

LEGEND

SYMBOL	ABBREV.	DESCRIPTION
	EF	EXHAUST FAN
	--	THERMOSTAT
	--	EQUIPMENT TAG

GENERAL NOTES

- CONTRACTOR SHALL VISIT JOB SITE, VERIFY FIELD CONDITIONS, REVIEW PLAN AND SPECIFICATIONS AND SHALL INCLUDE IN HIS PRICE THE NECESSARY COST TO CONSTRUCT THIS PROJECT IN ACCORDANCE WITH THE MECHANICAL DRAWING AND SHALL MEET ALL APPLICABLE CODES.
- ALL MATERIAL AND EQUIPMENT FURNISHED AND INSTALLED SHALL BE NEW, FREE FROM DEFECTS AND SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY THE OWNER. SHOULD ANY TROUBLE DEVELOP DURING THE PERIOD DUE TO FAULTY WORKMANSHIP OR MATERIAL, THE CONTRACTOR SHALL FURNISH ALL NECESSARY MATERIAL AND LABOR TO CORRECT THE TROUBLE WITHOUT COST TO THE OWNER.
- CONTRACTOR IS TO REVIEW THE PLANS OF OTHER DISCIPLINES AND COORDINATE WITH THE WORK OF OTHER TRADES PRIOR TO INSTALLATION TO AVOID ANY CONFLICT BETWEEN DUCTS, CONDUITS, SPRINKLERS, PIPING, LIGHTING FIXTURES, ETC. NO EXTRAS WILL BE ALLOWED FOR CORRECTION OF CONFLICTS DUE TO LACK OF COORDINATION.
- THE DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION OF PIPING, DUCT WORK OR DIFFUSERS.
- THE CONTRACTOR SHALL BRING TO THE ARCHITECT'S ATTENTION ANY DISCREPANCY OR CONFLICTS IN THE PLANS OR THE SITE CONDITIONS. ALL NECESSARY CHANGES MUST BE APPROVED IN WRITING BY THE ARCHITECT BEFORE START OF WORK.
- CONTRACTOR TO SUBMIT CATALOG CUT SHEETS OF ALL THE MATERIAL AND EQUIPMENT TO BE USED AND WORKING SHOP DRAWINGS FOR APPROVAL BEFORE START OF WORK.
- SUPPORTS FOR ALL PIPING AND DUCTWORK SHALL BE IN ACCORDANCE WITH LATEST SMACNA "GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING SYSTEMS" AND UMC.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND FEES REQUIRED FOR THE WORK.

HVAC GENERAL NOTES

- VERIFY EXACT SIZE AND LOCATION OF OPENINGS THROUGH BEAMS, CONCRETE WALLS AND SLABS WITH STRUCTURAL ENGINEER, PRIOR TO INSTALLATION OR PURCHASE.
- SEAL ALL AIR PLENUMS, DUCT SHAFTS AND PENETRATIONS AIRTIGHT.
- FLEX DUCTS MAY BE USED IN BETWEEN JOISTS AND AT CONNECTION TO DIFFUSERS. FLEX DUCT SHALL BE LISTED AND LABELED UMC 10-1 (UL181). FLEX DUCT SHALL BE LIMITED TO 5 FEET AT EACH CONNECTION.
- PROVIDE NECESSARY TRANSITION PIECES UNDER BEAMS TO AVOID CONFLICT WITH CEILING, LIGHTS, PIPING, ETC. AS REQUIRED.
- ALL EXHAUST AND SUPPLY AIR DUCTWORK SHALL BE SHEET METAL.
- ALL SEAMS AND CONNECTIONS IN DUCTWORK AND INSULATION SHALL BE SEALED PER SMACNA STANDARD.
- ALL MATERIALS AND EQUIPMENT INSTALLED ABOVE CEILINGS SHALL BE NON-COMBUSTIBLE AND U.L. APPROVED. ALL WIRING SHALL BE NON-COMBUSTIBLE OR SHALL BE ENCLOSED IN METAL CONDUIT.
- CONTRACTOR SHALL COORDINATE WITH ARCHITECT BEFORE PURCHASING DIFFUSERS AND REGISTERS TO VERIFY SIZE, TYPE AND FINISH. COORDINATE LOCATIONS WITH LIGHTING AND REFLECTED CEILING PLANS.
- LINING MATERIALS INSTALLED WITHIN DUCTS TO HAVE MOLD, HUMIDITY, AND EROSION RESISTANT SURFACE THAT MEETS THE REQUIREMENTS OF 2013 CMC 605.0.
- INSULATION MATERIALS SHALL HAVE A FLAME SPREAD OF NOT MORE THAN 25 AND SMOKE-DEVELOPED NOT EXCEEDING 50 WHEN TESTED AS A COMPOSITE INSTALLATION PER 2013 CMC 605.0.
- ALL WORK TO COMPLY WITH 2013 CMC AND PORT OF SAN FRANCISCO CODES AND REQUIREMENTS.

MECHANICAL SCHEDULE

EXHAUST FAN SCHEDULE													
TAG	LOCATION	MAKE/MODEL	RPM	CFM	E.S.P	SONE	ELECTRICAL					REMARK	WT (LB)
							VOLTS	Ø	HP	BHP	AMPS		
EF-1-1	JANITOR EXHAUST FAN	PANASONIC FV-05VQ5	731	50	0.10	0.3	120	1	--	--	0.09	①②③	10
EF-1-2	RESTROOM EXHAUST FAN	PANASONIC FV-15VQ5	691	150	0.10	0.3	120	1	--	--	0.24	①②③	12
EF-1-3	RESTROOM EXHAUST FAN	PANASONIC FV-15VQ5	691	150	0.10	0.3	120	1	--	--	0.24	①②③	12
EF-1-4	RESTROOM EXHAUST FAN	PANASONIC FV-15VQ5	691	150	0.10	0.3	120	1	--	--	0.24	①②③	12
EF-1-5	RESTROOM EXHAUST FAN	PANASONIC FV-15VQ5	691	150	0.10	0.3	120	1	--	--	0.24	①②③	12
EF-1-6	NOT USED												
EF-1-7	ELECTRICAL ROOM EXHAUST FAN	PANASONIC FV-40VQ3	736	380	0.10	3.0	120	1	--	--	0.94	①③④	27
EF-1-8	GAS METER ROOM EXHAUST FAN	SEE SCHEDULE BELOW											

REMARK:

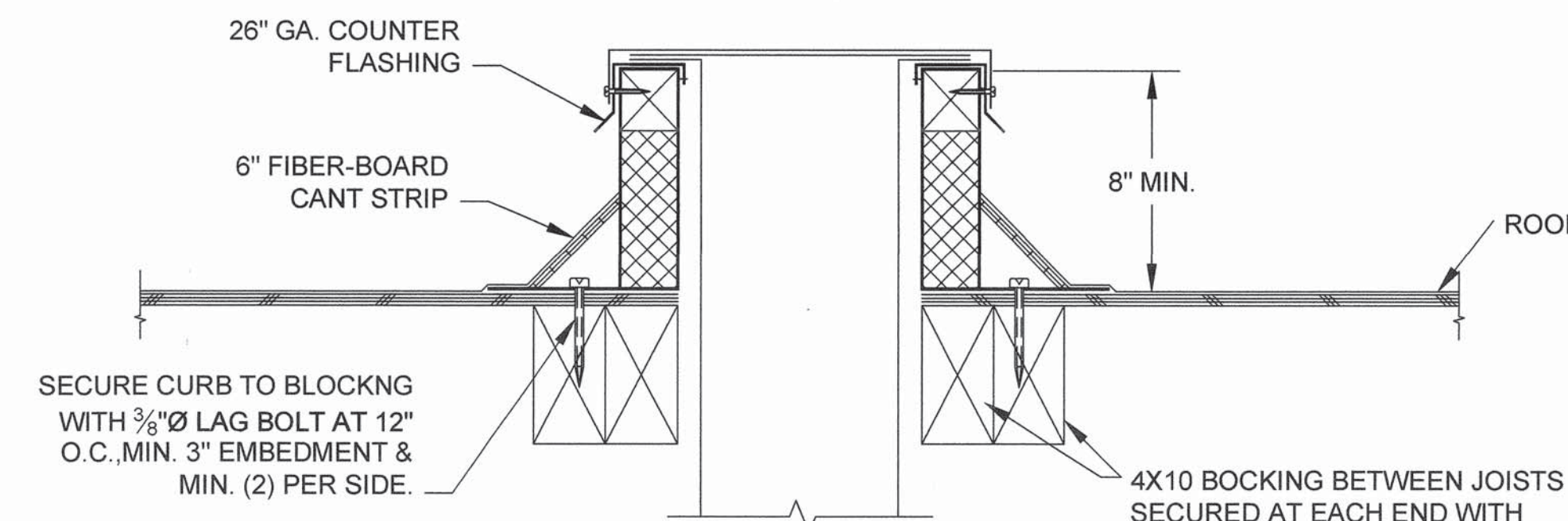
- PROVIDE NEOPRENE WASHER AT CONNECTION TO STRUCTURAL MEMBER.
- INTERLOCK WITH ROOM OCCUPANCY SENSOR. PROVIDE MINIMUM 30 MINUTE TIME DELAY.
- COMPLETE WITH BACKDRAFT DAMPER.
- PROVIDE ADJUSTABLE THERMOSTAT SET AT 85°F TO OPERATE EXHAUST FAN.

GAS METER ROOM EXHAUST FAN SCHEDULE

TAG	LOCATION	MAKE/MODEL	RPM	CFM	E.S.P	SONE	ELECTRICAL						WT (LB)	REMARK	
							VOLT	Ø	FLA	MCA	MOCP	BHP			HP
EF-1-8	GAS ROOM	GREENHECK #SQ-75-VG1/6	1550	200	0.30"	4.9	120	1	-	-	-	0.03	1/6	26	①②③④

REMARK:

- PROVIDE FLEXIBLE CONNECTIONS, EXPLOSION PROOF RATED ENCLOSURE AND MOTOR. FAN SHALL MEET NFPA 70, CLASS 1, DIVISION, GROUP D REQUIREMENT. MOUNT FAN ABOVE CEILING WITH UNISTRUT MOUNTING AND VIBRATION ISOLATORS.
- FAN SHALL RUN CONTINUOUSLY.
- PROVIDE DISCONNECT SWITCH AND BACKDRAFT DAMPER.
- TIE TO BUILDING FIRE ALARM PANEL TO GENERATE ALARM IN CASE OF FAILURE TO EXHAUST FAN.



1 ROOF CAP/CURB DETAIL
SCALE: N.T.S.

NO.	DATE	DESCRIPTION	BY	APP.

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REFERENCE INFORMATION & FILE NO. OF SURVEYS



SAN FRANCISCO PORT COMMISSION
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DEPARTMENT OF ENGINEERING



DESIGNED: DATE: JL 3/2017
DRAWN: DATE: JL 3/2017
CHECKED: DATE: TL 3/2017

APPROVED BY: SAN FRANCISCO PORT COMMISSION
DATE: 4-28-17
Uday Prasad
CHIEF HARBOR ENGINEER

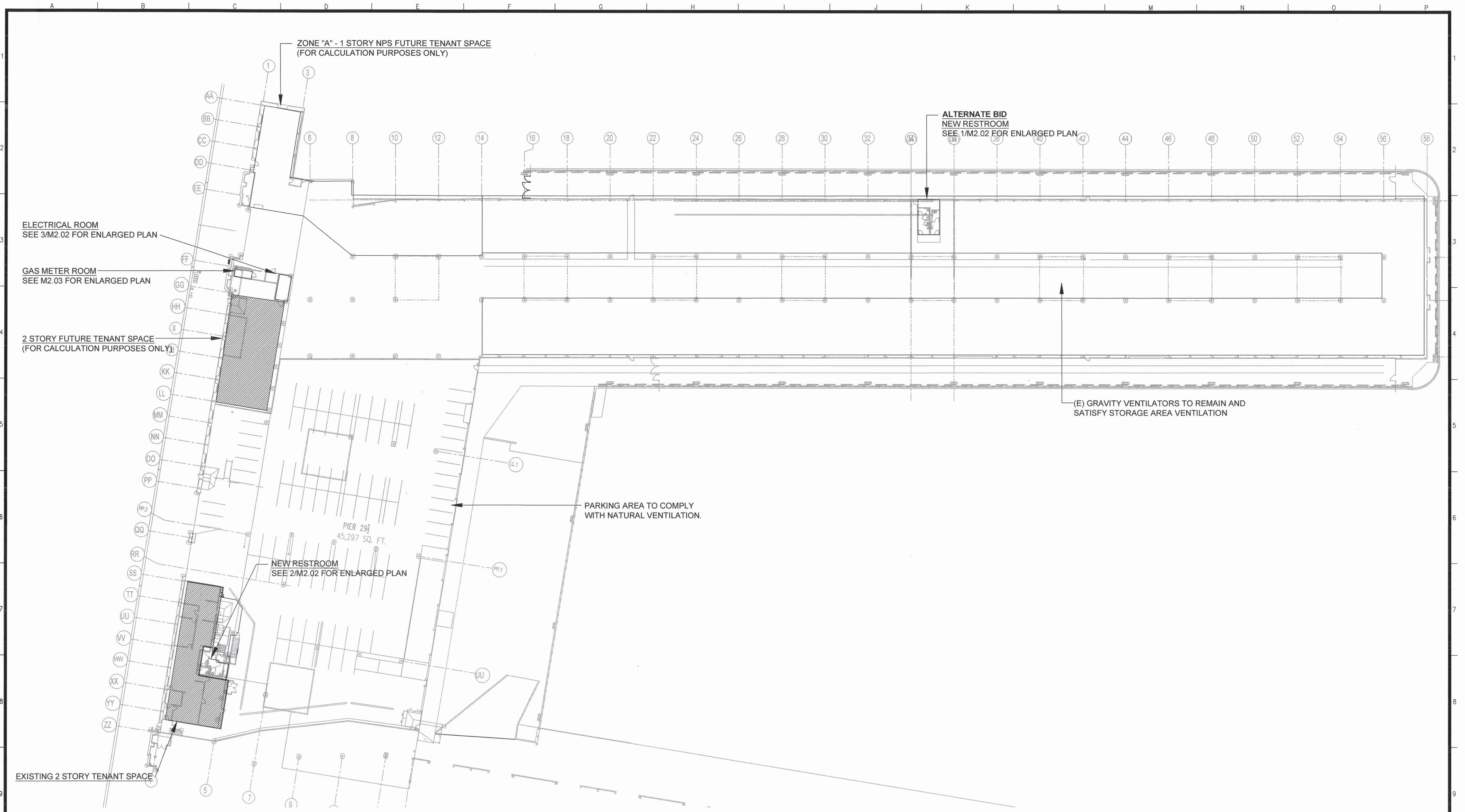
SCALE:

REV. NO.

PIER 31 UTILITY & RESTROOM PROJECT

MECHANICAL LEGEND, NOTES, AND SCHEDULE

CONTRACT NO. 2783
DRAWING NO.
SHEET NO. **M0.01**
33 OF 60



1 MECHANICAL SITE PLAN
M2.01 SCALE: 1/32" = 1'-0"



NO.	DATE	DESCRIPTION	BY	APP.
	MAY 2017	BID SET	JL	TL
	MAR 2017	REVISED SET	JL	TL
	FEB 2017	BID SET	JL	TL
	JUN 2016	PROGRESS SET	JL	TL

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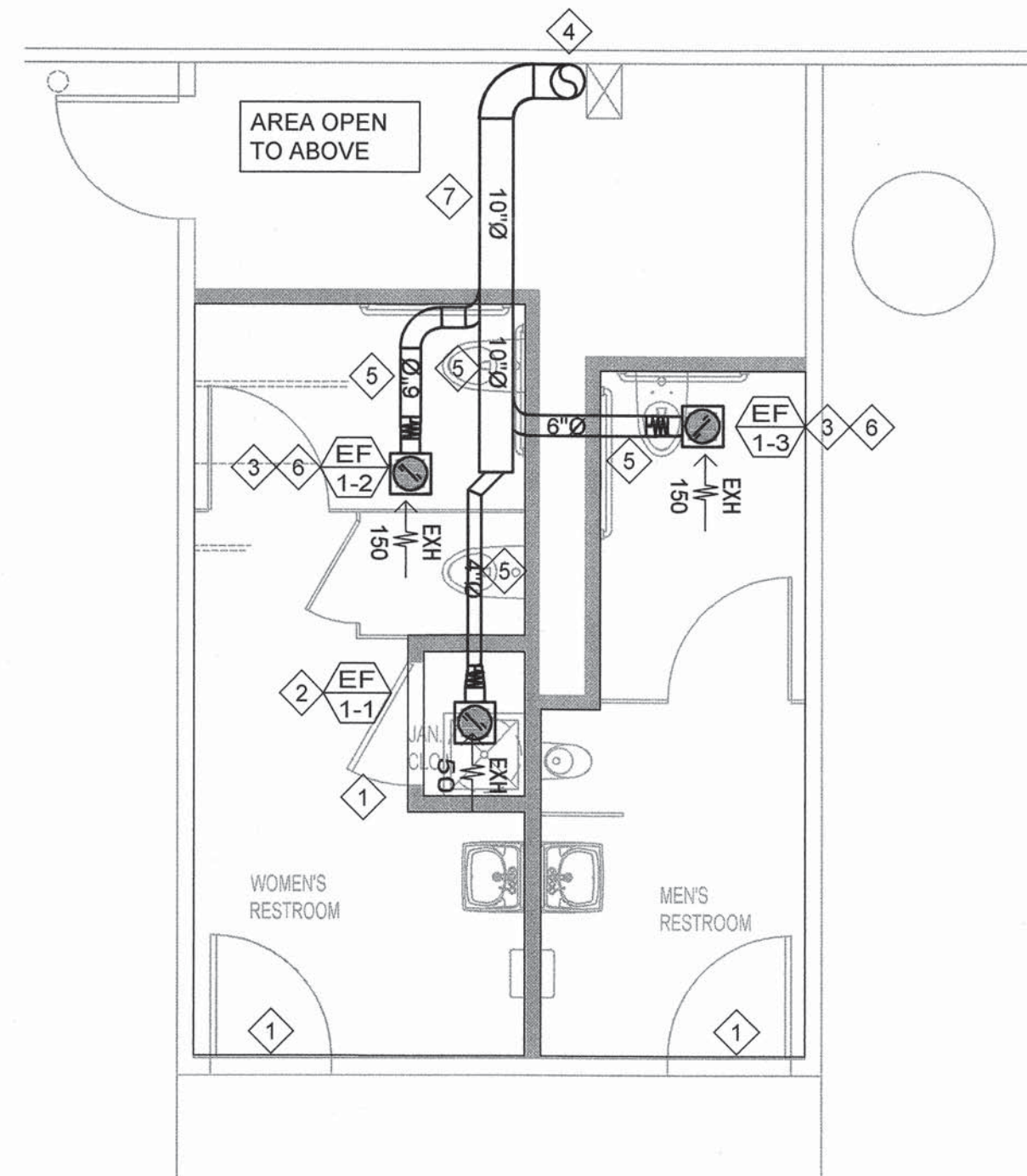
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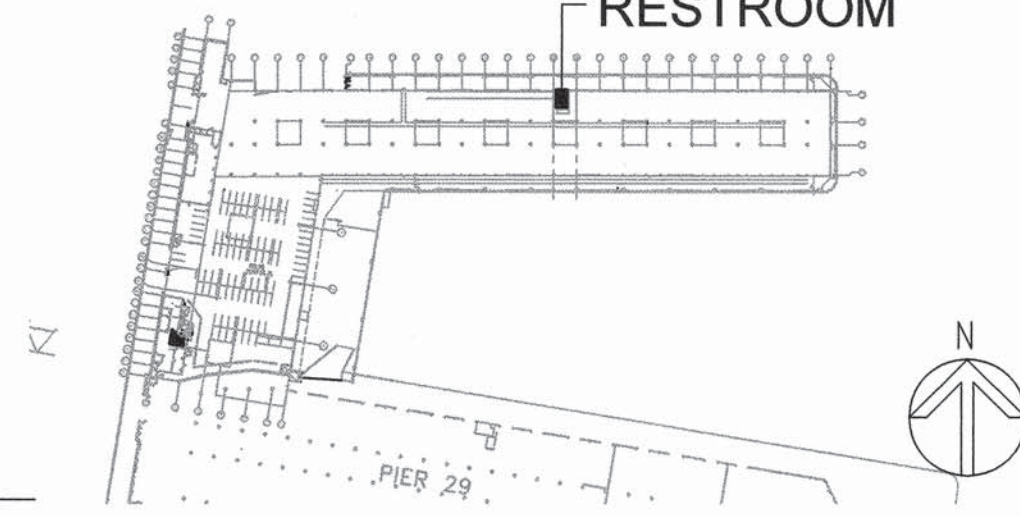
PIER 31 UTILITY & RESTROOM PROJECT
MECHANICAL SITE PLAN

CONTRACT NO. 2783
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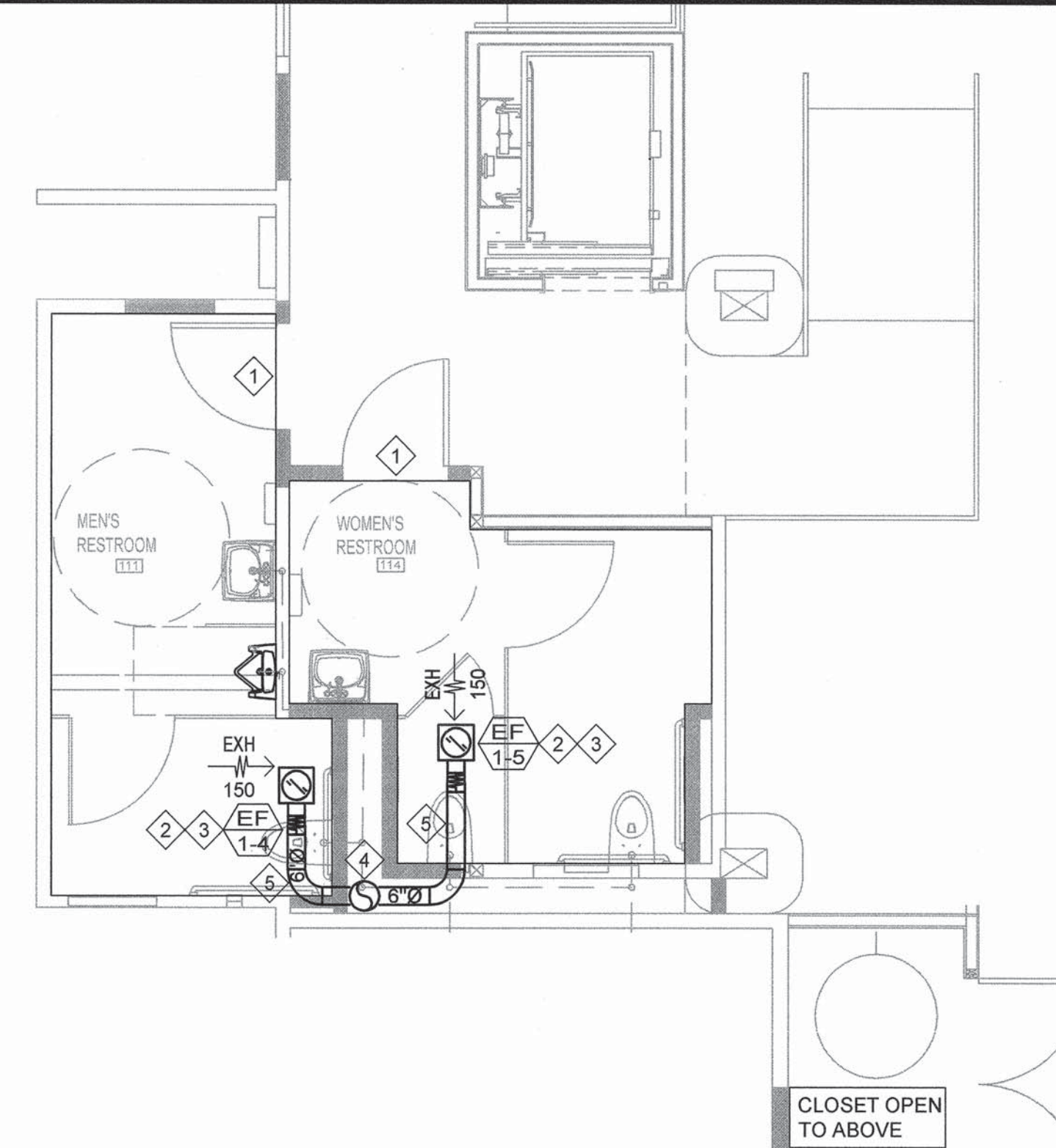


- MECHANICAL SHEETNOTES**
- 1 PROVIDE (N) LOUVERED DOOR FOR MAKE-UP AIR TO ROOM. COORDINATE WITH ARCHITECT AND PORT FOR EXACT SPECIFICATIONS.
 - 2 PROVIDE (N) CEILING EXHAUST FAN FOR JANITOR CLOSET. INTERLOCK WITH LIGHT SWITCH.
 - 3 PROVIDE (N) CEILING EXHAUST FAN FOR RESTROOM. INTERLOCK WITH OCCUPANCY SENSOR.
 - 4 PROVIDE (N) 10"Ø EXHAUST DUCT RISER UP THROUGH ROOF OF PIER 31 WITH CAP. USE (E) ROOF PENETRATIONS WHERE POSSIBLE. FIELD VERIFY FOR EXACT SIZE AND LOCATION.
 - 5 DUCTWORK SHOWN IS LOCATED ABOVE CEILING OF RESTROOM STRUCTURE.
 - 6 PROVIDE SEPARATE ROOM OCCUPANCY SENSOR LOCATED AT CEILING TO CONTROL EXHAUST FAN AND LIGHTING.
 - 7 DUCT SUPPORT CROSSING OVER TO NEARBY WALL. PROVIDE UNISTRUT SUPPORTS FASTENED FROM PIER 31 WALL OVER TO THE CEILING OF THE RESTROOMS.

KEY PLAN
RESTROOM

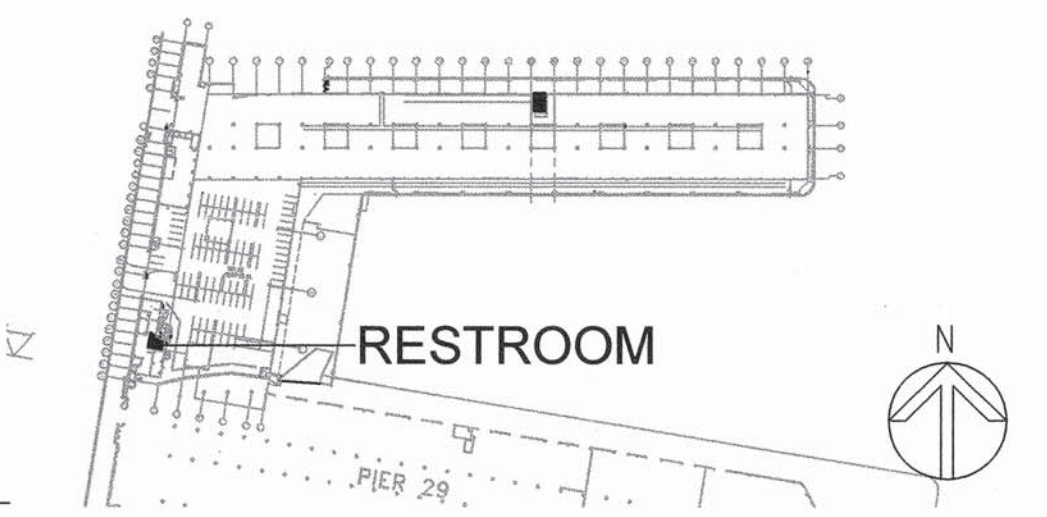


1
ALTERNATE BID
ENLARGED RESTROOM PLAN
SCALE: 1/4"=1'-0"

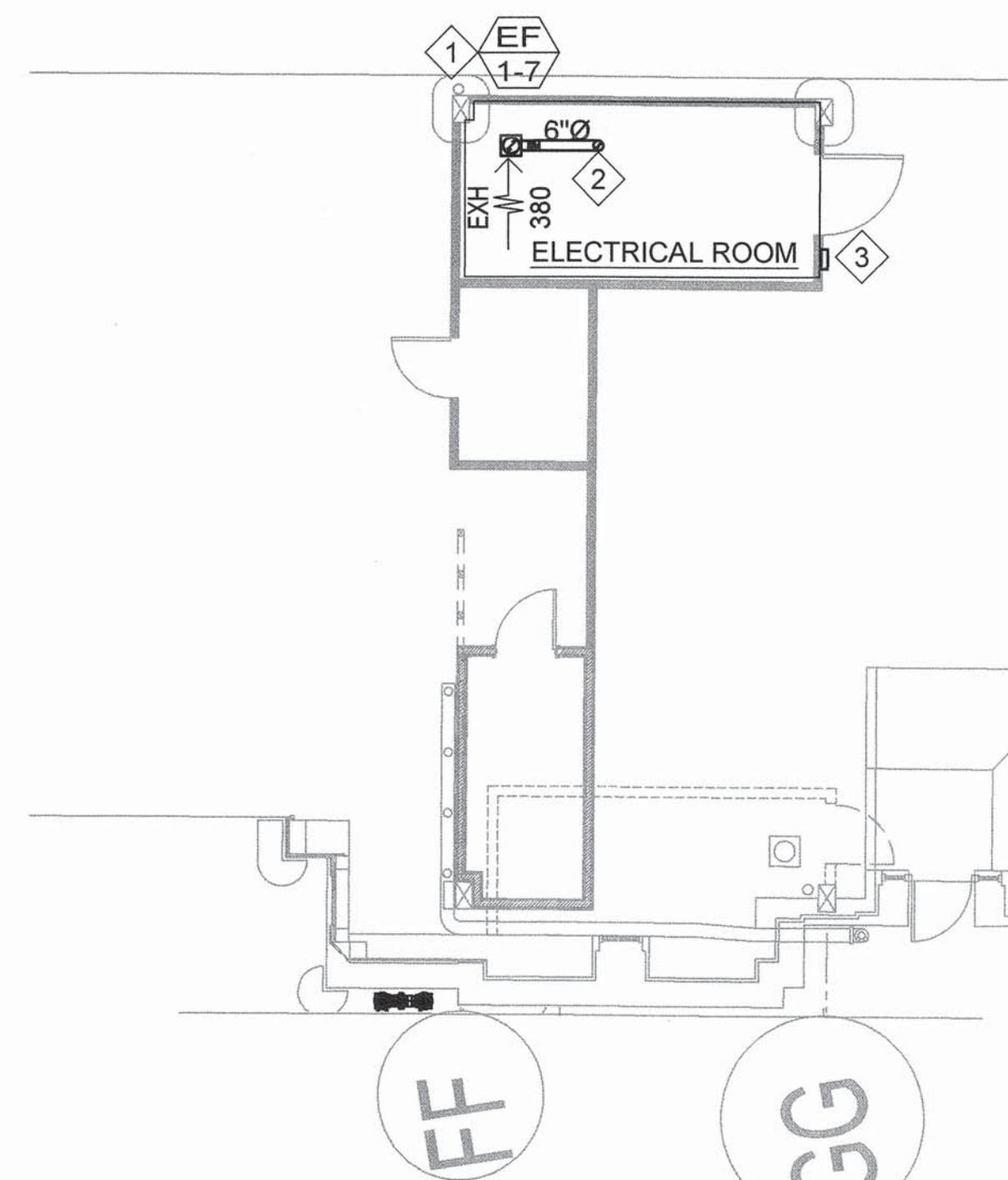


- MECHANICAL SHEETNOTES**
- 1 PROVIDE (N) LOUVERED DOOR FOR MAKE-UP AIR TO ROOM. COORDINATE WITH ARCHITECT AND PORT FOR EXACT SPECIFICATIONS.
 - 2 PROVIDE SEPARATE ROOM OCCUPANCY SENSOR LOCATED AT CEILING TO CONTROL EXHAUST FAN AND LIGHTING.
 - 3 PROVIDE (N) CEILING EXHAUST FAN FOR RESTROOM IN (N) CEILING FRAMING. INTERLOCK FAN WITH OCCUPANCY SENSOR.
 - 4 PROVIDE (N) 10"Ø EXHAUST DUCT RISER UP THROUGH ROOF OF PIER 29.5 WITH CAP. USE (E) ROOF PENETRATIONS WHERE POSSIBLE. FIELD VERIFY FOR EXACT SIZE AND LOCATION.
 - 5 DUCTWORK SHOWN IS LOCATED ABOVE THE CEILING OF RESTROOM.

KEY PLAN
RESTROOM

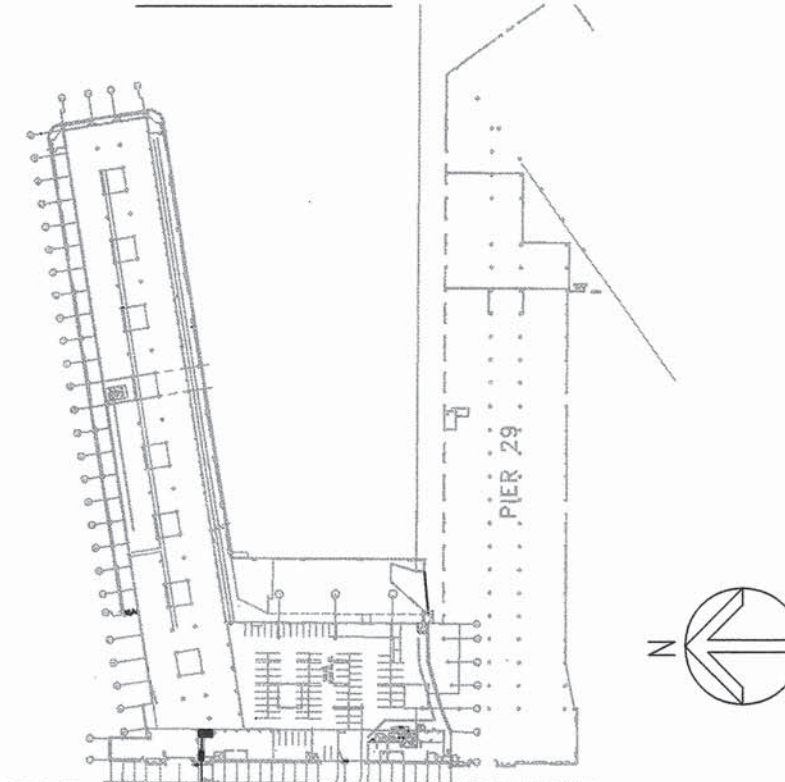


2
ENLARGED RESTROOM PLAN
SCALE: 1/4"=1'-0"

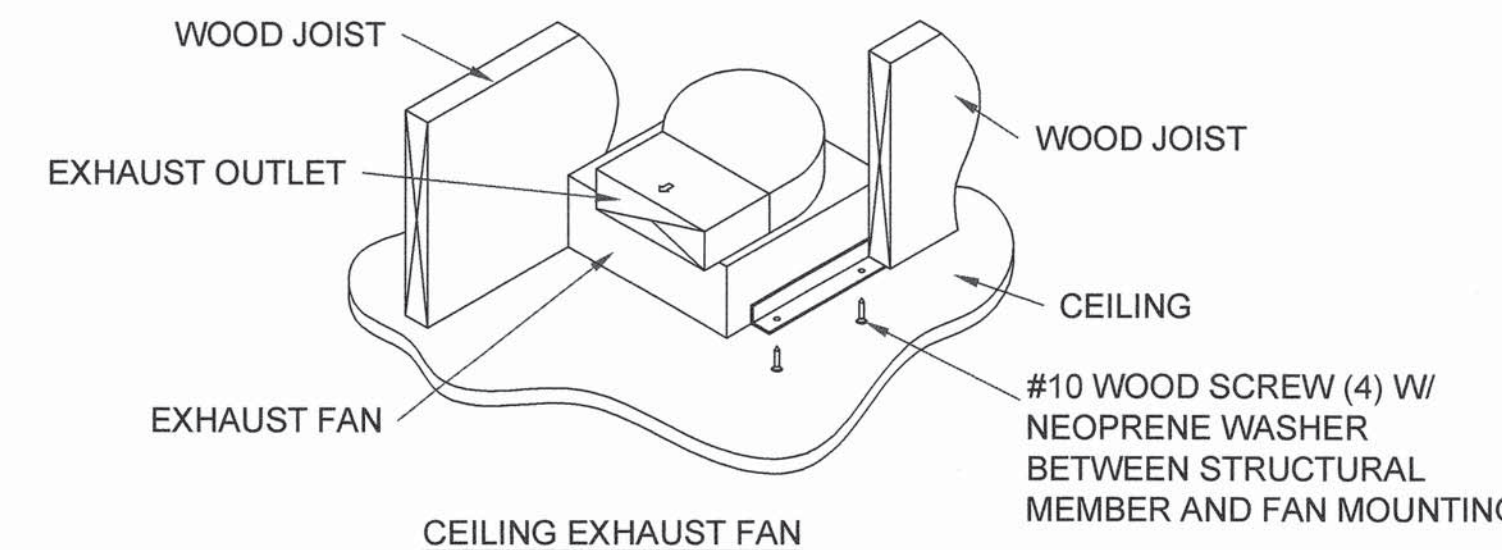


- MECHANICAL SHEETNOTES**
- 1 PROVIDE (N) EXHAUST FAN TO THE ELECTRICAL ROOM. PROVIDE ADJUSTABLE THERMOSTAT SET AT 85°F.
 - 2 PROVIDE (N) 6"Ø EXHAUST UP THROUGH CEILING WITH CAP. DISCHARGE INTO PARKING GARAGE.
 - 3 PROVIDE (N) 12x12 MAKE-UP AIR LOUVER TO NON-RATED ELECTRICAL ROOM. COORDINATE WITH ARCHITECT FOR EXACT LOCATION.

KEY PLAN
ELECTRICAL ROOM



3
ENLARGED ELECTRICAL ROOM
SCALE: 1/8"=1'-0"



4
CEILING EXHAUST FAN DETAIL
SCALE: N.T.S.

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APPROVED BY
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DATE: 4-28-17

Uday Prasad
CHIEF HARBOR ENGINEER

SCALE:	
REV. NO.	

PIER 31 UTILITY & RESTROOM PROJECT

MECHANICAL - ENLARGED PLANS

CONTRACT NO.	2783
DRAWING NO.	
SHEET NO.	M2.02
	35 OF 60

GAS METER ROOM EXHAUST FAN SCHEDULE

TAG	LOCATION	MAKE/MODEL	RPM	CFM	E.S.P	SONE	ELECTRICAL						WT (LB)	REMARK	
							VOLT	Ø	FLA	MCA	MOC	BHP			HP
EF-1-8	GAS ROOM	GREENHECK #SQ-75-VG1/6	1550	200	0.30"	4.9	120	1	-	-	-	0.03	1/8	26	①②③

REMARK:
 ① PROVIDE FLEXIBLE CONNECTIONS, EXPLOSION PROOF RATED ENCLOSURE AND MOTOR. FAN SHALL MEET NFPA 70, CLASS 1, DIVISION, GROUP D REQUIREMENT. MOUNT FAN ABOVE CEILING WITH UNISTRUT MOUNTING AND VIBRATION ISOLATORS.
 ② FAN SHALL RUN CONTINUOUSLY.
 ③ PROVIDE DISCONNECT SWITCH AND BACKDRAFT DAMPER.
 ④ TIE TO BUILDING FIRE ALARM PANEL TO GENERATE ALARM IN CASE OF FAILURE TO EXHAUST FAN.

GAS METER ROOM VENTILATION CALCS.

GAS METER ROOM VENTILATION CALCULATION

APPROXIMATE ROOM FLOOR AREA: 136 SF
 ROOM HEIGHT: 10'-0"

REQUIRED AIRFLOW PER PG&E J-16:

[1 CFM PER SQUARE FEET]

136 SF x 1 CFM/SF = 136 CFM

[6 AIR CHANGES PER HOUR]

136 SF x 10 FT x 6 / 60 = 136 CFM

TAKING THE LARGEST OF THE TWO: REQUIRED MINIMUM VENTILATION AIR FLOW RATE IS: 136 CFM

DESIGN AIR FLOW RATE = 200 CFM

GAS METER ROOM DUCT LOSS CALCULATION

(N) 8"Ø EXHAUST AIR DUCT LOSS: 75 FT (TOTAL EQUIVALENT LENGTH) x 0.01"/100 FT = 0.01" W.C.
 (N) 12x12 INTAKE AIR DUCT LOSS: 75 FT (TOTAL EQUIVALENT LENGTH) x 0.01"/100 FT = 0.01" W.C.
 EXHAUST AND INTAKE AIR GRILLE LOSS: 0.10" W.C.

TOTAL DUCT SYSTEM PRESSURE LOSS: 0.01" + 0.01" + 0.10" = 0.12" W.C.

FAN EXTERNAL STATIC PRESSURE AS DESIGNED: 0.30" W.C.

MECHANICAL SHEETNOTES

- ① PROVIDE (N) 12x12 OUTSIDE AIR LOUVER AT EXTERIOR WALL MOUNTED AT 8' ABOVE FINISHED FLOOR/SIDEWALK. COORDINATE WITH ARCHITECT FOR EXACT LOCATION. LOCATION AND HEIGHT OF LOUVER TO BE CONFIRMED BY PG&E.
- ② PROVIDE (N) EXPLOSION PROOF EXHAUST AIR FAN AT 200 CFM RUNNING CONTINUOUSLY AND MONITORED IN CASE OF FAILURE. TIE TO BUILDING FIRE ALARM PANEL TO GENERATE ALARM IN CASE OF FAILURE TO EXHAUST FAN. EXHAUST FAN SHALL BE MOUNTED ON TOP OF GAS METER ROOM ON UNISTRUT SUPPORT BRACKETS WITH VIBRATION ISOLATORS. FAN SHALL MEET NFPA 70, CLASS 1, DIVISION 1, GROUP D REQUIREMENT.
- ③ PROVIDE (N) 12x12 CEILING EXHAUST GRILLE AND (N) 8"Ø DUCTWORK INTO EXHAUST FAN ON LOWER ROOF OF GAS METER ROOM. PROVIDE 1-1/2 HOUR RUSKIN CFDW EXTENDED CEILING FIRE DAMPER AT PENETRATION INTO GAS METER ROOM.
- ④ PROVIDE (N) 8"Ø EXHAUST UP THROUGH ROOF OF PIER 31 WITH CAP. COORDINATE WITH STRUCTURAL FRAMING. VERIFY IN FIELD.
- ⑤ PROVIDE (N) 12x12 DUCTWORK FROM LOUVER TO GAS METER ROOM ENCLOSED IN A RATED SOFFIT. COORDINATE WITH ARCHITECT.
- ⑥ PROVIDE (N) 12x12 DUCTWORK INTO GAS METER ROOM AND DROP TO FLOOR LEVEL WITH A 12x12 OPENING AT 12" ABOVE FINISHED FLOOR. COORDINATE WITH ARCHITECT. PROVIDE NEW 1-1/2 HOUR RUSKIN DIBD2 CURTAIN TYPE FIRE DAMPER AT WALL PENETRATION INTO GAS METER ROOM.

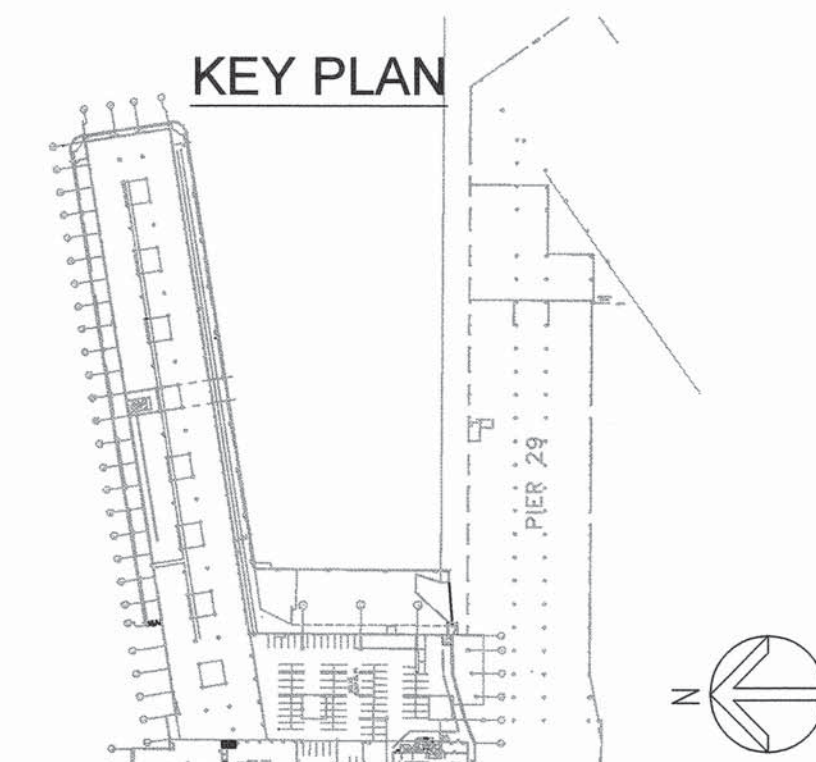
FIRE DAMPER AT CEILING PENETRATION

FIRE DAMPER AT WALL PENETRATION

GAS METER ROOM

1 ENLARGED GAS METER ROOM

M2.03 SCALE: 1/4"=1'-0"



GAS METER ROOM

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MAY 2017	BID SET		JL	TL
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PIER 31 UTILITY & RESTROOM PROJECT

**MECHANICAL PLAN -
 GAS METER ROOM**

CONTRACT NO. 2783
 DRAWING NO.
 SHEET NO. **M2.03**
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