

HVAC & PLUMBING SYMBOL SCHEDULE

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
(#)	REFER TO PLAN NOTES	(111)	ROOM CALLOUT
(E)	EXISTING EQUIPMENT OR MATERIAL DESIGNATION	△	REVISION NUMBER
---	EXISTING COMPONENT PEN WEIGHT	○	CONNECT NEW TO EXISTING. VERIFY EXACT LOCATION.
---	DEMOLITION PEN WEIGHT - COMPONENT MAY ALSO BE SHADED	●	DISCONNECT FROM EXISTING. VERIFY EXACT LOCATION.
T.C.C.	TEMPERATURE CONTROL CONTRACTOR	G.C.	GENERAL CONTRACTOR
E.C.	ELECTRICAL CONTRACTOR	M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR	TYP.	TYPICAL ALL INSTANCES
24x12	(UP) DUCT SEC., POSITIVE PRESSURE-FIRST SIZE IS TOP DIM.(TYP.)		BALANCING DAMPER W/ MANUAL LOCKING QUADRANT
24x12	(DOWN) DUCT SECTION, POSITIVE PRESSURE		RECTANGULAR - OPPOSED BLADE / ROUND - BUTTERFLY
24x12	(UP) DUCT SECTION, NEGATIVE PRESSURE		BALANCING DAMPER W/ MOTORIZED LOCKING QUADRANT
24x12	(DOWN) DUCT SECTION, NEGATIVE PRESSURE		RECTANGULAR - OPPOSED BLADE / ROUND - BUTTERFLY
	SUPPLY DUCT DROP	18x12	DUCT SIZE, FIRST FIGURE IS SIDE SHOWN-CLEAR INSIDE DIM.
	SUPPLY DUCT RISER		DUCT CHANGE OF ELEVATION RISE(R) DROP(D)
	RETURN DUCT DROP		FLEXIBLE CONNECTION
	RETURN DUCT RISER		SIDE WALL SUPPLY REGISTER
	FLEXIBLE DUCT	RTU	ROOFTOP UNIT
	TURNING VANES	AHU	AIR HANDLING UNIT
SA	SUPPLY AIR	VAV	VARIABLE AIR VOLUME UNIT
OA	OUTSIDE AIR	FTU	FAN POWERED TERMINAL UNIT
RA	RETURN AIR	FCU	FAN COIL UNIT
EA	EXHAUST AIR	MAU	MAKE-UP AIR UNIT
OBD	OPPOSED BLADE DAMPER	SF	SUPPLY AIR FAN
BOD	BOTTOM OF DUCT ELEVATION ABOVE FLOOR	EF	EXHAUST FAN
BOS	BOTTOM OF STEEL	SR	SUPPLY REGISTER
TOD	TOP OF DUCT ELEVATION ABOVE FLOOR	RG	RETURN GRILLE
DH	DUCT HEATER	F	FURNACE
DP	DIFFERENTIAL PRESSURE	UH	UNIT HEATER
CVR	CONSTANT VOLUME REHEAT UNIT	CRAC	COMPUTER ROOM AIR CONDITIONING UNIT
V V R	VARIABLE VOLUME REHEAT UNIT	H	HUMIDIFIER
V V T	VARIABLE VOLUME VARIABLE TEMPERATURE	VFD	VARIABLE FREQUENCY DRIVE
UV	ULTRAVIOLET STERILE CONDITIONER	FD	FIRE DAMPER IN FLOOR (VERTICAL POSITION)
	RADIATION DAMPER	FD	FIRE DAMPER IN WALL (HORIZONTAL POSITION)
	MOTOR	SD	SMOKE DAMPER
	TEMPERATURE SENSOR	FSD	COMBINATION FIRE/SMOKE DAMPER (VERTICAL POSITION)
	HUMIDITY SENSOR	FSD	COMBINATION FIRE/SMOKE DAMPER (HORIZONTAL POSITION)
(H)	ELECTRIC OR DDC HUMIDISTAT (HSTAT)	(T)	ELECTRIC OR DDC THERMOSTAT (TSTAT)
(H)	PNEUMATIC HUMIDISTAT	(T)	PNEUMATIC THERMOSTAT
	DOUBLE CHECK BACKFLOW ASSEMBLY		BALL VALVE
	REDUCED PRESSURE ZONE BACKFLOW ASSEMBLY		CALIBRATED BALANCE VALVE - CIRCUIT SETTER
	GAS COCK		BUTTERFLY VALVE
	VALVE IN DROP		2-WAY CONTROL VALVE (PNEUMATIC)
	VALVE IN RISER		3-WAY CONTROL VALVE (PNEUMATIC)
	GATE VALVE / SHUT OFF VALVE		2-WAY CONTROL VALVE (ELECTRIC)
	GLOBE VALVE		3-WAY CONTROL VALVE (ELECTRIC)
	3 PIECE BALL VALVE		CHECK VALVE
	HYDRAULIC VALVE		PRESSURE REDUCING VALVE (PRV)
	EMERGENCY VALVE WITH FIRE LINK		WAFER CHECK VALVE
	STRAINER		AUTOMATIC FLOW CONTROL VALVE
	PLUG VALVE		CALIBRATED ORIFICE PLATE FLOW METER
	SPRING HANGER		THERMOMETER
	PIPE HANGER		PRESSURE GAUGE
	CAP		CONCENTRIC REDUCER OR INCREASER
	PIPE RISE		ECCENTRIC REDUCER
	PIPE DROP		TOP CONNECTION, 45° OR 90°
	UNION OR FLANGE CONNECTION		BOTTOM CONNECTION, 45° OR 90°
	DIRECTION OF FLOW		SIDE CONNECTION
	ANCHOR		CAPPED OUTLET
	DOMESTIC COLD WATER LINE (CW)		ABOVE FLOOR WASTE LINE (W)
	DOMESTIC HOT WATER LINE (HW)		BELOW WASTE LINE (W)
	HOT WATER RECIRC LINE (HWC)		PLUMBING VENT LINE (V)
	FIRE PROTECTION LINE (F)		RAIN LEADER (RL)
	NATURAL GAS LINE (G)		OVERFLOW RAIN LEADER (ORL)
	COOLING COIL CONDENSATE DRAIN LINE (CD)		TOP OF PIPE ELEVATION ABOVE FLOOR
	VENT THROUGH ROOF		ROOF DRAIN
	FLOOR DRAIN		OVERFLOW ROOF DRAIN
	CLEANOUT (FLOOR)		CAST IRON
	2-WAY CLEANOUT (FLOOR)		VITRIFIED CLAY PIPE
	WALL CLEANOUT		POLYVINYL CHLORIDE PIPE
	END OF LINE CLEANOUT		TRENCH DRAIN
	PLUMBING FIXTURE CALLOUT		WATER HEATER CALLOUT
	WATER HAMMER ARRESTOR - PDI SIZE		FILTER-SEPARATOR
	FLOW LINE ELEVATION		FLOOR SINK
	HOSE REEL		BOTTOM OF PIPE ELEVATION ABOVE FLOOR
	HOSE BIBB		DOMESTIC HOT WATER PUMP
	THERMOSTATIC MIXING VALVE		
NOT ALL MAY BE USED ON PROJECT			

GENERAL NOTES

- VERIFY JOB SITE CONDITIONS AND DIMENSIONS BEFORE BEGINNING WORK. PLANS ARE SCHEMATIC IN NATURE. LAYOUT IS BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS.
 - NO PIPING, DUCTWORK, ETC. SHALL PENETRATE STRUCTURAL MEMBERS.
 - PROVIDE MISCELLANEOUS CUTTING, PATCHING AND REPAIRING OF FINISHES, ROOF, WALLS, ETC., AS REQUIRED TO ACCOMMODATE THE NEW WORK.
 - G.C. IS TO PATCH ANY OPENINGS IN CORRIDORS REQUIRED TO BE CONSTRUCTED TO LIMIT THE TRANSFER OF SMOKE AND IN SMOKE BARRIERS AS REQUIRED TO MEET CODE REQUIREMENTS. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS.
 - IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY EXACT LOCATION, CONFIGURATION AND ROUTING OF EXISTING SYSTEMS REQUIRED TO REMAIN IN OPERATION DURING THE PROJECT TO PREVENT DAMAGE DURING DEMOLITION AND PHASING.
 - REMOVE ALL EXISTING EQUIPMENT, DUCTWORK AND PIPING THAT IS NOT REQUIRED FOR A WORKING INSTALLATION.
 - COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION.
 - UNLESS OTHERWISE INDICATED, INSTALL ALL SPACE THERMOSTATS AND OTHER OCCUPANT ADJUSTABLE CONTROL DEVICES SAME HEIGHT AS ADJACENT LIGHT SWITCHES, BUT IN NO CASE HIGHER THAN 48 INCHES ABOVE FINISHED FLOOR PER ADA REQUIREMENTS. COORDINATE EXACT HEIGHT WITH ARCHITECT PRIOR TO INSTALLATION.
 - ALL CUTTING AND PATCHING SHALL BE CLOSELY COORDINATED WITH THE G.C.
 - COORDINATE ROUTING OF PLUMBING, AND HVAC PIPING WITH DUCTWORK, LIGHTS, ARCHITECTURAL CEILING AND STRUCTURAL ELEMENTS. PIPING SHALL RISE AND DROP, JOG OR OFFSET AS REQUIRED TO AVOID CONFLICTS. DUCTWORK SHALL TAKE PRECEDENCE OVER ALL PIPING, EXCEPT WHERE GRADE MUST BE MAINTAINED FOR DRAINAGE. REWORK OF INSTALLED WORK TO RESOLVE CONFLICTS ARISING FROM LACK OF COORDINATION SHALL NOT JUSTIFY AN INCREASE IN THE CONTRACT AMOUNT.
 - ALL DIFFUSERS ARE 4-WAY BLOW UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
 - FLEXIBLE DUCTWORK IS ALLOWED ON RUNOUTS TO SUPPLY DIFFUSERS ONLY. UTILIZE ONLY ABOVE LAY-IN ACCESSIBLE CEILINGS. DO NOT INSTALL FLEX DUCT ABOVE HARD CEILINGS OR WHERE EXPOSED. A MAXIMUM LENGTH OF 6'-0" MAY BE USED AT EACH CONNECTION.
 - SEAL DUCTWORK AS CALLED OUT BELOW USING HARDCAST DT TAPE AND FTA-20 ADHESIVE OR HARDCAST AFG-1402 "FOIL GRIP" PER MANUFACTURERS INSTRUCTIONS. SEAL TO SMACNA SEAL CLASS A:

<p><u>TYPE OF DUCT</u></p> EXHAUST DUCT (ROUND OR RECT) MEDIUM VELOCITY (ROUND) MEDIUM VELOCITY (RECTANGULAR) LOW VELOCITY SUPPLY AND RETURN (RECT) LOW VELOCITY SUPPLY (ROUND)	<p><u>APPLY TO JOINTS</u></p> TRANSVERSE AND LONGITUDINAL TRANSVERSE AND LONGITUDINAL TRANSVERSE AND LONGITUDINAL TRANSVERSE AND LONGITUDINAL TRANSVERSE AND LONGITUDINAL
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 - INSTALL BALANCE DAMPER WITH STANDOFF AND LOCKING QUADRANT IN AN ACCESSIBLE LOCATION AT EACH RUNOUT TO SUPPLY DIFFUSERS, EXHAUST GRILLES, AND RETURN GRILLES WHERE AIRFLOW IS INDICATED, OR AS INDICATED OTHERWISE.
 - ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE FIRE STOPPED BY THE TRADE MAKING THE PENETRATION. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR REQUIREMENTS.
 - DO NOT ROUTE PIPING OR DUCTWORK OVER ELECTRICAL PANELS OR EQUIPMENT. PIPING OR DUCTWORK SHALL NOT BE ROUTED THROUGH ELECTRICAL ROOMS, TELECOM ROOMS OR ELEVATOR EQUIPMENT ROOMS UNLESS SPECIFICALLY SERVING THAT ROOM. COORDINATE WITH E.C. PROVIDE WATERTIGHT DRIP PAN WITH DRAIN TO NEAREST APPROVED RECEPTOR WHERE REQUIRED.
 - COORDINATE SIZE AND LOCATION OF ACCESS DOORS IN CONSTRUCTION REQUIRED FOR ACCESS TO MECHANICAL EQUIPMENT WITH G.C.
 - COORDINATE SIZE AND LOCATION OF MECHANICAL EQUIPMENT PADS WITH G.C.
 - ALL WORK IS TO CONFORM WITH APPLICABLE CODES AND STANDARDS.
 - DUCT SIZES SHOWN ARE ACTUAL INSIDE CLEAR DIMENSIONS. INCREASE SHEET METAL DIMENSIONS AS REQUIRED TO ACCOMMODATE DUCT LINER WHERE LINER IS SPECIFIED.
 - ALL EQUIPMENT SUPPORT STANDS SHALL BE PRIMED AND PAINTED WITH EPOXY ENAMEL.
 - REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED AIR DISTRIBUTION DEVICES.
 - PAINT INSIDE OF DUCTWORK BLACK ANYWHERE VISIBLE THROUGH FACE OF GRILLE OR DIFFUSER.
 - UNDERGROUND-TYPE UTILITY MARKER: PROVIDE A CAST ALUMINUM UTILITY MARKER AT EVERY 100 FEET FOR ALL UNDERGROUND UTILITIES. 4"x7" TOP WITH 10" MINIMUM SPIKE; LABEL WITH THE APPROPRIATE UTILITY. MARKERS AS MANUFACTURED BY LAKE SHORE MARKERS, ERIE, PENNSYLVANIA.
 - ALL CONTROL DAMPERS SHALL BE FURNISHED BY MC AND INSTALLED BY THE MC. MOTOR OPERATORS SHALL BE FURNISHED AND INSTALLED BY THE MC.
 - COORDINATE ACCESS TO EQUIPMENT AND VALVES INSTALLED ABOVE 'HARD' CEILINGS AND IN MASONRY CHASES WITH GENERAL CONTRACTOR. PROVIDE LOCKING ACCESS DOORS FOR INSTALLATION BY CONTRACTOR AS REQUIRED TO SERVICE CONCEALED DAMPERS, VALVES AND EQUIPMENT. CEILING ACCESS DOORS FOR FIRE DAMPERS, SMOKE DAMPERS AND FIRE SMOKE DAMPERS FURNISHED AND INSTALLED BY CONTRACTOR.
 - CONTRACTOR TO INSTALL TEMPORARY FILTERS OVER ALL RETURN AND EXHAUST GRILLES IN WORK AREA DURING CONSTRUCTION.
 - THESE DRAWINGS ARE ACCOMPANIED BY SPECIFICATIONS. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION.
 - EQUIPMENT THAT REQUIRES MAINTENANCE SHALL BE LOCATED A MINIMUM OF 10'-0" FROM THE BUILDING ROOF EDGE WHERE REQUIRED BY CODE.
 - REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF TEMPORARY PARTITIONS.
- NOTE: NOT ALL MAY APPLY ON PROJECT.

DRAWING SYMBOLS

SECTIONS	DETAILS
<p>SECTION LETTER</p> <p>SHEET NUMBER WHERE DRAWN</p>	<p>DETAIL NUMBER</p> <p>SHEET NUMBER WHERE DRAWN</p>
<p>SECTION LETTER</p> <p>SHEET NUMBER WHERE DRAWN</p>	<p>DETAIL NUMBER</p> <p>SHEET NUMBER WHERE DRAWN</p>
<p>SHEET NUMBER WHERE REFERENCED</p>	<p>SHEET NUMBER WHERE REFERENCED</p>

EQUIPMENT CALLOUT

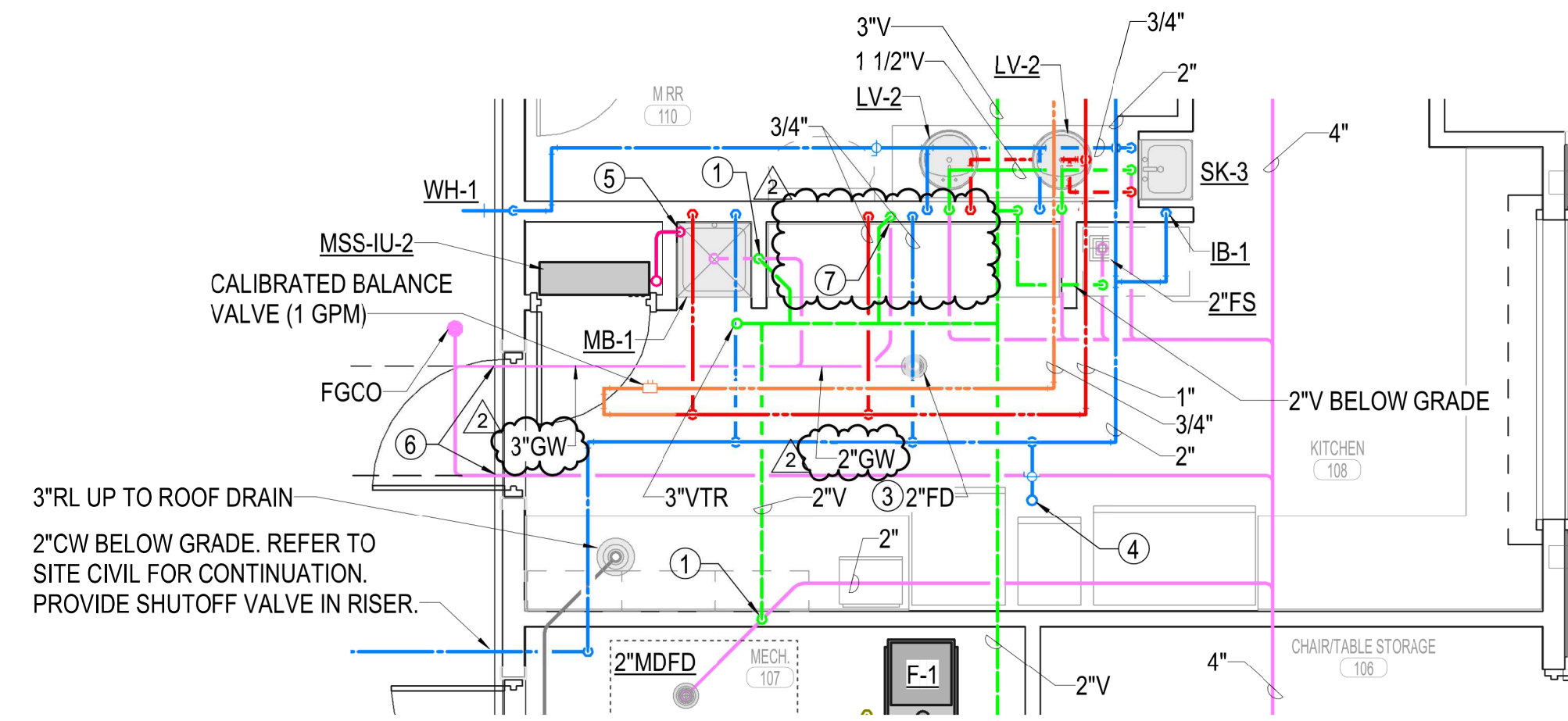
EQUIPMENT TYPE (FT=FAN TERMINAL)
 UNIQUE I.D. (FAN TERMINAL NO. 1)
 TYPICAL EQUIPMENT NUMBER

HVAC DESIGN CONDITIONS

SPACE OR AREA	OUTDOOR AIR		INDOOR HEATING DB	INDOOR COOLING DB	RELATIVE HUMIDITY %RH	MODE	NOTES
	SUMMER DB/WB	WINTER DB					
GREAT ROOM	105/78	0	68	70	50%	-	-
GREAT HALL	105/78	0	68	70	50%	-	-
KITCHEN	105/78	0	68	70	50%	-	-
MECH	105/78	0	60	N/A	50%	-	-

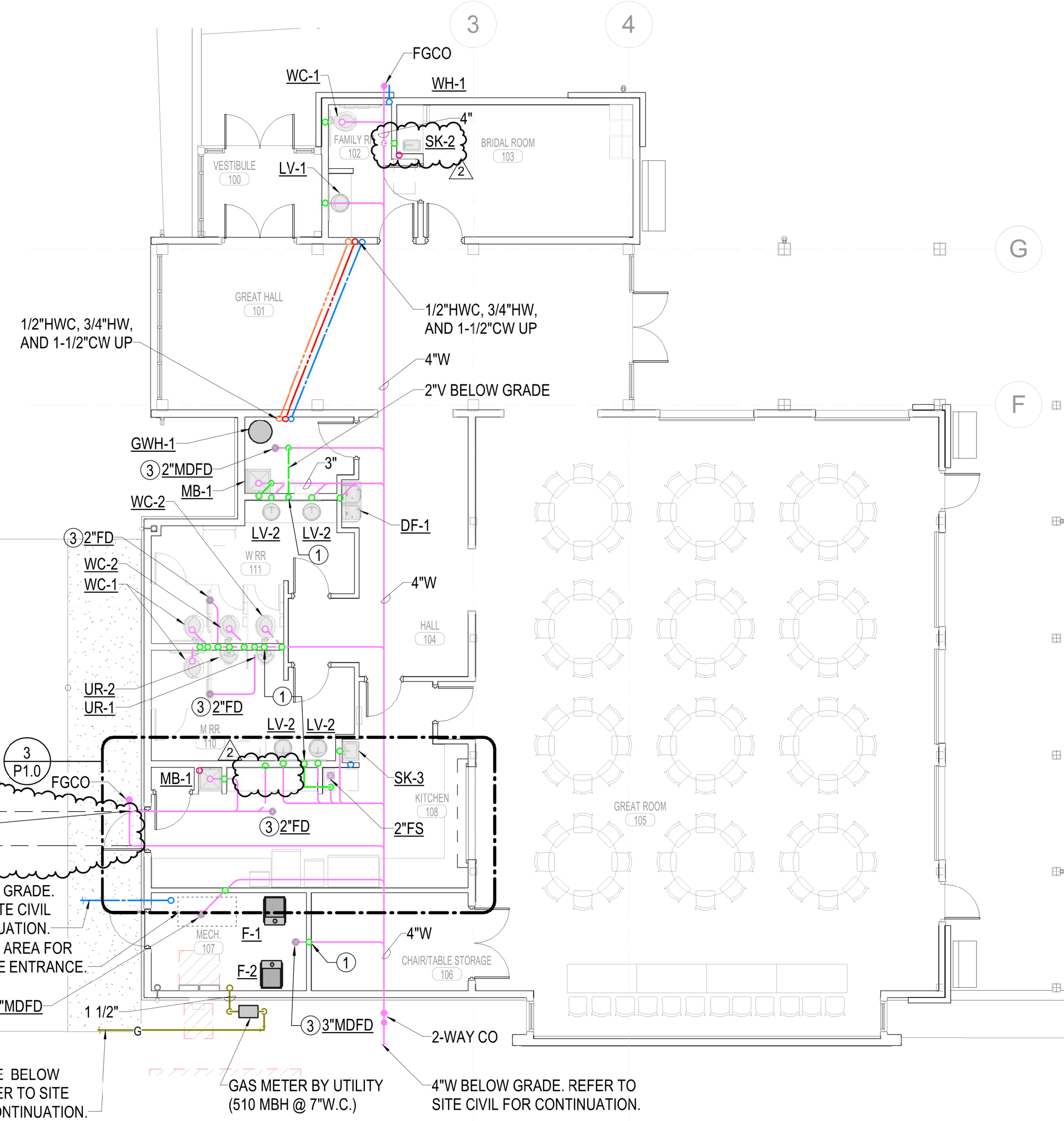
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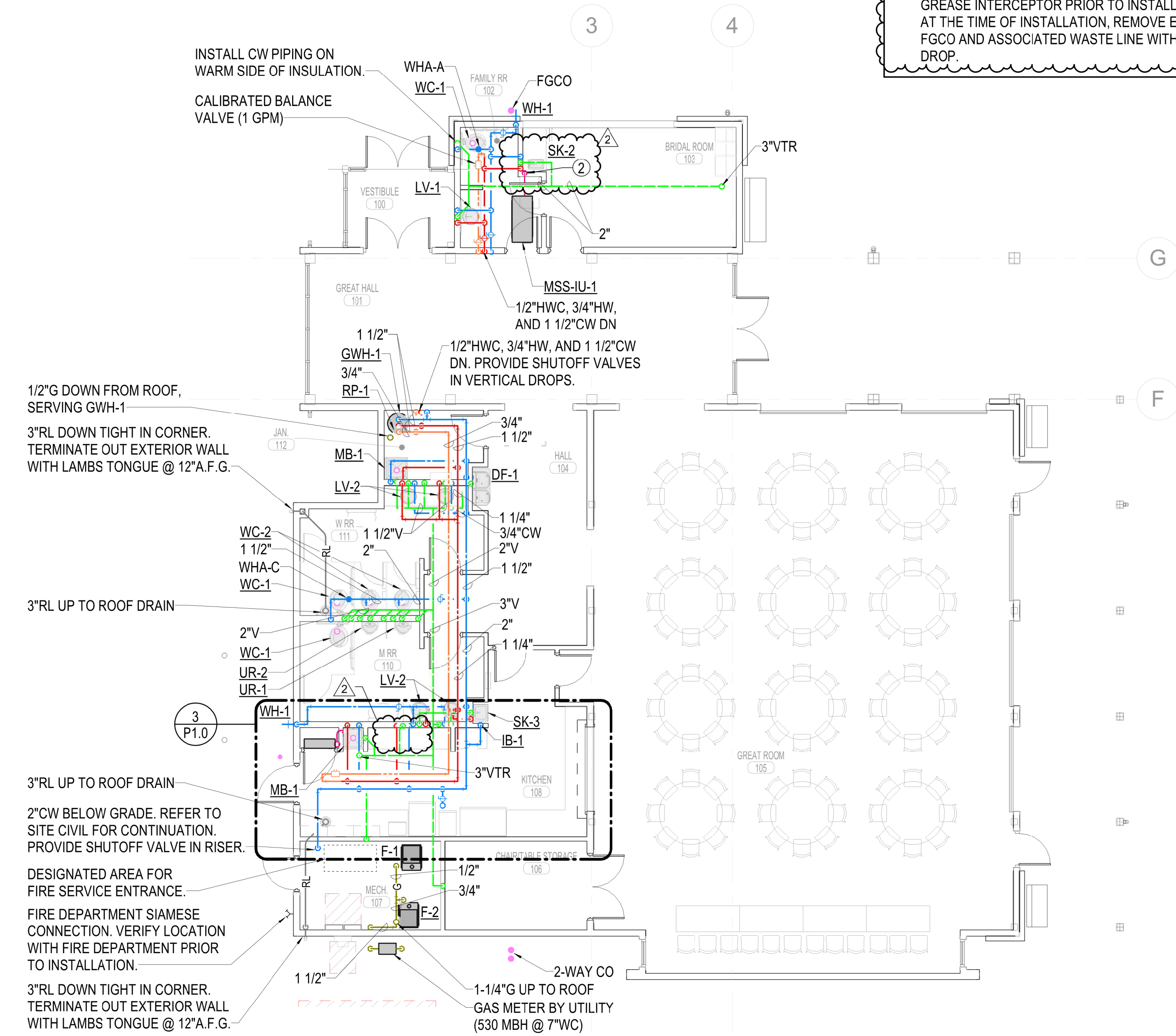


3 ENLARGED KITCHEN PLUMBING PLAN
 1/4" = 1'-0"

- # PLAN NOTES**
- 2"V UP IN WALL.
 - CONNECT 3/4"CD SERVING MSS-IU-1 INTO SK-2 CONDENSATE DRAIN FITTING. REF. DETAIL 8/P7.0.
 - PROVIDE DRAIN WITH TRAP GUARD. REF. DETAIL 6/P7.0.
 - 1"CW UP TO ROOF HYDRANT. REF. DETAIL 7/P7.0. ROUTE COPPER DRAIN LINE TO FLOOR DRAIN IN MECHANICAL ROOM AND TERMINATE WITH AIR GAP.
 - TERMINATE 3/4"CD SERVING MSS-IU-2 OVER MOP SINK.
 - CONTRACTOR SHALL ACCURATELY LOCATE WHERE WASTE PIPING EXITS THE BUILDING ON AS-BUILT DRAWINGS FOR CONNECTION OF POTENTIAL FUTURE GREASE INTERCEPTOR. PROVIDE 18" OF DROP BETWEEN WHERE WASTE EXITS BUILDING AND ENTERS BUILDING TO ACCOMMODATE POTENTIAL FUTURE GREASE INTERCEPTOR.
 - PREPARE FOR CONNECTION TO FUTURE SINK. PROVIDE 3/4"CW & 3/4"HW TO QUARTER TURN BALL VALVES. PROVIDE 2"W AND 1-1/2"V UP/DOWN IN WALL AND CAP WITHIN CABINET.
 - FUTURE 4" GREASE WASTE OUT TO GREASE INTERCEPTOR. VERIFY SIZE AND LOCATION OF GREASE INTERCEPTOR PRIOR TO INSTALLATION. AT THE TIME OF INSTALLATION, REMOVE EXISTING FGCO AND ASSOCIATED WASTE LINE WITH 18" DROP.

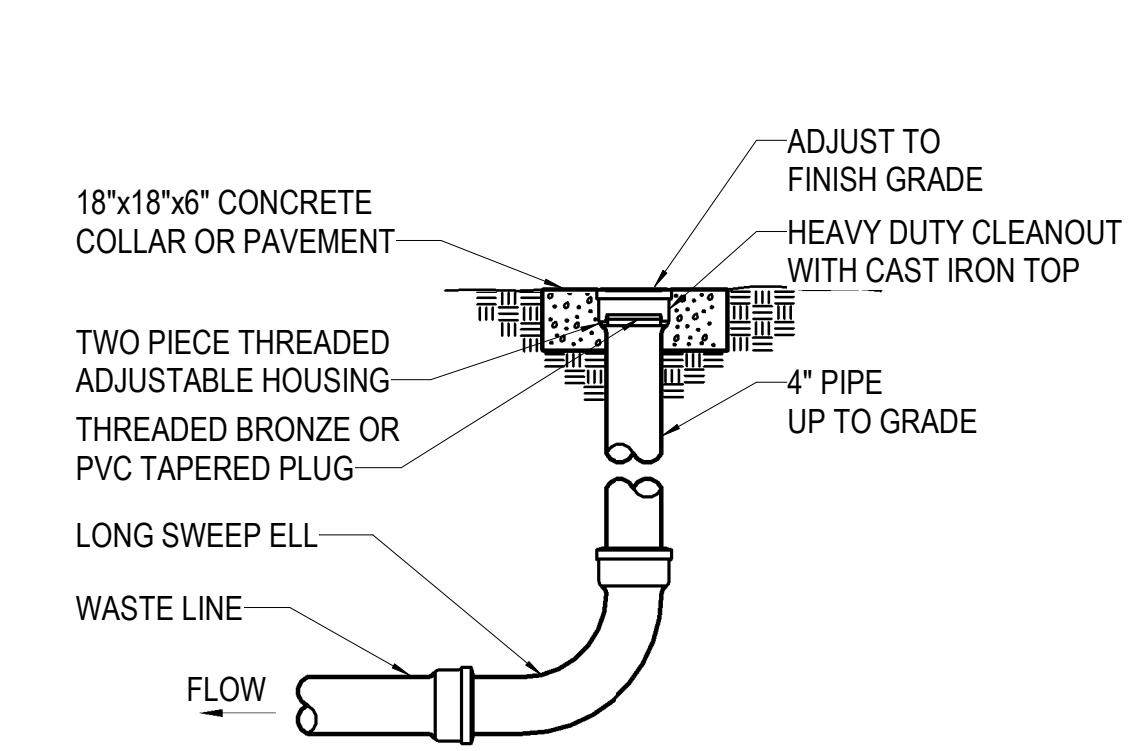


1 BELOW FLOOR PLUMBING PLAN
 1/8" = 1'-0"

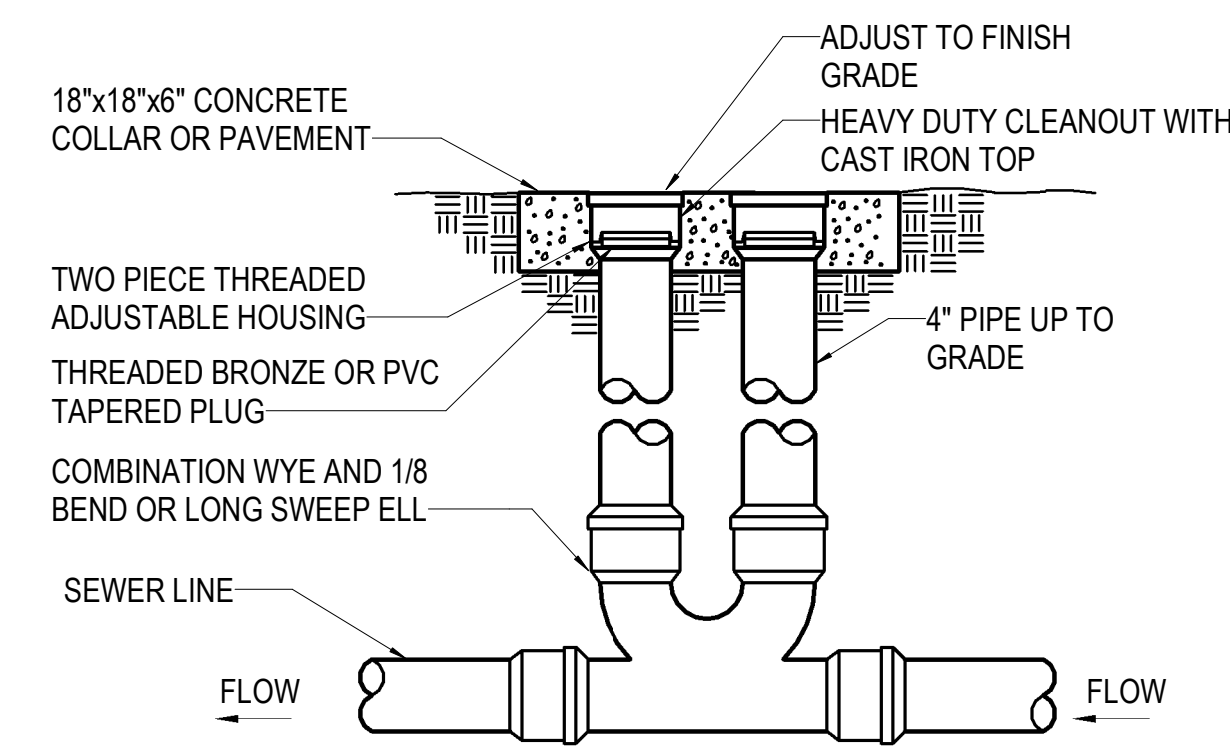


2 ABOVE FLOOR PLUMBING PLAN
 1/8" = 1'-0"

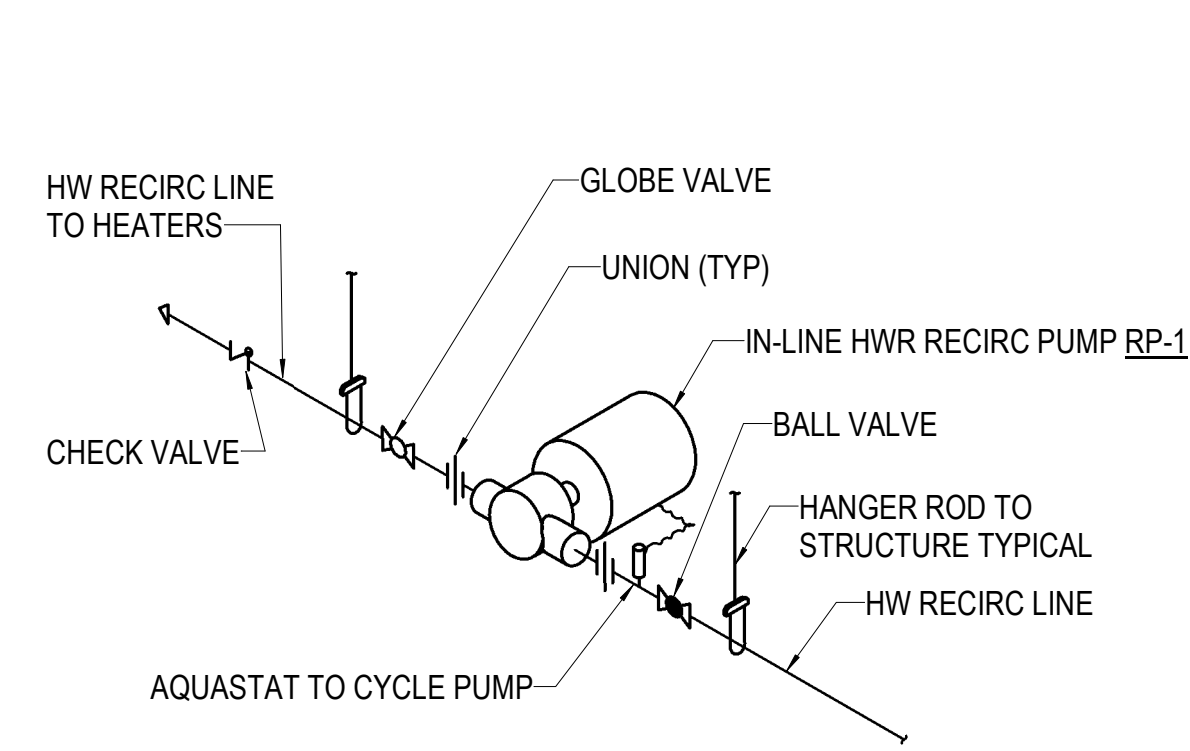




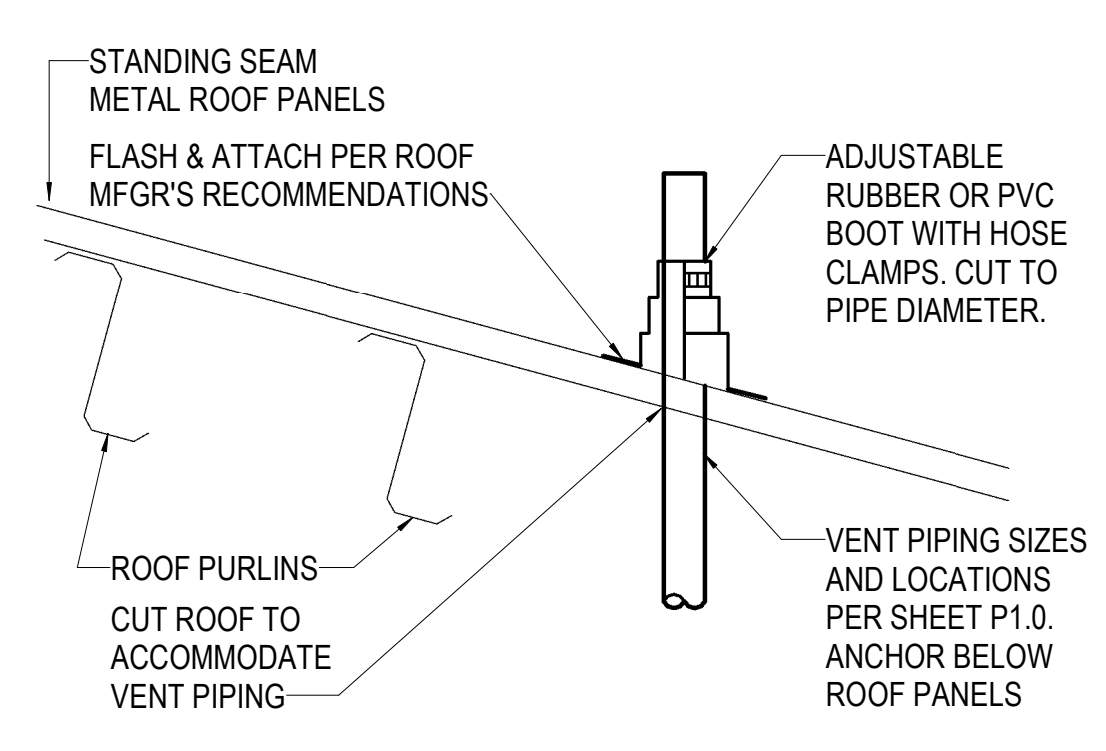
1 CLEANOUT DETAIL - EXTERIOR
NO SCALE



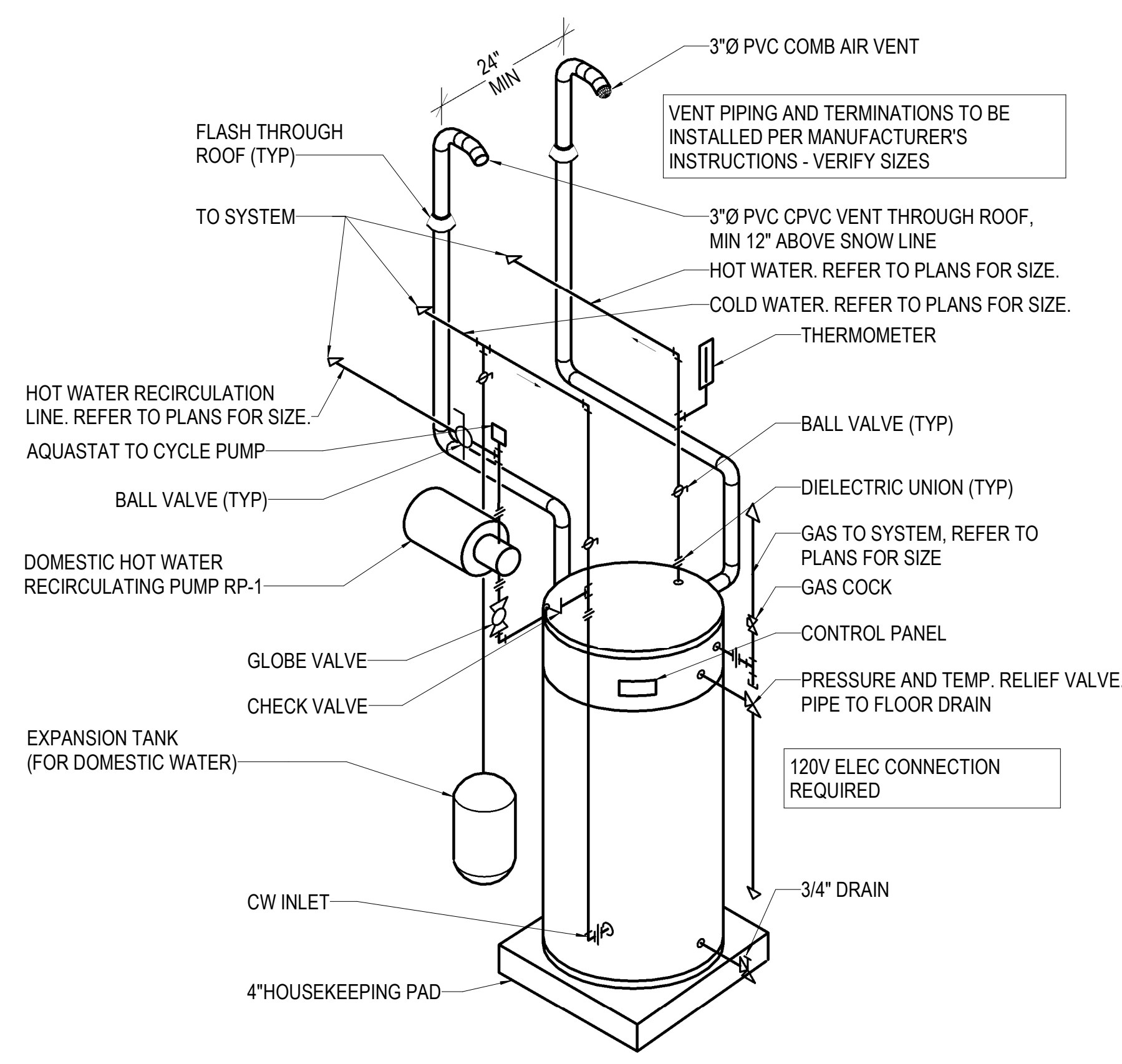
2 CLEANOUT DETAIL - 2-WAY EXTERIOR
NO SCALE



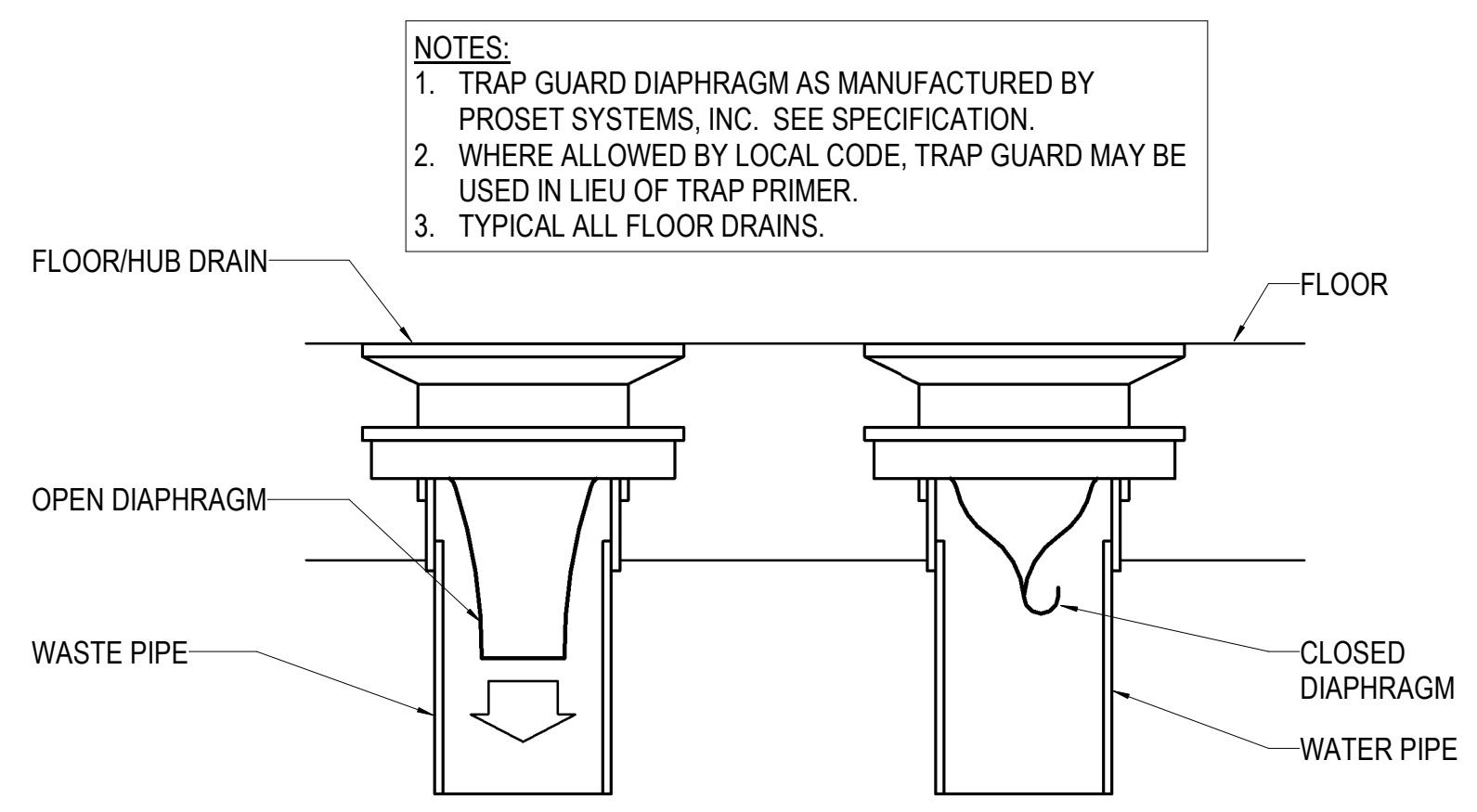
3 RECIRCULATION PUMP DETAIL
NO SCALE



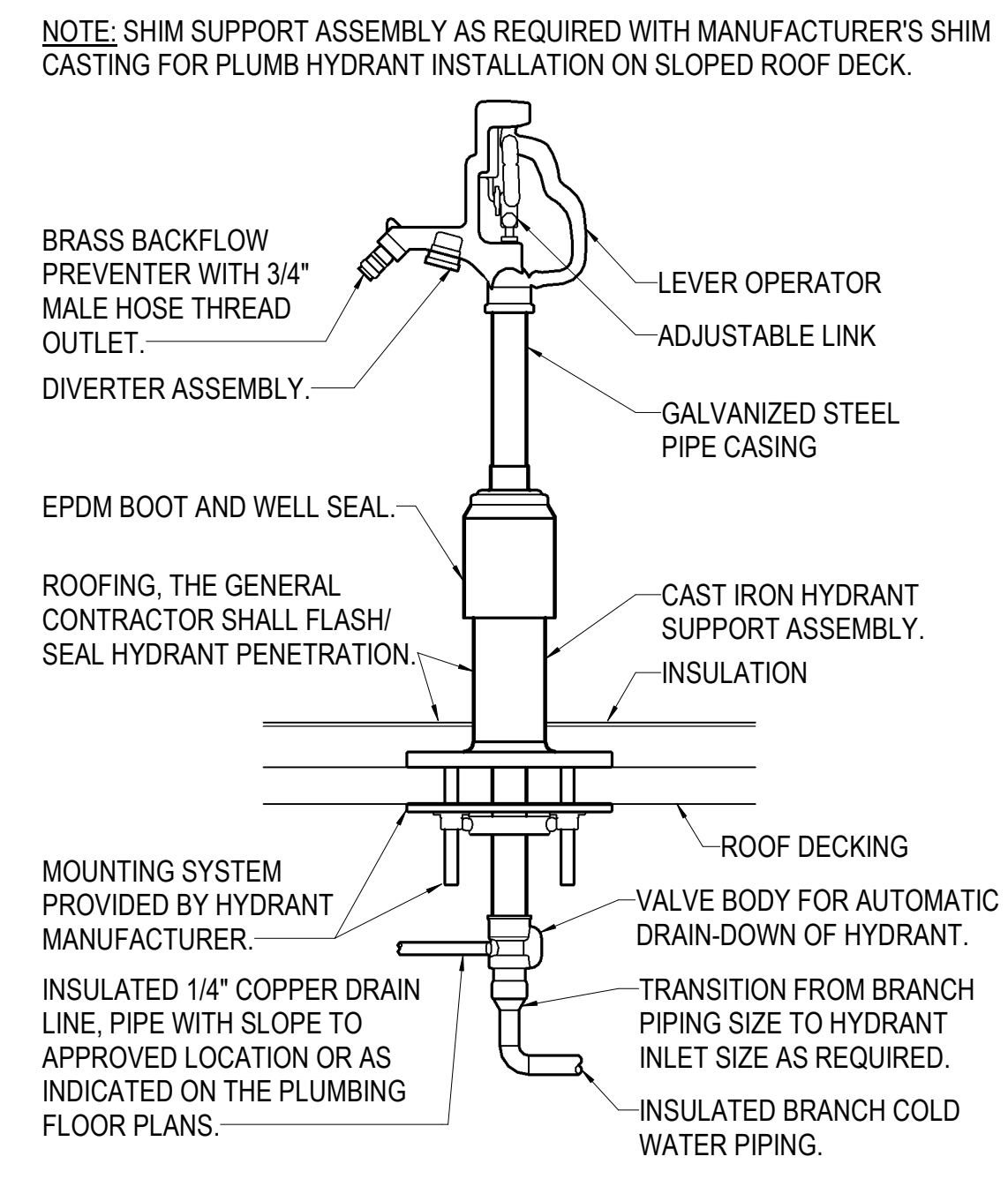
5 VENT THRU ROOF DETAIL
NO SCALE



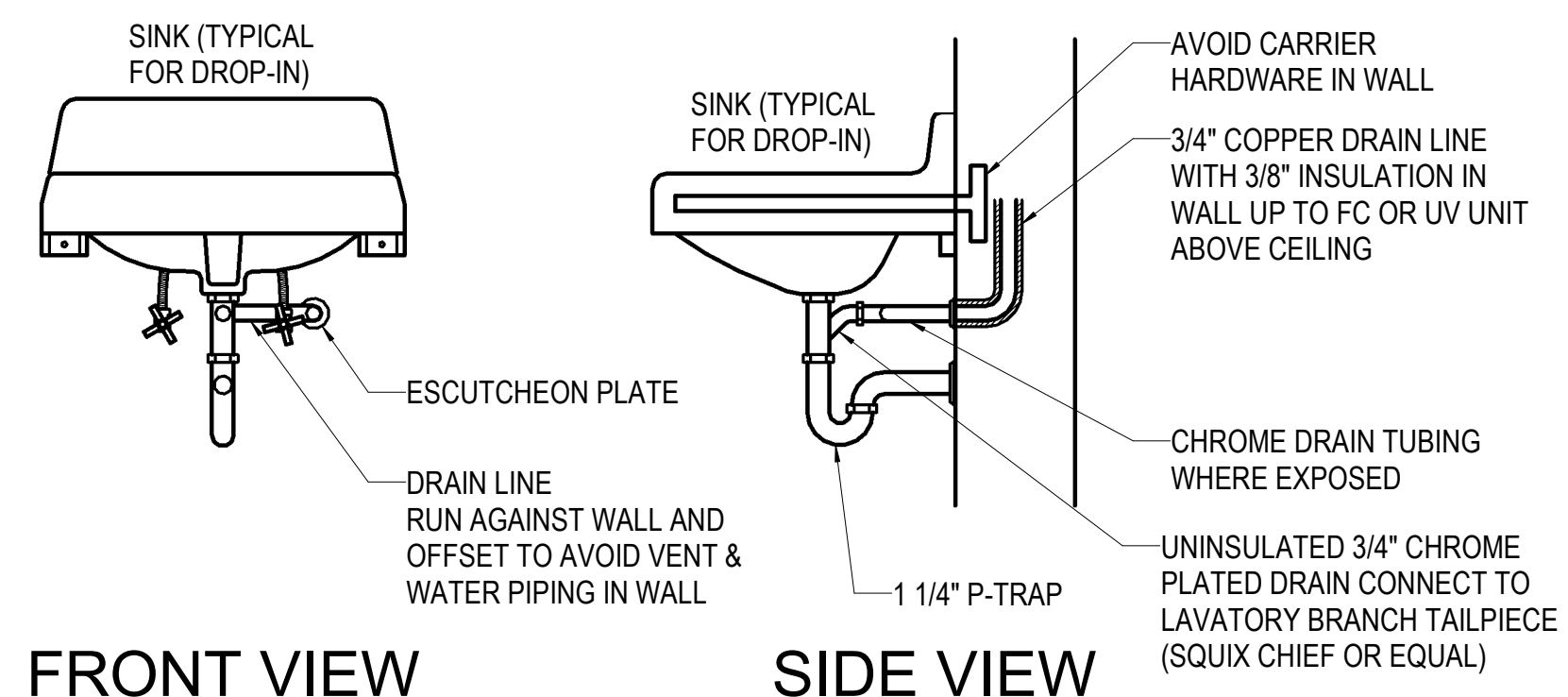
4 WATER HEATER GAS HIGH EFFICIENCY
NO SCALE



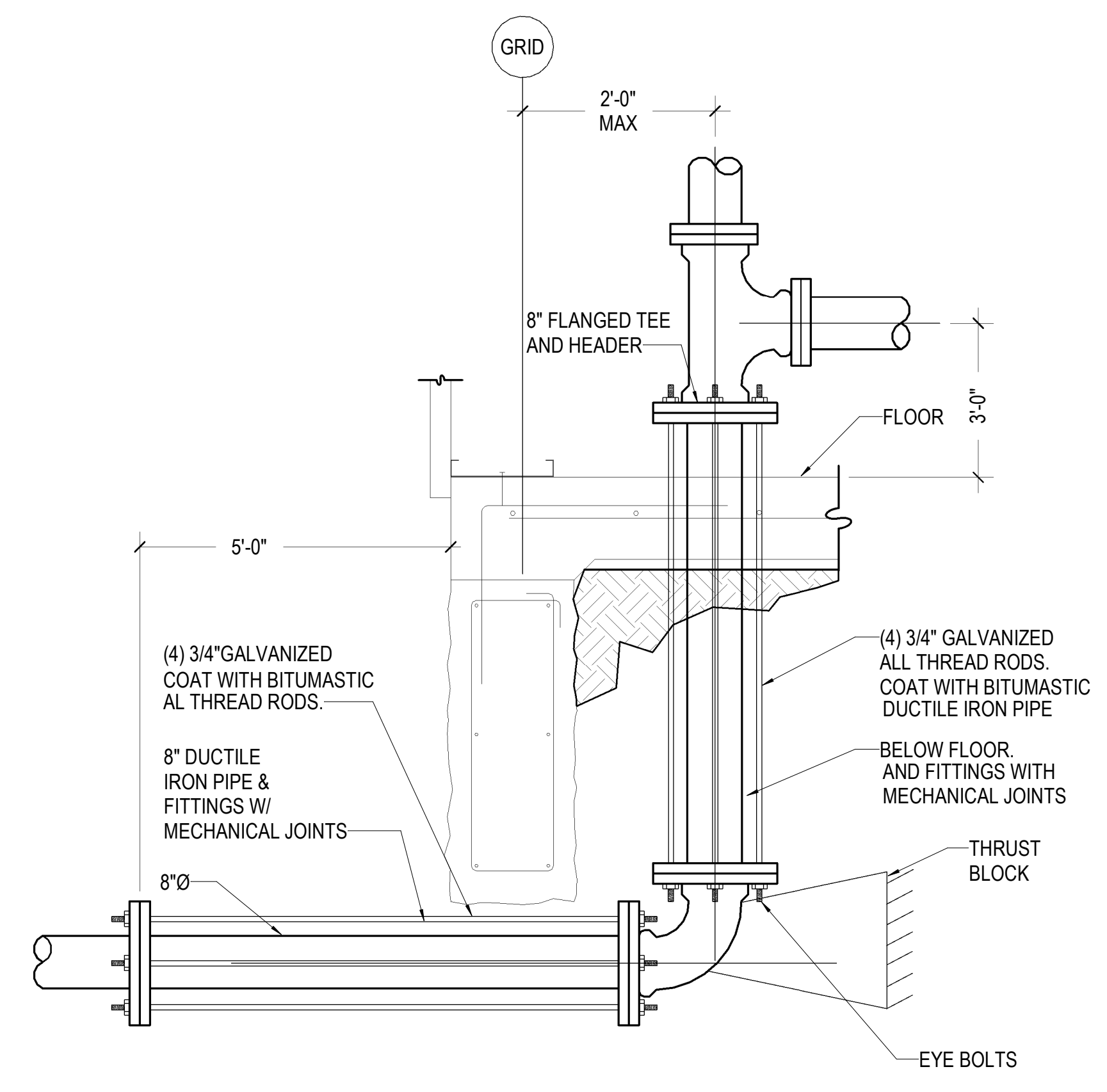
6 TRAP GUARD DETAIL
NO SCALE



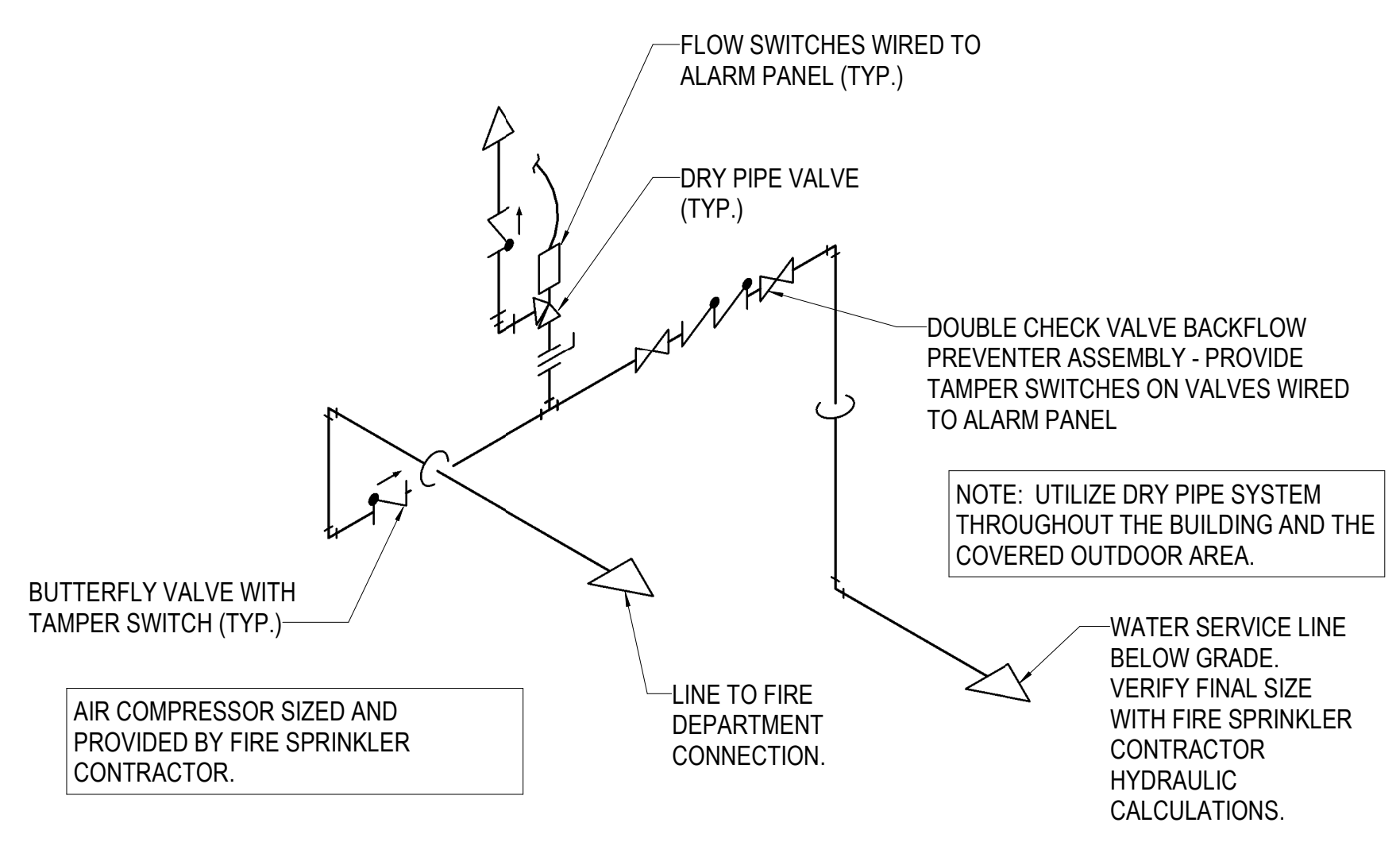
7 ROOF HYDRANT DETAIL
NO SCALE



8 CONDENSATE DRAIN PIPING DETAIL - SINK
NO SCALE



9 FIRE LINE ENTRANCE DETAIL
1/8" = 1'-0"



10 FIRE SERVICE RISER
NO SCALE

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WATER HEATER SCHEDULE

MARK	LOC. AT ROOM	TYPE	MIN. CAPACITY		GAS				ELECTRIC			EXP. TANK	RECIRC PUMP	REMARKS
			GAL STOR	GPH RECOVERY AT 90° RISE	INPUT MBH	VENT DIA.	VENT MOTOR AMPS	ELECT	TOTAL KW	NO. ELEMENTS	VOLT/ PHASE			
GWH-1	JAN 112	GAS	40	45	40	4"	<5	120/1	-	-	-	NOTE 2	RP-1	1

1. BASED ON A.O. SMITH GPD-40 POWER DIRECT VENT GAS TANK WATER HEATER WITH CONDENSATE NEUTRALIZATION KIT AND CONCENTRIC VENT TERMINATION KIT. STORAGE TEMPERATURE SHALL BE 140°F.
2. EXPANSION TANK EQUAL TO AMTROL ST-5-C.

PUMP SCHEDULE

MARK	LOC AT ROOM	TYPE	MIN CAPACITY		MIN SIZE CONN		MOTOR (BY M.C.)					REMARKS
			GPM	FEET HEAD	SUCTION	DISCH	HP	RPM	SPEED	ELECT	STARTER	
RP-1	JANITOR 112	INLINE	2	15	3/4"	3/4"	1/8	3250	1	120/1	BY MC	1,2

1. BASED ON TACO MODEL 009-F5 INLINE CIRCULATING PUMP; CAST IRON WITH REPLACEABLE CARTRIDGE.
2. PROVIDE WITH AQUASTAT AND TIMER.

FIXTURE CONNECTION SCHEDULE

SORTING	FIXTURE	WATER				WASTE		VENT
		COLD		HOT		RUNOUT	CONN.	
		RUNOUT	CONN.	RUNOUT	CONN.			
DF-1	WATER COOLER	1/2"	3/8"	--	--	2"	2"	1-1/2"
IB-1	ICEMAKER BOX	1/2"	3/8"	--	--	-	-	-
LV-1	LAVATORY	1/2"	3/8"	1/2"	3/8"	2"	1-1/4"	1-1/2"
LV-2	LAVATORY	1/2"	3/8"	1/2"	3/8"	2"	1-1/4"	1-1/2"
MB-1	MOP BASIN	3/4"	1/2"	3/4"	1/2"	3"	3"	2"
RH-1	ROOF HYDRANT	1"	1"	--	--	--	--	--
SK-2	HAND SINK	1/2"	3/8"	1/2"	3/8"	2"	1-1/4"	1-1/2"
SK-3	HAND SINK	1/2"	3/8"	1/2"	3/8"	2"	1-1/4"	1-1/2"
UR-1	URINAL (ADA)	1"	3/4"	--	--	2"	2"	1-1/2"
UR-2	URINAL	1"	3/4"	--	--	2"	2"	1-1/2"
WC-1	WATER CLOSET (ADA)	1-1/4"	1"	--	--	4"	3"	2"
WC-2	WATER CLOSET	1-1/4"	1"	--	--	4"	3"	2"
WH-1	WALL HYDRANT	3/4"	3/4"	--	--	-	-	-

PLUMBING FIXTURE LIST:

DF-1: WATER COOLER - BI LEVEL (ADA):
ELKAY MODEL EZSTL8WSSK DUAL HEIGHT WALL MOUNTED WHEELCHAIR ACCESSIBLE NON-FILTERED ELECTRIC WATER COOLER WITH STAINLESS STEEL TOPS AND PANELS, SELF CLOSING FRONT AND SIDE PUSHBAR OPERATED VANDAL-RESISTANT BUBBLERS, SENSOR ACTIVATED BOTTLE FILLING STATION, CAPACITY OF GPH OF 50 DEGREE WATER AT ARI CONDITIONS, 5.0 FLA, 120/60/1 COMPRESSOR - 5 YEAR REFRIGERATION WARRANTY - COLD WATER SUPPLY WITH QUARTER TURN STOP - 1-1/4" CAST BRASS P-TRAP, MOUNT UNIT PER MANUFACTURER'S RECOMMENDATIONS TO MEET ADA REQUIREMENTS.

IB-1: ICEMAKER BOX:
GUY GRAY MIB1 WHITE POWDER COAT ON COLD ROLLED STEEL FINISH, 20 GAUGE BOX, 20 GAUGE FACEPLATE WITH 1/4 TURN STOP.

LV-1: LAVATORY:
AMERICAN STANDARD 0476.028 "AQUALIN" 20-3/8" x 17-3/8" VITREOUS CHINA OVAL DROP IN LAVATORY WITH FAUCET HOLES ON 4" CENTERS - ZURN Z81104-XL DECK MOUNTED LAVATORY FAUCET WITH LONG CAST SPOUT, 1.0 GPM SPOUT, WRISTBLADE HANDLES, CERAMIC DISC CARTRIDGES - PROVIDE OFFSET DRAIN WITH GRID STRAINER - CHROME PLATED WALL SUPPLIES WITH LOOSE KEY STOPS - LEONARD 170-LF ASSE 1070 THERMOSTATIC MIXING VALVE IN HOT WATER SUPPLY SET TO 120°F - 1-1/4" CHROME PLATED BRASS "P" TRAP. PROVIDE PREINSULATED PIPE COVERS PER ADA GUIDELINES OR INSTALL WITHIN ARCHITECTURAL ENCLOSURE.

LV-2: LAVATORY:
AMERICAN STANDARD 0476.028 "AQUALIN" 20-3/8" x 17-3/8" VITREOUS CHINA OVAL DROP IN LAVATORY WITH FAUCET HOLES ON 4" CENTERS - ZURN Z6915-XL-LS DECK MOUNTED AQUASENSE LAVATORY FAUCET WITH LONG CAST SPOUT, 1.0 GPM AERATOR, HARDWIRED POWER CONVERTOR, CERAMIC DISC CARTRIDGES - PROVIDE OFFSET DRAIN WITH GRID STRAINER - CHROME PLATED WALL SUPPLIES WITH LOOSE KEY STOPS - LEONARD 170-LF ASSE 1070 THERMOSTATIC MIXING VALVE IN HOT WATER SUPPLY SET TO 120°F - 1-1/4" CHROME PLATED BRASS "P" TRAP. PROVIDE PREINSULATED PIPE COVERS PER ADA GUIDELINES OR INSTALL WITHIN ARCHITECTURAL ENCLOSURE.

MB-1: MOP BASIN:
STERN WILLIAMS HL-1800 24"x24"x12" DEEP TERRAZZO MOP BASIN WITH STAINLESS STEEL CAPS - CAST BRASS DRAIN WITH STAINLESS STEEL STRAINER - ZURN Z843M1-RC SERVICE SINK FAUCET WITH VACUUM BREAKER SPOUT, 3/4" MALE HOSE THREAD AND PAIL HOOK, 1/4 TURN OPERATING CARTRIDGE, ADJUSTABLE ARM WITH WALL FLANGE - STAINLESS STEEL BACKSPASH PANELS ON ADJACENT WALLS - 3" CAST IRON "P" TRAP.

RH-1: ROOF HYDRANT:
WOODFORD RHY2-MS AUTOMATIC DRAINING FREEZELESS ROOF HYDRANT WITH DOUBLE CHECK BACKFLOW PREVENTER AND DIVERTER ASSEMBLY.

SK-2: HAND SINK (ADA):
ELKAY LRAD131650 13"x16"x5" 18 GAUGE STAINLESS STEEL SINGLE COMPARTMENT COUNTERTOP SINK WITH 3 HOLE DRILLING - ZURN Z831B4-XL DECK MOUNTED SINK FAUCET WITH GOOSENECK SPOUT, 1.5 GPM FLOW DEVICE IN SPOUT, WRISTBLADE HANDLES, CERAMIC DISC CARTRIDGES - PROVIDE OFFSET DRAIN WITH GRID STRAINER - CHROME PLATED WALL SUPPLIES WITH LOOSE KEY STOPS - LEONARD 170-LF ASSE 1070 THERMOSTATIC MIXING VALVE IN HOT WATER SUPPLY SET TO 120°F - 1-1/2" CHROME PLATED CAST BRASS "P" TRAP. PROVIDE PREINSULATED PIPE COVERS PER ADA GUIDELINES OR INSTALL WITHIN ARCHITECTURAL ENCLOSURE.

SK-3: HAND SINK (ADA):
ADVANCED TABCO 7-PS-50 14"x10"x5" 20 GAUGE STAINLESS STEEL WALL HUNG HANDWASH SINK WITH TWO HOLE DRILLING ON BACKSPASH - ELKAY LK940GN0T4H WALL MOUNTED FAUCET WITH GOOSENECK SPOUT, 1.5 GPM FLOW DEVICE IN SPOUT, 4" WRISTBLADE HANDLES, CERAMIC DISC CARTRIDGES - DRAIN WITH DUO STRAINER AND NEOPRENE STOPPERS - CHROME PLATED WALL SUPPLIES WITH LOOSE KEY QUARTER TURN STOPS - LEONARD 170-LF ASSE 1070 THERMOSTATIC MIXING VALVE IN HOT WATER SUPPLY SET TO 120°F - 1-1/2" CHROME PLATED CAST BRASS P-TRAP. PROVIDE PREINSULATED PIPE COVERS PER ADA GUIDELINES OR INSTALL WITHIN ARCHITECTURAL ENCLOSURE.

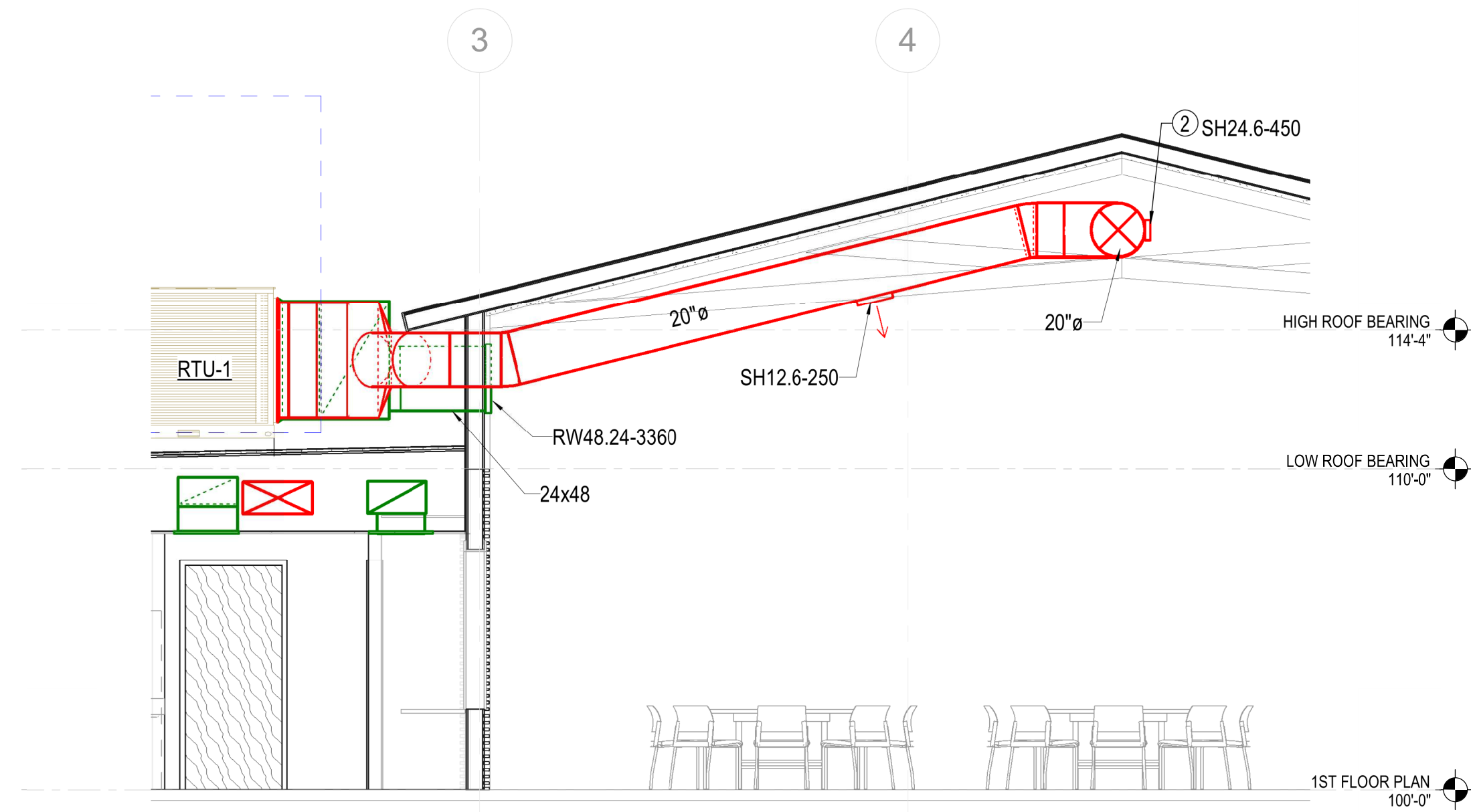
UR-1: URINAL (ADA):
KOHLER K-5016-ET "DEXTER" WALL MOUNTED, VITREOUS CHINA, 14-1/2" EXTENDED RIM - 1.0 GPF SIPHON JET URINAL WITH 3/4" TOP SPUD - SLOAN 180ESS HARDWIRED FLUSH VALVE WITH VACUUM BREAKER, DUAL FILTERED BYPASS - WADE 400-AM11 URINAL CARRIER. INSTALLATION SHALL BE ADA COMPLIANT.

UR-2: URINAL:
KOHLER K-5016-ET "DEXTER" WALL MOUNTED, VITREOUS CHINA, 14-1/2" EXTENDED RIM - 1.0 GPF SIPHON JET URINAL WITH 3/4" TOP SPUD - SLOAN 180ESS HARDWIRED FLUSH VALVE WITH VACUUM BREAKER, DUAL FILTERED BYPASS - WADE 400-AM11 URINAL CARRIER.

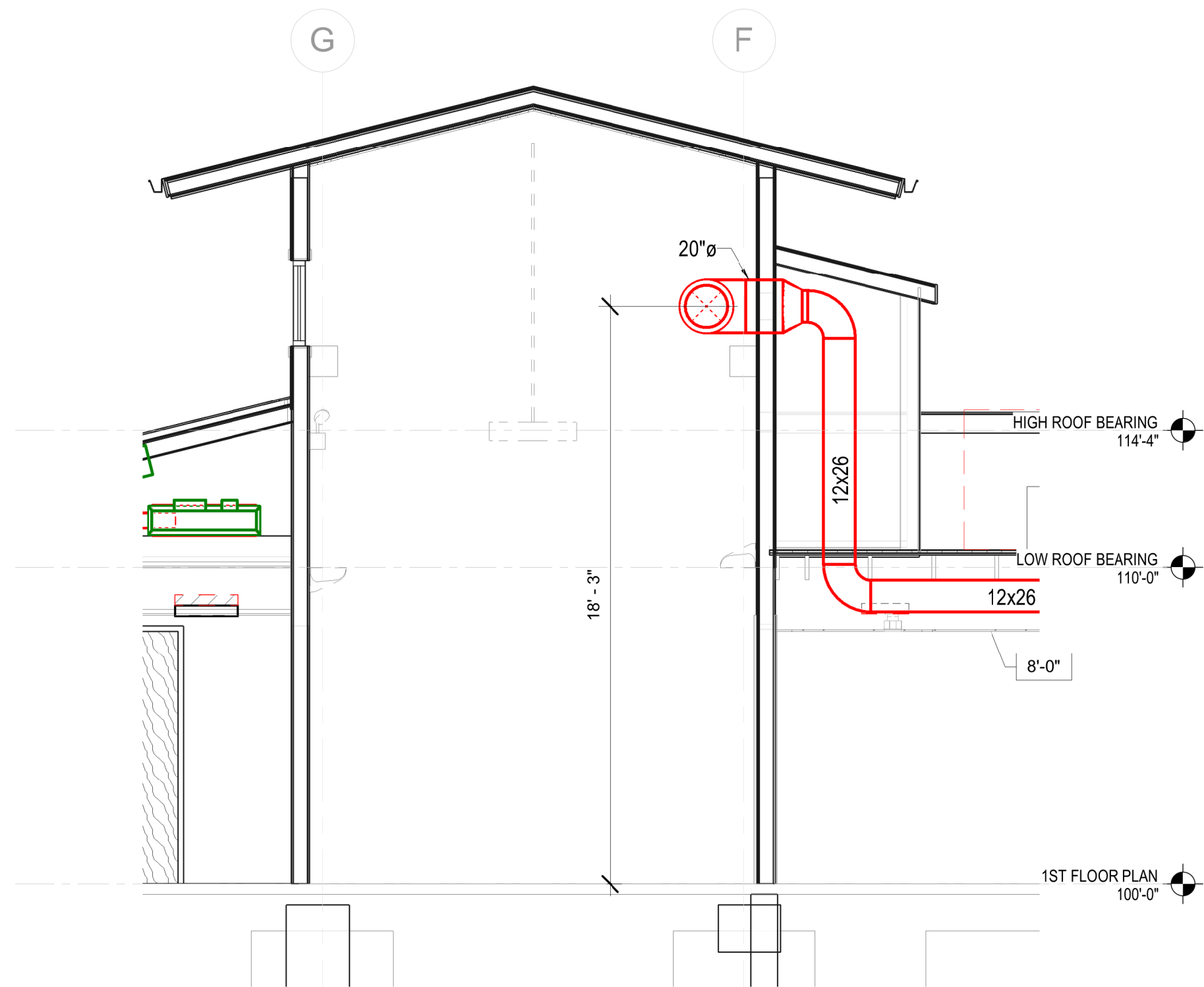
WC-1: WATER CLOSET (ADA):
KOHLER K-96057 "HIGHCLIFF ULTRA" FLOOR MOUNTED, VITREOUS CHINA, 16-7/8" HIGH ELONGATED BOWL 1.6 GPF SIPHON JET TOILET WITH 1-1/2" TOP SPUD - SLOAN 111-1.6 ES-S FLUSH VALVE WITH VACUUM BREAKER, DUAL FILTERED BYPASS, 12-VOLT TRANSFORMER - WHITE SOLID PLASTIC ELONGATED OPEN FRONT SEAT, LESS COVER. THE TOILET SHALL BE INSTALLED SO THAT THE CENTERLINE OF BOWL SHALL BE 16"-18" FROM THE NEAREST FINISHED WALL.

WC-2: WATER CLOSET:
KOHLER K-96053 "WELLCOMME ULTRA" FLOOR MOUNTED, VITREOUS CHINA, 15-1/4" HIGH ELONGATED BOWL 1.6 GPF SIPHON JET TOILET WITH 1-1/2" TOP SPUD - SLOAN 111-1.6 ES-S FLUSH VALVE WITH VACUUM BREAKER, DUAL FILTERED BYPASS, 12-VOLT TRANSFORMER - WHITE SOLID PLASTIC ELONGATED OPEN FRONT SEAT, LESS COVER.

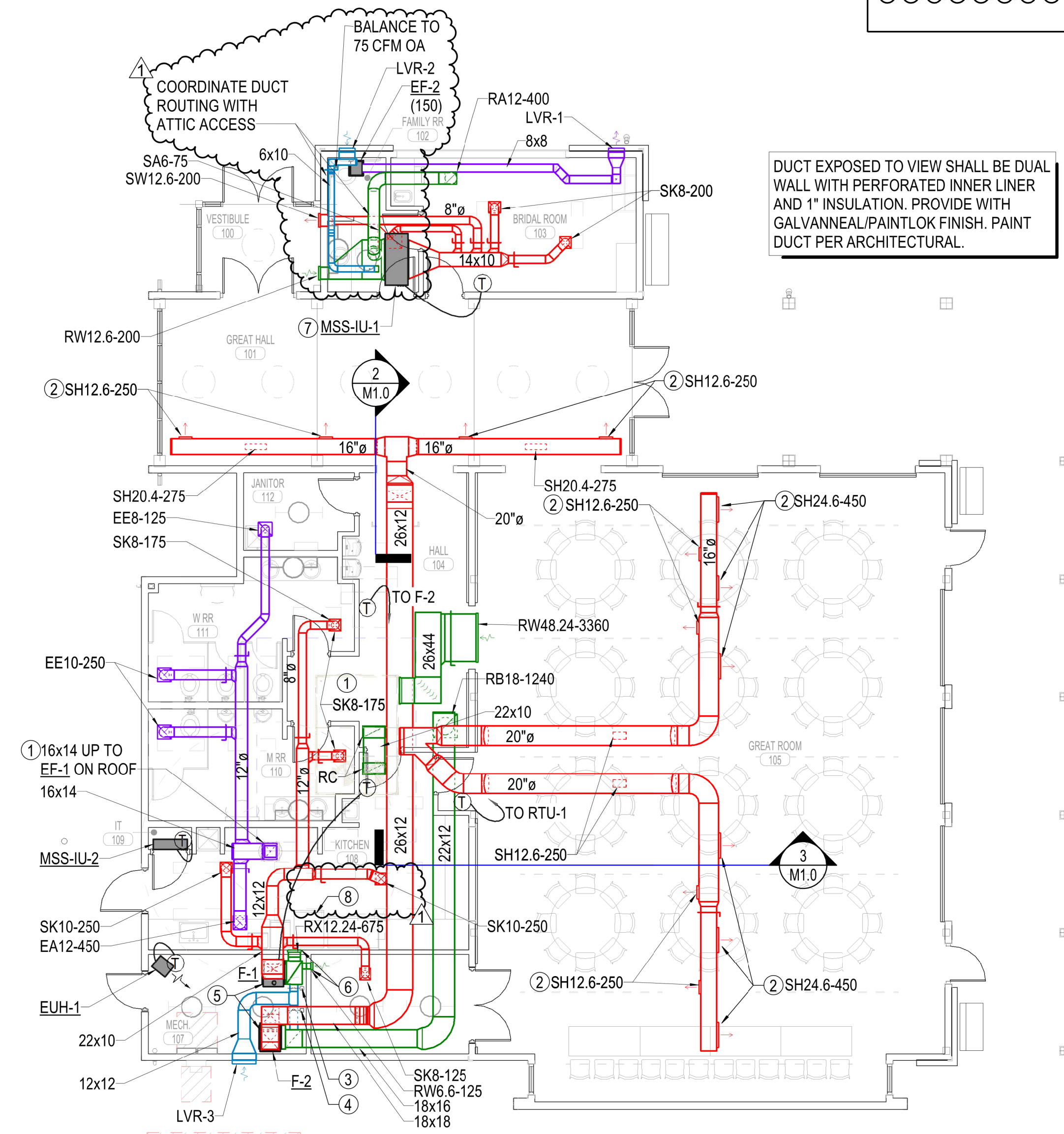
WH-1: WALL HYDRANT:
WOODFORD B67 SERIES AUTOMATIC DRAINING FREEZELESS WALL HYDRANT WITH DOUBLE CHECK BACKFLOW PREVENTER AND CHROME FINISH. INSTALL AT 36" ABOVE GRADE.



3 SECTION THROUGH GREAT ROOM DUCT
 1/4" = 1'-0"



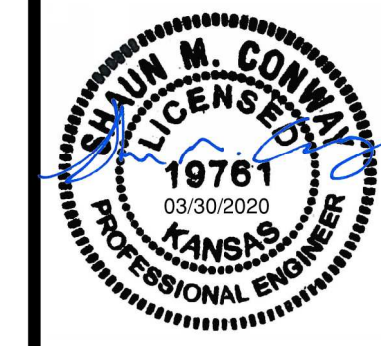
2 SECTION THROUGH GREAT HALL DUCT
 1/4" = 1'-0"

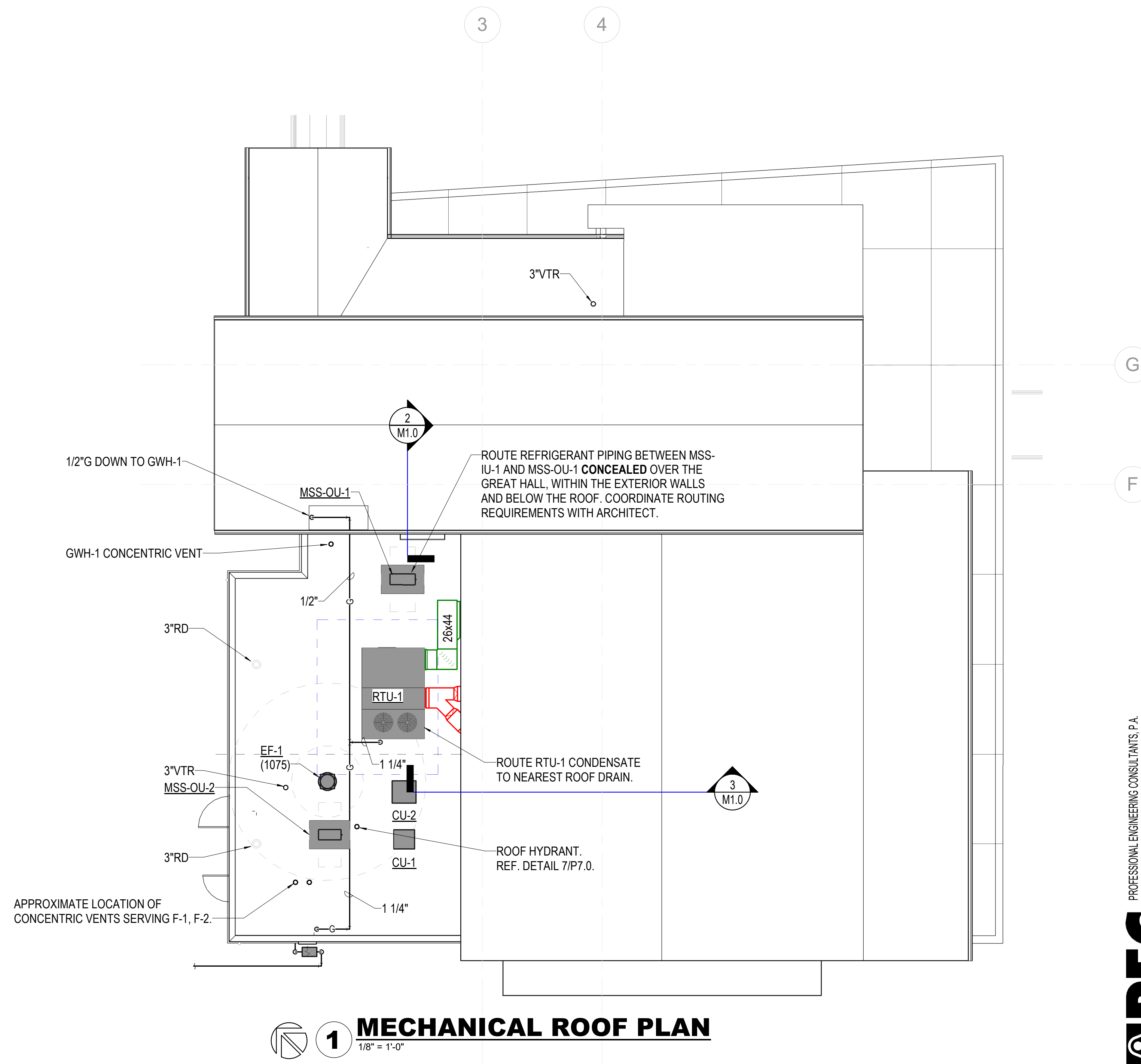


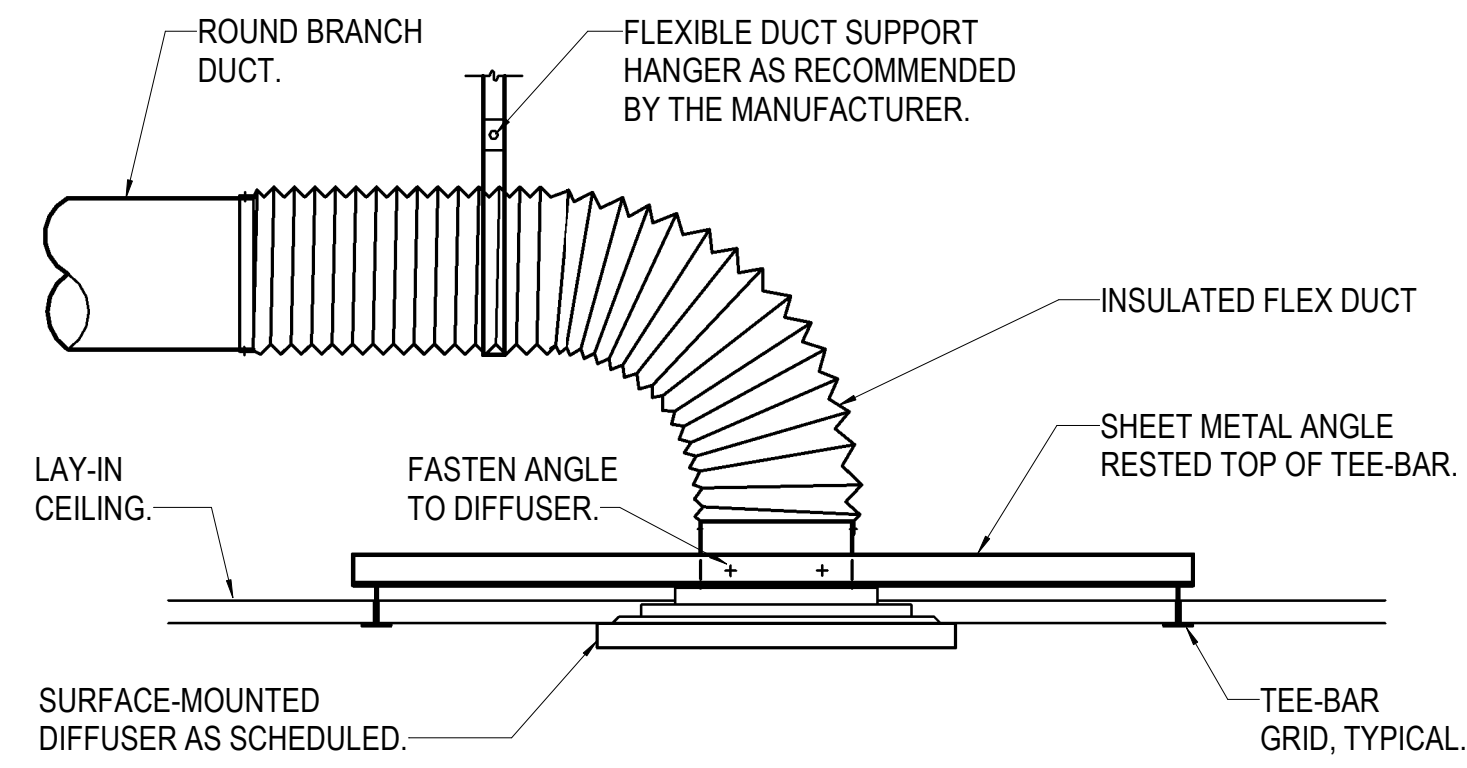
1 HVAC 1ST FLOOR PLAN
 1/8" = 1'-0"

- PLAN NOTES**
- MECHANICAL EQUIPMENT ON ROOF.
 - ANGLE DUCT MOUNTED DIFFUSER DOWN 45°.
 - 120V MOTORIZED DAMPER INTERLOCKED WITH F-1. DAMPER SHALL BE OPEN WHEN FAN IS ENERGIZED. BALANCE TO 200 CFM OA.
 - 120V MOTORIZED DAMPER INTERLOCKED WITH F-2. DAMPER SHALL BE OPEN WHEN FAN IS ENERGIZED. BALANCE TO 310 CFM OA.
 - ROUTE FURNACE FLUE AND COMBUSTION AIR TO CONCENTRIC VENT LOCATION INDICATED ON MECHANICAL ROOF PLAN M2.0. SIZE PER MANUFACTURER'S REQUIREMENTS.
 - MOUNT TOP OF GRILLE 6" BELOW CEILING.
 - ROUTE REFRIGERANT PIPING BETWEEN MSS-IU-1 AND MSS-OU-1 CONCEALED OVER THE GREAT HALL, WITHIN THE EXTERIOR WALLS AND BELOW THE ROOF. COORDINATE ROUTING REQUIREMENTS WITH ARCHITECT.
 - THE OVEN WILL NOT PRODUCE GREASE OR SMOKE, AND THE HEAT AND MOISTURE LOADS FROM THIS APPLIANCE HAVE BEEN INCORPORATED IN THE HVAC DESIGN TO MEET 2018 INTERNATIONAL MECHANICAL CODE 507.3.

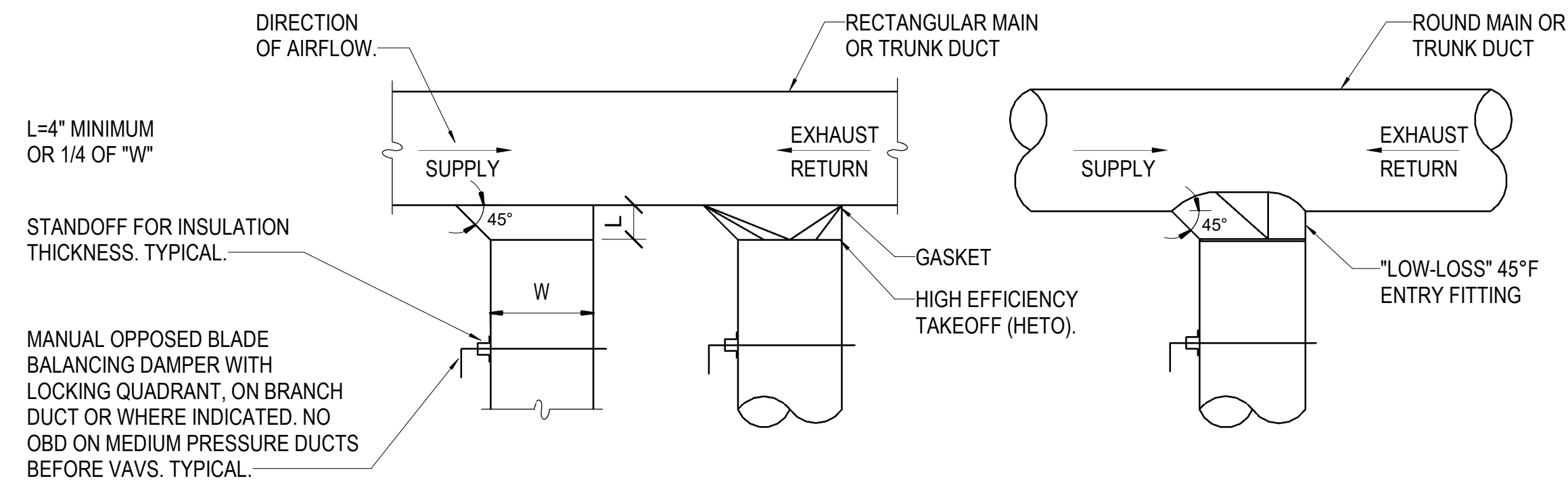
DUCT EXPOSED TO VIEW SHALL BE DUAL WALL WITH PERFORATED INNER LINER AND 1" INSULATION. PROVIDE WITH GALVANNEAL/PAINTLOK FINISH. PAINT DUCT PER ARCHITECTURAL.



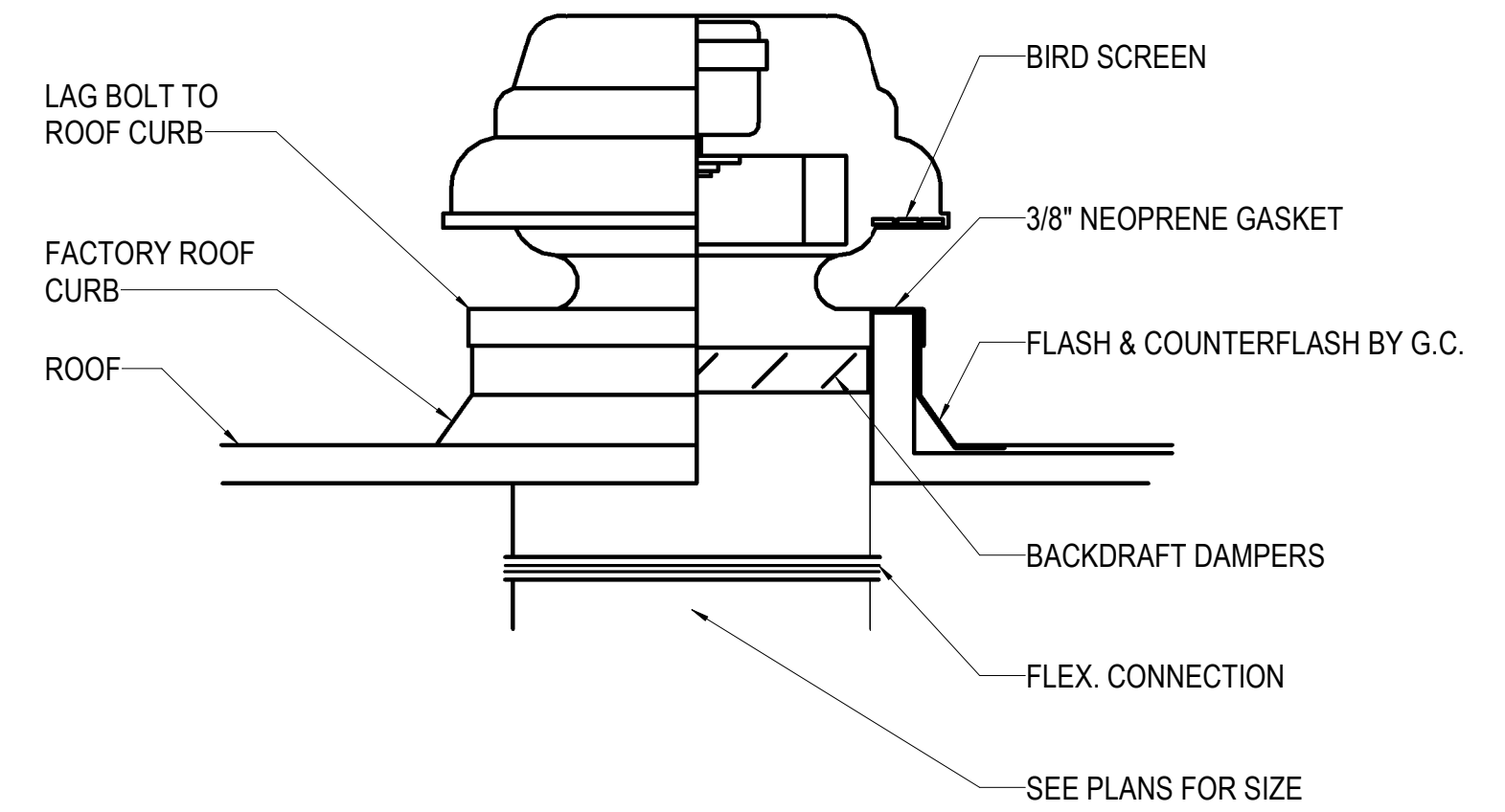




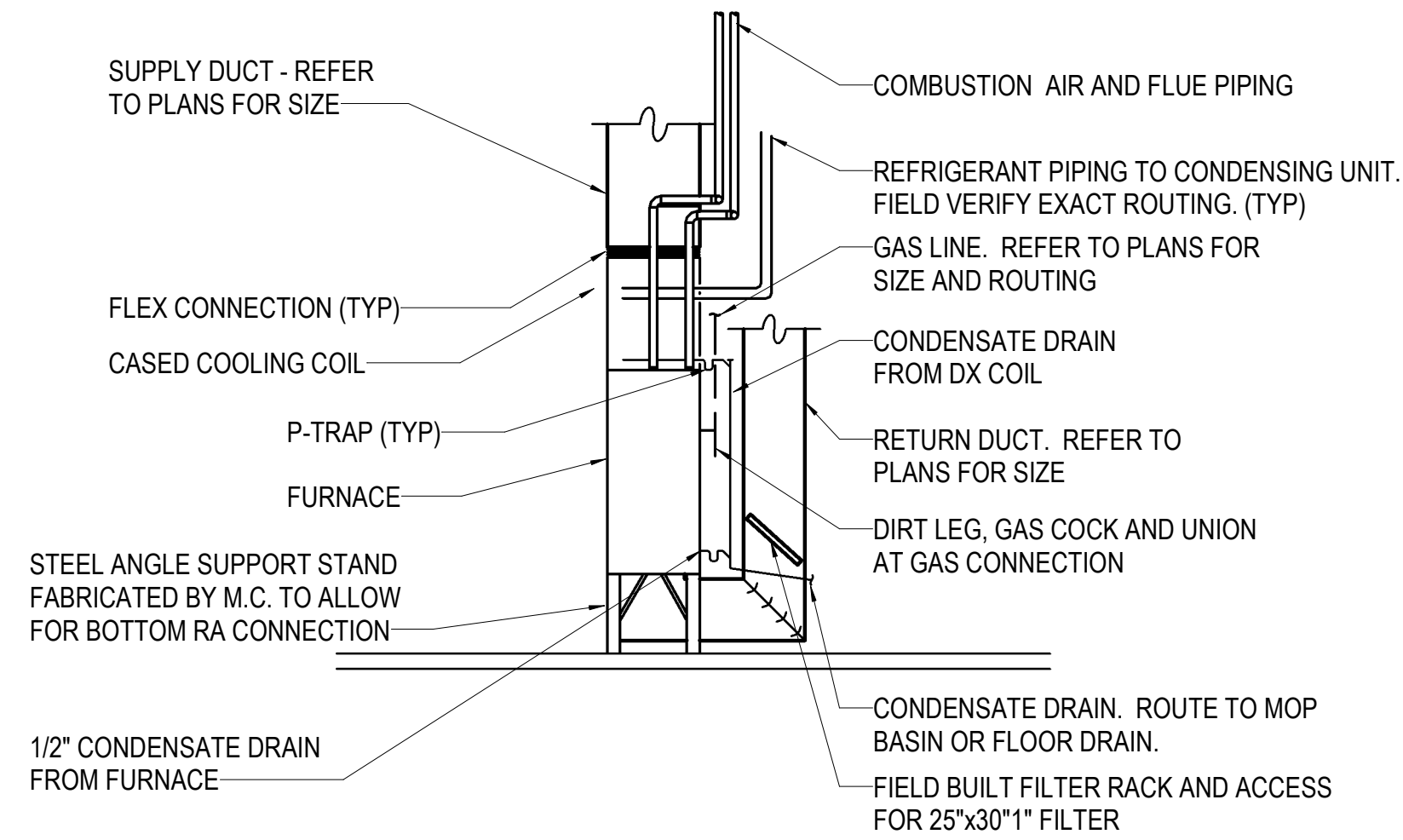
1 DIFFUSER - SURFACE-MOUNTED IN LAY-IN CEILING DETAIL
NO SCALE



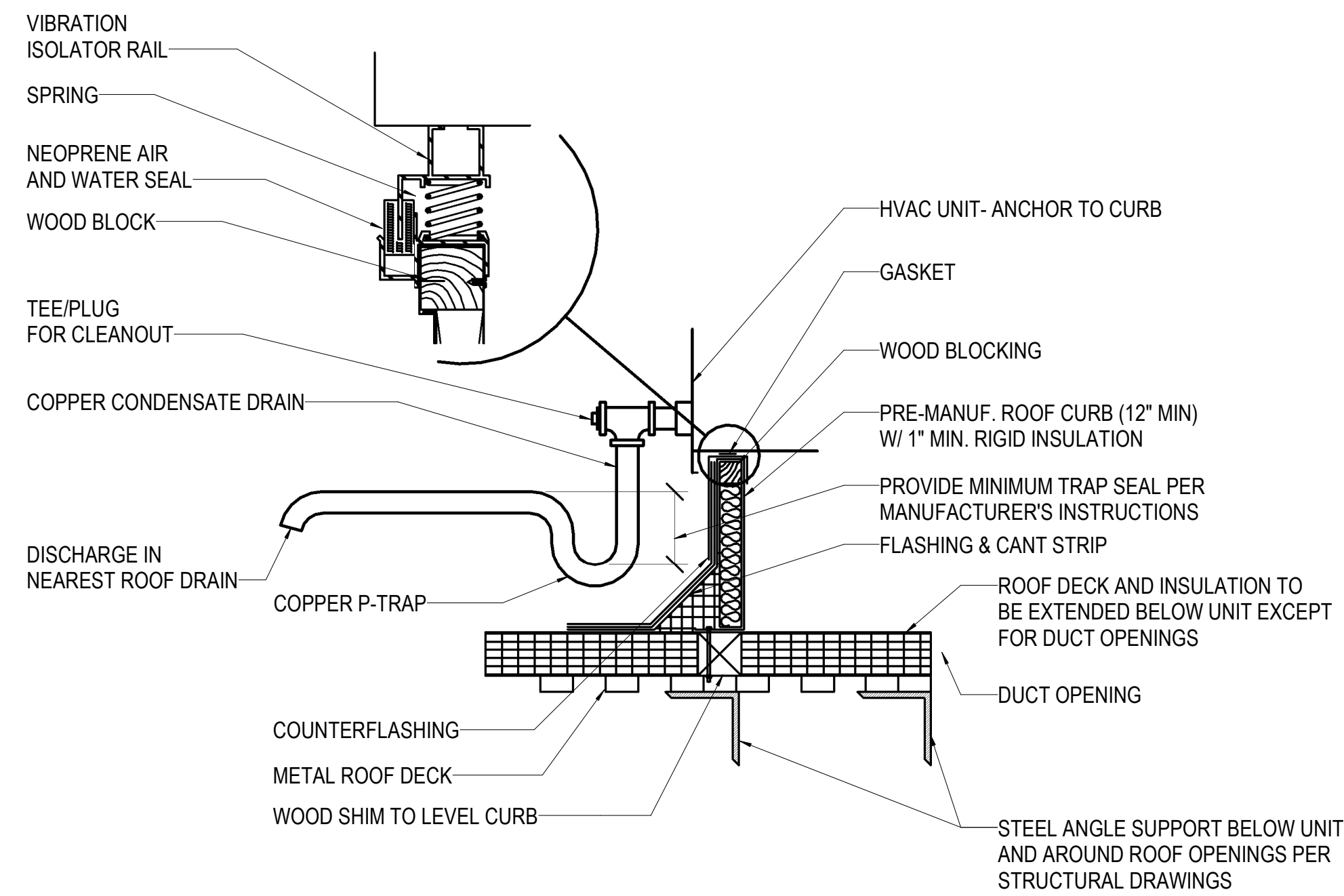
2 DUCT TAKEOFF DETAIL
NO SCALE



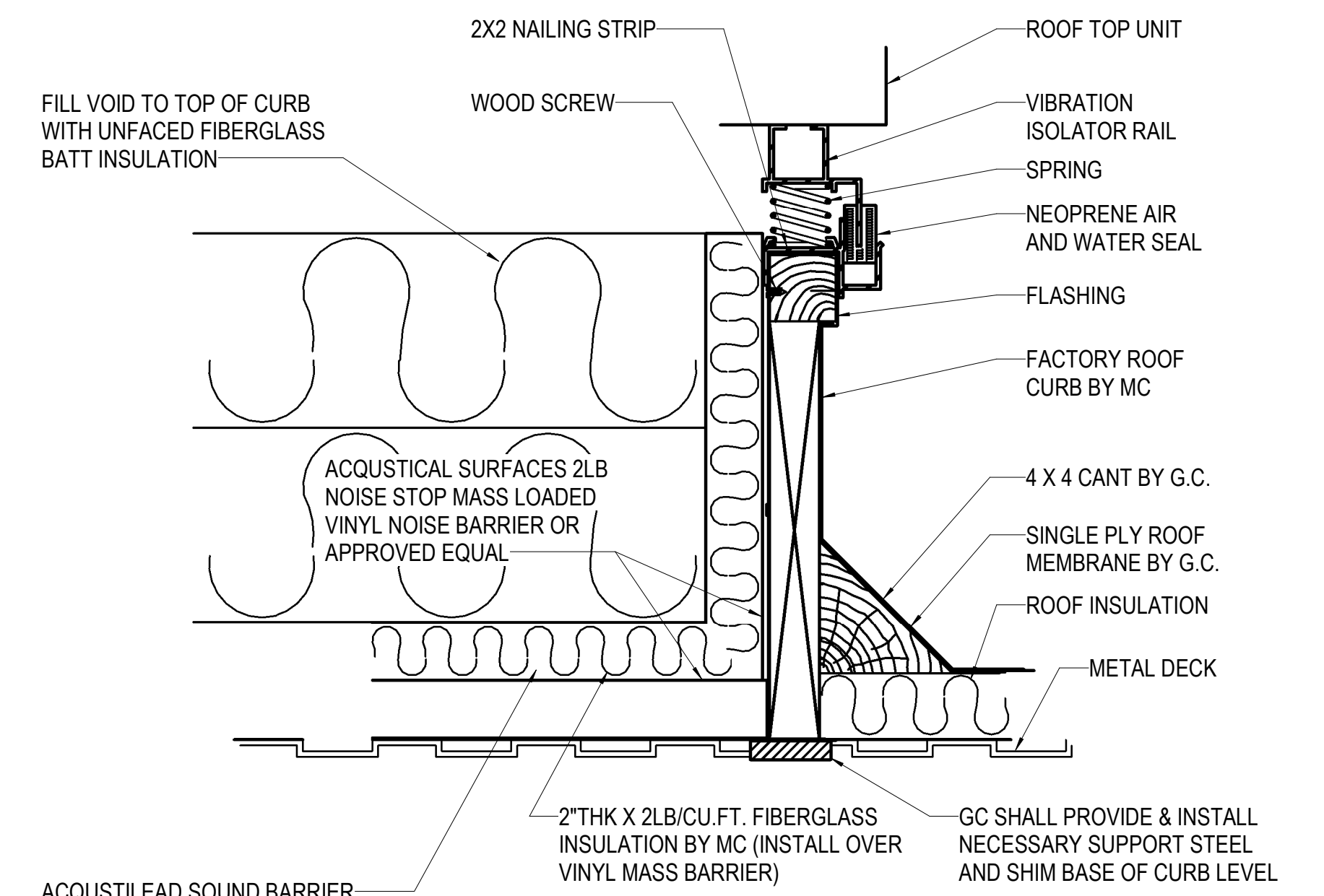
3 EXHAUST FAN DETAIL - ROOF
NO SCALE



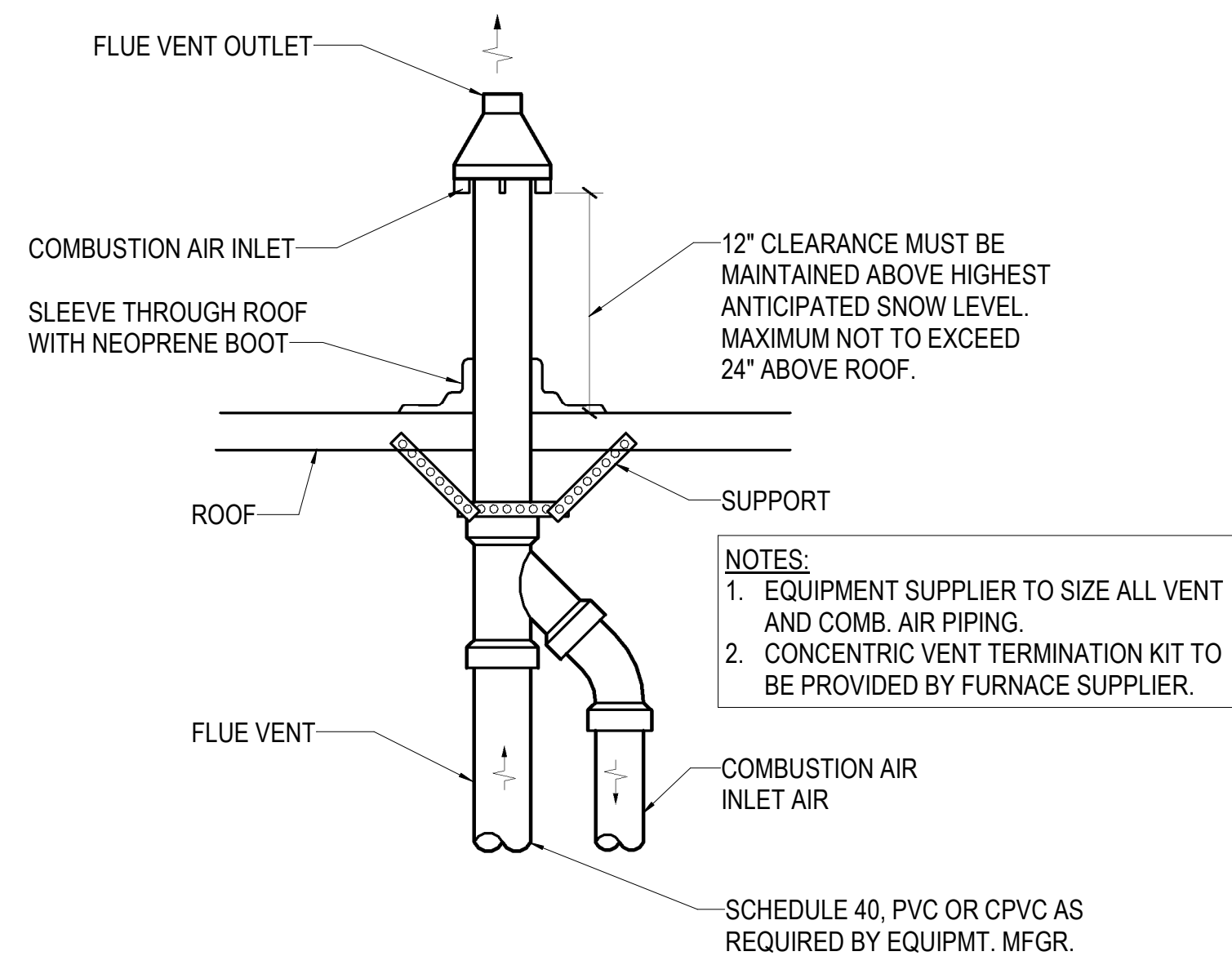
4 FURNACE INSTALLATION DETAIL
NO SCALE



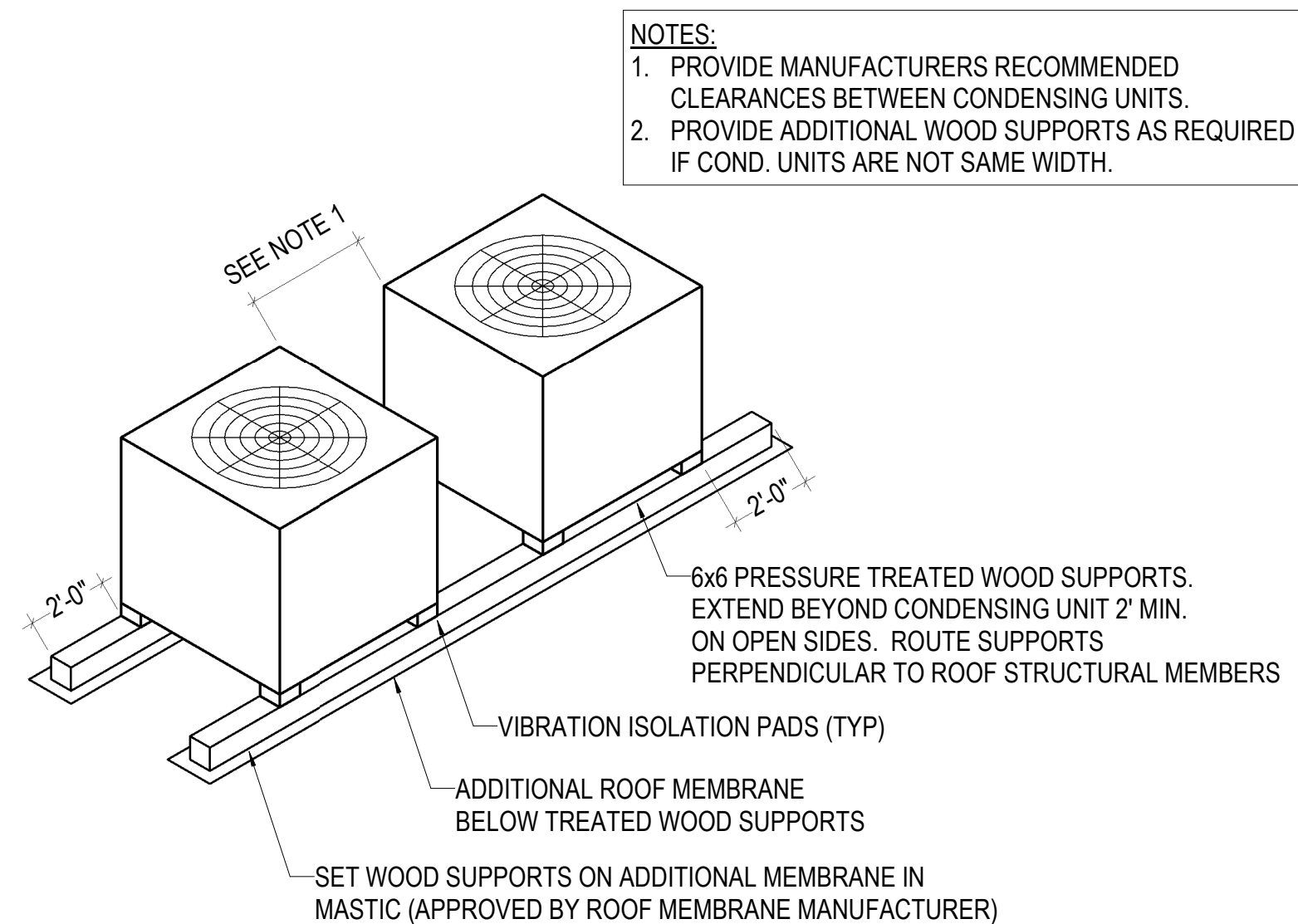
5 ROOF CURB DETAIL
NO SCALE



6 ROOF TOP UNIT CURB DETAIL
NO SCALE



7 CONCENTRIC VENT DETAIL - FLAT ROOF
NO SCALE



8 CONDENSING UNIT - ROOF MOUNTING
NO SCALE

NOTES:
1. PROVIDE MANUFACTURERS RECOMMENDED CLEARANCES BETWEEN CONDENSING UNITS.
2. PROVIDE ADDITIONAL WOOD SUPPORTS AS REQUIRED IF COND. UNITS ARE NOT SAME WIDTH.

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ROOFTOP UNIT SCHEDULE

MARK	MODEL	EVAPORATOR										CONDENSER						HEATING SECTION				ELECTRICAL				WEIGHT	MIN OA CFM	REMARKS					
		CFM	EXT. SP	HP	DRIVE	ENT. AIR		UNIT LVG. AIR		MBH COOLING		OUTSIDE AIR TEMP	COMPRESSOR			COND. FAN		SEER (EER)	FILTER	INPUT	OUTPUT	E.A.T.	L.A.T.	VOLT.	STARTER				MCA	MOP			
						D.B.	W.B.	D.B.	W.B.	SENS.	TOTAL		TYPE	RLA	NO	RLA	NO														CAP STEPS	FLA	NO
RTU-01	TRANE YHH150G3RV	4200	1.5	3	BELT	80	67	58.1	57	91.6	136.36	105	SCROLL	27.5	1	13.6	1	2	2.7	2	15 (12.1)	PLEATED	350	280	56.0	117.5	208/3	BY MC	64	90	2400	840	1

1. BASED ON TRANE YHH150G3RVB HORIZONTAL DISCHARGE ROOFTOP UNIT WITH 2-SPEED SUPPLY FAN, 2.5:1 MODULATING GAS FIRED HEATER, 0-100% FIELD MOUNTED ECONOMIZER, ROOF CURB, CONDENSER COIL HAIL GUARD, HINGED ACCESS DOORS, FACTORY MOUNTED & AND INSTALLED CONVENIENCE RECEPTACLE, AND 7-DAY PROGRAMMABLE THERMOSTAT. ROUTE CONDENSATE TO NEAREST ROOF DRAIN. PROVIDE SMOKE DETECTOR IN RETURN AIR PATH.

EXHAUST FAN SCHEDULE

MARK	LOC AT ROOM	TYPE	MIN CAP		FAN RPM	DRIVE	MOTOR (BY M.C.)					WT LBS	REMARKS
			CFM	ESP			HP	WATTS	NEC FLA	ELEC	START		
EF-1	ROOF	DOWNBLAST	1075	0.75	1582	DIRECT	1/4	-	3.7	120/1	-	35	1
EF-2	FAMILY RR 102	CEILING	150	0.20	1400	DIRECT	-	47	1.3	120/1	-	17	2

1. BASED ON GREENHECK MODEL G-103-VG DIRECT DRIVE CENTRIFUGAL DOWNBLAST ROOF EXHAUST FAN. PROVIDE WITH FACTORY INSULATED CURB, GRAVITY BACKDRAFT DAMPER, BIRDSCREEN, AND FACTORY MOUNTED DISCONNECT SWITCH. FAN SHALL BE ENERGIZED BY LIGHT SWITCH IN HALL 104.
2. BASED ON GREENHECK MODEL SP-A190 DIRECT DRIVE CEILING MOUNTED EXHAUST FAN. FAN SHALL BE ENERGIZED BY LIGHT SWITCH IN FAMILY RESTROOM 102.

LOUVER SCHEDULE

MARK	TYPE	MATERIAL	APPROX. SIZE	DEPTH	FINISH	USE	DESIGN CFM	MAX APD	MIN. FREE AREA	TOP AT AFF	WATER PENETRATION VELOCITY	REMARKS
LVR-1	FIXED	ALUMINUM	16x10	4	KYNAR	EXHAUST	150	0.05	0.30	11'-1"	-	1
LVR-2	FIXED	ALUMINUM	16x10	6	KYNAR	INTAKE	75	0.05	0.30	11'-1"	1058	2
LVR-3	FIXED	ALUMINUM	24x16	6	KYNAR	INTAKE	510	0.05	1.0	8'-0"	989	2

1. BASED ON GREENHECK ESD-435 STATIONARY LOUVER WITH DRAINABLE BLADES AND BIRD SCREEN. COORDINATE FINISH COLOR WITH ARCHITECT.
2. BASED ON GREENHECK ESD-635 STATIONARY LOUVER WITH DRAINABLE BLADES AND BIRD SCREEN. COORDINATE FINISH COLOR WITH ARCHITECT.

UNIT HEATER SCHEDULE - ELECTRIC

MARK	LOC AT ROOM	FAN CFM	KW	BTUH	VOLTAGE	AMPS	REMARKS
EUH-1	MECH 107	380	3	10,200	208/1	14.9	1

1. BASED ON MODINE MODEL HER 30C 1101 HORIZONTAL ELECTRIC UNIT HEATER. PROVIDE WITH WALL MOUNTED MANUFACTURER'S THERMOSTAT, SUMMER-WINTER TOGGLE SWITCH KIT, AND WALL MOUNTING BRACKET KIT. MOUNT AS HIGH AS POSSIBLE IN CORNER OF MECHANICAL ROOM.

FURNACE SCHEDULE - GAS

MARK	LOC AT ROOM	CFM	EXT SP	FAN HP	DRIVE TYPE	MBH INPUT	MBH OUTPUT	EAT (°F)	HEATING STAGES	OA CFM	MATCH W/ COND UNIT#	ELECTRICAL VOLT/ PH	MCA/ MOP	REMARKS
F-1	MECH 107	975	0.9	1/2	DIRECT	60	58.2	60	2	200	CU-1	120/1	9.3 / 15	1, 3-6
F-2	MECH 107	1550	0.9	3/4	DIRECT	80	77.6	60	2	310	CU-2	120/1	11.3 / 15	2-6

1. BASED ON TRANE S9X2B060U3 UPFLOW 2-STAGE GAS FURNACE WITH CONCENTRIC VENT KIT.
2. BASED ON TRANE S9X2C080U4 UPFLOW 2-STAGE GAS FURNACE WITH CONCENTRIC VENT KIT.
3. SIZE COMBUSTION AIR AND VENT PIPING PER MANUFACTURER'S REQUIREMENTS.
4. PROVIDE 2 SETS OF AIR FILTERS FOR EACH UNIT.
5. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT.
6. PROVIDE CONDENSATE NEUTRALIZATION KIT FOR EACH FURNACE.

CONDENSING UNIT SCHEDULE - AIR COOLED

MARK	MATCH WITH AHU	CAP MBH	O.A. TEMP °F	COMPRESSOR				MIN. AMB. TEMP.	COND. FANS			UNIT ELECTRICAL		WEIGHT	REMARKS
				REF TYPE	NO.	RATED LOAD AMPS	CAP STEPS		NO.	HP EACH	VOLT 60 CYC.	MCA	MOP		
CU-1	F-1	27.4	105	R-410	1	12.3	1	0	1	1/5	208/1	16	25	137	1,3
CU-2	F-2	46.1	105	R-410	1	21.8	1	0	1	1/5	208/1	28	45	197	2,3

1. BASED ON TRANE 4TTR3030H1 CONDENSING UNIT WITH HAIL GUARDS, MATCHED WITH 4TXCB004DS3 CASED COOLING COIL.
2. BASED ON TRANE 4TTR3048E1 CONDENSING UNIT WITH HAIL GUARDS, MATCHED WITH 4TXCC009DS3 CASED COOLING COIL.
3. PROVIDE ALUMINUM JACKETING FOR EXPOSED REFRIGERANT LINE-SETS ON THE ROOF.

MINI SPLIT INDOOR UNIT SCHEDULE

MARK	LOCATION	MATCH WITH MARK	MFR	MODEL	COOLING						HEATING			ELECTRICAL			WEIGHT	REMARKS			
					CFM (MAX)	CAPACITY (MBH) NOM	DER	EAT (°F) DB	WB	AMB (°F)	SEER	EER	TOT (MBH)	EAT DB (°F)	KW	AMB (°F)			VOLTS/ PHASE	MCA	MOP
MSS-IU-1	BRIDAL 143	MSS-OU-1	LG	LHN368HV	1130	21.8	35.1	80	67	105	17.6	12.1	35.0	70	3.4	0	208/1	32	40	85.3	1
MSS-IU-2	IT 109	MSS-OU-2	LG	LSN120HSV5	353	13.8	10.9	80	67	105	22.7	12.5	10.4	70	1.0	0	208/1	10	15	18.3	1

MINI SPLIT OUTDOOR UNIT SCHEDULE

MARK	LOCATION	MATCH WITH MARK	MFR	MODEL	COOLING				HEATING		FANS		ELECTRICAL			WEIGHT	REMARKS	
					CAPACITY (MBH) NOM	DER	AMB (°F)	SEER	EER	CAPACITY (MBH) TOT	DER	QTY	TYPE	VOLTS/ PHASE	MCA			MOP
MSS-OU-1	ROOF	MSS-IU-1	LG	LUU368HV	42	36	105	19	13.5	42.2	35	1	PROP	208/1	32	40	223.1	2
MSS-OU-2	ROOF	MSS-IU-2	LG	LSU120HSV5	13.7	11.2	105	21.5	12.5	7.02	13.3	1	PROP	208/1	10	15	74.1	2

1. PROVIDE INDOOR UNIT WITH MANUFACTURER'S HARD WIRED THERMOSTAT, CONDENSATE PUMP (IF REQUIRED), AND FIELD FABRICATED FILTER RACK. INDOOR UNIT IS POWERED THROUGH OUTDOOR UNIT.
2. PROVIDE CONDENSING UNIT WITH THIRD PARTY HAIL GUARD (TURBO EAGLE OR PRE-APPROVED EQUAL) AND LOW AMBIENT COOLING KIT. PROVIDE ALUMINUM JACKETING FOR EXPOSED REFRIGERANT LINE-SETS ON THE ROOF.

GRILLE, REGISTER, AND DIFFUSER SCHEDULE

GRILLE CALLOUT IN GRILLE AND REGISTER SCHEDULE

CONNECTION SIZE (12x12) (RECTANGULAR)

RW12.12-500

GRILLE CALLOUT SYMBOL - RECTANGULAR

CUBIC FEET OF AIR PER MINUTE

CONNECTION AND RUNOUT SIZE (10"ø) (ROUND)

SB10-250

GRILLE CALLOUT SYMBOL - ROUND

GRILLE CALLOUT IN GRILLE AND REGISTER SCHEDULE

CONNECTION AND RUNOUT SIZE (10"ø) (ROUND)

SK10.4S-250

GRILLE CALLOUT SYMBOL - SLOT

NUMBER OF SLOTS

FIRST LETTER IN MARK: S = SUPPLY DIFFUSER R = RETURN GRILLE P = PLENUM RETURN GRILLE E = EXHAUST GRILLE L = LAMINAR FLOW SUPPLY DIFFUSER F = FAN FILTER SUPPLY DIFFUSER C = SECURITY GRILLE U = FLOOR MOUNTED SUPPLY GRILLE	NOTES: 1. PROVIDE SQUARE TO ROUND ADAPTERS AS REQUIRED TO ACCOMMODATE ROUND RUNOUTS. 2. IF REQUIRED, PROVIDE ALL LAY-IN GRDS WITH 24x24 LAY-IN PANEL. 3. COORDINATE AND VERIFY ALL FINISHES WITH ARCHITECT. 4. ALL SELECTIONS ARE BASED ON A MAXIMUM NC OF 25 UNLESS NOTED OTHERWISE. 5. CONTRACTOR SHALL VERIFY ALL CEILING TYPES AND ASSOCIATED BORDER TYPES. 6. MARKS USED MAY NOT BE IN SEQUENCE.	REMARKS LEGEND: EC = EGGCRATE LB = LONG BLADES PARALLEL TO LONG DIMENSION SB = SHORT BLADES PARALLEL TO LONG DIMENSION LF = LOUVERED FACE LA = LAMINAR AIRFLOW DE = DAMPER/EXTRACTOR EI = EXTERNALLY INSULATED SS = STAINLESS STEEL DD = DIFFUSION DISC ROOM SIDE BALANCING DISK OBD = OPPOSED BLADE DAMPER FD = FIRE DAMPER RSR = ROOM SIDE REPLACEABLE FILTER TZ = TECHZONE CEILING COMPATIBLE
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MARK	TYPE	IMAGE	BASED ON		MOUNT	FACE SIZE	MATERIAL	FINISH	BLADE SPACING / SLOT WIDTH	DEFL	REMARKS
			MFR	MODEL							
EA	EXHAUST GRILLE		TITUS	350FL	LAY-IN	12x12	ALUMINUM	WHITE	3/4	35°	LB
EE	EXHAUST GRILLE		TITUS	350FL	SURFACE	12x12	ALUMINUM	WHITE	3/4	35°	LB
RA	RETURN GRILLE		TITUS	350FL	LAY-IN	12x12	ALUMINUM	WHITE	3/4	35°	LB
RB	RETURN GRILLE		TITUS	350FL	SURFACE	24x24	ALUMINUM	WHITE	3/4	35°	LB
RC	RETURN GRILLE		TITUS	350FL	LAY-IN	12x24	ALUMINUM	WHITE	3/4	35°	LB
RW	WALL RETURN		TITUS	350FL	WALL	SEE PLANS	ALUMINUM	WHITE	3/4	35°	LB
RX	WALL RETURN		TITUS	350FS	WALL	SEE PLANS	ALUMINUM	WHITE	3/4	35°	SB
SA	SUPPLY DIFFUSER		TITUS	TDC-AA	LAY-IN	6x6	ALUMINUM	WHITE	-	-	LF
SH	DUCT MOUNTED SUPPLY		TITUS	S300FS	DUCT	20x4	ALUMINUM	CLEAR ANODIZE	3/4	DOUBLE	SB
SH	DUCT MOUNTED SUPPLY		TITUS	S300FS	DUCT	SEE PLANS	ALUMINUM	CLEAR ANODIZE	3/4	DOUBLE	SB
SK	SUPPLY DIFFUSER		TITUS	TDC-AA	SURFACE	12x12	ALUMINUM	WHITE	-	-	LF
SW	WALL SUPPLY		TITUS	300FS	WALL	SEE PLANS	ALUMINUM	WHITE	3/4	DOUBLE	SB