS-ON-GRADE TO DIVIDE SLAB INTO RECTANGULAR AREAS 225 SQUARE FEET OR LESS. AREAS SHALL BE APPROXIMATELY SQUARE AND HAVE NO ACUTE ANGLES. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. JOINT LOCATIONS MUST BE APPROVED BY THE ARCHITECT. SEE 6/S3.01.

3. TOPS OF ALL FOOTINGS SHALL BE SHOWN ON PLAN, U.O.N. OVER EXCAVATE AND PLACE SUITABLE COMPACTED FILL AS DIRECTED BY OWNER APPROVED GEOTECHNICAL ENGINEER WHERE REQUIRED. CONTRACTOR SHALL COORDINATE WITH FINAL SITE GRADES AND MAINTAIN MINIMUM DEPTH OF FOOTINGS SHOWN ON THE DRAWINGS.

4. AT METAL STUD FRAMING, SEE 15/S6.04 AND 3/S1.01 FOR ATTACHMENT OF RESTRICTIONS OF STUD ATTACHMENT AT PROTECTED BRACED ZONES OF BRACED FRAMES.

5. ALL STAIRS AND LANDINGS NOT SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS ARE DESIGN BUILD COMPONENTS. ALL DESIGN BUILD STEEL COMPONENTS SHALL BE DESIGNED, DETAILED, AND SUPPLIED BY THE STEEL FABRICATOR - SEE GENERAL STRUCTURAL NOTE 13 FOR REQUIREMENTS INCLUDING ACCOMMODATION FOR STRUCTURAL DISPLACEMENTS. SUPPLY AND INSTALL COMPLETE STAIR SYSTEMS INCLUDING TREADS, RISERS, AND INTERMEDIATE LANDINGS. ANY NON-STEEL COMPONENTS INCLUDING FOOTINGS SHALL BE DESIGNED PER GENERAL STRUCTURAL NOTE 13 AND SHALL BE SUPPLIED AND INSTALLED BY SUPPLIERS AND SUBCONTRACTORS AS DIRECTED BY THE GENERAL CONTRACTOR.

6. SEE ARCHITECTURAL/MECHANICAL/CIVIL/UTILITIES DRAWINGS FOR UNDERSLAB PIPING. COORDINATE FOUNDATION DEPTHS AND PIPING IN ACCORDANCE WITH 20/S3.01.

7. SIZE OF MEMBERS OF BRACED FRAMES APPEAR ON BRACED FRAME ELEVATIONS.

LEGEND:

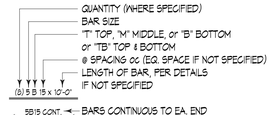
- x'-x" — TOP OF SLAB ELEVATION (0'-0" REFERENCE EL. = 432'-0" DATUM EL.)
- x'-x" — TOP OF FOOTING ELEVATION
- (X) — FOOTING MARK PER 18/S3.01
- high / low — STEP IN FOOTING PER 20/S3.01
- STEP IN TOP OF SLAB
- BELOW GRADE PIPE PER CIVIL - REFER TO 28/S3.01

SEISMIC FORCE RESISTING SYSTEM LEGEND:

(SEE GENERAL STRUCTURAL NOTE 14)

BF-x — BRACED FRAME PER ELEVATIONS OF SHEET S6.01

Bar Legend:



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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
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SCHOOL DISTRICT LOGO

Northshore School District

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BID DOCUMENTS

04.13.2020

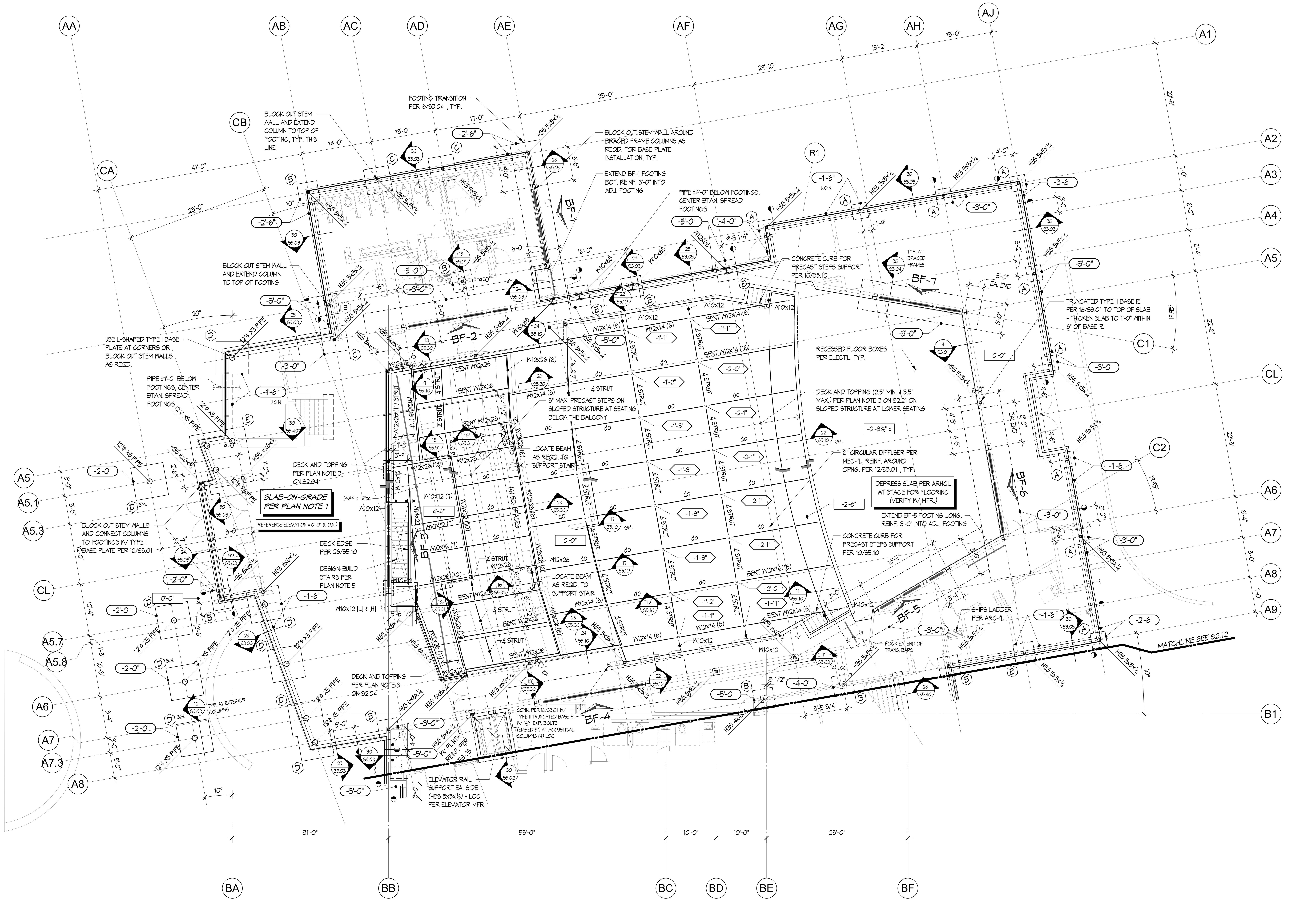
PROJECT NUMBER: S190390-01

SHEET NAME

AREA A - BASEMENT LEVEL FOUNDATION PLAN

SHEET NUMBER

S2.01



1 AREA A - LOWER LEVEL FRAMING PLAN
1/8" = 1'-0"

0" 1" 2"

NORTH

SEE S2.01 & S2.21 FOR PLAN NOTES & LEGEND ITEMS, U.O.N.

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CORY GENE HITZEMANN · STATE OF WASHINGTON · PROFESSIONAL ENGINEER
04/07/20

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BID DOCUMENTS

04.13.2020

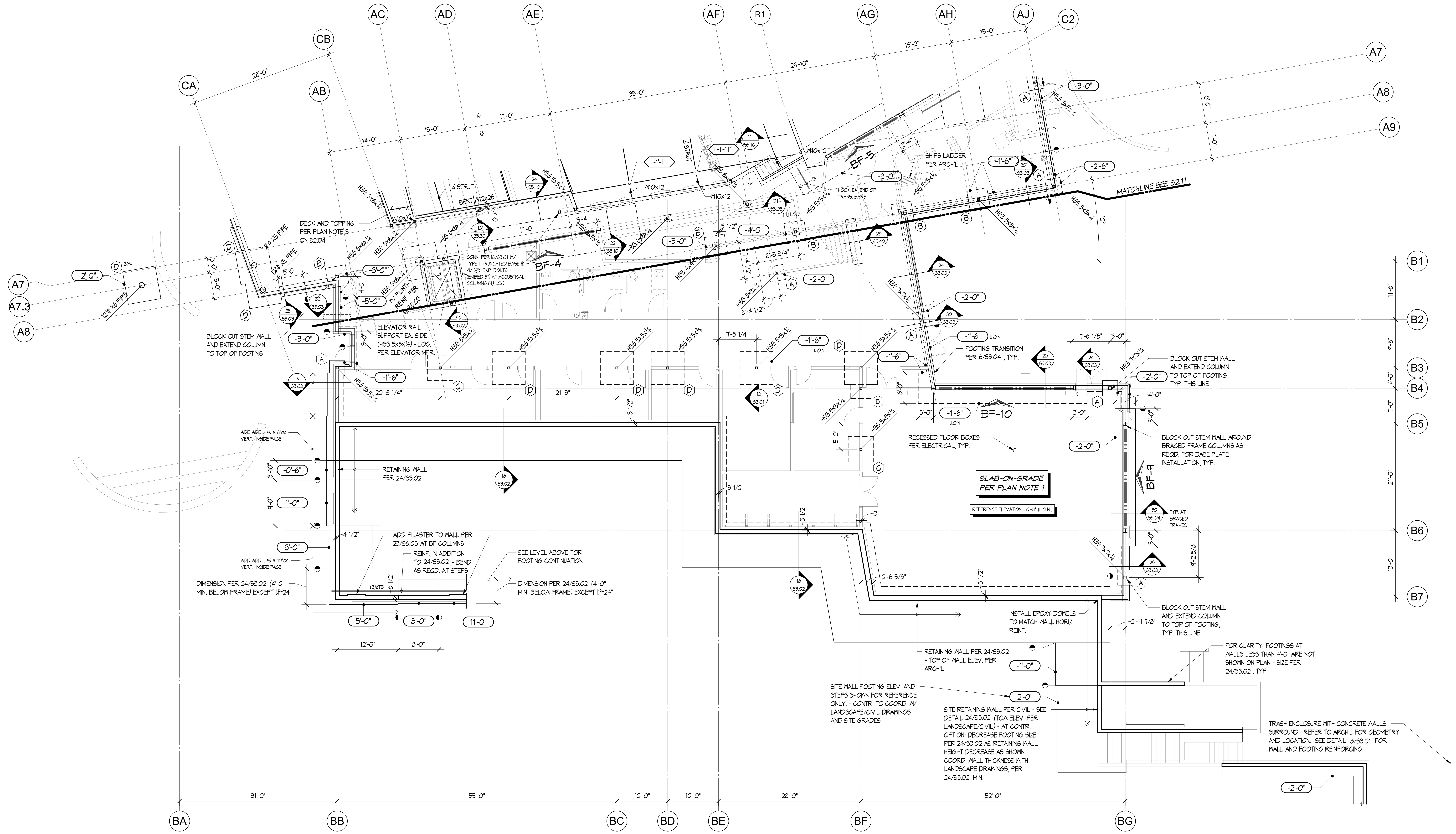
PROJECT NUMBER: S190390-01

SHEET NAME

AREA A - LOWER LEVEL FLOOR FRAMING PLAN

SHEET NUMBER

S2.11



1 AREA B - LOWER LEVEL FRAMING PLAN

1/8" = 1'-0"

NORTH

SEE S2.01 & S2.21 FOR PLAN NOTES & LEGEND ITEMS, U.O.N.

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04.13.2020

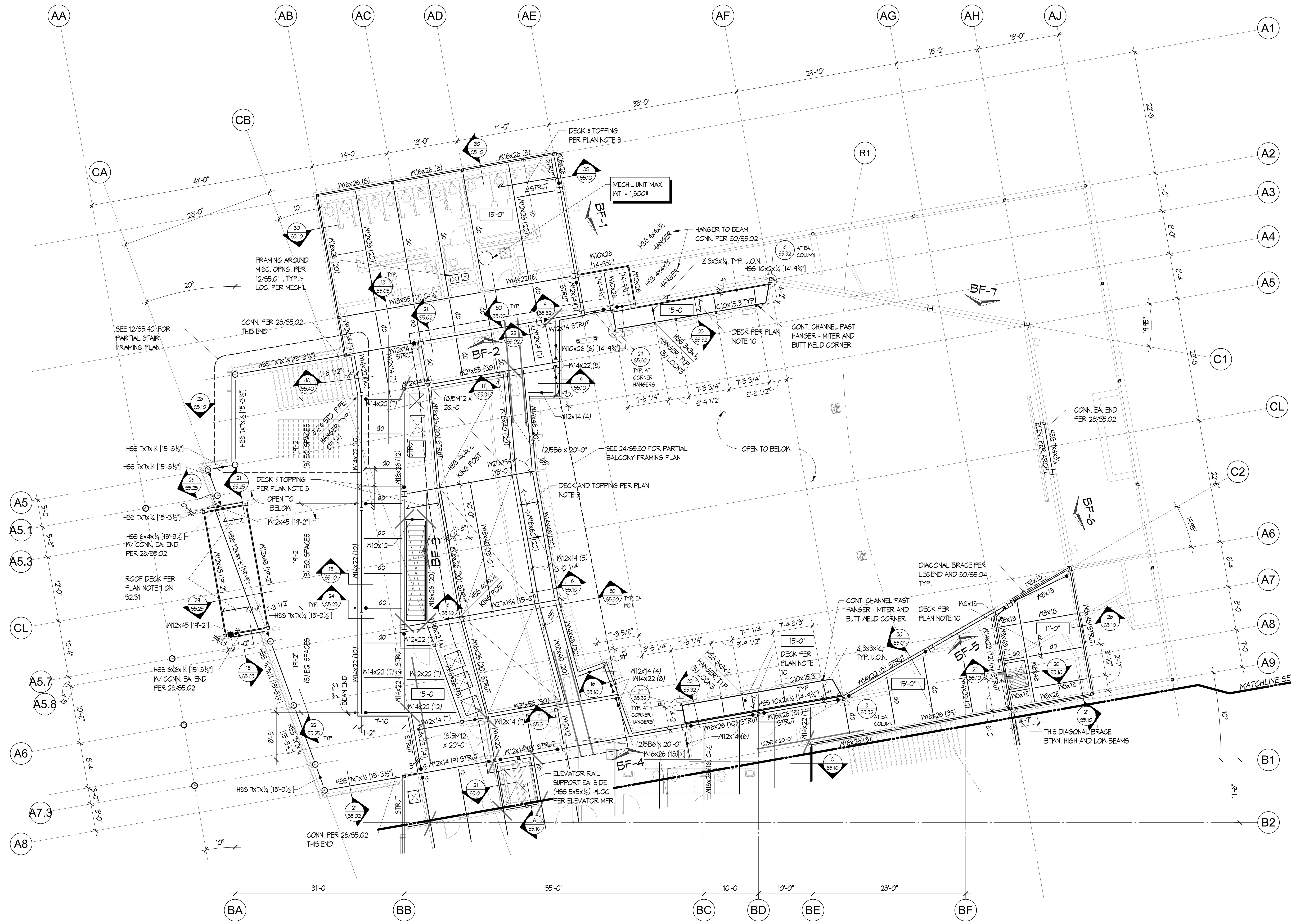
PROJECT NUMBER: S190390-01

SHEET NAME

AREA B - LOWER LEVEL FLOOR FRAMING PLAN

SHEET NUMBER

S2.12



1 AREA A - UPPER LEVEL FRAMING PLAN
1/8" = 1'-0"

NORTH

FLOOR FRAMING PLAN NOTES:

1. FINISH TOP OF CONCRETE DECK SLAB ELEVATION = 15'-0", U.O.N.
2. TOP OF STEEL BEAM ELEVATION = 14'-7½", U.O.N.
3. TYPICAL DECK SLAB CONSISTS OF 2" METAL DECK WITH 2½" OF CONCRETE COVER PER 24/S5.01 PROVIDE ADDITIONAL REINFORCING AS SHOWN ON THE DRAWINGS.
4. STEEL BEAMS SHALL BE SPACED EQUALLY AS SHOWN, U.O.N.
5. DECK SLAB EDGES SHALL BE PER 30/S5.01 AT INTERIOR CONDITIONS, U.O.N.
6. SEE METAL DECKING NOTES FOR SPECIAL CONNECTION REQUIREMENTS AT STRUTS AND BRACED FRAMES.
7. THE GENERAL CONTRACTOR SHALL REINFORCE ALL OPENINGS AT ROOF DECKS OR COMPOSITE DECKS PER GENERAL STRUCTURAL NOTE 17. ALL OPENINGS MAY NOT BE SHOWN ON THE STRUCTURAL DRAWINGS. SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL OPENINGS NOT SHOWN. CONTRACTOR SHALL COORDINATE OPENING DIMENSIONS AMONGST ALL TRADES.
8. SIZES OF MEMBERS OF BRACED FRAMES APPEAR ON BRACED FRAME ELEVATIONS.
9. AT METAL STUD FRAMING SEE 15/S6.04 AND 3/S7.01 FOR PROTECTED BRACED ZONE RESTRICTIONS AND STUD ATTACHMENT TO BRACED FRAMES.
10. THEATHER CATWALK AND DIMMER ROOM FLOOR SHALL BE ¾" PLYWOOD SHEATHING OVER 1½" METAL DECK PER 18/S5.01 . ATTACH TO METAL DECK W/ #8 TEK SCREWS @ 12"oc EA. WAY AT HIGH FLUTES. USE COUNTERSUNK SCREW HEADS.
11. ALL STAIRS AND LANDINGS NOT SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS ARE DESIGN BUILD COMPONENTS. ALL DESIGN BUILD STEEL COMPONENTS SHALL BE DESIGNED, DETAILED, AND SUPPLIED BY THE STEEL FABRICATOR - SEE GENERAL STRUCTURAL NOTE 13 FOR REQUIREMENTS INCLUDING ACCOMMODATION FOR STRUCTURAL DISPLACEMENTS. SUPPLY AND INSTALL COMPLETE STAIR SYSTEMS INCLUDING TREADS, RISERS, AND INTERMEDIATE LANDINGS. ANY NON-STEEL COMPONENTS INCLUDING FOOTINGS SHALL BE DESIGNED PER GENERAL STRUCTURAL NOTE 13 AND SHALL BE SUPPLIED AND INSTALLED BY SUPPLIERS AND SUBCONTRACTORS AS DIRECTED BY THE GENERAL CONTRACTOR.
12. INSTALL (2)#4 x 10'-0" DIAGONAL REINFORCING AT FLOOR DECK RE-ENTRANT CORNERS AND DECK OPENINGS LARGER THAN 4'-0"x4'-0"

FLOOR FRAMING LEGEND:

x'-x"	TOP OF SLAB/PLYWOOD ELEVATION
	STEP IN TOP OF SLAB/FLOOR/ROOF
[x'-x"]	TOP OF STEEL BEAM ELEVATION
C=x"	AMOUNT OF CAMBER REQUIRED AT BEAM MIDSPAN
(x)	NUMBER OF SHEAR STUDS PER 22/S5.01 AND 28/S5.01
	MOMENT CONNECTION PER 27/S5.02 U.O.N.
	HIGH LOAD CONNECTION PER 12/S5.02
[H], [M], [L]	RELATIVE PLACEMENT OF FRAMING MEMBER OR DETAIL CUT. [H] HIGH, [M] MIDDLE, [L] LOW
	SPAN DIRECTION OF DECK
x'-x"	TOP OF STEEL AT CONCAVE SEATING
x	BEAM WEB PENETRATION PER (_x_ INDICATES HEIGHT x WIDTH IN INCHES OR __ϕ FOR DIAMETER IN INCHES)

SEISMIC FORCE RESISTING SYSTEM LEGEND:

(SEE GENERAL STRUCTURAL NOTE 14)

STRUT	DRAG STRUT OR CHORD COMPONENT OF THE SEISMIC FORCE RESISTING SYSTEM
DIAPHRAGM	DIAPHRAGM AT THIS LEVEL CONSISTS OF THE FLOOR SLAB PER PLAN NOTE 3
BF-x	BRACED FRAME PER ELEVATION OF SHEET S6.01
- - - →	HSS BRACING PER 30/S5.04 ARROW INDICATES HIGH END OF BRACE
-------	DIAGONAL BRACING PER DETAILS
∡ STRUT	∡ 5x5x⅜ U.O.N. PER 6/S5.04 - WELD METAL DECK TO ∡ STRUT PER DECK NOTES
	REINFORCING PER PLAN NOTE 12

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PROJECT NUMBER: S190390-01

SHEET NAME

AREA A - UPPER LEVEL FLOOR FRAMING PLAN

SHEET NUMBER

S2.21

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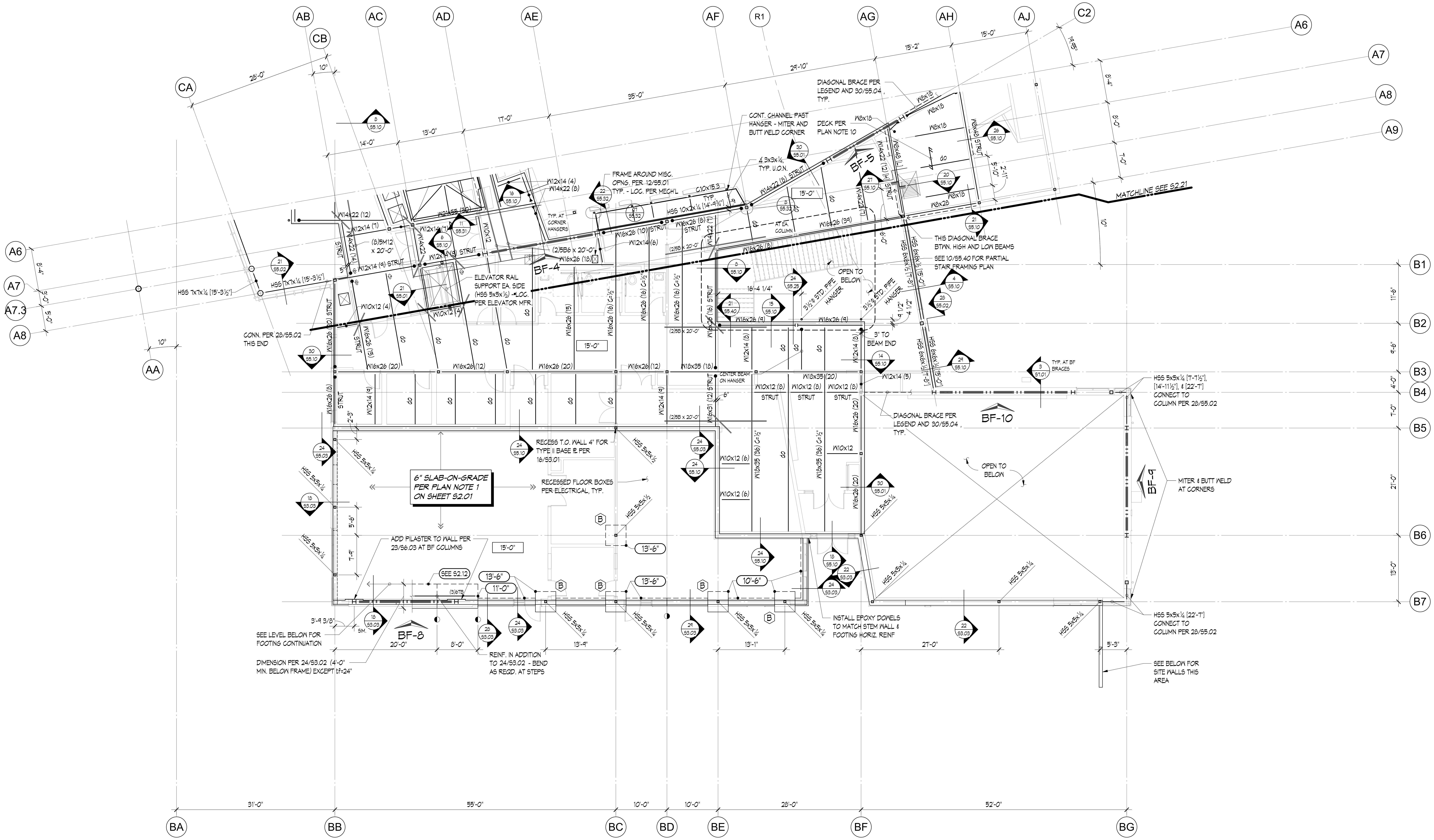

1 AREA B - UPPER LEVEL FRAMING PLAN
1/8" = 1'-0"

NORTH

SEE S2.01 & S2.21 FOR PLAN NOTES & LEGEND ITEMS, U.O.N.

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04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

AREA B - UPPER LEVEL FLOOR FRAMING PLAN

SHEET NUMBER

S2.22

ROOF FRAMING PLAN NOTES:

1. ROOF DECKING SHALL BE 1½" DEEP PER 18/S5.01 .
2. AT METAL STUD FRAMING SEE 15/S6.04 AND 3/S7.01 FOR PROTECTED BRACED ZONE RESTRICTIONS AND STUD ATTACHMENT TO BRACED FRAMES.
3. THE GENERAL CONTRACTOR SHALL REINFORCE ALL OPENINGS AT ROOF DECKS OR COMPOSITE DECKS PER GENERAL STRUCTURAL NOTE 17. ALL OPENINGS MAY NOT BE SHOWN ON THE STRUCTURAL DRAWINGS. SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL OPENINGS NOT SHOWN. CONTRACTOR SHALL COORDINATE OPENING DIMENSIONS AMONGST ALL TRADES.
4. SIZES OF MEMBERS OF BRACED FRAMES APPEAR ON BRACED FRAME ELEVATIONS.
5. IN GENERAL, THE ROOF STRUCTURE SLOPES TO DRAINS. SEE ARCH'L DRAWINGS FOR ISOLATED AREAS REQUIRING BUILT-UP INSULATION FOR DRAINAGE. PROVIDE STRAIGHT SLOPES BETWEEN ELEVATIONS SHOWN.
6. SEE METAL DECKING NOTES FOR SPECIAL CONNECTION REQUIREMENTS AT STRUTS AND BRACED FRAMES. SEE 12/S5.20 FOR FILLER ANGLES REQUIRED AT BEAMS MARKED "STRUT" AND BRACED FRAMES WHERE SET DOWN FOR JOIST SUPPORT.
7. JOIST MANUFACTURER SHALL DESIGN JOISTS FOR THE ALLOWABLE UNIFORM LINE LOADS IN POUNDS PER LINEAR FOOT INDICATED ON PLAN (TOTAL LOAD, LIVE LOAD) WHICH INCLUDE AN ALLOWANCE FOR THE WEIGHT OF THE JOISTS. IN ADDITION, DESIGN FOR ALLOWABLE CONCENTRATED LOADS INDICATED ON PLAN OR DETAILS, AND UPLIFT FORCES PER GENERAL STRUCTURAL NOTE 37. WHERE JOISTS SUPPORT HUNG MECH'L EQUIPMENT AND PIPING, INSTALL ADDITIONAL WEB MEMBERS PER JOIST MANUFACTURER AS REQUIRED. SEE GENERAL STRUCTURAL NOTE 37 FOR ADDITIONAL REQUIREMENTS.
8. FALL ARREST ANCHORS (INCLUDING LAYOUT) ARE DESIGN-BUILD COMPONENTS & SHALL BE ISSUED AS A DEFERRED SUBMITTAL TO THE ARCHITECT & ENGINEER FOR REVIEW & APPROVAL (SEE SPECIFICATIONS). CONTRACTOR SHALL PROVIDE ALL LOCATIONS OF ANCHORS TO STEEL FABRICATOR & JOIST MANUFACTURER PRIOR TO FABRICATION OF THOSE ITEMS. SEE DETAIL 16/S5.20 FOR ANCHOR SUPPORT DETAILS AND ALLOWANCES TO ASSUME FOR BIDDING.
9. STRUCTURAL DRAWINGS DO NOT SHOW LOCATIONS OF ALL HUNG MECH'L UNITS, PIPING, OR OTHER EQUIPMENT. REFER TO MECH'L DRAWINGS FOR LOCATIONS OF EQUIPMENT & HUNG MECH'L SYSTEMS. GENERAL CONTRACTOR SHALL COORDINATE THE SUPPORT SYSTEM AND DESIGN LOADS FOR HUNG PIPING (INCLUDING COMBINED MULTIPLE PIPE RUNS) AND OTHER MECHANICAL SYSTEMS WITH THE MECHANICAL CONTRACTOR AND THE STEEL JOIST MANUFACTURER. SEE GENERAL STRUCTURAL NOTE 37 FOR ADDITIONAL INFORMATION.

SEISMIC FORCE RESISTING SYSTEM LEGEND:

(SEE GENERAL STRUCTURAL NOTE 14)

STRUT	DRAG STRUT OR CHORD COMPONENT OF THE SEISMIC FORCE RESISTING SYSTEM
DIAPHRAGM	DIAPHRAGM AT THIS LEVEL CONSISTS OF THE ROOF DECK PER NOTE 1
BF-x	BRACED FRAME PER ELEVATION OF SHEET S6.01
– – – →	HSS BRACING PER 30/S5.04 ARROW INDICATES HIGH END OF BRACE
-------	DIAGONAL BRACING PER DETAILS
∠ STRUT	∠ 5x5x⅜ U.O.N. PER 6/S5.04 - WELD METAL DECK TO ∠ STRUT PER DECK NOTES
(hatched)	18 GA. ROOF DECKING PER PLAN NOTE 1

ROOF FRAMING LEGEND:

(step symbol)	STEP IN TOP OF SLAB/FLOOR/ROOF
[x'-x"]	TOP OF STEEL BEAM ELEVATION
C=x"	AMOUNT OF CAMBER REQUIRED AT BEAM MIDSPAN
▸——	MOMENT CONNECTION PER 27/S5.02 U.O.N
●——	HIGH LOAD CONNECTION PER 12/S5.02
[H], [M], [L]	RELATIVE PLACEMENT OF FRAMING MEMBER OR DETAIL CUT. [H] HIGH, [M] MIDDLE, [L] LOW
(arrow)	SPAN DIRECTION OF DECK
(D)	DROPPED BEAM - JOISTS BEAR ON BEAM BELOW
T.O. STEEL EL. = x'-x"	TOP OF STEEL EQUALS BOTTOM OF METAL DECK
TL=xk / LL=xk	TOTAL LOAD (KIPS) LIVE LOAD (KIPS)
(xxx,xxx)	(TOTAL LOAD/ LIVE LOAD) FOR JOIST DESIGN IN LBS. PER FOOT. SEE GENERAL STRUCTURAL NOTE 37 FOR ADDITIONAL REQUIREMENTS.

1 AREA A - PLATFORM LEVEL FRAMING PLAN

1/8" = 1'-0"

0" 1" 2"

NORTH

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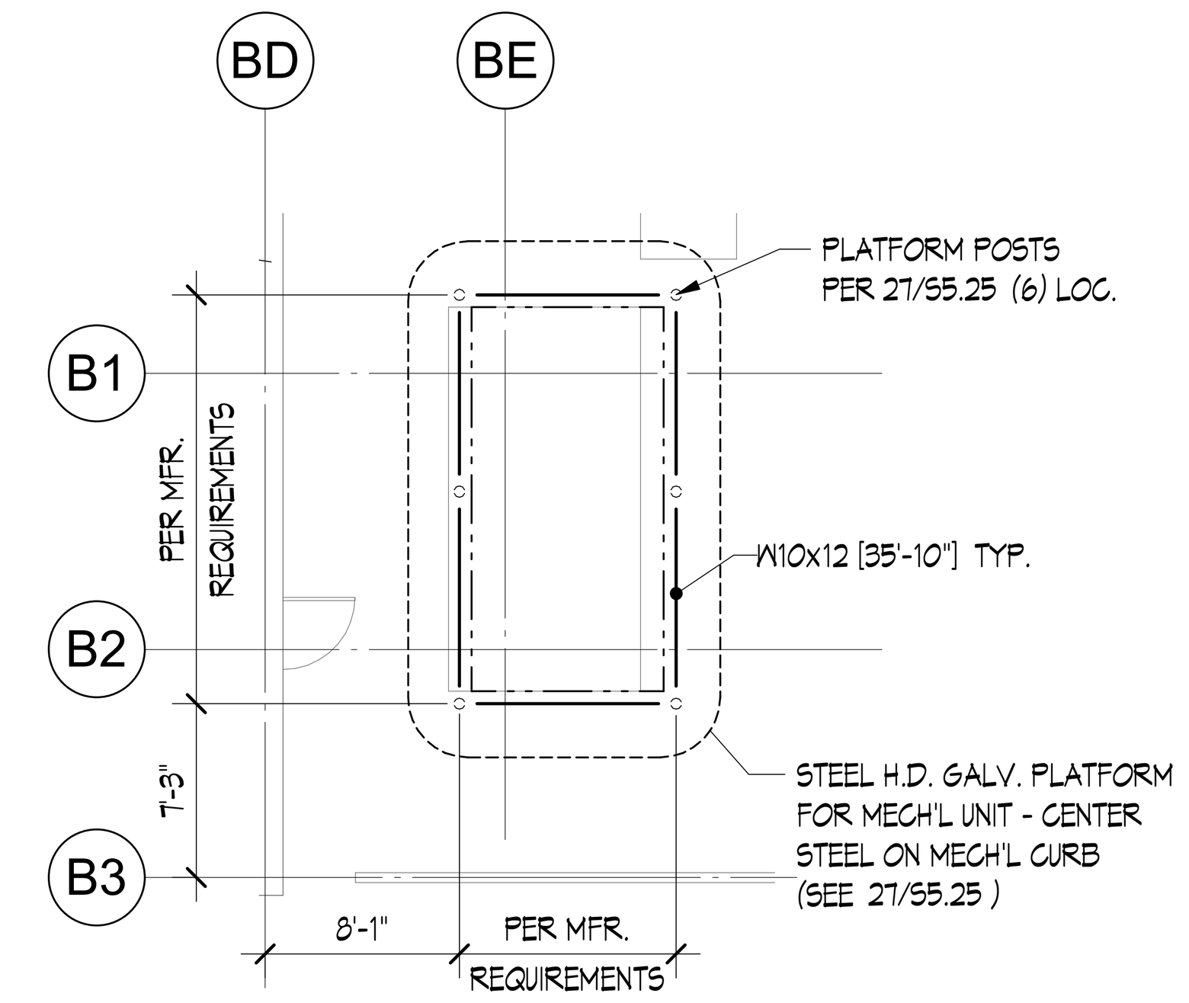
PROJECT NUMBER: S190390-01

SHEET NAME

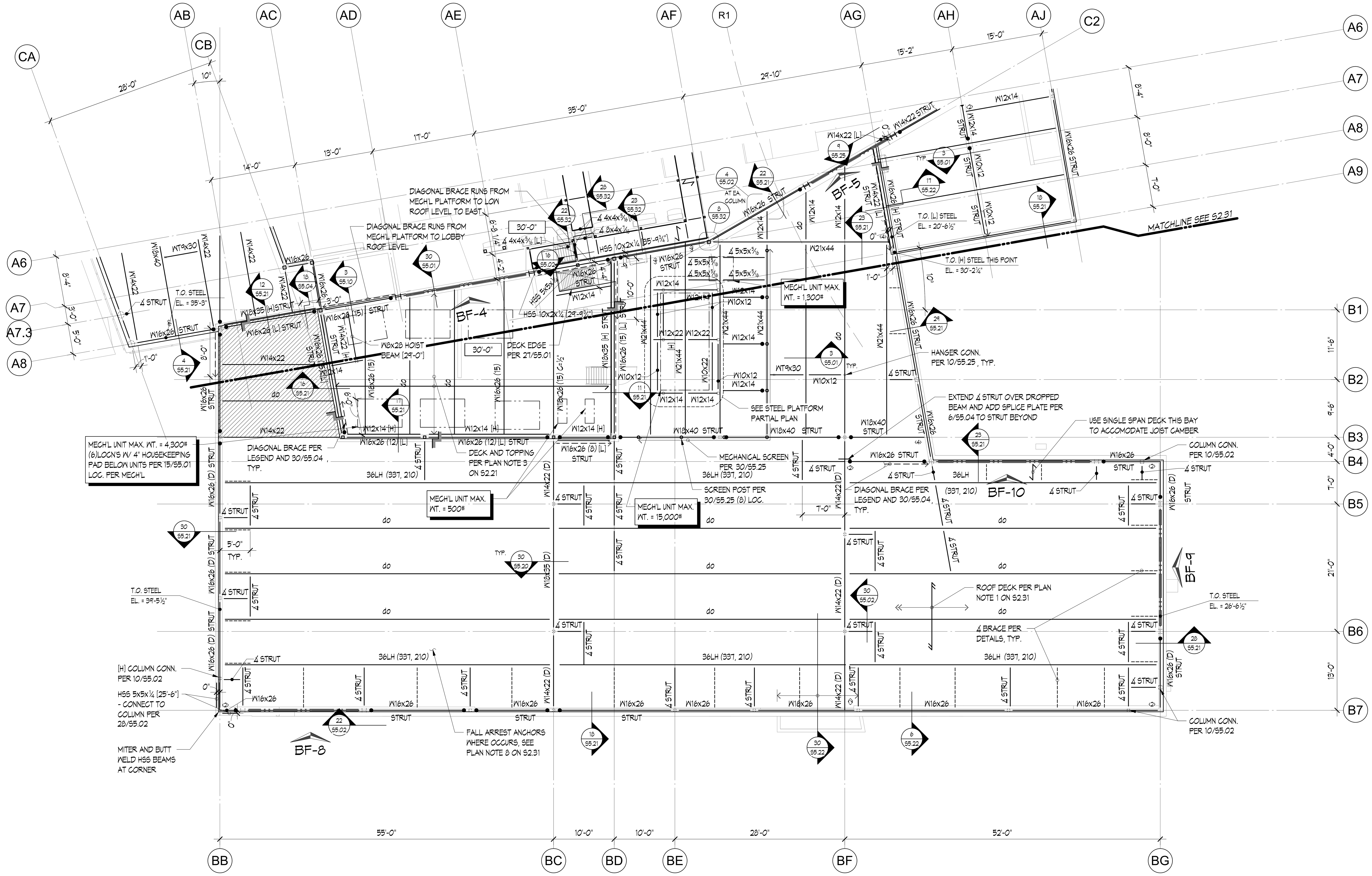
AREA A - PLATFORM LEVEL FRAMING PLAN

SHEET NUMBER

S2.31



2 STEEL PLATFORM PARTIAL PLAN
1/8" = 1'-0"



1 AREA B - PLATFORM LEVEL FRAMING PLAN
1/8" = 1'-0"

0" 1" 2"

NORTH

SEE S2.31 FOR PLAN NOTES & LEGEND ITEMS, U.O.N.

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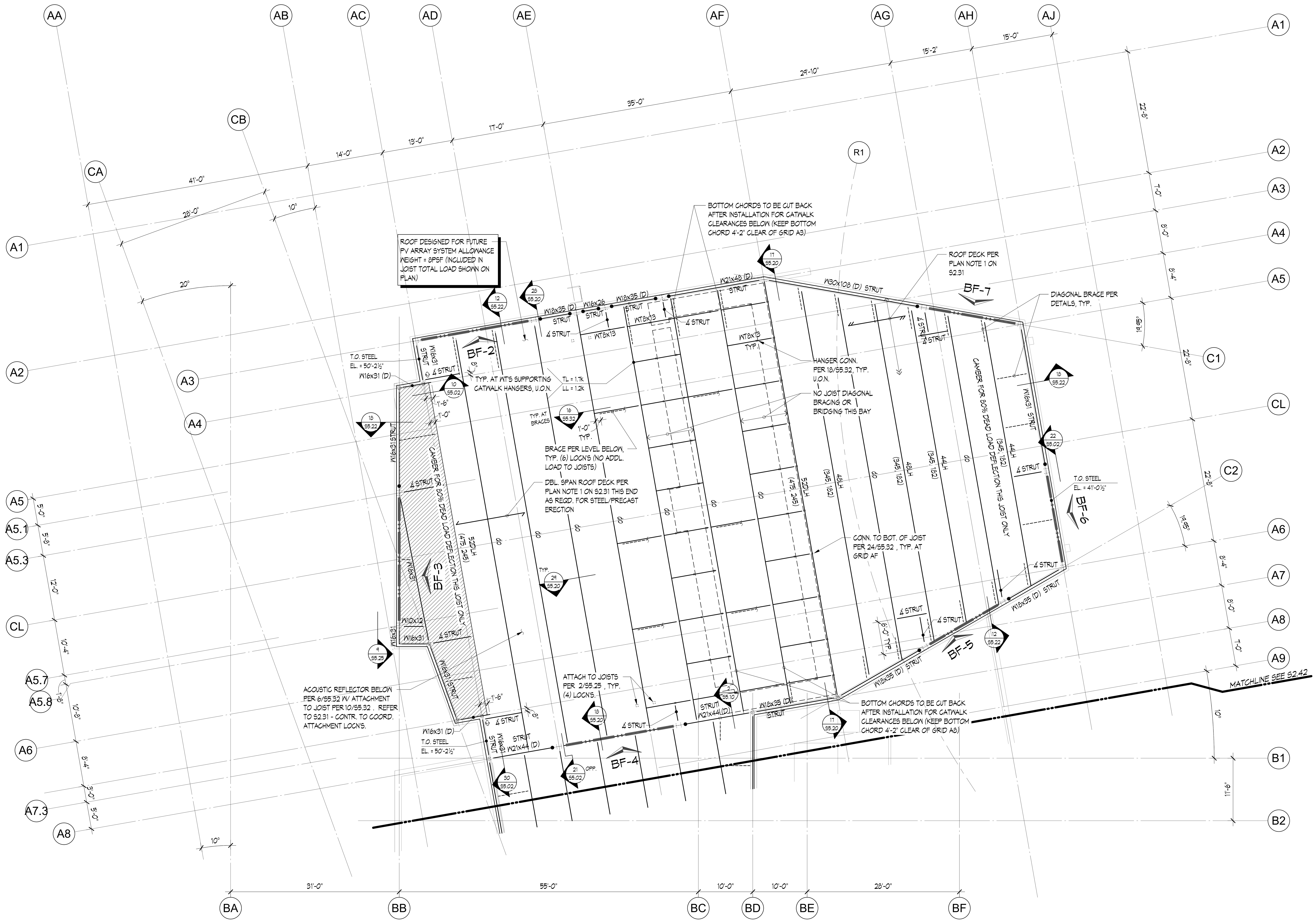
SHEET NAME

AREA B - PLATFORM LEVEL FRAMING PLAN

SHEET NUMBER

S2.32



1 AREA A - HALL ROOF FRAMING PLAN
1/8" = 1'-0"

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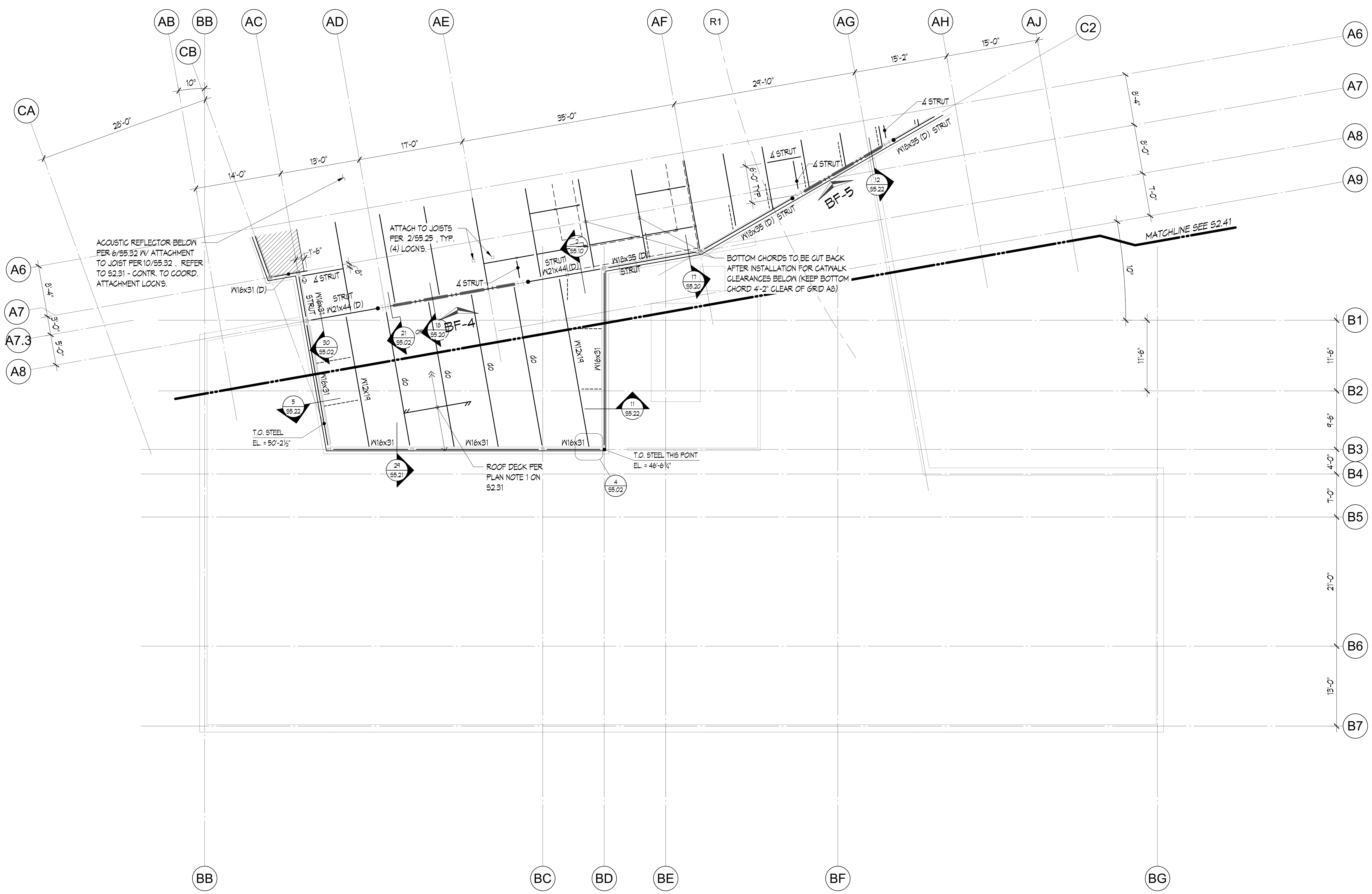
PROJECT NUMBER: S190390-01

SHEET NAME

AREA A - HALL ROOF FRAMING PLAN

SHEET NUMBER

S2.41



1 AREA B - HALL ROOF FRAMING PLAN

1/8" = 1'-0"

NORTH

SEE S2.31 FOR PLAN NOTES & LEGEND ITEMS, U.O.N.

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

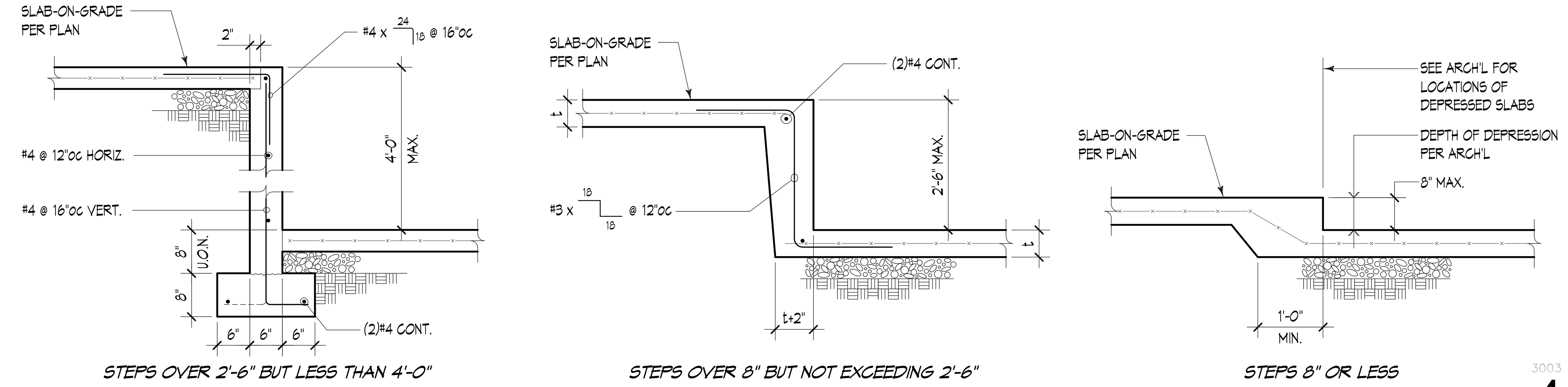
SHEET NAME

AREA B - HALL ROOF FRAMING PLAN

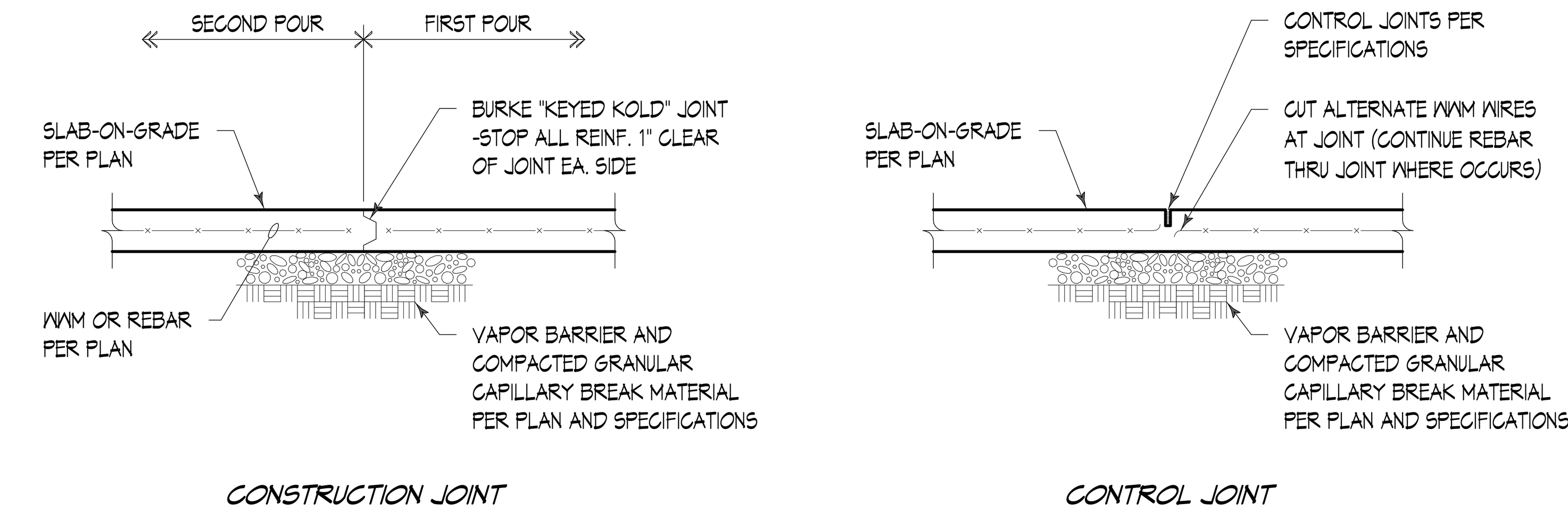
SHEET NUMBER

S2.42

1

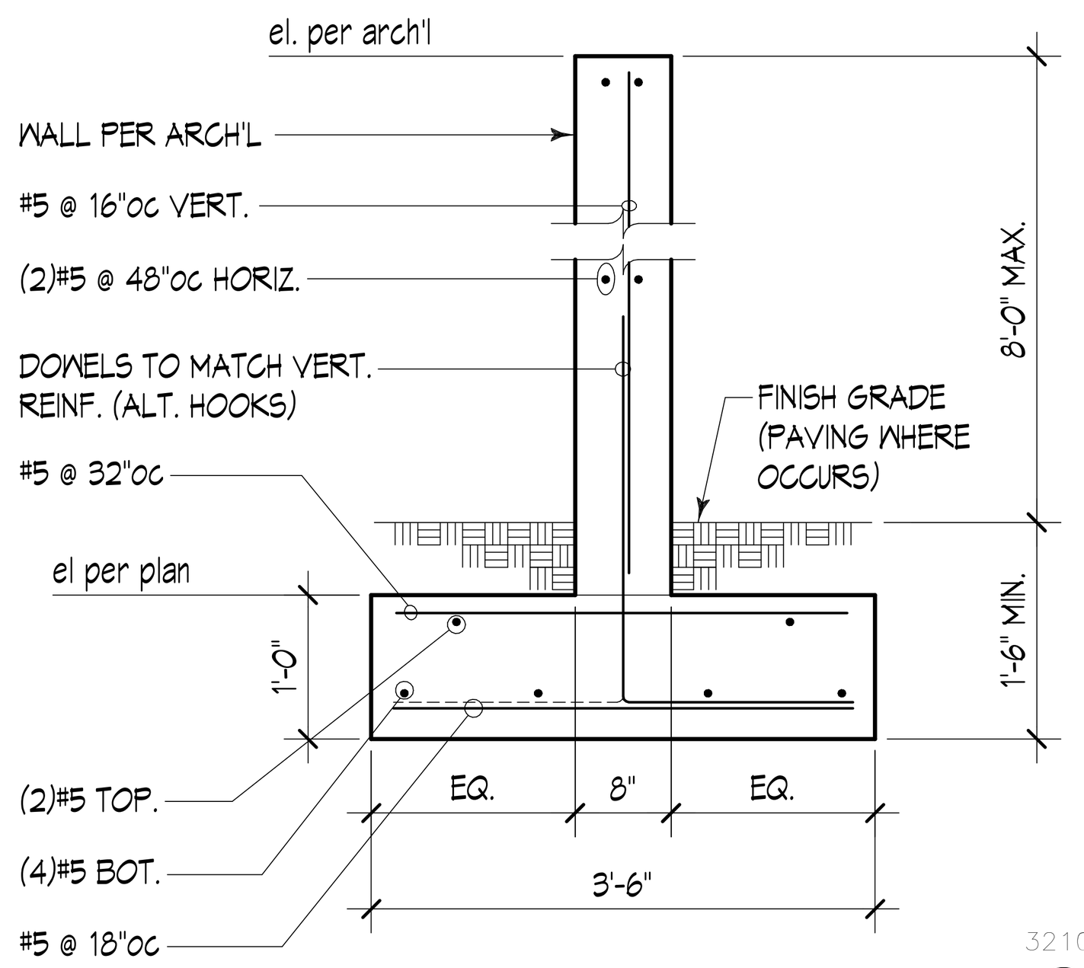


Slab on Grade Steps 4

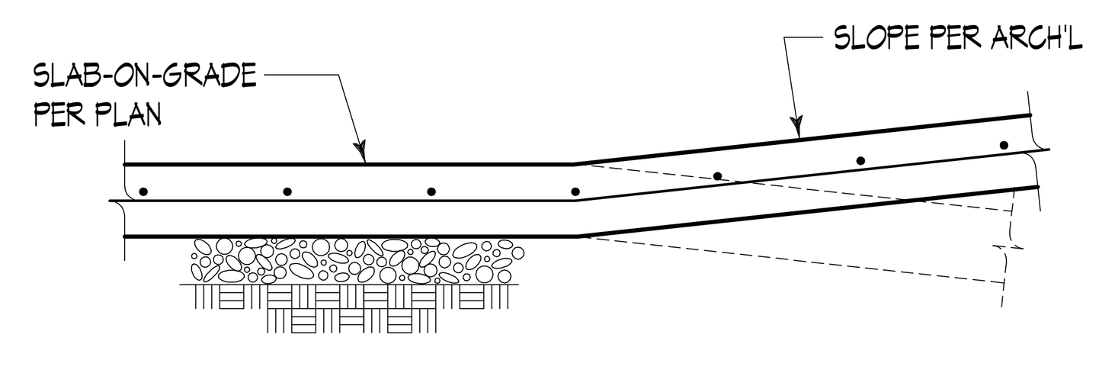


Slab Joint 6

7



Trash Enclosure 8



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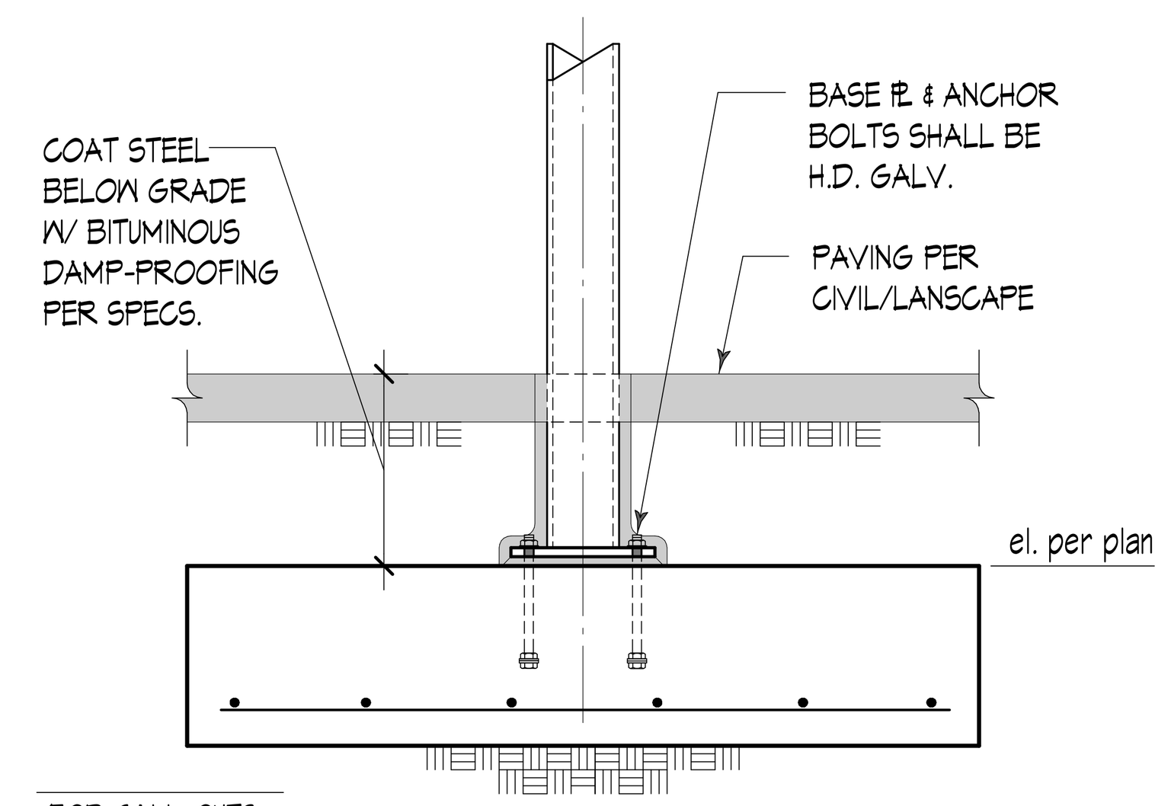
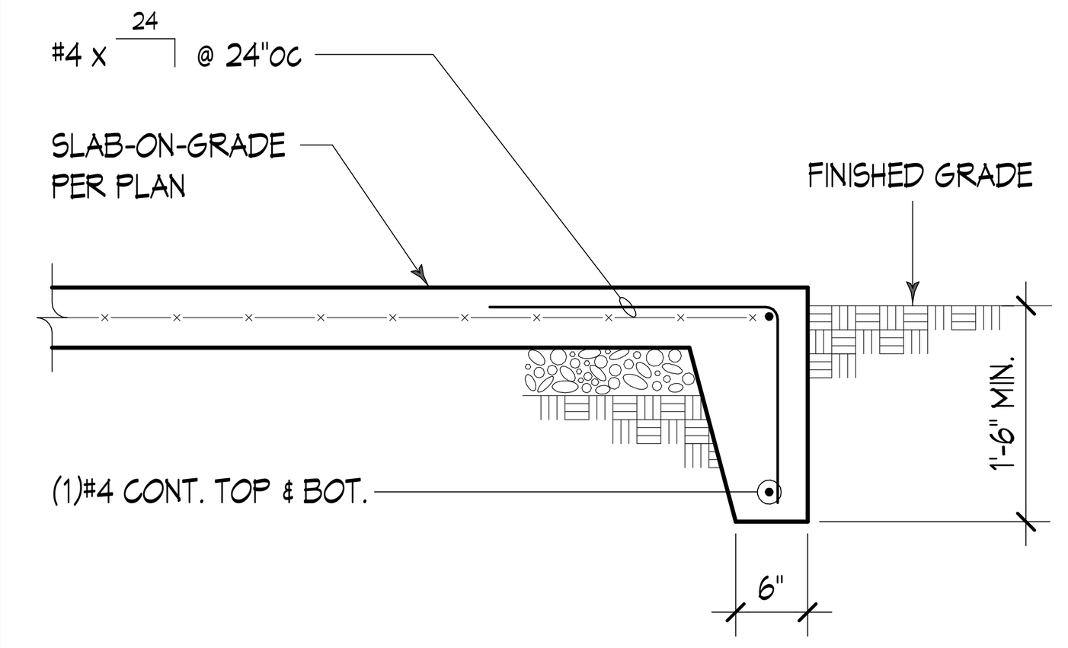
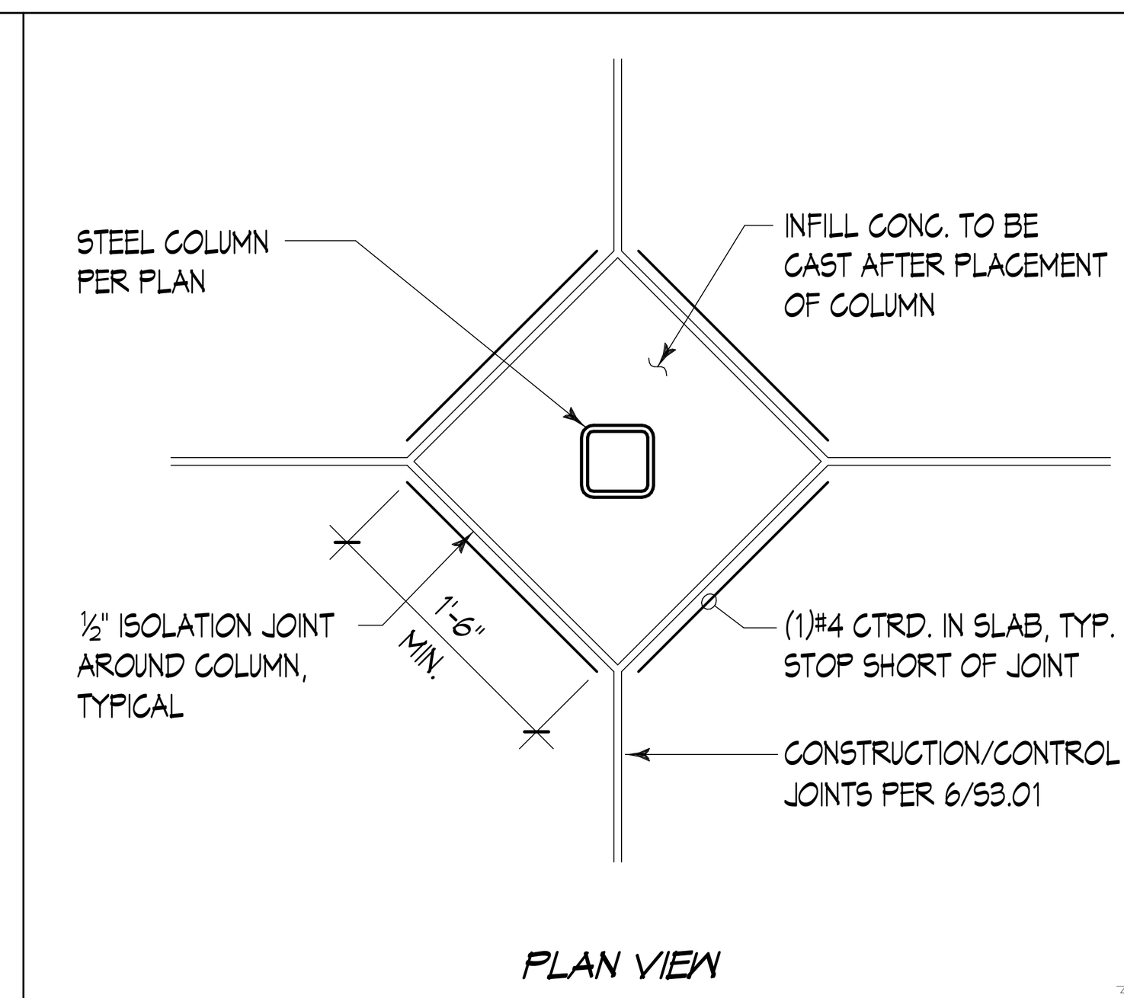


FOR CALL-OUTS IN COMMON SEE DETAIL 20/S3.01

10

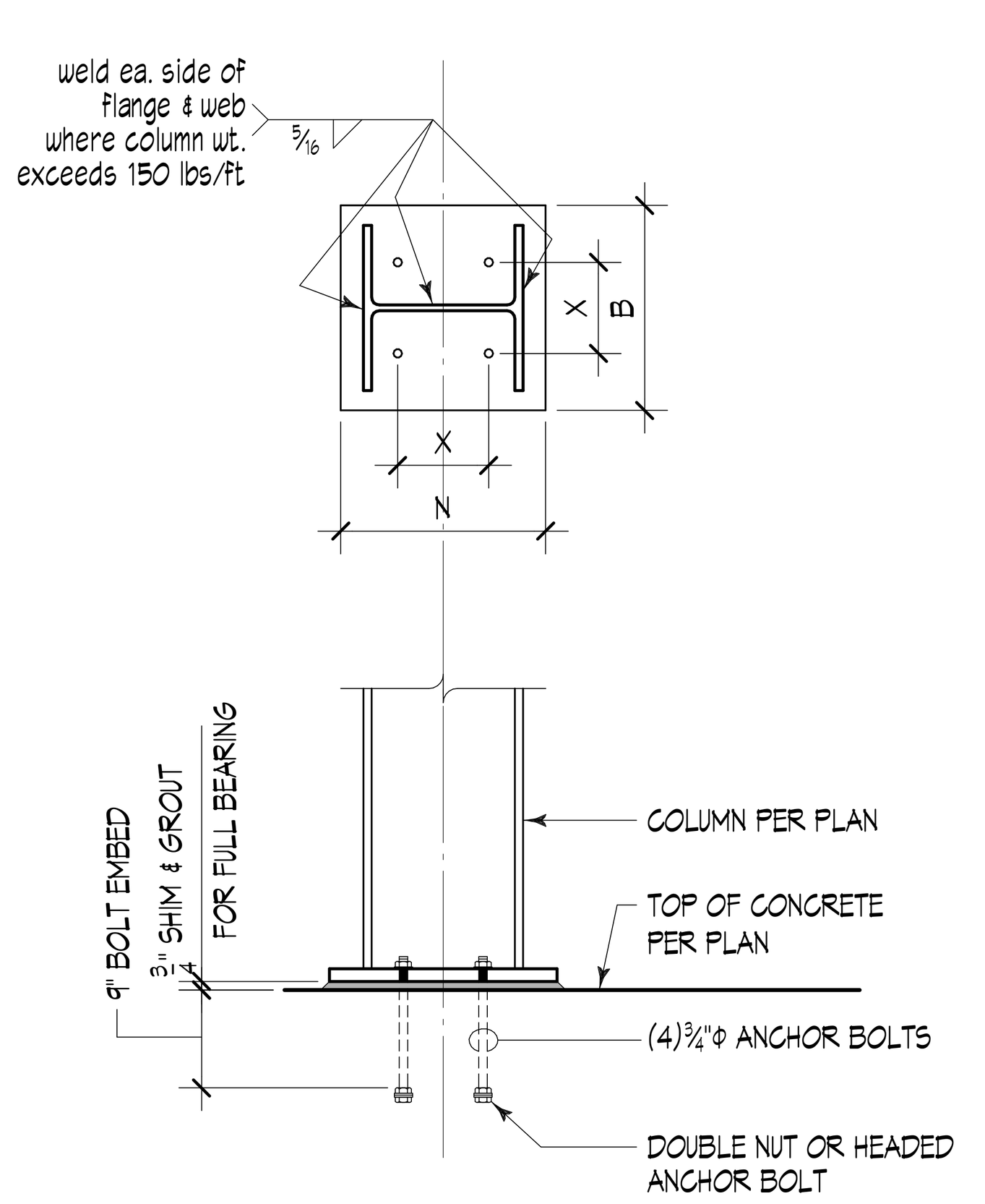


Thickened Slab Edge 11

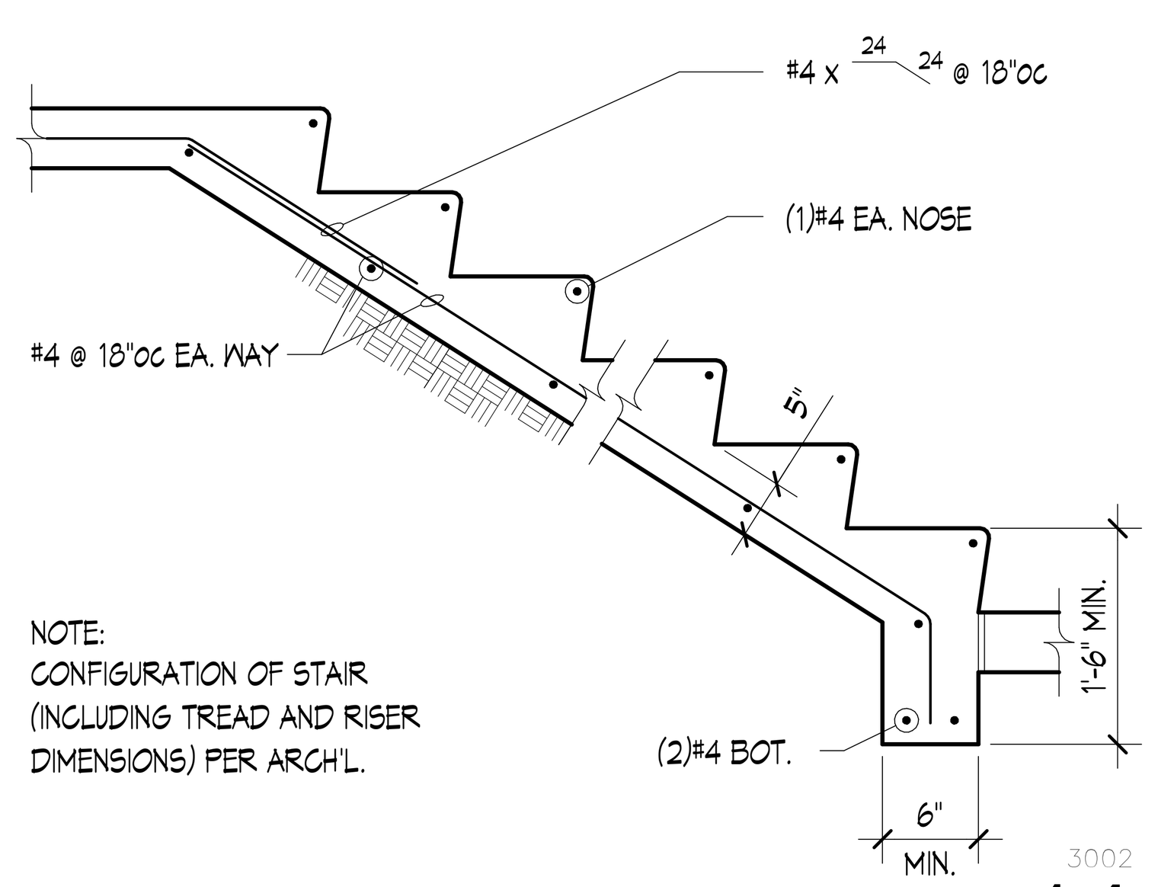


Control Joint at Steel Column 12

COLUMN	PL THICKNESS	B	N	X
W10	½"	12"	12"	6"

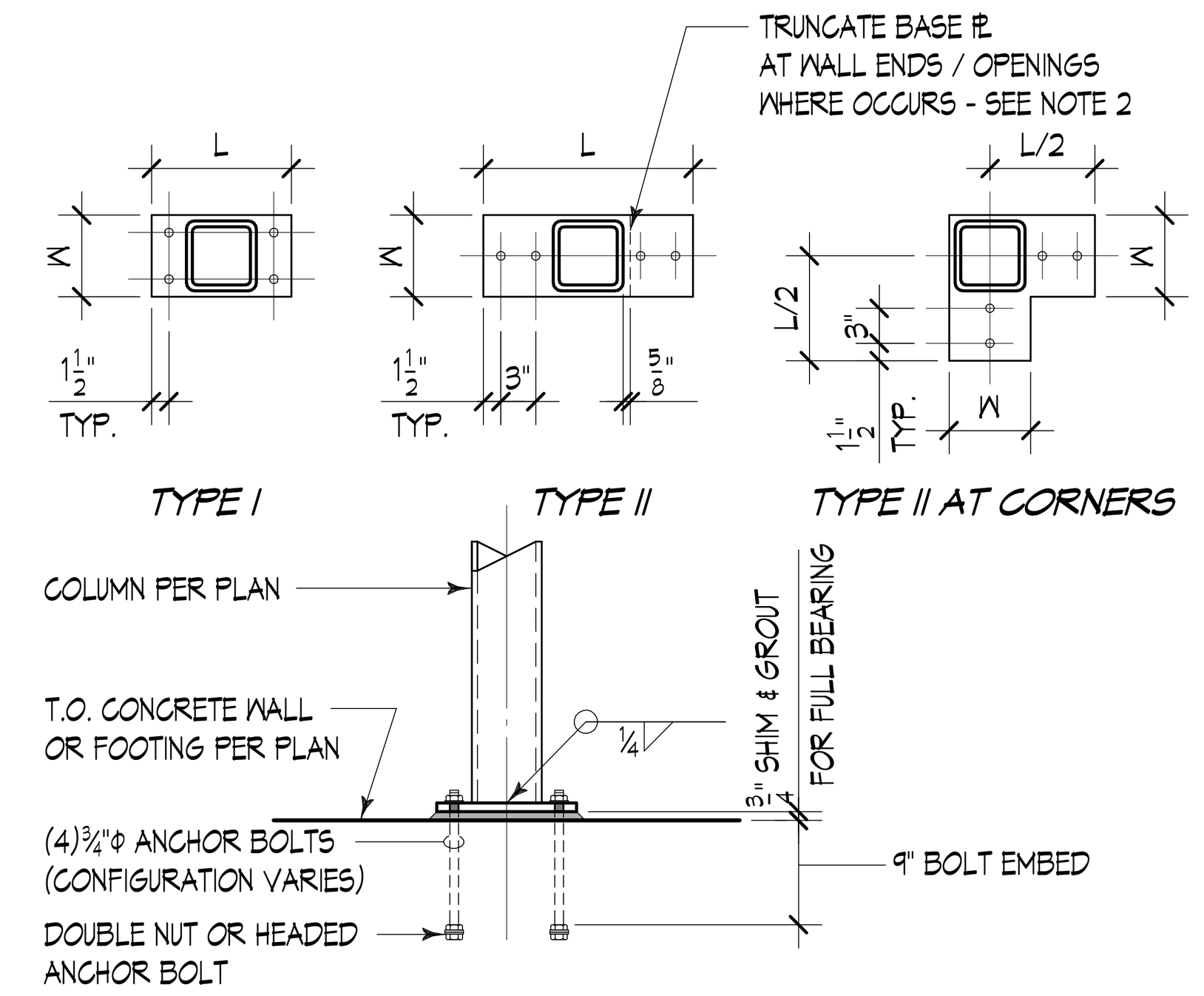


WF Base Plate Schedule 19



NOTE:
CONFIGURATION OF STAIR (INCLUDING TREAD AND RISER DIMENSIONS) PER ARCH'L.

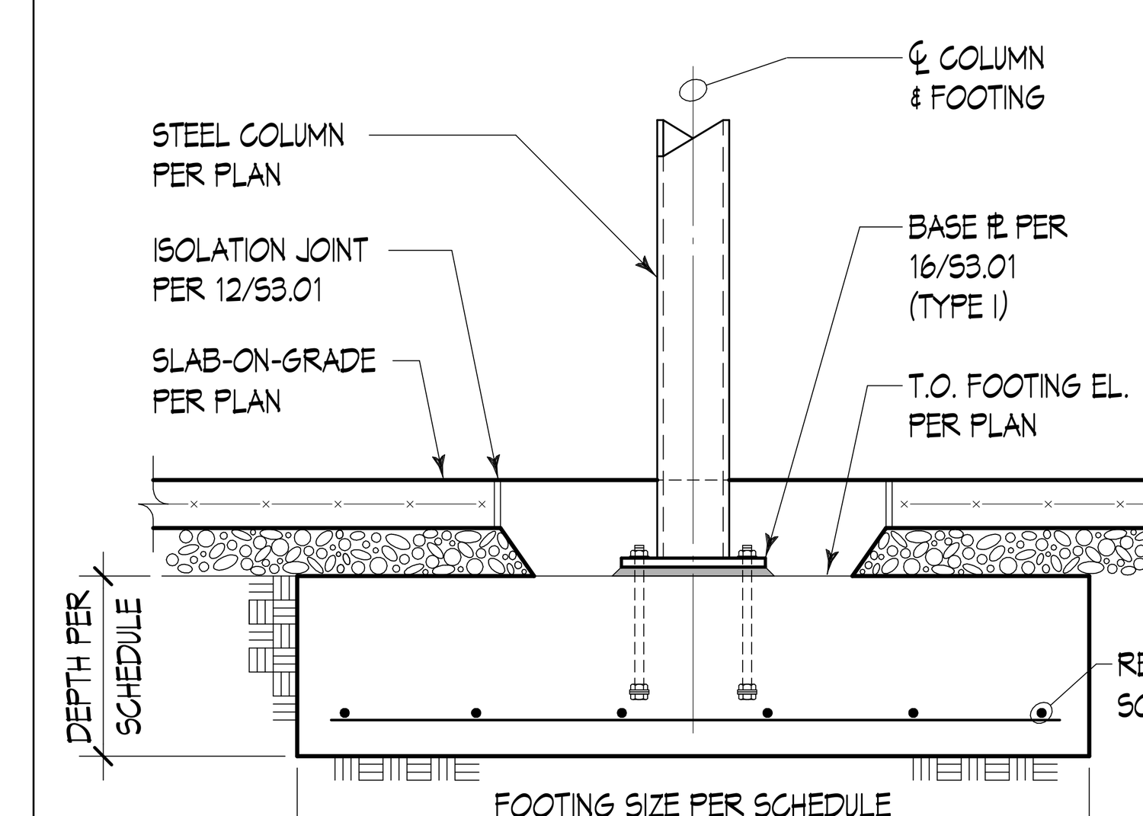
Stair-on-Grade 14



COLUMN SIZE	TYPE I L	TYPE I W	TYPE II L	TYPE II W	THICKNESS
HSS 3x3 HSS 4x4	12"	7"	16"	5"	½"
HSS 5x5	12"	7"	17"	6"	⅝"
HSS 6x6	12"	7"	18"	7"	¾"
HSS 7x7	13"	8"	19"	8"	¾"
12"ø XS PIPE	18"	14"	-	-	¾"

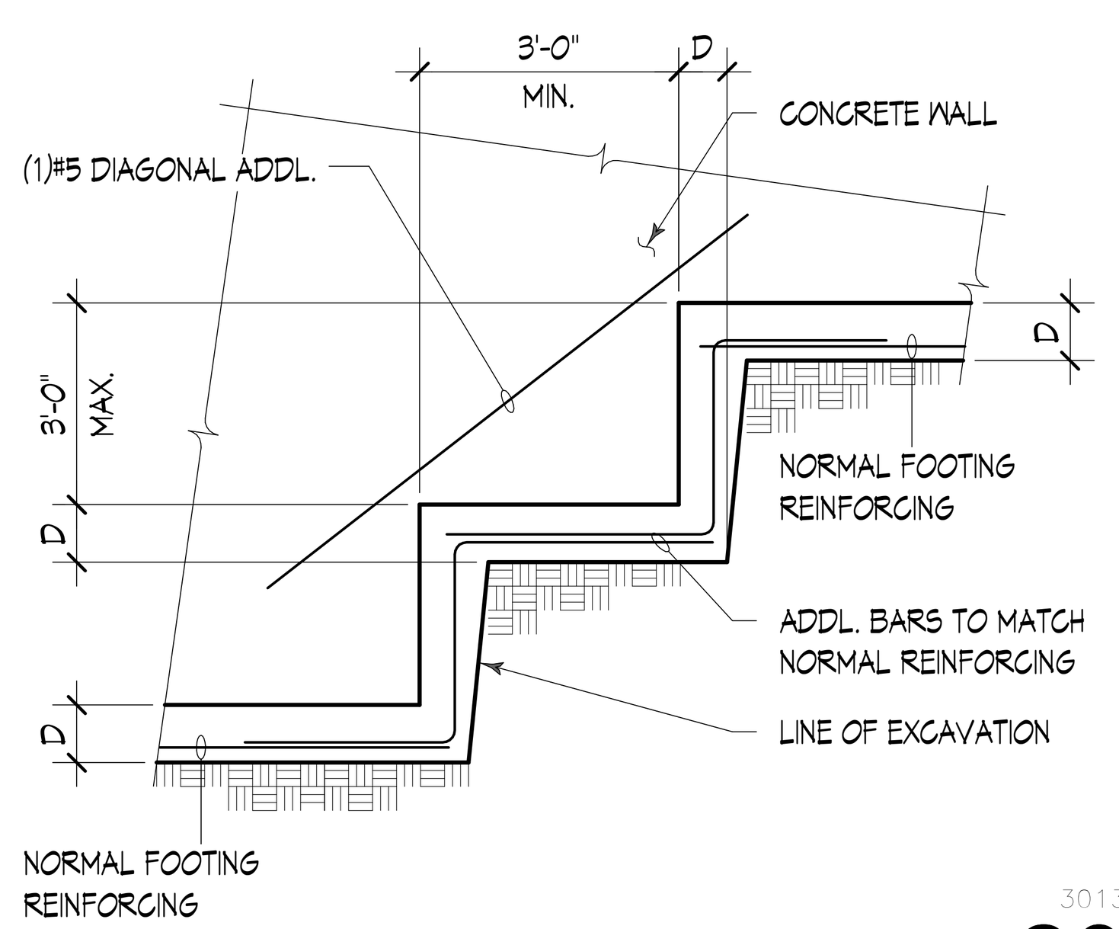
NOTES:
1. INSTALL OFFSET BASE PL AT WALL ENDS AND CORNER BASE PL AT WALL CORNERS WHERE REQUIRED.
2. WHERE OFFSET TYPE II BASE PL IS REQUIRED, TRUNCATE (1) SIDE AND INSTALL (2) BOLT CONNECTION AT OPPOSITE SIDE AS SHOWN.

Base Plate - TS or Pipe Column 16

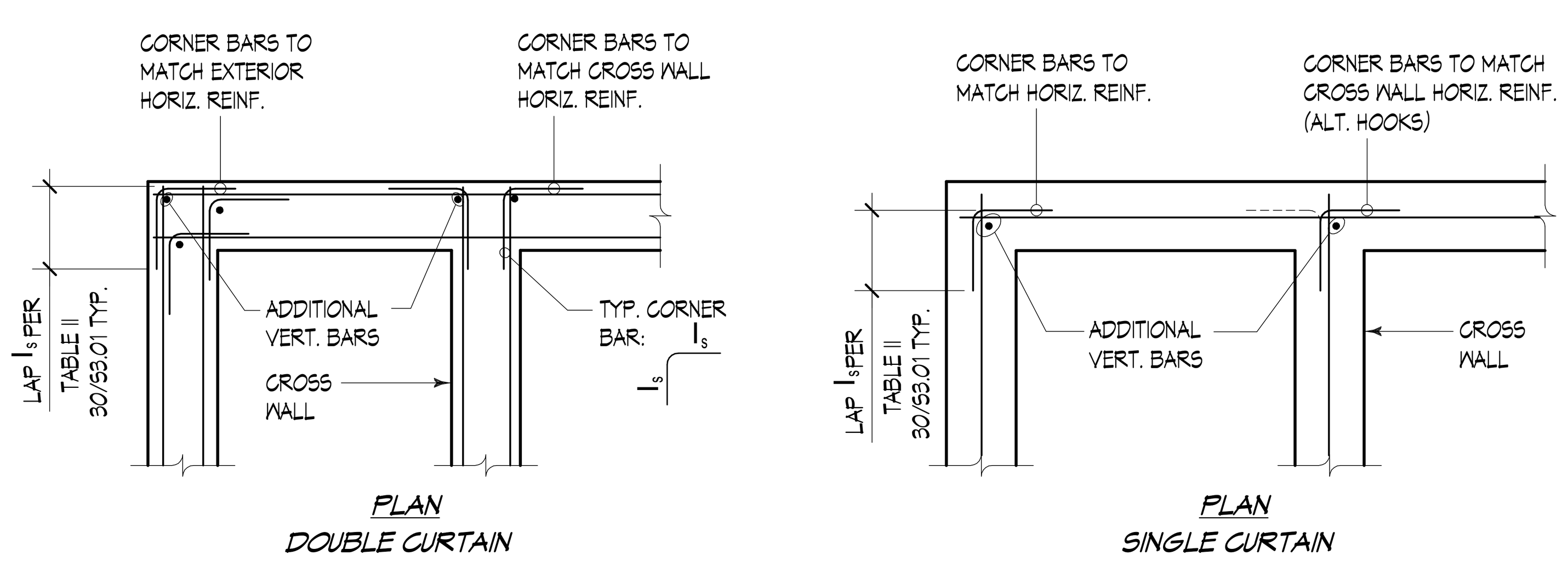


MARK	SIZE	REINFORCING
A	3'-0" x 3'-0" x 12"	(4)#4 EA. WAY BOT.
B	4'-0" x 4'-0" x 12"	(4)#5 EA. WAY BOT.
C	5'-0" x 5'-0" x 16"	(4)#6 EA. WAY BOT.
D	6'-6" x 6'-6" x 24"	(8)#6 EA. WAY BOT. (TOP & BOT. AT SIM.)
E	11'-0" x 11'-0" x 24"	(12)#6 EA. WAY BOT.

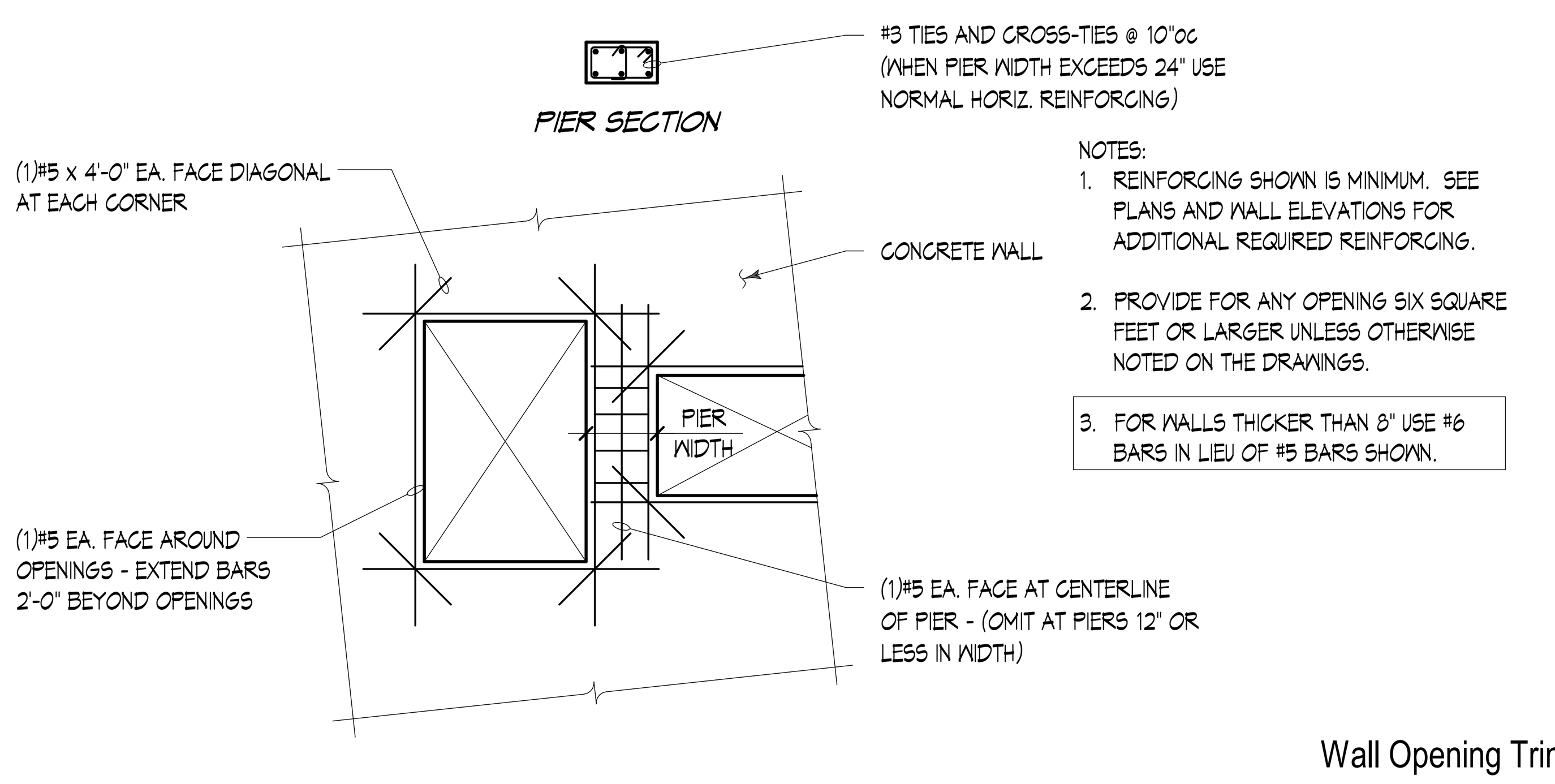
Footing Schedule 18



Stepped Footing 20

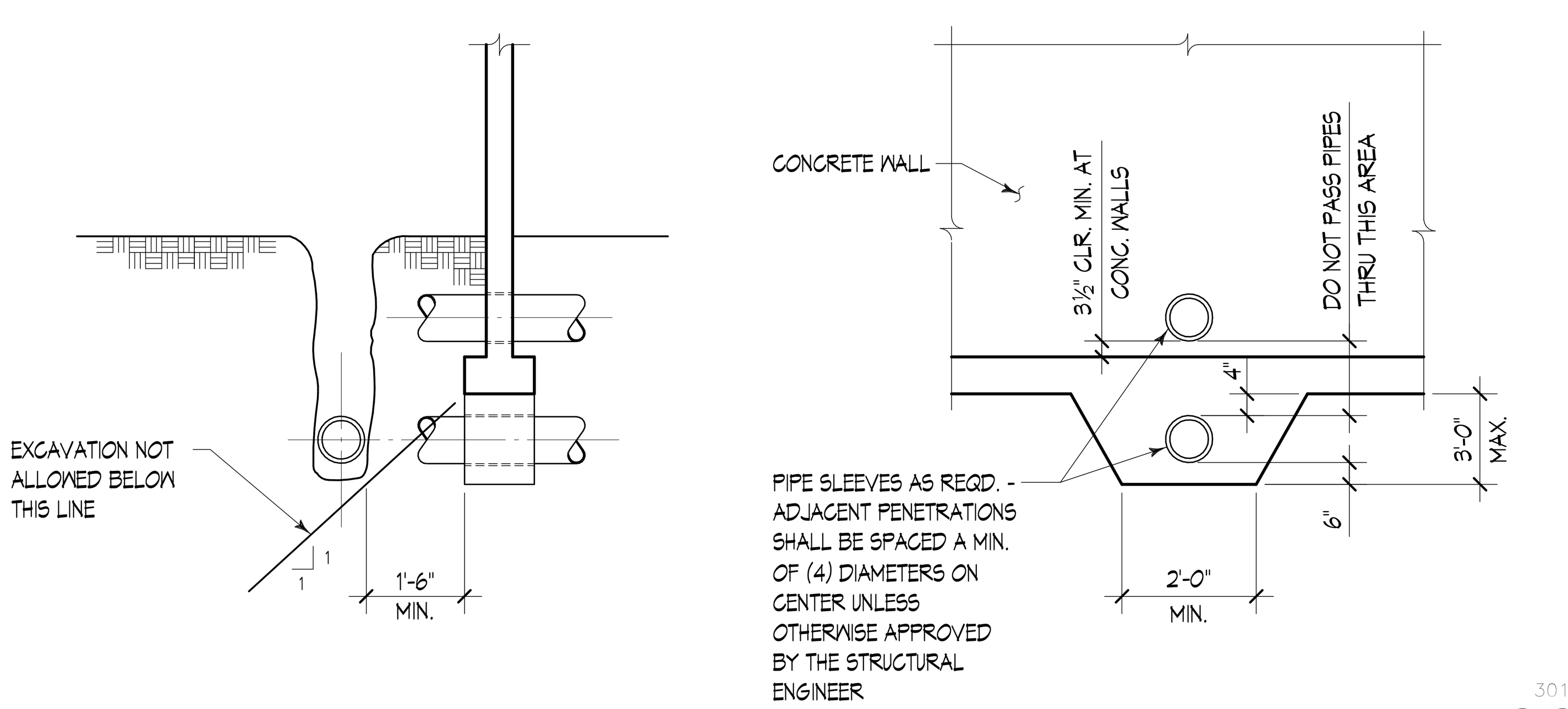


Corner Reinforcing - Single & Double Curtain 22



NOTES:
1. REINFORCING SHOWN IS MINIMUM. SEE PLANS AND WALL ELEVATIONS FOR ADDITIONAL REQUIRED REINFORCING.
2. PROVIDE FOR ANY OPENING SIX SQUARE FEET OR LARGER UNLESS OTHERWISE NOTED ON THE DRAWINGS.
3. FOR WALLS THICKER THAN 8" USE #6 BARS IN LIEU OF #5 BARS SHOWN.

Wall Opening Trim 26



PIPE SLEEVES AS REQD. - ADJACENT PENETRATIONS SHALL BE SPACED A MIN. OF (4) DIAMETERS ON CENTER UNLESS OTHERWISE APPROVED BY THE STRUCTURAL ENGINEER

Pipe Sleeve 28

I — MINIMUM STRAIGHT DEVELOPMENT LENGTH (ℓ_d) ✦

BAR SIZE	TOP BARS (f'c = 4000 PSI)	OTHER BARS (f'c = 4000 PSI)
# 3	19"	15"
# 4	25"	19"
# 5	31"	24"
# 6	37"	29"
# 7	54"	42"
# 8	62"	48"
# 9	70"	54"
# 10	79"	61"
# 11	87"	67"

III — MINIMUM EMBEDMENT LENGTHS (ℓ_{dh}) FOR STANDARD END HOOKS

BAR SIZE	f'c = 4000 PSI
# 3	6"
# 4	7"
# 5	9"
# 6	10"
# 7	12"
# 8	14"
# 9	15"
# 10	17"
# 11	19"

1. SIDE COVER MUST BE EQUAL TO OR GREATER THAN 2½".
2. END COVER FOR 90° HOOKS MUST BE EQUAL TO OR GREATER THAN 2".

II — MINIMUM LAP SPLICE LENGTHS (ℓ_s) ✦ (CLASS B)

BAR SIZE	TOP BARS (f'c = 4000 PSI)	OTHER BARS (f'c = 4000 PSI)
# 3	24"	19"
# 4	33"	25"
# 5	41"	31"
# 6	49"	37"
# 7	71"	54"
# 8	81"	62"
# 9	91"	70"
# 10	102"	79"
# 11	114"	87"

✦ "TOP BARS" ARE HORIZONTAL BARS WITH MORE THAN 12" DEPTH OF CONCRETE CAST BELOW THEM.

IF CLEAR CONCRETE COVER IS LESS THAN 1x THE DIAMETER OF THE BAR OR THE CENTER-TO-CENTER SPACING IS LESS THAN (3) BAR DIAMETERS, THEN VALUES SHALL BE INCREASED BY 50%.

Reinforcing Splice & Development Length Schedule(GR.60) 30

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04/07/20

PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

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Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

TYPICAL CONCRETE DETAILS

SHEET NUMBER

S3.01

1

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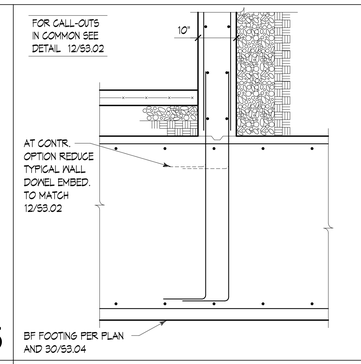

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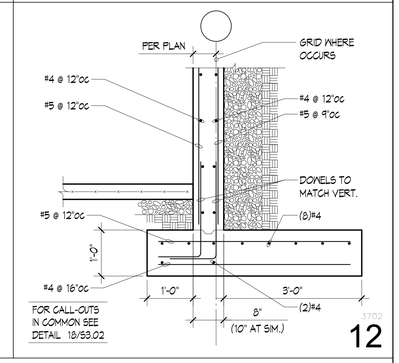

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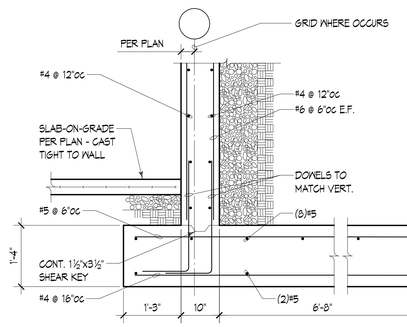

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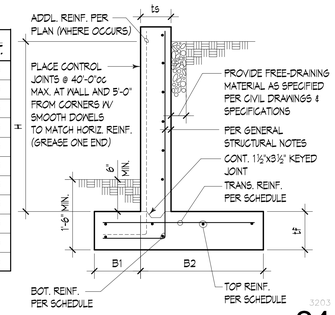
H	B1	B2	ts	tf	STEM REINF. VERT.	STEM REINF. HORIZ.	FOOTING REINF. TRANS.	FOOTING REINF. TOP	FOOTING REINF. BOT.
UP TO 5'-0"	6"	2'-6"	8"	12"	#4 @ 12"	#4 @ 12"	#5 @ 12"	(4)#5	(2)#5
6'-0"	6"	3'-3"	8"	12"	#4 @ 12"	#4 @ 12"	#5 @ 12"	(4)#5	(2)#5
7'-0"	9"	4'-0"	8"	12"	#5 @ 12"	#4 @ 12"	#5 @ 12"	(4)#5	(2)#5
8'-0"	9"	4'-9"	8"	12"	#5 @ 9"	#4 @ 12"	#5 @ 12"	(4)#5	(2)#5
9'-0"	1'-0"	5'-3"	8"	12"	#5 @ 6"	#4 @ 12"	#5 @ 12"	(5)#5	(3)#5
10'-0"	1'-0"	6'-0"	8"	12"	#5 @ 6"	#4 @ 12"	#5 @ 9"	(5)#5	(3)#5
11'-0"	1'-3"	6'-6"	8"	14"	#6 @ 6"	#4 @ 12"	#5 @ 9"	(7)#5	(3)#5
12'-0"	1'-3"	7'-3"	10"	14"	#6 @ 6"	#4 @ 10"	#5 @ 6"	(8)#5	(3)#5
14'-0"	1'-6"	8'-6"	10"	16"	#7 @ 6"	#4 @ 10"	#5 @ 6"	(10)#5	(5)#5
15'-0"	1'-9"	9'-0"	11"	16"	#7 @ 6"	#4 @ 8"	#5 @ 6"	(11)#5	(5)#5
16'-6"	2'-0"	10'-0"	12"	18"	#8 @ 6"	#4 @ 8"	#6 @ 8"	(10)#6	(5)#6

NOTE: MAXIMUM HORIZ. DESIGN PRESSURE = 35 PCF
MAXIMUM SEISMIC DESIGN PRESSURE = 5H
MINIMUM ALLOWABLE BEARING = 3,500 PSF
COEFFICIENT OF FRICTION = 0.3 (INCLUDING FACTOR OF SAFETY)
PASSIVE RESISTANCE = 250 PCF



Site Retaining Wall 24

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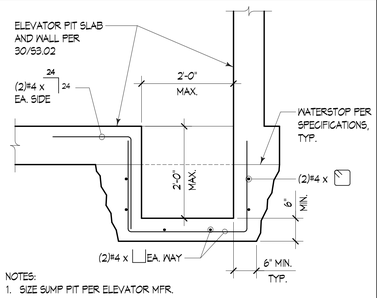

NOTES:
1. SIZE SUMP PIT PER ELEVATOR MFR.
2. SEE ARCHITECTURAL FOR WATERPROOFING.

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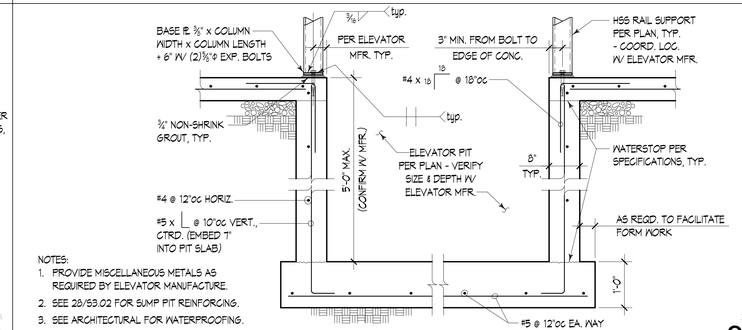

NOTES:
1. PROVIDE MISCELLANEOUS METALS AS REQUIRED BY ELEVATOR MANUFACTURE.
2. SEE 28/S3.02 FOR SUMP PIT REINFORCING.
3. SEE ARCHITECTURAL FOR WATERPROOFING.

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

FOUNDATION DETAILS

SHEET NUMBER

S3.02

1

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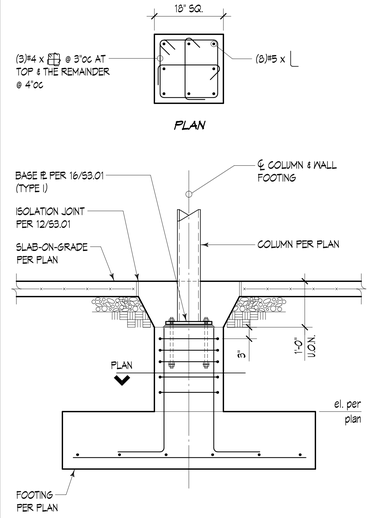

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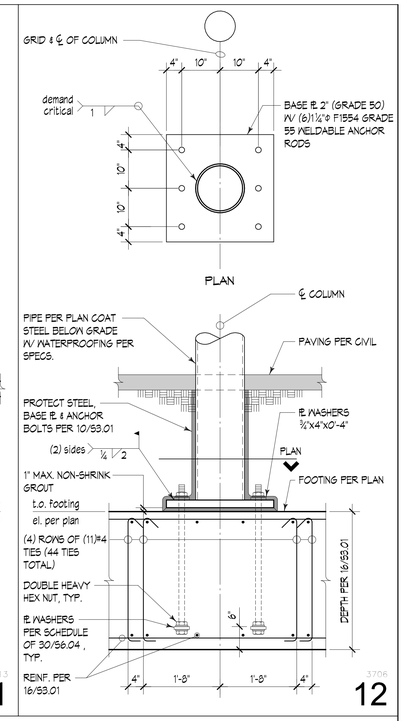

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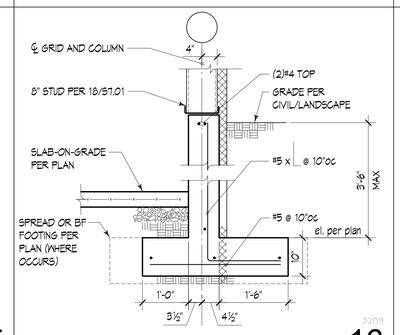

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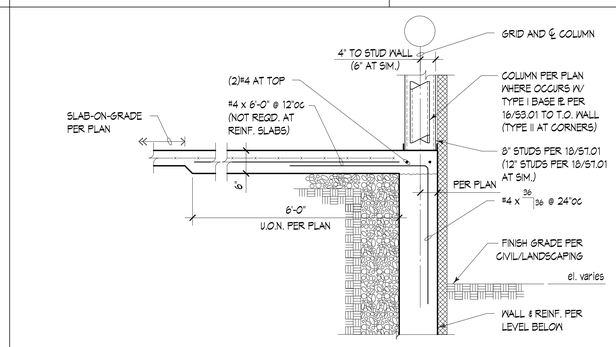

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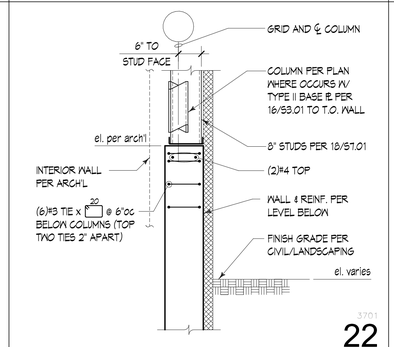

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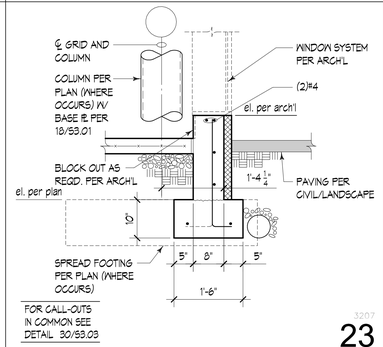

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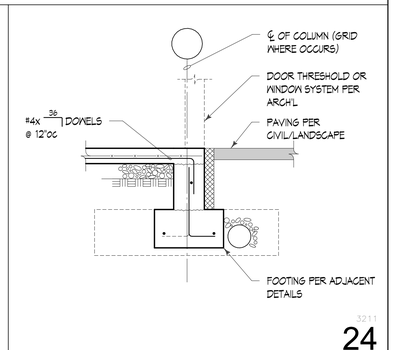

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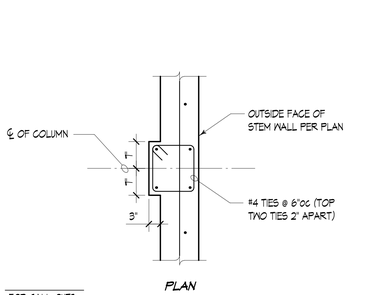

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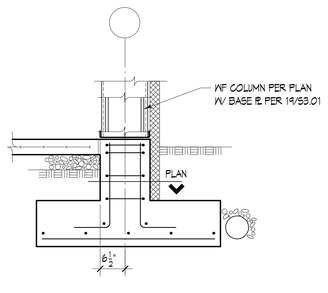

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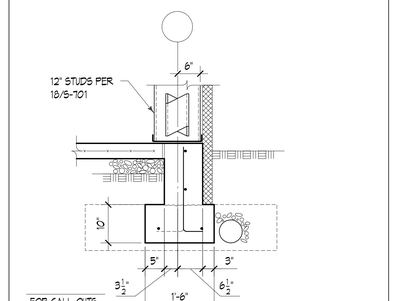

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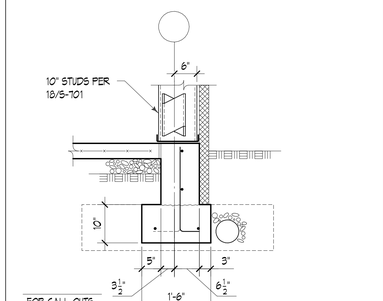

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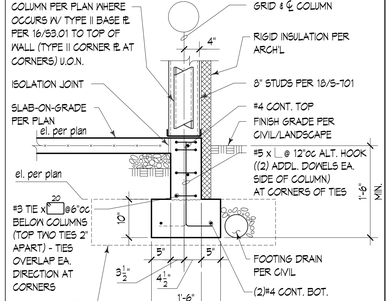

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04/07/20

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

FOUNDATION DETAILS

SHEET NUMBER

S3.03

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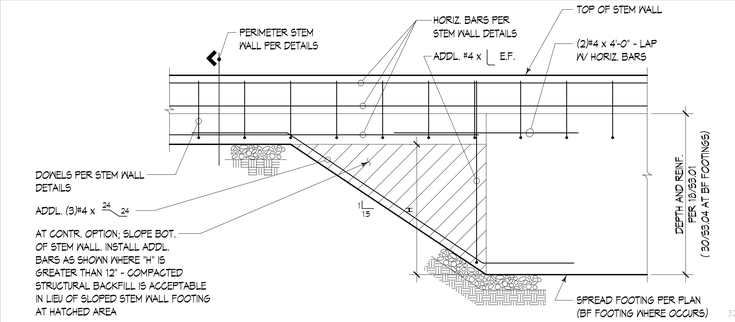

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Stem Wall Footing to Spread Footing

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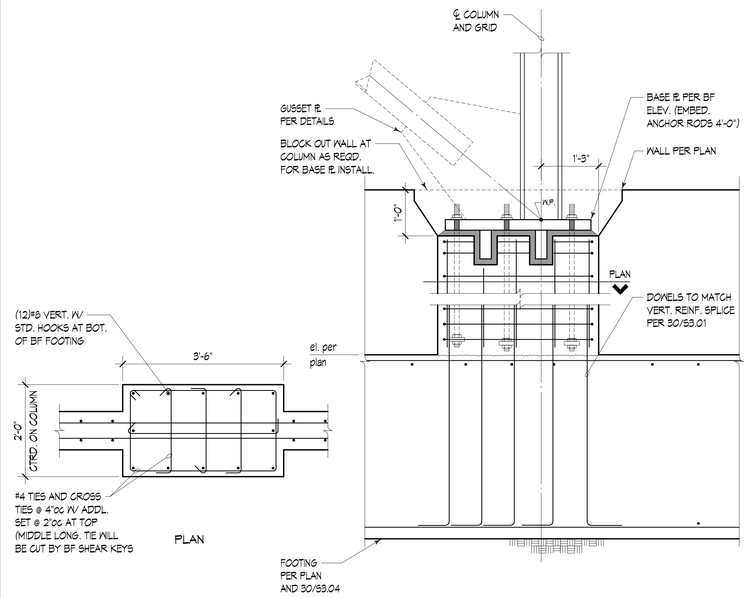

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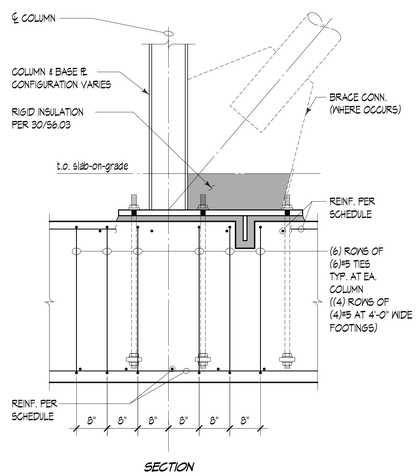
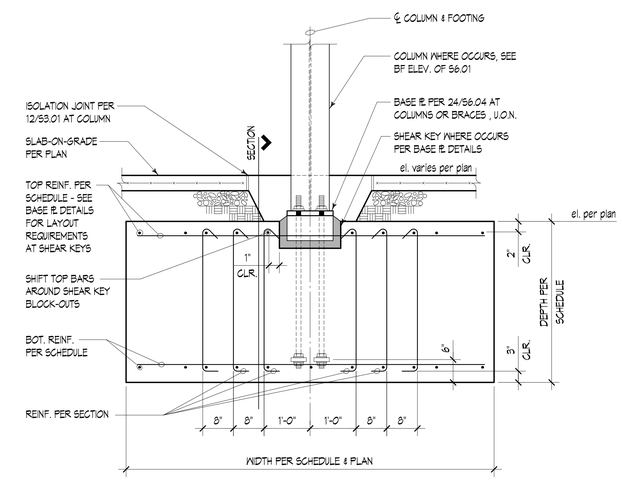
WIDTH PER PLAN	DEPTH	BOTTOM REINF.		TOP REINF.	
		LONG.	TRANSV.	LONG.	TRANSV.
4'-0"	2'-0"	(6) #6	#4 @ 12"oc	(6) #6	#4 @ 12"oc
6'-0"	4'-0"	(8) #8	#6 @ 10"oc	(8) #6	#6 @ 10"oc
8'-0"	4'-0"	(10) #8	#6 @ 10"oc	(10) #6	#6 @ 10"oc





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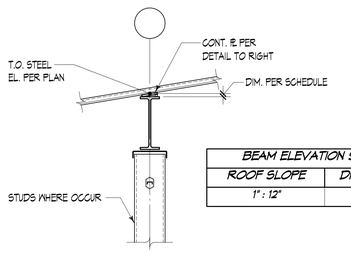
PROJECT NUMBER: S190390-01

SHEET NAME

FOUNDATION DETAILS

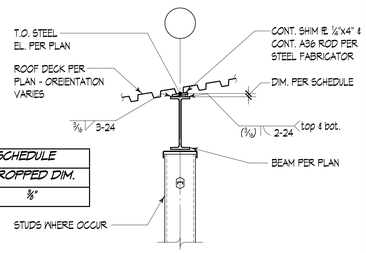
SHEET NUMBER

S3.04



TYPICAL
(WHERE DECK IS PERPENDICULAR)

BEAM ELEVATION SCHEDULE	
ROOF SLOPE	DROPPED DIM.
1" : 12"	3/8"



AT ALL STRUTS

Typical Deck Support at WF (At Roofs Sloped > 1/2":1'-0") 3

5225

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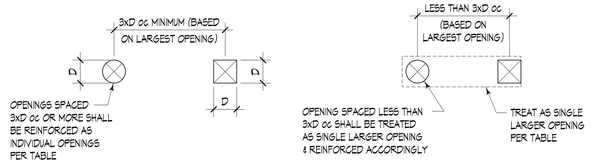
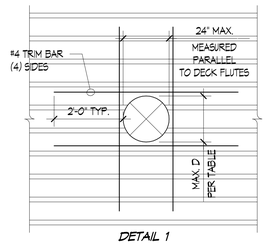
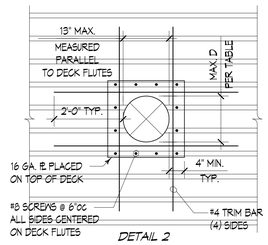


TYPICAL SPACING REQUIREMENTS
FOR ALL OPENINGS

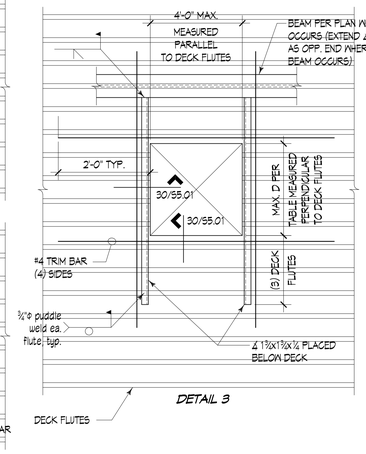
TYPICAL COMPOSITE DECK OPENINGS		
OPENING SIZE MEASURED PERPENDICULAR TO DECK FLUTES (SQUARE OR ROUND)	DETAIL REFERENCE	
	CORED OR SAWCUT OPENINGS (METAL DECK REMAINS INTACT UNTIL AT LEAST 3 DAYS AFTER CONCRETE POUR)	SLEEVED OR BLOCKED OUT OPENINGS (METAL DECK CUT PRIOR TO CONCRETE POUR)
D ≤ 6"	NO REINFORCING NECESSARY PROVIDED TYPICAL SPACING REQUIREMENTS ARE MET	NO REINFORCING NECESSARY PROVIDED TYPICAL SPACING REQUIREMENTS ARE MET
6" < D ≤ 13"	1	2
13" < D ≤ 24"	3	3
24" < D ≤ 48"	4	4



DETAIL 1



DETAIL 2



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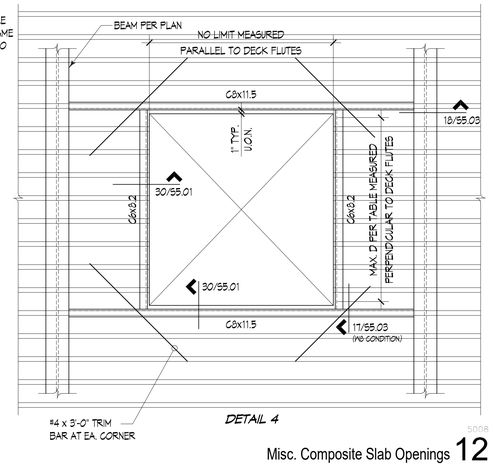
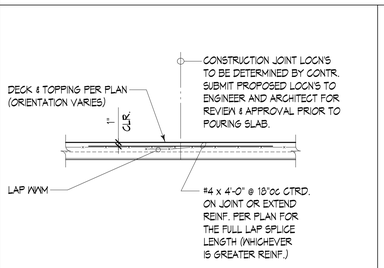


DETAIL 4

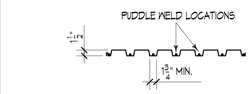
5008

Misc. Composite Slab Openings 12



5020

Construction joints in Topping Slabs 16



TYPE = ASC DGB-36 OR VERCO PLB-36, G60 GALVANIZED W/ FOLLOWING MIN. PROPERTIES:

Fy = 38ksi, PANEL WIDTH = 36"

ALLOWABLE SHEAR CAPACITY REQUIRED = 715 plf (1037 plf WHERE 18 GA REQD. PER PLAN)

20GA.	18GA.	16GA.
I_E = +0.207/-0.231 in.^{4}	I_E = +0.330/-0.306 in.^{4}	I_E = ±0.381 in.^{4}
S_E = +0.23/-0.237 in.^{3}	S_E = +0.314/-0.329 in.^{3}	S_E = +0.397/-0.404 in.^{3}

	20GA.	18GA.	16GA.
SINGLE SPAN CONDITIONS	7'-0"	8'-0"	8'-6"
DOUBLE OR TRIPLE SPAN CONDITIONS	9'-0"	10'-0"	10'-6"

1. USE GAGE OF DECK PER SPAN TABLE AT LEFT, U.O.N. PER PLAN.
2. DECK ATTACHMENTS AT SUPPORTS PERPENDICULAR TO DECK FLUTES: (1) ½"ø EFFECTIVE PUDDLE WELDS PER SHEET AT TYPICAL SUPPORTS. (2) ROWS OF (1) ½"ø EFFECTIVE PUDDLE WELDS AT INTERIOR STRUTS. BRACED FRAME BEAMS (WHERE DECK OCCURS BOTH SIDES OF SUPPORT, EXCLUDING OVERHANGS AND CHANGES IN DECK ORIENTATION).
3. DECK ATTACHMENTS AT SUPPORTS PARALLEL TO DECK FLUTES: ½"ø EFFECTIVE PUDDLE WELDS AT 14"oc AT TYPICAL SUPPORTS. ½"ø EFFECTIVE PUDDLE WELDS AT 7"oc AT INTERIOR STRUTS, BRACED FRAME BEAMS (WHERE DECK OCCURS BOTH SIDES OF SUPPORT, EXCLUDING OVERHANGS AND CHANGES IN DECK ORIENTATION).
4. CONNECT DECK SEAMS @ 24"oc WITH THE PUNCHLOK SYSTEM FOR VERCO DECK OR THE DELTAGRIP SYSTEM FOR ASC DECK, U.O.N. PER PLAN.
5. DECK MUST STRICTLY MEET CRITERIA LISTED, INCLUDING ICC-ES RESEARCH REPORT ALLOWABLE SHEAR LOADS. SUBMIT DECK INFORMATION TO ENGINEER PRIOR TO BEGINNING SHOP DRAWINGS.
6. REINFORCE DECK OPENINGS PER 9/55.01 , U.O.N. DECK OPENINGS MAY NOT BE SHOWN ON PLAN - SEE ARCH'L & MECH'L FOR ADDITIONAL INFO.
7. SEE DRAWINGS FOR LOCATIONS WHERE ACOUSTIC DECK IS REQUIRED (PERFORATED AT NEBS ONLY, U.O.N.). SEE SPECIFICATIONS FOR ACOUSTIC REQUIREMENTS.

5002

Roof Deck 18

AT SLAB-ON-GRADE
SEE DETAIL TO RIGHT FOR
CALL OUTS IN COMMON

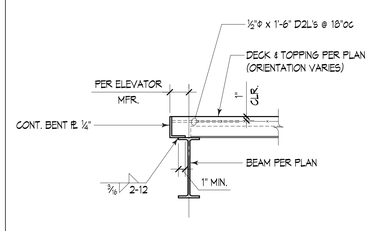
AT METAL DECK

NOTE:
SEE MECH'L & ARCH'L DRAWINGS
FOR MECH'L PAD LOCATIONS.

5043

Housekeeping Pads 15

13



5050

Elevator Door Sill 21

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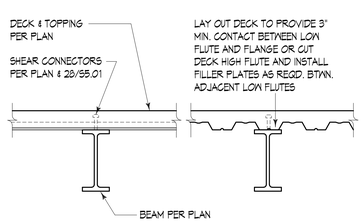
20

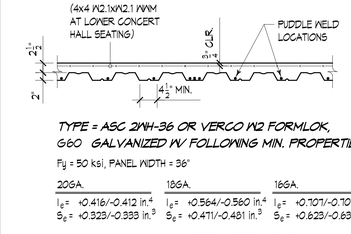


DECK PERPENDICULAR TO BEAM

DECK PARALLEL TO BEAM

5011

Composite Deck Layout 22



TYPE = ASC 2INH-36 OR VERCO W2 FORMLOK, G60 GALVANIZED W/ FOLLOWING MIN. PROPERTIES:

Fy = 50 ksi, PANEL WIDTH = 36"

20GA.	18GA.	16GA.
I_E = +0.416/-0.412 in.^{4}	I_E = +0.564/-0.560 in.^{4}	I_E = +0.707/-0.707 in.^{4}
S_E = +0.323/-0.333 in.^{3}	S_E = +0.471/-0.461 in.^{3}	S_E = +0.623/-0.638 in.^{3}

	20GA.	18GA.	16GA.
SINGLE SPAN CONDITIONS	8'-0"	9'-6"	10'-0"
DOUBLE SPAN CONDITIONS	9'-0"	11'-0"	13'-0"
TRIPLE SPAN CONDITIONS	9'-6"	11'-6"	12'-6"

1. USE GAGE OF DECK PER SPAN TABLE AT LEFT (SPAN TABLES ASSUME SHORING WILL NOT BE USED). DECK SHALL HAVE 125 PSF SUPERIMPOSED LOAD CAPACITY.
2. PROVIDE (4) ½"ø EFFECTIVE PUDDLE WELDS PER SHEET TO ALL SUPPORTS PERPENDICULAR TO DECK FLUTES. PROVIDE ½"ø EFFECTIVE PUDDLE WELDS @ 24"oc TO ALL SUPPORTS PARALLEL TO DECK FLUTES.
3. CONNECT DECK SEAMS WITH BUTTON PUNCHES @ 36"oc.
4. DECK MUST STRICTLY MEET CRITERIA LISTED INCLUDING ICC-ES RESEARCH REPORT ALLOWABLE SUPERIMPOSED LOADS. SUBMIT DECK INFORMATION TO ENGINEER PRIOR TO BEGINNING SHOP DRAWINGS.
5. REINFORCE MISC. DECK OPENINGS PER 12/55.01 , U.O.N. DECK OPENINGS MAY NOT BE SHOWN ON PLAN - SEE ARCH'L & MECH'L FOR ADDL. INFO.
6. SEE 18/55.01 FOR CONSTRUCTION JOINTS.
7. VENTED DECK SHALL BE USED AT LOCATIONS WHERE ROOFING OR WATERPROOFING MEMBRANE WILL BE APPLIED OVER THE CONCRETE SURFACE.

5005

Composite Floor Deck 24

FOR CALL-OUTS
IN COMMON SEE
DETAIL 21/55.01

5042

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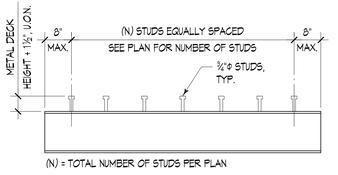


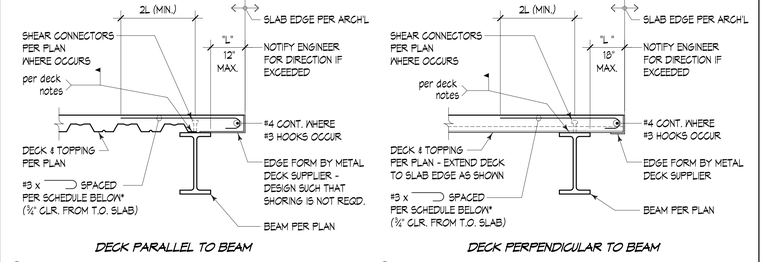
TYPICAL BEAM

NOTES:

1. CENTER CONNECTORS OVER BEAMS AND GIRDERS TYPICAL.
2. WHERE DECK FLUTES ARE PERPENDICULAR TO BEAMS USE (2) STUDS PER FLUTE @ 3"oc WHERE NUMBER OF STUDS EXCEEDS NUMBER OF FLUTES.
3. SEE GENERAL STRUCTURAL NOTES FOR STUD REQUIREMENTS.

5014

Typical Stud Distribution 28



DECK PARALLEL TO BEAM

* SPACING SCHEDULE	
L ≤ 4½"	OMIT #3 BARS
4½" < L ≤ 8"	32"oc
8" < L ≤ 12"	24"oc

DECK PERPENDICULAR TO BEAM

* SPACING SCHEDULE	
L ≤ 6"	OMIT #3 BARS
6" < L ≤ 12"	32"oc
10" < L ≤ 18"	24"oc

5015

Composite Deck Edge Form 30

29

30

HUTTEBALL +OREMUS architecture
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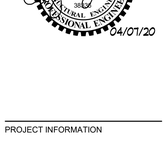
SEATTLE, WA 98104
(206).343-0460 www.cplinc.com

CONSULTANT STAMP



PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
10.18.2019	DESIGN DEVELOPMENT
01.13.2020	CONSTRUCTABILITY REVIEW
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

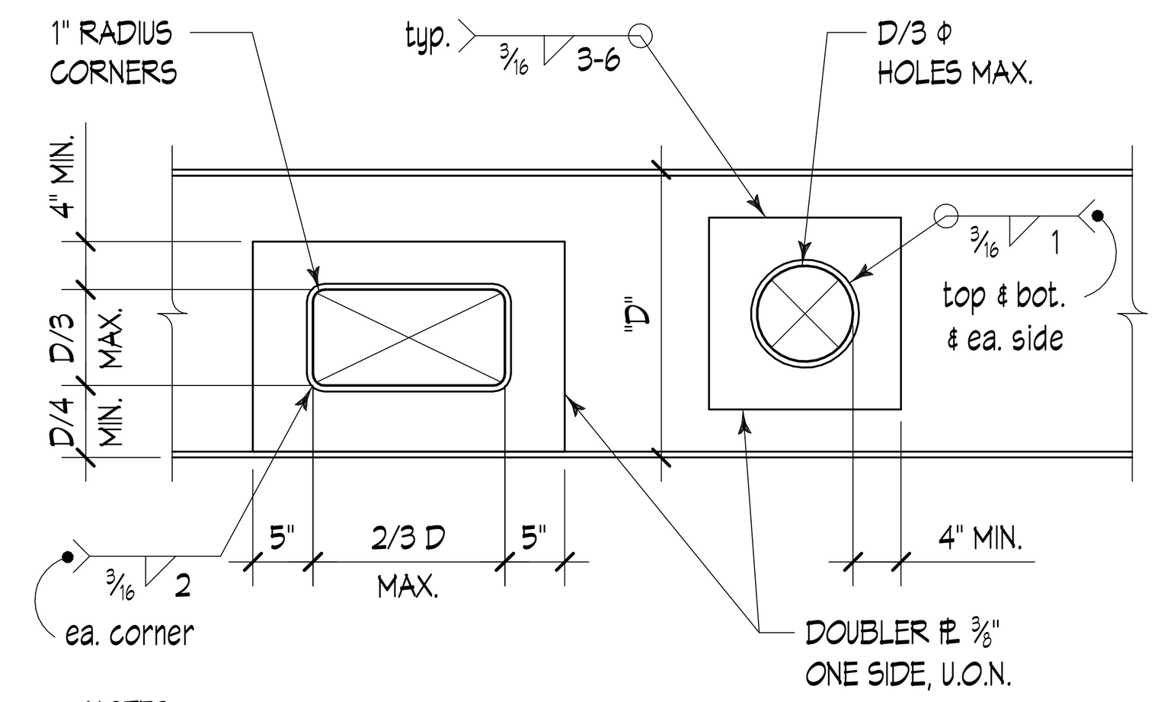
PROJECT NUMBER: S190390-01

SHEET NAME

TYPICAL METAL DECK DETAILS

SHEET NUMBER

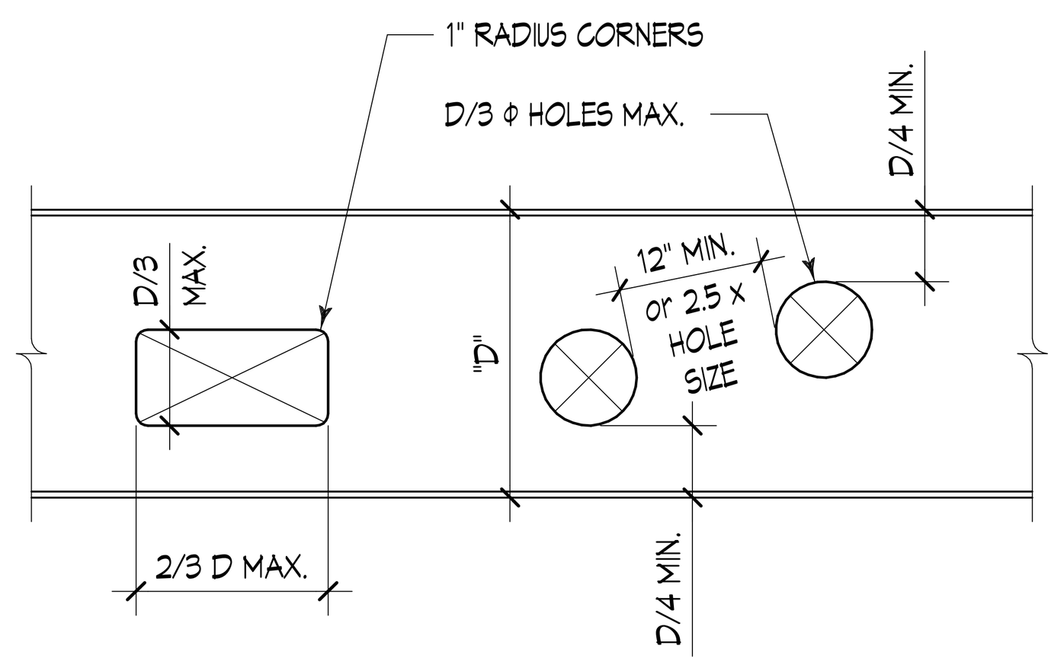
S5.01



NOTES:
1. PENETRATIONS SHALL MEET CRITERIA NOTES 1, 3, 4, 5, AND 7 OF TYPICAL BEAM PENETRATION DETAIL - SEE 3/S5.02.
2. EDGE OF OPENING SHALL BE A MINIMUM OF 16" CLEAR FROM EDGE OF BEAM CONNECTION PL AT EACH END.

5734

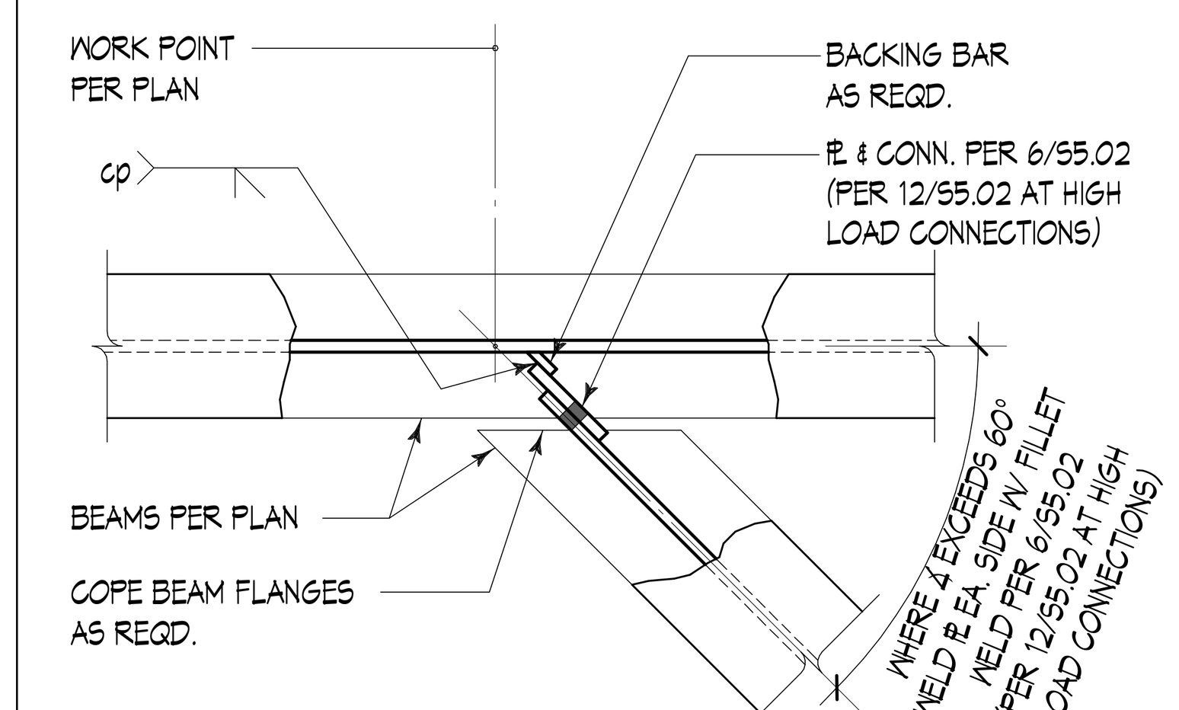
1



NOTES:
1. CONTRACTOR SHALL COORDINATE SIZES AND LOCATIONS OF ALL BEAM PENETRATIONS WITH MECHANICAL DRAWINGS. ALL PENETRATIONS LARGER THAN 2" ø SHALL BE SHOWN ON SHOP DRAWINGS OR SKETCHES AND SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. FIELD CUTTING NOT PERMITTED WITHOUT APPROVAL.
2. OPENINGS MAY OCCUR IN MIDDLE HALF OF BEAM LENGTH ONLY. SEE 1/S5.02 FOR OPENINGS OUTSIDE THIS AREA.
3. NO CUTTING SHALL OCCUR IN TOP OR BOTTOM QUARTER OF BEAM DEPTH.
4. ADJACENT OPENINGS SHALL BE SPACED AT THE LESSER OF 12" OR 2.5x LARGER OPENING SIZE, EDGE TO EDGE.
5. MAXIMUM SIZES OF OPENINGS SHALL BE D/3 ø OR D/3 x 2/3 D.
6. NO OPENINGS SHALL OCCUR WITHIN 12" OF AN ADJACENT BEAM CONNECTION.
7. REQUIRED OPENINGS NOT MEETING ABOVE CRITERIA SHALL BE SUBMITTED TO ENGINEER FOR REINFORCING DESIGN.

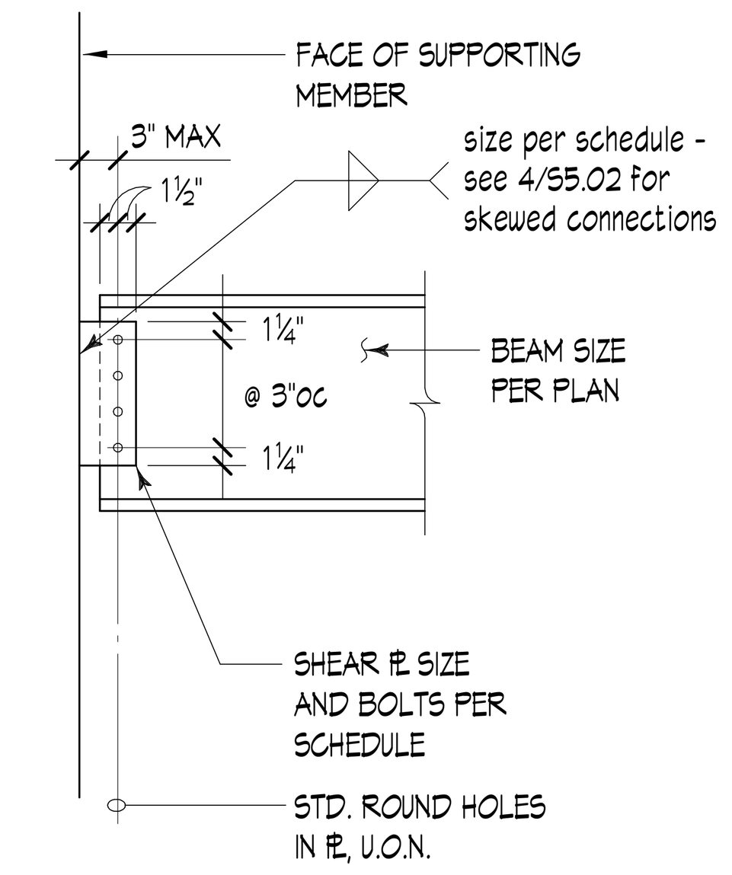
5021

Typical Beam Penetrations 3



5004

Skewed Beam to Beam Connection 4



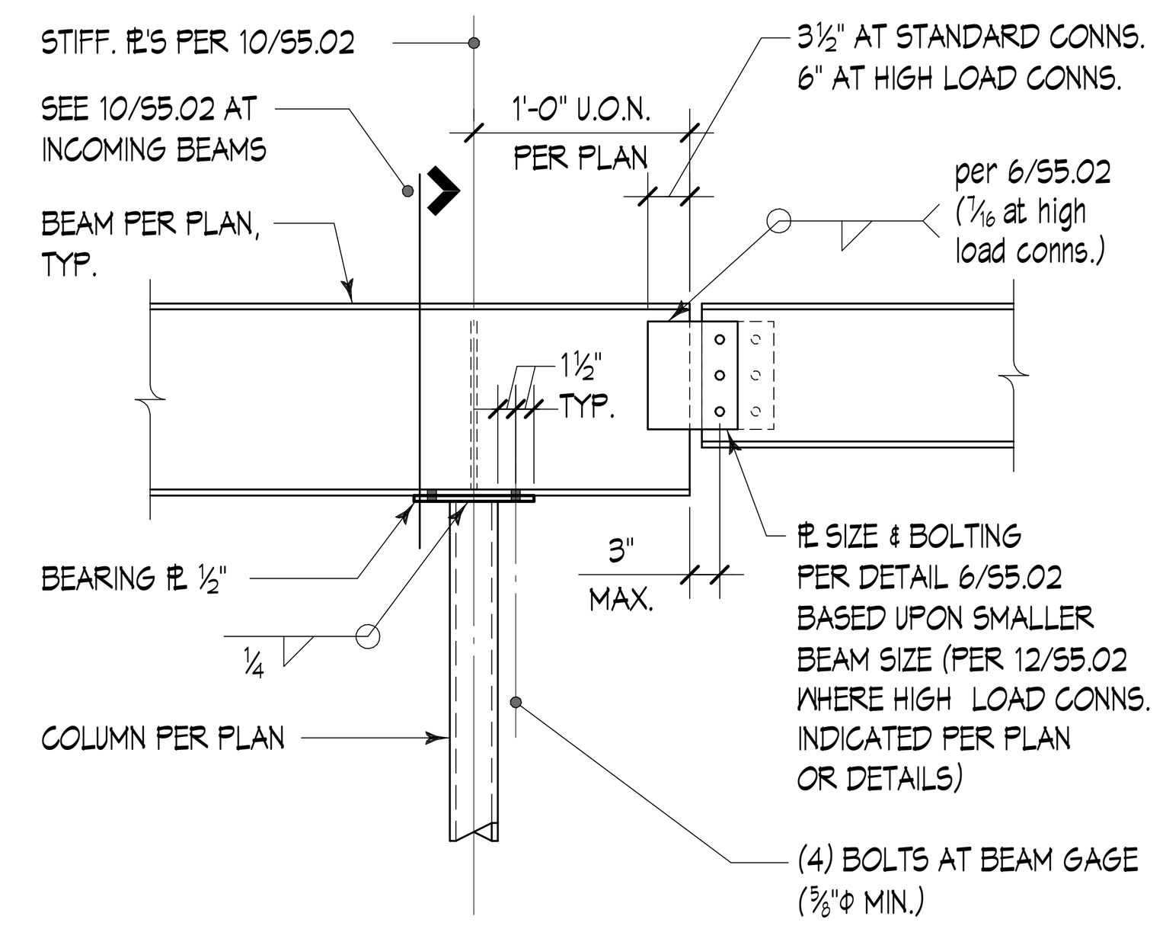
STANDARD BEAM CONNECTION SCHEDULE				
BEAM SIZE	BOLT SIZE (A325N)	NO. OF BOLTS U.O.N.	PL THICKNESS	WELD SIZE
W8, W10, C8, C10 WT7 THRU WT10.5	3/4"ø	2	1/4"	3/16"
W12, W14, WT12, C12	3/4"ø	3	1/4"	3/16"
W16, WT16	3/4"ø	4	1/4"	3/16"
W18, W21	3/4"ø	5	1/4"	3/16"
W24, W27	3/4"ø	6	1/4"	3/16"
W30, W33	3/4"ø	7	1/4"	3/16"

NOTES:
1. SEE 12/S5.02 FOR HIGH LOAD CONNECTIONS WHERE SPECIFICALLY NOTED ON PLAN (SEE LEGEND ON PLAN SHEETS) OR DETAILS.

5000

Shear Plate Connection Schedule 6

7



5010

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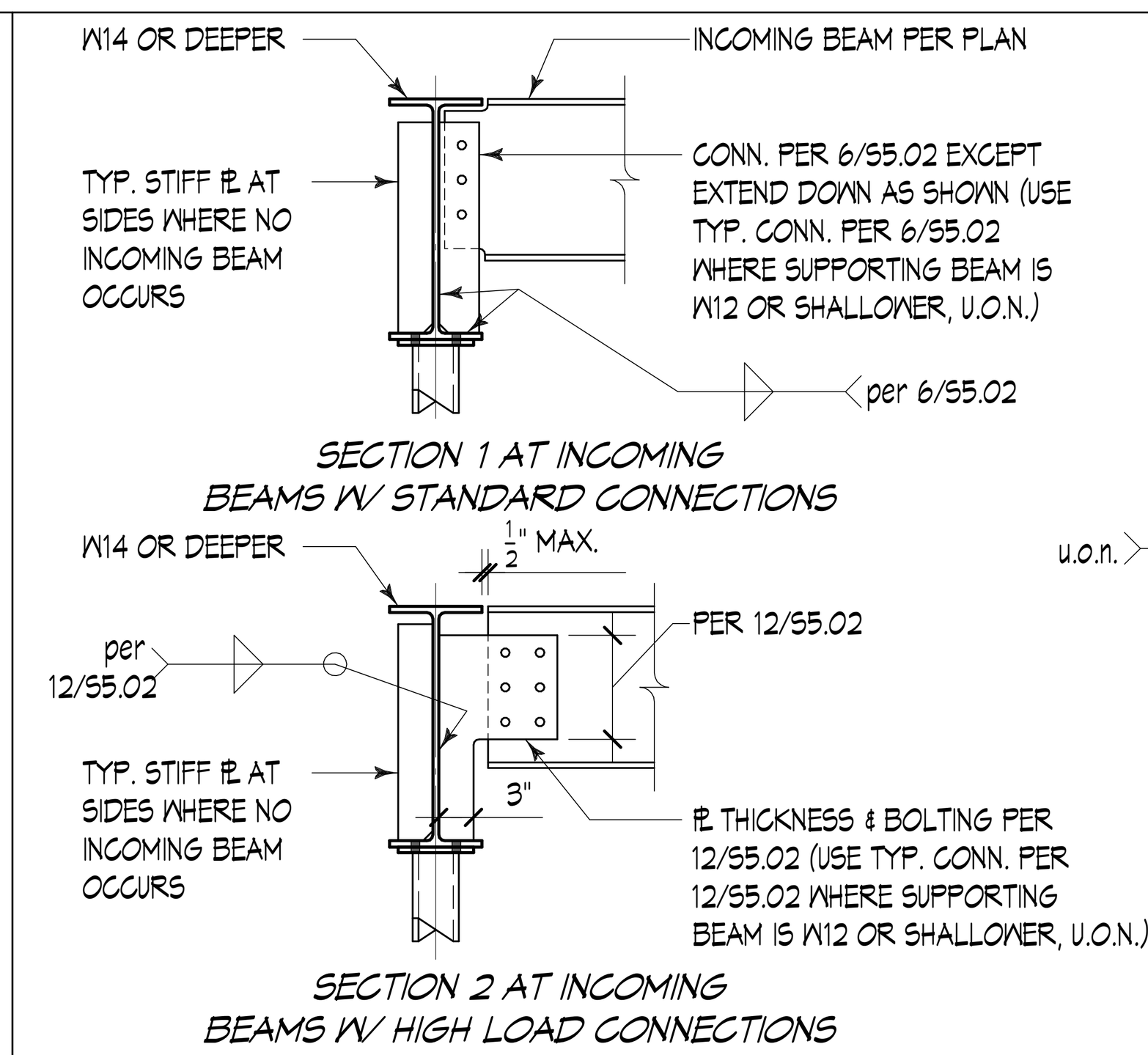

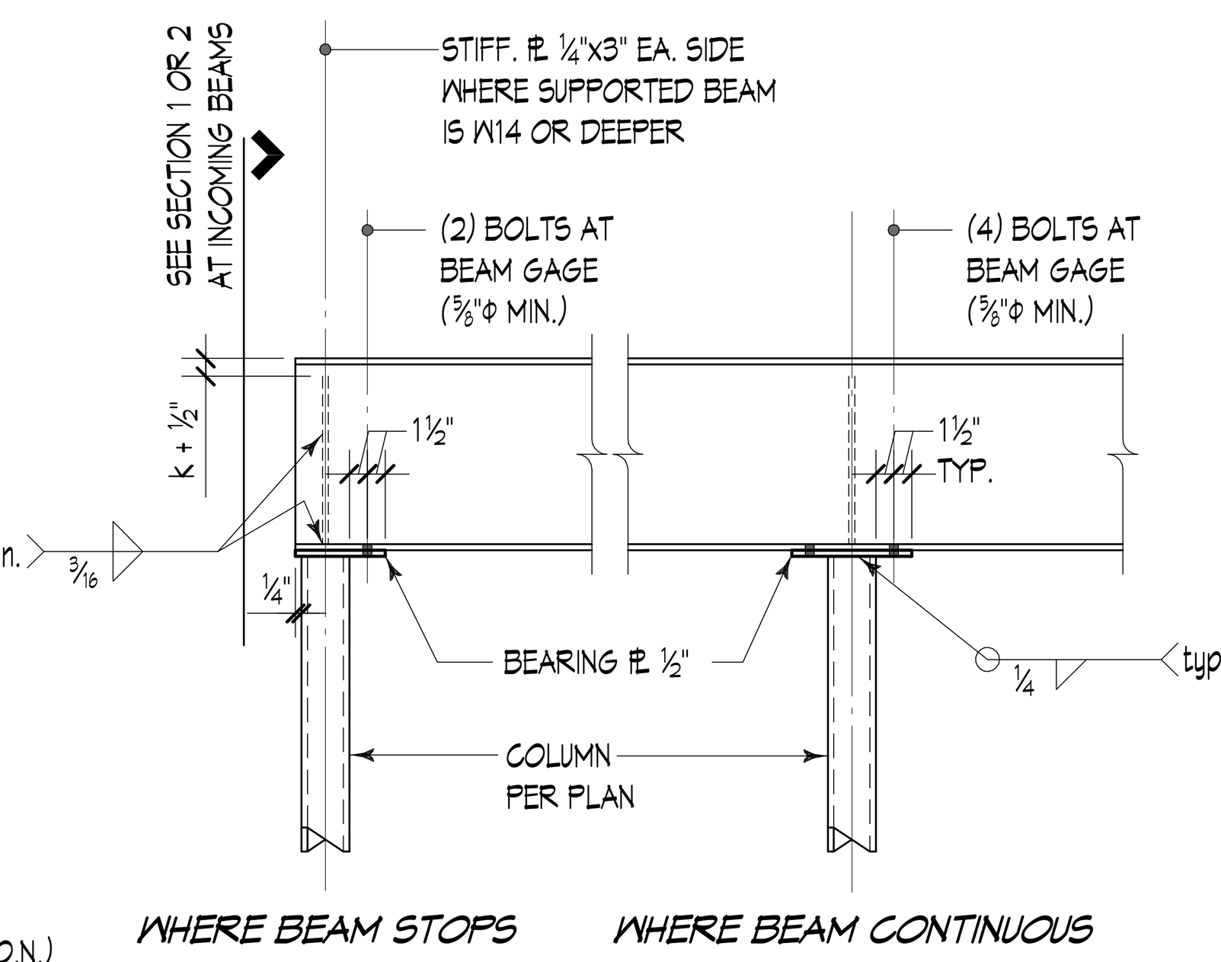

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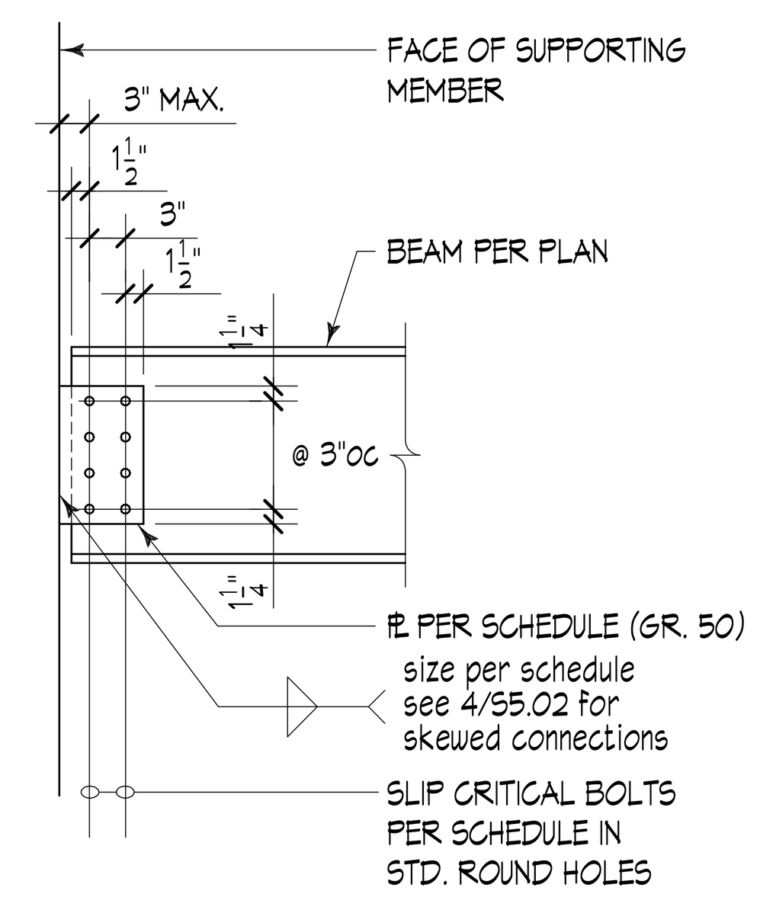


		HIGH LOAD CONNECTION		
BEAM SIZE	BOLT SIZE (A325N-SC)	NO. OF BOLTS U.O.N.	PL THICKNESS (GR.50)	WELD SIZE
W8, W10	3/4"ø	4	1/2"	5/16"
W12, W14	3/4"ø	6	1/2"	5/16"
W16	3/4"ø	8	1/2"	5/16"
W18, W21	3/4"ø	10	1/2"	5/16"
W24, W27	3/4"ø	12	1/2"	5/16"
W30, W33	3/4"ø	14	1/2"	5/16"

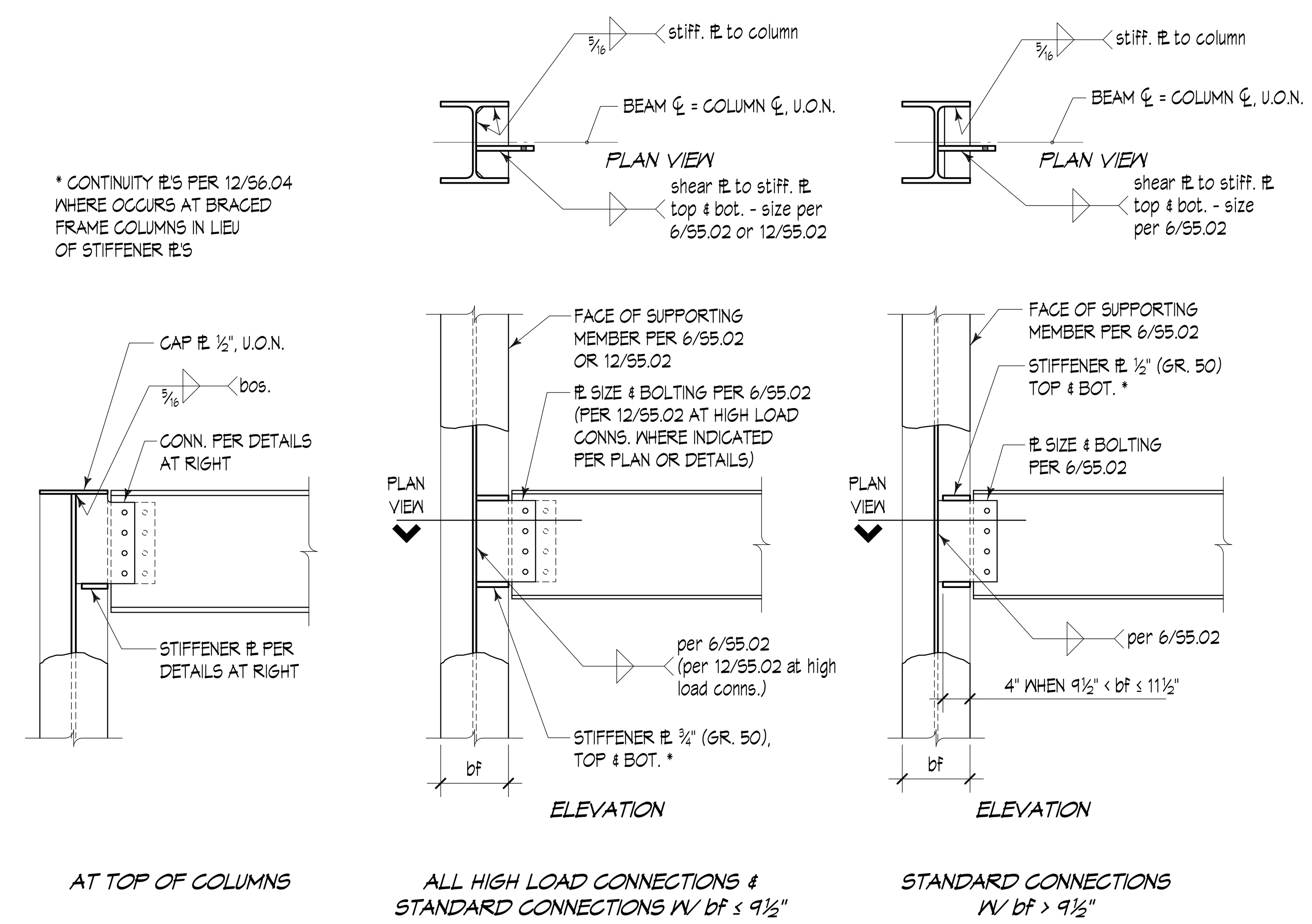
NOTES:
1. PROVIDE MINIMUM OF CLASS A FAYING SURFACE ON PL & BEAM WEB FOR INSTALLATION OF SLIP CRITICAL BOLTS.
2. HIGH LOAD CONNECTION REQUIRED ONLY WHERE SPECIFICALLY NOTED ON PLAN (SEE LEGEND ON PLAN SHEETS) OR DETAILS.

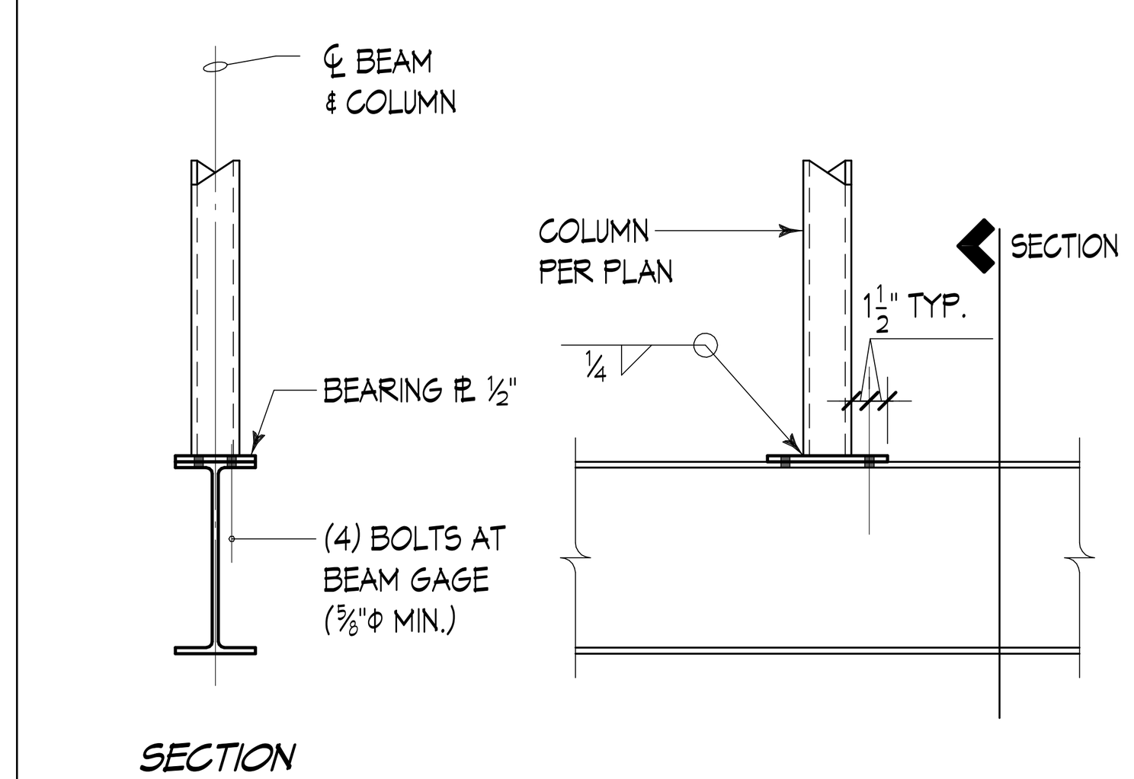
5001

High Load Connection Schedule 12

13

* CONTINUITY PL'S PER 12/S6.04 WHERE OCCURS AT BRACED FRAME COLUMNS IN LIEU OF STIFFENER PL'S





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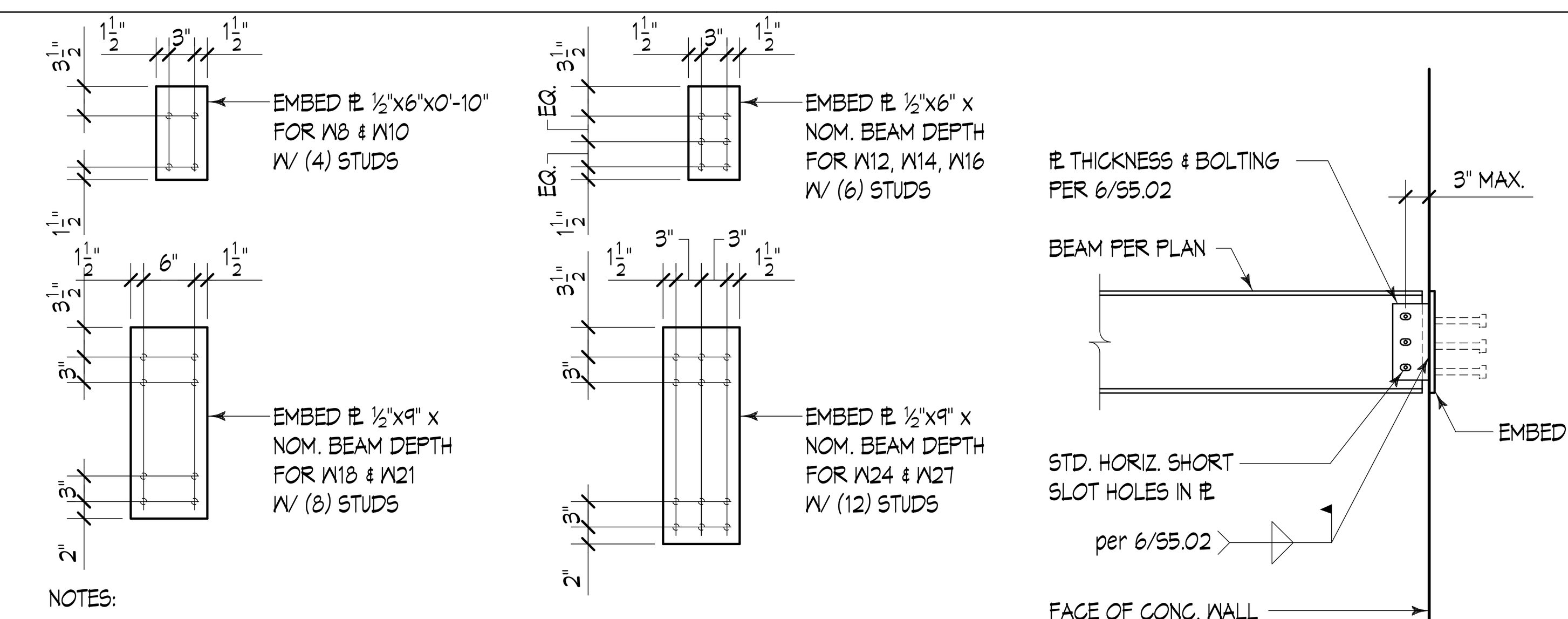

NOTES:
1. ALL STUDS SHALL BE ¾"ø x 6" U.O.N.
2. HORIZONTAL DISTANCE FROM EDGE OF CONCRETE TO CENTER OF NEAREST STUD SHALL BE 6" MIN.
3. PLACE EMBED PL IN WALL SUCH THAT ATTACHED PL WILL BE HORIZONTALLY AND VERTICALLY CENTERED.

5204

Typical Steel Beam to Concrete Connection 18

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5026

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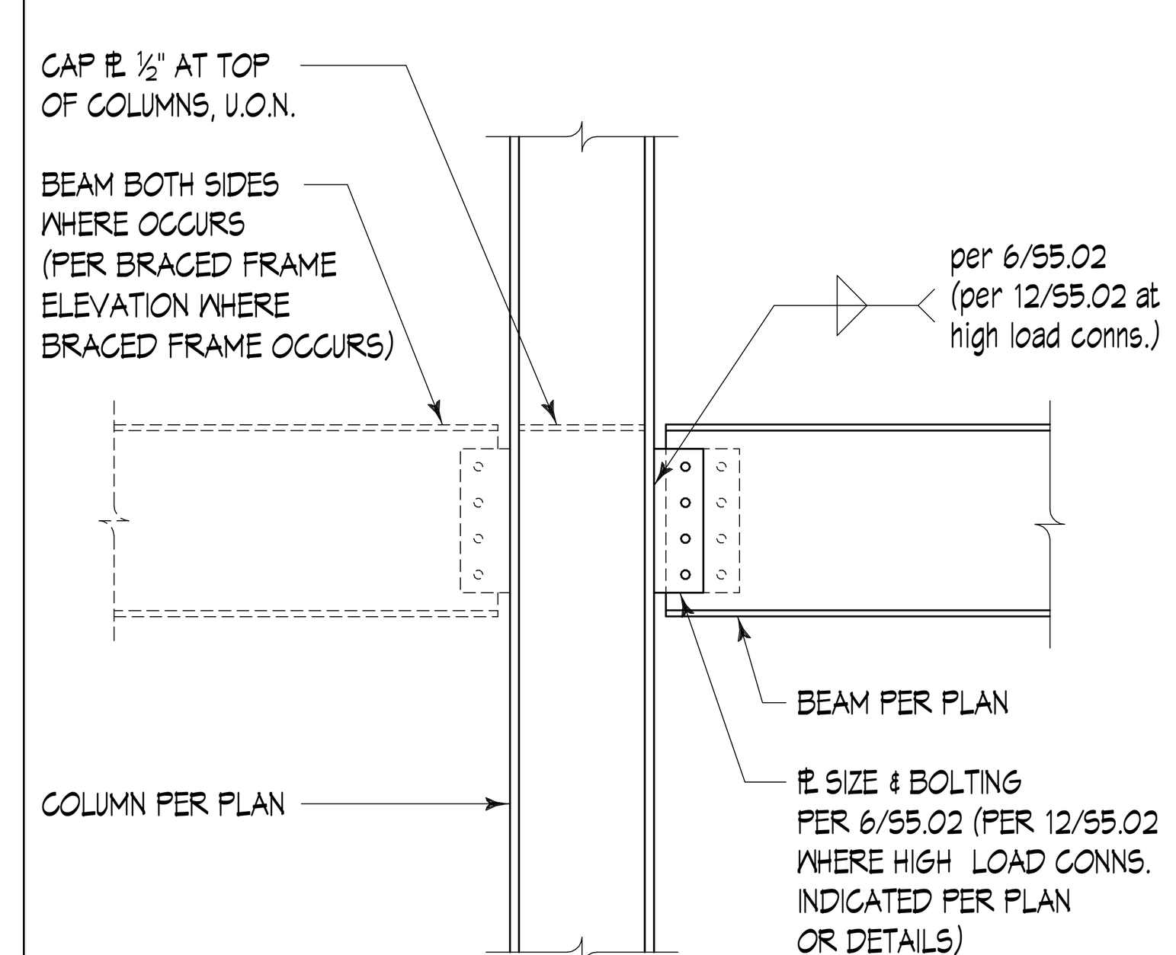

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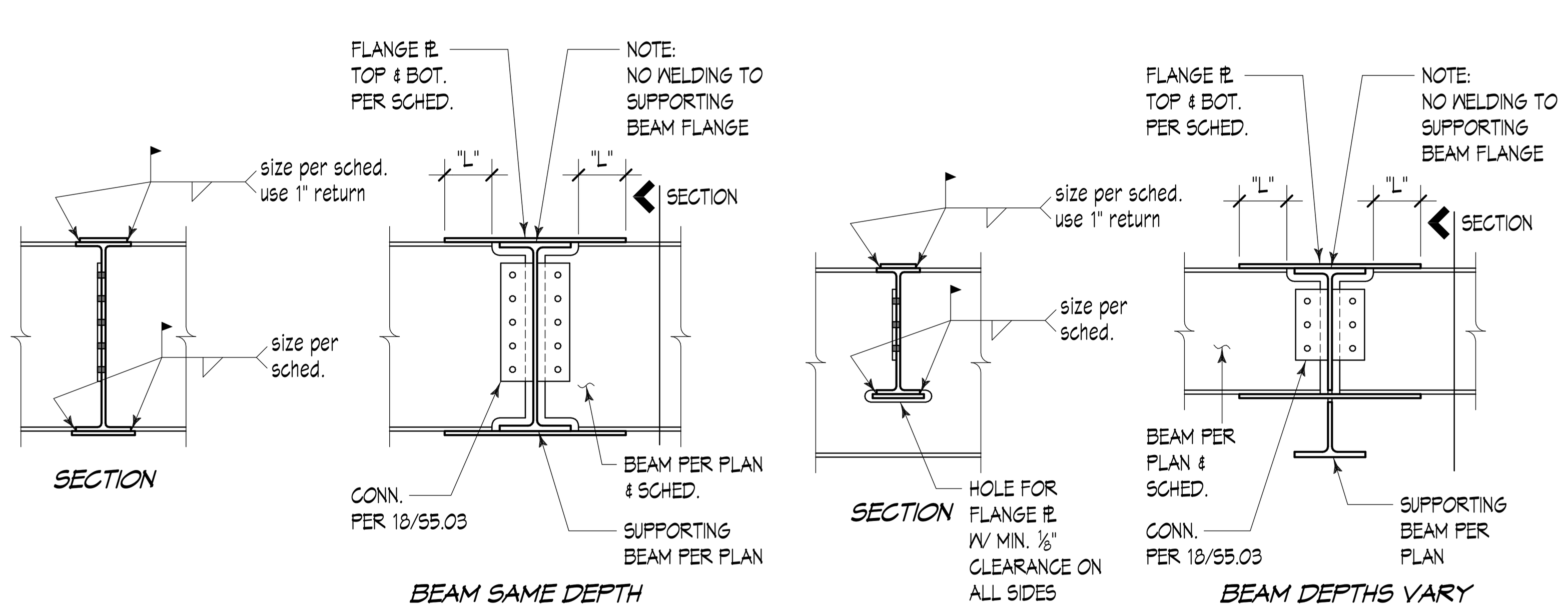
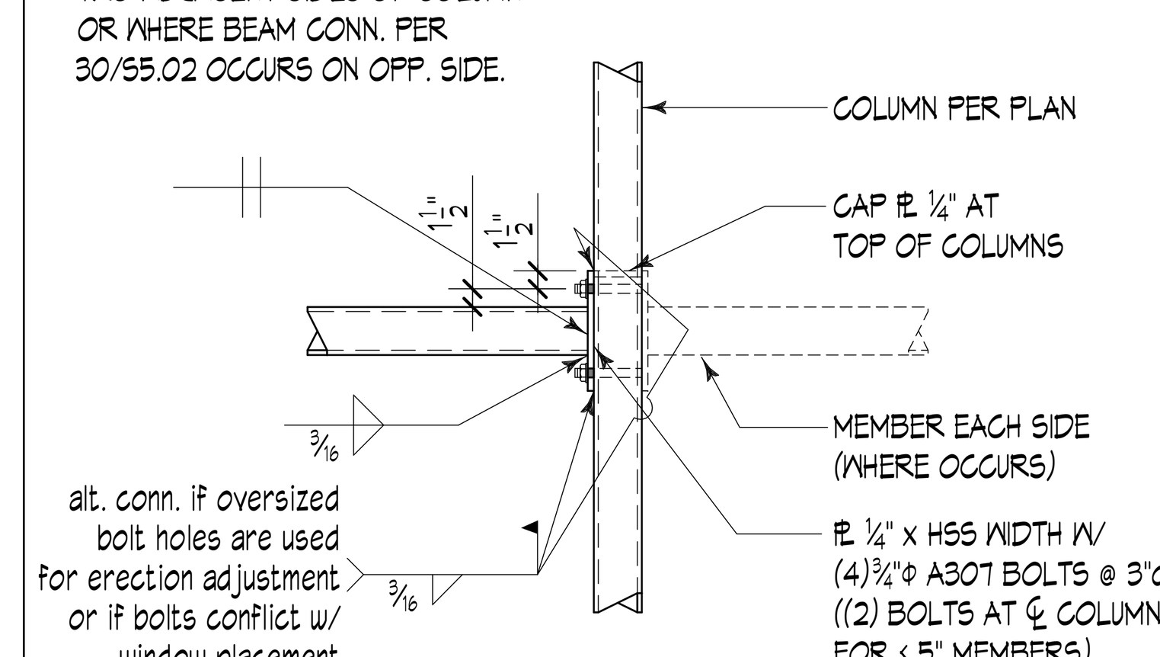


BEAM SIZE	FLANGE PL's		"L"	WELD SIZE
	TOP	BOT.		
W8, W14	1/2" x 4"	1/2" x 6"	5"	5/16"
W10	1/2" x 3"	3/8" x 5"	5"	1/4"

5025

Beam to Beam Moment Connection 27

NOTE:
OFFSET BOLTS VERTICALLY AS REQD. WHERE HSS OCCURS ON TWO ADJACENT SIDES OF COLUMN OR WHERE BEAM CONN. PER 30/S5.02 OCCURS ON OPP. SIDE.



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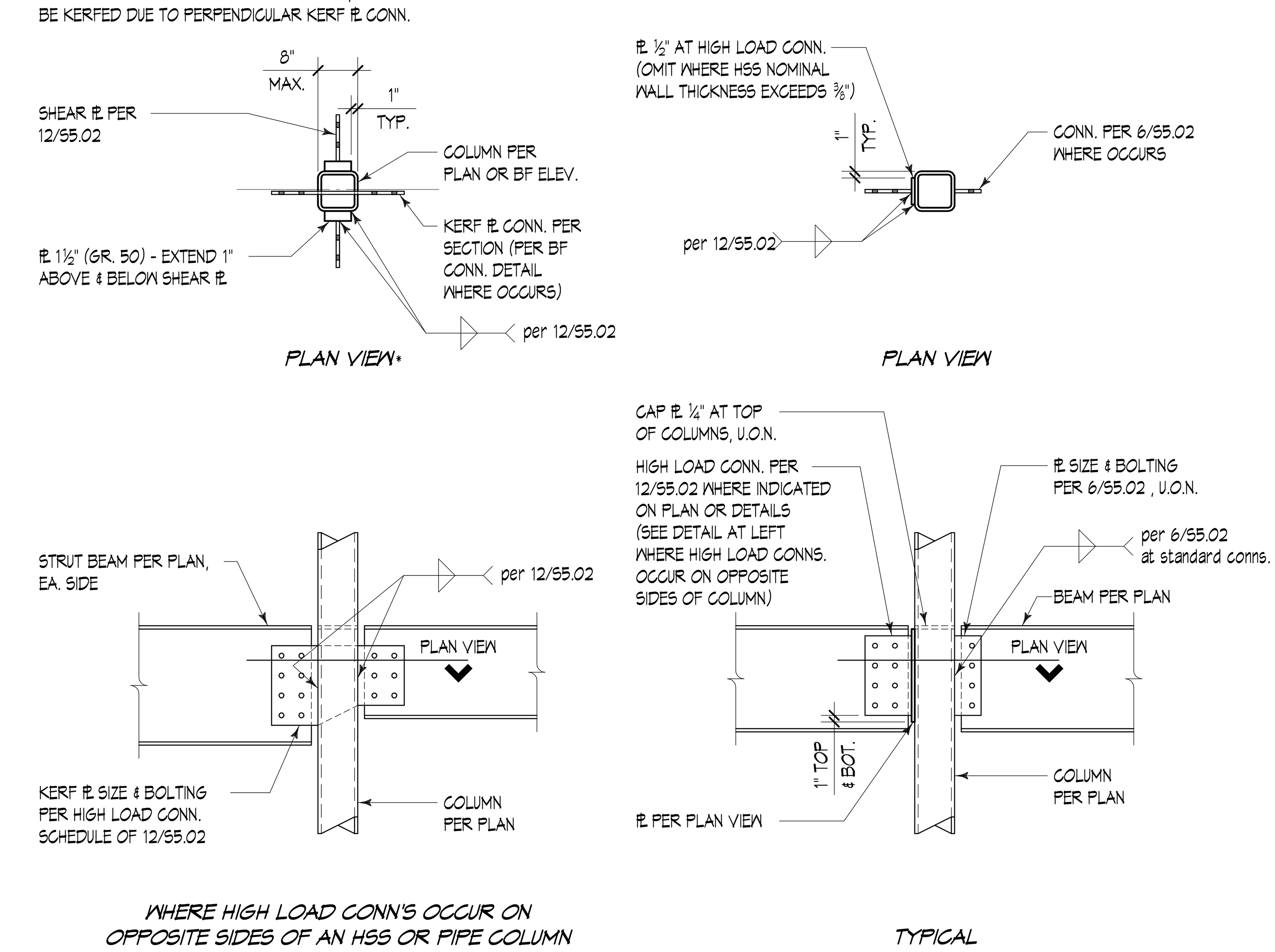
* THIS PLAN VIEW ONLY APPLIES WHERE HIGH LOAD CONN. OCCURS ON ALL (4) SIDES OF COLUMN, OR WHERE HIGH LOAD CONN. OCCURS ON OPP. SIDES OF COLUMN, BUT CANNOT BE KERFED DUE TO PERPENDICULAR KERF PL CONN.



5018

Beam to HSS Column 30

HUTTEBALL + OREMUS architecture
4010 LAKE WASHINGTON BLVD NE
KIRKLAND, WA 98033
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COUGHLIN PORTER LUNDEEN
801 SECOND AVENUE, SUITE 900
SEATTLE, WA 98104
(206) 343-0460 www.cplinc.com

CONSULTANT STAMP

04/07/20

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

TYPICAL STEEL DETAILS

SHEET NUMBER

S5.02

1

2

3

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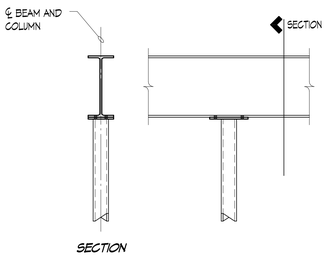

FOR CALL-OUTS IN COMMON SEE DETAIL 16/S5.02

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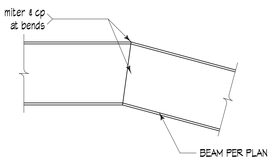

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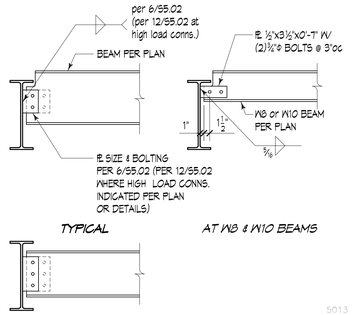

5013

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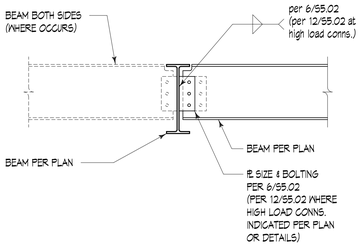

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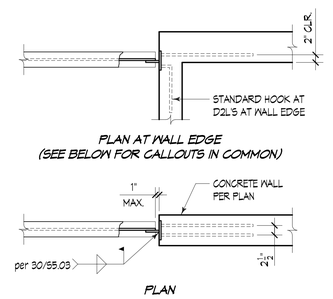

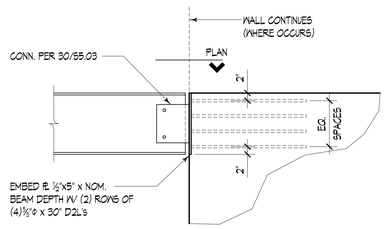

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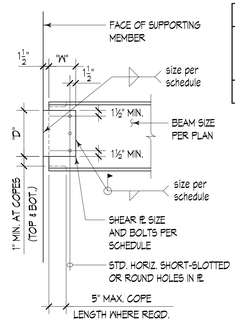

HIGH LOAD CONNECTION						
BEAM SIZE	BOLT SIZE (A325N)	fl. DEPTH "D"	WELD LENGTH "W"	NO. OF ERECTION BOLTS	fl. THICKNESS	WELD SIZE
W16	⅞"ø	10"	7½"	2	½" (GR. 50	⅜"

NOTES:

1. HIGH LOAD CONNECTION REQUIRED ONLY WHERE SPECIFICALLY NOTED ON PLAN (SEE LEGEND ON PLAN SHEETS) OR DETAILS.
2. ALL WELDS IN HIGH LOAD CONNECTIONS ARE REQUIRED TO BE MADE WITH NOTCH TOUGH WELD FILLER MATERIAL - SEE GENERAL STRUCTURAL NOTE 38
3. USE KERF fl. PER 30/S5.02 WHERE HIGH LOAD CONN'S OCCUR ON OPPOSITE SIDES OF A HSS OR PIPE COLUMN.

5733

Welded High Load Connection Schedule

30

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
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Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

TYPICAL STEEL DETAILS

SHEET NUMBER

S5.03

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2

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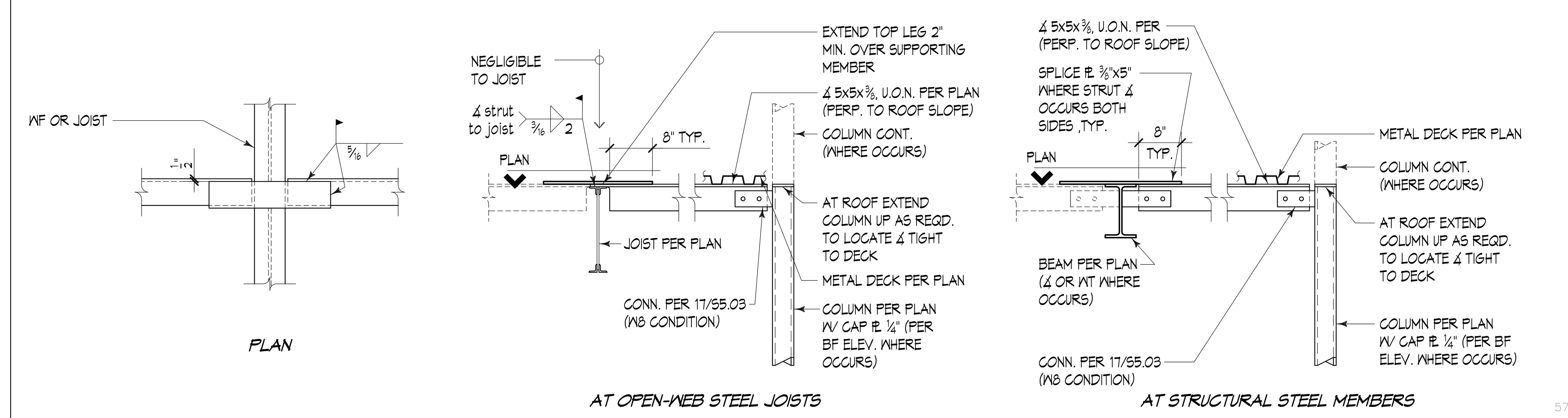

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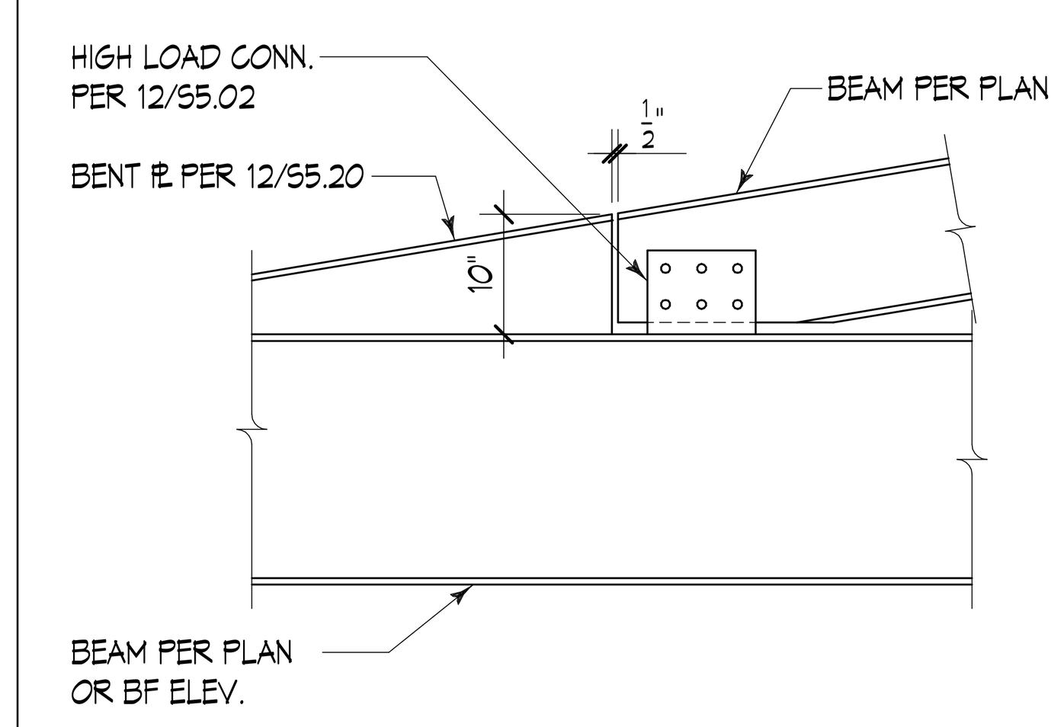

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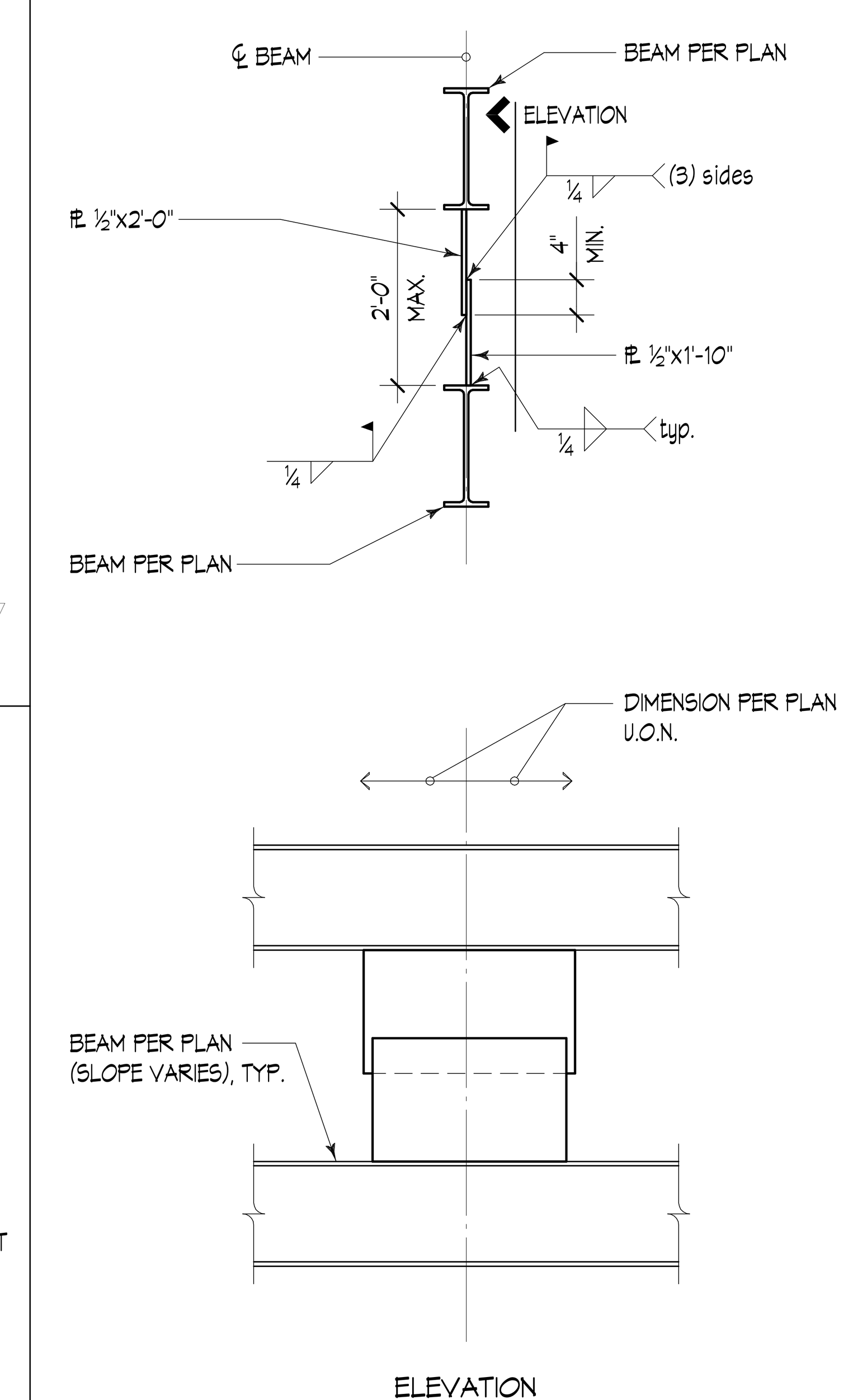

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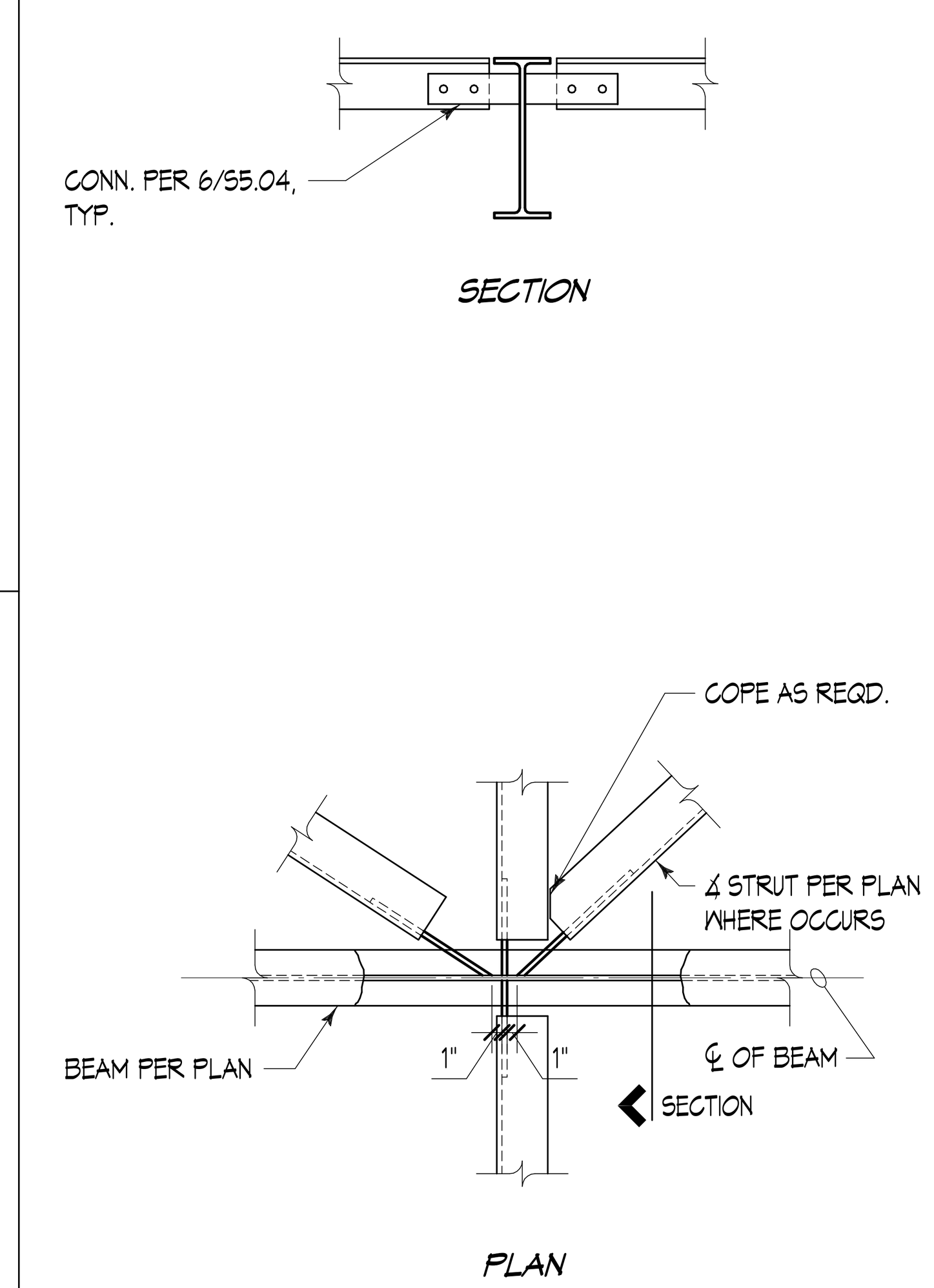

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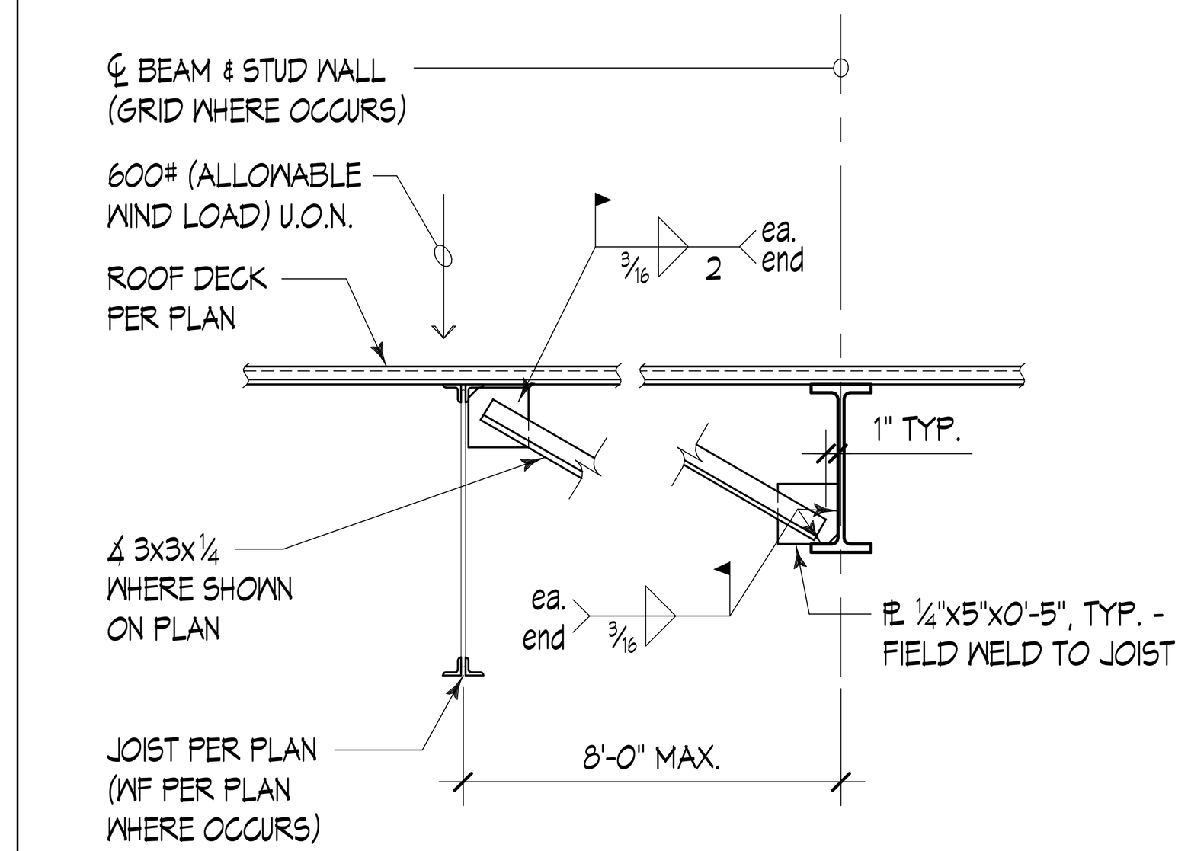

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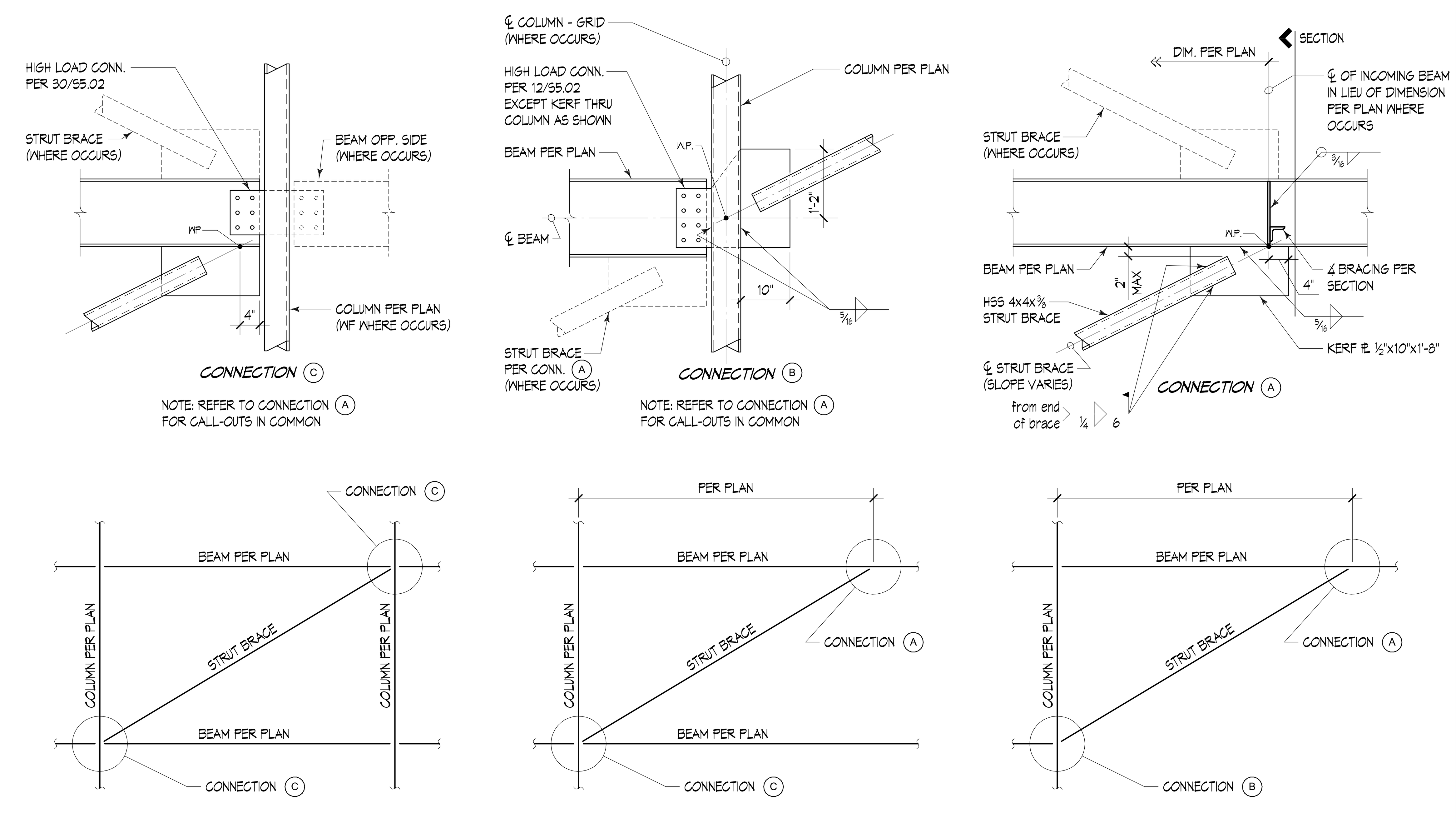

Typical Diagonal Strut Bracing Elevations & Connections 30

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04/07/20

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

TYPICAL STRUT BRACING DETAILS

SHEET NUMBER

S5.04

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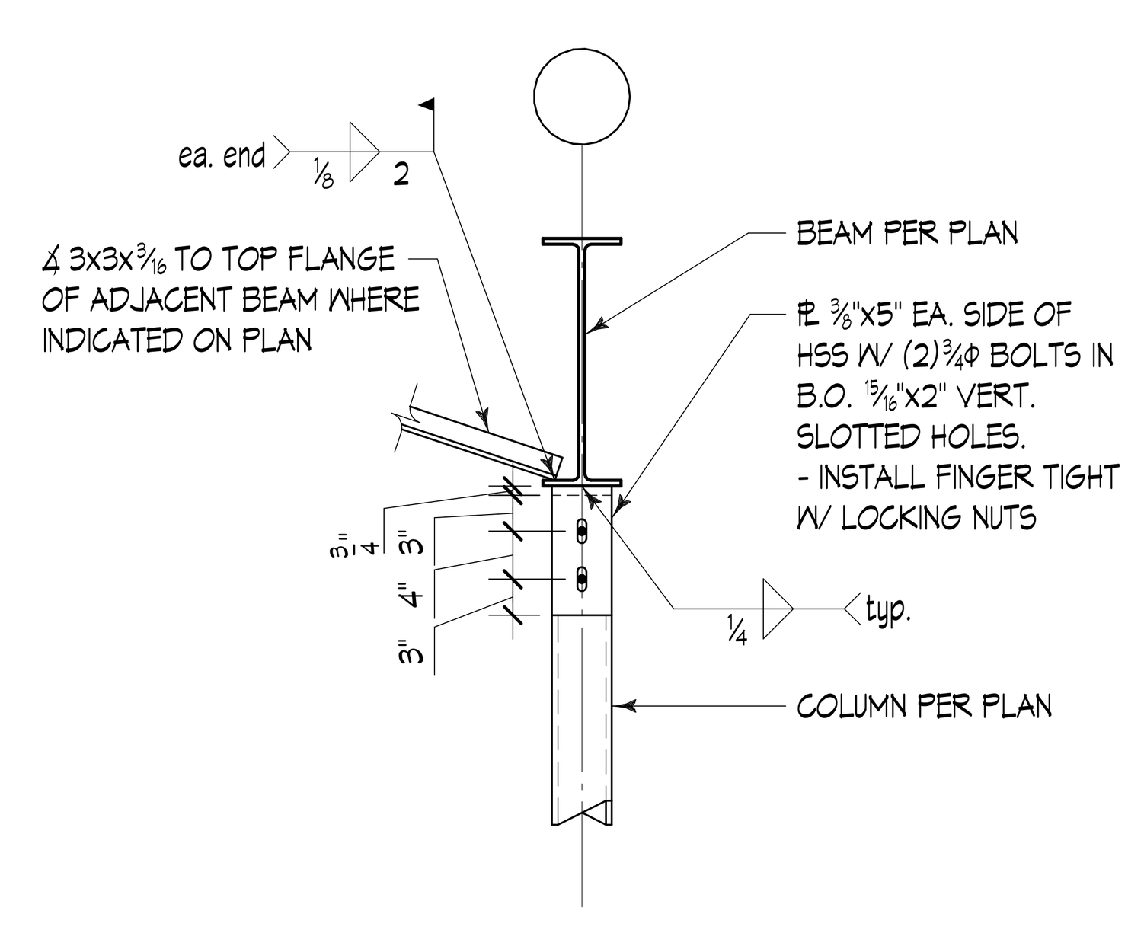

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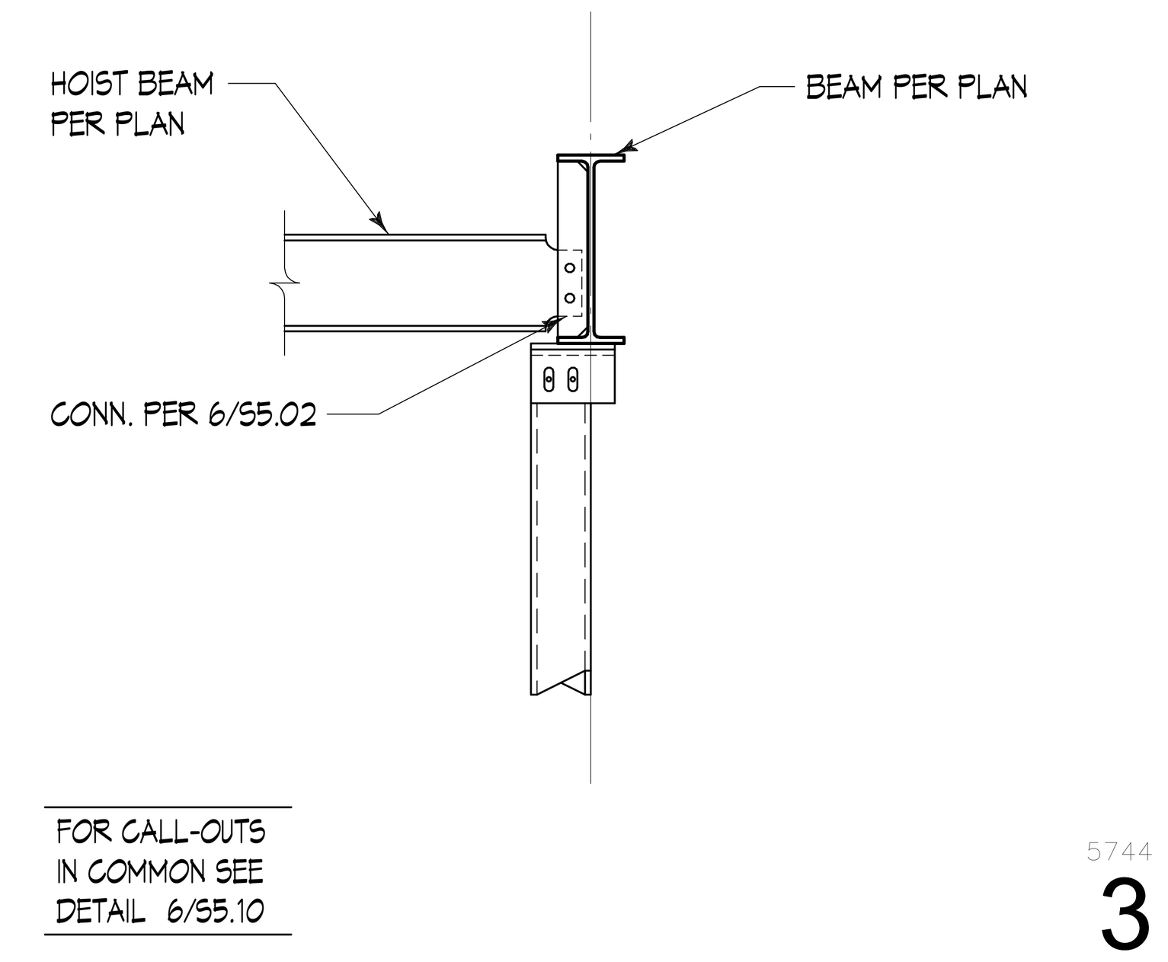

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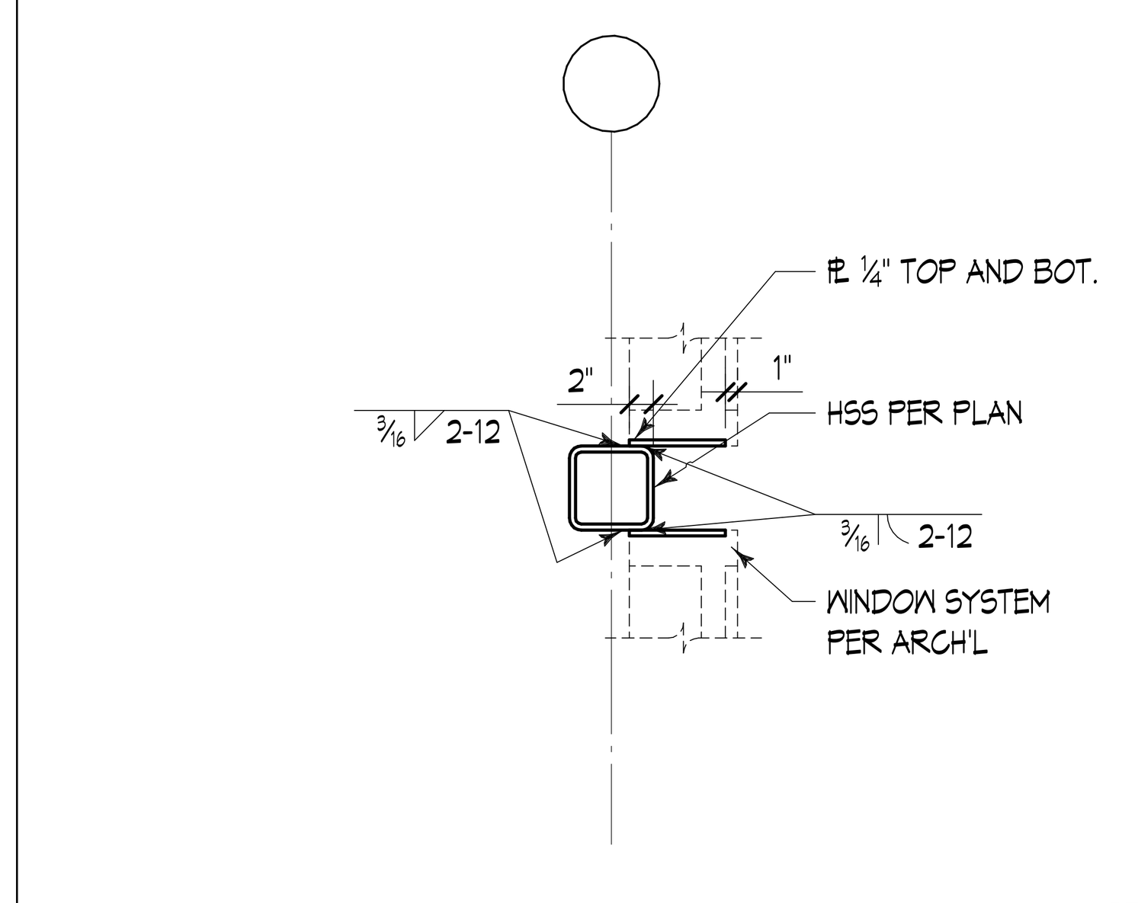

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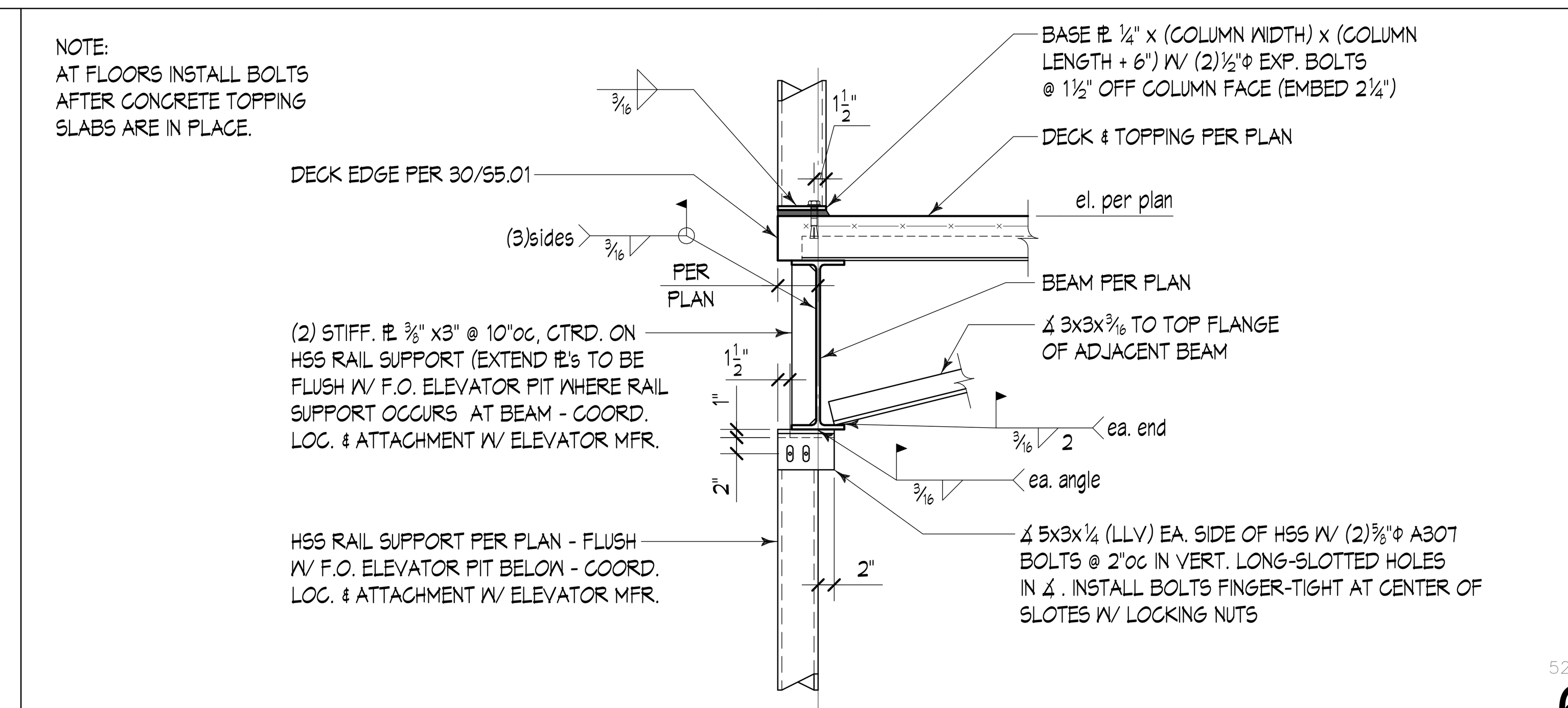

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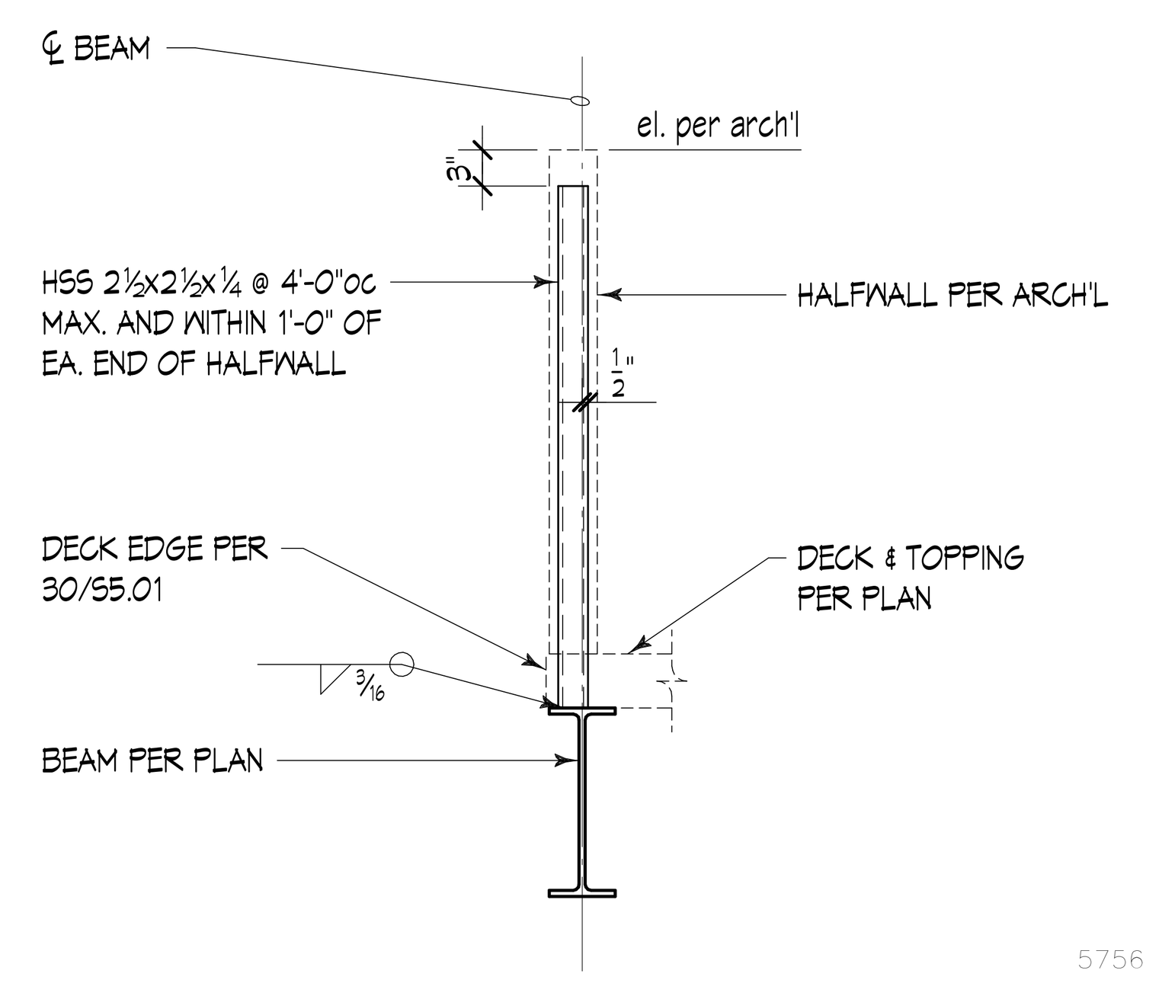

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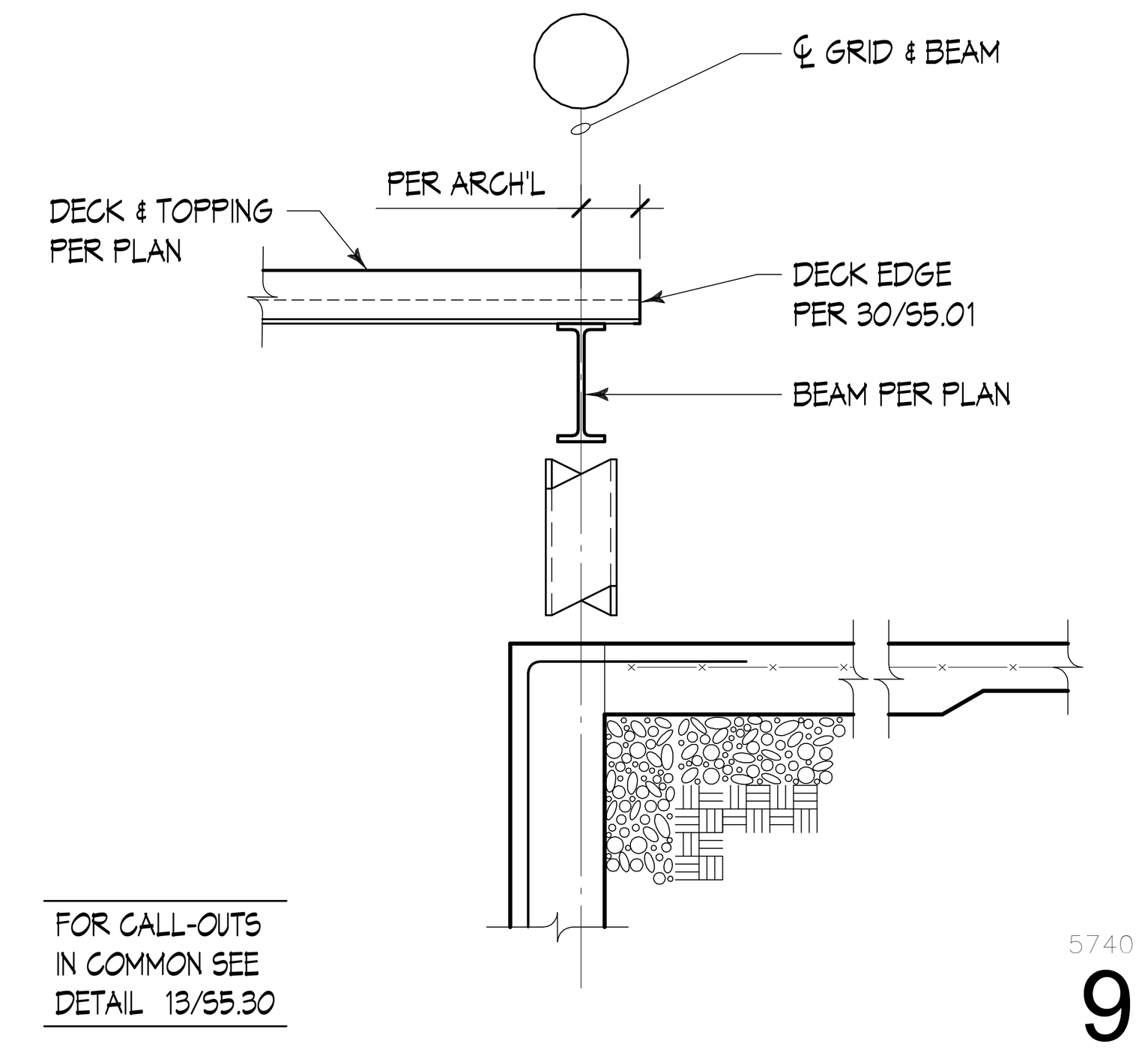

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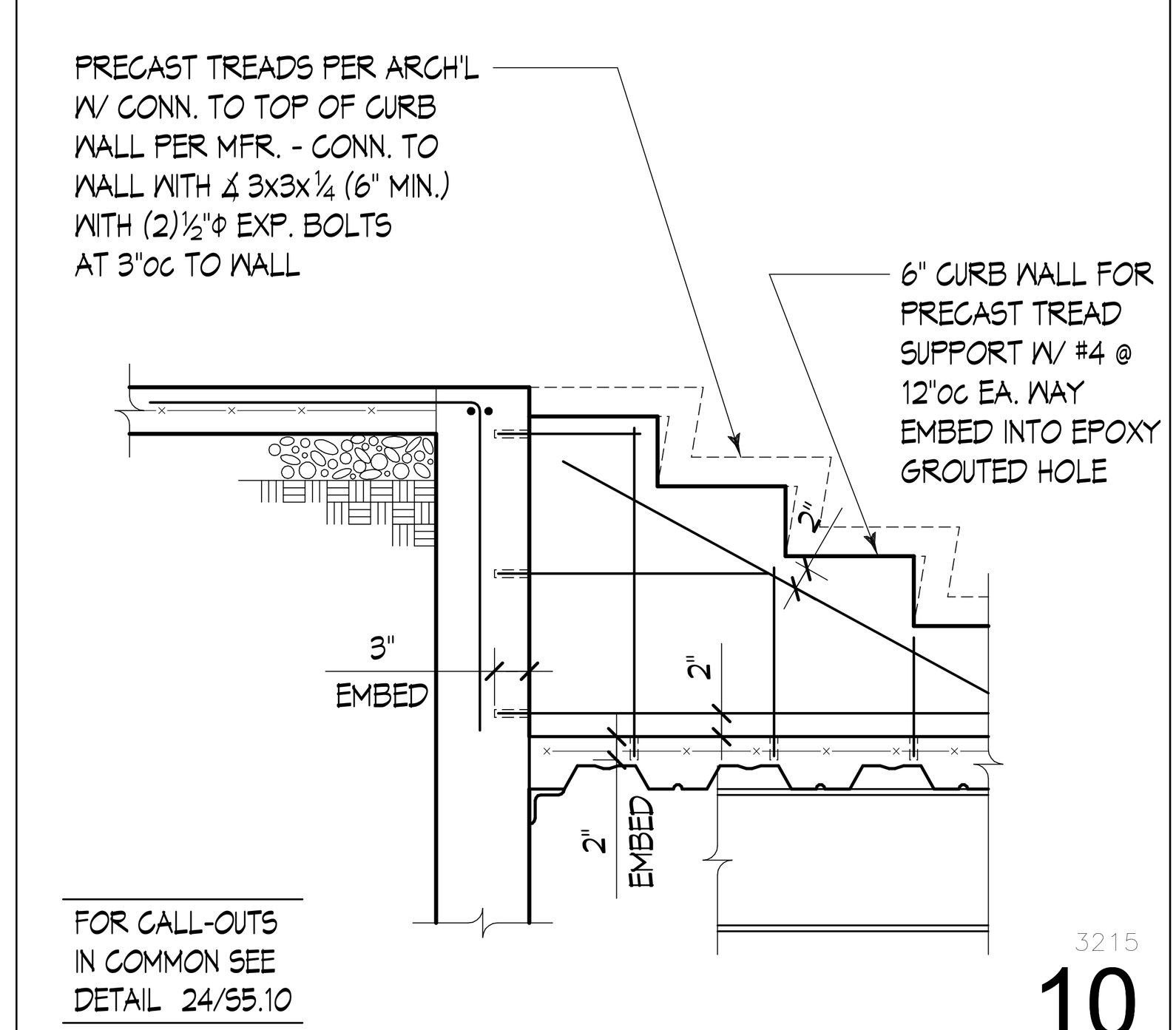

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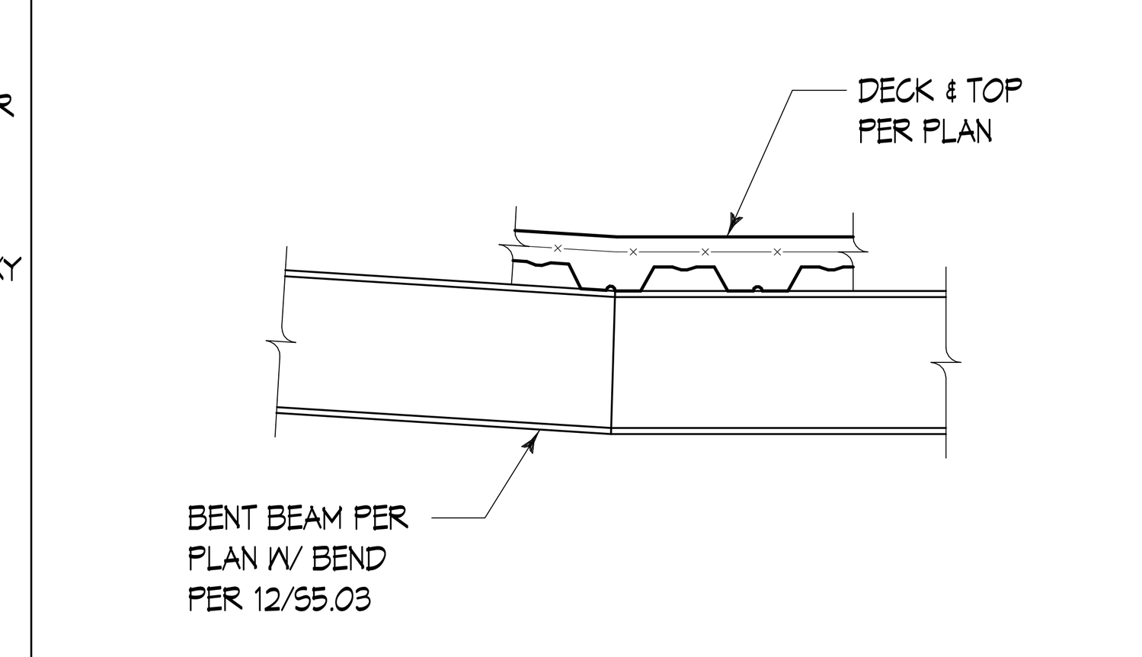

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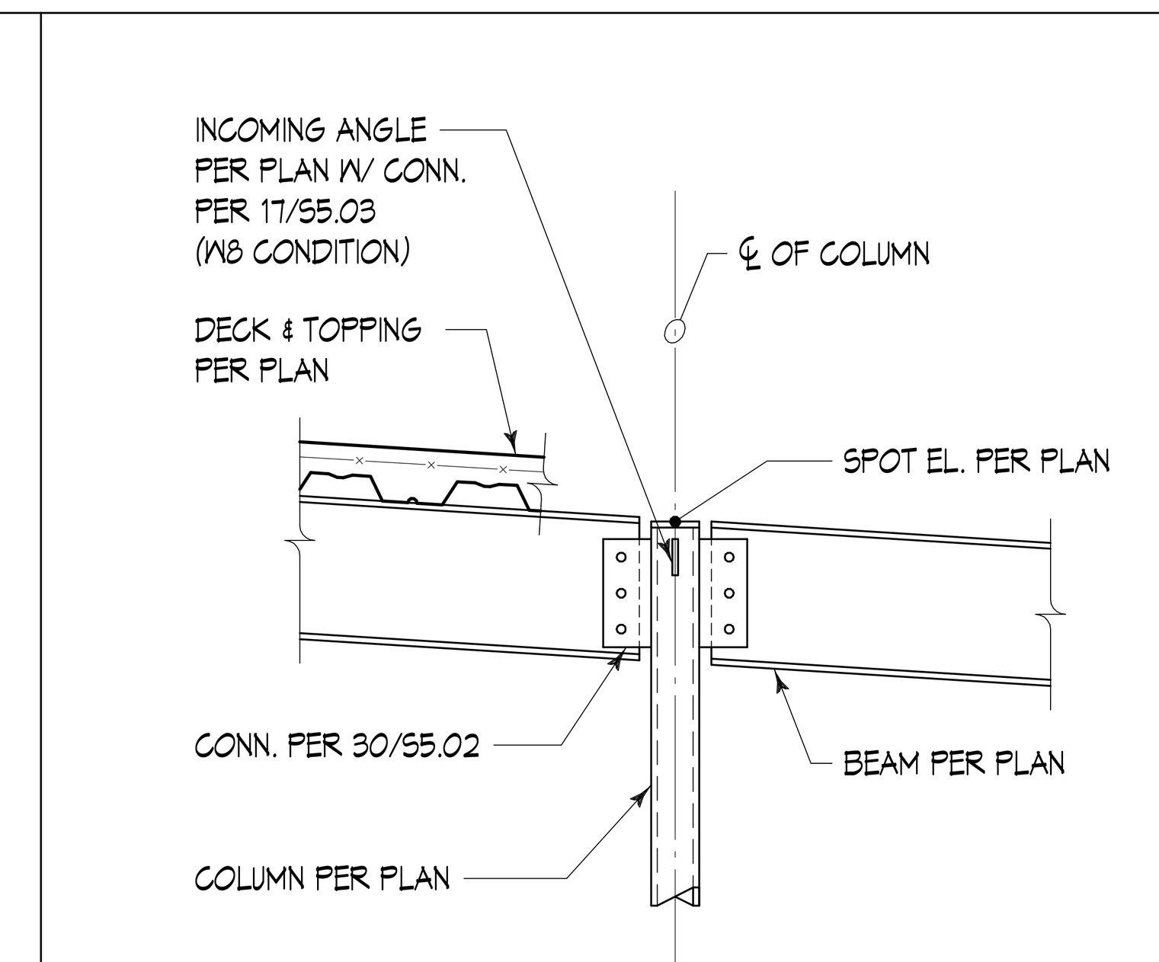

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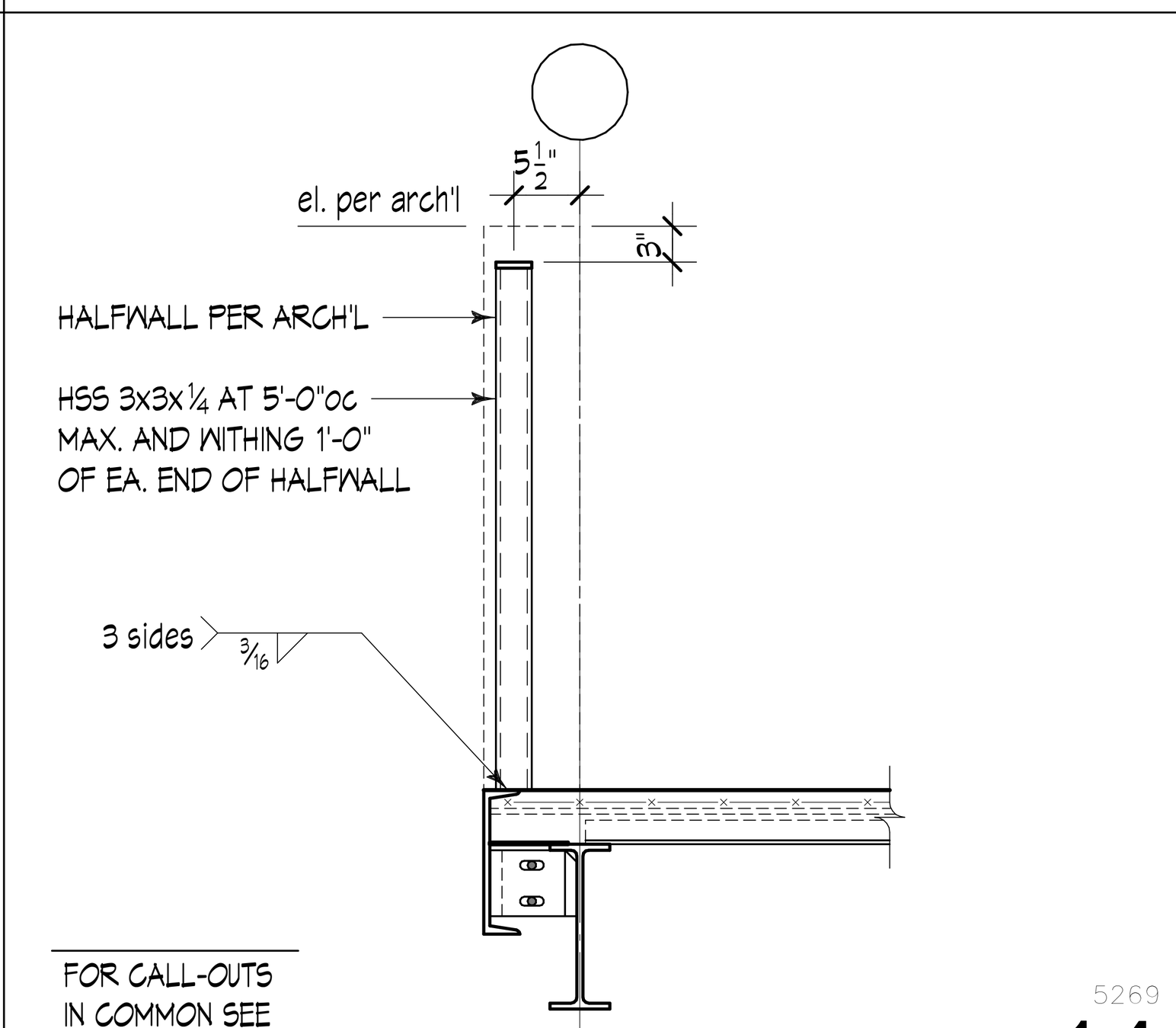

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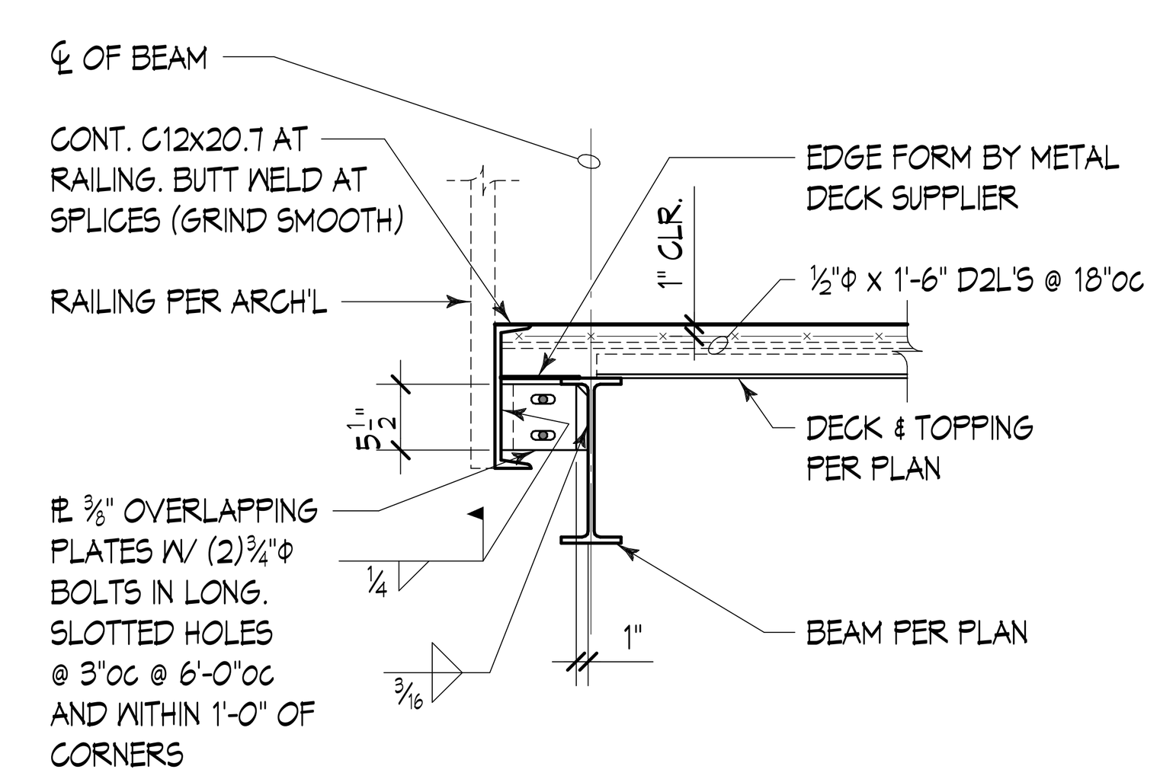

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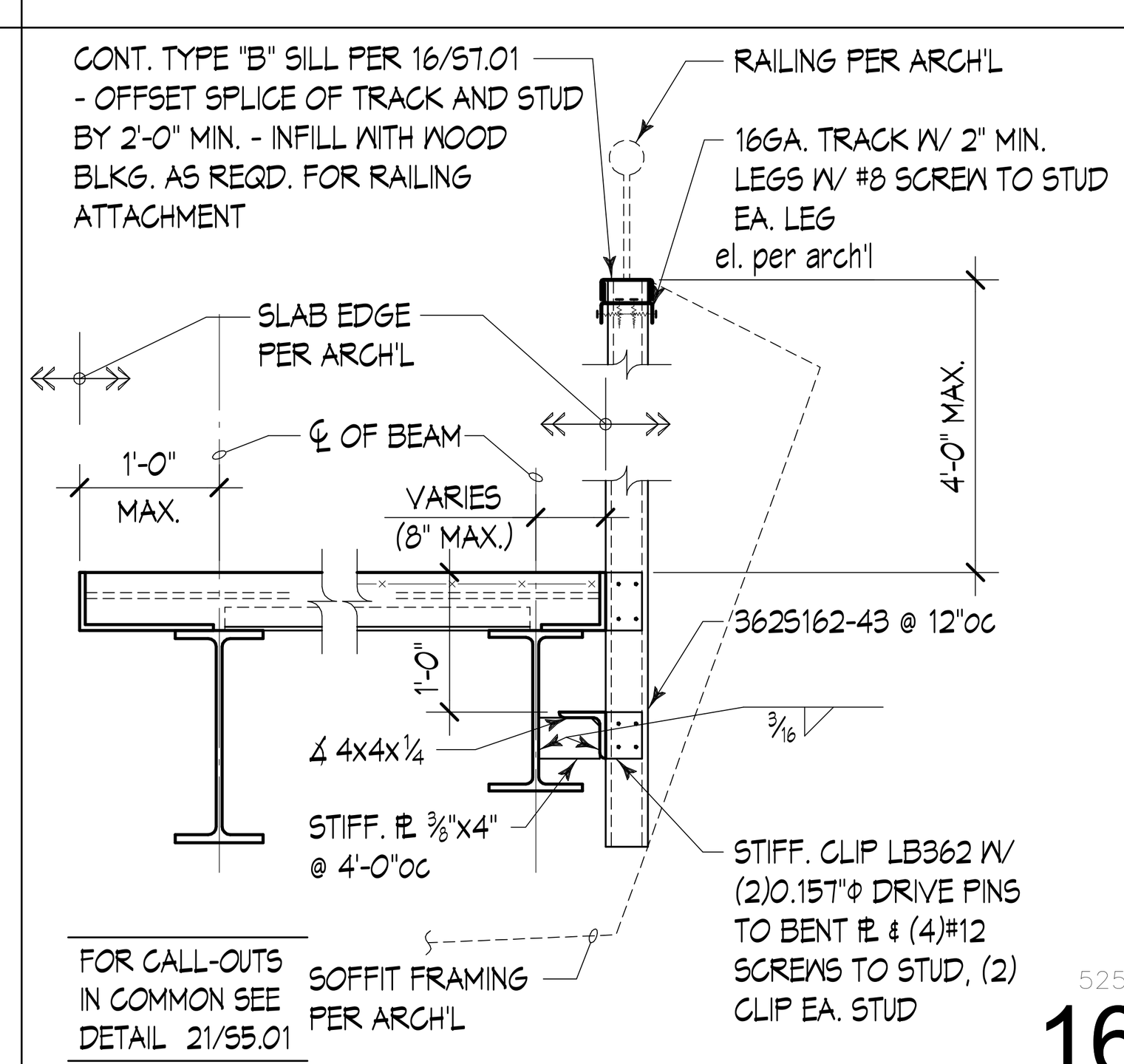

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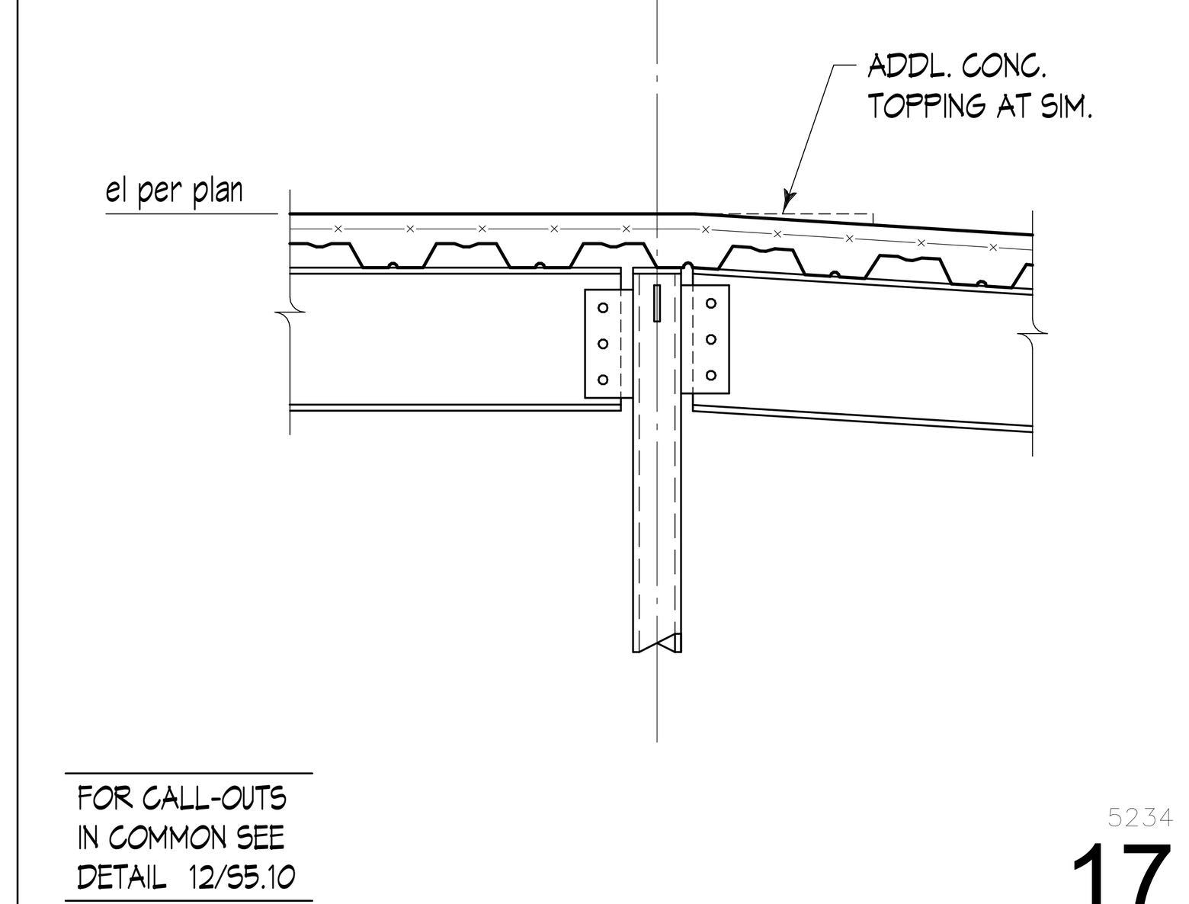

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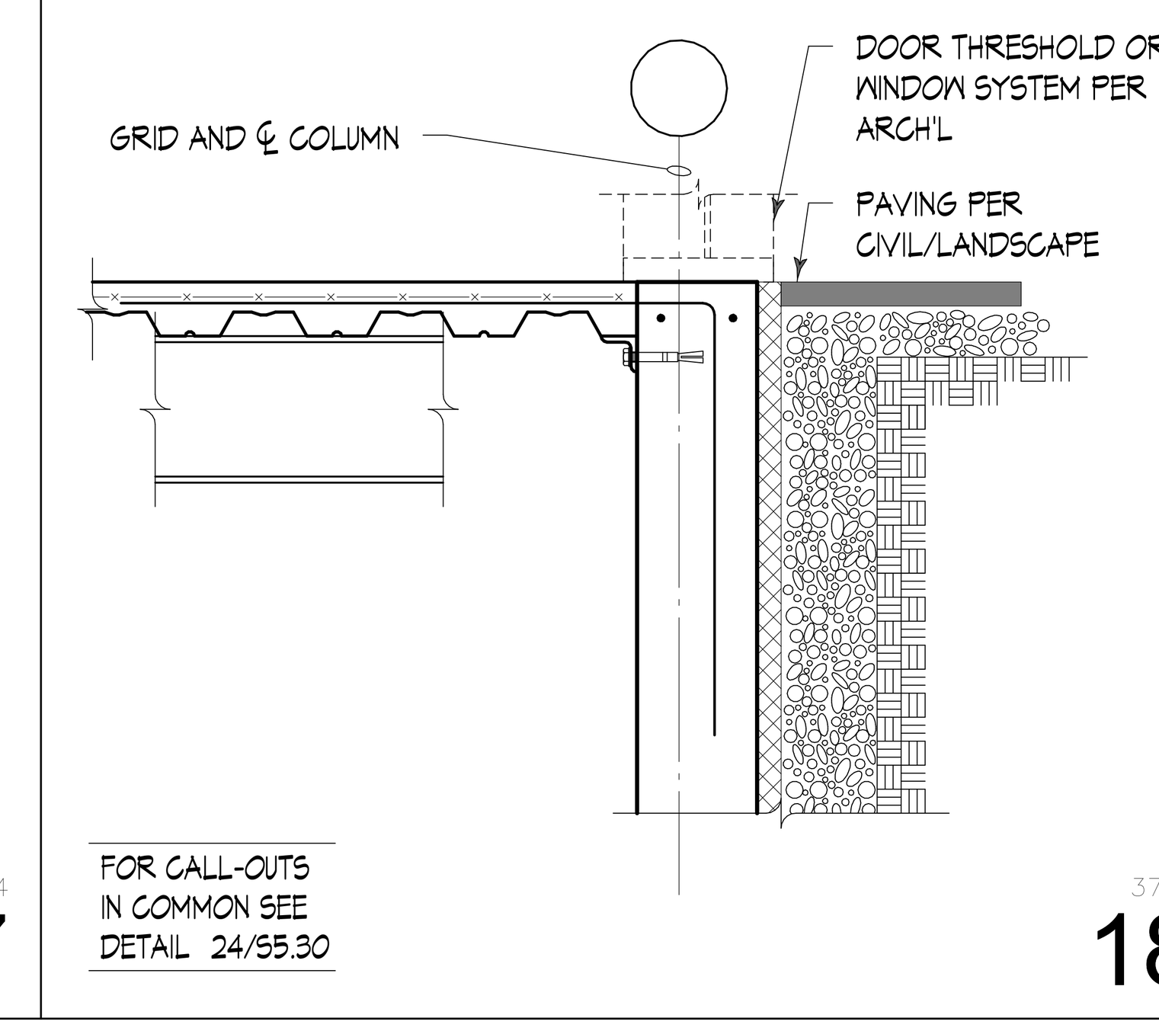

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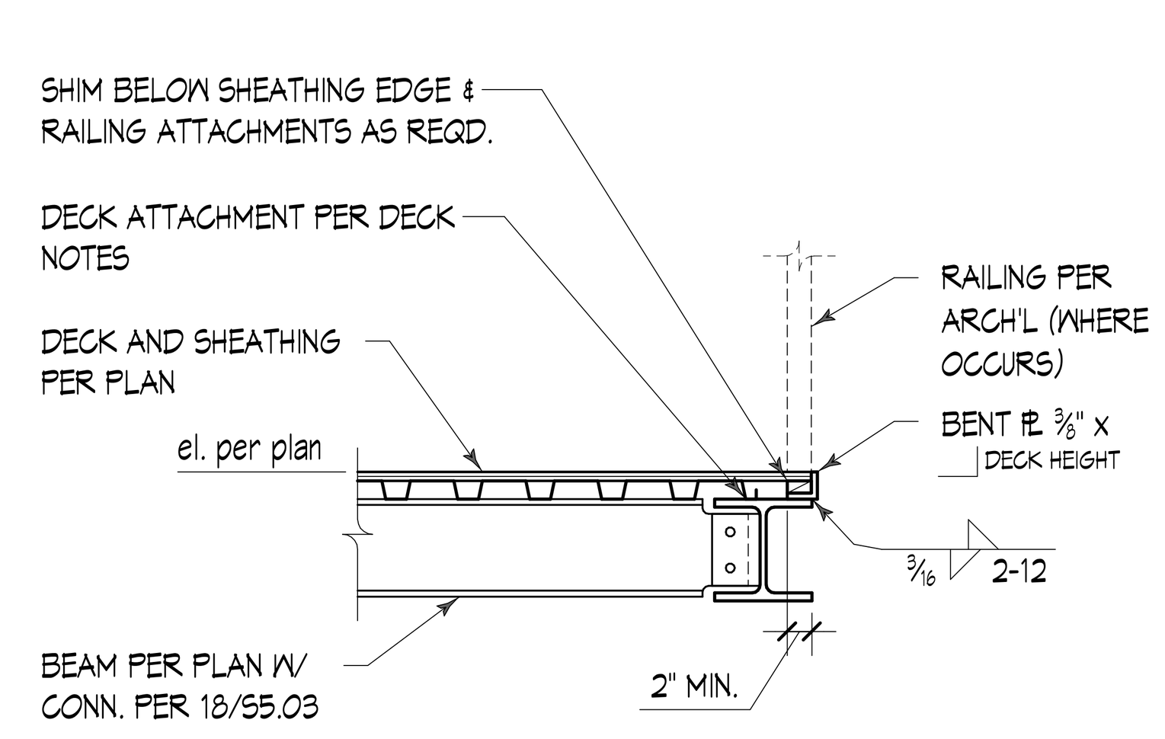

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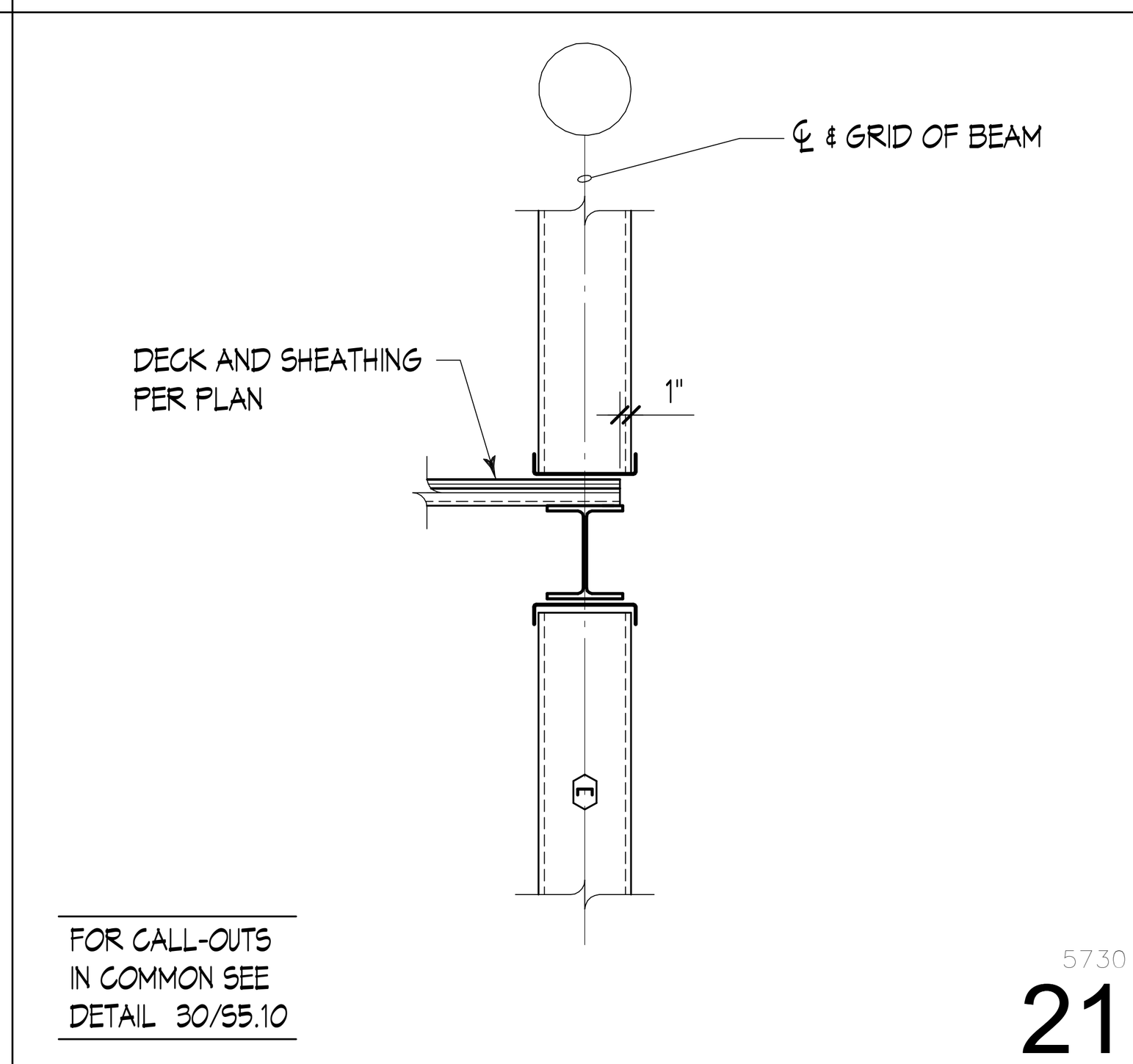

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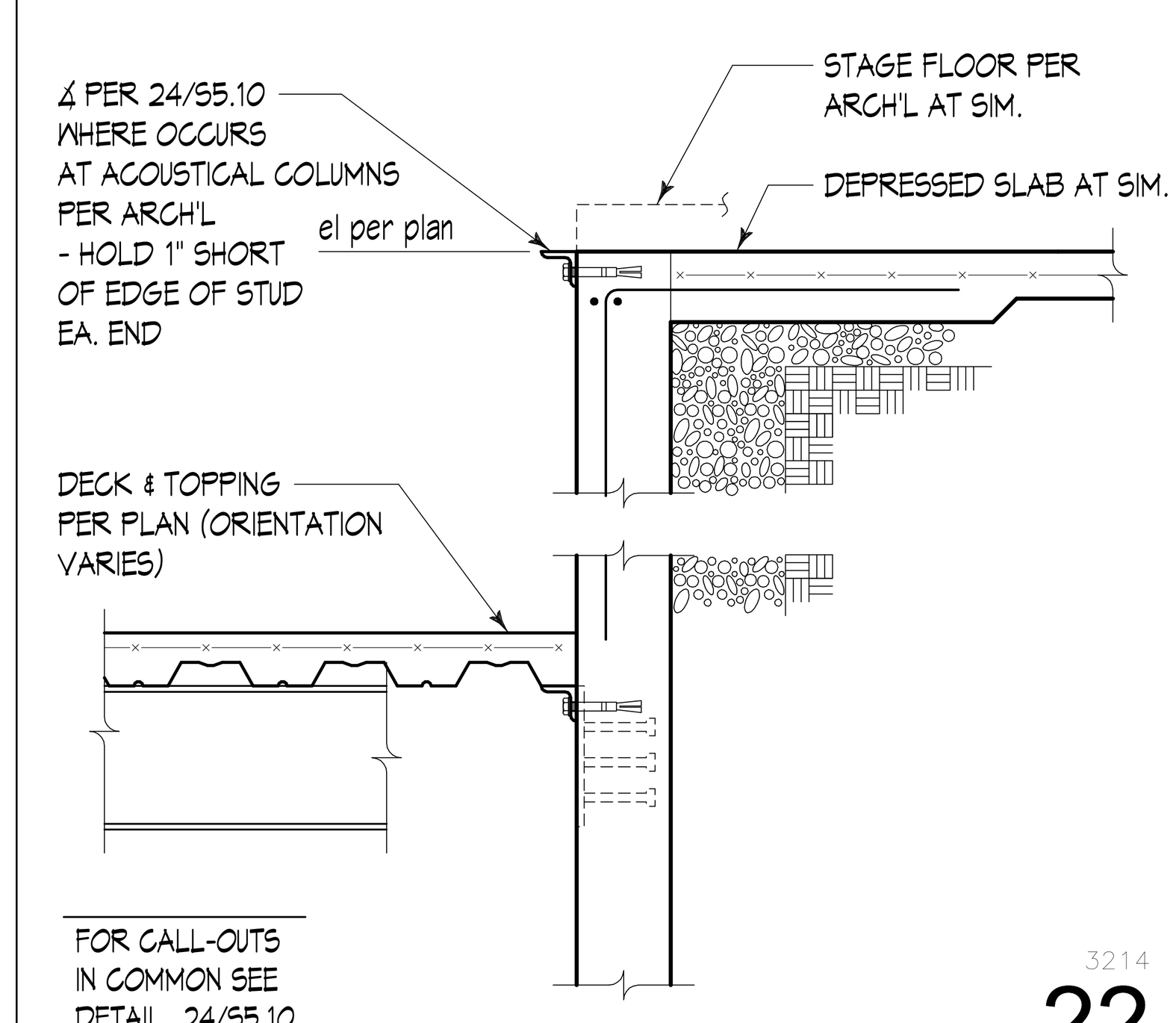

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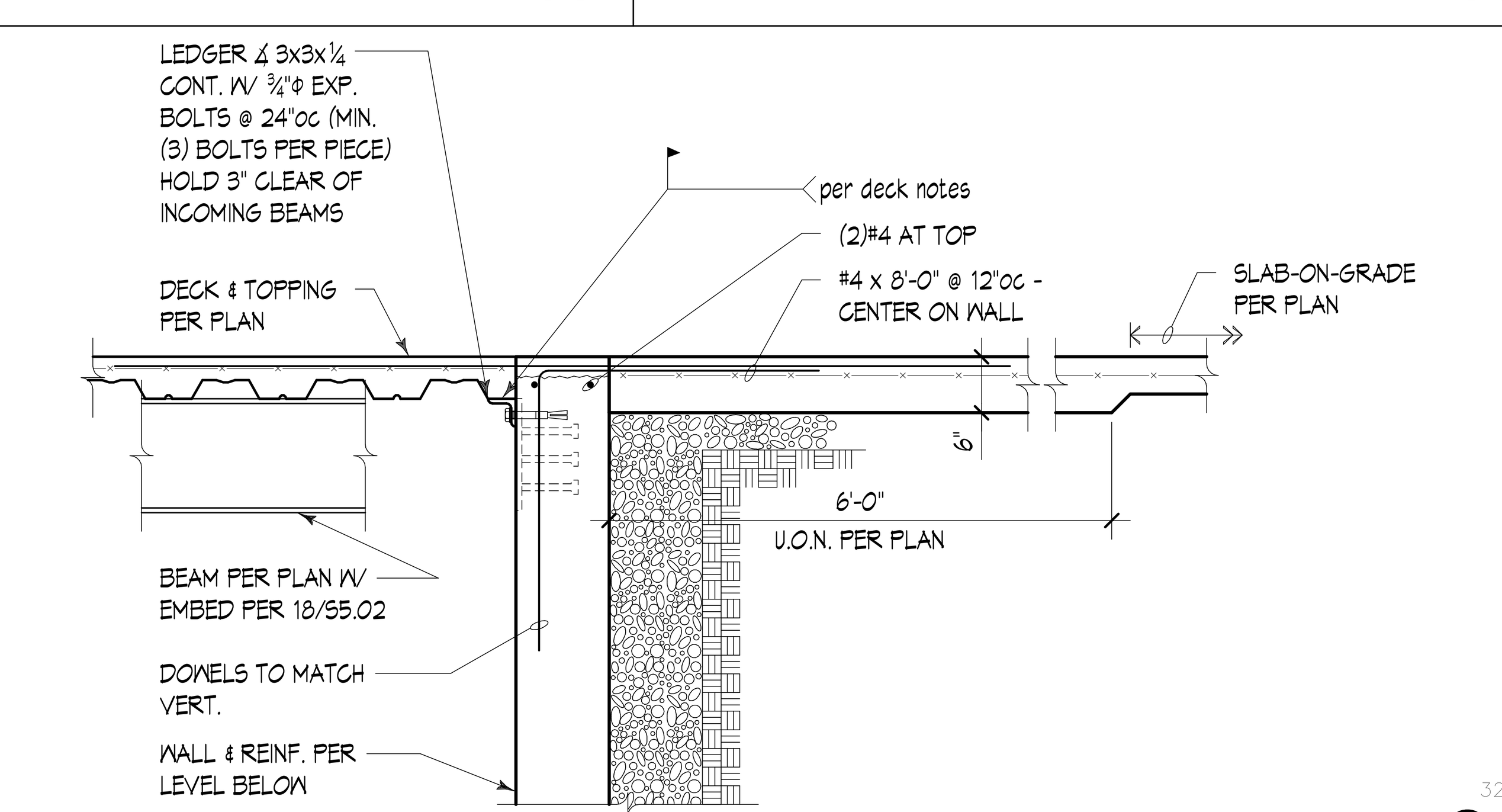

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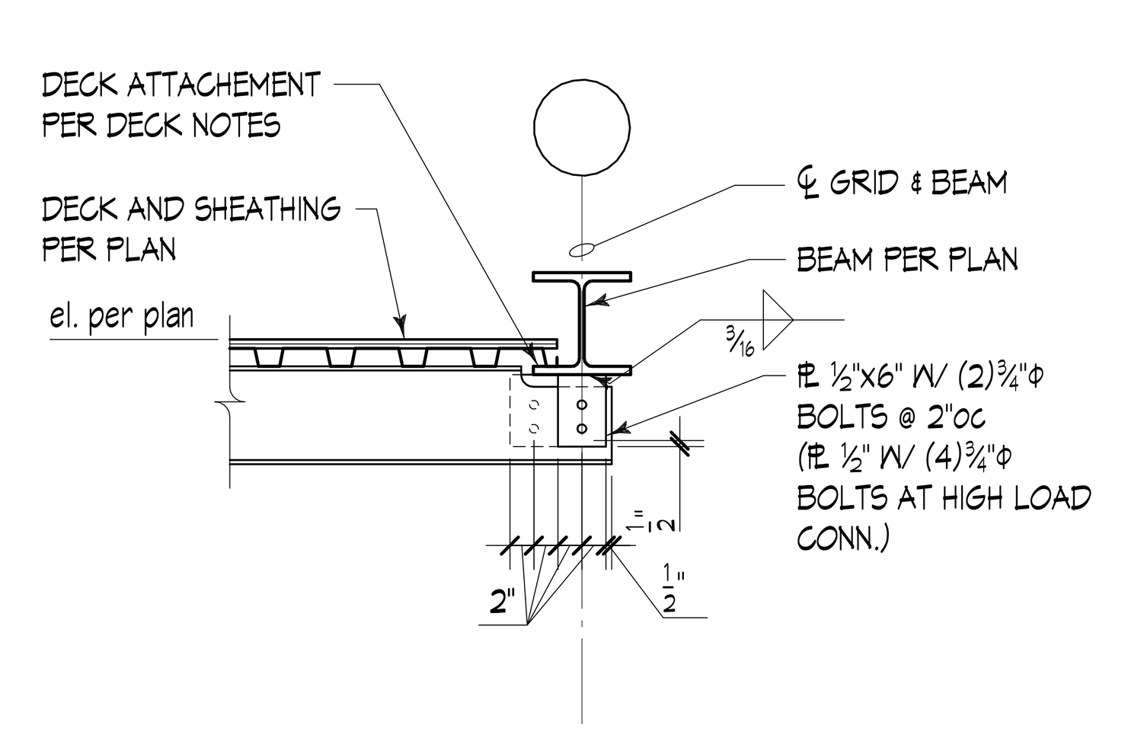

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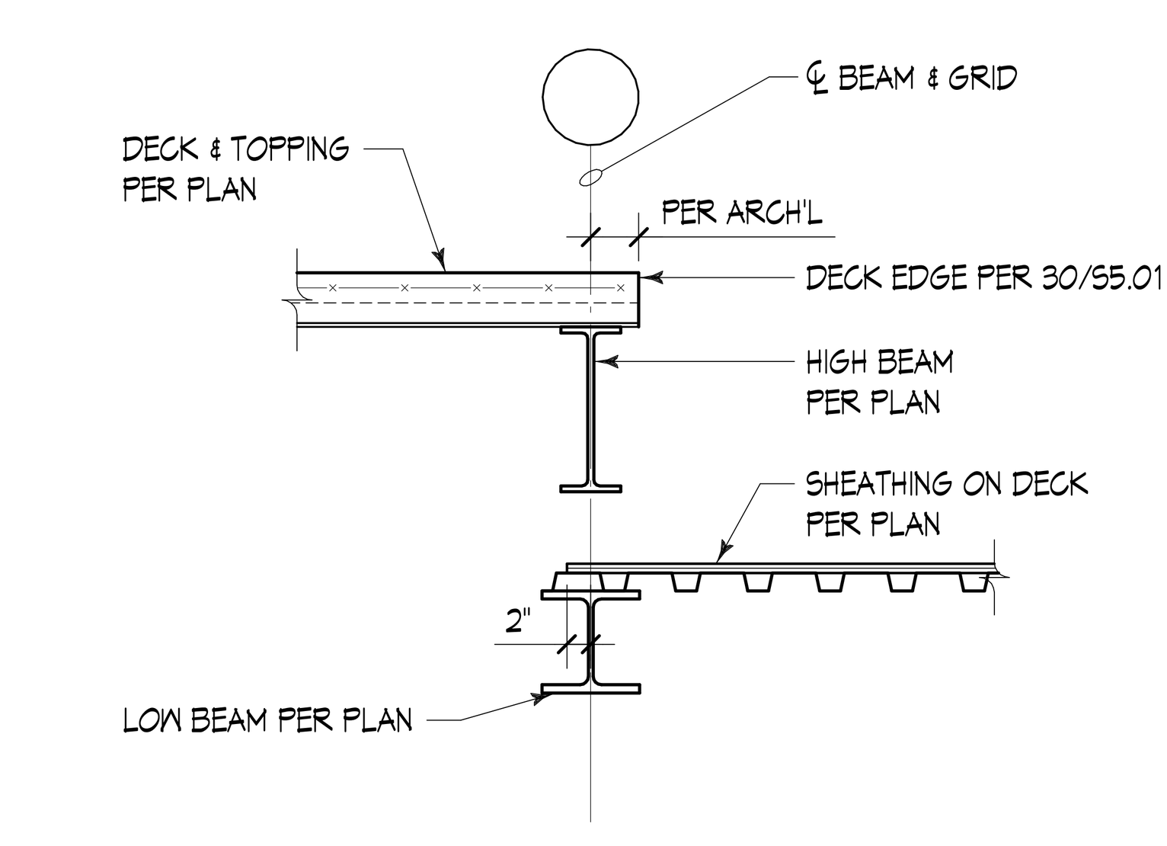

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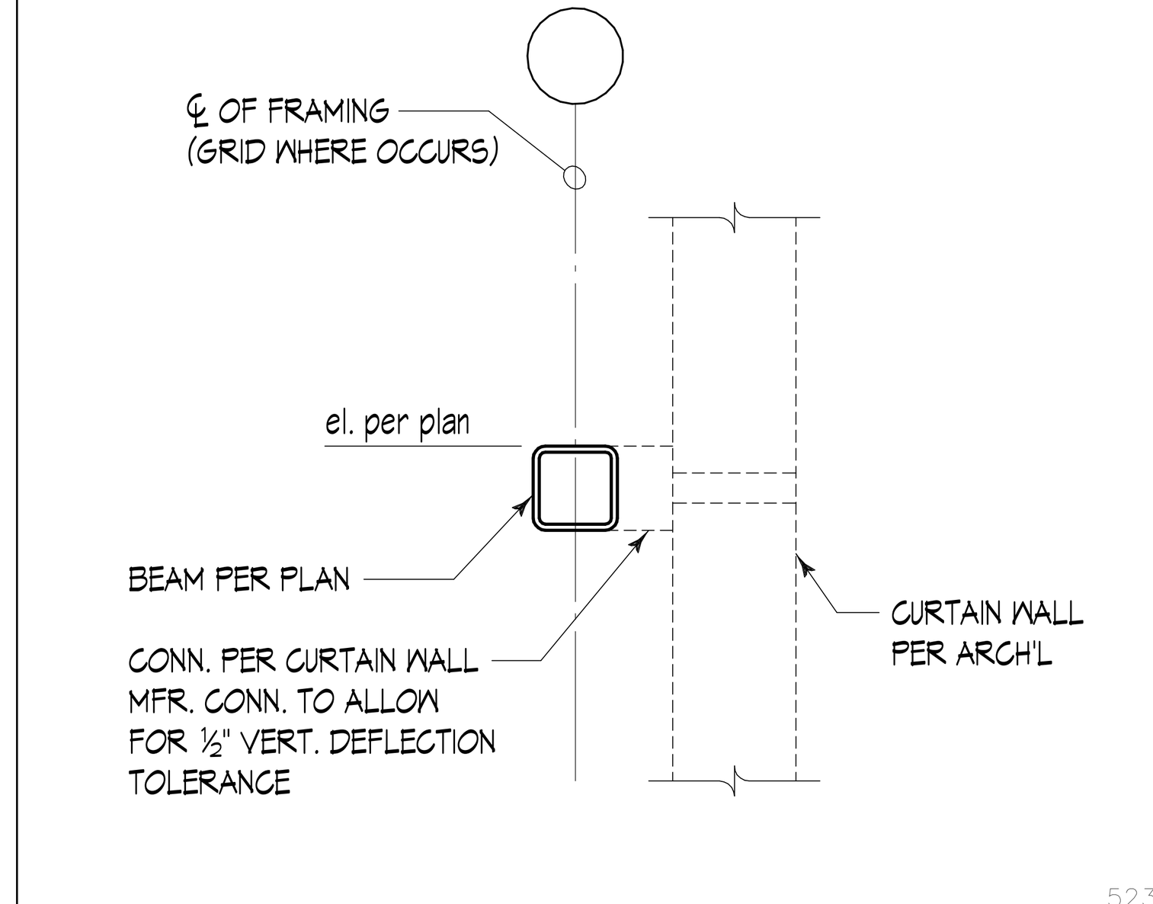

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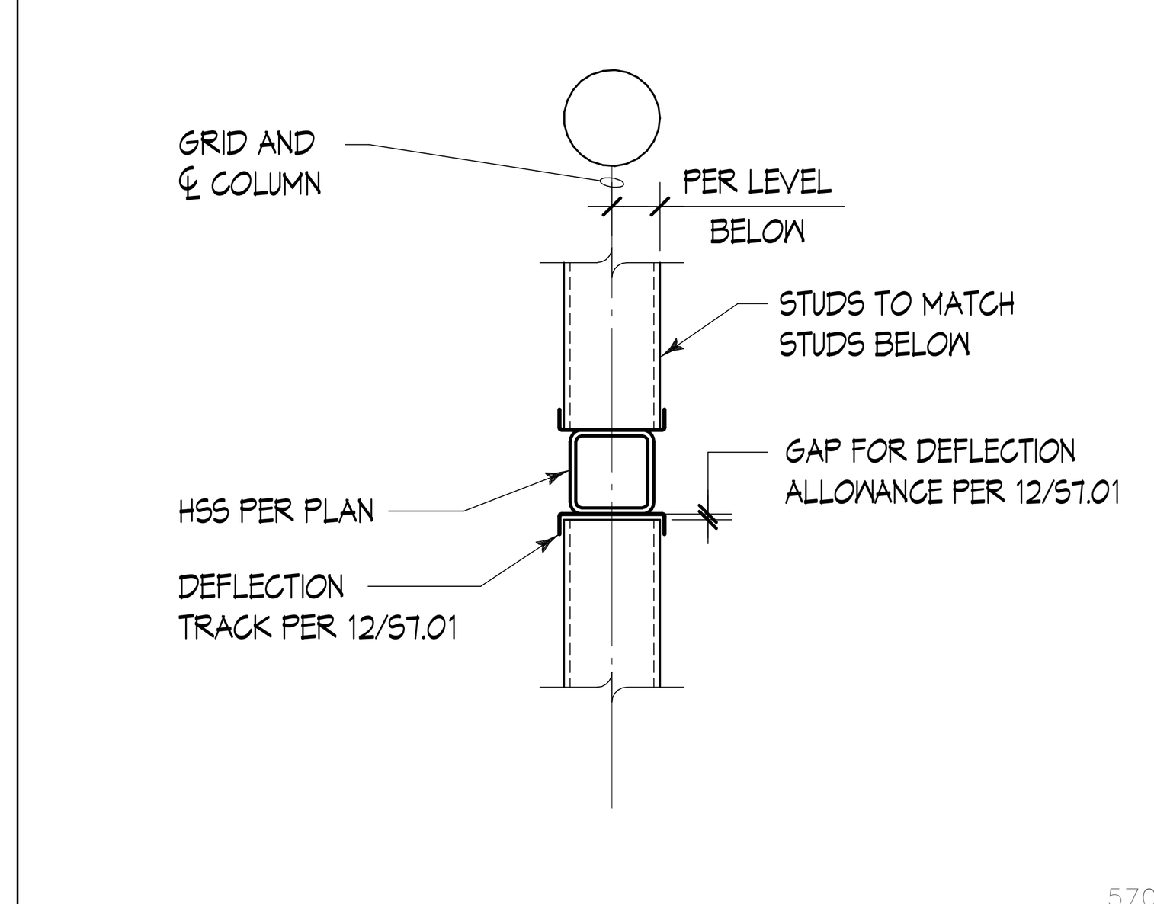

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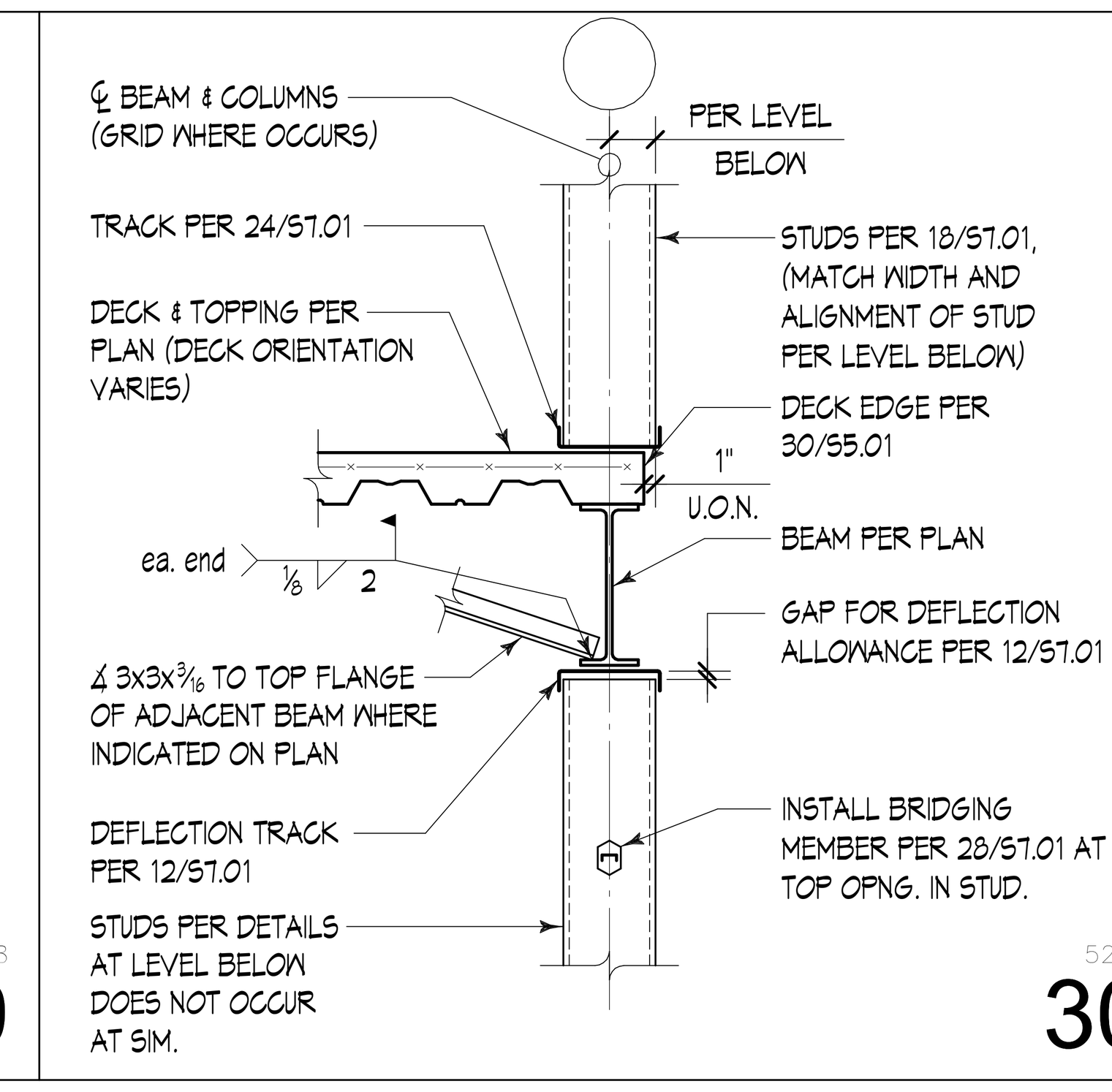

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

FLOOR FRAMING DETAILS

SHEET NUMBER

S5.10

1

2

3

4

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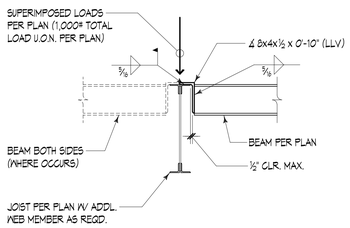

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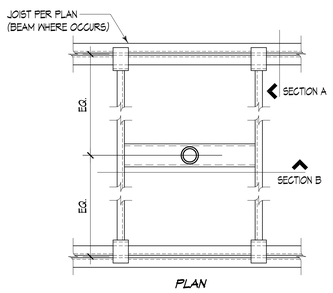
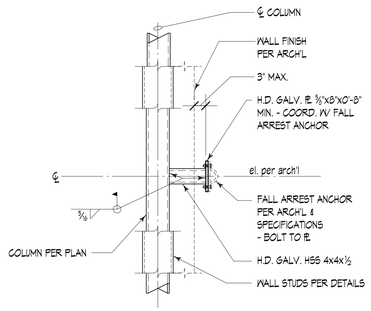
WF Beam Bearing on K Joist 6

7

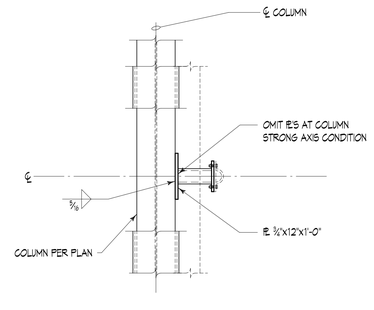


PLAN

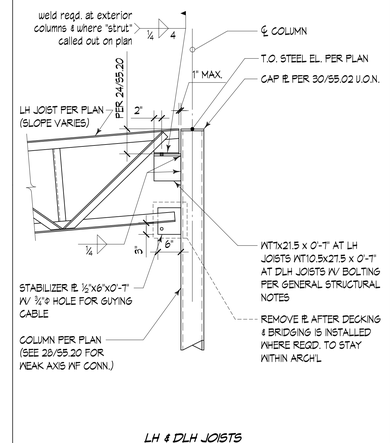
DETAIL 2
AT JOISTS



DETAIL 3
AT HSS WALL COLUMNS



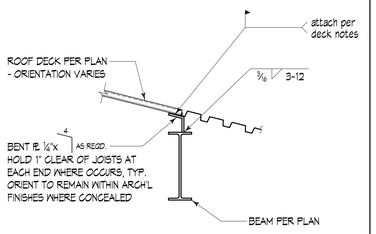
DETAIL 4
AT WF WALL COLUMNS
- FOR CALL-OUTS IN COMMON SEE DETAIL 3



LH & DLH JOISTS

5042

Typical Joist to Column Connection 17



NOTE:
FILLER PL REQUIRED FOR BRACED FRAME BEAMS AND MEMBERS DENOTED "STRUT" PER PLAN AND ONLY FOR THOSE HELD DOWN AS SHOWN FOR JOIST SUPPORT. FILLER PL ALSO REQUIRED WHERE DECK ORIENTATION CHANGES OR WHERE SPECIFIED ON DETAILS.

5045

Filler Angle Between Joists at Roofs 12

8

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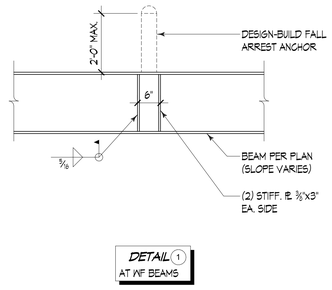
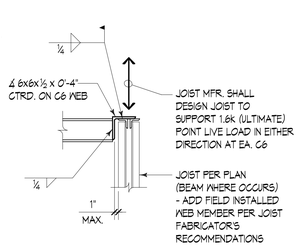
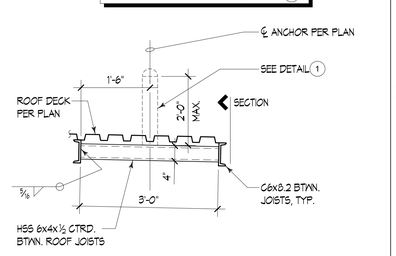


DETAIL 1
AT WF BEAMS



SECTION A



SECTION B

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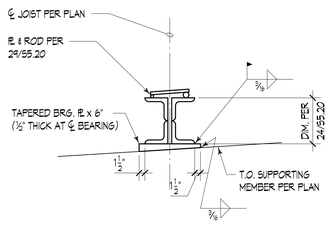

1½" = 1'-0" 5248

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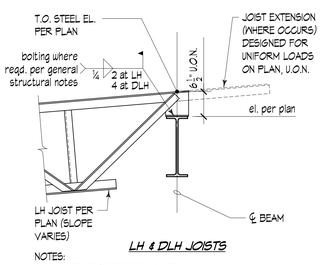

LH & DLH JOISTS

NOTES:
1. INSTALL BENT PL BETWEEN JOISTS WHERE REQUIRED PER 12/55.20 .

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Typical Joist to Beam Connection 24

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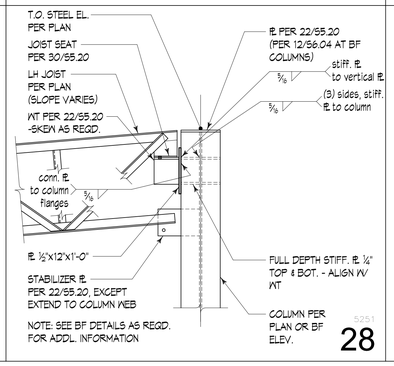

NOTE: SEE BF DETAILS AS REGD. FOR ADDL. INFORMATION

5251

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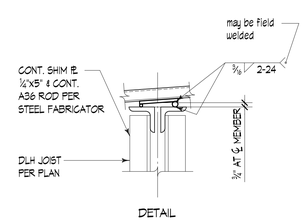

DETAIL

1½" = 1'-0" 5249

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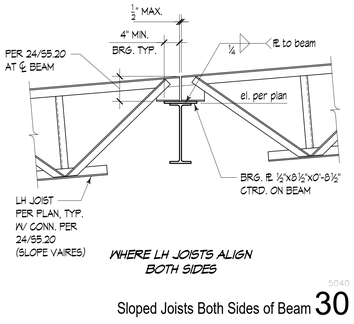

WHERE LH JOISTS ALIGN BOTH SIDES

5040

Sloped Joists Both Sides of Beam 30

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04/07/20

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BID DOCUMENTS

04.13.2020

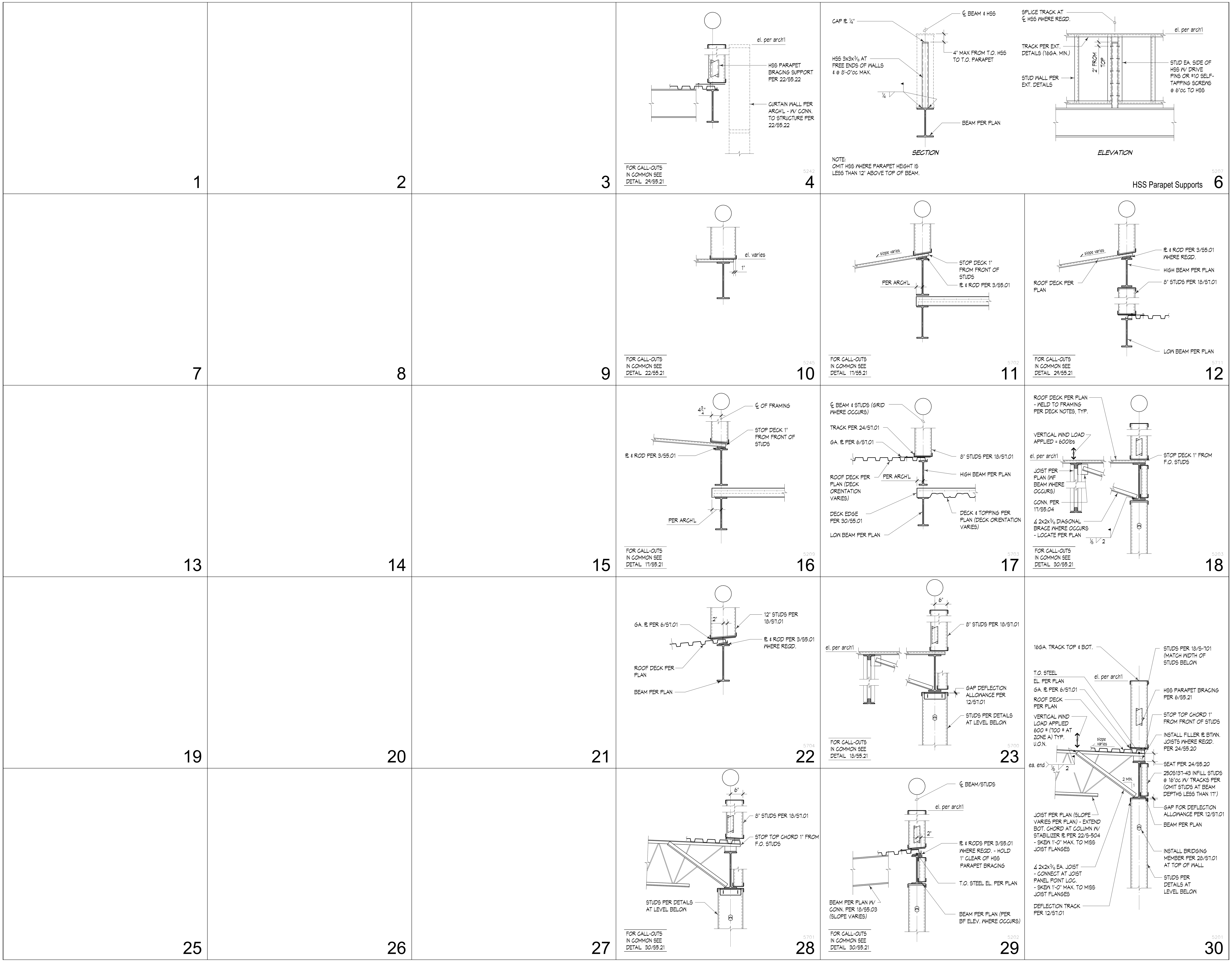
PROJECT NUMBER: S190390-01

SHEET NAME

TYPICAL STEEL JOIST DETAILS

SHEET NUMBER

S5.20



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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

ROOF FRAMING DETAILS

SHEET NUMBER

S5.21

1

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3

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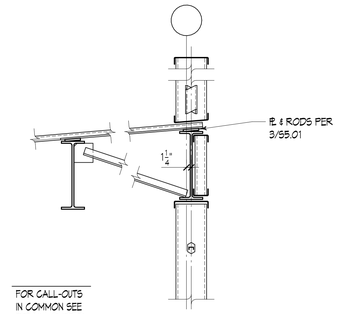

FOR CALL-OUTS IN COMMON SEE DETAIL 18/S5.21

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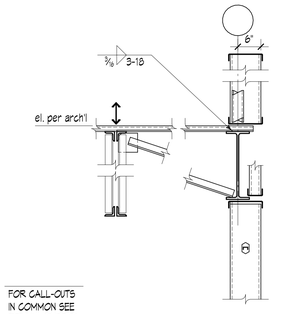

FOR CALL-OUTS IN COMMON SEE DETAIL 18/S5.21

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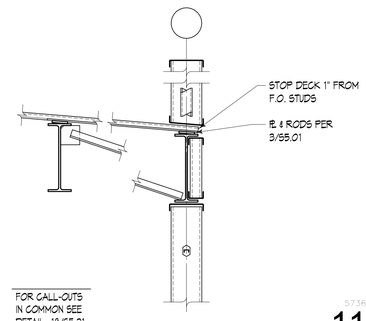

FOR CALL-OUTS IN COMMON SEE DETAIL 18/S5.21

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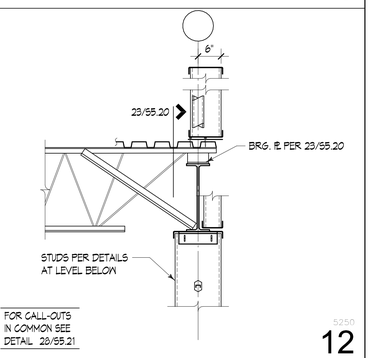

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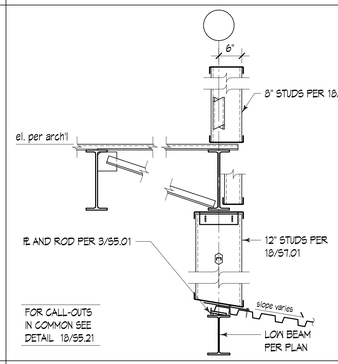

FOR CALL-OUTS IN COMMON SEE DETAIL 18/S5.21

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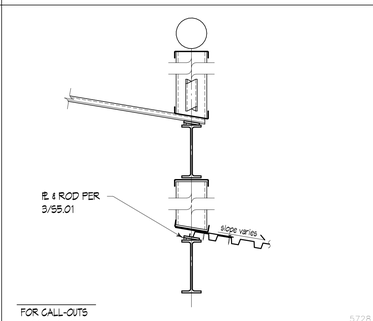

FOR CALL-OUTS IN COMMON SEE DETAIL 12/S5.21

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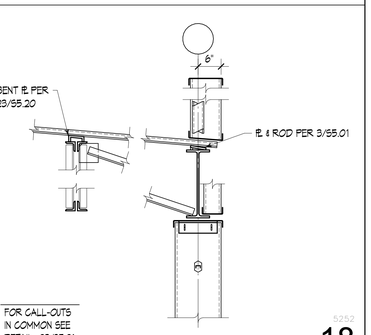

FOR CALL-OUTS IN COMMON SEE DETAIL 23/S5.21

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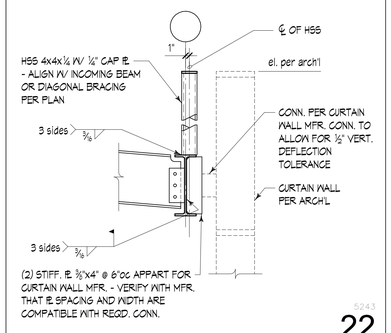

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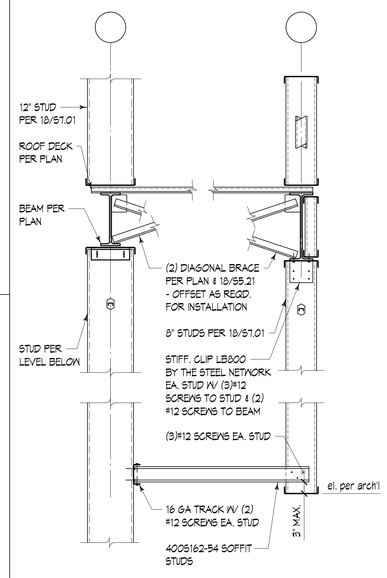

FOR CALL-OUTS IN COMMON SEE DETAIL 18/S5.21

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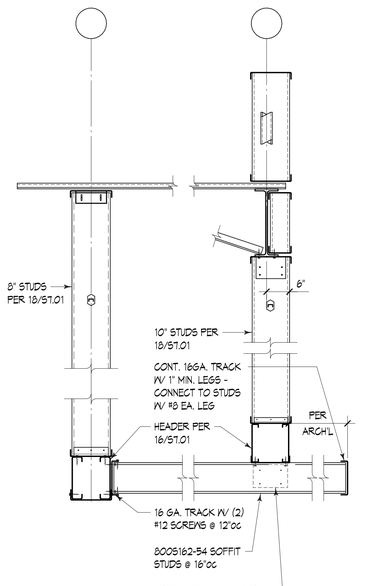

FOR CALL-OUTS IN COMMON SEE DETAIL 29/S5.22

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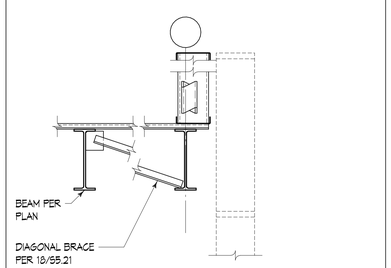

FOR CALL-OUTS IN COMMON SEE DETAIL 4/S5.21

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28

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CONSULTANT STAMP

EUGENE HITZEL — STATE OF WASHINGTON — 04/07/20

PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

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01.13.2020	CONSTRUCTABILITY REVIEW
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

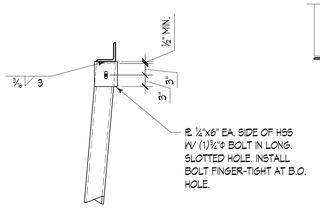
PROJECT NUMBER: S190390-01

SHEET NAME

ROOF FRAMING DETAILS

SHEET NUMBER

S5.22



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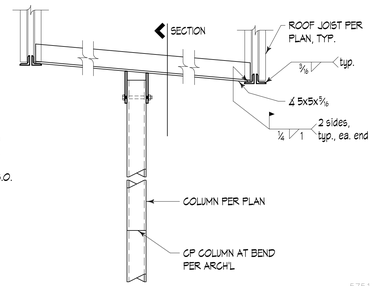

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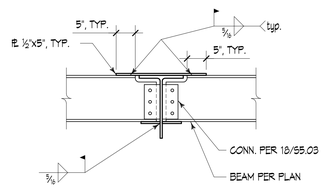

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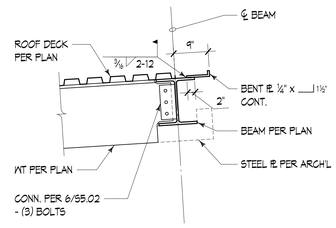

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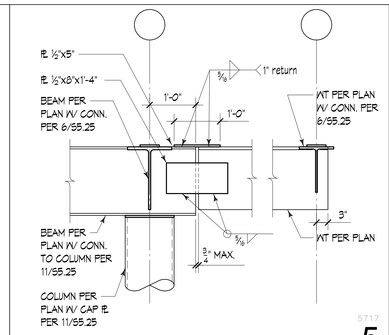

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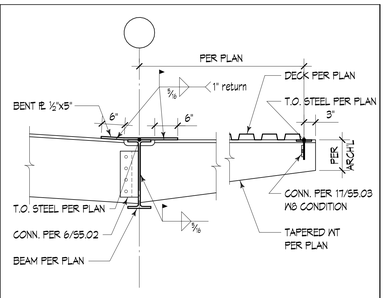

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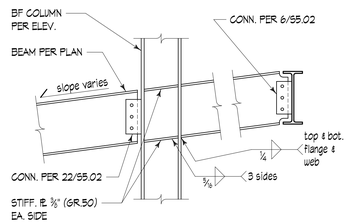

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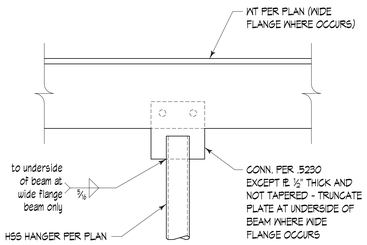

1 1/2" = 1'-0" 5241

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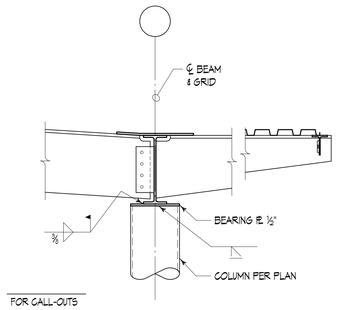

FOR CALL-OUTS IN COMMON SEE DETAIL 6/S5.25

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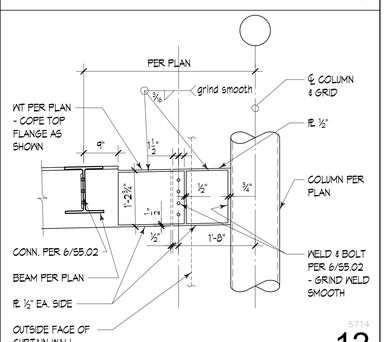

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SECTION

FOR CALL-OUTS IN COMMON SEE DETAIL 22/S5.25

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PLAN VIEW

NOTE: REFER TO SPECIFICATIONS FOR AESS REQUIREMENTS WHERE NOTED AS EXPOSED PER ARCH'L

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1 1/2" = 1'-0" 5743

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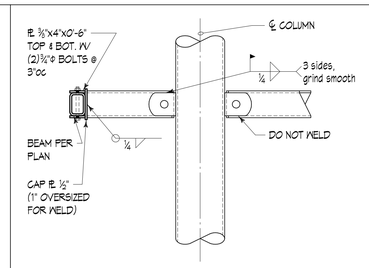

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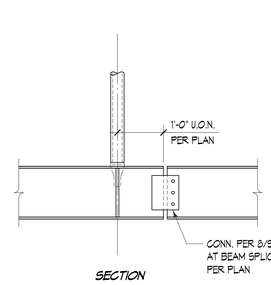

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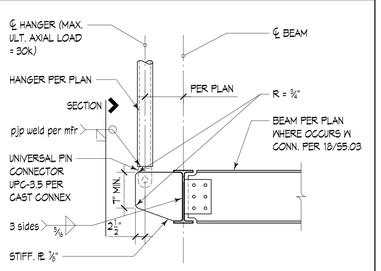

NOTE: REFER TO SPECIFICATIONS FOR AESS REQUIREMENTS WHERE NOTED AS EXPOSED PER ARCH'L

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FOR CALL-OUTS IN COMMON SEE DETAIL 30/S5.25

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BID DOCUMENTS

04.13.2020

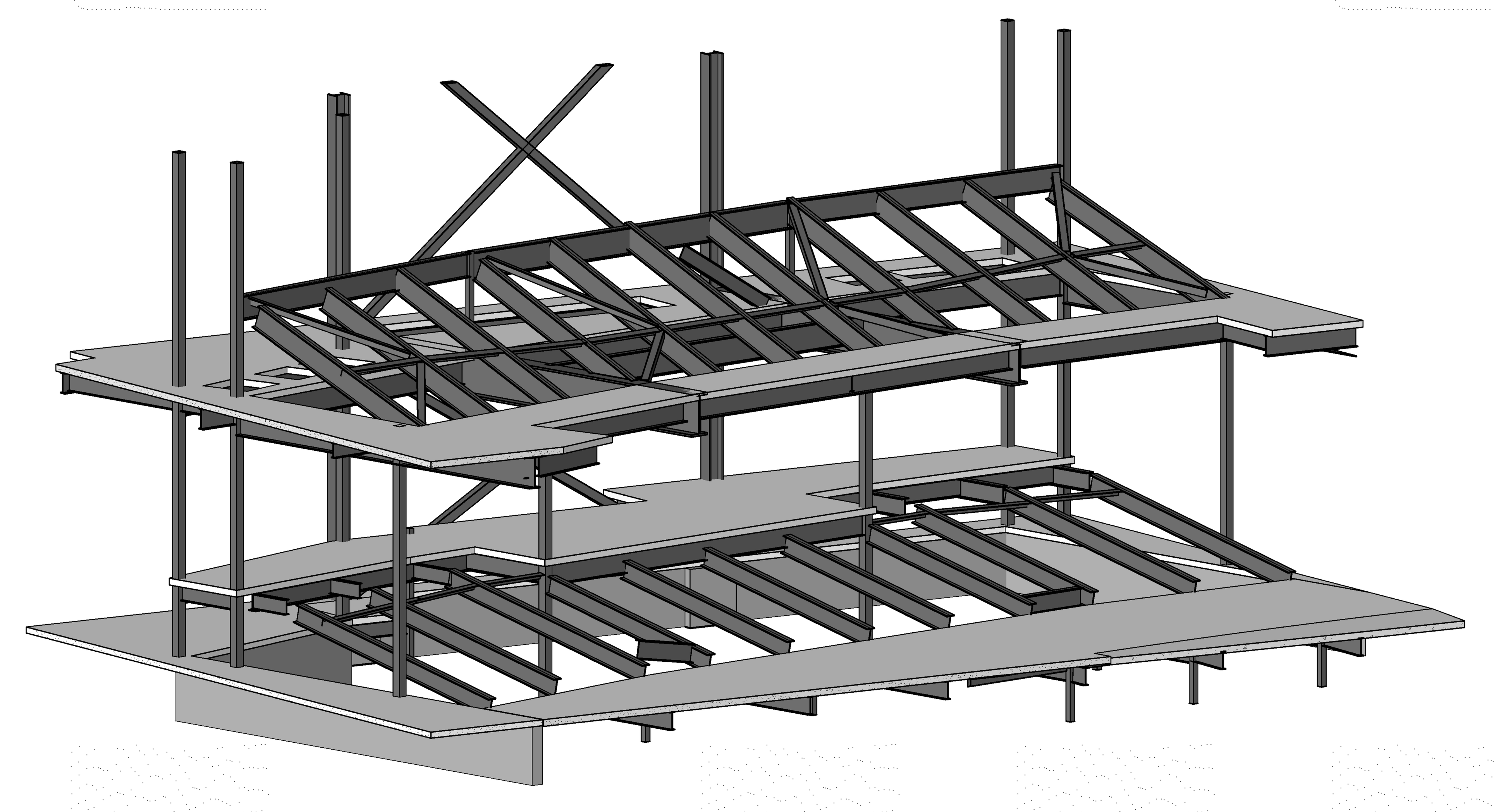
PROJECT NUMBER: S190390-01

SHEET NAME

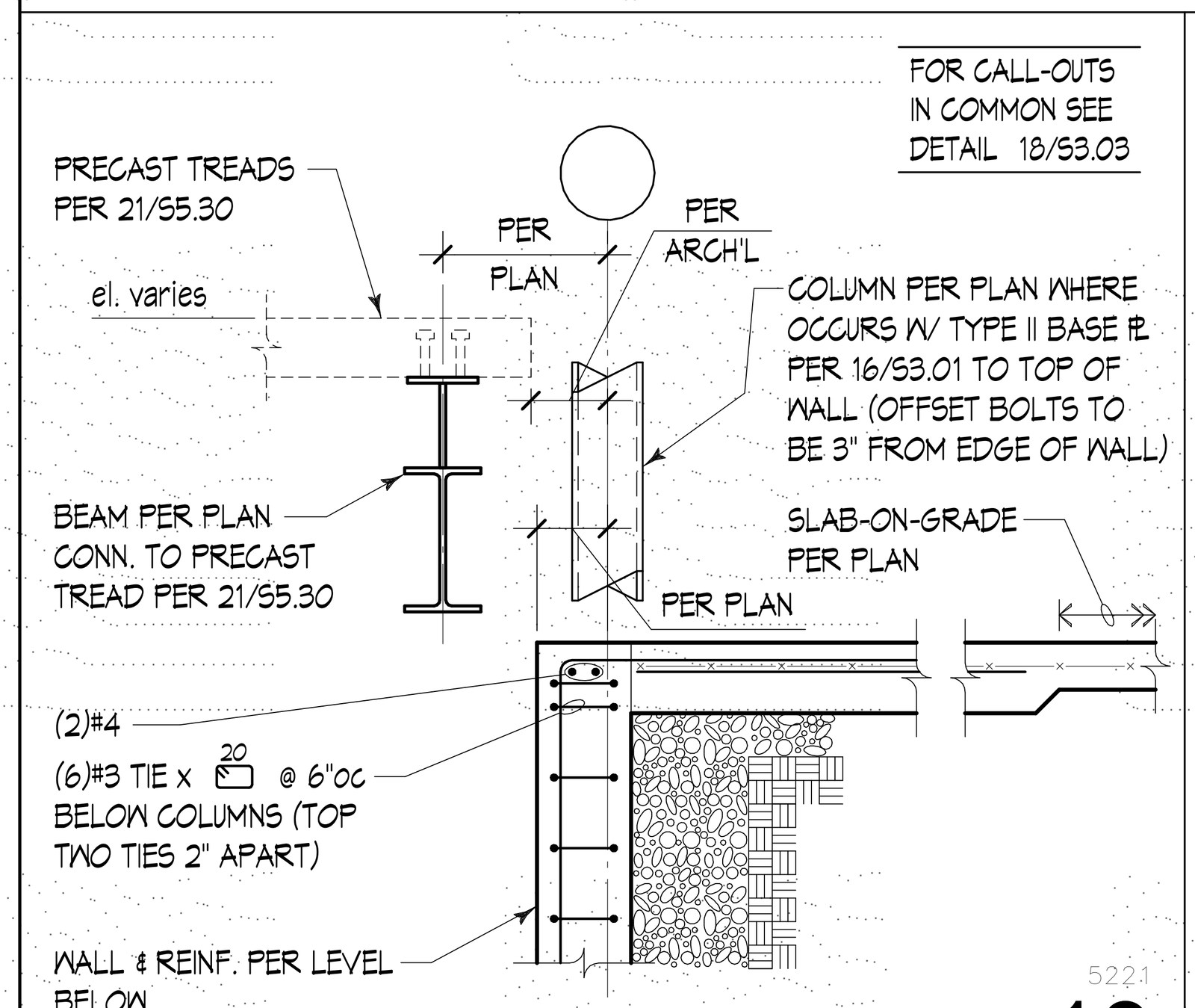
MISC. STEEL DETAILS

SHEET NUMBER

S5.25



Balcony Isometric 9



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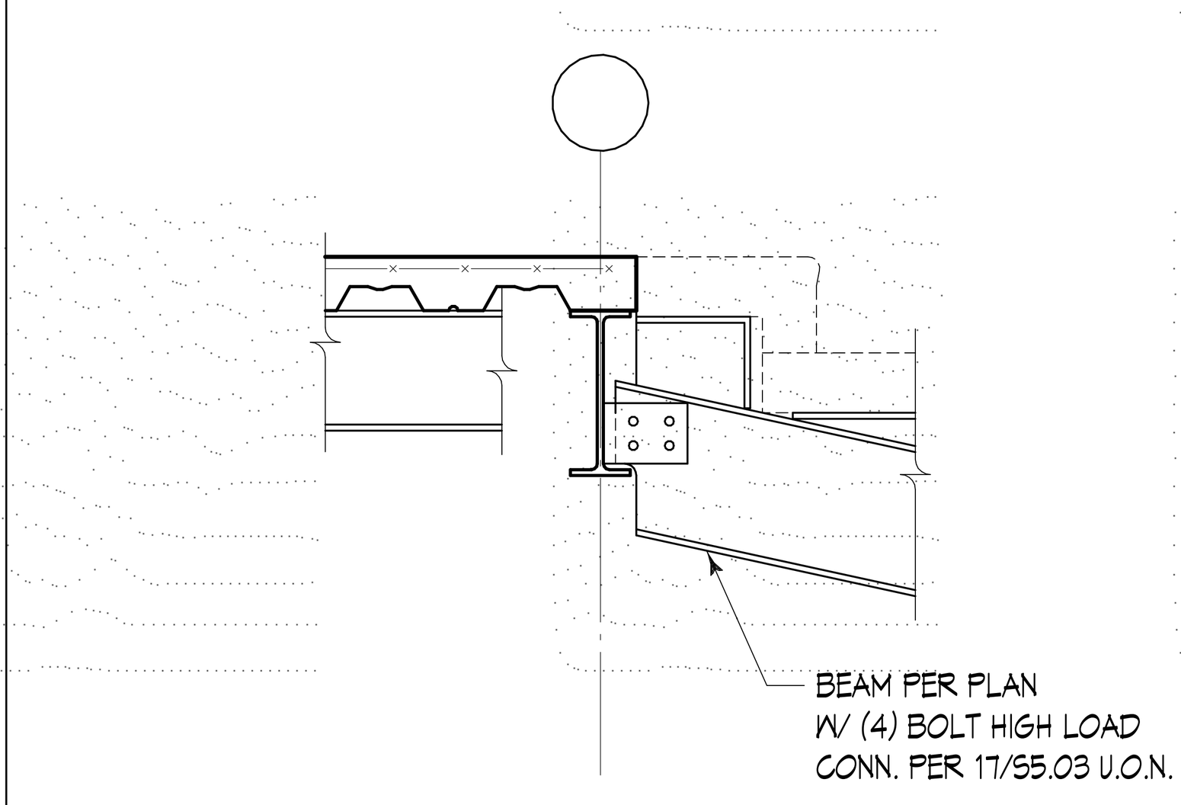

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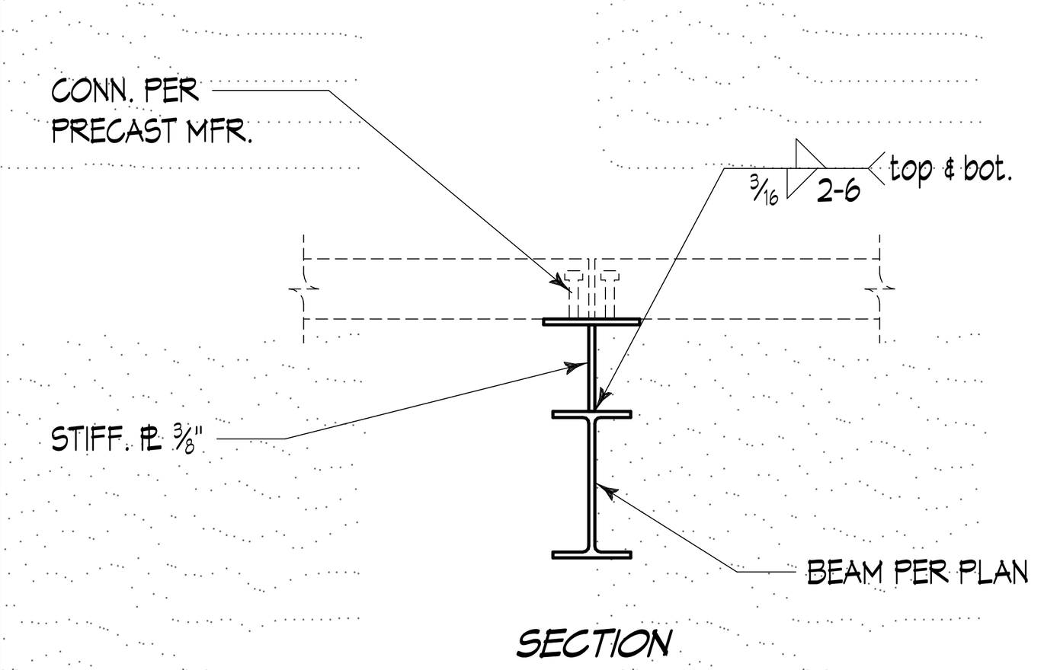

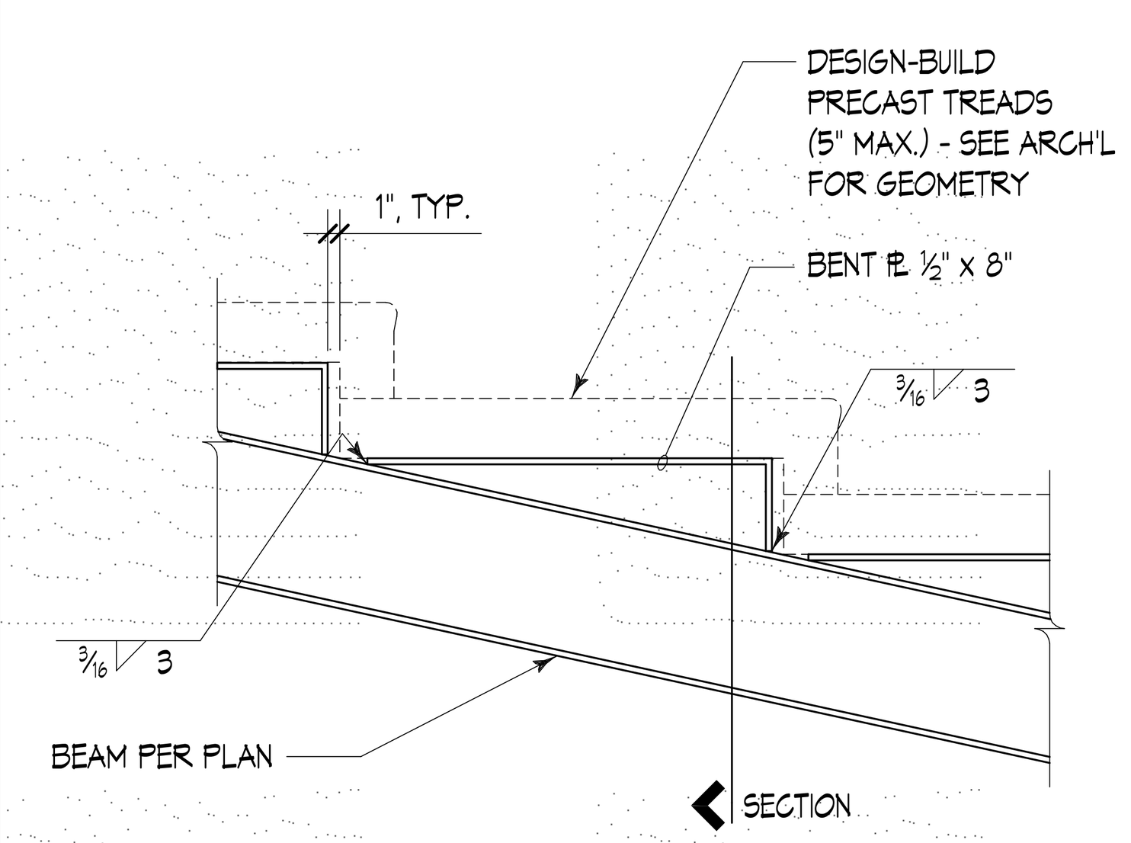

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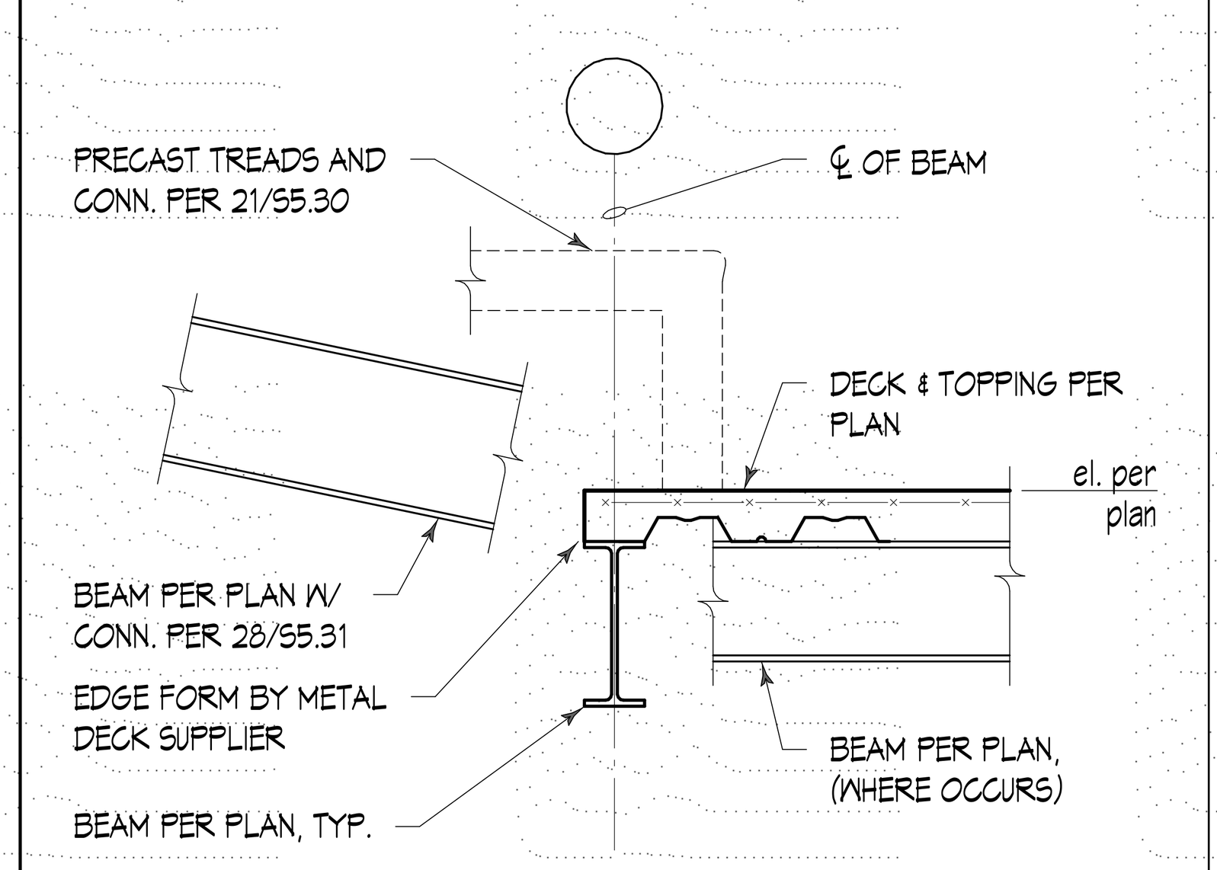

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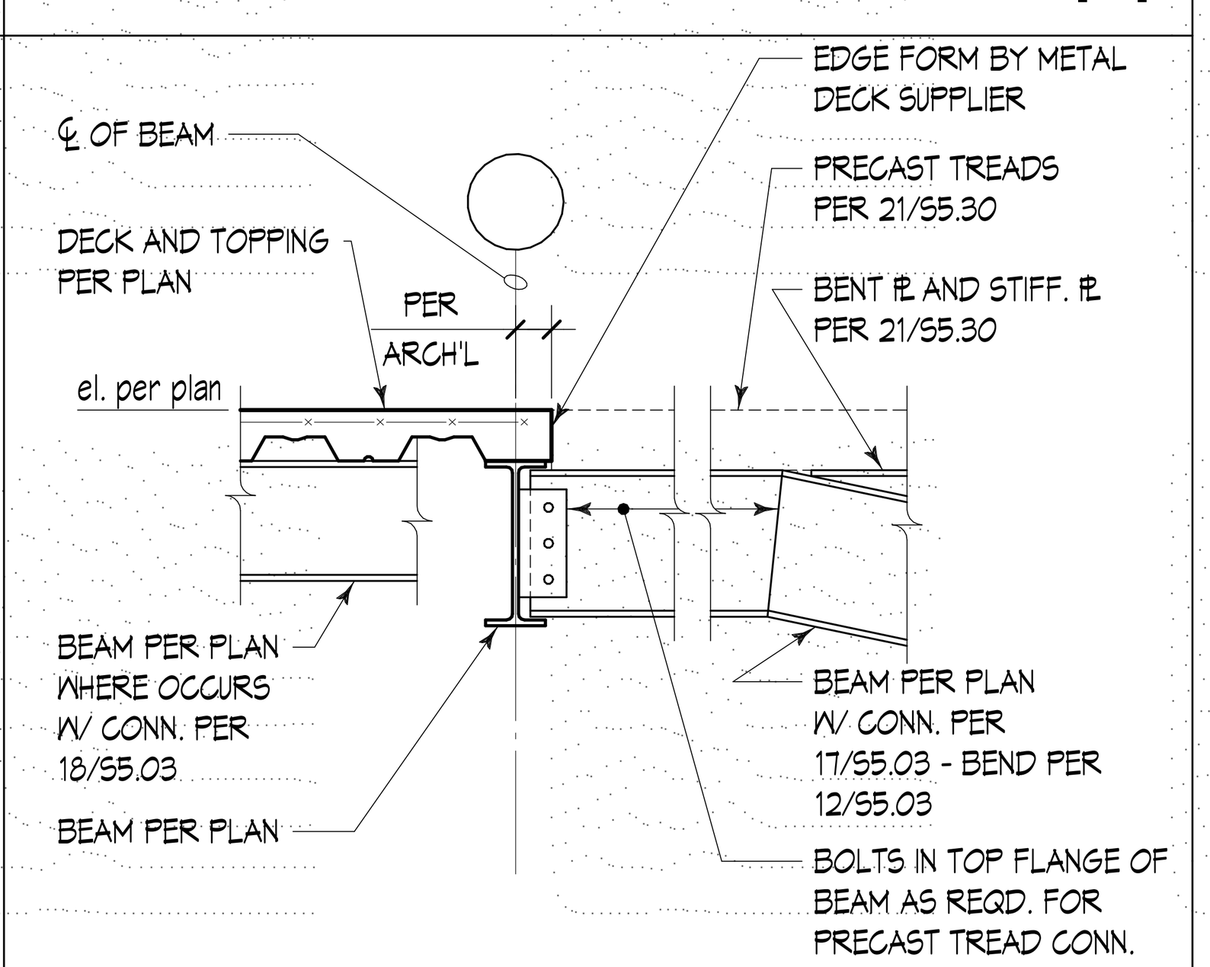

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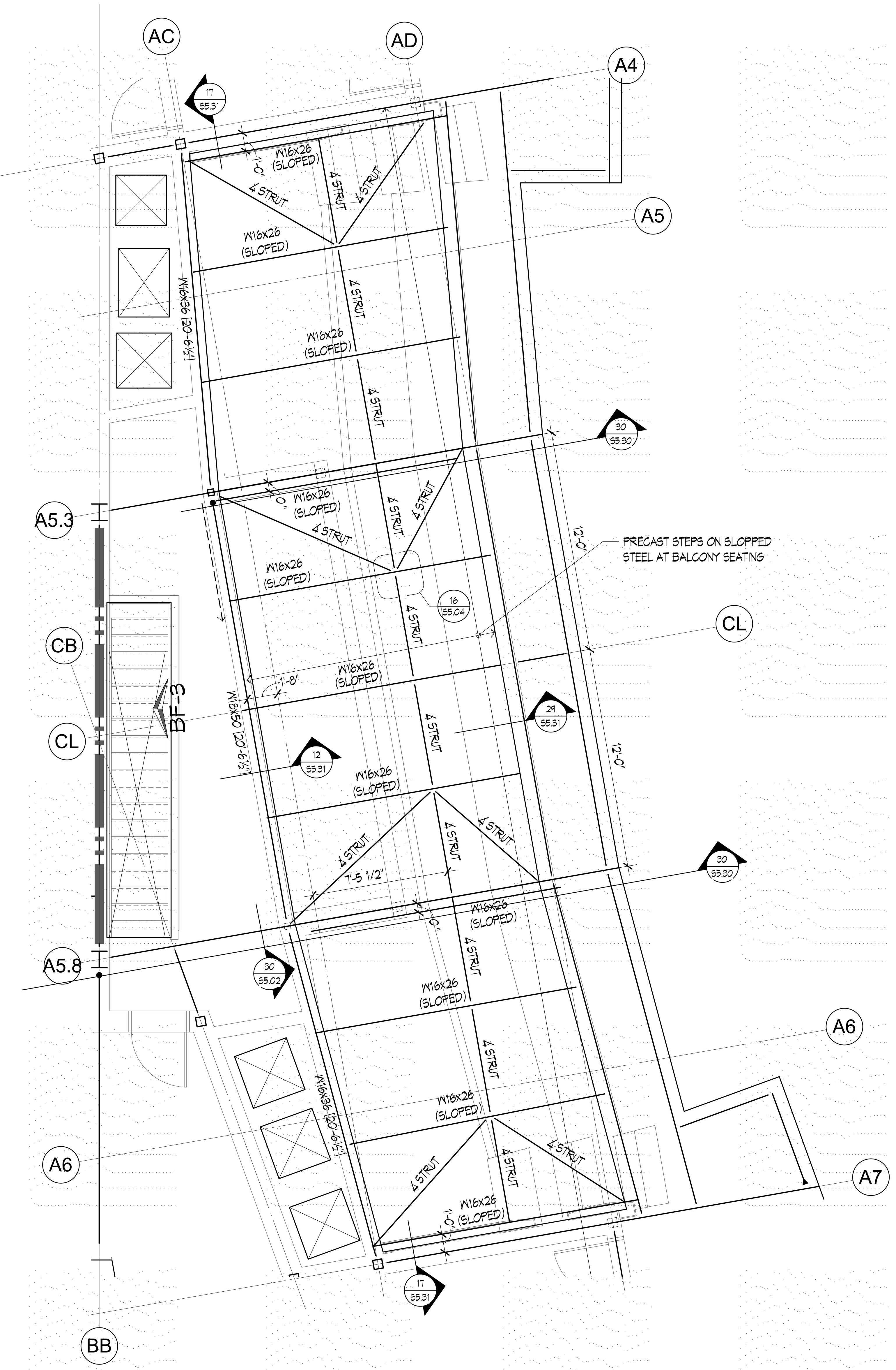
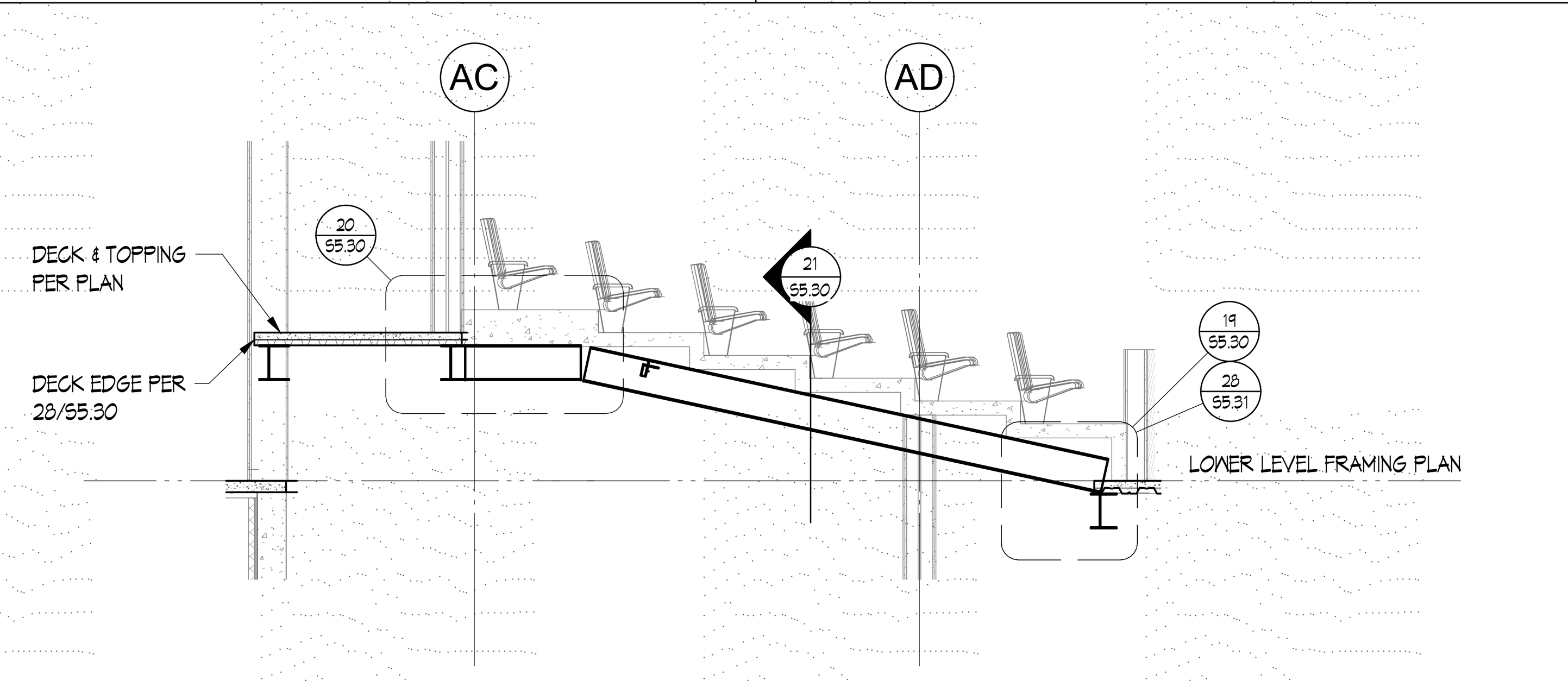


1/4" = 1'-0"
Balcony Partial Framing Plan 24



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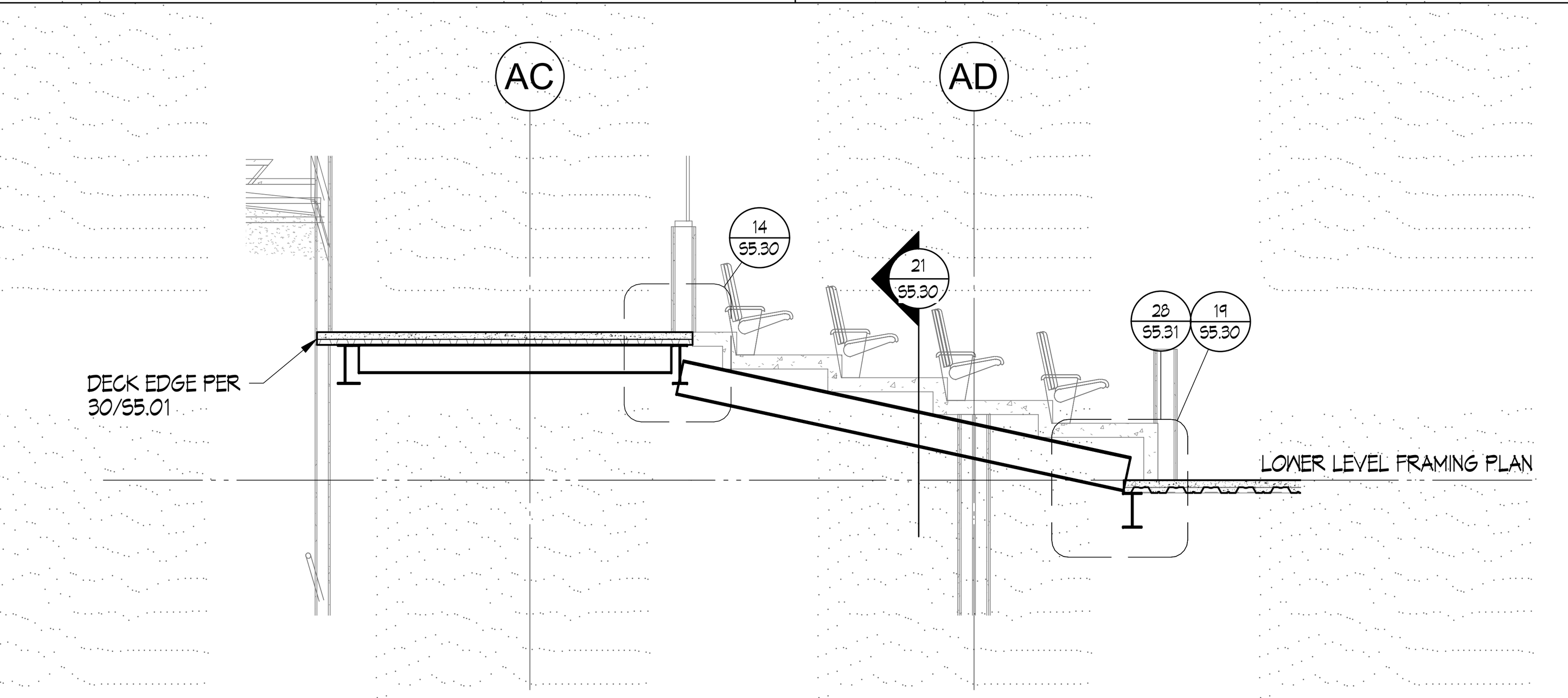
Lower Seating Section 26



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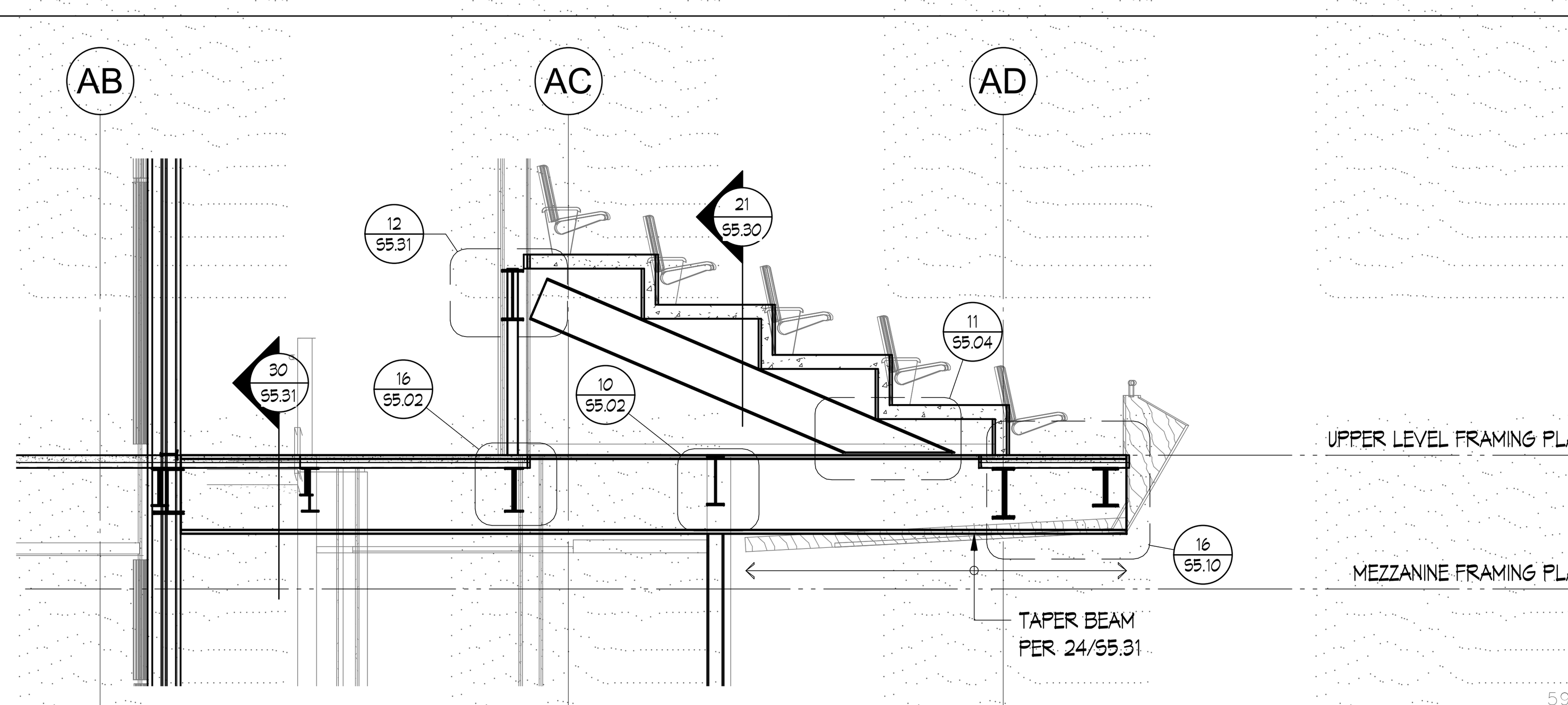
Lower Seating Section 28



1/4" = 1'-0"
Balcony Section 30

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04/07/20

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

THEATER SEATING SECTIONS AND DETAILS

SHEET NUMBER

S5.30

1

2

3

4

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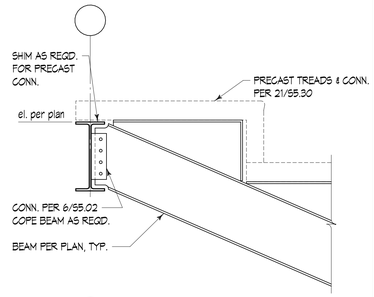

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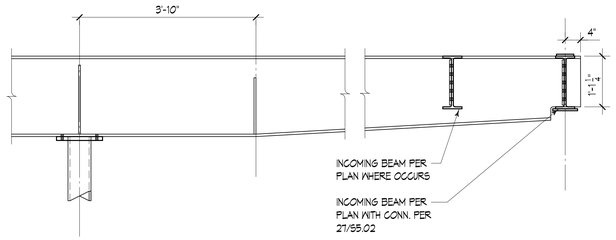

FOR CALL-OUTS IN COMMON SEE DETAIL 24/S5.31

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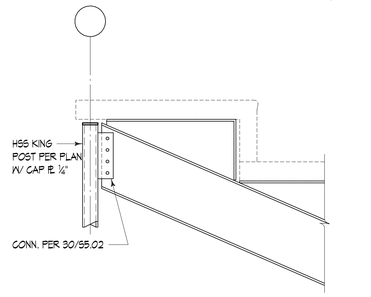

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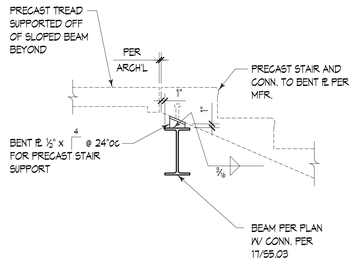

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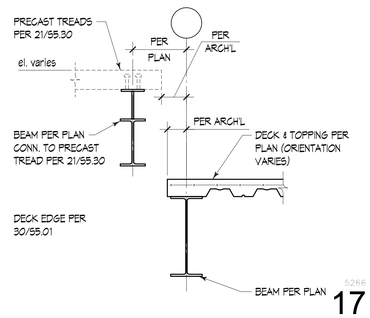

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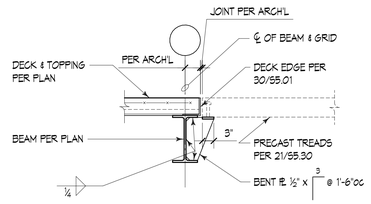

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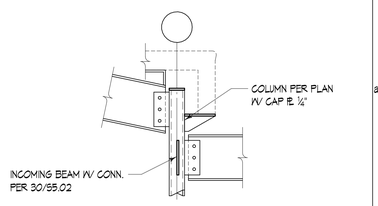
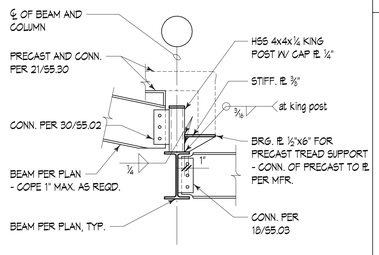


AT COLUMN
(SEE DETAIL BELOW FOR CALLOUTS IN COMMON)



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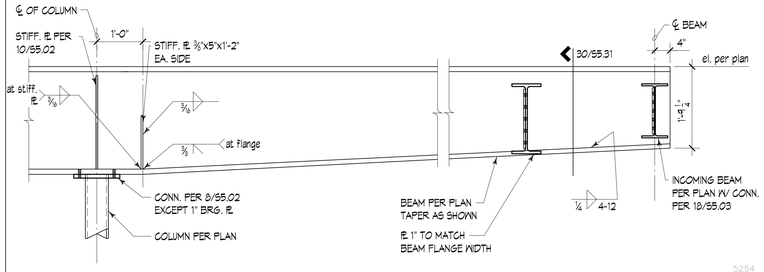

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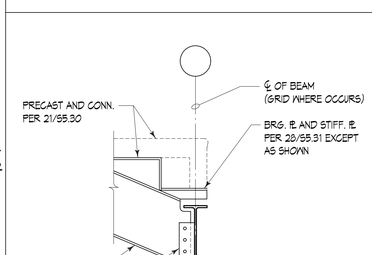

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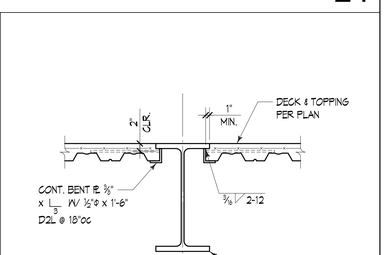

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

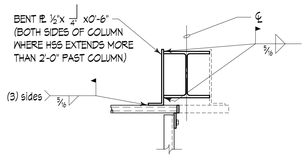
SHEET NAME

THEATER SEATING DETAILS

SHEET NUMBER

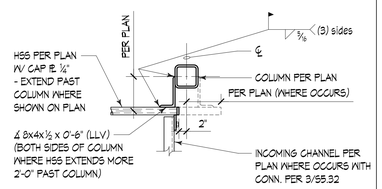
S5.31

1



WF CONDITION
(SEE BELOW FOR CALLOUTS IN COMMON

7



HSS CONDITION

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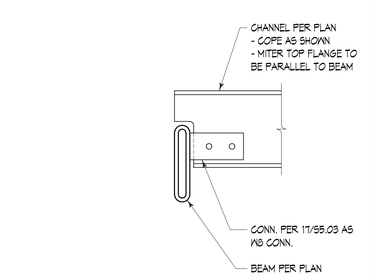

1 1/2" = 1'-0"

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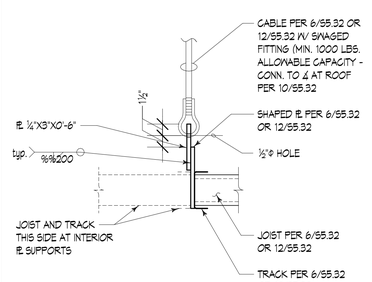

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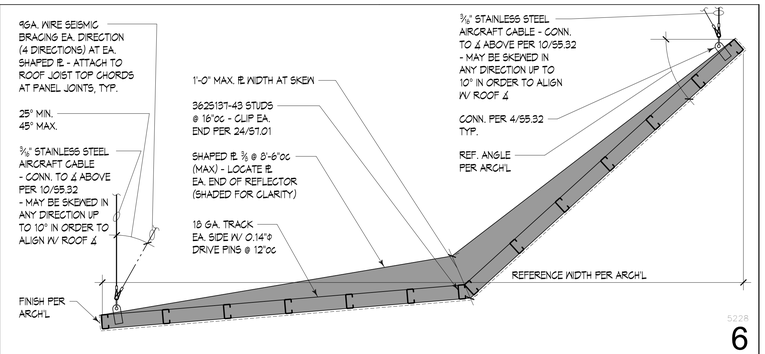

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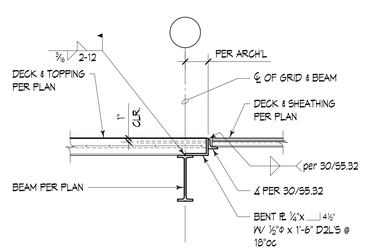

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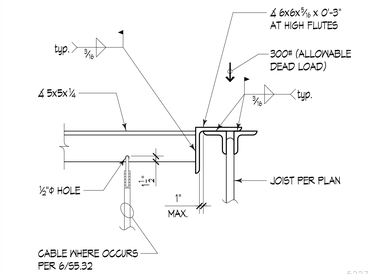

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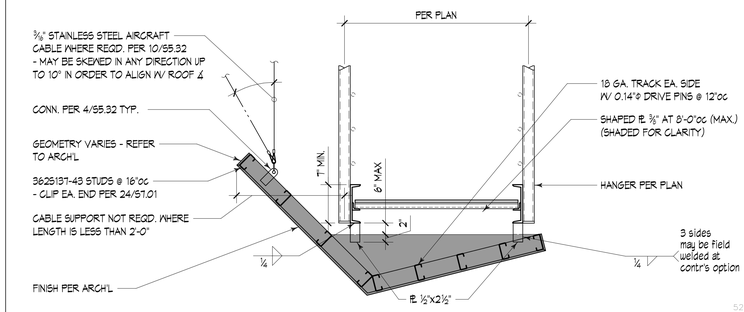

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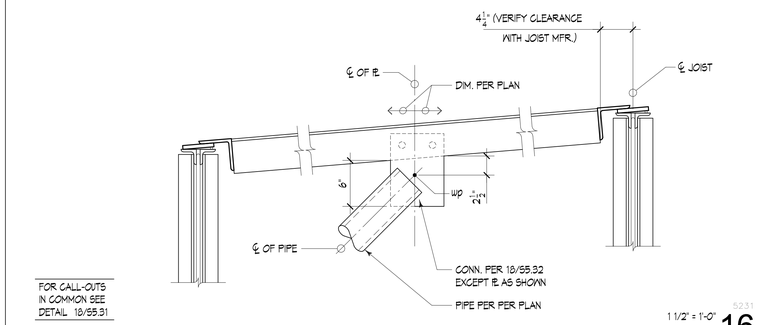
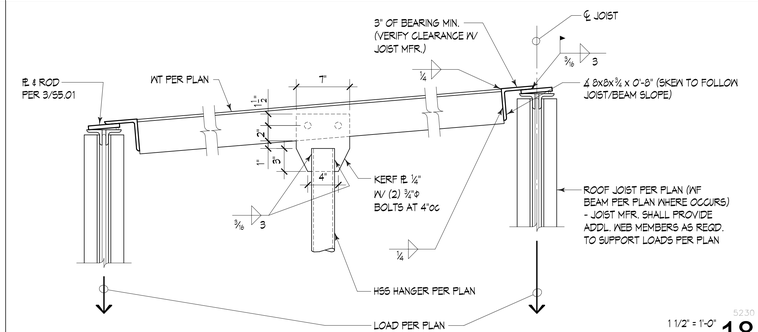


FOR CALL-OUTS IN COMMON SEE DETAIL 18/55.31

1 1/2" = 1'-0"

5231

16



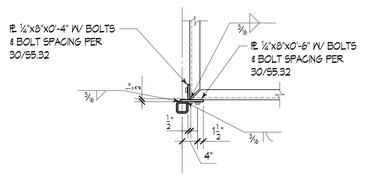
1 1/2" = 1'-0"

5230

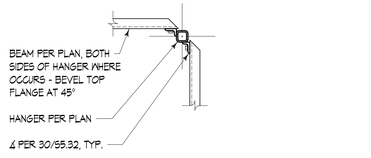
18

19

20



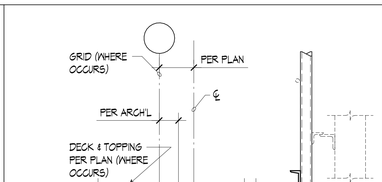
HANGER ON OUTSIDE CORNER
(SEE DETAIL BELOW FOR CALLOUTS IN COMMON)



HANGER ON INSIDE OF CORNER

5267

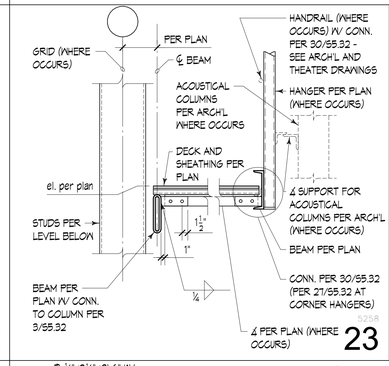
27



FOR CALL-OUTS IN COMMON SEE DETAIL 23/55.32

5748

22



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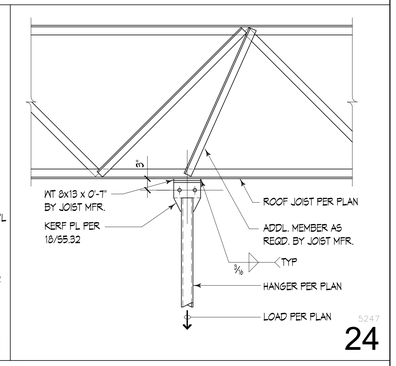


5247

24

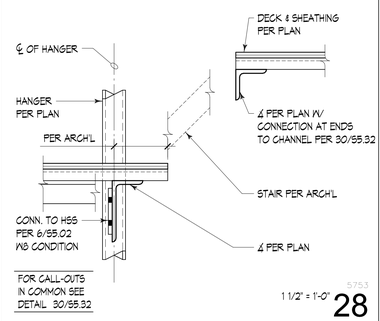
25

26

HANGER ON INSIDE OF CORNER

5267

27

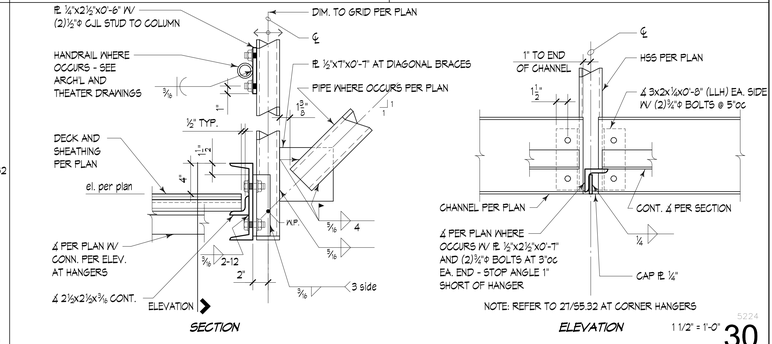


FOR CALL-OUTS IN COMMON SEE DETAIL 30/55.32

1 1/2" = 1'-0"

5753

28



ELEVATION

1 1/2" = 1'-0"

5224

30

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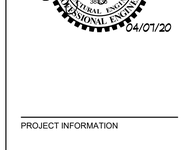

PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
10.18.2019	DESIGN DEVELOPMENT
01.13.2020	CONSTRUCTABILITY REVIEW
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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

THEATER CATWALK DETAILS

SHEET NUMBER

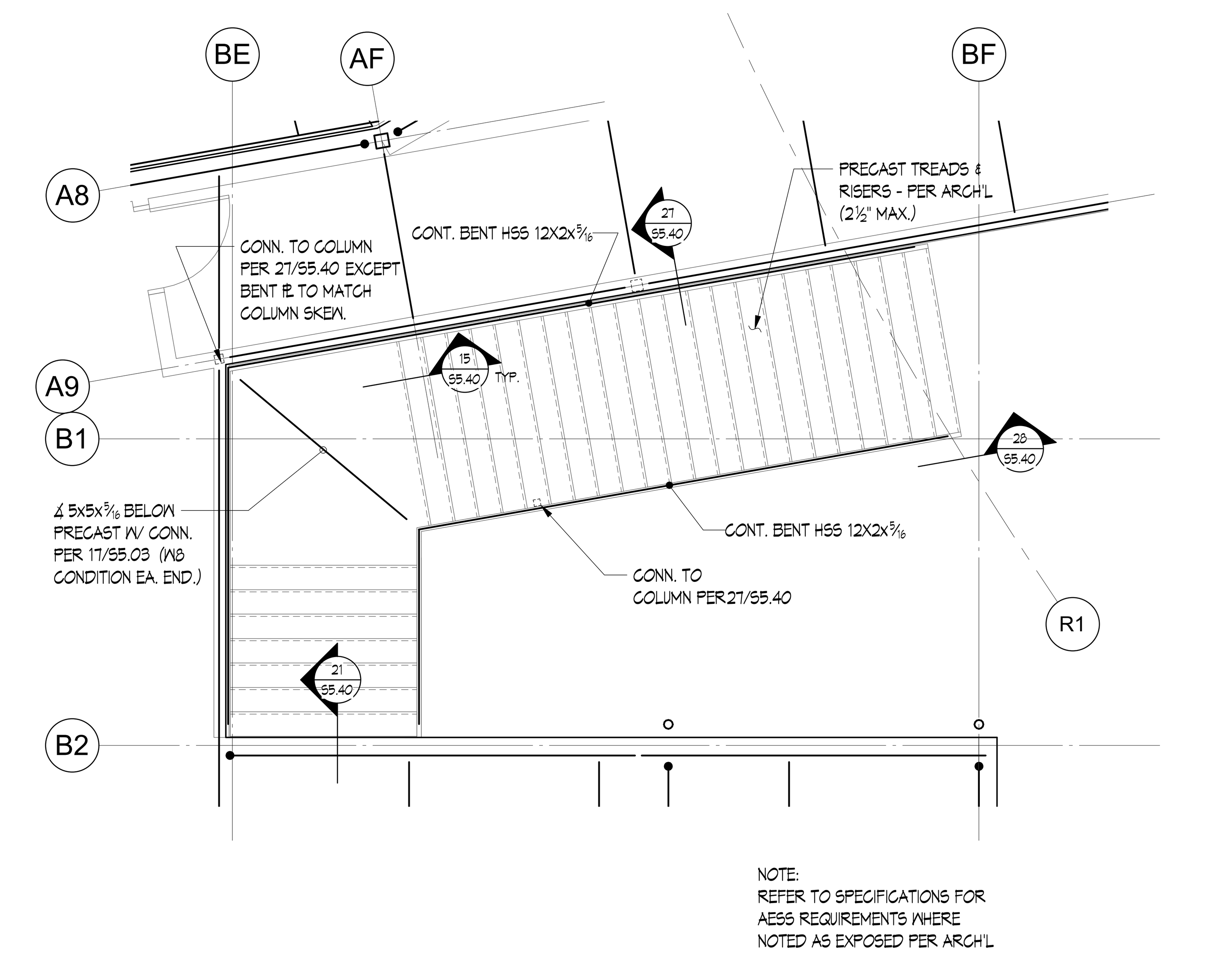
S5.32

1

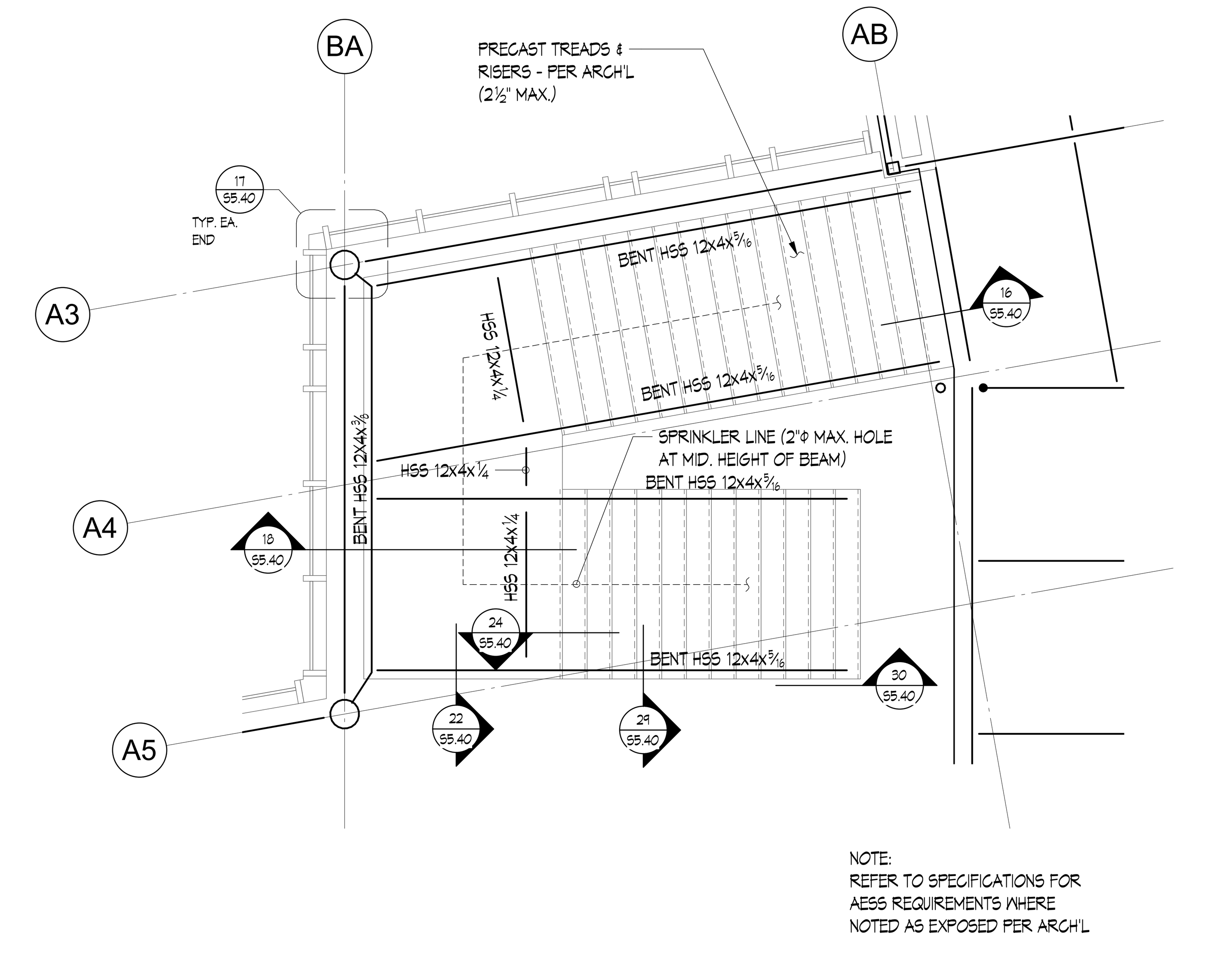
2

7

8



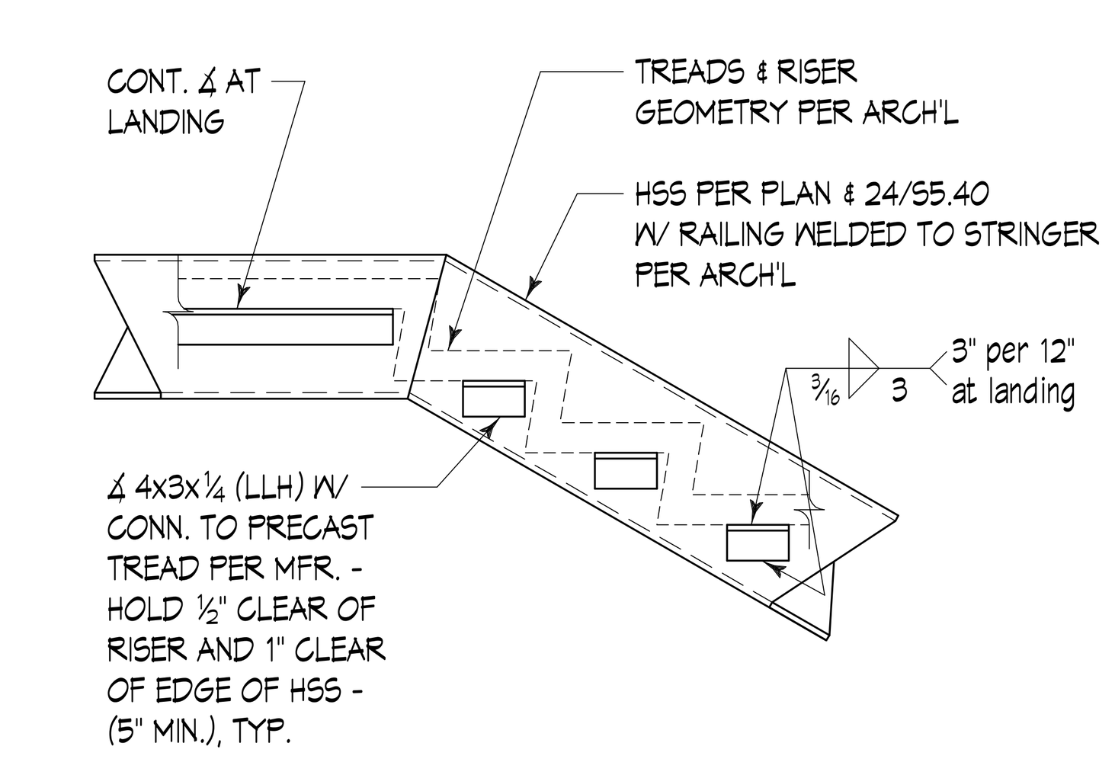
1/4" = 1'-0"
Stair C Partial Plan 10



1/4" = 1'-0"
Stair B Partial Plan 12

13

14



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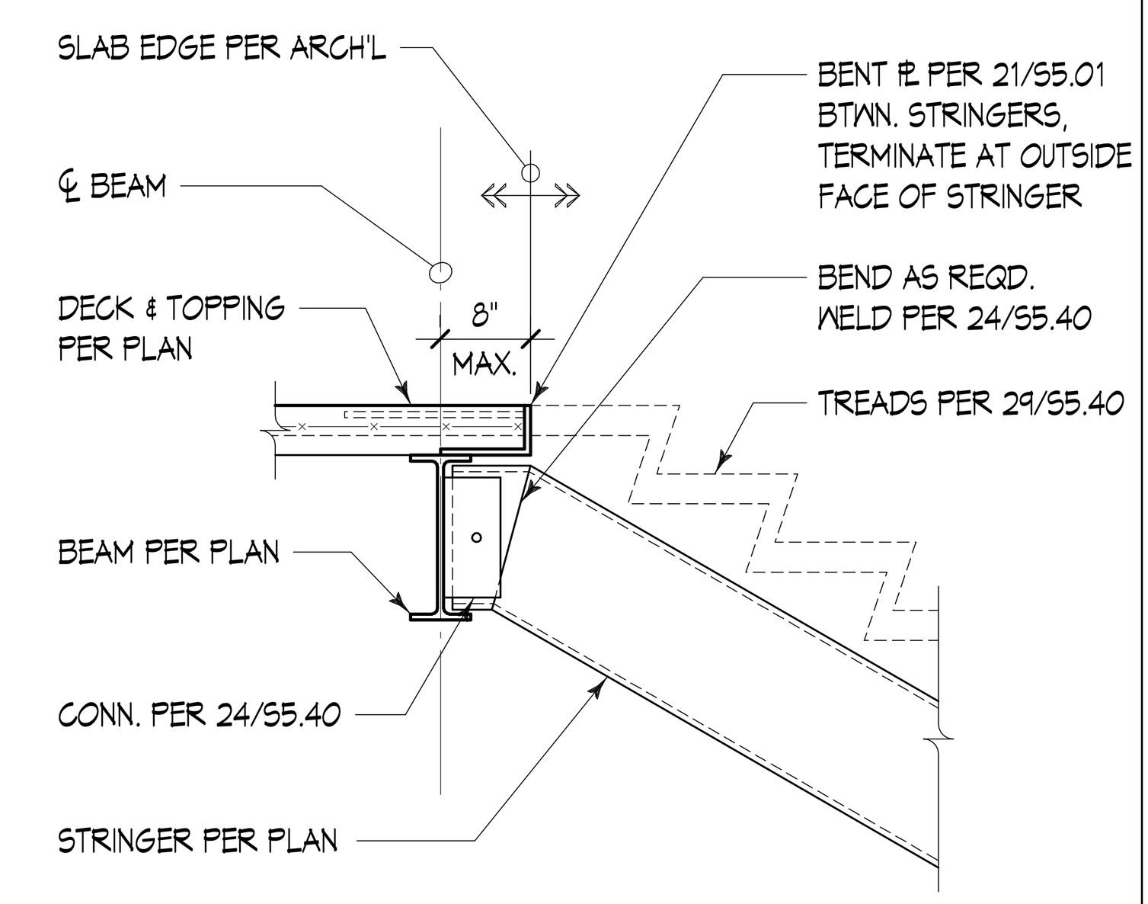

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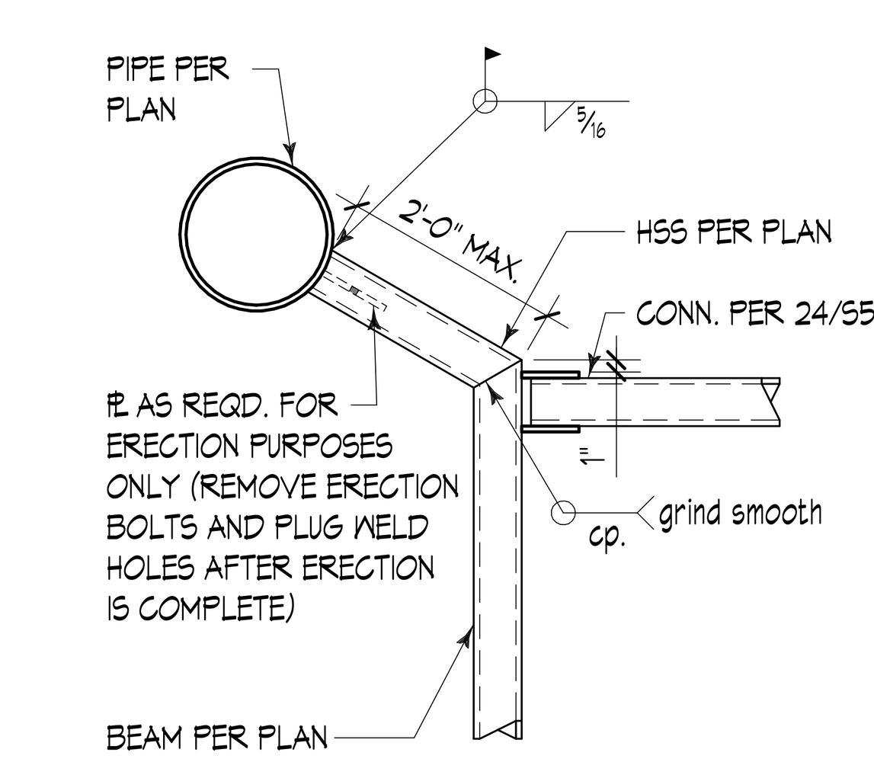

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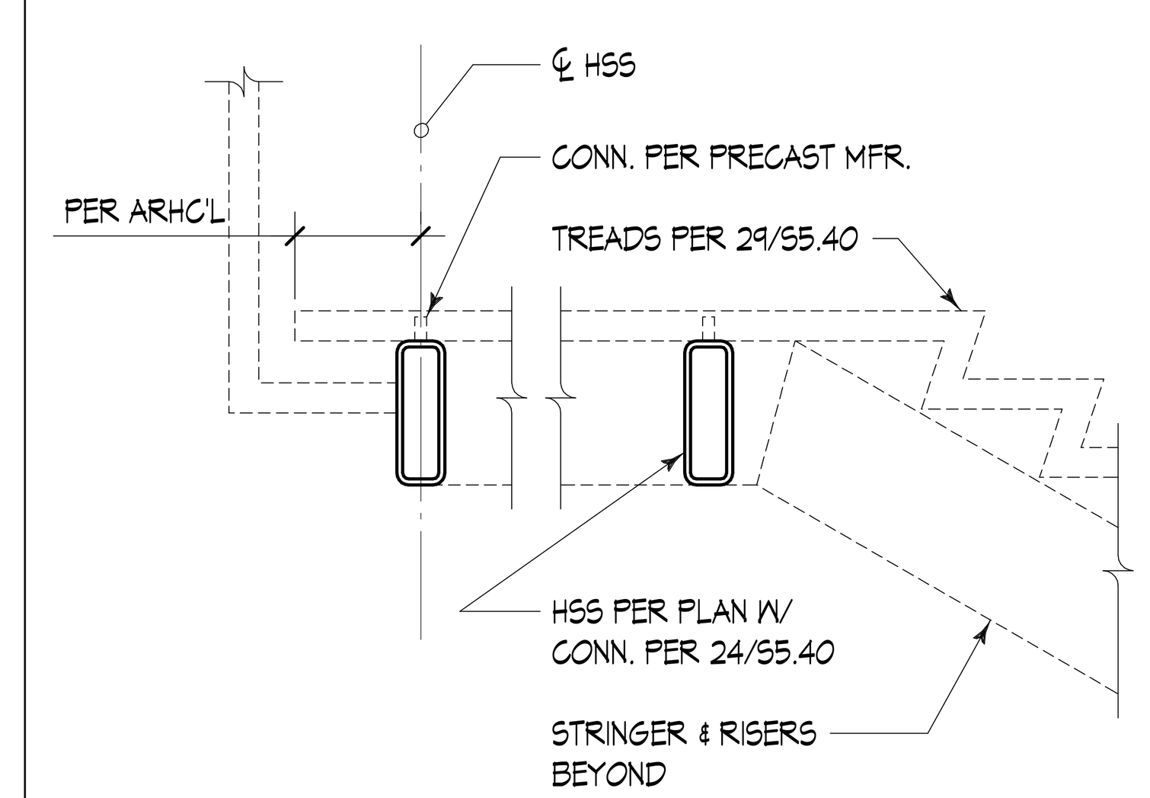

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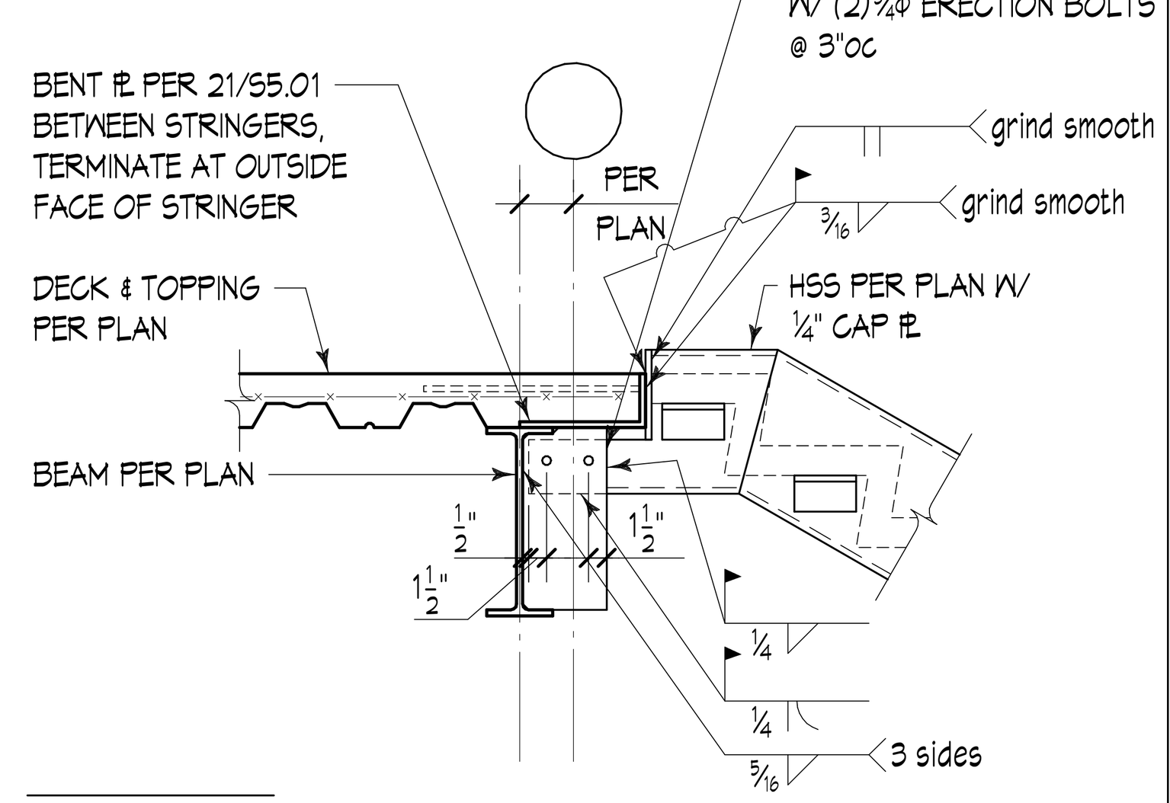

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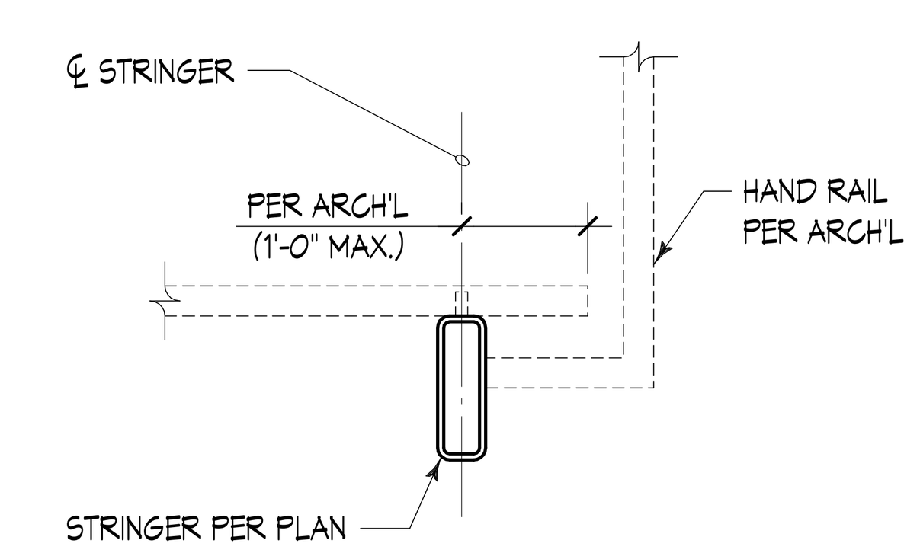

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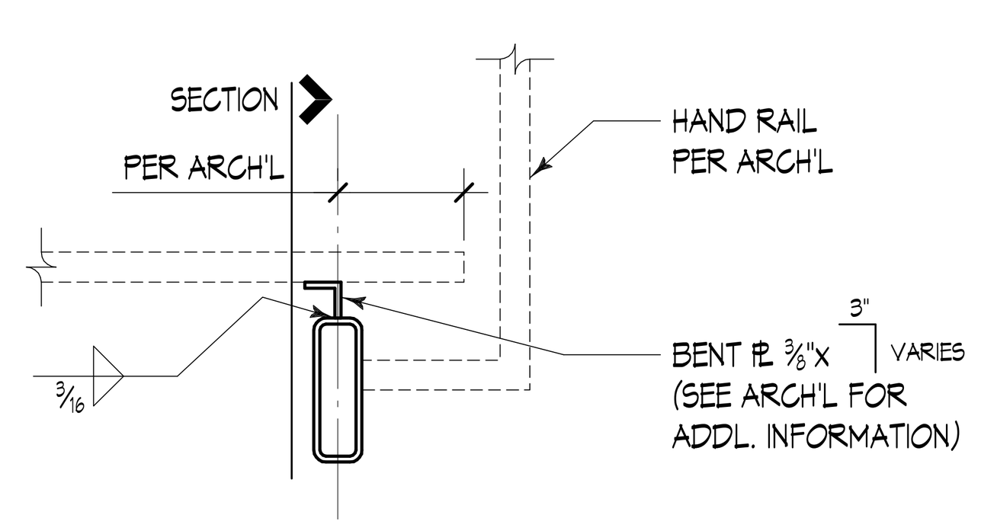

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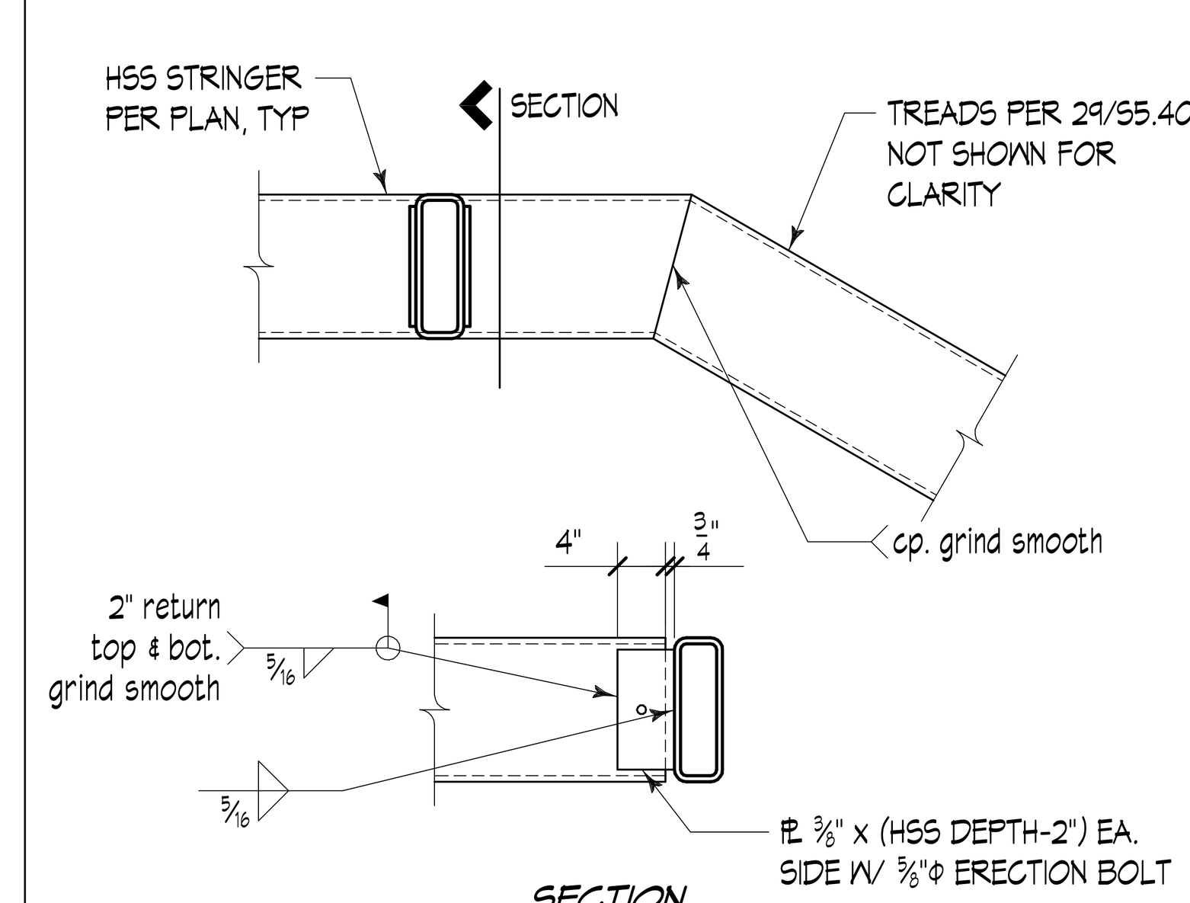

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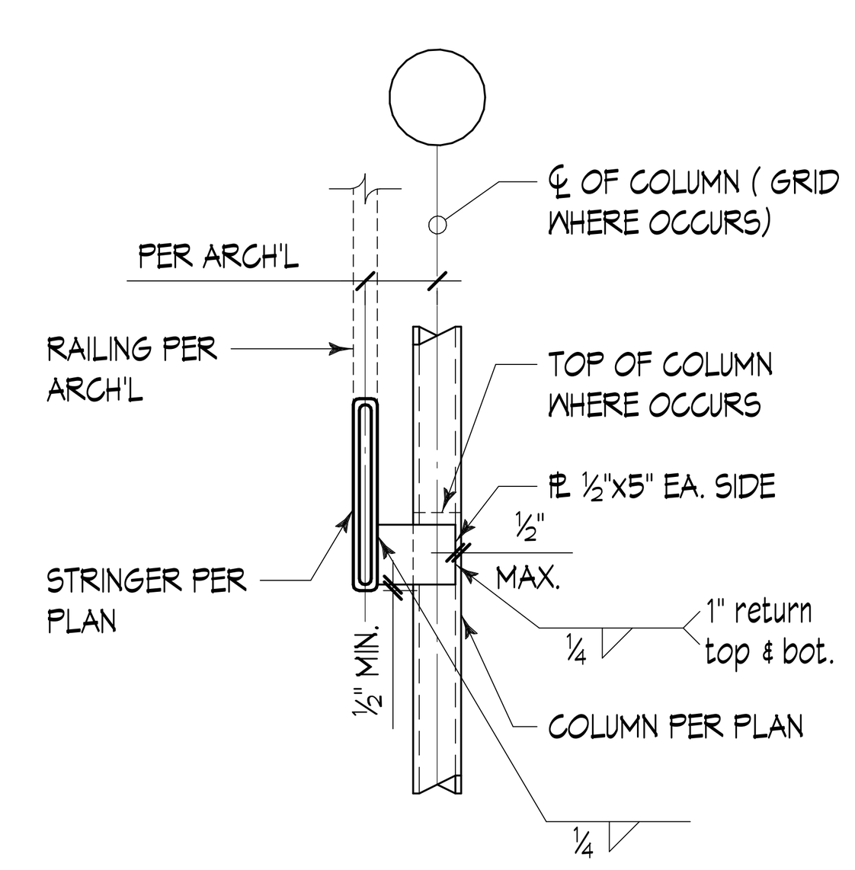

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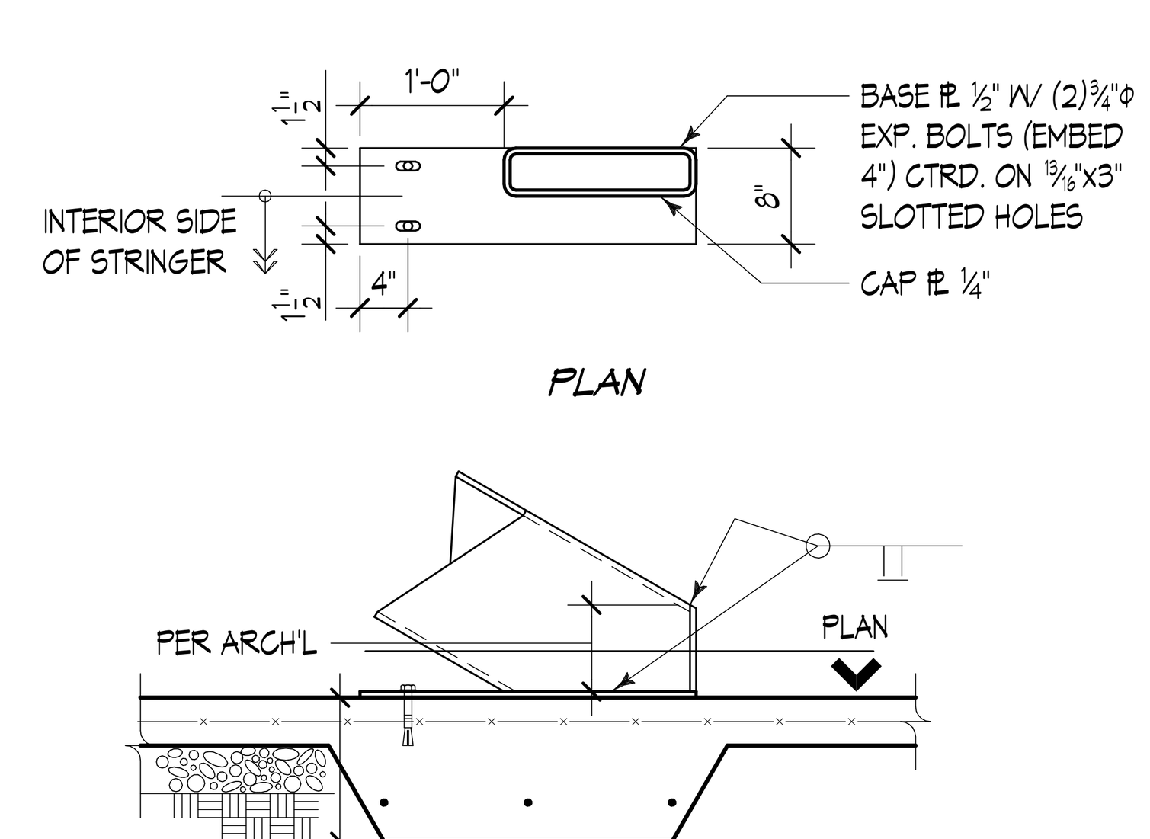

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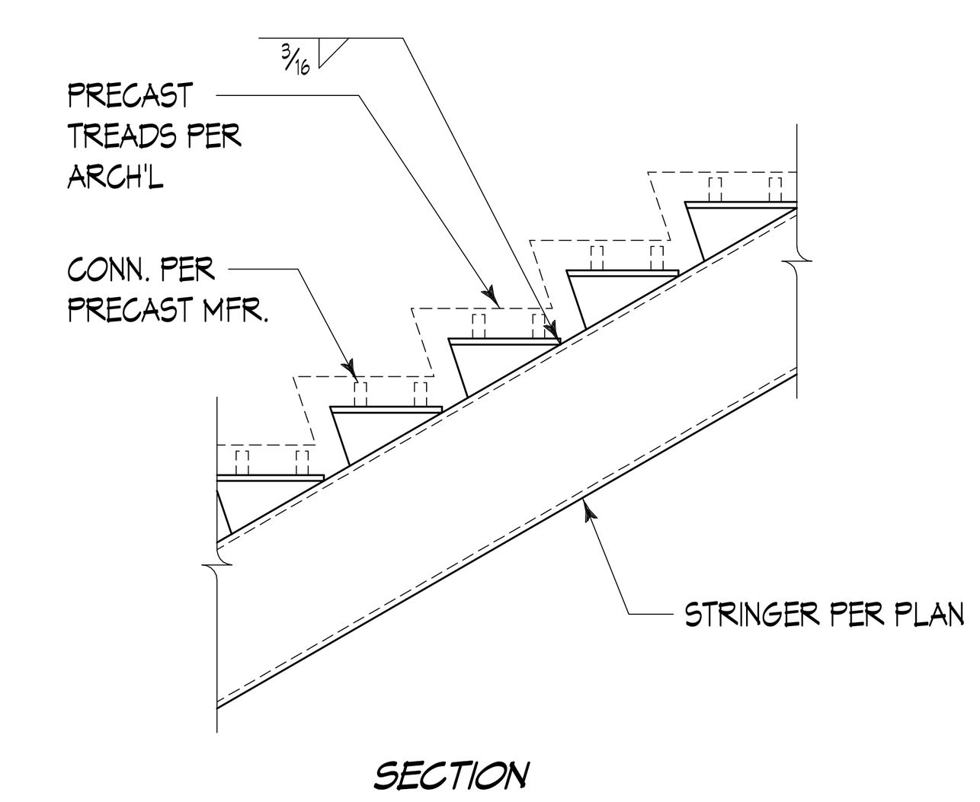

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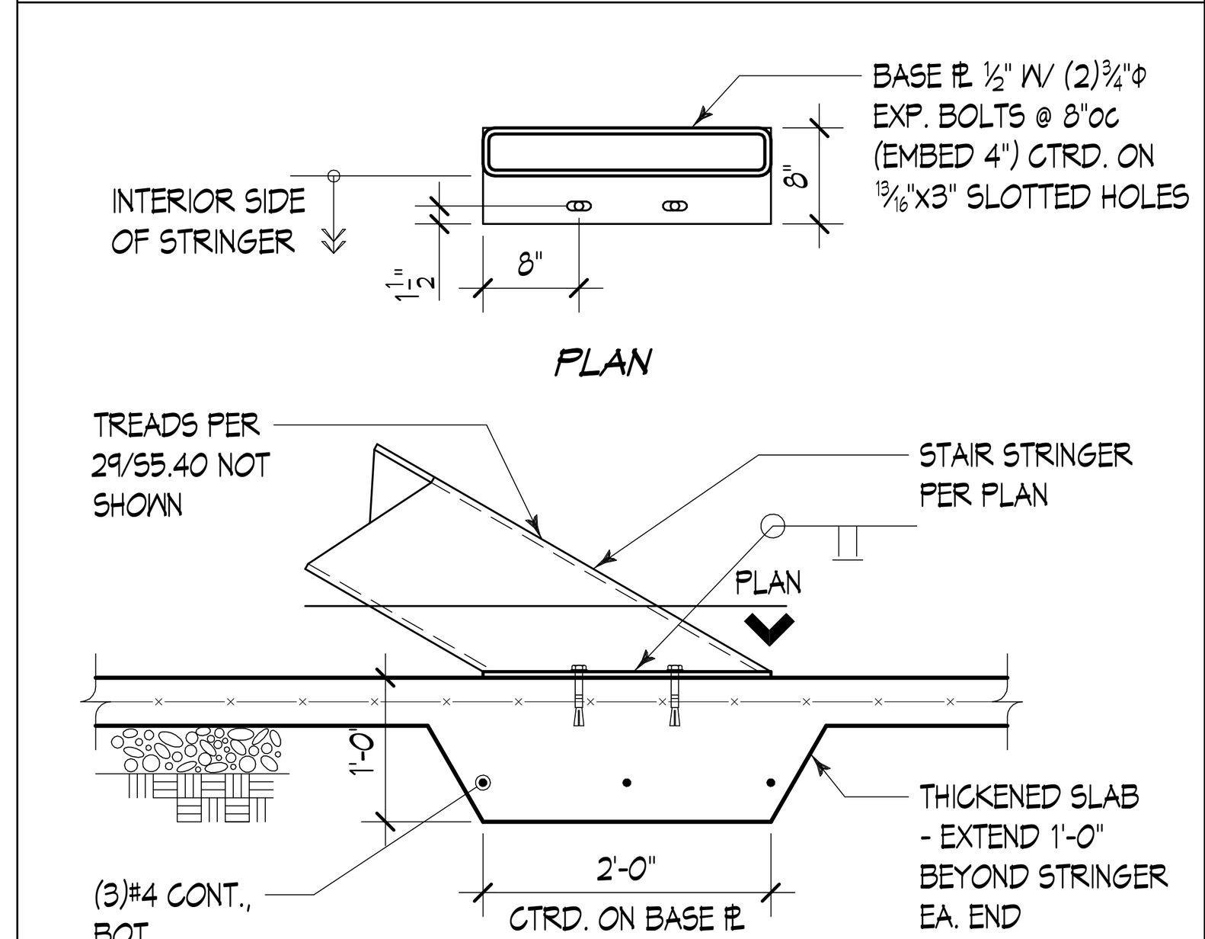

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04/07/20

PROJECT INFORMATION

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SCHOOL DISTRICT LOGO

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BID DOCUMENTS

04.13.2020

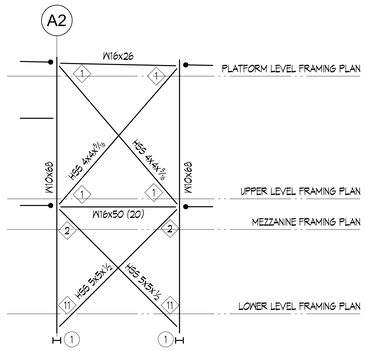
PROJECT NUMBER: S190390-01

SHEET NAME

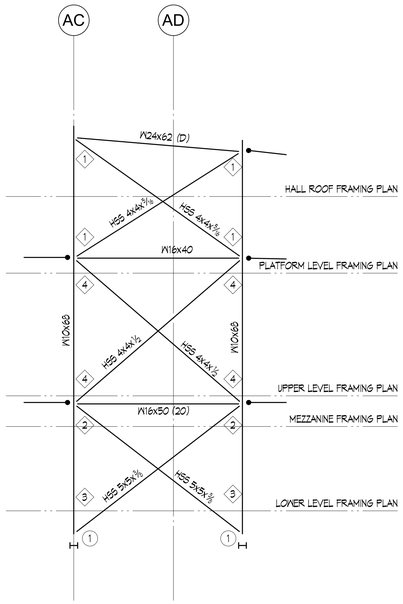
STAIR DETAILS

SHEET NUMBER

S5.40



BF-1



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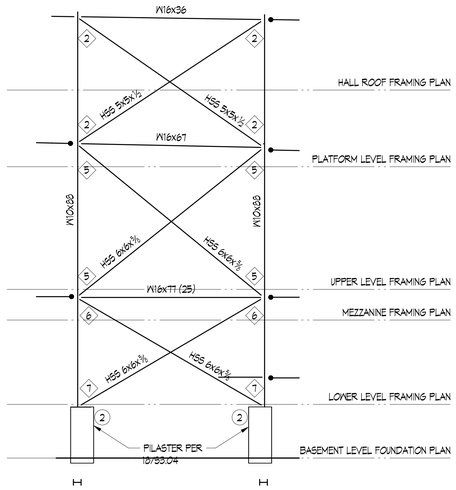

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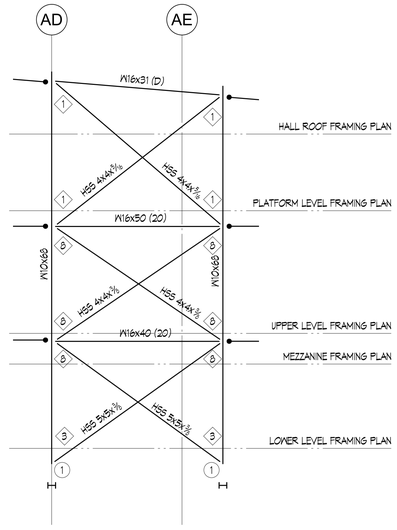

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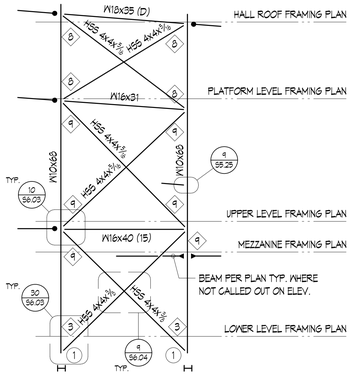

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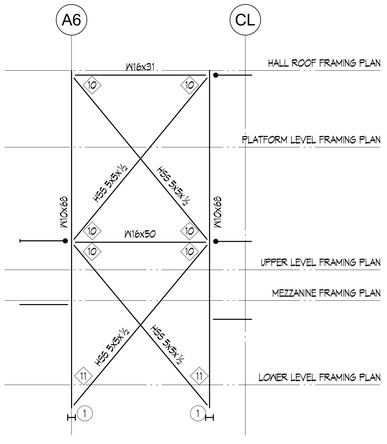

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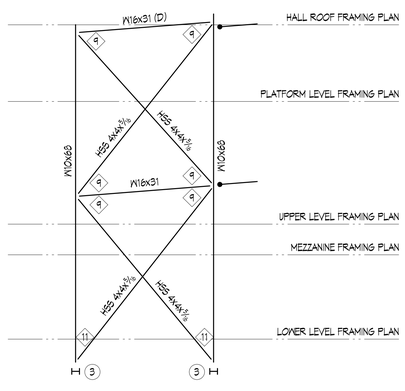

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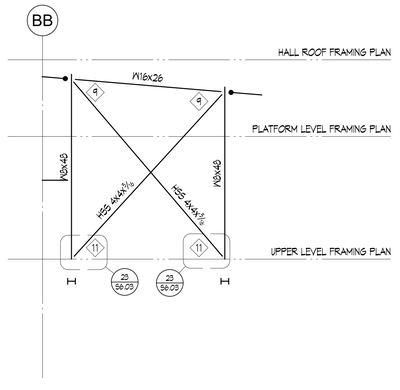

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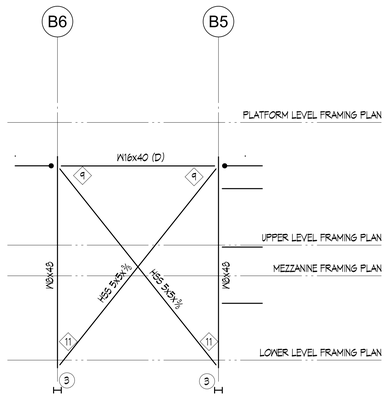

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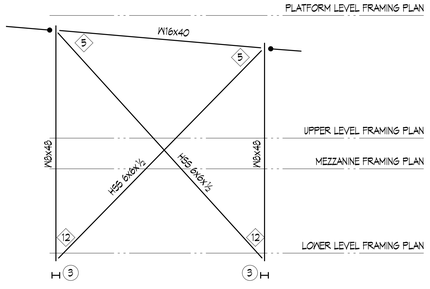

BF-10

NOTES:

1. AT METAL STUD FRAMING SEE 15/S6.04 FOR PROTECTED BRACE ZONE RESTRICTIONS AND STUD ATTACHMENT TO BRACED FRAMES.
2. ALL BEAMS ON BRACED FRAME ELEVATIONS ARE STRUTS.

LEGEND:

●——	HIGH LOAD CONNECTION PER 12/S5.02
H	INDICATES STRONG AXIS FRAMING OF BRACED COLUMN
I	INDICATES WEAK AXIS FRAMING OF BRACED COLUMN
X	CONNECTION SCHEDULE PER 12/S6.03
(X)	BASE PLATE CONFIGURATION PER 24/S6.04
(x)	NUMBER OF SHEAR STUDS PER 22/S5.01 & 23/S5.01
(D)	BEAM DROPPED FOR JOIST SEAT CONNECTIONS PER ROOF DETAILS

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PROJECT INFORMATION

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SCHOOL DISTRICT LOGO

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10.18.2019	DESIGN DEVELOPMENT
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04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

BRACE FRAME ELEVATIONS

SHEET NUMBER

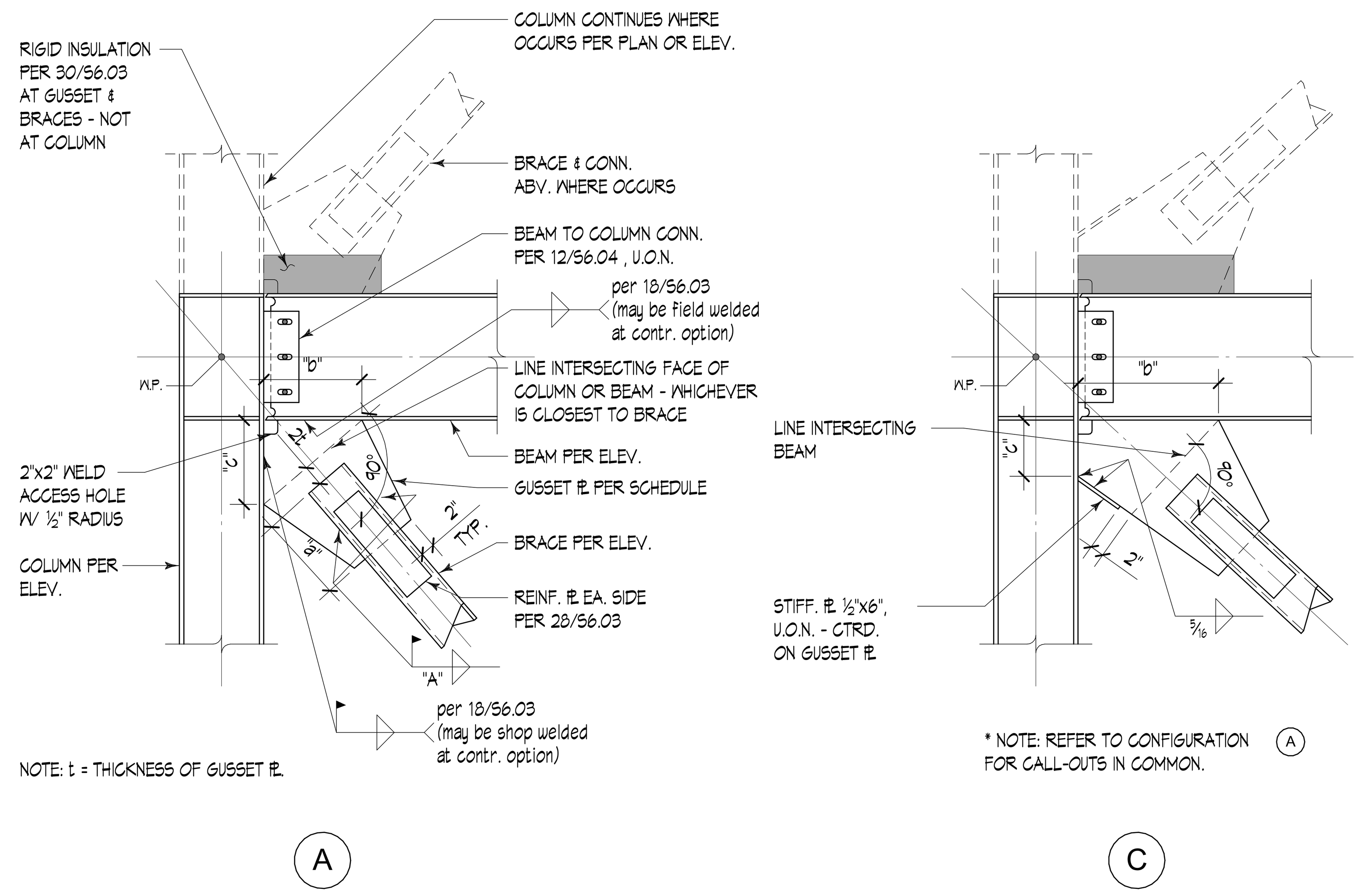
S6.01

1

2

7

8



5093
Gusset at Beam to Column - WF Column 10

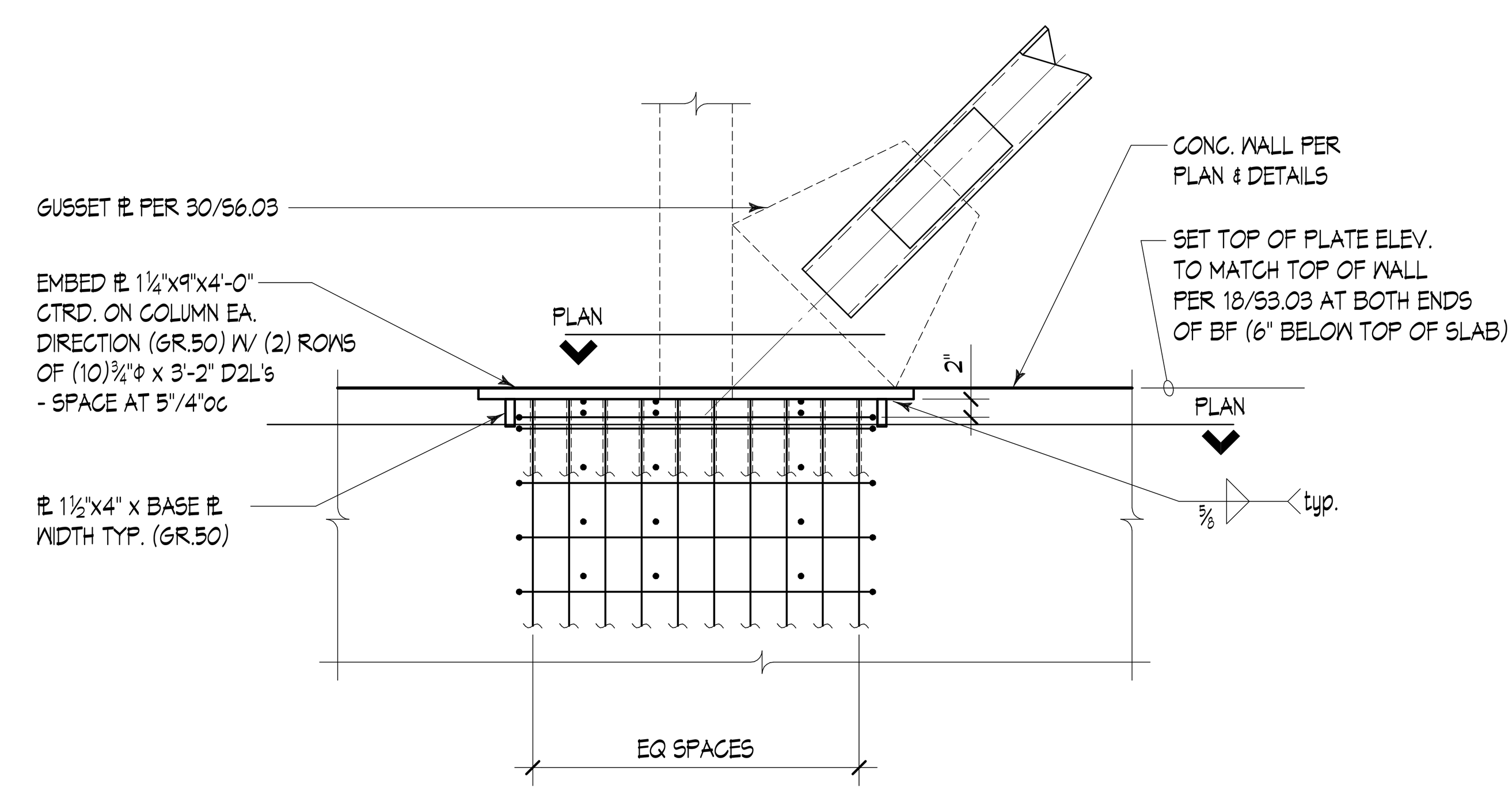
MARK	BRACE WELD LENGTH "a" (in.)	BRACE WELD SIZE "A" (in.)	WELD LENGTH "b" (in.)	WELD LENGTH "c" (in.)	GUSSET PL THICKNESS (in.) (GR. 50)	DETAIL (REFERENCE	CONFIGURATION TYPE
1	11	5/16	15	7	5/8	10/S6.03	A
2	13	½	16	12	¾	10/S6.03	A
3	13	½ AT HSS 5x5 5/16 AT HSS 4x4	12	16	¾	30/S6.03	G
4	10	½	13	7	¾	10/S6.03	A
5	15	5/8	20	12	1	10/S6.03	A
6	15	5/8	28	10	1	10/S6.03	C
7	15	5/8	15	15	1	30/S6.03	G
8	13	½ AT HSS 5x5 5/16 AT HSS 4x4	20	8	¾	10/S6.03	C
9	13	½ AT HSS 5x5 5/16 AT HSS 4x4	15	12	¾	10/S6.03	A
10	13	½	21	20	¾	10/S6.03	A
11	13	½ AT HSS 5x5 5/16 AT HSS 4x4	9	19	¾	30/S6.03 OR 23/S6.03	G
12	15	5/8	9	18	1"	30/S6.03	G

5099
Gusset Plate Connection Schedule 12

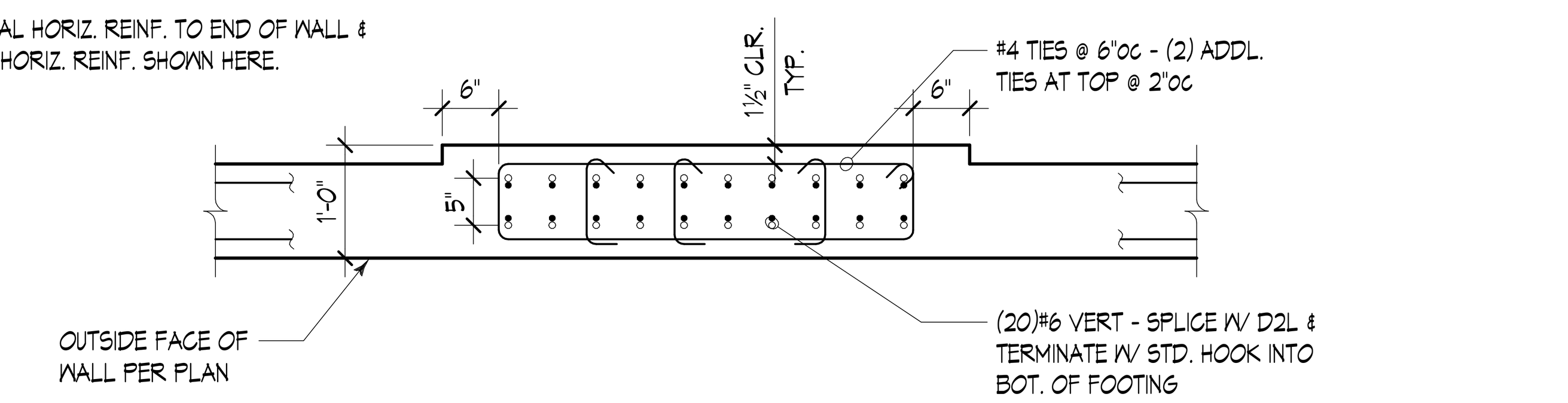
13

14

15



NOTES:
1. SEE 24/S3.02 FOR TYPICAL WALL REINF.
2. LOCATE TYPICAL VERT. REINF. OUTSIDE TIED REINF. SHOWN HERE.
3. EXTEND TYPICAL HORIZ. REINF. TO END OF WALL & HOOK BELOW HORIZ. REINF. SHOWN HERE.



PLAN

5709
23

GUSSET PL WELD SCHEDULE	
GUSSET PL THICKNESS (in.)	FILLET WELD SIZE (in.)
5/8	7/16
¾	½
1	11/16

5095
Gusset Plate Weld Schedule 18

19

20

21

24

25

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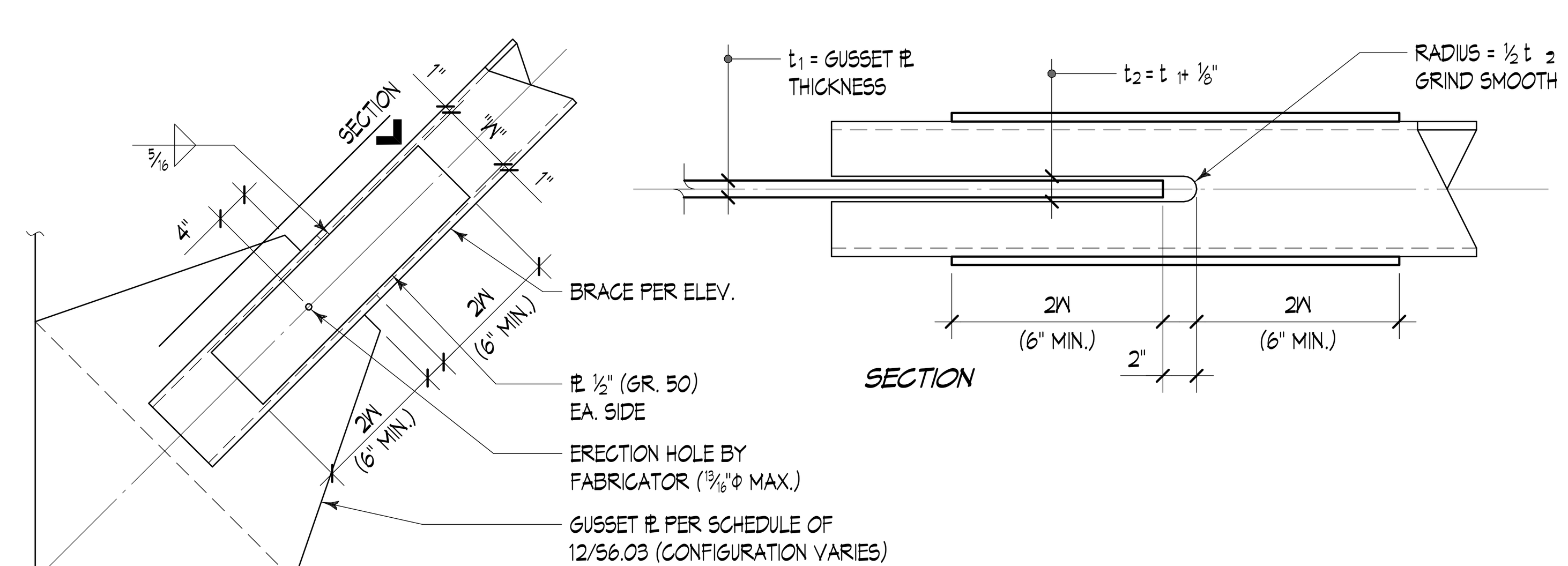
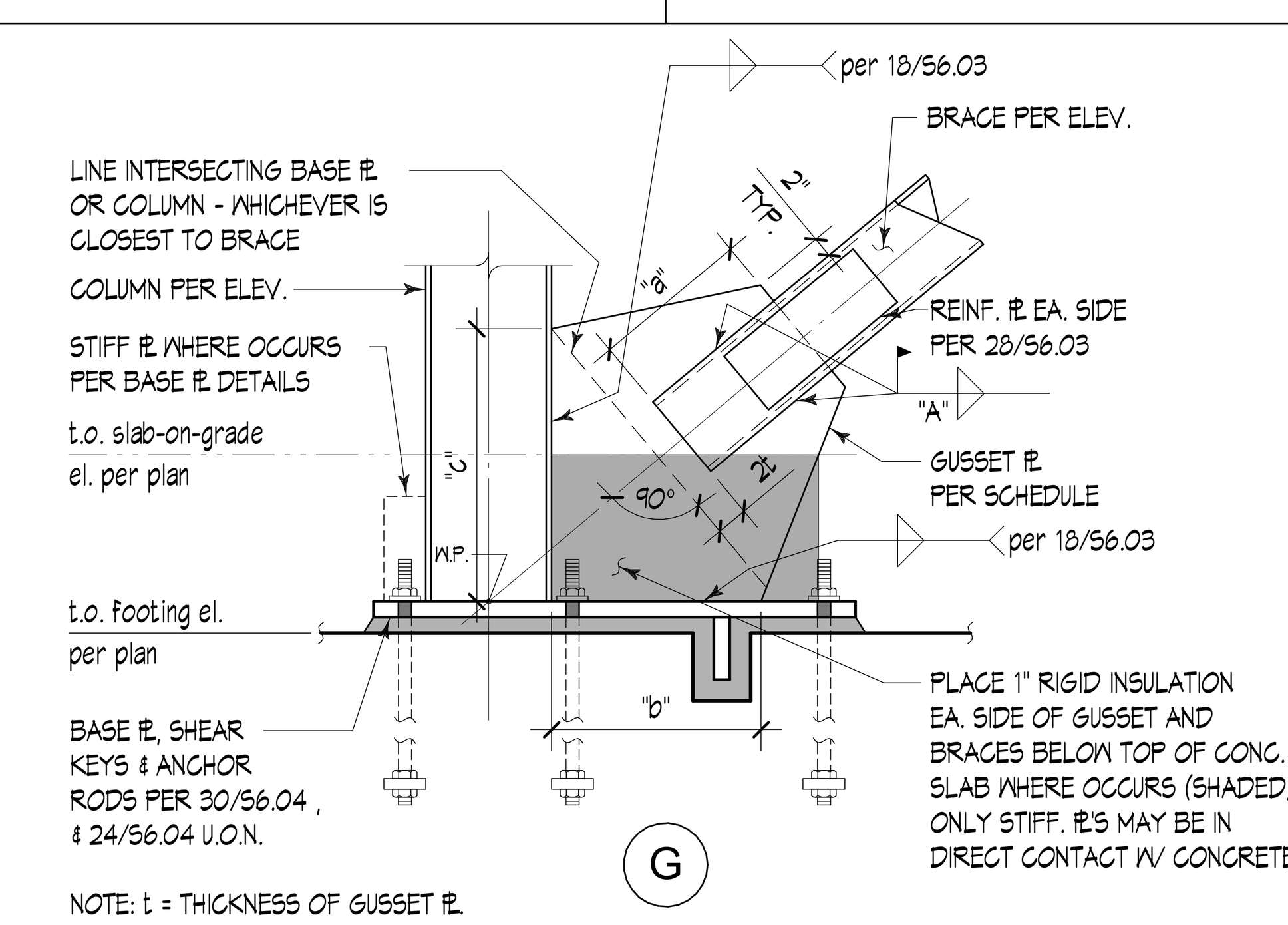


5097
Tube Steel Brace Reinforcement Plate 28



NOTE: t = THICKNESS OF GUSSET PL.

5096
Gusset at Base Plate - WF Column Strong Axis 30

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CONSULTANT STAMP

CORY GENE HITZEMANN, STATE OF WASHINGTON, STRUCTURAL ENGINEER 04/07/20

PROJECT INFORMATION

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

BRACED FRAME DETAILS

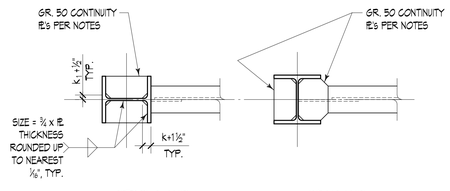
SHEET NUMBER

S6.03

1

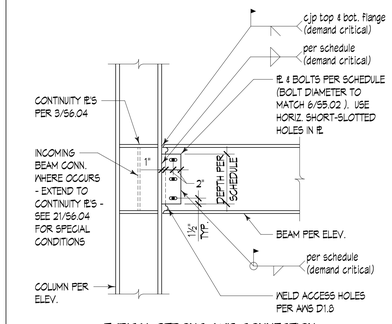
CONTINUITY PL'S NOTES:

1. AT STRONG AXIS CONN. CONTINUITY PL THICKNESS SHALL BE ¾ OF THE BEAM FLANGE THICKNESS, ROUNDED UP TO THE NEAREST ⅛ OF AN INCH. WHERE BEAMS FRAME INTO OPPOSITE SIDES OF THE COLUMN OR AT ALL WEAK AXIS CONN., THE CONTINUITY PL THICKNESS SHALL EQUAL THE THICKNESS OF THE THICKER BEAM FLANGE, ROUNDED UP TO THE NEAREST ⅛ OF AN INCH.
2. CONTINUITY PL'S MAY BE OMITTED AT STRONG AXIS CONDITIONS WHERE COLUMN FLANGE THICKNESS MEETS OR EXCEEDS TWICE THE BEAM FLANGE THICKNESS.
3. WHERE BRACED FRAME BEAMS FRAME INTO BOTH STRONG AND WEAK AXIS OF THE SAME COLUMN, THE FOLLOWING SHALL APPLY: WHERE NOMINAL BEAM DEPTHS ARE THE SAME, USE SIZE AND LOCATION OF PL'S BASED ON THE WEAK AXIS CONDITION; WHERE NOMINAL BEAM DEPTHS DIFFER, PROVIDE SEPARATE CONTINUITY PL'S FOR BOTH STRONG AND WEAK AXIS CONDITIONS.
4. FILLET WELDS BETWEEN CONTINUITY PL AND COLUMN SHALL BE HELD BACK ONE WELD SIZE ADJACENT TO THE K AND K1 ZONES OF THE COLUMN.

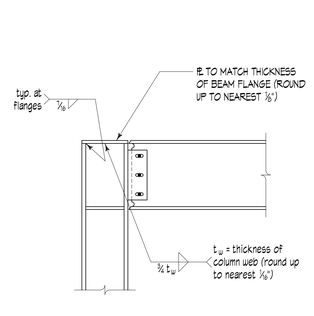


5084

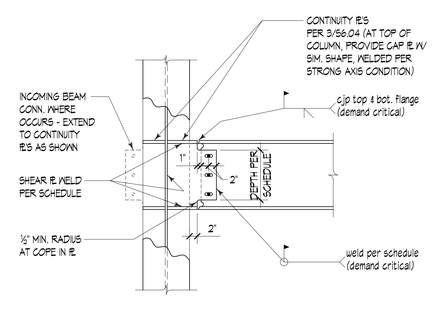
Continuity Plates 3



TYPICAL STRONG AXIS CONNECTION



STRONG AXIS CONNECTION AT TOP OF COLUMN
(SEE TYPICAL CONDITION FOR CALL-OUTS IN COMMON)



TYPICAL WEAK AXIS CONNECTION
(SEE STRONG AXIS CONDITION FOR CALL-OUTS IN COMMON)

NOTES:

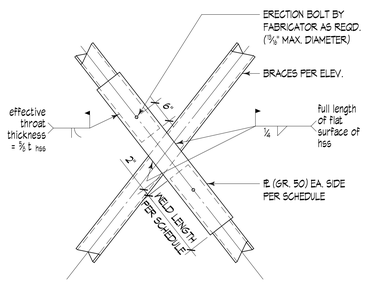
1. ALL WELDING SHOWN THIS DETAIL SHALL CONFORM TO AWS D1.8 CHAPTER 6 AND ANSI/AISC 358-10 CHAPTER 3, WITH THE FOLLOWING ADDITIONAL REQUIREMENTS.
2. WELD ACCESS HOLES SHALL CONFORM TO AWS D1.8 SECTION 6.10.1.2 AND SECTION 6.10.2
3. STEEL BACKING BARS AT BEAM BOTTOM FLANGE WELD SHALL BE REMOVED, BACKGOUGED, AND BACKWELDED PER ANSI/AISC 358-10 SECTION 3.3.2.
4. STEEL BACKING BARS AT BEAM TOP FLANGE WELD MAY BE LEFT IN PLACE PROVIDED THAT THE BACKING BAR IS WELDED TO THE COLUMN ON THE UNDERSIDE WITH A 5/16" FILLET WELD.

SHEAR PL CONNECTION SCHEDULE					
BEAM SIZE	PL DEPTH	PL THICKNESS (GR.50)	PL TO COLUMN WELD SIZE	PL TO BEAM WELD SIZE	NO. OF BOLTS (EQUALLY SPACED)
W16	11"	¾"	½"	⅝"	3
W18	13"	¾"	½"	⅝"	3
W24	18"	⅞"	⅝"	1"	4

5085

Braced Frame Beam to Column Connection 12

7

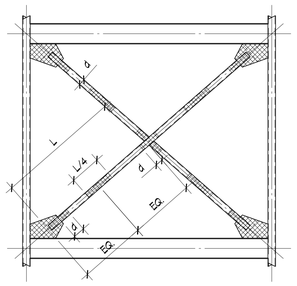


BRACE SIZE	PL SIZE EA. SIDE (GR. 50)	WELD LENGTH
HSS 4x4x5/16	½" x 6"	13"
HSS 4x4x⅜	⅝" x 6"	13"
HSS 4x4x½	¾" x 6"	13"
HSS 5x5x⅜	¾" x 7"	16"
HSS 5x5x½	⅞" x 7"	16"
HSS 6x6x½	1" x 8"	19"
HSS 6x6x⅜	1¼" x 8"	19"

5088

HSS Brace Intersection Schedule 9

13

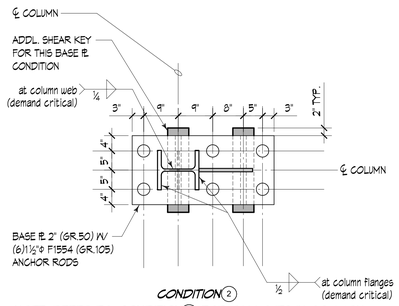


HATCHED AREAS INDICATE PROTECTED ZONE. WELDED, BOLTED, SCREWED, DRIVE PINNED OR OTHER CONNECTIONS ARE NOT PERMITTED IN PROTECTED ZONES (EXCEPT ARC SPOT WELDS OF 3/S1.01)

N.T.S.

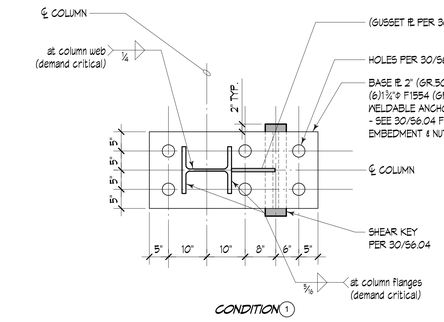
5091

Protected Zone of Braced Frames 15



CONDITION 2

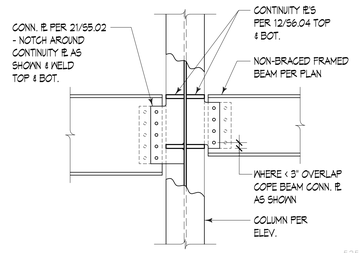
NOTE: REFER TO CONDITION 1 FOR CALLOUTS IN COMMON.



CONDITION 1

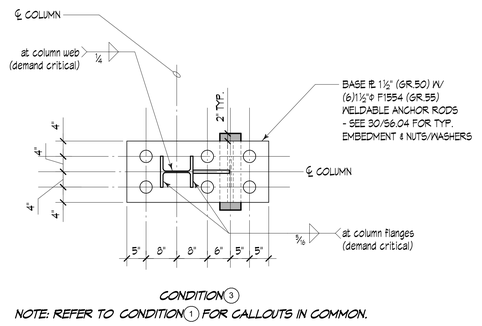
19

20



5256

Beam to Column Connection 21



CONDITION 3

NOTE: REFER TO CONDITION 1 FOR CALLOUTS IN COMMON.

NOTE:
SEE 30/S6.04 FOR TYP. EMBEDMENT & NUTS/WASHERS

5086

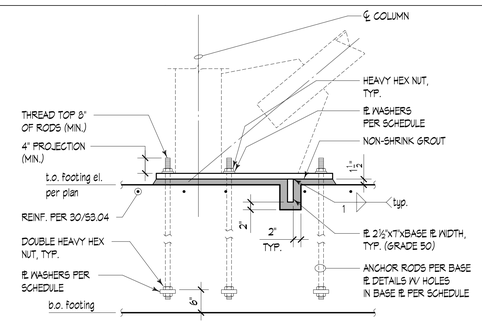
BF Base Plate - Plan Views 24

25

26

27

ROD DIAMETER	HOLE DIAMETER U.O.N.	PL WASHER ON BASE PL	PL WASHER AT EMBEDDED END	
			GR. 55 RODS	GR. 105 RODS
1½"	2⅜"	½"X3½"X0'-3½"	½"X3½"X0'-3½"	¾"X3½"X0'-3½"
1¾"	2¾"	⅝"X4"X0'-4"	¾"X4"X0'-4"	1"X4½"X0'-4½"



5090

BF Base Plate Section 30

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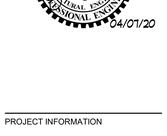

PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
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01.13.2020	CONSTRUCTABILITY REVIEW
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

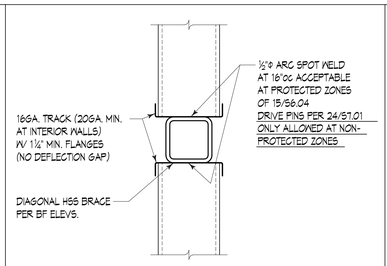
BRACED FRAME DETAILS

SHEET NUMBER

S6.04

1

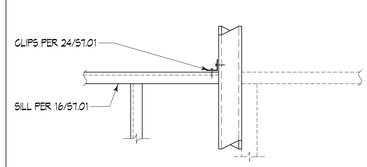
2



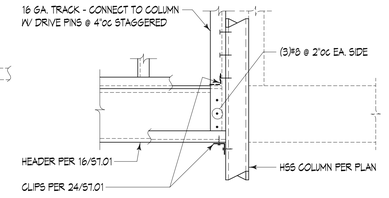
TYPICAL INTERIOR OR EXTERIOR STUD WALL TO BRACED FRAME BRACE CONNECTION DETAIL

7009

Typ. Conn. at BF Braces 3



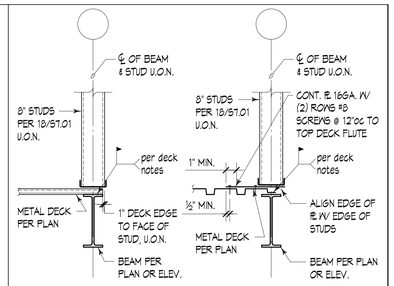
SILL CONN. AT STEEL COLUMNS



HEADER CONN. AT STEEL COLUMNS

7008

Header Conn's to HSS Cols 5



METAL DECK SPAN PERPENDICULAR TO BEAM CONDITION

METAL DECK SPAN PARALLEL TO BEAM CONDITION

5610

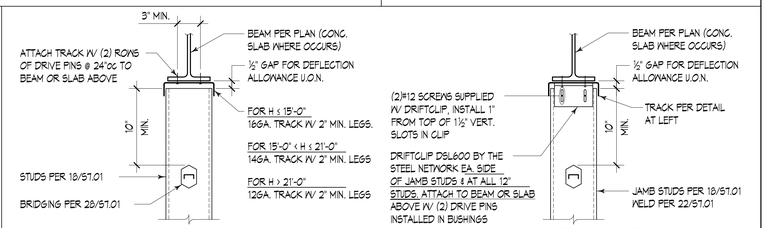
6

7

8

9

10



TYP. 6", 8" & 10" WALL STUDS

JAMB STUDS & 12" STUDS

NOTES:

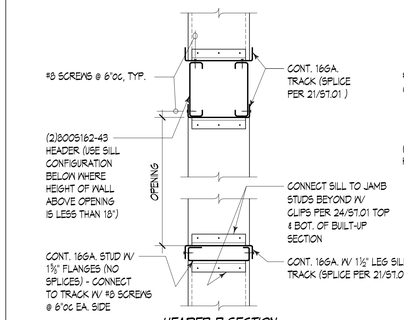
1. CONNECTIONS SHOWN THIS DETAIL APPLY TO THE TOP OF TYPICAL SIMPLE SPANNING WALL STUDS WHERE DEFLECTION ALLOWANCE OCCURS.
2. SEE DETAILS FOR OTHER CONNECTIONS WHERE STUDS BYPASS SLAB EDGE OR SUPPORTING BEAMS OR WHERE HANGING SPANDREL TYPE CONDITIONS OCCUR.

7002

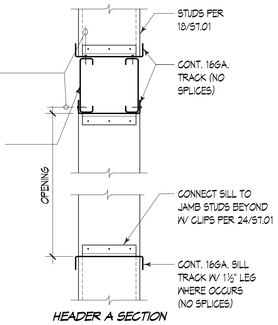
1 1/2" = 1'-0"

Typical Exterior Stud Head Conn's 12

13

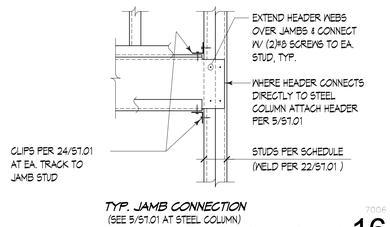


HEADER B SECTION



HEADER A SECTION

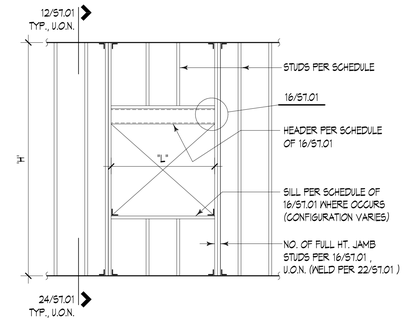
SPAN "L" CONDITION	HEADER TYPE	NO. OF FULL HEIGHT JAMB STUDS U.O.N. PER PLAN
L ≤ 7'-0"	A	2
7'-0" < L ≤ 10'-0"	B	3



TYP. JAMB CONNECTION
(SEE 5/S7.01 AT STEEL COLUMN)

7006

Typ. Wind Header Schedule 16



TYPICAL SIMPLE SPANNING STUD WALL SCHEDULE

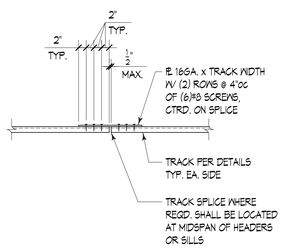
STUD WIDTH	CLEAR HEIGHT "H"	STUD WALL TYPE PER 30/S7.01 , U.O.N.
6"	H ≤ 15'-0"	S-818
6"	15'-0" < H ≤ 20'-0"	S-816
6"	20'-0" < H ≤ 25'-0"	S-816-12
10"	H ≤ 18'-0"	S-1018
10"	18'-0" < H ≤ 25'-0"	S-1016
12"	H ≤ 25'-0"	S-1216

7001

Exterior Wall Schedule 18

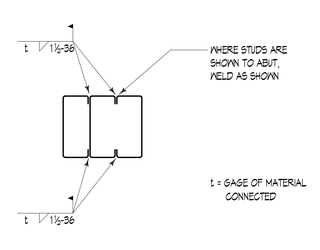
19

20



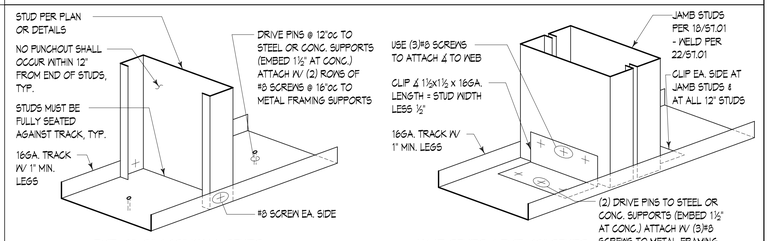
7004

Track Splice 21



7005

Multiple Stud Connection 22



TYP. 6", 8" & 10" WALL STUDS

JAMB STUDS & TYP. 12" STUDS

NOTES:

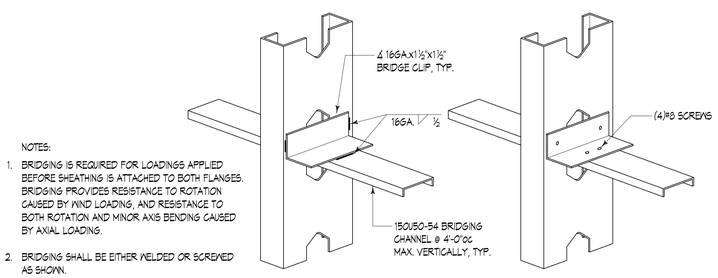
1. CONNECTIONS SHOWN ON THIS DETAIL APPLY TO THE TOP OR BOTTOM OF TYPICAL SIMPLE SPANNING WALL STUDS SUBJECT TO WIND LOADING. SEE 12/S7.01 FOR CONNECTIONS AT TOP OF WALLS WHERE DEFLECTION ALLOWANCE OCCURS.
2. SEE DETAILS FOR OTHER CONNECTIONS WHERE STUDS BYPASS SLAB EDGE OR SUPPORTING BEAMS OR WHERE HANGING SPANDREL TYPE CONDITIONS OCCUR.

7003

Typical Exterior Stud Sill Conn's 24

25

26



7002

Bridging for Metal Stud Wall 28

METAL FRAMING NOTES:

1. METAL FRAMING USED SHALL CONFORM TO THE SPECIFICATIONS OUTLINED IN THE GENERAL NOTES IN ADDITION TO REQUIREMENTS NOTED HERE.
2. METAL FRAMING & STRAP BRACING SHALL BE G60 GALVANIZED UNLESS OTHERWISE NOTED, CONFORMING AS FOLLOWS:

   12, 14, AND 16 GAGE — ASTM A653 OR A1003, GRADE 50
   18 AND 20 GAGE — ASTM A653 OR A1003, GRADE 33
3. ALL STUDS & STUD GROUPS SHALL BE LATERALLY SUPPORTED TO PREVENT WEAK AXIS BUCKLING BY CONNECTING EACH FLANGE TO GYPSUM WALLBOARD PER ASTM C1280.
4. WALLS WHICH HAVE SHEATHING CONNECTED ON ONE SIDE ONLY SHALL HAVE UNSHEATHED FLANGES LATERALLY SUPPORTED PER DETAIL 2B/S7.01 .
5. TRACK SECTIONS SHALL BE UNPUNCHED AND HAVE AT LEAST 1" FLANGES. USE OF SLOTTED TRACK IS NOT PERMITTED UNLESS SPECIFICALLY APPROVED BY ENGINEER OF RECORD.
6. WELDING OF COLD-FORMED METAL FRAMING SHALL CONFORM TO AWS D1.3 AND SHALL BE PERFORMED BY WELDERS QUALIFIED TO PRODUCE THE SPECIFIED CLASSES OF WELD.
7. WALL FRAMING:
   TWO STUDS MINIMUM SHALL BE PROVIDED AT THE END OF ALL WALLS AND AT EACH SIDE OF ALL OPENINGS. SEE 18/S7.01 FOR WALL SCHEDULE & FRAMING OF OPENINGS, U.O.N.
8. SEE ARCH'L FOR SIZING & DETAILING OF INTERIOR, NON-BEARING WALLS.
9. SEE 3/S7.01 FOR CONNECTION OF STUDS TO INTERIOR OR EXTERIOR BRACED FRAME BRACES.

METAL STUD WALL TYPES:

WALL DESIGNATION	STUD TYPE	SPACING
S-816-12	800S162-54	12"oc
S-816	800S162-54	16"oc
S-818	800S162-43	16"oc
S-1016	1000S162-54	16"oc
S-1018	1000S162-43	16"oc
S-1216	1200S162-54	16"oc

7009

Metal Framing Notes 30

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CONSULTANT STAMP

PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

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04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

TYPICAL METAL STUD DETAILS

SHEET NUMBER

S7.01

General Structural Notes

(THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE DRAWINGS.)

CRITERIA:

1. ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE INTERNATIONAL BUILDING CODE (IBC), 2015 EDITION.

2. DESIGN LOADING CRITERIA:
   VAULT LID LIVE LOAD . . . . HS25(SEE 12/S-3)
   OR 45,000 LBS OUTRIGGER
   SEE DRAWINGS FOR ADDITIONAL LOADING CRITERIA

3. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH CIVIL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS FOR COMPATIBILITY AND SHALL NOTIFY ARCHITECT/ENGINEER FOR ALL DISCREPANCIES PRIOR TO CONSTRUCTION.

4. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE DRAWINGS.

5. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK.

6. CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

7. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER.

8. ALL STRUCTURAL SYSTEMS COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

9. 9SHOP DRAWINGS FOR REINFORCING STEEL AND PRECAST CONCRETE MEMBERS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS.

10. SHOP DRAWING REVIEW: DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD, AND THEREFORE MUST BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY ENGINEER OF RECORD. SUBMITTALS SHALL INCLUDE A REPRODUCIBLE AND ONE COPY. THE REPRODUCIBLE SHALL BE MARKED AND RETURNED.
    SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT BY INDICATING WHICH MATERIAL IS INTENDED TO BE FURNISHED AND INSTALLED AND BY DETAILING THE INTENDED FABRICATION AND INSTALLATION METHODS. IF DEVIATIONS, DISCREPANCIES, OR CONFLICTS BETWEEN SHOP DRAWING SUBMITTALS AND THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE ENGINEER, THE DESIGN DRAWINGS AND SPECIFICATIONS SHALL CONTROL AND SHALL BE FOLLOWED.

11. DEFERRED SUBMITTALS, SHALL BE DESIGNED BY AN ENGINEER REGISTERED IN THE STATE OF WASHINGTON. THE COMPONENT DESIGNER SHALL BE A REGISTERED STRUCTURAL ENGINEER IF REQUIRED BY THE BUILDING OFFICIAL OF THE LOCAL JURISDICTION. BUILDING COMPONENT SUBMITTALS SHALL INCLUDE THE DESIGNING PROFESSIONAL ENGINEER'S STAMP, AND SHALL BE APPROVED BY THE COMPONENT DESIGNER PRIOR TO CURSORY REVIEW BY THE ENGINEER OF RECORD FOR LOADS IMPOSED ON THE BASIC STRUCTURE. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE AND ALL NECESSARY CONNECTIONS NOT SPECIFICALLY CALLED OUT ON ARCHITECTURAL OR STRUCTURAL DRAWINGS. DEFERRED SUBMITTALS SHALL INDICATE MAGNITUDE AND DIRECTION OF ALL LOADS IMPOSED ON BASIC STRUCTURE. DESIGN CALCULATIONS SHALL BE INCLUDED IN THE SUBMITTAL. THE ARCHITECT OR CONTRACTOR SHALL FORWARD DEFERRED SUBMITTALS BEARING THE DESIGN ENGINEERS PROFESSIONAL STAMP AND THE ENGINEER OF RECORDS REVIEW STAMP TO THE BUILDING OFFICIAL BEFORE THE COMMENCEMENT OF MANUFACTURING/CONSTRUCTION.
    THE FOLLOWING BUILDING COMPONENTS SHALL BE DEFERRED SUBMITTALS FOR THIS PROJECT:
    PRECAST PRESTRESSED CONCRETE ELEMENTS (SEE NOTE 19)
    CONCRETE MIX DESIGN

STATEMENT OF SPECIAL INSPECTIONS (STRUCTURAL):

12. STATEMENT OF SPECIAL INSPECTIONS - STRUCTURAL ITEMS (SEISMIC DESIGN CATEGORY E):

    PECIAL INSPECTIONS AND TESTING SHALL BE PERFORMED BY THE OWNER APPOINTED INSPECTION AGENCY IN ACCORDANCE WITH CHAPTER 17 OF THE IBC WITH REPORTS PER IBC SECTION 1704.2.4 SUBMITTED TO THE OWNER, ARCHITECT, STRUCTURAL ENGINEER, CONTRACTOR, AND BUILDING OFFICIAL FOR EACH DAY SPECIAL INSPECTIONS OR TESTING IS PERFORMED. THESE INSPECTIONS ARE IN ADDITION TO THE INSPECTIONS SPECIFIED IN IBC SECTION 110. SEE TABLES BELOW FOR ADDITIONAL INFORMATION.

STRUCTURAL ITEMS	SPECIAL INSPECTION FREQUENCY	IBC REFERENCE
CONCRETE (SEE GENERAL STRUCTURAL NOTE 14 FOR ADDITIONAL REQUIREMENTS)*		
REINFORCING PLACEMENT	PERIODIC AND PRIOR TO ALL CONCRETE POURS	TABLE 1705.3 ITEM 1
ANCHOR BOLT PLACEMENT	PERIODIC AND PRIOR TO ALL CONCRETE POURS	TABLE 1705.3 ITEM 3
CONCRETE PLACEMENT**	CONTINUOUS	TABLE 1705.3 ITEM 5,6&7
CURING & FORMWORK PROCEDURES	PERIODIC	TABLE 1705.3 ITEM 8,11&12
PRECAST CONCRETE ERECTION	PERIODIC	TABLE 1705.3 ITEM 10
SOIL COMPACTION	CONTINUOUS	1705.6

* EXCEPTIONS 1 THRU 5 PER IBC SECTION 1705.3 SHALL NOT APPLY TO CONCRETE WORK ON THIS PROJECT.
** FREQUENCY OF CONCRETE LABORATORY TESTING SHALL BE IN ACCORDANCE WITH ACI 318-11 SECTION 5.6.2 UNLESS OTHERWISE NOTED IN THE PROJECT SPECIFICATIONS.

GEOTECHNICAL:

13. FOUNDATION NOTES: SUBGRADE PREPARATION INCLUDING DRAINAGE, EXCAVATION, COMPACTION, AND FILLING REQUIREMENTS, SHALL CONFORM STRICTLY WITH THE CIVIL/STRUCTURAL DRAWINGS AND SPECIFICATIONS OR AS DIRECTED BY THE OWNER APPOINTED GEOTECHNICAL ENGINEER. FOOTINGS SHALL BEAR ON UNDISTURBED DENSE GLACIAL TILL OR CDF FILL OVER DENSE GLACIAL TILL AT LEAST 18" BELOW LOWEST ADJACENT FINISHED GRADE. OVER EXCAVATE AND BACKFILL WITH CDF AS REQUIRED BY THE OWNER APPOINTED GEOTECHNICAL ENGINEER TO ACHIEVE ALLOWABLE SOIL PRESSURE AT FOOTINGS. THE OWNER APPOINTED GEOTECHNICAL ENGINEER SHALL APPROVE FOOTING EXCAVATION/PREPARATION PRIOR TO PLACEMENT OF ALL FOOTINGS. BACKFILL BEHIND ALL RETAINING WALLS WITH FREE DRAINING, GRANULAR FILL AND PROVIDE FOR SUBSURFACE DRAINAGE AS NOTED IN THE CIVIL DRAWINGS AND SPECIFICATIONS.

    ALLOWABLE SOIL PRESSURE . . . . 5,000 PSF
    LATERAL EARTH PRESSURE (RESTRAINED/UNRESTRAINED) . . . . 50 PCF/35 PCF + 10H/5H PSF (SEISMIC)
    PRECAST PRESTRESSED CONCRETE ELEMENTS (SEE NOTE 19)
    CONCRETE MIX DESIGN
    SOIL PROFILE TYPE . . . . SITE CLASS D

    GEOTECHNICAL REPORT REFERENCE: ASSOCIATED EARTH SCIENCES, INC. PROJECT NO. 180364E001, DATED FEBURARY 25,2019.

CONCRETE:

14. CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED AND PLACED IN ACCORDANCE WITH ACI 318-14 CHAPTER 26 AND ACI 301. CONCRETE SHALL ATTAIN A 28-DAY STRENGTH OF f'c = 4,500 PSI

    ALL CONCRETE SHALL BE EXPOSURE CLASSES F0, S0, P0, AND C0 PER ACI 318-14 TABLES 19.3.1.1 AND 19.3.2.1 EXCEPT AS NOTED BELOW.

    ALL CONCRETE EXPOSED TO EARTH (FOUNDATIONS, ETC.): (F0, S0, P0, C1)
    ALL CONCRETE EXPOSED TO WEATHER: (F1, S0, P0, C1)

    CONCRETE MIXES SHALL MEET OR EXCEED THE REQUIREMENTS SPECIFIED ABOVE. MIXES SHALL BE SUBMITTED TO THE ENGINEER AND BUILDING OFFICIAL FOR APPROVAL TWO WEEKS PRIOR TO PLACING ANY CONCRETE AND SHALL INCLUDE THE AMOUNTS OF CEMENT, CEMENTITOUS MATERIAL, FINE AND COARSE AGGREGATE, WATER AND ADMIXTURES, AS WELL AS THE WATER-CEMENT RATIO, SLUMP, CONCRETE YIELD AND SUBSTANTIATING STRENGTH DATA IN ACCORDANCE WITH ACI 318-14, CHAPTER 26 AND 27. REVIEW OF MIX SUBMITTALS BY THE ENGINEER OF RECORD INDICATES ONLY THAT INFORMATION PRESENTED CONFORMS GENERALLY WITH CONTRACT DOCUMENTS. CONTRACTOR OR SUPPLIER MAINTAINS FULL RESPONSIBILITY FOR SPECIFIED PERFORMANCE.

15. REINFORCING STEEL SHALL CPNFORM TO ASTM A615 GRADE 60, Fy = 60,000 PSI.

16. REINFORCING STEEL SHALL BE DETAILED (INCLUDING HOOKS AND BENDS) IN ACCORDANCE WITH ACI 315-99 AND 318-14.
    LAP ALL CONTINUOUS REINFORCEMENT IN ACCORDANCE WITH "REINFORCEMENT SPLICE AND DEVELOPMENT LENGTH SCHEDULE" OF 9/S-4 . PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS. LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 12" AT SIDES AND ENDS.
    NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS OTHERWISE NOTED ON THE DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER.

17. CONCRETE PROTECTION (COVER) FOR REINFORCING STEEL SHALL BE AS FOLLOWS, U.O.N.:

    FOOTINGS AND OTHER UNFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH . . . . . . 3"
    FORMED SURFACES EXPOSED TO EARTH (i.e. WALLS BELOW GROUND) OR WEATHER (#6 BARS OR LARGER). . . 2"
    (#5 BARS OR SMALLER) . . . . . 1 1/2"
    BEAM STIRRUPS . . . . 1 1/2"
    SLABS AND WALLS (INTERIOR FACE) . . . . GREATER OF (BAR DIAMETER PLUS 1/8") or . . 3/4"

18. CAST-IN-PLACE CONCRETE: SEE CIVIL DRAWINGS FOR EXACT LOCATIONS AND DIMENSIONS OF MANHOLE ACCESSES, PIPING SLEEVES, AND ANY OTHER OPENINGS IN CONCRETE WALLS AND STRUCTRUAL SLABS.

19. PRECAST PRESTRESSED CONCRETE UNITS SHALL BE DESIGNED BY THE MANUFACTURER FOR THE LOADS AND SPANS SHOWN ON THE DRAWINGS. MANUFACTURER SHALL DESIGN FOR SPECIAL CONDITIONS AT OPENINGS AND BLOCK-OUTS SHOWN ON STRUCTURAL, AND CIVIL DRAWINGS. DESIGN AND FABRICATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED SPECIFICATIONS FOR THE UNIT FURNISHED AND ACI STANDARD 318-14. SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION. ALL SUBMITTALS SHALL BEAR THE STAMP AND SIGNATURE OF A REGISTERED STRUCTURAL ENGINEER, STATE OF WASHINGTON. CALCULATIONS SHALL BE MADE AVAILABLE UPON REQUEST. THE PRECAST PRESTRESSED CONCRETE UNIT MANUFACTURER IS REQUIRED TO BE A WABO APPROVED MANUFACTURER. OTHERWISE, THE MANUFACTURER SHALL SUBMIT A COPY OF THE SHOP'S QUALITY CONTROL MANUAL THAT OUTLINES ALL IN-HOUSE PROCEDURES, TESTING, RESPONSIBLE PARTIES, ETC. TO THE SPECIAL INSPECTION AGENCY OF THIS PROJECT. THE SPECIAL INSPECTION AGENCY SHALL THEN REVIEW THE QC MANUAL, VISIT THE SHOP ONCE TO MEET WITH THE FABRICATOR AND TOUR THE FACILITY, AND CONTACT THE BUILDING OFFICIAL WITH INSPECTION RECOMMENDATIONS.
    PRECAST CONCRETE MEMBERS SHALL BE ADEQUATELY BRACED UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE DRAWINGS. CONTRACTOR SHALL PROVIDE ALL EXTRA REINFORCEMENT, INSERTS, LIFTING DEVICES, PRESTRESSING, ETC., REQUIRED FOR HANDLING AND ERECTION.

20. NON-SHRINK GROUT SHALL BE FURNISHED BY AN APPROVED MANUFACTURER AND SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. GROUT STRENGTH SHALL BE AT LEAST EQUAL TO THE MATERIAL ON WHICH IT IS PLACED (6,000 PSI MINIMUM).

SHEET INDEX

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CORY GENE HITZEMANN
STATE OF WASHINGTON
38836
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER
04/07/20

PROJECT INFORMATION

Inglemoor High School Concert Hall & Music Building

1550 Simonds Road NE Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

04.13.2020 BID DOCUMENTS

BID DOCUMENTS

04.13.2020

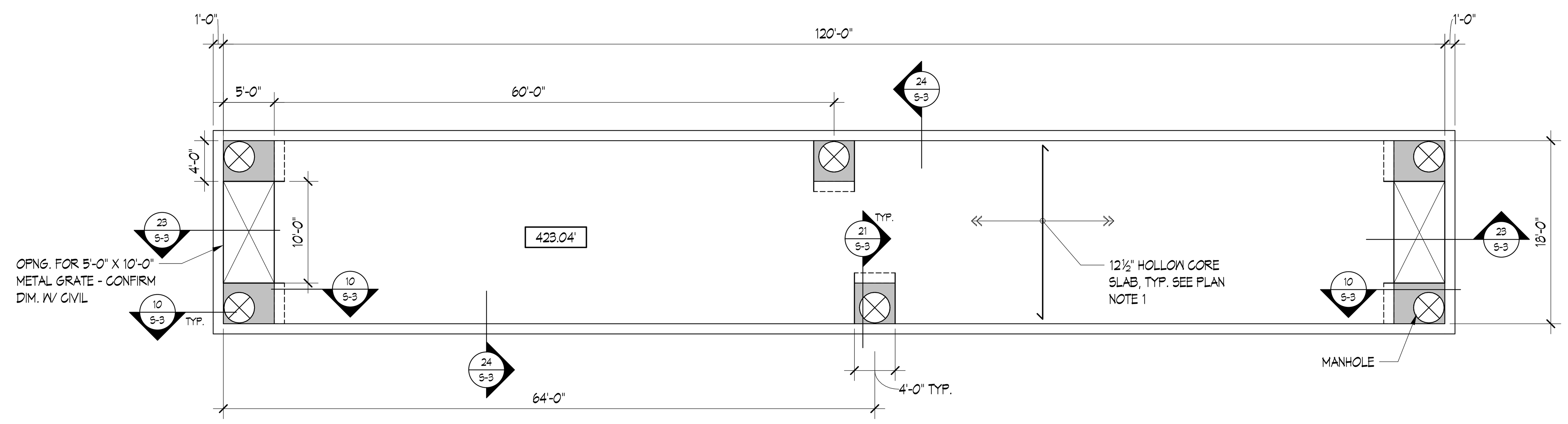
PROJECT NUMBER: S190390-01

SHEET NAME

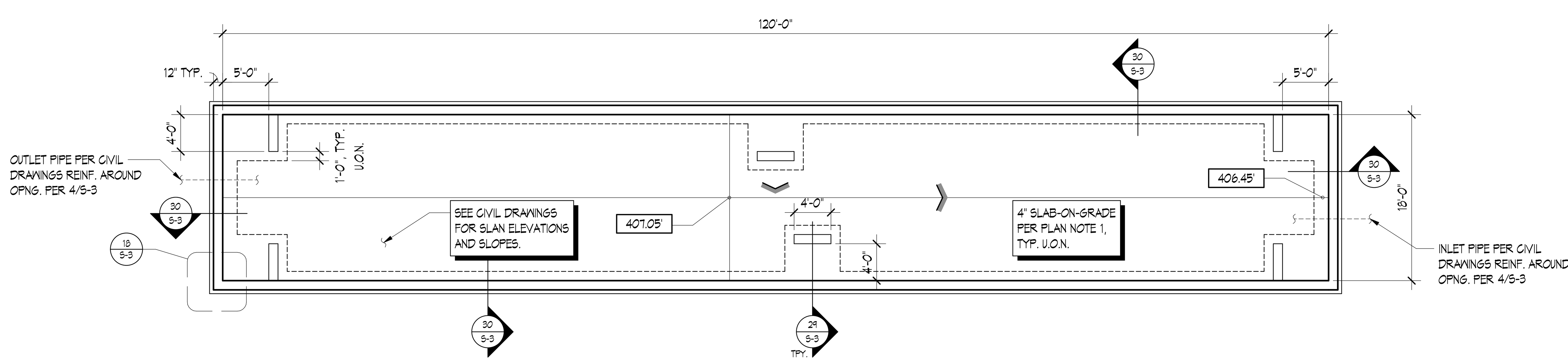
GENERAL STRUCTURAL NOTES

SHEET NUMBER

S-1



② VAULT LID FRAMING
1/8" = 1'-0"



① VAULT FOUNDATION PLAN
1/8" = 1'-0"

FOUNDATION PLAN NOTES:

1. SLAB ELEVATION VARIES PER PLAN AND CIVIL PLAN. SLAB-ON-GRADE SHALL BE 4" THICK WITH 6X6 W1.4XW1.4 WWM AT CENTER, U.O.N. PROVIDE FREE-DRAINING CAPILLARY BREAK MATERIAL PER GEOTECHNICAL REPORT CIVIL, AND PER SPECIFICATIONS.

   SEE CICIL DRAWINGS FOR SLAB DEPRESSION AND SLOPE REQUIREMENTS
2. SEE CIVIL DRAWINGS FOR SIZES AND LOCATIONS OF MANHOLE ACCESS, PIPING SLEEVES THROUGH WALLS AND ACCESSORIES NOT SHOWN.
   REINF. WALL OPENINGS PER 4/S-3
3. COORDINATE TOP OF CONCRETE ELEVATIONS, OPENING SIZES AND LOCATIONS, AND VAULT DIMENSIONS WITH CIVIL DRAWINGS.
4. VAULT STRUCTURE SHALL BE COMPLETE AND CONCRETE MUST ACHIEVE REQD. 28-DAY COMPRESSIVE STRENGTH BEFORE BACKFILLING BEHIND VAULT WALLS. BACKFILL WALLS ON ALL FOUR SIDES CONCURRENTLY, FOR EACH LIFT OF BACKFILL. VAULT IS NOT DESIGNED TO RESIST RETAINING WALL LOADS FROM UNEVEN BACKFILL
5. DO NOT ALLOW VAULT TO FILL WITH WATER BEFORE BACKFILLING SOIL FULL HEIGHT BEHIND WALLS.
6. DEWATERING OF VAUL IS REQUIRED UNTIL VAULT STRUCTURE IS COMPLETE PER NOTE 4.

LID FRAMING PLAN NOTES:

1. TOP OF VAULT ELEVATION PER PLAN. MINIMUM SOIL THICKNESS OVER LOD SHALL BE 1'-6". MAXIMUM SOIL THICKNESS OVER LOD SHALL BE 5'-0". SEE 12/S-3 FOR LID DESIGN LOADS.
2. COORDINATE TOP OF CONCRETE ELEVATIONS. FINISH GRADES, OPENING SIZES AND LOCATIONS, AND VAULT DIMENSIONS WITH CIVIL DRAWINGS.
3. VAULT STRUCTURE SHALL BE COMPLETE AND CONCRETE MUST ACHIEVE REQD. 28-DAY COMPRESSIVE STRENGTH BEFORE BACKFILL BEHIND VAULT WALLS. BACKFILL WALLS ON ALL FOUR SIDES CONCURRENTLY, FOR EACH LIFT OF BACKFILL. VAULT IS NOT DESIGNED TO RESIST RETAINING WALL LOADS FORM UNEVEN BACKFILL.

LEGEND:

x'-x"	TOP OF SLAB/LID ELEVATION
high ◐ low	STEP IN FOOTING PER 16/S-3
(shaded)	CAST-IN-PLACE CONCRETE

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04/07/20

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04.13.2020

PROJECT NUMBER: S190390-01

SHEET NAME

DETENTION VAULT PLAN

SHEET NUMBER

S-2

1

I MINIMUM STRAIGHT DEVELOPMENT LENGTH (ℓ_d) ✦

BAR SIZE	f'c = 4000 PSI TOP BARS	OTHER BARS
# 3	19"	15"
# 4	25"	19"
# 5	31"	24"
# 6	37"	29"
# 7	54"	42"
# 8	62"	48"
# 9	70"	54"
# 10	79"	61"
# 11	87"	67"

III MINIMUM EMBEDMENT LENGTHS (ℓ_{dh}) FOR STANDARD END HOOKS

BAR SIZE	f'c = 4000 PSI
# 3	6"
# 4	7"
# 5	9"
# 6	10"
# 7	12"
# 8	14"
# 9	15"
# 10	17"
# 11	19"

1. SIDE COVER MUST BE EQUAL TO OR GREATER THAN 2½".
2. END COVER FOR 90° HOOKS MUST BE EQUAL TO OR GREATER THAN 2".

II MINIMUM LAP SPLICE LENGTHS (ℓ_s) ✦ (CLASS B)

BAR SIZE	f'c = 4000 PSI TOP BARS	OTHER BARS
# 3	24"	19"
# 4	33"	25"
# 5	41"	31"
# 6	49"	37"
# 7	71"	54"
# 8	81"	62"
# 9	91"	70"
# 10	102"	79"
# 11	114"	87"

✦ "TOP BARS" ARE HORIZONTAL BARS WITH MORE THAN 12" DEPTH OF CONCRETE CAST BELOW THEM.

IF CLEAR CONCRETE COVER IS LESS THAN 1x THE DIAMETER OF THE BAR OR THE CENTER-TO-CENTER SPACING IS LESS THAN (3) BAR DIAMETERS, THEN VALUES SHALL BE INCREASED BY 50%.

3800

7

Reinforcing Splice & Development Length Schedule (GR.60)

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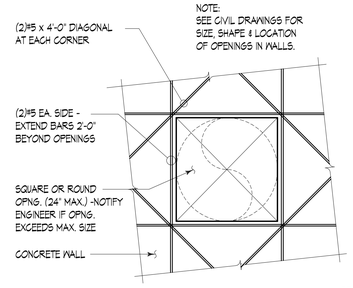

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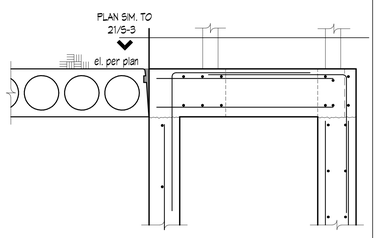

FOR CALL-OUTS IN COMMON SEE DETAIL 21/S-3

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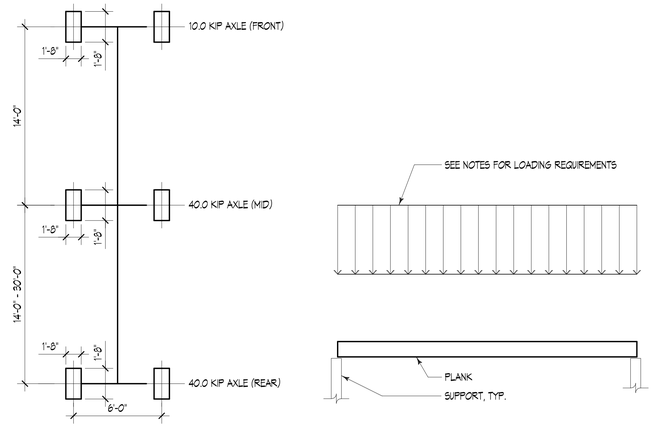

FIRE TRUCK LOADING

NOTES:

1. DESIGN HOLLOW CORE PLANKS FOR WORST CASE OF THE FOLLOWING LOADS:
   A. DEAD + SOIL* + 250 PSF LIVE
   B. DEAD + SOIL* + AASHTO (HS-25)
   D. DEAD + SOIL* + 45 KIP OUTRIGGER
2. SEE PLAN NOTES FOR MINIMUM THICKNESS OF SOIL FOR DISTRIBUTION OF WHEEL LOADS.

* SOIL WEIGHT IS 120 PCF. WORST CASE SOIL DEPTH IS PER NOTE 1 ON S-2

3807

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04/07/20

PROJECT INFORMATION

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04.13.2020	BID DOCUMENTS

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04.13.2020

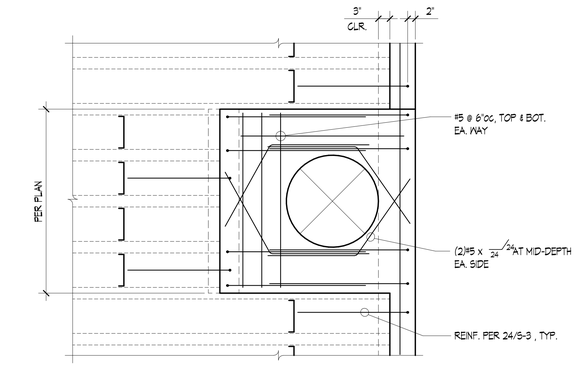
PROJECT NUMBER: S190390-01

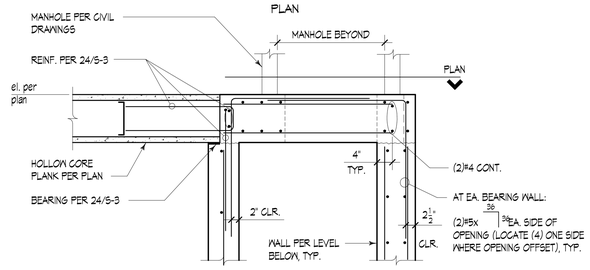
SHEET NAME

VAULT DETAILS

SHEET NUMBER

S-3





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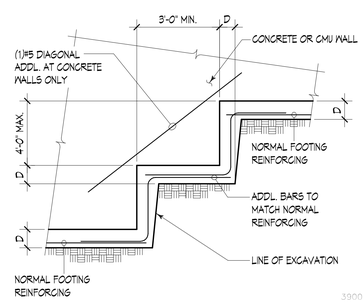

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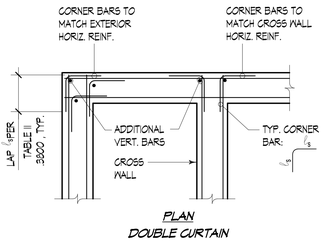

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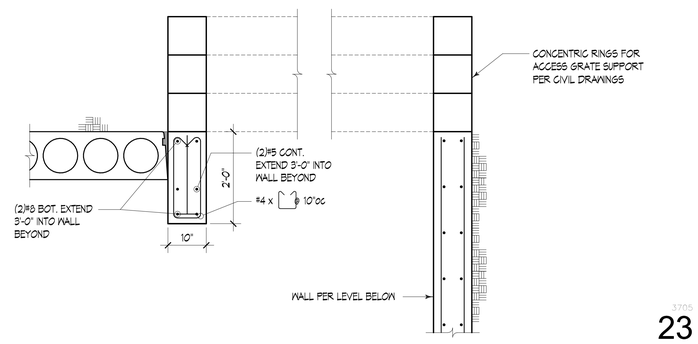

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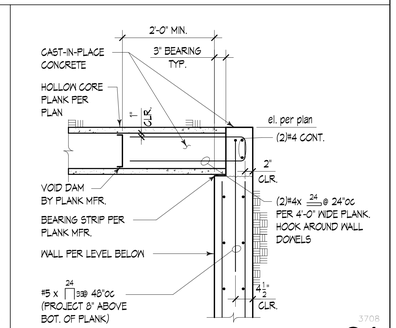

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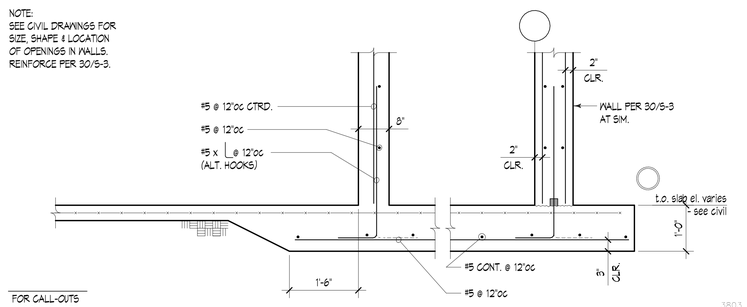

FOR CALL-OUTS IN COMMON SEE DETAIL 30/S-3

3803

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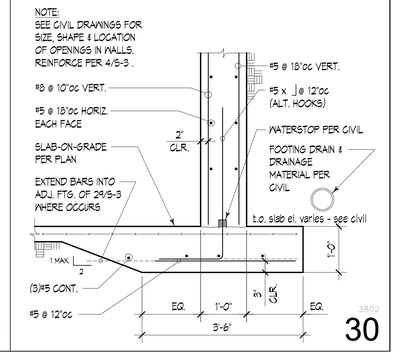

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GENERAL

- EXISTING MECHANICAL TO BE REMOVED
- EXISTING MECHANICAL TO REMAIN
- NEW MECHANICAL WORK
- MATCHLINE OR PROPERTY LINE
- ENLARGED PLAN BOUNDARY
- DETAIL/PLAN IDENTIFIER (1 / M1.01)
- SECTION IDENTIFIER (1 / M1.01)
- ELEVATION IDENTIFIER (1 / M1.01)
- REVISION DEFINITION AREA, AREA ENCIRCLED CONTAINS CHANGES MADE SUBSEQUENT TO PREVIOUS ISSUE
- REVISION CALLOUT (1)
- FLAG NOTE CALLOUT (1)
- DEMOLITION NOTE TAG (1)
- AHU-01 — MECHANICAL EQUIPMENT TAG
- 1 / AHU — MECHANICAL EQUIPMENT TAG
- NORTH ARROW
- INVERT ELEVATION OR POC
- XX-1 — PLUMBING FIXTURE TAG ("XX" INDICATES TYPE)

ELECTRICAL PROVISIONS FOR MECHANICAL WORK

- LOCATION OF STARTER, DISCONNECT & CONTROLS
- VFD — VARIABLE FREQUENCY DRIVE
- HT … HT — HEAT TRACE BETWEEN SYMBOLS OR END OF RUN

ACCESS, EXCAVATION, AND BACKFILLING

- ACCESS DOOR (SPECIFIED OR AS SHOWN ON DWGS)
- MECHANICAL ACCESS (SPECIFIED OR AS SHOWN ON DWGS)

PIPING

- 1"HWS / 1"HWS — PIPE SIZE AND SYSTEM TYPE
- PIPE ELBOW UP OR PIPE TEE UP AND DOWN
- PIPE ELBOW DOWN
- PIPE TEE UP
- PIPE TEE DOWN
- PIPE RISE
- PIPE CAP
- PIPE PLUG
- FLOW DIRECTION
- PIPE BREAK
- PIPE CONNECTION

PIPING SPECIALTIES

- UNION
- FLANGE
- FLEX CONNECTOR
- THERMAL/SEISMIC FLEXIBLE LOOP
- E / J — THERMAL EXPANSION JOINT
- STRAINER
- STRAINER WITH BLOW OFF VALVE
- PIPE ANCHOR
- ALIGNMENT GUIDE
- T/P — TEMPERATURE/PRESSURE TEST PORT
- THERMOMETER
- PRESSURE GAGE

PUMPS

- CENTRIFUGAL PUMP
- INLINE PUMP
- CIRCULATING PUMP
- BASE MOUNTED PUMP

STORM DRAINAGE PIPING SYSTEM

- ROOF DRAIN
- OVERFLOW ROOF DRAIN
- X"RL — RAIN LEADER
- X"ORL — OVERFLOW RAIN LEADER

SOIL AND WASTE WATER PIPING SYSTEM

- SANITARY SEWER/WASTE UNDERGROUND
- SANITARY SEWER/WASTE ABOVE GROUND
- X"IW — INDIRECT WASTE
- VENT PIPING
- X"VTR — VENT THRU ROOF (INCLUDE SIZE)
- FLOOR DRAIN/FUNNEL FLOOR DRAIN
- FLOOR SINK
- HUB DRAIN
- TRENCH DRAIN
- CO — CLEANOUT
- WCO — CLEANOUT - FREE STANDING WALL MOUNTED
- FCO — CLEANOUT - FLUSH WITH FLOOR

DOMESTIC WATER PIPING SYSTEM

- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER CIRCULATION
- WATER METER
- HOSE BIBB/WALL HYDRANT
- TRAP PRIMER BOX

FIRE PROTECTION SYSTEM

- X"F — FIRE SPRINKLER
- X"FM — FIRE MAIN
- X"FD — DRY SPRINKLER
- RECESSED SPRINKLER HEAD
- SEMI-RECESSED SPRINKLER HEAD
- UPRIGHT SPRINKLER HEAD
- DOUBLE DETECTOR CHECK VALVE/DOUBLE CHECK VALVE ASSEMBLY

HYDRONIC PIPING SYSTEM

- X"C — CONDENSATE DRAIN
- X"HWS — HEATING WATER SUPPLY
- X"HWR — HEATING WATER RETURN
- X"CHS — CHILLED WATER SUPPLY
- X"CHR — CHILLED WATER RETURN
- AUTOMATIC AIR VENT/MANUAL AIR VENT
- BALANCING/MEASURING VALVE
- AUTOMATIC FLOW CONTROL VALVE

REFRIGERANT PIPING SYSTEM

- X"RLL — REFRIGERANT LIQUID LINE
- X"RSL — REFRIGERANT SUCTION LINE
- SIGHT GLASS WITH MOISTURE INDICATOR
- FILTER DRYER

VALVES

- VALVE: GATE, BALL, BUTTERFLY (REFER TO SPECIFICATIONS)
- GLOBE VALVE
- S — SOLENOID VALVE
- CHECK VALVE
- BALANCING VALVE
- PRESSURE REDUCING VALVE
- REDUCED PRESSURE BACKFLOW ASSEMBLY
- PRESSURE RELIEF VALVE
- TEMPERATURE AND PRESSURE SAFETY RELIEF VALVE
- SAFETY RELIEF VALVE

DUCTWORK

- BDD — BACKDRAFT DAMPER
- VOLUME DAMPER
- FLEXIBLE CONNECTION TO MECHANICAL EQUIPMENT
- TRANSITION - FROM RECTANGULAR TO ROUND
- TRANSITION - FROM ROUND TO RECTANGULAR
- R — RISE IN DUCT (D=DROP IN DUCT)
- 16x8 — DUCT SIZE (CLEAR INSIDE DIMENSION)
- RECTANGULAR DUCT UP
- RECTANGULAR DUCT DN
- ROUND DUCT UP
- ROUND DUCT DN
- FLEXIBLE DUCTWORK
- TRANSITION OR REDUCER (FOT=FLAT ON TOP, FOB=FLAT ON BOTTOM)
- TRANSITION - ECCENTRIC
- 45° ELBOW, R/D OR R/W=1.5
- 90° ELBOW, R/D OR R/W=1.5
- SQUARE CORNER ELBOW WITH TURNING VANES
- 90° TAKE-OFF WITH 45° TAPER
- 45° TAKE-OFF
- WYE FITTING
- RADIUS TEE
- SQUARE TEE WITH TURNING VANES
- BULLHEAD TEE
- SECTION THRU RECTANGULAR SUPPLY AIR DUCT
- SECTION THRU RECTANGULAR RETURN OR OUTSIDE AIR DUCT
- SECTION THRU RECTANGULAR EXHAUST AIR DUCT
- SECTION THRU ROUND SUPPLY AIR DUCT
- SECTION THRU ROUND RETURN OR OUTSIDE AIR DUCT
- SECTION THRU ROUND EXHAUST AIR DUCT

NOT ALL SYMBOLS MAY APPEAR ON THE DRAWINGS

FIRE DAMPERS

- FIRE DAMPER
- FIRE/SMOKE DAMPER
- SMOKE DAMPER

INLETS AND OUTLETS

- GRILLE REGISTER OR DIFFUSER TYPE
- A / 24x24 / 500 — RUNOUT SIZE (INCHES) / AIR QUANTITY (CFM)
- CEILING DIFFUSER
- 1-WAY DIRECTION FLOW
- 2-WAY DIRECTION FLOW
- 3-WAY DIRECTION FLOW
- RETURN/RELIEF AIR GRILLE
- EXHAUST AIR GRILLE
- LINEAR DIFFUSER/GRILLE
- SUPPLY GRILLE
- RETURN/EXHAUST GRILLE
- TRANSFER GRILLE
- RETURN/EXHAUST AIRFLOW
- SUPPLY AIR FLOW

CONTROLS (PLAN VIEW)

- T / TU-XX — THERMOSTAT OR TEMPERATURE SENSOR
- S / G — SENSOR: SHOWN WITH GUARD (TYPICAL ALL SENSORS)
- H — HUMIDISTAT OR HUMIDITY SENSOR
- CO2 — CARBON DIOXIDE SENSOR
- M — MOTORIZED DAMPER
- F — AIRFLOW MEASURING UNIT
- DSD — DUCT SMOKE DETECTOR
- T — TEMPERATURE TRANSMITTER
- P — PRESSURE TRANSMITTER
- A — AQUASTAT
- DP — DIFFERENTIAL PRESSURE SENSOR
- DP — DIFFERENTIAL PRESSURE MONITOR
- AUTOMATIC CONTROL VALVE, 3-WAY
- AUTOMATIC CONTROL VALVE, 2-WAY
- DDC — DIRECT DIGITAL CONTROL PANEL
- S_X — SWITCH BY MECHANICAL

DRAWING INDEX

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

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Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
04.08.2019	VALUE ENGINEERING
09.16.2019	SITE PLAN REVIEW
10.18.2019	DESIGN DEVELOPMENT
01.13.2020	CONSTRUCTABILITY REVIEW
03.23.2020	HEALTH DEPARTMENT PERMIT SUBMITTAL
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711.00

SHEET NAME

Mechanical Legend

SHEET NUMBER

M0.01

ABBREVIATIONS

ø	DIAMETER, PHASE
A	AIR, AMPS
AAV	AUTOMATIC AIR VENT
ABV	ABOVE
AC	AIR CONDITIONER
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
ADA	AMERICANS WITH DISABILITIES ACT
AF	AIRFOIL
AFF	ABOVE FINISHED FLOOR
AFS	AIRFLOW MEASURING STATION
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY
AG	ABOVE GROUND
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AL	ACOUSTIC LINED (DUCT)
AMB	AMBIENT
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARCH	ARCHITECT
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS, INC.
ASSY	ASSEMBLY
ATM	ATMOSPHERE
B	BOILER
BDD	BACK DRAFT DAMPER
BF	BELOW FLOOR
BHP	BRAKE HORSE POWER
BLW	BELOW
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BOT	BOTTOM
BTUH	BRITISH THERMAL UNIT PER HOUR
BV	BALL VALVE
C	CONDENSATE PIPING
CA	AIR COMPRESSOR
CAP	CAPACITY
CBV	CIRCUIT SETTING BALANCING VALVE
CC	COOLING COIL
CD	CEILING DIFFUSER, CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CG	CEILING GRILLE
CH	CHILLER
CHP	CHILLED WATER PUMP
CHR	CHILLED WATER RETURN, CHILLER
CHS	CHILLED WATER SUPPLY
CKV	CHECK VALVE
CLG	CEILING, COOLING
CO	CLEANOUT
CO2	CO2 SENSOR
COMB	COMBUSTION, COMBINATION
COND	CONDENSER, CONDENSATE
CONN	CONNECTOR
CONT	CONTINUE, CONTROL
COP	COEFFICIENT OF PERFORMANCE
COTG	CLEANOUT TO GRADE
CR	CONDENSATE RECEIVER, CONDENSER WATER RETURN
CS	CONDENSER WATER SUPPLY
CT	COOLING TOWER
CTF	COOLING TOWER FILTER
CU	CONDENSING UNIT, CUBIC
CV	CONSTANT VOLUME
Cv	FLOW COEFFICIENT
CW	COLD WATER PIPING
CWR	CONDENSING WATER RETURN
CWS	CONDENSING WATER SUPPLY
D	DRAIN
DB	DRY BULB (TEMPERATURE)
dB	DECIBEL
DCVA	DOUBLE CHECK VALVE ASSEMBLY
DDCV	DOUBLE DETECTOR CHECK VALVE
DEG	DEGREE
DFU	DRAINAGE FIXTURE UNIT
DI	DUCTILE IRON
DIA	DIAMETER
DIM	DIMENSION
DISC	LOCATION OF STARTER, DISCONNECT AND CONTROLS
DISCH	DISCHARGE
DN	DOWN
DPV	DIFFERENTIAL PRESSURE VALVE
DV	DRAIN VALVE
DWB	DOMESTIC WATER BOOSTER
DWGS	DRAWINGS
(E)	EXISTING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EFF	EFFICIENCY
EG	EXHAUST GRILLE, ENGINE GENERATOR
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC
EMCS	EMERGENCY MANAGEMENT AND CONTROL SYSTEM
EQUIV	EQUIVALENT
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EVAP	EVAPORATOR, EVAPORATIVE
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMP
EXH	EXHAUST
EXT	EXTERIOR, EXTERNAL
F	FAHRENHEIT, FIRE MAIN PIPING
F/S	FIRE/SMOKE DAMPER
FC	FLUID COOLER
FCO	FLOOR CLEANOUT
FCU	FAN COIL UNIT
FD	FIRE DAMPER, FLOOR DRAIN, DRY SPRINKLER ROUTING
FDC	FIRE DEPARTMENT CONNECTION
FF	FOULING FACTOR, FLAT FILTER, FINISHED FLOOR
FFD	FUNNEL FLOOR DRAIN
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLR	FLOOR
FLTR	FILTER
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FPVC	APPROVED PVC FIRE SPRINKLER ROUTING
FS	FLOOR SINK
FT	FEET, FIN TUBE
FTD	FOOTING DRAIN
FTG	FOOTING DRAIN
FTU	FIN TUBE UNIT
FV	FACE VELOCITY
G	GAS
GA	GAGE
GAHU	GAS AIR HANDLING UNIT
GAL	GALLONS
GALV	GALVANIZED
GC	GAS COCK, GENERAL CONTRACTOR
GFU	GAS FIRED UNIT
GPF	GALLONS PER FLUSH
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPRV	GAS PRESSURE REGULATING VALVE
GRD	GRILLES, REGISTERS, AND DIFFUSERS
GV	GATE VALVE, GLOBVE VALVE
GW	GREASE WASTE PIPING
GWB	GYPSUM WALLBOARD
H	HUMIDISTAT, HEIGHT
HB	HOSE BIBB
HC	HEATING COIL
HORIZ	HORIZONTAL
HP	HORSEPOWER, HEAT PUMP
HTG	HEATING
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
HW	HOT WATER PIPING
HWC	HOT WATER CIRCULATING PIPING
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ
IAQ	INDOOR AIR QUALITY
ID	INDIRECT DRAIN
IE	INVERT ELEVATION
IN.	INCH
IN. WG	INCHES WATER COLUMN
IRR	IRRIGATION PIPING
IW	INDIRECT WASTE PIPING
kW	KILOWATT
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LBS	POUND
LD	LINEAR DIFFUSER
LL	REFRIGERANT LIQUID LINE
LRA	LOCKED ROTOR AMPS
LVR	LOUVER
LWCD	LOW WATER CUT-OFF
LWR	LOW WALL RETURN
LWS	LOW WALL SUPPLY
LWT	LEAVING WATER TEMPERATURE
MAT	MIXED AIR TEMPERATURE
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MECH	MECHANICAL
MERV	MINIMUM EFFICIENCY REPORTING VALVE
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
NA	NOT APPLICABLE
NC	NORMALLY CLOSED, NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NO.	NUMBER
NTS	NOT TO SCALE
OA	OUTDOOR AIR
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIMENSION OR DIAMETER
ORD	OVERFLOW ROOF DRAIN
ORL	OVERFLOW RAIN LEADER
OSA	OUTDOOR SUPPLY AIR
OSD	OVERFLOW STORM DRAIN
P	PUMP, PRESSURE, PLUMBING FIXTURE
PD	PRESSURE DROP, PUMPED DRAIN
PH	PHASE
PIV	POST INDICATOR VALVE
POC	POINT OF CONNECTION
PR	CONDENSATE PUMP RETURN
PRV	PRESSURE REDUCING VALVE
PSIG	POUNDS PER SQUARE INCH GAGE
QTY	QUANTITY
RA	RETURN AIR, RELIEF AIR
RD	ROOF DRAIN
REF	REFERENCE, RETURN/EXHAUST FAN
RF	RELIEF FAN
RG	RETURN GRILLE
RH	ROOF HOOD
RL	RAIN LEADER
RLA	RATED LOAD AMPS
RPBA	REDUCED PRESSURE BACKFLOW ASSEMBLY
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
RPM	REVOLUTIONS PER MINUTE
RTU	ROOFTOP UNIT
RV	SAFETY RELIEF VALVE
S	SENSOR
SA	SUPPLY AIR
SAT	SUPPLY AIR TEMPERATURE
SCFM	STANDARD CUBIC FEET PER MINUTE
SD	STORM DRAIN PIPING
SENS	SENSIBLE
SF	SUPPLY FAN, SQUARE FOOT
SG	SUPPLY GRILLE, SIGHT GLASS WITH MOISTURE INDICATOR
SIM	SIMILAR
SL	REFRIGERANT SUCTION LINE
SO	SCREENED OPENING
SOV	SHUTOFF VALVE
SP	STATIC PRESSURE
SPKR	SPRINKLER
SPS	STATIC PRESSURE STATION
SS	STAINLESS STEEL, SANITARY SEWER
ST	SOUND TRAP
TCV	TEMPERATURE CONTROL VALVE
TD	TRENCH DRAIN, TEMPERATURE DIFFERENCE
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE
TG	TRANSFER GRILLE
TOD	TOP OF DUCT
TOF	TOP OF PIPE
TOP	TOP OF STEEL
TOS	TOP OF FOOTING
TRAP	STEAM TRAP
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TU	TERMINAL UNIT
TYP	TYPICAL
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
V	VENT PIPING, VOLT
VA	VALVE
VAV	VARIABLE AIR VOLUME
VCD	VOLUME CONTROL DEVICE
VD	VOLUME DAMPER
VEL	VELOCITY
VENT	VENTILATION, VENTILATOR
VFD	VARIABLE FREQUENCY DRIVE
VOLT	VOLTAGE
VTR	VENT THRU ROOF
W	WASTE, WATT, WIDE, WATER
W/	WITH
WB	WET BULB (TEMPERATURE)
WC	WATER CLOSET, WATER COLUMN
WCO	WALL CLEANOUT
WG	WATER GAGE
WH	WATER HEATER, WALL HYDRANT
WHA	WATER HAMMER ARRESTOR
WM	WATER METER
WSEC	WASHINGTON STATE ENERGY CODE
WSFU	WATER SUPPLY FIXTURE UNIT
WT	WEIGHT

GENERAL NOTES - MECHANICAL

1. COORDINATE MECHANICAL WORK WITH THAT OF OTHER TRADES. REFER TO ELECTRICAL, ARCHITECTURAL, STRUCTURAL, CIVIL, AND LANDSCAPE DRAWINGS AND SPECIFICATIONS. COORDINATION SHALL OCCUR PRIOR TO FABRICATION, PURCHASE, AND/OR INSTALLATION OF ALL WORK.
2. COORDINATE PLUMBING, HVAC, AND FIRE PROTECTION SYSTEMS ROUTING PRIOR TO INSTALLATION. DURING LAYOUT COORDINATION, DUCTWORK TAKES PRECEDENCE OVER PLUMBING, INCLUDING FIRE PROTECTION SYSTEMS.
3. UNLESS OTHERWISE SPECIFIED, THE GENERAL CONTRACTOR (GC) SHALL BE RESPONSIBLE FOR PAINTING, CUTTING, AND PATCHING OF EXISTING FLOORS, WALLS, AND PARTITIONS IN THE EXISTING BUILDING.
4. REFER TO STRUCTURAL DRAWINGS FOR ALLOWABLE METHODS/LOADS FOR HANGING PIPING/DUCTS FROM STRUCTURAL MEMBERS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFE KEEPING OF HIS OWN PROPERTY ON THE JOB SITE. OWNER ASSUMES NO RESPONSIBILITY FOR PROTECTION OF PROPERTIES AGAINST FIRE, THEFT, AND ENVIRONMENTAL CONDITIONS.

MECHANICAL EQUIPMENT INSTALLATION NOTES

1. ACCESS CLEARANCES FOR MAINTENANCE AND REPLACEMENT: VERIFY PHYSICAL DIMENSIONS OF EQUIPMENT TO ENSURE THAT ACCESS CLEARANCES CAN BE MET. COORDINATE LOCATIONS OF MECHANICAL WORK AND WORK OF OTHER TRADES TO PROVIDE ACCESS CLEARANCES FOR SERVICE AND MAINTENANCE.

PIPING NOTES

1. DISASSEMBLY PROVISIONS: PROVIDE UNIONS OR FLANGES AT PIPING CONNECTIONS TO EQUIPMENT, COILS, TRAPS, CONTROL VALVES, AND OTHER COMPONENTS TO ALLOW DISASSEMBLY FOR MAINTENANCE.
2. REFRIGERANT PIPING: PROVIDE SIZING AND INSTALLATION IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND IN SUCH A WAY AS TO BE INCONSPICUOUS AND FREE FROM ANY POSSIBLE CONDENSATION. PIPE SIZES NOTED ARE FOR REFERENCE AND SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS. CONTRACTOR SHALL PROVIDE CONTROL WIRING BETWEEN EQUIPMENT FOR AN OPERATIONAL SYSTEM.
3. PRESSURE/TEMPERATURE TEST PORTS: PROVIDE AT SUPPLY AND RETURN PIPING CONNECTIONS TO EQUIPMENT.
4. PROVIDE AN INSULATED COPPER TRACER WIRE OR OTHER APPROVED CONDUCTOR ADJACENT TO UNDERGROUND NONMETALLIC (PLASTIC) PIPING. ACCESS SHALL BE PROVIDED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE ABOVE GROUND AT EACH END OF THE PIPING. THE TRACER WIRE SHALL NOT BE LESS THAN NO. 18 AWG AND THE INSULATION TYPE SHALL BE SUITABLE FOR BURIAL.

SHEET METAL NOTES

1. VOLUME DAMPERS: PROVIDE A MANUAL VOLUME DAMPER FOR EACH SUPPLY, RETURN, AND EXHAUST OPENING, LOCATED AS FAR UPSTREAM AS POSSIBLE FROM THE OPENING. PROVIDE A MANUAL VOLUME DAMPER FOR BRANCH MAINS SERVING MORE THAN ONE OPENING.
2. BACKDRAFT DAMPERS: PROVIDE ADJACENT TO LOUVERS UNLESS MOTOR OPERATED DAMPERS PROVIDED.
3. ACCESS DOORS: PROVIDE AT DUCT SMOKE DETECTORS, BACKDRAFT DAMPERS, MOTOR OPERATED DAMPERS, [FIRE DAMPERS,] [SMOKE DAMPERS], COMBINATION FIRE/SMOKE DAMPERS, BOTH SIDES OF DUCT MOUNTED COILS, [AIRSTREAM MEASURING UNITS,] AND PLENUMS.
4. PROVIDE 12" LONG, ½" WIDE FLUORESCENT ORANGE TAPE AT CONCEALED VOLUME DAMPER LOCATIONS.

ENERGY CODE NOTES

1. MOTORS: COMPLY WITH MINIMUM FULL LOAD EFFICIENCIES LISTED IN ENERGY CODE ENFORCED BY AHJ.
2. PIPING AND DUCT INSULATION: COMPLY WITH THICKNESSES AND TYPES LISTED IN ENERGY CODE ENFORCED BY AHJ UNLESS MORE STRINGENT REQUIREMENTS ARE SPECIFIED.
3. DUCT SEALING: SEAL DUCT TRANSVERSE JOINTS AND LONGITUDINAL SEAMS PER ENERGY CODE ENFORCED BY AHJ UNLESS MORE STRINGENT REQUIREMENTS ARE SPECIFIED.
4. RECORD DRAWINGS: SUBMIT TO THE BUILDING OWNER PER ENERGY CODE ENFORCED BY THE LOCAL AHJ.
5. OPERATION AND MAINTENANCE MANUALS: SUBMIT TO THE BUILDING OWNER PER ENERGY CODE ENFORCED BY THE LOCAL AHJ.
6. SYSTEM BALANCING: BALANCE HVAC SYSTEMS PER ENERGY CODE ENFORCED BY THE LOCAL AHJ AND SUBMIT A WRITTEN REPORT TO THE BUILDING OWNER. REFER TO SPECIFICATIONS FOR ADDITIONAL TESTING, ADJUSTING, AND BALANCING (TAB) REQUIREMENTS.
7. MECHANICAL SYSTEMS COMMISSIONING AND COMPLETION REQUIREMENTS: TEST SYSTEMS TO ENSURE THAT BUILDING SYSTEMS HAVE BEEN DESIGNED, INSTALLED, AND FUNCTION PROPERLY, EFFICIENTLY, AND CAN BE MAINTAINED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS IN ORDER TO SATISFY THE BUILDING OWNER'S DESIGN INTENT AND OPERATIONAL REQUIREMENTS PER ENERGY CODE ENFORCED BY THE LOCAL AHJ. REFER TO SPECIFICATIONS FOR ADDITIONAL COMMISSIONING REQUIREMENTS
8. THIS BUILDING AND ITS ENERGY SYSTEMS HAVE BEEN DESIGNED TO COMPLY WITH ENERGY CODE ENFORCED BY THE LOCAL AHJ. CONTRACTOR IS RESPONSIBLE FOR CORRECT INSTALLATION OF ENERGY CONSERVATION MEASURES.

NON-STRUCTURAL MECHANICAL COMPONENT NOTES

1. THE COMPONENT IMPORTANCE FACTOR (Ip) FOR ALL NON-STRUCTURAL COMPONENTS SHALL BE:

   Ip = 1.0

2. THE FOLLOWING ITEMS ARE TAKEN DIRECTLY FROM THE 2018 INTERNATIONAL BUILDING CODE AND FROM THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) STANDARD 7. THE CONTRACTOR SHALL REFER TO THE ABOVE FOR ADDITIONAL INFORMATION, EXCEPTIONS, AND FURTHER DESCRIPTIONS. THE CONTRACTOR SHALL ADHERE TO REQUIREMENTS AND AS SUCH, SHALL BE INCLUDED WITHIN BID. ALSO REFER TO SPECIFICATION SECTION 230550.
3. 2018 IBC, 1613.1, SCOPE: ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND NON-STRUCTURAL COMPONENTS THAT ARE PERMANENTLY ATTACHED TO STRUCTURES AND THEIR SUPPORTS AND ATTACHMENTS SHALL BE DESIGNED AND CONSTRUCTED TO RESIST THE EFFECTS OF EARTHQUAKE MOTIONS IN ACCORDANCE WITH ASCE 7, EXCLUDING CHAPTER 14 AND APPENDIX 11A.
4. 2018 IBC, 1704.4, CONTRACTOR RESPONSIBILITY: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION OF A SEISMIC-FORCE-RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM, OR SEISMIC-RESISTING COMPONENT LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS AND SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL INCLUDE THE FOLLOWING:
   A. ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS;
   B. ACKNOWLEDGEMENT THAT CONTROL WILL BE EXERCISED TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE BUILDING OFFICIAL;
   C. PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING AND THE DISTRIBUTION OF THE REPORTS;
   D. IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXERCISING SUCH CONTROL AND THEIR POSITION(S) IN THE ORGANIZATION.
5. DIVISION 21, 22, 23 RESPONSIBILITIES:
   A. HANGERS AND SEISMIC BRACING FOR MECHANICAL SYSTEMS SHALL BE DESIGNED AND SPECIFIED BY DIVISION 21, 22, 23. DIVISION 21, 22, 23 SHALL REFER TO THE MECHANICAL DRAWINGS FOR LOCATIONS OF EQUIPMENT AND HUNG MECHANICAL SYSTEMS AS STRUCTURAL DRAWINGS DO NOT SHOW THE LOCATIONS OF MECHANICAL EQUIPMENT, DUCTWORK, PIPING, AND OTHER COMPONENTS.
   B. DIVISION 21, 22, 23 SHALL COORDINATE THE SUPPORT SYSTEMS AND DESIGN LOADS FOR HUNG PIPING AND OTHER MECHANICAL SYSTEMS (INCLUDING COMBINED MULTIPLE PIPE RUNS) WITH THE GENERAL CONTRACTOR AND THE STEEL AND WOOD JOIST MANUFACTURERS IN ADDITION TO OTHER TRADES THAT MAY BE IMPACTED.

PLUMBING NOTES

1. WATER HAMMER ARRESTORS: PROVIDE AT THE END OF HOT AND COLD WATER LINES SERVING TWO OR MORE FIXTURES. SIZE IN ACCORDANCE WITH PLUMBING AND DRAINAGE INSTITUTE (PDI) REQUIREMENTS.
2. REDUCED PRESSURE BACKFLOW PREVENTERS (RPBP): PROVIDE INDIRECT DRAIN PIPING FROM RPBP TO NEAREST DRAIN. INSTALL FUNNEL AT RPBP IF REQUIRED.
3. ACCESS PANELS: PROVIDE IN NON ACCESSIBLE CEILINGS AND WALLS FOR VALVES, WATER HAMMER ARRESTERS, CLEANOUTS, AND OTHER ITEMS THAT REQUIRE ACCESS TO PROPERLY MAINTAIN OR SERVICE THE BUILDING. REFER TO SPECIFICATIONS.
4. CLEANOUTS: PROVIDE AT THE BASE OF SANITARY DRAINAGE, PROCESS WASTE, AND RAINLEADER CONDUCTORS.

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
04.08.2019	VALUE ENGINEERING
09.16.2019	SITE PLAN REVIEW
10.18.2019	DESIGN DEVELOPMENT
01.13.2020	CONSTRUCTABILITY REVIEW
03.23.2020	HEALTH DEPARTMENT PERMIT SUBMITTAL
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711.00

SHEET NAME

Mechanical General Notes

SHEET NUMBER

M0.02

ELECTRIC WATER HEATER SCHEDULE

MARK	LOCATION	SYSTEM SERVED	MANUFACTURER / MODEL NO.	TYPE	THERMAL EFFICIENCY (%)	TANK SIZE (GAL)	RECOVERY AT 60F (GAL/HR)	CONNECTION SIZES			ELECTRICAL		PHYSICAL		MOUNTING / SUPPORT	DETAIL / DIAGRAM REFERENCE	CONTROL DIAGRAM / SEQUENCE	NOTES	MARK
								WATER (IN)	DRAIN (IN)	V/Ø	KW PER ELEMENT	ELEMENTS (#)	DIAxH (INxIN)	WEIGHT (LBS)					
EWH-01	CUST 131	DOMESTIC HW	A.O. SMITH / DRE-80-12	VERTICAL, TANK	100	80	310	1-1/4	3/4	480/3	4	3	26x60	1000	FLOOR	8/M9.02	1/M10.05	1,2	EWH-01
EWH-02	CUST 207	DOMESTIC HW	A.O. SMITH / DRE-80-12	VERTICAL, TANK	100	80	310	1-1/4	3/4	480/3	4	3	26x60	1000	FLOOR	8/M9.02	1/M10.05	1,2	EWH-02

NOTES:
1. SET AT 120°F
2. PROVIDE CONTROL CIRCUIT WIRING FOR SIMULTANEOUS ELEMENT OPERATIONS.

DOMESTIC WATER EXPANSION TANK SCHEDULE

MARK	LOCATION	SYSTEM SERVED	MANUFACTURER / MODEL NO.	TYPE	TANK VOLUME (GAL)	ACCEPTANCE VOLUME (GAL)	SYSTEM CONN (IN)	PRE-CHARGE PRESSURE (PSIG)	PHYSICAL		SIZING CRITERIA					NOTES	MARK
									SIZE (DIAxL)	WEIGHT (LBS)	SYS VOL (GAL)	MAX TEMP (DEG F)	MIN TEMP (DEG F)	MAX PRESS (PSI)	MIN PRESS (PSI)		
DWET-01	CUST 131	EWH-01	AMTROL / ST-20VC	DIAPHRAGM	8	3.2	0.75	12	12x20	110	120	140.0	40	150	60	1, 2	DWET-01
DWET-02	CUST 207	EWH-02	AMTROL / ST-20VC	DIAPHRAGM	8	3.2	0.75	12	12x20	110	120	140.0	40	150	60	1, 2	DWET-02
DWET-03	CUST 207	DOMESTIC RISER	AMTROL / ST-12VC	DIAPHRAGM	4.4	3.2	0.75	12	11x15	35	100	70.0	40	80	12	1, 2	DWET-03

NOTES:
1. EXPANSION TANK SHALL BE DELIVERED TO THE SITE PRE-CHARGED TO SYSTEM OPERATING PRESSURE. CONTRACTOR SHALL COORDINATE PRIOR TO ORDERING.
2. PROVIDE WITH SIESMIC BRACING

PLUMBING PUMP SCHEDULE

MARK	LOCATION	SYSTEM SERVED	MANUFACTURER / MODEL NO.	PUMP			MOTOR			PHYSICAL		VFD (Y/N)	MOUNTING / SUPPORT	DETAIL / DIAGRAM REFERENCE	CONTROL DIAGRAM / SEQUENCE	NOTES	MARK
				TYPE	FLOW (GPM)	HEAD (FT)	RPM	HP	V/Ø	LxWxH (INxINxIN)	WEIGHT (LBS)						
DWCP-01	CUSTODIAL 131	DOMESTIC HW	GRUNDFOS UPS 26-99 BFC	CNTRFGL INLINE	12.0	20.0	1750	1/6	120/1	9x7x5	25	N	WALL	8/M9.02	1/M10.05	1	DWCP-01
DWCP-02	CUSTODIAL 207	DOMESTIC HW	GRUNDFOS UPS 26-99 BFC	CNTRFGL INLINE	12.0	20.0	1750	1/6	120/1	9x7x5	25	N	WALL	8/M9.02	1/M10.05	1	DWCP-02

NOTES:
1. PROVIDE PUMP WITH BRONZE IMPELLER RATED FOR DOMESTIC WATER USE.

OIL/WATER INTERCEPTOR SCHEDULE

MARK	LOCATION	AREA SERVED	MANUFACTURER / MODEL NO.	TYPE	CAPACITY				PIPE			PHYSICAL		DETAIL / DIAGRAM REFERENCE	NOTES	MARK
					FLOW (GPM)	LIQUID (GALS)	OIL (GALS)	SAND (GALS)	INLET (DIA)	DISCH (DIA)	VENT (DIA)	LxWxH (INxINxIN)	WEIGHT (LBS)			
OI-1	MECHANICAL BASEMENT	ELEVATOR	STRIEM / MODEL OS-50	HD POLYETHYLENE	50	57	40	7	4	4	3	37x28x29	600	9/M9.02	-	OI-1

NOTES:
-

ELECTRIC INSTANTANEOUS WATER HEATER SCHEDULE

MARK	LOCATION	FIXTURE SERVED	MANUFACTURER / MODEL NO.	TYPE	FLOW RATE (GPM)	TEMP RISE (F)	ELECTRICAL			PHYSICAL			MOUNTING / SUPPORT	NOTES	MARK
							V/Ø	KW	MOCP	LxWxH (INxINxIN)	WEIGHT (LBS)	PIPE SIZE (IN)			
EIWH-1	BAND 140	SS-1	CHRONOMITE / M-30L	TANKLESS	0.5	49	120/1	3.6	30	10x6x3	5	0.5	WALL	1	EIWH-1
EIWH-2	DRESSING 121	SS-2	CHRONOMITE / M-30L	TANKLESS	0.5	49	120/1	3.6	30	10x6x3	5	0.5	WALL	1	EIWH-2

NOTES:
1. SET TO 110°F. MINIMUM FLOW RATE OF 0.2 GPM.

PLUMBING FIXTURE AND DRAIN ROUGH-IN SCHEDULE

MARK	FIXTURE TYPE	WASTE (IN)	VENT (IN)	ACID WASTE (IN)	ACID VENT (IN)	RL (IN)	ORL (IN)	CW (IN)	HW (IN)	NOTES	MARK
WC-1	WATER CLOSET	4"	2"	-	-	-	-	1-1/2"	-	NOTE 2	WC-1
UR-1	URINAL	2"	1-1/2"	-	-	-	-	3/4"	-	NOTE 2	UR-1
LV-1	LAV - WALL HUNG	1-1/4"	1-1/4"	-	-	-	-	1/2"	1/2"	NOTE 2,5	LV-1
WF-1	WASHFOUNTAIN	1-1/2"	1-1/2"	-	-	-	-	3/4"	3/4"	NOTE 2	WF-1
SS-1	SINK / BAND	1-1/2"	1-1/2"	-	-	-	-	1/2"	1/2"	NOTE 2,5	SS-1
SS-2	SINK / DRESSING	1-1/2"	1-1/2"	-	-	-	-	1/2"	1/2"	NOTE 2,5	SS-2
MS-1	SERVICE (MOP) SINK	3"	1-1/2"	-	-	-	-	3/4"	3/4"	-	MS-1
HB-1	WALL HYDRANT (CW EXTERIOR)	-	-	-	-	-	-	3/4"	-	-	HB-1
HB-2	HOSE BIBB (CW INTERIOR)	-	-	-	-	-	-	3/4"	3/4"	-	HB-2
HB-3	WALL HYDRANT (HW&CW EXTERIOR)	-	-	-	-	-	-	3/4"	3/4"	-	HB-3
DF-1	DRINKING FOUNTAIN	1-1/2"	1-1/2"	-	-	-	-	1/2"	-	-	DF-1
FD-1	FLOOR DRAIN	NOTE 6	NOTE 6	-	-	-	-	TP	-	NOTE 4	FD-1
FD-2	FLOOR DRAIN	NOTE 6	NOTE 6	-	-	-	-	TP	-	NOTE 4	FD-2
FS-1	FLOOR SINK	NOTE 6	NOTE 6	-	-	-	-	TP	-	NOTE 4	FS-1
FS-2	FLOOR SINK	NOTE 6	NOTE 6	-	-	-	-	TP	-	NOTE 4	FS-2
RD-1	ROOF DRAIN	-	-	-	-	NOTE 1	-	-	-	-	RD-1
ORD-1	OVERFLOW ROOF DRAIN	-	-	-	-	-	NOTE 1	-	-	-	ORD-1
TP-1	ELECTRONIC TRAP PRIMER	-	-	-	-	-	-	3/4"	-	NOTE 3	TP-1

GENERAL:
A. PIPE SIZES LISTED MAY BE DIFFERENT THAN THE ACTUAL FIXTURE CONNECTION. PROVIDE BRANCH PIPE OF LISTED SIZE AND ALL PIPE FITTINGS AND OFFSETS REQUIRED FOR COMPLETE INSTALLATION.
B. PROVIDE FINAL CONNECTIONS TO ALL FIXTURES.
C. PROVIDE WALL CLEANOUTS FOR ALL SINKS, WATER CLOSETS, AND URINALS.

NOTES:
1. SIZE AS NOTED ON DRAWINGS.
2. ADA COMPLIANT WHERE INDICATED ON THE ARCHITECTURAL DRAWINGS. MOUNTING HEIGHT AS INDICATED ON ARCHITECTURAL DRAWINGS.
3. PROVIDE TRAP PRIMER ASSEMBLY WITH NUMBER OF PORTS REQUIRED TO SERVE ADJACENT DRAINS. PROVIDE 120V/1P ELECTRICAL CONNECTION. PROVIDE WITH SHUTOFF VALVE & STRAINER.
4. CW OR NPCW CONNECTION VIA TRAP PRIMER. VENT 1/2 SIZE OF WASTE OR 1-1/2" WHICHEVER IS LARGER.
5. SUPPLY HOT AND COLD WATER TO THERMOSTATIC MIXING VALVE AND EXTEND TEMPERED WATER FROM MIXING VALVE TO FIXTURE.
6. SIZE AS NOTED ON RISERS WHERE APPLICABLE, VENT SIZE SHALL BE AS NOTED ON THE DRAWING, HALF SIZE OF WASTE OR 1-1/2", WHICHEVER IS LARGER.

WATER HAMMER ARRESTOR SIZING SCHEDULE

MARK	SYSTEM SERVED	MANUFACTURER / MODEL NO.	FIXTURE UNIT		SIZE DIA (IN)	DETAIL / DIAGRAM REFERENCE	NOTES	MARK
			MIN	MAX				
A-1	DOMESTIC WTR	J.R. SMITH / HYDROTROL 5005	0	11	3/4	10/M9.02	1	A-1
A-2	DOMESTIC WTR	J.R. SMITH / HYDROTROL 5010	12	32	1	10/M9.02	1	A-2
A-3	DOMESTIC WTR	J.R. SMITH / HYDROTROL 5020	33	60	1	10/M9.02	1	A-3
A-4	DOMESTIC WTR	J.R. SMITH / HYDROTROL 5030	61	113	1	10/M9.02	1	A-4
A-5	DOMESTIC WTR	J.R. SMITH / HYDROTROL 5040	114	154	1	10/M9.02	1	A-5

NOTES:
1. INSTALL IN ACCORDANCE WITH PLUMBING DRAINAGE INSTITUTE STANDARD P.D.I. WH-201 OR ASSE 1010 RECOMMENDATIONS.

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M0.03

CHILLER SCHEDULE - AIR COOLED

MARK	LOCATION	MANUFACTURER / MODEL NO.	TYPE	REFRIGERANT TYPE	GLYCOL (%)	NOMINAL CAPACITY (TONS)	MIN. CAPACITY (TONS)	FULL LOAD EFF. (EER)	IPLV (EER)	AMBIENT TEMP. (DEG F)	FLOW (GPM)	MIN FLOW (GPM)	EWT (DEG F)	LWT (DEG F)	HEAD LOSS WPD (FT)	HYDRONICS RUNOUT (IN)	COMPRESSORS			CONDENSER FANS		SOUND LEVEL (DBA)	ELECTRICAL INPUT 1			PHYSICAL		MOUNTING / SUPPORT	DETAIL / DIAGRAM REFERENCE	CONTROL DIAGRAM / SEQUENCE	NOTES	MARK
																	NO.	MAX HP (EA)	CAPACITY (STEPS)	NO.	TYPE		V/Ø	MCA	MOCP	LxWxH (INxINxIN)	WEIGHT (LBS)					
CH-01	ROOF	PETRA / PSC4-135	SCROLL	R-410A	0	142	23.9	10.4	14.7	95	340	230	55	45	6.3	6	6	25	DIGITAL SCROLL	6	AXIAL	94	460/3	285	300	192x90x108	12000	ROOF	1/M8.01	1/M10.07	1,2,3	CH-01

NOTES:
1. EQUIPMENT SHALL BE PROVIDED WITH A VISIBLE NAMEPLATE INDICATING THE SHORT CIRCUIT CURRENT RATING (SCCR) IN ACCORDANCE WITH UL REQUIREMENTS. REFER TO ELECTRICAL DRAWINGS FOR MINIMUM RATINGS.
2. PROVIDE SINGLE POINT POWER CONNECTION, BACNET INTERFACE, HAIL GUARD, AND SOUND ATTENUATOR PACKAGE.
3. PROVIDE FACTORY INSTALLED COMPRESSOR JACKETS.

HYDRONIC PUMP SCHEDULE

MARK	LOCATION	SYSTEM SERVED	MANUFACTURER / MODEL NO.	PUMP					MOTOR			PHYSICAL		VFD (Y/N)	MOUNTING / SUPPORT	DETAIL / DIAGRAM REFERENCE	CONTROL DIAGRAM / SEQUENCE	NOTES	MARK
				TYPE	FLOW (GPM)	HEAD (FT)	EFF (%)	GLYCOL (%)	RPM	HP	V/Ø	LxWxH (INxINxIN)	WEIGHT (LBS)						
HWP-01	BOILER ROOM 401	HEATING	BELL & GOSSETT / E-80	CLOSE COUPLED	120	120	60	NO	1750	15	460/3	18x30x36	300	Y	HUNG	2/M8.01	1/M10.06	1,2,3	HWP-01
HWP-02	BOILER ROOM 401	HEATING	BELL & GOSSETT / E-80	CLOSE COUPLED	120	120	60	NO	1750	15	460/3	18x30x36	300	Y	HUNG	2/M8.01	1/M10.06	1,2,3	HWP-02
CHWP-01	EQUIPMENT PLATFORM	CHILLED	BELL & GOSSETT / E-1510	END SUCTION	300	80	70	NO	1750	10	460/3	18x48x24	400	Y	FLOOR	1/M8.01	1/M10.07	1,2	CHWP-01
CHWP-02	EQUIPMENT PLATFORM	CHILLED	BELL & GOSSETT / E-1510	END SUCTION	300	80	70	NO	1750	10	460/3	18x48x24	400	Y	FLOOR	1/M8.01	1/M10.07	1,2	CHWP-02

NOTES:
1. VFD SHALL BE PROVIDED WITH A VISIBLE NAMEPLATE INDICATING THE SHORT CIRCUIT CURRENT RATING (SCCR) IN ACCORDANCE WITH UL REQUIREMENTS. REFER TO ELECTRICAL DRAWINGS FOR MINIMUM RATINGS.
2. PROVIDE WITH VFD COMPATIBLE MOTOR AND SHAFT GROUNDING SYSTEM.
3. DO NOT SUPPORT PUMP FROM PIPING. PROVIDE ADDITIONAL HANGERS OR SUPPORTS AS REQUIRED TO SUPPORT PUMP INDEPENDENTLY.

HYDRONIC EXPANSION TANK SCHEDULE

MARK	LOCATION	SYSTEM SERVED	MANUFACTURER / MODEL NO.	TYPE	TANK VOLUME (GAL)	ACCEPTANCE VOLUME (GAL)	SYSTEM CONN. (IN)	PRE-CHARGE PRESSURE (PSIG)	PHYSICAL		MOUNTING / SUPPORT	NOTES	MARK
									DIAxH (INxIN)	WEIGHT (LBS)			
HHET-01	EXISTING BOILER ROOM 401	HEATING WATER	AMTROL / AX-100V	DIAPHRAM	56	22	1	18	24x36	400	FLOOR	1,2	HHET-01
CHET-01	MECHANICAL PLATFORM 301	CHILLED	AMTROL / AX-120V	DIAPHRAM	68	34	1	18	24x48	600	FLOOR	1,2	CHET-01

NOTES:
1. PROVIDE ASME RATED TANK FOR 125PSIG AT 240°F.
2. PROVIDE WITH SEISMIC BRACING.

STORAGE TANK SCHEDULE - CHILLED WATER SYSTEM

MARK	LOCATION	SYSTEM SERVED	MANUFACTURER / MODEL NO.	TYPE	CAPACITY (GAL)	PHYSICAL		MOUNTING / SUPPORT	DETAIL / DIAGRAM REFERENCE	NOTES	MARK
						DIAxH (INxIN)	WEIGHT (LBS)				
STNK-01	MECHANICAL ROOM	CHILLED WATER	A.O. SMITH / TJV-400	GLASS LINED	400	46x76	1405	FLOOR	1/M9.1	1	STNK-01
STNK-02	MECHANICAL ROOM	CHILLED WATER	A.O. SMITH / TJV-400	GLASS LINED	400	46x76	1405	FLOOR	1/M9.1	1	STNK-02
STNK-03	MECHANICAL ROOM	CHILLED WATER	A.O. SMITH / TJV-400	GLASS LINED	400	46x76	1405	FLOOR	1/M9.1	1	STNK-03

NOTES:
1. PROVIDE WITH SEISMIC STRAPPING.

AIR SEPARATOR SCHEDULE

MARK	LOCATION	SYSTEM SERVED	MANUFACTURER / MODEL NO.	TYPE	FLOW RATE (GPM)	SYSTEM CONN. (IN.)	MAX WPD (FT HD)	PHYSICAL		NOTES	MARK
								DIAxH (INxIN)	WEIGHT (LBS)		
CHAS-01	CENTRAL PLANT	CHILLED	SPIROTHERM / VDN600	AIR/DIRT	350	6"	4	13x42	400	1	CHAS-01

NOTES:
1. SUSPEND FROM STRUCTURE. PROVIDE WITH INTEGRAL STRAINER, DRAIN, AND BLOWDOWN VALVE.

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FAN SCHEDULE

MARK	LOCATION	AREA SERVED	MANUFACTURER / MODEL NO.	FAN TYPE	AIRFLOW (CFM)	ESP (IN WG)	FAN RPM	ELECTRICAL		PHYSICAL		SOUND INLET (SONES)	MOUNTING / SUPPORT	DETAIL / DIAGRAM REFERENCE	CONTROL DIAGRAM / SEQUENCE	NOTES	MARK
								WATTS	V/Ø	LxWxH (INxINxIN)	WEIGHT (LBS)						
EF-01A	WOMEN 108	NORTH TOILET ROOMS - 1ST & 2ND FLOORS	GREENHECK / CSP-A3600	INLINE	1850	1	1100	656	208/1	17x46x17	122	3.5	SUSPENDED	11/M9.02	1/M10.02	1,2	EF-01A
EF-01B	WOMEN 205	NORTH TOILET ROOMS - 1ST & 2ND FLOORS	GREENHECK / CSP-A2150	INLINE	1850	.5	1100	573	208/1	15x36x15	68	4.0	SUSPENDED	11/M9.02	1/M10.02	1,2	EF-01B
EF-02	EQUIPMENT PLATFORM 301	SOUTH TOILET ROOMS - 1ST & 2ND FLOORS	GREENHECK / SQ-160HP-VG	INLINE	1300	1.5	1399	1	120/1	26x26x26	147	10.9	SUSPENDED	11/M9.02	1/M10.02	1,2	EF-02

NOTES:
1. PROVIDE ECM MOTOR FOR BALANCING.
2. PROVIDE WITH VIBRATION ISOLATION PER SECTION 230548.
3. PROVIDE WITH ACCESS PANEL LOCATED BELOW EACH FAN MOTOR.

AIR DEVICE SCHEDULE

MARK	MANUFACTURER / MODEL NO.	SUPPLY / RETURN / EXH	DESCRIPTION	TYPE (BORDER TYPE)	NECK SIZE (LxW) (IN)	FACE SIZE (LxW) (IN)	SLOT QTY/WIDTH (#/IN)	AIRFLOW RANGE < 25 NC	FRAME TYPE	FINISH	MATERIAL	ACC.	DETAIL / DIAGRAM REFERENCE	NOTES	MARK
A	TITUS TMSA	SUPPLY	SQUARE CEILING DIFFUSER	HARD OR LAY-IN	PER PLANS	24x24	-	0-675	1	WHITE	STEEL	4 WAY	9/M9.03	1	A
B	TITUS TMSA	SUPPLY	SQUARE CEILING DIFFUSER	HARD OR LAY-IN	PER PLANS	12x12	-	0 - 450	1	WHITE	STEEL	4 WAY	9/M9.03	1	B
C	TITUS TMSA	SUPPLY	SQUARE CEILING DIFFUSER	HARD OR LAY-IN	PER PLANS	24x24	-	0-675	1	WHITE	STEEL	2 WAY	9/M9.03	1	C
D	TITUS TMSA	SUPPLY	SQUARE CEILING DIFFUSER	HARD OR LAY-IN	PER PLANS	12x12	-	0-450	1	WHITE	STEEL	2 WAY	9/M9.03	1	D
E	TITUS TMSA	SUPPLY	SQUARE CEILING DIFFUSER	HARD OR LAY-IN	6" DIA	24x24	-	0 - 150	1	WHITE	STEEL	2 WAY	9/M9.03	1	E
E	TITUS TMSA	SUPPLY	SQUARE CEILING DIFFUSER	HARD OR LAY-IN	8" DIA	24x24	-	0 - 220	1	WHITE	STEEL	2 WAY	9/M9.03	1	E
E	TITUS TMSA	SUPPLY	SQUARE CEILING DIFFUSER	HARD OR LAY-IN	10" DIA	24x24	-	250 - 350	1	WHITE	STEEL	2 WAY	9/M9.03	1	E
F	TITUS 50F	RET/EXH	EGGCRATE RETURN GRILLE	HARD OR LAY-IN	10x10	12x12	-	UP TO 450	1	WHITE	ALUMINUM	PFA	5/M9.03	2	F
F	TITUS 50F	RET/EXH	EGGCRATE RETURN GRILLE	HARD OR LAY-IN	22x10	24x12	-	UP TO 700	1	WHITE	ALUMINUM	PFA	5/M9.03	2	F
F	TITUS 50F	RET/EXH	EGGCRATE RETURN GRILLE	HARD OR LAY-IN	22x22	24x24	-	UP TO 1600	1	WHITE	ALUMINUM	PFA	5/M9.03	2	F
F	TITUS 50F	RET/EXH	EGGCRATE RETURN GRILLE	HARD OR LAY-IN	22x46	24x48	-	UP TO 3000	1	WHITE	ALUMINUM	PFA	5/M9.03	2	F
G	TITUS 300RL	SUPPLY	DBL DEFLECTION SUPPLY GRILLE	SIDEWALL	PER PLANS	-	-	-	1	CUSTOM COLOR	STEEL	-	2/M9.03	-	G
H	TITUS TMRA	SUPPLY	ROUND SUPPLY DIFFUSER	HARD OR LAY-IN	14" DIA	26" DIA	-	UP TO 530	1	WHITE	STEEL	-	4/M9.03	-	H
I	TITUS FLOWBAR	SUPPLY	PLENUM SLOT DIFFUSER	HARD OR LAY-IN	8" DIA	-	1 / 1"	UP TO 250	-	CUSTOM COLOR	STEEL	-	8/M9.03	3	I
I - B	TITUS FLOWBAR	BLANK	PLENUM SLOT DIFFUSER	HARD OR LAY-IN	8" DIA	-	1 / 1"	-	-	CUSTOM COLOR	STEEL	-	8/M9.03	3	I - B
J	TITUS 33RL	RET/EXH	HEAVY DUTY RETURN GRILLE	SIDEWALL	SIDEWALL	-	-	-	1	CUSTOM COLOR	STEEL	-	3/M9.03	-	J
K	TITUS 350RL	RET/EXH	45 DEG. DEFLECTION RETURN GRILLE	SIDEWALL	PER PLANS	-	-	-	1	WHITE	STEEL	-	2/M9.03	-	K
L	PRICE MFD	SUPPLY	MODULAR FLOOR DIFFUSER	FLOOR	8"DIA	10"DIA	-	50 CFM	-	CUSTOM COLOR	ALUMINUM	-	X/M9.04	4	L
M	PRICE DFW	SUPPLY	WALL DISPLACEMENT DIFFUSER	WALL	-	-	-	300 CFM	-	CUSTOM COLOR	ALUMINUM	-		-	M
N	PRICE	SUPPLY	RECTANGULAR FLOOR DIFFUSER	FLOOR	-	-	-	250 CFM	-	CUSTOM COLOR	ALUMINUM	-		-	N

NOTES:
1. ADJUSTABLE DISCHARGE, WITH PLASTER FRAME FOR HARD CEILINGS.
2. WITH PLASTER FRAME FOR HARD CEILINGS.
3. PROVIDE WITH FACTORY CUSTOM COLOR FINISH. COORDINATE FINISH COLOR WITH ARCHITECT. PROVIDE BLANK-OFF DIFFUSER TO MATCH ADJACENT ACTIVE DIFFUSER WHERE SHOWN ON DRAWINGS.
4. PROVIDE WITH ALUMINUM MOUNTING RING AND ADJUSTABLE BASKET. COORDINATE FINISH COLOR WITH ARCHITECT.

ELECTRIC UNIT HEATER SCHEDULE

MARK	LOCATION	AREA SERVED	MANUFACTURER / MODEL NO.	TYPE	AIRFLOW (CFM)	ELECTRICAL		PHYSICAL		MOUNTING / SUPPORT	CONTROL DIAGRAM / SEQUENCE	NOTES	MARK
						V/Ø	KW	LxWxH (INxINxIN)	WEIGHT (LBS)				
EUH-01	VESTIBULE 101	VESTIBULE 101	QMARK AWH44083F	RECESSED	100	208/3	4	19x16x4	30	IN-WALL	2/M10.02	1	EUH-01
EUH-02	FIRE SPRINKLER RISER ROOM	FIRE SPRINKLER RISER ROOM	QMARK AWH44083F	RECESSED	100	208/3	4	19x16x4	30	IN-WALL	2/M10.02	1	EUH-02

NOTES:
1. PROVIDE WITH LOW VOLTAGE CONTROLS TRANSFORMER AND CONTACTOR FOR INTEGRATION INTO DDC SYSTEM.

PRE-FILTER SCHEDULE - LOUVERED

MARK	LOCATION	AREA SERVED	MANUFACTURER / MODEL NO.	ASSOCIATED UNIT	AIRFLOW (CFM)	FILTER					MOUNTING / SUPPORT	DETAIL / DIAGRAM REFERENCE	NOTES	MARK
						TYPE	MERV RATING	MAX FACE VEL (FPM)	INITIAL PD (IN WC)	FINAL PD (IN WC)	QTY/SIZE (#)/(INxINxIN)				
FB-01	EQUIPMENT PLATFORM 301	OUTSIDE AIR	PER SPECS	AHU-04 & 09	5500	CARTRIDGE	8	500	.11	.35	4-24x24x2, 4-24x24x2	PLENUM	1/M9.05	1	FB-01
FB-02	EQUIPMENT PLATFORM 301	OUTSIDE AIR	PER SPECS	AHU-05, 06 & 07	2780	CARTRIDGE	8	500	.11	.35	4-24x24x2, 4-24x24x2	PLENUM	1/M9.05	1	FB-02
FB-03	BASEMENT MECHANICAL ROOM	OUTSIDE AIR	PER SPECS	AHU-01	1150	CARTRIDGE	8	500	.11	.35	4-24x24x2, 4-24x24x2	PLENUM	1/M9.05	1	FB-03
FB-04	BASEMENT MECHANICAL ROOM	OUTSIDE AIR	PER SPECS	AHU-02A	3000	CARTRIDGE	8	500	.11	.35	4-24x24x2, 4-24x24x2	PLENUM	1/M9.05	1	FB-04
FB-05	BASEMENT MECHANICAL ROOM	OUTSIDE AIR	PER SPECS	AHU-02B	3000	CARTRIDGE	8	500	.11	.35	4-24x24x2, 4-24x24x2	PLENUM	1/M9.05	1	FB-05

NOTES:
1. GLIDE/PACK SIDE ACCESS FILTER HOUSING, 24"Wx52Hx12"D. SEE SPECIFICATIONS SECTION AND DETAIL FOR ADDITIONAL INFORMATION.

VRV HEAT PUMP SCHEDULE - INDOOR UNITS

MARK	LOCATION	MANUFACTURER / MODEL NO.	ASSOCIATED UNIT	SUPPLY FAN		COOLING		FILTER	ELECTRICAL			PHYSICAL		MOUNTING / SUPPORT	NOTES	MARK
				AIRFLOW (CFM)	ESP (IN WC)	TOTAL CAP (MBH)	SENS CAP (MBH)	TYPE	V/Ø	MCA	MOCP	LxWxH (INxINxIN)	WEIGHT (LBS)			
VRF-01	CONTROL 106	DAIKIN / CEILING CASSETTE VRV	HP-01	500	N/A	18	13	CLEANABLE	208/1	0.6	15	24x24x12	50	CEILING	1,2,3	VRF-01
VRF-02	EMR 127	DAIKIN / WALL MOUNT VRV	HP-01	635	N/A	24	18	CLEANABLE	208/1	0.6	15	42x10x12	50	WALL	1,2,3	VRF-02
VRF-03	ELEC 126	DAIKIN / WALL MOUNT VRV	HP-01	635	N/A	24	18	CLEANABLE	208/1	0.6	15	42x10x12	50	WALL	1,2,3	VRF-03
VRF-04	MDF 128	DAIKIN / WALL MOUNT VRV	HP-01	635	N/A	24	18	CLEANABLE	208/1	0.6	15	42x10x12	50	WALL	1,2,3	VRF-04
VRF-05	DIMMER PLATFORM 228	DAIKIN / WALL MOUNT VRV	HP-01	635	N/A	24	18	CLEANABLE	208/1	0.6	15	42x10x12	50	WALL	1,2,3	VRF-05

NOTES:
1. EQUIPMENT SHALL BE PROVIDED WITH A VISIBLE NAMEPLATE INDICATING THE SHORT CIRCUIT CURRENT RATING (SCCR) IN ACCORDANCE WITH UL REQUIREMENTS. REFER TO ELECTRICAL DRAWINGS FOR MINIMUM RATINGS.
2. PROVIDE REFRIGERANT PIPING SIZED TO MANUFACTURER'S RECOMMENDATION.
3. WHERE SLOPE IS INSUFFICIENT TO ROUTE CONDENSATE TO CUSTODIAL SINK, FURNISH CONDENSATE PUMP WITH UNIT.

VRV HEAT PUMP SCHEDULE - OUTDOOR UNITS

MARK	LOCATION	MANUFACTURER / MODEL NO.	ASSOCIATED UNIT	COOLING			ELECTRICAL			PHYSICAL		MOUNTING / SUPPORT	NOTES	MARK
				TOTAL CAP (MBH)	OA TEMP. (DEG F)	EER	V/Ø	MCA	MOCP	LxWxH (INxINxIN)	WEIGHT (LBS)			
HP-01	ROOF	DAIKIN / HP1-RXYQ	VRV-01 TO 05	138	95	12.3	208/3	55.1	60	48x30x66	800	ROOF	1	HP-01

NOTES:
1. EQUIPMENT SHALL BE PROVIDED WITH A VISIBLE NAMEPLATE INDICATING THE SHORT CIRCUIT CURRENT RATING (SCCR) IN ACCORDANCE WITH UL REQUIREMENTS. REFER TO ELECTRICAL DRAWINGS FOR MINIMUM RATINGS.

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VARIABLE AIR VOLUME UNIT SCHEDULE

MARK	LOCATION	AREA SERVED	MANUFACTURER / MODEL NO.	ASSOCIATED UNIT	AIRFLOW MAX (CFM)	AIRFLOW MIN (CFM)	INLET DUCT (IN DIA)	OUTLET DUCT (INxIN)	INLET SP (IN WC)	OUTLET SP (IN WC)	HOT WATER HEATING COIL												ELECTRICAL	PHYSICAL		MOUNTING / SUPPORT	DETAIL / DIAGRAM REFERENCE	CONTROL DIAGRAM / SEQUENCE	NOTES	MARK
											CAPACITY (MBH)	EAT (DEG F)	LAT (DEG F)	EWT (DEG F)	LWT (DEG F)	ROWS	MAX FV (FPM)	MAX APD (IN WC)	MAX WPD (FT)	FLOW (GPM)	RUNOUT SIZE (DIA)	CONTROL VALVE	V/Ø	LxWxH (INxINxIN)	WEIGHT (LBS)					
VAV-4A	102 LOBBY	102 LOBBY	NAILOR / 30RW-16	AHU-04	1700	850	20x10 OVAL	PER PLAN	1	0.75	32.3	55	90	120	100	4	500	0.20	1.5	3.2	1	2-WAY	24/1	26x28x13	75	SUSPENDED	12/M9.02	3/M10.03	1,2	VAV-4A
VAV-4B	102 LOBBY	102 LOBBY	NAILOR / 30RW-16	AHU-04	1700	850	20x10 OVAL	PER PLAN	1	0.75	32.3	55	90	120	100	4	500	0.20	1.5	3.2	1	3-WAY	24/1	26x28x13	75	SUSPENDED	12/M9.02	3/M10.03	1,2	VAV-4B
VAV-4C	201 BALCONY	201 BALCONY	NAILOR / 30RW-24X16	AHU-04	2500	1250	24x16	PER PLAN	1	0.75	47.5	55	90	120	100	4	500	0.20	1.5	4.7	1	2-WAY	24/1	26x38x18	75	SUSPENDED	12/M9.02	3/M10.03	1,2	VAV-4C
				TOTAL	5900			TOTAL			112							TOTAL			11									
VAV-9A	118 BACKSTAGE STORAGE	118 BACKSTAGE STORAGE	NAILOR / 30RW-10	AHU-09	700	350	10"	PER PLAN	0.80	0.40	13.3	55	90	120	100	4	500	0.20	1.5	1.3	3/4"	3-WAY	24/1	26x14x13	75	SUSPENDED	12/M9.02	3/M10.03	1,2	VAV-9A
VAV-9B	120 CORRIDOR	122 OFFICE	NAILOR / 30RW-6	AHU-09	250	125	6"	PER PLAN	0.80	0.40	4.7	55	90	120	100	4	500	0.20	1.5	0.5	3/4"	2-WAY	24/1	26x10x10	75	SUSPENDED	12/M9.02	3/M10.03	1,2	VAV-9B
VAV-9C	120 CORRIDOR	121 DRESSING	NAILOR / 30RW-6	AHU-09	250	125	6"	PER PLAN	0.80	0.40	4.7	55	90	120	100	4	500	0.20	1.5	0.5	3/4"	2-WAY	24/1	26x10x10	75	SUSPENDED	12/M9.02	3/M10.03	1,2	VAV-9C
VAV-9D	301 EQUIPMENT PLATFORM	137 STAIRS / 124 LOBBY	NAILOR / 30RW-12	AHU-09	600	300	13x10 OVAL	PER PLAN	0.80	0.40	11.4	55	90	120	100	4	500	0.20	1.5	1.1	3/4"	2-WAY	24/1	26x18x13	75	SUSPENDED	12/M9.02	3/M10.03	1,2	VAV-9D
VAV-9E	301 EQUIPMENT PLATFORM	140 BAND STAFF	NAILOR / 30RW-6	AHU-09	300	150	6"	PER PLAN	0.80	0.40	5.7	55	90	120	100	4	500	0.20	1.5	0.6	3/4"	3-WAY	24/1	26x10x10	75	SUSPENDED	12/M9.02	3/M10.03	1,2	VAV-9E
VAV-9F	301 EQUIPMENT PLATFORM	139 ENSEMBLE	NAILOR / 30RW-9	AHU-09	450	225	9"	PER PLAN	0.80	0.40	8.5	55	90	120	100	4	500	0.20	1.5	0.9	3/4"	2-WAY	24/1	26x14x13	75	SUSPENDED	12/M9.02	3/M10.03	1,2	VAV-9F
VAV-9G	301 EQUIPMENT PLATFORM	132 LG PRACTICE	NAILOR / 30RW-6	AHU-09	300	150	6"	PER PLAN	0.80	0.40	5.7	55	90	120	100	4	500	0.20	1.5	0.6	3/4"	2-WAY	24/1	26x10x10	75	SUSPENDED	12/M9.02	3/M10.03	1,2	VAV-9G
VAV-9H	301 EQUIPMENT PLATFORM	130 PRACTICE	NAILOR / 30RW-6	AHU-09	200	100	6"	PER PLAN	0.80	0.40	3.8	55	90	120	100	4	500	0.20	1.5	0.4	3/4"	2-WAY	24/1	26x10x10	75	SUSPENDED	12/M9.02	3/M10.03	1,2	VAV-9H
VAV-9J	301 EQUIPMENT PLATFORM	212 CORRIDOR	NAILOR / 30RW-12	AHU-09	1150	575	13x10 OVAL	PER PLAN	0.80	0.40	21.8	55	90	120	100	4	500	0.20	1.5	2.2	3/4"	2-WAY	24/1	26x18x13	75	SUSPENDED	12/M9.02	3/M10.03	1,2	VAV-9J
VAV-9K	301 EQUIPMENT PLATFORM	213 PRACTICE	NAILOR / 30RW-6	AHU-09	200	100	6"	PER PLAN	0.80	0.40	3.8	55	90	120	100	4	500	0.20	1.5	0.4	3/4"	2-WAY	24/1	26x10x10	75	SUSPENDED	12/M9.02	3/M10.03	1,2	VAV-9K
VAV-9L	301 EQUIPMENT PLATFORM	215 LG PRACTICE	NAILOR / 30RW-6	AHU-09	300	150	6"	PER PLAN	0.80	0.40	5.7	55	90	120	100	4	500	0.20	1.5	0.6	3/4"	2-WAY	24/1	26x10x10	75	SUSPENDED	12/M9.02	3/M10.03	1,2	VAV-9L
VAV-9M	301 EQUIPMENT PLATFORM	220 OFFICE	NAILOR / 30RW-9	AHU-09	400	200	9"	PER PLAN	0.80	0.40	7.6	55	90	120	100	4	500	0.20	1.5	0.8	3/4"	2-WAY	24/1	26x14x13	75	SUSPENDED	12/M9.02	3/M10.03	1,2	VAV-9M
	TOTALS			TOTAL	5100			TOTAL			97							TOTAL			10									

NOTES:
1. SECTION 230900 SHALL PROVIDE ELECTRICAL POWER TO VAV UNIT. DO NOT PROVIDE WITH LINE VOLTAGE POWER.
2. PROVIDE WITH DDC CONTROL PANEL ENCLOSURE ON COIL CONNECTION SIDE OF VAV UNIT. PROVIDE UNIT HAND TO ORIENT BOTH DDC DEVICES AND FLOW CONTROL VALVE ASSEMBLY ON ACCESS SIDE OF UNITS. SEE HVAC DRAWINGS FOR ACCESS SIDE.

AIR HANDLING UNIT SCHEDULE

CONT.

MARK	LOCATION	AREA SERVED	MANUFACTURER	VENT MAX. OA (CFM)	VENT MIN OA (CFM)	SUPPLY FAN				RETURN FAN				HEATING WATER									CHILLED WATER									
						MAX FLOW (CFM)	ESP (IN WC)	HP	V/Ø	MAX FLOW (CFM)	ESP (IN WC)	HP	V/Ø	CAPACITY (MBH)	EAT (DEG F)	LAT (DEG F)	EWT (DEG F)	LWT (DEG F)	MAX WPD (FT)	MAX APD (IN WC)	FLOW (GPM)	RUNOUT SIZE (DIA)	CONTROL VALVE	TOTAL CAP (MBH)	SENS. CAP (MBH)	EAT DB (DEG F)	EAT WB (DEG F)	LAT DB (DEG F)	EWT (DEG F)	LWT (DEG F)	MAX WPD (FT)	MAX APD (IN WC)	FLOW (GPM)	RUNOUT SIZE (DIA)	CONTROL VALVE
AHU-01	MECH BASEMENT 001	PLATFORM 115	DYNAMIC AIR TECHNOLOGY	1450	165	3000	2.0	5	460/3	3000	1.5	5	460/3	52.3	55	70.7	120	100	1.4	0.1	5.3	1"	2-WAY	95.7	95.7	85	63	54.8	45	55	5.2	0.40	19.1	2"	3-WAY
AHU-02A	MECH BASEMENT 001	CONCERT HALL 114	DYNAMIC AIR TECHNOLOGY	3000	315	7500	1.5	7.5	460/3	7500	1.5	5	460/3	178.8	55	76.4	120	100	3.26	0.12	18.1	2"	3-WAY	244.5	244.5	85	63	54.1	45	55	5.8	0.39	48.8	2-1/2"	3-WAY
AHU-02B	MECH BASEMENT 001	CONCERT HALL 114	DYNAMIC AIR TECHNOLOGY	3000	315	7500	1.5	7.5	460/3	7500	1.5	5	460/3	178.8	55	76.4	120	100	3.26	0.12	18.1	2"	2-WAY	244.5	244.5	85	63	54.1	45	55	5.8	0.39	48.8	2-1/2"	3-WAY
AHU-04	EQUIPMENT PLATFORM 301	LOBBY 102	DYNAMIC AIR TECHNOLOGY	4000	4000	6000	2.0	7.5	460/3	6000	1.5	5	460/3	115.6	55	72.3	120	100	3.44	0.1	11.7	1-1/2"	2-WAY	170.0	161.6	80	63	54.7	45	55	7.6	0.45	33.9	2"	2-WAY
AHU-05	EQUIPMENT PLATFORM 301	BAND 140	DYNAMIC AIR TECHNOLOGY	1060	210	4000	2.0	5	460/3	4000	1.0	5	460/3	140.9	55	86.7	120	100	2.5	0.19	14.2	1-1/2"	3-WAY	112.2	107	80	63	54.9	45	55	7.3	0.43	22.4	2"	2-WAY
AHU-06	EQUIPMENT PLATFORM 301	MUSIC TECH 221	DYNAMIC AIR TECHNOLOGY	610	110	3000	2.0	5	460/3	3000	1.0	5	460/3	101.9	55	85.6	120	100	2.13	0.19	10.3	1-1/2"	2-WAY	85.0	80.8	80	63	54.7	45	55	5.8	0.45	16.9	1-1/2"	2-WAY
AHU-07	EQUIPMENT PLATFORM 301	CHOIR 218	DYNAMIC AIR TECHNOLOGY	1110	110	3000	2.0	5	460/3	3000	1.0	5	460/3	101.9	55	85.6	120	100	2.13	0.19	10.3	1-1/2"	2-WAY	85.0	80.8	80	63	54.7	45	55	5.8	0.45	16.9	1-1/2"	2-WAY
AHU-09	EQUIPMENT PLATFORM 301	OFFICES / PRACTICE RMS	DYNAMIC AIR TECHNOLOGY	1500	1500	6000	2.0	7.5	460/3	6000	1.5	5	460/3	115.6	55	72.3	120	100	3.44	0.1	11.7	1-1/2"	2-WAY	170.0	161.6	80	63	54.7	45	55	7.6	0.45	33.9	2"	3-WAY
																			TOTAL		100									TOTAL			241		

NOTES:
1. EQUIPMENT SHALL BE PROVIDED WITH A VISIBLE NAMEPLATE INDICATING THE SHORT CIRCUIT CURRENT RATING (SCCR) IN ACCORDANCE WITH UL REQUIREMENTS. REFER TO ELECTRICAL DRAWINGS FOR MINIMUM RATINGS.
2. PROVIDE UNIT WITH HEAT EXCHANGER MEETING WSEC C403.5.1. REFER TO AIR HANDLING UNIT HEAT EXCHANGER SCHEDULE FOR ADDITIONAL REQUIREMENTS.
3. PROVIDE WITH 100% OUTSIDE AIR SIDE ECONOMIZER.
4. OUTSIDE AIR CFM SHALL BE CONTROLLED WITH DEMAND CONTROL VENTILATION SEQUENCE VIA CO2 SENSOR MEASUREMENT. OSA CFM SHALL NOT GO BELOW VENT MINIMUM OA.
5. PROVIDE WITH 2" MERV 8 PRE-FILTERS AND 4" MERV 13 FINAL UPSTREAM OF HEAT EXCHANGER IN OUTSIDE AIR STREAM. PROVIDE 8" MERV PRE-FILTER UPSTREAM OF HEAT EXCHANGER IN RETURN AIR STREAM.
6. PROVIDE DIRECT DRIVE ECM SUPPLY AND RETURN FANS.
7. PROVIDE COOLING COIL FOR THIS UNIT UNDER ALTERNATE 2. PROVIDE UNIT WITH BLANK SECTION AND DRAIN PAN TO ADD COOLING IN THE FUTURE IF ALTERNATE NOT TAKEN.

CONT.

ELECTRICAL			PHYSICAL		MOUNTING / SUPPORT	DETAIL / DIAGRAM REFERENCE	CONTROL DIAGRAM / SEQUENCE	NOTES	MARK
MCA	MOCP	V/Ø	LxWxH (INxINxIN)	WEIGHT (LBS)					
22	25	460/3	168x92x70	5000	FLOOR	1/M9.04	1/M10.04	1,2,3,4,5,6	AHU-01
22	25	460/3	252x52x62	6000	FLOOR	2/M9.04	1/M10.04	1,2,3,4,5,6	AHU-02A
22	25	460/3	252x52x62	6000	FLOOR	2/M9.04	1/M10.04	1,2,3,4,5,6	AHU-02B
19.4	25	460/3	88x56x92	3500	FLOOR	3/M9.04	1/M10.03	1,3,4,5,6	AHU-04
11	15	460/3	88x56x76	3500	FLOOR	4/M9.04	1/M10.08	1,3,4,5,6,7	AHU-05
11	15	460/3	88x56x76	3500	FLOOR	4/M9.04	1/M10.08	1,3,4,5,6,7	AHU-06
11	15	460/3	88x56x76	3500	FLOOR	4/M9.04	1/M10.08	1,3,4,5,6,7	AHU-07
19.4	25	460/3	88x56x92	3500	FLOOR	3/M9.04	1/M10.03	1,3,4,5,6,7	AHU-09

AIR HANDLING UNIT HEAT EXCHANGER SCHEDULE

MARK	TYPE	HEAT EXCHANGER									MARK
		OUTSIDE (CFM)	EXHAUST (CFM)	MAX APD (IN WC)	OA EAT (DEG F)	SA LAT (DEG F)	EA EAT (DEG F)	EA RH (%)	EFFECTIVENESS (%)	NOTES	
AHU-01	ENTHALPY PLATE	1,450	1,450	0.6	24	55	70	30	65	1,2	AHU-01
AHU-02A	ENTHALPY PLATE	3,000	3,000	0.6	24	55	70	30	65	1,2	AHU-02A
AHU-02B	ENTHALPY PLATE	3,000	3,000	0.6	24	55	70	30	65	1,2	AHU-02B

GENERAL NOTES:
1. REFER TO AIR HANDLING UNIT SCHEDULE FOR APPLICABLE NOTES.

NOTES:
1. THE HEAT EXHANGER SHALL HAVE THE CAPABILITY TO PROVIDE A CHANGE IN THE ENTHALPY OF THE OUTDOOR AIR SUPPLY OF NOT LESS THAN 50 PERCENT OF THE DIFFERENCE BETWEEN THE OUTDOOR AIR AND RETURN AIR ENTHALPIES.
2. PROVIDE WITH BYPASS AIR DAMPERS FOR 100% CAPABLE ECONOMIZER OPERATION.

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

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Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
04.08.2019	VALUE ENGINEERING
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BID DOCUMENTS

04.13.2020

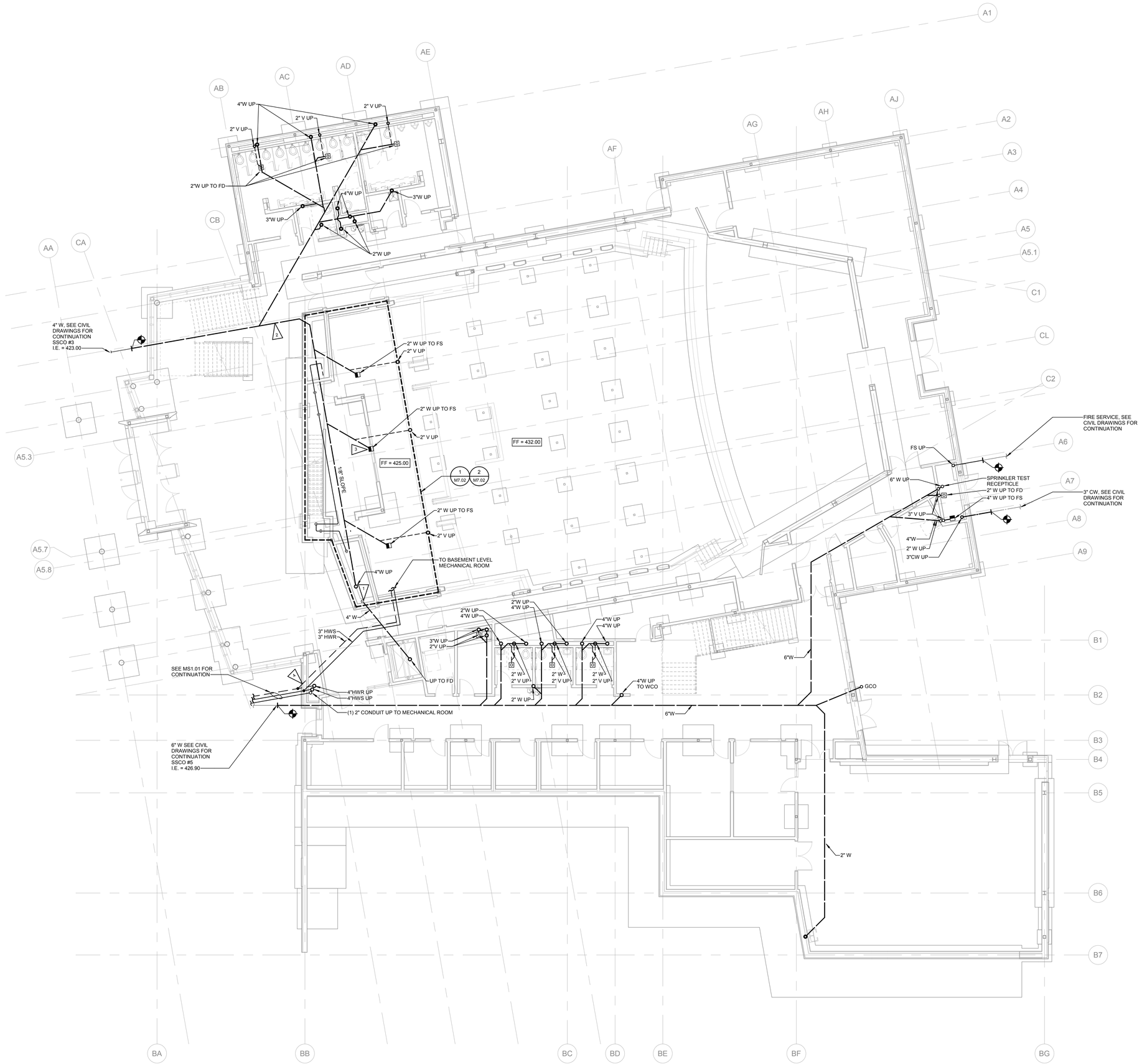
PROJECT NUMBER: 1711.00

SHEET NAME

Mechanical Schedules

SHEET NUMBER

M0.06



1 FOUNDATION PLUMBING PLAN
1/8" = 1'-0"

SHEET NOTES

1. SEE TYPICAL PLUMBING DETAILS IN M900 SERIES.
2. SEE SHEET MS100 FOR CONTINUATION OUTSIDE OF BUILDING.
3. SLOPE ALL WASTE AND VENT PIPING A MINIMUM OF 1/4 INCH PER FOOT UNLESS NOTED OTHERWISE.
4. FIXTURES ARE SHOWN DASHED ON PLAN FOR REFERENCE ONLY. REFER TO M200 SERIES FOR FIXTURE LOCATIONS.
5. ALL BELOW GRADE PIPING SHALL BE 2 INCHES OR LARGER.
6. DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW GENERAL ARRANGEMENT AND CONFIGURATION OF PIPING. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
7. INVERT ELEVATIONS ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL COORDINATE EXACT INVERT ELEVATIONS IN THE FIELD WITH CIVIL CONTRACTOR.
8. DOUBLE TAP WASTE FITTINGS ARE NOT ALLOWED. PROVIDE OFFSET TAPS.
9. ALL FLOOR DRAINS/SINKS AND AIR GAP DRAIN TRAPS SHALL BE SERVED FROM THE CLOSEST ELECTRONIC TRAP PRIMER.
10. SEE STRUCTURAL DRAWINGS FOR PIPE SLEEVE DETAILS AT FOOTINGS AND GRADE BEAMS FOR PIPE ROUTING THROUGH STRUCTURE.
11. SLOPE ALL STORM PIPING A MINIMUM OF 1/4 INCH PER FOOT UNLESS NOTED OTHERWISE.

FLAG NOTES

1. ROUTE 4" OIL WASTE TO OL-1 IN BASEMENT MECHANICAL ROOM.
2. COORDINATE WITH FOOTING DRAIN ON CIVIL C3.03
3. COORDINATE FINAL FLOOR SINK LOCATION WITH SHOP DRAWINGS AND HVAC EQUIPMENT. LOCATE AS TIGHT TO EQUIPMENT AND AJDACENT CONDENSATE DRAIN AS POSSIBLE. (TYP.)
4. PROVIDE (4) SHUT-OFF VALVES FOR HWS/R AND J-BOX IN CHASE. COORDINATE WITH ACCESS PANEL. FOR PIPING TO BASEMENT ROUTE MAINS UP WITH SHUT OFFS THEN DISTRIBUTE.

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711.00

SHEET NAME

Foundation Plumbing Plan

SHEET NUMBER

M1.01

1 AREA A - LOWER LEVEL PLUMBING PLAN
1/8" = 1'-0"

0" 1" 2"

NORTH

SHEET NOTES

1. SEE TYPICAL PLUMBING DETAILS IN M900 SERIES.
2. SLOPE ALL WASTE PIPING A MINIMUM OF 1/4 INCH PER FOOT UNLESS NOTED OTHERWISE.
3. DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW GENERAL ARRANGEMENT AND CONFIGURATION OF PIPING AND LOCATION OF VALVES. ADJUST LOCATIONS OF PIPING TO ENSURE THAT ISOLATION VALVES ARE LOCATED IN ACCESSIBLE LOCATIONS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND WHERE ISOLATION VALVES ARE REQUIRED. NOT ALL VALVES ARE SHOWN ON DRAWINGS.
4. SEE PLUMBING FIXTURE SCHEDULE FOR WASTE, VENT, COLD WATER, HOT WATER, AND TEMPERED WATER FIXTURE CONNECTION SIZES.
5. PROVIDE ISOLATION VALVES FOR ALL HOSE BIBBS, TOILET ROOMS, AND FIXTURES WITHOUT STOPS (MOP SINKS, DRINKING FOUNTAINS, SHOWERS, ETC.).
6. PROVIDE WALL CLEANOUT BELOW EACH LAVATORY AND SINK.
7. DO NOT ROUTE ANY PIPING OVER ELECTRICAL, IDF, MDF, OR ELEVATOR MACHINE ROOMS UNLESS PIPING IS SERVING EQUIPMENT IN THE ROOM SERVED.
8. REFER TO ARCHITECTURAL INTERIOR ELEVATIONS FOR MOUNTING HEIGHTS OF ADA PLUMBING FIXTURES.
9. ROUTE HW CIRCULATION LOOP FULL SIZE IN WALL TO WITHIN 2 FEET OF BRANCH PIPE FIXTURE OR BANK OF FIXTURES. MAXIMUM ALLOWABLE LENGTH OF PIPING TO FIXTURE PER CURRENT WASHINGTON STATE ENERGY CODE.
10. ALL FD, FS, AND AIR GAP DRAIN TRAPS SHALL BE SERVED FROM CLOSEST ELECTRONIC TRAP PRIMER.
11. PROVIDE STAINLESS STEEL LOCKING ACCESS DOOR FOR ALL TRAP PRIMERS, WATER HAMMER ARRESTORS, VALVES, ETC LOCATED IN OCCUPIED AREAS. COORDINATE FINAL LOCATION WITH A/E. REFER TO INTERIOR ELEVATIONS ON ARCHITECTURAL PLANS.
12. REFER TO ARCHITECTURAL INTERIOR ELEVATIONS FOR MOUNTING HEIGHTS OF ADA PLUMBING FIXTURES. NOT ALL PLUMBING FIXTURES ARE IDENTIFIED AS ADA WITHIN THE SCHEDULES OR SPECIFICATIONS.

FLAG NOTES

1. ROUTE CW DOWN TO TRAP PRIMER WITH SHUT-OFF VALVE AND 3/4" HOSE BIB CONNECTION.
2. PROVIDE 4" FLOOR DRAIN IN ELEVATOR PIT ROUTED TO OIL SEPARATOR OI-1 IN ADJACENT MECHANICAL BASEMENT.
3. AIR VENT PIPING ROUTED IN MECHANICAL ROOM. COORDINATE ROUTING PRIOR TO INSTALL.
4. ROUTE VENT PIPING CONCEALED IN WALL AND OVER SOUND LOCK TO CUSTODIAL ROOM AND CONCEALED TO ROOF AND TERMINATE AT VTR.

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BID DOCUMENTS

04.13.2020

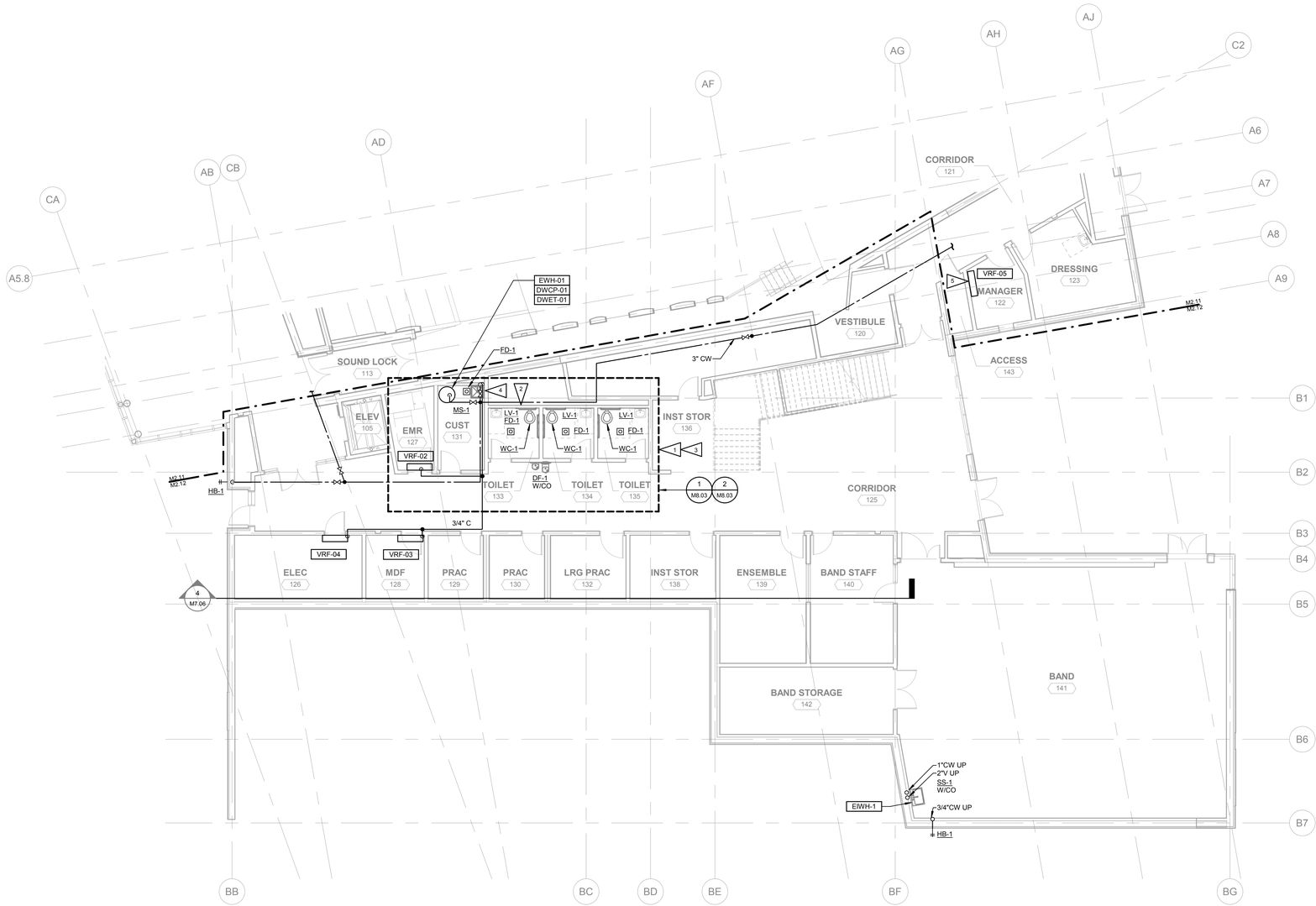
PROJECT NUMBER: 1711.00

SHEET NAME

Area A - Lower Level Plumbing Plan

SHEET NUMBER

M2.11



1 AREA B - LOWER LEVEL PLUMBING PLAN

1/8" = 1'-0"

SHEET NOTES

1. SEE TYPICAL PLUMBING DETAILS IN M900 SERIES.
2. SLOPE ALL WASTE PIPING A MINIMUM OF 1/4 INCH PER FOOT UNLESS NOTED OTHERWISE.
3. DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW GENERAL ARRANGEMENT AND CONFIGURATION OF PIPING AND LOCATION OF VALVES. ADJUST LOCATIONS OF PIPING TO ENSURE THAT ISOLATION VALVES ARE LOCATED IN ACCESSIBLE LOCATIONS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND WHERE ISOLATION VALVES ARE REQUIRED. NOT ALL VALVES ARE SHOWN ON DRAWINGS.
4. SEE PLUMBING FIXTURE SCHEDULE FOR WASTE, VENT, COLD WATER, HOT WATER, AND TEMPERED WATER FIXTURE CONNECTION SIZES.
5. PROVIDE ISOLATION VALVES FOR ALL HOSE BIBBS, TOILET ROOMS, AND FIXTURES WITHOUT STOPS (MOP SINKS, DRINKING FOUNTAINS, SHOWERS, ETC.).
6. PROVIDE WALL CLEANOUT BELOW EACH LAVATORY AND SINK.
7. DO NOT ROUTE ANY PIPING OVER ELECTRICAL, IDF, MDF, OR ELEVATOR MACHINE ROOMS UNLESS PIPING IS SERVING EQUIPMENT IN THE ROOM SERVED.
8. REFER TO ARCHITECTURAL INTERIOR ELEVATIONS FOR MOUNTING HEIGHTS OF ADA PLUMBING FIXTURES.
9. ROUTE HW CIRCULATION LOOP FULL SIZE IN WALL TO WITHIN 2 FEET OF BRANCH PIPE FIXTURE OR BANK OF FIXTURES. MAXIMUM ALLOWABLE LENGTH OF PIPING TO FIXTURE PER CURRENT WASHINGTON STATE ENERGY CODE.
10. ALL FD, FS, AND AIR GAP DRAIN TRAPS SHALL BE SERVED FROM CLOSEST ELECTRONIC TRAP PRIMER.
11. PROVIDE STAINLESS STEEL LOCKING ACCESS DOOR FOR ALL TRAP PRIMERS, WATER HAMMER ARRESTORS, VALVES, ETC LOCATED IN OCCUPIED AREAS. COORDINATE FINAL LOCATION WITH A/E. REFER TO INTERIOR ELEVATIONS ON ARCHITECTURAL PLANS.
12. REFER TO ARCHITECTURAL INTERIOR ELEVATIONS FOR MOUNTING HEIGHTS OF ADA PLUMBING FIXTURES. NOT ALL PLUMBING FIXTURES ARE IDENTIFIED AS ADA WITHIN THE SCHEDULES OR SPECIFICATIONS.

FLAG NOTES

1. REFER TO RISER DIAGRAM FOR HW AND HWC PIPING IN THIS AREA.
2. PROVIDE SEPARATE COLD WATER LINE TO SERVE RESTROOMS PER FLOOR WITH DEDICATED SHUT-OFF. LOCATE SHUT-OFF IN CUSTODIAL ROOM AT CEILING.
3. FLOOR DRAIN TRAP PRIMERS SERVED FROM ELECTRONIC TRAP PRIMER IN MECHANICAL ROOM ABOVE (TYP.)
4. PROVIDE 1" CONDENSATE FROM VRF UNITS TO CONCEALED LOCATION MOP SINK.
5. PROVIDE 3/4" CONDENSATE FROM VRF UNIT TO FLOOR SINK IN SPRINKLER RISER ROOM.

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04/13/2020

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
04.08.2019	VALUE ENGINEERING
09.16.2019	SITE PLAN REVIEW
10.18.2019	DESIGN DEVELOPMENT
01.13.2020	CONSTRUCTABILITY REVIEW
03.23.2020	HEALTH DEPARTMENT PERMIT SUBMITTAL
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

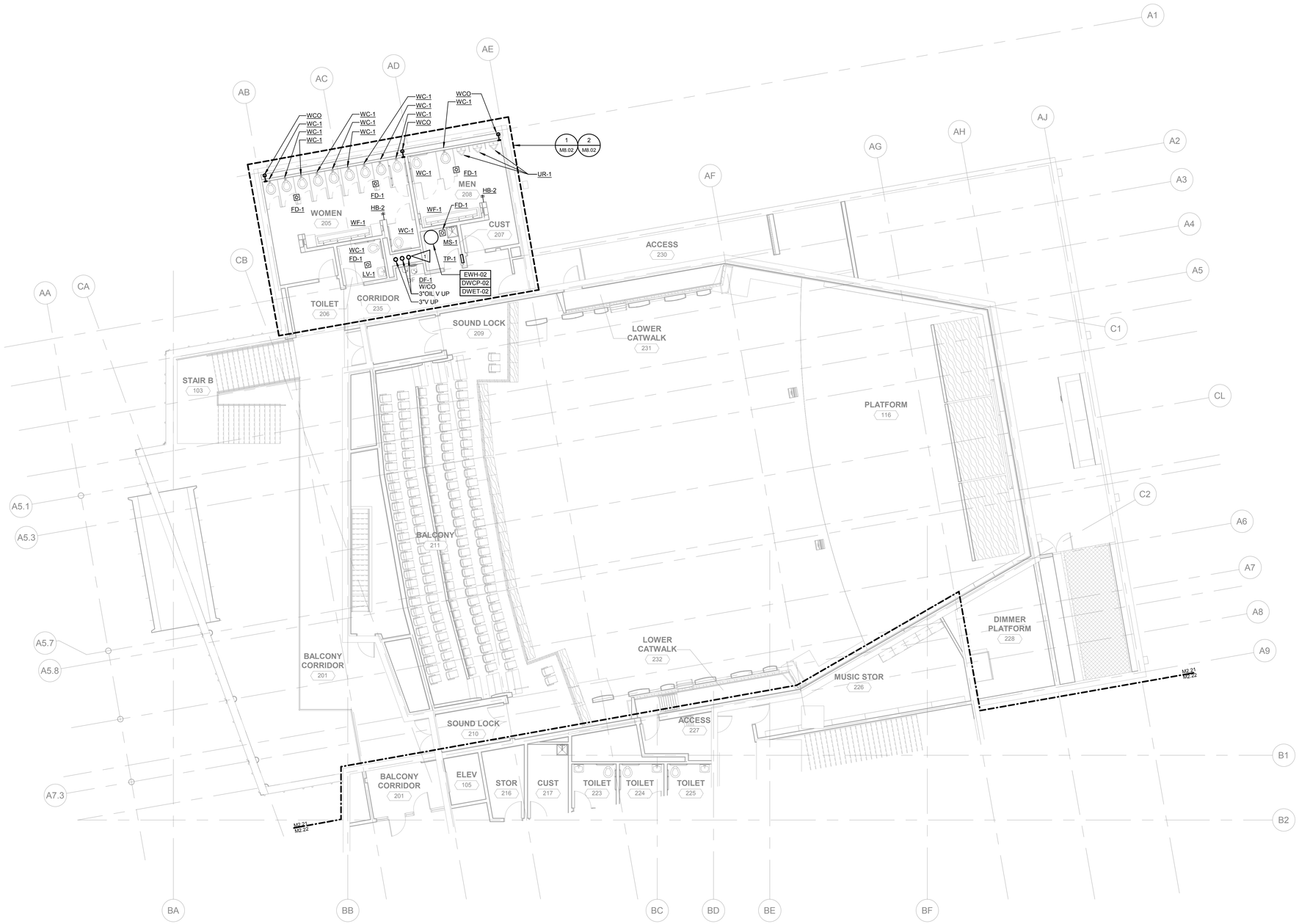
PROJECT NUMBER: 1711.00

SHEET NAME

Area B - Lower Level Plumbing Plan

SHEET NUMBER

M2.12



1 AREA A - UPPER LEVEL PLUMBING PLAN
1/8" = 1'-0"

NORTH
0" 1" 2"

SHEET NOTES

1. SEE TYPICAL PLUMBING DETAILS IN M900 SERIES.
2. SLOPE ALL WASTE PIPING A MINIMUM OF 1/4 INCH PER FOOT UNLESS NOTED OTHERWISE.
3. DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW GENERAL ARRANGEMENT AND CONFIGURATION OF PIPING AND LOCATION OF VALVES. ADJUST LOCATIONS OF PIPING TO ENSURE THAT ISOLATION VALVES ARE LOCATED IN ACCESSIBLE LOCATIONS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND WHERE ISOLATION VALVES ARE REQUIRED. NOT ALL VALVES ARE SHOWN ON DRAWINGS.
4. SEE PLUMBING FIXTURE SCHEDULE FOR WASTE, VENT, COLD WATER, HOT WATER, AND TEMPERED WATER FIXTURE CONNECTION SIZES.
5. PROVIDE ISOLATION VALVES FOR ALL HOSE BIBBS, TOILET ROOMS, AND FIXTURES WITHOUT STOPS (MOP SINKS, DRINKING FOUNTAINS, SHOWERS, ETC.).
6. PROVIDE WALL CLEANOUT BELOW EACH LAVATORY AND SINK.
7. DO NOT ROUTE ANY PIPING OVER ELECTRICAL, IDF, MDF, OR ELEVATOR MACHINE ROOMS UNLESS PIPING IS SERVING EQUIPMENT IN THE ROOM SERVED.
8. REFER TO ARCHITECTURAL INTERIOR ELEVATIONS FOR MOUNTING HEIGHTS OF ADA PLUMBING FIXTURES.
9. ROUTE HW CIRCULATION LOOP FULL SIZE IN WALL TO WITHIN 2 FEET OF BRANCH PIPE FIXTURE OR BANK OF FIXTURES. MAXIMUM ALLOWABLE LENGTH OF PIPING TO FIXTURE PER CURRENT WASHINGTON STATE ENERGY CODE.
10. ALL FD, FS, AND AIR GAP DRAIN TRAPS SHALL BE SERVED FROM CLOSEST ELECTRONIC TRAP PRIMER.
11. PROVIDE STAINLESS STEEL LOCKING ACCESS DOOR FOR ALL TRAP PRIMERS, WATER HAMMER ARRESTORS, VALVES, ETC LOCATED IN OCCUPIED AREAS. COORDINATE FINAL LOCATION WITH A/E. REFER TO INTERIOR ELEVATIONS ON ARCHITECTURAL PLANS.
12. REFER TO ARCHITECTURAL INTERIOR ELEVATIONS FOR MOUNTING HEIGHTS OF ADA PLUMBING FIXTURES. NOT ALL PLUMBING FIXTURES ARE IDENTIFIED AS ADA WITHIN THE SCHEDULES OR SPECIFICATIONS.

FLAG NOTES

1. ROUTE CONCEALED VENT LINES FROM MECHANICAL ROOM AT BASEMENT OF CONCERT HALL UP TO ROOF. TERMINATE AT VTR.

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BID DOCUMENTS

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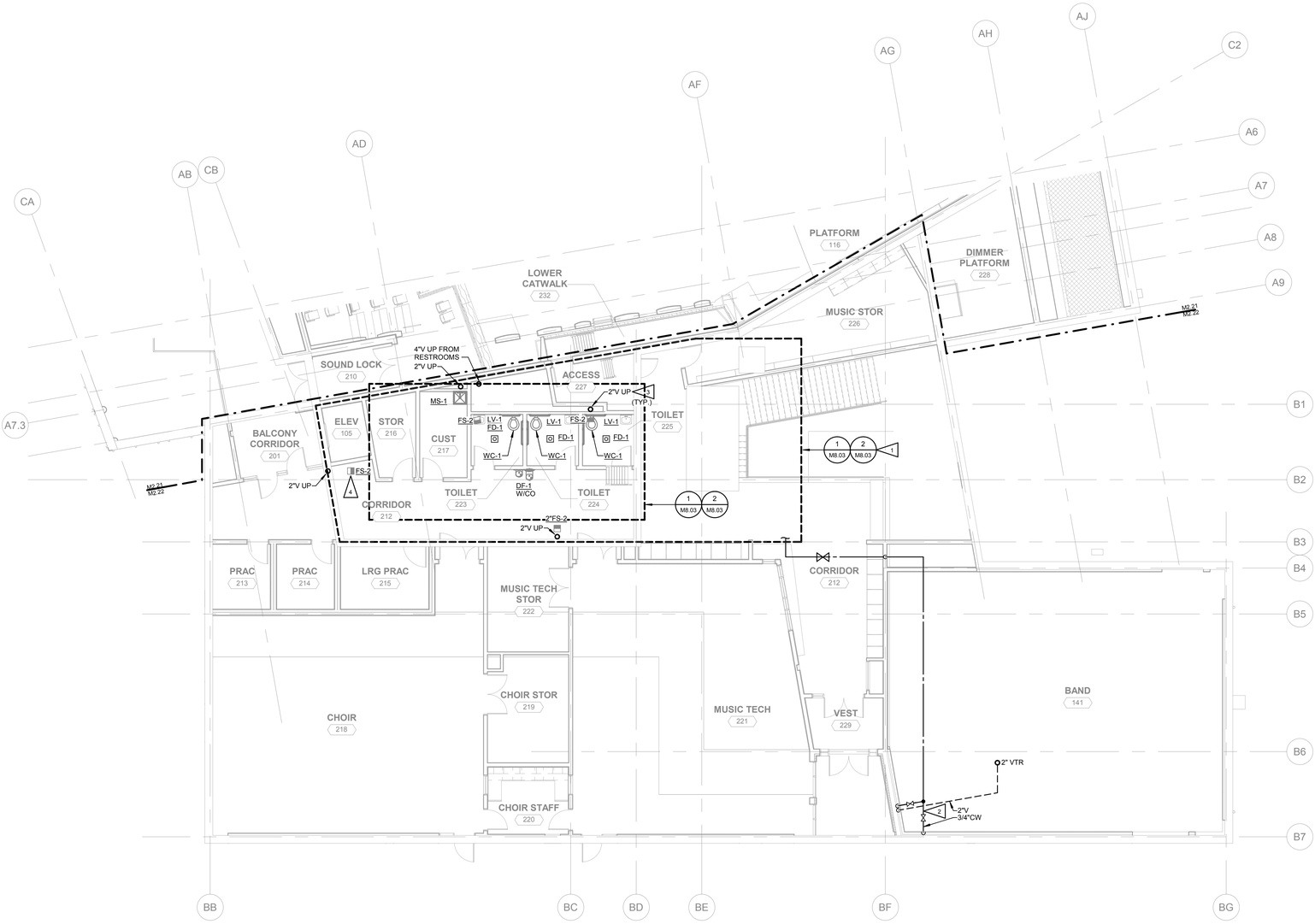
PROJECT NUMBER: 1711.00

SHEET NAME

Area A - Upper Level Plumbing Plan

SHEET NUMBER

M2.21



1 AREA B - UPPER LEVEL PLUMBING PLAN

1/8" = 1'-0"

NORTH

0" 1" 2"

SHEET NOTES

1. SEE TYPICAL PLUMBING DETAILS IN M900 SERIES.
2. SLOPE ALL WASTE PIPING A MINIMUM OF 1/4 INCH PER FOOT UNLESS NOTED OTHERWISE.
3. DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW GENERAL ARRANGEMENT AND CONFIGURATION OF PIPING AND LOCATION OF VALVES. ADJUST LOCATIONS OF PIPING TO ENSURE THAT ISOLATION VALVES ARE LOCATED IN ACCESSIBLE LOCATIONS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND WHERE ISOLATION VALVES ARE REQUIRED. NOT ALL VALVES ARE SHOWN ON DRAWINGS.
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5. PROVIDE ISOLATION VALVES FOR ALL HOSE BIBBS, TOILET ROOMS, AND FIXTURES WITHOUT STOPS (MOP SINKS, DRINKING FOUNTAINS, SHOWERS, ETC.).
6. PROVIDE WALL CLEANOUT BELOW EACH LAVATORY AND SINK.
7. DO NOT ROUTE ANY PIPING OVER ELECTRICAL, IDF, MDF, OR ELEVATOR MACHINE ROOMS UNLESS PIPING IS SERVING EQUIPMENT IN THE ROOM SERVED.
8. REFER TO ARCHITECTURAL INTERIOR ELEVATIONS FOR MOUNTING HEIGHTS OF ADA PLUMBING FIXTURES.
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12. REFER TO ARCHITECTURAL INTERIOR ELEVATIONS FOR MOUNTING HEIGHTS OF ADA PLUMBING FIXTURES. NOT ALL PLUMBING FIXTURES ARE IDENTIFIED AS ADA WITHIN THE SCHEDULES OR SPECIFICATIONS.

FLAG NOTES

1. REFER TO RISER DIAGRAM FOR HW AND HWC PIPING IN THIS AREA.
2. ROUTE CW FROM SINK UP TO CEILING AND DOWN TO HB-1 AT EXTERIOR ELEVATION. REFER TO ARCH ELEVATIONS.
3. COMBINE WASTE AND VENT SYSTEM FROM MECHANICAL ROOM PER RISER DIAGRAM.
4. FLOOR SINKS SHOWN ON THIS PLAN FOR EACH ROOM ABOVE. COORDINATE FINAL LOCATIONS WITH SHOP DRAWINGS AND EQUIPMENT PRIOR TO INSTALL. (TYP.)

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BID DOCUMENTS

04.13.2020

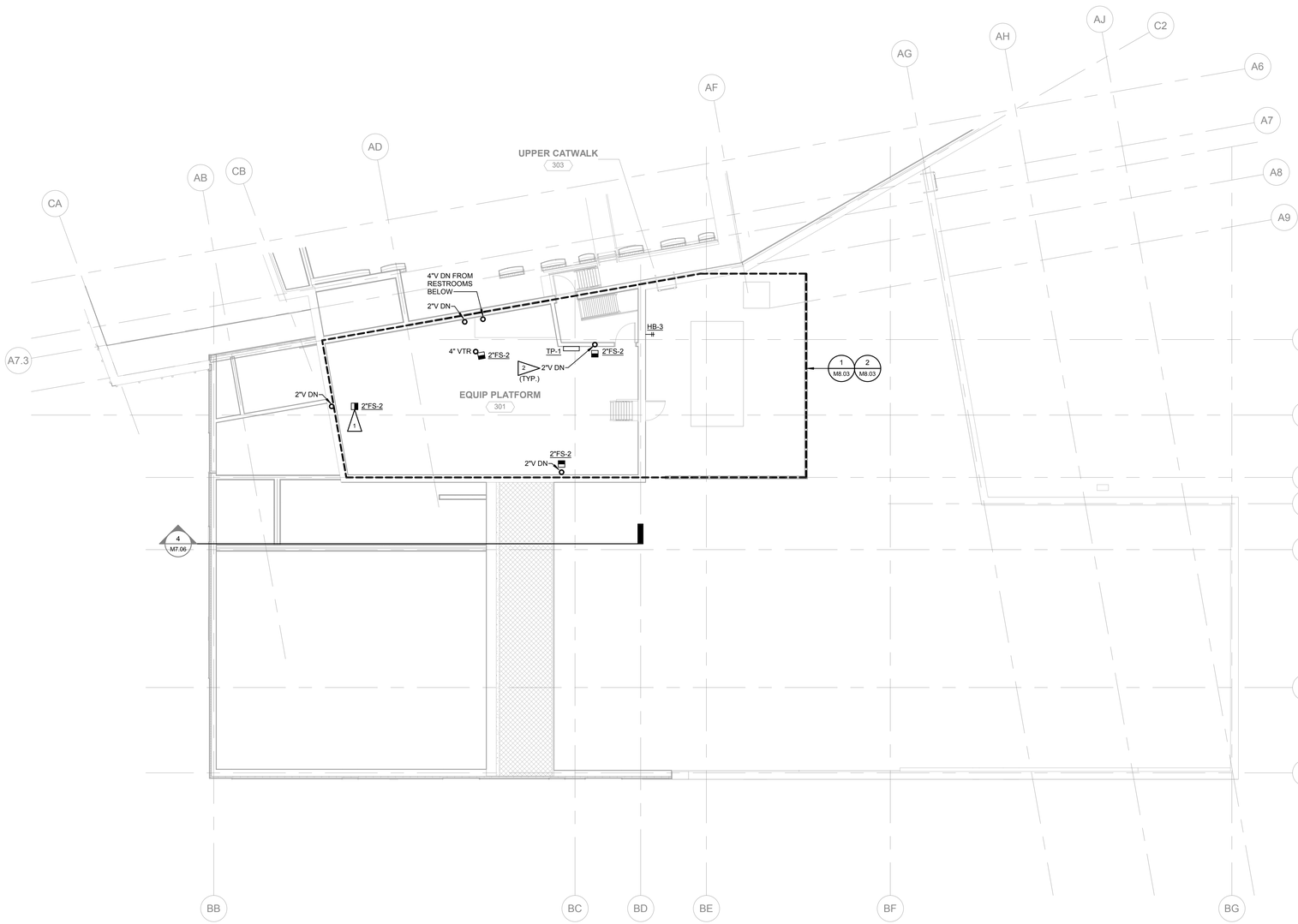
PROJECT NUMBER: 1711.00

SHEET NAME

Area B - Upper Level Plumbing Plan

SHEET NUMBER

M2.22



1 AREA B - EQUIPMENT PLATFORM LEVEL PLUMBING PLAN
1/8" = 1'-0"

NORTH

0" 1" 2"

SHEET NOTES

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4. SEE PLUMBING FIXTURE SCHEDULE FOR WASTE, VENT, COLD WATER, HOT WATER, AND TEMPERED WATER FIXTURE CONNECTION SIZES.
5. PROVIDE ISOLATION VALVES FOR ALL HOSE BIBBS, TOILET ROOMS, AND FIXTURES WITHOUT STOPS (MOP SINKS, DRINKING FOUNTAINS, SHOWERS, ETC.).
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12. REFER TO ARCHITECTURAL INTERIOR ELEVATIONS FOR MOUNTING HEIGHTS OF ADA PLUMBING FIXTURES. NOT ALL PLUMBING FIXTURES ARE IDENTIFIED AS ADA WITHIN THE SCHEDULES OR SPECIFICATIONS.

FLAG NOTES

1 LOCATION OF FLOOR DRAINS/SINKS ARE ARBITRARY TO SUPPORT HVAC EQUIPMENT. COORDINATE FINAL LOCATIONS WITH APPROVED HVAC SUBMITTALS AND SHOP DRAWINGS. (TYP.)

2 COMBINE WASTE AND VENT SYSTEM FROM MECHANICAL ROOM PER RISER DIAGRAM. (TYP.)

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BID DOCUMENTS

04.13.2020

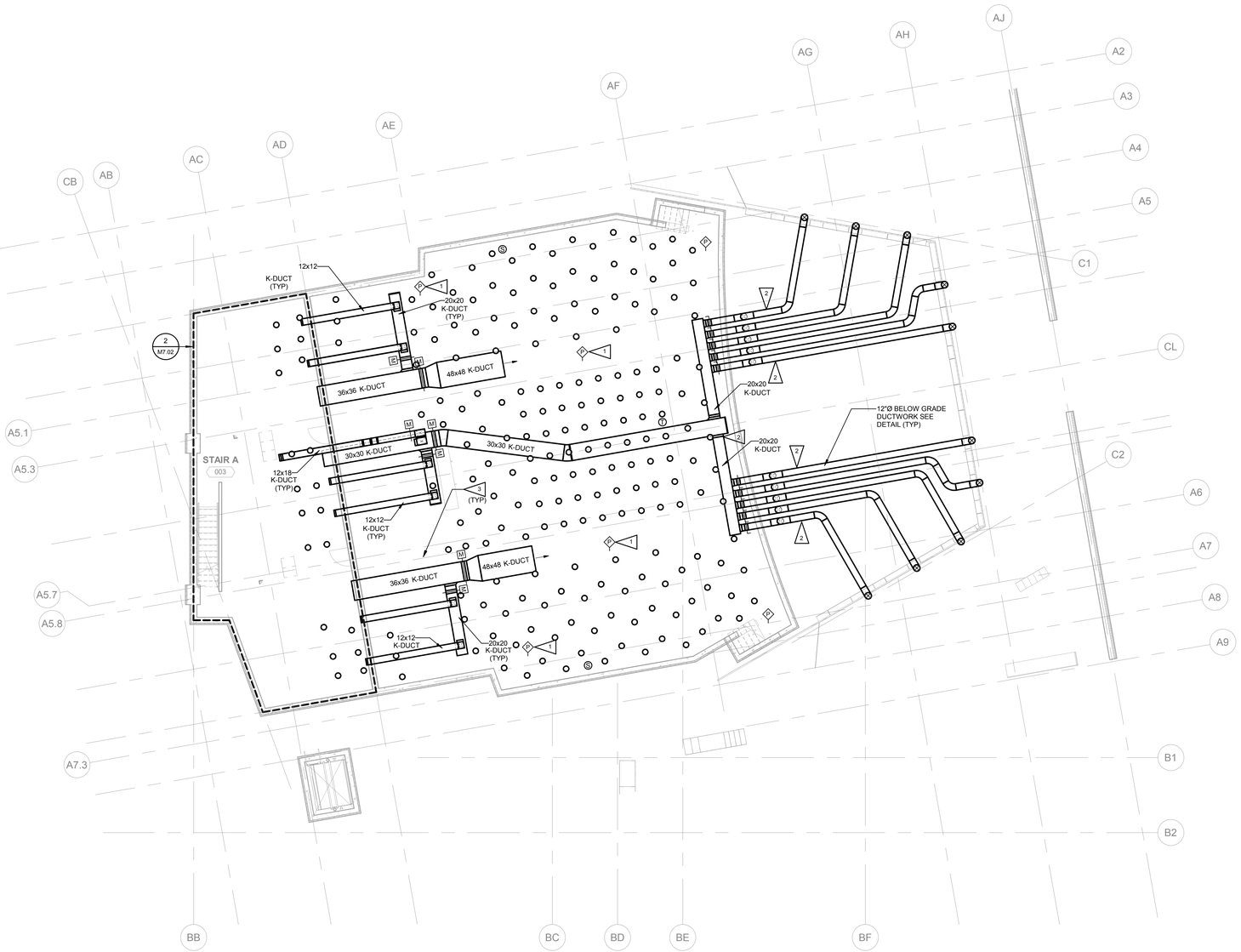
PROJECT NUMBER: 1711.00

SHEET NAME

Area B - Equipment Platform Level Plumbing Plan

SHEET NUMBER

M2.32



1 AREA A - BASEMENT LEVEL HVAC PLAN
1/8" = 1'-0"

NORTH
0" 1" 2"

SHEET NOTES

1. SEE TYPICAL HVAC DETAILS IN M900 SERIES.
2. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN AND INTERIOR ELEVATIONS FOR FINAL LOCATION OF ALL GRILLES, DIFFUSERS, AND EXPOSED DUCTWORK. WHERE DISCREPANCIES ARISE AND THE SAME QUANTITY OF TERMINAL DEVICES, LOCATE PER ARCHITECTURAL PLANS AND PROVIDE ADDITIONAL DUCTWORK AND FITTINGS AS REQUIRED TO MAKE FINAL CONNECTION.
3. PROVIDE REMOTE CABLE CONTROL SYSTEM FOR ALL VOLUME DAMPERS LOCATED ABOVE HARD CEILINGS. PROVIDE ACCESS PANEL, FAKE RETURN GRILLE, AND LOCATE CONTROLLER ABOVE CEILING. MAXIMUM CABLE LENGTH FROM CONTROLLER TO DAMPER SHALL NOT EXCEED 15'-0". GROUP ALL CONTROLLERS TOGETHER AS MUCH AS POSSIBLE.
4. PROVIDE A MANUAL VOLUME DAMPER FOR EACH SUPPLY, RETURN, AND EXHAUST OPENING, LOCATED AS FAR UPSTREAM AS POSSIBLE FROM THE OPENING UNLESS SPECIFICALLY NOTED OTHERWISE. NOT ALL VOLUME DAMPERS ARE SHOWN ON THE PLANS. PROVIDE A MANUAL VOLUME DAMPER FOR BRANCH MAINS SERVING MORE THAN ONE OPENING AS INDICATED ON THE DRAWINGS.
5. DIVISION 23 SHALL REVIEW VAV BOX LOCATIONS AND COORDINATE WITH OTHER DISCIPLINES TO ENSURE VAV ACCESS IS MAINTAINED. TYPICAL ALL VAV LOCATIONS.
6. REFER TO ARCHITECTURAL ELEVATIONS FOR SWITCH AND SENSOR MOUNTING HEIGHTS AND EXACT LOCATIONS. LOCATIONS ON PLANS ARE APPROXIMATE.
7. PROVIDE ACCESS DOOR IN ALL OUTSIDE AIR, EHXUAST AIR, AND RETURN AIR PLENUMS OR DUCTS LOCATED BEHIND LOUVERS FOR BACKDRAFT AND/OR MOTORIZED DAMPER ACCESS. PROVIDE 24"x24" UNLESS OTHERWISE NOTED. REFER TO DETAILS.
8. INSTALL EXPOSED DUCTWORK AS CLOSE TO STRUCTURE AS POSSIBLE UNLESS OTHERWISE NOTED ON THE DRAWINGS. PROVIDE SINGLE STAINLESS STEEL THREADED ROD DUCT HANGERS WITH SEISMIC BRACING AT ALL EXPOSED DUCTWORK LOCATIONS. DUCTWORK SHALL BE WITHOUT STANDING SEAMS. PROVIDE CLEAR AND PAINTABLE SILICON SEALANT AT ALL EXPOSED LOCATIONS.
9. INSTALL BOTTOM OF WALL GRILLES AS NOTED PER ARCHITECTURAL ELEVATIONS.
10. ALL PLENUMS BEHIND LOUVERS SHALL BE A MINIMUM OF 3'-0" UNLESS NOTED OTHERWISE.
11. ALL PLENUMS BEHIND SUPPLY, RETURN AND EXHAUST AIR GRILLES SHALL BE A MINIMUM OF 24" DEEP OR THE SIZE OF THE DUCT, WHICHEVER IS LARGER UNLESS NOTED OTHERWISE.
12. FLEXIBLE DUCTWORK AND EXTERIOR INSULATION SHALL NOT BE USED WHERE THE DUCTWORK IS EXPOSED TO THE OCCUPANT. INSULATION SHALL BE INTERIOR TO THE DUCTWORK IN THESE LOCATIONS FOR SUPPLY AND RETURN DUCTWORK.
13. FLOOR DIFFUSER LAYOUT IS SUBJECT TO SEAT STANCHION PLACEMENT. GENERAL CONTRACTOR TO COORDINATE THEATER SEATING AND FLOOR DIFFUSERS.

FLAG NOTES

1. PROVIDE (6) PRESSURE SENSORS WITHIN INTERNAL PLENUM SPACE AND (2) TEMPERATURE SENSORS.
2. BELOW GRADE DUCTWORK PER SPECS. PROVIDE LINK SEAL AT PENETRATION INTO PLENUM. EQUALIZE PRESSURE DROP FOR ALL CONNECTIONS. TYP.
3. PROVIDE MOTORIZED DAMPERS FOR PLENUM DUCTS TO CONTROL ASSOCIATED PLENUM PRESSURES. DAMPERS SHALL MODULATE TO EQUALIZE PRESSURE IN ALL PLENUMS.

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04.13.2020

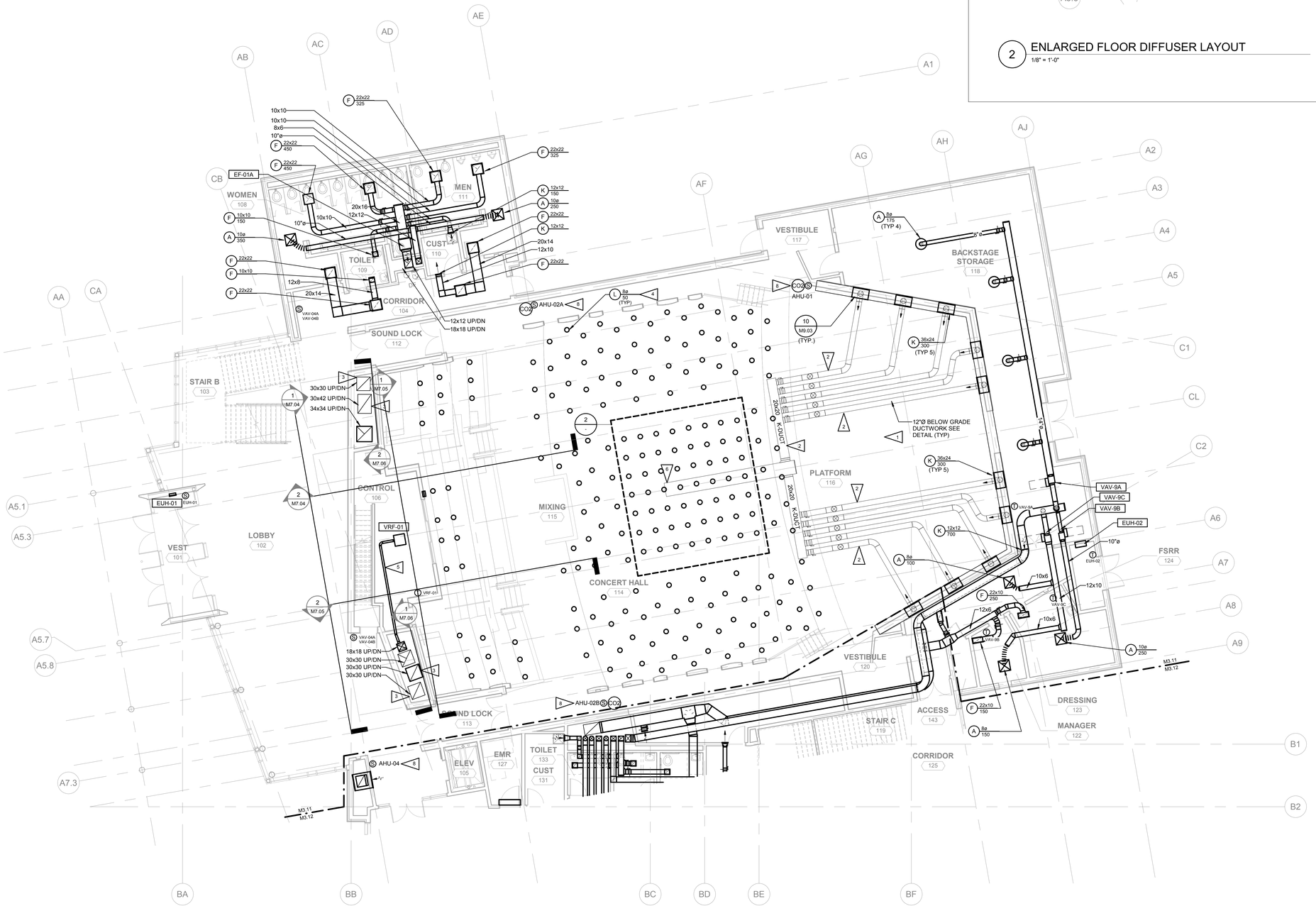
PROJECT NUMBER: 1711.00

SHEET NAME

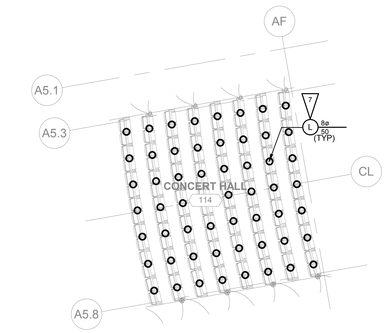
Area A - Basement Level HVAC Plan

SHEET NUMBER

M3.01



1 AREA A - LOWER LEVEL HVAC PLAN
1/8" = 1'-0"



2 ENLARGED FLOOR DIFFUSER LAYOUT
1/8" = 1'-0"

SHEET NOTES

1. SEE TYPICAL HVAC DETAILS IN M900 SERIES.
2. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN AND INTERIOR ELEVATIONS FOR FINAL LOCATION OF ALL GRILLES, DIFFUSERS, AND EXPOSED DUCTWORK. WHERE DISCREPANCIES ARISE AND THE SAME QUANTITY OF TERMINAL DEVICES, LOCATE PER ARCHITECTURAL PLANS AND PROVIDE ADDITIONAL DUCTWORK AND FITTINGS AS REQUIRED TO MAKE FINAL CONNECTION.
3. PROVIDE REMOTE CABLE CONTROL SYSTEM FOR ALL VOLUME DAMPERS LOCATED ABOVE HARD CEILINGS. PROVIDE ACCESS PANEL, FAKE RETURN GRILLE, AND LOCATE CONTROLLER ABOVE CEILING. MAXIMUM CABLE LENGTH FROM CONTROLLER TO DAMPER SHALL NOT EXCEED 15'-0". GROUP ALL CONTROLLERS TOGETHER AS MUCH AS POSSIBLE.
4. PROVIDE A MANUAL VOLUME DAMPER FOR EACH SUPPLY, RETURN, AND EXHAUST OPENING, LOCATED AS FAR UPSTREAM AS POSSIBLE FROM THE OPENING UNLESS SPECIFICALLY NOTED OTHERWISE. NOT ALL VOLUME DAMPERS ARE SHOWN ON THE PLANS. PROVIDE A MANUAL VOLUME DAMPER FOR BRANCH MAINS SERVING MORE THAN ONE OPENING AS INDICATED ON THE DRAWINGS.
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13. FLOOR DIFFUSER LAYOUT IS SUBJECT TO SEAT STANCHION PLACEMENT. GENERAL CONTRACTOR TO COORDINATE THEATER SEATING AND FLOOR DIFFUSERS.

FLAG NOTES

1. THIS AREA SERVED BY DISPLACEMENT PLENUM TOTALING 3,000 CFM (AHU-01).
2. SUPPLY DUCTWORK ASSOCIATED WITH AHU-01 IN THIS AREA IS UNDERGROUND.
3. PROVIDE 1" ACOUSTICAL LINER FOR 50 FEET OF THE SUPPLY AND RETURN DUCTWORK SERVING THE CONCERT HALL. ALL VERTICAL DUCT SHALL BE LINED. (TYP)
4. COORDINATE LOCATION OF FLOOR DIFFUSERS WITH SEATING PLAN.
5. PROVIDE 4" TO TAP INTO OSA KNOCK-OUT FOR VRF-01.
6. SEE PLAN PAGE M3.01 PLAN PAGE FOR CONTINUATION.
7. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR FLOOR DIFFUSUERS FOR FORMAL APPROVAL. PROVIDE ALLOWANCE FOR ONE ITERATION FOR SEATING SELECTION. CONTRACTOR SHALL COORDINATE FINAL FLOOR DIFFUSER LOCATION WITH FINAL SEATING LAYOUT.
8. COORDINATE FINAL LOCATION WITH ARCHITECT / ENGINEER BEFORE INSTALLATION.

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04.13.2020

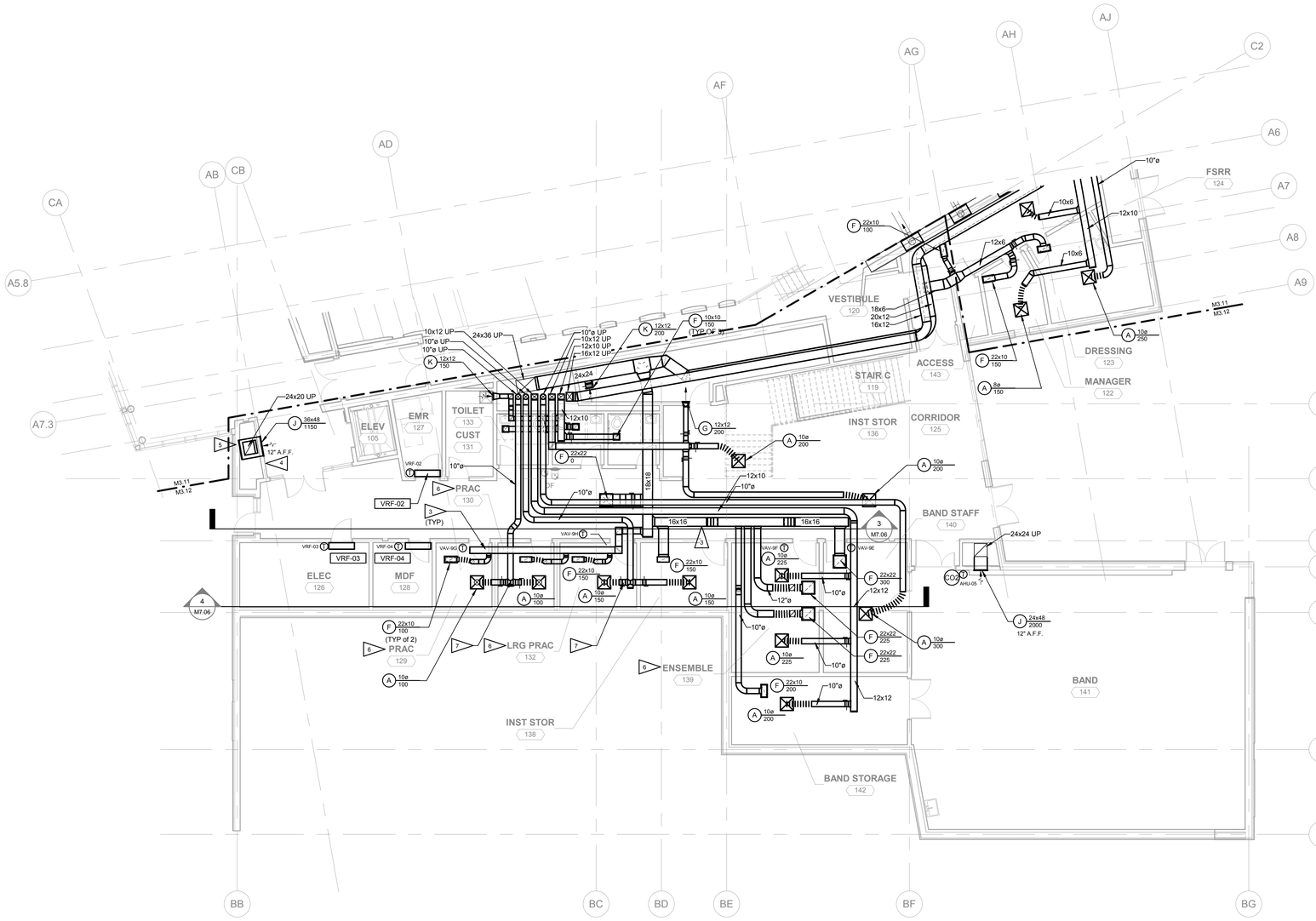
PROJECT NUMBER: 1711.00

SHEET NAME

Area A - Lower Level HVAC Plan

SHEET NUMBER

M3.11



1 AREA B - LOWER LEVEL HVAC PLAN

1/8" = 1'-0"

0" 1" 2"

NORTH

SHEET NOTES

1. SEE TYPICAL HVAC DETAILS IN M900 SERIES.
2. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN AND INTERIOR ELEVATIONS FOR FINAL LOCATION OF ALL GRILLES, DIFFUSERS, AND EXPOSED DUCTWORK. WHERE DISCREPANCIES ARISE AND THE SAME QUANTITY OF TERMINAL DEVICES, LOCATE PER ARCHITECTURAL PLANS AND PROVIDE ADDITIONAL DUCTWORK AND FITTINGS AS REQUIRED TO MAKE FINAL CONNECTION.
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5. DIVISION 23 SHALL REVIEW VAV BOX LOCATIONS AND COORDINATE WITH OTHER DISCIPLINES TO ENSURE VAV ACCESS IS MAINTAINED. TYPICAL ALL VAV LOCATIONS.
6. REFER TO ARCHITECTURAL ELEVATIONS FOR SWITCH AND SENSOR MOUNTING HEIGHTS AND EXACT LOCATIONS. LOCATIONS ON PLANS ARE APPROXIMATE.
7. PROVIDE ACCESS DOOR IN ALL OUTSIDE AIR, EHXUAST AIR, AND RETURN AIR PLENUMS OR DUCTS LOCATED BEHIND LOUVERS FOR BACKDRAFT AND/OR MOTORIZED DAMPER ACCESS. PROVIDE 24"x24" UNLESS OTHERWISE NOTED. REFER TO DETAILS.
8. INSTALL EXPOSED DUCTWORK AS CLOSE TO STRUCTURE AS POSSIBLE UNLESS OTHERWISE NOTED ON THE DRAWINGS. PROVIDE SINGLE STAINLESS STEEL THREADED ROD DUCT HANGERS WITH SEISMIC BRACING AT ALL EXPOSED DUCTWORK LOCATIONS. DUCTWORK SHALL BE WITHOUT STANDING SEAMS. PROVIDE CLEAR AND PAINTABLE SILICON SEALANT AT ALL EXPOSED LOCATIONS.
9. INSTALL BOTTOM OF WALL GRILLES AS NOTED PER ARCHITECTURAL ELEVATIONS.
10. ALL PLENUMS BEHIND LOUVERS SHALL BE A MINIMUM OF 3'-0" UNLESS NOTED OTHERWISE.
11. ALL PLENUMS BEHIND SUPPLY, RETURN AND EXHAUST AIR GRILLES SHALL BE A MINIMUM OF 24" DEEP OR THE SIZE OF THE DUCT, WHICHEVER IS LARGER UNLESS NOTED OTHERWISE.
12. FLEXIBLE DUCTWORK AND EXTERIOR INSULATION SHALL NOT BE USED WHERE THE DUCTWORK IS EXPOSED TO THE OCCUPANT. INSULATION SHALL BE INTERIOR TO THE DUCTWORK IN THESE LOCATIONS FOR SUPPLY AND RETURN DUCTWORK.
13. FLOOR DIFFUSER LAYOUT IS SUBJECT TO SEAT STANCHION PLACEMENT. GENERAL CONTRACTOR TO COORDINATE THEATER SEATING AND FLOOR DIFFUSERS.

FLAG NOTES

1. FLAG NOTE NOT USED ON THIS SHEET.
2. FLAG NOTE NOT USED ON THIS SHEET.
3. PROVIDE 1" THICK ACOUSTICAL LINER TO DUCTS RUNNING BETWEEN PRACTICE ROOMS AND ENSEMBLE ROOMS TO MINIMIZE POTENTIAL CROSSTALK.
4. ACCESS PANEL FOR VALVES.
5. TRANSITION DUCT FROM 24"x20" TO 36"x48" ACHIEVE 400 FPM FOR GRILLE.
6. REFER TO PLAN PAGE M7.06 FOR ADDITIONAL INFORMATION FOR THIS SPACE.
7. PROVIDE DAMPER CABLE CONTROLLER HIDDEN BEHIND A FALSE RETURN GRILLE. GROUP TOGETHER WHEN POSSIBLE.

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711.00

SHEET NAME

Area B - Lower Level HVAC Plan

SHEET NUMBER

M3.12

1 AREA A - UPPER LEVEL HVAC PLAN

1/8" = 1'-0"

SHEET NOTES

1. SEE TYPICAL HVAC DETAILS IN M900 SERIES.
2. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN AND INTERIOR ELEVATIONS FOR FINAL LOCATION OF ALL GRILLES, DIFFUSERS, AND EXPOSED DUCTWORK. WHERE DISCREPANCIES ARISE AND THE SAME QUANTITY OF TERMINAL DEVICES, LOCATE PER ARCHITECTURAL PLANS AND PROVIDE ADDITIONAL DUCTWORK AND FITTINGS AS REQUIRED TO MAKE FINAL CONNECTION.
3. PROVIDE REMOTE CABLE CONTROL SYSTEM FOR ALL VOLUME DAMPERS LOCATED ABOVE HARD CEILINGS. PROVIDE ACCESS PANEL, FAKE RETURN GRILLE, AND LOCATE CONTROLLER ABOVE CEILING. MAXIMUM CABLE LENGTH FROM CONTROLLER TO DAMPER SHALL NOT EXCEED 15'-0". GROUP ALL CONTROLLERS TOGETHER AS MUCH AS POSSIBLE.
4. PROVIDE A MANUAL VOLUME DAMPER FOR EACH SUPPLY, RETURN, AND EXHAUST OPENING, LOCATED AS FAR UPSTREAM AS POSSIBLE FROM THE OPENING UNLESS SPECIFICALLY NOTED OTHERWISE. NOT ALL VOLUME DAMPERS ARE SHOWN ON THE PLANS. PROVIDE A MANUAL VOLUME DAMPER FOR BRANCH MAINS SERVING MORE THAN ONE OPENING AS INDICATED ON THE DRAWINGS.
5. DIVISION 23 SHALL REVIEW VAV BOX LOCATIONS AND COORDINATE WITH OTHER DISCIPLINES TO ENSURE VAV ACCESS IS MAINTAINED. TYPICAL ALL VAV LOCATIONS.
6. REFER TO ARCHITECTURAL ELEVATIONS FOR SWITCH AND SENSOR MOUNTING HEIGHTS AND EXACT LOCATIONS. LOCATIONS ON PLANS ARE APPROXIMATE.
7. PROVIDE ACCESS DOOR IN ALL OUTSIDE AIR, EHXUAST AIR, AND RETURN AIR PLENUMS OR DUCTS LOCATED BEHIND LOUVERS FOR BACKDRAFT AND/OR MOTORIZED DAMPER ACCESS. PROVIDE 24"x24" UNLESS OTHERWISE NOTED. REFER TO DETAILS.
8. INSTALL EXPOSED DUCTWORK AS CLOSE TO STRUCTURE AS POSSIBLE UNLESS OTHERWISE NOTED ON THE DRAWINGS. PROVIDE SINGLE STAINLESS STEEL THREADED ROD DUCT HANGERS WITH SEISMIC BRACING AT ALL EXPOSED DUCTWORK LOCATIONS. DUCTWORK SHALL BE WITHOUT STANDING SEAMS. PROVIDE CLEAR AND PAINTABLE SILICON SEALANT AT ALL EXPOSED LOCATIONS.
9. INSTALL BOTTOM OF WALL GRILLES AS NOTED PER ARCHITECTURAL ELEVATIONS.
10. ALL PLENUMS BEHIND LOUVERS SHALL BE A MINIMUM OF 3'-0" UNLESS NOTED OTHERWISE.
11. ALL PLENUMS BEHIND SUPPLY, RETURN AND EXHAUST AIR GRILLES SHALL BE A MINIMUM OF 24" DEEP OR THE SIZE OF THE DUCT, WHICHEVER IS LARGER UNLESS NOTED OTHERWISE.
12. FLEXIBLE DUCTWORK AND EXTERIOR INSULATION SHALL NOT BE USED WHERE THE DUCTWORK IS EXPOSED TO THE OCCUPANT. INSULATION SHALL BE INTERIOR TO THE DUCTWORK IN THESE LOCATIONS FOR SUPPLY AND RETURN DUCTWORK.
13. FLOOR DIFFUSER LAYOUT IS SUBJECT TO SEAT STANCHION PLACEMENT. GENERAL CONTRACTOR TO COORDINATE THEATER SEATING AND FLOOR DIFFUSERS.

FLAG NOTES

1. PROVIDE BLANKED-OFF LINEAR DIFFUSER (I-B) WHERE DUCT IS NOT CONNECTED TO MATCH ADJACENT ACTIVE DIFFUSER.
2. ROUTE SUPPLY DUCT TO PLENUM AREA LOCATED BELOW BALCONY 211.
3. LOCATE RETURN GRILLE 12'-6" ABOVE ROW "Z" FINISHED FLOOR ELEVATION.
4. PROVIDE (2) PRESSURE SENSORS & (1) TEMP SENSOR IN PLENUM.
5. PROVIDE MOTORIZED DAMPERS FOR PLENUM DUCTS TO CONTROL ASSOCIATED PLENUM PRESSURES. DAMPERS SHALL MODULATE TO EQUALIZE PRESSURE IN ALL PLENUMS.

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BID DOCUMENTS

04.13.2020

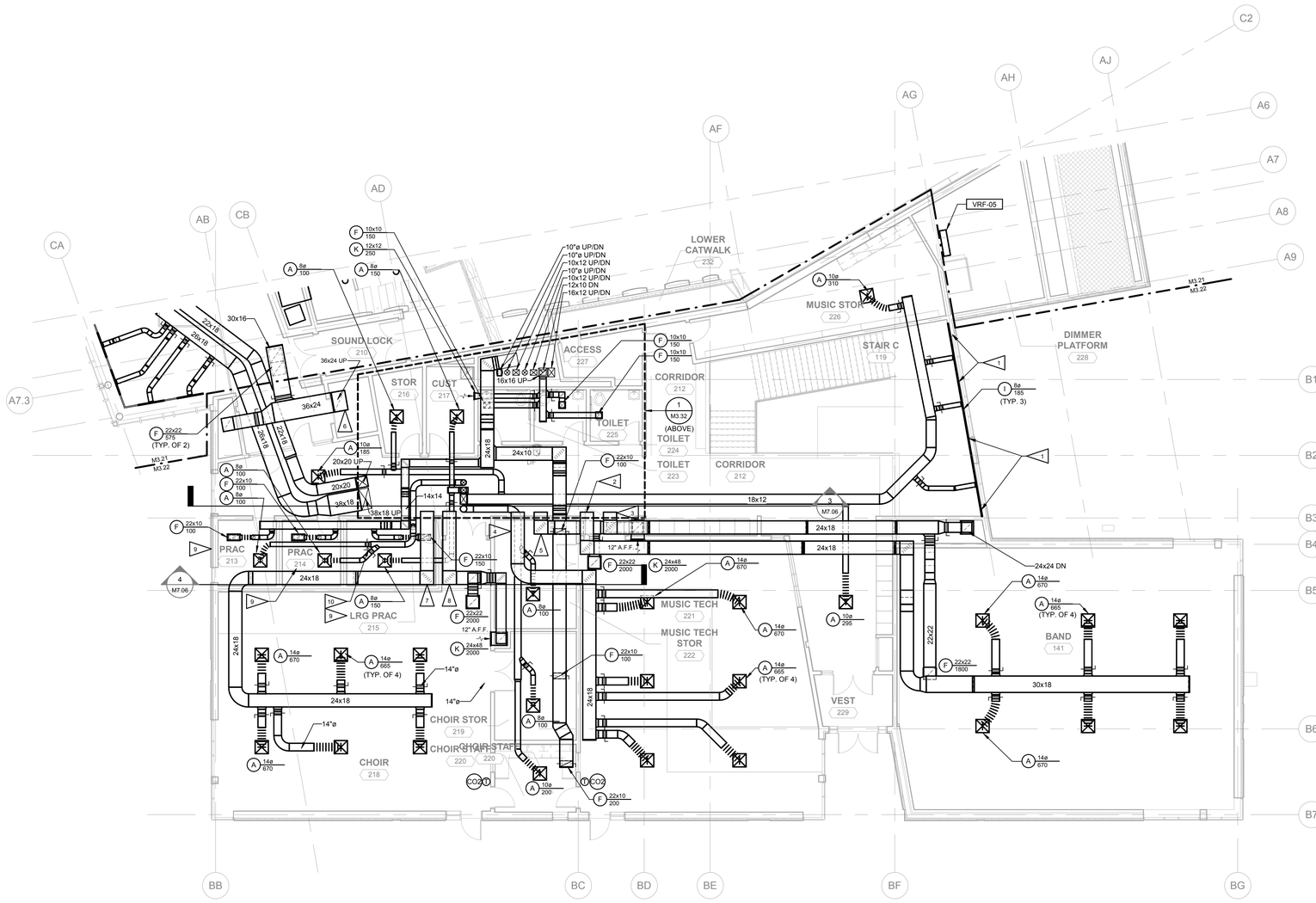
PROJECT NUMBER: 1711.00

SHEET NAME

Area A - Upper Level HVAC Plan

SHEET NUMBER

M3.21



1 AREA B - UPPER LEVEL HVAC PLAN

1/8" = 1'-0"

0" 1" 2"

NORTH

SHEET NOTES

1. SEE TYPICAL HVAC DETAILS IN M900 SERIES.
2. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN AND INTERIOR ELEVATIONS FOR FINAL LOCATION OF ALL GRILLES, DIFFUSERS, AND EXPOSED DUCTWORK. WHERE DISCREPANCIES ARISE AND THE SAME QUANTITY OF TERMINAL DEVICES, LOCATE PER ARCHITECTURAL PLANS AND PROVIDE ADDITIONAL DUCTWORK AND FITTINGS AS REQUIRED TO MAKE FINAL CONNECTION.
3. PROVIDE REMOTE CABLE CONTROL SYSTEM FOR ALL VOLUME DAMPERS LOCATED ABOVE HARD CEILINGS. PROVIDE ACCESS PANEL, FAKE RETURN GRILLE, AND LOCATE CONTROLLER ABOVE CEILING. MAXIMUM CABLE LENGTH FROM CONTROLLER TO DAMPER SHALL NOT EXCEED 15'-0". GROUP ALL CONTROLLERS TOGETHER AS MUCH AS POSSIBLE.
4. PROVIDE A MANUAL VOLUME DAMPER FOR EACH SUPPLY, RETURN, AND EXHAUST OPENING, LOCATED AS FAR UPSTREAM AS POSSIBLE FROM THE OPENING UNLESS SPECIFICALLY NOTED OTHERWISE. NOT ALL VOLUME DAMPERS ARE SHOWN ON THE PLANS. PROVIDE A MANUAL VOLUME DAMPER FOR BRANCH MAINS SERVING MORE THAN ONE OPENING AS INDICATED ON THE DRAWINGS.
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13. FLOOR DIFFUSER LAYOUT IS SUBJECT TO SEAT STANCHION PLACEMENT. GENERAL CONTRACTOR TO COORDINATE THEATER SEATING AND FLOOR DIFFUSERS.

FLAG NOTES

1. PROVIDE BLANKED-OFF LINEAR DIFFUSER WHERE DUCT IS NOT CONNECTED TO MATCH ADJACENT ACTIVE DIFFUSER.
2. PROVIDE 1" THICK ACOUSTICAL LINER FOR 25 FEET OF THE DUCTWORK DOWNSTREAM OF THE UNIT OUTLET.
3. PROVIDE 1" THICK ACOUSTICAL LINER FOR 30 FEET OF THE DUCTWORK UPSTREAM OF THE UNIT INLET.
4. PROVIDE 1" THICK ACOUSTICAL LINER FOR 15 FEET OF THE DUCTWORK DOWNSTREAM OF THE UNIT OUTLET.
5. LINE ALL RA DUCTWORK SERVING THE MUSIC TECH.
6. LINE ALL RA DUCTWORK SERVING THE LOBBY.
7. LINE THE SA DUCT WITHIN THE LIMIT OF THE MECHANICAL PLATFORM AND USE DOUBLE WALL DUCT FOR THE FIRST 8-10 FEET BEFORE THE ELBOW OVER THE LRG PRAC.
8. LINE ALL RA DUCTWORK SERVING CHOIR ROOM.
9. REFER TO PLAN PAGE M7.06 FOR ADDITIONAL INFORMATION FOR THIS SPACE.
10. PROVIDE DAMPER CABLE CONTROLLER HIDDEN BEHIND A FALSE RETURN GRILLE. GROUP TOGETHER WHEN POSSIBLE.

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BID DOCUMENTS

04.13.2020

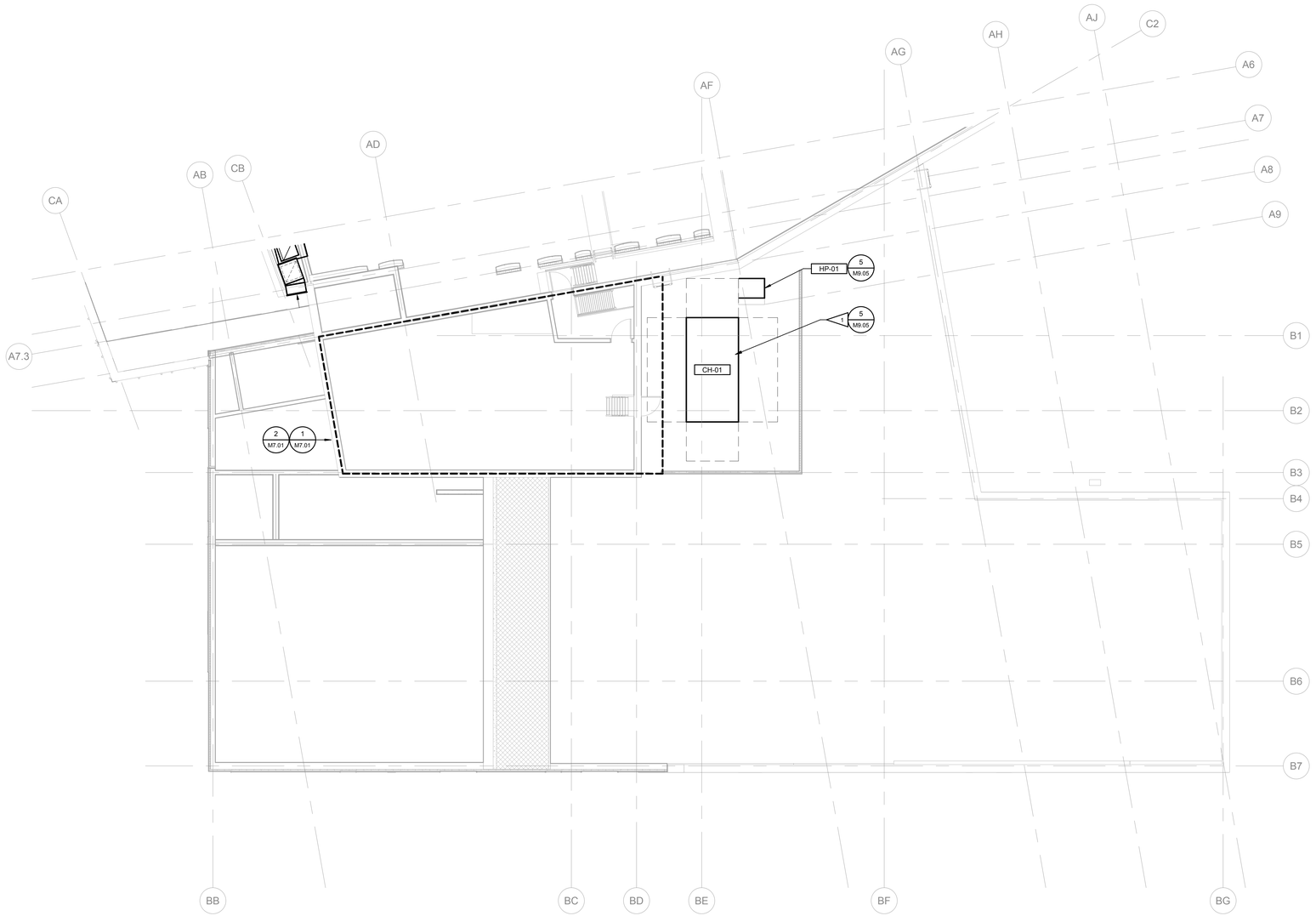
PROJECT NUMBER: 1711.00

SHEET NAME

Area B - Upper Level HVAC Plan

SHEET NUMBER

M3.22



1 AREA B - EQUIPMENT PLATFORM LEVEL HVAC PLAN
1/8" = 1'-0"

0" 1" 2"

NORTH

SHEET NOTES

1. SEE TYPICAL HVAC DETAILS IN M900 SERIES.
2. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN AND INTERIOR ELEVATIONS FOR FINAL LOCATION OF ALL GRILLES, DIFFUSERS, AND EXPOSED DUCTWORK. WHERE DISCREPANCIES ARISE AND THE SAME QUANTITY OF TERMINAL DEVICES, LOCATE PER ARCHITECTURAL PLANS AND PROVIDE ADDITIONAL DUCTWORK AND FITTINGS AS REQUIRED TO MAKE FINAL CONNECTION.
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13. FLOOR DIFFUSER LAYOUT IS SUBJECT TO SEAT STANCHION PLACEMENT. GENERAL CONTRACTOR TO COORDINATE THEATER SEATING AND FLOOR DIFFUSERS.

FLAG NOTES

1 PROVIDE 2" DEFLECTION SPRINGS. SEE DETAIL 4/M9.05.

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BID DOCUMENTS

04.13.2020

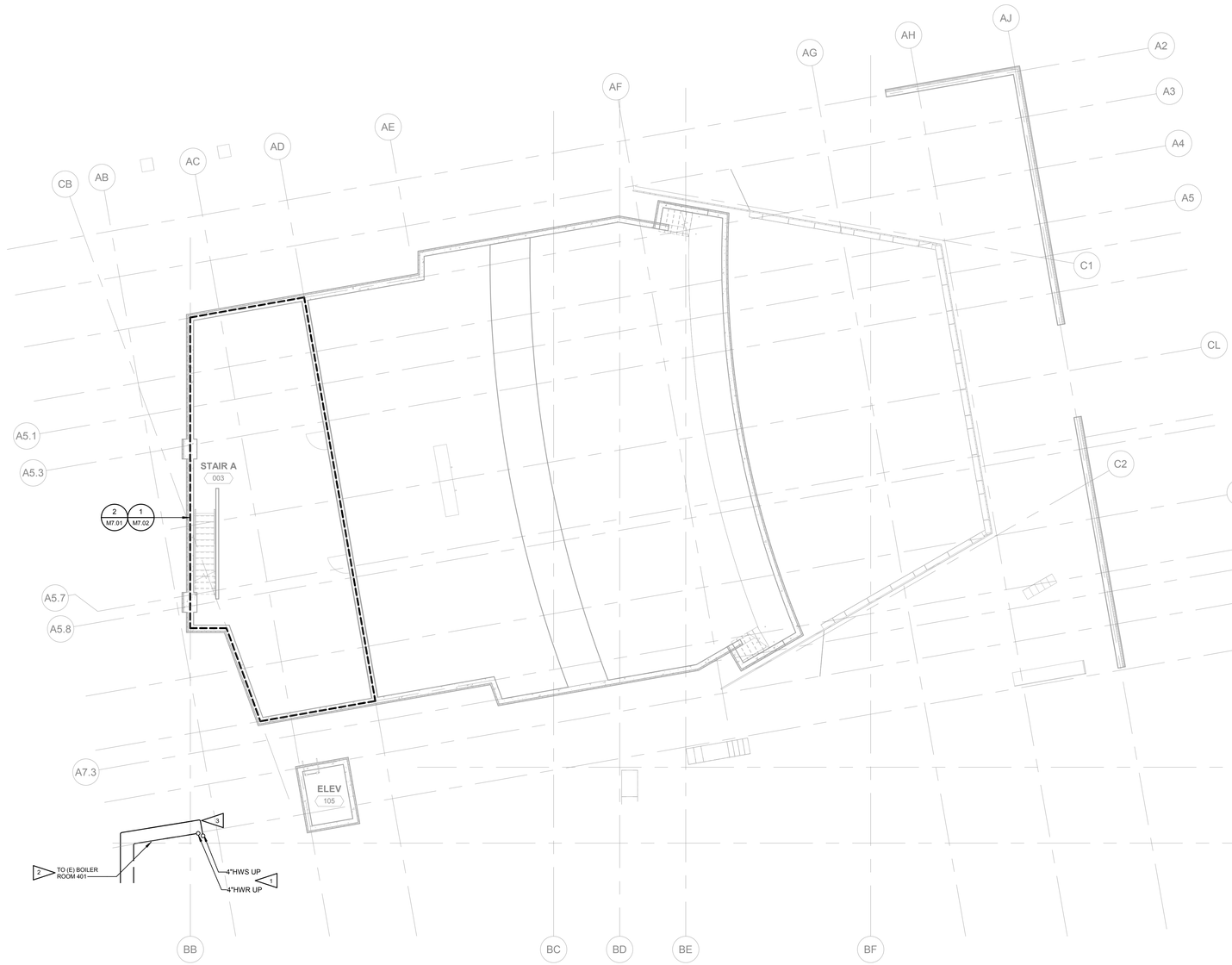
PROJECT NUMBER: 1711.00

SHEET NAME

Area B - Equipment Platform Level HVAC Plan

SHEET NUMBER

M3.32



1 AREA A - BASEMENT LEVEL HVAC PIPING PLAN

1/8" = 1'-0"

0" 1" 2"

NORTH

SHEET NOTES

1. SEE TYPICAL DETAILS IN M900 SERIES.
2. REFER TO AIR HANDLING UNIT, HEAT RECOVERY UNIT, TERMINAL UNIT, ETC SCHEDULES FOR BRANCH HEATING WATER AND CHILLED WATER PIPE SIZES AND VALVE TYPE TO EACH INDIVIDUAL COIL.
3. PROVIDE AUTOMATIC AIR VENTS (AAV) AT HIGH POINTS OF SYSTEM. PROVIDE ADDITIONAL AAV'S WHERE REQUIRED FOR VERTICAL PIPING OFFSETS. ROUTE AAV DRAIN LINES TO NEAREST FLOOR DRAIN/SINK, MOP SINK, OR WYE FITTING AT SINK WASTE TAIL PIECE. PROVIDE HUB DRAIN IN WALL IF WASTE CONNECTION IS NOT AVAILABLE.
4. PROVIDE DIFFERENTIAL PRESSURE VALVES AND SENSORS AS INDICATED ON THE HEATING AND CHILLED WATER PIPING AND CONTROL DIAGRAMS. PROVIDE WITH T/P TEST PORTS
5. DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW GENERAL ARRANGEMENT AND CONFIGURATION OF PIPING. ADJUST LOCATION OF PIPING TO ENSURE THAT ISOLATION VALVES ARE LOCATED IN ACCESSIBLE LOCATIONS. ROUTE PIPING AS HIGH AND TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE WITH OTHER TRADES AND PROVIDE ADDITIONAL OFFSETS, MISC HARDWARE, AND ATTACHMENTS TO MOUNT PIPING TO STRUCTURE.
6. MINIMALLY SLOPE ALL HYDRONIC PIPING BACK TO DRAIN VALVES AND UP TO AUTOMATIC AIR VENTS.
7. DO NOT INSTALL TERMINAL UNIT COIL CONNECTIONS, INCLUDING STRAINERS, ABOVE LIGHT FIXTURES OR INACCESSIBLE CEILINGS. ADJUST TERMINAL UNIT LOCATIONS AS NECESSARY TO COMPLY WITH THIS REQUIREMENT. ANY TERMINAL UNITS OR COIL CONNECTIONS THAT ARE INSTALLED ABOVE LIGHT FIXTURES OR INACCESSIBLE CEILINGS SHALL BE RELOCATED AT NO ADDITIONAL COST.
8. DO NOT ROUTE HYDRONIC PIPING OVER ELECTRICAL, IDF, MDF, OR ELEVATOR MACHINE ROOMS.
9. ALL PIPING WITHOUT THE REQUIREMENTS OF INSULATION SHALL BE PROTECTED BY USING THE CUSH-A-CLAMP OR EQUAL PRODUCT AS SPECIFIED.
10. PROVIDE PETE'S PLUGS AND/OR T/P PORTS PER SPECIFICATIONS AND ON BOTH SIDES OF CONTROL SENSING EQUIPMENT FOR CALIBRATION AND BALANCING.

FLAG NOTES

1. HWS/HWR UP TO EQUIPMENT PLATFORM MECHANICAL ROOM 301.
2. ROUTE HWS/HWR BELOW GRADE TO MECH ROOM.
3. REFER TO M4.11 FOR CONTINUATION.

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04.13.2020

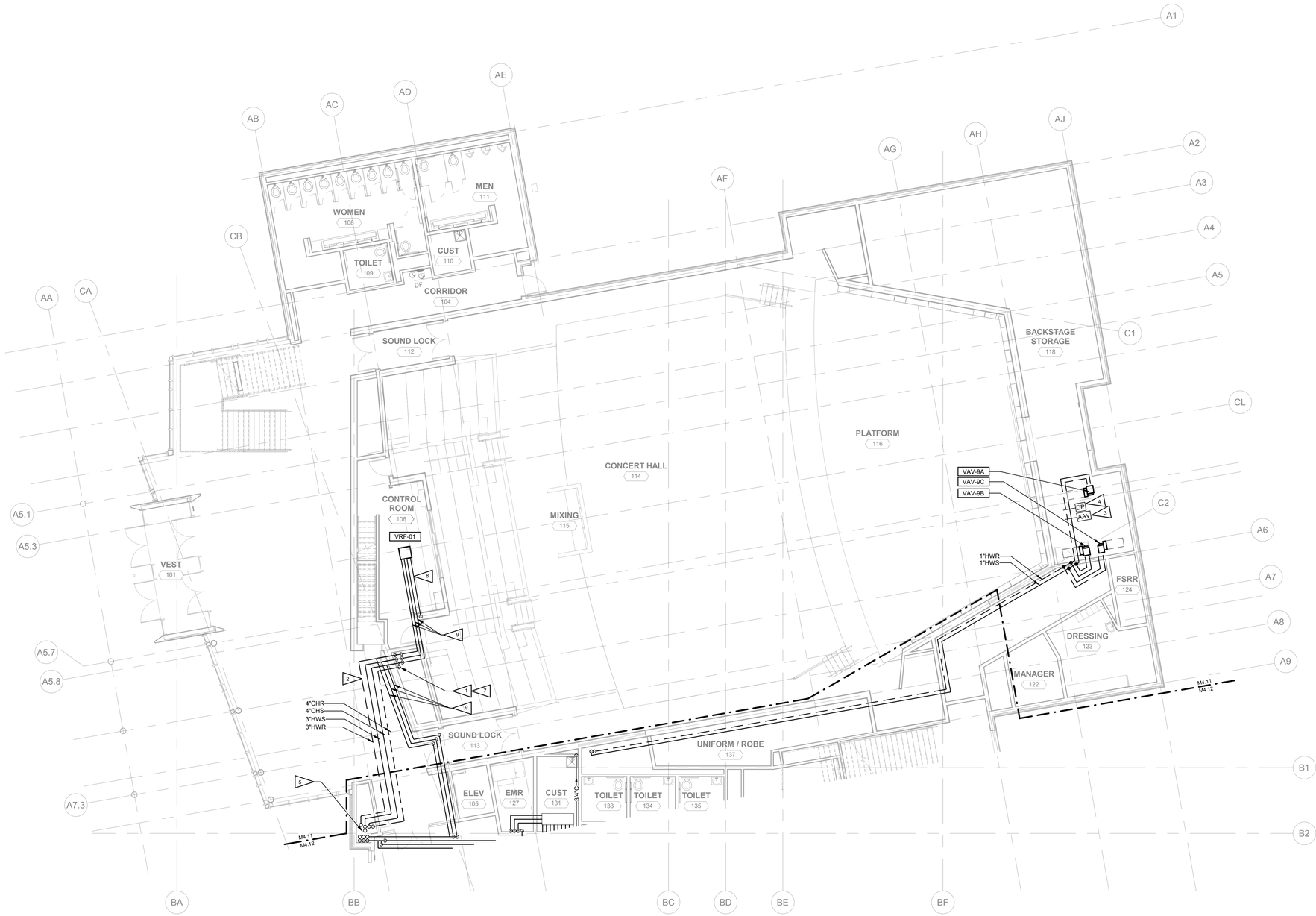
PROJECT NUMBER: 1711.00

SHEET NAME

Area A - Basement Level HVAC Piping Plan

SHEET NUMBER

M4.01



1 AREA A - LOWER LEVEL HVAC PIPING PLAN
1/8" = 1'-0"

0" 1" 2"

NORTH

SHEET NOTES

1. SEE TYPICAL DETAILS IN M900 SERIES.
2. REFER TO AIR HANDLING UNIT, HEAT RECOVERY UNIT, TERMINAL UNIT, ETC SCHEDULES FOR BRANCH HEATING WATER AND CHILLED WATER PIPE SIZES AND VALVE TYPE TO EACH INDIVIDUAL COIL.
3. PROVIDE AUTOMATIC AIR VENTS (AAV) AT HIGH POINTS OF SYSTEM. PROVIDE ADDITIONAL AAV'S WHERE REQUIRED FOR VERTICAL PIPING OFFSETS. ROUTE AAV DRAIN LINES TO NEAREST FLOOR DRAIN/SINK, MOP SINK, OR WYE FITTING AT SINK WASTE TAIL PIECE. PROVIDE HUB DRAIN IN WALL IF WASTE CONNECTION IS NOT AVAILABLE.
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6. MINIMALLY SLOPE ALL HYDRONIC PIPING BACK TO DRAIN VALVES AND UP TO AUTOMATIC AIR VENTS.
7. DO NOT INSTALL TERMINAL UNIT COIL CONNECTIONS, INCLUDING STRAINERS, ABOVE LIGHT FIXTURES OR INACCESSIBLE CEILINGS. ADJUST TERMINAL UNIT LOCATIONS AS NECESSARY TO COMPLY WITH THIS REQUIREMENT. ANY TERMINAL UNITS OR COIL CONNECTIONS THAT ARE INSTALLED ABOVE LIGHT FIXTURES OR INACCESSIBLE CEILINGS SHALL BE RELOCATED AT NO ADDITIONAL COST.
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10. PROVIDE PETE'S PLUGS AND/OR T/P PORTS PER SPECIFICATIONS AND ON BOTH SIDES OF CONTROL SENSING EQUIPMENT FOR CALIBRATION AND BALANCING.

FLAG NOTES

1. ROUTE HYDRONIC HEATING AND CHILLED WATER LINES DOWN THRU SHAFT TO BASEMENT LEVEL BELOW.
2. ROUTE HYDRONIC HEATING AND CHILLED WATER LINES IN SOFFIT BELOW WALK-WAY ABOVE.
3. ROUTE AAV DRAIN LINES TO FLOOR SINK IN SPRINKLER RISER ROOM. PROVIDE AAV ON BOTH HWS/R. (TYP).
4. PROVIDE REMOTE DP WIRED DIRECTLY BACK TO THE HEATING WATER MECHANICAL ROOM.
5. ROUTE 1" CONDUIT TO MECHANICAL ROOM ADJACENT TO GLOBAL CONTROLLER.
6. FLAG NOTE NOT USED ON THIS PLAN PAGE.
7. REFER TO M7.02 FOR CONTINUATION.
8. ROUTE 3/4" CONDENSATE LINE TO FLOOR SINK IN MECH ROOM BELOW. DO NOT ROUTE TO CREATE TRIP HAZARD.
9. ROUTE REFRIGERATION PIPING FROM UNIT TO HEAT PUMP ON ROOF. SIZE LINES PER MANUFACTURERS RECOMMENDATIONS.

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
04.08.2019	VALUE ENGINEERING
09.16.2019	SITE PLAN REVIEW
10.18.2019	DESIGN DEVELOPMENT
01.13.2020	CONSTRUCTABILITY REVIEW
03.23.2020	HEALTH DEPARTMENT PERMIT SUBMITTAL
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

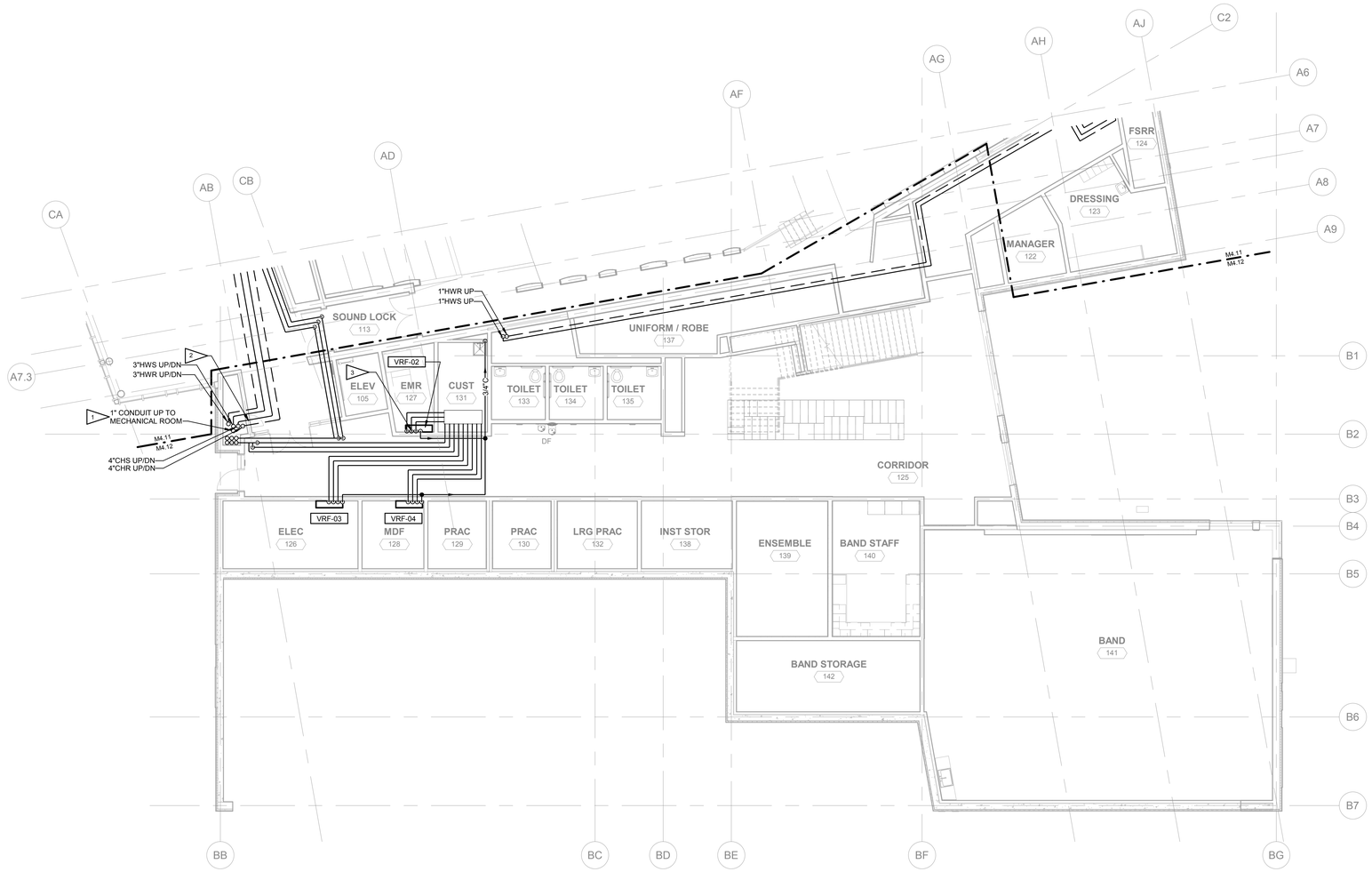
PROJECT NUMBER: 1711.00

SHEET NAME

Area A - Lower Level HVAC Piping Plan

SHEET NUMBER

M4.11



1 AREA B - LOWER LEVEL HVAC PIPING PLAN
1/8" = 1'-0"

NORTH 0" 1" 2"

SHEET NOTES

1. SEE TYPICAL DETAILS IN M900 SERIES.
2. REFER TO AIR HANDLING UNIT, HEAT RECOVERY UNIT, TERMINAL UNIT, ETC SCHEDULES FOR BRANCH HEATING WATER AND CHILLED WATER PIPE SIZES AND VALVE TYPE TO EACH INDIVIDUAL COIL.
3. PROVIDE AUTOMATIC AIR VENTS (AAV) AT HIGH POINTS OF SYSTEM. PROVIDE ADDITIONAL AAV'S WHERE REQUIRED FOR VERTICAL PIPING OFFSETS. ROUTE AAV DRAIN LINES TO NEAREST FLOOR DRAIN/SINK, MOP SINK, OR WYE FITTING AT SINK WASTE TAIL PIECE. PROVIDE HUB DRAIN IN WALL IF WASTE CONNECTION IS NOT AVAILABLE.
4. PROVIDE DIFFERENTIAL PRESSURE VALVES AND SENSORS AS INDICATED ON THE HEATING AND CHILLED WATER PIPING AND CONTROL DIAGRAMS. PROVIDE WITH T/P TEST PORTS
5. DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW GENERAL ARRANGEMENT AND CONFIGURATION OF PIPING. ADJUST LOCATION OF PIPING TO ENSURE THAT ISOLATION VALVES ARE LOCATED IN ACCESSIBLE LOCATIONS. ROUTE PIPING AS HIGH AND TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE WITH OTHER TRADES AND PROVIDE ADDITIONAL OFFSETS, MISC HARDWARE, AND ATTACHMENTS TO MOUNT PIPING TO STRUCTURE.
6. MINIMALLY SLOPE ALL HYDRONIC PIPING BACK TO DRAIN VALVES AND UP TO AUTOMATIC AIR VENTS.
7. DO NOT INSTALL TERMINAL UNIT COIL CONNECTIONS, INCLUDING STRAINERS, ABOVE LIGHT FIXTURES OR INACCESSIBLE CEILINGS. ADJUST TERMINAL UNIT LOCATIONS AS NECESSARY TO COMPLY WITH THIS REQUIREMENT. ANY TERMINAL UNITS OR COIL CONNECTIONS THAT ARE INSTALLED ABOVE LIGHT FIXTURES OR INACCESSIBLE CEILINGS SHALL BE RELOCATED AT NO ADDITIONAL COST.
8. DO NOT ROUTE HYDRONIC PIPING OVER ELECTRICAL, IDF, MDF, OR ELEVATOR MACHINE ROOMS.
9. ALL PIPING WITHOUT THE REQUIREMENTS OF INSULATION SHALL BE PROTECTED BY USING THE CUSH-A-CLAMP OR EQUAL PRODUCT AS SPECIFIED.
10. PROVIDE PETE'S PLUGS AND/OR T/P PORTS PER SPECIFICATIONS AND ON BOTH SIDES OF CONTROL SENSING EQUIPMENT FOR CALIBRATION AND BALANCING.

FLAG NOTES

1. ROUTE 1" CONDUIT TO MECHANICAL ROOM ADJACENT TO GLOBAL CONTROLLER.
2. PROVIDE ACCESS PANEL FOR VALVES.
3. ROUTE REFRIGERATION PIPING FROM UNIT TO HEAT PUMP ON ROOF. SIZE LINES PER MANUFACTURERS RECOMMENDATIONS.

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BID DOCUMENTS

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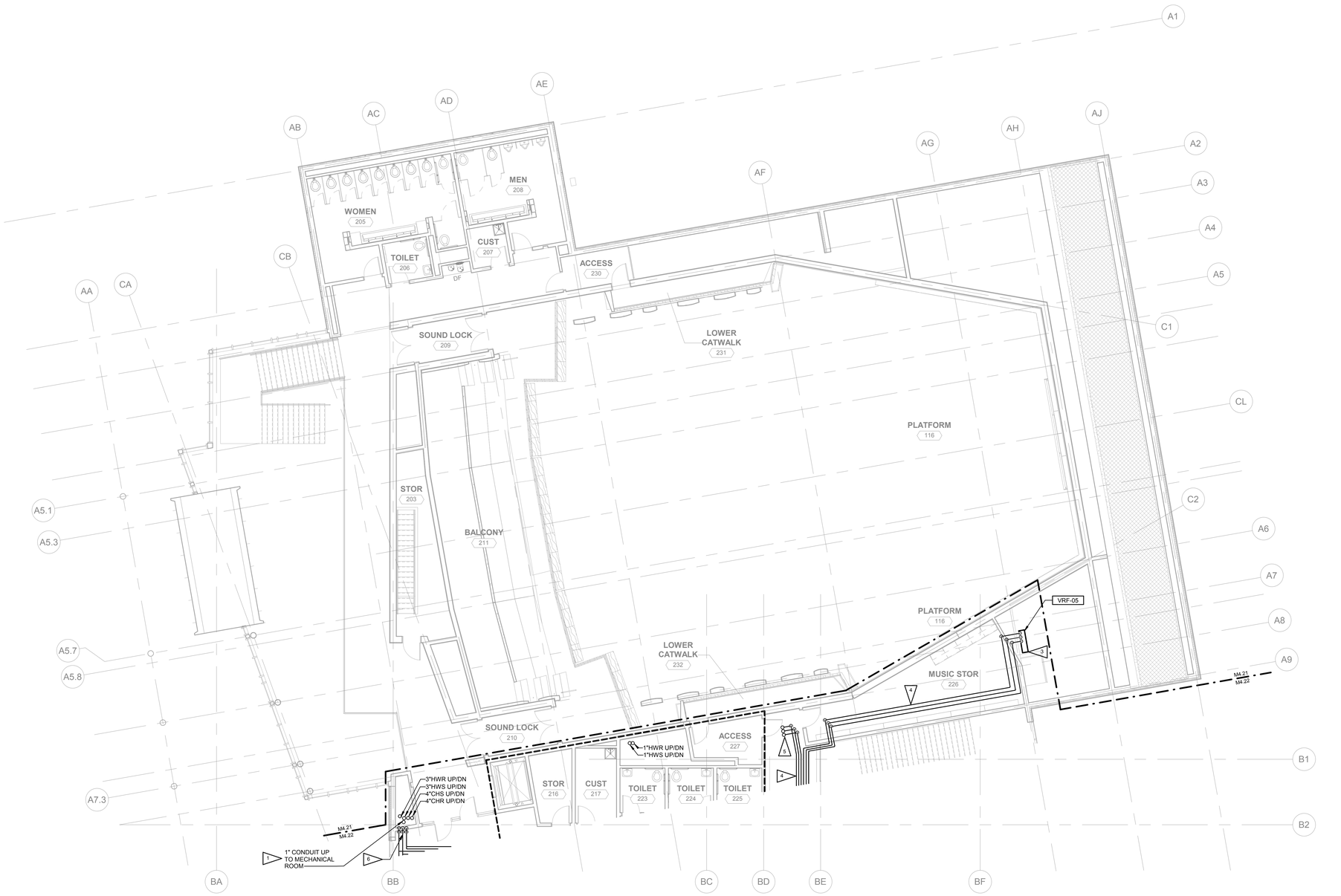
PROJECT NUMBER: 1711.00

SHEET NAME

Area B - Lower Level HVAC Piping Plan

SHEET NUMBER

M4.12



1 AREA A - UPPER LEVEL HVAC PIPING PLAN
1/8" = 1'-0"

0" 1" 2"

NORTH

SHEET NOTES

1. SEE TYPICAL DETAILS IN M900 SERIES.
2. REFER TO AIR HANDLING UNIT, HEAT RECOVERY UNIT, TERMINAL UNIT, ETC SCHEDULES FOR BRANCH HEATING WATER AND CHILLED WATER PIPE SIZES AND VALVE TYPE TO EACH INDIVIDUAL COIL.
3. PROVIDE AUTOMATIC AIR VENTS (AAV) AT HIGH POINTS OF SYSTEM. PROVIDE ADDITIONAL AAV'S WHERE REQUIRED FOR VERTICAL PIPING OFFSETS. ROUTE AAV DRAIN LINES TO NEAREST FLOOR DRAIN/SINK, MOP SINK, OR WYE FITTING AT SINK WASTE TAIL PIECE. PROVIDE HUB DRAIN IN WALL IF WASTE CONNECTION IS NOT AVAILABLE.
4. PROVIDE DIFFERENTIAL PRESSURE VALVES AND SENSORS AS INDICATED ON THE HEATING AND CHILLED WATER PIPING AND CONTROL DIAGRAMS. PROVIDE WITH T/P TEST PORTS
5. DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW GENERAL ARRANGEMENT AND CONFIGURATION OF PIPING. ADJUST LOCATION OF PIPING TO ENSURE THAT ISOLATION VALVES ARE LOCATED IN ACCESSIBLE LOCATIONS. ROUTE PIPING AS HIGH AND TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE WITH OTHER TRADES AND PROVIDE ADDITIONAL OFFSETS, MISC HARDWARE, AND ATTACHMENTS TO MOUNT PIPING TO STRUCTURE.
6. MINIMALLY SLOPE ALL HYDRONIC PIPING BACK TO DRAIN VALVES AND UP TO AUTOMATIC AIR VENTS.
7. DO NOT INSTALL TERMINAL UNIT COIL CONNECTIONS, INCLUDING STRAINERS, ABOVE LIGHT FIXTURES OR INACCESSIBLE CEILINGS. ADJUST TERMINAL UNIT LOCATIONS AS NECESSARY TO COMPLY WITH THIS REQUIREMENT. ANY TERMINAL UNITS OR COIL CONNECTIONS THAT ARE INSTALLED ABOVE LIGHT FIXTURES OR INACCESSIBLE CEILINGS SHALL BE RELOCATED AT NO ADDITIONAL COST.
8. DO NOT ROUTE HYDRONIC PIPING OVER ELECTRICAL, IDF, MDF, OR ELEVATOR MACHINE ROOMS.
9. ALL PIPING WITHOUT THE REQUIREMENTS OF INSULATION SHALL BE PROTECTED BY USING THE CUSH-A-CLAMP OR EQUAL PRODUCT AS SPECIFIED.
10. PROVIDE PETE'S PLUGS AND/OR T/P PORTS PER SPECIFICATIONS AND ON BOTH SIDES OF CONTROL SENSING EQUIPMENT FOR CALIBRATION AND BALANCING.

FLAG NOTES

1. ROUTE 1" CONDUIT TO MECHANICAL ROOM ADJACENT TO GLOBAL CONTROLLER.
2. ROUTE TO VRF UNIT IN DIMMER ROOM. SEE M4.22 FOR CONTINUATION.
3. ROUTE REFRIGERATION PIPING FROM UNIT TO HEAT PUMP ON ROOF. SIZE LINES PER MANUFACTURERS RECOMMENDATIONS.
4. VRF REFIRGERANT PIPING UP & DOWN.

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04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

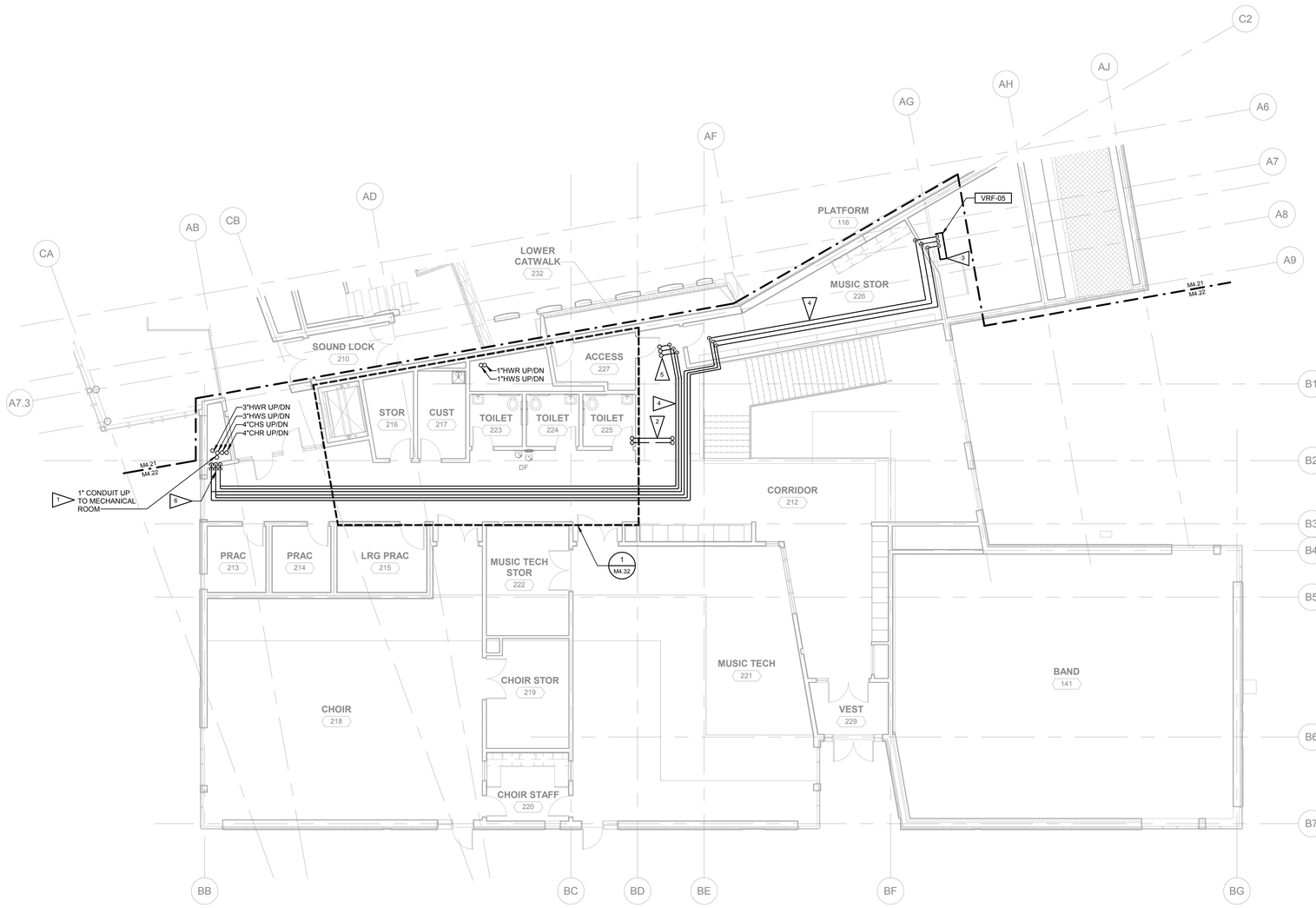
PROJECT NUMBER: 1711.00

SHEET NAME

Area A - Upper Level HVAC Piping Plan

SHEET NUMBER

M4.21



1 AREA B - UPPER LEVEL HVAC PIPING PLAN

1/8" = 1'-0"

NORTH 0" 1" 2"

SHEET NOTES

1. SEE TYPICAL DETAILS IN M900 SERIES.
2. REFER TO AIR HANDLING UNIT, HEAT RECOVERY UNIT, TERMINAL UNIT, ETC SCHEDULES FOR BRANCH HEATING WATER AND CHILLED WATER PIPE SIZES AND VALVE TYPE TO EACH INDIVIDUAL COIL.
3. PROVIDE AUTOMATIC AIR VENTS (AAV) AT HIGH POINTS OF SYSTEM. PROVIDE ADDITIONAL AAV'S WHERE REQUIRED FOR VERTICAL PIPING OFFSETS. ROUTE AAV DRAIN LINES TO NEAREST FLOOR DRAIN/SINK, MOP SINK, OR WYE FITTING AT SINK WASTE TAIL PIECE. PROVIDE HUB DRAIN IN WALL IF WASTE CONNECTION IS NOT AVAILABLE.
4. PROVIDE DIFFERENTIAL PRESSURE VALVES AND SENSORS AS INDICATED ON THE HEATING AND CHILLED WATER PIPING AND CONTROL DIAGRAMS. PROVIDE WITH T/P TEST PORTS
5. DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW GENERAL ARRANGEMENT AND CONFIGURATION OF PIPING. ADJUST LOCATION OF PIPING TO ENSURE THAT ISOLATION VALVES ARE LOCATED IN ACCESSIBLE LOCATIONS. ROUTE PIPING AS HIGH AND TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE WITH OTHER TRADES AND PROVIDE ADDITIONAL OFFSETS, MISC HARDWARE, AND ATTACHMENTS TO MOUNT PIPING TO STRUCTURE.
6. MINIMALLY SLOPE ALL HYDRONIC PIPING BACK TO DRAIN VALVES AND UP TO AUTOMATIC AIR VENTS.
7. DO NOT INSTALL TERMINAL UNIT COIL CONNECTIONS, INCLUDING STRAINERS, ABOVE LIGHT FIXTURES OR INACCESSIBLE CEILINGS. ADJUST TERMINAL UNIT LOCATIONS AS NECESSARY TO COMPLY WITH THIS REQUIREMENT. ANY TERMINAL UNITS OR COIL CONNECTIONS THAT ARE INSTALLED ABOVE LIGHT FIXTURES OR INACCESSIBLE CEILINGS SHALL BE RELOCATED AT NO ADDITIONAL COST.
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10. PROVIDE PETE'S PLUGS AND/OR T/P PORTS PER SPECIFICATIONS AND ON BOTH SIDES OF CONTROL SENSING EQUIPMENT FOR CALIBRATION AND BALANCING.

FLAG NOTES

1. ROUTE 1" CONDUIT TO MECHANICAL ROOM ADJACENT TO GLOBAL CONTROLLER.
2. CHILLED WATER MAINS LEAVING THE EQUIPMENT PLATFORM ABOVE AND RUNNING UNDER STRUCTURE BEFORE PENETRATING UP THRU ROOF TO CHILLER. PROVIDE ELECTRICAL HEAT TRACE ONCE PIPING IS EXPOSED TO ELEMENTS.
3. ROUTE REFRIGERANT LINES TO VRF-05 IN DIMMER PLATFORM.
4. REFRIGERANT PIPING PATHWAY.
5. ROUTE REFRIGERANT LINES & CONTROLS UP THROUGH ROOF TO UNIT PER DETAIL.
6. REFRIGERANT PIPING DOWN TO UNITS ON FLOOR BELOW.

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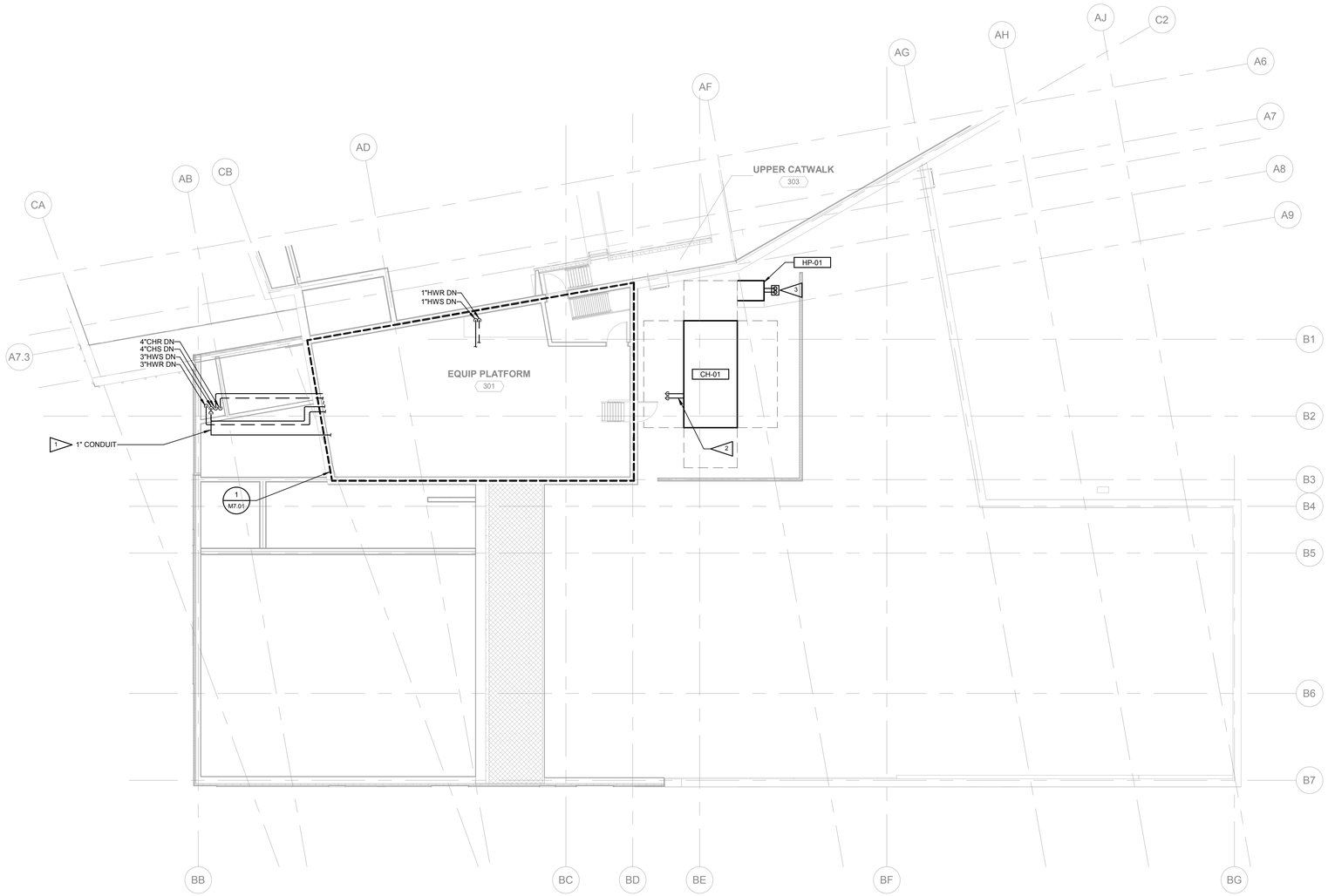
PROJECT NUMBER: 1711.00

SHEET NAME

Area B - Upper Level HVAC Piping Plan

SHEET NUMBER

M4.22



1 AREA B - EQUIPMENT PLATFORM LEVEL HVAC PIPING PLAN
1/8" = 1'-0"

NORTH 0" 1" 2"

SHEET NOTES

1. SEE TYPICAL DETAILS IN M900 SERIES.
2. REFER TO AIR HANDLING UNIT, HEAT RECOVERY UNIT, TERMINAL UNIT, ETC SCHEDULES FOR BRANCH HEATING WATER AND CHILLED WATER PIPE SIZES AND VALVE TYPE TO EACH INDIVIDUAL COIL.
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6. MINIMALLY SLOPE ALL HYDRONIC PIPING BACK TO DRAIN VALVES AND UP TO AUTOMATIC AIR VENTS.
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10. PROVIDE PETE'S PLUGS AND/OR T/P PORTS PER SPECIFICATIONS AND ON BOTH SIDES OF CONTROL SENSING EQUIPMENT FOR CALIBRATION AND BALANCING.

FLAG NOTES

1. ROUTE 1" CONDUIT TO MECHANICAL ROOM ADJACENT TO GLOBAL CONTROLLER.
2. 6" CHWS&R PIPING UP THRU ROOF FROM ADJACENT MECHANICAL ROOM. PROVIDE WITH ELECTRICAL HEAT TRACE WHERE EXPOSED TO ELEMENTS.
3. REFER PIPING DOWN & TIGHT TO STRUCTURE TO CIRCUIT CONTROLLER IN CUSTODIAL ROOM.

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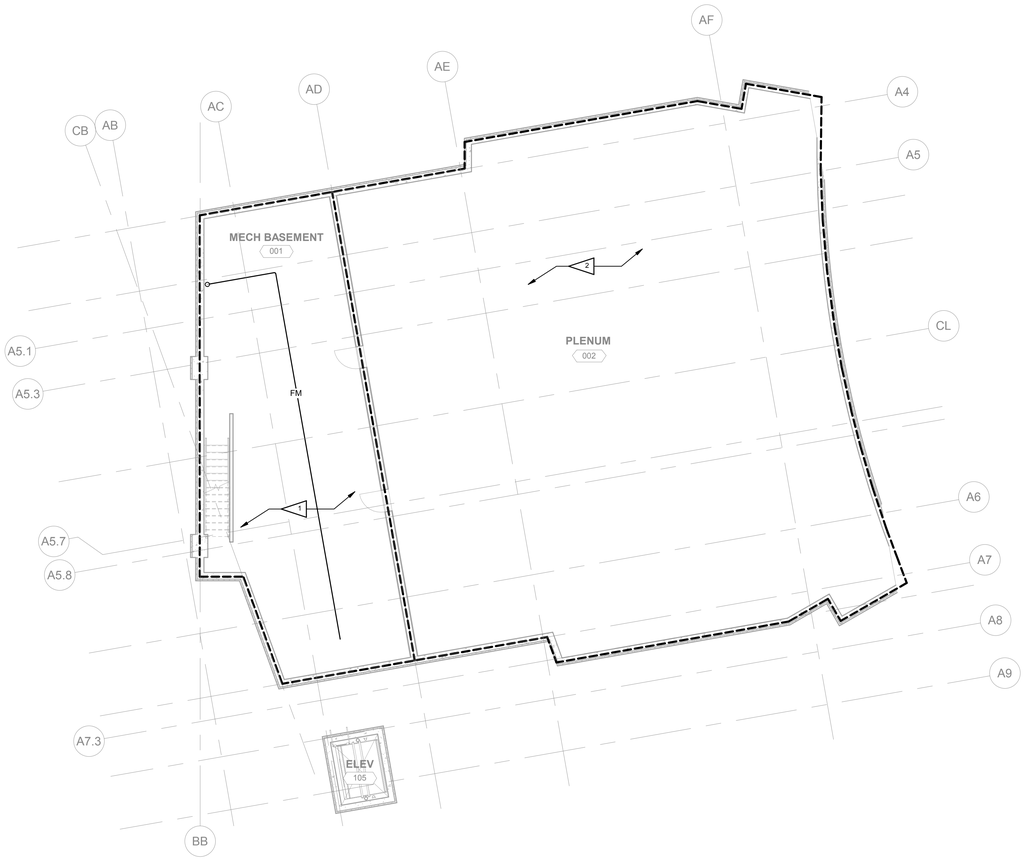
PROJECT NUMBER: 1711.00

SHEET NAME

Area B - Equipment Platform Level HVAC Piping Plan

SHEET NUMBER

M4.32



1 FIRE PROTECTION PLAN - BASEMENT LEVEL
1/8" = 1'-0"

NORTH
0" 1" 2"

SHEET NOTES

1. SEE TYPICAL DETAILS IN M900 SERIES.
2. PROVIDE ALL MATERIALS, EQUIPMENT, PERMITS; AND LABOR REQUIRED FOR A COMPLETE AND OPERABLE FIRE PROTECTION SYSTEM AS SPECIFIED. THE FIRE PROTECTION SYSTEM SHALL COMPLY WITH THE STANDARDS OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA.) AND ALL STATE AND LOCAL REGULATIONS WITH LOCAL AMENDMENTS.
3. PROVIDE AUTOMATIC WET SPRINKLER SYSTEM THROUGHOUT, COMPLETE IN ALL RESPECTS AND READY FOR OPERATION INCLUDING ALL TEST AND DRAIN LINES, PRESSURE GAUGES, HANGERS, SUPPORTS, SIGNS, AND OTHER STANDARD APPURTENANCES.
4. PRIOR TO DESIGN AND INSTALLATION, CONTRACTOR SHALL CONDUCT A FIRE FLOW TEST AT THE SITE. DESIGN SHALL BE BASED ON FLOW/PRESSURE DATA DERIVED FROM THIS FLOW TEST. ANY CHANGES TO THE PRELIMINARY DESIGN MADE NECESSARY BY NEW DATA SHALL BE MADE AT NO ADDITIONAL COST. FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE FOR COSTS INCURRED WITH ANY AND ALL FLOW TESTS PERFORMED AS PART OF THIS CONTRACT.
5. FIRE SPRINKLER CONTRACTOR SHALL SUBMIT COMPLETE DESIGN SHOP DRAWINGS TO THE ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO SUBMITTING TO THE AHJ. DRAWINGS SHOW PIPING MAINS, SOME DRAIN LOCATIONS, WET REQUIREMENTS, ETC ABOVE MINIMUM CODE REQUIREMENTS THAT SHALL BE MET AS PART OF THIS CONTRACT. VERIFY AND OBTAIN APPROVAL OF FIRE SPRINKLER SYSTEM DRAIN LOCATIONS WITH THE ARCHITECT/ENGINEER (A/E) DURING THE PRODUCTION OF THE SHOP DRAWINGS AND PRIOR TO INSTALLATION.
6. IT SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE APPROPRIATE MEASURES ARE TAKEN TO PREVENT FREEZING OF THE SPRINKLER SYSTEM. CONTRACTOR SHALL WARRANTY WORK AGAINST FREEZING FOR A PERIOD OF NO LESS THAN TWO YEARS AFTER PROJECT FINAL COMPLETION.
7. FIRE SPRINKLER CONTRACTOR SHALL COORDINATE WITH ALL OTHER DISCIPLINES PRIOR TO INSTALLATION. LIGHTING, HVAC WORK AND DUCT ROUTING SHALL TAKE PRECEDENCE. FIRE SPRINKLER PIPING INSTALLED WITHOUT PROPER COORDINATION SHALL BE SUBJECT TO REMOVAL AND REINSTALLATION AT NO COST. SUBMIT 3D SHOP DRAWINGS TO HVAC CONTRACTOR TO COORDINATE ROUTING AND LOCATION OF SERVICES FOR ALL TRADES.
8. COORDINATE FINAL SPRINKLER HEAD LOCATIONS WITH A/E AND OTHER DISCIPLINES PRIOR TO FINAL INSTALLATION. THESE MAY VARY FROM THE SHOP DRAWINGS BASED ON THE QUANTITY OF EQUIPMENT IN THE CEILINGS. NFPA AND AHJ CODES SHALL TAKE PRECEDENCE. PROVIDE FLEXIBLE PIPE CONNECTIONS TO SPRINKLER HEADS INSTALLED IN ALL CEILING TYPES. ALL SPRINKLER HEADS SHALL BE CONCEALED. SEMI-RECESSED SPRINKLER HEADS ARE NOT ALLOWED.
9. ALL FIRE SPRINKLER PIPING SHALL BE ROUTED CONCEALED EXCEPT IN AREAS WITHOUT CEILINGS OR AS OTHERWISE NOTED ON PLANS. ALL EXPOSED SPRINKLER PIPING SHALL BE REVIEWED AND APPROVED BY ARCHITECT/ENGINEER PRIOR TO INSTALLATION.
10. REFER TO MECHANICAL SPECIFICATION SECTION 211000 FOR DESIGN GUIDELINES. THIS DRAWING IS A GENERAL REPRESENTATION OF PIPE ROUTING AND INTENDED COVERAGE TYPES.
11. A MINIMUM 2-INCH CLEARANCE WITH SLEEVE SHALL BE PROVIDED WHERE FIRE PIPES PASS THROUGH SLABS OR WALLS.
12. UNDERGROUND PIPE SHALL TERMINATE AT A RISER FLANGE PLACED A MAXIMUM OF 18 INCHES FROM AN EXTERIOR WALL AND 6 INCHES ABOVE THE SLAB.
13. DO NOT ROUTE SPRINKLER PIPING OVER ELECTRICAL, IDF, MDF, OR ELEVATOR MACHINE ROOMS. FOR IDF AND MDF ROOMS, PROVIDE SIDEWALL COVERAGE WHERE CEILINGS ARE NOT PROVIDED.
14. ALL SPRINKLER PIPING 2" AND LESS SHALL BE SCREWED. SADDLE TEES SHALL NOT BE UTILIZED.
15. ALL EXTERIOR SPRINKLER HEADS SHALL BE PROVIDED WITH GUARDS.

FLAG NOTES

1. PROVIDE COVERAGE IN MECHANICAL BASEMENT.
2. PLENUM SPACE SHALL NOT BE SPRINKLED. SPACE IS NOT OCCUPIED AND NON COMBUSTIBLE.

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PROJECT NUMBER: 1711.00

SHEET NAME

Fire Protection Plan - Basement Level

SHEET NUMBER

M5.00

1 FIRE PROTECTION PLAN - LOWER LEVEL
1/8" = 1'-0"

0" 1" 2"

NORTH

SHEET NOTES

1. SEE TYPICAL DETAILS IN M900 SERIES.
2. PROVIDE ALL MATERIALS, EQUIPMENT, PERMITS; AND LABOR REQUIRED FOR A COMPLETE AND OPERABLE FIRE PROTECTION SYSTEM AS SPECIFIED. THE FIRE PROTECTION SYSTEM SHALL COMPLY WITH THE STANDARDS OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA.) AND ALL STATE AND LOCAL REGULATIONS WITH LOCAL AMENDMENTS.
3. PROVIDE AUTOMATIC WET SPRINKLER SYSTEM THROUGHOUT, COMPLETE IN ALL RESPECTS AND READY FOR OPERATION INCLUDING ALL TEST AND DRAIN LINES, PRESSURE GAUGES, HANGERS, SUPPORTS, SIGNS, AND OTHER STANDARD APPURTENANCES.
4. PRIOR TO DESIGN AND INSTALLATION, CONTRACTOR SHALL CONDUCT A FIRE FLOW TEST AT THE SITE. DESIGN SHALL BE BASED ON FLOW/PRESSURE DATA DERIVED FROM THIS FLOW TEST. ANY CHANGES TO THE PRELIMINARY DESIGN MADE NECESSARY BY NEW DATA SHALL BE MADE AT NO ADDITIONAL COST. FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE FOR COSTS INCURRED WITH ANY AND ALL FLOW TESTS PERFORMED AS PART OF THIS CONTRACT.
5. FIRE SPRINKLER CONTRACTOR SHALL SUBMIT COMPLETE DESIGN SHOP DRAWINGS TO THE ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO SUBMITTING TO THE AHJ. DRAWINGS SHOW PIPING MAINS, SOME DRAIN LOCATIONS, WET REQUIREMENTS, ETC ABOVE MINIMUM CODE REQUIREMENTS THAT SHALL BE MET AS PART OF THIS CONTRACT. VERIFY AND OBTAIN APPROVAL OF FIRE SPRINKLER SYSTEM DRAIN LOCATIONS WITH THE ARCHITECT/ENGINEER (A/E) DURING THE PRODUCTION OF THE SHOP DRAWINGS AND PRIOR TO INSTALLATION.
6. IT SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE APPROPRIATE MEASURES ARE TAKEN TO PREVENT FREEZING OF THE SPRINKLER SYSTEM. CONTRACTOR SHALL WARRANTY WORK AGAINST FREEZING FOR A PERIOD OF NO LESS THAN TWO YEARS AFTER PROJECT FINAL COMPLETION.
7. FIRE SPRINKLER CONTRACTOR SHALL COORDINATE WITH ALL OTHER DISCIPLINES PRIOR TO INSTALLATION. LIGHTING, HVAC WORK AND DUCT ROUTING SHALL TAKE PRECEDENCE. FIRE SPRINKLER PIPING INSTALLED WITHOUT PROPER COORDINATION SHALL BE SUBJECT TO REMOVAL AND REINSTALLATION AT NO COST. SUBMIT 3D SHOP DRAWINGS TO HVAC CONTRACTOR TO COORDINATE ROUTING AND LOCATION OF SERVICES FOR ALL TRADES.
8. COORDINATE FINAL SPRINKLER HEAD LOCATIONS WITH A/E AND OTHER DISCIPLINES PRIOR TO FINAL INSTALLATION. THESE MAY VARY FROM THE SHOP DRAWINGS BASED ON THE QUANTITY OF EQUIPMENT IN THE CEILINGS. NFPA AND AHJ CODES SHALL TAKE PRECEDENCE. PROVIDE FLEXIBLE PIPE CONNECTIONS TO SPRINKLER HEADS INSTALLED IN ALL CEILING TYPES. ALL SPRINKLER HEADS SHALL BE CONCEALED. SEMI-RECESSED SPRINKLER HEADS ARE NOT ALLOWED.
9. ALL FIRE SPRINKLER PIPING SHALL BE ROUTED CONCEALED EXCEPT IN AREAS WITHOUT CEILINGS OR AS OTHERWISE NOTED ON PLANS. ALL EXPOSED SPRINKLER PIPING SHALL BE REVIEWED AND APPROVED BY ARCHITECT/ENGINEER PRIOR TO INSTALLATION.
10. REFER TO MECHANICAL SPECIFICATION SECTION 211000 FOR DESIGN GUIDELINES. THIS DRAWING IS A GENERAL REPRESENTATION OF PIPE ROUTING AND INTENDED COVERAGE TYPES.
11. A MINIMUM 2-INCH CLEARANCE WITH SLEEVE SHALL BE PROVIDED WHERE FIRE PIPES PASS THROUGH SLABS OR WALLS.
12. UNDERGROUND PIPE SHALL TERMINATE AT A RISER FLANGE PLACED A MAXIMUM OF 18 INCHES FROM AN EXTERIOR WALL AND 6 INCHES ABOVE THE SLAB.
13. DO NOT ROUTE SPRINKLER PIPING OVER ELECTRICAL, IDF, MDF, OR ELEVATOR MACHINE ROOMS. FOR IDF AND MDF ROOMS, PROVIDE SIDEWALL COVERAGE WHERE CEILINGS ARE NOT PROVIDED.
14. ALL SPRINKLER PIPING 2" AND LESS SHALL BE SCREWED. SADDLE TEES SHALL NOT BE UTILIZED.
15. ALL EXTERIOR SPRINKLER HEADS SHALL BE PROVIDED WITH GUARDS.

FLAG NOTES

1. PROVIDE HIGH TEMPERATURE HEADS.
2. SPRINKLER LINE DROP FROM UPPER LEVEL ABOVE. LOCATED PER ARCHITECTURAL DRAWINGS.
3. SPRINKLER HEAD LOCATED THIS LOCATION.
4. SPRINKLER LINE DROP TO GET UNDER BEAM.
5. SPRINKLER DRAIN IN WING WALL WITH ACCESS PANEL ON VESTIBULE SIDE.
6. SPRINKLER LINE - SLOPE DOWN TO NORTH.
7. FIRE MAIN UP.
8. FIRE MAIN DOWN.
9. PROVIDE COVERAGE AT DIMMER ROOM ABOVE. PROVIDE HIGH TEMP HEAD THIS LOCATION.
10. ROUTE SPRINKLER LINES CONCEALED UNDER BALCONY.
11. PROVIDE RIGID PIPE THROUGH ACOUSTICAL CEILING. PROVIDE ACOUSTICAL CAULK AT PENETRATION THROUGH ACOUSTICAL CEILING. PROVIDE FLEXIBLE CONNECTION ABOVE ACOUSTICAL CEILING. PROVIDE FLEXIBLE CONNECTION TO SRPINKLER HEAD PER SPECIFICATIONS FOR SPNIKLER HEAD IN CEILINGS.

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PROJECT INFORMATION

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Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

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BID DOCUMENTS

04.13.2020

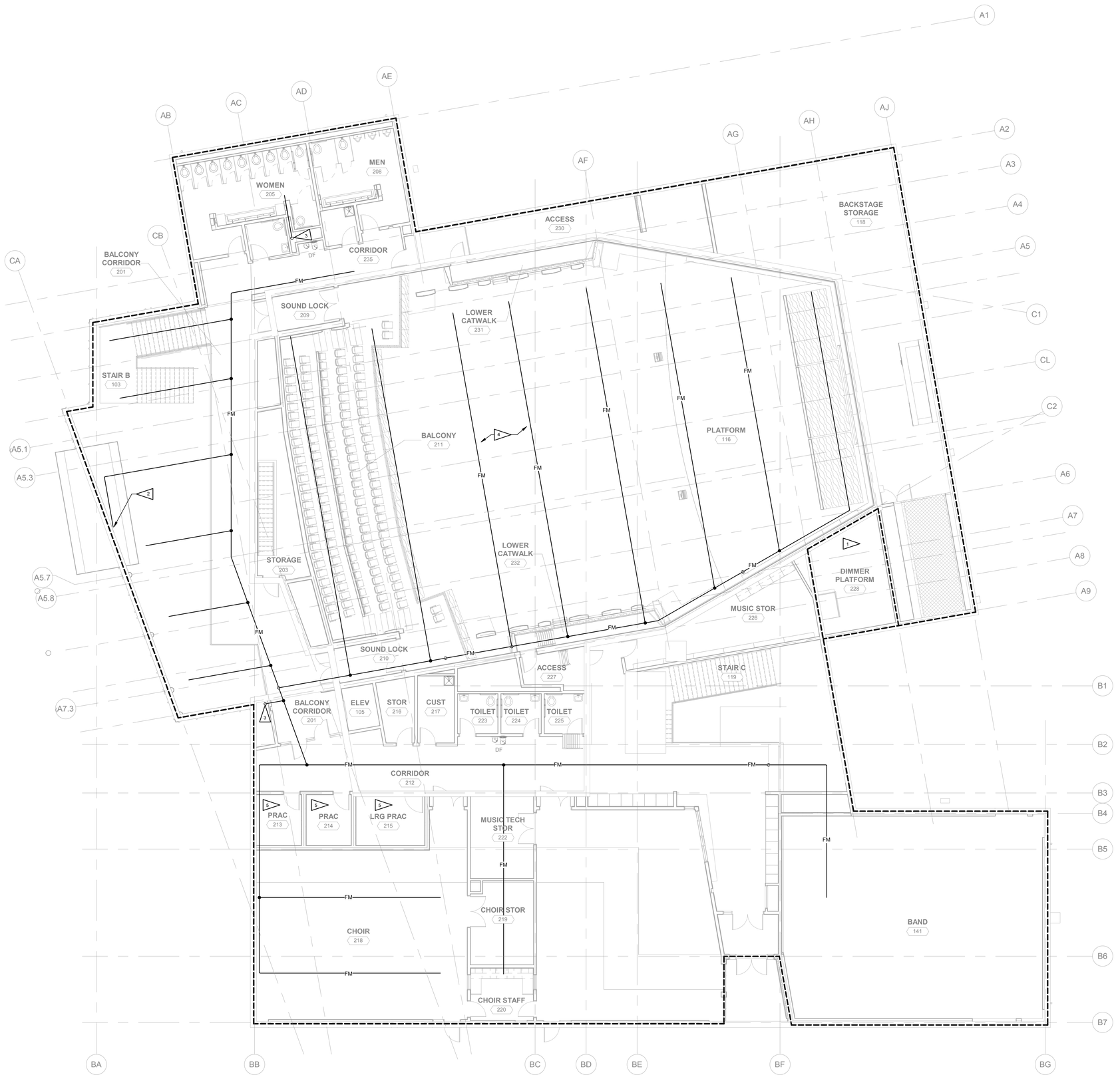
PROJECT NUMBER: 1711.00

SHEET NAME

Fire Protection Plan - Lower Level

SHEET NUMBER

M5.10



1 FIRE PROTECTION PLAN - UPPER LEVEL

1/8" = 1'-0"

NORTH

0" 1" 2"

SHEET NOTES

1. SEE TYPICAL DETAILS IN M900 SERIES.
2. PROVIDE ALL MATERIALS, EQUIPMENT, PERMITS; AND LABOR REQUIRED FOR A COMPLETE AND OPERABLE FIRE PROTECTION SYSTEM AS SPECIFIED. THE FIRE PROTECTON SYSTEM SHALL COMPLY WITH THE STANDARDS OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA,) AND ALL STATE AND LOCAL REGULATIONS WITH LOCAL AMENDMENTS.
3. PROVIDE AUTOMATIC WET SPRINKLER SYSTEM THROUGHOUT, COMPLETE IN ALL RESPECTS AND READY FOR OPERATION INCLUDING ALL TEST AND DRAIN LINES, PRESSURE GAUGES, HANGERS, SUPPORTS, SIGNS, AND OTHER STANDARD APPURTENANCES.
4. PRIOR TO DESIGN AND INSTALLATION, CONTRACTOR SHALL CONDUCT A FIRE FLOW TEST AT THE SITE. DESIGN SHALL BE BASED ON FLOW/PRESSURE DATA DERIVED FROM THIS FLOW TEST. ANY CHANGES TO THE PRELIMINARY DESIGN MADE NECESSARY BY NEW DATA SHALL BE MADE AT NO ADDITIONAL COST. FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE FOR COSTS INCURRED WITH ANY AND ALL FLOW TESTS PERFORMED AS PART OF THIS CONTRACT.
5. FIRE SPRINKLER CONTRACTOR SHALL SUBMIT COMPLETE DESIGN SHOP DRAWINGS TO THE ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO SUBMITTING TO THE AHJ. DRAWINGS SHOW PIPING MAINS, SOME DRAIN LOCATIONS, WET REQUIREMENTS, ETC ABOVE MINIMUM CODE REQUIREMENTS THAT SHALL BE MET AS PART OF THIS CONTRACT. VERIFY AND OBTAIN APPROVAL OF FIRE SPRINKLER SYSTEM DRAIN LOCATIONS WITH THE ARCHITECT/ENGINEER (A/E) DURING THE PRODUCTION OF THE SHOP DRAWINGS AND PRIOR TO INSTALLATION.
6. IT SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE APPROPRIATE MEASURES ARE TAKEN TO PREVENT FREEZING OF THE SPRINKLER SYSTEM. CONTRACTOR SHALL WARRANTY WORK AGAINST FREEZING FOR A PERIOD OF NO LESS THAN TWO YEARS AFTER PROJECT FINAL COMPLETION.
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10. REFER TO MECHANICAL SPECIFICATION SECTION 211000 FOR DESIGN GUIDELINES. THIS DRAWING IS A GENERAL REPRESENTATION OF PIPE ROUTING AND INTENDED COVERAGE TYPES.
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14. ALL SPRINKLER PIPING 2" AND LESS SHALL BE SCREWED. SADDLE TEES SHALL NOT BE UTILIZED.
15. ALL EXTERIOR SPRINKLER HEADS SHALL BE PROVIDED WITH GUARDS.

FLAG NOTES

1. PROVIDE HIGH TEMPERATURE HEADS.
2. SPRINKLER LINE DROP FROM UPPER CEILING TO MAIN ENTRY VESTIBULE THIS LOCATION.
3. ROUTE MAIN DOWN TO CHASE.
4. ROUTE CONCERT HALL PIPING CONCEALED AND TIGHT TO STRUCTURE. REFER TO ARCH PLANS FOR CLOUDS AND ACOUSTICAL COVERAGE.
5. PROVIDE RIGID PIPE THROUGH ACOUSTICAL CEILING. PROVIDE ACOUSTICAL CAULK AT PENETRATION THROUGH ACOUSTICAL CEILING. PROVIDE FLEXIBLE CONNECTION ABOVE ACOUSTICAL CEILING. PROVIDE FLEXIBLE CONNECTION TO SRPINKLER HEAD PER SPECIFICATIONS FOR SPNIKLER HEAD IN CEILINGS.

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PROJECT INFORMATION

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Northshore School District No. 417

SCHOOL DISTRICT LOGO

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BID DOCUMENTS

04.13.2020

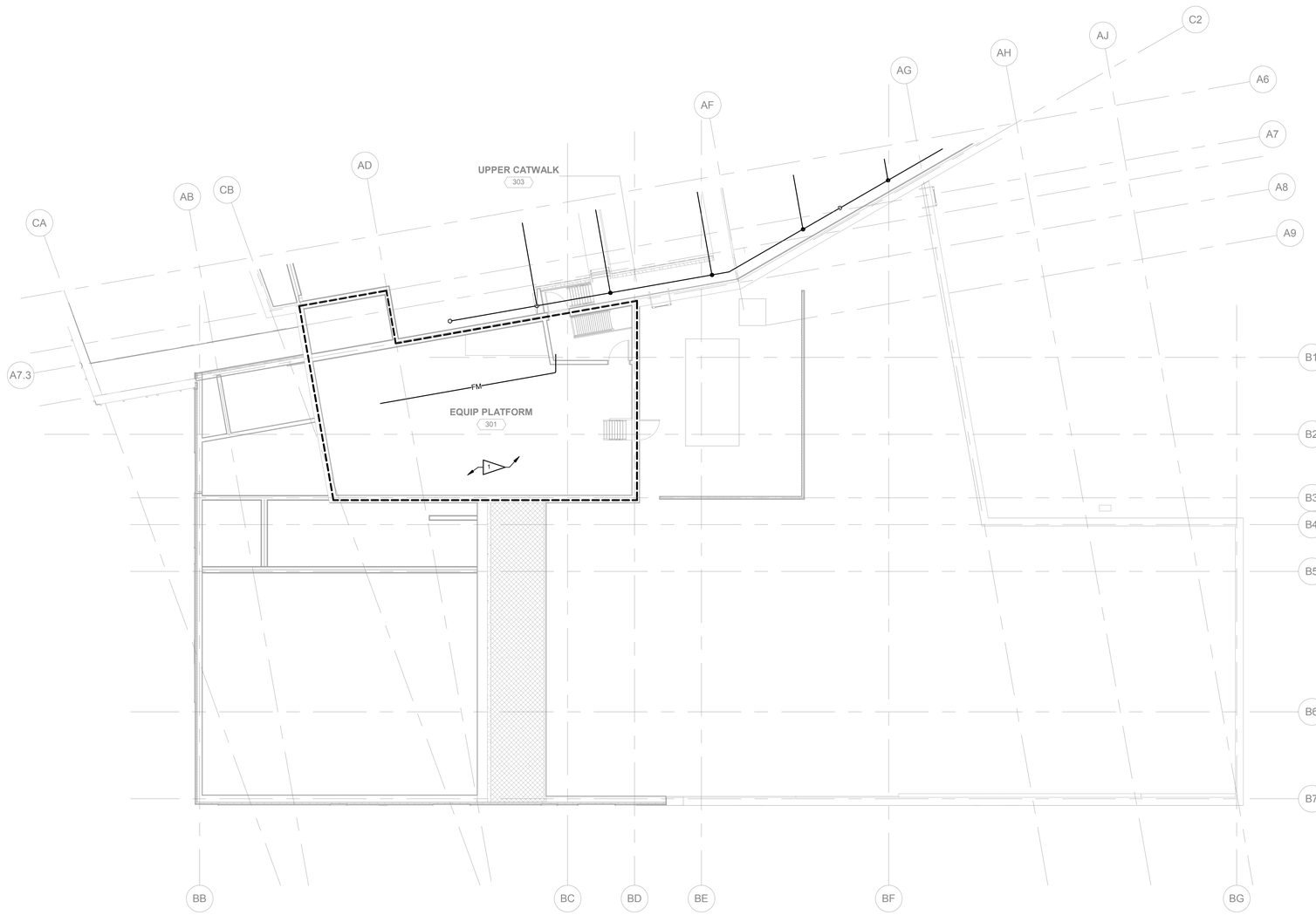
PROJECT NUMBER: 1711.00

SHEET NAME

Fire Protection Plan - Upper Level

SHEET NUMBER

M5.20



1 FIRE PROTECTION PLAN - EQUIPMENT PLATFORM LEVEL
1/8" = 1'-0"

NORTH
0" 1" 2"

SHEET NOTES

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15. ALL EXTERIOR SPRINKLER HEADS SHALL BE PROVIDED WITH GUARDS.

FLAG NOTES

1. COORDINATE WITH MECHANICAL 3D SHOP DRAWINGS FOR SPRINKLER PIPING AND HEAD LOCATIONS. PROVIDE ADDITIONAL HEADS THIS AREA FOR COVERAGE.

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PROJECT INFORMATION

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Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
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03.23.2020	HEALTH DEPARTMENT PERMIT SUBMITTAL
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

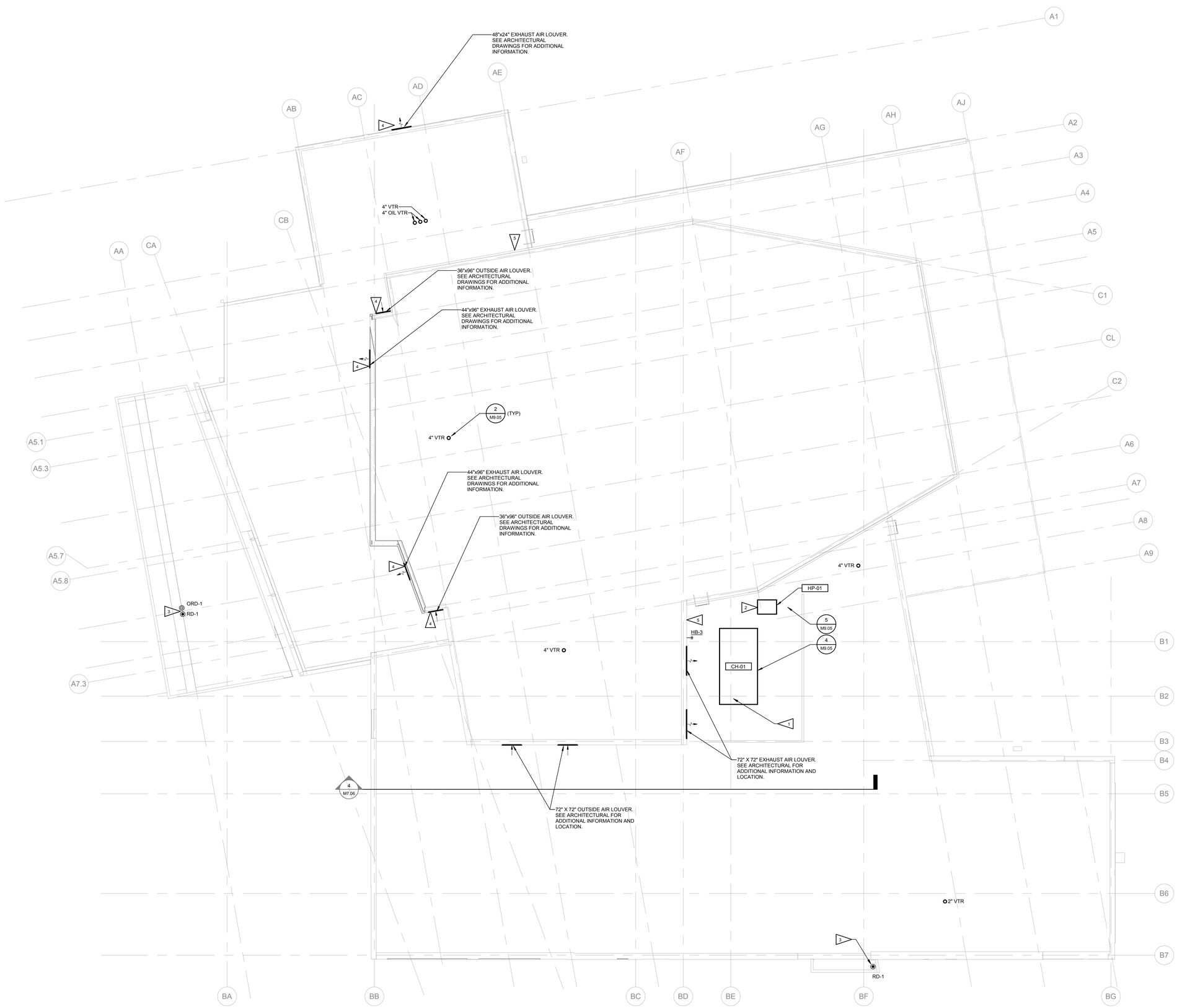
PROJECT NUMBER: 1711.00

SHEET NAME

Fire Protection Plan - Equipment Platform Level

SHEET NUMBER

M5.30



1 MECHANICAL ROOF PLAN
1/8" = 1'-0"

NORTH
0" 1" 2"

SHEET NOTES

1. SEE TYPICAL DETAILS IN M900 SERIES.
2. REFER TO ARCHITECTURAL DRAWINGS FOR ROOFING DETAILS.
3. PROVIDE PRE-MANUFACTURED ROOF CURB FOR ALL ROOFTOP EXHAUST FANS AND HOODS. PROVIDE TOP OF CURB MINIMUM 8 INCHES CLARIFY IN ENVIRONMENT WITH HEAVY SNOW, ADJUST HEIGHT ACCORDINGLY ABOVE FINISHED ROOF SURFACE. REFER TO DIVISION 23 SPECIFICATIONS.
4. MAINTAIN A MINIMUM 20 [10] FEET BETWEEN SANITARY OR GAS VENTS AND ALL OUTSIDE AIR INTAKES. NOT ALL MECHANICAL VENTS ARE SHOWN ON ROOF PLAN. REFER TO PLANS FOR ADDITIONAL LOCATIONS.
5. MAINTAIN ALL EQUIPMENT AND PIPING A MINIMUM OF 10'-0" AWAY FROM ROOF EDGES.
6. LOCATE ALL EXTERIOR OUTISDE AIR, CO2, PHOTOCELL, ETC ON NORTH FACE OF EXTERIOR BUILDING WALL OR ROOFTOP EQUIPMENT.

FLAG NOTES

1. PROVIDE CWS/R AND CONTROLS CONDUIT UP THROUGH ROOF TO SERVE CHILLER. PROVIDE HEAT TRACE ON PIPING AND EVAPORATOR PIPING ON CHILLER.
2. PROVIDE REFRIGERATION PIPING FOR CONTROLS UP THROUGH ROOF PER DETAIL.
3. COORDINATE FINAL LOCATION WITH ARCHITECT. CONDUCTOR BY CIVIL.
4. PROVIDE MOTORIZED DAMPER WITHIN DUCT PLENUM BEHIND HINGED LOUVER IN ACCESSIBLE LOCATION. SEE DETAIL 3/M9.04.
5. PROVIDE EXTERIOR SENSORS PER M10 SERIES DRAWINGS AT THESE LOCATIONS.

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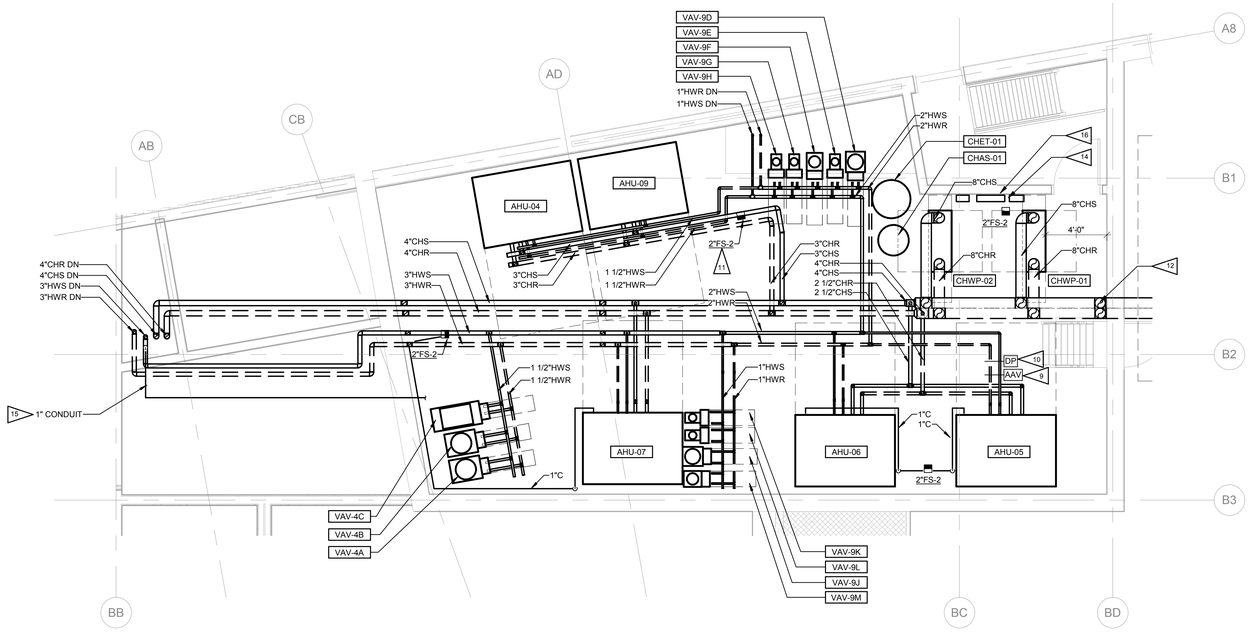
PROJECT NUMBER: 1711.00

SHEET NAME

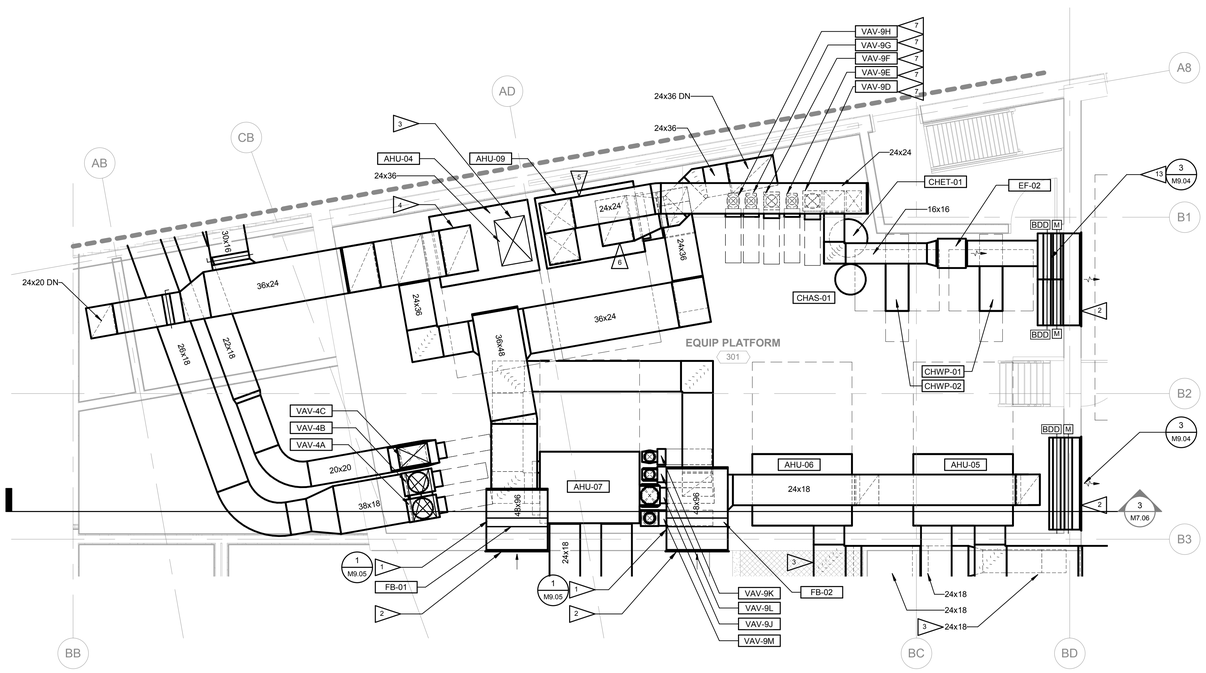
Mechanical Roof Plan

SHEET NUMBER

M6.00



1 MECHANICAL ENLARGED HVAC PIPING PLAN - EQUIPMENT PLATFORM LEVEL
1/4" = 1'-0"



2 MECHANICAL ENLARGED HVAC PLAN - EQUIPMENT PLATFORM LEVEL
1/4" = 1'-0"

SHEET NOTES

1. SEE TYPICAL DETAILS IN M900 SERIES.
2. PROVIDE ACCESS DOOR IN ALL OUTSIDE, EXHAUST, RETURN AND SUPPLY DUCTS AND/OR PLENUMS FOR BACK DRAFT DAMPER, MOTORIZED DAMPER, SENSORS, ETC. DOOR SHALL BE 24"X24" OR MAXIMIZED TO DUCT/PLENUM SIZE IF SMALLER THAN 24".
3. MAINTAIN A MINIMUM OF 6'6" X 3'-0" CLEAR ACCESS PATHWAY THROUGH MECHANICAL ROOMS. ROUTE ALL PIPING AND DUCTWORK CLEAR TO MAINTAIN CLEARANCE. PROVIDE ADDITIONAL OFFSETS AS REQUIRED. NOT ALL OFFSETS ARE SHOWN ON PLANS.
4. PROVIDE SHUT-OFF VALVES ON HYDRONIC PIPING AS THE PIPING ENTERS THE MECHANICAL ROOM. PROVIDE WITH FULL SIZE BYPASS AND SHUTOFF VALVE AT ENTRANCE.
5. PROVIDE HOSE-BIBB AND FLOOR SINK ADJACENT TRAP PRIMER AS CLOSE TO THE HYDRONIC RISER IN MECHANICAL ROOM AS POSSIBLE. REFER TO PLANS.
6. LOCATE FLOOR DRAINS AND FLOOR SINKS BASED ON FINAL SHOP DRAWINGS AND SUBMITTED EQUIPMENT. EQUIPMENT SIZES AND CONNECTIONS VARY BASED ON MANUFACTURER. DRAINS AND SINKS SHALL BE LOCATED OUT OF PATHWAY AND CLOSE TO EQUIPMENT. RELOCATION OF DRAINS/SINKS TO ACCESSIBLE LOCATION WILL BE AT CONTRACTORS COST.
7. PROVIDE MOCK-UP OF A SINGLE HVAC SYSTEM TYPE FOR REVIEW BY A/E PRIOR TO COMPLETION OF ALL EQUIPMENT AND UNITS.
8. CONDENSATE ROUTING SHALL NOT BE ROUTED IN WALKWAYS AND SHALL BE ROUTED TIGHT TO WALLS AND EQUIPMENT. ALL CONDENSATE ROUTING SHALL BE SLOPED TO DRAIN. REFER TO DETAIL. CONTRACTOR SHALL PROVIDE EQUIPMENT ON BASEFRAME BY THIS CONTRACTOR (IF NOT PROVIDED WITH HVAC EQUIPMENT) AT AN ELEVATION TO ALLOW DRAINAGE OF CONDENSATE LINES. CHIPPING OF CONCRETE SHALL NOT BE ALLOWED.
9. ALL PIPING WITHOUT THE REQUIREMENT OF INSULATION SHALL BE PROTECTED BY USING THE CUSH-A-CLAMP OR EQUAL PRODUCT AS SPECIFIED.
10. LIGHTING, MAINTENANCE POWER, AND ALL PANELS SHALL BE MODELED AND COORDINATED. HVAC DUCTWORK AND PIPING SHALL TAKE PRECEDENCE OTHER THAN MAIN ELECTRICAL PANEL LOCATION(S).
11. LINE ALL RETURN AND SUPPLY A MINIMUM OF 10' FROM AHU ON VAV UNLESS MORE STRINGENT AS NEEDED.

    REFER TO M8.01 FOR ADDITIONAL INFORMATION ON PIPING ROUTING AND REQUIRED COMPONENTS.

FLAG NOTES

1. PROVIDE BOTTOM ACCESS FILTER RACK WITH 2" PRE-FILTERS IN OUTSIDE AIR PLENUM.
2. SEE ARCHITECTURAL FOR LOUVER SIZES AND LOCATION.
3. PROVIDE 1" THICK ACOUSTICAL LINER FOR 15 FEET OF THE DUCTWORK DOWNSTREAM OF THE UNIT OUTLET.
4. LINE ALL RA DUCTWORK SERVING THE LOBBY.
5. PROVIDE 1" THICK ACOUSTICAL LINER FOR 10 FEET DOWNSTREAM OF THE UNIT OUTLET. INSTALL NAILOR STEATH SERIES VAV BOX SERVING MUSIC PRACTICE ROOMS AND ENSEMBLE ROOM.
6. PROVIDE 1" THICK ACOUSTICAL LINER FOR EACH DUCTWORK BRANCH SERVING LOWER AND UPPER LEVEL PRACTICE ROOMS FOR 15 FEET.
7. FLAG NOTE NOT USED ON PLAN PAGE.
8. PROVIDE PUMPS ON CONCRETE INERTIA BASE WITH 2" DEFLECTION SPRINGS PER SPEC.
9. ROUTE AAV DRAIN LINES TO NEAREST FLOOR SINK. PROVIDE AAV ON BOTH HWS/R.
10. PROVIDE REMOTE DP WIRED DIRECTLY BACK TO THE CHILLED WATER MECHANICAL ROOM.
11. CONDENSATE LINES NOT SHOWN. ROUTE 1" C TO THIS FLOOR SINK FOR AHU-04 & 09.
12. ROUTE CHILLED WATER LINES DOWN THRU FLOOR BEFORE LEAVING MECHANICAL ROOM. ROUTE IN CEILING SPACE BELOW BEFORE COMING UP TO SERVE CHILLER. PROVIDE ELECTRICAL HEAT TRACE ON ALL EXPOSED TO ELEMENT PIPING.
13. SECTION LOUVER INTO FOUR SEPARATE DUCT SECTIONS. PROVIDE EACH SECTION WITH MOTORIZED & BACKDRAFT DAMPERS.
14. PROVIDE VFD'S FOR CHWP-01 & 02 IN THIS LOCATION ALONG WITH EMS CONTROL PANEL.
15. ROUTE 1" CONDUIT FROM CHASE TO GLOBAL CONTROLLER LOCATION.
16. GLOBAL CONTROLLER.

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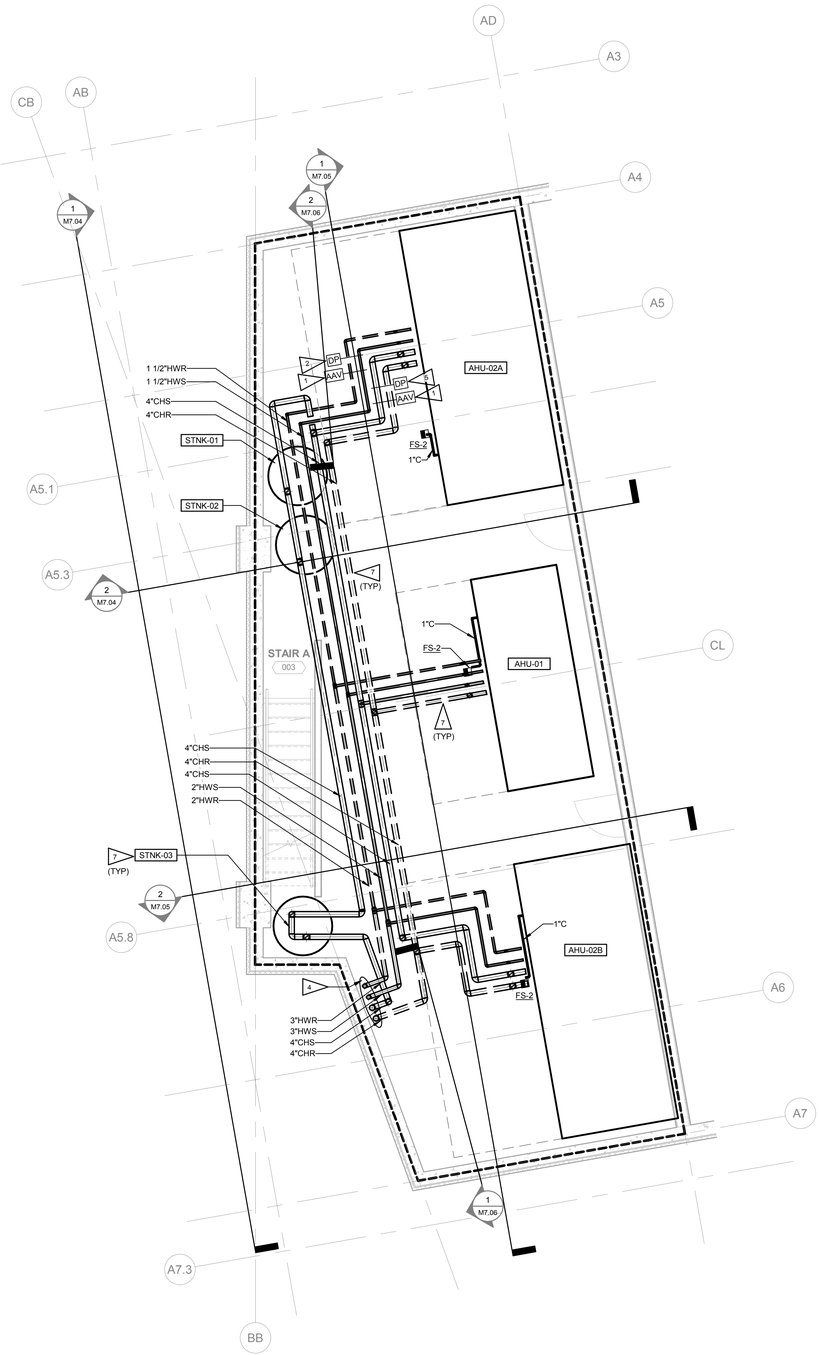
PROJECT NUMBER: 1711.00

SHEET NAME

Mechanical Enlarged Equipment Platform Level Plans

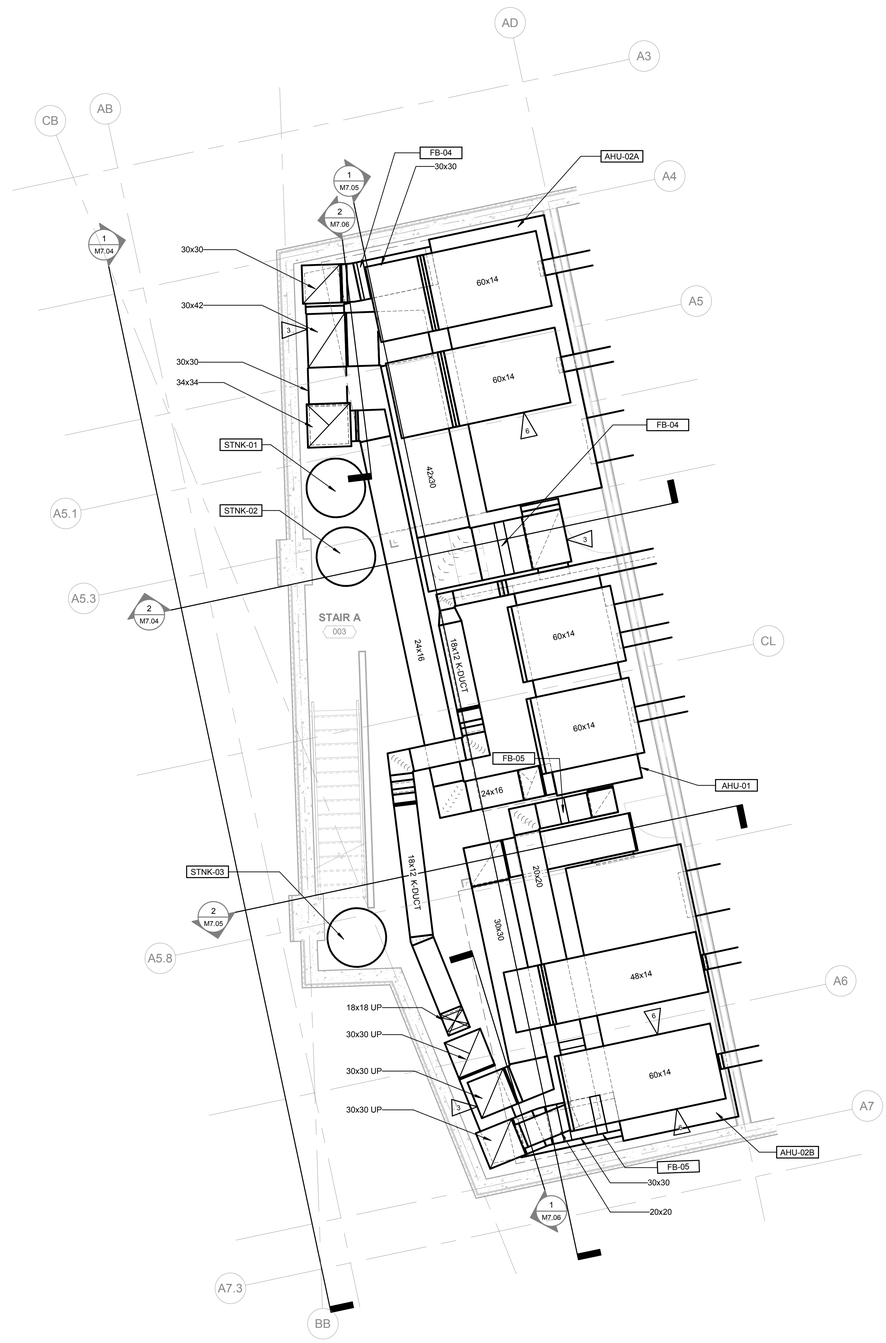
SHEET NUMBER

M7.01



1 MECHANICAL ENLARGED HVAC PIPING PLAN - BASEMENT LEVEL

1/4" = 1'-0"



2 MECHANICAL ENLARGED HVAC PLAN - BASEMENT LEVEL

1/4" = 1'-0"

SHEET NOTES

1. SEE TYPICAL DETAILS IN M900 SERIES.
2. PROVIDE ACCESS DOOR IN ALL OUTSIDE, EXHAUST, RETURN AND SUPPLY DUCTS AND/OR PLENUMS FOR BACK DRAFT DAMPER, MOTORIZED DAMPER, SENSORS, ETC. DOOR SHALL BE 24"X24" OR MAXIMIZED TO DUCT/PLENUM SIZE IF SMALLER THAN 24".
3. MAINTAIN A MINIMUM OF 6'6" X 3'-0" CLEAR ACCESS PATHWAY THROUGH MECHANICAL ROOMS. ROUTE ALL PIPING AND DUCTWORK CLEAR TO MAINTAIN CLEARANCE. PROVIDE ADDITIONAL OFFSETS AS REQUIRED. NOT ALL OFFSETS ARE SHOWN ON PLANS.
4. PROVIDE SHUT-OFF VALVES ON HYDRONIC PIPING AS THE PIPING ENTERS THE MECHANICAL ROOM. PROVIDE WITH FULL SIZE BYPASS AND SHUTOFF VALVE AT ENTRANCE.
5. PROVIDE HOSE-BIBB AND FLOOR SINK ADJACENT TRAP PRIMER AS CLOSE TO THE HYDRONIC RISER IN MECHANICAL ROOM AS POSSIBLE. REFER TO PLANS.
6. LOCATE FLOOR DRAINS AND FLOOR SINKS BASED ON FINAL SHOP DRAWINGS AND SUBMITTED EQUIPMENT. EQUIPMENT SIZES AND CONNECTIONS VARY BASED ON MANUFACTURER. DRAINS AND SINKS SHALL BE LOCATED OUT OF PATHWAY AND CLOSE TO EQUIPMENT. RELOCATION OF DRAINS/SINKS TO ACCESSIBLE LOCATION WILL BE AT CONTRACTORS COST.
7. PROVIDE MOCK-UP OF A SINGLE HVAC SYSTEM TYPE FOR REVIEW BY A/E PRIOR TO COMPLETION OF ALL EQUIPMENT AND UNITS.
8. CONDENSATE ROUTING SHALL NOT BE ROUTED IN WALKWAYS AND SHALL BE ROUTED TIGHT TO WALLS AND EQUIPMENT. ALL CONDENSATE ROUTING SHALL BE SLOPED TO DRAIN. REFER TO DETAIL. CONTRACTOR SHALL PROVIDE EQUIPMENT ON BASEFRAME BY THIS CONTRACTOR (IF NOT PROVIDED WITH HVAC EQUIPMENT) AT AN ELEVATION TO ALLOW DRAINAGE OF CONDENSATE LINES. CHIPPING OF CONCRETE SHALL NOT BE ALLOWED.
9. ALL PIPING WITHOUT THE REQUIREMENT OF INSULATION SHALL BE PROTECTED BY USING THE CUSH-A-CLAMP OR EQUAL PRODUCT AS SPECIFIED.
10. LIGHTING, MAINTENANCE POWER, AND ALL PANELS SHALL BE MODELED AND COORDINATED. HVAC DUCTWORK AND PIPING SHALL TAKE PRECEDENCE OTHER THAN MAIN ELECTRICAL PANEL LOCATION(S).
11. REFER TO M8.01 FOR ADDITIONAL INFORMATION ON PIPING ROUTING AND REQUIRED COMPONENTS.

FLAG NOTES

1. ROUTE AAV DRAIN LINES TO NEAREST FLOOR SINK. PROVIDE AAV ON BOTH HWS/R. (TYP.)
2. PROVIDE REMOTE DP WIRED DIRECTLY BACK TO THE CHILLED WATER IN MECHANICAL ROOM.
3. PROVIDE 1" ACOUSTICAL LINER FOR 50 FEET OF THE DUCTWORK SERVING THE CONCERT HALL. ALL VERTICAL DUCT SHALL BE LINED.
4. REFER TO M4.11 FOR CONTINUATION.
5. PROVIDE REMOTE DP WIRED DIRECTLY BACK TO THE HEATING WATER IN MECHANICAL ROOM.
6. PROVIDE LINED DUCT IN MECHANICAL ROOM. PROVIDE ACCESS PANEL IN DUCTWORK SERVING RAISED FLOOR DIFFUSERS (TYP.)
7. REFER TO M8.01 FOR HVAC PIPING RISER DIAGRAMS.

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PROJECT INFORMATION

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PROJECT NUMBER: 1711.00

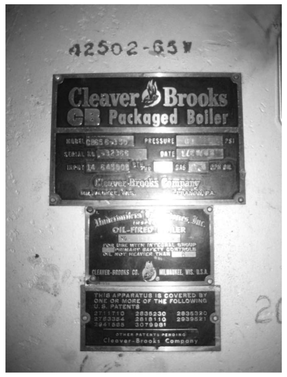
SHEET NAME

Mechanical Enlarged Basement Level Plans

SHEET NUMBER

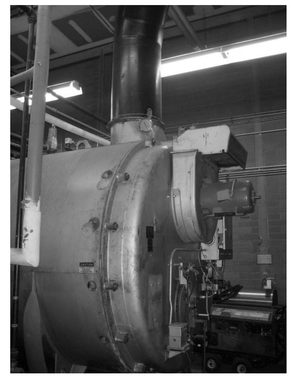
M7.02

(1) EXISTING BOILER #1

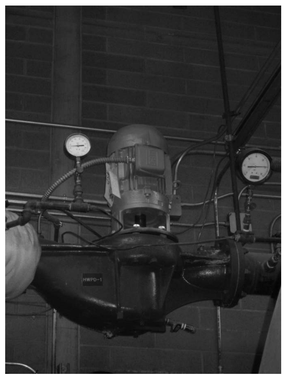


(2) EXISTING BOILER NAMEPLATE

(3) EXISTING HEATING WATER SUPPLY TEMPERATURE



(4) EXISTING BOILER #2



(5) EXISTING HEATING WATER PUMP #1

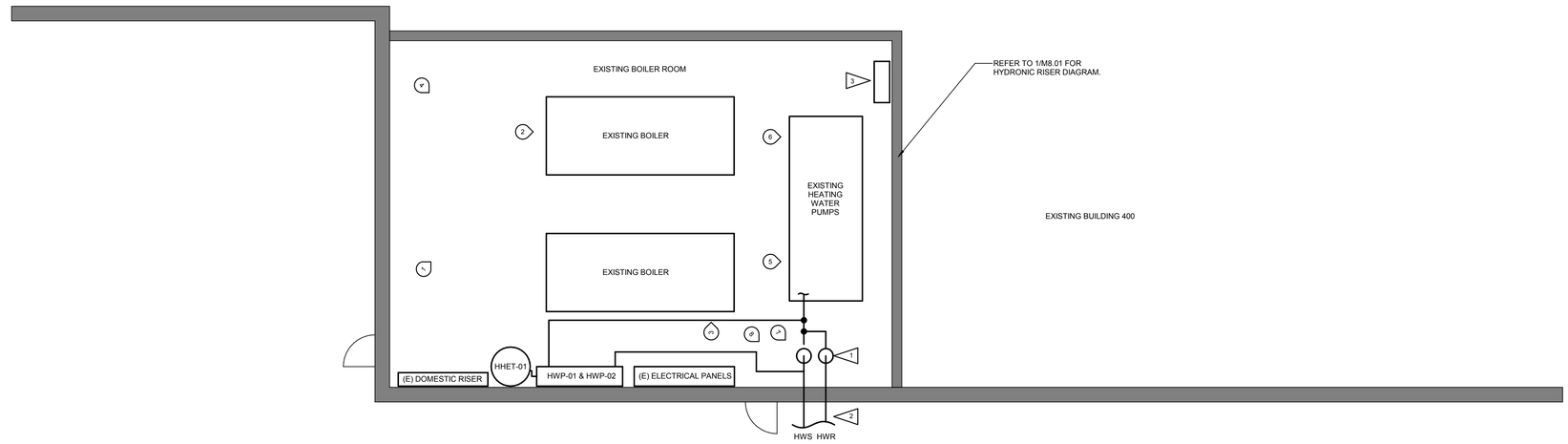
(6) EXISTING WATER PUMP #2

RE-USE (E) PATHWAY FOR NEW HYDRONICS . PROVIDE CONDUIT AT THIS LOCATION.

(7) ABANDONED HYDRONIC LINES

PROVIDE P.O.C. FOR NEW HWS OFF PRIMARY SIDE OF RETURN LINE & P.O.C 2'-0" DOWN FROM HWR P.O.C.

(8) EXISTING HYDRONIC SUPPLY & RETURN



1 MECHANICAL ENLARGED PIPING PLAN - EXISTING BOILER ROOM
1/2" = 1'-0"

SHEET NOTES

1. SEE M300 SERIES FOR HVAC THIS AREA.
2. SEE SHEET M8.01 FOR HEATER WATER AND CHILLED WATER PIPING RISER THIS AREA.
3. PROVIDE AAV'S AT ALL HIGH POINTS IN HYDRONIC PIPING. ROUTE TO NEAREST DRAIN OR MOP SINK. PROVIDE HUB DRAIN IN WALL IF DRAIN OR MOP SINK NOT AVAILABLE.
4. HYDRONICS SHOWN ON PLAN ARE DIAGRAMMATIC. COORDINATE AND PROVIDE MISC OFFSETS IN ROUTING WITH CONSTRUCTION, HVAC, SPRINKLER, ELECTRICAL, DATA, AND STRUCTURE, REFER TO SECTION DRAWINGS. CHANGE ORDERS WILL NOT BE ACCEPTED FOR OFFSETS AND VARYING LENGTHS IN PIPING.
5. ROUTE PIPING TIGHT TO STRUCTURE. PROVIDE MISC HARDWARE AND ATTACHMENTS TO MOUNT EQUIPMENT / PIPING TO STRUCTURE (TYP.)
6. MINIMALLY SLOPE ALL HYDRONIC PIPING DOWN TO DRAIN VALVES AND UP TO AUTOMATIC AIR VENTS.
7. MAINTAIN A MINIMUM 6'-6"x3'-0" CLEAR ACCESS PATHWAY THROUGH MECHANICAL SPACES. DUCTWORK AND PIPING SHALL BE ROUTED OVERHEAD TO MAINTAIN PATHWAY.
8. PLENUMS LOCATED BEHIND LOUVERS SHALL BE SIZED TO MATCH LOUVER SIZE UNLESS NOTED OTHERWISE. BACK DRAFT DAMPERS AND MOTORIZED DAMPERS SHALL BE SIZED TO MATCH PLENUM SIZE BEHIND LOUVERS.
9. PROVIDE ACCESS DOOR IN ALL OUTSIDE AIR, EXHAUST AIR, AND RETURN AIR PLENUMS OR DUCTS BEHIND LOUVERS FOR BACK DRAFT DAMPER OR MOTORIZED DAMPER ACCESS.
10. PROVIDE NEOPRENE COVERING AT ALL MECHANICAL DUCTS, PIPES, EQUIPMENT OR SUPPORTS THAT COULD BE CONSIDERED "HEADBANGER; OBSTRUCTIONS (LESS THAN 6'-6" AFF) LOCATED IN THE ACCESS PATHWAY AT MECHANICAL ATTICS AND ROOMS.

FLAG NOTES

1. REMOVE ABANDONED HYDRONIC LINES ENTERING BOILER ROOM. REUSE OPENINGS FOR NEW HYDRONIC LINES.
2. REUSE EXISTING PATHWAY TO ROUTE NEW HYDRONIC LINES INTO BOILER ROOM. REPLACE LINK SEALS AT PENETRATIONS. SEE MS1.01 FOR CONTINUATION.
3. PROVIDE REPLACEMENT & UPGRADE TO GLOBAL CONTROLLER. REFER TO M10.0X - MECHANICAL CONTROL SEQUENCES.

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PROJECT NUMBER: 1711.00

SHEET NAME

Mechanical Enlarged Piping Plan - Existing Boiler Room

SHEET NUMBER

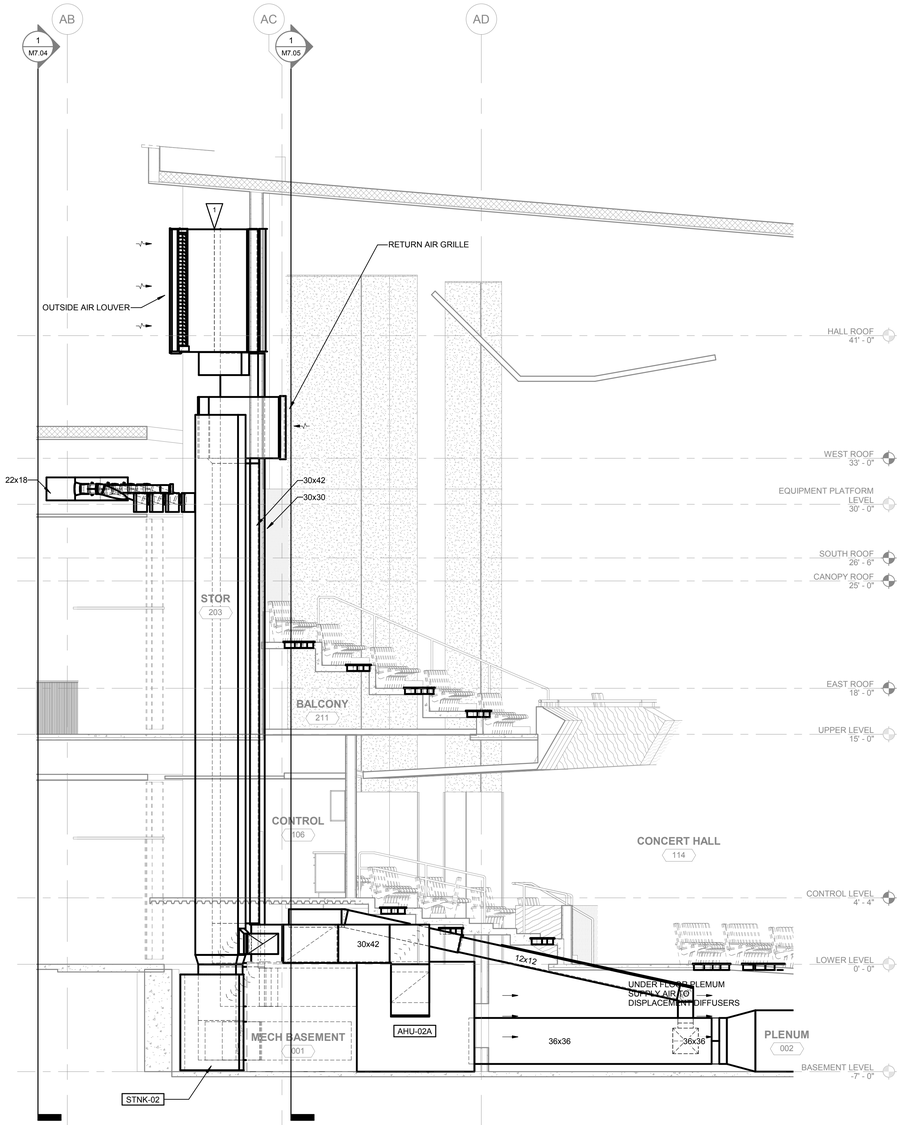
M7.03

SHEET NOTES

1. SECTIONS ARE NOT SHOWING ALL DETAIL AND ARE FOR GENERAL ROUTING UNDERSTANDING AND FOR REFERENCE ONLY.

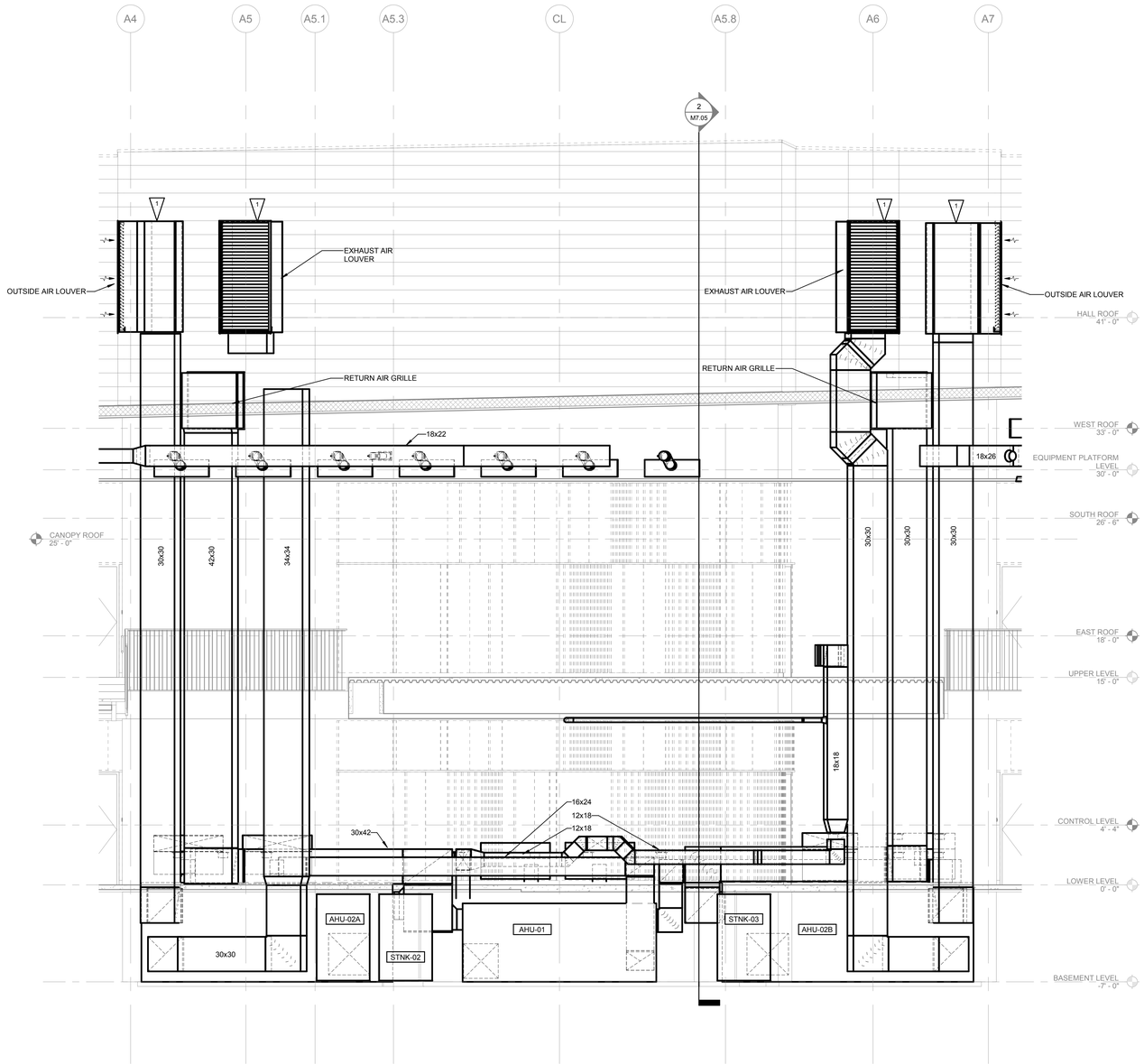
FLAG NOTES

1 PROVIDE MOTORIZED & BACKDRAFT DAMPER IN LOUVERED PLENUMS. PROVIDE ACCESSIBLE COMPONENTS VIA HINGED LOUVER ACCESS. SEE DETAIL 3/M9.04.



2 SECTION - NORTH FACING BALCONY - HVAC

1/4" = 1'-0"



1 SECTION - EAST FACING AUDITORIUM - HVAC

1/4" = 1'-0"

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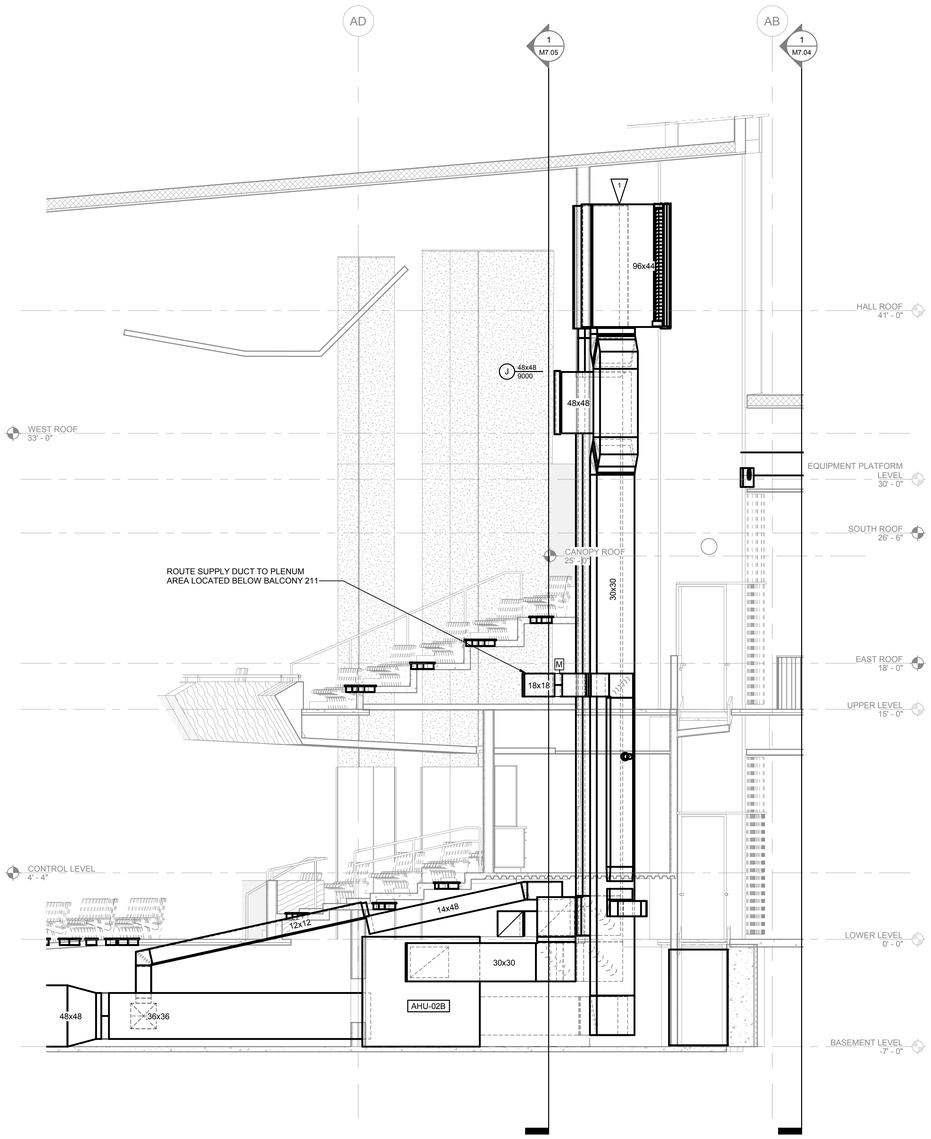
SHEET NAME

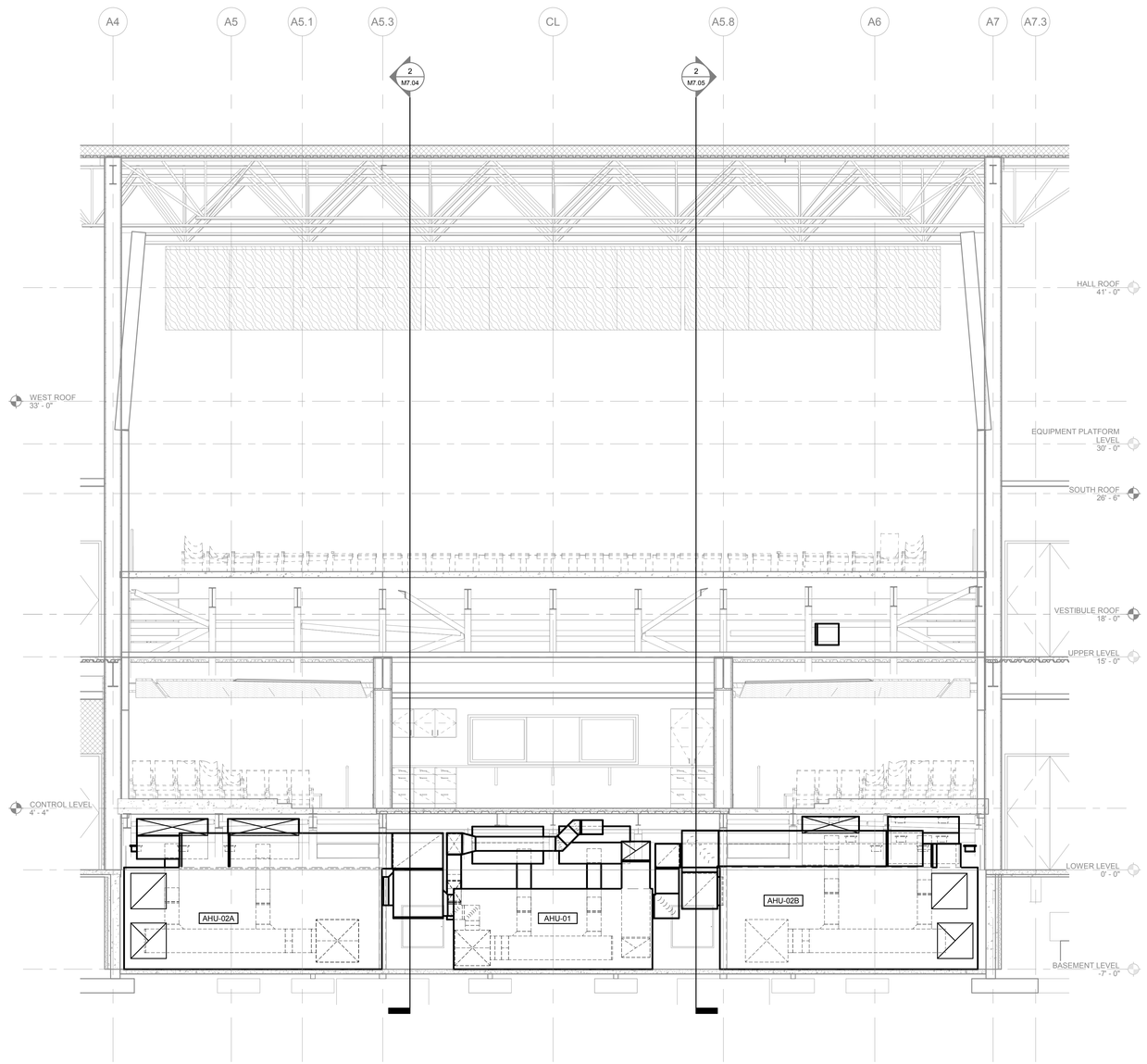
Mechanical Sections

SHEET NUMBER

M7.04



2 SECTION - SOUTH FACING BALCONY - HVAC
1/4" = 1'-0"



1 SECTION - EAST FACING AUDITORIUM - HVAC - BASEMENT AHU CLEARANCES
1/4" = 1'-0"

SHEET NOTES

1. SECTIONS ARE NOT SHOWING ALL DETAIL AND ARE FOR GENERAL ROUTING UNDERSTANDING AND FOR REFERENCE ONLY.

FLAG NOTES

1 PROVIDE MOTORIZED & BACKDRAFT DAMPER IN LOUVERED PLENUMS. PROVIDE ACCESSIBLE COMPONENTS VIA HINGED LOUVER ACCESS. SEE DETAIL 3/M9.04.

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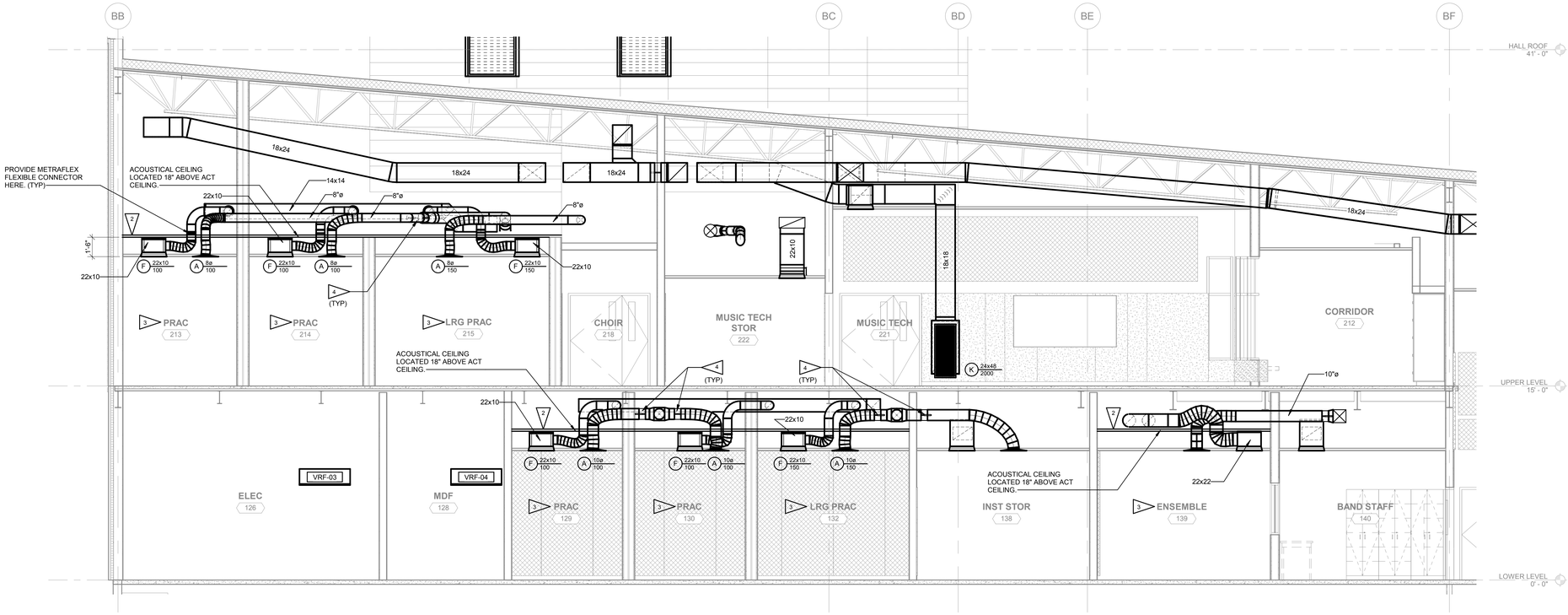
SHEET NAME

Mechanical Sections

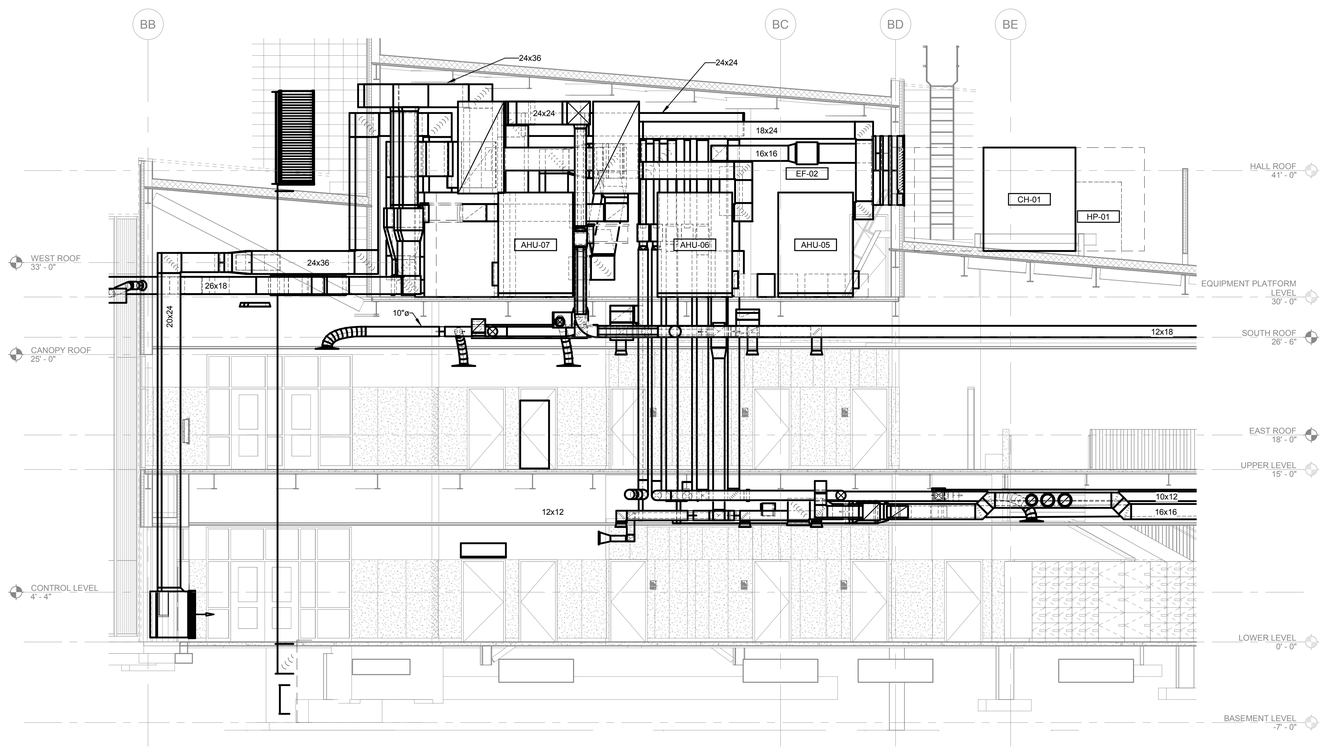
SHEET NUMBER

M7.05



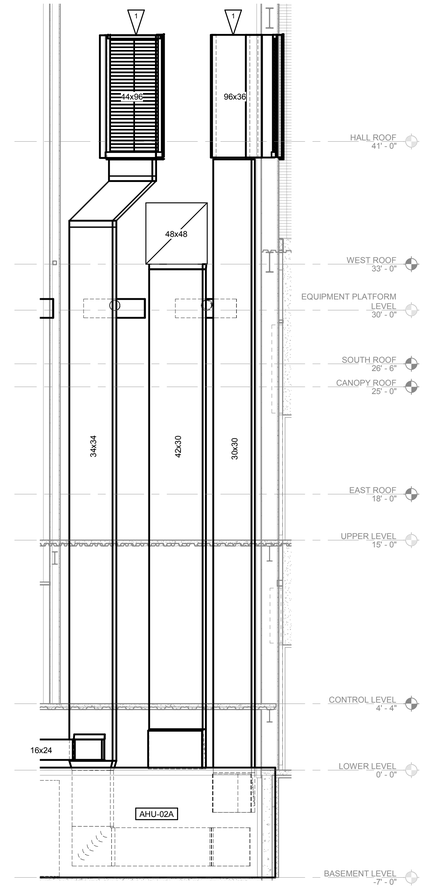
4 SECTION - ACOUSTICAL CEILINGS IN PRACTICE & ENSEMBLE ROOMS

1/4" = 1'-0"



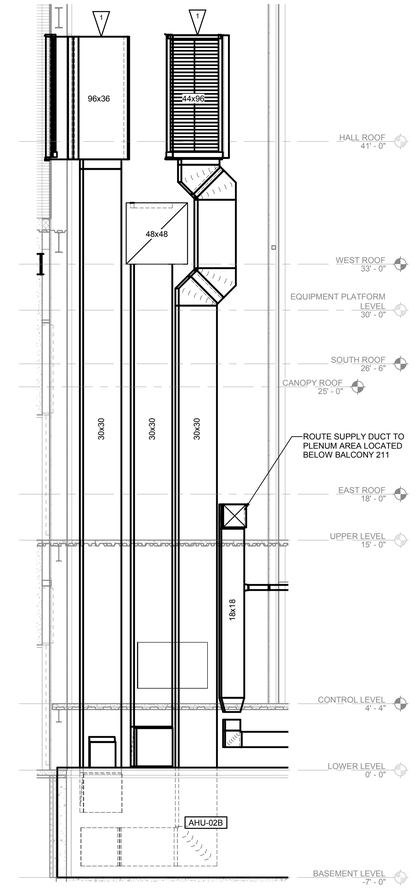
3 SECTION - NORTH FACING EQUIPMENT PLATFORM LEVEL

3/16" = 1'-0"



2 SECTION - NORTH MECHANICAL SHAFT

1/4" = 1'-0"



1 SECTION - SOUTH MECHANICAL SHAFT

1/4" = 1'-0"

SHEET NOTES

1. SECTIONS ARE NOT SHOWING ALL DETAIL AND ARE FOR GENERAL ROUTING UNDERSTANDING AND FOR REFERENCE ONLY.

FLAG NOTES

1. PROVIDE MOTORIZED & BACKDRAFT DAMPER IN LOUVERED PLENUMS. PROVIDE ACCESSIBLE COMPONENTS VIA HINGED LOUVER ACCESS. SEE DETAIL 3/M9.04.
2. PROVIDE RIGID DUCT CONNECTION THROUGH THE ACOUTSICAL CEILING WITH FLEX DUCT CONNECTION ON EITHER SIDE OF THE DUCTWORK BEFORE AND AFTER PASSING THROUGH THE ACOUSTICAL CEILING FOR SUPPLY, RETURN AND TRANSFER DUCTWORK. PROVIDE A MINIMUM OF 5' OF FLEX DUCT FOR ALL SUPPLY, RETURN AND TRANSFER DUCTS.
3. ALL DUCTS SHALL BE LINED 1" TO THE DUCT MAIN IN PRACTICE AND ENSEMBLE ROOMS.
4. DAMPERS SHALL BE LOCATED CLOSE TO THE MAIN TRUNK DUCT AND ABOVE THE ACOUSTICAL CEILING. PROVIDE ACOUSTICAL CAULKING AT DUCT PENETRATION THORUGH ACOUSTICAL CEILING.

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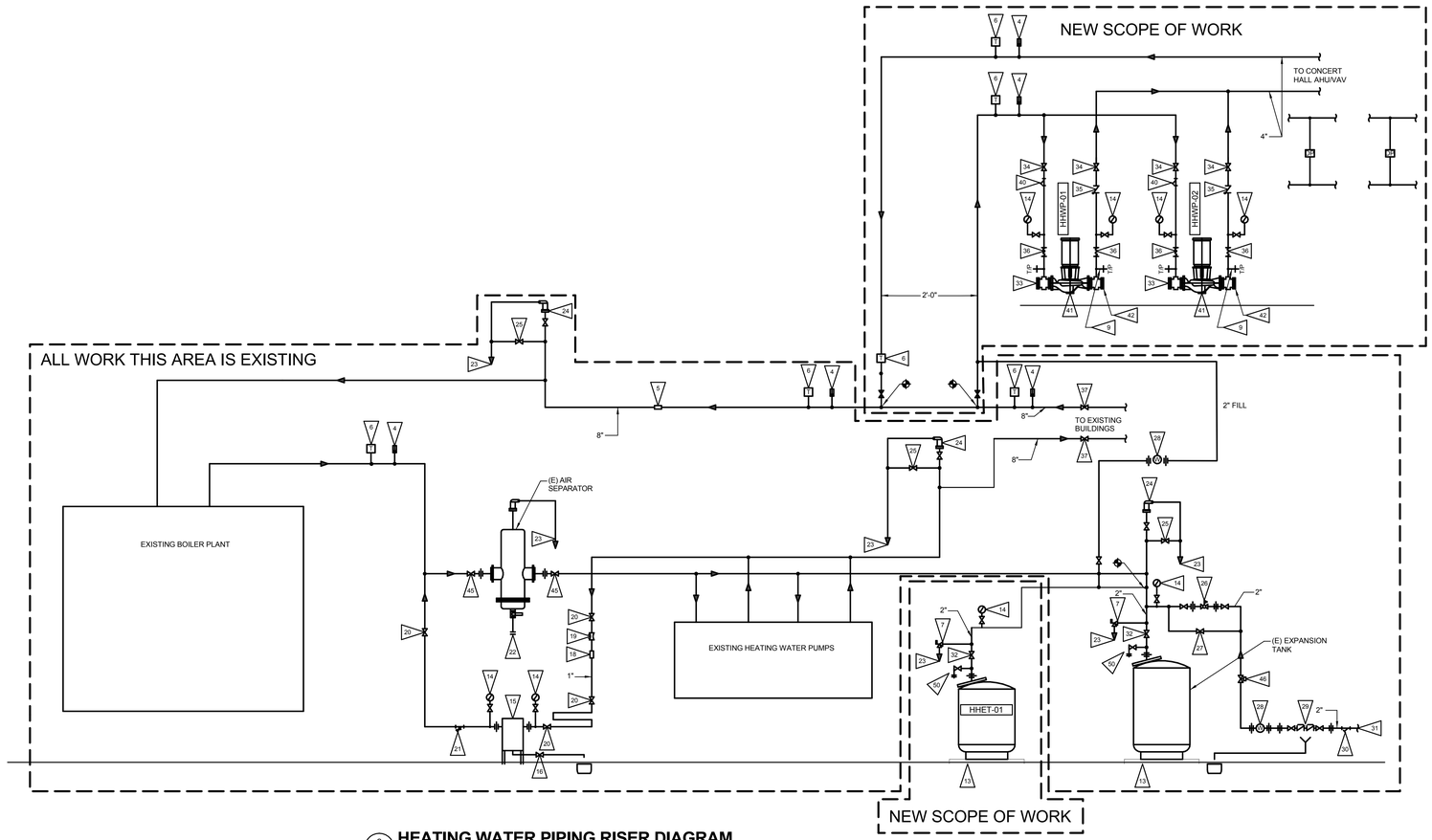
SHEET NAME

Mechanical Sections

SHEET NUMBER

M7.06

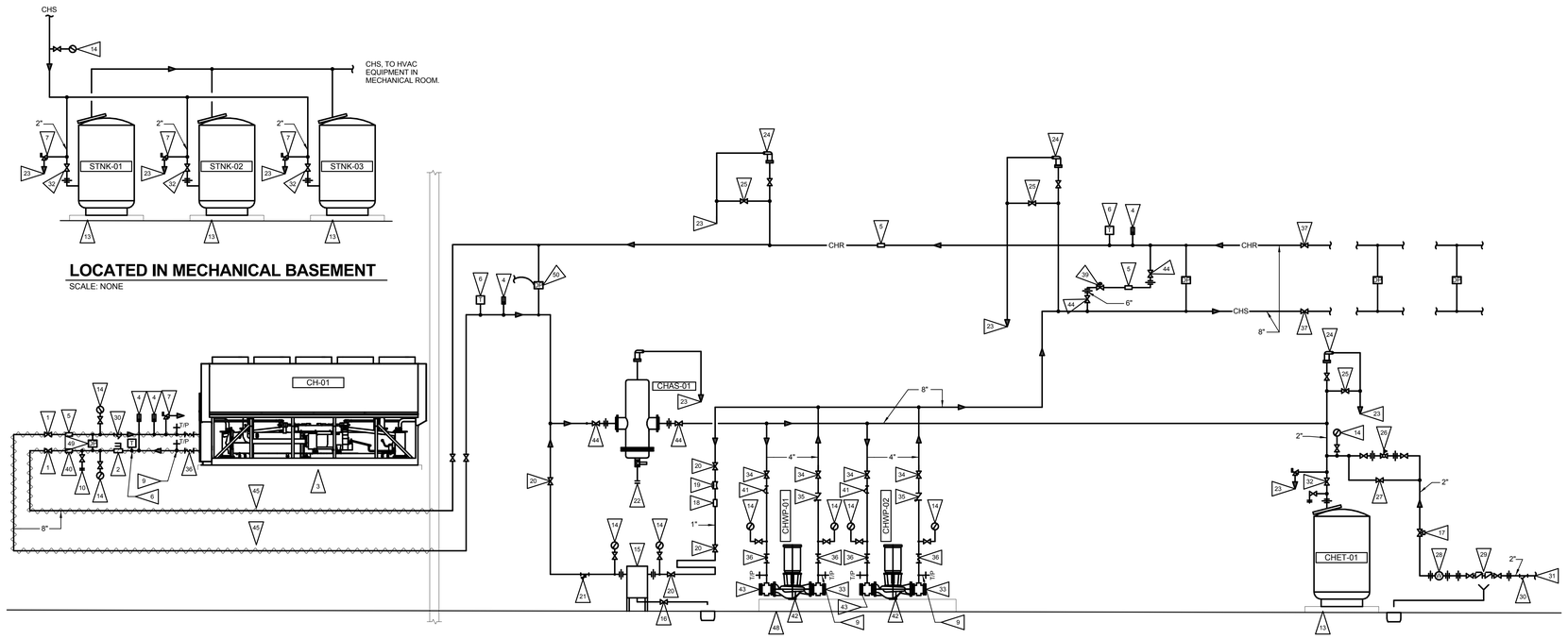


HEATING WATER PIPING RISER DIAGRAM

2 M8.01 SCALE: NONE

FLAG NOTES:

1. BOILER ISOLATION VALVE.
2. BOILER BALANCING VALVE.
3. BOILER 2-WAY CONTROL VALVE.
4. THERMOMETER.
5. FLOW METER. PROVIDE SUFFICIENT PIPE LENGTH UPSTREAM AND DOWNSTREAM OF DEVISE.
6. IMMERSION TEMPERATURE SENSOR.
7. SAFETY RELIEF VALVE. SET AT 75 PSIG.
8. AUTOMATIC AIR VENT. PROVIDE FULL SIZE COPPER TUBING AND ROUTE TO FLOOR SINK.
9. TEMPERATURE/PRESSURE TEST PORT. TYPICAL.
10. BOILER DRAIN VALVE. ROUTE FULL SIZE TO FLOOR SINK.
11. CONDENSATE NEUTRALIZATION TANK.
12. CONDENSATE TRAP. ROUTE FULL SIZE TO FLOOR SINK.
13. CONCRETE HOUSEKEEPING PAD.
14. PRESSURE GAUGE. 0-160 PSIG.
15. CHEMICAL POT FILTER/FEEDER.
16. CHEMICAL POT FILTER/FEEDER DRAIN VALVE. ROUTE FULL SIZE TO FLOOR SINK.
17. NOT USED.
18. SITE FLOW INDICATOR.
19. AUTOMATIC FLOW CONTROL VALVE (FLOW LIMITING VALVE). SIZE AT 5 GPM.
20. CHEMICAL TREATMENT ISOLATION VALVE.
21. STRAINER WITH BLOWDOWN VALVE.
22. BLOWDOWN VALVE WITH HOSE CONNECTION.
23. PROVIDE FULL SIZE COPPER TUBING AND ROUTE TO ADJACENT FLOOR SINK.
24. PROVIDE AUTOMATIC AIR VENT. PROVIDE FULL SIZE COPPER TUBING AND ROUTE TO ADJACENT FLOOR SINK.
25. PROVIDE MANUAL AIR VENT VALVE.
26. PRESSURE REDUCING VALVE. SET VALVE FOR 4 PSI AT HIGH POINT IN HEATER WATER SYSTEM. COORDINATE WITH ENGINEER.
27. COLD WATER FILL BYPASS VALVE.
28. COLD WATER FILL CONTACTING WATER METER. PROVIDE WITH PULSE GENERATOR FOR CONNECTION TO DDC SYSTEM AND DIRECT READ FOR MANUAL READ OUT.
29. REDUCED PRESSURE BACKFLOW PREVENTER.
30. WYE STRAINER.
31. TIE INTO ADJACENT DOMESTIC COLD WATER SERVICE.
32. EXPANSION TANK ISOLATION VALVE. REMOVE HANDLE IN OPEN POSITION PRIOR TO START UP OF HEATING WATER SYSTEM.
33. PROVIDE MANUFACTURE RECOMMENDED STRAIT PIPE AT DISCHARGE AND AT SUCTION.
34. PUMP ISOLATION VALVE.
35. CHECK VALVE.
36. FLEX CONNECTOR. TYPICAL.
37. BUILDING ISOLATION VALVE.
38. PROVIDE NEOPRENE PADS UNDER BOILER.
39. PROVIDE PRESSURE INDEPENDENT CONTROL VALVE.
40. STRAINER.
41. ANCHOR PUMPS TO CONCRETE INERTIA PAD. PROVIDE NEOPRENE ISOLATOR PAD BETWEEN PUMP AND PAD (TYP).
42. PROVIDE SUCTION DIFFUSER.
43. ROUTE TO EXTERIOR.
44. TEMPORARY PUMP ENCLOSURE.
45. ISOLATION VALVE.
46. SPRING RETURN, FAIL OPEN TWO WAY CONTROL VALVE.
47. BYPASS VALVE
48. HIGH LIMIT DIFFERENTIAL PRESSURE SENSOR.
49. PROVIDE 2 FLEXIBLE GAS CONNECTIONS AT 90" GAS FITTING PRIOR TO GAS CONNECTION TO BOILER WITH DRIP LEG.
50. EXPANSION TANK DRAIN VALVE.
51. PROVIDE SINGLE CONCRETE INERTIA PAD FOR ALL PUMPS.
52. PROVIDE FLUE AND COMBUSTION AIR SO COVER AND BURNER CAN BE REMOVED AND ACCESSED WITHOUT THE REMOVAL OF COMPONENTS.
53. MINIMUM FLOW DIFFERENTIAL PRESSURE SENSOR.



LOCATED IN MECHANICAL BASEMENT

SCALE: NONE

CHILLED WATER PIPING RISER DIAGRAM

1 M8.01 SCALE: NONE

FLAG NOTES:

1. CHILLER ISOLATION VALVE.
2. CHILLER FLOW SWITCH.
3. CHILLER SUPPORT STRUCTURE WITH ISOLATION.
4. THERMOMETER.
5. FLOW METER. PROVIDE SUFFICIENT PIPE LENGTH UPSTREAM AND DOWNSTREAM OF DEVISE.
6. IMMERSION TEMPERATURE SENSOR.
7. SAFETY RELIEF VALVE. SET AT 60 PSIG.
8. AUTOMATIC AIR VENT. PROVIDE FULL SIZE COPPER TUBING AND ROUTE TO FLOOR SINK.
9. TEMPERATURE/PRESSURE TEST PORT. TYPICAL.
10. CHILLER DRAIN VALVE.
11. CONDENSATE NEUTRALIZATION TANK.
12. CONDENSATE TRAP.
13. 4" TALL CONCRETE HOUSEKEEPING PAD.
14. PRESSURE GAUGE. 0-160 PSIG.
15. CHEMICAL POT FILTER/FEEDER.
16. CHEMICAL POT FILTER/FEEDER DRAIN VALVE. ROUTE FULL SIZE TO FLOOR SINK.
17. EMERGENCY SHUT-OFF VALVE TIED TO DDC.
18. SITE FLOW INDICATOR.
19. AUTOMATIC FLOW CONTROL VALVE (FLOW LIMITING VALVE). SIZE AT 5 GPM.
20. CHEMICAL TREATMENT ISOLATION VALVE.
21. STRAINER WITH BLOWDOWN VALVE.
22. BLOWDOWN VALVE WITH HOSE CONNECTION.
23. PROVIDE FULL SIZE COPPER TUBING AND ROUTE TO ADJACENT FLOOR SINK.
24. PROVIDE AUTOMATIC AIR VENT. PROVIDE FULL SIZE COPPER TUBING AND ROUTE TO ADJACENT FLOOR SINK.
25. PROVIDE MANUAL AIR VENT VALVE.
26. PRESSURE REDUCING VALVE. SET VALVE FOR 4 PSI AT HIGH POINT IN HEATER WATER SYSTEM. COORDINATE WITH ENGINEER.
27. COLD WATER FILL BYPASS VALVE.
28. COLD WATER FILL CONTACTING WATER METER. PROVIDE WITH PULSE GENERATOR FOR CONNECTION TO DDC SYSTEM AND DIRECT READ FOR MANUAL READ OUT.
29. REDUCED PRESSURE BACKFLOW PREVENTER.
30. WYE STRAINER.
31. TIE INTO ADJACENT DOMESTIC COLD WATER SERVICE.
32. EXPANSION TANK ISOLATION VALVE. REMOVE HANDLE IN OPEN POSITION PRIOR TO START UP OF HEATING WATER SYSTEM.
33. PROVIDE MANUFACTURE RECOMMENDED STRAIGHT PIPE AT DISCHARGE AND AT SUCTION.
34. PUMP ISOLATION VALVE.
35. CHECK VALVE.
36. FLEX CONNECTOR. TYPICAL.
37. BUILDING ISOLATION VALVE. PROVIDE NEOPRENE PADS UNDER CHILLER.
38. PROVIDE PRESSURE INDEPENDENT FLOW CONTROL VALVE. SIZE FOR MINIMUM CHILLER GPM (220 GPM).
39. NOT USED.
40. STRAINER.
41. ANCHOR PUMPS TO CONCRETE INERTIA PAD. PROVIDE NEOPRENE ISOLATOR PAD BETWEEN PUMP AND PAD (TYP).
42. PROVIDE SUCTION DIFFUSER.
43. ISOLATION VALVE.
44. SPRING RETURN, FAIL OPEN TWO WAY CONTROL VALVE.
45. PROVIDE HEAT TRACE INCLUDING PIPING AND EQUIPMENT AT CHILLERS.
46. EXPANSION TANK DRAIN VALVE.
47. NOT USED.
48. VIBRATION ISOLATION BASE PER SPEC.
49. CHILLER PLANT DIFFERENTIAL PRESSURE SENSOR, MIN/MAX FLOW.
50. CHILLER SYSTEM HIGH DIFFERENTIAL PRESSURE LIMIT, PUMP LIMIT.

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Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
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04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

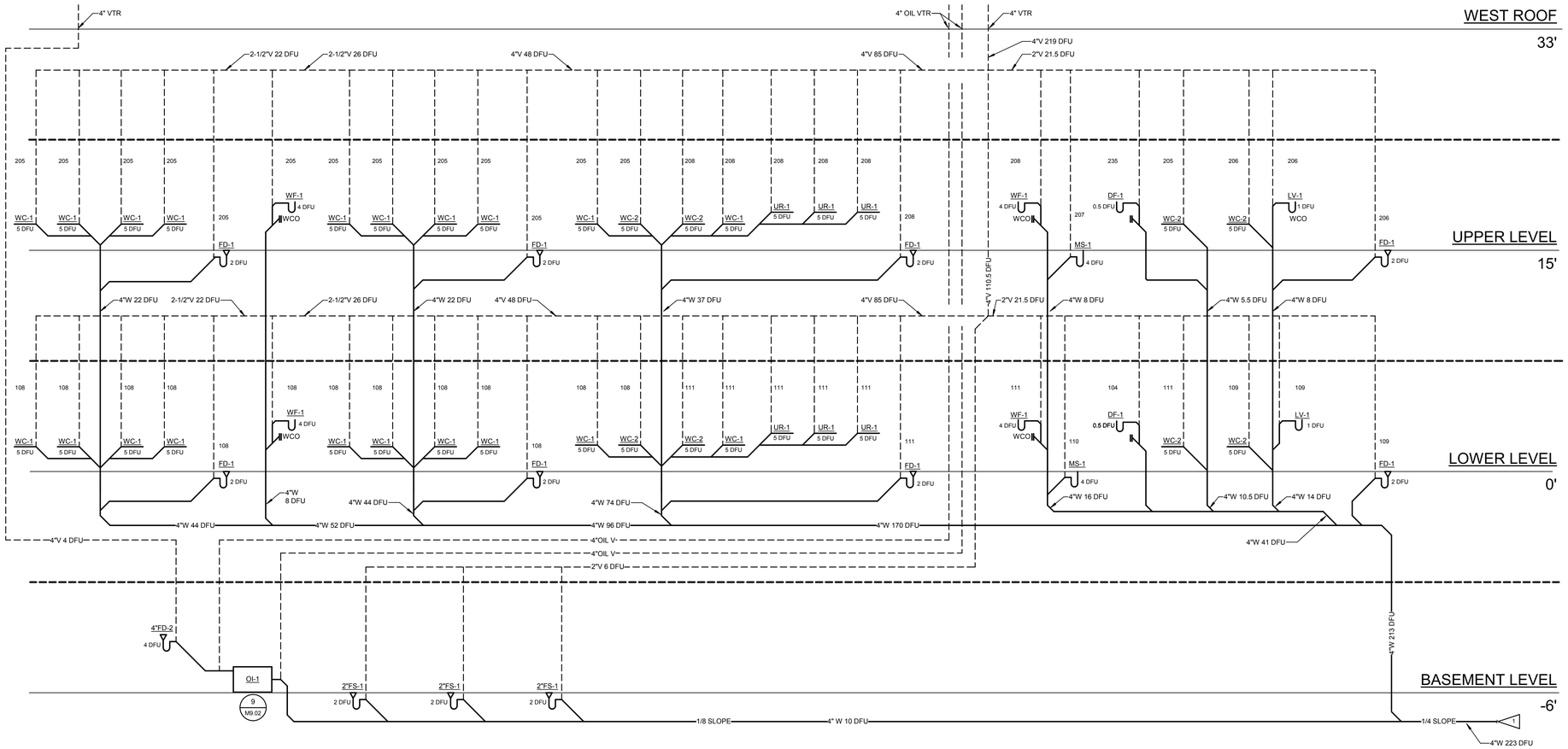
PROJECT NUMBER: 1711.00

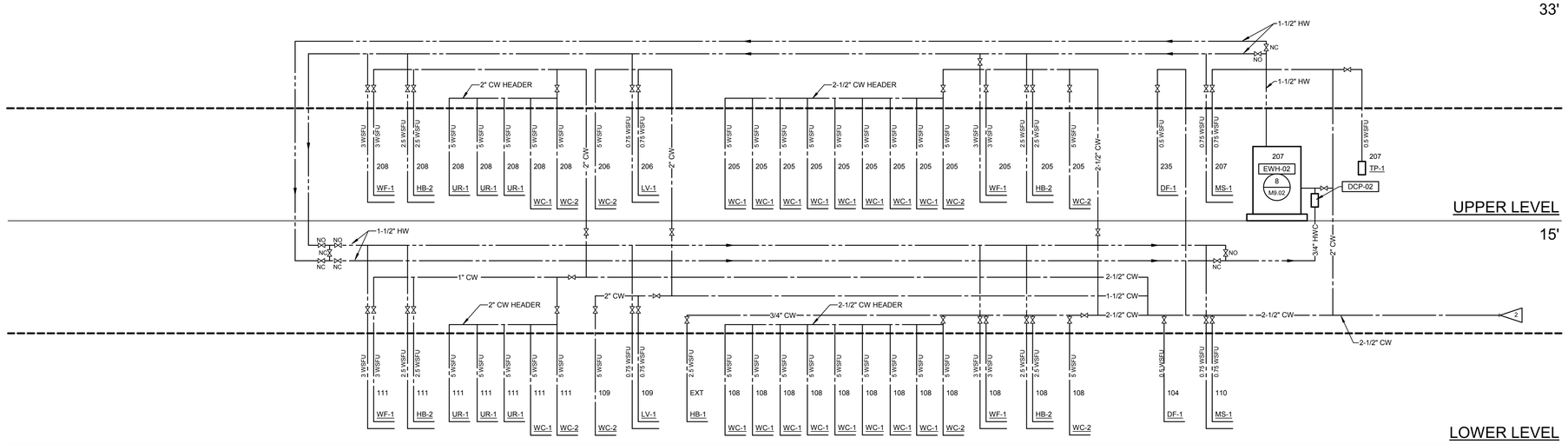
SHEET NAME

HVAC Piping Riser Diagrams

SHEET NUMBER

M8.01





1 PLUMBING RISER DIAGRAMS - NORTH TOILET ROOMS
SCALE: NONE

SHEET NOTES

1. NOT ALL SHUT OFF VALVES ARE SHOWN. REFER TO SPECS.
2. TRAP PRIMER LINES TO FLOOR DRAINS/SINKS ARE NOT SHOWN. PROVIDE ROUTING AND CONNECTION TO ALL FLOOR DRAINS AND SINKS.
3. LOCATE ALL SHUT OFF VALVES FOR DOMESTIC WATER BRANCHES IN THE CEILING OF CUSTODIAL CLOSET.
4. PROVIDE CLEANOUTS FOR ALL LAVS & SINKS.
5. PROVIDE WALL CLEANOUTS PER PLAN. RISER DIAGRAMS ARE APPROXIMATE. ALL WATER CLOSETS AND URINALS SHALL HAVE SYSTEM FOR FLUSHING LINES.

FLAG NOTES

1. SEE M1.01 FOR CONTINUATION OF WASTE.
2. SEE M1.11 FOR CONTINUATION OF DOMESTIC COLD WATER.

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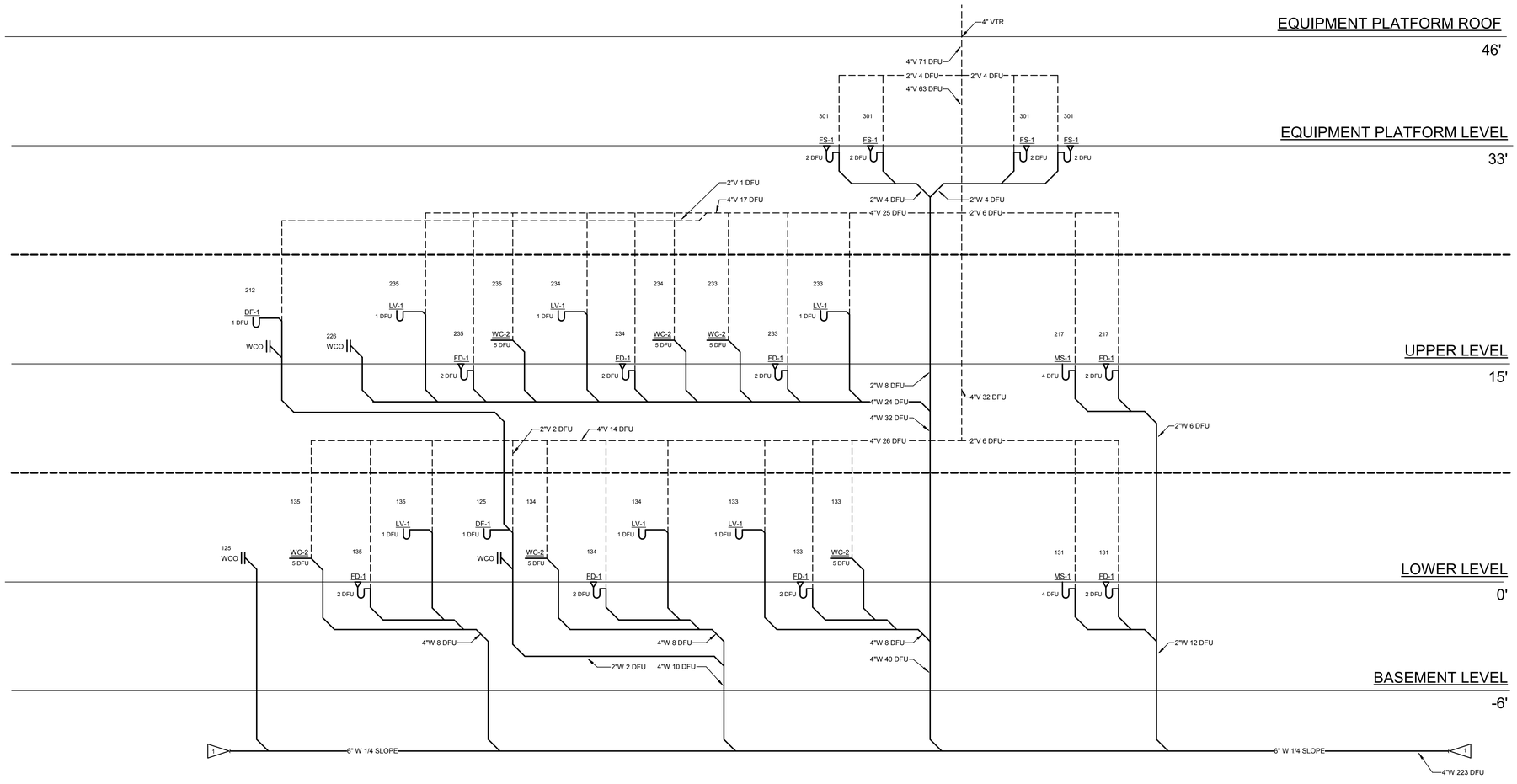
PROJECT NUMBER: 1711.00

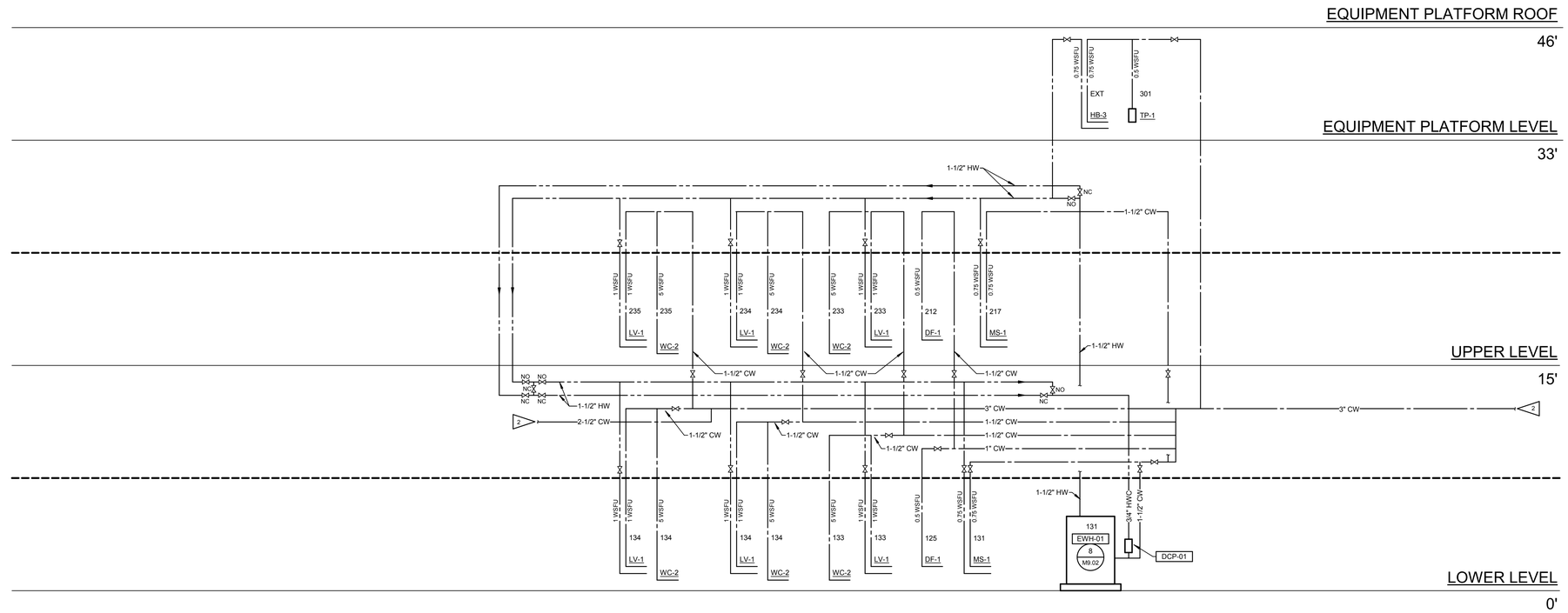
SHEET NAME

Plumbing Riser Diagrams - North Toilet Rooms

SHEET NUMBER

M8.02





1 PLUMBING RISER DIAGRAMS - SOUTH TOILET ROOMS

SCALE: NONE

SHEET NOTES

1. NOT ALL SHUT OFF VALVES ARE SHOWN. REFER TO SPECS.
2. TRAP PRIMER LINES TO FLOOR DRAINS/SINKS ARE NOT SHOWN. PROVIDE ROUTING AND CONNECTION TO ALL FLOOR DRAINS AND SINKS.
3. LOCATE ALL SHUT OFF VALVES FOR DOMESTIC WATER BRANCHES IN THE CEILING OF CUSTODIAL CLOSET.
4. PROVIDE CLEANOUTS FOR ALL LAVS & SINKS.
5. PROVIDE WALL CLEANOUTS PER PLAN. RISER DIAGRAMS ARE APPROXIMATE. ALL WATER CLOSETS AND URINALS SHALL HAVE SYSTEM FOR FLUSHING LINES.

FLAG NOTES

1. SEE M1.01 FOR CONTINUATION OF WASTE.
2. SEE M1.12 FOR CONTINUATION OF DOMESTIC COLD WATER.

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04.13.2020

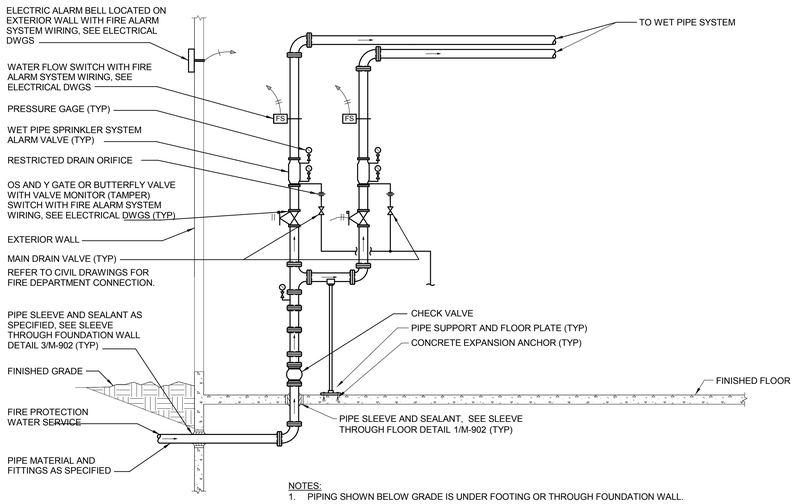
PROJECT NUMBER: 1711.00

SHEET NAME

Plumbing Riser Diagrams - South Toilet Rooms

SHEET NUMBER

M8.03



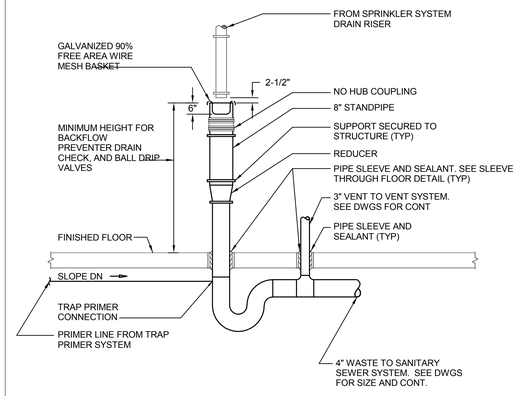
NOTES:
1. PIPING SHOWN BELOW GRADE IS UNDER FOOTING OR THROUGH FOUNDATION WALL.

1 M-901 DIAGRAM - FIRE SPRINKLER SYSTEM RISER

SCALE: NONE

2 M9.01 DETAIL - NOT USED

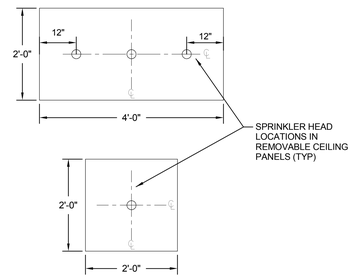
SCALE: NONE



NOTES:
1. PROVIDE FIRESTOPPING FOR PIPE SLEEVES WHERE FLOOR IS FIRE RATED.

3 M9.01 DETAIL - SPRINKLER TEST/DRAIN RECEPTOR

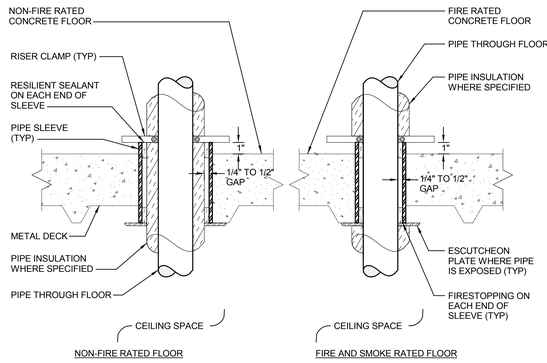
SCALE: NONE



NOTES:
1. WHERE SPRINKLER HEADS ARE LOCATED IN AN ACCESSIBLE GRID CEILING, LOCATE HEADS ON CENTERLINE AXIS OF EITHER THE LONG OR SHORT SIDE DIMENSION OF THE REMOVABLE PANEL (SEE DETAIL ABOVE). IN ROOMS WHERE MULTIPLE HEADS ARE REQUIRED, HEADS SHALL BE ALIGNED AND SYMMETRICAL.
2. DUCTWORK AIR DEVICES, HVAC ABOVE CEILING ACCESS PANELS, AND LIGHTING FIXTURE LOCATIONS TAKE FIRST PRIORITY OVER FIRE SPRINKLER SYSTEM. COORDINATION SHALL BE FIRE SPRINKLER CONTRACTOR'S RESPONSIBILITY. SPRINKLER HEADS SHALL NOT BE LOCATED IN CEILING PANELS NEEDED FOR ACCESS TO EQUIPMENT LOCATED ABOVE CEILING.

4 M9.01 DETAIL - TYPICAL LAY-IN CEILING PANEL SPRINKLER HEAD LOCATION

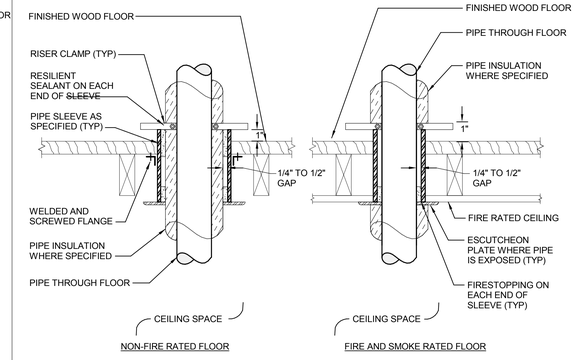
SCALE: NONE



NOTES:
1. EXTEND INSULATION CONTINUOUS THROUGH SLEEVE FOR COLD PIPES.
2. SLEEVE NOT REQUIRED FOR EXISTING CONCRETE FLOORS.

5 M9.01 DETAIL - PIPE SLEEVE THROUGH CONCRETE FLOOR

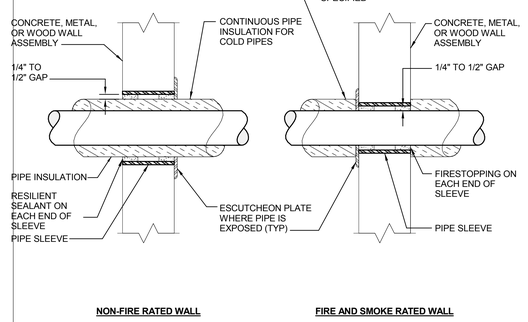
SCALE: NONE



NOTE:
1. EXTEND INSULATION CONTINUOUS THROUGH SLEEVE FOR COLD PIPES.

6 M9.01 DETAIL - PIPE SLEEVE THROUGH WOOD FLOOR

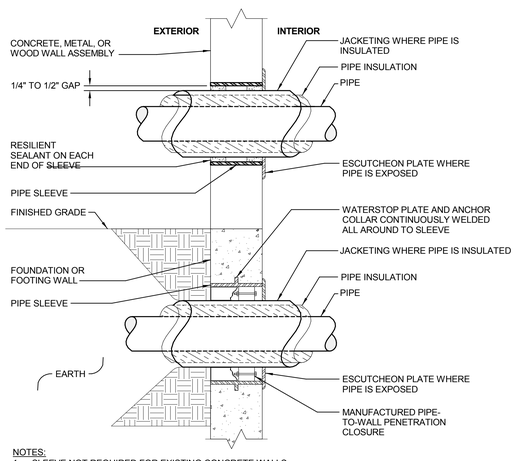
SCALE: NONE



NOTES:
1. SLEEVE NOT REQUIRED FOR EXISTING CONCRETE WALLS.

7 M9.01 DETAIL - PIPE SLEEVE THROUGH INTERIOR WALL

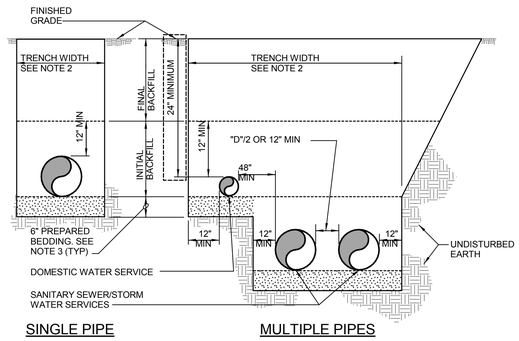
SCALE: NONE



NOTES:
1. SLEEVE NOT REQUIRED FOR EXISTING CONCRETE WALLS.

8 M9.01 DETAIL - PIPE SLEEVE THROUGH EXTERIOR AND FOUNDATION WALLS

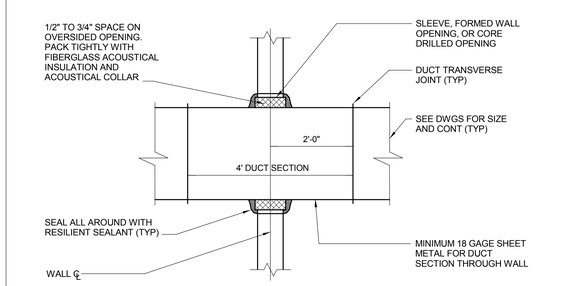
SCALE: NONE



NOTES:
1. PERFORM EXCAVATION AND PROVIDE BEDDING AND BACKFILL MATERIAL FOR PIPES PER SECTION 230510.
2. TRENCH SHORING SHALL COMPLY WITH OSHA/WISHA REQUIREMENTS
3. GRADE TRENCH BOTTOMS TO PROVIDE UNIFORM UNDISTURBED BEDDING FOR EACH SECTION OF PIPE. INSTALL PIPE BEDDING IN ROCK EXCAVATION CONSISTING OF 6" OF SAND OR EQUIVALENT MATERIAL.
4. PERFORM BACKFILLING AFTER PIPES HAVE BEEN PRESSURE TESTED, INSULATED, JACKETED, OBSERVED BY THE A/E, AND INSPECTED BY THE AHJ.

9 M9.01 DETAIL - TRENCH AND BACKFILL REQUIREMENTS

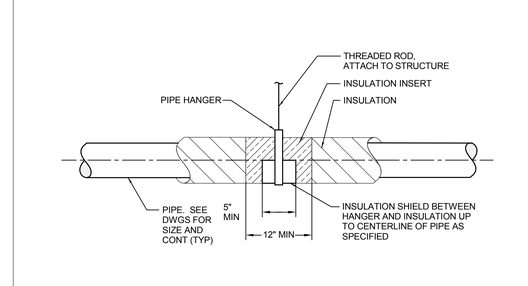
SCALE: NONE



NOTES:
1. DUCTWORK PENETRATION SHOWN. PIPING PENETRATION OF ACOUSTICAL WALL AND FLOORS SIMILAR.

10 M9.01 DETAIL - DUCTWORK PENETRATION OF ACOUSTICAL WALLS, CEILINGS, AND FLOORS

SCALE: NONE



11 M9.01 DETAIL - INSULATED PIPE HANGER

SCALE: NONE

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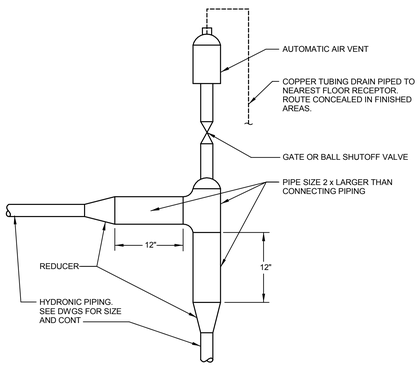
SHEET NAME

Mechanical Details and Diagrams

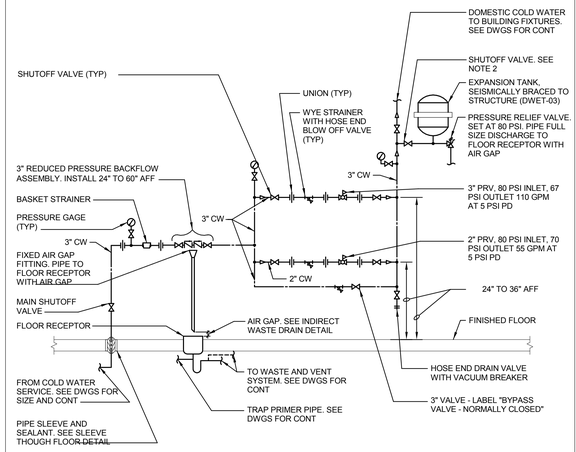
SHEET NUMBER

M9.01



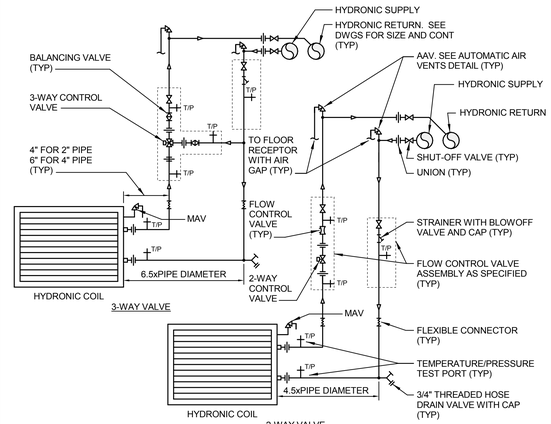
NOTES:
1. PROVIDE AT HIGH POINTS IN MECHANICAL ROOM HYDRONIC SYSTEMS AND WHERE INDICATED ON THE DWGS.

1 M9.02 DETAIL - AUTOMATIC AIR VENTS
SCALE: NONE



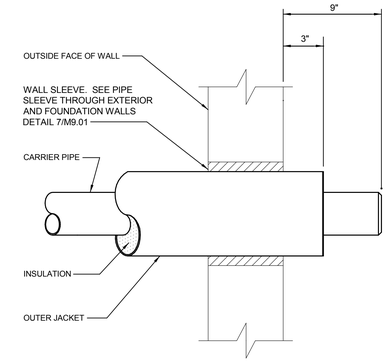
NOTES:
1. SUPPORT PIPE AS SPECIFIED AND PER MANUFACTURER'S INSTALLATION REQUIREMENTS.
2. SET SHUTOFF VALVE IN OPEN POSITION AND REMOVE HANDLE.

2 M9.02 DIAGRAM - COLD WATER SERVICE HEADER
SCALE: NONE



NOTES:
1. PROVIDE 2-WAY OR 3-WAY CONTROL VALVE ARRANGEMENT PER EQUIPMENT SCHEDULES.
2. INSTALL SUPPLY AND RETURN PIPING IN THE SAME PLANE. DO NOT BLOCK ACCESS DOORS OR OTHER COMPONENTS.
3. THIS DETAIL APPLIES TO COILS MOUNTED WITHIN AIR HANDLING UNITS, FAN COIL UNITS, AND SIMILAR AIR DISTRIBUTION EQUIPMENT.

3 M9.02 DIAGRAM - HYDRONIC COIL PIPING
SCALE: NONE



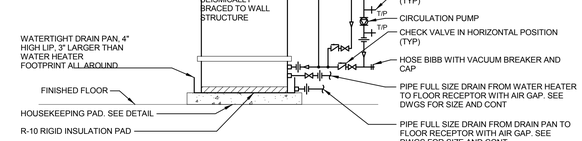
4 M9.02 DETAIL - UNDERGROUND HYDRONIC PIPING WALL PENETRATION
SCALE: NONE

5 M9.02 DETAIL- UNDERGROUND HYDRONIC PIPING RISER
SCALE: NONE

6 M9.02 DETAIL- UNDERGROUND BUILDING HYDRONIC RISER
SCALE: NONE

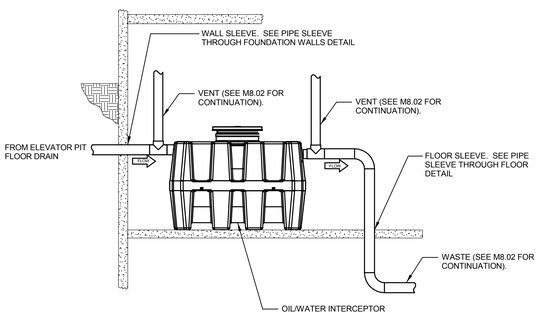
NOTES:
1. PIPE SUPPORT FOR INSULATED PIPES SHOWN. PIPE SUPPORT FOR UNINSULATED PIPES SIMILAR.

7 M9.02 DETAIL - ROOFTOP PIPING SUPPORT
SCALE: NONE

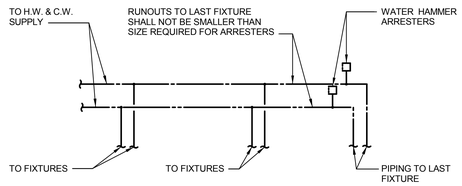


NOTES:
1. SEE DRAWINGS FOR PIPE SIZES AND CONTINUATION.
2. VALVES, SENSORS, PUMPS, EXPANSION TANK, AND SIMILAR ITEMS SHALL BE ACCESSIBLE FOR MAINTENANCE AND INSPECTION PER MANUFACTURERS RECOMMENDATIONS AND AHJ REQUIREMENTS.
3. PROVIDE PIPE FITTING 2.5 TIMES LARGER THAN SERVICE PIPE WITH AIR ELIMINATOR CONNECTED TO TOP OF FITTING AS RECOMMENDED BY MANUFACTURER.

8 M9.02 DIAGRAM - FLOOR MOUNTED ELECTRIC WATER HEATER
SCALE: NONE

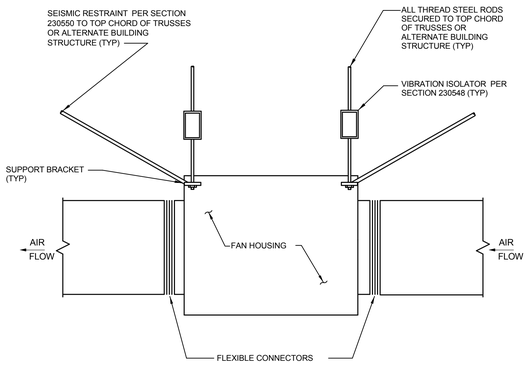


9 M9.02 DETAIL - ABOVE GRADE OIL/WATER INTERCEPTOR
SCALE: NONE



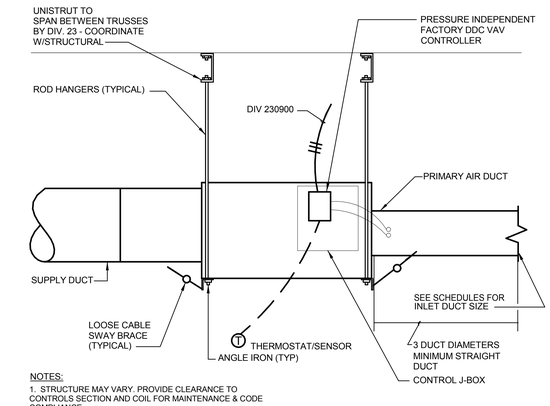
NOTE: USE 2015 UNIFORM PLUMBING CODE FOR FIXTURE UNITS, FOR SIZING WATER HAMMER ARRESTERS

10 M9.02 DETAIL - WATER HAMMER ARRESTOR DIAGRAM
SCALE: NONE



NOTES:
1. PROVIDE CLEARANCE FOR MOTOR ACCESS AND FAN MAINTENANCE PER MANUFACTURE RECOMMENDATIONS AND AHJ REQUIREMENTS.

11 M9.02 DETAIL - IN-LINE CENTRIFUGAL FAN
SCALE: NONE



NOTES:
1. STRUCTURE MAY VARY. PROVIDE CLEARANCE TO CONTROLS SECTION AND COIL FOR MAINTENANCE & CODE COMPLIANCE.

12 M9.02 DETAIL - TYPICAL HUNG VAV BOX
SCALE: NONE

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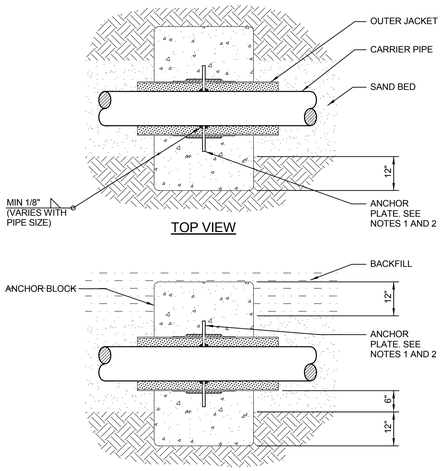
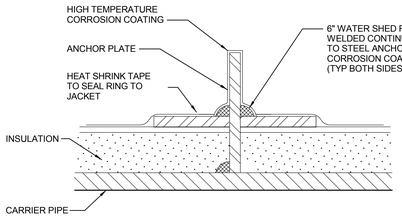
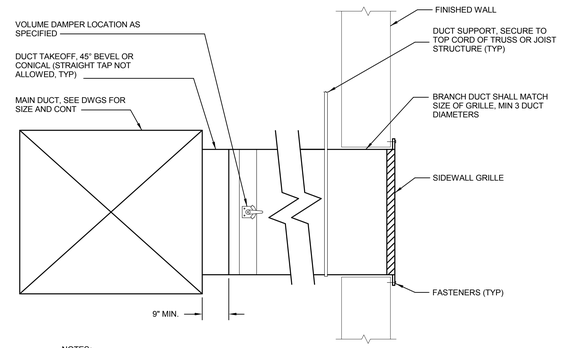




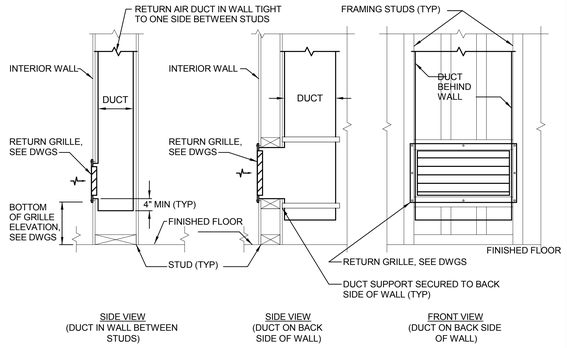
NOTES:
1. STEEL ANCHOR PLATE AND WELDED RINGS FURNISHED BY THE PIPING MANUFACTURER FOR FIELD INSTALLATION SHALL MEET ASTM A 36, BE 1/2" THICK, AND EXTEND 2-1/2" BEYOND THE CASING DIAMETER ON ALL SIDES. ANCHOR PLATE SHALL BE CORROSION COATED WITH HIGH TEMPERATURE COATING MATERIAL AFTER WATER SHED RINGS HAVE BEEN SEALED TO THE CASING BY HEAT SHRINK TAPE.
2. INSTALL ANCHOR ASSEMBLY IN A POURED-IN-PLACE CONCRETE BLOCK TO MINIMUM 3000 PSI. THE CONCRETE BLOCK SHALL EXTEND A MINIMUM 12" IN ALL DIRECTIONS BEYOND THE ANCHOR OUTSIDE DIMENSIONS.

1 M9.03 DETAIL - UNDERGROUND HYDRONIC PIPING ANCHOR
SCALE: NONE



NOTES:
1. PROVIDE MINIMUM 5'-0" OF STRAIGHT DUCT FROM VOLUME DAMPER TO GRILLE FACE UNLESS NOTED OR INDICATED OTHERWISE ON DRAWINGS.
2. MAIN DUCT HEIGHT SHALL BE 4" GREATER THAN BRANCH DUCT.
3. DUCT INSULATION NOT SHOWN. PROVIDE AS SPECIFIED.
4. OPPOSED BLADE DAMPERS ARE NOT ALLOWED AS PART OF GRILLE ASSEMBLY UNLESS OTHERWISE NOTED ON DRAWINGS.
5. MOUNT GRILLE SUCH THAT GRILLE BLADES ARE PARALLEL TO THE FLOOR. WHERE GRILLE IS INSTALLED 6'-0" AFF OR HIGHER, GRILLE BLADES SHALL FACE TOWARD CEILING. BELOW 6'-0" GRILLE BLADES SHALL FACE TOWARD FLOOR.

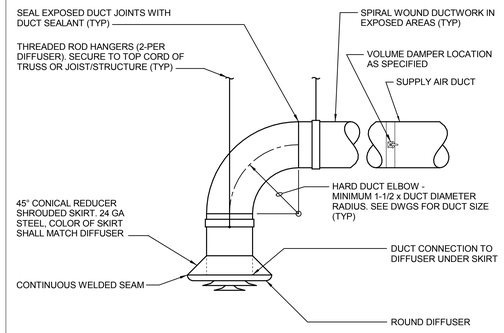
2 M9.03 DETAIL - SIDEWALL GRILLE CONNECTION
SCALE: NONE



SIDE VIEW (DUCT IN WALL BETWEEN STUDS) | SIDE VIEW (DUCT ON BACK SIDE OF WALL) | FRONT VIEW (DUCT ON BACK SIDE OF WALL)

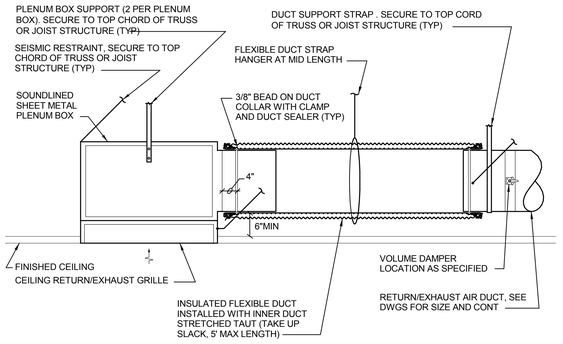
NOTES:
1. REFER TO DRAWINGS AND SPECS FOR BALANCING DAMPER LOCATIONS.
2. BLADES SHALL FACE TOWARD FLOOR IF LESS THAN 6'-0" AFF, OTHERWISE BLADES SHALL FACE TOWARD CEILING.
3. GRILLE SHALL BE SUPPORTED FROM FRAMING.
4. PAINT INSIDE OF DUCT BLACK WHERE VISIBLE THROUGH GRILLE.

3 M9.03 DETAIL - WALL MOUNTED LOW RETURN AIR GRILLE
SCALE: NONE



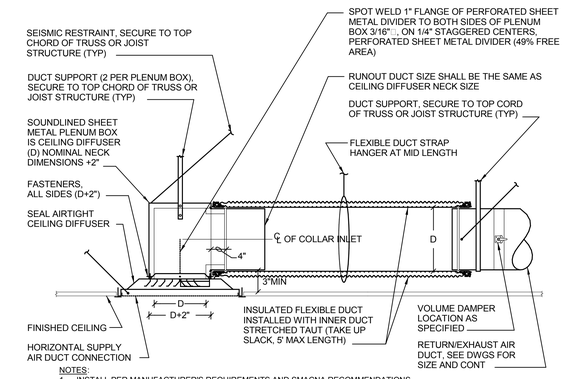
NOTES:
1. DUCTWORK, SKIRT, AND SUPPORTS PAINTED PER ARCHITECTURAL REQUIREMENTS.

4 M9.03 DETAIL - EXPOSED ROUND DIFFUSER
SCALE: NONE



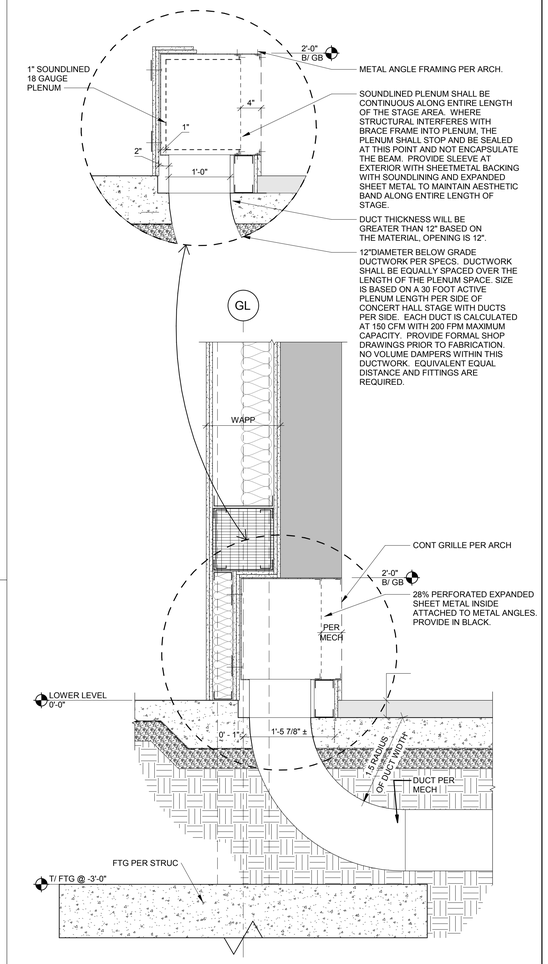
NOTES:
1. INSTALL PER MANUFACTURER'S REQUIREMENTS AND SMACNA RECOMMENDATIONS.
2. USE VERTICAL DUCT CONNECTION.
3. FLEX DUCT SHALL BE LIMITED IN LENGTH AS SPECIFIED WHERE SPACE ALLOWS, HORIZONTAL FOR RESTRICTED ONLY.
4. PLENUM BOX SHALL BE SAME SIZE AS GRILLE.
5. INCREASE BOX HEIGHT FOR CLEARANCES OF OTHER EQUIPMENT.
6. PROVIDE SOUNDLINED DUCT AS SPECIFIED OR SHOWN ON DRAWINGS. WHERE SOUNDLINED DUCT IS NOT ALLOWED, PROVIDE SHEET METAL BOX FULL SIZE OF GRILLE.

5 M9.03 DETAIL - CEILING RETURN/EXHAUST GRILLE
SCALE: NONE



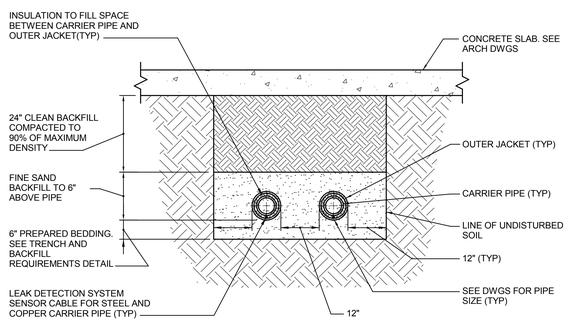
NOTES:
1. INSTALL PER MANUFACTURER'S REQUIREMENTS AND SMACNA RECOMMENDATIONS.
2. USE VERTICAL DUCT CONNECTION.
3. FLEX DUCT SHALL BE LIMITED IN LENGTH AS SPECIFIED WHERE SPACE ALLOWS, HORIZONTAL FOR RESTRICTED CEILING SPACE ONLY.
4. PLENUM BOX SHALL BE SAME SIZE AS GRILLE.
5. INCREASE BOX HEIGHT FOR CLEARANCES OF OTHER EQUIPMENT.
6. PROVIDE SOUNDLINED DUCT AS SPECIFIED OR SHOWN ON DRAWINGS. WHERE SOUNDLINED DUCT IS NOT ALLOWED, PROVIDE SHEET METAL BOX FULL SIZE OF GRILLE.

6 M9.03 DETAIL - RESTRICTED CEILING SUPPLY DIFFUSER PLENUM HEAD CONNECTION
SCALE: NONE

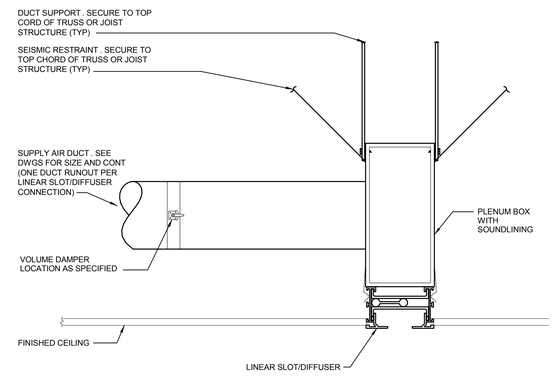


NOTES:
1. MECHANICAL CONTRACTOR SHALL COORDINATE WITH GC. MECHANICAL SHALL PROVIDE DUCTWORK, PLENUM, LINING, C-CHANNEL, EXPANDED PERFORATED METAL, SCREWS AND ASSEMBLY. PROVIDE MOCKUP OF ONE SYSTEM PRIOR TO PRODUCING THE NINE REMAINING FOR FEEDBACK AND ADJUSTMENT AS NEEDED.
2. EXPANDED METAL SHALL EXTEND PER ARCHITECTURAL ELEVATIONS ACROSS THE ENTIRE LENGTH OF THE STAGE AREA. PROVIDE A BLANK DUCT SECTION SEPARATING THE AIR HANDLERS WITHIN THE PLENUM

10 M9.03 DETAIL - STAGE SUPPLY AIR GRILLE
SCALE: NONE

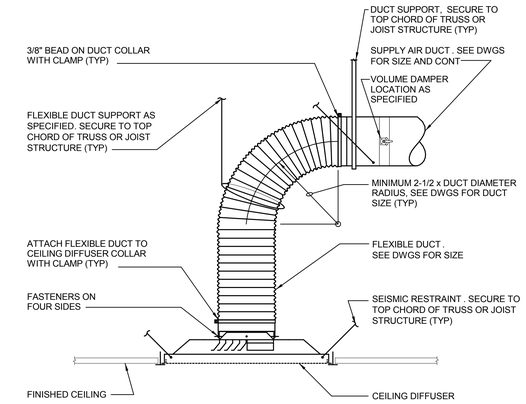


7 M9.03 DETAIL - UNDERGROUND HYDRONIC PIPING
SCALE: NONE



NOTES:
1. INSTALL PER MANUFACTURER'S REQUIREMENTS AND SMACNA RECOMMENDATIONS.
2. PROVIDE LINEAR SLOT/DIFFUSER AS SCHEDULED AT LOCATIONS SHOWN ON DRAWINGS WITHOUT DUCT CONNECTIONS. PROVIDE 4" DEEP PLENUM PAINTED BLACK ON INTERIOR.
3. SOUNDLINE SUPPLY DUCTS AS SPECIFIED.

8 M9.03 DETAIL - LINEAR SLOT DIFFUSER CONNECTION
SCALE: NONE



NOTES:
1. INSTALL PER MANUFACTURER'S REQUIREMENTS AND SMACNA RECOMMENDATIONS.
2. USE THIS DETAIL IN LIEU - RESTRICTED CEILING SUPPLY DIFFUSER PLENUM HEAD CONNECTION DETAIL IF SPACE IS AVAILABLE.

9 M9.03 DETAIL - DIFFUSER CONNECTION
SCALE: NONE

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SHEET NAME

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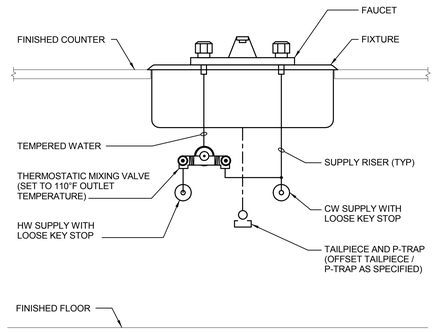
SHEET NUMBER

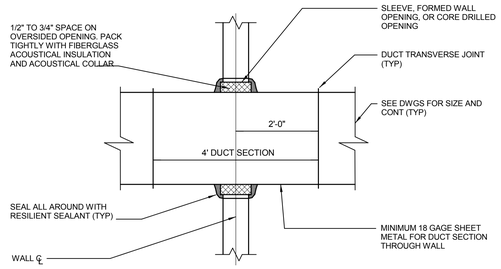
M9.03



NOTES:
1. PROVIDE UNDER-SINK PROTECTION FOR ACCESSIBLE FIXTURES.

1 M9.04 DETAIL - LOCAL THERMOSTATIC MIXING VALVE

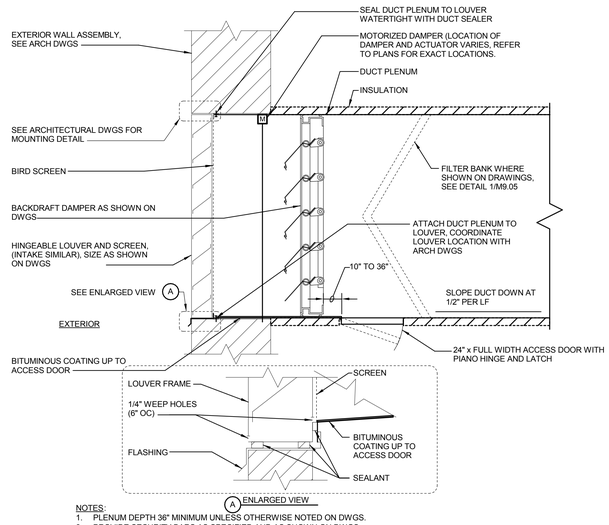
SCALE: NONE



NOTES:
1. DUCTWORK PENETRATION SHOWN. PIPING PENETRATION OF ACOUSTICAL WALL AND FLOORS SIMILAR.

2 M9.04 DETAIL - DUCTWORK PENETRATION OF ACOUSTICAL WALLS, CEILINGS, AND FLOORS

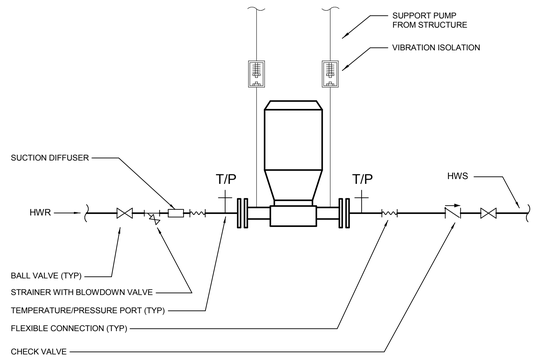
SCALE: NONE



NOTES:
1. PLENUM DEPTH 36" MINIMUM UNLESS OTHERWISE NOTED ON DWGS.
2. PROVIDE SECURITY BARS AS SPECIFIED AND AS SHOWN ON DWGS.

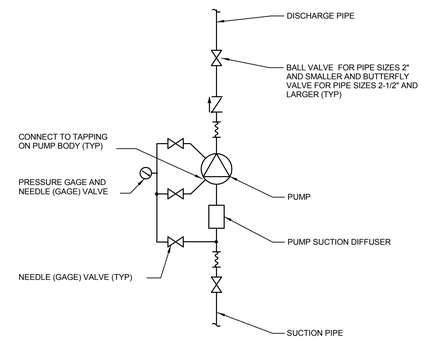
3 M9.04 DETAIL - WEATHERPROOF LOUVER

SCALE: NONE



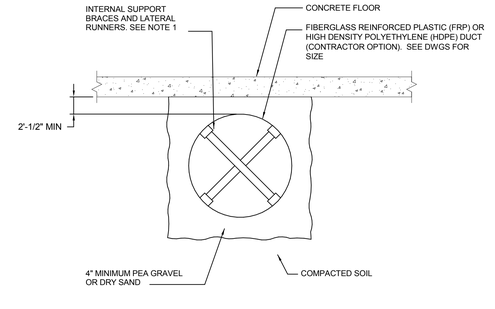
4 M9.04 DETAIL - INLINE PUMP

SCALE: NONE



5 M9.04 DIAGRAM - HVAC PUMP WITH SUCTION DIFFUSER

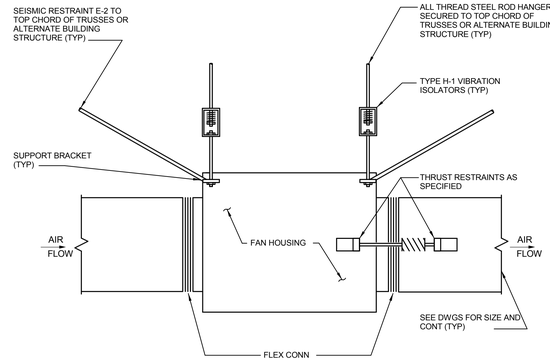
SCALE: NONE



NOTES:
1. PROVIDE INTERNAL SUPPORT BRACES AND LATERAL RUNNER PER DUCT MANUFACTURER'S INSTALLATION REQUIREMENTS. REMOVE AFTER COMPLETION OF INSTALLATION.

6 M9.04 DETAIL - UNDERGROUND DUCT

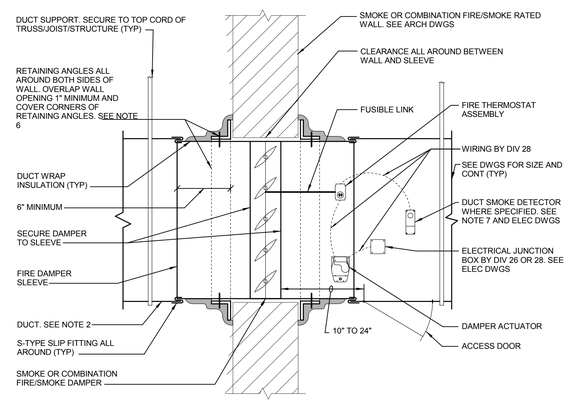
SCALE: NONE



NOTES:
1. IN-LINE FAN SHOWN. THIS DETAIL ALSO APPLIES TO CABINET FANS.
2. PROVIDE CLEARANCE FOR MOTOR ACCESS AND FAN MAINTENANCE PER MANUFACTURE RECOMMENDATIONS AND AHJ REQUIREMENTS.

7 M9.04 DETAIL - IN-LINE CENTRIFUGAL FAN

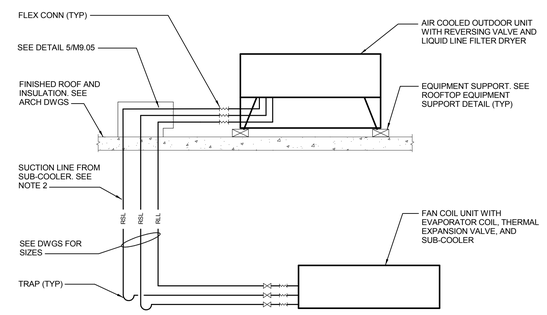
SCALE: NONE



NOTES:
1. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND NFPA REQUIREMENTS.
2. DO NOT SUPPORT CONNECTING DUCTWORK FROM DAMPER ASSEMBLY.
3. COORDINATE ACCESS DOOR LOCATIONS WITH CEILING TYPE.
4. DUCT INSULATION NOT SHOWN. PROVIDE AS SPECIFIED.
5. MAINTAIN SERVICE ACCESS CLEARANCES TO ACCESS DOOR AND ACTUATOR.
6. SECURE RETAINING ANGLES TO SLEEVE ONLY (TYP)
7. ASSIST ELECTRICAL SUBCONTRACTOR WITH INSTALLATION OF SMOKE DETECTOR.

8 M9.04 DETAIL - VERTICAL SMOKE AND COMBINATION FIRE/SMOKE DAMPER INSTALLATION

SCALE: NONE



NOTES:
1. PIPES THROUGH SHEET METAL HOOD FOR CURB SHOWN. SEE PIPE PENETRATION THROUGH ROOF DETAIL AND CONDENSING UNIT MOUNTED ON ROOF DETAIL. PIPE CURB ASSEMBLY WITH PIPES THROUGH TOP OR SIDE ACCEPTABLE. SEE DETAIL 5/M9.05.
2. INSULATE SUCTION LINE FROM SUB-COOLER.

9 M9.04 DIAGRAM - HEAT PUMP SPLIT SYSTEM REFRIGERANT PIPING

SCALE: NONE

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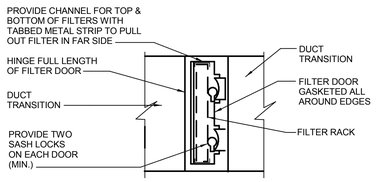
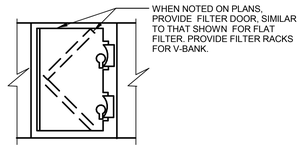
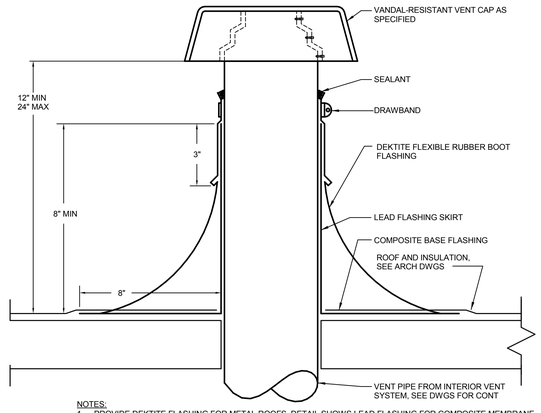


FLAT FILTER RACK



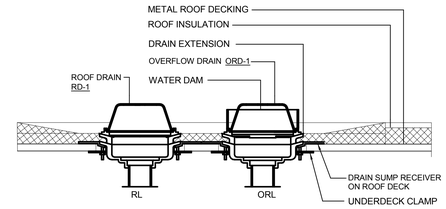
V-BANK FILTER RACK

1 / M9.05 **DETAIL - FILTER RACK**
SCALE: NONE



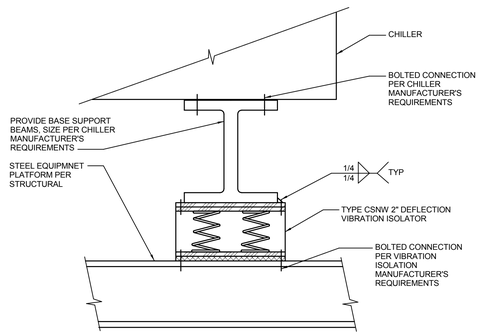
NOTES:
1. PROVIDE DEKTITE FLASHING FOR METAL ROOFS. DETAIL SHOWS LEAD FLASHING FOR COMPOSITE MEMBRANE ROOFS.
2. DETAIL SHOWS PLUMBING VENT THROUGH ROOF PENETRATION. DETAIL ALSO APPLES TO NATURAL GAS PIPING, LIQUEFIED PETROLEUM PIPING, AND SIMILAR PIPING THROUGH ROOF PENETRATIONS.

2 / M9.05 **DETAIL - PLUMBING VENT THROUGH ROOF PENETRATION**
SCALE: NONE

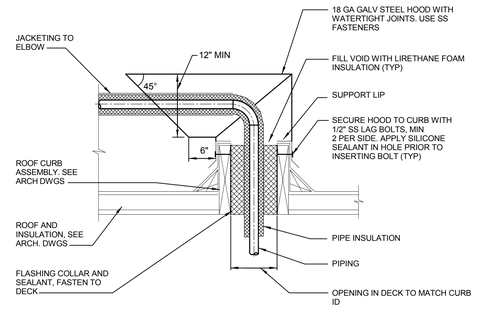


NOTE:
SEE ARCHITECTURAL ROOFING DETAILS FOR TYPE OF ROOFING & ROOF ELEVATIONS.

3 / M9.05 **DETAIL - ROOF DRAIN**
SCALE: NONE



4 / M9.05 **DETAIL - CHILLER SUPPORT**
SCALE: NONE



5 / M9.05 **DETAIL - PIPE PENETRATION THROUGH ROOF**
SCALE: NONE

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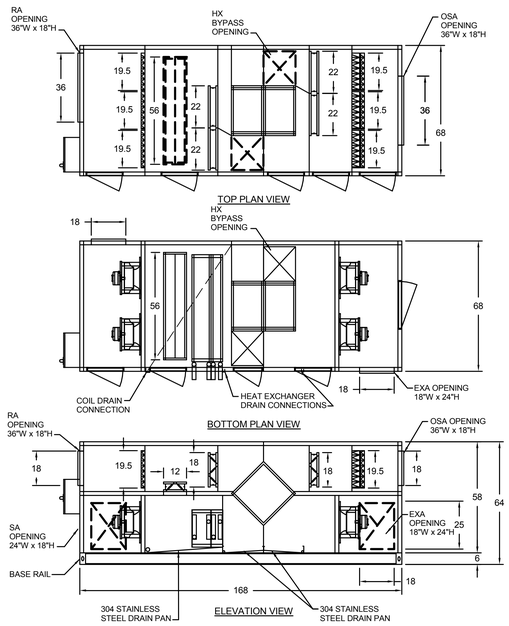
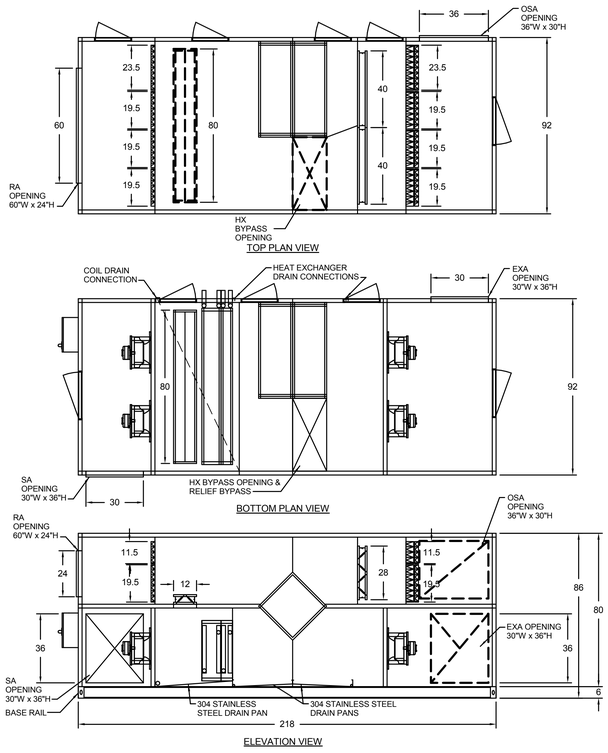
M9.05



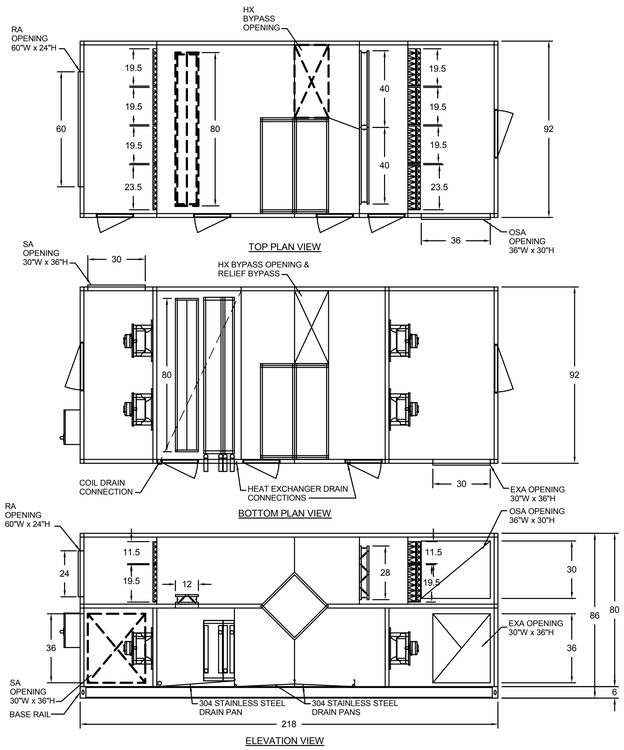
1 M9.10 **DETAIL - AHU-01**

SCALE: NONE



2 M9.10 **DETAIL - AHU-02A**

SCALE: NONE



3 M9.10 **DETAIL - AHU-02B**

SCALE: NONE

MECH EQUIP	OCTAVE BAND SOUND POWER AT CENTER FREQUENCY, Hz								
	NOM CFM	63	125	250	500	1000	2000	4000	8000
AHU-1 DISCHARGE	3000	71	69	76	82	80	82	74	72
INLET		67	62	73	70	69	67	64	61
AHU-2 DISCHARGE	6250	76	79	88	84	82	78	73	70
INLET		66	77	78	74	70	68	64	62
AHU-4, 9 DISCHARGE	6000	75	81	85	83	81	76	71	68
INLET		69	78	76	72	69	66	62	61
AHU-5 DISCHARGE	4000	74	72	84	81	83	79	75	76
INLET		71	72	80	77	72	71	69	75
AHU-6, 7 DISCHARGE	3000	71	70	81	78	79	75	71	67
INLET		65	72	73	71	66	64	62	62

SHEET NOTES

1. THESE NOTES APPLY TO ALL CUSTOM UNITS PER M910 SERIES SHEETS.
2. PROVIDE WITH INTERNALLY MOUNTED OSA AND EA DAMPERS UNLESS SHOWN OTHERWISE.
3. PROVIDE WITH 2" FILTER SECTION. SIZE FOR 24x24, 24x12, OR 12x12 ONLY. VELOCITY SHALL NOT EXCEED 400 FPM.
4. REFER TO SPECIFICATION FOR CONSTRUCTION DETAILS.
5. PROVIDE FULL SIZE ACCESS DOORS WITH CONTINUOUS STAINLESS STEEL PIANO HINGE.
6. PROVIDE WITH STEEL CHANNEL BASE RAIL TO COMPLETELY SUPPORT UNIT WITH ACCOMMODATION FOR CONDENSATE TRAP.
7. PROVIDE COIL CONNECTIONS ON SERVICE SIDE OF UNIT.
8. PROVIDE INTERNALLY MOUNTED 1-1/2" EMPTY CONDUIT RUN ALONG LENGTH OF UNIT WITH J-BOXES IN EACH SECTION TO ACCOMMODATE CONTROLS WIRING INSIDE UNIT. FOR UNITS 5000 CFM OR GREATER, ROUTE ON BOTH SIDES OF UNIT.
9. PROVIDE POWER CONNECTIONS WITH EXTERNALLY MOUNTED J-BOX FOR DIVISION 16. ALL INTERNAL WIRING SHALL BE BY MANUFACTURER.
10. FOR UNITS GREATER THAN 5000 CFM. PROVIDE DOORS WITH WINDOWS AT FAN AND FILTER SECTIONS.
11. ALL ACTUATORS AND EXTERNAL DAMPERS BY DIVISION 15900. INTERNAL DAMPERS BY MANUFACTURER.
12. PROVIDE INTERNAL FAN ISOLATION PER SPECIFICATIONS. NOISE CRITERIA LISTED SHALL NOT BE EXCEEDED.
13. PROVIDE PERFORATED INTERIOR LINER IN SUPPLY, RETURN, FILTER, MIXING AND DISCHARGE CABINETS.
14. PROVIDE WITH BASE RAIL. BASE RAIL SHALL BE SIZED WITH ENOUGH HEIGHT TO ACCOMMODATE TRAP DEPTH.
15. PROVIDE HINGED ACCESS DOORS TO ACCESS ALL COMPONENTS INCLUDING HEAT EXCHANGER.
16. COORDINATE ELECTRICAL ENCLOSURE LOCATION PRIOR TO ORDERING TO ENSURE ADEQUATE ACCESS.

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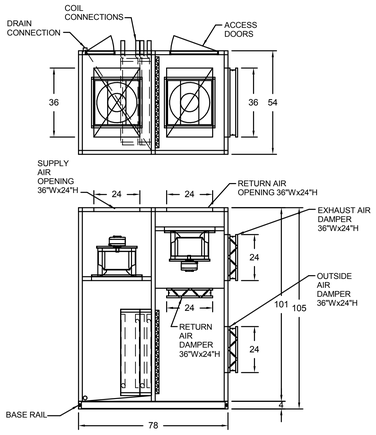
PROJECT NUMBER: 1711.00

SHEET NAME

Mechanical Details and Diagrams

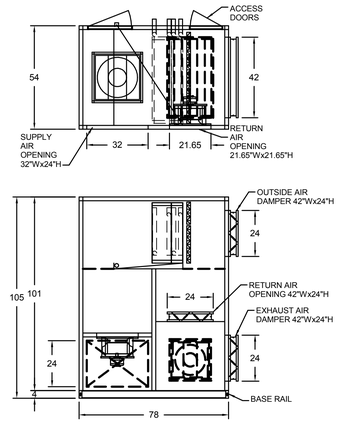
SHEET NUMBER

M9.10



1 M9.11 **DETAIL - AHU-04**

SCALE: NONE



2 M9.11 **DETAIL - AHU-05**

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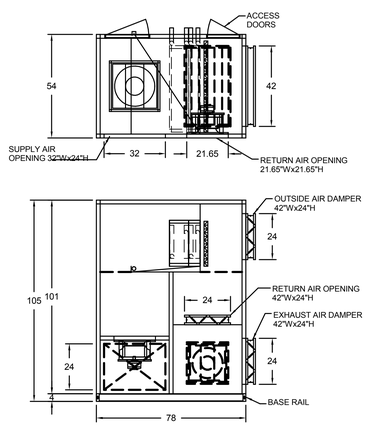
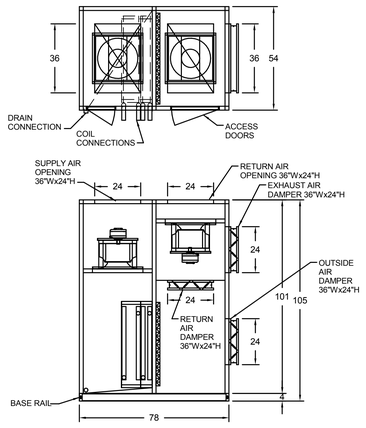


3 M9.11 **DETAIL - AHU-06 & 07**

SCALE: NONE



4 M9.11 **DETAIL - AHU-09**

SCALE: NONE

SHEET NOTES

1. THESE NOTES APPLY TO ALL CUSTOM UNITS PER M910 SERIES SHEETS.
2. PROVIDE WITH INTERNALLY MOUNTED OSA AND EA DAMPERS UNLESS SHOWN OTHERWISE.
3. PROVIDE WITH 2" FILTER SECTION. SIZE FOR 24x24, 24x12, OR 12x12 ONLY. VELOCITY SHALL NOT EXCEED 400 FPM.
4. REFER TO SPECIFICATION FOR CONSTRUCTION DETAILS.
5. PROVIDE FULL SIZE ACCESS DOORS WITH CONTINUOUS STAINLESS STEEL PIANO HINGE.
6. PROVIDE WITH STEEL CHANNEL BASE RAIL TO COMPLETELY SUPPORT UNIT WITH ACCOMMODATION FOR CONDENSATE TRAP.
7. PROVIDE COIL CONNECTIONS ON SERVICE SIDE OF UNIT.
8. PROVIDE INTERNALLY MOUNTED 1-1/2" EMPTY CONDUIT RUN ALONG LENGTH OF UNIT WITH J-BOXES IN EACH SECTION TO ACCOMMODATE CONTROLS WIRING INSIDE UNIT. FOR UNITS 5000 CFM OR GREATER, ROUTE ON BOTH SIDES OF UNIT.
9. PROVIDE POWER CONNECTIONS WITH EXTERNALLY MOUNTED J-BOX FOR DIVISION 16. ALL INTERNAL WIRING SHALL BE BY MANUFACTURER.
10. FOR UNITS GREATER THAN 5000 CFM. PROVIDE DOORS WITH WINDOWS AT FAN AND FILTER SECTIONS.
11. ALL ACTUATORS AND EXTERNAL DAMPERS BY DIVISION 15900. INTERNAL DAMPERS BY MANUFACTURER.
12. PROVIDE INTERNAL FAN ISOLATION PER SPECIFICATIONS. NOISE CRITERIA LISTED SHALL NOT BE EXCEEDED.
13. PROVIDE PERFORATED INTERIOR LINER IN SUPPLY, RETURN, FILTER, MIXING AND DISCHARGE CABINETS.
14. PROVIDE WITH BASE RAIL. BASE RAIL SHALL BE SIZED WITH ENOUGH HEIGHT TO ACCOMMODATE TRAP DEPTH.
15. COORDINATE ELECTRICAL ENCLOSURE LOCATION PRIOR TO ORDERING TO ENSURE ADEQUATE ACCESS.

MECH EQUIP	OCTAVE BAND SOUND POWER AT CENTER FREQUENCY, Hz								
	NOM CFM	63	125	250	500	1000	2000	4000	8000
AHU-1 DISCHARGE	3000	71	69	76	82	80	82	74	72
INLET		67	62	73	70	69	67	64	61
AHU-2 DISCHARGE	6250	76	79	88	84	82	78	73	70
INLET		66	77	78	74	70	68	64	62
AHU-4, 9 DISCHARGE	6000	75	81	85	83	81	76	71	68
INLET		69	78	76	72	69	66	62	61
AHU-5 DISCHARGE	4000	74	72	84	81	83	79	75	76
INLET		71	72	80	77	72	71	69	75
AHU-6, 7 DISCHARGE	3000	71	70	81	78	79	75	71	67
INLET		65	72	73	71	66	64	62	62

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SHEET NAME

Mechanical Details and Diagrams

SHEET NUMBER

M9.11

DIAGRAM SYMBOLS

- M — MOTORIZED DAMPER
- T — TEMPERATURE SENSOR
- P — PHOTOCELL
- IR — IRRADIANCE
- AM — ANIMOMETER
- HY — HYGROMETER
- H — HUMIDITY SENSOR
- P — PRESSURE SENSOR
- F — AIR FLOW MEASURING STATION
- CO2 — CO2 SENSOR
- SD — SMOKE DUCT DETECTOR
- CT — CURRENT SENSOR
- T — FREEZESTAT
- M — MOTOR
- T — THERMOSTAT
- CO2 — WALL CO2 SENSOR
- DAMPER
- TWO WAY VALVE
- THREE WAY VALVE
- FILTER
- COIL
- H L — DIFFERENTIAL PRESSURE SENSOR
- BURNER
- FAN

ABBREVIATIONS

AI ANALOG INPUT, A PHYSICAL INPUT TO THE CONTROL MODULE.

AO ANALOG OUTPUT, A PHYSICAL OUTPUT TO THE CONTROL MODULE.

AV ANALOG VALUE, AN INTERMEDIATE (SOFTWARE) POINT THAT MAY BE EDITABLE OR READ ONLY. EDITABLE AVs ARE TYPICALLY USED TO ALLOW THE USER TO SET A FIXED CONTROL PARAMETER, SUCH AS A SETPOINT. READ ONLY AVs ARE TYPICALLY USED TO DISPLAY THE STATUS OF A CONTROL OPERATION.

BI BINARY INPUT, A PHYSICAL INPUT TO THE CONTROL MODULE.

BO BINARY OUTPUT. A PHYSICAL OUTPUT FROM THE CONTROL MODULE.

BV BINARY VALUE, AN INTERMEDIATE (SOFTWARE) POINT THAT MAY BE EDITABLE OR READ ONLY. EDITABLE BVs ARE TYPICALLY USED TO ALLOW THE USER TO SET A FIXED CONTROL PARAMETER, SUCH AS A SETPOINT. READ ONLY BVs ARE TYPICALLY USED TO DISPLAY THE STATUS OF A CONTROL OPERATION.

SCHED SCHEDULE, THE CONTROL ALGORITHM FOR THIS EQUIPMENT SHALL INCLUDE A USER EDITABLE SCHEDULE.

TREND THE CONTROL SYSTEM SHALL BE CONFIGURED TO COLLECT AND DISPLAY A TREND LOG OF THIS OBJECT. THE TRENDING INTERVAL SHALL BE NO LESS THAN ONE SAMPLE EVERY 5 SECONDS. (CHANGE OF VALUE TRENDING, WHERE A SAMPLE IS TAKEN EVERY TIME THE VALUE CHANGES BY MORE THAN A USER-DEFINED MINIMUM, IS AN ACCEPTABLE ALTERNATIVE).

ALARM THE CONTROL SYSTEM SHALL BE CONFIGURED TO GENERATE AN ALARM WHEN THIS OBJECT EXCEEDS USER DEFINABLE LIMITS, AS DESCRIBED IN THE SEQUENCE OF CONTROLS.

ACTIVE WHEN A HVAC UNIT IS CALLING FOR HEATING, COOLING OR AIR FLOW.

NOTE: ALL OF THE ABOVE SHALL BE PROVIDED AS BACNET OBJECTS.

EQUIPMENT REPORTING ACCURACY

MEASURED VARIABLE	REPORTED ACCURACY	
Space Temperature	±1°F	
Ducted Air	±1°F	
Outside Air	±2°F	
Dew Point	±3°F	
Water Temperature	±1°F	
Delta-T	±0.25°F	
Relative Humidity	±5% RH	
Water Flow	±2% of full scale	
Airflow (terminal)	±10% of full scale (see Note 1)	
Airflow (measuring stations)	±5% of full scale	
Airflow (pressurized spaces)	±3% of full scale	
Air Pressure (ducts)	±25 Pa (±0.1 in. w.g.)	
Air Pressure (space)	±3 Pa (±0.01 in. w.g.)	
Water Pressure	±2% of full scale (see Note 2)	
Electrical (A, V, W, Power Factor)	±1% of reading (see Note 3)	
Carbon Monoxide (CO)	±5% of reading	
Carbon Dioxide (CO2)	±50 ppm	
Irradiance (Solar)	±1% of reading	
Hygrometer (Rain)	±1% of reading	
Anemometer (Wind)	±1% of reading	
CONTROLLED VARIABLE	CONTROL ACCURACY	Range of Medium
Air Pressure	±50 Pa (±0.2 in. w.g.)	0-1.5 kPa (0-6 in. w.g.)
	±3 Pa (±0.01 in. w.g.)	-25 to 25 Pa (-0.1 to 0.1 in. w.g.)
Airflow	±10% of full scale	
Space Temperature	±2°F	
Duct Temperature	±3°F	
Humidity	±5% RH	
Fluid Pressure	±10 kPa (±1.5 psi)	MPa (1-150 psi)
	±250 Pa (±1.0 in. w.g.)	0-12.5 kPa (0-50 in. w.g.) differential

Note 1: Accuracy applies to 10% - 100% of scale
Note 2: For both absolute and differential pressure
Note 3: Not including utility-supplied meters

LEGEND

AF	AI	AIR FLOW MEASURING DEVICE	MONITORS AIR FLOW RATE AND TRANSMITS VELOCITY PRESSURE TO DDC. WHERE VAV OR TU INDICATED, AF COMES WITH UNIT
CO2	AI	CARBON DIOXIDE SENSOR	MEASURES, SENSES AND TRANSMITS CARBON DIOXIDE IN PPM TO THE DDC FOR CONTROL OF THE OUTSIDE AIR DAMPER
CO2Z	AV	CARBON DIOXIDE SETPOINT	DDC CARBON DIOXIDE SETPOINT (ADJ)
CPE	BO	CIRCULATION PUMP ENABLE/DISABLE	ENABLES/DISABLES THE CIRCULATION PUMP THROUGH THE DDC
CPS	BI	CIRCULATION PUMP STATUS	MEASURES STATUS OF THE CIRCULATION PUMP AND TRANSMITS TO THE DDC
DP	AI	DIFFERENTIAL PRESSURE SENSOR	TRANSMITS DIFFERENTIAL PRESSURE TO DCP TO INDICATE FILTER CONDITIONS AND STATUS OF FANS.
DDC		DIRECT DIGITAL CONTROLS	CENTRAL ENERGY MANAGEMENT SYSTEM
DHWCT	AI	DOMESTIC HOT WATER CIRC TEMP	MEASURES, SENSES AND TRANSMITS WATER HEATER RECIRCULATION TEMPERATURE TO THE DDC
DHWT	AI	DOMESTIC HOT WATER SUPPLY TEMP	MEASURES, SENSES AND TRANSMITS WATER HEATER SUPPLY TEMPERATURE TO THE DDC
DO	AO	OUTSIDE AIR DAMPER, MODULATING	OPENS WHEN SUPPLY FAN STARTS AND CLOSES WHEN SUPPLY FAN STOPS.
DR	AO	RETURN AIR DAMPER, MODULATING	VARIES RETURN AIR FLOW IN RESPONSE TO SUPPLY AIR
DE	AO	RELIEF AIR DAMPER, MODULATING	VARIES RELIEF/EXHAUST AIR FLOW IN RESPONSE TO DCP.
DMZ	AV	ECONOMIZER MIXED AIR TEMPERATURE SETPOINT	DDC ECONOMIZER MIXED AIR TEMPERATURE SETPOINT (ADJ) W/O SENSOR = %DO*TO+%DR*TRM
EO	AV	OUTSIDE ENTHALPY	CALCULATED FROM OUTSIDE AIR TEMPERATURE AND OUTSIDE HUMIDITY
FE	BO	FAN START/STOP	ENABLES/DISABLES THE FAN FROM THE DCP
FS	BI	FAN STATUS	SENSES AND TRANSMITS STATUS OF FAN FUNCTION TO DCP FOR INDICATION ONLY.
FZ	BI	FREEZE STAT	SENSES AND TRANSMITS TEMPERATURE OF DISCHARGE AFTER HEATING COIL AND SHUTS DOWN UNIT IF BELOW SETPOINT
GFR	AI	GAS FLOW RATE	MEASURES, SENSES AND TRANSMITS GAS CONSUMPTION TO DCP FOR DEMAND LIMITING
HE	BO	HEATING ENABLE/DISABLE	ENABLES/DISABLES THE HEATING FROM THE DDC. STAGES/MODULATION BY THE HVAC UNIT INTERNAL CONTROLS.
HL	AO	HEATING LEVEL STAGE	SENSES AND TRANSMITS HEATING LEVEL/INDICATION TO THE DCP
HO	AI	OUTSIDE AIR HUMIDITY SENSOR	SENSES AND TRANSMITS OUTSIDE HUMIDITY TO DCP FOR CONTROL AND INDICATION.
HR	AI	RETURN AIR HUMIDITY SENSOR	SENSES AND TRANSMITS RETURN AIR HUMIDITY TO DCP FOR CONTROL AND INDICATION.
HS	AI	SUPPLY AIR HUMIDITY SENSOR	SENSES AND TRANSMITS SUPPLY AIR HUMIDITY TO DCP FOR CONTROL AND INDICATION.
KW	AI	KW PULSE	MEASURES, SENSES AND TRANSMITS KW TO DCP FOR DEMAND LIMITING
OS	BI	OCCUPANCY SENSOR	SENSES AND TRANSMITS WHETHER SPACE IS OCCUPIED OR UNOCCUPIED CLOSES DO AND OPENS DR
PH	AI	PHOTOCELL	SENSES AND TRANSMITS OUTSIDE LIGHTING LEVELS TO DCP FOR CONTROL AND INDICATION.
PUE	BO	PUMP OR CIRC PUMP ENABLE/DISABLE	ENABLES/DISABLES THE PUMP/CIRC PUMP FROM THE DCP
PUS	BI	PUMP OR CIRC PUMP STATUS	SENSES AND TRANSMITS STATUS OF PUMP/CIRC PUMP FUNCTION TO DCP FOR INDICATION ONLY.
SDR	BI	RETURN AIR DUCT SMOKE DETECTOR	CLOSES WHEN UNIT IS SHUT OFF OR WHENEVER SMOKE IS DETECTED COORDINATE WITH DIV 16
SDS	BI	SUPPLY AIR DUCT SMOKE DETECTOR	CLOSES WHEN UNIT IS SHUT OFF OR WHENEVER SMOKE IS DETECTED COORDINATE WITH DIV 16
SPS-?	AI	STATIC PRESSURE SENSOR (? REPRESENTS SPECIFIC # OR TYPE)	SENSES AND TRANSMITS STATIC PRESSURE TO DCP. REFER TO CONTROLS DIAGRAM
SPSRZ	AV	STATIC PRESSURE SENSOR RETURN SETPOINT	DDC STATIC RETURN AIR PRESSURE SETPOINT (ADJ)
SPSSZ	AV	STATIC PRESSURE SENSOR SUPPLY SETPOINT	DDC STATIC SUPPLY AIR PRESSURE SETPOINT (ADJ)
TA	AI	ROOM SPACE TEMPERATURE ADJUST	SENSES AND TRANSMITS SPACE TEMP ADJUSTMENT TO THE DCP (3°F ADJ)
TM	AI	MIXED AIR TEMPERATURE SENSOR	SENSES AND TRANSMITS MIXED AIR DRY BULB TEMPERATURE TO DCP FOR INDICATION ONLY.
TO	AI	OUTSIDE AIR TEMPERATURE SENSOR	SENSES AND TRANSMITS OUTSIDE AIR DRY BULB TEMPERATURE TO DCP FOR CONTROL AND INDICATION.
TR	AI	RETURN AIR TEMPERATURE SENSOR	SENSES AND TRANSMITS RETURN AIR DRY BULB TEMPERATURE TO DCP FOR INDICATION ONLY.
TRM	AI	ROOM SPACE TEMPERATURE	SENSES AND TRANSMITS SPACE TEMPERATURE TO THE DCP
TRO	AI	ROOM SPACE OVERRIDE	WHEN OVERRIDE BUTTON ON THERMOSTAT IS PRESSED, PROVIDES 1 HOUR (ADJ) OF VENTILATION WHEN BLDG IS UNOCCUPIED
TS	AI	SUPPLY AIR TEMPERATURE SENSOR	SENSES AND TRANSMITS SUPPLY AIR DRY BULB TEMPERATURE TO DCP FOR CONTROL AND INDICATION.
TWS	AI	SUPPLY WATER TEMPERATURE SENSOR	SENSES AND TRANSMITS SUPPLY WATER TEMPERATURE TO DCP FOR CONTROL AND INDICATION.
TWR	AI	RETURN OR RECIRC WATER TEMPERATURE SENSOR	SENSES AND TRANSMITS RETURN OR RECIRC WATER TEMPERATURE TO DCP FOR CONTROL AND INDICATION.
TZ	AV	ROOM SPACE SETPOINT + TA OR SUPPLY AIR TEMPERATURE SETPOINT	DDC SPACE SETPOINT + ROOM SPACE TEMPERATURE ADJUSTMENT OR SUPPLY AIR TEMPERATURE SETPOINT
VC	AO	CHILLED WATER CONTROL VALVE, REFER TO SCHEDULE FOR TYPE	VARIES CHILLED WATER FLOW TO COOLING COIL IN RESPONSE TO DCP.
VFDRF	BI	VFD RETURN FAN FAULT	SENSES AND TRANSMITS VFD FAULT TO EMS
VFDSF	BI	VFD SUPPLY FAN FAULT	SENSES AND TRANSMITS VFD FAULT TO EMS
VFDRS	AO	VFD RETURN FAN SPEED	MEASURES , SENSES AND TRANSMITS FAN SPEED TO EMS FOR CFM CORRELATION
VFDSS	AO	VFD SUPPLY FAN SPEED	MEASURES, SENSES AND TRANSMITS FAN SPEED TO EMS FOR CFM CORRELATION
VH	AO	HEATING WATER CONTROL VALVE, REFER TO SCHEDULE FOR TYPE	VARIES HEATING WATER FLOW TO COOLING COIL IN RESPONSE TO DCP.
VPS		VELOCITY PRESSURE SENSOR	SENSES AND TRANSMITS VELOCITY PRESSURE TO DCP.
WFR	AI	WATER FLOW RATE	MEASURES, SENSES AND TRANSMITS WATER VOLUME TO DCP FOR VOLUME USED
WHE	BO	WATER HEATER ENABLE/DISABLE	ENABLES/DISABLES THE WATER HEATER FROM THE DCP
WHS	BI	WATER HEATER STATUS	SENSES AND TRANSMITS STATUS OF WATER HEATER FUNCTION TO DCP FOR INDICATION ONLY.
ZD	AO	ZONE DAMPER SETPOINT	CONTROLS, MEASURES, SENSES AND TRANSMITS DAMPER STATUS TO DDC FOR CONTROL OF TU/VAV AIRFLOW

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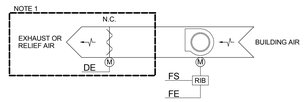
SHEET NAME

Mechanical Control Sequences

SHEET NUMBER

M10.01



EXHAUST FAN - SCHEDULED		HARDWARE POINTS				SOFTWARE POINTS						
Point Name	MARK	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM	GRAPHIC	COMMENTS
Fan Status	FS			X					X		X	
Fan Start/Stop	FE				X				X		X	
Relief or Exhaust Air Damper	DE				X				X		X	NOTE 1
Schedule	SCHED							X			X	
Fan Failure										X	X	
Fan in Hand										X	X	

NOTE 1 WHERE SHOWN ON DRAWINGS OR SCHEDULED
GENERAL NOTE: WHERE EXHAUST FAN IS SCHEDULED TO RUN IN CONJUNCTION WITH AN HVAC UNIT, EXHAUST FAN SHALL RUN INDEPENDENT OF SCHEDULE.

Run Conditions - Scheduled:
The unit shall run according to a user definable time schedule in the following modes:
- Occupied Mode
- Unoccupied Mode
- Manual Override Mode

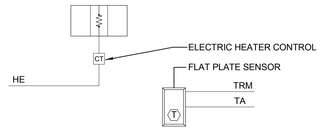
Exhaust Fan:
The exhaust fan shall run anytime the unit is commanded to run, unless shutdown on safeties.

Relief/Exhaust Air Damper:
The controller shall position the relief/exhaust damper (if present) 100% open when in occupied or override mode.

Fan Status:
The controller shall monitor the fan status.

Alarms shall be provided as follows:
- Fan Failure: Commanded on, but the status is off.
- Fan in Hand: Commanded off, but the status is on.

1 / M10.02 EXHAUST FAN - SCHEDULED



ELECTRIC UNIT HEATER		HARDWARE POINTS				SOFTWARE POINTS						
POINT NAME	MARK	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM	GRAPHIC	COMMENTS
Zone Temp	TRM	X							X		X	
Zone Setpoint Adjust	TA	X							X		X	
Heating Enable/Disable	HE				X				X	X	X	
DDC Space Temperature Setpoint	TZ							X	X		X	
Schedule	SCHED							X			X	
Low Zone Temp										X	X	

NOTE PROVIDE CONNECTION TO 230900 WHERE SCHEDULED ON DRAWINGS OR NOTED ON PLANS. PROVIDE SCHEDULE FOR ALL UNITS.

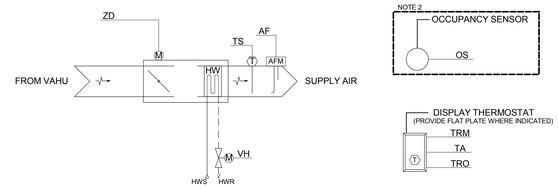
Run Conditions - Scheduled:
The unit shall run according to a user definable time schedule in the following modes:
- Occupied Mode: The unit shall maintain a heating setpoint of 45°F (adj.).
- Unoccupied Mode (night setback): The unit shall maintain a heating setpoint of 45°F (adj.).

Alarms shall be provided as follows:
- Low Zone Temp: If the zone temperature is less than the heating setpoint by a user definable amount. Initial setpoint shall be 38 F (adj).

Zone Setpoint Adjust:
The occupant shall be able to adjust the zone temperature heating and cooling setpoints at the zone sensor.

Electric Heating Stages:
The controller shall measure the zone temperature and enable the heating to maintain its heating setpoint. To prevent short cycling, there shall be a user definable (adj.) delay between on/off, minimum runtime. Initially set at 5 minutes.
The heating shall be enabled whenever:
- Outside air temperature is less than 50°F (adj.).
- AND the zone temperature is below heating setpoint.

2 / M10.02 ELECTRIC UNIT HEATER (EUH)



VARIABLE AIR VOLUME UNIT		HARDWARE POINTS				SOFTWARE POINTS						
POINT NAME	MARK	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM	GRAPHIC	COMMENTS
Zone Temp	TRM	X							X		X	
Zone Setpoint Adjust	TA	X									X	
Occupancy Sensor	OS			X					X		X	NOTE 2
Airflow (CFM from unit)	AF	X							X		X	
Discharge Air Temp	TS	X							X		X	
Zone Damper	ZD		X								X	
Heating Valve	VH		X						X		X	
Zone Override	TRO			X					X		X	NOTE 1
DDC Space Temperature Setpoint	TZ					X		X	X		X	
Airflow Setpoint						X			X		X	
Schedule								X			X	
Heating Setpoint						X			X		X	
Cooling Setpoint						X			X		X	
High Zone Temp										X	X	
Low Zone Temp										X	X	
High Discharge Air Temp										X	X	
Low Discharge Air Temp										X	X	

NOTE 1 PROVIDE 1HR ADJUSTABLE OCCUPANCY OVERRIDE. INITIATE CORRESPONDING AHU FOR SUPPLY AIR.
NOTE 2 PROVIDE CONNECTION TO DDC WHERE OCCUPANCY SENSOR IS FURNISHED BY ELECTRICAL. REFER TO ELECTRICAL DRAWINGS.

Run Conditions - Scheduled:
The unit shall run according to a user definable time schedule or upon occupied override sensor 1 hour (adj.) in the following modes:
- Occupied Mode: The unit shall maintain
  - A 74°F (adj.) cooling setpoint
  - A 70°F (adj.) heating setpoint.

Alarms shall be provided as follows:
- High Zone Temp: If the zone temperature is greater than the cooling setpoint plus 5°F (adj.).
- Low Zone Temp: If the zone temperature is less than the heating setpoint minus 5°F (adj.).

Zone Setpoint Adjust:
The occupant shall be able to adjust the zone temperature heating and cooling setpoints at the zone sensor by 2°F (adj.) (controlled by DDC).

Occupancy Sensor:
Limit maximum airflow setpoint to 70% of maximum airflow setpoint if unoccupied unless space temperature cannot be maintained.

Discharge Air Temperature:
The controller shall monitor the discharge air temperature. High and low temp limits shall be provided as follows:
- Displacement ventilation: 66°F (adj.) and 76°F (adj.)
- Overhead ventilation: 55°F (adj.) and 95°F (adj.)

Alarms shall be provided as follows:
- High Discharge Air Temp: If the discharge air temperature is greater than 120°F (adj.).
- Low Discharge Air Temp: If the discharge air temperature is less than 40°F (adj.).

Variable Volume Terminal Unit - Flow Control:
The unit shall maintain zone setpoints by controlling the airflow through one of the following:

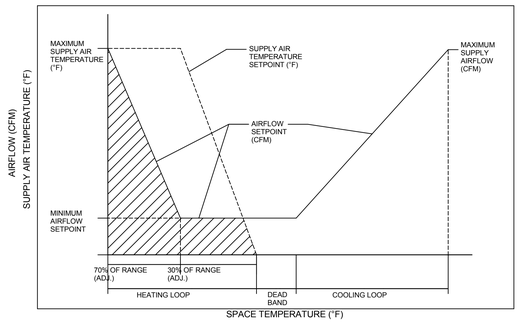
Occupied:
- When zone temperature is greater than its cooling setpoint, the zone damper shall modulate between the minimum occupied airflow (adj.) and the maximum cooling airflow (adj.) until the zone is satisfied.
- When zone temperature is less than the cooling setpoint, the zone damper shall maintain the minumum required zone ventilation (adj.).

- If heating setpoint is not able to be achieved at minimum airflow setting, then increase total airflow and discharge air temperature setpoint by 10% (adj.) every 2 minutes (adj.) until satisfied.

Unoccupied:
- When the zone is unoccupied the zone damper shall control to its minimum unoccupied airflow (adj.).
- When the zone temperature is greater than its cooling setpoint, the zone damper shall modulate between the minimum unoccupied airflow (adj.) and the maximum cooling airflow (adj.) until the zone is satisfied.

Building Warm-Up Mode (includes displacement and overhead ventilation):
- Prior to the beginning of occupied hours, VAV box warm-up mode shall be enabled using an adaptive optimum start-time logic.
- Inlet Damper: The building management system shall measure airflow at VAV and modulate inlet damper to provide max design CFM (adj).
- Heating Coil Valve: Heating coil valve shall be modulated full open. Maximum discharge air temperature shall be set at 95°F (adj).

The heating shall be enabled whenever (reference diagram below):
- Outside air temperature is less than 65°F (adj.).
- AND the zone temperature is below heating setpoint.
- AND the zone temperature can not be maintained at minimum airflow.



REHEAT CONTROL DIAGRAM

3 / M10.03 VARIABLE AIR VOLUME UNIT

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
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04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711.00

SHEET NAME

Mechanical Control Sequences

SHEET NUMBER

M10.02

Run Conditions - Scheduled:
The unit shall run based upon an operator adjustable schedule OR when a variable air volume unit is commanded on or when a variable air volume terminal unit is commanded on.

AHU Optimal Start:
The unit shall use an optimal start algorithm for morning start-up. This algorithm shall minimize the unoccupied warm-up or cool-down period while still achieving comfort conditions by the start of scheduled occupied period. The start time shall automatically adjust based on changes in outside air temperature, zone temperatures and day of the week. While under optimal start and in morning warm-up mode, the outside air damper shall remain completely closed until space is satisfied. Outside air damper shall remain closed and not go to occupied position after optimal start period ends if space temperature has not been satisfied.

Building Warm-up Mode:
OSA and EA dampers shall be 100% closed, EA economizer shall be 100% closed and recirculation dampers shall be 100% open. The supply and return fans shall operate to recirculate air, fans operate at design maximum CFM (adj.). The heating coil valve shall be modulated full open until zone temperatures are satisfied. Maximum discharge air temperature shall be set at 85°F (adj.). The supply fan shall continue to run until transitioning into the occupied mode of operation.

Unoccupied Mode:
The AHU shall not operate unless heating or economizer cooling is required to maintain the unoccupied temperature setpoints (or) unless the unoccupied override switch is activated.

Unoccupied Heating:
DO and DE dampers shall be 100% closed, and DR shall be 100% open. The supply and return fans shall operate to recirculate air.

Unoccupied Economizer Cooling:
DO, DE and DR dampers shall modulate to control discharge air temperature. Mechanical cooling shall be disabled during unoccupied mode. Do while OAT < space/zone temperature; when OAT rises over 15 minute period enable economizer cooling and run until high end of occupied set point. Limit fan operation in economizer to 70% capacity.

Minimum Outside Air Ventilation - Carbon Dioxide (CO2) Control:
When in the occupied mode, the controller shall measure CO2 levels and modulate the outside air dampers open on rising CO2 concentrations, overriding normal damper operation to maintain a CO2 setpoint of 800 PPM (adj.). NOTE: CO2 shall be controlled by supply air/outside air differential for multi-space systems and space sensor for single zone systems.

(For AHU-A07: Interlock minimum ventilation set point with EF-A03 run status)

Alarms shall be provided as follows:
- High CO2 Concentration: If the CO2 concentration is greater than 1000 ppm (adj.).

Occupied Heating Mode:
DO, DR, and DE dampers shall be positioned to provide designed OSA CFM's. If zone temperatures (2 zone in 15 minutes) cannot be met then reduce outside air (per AHU). Alarmed condition.

Occupied Economizer Cooling:
The DO, DE and DR dampers shall modulate to control discharge air temperature. The controller shall measure the mixed air temperature and modulate the economizer dampers in sequence to maintain a setpoint 2°F (adj.) less than the supply air temperature setpoint. The outside air damper shall maintain a minimum adjustable position of 20% (adj.) open whenever occupied and utilize the airflow measuring station for damper positions less than 20% to ensure proper outside air is being delivered.

The economizer shall be enabled whenever:
- Outside air temperature is less than the return air temperature.
- AND the outside air temperature is less than the DAT reset temp.
- AND the supply fan status is on.

The economizer shall close whenever:
- Mixed air temperature drops from 40°F (adj.) to 35°F (adj.).
- OR the freezestat (if present) is on.
- OR on loss of supply fan status.

Supply Fan:
The supply fan shall run anytime the unit is commanded to run, unless shutdown on safeties. To prevent short cycling, the supply fan shall have a user definable (adj.) minimum runtime.

Alarms shall be provided as follows:
- Supply Fan Failure: Commanded on, but the status is off.
- Supply Fan in Hand: Commanded off, but the status is on.
- Supply Fan Fault

Supply Air Duct Static Pressure Control:
The controller shall measure multiple duct static pressure sensors (5 minute delay, adj.) and use worst case sensor (provide toggle on screen to remove sensor(s) from reset) and modulate the supply fan speed to maintain a duct static pressure setpoint. The speed shall not drop below 30% (adj.). The static pressure setpoint shall be reset based on zone cooling requirements.
- The initial duct static pressure setpoint shall be 1.2" H20 (adj.). {All boxes at minimum}
- As cooling demand increases, the setpoint shall incrementally reset up to a max of 1.8" H2O (adj.).
- As cooling demand decreases, the setpoint shall incrementally reset down to a min of 1.2" H2O (adj.).
- If worst case damper is open more than 90% then adjust pressure per above.

Alarms shall be provided as follows:
- High Supply Air Static Pressure: If the supply air static pressure is 25% (adj.) greater than setpoint.
- Low Supply Air Static Pressure: If the supply air static pressure is 25% (adj.) less than setpoint.

Return Fan:
The return fan shall run whenever the supply fan runs. The return fan shall modulate in unison with the supply fan up to a speed of 50% (adj.). The return fan speed shall not exceed the supply fan speed. The return fan shall track the supply fan speed initially at 80% (adj.) of the supply fan speed up to the 50% setting. The tracking of the return fan shall be based on the return duct static pressure setpoints. When the supply fan exceeds 50% (provide 5 minute time delay) of fan speed, the return fan shall be controlled through building static pressure sensors located throughout the building. The return fans for all corresponding air handlers within a pressurized zone shall track up/down to maintain a building static pressure of +0.03" (adj.). Provide toggle on screen to switch between two modes.

Alarms shall be provided as follows:
- Return Fan Failure: Commanded on, but the status is off.
- Return Fan in Hand: Commanded off, but the status is on.
- Return Fan Fault

Return Air Duct Static Pressure Control:
The controller shall measure multiple duct static pressure sensors and use worst case sensor and modulate the return fan speed to maintain a return duct static pressure setpoint up to 50% speed (adj.). The return fan shall track to the closest building pressure sensors at speeds greater than 50% (adj.). The return fan speed shall not drop below 20% (adj.).
- The return duct static pressure setpoint shall be 0.3" H20 (adj.)

Alarms shall be provided as follows:
- High Return Air Static Pressure: If the supply air static pressure is 100% (adj.) greater than setpoint.
- Low Return Air Static Pressure: If the supply air static pressure is 100% (adj.) less than setpoint.

Fan staging
- Units with multiple fans serving a single zone shall operate in unison as a single fan.
- Units with 3 fans serving multiple zones shall operate as follows:
  - 1 fan shall act as the lead and shall run first.
  - When the lead fan ECM is 70% (adj.) for 5 minutes, the remaining 2 fans shall act as the lag and will start and operate in unison as a single fan (speed balance).
  - Stage down based on fan speed (50-70%, adj.) determined by field conditions.
  - Lead fan failure sequence - auto reset
- Units with 4 fans serving multiple zones shall operate as follows:
  - 2 fans shall act as the lead and shall run first and operate in unison as a single fan.
  - When the lead fans ECM is 70% (adj.) for 5 minutes, the remaining 2 fans shall act as the lag and will start and operate in unison as a single fan (speed balance).
  - Stage down based on fan speed (50-70%, adj.) determined by field conditions.
  - Lead fan failure sequence - auto reset

The designated lead fan shall rotate upon one of the following conditions (user selectable):
- Manually through a software switch.
- Fan failure

Supply Air Temperature Setpoint - Optimized:
The controller shall monitor the supply air temperature and shall maintain a supply air temperature setpoint reset based on zone cooling and heating requirements. On switch from heating to cooling or cooling to heating, temperature shall reset to 62°F (adj.), 70°F (raised floor). Provide toggle for each unit tied to system to toggle system out of the optimized temperature sequence setpoint.
- If cooling demand is > 90% for 5 min (adj.) decrease SA setpoint by 1 deg.
- If cooling demand is < 50% for 5 min (adj.) increase SA setpoint by 1 deg.

If more zones need heating than cooling, then the supply air temp setpoint shall be reset for heating as follows:
- The initial supply air temperature setpoint shall be 55°F (adj - overhead.) / 67°F (adj. - raised floor)
- As heating demand increases, the setpoint shall incrementally reset up to a maximum of 85°F (adj. - overhead) / 74°F (adj. - raised floor).
- As heating demand decreases, the setpoint shall incrementally reset down to a minimum.

The supply air temp setpoint shall be reset for cooling based on zone cooling requirements as follows :
- The initial supply air temperature setpoint shall be 55°F (adj - overhead.) / 67°F (adj. - displacement)
- As cooling demand increases, the setpoint shall incrementally reset down to a minimum.
- As cooling demand decreases, the setpoint shall incrementally reset up to a maximum of 85°F (adj. - overhead) / 74°F (adj. - raised floor).

Mixed Air Temperature:
The controller shall monitor the mixed air temperature and use as required for economizer control or heating control.

Alarms shall be provided as follows:
- High Mixed Air Temp: If the mixed air temperature is greater than 90°F (adj.).
- Low Mixed Air Temp: If the mixed air temperature is less than 45°F (adj.).

Return Air Temperature:
The controller shall monitor the return air temperature and use as required for setpoint control or economizer control (if present).

Alarms shall be provided as follows:
- High Return Air Temp: If the return air temperature is greater than 80°F (adj.) during occupied hours.
- Low Return Air Temp: If the return air temperature is less than 65°F (adj.) during occupied hours.

Supply Air Temperature:
The controller shall monitor the supply air temperature.

Alarms shall be provided as follows:
- High Supply Air Temp: If the supply air temperature is greater than 120°F (adj.).
- Low Supply Air Temp: If the supply air temperature is less than 50°F (adj.).

Hydronic Heating Coil Valve:
The controller shall modulate the hydronic coil valve to maintain its supply air temperature setpoint.

Alarms shall be provided as follows:
- Low Supply Air Temp: If the supply air temperature is 5°F (adj.) less than setpoint.
- High Supply Air Temp: If the supply air temperature is 5°F (adj.) greater than setpoint.

Chilled Water Cooling Coil Valve:
In cooling mode the controller shall modulate the cooling coil valve to maintain its supply air temperature setpoint. The controller shall measure the supply air temperature and activate the cooling coil to maintain its cooling setpoint when economizer can no longer achieve the supply air temperature setpoint.

The cooling shall be enabled whenever:
- Outside air temperature is greater than the mixed air temperature setpoint.
- AND the economizer is disabled or fully open.
- AND the supply fan status is on.
- AND the heating is not active.
- AND the heating of the zones are not active.

The condenser cooling coil valve shall open to a minimum position of 10% (adj.) for freeze protection during unoccupied hours for low ambient protection if outside air temperature is below 38°F (adj.).

Alarms shall be provided as follows:
- High Supply Air Temp: If the supply air temperature is 5°F (adj.) greater than setpoint.

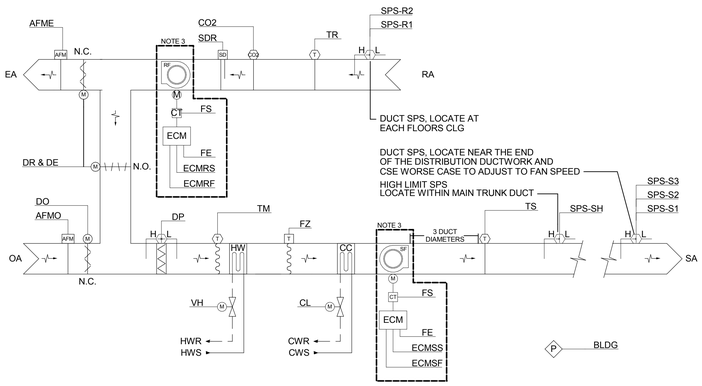
Freeze Protection:
The unit shall shut down and generate an alarm upon receiving a freezestat status. The freezestat shall be hardwired into the AHU control circuit so when the freezestat trips, fans stop and dampers close via their spring return damper, without waiting for a signal from the EMS. The EMS shall also, through software, shut down the AHU and open the heating coil valve 100%. Freezestat shall be set to 35 degrees. Reset three (3) times and then default to manual reset.

Return Air Smoke Duct Detection:
The unit shall shut down and generate an alarm upon receiving a return air smoke detector status. Automatic restart upon return to normal conditions.

Filter Differential Pressure Monitor:
The controller shall monitor the differential pressure across the filter banks.

Duct Static High/Low Limit:
The controller shall monitor the high and low duct static limit. If the duct static exceeds the limit by 15%, all corresponding VAVs shall go full open to protect the system.

Alarms shall be provided as follows:
- High/Low Duct Static: If the duct static exceeds 15% (adj).



VARIABLE AIR VOLUME - AHU		HARDWARE POINTS				SOFTWARE POINTS						
Point Name	MARK	AI	AO	BI	BO	AV	BV	Sched	Trend	Alarm	GRAPHIC	COMMENTS
Supply Air Static Pressure	SPS-S	X							X	X	X	AVG SPS
Return Air Static Pressure	SPS-R	X							X	X	X	WORST CASE SPR
Carbon Dioxide PPM	C02	X									X	
Prefilter Differential Pressure	DP	X							X			
Mixed Air Temp	TM	X							X		X	
Return Air Temp	TR	X							X		X	
Supply Air Temp	TS	X							X		X	
Air Flow Monitoring, Exhaust	AFME	X							X		X	
Air Flow Monitoring, Outside	AFMO	X							X		X	
Building Pressure Sensor	BLDG	X							X		X	NOTE 2
Supply Fan Speed	ECMSS		X						X		X	
Return Fan Speed	ECMRS		X						X		X	
Hydronic Valve	VH		X						X		X	NOTE 1
Outside Air Damper	DO		X						X		X	
Mixed Air Dampers	DR & DE		X						X		X	DR = 100%-DE
Freezestat	FZ			X					X	X	X	
Condenser Cooling Valve	CL		X						X	X	X	
Return Air Smoke Detector	SDR			X					X	X	X	
Supply Fan Fault	ECMSF			X						X	X	
Supply Fan Status	FS			X					X		X	
Return Fan Fault	ECMRF			X						X		
Return Fan Status	FS			X					X		X	
Supply Fan Start/Stop	FE				X				X		X	
Return Fan Start/Stop	FE				X				X		X	
Supply Air Static Pressure Setpoint	SPSSZ					X					X	
Return Air Static Pressure Setpoint	SPSRZ					X					X	
Supply Air Temp Setpoint	TZ					X			X		X	
Economizer Mixed Air Temp Setpoint	DMZ					X			X		X	
Carbon Dioxide PPM Setpoint	C02Z					X			X		X	
Cooling Setpoint	CZ								X		X	
Schedule	SCHED							X				
High Supply Air Static Pressure										X		
Low Supply Air Static Pressure										X		
High Return Air Static Pressure										X		
Low Return Air Static Pressure										X		
Supply Fan Failure										X		
Supply Fan in Hand										X		
Return Fan Failure										X		
Return Fan in Hand										X		
High Supply Air Temp										X		
Low Supply Air Temp										X		
High Carbon Dioxide Concentration										X		
Filter Change Required										X	X	
High Mixed Air Temp										X		
Low Mixed Air Temp										X		
High Return Air Temp										X		
Low Return Air Temp										X		
High Supply Air Temp										X		
Low Supply Air Temp										X		
Condensate Float Overflow										X		
High/Low Duct Static										X		

*NOTE: CONTROLS LOOP SHALL BE BY CASCADING TYPE.
NOTE 1 WHERE SCHEDULED ON THE DRAWINGS
NOTE 2 PROVIDE QUANTITY AS SHOWN ON FLOOR PLANS.
NOTE 3 PROVIDE QUANTITY OF FANS AND MOTORS AS NOTED ON SCHEDULES.

1 M10.03 HYDRONIC AIR HANDLING - VAV

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711.00

SHEET NAME

Mechanical Control Sequences

SHEET NUMBER

M10.03

Run Conditions - Scheduled:
The unit shall run based upon an operator adjustable schedule OR when an adjustable number of variable air volume units are commanded on.

AHU Optimal Start:
The unit shall use an optimal start algorithm for morning start-up. This algorithm shall minimize the unoccupied warm-up or cool-down period while still achieving comfort conditions by the start of scheduled occupied period. The start time shall automatically adjust based on changes in outside air temperature, zone temperatures and day of the week. While under optimal start and in morning warm-up mode, the outside air damper shall remain completely closed until space is satisfied. Outside air damper shall remain closed and not go to occupied position after optimal start period ends if space temperature has not been satisfied.

Building Warm-Up Mode:
OSA and EA dampers shall be 100% closed, OSA bypass, EA face dampers, & EA economizer shall be 100% closed and OSA face and recirculation dampers shall be 100% open. The OSA and EA damper shall open and DFO shall open to a minimum position (10%, adj.) to pre-charge the heat exchanger until temperatures of the heat exchanger efficiency are met (calculation). The supply and return fans shall operate to recirculate air, fans operate at design maximum CFM (adj.). The heating coil valve shall be modulated full open until zone temperatures are satisfied. Maximum discharge air temperature shall be set at 85°F (adj.). The supply fan shall continue to run until transitioning into the occupied mode of operation.

Unoccupied Mode:
The AHU shall not operate unless heating or economizer cooling is required to maintain the unoccupied temperature setpoints (or) unless the unoccupied override switch is activated.

Unoccupied Heating: DO and DE dampers shall be 100% closed, DFO and DFR shall be 100% open (to equalize pressure), DBO and DBR shall be 100% closed and DR shall be 100% open. The supply and return fans shall operate to recirculate air. The AHU heating coil valve is closed except for AHU-C04, C13, C14, C15 and C16 which are serving single zones. For all other AHUs heating shall be provided by the VAV reheat coils.

Unoccupied Economizer Cooling (Hydronic System SOO refers to Airside Economizer): DFO and DFR dampers shall be 100% closed and DBO and DBR shall be 100% open. The DO, DE and DR dampers shall modulate to control discharge air temperature. Mechanical cooling shall be disabled during unoccupied mode. Do while OAT < space/zone temperature; when OAT rises over 15 minute period enable economizer cooling and run until high end of occupied set point. Limit fan operation in economizer to 70% capacity.

Minimum Outside Air Ventilation - Carbon Dioxide (CO2) Control:
When in the occupied mode, the controller shall measure CO2 for input to outside air damper position. The outside air damper (DO) shall modulate open and return damper (DR) closed on rising CO2 concentrations, overriding normal damper operation to maintain a CO2 setpoint of 800 PPM (adj). NOTE: CO2 shall be controlled by supply air/outside air differential for multi-space systems and space sensor for single zone systems.

Alarms shall be provided as follows:
- High Return Air CO2 Concentration: If the return air CO2 concentration is greater than 1000 ppm (adj.).

Occupied Heating Mode:
DFO and DFR shall be 100% open. DBO and DBR damper shall be 100% closed. DO, DR, and DE shall be positioned to provide designed OSA CFM's. If zone temperatures (2 zone in 15 minutes) cannot be met reduce outside air (per AHU) by modulating DFO closed and DR open to recirculate return air. Applies to all AHUs except AHU-A04 and AHU-B04. Alarmed condition.

Occupied Economizer Cooling (Hydronic System SOO refers to Airside Economizer):
DFO and DFR dampers shall be 100% closed and DBO and DBR shall be 100% open. The DO, DE and DR dampers shall modulate to control discharge air temperature. The controller shall measure the mixed air temperature and modulate the economizer dampers in sequence to maintain a setpoint 2°F (adj.) less than the supply air temperature setpoint. The outside air damper shall maintain a minimum adjustable position of 20% (adj.) open whenever occupied and utilize the airflow measuring station for damper positions less than 20% to ensure proper outside air is being delivered.

To extend the use of economizer mode, when the return air temperature is less that the outside air temperature, modulate DBR and DBO closed and DFO and DFR open in sequence to pre-cool the outside air with the heat exchanger.

The economizer shall be enabled whenever:
- Outside air temperature is less than the space temperature.
- AND the outside air temperature is less than the return air temperature.
- AND the supply fan status is on.

OR
- Outside air temperature is higher than the space temperature.
- AND the return air temperature is less than the outside air temperature.
- AND the supply fan status is on.

The economizer shall close whenever:
- Mixed air temperature drops from 40°F (adj.) to 35°F (adj.).
- OR the freezestat (if present) is on.
- OR on loss of supply fan status.

Purge Mode:
Purge mode shall be enabled when a zone VAV with purge switch operation has called for purge. AHU supply fan speed shall modulate to maintain supply duct static pressure setpoint. AHU hydronic control valves shall modulate to maintain heating or cooling supply air temperature setpoints. DO, DR, and DE shall be positioned to provide designed OSA CFM's.

General Air Handling Unit Damper Control :
There are 7 dampers associated with each AHU and 5 of these dampers are within each AHU. The OSA and EA dampers, DO & DE, are external and controlled independently from each other and from other dampers. The OSA heat exchanger face damper DFO and the OSA bypass damper DBO are controlled by the same signal, but function opposite to each other. If one is open the other is closed. The return heat exchanger face damper, DFR and the exhaust economizer damper, DBR are controlled by the same signal, but function opposite to each other. The return damper, DR, is controlled by a separate signal.

External Dampers:
The following outside air and exhaust air dampers are external to the air handling unit and are controlled by multiple air handling units.
- **DO:** Outside air inlet damper. This damper, when open, allows outside air to be drawn through the externally connected outside air ductwork into the unit OSA filter section and pass through the heat exchanger or through the heat exchanger bypass.
- **DE:** Exhaust outlet damper. This damper, when open, allows exhaust air to pass through the unit, discharging to the externally connected exhaust air ductwork.

Supply Fan:
The supply fan shall run anytime the unit is commanded to run, unless shutdown on safeties. To prevent short-cycling, the supply fan shall have a user definable (adj.) minimum runtime. For spaces equipped with humidity sensors the supply fan shall run to maintain scheduled air flow at a maximum relative humidity setpoint of 60% RH (adj.) When humidity rises above the setpoint for 5 min (adj.) and after the heating/cooling valve are at a max allowed value the fan speed shall be adjusted down at 10% increments until the space is satisfied. Fan speed shall then be adjusted up at 10% increments.

Alarms shall be provided as follows:
- Supply Fan Failure: Commanded on, but the status is off.
- Supply Fan in Hand: Commanded off, but the status is on.
- Supply Fan Fault.

Supply Air Duct Static Pressure Control:
The controller shall measure multiple duct static pressure sensors (5 minute delay, adj.) and use worst case sensor (provide toggle on screen to remove sensor(s) from reset) and modulate the supply fan speed to maintain a duct static pressure setpoint. The speed shall not drop below 30% (adj.). The static pressure setpoint shall be reset based on zone cooling requirements.
- The initial duct static pressure setpoint shall be 1.2" H20 (adj.). {All boxes at minimum}
- As cooling demand increases, the setpoint shall incrementally reset up to a max of 1.8" H2O (adj.).
- As cooling demand decreases, the setpoint shall incrementally reset down to a min of 1.2" H2O (adj.).
- If worst case damper is open more than 90% then adjust pressure per above

Alarms shall be provided as follows:
- High Supply Air Static Pressure: If the supply air static pressure is 25% (adj.) greater than setpoint.
- Low Supply Air Static Pressure: If the supply air static pressure is 25% (adj.) less than setpoint.

Return Fan:
The return fan shall run whenever the supply fan runs. The return fan shall modulate in unison with the supply fan up to a speed of 50% (adj.). The return fan speed shall not exceed the supply fan speed. The return fan shall track the supply fan speed initially at 80% (adj.) of the supply fan speed up to the 50% setting. The tracking of the return fan shall be based on the building static pressure setpoints. When the supply fan exceeds 50% (provide 5 minute time delay) of fan speed, the return fan shall be controlled through building static pressure sensors located throughout the building. The return fans for all corresponding air handlers within a pressurized zone shall track up/down to maintain a building static pressure of +0.03" (adj.). Provide toggle on screen to switch between two modes.

Alarms shall be provided as follows:
- Return Fan Failure: Commanded on, but the status is off.
- Return Fan in Hand: Commanded off, but the status is on.
- Return Fan Fault.

Return Air Duct Static Pressure Control:
The controller shall measure multiple duct static pressure sensors and use worst-case sensor and modulate the return fan speed to maintain a return duct static pressure setpoint up to 50% speed (adj.). The return fan shall track to the closest building pressure sensors at speeds greater than 50% (adj.). The return fan speed shall not drop below 20% (adj.).
- The return duct static pressure setpoint shall be 0.3" H20 (adj.)

Alarms shall be provided as follows:
- High Return Air Static Pressure: If the supply air static pressure is 100% (adj.) greater than setpoint.
- Low Return Air Static Pressure: If the supply air static pressure is 100% (adj.) less than setpoint.

Fan staging
- Units with multiple fans serving a single zone shall operate in unison as a single fan.
- Units with 3 fans serving multiple zones shall operate as follows:
- •• 1 fan shall act as the lead and shall run first.
- •• When the lead fan ECM is 70% (adj.) for 5 minutes, the remaining 2 fans shall act as the lag and will start and operate in unison as a single fan (speed balance).
- •• Stage down based on fan speed (50-70%, adj.) determined by field conditions.
- •• Lead fan failure sequence - auto reset
- Units with 4 fans serving multiple zones shall operate as follows:
- •• 2 fans shall act as the lead and shall run first and operate in unison as a single fan.
- •• When the lead fans ECM is 70% (adj.) for 5 minutes, the remaining 2 fans shall act as the lag and will start and operate in unison as a single fan (speed balance).
- •• Stage down based on fan speed (50-70%, adj.) determined by field conditions.
- •• Lead fan failure sequence - auto reset

The designated lead fan shall rotate upon one of the following conditions (user selectable):
- Manually through a software switch.
- Fan runtime (adj.).
- Fan failure

Supply Air Temperature Setpoint - Optimized:
The controller shall monitor the supply air temperature and shall maintain a supply air temperature setpoint reset based on zone cooling and heating requirements. On switch from heating to cooling or cooling to heating, temperature shall reset to 62°F (adj.), 70°F (raised floor). Provide toggle for each unit tied to system to toggle system out of the optimized temperature sequence setpoint.
- If cooling demand is > 90% for 5 min (adj.) decrease SA setpoint by 1 deg.
- If cooling demand is < 50% for 5 min (adj.) increase SA setpoint by 1 deg.

If more zones need heating than cooling, then the supply air temp setpoint shall be reset for heating as follows :
- The initial supply air temperature setpoint shall be 55°F (adj - overhead.) / 67°F (adj. - raised floor)
- As heating demand increases, the setpoint shall incrementally reset up to a maximum of 85°F (adj. - overhead) / 74°F (adj. - raised floor).
- As heating demand decreases, the setpoint shall incrementally reset down to a minimum.

The supply air temp setpoint shall be reset for cooling based on zone cooling requirements as follows :
- The initial supply air temperature setpoint shall be 55°F (adj - overhead.) / 67°F (adj. - displacement)
- As cooling demand increases, the setpoint shall incrementally reset down to a minimum.
- As cooling demand decreases, the setpoint shall incrementally reset up to a maximum of 85°F (adj. - overhead) / 74°F (adj. - raised floor).

Mixed Air Temperature:
The controller shall monitor the mixed air temperature and use as required for economizer control or heating control. Alarms shall be provided as follows:
- High Mixed Air Temp: If the mixed air temperature is greater than 90°F (adj.).
- Low Mixed Air Temp: If the mixed air temperature is less than 45°F (adj.).

Return Air Temperature:
The controller shall monitor the return air temperature and use as required for setpoint control or economizer control. Alarms shall be provided as follows:
- High Return Air Temp: If the return air temperature is greater than 80°F (adj.) during occupied hours.
- Low Return Air Temp: If the return air temperature is less than 65°F (adj.) during occupied hours.

Supply Air Temperature:
The controller shall monitor the supply air temperature. Alarms shall be provided as follows:
- High Supply Air Temp: If the supply air temperature is greater than 120°F (adj.).
- Low Supply Air Temp: If the supply air temperature is less than 50°F (adj.).

Heat Exchanger:
The heat exchanger operation shall be scheduled/interlocked with the associated supply fan, exhaust fan, and internal motorized dampers. These components shall be interlocked to function as a complete system.

Heat Exchanger Damper Descriptions:
- **DFO:** Heat exchanger outside air face damper. This damper, when open, allows outside air to enter the supply air system by passing through the face of the heat exchanger.
- **DFR:** Heat exchanger return air face damper. This damper, when open, allows return air to enter the exhaust air system by passing through the face of the heat exchanger.
- **DBO:** Heat exchanger outside air bypass damper. This damper, when open, allows outside air to enter the supply air system without passing through the heat exchanger.
- **DBR:** Heat exchanger return air bypass damper. This damper, when open, allows return air to enter the exhaust air system without passing through the heat exchanger.
- **DR:** Return damper. This damper, when open, allows return air to be re-circulated to the spaces served without introducing outside air and without passing through the heat exchanger.

Heat Exchanger Freeze Protection :
The EMS shall monitor the exhaust air temperature leaving the heat exchanger (THRE) and on a drop in temperature below 40°F (adj.), the EMS shall modulate DFO closed and DBO open to maintain a minimum 40°F (adj.).

Alarms shall be provided as follows:
- Low Exhaust Air Temp: If the exhaust air temperature is less than 35°F (adj.).

Hydronic Heater Valve:
The controller shall modulate the hydronic coil valve to maintain its supply air temperature setpoint

The hydronic coil valve shall open to a minimum position of 10% (adj.) for freeze protection during unoccupied hours for low ambient protection if outside air temperature is below 38°F (adj.).

Alarms shall be provided as follows:
- Low Supply Air Temp: If the supply air temperature is 5°F (adj.) less than setpoint.
- High Supply Air Temp: If the supply air temperature is 5°F (adj.) greater than setpoint.

Chilled Water Cooling Coil Valve:
In cooling mode the controller shall modulate the cooling coil valve to maintain its supply air temperature setpoint. The controller shall measure the supply air temperature and activate the cooling coil to maintain its cooling setpoint when economizer can no longer achieve the supply air temperature setpoint.

The cooling shall be enabled whenever:
- Outside air temperature is greater than the mixed air temperature setpoint.
- AND the economizer is disabled or fully open.
- AND the supply fan status is on.
- AND the heating is not active.
- AND the heating of the zones are not active.

The condenser cooling coil valve shall open to a minimum position of 10% (adj.) for freeze protection during unoccupied hours for low ambient protection if outside air temperature is below 38°F (adj.).

Alarms shall be provided as follows:
- High Supply Air Temp: If the supply air temperature is 5°F (adj.) greater than setpoint.

Freeze Protection:
The unit shall shut down and generate an alarm upon receiving a freezestat status. The freezestat shall be hardwired into the HRU control circuit so when the freezestat trips, fans stop and dampers close via their spring return damper, without waiting for a signal from the EMS. The EMS shall also, through software, shut down the HRU and open the heating coil valve 100%. Freezestat shall be set to 35 degrees. Default to manual reset.

Return Air Smoke Duct Detection:
The unit shall shut down and generate an alarm upon receiving a return air smoke detector status. Automatic restart upon return to normal conditions.

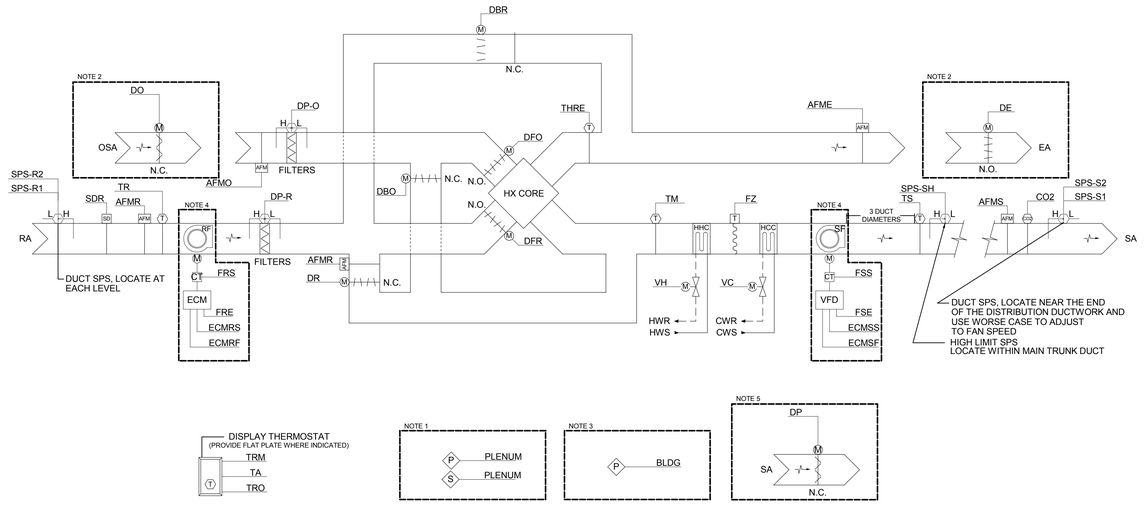
Alarms shall be provided as follows:
- Condensate Float Overflow: Drain pan is full of water, unit commanded off.

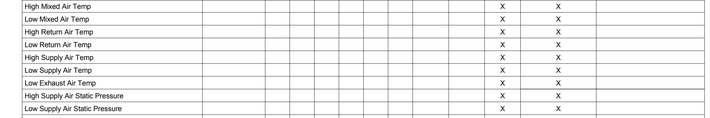
Filter Differential Pressure Monitor:
The controller shall monitor the differential pressure across the filter banks.

Duct Static High/Low Limit:
The controller shall monitor the high and low duct static limit. If the duct static exceeds the limit by 15%, all corresponding VAVs shall go full open to protect the system.

Alarms shall be provided as follows:
- High/Low Duct Static: If the duct static exceeds 15% (adj).

Heat Exchanger Efficiency Monitoring :
Using the OSA temperature sensor (TO), RA temperature sensor (TR), relief air temperature sensor (THRE), mixed air temperature sensor (TM), exhaust air and outside air flow monitoring, the EMS shall calculate real time heat exchanger efficiency and display results. Calculation results shall be displayed in % efficiency.





VARIABLE AIR VOLUME - AHU		HARDWARE POINTS				SOFTWARE POINTS						
Point Name	MARK	AI	AO	BI	BO	AV	BV	Sched	Trend	Alarm	GRAPHIC	COMMENTS
High Limit Supply Air Static Pressure	SPS-SH	X							X	X	X	
Supply Air Static Pressure	SPS-S1,S2	X							X	X	X	
Return Air Static Pressure	SPS-R1,R2	X							X	X	X	
Exhaust Air Temp	THRE	X							X		X	
Plenum Pressure Sensor	PLENUM	X							X	X	X	QTY PER PLANS
Mixed Air Temp	TM	X							X		X	
Return Air Temp	TR	X							X		X	
Supply Air Temp	TS	X							X		X	
Outside Air Damper	DO		X						X		X	
Plenum Air Damper	DO		X						X		X	
Exhaust Air Damper	DE		X						X		X	
Return Damper	DR		X						X		X	
Outside Air Face & Bypass Damper	DFO & DBO		X						X		X	DFO=100%-DBO
Return Air Face & Bypass Damper	DFR & DBR		X						X		X	DFR=100%-DBR
Hydronic Water Valve	VH		X						X		X	
Condenser Water Valve	VC		X						X		X	
Freezestat	FZ			X					X	X	X	
Return Air Smoke Detector	SDR			X					X	X	X	
Supply Fan Array Speed	ECMSS				X				X		X	
Supply Fan Array Fault	ECMSF			X						X	X	
Supply Fan Status	FSS			X					X		X	
Supply Fan Start/Stop	FSE				X				X		X	
Return Fan Array Fault	ECMRF			X						X	X	
Return Fan Status	FRS			X					X		X	
Return Fan Array Speed	ECMRS				X				X		X	
Return Fan Start/Stop	FRE				X				X		X	
Air Flow Monitoring, Exhaust	AFME	X							X		X	
Air Flow Monitoring, Outside	AFMO	X							X		X	
Air Flow Monitoring, Return	AFMR	X							X		X	
Air Flow Monitoring, Supply	AFMS	X							X		X	
Supply Air Temp Setpoint						X			X		X	
Supply Air Carbon Dioxide PPM						X			X		X	
Schedule								X				
Heat Exchanger Efficiency						X			X		X	
Supply Fan Failure										X	X	
Supply Fan in Hand										X	X	
Return Fan Failure										X	X	
Return Fan in Hand										X	X	
High Supply Air Temp										X	X	
Low Supply Air Temp										X	X	
High Mixed Air Temp										X	X	
Low Mixed Air Temp										X	X	
High Return Air Temp										X	X	
Low Return Air Temp										X	X	
High Supply Air Temp										X	X	
Low Supply Air Temp										X	X	
Low Exhaust Air Temp										X	X	
High Supply Air Static Pressure										X	X	
Low Supply Air Static Pressure										X	X	
High Return Air Static Pressure										X	X	
Filter Change Required										X	X	
Carbon Dioxide Sensor	C02	X							X		X	
Purge Switch	PS				X				X		X	NOTE 1
Return Filter Differential Pressure	DP-R				X					X	X	
Outside Air Filter Differential Pressure	DP-O				X					X	X	
Building Pressure Sensor	BLDG	X								X		
Condensate Float Overflow										X		

NOTE 1 PROVIDE QUANTITY OF PLENUM PRESSURE & TEMPERATURE SENSORS AS SHOWN AND IDENTIFIED ON PLANS.
NOTE 2 OUTSIDE AIR AND EXHAUST DAMPERS EXTERNAL TO UNIT, SEE 1/M10.02.
NOTE 3 PROVIDE QUANTITY AS SHOWN ON FLOOR PLANS.
NOTE 4 PROVIDE QUANTITY OF FANS AND MOTORS AS NOTED ON SCHEDULES.
NOTE 5 PROVIDE QUANTITY OF MOTORIZED DAMPERS AS INDICATED ON PLANS. DAMPERS SHALL MODULATE TO MAINTAIN UNIFORM PRESSURE ACROSS ENTIRE PLENUM INCLUDING UPPER STAGE.

M10.04 **VARIABLE VOLUME HEAT RECOVERY AIR HANDLING UNIT (AHU)**

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PROJECT INFORMATION

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Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

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BID DOCUMENTS

04.13.2020

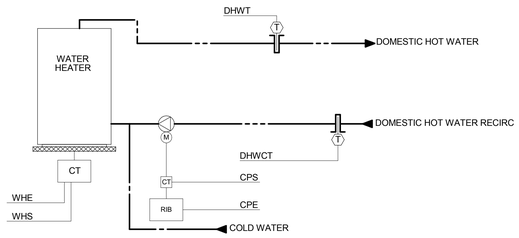
PROJECT NUMBER: 1711.00

SHEET NAME

Mechanical Control Sequences

SHEET NUMBER

M10.04



HOT WATER HEATER		HARDWARE POINTS				SOFTWARE POINTS						
POINT NAME	MARK	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM	GRAPHIC	COMMENTS
Primary Hot Water Return Temp	DHWCT	X							X		X	
Primary Hot Water Supply Temp	DHWT	X						X	X		X	
Circulation Pump Status	CPS			X					X		X	
Water Heater Status	WHS			X					X		X	
Circulation Pump Start/Stop	CPE				X			X	X		X	
Water Heater Enable/Disable	WHE				X			X			X	
Outside Air Temp	TO					X					X	
Circulation Pump Failure										X	X	
Circulation Pump Running in Hand										X	X	
Circulation Pump Runtime Exceeded										X	X	
High Primary Hot Water Supply Temp										X	X	
Low Primary Hot Water Supply Temp										X	X	

Hot Water Heater System Run Conditions:
The hot water heater system shall be enabled to run when scheduled.
The hot water heater shall run subject to its own internal safeties and controls.
The water heater system shall also run for freeze protection whenever outside air temperature is less than 40°F (adj.).

Circulation Pump:
The circulation pump shall run anytime the hot water heater is called to run and shall have a user definable (adj.) delay on stop. Pump shall run when DHWT drops below 105°F (adj.).

Alarms shall be provided as follows:
- Circulation Pump Failure: Commanded on, but the status is off.
- Circulation Pump Running in Hand: Commanded off, but the status is on.

Hot Water Heater Enable:
The hot water heater shall be enabled when the hot water heater system is commanded on. The hot water heater shall run subject to its own internal safeties and controls.

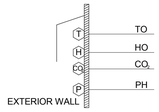
Alarms shall be provided as follows:
- Hot Water Heater Failure: Commanded on, but the status is off.
- Hot Water Heater Running in Hand: Commanded off, but the status is on.

Hot Water Supply Temperature Setpoint:
The hot water heater shall maintain a hot water supply temperature setpoint as determined by its own internal controls (domestic hot water 120°F, kitchen hot water 140°F).

Primary Hot Water Temperature Monitoring:
The following temperatures shall be monitored:
- Primary domestic hot water supply.
- Primary domestic hot water re-circ.

Alarms shall be provided as follows:
- Domestic High Primary Hot Water Supply Temp: If greater than 130°F (adj.).
- Kitchen High Primary Hot Water Supply Temp: If greater than 150°F (adj.).
- Low Primary Hot Water Supply Temp: If less than 95°F (adj.).

1 M10.05 ELECTRIC WATER HEATER



Outside Conditions		HARDWARE POINTS				SOFTWARE POINTS						
POINT NAME	MARK	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM	GRAPHIC	COMMENTS
Outside Air Temp	TO	X							X		X	
Outside Air Humidity	HO	X							X		X	
Photocell	PH	X							X		X	
Carbon Dioxide Sensor	CO_2	X							X		X	
Outside Air Enthalpy	EO					X			X		X	
High Temp Hourly									X		X	NOTE 1
High Temp Today									X		X	NOTE 1
High Temp Month-to-Date									X		X	NOTE 1
High Temp Year-to-Date									X		X	NOTE 1
Low Temp Hourly									X		X	NOTE 1
Low Temp Today									X		X	NOTE 1
Low Temp Month-to-Date									X		X	NOTE 1
Low Temp Year-to-Date									X		X	NOTE 1
Sensor Failure										X	X	ALL TYPES

NOTE 1: PROVIDE HISTORY FOR ALL SENSORS AS NOTED BELOW AND SIMILAR TO ITEMS LISTED.
CONTRACTOR SHALL PROVIDE 2 EXTERIOR TEMPERATURE SENSORS, 2 EXTERIOR CARBON DIOXIDE AND 1 OF EACH REMAINING EXTERIOR SENSOR TYPE.

Outside Air Conditions:
The controller shall monitor the outside air temperature and humidity and calculate the outside air enthalpy on a continual basis. These values shall be made available to the system at all times. Outside air shall be averaged w/ capability of removing sensor from calculation/display.

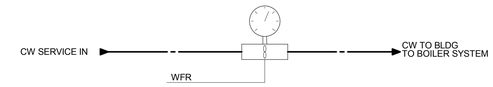
Carbon Dioxide Conditions:
The controller shall monitor the carbon dioxide on a continual basis. These values shall be made available to the system at all times. Carbon Dioxide shall be averaged w/ capability of removing sensor from calculation/display.

Outside Air Temperature and Humidity History:
The controller shall monitor and record the high and low temperature readings for the outside air and humidity. These readings shall be recorded on a hourly, daily, month-to-date, and year-to-date basis.

Carbon Dioxide History:
The controller shall monitor and record the high and low CO2 readings. These readings shall be recorded on a hourly, daily, month-to-date, and year-to-date basis.

Alarms:
Alarms shall be generated as follows:
- Sensor Failure: Sensor reading indicates shorted or disconnected sensor. In the event of a outside air or CO2 sensor failure, the alternate sensors shall be made available to the system without interruption in sensor readings. For single sensor failures, a "failure" will be identified under the history. For the photocell, lights shall revert to a time of day schedule for turning the lights off.

2 M10.05 OUTSIDE AIR AND HUMIDITY SENSING



WATER AND MAKEUP WATER METER		HARDWARE POINTS				SOFTWARE POINTS						
POINT NAME	MARK	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM	GRAPHIC	COMMENTS
Water Flow Rate	WFR	X									X	
Demand									X		X	NOTE 1
Peak Today									X		X	
Peak Month-to-Date									X		X	
Peak Year-to-Date									X		X	
Usage Today									X		X	
Usage Month-to-Date									X		X	
Usage Year-to-Date									X		X	
Meter Failure										X		

METERS SHALL BE PROVIDED BY DIV 230900. PROVIDE QUANTITY OF METERS AS INDICATED ON THE DRAWINGS INCLUDING MAKE-UP WATER METERS. PROVIDE A MINIMUM OF 3 METERS - (1) HYDRONIC HEATING, (1) HYDRONIC CHILLED AND (1) DOMESTIC WATER.

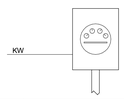
Water and Make-Up Water Meter:
The controller shall monitor the water meter for water consumption on a continual basis. These values shall be made available to the system at all times.

Alarm shall be generated as follows:
- Meter Failure: See Hydronic Plant sequence of operation s (make-up water meters).

Peak Demand History:
The controller shall monitor and record the peak (high and low) demand readings from the water meter. These readings shall be recorded on a daily, month-to-date, and year-to-date basis.

Usage History:
The controller shall monitor and record water meter readings so as to provide a water consumption history. Usage readings shall be recorded on a daily, month-to-date, and year-to-date basis.

3 M10.05 WATER AND MAKE-UP WATER METER



ELECTRIC METER		HARDWARE POINTS				SOFTWARE POINTS						
POINT NAME	MARK	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM	GRAPHIC	COMMENTS
kW Pulse	KW	X									X	
kW Demand									X		X	
kW Peak Today									X		X	
kW Peak Month-to-Date									X		X	
kW Peak Year-to-Date									X		X	
kWh Today									X		X	
MWh Month-to-Date									X		X	
MWh Year-to-Date									X		X	
Meter Failure										X	X	
Demand Level 1										X	X	
Demand Level 2										X	X	
Demand Level 3										X	X	

METERS SHALL BE PROVIDED BY DIV 230900 WHERE NOT SHOWN ON ELECTRICAL RISER DIAGRAMS ON SHEETS E6.00-E6.01.
REFER TO RISER DIAGRAMS FOR QUANTITY OF METERS.

Electric Meter:
The controller shall monitor the electric meter for electric consumption on a continual basis. These values shall be made available to the system at all times.

Alarm shall be generated as follows:
- Meter Failure: Sensor reading indicates a loss of pulse output from the electric meter.

Peak Demand History:
The controller shall monitor and record the peak (high and low) demand readings from the electric meter. Peak readings shall be recorded on a daily, month-to-date, and year-to-date basis.

Usage History:
The controller shall monitor and record electric meter readings so as to provide a power consumption history. Usage readings shall be recorded on a daily, month-to-date, and year-to-date basis.

Demand Levels:
The controller shall set the system demand level (adj.) based on the current power consumption readings from the electric meter. There shall be six daily time periods in which the demand shall be adjusted on three levels. These demand levels shall be available for facility equipment to utilize for demand limiting.
- Demand Level 1: Power consumption has exceeded the first demand level threshold (adj.).
- Demand Level 2: Power consumption has exceeded the second demand level threshold (adj.).
- Demand Level 3: Power consumption has exceeded the third demand level threshold (adj.).

4 M10.05 ELECTRIC SENSING

POWER MONITORING INTERFACE		Hardware Points				Software Points						
Point Name	Mark	AI	AO	BI	BO	AV	BV	Sched	Trend	Alarm	Graphic	Comments
Current Phase A						X			X		X	
Current Phase B						X			X		X	
Current Phase C						X			X		X	
Current Neutral						X			X		X	
Voltage A-B						X			X		X	
Voltage B-C						X			X		X	
Voltage C-A						X			X		X	
Voltage A-N						X			X		X	
Voltage B-N						X			X		X	
Voltage C-N						X			X		X	
Real Power - kW						X			X		X	
Apparent Power - kVA						X			X		X	
Power Factor						X			X		X	
Frequency						X			X		X	
Real Energy - kWh						X			X		X	

NOTE: PROVIDE POWER MONITORING THROUGH DIV 26. DIV 23 CONTRACTOR SHALL MATCH ALL POINTS AND SHOW ON EMS WITH SEQUENCE AS FOLLOWS:
REFER TO DIV 26 FOR QUANTITY OF METERS AND EXACT LOCATION FOR POINT OF CONNECTION.

Electric Meters:
The controller shall monitor the electric meter for electric consumption on a continual basis. These values shall be made available to the system at all times.

Peak Demand History:
The controller shall monitor and record the peak (high and low) demand readings from the electric meter. Peak readings shall be recorded on a daily, month-to-date, and year-to-date basis.

Usage History:
The controller shall monitor and record electric meter readings so as to provide a power consumption history. Usage readings shall be recorded on a daily, month-to-date, and year-to-date basis.

Demand Levels:
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5 M10.05 MONITORING

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04.13.2020

PROJECT NUMBER: 1711.00

SHEET NAME

Mechanical Control Sequences

SHEET NUMBER

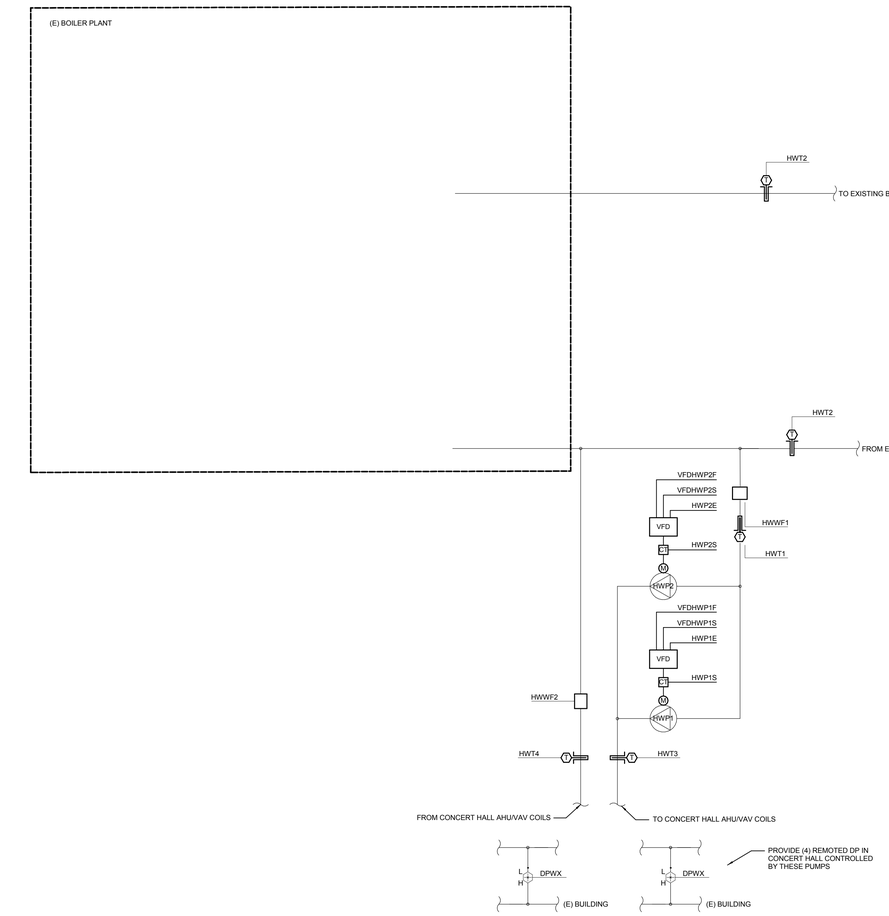
M10.05

HEATING WATER SYSTEM		HARDWARE POINTS				SOFTWARE POINTS						
POINT NAME	MARK	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM	GRAPHIC	COMMENTS
Heating Water Flow Measuring Station	HWWFX	X							X		X	NOTE 1
Remote Differential Pressure Sensor	DPWX	X							X		X	NOTE 2
Heating Water Temperature	HWTX	X							X		X	NOTE 1
Heating Water Pump 1 VFD Enable	HWP1E				X				X		X	
Heating Water Pump 1 VFD Speed	VFDHWP1S		X						X		X	
Heating Water Pump 1 Status	HWP1S			X					X		X	
Heating Water Pump 1 VFD Fault	VFDHWP2F			X						X	X	
Heating Water Pump 2 VFD Enable	HWP2E				X				X		X	
Heating Water Pump 2 VFD Speed	VFDHWP2S		X						X		X	
Heating Water Pump 2 Status	HWP2S			X					X		X	
Heating Water Pump 2 VFD Fault	VFDHWP2F			X						X	X	

GENERAL NOTE: ALL POINTS ARE HARDWIRED UNLESS NOTED OTHERWISE.

NOTE 1 PROVIDE QUANTITY OF TEMPERATURE SENSOR LOCATIONS IN CENTRAL PLANT PER SCHEMATIC.
NOTE 2 PROVIDE AT (4) REMOTE LOCATIONS. SEE DRAWINGS FOR LOCATIONS, PROVIDE HARD WIRE CONNECTION BACK TO BOILER ROOM.
NOTE 3 THRU BOILER MANAGEMENT PANEL BACNET INTERFACE.
NOTE 4 PROVIDE WITH OPEN/CLOSE HARDWIRED FEEDBACK TO EMS.
NOTE 5 PROVIDE CONTROL WIRING TO BOILER CONTROL PANEL.

PROVIDE NEW GLOBAL CONTROLLER AT BOILER ROOM AND REPLACE (E) CONTROLLER BOARDS AT (E) BOILERS AND (E) PUMPS WITH NEW. SALVAGE OLD BOARDS AND TURN OVER TO OWNER. ALL LOGIC SHALL REMAIN THE SAME.



HEATING WATER SYSTEM SEQUENCE OF OPERATIONS:

Heating Water System Description:
Two existing gas fired heating water boilers with two heating water pumps in parallel provide heating water to heating water units. Provide two new pumps to serve off HWR to concert hall.

Heating Mode Run Conditions:
Heating mode shall be enabled based on (E) command. Add integration into system for new concert hall.

Hydronic heating water supply temperature setpoint reset for the current hall:
The heating water supply temperature setpoint shall reset using a trim and respond algorithm based on building heating requirements. The EMS controller shall send a temperature reset signal to the boiler management system via the bacnet communication interface and the boiler management system shall modulate the output to satisfy the hydronic system temperature setpoint.

As the facility's hydronic heating water valves open beyond a user definable threshold (90% open, typ.), the setpoint shall reset to a higher value (adj.). Once the hydronic heating water coils are satisfied (valves closing), then the setpoint shall gradually lower over time to reduce heating energy. Minimum heating water loop supply temperature shall be 90°F (adj.). During occupied mode, the supply temperature shall be capable of resetting up to a maximum of 120°F (adj.). During morning warmup mode, the supply water temperature shall be capable of resetting up to 140°F to minimize warmup time period.

Provide toggle for each HVAC unit tied to the system to remove or include the unit in the polling for the temperature reset sequence.

Hydronic Heating Water Temperature Monitoring:
Hydronic temperatures shall be monitored for all DDC temperature sensor locations.

Alarms shall be provided as follows when the boiler plant is enabled:
- High primary hydronic heating water supply temp: if greater than 160°F (adj.)
- Low primary hydronic heating water supply temperature: If less than 50°F (adj.)
- Low primary hydronic heating water return temperature: If less than 50°F (adj.)

Pump Differential Pressure Control:
The EMS controller shall measure heating water differential pressure at 4 separate locations (use worst case value, furthest from balanced DP and provide manual on/off toggles) and modulate the heating water pump VFD's in sequence to maintain the heating water differential pressure setpoints to be determined by TAB, initially set at of 12 psi (adj.). The VFD minimum speed shall not drop below 20% (adj.).

To prevent short cycling, the pumps shall run for a minimum time (adj.) and be off for a minimum time (adj.). The pumps shall run for a minimum of 10 minutes (adj.) after the boiler has been disabled.

Pump Lead/lag Operation:
The heating water pumps shall operate in a staged fashion.
- The lead pump shall run first.
- On balanced % of the lead pump, the lag pump shall run and the lead pump shall match speeds.
- The standby pump shall be off

The designated lead, lag and standby pumps shall rotate upon one of the following conditions (user selectable) and shall initially be set for weekly:
- Manually through a software switch.
- If pump runtime (adj.) Is exceeded.
- Daily
- Weekly
- Monthly

Pump heating water differential pressure high limit:
The controller shall measure hydronic heating water differential pressure across the boilers and load side of the heating water pumps. The pump speed shall be limited by these differential pressures plus a 25% factor to protect the system in case of a blockage in the piping.

Pump freeze protection:
The lead pump shall run at minimum speed of 20% (adj.) for freeze protection anytime the outside air temperature is below 40°F.

Alarms:
The building management system shall provide alarm, trending and graphic for all alarm pints provided by boiler controller.
Other alarms shall be as follows:
Pump 1:
- pump failure: commanded on, but the status is off.
- pump vfd fault.

Pump 2:
- pump failure: commanded on, but the status is off.
- pump vfd fault.

1 M10.06 HEATING WATER SYSTEM

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PROJECT INFORMATION

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SCHOOL DISTRICT LOGO

Northshore School District

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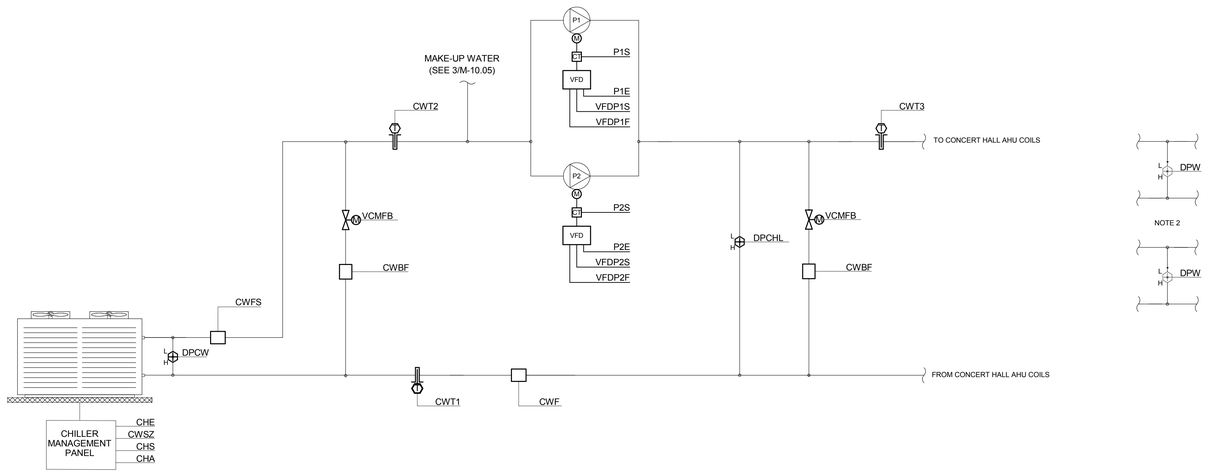
M10.06



HYDRONIC CHILLED WATER SYSTEM		HARDWARE POINTS				SOFTWARE POINTS						
POINT NAME	MARK	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM	GRAPHIC	COMMENTS
Chiller Start/Stop	CHE				X				X		X	
Chiller Status	CHS			X					X		X	NOTE 3
Chiller Water Temperature	CWTX	X							X		X	NOTE 1
Chiller Supply Water Temperature Setpoint Reset	CWSZ					X			X		X	NOTE 3
Chiller Water Flow Meter	CWF	X							X		X	
Chiller Flow Switch	CWFS			X					X		X	NOTE 4
Chiller Differential Pressure Sensor	DPCW	X							X		X	
Remote Differential Pressure Sensor	DPWX	X							X		X	NOTE 2
Differentail Pressure Chilled Water High Limit	DPCHL	X							X		X	
Chilled Water Pump 1 VFD Enable	P1E				X				X		X	
Chilled Water Pump 1 VFD Speed	VFDP1S		X						X		X	
Chilled Water Pump 1 Status	P1S			X					X		X	
Chilled Water Pump 1 VFD Fault	VFDP1F			X						X	X	
Chilled Water Pump 2 VFD Enable	P2E				X				X		X	
Chilled Water Pump 2 VFD Speed	VFDP2S		X						X		X	
Chilled Water Pump 2 Status	P2S			X					X		X	
Chilled Water Pump 2 VFD Fault	VFDP2F			X						X	X	
Chilled Water Loop Bypass Flow Meter	CWBF	X							X		X	
Chilled Water Loop Pressure Independent Valve	VCMFB		X						X		X	
High Primary Hydronic Chilled Water Supply Temp										X	X	
Low Primary Hydronic Chilled Water Supply Temp										X	X	
High Primary Hydronic Chilled Water Return Temp										X	X	
Chilled Water Pump Failure										X	X	
Chilled Water Pump in Hand										X	X	
Chiller Alarms	CHA					X				X	X	NOTE 3

GENERAL NOTE: ALL POINTS ARE HARDWIRED UNLESS NOTED OTHERWISE.

NOTE 1 PROVIDE (3) CHILLED WATER TEMPERATURE SENSOR LOCATIONS IN CENTRAL PLANT
NOTE 2 PROVIDE AT (3) REMOTE LOCATIONS. SEE HYDRONIC PIPING DRAWINGS FOR LOCATIONS.
NOTE 3 THRU CHILLER MANAGEMENT PANEL BACNET INTERFACE.
NOTE 4 PROVIDE WIRING BACK TO CHILLER IF EXTERNAL PIPE INSTALLATION IS REQUIRED BY MANUFACTURER.

System Description:
One air cooled chiller with 2 chilled water pumps in parallel provide chilled water to chilled water air handling units.

Modes of Operation:
Building management system shall control occupied or unoccupied mode based on a user definable schedule.

The building management system controls may be overridden by the fire alarm system.

Morning Cool-Down:
The chilled water system shall not be enabled during AHU morning cool-down mode.

Cooling Mode:
The chiller and chilled water pumps shall be enabled whenever:
- The building is in occupied mode (and) the outside air temperature is above 70°F (adj.) AND one (adj.) or more air handling unit chilled water control valve is commanded open.

Chiller:
Chiller shall be enabled whenever:
- Cooling is enabled.
- Chilled water pumps have been running for 5 minutes (adj.).

The chiller shall be enabled by a hardwired connection to the EMS.

Hydronic chilled water supply temperature setpoint reset:
The chilled water supply temperature setpoint shall reset using a trim and respond algorithm based on building cooling requirements. The EMS controller shall send a temperature reset signal to the chiller via the BACnet communication interface and the chiller's internal controllers shall modulate the output to satisfy the hydronic system temperature setpoint.

As the facility's hydronic chilled water valves open beyond a user definable threshold (90% open, typ.), the setpoint shall reset to a lower value (adj.). Once the hydronic chilled water coils are satisfied (valves closing), then the setpoint shall gradually increase over time to reduce energy. Minimum chilled water loop supply temperature shall be 44°F (adj.). The supply temperature shall be capable of resetting up to a maximum supply of 50°F (adj.).

Provide toggle for each HVAC unit tied to the system to remove or include the unit in the polling for the temperature reset sequence.

Hydronic Chilled Water Temperature Monitoring:
Hydronic temperatures shall be monitored for all EMS temperature sensor locations, as shown on the attached control diagram.

Alarms shall be provided as follows:
- High primary hydronic chilled water supply temp: if greater than 60°f (adj.) after 30 minutes (adj.) of chiller operation.
- Low primary hydronic chilled water supply temperature: If less than 40°f (adj.).
- High primary hydronic chilled water return temperature: If greater than 70°f (adj.) after 30 minutes (adj.) of chiller operation.

EMS/ Chiller Interface :
The EMS shall connect to the chiller with a direct hardwired connection for enable/disable and through the the chiller BACnet communication interface. Allow for mapping up to 80 BACnet points to the EMS for use in monitoring alarms and general chiller operating conditions. Point status shall be displayed on the main chiller graphic or additional chiller graphic informational pages. The points displayed on the main chiller graphic will be determined once a submittal has been received and manufacturer's point list can be reviewed.

Pump Differential Pressure Control:
The EMS controller shall measure chilled water differential pressure at 3 separate locations (use worst case value and provide manual on/off toggles) and modulate the chilled water pump VFD's in sequence to maintain the chilled water differential pressure setpoints to be determined by TAB, initially set at of 12 psi (adj.). The VFD minimum speed shall not drop below 20% (adj.).

To prevent short cycling, the pumps shall run for a minimum time (adj.) and be off for a minimum time (adj.). The pumps shall fun for a minimum of 10 minutes (adj.) after the chiller has been disabled.

Pump Lead/lag Operation:
The chilled water pumps shall operate in a staged fashion.
- The lead pump shall run first.
- On balanced % of the lead pump, the lag pump shall run and the lead pump shall match speeds.
- The standby pump shall be off

The designated lead, lag and standby pumps shall rotate upon one of the following conditions (user selectable) and shall initially be set for weekly:
- Manually through a software switch.
- If pump runtime (adj.) is exceeded.
- Daily
- Weekly
- Monthly

Pump chilled water differential pressure high limit:
The controller shall measure hydronic chilled water differential pressure across the chiller and load side of the chilled water system. The pump speed shall be limited by these differential pressures plus a 25% factor to protect the system in case of a blockage in the piping.

Pump freeze protection:
The pumps shall run at minimum speed fo 20% (adj.) for freeze protection anytime the outside air temperature is below 38°F.

Minimum Flow Bypass Valve:
The minimum flow bypass valve is enabled if:
- Cooling is enabled.

Or
- The outside air temperature is less than 38°F (adj.).

The controller shall measure the differential pressure across the chiller. The minimum flow bypass valve shall open and modulate to maintain minimum chiller differential pressure setpoint (set by balancer). Hydronic chilled water flow at the chiller and the bypass valve shall be monitored and displayed on the graphics.

Alarms:
The building management system shall provide alarm, trending and graphic for all alarm points provided by chiller controller. Other alarms shall be as follows:
Pump 1:
- Pump failure: commanded on, but the status is off.
- Pump in hand: commanded off, but the status is on.
- Pump VFD fault.

Pump 2:
- Pump failure: commanded on, but the status is off.
- Pump in hand: commanded off, but the status is on.
- Pump VFD fault.

Chiller general alarm: from chiller control panel.

1 M10.07 CHILLED WATER SYSTEM

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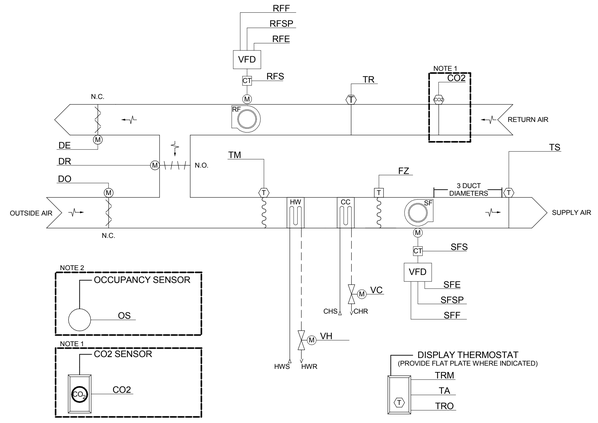

CONSTANT VOLUME HYDRONIC AHU		HARDWARE POINTS				SOFTWARE POINTS						
POINT NAME	MARK	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM	GRAPHIC	COMMENTS
Space Temp	TRM	X							X		X	
Zone Setpoint Adjust	TA	X									X	
Occupancy Sensor	OS			X					X		X	NOTE 3
Purge Switch	PS			X					X		X	NOTE 1
Mixed Air Temp	TM	X							X		X	
Return Air Temp	TR	X							X		X	
Supply Air Temp	TS	X							X		X	
Supply Fan VFD Speed	SFSP		X						X		X	
Return Fan VFD Speed	RFSP		X						X		X	
Carbon Dioxide Sensor PPM	CO2	X							X		X	NOTE 4
Heating Valve	VH		X						X		X	
Cooling Valve	VC		X						X	X	X	
Outside Air Damper	DO		X						X		X	
Return Air Damper	DR		X						X		X	
Relief or Exhaust Air Damper	DE		X						X		X	
Zone Override	TRO			X					X		X	NOTE 2
Freezestat	FZ			X					X	X	X	
Supply Fan VFD Fault	SFF			X						X	X	
Supply Fan Status	SFS			X							X	
Return Fan VFD Fault	RFF			X					X	X		
Return Fan Status	RFS			X							X	
Supply Fan Start/Stop	SFE				X				X		X	
Return Fan Start/Stop	RFE				X				X		X	
Schedule							X					
Heating Setpoint						X			X		X	
Cooling Setpoint						X			X		X	
High Zone Temp										X	X	
Low Zone Temp										X	X	
Supply Fan Failure										X	X	
Supply Fan in Hand										X	X	
Supply Fan Runtime Exceeded										X	X	
Return Fan Failure										X	X	
Return Fan in Hand										X	X	
Return Fan Runtime Exceeded										X	X	
High CO2 Concentration										X	X	NOTE 4
High Mixed Air Temp										X	X	
Low Mixed Air Temp										X	X	
High Return Air Temp										X	X	
Low Return Air Temp										X	X	
High Supply Air Temp										X	X	
Low Supply Air Temp										X	X	

NOTE 2 PROVIDE CONNECTION TO DDC WHERE OCCUPANCY SENSOR IS PROVIDED BY DIV 26. REFER TO ELECTRICAL DRAWINGS.
NOTE 1 PROVIDE CO2 SENSOR WHERE SHOWN ON HVAC DRAWINGS.

Run Conditions - Scheduled:
The unit shall run according to a user definable time schedule or upon occupied override sensor 1 hour (adj.) in the following modes:

- Occupied Mode: The unit shall maintain
  - A 74°F (adj.) cooling setpoint
  - A 70°F (adj.) heating setpoint.
- Unoccupied Mode (night setback): The unit shall maintain
  - A 85°F (adj.) cooling setpoint.
  - A 55°F (adj.) heating setpoint.

Alarms shall be provided as follows:

- High Zone Temp: If the zone temperature is greater than the cooling setpoint by a user definable amount (adj.).
- Low Zone Temp: If the zone temperature is less than the heating setpoint by a user definable amount (adj.).

Zone Setpoint Adjust:
The occupant shall be able to adjust the zone temperature heating and cooling setpoints at the zone sensor by 3°F (adj.) (controlled by DDC).

Zone Optimal Start:
The unit shall use an optimal start algorithm for morning start-up. This algorithm shall minimize the unoccupied warm-up or cool-down period while still achieving comfort conditions by the start of scheduled occupied period. The start time shall automatically adjust based on changes in outside air temperature, zone temperatures and day of the week. While under optimal start and in morning warm-up mode, the outside air damper shall remain completely closed until space is satisfied. Outside air damper shall remain closed and not go to occupied position after optimal start period ends if space temperature has not been satisfied. While under optimal start and in morning cool-down mode, the system shall operate as described in economizer cooling mode with mechanical cooling disabled.

Zone Unoccupied Override:
A timed local override control shall allow an occupant to override the schedule and place the unit into an occupied mode for an adjustable period of time. At the expiration of this time, control of the unit shall automatically return to the schedule.

Freeze Protection:
The unit shall shut down and generate an alarm upon receiving a freezestat status and open heating coil valve 100%. Freezestat shall be set to 35 degrees.

Supply Fan:
The supply fan shall run anytime the unit is commanded to run, unless shutdown on safeties. To prevent short cycling, the supply fan shall have a user definable (adj.) minimum runtime. The supply fan shall operate at constant speed/volume. The supply fan VFD shall be used for balancing purposes only.

Alarms shall be provided as follows:

- Supply Fan Failure: Commanded on, but the status is off.
- Supply Fan in Hand: Commanded off, but the status is on.
- Supply Fan Runtime Exceeded: Supply fan status runtime exceeds a user definable limit (adj.).
- Supply Fan VFD Fault

Return Fan:
The return fan shall run whenever the supply fan runs. The retrurn fan VFD shall be used for balancing purposes only.

Alarms shall be provided as follows:

- Return Fan Failure: Commanded on, but the status is off.
- Return Fan in Hand: Commanded off, but the status is on.
- Return Fan Runtime Exceeded: Supply fan status runtime exceeds a user definable limit (adj.).
- Return Fan VFD Fault

Heating Coil Valve:
The controller shall modulate the heating coil valve to maintain the space temperature setpoint.

The heating coil shall be enabled whenever:

- Outside air temperature is less than 65°F (adj.).
- AND the economizer (if present) is disabled.
- AND the supply fan status is on.

OR

- Outside air temperature is less than 70°F (adj.).
- AND system is under optimal start.

The heating coil valve shall open to a minimum position of 10%(adj.) for freeze protection during unoccupied hours for low ambient protection if outside air temperature is below 38°F (adj.)

Alarms shall be provided as follows:

- Low Supply Air Temp: If the supply air temperature is 5°F (adj.) less than setpoint.

Cooling Coil Valve:
The controller shall modulate the cooling coil valve to maintain the space temperature setpoint.
The controller shall measure the supply air temperature and activate the mechanical cooling to maintain its cooling setpoint when economizer can no longer achieve the supply air temperature setpoint.

The cooling shall be enabled whenever:

- Outside air temperature is greater than the mixed air temperature setpoint.
- AND the economizer is disabled or fully open.
- AND the supply fan status is on.
- AND the heating is not active.
- AND the heating of the zones are not active.

The cooling coil valve shall open to a minimum position of 10%(adj.) for freeze protection during unoccupied hours for low ambient protection if outside air temperature is below 38°F (adj.)

Alarms shall be provided as follows:

- High Supply Air Temp: If the supply air temperature is 5°F (adj.) greater than setpoint.

Economizer:
The controller shall measure the mixed air temperature and modulate the economizer dampers in sequence to maintain a setpoint 2°F (adj.) less than the supply air temperature setpoint. The outside air damper shall maintain the scheduled minimum airflow whenever occupied.

The economizer shall be enabled whenever:

- Outside air temperature is less than the return air temperature.
- AND the supply fan status is on.

The economizer shall be disabled whenever:

- Mixed air temperature drops below 50°F (adj.).
- OR the freezestat (if present) is on.
- OR on loss of supply fan status.

The outside air dampers shall close and the return air damper shall open when the unit is off OR when the occupancy sensor is not active (no occupancy) OR during morning start-up mode. Under Optimal Start Cooling, the mixed air damper shall operate as described in the occupied mode.

Alarms shall be provided as follows:

- Outside Air Damper is below minimum setpoint AND occupancy sensor is ON.

Minimum Outside Air Ventilation - Carbon Dioxide (CO2) Control (Where Present):
When in the occupied mode, the controller shall measeure the space or return air CO2 levels and modulate the outside air dampers open on rising CO2 concentrations, overriding normal damper operation to maintain a CO2 setpoint of 1,000 PPM (adj.).
Alarms shall be provided as follows:

- High CO2 Concentration: If the return air CO2 concentration is greater than 1,400 ppm (adj.).

Mixed Air Temperature:
The controller shall monitor the mixed air temperature and use as required for economizer control or heating control.
Alarms shall be provided as follows:

- High Mixed Air Temp: If the mixed air temperature is greater than 90°F (adj.).
- Low Mixed Air Temp: If the mixed air temperature is less than 45°F (adj.).

Return Air Temperature:
The controller shall monitor the return air temperature and use as requried for setpoint control or economizer control (if present).
Alarms shall be provided as follows:

- High Return Air Temp: If the return air temperature is greater than 80°F (adj.).
- Low Return Air Temp: If the return air temperature is less than 65°F (adj.).

Supply Air Temperature:
The controller shall monitor the discharge air temperature.
Alarms shall be provided as follows:

- High Discharge Air Temp: If the discharge air temperature is greater than 120°F (adj.).
- Low Discharge Air Temp: If the discharge air temperature is less than 50°F (adj.).

Purge Switch
Activation of switch shall slowly modulate the system to100% OSA for the time period dialed (0-60 min). Hydronic control valves shall modulate to maintain heating or cooling space temperature setpoints. Logic shall prioritize maintaining supply air temperatures over OSA damper position to mitigate thermal comfort issues during operation.

1 M10.08 HYDRONIC AIR HANDLING UNIT W/ RETURN FAN

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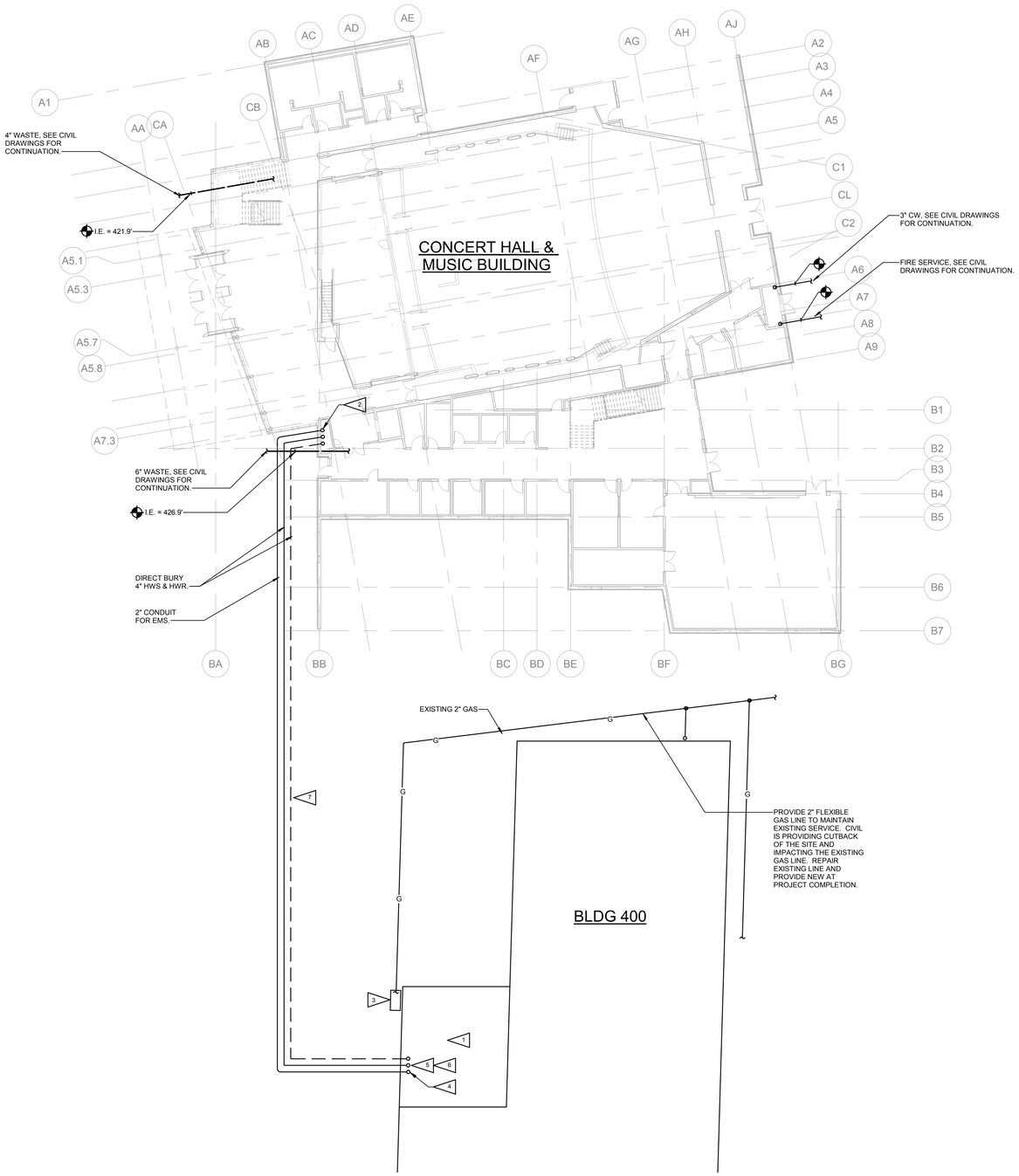
M10.08



1 MECHANICAL SITE PLAN
1/16" = 1'-0"

SHEET NOTES

1. REFER TO CIVIL DRAWINGS FOR CONTINUATION OF PIPING ON SITE. DIVISION 21 AND 22 SHALL MAKE CONNECTION TO SITE UTILITIES 5 FEET FROM BUILDING EXTERIOR.
2. COORDINATE ALL SANITARY SEWER CONNECTIONS AND INVERTS WITH CIVIL PRIOR TO ROUGH-IN. REFER TO CIVIL DRAWINGS.
3. COORDINATE ALL WATER CONNECTIONS WITH CIVIL PRIOR TO ROUGH-IN. REFER TO CIVIL DRAWINGS.
4. PROVIDE CLEANOUT TO GRADE AT ALL CIVIL SANITARY SEWER CONNECTIONS. LOCATE CLEANOUTS AWAY FROM MAIN ENTRIES.
5. INSTALL WATER AND GAS PIPING 48 INCHES BELOW GRADE UNLESS OTHERWISE NOTED.
6. REFER TO M100 UNDERGROUND PLUMBING SERIES FOR CONTINUATION OF PIPING INSIDE BUILDING.
7. REFER TO M900 SERIES SHEETS FOR STANDARD DETAILS NOT REFERENCED ON PLANS.
8. PAINT ALL EXTERIOR GAS PIPING BLACK. PAINT ALL EXTERIOR UTILITY GAS PIPING YELLOW.
9. REFER TO M500 SERIES FIRE PROTECTION DRAWINGS FOR COORDINATION AND FINAL LOCATION OF BACKFLOW PREVENTER, FIRE DEPARTMENT CONNECTION, PIV, ETC.
10. COORDINATE GAS UTILITY ROUTING THROUGH SITE AS INDICATED ON PLANS. REFER TO CIVIL DETAILS FOR TRENCHING AND BACKFILL REQUIREMENTS. PROVIDE GAS PIPING IN CONDUIT AS REQUIRED BY GAS UTILITY COMPANY. CONTRACTOR SHALL COORDINATE WITH GAS UTILITY AT ONSET OF PROJECT (WITHIN 30 DAYS) AND COPY A/E REGARDING ALL CORRESPONDENCE AND COORDINATION.

FLAG NOTES

1. (E) BOILER ROOM. SEE M7.03 FOR ENLARGED PLAN.
2. RISE SERVICES UP IN CHASE TO MECHANICAL ROOM AT EQUIPMENT PLATFORM LEVEL AND MECHANICAL ROOM AT BASEMENT LEVEL.
3. (E) GAS SERVICE AND LINE TO BE RELOCATED AND PHASED TO SUPPORT CIVIL WORK. COORDINATE WITH PSE.
4. ROUTE (N) ELECTRICAL CONDUIT UNDER FOOTING INTO BOILER ROOM. COORDINATE LOCATION WITH EXISTING PANELS, DOMESTIC WATER RISER AND NEW HYDRONIC PUMPS.
5. DEMO ABANDONED HYDRONIC LINES ROUTED THRU FOOTING AND BOILER ROOM FLOOR.
6. ROUTE (N) HYDRONIC SUPPLY AND RETURN LINES THRU EXISTING PENETRATIONS IN FOOTING AND SLAB. REPLACE LINK SEALS.
7. ROUTE (N) HYDRONIC LINES IN SHARED TRENCHING. COORDINATE EXACT LOCATION WITH CIVIL UTILITY PLANS.

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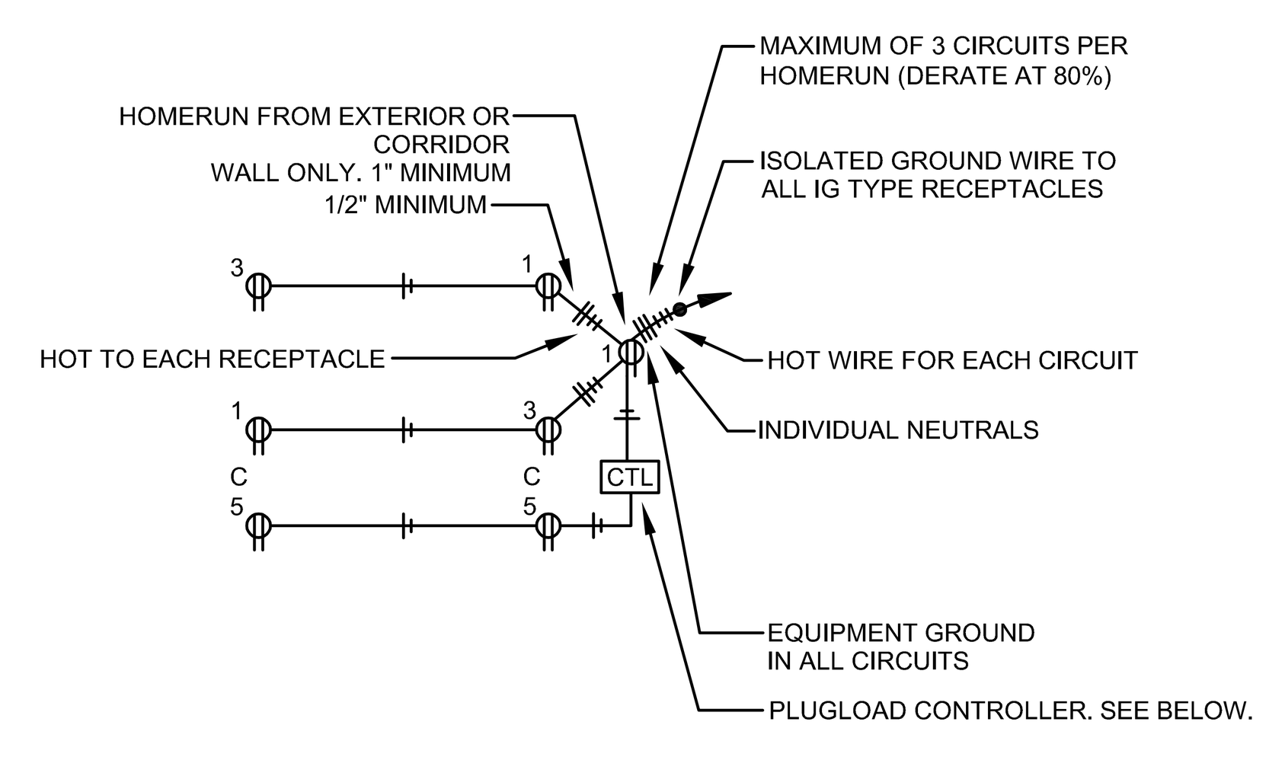
SHEET NAME

Mechanical Site Plan

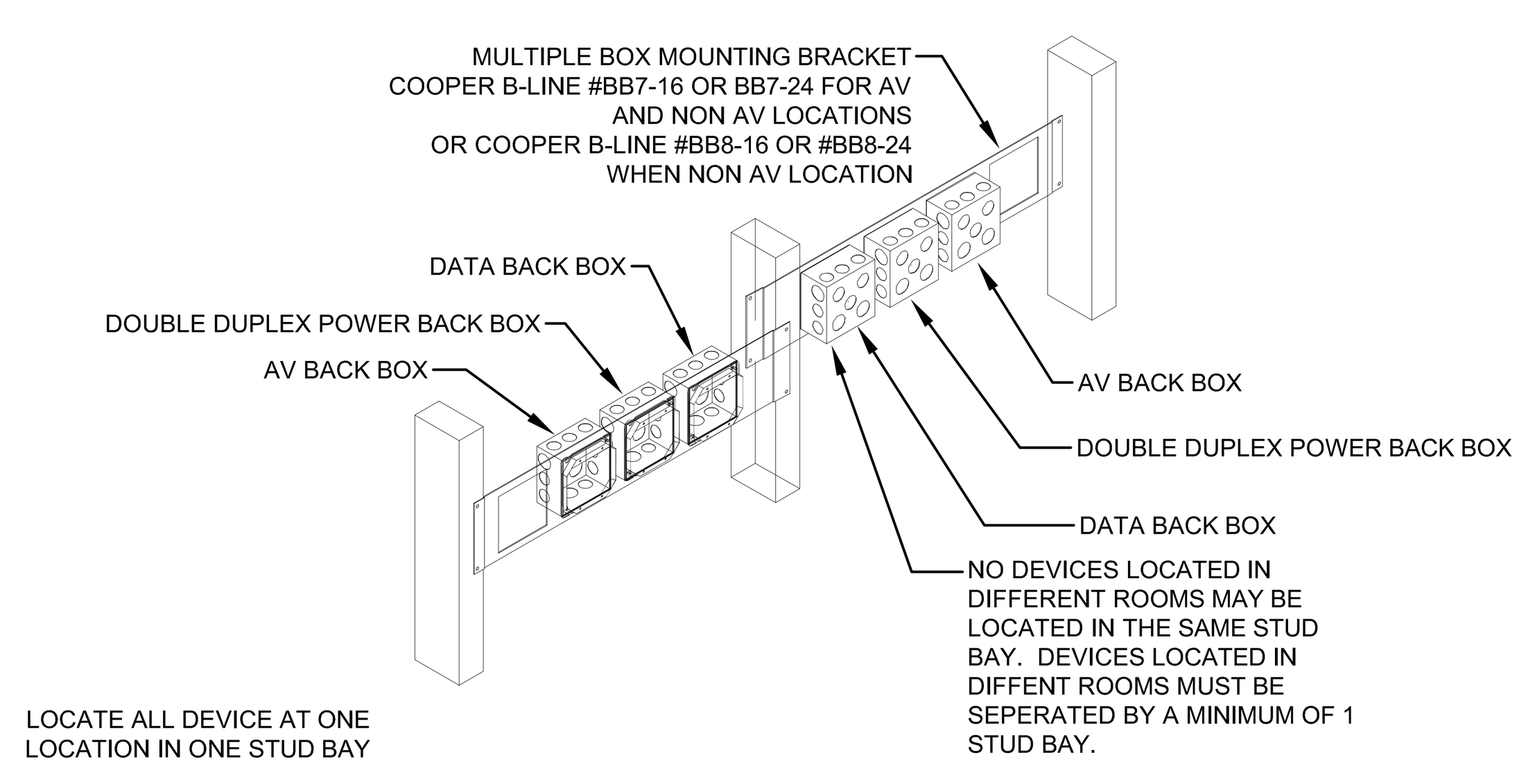
SHEET NUMBER

MS1.01



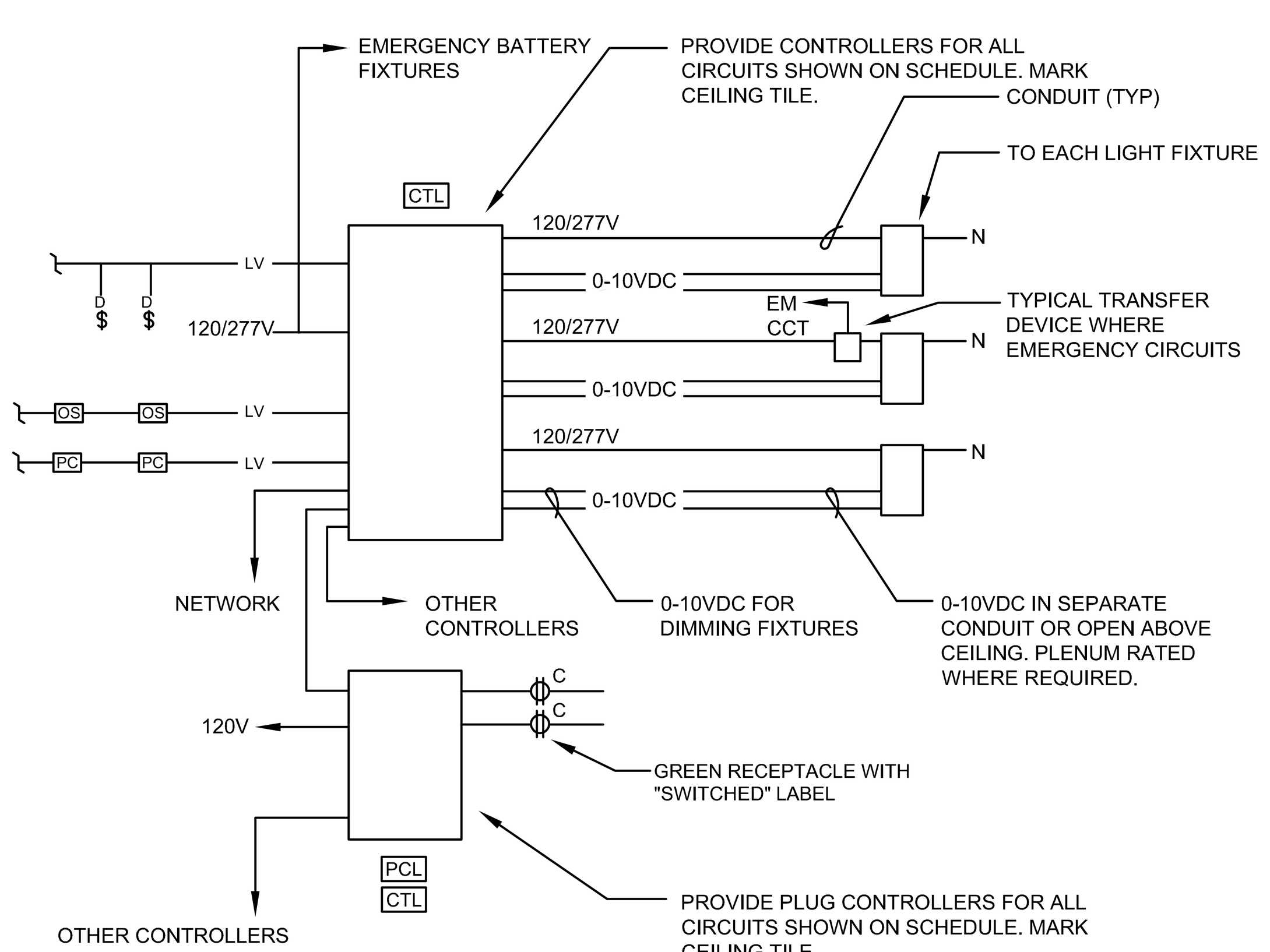
TYPICAL RECEPTACLE CIRCUITING DETAIL

SCALE: NONE



POWER, DATA AND AV ROUGH IN DETAIL

SCALE: NONE



TYPICAL LIGHTING CONTROL DETAIL

SCALE: NONE

LEGEND

- CONDUIT CONCEALED IN CEILING OR WALLS
- CONDUIT CONCEALED UNDERGROUND, UNDER FLOOR, OR IN WALL
- 3/4" CONDUIT. TICK MARKS INDICATE NUMBER OF #12 WIRES. NO TICK MARKS EQUALS 2#12. GROUND WIRE NOT SHOWN. PROVIDE GROUND WIRE IN ALL 120V AND ABOVE CIRCUITS.
- 3/4" CONDUIT. TICK MARKS INDICATE NUMBER OF #12 WIRES. NO TICK MARKS EQUALS 2#12. PROVIDE GROUND WIRE IN ALL 120V AND ABOVE CIRCUITS. DOT INDICATES ISOLATED GROUND WIRE.
- EXPOSED CONDUIT
- UNDER FLOOR DUCT WITH FLUSH ACTIVATIONS SHOWN
- EXISTING CONDUIT WITH NEW WIRES INDICATED BY TICK MARKS
- EXISTING CONDUIT
- HOME RUN TO DESTINATION INDICATED. 1" MINIMUM UNLESS NOTED OTHERWISE.
- RECESSED LIGHT FIXTURE, LETTERS DENOTE SWITCHING, PROVIDE BALLASTS ACCORDINGLY.
- SURFACE OR PENDANT MOUNTED LIGHT FIXTURE
- SURFACE OR PENDANT MOUNTED FLUORESCENT FIXTURE
- RECESSED LIGHT FIXTURE
- SURFACE OR PENDANT LIGHT FIXTURE
- WALL MOUNTED FIXTURE
- FIXTURE ON EMERGENCY CIRCUIT WITH UL924 TRANSFER DEVICE
- FIXTURE ON EMERGENCY CIRCUIT WITH UL924 TRANSFER DEVICE
- STEP LIGHT
- LED DRIVER
- LIGHT TRACK
- WALL MOUTED SPOT/FLOOD LIGHT
- DIRECTIONAL LIGHT
- VANITY LIGHT, WALL MOUNT
- WALL SCONCE FIXTURE
- POLE TOP LIGHT FIXTURE/STREET LIGHT FIXTURE
- POLE LIGHT
- EXIT SIGN LIGHT FIXTURE TYPE X, EXCEPT AS NOTED
- WALL SWITCH, 1-POLE (SWITCH LEG INDICATED WHERE REQUIRED)
- WALL SWITCH, 2-POLE
- WALL SWITCH, 3-WAY
- WALL SWITCH, 4 WAY
- DIGITAL SWITCH
- DIGITAL SWITCH KEY SWITCH
- WALL SWITCH, KEYED OPERATED, TYPE AS INDICATED
- MANUAL MOTOR STARTING SWITCH
- WALL SWITCH WITH INTEGRAL OCCUPANCY SENSOR
- OCCUPANCY SENSOR
- OCCUPANCY SENSOR WALL MOUNT
- PHOTO CELL
- PHOTO CELL WALL MOUNT
- CTL PCL PLUG LOAD CONTROLLER
- CTL LIGHTING CONTROLLER
- XXX LIGHTING FIXTURE TYPE DESIGNATOR, SEE LIGHT FIXTURE SCHEDULE
- SINGLE RECEPTACLE
- DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE ABOVE COUNTER
- DOUBLE DUPLEX RECEPTACLE
- M DOUBLE DUPLEX RECEPTACLE AT MONITOR
- M DUPLEX RECEPTACLE AT MONITOR
- IG RECEPTACLE ISOLATED GROUND TYPE
- GFI DUPLEX RECEPTACLE GFI TYPE
- WP WEATHERPROOF DUPLEX RECEPTACLE (GFI TYPE)
- FLUSH FLOOR BOX WITH DEVICES AS SHOWN, RECEPTICALES ISOLATED GROUND TYPE
- 1Ø SPECIAL RECEPTACLE AS NOTED
- 3Ø SPECIAL RECEPTACLE AS NOTED
- DRYER OUTLET NEMA 14-30R
- RANGE OUTLET, NEMA 14-50R
- MOTORIZED CONTROLLER
- MUSHROOM SWITCH
- PUSHBUTTON SWITCH
- ADA DOOR ACTUATOR
- EQUIPMENT CONNECTION
- MOTOR CONNECTION
- DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- MANUAL MOTOR STARTER
- MAGNETIC MOTOR STARTER
- COMBINATION STARTER
- VFD VARIABLE FREQUENCY DRIVE
- ECM ECM CONTROLLER
- THERMOSTAT
- JUNCTION BOX
- FIRE ALARM PULL STATION
- FIRE ALARM SPEAKER WITH ADA STROBE
- FIRE ALARM ADA STROBE WALL MOUNTED
- FIRE ALARM ADA STROBE
- SMOKE DETECTOR/SENSOR
- DUCT SMOKE DETECTOR
- HEAT DETECTOR/SENSOR, BASIC SHAPE
- HEAT DETECTOR, FIXED TEMPERATURE
- MD MOTOR OPERATED DAMPER
- SD SMOKE DAMPER CONNECTION
- FIRE ALARM SMOKE DAMPER RELAY, SEE
- SPRINKLER CONNECTION

LEGEND

- V VOLUME CONTROL
- AV AV1 AV2 AVM AVP AV SYSTEM OUTLETS
- CEILING INTERCOM SPEAKER
- WALL MOUNTED INTERCOM SPEAKER
- CALL SWITCH
- AV SYSTEM SPEAKER
- WALL MOUNTED AV SYSTEM SPEAKER
- DIGITAL CLOCK
- DIGITAL CLOCK/SPEAKER COMBINATION BAFFLE
- DATA OUTLET (NUMBER = NUMBER OF RJ45 JACKS, NO NUMBER = 1) WITH 1.25" CONDUIT TO ABOVE CEILING
- WAP WIRELESS ACCESS POINT
- V VIDEO SURVEILLANCE OUTLET AT CAMERA
- A ACCESS CONTROL OUTLET AT DOOR CONTROLLER
- REQUEST TO EXIT
- CARD READER
- CRJ CARD READER, JAMB MOUNTED.
- DOOR SWITCH
- MOTION SENSOR
- MOTION SENSOR WALL MOUNT
- CCTV CAMERA
- SECURITY SIREN
- K SECURITY KEYPAD
- EL ELECTRIC LOCK
- ML MAGNETIC LOCK
- EXIST DEVICE/FIXTURE AS INDICATED
- EXISTING PANCAKE MOLD WITH INTEGRAL DEVICES AS INDICATED.
- EXIST DEVICE/FIXTURE AS INDICATED TO BE REMOVED
- CIRCUIT BREAKER
- SWITCH
- FUSED SWITCH
- FUSE
- TRANSFORMER
- GROUNDING PER CODES
- BUS TAP
- 208V PANEL
- LVR
- 480V PANEL
- T TRANSFORMER
- FOIC FURNISHED BY OWNER INSTALLED BY CONTRACTOR
- FOIO FURNISHED BY OWNER INSTALLED BY OWNER
- GFI GROUND FAULT CIRCUIT INTERRUPTER
- IG ISOLATED GROUND
- WP WEATHERPROOF
- A ACCESS CONTROL CIRCUIT AS REQUIRED. PROVIDE IN RACEWAY IN WALLS AND ABOVE NON ACCESSIBLE CEILINGS.
- AV AV SYSTEM CIRCUITRY. SEE AV DIAGRAMS.
- CT CABLE TRAY
- FA FIRE ALARM SYSTEM CIRCUITRY AS REQUIRED BY MANUFACTURER IN METALLIC RACEWAY
- LV LOW VOLTAGE CIRCUITRY AS REQUIRED BY MANUFACTURER IN RACEWAY WHERE IN WALLS, ABOVE NON-ACCESSIBLE CEILINGS OR EXPOSED.
- S SECURITY SYSTEM CIRCUITRY AS REQUIRED BY MANUFACTURER. ROUTE IN RACEWAYS WHERE IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS.
- T DATA AND VOICE CABLES. QUANTITY AND TYPE AS INDICATED BY OUTLET
- A/B DETAIL INDICATOR WITH SHEET WHERE DRAWN INDICATED
- SECTION INDICATOR
- XXXX AVAILABLE FAULT CURRENT AS INDICATED
- FLAG NOTE

The minimum trench width is 18 inches; however, the excavator may need to increase the trench width depending on the other conduits/lines being installed in the trench.

When increasing the trench width, remember to allow a minimum of 12 inches of horizontal separation between PSE's electrical conduits/cables and gas lines.

PSE will allow customer-owned facilities within an electric power trench, if the following minimum horizontal clearances from PSE facilities are maintained:

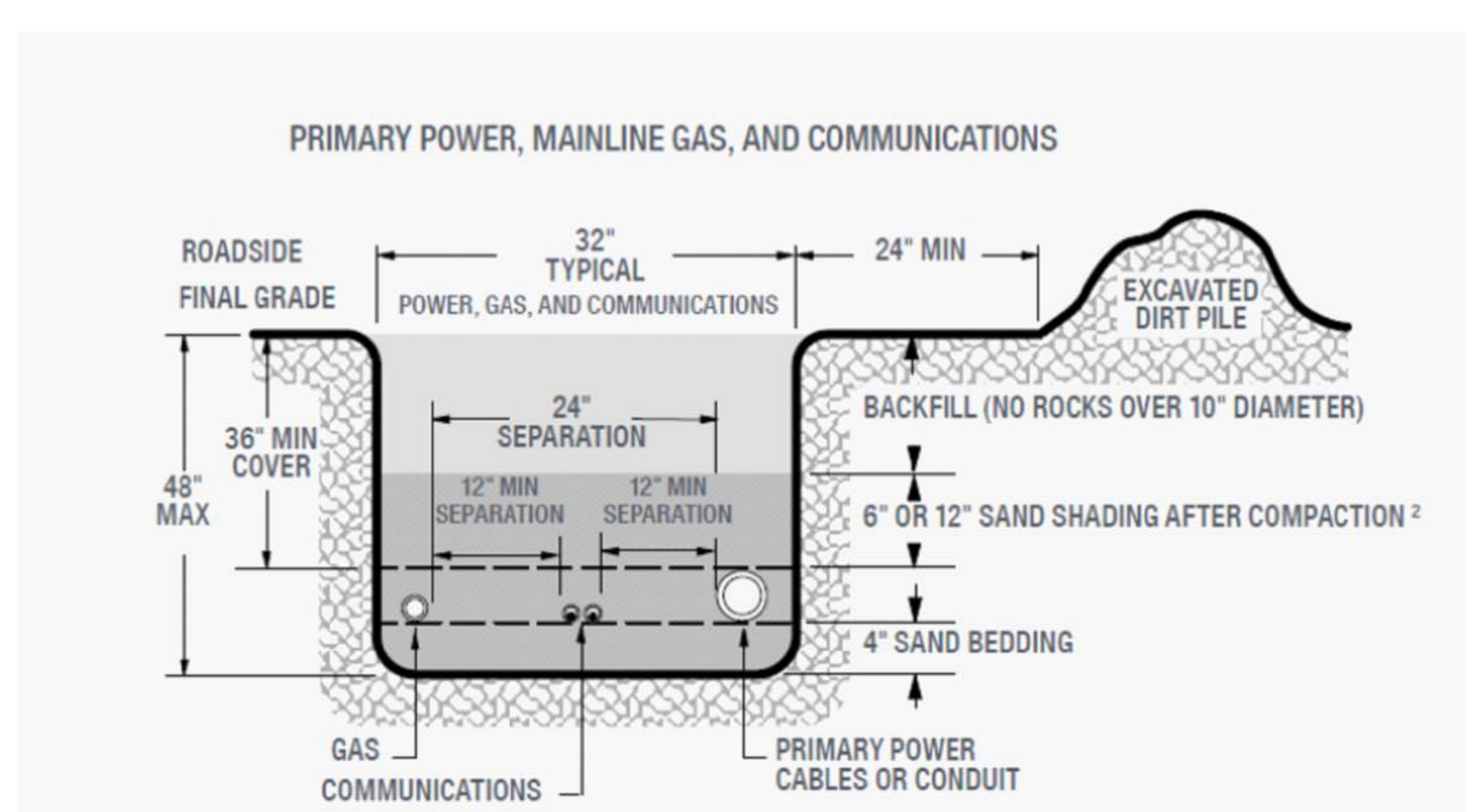
18 inches minimum for customer-owned tight-line sewer (not tile), natural gas lines, propane gas lines, fuel oil lines, and water mains up to 6 inches in diameter.

12 inches minimum for water service, irrigation pipes, lighting, security and electric supply circuits, communications lines, culverts, and closed system roof drains/storm drains (not French drains).

NOTE: When constrained by obstructions or clearances from other buried utility lines/facilities, the horizontal clearance between PSE power and communications may be reduced to 4 inches with mutual agreement from the participating communications providers. It is your responsibility to obtain agreement from participating communications providers for a reduced clearance when needed.

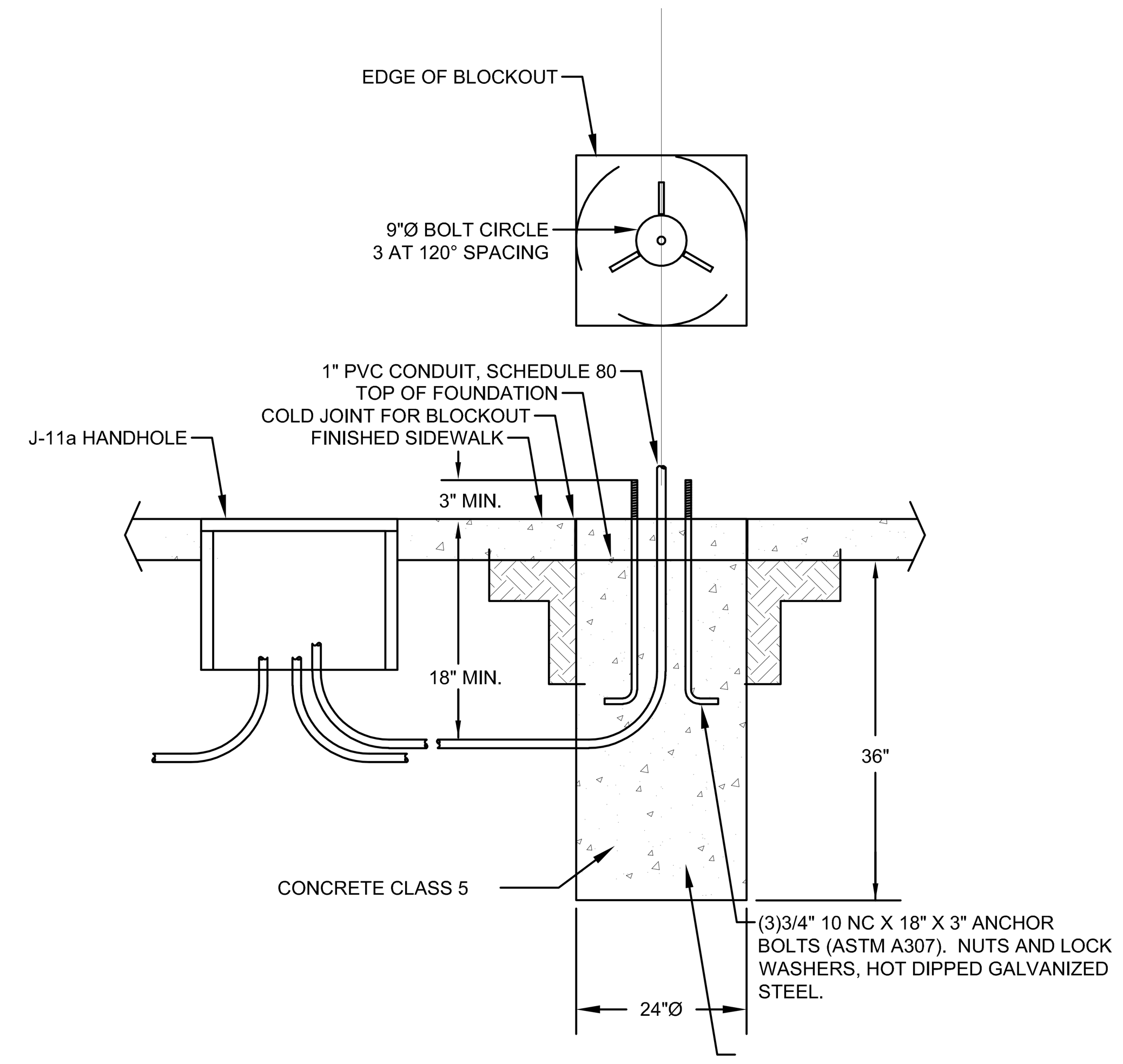
Figure 1 illustrates PSE's width and depth requirements for primary cable voltage line extension trenches on private property with and without a gas line present.

For trenching requirements with a gas line present, refer to the Joint Utility Mainline Trench Excavation Requirements.



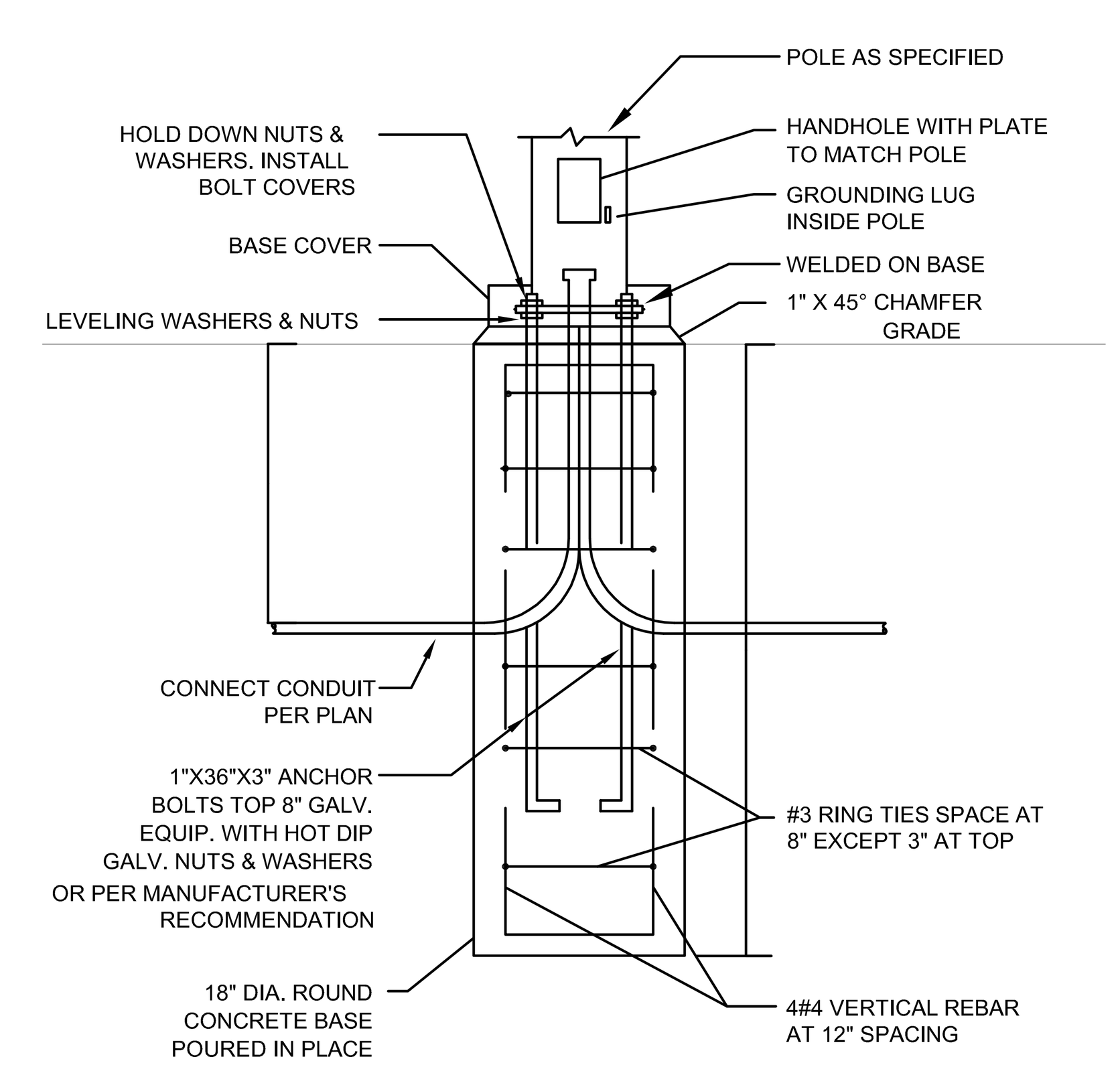
1 PSE TRENCH DETAIL

SCALE: NTS



2 POLE BASE TYPE P

SCALE: NTS



3 POLE BASE TYPE PD

SCALE: NTS

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

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Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
04.08.2019	VALUE ENGINEERING
10.18.2019	DESIGN DEVELOPMENT
01.06.2020	PERMIT DOCUMENTS
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

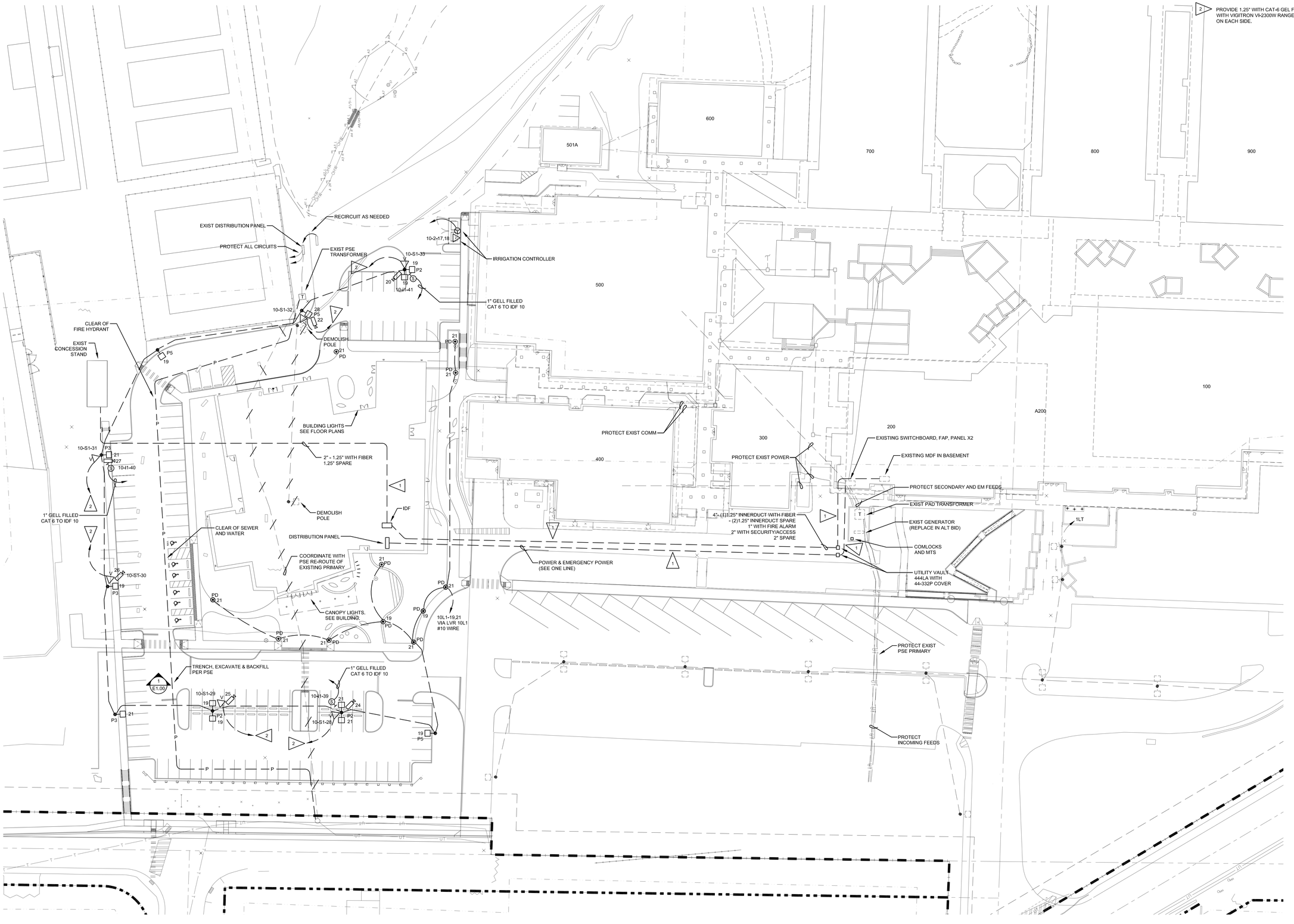
Legend Electrical

SHEET NUMBER

E1.00

FLAG NOTES:

1. SAW CUT, CUT, EXCAVATE, BACKFILL, AND PATCH ALL CONCRETE, ASPHALT, AND OTHER SURFACES AS REQUIRED. COORDINATE ALL RUNS WITH CIVIL AND SURVEY DRAWINGS PRIOR TO EXCAVATION. MANY CROSSINGS ARE IN CONGESTED AREAS SO CAREFULLY CALL FOR LOCATIONS ON ALL RUNS PRIOR TO EXCAVATION.
2. PROVIDE 1.25" WITH CAT-6 GEL FILLED CABLE WITH VIGITRON VI-2300W RANGE EXTENDER ON EACH SIDE.



1 ENLARGED ELECTRICAL SITE PLAN

SCALE: 1" = 30' - 0"

NORTH 0 30' 60'

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

Site Plan Electrical

SHEET NUMBER

E1.01

1 Area A - Basement Level - Lighting
1/8" = 1'-0"

NORTH
0" 1" 2"

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

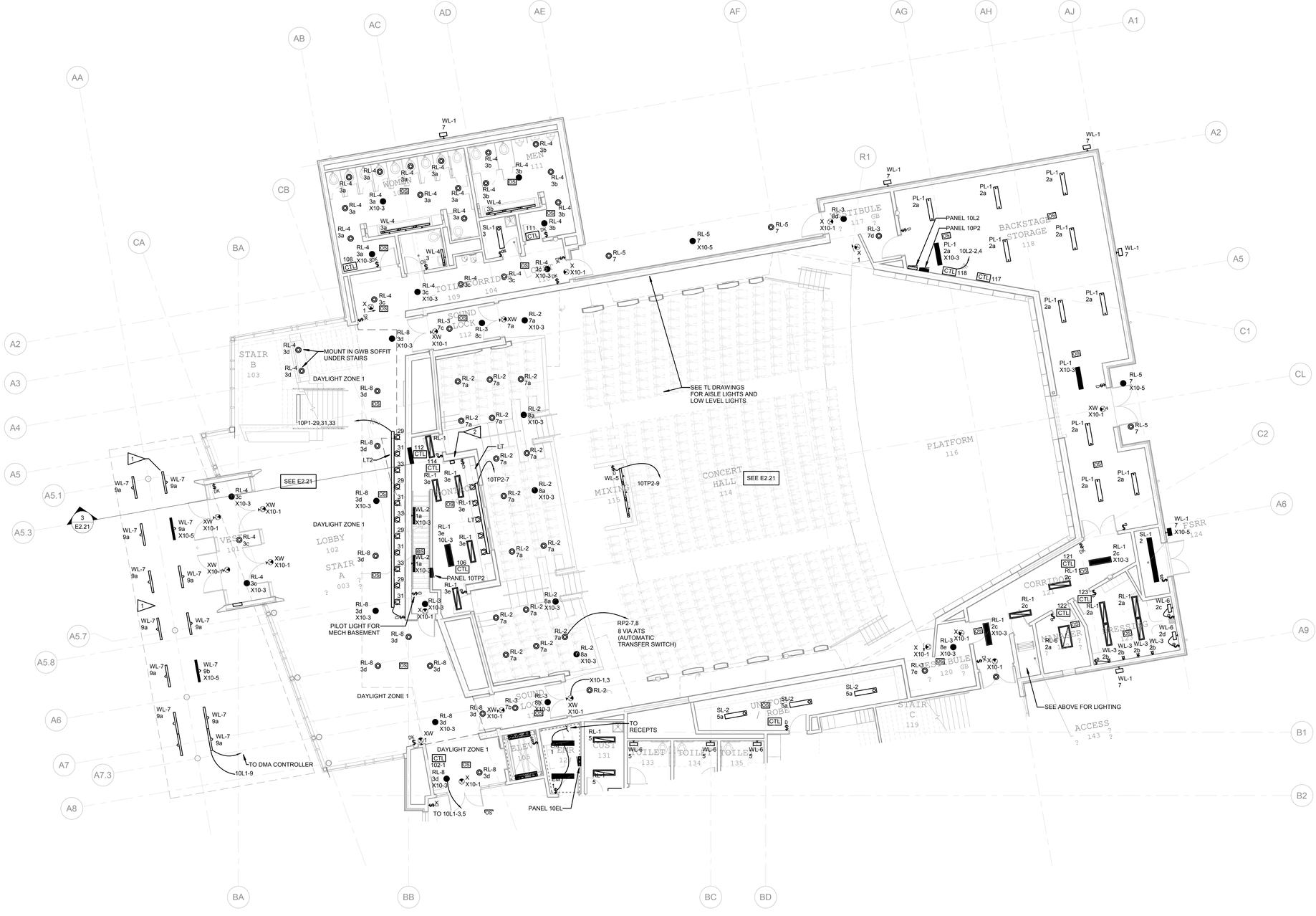
Area A - Basement Level - Lighting

SHEET NUMBER

E2.01

FLAG NOTES:

1. THE COLOR CHANGING WL-7 FIXTURES ARE VIA A RELAY FOR ON/OFF CONTROL BUT DMX CONTROL IS ROUTED THROUGH THE ETC PARADIGM SYSTEM. ROUTE THE DMX WIRES TO THE SYSTEM AT THE AUXILIARY RACK IN THE DIMMER ROOM AS SHOWN ON THE E-TL DRAWINGS. PROVIDE A WALL CONTROL STATION IN THE CONTROL ROOM CONNECTED TO THE PARADIGM SYSTEM. THE SYSTEM SHALL BE SEGMENTED OFF OF THE MAIN THEATER NETWORK. THE BASIC ON/OFF CONTROL OF POWER IS FROM THE DOUGLAS CONTROL SYSTEM. FIXTURES WILL TURN ON TO WHATEVER THE LAST COLORS. THE DEFAULT SHALL BE INGLEMOOR BLACK AND GOLD. PROGRAM SHOWS FOR THE OTHER HS COLORS IN THE DISTRICT (WOODINVILLE - BLUE AND GREEN), (BOTHELL - LIGHT BLUE AND GRAY), AND (NORTH CREEK PURPLE AND WHITE) AND SECONDARY ACADEMY AND INNOVATION LAB IF DIRECTED. IN ADDITION PROVIDE FOR ADDITIONAL SCENES DIRECTED BY THE OWNER.
2. CONTROLLER FOR CANOPY LIGHTS



1 Area A - Lower Level - Lighting
1/8" = 1'-0"

NORTH

0" 1" 2"

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BID DOCUMENTS

04.13.2020

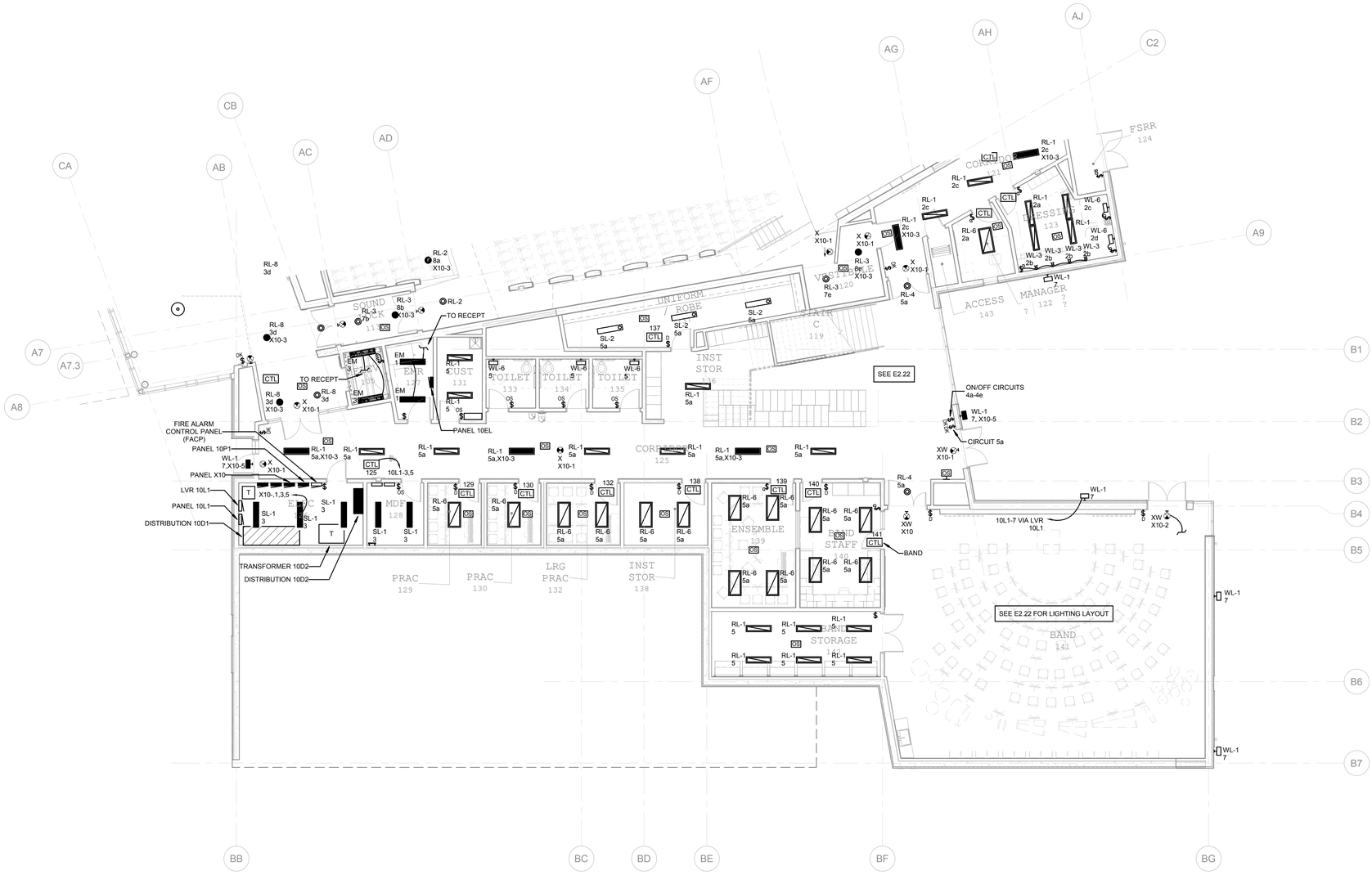
PROJECT NUMBER: 1711

SHEET NAME

Area A - Lower Level - Lighting

SHEET NUMBER

E2.11



1 Area B - Lower Level - Lighting
1/8" = 1'-0"

NORTH

0" 1" 2"

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04.13.2020

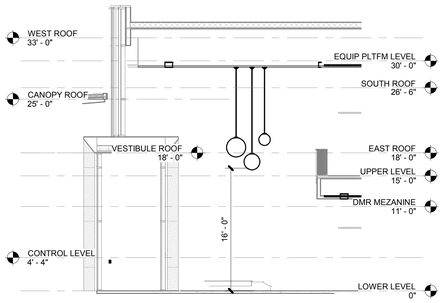
PROJECT NUMBER: 1711

SHEET NAME

Area B - Lower Level - Lighting

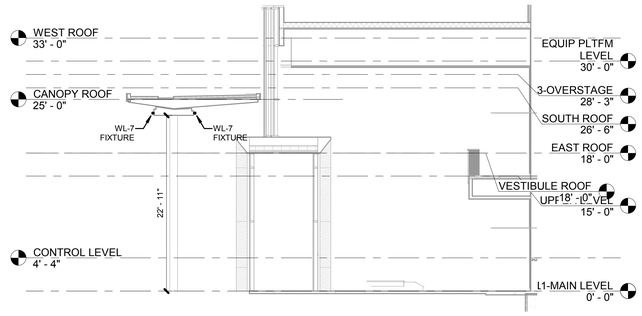
SHEET NUMBER

E2.12



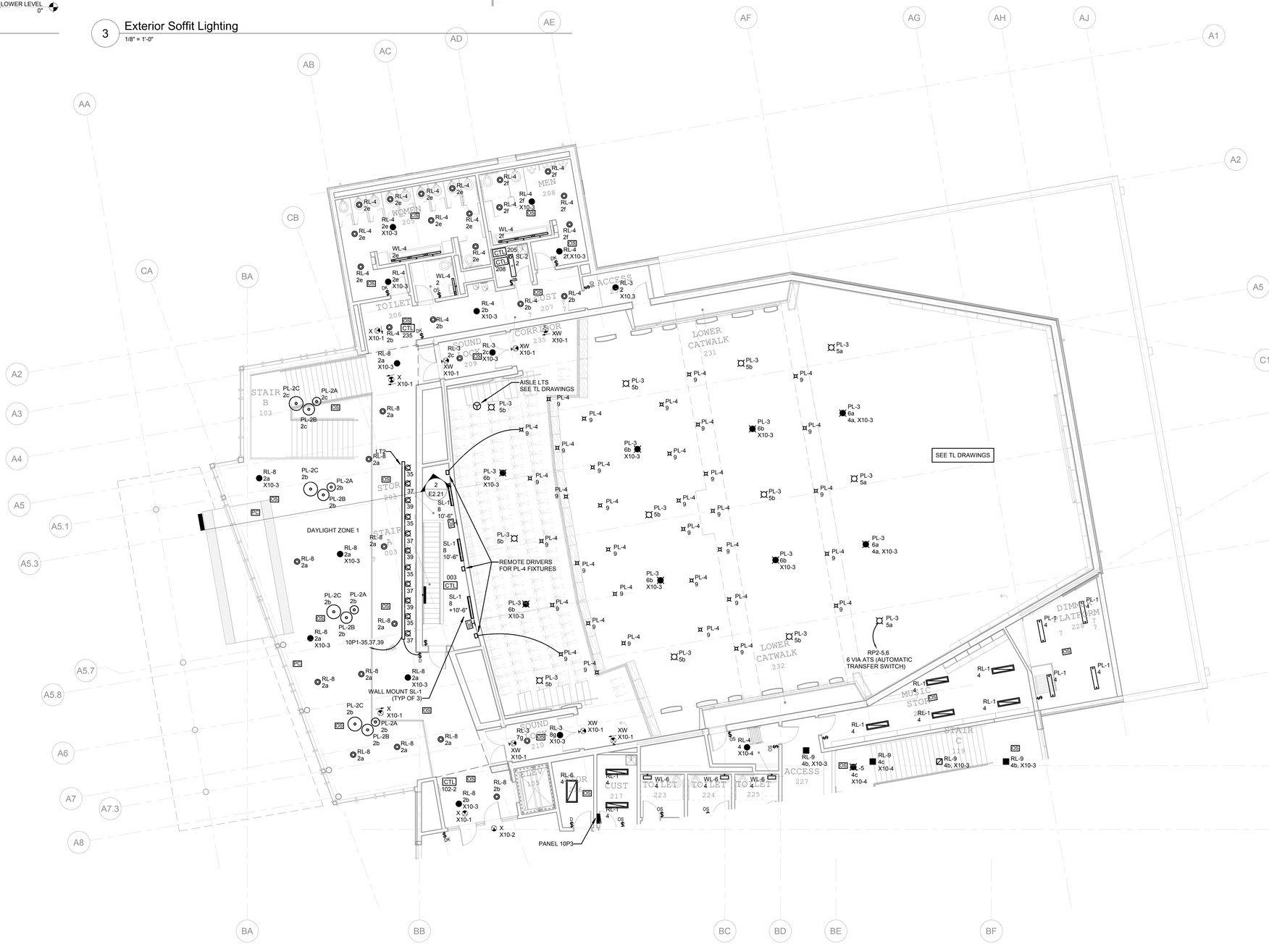
2 Lobby Pendant Lighting

1/8" = 1'-0"



3 Exterior Soffit Lighting

1/8" = 1'-0"



1 Area A - Upper Level - Lighting

1/8" = 1'-0"

0" 1" 2"

NORTH

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

Area A - Upper Level- Lighting

SHEET NUMBER

E2.21

1 Area B - Upper Level - Lighting
1/8" = 1'-0"

0" 1" 2"

NORTH

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BID DOCUMENTS

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PROJECT NUMBER: 1711

SHEET NAME

Area B - Upper Level - Lighting

SHEET NUMBER

E2.22

1 Area A - Equipment Platform Level - Lighting
1/8" = 1'-0"

NORTH
0" 1" 2"

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BID DOCUMENTS

04.13.2020

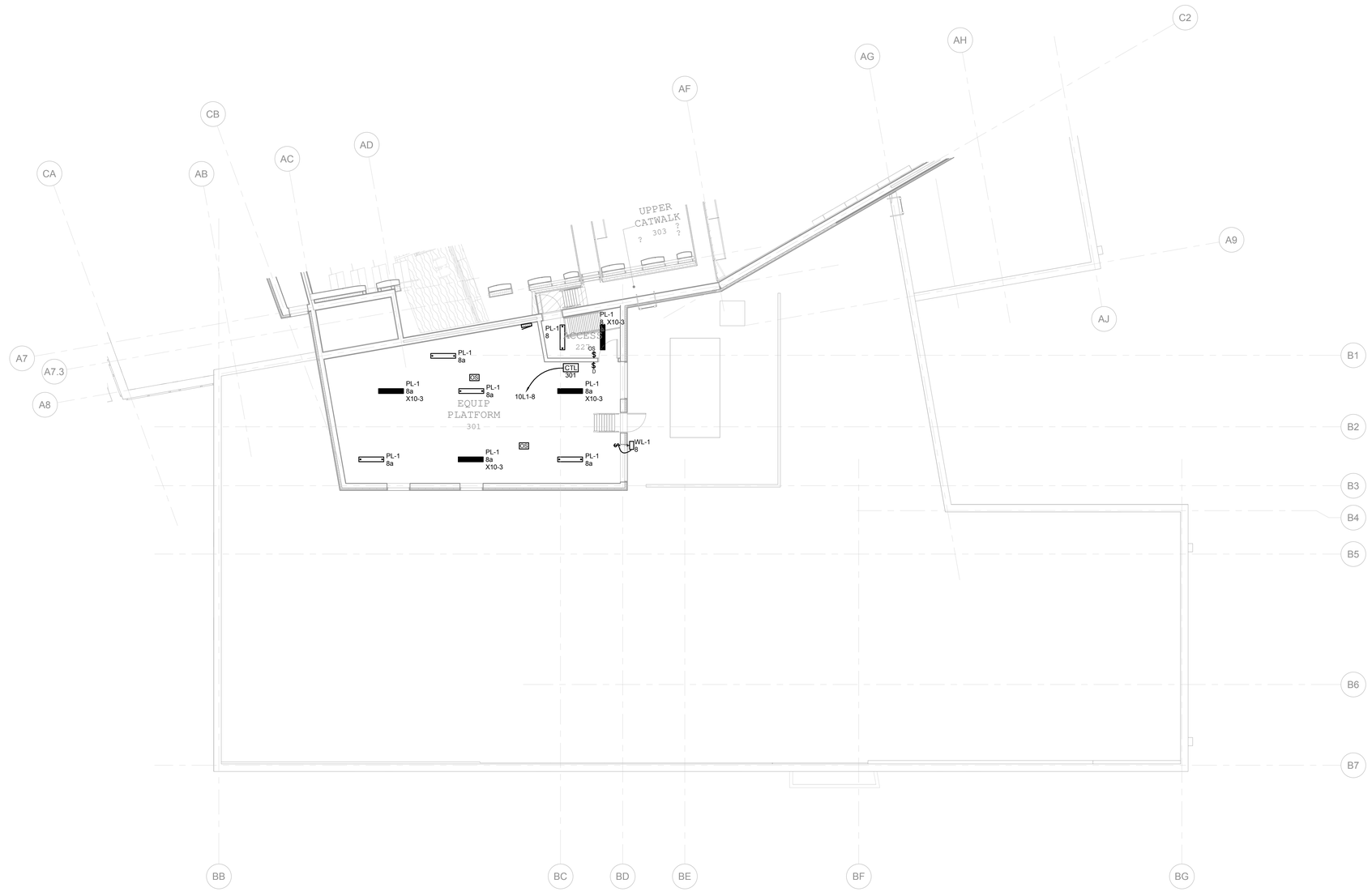
PROJECT NUMBER: 1711

SHEET NAME

Area A - Equipment Platform Level - Lighting

SHEET NUMBER

E2.31



1 Area B - Equipment Platform Level - Lighting
1/8" = 1'-0"

NORTH

0" 1" 2"

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BID DOCUMENTS

04.13.2020

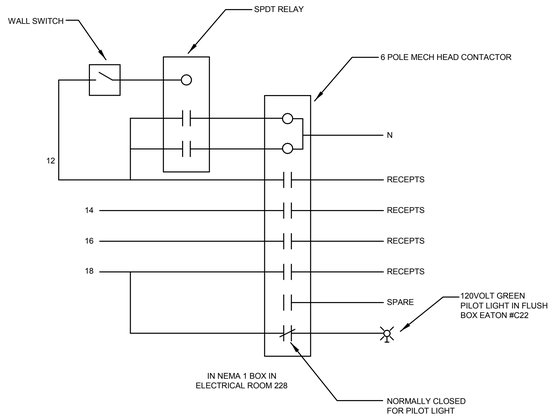
PROJECT NUMBER: 1711

SHEET NAME

Area B - Equipment Platform Level - Lighting

SHEET NUMBER

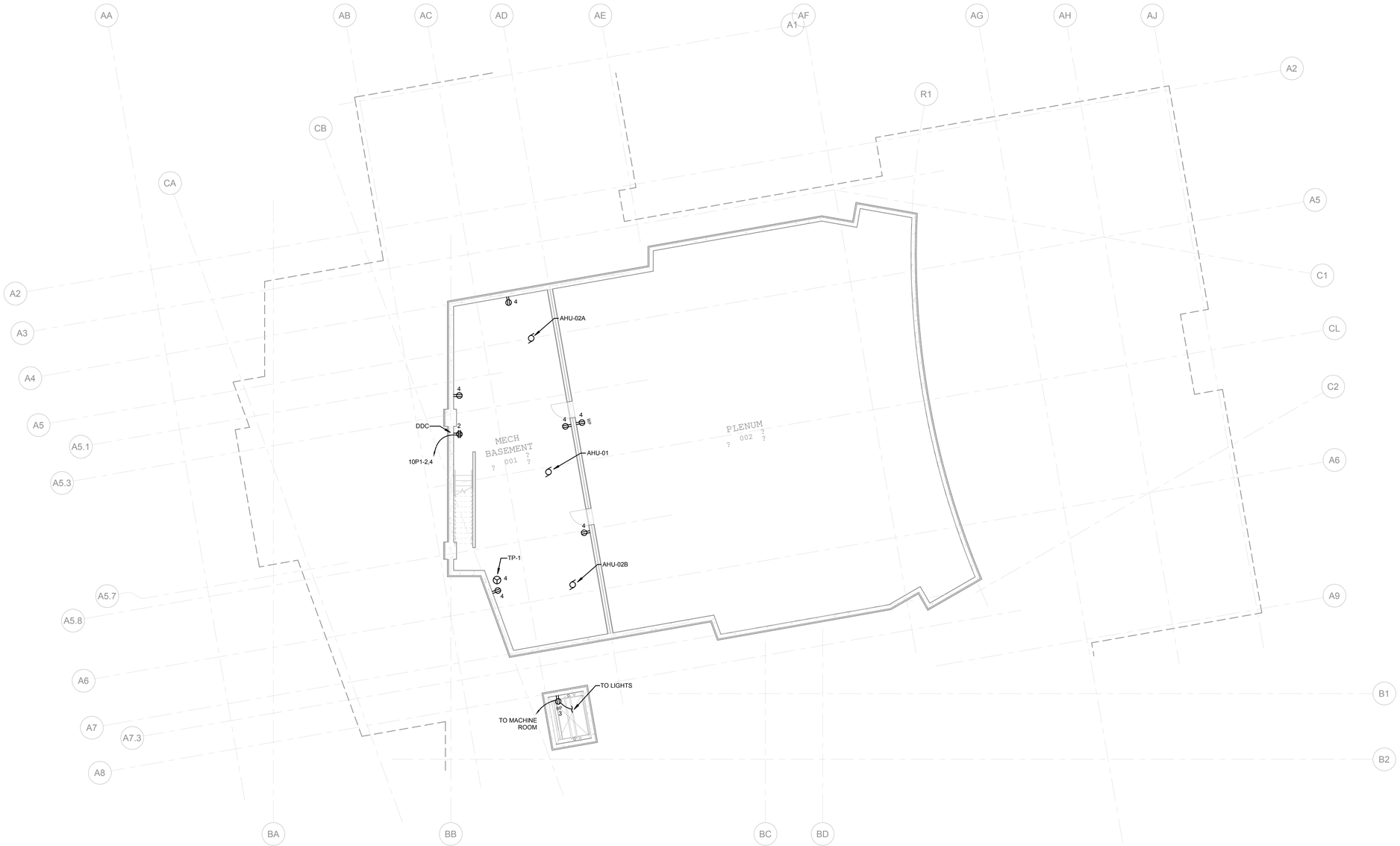
E2.32



2 DRESSING COUNTER CONTROL (SEE E3.11)
NTS

GENERAL NOTES:

1. SEE MECHANICAL CONNECTION SCHEDULE ON SHEET E8.00



1 Area A - Basement Level - Power
1/8" = 1'-0"

NORTH
0" 1" 2"

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

Area A - Basement Level - Power

SHEET NUMBER

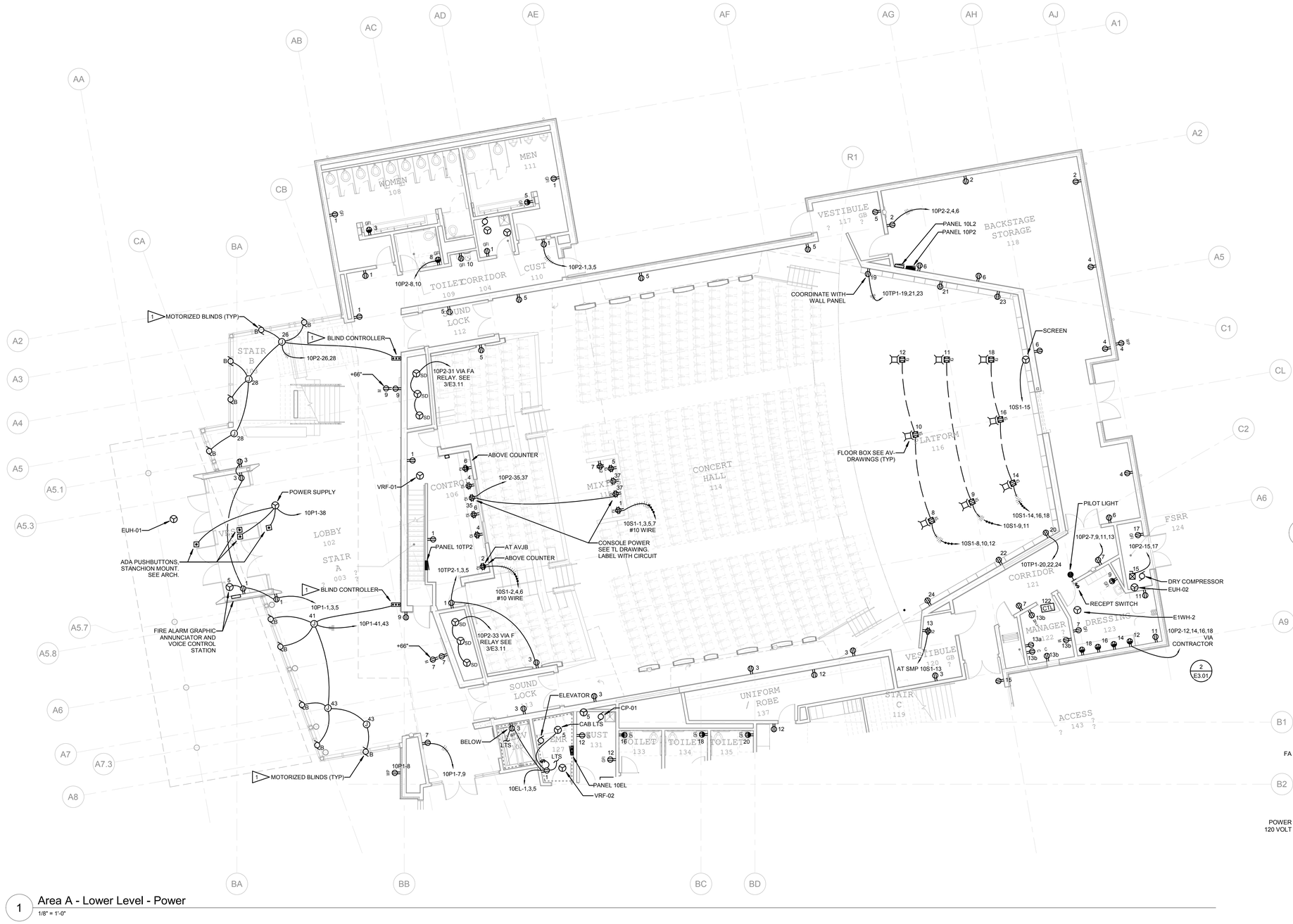
E3.01

GENERAL NOTES:

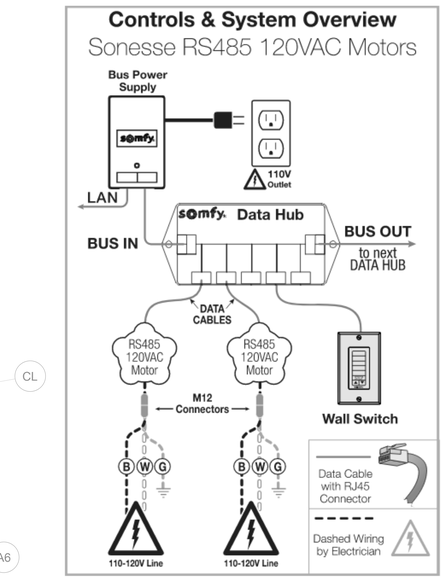
1. SEE MECHANICAL CONNECTION SCHEDULE ON SHEET E8.00

FLAG NOTES:

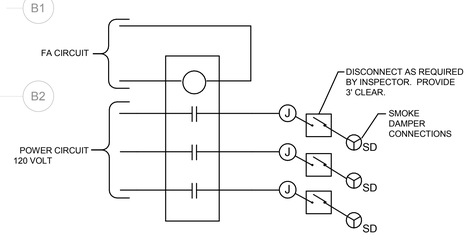
1 PROVIDE POWER SUPPLY & CONTROLLER PER MANUFACTURER REQUIREMENTS. REFER TO ROLLER SHADES SPECIFICATION SECTION. COORDINATE CONTROLLER LOCATION WITH ARCHITECT. SEE BLIND DETAIL 2/E3.11



1 Area A - Lower Level - Power
1/8" = 1'-0"



2 Blind Detail
NTS



SMOKE DAMPER DETAIL

3 SMOKE DAMPER CONNECTION
NTS

NORTH
0" 1" 2"

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

Inglemoor High School
15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
04.08.2019	VALUE ENGINEERING
07.12.2019	DESIGN DEVELOPMENT
01.06.2020	PERMIT DOCUMENTS
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

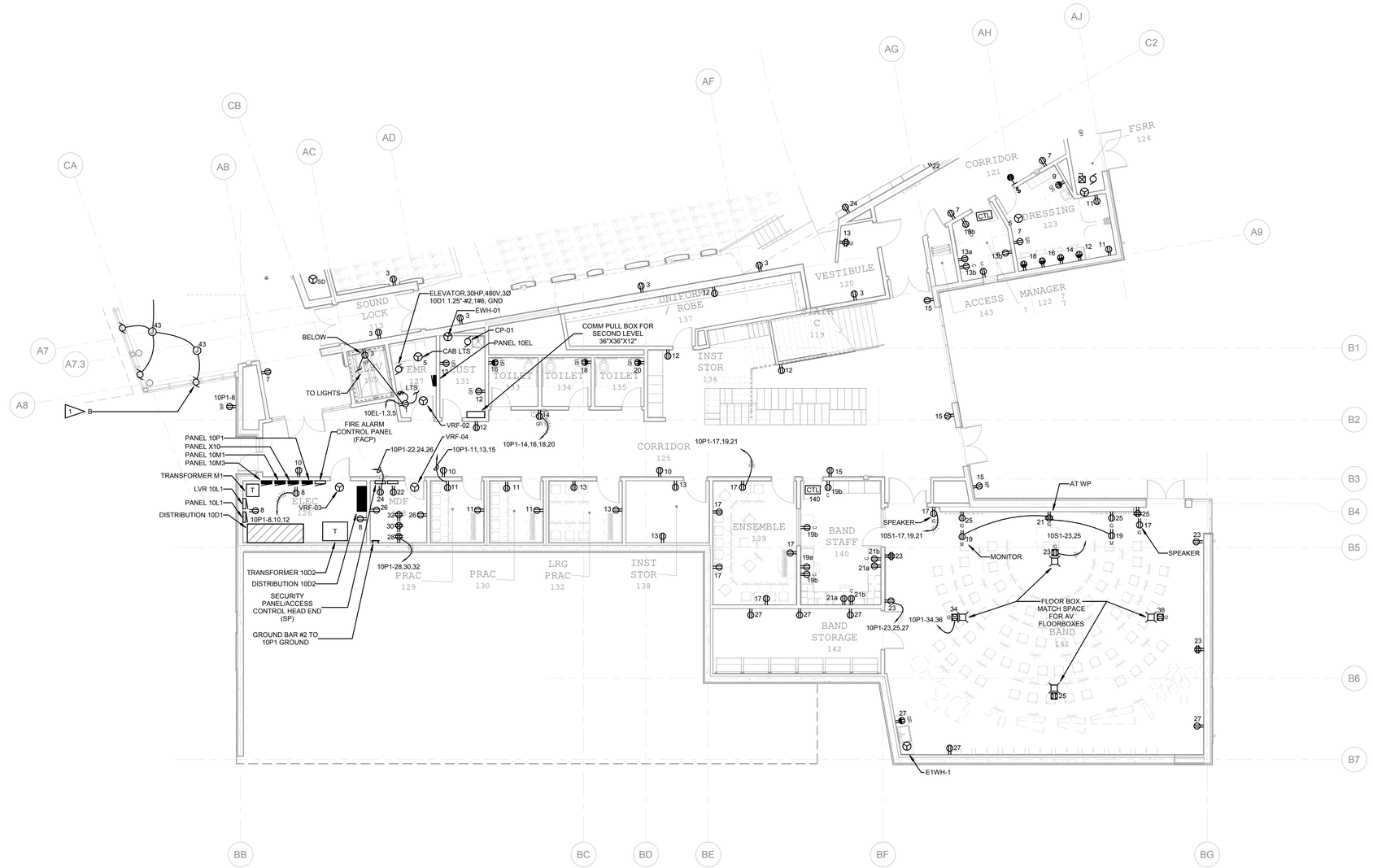
Area A - Lower Level - Power

SHEET NUMBER

E3.11

GENERAL NOTES:

1. SEE MECHANICAL CONNECTION SCHEDULE ON SHEET E8.00



1 Area B - Lower Level - Power
1/8" = 1'-0"

NORTH

0" 1" 2"

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04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

Area B - Lower Level - Power

SHEET NUMBER

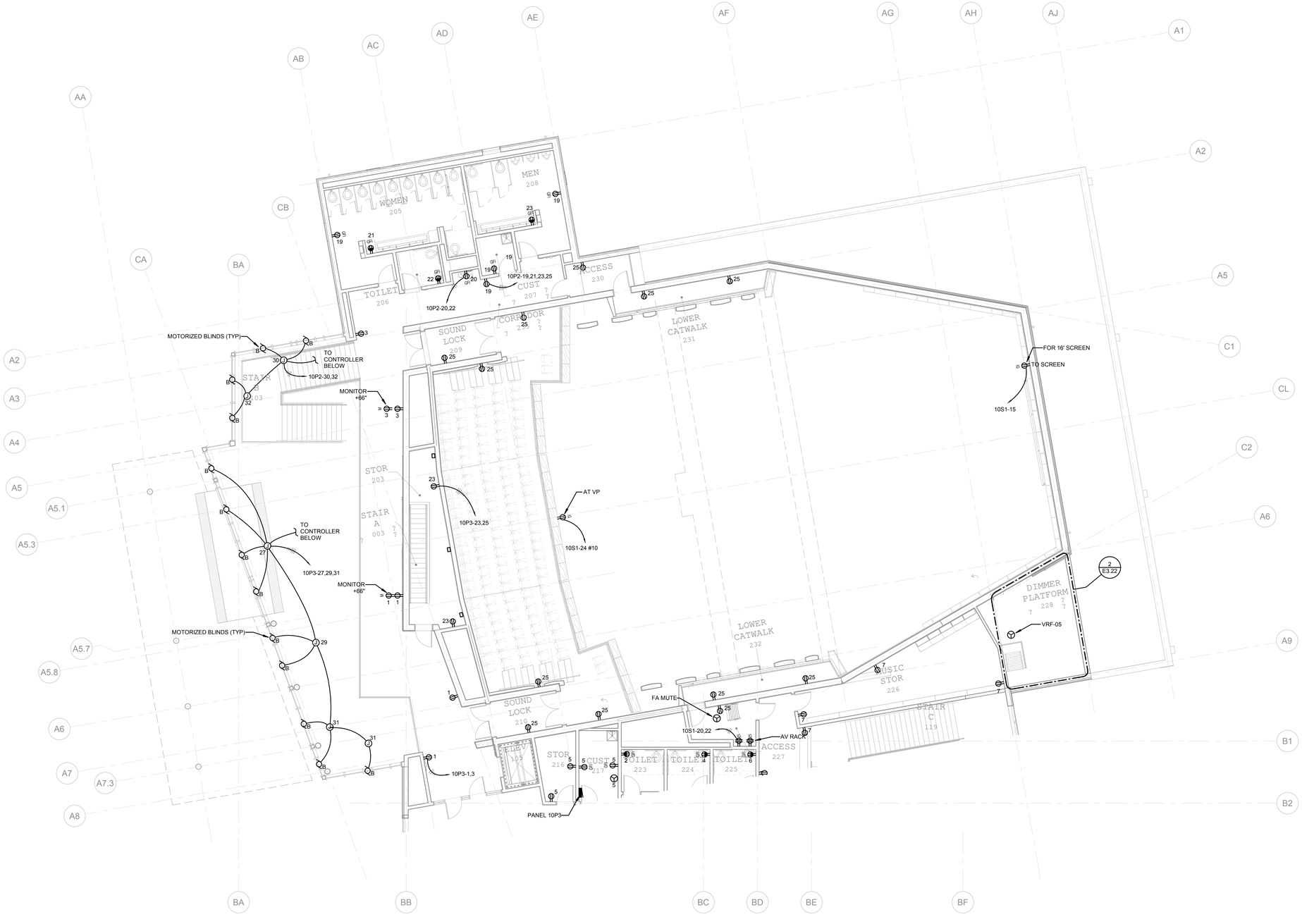
E3.12

GENERAL NOTES:

1. SEE MECHANICAL CONNECTION SCHEDULE ON SHEET E8.00

FLAG NOTES:

1 PROVIDE POWER SUPPLY & CONTROLLER PER MANUFACTURER REQUIREMENTS. REFER TO ROLLER SHADES SPECIFICATION SECTION. COORDINATE CONTROLLER LOCATION WITH ARCHITECT. SEE BLIND DETAIL 2/E3.11



1 Area A - Upper Level - Power
1/8" = 1'-0"

NORTH

0" 1" 2"

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

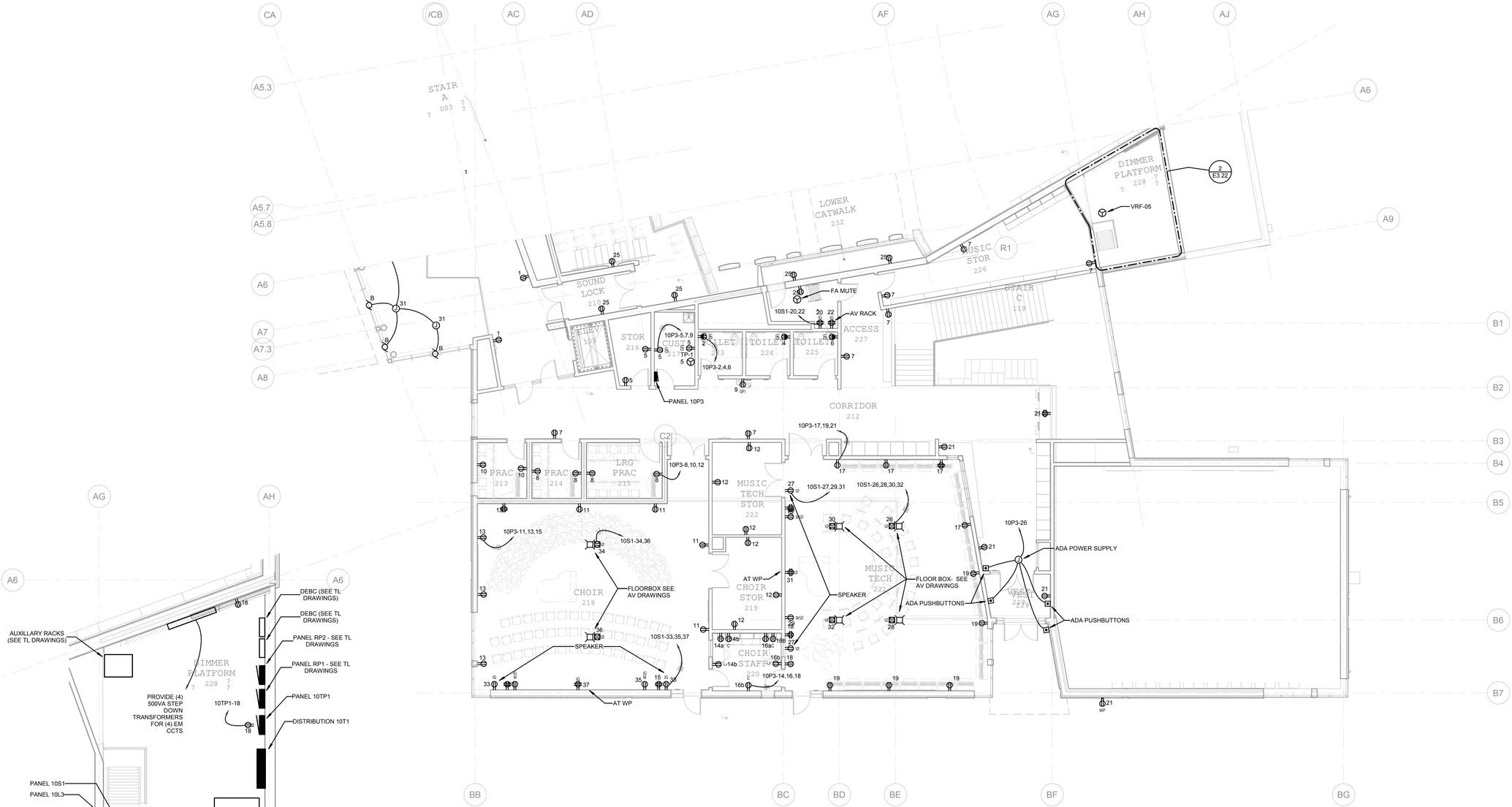
Area A - Upper Level - Power

SHEET NUMBER

E3.21

GENERAL NOTES:

1. SEE MECHANICAL CONNECTION SCHEDULE ON SHEET E8.00



2 Enlarged Elec 228
1/4" = 1'-0"

1 Area B - Upper Level - Power
1/8" = 1'-0"

NORTH
0" 1" 2"

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Northshore School District

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04.13.2020 BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

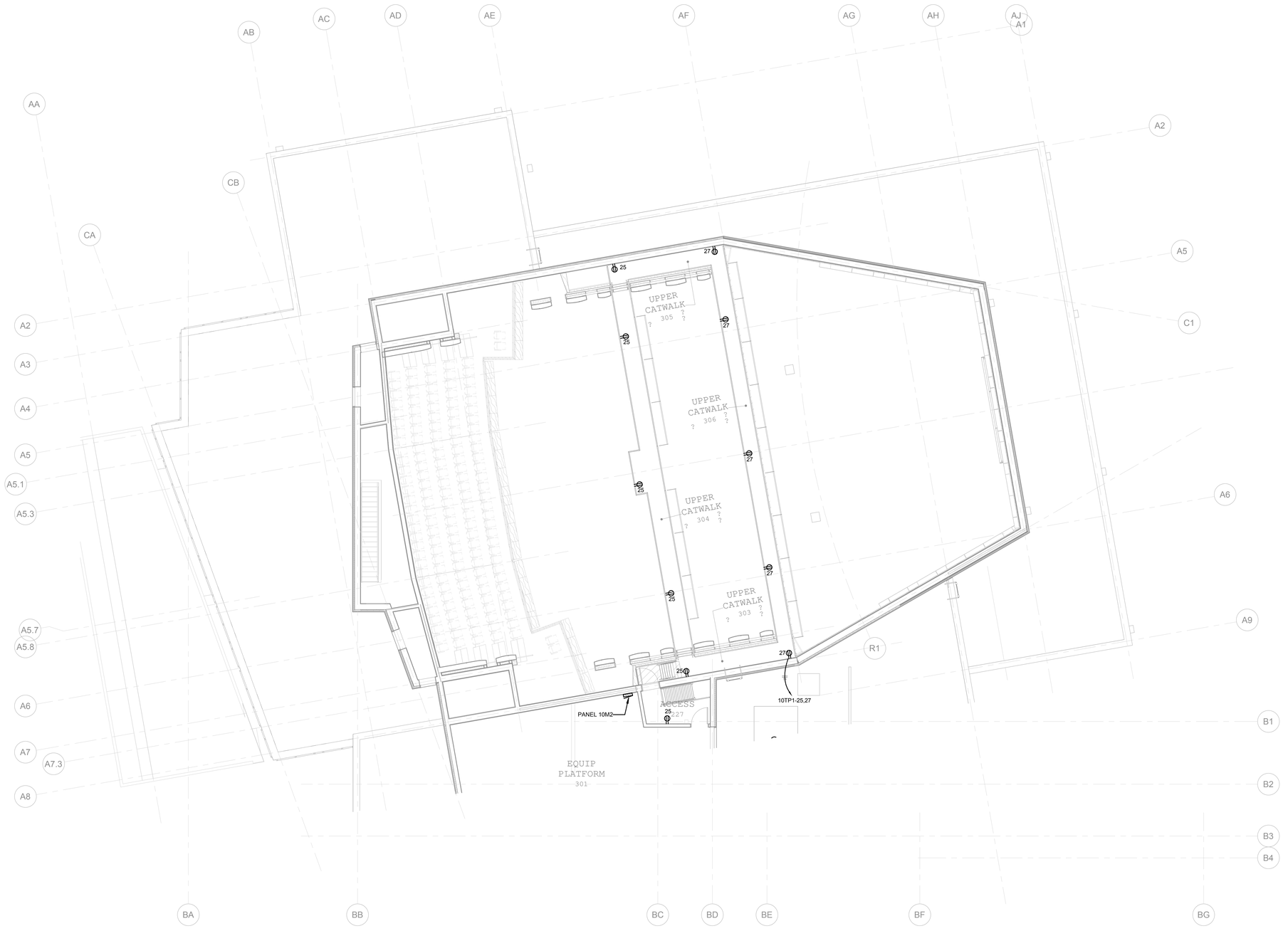
Area B - Upper Level - Power

SHEET NUMBER

E3.22

GENERAL NOTES:

1. SEE MECHANICAL CONNECTION SCHEDULE ON SHEET E8.00



1 Area A - Equipment Platform Level - Power
1/8" = 1'-0"

NORTH
0" 1" 2"

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PROJECT NUMBER: 1711

SHEET NAME

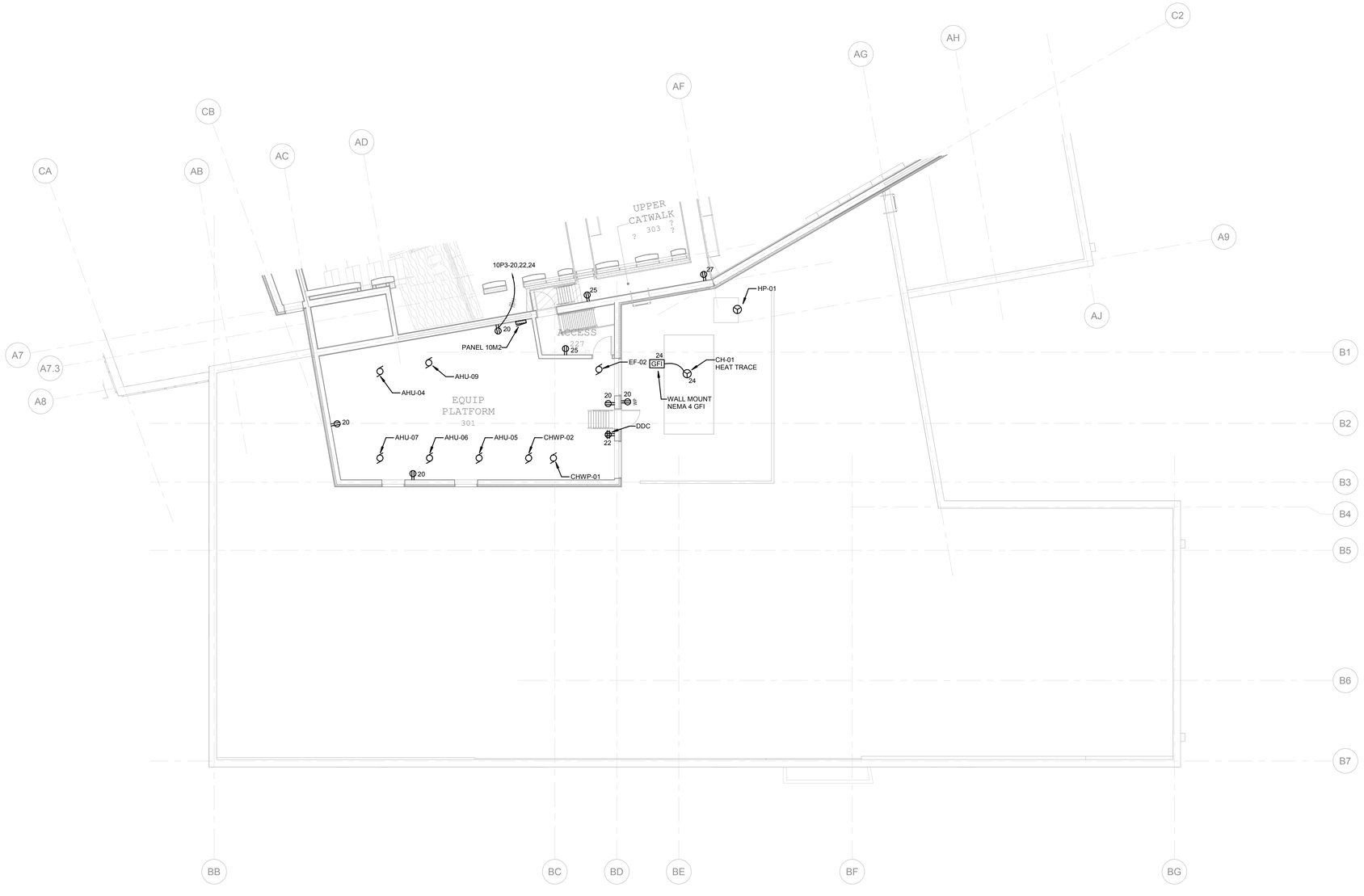
Area A - Equipment Platform Level - Power

SHEET NUMBER

E3.31

GENERAL NOTES:

1. SEE MECHANICAL CONNECTION SCHEDULE ON SHEET E8.00



1 Area B - Equipment Platform Level - Power
1/8" = 1'-0"

NORTH

0" 1" 2"

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PROJECT NUMBER: 1711

SHEET NAME

Area B - Equipment Platform Level - Power

SHEET NUMBER

E3.32

1 Area A - Plenum Level - Comm
1/8" = 1'-0"

0" 1" 2"

NORTH

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04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

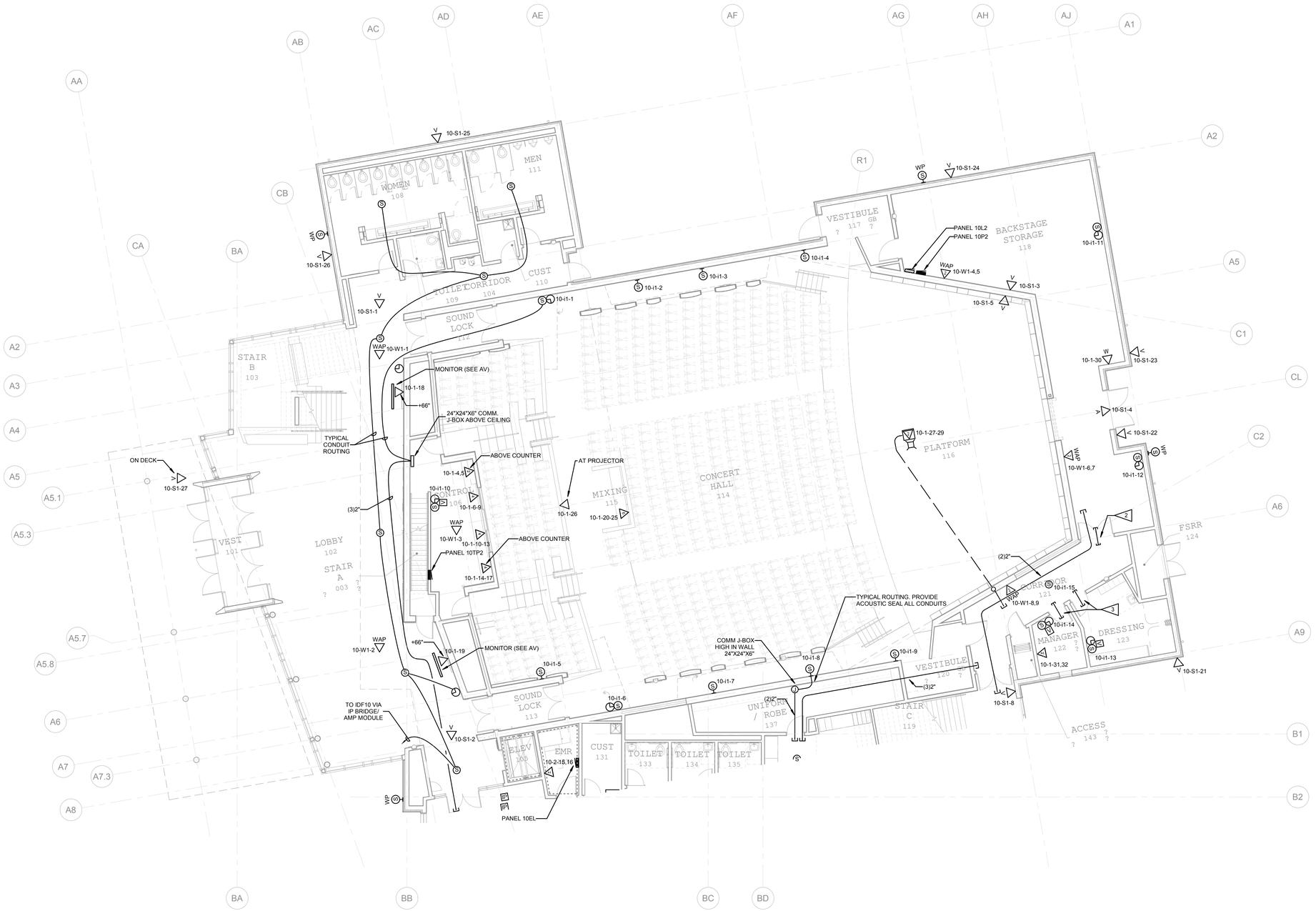
Area A - Basement Level - Comm

SHEET NUMBER

E4.01

FLAG NOTES:

1. PROVIDE ACOUSTIC SLEEVE. EZ PATH SERRES 44NEZ SMOKE AND ACOSTIC PATHWAY
2. SAME AS NOTE 1 BUT WITH (3) 44NEZ OPENINGS IN 3 GANG DEVICE.
3. PROVIDE ACOUSTIC SLEEVE EZ PATH SERIES 33NEZ SMOKE AND ACOUSTIC PATHWAY



1 Area A - Lower Level - Comm

1/8" = 1'-0"

NORTH

0" 1" 2"

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PROJECT INFORMATION

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BID DOCUMENTS

04.13.2020

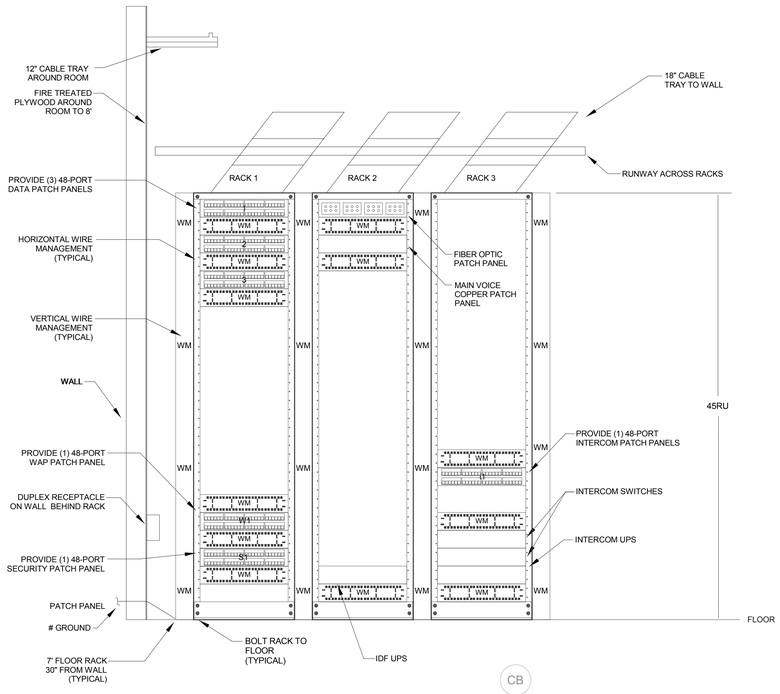
PROJECT NUMBER: 1711

SHEET NAME

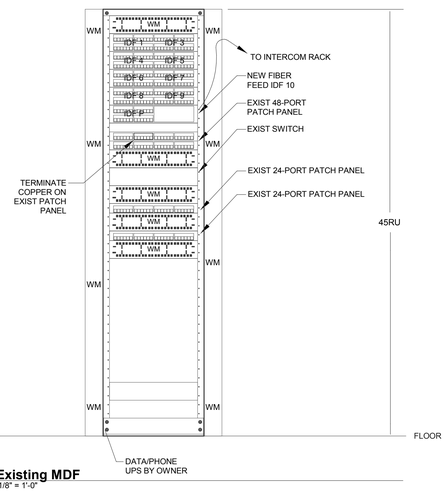
Area A - Lower Level - Comm

SHEET NUMBER

E4.11



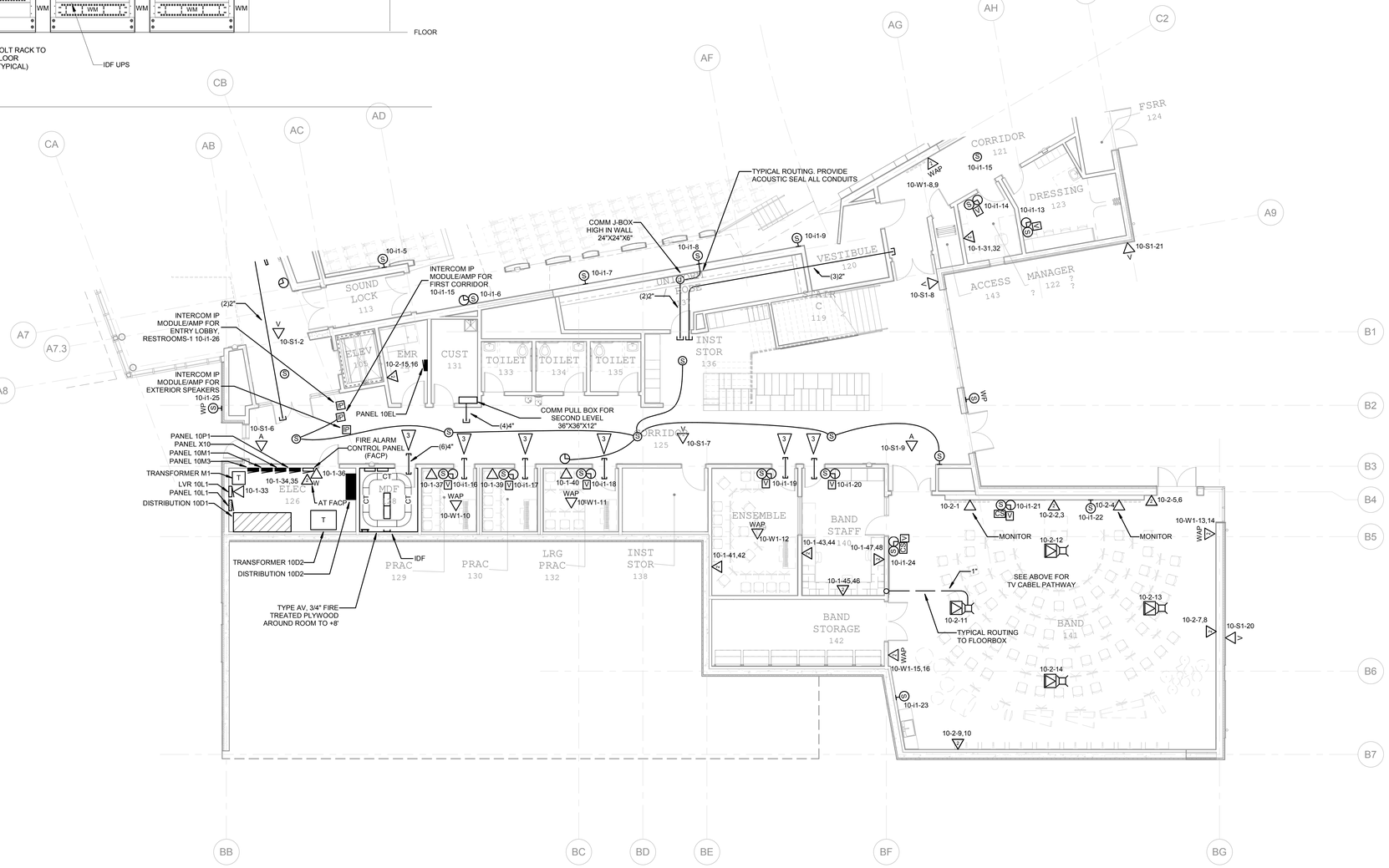
2 IDF-10
1/8" = 1'-0"



3 Existing MDF
1/8" = 1'-0"

FLAG NOTES:

1. PROVIDE ACOUSTIC SLEEVE. EZ PATH SERRES 44NEZ SMOKE AND ACOSTIC PATHWAY
2. SAME AS NOTE 1 BUT WITH (3) 44NEZ OPENINGS IN 3 GANG DEVICE.
3. PROVIDE ACOUSTIC SLEEVE EZ PATH SERIES 33NEZ SMOKE AND ACOUSTIC PATHWAY



1 Area B - Lower Level - Comm
1/8" = 1'-0"

0" 1" 2"

NORTH

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PROJECT INFORMATION

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SCHOOL DISTRICT LOGO

Northshore School District

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

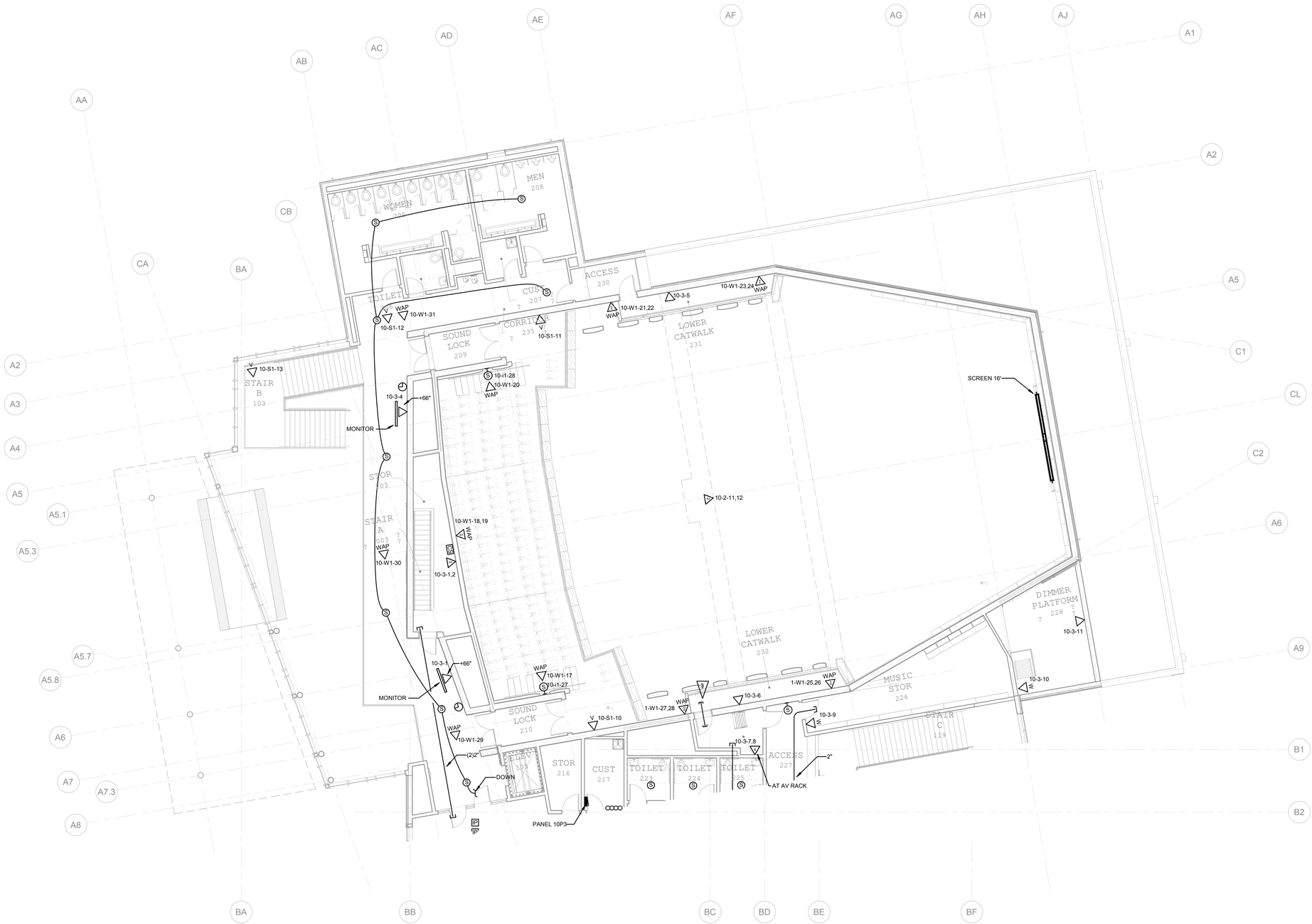
Area B - Lower Level - Comm

SHEET NUMBER

E4.12

FLAG NOTES:

1. PROVIDE ACOUSTIC SLEEVE. EZ PATH SERRES 44NEZ SMOKE AND ACOSTIC PATHWAY
2. SAME AS NOTE 1 BUT WITH (3) 44NEZ OPENINGS IN 3 GANG DEVICE.
3. PROVIDE ACOUSTIC SLEEVE EZ PATH SERIES 33NEZ SMOKE AND ACOUSTIC PATHWAY



1 Area A - Upper Level - Comm
1/8" = 1'-0"

NORTH

0" 1" 2"

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Northshore School District

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

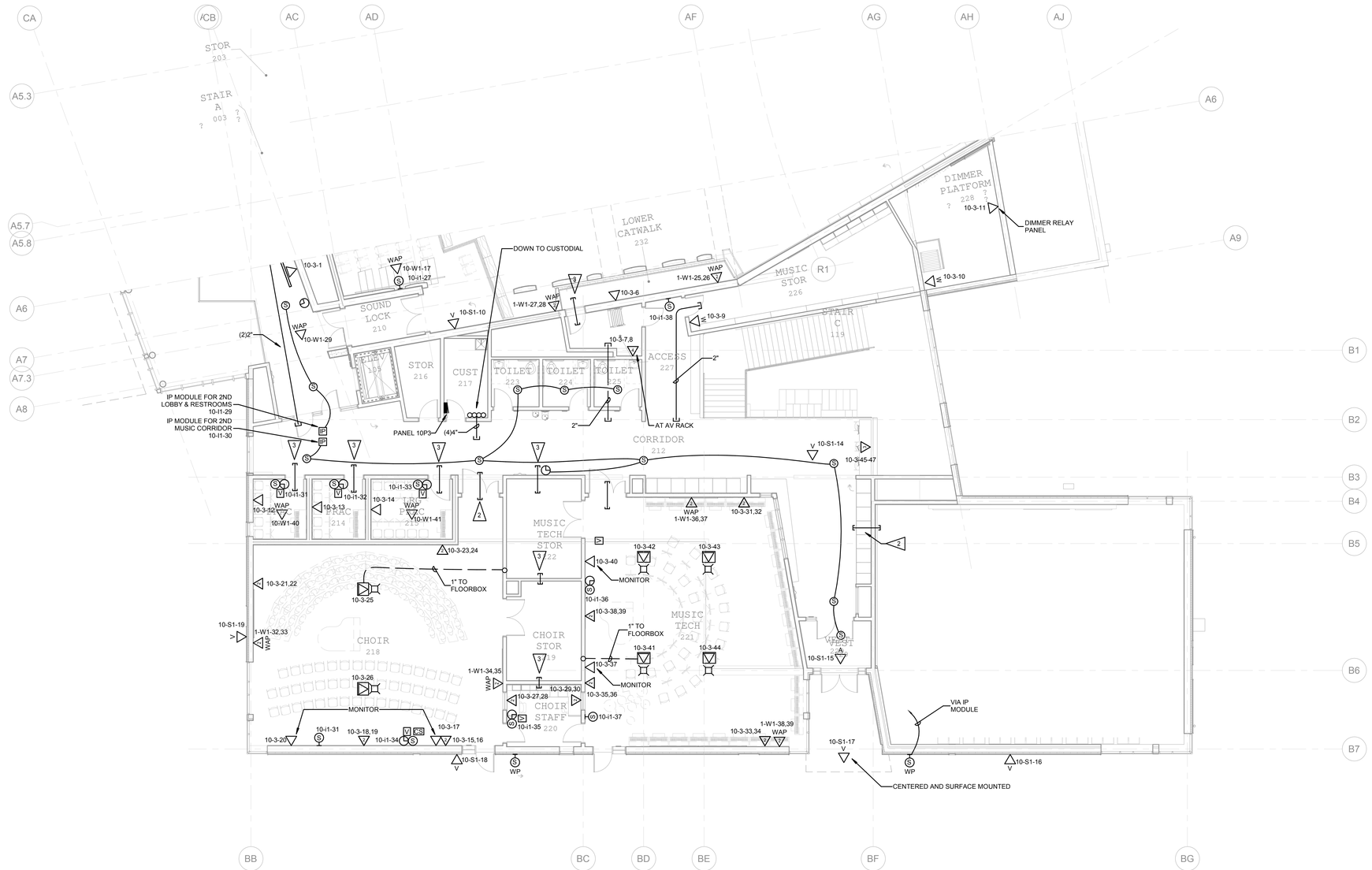
Area A - Upper Level - Comm

SHEET NUMBER

E4.21

FLAG NOTES:

1. PROVIDE ACOUSTIC SLEEVE. EZ PATH SERRES 44NEZ SMOKE AND ACOSTIC PATHWAY
2. SAME AS NOTE 1 BUT WITH (3) 44NEZ OPENINGS IN 3 GANG DEVICE.
3. PROVIDE ACOUSTIC SLEEVE EZ PATH SERIES 33NEZ SMOKE AND ACOUSTIC PATHWAY



1 Area B - Upper Level - Comm
1/8" = 1'-0"

NORTH

0" 1" 2"

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

Area B - Upper Level - Comm

SHEET NUMBER

E4.22

FLAG NOTES:

1. PROVIDE ACOUSTIC SLEEVE. EZ PATH SERRES 44NEZ SMOKE AND ACOSTIC PATHWAY
2. SAME AS NOTE 1 BUT WITH (3) 44NEZ OPENINGS IN 3 GANG DEVICE.
3. PROVIDE ACOUSTIC SLEEVE EZ PATH SERIES 33NEZ SMOKE AND ACOUSTIC PATHWAY

1 Area A - Equipment Platform Level - Comm
1/8" = 1'-0"

NORTH

0" 1" 2"

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

Area A - Equipment Platform Level - Comm

SHEET NUMBER

E4.31

FLAG NOTES:

1. PROVIDE ACOUSTIC SLEEVE. EZ PATH SERRES 44NEZ SMOKE AND ACOSTIC PATHWAY
2. SAME AS NOTE 1 BUT WITH (3) 44NEZ OPENINGS IN 3 GANG DEVICE.
3. PROVIDE ACOUSTIC SLEEVE EZ PATH SERIES 33NEZ SMOKE AND ACOUSTIC PATHWAY

1 Area B - Equipment Platform Level - Comm
1/8" = 1'-0"

NORTH
0" 1" 2"

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

Area B - Equipment Platform Level - Comm

SHEET NUMBER

E4.32

1 Area A - Basement Level - ESS
1/8" = 1'-0"

NORTH

0" 1" 2"

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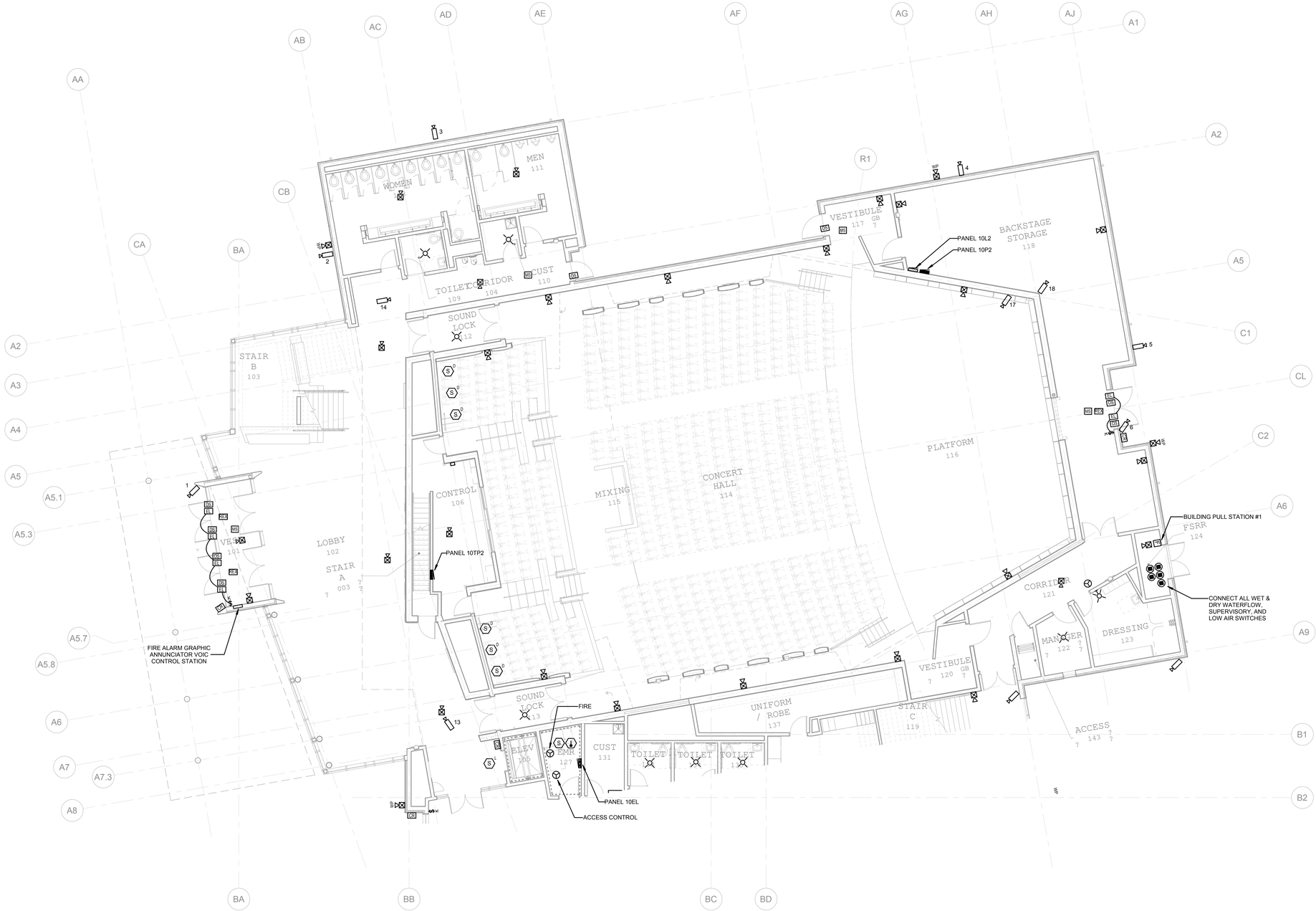
PROJECT NUMBER: 1711

SHEET NAME

Area A - Basement Level - ESS

SHEET NUMBER

E5.01



1 Area A - Lower Level - ESS

1/8" = 1'-0"

NORTH

0" 1" 2"

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SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
04.08.2019	VALUE ENGINEERING
07.12.2019	DESIGN DEVELOPMENT
01.06.2020	PERMIT DOCUMENTS
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

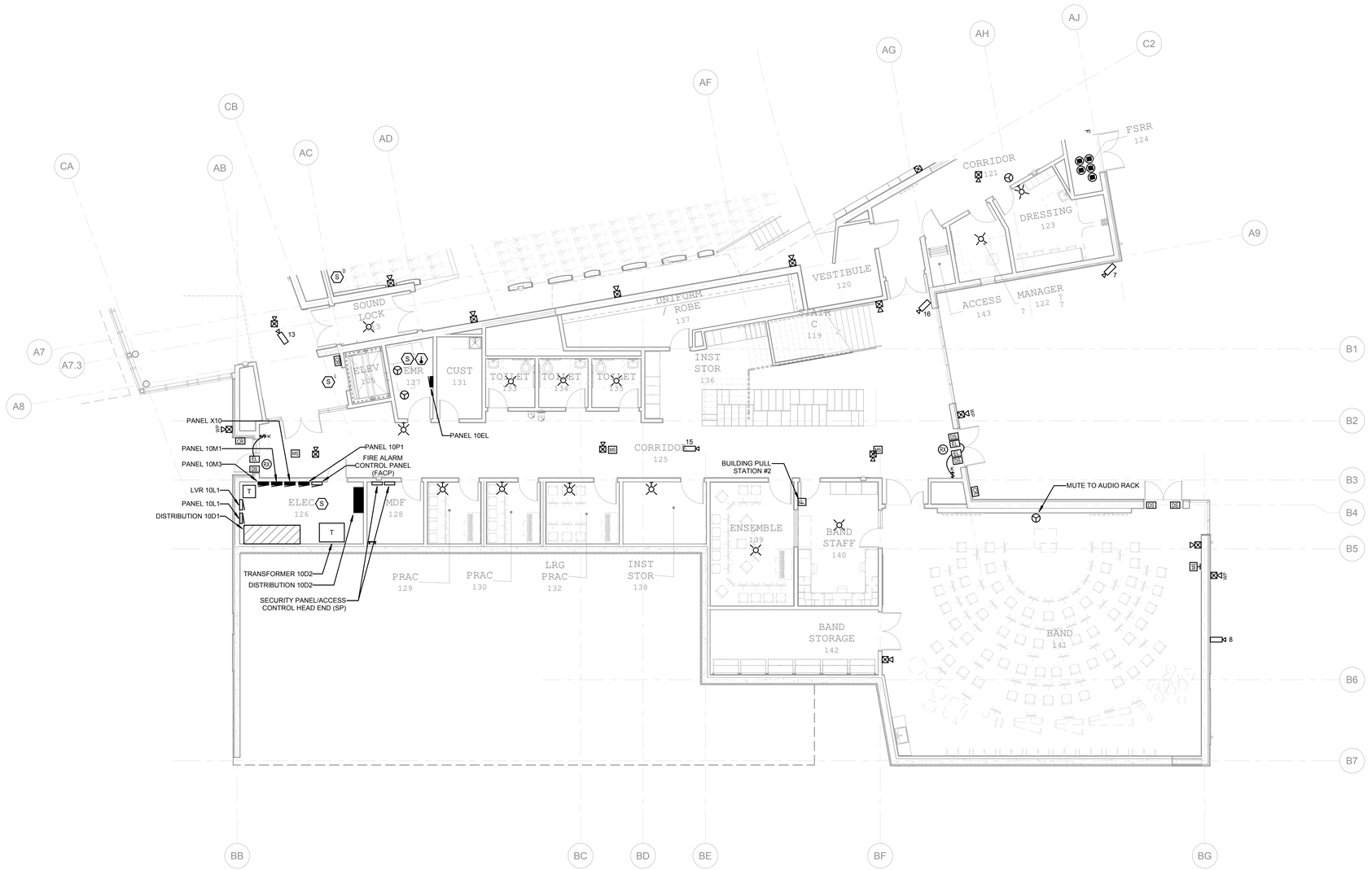
PROJECT NUMBER: 1711

SHEET NAME

Area A - Lower Level - ESS

SHEET NUMBER

E5.11



1 Area B - Lower Level - ESS
1/8" = 1'-0"

0" 1" 2"

NORTH

HUTTEBALL +OREMUS architecture

4010 LAKE WASHINGTON BLVD NE
SUITE 320
KIRKLAND, WA 98033

425.828.8948

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CONSULTANT STAMP

TFWB ENGINEERS

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1200 Westlake Ave. N., #509
Seattle, WA 98109

p: 206-285-7228 | info@tf-wb.com

PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

Inglemoor High School
15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

Area B - Lower Level - ESS

SHEET NUMBER

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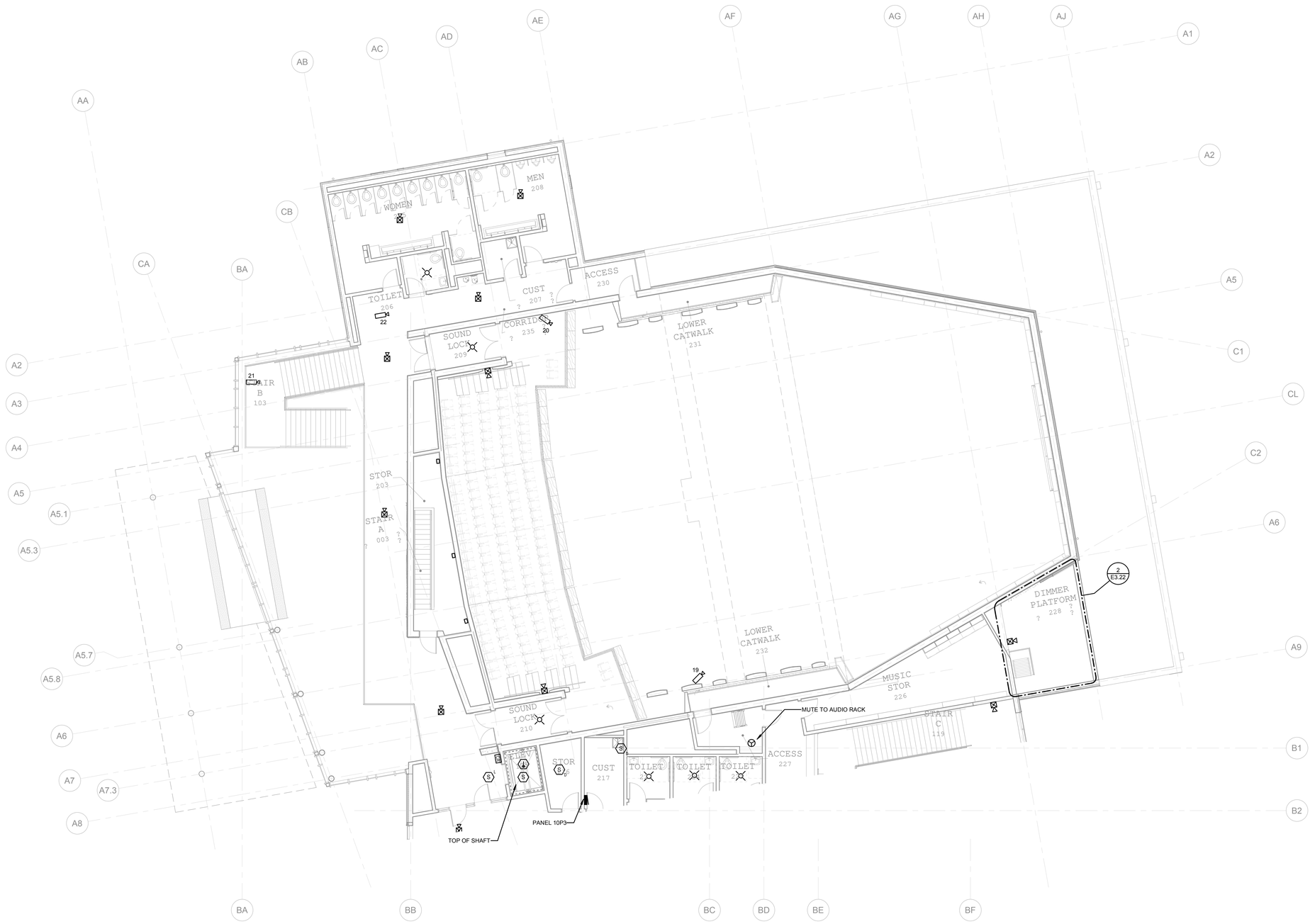

1 Area A - Upper Level - ESS
1/8" = 1'-0"

NORTH
0" 1" 2"

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BID DOCUMENTS

04.13.2020

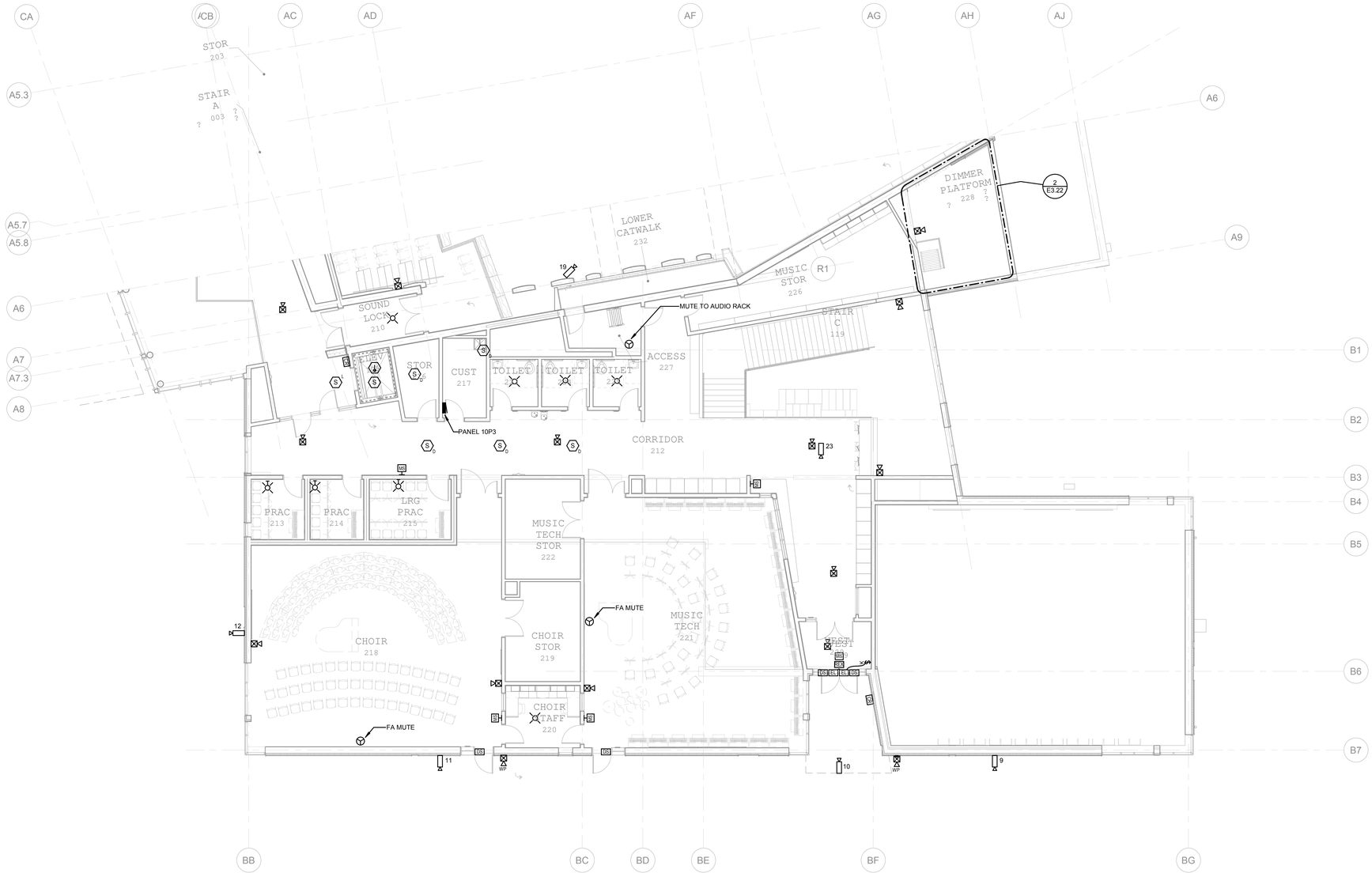
PROJECT NUMBER: 1711

SHEET NAME

Area A - Upper Level - ESS

SHEET NUMBER

E5.21



1 Area B - Upper Level - ESS
1/8" = 1'-0"

NORTH

0" 1" 2"

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MICHAEL J FITZMAURICE
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER

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BID DOCUMENTS

04.13.2020

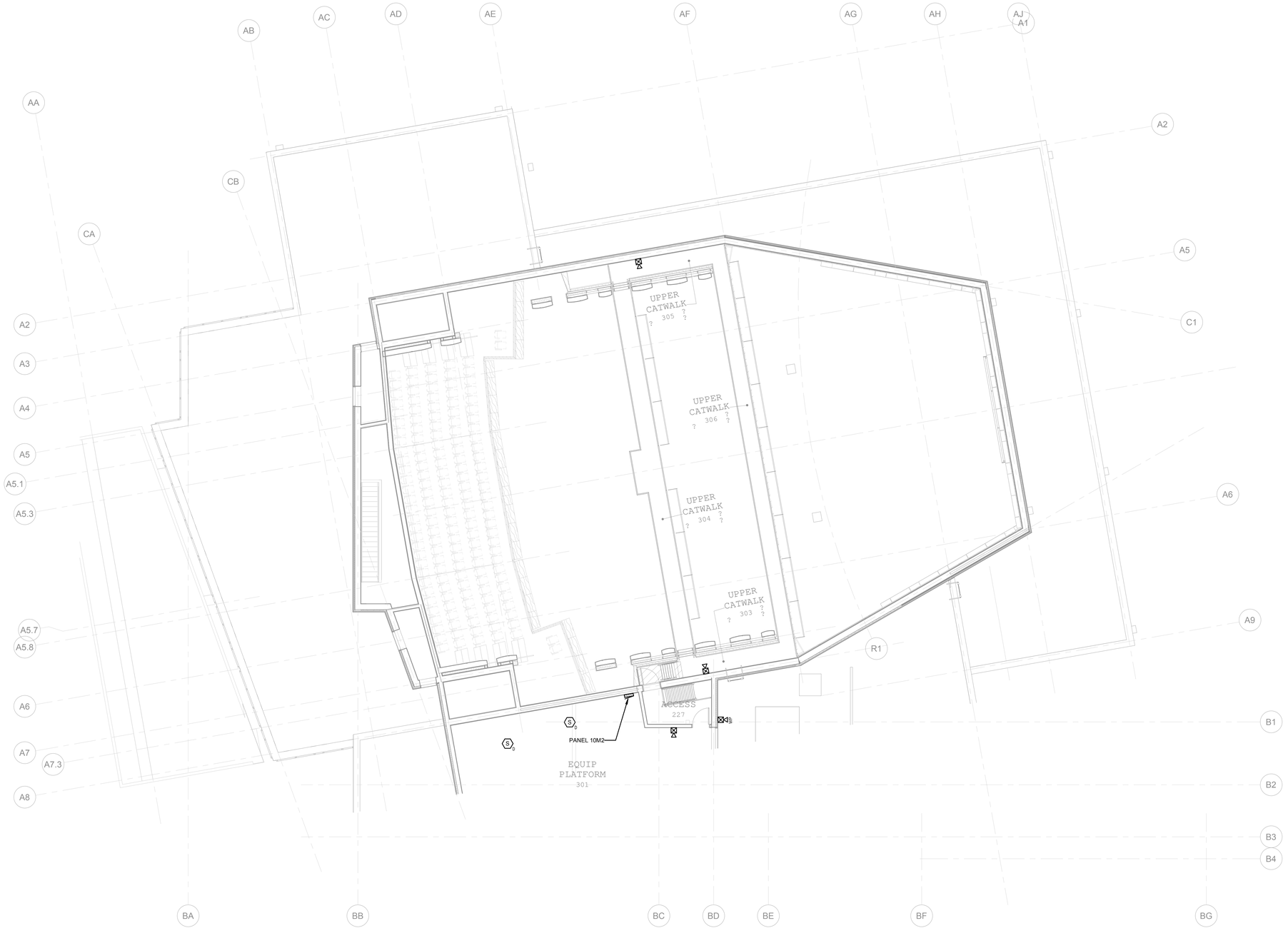
PROJECT NUMBER: 1711

SHEET NAME

Area B - Upper Level - ESS

SHEET NUMBER

E5.22



1 Area A - Equipment Platform Level - ESS
1/8" = 1'-0"

NORTH
0" 1" 2"

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BID DOCUMENTS

04.13.2020

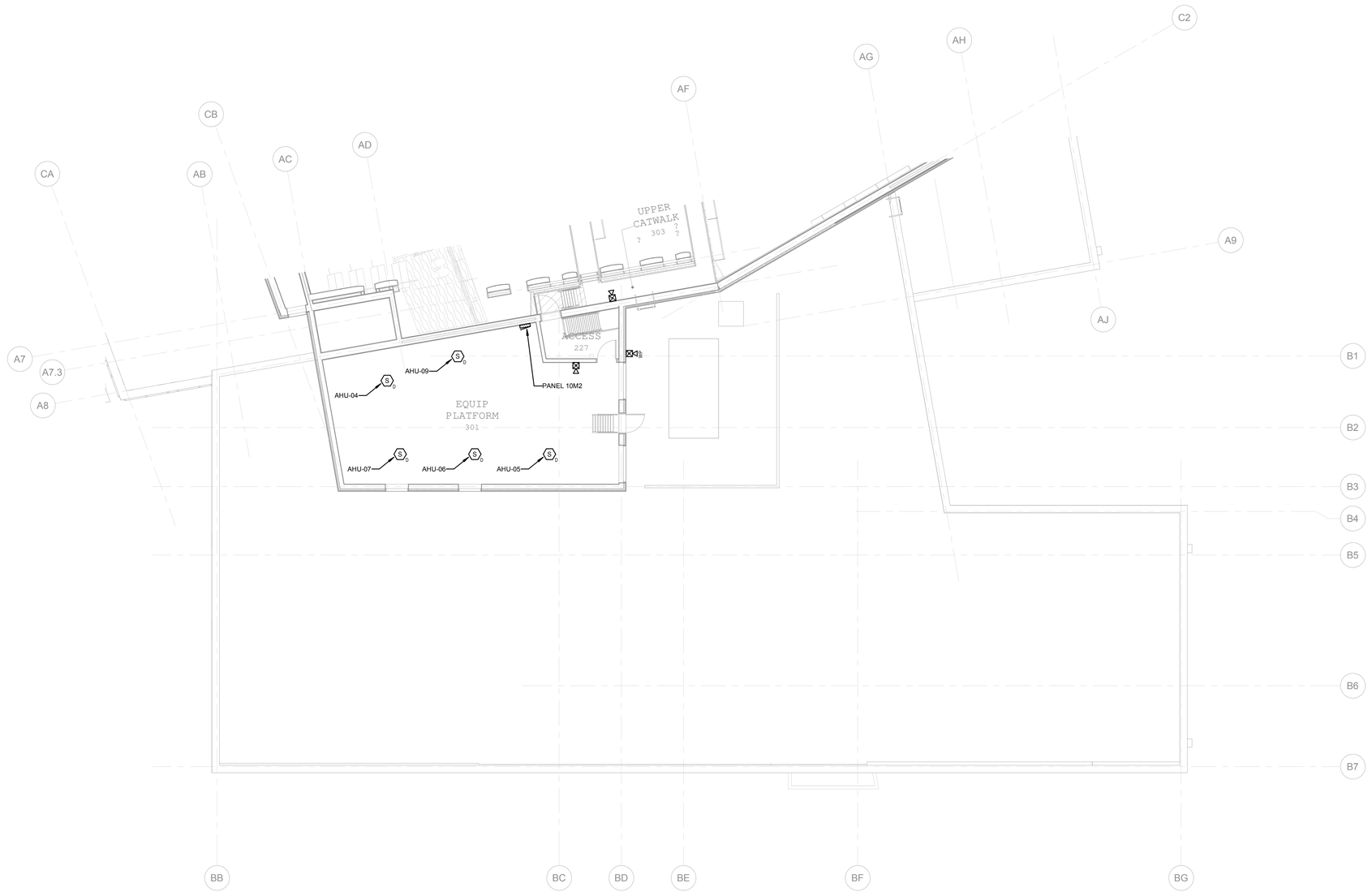
PROJECT NUMBER: 1711

SHEET NAME

Area A - Equipment Platform Level - ESS

SHEET NUMBER

E5.31



1 Area B - Equipment Platform Level - ESS

1/8" = 1'-0"

0" 1" 2"

NORTH

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

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Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

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BID DOCUMENTS

04.13.2020

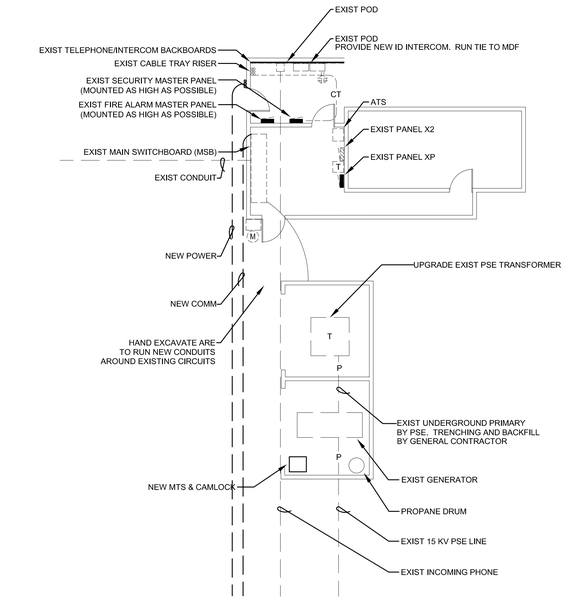
PROJECT NUMBER: 1711

SHEET NAME

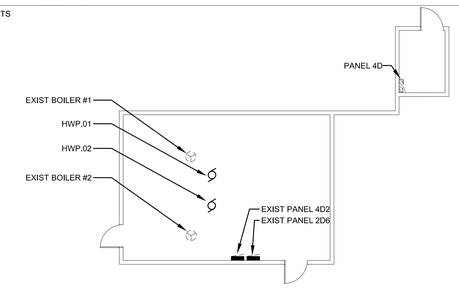
Area B - Equipment Platform Level - ESS

SHEET NUMBER

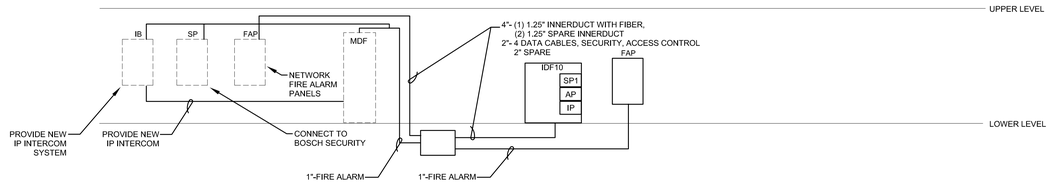
E5.32



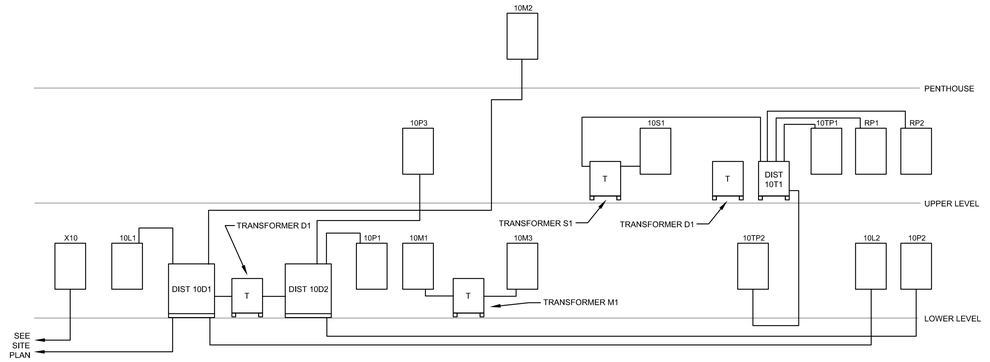
1 MAIN EL ROOM & MDF
SCALE: NTS



2 BOILER ROOM
SCALE: NTS



3 COMM BLOCK DIAGRAM
SCALE: NTS



4 POWER RISER DIAGRAM
SCALE: NTS

FEEDER SIZE CHART

COPPER – THWN EMT/ PVC	WIRES	GND	ALUMINUM – XHHW–COMPACT EMT/ PVC	WIRES	GND
50	1	-#8	-1#8	1.25	-4#2 -1#6
70	1.25	-4#4	-1#8	1.25	-4#2 -2#6
70T	1.25	-3#4	-1#6	1.25"T	-3#2 -1#6
100	1.25	-4#2	-1#6	2	-4#1/0 -1#6
100G	1.25	-4#2	-2#6	2	-4#1/0 -2#4
125	1.5	-4#1	-1#6	2	-4#2/0 -1#2
150	1.5	-4#1/0	-1#4	2	-4#3/0 -1#2
150G	2	-4#1/0	-2#4	2	-4#3/0 -2#2
175	2	-4#2/0	-1#4	2.5	-4#4/0 -1#1/0
175T	2	-3#2/0	-1#4	2.5	-3#4/0 -1#1/0
200	2	-4#3/0	-1#2	2.5	-4#250 -1#1/0
200G	2	-4#3/0	-2#2	2.5	-4#250 -2#1/0
225	2.5	-4#4/0	-1#	3	-4#300 -1#1/0
225G	2.5	-4#4/0	-2#2	3	-4#300 -2#1/0
300	3	-4#350	-1#2	3	-4#500 -1#3/0
400	(2) 2	-4#3/0	-1#2/0	(2) 2.5	-4#250 -1#4/0
400G	(2) 2	-4#3/0	-2#2/0	(2) 2.5	-4#250 -2#4/0
800	(2) 3.5	-4#600	-1#3/0	(3) 3	-4#500 -1#4/0

5 ONE LINE DIAGRAM
SCALE: NTS

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Silmonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
04.08.2019	VALUE ENGINEERING
10.18.2019	DESIGN DEVELOPMENT
01.06.2020	PERMIT DOCUMENTS
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

One Line Diagram Electrical

SHEET NUMBER

E6.00

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5/19/2020 7:32 PM

LIGHTING FIXTURE SCHEDULE - INGLEMOOR HS CONCERT HALL + MUSIC BUIDLING

TYPE	LAMP	LUMEN OUTPUT	CCT	VOLTAGE	MINIMUM CRI	CONTROL	MANUFACTURER	DESCRIPTION	LOCATION
DC	LED 28 W		3500K	277 V	80 CRI	LED DIM 0-10VDC	ALW LP2SMB-S04-LOW-80-35K-0/10V/S	SURFACE MOUNTED LOW PROFILE DISPLAY CASE LIGHT. 277 VOLT	DISPLAY CASES
P2	LED	12,200	3000K	277 V	80 CRI	LED	LITHONIA	DUAL HEAD (180 DEGREE) POLE	SITE
P3, P5	135 W	12,200 LUMENS	3000K	277 V	80 CRI	LED MOTION	LITHONIA DSX1-P2-30K-VSL-RPA-PIRH	POLE MOUNTED FIXTURE WITH MOTION RESPONSE OCCUPANCY SENSOR AND TYPE 3 OPTIC. PROVIDE FLAT POLYCARBONATE DIFFUSE LENS. UL WET LABEL AND LOW TEMP DRIVER. MOUNT ON 6" ROUND, 25' FOOT TALL ALUMINUM POLE WITH HANDHOLE TO UTILITY VAULT 24R-8-LB POLE BASE. PROVIDE BASE COVER. IN PARKING AND ROAD EXPOSE 2' OF BASE. IN LANDSCAPE AREAS FLUSH WITH GRADE.	SITE
PD	LED 64 W	8,900 LUMENS	3000K	277 V	80 CRI	LED MOTION	SELUX: EXELIA LED EXRL-14-R5S-5G700-30-277-DM	LED LIGHT COLUMN ON 14' TALL POLE WITH TYPE 5 OPTIC. UL WET LABEL AND LOW TEMP DRIVER. PROVIDE POLE WITH HANDHOLE TO UTILITY VAULT 18R-5-LB POLE BASE FLUSH WITH GRADE. PROVIDE BASE COVER. IN PARKING AND ROAD EXPOSE 2' OF BASE. IN LANDSCAPE AREAS FLUSH WITH GRADE.	SITE
EM, EP	LED 48 W	5,000 LUMENS	3000K	120 V	80 CRI	LED SWITCH	COLUMBIA: LXEM-ML40-RA LDPI: LE202-77 ILP: WTZ-54WLED CERTOLUX: CRV-48-840K LITHONIA DMW2 HE WILLIAMS 96 SERIES	ELEVATOR MACHINE ROOM FIXTURE. NEMA 4 LISTING REQUIRED. PROVIDE EMERGENCY BATTERY BALLAST BODINE B50ST.	ELEVATOR PIT, ELEVATOR MACHINE ROOM
GL-1	LED 46 W	3,500 LUMENS	3000K	277 V	80 CRI	LED TIMER	HYDREL M9720C-QS-A-LED-P3-30K-MVOLT-WFL-FLC-34B KIM	IN GRADE LED LIGHT. PROVIDE WIDE FLOOD DISTRIBUTION AND ROCK GUARD. UL WET LABLE AND 0 F DRIVER.	SITE
GL-2								NOT USED	
GL-3	LED 46 W	4,500 LUMENS	3000K	277 V	80 CRI	LED TIMER	HYDREL M9720C-QS-A-LED-P3-30K-MVOLT-NSP-FLC-34B KIM	IN GRADE LED LIGHT MOUNTED AT FLAG. SET BACK 1/5 HEIGHT OF POLE. PROVIDE NARROW SPOT DISTRIBUTION AND ROCK GUARD. UL WET LABLE AND 0 F DRIVER.	FLAGPOLE
LT	LED 37 W	2,500 LUMENS	DIM TO WARM 3000 TO 2000K	120 V	90 CRI	LED DIM 0-10V	LSI: LUMELEX 2060 LX2060-D15-25-92-DW-W3-CT1-10-277-S	SILVER DUAL CIRCUIT TRACK (32010) OF LENGTH SHOWN ON DRAWINGS WITH ALL FITTINGS, CONNECTORS, AND FEED PIECES. PROVIDE FIELD ADJUSTABLE TRACK HEAD WITH DIM TO WARM.	SEE PLANS
LT2	LED 50 W		DIM TO WARM 3000 TO 2000K	120 V	90 CRI	LINE VOLTAGE DIM	HALO L1806 JUNO T295-BL LITON LT843 TIMES SQUARE C3M	TRACK HEAD AND TRACK SYSTEM TO LENGTHS SHOWN ON DRAWINGS. INCLUDE ALL ACCESSORIES AND FEEDS NECESSARY. PROVIDE MATCHING WALL BOX DIMMER. PROVIDE 20 WATT PAR20 LED LAMP	SEE PLANS
PL-1	LED 48 W	5,600 LUMENS	3000K	277 V	80 CRI	LED SWITCH	COLUMBIA LCL435-ML-E LITHONIA ZL1N-L48 METALUX SNLED-LD4 DAYBRITE FSS	PENDANT MOUNTED LENSED LED STRIPLIGHT. MOUNT ON #10 CHAIN, 6" BELOW CEILING.	MECH, ELEC, IDF, MDF
PL-2a	LED 24 W	1,800 LUMENS	3000K	277V	80 CRI	LED DIM 0-10V	SCOTT ARCHITECTURAL LIGHTING: CUSTOM GLOBE SC2650-L24-30K-PT-OA	14" DIAMETER PENDANT GLOBE LED. CUSTOM 2-PART GLOBE WITH UPPER STEEL SPINNING AND LOWER OPAL ACRYLIC. PROVIDE ADJUSTABLE AIRCRAFT CABLE. SEE ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHTS.	LOBBY, STAIR
PL-2b	LED 32 W	2,400 LUMENS	3000K	277V	80 CRI	LED DIM 0-10V	SCOTT ARCHITECTURAL LIGHTING: CUSTOM GLOBE SC2650-L32-30K-PT-OA	18" DIAMETER PENDANT GLOBE LED. CUSTOM 2-PART GLOBE WITH UPPER STEEL SPINNING AND LOWER OPAL ACRYLIC. PROVIDE ADJUSTABLE AIRCRAFT CABLE. SEE ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHTS.	LOBBY, STAIR
PL-2c	LED 48 W	3,600 LUMENS	3000K	277V	80 CRI	LED DIM 0-10V	SCOTT ARCHITECTURAL LIGHTING: CUSTOM GLOBE SC2650-L48-30K-PT-OA	24" DIAMETER PENDANT GLOBE LED. CUSTOM 2-PART GLOBE WITH UPPER STEEL SPINNING AND LOWER OPAL ACRYLIC. PROVIDE ADJUSTABLE AIRCRAFT CABLE. SEE ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHTS.	LOBBY, STAIR
PL-3	LED 117 W	11,000 LUMENS	2700K	120 V	80 CRI	DMX	PRESCOLITE: MC10LED MC10LED-P-12L-27K-8-DMX-XL55	HIGH INTENSITY CYLINDER IN BLACK FINISH. SEAMLESS ALUMIMUM BODY WITH POWDER COAT FINISH. PROVIDE 55 DEGREE REFLECTOR.	CONCERT HALL
PL-4	LED 8 W	400 LUMENS	2800K	277 V	90 CRI	LED SWITCH	BRUCK: DAZZLE 2 223-893-XX-MP	6" DECORATIVE GLASS GLOBE. MOUNT ON 6" CABLE LENGTH.	CONCERT HALL
PL-5	LED 42 W	3,700 LUMENS	3000K	277 V	80 CRI	0-10V DIM	SPI LIGHTING: PAVO 6" SIP12126-L42W-120-277V-3000K-DF_MA01-DF_PSC-DF_DIM1	6" DIAMETER X 6' LENGTH DECORATIVE LED CYLINDER WITH WHITE MATTE ACRYLIC DIFFUSER AND ALUMINUM CONSTRUCTION. PROVIDE INTEGRAL TO 0-10V DIMMING DRIVER INTEGRAL TO CANOPY. PROVIDE ADJUSTABLE AIRCRAFT CABLE. SEE ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHTS.	BACK STAIR

LIGHTING FIXTURE SCHEDULE - INGLEMOOR HS CONCERT HALL + MUSIC BUIDLING

TYPE	LAMP	LUMEN OUTPUT	CCT	VOLTAGE	MINIMUM CRI	CONTROL	MANUFACTURER	DESCRIPTION	LOCATION
RL-1	LED 40 W	4,000 LUMENS	3000K	277 V	80 CRI	LED DIM 0-10V	TGS: LED ECO PANEL 88-14-40-30-L-F-100-277 COLUMBIA LIGHTING: CFP CFP14-4030 LITHONIA: EPANL LED EPANL-1X4-4000LMHE-80CRI-30K-MIN10-ZT-277	RECESSED 1'X4' LED FLAT PANEL FIXTURE WITH INTEGRAL DRIVER AND LOW GLARE OPTICS.	HALLWAY
RL-2	LED 19 W	1,500 LUMENS	2700K	120 V	80 CRI	DMX	PRESCOLITE LTR-3RD-H-15L-DMX-LTR-3RD-T-27K-8-S	RECESSED 3" LED DOWNLIGHT WITH SEMI SPECULAR REFLECTOR AND 40 DEGREE BEAM ANGLE.	LOBBY, HALLWAY
RL-3							-BL	SAME AS RL-2 EXCEPT BLACK REFLECTOR	VESTIBULE
RL-4	LED 22 W	2,000 LUMENS	3000K	277 V	80 CRI	LED DIM 0-10V	PRESCOLITE: LF4 LTR-4RD-20L-DM1-27K-8-3 EATON: PORTFOLIO LD4B LD4B-20-D010-EU4B-1020-80-35-4LB-W-0-H PHILIPS LIGHTOLIER: CALCULITE C4RDL C4R-N-C4L-C4L-20-8-35-W-Z10-U-C4-R-DL-CD GOTHAM:EVO EVO-35-20-4WR-WD-LD-277-GZ10	RECESSED 4" LED DOWNLIGHT WITH SEMI DIFFUSE REFLECTOR AND WIDE DISTRIBUTION.	HALLWAY, RESTROOM
RL-5	LED 20W	1,800 LUMENS	3000K	277 V	80 CRI	LED SWITCH	DESIGNPLAN RF-L20-30K-38-XX-C	RECESSED VANDAL PROOF EXTERIOR DOWNLIGHT WITH METAL TRIM	EXTERIOR CANOPY
RL-6	LED 34 W	4,000 LUMENS	3000K	277 V	80 CRI	LED DIM 0-10V	TGS: LED ECO PANEL 88-24-40-30-L-F-100-277 COLUMBIA LIGHTING: CFP CFP24-4130-HE LITHONIA: EPANL LED EPANL-2X4-4000LMHE-80CRI-30K-MIN10-ZT-277	RECESSED 2'X4' LED FLAT PANEL FIXTURE WITH INTEGRAL DRIVER AND LOW GLARE OPTICS.	OFFICE
RL-7	LED 60 W	6,600 LUMENS	3000K	277 V	80 CRI	LED DIM 0-10V	TGS: LED ECO PANEL 88-22-60-30-L-100-277	RECESSED HIGH OUTPUT 2'X2' LED FLAT PANEL FIXTURE WITH INTEGRAL DRIVER AND LOW GLARE OPTICS.	MUSIC ROOMS
RL-8	LED 22 W	2,000 LUMENS	3000K	277 V	80 CRI	LED DIM 0-10V	PRESCOLITE LTR-3RD-H-20L-DM1-LTR-3RD-T-30K-8-S	RECESSED 3" LED DOWNLIGHT WITH SEMI SPECULAR REFLECTOR AND 45 DEGREE BEAM ANGLE.	CONCERT HALL
RL-9	LED 22 W	2,000 LUMENS	3000K	277 V	80 CRI	LED DIM 0-10V	PRESCOLITE: LTR-4SQD LTR-4SQD-H-ML-DM1-NXE-LTR-4QSD-T-ML-30K-8-WD-VS	RECESSED 4" SQUARE LED DOWNLIGHT WITH SEMI DIFFUSE REFLECTOR AND WIDE DISTRIBUTION.	BACK STAIR
SL-1								SAME AS PL-1 BUT SURFACE MOUNT	STORAGE, EQUIPMENT ROOM
WL-1	LED 40 W	3,500 LUMENS	3000K	277 V	80 CRI	LED MOTION	AAL : CYPHER CY2-35-3K8-5-3-3D-UNV-LFSW-4PP	DECORATIVE EXTERIOR WALL SCONCE WITH TYPE 3 DIFFUSE OPTIC. UL WET LABEL, -20F DRIVER.	EXTERIOR WALL
WL-2	LED 9.5 W/FT	754 LUMENS/FT	3000K	277 V	80 CRI	MOTION SENSOR	ALIGHT: D3 D3-8-LS-35-U-KS-R-D-O	4" X 8' LINEAR LED WALL MOUNT FIXTURE WITH EXTRUDED ALUMINUM HOUSING AND FROSTED LENS. PROVIDE INTEGRAL DRIVER AND ASSYMETRIC OPTICS. AIM TOWARDS STAIRS. PROVIDE INTEGRAL OCCUPANCY SENSOR.	STAIRS
WL-3	LED 4.5 W/FT	375 LUMENS/FT	3000K	277 V	90+ CRI	LED DIM 0-10V	FOCAL POINT: SEEM 2 FSM2L-FL-375LF-930K-1C-UNV-LD1	2" WIDE RECESSED LINEAR LED WITH DIFFUSE LENS. INSTALL IN A CONTINUOUS RUN AT TOP AND SIDES OF MIRROR. ONE PIECE EXTRUDED ALUMINUM HOUSING. PROVIDE PREFERRED LIGHT OPTICS.	DRESSING ROOM
WL-4	LED 32 W	1,500 LUMENS	3000K	277 V	80 CRI	LED SWITCH	KUZCO: LOCHWOOD WS83427	LED WALL SCONCE. INSTALL HORIZONTALLY ABOVE MIRROR.	RESTROOM
WL-5	LED 10 W	480 LUMENS	2700K	120 V	90+ CRI	LED	COCOWEB PLED101SN	DESK MOUNTED LINEAR LOW GLARE LIGHT, PLUG IN	MIXING STATION
WL-6	LED 19 W	2,000 LUMENS	3000K	277 V	80 CRI	LED SWITCH	KENALL: MEDMASTER AURACYL MAS826-PAN-AS FAIL-SAFE: HVSL8-2	2-FT WALL MOUINT LED FIXTURE. MOUNT HORIZONTAL OVER MIRROR.	RESTROOM
WL-7	LED 74 W	2,000 LUMENS	3000K		80 CRI	DMX	COLOR KINETICS 423-000002-16	4' LENGTH COLOR CHANGING RGBW LINEAR LED FIXTURE WITH GRAZE OPTICS. PROVIDE 10X60 DEGREE BEAM ANGLE. PROVIDE ALL ACCESSORIES, POWER/DATA SUPPLY, ETC REQUIRED FOR A COMPLETE FUNCTIONAL SYSTEM.	ENTRY CANOPY
X	LED 2.1 W			277 V			DUAL LITE: LE-C-G-N	CEILING EDGE LIT LED EXIT SIGN WITH ALL MOUNTING ACCESSORIES. PROVIDE ARROWS AND FACES AS SHOWN ON DRAWINGS. PROVIDE WHITE BODY WITH GREEN LETTERS AND UNIFORM LENS OVER LED.	EGRESS PATH
XW							SAME AS X EXCEPT WALL MOUNT		EGRESS PATH

ALL COLORS, FINISHES, ETC ARE BY ARCHITECT.
MOUNTING HEIGHTS PER ARCHITECTURAL ELEVATIONS.

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Northshore School District No. 417

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

Lighting Fixture Schedule

SHEET NUMBER

E7.00

LIGHTING CONTROL SCHEDULE: INGLEMOOR HS CONCERT HALL + MUSIC BUILDING

CONTROLLER	ROOM	PANEL	CIRCUIT	INTERFACE	DEVICES	DESCRIPTION
001	**BASEMENT**	10L1	1 a	SWITCH	DIG SWITCH, OCCUPANCY SENSOR	GENERAL
ON/OFF SWITCH						
102-1	**LOBBY 1ST**	10L1	3 c	0-10VDC	SWITCH OCCUPANCY SENSOR, PHOTOCELL	VESTIBULE DOWNLIGHTS DAYLIGHT ZONE
			3 d	0-10VDC	SWITCH OCCUPANCY SENSOR, PHOTOCELL	LOWER DOWNLIGHTS DAYLIGHT ZONE
					CONTACT TO ETC SYSTEM FOR OVERRIDE	
102-2	**LOBBY 2ND**	10L1	2 a	0-10VDC	SWITCH OCCUPANCY SENSOR, PHOTOCELL	UPPER DOWNLIGHTS DAYLIGHT ZONE
			2 b	0-10VDC	SWITCH OCCUPANCY SENSOR, PHOTOCELL	UPPER PENDANTS DAYLIGHT ZONE
			2 c	0-10VDC	SWITCH OCCUPANCY SENSOR, PHOTOCELL	STAIR PENDANTS DAYLIGHT ZONE
					CONTACT TO ETC SYSTEM FOR OVERRIDE	
8 BUTTON SWITCH UNDER KEYED LOCKING POLYCARBONATE COVER						
	1)			ALL	ALL	
	2)		3 d		LOWER DOWNLIGHTS	
	3)		3 c		VESTIBULE DOWNLIGHTS	
	4)		2 a		UPPER DOWNLIGHTS	
	5)		2 b		UPPER PENDANTS	
	6)		2 c		STAIR PENDANTS	
	7)				RAISE	
	8)				LOWER	
106	**CONTROL ROOM**	10L1	3 e	0-10VDC	DIG SWITCH, VACANCY SENSOR	GENERAL
3-BUTTON SWITCH:	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON/OFF		ON/OFF		
	2) a	DIM UP		↑		
	3) a	DIM DOWN		↓		
108	**WOMEN 108**	10L1	3 a	0-10VDC	DIG SWITCH, OCCUPANCY SENSOR	GENERAL
KEYED SWITCH	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON/OFF		(NONE)		
111	**MEN 111**	10L1	3 b	0-10VDC	DIG SWITCH, OCCUPANCY SENSOR	GENERAL
KEYED SWITCH	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) b	ON/OFF		(NONE)		
114	**CONCERT HALL**			DMX	ON RELAY PANEL RP1 - SEE TL SHEETS	
117	**VESTIBULE**	10L2	2 b	DMX	ON RELAY PANEL RP1 - SEE TL SHEETS	
118	**BACKSTAGE STORAGE**	10L2	2 a	0-10VDC	DIG SWITCH, OCCUPANCY SENSOR	GENERAL
1-BUTTON SWITCH	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON ONLY		ON		
121	**CORRIDOR**	10L2	2 c	0-10VDC	DIG SWITCH, OCCUPANCY SENSOR	GENERAL
KEYED SWITCH	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) c	ON/OFF		(NONE)		
122	**MANAGER**	10L2	2 a	0-10VDC	DIG SWITCH, VACANCY SENSOR	GENERAL
3-BUTTON SWITCH:	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON/OFF		ON/OFF		
	2) a	DIM UP		↑		
	3) a	DIM DOWN		↓		
123	**DRESSING**	10L2	2 a	0-10VDC	DIG SWITCH, VACANCY SENSOR	GENERAL
			b	0-10VDC	DIG SWITCH, VACANCY SENSOR	DRESSING MIRROR
			c	0-10VDC	DIG SWITCH, VACANCY SENSOR	ROOM 1
			d	0-10VDC	DIG SWITCH, VACANCY SENSOR	ROOM 2
3-BUTTON SWITCH:	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON/OFF		GENERAL ROOM		
	2) b	ON/OFF		MIRROR		
	3) c	ON/OFF		DRESSING 1		
	4) d	ON/OFF		DRESSING 2		
	5)	DIM UP		↑		
	6)	DIM DOWN		↓		
3 BUTTON SWITCH AT EACH STATION - ON/OFF, RAISE, LOWER						
125	**CORRIDOR**	10L1	5 a	SWITCH	DIG SWITCH, OCCUPANCY SENSOR	GENERAL
KEYED SWITCH	*ZONE:*	*FUNCTION:*				
	1) a	ON/OFF		(NONE)		
129	**PRACTICE**	10L1	5 a	0-10VDC	DIG SWITCH, VACANCY SENSOR	GENERAL
3-BUTTON SWITCH:	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON/OFF		ON/OFF		
	2) a	DIM UP		↑		
	3) a	DIM DOWN		↓		
130	**PRACTICE**	10L1	5 a	0-10VDC	DIG SWITCH, VACANCY SENSOR	GENERAL
3-BUTTON SWITCH:	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON/OFF		ON/OFF		
	2) a	DIM UP		↑		
	3) a	DIM DOWN		↓		
132	**PRACTICE**	10L1	5 a	0-10VDC	DIG SWITCH, VACANCY SENSOR	GENERAL
3-BUTTON SWITCH:	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON/OFF		ON/OFF		
	2) a	DIM UP		↑		
	3) a	DIM DOWN		↓		
138	**INST STORAGE**	10L1	5 a	0-10VDC	DIG SWITCH, VACANCY SENSOR	GENERAL
3-BUTTON SWITCH:	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON/OFF		ON/OFF		
	2) a	DIM UP		↑		
	3) a	DIM DOWN		↓		
139	**ENSEMBLE**	10L1	5 a	0-10VDC	DIG SWITCH, VACANCY SENSOR	GENERAL
3-BUTTON SWITCH:	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON/OFF		ON/OFF		
	2) a	DIM UP		↑		
	3) a	DIM DOWN		↓		

LIGHTING CONTROL SCHEDULE: INGLEMOOR HS CONCERT HALL + MUSIC BUILDING

CONTROLLER	ROOM	PANEL	CIRCUIT	INTERFACE	DEVICES	DESCRIPTION
140	**BAND STAFF**	10L1	5 a	0-10VDC	DIG SWITCH, VACANCY SENSOR	GENERAL
3-BUTTON SWITCH:	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON/OFF		ON/OFF		
	2) a	DIM UP		↑		
	3) a	DIM DOWN		↓		
141	**BAND**	10L1	6 a	0-10VDC	DIG SWITCH, VACANCY SENSOR, PHOTOCELL	FRONT DAYLIGHT ZONE 2-A
			b	0-10VDC	DIG SWITCH, VACANCY SENSOR, PHOTOCELL	FRONT DAYLIGHT ZONE 1-A
			c	0-10VDC	DIG SWITCH, VACANCY SENSOR, PHOTOCELL	BACK DAYLIGHT ZONE 2-B
			d	0-10VDC	DIG SWITCH, VACANCY SENSOR, PHOTOCELL	BACK DAYLIGHT ZONE 1-B
			e	0-10VDC	DIG SWITCH, VACANCY SENSOR	BACK
			f	0-10VDC	DIG SWITCH, VACANCY SENSOR, PHOTOCELL	BACK DAYLIGHT ZONE 1-C
4-BUTTON SWITCH:	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a,b	ON/OFF		FRONT ON/OFF		
	2) c,d,e,f	ON/OFF		BACK ON/OFF		
	3) a,b,c,d,e,f	DIM UP		↑		
	4) a,b,c,d,e,f	DIM DOWN		↓		
205	**WOMEN 205**	10L1	2 e	0-10VDC	DIG SWITCH, OCCUPANCY SENSOR	GENERAL
KEYED SWITCH	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) e	ON/OFF		(NONE)		
003	**STR 003 (LVL 2)**	10L1	8	SW	DIG SWITCH, OCCUPANCY SENSOR	GENERAL
SWITCH	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) f	ON/OFF		(NONE)		
	MEN 208	10L1	3 f	0-10VDC	DIG SWITCH, OCCUPANCY SENSOR	GENERAL
KEYED SWITCH	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) f	ON/OFF		(NONE)		
212	**CORRIDOR**	10L1	4 a	SW	DIG SWITCH, OCCUPANCY SENSOR	GENERAL
			b	0-10VDC	DIG SWITCH, OCCUPANCY SENSOR, PHOTOCELL	GENERAL DAYLIGHT ZONE 1
			c	0-10VDC	DIG SWITCH, OCCUPANCY SENSOR, PHOTOCELL	GENERAL DAYLIGHT ZONE 2
			d	0-10VDC	DIG SWITCH, OCCUPANCY SENSOR, PHOTOCELL	STAIR PENDANT DAYLIGHT ZONE 1
			e	0-10VDC	DIG SWITCH, OCCUPANCY SENSOR, PHOTOCELL	BAR PENDANT DAYLIGHT ZONE 1
SWITCH UNDER LOCKING POLYCARBONATE COVER						
KEYED SWITCH	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a,b,c	ON/OFF		GENERAL		
	2) d	ON/OFF		STAIR PENDANT		
	3)	ON/OFF		BAR PENDANT		
	4)	DIM UP				
	5)	DIM DOWN				
213	**PRACTICE**	10L1	4 a	0-10VDC	DIG SWITCH, VACANCY SENSOR	GENERAL
3-BUTTON SWITCH:	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON/OFF		ON/OFF		
	2) a	DIM UP		↑		
	3) a	DIM DOWN		↓		
214	**PRACTICE**	10L1	4 a	0-10VDC	DIG SWITCH, VACANCY SENSOR	GENERAL
3-BUTTON SWITCH:	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON/OFF		ON/OFF		
	2) a	DIM UP		↑		
	3) a	DIM DOWN		↓		
215	**PRACTICE**	10L1	4 a	0-10VDC	DIG SWITCH, VACANCY SENSOR	GENERAL
3-BUTTON SWITCH:	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON/OFF		ON/OFF		
	2) a	DIM UP		↑		
	3) a	DIM DOWN		↓		
218	**CHOIR**	10L1	6 a	0-10VDC	DIG SWITCH, VACANCY SENSOR, PHOTOCELL	FRONT DAYLIGHT ZONE 1
			b	0-10VDC	DIG SWITCH, VACANCY SENSOR, PHOTOCELL	FRONT DAYLIGHT ZONE 2
			c	0-10VDC	DIG SWITCH, VACANCY SENSOR	FRONT
			d	0-10VDC	DIG SWITCH, VACANCY SENSOR, PHOTOCELL	BACK DAYLIGHT ZONE 1
			e	0-10VDC	DIG SWITCH, VACANCY SENSOR, PHOTOCELL	BACK DAYLIGHT ZONE 2
			f	0-10VDC	DIG SWITCH, VACANCY SENSOR	BACK
4-BUTTON SWITCH:	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a,b,c	ON/OFF		FRONT ON/OFF		
	2) d,e,f	ON/OFF		BACK ON/OFF		
	3) a,b,c,d,e,f	DIM UP		↑		
	4) a,b,c,d,e,f	DIM DOWN		↓		
220	**CHOIR STAFF**	10L1	6 a	0-10VDC	DIG SWITCH, VACANCY SENSOR	GENERAL
3-BUTTON	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON/OFF		ON/OFF		
	2) a	DIM UP		↑		
	3) a	DIM DOWN		↓		
221	**MUSIC TECH**	10L1	6 a	0-10VDC	DIG SWITCH, VACANCY SENSOR, PHOTOCELL	FRONT DAYLIGHT ZONE 1
			b	0-10VDC	DIG SWITCH, VACANCY SENSOR, PHOTOCELL	FRONT DAYLIGHT ZONE 2
			c	0-10VDC	DIG SWITCH, VACANCY SENSOR	FRONT
			d	0-10VDC	DIG SWITCH, VACANCY SENSOR, PHOTOCELL	BACK DAYLIGHT ZONE 1
			e	0-10VDC	DIG SWITCH, VACANCY SENSOR, PHOTOCELL	BACK DAYLIGHT ZONE 2
			f	0-10VDC	DIG SWITCH, VACANCY SENSOR	BACK
4-BUTTON SWITCH:	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a,b,c	ON/OFF		FRONT ON/OFF		
	2) d,e,f	ON/OFF		BACK ON/OFF		
	3) a,b,c,d,e,f	DIM UP		↑		
	4) a,b,c,d,e,f	DIM DOWN		↓		
	EQUIP					
301	**PLATFORM**	10L1	8 a	0-10VDC	DIG SWITCH, OCCUPANCY SENSOR	GENERAL
1-BUTTON SWITCH	*ZONE:*	*FUNCTION:*		*SWITCH LABEL:*		
	1) a	ON ONLY		ON		
	EXTERIOR LIGHTS					
RELAY PANEL 10L1						
	10L1	7		SW	PHOTOCELL, TIMECLOCK, MOTION SENSOR	EXTERIOR LIGHTS - BUILDING MOUNT
		9		SW/DMX	PHOTOCELL, TIMECLOCK, MOTION SENSOR	ENTRY CANOPY LIGHTS**
		19		SW	PHOTOCELL, TIMECLOCK, MOTION SENSOR	EXTERIOR LIGHTS - PARKING AND PATH
		21		SW	PHOTOCELL, TIMECLOCK, MOTION SENSOR	EXTERIOR LIGHTS - PARKING AND PATH
					** ALSO CONNECTS TO DMX CONTROL FOR RGB	

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04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

Lighting Control Schedule

SHEET NUMBER

E7.01

MECHANICAL SCHEDULE

UNIT	LOCATION	KVA	MCA	HP	MOCP	VOLTS	PH	PANEL	CIRCUIT	CIRCUIT SIZE	CU/AL	CONTROL	DUCT DETECTOR	COMMENT
EUH-01	VST 101	4				208	3	10M3	25,27,29	3/4"-5#12	CU	DISCONNECT		
EWH-01	CUST 131	12.00			30	480	3	10M1	- 7,9,11	3/4"-5#8	CU	DISCONNECT		
EWH-02	CUST 207	12.00			30	480	3	10M1	- 8,10,12	3/4"-5#10	CU	DISCONNECT		
EWH-1	BAND 140	1.80	16		20	120	1	10M3	1	1/2"-3#10	CU	DISCONNECT		
EWH-2	DRESSING 121	1.80	16		20	120	1	10M3	3	1/2"-3#10	CU	DISCONNECT		
DWCP-01/CP-01	CUSTODIAL 131			1/6	15	120	1	10P2	- 24	1/2"-3#12	CU	DISCONNECT, INSTALL ECM CTL	NO	
DWCP-02/CP-02	CUSTODIAL 205			1/6	15	120	1	10M3	- 5	1/2"-3#12	CU	DISCONNECT, INSTALL ECM CTL	NO	
HWP-01	BOILER ROOM 401			15	15	480	3	4D2	- 31,33,35	1"-5#8	CU	DISCONNECT, INSTALL VFD	NO	IN EXIST BUILDING
HWP-02	BOILER ROOM 401			15	15	480	3	4D2	- 37,39,41	1"-5#8	CU	DISCONNECT, INSTALL VFD	NO	IN EXIST BUILDING
CHWP-01	EQUIPMENT PLATFORM			10	15	480	3	10M2	- 25,27,29	1"-5#10	CU	DISCONNECT, INSTALL VFD	NO	
CHWP-02	EQUIPMENT PLATFORM			10	15	480	3	10M2	- 26,28,30	1"-5#10	CU	DISCONNECT, INSTALL VFD	NO	
AHU-01	MECH BASEMENT 001		14.6		20	480	3	10M1	- 13,15,17	3/4"-5#12	CU	DISCONNECT, INSTALL ECM CTL	YES	
AHU-02A	MECH BASEMENT 001		19		25	480	3	10M1	14,16,18	3/4"-5#12	CU	DISCONNECT, INSTALL ECM CTL	YES	
AHU-02B	MECH BASEMENT 001		19		25	480	3	10M1	- 19,21,23	3/4"-5#12	CU	DISCONNECT, INSTALL ECM CTL	YES	
AHU-04	EQUIPMENT PLATFORM 301		13.6		20	480	3	10M2	- 7,9,11	3/4"-5#12	CU	DISCONNECT, INSTALL ECM CTL	YES	
AHU-05	EQUIPMENT PLATFORM 301		9.8		15	480	3	10M2	- 8,10,12	3/4"-5#12	CU	DISCONNECT, INSTALL ECM CTL	YES	
AHU-06	EQUIPMENT PLATFORM 301		7.6		15	480	3	10M2	- 13,15,17	3/4"-5#12	CU	DISCONNECT, INSTALL ECM CTL	YES	
AHU-07	EQUIPMENT PLATFORM 301		7.6		15	480	3	10M2	- 14,16,18	3/4"-5#12	CU	DISCONNECT, INSTALL ECM CTL	YES	
AHU-08												NOT USED		
AHU-09	EQUIPMENT PLATFORM 301		13.6		20	480	3	10M2	- 20,22,24	3/4"-5#12	CU	DISCONNECT, INSTALL ECM CTL	YES	
VRF-01	CONTROL BOOTH		0.6		15	208	1	10M3	- 13,15	1/2"-4#12	CU	DISCONNECT	NO	
VRF-02	ELEVATOR MACHINE ROOM		0.6		15	208	1	10M3	- 14,16	1/2"-4#12	CU	DISCONNECT	NO	
VRF-03	MDF / MAIN ELECT ROOM		0.6		15	208	1	10M3	- 17,19	1/2"-4#12	CU	DISCONNECT	NO	
VRF-04	AMP ROOM		0.6		15	208	1	10M3	- 18,20	1/2"-4#12	CU	DISCONNECT	NO	
VRF-05	ELECT / DIMMER		0.6		15	208	1	10M3	- 21,23	1/2"-4#12	CU	DISCONNECT	NO	
HP-01	ROOF		55.1		60	208	3	10M3	- 26,28,30	1.25"-4#4,1#6 GND	CU	WP DISCONNECT	NO	
EF-01	NORTH MECH ROOM			2		208	1	10P2	- 27,29	3/4"-5#12	CU	DISCONNECT, INSTALL ECM CTL	NO	
EF-02	PENTHOUSE MECH ROOM			1		120	1	10M3	- 2	3/4"-5#12	CU	DISCONNECT, INSTALL ECM CTL	NO	
CH-01	ROOF		285		300	480	3	10D1	- 1	3.5"-4#500,1#4/0GND	AL	WP DISCONNECT	NO	

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04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

Mechanical Schedule

SHEET NUMBER

E8.00

EXIST SWBD
LOCATION MAIN EL ROOM
MOUNTING SURFACE
AIC 50,000
FED FROM PSE TRANSFORMER

VOLTS 480 /277 3 PHASE, 4 WIRE, WYE
AMPS 3000
MAIN FUSED SWITCH WITH GFP
GROUND BUS
UL SERVICE LABEL

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	800/3	EX DIST 7D1	670.36	2		SPACE	0.00
3	800/3*	DISTRIBUTION 10D1	520.47	4		SPACE	0.00
5	100/3	EX 3D1 (DUMPSTER)	76.73	6	225/3	EX PANEL 2P1	128.10
7	100/3	EX PANEL P1	47.20	8	225/3	EX PANEL 2L1	27.10
9	600/3	EX DIST 5D1	358.62	10	225/3	EX PANEL K	229.90
11		SPACE	0.00	12		UNUSABLE UNUSABLE UNUSABLE	0.00
13	600/3	EX DIST 4D1	288.13	14	225/3	EX SPARE	0.00
15	400/3	EX DIST 1D1	262.30	16	225/3	EX PANEL 4A	148.16
17	70/3	EX ATS/PNL X2	29.99	18	400/3	EX DIST 6D1	168.06
19		SPACE	0.00	20		SPACE	0.00
21		SPACE	0.00	22	30/3	EX PANEL 4C	0.00

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	378.75	125%	473.44	569.46
RECEPTACLES	577.79	100%	577.79	694.97
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	206.70	125%	258.38	310.78
OTHER MOTORS	884.65	100%	884.65	1064.07
MISCELLANEOUS	493.90	100%	493.90	594.07
KITCH. APPLIANCES	413.32	65%	268.66	323.15
	2955.12		2956.82	3556.50

ALTERNATIVE CALCULATION

MAXIMUM PEAK DEMAND FOR 1 YEAR	497.00 KW
AT 90% POWER FACTOR	552.22 KVA
ADD 25% PER NEC	138.06 KVA
TOTAL EXISTING LOAD	690.28 KVA
NEW LOADS	
DISTRIBUTION 10D1	534.77 LVA
PANEL X10	4.28 LVA
LOAD ADDED TO 4D2	33.28 LVA
TOTAL NEW LOAD	1262.61 KVA 1519.38 AMPS

* PROVIDE NEW BREAKER IN EXISTING DOUBLE SPACE. PROVIDE ALL MOUNTING REQUIRED

EX PANEL 4D1
LOCATION BOILER ROOM
MOUNTING SURFACE
AIC 25,000
FED FROM MAIN SWBD

VOLTS 480 /277 3 PHASE, 4 WIRE, WYE
AMPS 600
MAIN CCT BREAKER
GROUND BUS

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	400/3	EX TRANSFORMER 2D1	115.85	2	20/1	EXIST LTS	0.66
3				4	20/1	EXIST LTS	0.70
5				6	20/1	EXIST LTS	2.45
7	225/3	EX PANEL 4D4	27.48	8	20/1	EXIST LTS	2.33
9				10	20/1	EXIST LTS	2.41
11				12	20/1	EXIST LTS	0.35
13		SPACE	0.00	14	20/1	EXIST LTS	1.96
15		SPACE	0.00	16		SPACE	0.00
17		SPACE	0.00	18		SPACE	0.00
19	225/3	EX PANEL 4D2	136.06	20	20/3	SPARE	0.00
21				22			0.00
23				24			0.00
25		SPACE	0.00	26		SPACE	0.00
27		SPACE	0.00	28		SPACE	0.00
29		SPACE	0.00	30		SPACE	0.00
31	20/1	EX LTS	2.40	32	20/3	SPARE	0.00
33	20/1	EX LTS	2.80	34			0.00
35	20/1	EX LTS	3.20	36			0.00
37	20/1	EX LTS	3.40	38	20/1	SPARE	0.00
39	20/1	EX LTS	3.20	40	20/1	SPARE	0.00
41	20/1	SPARE	0.00	42	20/1	SPARE	0.00

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	52.65	125%	65.81	79.16
RECEPTACLES	41.40	100%	41.40	49.80
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	17.64	125%	22.05	26.52
OTHER MOTORS	117.50	100%	117.50	141.33
MISCELLANEOUS	76.06	100%	76.06	91.49
KITCH. APPLIANCES	0.00	100%	0.00	0.00
	305.25		322.82	388.29

EX PANEL 4D2
LOCATION BOILER ROOM
MOUNTING SURFACE
AIC 25,000
FED FROM 4D1

VOLTS 480 /277 3 PHASE, 4 WIRE, WYE
AMPS 225
MAIN LUGS ONLY
GROUND BUS

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	90/3	EX BOILER B2	17.40	2	20/3	EX HWPD-1	3.82
3				4			
5				6			
7	20/3	EX HWPD-6	2.49	8	20/3	EX HWPD-2	3.82
9				10			
11				12			
13	30/3	EX COMPRESSOR	6.06	14	90/3	EX BOILER B1	17.40
15				16			
17				18			
19	100/3	EX HWPD-3,4,5	50.19	20	20/1	EXT LTS	1.60
21				22		SPACE	0.00
23				24		SPACE	0.00
25	20/1	SPARE	0.00	26		SPACE	0.00
27	20/1	SPARE	0.00	28		SPACE	0.00
29	20/1	SPARE	0.00	30		SPACE	0.00
31	50/3*	HWP-1	16.64	32		SPACE	0.00
33		CONCERT HALL		34		SPACE	0.00
35				36		SPACE	0.00
37	50/3*	HWP-2	16.64	38		SPACE	0.00
39		CONCERT HALL		40		SPACE	0.00
41				42		SPACE	0.00

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	1.60	125%	2.00	2.41
RECEPTACLES	0.00	100%	0.00	0.00
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	17.64	125%	22.05	26.52
OTHER MOTORS	99.42	100%	99.42	119.58
MISCELLANEOUS	17.40	100%	17.40	20.93
KITCH. APPLIANCES	0.00	100%	0.00	0.00
	136.06		140.87	169.44

* PROVIDE NEW CIRCUIT BREAKER

EXIST PANEL X2
LOCATION CAMPUS MER
MOUNTING SURFACE
AIC 25,000
FED FROM ATS

VOLTS 480 /277 3 PHASE, 4 WIRE, WYE
AMPS 70
SEPARATE DISCONNECT SWITCH
GROUND BUS

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	20/1	EX LTS	0.50	2	30/3	EX PANEL X8	0.70
3	20/1	EX LTS	0.20	4			
5	20/1	EX SPARE	0.00	6			
7	30/3	EX PANEL X3	0.61	8	30/3	EX PANEL X1	2.30
9				10			
11				12			
13	15/3	EX PANEL XP	8.26	14	30/3	EX PANEL X9	0.88
15				16			
17				18			
19	30/3	EX PANEL X7	1.56	20	30/3*	PANEL X10	3.42
21				22			
23				24			
25	30/3	EX PANEL X5	11.56	26		SPACE	0.00
27				28		SPACE	
29				30		SPACE	

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	21.73	125%	27.16	32.67
RECEPTACLES	0.00	100%	0.00	0.00
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	0.00	125%	0.00	0.00
OTHER MOTORS	0.00	100%	0.00	0.00
MISCELLANEOUS	8.26	100%	8.26	9.94
KITCH. APPLIANCES	0.00	100%	0.00	0.00
	29.99		35.42	42.61

* PROVIDE NEW SELECTIVELY COORDINATED BREAKER WITH EXISTING SQUARE D 100 AMP MAIN

DISTRIBUTION PANEL 10D1
LOCATION CONCERT HALL EL ROOM
MOUNTING SURFACE
AIC 25,000
FED FROM SWBD

VOLTS 480 /277 3 PHASE, 4 WIRE, WYE
AMPS 800
MAIN CIRCUIT BREAKER
GROUND BUS
UL SERVICE LABEL

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	100/3	PANEL 10L1	12.38	2	50/3	PANEL 10L2	1.67
3	175/3	DISTRIBUTION 10T1	80.51	4	175/3	DISTRIBUTION 10D2	61.38
5	200/3	PANEL 10M1	97.92	6	150/3	PANEL 10M2	43.38
7	90/3	ELEVATOR	33.26	8	300/3	CHILLER	186.54
9	225/3	SPARE	0.00	10	30/3	ATS X10	3.42
11	20/3	METER POWER	0.00	12	30/3	SURGE PROTECTOR	0.00
13		400 SPACE	0.00	14		225 SPACE	0.00
15		225 SPACE	0.00	16		225 SPACE	0.00

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	23.97	125%	29.97	36.04
RECEPTACLES	60.53	100%	60.53	72.81
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	33.26	125%	41.58	50.01
OTHER MOTORS	300.78	100%	300.78	361.79
MISCELLANEOUS	101.92	100%	101.92	122.59
KITCH. APPLIANCES	0.00	100%	0.00	0.00
	520.47		534.77	643.23

PANEL 10L1
LOCATION MAIN ELECTRIC ROOM
MOUNTING SURFACE
AIC 22,000
FED FROM 10D1

VOLTS 480 /277 3 PHASE, 4 WIRE, WYE
AMPS 100
MAIN LUGS ONLY
GROUND BUS

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	20/1	LIGHTS BASEMENT	0.53	2	20/1	LIGHTS UPPER LBY,RR	1.37
3	20/1	LIGHTS LOBBY, RR	1.81	4	20/1	LIGHTS UPPER HALL,RR	1.20
5	20/1	LIGHTS HALL, MUSIC	1.65	6	20/1	LIGHTS UPPER MUSIC	1.86
7	20/1	LIGHTS EXTERIOR	0.85	8	20/1	LIGHTS ATTIC	0.30
9	20/1	LIGHTS RGB CANOPY	0.56	10	20/1	SPARE	0.00
11	20/1	SPARE	0.00	12	20/1	SPARE	0.00
13	20/1	SPARE	0.00	14	20/1	SPARE	0.00
15	20/1	SPARE	0.00	16	20/1	SPARE	0.00
17	20/1	SPARE	0.00	18	20/1	SPARE	0.00
19	20/1	LIGHTS EXTERIOR SITE	1.20	20	20/1	SPARE	0.00
21	20/1	LIGHTS EXTERIOR SITE	1.06	22	20/1	SPARE	0.00
23	20/1	SPARE	0.00	24	20/1	SPARE	0.00
25	20/1	SPARE	0.00	26	20/1	SPARE	0.00
27	20/1	SPARE	0.00	28	20/1	SPARE	0.00
29	20/1	SPARE	0.00	30	20/1	SPARE	0.00

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	12.38	125%	15.48	18.62
RECEPTACLES	0.00	100%	0.00	0.00
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	0.00	125%	0.00	0.00
OTHER MOTORS	0.00	100%	0.00	0.00
MISCELLANEOUS	0.00	100%	0.00	0.00
KITCH. APPLIANCES	0.00	100%	0.00	0.00
	12.38		15.48	18.62

PANEL 10L2
LOCATION BACKSTAGE STORAGE
MOUNTING SURFACE
AIC 14,000
FED FROM 10D1

VOLTS 480 /277 3 PHASE, 4 WIRE, WYE
AMPS 100
MAIN LUGS ONLY
GROUND BUS

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	20/1	SPARE	0.00	2	20/1	LIGHTS BACKSTG, DRESS	1.67
3	20/1	SPARE	0.00	4	20/1	SPARE	0.00
5	20/1	SPARE	0.00	6	20/1	SPARE	0.00
7	20/1	SPARE	0.00	8	20/1	SPARE	0.00
9	20/1	SPARE	0.00	10	20/1	SPARE	0.00
11	20/1	SPARE	0.00	12	20/1	SPARE	0.00
13	20/1	SPARE	0.00	14	20/1	SPARE	0.00
15		SPACE ONLY	0.00	16	20/1	SPARE	0.00
17		SPACE ONLY	0.00	18		SPACE ONLY	0.00
19		SPACE ONLY	0.00	20		SPACE ONLY	0.00
21		SPACE ONLY	0.00	22		SPACE ONLY	0.00
23		SPACE ONLY	0.00	24		SPACE ONLY	0.00
25		SPACE ONLY	0.00	26		SPACE ONLY	0.00
27		SPACE ONLY	0.00	28		SPACE ONLY	0.00
29		SPACE ONLY	0.00	30		SPACE ONLY	0.00

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	1.67	125%	2.09	2.51
RECEPTACLES	0.00	100%	0.00	0.00
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	0.00	125%	0.00	0.00
OTHER MOTORS	0.00	100%	0.00	0.00
MISCELLANEOUS	0.00	100%	0.00	0.00
KITCH. APPLIANCES	0.00	100%	0.00	0.00
	1.67		2.09	2.51

PANEL 10M1
LOCATION MAIN EL ROOM
MOUNTING SURFACE
AIC 22,000
FED FROM 10D1

VOLTS 480 /277 3 PHASE, 4 WIRE, WYE
AMPS 225
MAIN LUGS ONLY
GROUND BUS

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	20/1	SPARE	0.00	2	20/1	SPARE	0.00
3	20/1	SPARE	0.00	4	20/1	SPARE	0.00
5	20/1	SPARE	0.00	6	20/1	SPARE	0.00
7	20/3	EWH-01	12.00	8	20/3	EWH-02	12.00
9				10			
11				12			
13	20/3	AHU-01	12.13	14	25/3	AHU-02A	15.79
15				16			
17				18			
19	25/3	AHU-02B	15.79	20	20/3	SPARE	0.00
21				22			0.00
23				24			0.00
25	20/1	SPARE	0.00	26	20/1	SPARE	0.00
27	20/1	SPARE	0.00	28	20/1	SPARE	0.00
29	20/1	SPARE	0.00	30	20/1	SPARE	0.00
31	20/1	SPARE	0.00	32	20/1	SPARE	0.00
33	20/1	SPARE	0.00	34	20/1	SPARE	0.00
35	20/1	SPARE	0.00	36	20/1	SPARE	0.00
37	70/3	PANEL 10M3	30.21	38		SPACE	0.00
39				40		SPACE	0.00
41				42		SPACE	0.00

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	0.00	125%	0.00	0.00
RECEPTACLES	0.00	100%	0.00	0.00
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	19.80	125%	24.75	29.77
OTHER MOTORS	46.52	100%	46.52	55.96
MISCELLANEOUS	31.60	100%	31.60	38.01
KITCH. APPLIANCES	0.00	100%	0.00	0.00
	97.92		102.87	123.74

PANEL 10M2
LOCATION EQ PLATFORM
MOUNTING SURFACE
AIC 22,000
FED FROM 10D1

VOLTS 480 /277 3 PHASE, 4 WIRE, WYE
AMPS 150
MAIN LUGS ONLY
GROUND BUS

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	20/1	SPARE	0.00	2	20/1	SPARE	0.00
3	20/1	SPARE	0.00	4	20/1	SPARE	0.00
5	20/1	SPARE	0.00	6	20/1	SPARE	0.00
7	20/3	AHU-04	11.30	8	15/3	AHU-05	8.14
9				10			
11				12			
13	15/3	AHU-06	6.32	14	15/3	AHU-07	6.32
15				16			
17				18			
19	20/3	SPARE	0.00	20	20/3	AHU-09	11.30
21			0.00	22			
23			0.00	24			
25	20/1	SPARE	0.00	26	20/1	SPARE	0.00
27	20/1	SPARE	0.00	28	20/1	SPARE	0.00
29	20/1	SPARE	0.00	30	20/1	SPARE	0.00
31		SPACE	0.00	32		SPACE	0.00
33		SPACE	0.00	34		SPACE	0.00
35		SPACE	0.00	36		SPACE	0.00
37		SPACE	0.00	38		SPACE	0.00
39		SPACE	0.00	40		SPACE	0.00
41		SPACE	0.00	42		SPACE	0.00

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	0.00	125%	0.00	0.00
RECEPTACLES	0.00	100%	0.00	0.00
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	11.30	125%	14.13	16.99
OTHER MOTORS	32.08	100%	32.08	38.58
MISCELLANEOUS	0.00	100%	0.00	0.00
KITCH. APPLIANCES	0.00	100%	0.00	0.00
	43.38		46.20	55.57

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
04.08.2019	VALUE ENGINEERING
10.18.2019	DESIGN DEVELOPMENT
01.06.2020	PERMIT DOCUMENTS
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

Panel Schedule

SHEET NUMBER

E8.01

PANEL X1O
LOCATION MAIN EL ROOM
MOUNTING SURFACE
AIC 14,000
FED FROM DIST X2

VOLTS 480 /277 3 PHASE, 4 WIRE, WYE
AMPS 50
MAIN CIRCUIT BREAKER
GROUND BUS
UL SERVICE LABEL

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	20/1	EXIT SIGNS - 1	0.10	2	20/1	EXIT SIGNS - 2	0.10
3	20/1	EGRESS LTS - 1	1.46	4	20/1	EGRESS LTS - 2	1.02
5	20/1	EGRESS LTS- EXT	0.74	6	20/1	SPARE	0.00
7	20/1	SPARE	0.00	8	20/1	SPARE	0.00
9	20/1	SPARE	0.00	10	20/1	SPARE	0.00
11	20/1	SPARE	0.00	12	20/1	SPARE	0.00
13	20/1	SPARE	0.00	14	20/1	SPARE	0.00
15	20/1	SPARE	0.00	16	20/1	SPARE	0.00
17	20/1	SPARE	0.00	18	20/1	SPARE	0.00
19	20/1	SPARE	0.00	20	20/1	SPARE	0.00
21	20/1	SPARE	0.00	22	20/1	SPARE	0.00
23	20/1	SPARE	0.00	24	20/1	SPARE	0.00
25	20/1	SPARE	0.00	26	20/1	SPARE	0.00
27	20/1	SPARE	0.00	28	20/1	SPARE	0.00
29	20/1	SPARE	0.00	30	20/1		0.00

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	3.42	125%	4.28	5.14
RECEPTACLES	0.00	100%	0.00	0.00
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	0.00	125%	0.00	0.00
OTHER MOTORS	0.00	100%	0.00	0.00
MISCELLANEOUS	0.00	100%	0.00	0.00
KITCH. APPLIANCES	0.00	100%	0.00	0.00
	3.42		4.28	5.14

DISTRIBUTION 1OD2
LOCATION CONCERT HALL EL ROOM
MOUNTING SURFACE
AIC 10,000
FED FROM 1OD1

VOLTS 208 /120 3 PHASE, 4 WIRE, WYE
AMPS 400
MAIN CIRCUIT BREAKER
GROUND BUS

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	150/3	PANEL 1OP1	23.38	2	125/3	PANEL 1OP2	17.86
3	100/3	PANEL 1OP3	19.28	4	50/3	PANEL 1OEL	0.86
5	150/3	SPARE	0.00	6		225 SPACE	0.00
7		225 SPACE	0.00	8		225 SPACE	0.00
9		100 SPACE	0.00	10		100 SPACE	0.00

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	6.50	125%	8.13	22.55
RECEPTACLES	40.14	100%	40.14	111.42
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	2.83	125%	3.54	9.82
OTHER MOTORS	1.71	100%	1.71	4.75
MISCELLANEOUS	10.20	100%	10.20	28.31
KITCH. APPLIANCES	0.00	100%	0.00	0.00
	61.38		63.71	176.85

PANEL 1OEL
LOCATION ELEVATOR MACH ROOM
MOUNTING SURFACE
AIC 10,000
FED FROM 1OD2

VOLTS 208 /120 3 PHASE, 4 WIRE, WYE
AMPS 50
MAIN LUGS ONLY
GROUND BUS

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	20/1	ELEV MR LTS/REC	0.28	2	20/1	SPARE	0.00
3	20/1	ELEV PIT LTS/REC	0.28	4	20/1	SPARE	0.00
5	20/1	ELEV CAB LTS	0.30	6	20/1	SPARE	0.00
7	20/1	SPARE	0.00	8	20/1	SPARE	0.00
9	20/1	SPARE	0.00	10	20/1	SPARE	0.00
11	20/1	SPARE	0.00	12	20/1	SPARE	0.00
13		SPACE	0.00	14		SPACE	0.00
15		SPACE	0.00	16		SPACE	0.00
17		SPACE	0.00	18		SPACE	0.00

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	0.50	125%	0.63	1.73
RECEPTACLES	0.36	100%	0.36	1.00
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	0.00	125%	0.00	0.00
OTHER MOTORS	0.00	100%	0.00	0.00
MISCELLANEOUS	0.00	100%	0.00	0.00
KITCH. APPLIANCES	0.00	100%	0.00	0.00
	0.86		0.99	2.73

PANEL 1OM3
LOCATION MAIN EL ROOM
MOUNTING SURFACE
AIC 10,000
FED FROM 1OM1

VOLTS 208 /120 3 PHASE, 4 WIRE, WYE
AMPS 175
MAIN CIRCUIT BREAKER
GROUND BUS

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	20/1	EIWH-1	1.80	2	20/1	EF-02	1.66
3	20/1	EIWH-2	1.80	4	20/1	SPARE	0.00
5	20/1	DWCP-02	0.53	6	20/1	SPARE	0.00
7	20/1	SPARE	0.00	8	20/1	SPARE	0.00
9	20/1	SPARE	0.00	10	20/1	SPARE	0.00
11	20/1	SPARE	0.00	12	20/1	SPARE	0.00
13	15/2	VRF-01	0.12	14	15/2	VRF-02	0.12
15				16			
17	15/2	VRF-03	0.12	18	15/2	VRF-04	0.12
19				20			
21	15/2	VRF-05	0.12	22	15/2	SPARE	0.00
23				24			0.00
25	20/3	EUH-01	4.00	26	70/3	HP-01	19.80
27				28			
29				30			
31	20/1	SPARE	0.00	32	20/1	SPARE	0.00
33	20/1	SPARE	0.00	34	20/1	SPARE	0.00
35	20/1	SPARE	0.00	36	20/1	SPARE	0.00
37		SPACE	0.00	38		SPACE	0.00
39		SPACE	0.00	40		SPACE	0.00
41		SPACE	0.00	42		SPACE	0.00

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	0.00	125%	0.00	0.00
RECEPTACLES	0.00	100%	0.00	0.00
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	19.80	125%	24.75	68.70
OTHER MOTORS	2.81	100%	2.81	7.81
MISCELLANEOUS	7.60	100%	7.60	21.10
KITCH. APPLIANCES	0.00	100%	0.00	0.00
	30.21		35.16	97.61

PANEL 1OP1 1 SECTION
LOCATION MAIN ELECTRIC ROOM
MOUNTING SURFACE
AIC 10,000
FED FROM 1OD2

VOLTS 208 /120 3 PHASE, 4 WIRE, WYE
AMPS 225
MAIN LUGS ONLY
GROUND BUS
PROVIDE SURGE PROTECTOR

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	20/1	RECEPTS LOBBY W	0.36	2	20/1	RECEPTS DDC	0.50
3	20/1	RECEPTS LOBBY W	0.36	4	20/1	RECEPTS BASEMENT	0.90
5	20/1	FA VOICE CENTER	0.50	6	20/1	SPARE	0.00
7	20/1	RECEPTS LOBBY E	0.54	8	20/1	RECEPTS EL ROOM	0.54
9	20/1	RECEPTS LOBBY E	0.54	10	20/1	RECEPTS 1ST HALL	0.72
11	20/1	RECEPTS PRACTICE	0.72	12	20/1	RECEPTS CUST,HALL	0.54
13	20/1	RECEPTS PRACTICE	0.72	14	20/1	DRINKING FTN HALL	0.30
15	20/1	RECEPTS HALL	0.72	16	20/1	RECEPTS RR	0.18
17	20/1	RECEPTS ENSEMBLE	0.90	18	20/1	RECEPTS RR	0.18
19	20/1	RECEPTS BAND OFFICE	0.72	20	20/1	RECEPTS RR	0.18
21	20/1	RECEPTS BAND OFFICE	0.72	22	20/1	RECEPTS IDF	0.18
23	20/1	RECEPTS BAND	1.08	24	20/1	RECEPTS IDF	0.18
25	20/1	RECEPTS BAND FRONT	0.72	26	20/1	RECEPTS IDF	0.36
27	20/1	RECEPTS BAND/STOR	1.08	28	20/1	RECEPTS IDF	0.36
29	20/1	TRACK LTS	1.00	30	20/1	RECEPTS IDF	0.36
31	20/1	TRACK LTS	1.00	32	20/1	RECEPTS IDF	0.36
33	20/1	TRACK LTS	1.00	34	20/1	BAND FB W	0.18
35	20/1	TRACK LTS	1.00	36	20/1	BAND FB E	0.18
37	20/1	TRACK LTS	1.00	38	20/1	ADA DOOR	0.50
39	20/1	TRACK LTS	1.00	40	20/1	SPARE	0.00
41	20/1	MOTORIZED BLINDS	0.50	42	20/1	SPARE	0.00
43	20/1	MOTORIZED BLINDS	0.50	44	20/1	SPARE	0.00
45	20/1	SPARE	0.00	46	20/1	SPARE	0.00
47	20/1	SPARE	0.00	48	20/1	SPARE	0.00
49	20/1	SPARE	0.00	50		SPACE	0.00
51	20/1	SPARE	0.00	52		SPACE	0.00
53	20/1	SPARE	0.00	54		SPACE	0.00
55	20/1	SPARE	0.00	56	30/3	SURGE PROTECTOR	0.00
57	20/1	SPARE	0.00	58			0.00
59	20/1	SPARE	0.00	60			0.00

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	6.00	125%	7.50	20.82
RECEPTACLES	14.58	100%	14.58	40.47
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	0.00	125%	0.00	0.00
OTHER MOTORS	0.00	100%	0.00	0.00
MISCELLANEOUS	2.80	100%	2.80	7.77
KITCH. APPLIANCES	0.00	65%	0.00	0.00
	23.38		24.88	69.06

PANEL 1OP2 1 SECTION
LOCATION BACKSTAGE
MOUNTING SURFACE
AIC 10,000
FED FROM 1OD2

VOLTS 208 /120 3 PHASE, 4 WIRE, WYE
AMPS 125
MAIN LUGS ONLY
GROUND BUS
PROVIDE SURGE PROTECTOR

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	20/1	RECEPTS RR, HALL	1.08	2	20/1	RECEPTS STORAGE	0.54
3	20/1	RECEPTS RR SINK WOMEN	0.18	4	20/1	RECEPTS STORAGE	0.72
5	20/1	RECEPTS RR SINK MEN	0.18	6	20/1	RECEPTS STORAGE	0.72
7	20/1	RECEPTS HALL	0.54	8	20/1	RECEPTS STAFF RR	0.18
9	20/1	RECEPTS DRESSING SINK	0.18	10	20/1	DRINKING FTN LOBBY	0.30
11	20/1	RECEPTS DRESSING	0.36	12	20/1	RECEPT DRESSING COUNTER	0.18
13	20/1	RECEPTS MANAGER	1.08	14	20/1	RECEPT DRESSING COUNTER	0.18
15	20/1	SPRINKLER COMP	1.18	16	20/1	RECEPT DRESSING COUNTER	0.18
17	20/1	RECEPTS SPKLR	0.18	18	20/1	RECEPT DRESSING COUNTER	0.18
19	20/1	REC 2ND HALL, RR	0.72	20	20/1	DRINKING FTN 2ND	0.30
21	20/1	RECEPTS 2ND RR W	0.18	22	20/1	RECEPT STAFF REC	0.18
23	20/1	RECEPTS 2ND RR M	0.18	24	20/1	DWCP-02	0.53
25	20/1	RECEPTS N CATWALK, HALL	1.08	26	20/1	MOTORIZED BLINDS	0.50
27	20/2	EF-01	2.83	28	20/1	MOTORIZED BLINDS	0.50
29				30	20/1	MOTORIZED BLINDS	0.50
31	20/1	SMOKE DAMPER	0.30	32	20/1	MOTORIZED BLINDS	0.50
33	20/1	SMOKE DAMPER	0.30	34	20/1	SPARE	0.00
35	20/1	RECEPTS CONSOLE	0.36	36	20/1	SPARE	0.00
37	20/1	RECEPTS CONSOLE	0.36	38	20/1	SPARE	0.00
39	20/1	IRRIGATION CONTROL	0.40	40	20/1	SPARE	0.00
41	20/1	SPARE	0.00	42	20/1	SPARE	0.00
43	20/1	SPARE	0.00	44	20/1	SPARE	0.00
45	20/1	SPARE	0.00	46	20/1	SPARE	0.00
47	20/1	SPARE	0.00	48	20/1	SPARE	0.00
49	20/1	SPARE	0.00	50	20/1	SPARE	0.00
51	20/1	SPARE	0.00	52	20/1	SPARE	0.00
53	20/1	SPARE	0.00	54	20/1	SPARE	0.00
55	20/1	SPARE	0.00	56	30/3	SURGE PROTECTOR	0.00
57	20/1	SPARE	0.00	58			
59	20/1		0.00	60			

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	0.00	125%	0.00	0.00
RECEPTACLES	9.72	100%	9.72	26.98
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	2.83	125%	3.54	9.82
OTHER MOTORS	1.71	100%	1.71	4.75
MISCELLANEOUS	3.60	100%	3.60	9.99
KITCH. APPLIANCES	0.00	65%	0.00	0.00
	17.86		18.57	51.54

PANEL 1OP3 1 SECTION
LOCATION CUSTODIAN 2ND
MOUNTING SURFACE
AIC 10,000
FED FROM 1OD2

VOLTS 208 /120 3 PHASE, 4 WIRE, WYE
AMPS 100
MAIN LUGS ONLY
GROUND BUS
PROVIDE SURGE PROTECTOR

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	20/1	RECEPTS 2ND LOBBY S	0.72	2	20/1	RECEPTS RR 2ND	0.18
3	20/1	RECEPTS 2ND LOBBY N	0.54	4	20/1	RECEPTS RR 2ND	0.18
5	20/1	RECEPTS CUST/STR	0.90	6	20/1	RECEPTS RR 2ND	0.18
7	20/1	RECEPTS HALL 2ND	1.26	8	20/1	RECEPTS PRACTICE	0.72
9	20/1	DRINKING FTN 2ND	0.30	10	20/1	RECEPTS PRACTICE	0.36
11	20/1	RECEPTS CHOIR	0.72	12	20/1	RECEPTS STORAGE	1.08
13	20/1	RECEPTS CHOIR	0.90	14	20/1	RECEPTS OFFICE	0.54
15	20/1	RECEPTS CHOIR	0.72	16	20/1	RECEPTS OFFICE	0.72
17	20/1	RECEPTS MUSIC	0.90	18	20/1	RECEPTS MUSIC	0.90
19	20/1	RECEPTS MUSIC	0.90	20	20/1	RECEPTS EQ PLATFORM	0.90
21	20/1	RECEPTS HALL 2ND	0.90	22	20/1	DDC	0.50
23	20/1	RECEPTS STOR 2ND	0.36	24	20/1	CH-1 HEAT TAPE	1.00
25	20/1	REC S CATWALK, HALL	0.90	26	20/1	ADA DOOR	0.50
27	20/1	MOTORIZED BLINDS	0.50	28	20/1	SPARE	0.00
29	20/1	MOTORIZED BLINDS	0.50	30	20/1	SPARE	0.00
31	20/1	MOTORIZED BLINDS	0.50	32	20/1	SPARE	0.00
33	20/1	SPARE	0.00	34	20/1	SPARE	0.00
35	20/1	SPARE	0.00	36	20/1	SPARE	0.00
37	20/1	SPARE	0.00	38	20/1	SPARE	0.00
39	20/1	SPARE	0.00	40	20/1	SPARE	0.00
41	20/1	SPARE	0.00	42	20/1	SPARE	0.00
43	20/1	SPARE	0.00	44	20/1	SPARE	0.00
45	20/1	SPARE	0.00	46	20/1	SPARE	0.00
47	20/1	SPARE	0.00	48	20/1	SPARE	0.00
49	20/1	SPARE	0.00	50	20/1	SPARE	0.00
51	20/1	SPARE	0.00	52	20/1	SPARE	0.00
53	20/1	SPARE	0.00	54	20/1	SPARE	0.00
55	20/1	SPARE	0.00	56	30/3	SURGE PROTECTOR	0.00
57	20/1	SPARE	0.00	58			
59	20/1	SPARE	0.00	60			

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	0.00	125%	0.00	0.00
RECEPTACLES	15.48	100%	15.48	42.97
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	0.00	125%	0.00	0.00
OTHER MOTORS	0.00	100%	0.00	0.00
MISCELLANEOUS	3.80	100%	3.80	10.55
KITCH. APPLIANCES	0.00	65%	0.00	0.00
	19.28		19.28	53.52

LOCATION DIMMER ROOM
MOUNTING SURFACE
AIC 10,000
FED FROM 1OD1

AMPS 400
MAIN CIRCUIT BREAKER
GROUND BUS+ISOLATED GROUND BUS

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	150/3	PANEL 1OTP1	20.25	2	100/3	PANEL 1OTP2	5.81
3	225/3	PANEL RP1	36.00	4	100/3	PANEL RP2	6.67
5	45/3	PANEL 1OS1	11.78	6		225 SPACE	0.00
7		225 SPACE	0.00	8		225 SPACE	0.00

CONNECTED LOAD	KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	0.00	125%	0.00	ERR
RECEPTACLES	20.39	100%	20.39	ERR
HEATING	0.00	100%	0.00	ERR
LARGEST MOTOR	0.00	125%	0.00	ERR
OTHER MOTORS	0.00	100%	0.00	ERR
MISCELLANEOUS	60.12	100%	60.12	ERR
KITCH. APPLIANCES	0.00	100%	0.00	ERR
	80.51		80.51	ERR

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
04.08.2019	VALUE ENGINEERING
10.18.2019	DESIGN DEVELOPMENT
01.06.2020	PERMIT DOCUMENTS
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

Panel Schedule

SHEET NUMBER

E8.02

PANEL 10TP1 1 SECTION
LOCATION DIMMER ROOM
MOUNTING SURFACE
AIC 10,000
FED FROM 10T1

VOLTS 208 /120 3 PHASE, 4 WIRE, WYE
AMPS 150
MAIN LUGS ONLY
GROUND BUS+ISOLATED GROUND BUS
PROVIDE SURGE PROTECTOR

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	20/1	PRODUCTION CONSTANT 1	0.75	2	20/1	PRODUCTION CONSTANT 2	0.75
3	20/1	PRODUCTION CONSTANT 3	0.75	4	20/1	PRODUCTION CONSTANT 4	0.75
5	20/1	PRODUCTION CONSTANT 5	0.75	6	20/1	PRODUCTION CONSTANT 6	0.75
7	20/1	PRODUCTION CONSTANT 7	0.75	8	20/1	PRODUCTION CONSTANT 8	0.75
9	20/1	PRODUCTION CONSTANT 9	0.75	10	20/1	PRODUCTION CONSTANT 10	0.75
11	20/1	PRODUCTION CONSTANT 11	0.75	12	20/1	PRODUCTION CONSTANT 12	0.75
13	20/1	PRODUCTION CONSTANT 13	0.75	14	20/1	PRODUCTION CONSTANT 14	0.75
15	20/1	PRODUCTION CONSTANT 15	0.75	16	20/1	PRODUCTION CONSTANT 16	0.75
17	20/1	PRODUCTION CNST 17-19	0.75	18	20/1	RECEPTS DIMMER RM	0.72
19	20/1	REC PLATFORM NORTH	0.18	20	20/1	REC PLATFORM SOUTH	0.18
21	20/1	REC PLATFORM NORTH	0.18	22	20/1	REC PLATFORM SOUTH	0.18
23	20/1	REC PLATFORM NORTH	0.18	24	20/1	REC PLATFORM SOUTH	0.18
25	20/1	RECEPTS CATWALK	1.08	26	20/1	SPARE	0.00
27	20/1	RECEPTS CATWALK	0.90	28	20/1	SPARE	0.00
29	20/1	SPARE	0.00	30	20/1	SPARE	0.00
31	20/1	SPARE	0.00	32	20/1	CONTROL ROOM	0.72
33	20/1	SPARE	0.00	34	20/1	AUX RACK	1.00
35	20/1	FOUNDRY 1	0.50	36	20/1	FOUNDRY 2	0.50
37	20/1	FOUNDRY 3	0.50	38	20/1	FOUNDRY 4	0.50
39	20/1	SPARE	0.00	40	20/1	SPARE	0.00
41	20/1	SPARE	0.00	42	20/1	SPARE	0.00
43	20/1	SPARE	0.00	44	20/1	SPARE	0.00
45	20/1	SPARE	0.00	46	20/1	SPARE	0.00
47	20/1	SPARE	0.00	48	20/1	SPARE	0.00
49		SPACE	0.00	50		SPACE	0.00
51		SPACE	0.00	52		SPACE	0.00
53		SPACE	0.00	54		SPACE	0.00
55		SPACE	0.00	56	30/3	SURGE PROTECTOR	0.00
57		SPACE	0.00	58			0.00
59		SPACE	0.00	60			0.00

	CONNECTED LOAD KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	0.00	125%	0.00	0.00
RECEPTACLES	4.50	100%	4.50	12.49
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	0.00	125%	0.00	0.00
OTHER MOTORS	0.00	100%	0.00	0.00
MISCELLANEOUS	15.75	100%	15.75	43.72
KITCH. APPLIANCES	0.00	65%	0.00	0.00
	20.25		20.25	56.21

PANEL 10TP2 1 SECTION
LOCATION CONTROL ROOM
MOUNTING FLUSH
AIC 10,000
FED FROM 10T1

VOLTS 208 /120 3 PHASE, 4 WIRE, WYE
AMPS 100
MAIN LUGS ONLY
GROUND BUS+ISOLATED GROUND BUS
PROVIDE FLUSH SURGE PROTECTOR

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	20/1	RECEPTS CONTROL	0.54	2	20/1	RECEPTS STOR	0.36
3	20/1	RECEPTS HALL SOUTH	0.90	4	20/1	RECEPTS 2ND HALL N	1.08
5	20/1	RECEPTS HALL NORTH	0.90	6	20/1	RECEPTS 2ND HALL 2	1.08
7	20/1	TRACK LIGHTS	0.75	8	20/1	SPARE	0.00
9	20/1	MIXING LIGHTS	0.20	10	20/1	SPARE	0.00
11	20/1	SPARE	0.00	12	20/1	SPARE	0.00
13	20/1	SPARE	0.00	14	20/1	SPARE	0.00
15	20/1	SPARE	0.00	16	20/1	SPARE	0.00
17	20/1	SPARE	0.00	18	20/1	SPARE	0.00
19	20/1	SPARE	0.00	20	30/3	SURGE PROTECTOR	0.00
21	20/1	SPARE	0.00	22			0.00
23	20/1	SPARE	0.00	24			0.00

	CONNECTED LOAD KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	0.00	125%	0.00	0.00
RECEPTACLES	5.81	100%	5.81	16.13
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	0.00	125%	0.00	0.00
OTHER MOTORS	0.00	100%	0.00	0.00
MISCELLANEOUS	0.00	100%	0.00	0.00
KITCH. APPLIANCES	0.00	65%	0.00	0.00
	5.81		5.81	16.13

PANEL 10S1 1 SECTION
LOCATION DIMMER ROOM
MOUNTING SURFACE
AIC 10,000
FED FROM 10T1 VIA XFMR

VOLTS 208 /120 3 PHASE, 4 WIRE, WYE
AMPS 100
MAIN CIRCUIT BREAKER
GROUND BUS+ISOLATED GROUND BUS
PROVIDE SURGE PROTECTOR
COPPER BUS, 200% NEUTRAL

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1	20/1	RECEPTS MIXING	0.36	2	20/1	RECEPTS CTL ROOM	0.36
3	20/1	RECEPTS MIXING	0.36	4	20/1	RECEPTS CTL ROOM	0.72
5	20/1	RECEPTS MIXING	0.36	6	20/1	RECEPTS CTL ROOM	0.72
7	20/1	RECEPTS MIXING	0.36	8	20/1	RECEPTS PF FB W	0.18
9	20/1	RECEPTS FB PF CTR	0.18	10	20/1	RECEPTS PF FB W	0.18
11	20/1	RECEPTS FB PF CTR	0.18	12	20/1	RECEPTS PF FB W	0.18
13	20/1	RECEPTS AV SMP RACK	0.50	14	20/1	RECEPTS PF FB E	0.18
15	20/1	SCREEN	0.70	16	20/1	RECEPTS PF FB E	0.18
17	20/1	BAND SPEAKERS	0.36	18	20/1	RECEPTS PF FB E	0.18
19	20/1	BAND MONITOR	0.36	20	20/1	REC AV RACK	0.36
21	20/1	BAND AV JBOX	0.36	22	20/1	REC AV RACK	0.36
23	20/1	BAND FB NORTH	0.18	24	20/1	PROJECTOR	0.50
25	20/1	BAND FB SOUTH	0.18	26	20/1	REC FB MUSIC	0.18
27	20/1	REC MUSIC SPEAKER	0.36	28	20/1	REC FB MUSIC	0.18
29	20/1	REC MUSIC MONITORS	0.36	30	20/1	REC FB MUSIC	0.18
31	20/1	REC MUSIC WB	0.36	32	20/1	REC FB MUSIC	0.18
33	20/1	REC CHOIR SPEAKER	0.36	34	20/1	REC FB CHOIR	0.18
35	20/1	REC CHOIR MONITORS	0.36	36	20/1	REC FB CHOIR	0.18
37	20/1	REC CHOIR WB	0.36	38	20/1	SPARE	0.00
39	20/1	SPARE	0.00	40	20/1	SPARE	0.00
41	20/1	SPARE	0.00	42	20/1	SPARE	0.00
43	20/1	SPARE	0.00	44	20/1	SPARE	0.00
45	20/1	SPARE	0.00	46	20/1	SPARE	0.00
47	20/1	SPARE	0.00	48	20/1	SPARE	0.00
49	20/1	SPARE	0.00	50	20/1	SPARE	0.00
51	20/1	SPARE	0.00	52	20/1	SPARE	0.00
53	20/1	SPARE	0.00	54	20/1	SPARE	0.00
55	20/1	SPARE	0.00	56	30/3	SURGE PROTECTOR	0.00
57	20/1	SPARE	0.00	58			0.00
59	20/1	SPARE	0.00	60			0.00

	CONNECTED LOAD KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	0.00	125%	0.00	0.00
RECEPTACLES	10.08	100%	10.08	27.98
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	0.00	125%	0.00	0.00
OTHER MOTORS	0.00	100%	0.00	0.00
MISCELLANEOUS	1.70	100%	1.70	4.72
KITCH. APPLIANCES	0.00	65%	0.00	0.00
	11.78		11.78	32.70

PANEL RP1 LOAD SUMMARY
RELAY POWER PANEL PROVIDED BY THEATER
MOUNTING SURFACE
AIC 10,000
FED FROM 10T1

VOLTS 208 /120 3 PHASE, 4 WIRE, WYE
AMPS 225

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1-48	20/1	STAGE PRODUCTION	0.75				

	CONNECTED LOAD KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	0.00	125%	0.00	0.00
RECEPTACLES	0.00	100%	0.00	0.00
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	0.00	125%	0.00	0.00
OTHER MOTORS	0.00	100%	0.00	0.00
MISCELLANEOUS	36.00	100%	36.00	99.93
KITCH. APPLIANCES	0.00	100%	0.00	0.00
	36.00		36.00	99.93

PANEL RP2 LOAD SUMMARY
RELAY POWER PANEL PROVIDED BY THEATER
MOUNTING SURFACE
AIC 10,000
FED FROM 10T1

VOLTS 208 /120 3 PHASE, 4 WIRE, WYE
AMPS 100

CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA	CCT NO.	CCT BRKR	DESCRIPTION	LOAD KVA
1-4	20/1	STAGE PRODUCTION	0.75				
5	20/1	UPPER HOUSE LTS	1.75				
6	20/1	UPPER EM HOUSE LTS	1.13				
7	20/1	LOWER HOUSE LTS	0.44				
8	20/1	LOWER EM HOUSE LIGHTS	0.11				
9	20/1	SPARKLE LIGHTS	0.24				

	CONNECTED LOAD KVA	DEMAND FACTOR	DEMAND LOAD KVA	AMPS
LIGHTS	0.00	125%	0.00	0.00
RECEPTACLES	0.00	100%	0.00	0.00
HEATING	0.00	100%	0.00	0.00
LARGEST MOTOR	0.00	125%	0.00	0.00
OTHER MOTORS	0.00	100%	0.00	0.00
MISCELLANEOUS	6.67	100%	6.67	18.51
KITCH. APPLIANCES	0.00	100%	0.00	0.00
	6.67		6.67	18.51

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
04.08.2019	VALUE ENGINEERING
10.18.2019	DESIGN DEVELOPMENT
01.06.2020	PERMIT DOCUMENTS
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

Panel Schedule

SHEET NUMBER

E8.03

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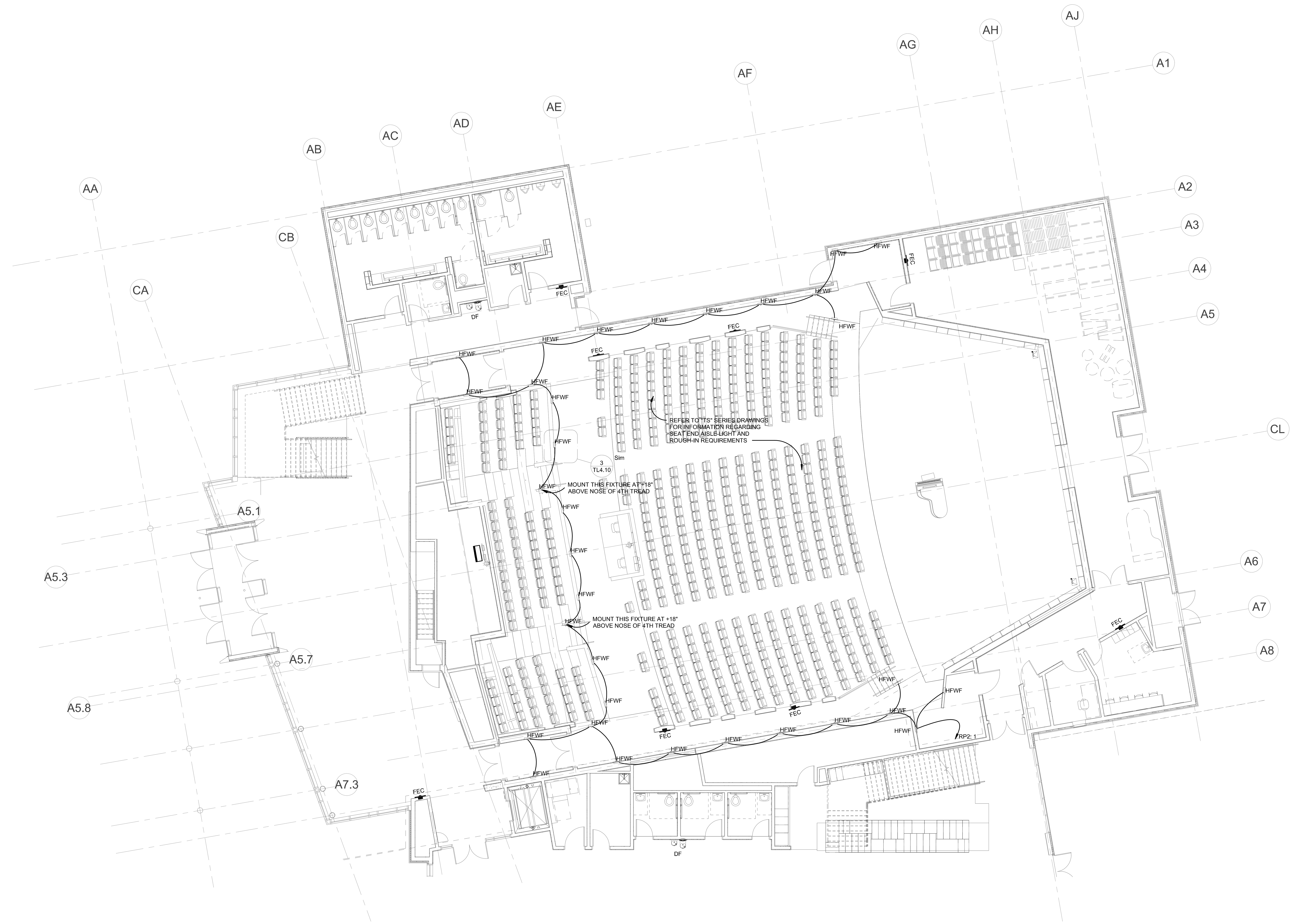
NOTES THIS SHEET

1. CONNECTING LINES BETWEEN LIGHTING FIXTURES AND OR DISTRIBUTION DEVICES ARE SHOWN FOR PURPOSES OF ASSIGNING LIGHTS OR DEVICES TO SPECIFIC DIMMERS AND NON-DIMS. THEY ARE NOT TO BE CONSTRUED AS CIRCUITING NOR CONDUIT. REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC INFORMATION ON CONDUIT AND WIRE SIZE, WIRE TYPE, AND ROUTING.
2. REFER TO TL8.X SERIES DRAWINGS FOR HOUSE LIGHTING FIXTURE SCHEDULE.



1 1-MAIN LEVEL - LIGHTING
1/8" = 1'-0"

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

THEATER LIGHTING - GENERAL ILLUMINATION

SHEET NUMBER

E-TL1.10

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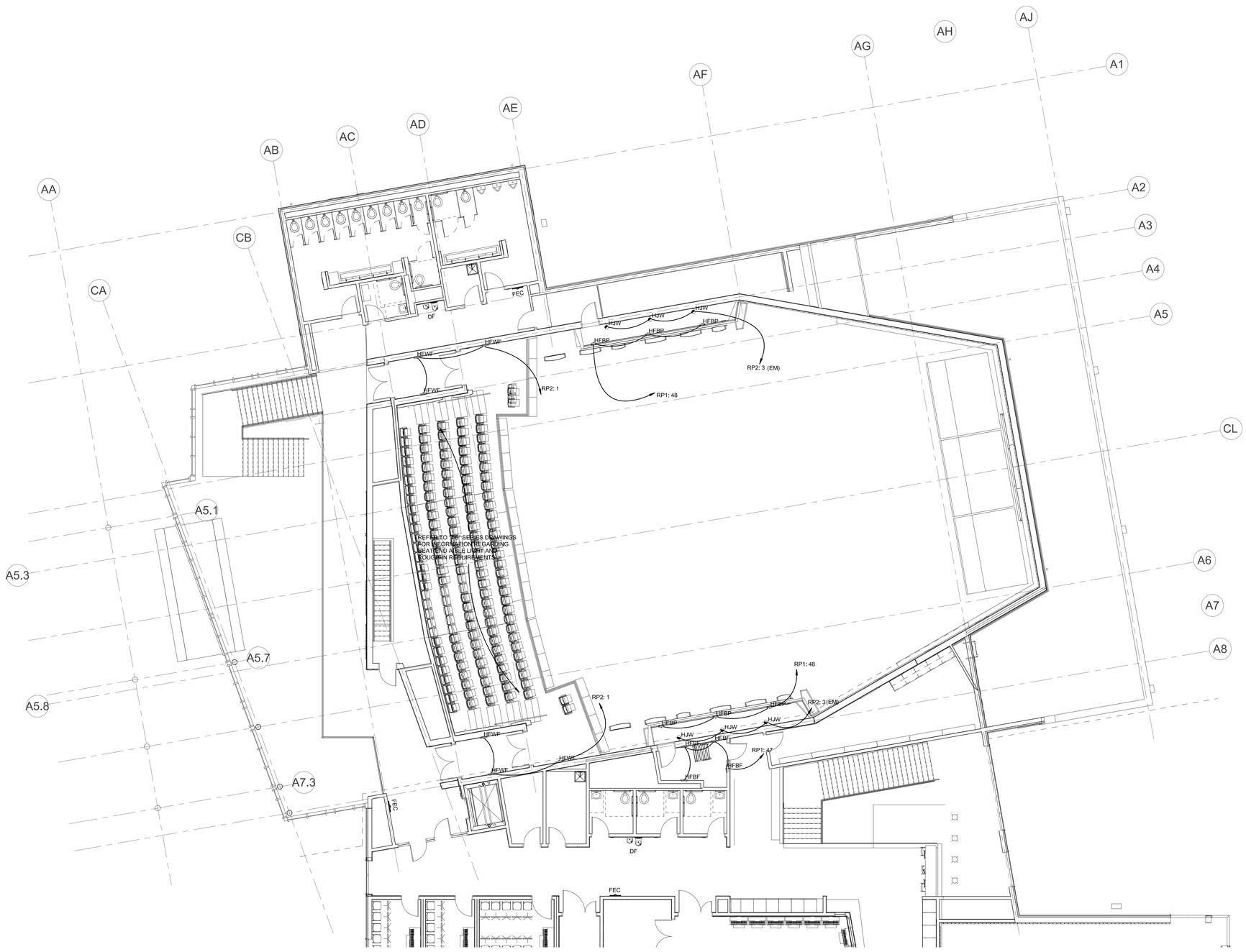

1 2-SIDE TECH
1/8" = 1'-0"

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SHEET NAME

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SHEET NUMBER

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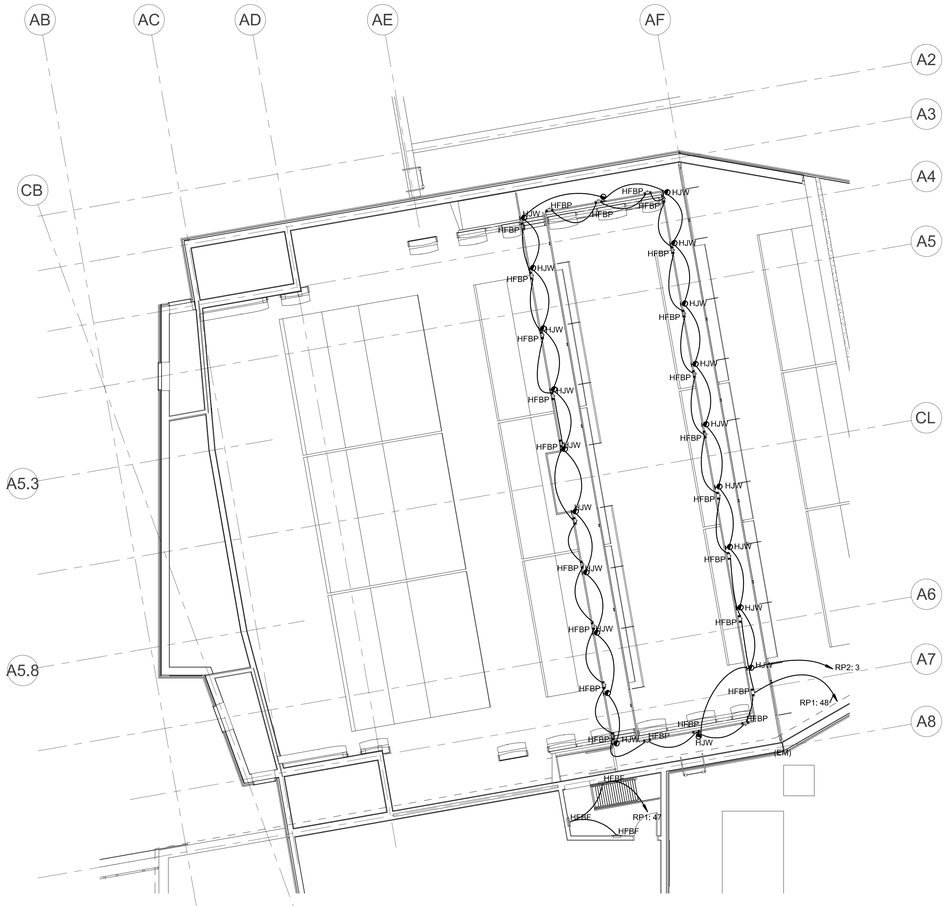
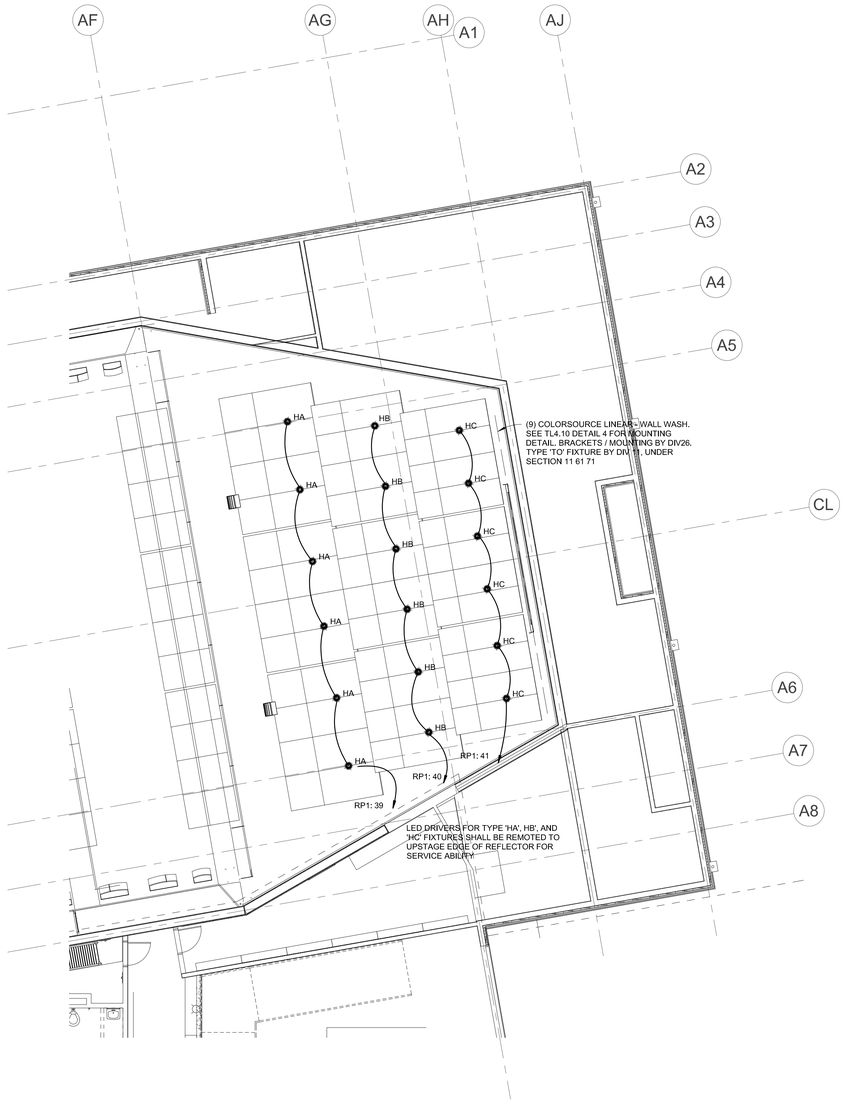


1 CATWALK LEVEL WORK LIGHTING
1/8" = 1'-0"



2 GENERAL LIGHTING OVER STAGE
1/8" = 1'-0"

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BID DOCUMENTS

04.13.2020

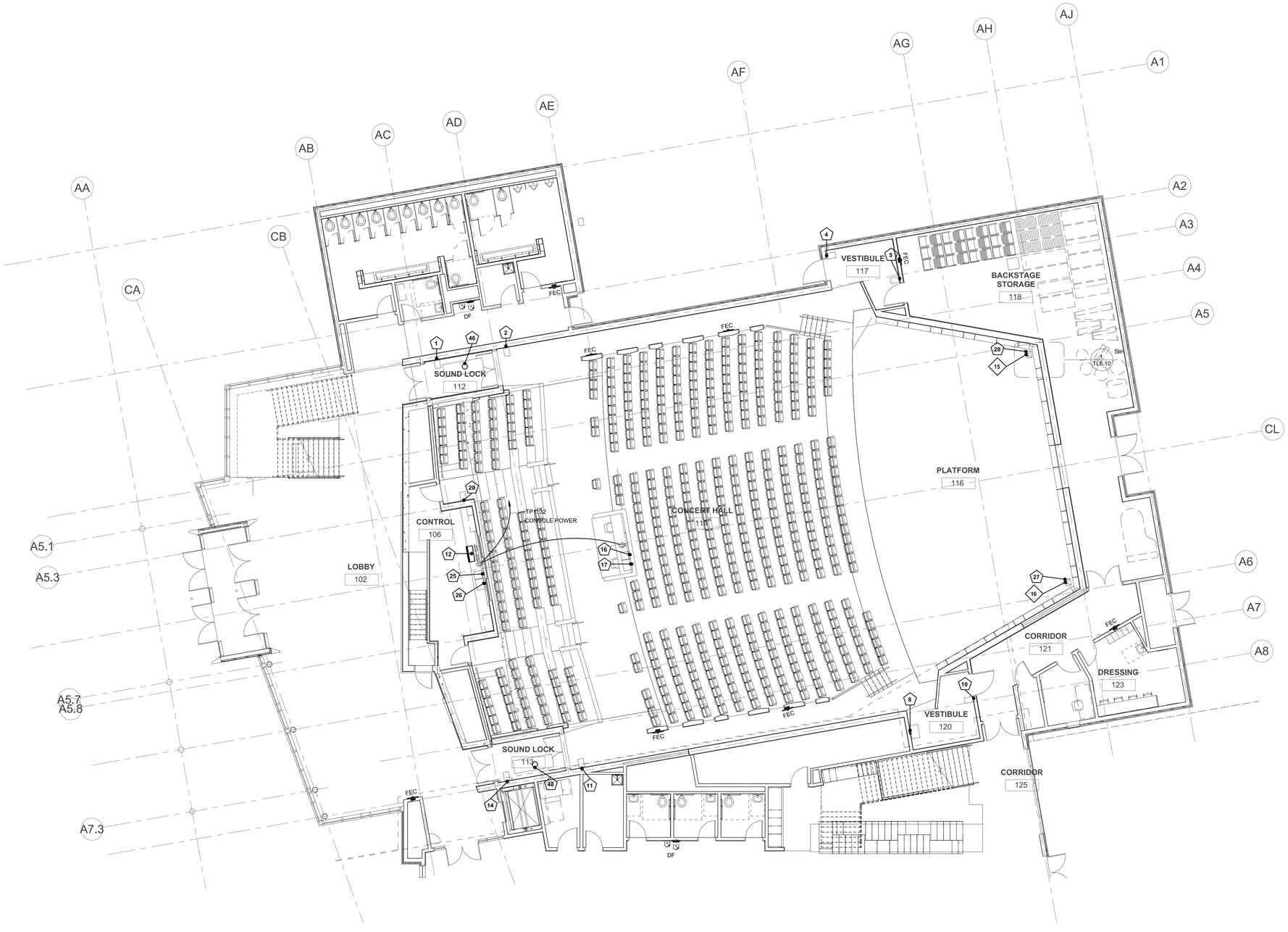
PROJECT NUMBER: 1711

SHEET NAME

THEATER LIGHTING - GENERAL ILLUMINATION

SHEET NUMBER

E-TL1.30



1 1-MAIN LEVEL - CONTROL AND DISTRIBUTION
1/8" = 1'-0"

STAGE LIGHTING DISTRIBUTION HOMERUN SCHEDULE

PROJECT: INGLEMOOR HIGH SCHOOL
KENMORE, WA
DATE: 3/6/2020

ID ##	TYPE / MOUNTING	RECEPTACLES	FEED	REMARKS
15	FLOOR POCKET	(3) 5-20R-FL	RP1:31, 32, 33	
		(1) 5-20RD	TP1:15	
		(1) 5 PIN XLR	AUX RACK	DMX OUT
16	FLOOR POCKET	(3) 5-20R-FL	RP1: 34,35 36	
		(1) 5-20RD	TP1:16	
		(1) 5 PIN XLR	AUX RACK	DMX OUT

NOTES:
1. REFER TO DRAWING TL8.20 FOR FULL DISTRIBUTION SCHEDULE

DEVICE TAGS

CONTROL DEVICE ID TAG USE TO CROSS REFERENCE CONTROL DEVICES WITH PLANS, CONTROL DEVICE SCHEDULE (TL8.10) CONTROL INTERCONNECTION DIAGRAM (TL7.10), & DETAILS (TL5.10).

INDICATES THE UNIQUE CONTROL DEVICE NUMBER

SEE CONTROL TYPE SYMBOLS TO IDENTIFY GENERAL TYPE OF CONTROL DEVICE.

STAGE LIGHTING DISTRIBUTION DEVICE ID TAG
USE TO CROSS REFERENCE STAGE LIGHTING DISTRIBUTION DEVICES WITH PLANS, STAGE LIGHTING DISTRIBUTION DEVICE SCHEDULE (TL8.20), & DETAILS (TL6.10).

INDICATES THE UNIQUE DISTRIBUTION DEVICE NUMBER

LABLE ON DEVICE SYMBOL INDICATES THE DISTRIBUTION DEVICE TYPE REFER TO THE DISTRIBUTION DEVICE KEY ON THIS SHEET FOR MORE INFORMATION.

CONTROL TYPE SYMBOLS

C	CONTROL STATION
D	DMX/RDM INPUT
G#	GATEWAY # = QTY OF PORTS
N#	LIGHTING NETWORK # = QTY OF JACKS
S	SMART JACK
X#	DMX/RDM OUTPUT # = QTY OF JACKS

DISTRIBUTION TYPE SYMBOLS

CS	CONNECTOR STRIP
FP	FLOOR POCKET
PB-F	PLUG BOX – FLUSH MOUNT
PB-P	PLUG BOX – PIPE MOUNT
PB-S	PLUG BOX – SURFACE MOUNT

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PROJECT INFORMATION

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Northshore School District

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

THEATER LIGHTING - CONTROL & DISTRIBUTION

SHEET NUMBER

E-TL2.10

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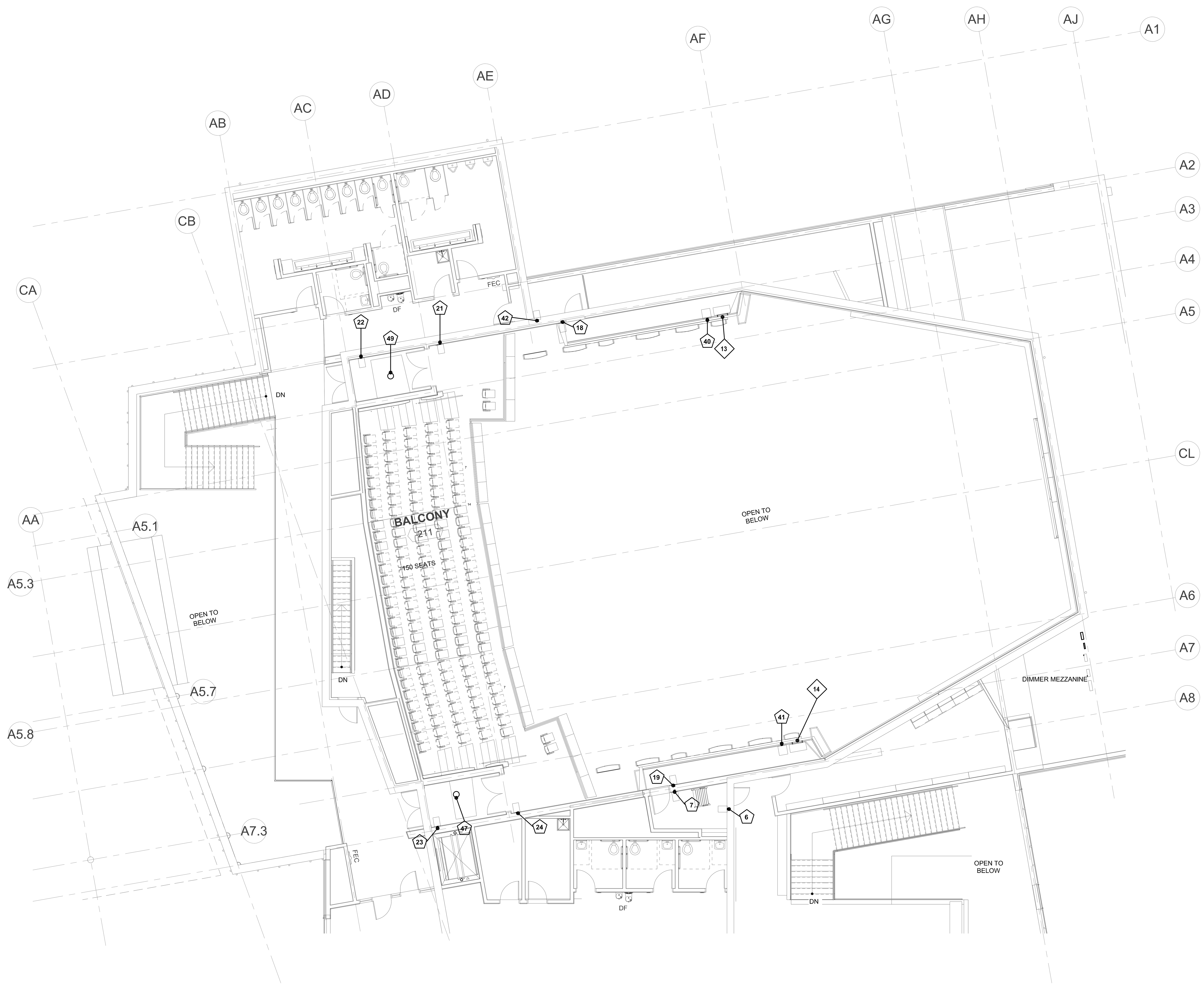
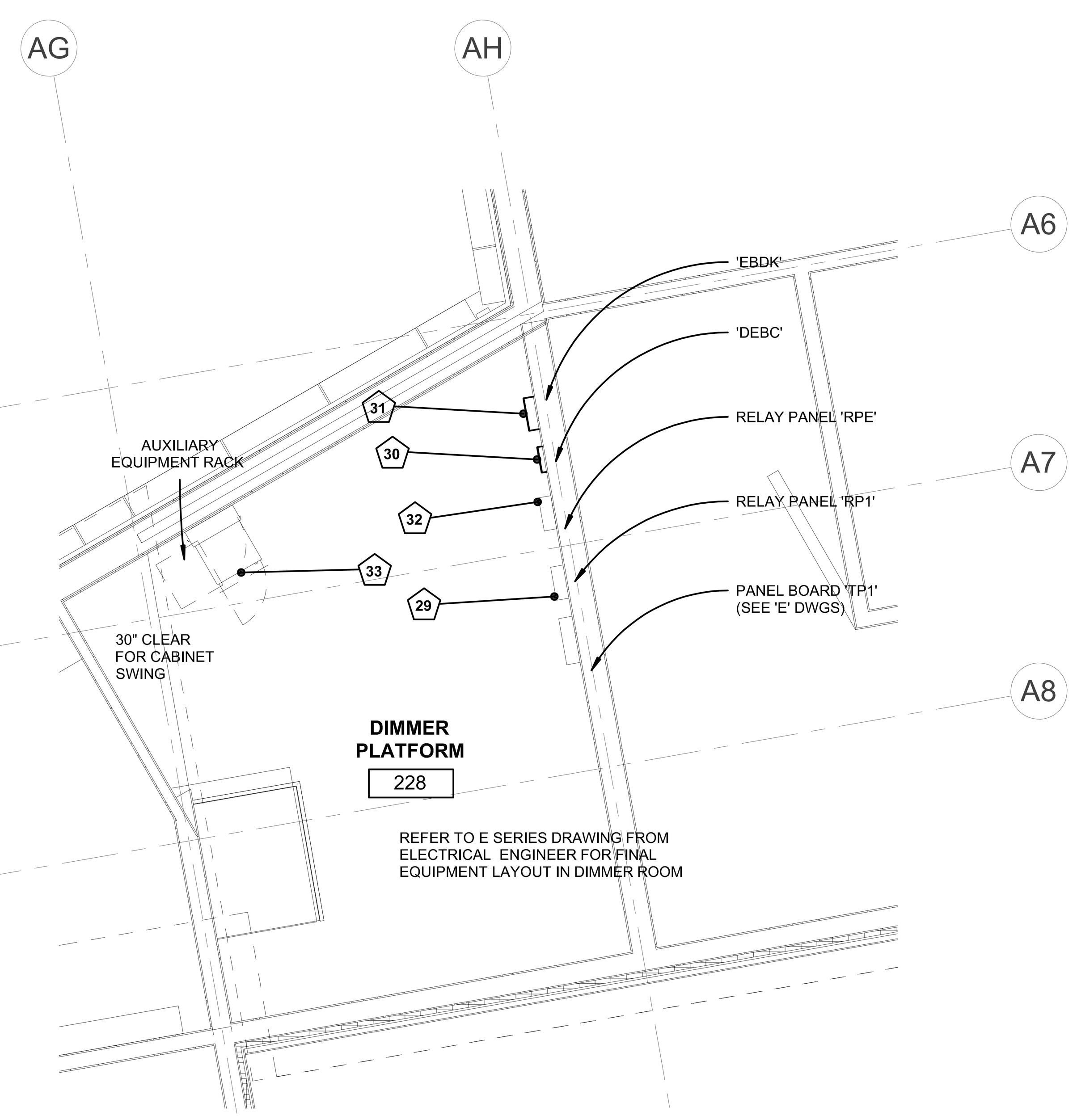


1 2-SIDE TECH - CONTROL AND DISTRIBUTION
1/8" = 1'-0"



2 DIMMER MEZZANINE - PARTIAL PLAN
1/4" = 1'-0"

DEVICE TAGS

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STAGE LIGHTING DISTRIBUTION DEVICE ID TAG USE TO CROSS REFERENCE STAGE LIGHTING DISTRIBUTION DEVICES WITH PLANS, STAGE LIGHTING DISTRIBUTION DEVICE SCHEDULE (TL8.20), & DETAILS (TL6.10).

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CONTROL TYPE SYMBOLS

C	CONTROL STATION
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S	SMART JACK
X#	DMX/RDM OUTPUT # = QTY OF JACKS

DISTRIBUTION TYPE SYMBOLS

CS	CONNECTOR STRIP
FP	FLOOR POCKET
PB-F	PLUG BOX – FLUSH MOUNT
PB-P	PLUG BOX – PIPE MOUNT
PB-S	PLUG BOX – SURFACE MOUNT

STAGE LIGHTING DISTRIBUTION HOMERUN SCHEDULE
PROJECT: INGLEMOOR HIGH SCHOOL
KENMORE, WA
DATE: 3/6/2020

ID ##	TYPE / MOUNTING	RECEPTACLES	FEED	REMARKS
13	PLUGBOX PIPE MOUNT	(3) 5-20C-P36 (1) 5-20RD	RP1:25, 26, 27 TP1:13	
14	PLUGBOX PIPE MOUNT	(3) 5-20C-P36 (1) 5-20RD	RP1:28, 29, 30 TP1:14	

NOTES:
1. REFER TO DRAWING TL8.20 FOR FULL DISTRIBUTION SCHEDULE

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CONSULTANT STAMP

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

THEATER LIGHTING - CONTROL & DISTRIBUTION

SHEET NUMBER

E-TL2.20

1 4-CATWALK - CONTROL AND DISTRIBUTION
1/8" = 1'-0"

DEVICE TAGS

##

CONTROL DEVICE ID TAG USE TO CROSS REFERENCE CONTROL DEVICES WITH PLANS, CONTROL DEVICE SCHEDULE (TL8.10) CONTROL INTERCONNECTION DIAGRAM (TL7.10), & DETAILS (TL5.10).

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STAGE LIGHTING DISTRIBUTION DEVICE ID TAG
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CONTROL TYPE SYMBOLS

C	CONTROL STATION
D	DMX/RDM INPUT
G#	GATEWAY # = QTY OF PORTS
N#	LIGHTING NETWORK # = QTY OF JACKS
S	SMART JACK
X#	DMX/RDM OUTPUT # = QTY OF JACKS

DISTRIBUTION TYPE SYMBOLS

CS	CONNECTOR STRIP
FP	FLOOR POCKET
PB-F	PLUG BOX – FLUSH MOUNT
PB-P	PLUG BOX – PIPE MOUNT
PB-S	PLUG BOX – SURFACE MOUNT

STAGE LIGHTING DISTRIBUTION HOME RUN SCHEDULE
PROJECT: INGLEMOOR HIGH SCHOOL
KENMORE, WA
DATE: 3/6/2020

ID ##	TYPE / MOUNTING	RECEPTACLES	FEED	REMARKS
1	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:1, 2 TP1:1	
2	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:3, 4 TP1:2	
3	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:5,6 TP1:3	
4	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:7, 8 TP1:4	
5	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:9,10 TP1:5	
6	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:11,12 TP1:6	
7	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:13,14 TP1:7	
8	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:15, 16 TP1:8	
9	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:17, 18 TP1:9	
10	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:19, 20 TP1:10	
11	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:21, 22 TP1:11	
12	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:23, 24 TP1:12	
17	PLUGBOX SURFACE MOUNT	(3) 5-20R-FL (1) 5-20RD	RP1:42,43,44 TP1:17	
18	PLUGBOX SURFACE MOUNT	(3) 5-20R-FL (1) 5-20RD	RP1:42,43,44 TP1:17	
19	PLUGBOX SURFACE MOUNT	(3) 5-20R-FL (1) 5-20RD	RP1:42,43,44 TP1:17	

NOTES:
1. REFER TO DRAWING TL8.20 FOR FULL DISTRIBUTION SCHEDULE

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PROJECT NUMBER: 1711

SHEET NAME

THEATER LIGHTING - CONTROL & DISTRIBUTION

SHEET NUMBER

E-TL2.40

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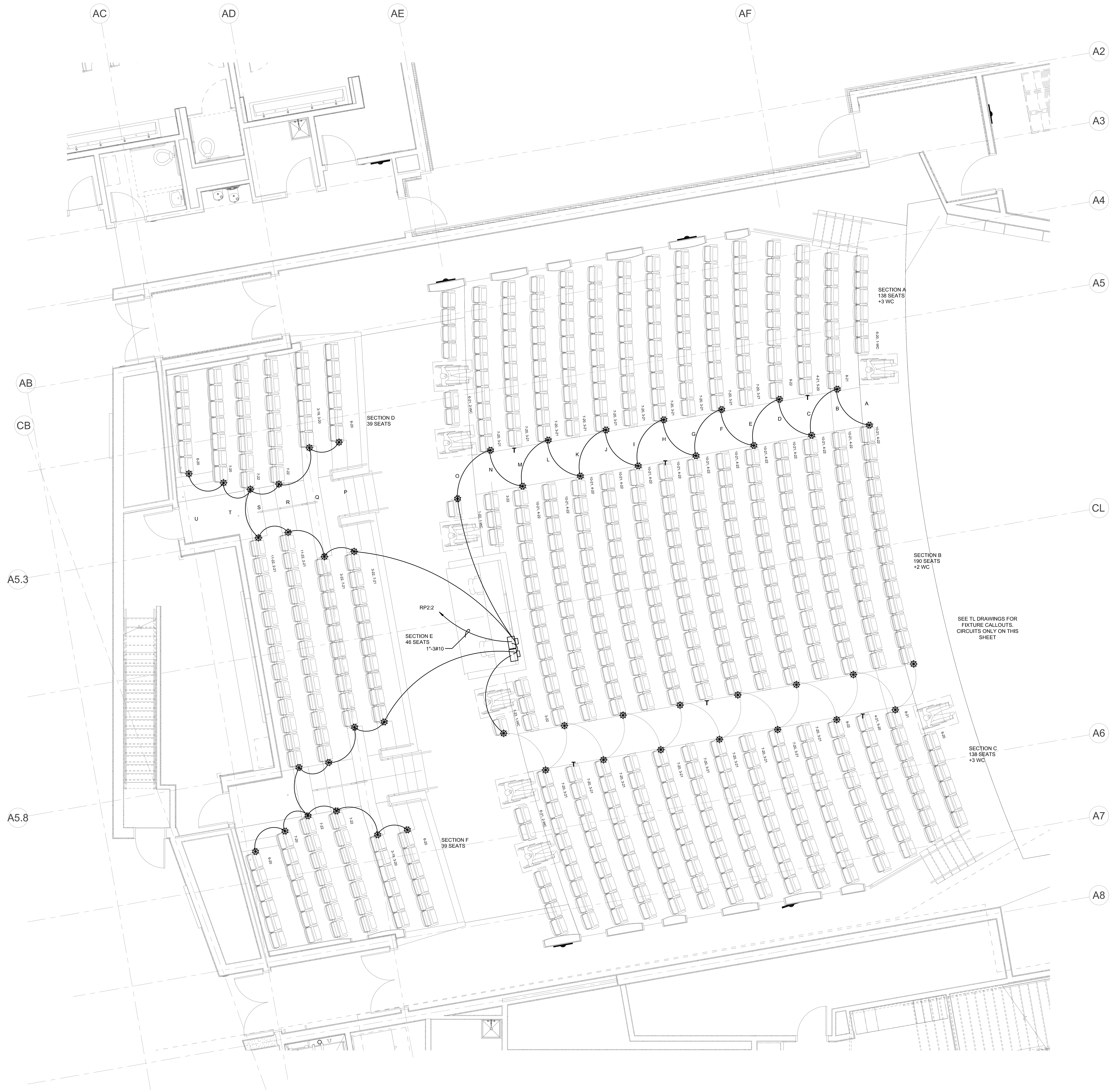

1-MAIN LEVEL-SEATING
1/4" = 1'-0"

GENERAL NOTES

1. SPECIALTY AND DETAIL DRAWINGS FOR THE THEATER/AUDITORIUM AND ASSOCIATED SPACES FALL INTO FOUR CATEGORIES:
   TL = THEATER LIGHTING
   TP = THEATER PRODUCTION EQUIPMENT
   TR = THEATER RIGGING
   TS = THEATER SEATING

   CAREFUL REVIEW AND COORDINATION IS REQUIRED AS EACH SERIES HAS WORK RELATED TO ONE OR MORE OF THE FOLLOWING MAJOR TRADES:
   DIVISION 05 - MISC METALS
   DIVISION 09 - STAGE FLOOR
   DIVISION 11 - STAGE RIGGING AND THEATER PRODUCTION EQUIPMENT
   DIVISION 12 - THEATER SEATING
   DIVISION 26 - ELECTRICAL

2. THE 'TS' SERIES DRAWINGS ARE AN INTEGRAL PART OF THE CONTRACT DOCUMENT PACKAGE, YET SHALL NOT BE CONSIDERED AS ENGINEERING DOCUMENTS. THEY ARE INTENDED TO CONVEY OVERALL AND DETAILED ELEMENTS OF THE THEATER SEATING AND ASSOCIATED SEAT END AISLE LIGHTS.

3. ALL EQUIPMENT, WHERE APPLICABLE STANDARDS HAVE BEEN ESTABLISHED SHALL BE LISTED AND LABLED BY UNDERWRITER'S LABORATORIES OR OTHER APPROVED TESTING AGENCIES. CUSTOM ASSEMBLIES SHALL MEET ALL APPLICABLE CODES AND WHERE LOCAL JURISDICTIONS REQUIRE SHALL BE INSPECTED AND APPROVED BY THE LOCAL CODE AUTHORITY AT CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR INSURING COMPLIANCE WITH ALL APPLICABLE BUILDING, PRODUCT AND INSTALLATION CODES (INCLUDING BUT NOT LIMITED TO THE OSSC AND NEC) THAT ARE IN EFFECT AT THE TIME OF THE INSTALLATION. CORRECTIONS TO ANY PRODUCT, ASSEMBLY OR WORK PERFORMED UNDER THIS CONTRACT TO OBTAIN CODE COMPLIANCE SHALL BE AT CONTRACT'S EXPENSE.

4. CONCRETE REQUIREMENTS:
   - CONCRETE MUST HAVE SUFFICIENT STRENGTH WITH A MINIMUM COMPRESSIVE RATING OF 3000 LBS
   - STRUCTURAL LIGHT WEIGHT CONCRETE REQUIRES A MINIMUM OF 2500 PSI WITH A DRY WEIGHT OF 90-115 LBS PER CUBIC FOOT
   - CONCRETE FLOORS TO BE FLAT, FREE FROM DIPS. RISER FACES TO BE PLUMB, +/- 1/8"

5. FLOOR MOUNTING TO SLAB: MINIMUM 3" THICKNESS WITH A SURFACE 1-1/2" FREE OF WIRE MESH OR REBAR

6. FLOOR MOUNTING TO PAN POURED CONCRETE: DECK MUST HAVE A MINIMUM OF 3" THICKNESS WITH 2" FREE FROM OBSTRUCTIONS MEASURED FROM HIGHEST POINT OF CORRUGATION

7. RISER MOUNTING: MINIMUM 4" THICKNESS WITH 2-1/2" FREE FROM OBSTRUCTIONS FROM THE RISER FACE

8. FLOOR ATTACHMENT HARDWARE SPECIFICATIONS:
   - CONCRETE FLOOR: HILTI QWIK BOLT WEDGE ANCHOR - 1/4"-20 X 3-1/4"
   - CONCRETE RISER: HILTI QWIK BOLT WEDGE ANCHOR - 3/8"-16 X 3"
   - WOOD FLOOR: 1/4" X 2" HEX WASHER HEAD LAG SCREW

SYMBOL LEGEND

Symbol	Description
(seat end aisle light symbol)	SEAT END AISLE LIGHT. INDICATES LOCATION OF SEAT MOUNTED LOW VOLTAGE AISLE LIGHTING
T	DESIGNATED AISLE SEAT. INDICATES LOCATION OF HINGED ARMREST. WHERE SHOWN COMBINED WITH A CHAIR-MOUNTED AISLE LIGHT, FACTORY ENGINEERING FOR CUSTOM FABRICATION IS MANDATORY.
##	SEAT SIZE. - MEASURED ARM CENTER TO ARM CENTER
#	SEAT NUMBER.
MB / MB2	MOBILE BASE. INDICATES LOCATION OF A 1 SEAT OR 2 SEATS MOUNTED TO A PORTABLE BASE. THESE SEATS WHEN MOVED PROVIDE AN OSSC COMPLIANT WHEELCHAIR LOCATION. NOT ALL PROJECTS USE MOBILE BASE SEATS. REFER TO DRAWINGS FOR LOCATIONS.
PS	POWER SUPPLY FOR SEAT END AISLE LIGHTS, FURNISHED UNDER SECTION 126113

FIXED SEATS & PERMANENT WHEELCHAIR SPACES

SECTION	CHAIR SIZE					
	23	22	21	20	19	W/C
A	0	9	48	81	0	3
B	0	60	130	0	0	2
C	0	9	48	81	0	3
D	0	14	0	22	3	0
E	0	28	18	0	0	0
F	0	14	0	22	3	0
BALCONY	0	0	149	5	0	2
SUBOTALS	0	134	393	211	6	10

TOTAL - FIXED SEATS: **744**
TOTAL - PERMANENT WHEELCHAIR SPACES: **10**

THEATER PRODUCTION SHEET INDEX

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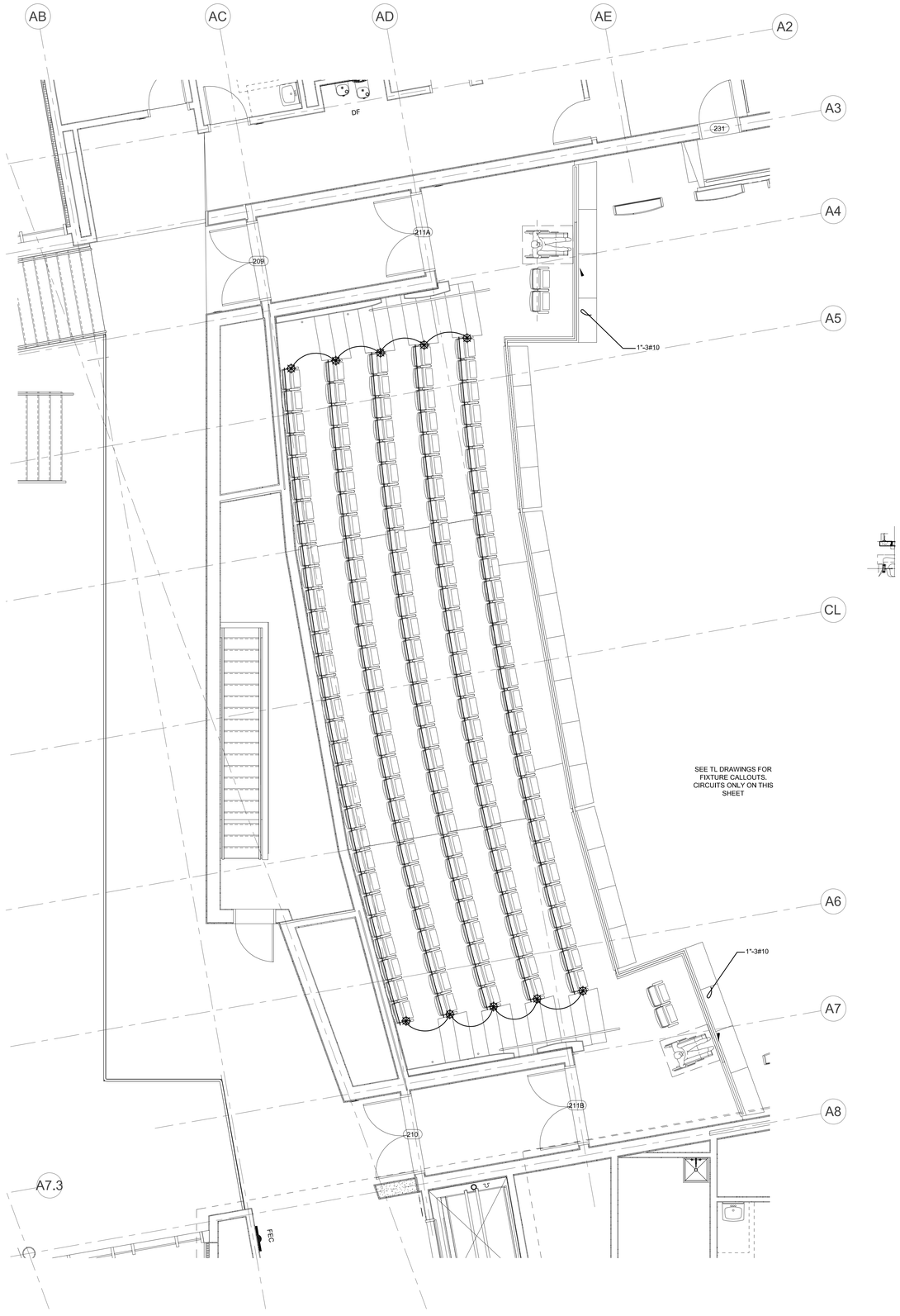
PROJECT NUMBER: 1711

SHEET NAME

THEATER SEATING GENERAL INFORMATION & MAIN LEVEL PLAN

SHEET NUMBER

E-TS1.00



1 2-SIDE TECH - SEATING - LIGHTING
1/4" = 1'-0"

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Travis Fitzmaurice Wartelle Balangue Engineers Inc.
1200 Westlake Ave. N., #509
Seattle, WA 98109

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Silmonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
04.08.2019	VALUE ENGINEERING
10.18.2019	DESIGN DEVELOPMENT
01.06.2020	PERMIT DOCUMENTS
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

THEATER SEATING UPPER LEVEL PLAN & DETAILS

SHEET NUMBER

E-TS2.00

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GENERAL NOTES

1. SPECIALTY AND DETAIL DRAWINGS FOR THE THEATER/AUDITORIUM AND ASSOCIATED SPACES FALL INTO FOUR CATEGORIES:
   TL = THEATER LIGHTING
   TP = THEATER PRODUCTION EQUIPMENT
   TS = THEATER SEATING

   CAREFUL REVIEW AND COORDINATION IS REQUIRED AS EACH SERIES HAS WORK RELATED TO ONE OR MORE OF THE FOLLOWING MAJOR TRADES:
   DIVISION 05 - MISC METALS
   DIVISION 09 - STAGE FLOOR
   DIVISION 12 - THEATER SEATING
   DIVISION 26 - ELECTRICAL

2. THE 'TL' SERIES DRAWINGS ARE AN INTEGRAL PART OF THE CONTRACT DOCUMENT PACKAGE, YET SHALL NOT BE CONSIDERED AS ELECTRICAL ENGINEERING DOCUMENTS. THEY ARE INTENDED TO CONVEY OVERALL AND DETAILED ELEMENTS OF THE AUDITORIUM LIGHTING DESIGN AND AUDITORIUM LIGHTING CONTROL. REFER TO THE CONTRACT DOCUMENTS PREPARED BY THE REGISTERED ELECTRICAL ENGINEER FOR ELECTRICAL CONSTRUCTION ENGINEERING ISSUES.

3. CONNECTING LINES BETWEEN LIGHTING FIXTURES AND/OR DISTRIBUTION DEVICES ARE SHOWN FOR PURPOSES OF ASSIGNING LIGHTS OR DEVICES TO SPECIFIC DIMMERS AND NON-DIMS. THEY ARE NOT TO BE CONSTRUED AS CIRCUITING NOR CONDUIT. REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC INFORMATION ON CONDUIT AND WIRE SIZE, WIRE TYPE, AND ROUTING

4. TL SERIES DRAWINGS DO NOT SHOW EXACT CONDUIT RUNS FOR CONTROL DEVICES. REFER TO TL7.1 FOR RECOMMENDED LIGHTING CONTROL INTERCONNECTION DIAGRAM. ALL CONDUIT, BACK BOXES AND CABLING, UNLESS OTHERWISE NOTED, ARE TO BE FURNISHED AND INSTALLED UNDER DIVISION 26. WHERE CONDUIT SIZES ARE CALLED OUT, NOTED SIZE SHALL BE CONSIDERED AS MINIMUM ACCEPTABLE SIZE. THE INSTALLING DIVISION 26 SUBCONTRACTOR SHALL VERIFY ALL RUNS AND SIZE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, CURRENT EDITION OF THE NEC, INCLUSIVE OF THE STATE AMENDMENTS, AND THE PROJECT GENERAL CONDITIONS AND PROVISIONS FOR MEANS, METHODS AND MATERIALS AS SPECIFIED BY THE REGISTERED PROJECT ELECTRICAL ENGINEER. WHERE CONFLICTS ARISE BETWEEN CONTRACT DOCUMENTS, CODE REQUIREMENTS AND MANUFACTURER RECOMMENDATIONS, CONTRACTOR SHALL INSTALL THE LARGER (HIGHER CAPACITY) ITEM.

5. WIRING TO LIGHTING FIXTURES ON (EM) CIRCUITS MUST BE IN SEPARATE CONDUIT. REFER TO 'E' DRAWINGS & DIV 26 SPECS PREPARED BY ELECTRICAL ENGINEER FOR ADDITIONAL REQUIREMENTS. SEE NOTES 2 & 3 ABOVE

6. ALL EQUIPMENT, WHERE APPLICABLE STANDARDS HAVE BEEN ESTABLISHED SHALL BE LISTED AND LABLED BY UNDERWRITER'S LABORATORIES OR OTHER APPROVED TESTING AGENCIES. CUSTOM ASSEMBLIES SHALL MEET ALL APPLICABLE CODES AND WHERE LOCAL JURISDICTIONS REQUIRE SHALL BE INSPECTED AND APPROVED BY THE LOCAL CODE AUTHORITY AT CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR INSURING COMPLIANCE WITH ALL APPLICABLE BUILDING, PRODUCT AND INSTALLATION CODES (INCLUDING BUT NOT LIMITED TO THE OSSC AND NEC) THAT ARE IN EFFECT AT THE TIME OF THE INSTALLATION. CORRECTIONS TO ANY PRODUCT, ASSEMBLY OR WORK PERFORMED UNDER THIS CONTRACT TO OBTAIN CODE COMPLIANCE SHALL BE AT CONTRACT'S EXPENSE.

7. CONTRACTOR SHALL DIRECT LIGHTING CONTROLS MANUFACTURER TO SET CURVE, SETPOINTS, SMOOTHING AND RESOLUTION OF DIMMER FADE ON ALL LINE VOLTAGE, DIGITAL AND ANALOG SIGNAL SOURCED CIRCUITS SO THAT ALL FIXTURES PERFORM A SMOOTH EMULATION OR ACTUAL SQUARE-LAW FADE APPEARANCE TRACKING WITH EACH OTHER, TO THE BEST DEGREE POSSIBLE, REGARDLESS OF THE MODE USED TO DIM INDIVIDUAL LIGHTING FIXTURES IN THEATRE. CONTRACTOR SHALL PROVIDE DIRECTED MANAGEMENT OF COORDINATION BETWEEN LIGHTING CONTROLS MANUFACTURER AND LIGHTING FIXTURE MANUFACTURERS. CONTRACTOR SHALL EXECUTE COMPLETE AND DETAILED TESTING OF ALL LIGHTING CONTROL DATA WIRING BETWEEN CONTROL SYSTEM AND LIGHTING FIXTURES, AND BETWEEN EACH LIGHTING FIXTURE, IN ACCORDANCE WITH ESTA AND ANSI STANDARDS FOR DMX, RDM AND ACN.

ABBREVIATIONS

ADA	AMERICANS WITH DISABILITIES ACT
AWG	AMERICAN WIRE GAUGE
AFF	ABOVE FINISH FLOOR
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
@	AT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
DS	DOWNSTAGE
DMX/RDM	ANSI STANDARD FOR DIGITAL CONTROL FOR LIGHTING
EQ	EQUAL
EL / ELEV	ELEVATION
EM / EMERG	EMERGENCY
ESTA	ENTERTAINMENT, SERVICE, & TECHNOLOGY ASSOCSIATION
(E)	EXISTING
FACP	FIRE ALARM CONTROL PANEL
FF	FINISH FLOOR
FOH	FRONT OF HOUSE
G/ GND	GROUND
HL	HOUSE LEFT
HR	HOSUE RIGHT
IBC	INTERNATIONAL BUILDING CODE
MAX	MAXIMUM
MFR	MANUFACTURER
MIN	MINIMUM
MR	MIRROR
NA	NOT APPLICABLE
NEC	NATIONAL ELLECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OSSC	OREGON STRUCTURAL SPECIALTY CODE
REF	REFERENCE
REQ	REQUIRED
SIM	SIMILAR
SL	STAGE LEFT
SR	STAGE RIGHT
TBD	TO BE DETERMINED
TYP	TYPICAL
UNO	UNLESS OTHERWISE NOTED
US	UPSTAGE
W/	WITH

SYMBOL LEGEND

(##) **LIGHTING CONTROL DEVICE ID TAG** USE WHEN CROSS REFERENCING CONTROL DEVICES WITH PLANS, THE LIGHTING CONTROL DEVICE SCHEDULE, LIGHTING CONTROL INTERCONNECTION DIAGRAM, & DETAILS.

INDICATES THE NUMBER OF THE CONTROL DEVICE

(##) **STAGE LIGHTING DISTRIBUTION DEVICE ID TAG** USE WHEN CROSS REFERENCING STAGE LIGHTING DISTRIBUTION DEVICES WITH PLANS, THE STAGE LIGHTING DISTRIBUTION DEVICE SCHEDULE, & DETAILS.

INDICATES THE NUMBER OF THE DISTRIBUTION DEVICE

LIGHT FIXTURES REFER TO HOUSE LIGHTING FIXTURE SCHEDULE FOR DETAILED INFORMATION FOR EACH FIXTURE TYPE.

WALL MOUNTED FIXTURE OR 'JELLY JAR' STYLE WORK LIGHT SURFACE MOUNT.

SUSPENDED DOWNLIGHT. REFER TO HOUSE LIGHTING FIXTURE SCHEDULE FOR SPECIFIC SUSPENSION MEANS.

RECESSED DOWNLIGHT. ARROW INDICATOR (IF PRESENT) INDICATES WALL WASHING FIXTURE..

SURFACE MOUNTED SAFETY/STEP LIGHT. AT LOCATIONS OTHER THAN CATWALKS/GALLERIES, MOUNT @ +18" AFF TO FIXTURE LOUVER LINE UNLESS OTHERWISE NOTED. AT CATWALKS AND GALLERIES PIPE MOUNT FIXTURE TO LOWER PIPE MEMBER

FLUSH MOUNTED SAFETY/STEP LIGHT. MOUNT @ +18" AFF TO FIXTURE LOUVER LINE UNLESS OTHERWISE NOTED.

LINEAR FIXTURE. MAY BE RECESSED, SUSPENDED, SURFACE MOUNT IN VARIOUS LENGTHS AND/OR WIDTHS. REFER TO HOUSE LIGHTING FIXTURE SCHEDULE FOR SPECIFIC INFORMATION PER FIXTURE TYPE.

TRACK W/ TRACK HEADS. REFER TO HOUSE LIGHTING FIXTURE SCHEDULE FOR SPECIFIC INFORMATION.

LINEAR SPECIALTY LIGHTING / LED TAPE. REFER TO HOUSE LIGHTING FIXTURE SCHEDULE FOR SPECIFIC INFORMATION PER FIXTURE TYPE.

HXXX EM **NOTES:** 'HXXX' ADJACNET TO FIXTURES ON PLANS INDICATES FIXTURE TYPE. REFER TO HOUSE LIGHTING FIXTURE SCHEDULE. 'EM' (AND/OR FIXTURE SHADING) INDICATES FIXTURE IS EMERGENCY.

MISC DEVICES REFER TO PLAN CALLOUTS FOR ADDITIONAL INFORMATION FOR EACH DEVICE.

$ LINE VOLTAGE SWITCH

$D LINE VOLTAGE SWITCH W/DIMMER

$3 3-WAY SWITCH

DUPLEX RECEPTACLE. NEMA 5-20RD

DOUBLE DUPLEX RECEPTACLE. (2) NEMA 5-20RD IN A SHARED FACEPLATE. MAY BE FLUSH OR PIPE MOUNTED. REFER TO PLANS.

TWIST LOCK RECEPTACLE. (1) NEMA L5-20R MAY BE FLUSH OR PIPE MOUNTED. REFER TO PLANS.

SPECIALTY RECEPTACLE. TYPICALLY (1) NEMA L14-20 OR (1) NEMA L21-20. MAY BE FLUSH OR PIPE MOUNTED. REFER TO PLANS.

HINGE SIDE FLUSH FLOOR POCKET. TYPICALLY IDENTIFIED AS A STAGE LIGHTING DISTRIBUTION DEVICE. REFER TO PLANS AND SCHEDULES.

XX:NN LOAD ASSIGNMENT DESIGNATION. INDICATES PANEL AND CIRCUIT. THE FIRST TWO LETTERS (XX) INDICATE THE SOURCE PANEL. THE SECOND TWO LETTERS (XX) INDICATE THE CIRCUITS. ACTUAL WIRE TYPE, SIZE, AND CONDUIT PATH TO BE DETERMINED BY THE PROJECT'S REGISTERED ELECTRICAL ENGINEER.

DEFINITIONS

CONTROL DEVICE	GENERIC TERM REFERRING TO ALL CONTROL EQUIPMENT INCLUDING BUT NOT LIMITED TO LIGHTING CONTROL STATIONS, WALL PLATES, CONSOLES, CONTROL RECEPTACLES, DIMMER RACKS, & RELAY PANELS. REFER TO LIGHTING CONTROL DEVICE SCHEDULE AND LIGHTING CONTROL DEVICE TYPE DESIGNATOR KEY.
DISTRIBUTION DEVICE	REFERS TO THE SPECIALTY DEVICES (CONNECTOR STRIPS, PLUG BOXES, FLOOR POCKETS, ETC...) THAT CONTAIN THE RECEPTACLES FOR STAGE LIGHTING INSTRUMENTS. REFER TO DISTRIBUTION DEVICE SCHEDULE AND DISTRIBUTION DEVICE YPE DESIGNTOR KEY.
## ELECTRIC	A HISTORIC TERM REFERRING TO THE 'ELECTRIFIED RIGGING PIPE' WHERE LIGHTS ARE HUNG. ELECTRICS ARE NUMBERED SEQUENTIALLY, BEGRIMING CLOSEST TO THE PROSCENIUM ARCH.
FRONT OF HOUSE	THE AUDIENCE SECTION OF THE AUDITORIUM FACILITY ALSO REFEREED TO AS 'ANTE-PROSCENIUM'.
HOUSE LEFT	THE DIRECTION TO THE LEFT OF A PERSON IN THE AUDIENCE, WHEN LOOKING TOWARDS THE STAGE.
HOUSE RIGHT	THE DIRECTION TO THE RIGHT OF A PERSON IN THE AUDIENCE, WHEN LOOKING TOWARDS THE STAGE.
STAGE LEFT	THE DIRECTION TO THE LEFT OF A PERSON STANDING ON STAGE, WHEN LOOKING TOWARD THE HOUSE (AUDIENCE).
STAGE RIGHT	THE DIRECTION TO THE RIGHT OF A PERSON STANDING ON STAGE, WHEN LOOKING TOWARD THE HOUSE (AUDIENCE).
DOWNSTAGE	THE DIRECTION WHEN STANDING ON THE STAGE MOVING TOWARD THE AUDIENCE.
UPSTAGE	THE DIRECTION WHEN STANDING ON STAGE MOVING AWAY FROM THE AUDIENCE TOWARDS THE BACK OF THE STAGE.
BATTEN	METAL PIPE (USUALLY 1.5" I.D. SCH 40) ATTACHED TO THE STAGE RIGGING FOR THE ATTACHMENT OF SCENERY, ELECTRICAL EQUIPMENT, DRAPERY & DRAPERY TRACK. SOMETIMES FLOWN, SOMETIMES DEAD OFF.
C-CLAMP	A 'C' SHAPED PIECE OF METAL, WITH A SCREW THROUGH THE LOWER SEGMENT WHICH CLAMPS TO A BATTEN OR PIPE. USED TO TEMPORARILY ATTACH DEVICES AND STAGE LIGHTING INSTRUMENTS.
CATWALKS	ELEVATED LIGHTING PLATFORM ABOVE THE HOUSE.
GALLERY	ELEVATED PLATFORM ABOVE THE STAGE.
FLOWN	SUSPENDED BY THE STAGE RIGGING IN A WAY THAT ALLOWS THE EQUIPMENT TO BE RAISED AND LOWERED.
DEAD OFF	SUSPENDED BY THE STAGE RIGGING AT A FIXED ELEVATION.
PROSCENIUM	THE DIVIDING WALL OR BARRIER BETWEEN THE AUDIENCE AND STAGE
ARBOR PIT	AN AREA LOCATED BELOW AN OPENING IN THE STAGE FLOOR AT THE STAGE RIGGING SIDE.
CABLE REEL	A DRUM FOR HOLDING VARIOUS TYPES OF ELECTRICAL CABLE THAT WINDS USING SPRINGS OR A MOTOR. THE CABLE IS CONNECTED AT THE HUB OF THE DRUM SO THE CONNECTION TO OTHER SYSTEMS IS MAINTAINED ANS THE DRUM ROTATES.

THEATER LIGHTING SHEET INDEX

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PROJECT INFORMATION

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Kenmore, WA 98028

Northshore School District No. 417

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Northshore School District

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09.16.2019	SITE PLAN REVIEW
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03.23.2020	HEALTH DEPARTMENT PERMIT SUBMITTAL
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

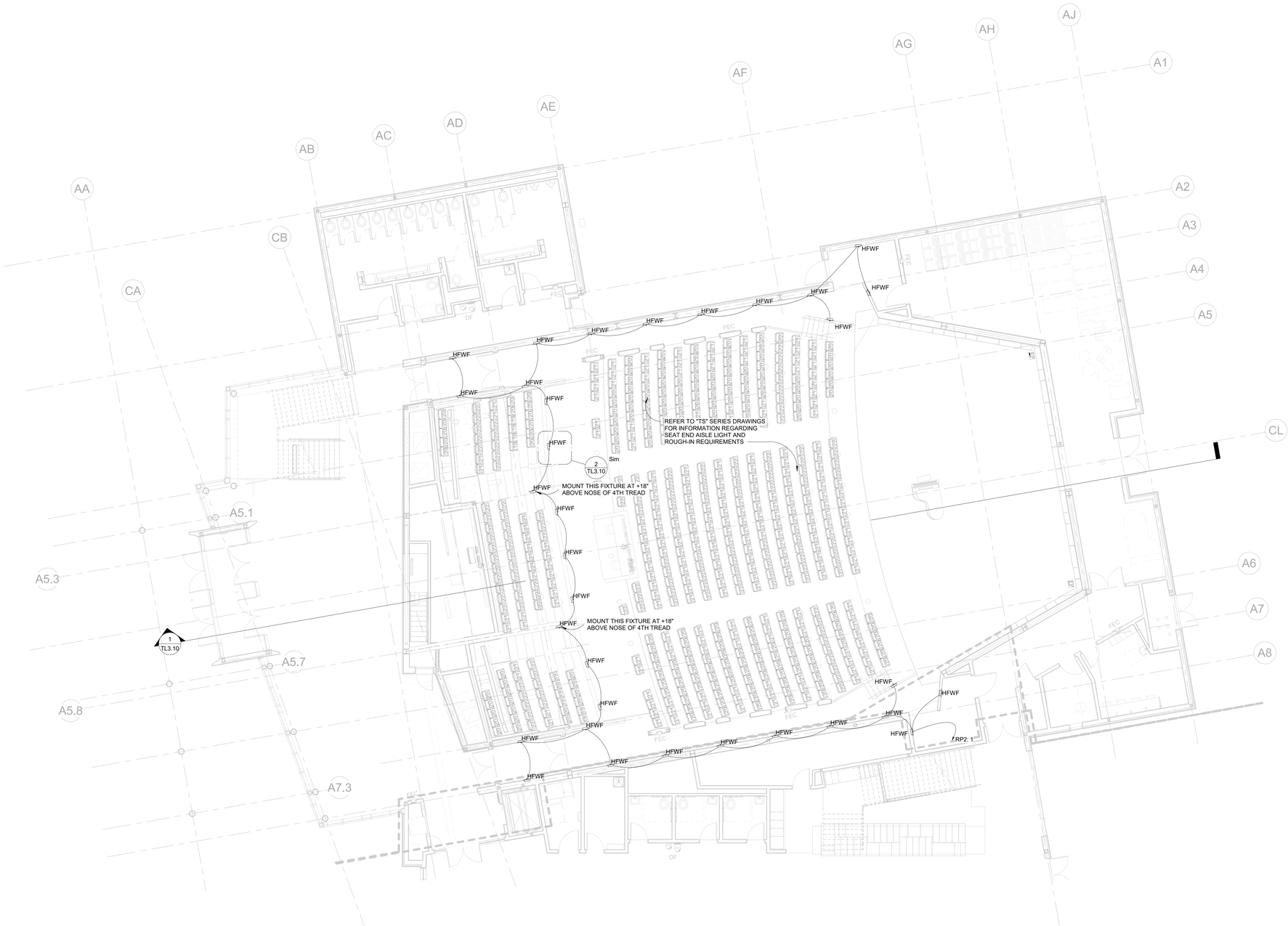
THEATER LIGHTING - GENERAL INFORMATION

SHEET NUMBER

TL0.10

NOTES THIS SHEET

1. CONNECTING LINES BETWEEN LIGHTING FIXTURES AND OR DISTRIBUTION DEVICES ARE SHOWN FOR PURPOSES OF ASSIGNING LIGHTS OR DEVICES TO SPECIFIC DIMMERS AND NON-DIMS. THEY ARE NOT TO BE CONSTRUED AS CIRCUITING NOR CONDUIT. REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC INFORMATION ON CONDUIT AND WIRE SIZE, WIRE TYPE, AND ROUTING.
2. REFER TO TL8.X SERIES DRAWINGS FOR HOUSE LIGHTING FIXTURE SCHEDULE.



1 1-MAIN LEVEL - LIGHTING
1/8" = 1'-0"

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PROJECT NUMBER: 1711

SHEET NAME

THEATER LIGHTING - GENERAL ILLUMINATION

SHEET NUMBER

TL1.10

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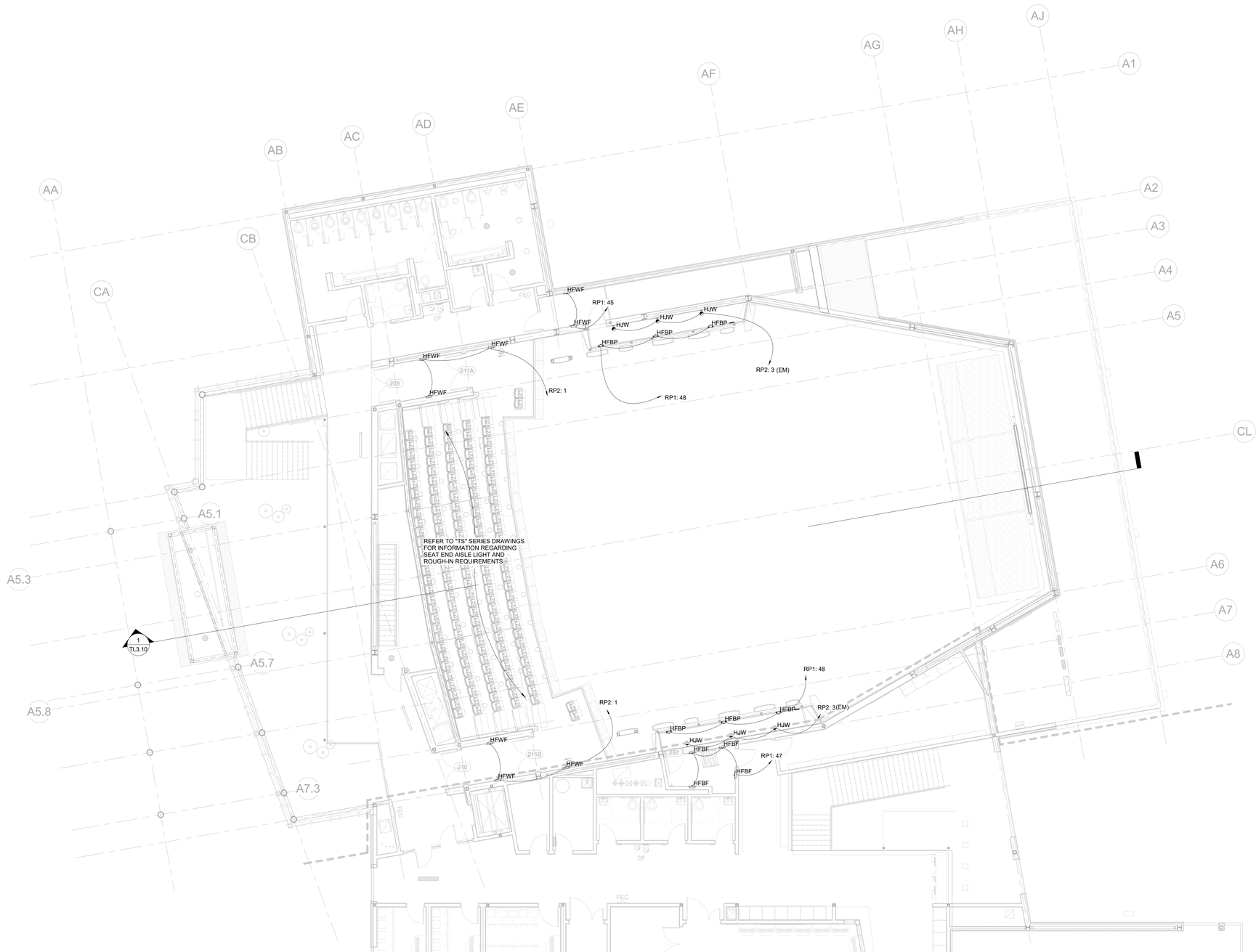

1 2-SIDE TECH
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04.13.2020

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THEATER LIGHTING - GENERAL ILLUMINATION

SHEET NUMBER

TL1.20

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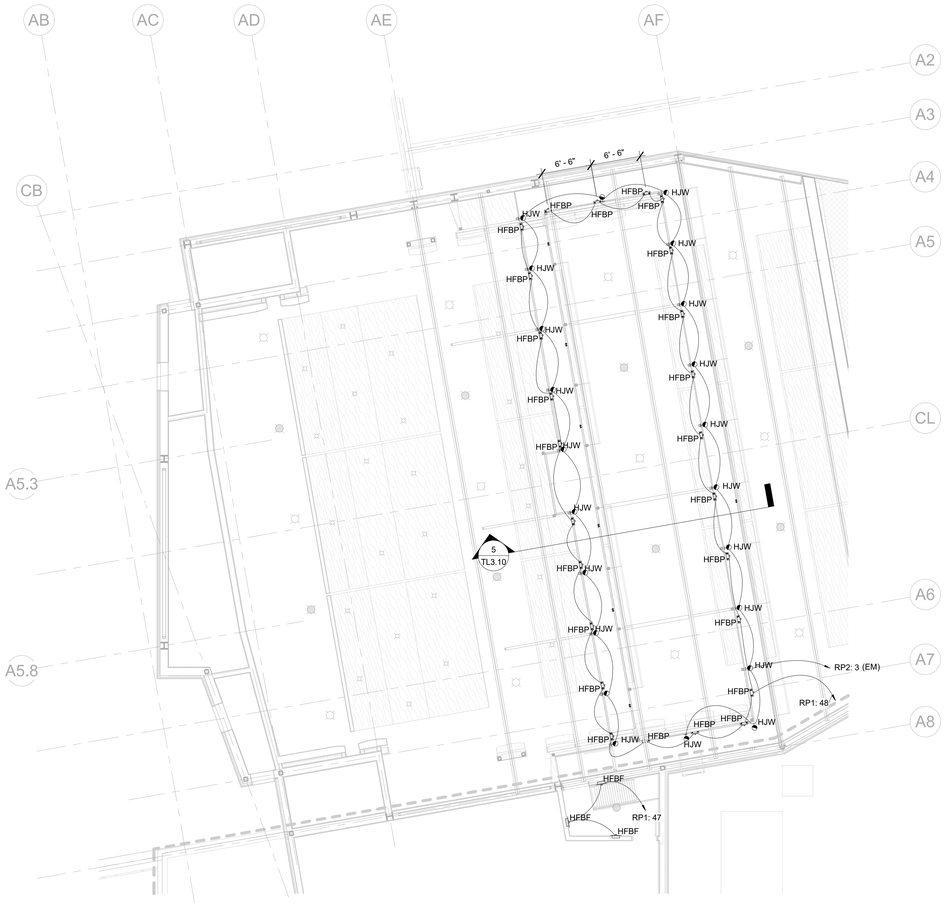
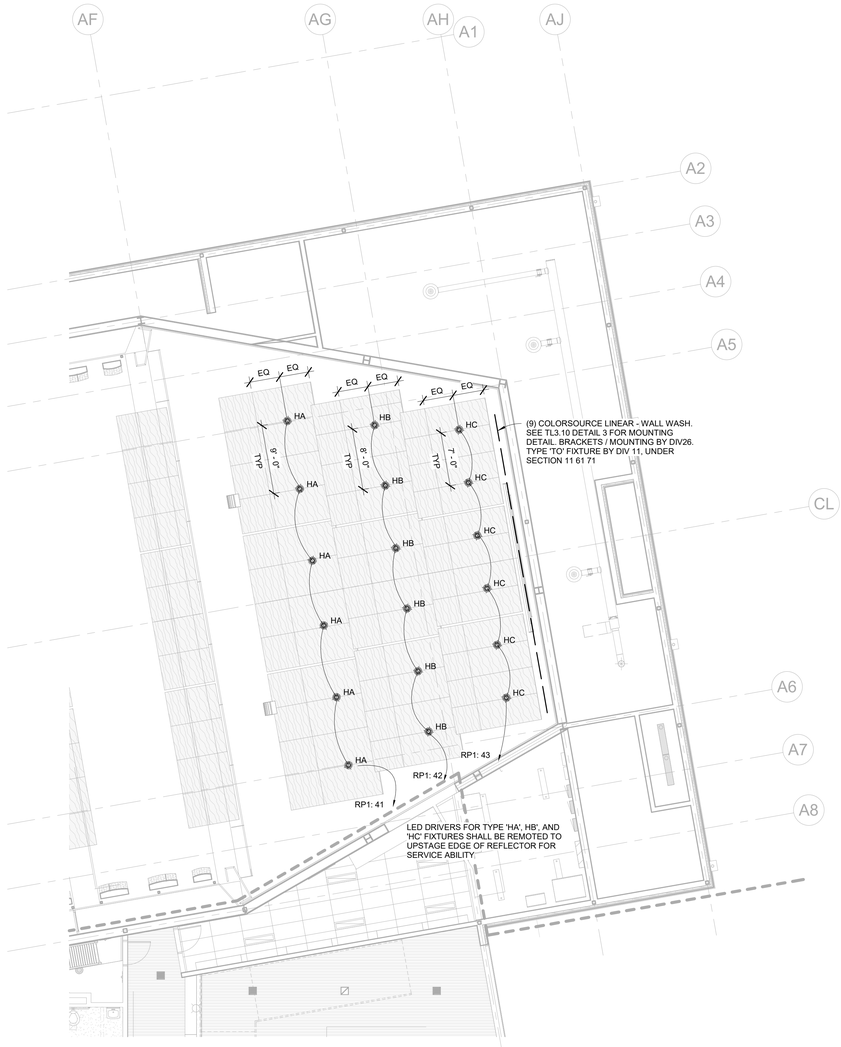


1 CATWALK LEVEL WORK LIGHTING
1/8" = 1'-0"



2 GENERAL LIGHTING OVER STAGE
1/8" = 1'-0"

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04.13.2020

PROJECT NUMBER: 1711

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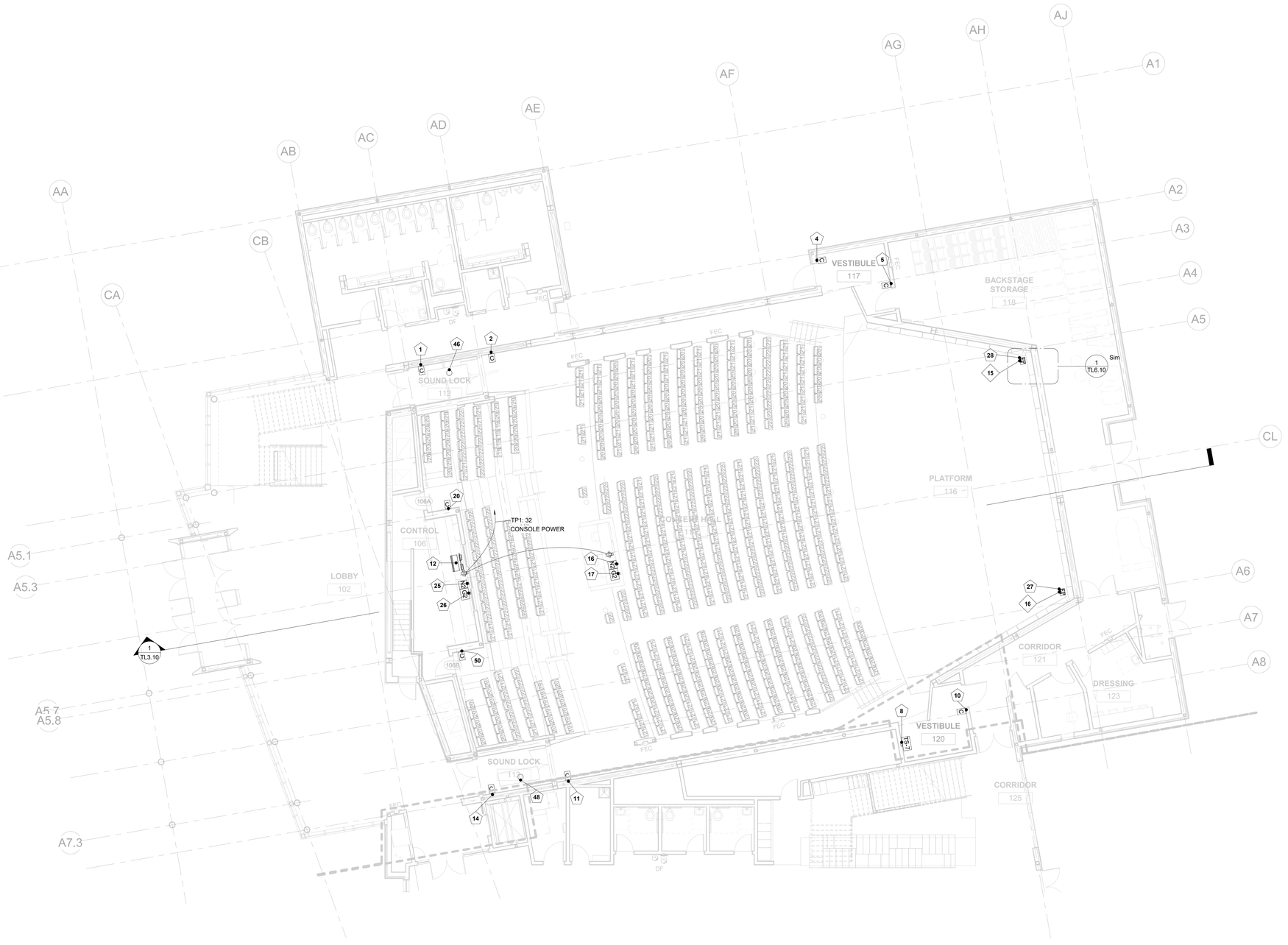
THEATER LIGHTING - GENERAL ILLUMINATION

SHEET NUMBER

TL1.30



1 1-MAIN LEVEL - CONTROL AND DISTRIBUTION
1/8" = 1'-0"

DEVICE TAGS

CONTROL DEVICE ID TAG USE TO CROSS REFERENCE CONTROL DEVICES WITH PLANS, CONTROL DEVICE SCHEDULE (TL8.10) CONTROL INTERCONNECTION DIAGRAM (TL7.10), & DETAILS (TL5.10).

INDICATES THE UNIQUE CONTROL DEVICE NUMBER

SEE CONTROL TYPE SYMBOLS TO IDENTIFY GENERAL TYPE OF CONTROL DEVICE.

STAGE LIGHTING DISTRIBUTION DEVICE ID TAG
USE TO CROSS REFERENCE STAGE LIGHTING DISTRIBUTION DEVICES WITH PLANS, STAGE LIGHTING DISTRIBUTION DEVICE SCHEDULE (TL8.20), & DETAILS (TL6.10).

INDICATES THE UNIQUE DISTRIBUTION DEVICE NUMBER

LABLE ON DEVICE SYMBOL INDICATES THE DISTRIBUTION DEVICE TYPE REFER TO THE DISTRIBUTION DEVICE KEY ON THIS SHEET FOR MORE INFORMATION.

CONTROL TYPE SYMBOLS

C	CONTROL STATION
D	DMX/RDM INPUT
G#	GATEWAY # = QTY OF PORTS
N#	LIGHTING NETWORK # = QTY OF JACKS
S	SMART JACK
X#	DMX/RDM OUTPUT # = QTY OF JACKS

DISTRIBUTION TYPE SYMBOLS

CS	CONNECTOR STRIP
FP	FLOOR POCKET
PB-F	PLUG BOX – FLUSH MOUNT
PB-P	PLUG BOX – PIPE MOUNT
PB-S	PLUG BOX – SURFACE MOUNT

STAGE LIGHTING DISTRIBUTION HOMERUN SCHEDULE

PROJECT: INGLEMOOR HIGH SCHOOL
KENMORE, WA
DATE: 3/20/2020

ID ##	TYPE / MOUNTING	RECEPTACLES	FEED	REMARKS
15	FLOOR POCKET	(3) 5-20R-FL	RP1:31, 32, 33	
		(1) 5-20RD	TP1:15	
		(1) 5 PIN XLR	AUX RACK	DMX OUT
16	FLOOR POCKET	(3) 5-20R-FL	RP1: 34,35 36	
		(1) 5-20RD	TP1:16	
		(1) 5 PIN XLR	AUX RACK	DMX OUT

NOTES:
1. REFER TO DRAWING TL8.20 FOR FULL DISTRIBUTION SCHEDULE

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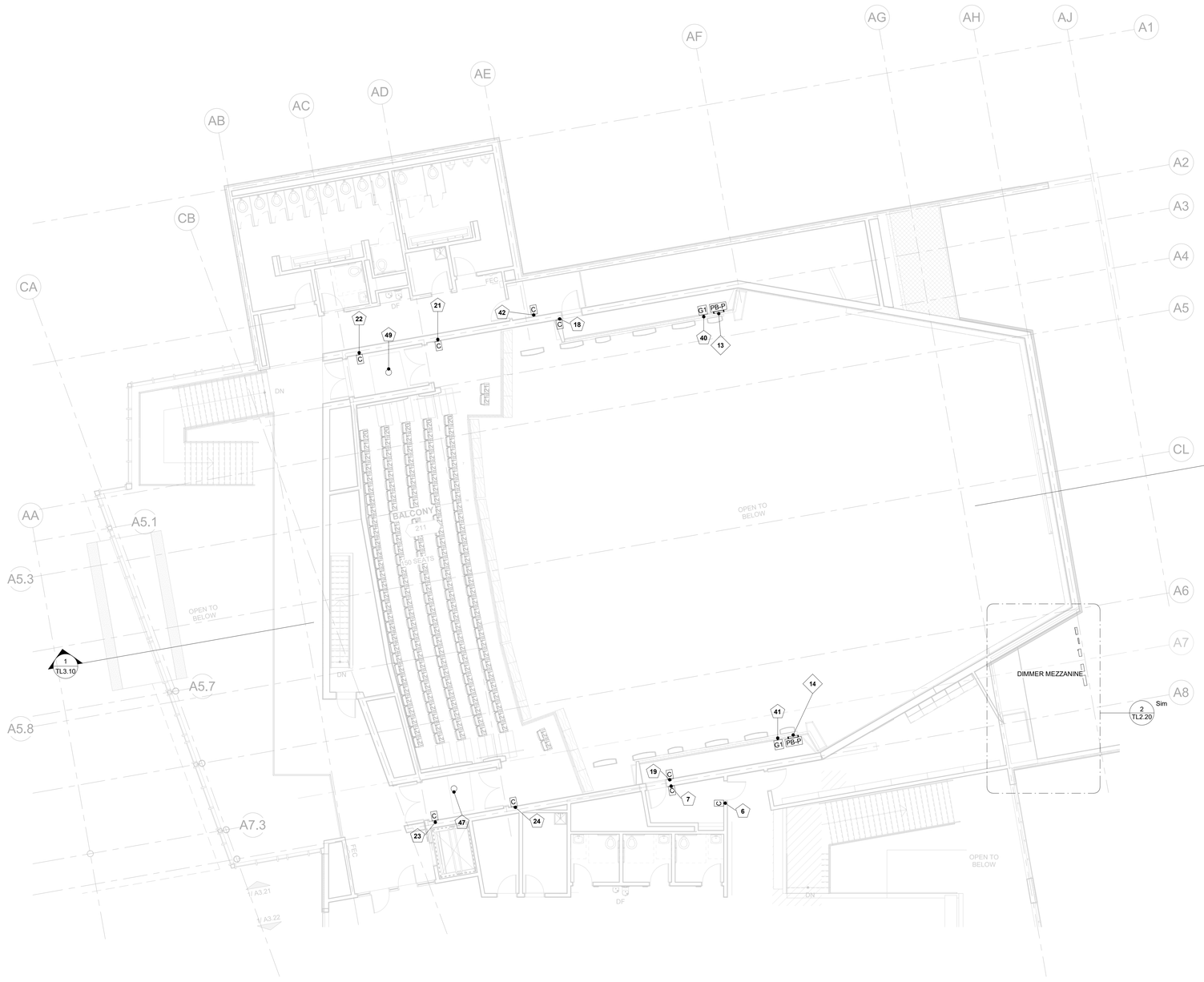
THEATER LIGHTING - CONTROL & DISTRIBUTION

SHEET NUMBER

TL2.10



1 2-SIDE TECH - CONTROL AND DISTRIBUTION
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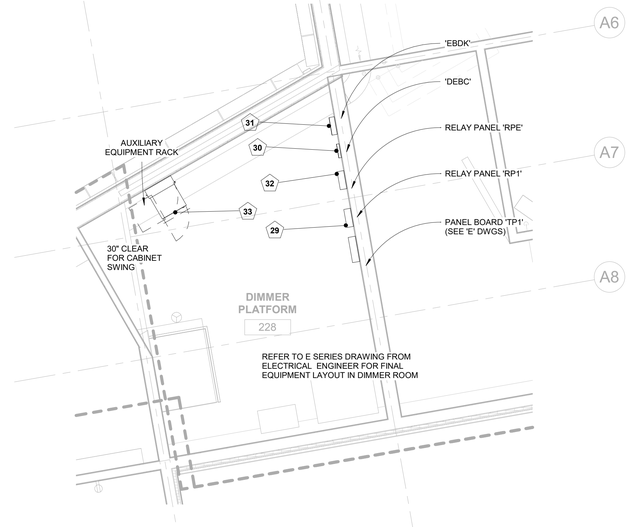

2 DIMMER MEZZANINE - PARTIAL PLAN
1/4" = 1'-0"

STAGE LIGHTING DISTRIBUTION HOMERUN SCHEDULE

PROJECT: INGLEMOOR HIGH SCHOOL
KENMORE, WA
DATE: 3/20/2020

ID ##	TYPE / MOUNTING	RECEPTACLES	FEED	REMARKS
13	PLUGBOX	(3) 5-20C-P36	RP1:25, 26, 27	
	PIPE MOUNT	(1) 5-20RD	TP1:13	
14	PLUGBOX	(3) 5-20C-P36	RP1:28, 29, 30	
	PIPE MOUNT	(1) 5-20RD	TP1:14	

NOTES:
1. REFER TO DRAWING TL8.20 FOR FULL DISTRIBUTION SCHEDULE

DEVICE TAGS

##
CONTROL DEVICE ID TAG USE TO CROSS REFERENCE CONTROL DEVICES WITH PLANS, CONTROL DEVICE SCHEDULE (TL8.10). CONTROL INTERCONNECTION DIAGRAM (TL7.10), & DETAILS (TL5.10).

INDICATES THE UNIQUE CONTROL DEVICE NUMBER

SEE CONTROL TYPE SYMBOLS TO IDENTIFY GENERAL TYPE OF CONTROL DEVICE.

##
STAGE LIGHTING DISTRIBUTION DEVICE ID TAG USE TO CROSS REFERENCE STAGE LIGHTING DISTRIBUTION DEVICES WITH PLANS, STAGE LIGHTING DISTRIBUTION DEVICE SCHEDULE (TL8.20), & DETAILS (TL6.10).

INDICATES THE UNIQUE DISTRIBUTION DEVICE NUMBER

LABLE ON DEVICE SYMBOL INDICATES THE DISTRIBUTION DEVICE TYPE REFER TO THE DISTRIBUTION DEVICE KEY ON THIS SHEET FOR MORE INFORMATION.

CONTROL TYPE SYMBOLS

C	CONTROL STATION
D	DMX/RDM INPUT
G#	GATEWAY # = QTY OF PORTS
N#	LIGHTING NETWORK # = QTY OF JACKS
S	SMART JACK
X#	DMX/RDM OUTPUT # = QTY OF JACKS

DISTRIBUTION TYPE SYMBOLS

CS	CONNECTOR STRIP
FP	FLOOR POCKET
PB-F	PLUG BOX – FLUSH MOUNT
PB-P	PLUG BOX – PIPE MOUNT
PB-S	PLUG BOX – SURFACE MOUNT

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SEATTLE, WA 98118
206.257.2251
pladesigns.com

PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
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03.23.2020	HEALTH DEPARTMENT PERMIT SUBMITTAL
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

THEATER LIGHTING - CONTROL & DISTRIBUTION

SHEET NUMBER

TL2.20

1 4-CATWALK - CONTROL AND DISTRIBUTION
1/8" = 1'-0"

DEVICE TAGS

CONTROL DEVICE ID TAG USE TO CROSS REFERENCE CONTROL DEVICES WITH PLANS, CONTROL DEVICE SCHEDULE (TL8.10) CONTROL INTERCONNECTION DIAGRAM (TL7.10), & DETAILS (TL5.10).

INDICATES THE UNIQUE CONTROL DEVICE NUMBER

SEE CONTROL TYPE SYMBOLS TO IDENTIFY GENERAL TYPE OF CONTROL DEVICE.

STAGE LIGHTING DISTRIBUTION DEVICE ID TAG
USE TO CROSS REFERENCE STAGE LIGHTING DISTRIBUTION DEVICES WITH PLANS, STAGE LIGHTING DISTRIBUTION DEVICE SCHEDULE (TL8.20), & DETAILS (TL6.10).

INDICATES THE UNIQUE DISTRIBUTION DEVICE NUMBER

LABLE ON DEVICE SYMBOL INDICATES THE DISTRIBUTION DEVICE TYPE REFER TO THE DISTRIBUTION DEVICE KEY ON THIS SHEET FOR MORE INFORMATION.

CONTROL TYPE SYMBOLS

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D	DMX/RDM INPUT
G#	GATEWAY # = QTY OF PORTS
N#	LIGHTING NETWORK # = QTY OF JACKS
S	SMART JACK
X#	DMX/RDM OUTPUT # = QTY OF JACKS

DISTRIBUTION TYPE SYMBOLS

CS	CONNECTOR STRIP
FP	FLOOR POCKET
PB-F	PLUG BOX – FLUSH MOUNT
PB-P	PLUG BOX – PIPE MOUNT
PB-S	PLUG BOX – SURFACE MOUNT

STAGE LIGHTING DISTRIBUTION HOME RUN SCHEDULE
PROJECT: INGLEMOOR HIGH SCHOOL
KENMORE, WA
DATE: 3/20/2020

ID ##	TYPE / MOUNTING	RECEPTACLES	FEED	REMARKS
1	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:1, 2 TP1:1	
2	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:3, 4 TP1:2	
3	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:5,6 TP1:3	
4	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:7, 8 TP1:4	
5	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:9,10 TP1:5	
6	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:11,12 TP1:6	
7	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:13,14 TP1:7	
8	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:15, 16 TP1:8	
9	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:17, 18 TP1:9	
10	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:19, 20 TP1:10	
11	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:21, 22 TP1:11	
12	PLUGBOX PIPE MOUNT	(2) 5-20C-P36 (1) 5-20RD	RP1:23, 24 TP1:12	
17	PLUGBOX SURFACE MOUNT	(3) 5-20R-FL (1) 5-20RD	RP1:42,43,44 TP1:17	
18	PLUGBOX SURFACE MOUNT	(3) 5-20R-FL (1) 5-20RD	RP1:42,43,44 TP1:17	
19	PLUGBOX SURFACE MOUNT	(3) 5-20R-FL (1) 5-20RD	RP1:42,43,44 TP1:17	

NOTES:
1. REFER TO DRAWING TL8.20 FOR FULL DISTRIBUTION SCHEDULE

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04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

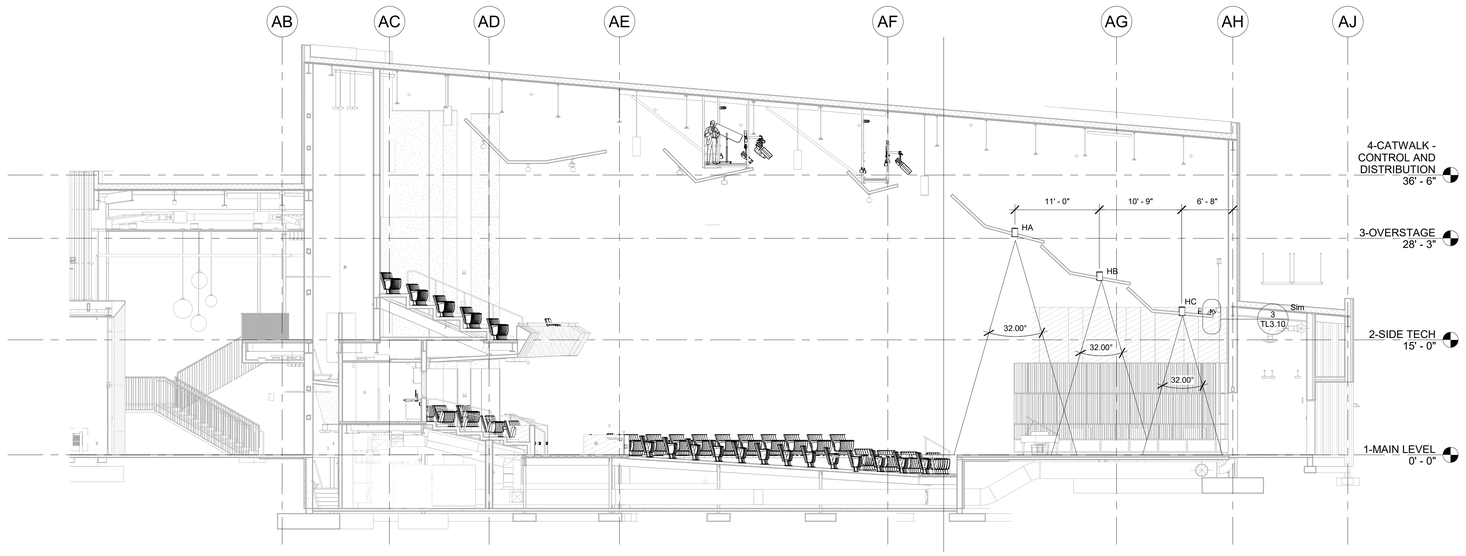
PROJECT NUMBER: 1711

SHEET NAME

THEATER LIGHTING - CONTROL & DISTRIBUTION

SHEET NUMBER

TL2.40



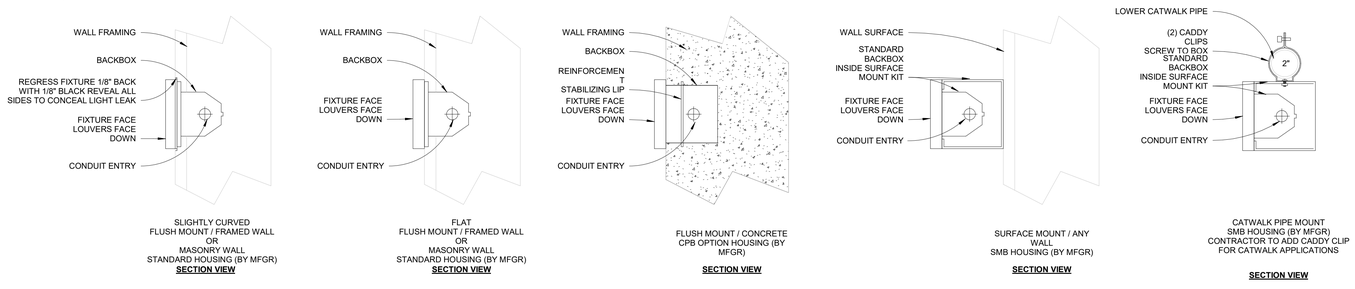
1 Section 1
1/8" = 1'-0"

FACE VIEW

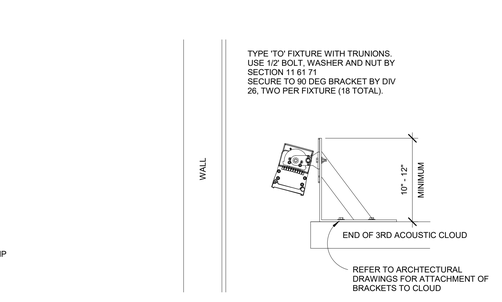
NOTES THIS DETAIL

1. ALL FLUSH AND SURFACE MOUNT STEP LIGHTS ARE MOUNTED AT +18" AFF AT LOCATIONS SHOWN ON PLANS UNLESS OTHERWISE NOTED.
2. PIPE MOUNTED STEP LIGHTS ARE MOUNTED BELOW LOWER CATWALK PIPE AT LOCATIONS SHOWN ON PLANS UNLESS OTHERWISE NOTED
3. ABSOLUTE CUTOFF OF VERTICAL LIGHT SPREAD, BY LOUVER, SHALL BE LOWER THAN 90 DEGREES ABOVE NADIR

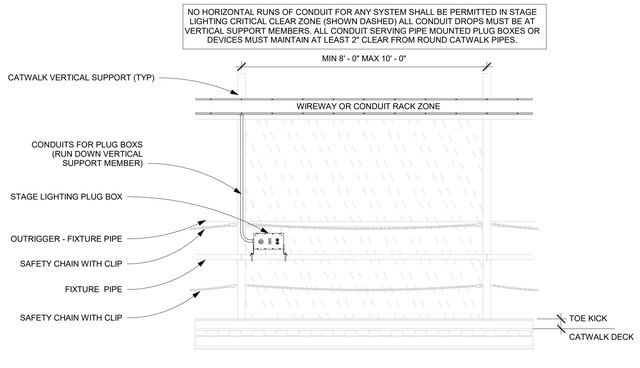
MOUNT FIXTURE SO THAT NO LIGHT LEAK OCCURS AROUND FRAME. CAULK IS NOT ACCEPTABLE.



2 SAFETY STEP LIGHT - MOUNTING DETAILS
3" = 1'-0"

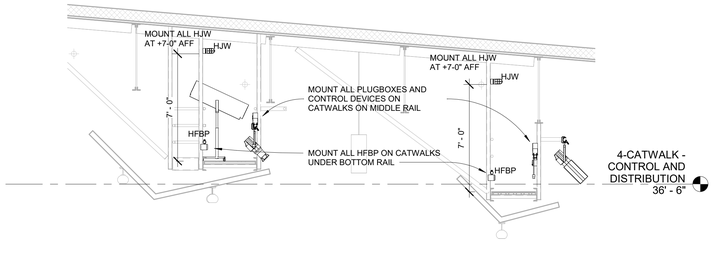


3 FIXTURE TYPE 'TO' MOUNTING
1 1/2" = 1'-0"



THIS DETAIL SHOWS THE REQUIRED CLEAR ZONE FOR FIXTURE LOCATION AND OPTERATION ON CATWALKS. ALL FIXTURE PIPES MUST BE 1-1/2" SCHEDULE 40. ALL SAFTY CHAINS MUST BE 1/4" WELDED LINK PROOF COIL CHAIN WITH LOAD RATED SAFETY CLIP - ADVISE ARCHITECT AND THEATER CONSULTANT OF ANY DEVIATION OR CONFLICT FROM THESE REQUIREMENTS.

4 CATWALK CRITICAL CLEAR ZONE ELEVATION
1/2" = 1'-0"



5 SECTION THROUGH CATWALKS - EQUIPMENT LOCATIONS
1/4" = 1'-0"

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BID DOCUMENTS

04.13.2020

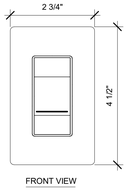
PROJECT NUMBER: 1711

SHEET NAME

THEATER LIGHTING - SECTION

SHEET NUMBER

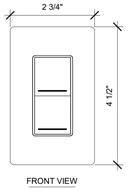
TL3.10



FRONT VIEW

1 LIGHTING CONTROL STATION - (1) BUTTON
6" = 1'-0"

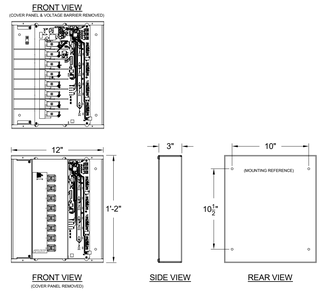
1 14 22 23



FRONT VIEW

2 LIGHTING CONTROL STATION - (2) BUTTON
6" = 1'-0"

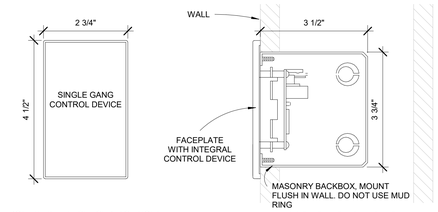
2 3 4 5 6 7 9 10 11 18 19 20 21 24 42 50



FRONT VIEW (COVER PANEL REMOVED) | SIDE VIEW | REAR VIEW

3 FOUNDRY-8
1 1/2" = 1'-0"

32



FRONT VIEW - FLUSH / SURFACE MOUNT

*** REFER TO CONTROL DEVICE SCHEDULE ON SHEET TL8.1 FOR SPECIFIC DEVICE INFORMATION

SIDE VIEW - FLUSH MOUNT

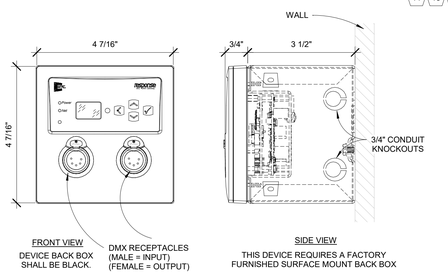
FLUSH 1-GANG DEVICES REQUIRE A RACO #695 (1 GANG) BACKBOX OR EQUIVALENT

SIDE VIEW - SURFACE MOUNT

SURFACE MOUNT 1-GANG DEVICES REQUIRE A FACTORY FURNISHED SURFACE MOUNT BACK BOX

4 ONE-GANG BOX FLUSH/SURFACE MOUNTING
6" = 1'-0"

1 14 22 23 2 3 4 5 6 7 9 10 11 18 19 20 21 24 42



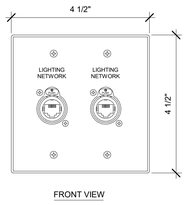
FRONT VIEW
DEVICE BACK BOX SHALL BE BLACK.

DMX RECEPTACLES (MALE = INPUT) (FEMALE = OUTPUT)

SIDE VIEW
THIS DEVICE REQUIRES A FACTORY FURNISHED SURFACE MOUNT BACK BOX

5 2 PORT GATEWAY SURFACE MOUNT1
6" = 1'-0"

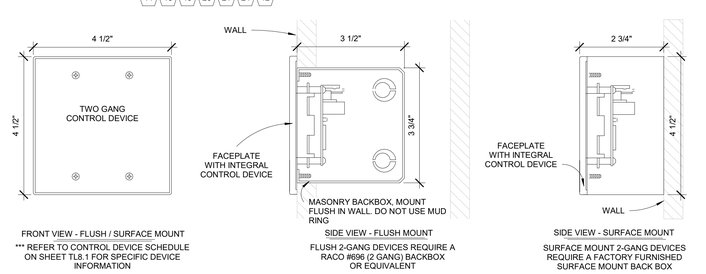
17 26



FRONT VIEW

6 2-PORT LIGHTING NETWORK
6" = 1'-0"

16 25



FRONT VIEW - FLUSH / SURFACE MOUNT

*** REFER TO CONTROL DEVICE SCHEDULE ON SHEET TL8.1 FOR SPECIFIC DEVICE INFORMATION

SIDE VIEW - FLUSH MOUNT

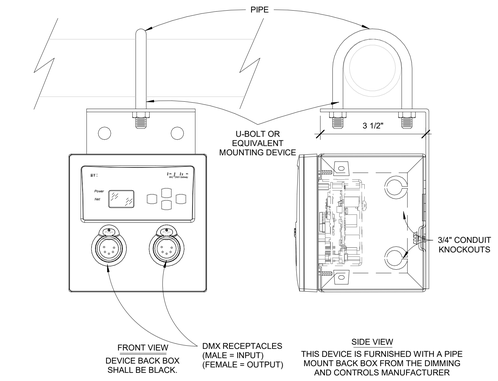
FLUSH 2-GANG DEVICES REQUIRE A RACO #696 (2 GANG) BACKBOX OR EQUIVALENT

SIDE VIEW - SURFACE MOUNT

SURFACE MOUNT 2-GANG DEVICES REQUIRE A FACTORY FURNISHED SURFACE MOUNT BACK BOX

7 TWO-GANG FLUSH/SURFACE MOUNTING
6" = 1'-0"

16 25



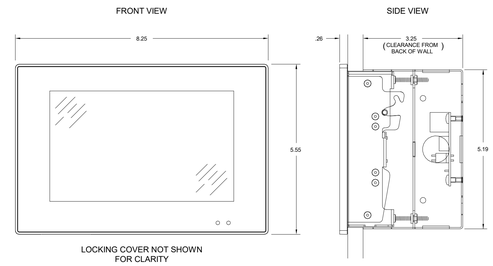
FRONT VIEW
DEVICE BACK BOX SHALL BE BLACK.

DMX RECEPTACLES (MALE = INPUT) (FEMALE = OUTPUT)

SIDE VIEW
THIS DEVICE IS FURNISHED WITH A PIPE MOUNT BACK BOX FROM THE DIMMING AND CONTROLS MANUFACTURER

8 2 PORT GATEWAY PIPE MOUNT1
6" = 1'-0"

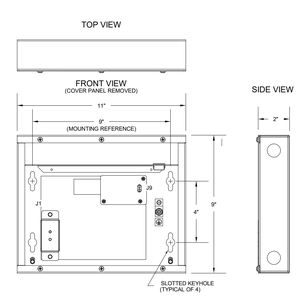
34 35 36 37 38 39 40 41



LOCKING COVER NOT SHOWN FOR CLARITY

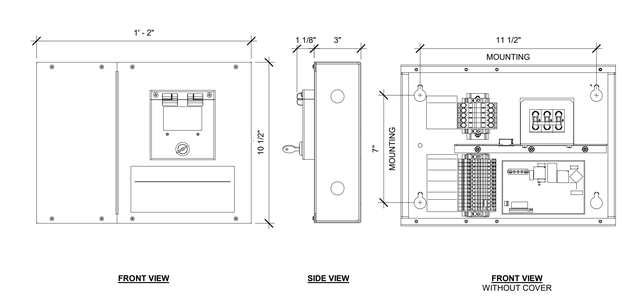
9 7" TOUCHSCREEN WMT
6" = 1'-0"

8



10 DMX EMERGENCY BYPASS CONTROLLER
3" = 1'-0"

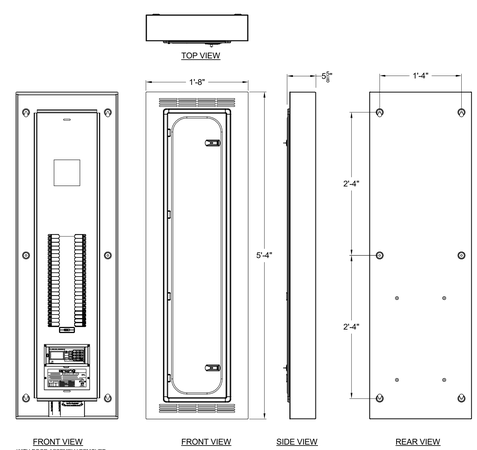
30



FRONT VIEW | SIDE VIEW | FRONT VIEW WITHOUT COVER

11 EMERGENCY BYPASS DETECTION KIT
3" = 1'-0"

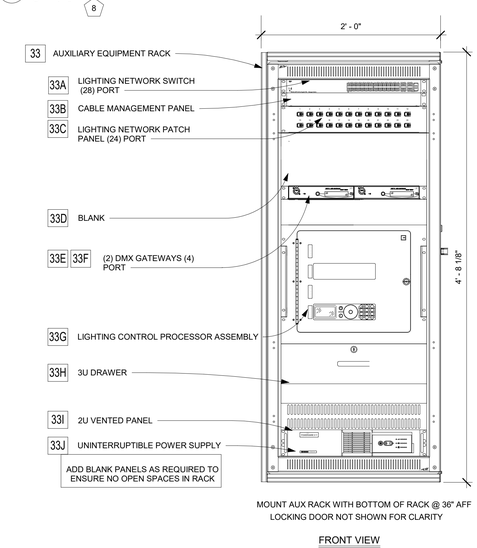
31



FRONT VIEW
WITH DOOR ASSEMBLY REMOVED | FRONT VIEW | SIDE VIEW | REAR VIEW

12 SENSOR IQ-48 RELAY PANEL
1" = 1'-0"

29

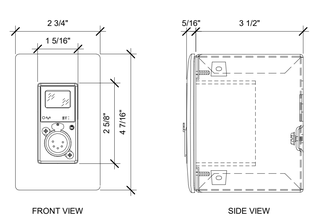


MOUNT AUX RACK WITH BOTTOM OF RACK @ 36" AFF
LOCKING DOOR NOT SHOWN FOR CLARITY

FRONT VIEW

16 AUX RACK - ELEVATION DETAIL
1 1/2" = 1'-0"

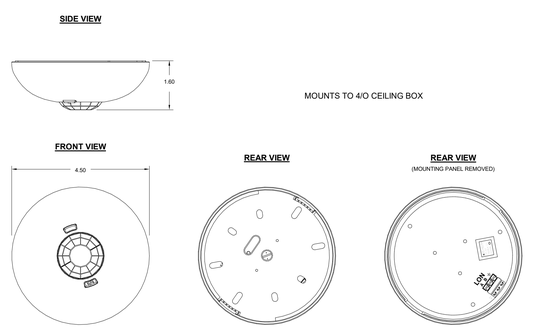
33



FRONT VIEW | SIDE VIEW

13 1 PORT GATEWAY - SURFACE MOUNT
6" = 1'-0"

43 44 45



14 OCCUPANCY SENSOR
6" = 1'-0"

46 THRU 49

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BID DOCUMENTS

04.13.2020

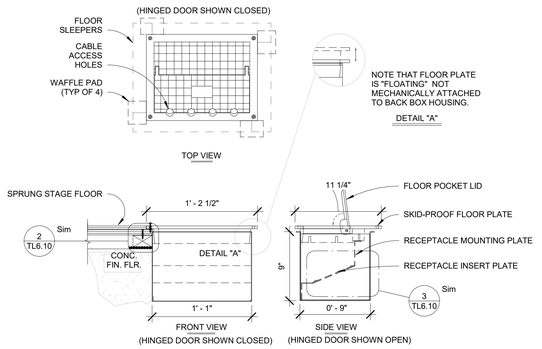
PROJECT NUMBER: 1711

SHEET NAME

THEATER LIGHTING - CONTROL EQUIPMENT DETAILS

SHEET NUMBER

TL5.10



NOTES (THIS DETAIL):

1.) EACH FLOOR POCKET ASSEMBLY CONSISTS OF A 16 GA. GALVANIZED HOUSING, FLOOR PLATE, AND ONE 14 GA. STEEL RECEPTACLE MOUNTING PLATE. FLOOR PLATE IS 3/8" GRADE 30 CAST IRON WITH A SKID-PROOF SURFACE CONTAINING A SELF-CLOSING HINGED DOOR AND FOUR CABLE ACCESS HOLES.

2.) HOUSING, FLOOR PLATE, AND RECEPTACLE PLATE ARE FINISHED IN A FLAT BLACK FINE-TEXTURED POWDER COAT.

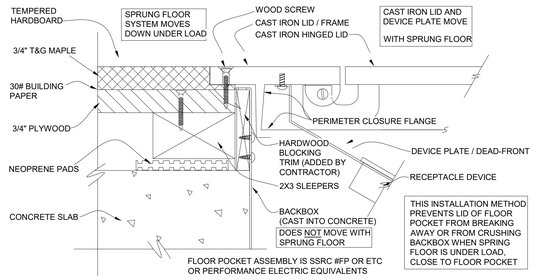
3.) FLOOR PLATE ATTACHES TO THE FLOOR WITH FOUR WOOD SCREWS.

4.) THE CONTRACTOR, UNDER DIVISION 26 SHALL COORDINATE PLACEMENT WITH STAGE FLOOR INSTALLER TO ASSURE PERIMETER SLEEPERS ARE INSTALLED AT EACH FLOOR POCKET.

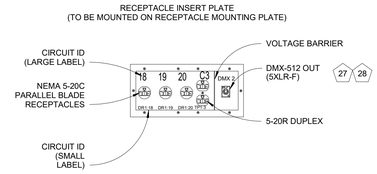
5.) PERIMETER SLEEPERS SHALL BE PROVIDED WITH ISOLATION PADS AT EACH CORNER JOINT FOR SUPPORT .

1 FLOOR POCKET - DETAIL - CUSTOM
1 1/2" = 1'-0"

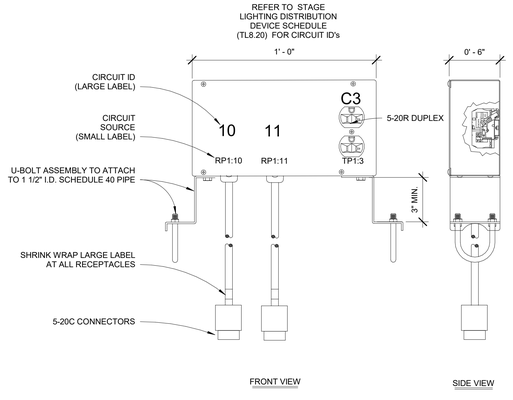
15 16



2 FLOOR POCKET LID ATTACHMENT DETAIL-CUSTOM
6" = 1'-0"

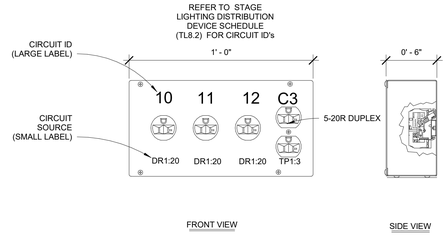


3 FLOOR POCKET RECEPTACLE INSERT PLATE - DETAIL
1 1/2" = 1'-0"



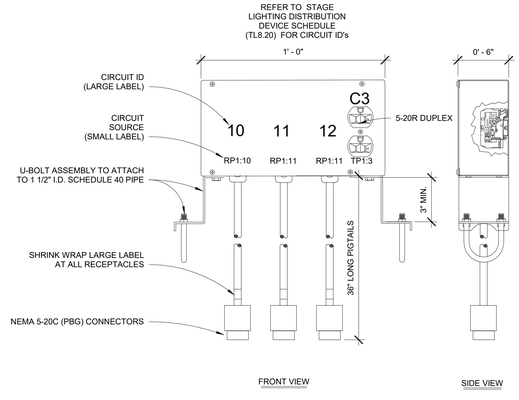
4 DISTRIBUTION DEVICE - PLUG BOX PIPE MOUNT 3 CKT
3" = 1'-0"

1 THRU 12



5 DISTRIBUTION DEVICE -PLUG BOX SURFACE MOUNT
3" = 1'-0"

17 18 19



6 DISTRIBUTION DEVICE - PLUGBOX PIPE MOUNT 4CKT
3" = 1'-0"

13 14

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.2019	SCHEMATIC DESIGN
04.08.2019	VALUE ENGINEERING
09.16.2019	SITE PLAN REVIEW
10.18.2019	DESIGN DEVELOPMENT
01.13.2020	CONSTRUCTABILITY REVIEW
03.23.2020	HEALTH DEPARTMENT PERMIT SUBMITTAL
04.13.2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

THEATER LIGHTING - DISTRIBUTION DETAILS

SHEET NUMBER

TL6.10

NOTES THIS SHEET

1. LIGHTING NETWORK WIRING IS IDENTICAL TO COMPUTER NETWORK LAN WIRING - MAXIMUM RUN LENGTH IS 100 M (330 Feet).

2. TO THE MOST PRACTICAL EXTENT POSSIBLE, ALL CONTROL WIRING SHALL BE INSTALLED IN METALLIC CONDUIT. IN LOCATIONS WHERE THIS IS NOT PRACTICAL, CABLING MAY BE RUN OPEN WITHOUT METALLIC CONDUIT, PROVIDED THAT THE FOLLOWING CRITERIA ARE FOLLOWED:
   A. CABLING MUST MEET OR EXCEED THE SHIELDING AND JACKET RATINGS OF THE CABLES LISTED FOR 'CABLE NOT IN CONDUIT' IN THE CABLE SCHEDULES ON THE TL7.x DRAWING SHEETS.
   B. CABLES MUST BE ROUTED WHERE THEY ARE NOT LIKELY SUBJECT TO PHYSICAL DAMAGE OR INTERFERENCE FROM RADIATIVE DEVICES OR WIRING.
   C. TERMINATION OF ALL FITTINGS TO CABLING MUST BE PERFORMED CORRECTLY.
   D. CONNECTION TO DEVICES MUST BE STURDY AND SECURE
   E. CABLES MUST BE APPROPRIATELY LASHED AND SECURED IN AN ACCEPTABLE MANNER.
   F. CABLES MUST BE RUN SO AS TO NOT CAUSE A VISUAL DISTRACTION.
   G. CABLING INSIDE WALLS SHALL BE RUN IN A SLEEVE DOWN TO A BACKBOX. SLEEVE MUST BE STUBBED UP INTO AN ACCESSIBLE AREA.
   H. IEEE RESTRICTIONS MUST BE APPLIED FOR ALL CABLE TYPES SERVING VARIOUS SIGNAL TYPES.

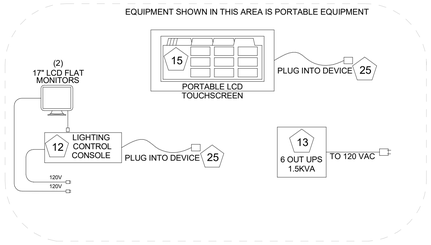
IF ANY OF CONDITIONS 2. A. THROUGH 2. H. CANNOT BE GUARANTEED FOR ANY RUN SEGMENT, THEN THAT SEGMENT MUST BE RUN IN METALLIC, BONDED RACEWAY.

3. TL SERIES DRAWINGS DO NOT SHOW EXACT CONDUIT RUNS FOR CONTROL DEVICES. ALL CONDUIT, BACK BOXES AND CABLING, UNLESS OTHERWISE NOTED, ARE TO BE FURNISHED AND INSTALLED UNDER DIVISION 26. WHERE CONDUIT SIZES ARE CALLED OUT, NOTED SIZE SHALL BE CONSIDERED AS MINIMUM ACCEPTABLE SIZE. THE INSTALLING DIVISION 26 SUBCONTRACTOR SHALL VERIFY ALL RUNS AND SIZE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, CURRENT EDITION OF THE NEC, INCLUSIVE OF THE STATE AMENDMENTS, AND THE PROJECT GENERAL CONDITIONS AND PROVISIONS FOR MEANS, METHODS AND MATERIALS AS SPECIFIED BY THE REGISTERED PROJECT ELECTRICAL ENGINEER. WHERE CONFLICTS ARISE BETWEEN CONTRACT DOCUMENTS, CODE REQUIREMENTS AND MANUFACTURER RECOMMENDATIONS, CONTRACTOR SHALL INSTALL THE LARGER (HIGHER CAPACITY) ITEM.

4. VERIFY ALL WIRE/CABLE TYPES, QUANTITIES AND INTERCONNECTION REQUIREMENTS FROM MFGR SUBMITTALS PRIOR TO CABLE ROUGH IN. CABLE TYPES LISTED ARE FOR PRODUCTS AS MANUFACTURED BY ELECTRONIC THEATER CONTROLS (ETC). CONTRACTOR IS RESPONSIBLE FOR PROVISION AND INSTALLATION OF PROPER CABLE AND CABLE TYPES

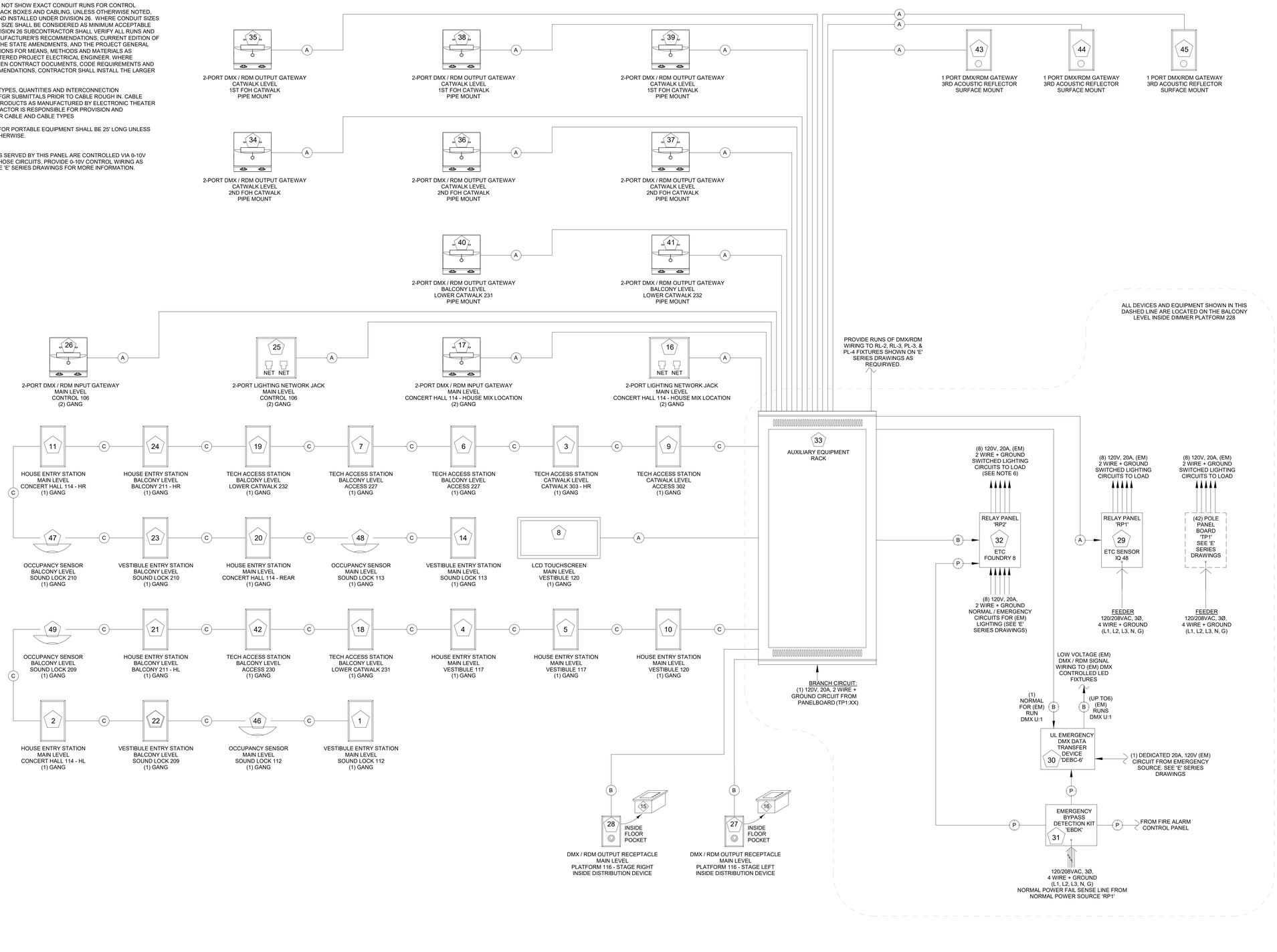
5. CONTROL DATA CABLES FOR PORTABLE EQUIPMENT SHALL BE 25' LONG UNLESS SPECIFICALLY NOTED OTHERWISE.

6. SOME LIGHTING FIXUTRES SERVED BY THIS PANEL ARE CONTROLLED V/A 0-10V CONTROL SIGNAL. FOR THOSE CIRCUITS, PROVIDE 0-10V CONTROL WIRING AS REQUIRED. REFER TO THE 'E' SERIES DRAWINGS FOR MORE INFORMATION.



LIGHTING SYSTEM - L.V. CONTROL CABLE SCHEDULE

KEY	FUNCTION	CABLE IN CONDUIT	CABLE NOT IN CONDUIT
A	LIGHTING NETWORK	BELDEN #1583A (CAT5)	BELDEN #1533P (CAT5)
A1	LIGHTING NETWORK WITH GROUND	BELDEN #1583A (CAT5) + (1) #14 AWG	BELDEN #1533P (CAT5) + (1) #14 AWG
B	DMX 512 (ANSI E1.11)	BELDEN #1583A (CAT5)	BELDEN #1533P (CAT5)
B1	DMX 512 (ANSI E1.11)	BELDEN #9729 (2 PAIR)	BELDEN #89729 (2 PAIR)
C	ECHELON LINK	BELDEN #8471 + (1) #14 AWG	BELDEN #6200UE + (1) #14 AWG
D	ECHELON LINK + POWER	BELDEN #8471 + (1) #14 AWG AND (2) #16 AWG	BELDEN #6200UE + (1) #14 AWG AND (2) #16 AWG
E	LIGHTING NETWORK	N/A	PROPLEX #PC248T
P	PANIC	(2) #18 AWG	N/A



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04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

THEATER LIGHTING - INTERCONNECTION DIAGRAM

SHEET NUMBER

TL7.10

LIGHTING CONTROL DEVICE SCHEDULE

PROJECT: INGLEMOOR HIGH SCHOOL
KENMORE, WA
DATE: 3/20/2020

ALL CONTROL DEVICES REPRESENTED ON PLANS AND DETAIL BY PENTAGON SYMBOL (##)

BB=BACKBOX, WHO SUPPLIES BACKBOX:
"M" FOR MANUFACTURER SPECIAL BOX
"E" FOR DIVISION 26 STANDARD BOX

AUDITORIUM

CONTROL DEVICE ID	MFG'S	MODEL / SERIES	FUNCTION	PLAN / LOCATION / MOUNTING LEVEL	LOCATION	MOUNTING	SHT/DETAIL	REQ'D BACKBOX	BB	PHYSICAL SHT/DETAIL	FINISH	REMARKS
1	ETC	PI1001	VESTIBULE ENTRY STATION	MAIN	SOUND LOCK 112	FLUSH MOUNT, +44" AFF	TL2.10/1	1 GANG	E	TL5.10/1	CREAM	
2	ETC	PI1002	HOUSE ENTRY STATION	MAIN	CONCERT HALL 114 - HL	FLUSH MOUNT, +44" AFF	TL2.10/1	1 GANG	E	TL5.10/2	CREAM	
3	ETC	PI1002	TECH ACCESS STATION	CATWALK	CATWALK 303 - HR	FLUSH MOUNT, +44" AFF	TL2.40/1	1 GANG	E	TL5.10/2	BLACK	
4	ETC	PI1002	HOUSE ENTRY STATION	MAIN	VESTIBULE 117	FLUSH MOUNT, +44" AFF	TL2.10/1	1 GANG	E	TL5.10/2	CREAM	
5	ETC	PI1002	HOUSE ENTRY STATION	MAIN	VESTIBULE 117	FLUSH MOUNT, +44" AFF	TL2.10/1	1 GANG	E	TL5.10/2	CREAM	
6	ETC	PI1002	TECH ACCESS STATION	BALCONY	ACCESS 227	FLUSH MOUNT, +44" AFF	TL2.20/1	1 GANG	E	TL5.10/2	BLACK	
7	ETC	PI1002	TECH ACCESS STATION	BALCONY	ACCESS 227	FLUSH MOUNT, +44" AFF	TL2.20/1	1 GANG	E	TL5.10/2	BLACK	
8	ETC	PTS-7	PARADIGM TOUCHSCREEN, 7"	MAIN	VESTIBULE 120	FLUSH MOUNT, +44" AFF	TL2.10/1	FLUSH	M	TL5.10/9	BLACK	PROVIDE WITH FLUSH LOCKING COVER
9	ETC	PI1002	TECH ACCESS STATION	CATWALK	ACCESS 302	FLUSH MOUNT, +44" AFF	TL2.40/1	1 GANG	E	TL5.10/2	BLACK	
10	ETC	PI1002	HOUSE ENTRY STATION	MAIN	VESTIBULE 120	FLUSH MOUNT, +44" AFF	TL2.10/1	1 GANG	E	TL5.10/2	CREAM	
11	ETC	PI1002	HOUSE ENTRY STATION	MAIN	CONCERT HALL 114 - HR	FLUSH MOUNT, +44" AFF	TL2.10/1	1 GANG	E	TL5.10/2	CREAM	
12	ETC	ELEMENT 2	STAGE LIGHTING CONSOLE	N/A	PORTABLE EQUIPMENT	STORE IN CONTROL BOOTH	N/A	N/A	N/A	N/A	N/A	PROVIDE AS SPECIFIED IN 26 09 61
13	POWERWARE	UPS-1000R	PORTABLE DESKTOP UPS	N/A	PORTABLE EQUIPMENT	STORE IN CONTROL BOOTH	N/A	N/A	N/A	N/A	N/A	
14	ETC	PI1001	VESTIBULE ENTRY STATION	MAIN	SOUND LOCK 113	FLUSH MOUNT, +44" AFF	TL2.10/1	1 GANG	E	TL5.10/1	CREAM	
15	ETC	P-TS7-PE	PORTABLE TOUCHSCREEN 7"	N/A	PORTABLE EQUIPMENT	STORE IN CONTROL BOOTH	N/A	N/A	N/A	N/A	N/A	
16	ETC	ECPB 2-NET	2 PORT LIGHTING NETWORK JACK	MAIN	CONCERT HALL 114 - HOUSE MIX LOCATION	FLUSH WALL MOUNT @ +18" AFF	TL2.10/1	2 GANG	E	TL5.10/6	BLACK	
17	ETC	N32G-2M	2-PORT DMX / RDM INPUT GATEWAY	MAIN	CONCERT HALL 114 - HOUSE MIX LOCATION	FLUSH WALL MOUNT, 1 GANG	TL2.10/1	2 GANG	E	TL5.10/5	BLACK	
18	ETC	PI1002	TECH ACCESS STATION	BALCONY	LOWER CATWALK 231	FLUSH MOUNT, +44" AFF	TL2.20/1	1 GANG	E	TL5.10/2	BLACK	
19	ETC	PI1002	TECH ACCESS STATION	BALCONY	LOWER CATWALK 232	FLUSH MOUNT, +44" AFF	TL2.20/1	1 GANG	E	TL5.10/2	BLACK	
20	ETC	PI1002	HOUSE ENTRY STATION	MAIN	CONCERT HALL 114 - REAR, NEAR DOOR 106A	FLUSH MOUNT, +44" AFF	TL2.10/1	1 GANG	E	TL5.10/2	CREAM	
21	ETC	PI1002	HOUSE ENTRY STATION	BALCONY	BALCONY 211 - HL	FLUSH MOUNT, +44" AFF	TL2.20/1	1 GANG	E	TL5.10/2	CREAM	
22	ETC	PI1001	VESTIBULE ENTRY STATION	BALCONY	SOUND LOCK 209	FLUSH MOUNT, +44" AFF	TL2.20/1	1 GANG	E	TL5.10/1	CREAM	
23	ETC	PI1001	VESTIBULE ENTRY STATION	BALCONY	SOUND LOCK 210	FLUSH MOUNT, +44" AFF	TL2.20/1	1 GANG	E	TL5.10/1	CREAM	
24	ETC	PI1002	HOUSE ENTRY STATION	BALCONY	BALCONY 211 - HR	FLUSH MOUNT, +44" AFF	TL2.20/1	1 GANG	E	TL5.10/2	CREAM	
25	ETC	ECPB 2-NET	2 PORT LIGHTING NETWORK JACK	MAIN	CONTROL 106	FLUSH WALL MOUNT @ +18" AFF	TL2.10/1	2 GANG	E	TL5.10/6	BLACK	
26	ETC	N32G-2M	2-PORT DMX / RDM INPUT GATEWAY	MAIN	CONTROL 106	FLUSH WALL MOUNT @ +18" AFF	TL2.10/1	2 GANG	E	TL5.10/5	BLACK	
27	ETC	ECPB DMX-OUT	DMX/RDM OUTPUT RECEPTACLE	MAIN	PLATFORM 116 STAGE LEFT	INSIDE DISTRIBUTION DEVICE	TL2.10/1	N/A	M	TL6.10/3	N/A	IN FLOOR POCKET #16
28	ETC	ECPB DMX-OUT	DMX/RDM OUTPUT RECEPTACLE	MAIN	PLATFORM 116 - STAGE RIGHT	INSIDE DISTRIBUTION DEVICE	TL2.10/1	N/A	M	TL6.10/3	N/A	IN FLOOR POCKET #15
29	ETC	SENSOR IQ	RELAY PANEL 'RP1'	BALCONY	DIMMER PLATFORM 228	SURFACE	TL2.20/1	N/A	N/A	TL5.10/12	N/A	
30	ETC	DEBC-6	DMX EMERGENCY BYPASS CONTROLLER	BALCONY	DIMMER PLATFORM 228	SURFACE	TL2.20/1	N/A	N/A	TL5.10/10	N/A	
31	ETC	EBDK	EMERGENCY BYPASS DETECTION KIT	BALCONY	DIMMER PLATFORM 228	SURFACE	TL2.20/1	N/A	N/A	TL5.10/11	N/A	
32	ETC	FOUNDRY 8	RELAY PANEL 'RPE'	BALCONY	DIMMER PLATFORM 228	SURFACE	TL2.20/1	N/A	N/A	TL5.10/3	N/A	
33	MIDDLE ATLANTIC	DWR SERIES RACK	RACK	BALCONY	DIMMER PLATFORM 228	SURFACE	TL2.20/1	N/A	M	TL5.10/16	N/A	
33A	CISCO	SG300-28PP-K9	(28) PORT NETWORK SWITCH	BALCONY	DIMMER PLATFORM 228	INSIDE DEVICE 33	N/A	N/A	M	TL5.10/16	N/A	
33B	MIDDLE ATLANTIC	BR2	CABLE BRUSH PANEL	BALCONY	DIMMER PLATFORM 228	INSIDE DEVICE 33	N/A	N/A	M	TL5.10/16	N/A	
33C	ETC	2100A2008	(24) PORT NETWORK PATCH PANEL	BALCONY	DIMMER PLATFORM 228	INSIDE DEVICE 33	N/A	N/A	M	TL5.10/16	N/A	
33D	MIDDLE ATLANTIC	4-BLK	4 U BLANK	BALCONY	DIMMER PLATFORM 228	INSIDE DEVICE 33	N/A	N/A	M	TL5.10/16	N/A	
33E	ETC	RSN-TERM	4 PORT GATEWAY	BALCONY	DIMMER PLATFORM 228	INSIDE DEVICE 33	N/A	N/A	M	TL5.10/16	N/A	
33F	ETC	RSN-TERM	4 PORT GATEWAY	BALCONY	DIMMER PLATFORM 228	INSIDE DEVICE 33	N/A	N/A	M	TL5.10/16	N/A	
33G	ETC	ERn4-RM-120	LIGHTING CONTROL PROCESSOR	BALCONY	DIMMER PLATFORM 228	INSIDE DEVICE 33	N/A	N/A	M	TL5.10/16	N/A	
33H	MIDDLE ATLANTIC	D3LK	3U LOCKING DRAWER	BALCONY	DIMMER PLATFORM 228	INSIDE DEVICE 33	N/A	N/A	M	TL5.10/16	N/A	
33I	MIDDLE ATLANTIC	VTB-2	2U VENTED BLANK PANEL	BALCONY	DIMMER PLATFORM 228	INSIDE DEVICE 33	N/A	N/A	M	TL5.10/16	N/A	
33J	MIDDLE ATLANTIC	UPS-1000R	1.0KVA RACK MOUNT UPS	BALCONY	DIMMER PLATFORM 228	INSIDE DEVICE 33	N/A	N/A	M	TL5.10/16	N/A	
34	ETC	RSN-DMX2-O-4-UBOLT	GATEWAY- 2 PORT, DMX OUT, UBOLT	CATWALK	2ND FOH CATWALK	PIPE MOUNT	TL2.30/1	N/A	M	TL5.10/8	BLACK	
35	ETC	RSN-DMX2-O-4-UBOLT	GATEWAY- 2 PORT, DMX OUT, UBOLT	CATWALK	1ST FOH CATWALK	PIPE MOUNT	TL2.30/1	N/A	M	TL5.10/8	BLACK	
36	ETC	RSN-DMX2-O-4-UBOLT	GATEWAY- 2 PORT, DMX OUT, UBOLT	CATWALK	2ND FOH CATWALK	PIPE MOUNT	TL2.30/1	N/A	M	TL5.10/8	BLACK	
37	ETC	RSN-DMX2-O-4-UBOLT	GATEWAY- 2 PORT, DMX OUT, UBOLT	CATWALK	2ND FOH CATWALK	PIPE MOUNT	TL2.30/1	N/A	M	TL5.10/8	BLACK	
38	ETC	RSN-DMX2-O-4-UBOLT	GATEWAY- 2 PORT, DMX OUT, UBOLT	CATWALK	1ST FOH CATWALK	PIPE MOUNT	TL2.30/1	N/A	M	TL5.10/8	BLACK	
39	ETC	RSN-DMX2-O-4-UBOLT	GATEWAY- 2 PORT, DMX OUT, UBOLT	CATWALK	1ST FOH CATWALK	PIPE MOUNT	TL2.30/1	N/A	M	TL5.10/8	BLACK	
40	ETC	RSN-DMX2-O-4-UBOLT	GATEWAY- 2 PORT, DMX OUT, UBOLT	BALCONY	LOWER CATWALK 231	PIPE MOUNT	TL2.20/1	N/A	M	TL5.10/8	BLACK	
41	ETC	RSN-DMX2-O-4-UBOLT	GATEWAY- 2 PORT, DMX OUT, UBOLT	BALCONY	LOWER CATWALK 232	PIPE MOUNT	TL2.20/1	N/A	M	TL5.10/8	BLACK	
42	ETC	PI1002	TECH ACCESS STATION	BALCONY	ACCESS 230	FLUSH MOUNT, +44" AFF	TL2.20/1	1 GANG	E	TL5.10/2	BLACK	
43	ETC	RSN-DMX1-O-1SBD-4	GATEWAY - 1 PORT, DMX OUT	3RD SHELL	REAR OF 3RD REFLECTOR	SURFACE MOUNT	TL2.40/1	N/A	M	TL5.10/13	BLACK	
44	ETC	RSN-DMX1-O-1SBD-4	GATEWAY - 1 PORT, DMX OUT	3RD SHELL	REAR OF 3RD REFLECTOR	SURFACE MOUNT	TL2.40/1	N/A	M	TL5.10/13	BLACK	
45	ETC	RSN-DMX1-O-1SBD-4	GATEWAY - 1 PORT, DMX OUT	3RD SHELL	REAR OF 3RD REFLECTOR	SURFACE MOUNT	TL2.40/1	N/A	M	TL5.10/13	BLACK	
46	ETC	P-OCC	OCCUPANCY SENSOR	MAIN	SOUND LOCK 112	FLUSH IN CEILING	TL2.20/1	4/O	E	N/A	CREAM	
47	ETC	P-OCC	OCCUPANCY SENSOR	BALCONY	SOUND LOCK 210	FLUSH IN CEILING	TL2.20/1	4/O	E	N/A	CREAM	
48	ETC	P-OCC	OCCUPANCY SENSOR	MAIN	SOUND LOCK 113	FLUSH IN CEILING	TL2.20/1	4/O	E	N/A	CREAM	
49	ETC	P-OCC	OCCUPANCY SENSOR	BALCONY	SOUND LOCK 209	FLUSH IN CEILING	TL2.20/1	4/O	E	N/A	CREAM	
50	ETC	PI1002	HOUSE ENTRY STATION	MAIN	CONCERT HALL 114 - REAR, NEAR DOOR 106B	FLUSH MOUNT, +44" AFF	TL2.10/1	1 GANG	E	TL5.10/2	CREAM	

GENERAL COMMENTS:
1. ALL CONTRACTOR FURNISHED GANG BACKBOXES SHALL BE ONE-PIECE, MASONRY STYLE, WITH DEVICE EARS INWARD; MINIMUM 3.5" DEEP.
2. ALTHOUGH THIS INFORMATION IS BELIEVED TO BE CORRECT AND HAS BEEN PROVIDED TO THE BEST OF OUR ABILITY, VARIANTS FROM ONE MANUFACTUER TO THE OTHER AND EQUIPMENT DESIGN CHANGES BY THE MANUFACUTER MAY RESULT IN CHANGES. THE MANUFACTURER SUBMITTALS ARE THE FINAL AUTHORITY ON ALL DEVICE REQUIREMENTS.
3. CROSS REFERENCE THIS SCHEDULE WITH PLANS, SYSTEM INTERCONNECT DIAGRAM, DETAILS, & PROGRAMMING SCHEDULE FOR ADDITIONAL INFORMATION
4. VERIFY EXACT REQUIREMENTS OF ALL DEVICES WITH MANUFACTURERS PRIOR TO FABRICATION.

DMX RELAY CABINET SCHEDULE, PANEL 'RP1'

PROJECT: INGLEMOOR HIGH SCHOOL
KENMORE, WA
DATE: 3/20/2020

SENSOR IQ-48 (29)

PHYSICAL POSITION	DMX ADDRESS	RELAY TYPE	DESCRIPTION	LABEL	LOAD	FIXTURE... OR DEVICE ID
1	1	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 1	1	300	1
2	2	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 1	2	300	1
3	3	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 1	3	300	2
4	4	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 1	4	300	2
5	5	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 1	5	300	3
6	6	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 1	6	300	3
7	7	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 1	7	300	4
8	8	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 1	8	300	4
9	9	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 1	9	300	5
10	10	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 1	10	300	5
11	11	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 1	11	300	6
12	12	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 1	12	300	6
13	13	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 2	13	300	7
14	14	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 2	14	300	7
15	15	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 2	15	300	8
16	16	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 2	16	300	8
17	17	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 2	17	300	9
18	18	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 2	18	300	9
19	19	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 2	19	300	10
20	20	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 2	20	300	10
21	21	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 2	21	300	11
22	22	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 2	22	300	11
23	23	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 2	23	300	12
24	24	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FOH 2	24	300	12
25	25	120V, 20A, 1 Pole	PRODUCTION NON-DIM -HL	25	300	13
26	26	120V, 20A, 1 Pole	PRODUCTION NON-DIM -HL	26	300	13
27	27	120V, 20A, 1 Pole	PRODUCTION NON-DIM -HL	27	300	13
28	28	120V, 20A, 1 Pole	PRODUCTION NON-DIM -HL	28	300	13
29	29	120V, 20A, 1 Pole	PRODUCTION NON-DIM -HR	29	300	14
30	30	120V, 20A, 1 Pole	PRODUCTION NON-DIM -HR	30	300	14
31	31	120V, 20A, 1 Pole	PRODUCTION NON-DIM -HR	31	300	14
32	32	120V, 20A, 1 Pole	PRODUCTION NON-DIM -HR	32	300	14
33	33	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FP-USL	33	300	15
34	34	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FP-USL	34	300	15
35	35	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FP-USL	35	300	15
36	36	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FP-USR	36	300	16
37	37	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FP-USR	37	300	16
38	38	120V, 20A, 1 Pole	PRODUCTION NON-DIM - FP-USR	38	300	16
39	39	120V, 20A, 1 Pole	SHELL 1	39	900	HA
40	40	120V, 20A, 1 Pole	SHELL 2	40	900	HB
41	41	120V, 20A, 1 Pole	SHELL 3	41	900	HC
42	42	120V, 20A, 1 Pole	SHELL WALL	42	200	TO*
43	43	120V, 20A, 1 Pole	SHELL WALL	43	200	TO*
44	44	120V, 20A, 1 Pole	SHELL WALL	44	200	TO*
45	45	120V, 20A, 1 Pole	CATWALK ACCESS BLUE - HL	45	30	HFBF
46	46	120V, 20A, 1 Pole	GHOST LIGHT	46	50	TL*
47	47	120V, 20A, 1 Pole	CATWALK ACCESS BLUE - HR	47	70	HFBF
48	48	120V, 20A, 1 Pole	CATWALK BLUE	48	310	HFBP

* TYPE TO AND TYPE TL FURNISHED UNDER DIV 11

DMX RELAY CABINET SCHEDULE, PANEL 'RP2'

PROJECT: INGLEMOOR HIGH SCHOOL
KENMORE, WA
DATE: 3/20/2020

FOUNDRY (32)

PHYSICAL POSITION	DMX ADDRESS	RELAY TYPE	DESCRIPTION	LABEL	LOAD	FIXTURE... OR DEVICE ID
1	1	120V, 20A, 1 Pole	HOUSE AISLE WHITE		400	HFWF
2	2	120V, 20A, 1 Pole	SEAT END LIGHTS		100	note 2
3	3	120V, 20A, 1 Pole	CATWALK WHITE (EM)		400	HJW
4	4	120V, 20A, 1 Pole	HOUSE 1 (EM)		note 1	
5	5	120V, 20A, 1 Pole	HOUSE 2 (EM)		note 1	
6	6	120V, 20A, 1 Pole	HOUSE 3		note 1	
7	7	120V, 20A, 1 Pole	HOUSE 4		note 1	
8	8	120V, 20A, 1 Pole	HOUSE VESTIBULES(EM)		note 1	

NOTES:
1. LIGHTING CONNECTED TO RP2, RELAYS 4 THROUGH 8 IS SPECIFIED ON "E" DRAWINGS
2. SEAT END AISLE LIGHTS ARE FURNING UNDER DIV 12 AND INSTALLED UNDER DIV 26

Power Panel TP1

PROJECT: INGLEMOOR HIGH SCHOOL
KENMORE, WA
DATE: 3/20/2020

DESCRIPTION	OUTPUT TO DEVICE	AMPS / POLES	ID TP1:xx	PHASE A	PHASE B	PHASE C	ID TP1:xx	AMPS / POLES	OUTPUT TO...	DESCRIPTION
PRODUCTION CONSTANT	1	20/1	**1**	X			**2**	20/1	2	PRODUCTION CONSTANT
PRODUCTION CONSTANT	3	20/1	**3**		X		**4**	20/1	4	PRODUCTION CONSTANT
PRODUCTION CONSTANT	5	20/1	**5**			X	**6**	20/1	6	PRODUCTION CONSTANT
PRODUCTION CONSTANT	7	20/1	**7**	X			**8**	20/1	8	PRODUCTION CONSTANT
PRODUCTION CONSTANT	9	20/1	**9**		X		**10**	20/1	10	PRODUCTION CONSTANT
PRODUCTION CONSTANT	11	20/1	**11**			X	**12**	20/1	12	PRODUCTION CONSTANT
PRODUCTION CONSTANT	13	20/1	**13**	X			**14**	20/1	14	PRODUCTION CONSTANT
PRODUCTION CONSTANT	15	20/1	**15**		X		**16**	20/1	16	PRODUCTION CONSTANT
PRODUCTION CONSTANT	17, 18, 19	20/1	**17**			X	**18**	20/1		UNASSIGNED
recept - see elec		20/1	**19**	X			**20**	20/1		recept - elec
recept - see elec		20/1	**21**		X		**22**	20/1		recept - elec
recept - see elec		20/1	**23**			X	**24**	20/1		recept - elec
UNASSIGNED		20/1	**25**	X			**26**	20/1		UNASSIGNED
UNASSIGNED		20/1	**27**		X		**28**	20/1		UNASSIGNED
UNASSIGNED		20/1	**29**			X	**30**	20/1		UNASSIGNED
UNASSIGNED		20/1	**31**	X			**32**	20/1		BOOTH CONVENIENCE
UNASSIGNED		20/1	**33**		X		**34**	20/1		AUX RACK
RESERVED FOR FOUNDRY 1		20/1	**35**			X	**36**	20/1		RESERVED FOR FOUNDRY 2
RESERVED FOR FOUNDRY 3		20/1	**37**	X			**38**	20/1		RESERVED FOR FOUNDRY 4
RESERVED FOR FOUNDRY 5		20/1	**39**		X		**40**	20/1		RESERVED FOR FOUNDRY 6
RESERVED FOR FOUNDRY 7		20/1	**41**			X	**42**	20/1		RESERVED FOR FOUNDRY 8

THIS SCHEDULE IS PROVIDED FOR THE PURPOSE OF CONVEYING DESIGN INTENT, CLARIFICATION AND SYSTEM COORDINATION. IT IS NOT INTENDED AS AN ENGINEERED PANELBOARD SCHEDULE NOR LOAD ANALYSIS - REFER TO CONTRACT DOCUMENTS PREPARED BY THE REGISTERED ELECTRICAL ENGINEER FOR NECESSARY CALCULATIONS, CODE COMPLIANCE AND SPECIFIC MATERIAL REQUIREMENTS

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Road NE
Kenmore, WA 98028

Northshore School District No. 417

SCHOOL DISTRICT LOGO

Northshore School District

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

THEATER LIGHTING - SCHEDULES

SHEET NUMBER

TL8.10

STAGE LIGHTING DISTRIBUTION DEVICE...

PROJECT: INGLEMOOR HIGH SCHOOL
KENMORE, WA

DATE: 3/20/2020

ID ##	TYPE / MOUNTING	PLAN LOCATION	SHT/DETAIL	RECEPTACL...	FEED	LARGE LABEL	SMALL LABEL	PHYSICAL SHT/DETAIL	REMARKS
1	PLUGBOX PIPE MOUNT	FOH CATWALK	TL2.40/1	(2) 5-20C-P36 (1) 5-20RD	RP1:1, 2 TP1:1	1, 2 C1	RP1:1, 2 TP1:1	TL6.10/4	
2	PLUGBOX PIPE MOUNT	FOH CATWALK	TL2.40/1	(2) 5-20C-P36 (1) 5-20RD	RP1:3, 4 TP1:2	3, 4 C2	RP1:3, 4 TP1:2	TL6.10/4	
3	PLUGBOX PIPE MOUNT	FOH CATWALK	TL2.40/1	(2) 5-20C-P36 (1) 5-20RD	RP1:5,6 TP1:3	5, 6 C3	RP1:5,6 TP1:3	TL6.10/4	
4	PLUGBOX PIPE MOUNT	FOH CATWALK	TL2.40/1	(2) 5-20C-P36 (1) 5-20RD	RP1:7, 8 TP1:4	7, 8 C4	RP1:7, 8 TP1:4	TL6.10/4	
5	PLUGBOX PIPE MOUNT	FOH CATWALK	TL2.40/1	(2) 5-20C-P36 (1) 5-20RD	RP1:9,10 TP1:5	9, 10 C5	RP1:9,10 TP1:5	TL6.10/4	
6	PLUGBOX PIPE MOUNT	FOH CATWALK	TL2.40/1	(2) 5-20C-P36 (1) 5-20RD	RP1:11,12 TP1:6	11, 12 C6	RP1:11,12 TP1:6	TL6.10/4	
7	PLUGBOX PIPE MOUNT	FOH CATWALK	TL2.40/1	(2) 5-20C-P36 (1) 5-20RD	RP1:13,14 TP1:7	13, 14 C7	RP1:13,14 TP1:7	TL6.10/4	
8	PLUGBOX PIPE MOUNT	FOH CATWALK	TL2.40/1	(2) 5-20C-P36 (1) 5-20RD	RP1:15, 16 TP1:8	15, 16 C8	RP1:15, 16 TP1:8	TL6.10/4	
9	PLUGBOX PIPE MOUNT	FOH CATWALK	TL2.40/1	(2) 5-20C-P36 (1) 5-20RD	RP1:17, 18 TP1:9	17, 18 C9	RP1:17, 18 TP1:9	TL6.10/4	
10	PLUGBOX PIPE MOUNT	FOH CATWALK	TL2.40/1	(2) 5-20C-P36 (1) 5-20RD	RP1:19, 20 TP1:10	19, 20 C10	RP1:19, 20 TP1:10	TL6.10/4	
11	PLUGBOX PIPE MOUNT	FOH CATWALK	TL2.40/1	(2) 5-20C-P36 (1) 5-20RD	RP1:21, 22 TP1:11	21, 22 C11	RP1:21, 22 TP1:11	TL6.10/4	
12	PLUGBOX PIPE MOUNT	FOH CATWALK	TL2.40/1	(2) 5-20C-P36 (1) 5-20RD	RP1:23, 24 TP1:12	23,24 C12	RP1:23, 24 TP1:12	TL6.10/4	
13	PLUGBOX PIPE MOUNT	SIDE LOT	TL2.20/1	(3) 5-20C-P36 (1) 5-20RD	RP1:25, 26, 27 TP1:13	25, 26, 27 C13	RP1:25, 26, 27 TP1:13	TL6.10/6	
14	PLUGBOX PIPE MOUNT	SIDE SLOT	TL2.20/1	(3) 5-20C-P36 (1) 5-20RD	RP1:28, 29, 30 TP1:14	28, 29, 30 C14	RP1:28, 29, 30 TP1:14	TL6.10/6	
15	FLOOR POCKET	STAGE FLOOR	TL2.10/1	(3) 5-20R-FL (1) 5-20RD (1) 5 PIN XLR	RP1:31, 32, 33 TP1:15 AUX RACK	31, 32, 33 C15	RP1:31, 32, 33 TP1:14	TL6.10/1	
16	FLOOR POCKET	STAGE FLOOR	TL2.10/1	(3) 5-20R-FL (1) 5-20RD (1) 5 PIN XLR	RP1: 34,35 36 TP1:16 AUX RACK	34, 35, 36 C16	RP1: 34,35 36 TP1:15	TL6.10/1	
17	PLUGBOX SURFACE MOUNT	NEAR REAR EDGE OF THIRD REFLECTOR	TL2.40/1	(3) 5-20R-FL (1) 5-20RD	RP1:42,43,44 TP1:17	42, 43, 44 C17	RP1:42,43,44 TP1:17	TL6.10/5	
18	PLUGBOX SURFACE MOUNT	NEAR REAR EDGE OF THIRD REFLECTOR	TL2.40/1	(3) 5-20R-FL (1) 5-20RD	RP1:42,43,44 TP1:17	42, 43, 44 C17	RP1:42,43,44 TP1:17	TL6.10/5	
19	PLUGBOX SURFACE MOUNT	NEAR REAR EDGE OF THIRD REFLECTOR	TL2.40/1	(3) 5-20R-FL (1) 5-20RD	RP1:42,43,44 TP1:17	42, 43, 44 C17	RP1:42,43,44 TP1:17	TL6.10/5	
20	N/A								
21	N/A								
22	N/A								
23	N/A								
24	N/A								
25	N/A								

NOTES:
1. ALL DISTRIBUTION DEVICES SHALL BE UL LISTED AND LABELED
2. REFER TO SPECIFICATION SECTION 260962 FOR ADDITIONAL DETAILS

HOUSE LIGHTING FIXTURE SCHEDULE

PROJECT: INGLEMOOR HIGH SCHOOL
KENMORE, WA

DATE: 3/20/2020

TYPE	BASIS OF DESIGN	ACCEPTABLE	CONTROL METHOD (SEE NOTE 4, 5, 6)	LAMP(S)	INPUT WATTAGE	INPUT VOLTAGE	MOUNTING	COMMISSIONING	REMARKS
HA	METEOR REV 8 PRIME-W+RGB: #R8PN-200B-308C-U-DMX-45-BLK-SCA15 LED DOWNLIGHTS, 45 DEG, WITH 15 DEG SLOPE ADAPTER	LIGHT SOURCE RL-120-TBD-TBD-30K CHROMA Q XT-INSPIRE-NARROW	DMX	INTEGRAL LED-RGB+W CRI 85 MIN.	150W	120 V	RECESSED IN ACOUSTICAL CEILING PROVIDE SLOPE ADAPTOR.	YES	PROVIDE FIXTURE WITH REMOTE DRIVER; DMX DIMMING DOWN TO 0.1% CHROMA Q FIXTURE SUPPLIED WITH SLOPED CEILING KIT LUMEN OUTPUT FOR WHITE LED ACCEPTED RANGE: 7,000 MIN/12,000 MAX
HB	METEOR REV 8 PRIME-W+RGB: #R8PN-200B-308C-U-DMX-45-BLK-SCA10 LED DOWNLIGHTS, 45 DEG, WITH 10 DEG SLOPE ADAPTER	LIGHT SOURCE RL-120-TBD-TBD-30K CHROMA Q XT-INSPIRE-MEDIUM	DMX	INTEGRAL LED-RGB+W CRI 85 MIN.	150W	120 V	RECESSED IN ACOUSTICAL CEILING PROVIDE SLOPE ADAPTOR.	YES	PROVIDE FIXTURE WITH REMOTE DRIVER; DMX DIMMING DOWN TO 0.1% CHROMA Q FIXTURE SUPPLIED WITH SLOPE CEILING KIT LUMEN OUTPUT FOR WHITE LED ACCEPTED RANGE: 7,000 MIN/12,000 MAX
HC	METEOR REV 8 PRIME-W+RGB #R8PN-200B-308C-U-DMX-45-BLK-SCA05 LED DOWNLIGHT, 45 DEG, WITH 5 DEG CUSTOM SLOPE ADAPTER	LIGHT SOURCE RL-120-TBD-TBD-30K CHROMA Q XT-INSPIRE-WIDE	DMX	INTEGRAL LED-RGB+W CRI 85 MIN.	150W	120 V	RECESSED IN ACOUSTICAL CEILING PROVIDE SLOPE ADAPTOR.	YES	PROVIDE FIXTURE WITH REMOTE DRIVER; DMX DIMMING DOWN TO 0.1% CHROMA Q FIXTURE SUPPLIED WITH SLOPE CEILING KIT LUMEN OUTPUT FOR WHITE LED ACCEPTED RANGE: 7,000 MIN/12,000 MAX
HFBF	ELCAST LIGHTING #1210-2-LED-9W-BLUE-120-MB SAFETY STEP LIGHT WITH TIGHT SHIELDED BLACK METAL LOUVER BLUE COLOR SHALL APPROXIMATE ROSCO #67	COLE #L2159W-HO-SCL-BLU-BLK	PWR	INTEGRAL LED CRI 85 MIN.	10 W	120 V	FLUSH MOUNT @+18" AFF UNO	NO	FACTORY BACKBOX IS RATED FOR 2-WIRES IN / 2-WIRES OUT WITHOUT REQUIRING JUNCTION BOX OPTION. CONTRACTOR SHALL DEVELOP ROUGH IN SO THAT OPTIONAL FACTORY JUNCTION BOX IS NOT REQUIRED. ALL PARTS FINISHED SATIN BLACK.
HFBP	ELCAST LIGHTING #1210-2-LED-9W-BLUE-120-MB WITH SURFACE MOUNT SHROUD SAFETY STEP LIGHT WITH TIGHT SHIELDED BLACK METAL LOUVER BLUE COLOR SHALL APPROXIMATE ROSCO #67	COLE #L2159W-HO-SCL-BLU-BLK	PWR	INTEGRAL LED CRI 85 MIN.	10 W	120 V	PIPE MOUNT WITH CADY CLIPS SEE DETAIL ON TL4.1	NO	RATED FOR 2-WIRES IN / TWO WIRES OUT WITHOUT REQUIRING JUNCTION BOX OPTION.... SHALL DEVELOP ROUGH IN SO THAT OPTIONAL FACTORY JUNCTION BOX IS NOT REQUIRED. PROVIDE MOUNTING CLIPS AS PER DETAIL ON DRAWINGS. ALL PARTS FINISHED SATIN BLACK.
HFWF	ELCAST LIGHTING #1210-2-LED-6W-2700K-120-MB SAFETY STEP LIGHT WITH TIGHT SHIELDED BLACK METAL LOUVER LIGHT COLOR SHALL BE 2700K.	COLE #L2159W-SCL-2700K	PWR	INTEGRAL LED CRI 85 MIN.	10 W	120 V	FLUSH MOUNT IN WALL @+18" AFF UNO	NO	FACTORY BACKBOX IS RATED FOR 2-WIRES IN / 2-WIRES OUT WITHOUT REQUIRING JUNCTION BOX OPTION. CONTRACTOR SHALL DEVELOP ROUGH IN SO THAT OPTIONAL FACTORY JUNCTION BOX IS NOT REQUIRED. ALL PARTS FINISHED SATIN BLACK.
HJW	CANLET # 03-20W-L-C-F-OG-5500K NON-METALLIC VAPOR-PROOF, SURFACE MOUNTED LED WORKLIGHT, 5500K COLOR BLACK FINISH, WITH GUARD, HEAT-TREATED GLASS GLOBE AND J-BOX.	SPECTRUM WJ1LW 20L 30K DS10X FJ1 WG1 CP104 MB	PWR	INTEGRAL LED CRI 85 MIN.	20 W	120 V	SURFACE MOUNT REFER TO PLAN FOR ELEVATION	NO	

REMARKS:
1) ALL FIXTURES MUST BE 120 VOLT RATED.
2) FIXTURE TYPE HA, HB, HC: PROVIDE XLR SOCKETS; REMOTE DRIVER AS SHOWN ON DRAWING. COORDINATE CEILING SLOPE ADAPTER ANGLE WITH ARCHITECT. BEAM ANGLE, TRIM RING FINISH TBD AT SUBMITTAL REVIEW.
3) FIXTURE TYPE HA, HB, HC: ALTERNATE FIXTURES SUBMITTED FOR PRIOR APPROVAL MUST BE DEMO'D FOR THE END USER APPROVAL. APPROVED FIXTURES NOTIFIED VIA ADDENDUM.
4) IN 'CONTROL METHOD' COLUMN PWR = LINE (120 VAC) SWITCHING OR DIMMING, DMX = FIXTURE IS DIGITALLY CONTROLLED VIA DMX/RDM OR ACN, 0-10 = FIXTURE IS LOW VOLTAGE CONTROLS VIA 0 - 10 VDC
5) ALL HOUSE LIGHTING FIXTURES, LAMPS AND ACCESSORIES SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 26
6) FIXTURES LISTED WITH 'DMX' OR '0-10 VDC' CONTROL METHOD REQUIRE BOTTH POWER AND CONTROL WIRING. CONTRACTOR TO PLAN ACCORDINGLY
7) FIXTURE COMMISSIONING SHALL INCLUDE BUT NOT BE LIMITED TO: TESTING, CONFIGURATION OF ID SETTING AND FADE CURVE, CERTIFICATION OF LINE VOLTAGE, CONTRIOL SIGNAL INTEGRITY AND CONTROL WIRING CONTINUITY.
CAREFUL COORDINATION BETWEEN FIXTURE MANUFACTURER TECHNICIAN, CONTROL SYSTEM TECHNICIAN AND ELECTRICAL CONTRACTOR IS MANDATORY.
8) ALL HOUSE LIGHTING FIXTURES, LAMPS AND ACCESSORIES SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 26.

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Northshore School District

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

THEATER LIGHTING - SCHEDULES

SHEET NUMBER

TL8.20

1 2-SIDE TECH - INITIAL HANG
1/8" = 1'-0"

2 4-CATWALK - INITIAL HANG
1/8" = 1'-0"

THEATER PRODUCTION SHEET INDEX

SHEET NUMBER	SHEET NAME
TP1.00	THEATER PRODUCTION EQUIPMENT
TP2.00	THEATER PRODUCTION EQUIPMENT SCHEDULES

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04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

THEATER PRODUCTION EQUIPMENT

SHEET NUMBER

TP1.00

PRODUCTION LIGHTING FIXTURES SCHEDULE

PROJECT: INGLEMOOR HIGH SCHOOL
KENMORE, WA
DATE: JAN 2, 2020

FIXTURES ON THIS SCHEDULE ARE GOVERNED UNDER SECTION 11 61 71

BASE QTY	TYPE	STYLE	ACCEPTABLE MANUFACTURERS	BASIC MODEL	CORD CAP #1	POWERCON JUMPER CABLE - 10...	DMX CABLE - 10'	LAMP	SPARE LAMP QTY	COLOR FRAME	MOUNTING	SAFETY CABLE	PATTERN HOLDER	SNOOT	BARN DOOR	REMARKS
20	TB1	15-30 DEG LED ZOOM ELLIPSOIDAL	ETC CHAUVET	LED TUNGSTEN S4 PHX2-RGBA-1530	PBG	100%	100%	WHITE LED 171W	N/A	100%	C-CLAMP	100%	"B" 25%	N/A	N/A	SEE REMARKS NOTE 1.
20	TB2	15-30 DEG LED ZOOM ELLIPSOIDAL	ETC CHAUVET	COLORSOURCE SPOT OVATION E-910C	PBG	100%	100%	RGB+W LED 171W	N/A	100%	C-CLAMP	100%	"B" 25%	N/A	N/A	SEE REMARKS NOTE 1.
4	TC1	25-50 DEG LED ZOOM ELLIPSOIDAL	ETC CHAUVET	COLORSOURCE SPOT OVATION E-910C	PBG	100%	100%	RGB+W LED 171W	N/A	100%	C-CLAMP	100%	"B" 25%	N/A	N/A	SEE REMARKS NOTE 1.
26	TD1	19 DEG FIXED ELLIPSOIDAL	ETC CHAUVET	LED TUNGSTEN S4 OVATION E-260WW	PBG	100%	100%	WHITE LED 171W	N/A	100%	C-CLAMP	100%	"B" 25%	N/A	N/A	SEE REMARKS NOTE 1.
2	TK1	FOLLOWSPOT	LYCIAN USHIO	ZOT LED SAI-500	PBG	N/A	N/A	LED	N/A	N/A	CASTERED STAND	N/A	N/A	N/A	N/A	INCLUDES COLOR BOOMERANG
2	TWL	SAFETY	ALTMAN	WL-130	HARD WIRED	N/A	N/A	LED 35K	N/A	N/A	MOUNTED TO EDGE OF REFLECTOR	N/A	N/A	N/A	N/A	THIS WORK LIGHT WILL SERVE AS AN OVERHEAD GHOST LIGHT. ATTACH TO FIXED JUNCTION BOX AS SHOWN ON PLANS.
4	TM	AUTOMATED ELLIPSOIDAL	ETC	RELEVE SPOT	PBG	N/A	N/A	LED	N/A	N/A	(2)TRUSS CLAMPS	100%	N/A	N/A	N/A	
9	TO	CONCERT WALL COLOR WASH	ETC	COLORSOURCE LINEAR 2 DEEP BLUE	PBG	100%	100%	213W RGIL LED ARRAY	N/A	N/A	SEE REMARKS	100%	N/A	N/A	N/A	ATTACH TRUNIONS AT EDGE OF 3RD REFLECTOR

REMARKS:
1) PROVIDE (4) DROP-IN IRIS FOR TYPES TB1, TB2, TC1, TD1.
2) N/A
3) WHERE SPARES, OR PARTIAL QUANITIES ARE SPECIFIED, ROUND UP.
4) SCOPE OF WORK INCLUDES SUPPLY, ASSEMBLY, ADJUSTING, HANGING, AIMING, PROGRAMMING AND TRAINING. REFER TO SECTION 11 61 71 OF SPECS.

PRODUCTION LIGHTING ACCESSORIES SCHEDULE

PROJECT: INGLEMOOR HIGH SCHOOL
KENMORE, WA
DATE: JAN 2, 2020

BASE QTY	TYPE	MANUFACTURER	DESCRIPTION	Remarks
0	MA-1	DANDUX	MODEL #40-700 LAUNDRY HAMPER 10-BUSHEL, WITH HINGED ½" PLYWOOD TOP, YELLOW GLOSSTEX, EACH WITH NO. 40-497, 3-INCH RUBBER TREAD, SWIVEL CASTERS AT CORNERS AND CASTER BOARDS	
0	MA-2	ROSCO	MODEL #08601 COLOR MEDIA STORAGE UNIT	
10	MA3	ROSCO	ROSCO 119 DIFFUSION MEDIA	
15 10 10 5 5 5	MA-4A MA-4B MA-4C MA-4D MA-4E MA-4F	LEX PRODUCTS TMB ASSOCIATES	**CONTROL PATCH CABLES:** 5 PIN MALE XLR TO 5 PIN FEMALE XLR, 5'-0" LONG (DMX) 5 PIN MALE XLR TO 5 PIN FEMALE XLR, 10'-0" LONG (DMX) 5 PIN MALE XLR TO 5 PIN FEMALE XLR, 25'-0" LONG (DMX) DMX TERMINATOR: 5 PIN XLR DMX ADAPTER: 5 PIN MALE TO 3 PIN FEMALE DMX ADAPTER: 5 PIN FEMALE TO 3 PIN MALE	THESE CABLE ARE IN ADDITION TO CABLE CALLED OUT FOR OTHER PRODUCT COLOR CODE BY CORD CAP OR LABEL EACH END OF CABLE - USE CLEAR SHRINK TUBE OVER LABLES
0 0 0 0 10 10 5 5 15 15 5	MA-5A MA-5B MA-5C MA-5D MA-5E MA-5F MA-5G MA-5H MA-5J MA-5K MA-5L	LEX PRODUCTS TMB ASSOCIATES	EXTENSION CABLES: ALL CABLES - BLACK, 12/3 SOOW OR BETTER, UL OR ETC LISTED 5'-0" LONG, 20AMP STAGE PIN MALE TO FEMALE 10'-0" LONG, 20AMP STAGE PIN MALE TO FEMALE 25'-0" LONG, 20AMP STAGE PIN MALE TO FEMALE 50'-0" LONG, 20AMP STAGE PIN MALE TO FEMALE 5'-0" LONG, NEMA 5-15P MALE TO NEMA 5-20C FEMALE (PARALLEL BLADE) 10'-0" LONG, NEMA 5-15P MALE TO NEMA 5-20C FEMALE (PARALLEL BLADE) 25'-0" LONG, NEMA 5-15P MALE TO NEMA 5-20C FEMALE (PARALLEL BLADE) 50'-0" LONG, NEMA 5-15P MALE TO NEMA 5-20C FEMALE (PARALLEL BLADE) 5'-0" LONG, 20AMP POWERCON EXTENSION CABLE 10'-0" LONG, 20AMP POWERCON EXTENSION CABLE 25'-0" LONG, 20AMP POWERCON EXTENSION CABLE	COLOR CODE BY CORD CAP OR LABEL EACH END OF CABLE - USE CLEAR SHRINK TUBE OVER LABLES
0 0	MA-6A MA-6B	LEX PRODUCTS OR UNION CONNECTOR	**GSP TWOFERS: LEX PRODUCTS OR UNION CONNECTOR** EACH TWOFER HAS (1) 20A MALE GSP ON ONE END AND (2) 20A FEMALE GSP ON THE OTHER. EACH TWOFER HAS (1) 20A MALE PBG ON ONE END AND (2) 20A FEMALE PBG ON THE OTHER.	
3 3	MA-7A MA-7B	LEX PRODUCTS OR UNION CONNECTOR	**ADAPTERS - GSP-->PBG:** EACH ADAPTER AS (1) MALE 20A GSP ON ONE END AND (1) FEMALE 20A PBG ON THE OTHER EACH ADAPTER AS (1) MALE 15A PBG ON ONE END AND (1) FEMALE 20A GSP ON THE OTHER	
5 5	MA-8A MA-8B	LEX PRODUCTS	**ORCHESTRA MULTI-RECEPTACLE CORDS** LEX # 50116BA POWER CABLE 23'-0" WITH (6) 5-15R RECEPTACLES L5-20P --> 5-20R ADAPTER MALE 20A TWISTLOCK TO FEMALE 20A PBG	
0	MA-9	GREAT AMERICAN OR APOLLO LIGHTING	**GOBO ROTATOR: (SMART MOVE DMX OR TWIN SPIN)** FOR USE WITH "B" SIZE PATTERNS FURNISH COMPLETE WITH POWER SUPPLY AND DMX CABLE	FPROVIDE COMPLETE WITH POWER SUPPLY AND 25'-0" DMX CABLE
4	MA-10	ALTMAN LIGHT SOURCE	**SIDE ARMS, 24" WITH C-CLAMP AND SLIDING T** MODEL #509-241 MODEL MDB24	
0	MA-11	SSRC	**ROLLING FIXTURE/ CABLE STORAGE CART** ADJUSTABLE FIXTURE CART. ALL STEEL CONSTRUCTION W/HEAVY DUTY CASTERS PROVIDE EACH CART WITH (6) MULTI-CABLE STORAGE BRACKETS. CARTS ARE 8 FEET LONG X 3 FEET WIDE WITH BLACK EGGSHELL FINISH. OR PR	
0 0	MA-12a MA-12b	ALTMAN	MODEL: B50, CAST BASE, 50 LBS, THREADED FOR 1-1/2" SCH 40 PIPE. FINISH BLACK BOOM: 1-1/2" SCHEDULE 40 BLACK PIPE. 12 FEET LONG, THREADED TOP WITH PICK-UP EYE	

Remarks:
1) ALT QTY IS TO BE BID IN ADD ALTERNATE IF REQUIRED AND AS SPECIFIED
2.) ALL LOOSE EQUIPMENT SHALL BE PROVIDED WITH AN ID LABLE READING"PROPERTY OF (name of school) THEATER DEPARTMENT. LABLE SIZE SHALL NOT EXCEED 1-1/2" X 3/4" & MUST ADHERE TO ANY SURFACE. AND NOT PEEL AWAY EASILY. LETTERING (FONT) SIZE TO FIT ACCORDINGLY IN BOLD. SUBMIT SAMPLE FOR APPROVAL DURING SHOP DRAWING PROCESS.

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BID DOCUMENTS

04.13.2020

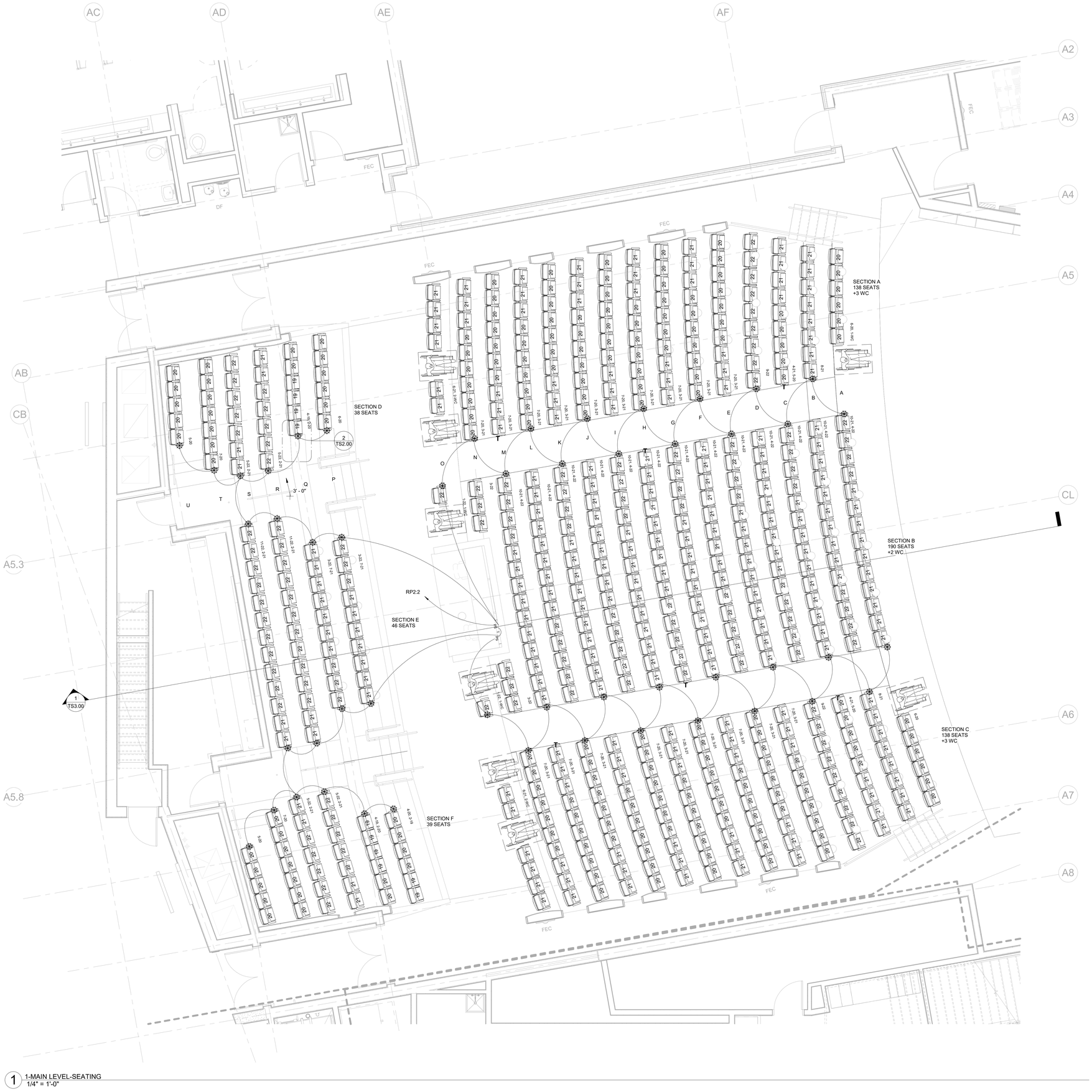
PROJECT NUMBER: 1711

SHEET NAME

THEATER PRODUCTION EQUIPMENT SCHEDULES

SHEET NUMBER

TP2.00



1 1-MAIN LEVEL-SEATING
1/4" = 1'-0"

GENERAL NOTES

1. SPECIALTY AND DETAIL DRAWINGS FOR THE THEATER/AUDITORIUM AND ASSOCIATED SPACES FALL INTO FOUR CATEGORIES:
   TL = THEATER LIGHTING
   TP = THEATER PRODUCTION EQUIPMENT
   TR = THEATER RIGGING
   TS = THEATER SEATING

   CAREFUL REVIEW AND COORDINATION IS REQUIRED AS EACH SERIES HAS WORK RELATED TO ONE OR MORE OF THE FOLLOWING MAJOR TRADES:
   DIVISION 05 - MISC METALS
   DIVISION 09 - STAGE FLOOR
   DIVISION 11 - STAGE RIGGING AND THEATER PRODUCTION EQUIPMENT
   DIVISION 12 - THEATER SEATING
   DIVISION 26 - ELECTRICAL
2. THE 'TS' SERIES DRAWINGS ARE AN INTEGRAL PART OF THE CONTRACT DOCUMENT PACKAGE, YET SHALL NOT BE CONSIDERED AS ENGINEERING DOCUMENTS. THEY ARE INTENDED TO CONVEY OVERALL AND DETAILED ELEMENTS OF THE THEATER SEATING AND ASSOCIATED SEAT END AISLE LIGHTS.
3. ALL EQUIPMENT, WHERE APPLICABLE STANDARDS HAVE BEEN ESTABLISHED SHALL BE LISTED AND LABLED BY UNDERWRITER'S LABORATORIES OR OTHER APPROVED TESTING AGENCIES. CUSTOM ASSEMBLIES SHALL MEET ALL APPLICABLE CODES AND WHERE LOCAL JURISDICTIONS REQUIRE SHALL BE INSPECTED AND APPROVED BY THE LOCAL CODE AUTHORITY AT CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR INSURING COMPLIANCE WITH ALL APPLICABLE BUILDING, PRODUCT AND INSTALLATION CODES (INCLUDING BUT NOT LIMITED TO THE OSSC AND NEC) THAT ARE IN EFFECT AT THE TIME OF THE INSTALLATION. CORRECTIONS TO ANY PRODUCT, ASSEMBLY OR WORK PERFORMED UNDER THIS CONTRACT TO OBTAIN CODE COMPLIANCE SHALL BE AT CONTRACT'S EXPENSE.
4. CONCRETE REQUIREMENTS:
   - CONCRETE MUST HAVE SUFFICIENT STRENGTH WITH A MINIMUM COMPRESSIVE RATING OF 3000 LBS
   - STRUCTURAL LIGHT WEIGHT CONCRETE REQUIRES A MINIMUM OF 2500 PSI WITH A DRY WEIGHT OF 90-115 LBS PER CUBIC FOOT
   - CONCRETE FLOORS TO BE FLAT, FREE FROM DIPS. RISER FACES TO BE PLUMB, +/- 1/8"
5. FLOOR MOUNTING TO SLAB: MINIMUM 3" THICKNESS WITH A SURFACE 1-1/2" FREE OF WIRE MESH OR REBAR
6. FLOOR MOUNTING TO PAN POURED CONCRETE: DECK MUST HAVE A MINIMUM OF 3" THICKNESS WITH 2" FREE FROM OBSTRUCTIONS MEASURED FROM HIGHEST POINT OF CORRUGATION
7. RISER MOUNTING: MINIMUM 4" THICKNESS WITH 2-1/2" FREE FROM OBSTRUCTIONS FROM THE RISER FACE
8. FLOOR ATTACHMENT HARDWARE SPECIFICATIONS:
   - CONCRETE FLOOR: HILTI QWIK BOLT WEDGE ANCHOR - 1/4"-20 X 3-1/4"
   - CONCRETE RISER: HILTI QWIK BOLT WEDGE ANCHOR - 3/8"-16 X 3"
   - WOOD FLOOR: 1/4" X 2" HEX WASHER HEAD LAG SCREW

SYMBOL LEGEND

- SEAT END AISLE LIGHT. INDICATES LOCATION OF SEAT MOUNTED LOW VOLTAGE AISLE LIGHTING
- T — DESIGNATED AISLE SEAT. INDICATES LOCATION OF HINGED ARMREST. WHERE SHOWN COMBINED WITH A CHAIR-MOUNTED AISLE LIGHT, FACTORY ENGINEERING FOR CUSTOM FABRICATION IS MANDATORY.
- ## — SEAT SIZE. - MEASURED ARM CENTER TO ARM CENTER
- # — SEAT NUMBER.
- MB / MB2 — MOBILE BASE. INDICATES LOCATION OF A 1 SEAT OR 2 SEATS MOUNTED TO A PORTABLE BASE. THESE SEATS WHEN MOVED PROVIDE AN OSSC COMPLIANT WHEELCHAIR LOCATION. NOT ALL PROJECTS USE MOBILE BASE SEATS. REFER TO DRAWINGS FOR LOCATIONS.
- PS — POWER SUPPLY FOR SEAT END AISLE LIGHTS, FURNISHED UNDER SECTION 126113

FIXED SEATS & PERMANENT WHEELCHAIR SPACES

	CHAIR SIZE					
SECTION	23	22	21	20	19	W/C
A	0	9	48	81	0	3
B	0	60	130	0	0	2
C	0	9	48	81	0	3
D	0	10	4	20	4	0
E	0	28	18	0	0	0
F	0	10	4	20	4	0
BALCONY	0	0	149	5	0	2
SUBOTALS	0	126	401	207	8	10

TOTAL - FIXED SEATS: **742**
TOTAL - PERMANENT WHEELCHAIR SPACES: **10**

THEATER PRODUCTION SHEET INDEX

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BID DOCUMENTS

04.13.2020

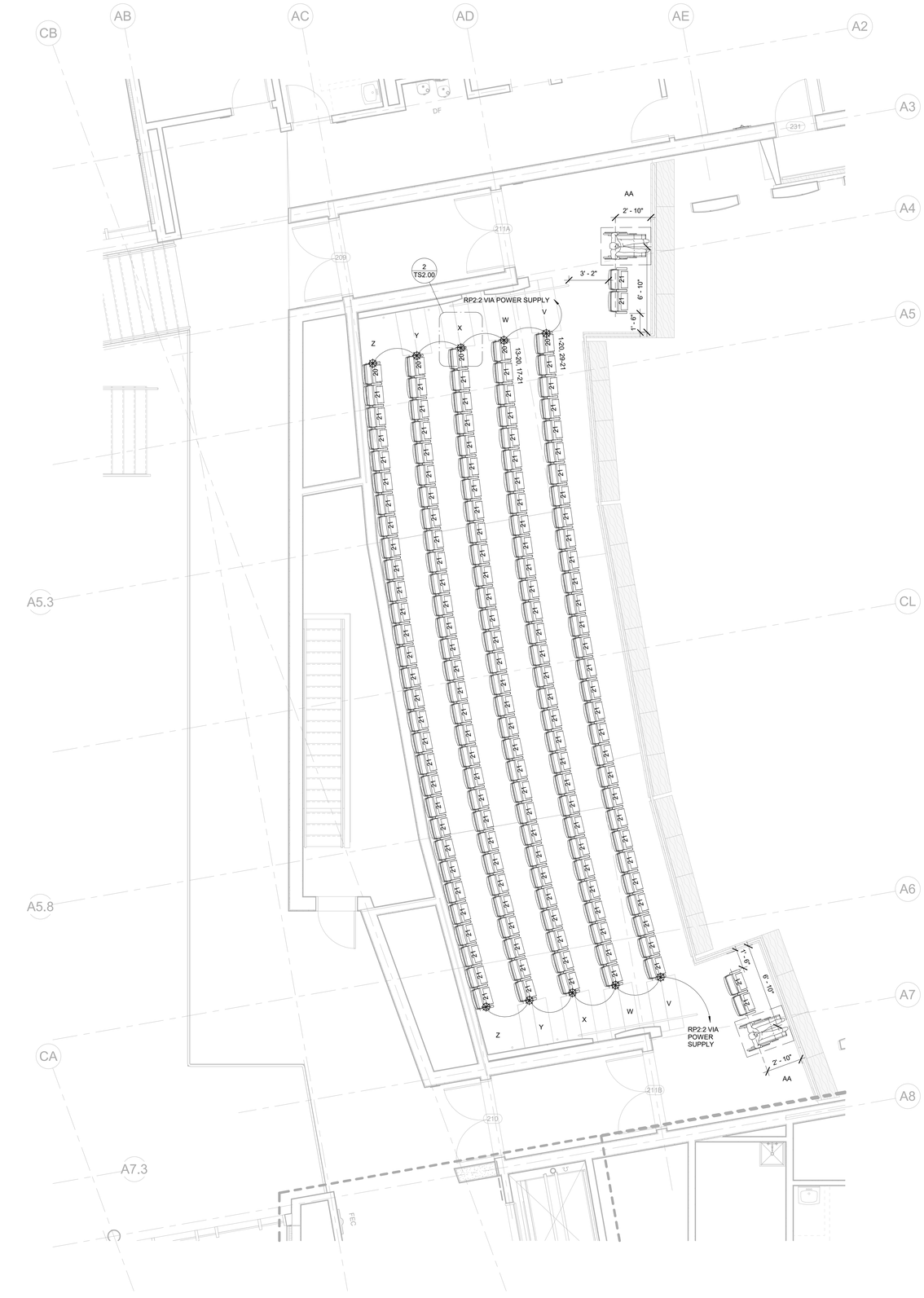
PROJECT NUMBER: 1711

SHEET NAME

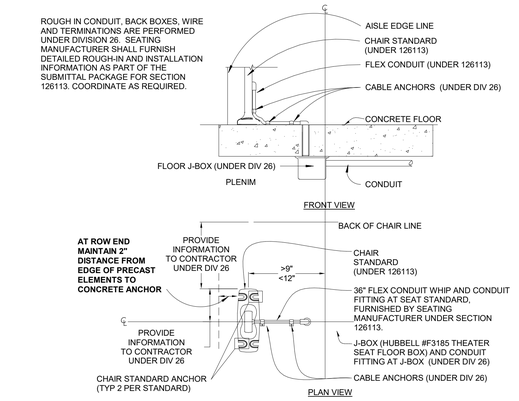
THEATER SEATING GENERAL INFORMATION & MAIN LEVEL PLAN

SHEET NUMBER

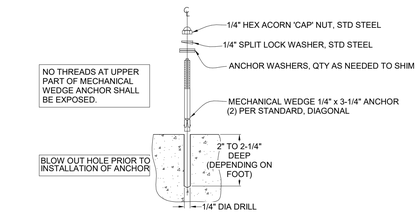
TS1.00



1 2-SIDE TECH - SEATING
1/4" = 1'-0"



2 TS-AISLE LIGHT UNDER SLAB
1 1/2" = 1'-0"



3 TS-FLOOR ANCHOR
1 1/2" = 1'-0"

ACCESSIBILITY COMPLIANCE	CODE REQ'D	ACTUAL	
QUANTITY OF WHEELCHAIR SPACES (QTY = 6 (FOR 500 SEATS) + 1 FOR EACH ADD'L 150 SEATS)	8	8	
QUANTITY OF DESIGNATED AISLE SEATS (QTY = 5% OF ALL AISLE SEATS)	4	6	
SEATING CODE COMPLIANCE INFORMATION:			
CODE REQUIRED MIN. CLEAR DISTANCE BETWEEN ROWS(INCHES):			
- LONGEST DUAL ACCESS ROW (MAIN LEVEL)*	12.0	14.0	INCHES
- LONGEST DUAL ACCESS ROW BALCONY LEVEL) *	16.8	25.0	INCHES
- LONGEST SINGLE ACCESS ROW(MAIN LEVEL) *	12.0	14.0	INCHES
- LONGEST SINGLE ACCESS ROW (BALCONY LEVEL)*	N/A	N/A	INCHES

*** MINIMUM CLEAR DISTANCE CALCULATIONS PER CODE:**
DUAL ACCESS ROWS: 12" MIN. CLEAR
+ 0.3" FOR EVERY ADD'L SEAT BEYOND 14 IN A ROW.

SINGLE ACCESS ROWS: 12" MIN. CLEAR
+ 0.6" FOR EVERY ADD'L SEAT BEYOND 7 IN A ROW.

(NOTE: CALCULATIONS BASED ON 36" ROW TO ROW SPACING ON MAIN LEVEL
47" ROW TO ROW SPACING ON BALCONY LEVEL
WITH 21" DEEP SPECIFIED SEAT)

CODE REFERENCES:
INTERNATIONAL BUILDING CODE 2015/ 2018
OREGON STRUCTURAL SPECIAL CODE(OSSC 2017)
WASHINGTON STATE BUILDING CODE 2015

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04.13.2020

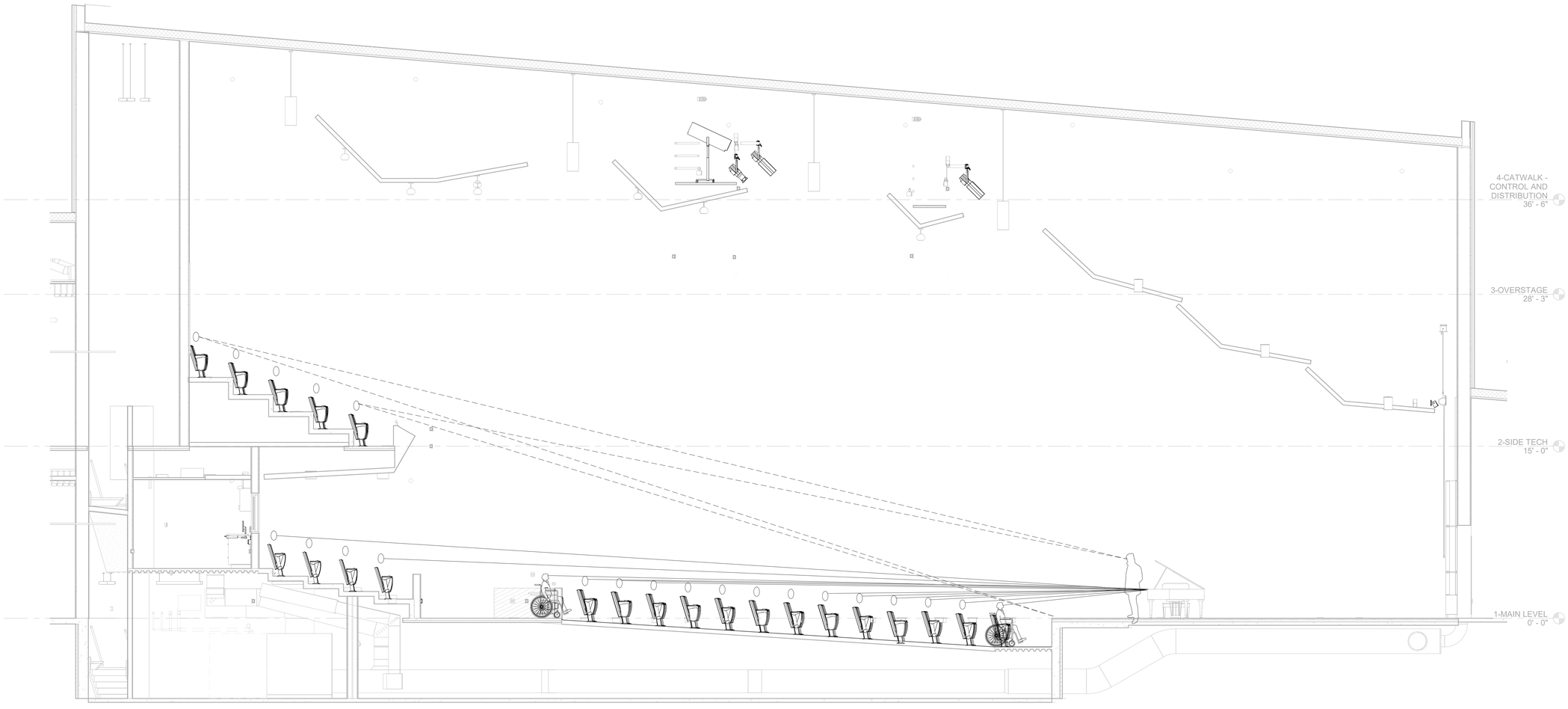
PROJECT NUMBER: 1711

SHEET NAME

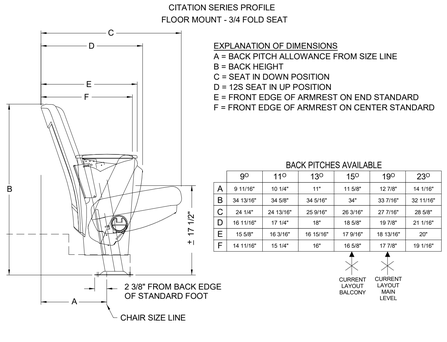
THEATER SEATING UPPER LEVEL PLAN & DETAILS

SHEET NUMBER

TS2.00



1 LONG SECTION - SEATING
1/4" = 1'-0"



CITATION SERIES PROFILE
FLOOR MOUNT - 3/4 FOLD SEAT

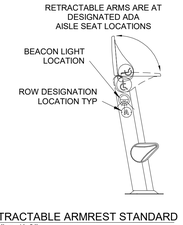
EXPLANATION OF DIMENSIONS
A = BACK PITCH ALLOWANCE FROM SIZE LINE
B = BACK HEIGHT
C = SEAT IN DOWN POSITION
D = 12S SEAT IN UP POSITION
E = FRONT EDGE OF ARMREST ON END STANDARD
F = FRONT EDGE OF ARMREST ON CENTER STANDARD

BACK PITCHES AVAILABLE

	9°	11°	13°	15°	19°	23°
A	9 11/16"	10 1/4"	11"	11 5/8"	12 7/8"	14 1/16"
B	34 13/16"	34 5/8"	34 5/16"	34"	33 7/16"	32 11/16"
C	24 1/4"	24 13/16"	25 9/16"	26 3/16"	27 7/16"	28 5/8"
D	16 11/16"	17 1/4"	18"	18 5/8"	19 7/8"	21 1/16"
E	15 5/8"	16 3/16"	16 15/16"	17 9/16"	18 13/16"	20"
F	14 11/16"	15 1/4"	16"	16 5/8"	17 7/8"	19 1/16"

CURRENT LAYOUT BALCONY
CURRENT LAYOUT MAIN LEVEL

2 CITATION PROFILE
1/4" = 1'-0"



3 RETRACTABLE ARMREST STANDARD
1/4" = 1'-0"

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PROJECT NUMBER: 1711

SHEET NAME

THEATER SEATING - LONG SECTION

SHEET NUMBER

TS3.00

GENERAL NOTES

- CONDUIT SIZE, QUANTITY AND LOCATIONS ARE RECOMMENDATIONS OF THE AV CONSULTANT AND ARE RECOMMENDATIONS ONLY. ACTUAL ROUTING, SIZING AND LOCATION OF CONDUIT TO BE CONFIRMED BY ELECTRICAL ENGINEER OR ELECTRICAL CONTRACTOR.
- REFER TO ELECTRICAL DRAWINGS FOR ACTUAL CONDUIT AND ROUGH IN REQUIREMENTS. IF CUSTOM ROUGH IN BOXES DIFFER BETWEEN ELECTRICAL AND AV DRAWINGS AV DRAWINGS TAKE PRIORITY.
- VERIFY FIT AND FINISH OF ALL ELECTRICAL BOXES. COORDINATION OF TRIM DEVICE WITH ROUGH IN PROVIDED BY THE ELECTRICAL CONTRACTOR SHALL BE THE RESPONSIBIITY OF THE SYSTEMS INTEGRATOR.
- GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL STRUCTURAL ATTACHMENT POINTS FOR AUDIO AND VISUAL EQUIPMENT TO STRUCTURE. DRAWINGS SHOWING STRUCTURAL ATTACHMENT POINTS ARE FOR REFERENCE ONLY.
- SYMBOL INDICATES CONDUIT REQUIREMENT. MULTIPLE SYMBOLS ON THE SAME LINE INDICATES MULTIPLE CONDUITS ARE REQUIRED BETWEEN THOSE DEVICES.

GENERAL SYMBOLS

SYMBOL	DESCRIPTION
X / SHEET NO.	OFF SHEET DRAWING NOTES
1	ON SHEET DRAWINGS NOTES
(CABLE DES)	CABLE OR WIRE TYPE DESIGNATION
X	ON SHEET CABLE CONNECTION ("X" DENOTES MATING CONNECTION)
A	CABLE TERMINATION OR CONNECTOR TYPE

ELECTRICAL SYMBOLS

SYMBOL	FUNCTION
	CONDUIT TRANSITION (TYPICALLY ABOVE CEILING)
	CONDUIT TO NO CONDUIT TRANSITION OR USED TO SHOW CONDUIT PASSING OVER OR UNDER OTHER CONDUITS.
	CONDUIT OR CABLE BUNDLE CONTENTS

SHEET DETAIL IDENTIFICATION (BUG)

N

DETAIL TITLE

SCALE

ROUGH-IN LEGEND

SYMBOL	DEVICE DESCRIPTION	ROUGH-IN	LOCATION
ANT	WIRELESS MICROPHONE / ALS SYSTEM / INTERCOM ANTENNAE LOCATION	4 SQ DEEP BOX WITH SINGLE GANG RING	ABOVE 15' ON WALL INTERCOM AT CATWALK
AVJB	LOCAL EQUIPMENT RACK LOCATION (MOUNT AS REQUIRED FOR CASEWORK ON SITE)	ROUGH IN AS REQUIRED BY CONDUIT QUANTITY	SEE DESCRIPTION
FB(X)	FLOOR BOX	ETC CONNECT	SEE DESCRIPTION
HM	HOUSE MICROPHONE	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT ON BOTTOM OF CLOUD
J	J-BOX WITH POWER FOR PROJECTOR SCREEN CEILING BOX HOUSING (PROVIDE LOCAL SWITCH DISCONNECT)	PROVIDE 120VAC AT LEFT END OF PROJECTOR SCREEN	MOUNT AS DIRECTED ON PLAN
LA	LINE ARRAY SPEAKER / SUB WOOFER CLUSTER	SEE DETAIL SHEET FOR ROUGH IN REQUIREMENTS	MOUNT AS SHOWN ON PLANS
LCD	LCD DISPLAY (SIZE VARIES BY LOCATION)	SEE DETAIL SHEET FOR ROUGH IN REQUIREMENTS	MOUNT AS SHOWN ON PLANS
LVC	LOW VOLTAGE CONTROL FOR EXISTING PROJECTION SCREEN	PROVIDED BY AV CONTRACTOR	MOUNT AT LEFT END OF PROJECTION SCREEN
M	CEILING CHOIR / RECORDING MICROPHONE	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AS DIRECTED ON CEILING PLAN
PC(X)	PRODUCTION INTERCOM (X) DENOTES TYPE SEE LEGEND FOR DETAILS SHEET A0.01	VARIES	VARIES
PTZ	PTZ CAMERA WITH WALL MOUNT BRACKET	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT 108" TO BOTTOM OF CAMERA
S	CEILING SPEAKER	4 SQ DEEP BOX WITH BLANK COVER & WHIP	MOUNT AS DIRECTED ON PLAN
SH	HIGH CEILING SPEAKER	4 SQ DEEP BOX WITH BLANK COVER & WHIP	MOUNT AS DIRECTED ON PLAN
S	PRESENTATION SYSTEM SPEAKER BAND, CHOIR, MUSIC LAB	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AT 96" AFF
SMP	RACK MOUNT CONTROL PANEL MOUNT IN STAGE MANAGERS PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
TPNL	TABLE TOP TILT CONTROL PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
VC	PRIORITY VOLUME CONTROL	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AT 52" AFF OR SWITCH HEIGHT
VP	CEILING MOUNTED VIDEO PROJECTOR	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
WP	WALL PLATE	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
	RECOMMENDED CONDUIT RISER / J-BOX LOCATION FOR AV EQUIPMENT RACK	-	AS SHOWN ON PLAN
	DOUBLE DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC
	DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC

WIRE TYPE DESCRIPTION

WIRE LEGEND

TYPE	QTY	DESCRIPTION	MANUFACTURER	NON PLENUM	PLENUM	CONDUCTORS
AD	X	AUDIO (DIGITAL MIC)	POLYCOM	CUSTOM	CUSTOM	SEE CABLE
AL	X	AUDIO (LINE)	BELDEN	9451	9451P	1 PR W/SHLD
AM	X	AUDIO (MICROPHONE)	BELDEN	9451	9451P	1 PR W/SHLD
AN	X	AUDIO (NETWORK OVER CAT CABLE)	GEPCO	-	2131611E	4 PR CAT CABLE W/SHLD
AP	X	MULTIPAIR AUDIO	BELDEN	1817R	1817R	8 PR W/SHLD
CAT	X	DIGITAL MEDIA CAT CABLE	CRESTRON	DM-CBL-NP-SP500	DM-CBL-P-SP500	(M)-4 PR CAT5E / (D) 4 PR SPECIAL (DMNet) 1PR 18GA PWR/1 PR DATA
CG	X	CONTROL (GENERAL)	BELDEN	9751	82743	6 PR 20-22 GA
CN	X	DATA	BELDEN	1583A	1583A	4 PR CAT 5
CP	X	CONTROL (NETWORK)	CRESTRON	CRESNET	CRESNET-P	1 PR 18GA TWISTED (UNSHILD) 1 PR 22GA TWISTED (SHILD)
CQ	X	QUICK MEDIA SIAMESE CABLE	CRESTRON	CRESCAT-QM-NP	CRESCAT-QM-P	4 PR CATEGORY CABLE 1 PR 18GA PWR / 1 PR 22GA DATA
CR	X	CONTROL (IR)	BELDEN	9451	9451P	1 PR W/SHLD
CS	X	CONTROL (SERIAL)	BELDEN	9451	9451P	1 PR W/SHLD
D	X	DATA	BELDEN	1583A	1583A	4 PR CAT 5
DM	X	DIGITAL MEDIA 8G STP CABLE	CRESTRON	DM-CBL-8G-NP-SP500	DM-CBL-8G-P-SP500	(SPECIAL) 4 PR CAT (X) SHLD
DVI	X	DVI MOLDED CABLE	VARIES	-	-	DVI - DVI
EXT(X)	X	EXTRON MOLDED CABLE	EXTRON	(X) DENOTE NUMBER		VARIOUS
IM	X	PRODUCTION INTERCOM	WEST PENN	D-510	D-510	2 PR W/SHLD
HDMI	X	HDMI MOLDED CABLE	VARIES	-	-	HDMI - HDMI
LNK(X)	X	MANUFACTURER LINK CABLE	VARIES	1583A	1583A	4 PR CAT 5
P	X	LOW VOLTAGE POWER	BELDEN	8461	8461	18/2
R	X	RGBHV	LIBERTY	RGB5C	RGB5C-PLN	MINI HI RES
SL	X	SPEAKER (8 OHM) LONG	WEST PENN	C-210	C-210	10/2
SH	X	SPEAKER (8 OHM) SHORT	BELDEN	5100UE	6100UE	12/2
SZ	X	SPEAKER (70 VOLT)	BELDEN	5300UE	6300UE	18/2
T	X	TELEPHONE/DATA	BELDEN	1583A	1583A	4 PR CAT 5
VS	X	COMPOSITE VIDEO (SHORT)	BELDEN	1505A	1506A	RG-59/U
VL	X	COMPOSITE VIDEO (LONG)	BELDEN	1694A	1695A	RG-6/U
VN	X	VIDEO NETWORK	GEPCO	-	10GXS2F	4 PR CAT 6A W/ SHIELD
VOO(X)	X	VIDEO ADAPTER	VARIOUS	(X) DENOTE NUMBER		VARIOUS
Y	X	S-VIDEO (Y/C)	BELDEN	QTY (2) 1505A	QTY (2) 1506A	(2) RG-59/U

DRAWING LEGEND

INTERCOM LEGEND

PC1	- TWO CHANNEL BELT PACK STATION	- SINGLE GANG	- @18" AFF TYPICAL STUD WALL
PC2	- TWO CHANNEL HEADSET STATION	- TWO GANG	- ABOVE COUNTER
PC4	- TWO CHANNEL SPEAKER STATION	- FOUR GANG	- @ 52" AFF TYPICAL STUD WALL
PCH	- HANDSET SPEAKER STATION	- TWO GANG	- @ 52" AFF W/ HANDSET BOX
PCR	- RACK MOUNT REMOTE STATION	- 1 RU RACK	- AS SHOWN ON SMP ELEVATION

NOTE ALL ROUGH IN DEVICES ARE MINIMUM 2.75" DEEP BOXES

1 AREA A - LOWER LEVEL DIMENSION FLOOR PLAN

1/8" = 1'-0"

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Rd NE
Kenmore, WA 98028

NORTHSHORE SCHOOL DISTRICT No. 417

SCHOOL DISTRICT LOGO

Northshore School District

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04.08.19	VALUE ENGINEERING
10.18.19	DESIGN DEVELOPMENT
01.13.2020	CONSTRUCTABILITY REVIEW
03.23.2020	HEALTH DEPARTMENT PERMIT SUBMITTAL
04-13-2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

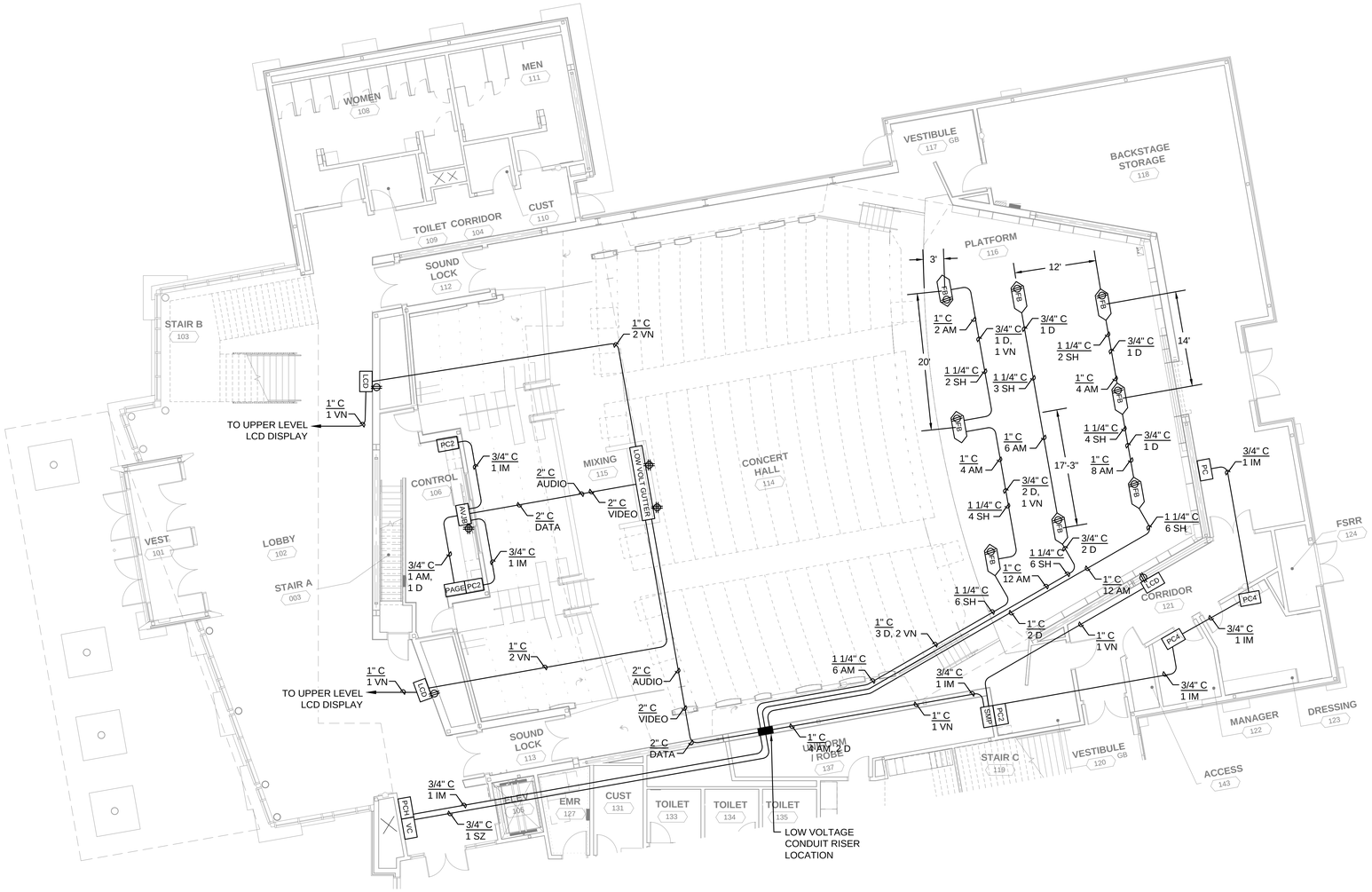
PROJECT NUMBER: 1711

SHEET NAME

LEGENDS AV SYSTEMS

SHEET NUMBER

AV0.01



1 AREA A - LOWER LEVEL - AV SYSTEMS

1/8" = 1'-0"

0" 1" 2"

NORTH

ROUGH-IN LEGEND

SYMBOL	DEVICE DESCRIPTION	ROUGH-IN	LOCATION
ANT	WIRELESS MICROPHONE / ALS SYSTEM / INTERCOM ANTENNAE LOCATION	4 SQ DEEP BOX WITH SINGLE GANG RING	ABOVE 15' ON WALL INTERCOM AT CATWALK
AVJB	LOCAL EQUIPMENT RACK LOCATION (MOUNT AS REQUIRED FOR CASEWORK ON SITE)	ROUGH IN AS REQUIRED BY CONDUIT QUANTITY	SEE DESCRIPTION
FBR	FLOOR BOX	ETC CONNECT	SEE DESCRIPTION
HM	HOUSE MICROPHONE	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT ON BOTTOM OF CLOUD
J	J-BOX WITH POWER FOR PROJECTOR SCREEN CEILING BOX HOUSING (PROVIDE LOCAL SWITCH DISCONNECT)	PROVIDE 120VAC AT LEFT END OF PROJECTOR SCREEN	MOUNT AS DIRECTED ON PLAN
LA	LINE ARRAY SPEAKER / SUB WOOFER CLUSTER	SEE DETAIL SHEET FOR ROUGH IN REQUIREMENTS	MOUNT AS SHOWN ON PLANS
LCD	LCD DISPLAY (SIZE VARIES BY LOCATION)	SEE DETAIL SHEET FOR ROUGH IN REQUIREMENTS	MOUNT AS SHOWN ON PLANS
LVC	LOW VOLTAGE CONTROL FOR EXISTING PROJECTION SCREEN	PROVIDED BY AV CONTRACTOR	MOUNT AT LEFT END OF PROJECTION SCREEN
M	CEILING CHOIR / RECORDING MICROPHONE	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AS DIRECTED ON CEILING PLAN
PC(X)	PRODUCTION INTERCOM (X) DENOTES TYPE SEE LEGEND FOR DETAILS SHEET A0.01	VARIES	VARIES
PTZ	PTZ CAMERA WITH WALL MOUNT BRACKET	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT 108" TO BOTTOM OF CAMERA

ROUGH-IN LEGEND

SYMBOL	DEVICE DESCRIPTION	ROUGH-IN	LOCATION
S	CEILING SPEAKER	4 SQ DEEP BOX WITH BLANK COVER & WHIP	MOUNT AS DIRECTED ON PLAN
SH	HIGH CEILING SPEAKER	4 SQ DEEP BOX WITH BLANK COVER & WHIP	MOUNT AS DIRECTED ON PLAN
S	PRESENTATION SYSTEM SPEAKER BAND, CHOIR, MUSIC LAB	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AT 96" AFF
SMP	RACK MOUNT CONTROL PANEL MOUNT IN STAGE MANAGERS PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
TPNL	TABLE TOP TILT CONTROL PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
VC	PRIORITY VOLUME CONTROL	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AT 52" AFF OR SWITCH HEIGHT
VP	CEILING MOUNTED VIDEO PROJECTOR	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
WP	WALL PLATE	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
	RECOMMENDED CONDUIT RISER / J-BOX LOCATION FOR AV EQUIPMENT RACK	-	AS SHOWN ON PLAN
	DOUBLE DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC
	DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC

WIRE TYPE DESCRIPTION

WIRE LEGEND

TYPE	QTY	DESCRIPTION	MANUFACTURER	NON PLENUM	PLENUM	CONDUCTORS
AD	X	AUDIO (DIGITAL MIC)	POLYCOM	CUSTOM	CUSTOM	SEE CABLE
AL	X	AUDIO (LINE)	BELDEN	9451	9451P	1 PR W/SHLD
AM	X	AUDIO (MICROPHONE)	BELDEN	9451	9451P	1 PR W/SHLD
AN	X	AUDIO (NETWORK OVER CAT CABLE)	GEPCO	-	2131611E	4 PR CAT CABLE W/SHLD
AP	X	MULTIPAIR AUDIO	BELDEN	1817R	1817R	8 PR W/SHLD
CAT	X	DIGITAL MEDIA CAT CABLE	CRESTRON	DM-CBL-NP-SP500	DM-CBL-P-SP500	(M) 4 PR CAT5E / (D) 4 PR SPECIAL (DM/Net), 1PR 18GA PWR/1 PR DATA
CG	X	CONTROL (GENERAL)	BELDEN	9751	82743	6 PR 20-22 GA
CN	X	DATA	BELDEN	1583A	1583A	4 PR CAT 5
CP	X	CONTROL (NETWORK)	CRESTRON	CRESNET	CRESNET-P	1 PR 18GA TWISTED (UNSHLD) 1 PR 22GA TWISTED (SHLD)
CQ	X	QUICK MEDIA SIAMESE CABLE	CRESTRON	CRESCAT-QM-NP	CRESCAT-QM-P	4 PR CATEGORY CABLE 1 PR 18GA PWR / 1 PR 22GA DATA
CR	X	CONTROL (IR)	BELDEN	9451	9451P	1 PR W/SHLD
CS	X	CONTROL (SERIAL)	BELDEN	9451	9451P	1 PR W/SHLD
D	X	DATA	BELDEN	1583A	1583A	4 PR CAT 5
DM	X	DIGITAL MEDIA 8G STP CABLE	CRESTRON	DM-CBL-8G-NP-SP500	DM-CBL-8G-P-SP500	(SPECIAL) 4 PR CAT (X) SHLD
DVI	X	DVI MOLDED CABLE	VARIES	-	-	DVI - DVI
EXT(X)	X	EXTRON MOLDED CABLE	EXTRON	(X) DENOTE NUMBER		VARIOUS
IM	X	PRODUCTION INTERCOM	WEST PENN	D-510	D-510	2 PR W/SHLD
HDMI	X	HDMI MOLDED CABLE	VARIES	-	-	HDMI - HDMI
LNK(X)	X	MANUFACTURER LINK CABLE	VARIES	1583A	1583A	4 PR CAT 5
P	X	LOW VOLTAGE POWER	BELDEN	8461	8461	18/2
R	X	RGBHV	LIBERTY	RGB5C	RGB5C-PLN	MINI HI RES
SL	X	SPEAKER (8 OHM) LONG	WEST PENN	C-210	C-210	10/2
SH	X	SPEAKER (8 OHM) SHORT	BELDEN	5100UE	6100UE	12/2
SZ	X	SPEAKER (70 VOLT)	BELDEN	5300UE	6300UE	18/2
T	X	TELEPHONE/DATA	BELDEN	1583A	1583A	4 PR CAT 5
VS	X	COMPOSITE VIDEO (SHORT)	BELDEN	1505A	1506A	RG-59/U
VL	X	COMPOSITE VIDEO (LONG)	BELDEN	1694A	1695A	RG-6/U
VN	X	VIDEO NETWORK	GEPCO	-	10GXS2F	4 PR CAT 6A W/ SHIELD
VDO(X)	X	VIDEO ADAPTER	VARIOUS	(X) DENOTE NUMBER		VARIOUS
Y	X	S-VIDEO (Y/C)	BELDEN	QTY (2) 1505A	QTY (2) 1506A	(2) RG-59/U

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SCHOOL DISTRICT LOGO

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BID DOCUMENTS

04.13.2020

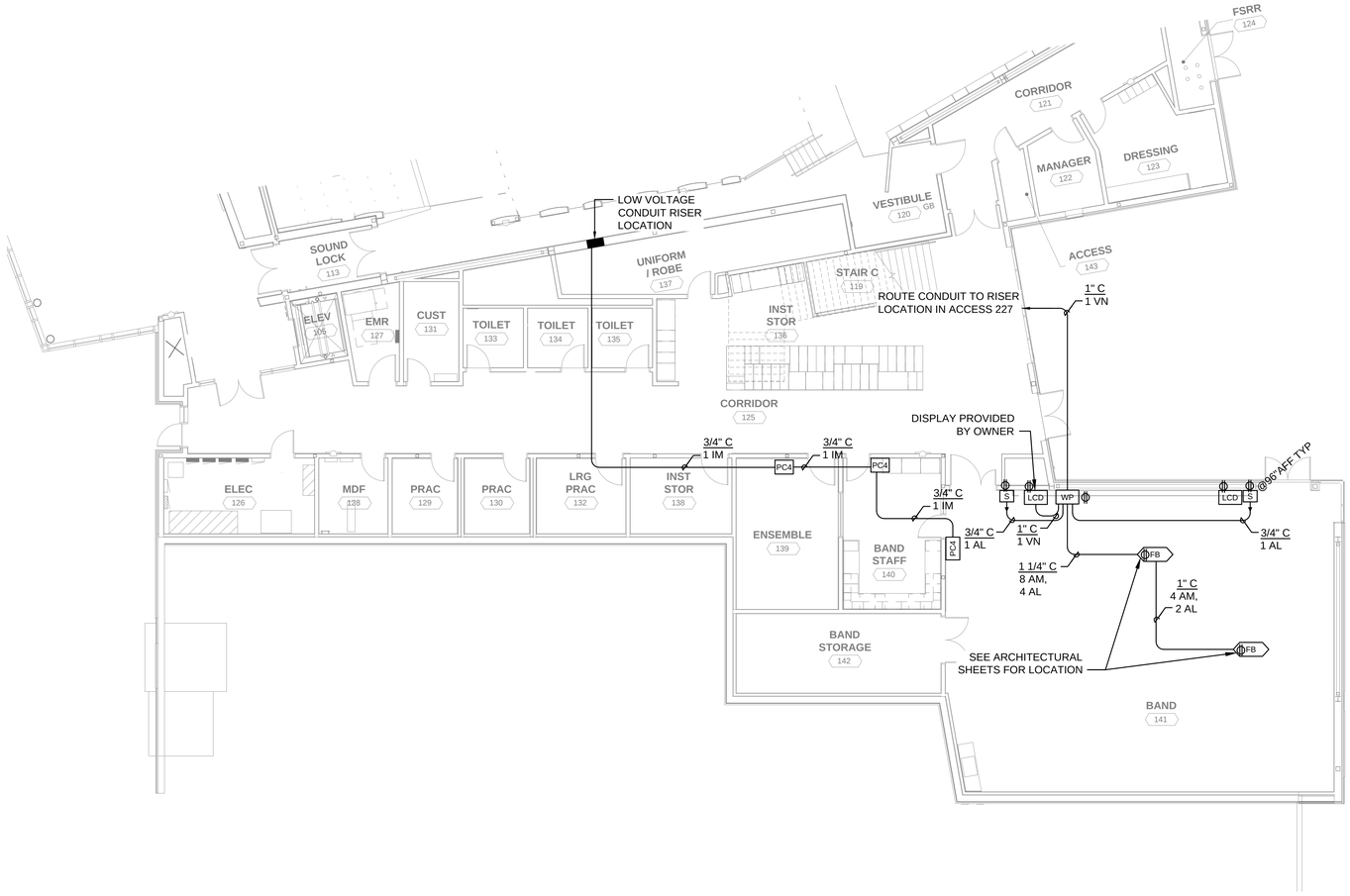
PROJECT NUMBER: 1711

SHEET NAME

LOWER LEVEL AV SYSTEMS AREA A

SHEET NUMBER

AV1.11



1 AREA B - LOWER LEVEL - AV SYSTEMS

1/8" = 1'-0"

0" 1" 2"

NORTH

ROUGH-IN LEGEND

SYMBOL	DEVICE DESCRIPTION	ROUGH-IN	LOCATION
ANT	WIRELESS MICROPHONE / ALS SYSTEM / INTERCOM ANTENNAE LOCATION	4 SQ DEEP BOX WITH SINGLE GANG RING	ABOVE 15' ON WALL, INTERCOM AT CATWALK
AVJB	LOCAL EQUIPMENT RACK LOCATION (MOUNT AS REQUIRED FOR CASEWORK ON SITE)	ROUGH IN AS REQUIRED BY CONDUIT QUANTITY	SEE DESCRIPTION
FB	FLOOR BOX	ETC CONNECT	SEE DESCRIPTION
HM	HOUSE MICROPHONE	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT ON BOTTOM OF CLOUD
J	J-BOX WITH POWER FOR PROJECTOR SCREEN CEILING BOX HOUSING (PROVIDE LOCAL SWITCH DISCONNECT)	PROVIDE 120VAC AT LEFT END OF PROJECTOR SCREEN	MOUNT AS DIRECTED ON PLAN
LA	LINE ARRAY SPEAKER / SUB WOOFER CLUSTER	SEE DETAIL SHEET FOR ROUGH IN REQUIREMENTS	MOUNT AS SHOWN ON PLANS
LCD	LCD DISPLAY (SIZE VARIES BY LOCATION)	SEE DETAIL SHEET FOR ROUGH IN REQUIREMENTS	MOUNT AS SHOWN ON PLANS
LVC	LOW VOLTAGE CONTROL FOR EXISTING PROJECTION SCREEN	PROVIDED BY AV CONTRACTOR	MOUNT AT LEFT END OF PROJECTION SCREEN
M	CEILING RECORDING MICROPHONE	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AS DIRECTED ON CEILING PLAN
PC(X)	PRODUCTION INTERCOM (X) DENOTES TYPE SEE LEGEND FOR DETAILS SHEET A0.01	VARIES	VARIES
PTZ	PTZ CAMERA WITH WALL MOUNT BRACKET	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT 108" TO BOTTOM OF CAMERA

ROUGH-IN LEGEND

SYMBOL	DEVICE DESCRIPTION	ROUGH-IN	LOCATION
S	CEILING SPEAKER	4 SQ DEEP BOX WITH BLANK COVER & WHIP	MOUNT AS DIRECTED ON PLAN
SH	HIGH CEILING SPEAKER	4 SQ DEEP BOX WITH BLANK COVER & WHIP	MOUNT AS DIRECTED ON PLAN
S	PRESENTATION SYSTEM SPEAKER BAND, CHOIR, MUSIC LAB	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AT 96" AFF
SMP	RACK MOUNT CONTROL PANEL MOUNT IN STAGE MANAGERS PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
TPNL	TABLE TOP TILT CONTROL PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
VC	PRIORITY VOLUME CONTROL	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AT 52" AFF OR SWITCH HEIGHT
VP	CEILING MOUNTED VIDEO PROJECTOR	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
WP	WALL PLATE	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
	RECOMMENDED CONDUIT RISER / J-BOX LOCATION FOR AV EQUIPMENT RACK	-	AS SHOWN ON PLAN
	DOUBLE DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC
	DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC

WIRE TYPE DESCRIPTION

WIRE LEGEND

TYPE	QTY	DESCRIPTION	MANUFACTURER	NON PLENUM	PLENUM	CONDUCTORS
AD	X	AUDIO (DIGITAL MIC)	POLYCOM	CUSTOM	CUSTOM	SEE CABLE
AL	X	AUDIO (LINE)	BIELDEN	9451	9451P	1 PR W/SHLD
AM	X	AUDIO (MICROPHONE)	BIELDEN	9451	9451P	1 PR W/SHLD
AN	X	AUDIO (NETWORK OVER CAT CABLE)	GEPCO	-	2131611E	4 PR CAT CABLE W/SHLD
AP	X	MULTIPAIR AUDIO	BIELDEN	1817R	1817R	8 PR W/SHLD
CAT	X	DIGITAL MEDIA CAT CABLE	CRESTRON	DM-CBL-NP-SP500	DM-CBL-P-SP500	(M) 4 PR CAT5E / (D) 4 PR SPECIAL (DMNet) 1PR 18GA PWR/1 PR DATA
CG	X	CONTROL (GENERAL)	BIELDEN	9751	82743	6 PR 20-22 GA
CN	X	DATA	BIELDEN	1583A	1583A	4 PR CAT 5
CP	X	CONTROL (NETWORK)	CRESTRON	CRESNET	CRESNET-P	1 PR 18GA TWISTED (UNSHLD) 1 PR 22GA TWISTED (SHLD)
CQ	X	QUICK MEDIA SIAMESE CABLE	CRESTRON	CRESCAT-QM-NP	CRESCAT-QM-P	4 PR CATEGORY CABLE 1 PR 18GA PWR / 1 PR 22GA DATA
CR	X	CONTROL (IR)	BIELDEN	9451	9451P	1 PR W/SHLD
CS	X	CONTROL (SERIAL)	BIELDEN	9451	9451P	1 PR W/SHLD
D	X	DATA	BIELDEN	1583A	1583A	4 PR CAT 5
DM	X	DIGITAL MEDIA 8G STP CABLE	CRESTRON	DM-CBL-8G-NP-SP500	DM-CBL-8G-P-SP500	(SPECIAL) 4 PR CAT (X) SHLD
DVI	X	DVI MOLDED CABLE	VARIES	-	-	DVI - DVI
EXT(X)	X	EXTRON MOLDED CABLE	EXTRON	(X) DENOTE NUMBER		VARIOUS
IM	X	PRODUCTION INTERCOM	WEST PENN	D-510	D-510	2 PR W/SHLD
HDMI	X	HDMI MOLDED CABLE	VARIES	-	-	HDMI - HDMI
LNK(X)	X	MANUFACTURER LINK CABLE	VARIES	1583A	1583A	4 PR CAT 5
P	X	LOW VOLTAGE POWER	BIELDEN	8461	8461	18/2
R	X	RGBHV	LIBERTY	RGB5C	RGB5C-PLN	MINI HI RES
SL	X	SPEAKER (8 OHM) LONG	WEST PENN	C-210	C-210	10/2
SH	X	SPEAKER (8 OHM) SHORT	BIELDEN	5100UE	6100UE	12/2
SZ	X	SPEAKER (70 VOLT)	BIELDEN	5300UE	6300UE	18/2
T	X	TELEPHONE/DATA	BIELDEN	1583A	1583A	4 PR CAT 5
VS	X	COMPOSITE VIDEO (SHORT)	BIELDEN	1505A	1506A	RG-59/U
VL	X	COMPOSITE VIDEO (LONG)	BIELDEN	1694A	1695A	RG-6/U
VN	X	VIDEO NETWORK	GEPCO	-	10GX52F	4 PR CAT 6A W SHIELD
VDO(X)	X	VIDEO ADAPTER	VARIOUS	(X) DENOTE NUMBER		VARIOUS
Y	X	S-VIDEO (Y/C)	BIELDEN	QTY (2) 1505A	QTY (2) 1506A	(2) RG-59/U

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SCHOOL DISTRICT LOGO

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BID DOCUMENTS

04.13.2020

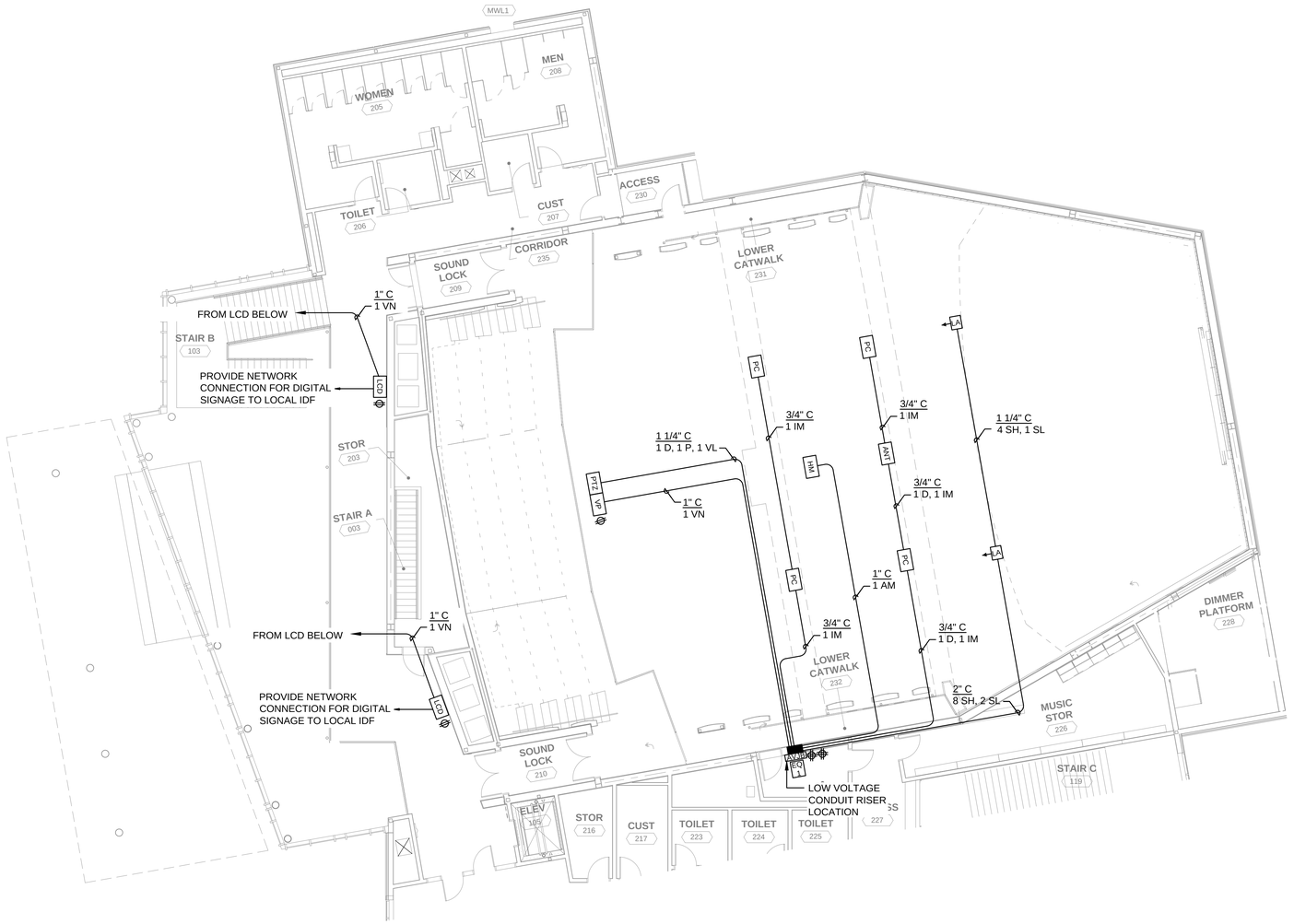
PROJECT NUMBER: 1711

SHEET NAME

LOWER LEVEL AV SYSTEMS AREA B

SHEET NUMBER

AV1.12



1 AREA A - UPPER LEVEL - AV SYSTEMS

1/8" = 1'-0"

NORTH

0" 1" 2"

ROUGH-IN LEGEND

SYMBOL	DEVICE DESCRIPTION	ROUGH-IN	LOCATION
ANT	WIRELESS MICROPHONE / ALS SYSTEM / INTERCOM ANTENNAE LOCATION	4 SQ DEEP BOX WITH SINGLE GANG RING	ABOVE 15' ON WALL INTERCOM AT CATWALK
AVJB	LOCAL EQUIPMENT RACK LOCATION (MOUNT AS REQUIRED FOR CASEWORK ON SITE)	ROUGH IN AS REQUIRED BY CONDUIT QUANTITY	SEE DESCRIPTION
FB	FLOOR BOX	ETC CONNECT	SEE DESCRIPTION
HM	HOUSE MICROPHONE	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT ON BOTTOM OF CLOUD
J	J-BOX WITH POWER FOR PROJECTOR SCREEN CEILING BOX HOUSING (PROVIDE LOCAL SWITCH DISCONNECT)	PROVIDE 120VAC AT LEFT END OF PROJECTOR SCREEN	MOUNT AS DIRECTED ON PLAN
LA	LINE ARRAY SPEAKER / SUB WOOFER CLUSTER	SEE DETAIL SHEET FOR ROUGH IN REQUIREMENTS	MOUNT AS SHOWN ON PLANS
LCD	LCD DISPLAY (SIZE VARIES BY LOCATION)	SEE DETAIL SHEET FOR ROUGH IN REQUIREMENTS	MOUNT AS SHOWN ON PLANS
LVC	LOW VOLTAGE CONTROL FOR EXISTING PROJECTION SCREEN	PROVIDED BY AV CONTRACTOR	MOUNT AT LEFT END OF PROJECTION SCREEN
M	CEILING RECORDING MICROPHONE	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AS DIRECTED ON CEILING PLAN
PC(X)	PRODUCTION INTERCOM (X) DENOTES TYPE SEE LEGEND FOR DETAILS SHEET A0.01	VARIES	VARIES
PTZ	PTZ CAMERA WITH WALL MOUNT BRACKET	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT 108" TO BOTTOM OF CAMERA

ROUGH-IN LEGEND

SYMBOL	DEVICE DESCRIPTION	ROUGH-IN	LOCATION
S	CEILING SPEAKER	4 SQ DEEP BOX WITH BLANK COVER & WHIP	MOUNT AS DIRECTED ON PLAN
SH	HIGH CEILING SPEAKER	4 SQ DEEP BOX WITH BLANK COVER & WHIP	MOUNT AS DIRECTED ON PLAN
S	PRESENTATION SYSTEM SPEAKER BAND, CHOIR, MUSIC LAB	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AT 96" AFF
SMP	RACK MOUNT CONTROL PANEL MOUNT IN STAGE MANAGERS PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
TPNL	TABLE TOP TILT CONTROL PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
VC	PRIORITY VOLUME CONTROL	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AT 52" AFF OR SWITCH HEIGHT
VP	CEILING MOUNTED VIDEO PROJECTOR	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
WP	WALL PLATE	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
	RECOMMENDED CONDUIT RISER / J-BOX LOCATION FOR AV EQUIPMENT RACK	-	AS SHOWN ON PLAN
	DOUBLE DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC
	DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC

WIRE TYPE DESCRIPTION

WIRE LEGEND

TYPE	QTY	DESCRIPTION	MANUFACTURER	NON PLENUM	PLENUM	CONDUCTORS
AD	X	AUDIO (DIGITAL MIC)	POLYCOM	CUSTOM	CUSTOM	SEE CABLE
AL	X	AUDIO (LINE)	BELDEN	9451	9451P	1 PR W/SHLD
AM	X	AUDIO (MICROPHONE)	BELDEN	9451	9451P	1 PR W/SHLD
AN	X	AUDIO (NETWORK OVER CAT CABLE)	GEPCO	-	2131611E	4 PR CAT CABLE W/SHLD
AP	X	MULTIPAIR AUDIO	BELDEN	1817R	1817R	8 PR W/SHLD
CAT	X	DIGITAL MEDIA CAT CABLE	CRESTRON	DM-CBL-NP-SP500	DM-CBL-P-SP500	(M) 4 PR CAT5E / (D) 4 PR SPECIAL (DM/Net), 1PR,18GA PWR/1 PR DATA
CG	X	CONTROL (GENERAL)	BELDEN	9751	82743	6 PR 20-22 GA
CN	X	DATA	BELDEN	1583A	1583A	4 PR CAT 5
CP	X	CONTROL (NETWORK)	CRESTRON	CRESNET	CRESNET-P	1 PR 18GA TWISTED (UNSHLD) 1 PR 22GA TWISTED (SHLD)
CQ	X	QUICK MEDIA SIAMESE CABLE	CRESTRON	CRESCAT-QM-NP	CRESCAT-QM-P	4 PR CATEGORY CABLE 1 PR 18GA PWR / 1 PR 22GA DATA
CR	X	CONTROL (IR)	BELDEN	9451	9451P	1 PR W/SHLD
CS	X	CONTROL (SERIAL)	BELDEN	9451	9451P	1 PR W/SHLD
D	X	DATA	BELDEN	1583A	1583A	4 PR CAT 5
DM	X	DIGITAL MEDIA 8G STP CABLE	CRESTRON	DM-CBL-8G-NP-SP500	DM-CBL-8G-P-SP500	(SPECIAL) 4 PR CAT (X) SHLD
DVI	X	DVI MOLDED CABLE	VARIES	-	-	DVI - DVI
EXT(X)	X	EXTRON MOLDED CABLE	EXTRON	(X) DENOTE NUMBER		VARIOUS
IM	X	PRODUCTION INTERCOM	WEST PENN	D-510	D-510	2 PR W/SHLD
HDMI	X	HDMI MOLDED CABLE	VARIES	-	-	HDMI - HDMI
LNK(X)	X	MANUFACTURER LINK CABLE	VARIES	1583A	1583A	4 PR CAT 5
P	X	LOW VOLTAGE POWER	BELDEN	8461	8461	18/2
R	X	RGBHV	LIBERTY	RGB5C	RGB5C-PLN	MINI HI RES
SL	X	SPEAKER (8 OHM) LONG	WEST PENN	C-210	C-210	10/2
SH	X	SPEAKER (8 OHM) SHORT	BELDEN	5100UE	6100UE	12/2
SZ	X	SPEAKER (70 VOLT)	BELDEN	5300UE	6300UE	18/2
T	X	TELEPHONE/DATA	BELDEN	1583A	1583A	4 PR CAT 5
VS	X	COMPOSITE VIDEO (SHORT)	BELDEN	1505A	1506A	RG-59/U
VL	X	COMPOSITE VIDEO (LONG)	BELDEN	1694A	1695A	RG-6/U
VN	X	VIDEO NETWORK	GEPCO		10GXS2F	4 PR CAT 6A W/ SHIELD
VDO(X)	X	VIDEO ADAPTER	VARIOUS	(X) DENOTE NUMBER		VARIOUS
Y	X	S-VIDEO (Y/C)	BELDEN	QTY (2) 1505A	QTY (2) 1506A	(2) RG-59/U

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Rd NE
Kenmore, WA 98028

NORTHSHORE SCHOOL DISTRICT No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.19	SCHEMATIC DESIGN
04.08.19	VALUE ENGINEERING
10.18.19	DESIGN DEVELOPMENT
01.13.2020	CONSTRUCTABILITY REVIEW
03.23.2020	HEALTH DEPARTMENT PERMIT SUBMITTAL
04-13-2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

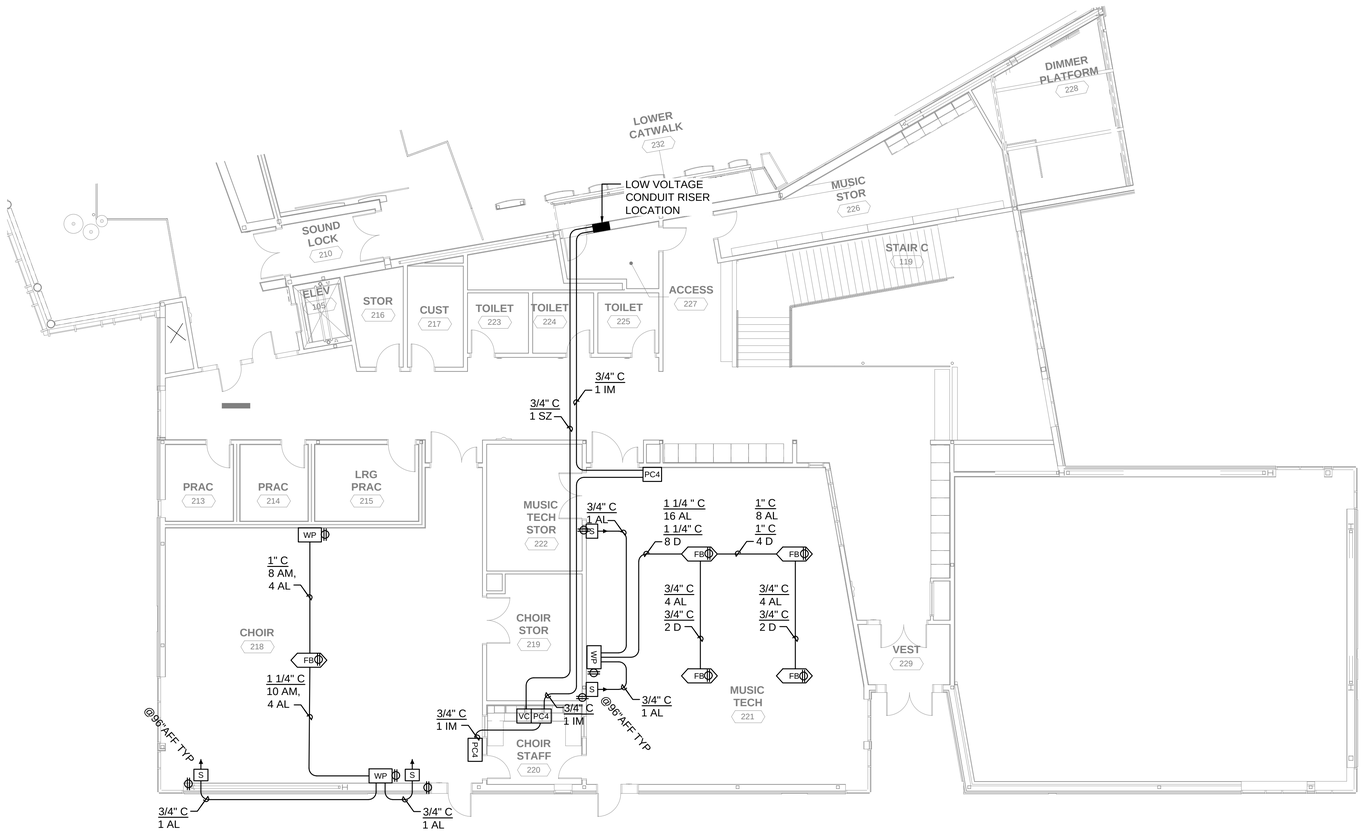
PROJECT NUMBER: 1711

SHEET NAME

UPPER LEVEL AV SYSTEMS AREA A

SHEET NUMBER

AV1.21



1 AREA B - UPPER LEVEL - AV SYSTEMS

1/8" = 1'-0"

0" 1" 2"

NORTH

ROUGH-IN LEGEND

SYMBOL	DEVICE DESCRIPTION	ROUGH-IN	LOCATION
ANT	WIRELESS MICROPHONE / ALS SYSTEM / INTERCOM ANTENNAE LOCATION	4 SQ DEEP BOX WITH SINGLE GANG RING	ABOVE 15' ON WALL INTERCOM AT CATWALK
AVJB	LOCAL EQUIPMENT RACK LOCATION (MOUNT AS REQUIRED FOR CASEWORK ON SITE)	ROUGH IN AS REQUIRED BY CONDUIT QUANTITY	SEE DESCRIPTION
FB	FLOOR BOX	ETC CONNECT	SEE DESCRIPTION
HM	HOUSE MICROPHONE	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT ON BOTTOM OF CLOUD
J	J-BOX WITH POWER FOR PROJECTOR SCREEN CEILING BOX HOUSING (PROVIDE LOCAL SWITCH DISCONNECT)	PROVIDE 120VAC AT LEFT END OF PROJECTOR SCREEN	MOUNT AS DIRECTED ON PLAN
LA	LINE ARRAY SPEAKER / SUB WOOFER CLUSTER	SEE DETAIL SHEET FOR ROUGH IN REQUIREMENTS	MOUNT AS SHOWN ON PLANS
LCD	LCD DISPLAY (SIZE VARIES BY LOCATION)	SEE DETAIL SHEET FOR ROUGH IN REQUIREMENTS	MOUNT AS SHOWN ON PLANS
LVC	LOW VOLTAGE CONTROL FOR EXISTING PROJECTION SCREEN	PROVIDED BY AV CONTRACTOR	MOUNT AT LEFT END OF PROJECTION SCREEN
M	CEILING RECORDING MICROPHONE	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AS DIRECTED ON CEILING PLAN
PC(X)	PRODUCTION INTERCOM (X) DENOTES TYPE SEE LEGEND FOR DETAILS SHEET A0.01	VARIES	VARIES
PTZ	PTZ CAMERA WITH WALL MOUNT BRACKET	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT 108" TO BOTTOM OF CAMERA

ROUGH-IN LEGEND

SYMBOL	DEVICE DESCRIPTION	ROUGH-IN	LOCATION
S	CEILING SPEAKER	4 SQ DEEP BOX WITH BLANK COVER & WHIP	MOUNT AS DIRECTED ON PLAN
SH	HIGH CEILING SPEAKER	4 SQ DEEP BOX WITH BLANK COVER & WHIP	MOUNT AS DIRECTED ON PLAN
S	PRESENTATION SYSTEM SPEAKER BAND, CHOIR, MUSIC LAB	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AT 96" AFF
SMP	RACK MOUNT CONTROL PANEL MOUNT IN STAGE MANAGERS PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
TPNL	TABLE TOP TILT CONTROL PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
VC	PRIORITY VOLUME CONTROL	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AT 52" AFF OR SWITCH HEIGHT
VP	CEILING MOUNTED VIDEO PROJECTOR	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
WP	WALL PLATE	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
	RECOMMENDED CONDUIT RISER / J-BOX LOCATION FOR AV EQUIPMENT RACK	-	AS SHOWN ON PLAN
	DOUBLE DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC
	DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC

WIRE TYPE DESCRIPTION

WIRE LEGEND

TYPE	QTY	DESCRIPTION	MANUFACTURER	NON PLENUM	PLENUM	CONDUCTORS
AD	X	AUDIO (DIGITAL MIC)	POLYCOM	CUSTOM	CUSTOM	SEE CABLE
AL	X	AUDIO (LINE)	BELDEN	9451	9451P	1 PR W/SHLD
AM	X	AUDIO (MICROPHONE)	BELDEN	9451	9451P	1 PR W/SHLD
AN	X	AUDIO (NETWORK OVER CAT CABLE)	GEPCO	-	2131611E	4 PR CAT CABLE W/SHLD
AP	X	MULTIPAIR AUDIO	BELDEN	1817R	1817R	8 PR W/SHLD
CAT	X	DIGITAL MEDIA CAT CABLE	CRESTRON	DM-CBL-NP-SP500	DM-CBL-P-SP500	(M) 4 PR CAT5E / (D) 4 PR SPECIAL (DMNet) 1PR 18GA PWR/1 PR DATA
CG	X	CONTROL (GENERAL)	BELDEN	9751	82743	6 PR 20-22 GA
CN	X	DATA	BELDEN	1583A	1583A	4 PR CAT 5
CP	X	CONTROL (NETWORK)	CRESTRON	CRESNET	CRESNET-P	1 PR 18GA TWISTED (UNSHLD) 1 PR 22GA TWISTED (SHLD)
CQ	X	QUICK MEDIA SIAMESE CABLE	CRESTRON	CRESCAT-QM-NP	CRESCAT-QM-P	4 PR CATEGORY CABLE 1 PR 18GA PWR / 1 PR 22GA DATA
CR	X	CONTROL (IR)	BELDEN	9451	9451P	1 PR W/SHLD
CS	X	CONTROL (SERIAL)	BELDEN	9451	9451P	1 PR W/SHLD
D	X	DATA	BELDEN	1583A	1583A	4 PR CAT 5
DM	X	DIGITAL MEDIA 8G STP CABLE	CRESTRON	DM-CBL-8G-NP-SP500	DM-CBL-8G-P-SP500	(SPECIAL) 4 PR CAT (X) SHLD
DVI	X	DVI MOLDED CABLE	VARIES	-	-	DVI - DVI
EXT(X)	X	EXTRON MOLDED CABLE	EXTRON	(X) DENOTE NUMBER		VARIOUS
IM	X	PRODUCTION INTERCOM	WEST PENN	D-510	D-510	2 PR W/SHLD
HDMI	X	HDMI MOLDED CABLE	VARIES	-	-	HDMI - HDMI
LNK(X)	X	MANUFACTURER LINK CABLE	VARIES	1583A	1583A	4 PR CAT 5
P	X	LOW VOLTAGE POWER	BELDEN	8461	8461	18/2
R	X	RGBHV	LIBERTY	RGB5C	RGB5C-PLN	MINI HI RES
SL	X	SPEAKER (8 OHM) LONG	WEST PENN	C-210	C-210	10/2
SH	X	SPEAKER (8 OHM) SHORT	BELDEN	5100UE	6100UE	12/2
SZ	X	SPEAKER (70 VOLT)	BELDEN	5300UE	6300UE	18/2
T	X	TELEPHONE/DATA	BELDEN	1583A	1583A	4 PR CAT 5
VS	X	COMPOSITE VIDEO (SHORT)	BELDEN	1505A	1506A	RG-59/U
VL	X	COMPOSITE VIDEO (LONG)	BELDEN	1694A	1695A	RG-6/U
VN	X	VIDEO NETWORK	GEPCO	-	10GX52F	4 PR CAT 6A W/ SHIELD
VOD(X)	X	VIDEO ADAPTER	VARIOUS	(X) DENOTE NUMBER		VARIOUS
Y	X	S-VIDEO (Y/C)	BELDEN	QTY (2) 1505A	QTY (2) 1506A	(2) RG-59/U

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BID DOCUMENTS

04.13.2020

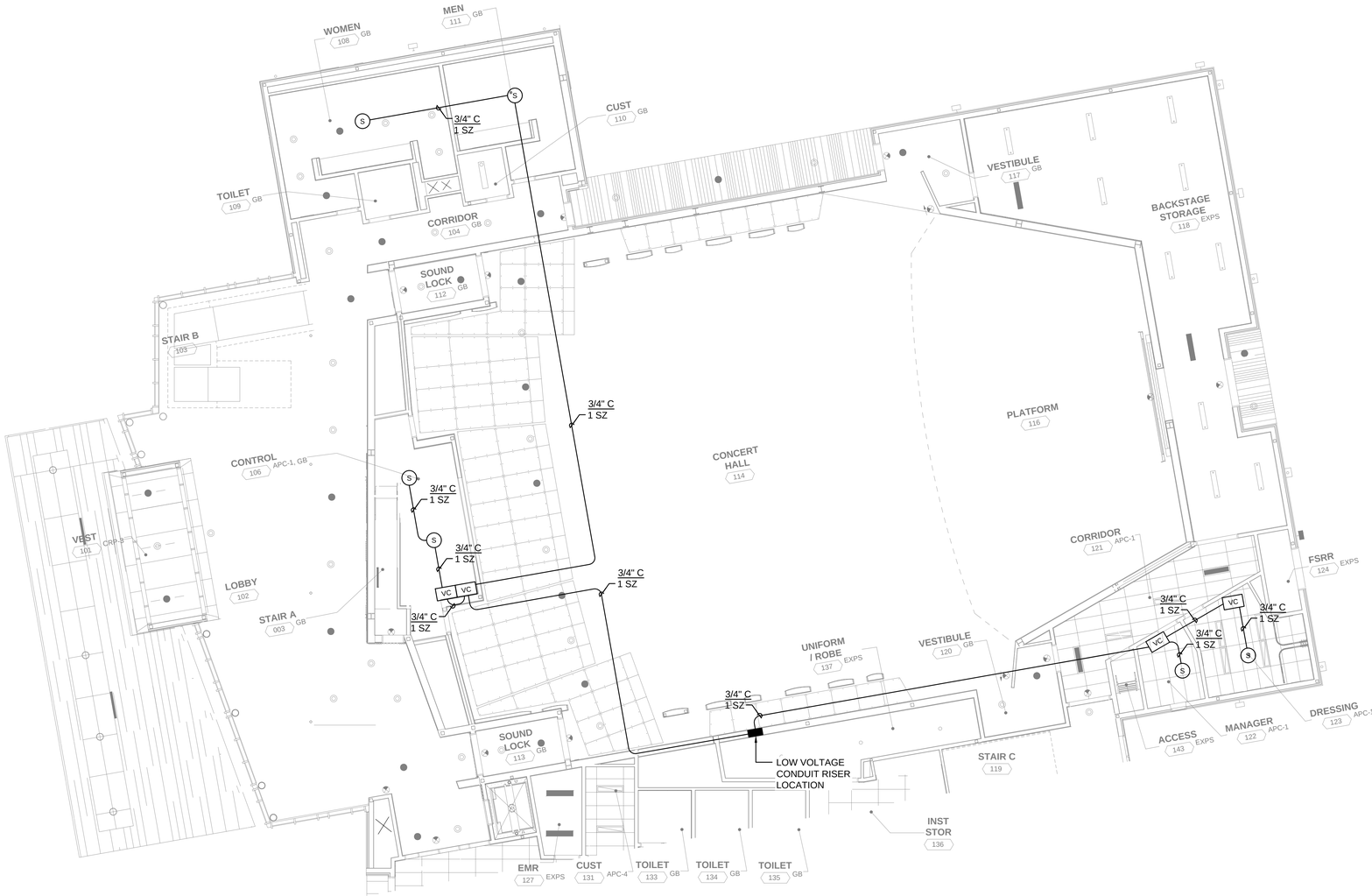
PROJECT NUMBER: 1711

SHEET NAME

UPPER LEVEL AV SYSTEMS AREA B

SHEET NUMBER

AV1.22



1 AREA A - LOWER LEVEL CEILING PLAN - AV SYSTEMS

1/8" = 1'-0"

0" 1" 2" NORTH

ROUGH-IN LEGEND

SYMBOL	DEVICE DESCRIPTION	ROUGH-IN	LOCATION
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AVJB	LOCAL EQUIPMENT RACK LOCATION (MOUNT AS REQUIRED FOR CASEWORK ON SITE)	ROUGH IN AS REQUIRED BY CONDUIT QUANTITY	SEE DESCRIPTION
FB	FLOOR BOX	ETC CONNECT	SEE DESCRIPTION
HM	HOUSE MICROPHONE	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT ON BOTTOM OF CLOUD
J	J-BOX WITH POWER FOR PROJECTOR SCREEN CEILING BOX HOUSING (PROVIDE LOCAL SWITCH DISCONNECT)	PROVIDE 120VAC AT LEFT END OF PROJECTOR SCREEN	MOUNT AS DIRECTED ON PLAN
LA	LINE ARRAY SPEAKER / SUB WOOFER CLUSTER	SEE DETAIL SHEET FOR ROUGH IN REQUIREMENTS	MOUNT AS SHOWN ON PLANS
LCD	LCD DISPLAY (SIZE VARIES BY LOCATION)	SEE DETAIL SHEET FOR ROUGH IN REQUIREMENTS	MOUNT AS SHOWN ON PLANS
LVC	LOW VOLTAGE CONTROL FOR EXISTING PROJECTION SCREEN	PROVIDED BY AV CONTRACTOR	MOUNT AT LEFT END OF PROJECTION SCREEN
M	CEILING RECORDING MICROPHONE	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AS DIRECTED ON CEILING PLAN
PC(X)	PRODUCTION INTERCOM (X) DENOTES TYPE SEE LEGEND FOR DETAILS SHEET A0.01	VARIES	VARIES
PTZ	PTZ CAMERA WITH WALL MOUNT BRACKET	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT 108" TO BOTTOM OF CAMERA

ROUGH-IN LEGEND

SYMBOL	DEVICE DESCRIPTION	ROUGH-IN	LOCATION
S	CEILING SPEAKER	4 SQ DEEP BOX WITH BLANK COVER & WHIP	MOUNT AS DIRECTED ON PLAN
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SMP	RACK MOUNT CONTROL PANEL MOUNT IN STAGE MANAGERS PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
TPNL	TABLE TOP TILT CONTROL PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
VC	PRIORITY VOLUME CONTROL	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AT 52" AFF OR SWITCH HEIGHT
VP	CEILING MOUNTED VIDEO PROJECTOR	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
WP	WALL PLATE	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
	RECOMMENDED CONDUIT RISER / J-BOX LOCATION FOR AV EQUIPMENT RACK	-	AS SHOWN ON PLAN
	DOUBLE DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC
	DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC

WIRE TYPE DESCRIPTION

WIRE LEGEND

TYPE	QTY	DESCRIPTION	MANUFACTURER	NON PLENUM	PLENUM	CONDUCTORS
AD	X	AUDIO (DIGITAL MIC)	POLYCOM	CUSTOM	CUSTOM	SEE CABLE
AL	X	AUDIO (LINE)	BELDEN	9451	9451P	1 PR W/SHLD
AM	X	AUDIO (MICROPHONE)	BELDEN	9451	9451P	1 PR W/SHLD
AN	X	AUDIO (NETWORK OVER CAT CABLE)	GEPCO	-	2131611E	4 PR CAT CABLE W/SHLD
AP	X	MULTIPAIR AUDIO	BELDEN	1817R	1817R	8 PR W/SHLD
CAT	X	DIGITAL MEDIA CAT CABLE	CRESTRON	DM-CBL-NP-SP500	DM-CBL-P-SP500	(M) 4 PR CAT5E / (D) 4 PR SPECIAL (DMNet), 1PR 18GA PWR/1 PR DATA
CG	X	CONTROL (GENERAL)	BELDEN	9751	82743	6 PR 20-22 GA
CN	X	DATA	BELDEN	1583A	1583A	4 PR CAT 5
CP	X	CONTROL (NETWORK)	CRESTRON	CRESNET	CRESNET-P	1 PR 18GA TWISTED (UNSHLD) 1 PR 22GA TWISTED (SHLD)
CQ	X	QUICK MEDIA SIAMESE CABLE	CRESTRON	CRESCAT-QM-NP	CRESCAT-QM-P	4 PR CATEGORY CABLE 1 PR 18GA PWR / 1 PR 22GA DATA
CR	X	CONTROL (IR)	BELDEN	9451	9451P	1 PR W/SHLD
CS	X	CONTROL (SERIAL)	BELDEN	9451	9451P	1 PR W/SHLD
D	X	DATA	BELDEN	1583A	1583A	4 PR CAT 5
DM	X	DIGITAL MEDIA 8G STP CABLE	CRESTRON	DM-CBL-8G-NP-SP500	DM-CBL-8G-P-SP500	(SPECIAL) 4 PR CAT (X) SHLD
DVI	X	DVI MOLDED CABLE	VARIES	-	-	DVI - DVI
EXT(X)	X	EXTRON MOLDED CABLE	EXTRON	(X) DENOTE NUMBER		VARIOUS
IM	X	PRODUCTION INTERCOM	WEST PENN	D-510	D-510	2 PR W/SHLD
HDMI	X	HDMI MOLDED CABLE	VARIES	-	-	HDMI - HDMI
LNK(X)	X	MANUFACTURER LINK CABLE	VARIES	1583A	1583A	4 PR CAT 5
P	X	LOW VOLTAGE POWER	BELDEN	8461	8461	18/2
R	X	RGBHV	LIBERTY	RGB5C	RGB5C-PLN	MINI HI RES
SL	X	SPEAKER (8 OHM) LONG	WEST PENN	C-210	C-210	10/2
SH	X	SPEAKER (8 OHM) SHORT	BELDEN	5100UE	6100UE	12/2
SZ	X	SPEAKER (70 VOLT)	BELDEN	5300UE	6300UE	18/2
T	X	TELEPHONE/DATA	BELDEN	1583A	1583A	4 PR CAT 5
VS	X	COMPOSITE VIDEO (SHORT)	BELDEN	1505A	1506A	RG-59/U
VL	X	COMPOSITE VIDEO (LONG)	BELDEN	1694A	1695A	RG-6/U
VN	X	VIDEO NETWORK	GEPCO	-	10GXS2F	4 PR CAT 6A W/ SHIELD
VDO(X)	X	VIDEO ADAPTER	VARIOUS	(X) DENOTE NUMBER		VARIOUS
Y	X	S-VIDEO (Y/C)	BELDEN	QTY (2) 1505A	QTY (2) 1506A	(2) RG-59/U

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BID DOCUMENTS

04.13.2020

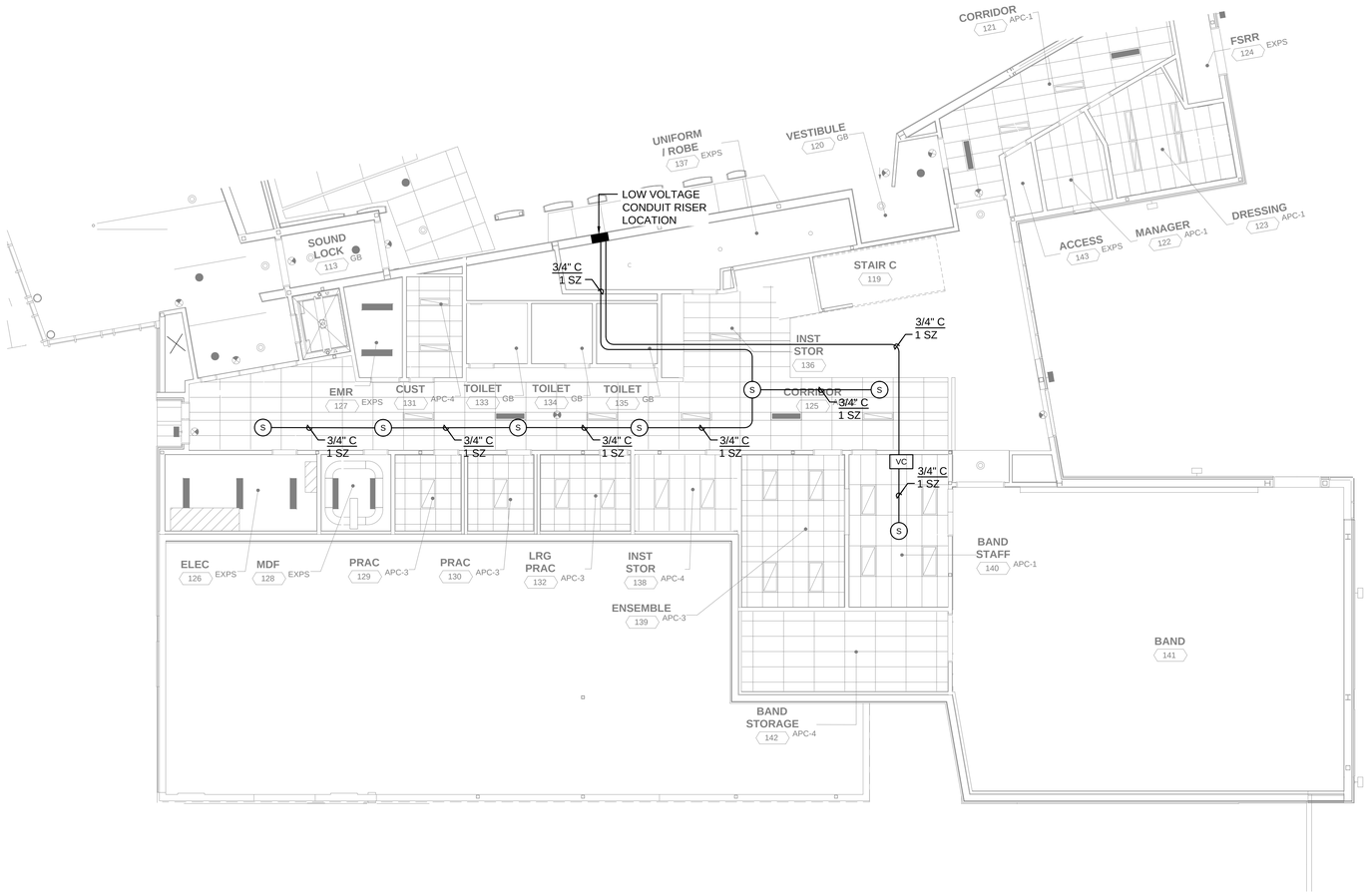
PROJECT NUMBER: 1711

SHEET NAME

LOWER LEVEL CEILING PLAN AV SYSTEMS AREA A

SHEET NUMBER

AV2.11



1 AREA B - LOWER LEVEL CEILING PLAN - AV SYSTEMS

1/8" = 1'-0"

NORTH

0" 1" 2"

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SYMBOL	DEVICE DESCRIPTION	ROUGH-IN	LOCATION
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WIRE LEGEND

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04.13.2020

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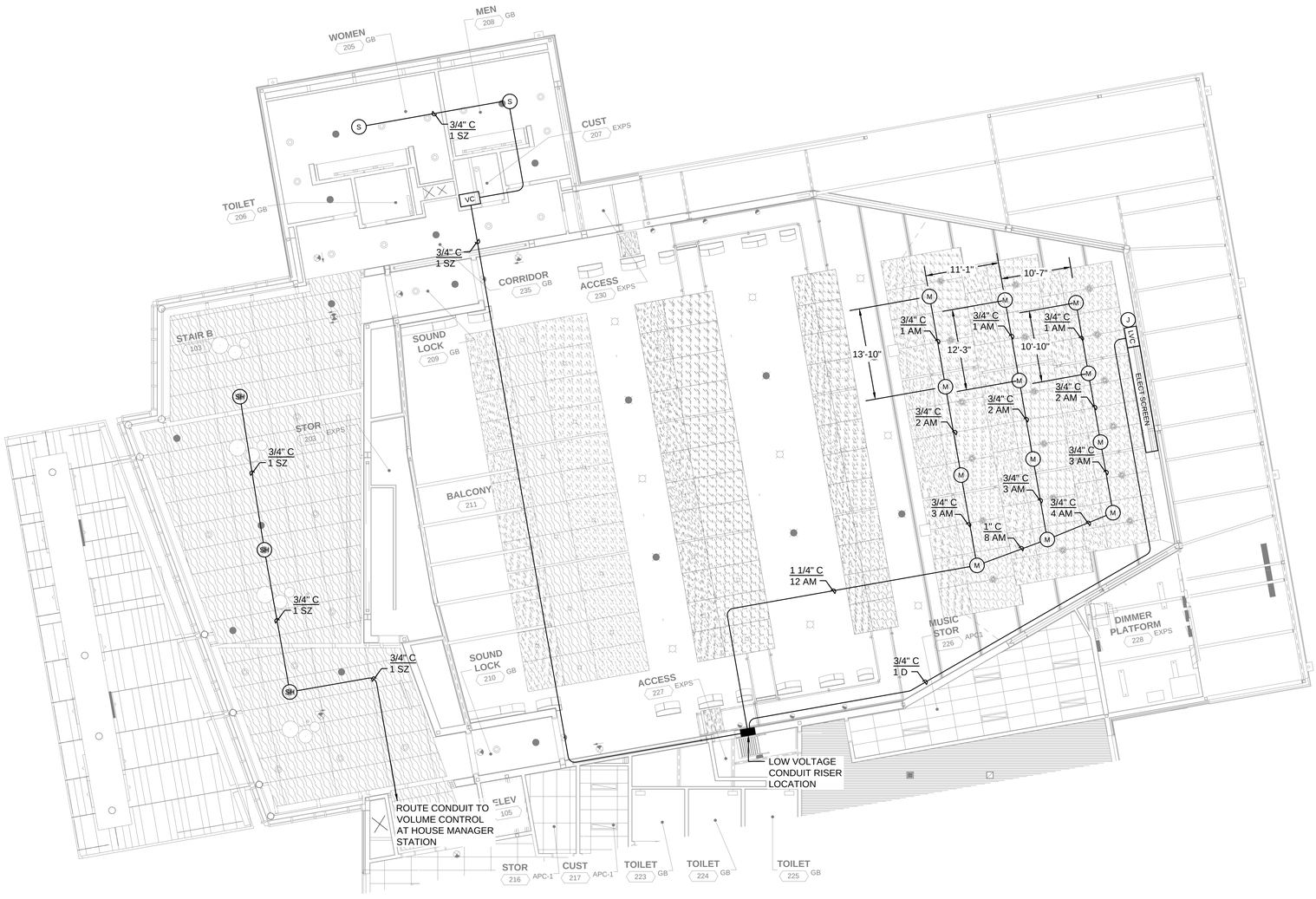
SHEET NAME

LOWER LEVEL CEILING PLAN AV SYSTEMS AREA B

SHEET NUMBER

AV2.12



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J	J-BOX WITH POWER FOR PROJECTOR SCREEN CEILING BOX HOUSING (PROVIDE LOCAL SWITCH DISCONNECT)	PROVIDE 120VAC AT LEFT END OF PROJECTOR SCREEN	MOUNT AS DIRECTED ON PLAN
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LVC	LOW VOLTAGE CONTROL FOR EXISTING PROJECTION SCREEN	PROVIDED BY AV CONTRACTOR	MOUNT AT LEFT END OF PROJECTION SCREEN
M	CEILING RECORDING MICROPHONE	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AS DIRECTED ON CEILING PLAN
PC(X)	PRODUCTION INTERCOM (X) DENOTES TYPE SEE LEGEND FOR DETAILS SHEET A0.01	VARIES	VARIES
PTZ	PTZ CAMERA WITH WALL MOUNT BRACKET	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT 108" TO BOTTOM OF CAMERA

ROUGH-IN LEGEND

SYMBOL	DEVICE DESCRIPTION	ROUGH-IN	LOCATION
S	CEILING SPEAKER	4 SQ DEEP BOX WITH BLANK COVER & WHIP	MOUNT AS DIRECTED ON PLAN
SH	HIGH CEILING SPEAKER	4 SQ DEEP BOX WITH BLANK COVER & WHIP	MOUNT AS DIRECTED ON PLAN
S	PRESENTATION SYSTEM SPEAKER BAND, CHOIR, MUSIC LAB	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AT 96" AFF
SMP	RACK MOUNT CONTROL PANEL MOUNT IN STAGE MANAGERS PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
TPNL	TABLE TOP TILT CONTROL PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
VC	PRIORITY VOLUME CONTROL	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AT 52" AFF OR SWITCH HEIGHT
VP	CEILING MOUNTED VIDEO PROJECTOR	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
WP	WALL PLATE	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
	RECOMMENDED CONDUIT RISER / J-BOX LOCATION FOR AV EQUIPMENT RACK	-	AS SHOWN ON PLAN
	DOUBLE DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC
	DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC

WIRE TYPE DESCRIPTION

WIRE LEGEND

TYPE	QTY	DESCRIPTION	MANUFACTURER	NON PLENUM	PLENUM	CONDUCTORS
AD	X	AUDIO (DIGITAL MIC)	POLYCOM	CUSTOM	CUSTOM	SEE CABLE
AL	X	AUDIO (LINE)	BELDEN	9451	9451P	1 PR W/SHLD
AM	X	AUDIO (MICROPHONE)	BELDEN	9451	9451P	1 PR W/SHLD
AN	X	AUDIO (NETWORK OVER CAT CABLE)	GEPCO	-	2131611E	4 PR CAT CABLE W/SHLD
AP	X	MULTIPAIR AUDIO	BELDEN	1817R	1817R	8 PR W/SHLD
CAT	X	DIGITAL MEDIA CAT CABLE	CRESTRON	DM-CBL-NP-SP500	DM-CBL-P-SP500	(M) 4 PR CAT5E / (D) 4 PR SPECIAL (DM/Net) 1PR 18GA PWR/1 PR DATA
CG	X	CONTROL (GENERAL)	BELDEN	9751	82743	6 PR 20-22 GA
CN	X	DATA	BELDEN	1583A	1583A	4 PR CAT 5
CP	X	CONTROL (NETWORK)	CRESTRON	CRESNET	CRESNET-P	1 PR 18GA TWISTED (UNSHLD) 1 PR 22GA TWISTED (SHLD)
CQ	X	QUICK MEDIA SIAMESE CABLE	CRESTRON	CRESCAT-QM-NP	CRESCAT-QM-P	4 PR CATEGORY CABLE 1 PR 18GA PWR / 1 PR 22GA DATA
CR	X	CONTROL (IR)	BELDEN	9451	9451P	1 PR W/SHLD
CS	X	CONTROL (SERIAL)	BELDEN	9451	9451P	1 PR W/SHLD
D	X	DATA	BELDEN	1583A	1583A	4 PR CAT 5
DM	X	DIGITAL MEDIA 8G STP CABLE	CRESTRON	DM-CBL-8G-NP-SP500	DM-CBL-8G-P-SP500	(SPECIAL) 4 PR CAT (X) SHLD
DVI	X	DVI MOLDED CABLE	VARIES	-	-	DVI - DVI
EXT(X)	X	EXTRON MOLDED CABLE	EXTRON	(X) DENOTE NUMBER		VARIOUS
IM	X	PRODUCTION INTERCOM	WEST PENN	D-510	D-510	2 PR W/SHLD
HDMI	X	HDMI MOLDED CABLE	VARIES	-	-	HDMI - HDMI
LNK(X)	X	MANUFACTURER LINK CABLE	VARIES	1583A	1583A	4 PR CAT 5
P	X	LOW VOLTAGE POWER	BELDEN	8461	8461	18/2
R	X	RGBHV	LIBERTY	RGB5C	RGB5C-PLN	MINI HI RES
SL	X	SPEAKER (8 OHM) LONG	WEST PENN	C-210	C-210	10/2
SH	X	SPEAKER (8 OHM) SHORT	BELDEN	5100UE	6100UE	12/2
SZ	X	SPEAKER (70 VOLT)	BELDEN	5300UE	6300UE	18/2
T	X	TELEPHONE/DATA	BELDEN	1583A	1583A	4 PR CAT 5
VS	X	COMPOSITE VIDEO (SHORT)	BELDEN	1505A	1506A	RG-59/U
VL	X	COMPOSITE VIDEO (LONG)	BELDEN	1694A	1695A	RG-6/U
VN	X	VIDEO NETWORK	GEPCO	-	10GX52F	4 PR CAT 6A W/ SHIELD
VDO(X)	X	VIDEO ADAPTER	VARIOUS	(X) DENOTE NUMBER		VARIOUS
Y	X	S-VIDEO (Y/C)	BELDEN	QTY (2) 1505A	QTY (2) 1506A	(2) RG-59/U

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SCHOOL DISTRICT LOGO

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03.23.2020	HEALTH DEPARTMENT PERMIT SUBMITTAL
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BID DOCUMENTS

04.13.2020

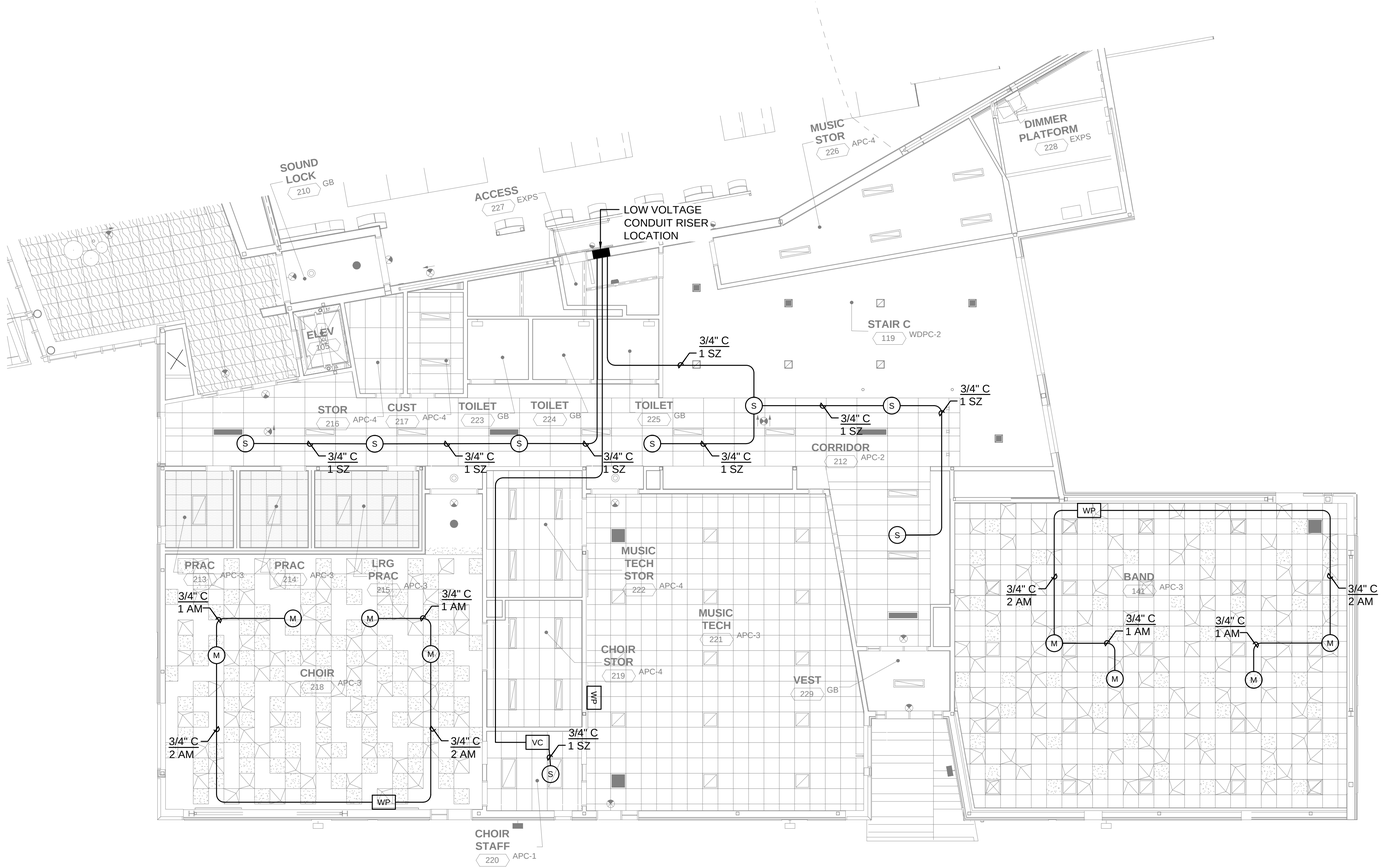
PROJECT NUMBER: 1711

SHEET NAME

UPPER LEVEL CEILING PLAN AV SYSTEMS AREA A

SHEET NUMBER

AV2.21



1 AREA B - UPPER LEVEL CEILING PLAN - AV SYSTEMS

1/8" = 1'-0"

0" 1" 2"

NORTH

ROUGH-IN LEGEND

SYMBOL	DEVICE DESCRIPTION	ROUGH-IN	LOCATION
ANT	WIRELESS MICROPHONE / ALS SYSTEM / INTERCOM ANTENNAE LOCATION	4 SQ DEEP BOX WITH SINGLE GANG RING	ABOVE 15' ON WALL INTERCOM AT CATWALK
AVJB	LOCAL EQUIPMENT RACK LOCATION (MOUNT AS REQUIRED FOR CASEWORK ON SITE)	ROUGH IN AS REQUIRED BY CONDUIT QUANTITY	SEE DESCRIPTION
FB	FLOOR BOX	ETC CONNECT	SEE DESCRIPTION
HM	HOUSE MICROPHONE	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT ON BOTTOM OF CLOUD
J	J-BOX WITH POWER FOR PROJECTOR SCREEN CEILING BOX HOUSING (PROVIDE LOCAL SWITCH DISCONNECT)	PROVIDE 120VAC AT LEFT END OF PROJECTOR SCREEN	MOUNT AS DIRECTED ON PLAN
LA	LINE ARRAY SPEAKER / SUB WOOFER CLUSTER	SEE DETAIL SHEET FOR ROUGH IN REQUIREMENTS	MOUNT AS SHOWN ON PLANS
LCD	LCD DISPLAY (SIZE VARIES BY LOCATION)	SEE DETAIL SHEET FOR ROUGH IN REQUIREMENTS	MOUNT AS SHOWN ON PLANS
LVC	LOW VOLTAGE CONTROL FOR EXISTING PROJECTION SCREEN	PROVIDED BY AV CONTRACTOR	MOUNT AT LEFT END OF PROJECTION SCREEN
M	CEILING RECORDING MICROPHONE	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AS DIRECTED ON CEILING PLAN
PC(X)	PRODUCTION INTERCOM (X) DENOTES TYPE SEE LEGEND FOR DETAILS SHEET A0.01	VARIES	VARIES
PTZ	PTZ CAMERA WITH WALL MOUNT BRACKET	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT 108" TO BOTTOM OF CAMERA

ROUGH-IN LEGEND

SYMBOL	DEVICE DESCRIPTION	ROUGH-IN	LOCATION
S	CEILING SPEAKER	4 SQ DEEP BOX WITH BLANK COVER & WHIP	MOUNT AS DIRECTED ON PLAN
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SMP	RACK MOUNT CONTROL PANEL MOUNT IN STAGE MANAGERS PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
TPNL	TABLE TOP TILT CONTROL PANEL	ROUGH IN PROVIDED BY AV CONTRACTOR	MOUNT ON COUNTER
VC	PRIORITY VOLUME CONTROL	4 SQ DEEP BOX WITH SINGLE GANG RING	MOUNT AT 52" AFF OR SWITCH HEIGHT
VP	CEILING MOUNTED VIDEO PROJECTOR	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
WP	WALL PLATE	4 SQ DEEP BOX WITH TWO GANG RING	MOUNT AT CEILING NEAR VIDEO PROJECTOR
	RECOMMENDED CONDUIT RISER / J-BOX LOCATION FOR AV EQUIPMENT RACK	-	AS SHOWN ON PLAN
	DOUBLE DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC
	DUPLEX POWER OUTLET (FOR VIDEO EQUIPMENT ONLY)	PER NEC	PER NEC

WIRE TYPE DESCRIPTION

WIRE LEGEND

TYPE	QTY	DESCRIPTION	MANUFACTURER	NON PLENUM	PLENUM	CONDUCTORS
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AM	X	AUDIO (MICROPHONE)	BIELDEN	9451	9451P	1 PR W/SHLD
AN	X	AUDIO (NETWORK OVER CAT CABLE)	GEPCO	-	2131611E	4 PR CAT CABLE W/SHLD
AP	X	MULTIPAIR AUDIO	BIELDEN	1817R	1817R	8 PR W/SHLD
CAT	X	DIGITAL MEDIA CAT CABLE	CRESTRON	DM-CBL-NP-SP500	DM-CBL-P-SP500	(M) 4 PR CAT5E / (D) 4 PR SPECIAL (DMNet) 1PR 18GA PWR/1 PR DATA
CG	X	CONTROL (GENERAL)	BIELDEN	9751	82743	6 PR 20-22 GA
CN	X	DATA	BIELDEN	1583A	1583A	4 PR CAT 5
CP	X	CONTROL (NETWORK)	CRESTRON	CRESNET	CRESNET-P	1 PR 18GA TWISTED (UNSHLD) 1 PR 22GA TWISTED (SHLD)
CQ	X	QUICK MEDIA SIAMESE CABLE	CRESTRON	CRESCAT-QM-NP	CRESCAT-QM-P	4 PR CATEGORY CABLE 1 PR 18GA PWR / 1 PR 22GA DATA
CR	X	CONTROL (IR)	BIELDEN	9451	9451P	1 PR W/SHLD
CS	X	CONTROL (SERIAL)	BIELDEN	9451	9451P	1 PR W/SHLD
D	X	DATA	BIELDEN	1583A	1583A	4 PR CAT 5
DM	X	DIGITAL MEDIA 8G STP CABLE	CRESTRON	DM-CBL-8G-NP-SP500	DM-CBL-8G-P-SP500	(SPECIAL) 4 PR CAT (X) SHLD
DVI	X	DVI MOLDED CABLE	VARIES	-	-	DVI - DVI
EXT(X)	X	EXTRON MOLDED CABLE	EXTRON	(X) DENOTE NUMBER		VARIOUS
IM	X	PRODUCTION INTERCOM	WEST PENN	D-510	D-510	2 PR W/SHLD
HDMI	X	HDMI MOLDED CABLE	VARIES	-	-	HDMI - HDMI
LNK(X)	X	MANUFACTURER LINK CABLE	VARIES	1583A	1583A	4 PR CAT 5
P	X	LOW VOLTAGE POWER	BIELDEN	8461	8461	18/2
R	X	RGBHV	LIBERTY	RGB5C	RGB5C-PLN	MINI HI RES
SL	X	SPEAKER (8 OHM) LONG	WEST PENN	C-210	C-210	10/2
SH	X	SPEAKER (8 OHM) SHORT	BIELDEN	5100UE	6100UE	12/2
SZ	X	SPEAKER (70 VOLT)	BIELDEN	5300UE	6300UE	18/2
T	X	TELEPHONE/DATA	BIELDEN	1583A	1583A	4 PR CAT 5
VS	X	COMPOSITE VIDEO (SHORT)	BIELDEN	1505A	1506A	RG-59/U
VL	X	COMPOSITE VIDEO (LONG)	BIELDEN	1694A	1695A	RG-6/U
VN	X	VIDEO NETWORK	GEPCO	-	10GX52F	4 PR CAT 6A W SHIELD
VDO(X)	X	VIDEO ADAPTER	VARIOUS	(X) DENOTE NUMBER		VARIOUS
Y	X	S-VIDEO (Y/C)	BIELDEN	QTY (2) 1505A	QTY (2) 1506A	(2) RG-59/U

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BID DOCUMENTS

04.13.2020

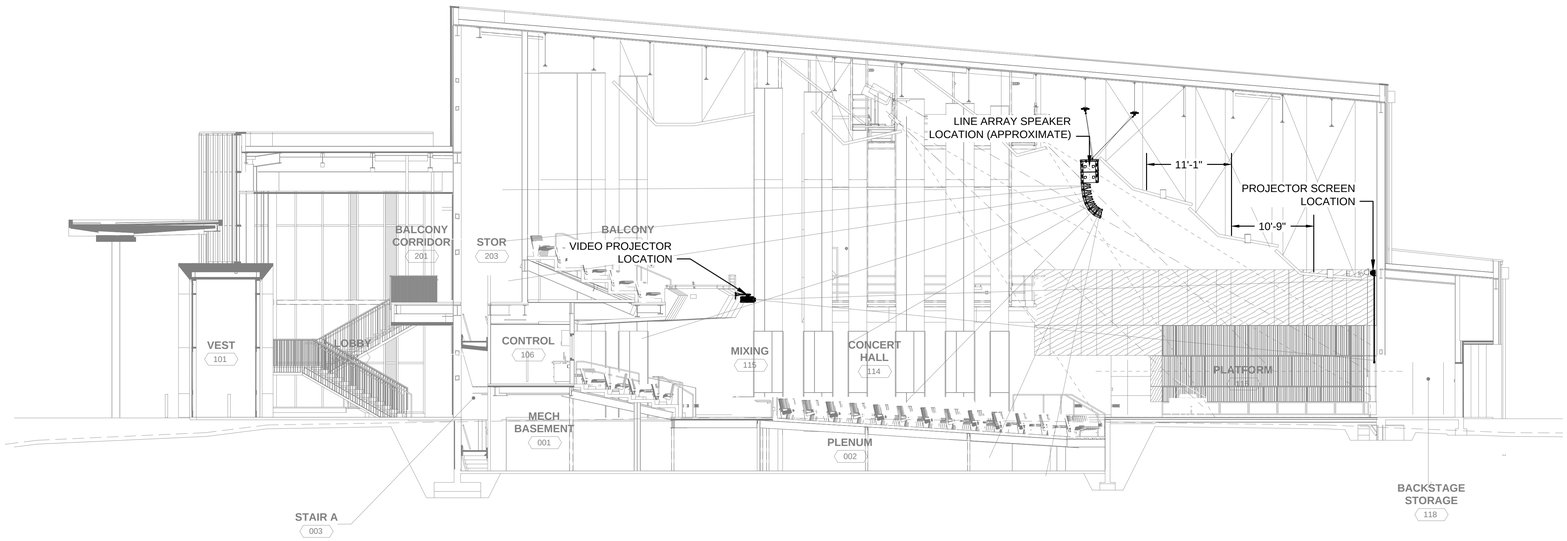
PROJECT NUMBER: 1711

SHEET NAME

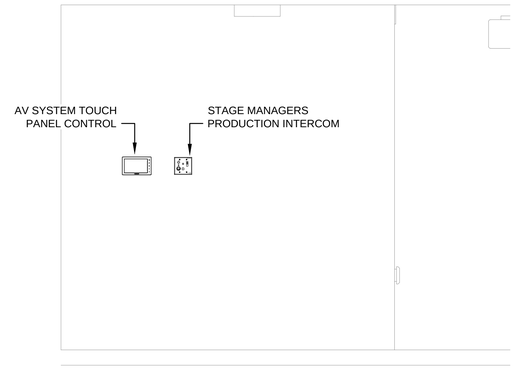
UPPER LEVEL CEILING PLAN AV SYSTEMS AREA B

SHEET NUMBER

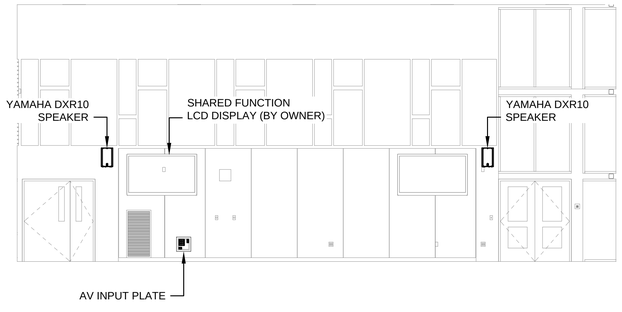
AV2.22



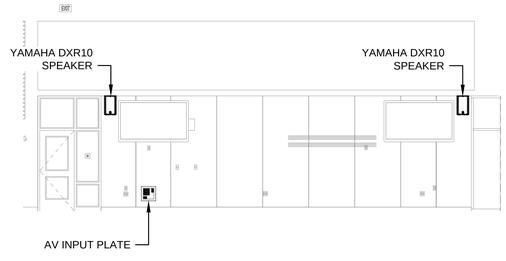
1 AREA A- CONCERT HALL SECTION - AV SYSTEMS
1/8" = 1'-0"



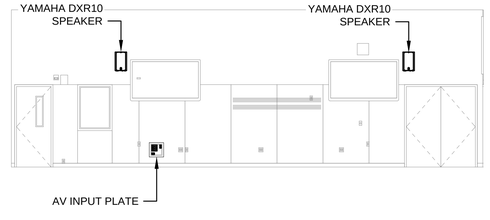
2 AREA A- ALCOVE 120 - AV SYSTEMS
3/4" = 1'-0"



3 AREA B- BAND ROOM ELEVATION - AV SYSTEMS
1/4" = 1'-0"



4 AREA B- CHOIR ROOM ELEVATION - AV SYSTEMS
1/4" = 1'-0"



5 AREA B- MUSIC LAB ELEVATION - AV SYSTEMS
1/4" = 1'-0"

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BID DOCUMENTS

04.13.2020

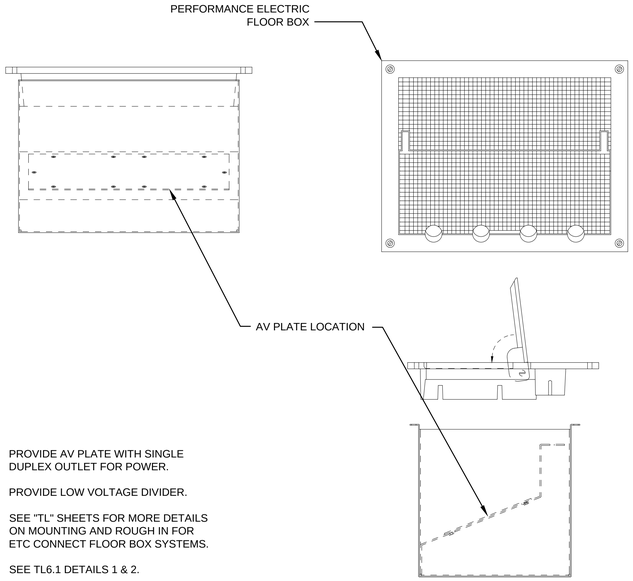
PROJECT NUMBER: 1711

SHEET NAME

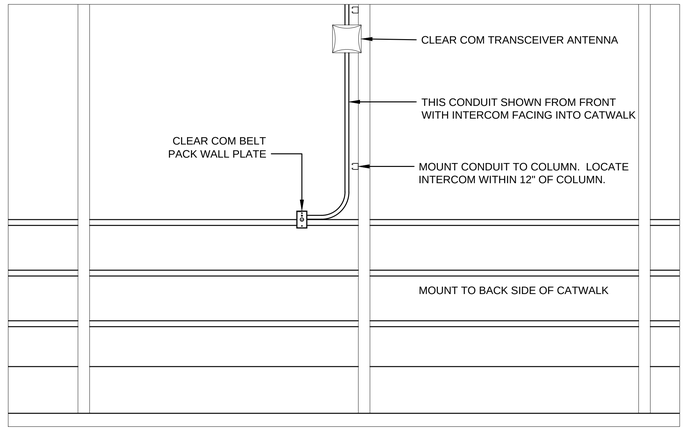
AUDITORIUM SECTION AV SYSTEMS AREA A

SHEET NUMBER

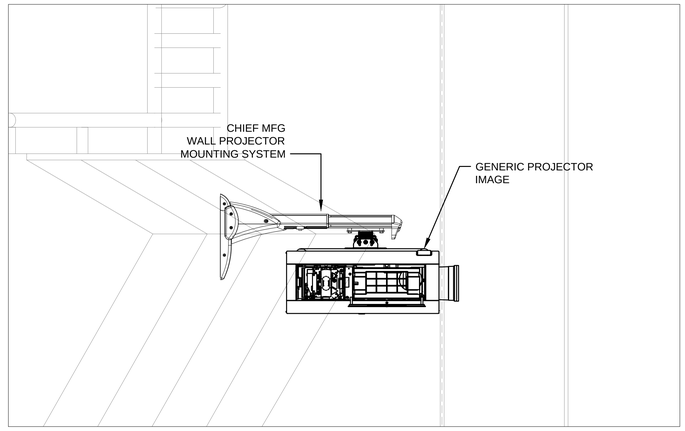
AV3.11



1 FLOOR BOX ROUGH IN
NONE



2 CATWALK PRODUCTION INTERCOM MOUNTING DETAIL
NONE



3 CATWALK PRODUCTION INTERCOM MOUNTING DETAIL
NONE

LOWELL MFG LER-4027 EQUIPMENT RACK
WITH LFD40FV FRONT DOOR AND RRD-40
REAR RACK RAILS, BLANKS, SHELVES,
VENTS AND FAN TOP AS REQUIRED

UNSWITCHED POWER STRIP	JUICE GOOSE JG8
ALS TRANSMITTER	LISTEN TECH LT-800-072
1 RU RACK BLANK	MIDDLE ATLANTIC EB1
WLESS NO 7 / WLESS NO 8	SHURE QLXD4 (X2)
1 RU RACK BLANK	MIDDLE ATLANTIC EB1
4 CHANNEL MIC SPLITTER	PROCO SOUND MS42A
4 CHANNEL MIC SPLITTER	PROCO SOUND MS42A
1 RU RACK BLANK	MIDDLE ATLANTIC EB1
AUDIO DSP PROCESSOR	SYMETRIX SOLUS NX 16X8
1 RU RACK BLANK	MIDDLE ATLANTIC EB1
1 RU RACK BLANK	MIDDLE ATLANTIC EB1
PoE NETWORK SWITCH	NETGEAR GS108PE
1 RU RACK BLANK	MIDDLE ATLANTIC EB1
32 X 16 STAGE BOX DIGITAL SNAKE	SOUNDCRAFT MSB3216i
1 RU BRUSH WIRE MGMT	MIDDLE ATLANTIC BR1
3 RU DRAWER	LOWELL MFG UDE-314
2 CHANNEL POWER AMP	CROWN DC2|300 BACK OF HOUSE AMP
1 RU RACK BLANK	MIDDLE ATLANTIC EB1
2 CHANNEL POWER AMP	CROWN DC4|1250 MONITOR AMP
1 RU RACK BLANK	MIDDLE ATLANTIC EB1
2 CHANNEL POWER AMP	CROWN DC4|1250 MONITOR AMP
1 RU RACK BLANK	MIDDLE ATLANTIC EB1
4 CHANNEL AMPLIFIER	NEXO NXAMP4X4 MK2
1 RU RACK BLANK	MIDDLE ATLANTIC EB1
4 CHANNEL AMPLIFIER	NEXO NXAMP4X4 MK2
1 RU RACK BLANK	MIDDLE ATLANTIC EB1
4 CHANNEL AMPLIFIER	NEXO NXAMP4X4 MK2

CONTROL BOOTH CLOSET RACK

4 ACCESS 227 AV RACK ELEVATION
NONE

ROAD READY 14 SPACE UNDER COUNTER
EQUIPMENT RACK WITH
BLANKS AND VENTS AS REQUIRED

SEQUENCED POWER CENTER	JUICE GOOSE CQ1520
ANTENNA COMBINER "A"	SHURE UA844SWB (X2)
ANTENNA COMBINER "B"	
1 RU RACK BLANK	MIDDLE ATLANTIC EB1
WLESS NO 1 / WLESS NO 2	SHURE QLXD4 (X2)
WLESS NO 3 / WLESS NO 4	SHURE QLXD4 (X2)
WLESS NO 5 / WLESS NO 6	SHURE QLXD4 (X2)
2 RU RACK BLANK	MIDDLE ATLANTIC EB2
3 RU DRAWER	LOWELL MFG UDE-314

CONTROL BOOTH RACK

5 WIRELESS MICROPHONE UNDER COUNTER RACK
NONE

MIDDLE ATLANTIC RK8 DESK TOP RACK
WITH REAR RAILS BLANKS
AND VENTS AS REQUIRED

SEQUENCED POWER CENTER	JUICE GOOSE CQ1520
CONTROLLER / SWITCHER	CRESTRON DMPS3-4K-150-C
1 RU RACK BLANK	MIDDLE ATLANTIC EB1
INTERCOM MASTER STA	CLEAR COM FREESPEAK
1 RU RACK BLANK	MIDDLE ATLANTIC EB1
HDMI DA / NET SWITCH	CRESTRON HD-DA8-4KZ-E
TX TX TX TX	CRESTRON TX / RX
DVD PLAYER	DENON DN500-BD

6 DESKTOP TURRET RACK ELEVATION
NONE

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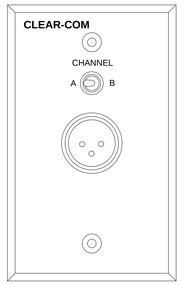
PROJECT NUMBER: 1711

SHEET NAME

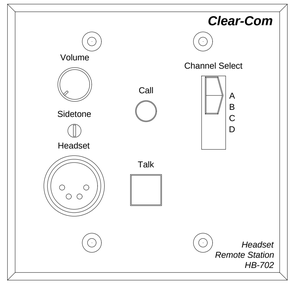
AREA A & B - ELEVATIONS - AV SYSTEMS

SHEET NUMBER

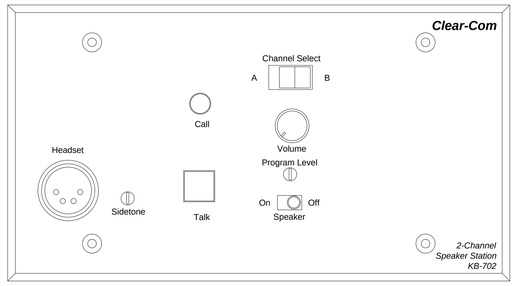
AV3.12



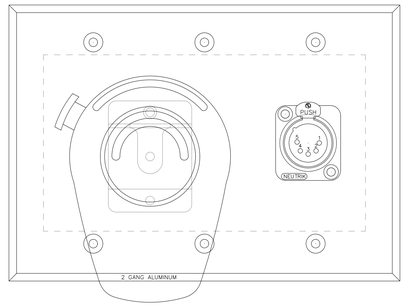
1 BELT PACK COM STATION
NONE



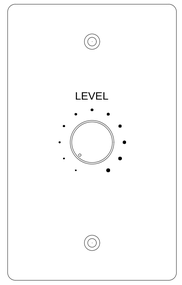
2 HEADSET COM DETAIL
NONE



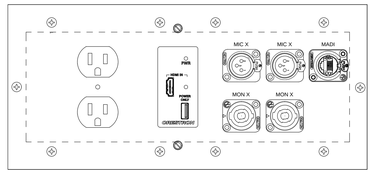
3 SPEAKER STATION COM DETAIL
NONE



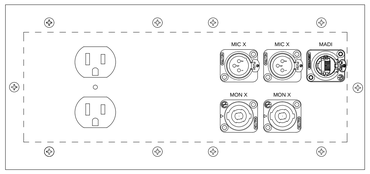
4 PAGING MIC PLATE DETAIL
NONE



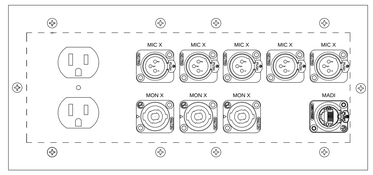
5 70 VOLT VOLUME CONTROL
NONE



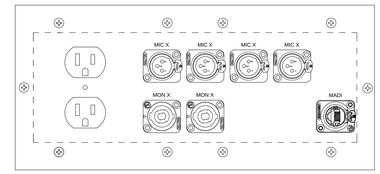
6 DOWN STG FLOOR POCKET (X2)
NONE



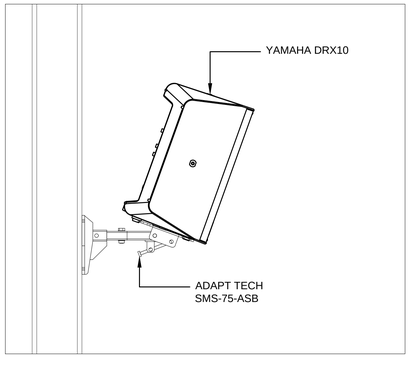
7 DOWN STG FLOOR POCKET (CENTER)
NONE



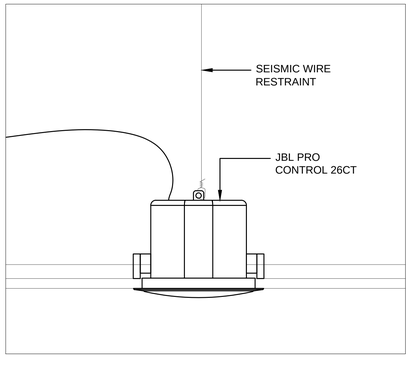
8 MID STG FLOOR POCKET (X2)
NONE



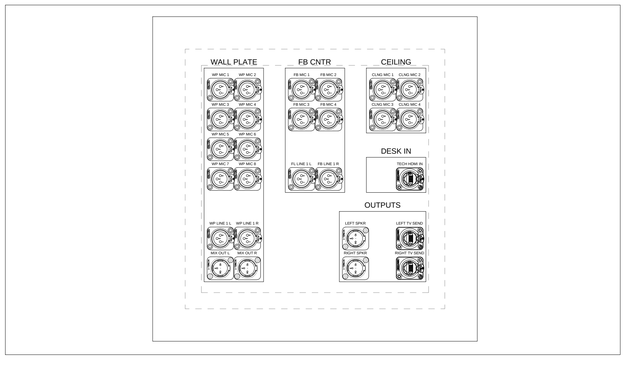
9 UP STG FLOOR POCKET (X3)
NONE



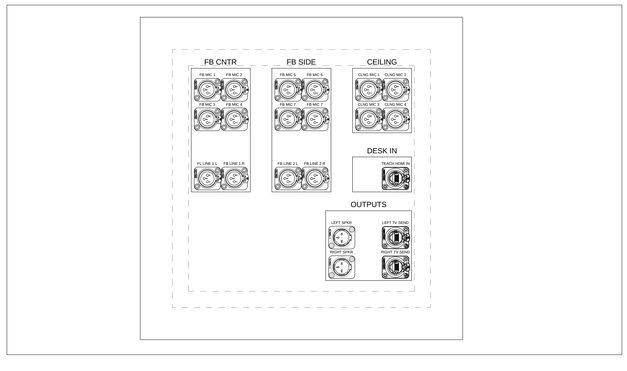
10 CLASSROOM WALL SPEAKER (TYP)
NONE



11 CEILING SPEAKER DETAIL
NONE

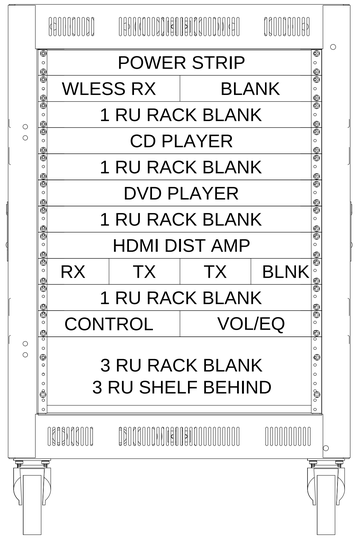


12 CHOIR RACK INTERFACE PLATE
NONE



13 BAND RACK INTERFACE PLATE
NONE

LOWELL MFG LPR-1427 PORTABLE
EQUIPMENT RACK, BLANKS, AND VENTS
AS REQUIRED



JUICE GOOSE JG11-20A
SHURE QLXD4
MIDDLE ATLANTIC EB1
DENON DN500-CB
MIDDLE ATLANTIC EB1
DENON DN500-BD
MIDDLE ATLANTIC EB1
CRESTRON HD-MD6X2-4K-E
CRESTRON DM-LITE TX / RX
MIDDLE ATLANTIC EB1
CRESTRON RMC3 / C2N-VEQ4
LOWELL MFG RACK SHELF
W/ POWER SUPPLIES AND
NETWORK BEHIND BLANK

14 CLASSROOM RACK ELEVATION
NONE

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PROJECT INFORMATION

Inglemoor High School Concert Hall + Music Building

15500 Simonds Rd NE
Kenmore, WA 98028

NORTHSHORE SCHOOL DISTRICT No. 417

SCHOOL DISTRICT LOGO

Northshore School District

02.13.19	SCHEMATIC DESIGN
04.08.19	VALUE ENGINEERING
10.18.19	DESIGN DEVELOPMENT
01.13.2020	CONSTRUCTABILITY REVIEW
03.23.2020	HEALTH DEPARTMENT PERMIT SUBMITTAL
04-13-2020	BID DOCUMENTS

BID DOCUMENTS

04.13.2020

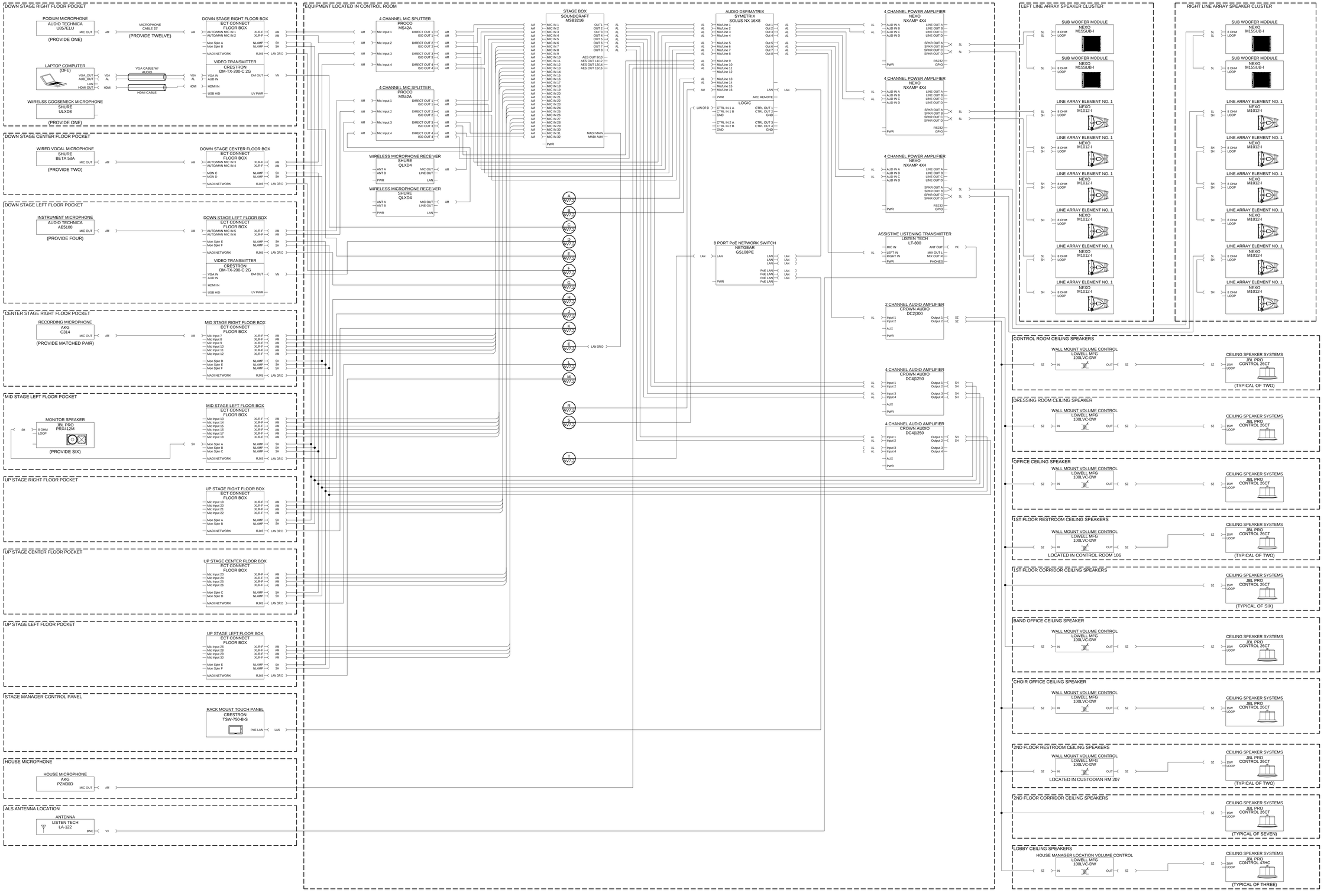
PROJECT NUMBER: 1711

SHEET NAME

AV SYSTEMS DETAILS

SHEET NUMBER

AV3.13



1 CONCERT HALL BLOCK DIAGRAM - AV SYSTEMS

NO SCALE

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BID DOCUMENTS

04.13.2020

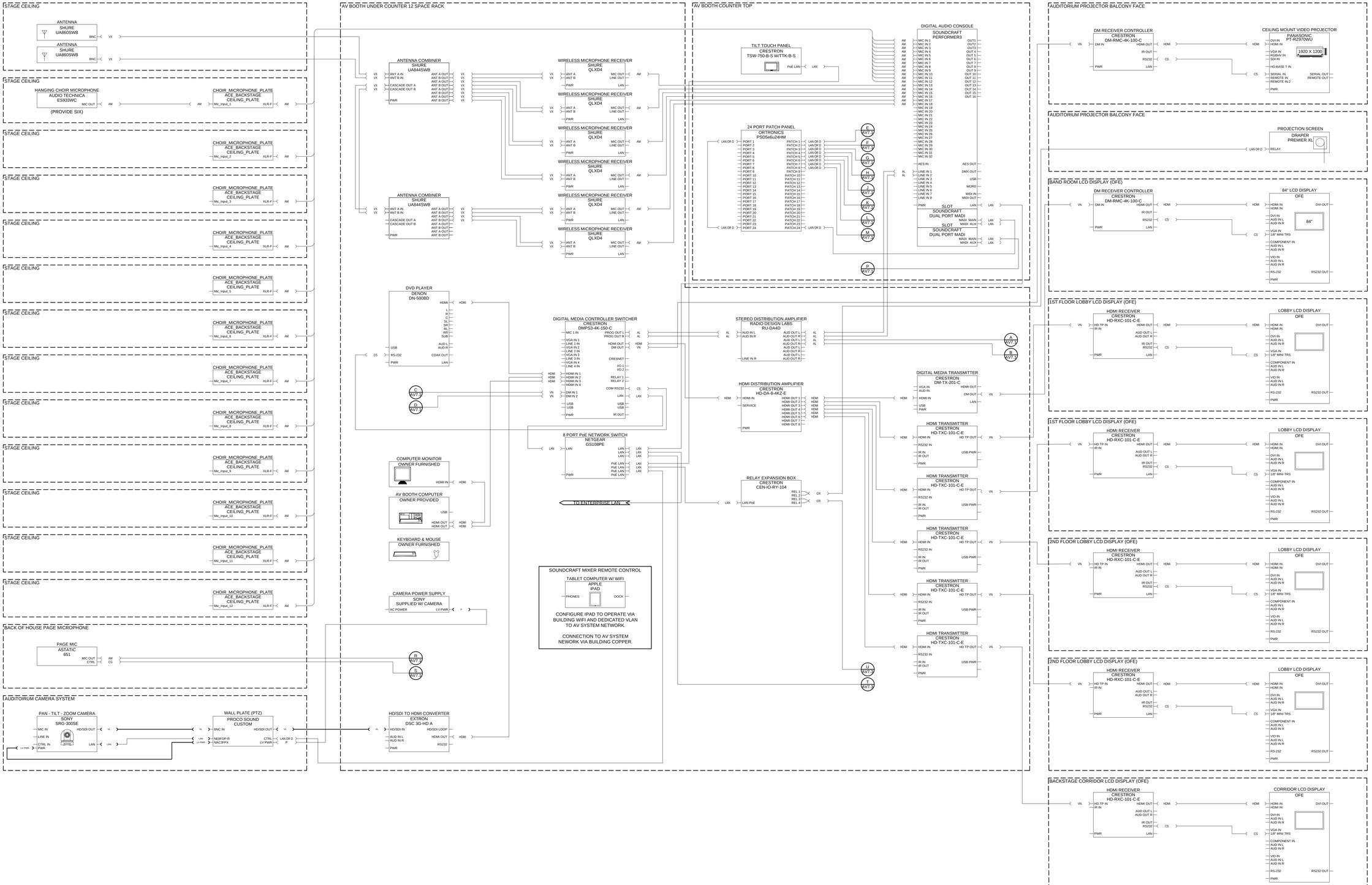
PROJECT NUMBER: 1711

SHEET NAME

BLOCK DIAGRAM AV SYSTEMS

SHEET NUMBER

AV7.1



1 CONCERT HALL BLOCK DIAGRAM - AV SYSTEMS

NO SCALE

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

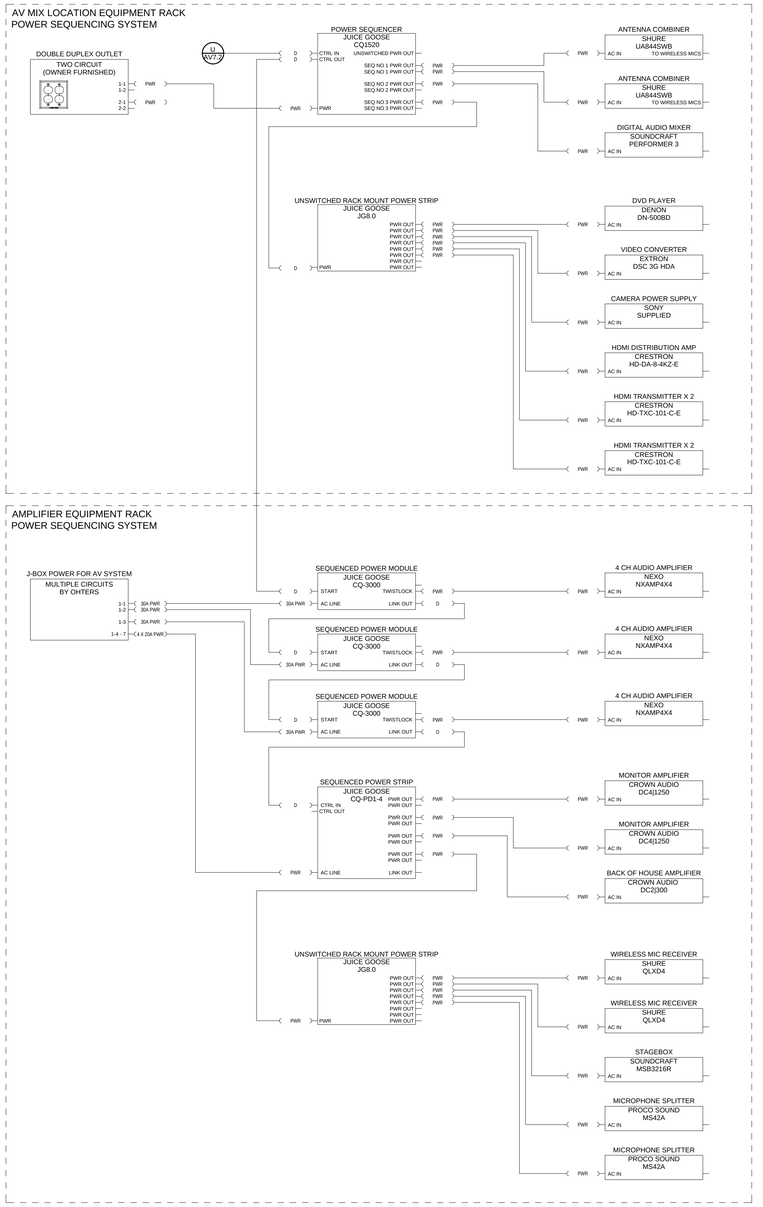
BLOCK DIAGRAM AV SYSTEMS

SHEET NUMBER

AV7.2

1 CONCERT HALL INTERCOM BLOCK DIAGRAM - AV SYSTEMS

NO SCALE



2 CONCERT HALL POWER SEQUENCING BLOCK DIAGRAM - AV SYSTEMS

NO SCALE

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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

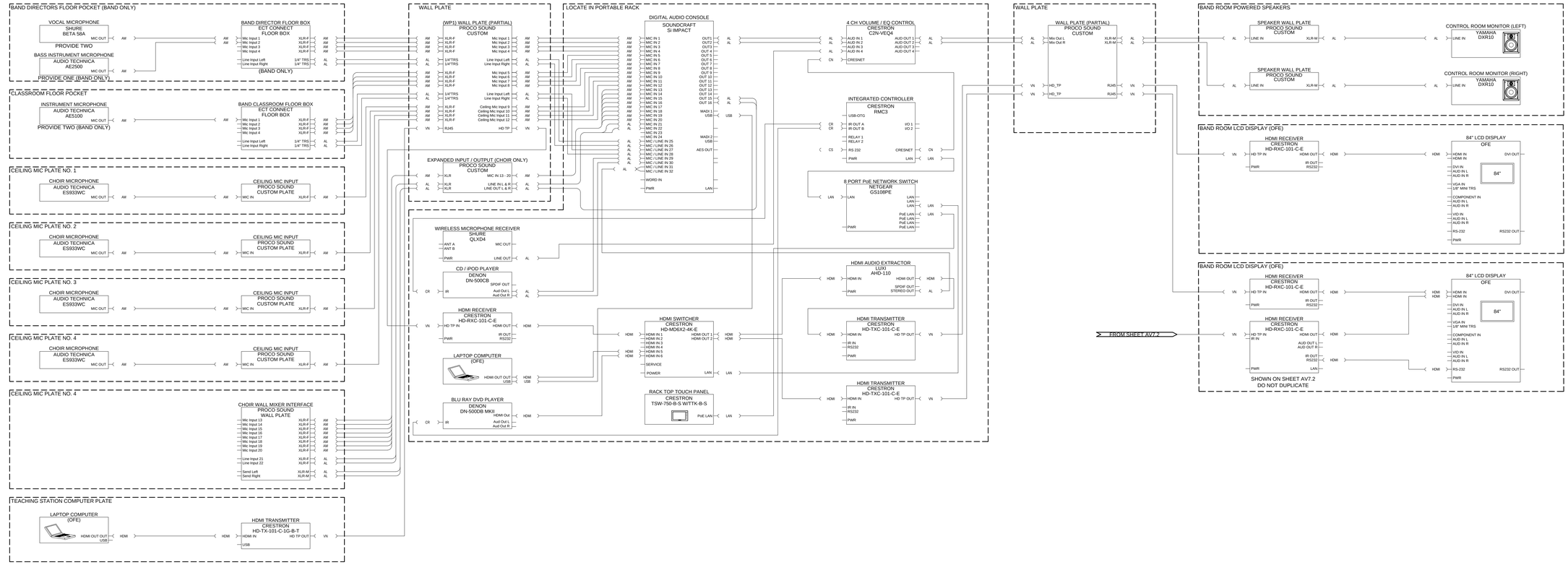
BLOCK DIAGRAM AV SYSTEMS

SHEET NUMBER

AV7.3

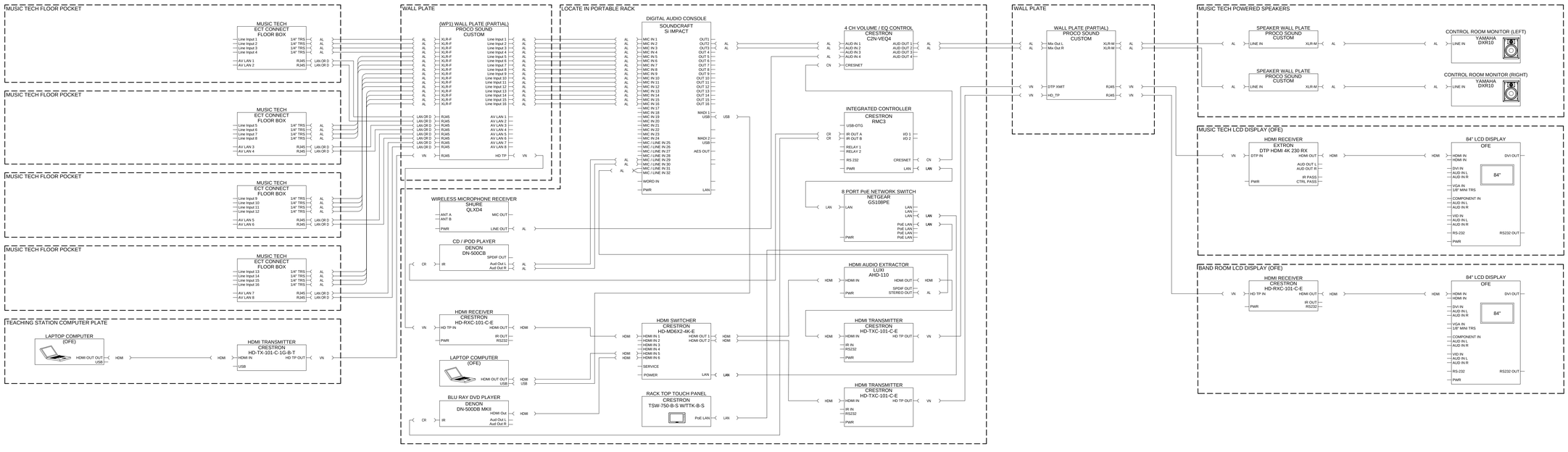
1 BAND / CHOIR ROOM BLOCK DIAGRAM - AV SYSTEMS

NO SCALE



2 MUSIC TECH BLOCK DIAGRAM - AV SYSTEMS

NO SCALE



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BID DOCUMENTS

04.13.2020

PROJECT NUMBER: 1711

SHEET NAME

BLOCK DIAGRAM AV SYSTEMS

SHEET NUMBER

AV7.4