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Project Location
 HUB Vancouver
 SE Mill Plain & SE 177th
 Vancouver, WA

THESE DRAWINGS ARE FOR
 CONSTRUCTION BY
 JEAN-PIERRE VEILLET
 SITEWORKS, INC. ONLY

Date: 2016.06.07

Drawn By: Mark Denyer

Phase: PERMIT DOCUMENTS

Revisions:

Number	Description	Date
1	Permit Set	2016.06.17

Sheet Name
 Mechanical Floor Plan

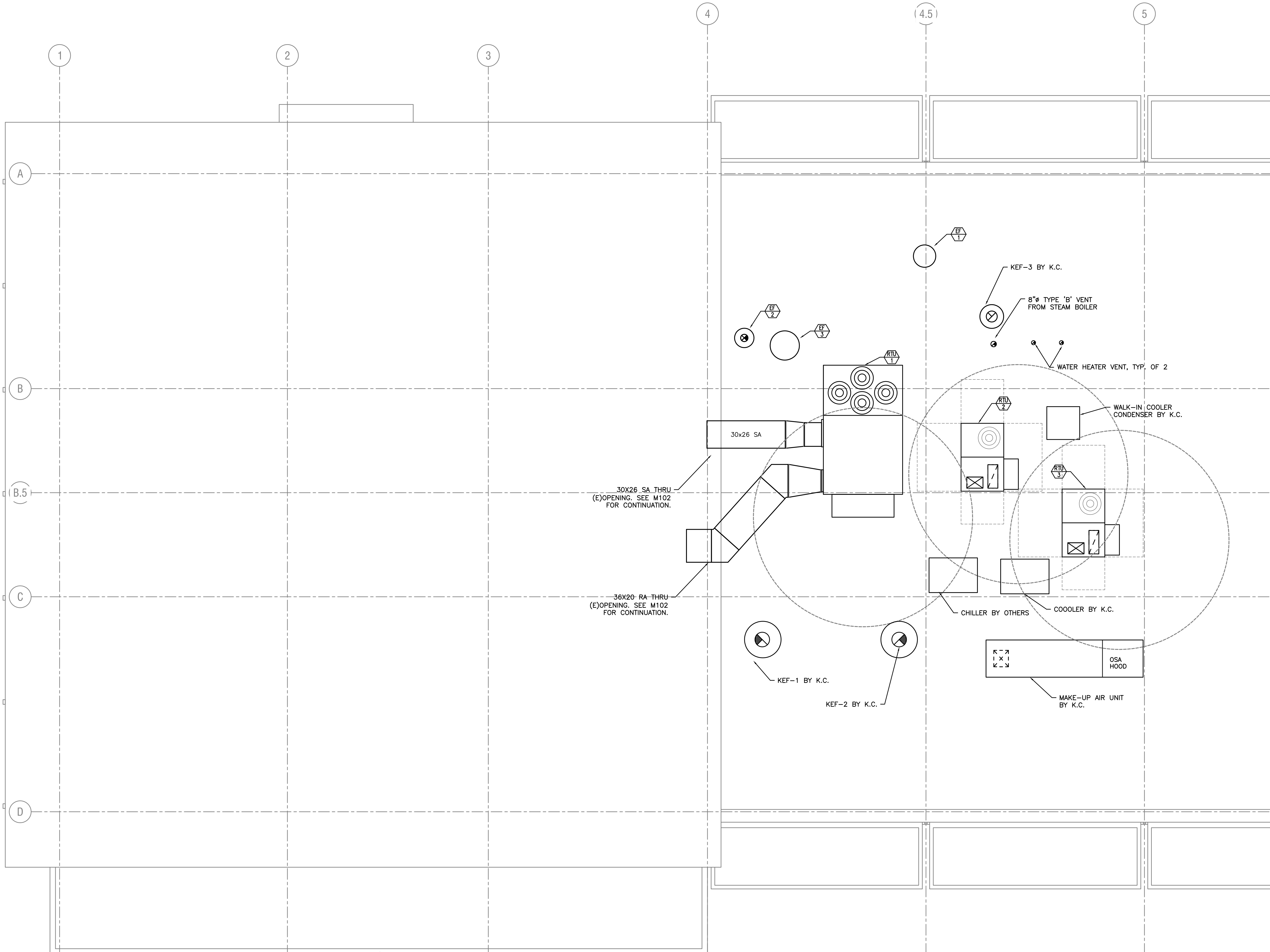
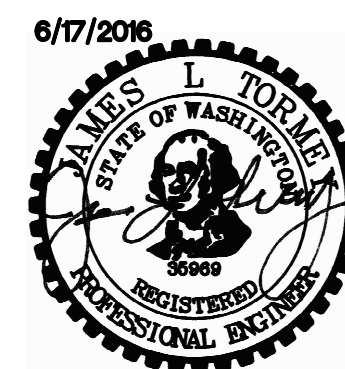
Sheet No.

M101

1 MECHANICAL FLOOR PLAN
 SCALE: 1/4" = 1'-0"

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 DESIGN | BUILD

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 Mechanical Roof Plan

Sheet No.

M103

1 MECHANICAL ROOF PLAN
 M103 SCALE: 1/4"=1'-0"



MECHANICAL LEGEND

	SUPPLY AIR DIFFUSER	AFF	ABOVE FINISH FLOOR
	RETURN AIR GRILLE	AHU	AIR HANDLING UNIT
	EXHAUST AIR GRILLE	B.D.	BOTTOM OF DUCT
	PERFORATED RETURN AIR PANEL	BHP	BRAKE HORSEPOWER
	DIRECTIONAL AIR FLOW	BTU	BRITISH THERMAL UNITS
	MANUAL VOLUME DAMPER	CFM	CUBIC FEET PER MINUTE
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	CONN.	CONNECTION
	RETURN AIR DUCT UP & DOWN	CONT.	CONTINUATION
	EXHAUST AIR DUCT UP & DOWN	CW	DOMESTIC COLD WATER
	VAV TERMINAL UNIT	DB	DRY BULB
	VVT TERMINAL UNIT	DIA.	DIAMETER
	EXISTING	DIST.	DISTRIBUTION
	CONNECT TO EXISTING	EA	EXHAUST AIR
	THERMOSTAT OR TEMP. SENSOR	EDB	ENTERING DRY BULB TEMPERATURE
	NOTE	EWB	ENTERING WET BULB TEMPERATURE
	EQUIPMENT DESIGNATOR	EWT	ENTERING WATER TEMPERATURE
	BALL VALVE	FF	FINISH FLOOR
	GATE VALVE	FIXT.	FIXTURE
	CHECK VALVE	FFM	FEET PER MINUTE
	BALANCING VALVE	FFS	FEET PER SECOND
	THERMOMETER	FT	FEET FOOT
	DIRECTION OF FLOW	GA.	GAUGE
	PUMP	GPM	GALLONS PER MINUTE
	STRAINER	H	HEIGHT
	PRESSURE GAUGE	HP	HORSEPOWER
	PETE'S PLUG	I.D.	INSIDE DIAMETER
	DOUBLE CHECK ASSEMBLY	IN.	INCHES
	PRESSURE REDUCING VALVE	L	LENGTH
	UNION	LBS.	POUNDS
	2-WAY CONTROL VALVE	LDB	LEAVING DRY BULB
	3-WAY CONTROL VALVE	LWB	LEAVING WET BULB
	CAP	LWT	LEAVING WATER TEMPERATURE
	SMOKE DETECTOR	MAX.	MAXIMUM
	MOTORIZED DAMPER	MBH	THOUSANDS OF BTUS PER HOUR
	SEISMIC BRACING	MIN.	MINIMUM
	LATERAL BRACING	NC	NOISE CRITERIA
	LONGITUDINAL BRACING	N.C.	NORMALLY CLOSED
	LONGITUDINAL & LATERAL BRACING	N.I.M.	NOT IN MECHANICAL
	NEW WORK	NO.	NUMBER
	HWS (HWS) HEATING WATER SUPPLY	N.O.	NORMALLY OPEN
	HWR (HWR) HEATING WATER RETURN	O.A.	OUTSIDE AIR
	FIRE DAMPER	P	PERSON
	FIRE / SMOKE DAMPER	PSI	POUNDS PER SQUARE INCH
	SMOKE DAMPER	P/T	PRESSURE / TEMPERATURE
	SEISMIC BRACING	R.A.	RETURN AIR
	LATERAL BRACING	RECT.	RECTANGULAR
	LONGITUDINAL BRACING	REQ'D	REQUIRED
	LONGITUDINAL & LATERAL BRACING	S.A.	SUPPLY AIR
	SEISMIC BRACING	S.P.	STATIC PRESSURE
	LATERAL BRACING	SQ.	SQUARE
	LONGITUDINAL BRACING	TEMP.	TEMPERATURE
	LONGITUDINAL & LATERAL BRACING	TYP.	TYPICAL
	SEISMIC BRACING	VAV	VARIABLE AIR VOLUME
	LATERAL BRACING	W	WIDTH
	LONGITUDINAL BRACING	WB	WET BULB
	LONGITUDINAL & LATERAL BRACING	WPD	WATER PRESSURE DROP
	SEISMIC BRACING	Ø	DIAMETER
	LATERAL BRACING	(E)	EXISTING
	LONGITUDINAL BRACING	(D)	DEMOLISH
	LONGITUDINAL & LATERAL BRACING	---	NEW WORK
	SEISMIC BRACING	HWS	(HWS) HEATING WATER SUPPLY
	LATERAL BRACING	HWR	(HWR) HEATING WATER RETURN
	LONGITUDINAL BRACING	▲	FIRE DAMPER
	LONGITUDINAL & LATERAL BRACING	■	FIRE / SMOKE DAMPER
	SEISMIC BRACING	⊙	SMOKE DAMPER
	LATERAL BRACING	▬	SEISMIC BRACING
	LONGITUDINAL BRACING	▬	LATERAL BRACING
	LONGITUDINAL & LATERAL BRACING	▬	LONGITUDINAL & LATERAL BRACING

PACKAGE RTU

MARK NUMBER	RTU 1	RTU 2	RTU 3
SYSTEM	DINING	BREWERY, ETC.	KITCHEN
TYPE	GAS PACK/DX CLG	GAS PACK/DX CLG	GAS PACK/DX CLG
TOTAL SA CFM	6000	1600	2000
MIN. CFM	2900	700	100
CO2 CONTROL/MIN OSA	300	700	-
FAN BHP	5.90 BHP	0.92 BHP	1.44
ESP SP. (*H2O)	1.00	0.75	0.75
POWER EXHAUST	YES	YES	NO
FILTER SIZE	TO FIT UNIT	TO FIT UNIT	TO FIT UNIT
FILTER TYPE - SUPPLY	2"- 30%	2"- 30%	2"- 30%
GAS INPUT (HI/LO) (MBH)	310/248	115/82	115/63
2-STAGE	YES	YES	YES
EFFICIENCY	80 %	80%	80 %
TOTAL CLG. (TONS)	15	4	5.0
NET SENSIBLE CLG. (MBH)	137	39	50
ENT. EVAP AIR TEMP (DB/WB.)	80/64	80/64	80/64
LVG. EVAP AIR TEMP (DB/WB.)	55.9/54.7	56/54	56/54
AMBIENT AIR (°F)	95	95	95
SEER/EER	11.8 EER	16.40SEER	16.2 SEER
REFRIGERANT	410A	410A	410A
DESIGN WEIGHT (LBS.)	3200 LBS	850 LBS	1000
ECONOMIZER(0-100% OSA)	YES	YES	YES
SMOKE DETECTOR (RETURN/EXHAUST DUCT)	YES	NO	YES
ROOF CURB - VERTICAL DISCHARGE	YES	YES	YES
CO2 SENSOR/DCV CONTROL(IN RA DUCT, U.O.N.)	YES	YES	YES
BASIS OF DESIGN - CARRIER	48LCE017	48LCE005	48LCE006
NOTES	3,5,6	1,2,4,5,6	3,5,6

- NOTES:
- PROVIDE T-SENSOR IN RA DUCT FOR UNIT CONTROL.
 - PROVIDE NEW SPACE MOUNTED CO2 SENSOR AND DCV CONTROL. MODIFY (E)UNIT AS NECESSARY.
 - PROVIDE W/HIGH STATIC SUPPLY FAN.
 - ACTIVATE CO2 CONTROL WHEN ROOM CO2 EXCEEDS 1200 PPM.
 - PROVIDE UNIT WITH POWERED CONVENIENCE OUTLET.
 - HIGH LIMIT SHUT-OFF SETTING FOR ECONOMIZER TO BE WHEN OUTSIDE AIR TEMP IS GREATER THAN 75 DEGREE F.

EXHAUST FANS

MARK NUMBER	EF 1	EF 2	NOTE 1	EF 3	NOTE 2
TYPE	ROOF TOP DIRECT DRIVE	UPBLAST DIRECT DRIVE		ROOF TOP DIRECT DRIVE	
SYSTEM	RESTROOMS	GRAIN CRUSHER		KETTLE EXHAUST	
CFM	700	200		600	
TOTAL SP. (IN H2O)	0.50	0.375		0.375	
RPM	1695	1620		1545	
MOTOR WATTS/HP	1/4	1/10		1/10	
CONTROLLED BY	-	-		SPEED CONTROLLER	
INTERLOCK WITH	RTU-2	RTU-1		-	
FAN SPEED CONTROLLER	S.S. SPD CONTROL	NA		VARI-GREEN	
WHEEL TYPE	BI	BI		BI	
DAMPER	2-POSITION	NONE		2-POSITION	
ISOLATION	RIS	EXTERNAL		EXTERNAL	
DESIGN WEIGHT (LBS)	50	50		40	
MAX. SONES	11.5	4.2		7.5	
BASIS OF DESIGN:	GREENHECK G-098-A	GREENHECK CUE-070-VG		GREENHECK CUE-090-VG	

- NOTES:
- PROVIDE WITH EXPLOSION PROOF ENCLOSURE AND WIRING.
 - PROVIDE VARI-GREEN REMOTE SPEED CONTROLLER ON BREW DECK.

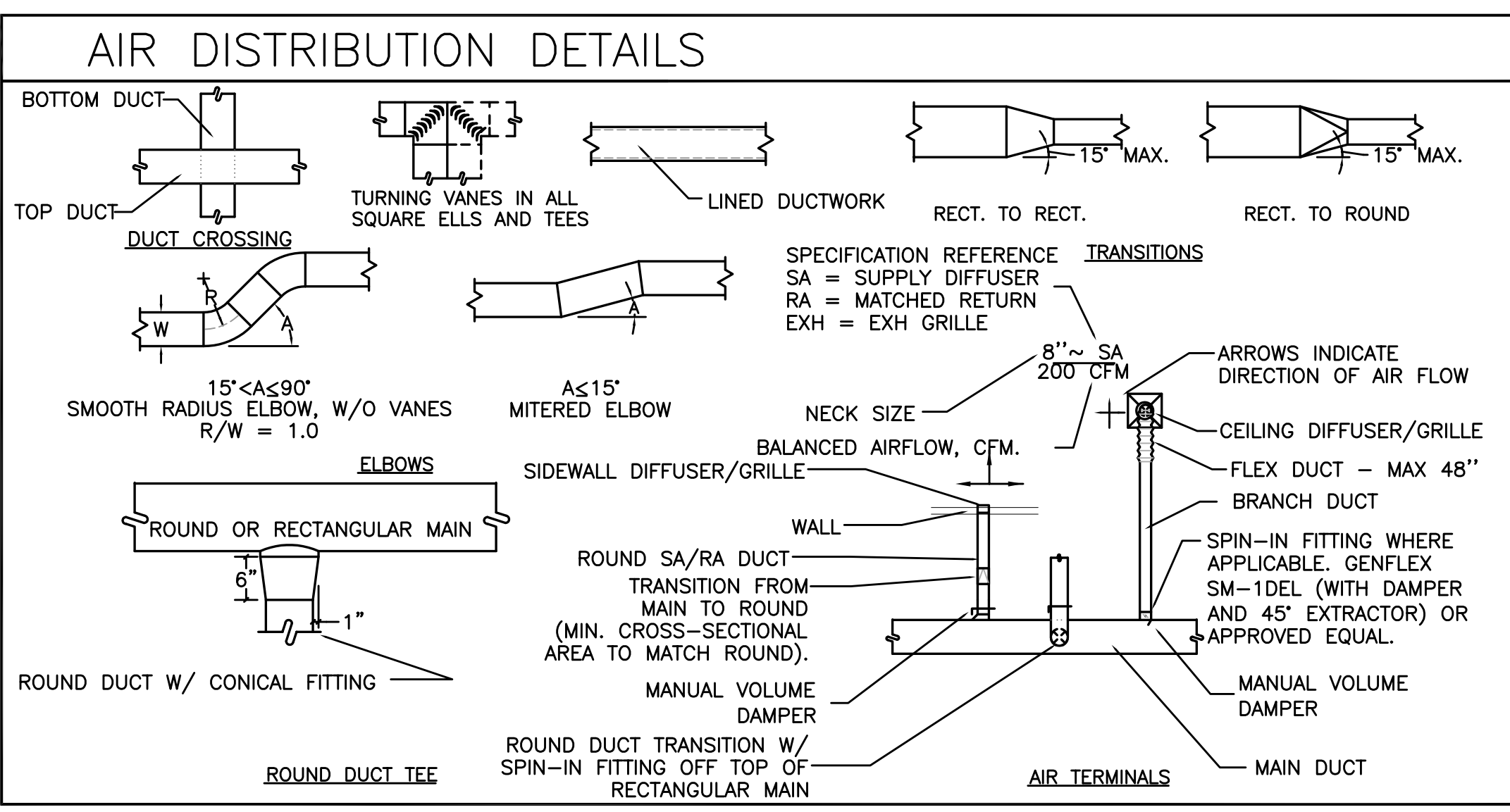
MECHANICAL AIR/WATER ECONOMIZER:
 ALL UNITS WITH AIRSIDE ECONOMIZER MUST BE CAPABLE OF AUTOMATICALLY MODULATING OSA DAMPER AND RA DAMPER TO PROVIDE 100 % OSA TO MINIMIZE NEED FOR MECHANICAL COOLING AND SHALL HAVE MEANS TO RELIEVE EXCESS AIR TO PREVENT OVERPRESSURIZING BUILDING, PER WA ENERGY CODE 1413.1.

MECHANICAL DUCTING SYSTEM AND INSULATION:
 MECHANICAL DUCTING SYSTEMS MUST MEET THE MECHANICAL DUCTING SYSTEM REQUIREMENTS PER WASHINGTON ENERGY STATE CODE, SECTION 1414. DUCT INSULATION AND PIPING INSULATION MUST MEET SECTION 1415 AND 1416. SEE SPECIFICATION 230700 FOR FURTHER DETAILS.

MECHANICAL SYSTEM COMMISSIONING AND COMPLETION REQUIREMENTS:
 MECHANICAL SYSTEMS MUST MEET THE MECHANICAL SYSTEM COMMISSIONING AND COMPLETION REQUIREMENTS PER WASHINGTON ENERGY STATE ENERGY CODE, SECTION 1416. SEE SPECIFICATION 230500, 230590, 230993, 230923 FOR FURTHER DETAILS.

MECHANICAL SYSTEM CONTROLS MUST MEET THE WASHINGTON ENERGY CODE SECTION 1412. SEE SPECIFICATION 230993 AND 230923 CONTROLS REQUIREMENT AND SEQUENCE OF OPERATION.

- THERMOSTATS SHALL BE INTERLOCKED TO PREVENT SIMULTANEOUS HEATING AND COOLING .
- SEE SPECIFICATION 15900 FOR SETBACK AND SHUT-OFF CONTROLS AND OPTIMUM START CONTROL.
- T-STAT SHALL BE CAPABLE OF A DEADBAND OF MINIMUM 5°F WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS SHUT OFF OR REDUCED TO A MINIMUM.
- HIGH LIMIT SHUT-OFF TEMPERATURE FOR ECONOMIZER CONTROL TO BE SET TO T(OUTSIDE AIR) > 75 DEGREEF, PER WASHINGTON ENERGY CODE.



VENTILATION AIR SCHEDULE - RTU1

ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/P)	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			
1ST FLOOR DINING	3130	70	220	7.5	0.18	2213	Ez	2213	0.50	4400	0	0.94	2342.86	RTU-1			
2ND FLOOR DINING	720	70	51	7.5	0.18	512	Ez	512	0.32	1600	0	1.13	542.05	RTU-1			
GRAIN	35	0	0	0	0.06	2	1.0	2	0.00	0	200	0.00	2.22	RTU-1			
VESTIBULE	65	0	0	0	0.06	4	1.0	4	0.04	0	0	1.41	4.13	RTU-1			
TOTAL	3130		220			2732		2732		6100	200	0.94	2343				
CORRECTED TOTAL OUTDOOR AIR FLOW RATE														2891 CFM	Corrected OSA Fraction	Zs =	0.38

VENTILATION AIR SCHEDULE - RTU2

ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/P)	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			
BREWERY	630	0	0	0	0.06	38	1.0	38	0.03	1200	0	1.00	37.91	RTU-4/EF-1			
MENS RR	150	0	0	0	0	0	1.0	0	0.00	0	300	1.03	0.00	RTU-3			
WOMENS RR	165	0	0	0	0	0	1.0	0	0.00	0	300	1.03	0.00	RTU-3			
EMPLOYEE'S RR	75	0	0	0	0	0	1.0	0	0.00	0	100	1.03	0.00	RTU-3			
OFFICE	46	5	1	5	0.06	8	1.0	8	0.08	0	0	0.95	7.78	RTU-3			
TOTAL	1066		1			46		46		1600	700	1.00	46				
CORRECTED TOTAL OUTDOOR AIR FLOW RATE														700 CFM	Corrected OSA Fraction	Zs =	0.03

VENTILATION AIR SCHEDULE - RTU3

ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/P)	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			
KITCHEN	1220	1000	1220	5	0.08	98	Ez	98	0.05	2000	0	1.00	97.60	RTU-3			
TOTAL	1220		1220			98		98		2000	2000	1.00	98				
CORRECTED TOTAL OUTDOOR AIR FLOW RATE														98 CFM	Corrected OSA Fraction	Zs =	0.05

*EXHAUST REQUIREMENT (0.7 CFM/SQFT.) IS MET BY KITCHEN GREASE AND DISHWASHER EXHAUST FANS.

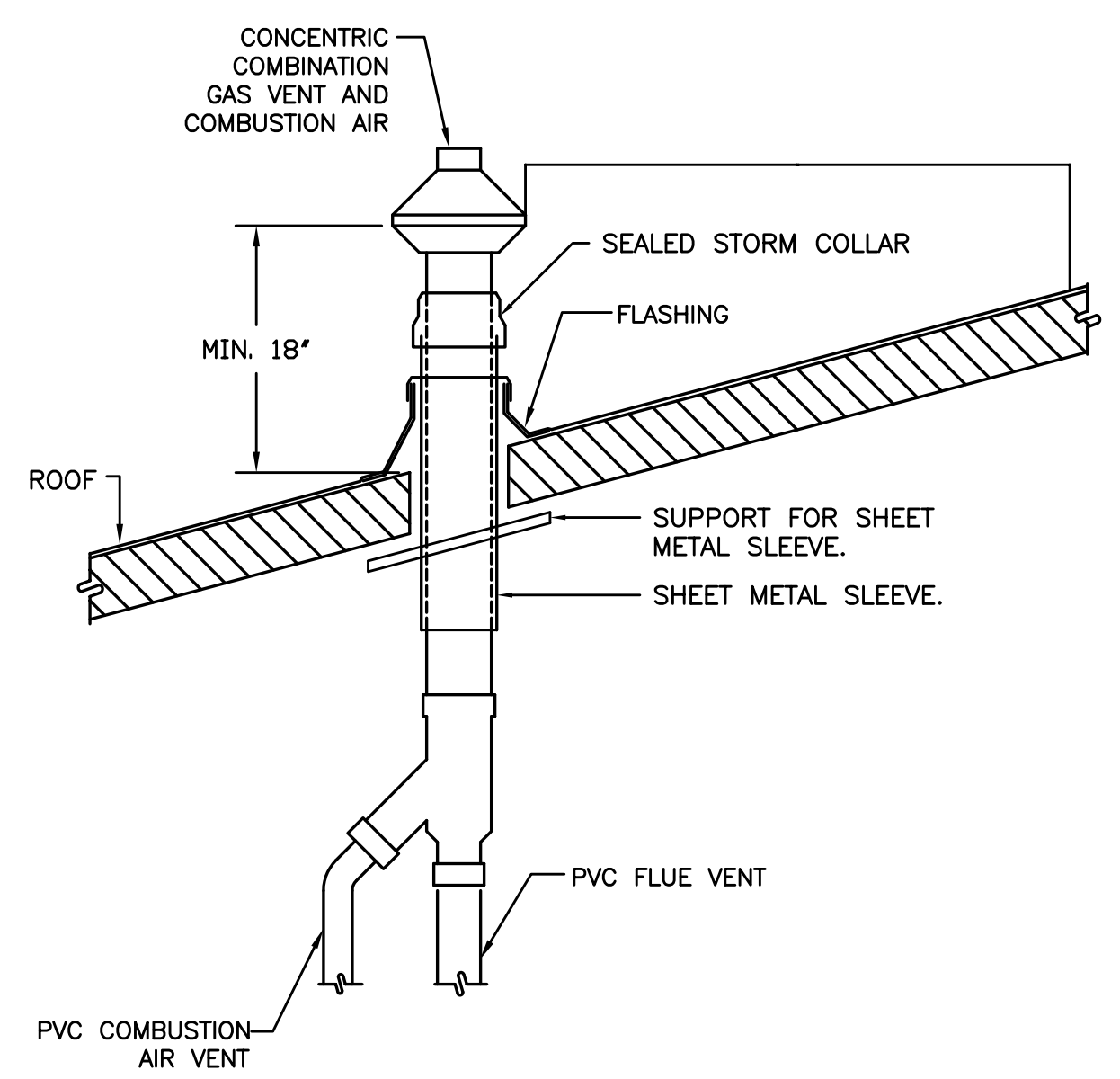
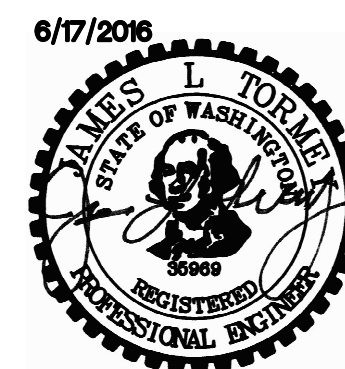
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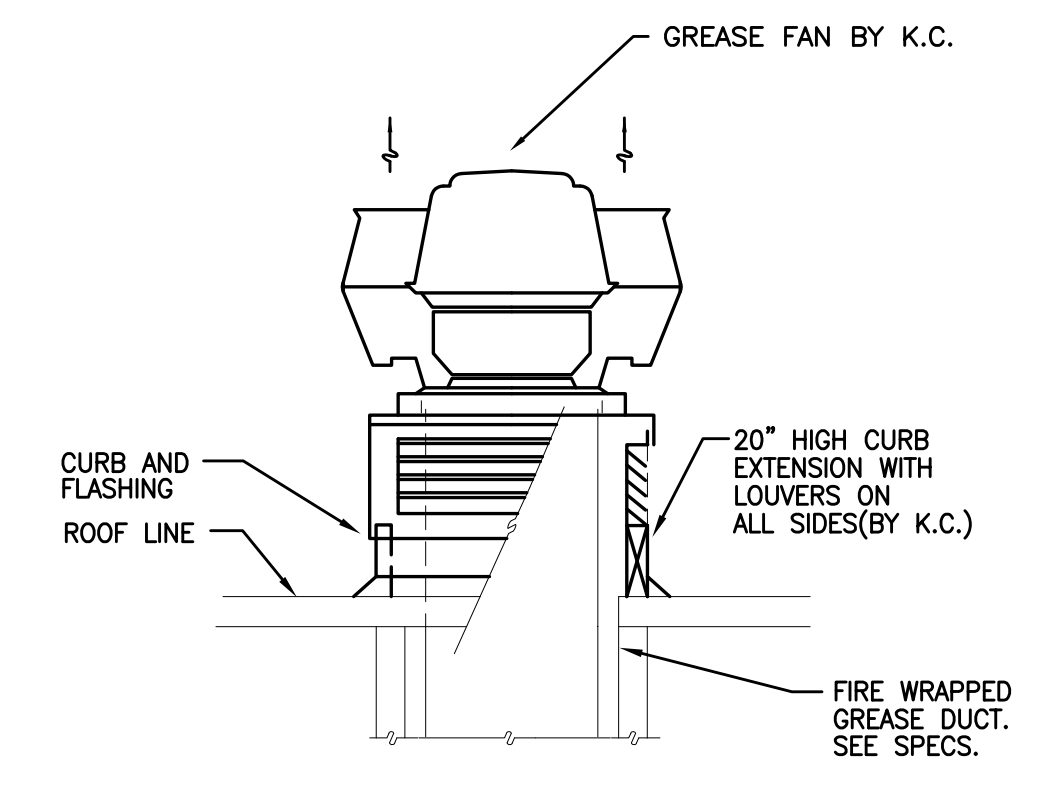
Sheet Name
 Mechanical Schedules and Legends

Sheet No.

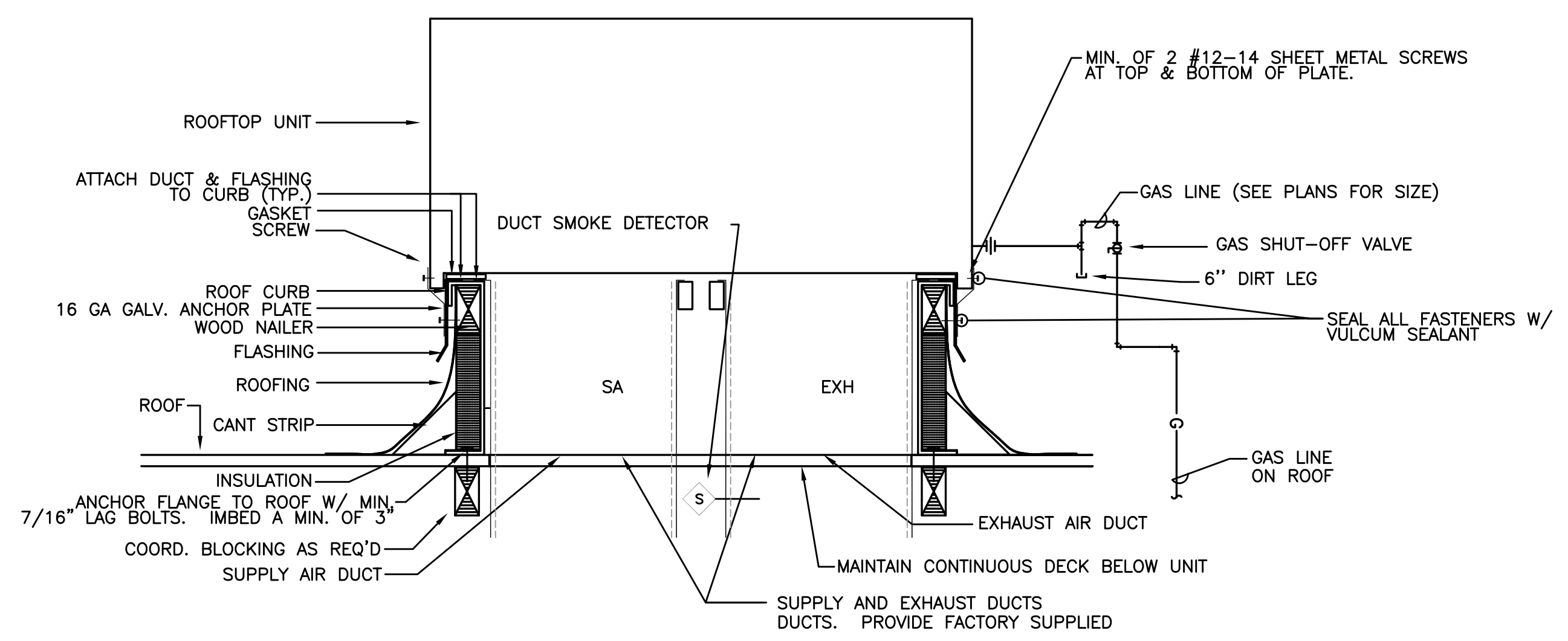
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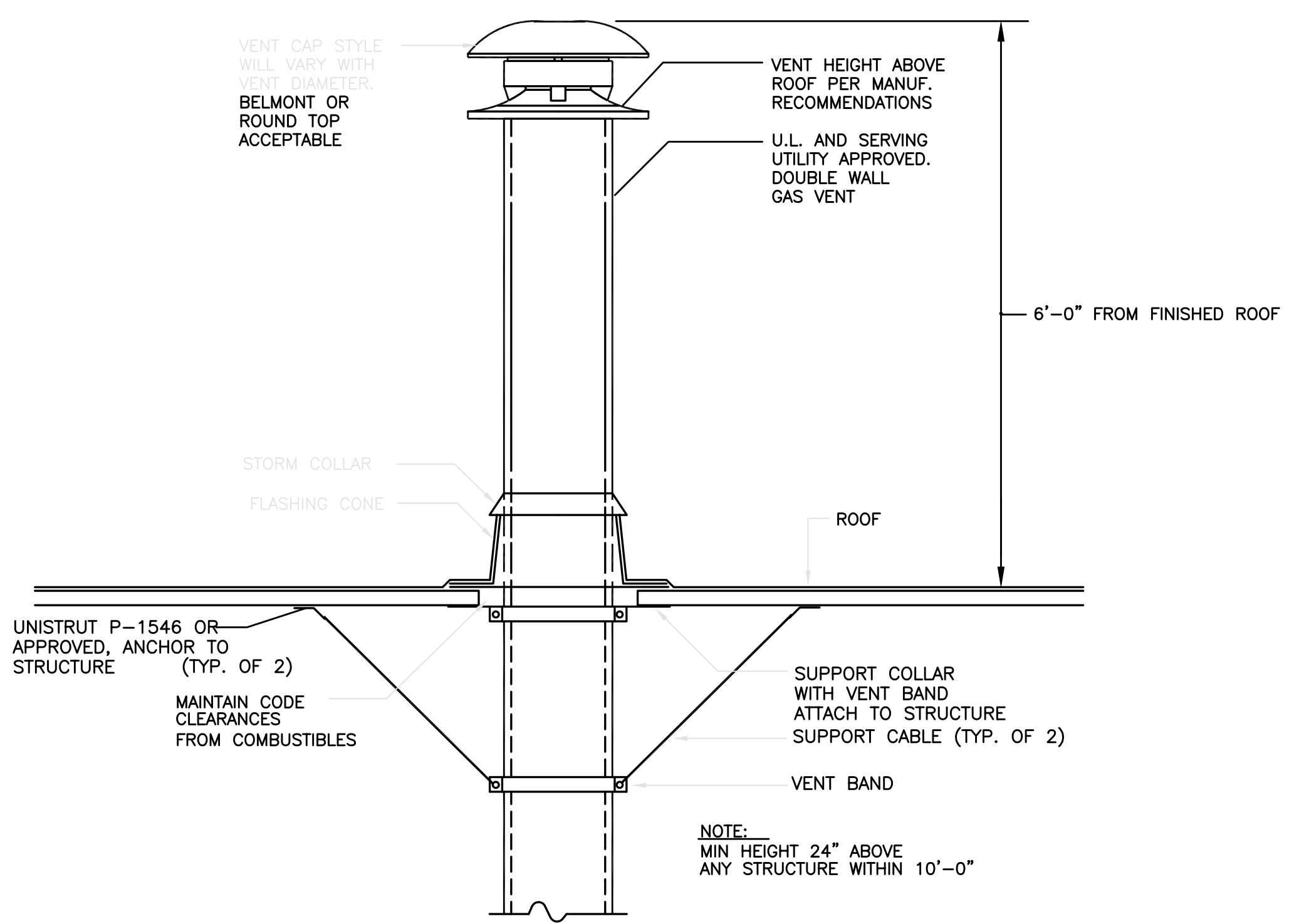
4 WATER HEATER CONCENTRIC FITTING
 M6.01 SCALE: DETAIL



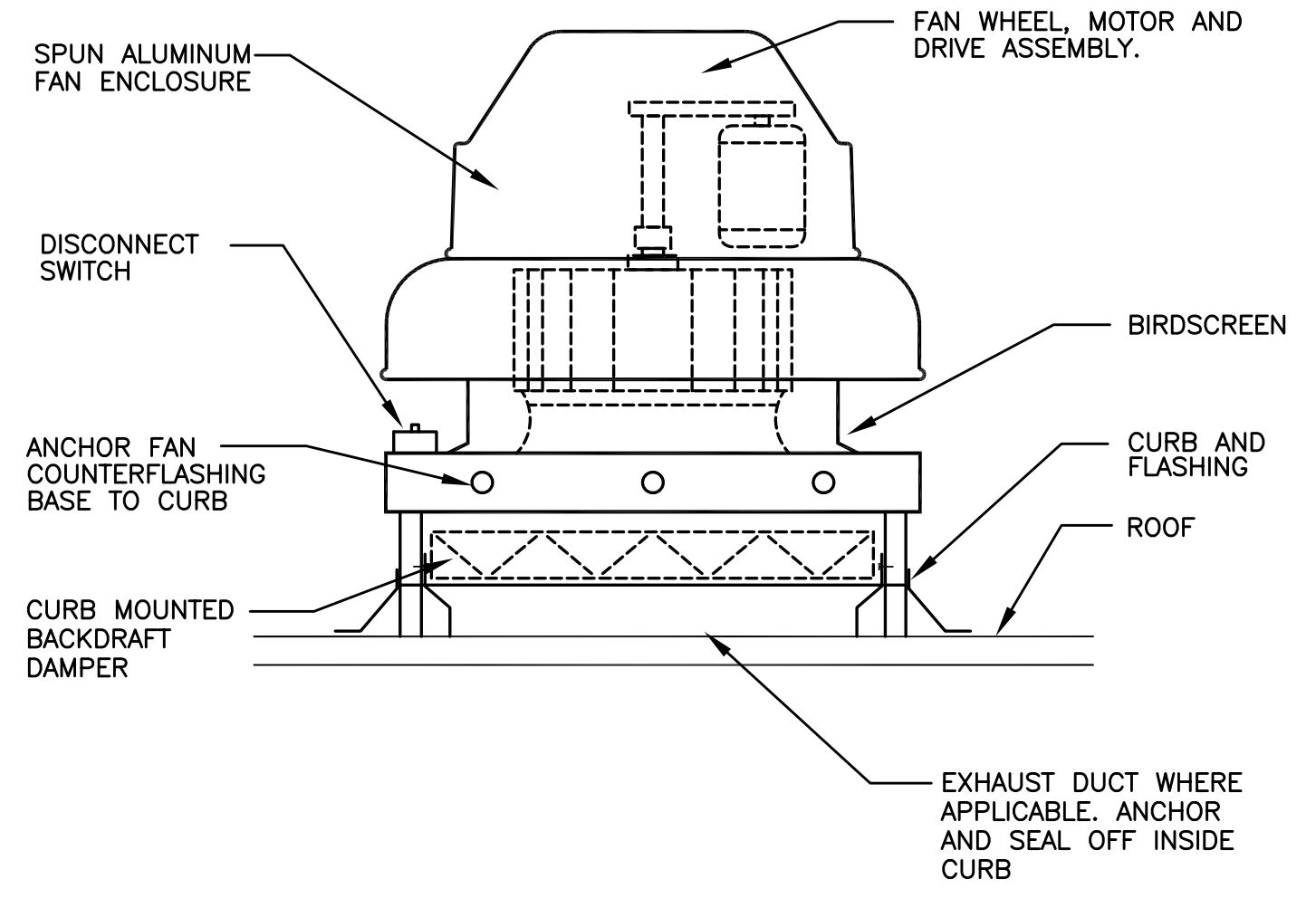
5 GREASE EXHAUST FAN
 M6.01 SCALE: DETAIL



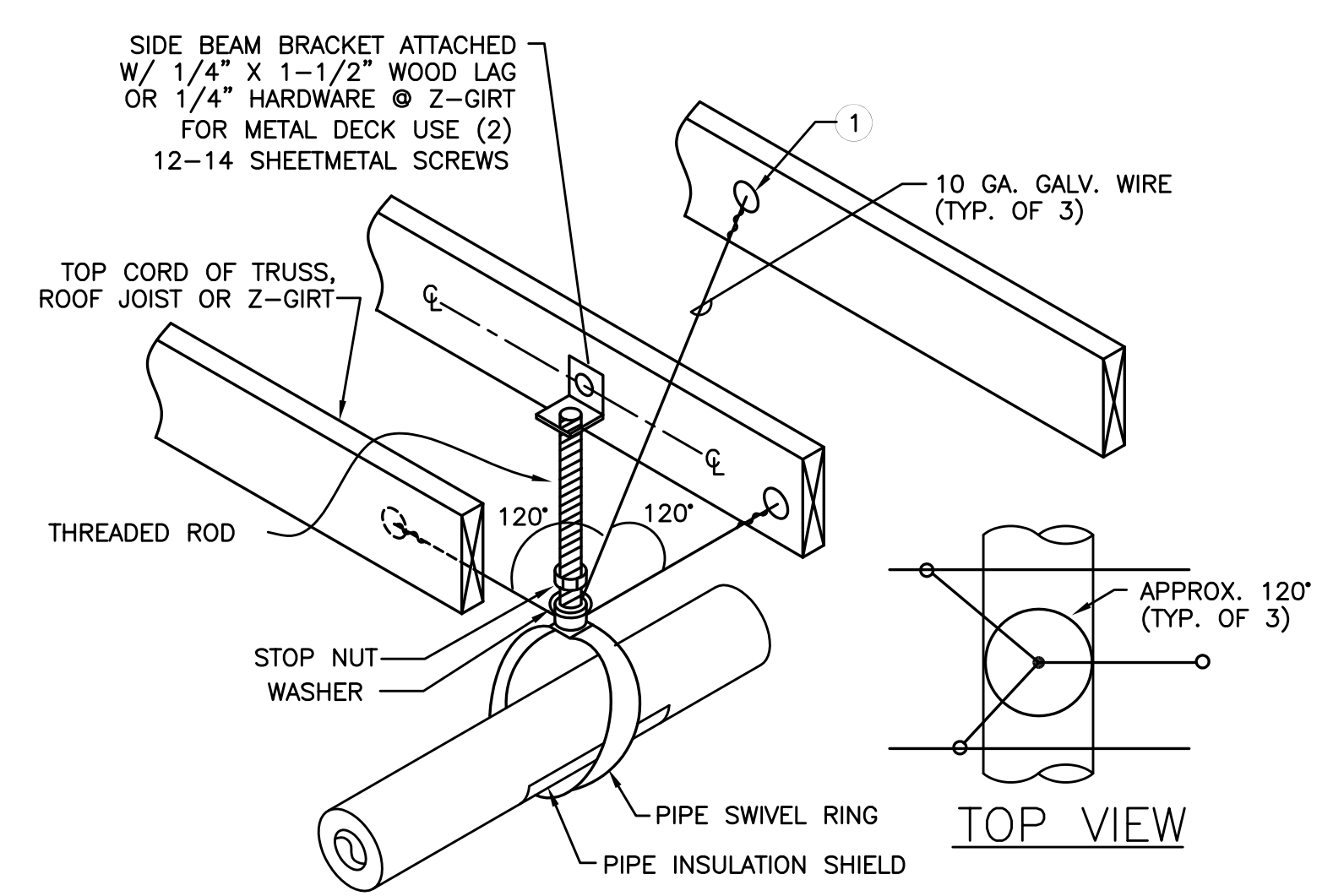
1 ROOF TOP UNIT DETAIL
 M6.02 SCALE: DETAIL



2 TYPE 'B' VENT TERMINATION
 M6.02 SCALE: DETAIL



4 EXHAUST FAN
 M6.02 DETAIL



3/M6.02 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

5 PIPE SUPPORT
 M6.02 SCALE: DETAIL

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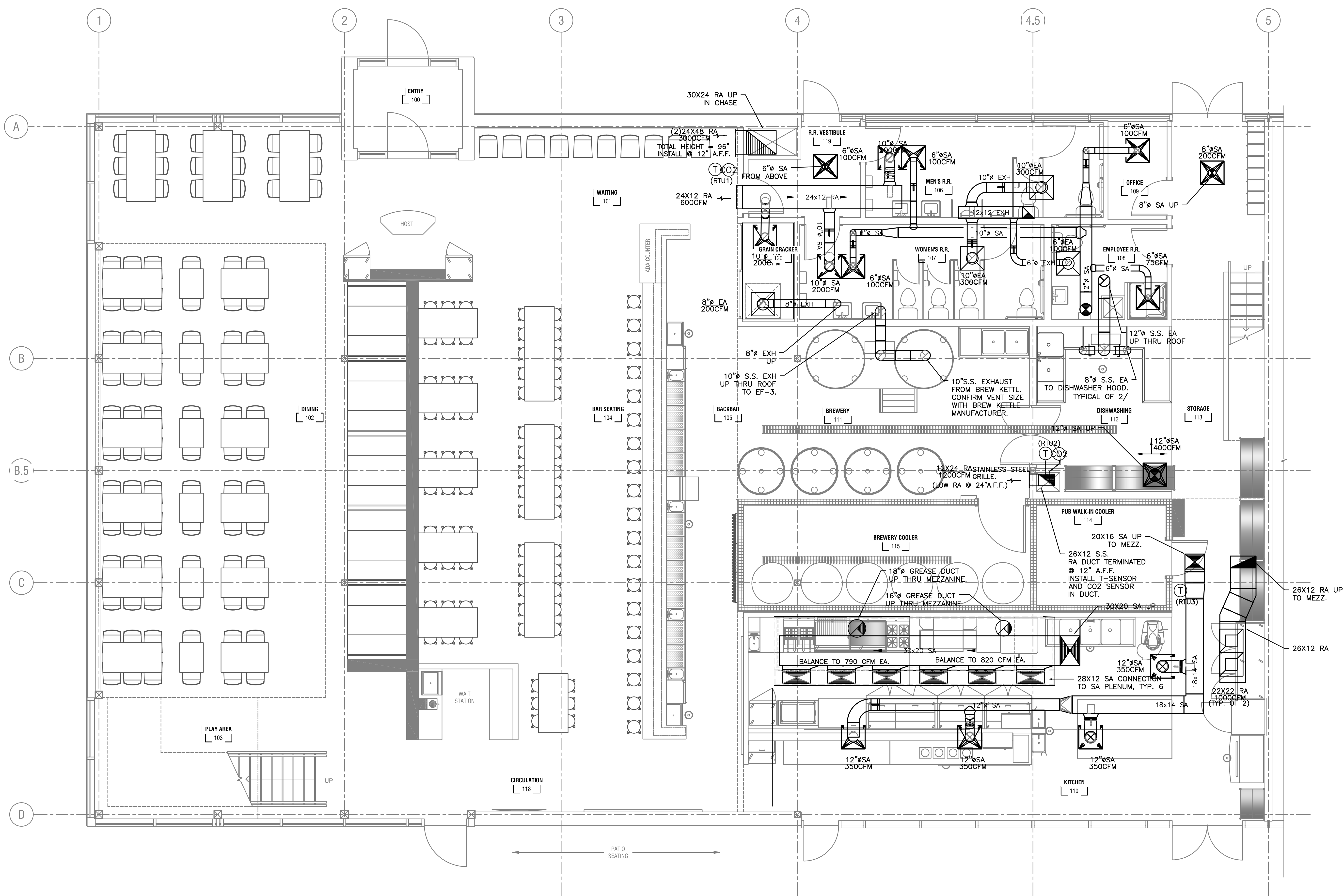
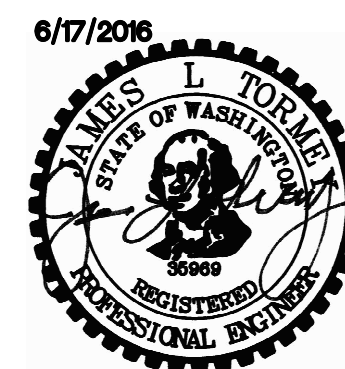
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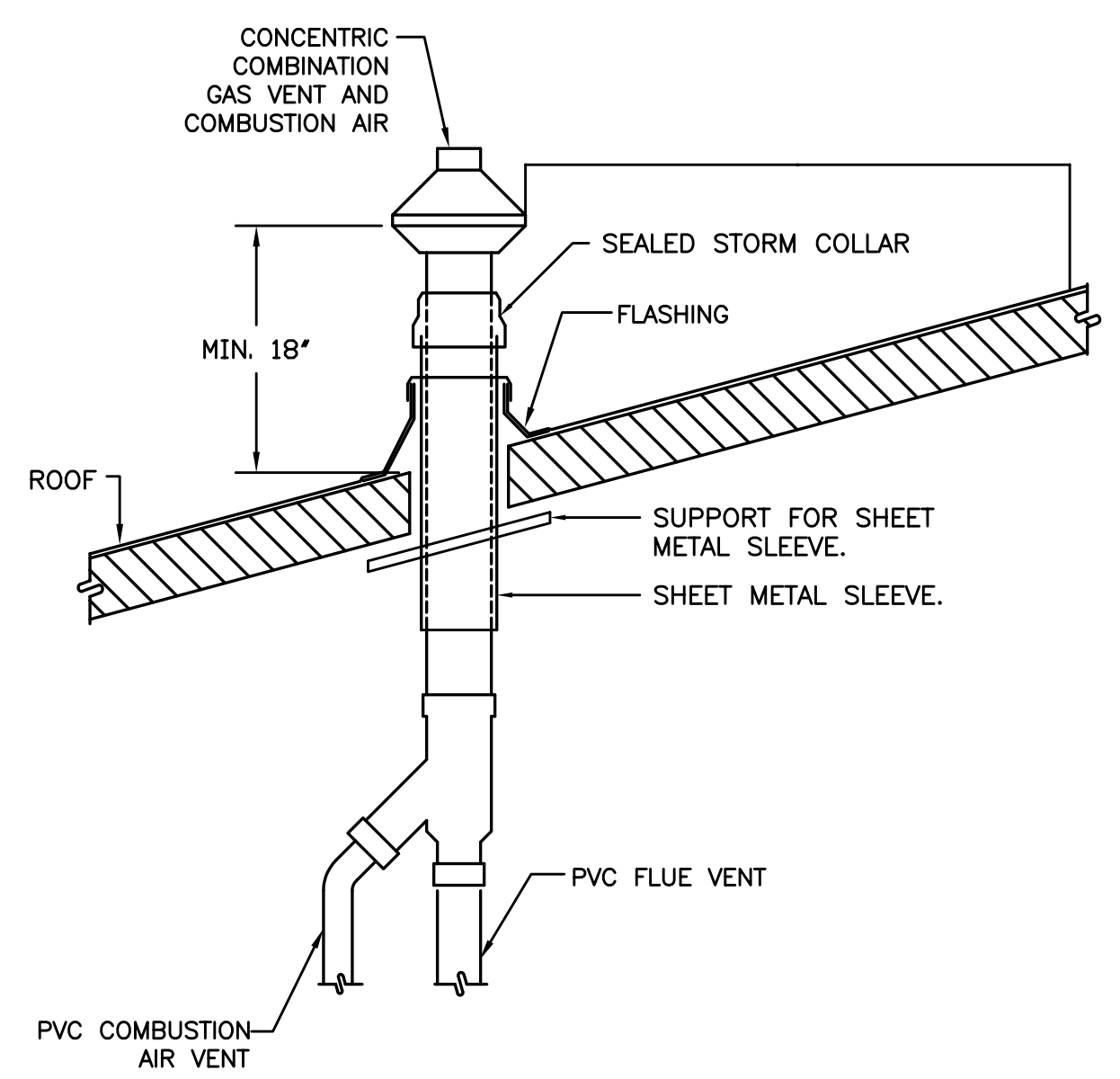
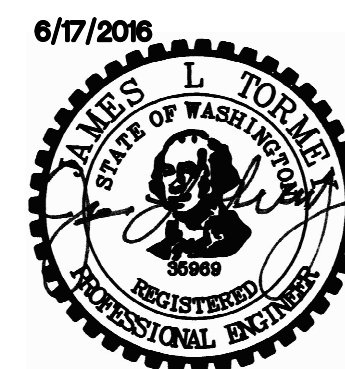
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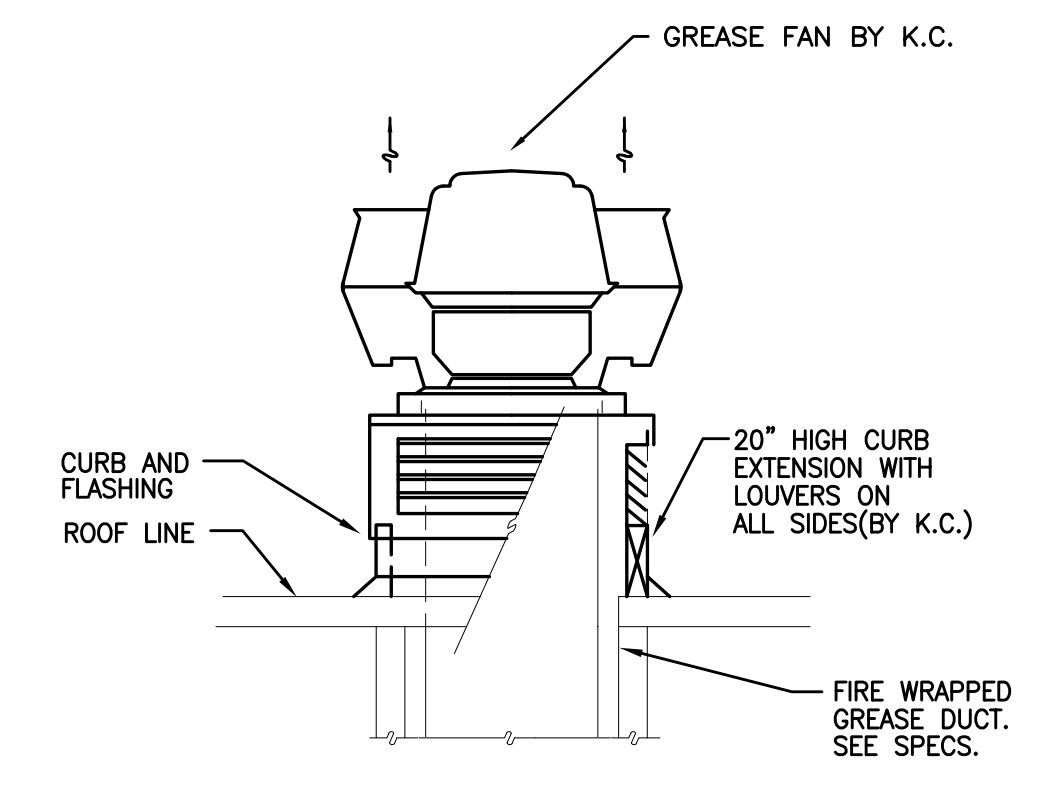
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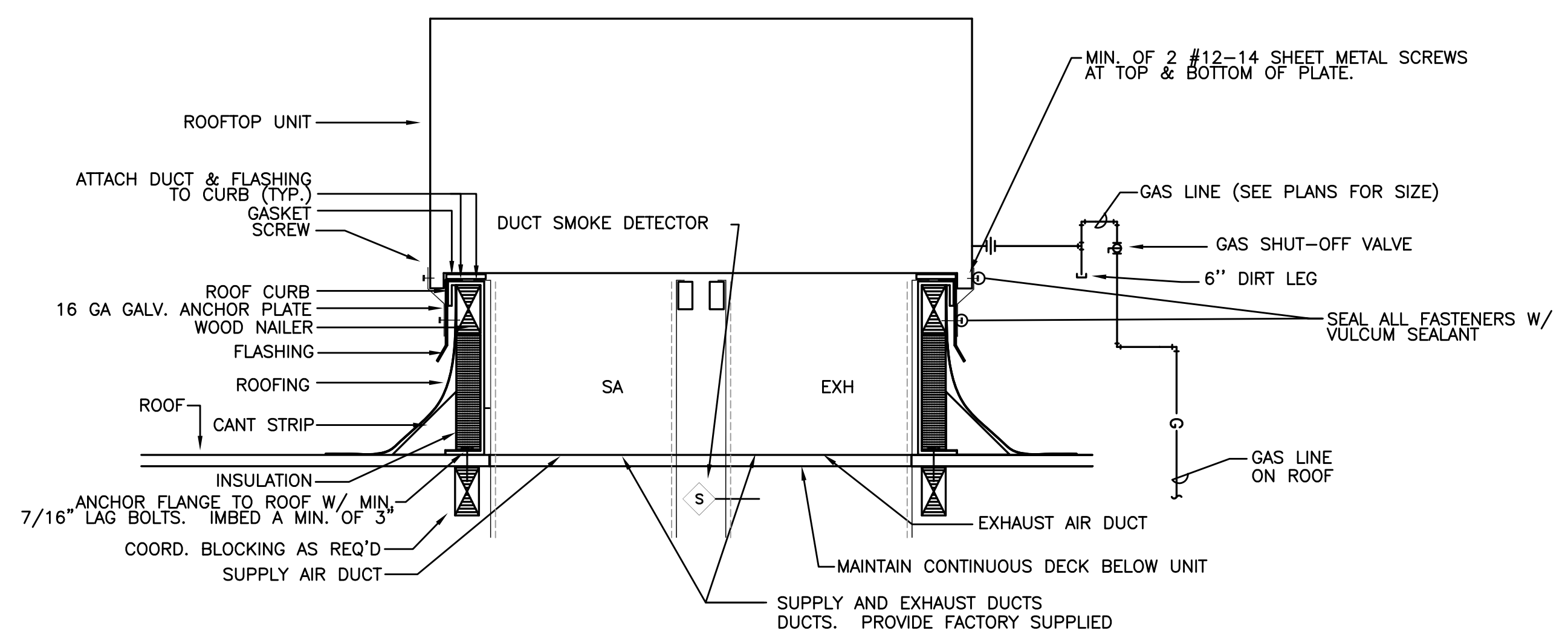
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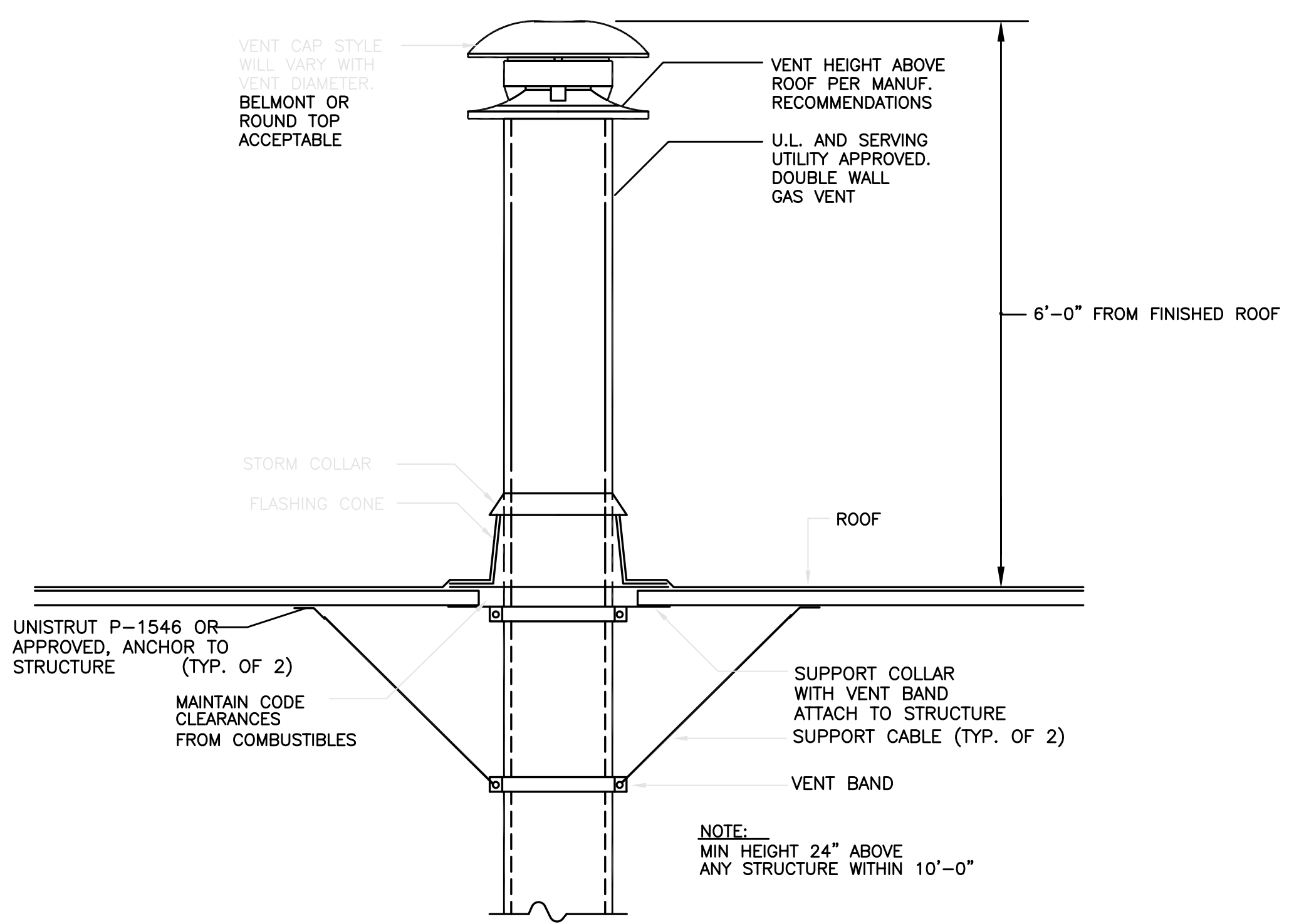
4 WATER HEATER CONCENTRIC FITTING
M6.01 SCALE: DETAIL



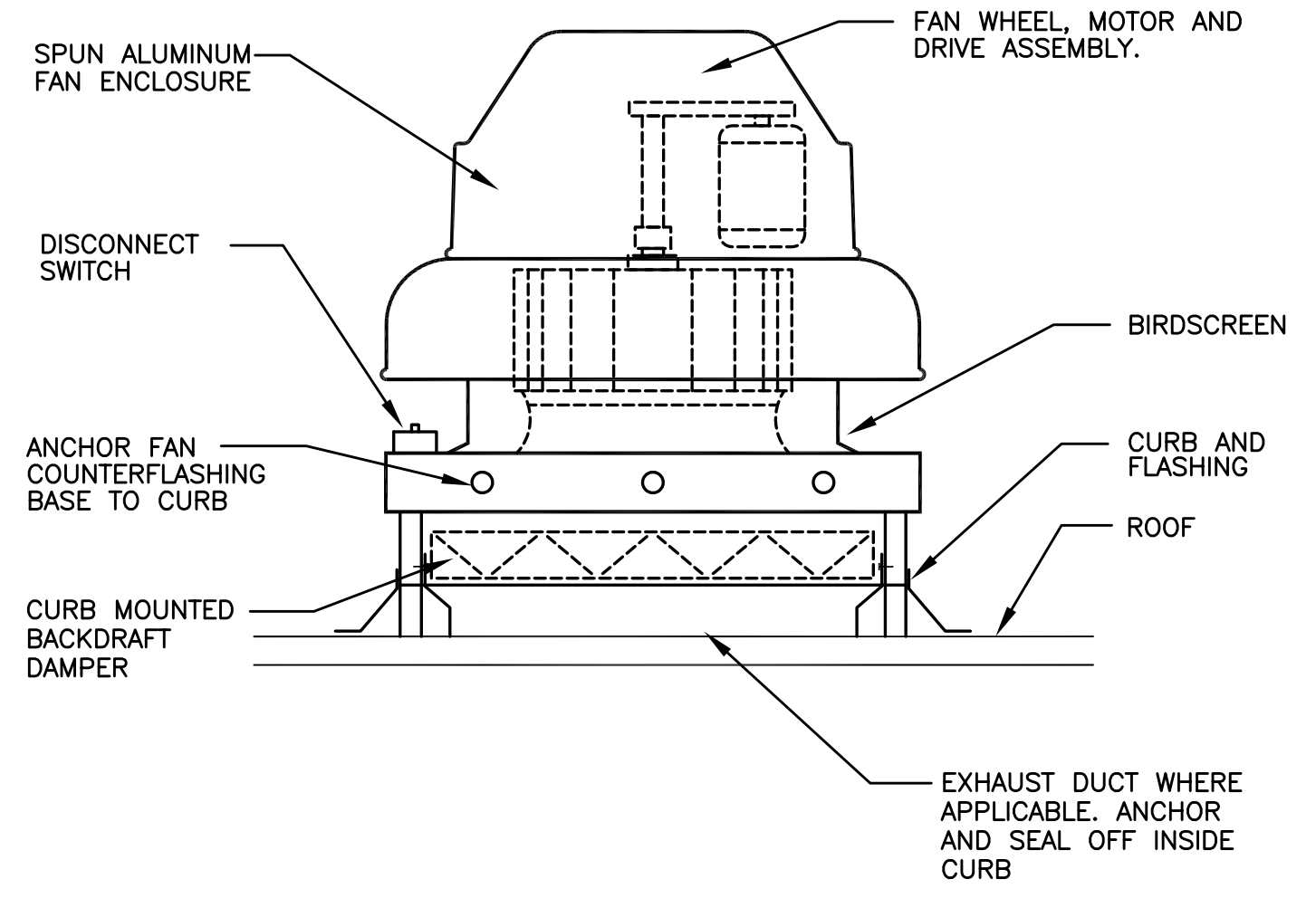
5 GREASE EXHAUST FAN
M6.01 SCALE: DETAIL



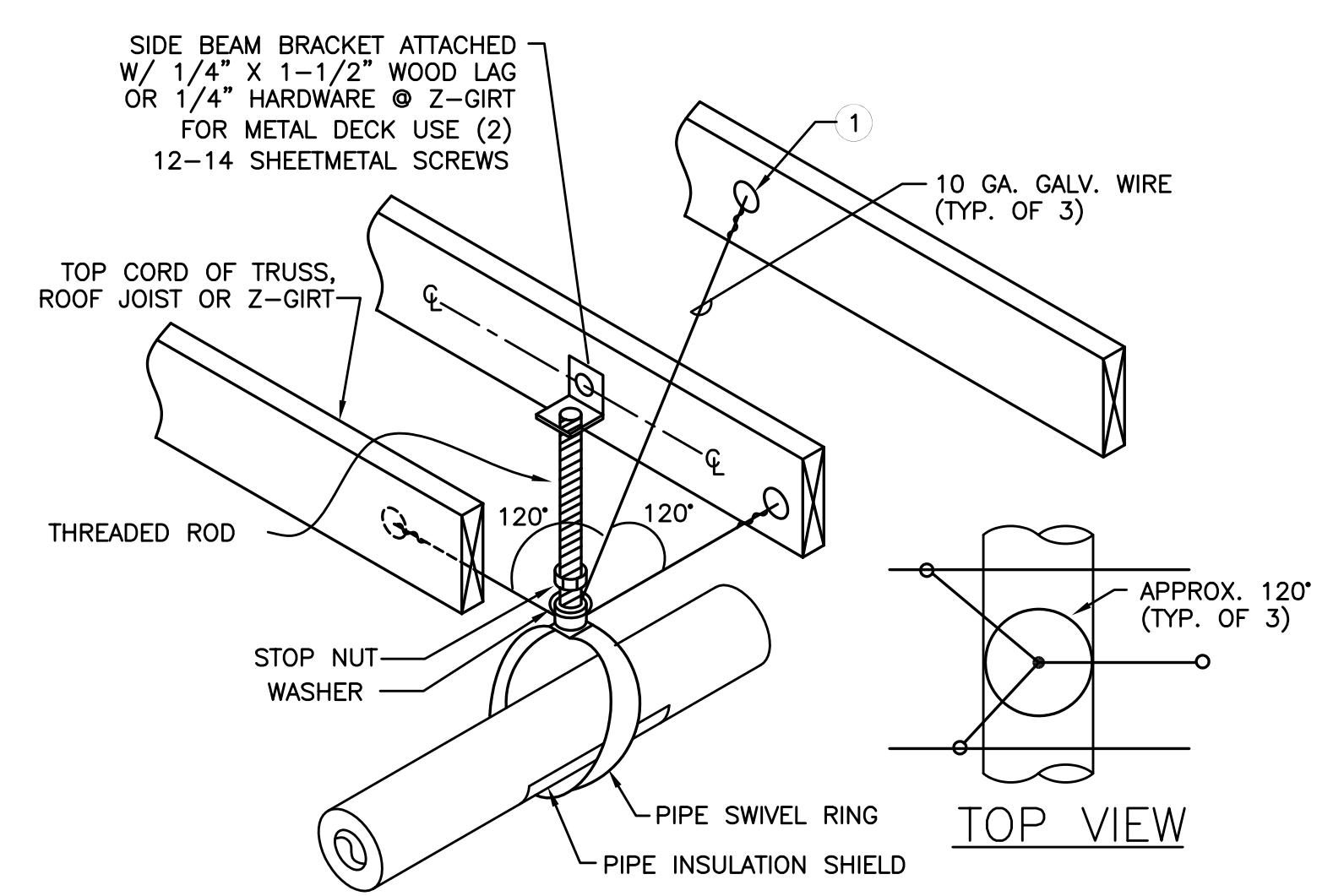
1 ROOF TOP UNIT DETAIL
M6.02 SCALE: DETAIL



2 TYPE 'B' VENT TERMINATION
M6.02 SCALE: DETAIL



4 EXHAUST FAN
M6.02 DETAIL



3/M6.02 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
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5 PIPE SUPPORT
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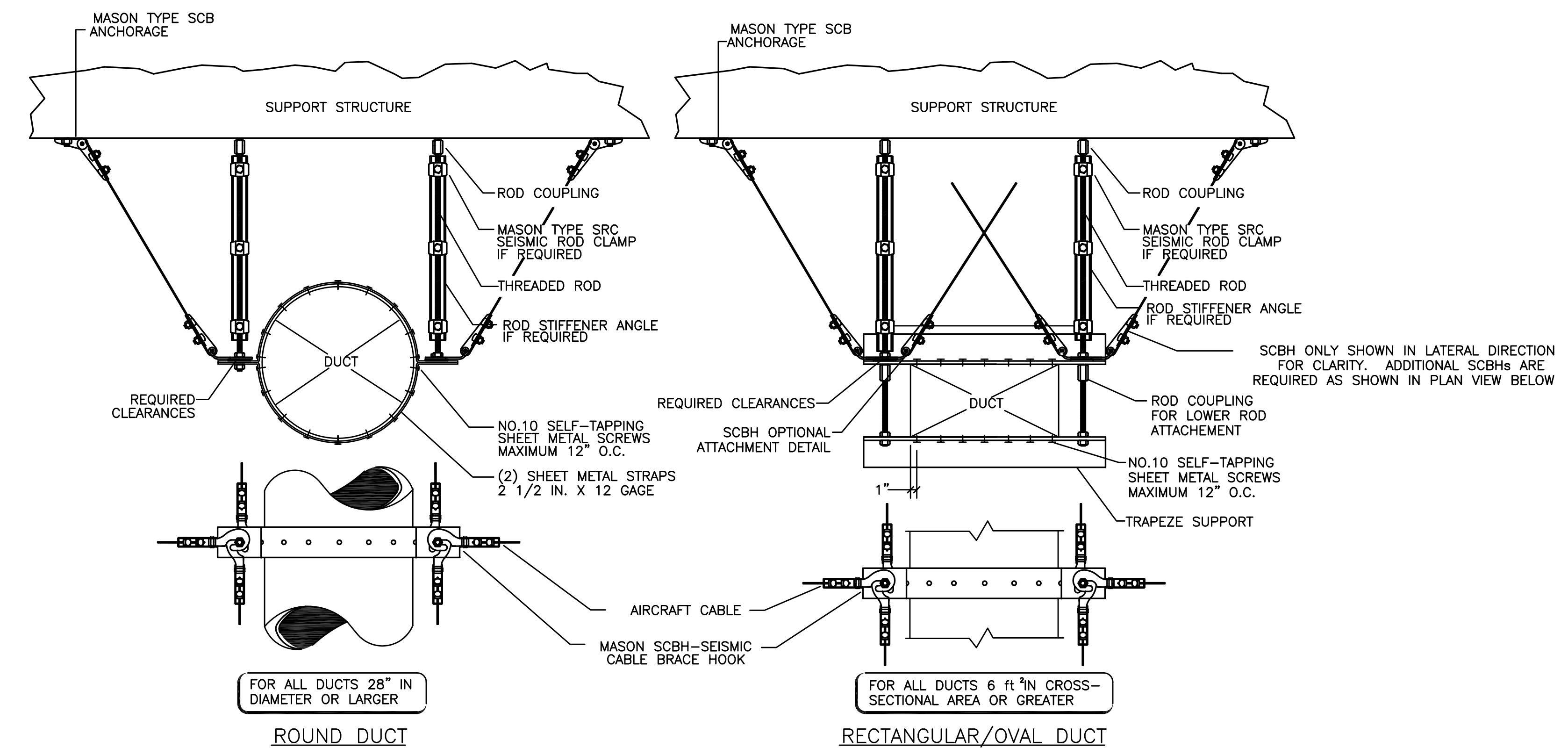
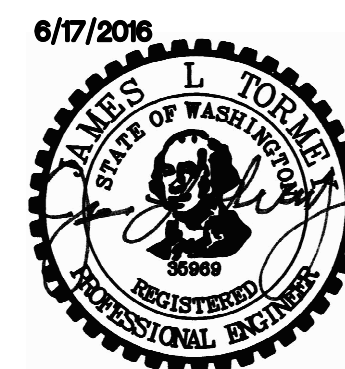
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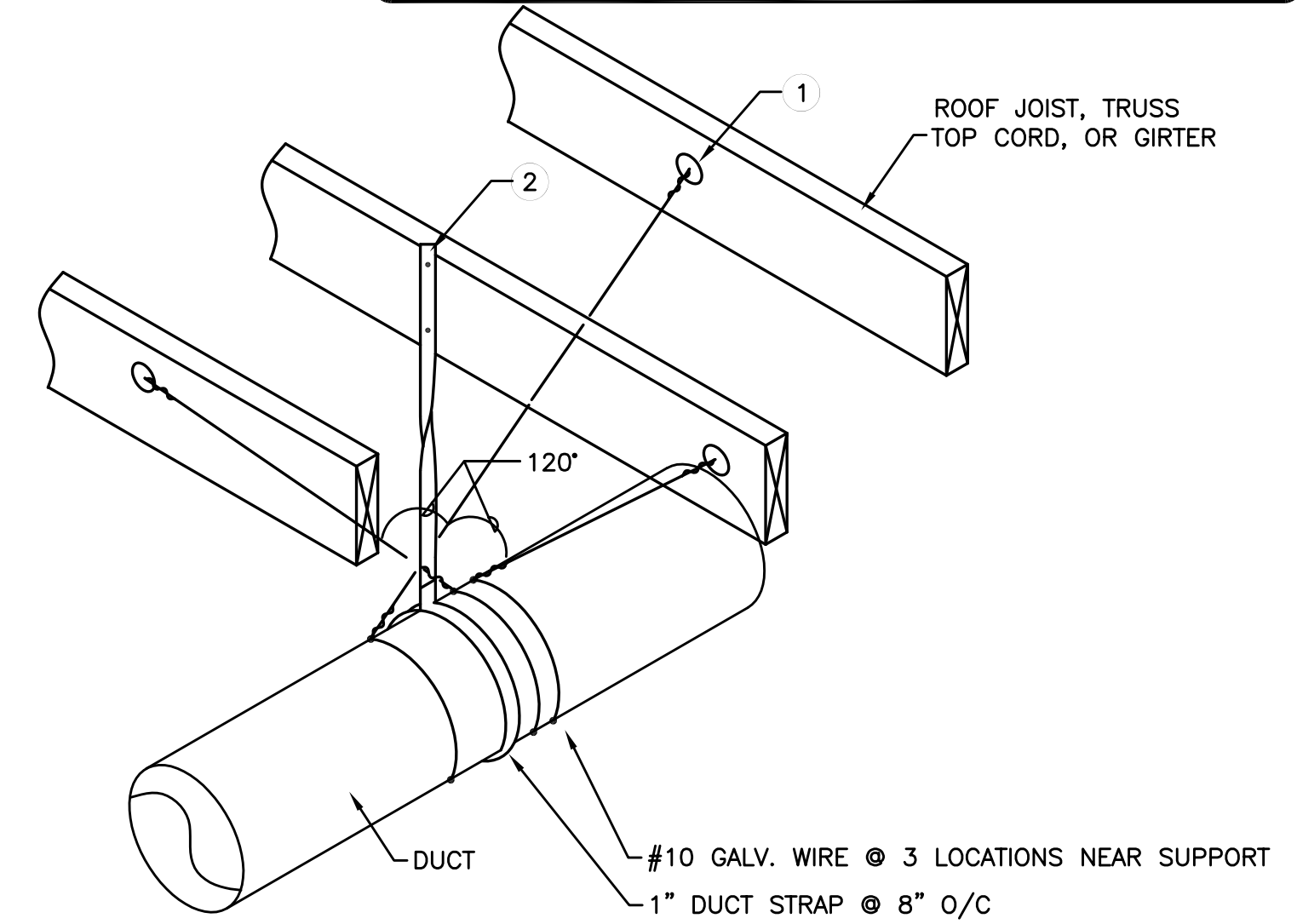
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M602



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

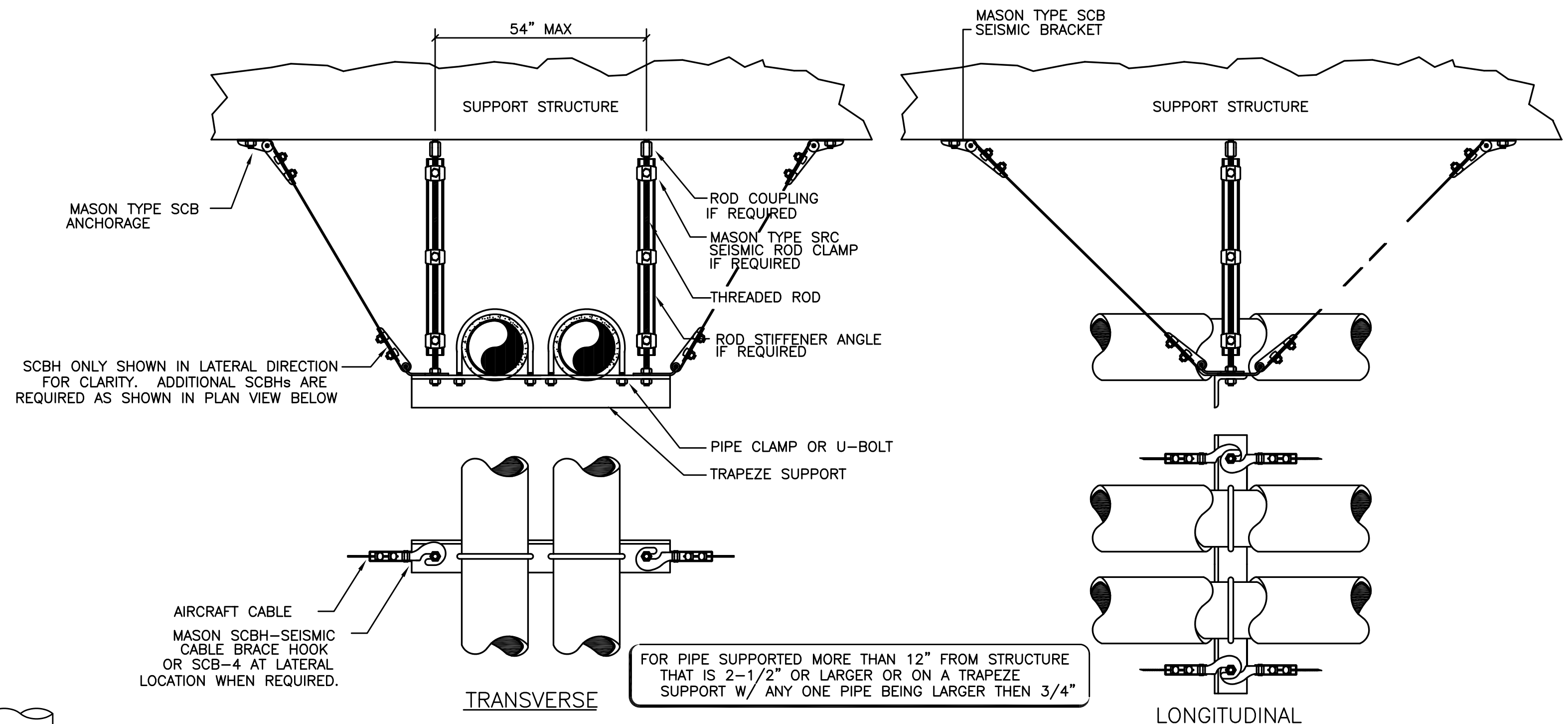
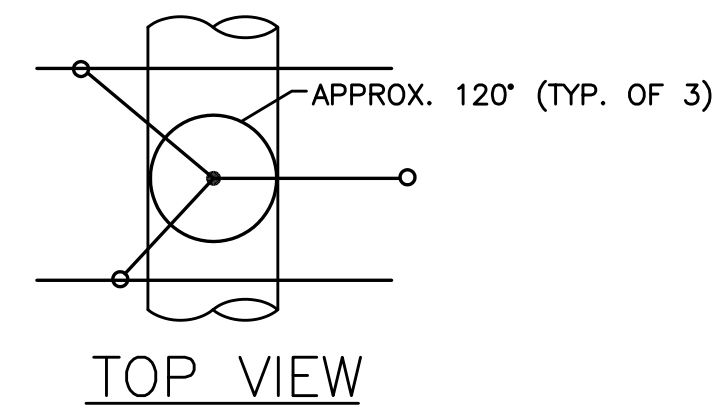
1 SEISMIC DUCT SUPPORT
 M6.03 SCALE: DETAIL

- 4/M6.02 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 & 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

2 DUCT SUPPORT
 M6.03 SCALE: DETAIL



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

3 SEISMIC PIPE SUPPORT
 M6.03 SCALE: DETAIL

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Project Location
 HUB Vancouver
 SE Mill Plain & SE 177th
 Vancouver, WA

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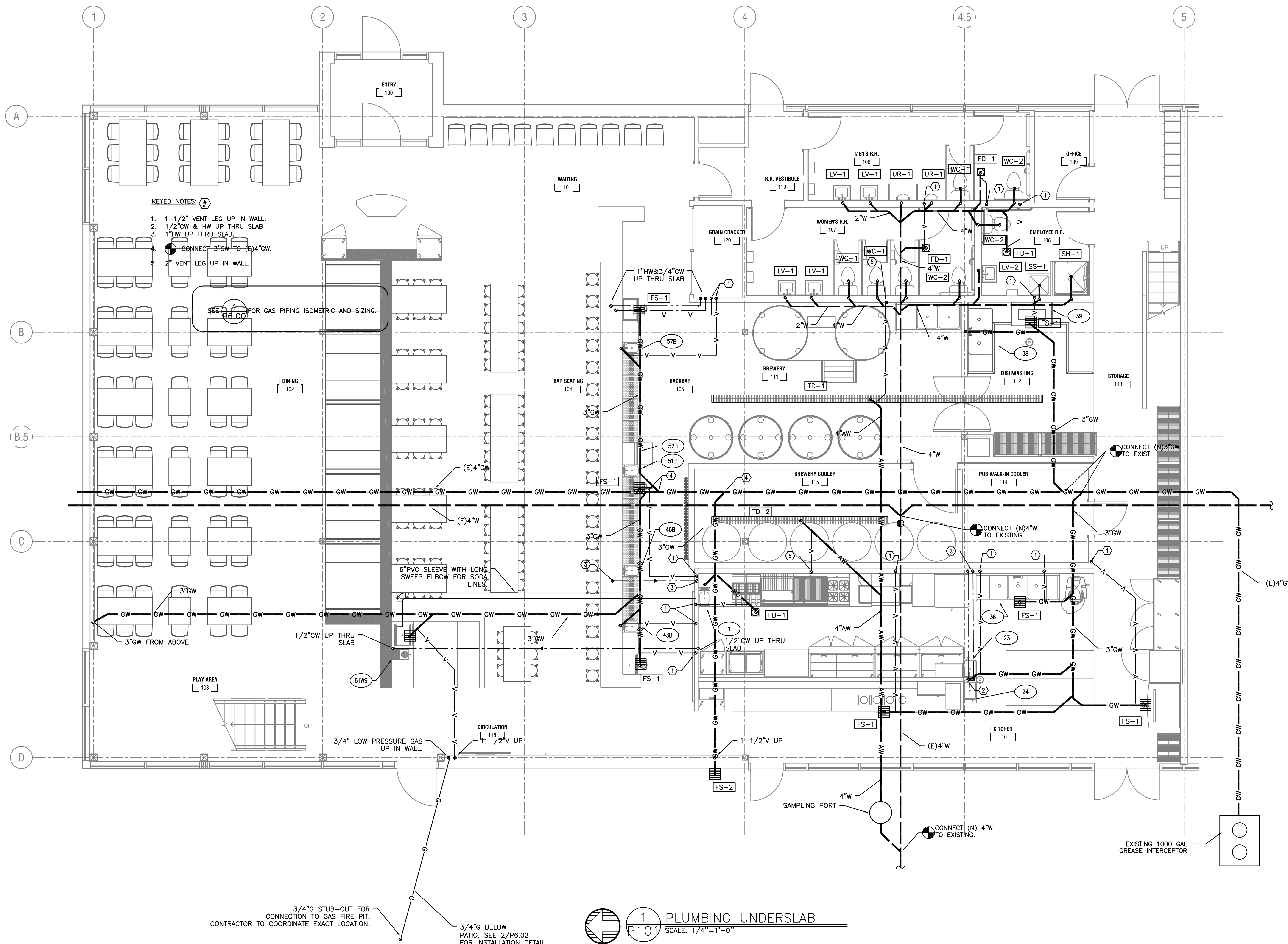
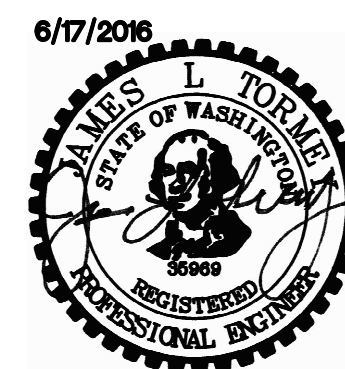
Revisions:

Number	Description	Date
1	Permit Set	2016.06.17

Sheet Name
 Mechanical Details

Sheet No.

M603



- KEYED NOTES: (#)**
- 1-1/2" VENT LEG UP IN WALL.
 - 1/2"CW & HW UP THRU SLAB
 - 1"HW UP THRU SLAB.
 - CONNECT 3"G.W. TO (E)4"G.W.
 - 2" VENT LEG UP IN WALL.

SEE 2/P6.00 FOR GAS PIPING ISOMETRIC AND SIZING.



3/4"G STUB-OUT FOR CONNECTION TO GAS FIRE PIT. CONTRACTOR TO COORDINATE EXACT LOCATION.

3/4"G BELOW PATIO, SEE 2/P6.02 FOR INSTALLATION DETAIL.

1 PLUMBING UNDERSLAB
 SCALE: 1/4"=1'-0"

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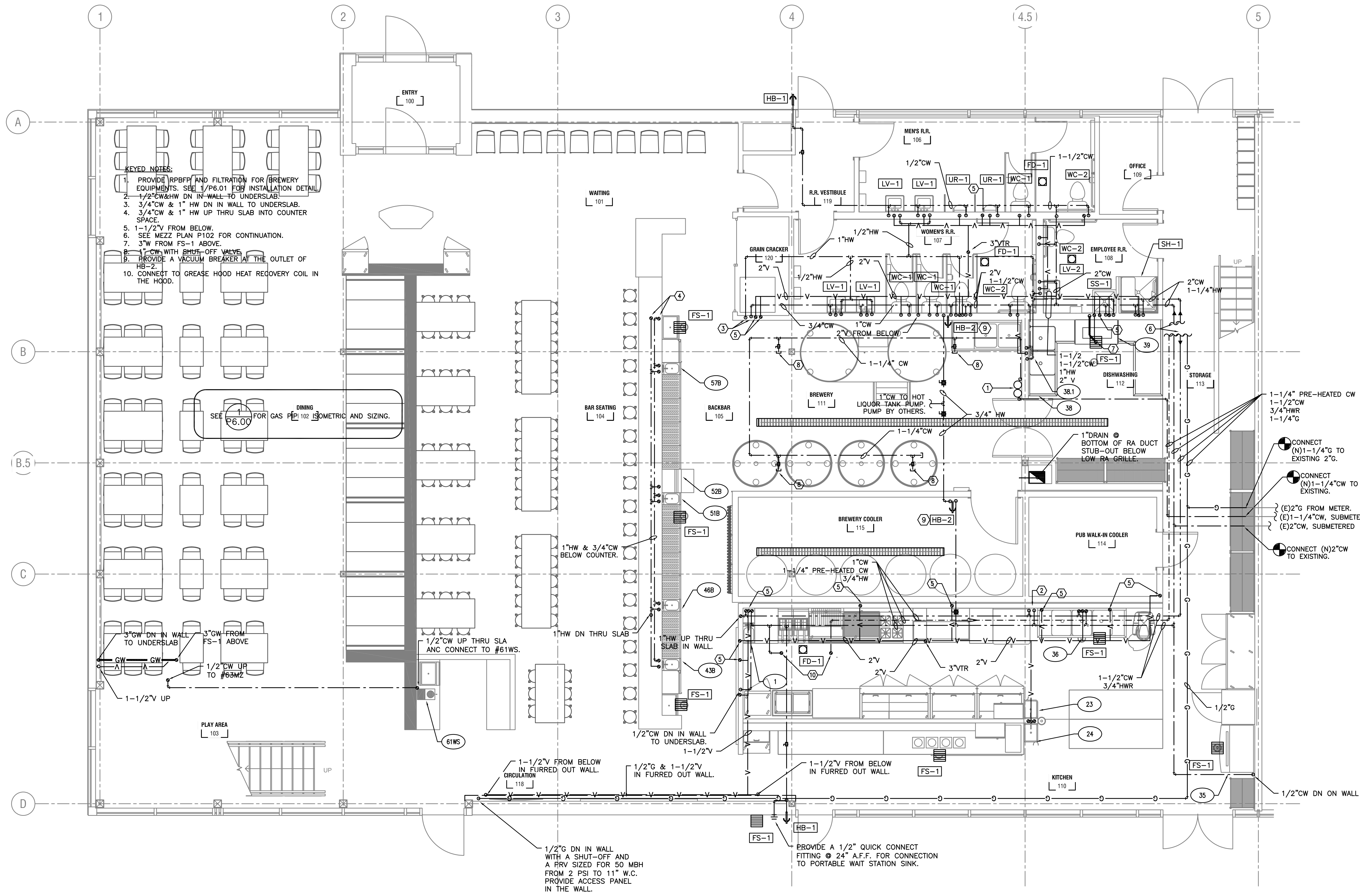
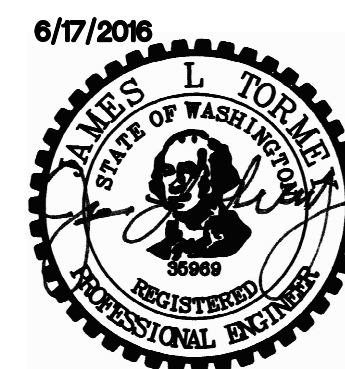
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Revisions:

Number	Description	Date
1	Permit Set	2016.06.17

Sheet Name
 Mechanical Floor Plan

Sheet No.
P101



- KEYED NOTES:**
1. PROVIDE RPBFF AND FILTRATION FOR BREWERY EQUIPMENTS. SEE 1/P&01 FOR INSTALLATION DETAIL.
 2. 1-1/2" CW & HW DN IN WALL TO UNDERSLAB.
 3. 3/4" CW & 1" HW DN IN WALL TO UNDERSLAB.
 4. 3/4" CW & 1" HW UP THRU SLAB INTO COUNTER SPACE.
 5. 1-1/2" V FROM BELOW.
 6. SEE MEZZ PLAN P102 FOR CONTINUATION.
 7. 3" W FROM FS-1 ABOVE.
 8. 1" CW WITH SHUT-OFF VALVE.
 9. PROVIDE A VACUUM BREAKER AT THE OUTLET OF HB-2.
 10. CONNECT TO GREASE HOOD HEAT RECOVERY COIL IN THE HOOD.

SEE 1/P&01 FOR GAS PIPING METRIC AND SIZING.

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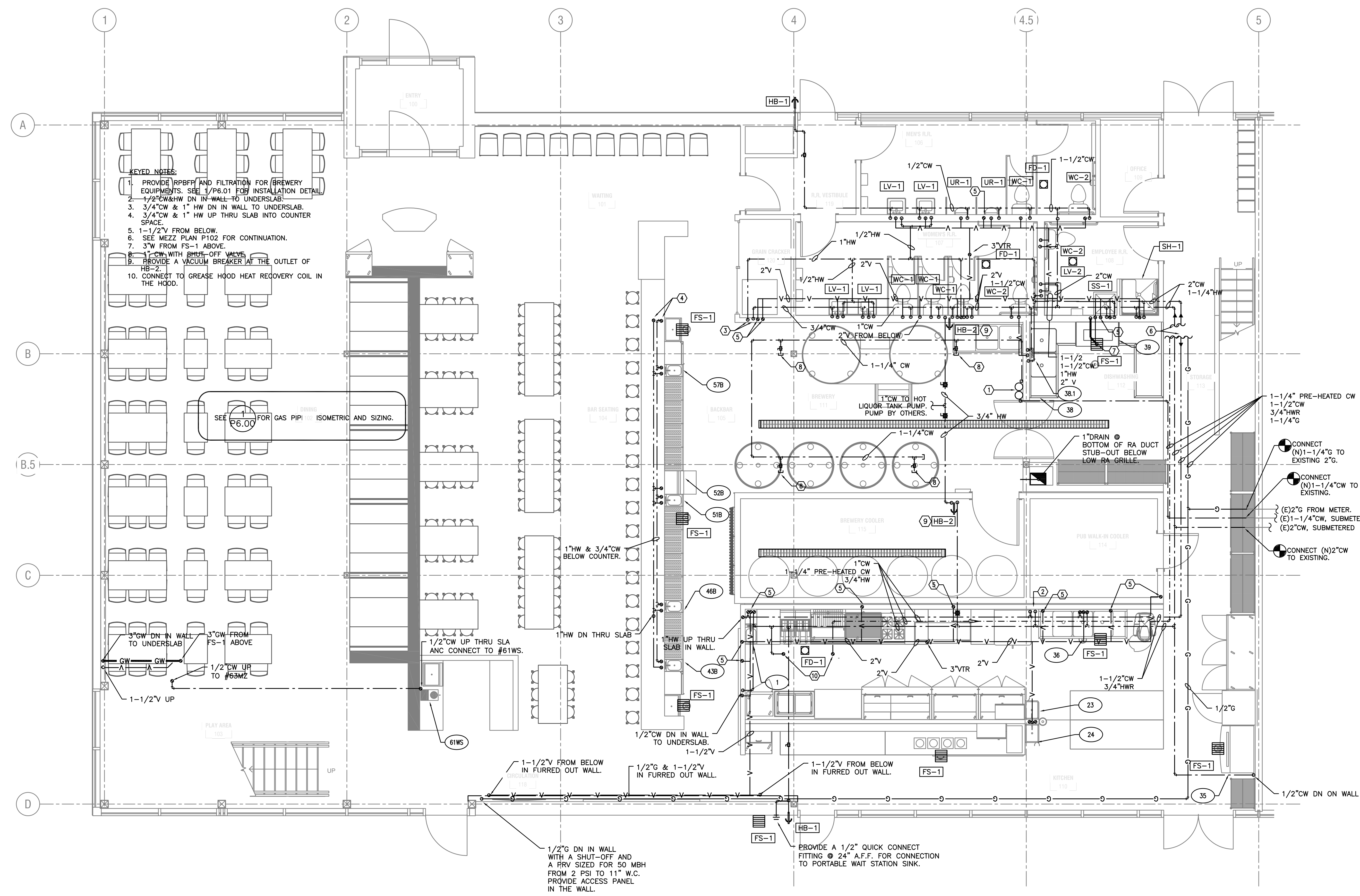
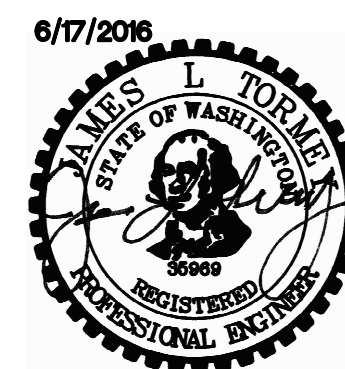
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Number	Description	Date
1	Permit Set	2016.06.17

Sheet Name
 PLUMBING FLOOR PLAN

Sheet No.
P102

1 PLUMBING FLOOR PLAN
 SCALE: 1/4"=1'-0"



- KEYED NOTES:**
1. PROVIDE RPBFF AND FILTRATION FOR BREWERY EQUIPMENTS. SEE 1/P&01 FOR INSTALLATION DETAIL.
 2. 1/2" CW & HW DN IN WALL TO UNDERSLAB.
 3. 3/4" CW & 1" HW DN IN WALL TO UNDERSLAB.
 4. 3/4" CW & 1" HW UP THRU SLAB INTO COUNTER SPACE.
 5. 1-1/2" V FROM BELOW.
 6. SEE MEZZ PLAN P102 FOR CONTINUATION.
 7. 3" W FROM FS-1 ABOVE.
 8. 1" CW WITH SHUT-OFF VALVE.
 9. PROVIDE A VACUUM BREAKER AT THE OUTLET OF HB-2.
 10. CONNECT TO GREASE HOOD HEAT RECOVERY COIL IN THE HOOD.

SEE 1/P&01 FOR GAS PIPE ISOMETRIC AND SIZING.

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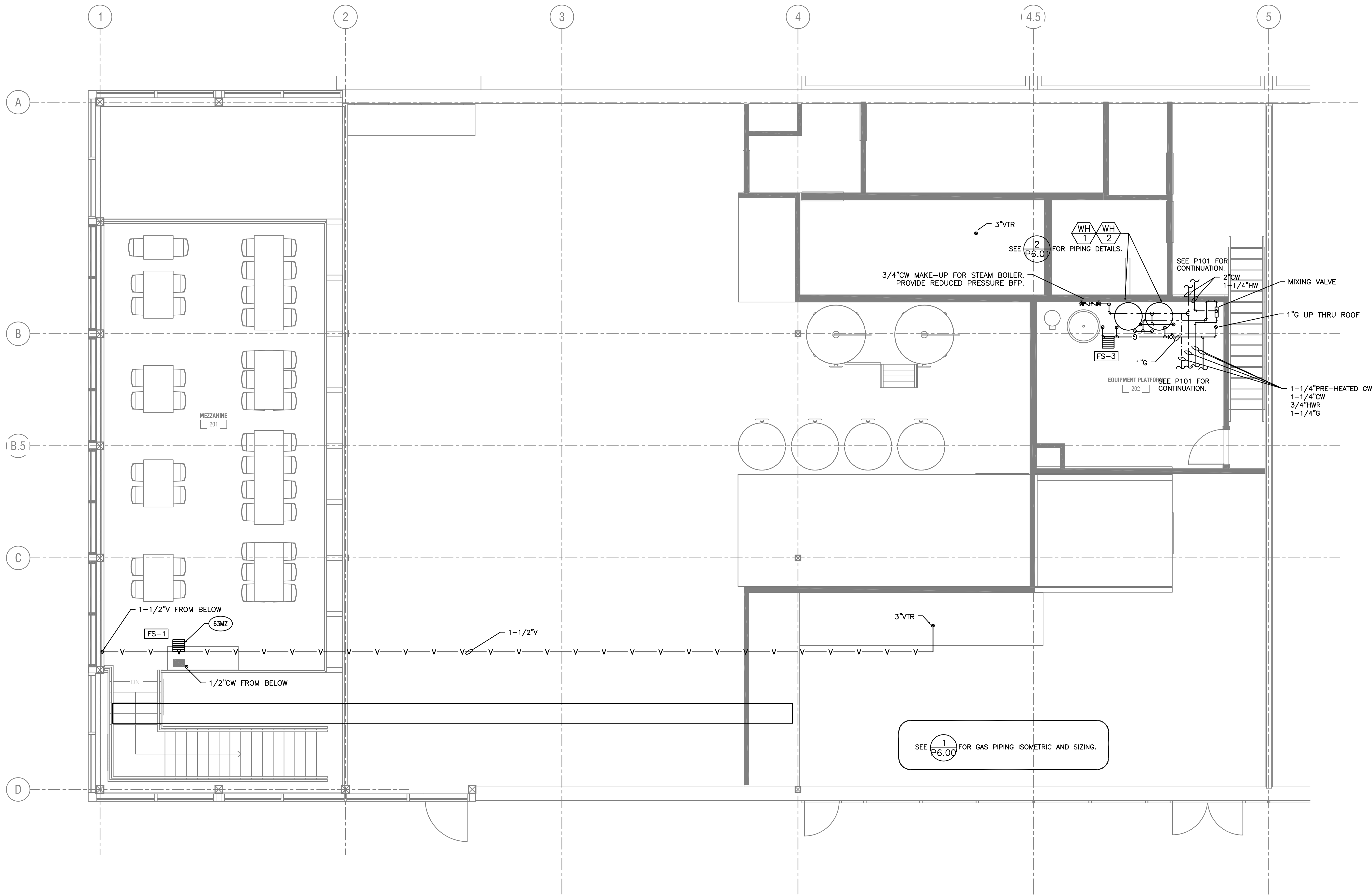
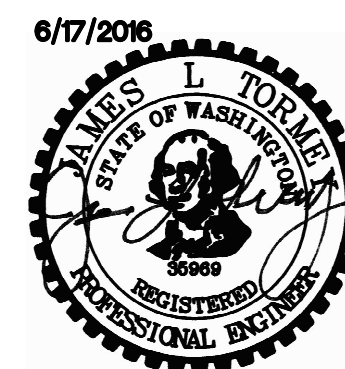
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Sheet Name
 PLUMBING FLOOR PLAN

Sheet No.
P102

1 PLUMBING FLOOR PLAN
P102 SCALE: 1/4"=1'-0"



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Drawn By: Mark Denyer

Phase: PERMIT DOCUMENTS

Revisions:

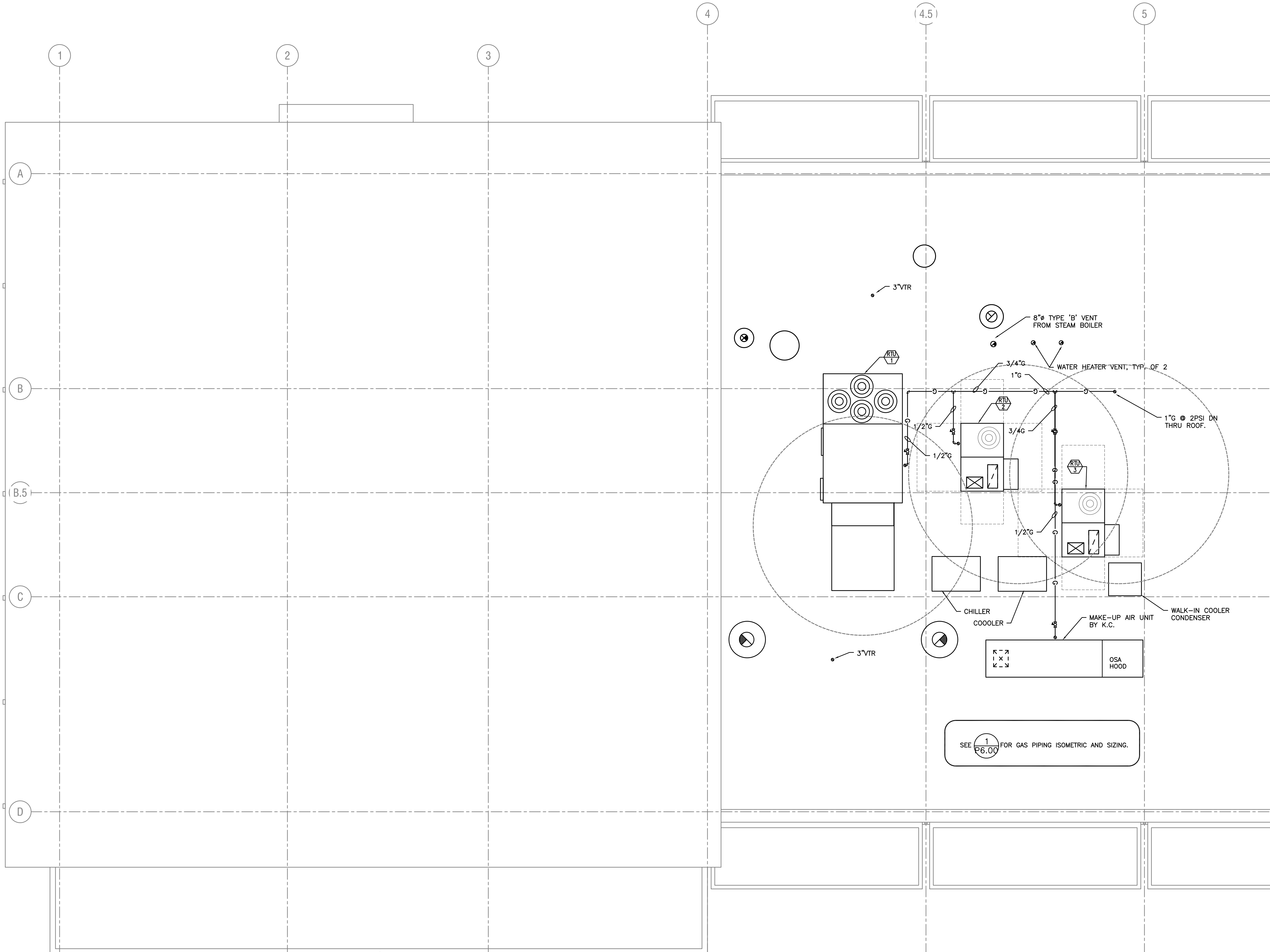
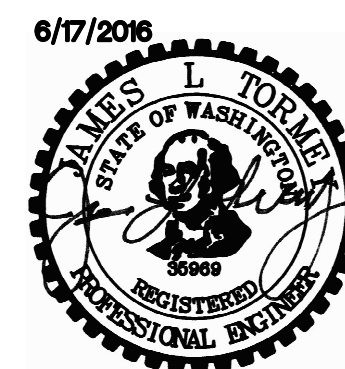
Number	Description	Date
1	Permit Set	2016.06.17

Sheet Name
 Mechanical Mezz Plan

Sheet No.

P103

1 PLUMBING MEZZ PLAN
 P103 SCALE: 1/4"=1'-0"



SEE 1 FOR GAS PIPING ISOMETRIC AND SIZING.

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Number	Description	Date
1	Permit Set	2016.06.17

Sheet Name
 PLUMBING ROOF PLAN

Sheet No.

1 PLUMBING ROOF PLAN
 P104 SCALE: 1/4"=1'-0"

P104

PLUMBING LEGEND

AFF	.....	ABOVE FINISHED FLOOR	---	---	(CW) COLD WATER		
ARCH	.....	ARCHITECTURAL	---	---	(HW) HOT WATER (140°F)		
B.G.	.....	BELOW GRADE	---	---	(HWR) HOT WATER RECIRC (140°F)		
BTU	.....	BRITISH THERMAL UNIT	---	---	180	(HW) HOT WATER (180°F)	
CAP.	.....	CAPACITY	---	---	HWR	(HWR) HOT WATER RECIRC (180°F)	
C.I.	.....	CAST IRON	---	---	(W) BELOW GRADE WASTE		
COMP.	.....	COMPARTMENT	---	---	(W) ABOVE GRADE WASTE		
CONT.	.....	CONTINUATION	---	---	AW	(AW) ACID WASTE	
CU.	.....	CUBIC	---	---	AW	(GW) GREASE WASTE	
DIA.	.....	DIAMETER	---	---	V	(V) VENT	
ELEV.	.....	ELEVATION	---	---	G	(G) NATURAL GAS	
FD	.....	FLOOR DRAIN	---	---	F	(F) FIRE WATER	
FDC	.....	FIRE DEPARTMENT CONNECTION	---	---	△	.....	PRESSURE/TEMP RELIEF VALVE
F.F.	.....	FINISH FLOOR	---	---	△	.....	GAS PRESSURE REGULATING VALVE
FLG.	.....	FLANGE	---	---	○	.....	PIPE TURNED UP, PIPE TURNED DOWN
FT	.....	FOOT / FEET	---	---	⊗	.....	GATE VALVE
G	.....	GAS	---	---	●	.....	BALL VALVE
GA.	.....	GAUGE	---	---	□	.....	BALANCING VALVE
GALV.	.....	GALVANIZED	---	---	⊥	.....	CHECK VALVE
GPM	.....	GALLONS PER MINUTE	---	---	⊥	.....	UNION
G.V.	.....	GATE VALVE	---	---	⊥	.....	DOUBLE CHECK ASSEMBLY
HP	.....	HORSEPOWER	---	---	⊥	.....	CAP
KW	.....	KILOWATT	---	---	⊥	.....	TEE
LAV	.....	LAVATORY	---	---	⊥	.....	ELBOW
LBS	.....	POUNDS	---	---	⊥	.....	CLEANOUT
MAX.	.....	MAXIMUM	---	---	⊥	.....
MBH	.....	THOUSANDS OF BTUs PER HOUR	---	---	⊥	.....
MIN.	.....	MINIMUM	---	---	⊥	.....
M.J.	.....	MECHANICAL JOINT	---	---	⊥	.....
N.I.M.	.....	NOT IN MECHANICAL	---	---	⊥	.....
PROT.	.....	PROTECTION	---	---	⊥	.....
PRV	.....	PRESSURE REDUCING VALVE	---	---	⊥	.....
PSI, PSIG	.....	POUNDS PER SQUARE INCH	---	---	⊥	.....
P/T	.....	PRESSURE / TEMPERATURE	---	---	⊥	.....
REQ'D	.....	REQUIRED	---	---	⊥	.....
TYP.	.....	TYPICAL	---	---	⊥	.....
VTR	.....	VENT THROUGH ROOF	---	---	⊥	.....
WC	.....	WATER CLOSET	---	---	⊥	.....

	.....	EQUIPMENT MARK NUMBER
	.....	FIXTURE MARK
	.....	NOTE
	.....	RISER DIAGRAM

Pressure drop calculations (PSI) per OPSC

Initial pressure	60
2" service top (10 ft @ 90 gpm @ 25 psi/100 ft)	-2.5
Water meter (2" @ 90 gpm)	-6.5
2" backflow preventer (none)	-0
2.0" building service (30 ft @ 6.50 psi/100 ft.)	-2
Elevation from street to meter (2ft)	-0.86
AVAILABLE AT RISER	42.14
90 GPM ASSUMED FOR SHELL DESIGN	

HUB RESTAURANT/RESTROOMS

PRESSURE AT RISER	42.14
Interior piping (175ft @ max. 4 psi/100 ft.)	-7
Elevation (12 ft @ .43 psi/ft)	-5.2
Minimum pressure at remote fixture	-15
Available excess pressure	21.94

HUB BREWERY/PROCESS

PRESSURE AT RISER	42.14
Interior piping (100ft @ max. 7.5 psi/100 ft.)	-7.5
Elevation (12 ft @ .43 psi/ft)	-5.2
Minimum pressure at remote fixture	-15
Available excess pressure	21.94

Grease Interceptor Calculations

FIXTURE TYPE	NUMBER OF FIXTURES	DRAINAGE FIXTURE UNITS	TOTAL DFU
#1, #23, #24, #36, #57B HANDSINK	5	2	10
#38 DISH TABLE	1	2	2
FLOOR SINKS (INDIRECT WASTE)	4	6	24
FLOOR DRAINS	2	2	4
TOTAL			40
HYDROMECHANICAL INTERCEPTOR (MIN. SIZE)		100	GPM

PLUMBING CALCULATIONS—BUILDING

FIXTURE TYPE	DOMESTIC WATER SERVICE				SANITARY WASTE SERVICE	
	NUMBER OF FIXTURES	WATER FIXTURE UNITS	TOTAL WSFU	TOTAL CW FIXTURE UNITS	TOTAL HW FIXTURE UNITS	DRAINAGE FIXTURE UNITS
SERVICE SINK	1	3	3	2.25	2.25	3
KITCHEN HAND SINKS	5	2	10	7.5	7.5	2
DISH TABLE, DUMP SINK	3	2	6	4.5	4.5	INDIRECT
RECEPTOR (INDIRECT WASTE)	3	0	0	0	0	6
KITCHEN RECEPTOR (INDIRECT WASTE)	6	0	0	0	0	6
TRENCH DRAINS	2	0	0	0	0	6
DISHWASHER	1	1.5	1.5	0	1.5	INDIRECT
UNDER COUNTER WASHER	1	1.5	1.5	0	1.5	INDIRECT
FOOD SERVICE BEVERAGE CONNECTION	4	0.5	2	2	0	0
LAVATORY (SINGLE)	5	1	5	3.75	3.75	1
WATER CLOSET (1.28 gpf TANK STYLE)	7	2.5	17.5	0	4	28
URINAL (1.0 GPF, GENERAL USE)	2	4	8	8	0	2
TOTAL	40	54.5	45.5	21	116	
WATER DEMAND (RESTAURANT/KITCHEN)		49 GPM	2" CW			WASTE SIZE 4" W
WATER DEMAND (BREWERY PROCESS)		25 GPM	1" CW			

KITCHEN PLUMBING CONNECTION SCHEDULE (FIXTURES BY K.C.)

MARK	FIXTURE	W	V	CW	HW	REMARKS
WC-1	WATER CLOSET	3"	2"	1/2"		FLOOR MOUNT, TANK TYPE, BY OTHERS
WC-2	WATER CLOSET	3"	2"	1/2"		FLOOR MOUNT, TANK TYPE, ADA BY OTHERS
UR-1	URINAL	2"	2"	1/2"		WALL HUNG
LV-1	LAVATORY*	1-1/2"	1-1/2"	1/2"	1/2"	WALL HUNG, S.S. SINK, SINGLE LEVER FAUCET
LV-2	LAVATORY*	1-1/2"	1-1/2"	1/2"	1/2"	WALL HUNG, VIT. CHINA, SINGLE LEVER FAUCET
SS-1	MOP SINK	3"	2"	1/2"	1/2"	
SH-1	SHOWER	3"	2"	1/2"	1/2"	
HB-1	HOSE BIB			3/4"	3/4"	INTERIOR
HB-2	HOSE BIB			3/4"	3/4"	STRAHMAN M-750TG
FD-1	FLOOR DRAIN	3"	1-1/2"			SIOUX CHIEF
FS-1	FLOOR SINK	3"	1-1/2"			KITCHEN, JR SMITH 3001, NO GRATE
FS-2	FLOOR SINK	3"	1-1/2"			KITCHEN, JR SMITH 3001, COVER
FS-3	FLOOR SINK	3"	1-1/2"			WATER HEATER ROOM, SIOUX CHIEF SQUAREMAX
TD-1	TRENCH DRAIN	4"AW	2"AV			SEE BELOW FOR SPECS.
TD-2	TRENCH DRAIN	4"AW	2"AV			SEE BELOW FOR SPECS.

V.L. - VENTED LINE
 * - PROVIDE WITH ASSE 1070 APPROVED POINT OF USE MIXING VALVE OR LAV FAUCET WITH APPROVED TEMPERATURE LIMIT STOP. MAX TEMP = 110 DEGREE F.
 ** - MINIMUM SHALLOW INVERT SHALL BE 17" & SLOPED TO CENTER AT 1/8" SLOPE. PROVIDE WITH REINFORCED SLOTTED STAINLESS STEEL GRATE.

TRENCH DRAINS:
 JR SMITH MODEL 9931, HEAVY DUTY TRENCH DRAIN WITH DUCTILE CAST IRON FRAME SYSTEM AND HEAVY DUTY SLOTTED CAST IRON GRATE. SLOPE TOWARDS CENTER AND PROVIDE 4" VERTICAL OUTLET AT CENTER.
 TD-1: 30 FEET, TD-2: 16 FEET

KITCHEN PLUMBING CONNECTION SCHEDULE (FIXTURES BY K.C.)

MARK	FIXTURE	W	V	CW	HW	REMARKS
#1	HANDSINK	1-1/2"	1-1/2"	1/2"	1/2"	SEE NOTE 2
#23	HANDSINK	1-1/2"	1-1/2"	1/2"	1/2"	
#24	HANDSINK	1-1/2"	1-1/2"	1/2"	1/2"	
#35	ICE CUBER	FS		1/2"		
#36	WORK TABLE	1-1/2"	1-1/2"	1/2"	1/2"	
#38	DISH TABLE	FS				
#38.1	PRE-RINSE FAUCET			1/2"	1/2"	
#39	DISHWASHER	FS		3/4"	3/4"	120 DEGREE F HW
#43B	HANDSINK	1-1/2"	1-1/2"	1/2"	1/2"	
#46B	DUMBSINK	FS		1/2"	1/2"	
#51B	DUMBSINK	FS		1/2"	1/2"	
#52B	UNDERCOUNTER DISHWASHER	FS		1/2"	1/2"	120 DEGREE F HW
#57B	HANDSINK	1-1/2"	1-1/2"	1/2"	1/2"	
#61WS	GLASSFILLER	FS		1/2"		
#63MZ	ICE AND WATER DISPENSER	FS		1/2"		

SERVICE WATER COMMISSIONING AND COMPLETION REQUIREMENTS:

SERVICE WATER SYSTEMS MUST MEET THE SERVICE ATER SYSTEM COMMISSIONING AND COMPLETION REQUIREMENTS PER WASHINGTON ENERGY STATE ENERGY CODE, CHAPTER 4, INCLUDING THE REQUIREMENTS FOR PROJECT COMMISSIONING STATED IN SECTION C408 & COMPLETION OF A COMMISSIONING REPORT, AND THE CHECKLIST SHOWN IN FIGURE C408.1.2.1

SEE SPECIFICATION 230500, 230590, 230993, 230923 FOR FURTHER DETAILS.

HUB BREWERY

GAS PIPE SIZING CALCULATIONS

EQUIPMENT LIST	CFH
STEAM BOILER	399
WH-1	199
WH-2	199
RTU-1	310
RTU-2	115
RTU-3	115
MAKE UP AIR UNIT	260
FRYER #4	90
FRYER #4	90
GRIDDLE #5	42.3
SALAMANDER #6	40
CHARBROILER #7	80
HOT PLATE #8	120
CONVEYOR OVEN #11	40
GAS FIRE PIT	50
TOTAL LOAD	2149.3

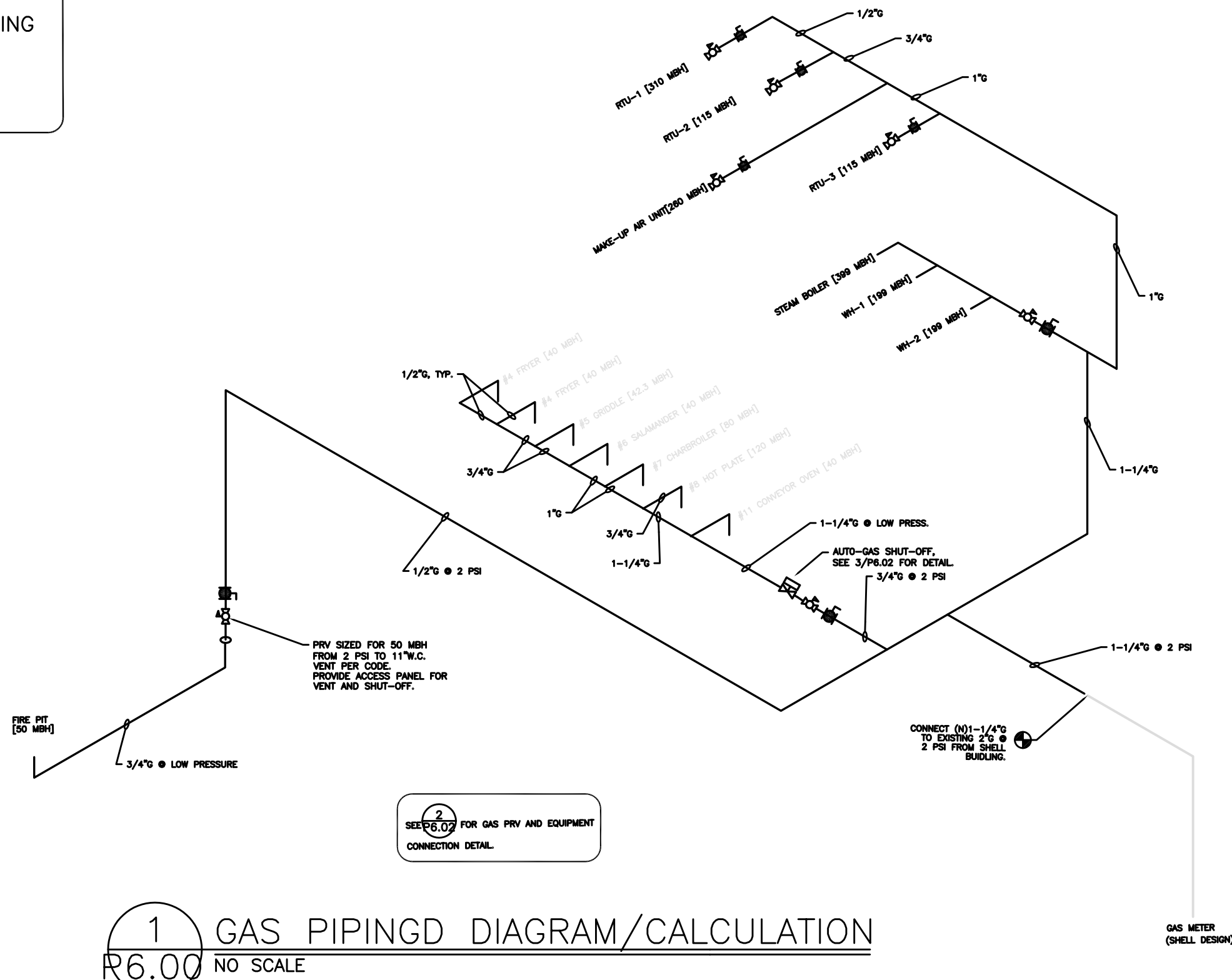
OMSC 2014, TABLE C402.14(2)
 PRESSURE 2 PSI
 TOTAL DEVELOPED PIPE LENGTH 200 FEET
 MINIMUM MAIN PIPE SIZE 1-1/4"

EXPANSION TANKS

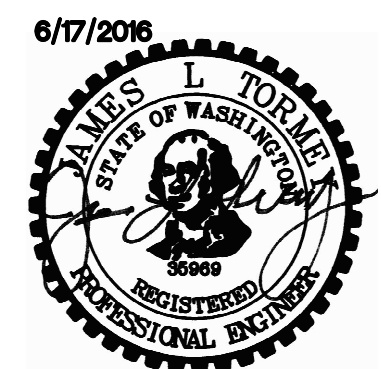
MARK NUMBER	EXP 1
TYPE	BLADDER
SERVICE	DOMESTIC WATER
ASME RATED	YES
TANK VOLUME (GAL)	79
ACCEPTANCE VOLUME (GAL)	---
CONNECTION SIZE	1-1/2"
CONNECTION LOCATION	BOTTOM
BASIS OF DESIGN -WESSELLS	FXA-300

GAS WATER HEATERS

MARK NUMBER	WH 1	WH 2
FUEL	NATURAL GAS	
CAPACITY (GAL)	100	100
INPUT RATE (MBH)	199	199
RECOVERY CAP. @ 100F TR (GPH)	194	322
EFFICIENCY (%)	94	94
GAS VENT/COMBUSTION AIR DIA.	4" PP	4" PP
DESIGN WEIGHT (LBS)	1450	1450
BASIS OF DESIGN: BRADFORD WHITE	EF-100T-199	



1 GAS PIPING DIAGRAM/CALCULATION
 P6.00 NO SCALE



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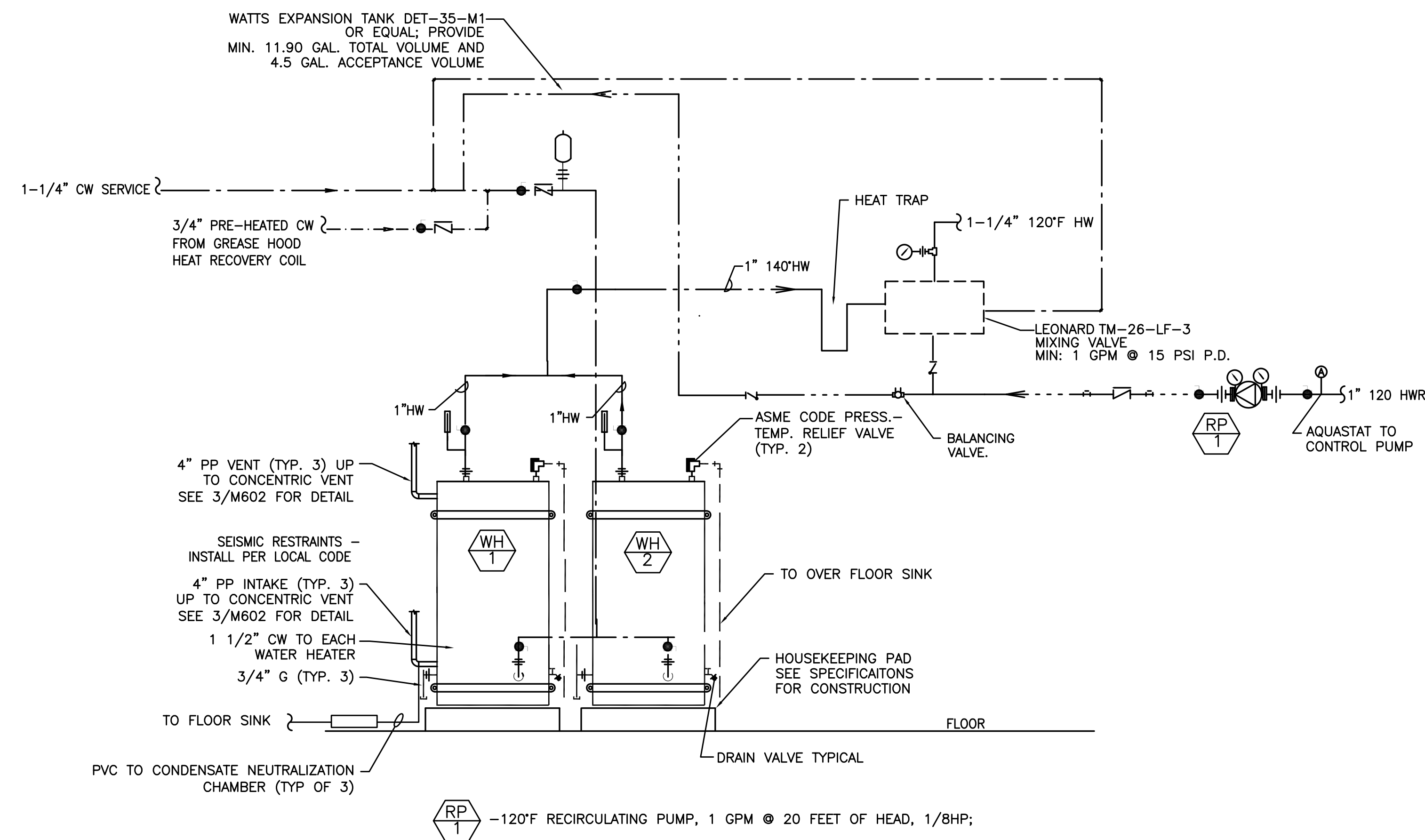
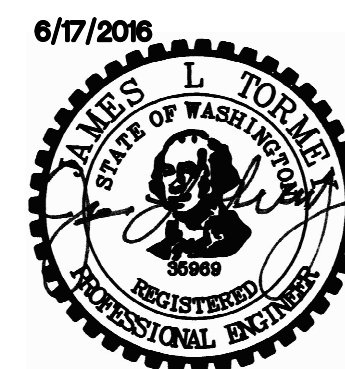
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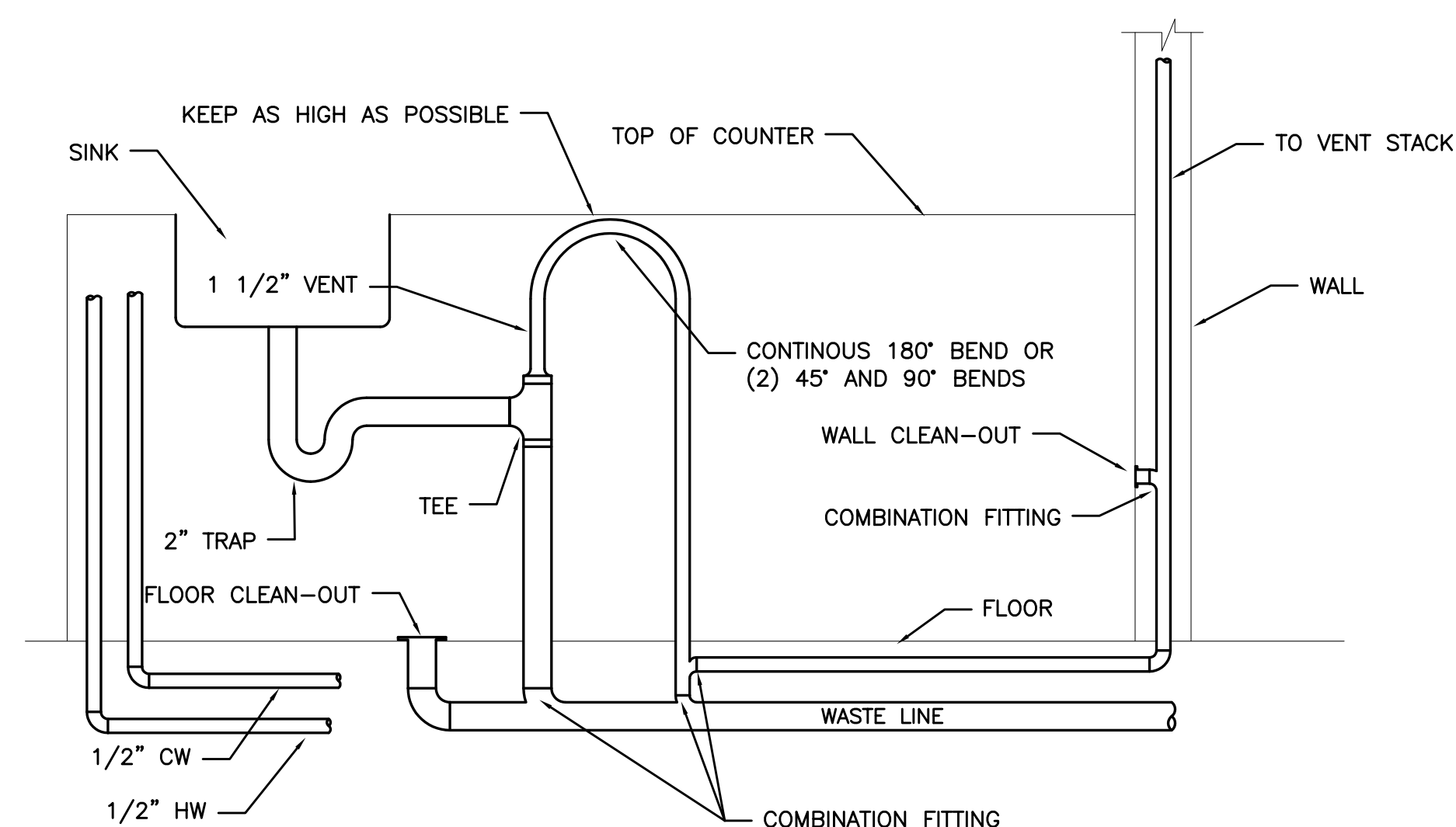
Sheet Name
 PLUMBING LEGENDS,
 SCHEDULES AND DETAILS

Sheet No.

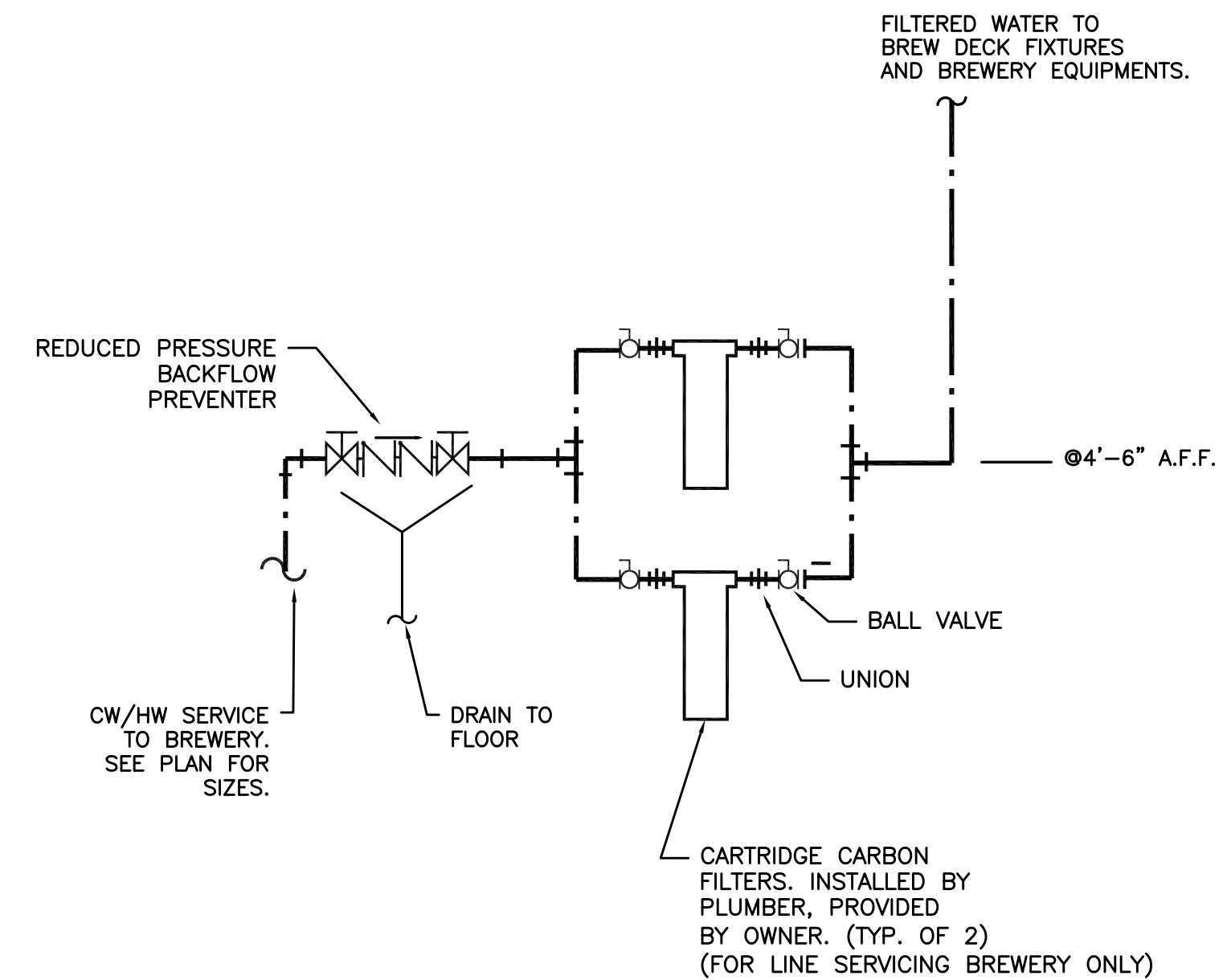
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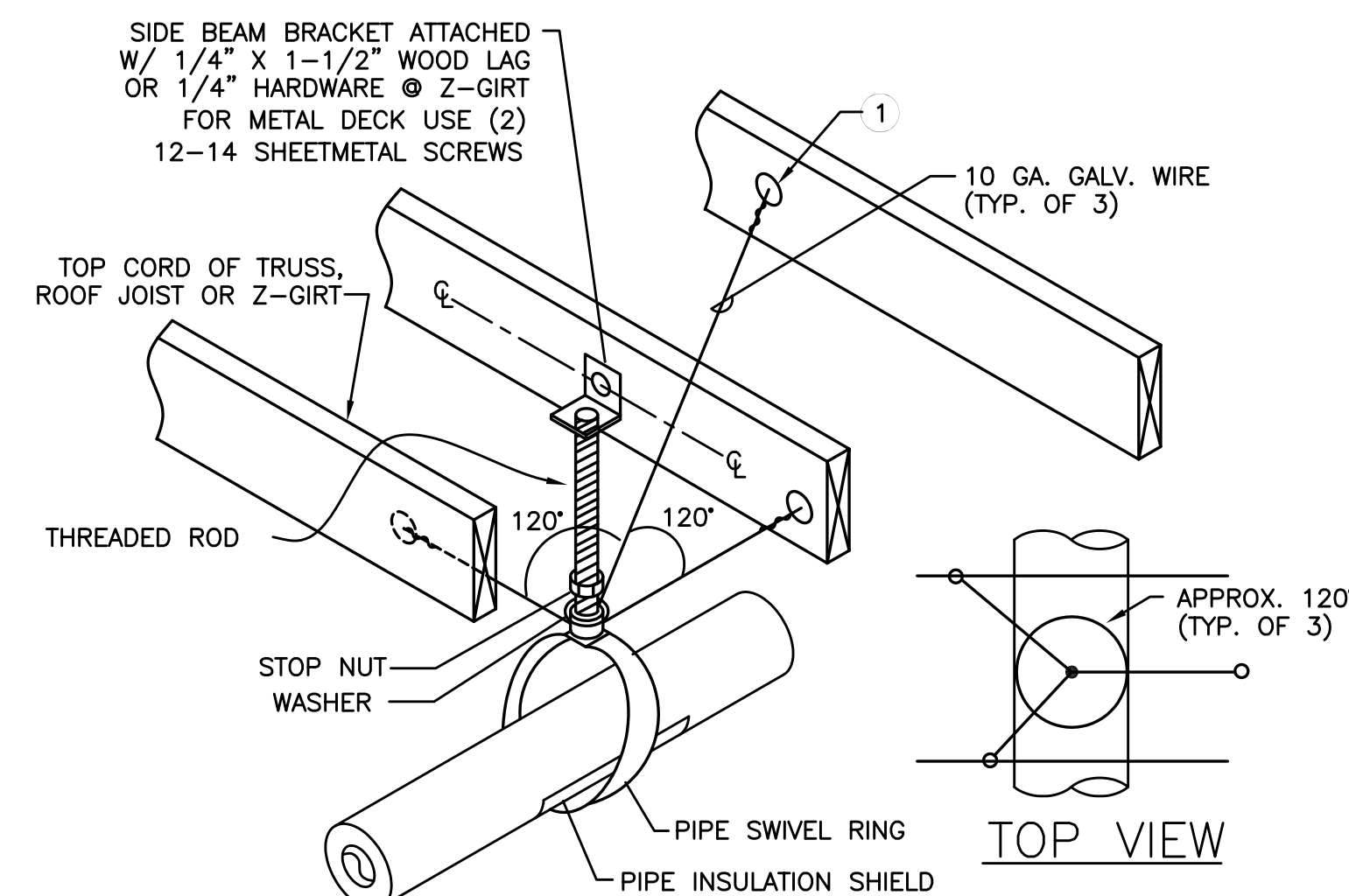
2 WATER HEATER PIPING DIAGRAM
P6.01 NO SCALE



3 ISLAND FIXTURE
P6.01 NO SCALE



1 RPBFP AND FILTERS
P6.01 NO SCALE



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

4 PIPE SUPPORT
P6.01 SCALE: NONE

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Vancouver, WA

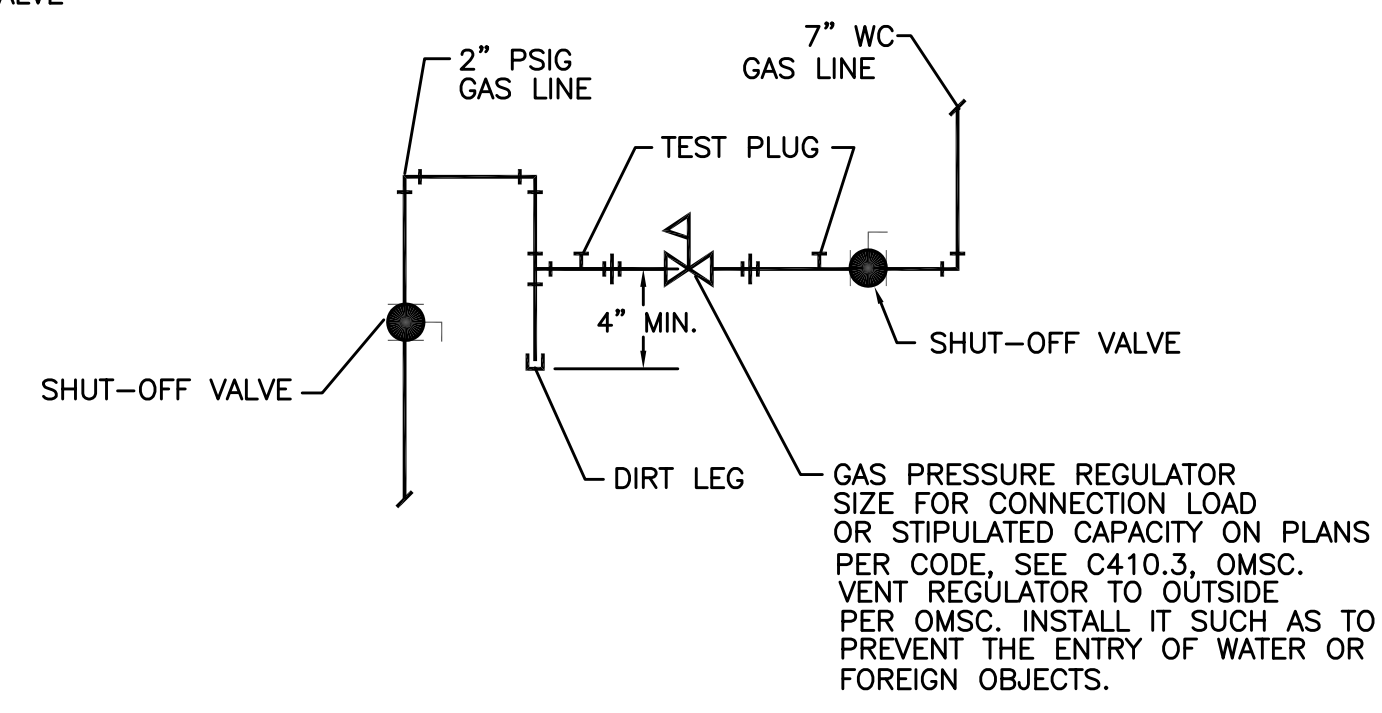
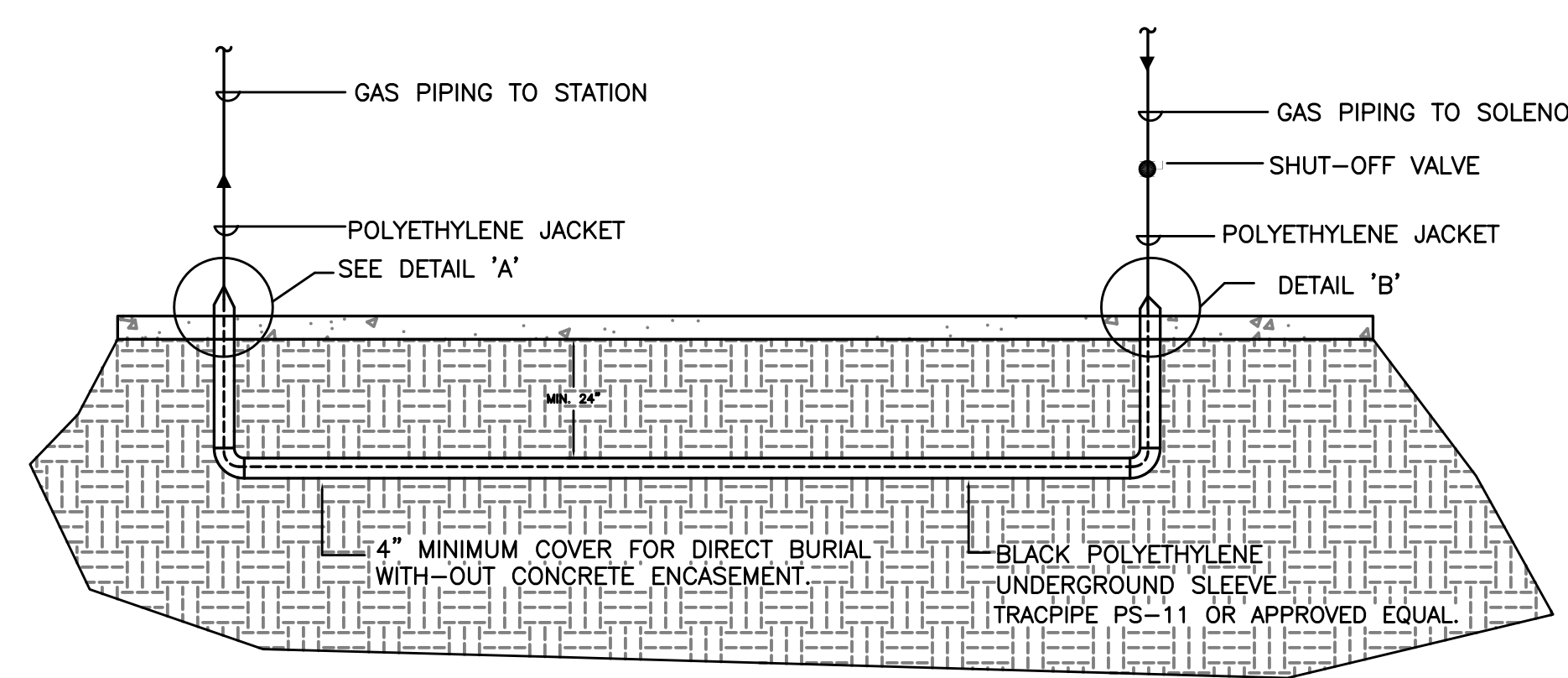
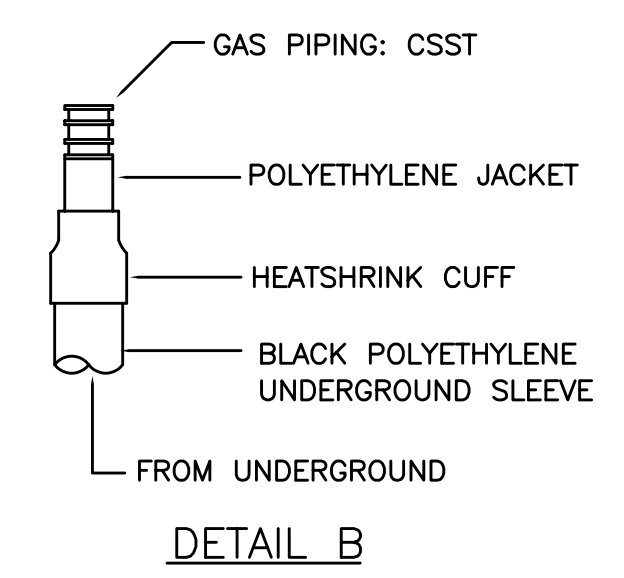
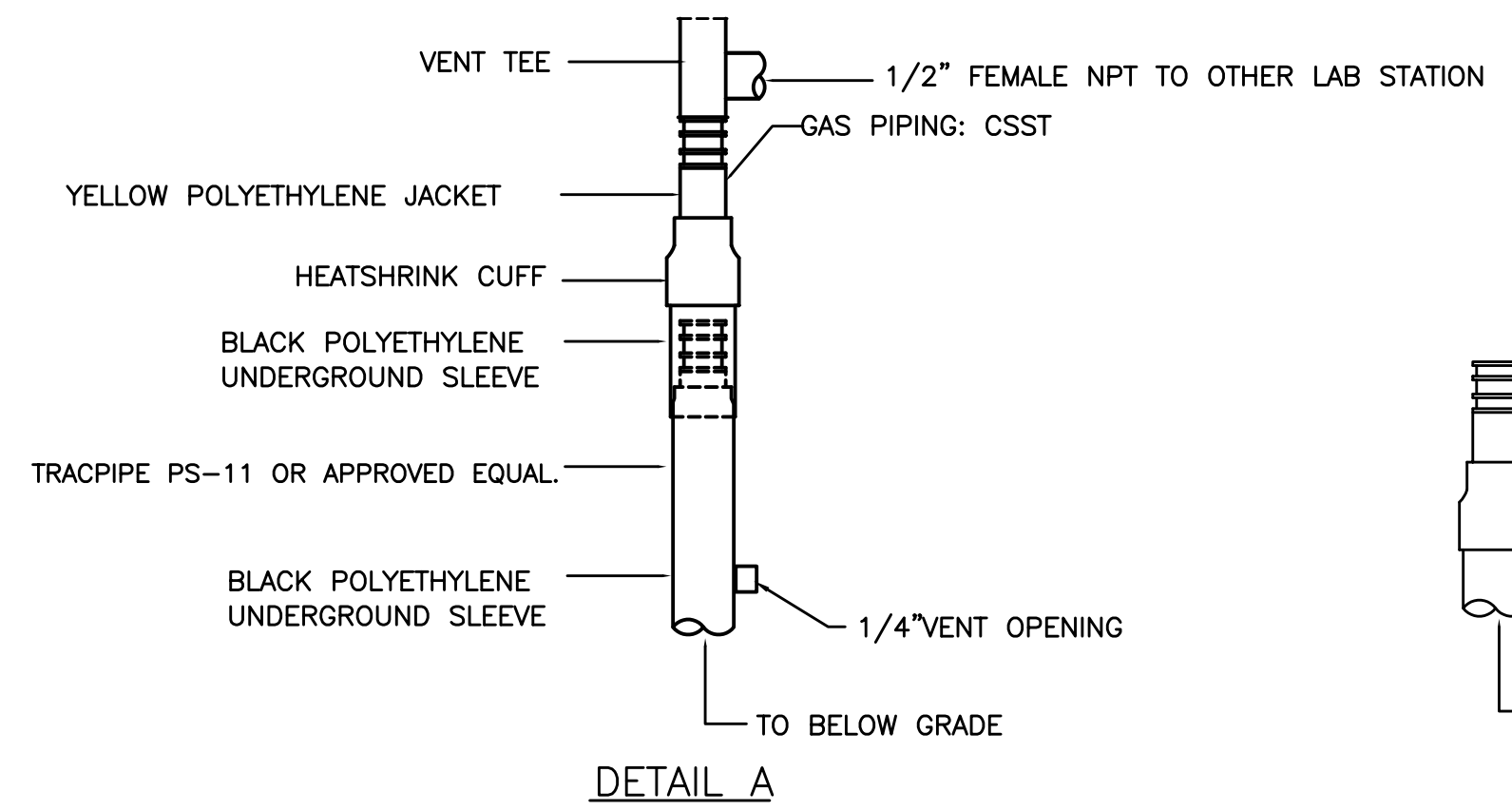
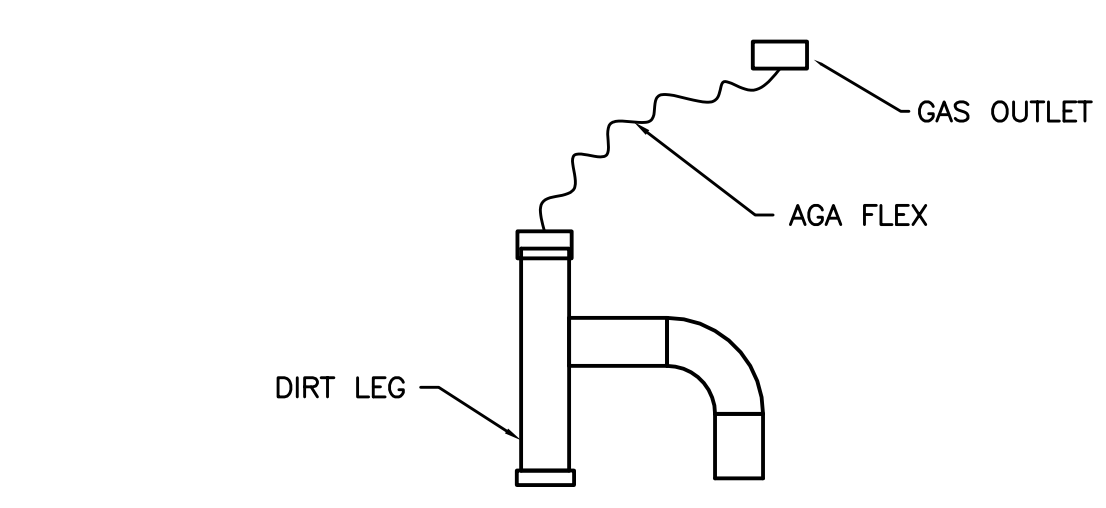
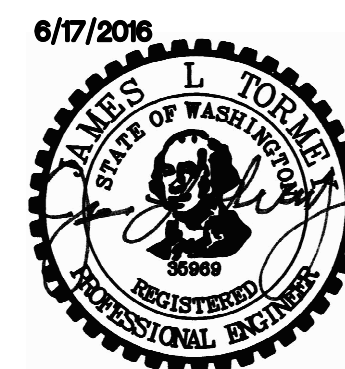
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Date:	2016.06.07	
Drawn By:	Mark Denyer	
Phase:	PERMIT DOCUMENTS	
Revisions:		
Number	Description	Date
1	Permit Set	2016.06.17

Sheet Name
Plumbing Details

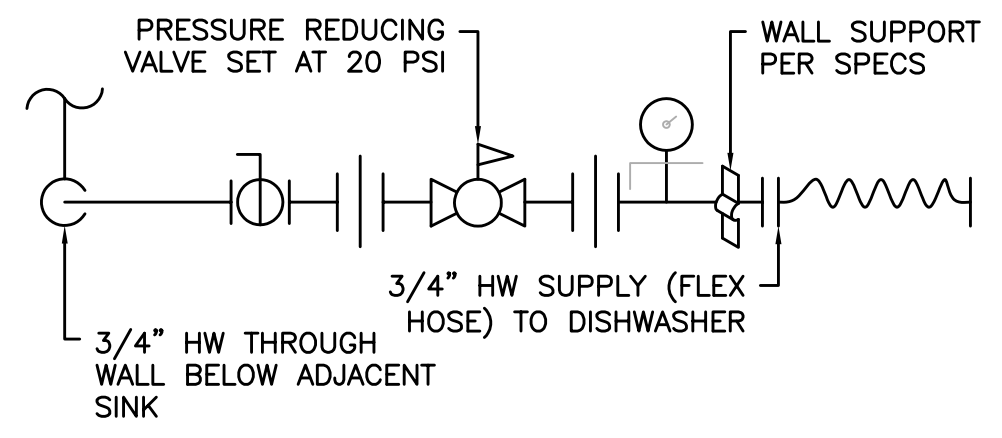
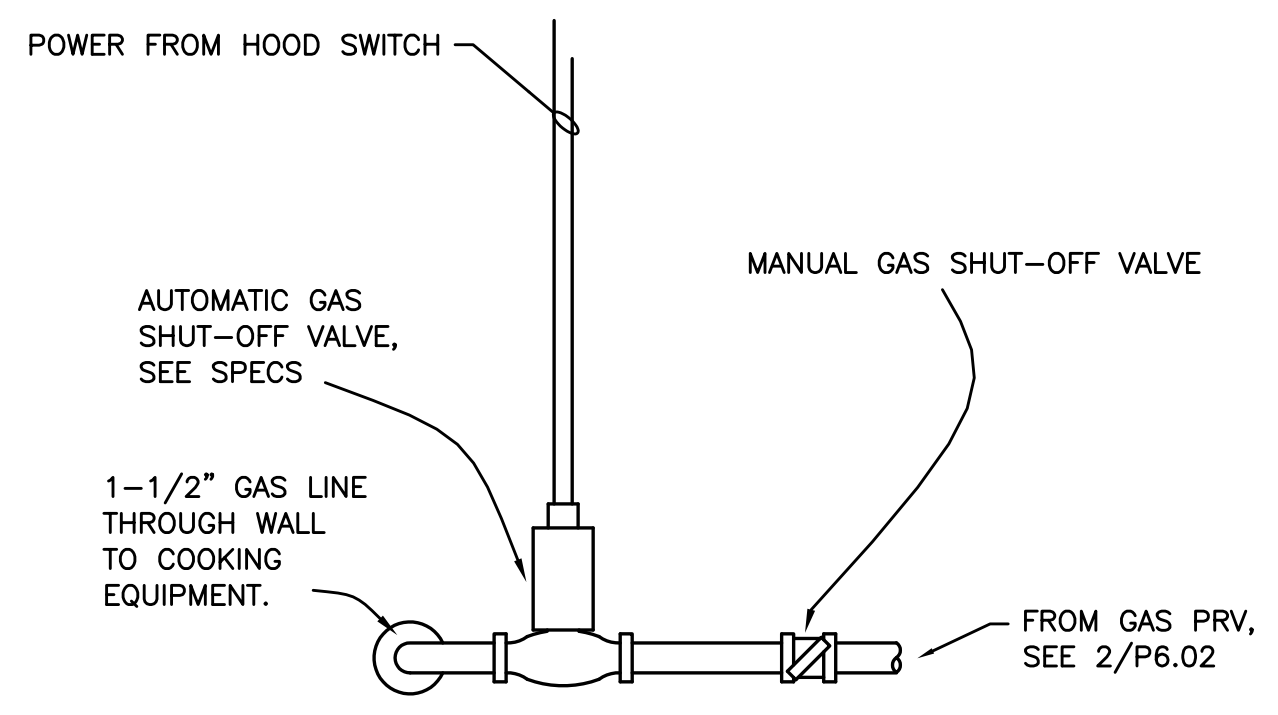
Sheet No.

P601



1 GAS PIPING UNDERGROUND
 P6.02 NOT TO SCALE

2 GAS PRV DETAIL
 P6.02 NTS



3 AUTO GAS SHUT-OFF ASSEMBLY
 P6.02 SCALE: NONE

4 DISHWASHER CONNECTION
 P6.02 SCALE: NONE

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Project Location
 HUB Vancouver
 SE Mill Plain & SE 177th
 Vancouver, WA

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P602