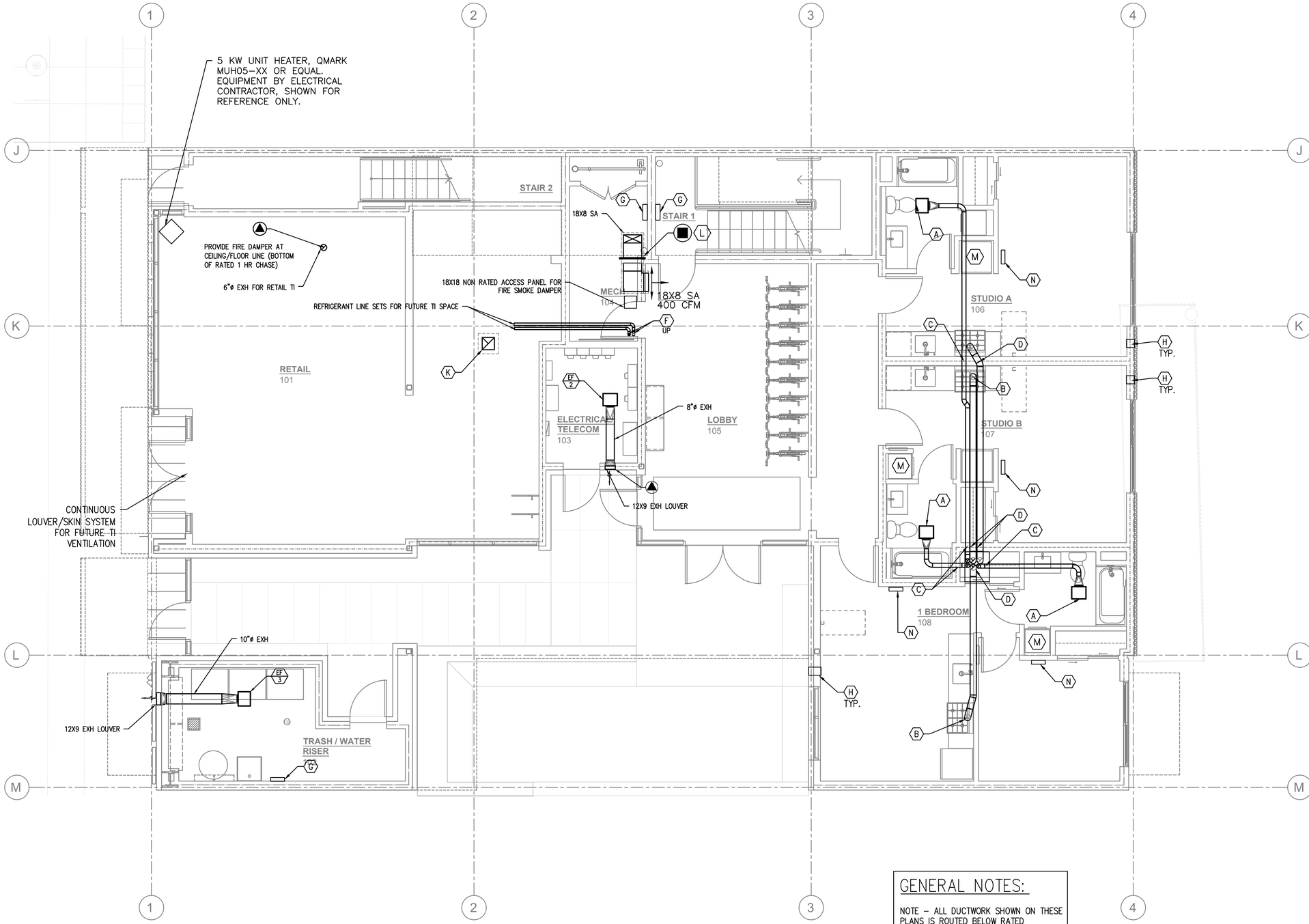

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1/M2.01 MECH PLAN – LEVEL 1
SCALE: 1/4" = 1'–0"

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WWW.MFIA-ENG.COM
CONTACT: MARK DENYER

CITY STAMP

PROJECT

MLK & FAILING BUILDING 2

3810 NE MARTIN LUTHER KING JR BLVD PORTLAND, OR 97212

DRAWING TITLE

MECH PLAN - LEVEL 1

REVISIONS

6-3-21

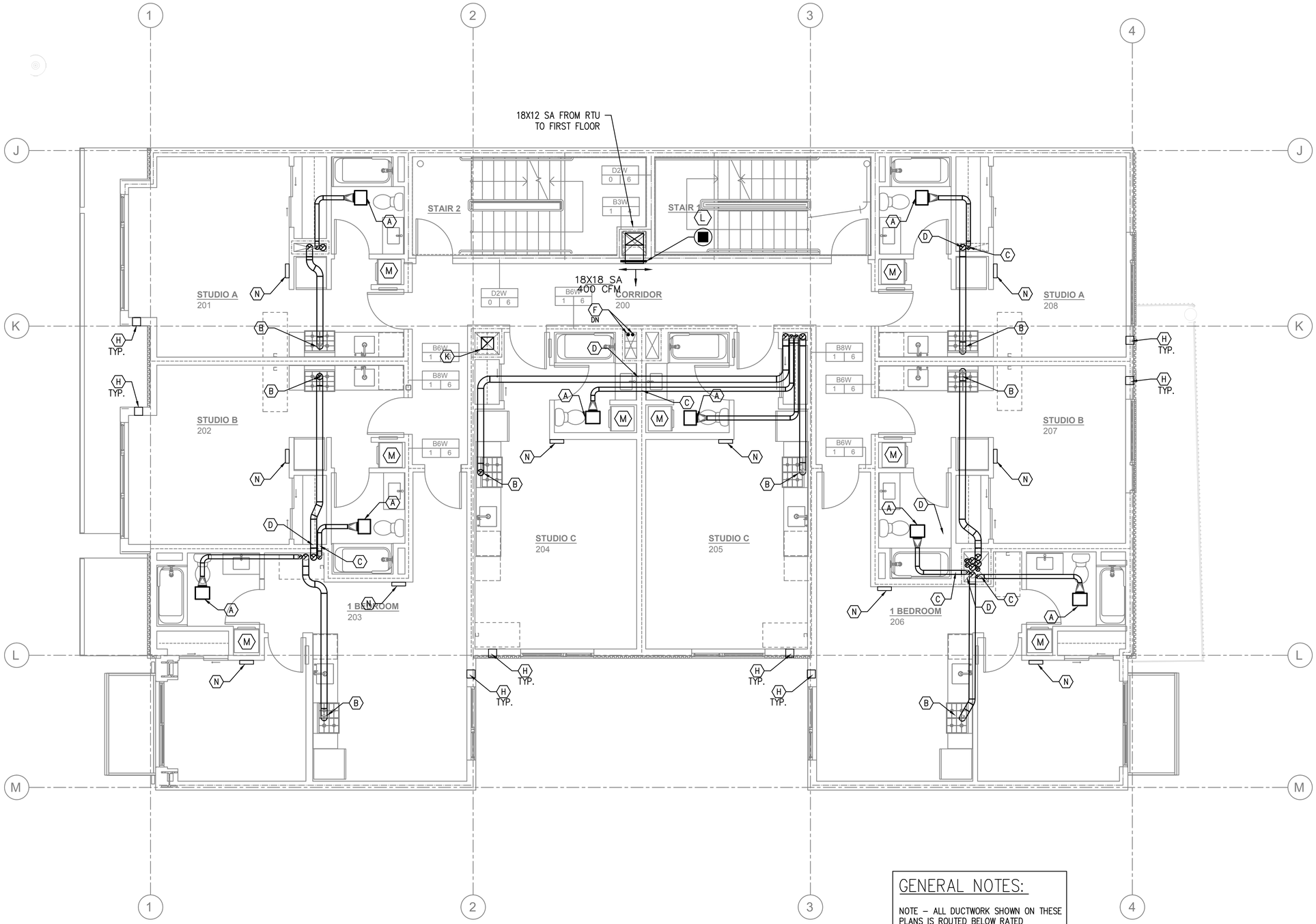
REGISTERED PROFESSIONAL ENGINEER
54,607
OREGON
JULY 11, 2008
MARK R. DENYER
EXPIRES: 31DEC21

DATE	June 17, 2022
JOB NO.	18.16

DRAWING NO.

M2.01

CONSTRUCTION



1 M2.02 MECH PLAN – LEVEL 2
SCALE: 1/4" = 1'-0"

KEY NOTES:

- (A) PANASONIC WHISPERGREEN CEILING FAN WITH 4"ø DUCT TO ROOF OR EXTERIOR WALL TERMINATION VIA SOFFIT(S) PROVIDED. BACK DRAFT DAMPER INTEGRAL TO FAN. FAN TO OPERATE AT LOW SPEED CONTINUOUS (50 CFM) AND INCREASE TO 80 CFM WHEN BUILT–IN MOTION SENSOR IS ACTIVATED. INSULATED FINAL 5' OF DUCTWORK. NO DUCTWORK SHALL PENETRATE RATED ASSEMBLY. SEE 1/M6.01 EF 1/1
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CITY STAMP

PROJECT

MLK & FAILING BUILDING 2

3810 NE MARTIN LUTHER KING JR BLVD PORTLAND, OR 97212

DRAWING TITLE
MECH PLAN - LEVEL 2

REVISIONS

6-3-21

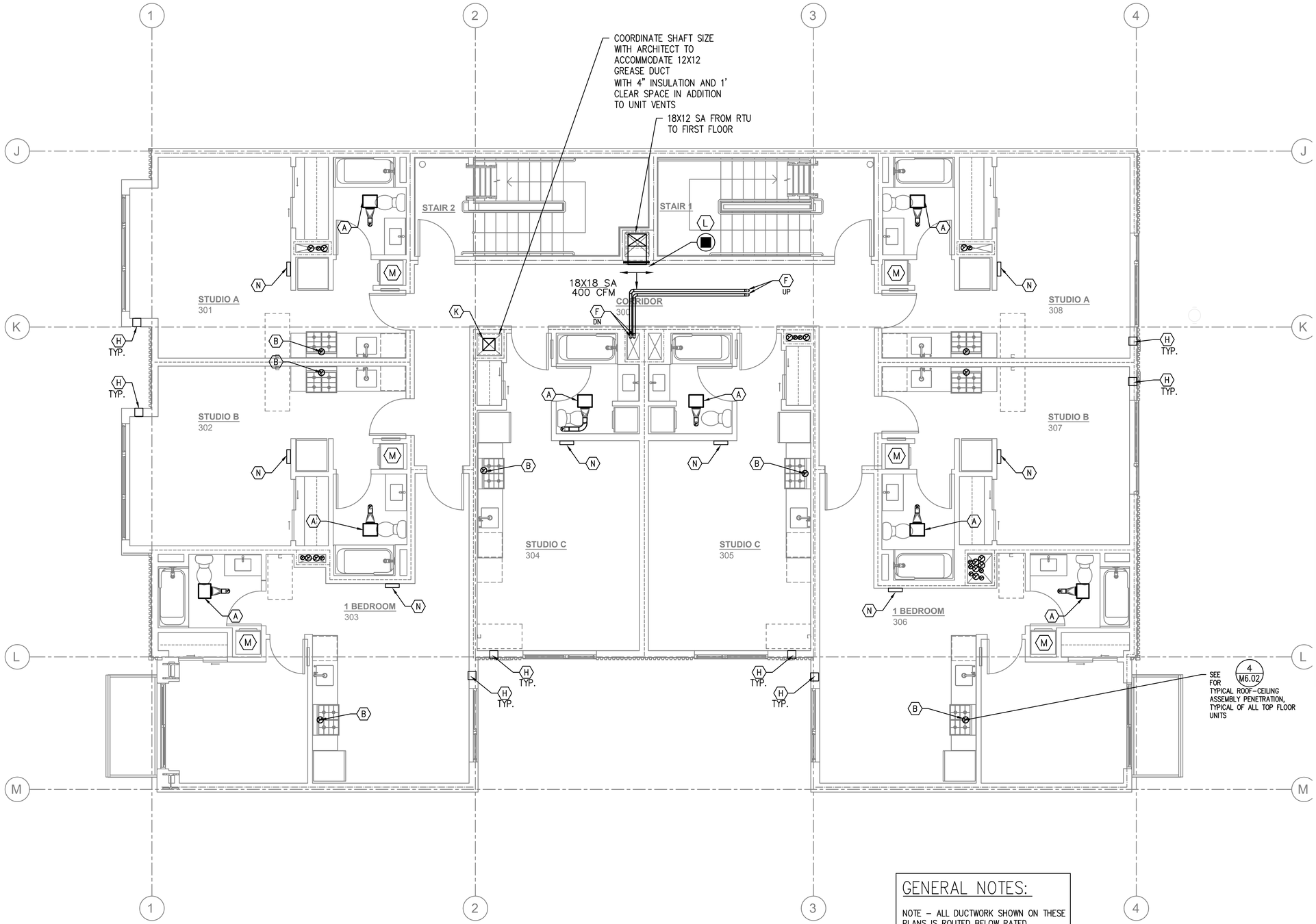
REGISTERED PROFESSIONAL ENGINEER
54,607
OREGON
JULY 11, 2000
MARK R. DENYER
EXPIRES: 31DEC21

DATE	June 17, 2022
JOB NO.	18.16

DRAWING NO.

M2.02

CONSTRUCTION



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1 M2.03 MECH PLAN – LEVEL 3
SCALE: 1/4" = 1'-0"

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CITY STAMP

PROJECT

MLK & FAILING BUILDING 2

3810 NE MARTIN LUTHER KING JR BLVD
PORTLAND, OR 97212

DRAWING TITLE
MECH PLAN - LEVEL 3

REVISIONS

6-3-21

REGISTERED PROFESSIONAL ENGINEER
54,607
OREGON
JULY 11, 2006
MARK R. DENYER
EXPIRES: 31DEC21

DATE	June 17, 2022
JOB NO.	18.16

DRAWING NO.

M2.03

CONSTRUCTION

COMMUNITY DESIGN STANDARDS

MECHANICAL EQUIPMENT/VENTS SHALL BE SETBACK 4' FOR EVERY 1' OVER THE PARAPET

PARAPET HEIGHT 2'

DOGHOUSE FOR VENTS, HEIGHT = 2'

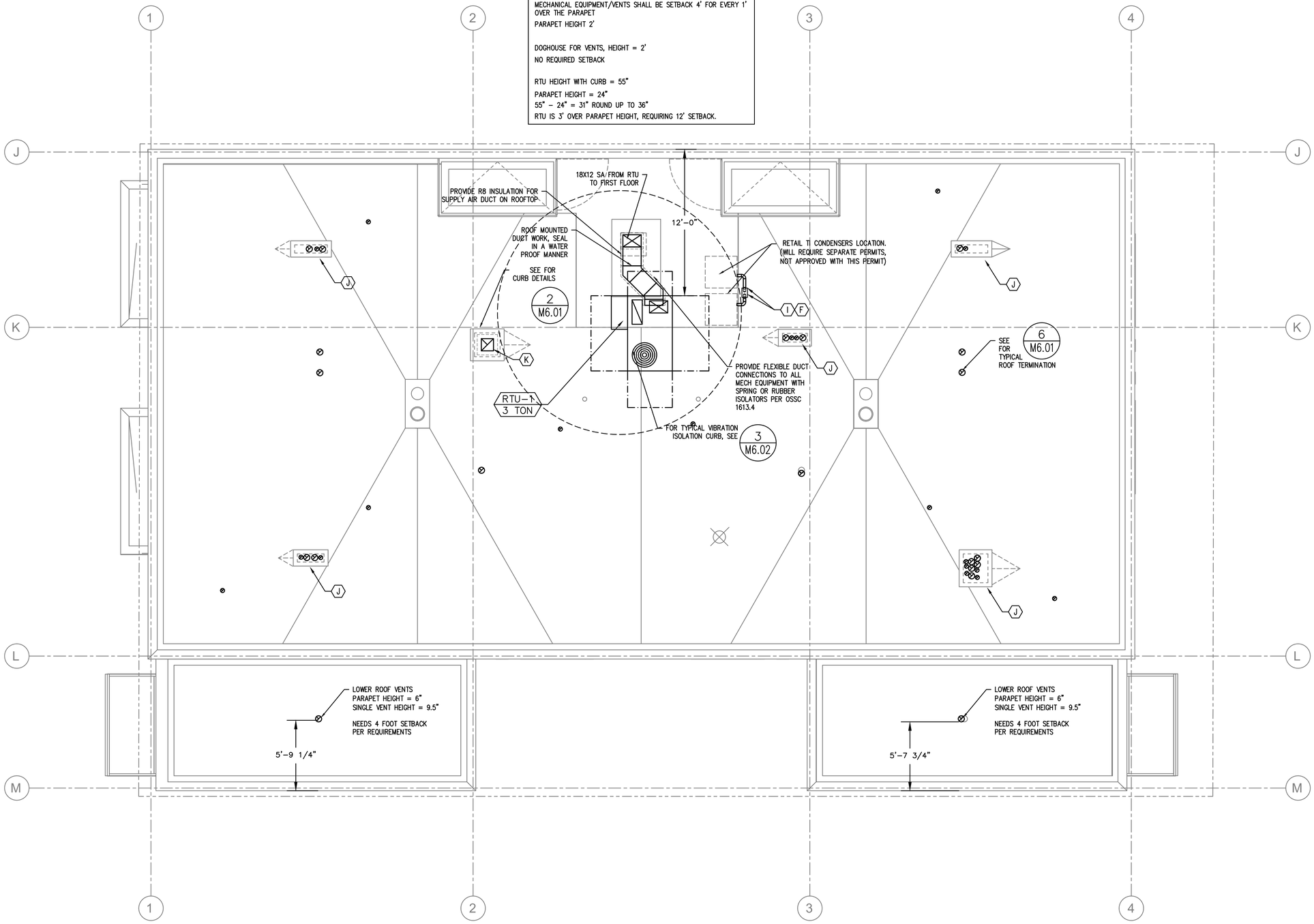
NO REQUIRED SETBACK

RTU HEIGHT WITH CURB = 55"

PARAPET HEIGHT = 24"

55" – 24" = 31" ROUND UP TO 36"

RTU IS 3' OVER PARAPET HEIGHT, REQUIRING 12' SETBACK.



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1 M2.04 MECH PLAN – ROOF
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CITY STAMP

PROJECT

MLK & FAILING BUILDING 2

3810 NE MARTIN LUTHER KING JR BLVD
PORTLAND, OR 97212

DRAWING TITLE
MECH PLAN - LEVEL 4

REVISIONS

6-3-21

REGISTERED PROFESSIONAL ENGINEER
54,607
OREGON
JULY 11, 2008
MARK R. DENYER
EXPIRES: 31DEC21

DATE	June 17, 2022
JOB NO.	18.16

DRAWING NO.

M2.04

CONSTRUCTION

MECHANICAL LEGEND

- SUPPLY AIR DIFFUSER
- RETURN AIR GRILLE
- EXHAUST AIR GRILLE
- PERFORATED RETURN AIR PANEL
- OR — DIRECTIONAL AIR FLOW
- MANUAL VOLUME DAMPER
- SUPPLY OR OUTSIDE AIR DUCT UP & DOWN
- RETURN AIR DUCT UP & DOWN
- EXHAUST AIR DUCT UP & DOWN
- SUPPLY OR OUTSIDE AIR DUCT UP & DOWN
- RETURN AIR DUCT UP & DOWN
- EXHAUST AIR DUCT UP & DOWN
- VAV TERMINAL UNIT
- VVT TERMINAL UNIT
- (E) EXISTING
- CONNECT TO EXISTING
- (T)AC-4 THERMOSTAT OR TEMP. SENSOR
- (?) NOTE
- (XX/?) EQUIPMENT DESIGNATOR
- BALL VALVE
- GATE VALVE
- CHECK VALVE
- BALANCING VALVE
- THERMOMETER
- DIRECTION OF FLOW
- PUMP
- STRAINER
- PRESSURE GAUGE
- PETE'S PLUG
- DOUBLE CHECK ASSEMBLY
- PRESSURE REDUCING VALVE
- UNION
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- CAP
- S — SMOKE DETECTOR
- MOTORIZED DAMPER

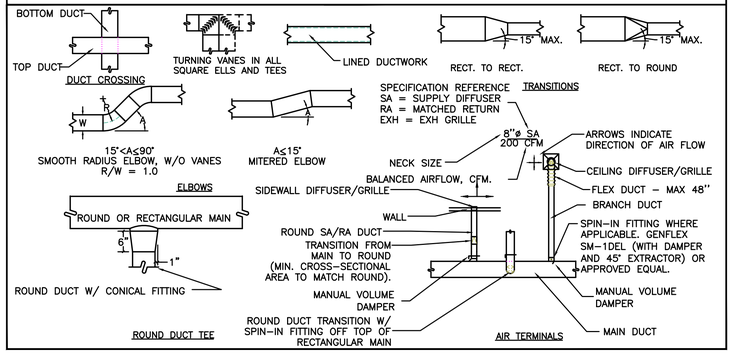
AFF	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
B.D.	BOTTOM OF DUCT
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNITS
CFM	CUBIC FEET PER MINUTE
CONN.	CONNECTION
CONT.	CONTINUATION
CW	DOMESTIC COLD WATER
DB	DRY BULB
DIA.	DIAMETER
DIST.	DISTRIBUTION
EA	EXHAUST AIR
EDB	ENTERING DRY BULB TEMPERATURE
EWB	ENTERING WET BULB TEMPERATURE
EWT	ENTERING WATER TEMPERATURE
FF	FINISH FLOOR
FIXT.	FIXTURE
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT.	FEET / FOOT
GA.	GAUGE
GPM	GALLONS PER MINUTE
H	HEIGHT
HP	HORSEPOWER
I.D.	INSIDE DIAMETER
IN.	INCHES
L	LENGTH
LBS.	POUNDS
LDB	LEAVING DRY BULB
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MAX.	MAXIMUM
MBH	THOUSANDS OF BTUs PER HOUR
MIN.	MINIMUM
NC	NOISE CRITERIA
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	WIDTH
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

AIR DISTRIBUTION DETAILS



ROOFTOP HVAC UNITS

MARK NUMBER		RTU-1 3 TON*
SYSTEM		CORRIDORS
TYPE		C.V.
DISCHARGE		VERTICAL
FAN SECTION	TOTAL CFM	1200
	ECONOMIZER	100% OSA
	MIN. OSA	100%
	MAX OSA (FULL OCCUPANCY)	NA
	CO2 CONTROL	NA
	EXTERNAL SP. ("H2O)	0.75
	TOTAL SP. ("H2O)	---
	RPM	2181
	WHEEL TYPE/ SIZE	F.C. 10" (DIRECT)
	MOTOR HP.	1.0 HP
	POWER EXH FAN/ACCESSORY	NONE
MIN FILTER SIZE		2-16X25
FILTER TYPE		2"- 30%
HEATING	GAS INPUT/OUTPUT (MBH)	115 / 82
	EFF. (AFUE)	80.0%
	STAGES/TYPE	2-HIGH HEAT**
COOLING	TOTAL CLG. (TONS)	3.0
	SENSIBLE CLG. (MBH)	28.3
	ENT. EVAP AIR TEMP (DB/WB.)	90/67
	LVG. EVAP AIR TEMP (DB/WB.)	55/54
	AMBIENT AIR (°F)	95
	EER/SEER	12.5 / 15.0
	REFRIGERANT	410A
	REFRIGERANT CHARGE	XX
DESIGN WEIGHT (LBS.)		605
SMOKE DETECTOR (SUPPLY DUCT)		NO
SPRING ISOLATION ROOF CURB		YES
CONVENIENCE OUTLET - ALWAYS POWERED		YES
VOLTAGE/PHASE - ***		208/3
MCA/MOCP - ***		29/35 AMPS
BASIS OF DESIGN - CARRIER MODEL		48HCTA04A0A5

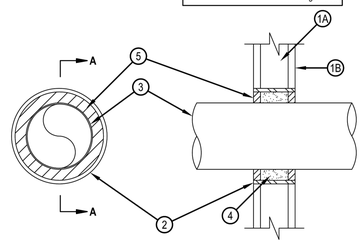
* - UNIT TO RUN CONTINUOUSLY
** - PROVIDE STAINLESS STEAL HEAT EXCHANGER.
***- ELECTRICAL DATA LISTED FOR REFERENCE ONLY, COORDINATE WITH ELECTRICAL DEIGN BUILD CONTRACTOR FOR VOLTAGE AND PHASE REQUIREMENTS

System No. W-L-7017

WL 7017

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 1 Hr	F Rating — 1 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
	FH Rating — 1 Hr
	FTH Rating — 0 Hr



SECTION A-A

1. Wall Assembly — The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — One layer of nom 5/8 in. (16 mm) thick gypsum board, as specified in the individual Wall and Partition Design. Max diam of opening is 8-5/8 in. (219 mm).
2. Metallic Sleeve — Nom 8 in. (203 mm) diam (or smaller) Schedule 40 (or heavier) steel sleeve cast into wall assembly with joint compound and installed flush with wall surfaces.
3. Air Duct — Nom 6 in. (152 mm) diam (or smaller) prefabricated No. 28 MSG galv sheet metal duct. A min 1/2 in. (13 mm) to max 1-1/2 in. (38 mm) annular space is required within the firestop system. Duct to be rigidly supported on both sides of wall assembly.
4. Forming Material* — Foamed plastic forming material foamed into opening as a permanent form. Forming material to be recessed from both surfaces of wall as required to accommodate the required thickness of fill material.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CF812 or CF-AS CJP Foam Sealant
5. Fill, Void or Cavity Material* — Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 26, 2015

1 M6.00 FIRE PENETRATION DETAIL - 6" DUCTS
DETAIL

EXHAUST FANS

MARK NUMBER	EF 1	EF 2	EF 3
TYPE	CEILING CABINET	CEILING CABINET	CEILING CABINET
SYSTEM	BATHROOM	ELECTRICAL ROOM	TRASH/WATER RISER
CFM	30/80	200	300
TOTAL SP. (IN H20)	0.20	0.125	0.125
RPM	1062/1146	740	2500
TIP SPEED (FPM)	NA	--	--
MOTOR WATTS OR HP	5/11.7 W	127 W	135 W
CONTROLLED BY	**	T-STAT	CONTINUOUS
INTERLOCK WITH	MOTION SENSOR	NONE	NONE
FAN SPEED CONTROLLER	YES	YES	YES
WHEEL TYPE	BI	BI	BI
BACK DRAFT DAMPER	YES	GRAVITY	GRAVITY
ISOLATION	RUBBER	RUBBER	RUBBER
DESIGN WEIGHT (LBS)	25	23	25
MAX. SONES	0.3/0.6	1.7	4.5
MAX AMPS - ***	0.27	1.8	1.34
POWER (VOLTS/PHASE/HZ) - ***	120/1/60	120/60/1	120/60/1
BASIS OF DESIGN:	PANASONIC * FV-05-11VKSL2	BROAN L200	GREENHECK SP-A390

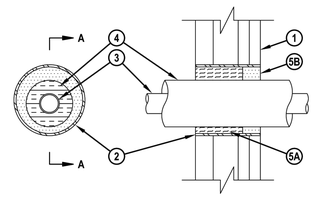
* - FAN TO RUN AT LOW SPEED CONTINUOUSLY, AND INCREASE TO HIGH SPEED UPON ACTIVATION OF THE MOTION SENSOR.
***- ELECTRICAL DATA LISTED FOR REFERENCE ONLY, COORDINATE WITH ELECTRICAL DEIGN BUILD CONTRACTOR FOR VOLTAGE AND PHASE REQUIREMENTS

System No. W-L-5143

WL 5143

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 1 and 2 Hr (See Items 1 and 5)	F Rating — 1 and 2 Hr (See Items 1 and 5)
T Rating — 1/2 Hr	FT Rating — 1/2 Hr
	FH Rating — 1 and 2 Hr (See Items 1 and 5)
	FTH Rating — 1/2 Hr



SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features.
   A. Studs — "C-T" shaped studs 1-5/8 in. (41 mm) wide by 2-1/2 in. (64 mm) deep, fabricated from 25 MSG galv steel, spaced max 24 in. (610 mm) OC.
   B. Gypsum Boards* — One layer of nom 1 in. (25 mm) thick, 24 in. (610 mm) wide gypsum liner and one or two layers of nom 5/8 in. (16 mm) thick, 4 ft. (122 cm) wide gypsum board with square or tapered edges. The gypsum board type, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 4 in. (102 mm).

Hilti Firestop Systems

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Page: 1 of 2

System No. W-L-5143

WL 5143

1A. Wall Assembly — As an alternate to the above wall assembly, the 1 or 2 Hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC.
   B. Gypsum Boards* — Thickness, type, number of layers and fasteners as required in the individual Wall and Partition Design. Max diam of opening is 4 in. (102 mm).
   The hourly F, FH Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. Metallic Sleeve — Max 4 in. (102 mm) diam cylindrical sleeve fabricated from min 0.016 in. (0.4 mm) thick (28 gauge) galv sheet steel and having a min 1 in. (25 mm) lap along the longitudinal seam. Length of steel sleeve to be equal to thickness of wall. Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the opening and releasing the coil to let it uncoil against the circular cutouts in the gypsum board layers. Sleeve may also be formed of No. 8 steel wire mesh having a min 1 in. (25 mm) lap along the longitudinal seam.
3. Through Penetrants — One metallic pipe or tube to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of the wall assembly. The following types and sizes of metallic pipes or tubing may be used:
   A. Copper Tubing — Nom 1 in. (25 mm) diam (or smaller) Type L copper tubing
   B. Copper Pipe — Nom 1 in. (25 mm) diam (or smaller) Regular (or heavier) copper pipe.
4. Tube Insulation — Plastics+ — Nom 3/4 in. (19 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. The annular space between the insulated pipe and the periphery of the steel sleeve shall be min 1/4 in. (6 mm) and max 1-1/8 in. (28.6 mm).
   See Plastics+ (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Plastics Recognized Component tube insulation material meeting the above specifications and having a UL94 Flammability Classification of 94-5VA may be used.
5. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 1-5/8 or 2-1/4 in. (41 or 57 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation firmly packed into sleeve on one side of the wall as a permanent form for 1 and 2 hr walls, respectively. Packing material to be recessed from the room side of wall as required to accommodate the required thickness of fill material. In alternate wall assembly, packing material to be flush with either side of the wall and be recessed from the other side of the wall to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* — Sealant — Min 1-1/2 in. (38 mm) thickness of fill material applied within sleeve, flush with room surface of wall or either wall surface in the alternate wall assembly.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

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Page: 2 of 2

2 M6.00 FIRE PENETRATION DETAIL - REFRIG LINE SETS
DETAIL

WILLIAM / KAVEN

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4075 N. WILLIAMS AVE, STUDIO 440
PORTLAND, OR 97227

www.williamkaven.com

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

CITY STAMP

PROJECT

MLK & FAILING BUILDING 2

3810 NE MARTIN LUTHER KING JR BLVD PORTLAND, OR 97212

DRAWING TITLE

MECHANICAL SCHEDULES - DETAILS

REVISIONS

6-3-21

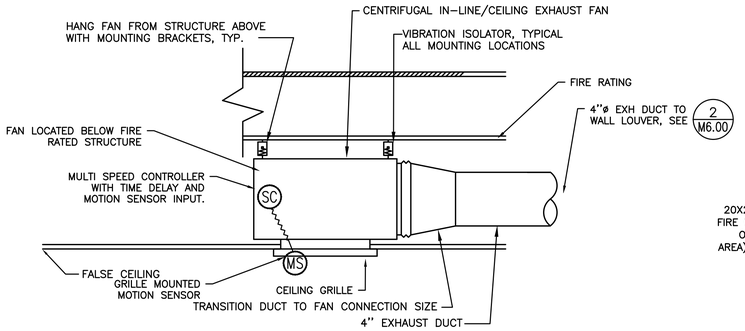
REGISTERED PROFESSIONAL ENGINEER
54,607
OREGON
JULY 11, 2000
MARK R. DENYER
EXPIRES: 31DEC21

DATE	June 17, 2022
JOB NO.	18.16

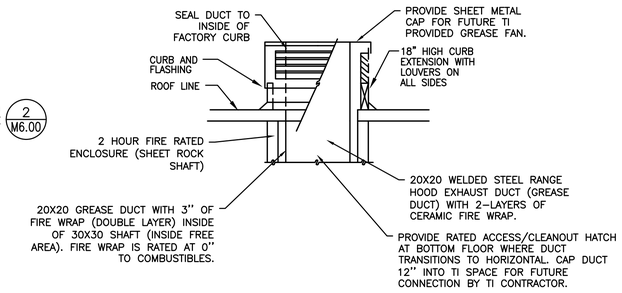
DRAWING NO.

M6.00

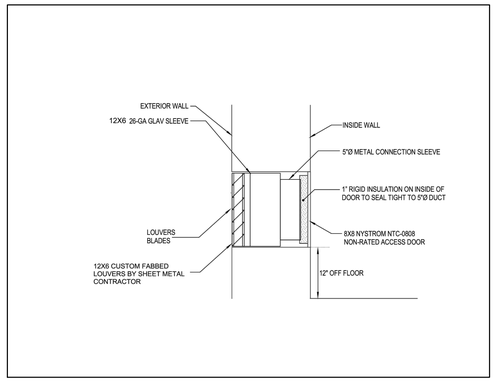
CONSTRUCTION



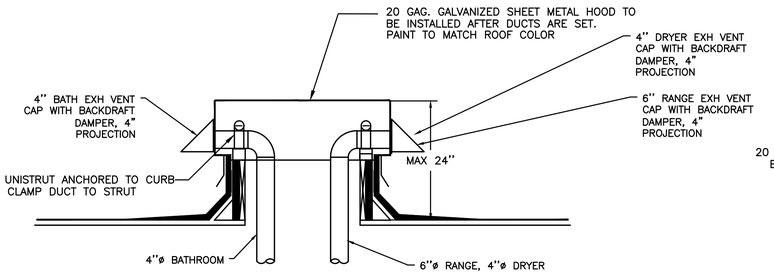
1 M6.01 RESTROOM EXHAUST FAN
SCALE: DETAIL



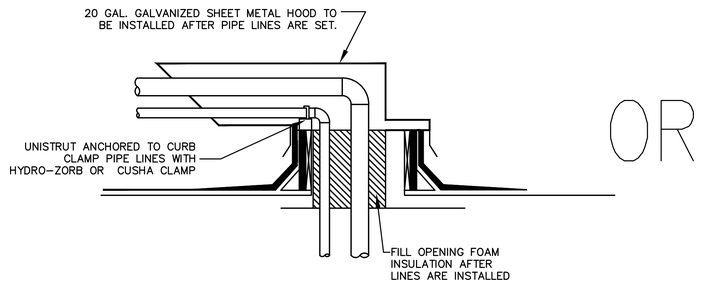
2 M6.01 GREASE DUCT/CURB TERMINATION
NOT TO SCALE



4 M6.01 AC VENT PORT WITH ACCESS DOOR
NOT TO SCALE



5 M6.01 ROOFTOP OUTLET HOOD
NOT TO SCALE



OR

3 M6.01 REFRIGERANT ROOF PENETRATIONS
DETAIL

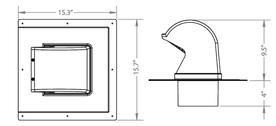
RV28
Goose-Neck Roof Vent

Technical Data Sheet

FEATURES & BENEFITS

- Provides all-weather ventilation with 5" of additional height for snow clearance.
- Maximize inventories turns with single hood size and separate 4 to 8-inch easy snap-in adapters.
- Patented design eliminates leaky joints and maximizes water protection with one-piece, molded hood.
- Ensures watertight installation with over-sized flange.
- Resists damage from sun and hail with UV-protected, impact resistant polymer resin.
- Simple intake/exhaust conversion via removable damper.

TECHNICAL DRAWING



PRODUCT DIMENSIONS

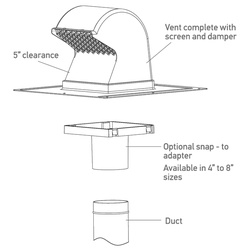
HOOD SIZE: H: 15.7" / W: 15.3" / D: 9.5"

COLOURS

- Black (25)
- Light Grey (31)
- Dark Grey (28)
- Tan (45)
- Dark Brown (68)

APPLICATIONS

- Dryer Venting
- Bathroom Venting
- Range Venting
- Heat Recovery Venting (HRV)
- Intake



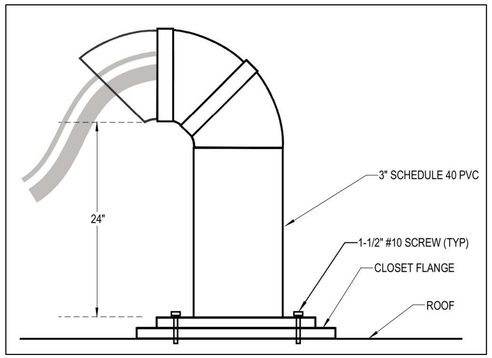
PART NUMBER/SIZING

Part #	Size	Free Area	Description	Pkg
RV28	7"x7"x9.38"	26.5 sq. in.	Exhaust vent with screen	5/box (bulk 120 avlbl)
RV28NS	7"x7"x9.38"	31.8 sq. in.	Exhaust vent without screen	5/box (bulk 120 avlbl)
RV28-4	4" Dia.	12.6 sq. in.	Duct adapter: 4"	30/box
RV28-5	5" Dia.	19.6 sq. in.	Duct adapter: 5"	30/box
RV28-6	6" Dia.	26.5 sq. in. 28.3 NS	Duct adapter: 6"	25/box
RV28-7	7" Dia.	26.5 sq. in. 31.8 NS	Duct adapter: 7"	25/box
RV28-8	8" Dia.	26.5 sq. in. 31.8 NS	Duct adapter: 8"	18/box

CONTACT US FOR MORE INFORMATION:
1.604.881.7875 | info@primexvents.com
10/18

primex
primexvents.com

6 M6.01 ROOFTOP OUTLET HOOD - SINGLE DUCT
NOT TO SCALE



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CITY STAMP

PROJECT

MLK & FAILING BUILDING 2

3810 NE MARTIN LUTHER KING JR BLVD PORTLAND, OR 97212

DRAWING TITLE
MECHANICAL DETAILS

REVISIONS

6-3-21

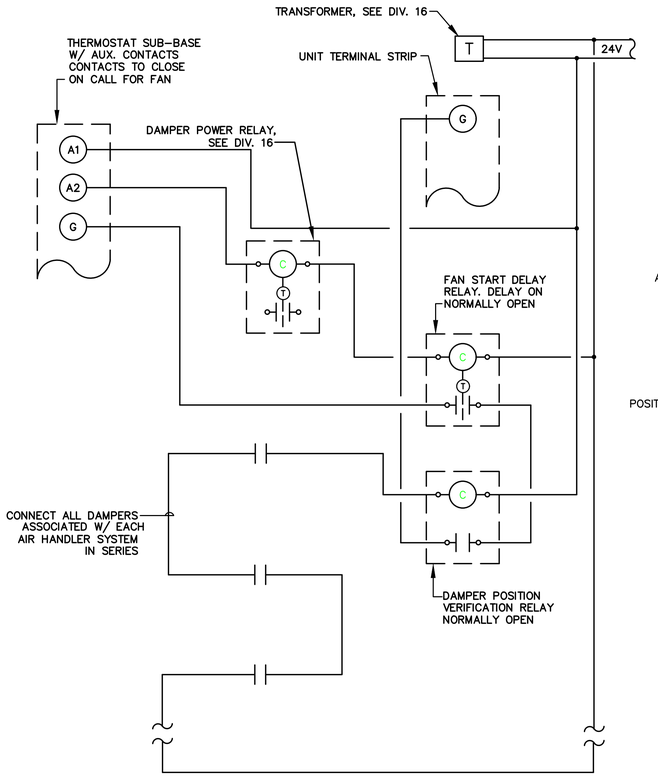
REGISTERED PROFESSIONAL ENGINEER
54,607
OREGON
JULY 11, 2006
MARK R. DENYER
EXPIRES: 31DEC21

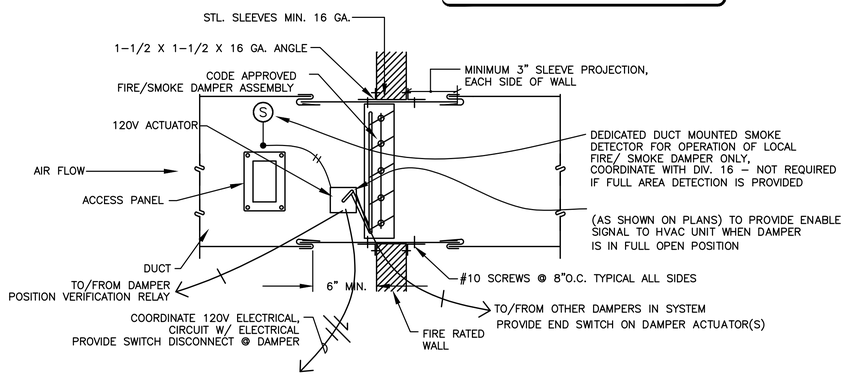
DATE	June 17, 2022
JOB NO.	18.16

DRAWING NO.

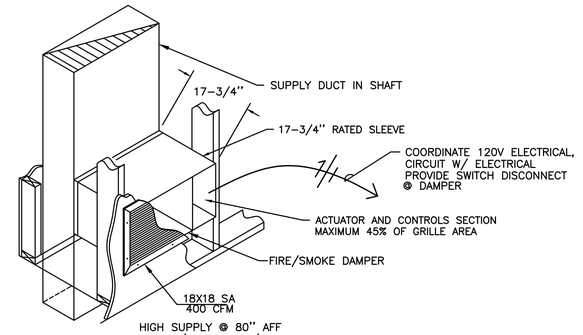
M6.01

CONSTRUCTION





2 M6.02 FIRE/SMOKE DAMPER W/SMOKE DETECTOR
NOT TO SCALE



1 M6.02 HIGH SUPPLY W/ FIRE/SMOKE DAMPER
SCALE: DETAIL

NOTE:

PROVIDE ALL REQUIRED CONTROL WIRING TO ACCOMPLISH:

FIRE/SMOKE DAMPER – FIRE/SMOKE DAMPER TO CLOSE UPON ACTIVATION OF LOCAL SMOKE DETECTOR

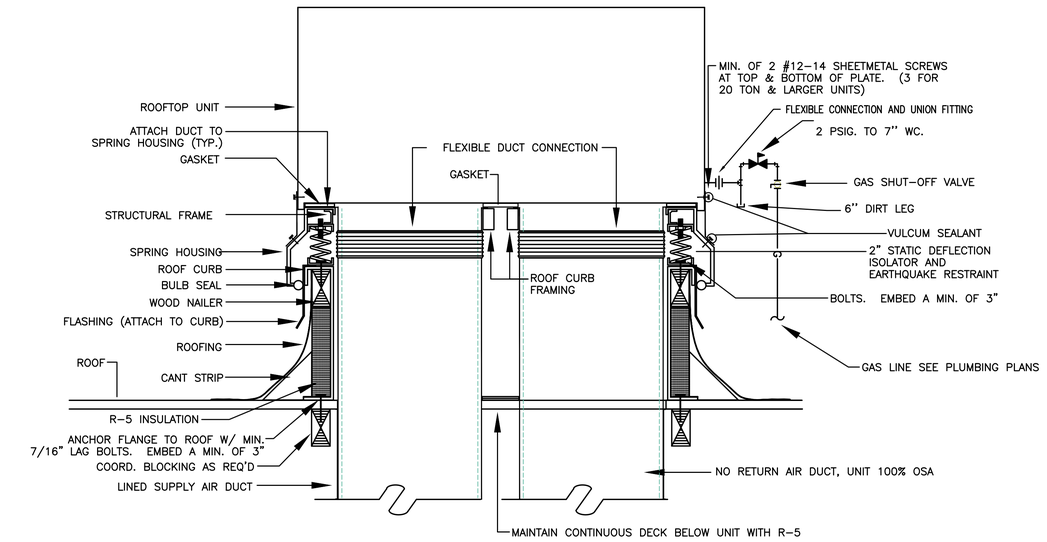
EXHAUST DUCTS/FANS – FIRE/SMOKE DAMPER TO CLOSE UPON SHUTDOWN OF ASSOCIATED EXHAUST FAN.

SUPPLY OR RETURN DUCTS/FANS – FIRE/SMOKE DAMPER TO CLOSE UPON SHUTDOWN OF ASSOCIATED AIR HANDLING UNIT.

GENERAL NOTES:

PROVIDE ACCESS IN CEILING OR WALL FOR DAMPER AND SMOKE DETECTOR

SEE ELECTRICAL DRAWINGS FOR WIRING INSTALLATION

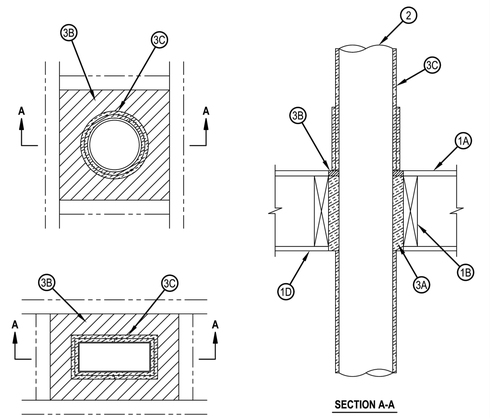


3 M6.02 ROOF TOP UNIT W/ VIBRATION ISOLATION CURB
SCALE: DETAIL

System No. F-C-7057 FC 7057

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 1 Hr	F Rating — 1 Hr
T Rating — 1 Hr	FT Rating — 1 Hr
	FH Rating — 1 Hr
	FTH Rating — 1 Hr



Hilti Firestop Systems

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Page: 1 of 2

System No. F-C-7057 FC 7057

1. Floor-Ceiling Assembly — The 1 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The general construction details of the floor-ceiling assembly are summarized below:
   A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling Design. Max area of floor opening is 150 in.2 (0.098 m2) with a max 1.5 in. (38 mm) annular space between duct and framing members.
   B. Wood Joists — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with ends firestopped. Additional framing members installed to form a square enclosure around the perimeter of the opening in the floor and ceiling.
   C. Furring Channels — (Where Required - Not Shown) - Resilient galv steel furring installed perpendicular to wood joists between gypsum board and wood joists as specified in the individual Floor-Ceiling Design. Furring channels spaced max 24 in. (610 mm) OC. If furring channels are used within the assembly, additional furring channels to be installed along the periphery of the opening.
   D. Gypsum Board* — Nom 4 ft (1.2 m) wide by 5/8 in. (16 mm) thick as specified in the individual Floor-Ceiling Design. Gypsum board secured to wood joists or furring channels as specified in the individual Floor-Ceiling Design. Max area of ceiling opening is 150 in.2 (0.098 m2) with a max 1.5 in. (38 mm) annular space between duct and framing members.
2. Steel Air Duct — Max 7 in. (178 mm) diam by min 0.0157 in. (No. 30 gauge or 0.40 mm) thick galv steel air duct to be centered within the opening. Max one steel air duct to be installed within opening. Steel duct to be rigidly supported on top side of floor-ceiling assembly.
2A. Steel Air Duct — Max 10 by 4 in. (254 by 102 mm) rectangular by min 0.022 in (no. 26 gauge or 0.56 mm) thick galv steel air duct to be centered within the firestop system. Max one steel air duct to be installed within opening. Steel duct to be rigidly supported on top side of floor-ceiling assembly.
3. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 9-7/8 in. (251 mm) thickness of unfaced duct wrap material compressed min 25 percent into opening as a permanent form between the insulated steel duct and the periphery of the opening. Packing material to be installed flush with bottom surface of ceiling and recessed from top surface of floor to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* - Sealant — Min 3/4 in. (19 mm) thickness of fill material applied within annulus on top surface of floor.
      SPECIFIED TECHNOLOGIES INC — SpecSeal Series SSS Sealant or SpecSeal LCI Sealant
      EGS NELSON FIRESTOP — EST399 Sealant
      HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE-MAX Intumescent Sealant
      TREMCO INC — Fyre-Sil Sealant
      DAP PRODUCTS INC — DAP Fire Stop Fire-Rated Silicone Sealant
      3M COMPANY 3M FIRE PROTECTION PRODUCTS — FB-1000 NS Sealant
      NUCO INC — Self Seal GG-200
   C. Duct Wrap Materials* — Nom 1/2 in. (13 mm) thick, 8 pcf (128 kg/m3) or nom 1-1/2 in. (38 mm) thick, 6 pcf (96 kg/m3) with foil-scrim facers. The steel duct shall be wrapped with one layer of duct wrap installed in accordance with Ventilation Assembly No. V-32. The duct wrap is secured with min No. 18 Gauge (0.040 in. or 1 mm) galvanized steel wire formed into a loop on one end, with the other end passed through the loop, pulled hand tight and bent over. Tie wires spaced a max 12 in. (305 mm) OC See Ventilation Duct Assemblies in Vol. 2 of the Fire Resistance Directory. The annular space between the insulated steel duct and the periphery of the opening shall be a nom 1-1/2 in. (38 mm). A min 12 in. high collar consisting of an additional layer of 1/2 in. (13 mm) thick, 8 pcf (128 kg/m3) or nom 1-1/2 in. (38 mm) thick, 6 pcf (96 kg/m3) duct wrap, installed over the duct wrap flush with the top surface of the floor and extending upward. All seams and edges shall be sealed with min 3 in. (76 mm) wide pressure sensitive aluminum foil tape.
      UNIFRAX I L L C — FyreWrap® DPS or FyreWrap® Elite 1.5

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

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Page: 2 of 2

4 M6.02 FIRE PENETRATION DETAIL – 6" DUCTS – HORIZONTAL
DETAIL

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FAX: (503) 234-0677
WWW.MFIA-ENG.COM
CONTACT: MARK DENYER

CITY STAMP

PROJECT

MLK & FAILING BUILDING 2

3810 NE MARTIN LUTHER KING JR BLVD
PORTLAND, OR 97212

DRAWING TITLE
MECHANICAL DETAILS

REVISIONS

6-3-21

REGISTERED PROFESSIONAL ENGINEER
54,607
OREGON
JULY 11, 2009
MARK R. DENYER
EXPIRES: 31DEC21

DATE	June 17, 2022
JOB NO.	18.16

DRAWING NO.
M6.02
CONSTRUCTION

DEFERRED SUBMITTALS - MECHANICAL

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

EQUIPMENT	DESCRIPTION	WEIGHT	SUBMITTED	INSPECTOR CHECK	
RTU-1	ROOF TOP HVAC UNIT	605 LBS			

Physical data

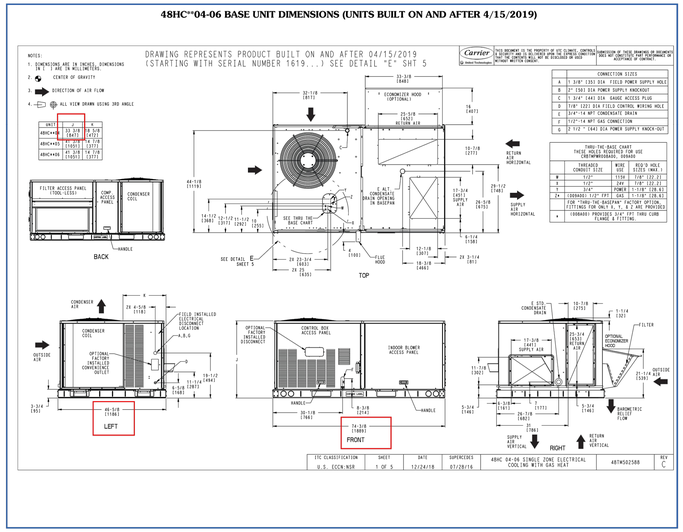
Carrier — United Technologies

48HC 3 TO 6 TON PHYSICAL DATA

48HC UNIT	48HC**04	48HC**05	48HC**06	48HC**07
NOMINAL TONS	3	4	5	6
BASE UNIT OPERATING WT (lb)*	505	590	600	925
REFRIGERATION SYSTEM				
No. Circuits/No. Compressors/Type	1/1/Scroll	1/1/Scroll	1/1/Scroll	1/1/2-Stage Scroll
Puron® Refrigerant Charge (lb-oz)	9-0	12-8	13-8	14-0
Humidi-Mizer® Puron Refrigerant Charge	11-0	19-12	20-0	22-8
Metering Device	TXV			
High Pressure Trip/Reset (psig)	630/505			
Low Pressure Trip/Reset (psig)	54/117			
EVAPORATOR COIL				
Material (Tube Fin)	Cu/Al			
Coil Type	3/8-in. RTPF			
Rows/FPI	3/15	3/15	4/15	3/15
Total Face Area (ft²)	5.5	7.3	7.3	8.9
Condensate Drain Connection Size	3/4-in.			
HUMIDI-MIZER COIL				
Material (Tube Fin)	Cu/Al			
Coil Type	3/8-in. RTPF			
Rows/FPI	1/17	2/17	2/17	2/17
Total Face Area (ft²)	3.9	5/2	5/2	5/2
ENERGYX RECOVERY WHEEL				
Type	Enthalpy Lightweight Polymer with Silica Gel Desiccant Coating			
Model (AirXchange)	ERC-1904	ERC-2513C	ERC-2513C	ERC-2513C
Size (Dia. x Depth) (in.)	19 x 1	25 x 3	25 x 3	25 x 3
Nominal Drive Motor Hp	0.1	0.1	0.1	0.1
ENERGYX SUPPLY FAN #1				
Qty - Type	1 - Backward Curved			
Drive Type	Direct			
Blower Size (Diameter) [in. (mm)]	9.8 (250)	15.75 (400)	15.75 (400)	15.75 (400)
Nominal Motor Hp	0.2	1.2	1.2	1.2
ENERGYX EXHAUST FAN #1				
Qty - Type	1 - Backward Curved			
Drive Type	Direct			
Blower Size [in. (mm)]	15.75 (400)			
Nominal Motor Hp	1.2			
ENERGYX WHEEL FILTERS				
TYPE	2-in. Pleated, 30% Efficiency			
Outside Air (Qty) - Size (in.)	(1) 10 x 20 x 2	(1) 16 x 25 x 2	(1) 16 x 25 x 2	(1) 16 x 25 x 2
Exhaust Air (Qty) - Size (in.)	(1) 10 x 20 x 2	(1) 16 x 25 x 2	(1) 16 x 25 x 2	(1) 16 x 25 x 2
TYPE	Aluminum Water Filter			
Water Entrapment (Qty) - Size (in.)	(1) 28.75 x 12.25 x 1	(1) 28.75 x 14.75 x 1		(1) 35.75 x 15.25 x 1

See legend on page 12.

48HC**04-06 BASE UNIT DIMENSIONS (UNITS BUILT ON AND AFTER 4/15/2019)



Base unit dimensions

LxWxH = 74-3/8"x 46-58"x 33/3/8"

WILLIAM / KAVEN

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CITY STAMP

PROJECT

MLK & FAILING BUILDING 2

3810 NE MARTIN LUTHER KING JR BLVD
PORTLAND, OR 97212

DRAWING TITLE
MECHANICAL DETAILS

REVISIONS

6-3-21

REGISTERED PROFESSIONAL ENGINEER — 54,607 — OREGON — JULY 11, 2000 — MARK R. DENYER

EXPIRES: 31DEC21

DATE	June 17, 2022
JOB NO.	18.16

DRAWING NO.

M6.03

CONSTRUCTION