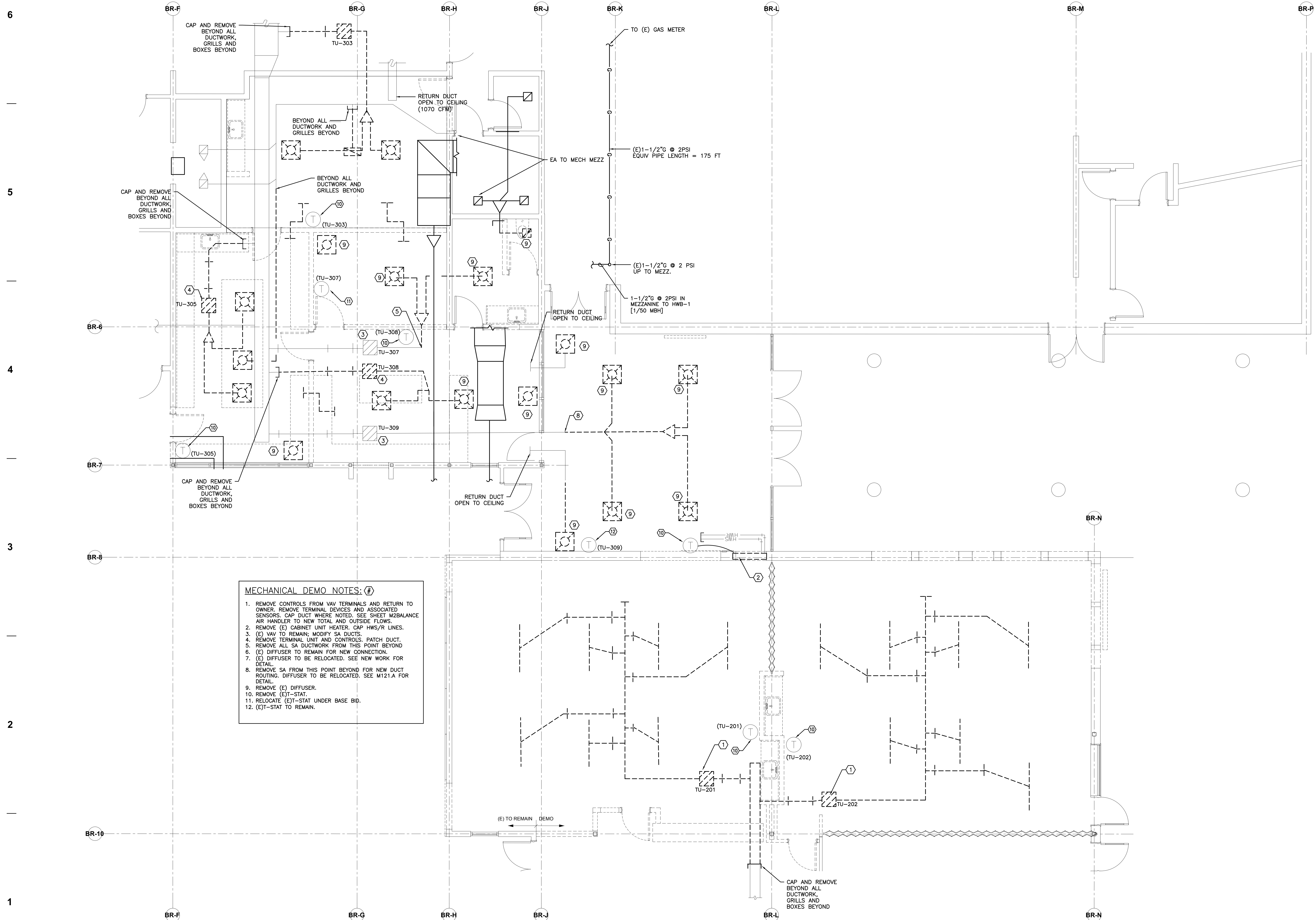


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Tigard Tualatin School District
Bridgeport Elementary School

Bridgeport Elementary School
5505 SW Bolander Road
Tualatin, Oregon 97062

MAR	DATE	DESCRIPTION
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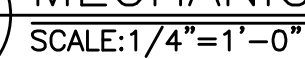
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MECHANICAL DEMO PLAN
BRIDGEPORT ES

M111.A

REFERENCES

M4101 A



NEW PIPE TO (N)RTU-1:
TOTAL DEVELOPED EQUIV. PIPE LENGTH = 100 FT
OMSC TABLE C402.4(3), @ 2PSI, 1.0 PSI P.D.
MIN PIPE = 1/2"

- A. NEW TERMINAL UNIT WITH ELECTRIC HEAT TO CONDITION CLASSROOM. CONTROL FROM JCI SYSTEM.
- B. CONNECT NEW SA VAV INLET TO (E)6 SA MAIN
- C. CONNECT NEW 846 SA TO (E)6X8A
- D. CONNECT NEW 1810 SA TO (E)18X8 AND ROUTE TO RELOCATED DIFFUSERS AS SHOWN.
- E. COORDINATE DUCT ROUTING WITH NEW SKYLIGHTS.
- F. CONNECT (DE)A TO NEW EXH GRILLE.
- G. NEW 1616 SUPPLY MAIN TO NEW 1616 RA GRILLE.
- G. 22X10 LINED RA IN WALL WITH SPLIT TO LOW WALL RA GRILLES.
- H. RA EXH THRU ROOF TO RELIEF HEAD.
- I. 1616X16 SUPPLY MAIN SUPPLY DIFFUSER OR 1616X16 PRICE PDMC FOR SUPPLY AND PDOR FOR RETURN, OR APPROVED EQUAL.
- J. 10X4 RA IN WALL TO LOW RA GRILLE.
- K. RELOCATED 1-T STAT.
- L. (E)1-T STAT.
- M. 6X6 RA EXH GRILLES ON DOOR @ 00' A.F.F.
- N. 12X12 RA DUCT DN IN CHASE.

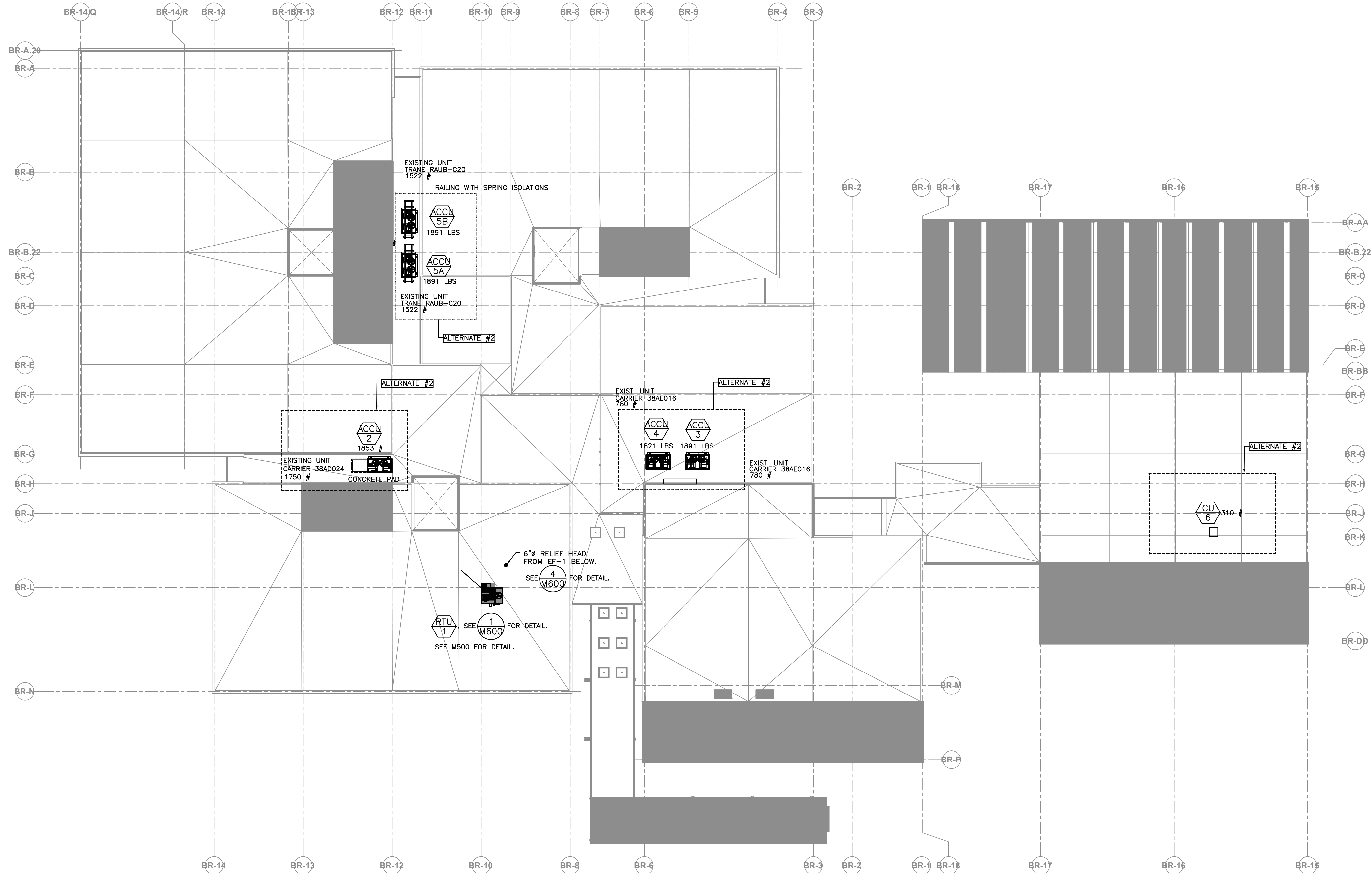
M121.A SCALE: 1/4" = 1'-0"

SEE  FOR DETAILS.

3/4" @ 2 PSI UP THRU
CURB TO RTU-1.
SEE 1/M600 FOR DETAIL.

SEE  FOR CONTROL.

SEE SA/RA UP THRU
OF TO RTU-1



 1 MECHANICAL ROOF PLAN — BRIDGEPORT
M131.A SCALE: 1/4" = 1' - 0"

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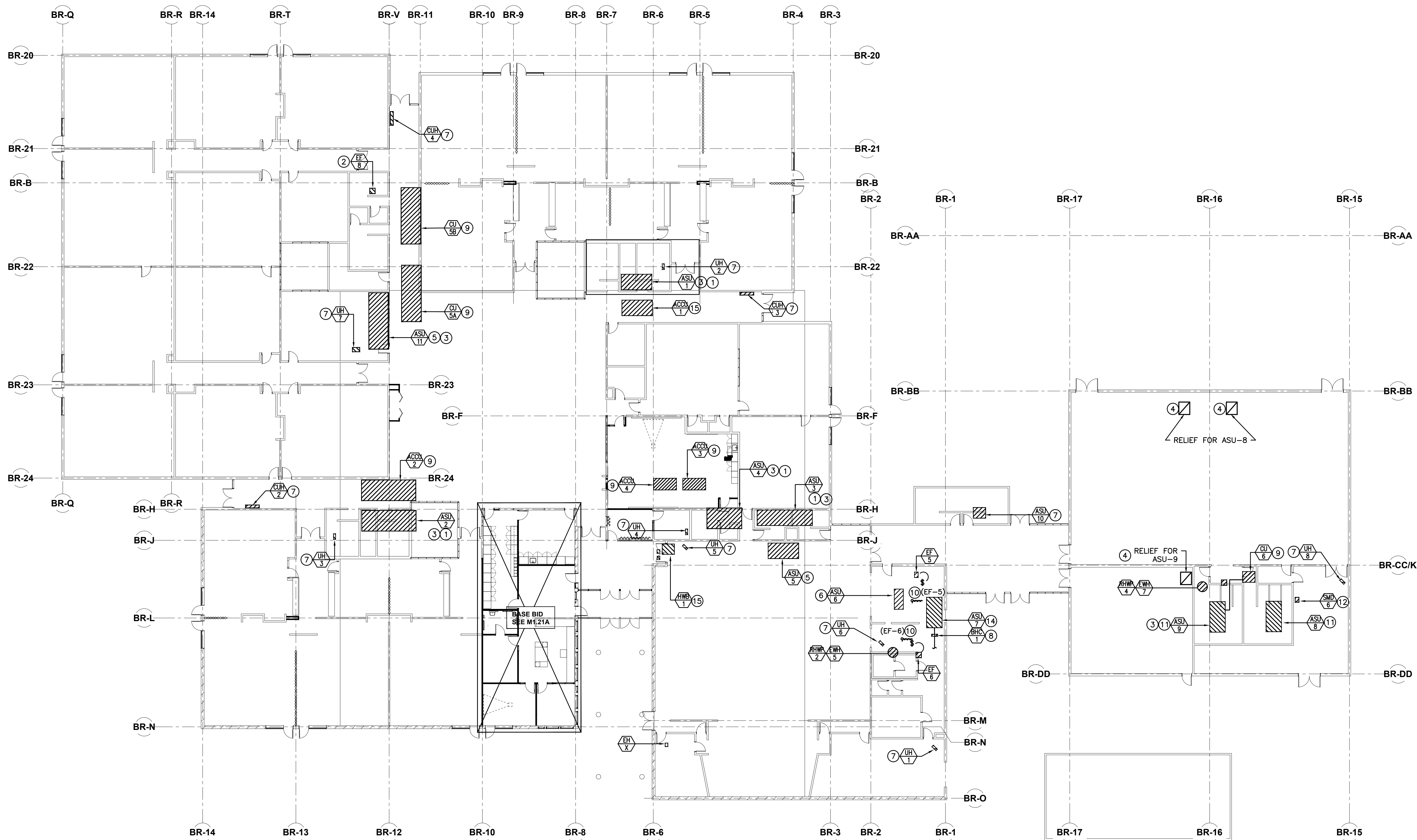
**Bridgeport
Elementary School**
5505 SW Borland Road
Tualatin, Oregon 97062

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MECHANICAL ROOF PLAN
BRIDGEPORT ES

M131.A

Xref



1 OVERALL MECHANICAL PLAN - ALTERNATE #2
SCALE: 1/16"=1'-0"

CONTROL DRAWING KEYED NOTES – ALTERNATES:

1. PROVIDE DIGITAL DAMPER ACTUATOR AT OSA, RELIEF AND MIXING DAMPERS TO REPLACE EXISTING PNEUMATIC ACTUATORS. RETROFIT EXISTING HEATING VALVE WITH DIGITAL ACTUATOR KIT. CONFIRM VALVE CONFIGURATION PRIOR TO SUBMITTAL.
2. PROVIDE DIGITAL DAMPER ACTUATOR AT EXHAUST DAMPER TO REPLACE (E)PNEUMATIC ACTUATOR.
3. REMOVE (E)R-22 DX COIL AND REPLACE WITH NEW R-410A DX COIL.
4. PROVIDE DIGITAL DAMPER ACTUATOR. CONNECT NEW ACTUATOR TO EXISTING JCI SYSTEM CONTROL PANEL. ALTER PROGRAMMING AS REQUIRED FOR THE NEW DIGITAL DEVICE.
5. PROVIDE DIGITAL DAMPER ACTUATOR AT OSA, MIN OSA, RELIEF AND MIX DAMPERS TO REPLACE EXISTING PNEUMATIC ACTUATORS. RETROFIT EXISTING HEATING VALVE WITH DIGITAL ACTUATOR KIT. CONFIRM VALVE CONFIGURATION PRIOR TO SUBMITTAL.
6. PROVIDE DIGITAL DAMPER ACTUATOR AT OSA AND RA DAMPERS TO REPLACE EXISTING PNEUMATIC ACTUATORS. RETROFIT EXISTING HEATING VALVE WITH DIGITAL ACTUATOR KIT. CONFIRM VALVE CONFIGURATION PRIOR TO SUBMITTAL.
7. RETROFIT HEATING COIL VALVE WITH DIGITAL ACTUATOR KIT OR DANFOSS SELF CONTAINED CONTROL VALVE. SEE VALVE SCHEDULE FOR TYPE.
8. RETROFIT (E)BOOSTER HEATING COIL VALVE WITH DIGITAL ACTUATOR KIT. CONFIRM VALVE CONFIGURATION PRIOR TO SUBMITTAL.
9. REMOVE (E)CONDENSING UNIT AND (E) CURB AND REPLACE WITH NEW. PROVIDE NEW CONTROLS. SEE MSO FOR CONTROLS.
10. REMOVE (E)PNEUMATIC DAMPER ACTUATOR AT STEAM AND STOVE HOODS (EF-5 & EF-6) AND REPLACE WITH DIGITAL DAMPER ACTUATOR. ALTER PROGRAMMING AS REQUIRED FOR THE NEW DIGITAL DEVICE.
11. PROVIDE DIGITAL DAMPER ACTUATOR AT OSA, MIN OSA & RETURN DAMPERS TO REPLACE EXISTING PNEUMATIC ACTUATORS. RETROFIT EXISTING HEATING VALVE WITH DIGITAL ACTUATOR KIT. CONFIRM VALVE CONFIGURATION PRIOR TO SUBMITTAL.
12. (E)FIRE SMOKE DAMPER – REMOVE (E)PNEUMATIC DAMPER ACTUATOR AND REPLACE WITH NEW DIGITAL ACTUATOR.
13. REROFIT (E)3-WAY VALVE AT THE BOILER WITH DIGITAL ACTUATOR KIT. CONFIRM VALVE CONFIGURATION PRIOR TO SUBMITTAL.
14. PROVIDE DIGITAL OSA DAMPER, FACE/BY-PASS DAMPER TO REPLACE (E)PNEUMATIC ACTUATORS. RETROFIT (E)BOOSTER HEATING COIL VALVE WITH DIGITAL ACTUATOR KIT. CONFIRM VALVE SIZING PRIOR TO SUBMITTAL.
15. R-410A CONDENSING UNIT TO REMAIN. NO WORK REQUIRED.

CONTROL DRAWING GENERAL NOTES:

1. WHERE EXISTING PNEUMATIC DEVICES ARE REMOVED, REMOVE ALL ASSOCIATED PNEUMATIC PIPING AND CONTROLS. CONNECT NEW ACTUATOR / DDC DEVICES TO EXISTING JCI SYSTEM CONTROL PANEL. ALTER PROGRAMMING AS REQUIRED FOR THE NEW DIGITAL DEVICE. CONFIRM DAMPER AND VALVE SIZES PRIOR TO SUBMITTAL. APPROX DAMPER SIZES ARE SHOWN ON SCHEDULE.

EQUIP TAG	GPM	2-WAY/3-WAY	MODULATING/2-POSITION/DANFOSS	NOTES
ASU-1	6.1	3	MODULATING	
ASU-2	5.9	3	MODULATING	
ASU-3	6	2	MODULATING	
ASU-4	4.8	2	MODULATING	
ASU-5	7	3	MODULATING	
ASU-6	2.7	2	MODULATING	
ASU-7	5.6	2	MODULATING	
ASU-8	8.3	3	MODULATING	
ASU-9	2.2	2	MODULATING	
ASU-10	3.3	2	MODULATING	
ASU-11	12.7	3	MODULATING	
CUH-2	1.3	2	MODULATING	
CUH-3	1.3	2	MODULATING	
UH-1	2.5		DANFOSS	
UH-2	1.5		DANFOSS	
UH-3	1.5		DANFOSS	
UH-4	1.5		DANFOSS	
UH-5	1.5		DANFOSS	
UH-6	1.5		DANFOSS	
UH-7	1.5		DANFOSS	
UH-8	2.5		DANFOSS	
CUH-4	1.3		2-WAY	
BHC-2	2.4	2	MODULATING	
BOILER	123	3	MODULATING	

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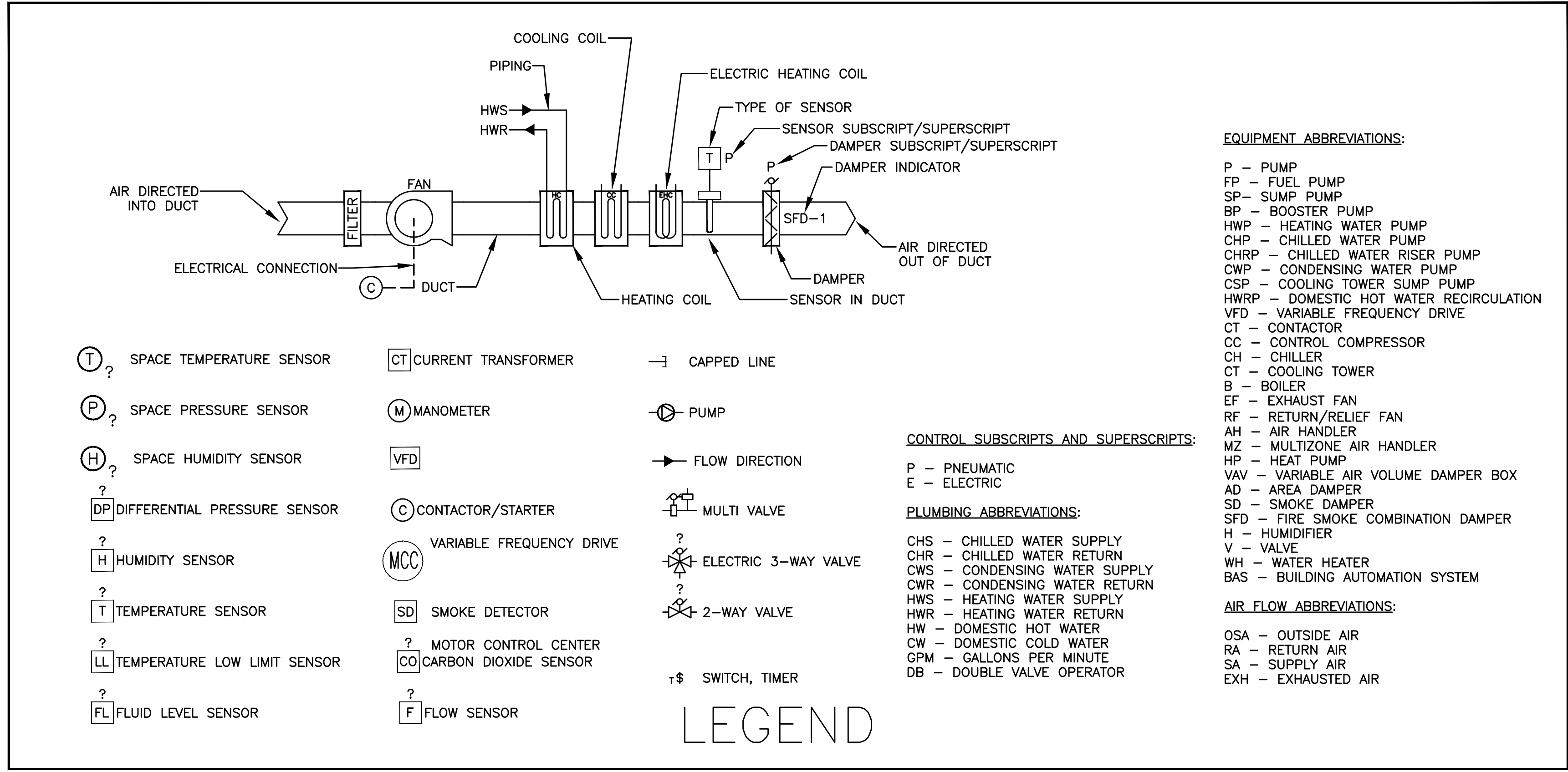
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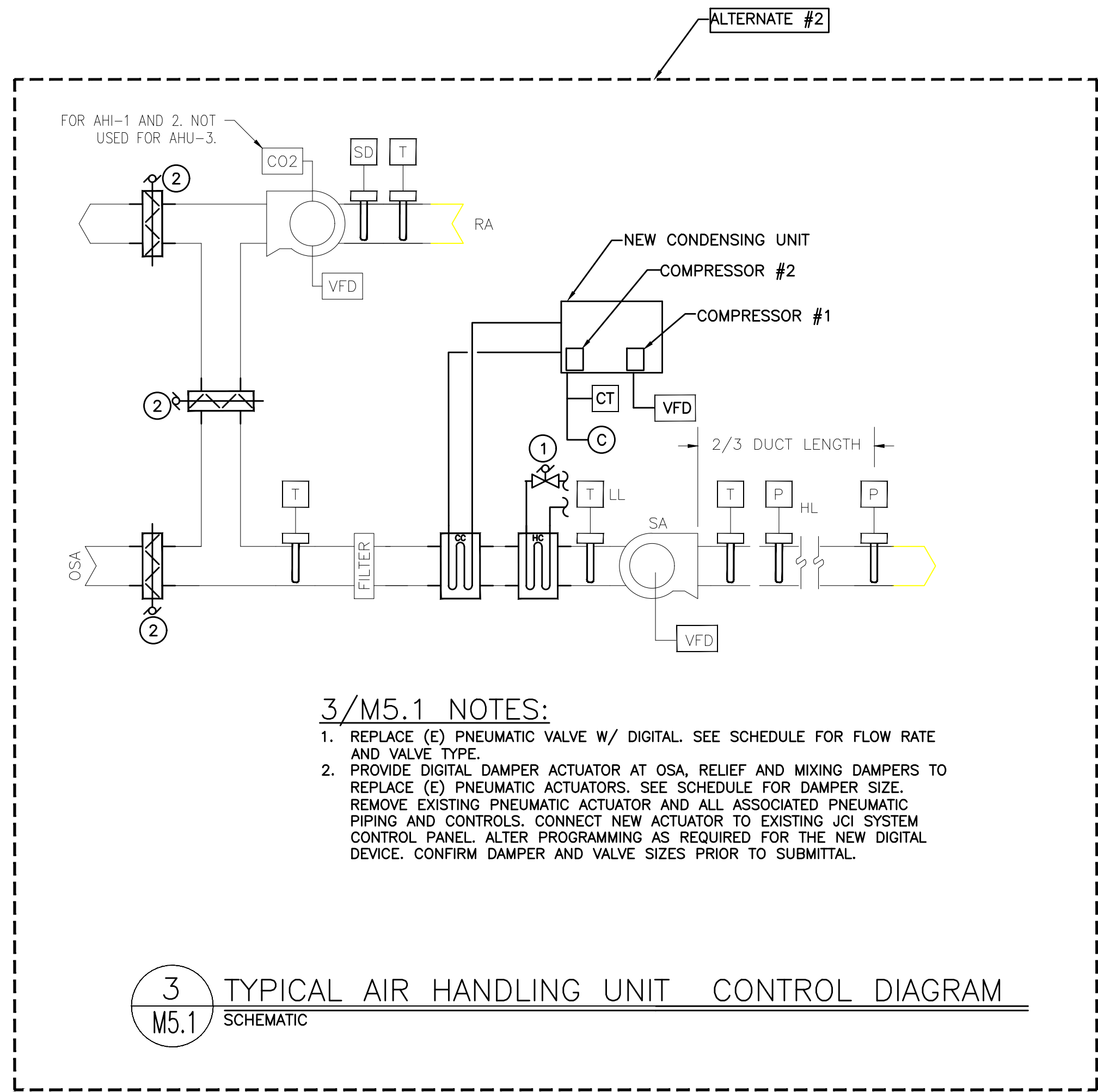
OVERALL MECHANICAL
PLAN - ALTERNATE #2

M200A



1 VAV BOX W/ ELECT RH CONTROL DIAGRAM
M5.00 SCALE: SCHEMATIC

2 EXHAUST FAN CONTROL DIAGRAM
M5.00 SCALE: SCHEMATIC



CONTROLS FOR VAV TERMINAL UNIT, SEE 1/M5.00					
POINT DESCRIPTION	INPUT		OUTPUT		ALARM
	DIGITAL	ANALOG	DIGITAL	ANALOG	
SPACE TEMP		X			
AIR FLOW		X			
DAMPER POSITION				X	
DISCHARGE TEMPERATURE		X			
ELECTRIC HEATER				X	
ECONO ON/OFF			X		
SPACE OCCUPANCY	X				
SPACE CO2		X			

CONTROLS FOR EXHAUST FANS, SEE 2/M5.00					
POINT DESCRIPTION	INPUT		OUTPUT		ALARM
	DIGITAL	ANALOG	DIGITAL	ANALOG	
START/STOP TYP. OF ALL			X		
STATUS	X				

CONTROLS FOR RTU-1 (*)			
POINT DESCRIPTION	READ	WRITE	READ/WRITE
UNIT ENABLE/DISABLE			X
EXH FAN SPEED	X		
EXHAUST STATUS	X		
SUPPLY FAN STATUS	X		
SUPPLY FAN SPEED	X		
OUTSIDE AIR/ECONOMIZER DAMPER POSITION	X		
RA CO2	X		
RA TEMP	X		
DISCHARGE AIR TEMP	X		
DISCHARGE AIR PRESSURE	X		
MIXED AIR TEMP	X		
HEATING SECTION STATUS	X		
SMOKE DETECTOR	X		
COOLING STATUS	X		
ALARM CODE	X		
DISCHARGE AIR TEMP SETPOINT			X
DISCHARGE AIR PRESSURE SETPOINT			X

(*) MINIMUM POINTS TO BE MAPPED TO GRAPHIC

AIR HANDLING UNIT, SEE 3/M5.1					
POINT DESCRIPTION	INPUT		OUTPUT		ALARM
	DIGITAL	ANALOG	DIGITAL	ANALOG	
OUTSIDE DAMPER POSITION				X	
EXHAUST DAMPER POSITION				X	
RETURN AIR DAMPER POSITION				X	
COMPRESSOR COMMAND (2 COMPRESSORS)			X		
COMPRESSOR STATUS (2 COMPRESSORS)	X				X
COMPRESSOR SPEED (COMPRESSOR #1)				X	
HEATING SECTION				X	

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MECHANICAL CONTROLS

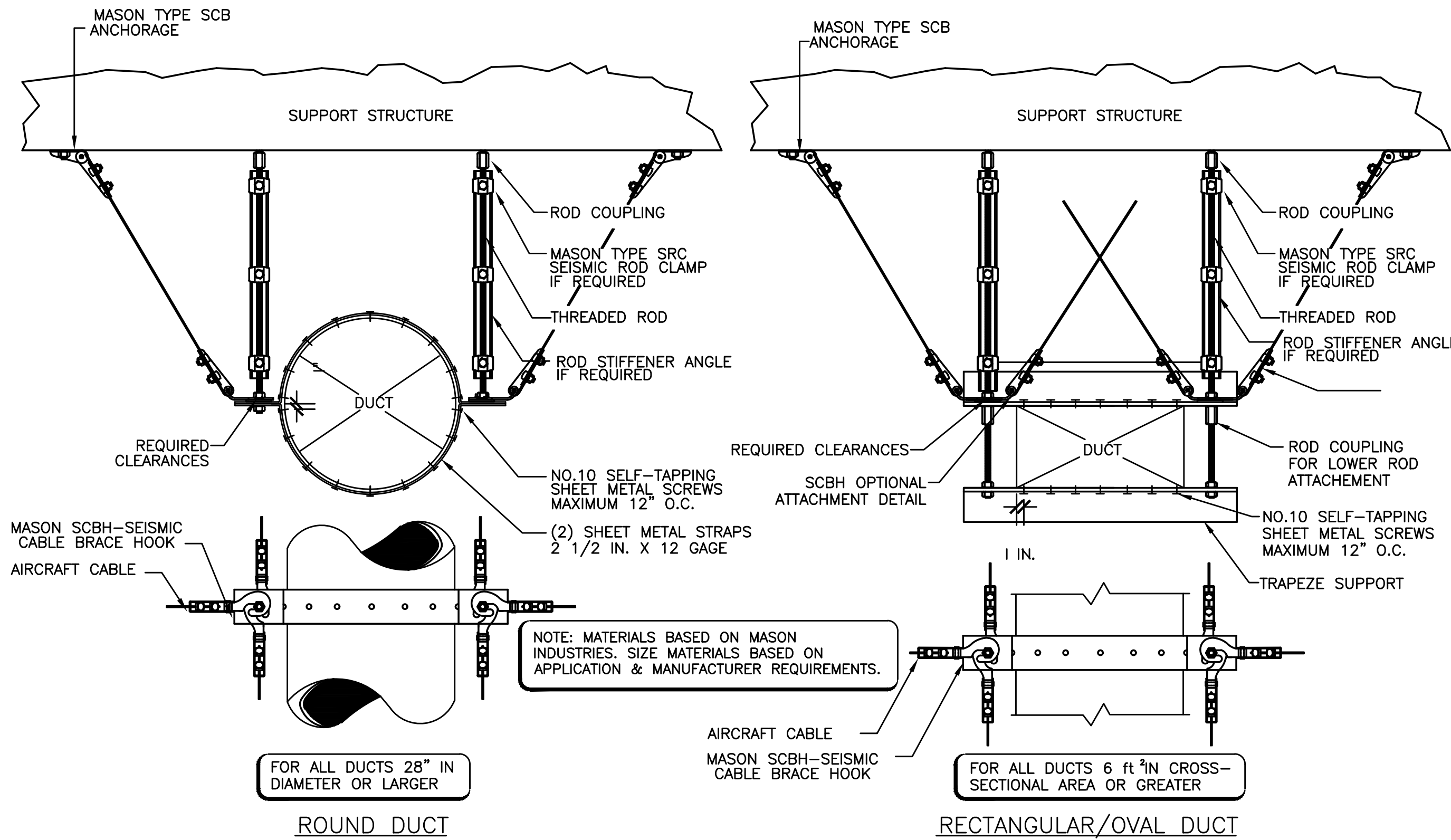
M500.A

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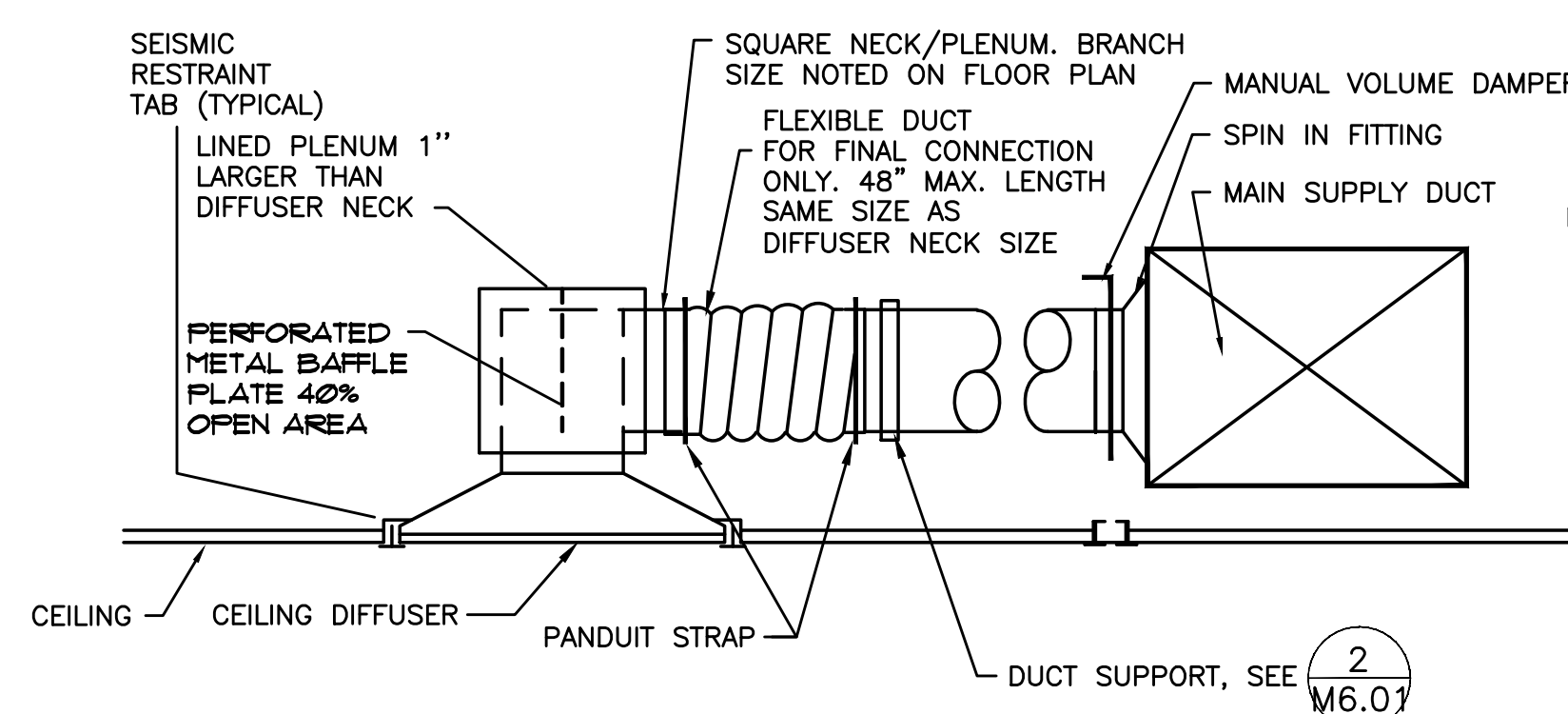
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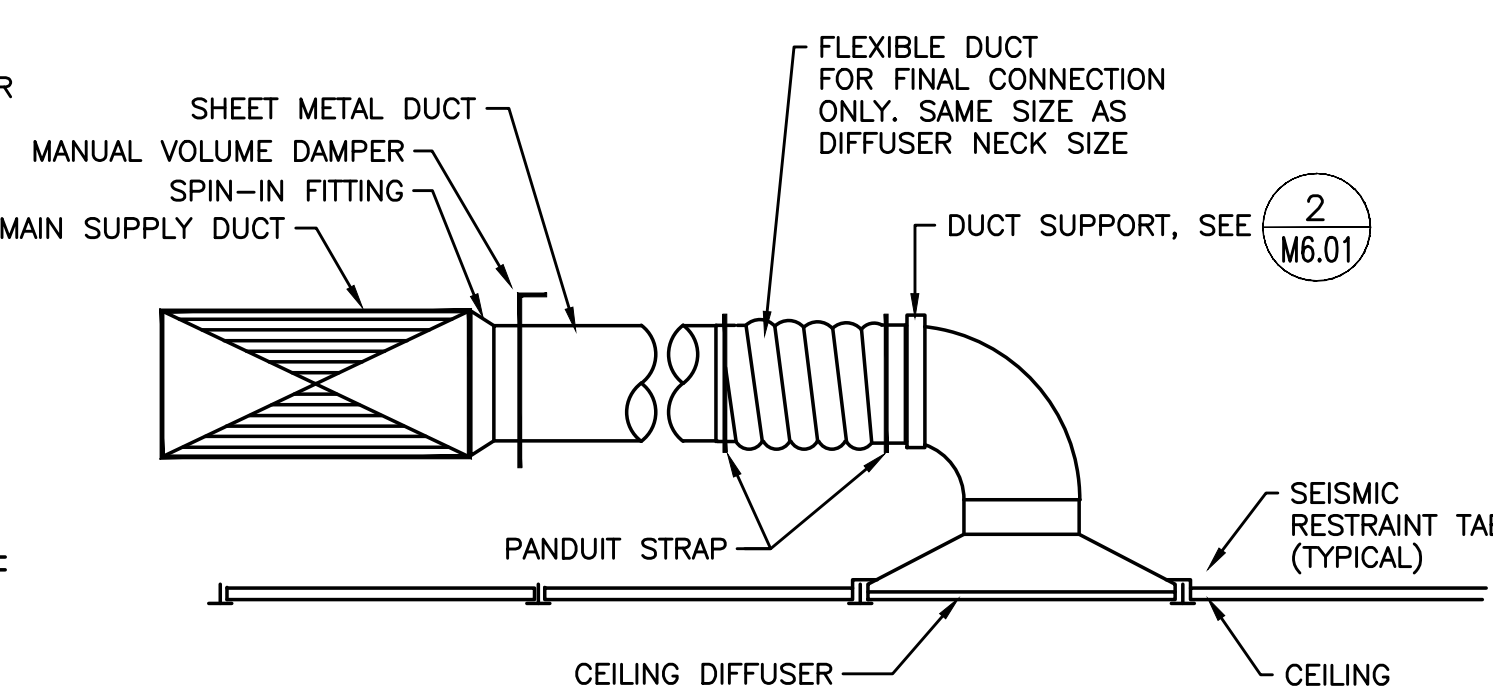
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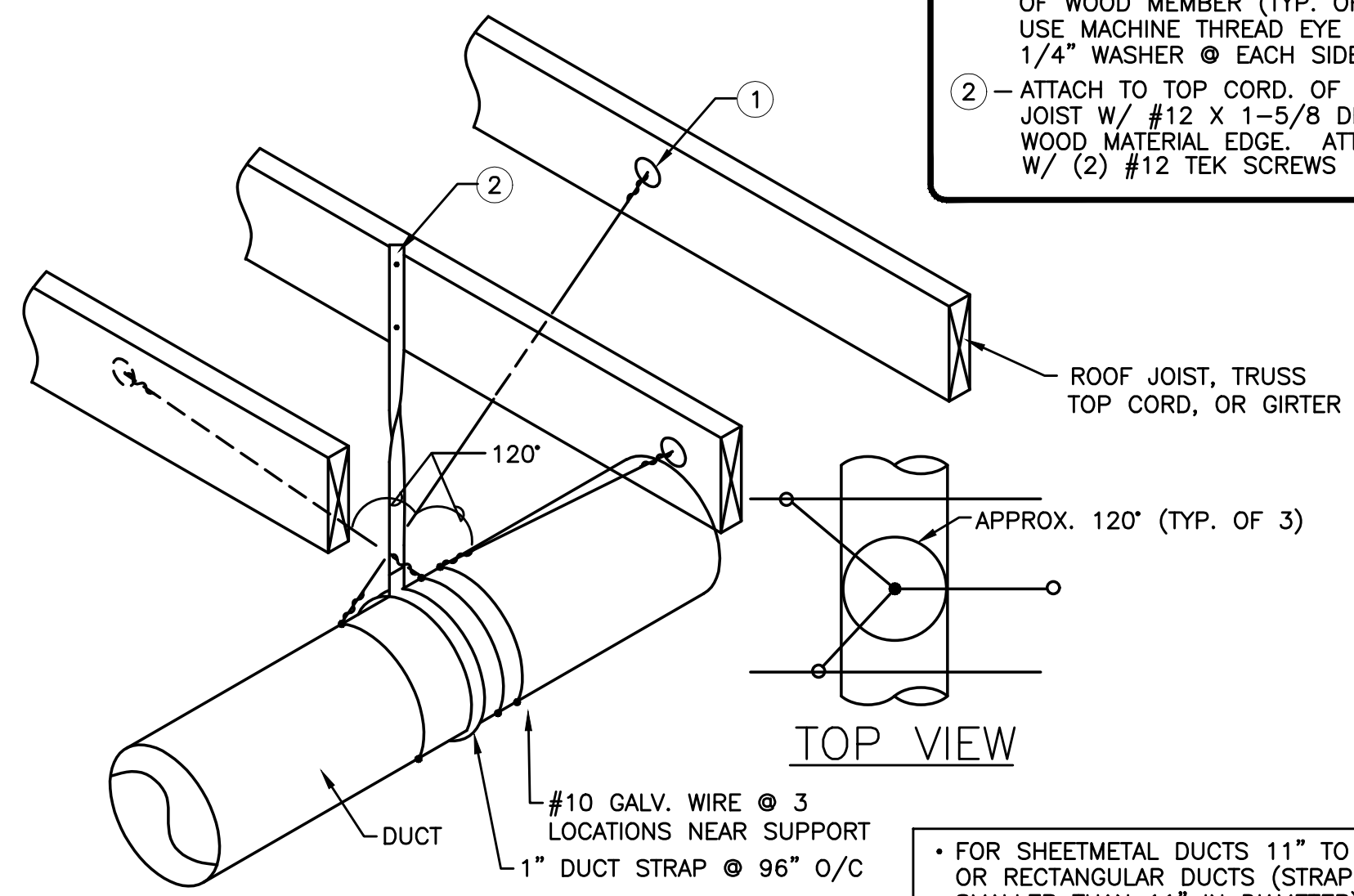
1 SEISMIC DUCT SUPPORT
SCALE: DETAIL
M6.01



1 CEILING DIFFUSER DETAIL
SCALE: NONE
M6.01



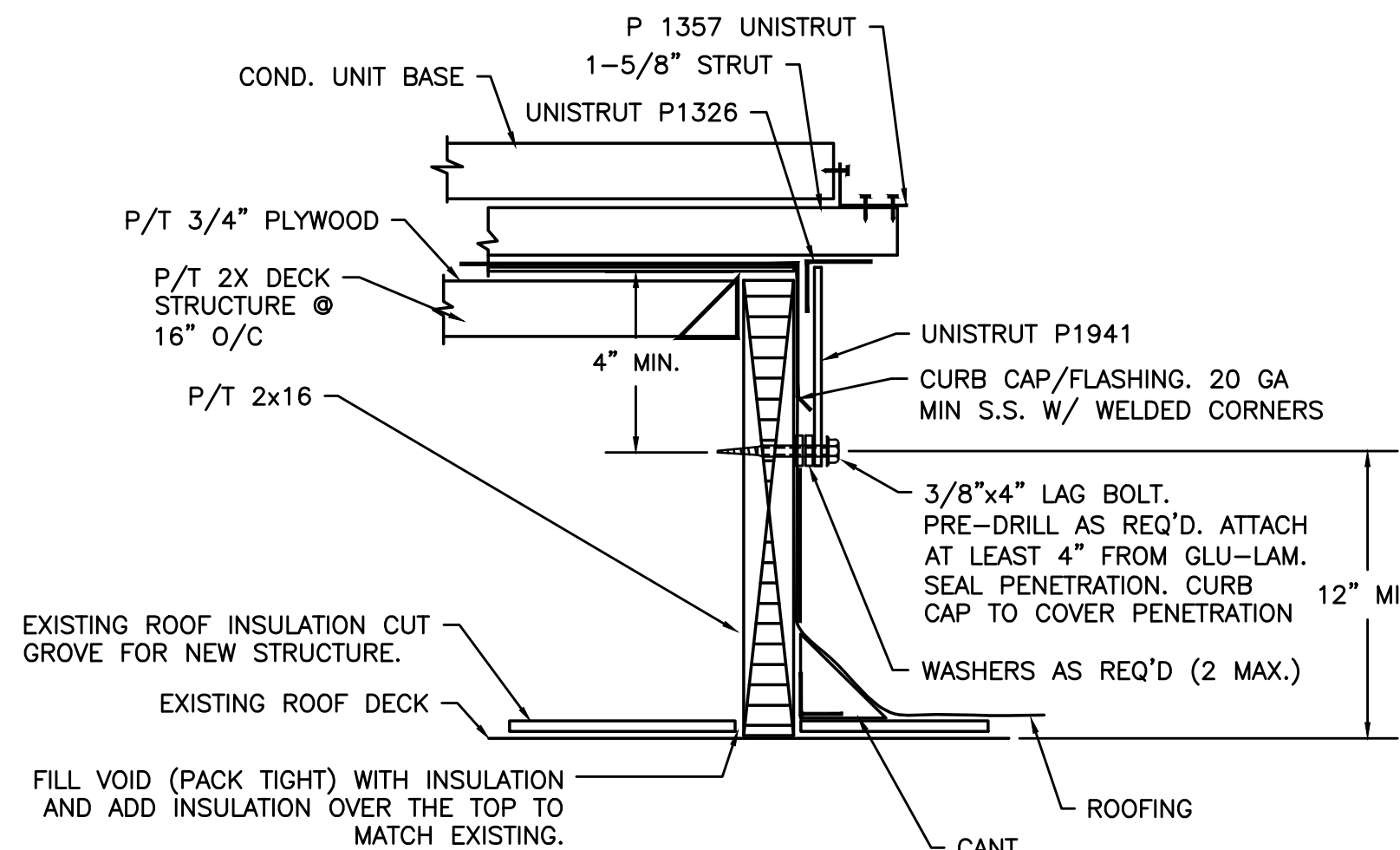
2 DUCT SUPPORT
SCALE: DETAIL
M6.01



3 PLENUM RA DETAIL
SCALE: DETAIL
M6.01

- 2/M6.01 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
 - 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 SHEETMETAL DUCTS 11" TO 27" IN DIAMETER & ALL SQUARE 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)



4 COMPRESSOR CURB
SCALE: DETAIL
M6.01

VENTILATION AIR SCHEDULE RTU-1																
ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF FIXTURES (PLUMBING)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/P) OR (CFM/FXKT) *	OUTSIDE AIR REQUIREMENT (CFM/SQ. FT.)	OUTSIDE AIR REQUIRED (CFM)	ZONE OSA (CFM)	SUPPLY AIR (CFM)	PRIMARY OSA FRACTION	RETURN AIR (CFM)	EXHAUST AIR (CFM)	Zone Ventilation Efficiency	Corrected OSA CFM	AIR SYSTEMS	
	Az			Pz	Rp	Ra	Vbz	Ex	Voz	Vpz	Zp		Evz			
A104 PRINCIPAL	165	5		1	5	0.06	15	1.0	15	310	0.05	310	0	1.00	15.77	RTU-1
A103 CONFERENCE	230	50		12	5	0.06	74	1.0	74	450	0.16	450	0	1.07	78.10	RTU-1
A105 HEALTH	170	5		1	5	0.06	15	1.0	15	165	0.09	165	0	0.96	16.09	RTU-1
A107 WORK ROOM	350	5		2	5	0.06	31	1.0	31	250	0.12	250	0	0.97	32.81	RTU-1
A108 STAFF LOUNGE	340	50		17	5	0.06	105	1.0	105	275	0.38	275	0	0.94	111.54	RTU-1
A102 RECEPTION ADMIN (INT)	305	10		4	5	0.06	38	1.0	38	350	0.11	350	0	1.01	40.53	RTU-1
A102 RECEPTION ADMIN(EXT)	375	10		4	5	0.06	43	1.0	43	350	0.12	350	0	1.01	44.97	RTU-1
A106 TOILET	85	0	1	0	50		0			0		75				RTU-1, EF-1
TOTAL	2020			41			321		321	2150		2150	75	0.94	340	
									Vou	Vps			Ev			
CORRECTED TOTAL OUTDOOR AIR FLOW RATE											340	CFM	Corrected OSA Fraction	Zs =	0.16	
VENTILATION AIR SCHEDULE - EXISTING UNIT																
ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF FIXTURES (PLUMBING)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/P) OR (CFM/FXKT) *	OUTSIDE AIR REQUIREMENT (CFM/SQ. FT.)	OUTSIDE AIR REQUIRED (CFM)	ZONE OSA (CFM)	SUPPLY AIR (CFM)	PRIMARY OSA FRACTION	RETURN AIR (CFM)	EXHAUST AIR (CFM)	Zone Ventilation Efficiency	Corrected OSA CFM	AIR SYSTEMS	
	Az			Pz	Rp	Ra	Vbz	Ex	Voz	Vpz	Zp		Evz			
A100 VESIBULE	200	0		0	0	0.06	12	1.0	12	300	0.04	0	0	0.98	13.44	EXIST.
A101 LOBBY	450	30		14	5	0.06	97	1.0	97	500	0.19	500	0	0.98	108.63	EXIST.
A111 COUNSELING	135	5		1	5	0.06	13	1.0	13	100	0.13	100	0	0.89	14.67	EXIST.
A112 OFFICE	105	5		1	5	0.06	11	1.0	11	100	0.11	0	100	0.91	12.65	EXIST.
A109 CLASSROOM	1115	25		28	10	0.12	414	1.0	414	1050	0.39	1050	0	1.36	463.41	EXIST.
TOTAL	2005			44			547		547	2050		1150	100	0.89	491	
									Vou	Vps			Ev			
CORRECTED TOTAL OUTDOOR AIR FLOW RATE											491	CFM	Corrected OSA Fraction	Zs =	0.24	

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MECHANICAL LEGENDS
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M601.A

Tigard Tualatin School District
Bridgeport Elementary School

Bridgeport Elementary School
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Tualatin, Oregon 97062

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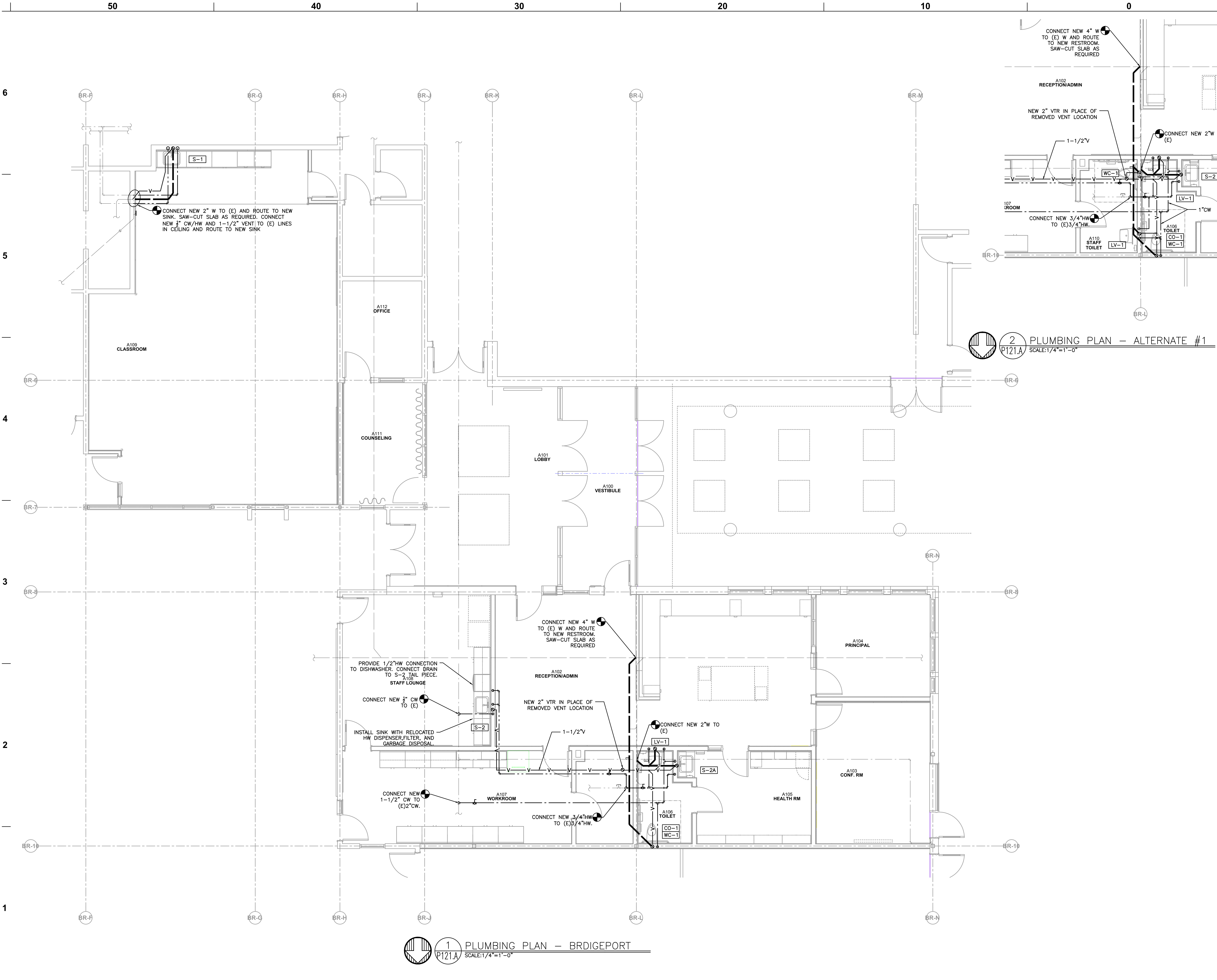
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1 PLUMBING PLAN – BRIDGEPORT
P121.A SCALE: 1/4" = 1'-0"

2 PLUMBING PLAN – ALTERNATE #1
P121.A SCALE: 1/4" = 1'-0"

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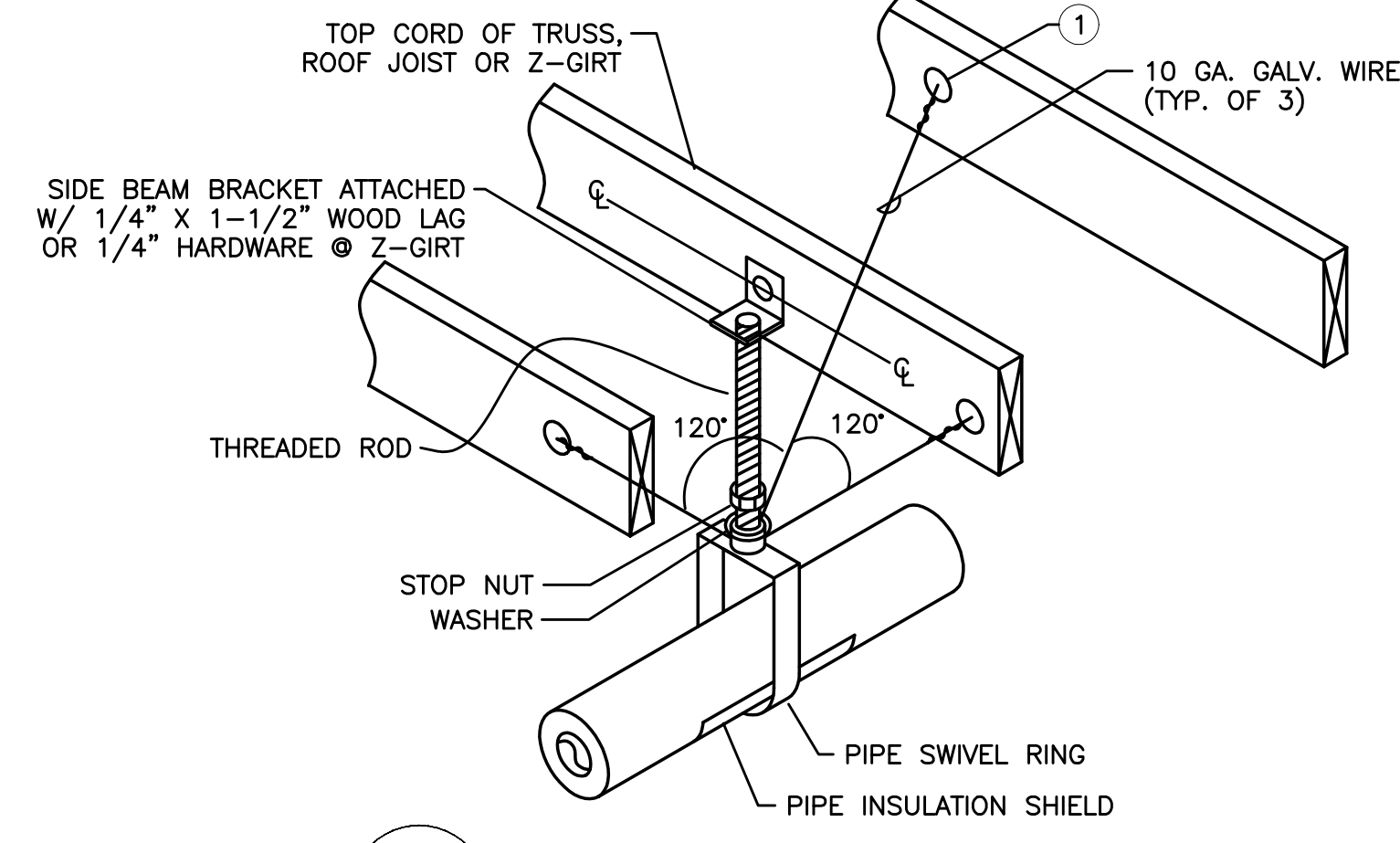
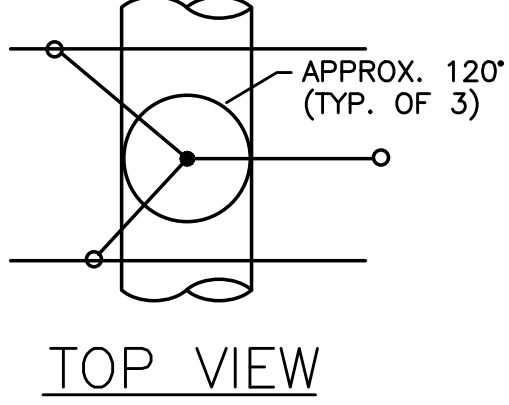
PLUMBING PLAN
BRIDGEPORT ES
P121.A

PLUMBING LEGEND			
AFF		ABOVE FINISHED FLOOR	— — — — — (CW) COLD WATER
ARCH	.....	ARCHITECTURAL	— — — — — (NPW) NON-POTABLE COLD WATER
B.G.	.....	BELOW GRADE	— — — — — (HW) HOT WATER
BTU	.....	BRITISH THERMAL UNIT	— — — — — (HWR) HOT WATER RECIRC
CAP.	.....	CAPACITY	— — — — — (W) ABOVE GRADE WASTE
C.I.	.....	CAST IRON	— — — — — (W) BELOW GRADE WASTE
COMP.	.....	COMPARTMENT	— V — V (V) VENT
CONT.	.....	CONTINUATION	— RD — (RD) RAIN DRAIN
CU.	.....	CUBIC	— — — — RD — (UG RD) UNDERGROUND RAIN DRAIN
DF	.....	DRINKING FOUNTAIN	— OD — (OD) OVERFLOW RAIN DRAIN
DI	.....	DEIONIZED (WATER)	— — — — — NEW WORK ENTITY
DIA.	.....	DIAMETER	— — — — — (D) DEMOLISH, (R) RELOCATE
ELEV.	.....	ELEVATION	— — — — — (E) EXISTING ENTITY
EW	.....	ELECTRIC WATER COOLER	— — — — — (CW) EXISTING COLD WATER
FD	.....	FLOOR DRAIN	— — — — — (HW) EXISTING HOT WATER
FDC	.....	FIRE DEPARTMENT CONNECTION	— — — — — (HWR) EXISTING HOT WATER RECIRC
FHC	.....	FIRE HOSE CABINET	— — — — — (W) EXISTING WASTE BELOW GRADE
F.F.	.....	FINISH FLOOR	— V — V (V) EXISTING VENT
FLG.	.....	FLANGE	— RD — (RD) EXISTING RAIN DRAIN
FT	.....	FOOT / FEET	— — — — — BACKGROUND
G	.....	GAS	
GA.	.....	GAUGE	⚠..... PRESSURE/TEMP RELIEF VALVE
GALV.	.....	GALVANIZED	⚡..... BUTTERFLY VALVE
GPM	.....	GALLONS PER MINUTE	⚡..... GAS PRESSURE REGULATING VALVE
G.V.	.....	GATE VALVE	⚡ OR ⚡..... TOP CONNECTION
HP	.....	HORSEPOWER	⚡..... BOTTOM CONNECTION
HR.	.....	HOUR	⚡..... PIPE TURNED UP, PIPE TURNED DOWN
I.E.	.....	INVERT ELEVATION	⚡..... GATE VALVE
KW	.....	KILOWATT	⚡..... BALL VALVE
LAV	.....	LAVATORY	⚡..... BALANCING VALVE
LBS	.....	POUNDS	⚡..... CHECK VALVE
MAX.	.....	MAXIMUM	⚡..... UNION
MBH	.....	THOUSANDS OF BTUs PER HOUR	⚡..... DOUBLE CHECK ASSEMBLY
MIN.	.....	MINIMUM	
M.J.	.....	MECHANICAL JOINT	
N.I.M.	.....	NOT IN MECHANICAL	
OS&Y	.....	OUTSIDE STEM & YOKE	
PROT.	.....	PROTECTION	
PRV	.....	PRESSURE REDUCING VALVE	
PSI, PSIG	.....	POUNDS PER SQUARE INCH	
P/T	.....	PRESSURE / TEMPERATURE	
REQ'D	.....	REQUIRED	
RPBP	.....	REDUCED PRESSURE BACKFLOW PREVENTER	
RPM	.....	REVOLUTIONS PER MINUTE	
TYP.	.....	TYPICAL	
UR	.....	URINAL	
VTR	.....	VENT THROUGH ROOF	
WC	.....	WATER CLOSET	
	⬡	EQUIPMENT MARK NUMBER	
	⬡	FIXTURE MARK	
	(E)	EXISTING	
	#	NOTE	
	⊕	CONNECT TO EXISTING	
	T	CAP	
	⊥	TEE	
	⌒	ELBOW	
	⦿	CLEANOUT	

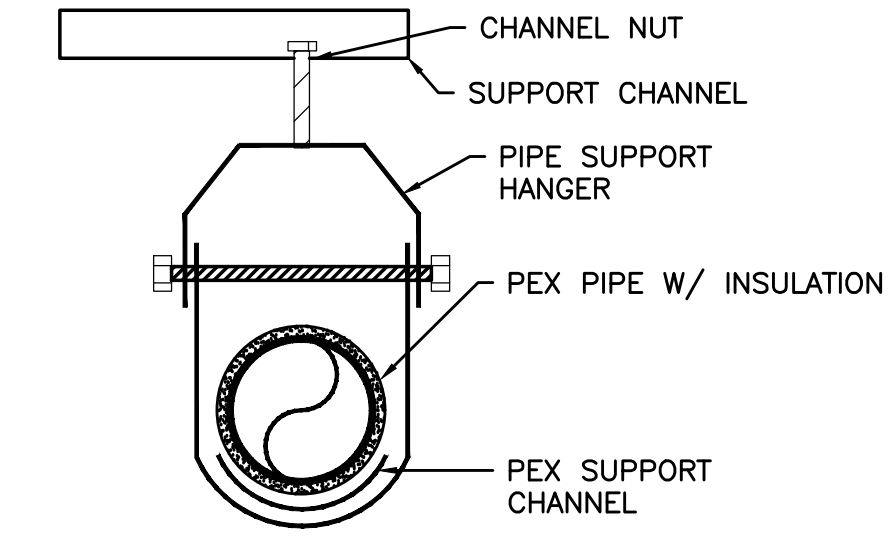
PLUMBING CONNECTION SCHEDULE						
MARK	FIXTURE	W	V	CW	HW	REMARKS
S-1	SINK — CLASSROOM	2"	1-1/2"	1/2"	1/2"	1-COMP, W/ BUBBLER SEE NOTE 1
S-2	SINK — ADMIN	2"	1-1/2"	1/2"	1/2"	1-COMP, SEE NOTES 1 & 2
S-2 A	SINK — HEALTH	2"	1-1/2"	1/2"	1/2"	1-COMP, SEE NOTES 1
WC-1	WATER CLOSET	4"	2"	1"		FLOOR MOUNT, FLUSH VALVE
LV-1	LAVATORY	1-1/2"	1-1/2"	1/2"	1/2"	WALL MOUNT

NOTES:
1: PROVIDE FAUCET RE-INFORCEMENT PER DETAIL 4/P6.01.
2: INSTALL SINK WITH RELOCATED HW DISPENSER, FILTER, AND GARBAGE DISPOSAL.

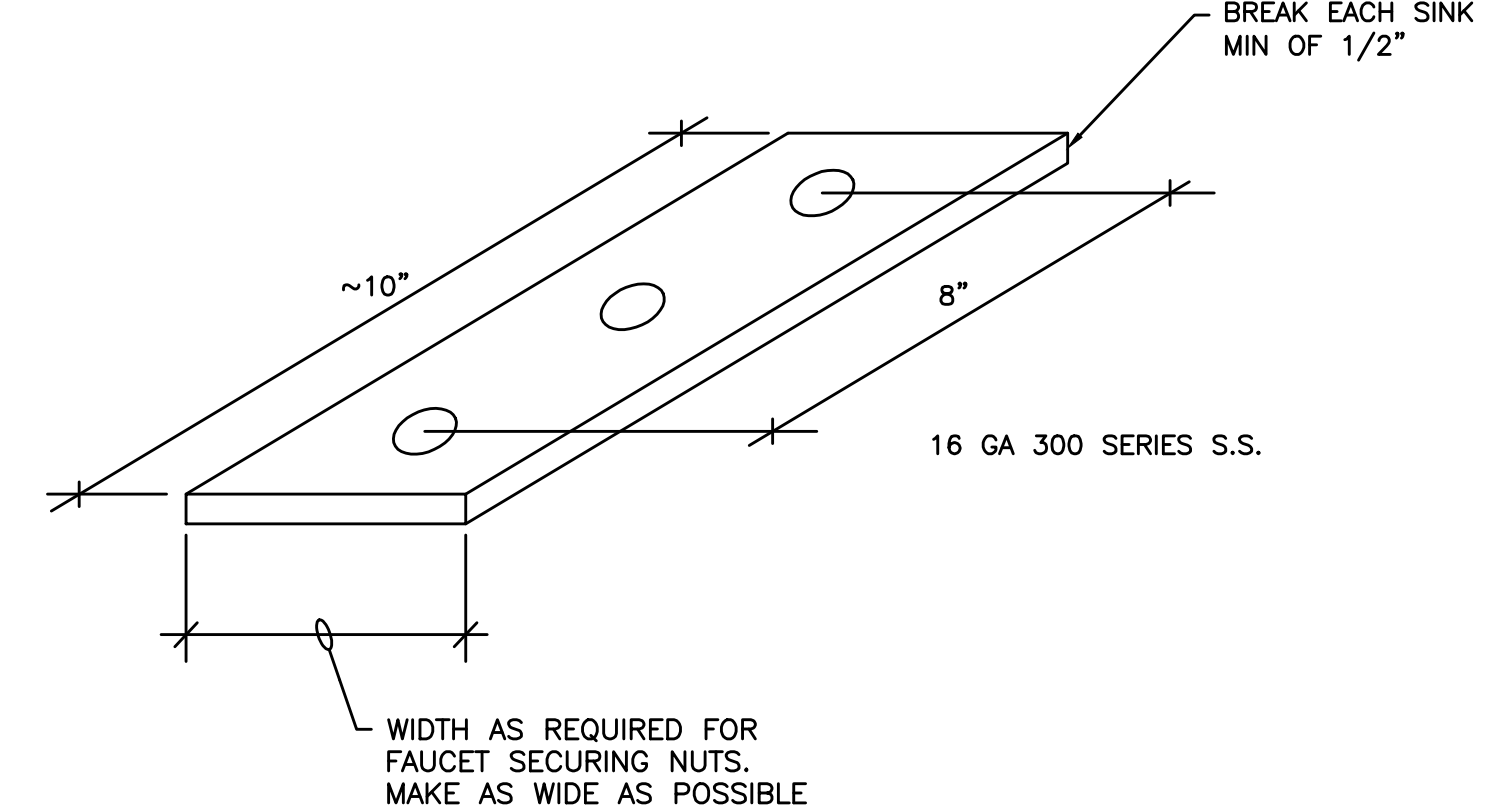
3/P601 NOTES
① — 1/4" GALV. THREADED EYE BOLT @ CENTER OF WOOD MEMBER (TYP. OF 3). FOR Z-GIRT USE MACHINE THREAD EYE BOLT W/ JAMB NUT & 1/4" WASHER @ EACH SIDE OF GIRT
* — MAXIMUM HANGER SPACING SHALL BE AS FOLLOWS:
1-1/4" AND SMALLER PIPE 7' SPAN
1-1/2" PIPE 9' SPAN



1 NON-SEISMIC PIPE SUPPORT
SCALE: DETAIL



3 PEX SUPPORT
SCALE: DETAIL



2 SINK REINFORCEMENT
SCALE: DETAIL

MAR K	DATE	DESCRIPTION
Issued:	03/06/2018	
Scale:	As Indicated	
Drawn By:	---	
Reviewed By:	---	
File:		

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PLUMBING LEGENDS AND SCHEDULES

P600.A

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