


















FIRE ALARM DEVICE LEGEND

	FIRE ALARM PULL STATION
	FIRE ALARM BELL
	WALL SPEAKER W/STROBE
	CEILING SPEAKER W/STROBE
	WALL STROBE
	WP WALL SPEAKER
	FIRE ALARM DOOR HOLDER
	FIRE ALARM DOOR CLOSER
	FIRE ALARM SHUT DOWN RELAY
	SPRINKLER FLOW SWITCH
	SPRINKLER VALVE TAMPER SWITCH
	HEAT DETECTOR
	LINEAR HEAT DETECTOR
	DUCT SMOKE DETECTOR
	CEILING SMOKE DETECTOR
	MONITOR MODULE
	REMOTE KEY TEST SWITCH
	END OF LINE RESISTOR
	FIRE ALARM PANEL

SCOPE OF WORK

REPLACEMENT OF MAIN FIRE ALARM PANEL IN ADMIN BUILDING WITH A NEWER VERSION CAPABLE TO ACCOMMODATE MORE DEVICES. EXISTING FIRE ALARM SYSTEM SHALL BE RECONNECTED TO NEW PANEL AND MAINTAIN ALL EXISTING FUNCTIONS AND CAPABILITIES. NEW FIRE ALARM PANEL SHALL HAVE VOICE ALARM CAPABILITIES. FIRE ALARM DESIGN FOR A NEW 8,662 SF 1-STORY CLASSROOM BUILDING AND CONNECTING TO MAIN FIRE ALARM PANEL IN ADMIN BUILDING.

CALIFORNIA EQUIPMENT ANCHORAGE NOTES

1. ALL MECHANICAL AND ELECTRICAL EQUIPMENT SHALL BE ANCHORED OR BRACED TO MEET THE HORIZONTAL AND VERTICAL FORCES PRESCRIBED IN THE 2010 CBC, SECTION 1616A.1.20, AND 1616A.1.21 AND ASCE 7-05 SECTIONS 13.3, 13.4, 13.6, AND CHAPTER 6.
2. THE ATTACHMENT OF THE FOLLOWING ITEMS SHALL BE DESIGNED TO RESIST THE FORCES PRESCRIBED ABOVE, BUT NEED NOT TO BE DETAILLED ON THE PLANS, AND THE PROJECT INSPECTOR WILL VERIFY THAT THESE ITEMS (EQUIPMENT) HAVE BEEN ANCHORED:

A. EQUIPMENT WEIGHING LESS THAN 400 POUNDS SUPPORTED DIRECTLY ON THE FLOOR OR ROOF.

B. FURNITURE REQUIRED TO BE ATTACHED IN ACCORDANCE WITH ASCE 7-05, SECTION 13.5.

C. TEMPORARY OR MOVABLE EQUIPMENT WITH FLEXIBLE CONNECTION TO POWER OR UTILITIES.

D. EQUIPMENT LESS THAN 20 POUNDS SUPPORTED BY VIBRATION ISOLATORS.

E. EQUIPMENT LESS THAN 20 POUNDS SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM WALL.
3. FOR THOSE ELEMENTS THAT DO NO REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE MECHANICAL/ELECTRICAL ENGINEER.
4. PIPING, DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTES: PIPING, DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEM SHALL BE BRACED TO RESIST THE FORCES PRESCRIBED IN ASCE 7-05 SECTION 13.3 AS DEFINED IN ASCE 7-05 SECTION 13.6.6, 13.6.7, AND 13.6.6.5 ITEM 6 RESPECTIVELY.
5. THE BRACING AND ATTACHMENTS TO THE STRUCTURE SHALL COMPLY WITH ONE OF THE OSHPD PRE-APPROVALS WITH AN OPM#, SUCH AS MASON INDUSTRIES (OPA 349), OR ISAT (OPA 485) AS MODIFIED TO SATISFY ANCHORAGE REQUIREMENTS OF ACI 318, APPENDIX D.
6. COPIES OF THE MANUAL SHALL BE AVAILABLE ON THE JOB SITE PRIOR TO THE START OF HANGING AND BRACING OF THE PIPE, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM.
7. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACED LOADS.
1. ALL EQUIPMENT SHALL BE UL LISTED AND C.S.F.M. LISTED AND APPROVED, IN ADDITION TO THE CITY REQUIREMENTS, FIRE DEPARTMENT OR AUTHORITY HAVING JURISDICTION.
2. FIRE ALARM SYSTEM INSTALLATION COMPANY SHALL BE U.L. LISTED (UUUS).
3. COMPLETE INSTALLATION SHALL CONFORM TO APPLICABLE SECTIONS OF NFPA-72, STATE FIRE CODE, STATE BUILDING CODE AND STATE ELECTRICAL CODE.
4. ALL FIRE ALARM WIRING SHALL BE IN RED CONDUIT. MINIMUM SIZE OF CONDUIT IS 3/4" CONDUIT.
5. ALL JUNCTION BOXES SHALL BE SIZED IN ACCORDANCE WITH NEC, AND PAINTED RED IN COLOR.
6. ALL 120V AC POWER REQUIREMENTS FOR THE FIRE ALARM SYSTEM SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR AND SHALL MEET ALL REQUIREMENTS. A DEDICATED BRANCH CIRCUIT SHALL BE PROVIDED FOR FIRE ALARM EQUIPMENT. THIS CIRCUIT SHALL BE ENERGIZED FROM THE COMMON AREA PANEL AND SHALL HAVE NO OTHER OUTLETS. THE BREAKER SHALL HAVE A RED LOCKING DEVICE TO BLOCK THE HANDLE IN THE "ON" POSITION. THE CIRCUIT BREAKER SHALL BE LABELED "FIRE ALARM CIRCUIT CONTROL." CIRCUIT ID TO BE LABELED AT PANEL/EXTENDERS.
7. THE AUDIBILITY OF FIRE ALARM WARNING DEVICES SHALL BE AUDIBLE THROUGH THE OCCUPANCY WITH A MINIMAL SOUND LEVEL 15 db/s OVER THE AMBIENT NOISE LEVEL, BUT NOT LESS THAN 75db/s AT 10' OR MORE THAN 120db/s IN TOTAL.
8. AUDIBLE DEVICES SHALL SOUND THE CALIFORNIA UNIFORM FIRE ALARM SIGNAL IN TEMPORAL MODE.
9. VOICE EVACUATION MESSAGES SHALL BE INSTALLED PER NFPA 72, 2022 EDITION, 24.2.2, (18.4.10.2), UNLESS SPECIFICALLY SHOWN INTELLIGIBILITY SHALL NOT BE REQUIRED. PRIVATE BATHROOMS, MECHANICAL/ELECTRICAL/ELEVATOR EQUIPMENT ROOMS, INDIVIDUAL OFFICES, KITCHENS, STORAGE ROOMS, CLOSETS, AND ROOMS/AREAS WHERE INTELLIGIBILITY CANNOT REASONABLY BE PREDICTED).
10. MICROPHONES ASSOCIATED WITH EMERGENCY VOICE ALARM COMMUNICATION SYSTEM (EVAC) SHALL BE ACCESSIBLE FOR USE, INSTALLED IN COMPLIANCE WITH CBC SECTION 11B-305 AND 11B-308.
11. VISUAL DEVICES SHALL NOT EXCEED 3 FLASHES PER SECOND AND SHALL NOT BE SLOWER THAN ONE FLASH PER SECOND.
12. UPON COMPLETION OF THE INSTALLATION OF THE FIRE ALARM SYSTEM, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE PERFORMED IN THE PRESENCE OF THE ENFORCING AGENCY.
13. ALL CONDUIT PENETRATIONS THROUGH FIRE RATED PARTITIONS SHALL PREVENT THE PASSAGE OF HEAT, SMOKE AND FIRE GASES. ALL PENETRATIONS SHALL COMPLY WITH U.L. ASSEMBLY WL-1001. REFER TO THROUGH-PENETRATION FIRESTOP DETAIL.
14. ALL CONDUCTORS SHALL BE THWN (WET) 600V, USING #12 AWG FOR ALL ALARM AND FIRE DEVICE POWER CIRCUITS UNLESS NOTED OTHERWISE.
15. FIRE ALARM CABLE SPLICES IN UNDERGROUND PULLBOXES ARE PROHIBITED.
16. ALL WIRING INITIATING DEVICES AND ANNUNCIATOR PANEL SHALL BE SUPERVISED TO THE PRINCIPAL POINT OF ANNUNCIATION (FA PANEL, TO SUPERVISE THE ANNUNCIATOR PANEL, ALL CIRCUITS AND INITIATING DEVICES).
17. WIRING SHALL NOT BE LOOPED THROUGH DEVICES. WIRE MUST BE CUT FOR IN AND OUT.
18. POINT AND COMMON ANNUNCIATION AND T-TAPPING PROHIBITED; EXCEPTION: "T" TAPPING IS ALLOWED FOR CLASS B ADDRESSABLE DEVICE WIRING ONLY.
19. ALL TERMINATION IN PULLBOX SHALL BE ON BOX MOUNTED TERMINAL BLOCKS.
20. THE FIRE ALARM CONTROL PANEL IS NOT TO BE USED AS A TERMINAL CABINET.
21. ALL CONDUIT SIZES INDICATED IN DRAWINGS ARE MINIMUMS. CONTRACTOR TO ADJUST CONDUIT SIZE FOR FIELD CONDITIONS.
22. ALL FIRE ALARM WIRING MUST TEST FREE OF OPENS, SHORTS AND GROUNDS.
23. FIRE ALARM DRAWINGS ARE SCHEMATIC IN NATURE ONLY. CONTRACTOR TO ROUTE CONDUIT AS FIELD CONDITIONS REQUIRE, AND SHALL VERIFY EXISTING CONDITION IN FIELD PRIOR TO INSTALLATION.
24. CONDUIT AND JUNCTION BOXES ARE NOT TO BE USED FOR UNRELATED WIRING.
25. INSTALLATION OF THE FIRE ALARM SYSTEM SHALL NOT BE STARTED UNTIL DETAILED PLANS AND SPECIFICATIONS, INCLUDING CALIFORNIA STATE FIRE MARSHALL LISTING NUMBERS FOR EACH COMPONENT OF THE SYSTEM HAVE BEEN APPROVED BY THE ELECTRICAL ENGINEER.
26. A PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, PART 1, TITLE 24, CCR.
27. THE SYSTEM SHALL CONFORM TO CALIFORNIA CODE OF REGULATIONS (CCR) TITLES 19 & 24 AS APPLICABLE TO THIS PROJECT.
28. UPON COMPLETION OF SYSTEM INSTALLATION, THE SYSTEM SHALL BE TESTED IN THE PRESENCE OF AND IN A MANNER ACCEPTABLE TO DSABOR CONTRACTOR TO SUPPLY NECESSARY TESTING EQUIPMENT, INCLUDING A "DECIMETER" TO CHECK ACCEPTABLE NOISE LEVELS OF AUDIBLE DEVICES. PROVIDE TEST RESULTS PER NFPA 72 TO ARCHITECT, DSA, INSPECTOR OF RECORD, OWNER AND TO THE LOCAL FIRE AUTHORITY.
29. DSA, ARCHITECT AND OWNER SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO THE FINAL INSPECTION AND/OR TESTING.
30. PENETRATIONS OF ALL FIRE-RATED WALLS SHALL BE PROTECTED IN ACCORDANCE WITH THE CALIFORNIA BUILDING CODE, PART 2, PROVIDE DETAILS AND DESIGN NUMBERS.
31. DSA APPLICATION #, DATE OF APPROVAL, PANEL DESIGNATION AND CIRCUIT BREAKER NUMBER SHALL BE CLEARLY MARKED ON THE INSIDE SURFACE OF THE FA CABINET DOOR.
32. COMBINE FIRE ALARM WITH ANY OTHER SIGNAL WIRINGS SHALL NOT BE PERMITTED.
33. BATTERIES ARE TO BE LABELED WITH THE MONTH AND YEAR OF INSTALLATION.
34. FIRE ALARM PANEL, REMOTE ANNUNCIATOR, AND COMPONENTS SHALL BE SECURE TO MOUNTING SURFACE PER MANUFACTURERS SPECIFICATIONS. NO SINGLE DEVICE SHALL EXCEED THE WEIGHT OF 20 LBS. WITHOUT SPECIAL MOUNTING DETAILS.
35. ALL EQUIPMENT, I.E. AUTOMATIC DETECTION DEVICES, MANUAL PULL STATIONS, AUDIO/VISUAL DEVICES, DUCT DETECTORS, ETC. SHALL BE INSTALLED AND LOCATED IN ACCORDANCE WITH LISTINGS AND APPLICABLE PROVISIONS OF TITLE 24, PARTS 2.3.4 & 9 STANDARDS. ALL EXTERIOR DEVICES SHALL BE LISTED FOR OUTDOOR USE AND MOUNTED IN APPROVED WEATHERPROOF BOXES AND IN ACCORDANCE WITH TITLE 19, CHAPTER 1.5, ARTICLE 1, SECTION 200.
36. SMOKE DETECTORS SHALL NOT BE ANY CLOSER THAN 3' FROM ANY SUPPLY DIFFUSER, IN AREA OF CONSTRUCTION OR POSSIBLE DAMAGE/CONTAMINATION ON NEWLY INSTALLED FIRE ALARM DEVICES SHALL BE COVERED UNTIL THEY ARE READY TO BE TURNED OVER TO THE OWNER.
37. MICROPHONES ASSOCIATED WITH EMERGENCY VOICE ALARM COMMUNICATION SYSTEMS (EVAC) SHALL BE ACCESSIBLE FOR USE, INSTALLED IN COMPLIANCE WITH CBC SECTIONS 11B-305 AND 11B-308.
38. UNDERGROUND AND EXTERIOR CONDUITS TO HAVE WATER/TIGHT FITTINGS AND WIRE TO BE APPROVAL FOR WET LOCATIONS.
39. THE INSTALLING CONTRACTOR SHALL PROVIDE SYSTEM PROGRAMMING FOR SUPERVISORY MONITORING PER CBC SECTION 901.6.2.
40. SUPERVISORY MONITORING SHALL BE TESTED AND VERIFIED AS SEND CORRECT SIGNALS IN CONJUNCTION WITH FINAL ACCEPTANCE TEST.
41. OWNER SHALL BE RESPONSIBLE FOR ESTABLISHING A FIRE SYSTEM MONITORING CONTRACT OR PROVISIONS.
42. THE INSTALLING CONTRACTOR SHALL PROVIDE A RECORD OF COMPLETION PER NFPA 72, FIGURE 10.18.2.1.1.
43. A INSTALLATION OF THE SYSTEMS SHALL NOT BE STARTED UNTIL DETAILED DESIGN DOCUMENTS AND SPECIFICATION, INCLUDING STATE FIRE MARSHAL LISTING NUMBERS FOR EACH COMPONENT OF THE SYSTEM HAS BEEN APPROVED BY DSA.

FIRE ALARM NOTES

MEP COMPONENT ANCHORAGE NOTES:

ALL MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS.

THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BARCED TO MEET THE FORCE AND DISPLACEMENTS REQUIREMENTS PRESCRIBED IN 2022 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26 AND 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCE NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS.

- A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
- B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

PIPING, DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTES:

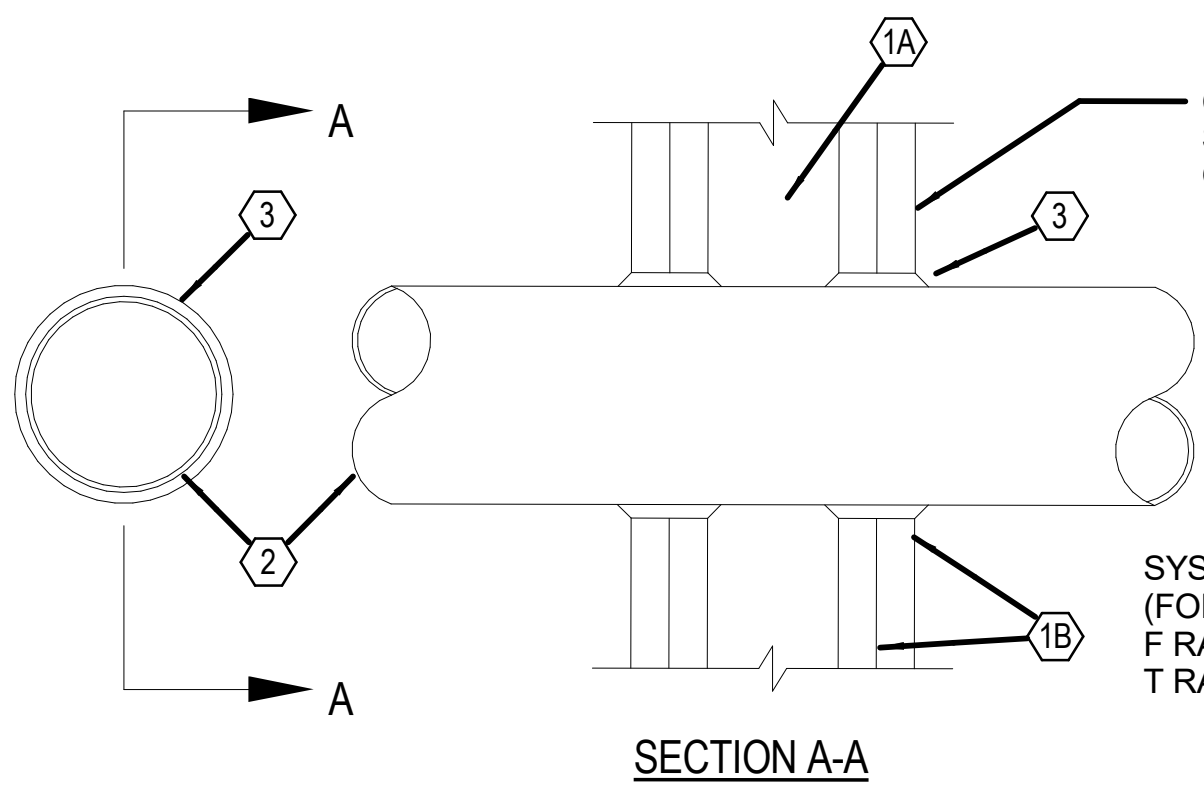
PIPING, DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEM SHALL BE BRACED TO COMPLY WITH THE FORCES DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTION 13.6.5, 13.6.6, 13.6.7, 13.6.8, AND 2022 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1616A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACINGS AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.E., SMACNA OR OSHPAD OPM), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCT (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E)

MP ☐ MD ☐ PP ☐ E ☒ - OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH SPECIFIC NOTES AND DETAILS.

MP ☐ MD ☐ PP ☐ E ☐ - OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVED (OPM #) # _____.



1. Wall assembly - the 1,2,3 or 4 hr. fire-rated gypsum wallboard/ stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 series wall or partition designs in the U.L. Fire Resistance Directory and shall include the following features:

A. Studs-Wall framing may consist of either wood studs (max 2 hr fire rated assemblies) steel channel studs. Wood studs to consist of nominal 2 by 4 in. lumber spaced 16 in. O.C. with nominal 2 by 4 in. lumber end plates and cross braces. Steel studs to be minimum 3-5/8 in. wide by 1-3/8 in. deep channels spaced max 24 in. O.C.

B.

2. Pipe or Conduit - Nom. 12 in. dia. (or smaller) Schedule 10 or (heavier) steel pipe, nom. 6 in. dia. (or smaller) steel conduit, nom. 4 in. dia. (or smaller) steel Electrical metallic Tubing of Type L (or heavier) copper tubing or nom. 1in. dia. (or smaller) flexible steel conduit. When copper pipe or flexible steel conduit is used, max. F Rating of firestop system (item 3) is 2 hr. Steel pipes or conduits larger than nom 4 in. dia. may only be used in walls constructed using steel channel studs. A max of one pipe or conduit is permitted in the firestop wall constructed using steel channels studs. A max of one pipe or conduit is permitted in the rigidly supported on both sides of wall assembly.

3. Fill, Void or Cavity Material* - Caulk** - Caulk fill material installed to completely fill annular space between pipe or conduit and gypsum wallboard and with a min. 1/4 in. dia. bead of caulk applied to perimeter of pipe or conduit at its egress from the wall. Caulk installed symmetrically on both sides of wall assembly. The hourly F rating of the firestop system is dependent upon the hourly fire rating of wall assembly in which is installed as shown in the following table. The hourly T rating of the fire stop system is dependent upon the type or size of the pipe or conduit and the hourly fire ratings of the wall assembly in which is installed, as tabulated below:

MAX PIPE OR CONDUIT DIAMETER, IN.	FIRESTOP ANNULAR SPACE, IN.	F RATING, HR.	T RATING, HR.
1	0 TO 3/16	1 OR 2	0+, 1 OR 2
1	1/4 TO 1/2	3 OR 4	3 OR 4
4	0 TO 1/4	1 OR 2	0
6	1/4 TO 1/2	3 OR 4	0
12	3/16 TO 3/8	1 OR 2	0

- + When copper pipe is used, T rating is 0 hour.
- + FIRESTOP TESTED UP TO 4 HOURS IN ACCORDANCE WITH ASTM E 814 (UL 1479). FIRE RESISTANCE TESTED FOR STATIC CONSTRUCTION JOINT SYSTEMS IN ACCORDANCE WITH ASTM E 1966 (UL 2079)
- ** Mining & Mfg. Co. - Types CP-25 S/L, CP-25 N/S, CP-25 WB, CP-25 WB+.
1. PENETRATION FIRESTOP SYSTEM
- NOT TO SCALE

FIRE ALARM SEQUENCE OF OPERATION

	DEVICE									
	MANUAL PULL STATION	AREA SMOKE DETECTOR	AREA HEAT DETECTOR	DUCT SMOKE DETECTOR	120V AC POWER FAILURE	SYSTEM LOW BATTERY	OPEN CIRCUIT	GROUND FAULT	NOTIFICATION CIRCUIT SHORT	
	ACTION									
	ANNUNCIATE AT FAC/ALARM/TROUBLE AT ANNUNCIATOR	YES	YES	YES	YES	YES	YES	YES	YES	YES
	SOUND FIRE ALARM CONTROL PANEL TROUBLE BUZZER (ALARM, TROUBLE OR SUPERVISORY)	YES	YES	YES	YES	YES	YES	YES	YES	YES
	ANNUNCIATE AT REMOTE FIRE ALARM REMOTE ANNUNCIATOR (ALARM, TROUBLE OR SUPERVISORY)	YES	YES	YES	YES	YES	YES	YES	YES	YES
	ACTIVATE RELAY FOR CENTRAL STATION MONITORING (ALARM, TROUBLE OR SUPERVISORY)	YES	YES	YES	YES	YES	YES	YES	YES	YES
	ACTIVATE AUDIBLE / VISUAL ALARM SIGNAL THROUGHOUT BUILDING	YES	YES	YES	YES	NO	NO	NO	NO	NO
	CLOSE SMOKE/FIRE DAMPERS IN RATED WALLS	NO	YES	NO	NO	NO	NO	NO	NO	NO
	SHUT DOWN ALL AIR HANDLING UNITS (HVAC) THROUGHOUT BUILDING	NO	YES	NO	NO	NO	NO	NO	NO	NO

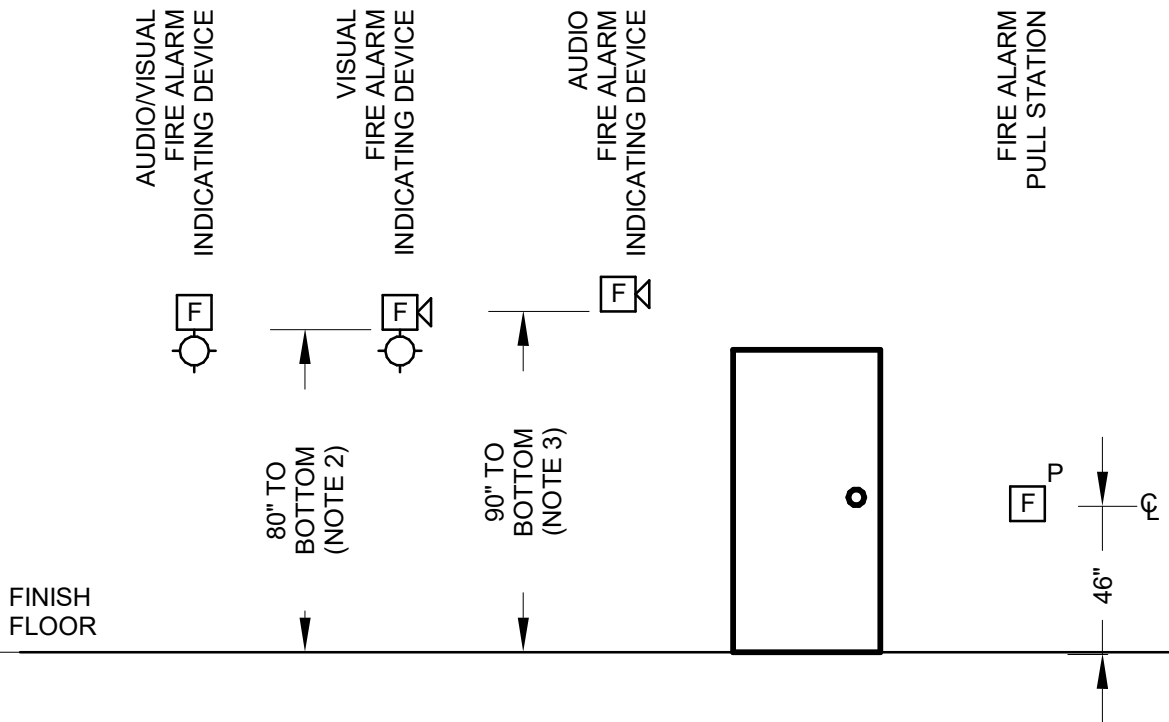
WIRE SCHEDULE		
TAG	WIRE/CABLE	CIRCUIT TYPE
M	2 #16 SOLID SHIELDED FLPLR TP	SLC LOOP
UM	2 #16 TSP TWISTED/SHIELDED FLPLR TP	SLC LOOP UNDERGROUND
S	2 #16 SOLID UNSHIELDED FLPLR TP	AUDIBLE NAC - SPEAKER
V	2 #12 AWG THHN/THWN	STROBE INDOOR/OUTDOOR
SB	2 #16 TSP TWISTED/SHIELDED	SBUS
VB	2 #16 TSP TWISTED/SHIELDED	VBUS
C	2#14 AWG THHN/THWN	COMMUNICATIONS
P	2#14 AWG THHN/THWN	AUXILIARY POWER
V0	2 #12 AWG THHN/THWN	POWER SUPPLY

FIRE ALARM DEVICE SCHEDULE			
MANUFACTURER	MODEL	DESCRIPTION	CSFM LISTING NUMBER
FIRE-LITE	ES-1000X	FIRE ALARM CONTROL PANEL	7165-0075-0500
FIRE-LITE	ECC-100	EMERGENCY COMMAND CENTER	6911-0075-0226
FIRE-LITE	ECC-SODA	FIRE ALARM AMPLIFIER	7300-0075-0227
FIRE-LITE	HFF-PS10	REMOTE POWER SUPPLY	7315-1637-0505
SPACE AGE	SSU00645/TC-32	FIRE ALARM TERMINAL CABINET	7300-0553-0110
FIRE-LITE	BG-12LX	FIRE ALARM PULL STATION	7150-0075-0184
FIRE-LITE	MMF-300	MONITOR MODULE	7300-0075-0185
PROTECTOWIRE	PLR-16WR	LINEAR HEAT DETECTOR 190F	7270-0654-0101
FIRE-LITE	SD365HT(A)	PHOTOELECTRIC SMOKE DETECTOR	7272-0075-0502
SYSTEM SENSOR	RTS151KEY	REMOTE TEST SWITCH	7300-1653-0212
HONEYWELL	SPSRCL	CEILING SPEAKER W/STROBE	7320-1653-0505
HONEYWELL	<varies>	<varies>	7320-1653-0505
HONEYWELL	SRL	WALL STROBE	7320-1653-0505
HONEYWELL	SPRL	WP WALL SPEAKER	7320-1653-0505

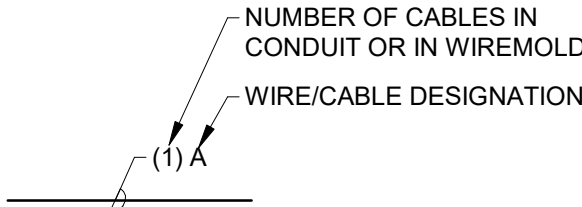
MOUNTING HEIGHT NOTES

1. MOUNTING HEIGHTS ARE TYPICAL UNLESS OTHERWISE INDICATED ON ARCHITECTURAL OR ELECTRICAL DRAWINGS.
2. FIRE ALARM VISUAL AND COMBINATION AUDIO VISUAL DEVICES INSTALLED ON WALLS SHALL BE MOUNTED PER NFPA 72, SUCH THAT THE ENTIRE LENS IS NOT LESS THAN 80 INCHES AND NOT GREATER THAN 96 INCHES ABOVE FINISH FLOOR.
3. FIRE ALARM AUDIO DEVICES INSTALLED ON WALLS SHALL BE MOUNTED PER NFPA 72, SUCH THAT THE TOP OF THE DEVICES IS NOT LESS THAN 80 INCHES ABOVE FINISH FLOOR AND NOT LESS THAN 6 INCHES BELOW FINISH CEILING.
4. COORDINATE ADDITIONAL MOUNTING REQUIREMENTS WITH ARCHITECTURAL TRADES.

MOUNTING HEIGHTS



CABLE LEGEND



- NOTES:
1. ALL CABLE SHALL BE INSTALLED PER NEC/IECC.
2. ALL WIRING SHALL CONFORM TO NEC 760 PART A & C FOR POWER-LIMITED SUPPLY.
3. ALL WIRING IN WET LOCATIONS SHALL BE RATED FOR WET LOCATIONS.
4. ALL FIRE ALARM CABLEING SHALL BE RUN IN MINIMUM 3/4" CONDUIT RACEWAY UNLESS OTHERWISE NOTED.



Inglewood Unified School District

IUSD Bennett-Kew P-8 Academy

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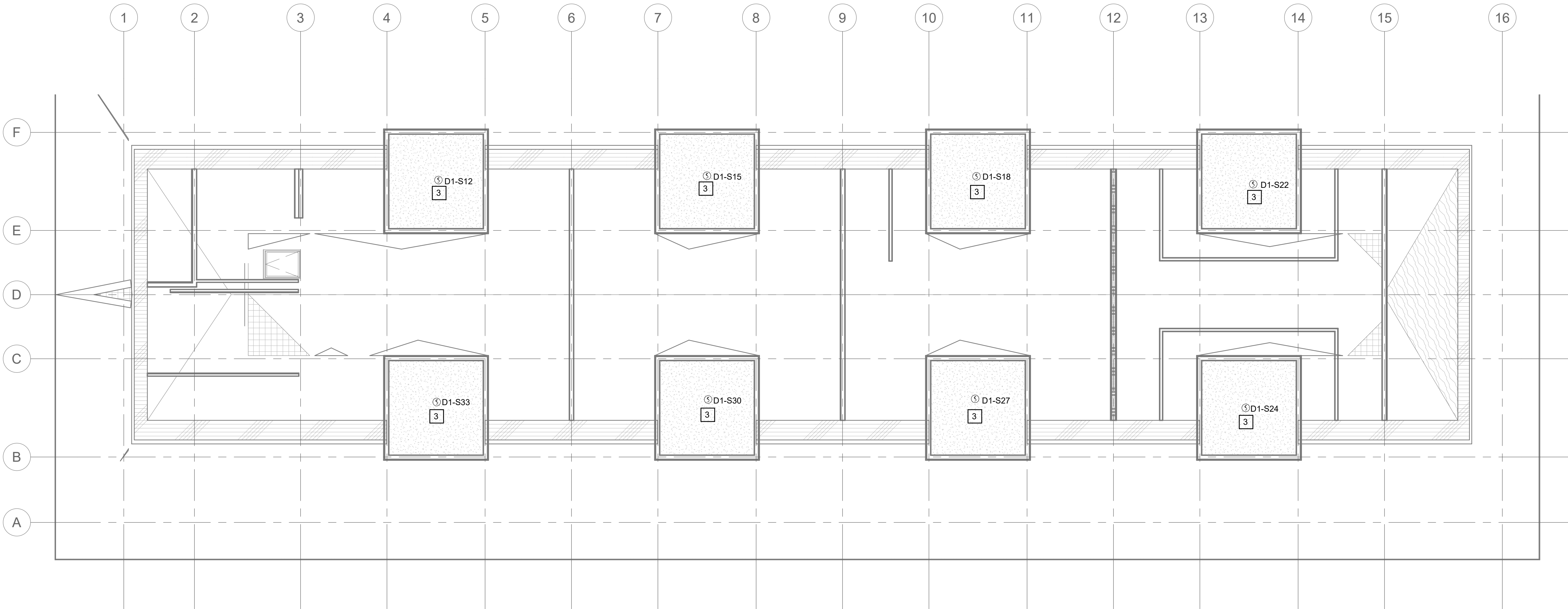


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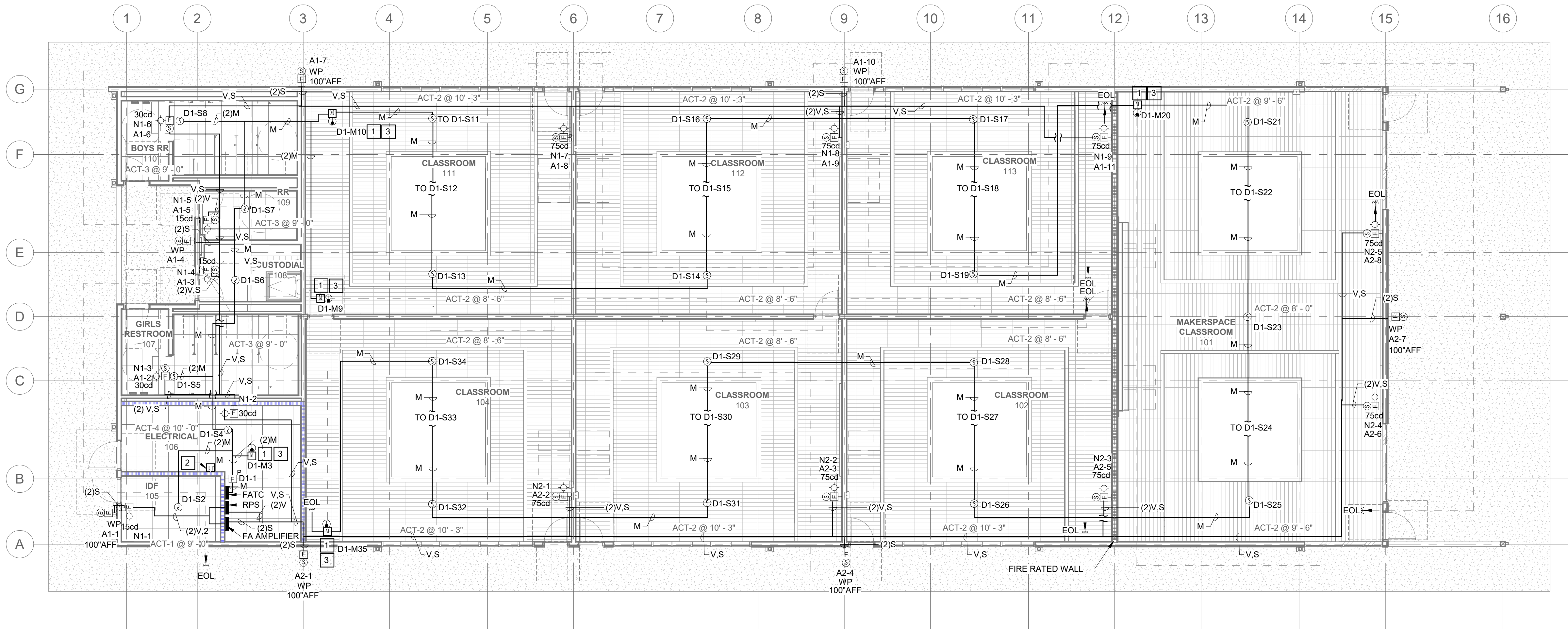
Fire Alarm Legends

FA-001

SHEET INDEX	
SHEET NUMBER	SHEET NAME
FIRE ALARM	
FA-001	Fire Alarm Legends
FA-101	Fire Alarm Plan
FA-102	Fire Alarm Site Plan
FA-701	Fire Alarm Riser Diagram
FA-702	Fire Alarm Calculations



FIRE ALARM PLAN - ROOF
1/8" = 1'-0"



FIRE ALARM PLAN
1/8" = 1'-0"

FIRE ALAM SHEET NOTES:

1. SEE DRAWING FA-001 FOR GENERAL NOTES, SYMBOL LEGEND, AND TYPICAL MOUNTING HEIGHT INFORMATION.
2. SEE ARCHITECTURAL PLANS AND DETAILS FOR DIMENSIONAL INFORMATION REGARDING PLACEMENT OF EQUIPMENT AND DEVICES.
3. ALL OPENINGS AROUND CONDUITS PASSING THROUGH FIRE RATED WALLS, CEILINGS, FLOORS, ETC. SHALL BE PACKED AND SEALED TO CONFORM WITH THE FIRE RATING OF THE PENETRATED STRUCTURE.
4. REFER TO STRUCTURAL DRAWINGS FOR FIRE ALARM EQUIPMENT MOUNTING INFORMATION.

KEYED NOTES

1. LINEAR HEAT DETECTOR. INSTALL IN ABOVE ACCESSIBLE CEILING SPACE.
2. PROVIDE AND INSTALL REMOTE TEST SWITCHES FOR LINEAR HEAT DETECTORS AND SMOKE DETECTORS AT THIS LOCATION. REFER TO FIRE ALARM RISER DIAGRAM FOR ADDITIONAL INFORMATION.
3. CONNECT DEVICE TO REMOTE TEST SWITCH IN ELECTRICAL ROOM. REFER TO FIRE ALARM RISER DIAGRAM FOR ADDITIONAL INFORMATION.



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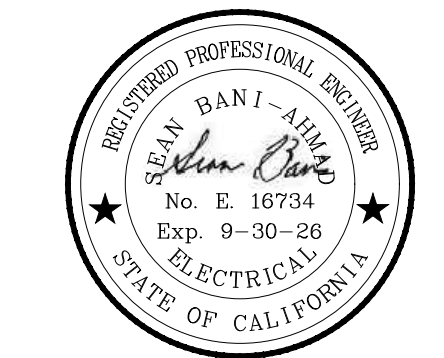
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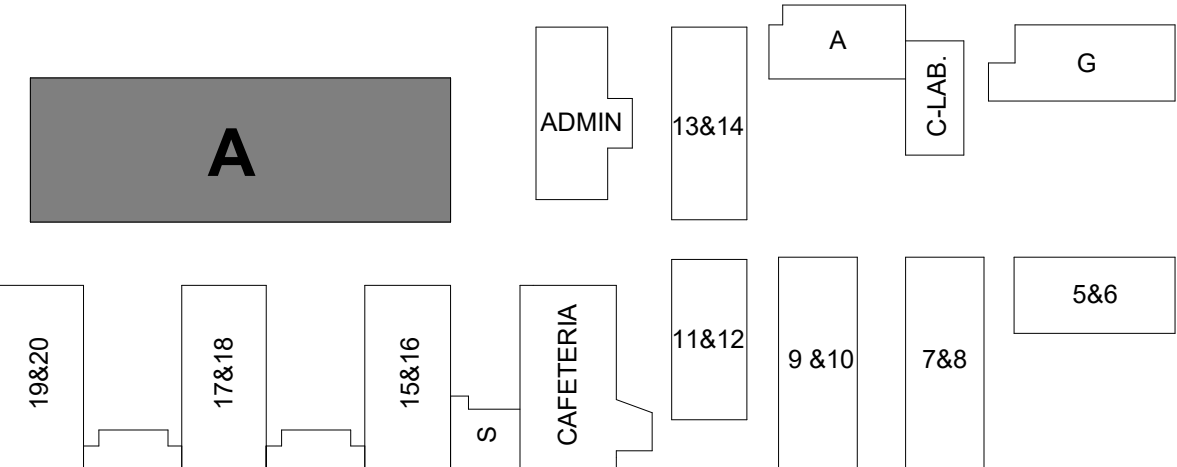


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Fire Alarm Plan

FA-101

KEY PLAN




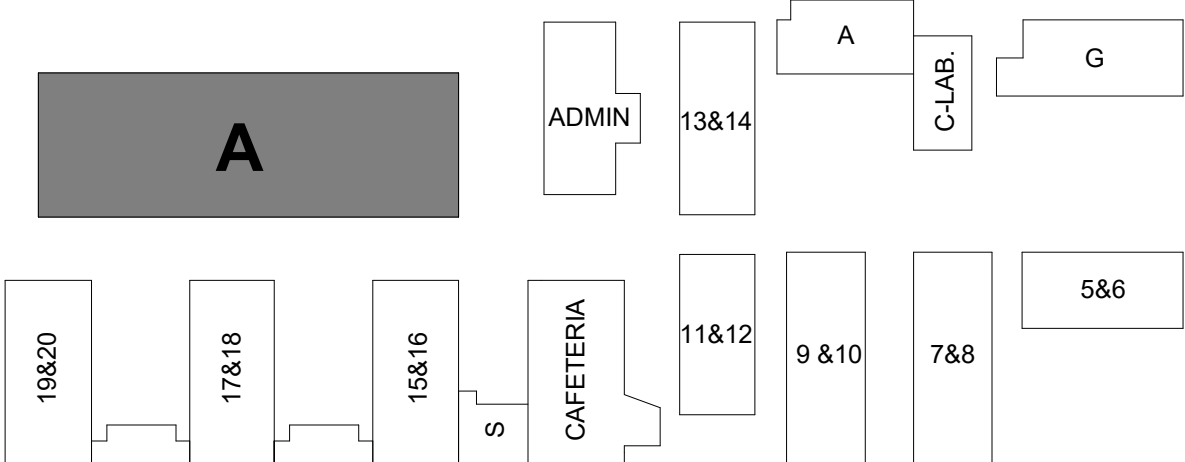
1. SAWCUT EXISTING SURFACES AS REQUIRED TO INSTALL UNDERGROUND CONDUIT/CONDUCTORS. PATCH AND REPAIR SURFACES AFTER INSTALLATION TO MATCH EXISTING CONDITIONS.
2. PAINT ALL NEW EXTERIOR CONDUIT, CONDUCTORS, AND BOXES TO MATCH BUILDING SURFACES.
3. ALL PENETRATIONS SHALL BE PATCHED AND/OR SEALED AS REQUIRED TO MAINTAIN THE INTEGRITY AND RATING OF THE WALL OR STRUCTURE.
4. REFER TO SAFE DISPERSAL AREA PATH LIGHTING PLAN AND ELECTRICAL SITE PLAN FOR ADDITIONAL TRENCHING REQUIRED.
5. BURIAL DEPTHS SHALL COMPLY WITH CEC TABLE 300.5.

1 PROVIDE AND INSTALL NEW FIRE ALARM PANEL IN PLACE OF EXISTING. RECONNECT EXISTING FIRE ALARM SYSTEM EQUIPMENT AND DEVICES TO NEW FIRE ALARM PANEL. EXISTING FIRE ALARM SYSTEM SHALL MAINTAIN ALL EXISTING FUNCTIONS. COMPATIBILITY OF DEVICES SHALL BE VERIFIED WITH MANUFACTURER PRIOR TO PROCUREMENT.



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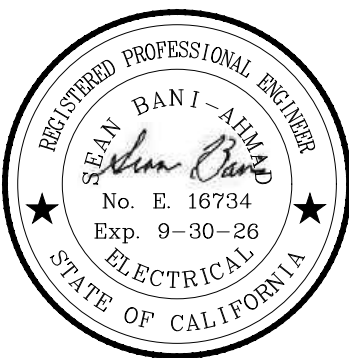
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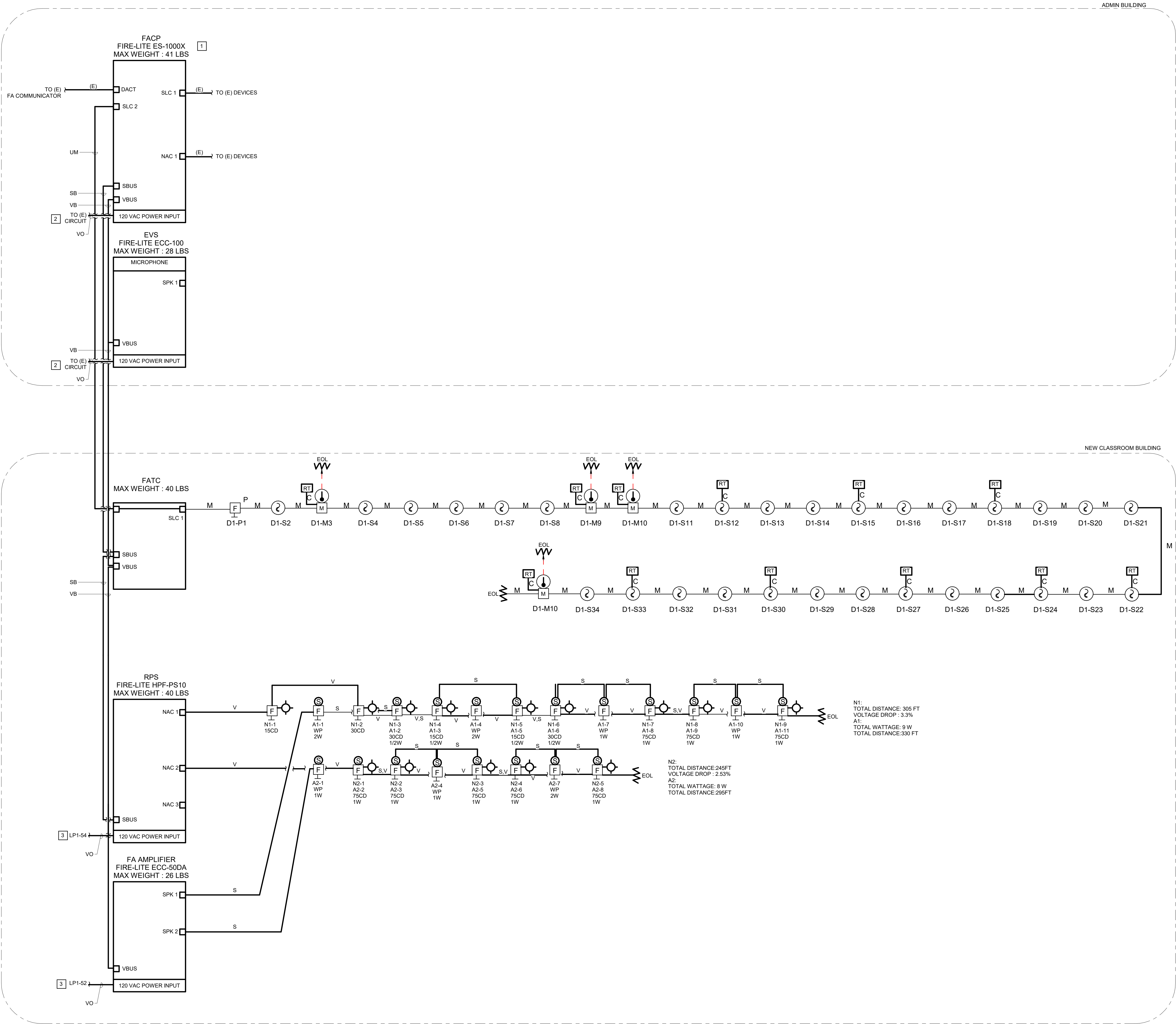
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Fire Alarm Site Plan

FA-102



KEYED NOTES

- 1 PROVIDE AND INSTALL NEW FIRE ALARM PANEL IN PLACE OF EXISTING. RECONNECT EXISTING FIRE ALARM SYSTEM EQUIPMENT AND DEVICES TO NEW FIRE ALARM PANEL. EXISTING FIRE ALARM SYSTEM SHALL MAINTAIN ALL EXISTING FUNCTIONS. COMPATIBILITY OF DEVICES SHALL BE VERIFIED WITH MANUFACTURER PRIOR TO PROCUREMENT.
- 2 CONNECT PANEL TO EXISTING FIRE ALARM CIRCUIT. CIRCUIT BREAKER SHALL BE LOCKED IN THE "ON" POSITION WITH AN APPROVED MECHANICAL CLIP. CIRCUIT BREAKER SHALL HAVE A RED MARKING AND IDENTIFIED AS "FIRE ALARM". THE LOCATION OF THE CIRCUIT BREAKER SHALL BE PERMANENTLY IDENTIFIED AT THE FIRE ALARM CONTROL UNIT.
- 3 CIRCUIT BREAKER SHALL BE LOCKED IN THE "ON" POSITION WITH AN APPROVED MECHANICAL CLIP. CIRCUIT BREAKER SHALL HAVE A RED MARKING AND IDENTIFIED AS "FIRE ALARM". THE LOCATION OF THE CIRCUIT BREAKER SHALL BE PERMANENTLY IDENTIFIED AT THE FIRE ALARM CONTROL UNIT. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.



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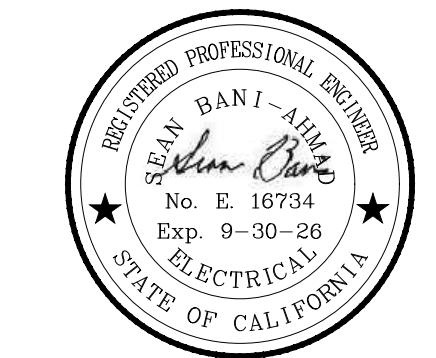
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Fire Alarm Riser
Diagram

FA-701

BATTERY CALCULATIONS - FACP					
		STANDBY CURRENT (AMPS)		ALARM CURRENT (AMPS)	
PANEL (N) FACP	QTY 1	CURRENT DRAW (A) 0.141	TOTAL (A) 0.141	CURRENT DRAW (A) 0.257	TOTAL (A) 0.257
DEVICES	QTY	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
(E) SMOKE DETECTOR	69	0.00008	0.00552	0.0015	0.1035
(E) HEAT DETECTOR	43	0.0014	0.0602	0.0026	0.1118
(E) DUCT SMOKE DETECTOR	1	0.00264	0.00264	0.126	0.126
(E) PULL STATION	1	0.0014	0.0014	0.0026	0.0026
(E) STROBE	32	0	0	0.038	1.216
(E) HORN	22	0	0	0.035	0.77
(N) SMOKE DETECTORS	29	0.00002	0.00058	0.0045	0.1305
(N) MONITOR MODULE	4	0.000035	0.00014	0.00006	0.00024
(N) PULL STATION	1	0.000035	0.000035	0.005	0.005
		TOTAL STANDBY (A) 0.212		TOTAL ALARM (A) 2.723	
REQUIRED STANDBY TIME = 24 HOURS					
REQUIRED ALARM TIME = 5 MINUTES					
SECONDARY STANDBY LOAD		0.212	24		5.076
SECONDARY ALARM LOAD		2.723	0.08		0.218
STANDBY AND ALARM LOAD SUBTOTAL			5.294		
DERATING FACTOR			1.25		
SECONDARY LOAD REQUIREMENTS (AMP HOURS)			6.618		
PROVIDE 14AH BATTERY					
CALCULATION METHODS:					
TOTAL STANDBY = TOTAL QTY OF DEVICES x STANDBY CURRENT					
TOTAL ALARM = TOTAL QTY OF DEVICES x ALARM CURRENT					
SECONDARY STANDBY LOAD = TOTAL STANDBY x REQUIRED STANDBY TIME					
SECONDARY ALARM LOAD = TOTAL ALARM x REQUIRED ALARM TIME					
SECONDARY LOAD REQUIREMENTS = STANDBY AND ALARM LOAD SUBTOTAL * DERATING FACTOR					

BATTERY CALCULATIONS - RPS					
		STANDBY CURRENT (AMPS)		ALARM CURRENT (AMPS)	
PANEL	QTY	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
RPS	1	0.156	0.156	8.185	8.185
DEVICES		CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
WALL 15 CD STROBE	1	0	0	0.043	0.043
WALL 30 CD STROBE	1	0	0	0.063	0.063
WALL 15 CD SPEAKER/STROBE	2	0	0	0.043	0.086
CEILING 30 CD SPEAKER/STROBE	2	0	0	0.063	0.126
WALL 75 CD SPEAKER/STROBE	8	0	0	0.107	0.856
		TOTAL STANDBY (A)	0.156	TOTAL ALARM (A)	9.359
REQUIRED STANDBY TIME = 24 HOURS					
REQUIRED ALARM TIME = 15 MINUTES					
SECONDARY STANDBY LOAD		0.156	24	3.744	
SECONDARY ALARM LOAD		9.359	0.25	2.340	
STANDBY AND ALARM LOAD SUBTOTAL				6.084	
DERATING FACTOR				1.25	
SECONDARY LOAD REQUIREMENTS (AMP HOURS)				7.605	
PROVIDE 14AH BATTERY					
CALCULATION METHODS:					
TOTAL STANDBY = TOTAL QTY OF DEVICES x STANDBY CURRENT					
TOTAL ALARM = TOTAL QTY OF DEVICES x ALARM CURRENT					
SECONDARY STANDBY LOAD = TOTAL STANDBY x REQUIRED STANDBY TIME					
SECONDARY ALARM LOAD = TOTAL ALARM x REQUIRED ALARM TIME					
SECONDARY LOAD REQUIREMENTS = STANDBY AND ALARM LOAD SUBTOTAL * DERATING FACTOR					

A1 SPEAKER dB LOSS									CIRCUIT SETTINGS		TOTALS	
									INITIAL VOLTAGE:	70.7	TOTAL VOLTAGE DROP:	0.156
									MIN VOLTAGE:	63	EOL VOLTAGE:	70.54
									WIRE RESISTANCE (Ω/ft):	3.07	VOLTAGE DROP PERCENT:	0.22%
									MAX CIRCUIT WATTS:	50	TOTAL CIRCUIT WATTS:	11.000
Distance measured using drawn segment lengths with 10.00 % additional length calculated											TOTAL LENGTH (Ft):	330
	DEVICE TAG	DEVICE WATTS	DISTANCE (Ft)	CURRENT (A)	POWER	POWER LOSS	POWER LOSS %	REMAINING CURRENT (A)	RESISTANCE FROM PREVIOUS (Ω)	POWER LOSS FROM PREVIOUS	dB LOSS FROM PREVIOUS	CUMULATIVE dB LOSS
	A1-1	2.000	20	0.028	70.68	0.019	0.03%	0.156	0.123	0.019	-0.002	-0.002
	A1-2	1.500	60	0.007	70.63	0.066	0.09%	0.127	0.066	0.047	-0.006	-0.008
	A1-3	0.500	5	0.007	70.63	0.070	0.10%	0.120	0.031	0.004	-0.000	-0.009
	A1-4	2.000	35	0.028	70.61	0.094	0.13%	0.113	0.215	0.024	-0.003	-0.012
	A1-5	0.500	5	0.007	70.60	0.097	0.14%	0.085	0.031	0.003	-0.003	-0.012
	A1-6	0.500	30	0.007	70.59	0.111	0.16%	0.078	0.184	0.014	-0.002	-0.014
	A1-7	1.000	25	0.014	70.58	0.122	0.17%	0.071	0.154	0.011	-0.001	-0.015
	A1-8	1.000	45	0.014	70.56	0.137	0.19%	0.057	0.276	0.016	-0.002	-0.017
	A1-9	1.000	45	0.014	70.55	0.149	0.21%	0.042	0.276	0.012	-0.001	-0.018
	A1-10	1.000	15	0.014	70.55	0.152	0.21%	0.028	0.092	0.003	-0.000	-0.019
	A1-11	1.000	45	0.014	70.54	0.156	0.22%	0.014	0.276	0.004	-0.004	-0.019
Calculation Notes:												
Watts To Amps Conversion = Device Watts / Voltage												
Resistance From Previous (Ω) = Wire Resistance (Ω/ft) x 2 x Dist. From Previous (Ft)												
Power Loss From Previous = Resistance From Previous (Ω) x Remaining Current (A)												
dB Loss From Previous = 20 x Log (Power At Previous Device / Power At Device)												
Total dB Loss = 20 x Log (Power At Last Device / Start Voltage)												

A2 SPEAKER dB LOSS									CIRCUIT SETTINGS		TOTALS	
									INITIAL VOLTAGE:	70.7	TOTAL VOLTAGE DROP:	0.116
									MIN VOLTAGE:	63	EOL VOLTAGE:	70.58
									WIRE RESISTANCE (Ω/ft):	3.07	VOLTAGE DROP PERCENT:	0.16%
									MAX CIRCUIT WATTS:	50	TOTAL CIRCUIT WATTS:	8.000
Distance measured using drawn segment lengths with 10.00 % additional length calculated											TOTAL LENGTH (Ft):	295
	DEVICE TAG	DEVICE WATTS	DISTANCE (Ft)	CURRENT (A)	POWER	POWER LOSS	POWER LOSS %	REMAINING CURRENT (A)	RESISTANCE FROM PREVIOUS (Ω)	POWER LOSS FROM PREVIOUS	dB LOSS FROM PREVIOUS	CUMULATIVE dB LOSS
	A2-1	1.000	20	0.014	70.69	0.014	0.02%	0.113	0.123	0.014	-0.002	-0.002
	A2-2	1.000	50	0.014	70.66	0.044	0.06%	0.099	0.307	0.030	-0.004	-0.005
	A2-3	1.000	50	0.014	70.63	0.070	0.10%	0.085	0.307	0.026	-0.003	-0.009
	A2-4	1.000	15	0.014	70.62	0.077	0.11%	0.071	0.092	0.007	-0.001	-0.009
	A2-5	1.000	50	0.014	70.61	0.094	0.13%	0.057	0.307	0.017	-0.002	-0.012
	A2-6	1.000	60	0.014	70.59	0.110	0.16%	0.042	0.368	0.016	-0.002	-0.014
	A2-7	1.000	25	0.014	70.59	0.114	0.16%	0.028	0.154	0.004	-0.001	-0.014
	A2-8	1.000	25	0.014	70.58	0.116	0.16%	0.014	0.154	0.002	-0.003	-0.014
Calculation Notes:												
Watts To Amps Conversion = Device Watts / Voltage												
Resistance From Previous (Ω) = Wire Resistance (Ω/ft) x 2 x Dist. From Previous (Ft)												
Power Loss From Previous = Resistance From Previous (Ω) x Remaining Current (A)												
dB Loss From Previous = 20 x Log (Power At Previous Device / Power At Device)												
Total dB Loss = 20 x Log (Power At Last Device / Start Voltage)												

FIRE ALARM VOLTAGE DROP CALCULATION							
				CIRCUIT SETTINGS		TOTALS	
				Starting Calculation Voltage:	20.4	Total Voltage Drop:	0.678
				Min. Operational Voltage:	16	End Of Line Voltage:	19.722
				Wire Resistance (Ω/ft):	3.07	Voltage Drop Percent:	3.32%
				Max. Circuit Current (A):	3	Total Circuit Current (A):	0.639
Distance measured using drawn segment lengths with 10.00 % additional length calculated						Total Circuit Length (Ft):	305
DEVICE TAG	CURRENT (A)	DISTANCE (Ft)	VD AT DEVICE	VD	VD %	CURRENT	R FROM PREVIOUS
N1-1	0.043	15	20.34	0.059	0.29%	0.639	0.092
N1-2	0.063	50	20.16	0.242	1.19%	0.596	0.307
N1-3	0.063	15	20.11	0.291	1.43%	0.533	0.092
N1-4	0.043	25	20.04	0.363	1.78%	0.470	0.154
N1-5	0.043	15	20.00	0.402	1.97%	0.427	0.092
N1-6	0.063	25	19.94	0.461	2.26%	0.384	0.154
N1-7	0.107	60	19.82	0.580	2.84%	0.321	0.368
N1-8	0.107	50	19.75	0.645	3.16%	0.214	0.307
N1-9	0.107	50	19.72	0.678	3.32%	0.107	0.307
Calculation Notes:							
Resistance From Previous (Ω) = Wire Resistance (Ω/ft) x 2 x Dist. From Previous (Ft)							
Voltage Drop From Previous = Resistance From Previous (Ω) x Remaining Current (A)							

FIRE ALARM VOLTAGE DROP CALCULATION									
Distance measured using drawn segment lengths with 10.00 % additional length calculated					CIRCUIT SETTINGS		TOTALS		
					Starting Calculation Voltage:		20.4	Total Voltage Drop:	0.516
					Min. Operational Voltage:		16	End Of Line Voltage:	19.884
					Wire Resistance (Ω/ft):		3.07	Voltage Drop Percent:	2.53%
					Max. Circuit Current (A):		3	Total Circuit Current (A):	0.535
							Total Circuit Length (Ft):	245	
DEVICE TAG	CURRENT (A)	DISTANCE (Ft)	VD AT DEVICE	VD	VD %	CURRENT	R FROM PREVIOUS	VD PREVIOUS DEVICE	
N2-1	0.107	60	20.20	0.197	0.97%	0.535	0.368	0.197	
N2-2	0.107	50	20.07	0.328	1.61%	0.428	0.307	0.131	
N2-3	0.107	50	19.97	0.427	2.09%	0.321	0.307	0.099	
N2-4	0.107	50	19.91	0.493	2.42%	0.214	0.307	0.066	
N2-5	0.107	35	19.88	0.516	2.53%	0.107	0.215	6.023	
Calculation Notes:									
Resistance From Previous (Ω) = Wire Resistance (Ω/ft) x 2 x Dist. From Previous (Ft)									
Voltage Drop From Previous = Resistance From Previous (Ω) x Remaining Current (A)									

1.	WATER FLOW TEST		
A	STATIC PRESSURE:	60	PSI
B	RESIDUAL PRESSURE	55	PSI
C	FLOW RATE:	1500	GPM
D	SYSTEM MAX PRESSURE		PSI
E	TEST DATE		
2.	WATER DEMAND		
A	FIXTURE UNITS	133.5	WFSU
B	PEAK EXPECTED FLOW	52	GPM
C	RESIDUAL PRESSURE AT PEAK FLOW	50	PSI
3.	PRESSURE LOSSES		
A	4" BACKFLOW PREVENTER	12	PSI
B	4" WATER METER	1	PSI
C	4" WATER SERVICE	3	PSI
D	PRESSURE REDUCING VALVE	0	PSI
E	MOST REMOTE PLUMBING FIXTURE:		RH
F	REQ. PRESSURE AT MOST REMOTE FIXTURE	25	PSI
G	ELEVATION:	15	FT
H	FRICTION LOSSES	2.5	PSI
I	MASTER MIXING VALVE	0	PSI
J	TOTAL LOSSES	26	PSI
4.	SAFETY FACTOR		
A	SAFETY FACTOR	10	
B	PRESSURE BOOST	0	PSI
5.	FRICTION FACTOR		
A	EQUIVALENT LENGTH TO MOST REMOTE FIXTURE	100	FT
B	PIPE SIZING FACTOR	1.00	PSI/100FT
		2.3	FT/100FT

PLUMBING PLAN CHECK NOTES

- ALL FIXTURES, EQUIPMENT, PIPING AND MATERIALS SHALL BE LISTED.
- ALL FIXTURES SHALL MEET THE FLOW REQUIREMENTS SPECIFIED IN THE LOS ANGELES PLUMBING CODE
- ALL FAUCETS IN PUBLIC RESTROOMS SHALL BE SELF CLOSING OR SELF-CLOSIGN METERING FAUCETS
- PUBLIC LAVATORIES SHALL HAVE CONTROLS TO LIMIT THE WATER TEMPERATURE TO 110F
- WATER PIPE AND FITTINGS WITH A LEAD CONTENT THAT EXCEEDS 0.25% SHALL BE PROHIBITED IN SYSTEMS CONVEYING POTABLE WATER
- REFER TO SHEETS C1.5 FOR SITE UTILITIES, BACKFLOW PREVENTERS AND WATER METERS

PLUMBING SEISMIC NOTES

- ALL FIXTURES, EQUIPMENT, PIPING AND MATERIALS SHALL BE LISTED.
- ALL FIXTURES SHALL MEET THE FLOW REQUIREMENTS SPECIFIED IN THE LOS ANGELES PLUMBING CODE
- ALL FAUCETS IN PUBLIC RESTROOMS SHALL BE SELF CLOSING OR SELF-CLOSIGN METERING FAUCETS
- PUBLIC LAVATORIES SHALL HAVE CONTROLS TO LIMIT THE WATER TEMPERATURE TO 110F
- WATER PIPE AND FITTINGS WITH A LEAD CONTENT THAT EXCEEDS 0.25% SHALL BE PROHIBITED IN SYSTEMS CONVEYING POTABLE WATER
- REFER TO SHEETS C1.5 FOR SITE UTILITIES, BACKFLOW PREVENTERS AND WATER METERS

BUILDING WATER & SEWER DEMAND					
QTY	TYPE	WATER		SEWER	
		FIXTURE UNITS	TOTAL	FIXTURE UNITS	TOTAL
9	Lavatory	1	9	1	9
0	Water Closet (1.6 gpf Tank)	2.5	0	4	0
9	Water Closet (1.6 gpf Flushometer)	40/10	90	4	36
2	Urinal	20/5	10	2	4
0	Bathtub/Shower	4	0	2	0
8	1-1/2" Special Purpose Sink	2	16	3	24
0	2" Special Purpose Sink	2	0	4	0
0	Kitchen Sink	1.5	0	2	0
0	Dishwasher	1.5	0	-	0
0	Clothes Washer	4	0	3	0
1	Drinking Fountain	0.5	0.5	0.5	0.5
0	Laundry Sink	1.5	0	2	0
1	Mop Sink	3	3	3	3
2	Hose Bibb	1/2.5	5	-	0
6	Emergency Floor Drain	-	-	0	0
0	2" Floor Sink	-	-	0	0
0	3" Floor Sink	-	-	0	0
1	4" Floor Sink	-	-	8	8
TOTAL (FU)			133.5		84.5
TOTAL (GPM)			52		

APPLICABLE CODE: 2022 CBC

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA-APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30:

- ALL PERMANENT EQUIPMENT AND COMPONENTS.
- TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G., HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
- TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

- COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
- COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

APPLICABLE CODE: 2022 CBC PER IR 16-13.

MEP DISTRIBUTION SYSTEM BRACING NOTE FOR PIPING, DUCTWORK, AND ELECTRICAL CONDUIT

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7 SECTION 13.3 AS DEFINED IN ASCE 7 SECTIONS 13.6.5, 13.6.6, 13.6.7, AND 13.6.8, AND 2022 CBC SECTIONS 1617A.1.24, 1617A.1.25, AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEMS ARE AS NOTED BELOW. THE MEP DESIGN PROFESSIONAL, ENGINEER RESPONSIBLE FOR CONTENT ON THESE SHEETS HAS VERIFIED THAT THE DESIGN METHODS IDENTIFIED BELOW ARE IN ACCORDANCE WITH DSA IR 16-13.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP, MD, PP, E: OPTION 1: PROJECT-SPECIFIC DESIGN.

MP, MD, PP, E: OPTION 2: DESIGN BASED ON OSHPD OPM, WITHIN PROJECT SUBMITTAL.

MP, MD, PP, E: OPTION 3: DESIGN BASED ON OSHPD OPM, DEFERRED SUBMITTAL.

PIPE MATERIAL									
SERVICE	MATERIAL	COPPER TYPE "M"	COPPER TYPE "L"	COPPER TYPE "K"	DUCTILE IRON	COPPER TYPE "DWV"	BLACK STEEL	CAST IRON	COMMENTS
WATER	ABOVE GROUND		X						
	UNDERGROUND			X	X(3)				
SANITARY DRAIN	ABOVE GROUND							X	NO-HUB
	UNDERGROUND							X	NO-HUB
SANITARY VENT	ABOVE GROUND							X	NO-HUB
	UNDERGROUND							X	NO-HUB
NATURAL GAS	ABOVE GROUND					X			WRAPPED UNDERGROUND
	UNDERGROUND					X (1)			
DRAIN TILE	ABOVE GROUND	-	-	-	-	-	-	-	N/A
	UNDERGROUND							X	PERFORATED
STORM	ABOVE GROUND							X	
	UNDERGROUND							X	
INDIRECT DRAIN	ABOVE GROUND	X							
	UNDERGROUND	-	-	-				-	N/A
CONDENSATE	ABOVE GROUND					X			
	UNDERGROUND					X			
COMPRESSED AIR	ABOVE GROUND			X					
	UNDERGROUND			X					
LAB VENT	ABOVE GROUND							X	SOLID WALL
	UNDERGROUND							X	SOLID WALL
LAB WASTE	ABOVE GROUND							X	SOLID WALL
	UNDERGROUND							X	SOLID WALL

- ALL MATERIALS SHALL MEET 25/50 SMOKE / FLAME SPREAD SAFETY RATING
- BELOW GRADE FERROUS MATERIALS SHALL BE GIVEN A HIGH QUALITY FLETCHER COATING, AND WRAPPED WITH TAPE COATING SYSTEM
 - WHERE EXPOSED AND INDICATED ON PLUMBING PLANS
 - WATER SERVICE

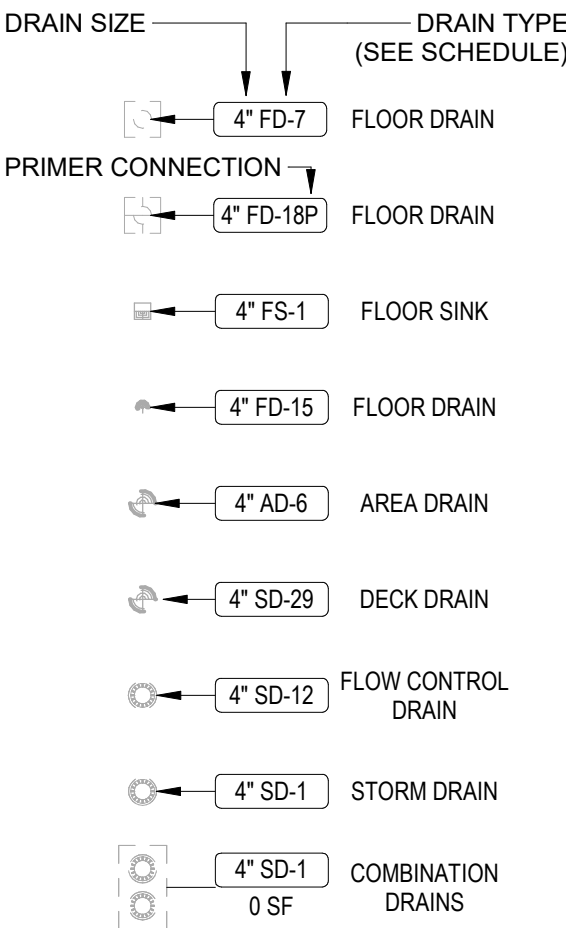
PLUMBING GENERAL NOTES

- ALL WORK SHALL BE IN STRICT ACCORDANCE WITH ALL CALIFORNIA STATE, LOCAL CODES AND AUTHORITIES HAVING JURISDICTION
- BEFORE STARTING ANY WORK, VERIFY THE ADEQUACY, LOCATION OF UTILITIES AT POINTS OF CONNECTION, SIZE, AND AVAILABILITY OF ALL UTILITIES CONCERNED, INCLUDING SEWER INVERT ELEVATIONS AND WATER PRESSURE BEFORE START OF ANY WORK. SUBCONTRACTOR IS TO OBTAIN THE SERVICES OF A PIPE LOCATION COMPANY TO VERIFY ANY PIPE LOCATIONS FOR CONNECTIONS TO BE MADE BELOW FLOOR.
- DRAWINGS INDICATE SIZE AND TERMINATION OF PIPING AND SUGGEST PROPER ROUTES OF PIPING TO CONFORM TO THE STRUCTURE TO AVOID OBSTRUCTION AND TO PRESERVE CLEARANCE. IT IS NOT THE INTENTION TO INDICATE ALL NECESSARY OFFSETS AND IT SHALL BE THE RESPONSIBILITY UNDER THIS SECTION TO INSTALL PIPING IN SUCH A MANNER AS TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS, PRESERVE HEADROOM, KEEP OPENINGS AND PASSAGEWAYS CLEAR AND MAKE ALL EQUIPMENT REQUIRING INSPECTIONS, MAINTENANCE AND REPAIR ACCESSIBLE WITHOUT FURTHER INSPECTIONS OR EXTRA COST.
- CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES FOR CLEARANCES AND WORK INCLUDED PRIOR TO START OF WORK. THE MECHANICAL, ELECTRICAL AND PLUMBING CONTRACTOR SHALL COORDINATE THEIR INSTALLATIONS PRIOR TO THE PERMANENT INSTALLATION OF ANY DUCTWORK, CONDUIT OR PIPING. UNLESS OTHERWISE DIRECTED BY GC, DUCTWORK SHALL TAKE PRECEDENCE. COSTS TO CORRECT CONFLICTS WILL NOT BE PAID BY THE OWNER.
- KEEP ALL PIPING CLEAR FROM LOAD BEARING FOOTINGS.
- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT PLUMBING FIXTURE AND EQUIPMENT LOCATIONS.
- ALL PLUMBING VENT SHALL TERMINATE NOT LESS THAN 10' FROM OR AT LEAST 3' ABOVE ANY WINDOW, DOOR, OPENING, AIR INTAKE OR VENT SHAFT IN ACCORDANCE WITH CHAPTER 7 OF 2019 C.P.C.
- CLEANOUTS SHALL BE INSTALLED PER 2019 CPO CODE SECTIONS 707.0 and 710.0. IN ADDITION PROVIDE CLEANOUTS AT EACH WATER CLOSET AND EACH URINAL.
- PENETRATIONS OF RATED ASSEMBLIES SHALL BE FIRE STOPPED. FIRE STOPPING SHALL BE AN APPROVED MATERIAL ACCEPTABLE TO THE OFFICE OF STATE FIRE MARSHALL AND SHALL BE U.L. LISTED ASSEMBLIES.
- ALL FIXTURES SHALL BE PROTECTED DURING CONSTRUCTION FROM ANY DAMAGE. REFINISHED FIXTURES WILL NOT BE ACCEPTABLE UNDER ANY CONDITIONS.
- PROVIDE TRAP PRIMER CONNECTION AND TRAP PRIMER VALVES BEHIND ACCESS PANEL FOR ALL FLOOR DRAINS AND FLOOR SINKS. TRAP PRIMER VALVES AND ACCESS PANEL TO BE LOCATED AT LEAST 48" AFF.
- DRAWINGS AND SPECIFICATIONS GOVERN WHERE THEY EXCEED CODE REQUIREMENTS. DRAWINGS AND SPECIFICATIONS GOVERN WHERE THEY EXCEED CODE REQUIREMENTS.
- ALL PLUMBING FIXTURES AND EQUIPMENT SHALL HAVE ISOLATING VALVES ON WATER SUPPLY LINES.
- PROVIDE ACCESS PANELS TO ALL CONCEALED VALVES.
- THERE SHALL BE NO SHAPE OR ABRASIVE SURFACES UNDER ACCESSIBLE LAVATORIES, FURNISH INSULATION KITS AS SPECIFIED FOR DRAINLINES AND SUPPLY STOPS (HOT AND COLD).
- ALL FITTINGS AND FIXTURES IN CONTACT WITH POTABLE WATER SHALL BE LEAD FREE. ALL
- ALL FIXTURES, EQUIPMENT, PIPING, AND MATERIALS SHALL BE APPROVED.
- ALL PLUMBING FIXTURES SHALL MEET THE FLOW REQUIREMENTS SPECIFIED IN THE 2019 CALIFORNIA PLUMBING CODE AND 2019 CALIFORNIA GREEN BUILDING CODE.
- ALL HOSE BIBBS SHALL BE EQUIPPED WITH AN APPROVED NON- REMOVABLE VACUUM BREAKER.
- NEW OR REPAIRED POTABLE WATER SYSTEMS SHALL BE DISINFECTED PRIOR TO USE ACCORDING TO THE METHOD SET IN SECTION 609.9 OF THE 2019 PLUMBING CODE.
- LISTED MECHANICAL WATER HAMMER ARRESTERS SHALL BE INSTALLED FOR QUICK-CLOSING VALVES LOCATION AND METHOD OF INSTALLATIONS SHALL COMPLY WITH MANUFACTURER'S SPECIFICATIONS.
- PROVIDE OVER PRESSURE PROTECTION DEVICE DESIGNED TO LIMIT GAS PRESSURE AT THE APPLIANCE TO TWO (2) PSIG UPON FAILURE OF THE LINE GAS REGULATOR PER SECTION 1208.7.1 OF THE 2019 CALIFORNIA PLUMBING CODE.
- ALL EXPOSED GAS PIPING SHALL BE PROTECTED AGAINST CORROSION BY COATING OR WRAPPING WITH AN INERT MATERIAL APPROVED FOR SUCH APPLICATIONS.
- ALL FLOOR DRAINS SHALL BE TRAPPED, PRIMED AND VENTED IN ACCORDANCE WITH CHAPTER 7 OF 2019 C.P.C.
- ALL PLUMBING FIXTURES SHALL BE VENTED IN ACCORDANCE WITH CHAPTER 7 OF 2019 C.P.C.
- CLEANOUTS SHALL BE PROVIDED AT THE BASE OF ALL DRAINAGE STACKS IN ACCORDANCE WITH CHAPTER 7 OF 2019 C.P.C.
- DOMESTIC HOT WATER IS SUPPLIED TO LAVATORIES WITH WATER TEMPERING DEVICE THAT COMPLIES WITH ASSE 1070 OR CSA B125.3 AT A MAXIMUM TEMPERATURE OF 105°F IN PUBLIC AREAS.
- BARRIER FREE REQUIREMENTS: PROVISIONS HAVE BEEN DESIGNED TO PROVIDE FIXTURES IN ACCORDANCE WITH A.D.A., ANSI AND STATE OF CALIFORNIA REGULATIONS. CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS AND REPORT TO ARCHITECT OR OWNER'S REPRESENTATIVE WHEN FIELD CONDITIONS PREVENT CORRECT INSTALLATION.
- REFER TO SHEET AC-001 FOR ADDITIONAL CODES APPLICABLE TO THIS PROJECT

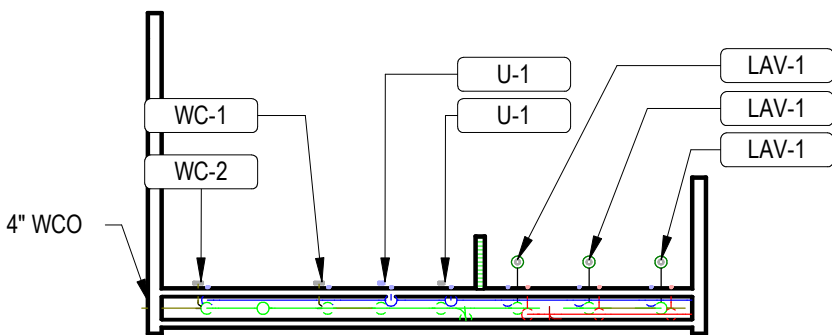
PLUMBING PIPE SYSTEMS LEGEND

— CDR —	CONDENSATE RETURN
— CWV —	COMBINATION WASTE & VENT
— CA —	COMPRESSED AIR
— CW —	DOMESTIC COLD WATER
— S-CW —	SOFT COLD WATER
— RO —	REVERSE OSMOSIS WATER
— HW —	DOMESTIC HOT WATER
— HW 140° —	DOMESTIC HOT WATER 140°
— HW-R —	DOMESTIC HOT WATER RECIRCULATION
— HW-R 140° —	DOMESTIC HOT WATER RECIRCULATION 140°
— GV —	GREASE VENT
— GW —	GREASE WASTE
— IW —	INDIRECT WASTE
— V —	SANITARY VENT
— SAN —	SANITARY SEWER
— ST —	STORM DRAINAGE
— OSD —	OVERFLOW STORM DRAINAGE
— G —	NATURAL GAS
SEE ASHRAE, 2021 FUNDAMENTALS, CHAPTER 39	

PLUMBING SYMBOL LEGEND



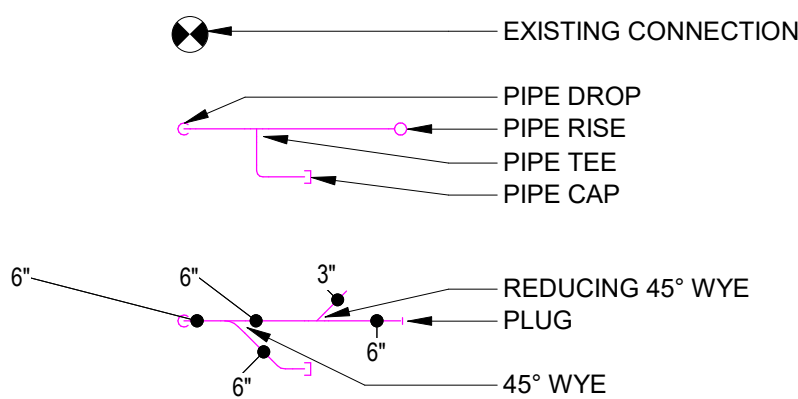
PLUMBING SYMBOL LEGEND



PLUMBING GENERAL NOTES

- REFER TO PLUMBING FIXTURE PIPE SIZING SCHEDULE FOR PIPES SIZE TO INDIVIDUAL FIXTURES.
- REFER TO ARCHITECTURAL ELEVATIONS AND PLANS FOR LOCATIONS OF PLUMBING FIXTURES AND EQUIPMENT WITH PLUMBING CONNECTIONS.
- C.F.C.I.= "CONTRACTOR FURNISHED, CONTRACTOR INSTALLED". O.F.C.I.= "OWNER FURNISHED, CONTRACTOR INSTALLED". O.F.O.I.= "OWNER FURNISHED, OWNER INSTALLED".
- COORDINATE ROUGH-IN LOCATIONS FOR ALL UTILITIES WITH EQUIPMENT PROVIDER. PROVIDE FINAL CONNECTION. PROVIDE BALL VALVE AT ROUGH-IN LOCATION.
- DO NOT ROUTE ANY PIPING OVER ELECTRICAL EQUIPMENT OR THROUGH ELECTRICAL EQUIPMENT ROOMS.
- UNLESS NOTED OTHERWISE, ALL STORM AND SANITARY DRAINAGE PIPING SHALL BE SLOPED: 1/4" PER FOOT FOR PIPING 4" AND SMALLER 1/8" PER FOOT FOR PIPING GREATER THAN 4"
- INSTALL ALL SLOPED PIPING TIGHT TO STRUCTURAL AS POSSIBLE. MAINTAIN REQUIRED SLOPE.
- REFER TO ARCHITECTURAL DETAILS FOR SHOWER AND FLOOR DRAINS.
- PROVIDE TRAP PRIMER FOR ALL FLOOR DRAINS. TRAP SEAL IS ACCEPTABLE IN LIEU OF A TRAP PRIMER WHERE ALLOWED BY THE LOCAL CODE.
- PROVIDE BACKFLOW PREVENTERS AT CONNECTION TO ALL ICE MACHINES AND COFFEE MACHINES. ROUTE DRAIN TO NEAREST FLOOR DRAIN OR SINK.
- PROVIDE SHUT-OFF VALVE FOR EACH PIPING SYSTEM IN THE SUPPLY AND RETURN MAINS AND BRANCH LINES AT LOCATIONS FOR SUITABLE SERVICE.
- PROVIDE ALL NECESSARY OFFSETS.
- THE ARRANGEMENT OF EQUIPMENT AND PIPING SHOWN ON THE DRAWINGS IS BASED UPON INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF DESIGN AND IS NOT INTENDED TO SHOW EXACT DIMENSIONS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION OR ERECTION OF EQUIPMENT AND SYSTEMS. THIS INCLUDES ALL ALL ASSOCIATED ITEMS THAT MAY NOT BE SHOWN ON PLUMBING DRAWINGS BUT ARE NECESSARY FOR INSTALLATION AND OPERATION, SUCH AS EQUIPMENT PADS AND HANGERS, AMONG OTHERS.

PIPE SYMBOL LEGEND



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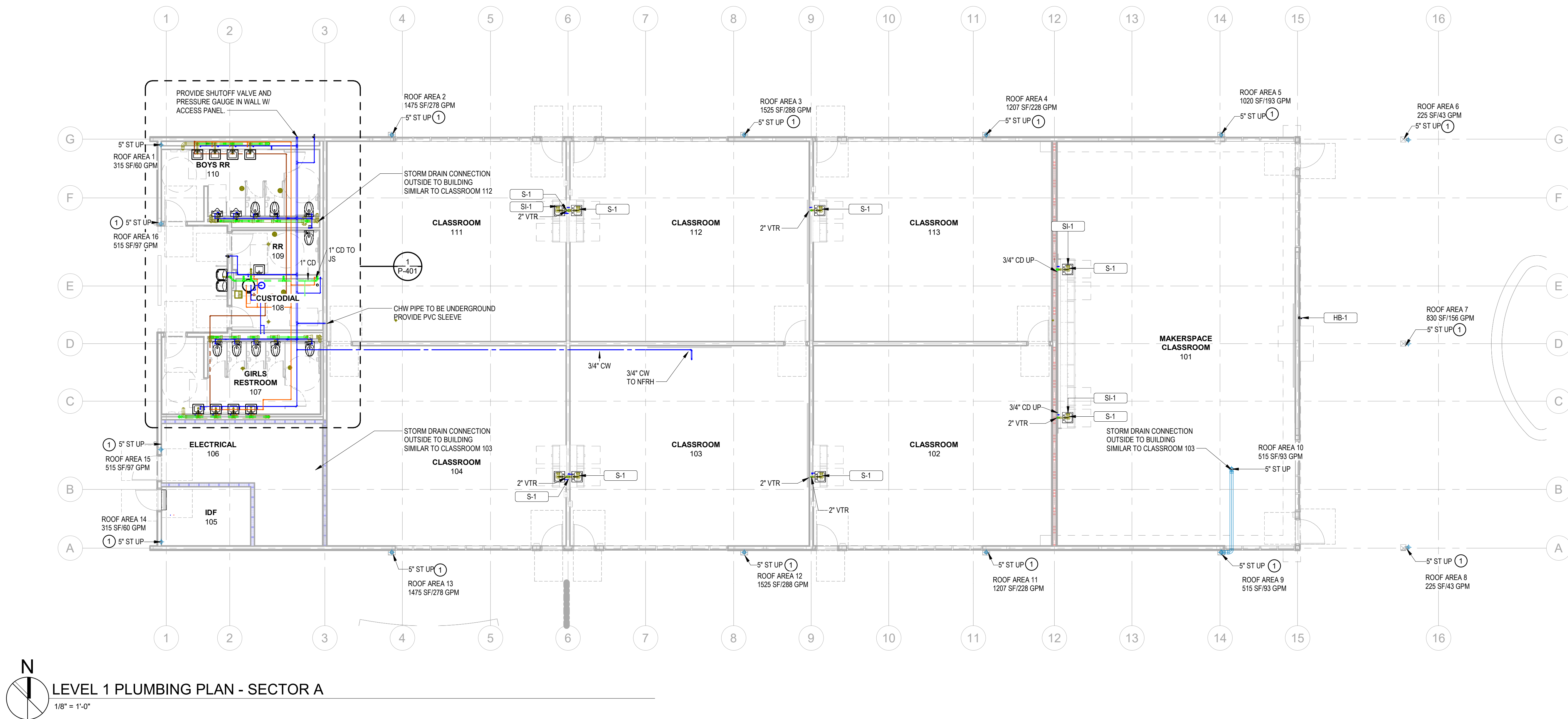


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2023-IU002-002

Plumbing Notes,
Legends &
Abbreviations

P-001



PLUMBING KEYNOTES

- 1 PROVIDE CLEAN OUT ONE FOOT ABOVE GROUND FOR STORM DRAIN.
- 2 WATER SAVER TRAP PRIMER, REFER TO DETAIL FOR ADDITIONAL INFORMATION.
- 3 TRAP PRIMER, REFER TO DETAIL.



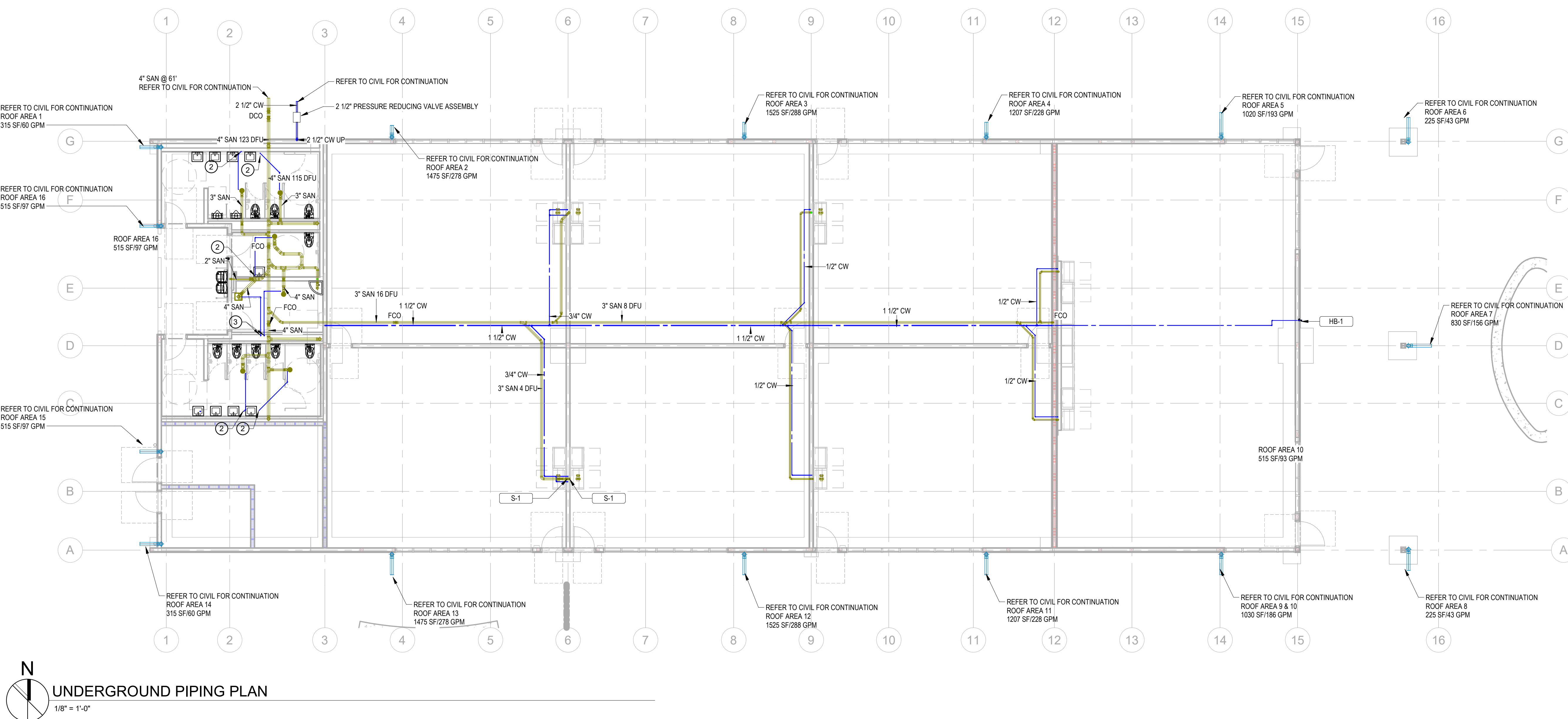
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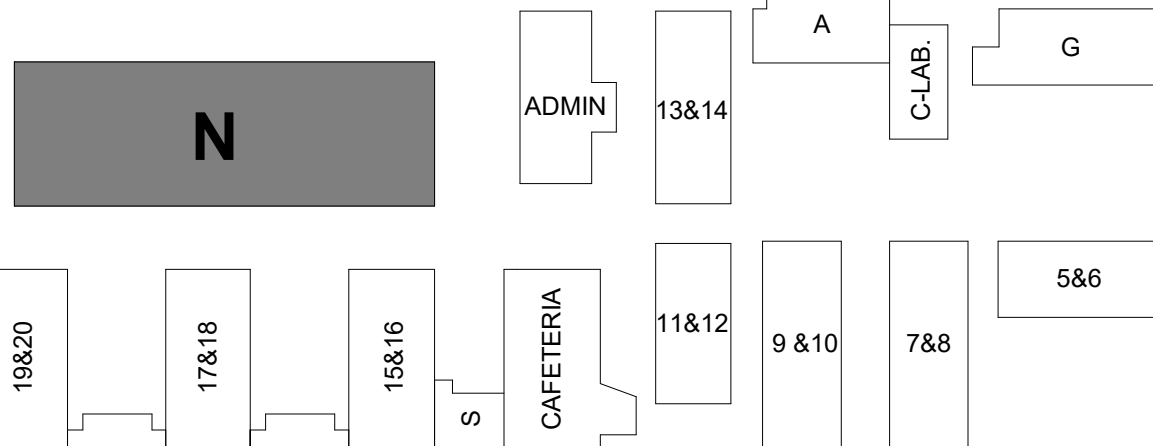
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KEY PLAN



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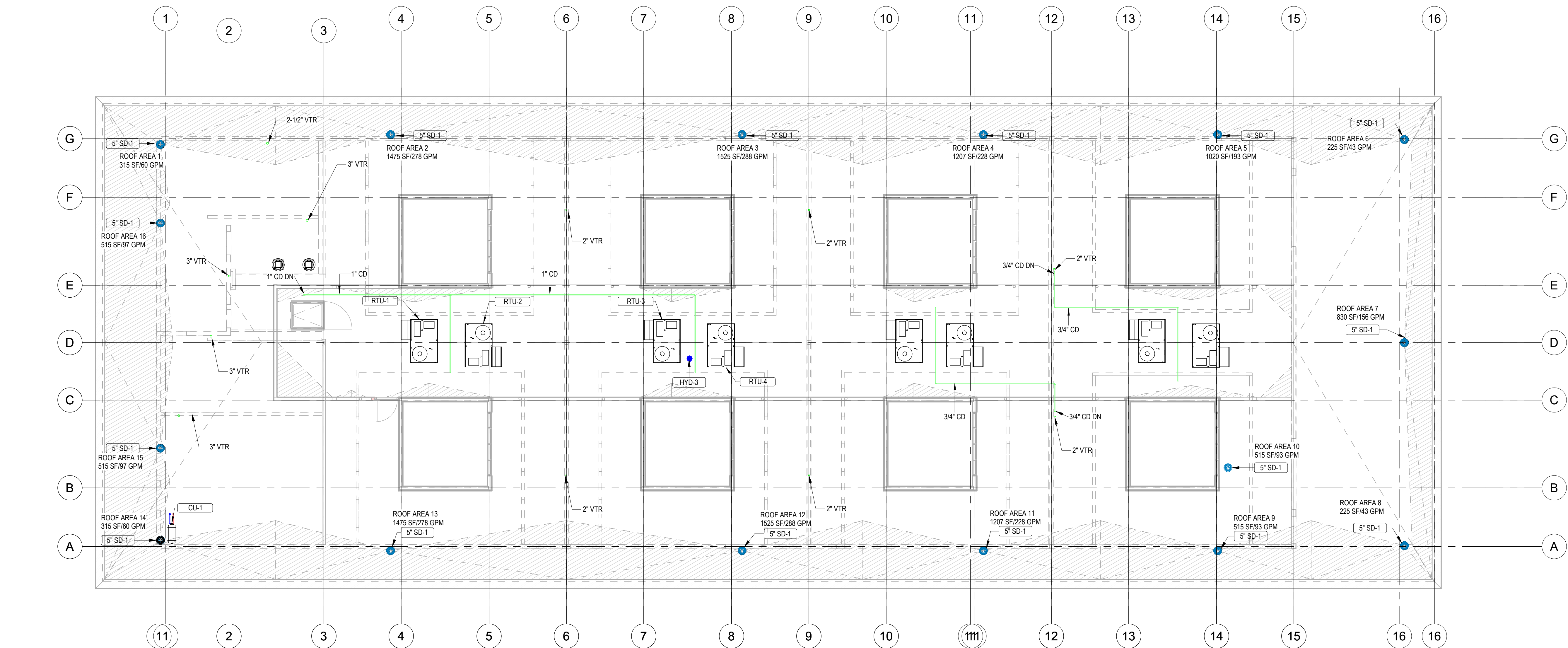
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Underground &
First Floor Plan

P-100



ROOF PLUMBING PLAN - SECTOR A
1/8" = 1'-0"



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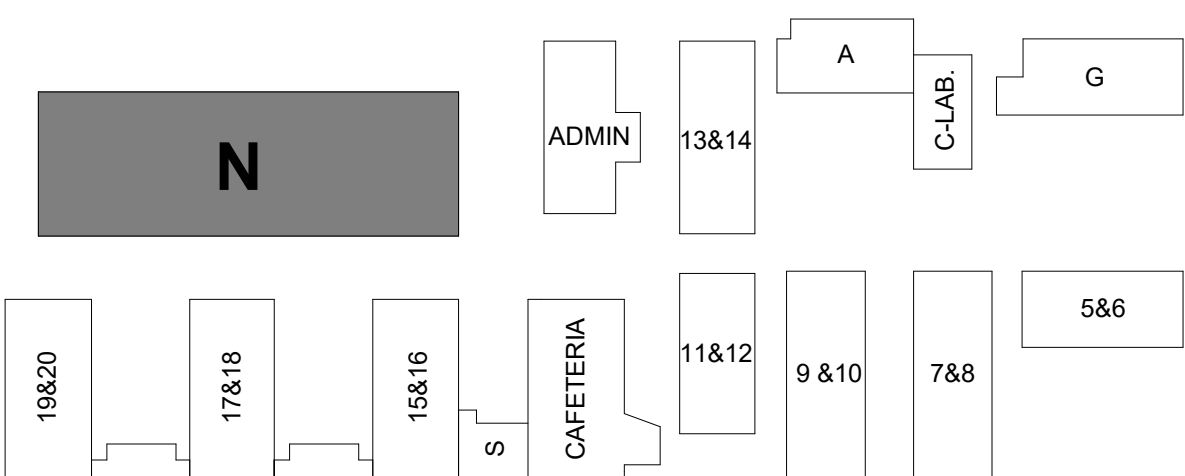


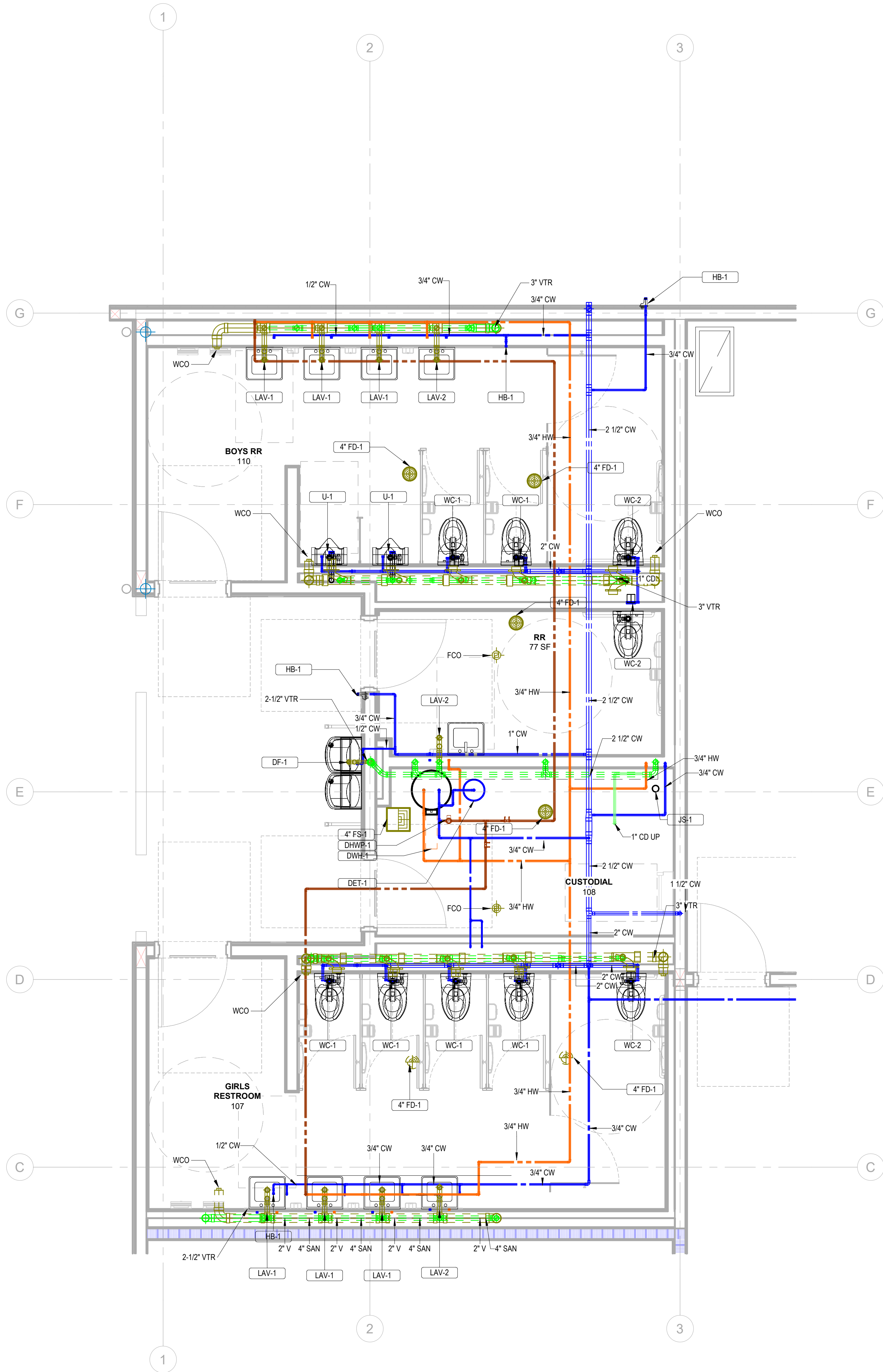
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**Roof Plumbing
Plan - Overall**

P-191

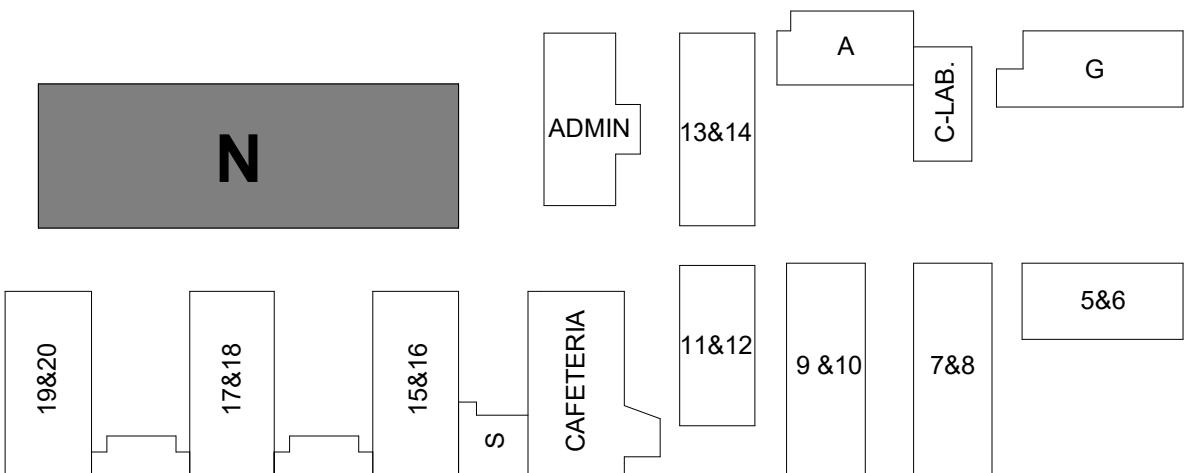
KEY PLAN





1 Restrooms Enlarged View
3/8" = 1'-0"

KEY PLAN



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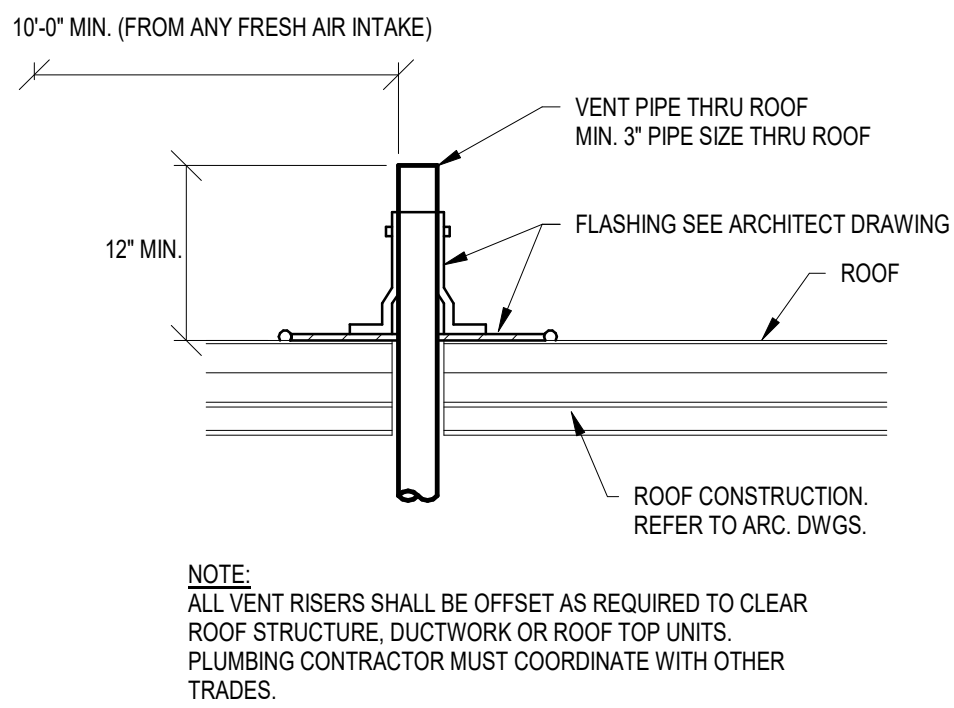
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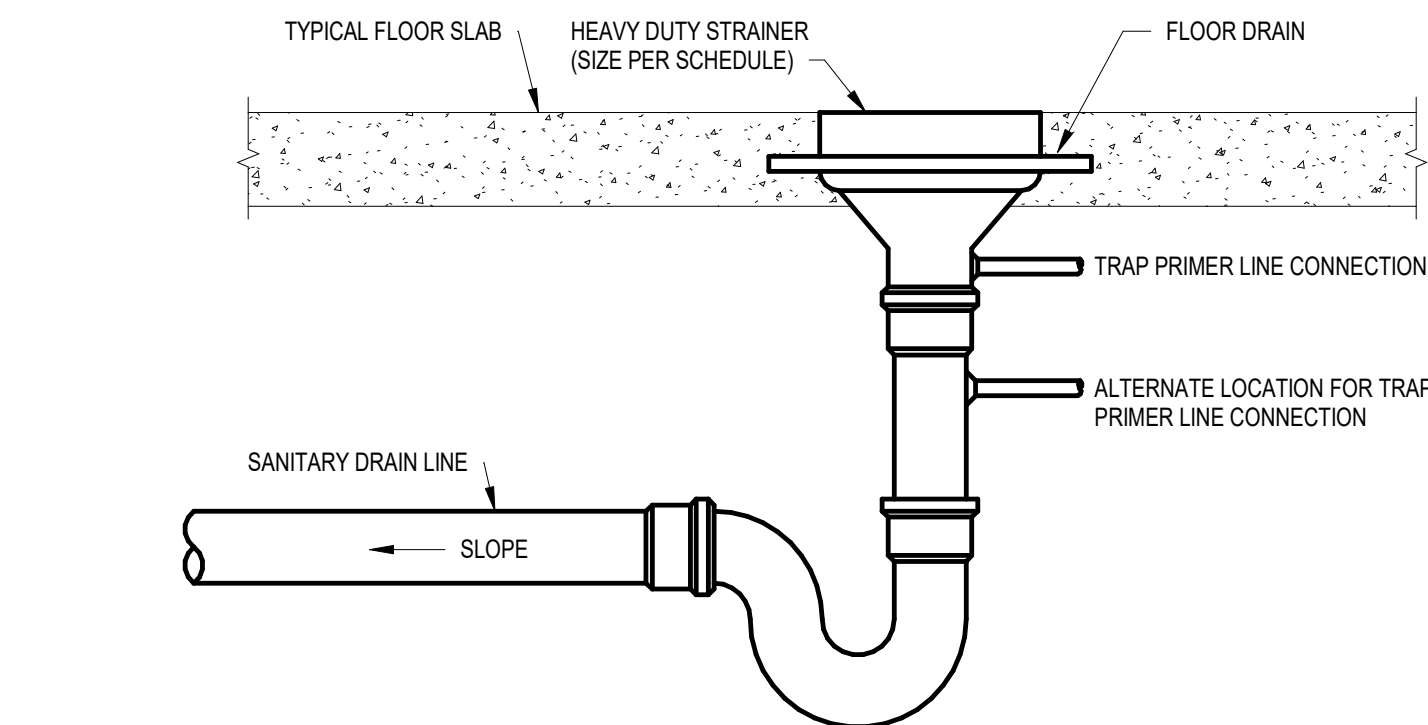
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Plumbing
Enlarged Plans

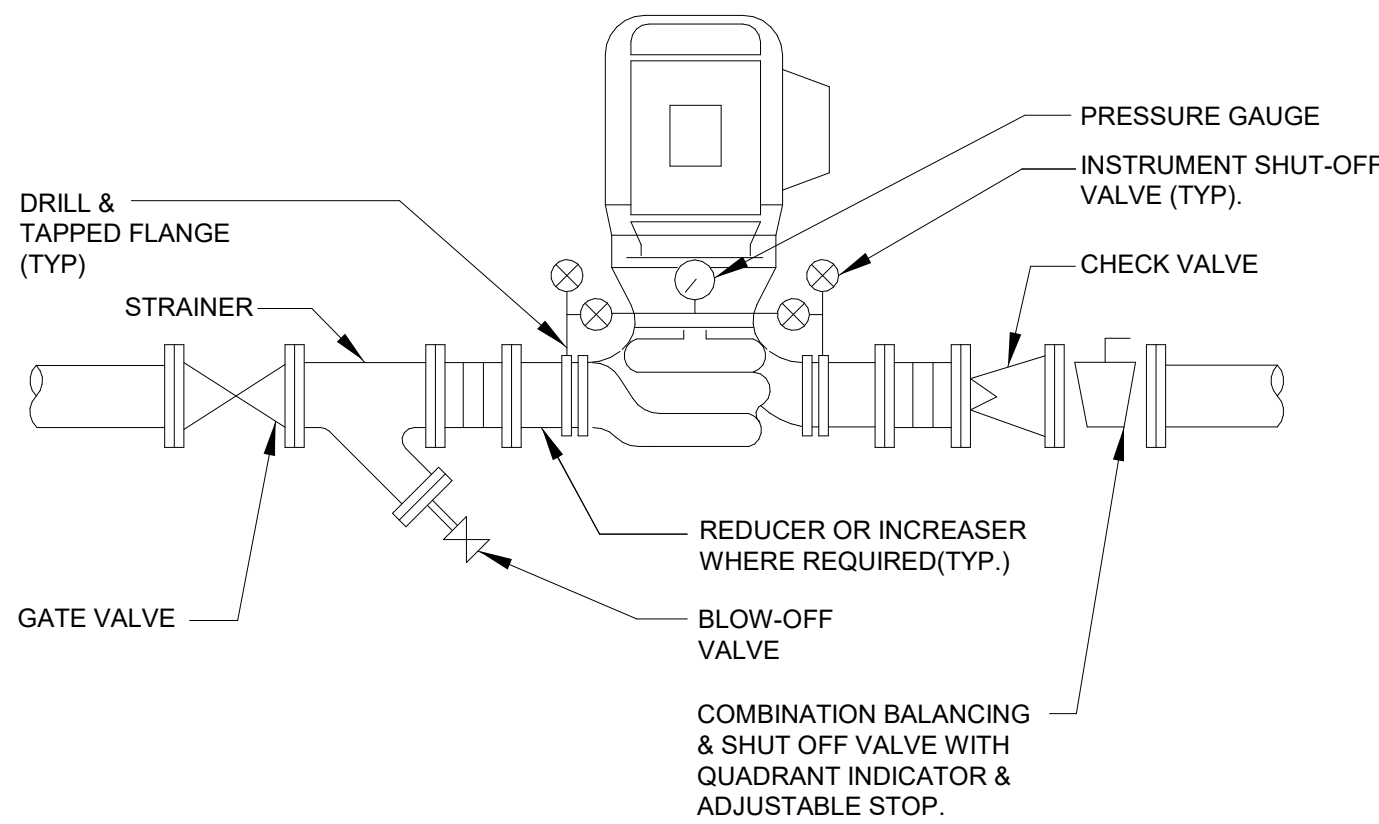
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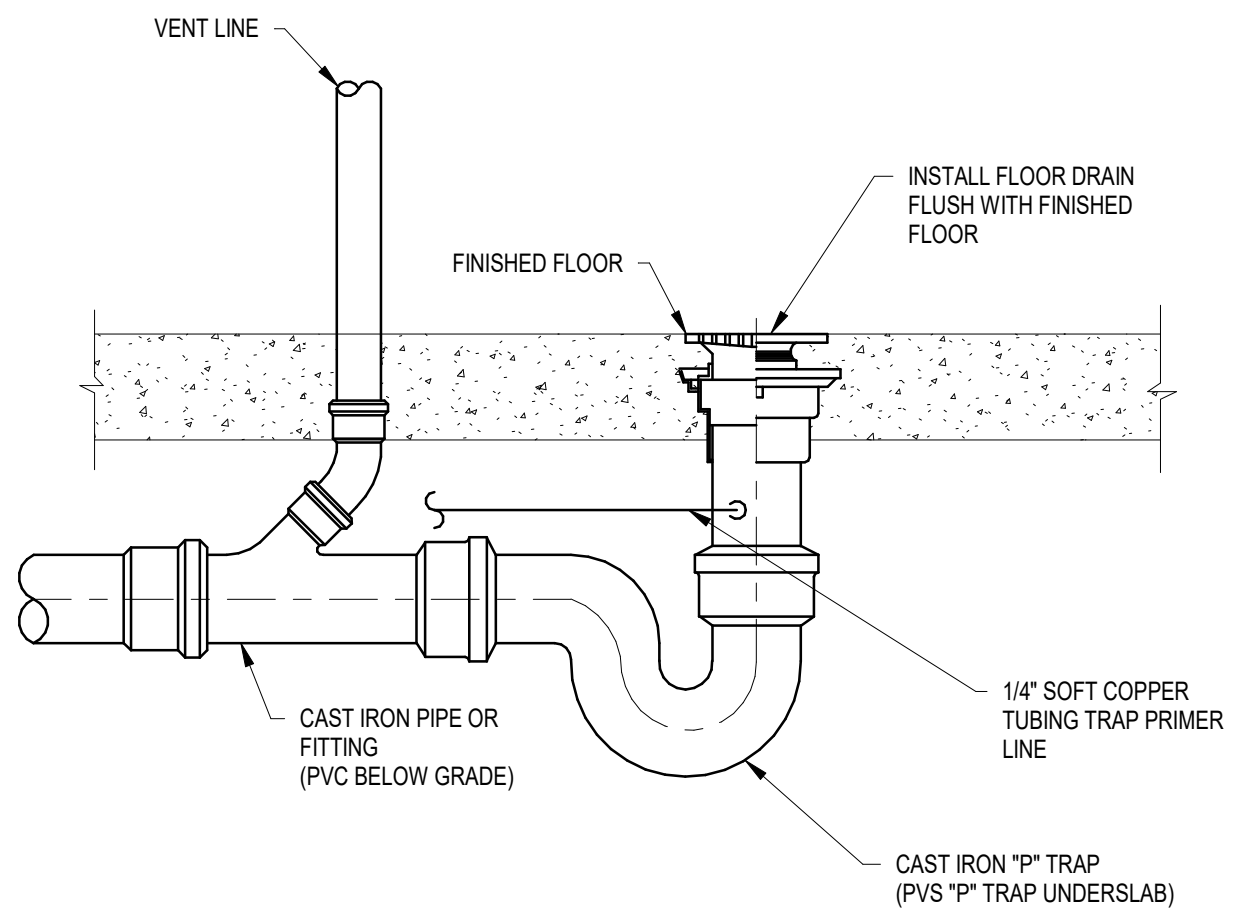
10 VENT THRU ROOF
NOT TO SCALE



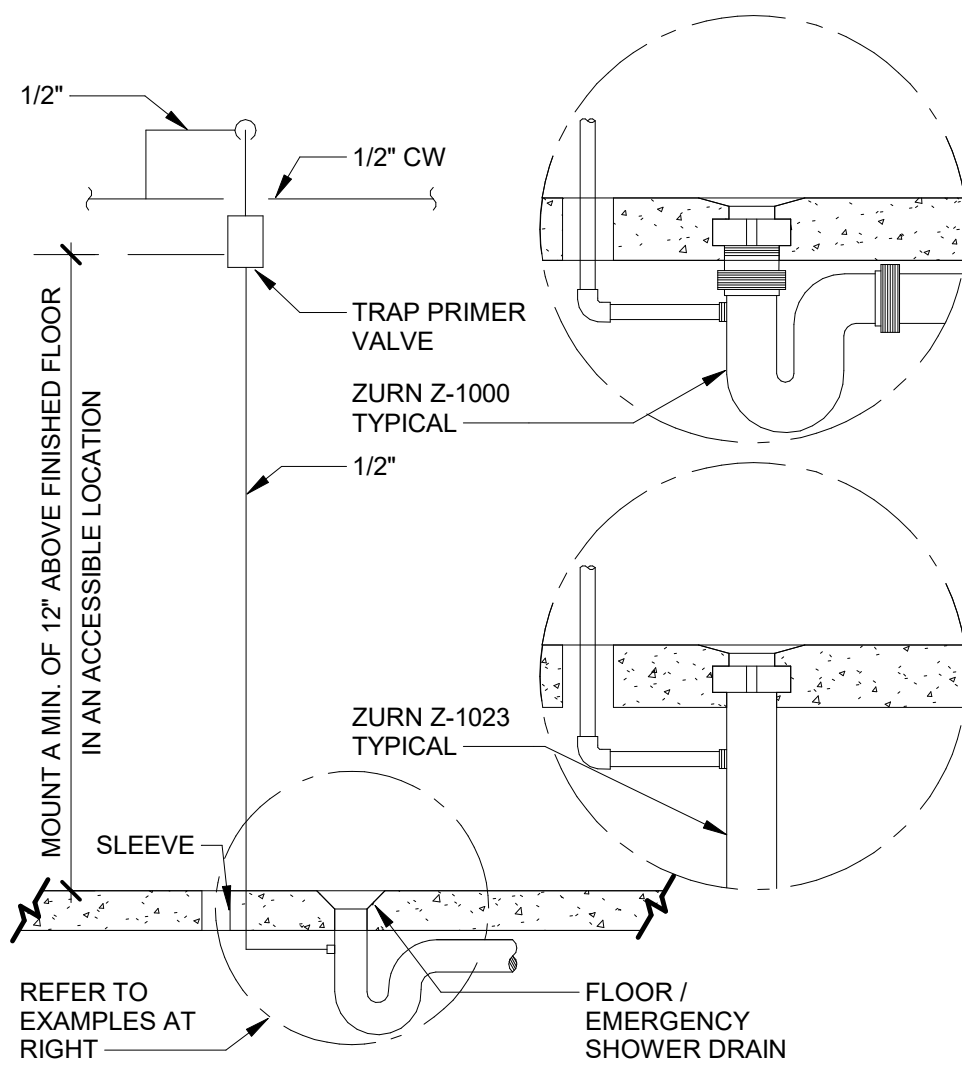
7 FLOOR DRAIN DETAIL
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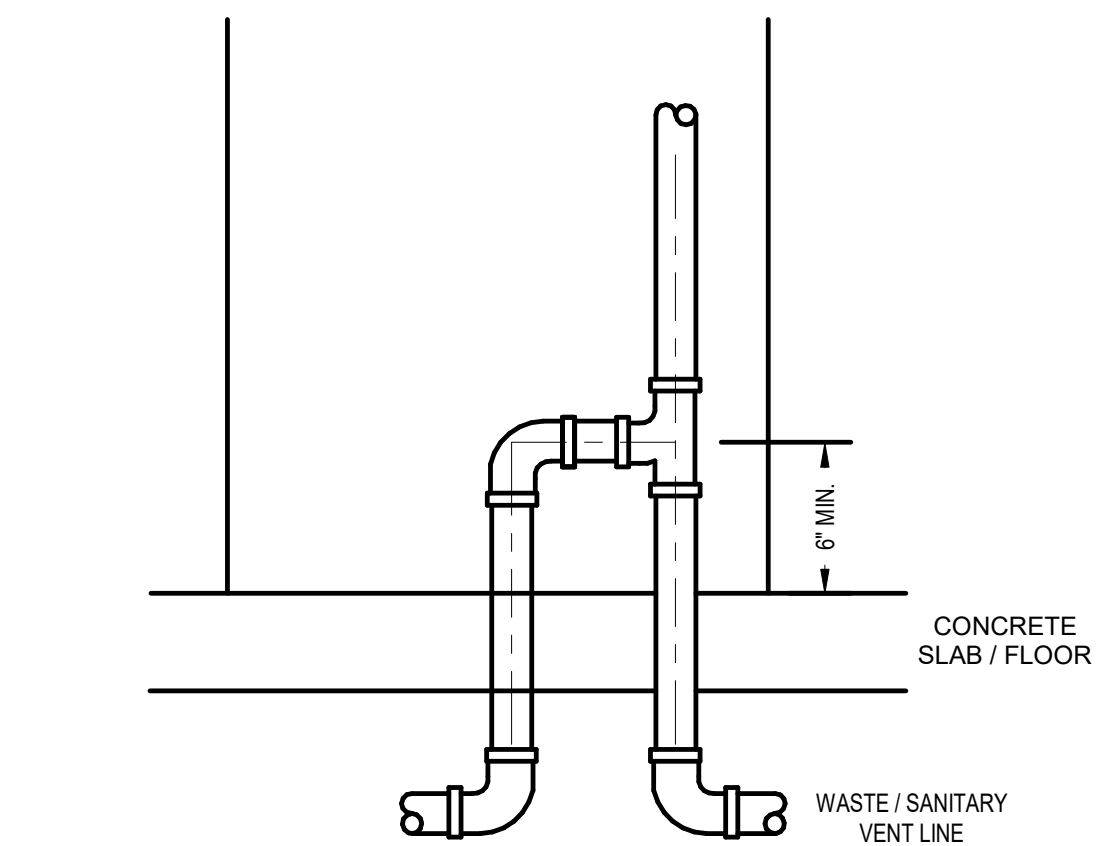
8 IN-LINE CIRCULATING PUMP DETAIL
NOT TO SCALE



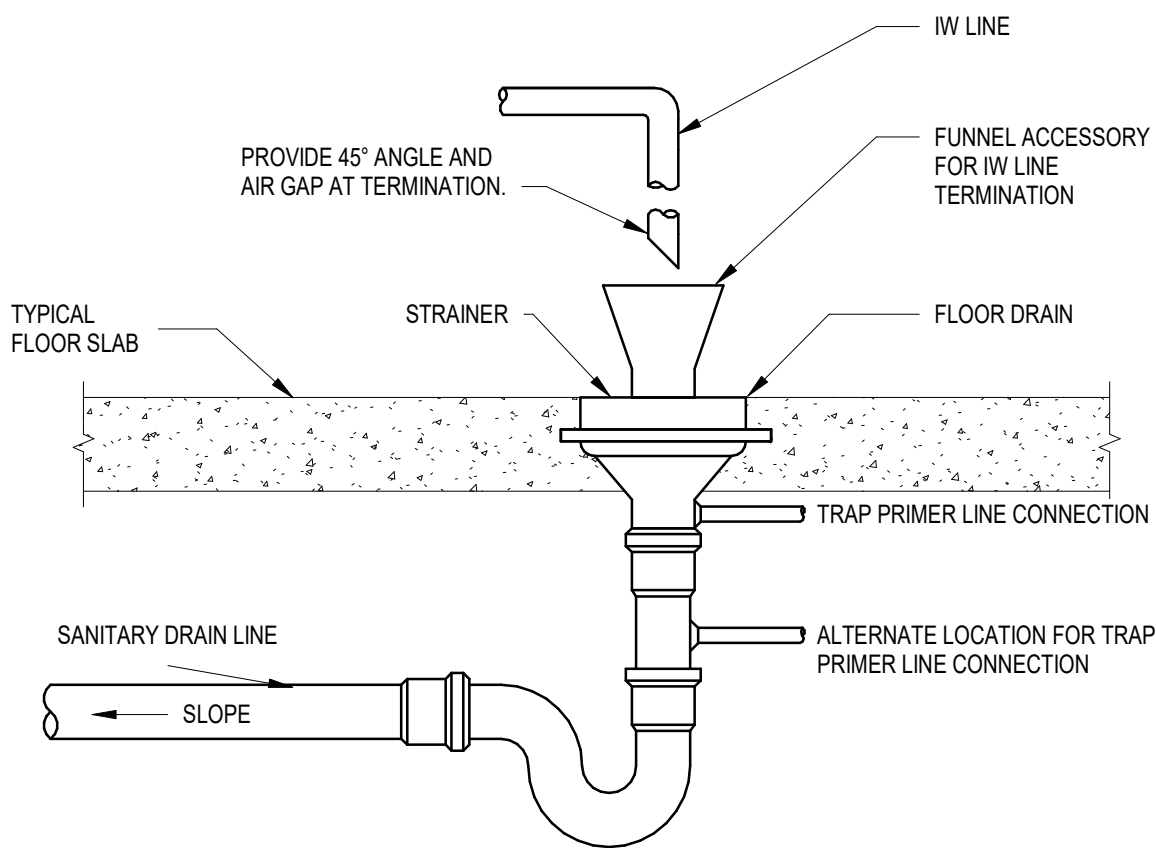
9 FLOOR DRAIN VENT TRAP PRIMER DETAIL
NOT TO SCALE



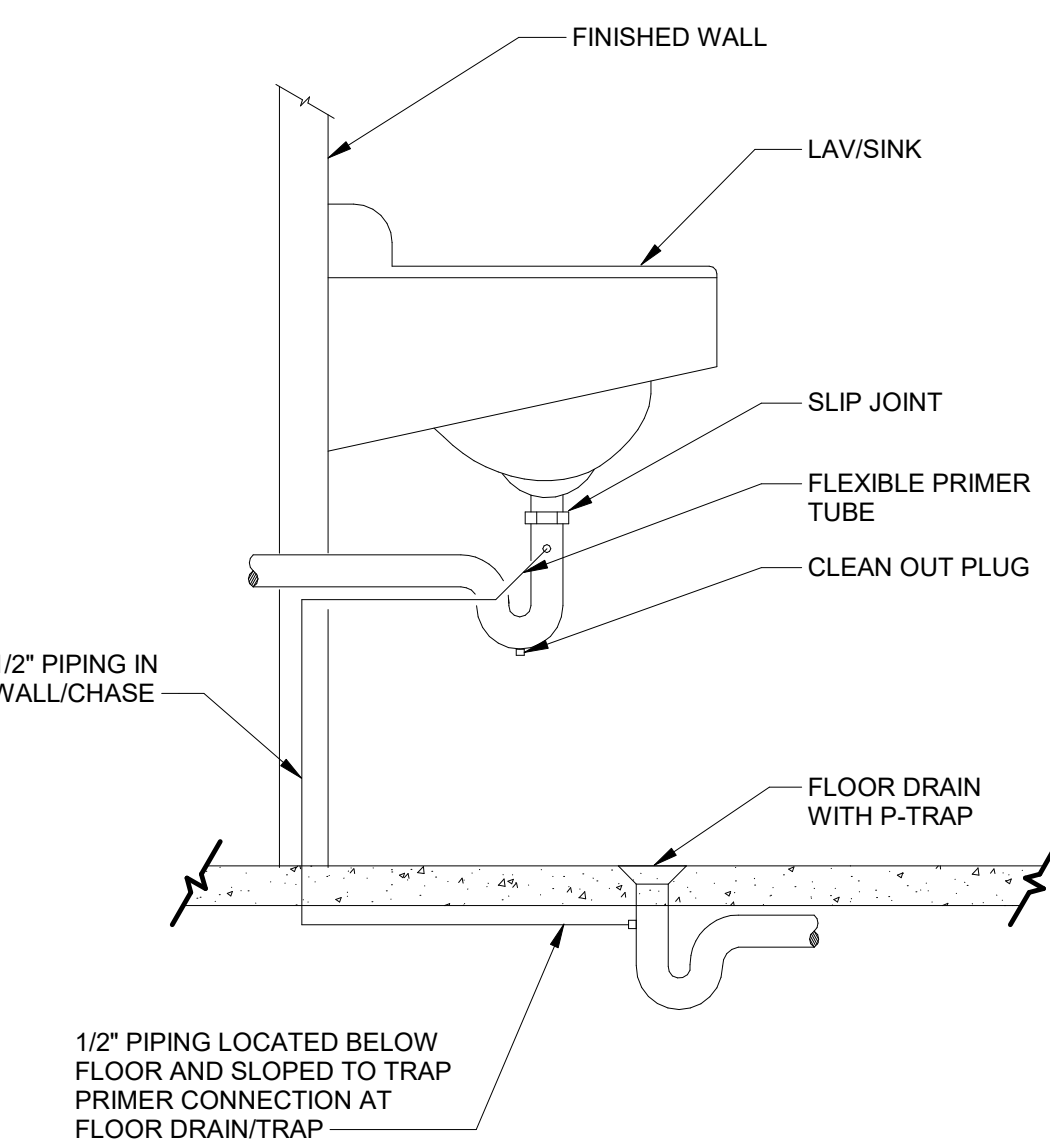
4 TRAP PRIMER DETAIL
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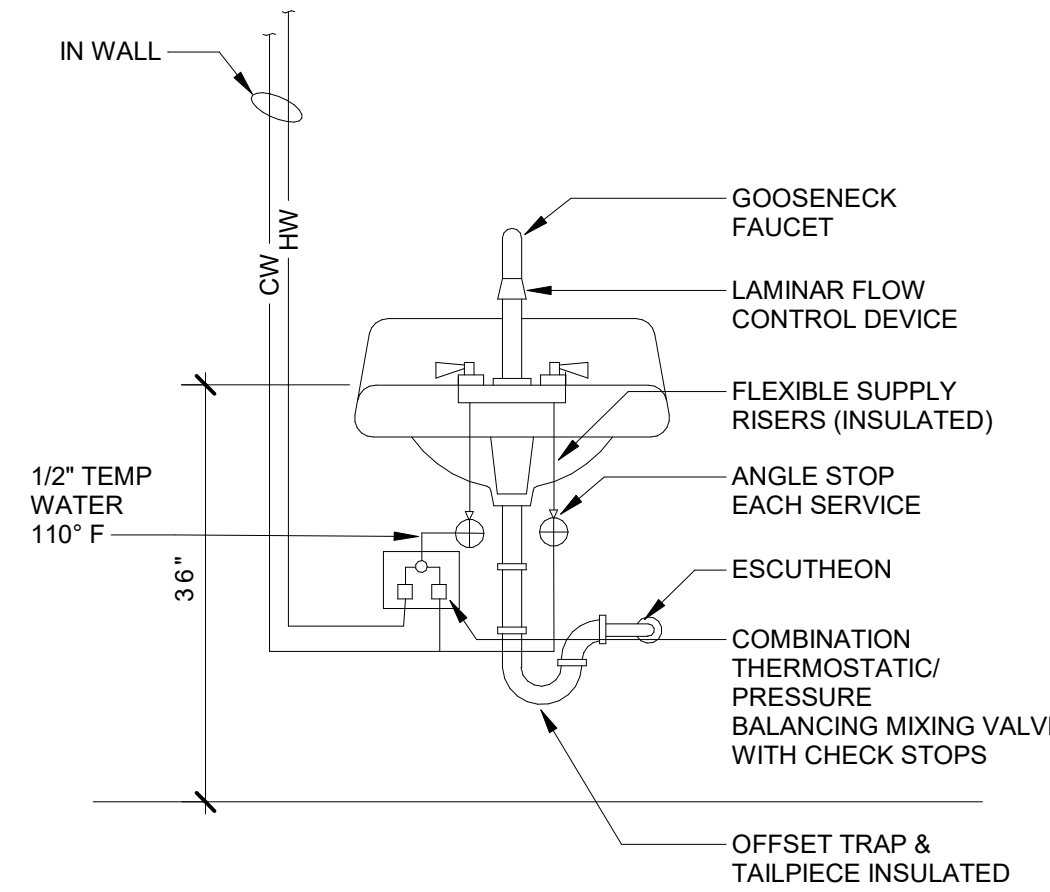
6 VENT CONNECTION DETAIL
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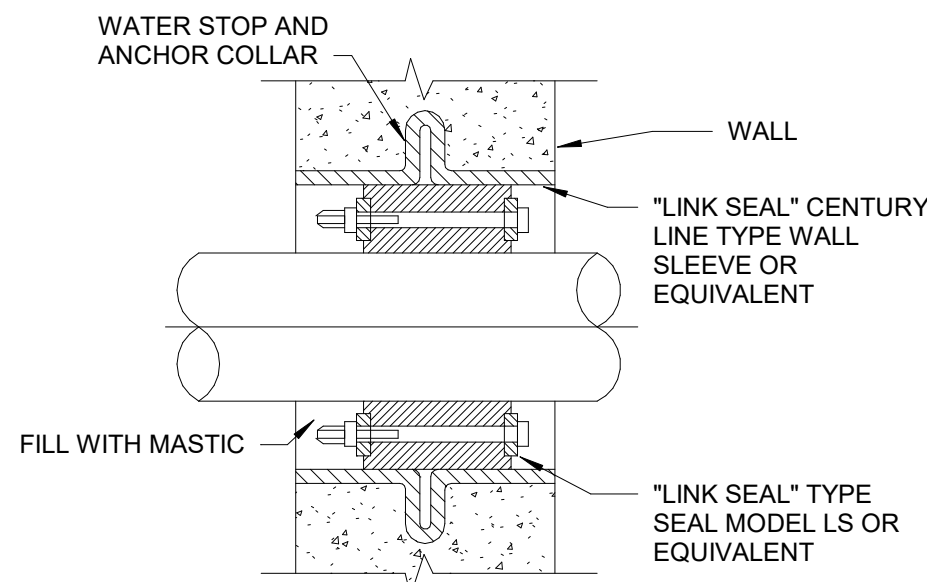
5 INDIRECT WASTE FLOOR DRAIN
NOT TO SCALE



1 WATER SAVER TRAP PRIMER DETAIL
NOT TO SCALE



2 ROUGH-IN FOR BARRIER FREE LAVATORY
NOT TO SCALE



3 PIPE SEAL THROUGH WALL DETAIL
NO SCALE

1. COORDINATE WITH FLOOR PLANS EXACT QUANTITY OF VENTS CONNECTING TO STACK



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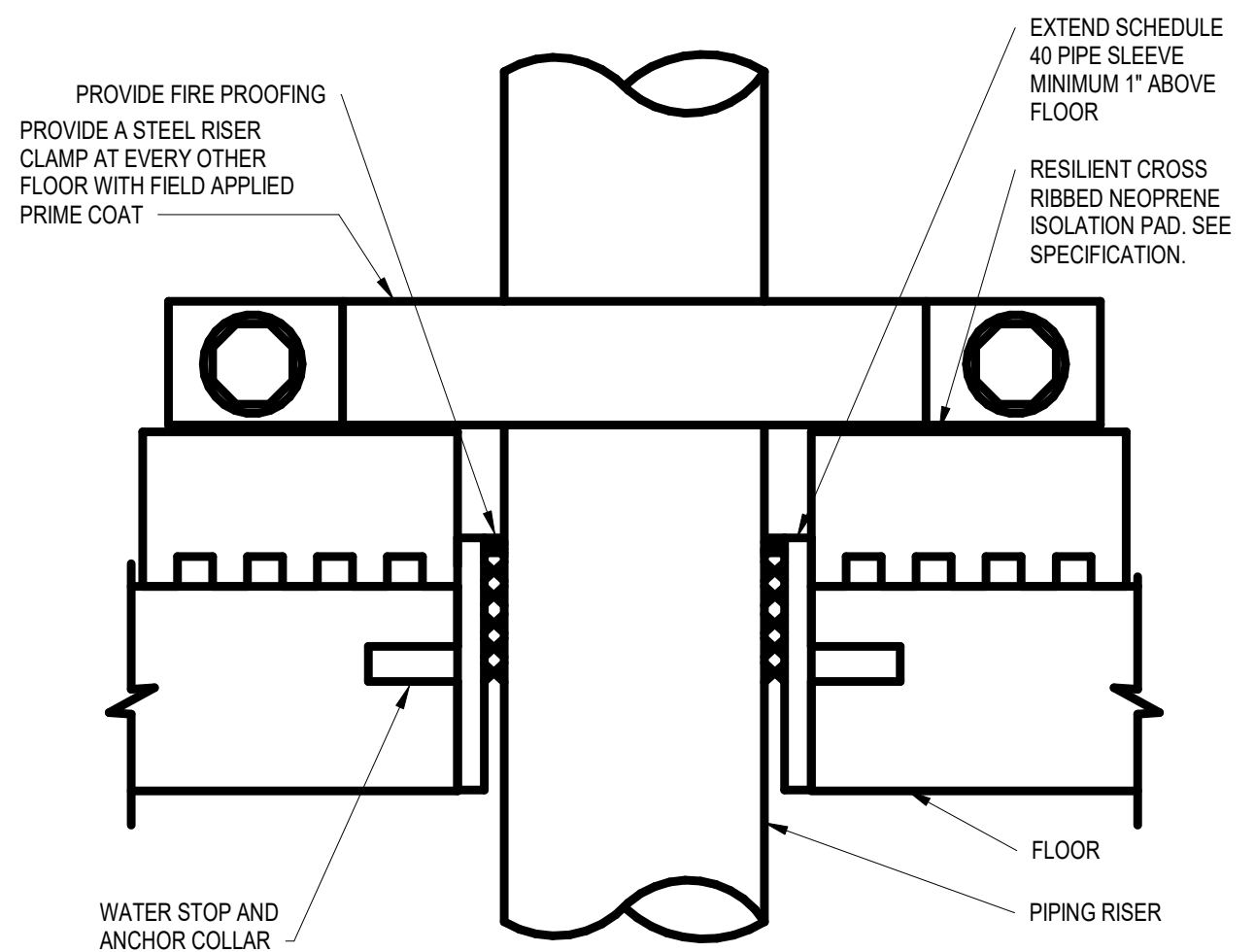
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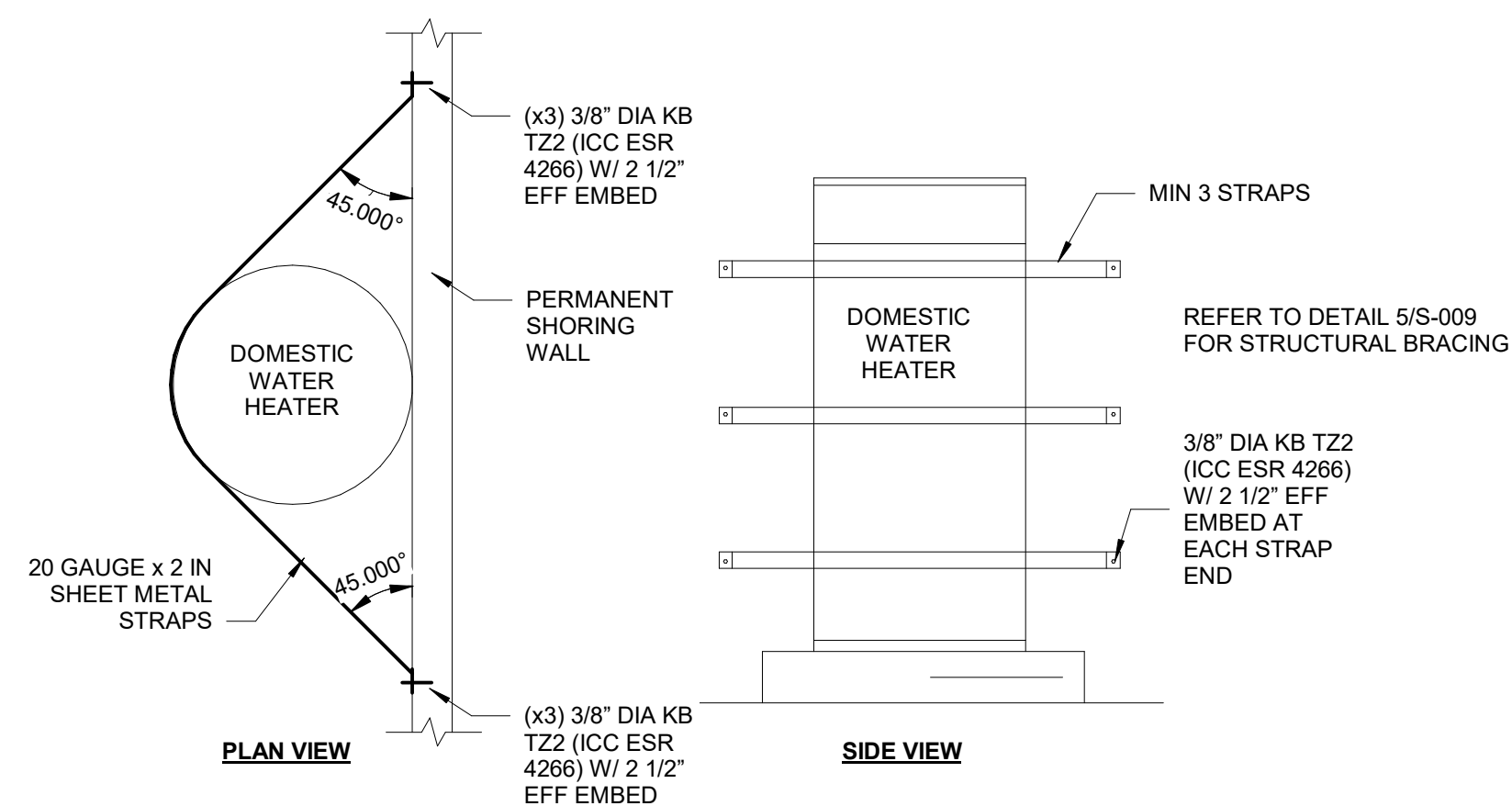
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Plumbing Details

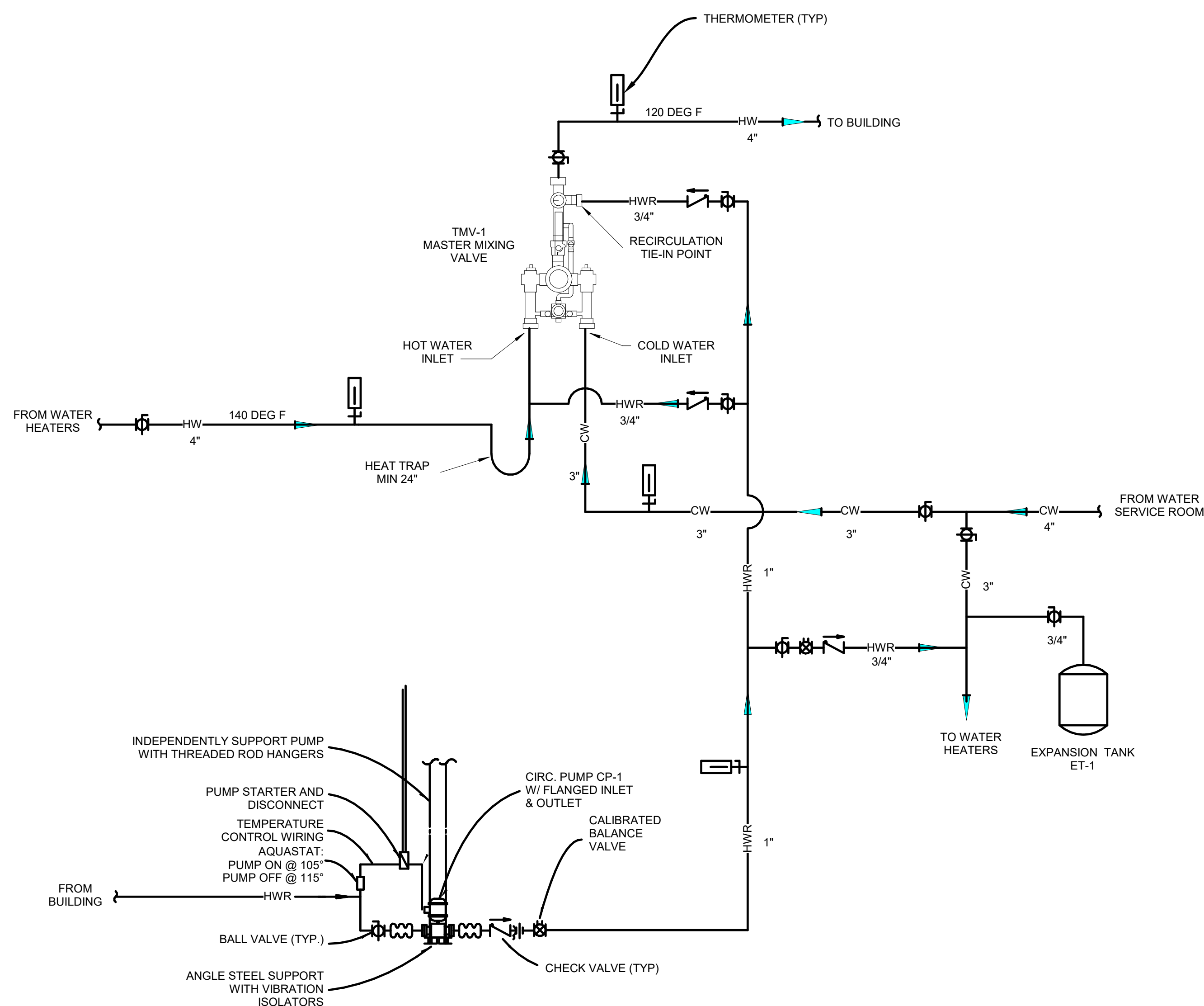
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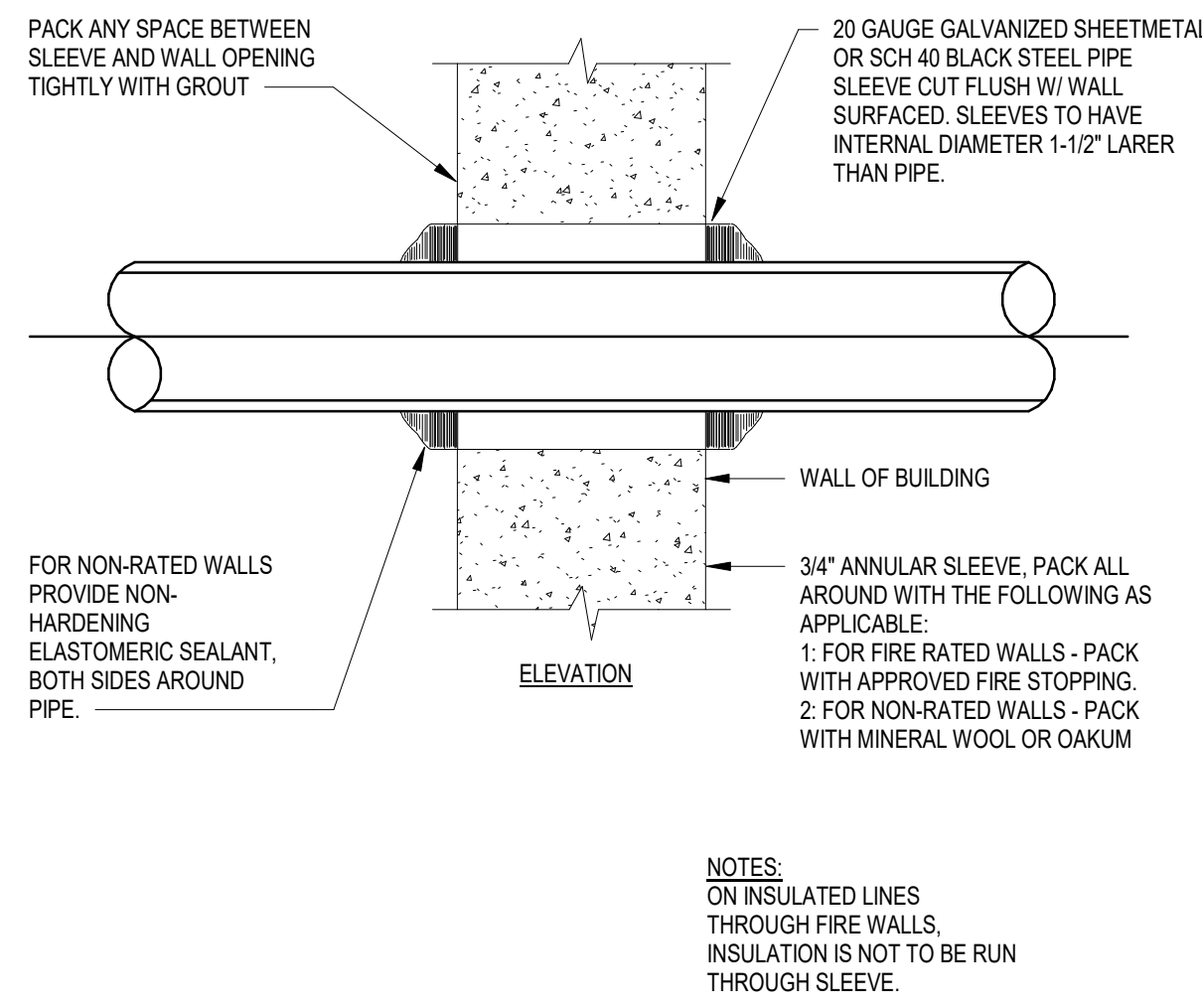
9 PIPE FLOOR SLEEVE DETAIL
NOT TO SCALE



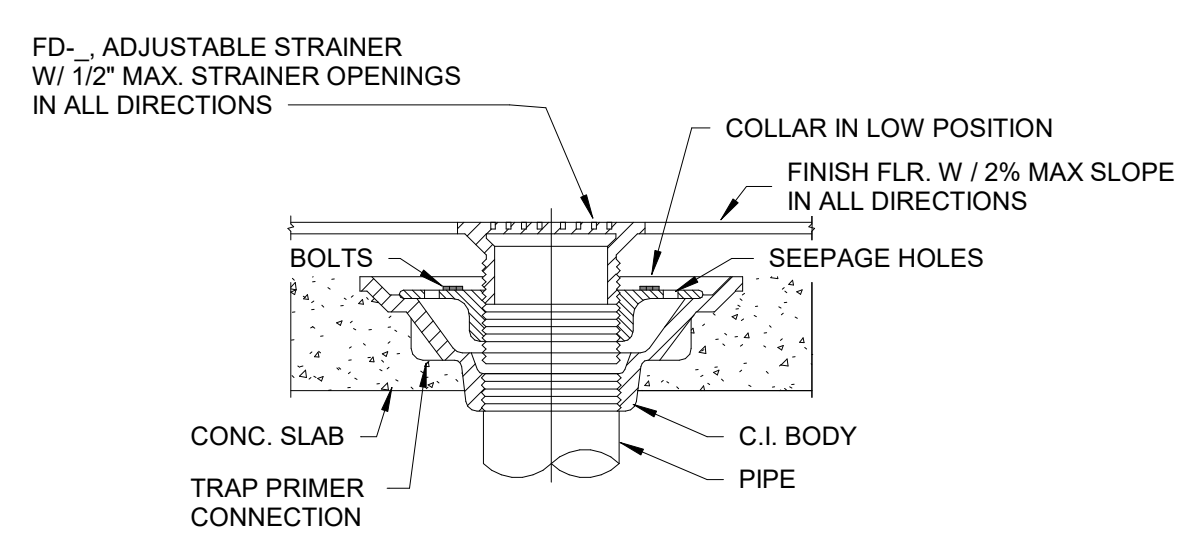
8 HOT WATER STORAGE TANK STRAPPING DETAIL
NOT TO SCALE



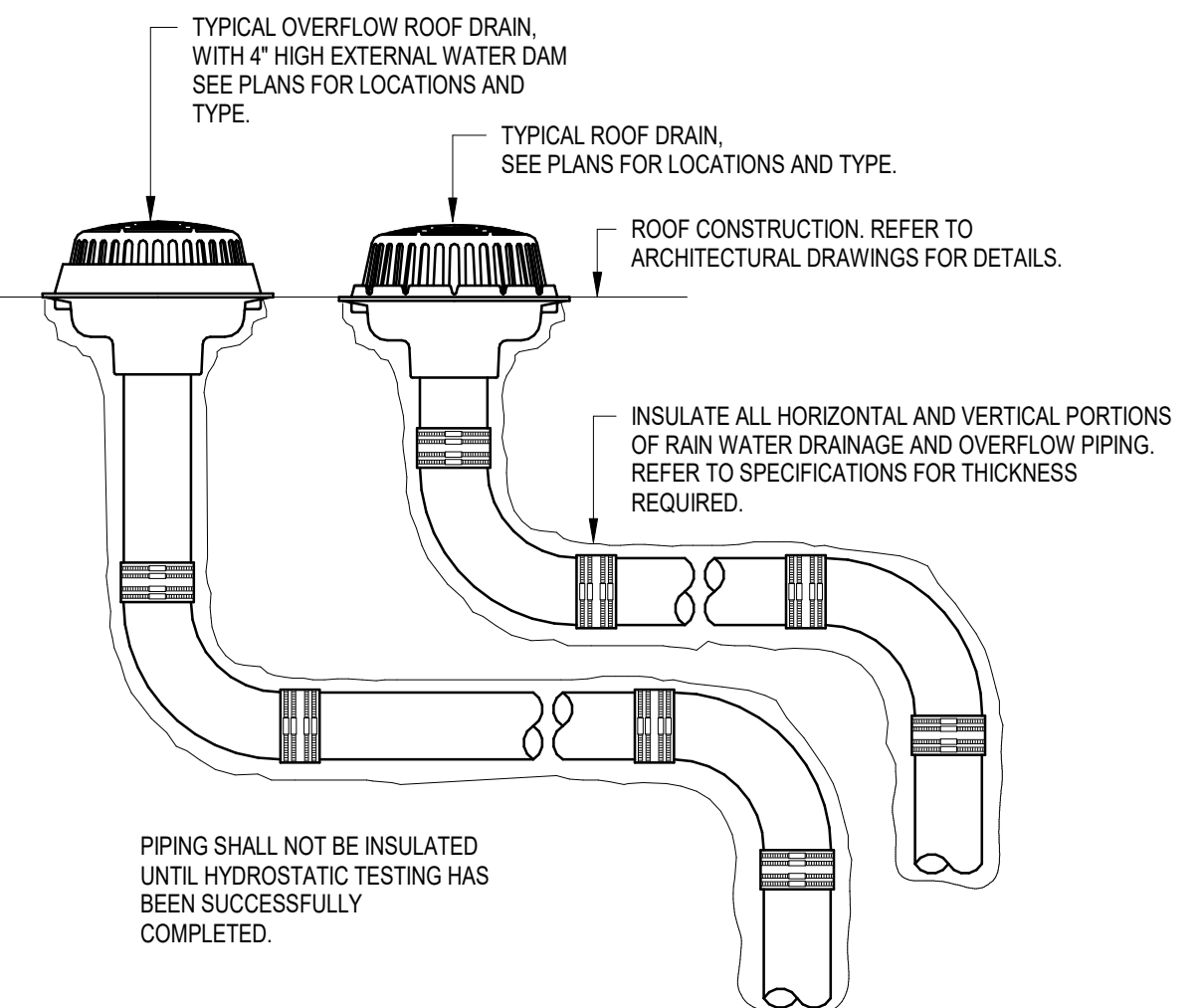
7 DOMESTIC HOT WATER PIPING BETWEEN MIXIN VALVE AND COMPONENTS
NOT TO SCALE



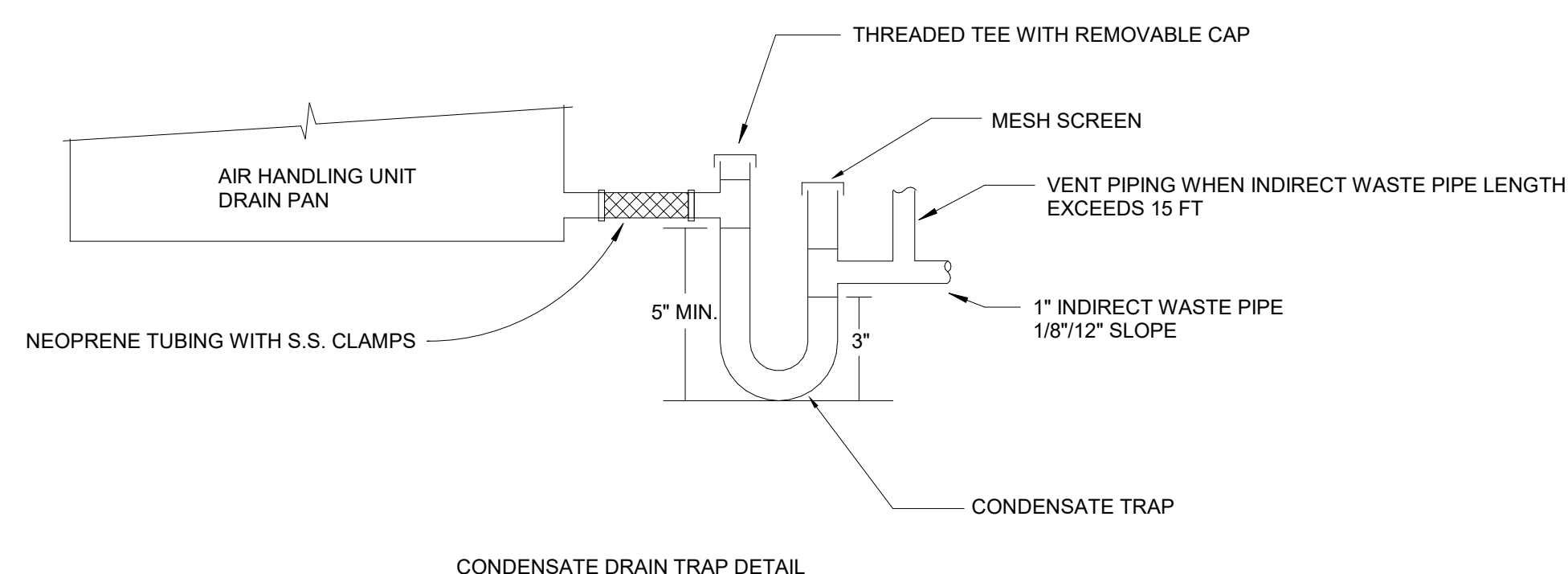
6 PIPE PENETRATION
NOT TO SCALE



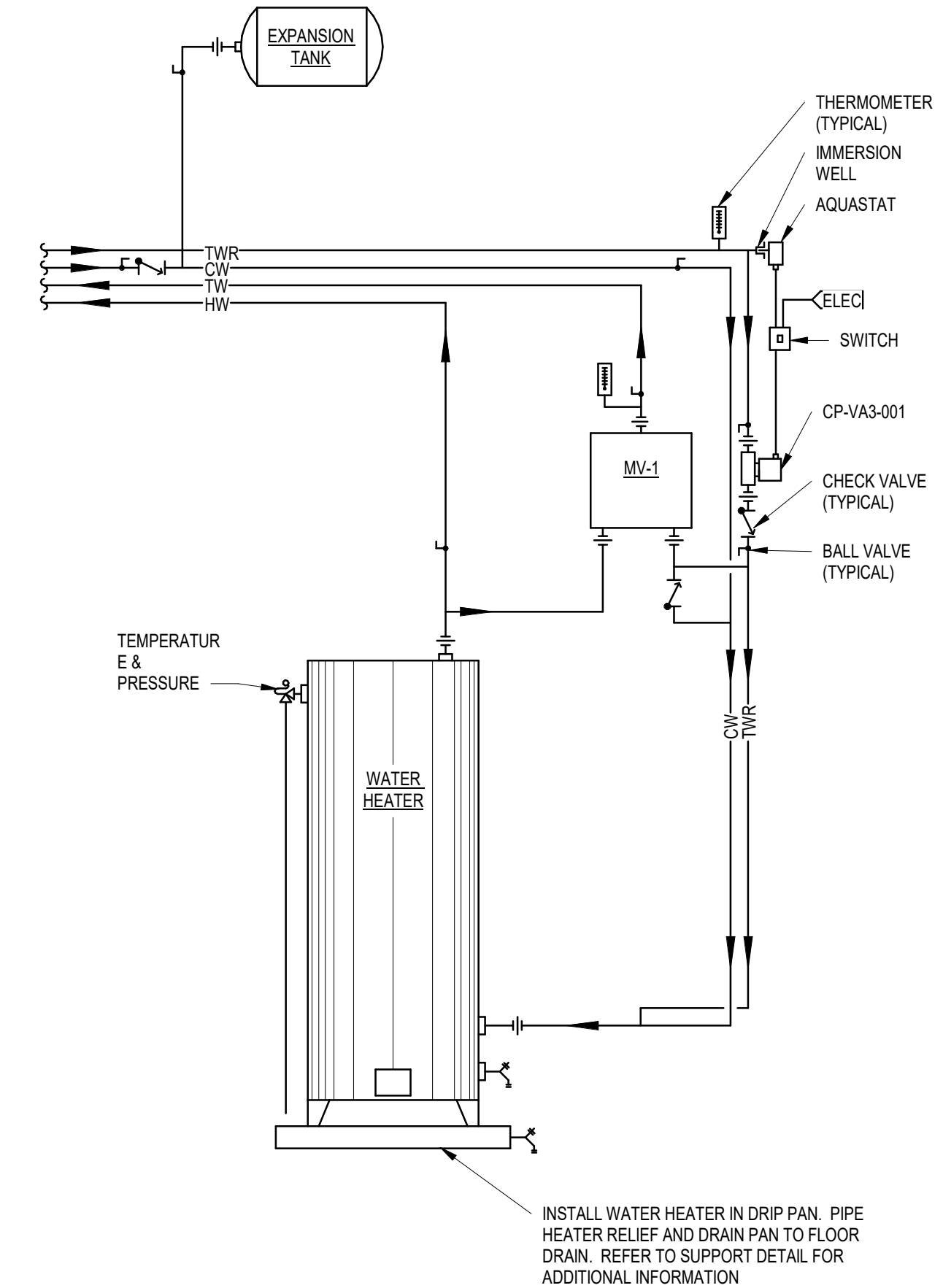
5 FLOOR DRAIN/AREA DRAIN DETAIL
NOT TO SCALE



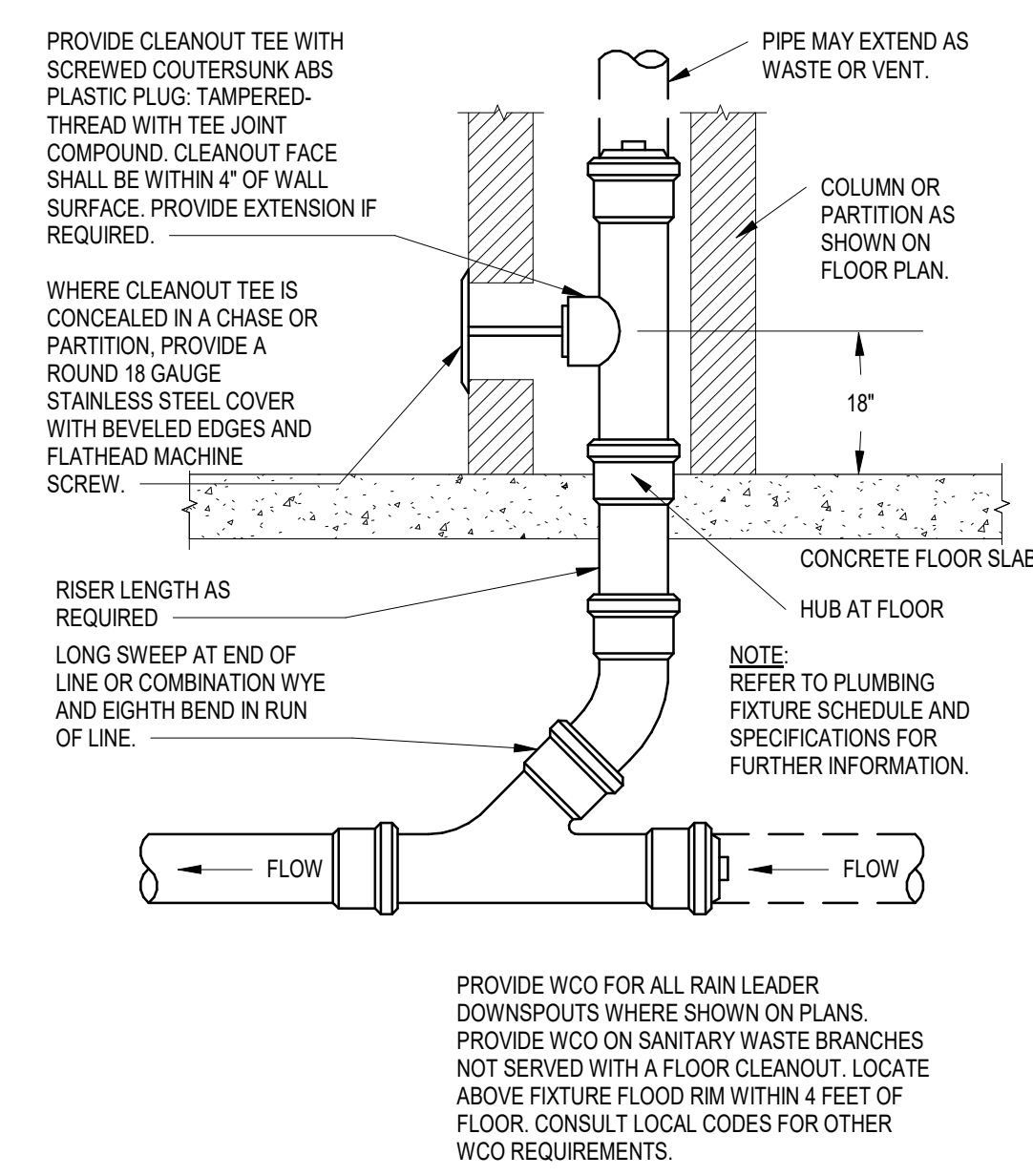
4 TYPICAL ROOF DRAIN DETAIL
NOT TO SCALE



3 CONDENSATE DRAIN TRAP DETAIL
NOT TO SCALE



2 ELECTRIC WATER HEATER PIPING DIAGRAM
NOT TO SCALE



1 WALL CLEANOUT DETAIL
1/2\"/>



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Plumbing Details

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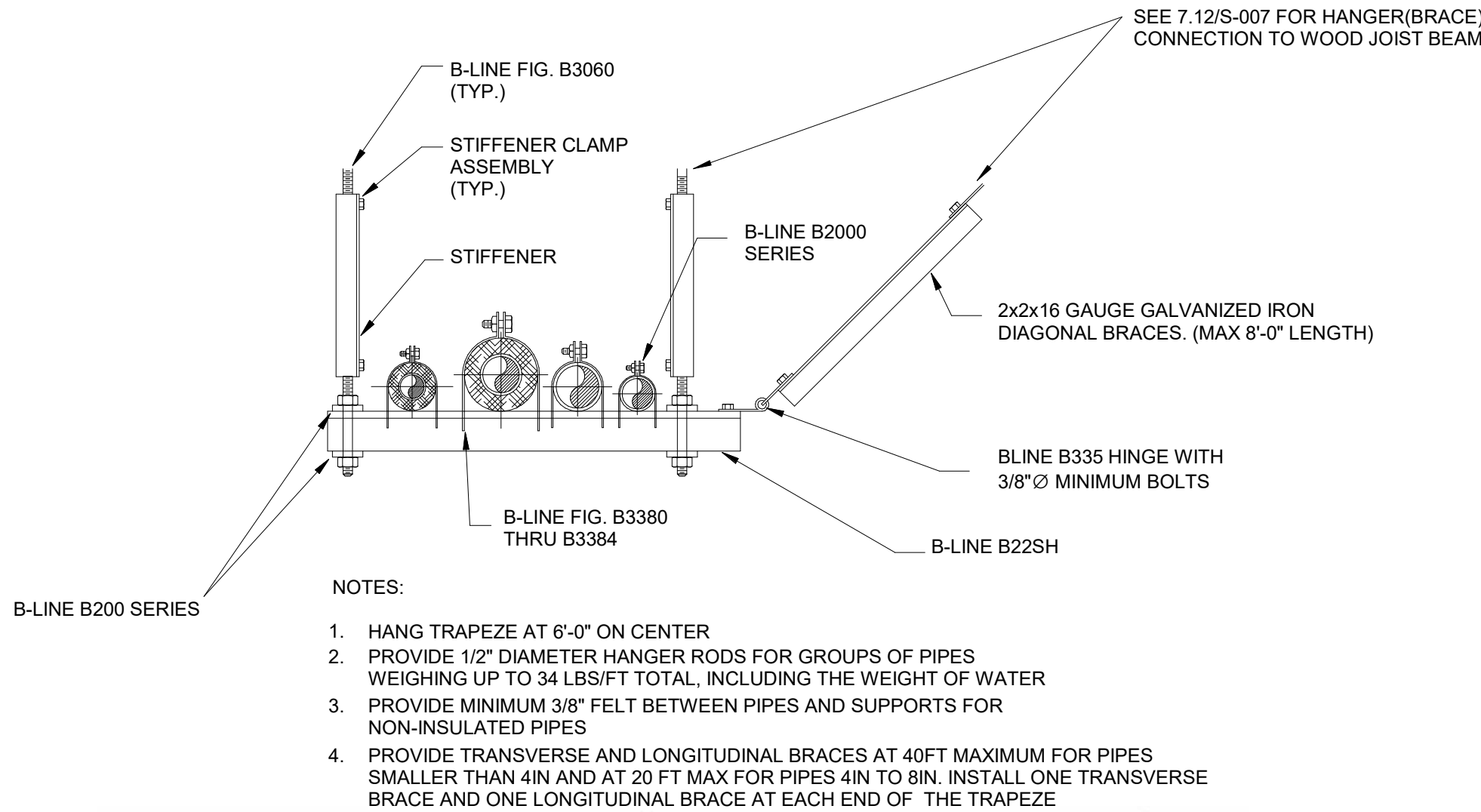
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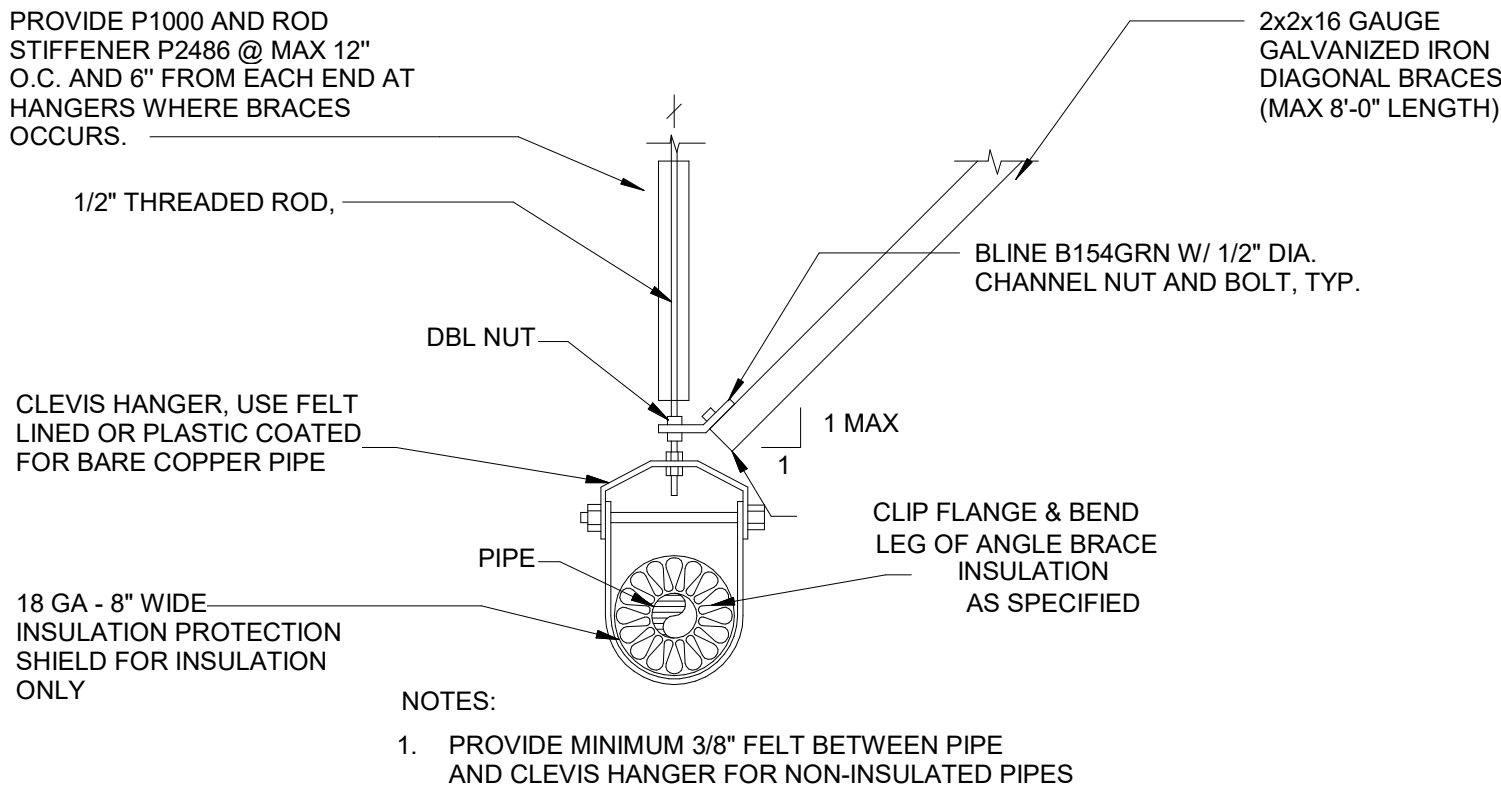
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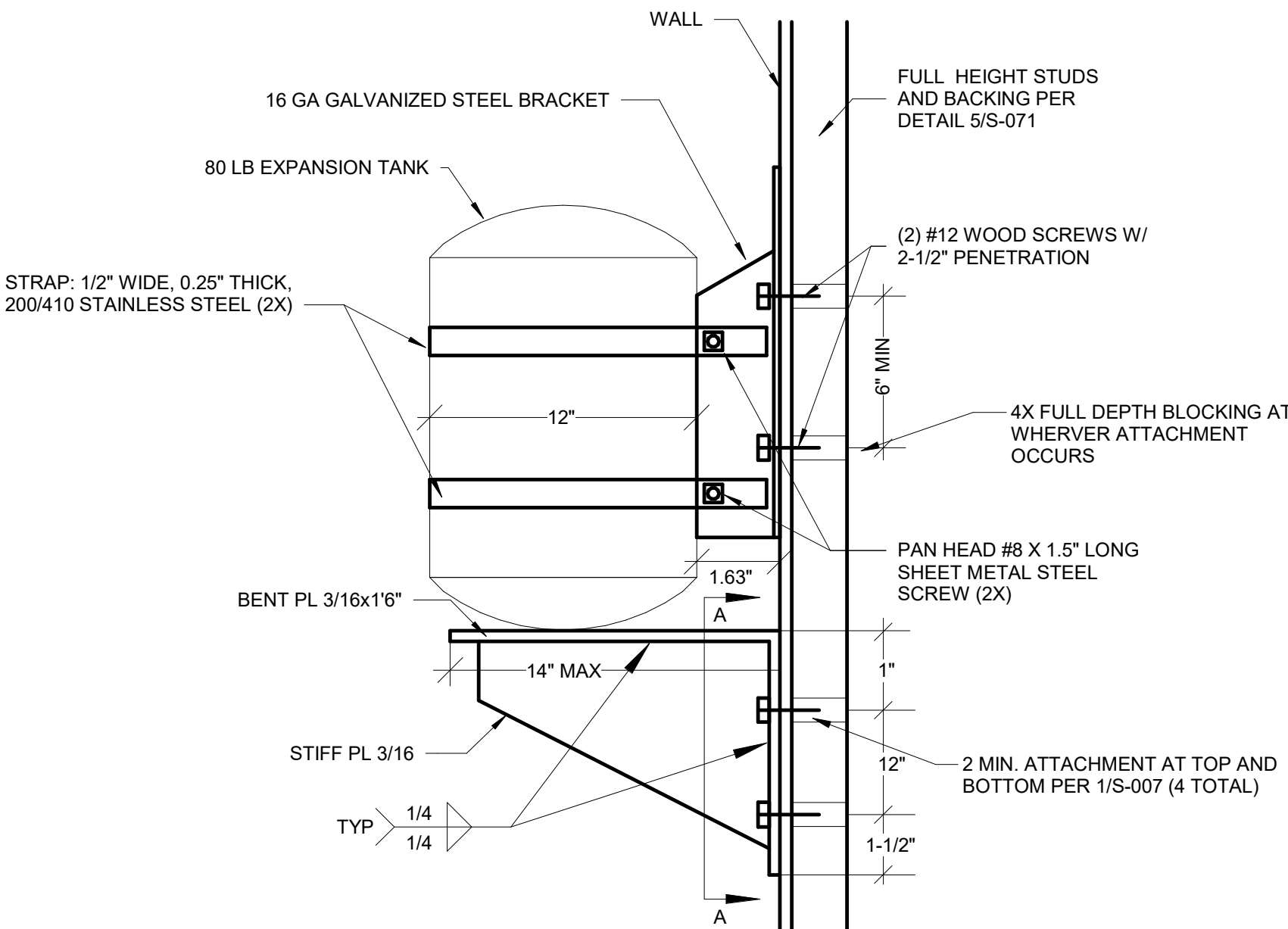
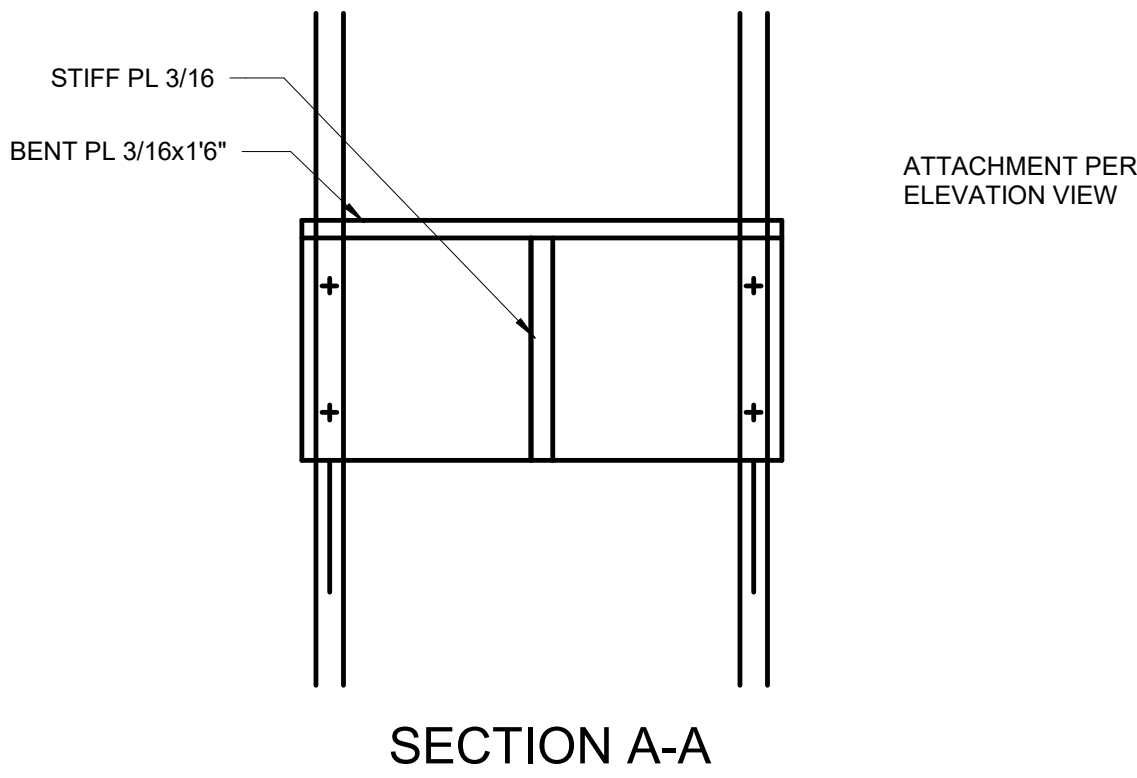
Pipe Size	Max. Dead Load on Trapeze	Vertical, Transverse, & Longitudinal Angles (Cable Size)	Maximum Trapeze Span	Trapeze Size	Bolt to Angle ³	Connection Type To Structural Member ⁴		Rod Size	Max. Length for Rods
						Connection Level ⁵			
						1	2		
(in.)	(lb)	(in.)		(in.)	(in.)			(in.)	(in.)
2½	395	L4x4x14ga (%)	2'6	1½x3¼x16ga	¾	D	F	1	50
3	540	L3x3x12ga (%)	2'6	1½x3¼x16ga	¾	E	G	1½	56
4	815	L4x4x14ga (%)	3'2	1½x3¼x16ga	¾	D	F	1	50
5	932	L3x3x12ga (%)	3'0	1½x3¼x16ga	¾	D	G	1	50
6	945	L3x3x12ga (%)	2'8	1½x3¼x16ga	¾	D	G	1	50
8	1006	L3x3x12ga (%)	2'3	1½x3¼x16ga	¾	D	G	1½	56

Table 5-8 Schedule for Bracing Pipes on Trapeze, (SHL AA – g=1.0)



Pipe Size	Max. Wt.	Brace Spacing	Vertical Hangers Angles	Transverse Braces Angles (Cable Size)	Longitudinal Braces Angles (Cable Size)	Bolt Size	Connection Type to Structural Member	Rod Size	Max. Length for Rods
(in.)	(lb per ft)	(ft)	(in.)	(in.)	(in.)	(in.)	Connection Level	(in.)	(in.)
		note ²					1 2		
2.5	7.9	40	80	L2x2x16ga	L3x3x16ga (%)	¾	C D	½	25
3	10.8	40	80	L2.5x2.5x16ga	L4x4x16ga (%)	¾	C E	½	25
4	16.3	40	80	L4x4x14ga	L4x4x14ga (%)	¾	D E	¾	31
5	23.3	40	80	L4x4x14ga	L4x4x14ga (%)	½	D G	¾	37
6	31.5	40	40	L4x4x14ga	L3x3x12ga (%)	¾	D E	¾	31
8	50.3	40	40	L4x4x14ga	L4x4x12ga (%)	¾	D G	¾	43
10	74.7	20	20	L4x4x14ga	L3x3x12ga (%)	¾	D F	¾	37
12	98.6	20	20	L4x4x14ga	L4x4x12ga (%)	¾	D G	¾	37
14	122	20	20	L4x4x14ga	L4x4x12ga (%)	¾	E H	¾	43
16	159	20	20	L4x4x14ga	L4x4x12ga (%)	¾	E H	1	50

Table 5-7 Schedule for Bracing Pipes and Conduit, (SHL AA – g=1.0)



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PLUMBING FIXTURE SCHEDULE						
TAG	FIXTURE	COLD WATER	HOT WATER	WASTE	VENT	FIXTURE DESCRIPTION
WC-1	[ADULT] WATER CLOSET	1"	N/A	4"	2"	AMERICAN STANDARD MADERA 3451.128. .15" HEIGHT, VITREOUS CHINA, WHITE, FLOOR MOUNT FLUSHOMETER VALVE TYPE, 10" OR 12" ROUGH IN, 1.28GPF, OPEN FRONT FIRE RETARDANT WHITE SEATS, LESS COVER
WC-2	[ADULT] WATER CLOSET (ACCESSIBLE)	1"	N/A	4"	2"	AMERICAN STANDARD MADERA 3451.128. .ADA, 15" HEIGHT, VITREOUS CHINA, WHITE, FLOOR MOUNT FLUSHOMETER VALVE TYPE, 10" OR 12" ROUGH IN, 1.28GPF, OPEN FRONT FIRE RETARDANT WHITE SEATS, LESS COVER. ADA COMPLIANT.
LAV-1	LAVATORY	1/2"	N/A	2"	1 1/2"	AMERICAN STANDARD 0355.012 LUCERNE VITREOUS CHINA, JAY R SMITH #22 CONCEALED CARRIER; (AMERICAN STANDARD 9141.011 TO BE USED AT KINDER & ELEMENTARY APPLICATIONS ONLY) KOHLER K-15199-4NDRA, SINGLE HANDLE FAUCET (0.5 GPM)
LAV-2	LAVATORY (ACCESSIBLE)	1/2"	N/A	2"	1 1/2"	AMERICAN STANDARD 0355.012 LUCERNE VITREOUS CHINA, JAY R SMITH #22 CONCEALED CARRIER; (AMERICAN STANDARD 9141.011 TO BE USED AT KINDER & ELEMENTARY APPLICATIONS ONLY) KOHLER K-15199-4NDRA, SINGLE HANDLE FAUCET (0.5 GPM), ADA COMPLIANT.
S-1	CLASSROOM SINK	1/2"	N/A	2"	1 1/2"	JUST CRA-1725-A-GR 17"x25". 4 1/2" BOWL DEPTH. WITH CHICAGO FAUCETS #350 AND BUBBLER JSB-10
DF-1	OUTDOOR DRINKING FOUNTAIN	1/2"	N/A	2"	1 1/2"	HAWS 1119.14 BI-LEVEL ADA BARRIER FREE WALL MOUNTED OUTDOOR HEAVY GAUGE STAINLESS STEEL DRINKING FOUNTAIN
U-1	URINAL	3/4"	N/A	2"	1 1/2"	AMERICAN STANDARD 6002.503 "PINTBROOK", TOP SPUD URINAL, VITROUS CHINA, ADA COMPLIANT, MANUAL 0.125 GPF FLUSHOMETER VALVE.
FD-1	FLOOR DRAIN	N/A	N/A	4"	2"	MIFAB NO. F1000 CAST IRON BODY. FLASHING COLLAR, ADJUSTABLE 6" ROUND STAINLESS STEEL GRATE. PROVIDE MEMBRANE CLAMP AS REQUIRED.
FS-1	FLOOR SINK	N/A	N/A	4"	2"	AMERICAN STANDARD 7745.811 "FLORWELL" FLOOR MOUNTED, CORNER TYPE. FAUCET AMERICAN STANDARD # 8344.112.
JS-1	MOP SINK	N/A	N/A	4"	2"	FIAT MSB2424 MOP SINK BASIN CHICAGO FAUCET 897-CP
TP-1	TAP PRIMER	1/2"	N/A	N/A	N/A	MIFAB NO. M1-500, PRESS DROP ACTIVATED /W MI-DU DISTRIBUTION UNIT AS REQUIRED.
HB-1	HOSE BIB	3/4"	N/A	N/A	N/A	WALL MOUNTED RECESSED, W/ VACUUM BREAKER (EXTERIOR)
RH-1	ROOF HYDRANT	3/4"	N/A	N/A	N/A	WOODFORD MODEL RHMC-MS

NOTES:

ALL PUBLIC LAVATORIES TO HAVE ASSE 1070 MIXING VALVE.

DOMESTIC CIRCULATING PUMP SCHEDULE													
MARK	SYSTEM SERVED	DESIGN FLOW (GPM)	HEAD W.C. (FT.)	ELECTRIC REQUIREMENTS					SUCTION SIZE (IN.)	DISCHARGE SIZE (IN.)	OPERATING WEIGHT (LB)	BASIS OF DESIGN MANUFACTURER & MODEL NUMBER	NOTES
				BHP	HP	VOLTS	PHASE	HERTZ					
DHWP-1	DOMESTIC HOT WATER	5	20			120	1	60	-	-	22	BELL AND GOSSETT ECOCIRC XL 20-35	

EXPANSION TANK									
TAG	MANUFACTURER	MODEL	SERVICE	VOLUME (GALLONS)	PRECHARGE (PSI)	UNIT DIMENSION		ASME	OPERATING WEIGHT (LB)
						DIAMETER	HEIGHT		
DET-1	AMTROL	ST-12C-DD	WH-1	6	55	12	18	YES	70

NOTES:

DOMESTIC HEAT PUMP WATER HEATER													
MARK	TYPE	GALLON CAPACITY	PEAK DEMAND USGPH	RECOVERY GPH CAPACITY 90 DEGREE RISE	ELECTRIC			WATER		UNIFORM ENERGY FACTOR [UEF]	ELECTRIC BREAKER SIZE [AMPS]	OPERATING WEIGHT (LB)	MANUFACTURER AND MODEL NUMBER
					UNIT WATTAGE	VOLTPHASE/HZ	AMPS	ENTERING DEG. [F]	LEAVING DEG. [F]				
DWH-1	HYBRID WITH STORGAE	40	62	27	5,000	208-1-60	21	40	120	3.75	30	600	RHEEM HPLD40-1RH

SOLIDS INTERCEPTOR SCHEDULE											
MARK	LOCATION		MANUFACTURER	MATERIAL DESCRIPTION	DESIGN FLOW	SOLIDS CAPACITY	DIMENSIONS			WEIGHT	NOTES
	NAME	NO.	MODEL NO				LENGTH	WIDTH	HEIGHT		
SI-1	MAKERSPACE CLASSROOM	101	STREIM SIDEKICK	PVC HOUSING, POLYCARBONATE PERFORATED BASKED WITH O-RING TO PROVIDE WATER-TIGHT SEAL	23 GPM	0.17 GALLONS	11-1/16"	7-7/16"	7-7/16"	3.2 LBS	

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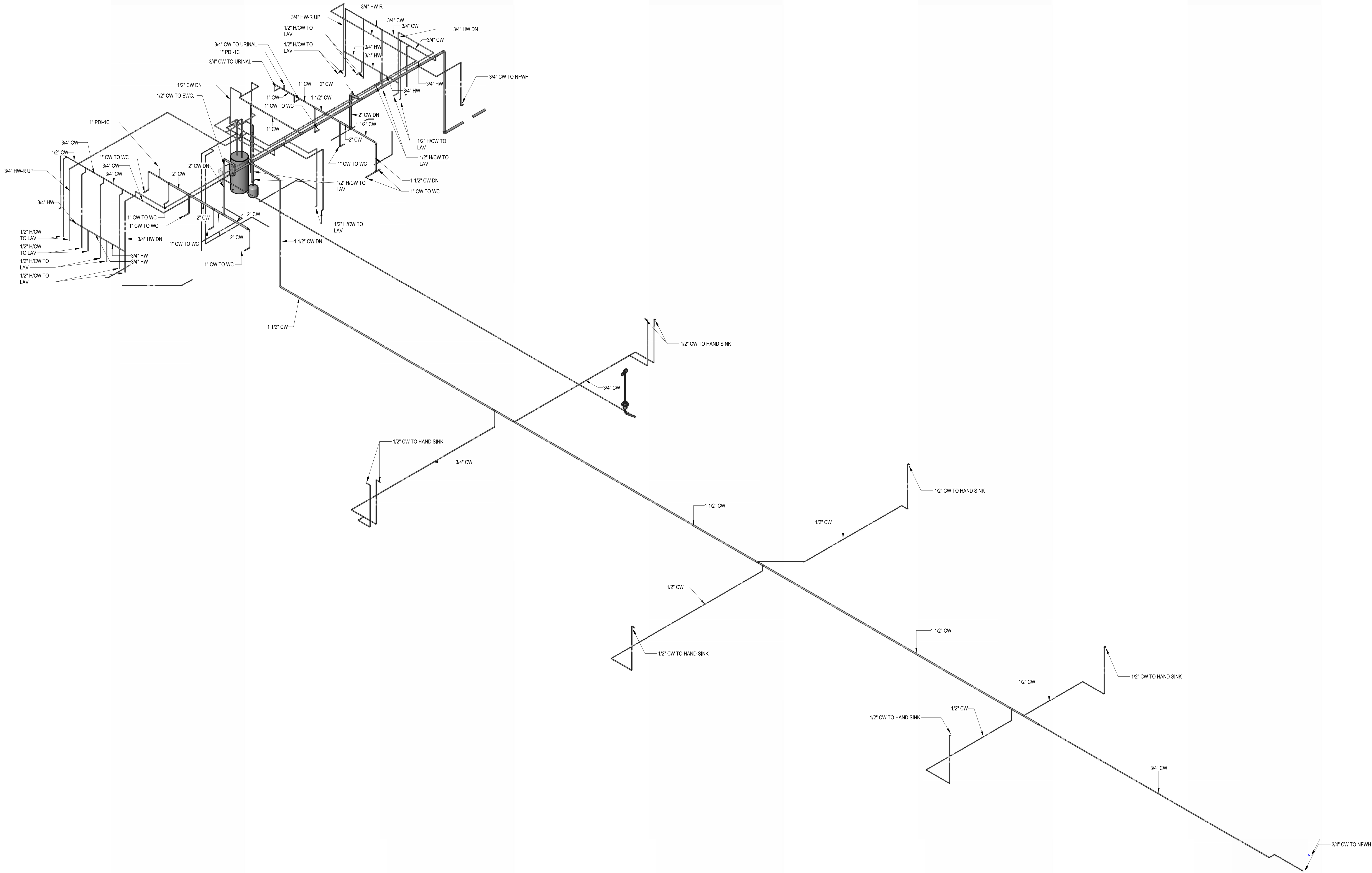
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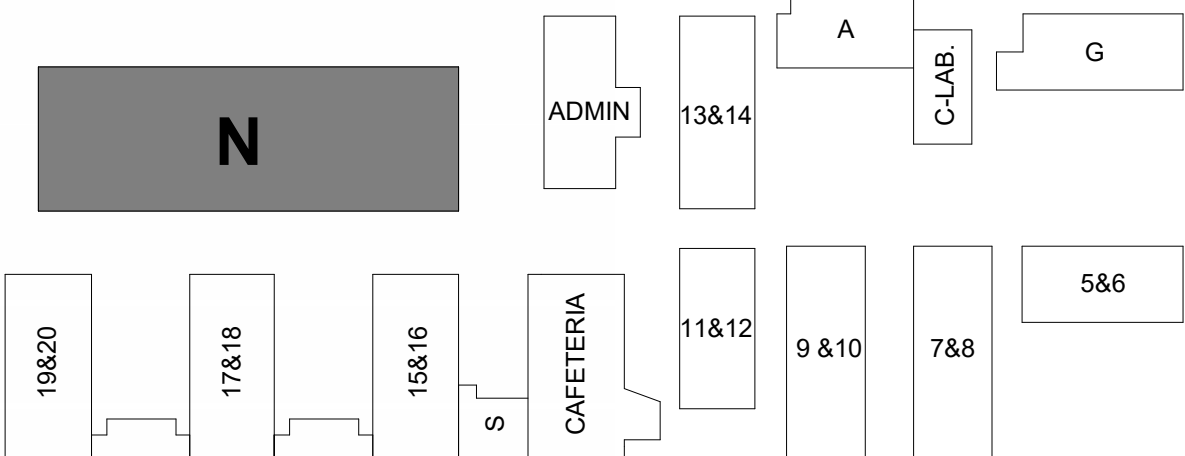
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Plumbing Schedules

P-601



KEY PLAN



Inglewood Unified School District

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P-8 Academy

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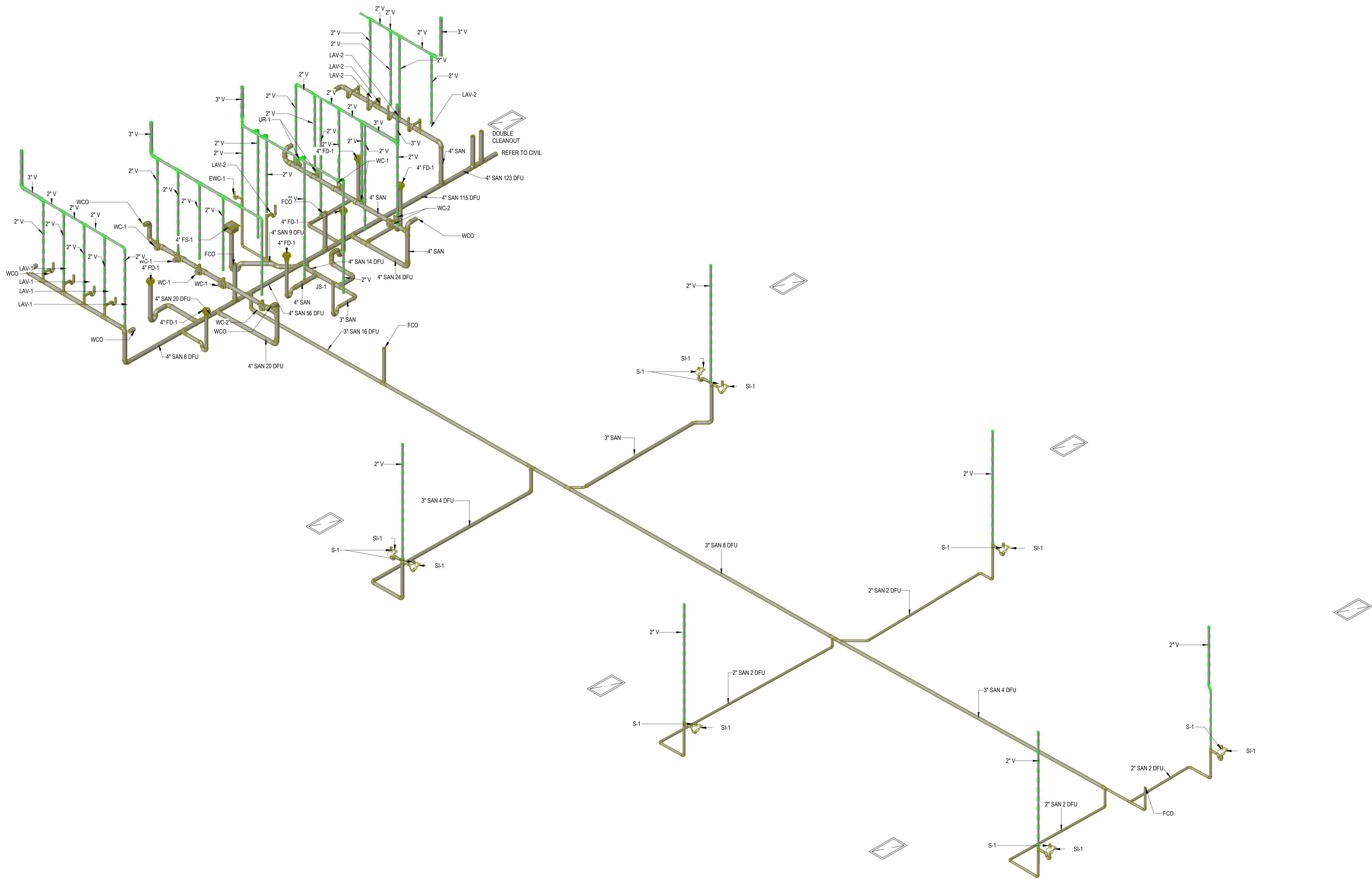
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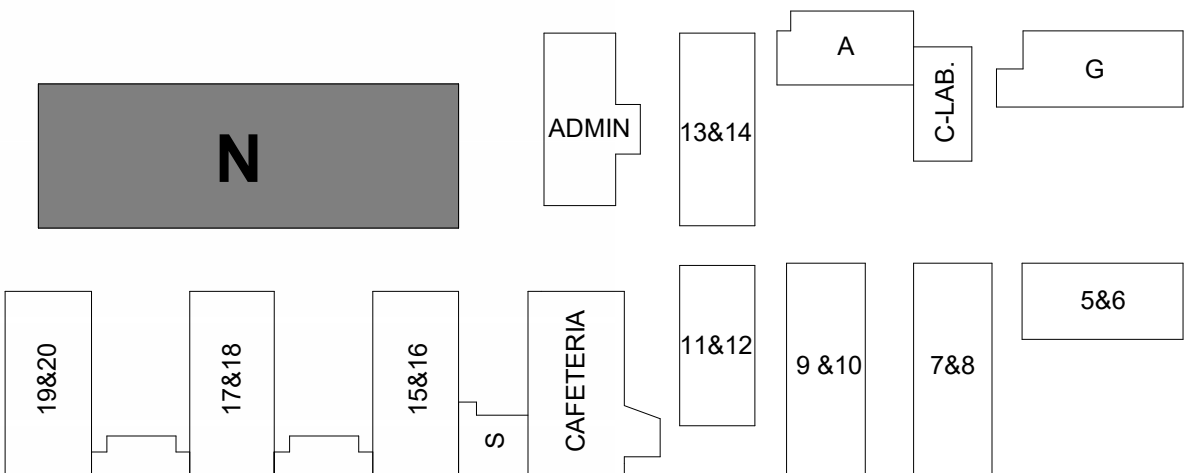
Plumbing Riser
Diagrams

P-701



1 SANITARY ISOMETRIC

KEY PLAN



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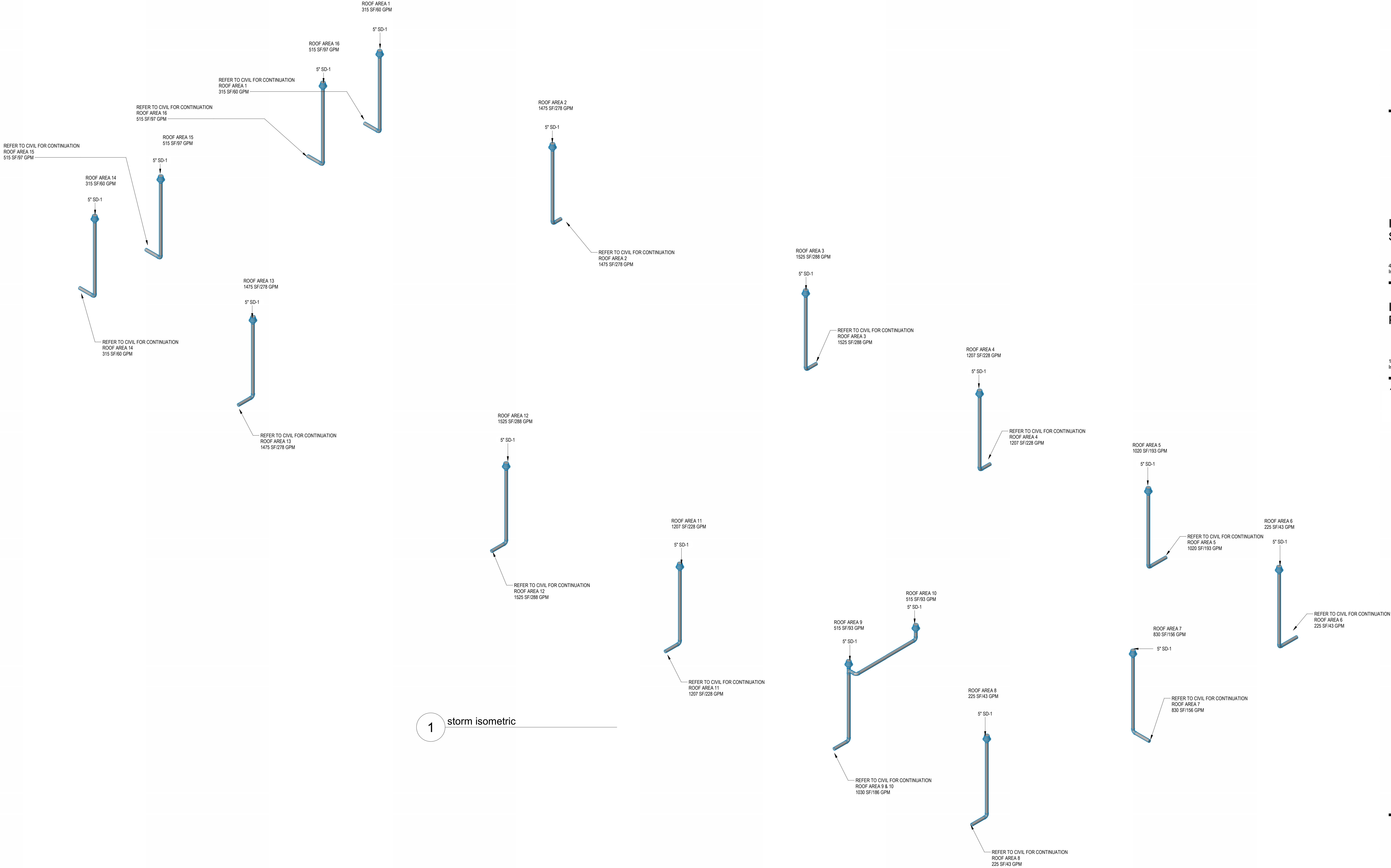
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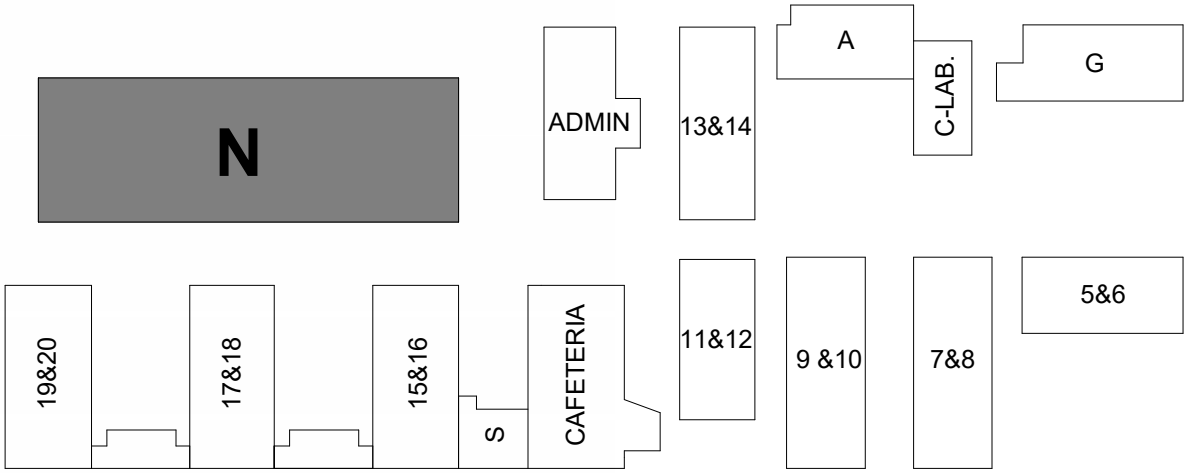
Plumbing Riser
Diagrams

P-702



1 storm isometric

KEY PLAN



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Plumbing Riser Diagrams

P-703

STATE OF CALIFORNIA

CERTIFICATE OF COMPLIANCE

CERTIFICATE OF COMPLIANCE

Project Name: Bennett KewReport Page: (Page 3 of 8)Project Address: 11710 S Cherry AveDate Prepared: 9/30/2024

A. GENERAL INFORMATION

01Project Location (city)

Inglewood

02Climate Zone

8

03Occupancy Types Within Project (select all that apply):

Classroom

B. PROJECT SCOPE

This table includes domestic water heating systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive paths outlined in 140.1/170.2(d) and 141.0(a)/180.1, or 141.0(b)(2)/180.2 for additions or alterations. Solar water heating systems are documented on the NRCC-SAB compliance document. Combined hydronic water heating systems are documented on the NRCC-MCH compliance document.

01My project consists of (check all that apply):

☒ New system (DHW system being installed for the first time)

☐ System Alteration (equipment, distribution or controls)

02System Type(s)^{1,2}

Central System (serving nonresidential spaces)

03System Components

☒ Equipment

☒ Distribution

☒ Controls

¹FOOTNOTES: Point of use water heaters, or other non-central systems used to serve nonresidential spaces, are considered individual systems.
² Dwelling units refers to hotel/motel guest rooms and units in a multifamily residential occupancy.
³ DHW systems serving 2 or more dwelling units are considered "Central Systems" for multifamily occupancies

C. COMPLIANCE RESULTS

Table C will indicate if the project data input into the compliance document is compliant with water heating requirements. If this table says "DOES NOT COMPLY" or "COMPLIES WITH Exceptional Conditions" refer to Table D, or the table indicated as not compliant for guidance.

01Domestic Hot Water Equipment

02Distribution Systems

03Controls

04Compliance Results

Table F

Table G

Table H

COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

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E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

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F. DOMESTIC HOT WATER EQUIPMENT

This table is used to demonstrate compliance with mandatory equipment requirements in 110.1 and 110.3. Compliance with prescriptive requirements in 140.5(c)/170.2(d) must also be demonstrated and with 141.0/180.1/180.2 for addition and alteration scopes.

Equipment Schedule: Water Heating Efficiency and Standby Loss

03System Name

A. O. Smith HPT15-50 2" x (50 gal, JA13)

04Exception to 140.5(c)/170.2(d)3

05Gas Service Water Heating System >= 1MMBtu/h¹

06Capacity-weighted Average Efficiency %

07Name or Item Tag

08Equipment Type

09Volume (gal)

10Rated Input Capacity (Btu/h)

11Max GPM/ First Hour Rating (FHR)

12Rated Efficiency

13Minimum Efficiency Required

14Efficiency Unit

15Designed Standby Loss

Maximum Standby Loss

A. O. Smith HPT15-50 2" x (50 gal, JA13)

Heat Pump Water Heater

50

20,000

0 <= FHR <18

3.8

2

UEF

¹FOOTNOTE: In systems >= 1MMBtu/h with multiple units, gas water heaters with input capacity > 100,000 Btu/h may meet 90% Et requirements via an input capacity-weighted average.

Water Heating Equipment All Occupancies

Yes

No

Not Applicable

Requirement

18

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☒

Unfired storage tank insulation shall have Internal + External >=R-16 OR External >=R-3.5. Label required per 110.3(c)3

19

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New state buildings 60% of energy for service water heating from site solar energy or recovered energy per 110.3(c)5

20

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☒

Isolation valves for instantaneous water heater with input rating <= 8 kBtu/h or 2 kW has been specified per 110.3(c)6

21

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School buildings < 25,000 ft² and < 4 stories must install a heat pump water heating system per 140.5(a)1. Water heating systems serving an individual bathroom space may be an instantaneous electric water heater.

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G. DOMESTIC HOT WATER DISTRIBUTION SYSTEM

This table is used to demonstrate compliance for nonresidential occupancies with distribution requirements in 120.3 and 140.5. For multifamily and hotel/motel occupancies, compliance is demonstrated with requirements 110.3(c), 160.4, 170.2(d).

Recirculation Loops in Central Systems Serving Dwelling Units or Nonresidential Spaces

Yes

No

Not Applicable

Requirement

01

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☐

☐

Air release valve or vertical pump installation per 110.3(c)4A

02

☒

☐

☐

Check valve or similar located between recirculation pump and water heating equipment to prevent backflow per 110.3(c)4B

03

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☐

Hose bibb installed between pump and equipment and isolation valve between hose bibb and equipment per 110.3(c)4C

04

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☐

Isolation valves on both sides of the pump per 110.3(c)4D

05

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Cold water and recirculation loop piping shall not be connected to the hot water storage tank drain port per 110.3(c)4E

06

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☐

Check valve installed on cold water supply between hot water system and next closest tee on cold water supply per 110.3(c)4F

07

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DWELLING UNITS ONLY: For central systems serving multiple dwelling units, design includes a recirculation system serving separate dwelling units per 170.2(d) unless building has <=8 dwelling units.

08

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DWELLING UNITS ONLY: For heat pump water heating systems, the hot water return from the recirculation loop shall connect to a recirculation loop tank and shall not directly connect to the primary heat pump water heater inlet or the primary thermal storage tanks per 170.2(d)2A.

09

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DWELLING UNITS ONLY: For heat pump water heating systems, the fuel source for the recirculation loop tank shall be electricity if auxiliary heating is needed. The recirculation loop heater shall be capable of multi-pass water heating operation per 170.2(d)2B.

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H. DOMESTIC HOT WATER DISTRIBUTION SYSTEM

Mandatory Pipe Insulation All Occupancies

13

☐

For systems serving dwelling units, pipe insulation must meet the minimum insulation requirements in Table 160.4-A (see blow) except:
• Piping that penetrates framing members shall not be required to have pipe insulation for the distance of the framing penetration. Piping that penetrates metal framing shall use grommets, plugs, wrapping or other insulating material to assure that no contact is made with the metal framing. Insulation shall abut securely against all framing members.
• Piping installed in interior or exterior walls shall not be required to have pipe insulation if all of the requirements are met for compliance with Quality Insulation Installation (QII) as specified in the Reference Residential Appendix RA3.5.
• Piping surrounded with a minimum of 1 inch of wall insulation, 2 inches of crawlspace insulation, or 4 inches of attic insulation, shall not be required to have pipe insulation.

14

☒

For systems serving nonresidential spaces, pipe insulation for the following applications is specified to comply with Table 120.3-A (see below) per 120.3:
• Recirculating system piping, including supply and return piping of the water heater
• The first 8 ft of hot and cold outlet piping, including between storage tank and heat trap, for a nonrecirculating storage system
• Pipes that are externally heated

15

☒

Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service per 120.3(b) / 160.4(f). Pipe insulation buried below grade must be installed in a water proof and non-crushable casing or sleeve.

TABLE 120.3-A / 160.4-A PIPE INSULATION THICKNESS

Fluid Temperature Range (°F)

Conductivity Range (Btu-in per hour per ft² per °F)

Insulation Mean Rating Temp (°F)

< 1

1 to < 1.5

1.5 to < 4

1.5 to < 4 Multifamily & Hotel/Motel

105-140

0.22 - 0.28

100

1.0 in or R-7.7

1.5 in or R-12.5

1.5 in or R-11

2.0 in or R-16

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I. DOMESTIC HOT WATER CONTROLS

This table is used to demonstrate compliance with control requirements in 110.3 for all occupancies. For multifamily residential and hotel/motel occupancies, compliance is also demonstrated with requirements in 160.4(f) / 170.2(d).

Yes

No

Not Applicable

Requirement

01

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☐

Construction documents require manufacturer certification that service water heating systems are equipped with automatic temperature controls capable of adjusting temperature settings per 110.3(a).

02

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☒

Systems with capacity > 167,000 BTUH equipped with outlet temperature controls per 110.3(c)1 unless covered by California Plumbing Code 613.0.

03

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☐

Controls for circulating pumps or electrical heat trace systems are capable of automatically turning off the system per 613.3(c)2 unless systems serve healthcare facility.

04

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☒

For recirculation systems serving multiple dwelling units, design includes automatic pump controls per 170.2(d) or 180.1(d)3 for additions.

05

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☐

☒

For recirculation systems serving individual dwelling units, design includes manual on/off controls as specified in Reference Appendix RA4.4.3 per 170.2(d).

06

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Combustion air positive shut-off shall be provided per 160.4(i)3 on all newly installed commercial boilers as follows:
• Boilers with input capacity >= 2.5 MMBtu/h, in which the boiler is designed to operate with a nonpositive vent static pressure
• Boilers where one stack serves two or more boilers with a total combined input capacity per stack of 2.5 MMBtu/h.

07

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Boiler combustion air fans with motor >= 10 hp shall meet one of the following
• The fan motor shall be driven by a variable speed drive OR
• The fan motor shall include controls that limit the fan motor demand to <=30% of the total design wattage at 50% of the design air volume.

08

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☐

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Newly installed boilers with an input capacity (d-gte/) 5MMBtu/h and a steady state full-load combustion efficiency < 90% shall maintain excess (stack-gas) oxygen concentrations <= 5% by volume on a dry basis over firing rates of 20-100%. Combustion air volume shall be controlled with respect to firing rate or flue gas oxygen concentration. Use of a common gas and combustion air control linkage or jack shaft is prohibited.

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J. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online

Form/Title

NRCC-PLB-E - Must be submitted for all buildings

K. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

There are no forms required for this project.

L. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

There are no forms required for this project.

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:

Company:

HED

Address:

City/State/Zip:

Documentation Author Signature:

Signature Date:

2024-09-30

CSCE/HERS Certification Identification (if applicable):

Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on the Certificate of Compliance is true and correct.

2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)

3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.

4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name:

Sharo Saremi

Company:

HED

Address:

1550 South Hope St., Suite 2500

City/State/Zip:

Los Angeles CA 90071

Responsible Designer Signature:

Date Signed:

2024-09-30

License:

Phone:

213.542.4578

Generated Date/Time:Documentation Software: EnergyProReport Version: 2022.0.000Schema Version: rev 20220101Compliance ID: EnergyPro-50382-0924-0018Report Generated: 2024-09-30 09:23:13

Inglewood Unified School District

401 S. Inglewood Ave.
Inglewood, CA 90301

IUSD Bennett-Kew P-8 Academy

11710 S Cherry Ave.
Inglewood, CA 90303

△ Date Issued For
1 11/5/2024 DSA SUBMITTAL

U. UNIFIED SUBMITTAL

DSA A# 03-124773 FILE # 19-48

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550 South Hope Street
Suite 2500
Los Angeles, California
90071 USA

(213) 542-4500

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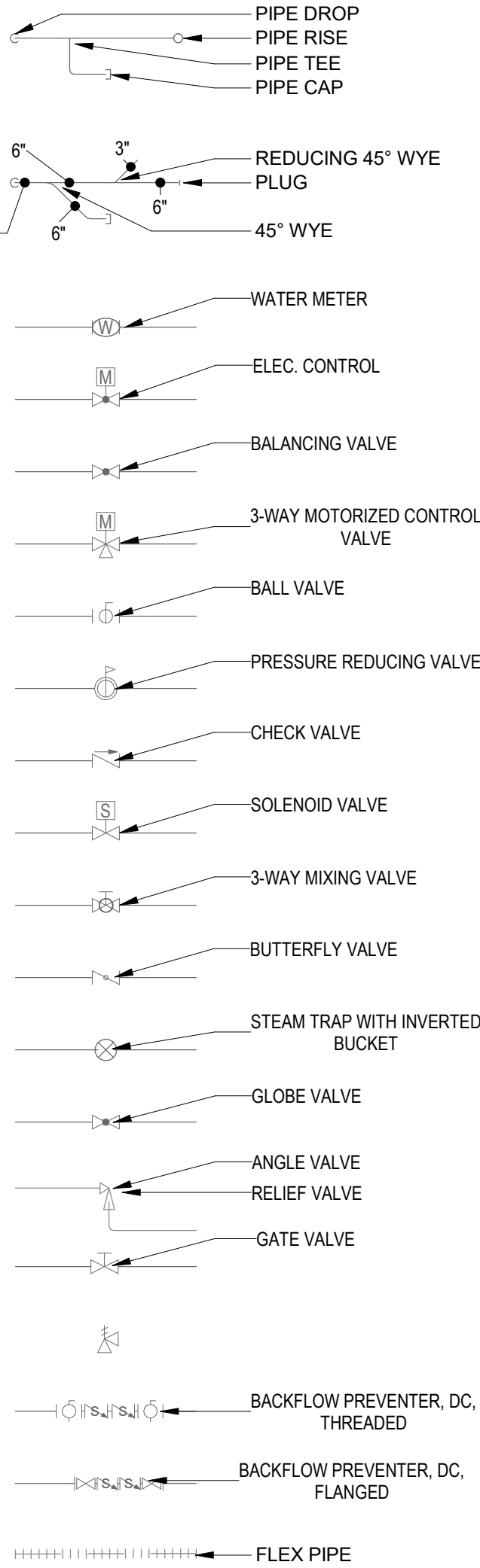
T24 Sheets

P-900

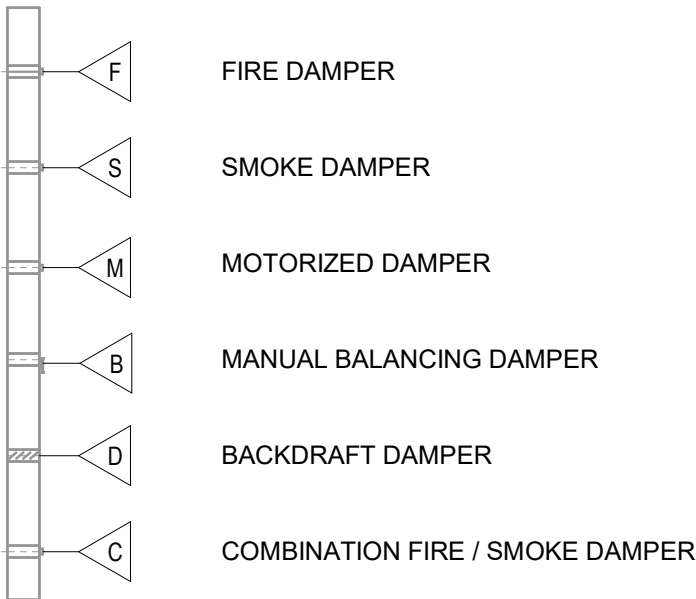
MECHANICAL PIPE SYSTEMS
LEGEND

— CHWR —	CHILLED WATER RETURN
— CHWS —	CHILLED WATER SUPPLY
— CD —	CONDENSATE DRAIN
— CWR —	CONDENSER WATER RETURN
— CWS —	CONDENSER WATER SUPPLY
— HWR —	HEATING WATER RETURN
— HWS —	HEATING WATER SUPPLY
— REF —	REFRIGERANT
— STM —	STEAM

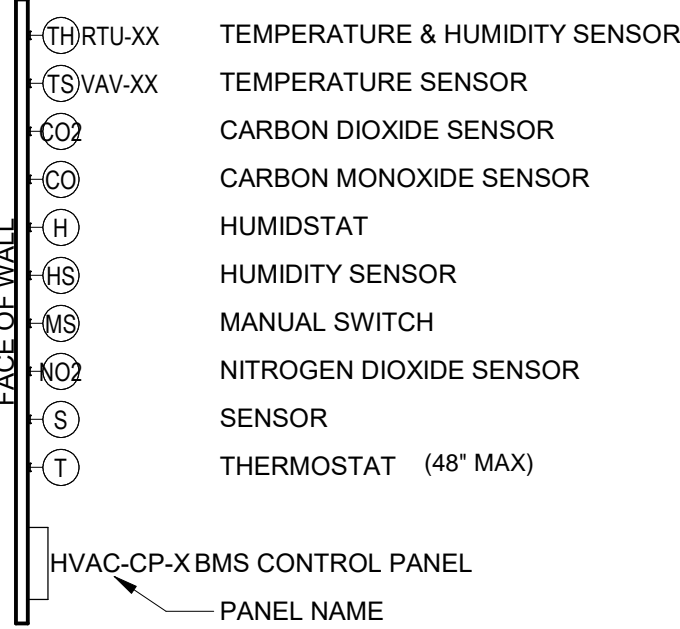
VALVE SYMBOLS



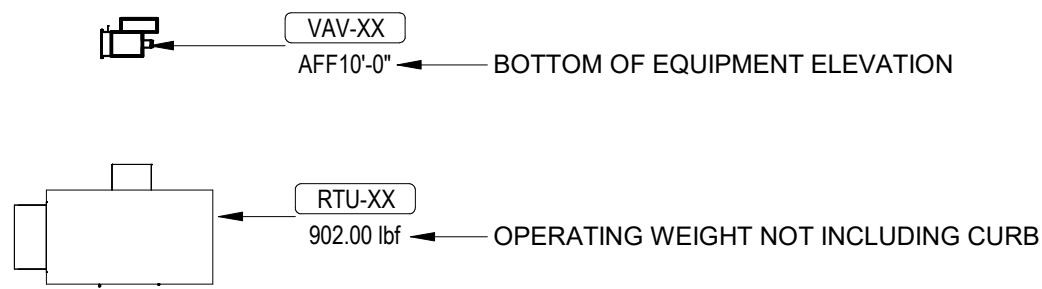
DAMPER LEGEND



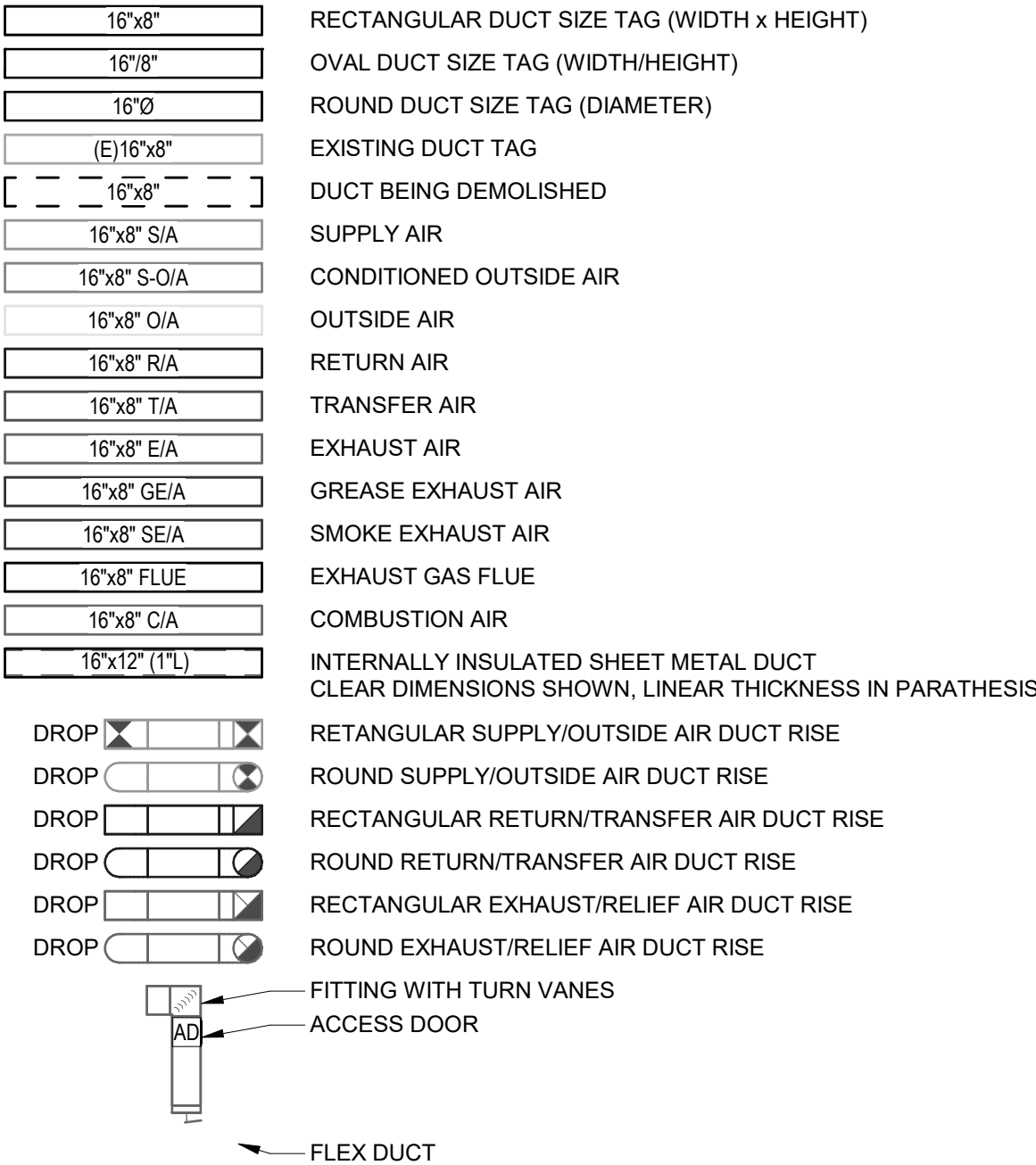
SENSOR LEGEND



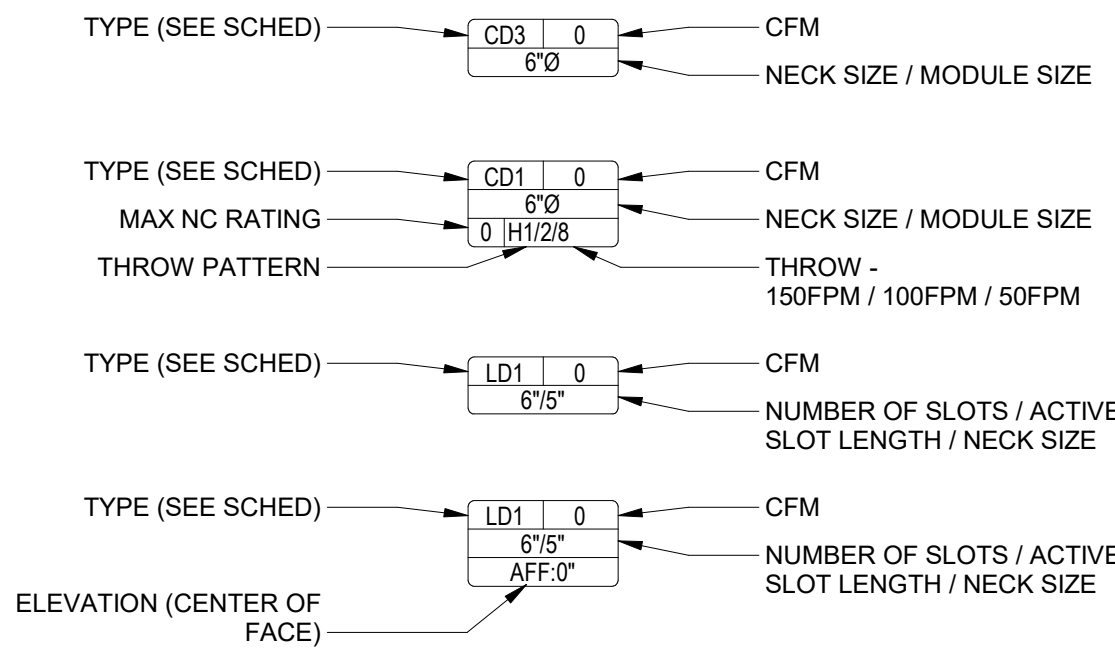
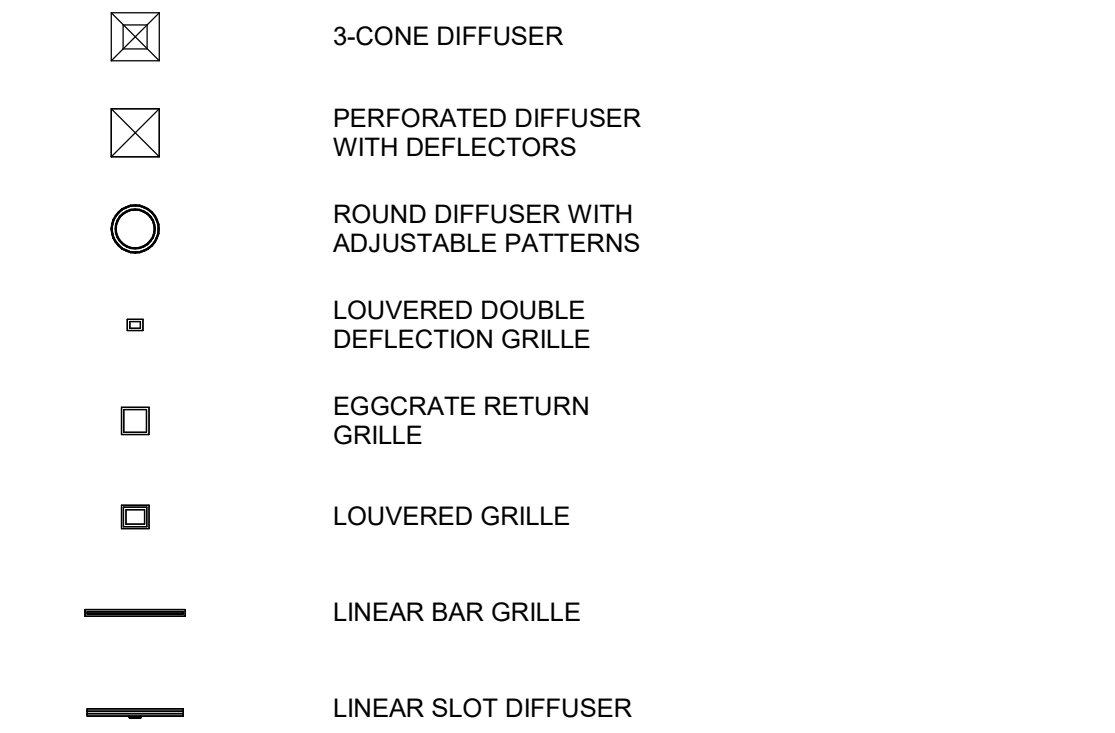
MECHANICAL EQUIPMENT LEGEND



DUCT LEGEND



AIR TERMINAL LEGEND



APPLICABLE CODE: 2022 CBC

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED OR INSTALLED PER THE DETAILS ON THE DSA-APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30:

- ALL PERMANENT EQUIPMENT AND COMPONENTS.
- TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G., HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
- TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

- COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
- COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

APPLICABLE CODE: 2022 CBC PER IR 16-13.

MEP DISTRIBUTION SYSTEM BRACING NOTE FOR PIPING, DUCTWORK, AND ELECTRICAL CONDUIT

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7 SECTION 13.3 AS DEFINED IN ASCE 7 SECTIONS 13.6.5, 13.6.6, 13.6.7, AND 13.6.8, AND 2022 CBC SECTIONS 1617A.1.24, 1617A.1.25, AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEMS ARE AS NOTED BELOW. THE MEP DESIGN PROFESSIONAL ENGINEER RESPONSIBLE FOR CONTENT ON THESE SHEETS HAS VERIFIED THAT THE DESIGN METHODS IDENTIFIED BELOW ARE IN ACCORDANCE WITH DSA IR 16-13.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP ✓ MD ✓ PP ✓ E ○ OPTION 1: PROJECT-SPECIFIC DESIGN.

MP ○ MD ○ PP ○ E ○ OPTION 2: DESIGN BASED ON OSHPD OPM, WITHIN PROJECT SUBMITTAL.

MP ○ MD ○ PP ○ E ○ OPTION 3: DESIGN BASED ON OSHPD OPM, DEFERRED SUBMITTAL.

DUCTWORK CONSTRUCTION & APPLICATION TABLE

GENERAL SUPPLY / RETURN / TRANSFER / EXHAUST					
DUCT	PRESSURE CLASS (IN WG)	SMACNA SEAL CLASS	ASHRAE LEAK CLASS	MATERIAL	NOTES
SUPPLY FROM AHU TO ATU	+6	A	3	G-90	---
SUPPLY DOWNSTREAM FROM ATU	+2	A	N/A	G-90	---
RETURN IN SHAFTS TO RF	-3	A	3	G-90	---
RETURN BRANCHES	-2	C	N/A	G-90	---
TOILET & GENERAL EXHAUST	+3	C	3	G-90	---
ISOLATION RM EXHAUST	-2	A	3	G-90	---
DISCHARGE OF GENERAL EXHAUST ON ROOF	+/-3	A	3	G-90	---
PLENUMS	+/-6	A	3	SAME AS DUCTS SERVED	---
ISOLATION EXHAUST STACKS	+3	WELDED	0	316L S.S	1
ALL OTHER SUPPLY/RETURN/EXHAUST NOT SPECIFICALLY IDENTIFIED	+/-2	C	N/A	G-90	---

HYDRONIC PIPING SIZING TABLE

PIPE SIZE (IN)	FLOW RANGE (GPM)
1/2	NA
3/4	0.5 - 3.4
1	3.5 - 7.0
1-1/4	7.25 - 12.0
1-1/2	12.25 - 20.0
2	20.25 - 40.0
2-1/2	40.25 - 74.0
3	74.25 - 131.0
4	131.25 - 240.0
6	240.25 - 500.0

MECHANICAL ABBREVIATIONS

AC	AIR CONDITIONING UNIT (DX TYPE)
AD	ACCESS DOOR
AFMS	AIR FLOW MEASURING STATION
AHU	AIR HANDLING UNIT
BFP	BACKFLOW PREVENTER
BTU	BRITISH THERMAL UNIT
CC	COOLING COIL
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CV	CONSTANT VOLUME
CWP	CONDENSER WATER PUMP
CAV	CONSTANT AIR VOLUME
D	DRAIN
Db	DECIBELS
Db	DRY BULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROL
DX	DIRECT EXPANSION
(E)	EXISTING
EA	EXHAUST
EF	EXHAUST FAN
EG	EXHAUST GRILLE
FCU	FAN COIL UNIT
FLR DRN	FLOOR DRAIN
FD	FIRE DAMPER
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
FIS DPR	FIRE/SMOKE DAMPER
HC	HEATING COIL
HP	HORSE POWER
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
IN WG	INCHES OF WATER GAUGE
LPS	LOW PRESSURE STEAM
LPR	LOW PRESSURE CONDENSATE RETURN
MD	MOTORIZED DAMPER
MA	MIXED AIR
MVD	MANUAL VOLUME DAMPER
OA	OUTSIDE AIR
PD	PRESSURE DROP
PF	PRE-FILTER
PH	PHASE
POC	POINT OF CONNECTION
POD	POINT OF DISCONNECTION
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
RG	RETURN GRILLE
RR	RETURN REGISTER
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SD	SMOKE DAMPER
SF	SUPPLY FAN
SP	STATIC PRESSURE
TG	TRANSFER GRILLE
T'STAT	THERMOSTAT
TU	TERMINAL UNIT
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE
WB	WET BULB TEMPERATURE
WCU	WATER CHILLING UNIT
WH	WATER HEATER

MECHANICAL PIPING GENERAL
NOTES

- DO NOT ROUTE ANY PIPING OVER ELECTRICAL EQUIPMENT OR THROUGH ELECTRICAL EQUIPMENT ROOMS UNLESS IT TERMINATES WITHIN AND SERVES THE ROOM.
- PROVIDE ANCHORS AND PIPE GUIDES AT LOCATIONS SHOWN ON THE PLANS.
- COORDINATE THE LOCATIONS AND SIZES OF ALL HOUSEKEEPING PADS.
- NO PIPING OR EQUIPMENT SHALL BE REMOVED, DISCONNECTED OR SHUT DOWN WITHOUT PRIOR REVIEW WITH THE OWNER TO CONFIRM.
- CONTRACTOR TO PROVIDE EXPANSION LOOPS IN REFRIGERANT PIPING TO ALLOW FOR THERMAL EXPANSION PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- CONTRACTOR TO INSTALL REFRIGERANT PIPING TO AVOID/MINIMIZE OIL TRAPS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

HVAC GENERAL NOTES

- COORDINATE ROUGH-IN LOCATIONS FOR ALL UTILITIES WITH THE EQUIPMENT SUPPLIER AND PROVIDE ALL FINAL CONNECTIONS AS REQUIRED.
- DO NOT ROUTE ANY DUCTWORK PIPING OVER ELECTRICAL EQUIPMENT OR THROUGH THE ELECTRICAL EQUIPMENT ROOMS UNLESS IT TERMINATES WITHIN AND SERVES THE ROOM.
- FLEX DUCT SIZE SHALL MATCH NECK SIZE OF AIR INLET/OUTLET.
- PROVIDE MANUAL VOLUME DAMPER WITH LOCKING QUADRANT IN BRANCH RUNOUT TO EACH SUPPLY, RETURN AND EACH EXHAUST GRILLE.
- C.F.C.I. = "CONTRACTOR FURNISHED, CONTRACTOR INSTALLED". O.F.C.I. = "OWNER FURNISHED, CONTRACTOR INSTALLED". O.F.O.I. = "OWNER FURNISHED, OWNER INSTALLED".
- ALL DUCTWORK ABOVE INACCESSIBLE CEILINGS SHALL BE RIGID STEEL; FLEXIBLE DUCT IS NOT ACCEPTABLE.
- BOTTOM OF ALL DUCTWORK EXCLUDING RUNOUT TO AIR INLET/OUTLET SHALL BE A MINIMUM 6" ABOVE THE CEILING GRID.
- THE ARRANGEMENT OF EQUIPMENT AND PIPING SHOWN ON THE DRAWINGS IS BASED UPON INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF DESIGN AND IS NOT INTENDED TO SHOW EXACT DIMENSIONS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION OR ERECTION OF EQUIPMENT AND SYSTEMS. THIS INCLUDES ALL ALL ASSOCIATED ITEMS THAT MAY NOT BE SHOWN ON MECHANICAL DRAWINGS BUT ARE NECESSARY FOR INSTALLATION AND OPERATION, SUCH AS EQUIPMENT PADS AND HANGERS, AMONG OTHERS.
- IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN ITEMS INDICATED ON DRAWINGS AND SPECIFICATIONS WITH CODE REQUIREMENTS, THE MORE STRINGENT STANDARD SHALL PREVAIL.
- PROVIDE A SEPARATE THERMOSTAT FOR EACH OF THE CLASSROOM, IDF AND ELECTRICAL SPACES.
- PROVIDE A BMS TO MONITOR AND CONTROL ALL SCHEDULED MECHANICAL EQUIPMENT. PROVIDE THE REQUIRED SENSORS, ACTUATORS, CONTROLLERS, USER INTERFACES, AND POWER SUPPLY NECESSARY TO ALLOW FOR EQUIPMENT INTEGRATION, MONITORING, AND CONTROL.
- PROVIDE SINGLE THICKNESS VANES TO ALL MITERED 90-DEGREE ELBOW DUCTS.
- PROVIDE A MINIMUM OF 3FT OF FLEX DUCT CONNECTION TO LINEAR SLOT DIFFUSERS.
- SUPPLY AND RETURN DUCT WORK IN CLASSROOMS AND MAKER SPACE SHALL BE A MINIMUM THICKNESS OF 22 GAUGE.
- PROVIDE DIFFUSER CONNECTIONS PER DETAIL 1/M-501.
- PROVIDE INLINE FAN ANCHORAGE PER DETAIL 3/M-501.
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- REFER TO DETAIL 7/S-007 FOR DUCT SUPPORT TO ATTACH TO THE STRUCTURE.
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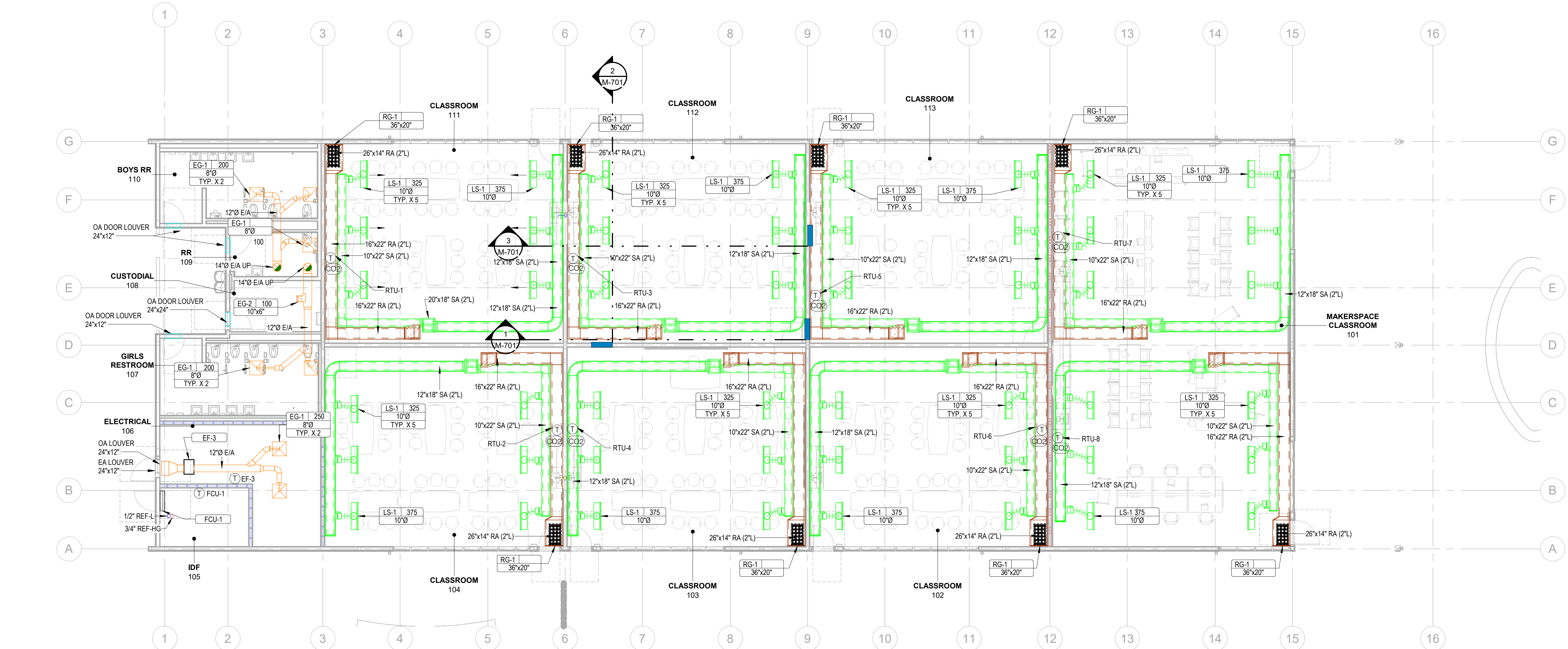


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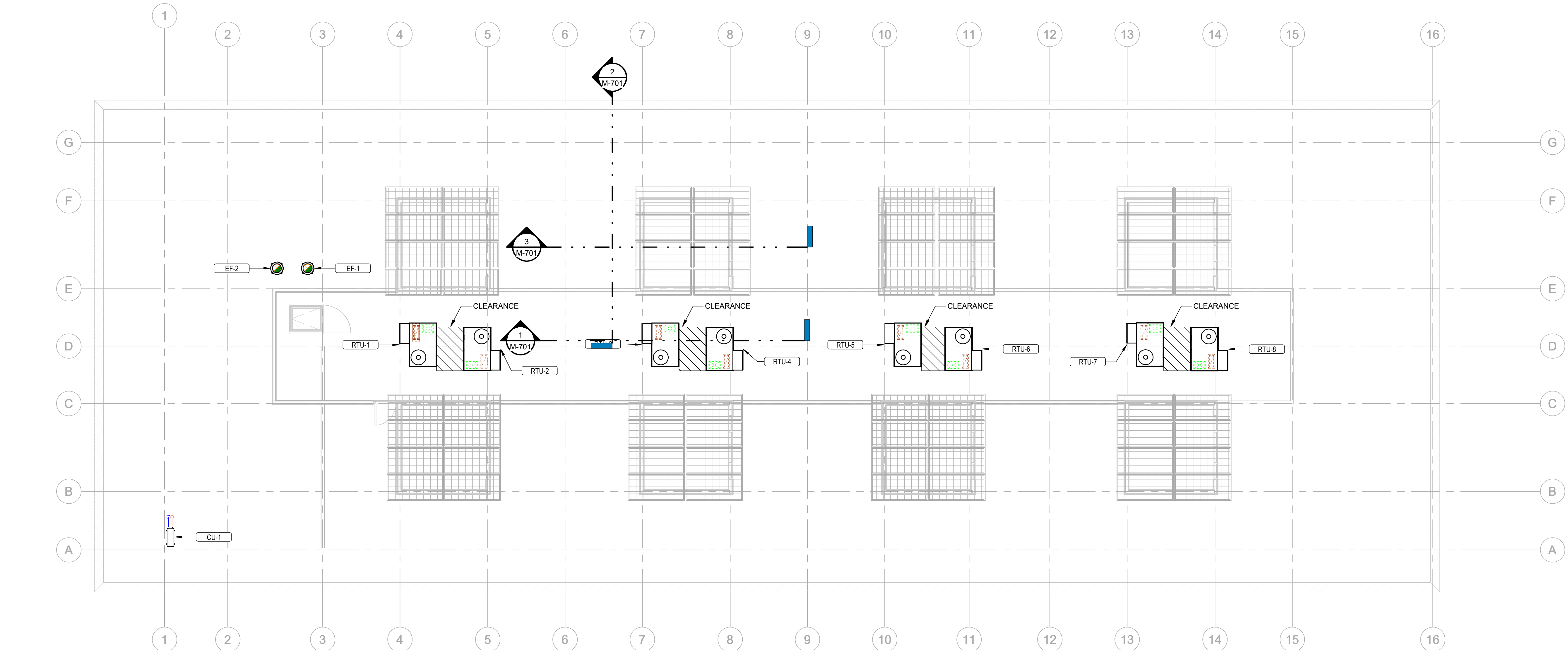
2023-IU002-002

Mechanical
Notes, Legends &
Abbreviations

M-001



LEVEL 1 HVAC PLAN
1/8" = 1'-0"



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

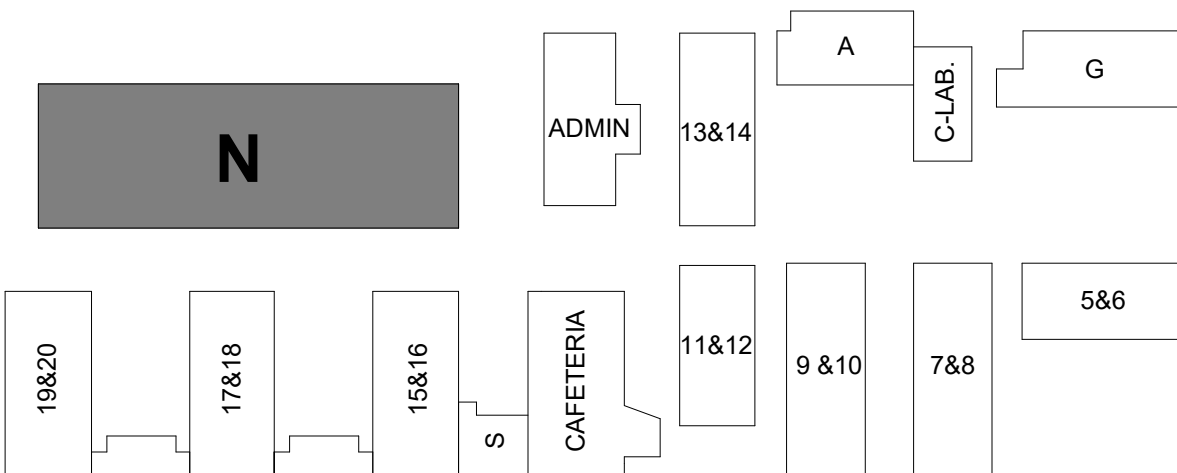
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KEY PLAN



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HED

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2023-IU002-002

Level 1 and Roof HVAC Plan

M-101



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P-8 Academy

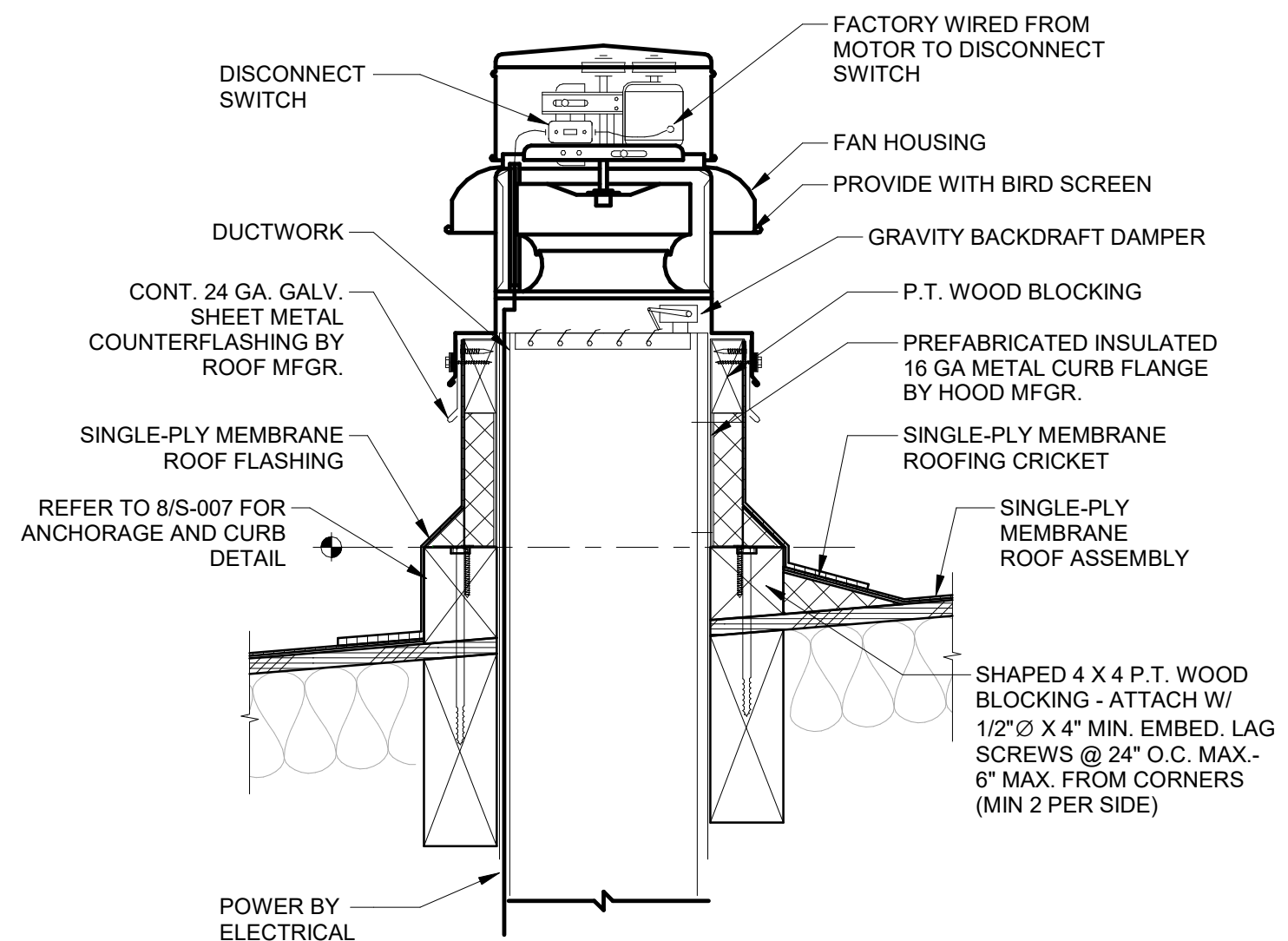
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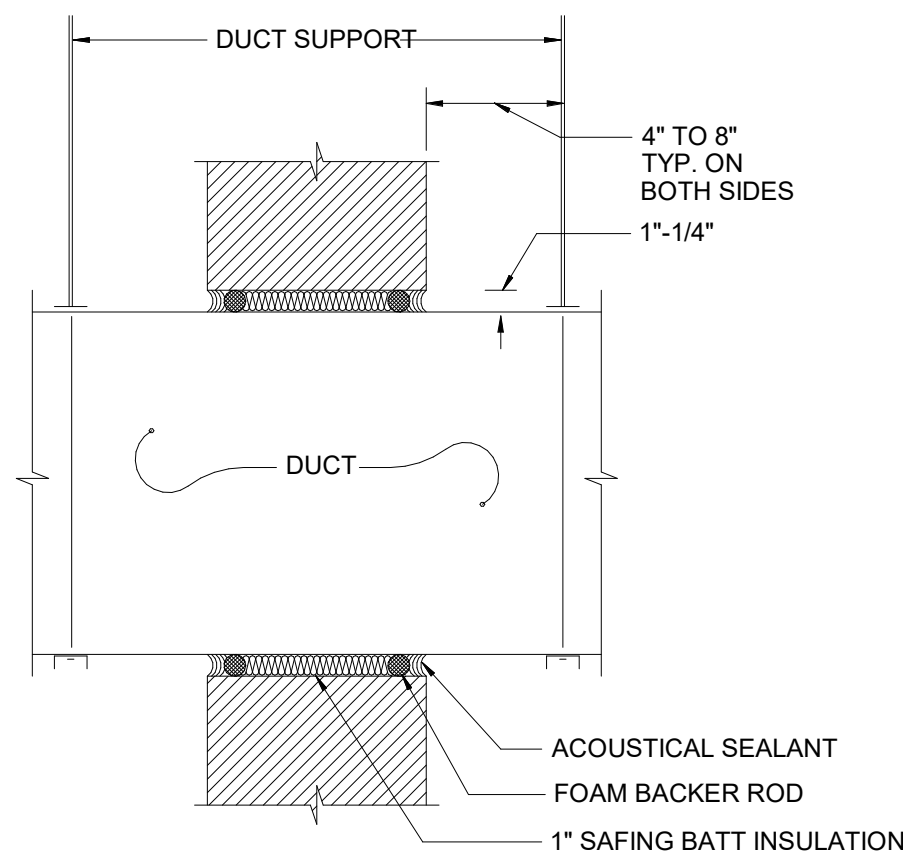
11 Roof Exhaust Fan - EF-1 & EF-2

NOT TO SCALE



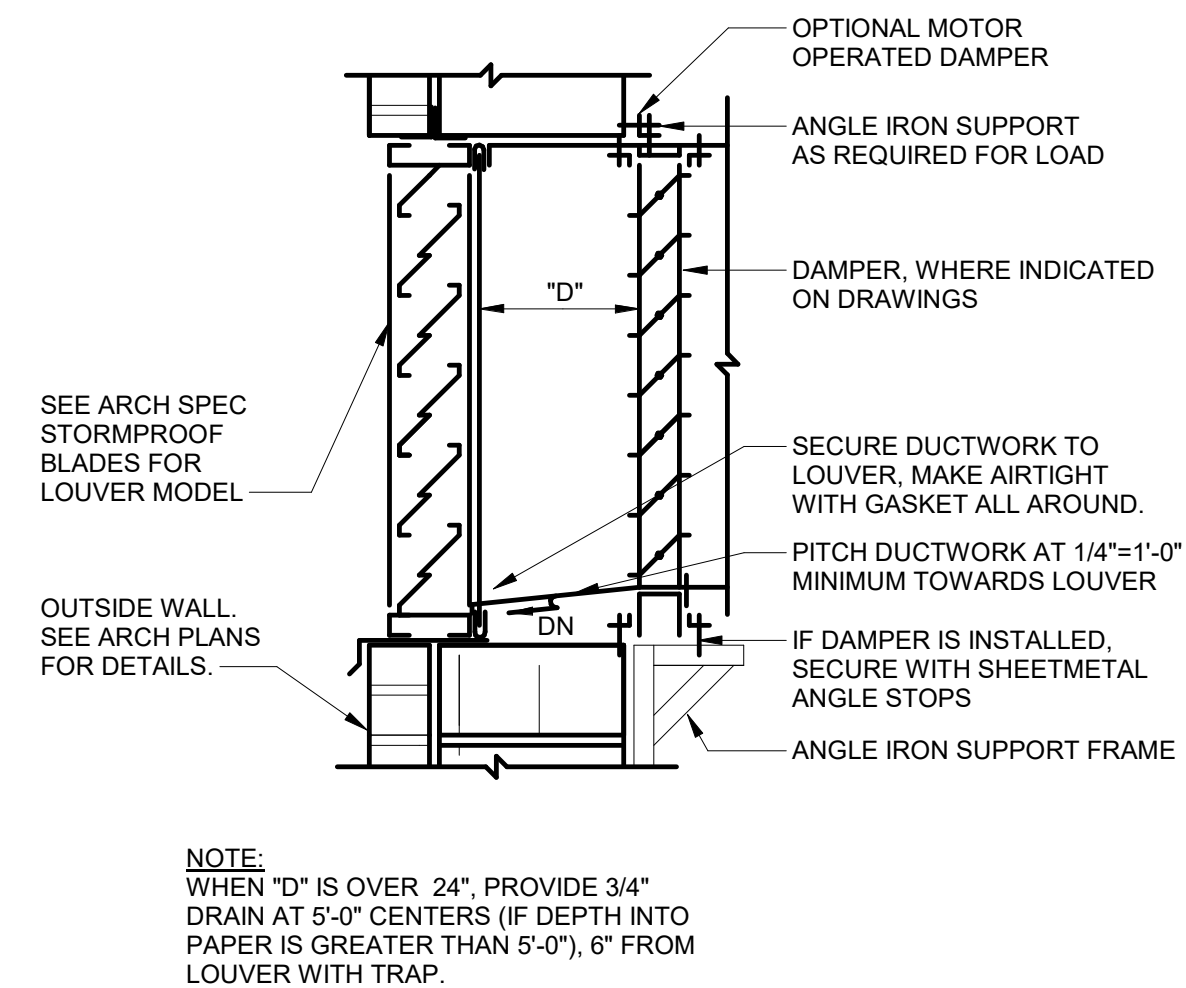
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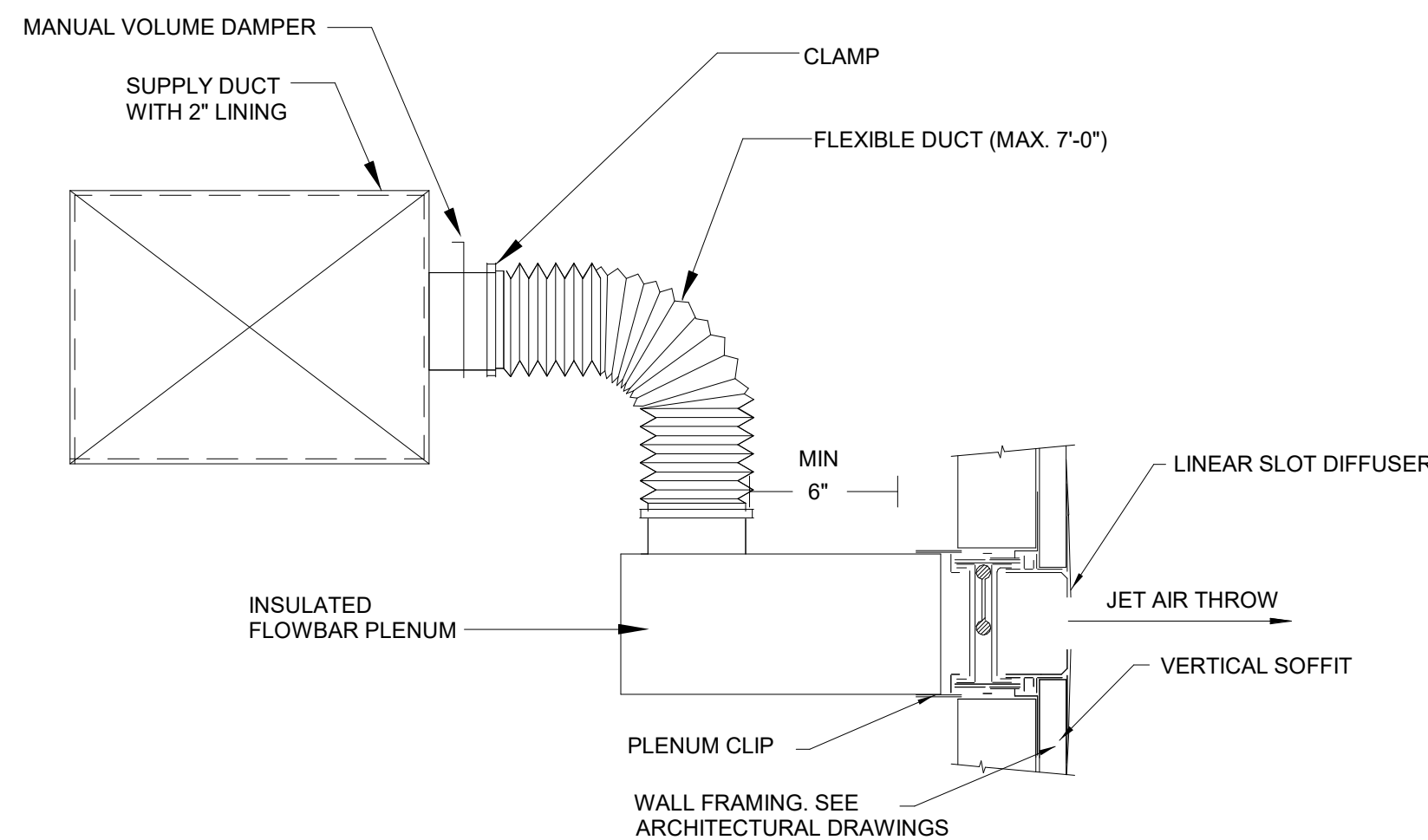
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NOT TO SCALE



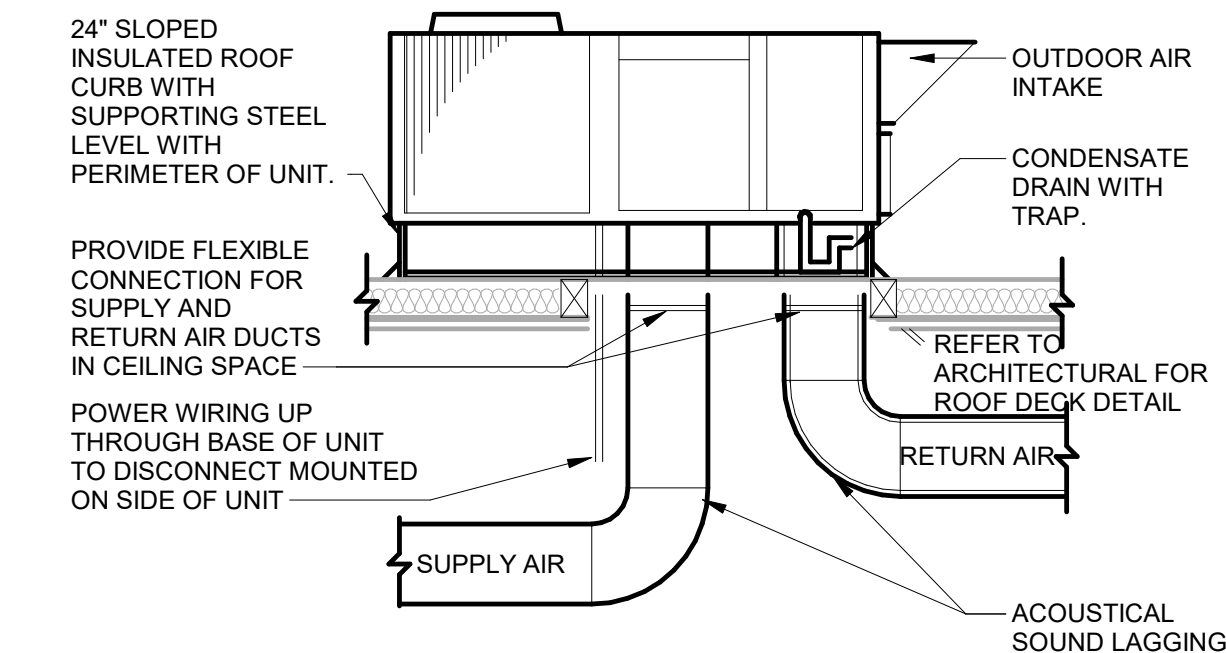
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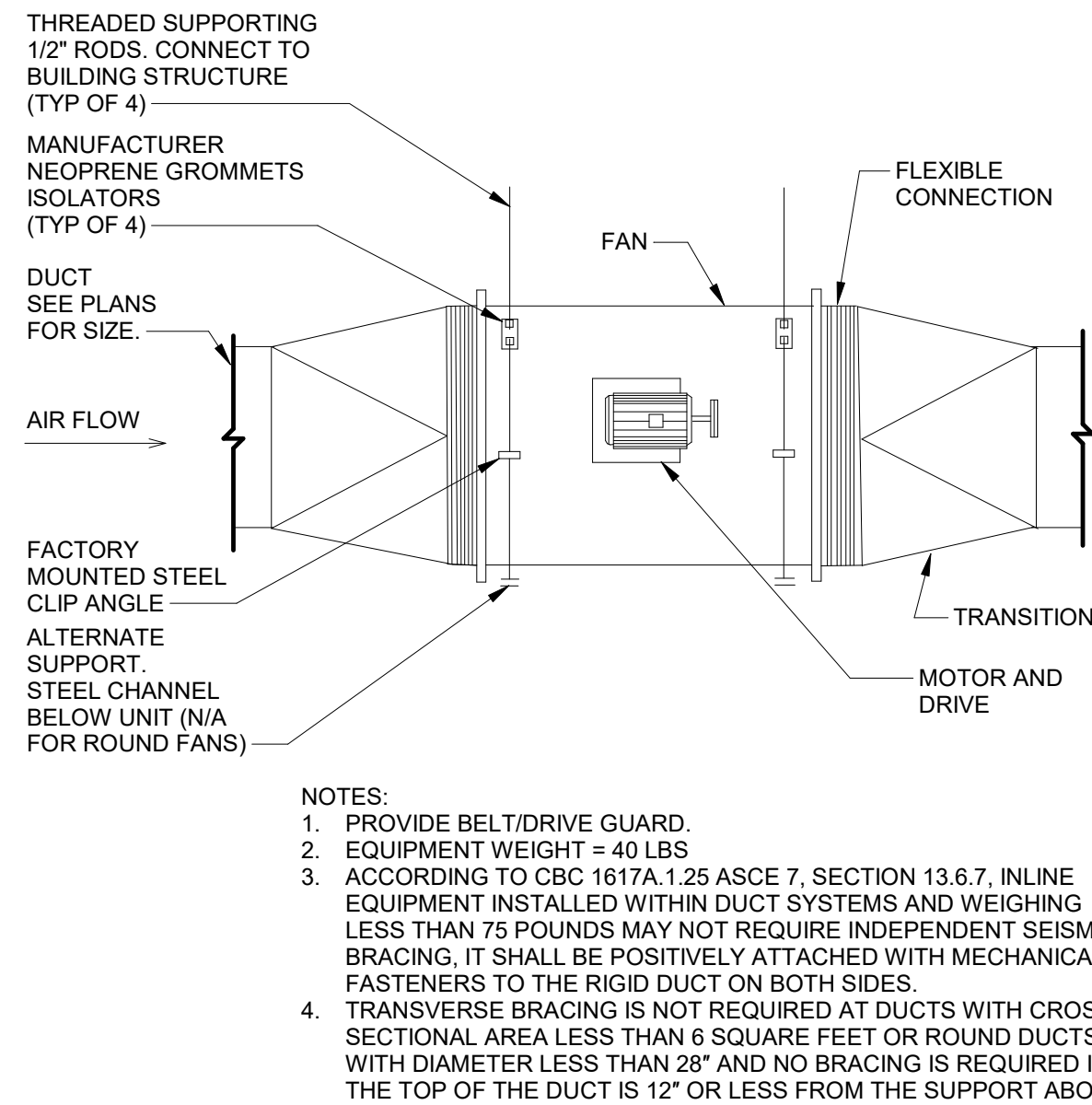
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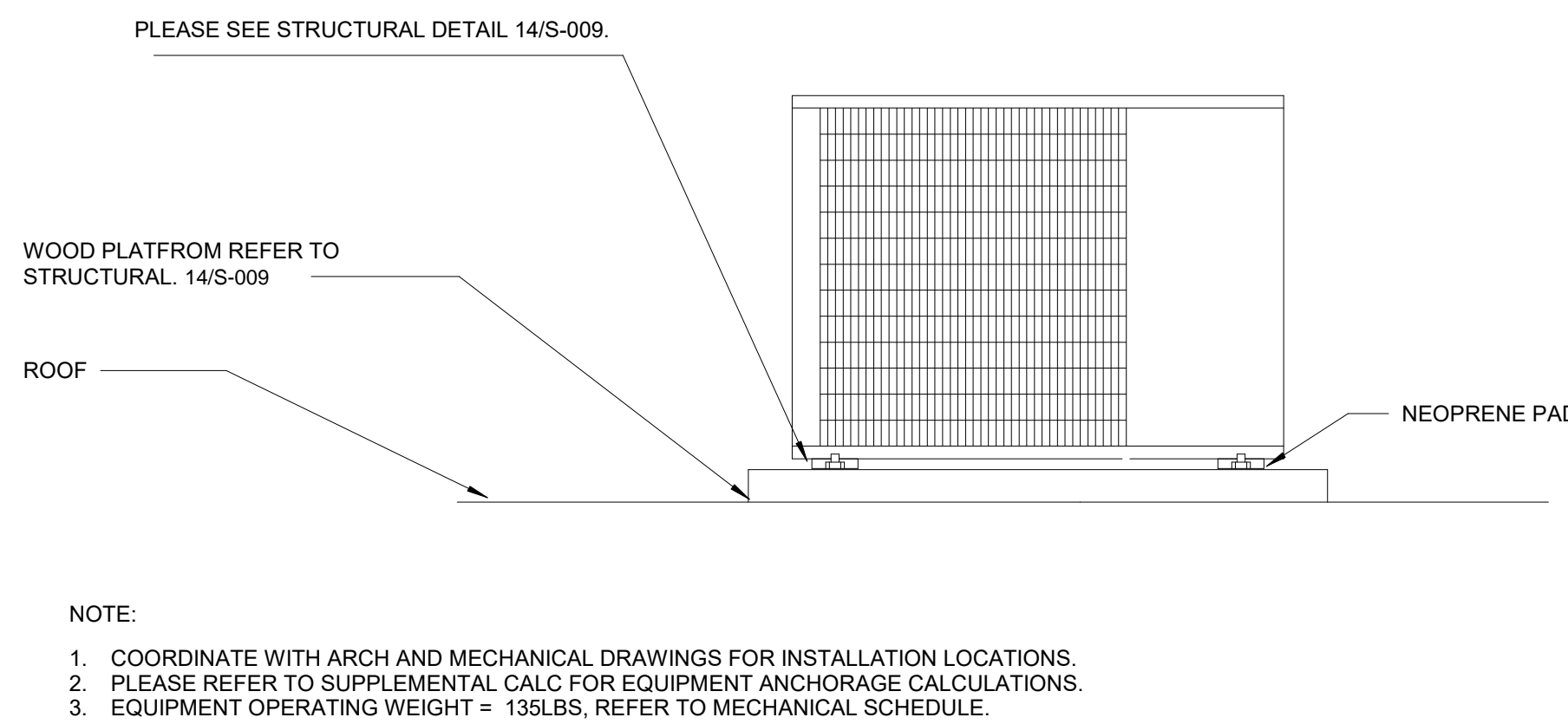
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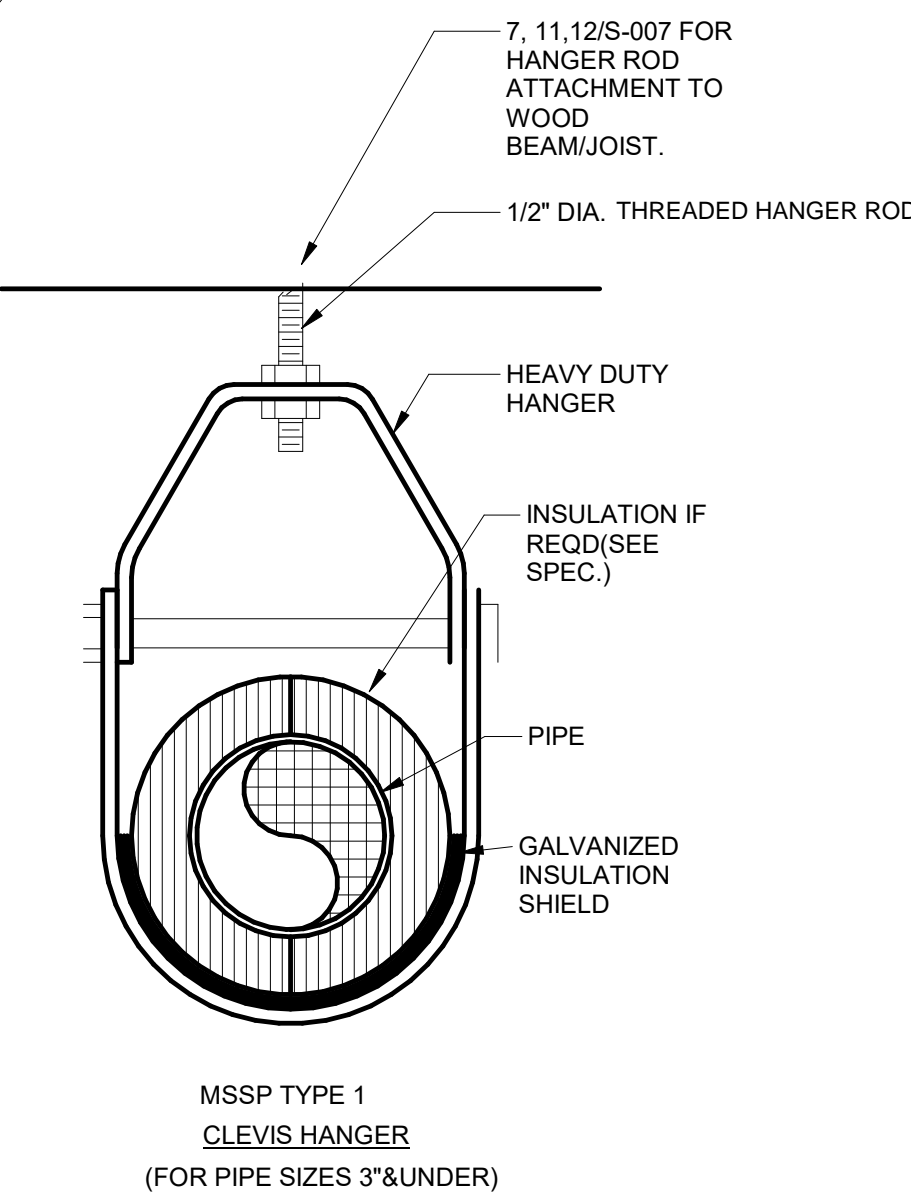
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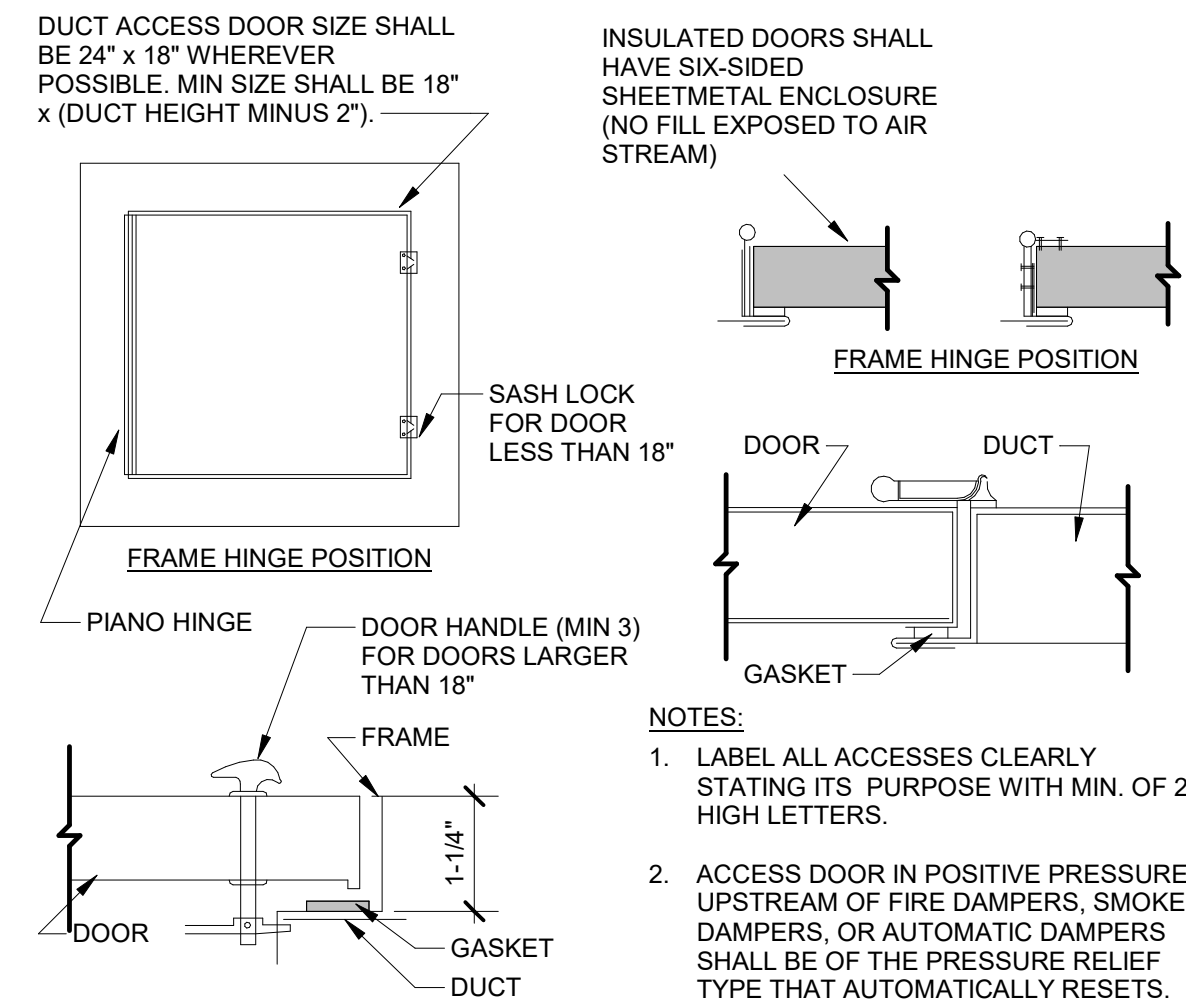
5 PIPE HANGER DETAILS

NTS



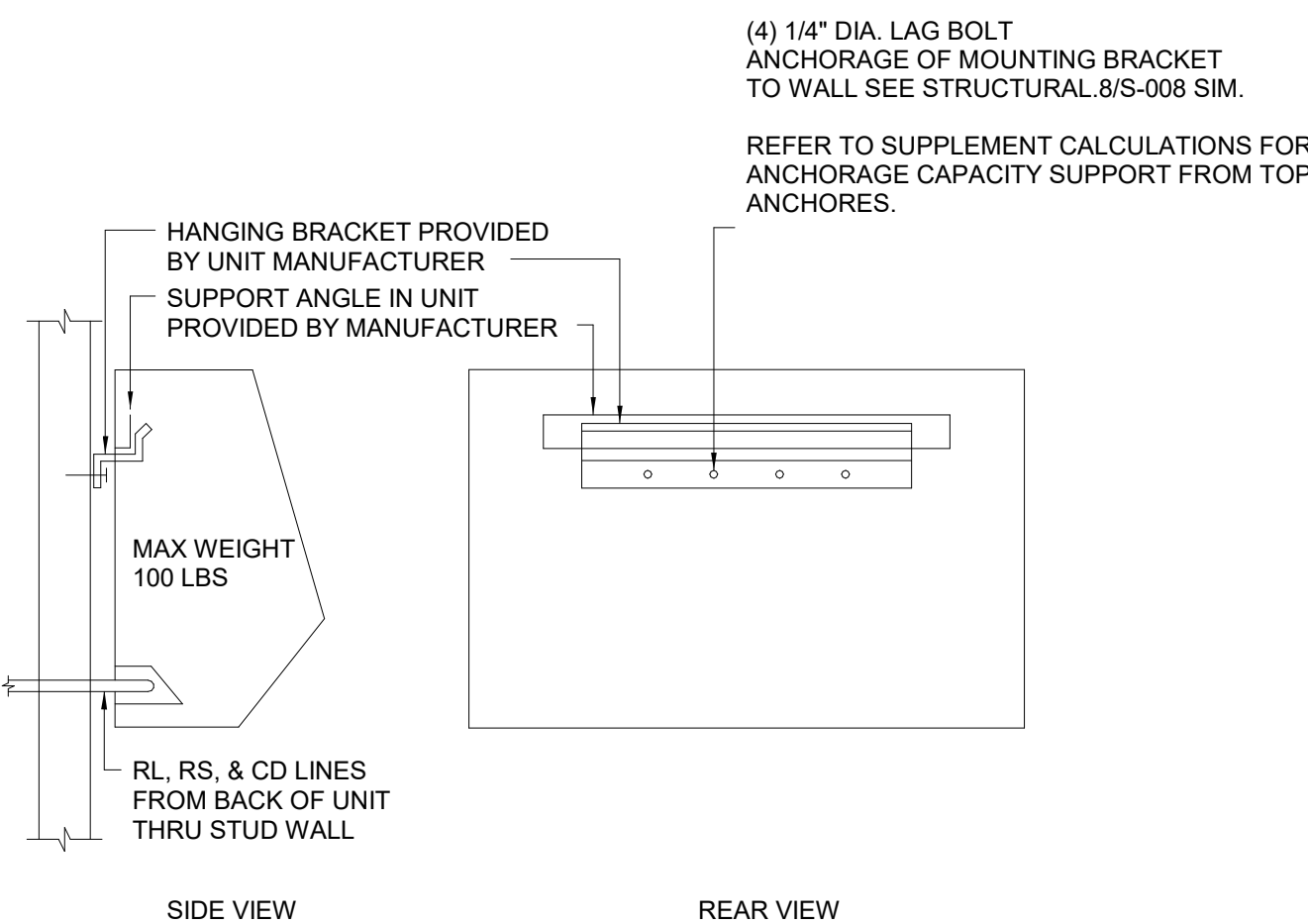
2 DUCT ACCESS DOORS & PRESSURE RELIEF DOORS

NOT TO SCALE



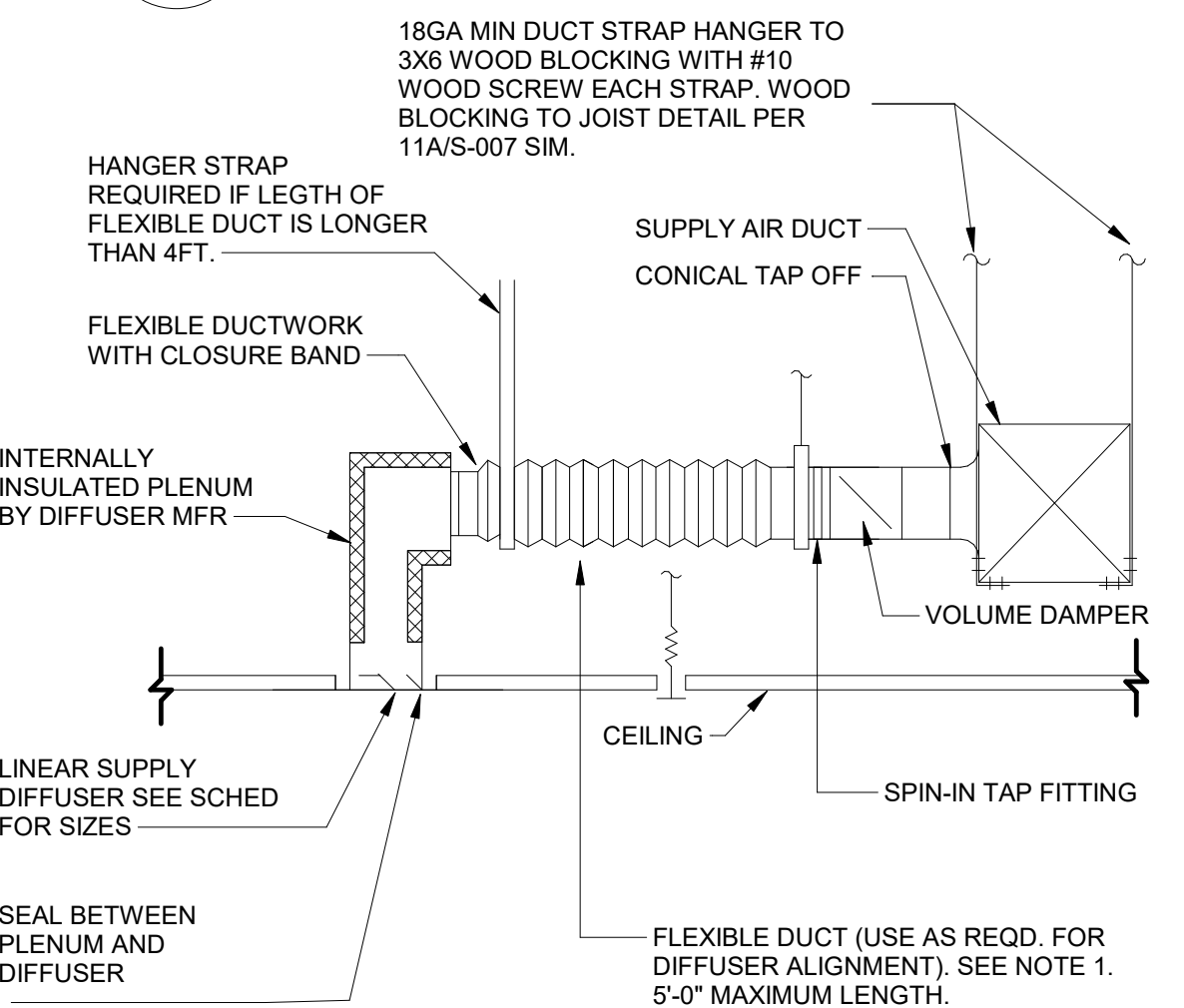
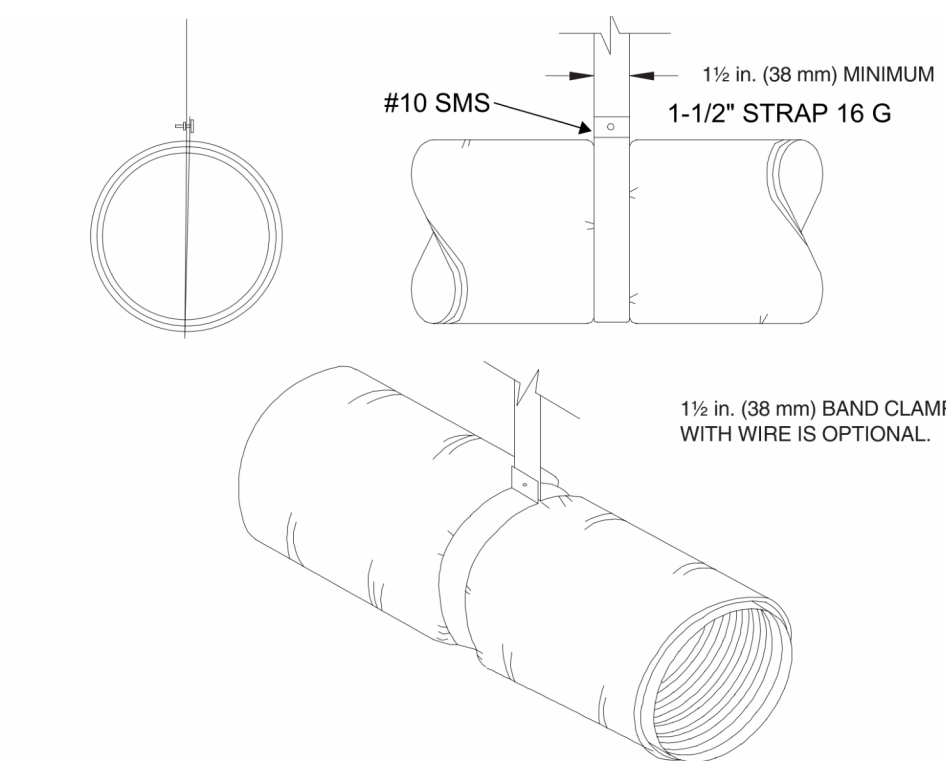
8 WALL MOUNTED FAN COIL UNIT DETAIL

NOT TO SCALE



1 TYPICAL DIFFUSER CONNECTIONS

NOT TO SCALE



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M-501

13 DUCT HANGERS DETAIL

NOT TO SCALE

TABLE 4-1 RECTANGULAR DUCT HANGERS MINIMUM SIZE								
MAXIMUM HALF OF DUCT PERIMETER	Pair at 10 ft Spacing		Pair at 8 ft Spacing		Pair at 5 ft Spacing		Pair at 4 ft Spacing	
	STRAP	WIRE/ ROD	STRAP	WIRE/ ROD	STRAP	WIRE/ ROD	STRAP	WIRE/ ROD
P/2 = 30"	1" x 22 ga.	10 ga (.135")	1" x 22 ga.	10 ga (.135")	1" x 22 ga.	12 ga (.106")	1" x 22 ga.	12 ga (.106")
P/2 = 72"	1" x 18 ga.	3/8"	1" x 20 ga.	1/4"	1" x 22 ga.	1/4"	1" x 22 ga.	1/4"
P/2 = 96"	1" x 16 ga.	3/8"	1" x 18 ga.	3/8"	1" x 20 ga.	3/8"	1" x 22 ga.	1/4"
P/2 = 120"	1 1/2" x 16 ga.	1/2"	1" x 16 ga.	3/8"	1" x 18 ga.	3/8"	1" x 20 ga.	1/4"
P/2 = 168"	1 1/2" x 16 ga.	1/2"	1 1/2" x 16 ga.	1/2"	1" x 16 ga.	3/8"	1" x 18 ga.	3/8"
P/2 = 192"	Not Given	1/2"	1 1/2" x 16 ga.	1/2"	1" x 16 ga.	3/8"	1" x 16 ga.	3/8"
P/2 = 193" up	SPECIAL ANALYSIS REQUIRED							
WHEN STRAPS ARE LAP JOINED USE THESE MINIMUM FASTENERS:								
			SINGLE HANGER MAXIMUM ALLOWABLE LOAD					
			STRAP		WIRE OR ROD (Dia.)			
1" x 16, 20, 22 ga. -two #10 or one 1/4" bolt			1" x 22 ga. -260 lbs.		0.106"- 80 lbs.			
1" x 16 ga. -two 1/4" dia			1" x 20 ga. -320 lbs.		0.135"- 120 lbs.			
1 1/2" x 16 ga. -two 3/8" dia			1" x 18 ga. -420 lbs.		0.162"- 160 lbs.			
Place fasteners in series, not side by side.			1" x 16 ga. -700 lbs.		1/4"- 270 lbs.			
			1 1/2" x 16 ga. -1100 lbs.		3/8"- 680 lbs.			
					1/2"- 1250 lbs.			
					5/8"- 2000 lbs.			
					3/4"- 3000 lbs.			

TABLE 4-2 MINIMUM HANGER SIZES FOR ROUND DUCT				
Dia.	Maximum Spacing	Wire Dia.	Rod	Strap
10" dn 250 mm dn	12' 3.7 m	One 12 ga. One 2.75 mm	1/4" 6.4 mm	1" x 22 ga. 25.4 x 0.85 mm
11-18"	12'	Two 12 ga. or One 8 ga. One 4.27 mm	1/4" 6.4 mm	1" x 22 ga.
460 mm	3.7 m	Two 10 ga. Two 3.51 mm	1/4" 6.4 mm	1" x 22 ga. 25.4 x 0.85 mm
19-24" 610 mm	12' 3.7 m	Two 8 ga. Two 2.7 mm	3/8" 9.5 mm	1" x 20 ga. 25.4 x 1.00 mm
25-36" 900 mm	12' 3.7 m			
37-50" 1270 mm	12' 3.7 m		Two 3/8" Two 9.5 mm	Two 1" x 20 ga. (2) 25.4 x 1.00 mm
51-60" 1520 mm	12' 3.7 m		Two 3/8" Two 9.5 mm	Two 1" x 18 ga. (2) 25.4 x 1.31 mm
61-84" 2130 mm	12' 3.7 m		Two 3/8" Two 9.5 mm	Two 1" x 16 ga. (2) 25.4 x 1.61 mm

ROOF TOP UNIT SCHEDULE																							
MARK	LOCATION	MANUFACTURER & MODEL	TYPE	AREA SERVED	MAXIMUM OUTDOOR AIR [CFM]	SUPPLY FAN							HEAT PUMP - COOLING					HEAT PUMP - HEATING					
						TYPE	TOTAL CFM	E.S.P. [IN. W.C.]	RPM OPER	MOTOR			TOTAL CAPACITY [MBH]	SENSIBLE CAPACITY [MBH]	AIRSIDE				TOTAL CAPACITY [MBH]	AIRSIDE			
										DESIGN BHP	HP	VOLTS/PH			EA DB/ WB [°F /°F]	LA DB/ WB [°F /°F]	AMBIENT DB/WB [°F /°F]	IEER		EA DB [°F]	LA DB [°F]	AMBIENT DB [°F]	COP2
RTU-1	ROOF	YORK WYE06A4C1AA5A111A1	HEAT PUMP	CLASSROOM 111	555	VANE AXIAL	2,000	1.25	1026	0.92	2.4	460/3	63.6	44.2	80.0 / 67.0	59.5 / 56.9	95 /	14.3 SEER2	56.00	60	86.10	47.0	3.7
RTU-2	ROOF	YORK WYE06A4C1AA5A111A1	HEAT PUMP	CLASSROOM 104	555	VANE AXIAL	2,000	1.25	1026	0.92	2.4	460/3	63.6	44.2	80.0 / 67.0	59.5 / 56.9	95 /	14.3 SEER2	56.00	60	86.10	47.0	3.7
RTU-3	ROOF	YORK WYE06A4C1AA5A111A1	HEAT PUMP	CLASSROOM 112	555	VANE AXIAL	2,000	1.25	1026	0.92	2.4	460/3	63.6	44.2	80.0 / 67.0	59.5 / 56.9	95 /	14.3 SEER2	56.00	60	86.10	47.0	3.7
RTU-4	ROOF	YORK WYE06A4C1AA5A111A1	HEAT PUMP	CLASSROOM 103	555	VANE AXIAL	2,000	1.25	1026	0.92	2.4	460/3	63.6	44.2	80.0 / 67.0	59.5 / 56.9	95 /	14.3 SEER2	56.00	60	86.10	47.0	3.7
RTU-5	ROOF	YORK WYE06A4C1AA5A111A1	HEAT PUMP	CLASSROOM 113	555	VANE AXIAL	2,000	1.25	1026	0.92	2.4	460/3	63.6	44.2	80.0 / 67.0	59.5 / 56.9	95 /	14.3 SEER2	56.00	60	86.10	47.0	3.7
RTU-6	ROOF	YORK WYE06A4C1AA5A111A1	HEAT PUMP	CLASSROOM 102	555	VANE AXIAL	2,000	1.25	1026	0.92	2.4	460/3	63.6	44.2	80.0 / 67.0	59.5 / 56.9	95 /	14.3 SEER2	56.00	60	86.10	47.0	3.7
RTU-7	ROOF	YORK WYE06A4C1AA5A111A1	HEAT PUMP	CLASSROOM 101	555	VANE AXIAL	2,000	1.25	1026	0.92	2.4	460/3	63.6	44.2	80.0 / 67.0	59.5 / 56.9	95 /	14.3 SEER2	56.00	60	86.10	47.0	3.7
RTU-8	ROOF	YORK WYE06A4C1AA5A111A1	HEAT PUMP	CLASSROOM 101	555	VANE AXIAL	2,000	1.25	1026	0.92	2.4	460/3	63.6	44.2	80.0 / 67.0	59.5 / 56.9	95 /	14.3 SEER2	56.00	60	86.10	47.0	3.7

ROOFTOP UNIT SCHEDULE - CONTINUED

MARK	FILER				POWER EXHAUST FAN				COMPRESSOR		ELECTRICAL							OPERATING WEIGHT [LBS]	INDOOR DESIGN CONDITIONS		REMARKS	EQUIPMENT ANCHORAGE DETAILS
	TYPE	EFFICIECNV	QTY	SIZE LxWxD [IN]	MAX AIRFLOW [CFM]	ESP [IN.WC]	HP	FLA	REFRIGERANT TYPE	LOW AMBIENT KIT	COMPR 1 [RLA]	COMPR 1 [LRA]	CONDENSOR FAN [FLA]	CONDENSOR FAN QTY	MCA [AMPS]	MOCF [AMPS]	V / PH / HZ		HEATING DB [°F]	COOLING DB [°F]		
RTU-1	PLEATED	MERV 13	4	16x16x2	2,000	0.20	1.0	1.6	R-454B	-	7.1	69	1.3	1	14.3	20	460 / 3 / 60	1,135	70	75	1 - 8	1/M-502 THRU 6/M-502
RTU-2	PLEATED	MERV 13	4	16x16x2	2,000	0.20	1.0	1.6	R-454B	-	7.1	69	1.3	1	14.3	20	460 / 3 / 60	1,135	70	75	1 - 8	1/M-502 THRU 6/M-502
RTU-3	PLEATED	MERV 13	4	16x16x2	2,000	0.20	1.0	1.6	R-454B	-	7.1	69	1.3	1	14.3	20	460 / 3 / 60	1,135	70	75	1 - 8	1/M-502 THRU 6/M-502
RTU-4	PLEATED	MERV 13	4	16x16x2	2,000	0.20	1.0	1.6	R-454B	-	7.1	69	1.3	1	14.3	20	460 / 3 / 60	1,135	70	75	1 - 8	1/M-502 THRU 6/M-502
RTU-5	PLEATED	MERV 13	4	16x16x2	2,000	0.20	1.0	1.6	R-454B	-	7.1	69	1.3	1	14.3	20	460 / 3 / 60	1,135	70	75	1 - 8	1/M-502 THRU 6/M-502
RTU-6	PLEATED	MERV 13	4	16x16x2	2,000	0.20	1.0	1.6	R-454B	-	7.1	69	1.3	1	14.3	20	460 / 3 / 60	1,135	70	75	1 - 8	1/M-502 THRU 6/M-502
RTU-7	PLEATED	MERV 13	4	16x16x2	2,000	0.20	1.0	1.6	R-454B	-	7.1	69	1.3	1	14.3	20	460 / 3 / 60	1,135	70	75	1 - 8	1/M-502 THRU 6/M-502
RTU-8	PLEATED	MERV 13	4	16x16x2	2,000	0.20	1.0	1.6	R-454B	-	7.1	69	1.3	1	14.3	20	460 / 3 / 60	1,135	70	75	1 - 8	1/M-502 THRU 6/M-502

- NOTES:
1. PROVIDE VIBRATION ISOLATION ROOF CURB WITH 2" DEFLECTION.
 2. COIL SHALL BE PROVIDED WITH E-COATING.
 3. EC MOTOR SUPPLY FAN.
 4. PROVIDE UNIT WITH TWO STAGE FAN SPEED CONTROL.
 5. INCLUDE PRO VENT PEDCPRDB46M MODULATING POWER EXHAUST WITH ECONOMIZER. PROVIDE WITH SEPARATE 460 VOLT / 3-PHASE POWER CONNECTION.
 6. ECONOMIZER MODULE WITH POWER EXHAUST.
 7. OPERATING WEIGHT INCLUDES THE UNIT, POWER EXHAUST KIT, AND CURB ADAPTOR WEIGHT.
 8. FACTORY CONTROLS AND CAPABLE TO CONNECT TO BMS.

CONDENSING UNIT

TAG	MANUFACTURER	MODEL	MODULES		SERVICE	AMBIENT TEMPERATURE (°F)		NOMINAL CAPACITY		EFFICIENCY				ELECTRICAL			PIPING...		REFRIGERANT QUANTITY (LB)			SOUND PRESSURE (DBA)	OPERATING WEIGHT (LB)	EQUIPMENT ANCHORAGE DETAIL
			NO.	TONS		SUMMER	WINTER	COOLING (BTUH)	HEATING (BTUH)	SCHE	SEER	IEER	COP	MCA	MOCF	V-Ø-HZ	LIQUID	GAS	TYPE	FACTORY FIELD	TOTAL			
CU-1	CARRIER	38MARBQ24A3	1	2	FCU-1	105.0	34.0	2	-		28.10			25.00	30.00	208-1-60	3/8	5/8	R-410A			64.0	135.0	9/M-501

- NOTES:
1. PROVIDE 1" DEFLECTION SPRING ISOLATORS.
 2. PROVIDE REFRIGERANT PIPING FROM OUTDOOR CONDENSING UNIT TO INDOOR FAN COIL UNIT.

FAN SCHEDULE

FAN SCHEDULE																							
TAG	MANUFACTURER	MODEL	SERVICE	AIRFLOW (CFM)	MAX. E.S.P. (IN. W.G.)	FAN		DRIVE	FAN RPM	STATIC EFF %	BACKDRAFT DAMPER	ELECTRICAL						SOUND		OPERATING WEIGHT (LB)	EQUIPMENT ANCHORAGE DETAIL		
						TYPE	ROTATION					MOTOR			FLA	MAC	MOCF	ENCL.	V-Ø-HZ			DBA	SONES
EF-1	GREENHECK	CUE-095-VG	WOMENTS TOILET	550	0.50	CENTRIFUGAL	CW	DIRECT	1,500	-	YES	0.10	1/6	1,725	2.30	3.00	15.00	TENV	115-1-60	55	7.6	70	11/M-501
EF-2	GREENHECK	CUE-095-VG	MENS TOILET	550	0.50	CENTRIFUGAL	CW	DIRECT	1,500	-	YES	0.10	1/6	1,725	2.30	3.00	15.00	TENV	115-1-60	55	7.6	70	11/M-501
EF-3	GREENHECK	CSP-A700-VG	ELECTRICAL ROOM	500	0.50	CENTRIFUGAL	CW	DIRECT	1,150	-	YES	98 Watts	-	1,150	-	-	-	TENV	115-1-60	-	1.1	40	3/M-501

- NOTES:
1. PROVIDE SEPARATE DISCONNECT FOR EACH EXHAUST FAN.
 2. PROVIDE BACKDRAFT DAMPER AND ROOF CURB.
 3. EC MOTOR WITH 0-10 VCD CONTROL.

FAN COIL UNIT

TAG	MANUFACTURER	MODEL	UNIT STYLE	AREA SERVED	AIRFLOW (CFM)	NOMINAL CAPACITY	ELECTRICAL			PIPING CONNECTIONS				SOUND PRESSURE (DBA)	OPERATING WEIGHT (LB)	EQUIPMENT ANCHORAGE DETAIL
					SUPPLY	COOLING (BTUH)	FLA	MCA	MOCF	V-Ø-HZ	LIQUID	SUCTION	DRAIN			
FCU-1	CARRIER	40MAHBQ24XA3	WALL MOUNTED	IDF ROOM		24	-	0.63	-	208-1-60	3/8	5/8	5/8	37	45	8/M-501

- NOTES:
1. PROVIDE SEPARATE DISCONNECT FOR INDOOR FAN COIL UNIT.
 2. FAN COIL UNIT POWERED BY OUTDOOR UNIT.
 3. PROVIDE FAN COIL WITH CONDENSATE OVERFLOW SWITCH FOR UNIT SHUT OFF. SWITCH TO BE PROVIDED BY FAN COIL SUPPLIER AND INSTALLED BY THE CONTRACTOR.
 4. PROVIDE CONDENSATE PIUMP WITH UNIT.

GRILLES, DIFFUSERS, AND REGISTERS

TAG	MANUFACTURER	MODEL	TYPE	USE	MOUNTING	PANEL SIZE	NECK SIZE	FINISH	PATTERN
LS-1	TITUS	FL-15	LINEAR SLOT DIFFUSER 4FT WITH INSULATED PLENUM	SUPPLY	SURFACE MOUNT	SEE FLOOR PLAN	SEE FLOOR PLAN	MATCH ARCHITECTURAL FINISH	JET THROW
RG-1	TITUS	350RL	35 DEGREE DEFLECTION BLADES	RETURN	SURFACE MOUNT	SEE FLOOR PLAN	SEE FLOOR PLAN	MATCH ARCHITECTURAL FINISH	-
EG-1	TITUS	PAR	PERFORATED	EXHAUST	SURFACE MOUNT	SEE FLOOR PLAN	SEE FLOOR PLAN	MATCH ARCHITECTURAL FINISH	-
EG-2	TITUS	350RL	LOUVERED	EXHAUST	SURFACE MOUNT	SEE FLOOR PLAN	SEE FLOOR PLAN	MATCH ARCHITECTURAL FINISH	-



Inglewood Unified School District

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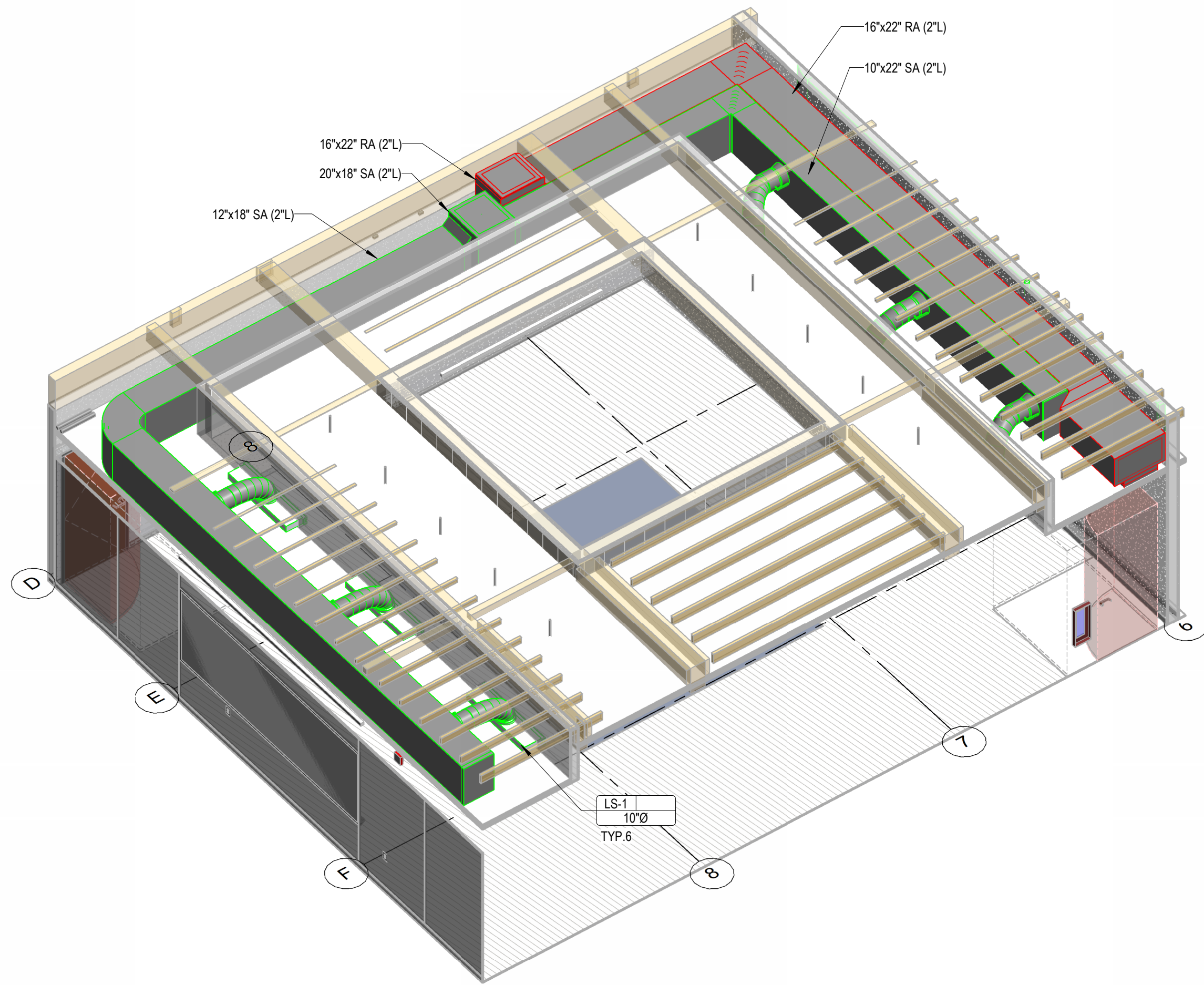


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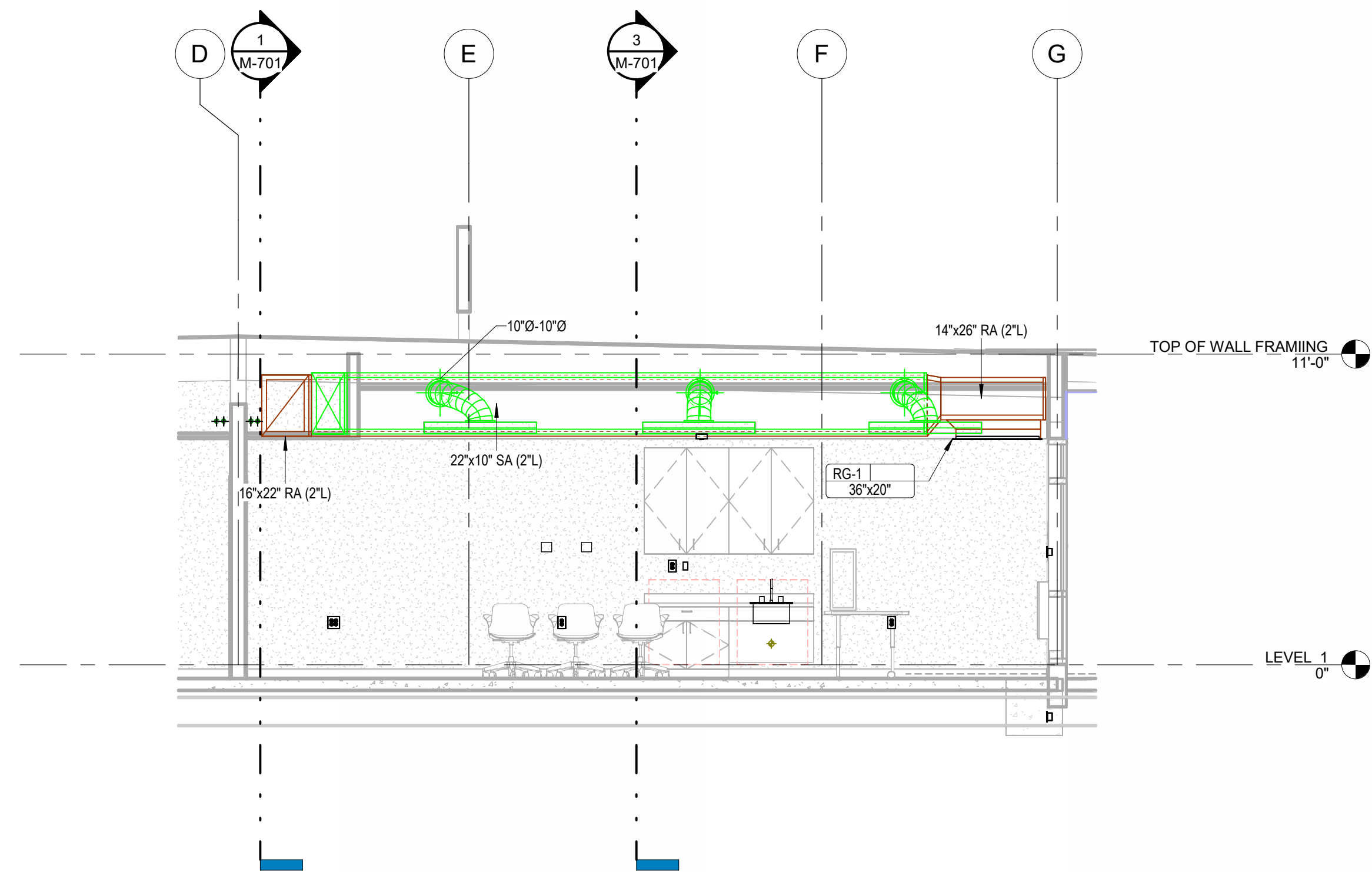
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Mechanical Schedules

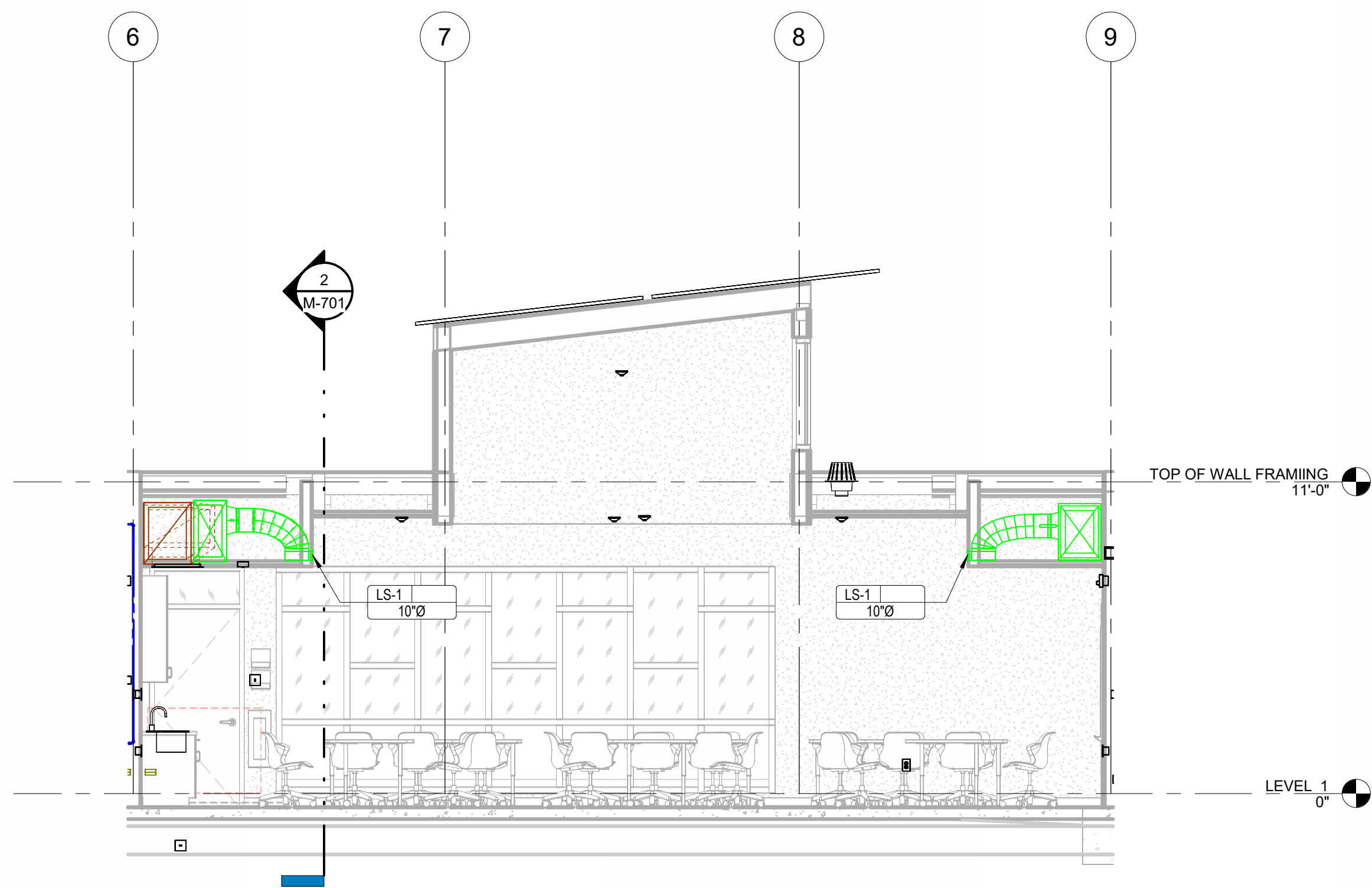
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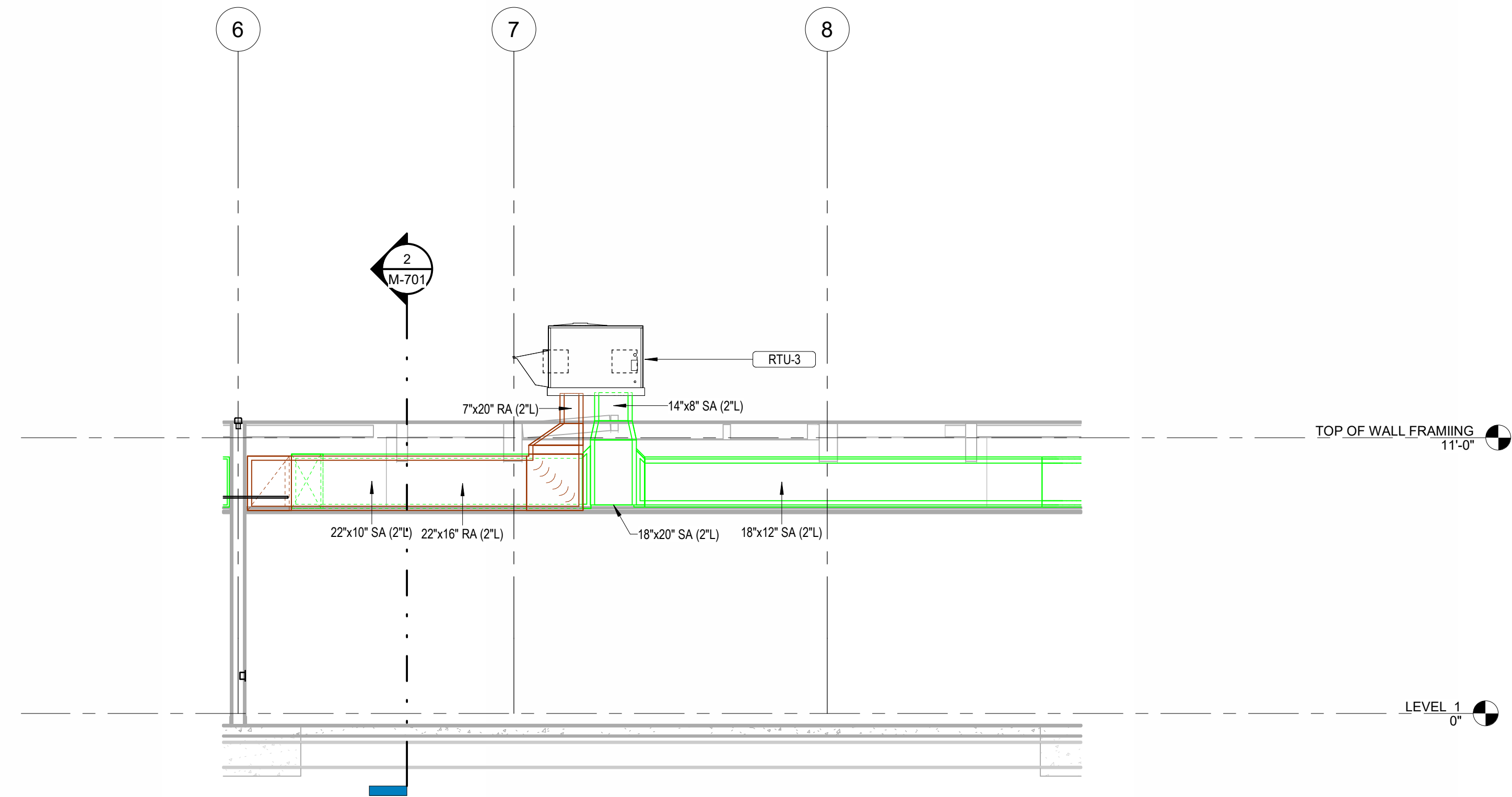
4 RTU 3D VIEW



2 CLASSROOM 112 SECTION VIEW
1/4" = 1'-0"



3 RTU SECTION VIEW - 3
1/4" = 1'-0"



1 RTU SECTION VIEW - 1
1/4" = 1'-0"



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Mechanical
Sections & 3D
View

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