

DESIGN CONDITIONS:

OSA	5	degree F
Wind Speed	10	mph
Surface Temp	38	degree F
Propylene Glycol	45	%
Supply Temperature	132	degree F

the PEX tubing
3/4" 9' on center

ZONE A	Installation Area (sqft)	BTUH/sqft	Total Bluh	Amt of Tubing (ft) (area x 1.33)	# of loops @300' / loop	Active Loop Length (ft)	Total Loop Length (25ft leader length)	GPM/loop (0.0085gpm/ft) @ gpm per loop (1/20/foot)	Pressure Loss Per loop (ft H2O)	Head Loss Per loop (ft H2O)	MANIFOLD LOCATION
LOOP 1	200	136	27200	266	1	266	291	2.4	0.04	12	ZONE A
LOOP 2	200	136	27200	266	1	266	291	2.4	0.04	12	
LOOP 3	200	136	27200	266	1	266	291	2.4	0.04	12	
LOOP 4	200	136	27200	266	1	266	291	2.4	0.04	12	
LOOP 5	200	136	27200	266	1	266	291	2.4	0.04	12	
TOTAL	1000		136000	1330	5		1455	12.1			

ZONE F2	Installation Area (sqft)	BTUH/sqft	Total Bluh	Amt of Tubing (ft) (area x 1.33)	# of loops @300' / loop	Active Loop Length (ft)	Total Loop Length (25ft leader length)	GPM/loop (0.0085gpm/ft) @ gpm per loop (1/20/foot)	Pressure Loss Per loop (ft H2O)	Head Loss Per loop (ft H2O)	MANIFOLD LOCATION
LOOP 1	210	136	28560	279	1	279	304	2.6	0.042	13	ZONE F2
TOTAL	210		28560	279	1		304	2.6			

- KEYED NOTES:**
- CONNECT (N)2-1/2"HWS/HWR (GLYCOL) TO (E)2"HWS/HWR (GLYCOL) MAINS.
 - CONNECT (N)2"HWS/HWR TO (E) MAINS.
 - CONNECT (N)2"HWS/HWR TO (E) MAINS. SEE 6/18/03 FOR DETAIL.
 - RELOCATED CHEM FEEDER FOR (E)BOILER SYSTEM. SEE 6/18/03 FOR DETAIL.
 - CONNECT (N)3/4"HWS/HWR TO (E) MAINS AND ROUTE TO RELOCATED CHEM FEEDER.
 - REMOVE (E)NEUTRALIZER AND REPLACE WITH (3)AERCO CONDENSATE NEUTRALIZER KIT, 89025-2, FOR EACH BOILER.

City Of Bend Approval Stamp:

#	Date	Description
2	3/13/18	DISTRICT REVIEW COMMENTS
1	2/19/18	DISTRICT REVIEW COMMENTS

Revision Schedule

BID SET

PILOT BUTTE MIDDLE SCHOOL - BLDGS E&F
1501 NE Neff Road, Bend OR 97701

BLRB architects

TACOMA 1252 Pacific Avenue Tacoma, WA 98402 360.427.9393	SPOKANE 505 W Riverside Spokane, WA 99201 509.325.1580	PORTLAND 1001 SW 5th Avenue Portland, OR 97204 503.555.0707	BEND 454 SW Columbia St Bend, OR 97702 541.331.6666
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Drawing Title:
MECHANICAL SNOWMELT SYSTEM

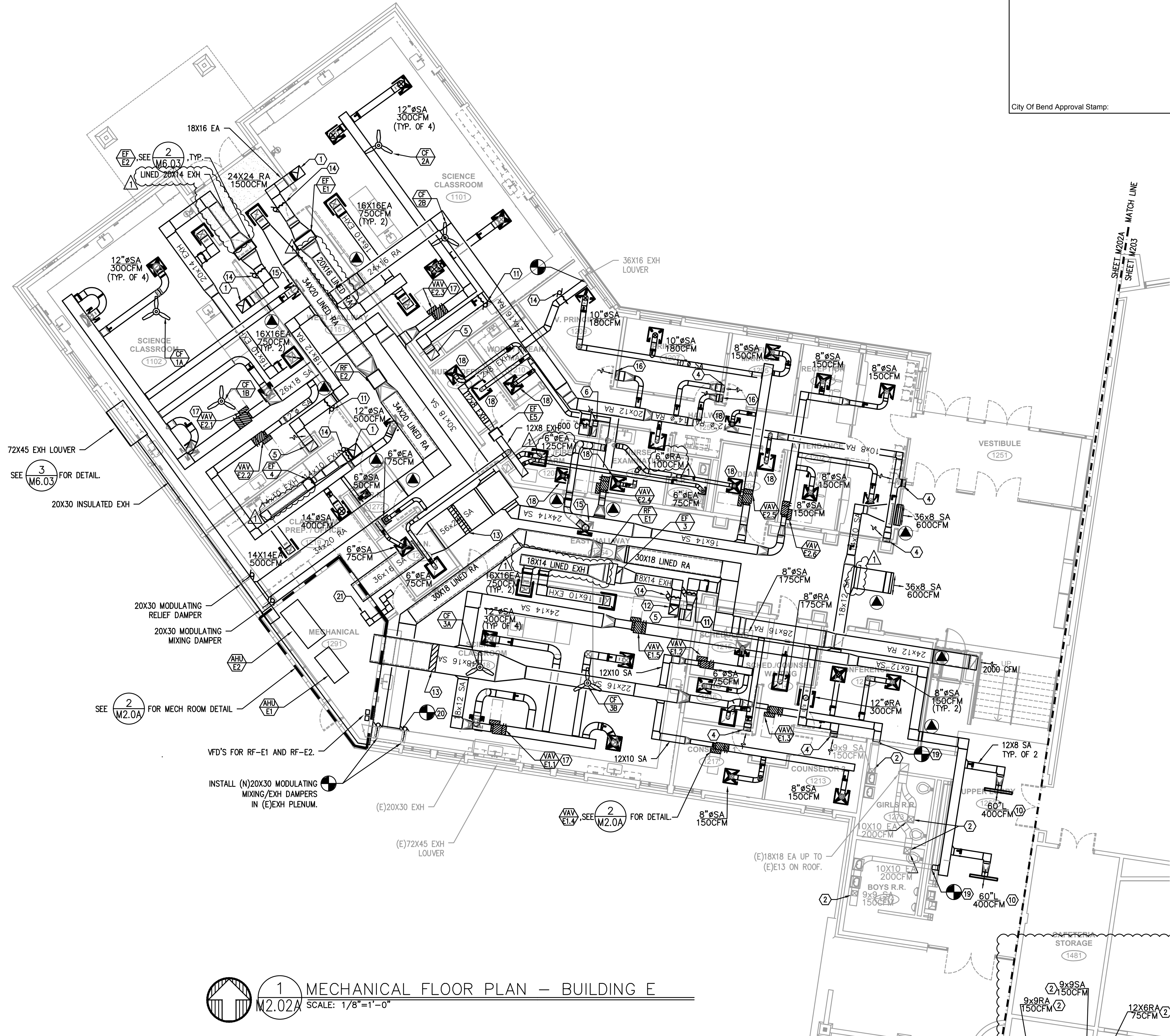
Date: 02.19.2018 Drawn By: TB

Revised Date: Project No. 17.34B

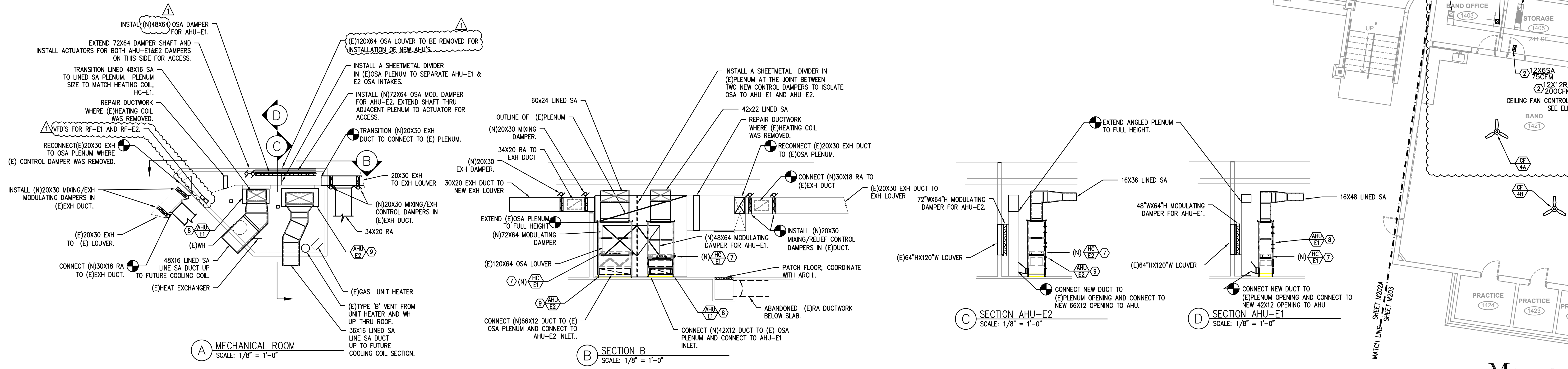
Stamp: **MECHANICAL SNOWMELT SYSTEM**
17884
COOT W. MILLES
EXPIRES: 31DEC18

Sheet No. **M2.01**

A
B
C
D
E
F
G
H
J
K



1 MECHANICAL FLOOR PLAN - BUILDING E
SCALE: 1/8" = 1'-0"



2 MECHANICAL ROOM DETAIL
SCALE: 1/8" = 1'-0"

- KEYED NOTES:**
- 18X18 EXHAUST UP THRU (E)PENETRATION AND CONNECT TO (E)RELIEF HEAD ON ROOF.
 - BALANCE (E)GRILLE TO AIRFLOW SHOWN.
 - 16x4 RA IN WALL TO LOW RA GRILLE.
 - 12X4 RA IN WALL TO 12X6 LOW RA GRILLE @ 6" A.F.F. BALANCE GRILLE TO 150 CFM.
 - 18X12 RA IN CHASE TO 18X48 LOW RA GRILLE, 1200 CFM. INSTALL @ 6" A.F.F.
 - 16X8 RA DN IN CHASE TO 10X20 LOW RA GRILLE @ 6" A.F.F. BALANCE TO 500CFM.
 - SEE SHEET M2.02B FOR HW PIPING DETAIL IN MECHANICAL ROOM.
 - SEE 8/M6.03 FOR DETAIL.
 - SEE 9/M6.03 FOR DETAIL.
 - LINEAR SLOT DIFFUSER (4)1" SLOT WITH 10" INLET. PRICE SSB SERIES OR APPROVED EQUAL.
 - 2-POSITION CONTROL DAMPER TO CLOSE UPON ACTIVATION OF EXHAUST FAN IN RESPECTIVE SCIENCE CLASSROOM.
 - 18X18 EXH DUCT UP THRU ROOF TO NEW RELIEF HEAD ON ROOF. SEE 9/M6.02 FOR DETAIL. PROVIDE SLEEVE FOR FUTURE COOLING COIL. PRIOR TO THE COIL.
 - 2-POSITION CONTROL DAMPER TO OPERATE WITH ASSOCIATED EXH FAN. INSULATE DUCTWORK DOWNSTREAM OF THE DAMPER TO OUTSIDE.
 - 12" SA - 500CFM
 - 12X4 RA DN IN WALL TO 12X6 LOW RA GRILLE @ 6" A.F. BALANCE GRILLE TO 180 CFM.
 - VAV DAMPER TO OPEN TO 100% COOLING AIRFLOW UPON ACTIVATION OF RESPECTIVE EXHAUST FAN IN SCIENCE CLASSROOM.
 - 6" SA - 100CFM
 - CONNECT TO (E)DUCTWORK.
 - CONNECT (N)RA DUCT TO (E)EXH PLENUM.
 - 9X9 LINED DUCT WITH MIN. 3 ELBOWS, OPEN TO ATTIC FOR COMBUSTION AIR.

- GENERAL NOTES:**
- WHERE THE PENETRATION AT THE CORRIDOR WALL IS A THROUGH-PENETRATION, INSTALL MINIMUM OF 26 GA SHEETMETAL AND PROTECT OPENINGS PER ULL479. SEE DETAIL ON SHEET M6.03.
 - SEE M2.02B FOR T-STAT, CO2 SENSORS, AND LOCATION OF WALL SWITCHES FOR EXHAUST FANS AND CEILING FANS.

#	Date	Description
2	3/13/18	DISTRICT REVIEW COMMENTS
1	2/19/18	DISTRICT REVIEW COMMENTS

Revision Schedule

BID SET

PILOT BUTTE MIDDLE SCHOOL - BLDGS E&F
1501 NE Neff Road, Bend OR 97701

BLRB architects

TACOMA	SPOKANE	PORTLAND	BEND
1050 Pacific Avenue Suite 100 Westport 98593 360.227.5591	505 W. Riverside Suite 100 Westport 98593 509.252.0982	1001 NE 50th Avenue Suite 100 Oreos 97002 503.535.2007	404 SW Columbia St Suite 100 Oreos 97002 541.336.6596

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Drawing Title:
MECHANICAL FLOOR PLAN - BUILDING E

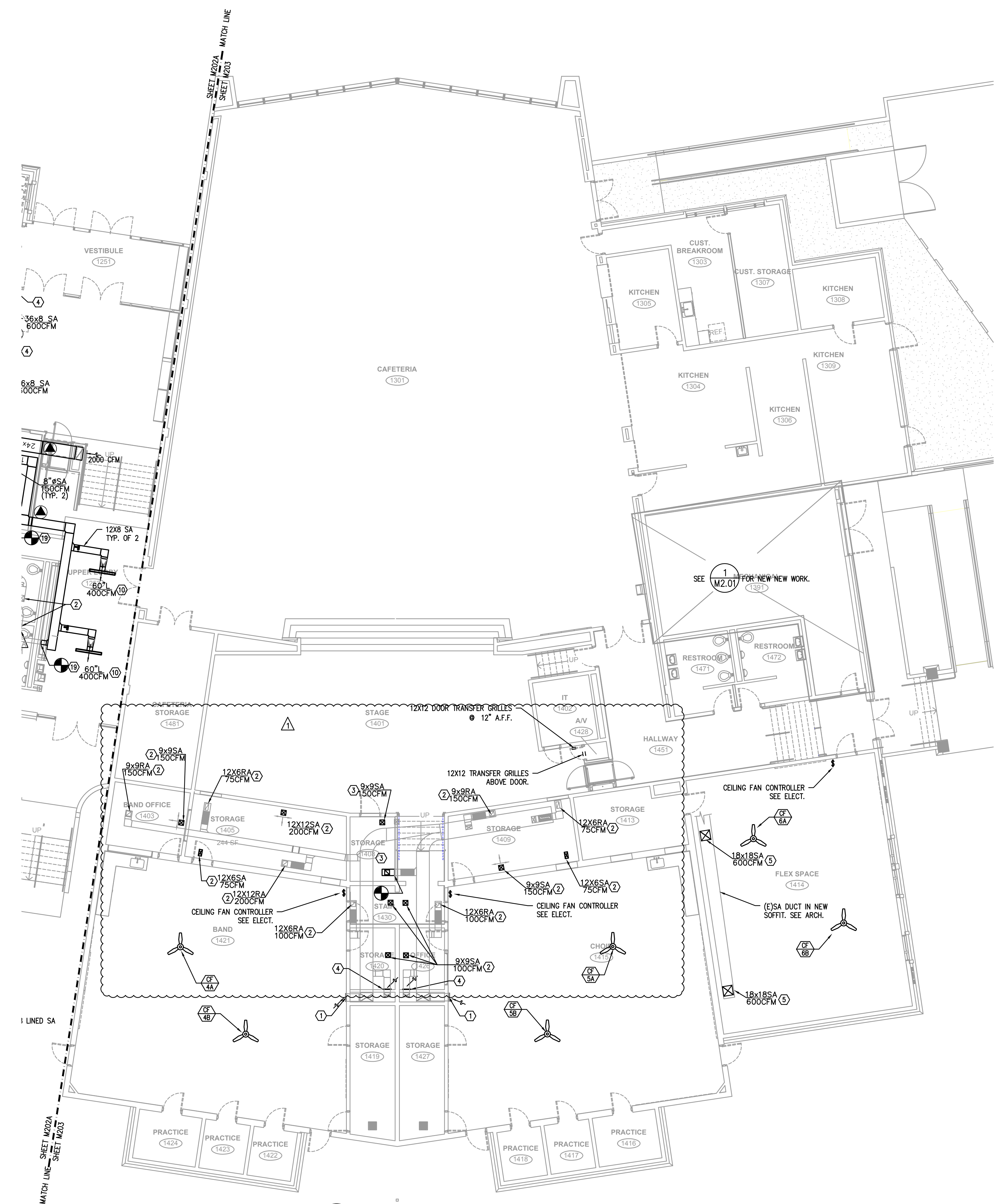
Date: 02.19.2018 Drawn By: TB

Revised Date: Project No. 17.34B

Stamp Sheet No.

MPIA Consulting Engineers
2007 S.E. Ash St.
Portland, OR 97214
PHN: (503) 234-0548
FAX: (503) 234-0877
CONTACT: TAKAHO BAKER

M2.02A
EXPIRES: 31DEC18



City Of Bend Approval Stamp:

- KEYED NOTES:**
1. REMOVE & RE-INSTALL (E)12X48 LOW RA GRILLE @ 6" ABOVE NEW FLOOR ELEVATION. REBALANCE GRILLE TO 2400 CFM.
 2. RE-INSTALL (E)SA/RA GRILLES AT NEW CEILING HEIGHT AND BALANCE TO AIRFLOW SHOWN.
 3. EXTEND (E)SHEETMETAL DUCT TO NEW DIFFUSER LOCATION AND BALANCE TO AIRFLOW SHOWN.
 4. REMOVE & RE-INSTALL (E)12X6 LOW RA GRILLE @ 6" ABOVE NEW FLOOR ELEVATION. REBALANCE RA GRILLE TO 100 CFM.
 5. EXTEND DUCT TO BOTTOM SURFACE OF NEW SOFFIT AND RE-INSTALL (E) DIFFUSER. BALANCE SA GRILLE TO AIRFLOW SHOWN.

#	Date	Description
2	3/13/18	DISTRICT REVIEW COMMENTS
1	2/19/18	DISTRICT REVIEW COMMENTS

Revision Schedule

BID SET

PILOT BUTTE MIDDLE SCHOOL - BLDGS E&F
1501 NE Neff Road,
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125 Pacific Avenue Suite 100
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503.325.5597

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Bend, Oregon 97702
503.325.5596

BLRB.com

Drawing Title:

MECHANICAL FLOOR PLAN - BUILDG F

Date: 02.19.2018 Drawn By: TB

Revised Date: Project No. 17.34B

Stamp Sheet No.

Professional Engineer Seal for Scott W. Miller, No. 17398, expires 31DEC18.

M2.03

1 MECHANICAL FLOOR PLAN - BUILDINGS F
M2.03 SCALE: 1/8"=1'-0"

MEDIA Consulting Engineers
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CONTACT: TAKAKO BAKER

MECHANICAL LEGEND

	SUPPLY AIR DIFFUSER	AFH	ABOVE FINISH FLOOR
	RETURN AIR DIFFUSER	AHU	AIR HANDLING UNIT
	EXHAUST AIR DIFFUSER	BHP	BRAKE HORSEPOWER
	BOTTOM OF DUCT	BTU	BRITISH THERMAL UNITS
	CUBIC FEET PER MINUTE	CFM	
	CONNECTION	CONN.	
	CONTINUATION	CONT.	
	DOMESTIC COLD WATER	CW	
	DRY BULB	DB	
	DIAMETER	DIA.	
	DISTRIBUTION	DIST.	
	EXHAUST AIR	EXH	
	ENTERING DRY BULB TEMPERATURE	EDB	
	ENTERING WET BULB TEMPERATURE	EWB	
	ENTERING WATER TEMPERATURE	EWT	
	FINISH FLOOR	FF	
	FIXTURE	FIXT.	
	FLAT ON BOTTOM	F.O.B.	
	FEET PER MINUTE	FFM	
	FEET PER SECOND	FPS	
	FEET / FOOT	FT.	
	GAUGE	GA	
	GREASE EXHAUST AIR DUCT	GEAD	
	GALLONS PER MINUTE	GPM	
	HEIGHT	H	
	HORSEPOWER	HP	
	HORSE DIAMETER	H.D.	
	INCHES	IN.	
	LENGTH	L	
	POUNDS	LB.	
	LEAVING DRY BULB	LDB	
	LEAVING WET BULB	LWB	
	LEAVING WATER TEMPERATURE	LWT	
	MAKE UP AIR	MA	
	MAXIMUM	MAX.	
	THOUSANDS OF BTUs PER HOUR	MBH	
	MOTORIZED DAMPER	MD	
	MINIMUM	MIN.	
	MANUAL VOLUME DAMPER	MVD	
	NOISE CRITERIA	NC	
	NORMALLY CLOSED	N.C.	
	NOT IN MECHANICAL	N.I.M.	
	NUMBER	N.	
	NORMALLY OPEN	N.O.	
	OUTSIDE AIR	O.A.	
	PERSON	P	
	POUNDS PER SQUARE INCH	PSI	
	PRESSURE / TEMPERATURE	P/T	
	RECTANGULAR	R.A.	
	REQUIRED	REQ'D	
	SUPPLY AIR	S.A.	
	STATIC PRESSURE	S.P.	
	SQUARE	SQ.	
	TEMPERATURE	TEMP.	
	TYPICAL	TYP.	
	VARIABLE AIR VOLUME	VAV	
	WIDTH	W	
	WET BULB	WB	
	WATER PRESSURE DROP	WPD	
	DIAMETER	Ø	
	DOUBLE CHECK ASSEMBLY	DCA	
	PRESSURE REDUCING VALVE	PRV	
	UNION	UN	
	2-WAY CONTROL VALVE	2-W	
	3-WAY CONTROL VALVE	3-W	
	CAP	CAP	
	MOTORIZED DAMPER	MD	
	BALL SHUT OFF VALVE	BSOV	
	FIRE DAMPER	FD	
	FIRE / SMOKE DAMPER	FSD	
	SMOKE DAMPER	SD	

CEILING FANS

MARK NUMBER	CF 1A	CF 1B	CF 2A	CF 2B	CF 3A	CF 3B	CF 4A	CF 4B	CF 5A	CF 5B	CF 6A	CF 6B
ROOM	SCIENCE 1102	SCIENCE 1101	SCIENCE 1218	BAND 1421	CHOIR 1415	FLEX 1414						
MOUNTING	CEILING HUNG	CEILING HUNG	CEILING HUNG	CEILING HUNG	CEILING HUNG	CEILING HUNG						
BLADE DIAMETER/FAN HEIGHT	52"/16.4"	52"/16.4"	52"/16.4"	52"/16.4"	52"/16.4"	52"/16.4"						
CONTROLLED BY:	HAIKU L-SERIES HARD WIRED WALL CONTROL (1 CONTROLLER PER ROOM)											
MOUNTING HEIGHT (FROM CEILING)												
DESIGN WEIGHT (LBS)	11 LBS	11 LBS	11 LBS	11 LBS	11 LBS	11 LBS						
DESIGNED MODEL: BIG ASS FAN/HAIKU	L-SERIES	L-SERIES	L-SERIES	L-SERIES	L-SERIES	L-SERIES						

EXHAUST FANS

MARK NUMBER	EF E1	EF E2	EF E3	EF E4	EF E5
DESIGNED ELEVATION, FT	3500 FT				
TYPE	CABINET	CABINET	CABINET	CABINET	CABINET
SYSTEM	SCIENCE 1101	SCIENCE 1102	SCIENCE 1218	SCIENCE PREP	R.R.
CFM	1400	1400	1400	500	350
TOTAL SP. (IN H2O)	0.50	0.50	0.50	0.50	0.50
DRIVE	DD	DD	DD	DD	DD
VFD	NO	NO	NO	NO	NO
FAN RPM	1590	1590	1590	883	807
MOTOR HP	738 W	738 W	738 W	160 W	106 WATTS
CONTROLLED BY	SWITCH	SWITCH	SWITCH	DDC, NOTE 5	DDC, NOTE 5
INTERLOCK WITH					
WHEEL TYPE	FC	FC	FC	FC	F.C.
BACK DRAFT DAMPER/MOTORIZED DAMPER	-/YES	-/YES	-/YES	-/YES	-/YES
ISOLATION	EXTERNAL	EXTERNAL	EXTERNAL	EXTERNAL	EXTERNAL
DESIGN WEIGHT (LBS)	60	60	60	35	35
MAX. SONES	4.0	4.0	4.0	7.7	1
NOTES:	1,2,3,4	1,2,3,4	1,2,3,4	1,3,4	1,3,4
BASIS OF DESIGN: GREENHECK	CSP-A1550	CSP-A1550	CSP-A1550	CSP-A700	CSP-A700
ELECTRICAL (V/PH)	120/1	120/1	120/1	120/1	120/1

- PROVIDE WITH SPEED CONTROL NEAR FAN FOR BALANCING
- 60 MIN TIMER SWITCH, SEE ELECTRICAL
- PROVIDE 24V MOTORIZED DAMPER IN THE DISCHARGE DUCT, WIRED BY CONTROLS CONTRACTOR.
- PROVIDE 24V MOTORIZED DAMPER IN THE DISCHARGE DUCT, WIRED BY CONTROLS CONTRACTOR.
- WITH FULL LOAD RATED CONTACTOR.

WATER TO WATER HEAT EXCHANGER

MARK NUMBER	HE 1
DESIGNED ALTITUDE, FT	3500
TYPE	BRAZED PLATE
SYSTEM	SNOW MELT
CAPACITY, MBH	535
DIMENSION	4.9"WX13.2"HX6.5"D
GPM	46
ENT. WATER (° F.)	140
LVG. WATER (° F.)	114
MAX PRESS DROP, FT. H2O	6 FT
% PROPYLENE GLYCOL	45%
GPM	28
ENT. WATER (° F.)	180
LVG. WATER (° F.)	140
MAX PRESS DROP, FT. H2O	2
OPERATING WEIGHT, LBS	25
BASIS OF DESIGN:	KELVIN GBS400H-70

- SNOW MELT SYSTEM SHALL BE TREATED TO 40% PROPYLENE GLYCOL
- SPACE FOR NEW HEAT EXCHANGER AND PIPING IS LIMITED. IF UNIT WITH DIFFERENT DIMENSIONS IS PROVIDED, CONTRACTOR TO VERIFY EQUIPMENT FIT WITH EXISTING SITE CONDITIONS.

RETURN FANS

MARK NUMBER	RF E1	RF E2
DESIGNED ELEVATION, FT	3500 FT	
TYPE	IN-LINE	IN-LINE
SYSTEM	AHU-E1	AHU-E2
CFM	3995	5410
TOTAL SP. (IN H2O)	0.75	0.75
DRIVE	DD	DD
VFD	YES	YES
FAN RPM	951	1095
MOTOR HP	5	5
CONTROLLED BY	DDC	DDC
INTERLOCK WITH	AHU-E1	AHU-E2
BACK DRAFT DAMPER/MOTORIZED DAMPER	-/-	-/-
ISOLATION	EXTERNAL SPRING	EXTERNAL SPRING
DESIGN WEIGHT (LBS)	370	370
MAX. SONES	SEE ACOUSTICAL REQ'T ON THIS SHEET	SEE ACOUSTICAL REQ'T ON THIS SHEET
DISCHARGE/CONFIGURATION	INLINE	INLINE
SMOKE DETECTOR	YES	YES
BASIS OF DESIGN: GREENHECK	QEID-20-90-A50	QEID-20-90-A50
ELECTRICAL (V/PH)	480/3	480/3

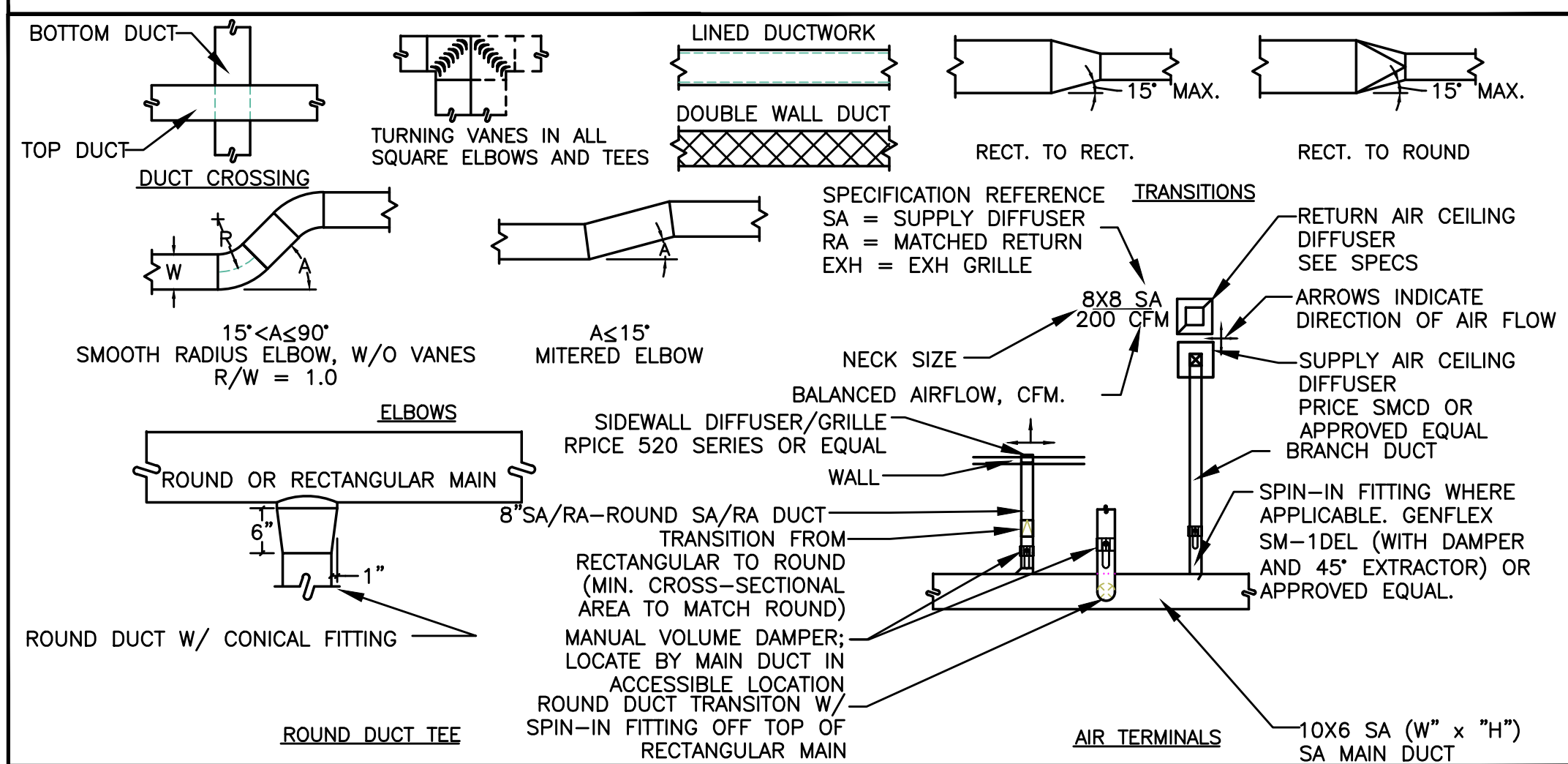
PUMPS

MARK NUMBER	(E) SMP 1	(P) E1	(P) E2
DESIGNED ALTITUDE, FT	3500 FT	3500 FT	3500 FT
ARRANGEMENT	EXISTING PUMP	CENTRIFUGAL	CENTRIFUGAL
STARTER TYPE	(E)	COMBO STARTER/DISCONNECT	
FLOW RATE (GPM)	46	6	12
HEAD (FT)	65	20	20
MOTOR HP	2	1/6	1/6
RPM	1750	3250	3250
CONTROLLED BY	DDC	DDC	DDC
FLUID	45% PROPYLENE GLYCOL	WATER	WATER
SUCTION PIPE SIZE	(E)	1-1/2	1-1/2
DISCHARGE PIPE SIZE	(E)	1-1/2	1-1/2
BASE DESIGN MODEL, TACO:	KV1509	IL0013	IL0013
ELECTRICAL (V/PH)	(E)480/3	240/1	120/1
EXISTING PUMP: REPLACE (E)IMPELLERS WITH NEW 7.8" IMPELLERS AND BALANCE TO NEW FLOW.			

AIR HANDLING UNIT

MARK NUMBER	AHU E1	AHU E2
DESIGNED ELEVATION, FT	3500 FT	
TYPE	VERTICAL AHU	VERTICAL AHU
SYSTEM	ADMIN	CLASSROOM
CFM	4350 CFM	6185 CFM
OSA (MIN)	790 CFM	1705 CFM
OSA (MIN/MIN)	400 CFM	425 CFM
EXT SP. (IN H2O)	2.25	2.50
TOTAL SP. (IN H2O)	3.25"	3.36"
FAN/WHEEL TYPE (QTY)	PLENUM/B.I. (2)	PLENUM/B.I. (2)
DRIVE	D.D.	D.D.
FAN RPM	1800	1960
MOTOR HP**	(2)2.7 KW	(2)2.7 KW
CONTROLLED BY	DDC	DDC
ECONOMIZER	YES*	YES*
MAX. SONES	SEE ACOUSTICAL REQ'T ON THIS SHEET	SEE ACOUSTICAL REQ'T ON THIS SHEET
HEATING COIL		
HEATING CFM	2775	4545
ENTERING AIR TEMP (° F.)	32.6	25.8
LEAVING AIR TEMP (° F.)	61.6	61.3
ENTERING WATER TEMP. (° F.)	140	140
LEAVING WATER TEMP. (° F.)	110	110
TOTAL CAPACITY (MBH)	84.6	174.4
FLOW RATE (GPM)	5.73	11.7
MIXING VALVE TYPE	3-WAY	3-WAY
CONNECTION SIZE, INCH	3/4"	1"
MIN ROWS/FPI	1/12	1/12
MAX. FLUID PD, FT. W.C.	4.4	2.7
UNIT WEIGHT	1920 #	2765#
UNIT DIMENSIONS (LWXHX)	31"x56"x118"	38"x72"x120"
ELECTRICAL (V/PH)	480/3	480/3
BASIS OF DESIGN:	ENERGY LABS, MODEL CA	
ECONOMIZER DAMPERS ARE LOCATED REMOTELY ON DUCTWORK. SEE PLAN FOR LOCATION.		

AIR DISTRIBUTION DETAILS



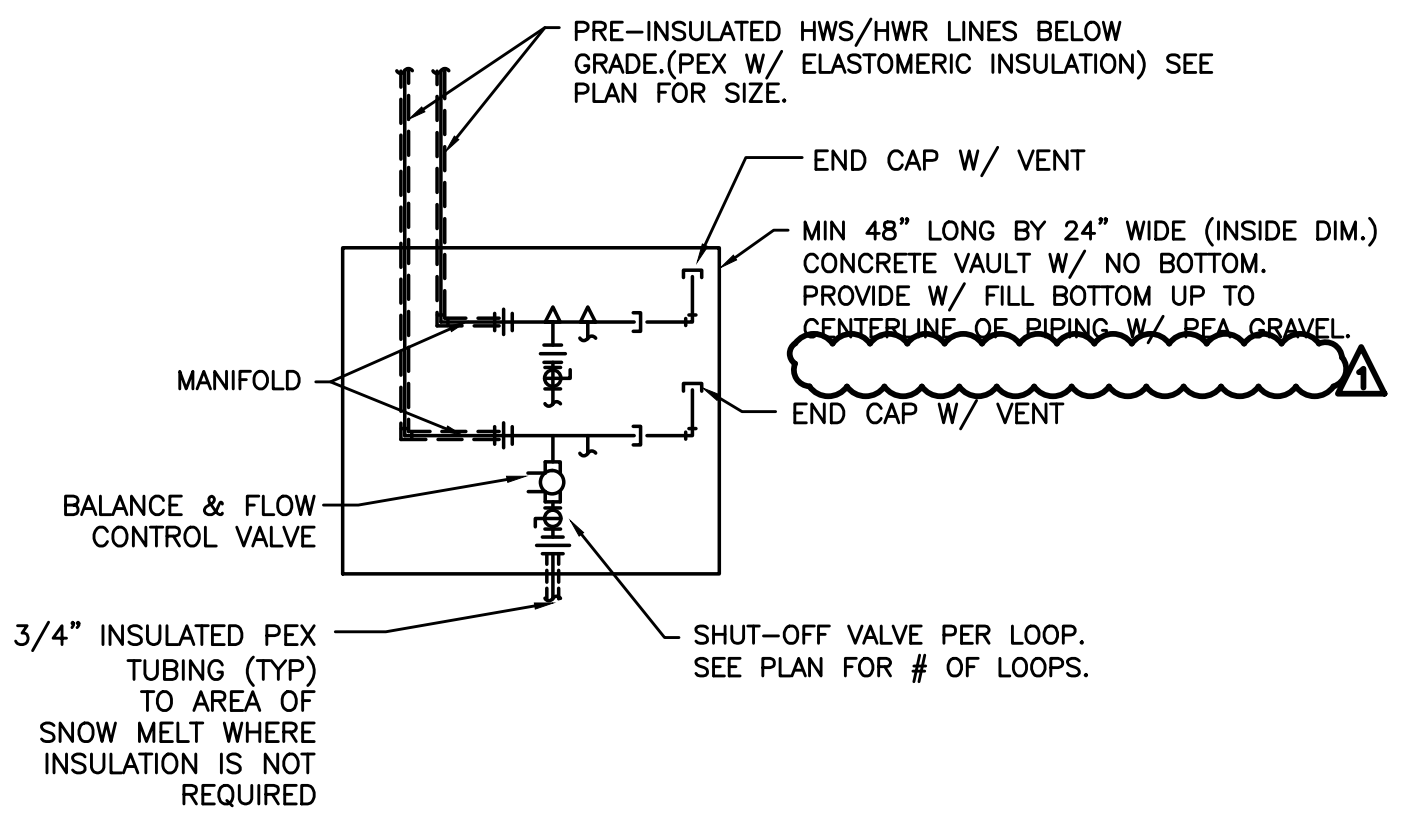
VENTILATION AIR SCHEDULE - AHU-E1

ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/PERSON)	OUTSIDE AIR REQUIREMENT (CFM/SQ. FT.)	OUTSIDE AIR REQUIRED (CFM)	ZONE OSA (CFM)	SUPPLY AIR (CFM)	PRIMARY FRACTION	RETURN AIR (CFM)	EXHAUST AIR (CFM)	Zone Ventilation Efficiency	Corrected OSA	AIR SYSTEMS				
Az	Pz	Rp	Ra	Vbz	Ez	VoZ	Vpz	Zp				Evz						
SCIENCE CLASSROOM 1218	1100	35	39	10	0.12	522	1.0	522	1200	0.44	1200	0	0.91	576.69	VAV E1.1			
SCHEDULING 1215	102	5	1	5	0.06	11	1.0	11	175	0.06	175	0	1.28	12.29	VAV E1.2			
FLING 1216	61	5	1	5	0.06	9	1.0	9	75	0.12	75	0	1.22	9.57	VAV E1.2			
CONFERENCE 1212	252	50	13	5	0.06	80	1.0	80	300	0.27	300	0	1.07	88.51	VAV E1.3			
GRLS RR 1273	140	0	0	0	0	0	1.0	0	150	0.00	0	200	1.34	0.00	VAV E1.3			
COUNSELOR 1217	110	5	1	5	0.06	12	1.0	12	150	0.08	150	0	1.26	12.82	VAV E1.4			
COUNSELOR 1213	123	5	1	5	0.06	12	1.0	12	150	0.08	150	0	1.26	13.68	VAV E1.4			
LOBBY	1095	0	1	0	0.06	66	1.0	66	2000	0.03	2000	0	1.31	72.58	VAV E1.5			
TOTAL	2983		56			711.58		711.58	4200		4050	200	0.91	786				
									Vou		Vps							
CORRECTED TOTAL OUTDOOR AIR FLOW RATE														786	CFM	Corrected OSA Fraction	Zs =	0.19

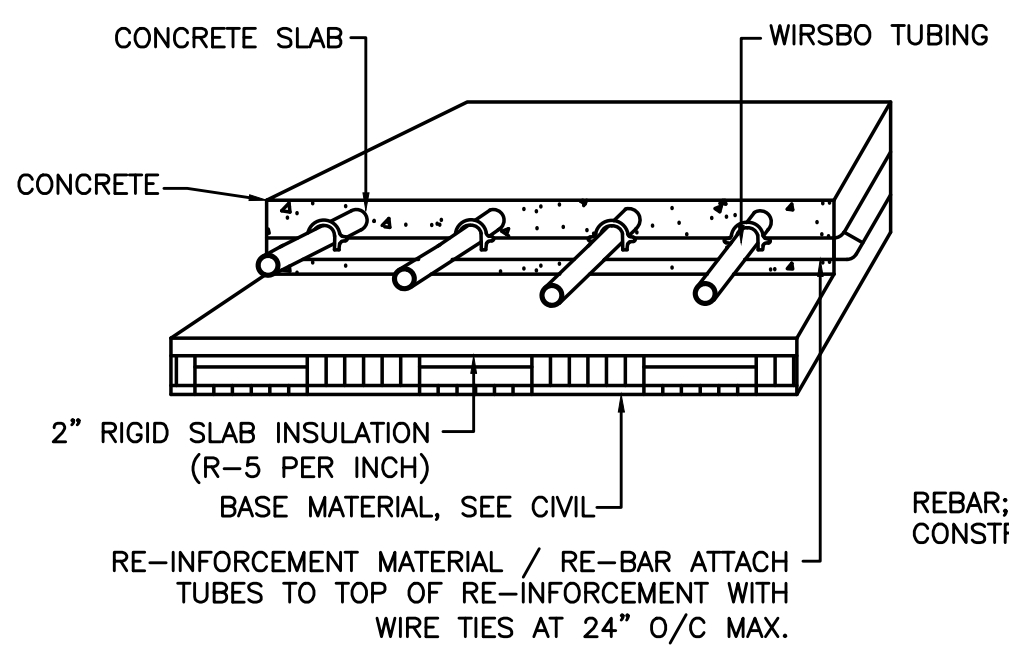
VENTILATION AIR SCHEDULE - AHU-E2

ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/PERSON)	OUTSIDE AIR REQUIREMENT (CFM/SQ. FT.)	OUTSIDE AIR REQUIRED (CFM)	ZONE OSA (CFM)	SUPPLY AIR (CFM)	PRIMARY FRACTION	RETURN AIR (CFM)	EXHAUST AIR (CFM)	Zone Ventilation Efficiency	Corrected OSA	AIR SYSTEMS	
Az	Pz	Rp	Ra	Vbz	Ez	VoZ	Vpz	Zp				Evz			
SCIENCE CLASSROOM 1102	1131	35	40	10	0.12	536	1.0	536	1200	0.45	1200	0	0.89	599.42	VAV E2.1
W. HALLWAY 1151	500	0	0	0	0.06	30	1.0	30	500	0.06	500	0	1.28	33.57	VAV E2.1
SCIENCE PREP/CLASS/OFFICE 1219	365	25	10	10	0.18	166	1.0	166	400	0.41	0	500	0.93	185.40	VAV E2.2
W. HALLWAY 1151	500	0	0	0	0.06	30	1.0	30	500	0.06					

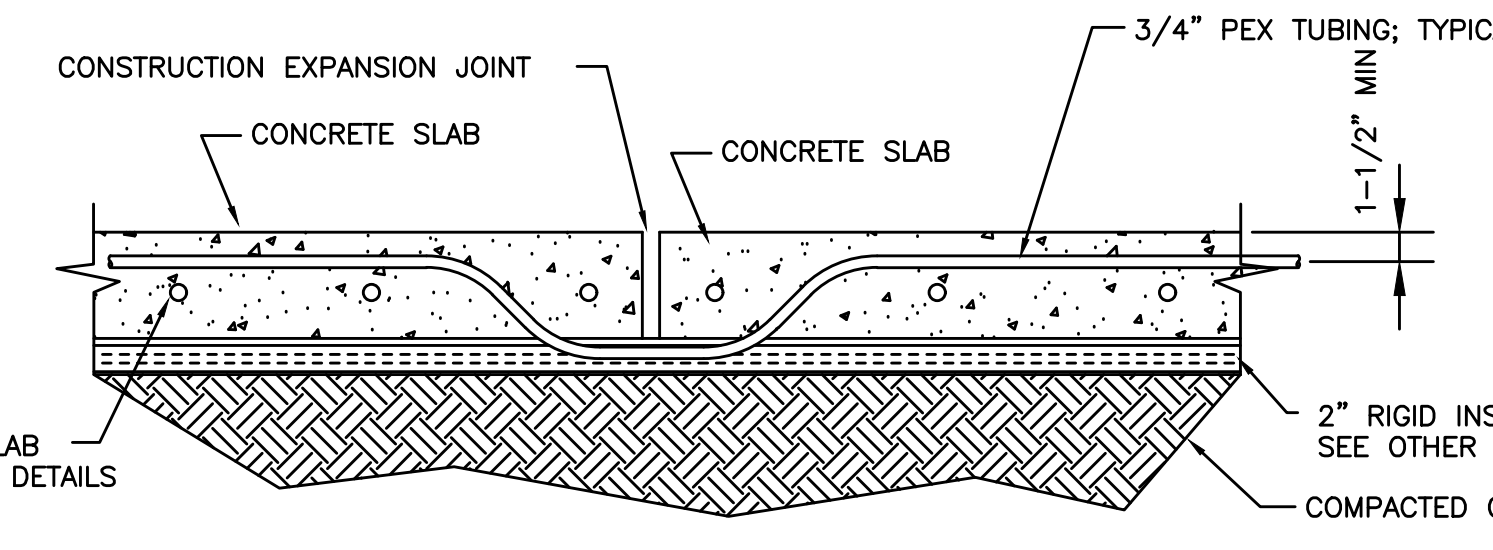
City Of Bend Approval Stamp:



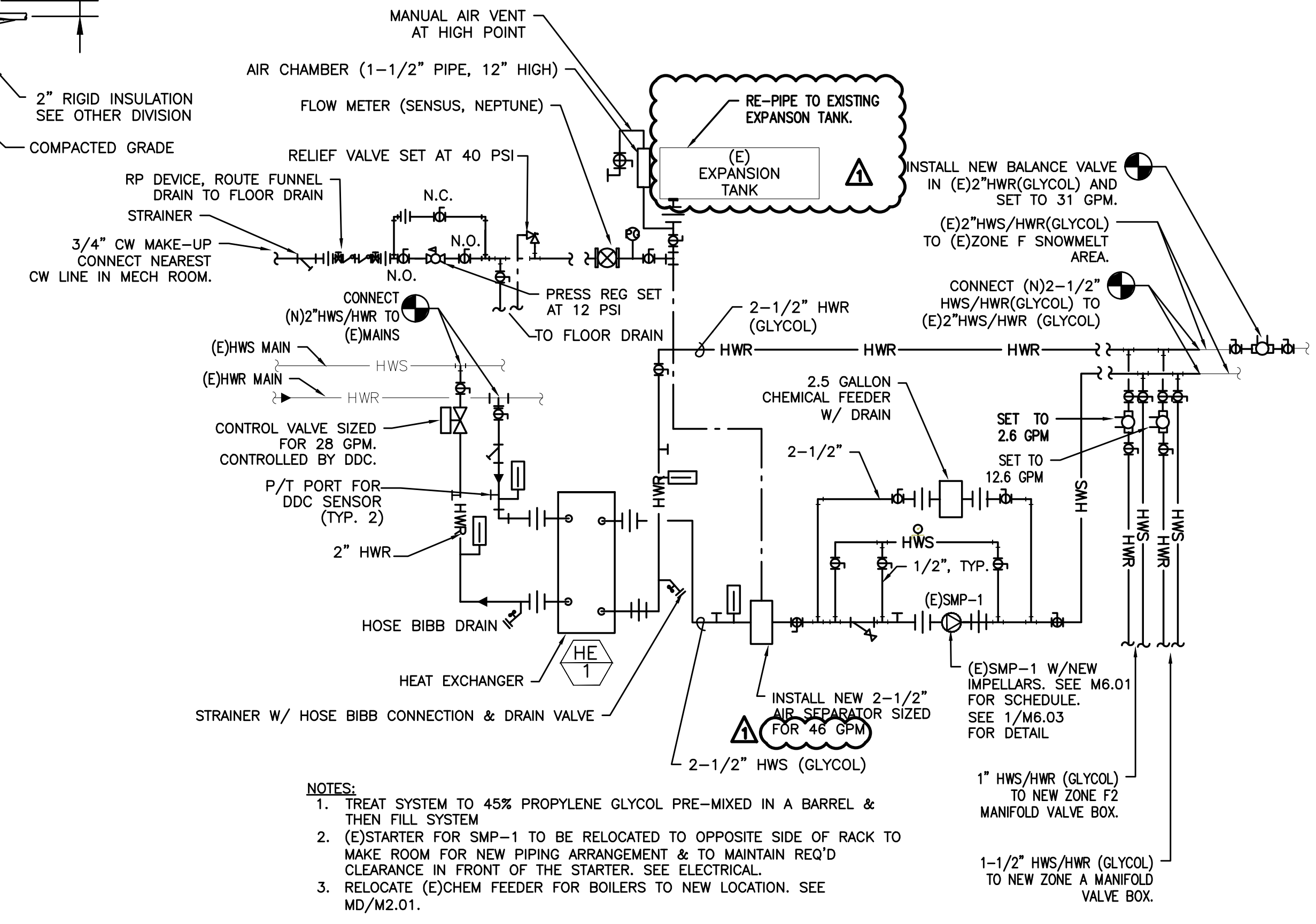
1 SNOW MELT MANIFOLD
SCALE: DETAIL



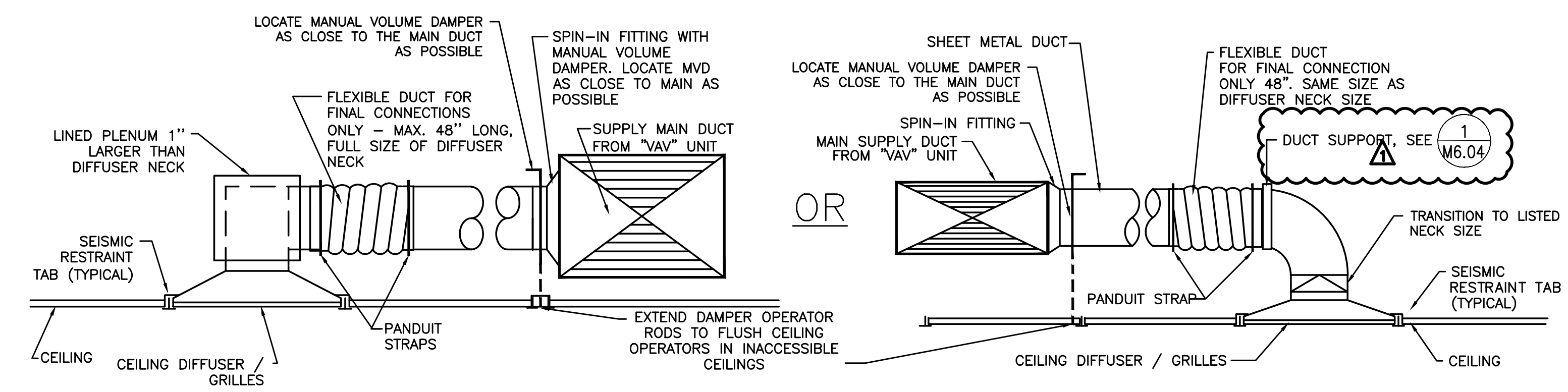
2 SNOW MELT UNDERSLAB PIPING DETAIL
SCALE: DETAIL



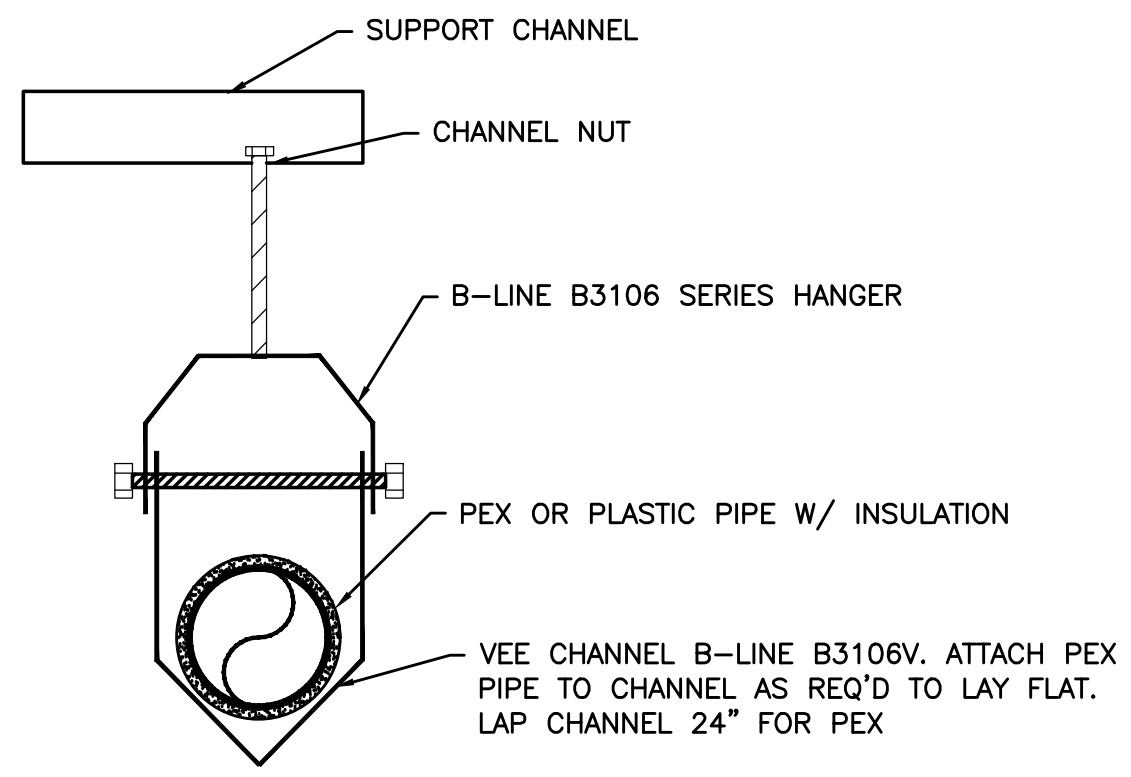
3 SNOW MELT @ EXPANSION JOINT
SCALE: DETAIL



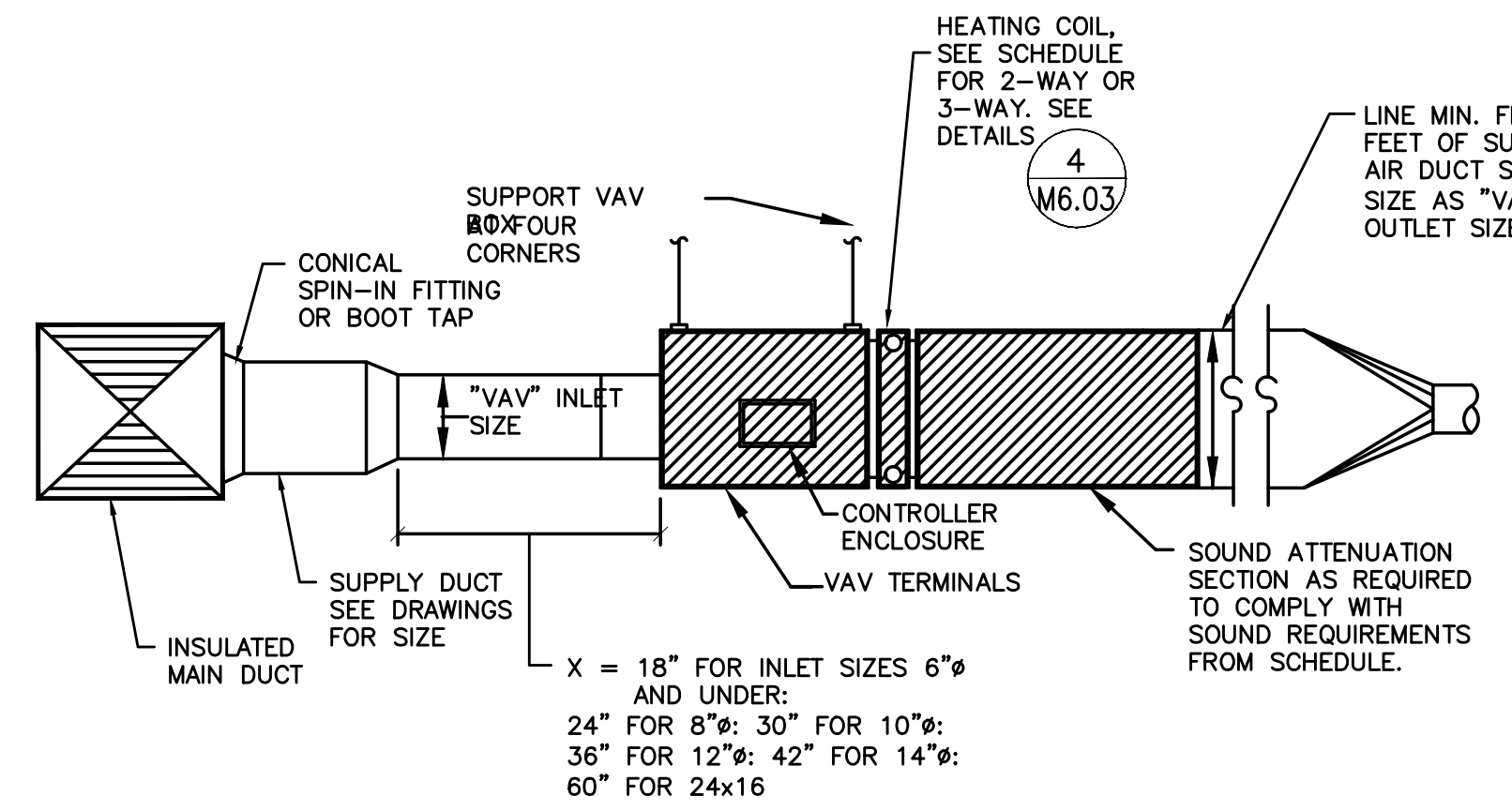
4 HEAT EXCHANGER PIPING DIAGRAM FOR SNOWMELT SYSTEM
SCALE: DETAIL



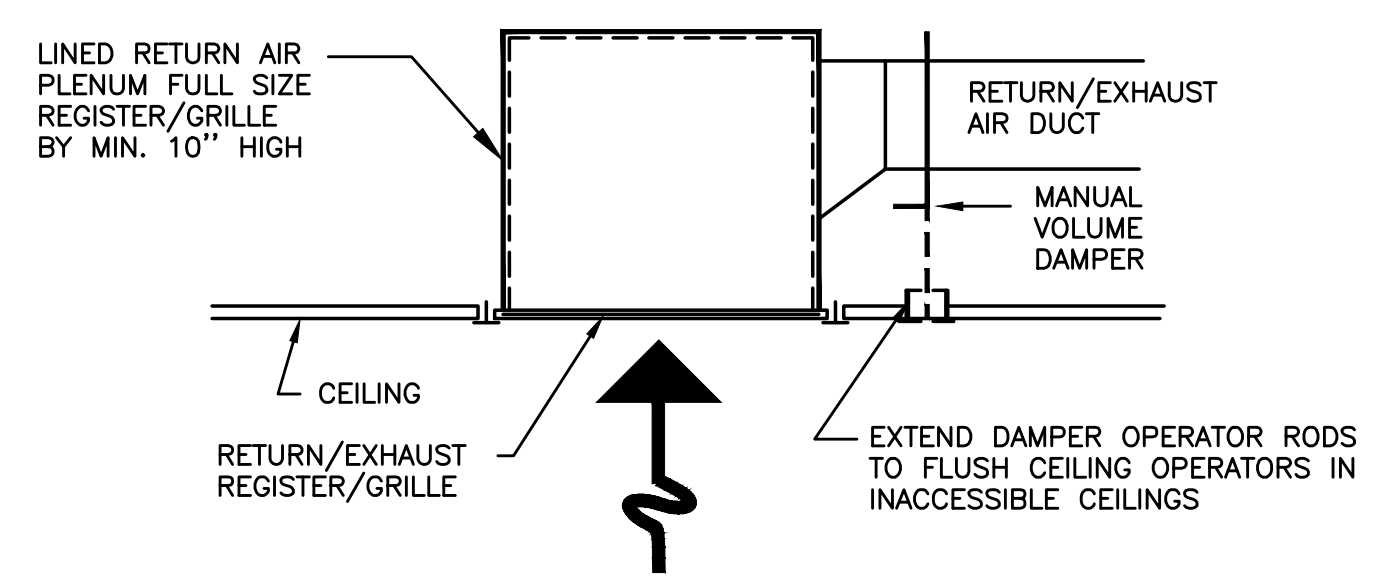
5 SUPPLY AIR DIFFUSER/GRILLE
SCALE: DETAIL



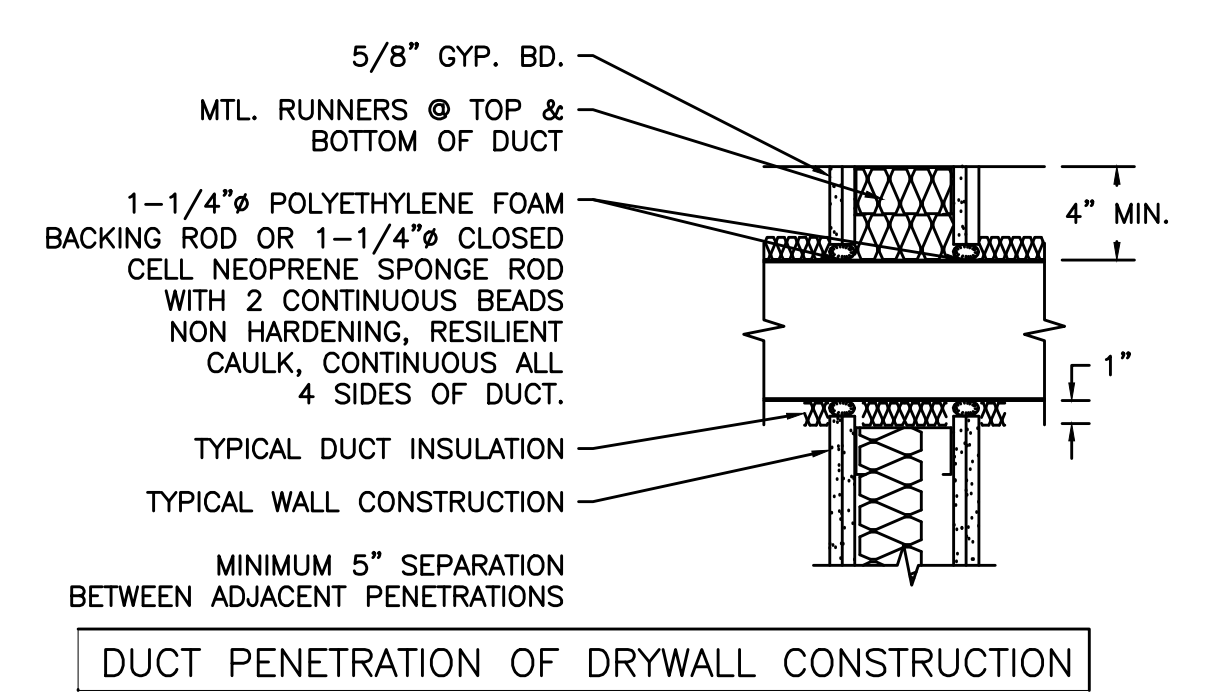
6 PEX SUPPORT DETAIL
SCALE: DETAIL



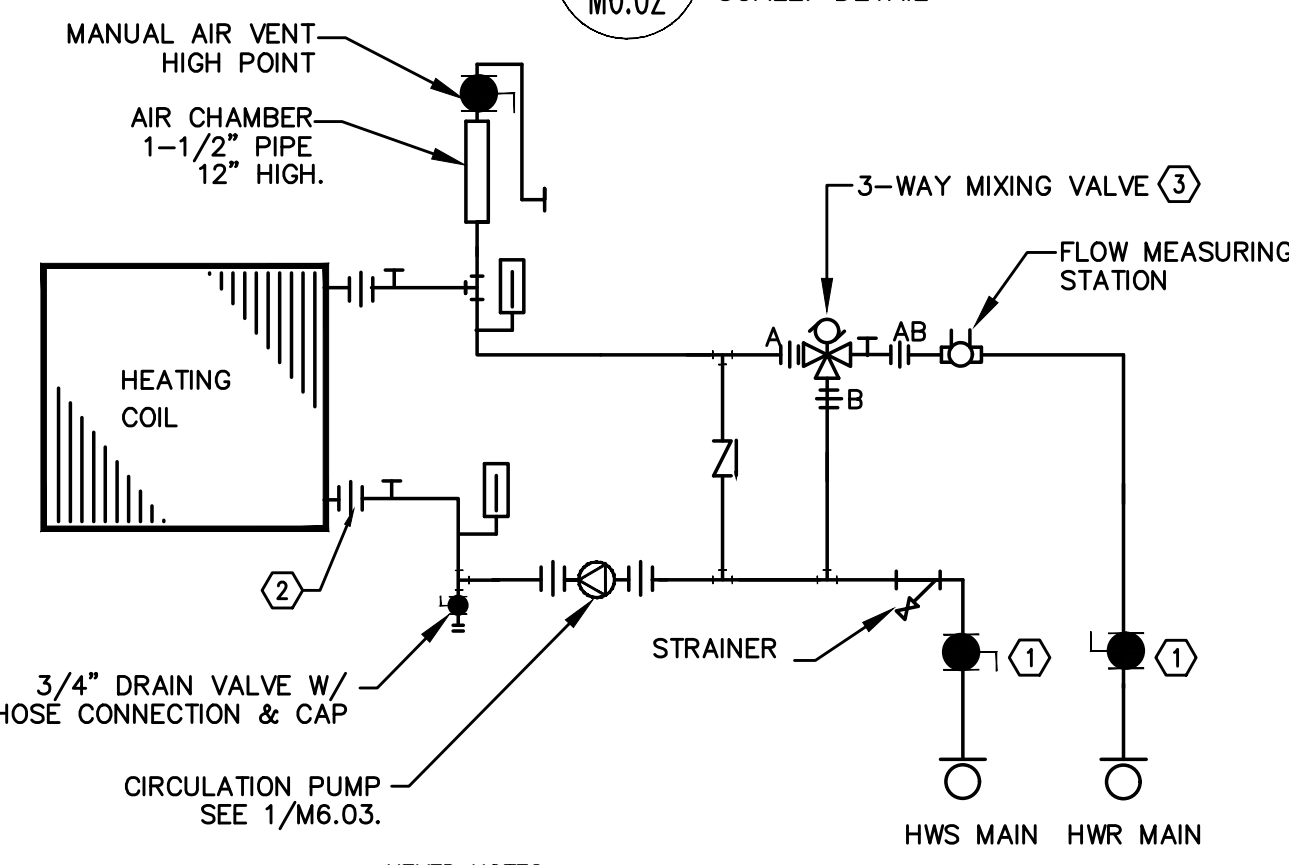
7 TYPICAL VAV BOX DETAIL
SCALE: DETAIL



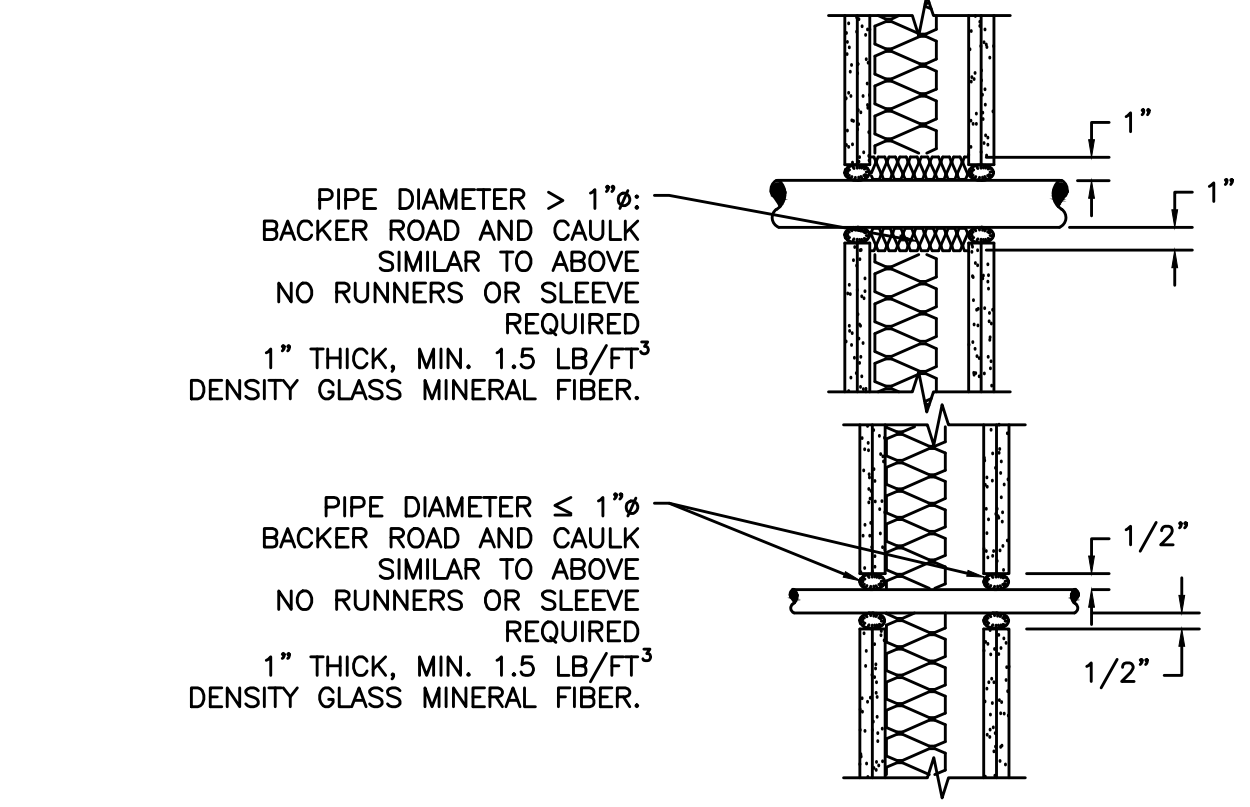
8 RETURN AIR DIFFUSER/GRILLE
SCALE: DETAIL



9 RELIEF HEAD
SCALE: DETAIL



10 PEAHEAT COIL- THREE WAY NON-FREEZE
SCALE: DETAIL



11 ACCOUSTICAL DUCT PENETRATION
SCALE: DETAIL

#	Date	Description
2	3/13/18	DISTRICT REVIEW COMMENTS
1	2/19/18	DISTRICT REVIEW COMMENTS

BID SET

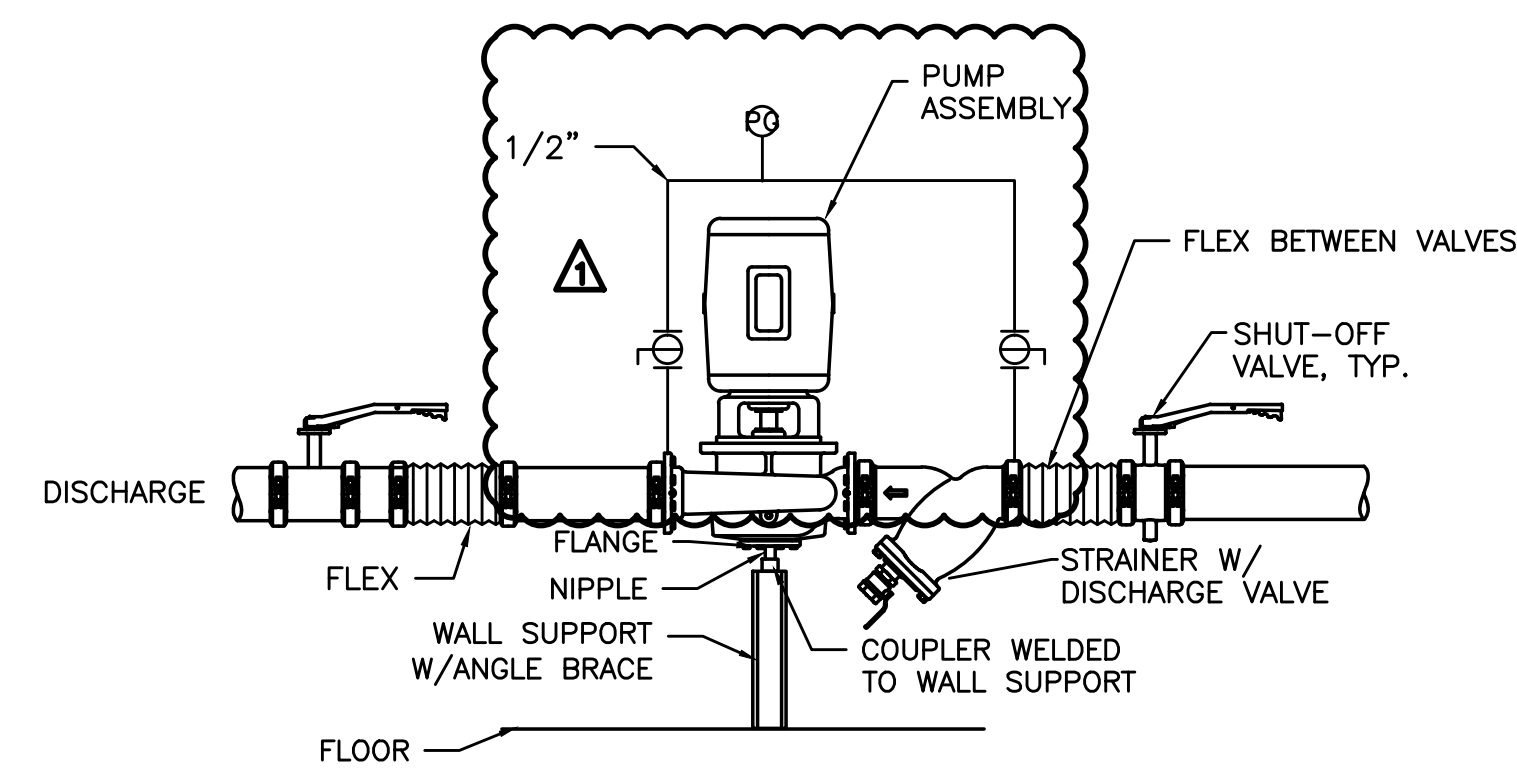
PILOT BUTTE MIDDLE SCHOOL - BLDGS E&F
1501 NE Neff Road,
Bend OR 97701

BLRB architects
TACOMA | SPOKANE | PORTLAND | BEND
125 Pacific Avenue Suite 100 Bend, OR 97701
503.325.1800
503.325.1800

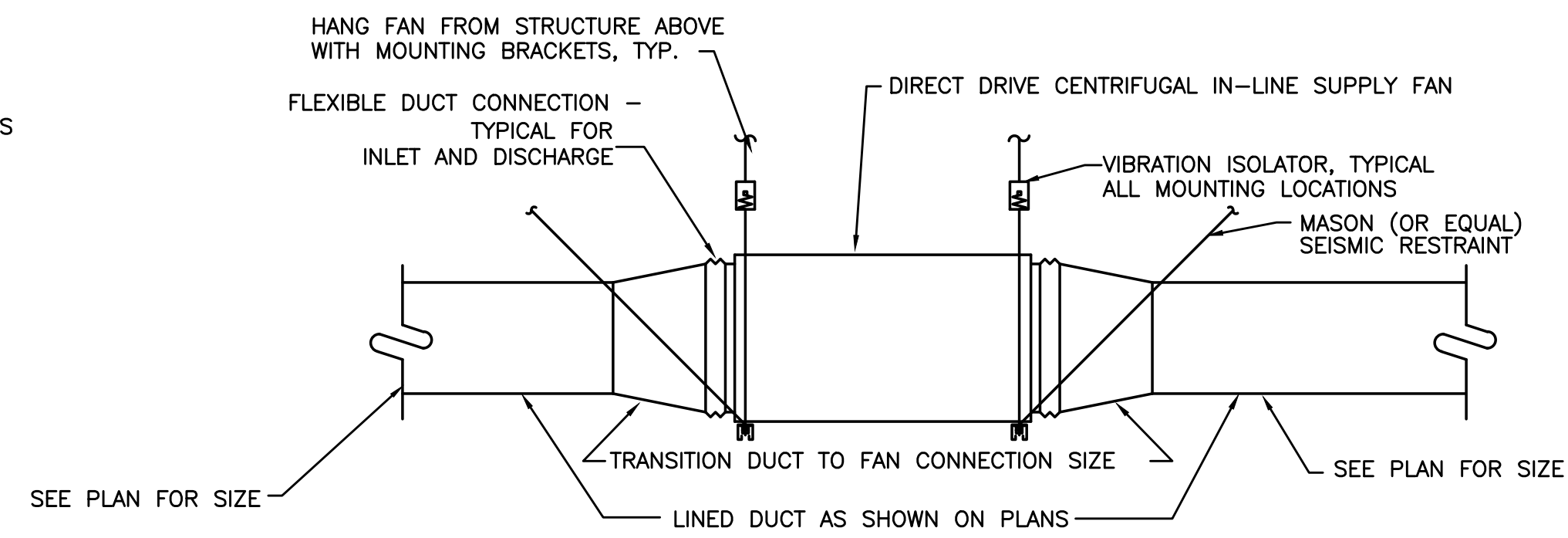
Drawing Title:
MECHANICAL DETAILS

Date: 02.19.2018
Revised Date:
Stamp: [Signature]
Sheet No.:

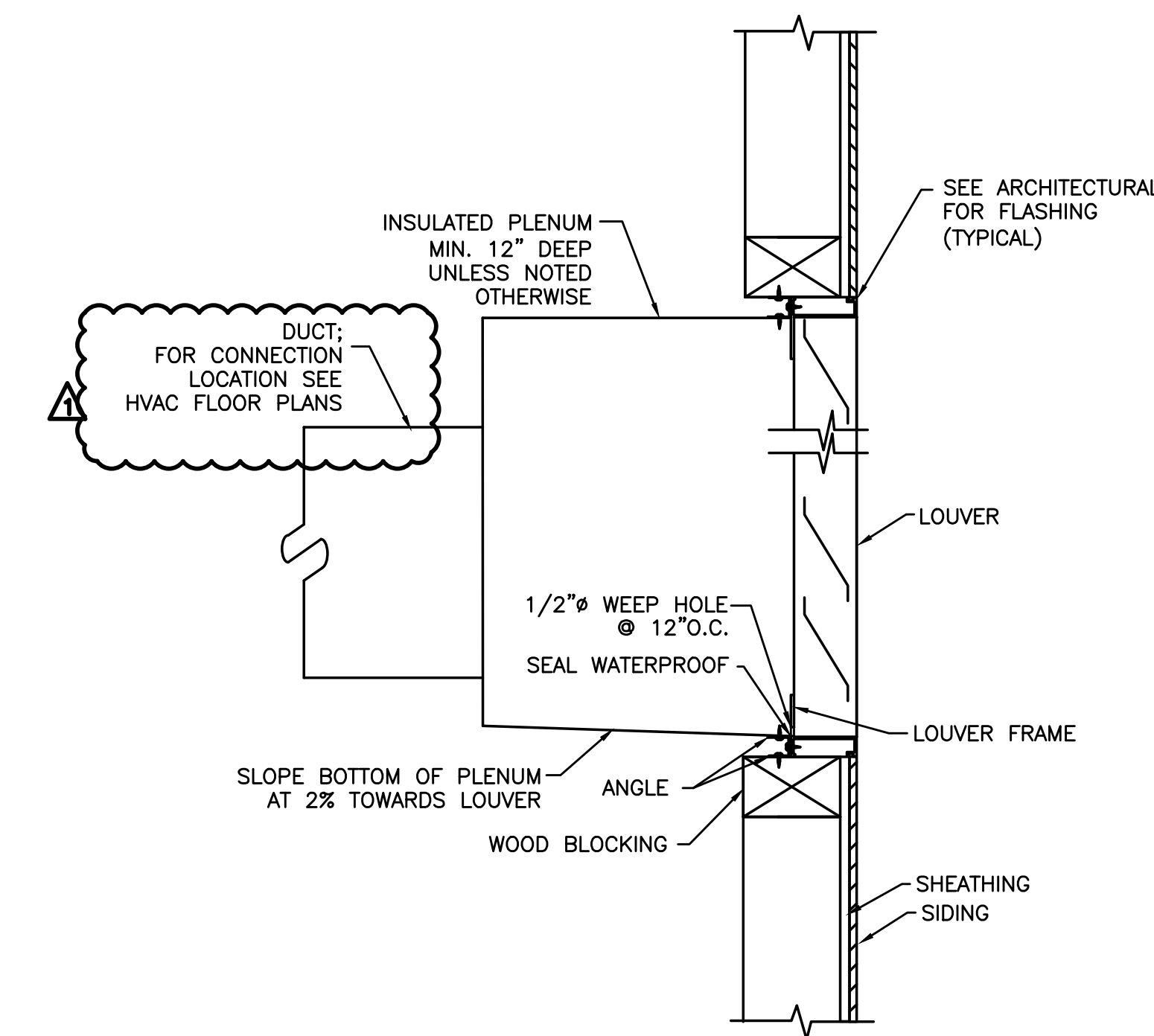
M6.02



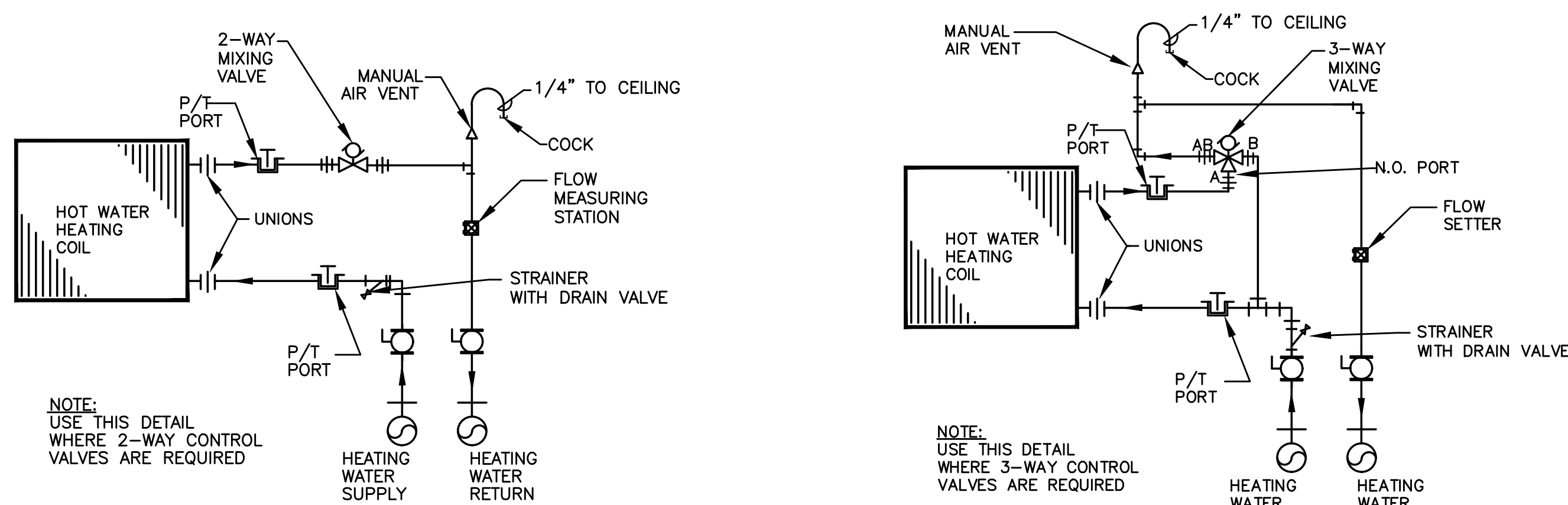
1 IN-LINE PUMP
SCALE: DETAIL
M6.03



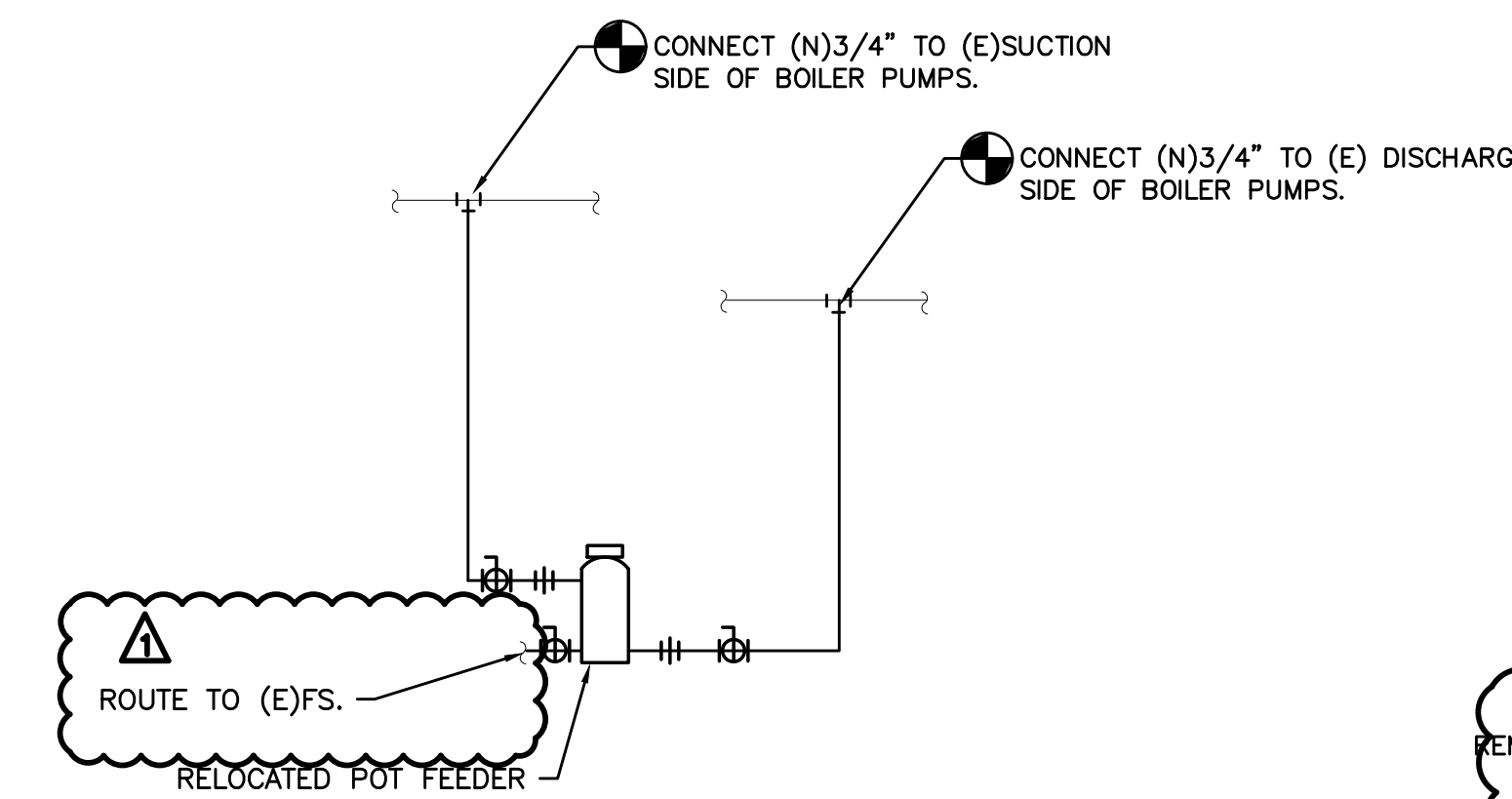
2 IN-LINE EXH FAN/RA FAN
SCALE: DETAIL
M6.03



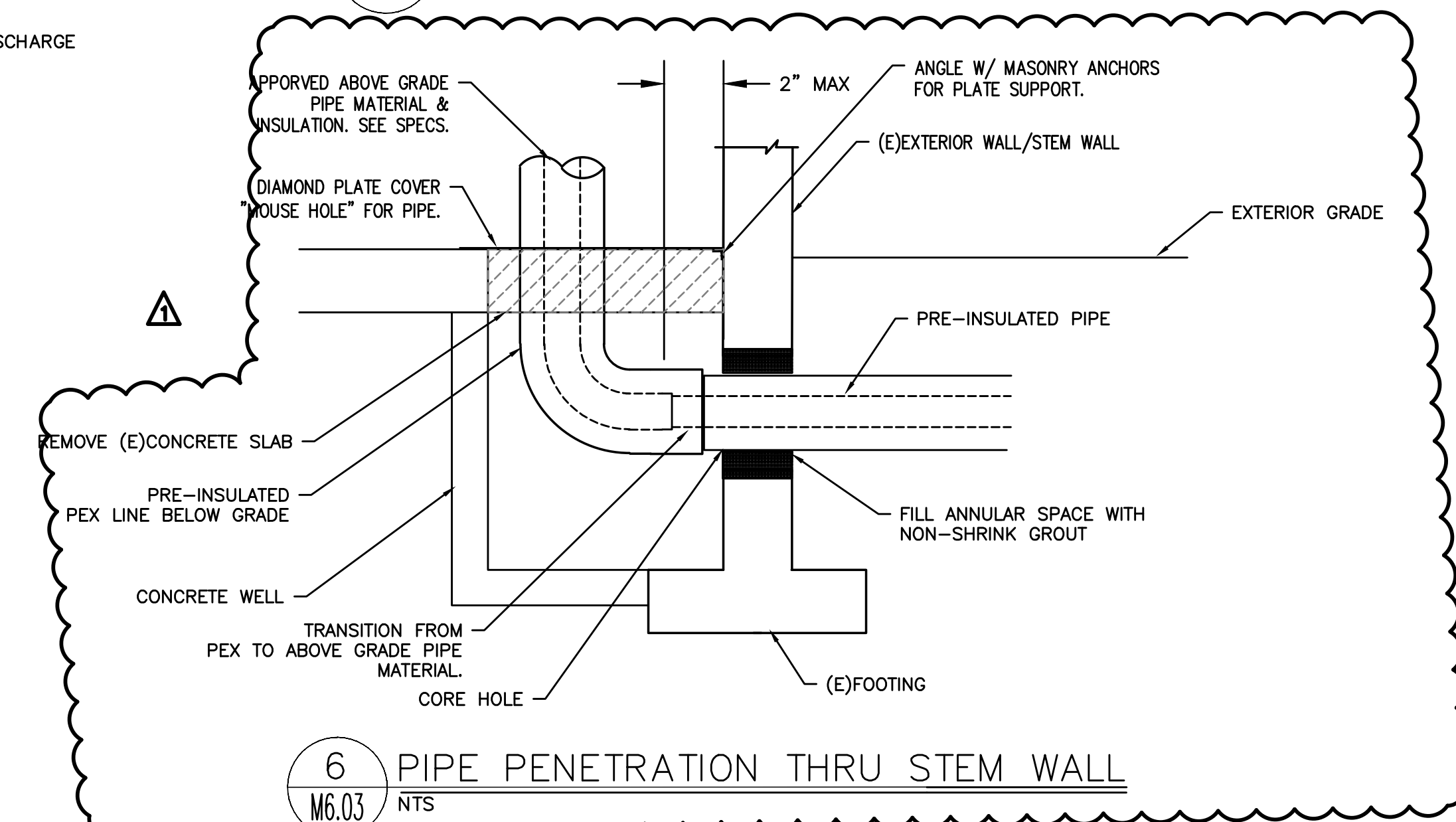
3 RELIEF LOUVER DETAIL
SCALE: DETAIL
M6.03



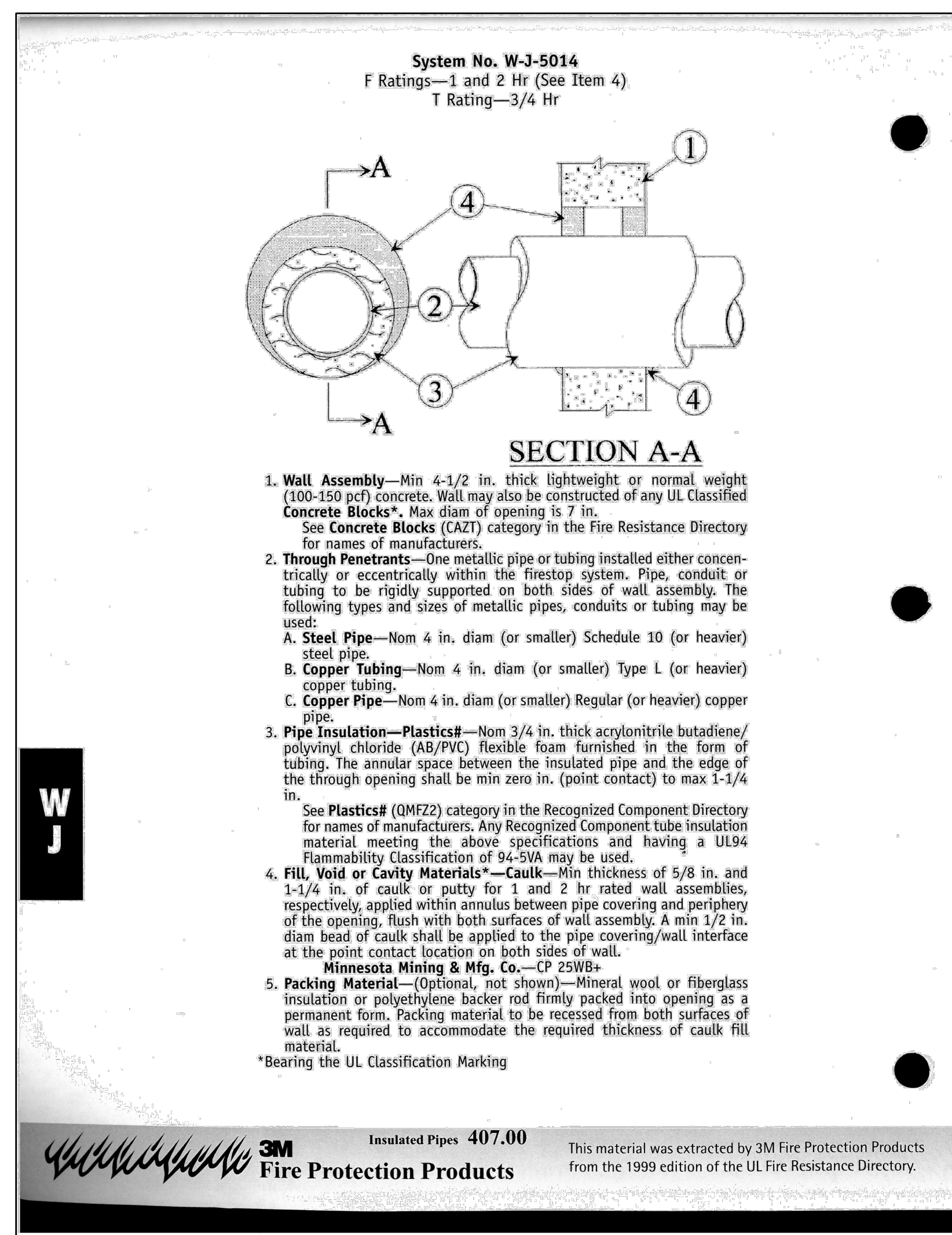
4 REHEATING COIL PIPING DIAGRAM
NTS
M6.03



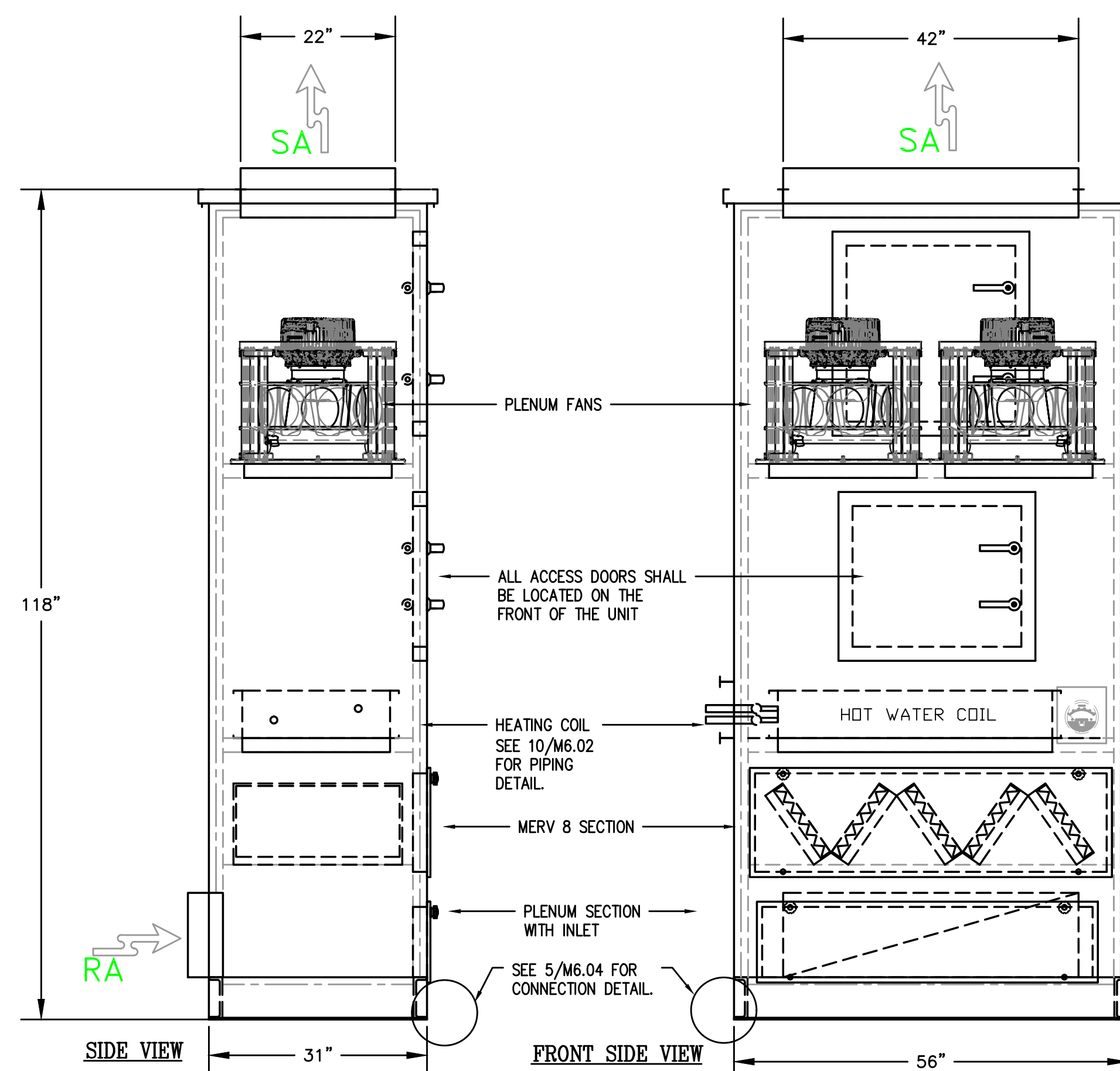
5 CHEMICAL POT FEEDER
NTS
M6.03



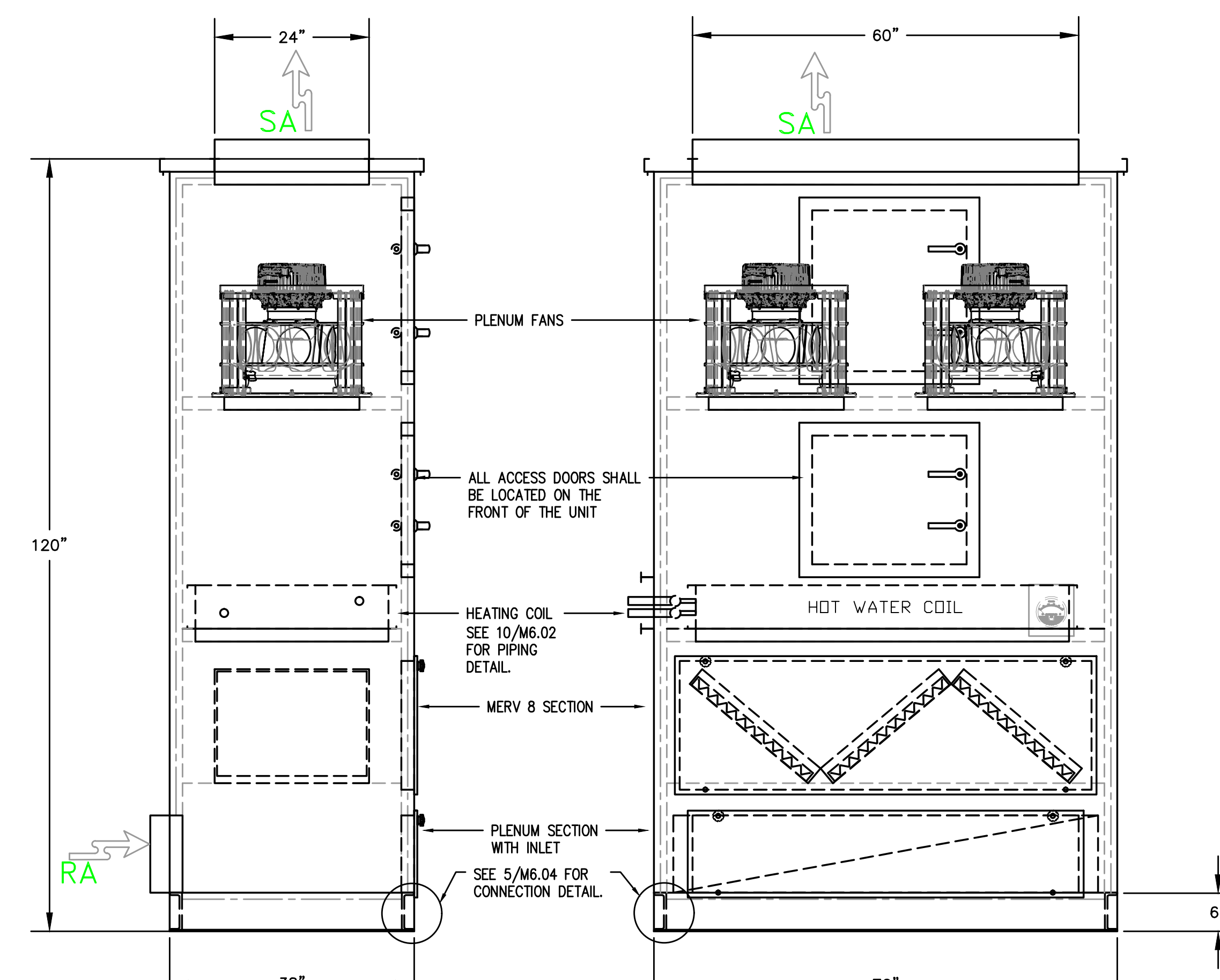
6 PIPE PENETRATION THRU STEM WALL
NTS
M6.03



7 PIPE PENETRATION - RATED WALL
SCALE: DETAIL
M6.03



8 AHU-E1 DETAIL
SCALE: DETAIL
M6.03



9 AHU-E2 DETAIL
SCALE: DETAIL
M6.03

#	Date	Description
2	3/13/18	DISTRICT REVIEW COMMENTS
1	2/19/18	DISTRICT REVIEW COMMENTS

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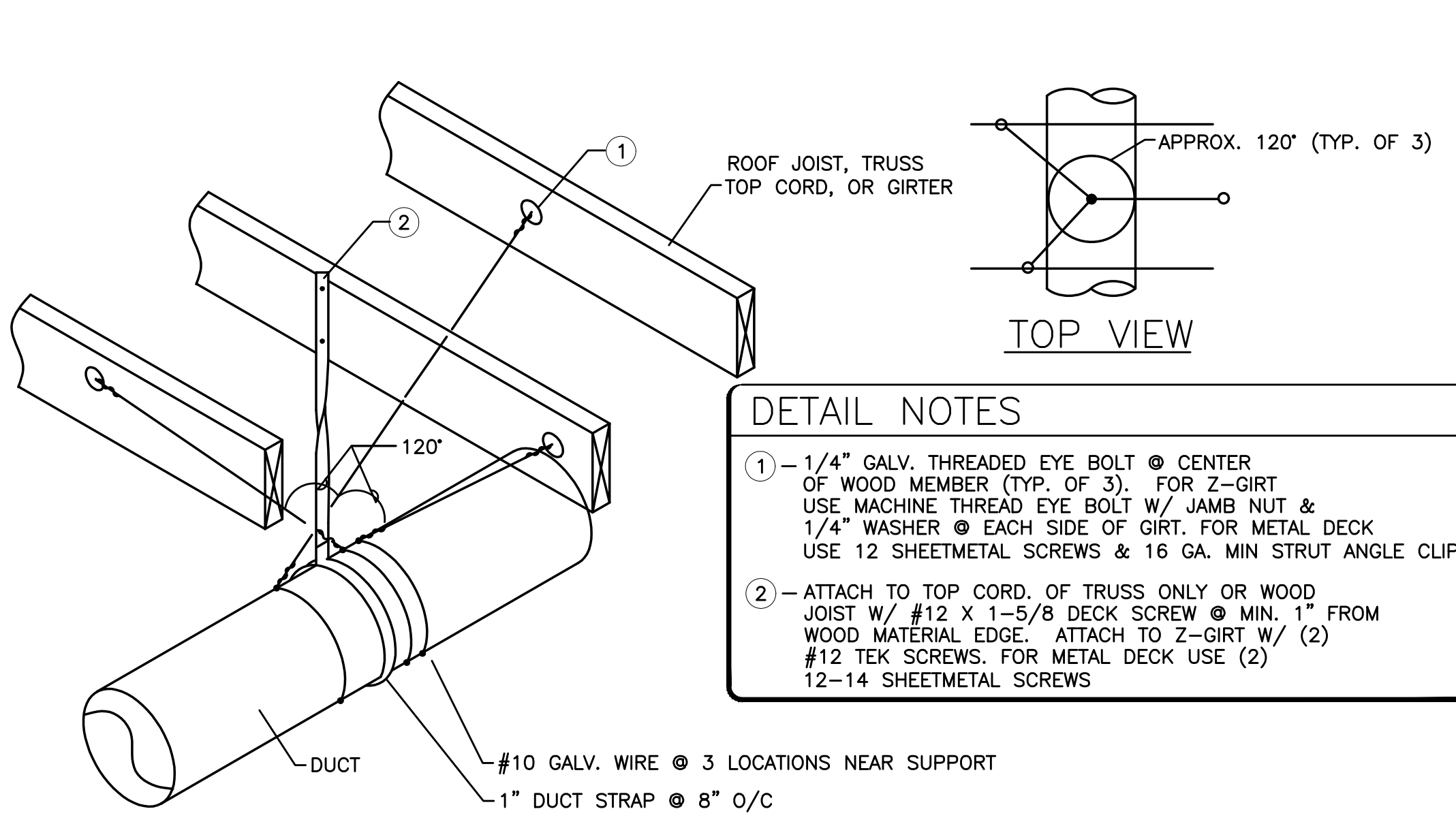
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125 Pacific Avenue, Suite 100, Bend, OR 97701
503.325.1999 | 503.325.1998 | 503.325.1997
401 SW Columbia St, Suite 100, Bend, OR 97701
503.325.1999 | 503.325.1998 | 503.325.1997
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MECHANICAL DETAILS

Date: 02.19.2018 Drawn By: TB
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Sheet No.
M6.03

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DETAIL NOTES

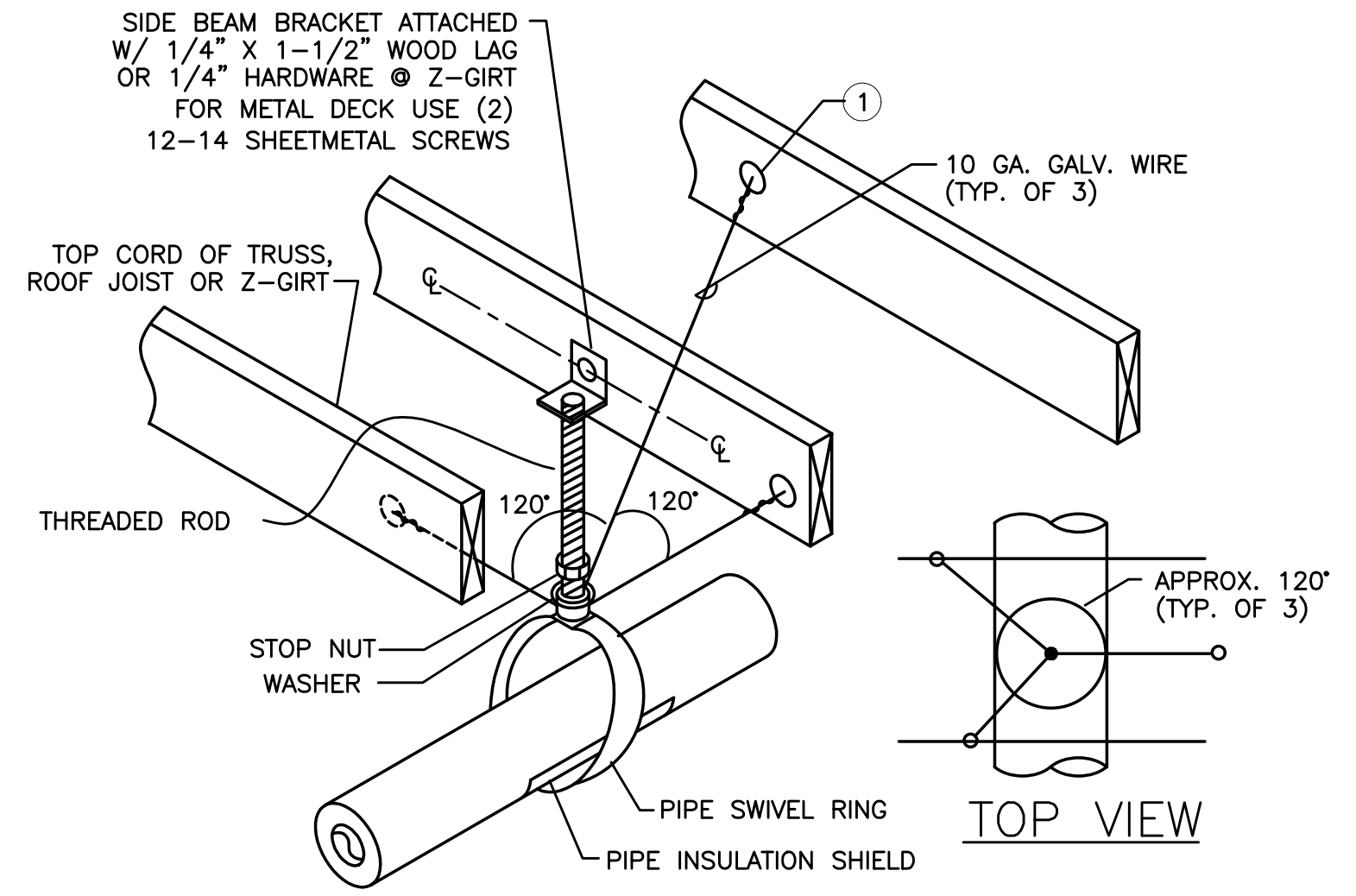
1 - 1/4" GALV. THREADED EYE BOLT @ CENTER OF WOOD MEMBER (TYP. OF 3). FOR Z-GIRT USE MACHINE THREAD EYE BOLT W/ JAMB NUT & 1/4" WASHER @ EACH SIDE OF GIRT. FOR METAL DECK USE 12 SHEETMETAL SCREWS & 16 GA. MIN STRUT ANGLE CLIP

2 - ATTACH TO TOP CORD, OF TRUSS ONLY OR WOOD JOIST W/ #12 X 1-5/8 DECK SCREW @ MIN. 1" FROM WOOD MATERIAL EDGE. ATTACH TO Z-GIRT W/ (2) #12 TEK SCREWS. FOR METAL DECK USE (2) 12-14 SHEETMETAL SCREWS

FOR SHEETMETAL DUCTS 11" TO 27" IN DIAMETER OR RECTANGULAR DUCTS (STRAP ALONE IS SUFFICIENT FOR DUCTS SMALLER THAN 11" IN DIAMETER)

STRAP INTERVAL MAY BE DECREASED (LESS THAN 96" O/C TO REDUCE THE NEED FOR WIRE TIES AS DETAILED, CONSULT ENGINEER OR SMACNA STANDARDS

1 DUCT SUPPORT
M6.04 SCALE: DETAIL

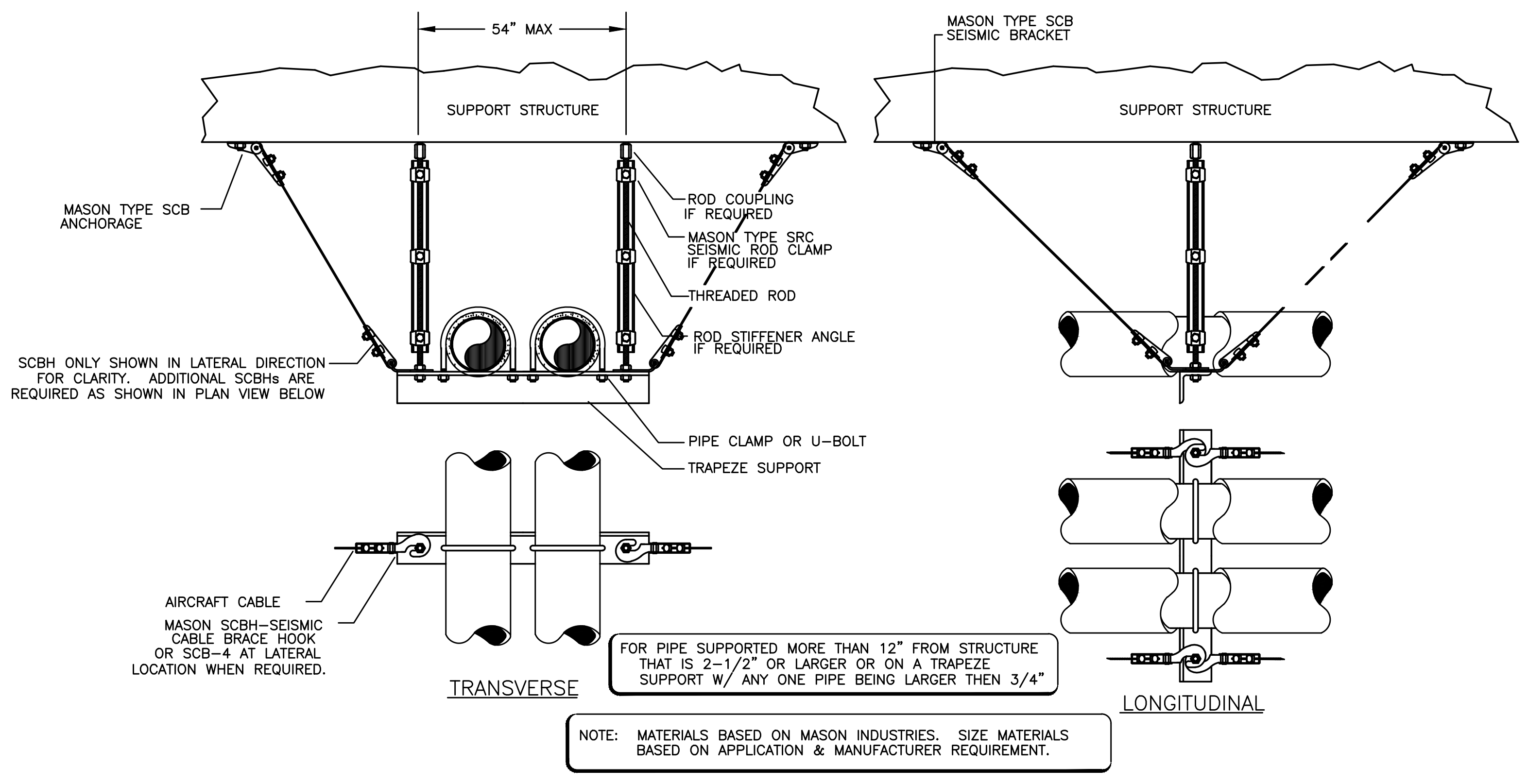


DETAIL NOTES

1 - 1/4" GALV. THREADED EYE BOLT @ CENTER OF WOOD MEMBER (TYP. OF 3). FOR 2 GIRT USE MACHINE THREAD EYE BOLT W/ JAMB NUT & 1/4" WASHER @ EACH SIDE OF GIRT. USE 12 SHEETMETAL SCREWS & 16 GA. MIN. 16 GA. MIN STRUT ANGLE CLIP

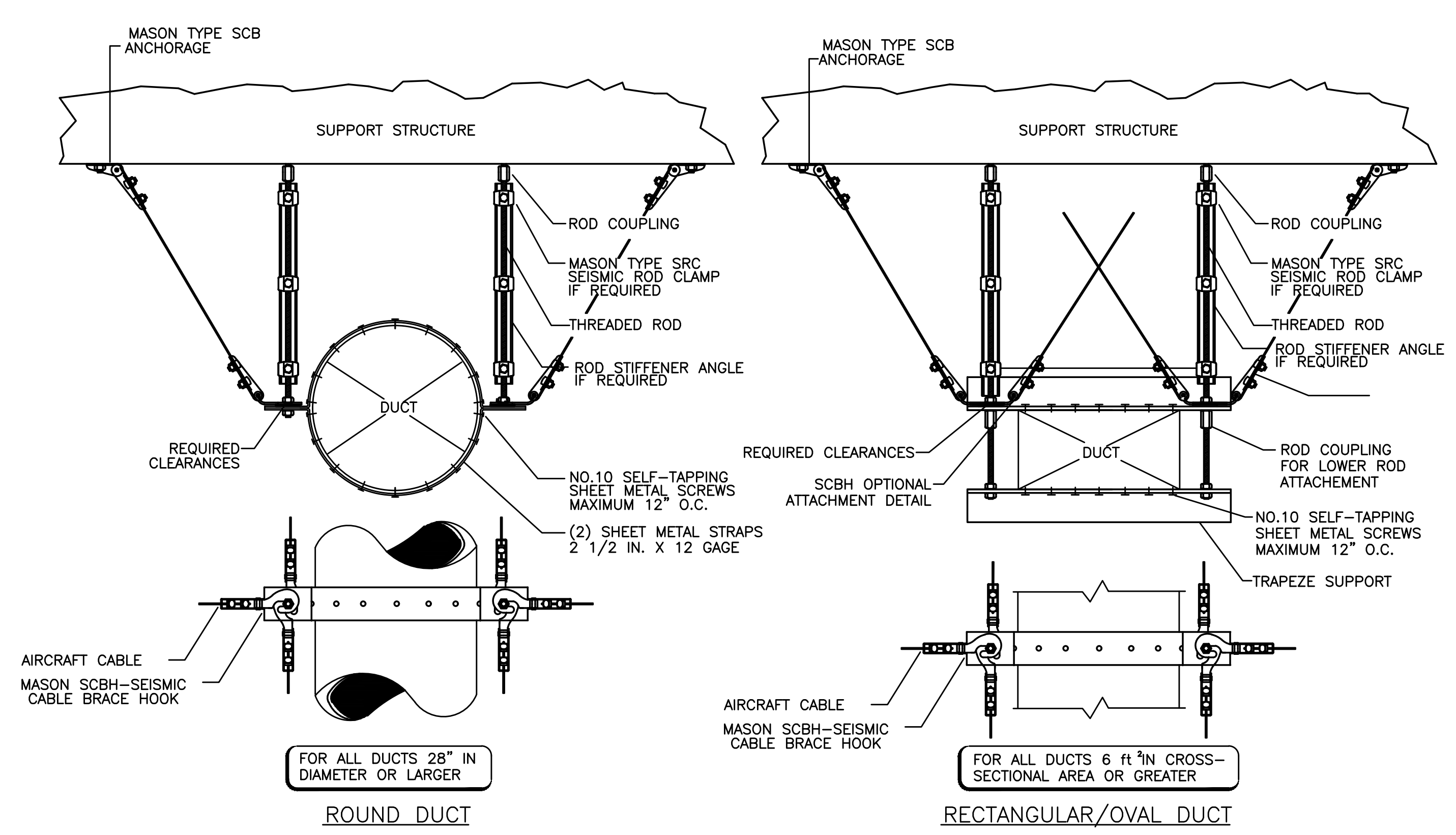
FOR SINGLE 1-1/2" TO 3" STEEL LINES
FOR SINGLE 2" COPPER LINES

2 PIPE SUPPORT
M6.04 SCALE: DETAIL



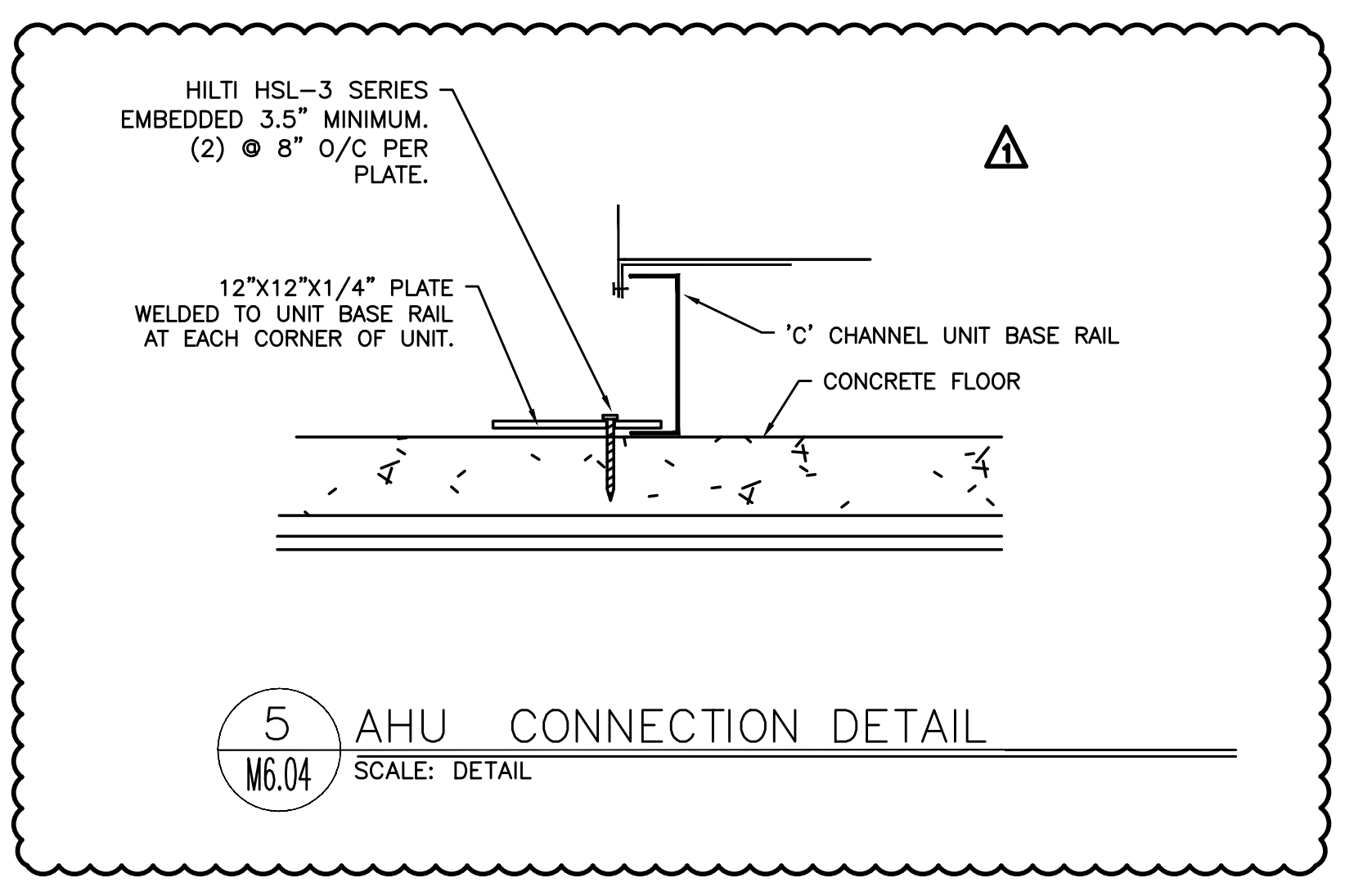
NOTE: MATERIALS BASED ON MASON INDUSTRIES. SIZE MATERIALS BASED ON APPLICATION & MANUFACTURER REQUIREMENT.

3 SEISMIC PIPE SUPPORT
M6.04 SCALE: DETAIL



NOTE: MATERIALS BASED ON MASON INDUSTRIES. SIZE MATERIALS BASED ON APPLICATION & MANUFACTURER REQUIREMENT.

4 SEISMIC DUCT SUPPORT
M6.03 SCALE: DETAIL



5 AHU CONNECTION DETAIL
M6.04 SCALE: DETAIL

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#	Date	Description
2	3/13/18	DISTRICT REVIEW COMMENTS
1	2/19/18	DISTRICT REVIEW COMMENTS

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MECHANICAL DETAILS

Date: 02.19.2018 Drawn By: TB

Revised Date: Project No. 17.34B

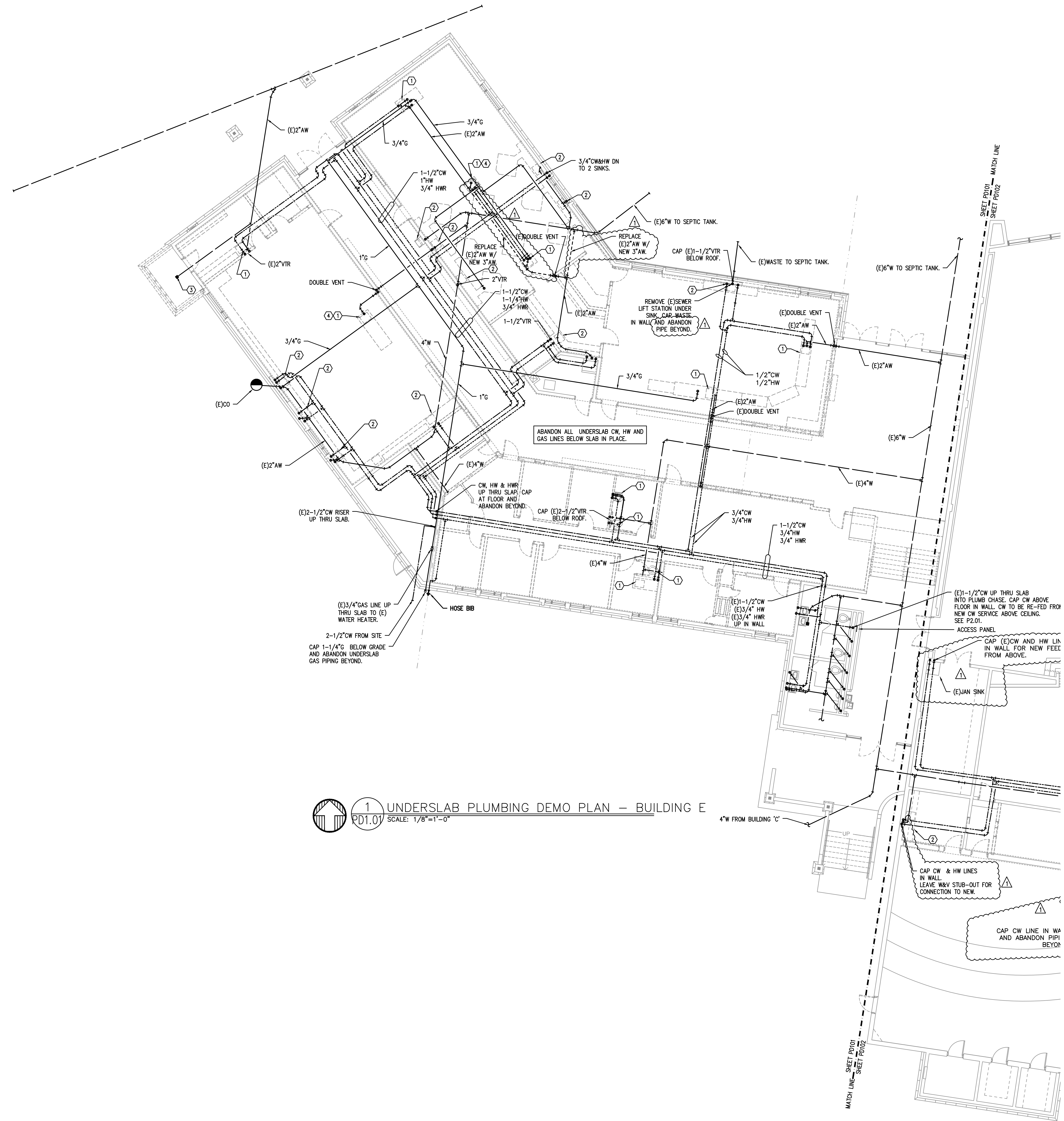
Stamp: Sheet No.

M6.04

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- KEYED NOTES:**
1. REMOVE PLUMBING FIXTURE. CAP WASTE BELOW FLOOR.
 2. REMOVE PLUMBING FIXTURE. CAP WASTE IN WALL.
 3. REMOVE CEILING DRAIN. PROVIDE NEW CLEAN-OUT AT END OF LINE.
 4. CAP CW, HW AND GAS LINES BELOW FLOOR.

- GENERAL NOTES:**
1. ABANDON ALL UNDERSLAB CW, HW, HWR AND GAS PIPING IN PLACE EXCEPT FOR EXISTING BOYS/GIRLS RESTROOMS. DEMO ALL GALVANIZED DOMESTIC WATER PIPING ABOVE GRADE FOR REPLACEMENT WITH NEW COPPER OR PEX LINES.



1 UNDERSLAB PLUMBING DEMO PLAN – BUILDING E
 PD1.01 SCALE: 1/8"=1'-0"

#	Date	Description
2	3/13/18	DISTRICT REVIEW COMMENTS
1	2/19/18	DISTRICT REVIEW COMMENTS

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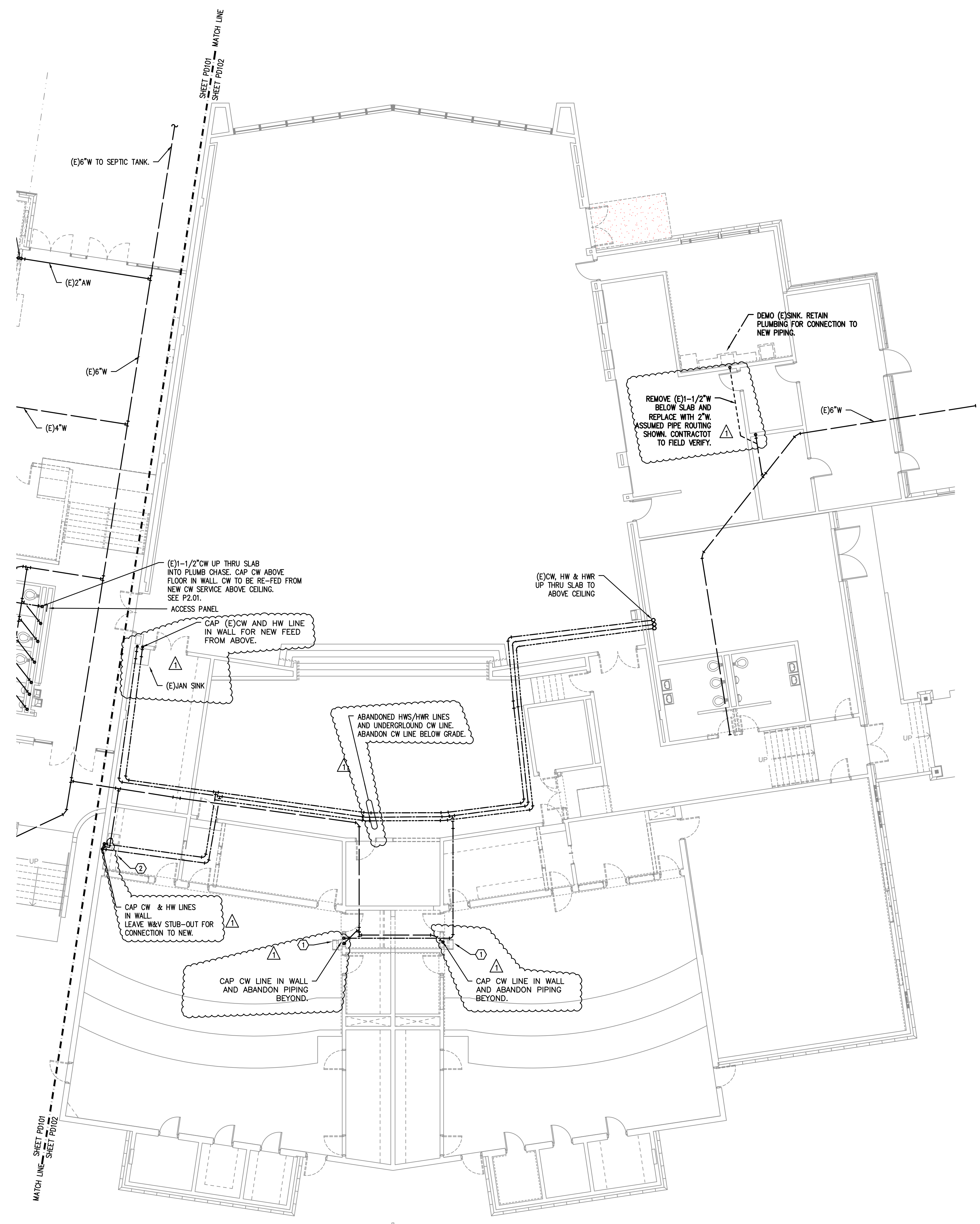
Drawing Title:
UNDERSLAB PLUMBING DEMO PLAN - BUILDING E

Date:	02.19.2018	Drawn By:	TB
Revised Date:		Project No.:	17.34B

Stamp:

Sheet No. **PD1.01**

MEDIA Consulting Engineers
 2007 S.E. Ash St
 Portland, OR 97214
 PHN: (503) 234-0548
 FAX: (503) 234-0677
 CONTACT: TAKAKO BAKER



1 UNDERSLAB PLUMBING DEMO PLAN - BUILDING F
 PD1.02 SCALE: 1/8"=1'-0"

KEYED NOTES:
 1. REMOVE PLUMBING FIXTURE, CAP WASTE BELOW FLOOR.
 2. REMOVE PLUMBING FIXTURE, CAP WASTE IN WALL.

GENERAL NOTES:
 1.

City Of Bend Approval Stamp:

#	Date	Description
2	3/13/18	DISTRICT REVIEW COMMENTS
1	2/19/18	DISTRICT REVIEW COMMENTS

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 (509) 425-0599 | (509) 425-0599 | (503) 555-6907 | (503) 555-6907
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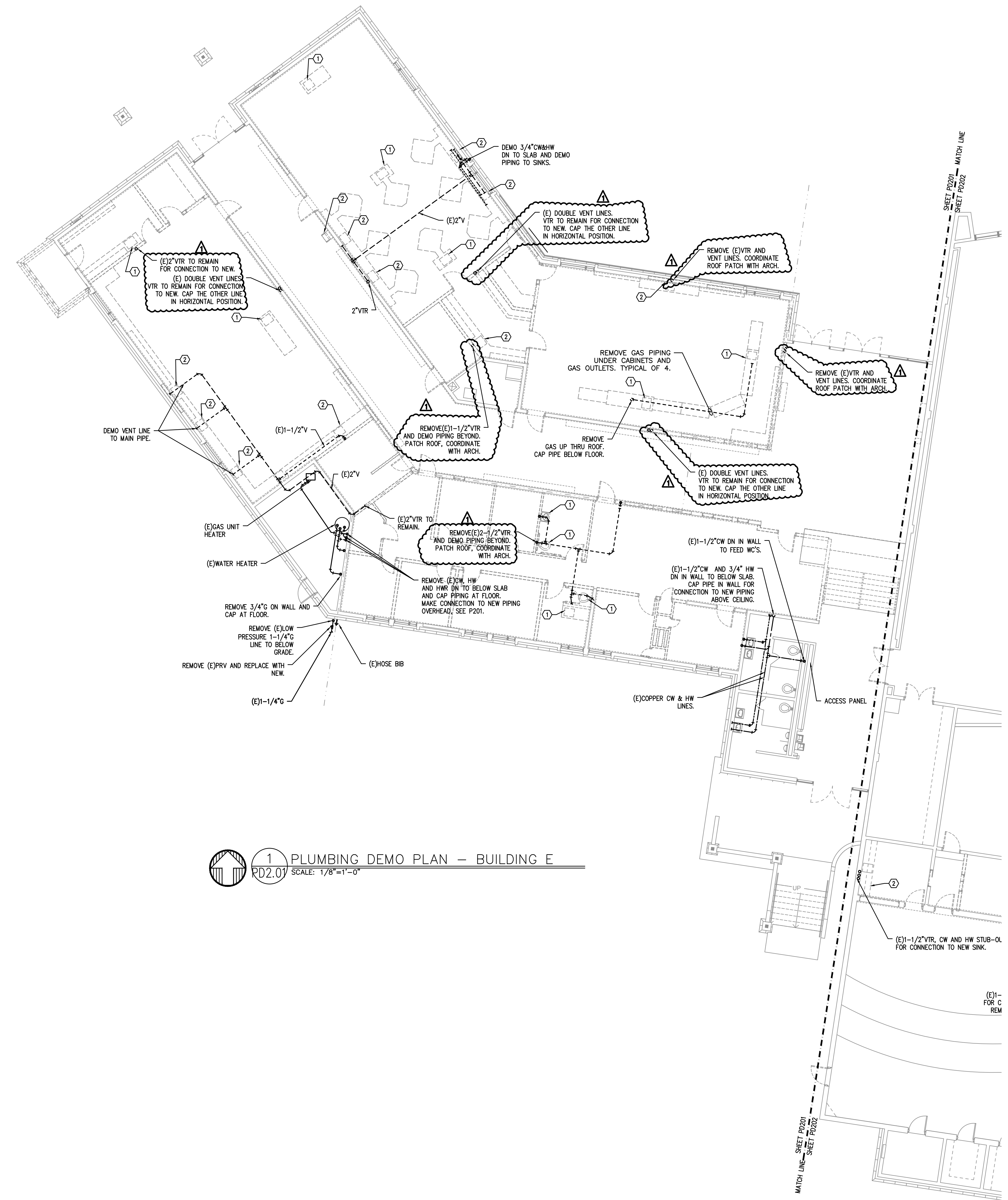
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PLUMBING UNDERSLAB DEMO PLAN - BUILDING F

Date: 02.19.2018 Drawn By: TB
 Revised Date: Project No. 17.348

Stamp: [Professional Engineer Seal for Scott W. Miller, License No. 17298, Expires 31DEC18]
 Sheet No. **PD1.02**

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- KEYED NOTES:**
1. REMOVE PLUMBING FIXTURE, DEMO CW & HW LINES AND ABANDON PIPES TO BELOW SLAB. ALL PIPING BEYOND TO BE ABANDONED IN PLACE.
 2. REMOVE PLUMBING FIXTURE, DEMO CW&HW PIPE TO WALL, ALL PIPING BEYOND TO BE ABANDONED IN PLACE.

1 PLUMBING DEMO PLAN - BUILDING E
 PD2.01 SCALE: 1/8"=1'-0"

#	Date	Description
2	3/13/18	DISTRICT REVIEW COMMENTS
1	2/19/18	DISTRICT REVIEW COMMENTS

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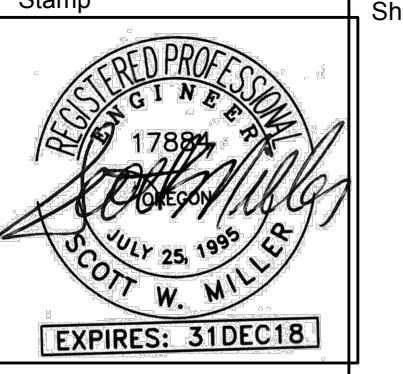
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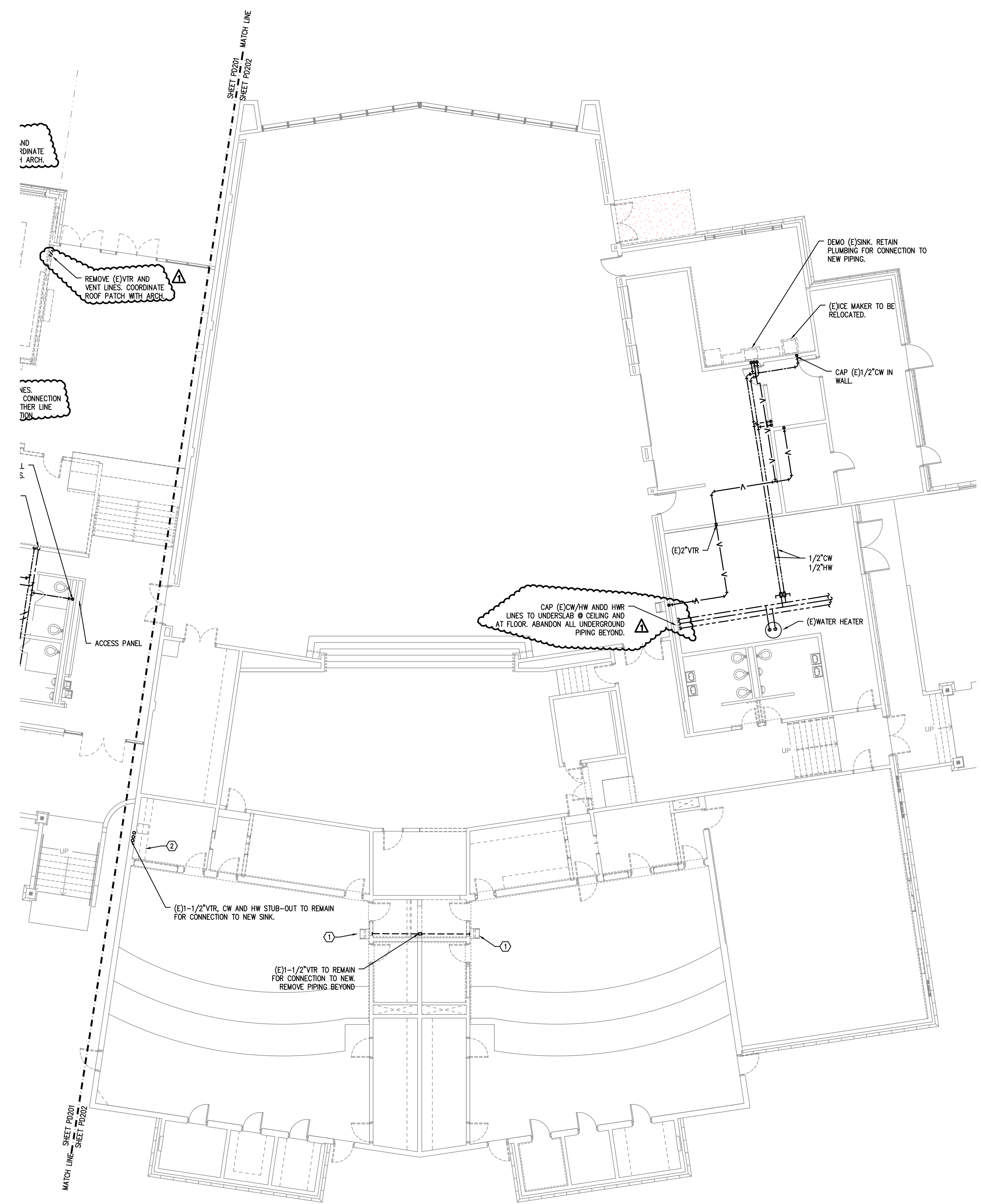
PLUMBING DEMO PLAN - BUILDING E

Date:	02.19.2018	Drawn By:	TB
Revised Date:		Project No.:	17.34B
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PD2.01



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1. REMOVE PLUMBING FIXTURE, DEMO CW & HW LINES AND ABANDON PIPES TO BELOW SLAB. ALL PIPING BEYOND TO BE ABANDONED IN PLACE.
2. REMOVE PLUMBING FIXTURE, DEMO CW&HW PIPE TO WALL. ALL PIPING BEYOND TO BE ABANDONED IN PLACE.

#	Date	Description
2	3/13/18	DISTRICT REVIEW COMMENTS
1	2/19/18	DISTRICT REVIEW COMMENTS

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1252 Pacific Avenue 503.708.1000 Westport 98442 313.427.9599	505 W Riverside 509.498.1000 Westport 98584 509.252.5380	1001 SW 25th Avenue 503.498.1000 Oregon 97011 503.555.6707	404 SW Columbia St 503.498.1000 Oregon 97702 541.332.6996

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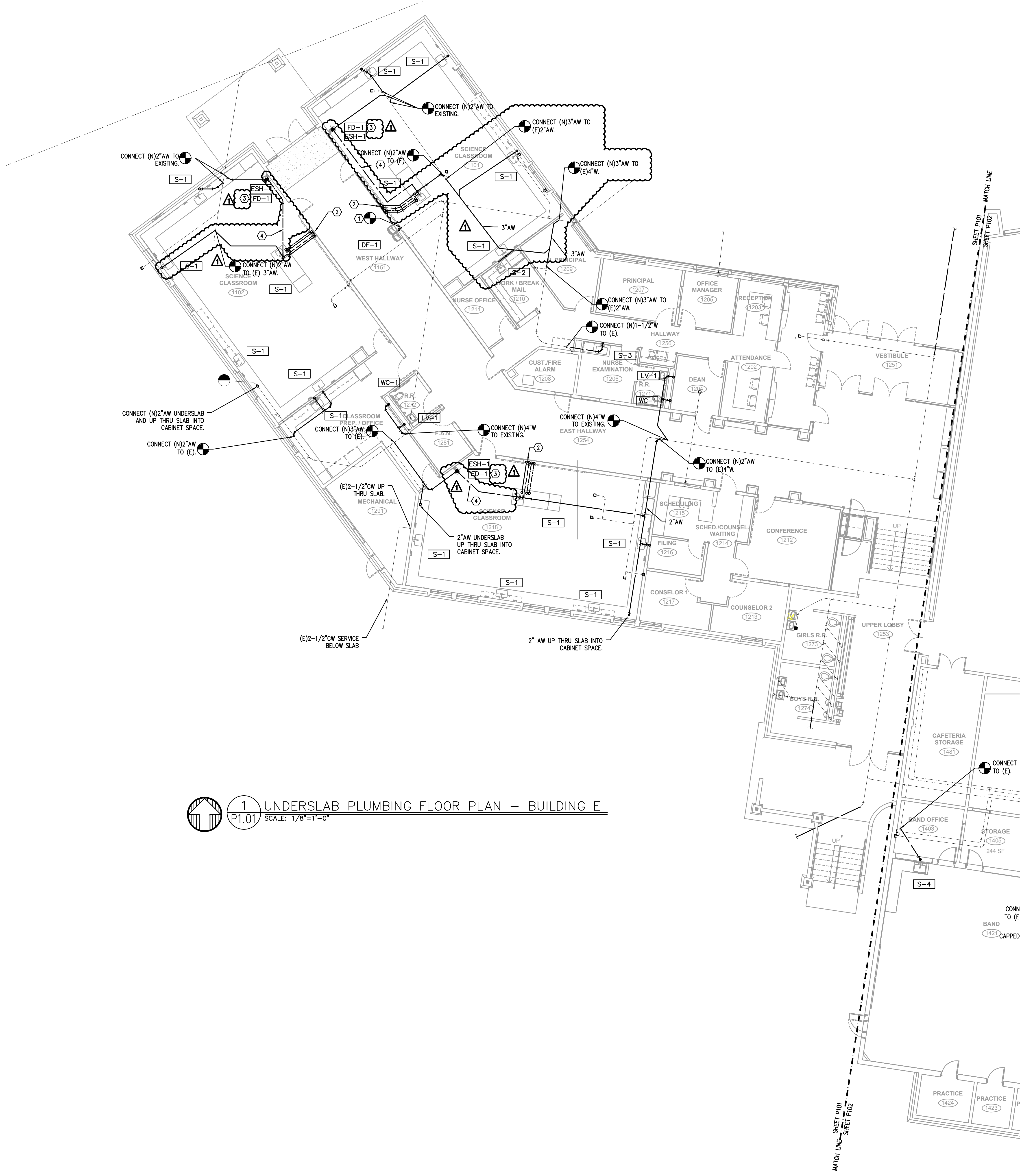
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**PLUMBING DEMO PLAN
BUILDING F**

Date :	02.19.2018	Drawn By :	TB
Revised Date :		Project No. :	17.34B

Stamp	Sheet No.
	PD2.02

1 PLUMBING DEMO PLAN - BUILDING F
RD2.02 SCALE: 1/8"=1'-0"

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FAX: (503) 234-0677
WWW.MFA-ENG.COM
CONTACT: TAKAKO BAKER



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- KEYED NOTES:**
1. CONNECT (E)WASTE TO NEW PLUMBING FIXTURE.
 2. 1/2"CS, 1/2"CWASHW AND 1-1/2"V TO ISLAND PLUMBING FIXTURE UP IN WALL.
 3. FEED TRAP PRIMER FROM NEAREST SCIENCE CLASSROOM.
 4. PRIMUM LINE FROM APPROVED PRIMUM VALVE.
- GENERAL:**
1. USE FERROD CONNECTION FITTING WHERE NEW AW PIPE CONNECTION IS MADE TO THE EXISTING ACID WASTE PIPING.

1 UNDERSLAB PLUMBING FLOOR PLAN - BUILDING E
 P1.01 SCALE: 1/8"=1'-0"

#	Date	Description
2	3/13/18	DISTRICT REVIEW COMMENTS
1	2/19/18	DISTRICT REVIEW COMMENTS

Revision Schedule

BID SET

PILOT BUTTE MIDDLE SCHOOL - BLDGS E&F
 1501 NE Neff Road,
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BLRB architects

TACOMA 1252 Pacific Avenue 249-700 Washington 98402 253.427.5599	SPOKANE 525 W Riverside 326-098 Washington 99201 509.252.5380	PORTLAND 1001 SW 5th Avenue 249-100 Oregon 97204 503.553.8707	BEND 454 SW Columbia St 509.460 Oregon 97702 541.532.6996
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UNDERSLAB PLUMBING FLOOR PLAN - BUILDING E

Date: 02.19.2018	Drawn By: TB
Revised Date:	Project No. 17.34B
Stamp	Sheet No.

P1.01

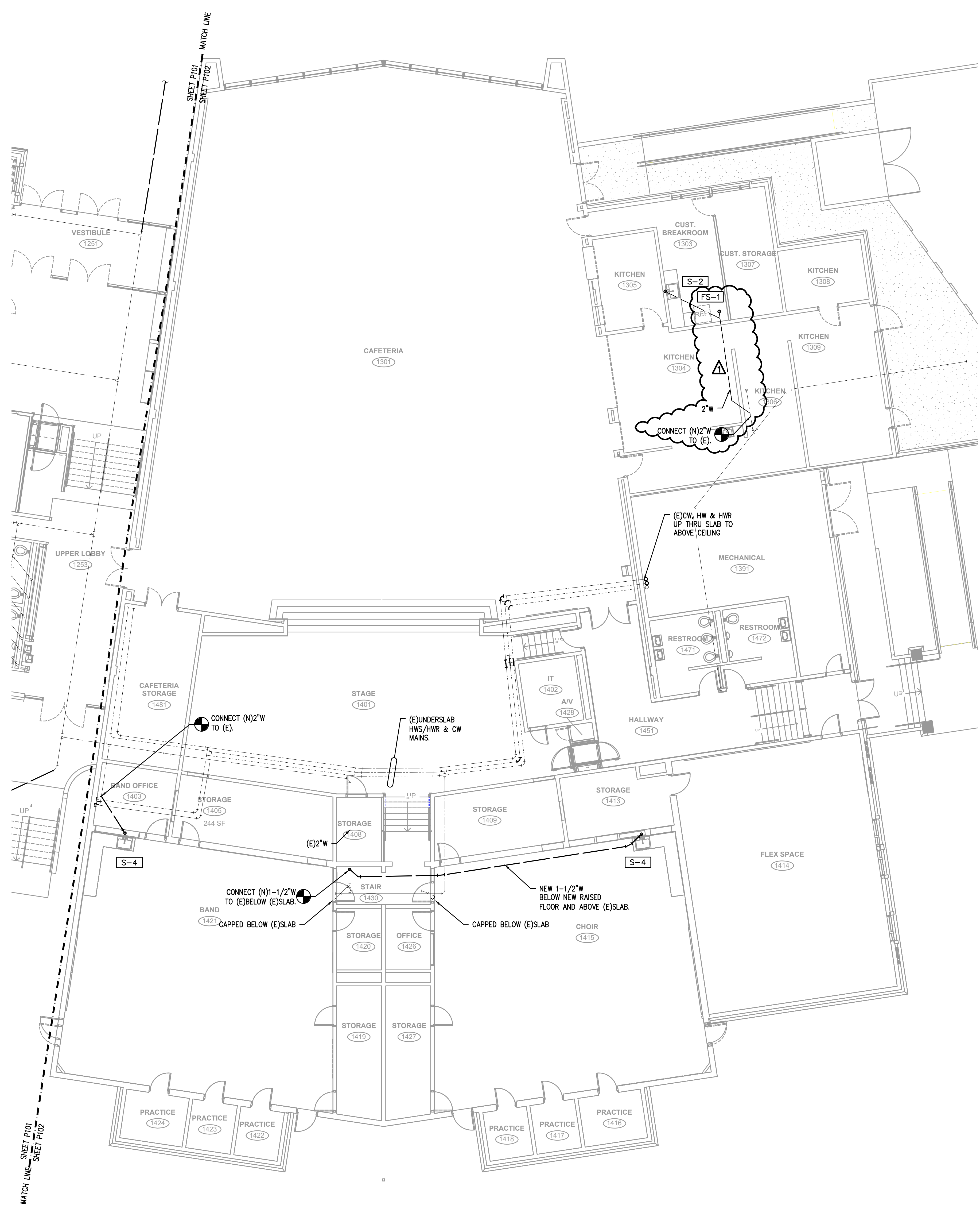
EXPIRES: 31DEC18

MPTA Consulting Engineers
 2007 S.E. Ash St.
 Portland, OR 97214
 PHN: (503) 234-0548
 FAX: (503) 234-0877
 INC. WWW.MPTA-ENG.COM
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1 2 3 4 5 6

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City Of Bend Approval Stamp:



1 UNDERSLAB PLUMBING FLOOR PLAN - BUILDING F
 P1.02 SCALE: 1/8"=1'-0"

#	Date	Description
2	3/13/18	DISTRICT REVIEW COMMENTS
1	2/19/18	DISTRICT REVIEW COMMENTS

Revision Schedule

BID SET

PILOT BUTTE MIDDLE SCHOOL - BLDGS E&F
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1252 Pacific Avenue 360-7700 Westport 98442 331.027599	505 W Riverside 338-0988 Spokane 99201 509.252.5380	1001 SW 25th Avenue 348-4100 Astoria 97103 503.325.6707	404 SW Columbia St 348-4100 Bend 97702 541.332.6996

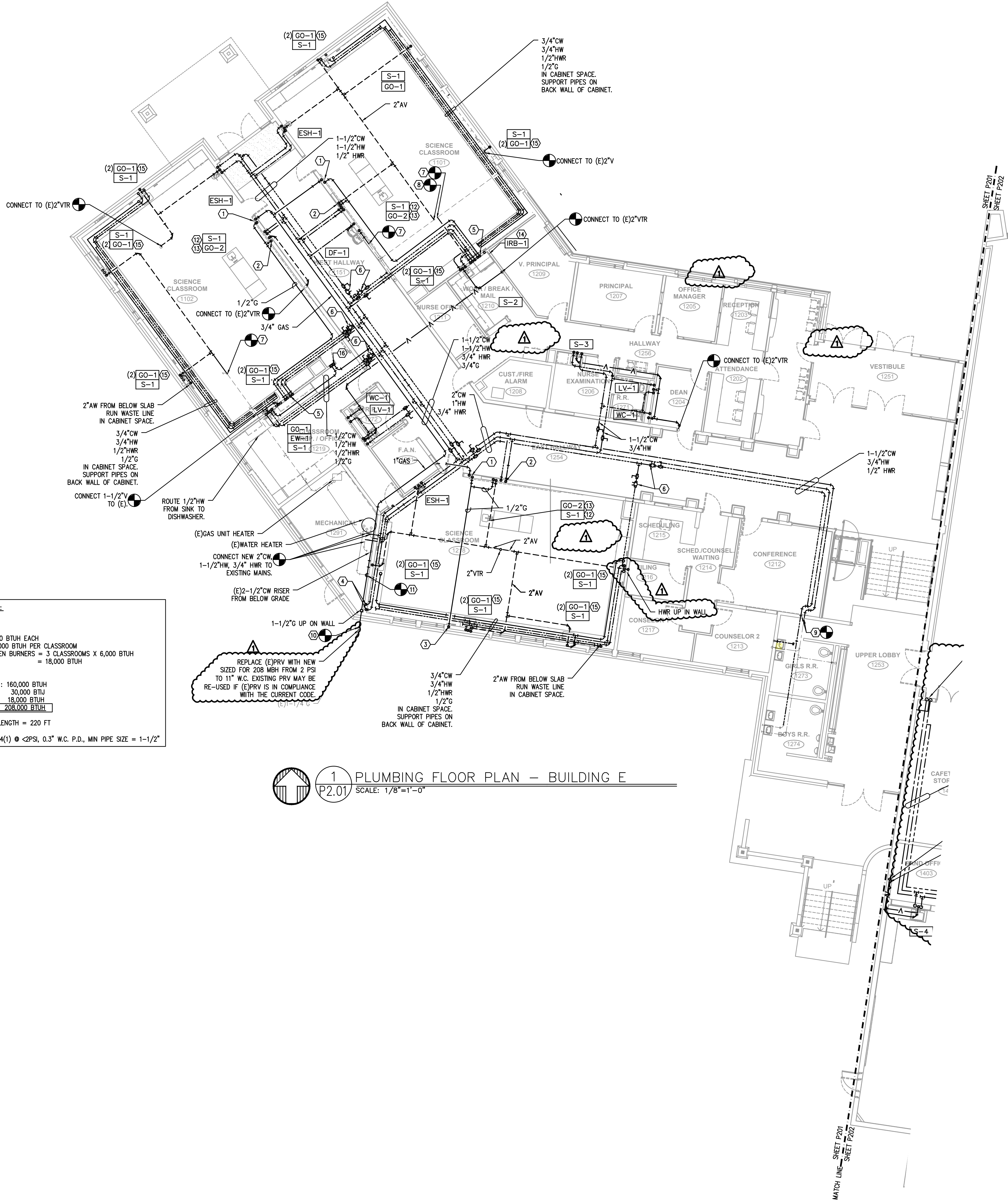
Drawing Title:
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Date :	02.19.2018	Drawn By :	TB
Revised Date :		Project No. :	17.34B

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Sheet No. **P1.02**

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 Portland, OR 97214
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 WWW.MFA-ENG.COM
 CONTACT: TAKAHO BAKER



GAS PIPING CALCULATION:

LOAD:

BUNSEN BURNERS @ 1200 BTUH EACH
 5 PER CLASSROOM = 6,000 BTUH PER CLASSROOM
 TOTAL LOAD FROM BUNSEN BURNERS = 3 CLASSROOMS X 6,000 BTUH
 = 18,000 BTUH

TOTAL BUILDING LOAD:
 EXISTING WATER HEATER : 160,000 BTUH
 EXISTING UNIT HEATER : 30,000 BTUH
 BUNSEN BURNERS : 18,000 BTUH
TOTAL : 208,000 BTUH

TOTAL DEVELOPED PIPE LENGTH = 220 FT
 PER OMSC TABLE C 402.4(1) @ 2PSI, 0.3" W.C. P.D., MIN PIPE SIZE = 1-1/2"

1 PLUMBING FLOOR PLAN - BUILDING E
 SCALE: 1/8" = 1'-0"

- KEYED NOTES:**
- SCIENCE CLASSROOM EMERGENCY GAS SHUT-OFF. SEE 6/P6.01 FOR DETAIL.
 - 1-1/2"V, 1/2"CW/HW AND 1/2"GD DN IN WALL AND UNDERSLAB TO ISLAND FIXTURE.
 - 3/4"GD DN IN WALL TO CABINET SPACE.
 - 3/4"CW/HW DN IN WALL TO CABINET SPACE.
 - 3/4"CW & HW, 1/2" HWR DN IN WALL TO CABINET SPACE.
 - AUTO BALANCE VALVE, SIZED FOR 0.5 GPM.
 - CONNECT (N) 1/2" AV TO (E).
 - CONNECT (N) 2" AV TO (E).
 - CONNECT 1-1/2" CW & 3/4" HW TO (E) GALVANIZED PIPING AT WALL.
 - CONNECT (N) 1-1/2" G TO (E) PRV. PIPE THRU EXISTING WALL ABOVE GRADE AND CLOSE TO MECH FLOOR ELEVATION.
 - CONNECT (E) 3/4" G TO NEW 1-1/2" G.
 - SEE 7/P6.01 FOR ISLAND FIXTURE INSTALLATION DETAIL.
 - 1/2" GAS (CSST) FROM BELOW SLAB TO REFRIGERATOR.
 - 1/2" CW TO REFRIGERATOR.
 - PROVIDE (1) GAS OUTLET, GO-1, ON EACH SIDE OF STUDENT SINK. SEE ARCHITECTURAL.
 - 1/2" GAS TO MANUAL SHUT-OFF VALVE. SEE 7/P6.01.

#	Date	Description
2	3/13/18	DISTRICT REVIEW COMMENTS
1	2/19/18	DISTRICT REVIEW COMMENTS

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 1501 NE Neff Road,
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BLRB architects

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 505 W Riverside, Suite 100, Spokane WA 99201
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Drawing Title:
PLUMBING FLOOR PLAN - BUILDING E

Date: 02.19.2018 Drawn By: TB

Revised Date: Project No. 17.34B

Stamp: Sheet No.

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 CONTACT: TAKAKO BAKER

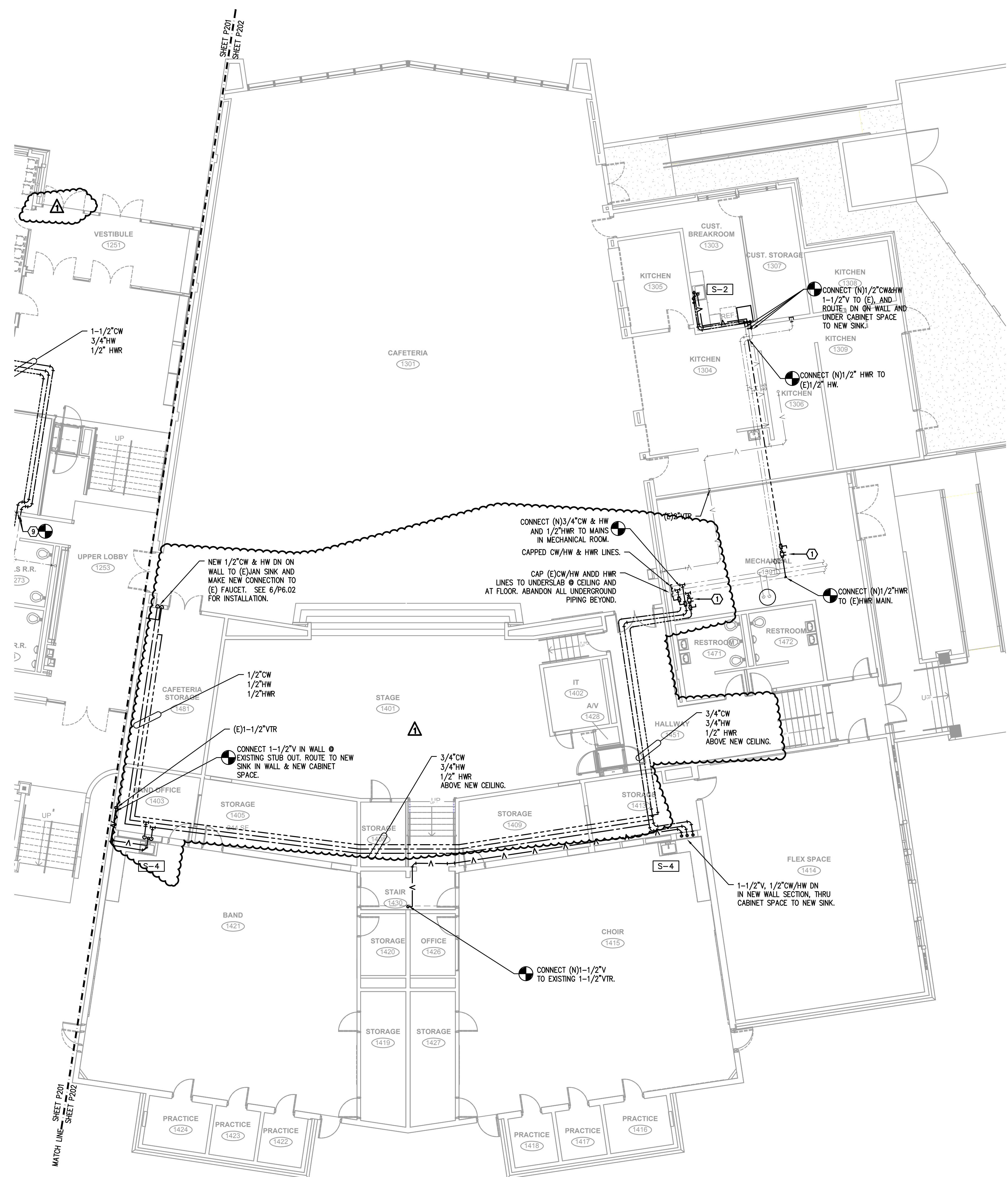
BLRB ARCHITECTS, P.C.

P2.01

EXPIRES: 31DEC18

REVISION NOTES:
 1. AUTO BALANCE VALVE, SIZES FOR 0.5 GPM.

City Of Bend Approval Stamp:



1 PLUMBING FLOOR PLAN - BUILDING F
 SCALE: 1/8"=1'-0"

#	Date	Description
2	3/13/18	DISTRICT REVIEW COMMENTS
1	2/19/18	DISTRICT REVIEW COMMENTS

BID SET

PILOT BUTTE MIDDLE SCHOOL - BLDGS E&F
 1501 NE Neff Road,
 Bend OR 97701

BLRB architects

TACOMA 125 Pacific Avenue 3607 7th Wenatchee 98842 509.252.5599	SPOKANE 505 W Riverside 3344 7th Wenatchee 98842 509.252.5580	PORTLAND 1001 SW 25th Avenue 3400 10th Wenatchee 98842 509.252.5580	BEND 404 SW Columbia St 5000 10th Wenatchee 98842 509.252.5580
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Drawing Title:
**PLUMBING FLOOR PLAN
 BUILDING F**

Date :	02.19.2018	Drawn By :	TB
Revised Date :		Project No. :	17.34B

Stamp: **REGISTERED PROFESSIONAL ENGINEER**
 17884
 SCOTT W. MILLES
 EXPIRES: 31DEC18

Sheet No. **P2.02**

MFA INC. Consulting Engineers
 2007 S.E. Ash St.
 Portland, OR 97214
 PHN: (503) 234-0548
 FAX: (503) 234-0677
 WWW.MFA-ENG.COM
 CONTACT: TAKAHO BAKER

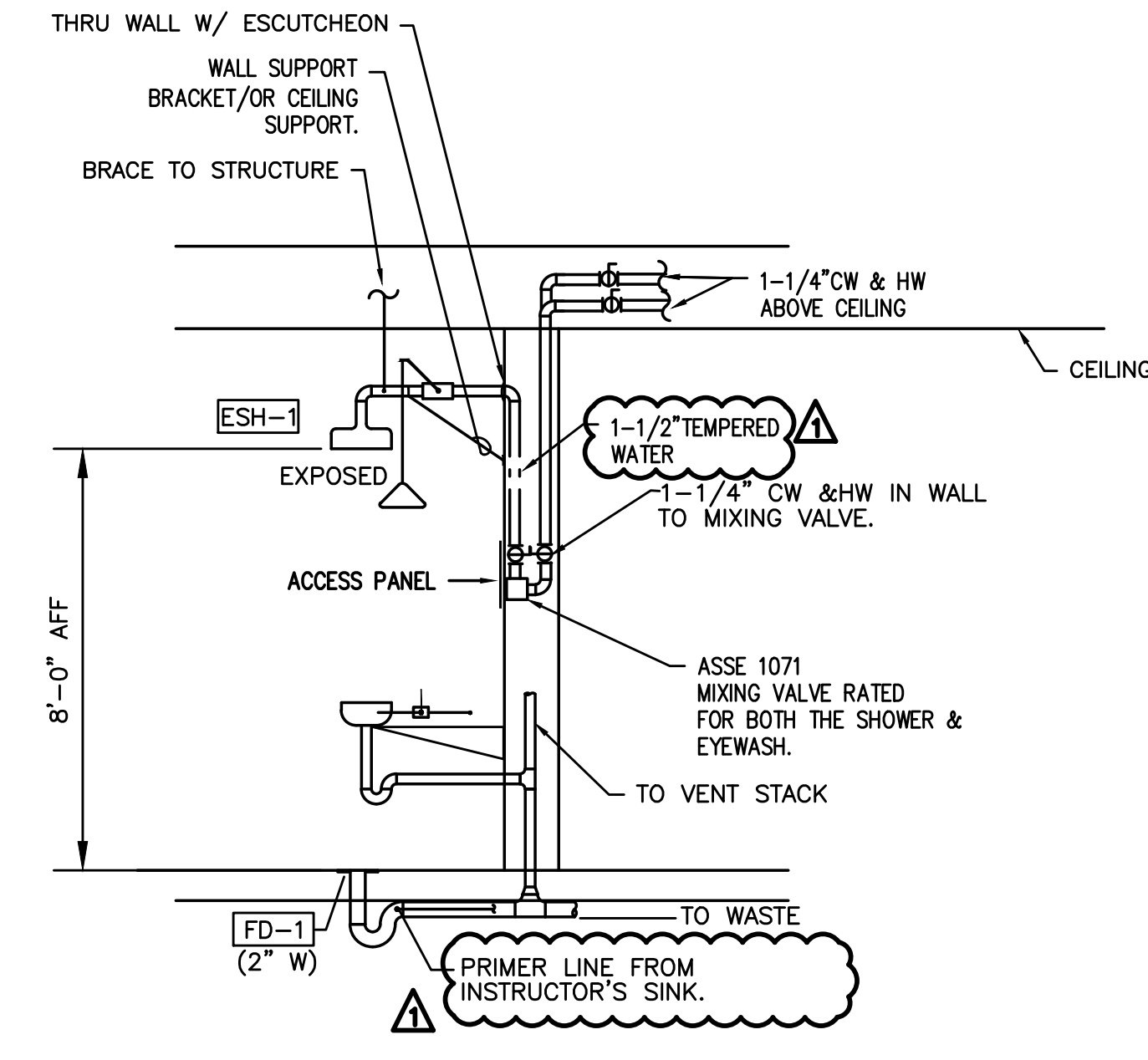
PLUMBING LEGEND

<p>AFF ABOVE FINISHED FLOOR ARCH ARCHITECTURAL B.G. BELOW GRADE BTU BRITISH THERMAL UNIT CAP. CAPACITY C.I. CAST IRON COMP. COMPARTMENT CONT. CONTINUATION CU. CUBIC DF DRINKING FOUNTAIN DIA. DIAMETER ELEV. ELEVATION EWC ELECTRIC WATER COOLER FD FLOOR DRAIN FDC FIRE DEPARTMENT CONNECTION F.F. FINISH FLOOR FLG. FLANGE FT FOOT / FEET G GAS GA. GAUGE GALV. GALVANIZED GPM GALLONS PER MINUTE G.V. GATE VALVE HP HORSEPOWER HR HOUR I.E. INVERT ELEVATION KW KILOWATT LAV LAVATORY LBS POUNDS MAX. MAXIMUM MBH THOUSANDS OF BTUs PER HOUR MIN. MINIMUM M.J. MECHANICAL JOINT N.I.M. NOT IN MECHANICAL OS&Y OUTSIDE STEM & YOKE PROT. PROTECTION PRV PRESSURE REDUCING VALVE PSIG POUNDS PER SQUARE INCH P/T PRESSURE / TEMPERATURE REQ'D REQUIRED RPB REDUCED PRESSURE BACKFLOW PREVENTER RPM REVOLUTIONS PER MINUTE TYP. TYPICAL UR URINAL VTR VENT THROUGH ROOF WC WATER CLOSET</p>	<p>(CW) COLD WATER (HW) HOT WATER (HWR) HOT WATER RECIRC (HT) HOT WATER HEAT TRACED (W) BELOW GRADE WASTE (AW) BELOW GRADE ACID WASTE (V) VENT (AV) ACID VENT (RD) RAIN DRAIN (OD) OVERFLOW RAIN DRAIN (FDC) FIRE DEPARTMENT CONNECTION (A) COMPRESSED AIR (PHW) PROCESS HOT WATER (PCW) PROCESS COLD WATER VAC VACUUM (G) NATURAL GAS (F) FIRE WATER (GW) GREASE WASTE</p>	<p>..... PRESSURE/TEMP RELIEF VALVE BUTTERFLY VALVE GAS PRESSURE REGULATING VALVE OR TOP CONNECTION BOTTOM CONNECTION PIPE TURNED UP, PIPE TURNED DOWN GATE VALVE OR BALL VALVE BALANCING VALVE CHECK VALVE UNION DOUBLE CHECK ASSEMBLY</p>
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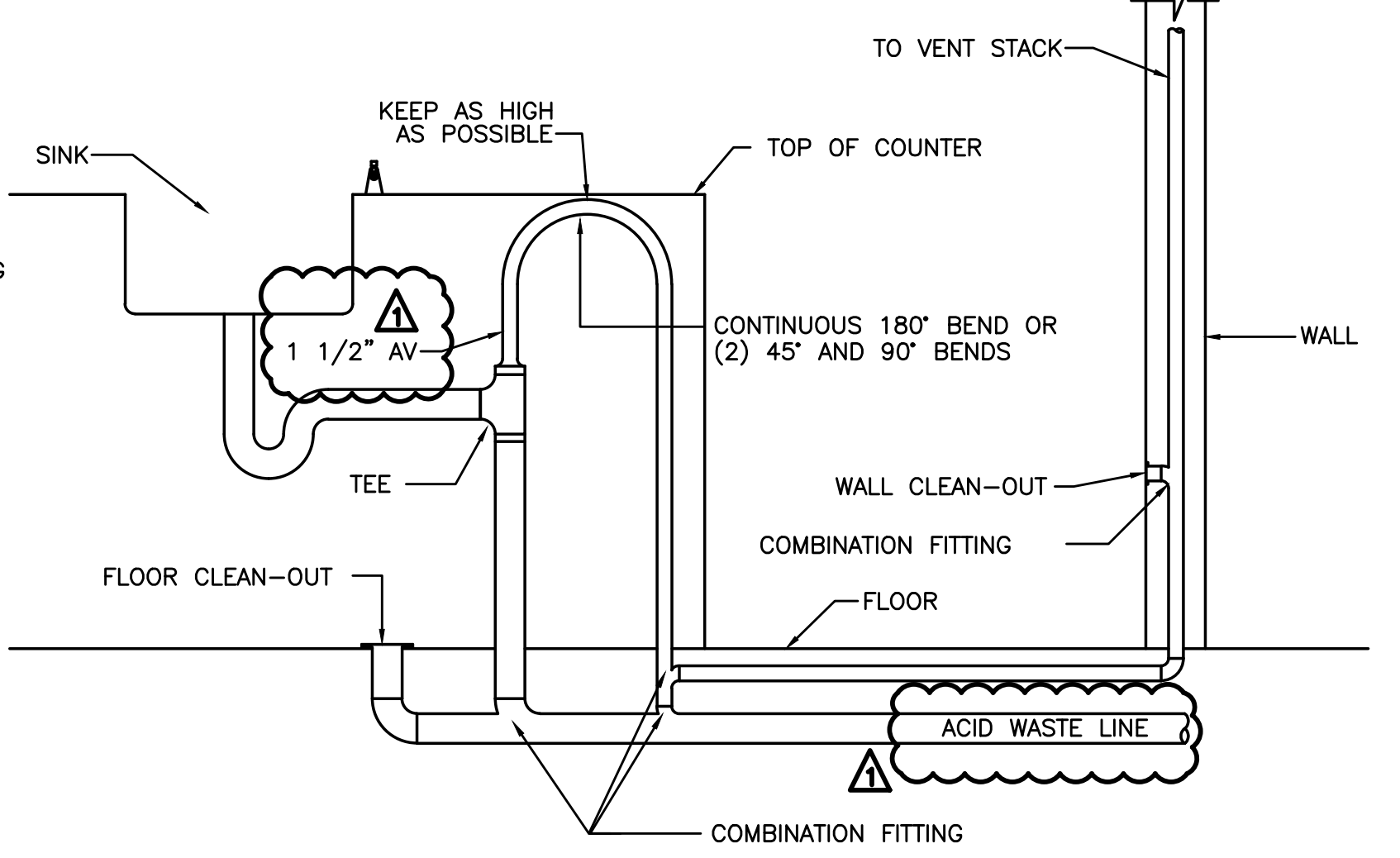
PLUMBING CONNECTION SCHEDULE

MARK	FIXTURE	W	V	CW	HW	REMARKS
ESH-1	EMERGENCY SHOWER AND EYE WASH	2"	1-1/4"	1-1/4"	1-1/4"	SEE SPECS. SEE P6.01. ACID W&V
EW-1	EMERGENCY EYE WASH	1-1/2"	1-1/4"	1/2"	1/2"	SEE SPECS. ACID W&V
LV-1	LAVATORY	1-1/2"	1-1/2"	1/2"	1/2"	WALL MOUNT, SEE SPECS.
S-1	SINK	1-1/2"	1-1/2"	1/2"	1/2"	SCIENCE CLASSROOM SINK, ACID W&V
S-2	SINK	1-1/2"	1-1/2"	1/2"	1/2"	BREAKROOM
S-3	SINK	1-1/2"	1-1/2"	1/2"	1/2"	NURSE
S-4	SINK	1-1/2"	1-1/2"	1/2"	1/2"	BAND/CHOIR ROOM
IRB-1	ICE/FRIDGE BOX			1/2"		GUY GRAY BIM 875 OR EQUAL
GO-1	GAS OUTLET					1/2", DECK MOUNTED
WC-1	WATER CLOSET	4"	2"	1"		WALL MOUNT, FLUSH VALVE, ADA
FD-1	FLOOR DRAIN	2"				J.R. SMITH 3140, ENAMELED C.I.
FS-1	FLOOR SINK	2"	V.L.			DUAL HEIGHT, WITH BOTTLER FILLER
DF-1	DRINKING FOUNTAIN	1-1/2"	1-1/2"	1/2"		

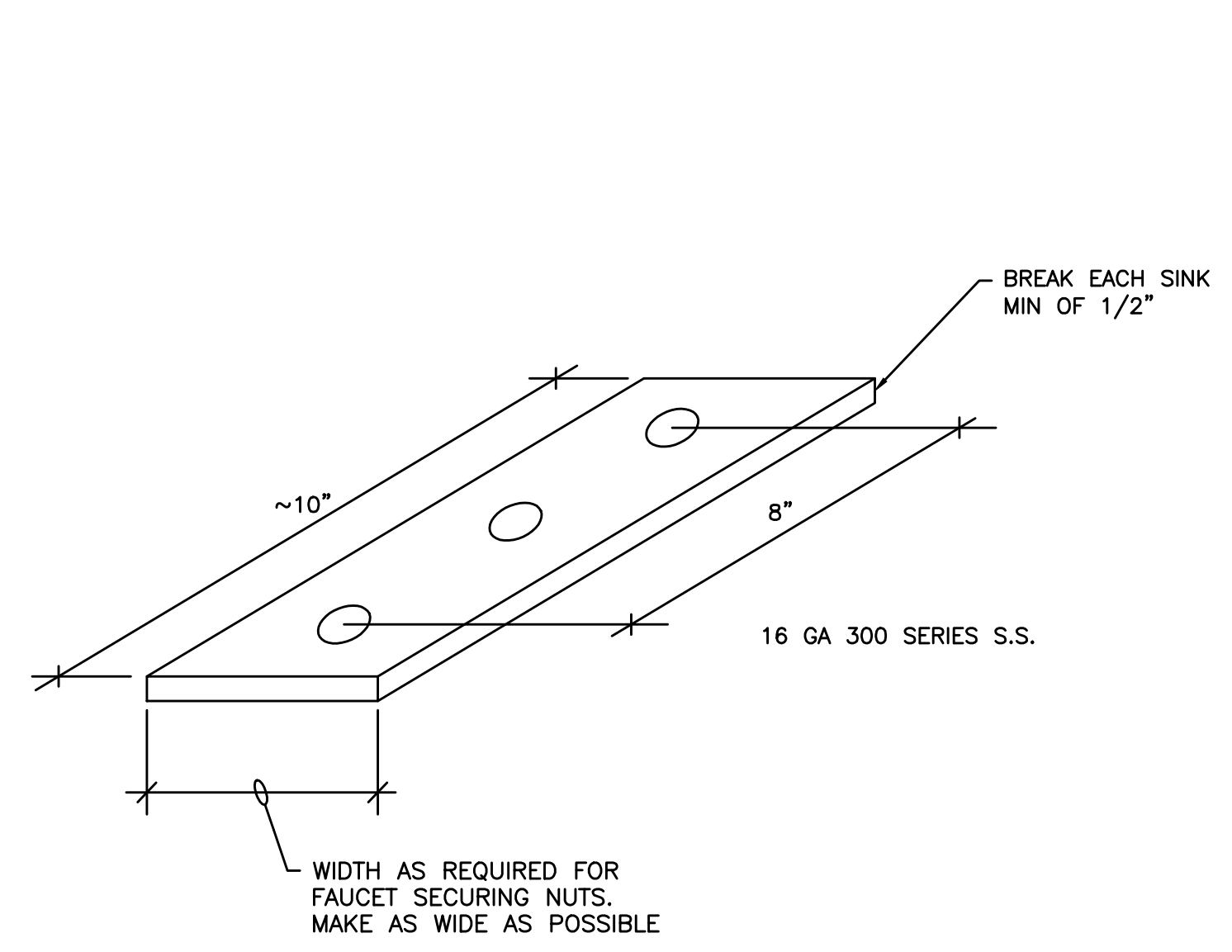
* PROVIDE W/ WALL CLEAN-OUT BELOW EACH SINK



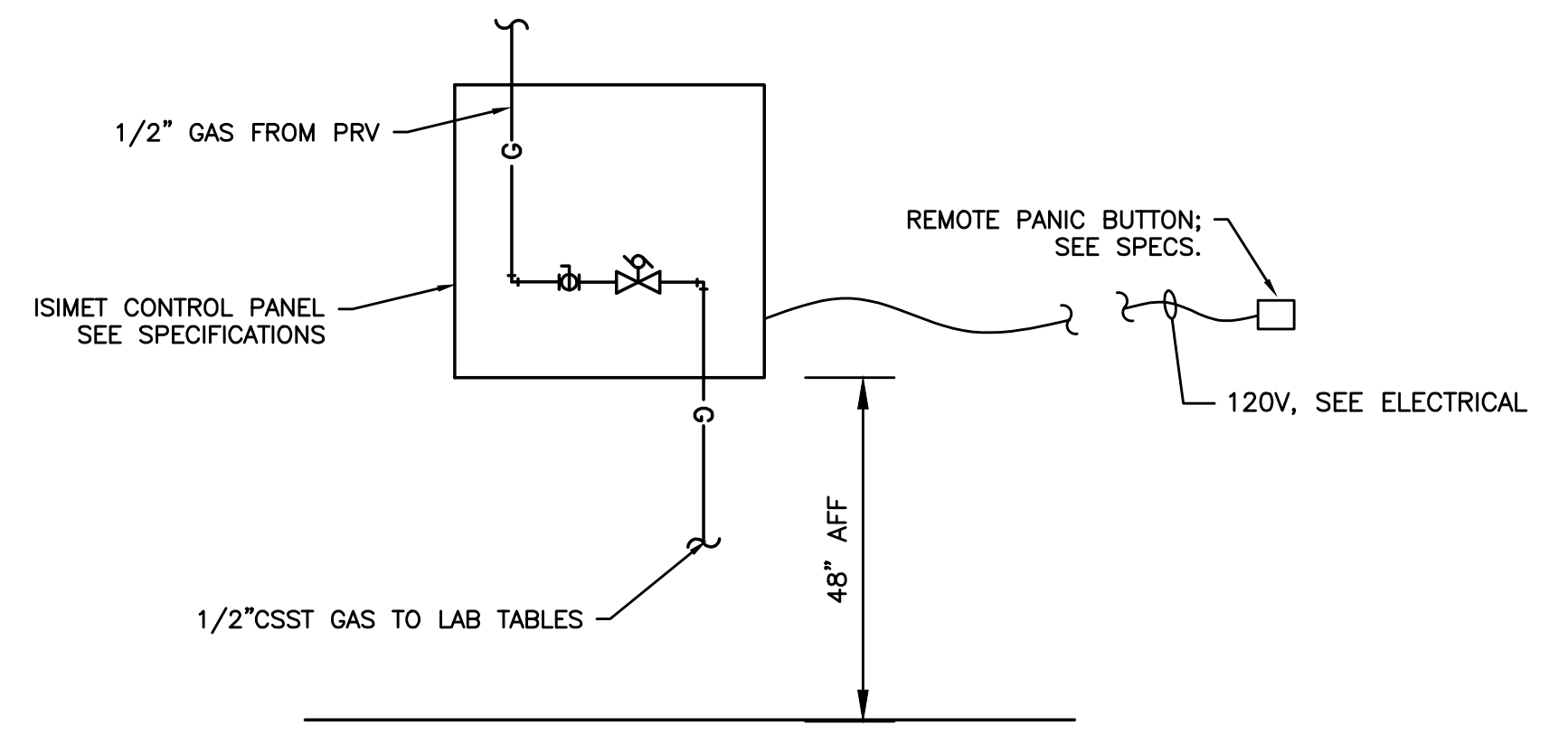
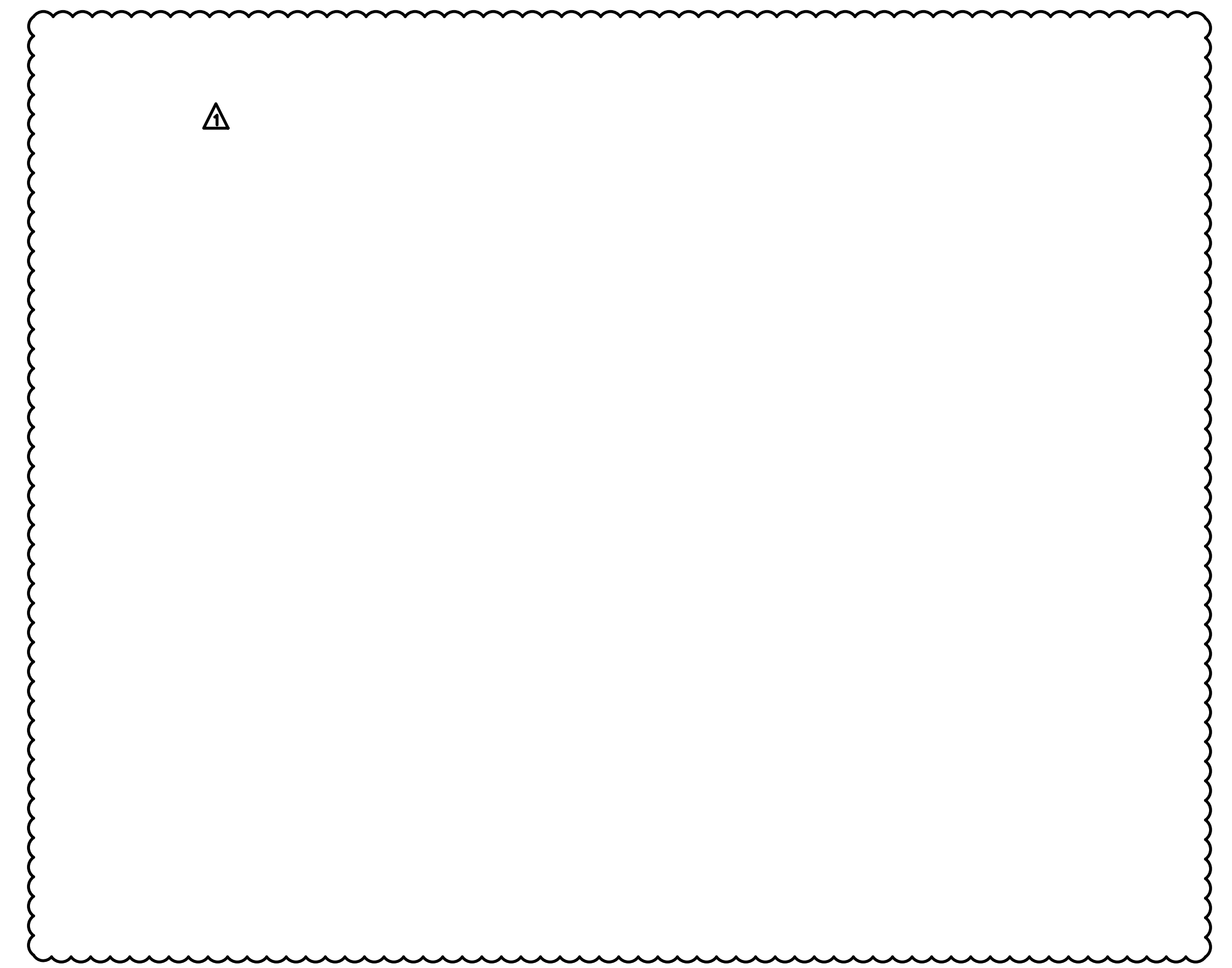
1 EMERGENCY SHOWER/EYE WASH DETAIL
 SCALE: DETAIL



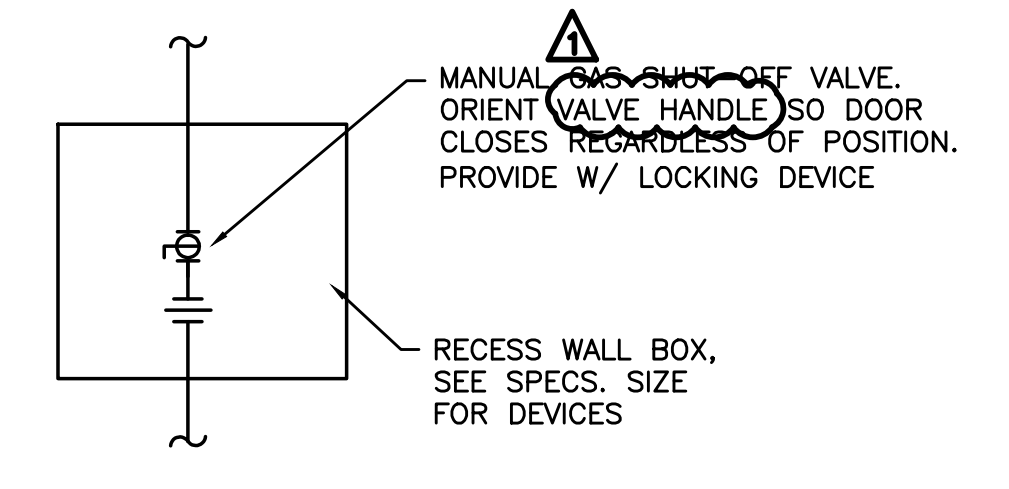
2 ISLAND SINK
 SCALE: DETAIL



3 SINK REINFORCEMENT
 SCALE: DETAIL



6 LAB GAS AUTO SHUT-OFF VALVE
 SCALE: DETAIL



7 LAB GAS MANUAL SHUT-OFF VALVE
 SCALE: DETAIL

City Of Bend Approval Stamp:

#	Date	Description
2	3/13/18	DISTRICT REVIEW COMMENTS
1	2/19/18	DISTRICT REVIEW COMMENTS

BID SET

PILOT BUTTE MIDDLE SCHOOL - BLDGS E&F
 1501 NE Neff Road,
 Bend OR 97701

BLRB architects

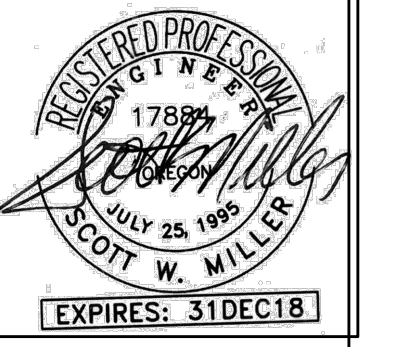
TACOMA	SPOKANE	PORTLAND	BEND
1250 Pacific Avenue Suite 100 Bend, OR 97701 531.077.099	525 W. Riverside Suite 100 Bend, OR 97701 531.077.099	1001 SW 5th Avenue Suite 100 Bend, OR 97701 531.077.099	404 SW Gamma St Suite 100 Bend, OR 97701 531.077.099

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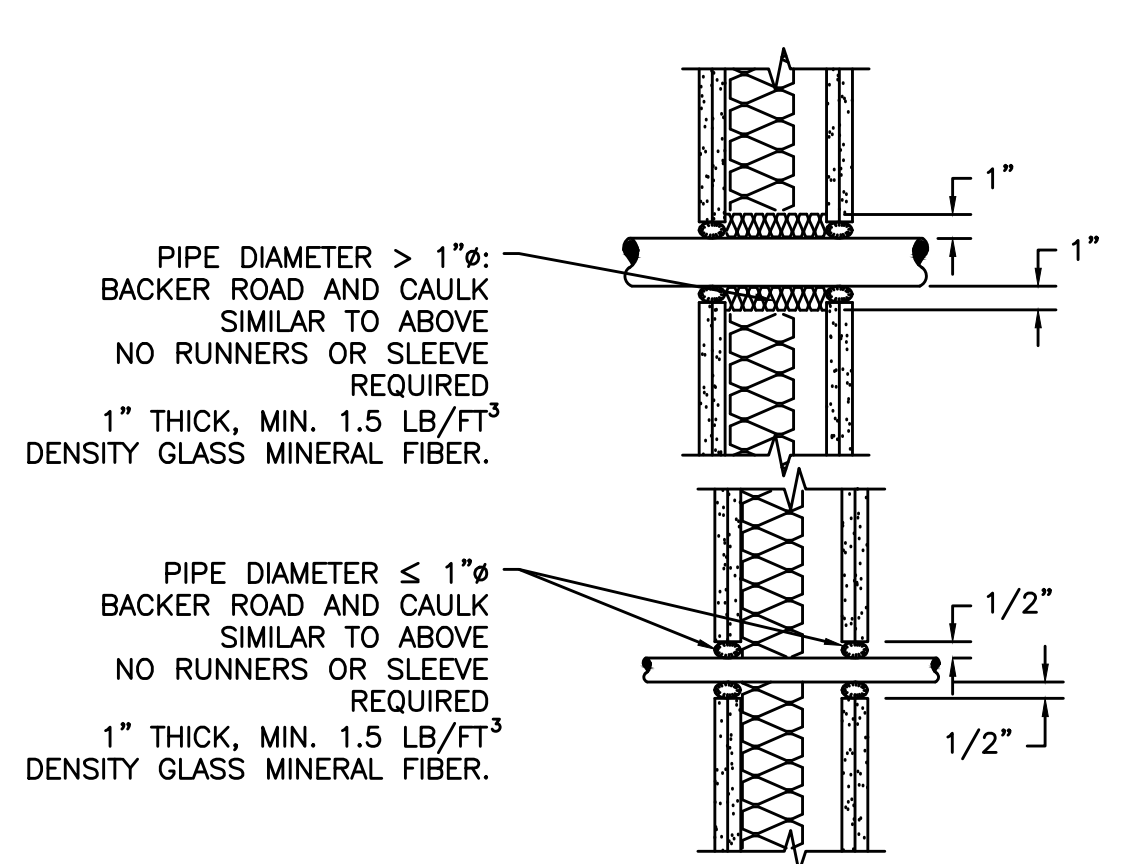
Drawing Title:

PLUMBING LEGEND AND SCHEDULES

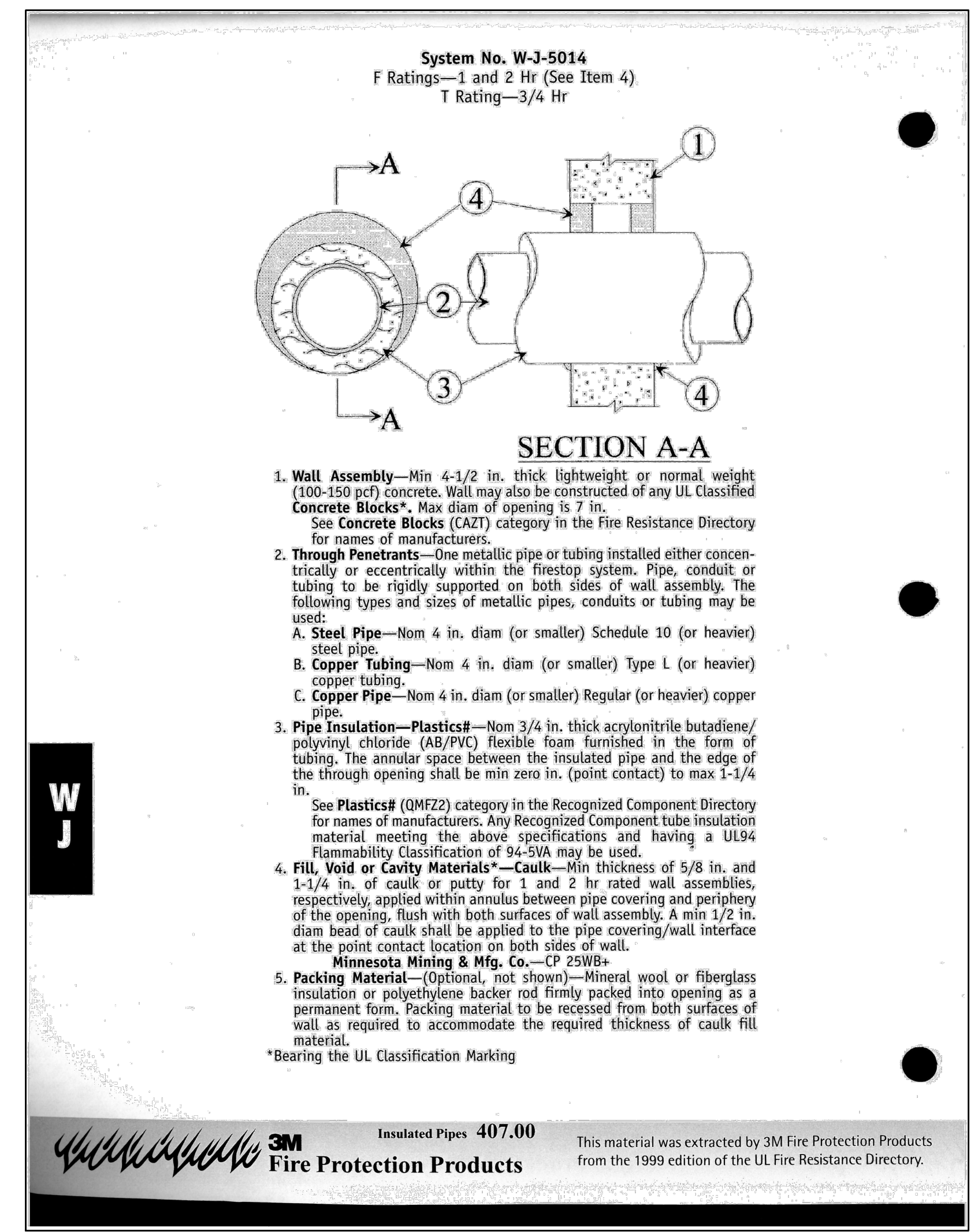
Date :	02.19.2018	Drawn By :	TB
Revised Date :		Project No. :	17.34B
Stamp :		Sheet No. :	



P6.01

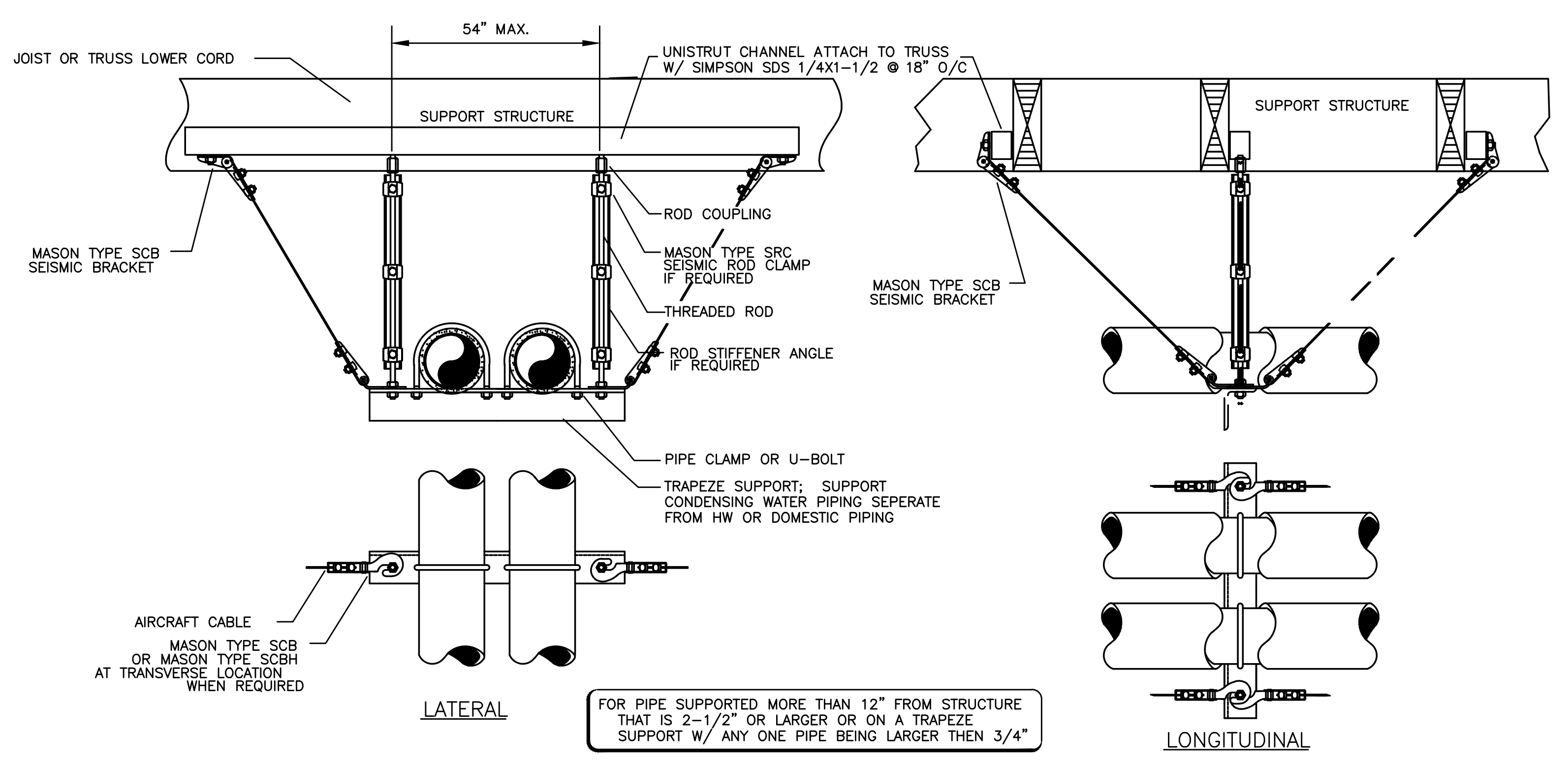


1 PIPE/CONDUIT PENETRATION DRYWALL CONSTRUCTION TO BE APPLIED TO WALLS WITH STC ≥ 49
SEE ARCHITECTURAL DRAWINGS FOR ACOUSTICALLY IMPORTANT WALLS (WALL TYPES). SEAL PENETRATIONS IN THOSE WALLS PER THESE DETAILS



3M Insulated Pipes 407.00 This material was extracted by 3M Fire Protection Products from the 1999 edition of the UL Fire Resistance Directory.

2 PIPE PENETRATION — RATED WALL
SCALE: DETAIL



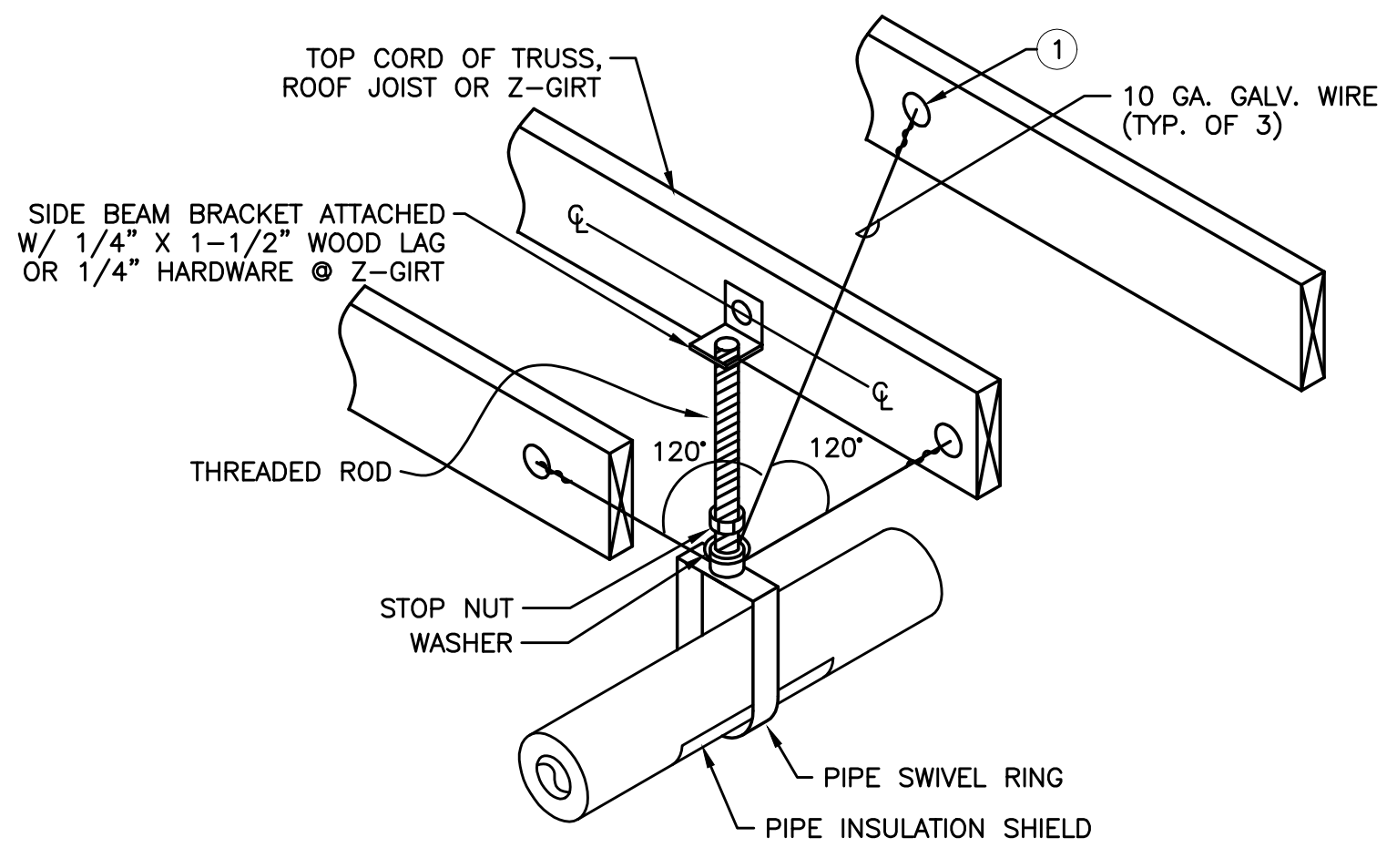
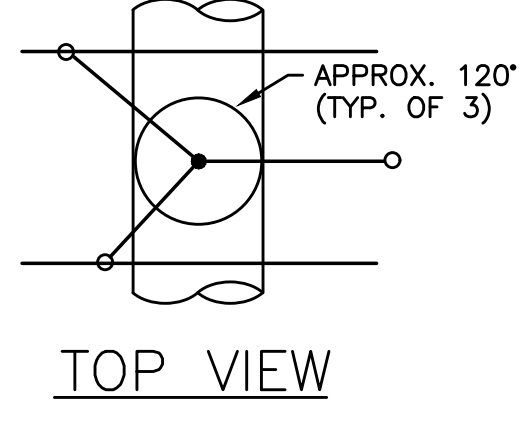
NOTE: MATERIALS BASED ON MASON INDUSTRIES. SIZE MATERIALS BASED ON APPLICATION & MANUFACTURER REQUIREMENT.

3 SEISMIC PIPE SUPPORT
SCALE: DETAIL

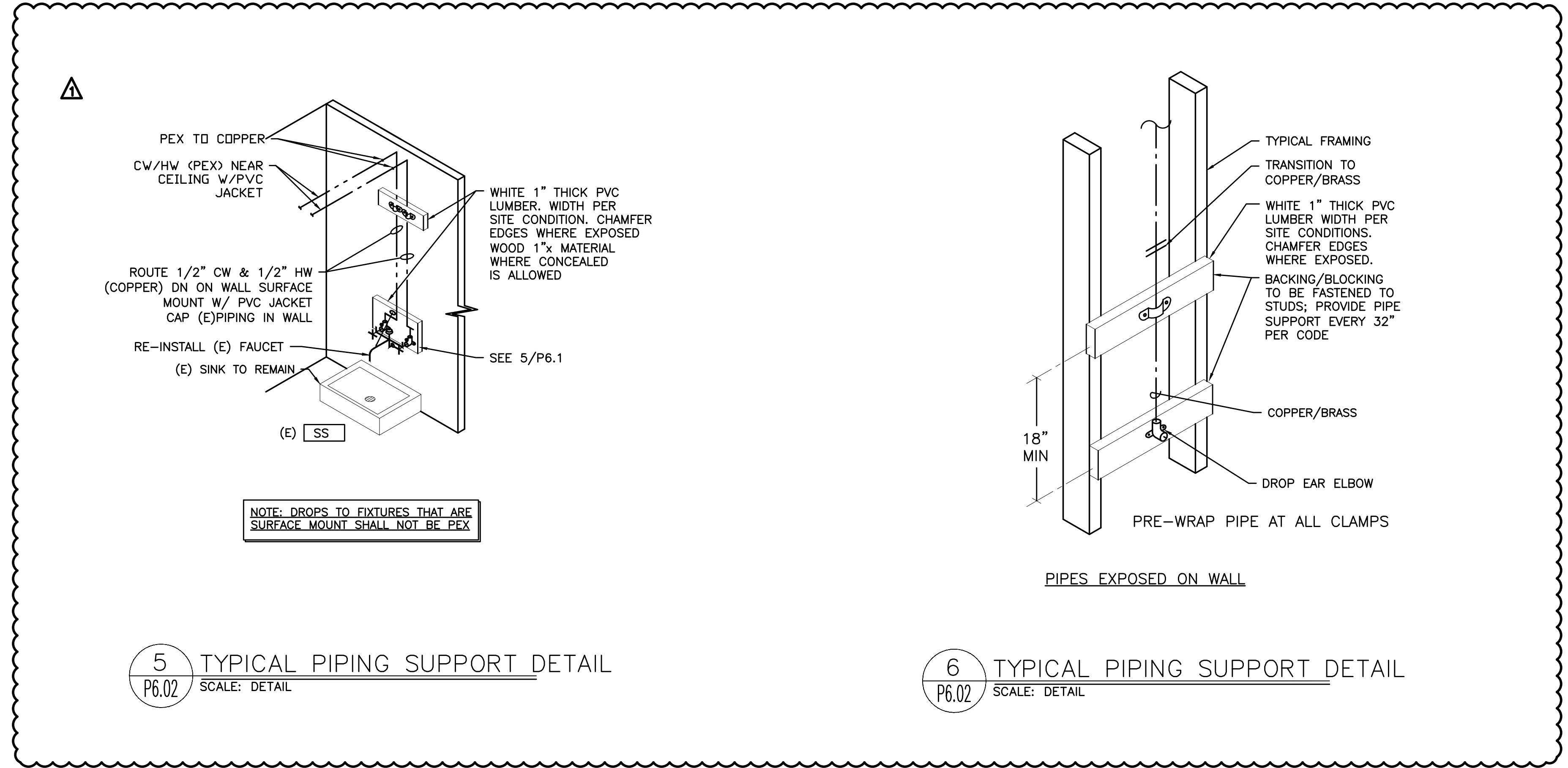
2/P6.02 NOTES

- 1/4" GALV. THREADED EYE BOLT @ CENTER OF WOOD MEMBER (TYP. OF 3). FOR Z-GIRT USE MACHINE THREAD EYE BOLT W/ JAMB NUT & 1/4" WASHER @ EACH SIDE OF GIRT

* — MAXIMUM HANGER SPACING SHALL BE AS FOLLOWS:
1-1/4" AND SMALLER PIPE 7" SPAN
1-1/2" PIPE 9" SPAN



4 NON-SEISMIC PIPE SUPPORT
SCALE: DETAIL



5 TYPICAL PIPING SUPPORT DETAIL
SCALE: DETAIL

6 TYPICAL PIPING SUPPORT DETAIL
SCALE: DETAIL

#	Date	Description
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Revision Schedule

BID SET

PILOT BUTTE MIDDLE SCHOOL - BLDGS E&F
1501 NE Neff Road,
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BLRB architects

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225 W. Riverside Suite 100 Richland WA 99185 509.321.5599
303 5th St. SE Suite 100 Olympia WA 98501 360.339.8700
404 SW Columbia St Suite 100 Bend OR 97702 541.566.6666

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Drawing Title:
PLUMBING DETAILS

Date: 02.19.2018 Drawn By: TB
Revised Date: Project No. 17.34B
Stamp: Sheet No.

P6.02

EXPIRES: 31DEC18