

PLAN REVIEW #1	3.28.2022
PLAN REVIEW #2	4.18.2022
PLAN REVIEW #3	5.5.2022
PLAN REVIEW #4	6.7.2022
PLAN REVIEW #5	6.24.2022

Date:	12-11-20
Proj No:	10081
Drawn By:	MOA
CHKD BY:	MRD
DSGN BY:	MRD
Acad File:	

**COMMONS ON THE TUALATIN**  
 6645 SW NYBERG LANE  
 BUILDING A  
**BASEMENT MECHANICAL PLAN - WEST**  
 TUALATIN OREGON 97225

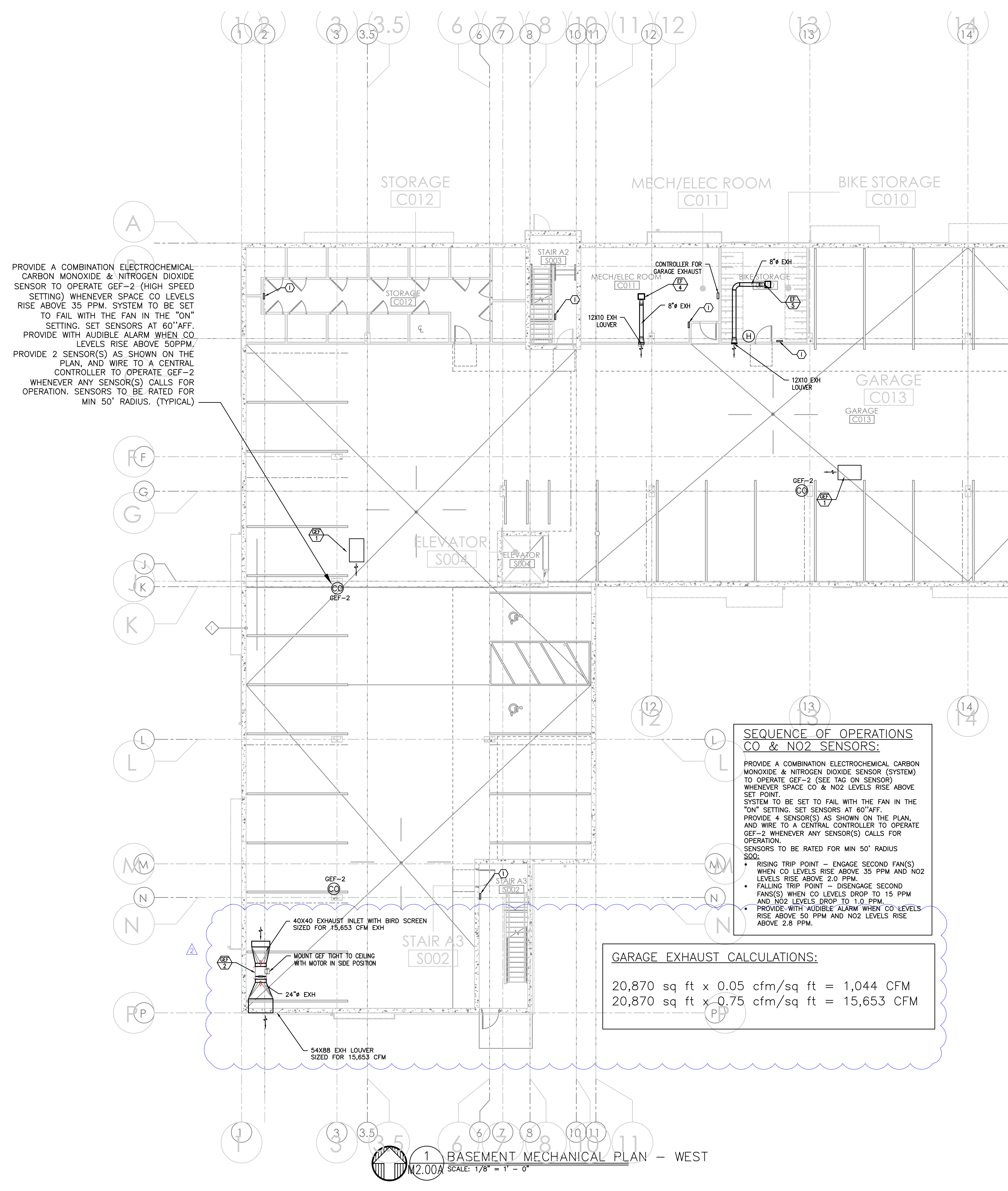
PERMIT SET  
 12/10/20  




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SHEET

**M2.00A**



PROVIDE A COMBINATION ELECTROCHEMICAL CARBON MONOXIDE & NITROGEN DIOXIDE SENSOR TO OPERATE GEF-2 (HIGH SPEED SETTING) WHENEVER SPACE CO LEVELS RISE ABOVE 35 PPM. SYSTEM TO BE SET TO FAIL WITH THE FAN IN THE "ON" SETTING. SET SENSORS AT 60" AFF. PROVIDE WITH AUDIBLE ALARM WHEN CO LEVELS RISE ABOVE 50PPM. PROVIDE 2 SENSOR(S) AS SHOWN ON THE PLAN, AND WIRE TO A CENTRAL CONTROLLER TO OPERATE GEF-2 WHENEVER ANY SENSOR(S) CALLS FOR OPERATION. SENSORS TO BE RATED FOR MIN 50' RADIUS. (TYPICAL)

**SEQUENCE OF OPERATIONS CO & NO2 SENSORS:**  
 PROVIDE A COMBINATION ELECTROCHEMICAL CARBON MONOXIDE & NITROGEN DIOXIDE SENSOR (SYSTEM) TO OPERATE GEF-2 (SEE TAG ON SENSOR) WHENEVER SPACE CO & NO2 LEVELS RISE ABOVE SET POINT. SYSTEM TO BE SET TO FAIL WITH THE FAN IN THE "ON" SETTING. SET SENSORS AT 60" AFF. PROVIDE 4 SENSOR(S) AS SHOWN ON THE PLAN, AND WIRE TO A CENTRAL CONTROLLER TO OPERATE GEF-2 WHENEVER ANY SENSOR(S) CALLS FOR OPERATION. SENSORS TO BE RATED FOR MIN 50' RADIUS S002:

- RISING TRIP POINT - ENGAGE SECOND FAN(S) WHEN CO LEVELS RISE ABOVE 35 PPM AND NO2 LEVELS RISE ABOVE 2.0 PPM.
- FALLING TRIP POINT - DISENGAGE SECOND FAN(S) WHEN CO LEVELS DROP TO 15 PPM AND NO2 LEVELS DROP TO 1.0 PPM.
- PROVIDE WITH AUDIBLE ALARM WHEN CO LEVELS RISE ABOVE 50 PPM AND NO2 LEVELS RISE ABOVE 2.8 PPM.

**GARAGE EXHAUST CALCULATIONS:**  
 20,870 sq ft x 0.05 cfm/sq ft = 1,044 CFM  
 20,870 sq ft x 0.75 cfm/sq ft = 15,653 CFM

**GENERAL NOTES:**

1. FOR ADDITIONAL EQUIPMENT INFORMATION AND REQUIREMENTS, SEE SPECIFICATIONS & EQUIPMENT SUBMITTALS.
2. MAINTAIN WALL ASSEMBLY FIRE RATING FOR INSTALLATION OF WALL HEATERS IN FIRE RATED WALLS. COORDINATE INSTALLATION WITH ARCHITECTURAL DRAWINGS.
3. ALL ELECTRIC HEATERS PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR, TYPICAL ALL UNITS.
4. ALL DWELLING UNITS ARE VENTILATED BY NATURAL VENTILATION. OPERABLE WINDOW & DOOR AREAS HAVE BEEN SIZED TO PROVIDE A MINIMUM OF 4% OF THE FLOOR AREA.
5. COMMON SPACES AND HALLWAYS ARE VENTILATED BY PTHP UNIT(S) PROVIDING OUTSIDE AIR THAT MEETS THE CODE MINIMUM 0.06 CFM/SQFT REQUIRED BE CODE.
6. ALL EQUIPMENT AND DUCTWORK IS LOCATED BELOW RATED ASSEMBLY.
7. INSULATE ALL DUCTWORK LOCATED IN ATTIC.

**KEY NOTES:**

- (A) - 4" DRYER EXHAUST TO EXTERIOR-ROOF TERMINATION VIA SOFFIT(S) PROVIDED. INSULATE DUCTWORK IN ATTIC. DRYER DUCT MATERIAL SHALL HAVE A SMOOTH INTERIOR FINISH, BE CONSTRUCTED OF 26 GA SHEET METAL, SUPPORTED AT 4 FOOT INTERVALS, RIVET OR SCREW PENETRATIONS THROUGH THE DUCT WALL ARE NOT ACCEPTABLE. IDENTIFY TOTAL EQUIVALENT LENGTH OF DRYER VENT WITH PERMANENT LABEL WITHIN 6FT OF DRYER CONNECTION. CLEAN-OUT TO BE PROVIDED FOR ALL VERTICAL RISERS. SEE (3) (M6.01)
- (B) - PANASONIC WHISPERGREEN CEILING FAN WITH 4" DUCT TO ROOF OR EXTERIOR WALL TERMINATION VIA SOFFIT(S) PROVIDED. BACK DRAFT DAMPER INTEGRAL TO FAN, FAN TO OPERATE AT LOW SPEED CONTINUOUS (30CFM) AND INCREASE TO 80CFM WHEN BUILT-IN MOTION SENSOR IS ACTIVATED. INSULATED FINAL 5' OF DUCTWORK, AND ALL DUCTWORK IN ATTIC. NO DUCTWORK SHALL PENETRATE RATED ASSEMBLY. SEE (4) (M6.01) (EF 1) (EF 2)
- (C) - 6" HOOD DUCT TO ROOF/EXTERIOR WALL TERMINATION VIA SOFFIT(S) PROVIDED. BACK DRAFT DAMPER INTEGRAL TO HOOD, INSULATED FINAL 5' OF DUCTWORK AND ALL DUCTWORK IN ATTIC. NO DUCTWORK SHALL PENETRATE RATED ASSEMBLY. HOOD FAN TO OPERATE INTERMITTENTLY.
- (D) - EXTERIOR EXHAUST PLENUM - SEE (1) (M6.02) MAINTAIN 36" CLEAR TO OPERABLE WINDOWS AND DOORS.
- (E) - LINT TRAPS ON ALL DRYERS, SEE (2) (M6.02) FOR TYP DETAIL. 4" DRYER EXHAUST DUCT WITH RECESSED DRYER BOX.
- (F) - REFRIGERANT LINES FROM SPLIT HEAT PUMP CONDENSERS ON LEVEL 1 TO FAN COILS IN BASEMENT AND LEVEL 1.
- (G) - 1" OUTSIDE AIR TO FAN COIL, PROVIDE WITH 2-POSITION DAMPER TO OPEN WHENEVER FAN COIL OPERATES. DAMPER TO BE A LOW LEAK CLASS 1 DAMPER.
- (H) - AMANA PTHP (PACKAGED TERMINAL HEAT PUMP) WITH FACTORY WALL SLEEVE, CONDENSATE DRAIN KIT, AND 42X18 ALUMINUM ARCHITECTURAL GRILLE AT EXTERIOR. INSTALL GRAVITY CONDENSATE DRAIN KIT, PLUMBING CONTRACTOR TO MAKE CONNECTION AT DRAIN KIT AND CONTINUE DRAIN LINE TO AN APPROVED LOCATION. SEE (1) (M6.01)
- (I) - 1.5KW WALL HEATER OMARK AWH4404F OR EQUAL EQUIPMENT BY ELECTRICAL CONTRACTOR. SHOWN FOR REFERENCE ONLY.
- (J) - VERTICAL FIRE PENETRATION DETAIL. SEE (5) (M6.02)



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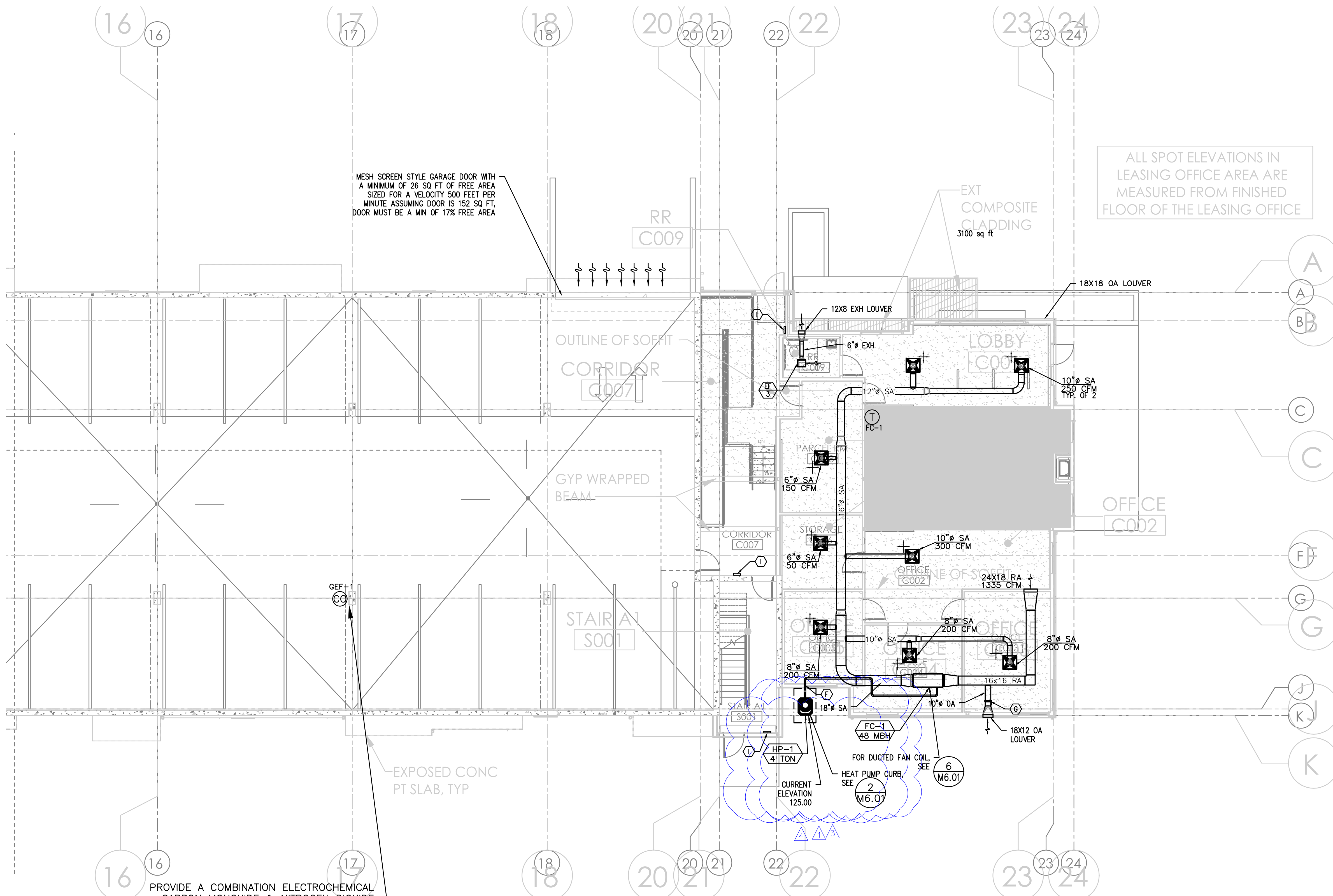
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**M2.00B**



ALL SPOT ELEVATIONS IN LEASING OFFICE AREA ARE MEASURED FROM FINISHED FLOOR OF THE LEASING OFFICE

MESH SCREEN STYLE GARAGE DOOR WITH A MINIMUM OF 26 SQ FT OF FREE AREA SIZED FOR A VELOCITY 500 FEET PER MINUTE. ASSUMING DOOR IS 152 SQ FT, DOOR MUST BE A MIN OF 17% FREE AREA

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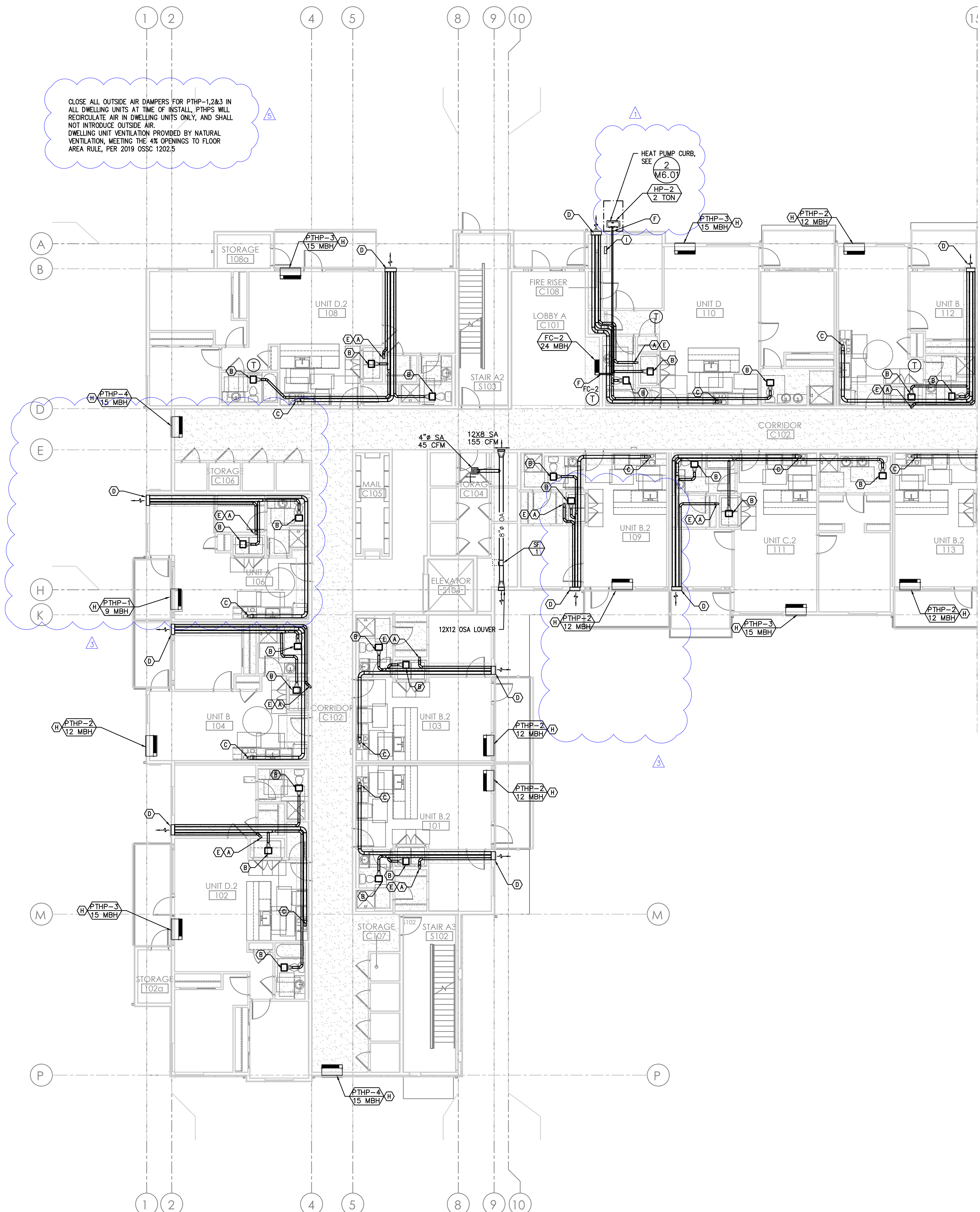
**1 BASEMENT MECHANICAL PLAN - EAST**  
M2.00B SCALE: 1/8" = 1' - 0"

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1 LEVEL 1 MECHANICAL PLAN — WEST  
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BUILDING A  
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**6845 SW NYBERG LANE**  
**BUILDING A**  
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 TUALATIN OREGON 97225

PERMIT SET  
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**JACOBS**



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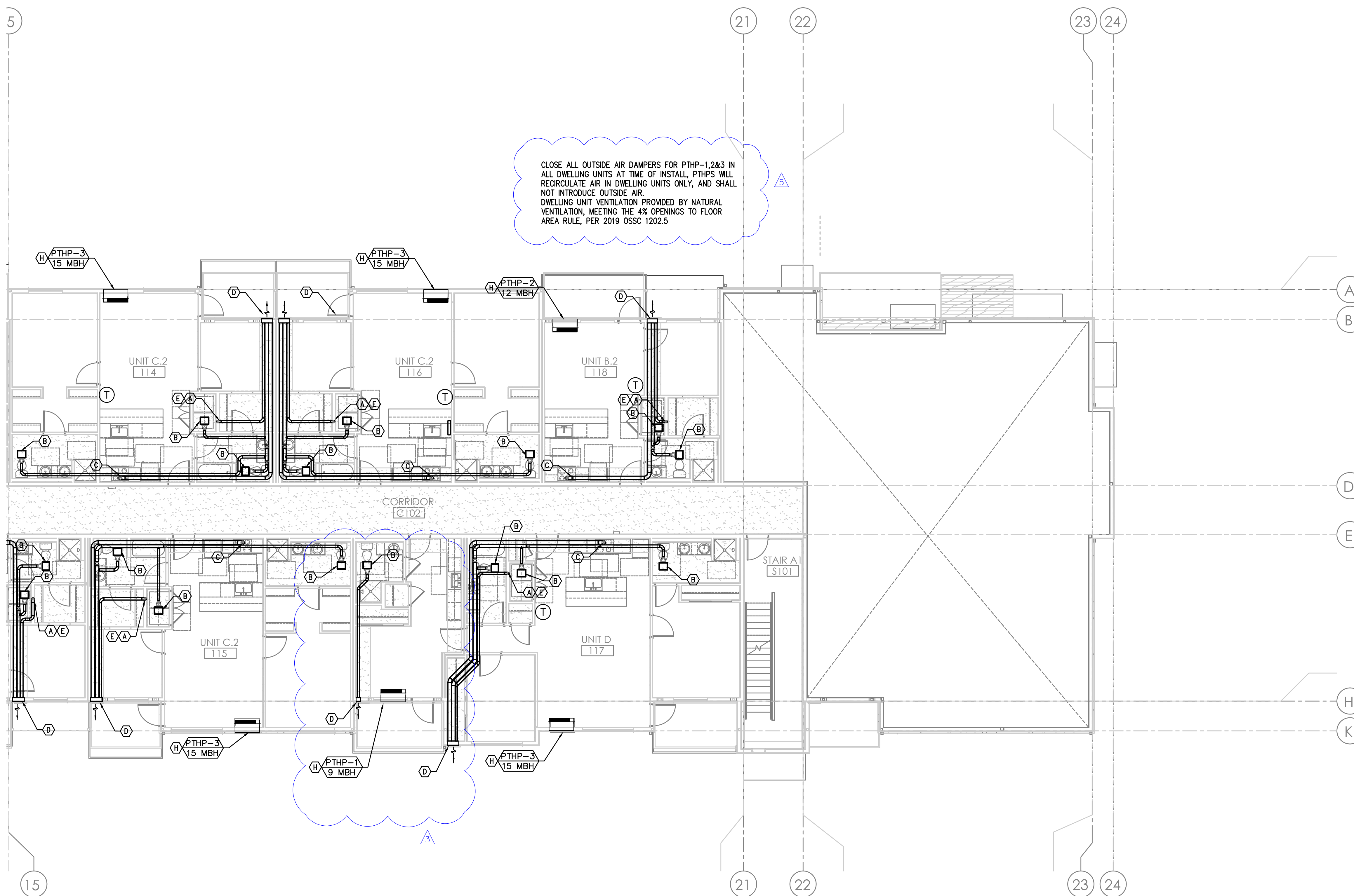
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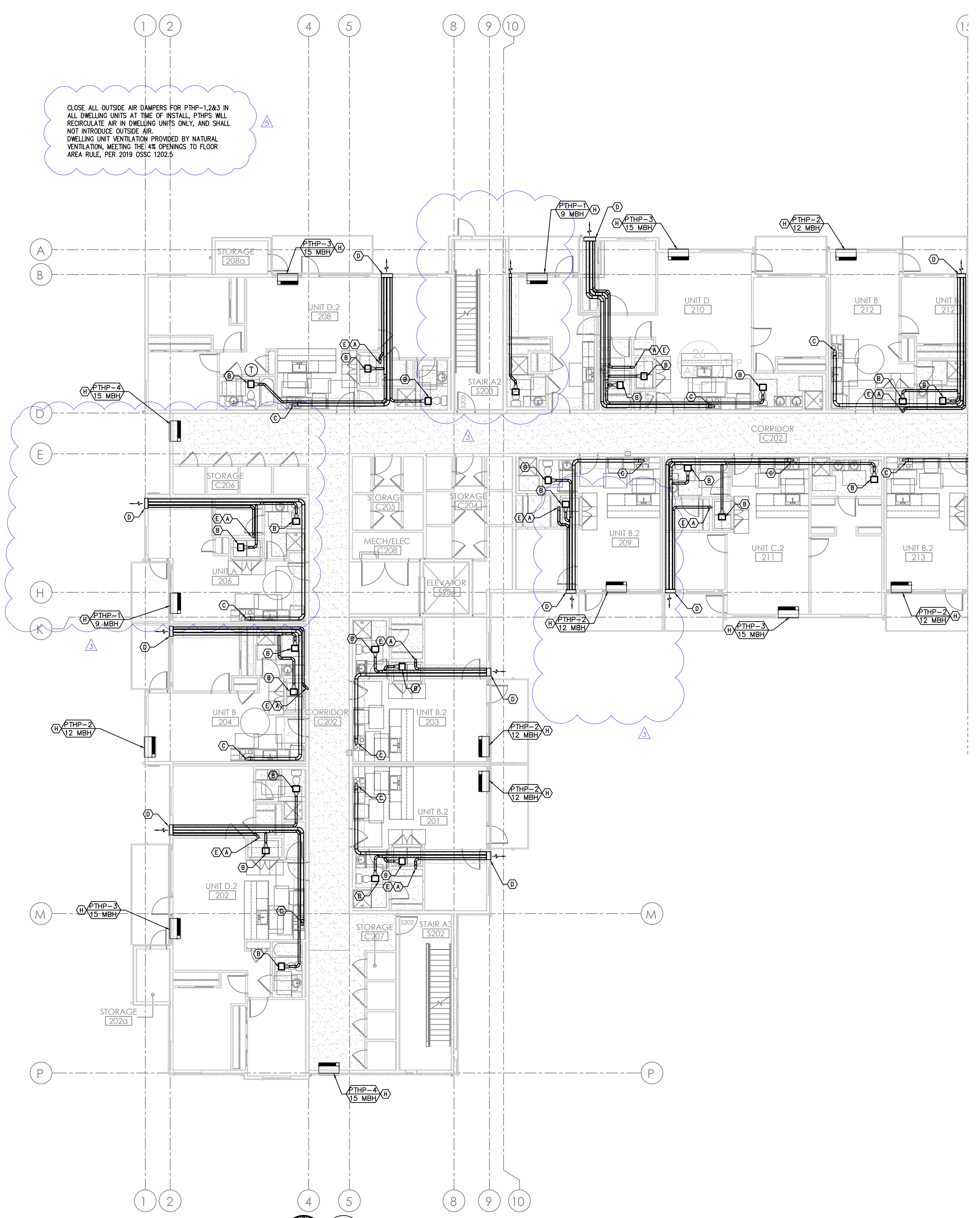
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- (I) — 1.5KW WALL HEATER QMARK AWH4404F OR EQUAL. EQUIPMENT BY ELECTRICAL CONTRACTOR. SHOWN FOR REFERENCE ONLY.
- (J) — VERTICAL FIRE PENETRATION DETAIL. SEE (5) M6.02

1 LEVEL 2 MECHANICAL PLAN — WEST  
SCALE: 1/8" = 1' - 0"



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Drawn By:	MOA
Chkd By:	MRD
DSGN By:	MRD
Acad File:	MRD

PLAN REVIEW	3.28.2022
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PLAN REVIEW #5	6.24.2022

**COMMONS ON THE TUALATIN**  
6845 SW NYBERG LANE  
BUILDING A  
**LEVEL 2 MECHANICAL PLAN - WEST**  
TUALATIN OREGON 97225

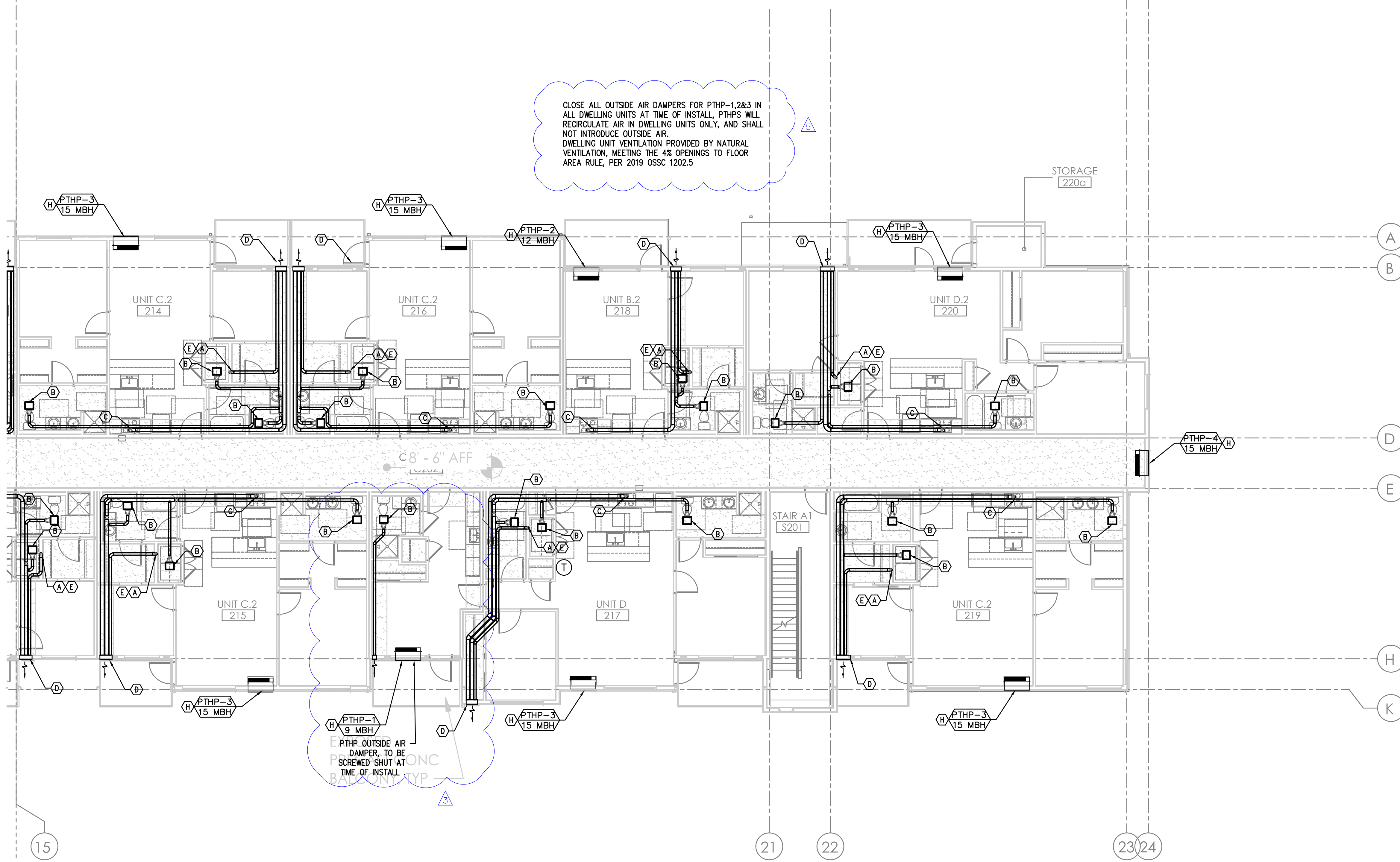


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**M2.02A**

15



CLOSE ALL OUTSIDE AIR DAMPERS FOR PTHP-1,2&3 IN ALL DWELLING UNITS AT TIME OF INSTALL. PTHPS WILL RECIRCULATE AIR IN DWELLING UNITS ONLY, AND SHALL NOT INTRODUCE OUTSIDE AIR. DWELLING UNIT VENTILATION PROVIDED BY NATURAL VENTILATION, MEETING THE 4% OPENINGS TO FLOOR AREA RULE, PER 2019 OSSC 1202.5

PTHP-1  
9 MBH  
PTHP OUTSIDE AIR DAMPERS TO BE SCREWED SHUT AT TIME OF INSTALL.  
RACON TYP

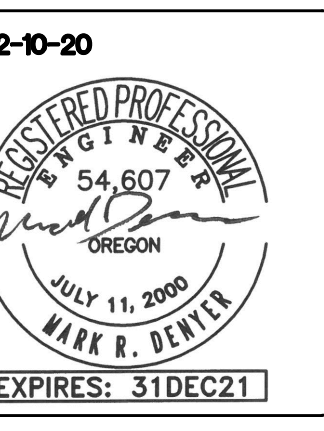
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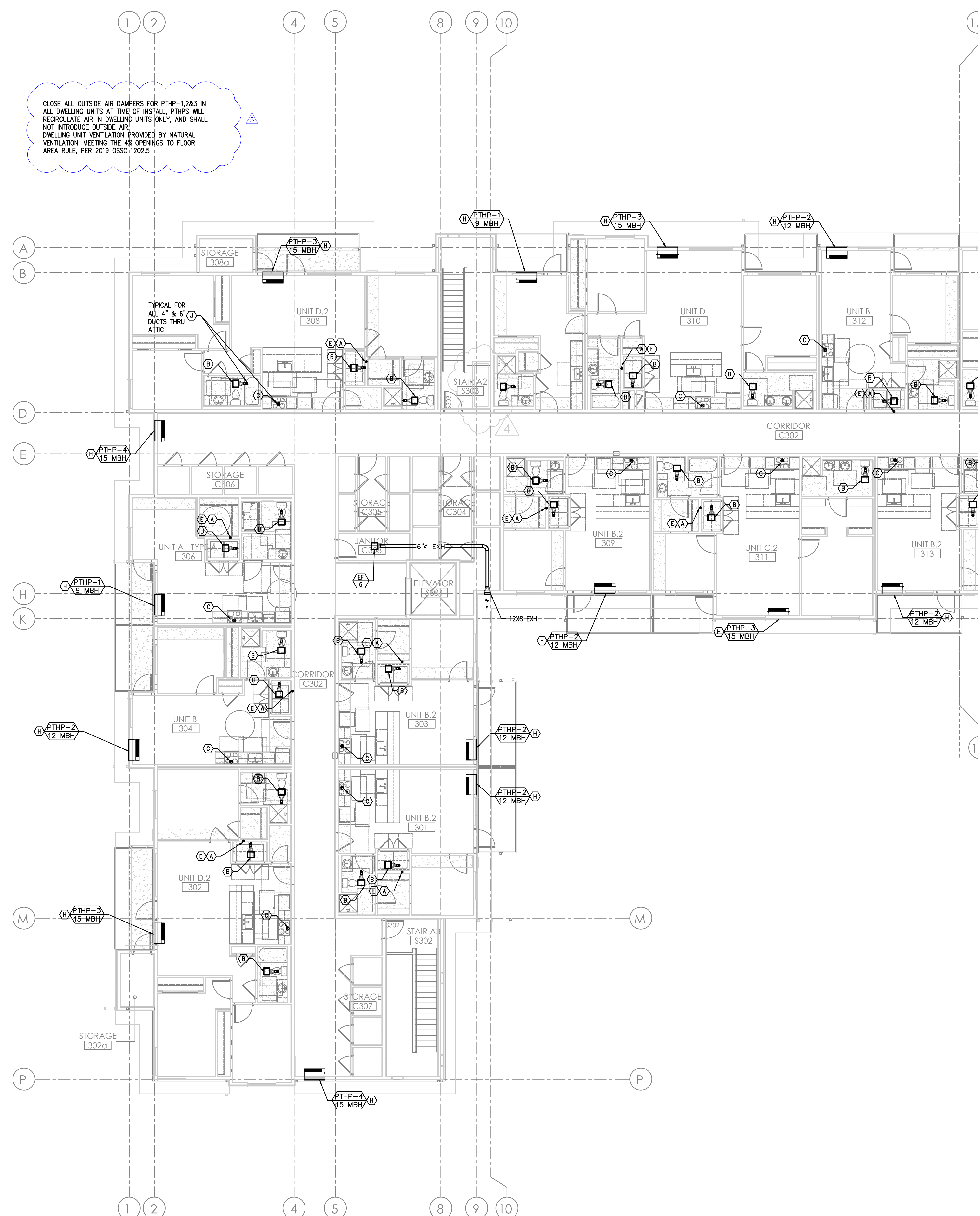
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**M2.02B**



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1 LEVEL 3 MECHANICAL PLAN — WEST  
M2.03A SCALE: 1/8" = 1' - 0"



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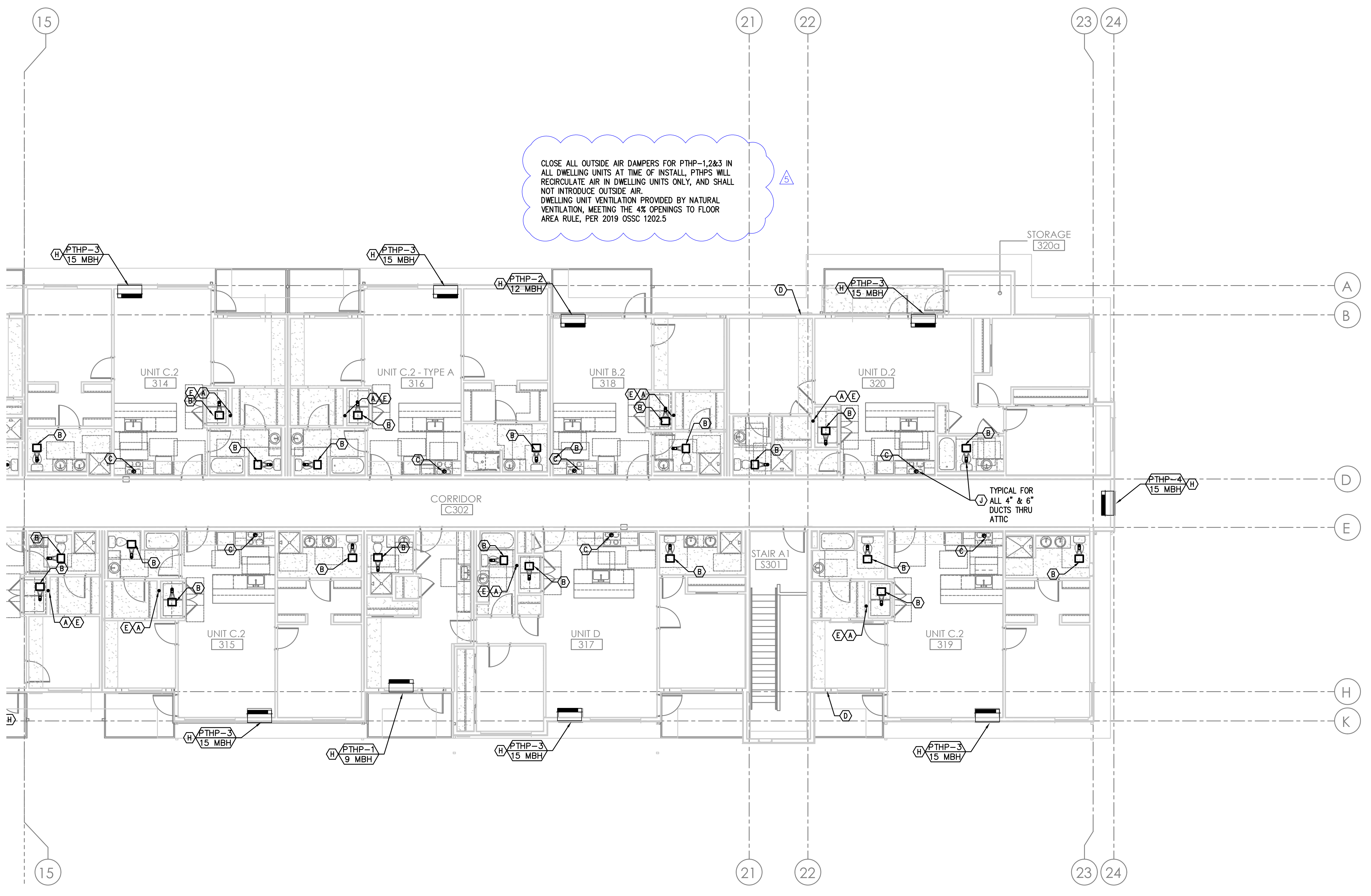
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**M2.03A**



1 LEVEL 3 MECHANICAL PLAN - EAST  
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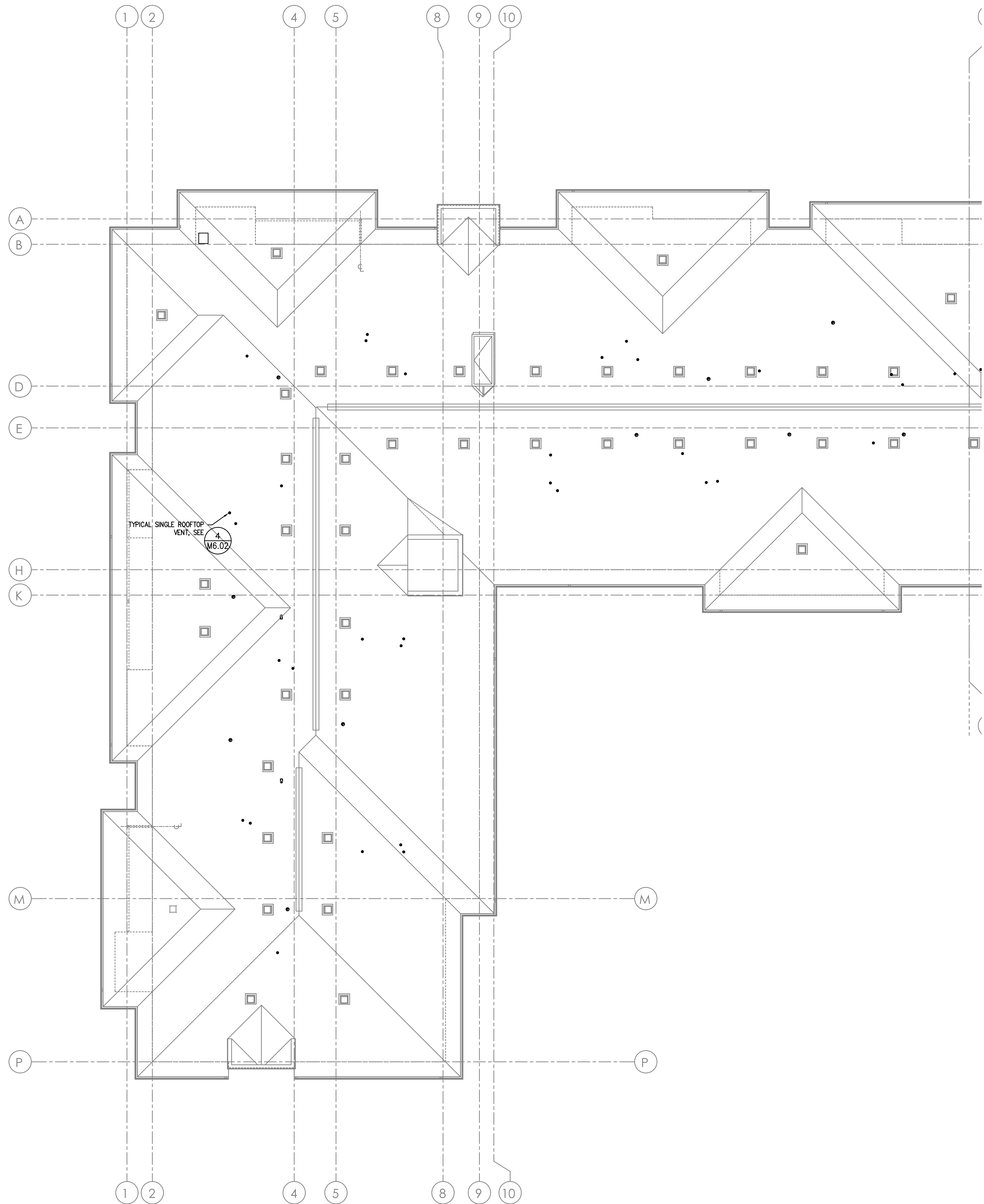
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SHEET  
**M2.03B**





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**1 ROOF MECHANICAL PLAN - WEST**  
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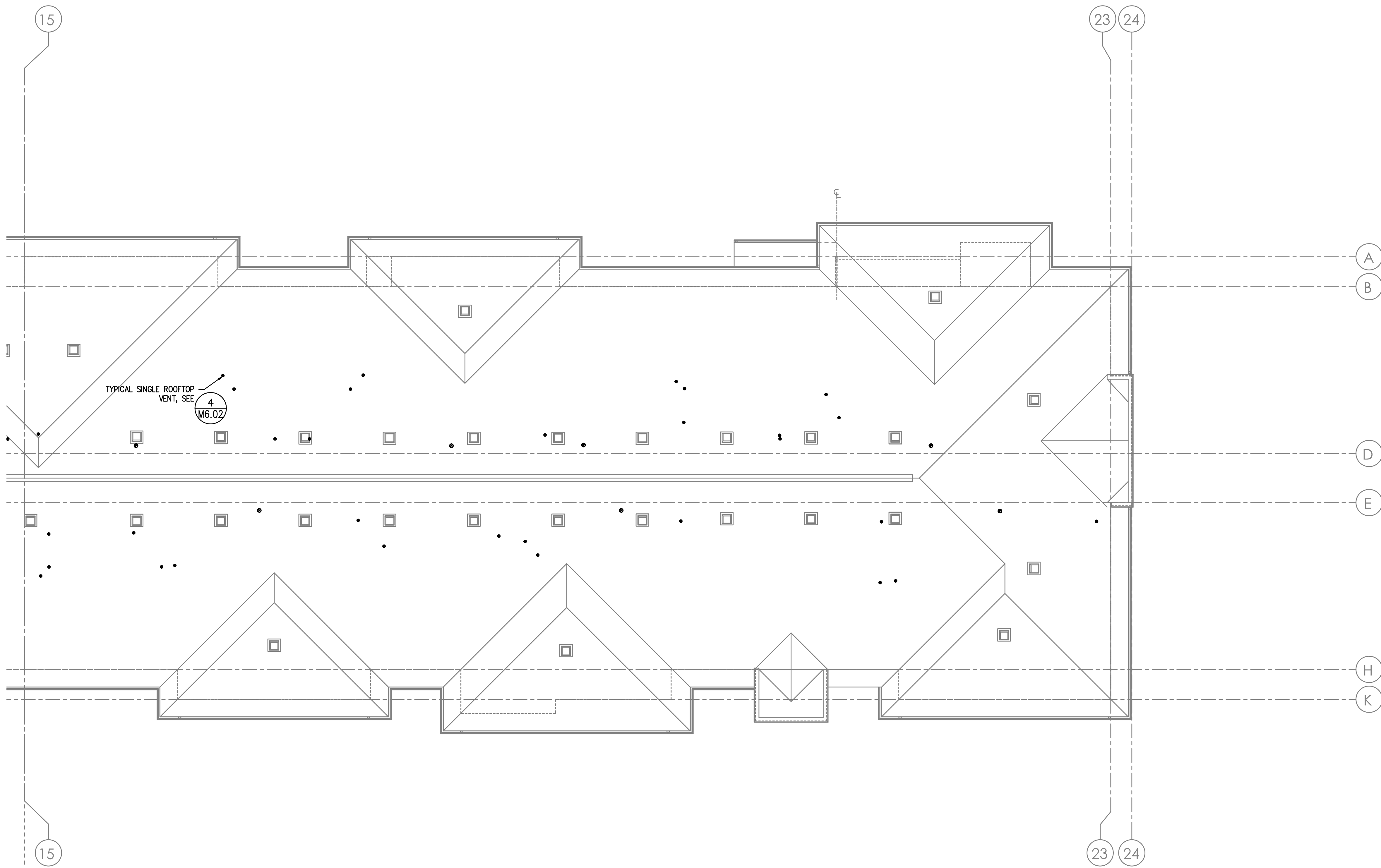
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**1 ROOF MECHANICAL PLAN — EAST**  
 M2.04B SCALE: 1/8" = 1' - 0"



Date:	12-11-20	Proj No:	10081
Drawn By:	MOA	Plan Review #1:	3.28.2022
Chkd By:	MRD	Plan Review #2:	4.18.2022
Acad File:	MRD	Plan Review #3:	5.5.2022
		Plan Review #4:	6.7.2022
		Plan Review #5:	6.24.2022

**COMMONS ON THE TUALATIN**  
 6845 SW NYBERG LANE  
 BUILDING A  
**ROOF MECHANICAL PLAN - EAST**

TUALATIN OREGON 97225

PERMIT SET  
 12/10/20  
**JACOBS**



Consulting Engineers  
 2007 S.E. Ash St.  
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SHEET  
**M2.04B**

**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
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	DB	DRY BULB
	RETURN AIR DUCT UP & DOWN	DIA.	DIAMETER
	EXHAUST AIR DUCT UP & DOWN	DIST.	DISTRIBUTION
	VAV TERMINAL UNIT	EA	EXHAUST AIR
	WT TERMINAL UNIT	EDB	ENTERING DRY BULB TEMPERATURE
	EXISTING	EWB	ENTERING WET BULB TEMPERATURE
	CONNECT TO EXISTING	EWT	ENTERING WATER TEMPERATURE
	THERMOSTAT OR TEMP. SENSOR	FF	FINISH FLOOR
	NOTE	FX	FIXTURE
	EQUIPMENT DESIGNATOR	FFM	FEET PER MINUTE
	BALL VALVE	FPS	FEET PER SECOND
	GATE VALVE	FT.	FEET / FOOT
	CHECK VALVE	GA.	GAUGE
	BALANCING VALVE	GPM	GALLONS PER MINUTE
	THERMOMETER	H	HEIGHT
	DIRECTION OF FLOW	HP	HORSEPOWER
	PUMP	I.D.	INSIDE DIAMETER
	STRAINER	IN.	INCHES
	PRESSURE GAUGE	L	LENGTH
	PETE'S PLUG	LBS.	POUNDS
	DOUBLE CHECK ASSEMBLY	LDB	LEAVING DRY BULB
	PRESSURE REDUCING VALVE	LWB	LEAVING WET BULB
	UNION	LWT	LEAVING WATER TEMPERATURE
	2-WAY CONTROL VALVE	MAX.	MAXIMUM
	3-WAY CONTROL VALVE	MEH	MINIMUM
	CAP	MIN.	MINIMUM
	SMOKE DETECTOR	NC	NOISE CRITERIA
	MOTORIZED DAMPER	N.C.	NORMALLY CLOSED
		N.I.M.	NOT IN MECHANICAL
		NO.	NUMBER
		N.O.	NORMALLY OPEN
		O.A.	OUTSIDE AIR
		P	PERSON
		PSI	POUNDS PER SQUARE INCH
		P/T	PRESSURE / TEMPERATURE
		R.A.	RETURN AIR
		RECT.	RECTANGULAR
		REQ'D	REQUIRED
		S.A.	SUPPLY AIR
		S.P.	STATIC PRESSURE
		SQ.	SQUARE
		TEMP.	TEMPERATURE
		TYP.	TYPICAL
		VAV	VARIABLE AIR VOLUME
		W	WITH
		WB	WET BULB
		WPD	WATER PRESSURE DROP
		Ø	DIAMETER
		(E)	EXISTING
		(D)	DEMOLISH
		---	NEW WORK
		HWS	(HWS) HEATING WATER SUPPLY
		HWR	(HWR) HEATING WATER RETURN
		▲	FIRE DAMPER
		■	FIRE / SMOKE DAMPER
		⊗	SMOKE DAMPER
			SEISMIC BRACING
			LATERAL BRACING
			LONGITUDINAL BRACING
			LONGITUDINAL & LATERAL BRACING

**PACKAGED TERMINAL HEAT PUMP**

MARK NUMBER	PTH-1 9 MBH	PTH-2 12 MBH	PTH-3 15 MBH	PTH-4 15 MBH
TYPE	THRU-THE-WALL HEAT PUMP	THRU-THE-WALL HEAT PUMP	THRU-THE-WALL HEAT PUMP	THRU-THE-WALL HEAT PUMP
SYSTEM	STUDIO	1 BEDROOM	2&3 BEDROOM	CORRIDOR
NOMINAL COOLING CAPACITY (BTUH)	9,000	11,500	14,000	14,000
HEATING CAPACITY (BTUH)	9,000	11,500	14,000	14,000
④ 47°F OUTDOOR AIR TEMP				
ELECTRIC HEATING CAPACITY (KW)	2.5	3.5	3.5	3.5
CFM (HI/LOW) (WET COIL)	290/264	290/264	340/314	340/314
MIN OSA (CFM)	65 CFM	65 CFM	65 CFM	65 CFM
LVG. AIR TEMP (°F)	55°F	55°F	55°F	55°F
REMOTE THERMOSTAT	YES	YES	YES	YES
EFFICIENCY (EER)	11.2	10.2	10.2	9.6
EFFICIENCY (COP)	3.5	3.5	3.1	3.1
ARCHITECTURAL GRILLE	YES	YES	YES	YES
DESIGN WT. (LBS)	135	135	145	145
ELECT (VOLTS/PHASE/HTZ)	230/1/60	230/1/60	230/1/60	230/1/60
TOTAL AMPS	11.2	15.5	15.5	15.5
MCA/MOP	14/15	19.5/20	19.5/20	19.5/20
REFRIGERANT	410a	410a	410a	410a
REFRIGERANT CHARGE	1.34 LBS	1.34 LBS	1.95 LBS	1.95 LBS
CONDENSATE DRAIN KIT *	YES - *	YES - *	YES - *	YES - *
AMANA	PTH093E	PTH123E	PTH153E	PTH153E

**EXHAUST FANS**

MARK NUMBER	EF 1	EF 2	EF 3	EF 4	EF 5	EF 6
TYPE	CEILING CABINET	CEILING CABINET	CEILING CABINET	CEILING CABINET	CEILING CABINET	CEILING CABINET
SYSTEM	BATHROOM	LAUNDRY	RESTROOM	MECH/ELEC	BIKE STORAGE	JAN
CFM	30/80	50	110	100	200	50
TOTAL SP. (IN H2O)	0.20	0.25	0.125	0.125	0.125	0.125
RPM	1062/1146	1025	1190	1250	740	1250
TIP SPEED (FPM)	NA	--	--	--	--	--
MOTOR WATTS OR HP	5/11.7 W	7.5	47.3 W	100 W	127 W	100 W
CONTROLLED BY	*	CONTINUOUS	LIGHTS	CONTINUOUS	HUMIDISTAT	CONTINUOUS
INTERLOCK WITH	MOTION SENSOR	NONE	LIGHTS	NONE	NONE	NONE
FAN SPEED CONTROLLER	YES	NO	NO	NO	YES	NO
WHEEL TYPE	BI	FC	FC	FC	BI	BI
BACK DRAFT DAMPER	YES	GRAVITY	GRAVITY	GRAVITY	GRAVITY	GRAVITY
ISOLATION	RUBBER	RUBBER	RUBBER	RUBBER	RUBBER	RUBBER
DESIGN WEIGHT (LBS)	25	25	25	25	23	25
MAX. SONES	0.3/0.6	.5	3.0	1.5	1.7	1.5
MAX AMPS - ***	0.27	0.40	0.40	1.3	1.8	1.3
POWER (VOLTS/PHASE/HZ) - ***	120/1/60	120/60/1	120/60/1	120/60/1	120/60/1	120/60/1
BASIS OF DESIGN:	PANASONIC FV-05-11VK52	PANASONIC FV-0510V51	BROAN A110	BROAN L100	BROAN L200	BROAN L100

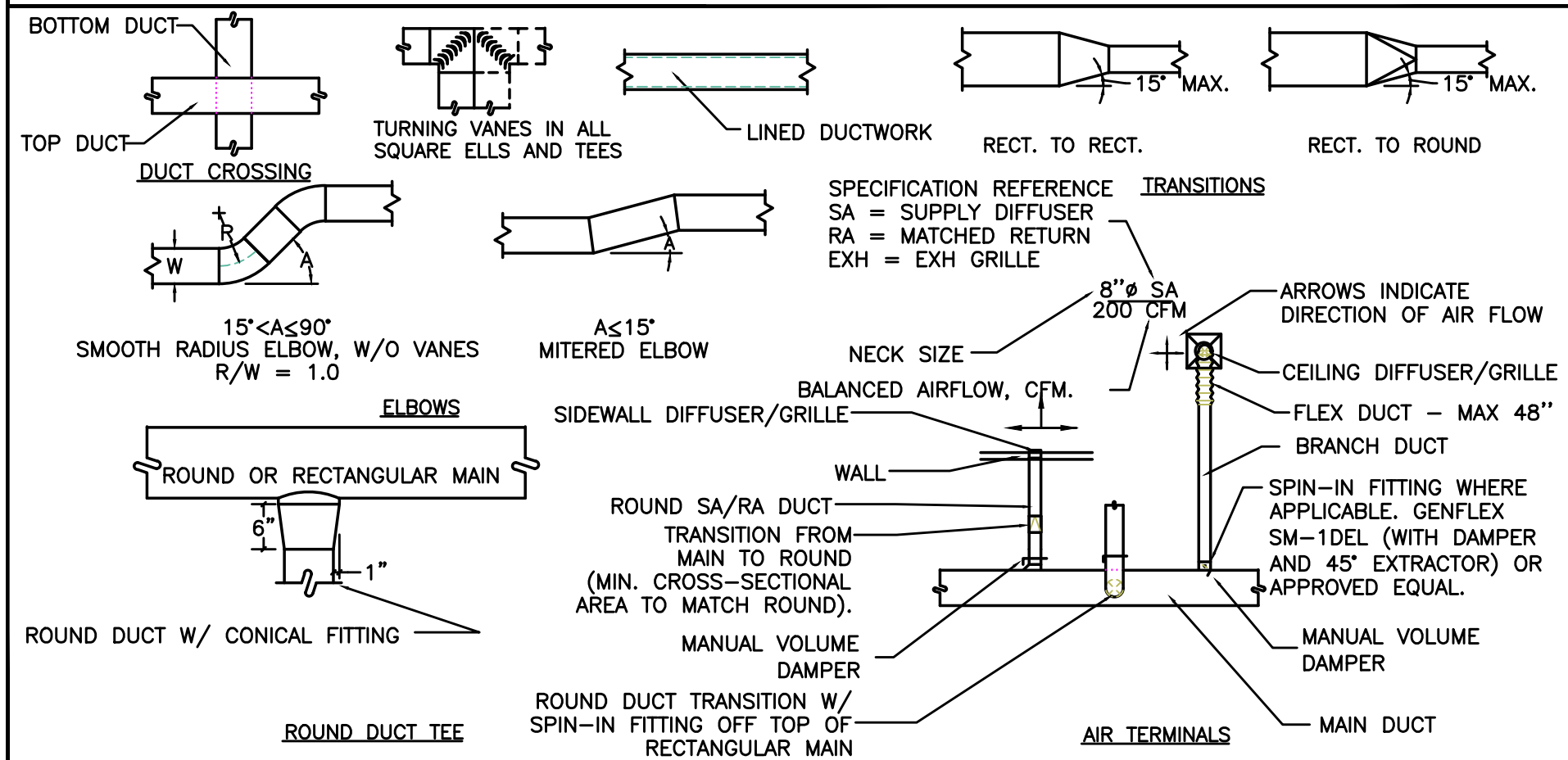
\* - CONDENSATE DRAIN KIT PROVIDED BY MECHANICAL CONTRACTOR, ALL CONDENSATE PIPING TO BE ROUTED TO AN APPROVED LOCATION. SEE PLANS.

**GARAGE EXHAUST FANS**

MARK NUMBER	GEF 1 x2	GEF 2
TYPE	CENTRIFUGAL JET FAN	SO IN-LINE BELT DRIVE
SYSTEM	GARAGE CIRCULATION	GARAGE
CFM	3384	15,653
TOTAL SP. (IN H2O)	NA	0.2
RPM	1650	2141
TIP SPEED (FPM)	--	13,450
MOTOR WATTS OR HP	1.5 KW	7.5 HP
CONTROLLED BY	CONTINUOUS	VFD
INTERLOCK WITH	NONE	CO/NO2
FAN SPEED CONTROLLER	YES	NO
WHEEL TYPE	BI	BI
BACK DRAFT DAMPER	NONE	NONE
ISOLATION	SPRING	SPRING
DESIGN WEIGHT (LBS)	60	350
MAX. SONES OR dBA	83 dBA	93 dBA
MAX AMPS - ***	6.13 AMPS	24.2 FLA
POWER (VOLTS/PHASE/HZ) - ***	230/60/3	230/60/3
BASIS OF DESIGN:	S&P JET FAN IFFT -50N	TBI-FS-4L24-75

\*\*\* - ELECTRICAL DATA LISTED FOR REFERENCE ONLY. COORDINATE WITH ELECTRICAL DESIGN BUILD CONTRACTOR FOR VOLTAGE AND PHASE REQUIREMENTS. ELECTRICAL CONTRACTOR RESPONSIBLE FOR SIZING ALL CONDUCTORS & OVERCURRENT PROTECTION. VERIFY WITH EQUIPMENT SUBMITTALS FOR EQUIPMENT ELECTRICAL REQUIREMENTS.

**AIR DISTRIBUTION DETAILS**



**ELECTRIC DUCT HEATER**

MARK NUMBER	EDH 1
SIZE (KW)	1.44 KW
DUCT SIZE	8"ø
STEPS	2
MCA	12.6
POWER (VOLTS/PHASE) *	120/1
BASIS OF DESIGN:	HOTPOD HP-9

\* - ELECTRICAL DATA LISTED FOR REFERENCE ONLY. COORDINATE WITH ELECTRICAL DESIGN BUILD CONTRACTOR FOR VOLTAGE AND PHASE REQUIREMENTS.

**DEFERRED SUBMITTALS - MECHANICAL**

DEFERRED SUBMITTALS SHOWING THE ANCHOR DETAILS AND CALCULATION WILL BE PROVIDED TO THE CITY OF PORTLAND 30 DAYS PRIOR TO THE START OF WORK AND SHALL INCLUDE THE FOLLOWING EQUIPMENT

EQUIPMENT	DESCRIPTION	WEIGHT	SUBMITTED	INSPECTOR CHECK
GEF-2	GARAGE EXHAUST	350 LBS		
HP-1&2	HP CONDENSER	250 LBS		

**RESIDENTIAL VENTILATION SCHEDULE**

DWELLING UNIT AREA (SQ FT)  
 STUDIO = 520  
 1 BED = 565  
 2 BED = 950  
 3 BED = 1391

Table 4-1a (i-P) Ventilation Air Requirements, cfm ASHRAE Standard 62.2-2019

Floor Area, m <sup>2</sup>	Bedrooms				
	1	2	3	4	5
<500	30	38	45	53	60
501 to 1000	45	53	60	68	75
1001 to 1500	60	68	75	83	90
1501 to 2000	75	83	90	98	105
2001 to 2500	90	98	105	113	120
2501 to 3000	105	113	120	128	135
3001 to 3500	120	128	135	143	150
3501 to 4000	135	143	150	158	165
4001 to 4500	150	158	165	173	180
4501 to 5000	165	173	180	188	195

**VENTILATION AIR SCHEDULE - CORRIDORS**

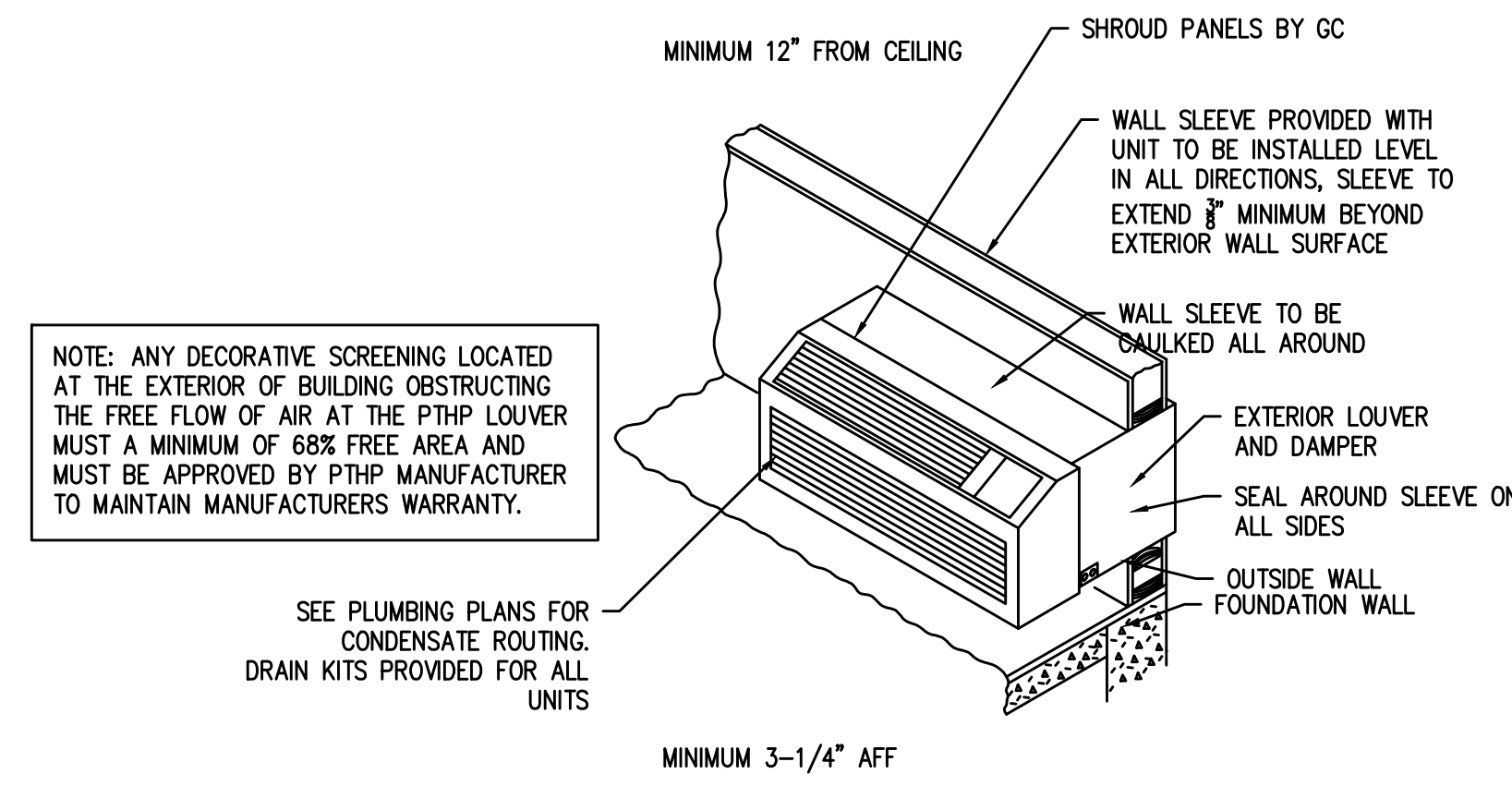
ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/P)	OUTSIDE AIR REQUIREMENT (CFM/SQ FT.)	OUTSIDE AIR REQUIRED (CFM)	ZONE OSA (CFM)	SUPPLY AIR (CFM)	PRIMARY OSA FRACTION	RETURN AIR (CFM)	EXHAUST AIR (CFM)	Zone Ventilation Efficiency	Corrected OSA CFM	AIR SYSTEMS			
	Az		Pz	Rp	Ra	Vbz	Ez	Voz	Vpz	Zp	Evz		Zs =				
CORRIDORS	2995	0	0	0	0.06	180	0.8	225	1000	0.22	1000	0	0.91	246.79	PTH-4		
STORAGE	300	0	0	0	0.12	36	0.8	45	1000	0.05	1000	0	1.09	49.44	SF-1		
<b>TOTAL</b>	<b>3295</b>		<b>0</b>			<b>216</b>		<b>270</b>	<b>2000</b>		<b>2000</b>	<b>0</b>	<b>0.91</b>	<b>296</b>			
<b>CORRECTED TOTAL OUTDOOR AIR FLOW RATE</b>													<b>296</b>	<b>CFM</b>	<b>Corrected OSA Fraction</b>	<b>Zs =</b>	<b>0.15</b>

**VENTILATION AIR SCHEDULE - FC-1**

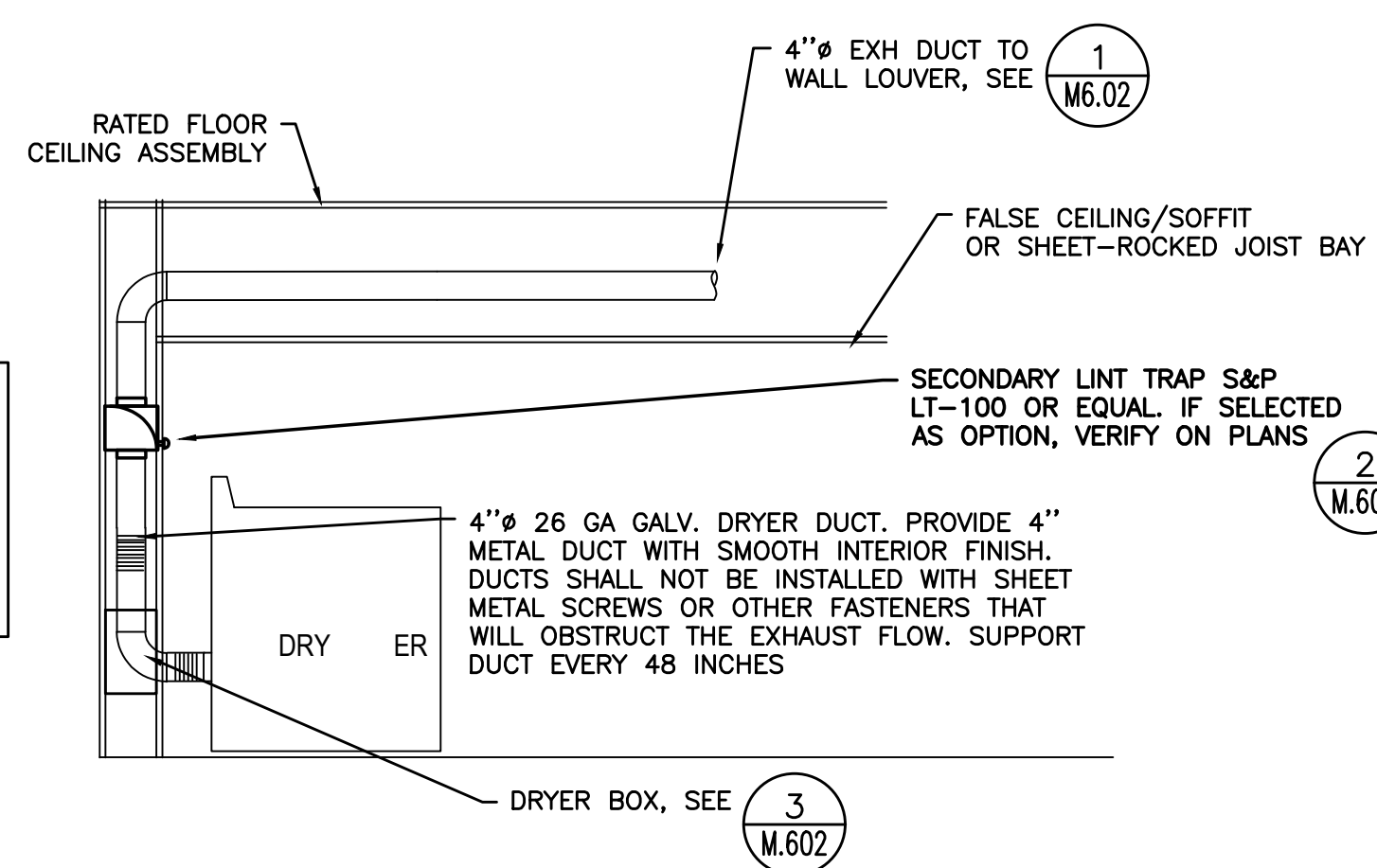
ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/P)	OUTSIDE AIR REQUIREMENT (CFM/SQ FT.)	OUTSIDE AIR REQUIRED (CFM)	ZONE OSA (CFM)	SUPPLY AIR (CFM)	PRIMARY OSA FRACTION	RETURN AIR (CFM)	EXHAUST AIR (CFM)	Zone Ventilation Efficiency	Corrected OSA CFM	AIR SYSTEMS			
	Az		Pz	Rp	Ra	Vbz	Ez	Voz	Vpz	Zp	Evz		Zs =				
LOBBY C001	994	0	0	0	0.06	60	0.8	75	400	0.19	935	0	1.01	91.47	FC-1		
PARCEL RM C008	220	0	0	0	0.12	26	0.8	33	100	0.33	0	0	0.87	40.49	FC-1		
STORAGE C006	132	0	0	0	0.12	16	0.8	19	50	0.38	0	0	0.82	23.42	FC-1		
OFFICE C002	195	5	1	5	0.06	17	0.8	21	100	0.21	0	0	0.99	25.61	FC-1		
OFFICE C003	234	5	2	5	0.06	24	0.8	30	150	0.20	0	0	1.00	36.87	FC-1		
OFFICE C004	193	5	1	5	0.06	17	0.8	21	150	0.14	0	0	1.06	25.43	FC-1		
OFFICE C005	158	5	1	5	0.06	14	0.8	18	150	0.12	0	0	1.08	22.21	FC-1		
<b>TOTAL</b>	<b>2126</b>		<b>5</b>			<b>174</b>		<b>216</b>	<b>1100</b>		<b>935</b>	<b>0</b>	<b>0.82</b>	<b>265</b>			
<b>CORRECTED TOTAL OUTDOOR AIR FLOW RATE</b>													<b>265</b>	<b>CFM</b>	<b>Corrected OSA Fraction</b>	<b>Zs =</b>	<b>0.24</b>

**INDOOR UNITS - \***

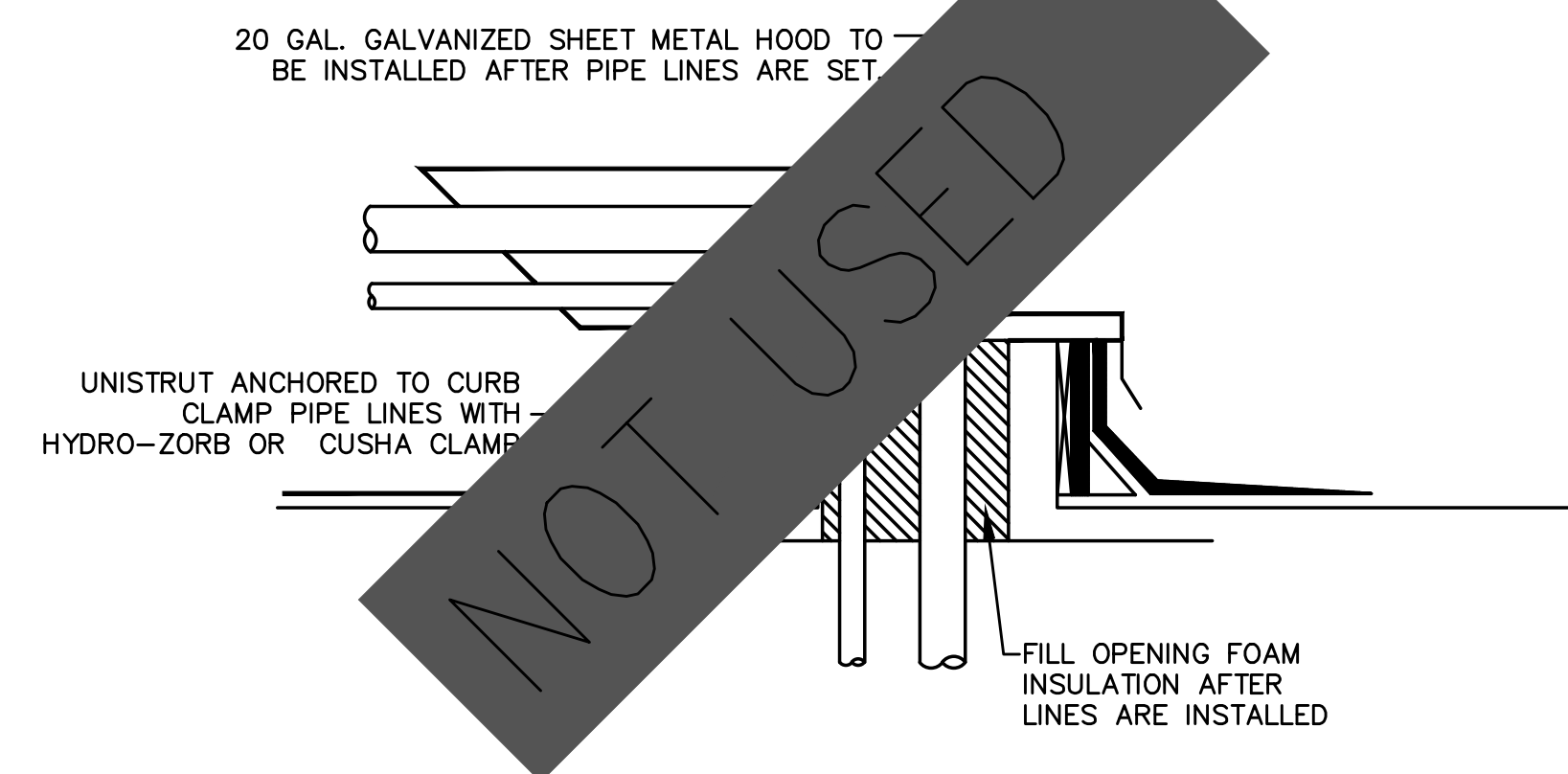
MARK NUMBER	FC-1 48 MBH	FC-2 24 MBH
SYSTEM	LOBBY/OFFICE/STORAGE	LEVEL 1 LOBBY
TYPE	DUCTED	WALL MOUNTED
EFFICIENCY	SEE OUTDOOR UNIT	SEE OUTDOOR UNIT
NOMINAL COOLING CAPACITY	48,000 BTUH	24,000 BTUH
HEATING CAPACITY	48,000 BTUH/15KW ELEC	24,000 BTUH
TOTAL SUPPLY CFM	1600	800
OSA CFM	265	--
EXTERNAL SP. (H2O)	0.50	0.125
VOLTS/PHASE	208-1	208-1
MCA/MOP	53.8/60 & 22.7/25****	SEE OUTDOOR UNIT
WEIGHT	200	50
BASIS OF DESIGN	CARRIER FB4CNP048L00	CARRIER 40MAQB24--3
OUTDOOR UNIT	HP-1 4 TON	HP-2 



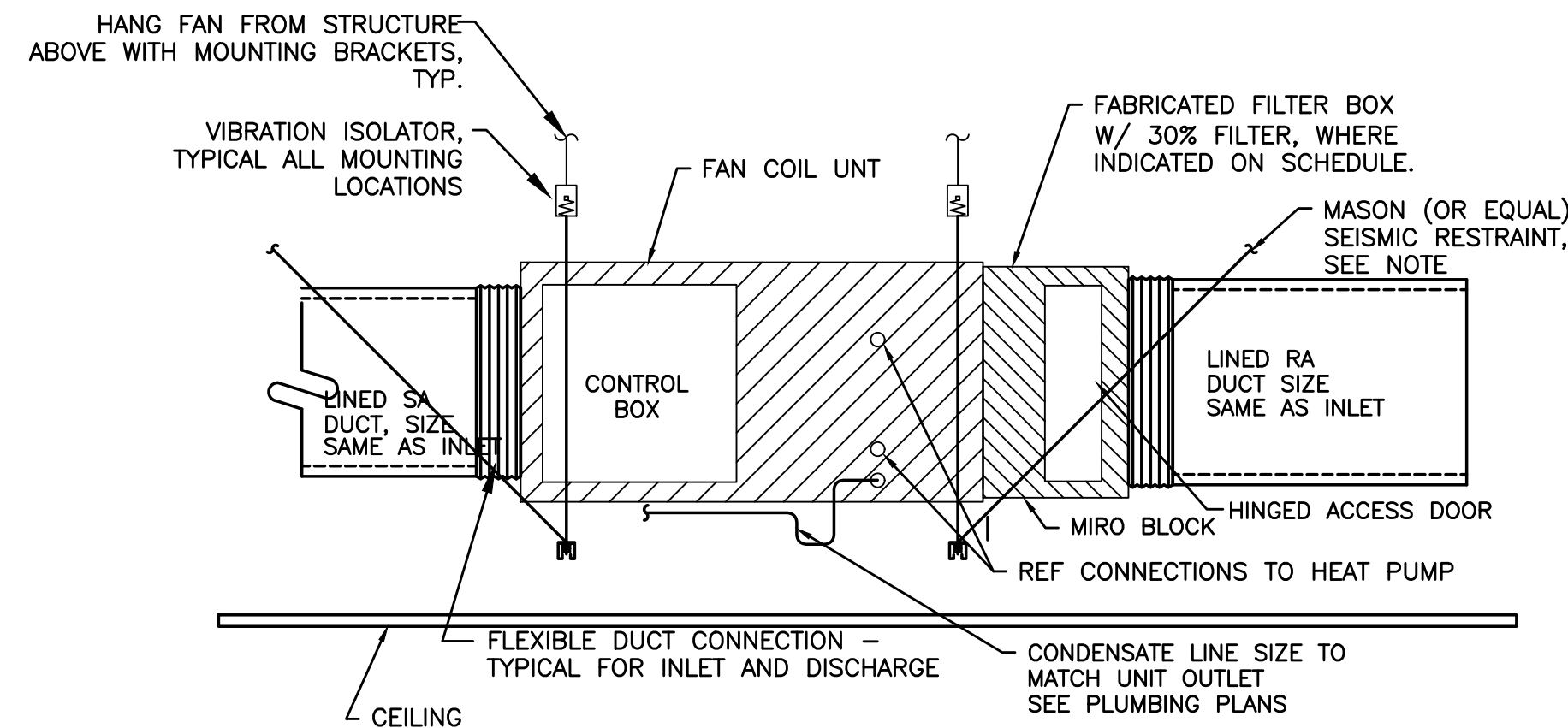
1 PTHP AT EXTERIOR WALL  
M6.01 NOT TO SCALE



3 TYPICAL DRYER INSTALLATION  
M6.01 NOT TO SCALE

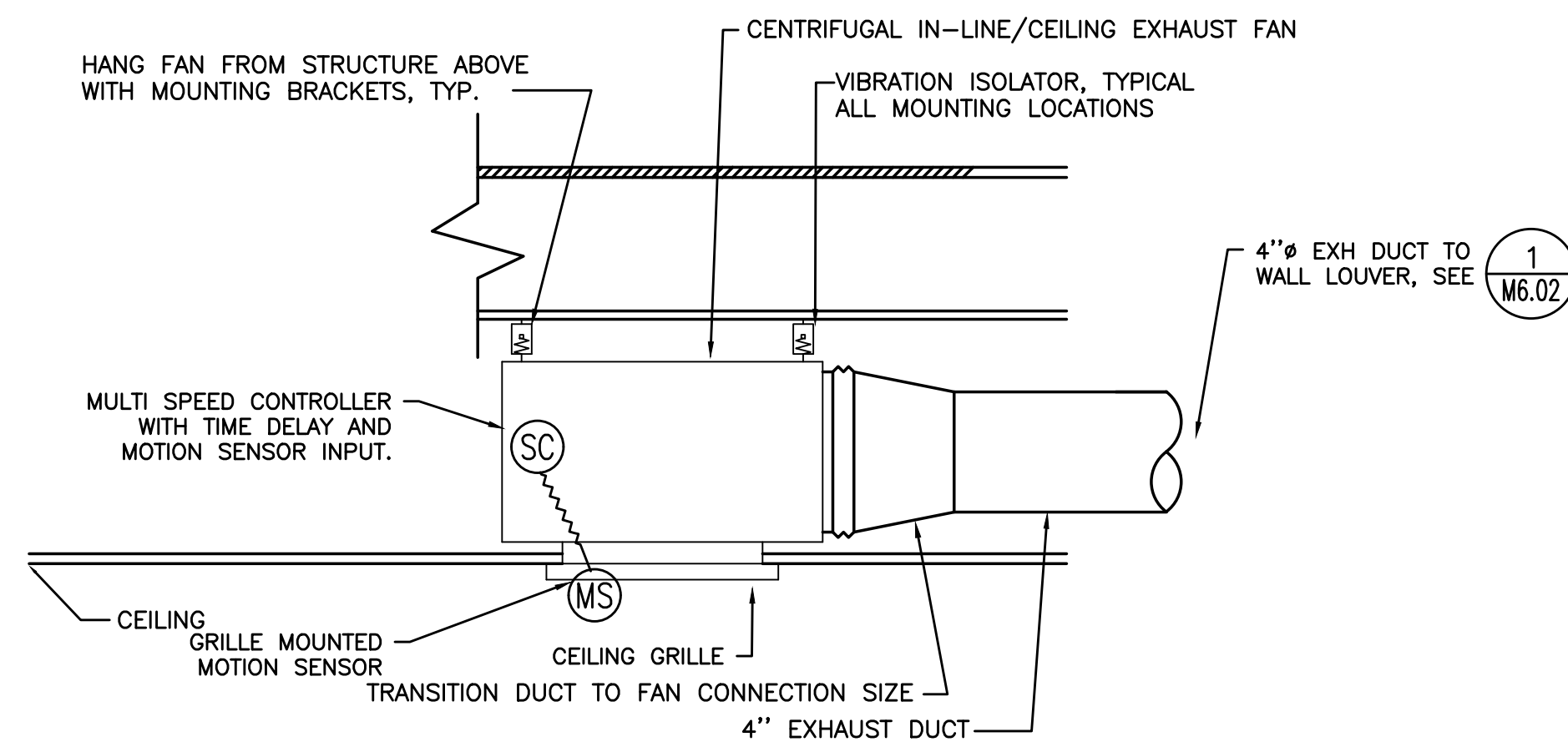


5 REFRIGERANT ROOF PENETRATIONS  
M6.01 DETAIL

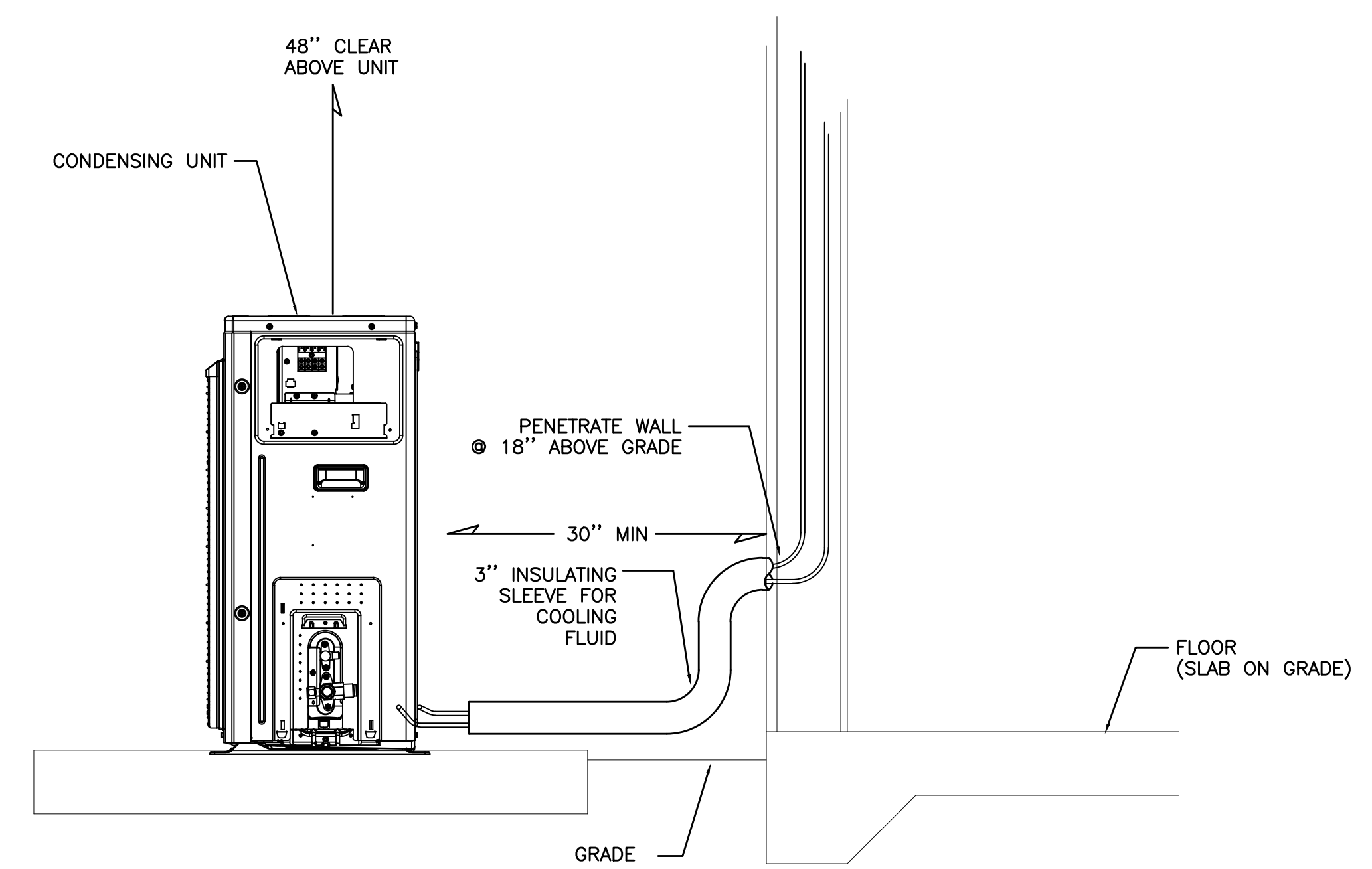


NOTE: LOCATE SUPPORT & SEISMIC TO MAINTAIN UNHINDERED ACCESS FOR MAINTENANCE OF UNIT.

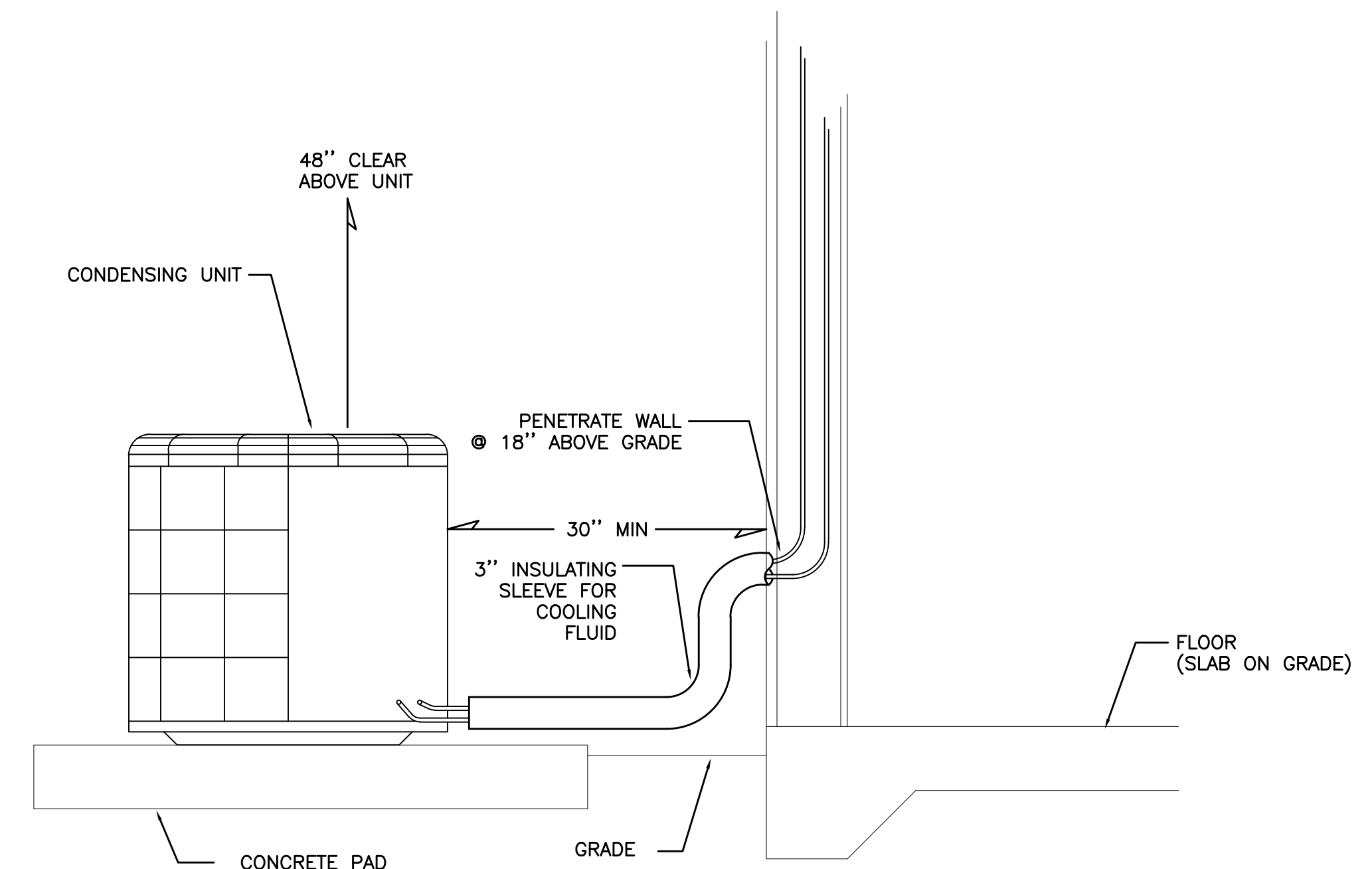
6 DUCTED FAN COIL  
M6.01 SCALE: DETAIL



4 RESTROOM EXHAUST FAN  
M6.01 SCALE: DETAIL



2 TYP. CONDENSER INSTALLATION  
M6.01 DETAIL

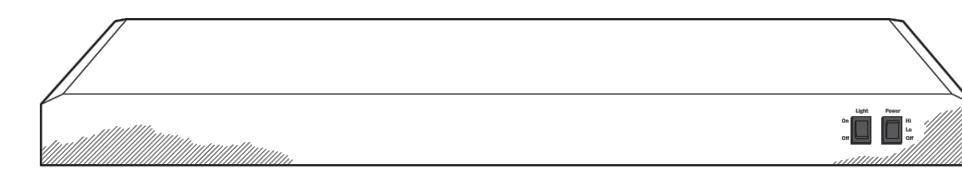


### ADA HOOD

**JVX3300EJ/SJ**  
GE Appliances 30" Under the Cabinet Hood

**FEATURES AND BENEFITS**

- Easy installation - 10 minutes or less by one person
- Two-speed, 200-CFM venting system - Removes smoke, grease, odors and moisture
- Front controls - Enjoy easy access and a subtle appearance
- Cooktop lighting - Illuminate cooking space and surrounding surface
- Convertible venting options - Select recirculating or external venting
- Vertical and rear exhaust - Exhausts from the top or rear of the hood
- Appearance (Partially enclosed bottom) - Enjoy easy access to hood interior
- Dishwasher safe filter - Filters grease and is dishwasher safe
- Model JVX3300SJSS - Stainless steel
- Model JVX3300EJES - Slate



CFM/SONES RATINGS	
Exhaust High Speed (HS)	200/6.0
Exhaust Working Speed (WS)	100/1.5



Specification Revised 5/18

### JVM3160RF/EF

GE® 1.6 cu. ft. Over-the-Range Microwave Oven

**DIMENSIONS AND INSTALLATION INFORMATION (IN INCHES)**

**HOOD EXHAUST DUCT:** Outside ventilation requires a HOOD EXHAUST DUCT. Read the following carefully.

**EXHAUST CONNECTION:** The hood exhaust has been designed to mate with a standard 3-1/4" x 10" rectangular duct. If a round duct is required, a rectangular-to-round transition adaptor must be used. Do not use less than a 6" diameter duct.

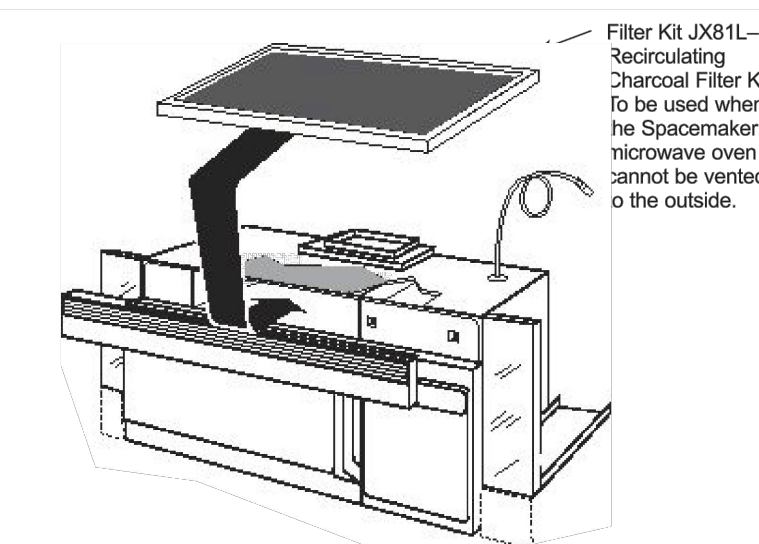
**REAR EXHAUST:** If a rear or horizontal exhaust is to be used, care should be taken to align exhaust with space between studs, or wall should be prepared at the time it is constructed by leaving enough space between the wall studs to accommodate exhaust.

**MAXIMUM DUCT LENGTH:** For satisfactory air movement, the total duct length of 3-1/4" x 10" rectangular or 6" diameter round duct should not exceed 140 equivalent feet.

**ELBOWS, TRANSITIONS, WALL AND ROOF CAPS, etc.,** present additional resistance to airflow and are equivalent to a section of straight duct which is longer than their actual physical size. When calculating the total duct length, add the equivalent length of all transitions and adaptors plus the lengths of all straight duct sections. The chart below shows the approximate feet of equivalent length of some typical ducts.

DUCT	EQUIVALENT FEET
A. Rectangular-to-round Transition Adaptor	5 ft.
B. Wall Cap	40 ft.
C. 90° Elbow	10 ft.
D. 45° Elbow	5 ft.
E. 90° Elbow	25 ft.
F. 45° Elbow	5 ft.
G. Roof Cap	24 ft.

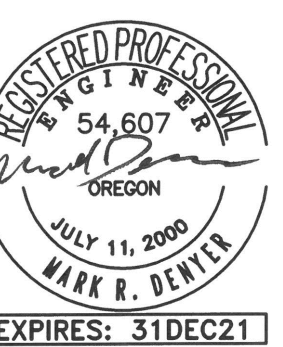
**OPTIONAL ACCESSORIES (AVAILABLE AT ADDITIONAL COST)**



For answers to your Monogram, GE Café® Series, GE Profile® Series or GE Appliances product questions, visit our website at [geappliances.com](http://geappliances.com) or call GE Answer Center® Service, 800-636-3900.

Specification Revised 8/20

12-10-20



PLAN REVIEW #1	PLAN REVIEW #2	PLAN REVIEW #3	PLAN REVIEW #4	PLAN REVIEW #5
3.28.2022	4.18.2022	5.5.2022	6.7.2022	6.24.2022
MGA	MRD	MRD	MRD	MRD
10081				

Date: 12-11-20  
Proj No: 10081  
Drawn By: MGA  
Chkd By: MRD  
DSGN By: MRD  
Acad File: 6.24.2022

COMMONS ON THE TUALATIN  
6845 SW NYBERG LANE  
BUILDING A

MECHANICAL DETAILS  
OREGON 97225

TUALATIN

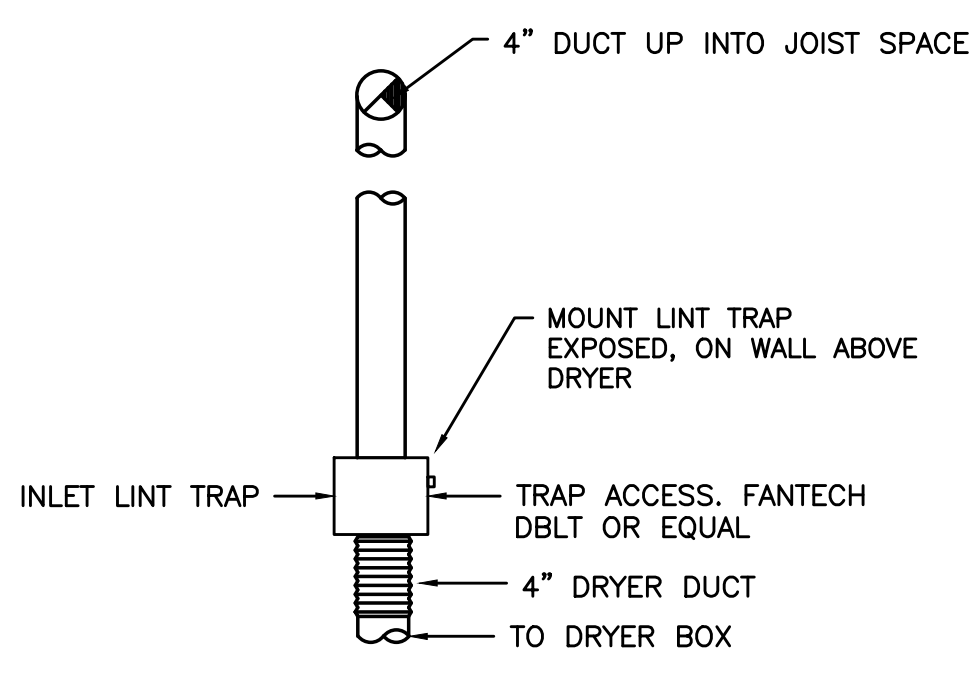
PERMIT SET  
12/10/20



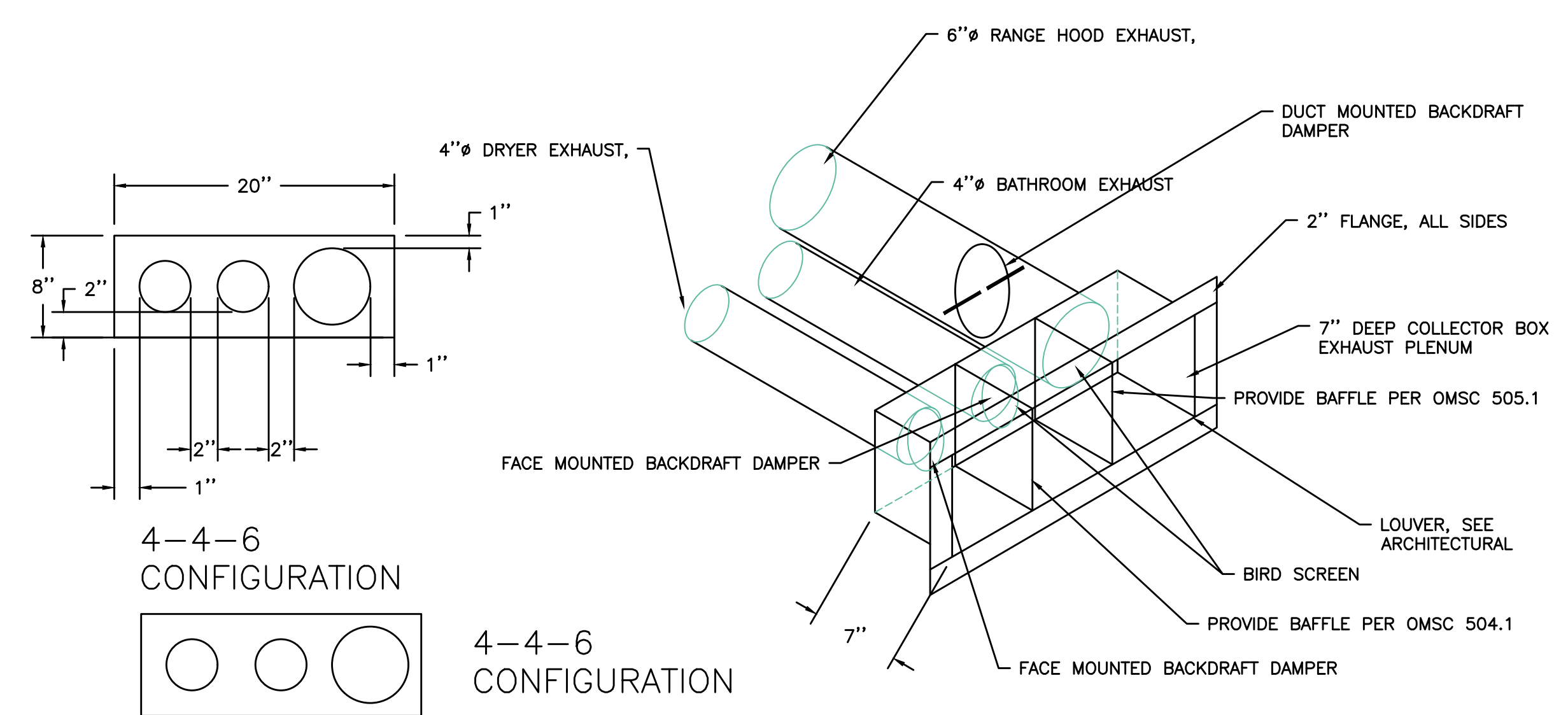
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[www.mfa-inc.com](http://www.mfa-inc.com)

SHEET

M6.01



2 LINT TRAP  
M.6.02 DETAIL

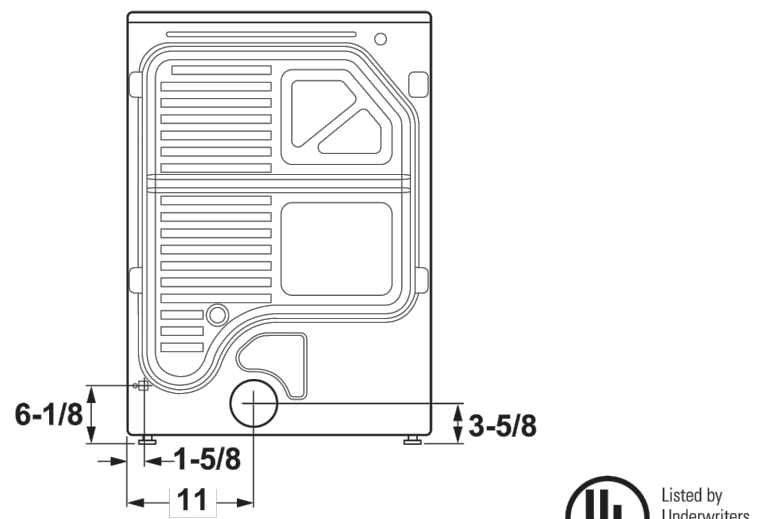


1 SIDE WALL DWELLING UNIT VENTING WITH HOOD  
M.6.02 NOT TO SCALE

### GFD55ESSN/ESPN GE® 7.8 cu. ft. Capacity Front Load Electric Dryer

**DRYER EXHAUSTING INFORMATION - METAL DUCT ONLY**  
For complete information, see installation instructions packed with your dryer.  
**DUCTING MATERIALS:** For best performance, this dryer should be vented with 4" diameter all rigid metal exhaust duct. If rigid metal duct cannot be used, then UL-listed flexible metal (semi-rigid) ducting can be used (Kit WX08X10077). In special installations, it may be necessary to connect the dryer to the house vent using a flexible metal (foil-type) duct. A UL-listed flexible metal (foil-type) duct may be used ONLY in installations where rigid metal or flexible metal (semi-rigid) ducting cannot be used AND where a 4" diameter can be maintained throughout the entire length of the transition duct. Please see installation instruction packed with your dryer for complete instructions when using flexible metal (foil type) ducting.  
**EXHAUST LENGTH CALCULATION:**  
1. Determine the number of 90° turns needed for your installation. If you exhaust to the side or bottom of dryer, add one turn.  
2. The maximum length of 4" rigid (aluminum or galvanized) duct which can be tolerated is shown in the table.  
A turn of 45° or less may be ignored. Two 45° turns within the duct length should be treated as a 90° elbow.  
A turn over 45° should be treated as a 90° elbow.  
Dryers must be exhausted to the outside.  
**CAUTION:** For personal safety do not terminate exhaust into a chimney, under any enclosed house floor (crawl space), or into an attic, since the accumulated lint could create a fire hazard or moisture could cause damage. Never terminate the exhaust into a common duct or plenum with a kitchen exhaust, since the combination of lint and grease could create a fire hazard. Exhaust ducts should be terminated in a dampered wall cap to prevent back drafts, bird nesting, etc. The wall cap must also be located at least 12" above the ground or any other obstruction with the opening pointed down.  
**FOR MORE INFORMATION ON VENTING KITS AND ACCESSORIES, PLEASE CALL 1-800-GE-CARES.**

Domestic dryer models	Number of 90° turns	Best performance Maximum length of 4" dia. rigid metal duct Exhaust hood type	
		A 4" opening	B 2-1/2" opening
0	0	90 ft.	60 ft.
1	1	60 ft.	45 ft.
2	2	45 ft.	35 ft.
3	3	35 ft.	25 ft.
4	4	25 ft.	15 ft.



For answers to your questions, GE Care® Series, GE Profile® Series or GE Appliances product questions, visit our website at [appliances.com](http://appliances.com) or call GE Answer Center® Service, 800.626.2000.

Specification Revised 11/19

### GTX22EASK GE Appliances Series 6.2 Cu. Ft. Capacity Aluminized Alloy Drum Electric Dryer

**DRYER EXHAUSTING INFORMATION - USE METAL DUCT ONLY VERTICAL AND HORIZONTAL DUCTING**  
For best performance, this dryer should be vented with 4" diameter all rigid metal exhaust duct. If rigid metal duct cannot be used, then UL-listed flexible metal (semi-rigid) ducting can be used (Kit WX08X10077). In special installations, it may be necessary to connect the dryer to the house vent using a flexible metal (foil-type) duct. A UL-listed flexible metal (foil-type) duct may be used ONLY in installations where rigid metal or flexible metal (semi-rigid) ducting cannot be used AND where a 4" diameter can be maintained throughout the entire length of the transition duct. Please see installation instruction packed with your dryer for complete instructions when using flexible metal (foil type) ducting.  
**EXHAUST LENGTH CALCULATION:**  
1. Determine the number of 90° turns needed for your installation. If you exhaust to the side or bottom of dryer, add one turn.  
2. The maximum length of 4" rigid (aluminum or galvanized) duct which can be tolerated is shown in the table. A turn of 45° or less may be ignored. Two 45° turns within the duct length should be treated as a 90° elbow. A turn over 45° should be treated as a 90° elbow.  
Dryers must be exhausted to the outside.  
**CAUTION:** For personal safety do not terminate exhaust into a chimney, under any enclosed house floor (crawl space), or into an attic, since the accumulated lint could create a fire hazard or moisture could cause damage. Never terminate the exhaust into a common duct or plenum with a kitchen exhaust, since the combination of lint and grease could create a fire hazard. Exhaust ducts should be terminated in a dampered wall cap to prevent back drafts, bird nesting, etc. The wall cap must also be located at least 12" above the ground or any other obstruction with the opening pointed down.  
**FOR MORE INFORMATION ON VENTING KITS AND ACCESSORIES, PLEASE CALL 1-800-GE-CARES.**

4" Domestic dryer models	Number of 90° turns	BEST PERFORMANCE Maximum length of 4" dia. rigid metal duct Exhaust hood type	
		A 4" opening	B 2-1/2" opening
0	0	120 ft.	90 ft.
1	1	100 ft.	75 ft.
2	2	85 ft.	65 ft.
3	3	70 ft.	55 ft.
4	4	60 ft.	45 ft.
5	5	55 ft.	35 ft.

For every extra 90° elbow, reduce the allowable vent system length by 10 ft.  
Two 45° elbows will be treated like one 90° elbow.  
For the side exhaust installations, add one 90° elbow to the chart. When calculating the total vent system length, you must add all the straight portions and elbows of the system (including the transition duct).



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Specification Revised 7/18

**the dryerbox**

✓ Save Space  
✓ Save Energy  
✓ Reduce Fire Hazard

This End Should Be Installed Up  
(unless stackable unit or on pedestal)

—WARNING—  
Sharp Edges

CLASSIFIED  
UL US

See UL-729F Firestop System in UL Directory Referenced From File Number E72933. Complete Marking on Product.

**Installation Instructions**

- All standard American clothes dryers have an exhaust port in the center of the rear panel at the very bottom. Therefore, it is best to install the Dryerbox® as low as possible so that the bottom tab is at or slightly below the finished floor level (Diagram A)—not applicable if stackable unit or on a pedestal.
- Attach Dryerbox® to stud and bottom plate at a minimum of 3 corners.
- This Dryerbox is designed to accommodate an upward exhaust direction. Optionally this unit can be mounted in a downward exhaust direction for a stacked dryer or one on a 13 inch pedestal. A lying-on-its-side orientation is also an option. For floor standing dryers venting down, the Model 4D or 3D are recommended.
- When installing the 4 1/2" Deep Dryerbox® (Model 425) into a 2x4 wall, fit out the respective wall 1/2" with a 1/2" furring strip to provide adequate depth or use the 3 1/2" Model 350.
- When installing in an exterior frame wall, you should add insulation or duct board to the back-side of the box to minimize condensation and temperature transfer.
- To achieve a fire resistance rating (one-hour & T) min. 2x6 wood or metal framing is required. The Dryerbox unit must be installed in accordance with the UL Cabinet System listing. An extra layer of type-X drywall must be installed in the ID of the stud cavity in which the Dryerbox is located. Drywall must be attached to nailers (minimum 1" x 2") located on the inside of the cavity wall studs. Secure nailers to wall framing at max 18 in. OC. The screws used to attach the inner layer of drywall shall be spaced a maximum of 18 inches apart. For metal studs, mineral wool (min density 4 pcf) must fill the entire Dryerbox wall cavity and minimum R13 Fiberglass insulation in adjacent cells. For wood studs, mineral wool or R19 Fiberglass insulation must fill the Dryerbox cavity. Visit [www.dryerbox.com/firestop](http://www.dryerbox.com/firestop) for more detail.
- Gas line termination options: For black iron pipe, wrap vinyl tape around throat where it penetrates. For corrugated stainless steel tubing, secure the CSST Termination Fitting with a Jamb nut to securely affix the termination to the receptacle. The gas port can be enlarged or relocated easily with a step bit.
- The new Duct Support Tab (Diagram B) in top port will assist in maintaining the ideal penetration length of the 4" Snaplock rigid conduit of 2 inches. Create a "hook" by bending the tab at the weakest or cavity location. Break-away when duct is fully supported in-place. Seal penetration with foil tape or sealant caulk.
- Snaplock pipe can be vented up (Diagram C) to a roof jack (see dryerjack.com), to a side-wall vent hood (Diagram D) or downwards to a crawl space or floor joist system with two elbows. Use the Model 4D or 3D to go down.
- Use a Roto-zip-bit router tool to cut the drywall leaving a caulk joint for the painter (Diagram E). It is best to caulk or mud this void (required for One-Hour Rating).
- The baseboard is best terminated with a tapered back-out into the rim extension on either side of box (Diagram E).
- Exposed metal can be left unpainted or can be sprayed with an acrylic latex or oil-based (alkyd) paint when the rest of the wall, trim or baseboard is painted.

22 Gauge Aluminized Steel (safe, rust free & paintable)

Caulk void left from router

Zip-bit cut drywall and then caulk (preferred) or mud

Butt baseboard to rim and back-cut slightly

Install Dryerbox on bottom plate or floor near center of appliance

InOval® Dryer Products  
200 S. Central Blvd. Suite 207  
Napier, IL 32608 USA

US Patents: 6,419,102  
7,731,045

Available throughout the country from supply houses, lumber yards and hardware centers who carry heating, ventilation and air conditioning parts and supplies.

**Model 425**  
(4 1/2" Deep)

Part Number:  
DB-425

The word Dryerbox is a registered trademark of InOval Technologies, Inc. All rights reserved. Made in the USA.

Resources for other wall made ventilation products by InOval:  
[www.Dryer-Elbow.com](http://www.Dryer-Elbow.com) [www.DryerFlex.com](http://www.DryerFlex.com) [www.DryerJack.com](http://www.DryerJack.com)  
[www.DryerFlex.com](http://www.DryerFlex.com) [www.DryerWallVent.com](http://www.DryerWallVent.com)

Toll Free: (888) 443-7937 More installation instructions at [www.dryerbox.com](http://www.dryerbox.com)

Locate a distributor near you by using the online supplier locator at [www.dryerbox.com](http://www.dryerbox.com)

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3 DRYER BOX DETAIL  
M.6.02 NOT TO SCALE

## SUBMITTAL

Artis Metals Company

**Artis Galvanized Roof J-Vents - Multiple Uses**  
- Gravity Attic Ventilator  
- Indoor Exhaust Hood  
- Use on any Roof Pitch  
- With Fine Mesh Bug Screen

SIZE	ITEM#	LBS
3"	JV 328	0.50
4"	JV 428	1.00
6"	JV 626	2.00
7"	JV 726	2.50
8"	JV 826	3.00
10"	JV 1026	5.00
12"	JV 1226	6.25
14"	JV 1424	7.00

REMOVE FINE MESH BUG SCREEN FROM ALL 4" DRYER EXHAUST.

**Hood Dimensions**

	3"	4"	6"	7"	8"	10"	12"	14"
A	8.0	9.0	12.0	12.0	15.0	15.0	20.0	22.0
B	3.0	4.0	6.0	7.0	8.0	9.0	10.0	14.0
C	2.5	2.5	3.0	2.5	3.5	3.0	2.5	4.0
D	8.0	9.0	15.0	15.0	15.0	18.0	20.0	24.0
E	5.0	6.0	10.0	11.0	12.0	14.0	16.0	19.0
F	3.0	3.25	5.0	5.25	5.5	5.5	6.5	7.25
G	2.0	1.75	3.25	3.75	3.75	3.75	4.25	4.75
H	1.0	1.5	1.75	1.5	1.75	2.25	2.5	2.75
I	2.0	3.0	3.25	3.25	3.25	3.25	3.5	4.0
JA	7.0	12.0	28.0	38.0	50.0	65.0	78.0	110.0

Jacobs Heating - 4474 SE Milwaukie Ave - Portland, OR 97202 - JacobsHVAC.com

4 LOW PROFILE ROOF VENT  
M.6.02 NOT TO SCALE

System No. F-C-7057

ANSI/UL1479 (ASTM E814)	CANULC S115
F Rating — 1 Hr	F Rating — 1 Hr
T Rating — 1 Hr	FT Rating — 1 Hr
	PH Rating — 1 Hr
	FTH Rating — 1 Hr

SECTION A-A

Hilti Firestop Systems

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5 FIRE PENETRATION DETAIL - VERTICAL 4" & 6" DUCTS  
M.6.02 NOT TO SCALE

System No. F-C-7057

Hilti Firestop Systems

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PLAN REVIEW #1	PLAN REVIEW #2	PLAN REVIEW #3	PLAN REVIEW #4	PLAN REVIEW #5
3.28.2022	4.18.2022	5.5.2022	6.7.2022	6.24.2022
12-11-20	10081	MGA	MRD	MRD
Date:	Proj. No:	Drawn By:	Chkd By:	Accd File:

COMMONS ON THE TUALATIN  
6845 SW NYBERG LANE  
BUILDING A  
MECHANICAL DETAILS

TUALATIN OREGON 97225

PERMIT SET  
12/10/20



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SHEET

M6.02