

HVAC LEGENDS	
SYMBOL	DESCRIPTION
	RECTANGULAR AIR DUCT - FIRST DIMENSION IS SIDE SHOWN
	ROUND DUCT (A" x B") OR FLAT OVAL (AxB)
	LINED DUCTWORK, DIMENSIONS ARE OUTER METAL TO OUTER METAL
	AIR DUCT FLEXIBLE CONNECTOR
	DUCTWORK TO BE REMOVED
	SUPPLY OR OUTSIDE AIR RECTANGULAR DUCT RISE OR DROP
	RETURN AIR RECTANGULAR DUCT RISE OR DROP
	EXHAUST AIR RECTANGULAR DUCT RISE OR DROP
	FIRE DAMPER (FD)
	SMOKE DAMPER (SD)
	COMBINATION FIRE/SMOKE DAMPER (FSD)
	MOTOR OPERATED DAMPER (SAME SIZE AS DUCT UNLESS OTHERWISE NOTED) (MOD)
	MANUAL VOLUME DAMPER (MD)
	SMOKE DETECTOR (SDT)
	BACKDRAFT DAMPER (BDD)
	AIR FLOW SENSOR (AFS)
	SQUARE ELBOW WITH TURNING VANES
	DUCT TRANSITION, RECTANGULAR TO ROUND OR OVAL
	DUCT TRANSITION, RECTANGULAR TO RECTANGULAR
	FLEX DUCT AT DIFFUSER
	ECCENTRIC REDUCER FLAT SIDE ON CONCENTRIC REDUCER BOTTOM OR FLAT SIDE ON TOP
	HUMIDITY SENSOR
	TEMPERATURE SENSOR
	STATIC PRESSURE SENSOR
	SMOKE DETECTOR

ABBREVIATIONS	
AFF	ABOVE FINISHED FLOOR
BD	BALANCING DAMPER
CAP	CAPACITY
CD	CEILING DIFFUSER
CENT	CENTRIFICAL
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
COND	CONDENSING
COP	COEFFICIENT OF PERFORMANCE
CU	CONDENSING UNIT
D	DRAIN
DB	DRY BULB
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EFF	EFFICIENCY
ESP	EXTERNAL STATIC PRESSURE
EXH	EXHAUST
F	FAHRENHEIT
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FT	FEET
G	GAS
GFU	GAS FIRED UNIT
H	HOOD
HC	HEATING CAPACITY
HP	HEAT PUMP
HP	HORSEPOWER
HT	HEIGHT
IH	INFRARED HEATER
KW	KILOWATT
L	LENGTH
MAX	MAXIMUM
MBH	THOUSAND BTUH
MIN	MINIMUM
MOD	MOTOR OPERATED DAMPER
OA	OUTSIDE AIR
RA	RETURN AIR
RAR	RETURN AIR REGISTER
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SAR	SUPPLY AIR REGISTER
SC	SENSIBLE CAPACITY
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SP	STATIC PRESSURE
SYS	SYSTEM
T	THERMOSTAT
TC	TOTAL CAPACITY
TEMP	TEMPERATURE
TYP	Typical
UNO	UNLESS NOTED OTHERWISE
UH	UNIT HEATER
V	VOLTS
W	WIDTH
WB	WET BULB
WC	WATER COLUMN

DESIGN CONDITIONS

SITE LOCATION
ATLANTA, GA 30303
33.77 LAT, 84.39 LONG
971 FEET ELEVATION
ASHRAE 9.1-2010 CLIMATE ZONE 3A

DESIGN CONDITIONS
16.3° EXTREME WINTER MEAN DESIGN DRY BULB (ASHRAE 5%)
93.3° DRY BULB AND 73.7° MEAN COINCIDENT WET BULB SUMMER DESIGN

70°F WINTER INDOOR DESIGN DRY BULB (HEATING)
75°F DRY BULB AND 60% RH INDOOR DESIGN MAXIMUM (COOLING)

78°F DRY BULB FOR TOILET AND EVS ROOMS
80°F DRY BULB FOR COMMUNICATION ROOMS
65°F DRY BULB (HEATING ONLY) FOR ELECTRIC AND WATER ROOMS.

CALCULATIONS BASED ON ASHRAE DESIGN CRITERIA AND CALCULATION METHODOLOGY.

CODE COMPLIANCE

THESE ENGINEERING DOCUMENTS AND THE RESULTING INSTALLATION OF THE DEPICTED HVAC SYSTEMS FOR THIS PROJECT ARE INTENDED TO CONFORM TO THE FOLLOWING CODES AND STANDARDS:

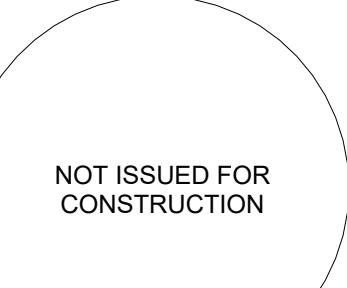
- INTERNATIONAL BUILDING CODE (2024), WITH GA AMENDMENTS
- INTERNATIONAL MECHANICAL CODE (2024), WITH GA AMENDMENTS
- INTERNATIONAL PLUMBING CODE (2024)
- 2022 FIGI GUIDELINES OF HOSPITALS AND OUTPATIENT FACILITIES
- 2023 ASHRAE 170 - VENTILATION FOR HEALTHCARE FACILITIES
- ASHRAE 2024 FUNDAMENTALS HANDBOOK
- ASHRAE STANDARD 90.1 - 2013 ENERGY STANDARD FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS
- NFPA 90A - STANDARD FOR AIR CONDITIONING AND VENTILATION SYSTEMS
- NFPA 101 - LIFE SAFETY CODE
- SMOKE ALARM CONSTRUCTION STANDARDS - METAL AND FLEXIBLE
- UL 181 2005 FACTORY MADE AIR DUCTS AND AIR CONNECTORS
- STANDARDS FOR ACCA TEST AND BALANCE

MECHANICAL GENERAL NOTES

- IN GENERAL, PLANS AND DIAGRAMS ARE SCHEMATIC ONLY AND SHOULD NOT BE SCALED. INTENT OF THESE NOTES AND MECHANICAL NOTES ON DRAWINGS IS TO CLARIFY THE SCOPE OF WORK AND ALERT CONTRACTOR TO EXISTING CONDITIONS CONCERNING THE SITE AND VENUE. CONTRACTOR IS RESPONSIBLE FOR FABRICATION OF DUCTWORK AND PROVIDE ADDITIONAL OFFSET DIMENSIONS IN DUCT SIZES TO MEET FIELD CONDITIONS AND COORDINATE WITH ELECTRICAL PLUMBING AND FIRE PROTECTION SUBCONTRACTOR BEFORE ANY WORK IS PERFORMED.
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL TRADES INSTALLATION SCHEDULES. FIXED WORK SUCH AS DUCTWORK AND PLUMBING SHALL BE INSTALLED PRIOR TO ANY TRADE WORK THAT CAN BE EASILY RELOCATED OR OFFSET SUCH AS ELECTRICAL CONDUITS, SMALL WATER LINES ETC.
- UNLESS OTHERWISE NOTED, INSTALL DUCTWORK AS HIGH AS POSSIBLE, TIGHT TO BOTTOM OF STRUCTURE.
- COORDINATE DUCT ELEVATION WITH WATER PIPING, SANITARY DRAINS AND MAJOR ELECTRICAL CONDUITS.
- COORDINATE ELEVATION WITH LIGHTING FIXTURES, SPEAKERS AND FIRE SPRINKLER HEADS (WHERE APPLICABLE).
- ALL MECHANICAL WORK SHALL MEET ALL THE REQUIREMENTS OF, BUT NOT LIMITED TO THE 2024 INTERNATIONAL MECHANICAL CODE WITH GEORGIA AMENDMENTS.
- DUCTWORK AND DRAINS ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS. INTERNAL INSULATION (WHERE USED) HAS NOT BEEN ACCOUNTED FOR.
- DUCTWORK, DIFFUSERS, REGISTERS, GRILLES, AND OTHER ITEMS OF THE AIR HANDLING SYSTEM SHALL NOT BE SUPPORTED BY THE CEILING OR CEILING SUSPENSION SYSTEM.
- ALL VENTILATION, AIR DISTRIBUTION, AND TEMPERATURE CONTROL SENSORS SHALL BE INSTALLED AT AN ELEVATION OF 48" ABOVE FINISHED FLOOR TO THE TOP UNLESS OTHERWISE NOTED ON DRAWINGS. LOCATION OF THE WALL MOUNTED THERMOSTAT SHALL BE SUBJECT TO THE APPROVAL OF THE TENANT OWNER OR THEIR REPRESENTATIVE IN THE FIELD.
- ALL FIRE AND SMOKE DIFFUSERS SHALL BE 4-WAY THROW UNLESS OTHERWISE NOTED.
- COORDINATE AIR DEVICE LOCATIONS WITH LIGHTING FIXTURES, SPEAKERS AND FIRE SPRINKLER HEADS (WHERE APPLICABLE).
- CONTRACTOR SHALL VERIFY THAT THE LOCATION OF CEILING MOUNTED DIFFUSERS, GRILLES, AND REGISTERS SHOWN ON THE DRAWINGS IS CLEAR OF ALL OTHER CONSTRUCTION.
- ALL NEW DUCTWORK SHALL BE 16 GA. CONSTRUCTION CONSTRUCTED OF LOCK FORMING GALVANIZED STEEL IN ACCORDANCE WITH THE "DUCT MANUAL AND SHEET METAL CONSTRUCTION FOR VENTILATING AND AIR CONDITIONING SYSTEMS," THIRD EDITION, 2005, PUBLISHED BY THE "SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION." DUCTWORK SHALL BE TURNED IN A 90 DEGREE TURN WITH A 120 DEGREE BEND RADIUS OR OTHER CONNECTIONS TO TURNING VANES. DUCTWORK SHALL BE HUNG AS HIGH AS POSSIBLE FROM THE BUILDING STRUCTURE WITH HANGER ASSEMBLIES IN ACCORDANCE WITH "SMACNA" REQUIREMENTS. PROVIDE ADDITIONAL RIGGING POINTS FOR DUCTWORK AS NEEDED. USE DUCT GRIP (DUCT GRIP) OR DUCT GRIP (NO SUBSTITUTIONS) ALL DUCT FLEXIBILITY OF PRESSURE CLASS SHALL BE SEALED PER SMACNA CLASS "A".
- NEW DUCTWORK SHALL BE EXTERNALLY INSULATED WITH 1-1/2" THICK FIBERGLASS FLEXIBLE BLANKET INSULATION (RATED FIRE-25, SMOKE-50) SECURED TO THE DUCTWORK WITH BENJAMIN FOSTER 9520 ADHESIVE & PUSH PIN (RATED FIRE-25, SMOKE-50) SECURED TO THE DUCTWORK. INSULATION SHALL BE INSULATED (1-1/2 INCH, 0.6 LB. FIBERGLASS, FIRE-25, SMOKE-50) ATCO UPC #053 OR EQUAL. FLEXIBLE DUCTWORK SHALL COMPLY WI/NFPA 90A, AND NFPA 90B. ALL FLEXIBLE DUCTWORK CONNECTED TO DIFFUSERS SHALL NOT BE LESS THAN THE NECK SIZE OF THE DIFFUSER. DUCTWORK SHALL BE TURNED OTHERWISE ON DRAWS. MAXIMUM FLEXIBLE DUCT BEND RADIUS OF CURVATURE SHALL BE 3 DUCT DIAMETERS. MAXIMUM BEND SHALL BE 4-0" NO MORE THAN THE EQUIVALENT OF TWO (2) 90 DEGREE BENDS WILL BE ACCEPTABLE. TAKE OFF FITTINGS TO BE EQUAL TO FLEXMASTER TYPE BEND USE 45° THROAT AT PLENUM TAKE OFFS.
- FLEXIBLE DUCT RIGGING POINTS SHALL BE SECURED TO THE DUCTWORK WITH 1-1/2" THICK FIBERGLASS FLEXIBLE BLANKET INSULATION (RATED FIRE-25, SMOKE-50) SECURED TO THE DUCTWORK. INSULATION SHALL BE INSULATED (1-1/2 INCH, 0.6 LB. FIBERGLASS, FIRE-25, SMOKE-50) ATCO UPC #053 OR EQUAL. FLEXIBLE DUCTWORK SHALL COMPLY WI/NFPA 90A, AND NFPA 90B. ALL FLEXIBLE DUCTWORK CONNECTED TO DIFFUSERS SHALL NOT BE LESS THAN THE NECK SIZE OF THE DIFFUSER. DUCTWORK SHALL BE TURNED OTHERWISE ON DRAWS. MAXIMUM FLEXIBLE DUCT BEND RADIUS OF CURVATURE SHALL BE 3 DUCT DIAMETERS. MAXIMUM BEND SHALL BE 4-0" NO MORE THAN THE EQUIVALENT OF TWO (2) 90 DEGREE BENDS WILL BE ACCEPTABLE. TAKE OFF FITTINGS TO BE EQUAL TO FLEXMASTER TYPE BEND USE 45° THROAT AT PLENUM TAKE OFFS.
- ALL FLEXIBLE DUCTWORK SHALL BE TURNED IN A 90 DEGREE TURN WITH A 120 DEGREE BEND RADIUS OR OTHER CONNECTIONS TO TURNING VANES. DUCTWORK SHALL BE HUNG AS HIGH AS POSSIBLE FROM THE BUILDING STRUCTURE WITH HANGER ASSEMBLIES IN ACCORDANCE WITH "SMACNA" REQUIREMENTS. PROVIDE ADDITIONAL RIGGING POINTS FOR DUCTWORK AS NEEDED. USE DUCT GRIP (DUCT GRIP) OR DUCT GRIP (NO SUBSTITUTIONS) ALL DUCT FLEXIBILITY OF PRESSURE CLASS SHALL BE SEALED PER SMACNA CLASS "A".
- ALL EXHAUST AIR DUCTWORK SHALL MEET MINIMUM SHEETMETAL CONSTRUCTION IN ACCORDANCE WITH LATEST SMACNA STANDARDS.
- DUCTWORK SHALL BE SECURELY SUPPORTED, HUNG OR SUSPENDED IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE. PROVIDE MINIMUM 1-1/2" WIDE 22 GA. STRAPS, 10 FT. SPACING FOR MAXIMUM HALF DUCT PERIMETER UP TO 30" AND ALL ROUND FLEX DUCT. PROVIDE 1" WIDE 22 GA. STRAPS, 5 FT. SPACING FOR MAXIMUM HALF DUCT PERIMETER FROM 31" TO 72" AND 1" WIDE 20 GA. STRAPS, 5 FT. SPACING FOR MAXIMUM HALF DUCT PERIMETER UP TO 120" AND 1" WIDE 18 GA. STRAPS, 5 FT. SPACING FOR MAXIMUM HALF DUCT PERIMETER FROM 121" TO 180".
- PROVIDE A TRAP IN ALL CONDENSATE PIPING LOCATED AT THE ROOF TOP UNIT. CONDENSATE PIPING TO BE TYPE "L" CONDENSATE PIPING.
- VERIFY VOLTAGE WITH ELECTRICAL BEFORE ORDERING EQUIPMENT.
- ALL MECHANICAL EQUIPMENT CONTROL WIRING TO BE ROUTED IN CONDUIT.
- GUARANTEE, FOR ONE YEAR AFTER DATE OF ACCEPTANCE BY THE OWNER, ALL EQUIPMENT, MATERIALS AND WORKMANSHIP TO BE FREE FROM DEFECT.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL THE HEATING, VENTILATION AND AIR CONDITIONING SYSTEM SO AS TO INSURE QUIET OPERATION. NO VIBRATION OR SOUND SHALL BE TRANSMITTED TO THE BUILDING, STRUCTURE OR OCCUPIED AREAS. THE DECISION OF THE ENGINEER AS TO THE QUIETNESS OF THE SYSTEM AND EQUIPMENT SHALL BE FINAL. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CORRECT OR REPLACE ANY NOISY EQUIPMENT.
- ALL MATERIAL SHALL BE OF APPROVED QUALITY AND THE WORK SHALL BE DONE IN A THOROUGH AND WORKMANLIKE MANNER. THE WORK, MATERIALS AND TESTS SHALL BE IN ACCORDANCE WITH ALL LOCAL AND STATE MECHANICAL CODES.
- LOCATIONS OF DUCT MOUNTED SMOKE DETECTORS SHOWN ON THE DRAWINGS ARE REFERENCE LOCATIONS ONLY. THE FINAL PLACEMENT OF THE DETECTOR IN THE DUCTWORK SHALL MEET THE REQUIREMENTS OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE A PRESSURE DIFFERENTIAL TEST AND THE MANUFACTURER'S TEST. A COPY OF ALL TEST DATA WILL BE MADE AVAILABLE AT THE TIME OF ACTIVATION. PROVIDE RELOCATEABLE DUCT MOUNTED SMOKE DETECTORS AS NEEDED. DUCTWORK SHALL NOT BE TURNED OTHERWISE ON DRAWS. THE ACTIVATION OF A SMOKE DETECTOR SHALL ACTIVATE A VISIBLE AND AUDIBLE SUPERVISORY SIGNAL AT AN APPROVED LOCATION AND SHALL BE IDENTIFIED AS DUCT DETECTOR TROUBLE. DUCT SMOKE DETECTORS ARE FURNISHED AND WIRED TO SHUT DOWN UNIT BY DIVISION 16, BUT SHALL BE INSTALLED IN DUCTWORK BY THE MECHANICAL CONTRACTOR.
- ALL LOCAL AND STATE MECHANICAL CODES SHALL BE FOLLOWED. DUCTWORK SHALL NOT BE TURNED OTHERWISE ON DRAWS. IF THE SUPPLY AIR DUCTWORK IS TURNED, THE HUMIDITY SHALL NOT EXCEED 55% RH. IF THE HUMIDITY RISES ABOVE 55% RH, THEN THE SUPPLY AIR TEMPERATURE SHALL BE RESET BY 1 DEGREE PER 5 MINUTES UNTIL THE HUMIDITY DROPS BELOW 55% RH. THE SUPPLY AIR DEWPOINT TEMPERATURE SHALL REMAIN FOR A PERIOD OF 15 MINUTES, AND IF IT CONTINUES TO DROP THE SUPPLY AIR DEWPOINT TEMPERATURE SHALL INCREASE BY ONE DEGREE UNTIL IT REACHES 54°F WHERE IT SHALL REMAIN. IF THE DEWPOINT TEMPERATURE REACHES BELOW 49°F AND THE HUMIDITY REMAINS AT 55% OR HIGHER AN ALARM SHALL BE SENT TO THE BMS.

SHEET INDEX - MECHANICAL

NUMBER	NAME
M0.01	MECHANICAL COVER SHEET
M0.02	MECHANICAL SCHEDULES
M1.11	MECHANICAL PLAN - LEVEL 1
M1.12	MECHANICAL PLAN - ROOF
M5.01	MECHANICAL DETAILS



DD/DD PACKAGE	SHEET TITLE
12/18/25	MECHANICAL COVER SHEET

SHEET NUMBER
M0.01

ROOFTOP UNIT SCHEDULE WITH GAS HEATING

MARK	TOTAL SUPPLY AIR FLOW (CFM)	MIN OUTSIDE AIR FLOW (CFM)	EXTERNAL STATIC PRESSURE (IWG)	SUPPLY AIR FAN MOTOR POWER (HP)	COOLING COIL CONDITIONS						HEATING CAPACITY (NOTE 2)				ELECTRICAL		EFFICIENCY	DIMENSIONS & WEIGHT				BASIS OF DESIGN		NOTES				
					TONS COOLING MINIMUM	MIN TOTAL CAPACITY (MBH)	MIN SENS CAPACITY (MBH)	OAT		MAT		LAT		GAS MIN. INPUT MBH	MIN. NET OUTPUT MBH	EAT Db °F	LAT Db °F	UNIT POWER CONNECTION			MINIMUM IEE RATING	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	WEIGHT (LBS)	MANUFACTURER	MODEL	
								Db (°F)	Wb (°F)	Db (°F)	Wb (°F)	Db (°F)	Wb (°F)	VOLTS/PH	MCA	MOCP												
RTU-1	4,500	1,300	1.5	5	20	202.5	138.5	93.5	73.7	80.3	66.5	52.1	52	80.8	212.6	55.0	95	480/3	55	70	14.25	166	136	78.5	4500	CARRIER	48K3GW20A0G6A5B4A1	

NOTES:

- 1) PROVIDE MERV 8 PRE-FILTERS AND PROVIDE AN EXTRA SET OF FILTERS FOR THE OWNER.
- 2) PROVIDE A STAINLESS STEEL GAS FIRED FURNACE WITH A MINIMUM TURNDOWN RATIO OF 10:1
- 3) PROVIDE A MINIMUM 20" ROOF CURB WITH VIBRATION ISOLATION BY VIBRACOUSTICS
- 4) PROVIDE A GFCI CONVENIENCE OUTLET
- 5) PROVIDE MODULATING HOT GAS REHEAT
- 6) A NON-FUSED DISCONNECT SWITCH SHALL BE PROVIDED.
- 7) WINTER OUTSIDE AIR CONDITIONS ARE BASED UPON 22.7°F DB
- 8) PROVIDE DIGITAL CONTROLS
- 9) THE CONTRACTOR SHALL PROVIDE UV-C LIGHTS AT THE COIL
- 10) THE COILS SHALL HAVE COPPER TUBES AND ALUMINUM FINS.
- 11) PROVIDE STAINLESS STEEL DRAIN PANS.
- 12) PROVIDE BACNET COMPATIBLE CONTROLS.
- 13) PROVIDE AN OUTDOOR AIR MEASUREMENT STATION.
- 14) PROVIDE A MODULATING OUTSIDE AIR DAMPER.
- 15) UNITS SHALL HAVE A MINIMUM OF R-4 INSULATION AND SHALL HAVE A GALVANIZED STEEL LINER.
- 16) PROVIDE A MODULATING OUTSIDE AIR DAMPER.
- 17) UNITS SHALL BE PROVIDED AT A MINIMUM OF 27% MORE EFFICIENT THAN THE IECC ENERGY CODE C403.3 EXCEPTION 7, TABLE C403.3
- 18) PROVIDE LOW LEAKAGE DAMPERS.
- 19) PROVIDE LOW AMBIENT SOUND PACKAGE AND SUBMIT ALL SOUND POWER DATA TO THE ARCHITECT FOR REVIEW.

FAN SCHEDULE													NOTES
MARK	AREA SERVED	TYPE	CONTROL	SONES	AIRFLOW (CFM)	ESP (IWG)	RPM	bHP	MOTOR (HP)	RECOVERABLE	WEIGHT (LBS)	BASIS OF DESIGN	NOTES
EF-01	TOILETS	DOWNBLAST	INTERLOCK WITH AHU	4.6	240	0.25	1,550	0.03	1/30	NO	16	GREENHECK G-070-D	ALL
EF-02	TRIAGE AREA	DOWNBLAST	CONSTANT	2.8	160	0.25	1,300	0.01	1/60	NO	16	GREENHECK G-070-D	ALL
EF-03	TOILETS	DOWNBLAST	INTERLOCK WITH AHU	5.5	360	0.25	1,300	0.04	1/25	NO	22	GREENHECK G-090-G	ALL
EF-04	EV'S & SOILED	DOWNBLAST	CONSTANT	4.6	240	0.50	1,550	0.03	1/30	NO	16	GREENHECK G-070-D	ALL

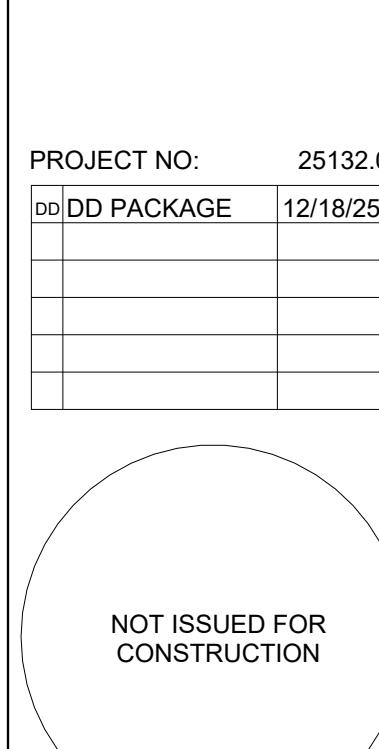
NOTES:
1) THE CONTRACTOR SHALL PROVIDE SOUND POWER DATA TO THE ARCHITECT FOR REVIEW BY PRIOR TO EQUIPMENT PROCUREMENT.
2) PROVIDE A MINIMUM 12" ROOF CURB.

DIFFUSERS, REGISTERS AND GRILLES										
MARK	TYPE		MATERIAL		BASIS OF DESIGN			NOTES		
SD-1	24X24 SQUARE PLAQUE			ALUMINUM			TITUS OMNI			1.2
RG-1	EGGCRATE GRILLE			ALUMINUM			TITUS 50F			3
LS-1	1/2" LINEAR SLOT, 6" NECK			ALUMINUM			TITUS ML37			4.5
SD-2	12X12 STAMPED CONE			ALUMINUM			TITUS TMS			1.2

NOTES:
1) PROVIDE A 6" NECK FOR UP TO 100 CFM, A 8" NECK FOR UP TO 180 CFM, A 10" NECK FOR UP TO 275 CFM, AND A 12" NECK FOR UP TO 400 CFM.
2) PROVIDE ACCESSIBLE BALANCING DAMPER FOR EACH DIFFUSER, OR GRILLE.
3) FOR EACH POSITIVE OR NEGATIVE PRESSURE FROM P/D, PROVIDE ACCESSIBLE BALANCING DAMPER WITHIN 24" OF THE GRILLE.
4) PROVIDE AN OPPOSED BLADE DAMPER ACCESSIBLE THROUGH THE FACE OF THE SLOT WITH A HEXAGONAL KEY AND PROVIDE A FACTORY INSULATED PLENUM.
5) WHERE CEILINGS ARE NOT OPEN TO RETURN PROVIDE THE SAME EQUIVALENT FREE AREA OF RETURN BY RETURN LINEAR SLOTS.

VARIABLE AIR VOLUME UNITS WITH ELECTRIC RE-HEAT											
MARK	BOX SIZE	COOLING			HEATING			AIR CONDITIONS			NOTES
		MAXIMUM SUPPLY AIR FLOW (CFM)	MINIMUM SUPPLY AIR FLOW (CFM)	MAXIMUM AIR FLOW (CFM)	EAT (°F)	LAT (°F)	MINIMUM HV				
VAV-01	14	1690	510	845	52	90	10				ALL
VAV-02	6	200	60	110	52	90	1.5				ALL
VAV-03	8	520	160	260	52	90	3				ALL
VAV-04	8	400	120	200	52	90	3				ALL
VAV-05	6	350	120	190	52	90	2				ALL
VAV-06	6	200	60	110	52	90	1.5				ALL
VAV-07	8	480	150	240	52	90	3				ALL
VAV-08	8	580	180	290	52	90	4				ALL

NOTES:
1) THE CONTRACTOR SHALL PROVIDE SOUND POWER DATA TO THE ARCHITECT FOR REVIEW BY PRIOR TO EQUIPMENT PROCUREMENT.
2) THE MAXIMUM APD SHALL NOT EXCEED 0.3 IWG.
3) NO FIBERS SHALL BE OPEN TO THE AIRSTREAM AND WILL NOT BE ACCEPTABLE.
4) ALL TERMINAL UNITS SHALL BE ACCESSIBLE AND AN ACCESS PANEL SHALL BE PROVIDED IF LOCATED OVER AN INACCESSIBLE CEILING.
5) REFER TO THE ELECTRICAL DRAWINGS FOR ELECTRICAL CHARACTERISTICS.

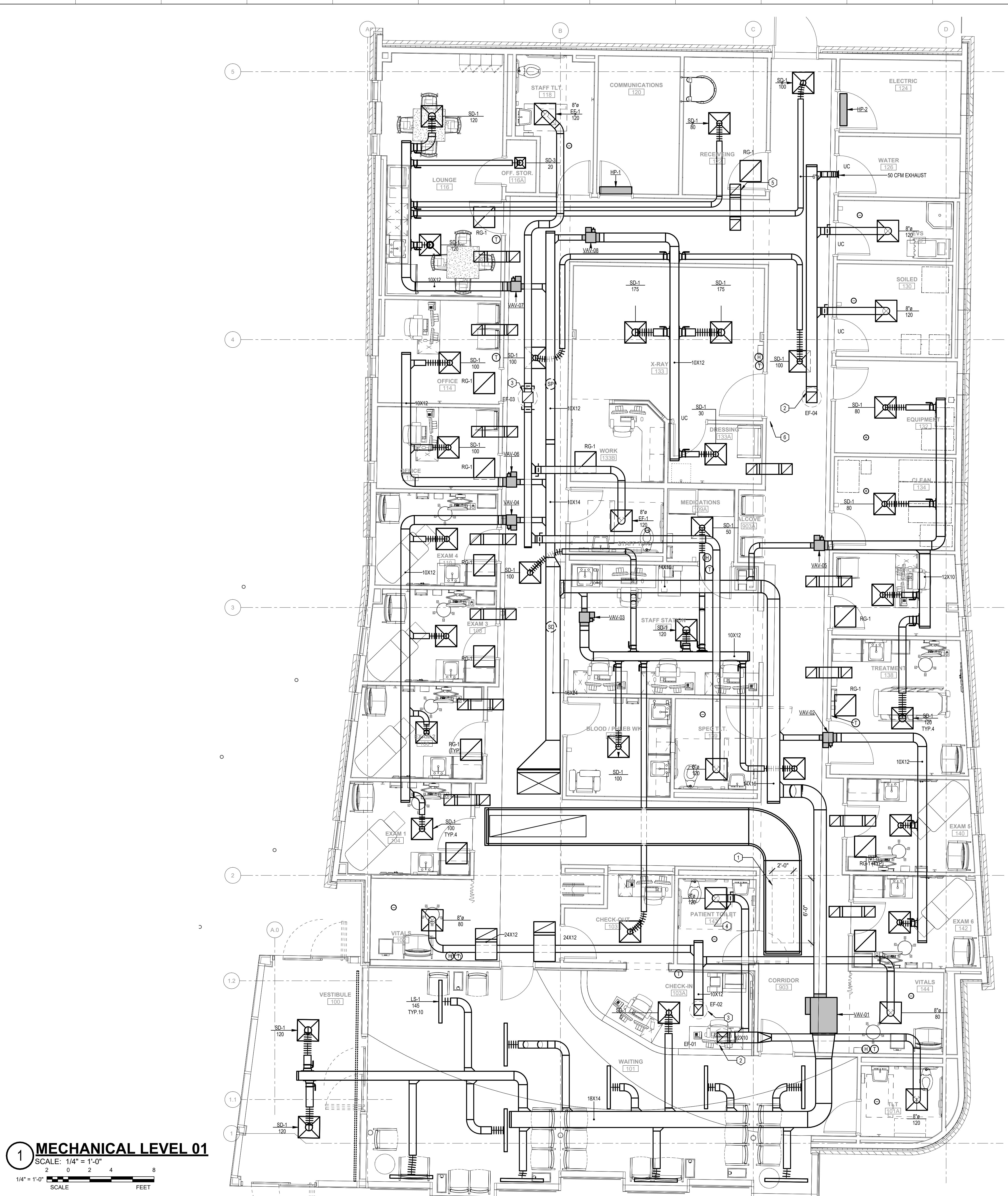
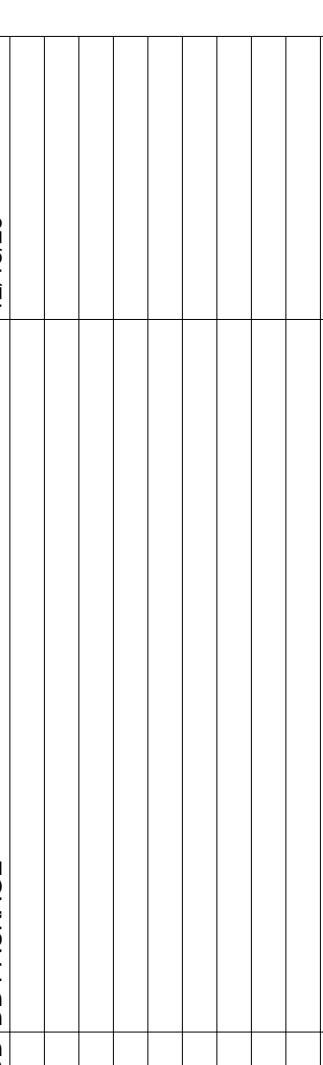


12/18/25

MECHANICAL SCHEDULES
SHEET NUMBER
M0.02

12/18/25

VENTILATION CALCULATION																							
				ASHRAE 170 REQUIREMENTS (General Outpatient Spaces)								ASHRAE 170 COMPLIANCE						AIR BALANCE					
SPACE	AREA (SF)	CEILING HT (FT)	FUNCTION OF SPACE	MINIMUM ACH/HR	MINIMUM OA ACH/HR	PRESSURE REQUIREMENTS (-, +, NO REQUIREMENT)	EXHAUST DIRECTED TO OUTDOORS	ALLOWS OCCUPIED TURN DOWN	EA CFM REQUIREMENTS	OA CFM REQUIREMENTS	PPL / 1000 SF	POPULATION (PPL)	CFM/PERSON	CFM/SF	TTL SA CFM REQUIRED	TTL OA REQUIRED	TTL EA REQUIRED	AIR CHANGES PROVIDING	SA PROVIDING (CFM)	EA PROVIDING (CFM)	OA PROVIDING (CFM)	AIRFLOW (CFM)	NOTES
100 - VESTIBULE	229	10	Urgent care Patient Corridor	2	0	NR	NR	Yes			0	0	0	0	76	0		6.3	240		20	20	
101 - WAITING	766	12.5	Main entry lobbies	--	--	--	--	Yes			30	23	5	0.06	--	161	--	1,450		205.00	205		
101A - TLT	48	10	Toilet Room	4	0	(-)	Yes	Yes	32		0	0	0	0	0	32	15	120		120	-120		
102 - VITALS	78	10	Urgent care triage area	3	2	(-)	Yes	Yes	39	26	0	0	0	0	0	39	6	80	26	54	NOTE 2		
103 - CHECK-OUT	87	10	Office Space	--	--	--	--	Yes			5	0	5	0.06	--	7		--		10	10		
103 A - CHECK-IN	115	10	Office Space	--	--	--	--	Yes			5	1	5	0.06	--	10				15	15		
104 - EXAM 1	96	10	Urgent care exam room	3	2	NR	NR	Yes			32	0	0	0	48	0	6	100		40	40		
106 - EXAM 2	97	10	Urgent care exam room	3	2	NR	NR	Yes			32	0	0	0	49	0	6	100		45	45		
107 - BLOOD / PHLEB WK	89	10	Urgent care treatment room	3	2	NR	NR	Yes			30	0	0	0	45	0	7	100		40	40	NOTE 2	
108 - EXAM 3	96	10	Urgent care exam room	3	2	NR	NR	Yes			32	0	0	0	48	0	6	100		40	40		
109 - STAFF STATION	218	10	Office Space	--	--	--	--	Yes			5	1	5	0.06	--	19		--		25	25		
109A - MEDICATIONS	43	10	Clean workroom or clean supply room	4	2	(+)	NR	Yes			14	0	0	0	29	0	7	50		20	20		
110 - EXAM 4	98	10	Urgent care exam room	3	2	NR	NR	Yes			33	0	0	0	49	0	6	100		45	45		
111 - STAFF TLT.	59	10	Toilet Room	4	0	(-)	Yes	Yes	39.33333333		0	0	0	0	0	39	12		120		-120		
112 - OFFICE	86	10	Office Space	--	--	--	--	Yes			5	0	5	0.06	--	7		--		10	10		
114 - OFFICE	106	10	Office Space	--	--	--	--	Yes			5	1	5	0.06	--	9		--		15	15		
116 - LOUNGE	243	10	Break rooms	--	--	--	--	Yes			25	6	5	0.06	--	45		--		60	60		
116A - OFF. STOR.	13	10	Clean workroom or clean supply room	4	2	(+)	NR	Yes			4	0	0	0	9	0	0			10	10		
118 - STAFF TLT.	84	10	Toilet Room	4	0	(-)	Yes	Yes	56		0	0	0	0	0	56	9		120		-120		
120 - COMMUNICATIONS	97	10		--	--	--	--	Yes			0	0	0	0	--	0		--		0	0		
122 - RECEIVING	99	10		--	--	--	--	Yes			0	0	0	0	--	0		--		0	0		
128 - EVS	59	10	Environmental services room	6	0	(-)	Yes	No	59		0	0	0	0	0	59	12		120		-120		
130 - SOILED	92	10	Soiled holding room	6	--	(-)	Yes	No	92		0	0	0	0	0	92	9		140		-140		
132 - EQUIPMENT	97	10	Clean workroom or clean supply room	4	2	(+)	NR	Yes			32	0	0	0	65	0	5	80		45	45		
133 - X-RAY	238	10	Class 1 Imaging rooms	3	2	NR	NR	Yes			79	0	0	0	119	0	3	115		100	100		
133A - DRESSING	49	10	Urgent care exam room	3	2	NR	NR	Yes			16	0	0	0	25	0	4	30		25	25		
133B - WORK	64	10	Class 1 Imaging rooms	3	2	NR	NR	Yes			21	0	0	0	32	0	3	30		30	30		
134 - CLEAN	97	10	Clean workroom or clean supply room	4	2	(+)	NR	Yes			32	0	0	0	65	0	5	80		45	45		
136 - OFFICE	85	10	Office Space	--	--	--	--	Yes			5	0	5	0.06	--	7		--		10	10		
138 - TREATMENT	142	10	Urgent care treatment room	3	2	NR	NR	Yes			47	0	0	0	71	0	4	100		60	60		
139 - SPEC TLT.	71	10	Toilet Room	4	0	(-)	Yes	Yes	47.33333333		0	0	0	0	0	47	10		120		-120		
140 - EXAM 5	97	10	Urgent care exam room	3	2	NR	NR	Yes			32	0	0	0	49	0	6	100		45	45		
142 - EXAM 6	97	10	Urgent care exam room	3	2	NR	NR	Yes			32	0	0	0	49	0	6	100		45	45		
143 - PATIENT TOILET	63	10	Toilet Room	4	0	(-)	Yes	Yes	42		0	0	0	0	0	42	11		120		-120		
144 - VITALS	77	10	Urgent care triage area	3	2	(-)	Yes	Yes	38.5	26	0	0	0	0	0	39	6		80	26	-54	NOTE 2	
900 - CORRIDOR	113	10	Urgent care Patient Corridor	2	0	NR	NR	Yes			0	0	0	0	38	0	2	46		10	10		
901 - CORRIDOR	440	10	Urgent care Patient Corridor	2	0	NR	NR	Yes			0	0	0	0	147	0	2	179		35	35		
902 - CORRIDOR	112	10	Urgent care Patient Corridor	2	0	NR	NR	Yes			0	0	0	0	37	0	2	45		10	10		
903 - CORRIDOR	567	10	Urgent care Patient Corridor	2	0	NR	NR	Yes			0	0	0	0	189	0	2	230		45	45		
TOTALS																							



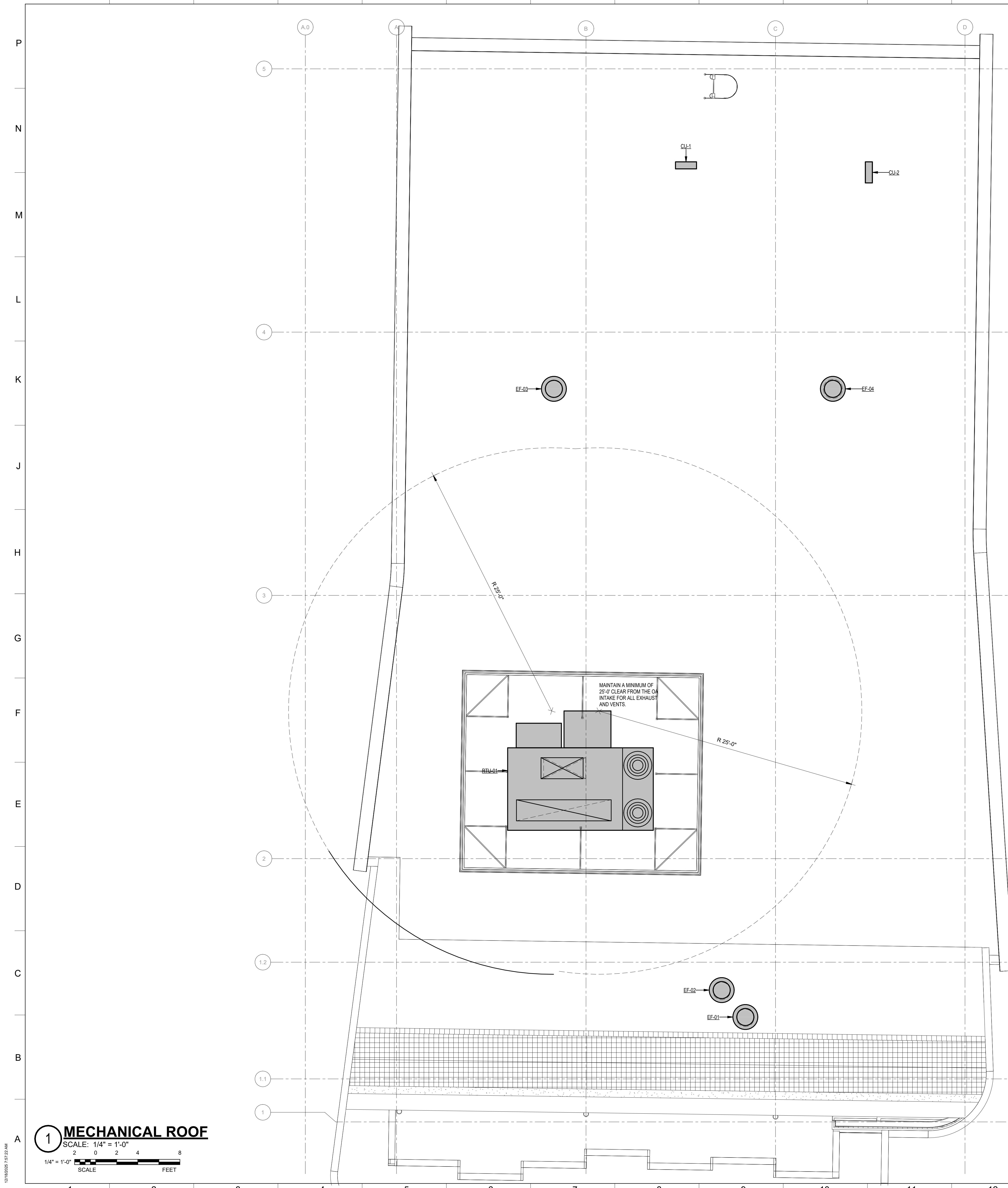
SHEET NOTES:

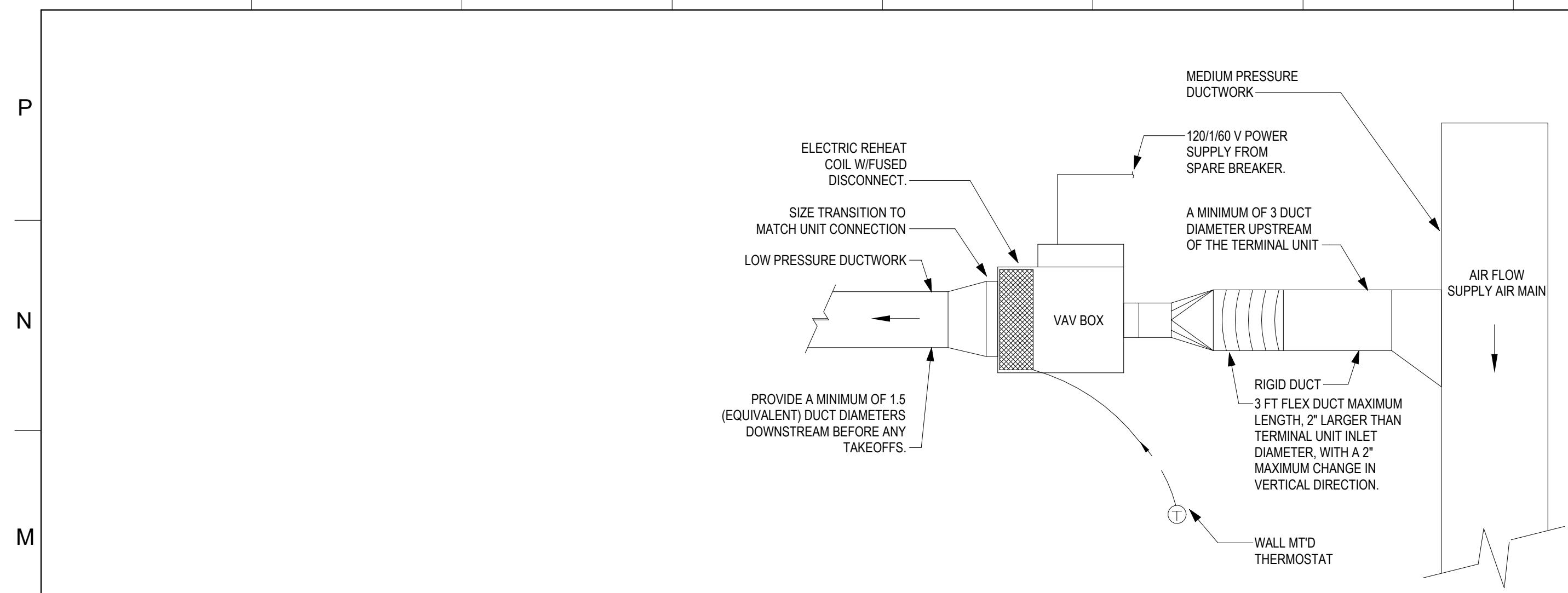
1. ALL RETURN GRILLES SHALL HAVE A LIGHT SHIELD ABOVE THEM.
2. ALL WALLS ARE PAINTED TO COAT TO DECK CONTRACTOR OR SHALL VERIFY AND PROVIDE A COATED RETURN AIR CANOPY FOR EACH RETURN SHOWN.
3. PROVIDE A MINIMUM OF 3 DUCT DIAMETERS UPSTREAM FOR EACH TERMINAL UNIT AND PROVIDE A MINIMUM OF 3 DUCT DIAMETERS DOWNSTREAM.
4. ALL MEDIUM AND LOW PRESSURE DUCTWORK WILL BE CONSTRUCTED OF G90 GALVANIZED STEEL.
5. ALL SUPPLY, RETURN AND OUTSIDE AIR DUCTWORK SHALL BE WRAPPED WITH A MINIMUM OF 2" OF 1.5 POUND DENSITY FIBERGLASS INSULATION WITH FOIL BACKED VAPOR BARRIER.
6. ALL DUCTWORK SUPPORTS SHALL BE INSTALLED EXTERNAL TO THE INSULATION SYSTEM AND SHALL NOT BE WRAPPED WITH INSULATION. NO DUCTWORK SHALL BE WRAPPED.
7. PROVIDE A MAXIMUM OF 6'-0" OF FLEXIBLE DUCTWORK WITH A MAXIMUM DIAMETER OF 12" WITH SPIN IN FITTINGS. FOR EACH LOW AIR DISTRIBUTION DEVICE FLEXIBLE DUCTWORK SHALL BE INSTALLED FREE OF SAGS AND KINKS AND SHALL BE STRAIGHT. NO FLEXIBLE DUCTWORK WILL HAVE BENDS, ELBOWS OR AT CHANGES IN DIRECTIONS.
8. ALL RETURN GRILLES SHALL HAVE A LIGHT SHIELD OR ANY ITEMS ABOVE THE RETURN SHALL BE PAINTED FLAT BLACK.
9. FOR EACH ROOM WITH A PRESSURE REQUIREMENT A RETURN DAMPER SHALL BE PROVIDED FOR EACH DUCT.
10. PROVIDE AN UNDERCUT AT EACH TOILET DOOR, AT EACH EVS, AND AT EVERY NEGATIVE PRESSURE ROOM WITHOUT AN ADDITIONAL TRANSFER OR SUPPLY GRILLE SHOWN.

KEYNOTES (THIS SHEET ONLY)

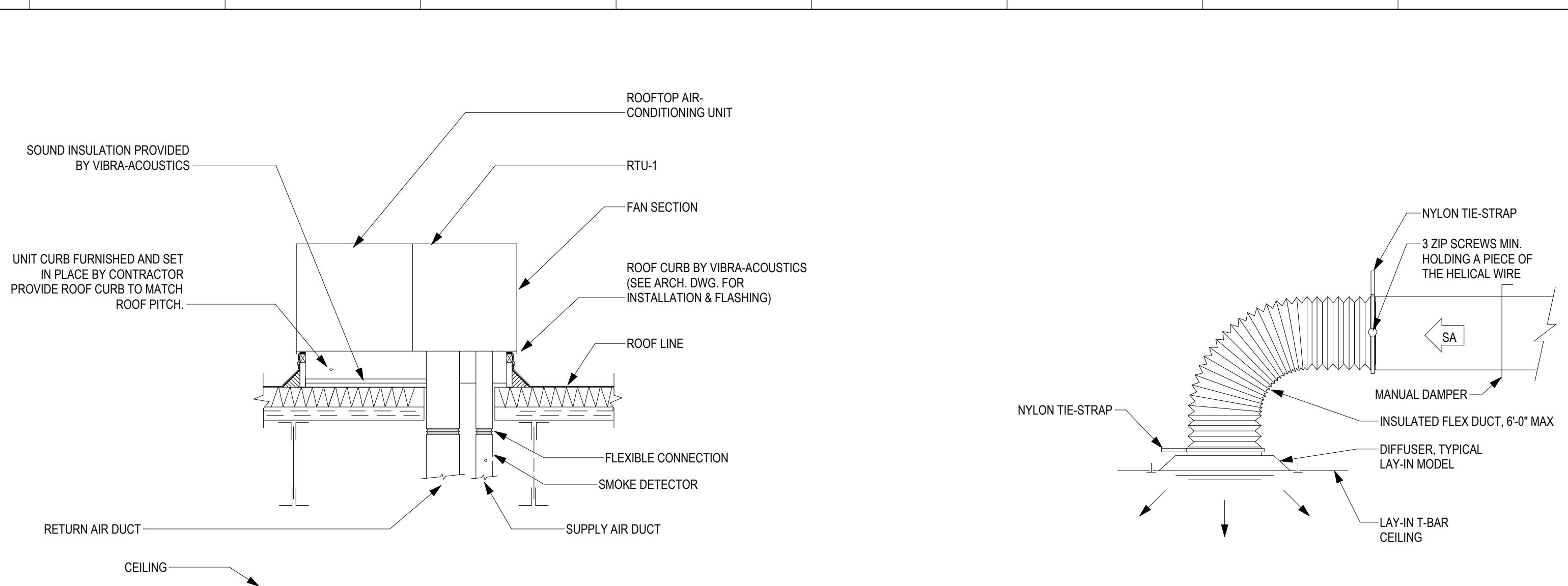
NOTE

1. PROVIDE A MINIMUM OF 72X24 OPENING IN THE TOP OF THE RETURN DUCT OR EQUIVALENT FREE AREA FOR RETURN. THE END SHALL BE CAPPED.
2. UP TO ROOF MOUNTED EXHAUST FAN. INTERLOCK WITH UNIT OPERATION.
3. UP TO ROOF MOUNTED EXHAUST FAN. UNIT SHALL RUN CONSTANTLY.
4. PERMANENT DAMPER (TYPICAL)
5. 12X12 UNO RETURN ARM TRANSFER DUCT (TYPICAL)
EXTEND A MINIMUM OF 12" UPWARDS AND PROVIDED A MINIMUM OF 6" CLEARANCE FROM THE DECK.
6. THERMOSTATIC ZONE (TYPICAL)

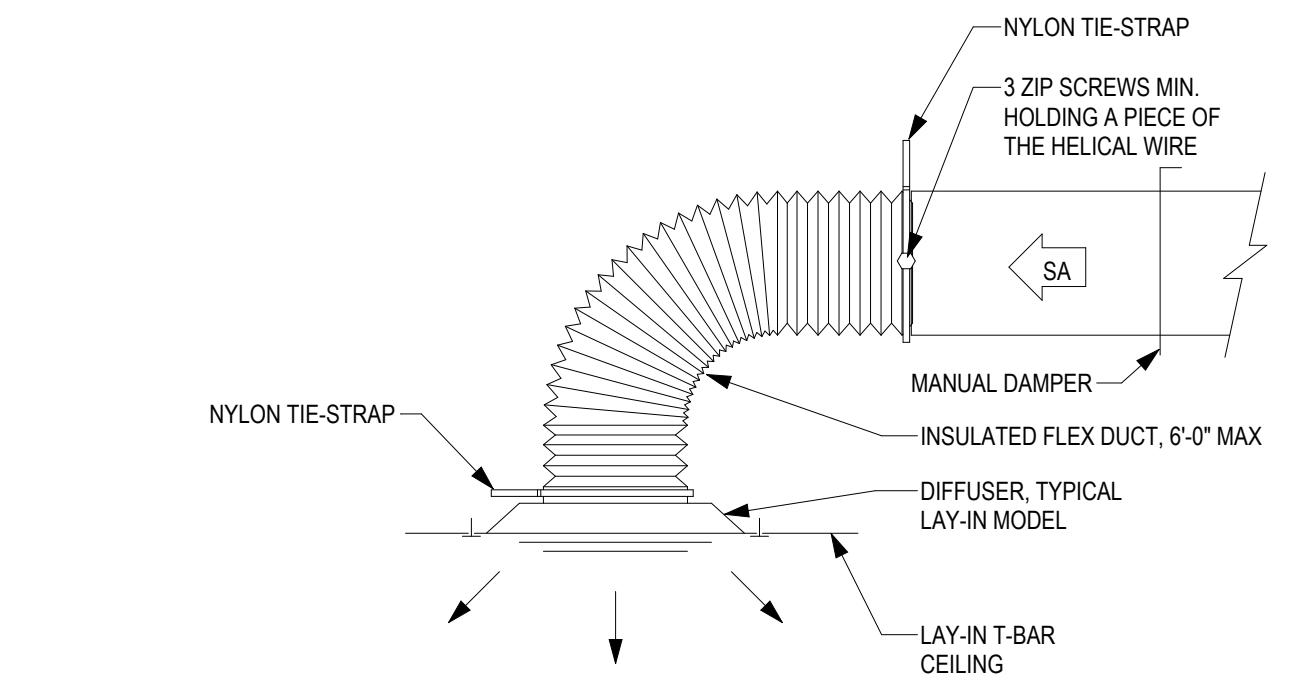




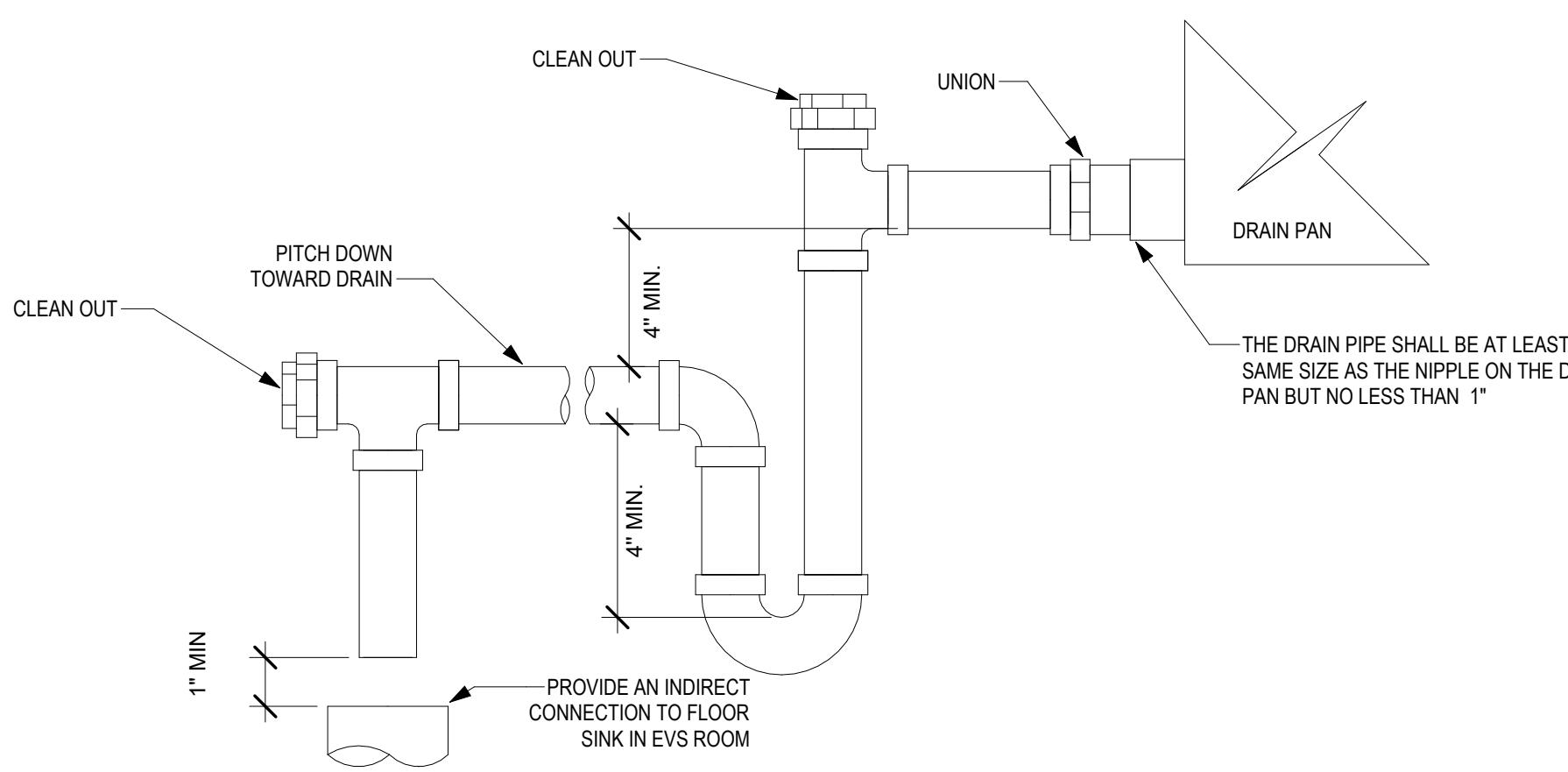
1 VAV BOX ELECTRIC DETAIL
SCALE: NO SCALE



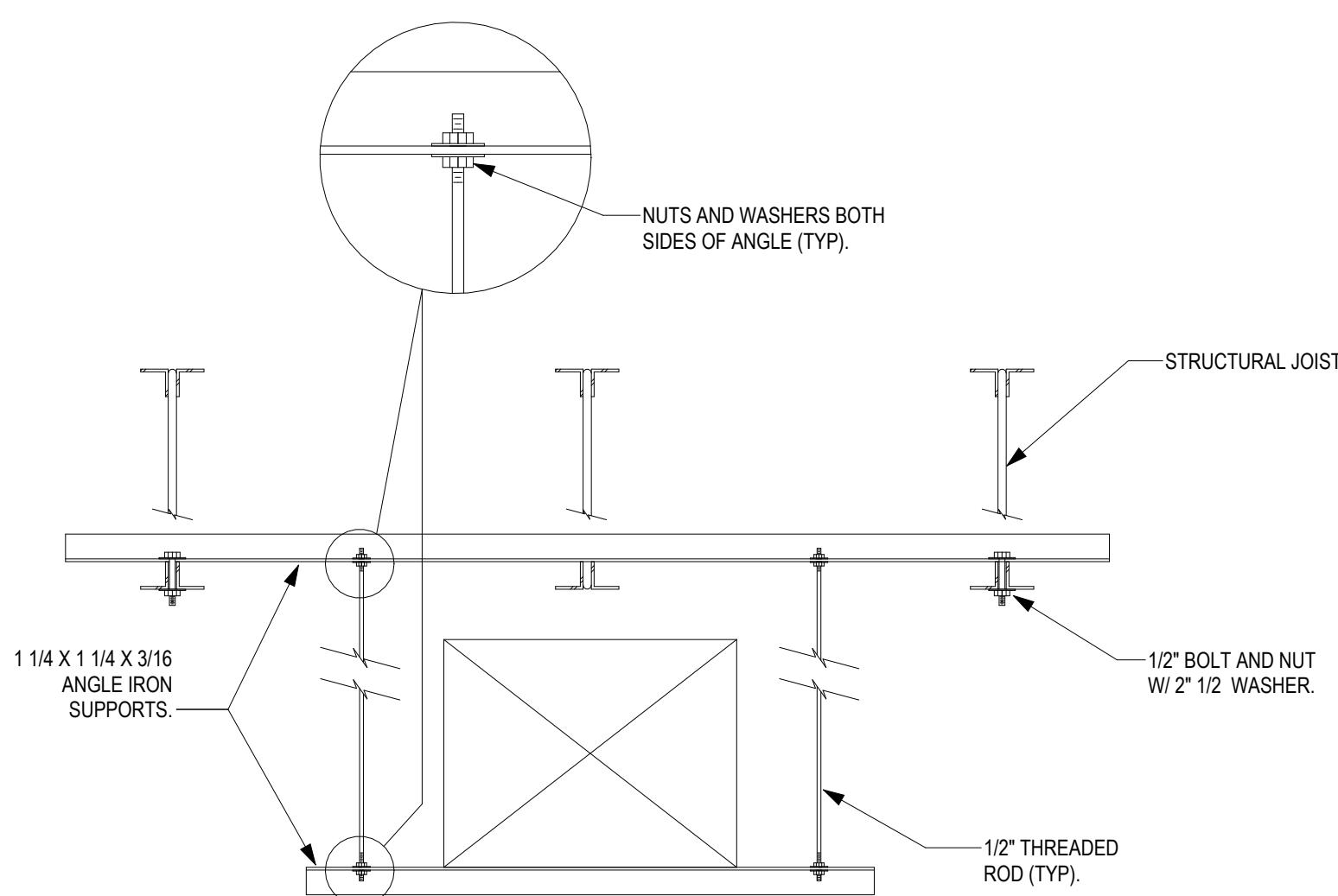
2 ROOFTOP AIR CONDITIONING UNIT DETAIL
SCALE: NO SCALE



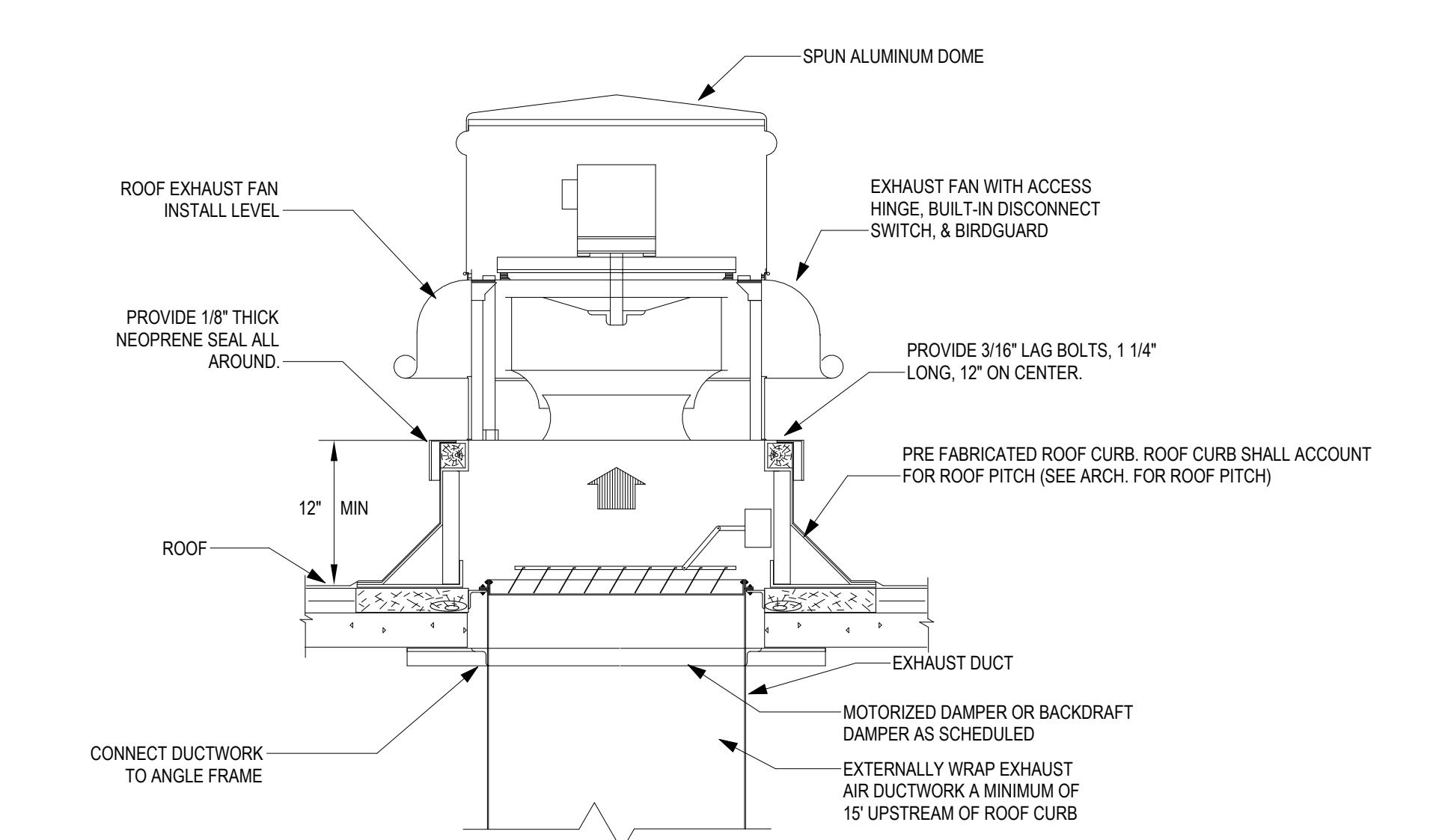
3 2-TYPICAL DIFFUSER INSTALLATION DETAIL
SCALE: NO SCALE



4 TYPICAL CONDENSATE DRAIN TRAP
SCALE: NO SCALE



5 TYPICAL DUCT HANGER DETAIL
SCALE: NO SCALE



6 ROOF EXHAUST FAN DETAIL
SCALE: NO SCALE

PLUMBING PIPE ACCESSORIES & VALVES

NOT ALL SYMBOLS ARE USED FOR THIS PROJECT

	BALANCING VALVE
	BACKFLOW PREVENTER
	BRANCH CONNECTION, BOTTOM
	BRANCH CONNECTION, TOP
	CHECK VALVE
	CONNECT TO EXISTING
	DIRECTION OF FLOW
	ELBOW, TURNED UP
	ELBOW, TURNED DOWN
	FLOOR OR GRADE REGULATOR
	FLOOR OR ROOF DRAIN
	FLOOR SINK
	GAS PRESSURE REGULATOR
	HOT WATER CIRCULATION PUMP
	PIPING CAP
	PIPE CLEANOUT
	PIPE BREAK/CONTINUATION
	PIPE FLANGE
	PRESSURE REDUCING VALVE
	SHUT-OFF VALVE
	SOLENOID VALVE
	STRAINER
	TEMPERATURE & PRESSURE RELIEVE VALVE (T&P)
	TRAPPED CONNECTION
	TRENCH DRAIN
	UNION
	WATER HAMMER ARRESTOR (WHA)
	WALL HYDRANT (WH) OR HOSE BIBB (HB)
	WALL CLEANOUT (WCO)

PLUMBING PIPE SYMBOLS

NOT ALL SYMBOLS ARE USED FOR THIS PROJECT

	CONDENSATE DRAIN PIPING
	DOMESTIC COLD WATER PIPING (CW)
	DOMESTIC HOT WATER PIPING (HW)
	DOMESTIC HOT WATER CIRCULATION PIPING (HWC)
	DRAIN PIPING
	GRAY WATER WASTE PIPING
	GREASE WASTE PIPING
	HEAT TRACED PIPING
	NATURAL GAS PIPING
	NON-POTABLE WATER PIPING
	OIL WASTE PIPING
	PUMP DISCHARGE PIPING
	SANITARY DRAIN PIPING ABOVE FLOOR SLAB
	SUBSOIL DRAINAGE PIPING
	STORM DRAIN PIPING BELOW THE FLOOR SLAB
	STORM OVERFLOW DRAIN PIPING
	SANITARY VENT PIPING
	SANITARY DRAIN PIPING BELOW THE FLOOR SLAB

ABBREVIATIONS

ABV.	ABOVE
BEL.	BELOW
BFP	BACKFLOW PREVENTER
CB	CATCH BASIN
CLG.	CEILING
CW	COLD WATER
DSB	DOWNSPOUT BOOT
DSC	DOWNSPOUT COVER
ERW	EMERGENCY RAINWATER (SECONDARY)
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
GA	GAUGE
GALV.	GALVANIZED
GCO	EXTERIOR GRADE CLEANOUT
GH	GROUND HYDRANT
HB	HOSE BIBB
HD	HUB DRAIN
HW	HOT WATER
HWC	HOT WATER CIRCULATING
I.E.	INVERT ELEVATION
IMB	ICE MAKER VALVE BOX
LI	LINT INTERCEPTOR
MAX.	MAXIMUM
MIN.	MINIMUM
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
O.C.	ON CENTER
OS	OIL/SAND INTERCEPTOR
OW	OIL WASTE
PD	PARKING DECK DRAIN
PRV	PRESSURE REDUCING VALVE
RHB	ROOF HYDRANT
RW	RAINYWATER (PRIMARY)
S	SANITARY
SG	SAND/DIRT INTERCEPTOR
SW	SAMPLE WELL
TD	TRENCH DRAIN
TP	TRAP PRIMER
TW	TEMPERED WATER
TYP.	TYPICAL
V	VENT
VA	VALVE
W	WASTE
WB	WASHER BOX
WCO	WALL CLEANOUT
WH	WALL HYDRANT
WHA	WATER HAMMER ARRESTOR
WHE	WATER HEATER - ELECTRIC
WHG	WATER HEATER - GAS
WHT	WATER HEATER - TANKLESS ELECTRIC

COORDINATION SPECIFIC NOTES

1. COMPLETELY COORDINATE AND COOPERATE WITH THE WORK OF THIS DIVISION AND OTHER TRADES SO THAT ALL SYSTEMS IN THE SCOPE OF THIS CONTRACTOR'S WORK ARE COORDINATED AND INTEGRATED. COORDINATE AND COOPERATE AS REQUIRED WITH ALL OTHER TRADES WHICH SHARE SPACE IN COMMON AREAS AND MAXIMIZE THE ACCESS TO EACH SYSTEM AND THEIR RESPECTIVE APPURTENANCES.
2. PROVIDE SELF-REGULATING ELECTRIC HEATING CABLE (HEAT TRACING) FOR TEMPERATURE MAINTENANCE OF ALL GREASE WASTE PIPING WHEN IN PROJECT SCOPE.
3. HEAT TRACE FOR ALL DOMESTIC WATER PIPING AND DRAIN TRAPS SHALL MAINTAIN A MINIMUM PIPE TEMPERATURE OF 40°F.
4. HEAT TRACE FOR ALL GREASE WASTE PIPING SHALL MAINTAIN A MINIMUM PIPE TEMPERATURE OF 110°F.
5. HEAT TRACING SYSTEM SHALL INCLUDE ALL ACCESSORIES, AND INSULATION FOR A COMPLETE AUTOMATIC OPERATING FREEZE PROTECTION SYSTEM.
6. REFER TO MANUFACTURER'S FREEZE PROTECTION DESIGN GUIDE FOR DESIGN DETAILS, INSULATION REQUIREMENTS, MAXIMUM CIRCUIT LENGTHS AND ACCESSORY INFORMATION.
7. ALL INSTALLATIONS AND TERMINATIONS MUST CONFORM TO THE NATIONAL ELECTRICAL CODE AND ANY OTHER APPLICABLE NATIONAL OR LOCAL CODE REQUIREMENTS.
8. JUNCTION BOXES SHALL BE PROVIDED FOR CIRCUITS AS REQUIRED FOR ELECTRICAL POWER. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

COMMON DRAWING REFERENCES

NOT ALL SYMBOLS ARE USED FOR THIS PROJECT

	XX: RISER SERVICE DESIGNATION
	#: RISER NUMBER DESIGNATION
	X: DETAIL DESIGNATION
	X#: DETAIL DESIGNATION DRAWING

PHASING LINE TYPE LEGEND

	EXISTING TO REMAIN OR NEW WORK BY OTHERS (LIGHT, SOLID LINE)
	NEW WORK BY THIS CONTRACTOR (DARK, SOLID LINE)
	EXISTING TO BE REMOVED BY THIS CONTRACTOR (DARK, DASHED LINE, DEMOLITION PLANS)

HEAT TRACE SCOPE AND GENERAL NOTES

1. PROVIDE SELF-REGULATING ELECTRIC HEATING CABLE (HEAT TRACING) FOR WINTERIZATION/FREEZE PROTECTION FOR ALL WATER PIPING AND DRAINAGE TRAPS, IN ALL UNHEATED SPACES SUBJECT TO FREEZING CONDITIONS. REFER TO PLANS FOR ADDITIONAL INFORMATION.
2. PROVIDE SELF-REGULATING ELECTRIC HEATING CABLE (HEAT TRACING) FOR TEMPERATURE MAINTENANCE OF ALL GREASE WASTE PIPING WHEN IN PROJECT SCOPE.
3. CEILING REMOVAL, STORAGE, AND REPLACEMENT FOR NEW PIPING INSTALLATION SHALL BE BY THE GENERAL CONTRACTOR.
4. IF HAZARDOUS MATERIALS ARE ENCOUNTERED DURING DEMOLITION OPERATIONS, THE CONTRACTOR WILL NOTIFY THE BUILDING OWNER OF THE HAZARDOUS MATERIAL.
5. TEMPORARY CONNECTION SHALL BE PROVIDED BY PLUMBING CONTRACTOR WHEN EXTENDED INTERRUPTION OF SERVICES AND UTILITIES SUCH AS WATER AND WASTE, WHICH SERVE OTHER AREAS ARE NECESSARY.
6. COORDINATE WITH MAINTENANCE PERSONNEL AS TO THE SOURCE OF UTILITIES AND TEMPORARILY DISCONNECT OR SHUT OFF SERVICES OR UTILITIES AT NEAREST MAIN. TEMPORARY AND ACCESSIBLE ISOLATION VALVES SHALL BE INSTALLED CLOSE TO THIS POINT OF WORK.
7. IT IS ESSENTIAL THAT BUILDING OPERATIONS CONTINUE WITH MINIMAL INTERRUPTIONS. OPERATION OF HVAC SYSTEMS SHALL NOT BE INTERRUPTED UNLESS ABSOLUTELY NECESSARY. PLUMBING CONTRACTOR SHALL NOT OPERATE OR EXERCISE IN AREAS VACATED FOR CONSTRUCTION WORK, WHICH WILL INTERFERE WITH THE OPERATION OF EXISTING PLUMBING SYSTEMS, OR WHICH REQUIRE DOWNTIME WILL BE SCHEDULED ONLY AFTER CONSULTATION WITH AND PERMISSION GIVEN BY THE OWNER. ALLOW 10 DAYS BEFORE ANTICIPATED INTERRUPTION OF SYSTEMS. WORK MAY BE REQUIRED TO BE PERFORMED OUTSIDE NORMAL WORKING HOURS.
8. ARCHITECTURAL DEMOLITION DRAWINGS AND SPECIFICATIONS SHALL BE READ IN CONJUNCTION WITH THESE DRAWINGS.
9. ALL PIPING HANGERS AND SUPPORTS SHALL BE REMOVED ALONG WITH THE PIPING BEING REMOVED.
10. THE CONTRACTOR SHALL COORDINATE DEMOLITION WORK WITH THE PROJECT'S PHASING SCHEDULE BEFORE COMMENCEMENT OF ANY WORK.

PLUMBING DEMOLITION GENERAL NOTES

1. DUE TO THE LIMITED SPACE AVAILABLE FOR THE INSTALLATION OF ALL THE PLUMBING WORK, COORDINATION WITH ALL OTHER TRADES IS OF UTMOST IMPORTANCE.
2. THIS CONTRACTOR SHALL VISIT THE PROJECT SITE AND VERIFY LOCATIONS, ELEVATIONS AND SIZES OF ALL UTILITIES AT THE SITE BEFORE PROCEEDING WITH WORK. EXISTING SYSTEMS AND STRUCTURE SHALL BE INVESTIGATED FOR THE BEST POSSIBLE ROUTING OF PLUMBING PIPING.
3. THESE PLANS ARE DIAGRAMMATIC IN NATURE SINCE THE ONLY AVAILABLE INFORMATION HAS BEEN OBTAINED FROM EXISTING PLANS, SPECIFICATIONS, AND FIELD SURVEYS. THE EXACT LOCATION OF PIPING, FIXTURES, AND EQUIPMENT MAY DEVIATE FROM THE LOCATION INDICATED ON THESE PLANS. EXTREME ACCURACY IS NOT REQUIRED. CONTRACTOR SHALL BE PREPARED TO MAKE ADJUSTMENTS TO ADJUST EXISTING SERVICES TO FIT JOB CONDITIONS. THIS CONTRACTOR SHALL FURNISH A COMPLETE CODE-COMPLYING SYSTEM. THIS CONTRACTOR SHALL REPORT, IN WRITING, ANY DISCREPANCIES WHICH PREVENT THE INSTALLATION OF WORK AS SHOWN.
4. IF THIS CONTRACTOR DOES NOT CLEARLY UNDERSTAND THESE PLANS OR IS NOT COMPLETELY FAMILIAR WITH THEIR MEANING, THIS CONTRACTOR SHOULD OBTAIN THE ENGINEER'S WRITTEN EXPLANATION AND INTERPRETATION OF THESE PLANS BEFORE SUBMITTING BIDS. SINCE THIS CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE INTERPRETATION OF THE ENGINEER.
5. WHEN PLACING NEW PLUMBING FIXTURES, CONTRACTOR SHALL VERIFY LOCATIONS OF PLUMBING VENTS, OFFSET VENTS THAT TERMINATE WITHIN 10 FEET OF HVAC UNITS OUTDOOR AIR INTAKES. CONTRACTOR SHALL NOT EXPOSE THESE VENTS TO THE ELEMENTS. CONTRACTOR SHALL NOT DAMAGE THE EXISTING CONCRETE OR STEEL CONSTRUCTION WHERE THE INTERFACINGS ARE PRICE ACCORDINGLY, OR MAKE ALLOWANCES IN BIDS.
6. USE CAUTION WHEN SAW-CUTTING THROUGH EXISTING CONCRETE FLOOR OR WALL. CONTRACTOR SHALL NOT DAMAGE EXISTING CONCRETE OR STEEL CONSTRUCTION WHERE THE INTERFACINGS ARE PRICE ACCORDINGLY, OR MAKE ALLOWANCES IN BIDS.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REVISIONS, TRANSITIONS, OFFSETS, ETC., TO AVOID DUCTWORK, PIPING, EQUIPMENT, OR STRUCTURE NEW OR EXISTING AND TO MAKE A COMPLETE AND FUNCTIONING SYSTEM.
8. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF PLUMBING FIXTURES.
9. COORDINATE ALL CORING OF FLOORS AND WALLS WITH THE ARCHITECT AND STRUCTURAL ENGINEER BEFORE START OF WORK.
10. NO WORK SHALL BE INSTALLED IN VIOLATION OF ANY GOVERNING CODES. ANY WORK SHOWN ON THE DRAWINGS WHICH IS IN VIOLATION OF SUCH CODES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE AND SHALL BE RESOLVED BEFORE THE INSTALLATION OF WORK.
11. MANUFACTURER'S MODEL NUMBERS ARE SPECIFIED SOLELY TO ESTABLISH STANDARDS OF QUALITY FOR PERFORMANCE AND MATERIALS.

PLUMBING NEW WORK GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED, INSTALLED, AND TESTED IN COMPLIANCE WITH THE CODES AND AMENDMENTS ADOPTED BY THE INSPECTION AUTHORITY. NOTHING IN THESE PLANS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHER APPLICABLE TO THIS PROJECT.
2. A. STATE BUILDING CODES INCLUDING THE LATEST STATE ADOPTED CODE AMENDMENTS AND REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION (A.H.J.)
 - 1. 2018 IPC
 - 2. 2018 IBC

CODE COMPLIANCE

NUMBER	NAME
P0.01	PLUMBING COVER SHEET
P0.02	PLUMBING SCHEDULES
P0.03	PLUMBING SCHEDULES
P1.11	PLUMBING SANITARY PLAN - LEVEL 1
P1.12	PLUMBING SANITARY PLAN - ROOF
P1.21	PLUMBING WATER PLAN - LEVEL 1
P1.22	PLUMBING WATER PLAN - ROOF

SHEET INDEX - PLUMBING

NUMBER	NAME
P0.01	PLUMBING COVER SHEET
P0.02	PLUMBING SCHEDULES
P0.03	PLUMBING SCHEDULES
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P1.21	PLUMBING WATER PLAN - LEVEL 1
P1.22	PLUMBING WATER PLAN - ROOF

P0.01

PLUMBING COVER SHEET

SHEET NUMBER

12/18/25

SHEET TITLE

DD DD PACKAGE

12/18/25

12/18/25

SHEET NUMBER

DD DD PACKAGE

12/18/25

SHEET TITLE

PLUMBING COVER SHEET

12/18/25

PIPE MATERIAL SCHEDULE

SYSTEM	PIPE	FITTING	JOINT	NOTES
BURIED SANITARY DRAINAGE AND VENT, GREASE WASTE DRAINAGE AND VENT DRAIN AND STORM DRAINAGE	ASTM A74 SERVICE WEIGHT CAST IRON HUB AND SPIGOT	ASTM A74 SERVICE WEIGHT CAST IRON HUB AND SPIGOT	ASTM C 564 PREMOLDED NEOPRENE COMPRESSION GASKET	-
ABOVE-FLOOR SANITARY DRAINAGE AND VENT, GREASE WASTE DRAINAGE AND VENT AND STORM DRAINAGE	ASTM A74 SERVICE WEIGHT CAST IRON NO-HUB	ASTM A74 SERVICE WEIGHT CAST IRON NO-HUB	ASTM C 1277 AND ASTM C 1540 HEAVY DUTY HUBLESS PIPING COUPLINGS, STAINLESS STEEL SHIELD AND BANDS, ASTM C 564 RUBBER GASKET	ALL STORM DRAINAGE, SANITARY DRAINAGE, AND GREASE WASTE PIPING FOUR (4) INCHES AND LARGER SHALL BE PROVIDED WITH PIPE RESTRAINTS AT ALL HORIZONTAL OFFSETS GREATER THAN 45 DEGREES, BASIS OF DESIGN. HOLDRITE #117 SERIES NO-HUB FITTING RESTRAINTS INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS.
VE ALTERNATE ONLY (SPECIFY LOCATION) SANITARY DRAINAGE AND VENT, AND STORM DRAINAGE	SOLID WALL PVC PIPE, ASTM D 2665 SCHEDULE 40, DWV	PVC SOCKET FITTINGS, ASTM D 2665, ASTM D 3111, DWV PATTERN	SOLVENT CEMENT, ASTM D 2564, PRIMER, ASTM F 866	PVC SHALL NOT BE INSTALLED IN CEILING PLENUMS UNLESS WRAPPED WITH AN ASTM E84, UL 910, AND UL 1060 CLASS 1 BARRIER. ALL STORM AND SANITARY DRAINAGE PIPING FOUR (4) INCHES AND LARGER SHALL BE PROVIDED WITH PIPE RESTRAINTS AT ALL HORIZONTAL OFFSETS GREATER THAN 45 DEGREES, BASIS OF DESIGN. HOLDRITE #117 SERIES NO-HUB FITTING RESTRAINTS INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS.
ABOVE-FLOOR SEWAGE EJECTOR AND SUMP PUMP DISCHARGE	ASTM A 53, TYPE E, GROOVED END, SCHEDULE 40 GALVANIZED STEEL	GROOVED END, SCHEDULE 40 GALVANIZED STEEL	ASTM F 1476, TYPE 1 MECHANICAL COUPLINGS FOR GROOVED JOINTS WITH EPDM RUBBER GASKET	-
BURIED AND/OR ABOVE-FLOOR SEWAGE EJECTOR AND SUMP PUMP DISCHARGE	ASTM D 2665, SCHEDULE 80 PVC, SOLID WALL	ASTM D 2665 PVC SOCKET PRESSURE FITTINGS	ASTM D 2564 SOLVENT CEMENT AND ASTM D 558 PRIMER	-
BURIED COLD WATER SERVICE ENTRANCE PIPING	ASTM B 88 SOFT COPPER WATER TUBE, DRAWN TEMPER, TYPE "K"	ASME B16.22 WROUGHT COPPER OR ASME B16.18 CAST COPPER SOLDER-JOINT PRESSURE FITTINGS	ASTM B32 LEAD-FREE SOLDER WITH ASTM B813 WATER FLUSHABLE FLUX	-
ABOVE-FLOOR COLD WATER, HOT WATER, HOT WATER CIRCULATION	ASTM B 88 HARD COPPER WATER TUBE, DRAWN TEMPER, TYPE "L".	ASME B16.22 WROUGHT COPPER OR ASME B16.18 CAST COPPER SOLDER-JOINT PRESSURE FITTINGS	ASTM B32 LEAD-FREE SOLDER WITH ASTM B813 WATER FLUSHABLE FLUX	-
VE ALTERNATE ONLY: ABOVE-FLOOR COLD WATER, HOT WATER, HOT WATER CIRCULATION	ASTM B 88 HARD COPPER WATER TUBE, DRAWN TEMPER, TYPE "L".	FOR USE IN AREAS THAT DO NOT EXCEED THE MANUFACTURER'S MAXIMUM PRESSURE RATING ASME B16.18, ASME B16.22, ASME B16.51 COPPER ALLOY PRESS-CONNECT PRESSURE FITTINGS.	FOR USE IN AREAS THAT DO NOT EXCEED THE MANUFACTURER'S MAXIMUM PRESSURE RATING, EPDM RUBBER O-RING SEAL IN EACH END.	BASIS OF DESIGN/VEGA PROGRESS FITTING SYSTEM, PIPE SIZES UP TO FOUR INCHES.
VE ALTERNATE ONLY: ABOVE-FLOOR COLD WATER, HOT WATER, AND HOT WATER CIRCULATION. THE SYSTEM PRESSURE DOES NOT EXCEED MANUFACTURER'S PRESSURE RATINGS PER AVAILABLE PIPE SIZE RANGE.	ASTM F2855 CHLORINATED POLYVINYL CHLORIDE (CPVC)	ASTM F 438, SCHEDULE 80, CPVC SOCKET FITTINGS, ASTM F437, SCHEDULE 80, CPVC THREADED FITTINGS	ASTM F 493 SOLVENT CEMENT	-
VE ALTERNATE ONLY: ABOVE-GROUND COLD WATER & HOT WATER DOWNSTREAM OF THE WATER METER IN RESIDENTIAL/HOTEL UNITS.	ASTM F876, CROSS-LINK POLYETHYLENE (PEX-A)	ASTM F190 (EXPANSION FITTINGS) AND ASTM F977 (GENERAL PEX TUBING REQUIREMENTS) MANIFOLD: ASTM F576, PEX PLASTIC, MULTIPLE OUTLET	ASTM F190 (EXPANSION FITTINGS) AND ASTM F977 (GENERAL PEX TUBING REQUIREMENTS) MANIFOLD: ASTM F576, PEX PLASTIC, MULTIPLE OUTLET	BASIS OF DESIGN: PIPE, FITTINGS, SUPPORTS AND ALL REQUIRED ACCESSORIES FOR INSTALLATIONS SHALL BE UPON AQUAPEX WHITE COILS SHALL BE USED ONLY DOWNSTREAM OF MANIFOLDS. MANIFOLDS SHALL BE COPPER, VALVELESS WITH PROPEX CONNECTIONS.
NON-POTABLE WATER (ABOVE-GROUND)				THE PIPING CONVEYING THE NON-POTABLE COLD WATER (NPW) WATER SHALL BE PURPLE IN COLOR AND EMBOSSED, OR INTEGRALLY STAMPED
NATURAL GAS (ABOVE-GROUND)	ASTM A53, BLACK STEEL PIPE, SCHEDULE 40, TYPE E OR S, GRADE B	ASME B16.8, CLASS 16, STANDARD PATTERN, MALLEABLE IRON THREADED FITTINGS	THREADED	THREADED JOINTS SHALL BE USED FOR SYSTEM PRESSURES UP TO 5 PSI ONLY.
NATURAL GAS (ABOVE-GROUND)	ASTM A53, BLACK STEEL PIPE, SCHEDULE 40, TYPE E OR S, GRADE B	ASME A 234, FOR BUTT OR SOCKET WELDING, WROUGHT STEEL WELDING FITTINGS	WELDED	WELDED JOINTS SHALL BE USED FOR SYSTEM PRESSURES UP TO 5 PSI ONLY.
BURIED NATURAL GAS	ASTM B 88, TYPE K DRAWN-TEMPER OR ANNEALED COPPER TUBE	ASTM B16.22, WROUGHT COPPER FITTINGS	BRAZED	COAT TUBING WITH FACTORY APPLIED EXTRUDED PE A MINIMUM OF 0.022-INCH THICK

NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

PLUMBING FIXTURE CONNECTION AND SPECIFICATION SCHEDULE - COMMERCIAL

Fixture Identification	Flow	Fixture	Mounting Type	Utility Size			Manufacturer & Model Basis of Design
				S	CW	HW	
SK-1	1.5 GPM	PANTRY SINK (ADA COMPLIANT)	COUNTER MOUNTED SINGLE BOWL	2"	1/2"	1/2"	2"
WC-1	1.28 GPF	WATER CLOSET	WALL MOUNTED (ADA COMPLIANT)	4"	1"	-	2"
L-1	0.35 GPM	LAVATORY	COUNTER MOUNTED	2"	1/2"	1/2"	2"
L-2	0.35 GPM	LAVATORY	WALL MOUNTED (ADA COMPLIANT)	2"	1/2"	1/2"	2"
MS-1	2 GPM	MOP SINK	FLOOR MOUNTED	3"	1/2"	1/2"	2"

NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL DETAILS.
2. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FIXTURE LOCATIONS.
3. ADA COMPLIANT FIXTURES SHALL CONFORM TO ADA MOUNTING GUIDELINES.
4. PROVIDE ADA COMPLIANT TRAP AND STOP PROTECTORS FOR ALL ADA LAVATORIES AND SINKS.
5. VENT PIPE SIZES ARE MINIMUM FOR AN INDIVIDUAL FIXTURE VENT UNLESS INDICATED OTHERWISE ON THE PLANS AND SANITARY RISER DIAGRAMS.

**PLUMBING SPECIALTIES CONNECTION
AND SPECIFICATION SCHEDULE**

SPECIALTIES IDENTIFICATION	DESCRIPTION	TYPE	UTILITY SIZE			DESCRIPTION / BASIS OF DESIGN		
			SV	CW	HW			
DN-XX	DOWNSPOUT NOZZLE	SURFACE MOUNTED	-	-	-	TYPE 304 STAINLESS STEEL DOWNSPOUT NOZZLE WITH HINGED PERFORATED COVER. VACUUM PROOF. SEE PLANS FOR PIPE SIZES.		
IMB-1	ICEMAKER BOX	RECESSED IN WALL	-	1/2"	-	ICEMAKER WALL BOX WITH NSF 61 COMPLIANT 1/4 TURN SHUTOFF VALVES AND WATER HAMMER ARRESTORS.		
NFWH-1	NON-FREEZE WALL HYDRANT	BOX WITH CONCEALED HOSE CONNECTION	-	3/4"	-	BRONZE NICKEL PLATED QUARTER TURN SELF DRAINING NON-FREEZE HYDRANT WITH HOSE CONNECTION, INTERNAL VACUUM BREAKER, "T" HANDLE KEY, AND STAINLESS STEEL BOX		
NFRH-1	NON-FREEZE ROOF HYDRANT	ROOF MOUNTED	-	3/4"	-	SELF DRAINING NON-FREEZE ROOF MOUNTED POST HYDRANT WITH VACUUM BREAKER		

NOTES:

1. PROVIDE FIRE RATED ENCLOSURE FOR RECESSED BOXES WHERE REQUIRED.

PIPE INSULATION SCHEDULE

SYSTEM OR SERVICE	INSULATION TYPE	JACKET TYPE	VAPOR BARRIER REQUIRED	MINIMUM INSULATION THICKNESS - INCHES				
				3/4" AND SMALLER	1" TO 1-1/4"	1-1/2" TO 3"	4" TO 6"	8" AND LARGER
DOMESTIC COLD WATER	A	1	YES	1"	1"	1"	1"	1-1/2"
DOMESTIC HOT WATER, HOT WATER RETURN	A	1	YES	1"	1"	1-1/2"	1-1/2"	1-1/2"
STORM DRAINAGE AND ROOF DRAIN BODY	A	2	YES	N/A	N/A	1"	1-1/2"	1-1/2"

INSULATION TYPES:

- ASTM C571 MINERAL FIBER (FIBERGLASS AND MINERAL WOOL). INSULATION SHALL BE JACKETED WITH WHITE REINFORCED ALL SERVICE VAPOR RETARDING JACKETING AS INDICATED.
- OWENS CORNING, FOAMGLAS® CELLULAR GLASS INSULATION, AND FLEXIBLE PITTWRAP® JACKET. ACCESSORIES AND INSTALLATION SHALL CONFORM WITH THE MANUFACTURER'S INSTRUCTIONS.

JACKET TYPES:

- FACTORY APPLIED, ALL SERVICE JACKET (ASJ)
- ALL SERVICE JACKET (ASJ)
- PVC JACKET

NOTES:

1. REFER TO SPECIFICATION PLUMBING INSULATION FOR ADDITIONAL REQUIREMENTS.
2. INSULATE PIPING USING INSULATION OF TYPE AND THICKNESS INDICATED. WHERE PIPING IS TO BE HEAT-TRACED, PROVIDE THE INSULATION THICKNESS INDICATED FOR TRACED LINES. COORDINATE INSULATION INSTALLATION WITH HEAT-TRACING INSTALLATION AND TESTING. INSULATE PIPING AFTER HEAT-TRACING OR HEAT DISTRIBUTION TAPE HAS BEEN INSTALLED AND TESTED FOR CONTINUITY.
3. INSTALL INSULATION NEATLY, ACCURATELY AND WITHOUT VOIDS, IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND INAC NATIONAL COMMERCIAL AND INDUSTRIAL INSULATION STANDARDS.
4. INSULATING MATERIALS, ADHESIVES AND ACCESSORIES, INCLUDING PVC FITTING, VALVE AND FLANGE COVERS, SHALL HAVE A COMPOSITE FIRE AND SMOKE RATING. WHEN TESTED IN ACCORDANCE WITH ASTM E84, NFPA 255 OR UL 723 TEST PROCEDURES, NOT TO EXCEED FLAME SPREAD OF 25 AND SMOKE DEVELOPED OF 50. SUITABLE BY BUILDING CODE FOR INSTALLATION IN RETURN AIR PLenums.
5. STORM DRAIN PIPING SHALL BE INSULATED FROM AND INCLUDING THE ROOF DRAIN BODY TO WHERE THE PIPE TRANSITIONS FROM HORIZONTAL TO VERTICAL.

THERMOSTATIC MIXING VALVE SCHEDULE

VALVE IDENTIFICATION	LOCATION	MAXIMUM PRESSURE DROP (PSI)	CAPACITY RANGE (GPM)	CW INLET TEMPERATURE (DEG. F)	HW INLET TEMPERATURE (DEG. F)	MIXED WATER OUTLET TEMPERATURE (DEG. F)	MANUFACTURER AND MODEL (BASIS OF DESIGN)
TMV-1	EVS 128	5	0.5-180	60°F	140°F	130°F	LEONARD XL-125-LF

NOTES:

1. HOT WATER INLET TEMPERATURE SHALL BE A MINIMUM OF 5°F ABOVE MIXED WATER TEMPERATURE.
2. MINIMUM FLOW CAPACITY SHALL BE 0.5 GPM.

WATER HAMMER ARRESTOR SCHEDULE

PDI WHA IDENTIFICATION	Fixture Unit Capacity	PIPE CONNECTION SIZE
A	1 - 11	1/2"
B	12 - 32	3/4"
C	33 - 60	1"
D	61 - 113	1 1/4"
E	114 - 154	1 1/2"
F	155 - 330	2"

NOTES:

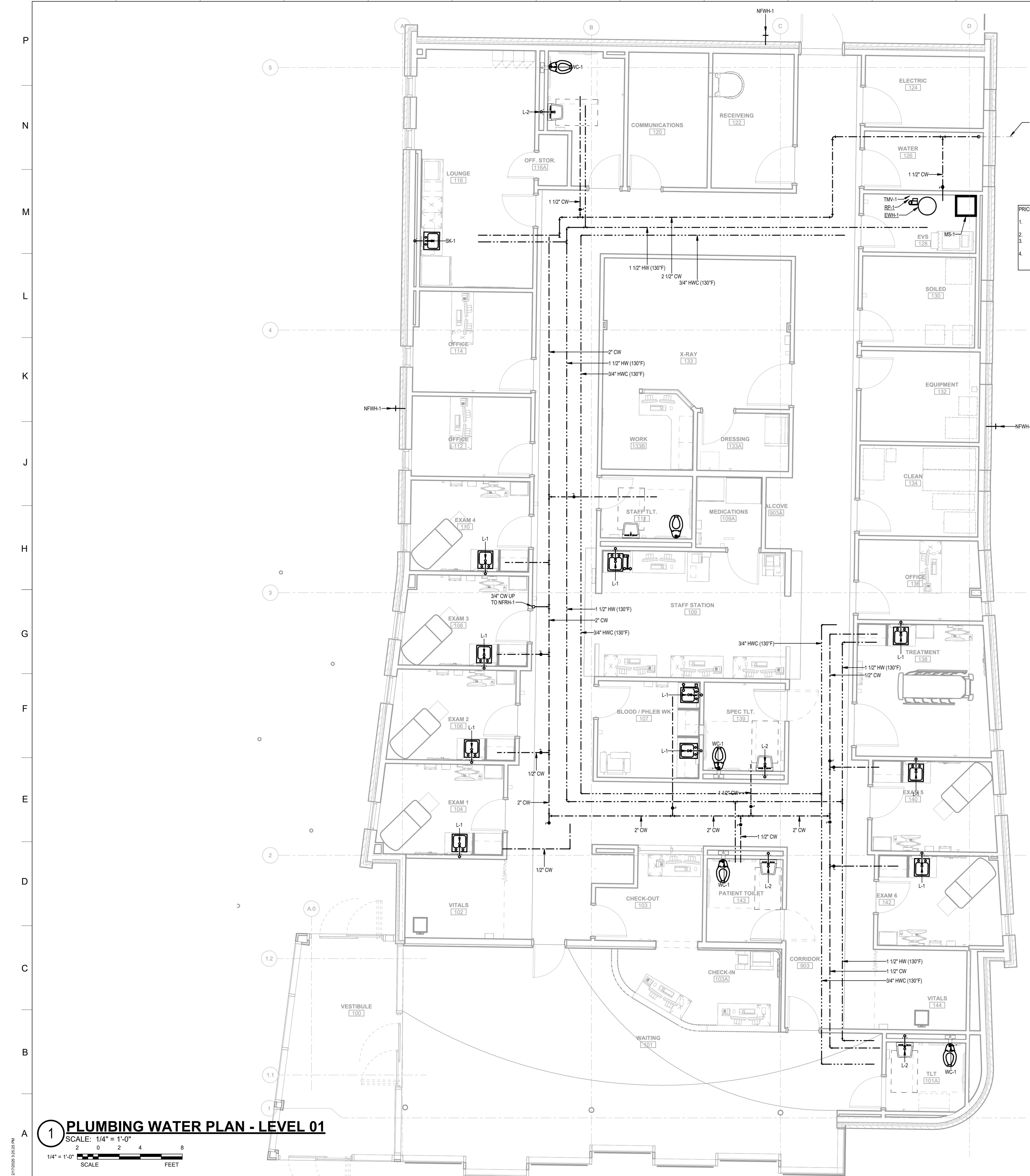
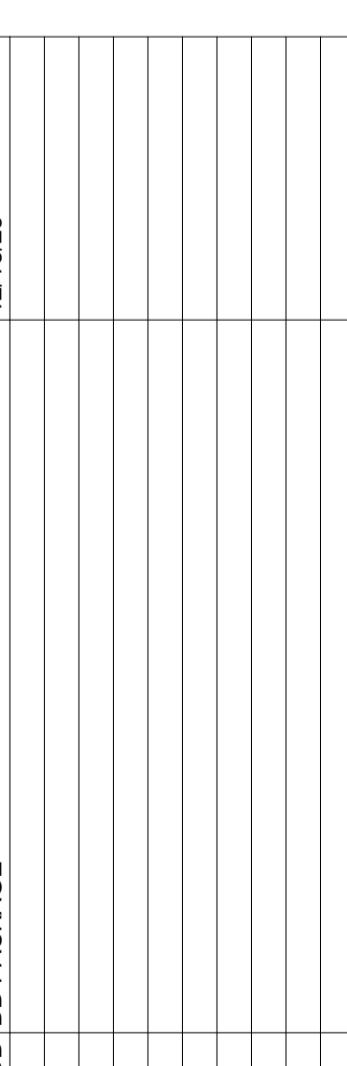
1. WATER HAMMER ARRESTORS SHALL BE THE PISTON TYPE. THE INSTALLATION SHALL BE IN COMPLIANCE WITH ASSE 1010 AND THE LATEST VERSION OF PLUMBING AND DRAINAGE INSTITUTE (PDI) STANDARD PDI-WH 201.
2. REFER TO THE WATER RISER DIAGRAM FOR ADDITIONAL INFORMATION.

DRAIN SCHEDULE

IDENTIFICATION	TYPE	BASIS OF DESIGN		OPTIONS AND ACCESSORIES	NOTES
		MANUFACTURER	MODEL		
FD-1	FLOOR DRAIN	JR SMITH	2005A	XX	1,2,3,5
RD-1	ROOF DRAIN	XX	XX	XX	
ORD-1	OVERFLOW ROOF DRAIN	XX	XX	XX	

NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL DETAILS.
2. BEFORE SETTING DRAINS, OBTAIN EXACT INFORMATION RELATIVE TO FINISH FLOOR LEVEL AT TOP OF DRAINS AND TYPE OF ROOF CONSTRUCTION FOR ROOF DRAIN INSTALLATION.
3. PROVIDE WATERLESS TRAP SEAL PROTECTION DEVICE.
4. PROVIDE DEEP SEAL P-TRAP.
5. PROVIDE OPTIONS AND ACCESSORIES REQUIRED TO FUNCTION WITH ARCHITECTURAL ROOF / FLOOR SYSTEM.



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

CDH

ARCHITECTURE

3300 Cumberland Blvd. SE
Suite 100
Atlanta, GA 30339
770.423.0016
www.cdppartners.com

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6961 PEACHTREE INDUSTRIAL
BLVD, SUITE 208 NORCROSS,
GEORGIA 30092
PH: 678-895-6094

www.hammonddesigners.com

GRADY ESTORIA URGENT CARE

Corner of Memorial Drive & Estoria Street
Atlanta Ga 30316

PROJECT NO: 25132.00
DD PACKAGE 12/18/25

NOT ISSUED FOR
CONSTRUCTION

12/18/25
DD PACKAGE
SHEET TITLE
PLUMBING
WATER PLAN -
ROOF

SHEET NUMBER

P1.22



FIRE PROTECTION LEGENDS	
	RISER DOWN (ELBOW)
	RISER UP (ELBOW)
	BRANCH - BOTTOM CONNECTION
	BRANCH - TOP CONNECTION
	BRANCH - SIDE CONNECTION
	VALVE IN RISE
	ANGLE VALVE
	SIDEWALL SPRINKLER
	CHECK VALVE
	SHUT-OFF VALVE
	GLOBE VALVE
	PRESSURE REDUCING VALVE
	SOLENT OPERATED VALVE
	UPRIGHT SPRINKLER
	PENDENT SPRINKLER
	CONCEALED SPRINKLER
	VALVE IN CAST IRON BOX WITH CONCRETE PAD
	FLOW SWITCH
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	STRAINER
	UNION
	CAP ON END OF PIPE
	PLUGGED TEE
	PRESSURE GAUGE WITH GAUGE COCK
	PIPE ANCHOR
	CONNECT TO EXISTING
	FLOW INDICATOR FOR PORTABLE METER
	FLOW-IN DIRECTION OF ARROW
	BACKFLOW PREVENTER WITH STRAINER
	SIAMESE FIRE DEPARTMENT CONNECTION
	STANDPIPE WITH FIRE DEPARTMENT VALVE
	METER
THESE ARE STANDARD ABBREVIATIONS. ALL ABBREVIATIONS SHOWN ABOVE MAY NOT APPEAR ON DRAWINGS.	

FIRE PROTECTION ABBREVIATIONS	
ABBREVIATION	DEFINITION
AC	ABOVE CEILING
AFF	ABOVE FINISHED FLOOR
AHG	AUTHORITY HAVING JURISDICTION
AFG	ABOVE FINISHED GRADE
BIF	BELLOW FLOOR
BIG	BELLOW GRADE
BLDG.	BUILDING
CL	CENTER LINE
CONC	CONCEALED SPRINKLER
DN	DOWN
DWGS	DRAWINGS
EH1	EXTRA HAZARD GROUP 1
EH2	EXTRA HAZARD GROUP 2
EL	ELEVATION
F	FIRE LINE
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISHED FLOOR
FFT	FORWARD FLOW TEST
FHV	FIRE HOSE VALVE
FHVC	FIRE HOSE VALVE IN CABINET
FLR	FLOOR
FPHT	FIRE PUMP TEST HEADER
FSP	FIRE STANDPIPE
HP	HORSE POWER
HZ	HERTZ
LH	LIGHT HAZARD
LH	LIGHT HAZARD
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPENED
NTS	NOT TO SCALE
OH1	ORDINARY HAZARD GROUP 1
OH2	ORDINARY HAZARD GROUP 2
OS&Y	OUTSIDE SCREW AND YOKE
PH	PHASE
PLBG	PLUMBING
PSI	POUNDS PER SQUARE INCH
PRV	PRESSURE REDUCING VALVE
SP	SPRINKLER
TS	TAMPER SWITCH
VDF	VALVE DRAIN AND FILL
WFS	WATER FLOW SWITCH

FIRE PROTECTION GENERAL NOTES - NEW CONSTRUCTION	
1.	THE WORK CONSISTS OF FURNISHING ALL LABOR AND MATERIALS NECESSARY TO INSTALL, COMPLETE AND READY FOR CONTINUOUS OPERATION, THE FIRE PROTECTION SYSTEMS, APPARATUS AND EQUIPMENT FOR THIS PROJECT, AS SHOWN ON THE DRAWINGS, PLUS AS REQUIRED BY NFPA 13 AND APPROVED BY THE AUTHORITY HAVING JURISDICTION (AHJ).
2.	THE CONTRACTOR SHALL INCLUDE IN THEIR BID, A FULLY CODE COMPLIANT AND COORDINATED SPRINKLER SYSTEM. SPRINKLER LOCATIONS ARE SHOWN TO ESTABLISH QUANTITY, AND DESIRED LOCATION. EXACT QUANTITY OF SPRINKLERS IS THE CONTRACTOR'S RESPONSIBILITY. PROJECT SHALL BE DESIGNED, CONSTRUCTED, AND TESTED PER THE NFPA STANDARDS AND/OR FM GLOBAL REQUIREMENTS.
3.	ALL SYSTEMS, EQUIPMENT, AND MATERIALS ARE TO BE INSTALLED IN A NEAT WORKMAN LIKE MANNER. WORK NOT DONE SO SHALL BE REMOVED AND REINSTALLED SATISFACTORILY.
4.	THE FIRE PROTECTION BID IS A DESIGN-BID CONTRACT. BEFORE SUBMITTING THE BID THE CONTRACTOR SHALL VISIT THE SITE AND BECOME THOROUGHLY FAMILIAR WITH ALL SITE CONDITIONS. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY ASSUMPTIONS, OMISSIONS, OR ERRORS MADE AS A RESULT OF THE FAILURE TO BECOME FULLY FAMILIAR WITH THE SITE CONDITIONS. THE CONTRACTOR SHALL PERFORM A FLOW TEST PRIOR TO DESIGN AND SUBMITAL OF THE HYDRAULICALLY CALCULATED SYSTEM. THE FLOW TEST SHALL NOT BE MORE THAN 6 MONTHS OLD FROM THE DATE OF CONSTRUCTION.
5.	AT LEAST ONE HYDRAULIC CALCULATION SHALL BE PROVIDED PER SPRINKLER ZONE BASED ON THE CURRENT FLOW TEST. THE CALCULATION WILL INCLUDE HOSE ALLOWANCES AT THE BASE OF THE RISER PER NFPA 13 REQUIREMENTS BASED ON THE IDENTIFIED HAZARD. THERE WILL BE A 10 PSI SAFETY ALLOWANCE PROVIDED FOR THE SPRINKLER SYSTEM BASED ON THE AVAILABLE PRESSURE AT THE SOURCE AND SYSTEM DEMAND.
6.	THE CONTRACTOR SHALL SUBMIT ALL DRAWINGS AND CALCULATIONS TO THE FIRE DEPARTMENT, GOVERNING AGENCIES, AND INSURING AGENCY AND RECEIVE APPROVAL PRIOR TO SUBMITTING DESIGN SHOP DRAWINGS.
7.	SUBMIT ACCURATE AS-BUILT DRAWINGS TO THE ENGINEER AND OWNER.
8.	IF THIS CONTRACTOR DOES NOT CLEARLY UNDERSTAND THESE PLANS OR IS NOT COMPLETELY SURE OF THEIR MEANING, THIS CONTRACTOR SHOULD OBTAIN THE ENGINEER'S WRITTEN EXPLANATION AND/OR INTERPRETATION PRIOR TO SUBMITTING BIDS, SINCE THIS CONTRACTOR WILL BE HELD RIGIDLY TO THE INTERPRETATION OF THE ENGINEER.
9.	IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE UNDERGROUND SERVICE MAINS, LEAD-IN CONNECTIONS, AND ALL HYDRANTS ARE COMPLETELY FLUSHED, PER NFPA 13, BEFORE CONNECTING THE FIRE SERVICE LINE TO THE FIRE SPRINKLER SYSTEM.
10.	THE SPRINKLER CONTRACTOR SHALL VERIFY THE FIRE DEPARTMENT CONNECTION TYPE AND LOCATION MEETS THE LOCAL FIRE DEPARTMENT'S NEEDS AND IS ACCEPTABLE TO THE LOCAL AHJ.
11.	WATER SERVICE AND BACKFLOW PREVENTER (BFP) TO BE PROVIDED, INSTALLED WITH MEANS OF FORWARD FLOW TESTING PER NFPA. SPRINKLER CONTRACTOR IS TO INCORPORATE ASSOCIATED PRESSURE DROP OF THE BFP IN THE HYDRAULIC CALCULATIONS.
12.	THE CONTRACTOR SHALL FURNISH DRAIN VALVES AND INSPECTOR'S TEST CONNECTIONS AS REQUIRED BY NFPA 13 REQUIREMENTS AND AT THE DISCRETION OF THE FIRE MARSHAL, ENGINEER, OR GOVERNING AGENCY.
13.	ALL OPENINGS THROUGH FIRE RATED FLOORS, WALLS, OR PARTITIONS SHALL BE FIRE STOPPED WITH UL RATED ASSEMBLIES OF EQUAL OR GREATER FIRE RATING. REFER TO FIRE STOPPING NOTES FOR ADDITIONAL INFORMATION.
14.	COORDINATE WITH STRUCTURAL ENGINEER WHEN SAW-CUTTING THROUGH CONCRETE FLOOR OR WALL CONSTRUCTION. LEAVE SUFFICIENT REBAR EXPOSED TO TIE NEW REINFORCING REPLACEMENT CONCRETE AND/OR OTHER STRUCTURAL ATTACHMENTS FOR NEW CONSTRUCTION.
15.	VALVES, TAMPER SWITCHES, OR ANY MECHANICAL/ELECTRICAL ITEM SHALL NOT BE LOCATED ABOVE A HARD CEILING, UNLESS PROVIDED WITH ACCESS AND SIGNAGE MEETING NFPA 13 REQUIREMENTS.
16.	FURNISH AND INSTALL TAMPER SWITCHES ON ALL INDICATING VALVES AND FLOW SWITCHES PER NFPA 13 REQUIREMENTS AND PER THE DESIGN DOCUMENTS BY THE CONTRACTOR.
17.	SPRINKLERS SHALL BE LOCATED IN THE CENTER OF CEILING TILES, COORDINATE FINAL LAYOUT WITH ARCHITECT, AND OTHER DISCIPLINES.
18.	EXTENDED COVERAGE SPRINKLERS AREA PERMITTED IF ACCEPTABLE TO THE ARCHITECT. CONTRACTOR SHALL VERIFY ADDITIONAL PRESSURE REQUIREMENTS IF THIS TYPE IS SELECTED.
19.	THE SPRINKLER CONTRACTOR SHALL OBTAIN AND UTILIZE THE ARCHITECTURAL REFLECTED CEILING PLAN FOR THE LOCATING OF SPRINKLER HEADS. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR CEILING DEVICE LOCATIONS AND THE SPECIFICATIONS FOR COORDINATION DRAWING REQUIREMENTS.
20.	IF SEISMIC BRACING IS REQUIRED, FIRE PROTECTION CONTRACTOR SHALL FURNISH AND INSTALL ALL END OF BRANCH LINE RESTRAINTS PER NFPA 13 AND PROVIDE SEISMIC BRACING DETAILS.
21.	PIPING SHALL BE INSTALLED AT LEAST 12' ABOVE FINISHED CEILING ELEVATION TO ALLOW FOR SUITABLE ACCESS ABOVE CEILING.
22.	INSTALL NO PIPING IN A LOCATION OR MANNER WHICH WILL ALLOW FREEZING. PROVIDE HEAT TRACING WHERE NO OTHER OPTIONS EXIST. REFER TO HEAT TRACE NOTES THIS SHEET.
23.	COORDINATE PIPE ROUTING NEAR ELECTRICAL EQUIPMENT PER NFPA 70. PIPING IS NOT TO BE ROUTED ABOVE ELECTRICAL PANELS, TRANSFORMERS, COMPUTER RACKS ETC. FIELD VERIFY AND COORDINATE WITH ELECTRICAL CONTRACTOR ALL EXISTING AND NEW ELECTRICAL LOCATIONS PRIOR TO DESIGN OF THE FIRE PROTECTION PLANS.
24.	PLANS ARE DIAGMATIC, NOT ALL OFFSETS, TURNS, FITTINGS, TRIM DETAILS, ETC., MAYBE INDICATED, BUT SHALL BE PROVIDED AS REQUIRED.
25.	ROUTING OF SPRINKLER MAINS, BRANCHLINES AND HEADS SHALL BE THOROUGHLY COORDINATED WITH ALL OTHER DISCIPLINES AND BUILDING STRUCTURE PRIOR TO SUBMISSION OF COORDINATED SHOP DRAWINGS. THIS IS OF THE UTMOST IMPORTANCE ESPECIALLY WHERE SPACE IS LIMITED. FIRE PROTECTION CONTRACTOR IS RESPONSIBLE FOR COORDINATING, PREPARING, AND SUBMITTING COORDINATION DRAWINGS FOR APPROVAL/REVIEW.
26.	ADVISE THE ENGINEERS OF ANY CONFLICTS, ERRORS, OMISSIONS, ETC. AT LEAST 10 DAYS PRIOR TO BID DATE, TO ALLOW CLARIFICATION BY WRITTEN ADDENDUM.
27.	SPRINKLER CONTRACTOR TO AVOID ROUTING PIPE THROUGH SHEAR WALLS. ANY SHEAR WALL PENETRATIONS SHALL BE COORDINATED WITH THE STRUCTURAL ENGINEER. REFER TO STRUCTURAL DRAWINGS FOR SHEAR WALL LOCATIONS.

SHEET INDEX - FIRE PROTECTION	
NUMBER	NAME
FPP.01	FIRE PROTECTION COVER SHEET
FPP.02	PENETRATIONS - FIRE PROTECTION
FPP.03	PENETRATIONS - FIRE PROTECTION
FPP.11	FIRE PROTECTION PLAN - LEVEL 1

FIRE STOPPING NOTES	
1.	MATERIALS: USE ONLY FIRE STOP PRODUCTS THAT HAVE BEEN UL 147, ASTM E-814, OR UL 2079 TESTED FOR SPECIFIC FIRE RATED CONSTRUCTION CONDITIONS CONFORMING TO CONSTRUCTION ASSEMBLY TYPE. PENETRATING ITEM TYPE, ANNUAL SPACE REQUIREMENTS, AND FIRE RATING INVOLVED FOR EACH SEPARATE INSTANCE.
2.	FOR SINGLE PENETRATIONS: READY-TO-USE LATEX BASED INTUMESCENT SEALANT IS REQUIRED TO MAINTAIN THE FIRE RATING OF THE ASSEMBLY. THE SEALANT MUST HAVE UL LISTING FOR BOTH SLEEVING AND NON-SLEEVING APPLICATIONS.
3.	FOR LARGE OPENINGS: CONTAINING MULTIPLE PENETRATIONS (2 OR MORE), A READY-TO-USE FOAM SEALANT OR EQUIVALENT MUST BE USED TO BE REMOVED AND REINSTALLED WITHOUT COMPROMISING FIRE PROTECTION INTEGRITY. COMPLY WITH MANUFACTURERS RECOMMENDED PROCEDURES AND PRECAUTIONS. DO NOT USE DAMAGED OR EXPIRED MATERIALS.
4.	MANUFACTURERS: JOHNS MANVILLE INTERNATIONAL, 3M BRAND, CSD SEALING SYSTEMS, HILTI, CIBA-GEIGY, HEAD-UTYNEALSON. REFER TO DIVISION 7 FOR FURTHER REQUIREMENTS.

HAZARD CLASSIFICATION LEGEND	
NFPA 13	
FIRE PROTECTION CONTRACTOR SHALL PROVIDE A COMPLETE CODE COMPLIANT AUTOMATIC WET PIPE SYSTEM. ALL AREAS NOTED ARE TO BE CONSIDERED LIGHT HAZARD GROUP 1 WITH A MINIMUM SPRINKLER DISCHARGE DENSITY OF 0.15 GPM/SQ. FT. FOR THE MOST HYDRAULICALLY REMOTE 1,500 SQ. FT. AND A 100 GPM HOSE STREAM, UNLESS OTHERWISE NOTED ON THE DRAWINGS.	
FIRE PROTECTION CONTRACTOR SHALL PROVIDE A COMPLETE CODE COMPLIANT AUTOMATIC WET PIPE SYSTEM. ALL AREAS NOTED ARE TO BE CONSIDERED ORDINARY HAZARD GROUP 1 WITH A MINIMUM SPRINKLER DISCHARGE DENSITY OF 0.30 GPM/SQ. FT. FOR THE MOST HYDRAULICALLY REMOTE 1,500 SQ. FT. AND A 200 GPM HOSE STREAM. SPRINKLER HEAD SPACING SHALL NOT EXCEED MAXIMUM SPACING DISTANCES SET FORTH BY NFPA 13.	
FIRE PROTECTION CONTRACTOR SHALL PROVIDE A COMPLETE CODE COMPLIANT AUTOMATIC WET PIPE SYSTEM. ALL AREAS NOTED ARE TO BE CONSIDERED EXTRA-HAZARD GROUP 1 WITH A MINIMUM SPRINKLER DISCHARGE DENSITY OF 0.30 GPM/SQ. FT. FOR THE MOST HYDRAULICALLY REMOTE 2,500 SQ. FT. AND A 500 GPM HOSE STREAM. SPRINKLER HEAD SPACING SHALL NOT EXCEED MAXIMUM SPACING DISTANCES SET FORTH BY NFPA 13.	
FIRE PROTECTION CONTRACTOR SHALL PROVIDE A COMPLETE CODE COMPLIANT AUTOMATIC WET PIPE SYSTEM. ALL AREAS NOTED ARE TO BE CONSIDERED EXTRA-HAZARD GROUP 2 WITH A MINIMUM SPRINKLER DISCHARGE DENSITY OF 0.40 GPM/SQ. FT. FOR THE MOST HYDRAULICALLY REMOTE 3,500 SQ. FT. AND A 500 GPM HOSE STREAM. SPRINKLER HEAD SPACING SHALL NOT EXCEED MAXIMUM SPACING DISTANCES SET FORTH BY NFPA 13.	

GA R&R 120-3-3 FIRE PROTECTION NOTE	
FIRE PROTECTION CONTRACTOR SHALL PROVIDE A COMPLETE CODE COMPLIANT AUTOMATIC WET PIPE SYSTEM. ALL AREAS NOTED ARE TO BE CONSIDERED LIGHT HAZARD GROUP 1 WITH A MINIMUM SPRINKLER DISCHARGE DENSITY OF 0.15 GPM/SQ. FT. FOR THE MOST HYDRAULICALLY REMOTE 1,500 SQ. FT. AND A 100 GPM HOSE STREAM. SPRINKLER HEAD SPACING SHALL NOT EXCEED MAXIMUM SPACING DISTANCES SET FORTH BY NFPA 13.	
FIRE PROTECTION CONTRACTOR SHALL PROVIDE A COMPLETE CODE COMPLIANT AUTOMATIC WET PIPE SYSTEM. ALL AREAS NOTED ARE TO BE CONSIDERED ORDINARY HAZARD GROUP 1 WITH A MINIMUM SPRINKLER DISCHARGE DENSITY OF 0.30 GPM/SQ. FT. FOR THE MOST HYDRAULICALLY REMOTE 1,500 SQ. FT. AND A 200 GPM HOSE STREAM. SPRINKLER HEAD SPACING SHALL NOT EXCEED MAXIMUM SPACING DISTANCES SET FORTH BY NFPA 13.	
FIRE	



P

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A

System No. W-L-5029

ANSI/UL1479 (ASTM E814) CAN/ULC S115

F Ratings — 1, 2 and 3 Hr (See Items 1, 3 and 4) F Ratings — 1, 2 and 3 Hr (See Items 1, 3 and 4)

T Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3) FT Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3)

L Rating At Ambient — 4 CFM/Sq Ft FH Ratings — 1, 2 and 3 Hr (See Items 1, 2 and 4)

L Rating At 400 F — Less Than 1 CFM/Sq Ft FTH Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3)

L Rating At Ambient — 4 CFM/Sq Ft L Rating At Ambient — 4 CFM/Sq Ft

L Rating At 400 F — Less Than 1 CFM/Sq Ft L Rating At 400 F — Less Than 1 CFM/Sq Ft

SECTION A-A

1. Wall Assembly — The 1, 2 or 3 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Steel Stud Framing — may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide for 1 and 2 hr and FH rating and 3-1/2 in. (89 mm) wide for 3 hr F and FH rating and spaced max 24 in. (610 mm) OC.

B. Gypsum Board — Min 5/8 in. (16 mm) thick with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 18-5/8 in. (473 mm).

The hourly F and FH rating of the firestop system are equal to the hourly F and FH rating of the wall assembly in which it is installed.

C. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing. When the hourly F or FH Rating of the firestop system is 3 hr, the nom diam of copper tube shall not exceed 4 in. (102 mm).

D. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe. When the hourly F or FH Rating of the firestop system is 3 hr, the nom diam of copper pipe shall not exceed 4 in. (102 mm).

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System No. W-L-5029

ANSI/UL1479 (ASTM E814) CAN/ULC S115

F Rating — 2 Hr F Rating — 2 Hr

T Ratings — 0 and 1 Hr (See Items 2 and 4) FT Ratings — 0 and 1 Hr (See Items 2 and 4)

L Rating At Ambient — 4 CFM/Sq Ft FH Rating — 2 Hr

L Rating At 400 F — Less Than 1 CFM/Sq Ft FTH Ratings — 0 and 1 Hr (See Items 2 and 4)

L Rating At Ambient — 4 CFM/Sq Ft L Rating At Ambient — 4 CFM/Sq Ft

L Rating At 400 F — Less Than 1 CFM/Sq Ft L Rating At 400 F — Less Than 1 CFM/Sq Ft

SECTION A-A

3. Pipe Covering — Non 1, 1-1/2 or 2 in. (25, 38 or 51 mm) thick hollow cylindrical heavy density (min 3.5pcf or 56 kg/m³) glass fiber units jacketed on the outside with an all-service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape.

Transverse joints secured with metal fasteners or with butt tape supplied with the product. For 1 and 2 hr F and FH Ratings, the annular space between penetrant and periphery of opening shall be max 1-7/8 in. (48 mm). For 3 hr F and FH Ratings, the annular space shall be min 0 in. (0 mm) to max 1-7/8 in. (48 mm).

See Pipe and Equipment Covering — Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4. Pipe Covering — (Not Shown) — As an alternate to Item 3, max 2 in. (51 mm) thick cylindrical calcium silicate (min 14 pcf or 224 kg/m³) units sized to the outside diam of the pipe or tube may be used. Pipe insulation secured with stainless steel bands or min 18 AWG stainless steel wire spaced max 12 in. (305 mm) OC. When the alternate pipe covering is used, the T and FT Rating shall be as specified in Item 3 above.

See Pipe and Equipment Covering — Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4A. Pipe Covering — (Not Shown) — As an alternate to Item 4, max 2 in. (51 mm) thick cylindrical calcium silicate (min 14 pcf or 224 kg/m³) units sized to the outside diam of the pipe or tube may be used. Pipe insulation secured with stainless steel bands or min 18 AWG stainless steel wire spaced max 12 in. (305 mm) OC. The annular space shall be min 1/2 in. (13 mm) to max 12 in. (305 mm).

5. Firestop System — The firestop system shall consist of the following:

A. Packing Material — Min 4 in. (102 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall or floor or with both surfaces of wall. At the point contact location between pipe covering and gypsum board, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe covering/gypsum board interface on both surfaces of wall.

B. Fill, Void or Cavity Material — Sealant — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall.

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* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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System No. C-AJ-5091

ANSI/UL1479 (ASTM E814) CAN/ULC S115

F Rating — 2 Hr F Rating — 2 Hr

T Ratings — 0 and 1 Hr (See Items 2 and 4) FT Ratings — 0 and 1 Hr (See Items 2 and 4)

L Rating At Ambient — 4 CFM/Sq Ft FH Rating — 2 Hr

L Rating At 400 F — Less Than 1 CFM/Sq Ft FTH Ratings — 0 and 1 Hr (See Items 2 and 4)

L Rating At Ambient — 4 CFM/Sq Ft L Rating At Ambient — 4 CFM/Sq Ft

L Rating At 400 F — Less Than 1 CFM/Sq Ft L Rating At 400 F — Less Than 1 CFM/Sq Ft

SECTION A-A

3. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of items may be used:

A. Steel Pipe — Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. Iron Pipe — Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.

C. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.

E. Conduit — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) aluminum or steel conduit.

F. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT).

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System No. C-AJ-5091

ANSI/UL1479 (ASTM E814) CAN/ULC S115

F Rating — 2 Hr F Rating — 2 Hr

T Ratings — 0 and 1 Hr (See Items 2 and 4) FT Ratings — 0 and 1 Hr (See Items 2 and 4)

L Rating At Ambient — 4 CFM/Sq Ft FH Rating — 2 Hr

L Rating At 400 F — Less Than 1 CFM/Sq Ft FTH Ratings — 0 and 1 Hr (See Items 2 and 4)

L Rating At Ambient — 4 CFM/Sq Ft L Rating At Ambient — 4 CFM/Sq Ft

L Rating At 400 F — Less Than 1 CFM/Sq Ft L Rating At 400 F — Less Than 1 CFM/Sq Ft

SECTION A-A

3. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of items may be used:

A. Steel Pipe — Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. Iron Pipe — Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.

C. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.

E. Conduit — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) aluminum or steel conduit.

F. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT).

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

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System No. C-AJ-1226

ANSI/UL1479 (ASTM E814) CAN/ULC S115

F Rating — 3 Hr F Rating — 3 Hr

T Rating — 0 Hr FT Rating — 0 Hr

L Rating At Ambient — Less Than 1 CFM/Sq Ft FH Rating — 3 Hr

L Rating At 400 F — 4 CFM/Sq Ft FTH Rating — 0 Hr

L Rating At Ambient — Less Than 1 CFM/Sq Ft L Rating At Ambient — Less Than 1 CFM/Sq Ft

L Rating At 400 F — 4 CFM/Sq Ft L Rating At 400 F — 4 CFM/Sq Ft

SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 32 in. (813 mm).

2. Metallic Sleeve — (Optional) Nom 32 in. (813 mm) diam (or smaller) Schedule 40 (or heavier) steel sleeve cast or grouted into floor or wall assembly, flush with floor or wall surfaces or extending a max of 3 in. (76 mm) above floor or beyond both surfaces of wall. The sleeve extends beyond the top surface of the floor or both surfaces of the wall. The T Rating of the firestop system is 0 Hr.

2A. Sheet Metal Sleeve — (Optional) Max 6 in. (152 mm) diam (or smaller) sheet metal sleeve provided with a 24 ga galv steel square flange spot welded to the sleeve at approximately mid-height, or flush with bottom of sleeve in floors, and sized to be a min 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place flush with bottom surface of floor and may extend a max of 1 in. (25 mm) above the top surface of the floor.

2B. Sheet Metal Sleeve — (Optional) Max 12 in. (305 mm) diam, min 26 ga. galv steel provided with a 24 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. (102 mm) below the bottom of the deck and a max of 1 in. (25 mm) above the top surface of the concrete floor.

2B. Sheet Metal Sleeve — (Optional) Max 12 in. (305 mm) diam, min 24 ga galv steel provided with a 24 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. (102 mm) below the bottom of the deck and a max of 1 in. (25 mm) above the top surface of the concrete floor.

2C. Sheet Metal Sleeve — (Optional) Max 6 in. (152 mm) diam, min 26 ga. galv steel provided with a 24 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. (102 mm) below the bottom of the deck and a max of 1 in. (25 mm) above the top surface of the concrete floor.

3. Through-Penetrant — One metallic pipe, tube or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space between penetrant and periphery of opening shall be min 0 in. (0 mm) to max 1-7/8 in. (48 mm). Penetrant may be installed with continuous point contact. Penetrant to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic penetrants may be used:

A. Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.

C. Conduit — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) aluminum or steel conduit.

D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.

E. Conduit — Nom 2 in. (51 mm) diam (or smaller) Schedule 10 (or heavier) aluminum pipe for use in closed (process or supply) piping systems.

F. Conduit — Nom 2 in. (51 mm) diam (or smaller) aluminum electric metallic tubing (EMT) or rigid aluminum conduit for use in closed (process or supply) piping systems.

The hourly T Ratings of the firestop system are equal to 0 Hr when items 2A to 2E are used and equal to 1/2 Hr when items 2F and 2G are used. The hourly CAN F and FH Ratings are equal to 0 Hr when items 2F and 2G are used.

3. Fill, Void or Cavity Material — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between penetrant and concrete or sleeve, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the concrete or sleeve/penetrant interface on the top surface of floor and on both surfaces of wall.

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System No. C-AJ-1226

ANSI/UL1479 (ASTM E814) CAN/ULC S115

F Rating — 3 Hr F Rating — 3 Hr

T Rating — 0 Hr FT Rating — 0 Hr

L Rating At Ambient — Less Than 1 CFM/Sq Ft FH Rating — 3 Hr

L Rating At 400 F — 4 CFM/Sq Ft FTH Rating — 0 Hr

L Rating At Ambient — Less Than 1 CFM/Sq Ft L Rating At Ambient — Less Than 1 CFM/Sq Ft

L Rating At 400 F — 4 CFM/Sq Ft L Rating At 400 F — 4 CFM/Sq Ft

SECTION A-A

4. Firestop System — The firestop system shall consist of the following:

A. Packing Material — Min 4 in. (102 mm) thickness of fill material applied within the annulus, flush with both surfaces of floor or sleeve or from both surfaces of wall or sleeve as required to accommodate the required thickness of fill material.

B. Fill, Void or Cavity Material — Sealant — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

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System No. W-L-1054

ANSI/UL1479 (ASTM E814) CAN/ULC S115

F Rating — 2 Hr F Rating — 2 Hr

T Ratings — 0 and 1 Hr (See Items 2 and 20) FT Ratings — 0 and 1 Hr (See Items 2 and 20)

L Rating At Ambient — 4 CFM/Sq Ft FH Rating — 2 Hr

L Rating At 400 F — 4 CFM/Sq Ft FTH Ratings — 0 and 1 Hr (See Items 2 and 20)

L Rating At Ambient — 4 CFM/Sq Ft L Rating At Ambient — 4 CFM/Sq Ft

L Rating At 400 F — 4 CFM/Sq Ft L Rating At 400 F — 4 CFM/Sq Ft

SECTION A-A

2. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space for items 2A and 2B shall be min 0 in. to max 2-1/4 in. (57 mm). These pipes/tubings may be installed with continuous point contact. The hourly CAN F and FH Ratings are equal to 0 Hr when items 2F and 2G are used.

2A. Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

2B. Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.

2C. Conduit — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) aluminum or steel conduit.

2D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.

2E. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

2F. Aluminum Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 10 (or heavier) aluminum pipe for use in closed (process or supply) piping systems.

2G. Closed Conduit — Nom 2 in. (51 mm) diam (or smaller) aluminum electric metallic tubing (EMT) or rigid aluminum conduit for use in closed (process or supply) piping systems.

The hourly CAN F and FH Ratings of the firestop system are equal to 0 Hr when items 2A to 2E are used and equal to 1/2 Hr when items 2F and 2G are used.

3. Fill, Void or Cavity Material — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe/wall interface on both surfaces of wall.

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The M Rating for the firestop system is dependent on the variables as noted in the Table 1 below.

Movement Direction	Penetrant Item	Nominal Penetrant Diameter	Annular Space	Movement	Sealant Depth	F-Rating	L Rating with Movement
Y	2A, 2C*	2 in.	Max 2-1/4 in.	5%	5/8 in.	1 hr	N/A
Z	2A, 2C*	2 in.	2-1/4 in.	0.25 in.	5/8 in.	1 hr	N/A

* Rigid steel conduit

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CONSTRUCTION

12/18/25
DD PACKAGE
DD PACKAGE
SHEET TITLE
PENETRATIONS - FIRE PROTECTION
SHEET NUMBER
FP0.03

