

1 LEVEL 1 MECHANICAL PLAN  
 M1.01 SCALE: 1/4" = 1'-0"

**skylab**

ARCHITECTURE INTERIOR DESIGN 413 SW 13TH AVE, STE 200 PORTLAND, OR 97205

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**ADDRESS**  
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**PROJECT #**  
 18051

**DATE**  
 December 17, 2021

**ISSUANCE**  
 PERMIT SET

**REVISIONS**

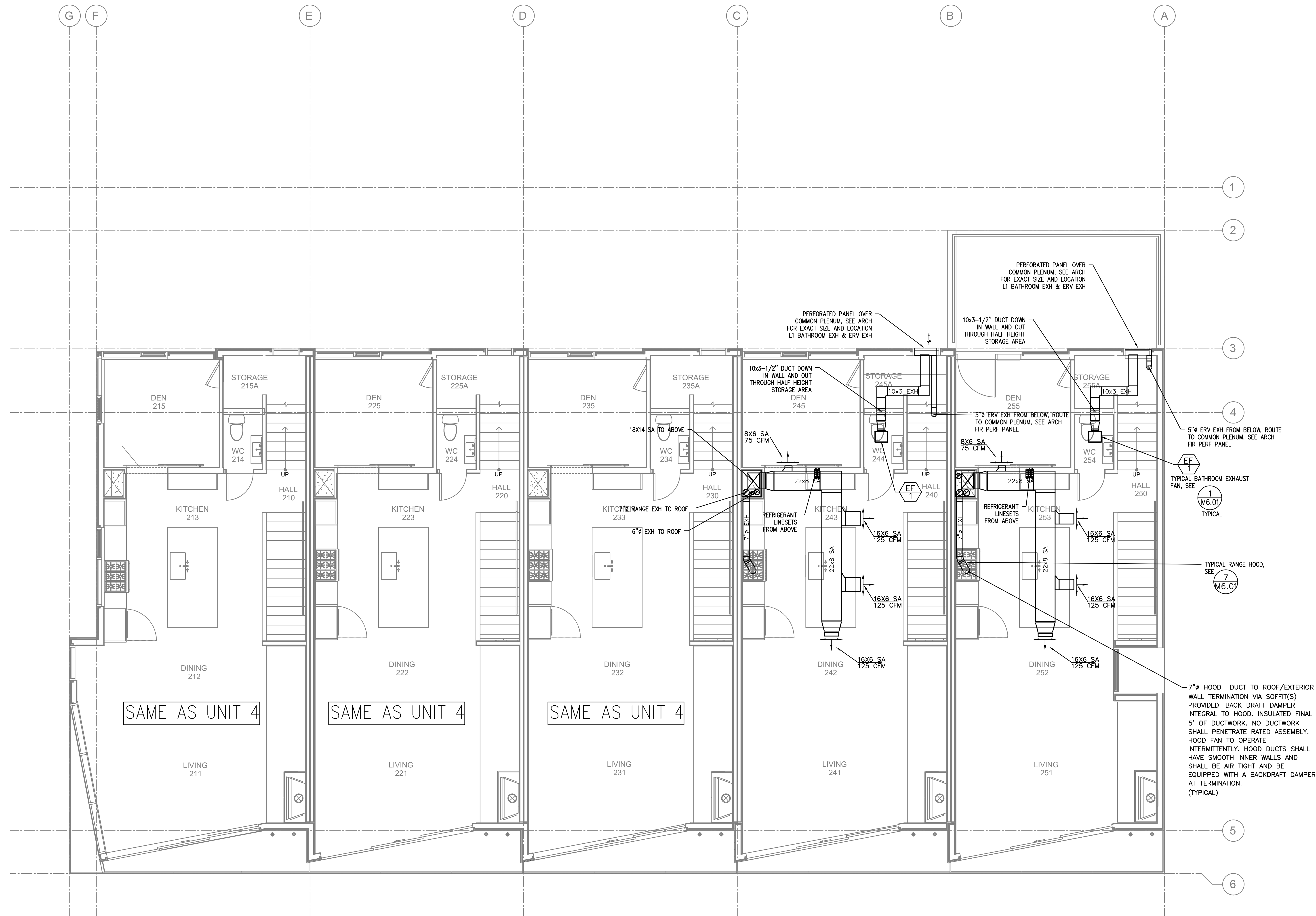
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 WWW.MFI-ENG.COM  
 CONTACT: MARK CENTER

**SHEET**  
 LEVEL 1 MECHANICAL PLAN

**M1.01**



1 LEVEL 2 MECHANICAL PLAN  
 M1.02 SCALE: 1/4" = 1'-0"

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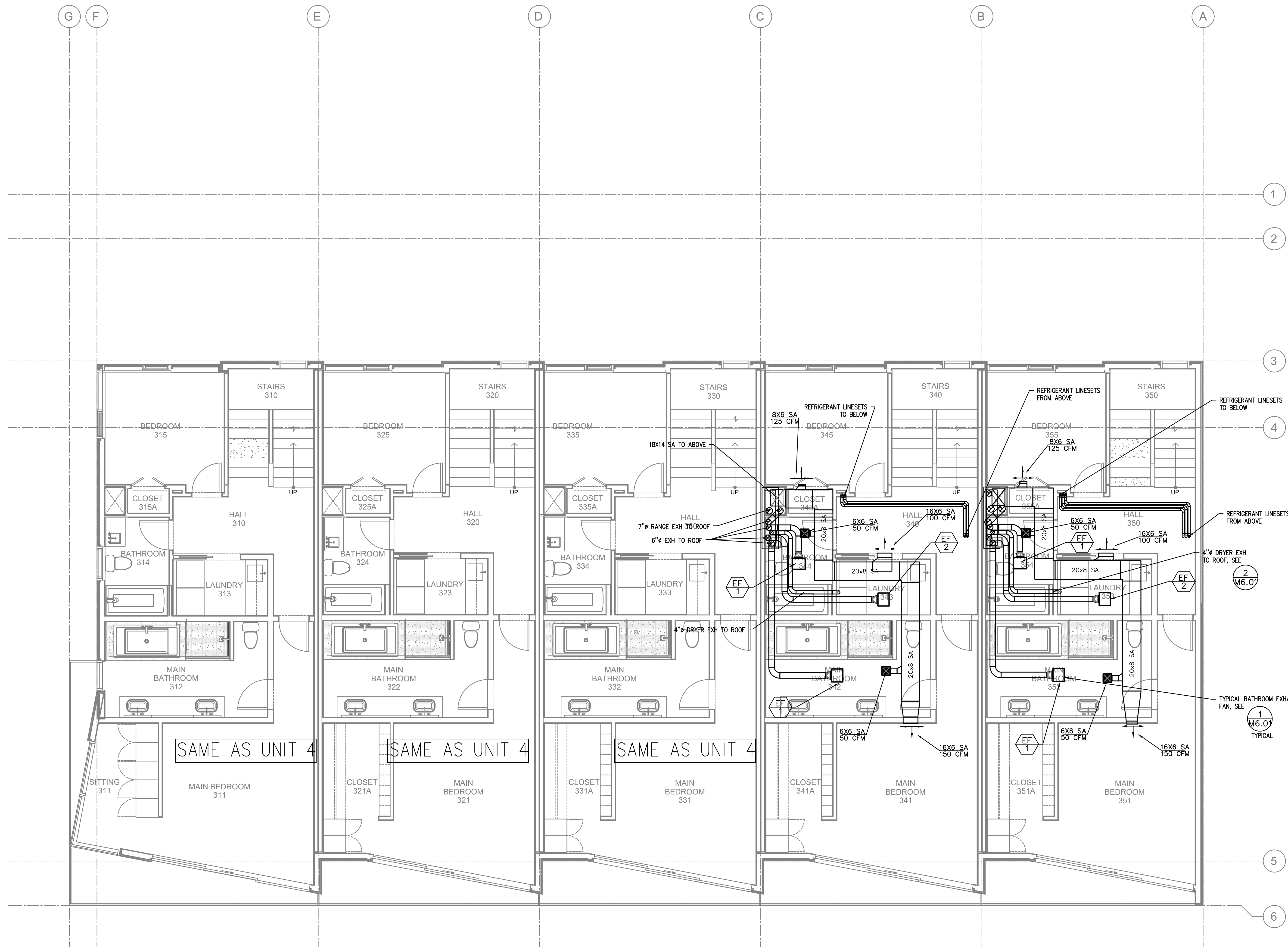
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**SHEET**  
LEVEL 2 MECHANICAL PLAN

**M1.02**



1 LEVEL 3 MECHANICAL PLAN  
 M1.03 SCALE: 1/4" = 1'-0"

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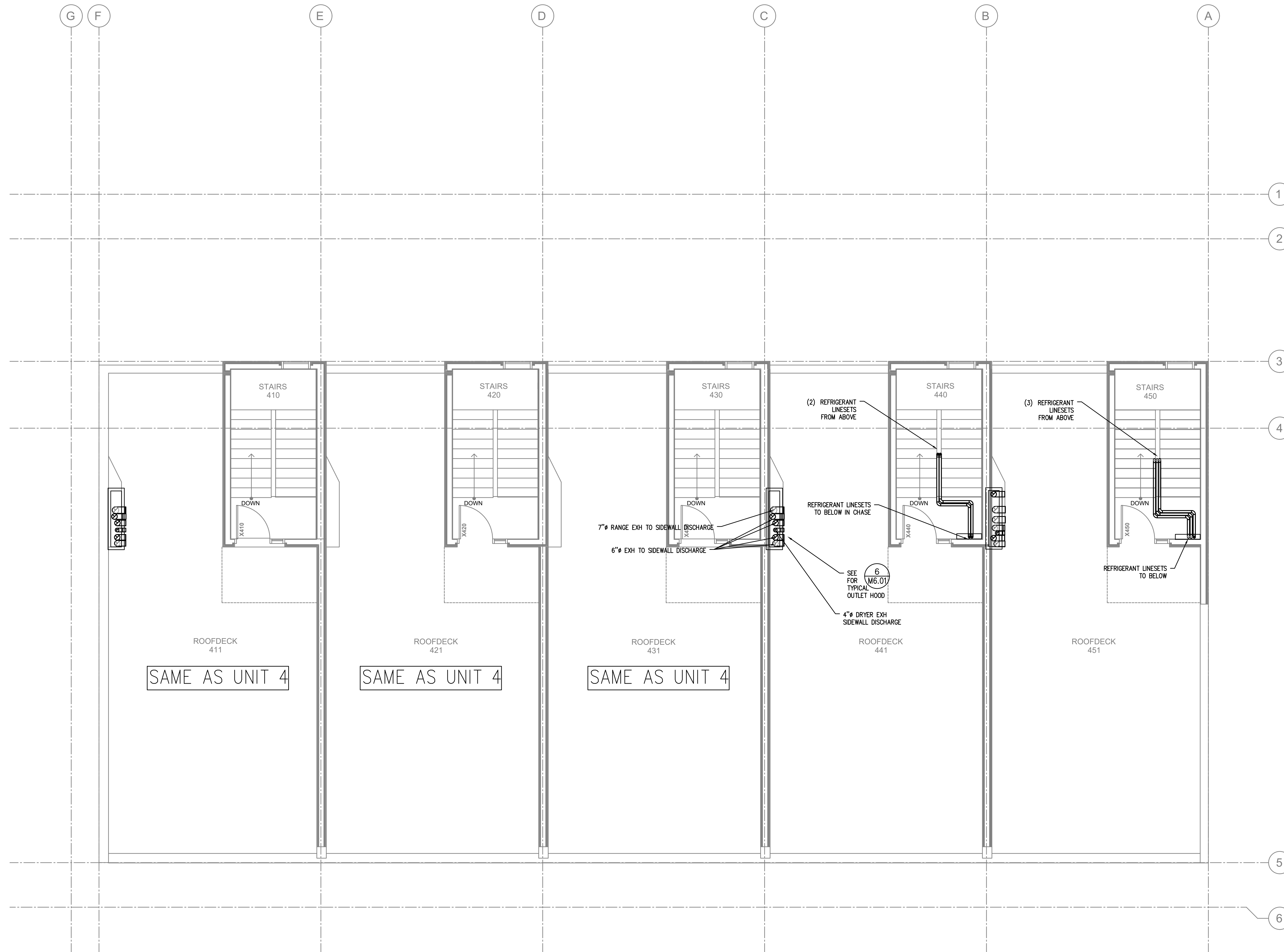
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**SHEET**  
 LEVEL 3 MECHANICAL PLAN

**M1.03**



1 LEVEL 4 MECHANICAL PLAN  
 M1.04 SCALE: 1/4" = 1'-0"

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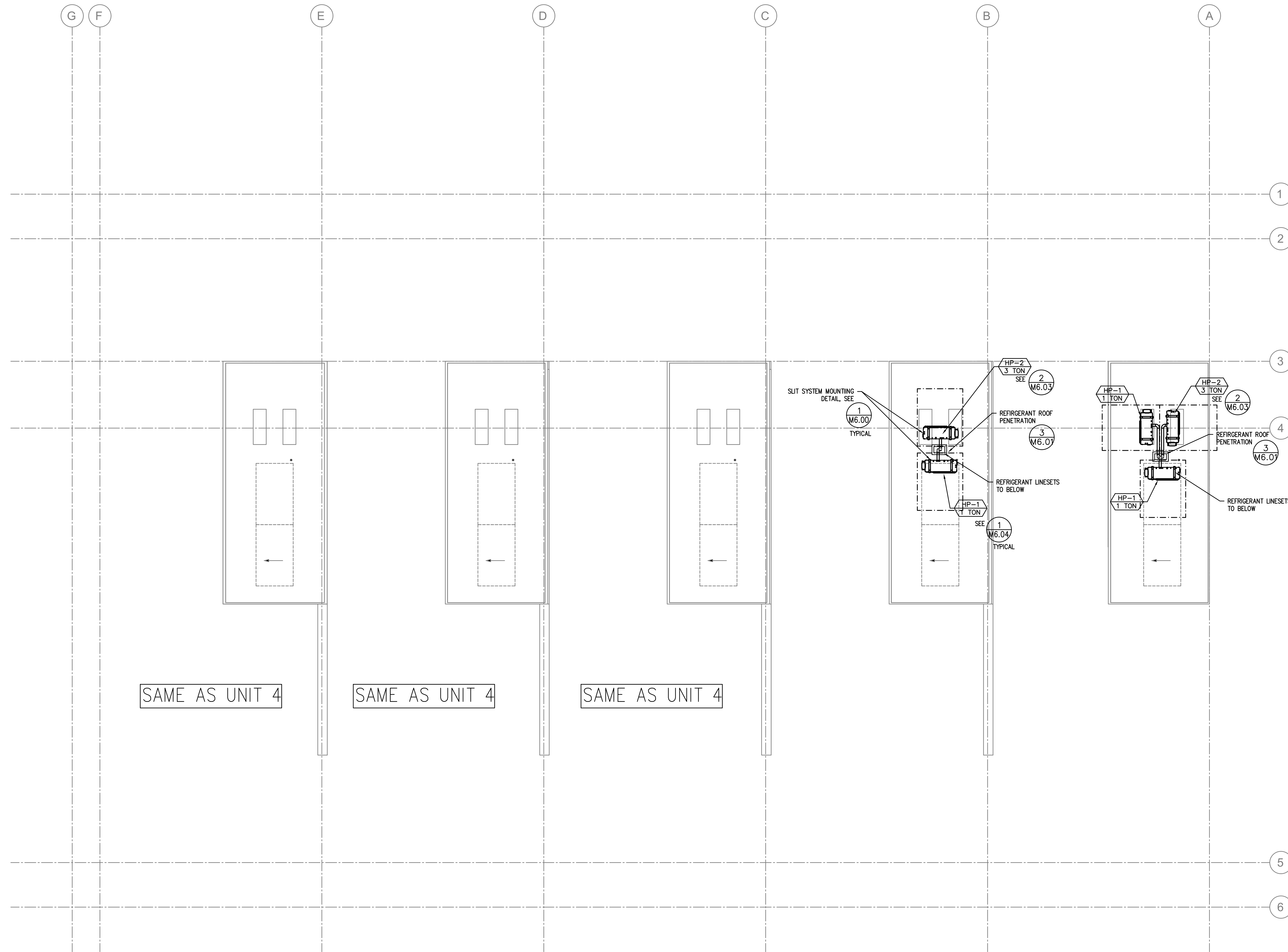
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SHEET LEVEL 4 MECHANICAL PLAN

M1.04



SAME AS UNIT 4

SAME AS UNIT 4

SAME AS UNIT 4

1 ROOF LEVEL MECHANICAL PLAN  
 M1.05 SCALE: 1/4" = 1'-0"

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SHEET ROOF MECHANICAL PLAN

M1.05

### 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
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	EA	ENTERING AIR
	RETURN AIR DUCT UP & DOWN	EDB	ENTERING DRY BULB TEMPERATURE
	EXHAUST AIR DUCT UP & DOWN	EWB	ENTERING WET BULB TEMPERATURE
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	EWT	ENTERING WATER TEMPERATURE
	RETURN AIR DUCT UP & DOWN	FF	FINISH FLOOR
	EXHAUST AIR DUCT UP & DOWN	FIXT.	FIXTURE
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	FPM	FEET PER MINUTE
	RETURN AIR DUCT UP & DOWN	FPS	FEET PER SECOND
	EXHAUST AIR DUCT UP & DOWN	FT.	FEET / FOOT
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	GA.	GALVE
	RETURN AIR DUCT UP & DOWN	GPM	GALLONS PER MINUTE
	EXHAUST AIR DUCT UP & DOWN	H	HEIGHT
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	HP	HORSEPOWER
	RETURN AIR DUCT UP & DOWN	I.D.	INSIDE DIAMETER
	EXHAUST AIR DUCT UP & DOWN	IN.	INCHES
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	L	LENGTH
	RETURN AIR DUCT UP & DOWN	LBS.	POUNDS
	EXHAUST AIR DUCT UP & DOWN	LDB	LEAVING DRY BULB
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	LWB	LEAVING WET BULB
	RETURN AIR DUCT UP & DOWN	LWT	LEAVING WATER TEMPERATURE
	EXHAUST AIR DUCT UP & DOWN	MAX.	MAXIMUM
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	MBH	THOUSANDS OF BTUS PER HOUR
	RETURN AIR DUCT UP & DOWN	MIN.	MINIMUM
	EXHAUST AIR DUCT UP & DOWN	NC	NOISE CRITERIA
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	N.C.	NORMALLY CLOSED
	RETURN AIR DUCT UP & DOWN	N.I.M.	NOT IN MECHANICAL
	EXHAUST AIR DUCT UP & DOWN	NO.	NUMBER
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	N.O.	NORMALLY OPEN
	RETURN AIR DUCT UP & DOWN	O.A.	OUTSIDE AIR
	EXHAUST AIR DUCT UP & DOWN	P	PERSON
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	PSI	POUNDS PER SQUARE INCH
	RETURN AIR DUCT UP & DOWN	P/T	PRESSURE / TEMPERATURE
	EXHAUST AIR DUCT UP & DOWN	R.A.	RETURN AIR
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	RECT.	RECTANGULAR
	RETURN AIR DUCT UP & DOWN	REQ'D	REQUIRED
	EXHAUST AIR DUCT UP & DOWN	S.A.	SUPPLY AIR
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	S.P.	STATIC PRESSURE
	RETURN AIR DUCT UP & DOWN	SO.	SQUARE
	EXHAUST AIR DUCT UP & DOWN	TEMP.	TEMPERATURE
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	TYP.	TYPICAL
	RETURN AIR DUCT UP & DOWN	VAV	VARIABLE AIR VOLUME
	EXHAUST AIR DUCT UP & DOWN	W	WIDTH
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	WB	WET BULB
	RETURN AIR DUCT UP & DOWN	WPD	WATER PRESSURE DROP
	EXHAUST AIR DUCT UP & DOWN	Ø	DIAMETER
	PRESSURE GAUGE	(E)	EXISTING
	PETE'S PLUG	(D)	DEMOLISH
	DOUBLE CHECK ASSEMBLY	---	NEW WORK
	PRESSURE REDUCING VALVE	HWS	(HWS) HEATING WATER SUPPLY
	UNION	HWR	(HWR) HEATING WATER RETURN
	2-WAY CONTROL VALVE	▲	FIRE DAMPER
	3-WAY CONTROL VALVE	■	FIRE / SMOKE DAMPER
	CAP	⊗	SMOKE DAMPER
	SMOKE DETECTOR	— —	SEISMIC BRACING
	MOTORIZED DAMPER	— —	LATERAL BRACING
		— —	LONGITUDINAL BRACING
		— —	LONGITUDINAL & LATERAL BRACING

### EXHAUST FANS

MARK NUMBER	EF 1	EF 2
TYPE	CEILING CABINET	CEILING CABINET
SYSTEM	BATHROOM	LIGHTS
CFM	60/80	60/80
TOTAL SP. (IN H2O)	0.20	0.20
RPM	1062/1146	1062/1146
TIP SPEED (FPM)	NA	NA
MOTOR WATTS OR HP	5/11.7 W	5/11.7 W
CONTROLLED BY	NONE	LIGHTS
INTERLOCK WITH	SWITCH *	NONE
FAN SPEED CONTROLLER	YES	YES
WHEEL TYPE	BI	BI
BACK DRAFT DAMPER	YES	YES
ISOLATION	RUBBER	RUBBER
DESIGN WEIGHT (LBS)	25	25
MAX. SONES	0.3/0.6	0.3/0.6
MAX. AMPS - ***	0.27	0.27
POWER (VOLTS/PHASE/HZ) - ***	120/1/60	120/1/60
BASIS OF DESIGN:	PANASONIC	PANASONIC
	FV-05-11VKS2	FV-05-11VKS2

\* - PROVIDE WITH WALL SWITCH AND CONDENSATION/DELAY TIMER, COORDINATE EXACT STYLE AND CONTROL WITH OWNER.  
 \*\*\* - ELECTRICAL DATA LISTED FOR REFERENCE ONLY, COORDINATE WITH ELECTRICAL DESIGN BUILD CONTRACTOR FOR VOLTAGE AND PHASE REQUIREMENTS.

### ENERGY RECOVERY VENTILATOR

MARK NUMBER	ERV 1
SYSTEM	TOWNHOUSE
CFM	110 EXH/110 SA
SOUND -NOISE LEVEL	66.8 dBA
CORE TYPE	ENTHALPY PLATE
CONTROL	CONTINUOUS
HEAT	--
VOLTS-PHASE	120/1
AMP RATING	0.25
ESP ("H2O)	0.1
TOTAL COOL EFF/SENSIBLE HEAT EFF	36% / 66%
POWER (WATTS)***	90
DUCT CONNECTION	5"Ø
CONCENTRIC VENT KIT	NO
WEIGHT	35 LBS
BASIS OF DESIGN*	BROAN B110H6SRT

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

### OUTDOOR UNITS - SPLIT SYSTEMS

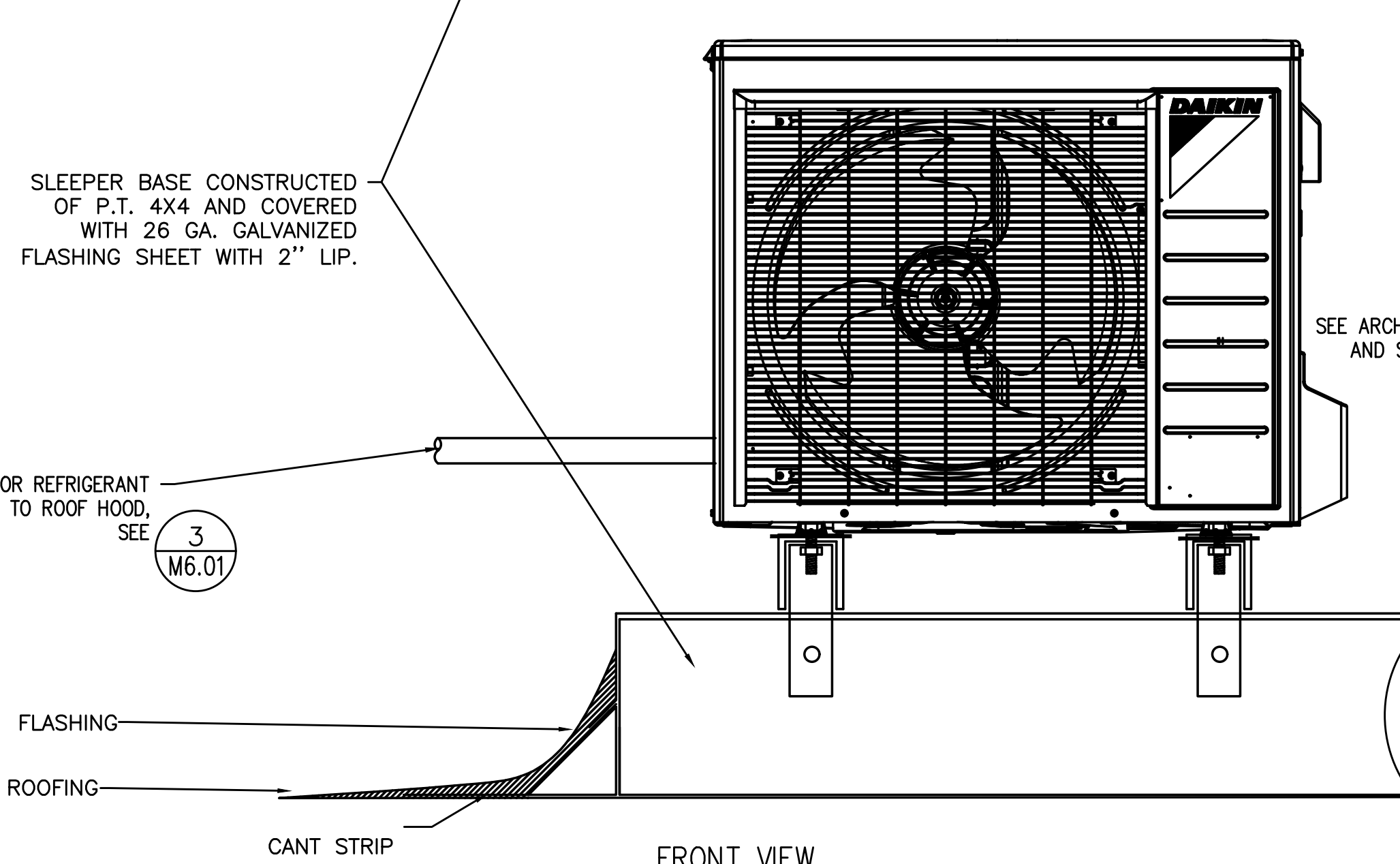
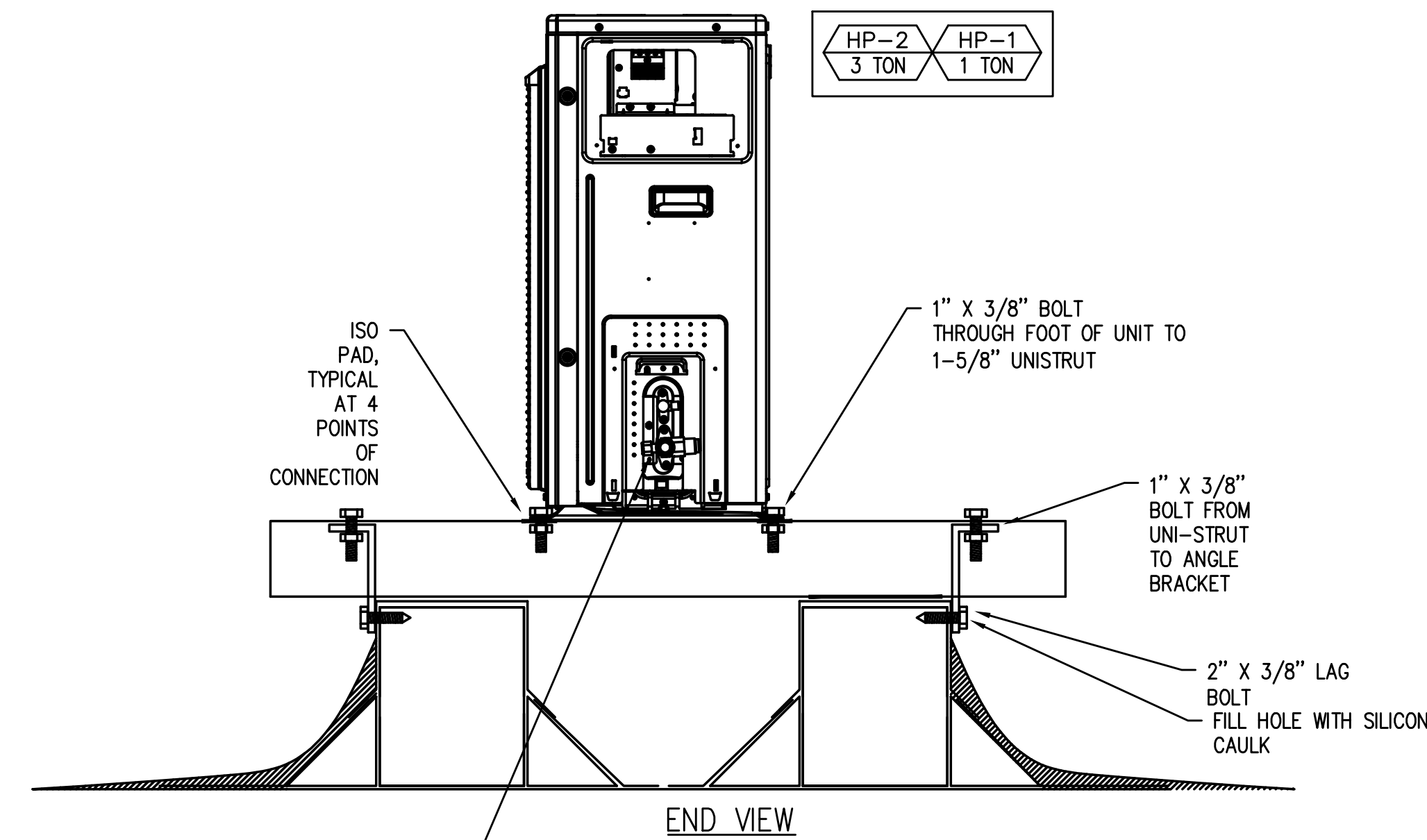
MARK NUMBER	HP-1 1 TON	HP-2 3/6 TON
SYSTEM	TOWNHOUSE	TOWNHOUSE
TYPE	1-PORT HEAT PUMP	1-PORT HEAT PUMP
NORMAL COOLING CAPACITY	12,000 BTUH	36,000 BTUH
EFFICIENCY	19.8 SEER/12.1 HSPF	16 SEER/9 HSPF
REFRIGERANT	410 A	410 A
REFRIGERANT CHARGE	2lb-9oz	2lb-9oz
MAX OPERATING TEMPS	115/0	115/0
MAX PIPING LENGTH	65 FT	65 FT
MAX PIPING HEIGHT	40 FT	40 FT
VOLTS-PHASE - **	208/230-1 PHASE	208/230-1 PHASE
MCA/MOP - **	9/15	26/42
COMPRESSOR	VARIABLE SPEED	VARIABLE SPEED
WEIGHT	100 LBS	261 LBS
BASIS OF DESIGN	MITSUBISHI SUZ-KA12NA2	MITSUBISHI SUZ-KA36NAHZ

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

### INDOOR UNITS - \*

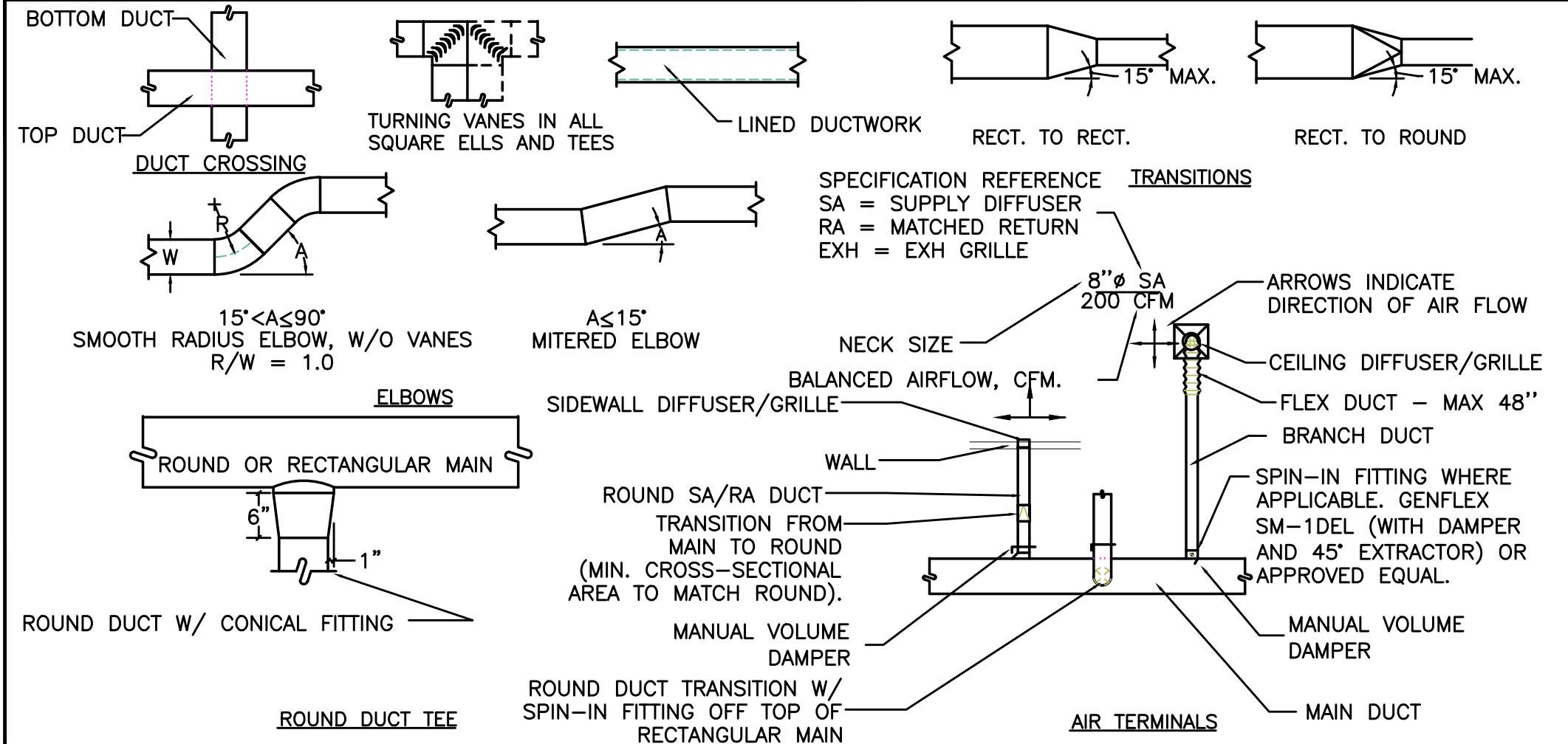
MARK NUMBER	FC-1 12 MBH	FC-2 36 MBH
SYSTEM	TOWNHOUSE	TOWNHOUSE
TYPE	1 WAY CEILING CASSETTE	VERTICAL DUCTED
EFFICIENCY	SEE OUTDOOR UNIT	SEE OUTDOOR UNIT
NOMINAL COOLING CAPACITY	12,000 BTUH	36,000 BTUH
HEATING CAPACITY	12,000 BTUH	36,000 BTUH
TOTAL SUPPLY CFM	332	910
OSA CFM	--	--
EXTERNAL SP. ("H2O)	0.1	0.1
VOLTS/PHASE	208/1	208/1
MCA/MOP	1/--	4.13/--
WEIGHT	50	120
BASIS OF DESIGN	MITSUBISHI MLZ-KP12NA2	MITSUBISHI SVZ-KP36NA
OUTDOOR UNIT	HP-2 1 TON	HP-2 3 TON

\* - PROVIDE ALL UNITS THAT CANNOT BE DRAINED BY GRAVITY WITH CONDENSATE PUMP, ROUTE ALL CONDENSATE LINES HIDDEN WITHIN STRUCTURE TO AN APPROVED LOCATION PROVIDED BY THE PLUMBER.  
 \*\* - 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.



1 HEAT PUMP CURB  
 M6.00 DETAIL

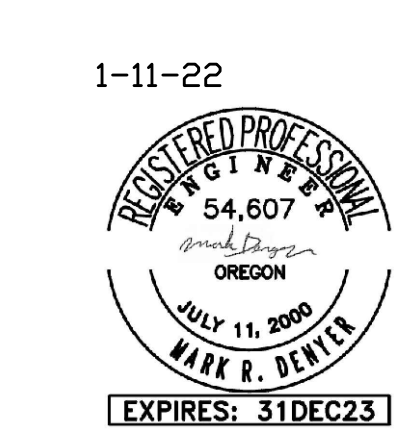
### AIR DISTRIBUTION DETAILS



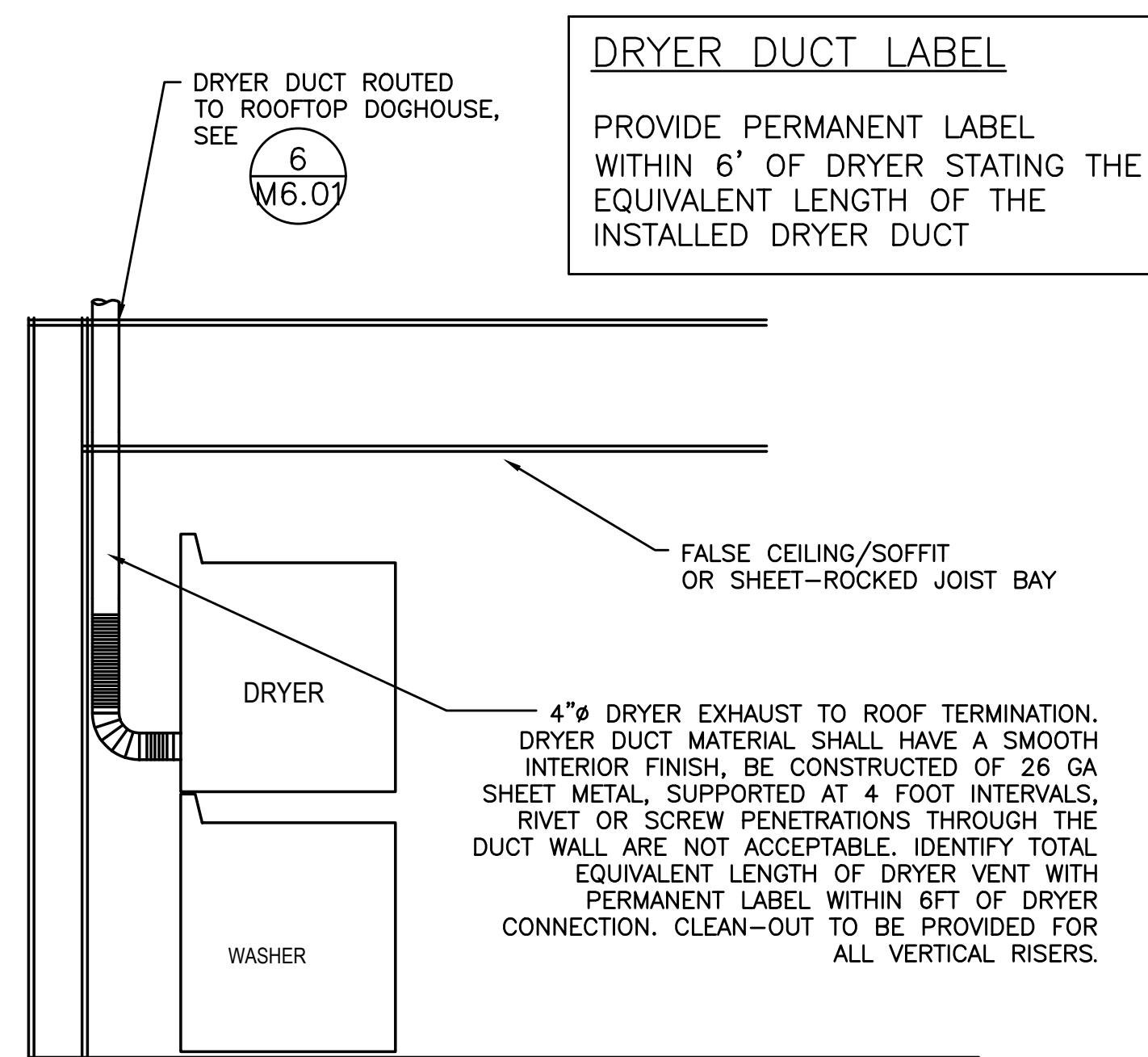
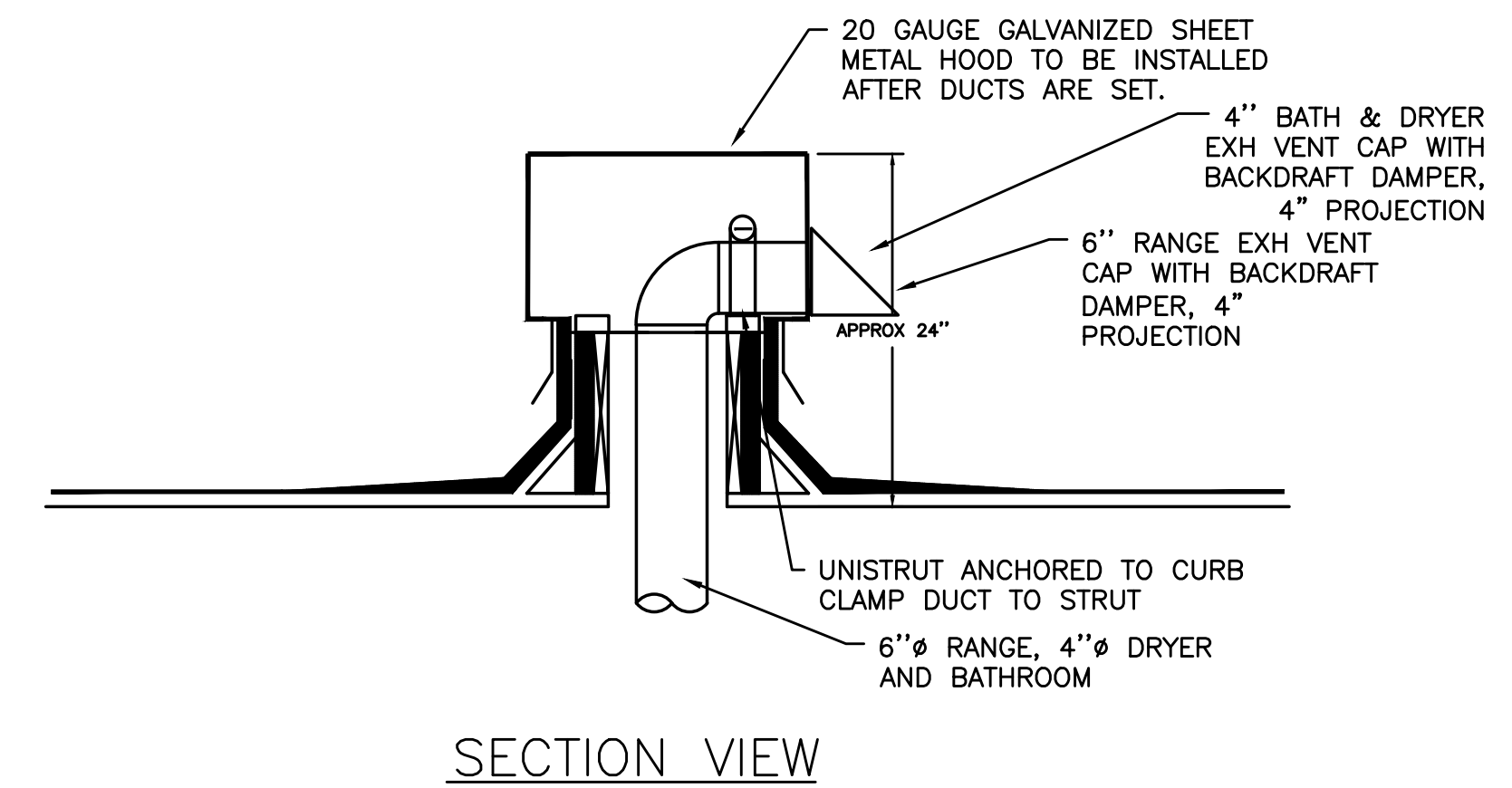
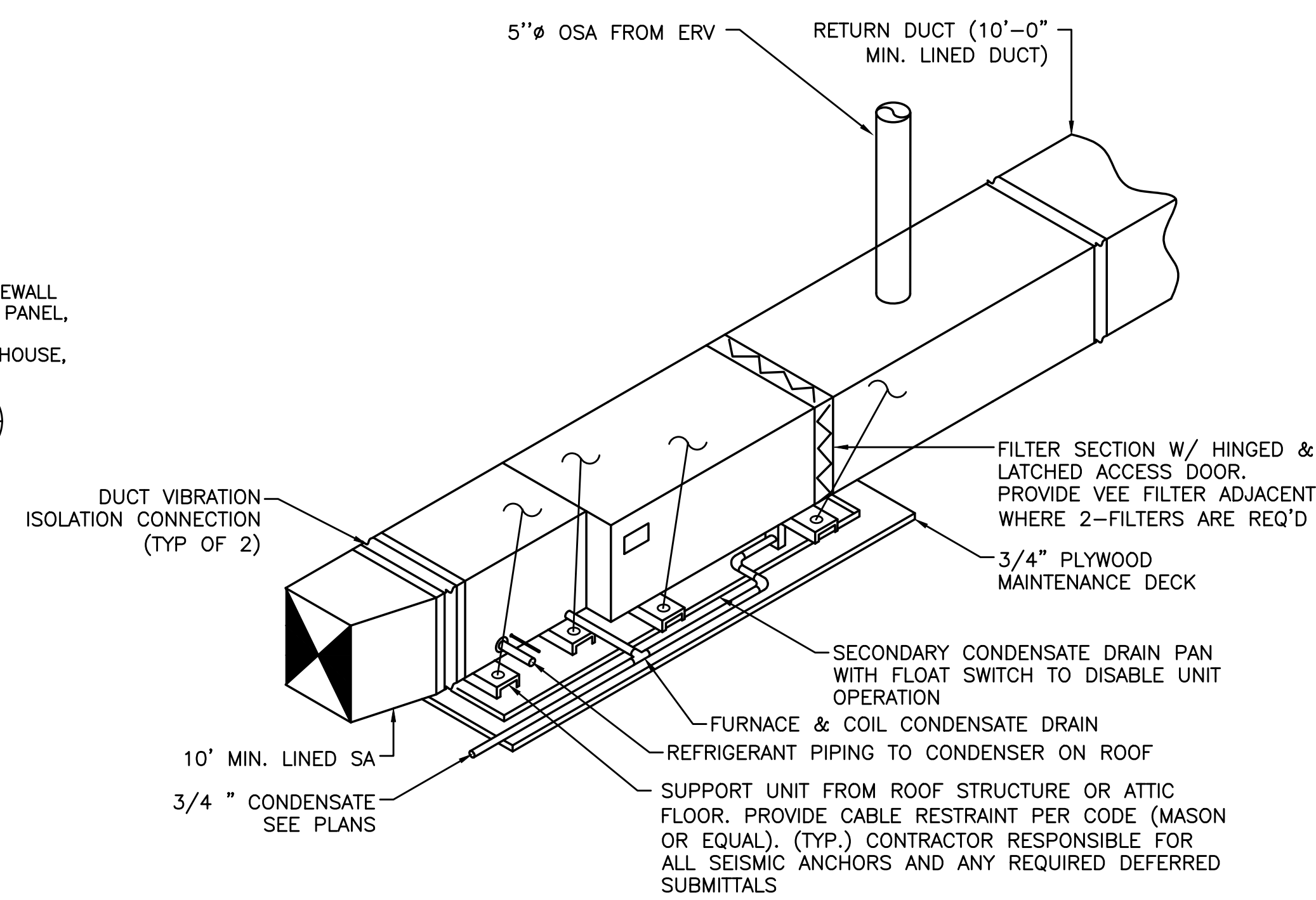
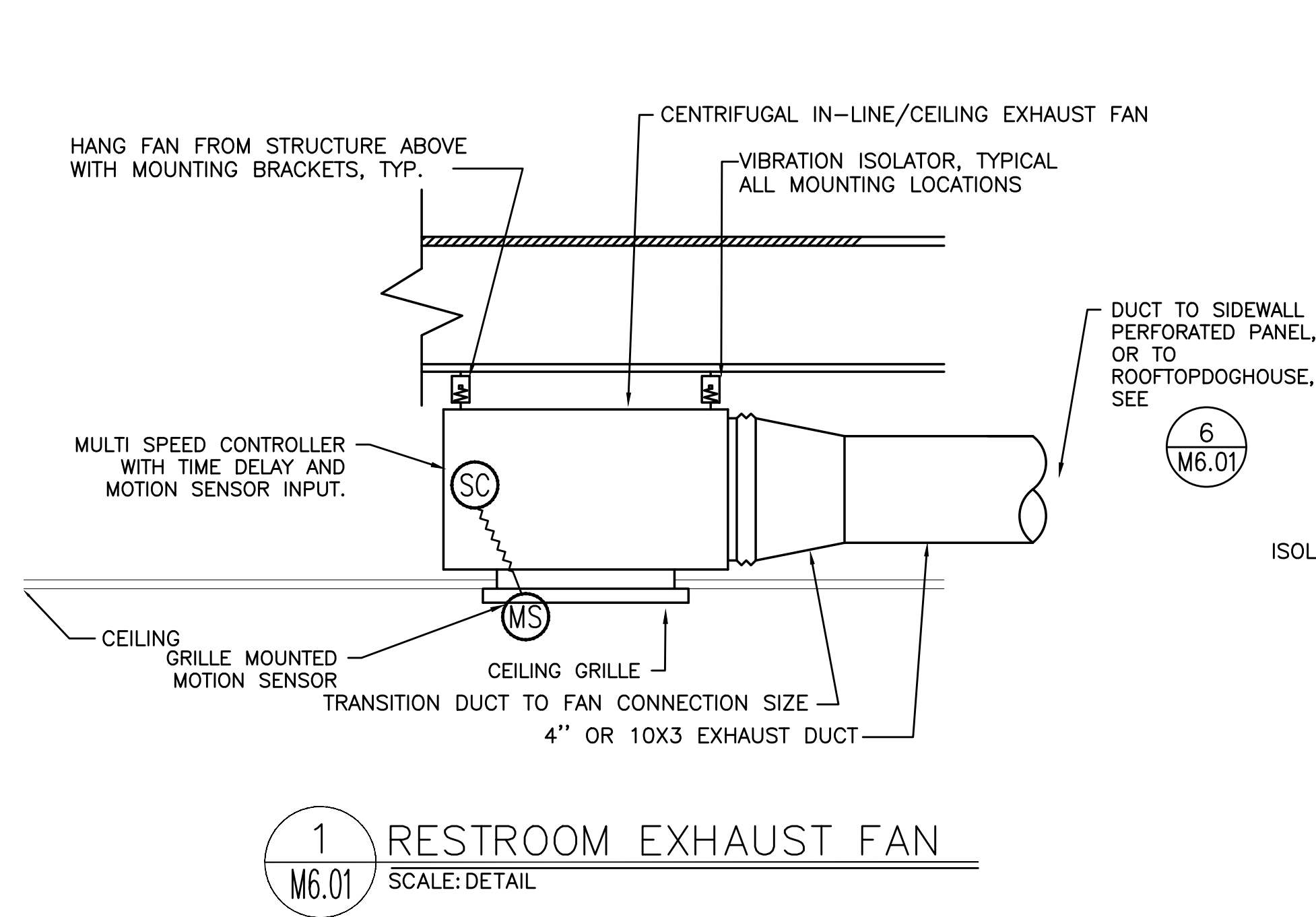
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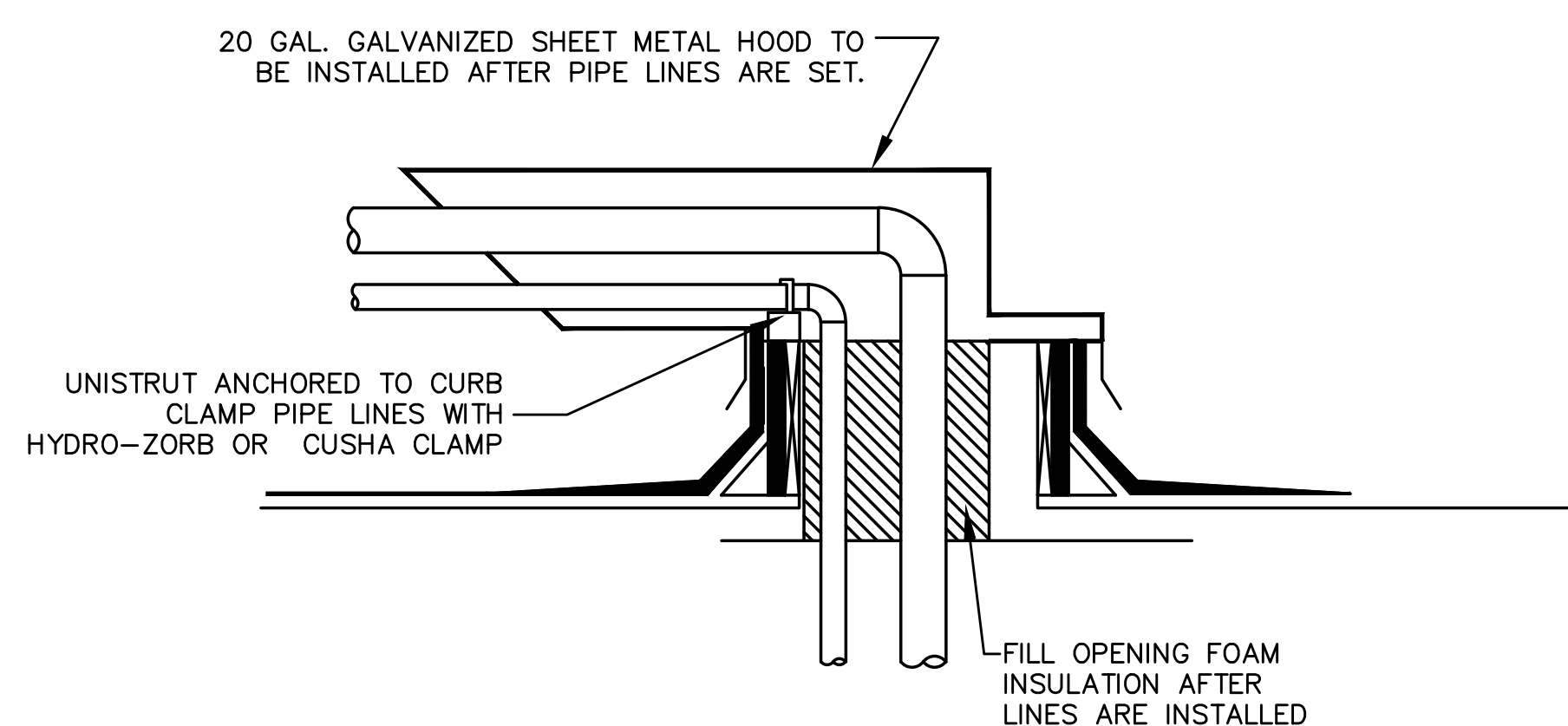
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2 TYPICAL DRYER INSTALLATION  
NOT TO SCALE



3 REFRIGERANT ROOF PENETRATIONS  
DETAIL

CORE  
MONSOON I  
INSERT

Monsoon I has taken the one-piece liner to the next level. Including dual-level LumLight LED's and an ADA-compliant wireless remote you can easily control Monsoon I without ever reaching over a dangerous cooking surface. Equipped with 6-speed electronic controls, pro baffle filters, our exclusive ACT™ technology and either a powerful 600-CFM blower (30" and 36" models) or 1,200-CFM blower (42" and 48" models).

ZEPHYR  
ZEPHYRONLINE.COM

ACT™

	INTERNAL BLOWER STANDARD	INTERNAL BLOWER with ACT™ AIRFLOW CONTROL TECHNOLOGY™		
	200 - 600	NA	200 - 390	200 - 290
30"/30" Min. - Max. CFM	200 - 600	NA	200 - 390	200 - 290
30"/30" Min. - Max. Sizes	1 - 6	NA	1 - 4	1 - 3
42"/42" Min. - Max. CFM	450 - 1,200	390 - 590	390 - 390	NA
42"/42" Min. - Max. Sizes	3.5 - 9	3.3 - 6	3.3 - 4	NA

ACT™ (AIRFLOW CONTROL TECHNOLOGY™) is not available for use with the specific duct fan hood models which do not have the monsoon blower CFM for hood model requirements.

3/4 VIEW

TOP

BACK

Includes Wireless Remote Control

7 TYPICAL RANGE HOOD  
NOT TO SCALE

7 TYPICAL RANGE HOOD  
NOT TO SCALE

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SHEET MECHANICAL DETAILS

M6.01



### Fresh Air Systems - 110 CFM

**HRV**  
**Top ports:** B110H65RT  
**Side ports:** B110H65RS  
 35 to 112 CFM @ 0.2 in. w.g.  
 35 to 100 CFM @ 0.4 in. w.g.

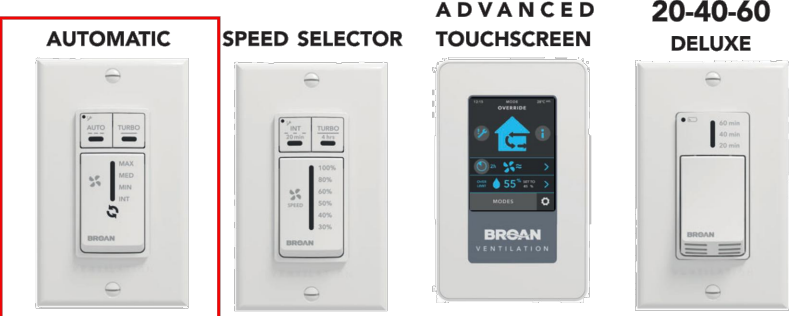


#### Unit Description

- SRE of 68% at 32°F and 60% at -13°F (64 CFM)
- Ports size: 5"
- Recirculation mode
- Recirculation defrost
- Painted door, corrosion resistant galvanized body
- One-piece molded insulation shell, no air leakage (expanded polystyrene; UL 94 HF-1 certified)
- Virtuo constant airflow and auto-balancing device (patent pending)
- Motorized dampers (no additional backdraft dampers required)
- Integrated "snap-in" drain system installed in seconds with no additional parts (drain hose included)
- 6' power cord
- Unit electrical characteristics:  
 120 volts, 60 Hz, 2.5 A, 90 W  
 Sound: 66.5 dBA at 92 CFM @ 0.4 in. w.g.  
 60.1 dBA at 64 CFM @ 0.2 in. w.g.

- Thanks to the Virtuo Air Technology™, the airflow calibration and auto-balancing are achieved quickly and maintained throughout the life of the product
- Select the desired CFM from 35 to 110 CFM using the very first integrated LCD screen. The airflow is then set up automatically
- Integrated electronic airflow measurement device with real time LCD
- Integrated diagnostic tool
- Equipped with FMSM ECM motors for a very low power consumption
- Suspended installation (chains included)
- OR
- Wall-mount installation (universal brackets included)
  - installation with 2 brackets
  - installation with 4 brackets

#### Controls



There are 4 optional main controls and 2 optional auxiliary controls available. Refer to Wall Control specification sheet for more information.

#### Core

Polypropylene crossflow core, impact resistant  
 Dimensions: 12" x 12" x 9" (30.5 cm x 30.5 cm x 23 cm)

#### Filters

- MERV 8 grade washable standard filter (included)
- Optional MERV13 grade filter part no. V24285

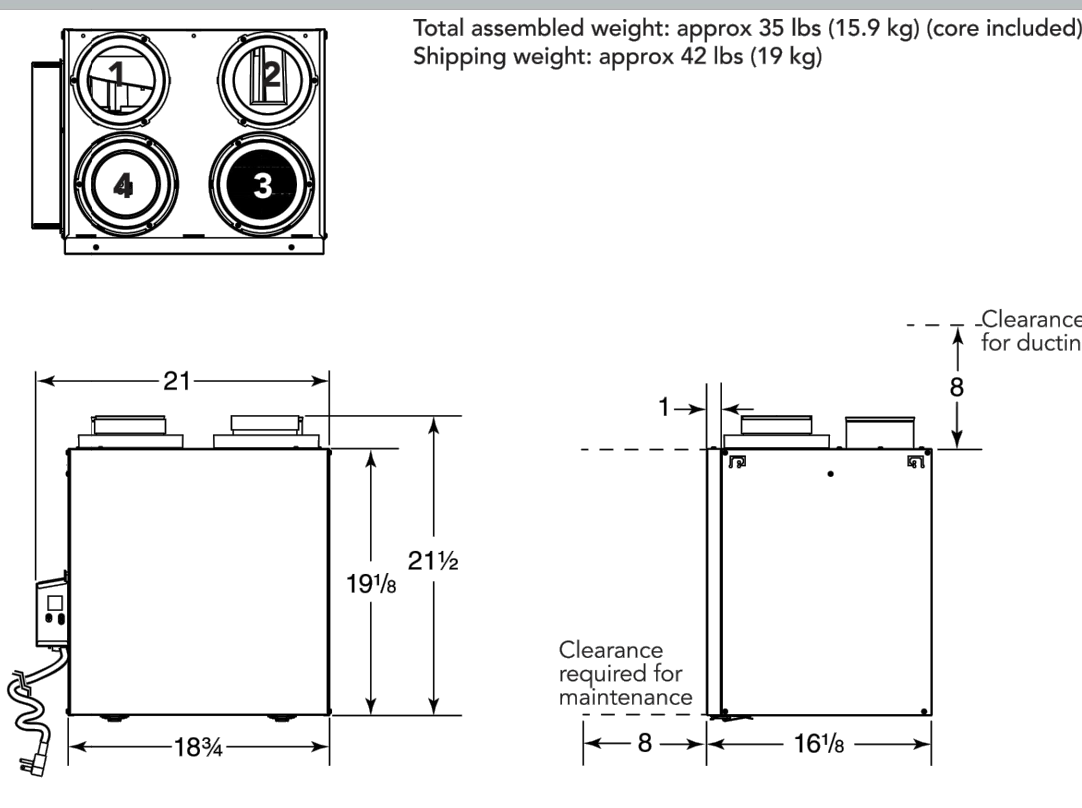
#### Options

- Complete line of registers and diffusers
- Compatible with the Tandem transition (part no. VTYK1) (for units producing up to 130 CFM only)

PRODUCT SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

#### 5" Ports Dimensions (Top Ports)

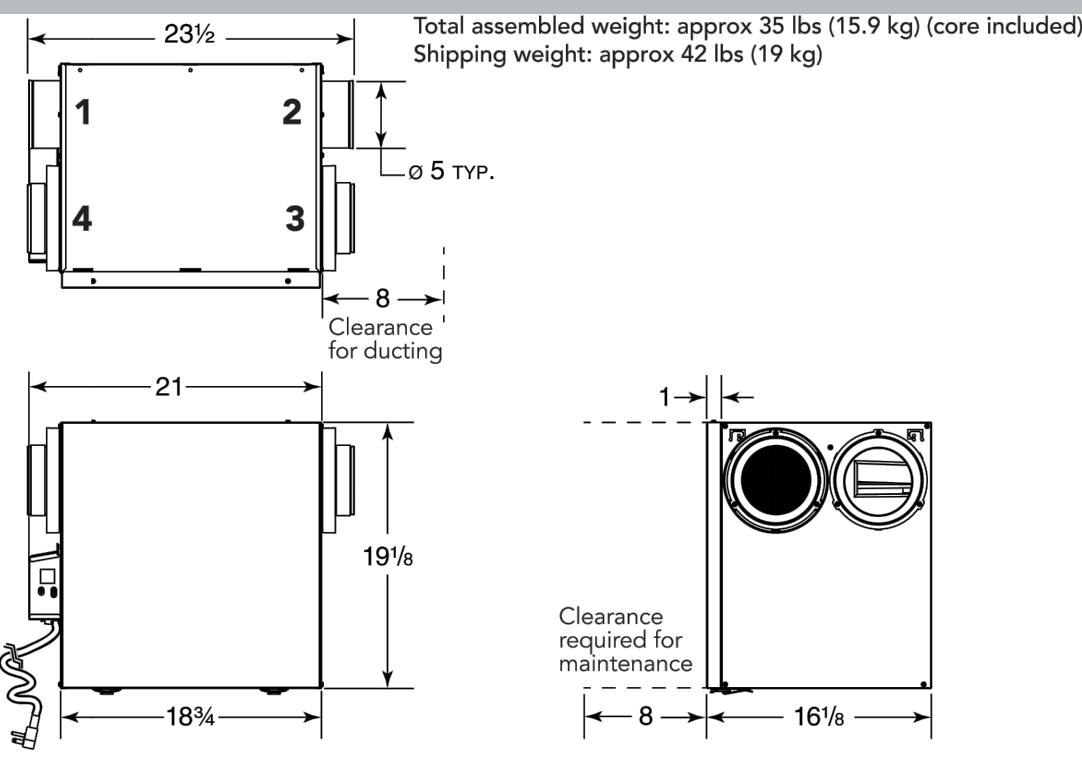
- Exhaust air from building
- Fresh air to building
- Exhaust air to outside
- Fresh air from outside



Total assembled weight: approx 35 lbs (15.9 kg) (core included)  
 Shipping weight: approx 42 lbs (19 kg)

#### 5" Ports Dimensions (Side Ports)

- Exhaust air from building
- Fresh air to building
- Exhaust air to outside
- Fresh air from outside



Total assembled weight: approx 35 lbs (15.9 kg) (core included)  
 Shipping weight: approx 42 lbs (19 kg)

1 ERV SUBMITTAL  
 M6.02 DETAIL  
 Dimensions shown in inches

#### Energy Performance

SUPPLY TEMPERATURE	NET AIRFLOW	POWER CONSUMED	SENSIBLE RECOVERY	ADJUSTED SENSIBLE RECOVERY EFFICIENCY	AMBIENT SENSIBLE EFFECTIVENESS*
°C	°F	W	CFM	%	%
<b>HEATING</b>					
0	32	30	64	33	68
0	32	43	90	47	63
-25	-13	30	64	33	60
				68	71
				66	68
				62	72

\*Data not certified by HVI.

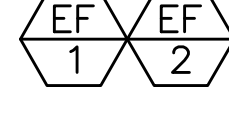
#### Requirements and Standards

- UL 1812 compliant (safety)
- Could be installed in compliance with CSA F326
- Performance tested as per CSA C439 Standard
- Complies with ROHS 2015/863 directive
- Compliant with Prop 65
- This product earned the ENERGY STAR® by meeting strict energy efficiency guidelines set by Natural Resources Canada and the US EPA. This product meets ENERGY STAR requirements only when used in Canada.

Project:	Remarks:
Location:	
Part no.:	
City:	
Submitted by:	Date:

BROAN HVI  
 Broan-NuTone LLC, 926 West State Street, Hartford, WI 53027 1-800-558-1711  
 www.broan.com B11042011300

### WhisperGreen Select



FV-05-11VKS1

#### Specification Submittal Data / Panasonic Ventilation Fan

**Description:**  
 Customizable Ventilation Fan shall be low noise ceiling mount rated for continuous run. Fan shall be ENERGY STAR® rated and certified by the Home Ventilating Institute (HVI). Evaluated by Underwriters Laboratories and conform to both UL and cUL safety standards.

**Motor/Blower:**

- Enclosed DC brushless motor technology rated for continuous run.
- Fan ventilation rates shall be manually adjustable for 50-80-110 CFM.
- Power rating shall be 120 volts and 60 Hz.
- Fan shall be UL listed for tub/shower enclosure when used with a GFCI protected circuit and used in insulated ceiling (TYPE I.C.).
- Fan equipped with a thermal cutoff fuse.
- Removable, permanently lubricated, plug-in motor.

**Housing:**

- Flat proof epoxy and polyester resin coating, 26 gauge galvanized steel body.
- Integrated dual 4" or 6" diameter duct adapter.
- Built-in metal flange provides blocking for penetrations through drywall as an Air Barrier, and assists with the decrease in leakage in the Building Envelope during blower door testing.
- Built-in backdraft damper.
- Articulating and expandable installation bracket up to 24".

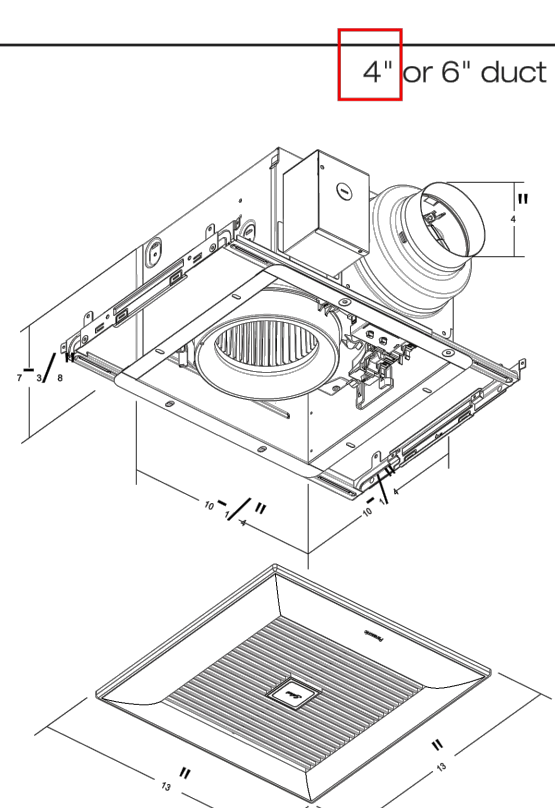
**Grille:**

- Attractive design using Poly Pro material.
- Attaches directly to housing with tension springs.
- Includes a motion sensor clip for use as a cover when the motion sensor Plug 'N Play™ module has not been selected.

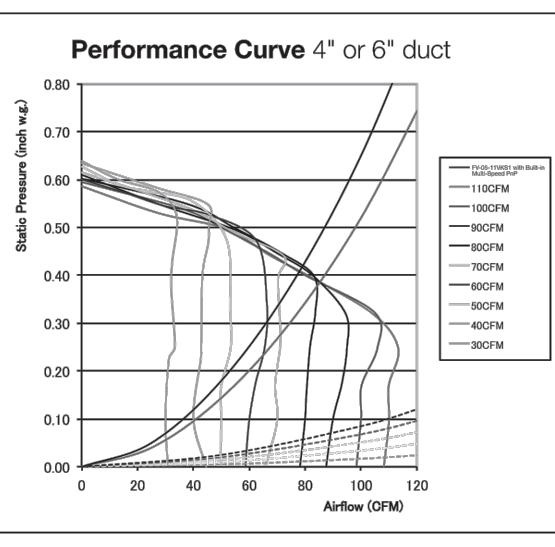
**Warranty:**

- ALL Parts: 3 Years from original purchase date.
- DC Motor: 6 Years from original purchase date.

**Architectural Specifications:**  
 Customizable Ventilation Fan shall be ceiling mount, ENERGY STAR® rated type with multi-speed control (6, 30-100 CFM, in 10 CFM increments) that shall be built-in with a high/low adjustable delay timer and activated by a wall switch, Motion Sensor Plug 'N Play™ module or Condensation Sensor Plug 'N Play™ module. Features a built-in speed selector. Select from 6, 30, 60, 90, 120 CFM and no more than 150 CFM as certified by the Home Ventilating Institute (HVI) (0.1 w.g. with no less than 33/30/11.3 CFM and no more than <math>0.30/0.8/0.8</math> sones at .25 w.g. Power Consumption shall be no greater than 3.2/5.5/5.8 watts at 0.1 w.g. and 5.2/10.2/16.1 watts at 0.25 w.g. ENERGY STAR® rated with efficiency of no less than 15.1/15.3/11.3 CFM/watt at 0.1 w.g. and 15.1/14.7/2.2 CFM/watt at 0.25 w.g. The motor shall be enclosed with brushless DC motor engineered to run continuously. DC motor speed shall automatically increase when the fan senses static pressure to maintain selected CFM. Power rating shall be 120V/60Hz. Duct diameter shall be no less than 4". Includes an integrator dual 4" or 6" duct adapter. Plug 'N Play™ modules provide up to two additional features. Select from Condensation Sensor, LED Night Light and Motion Sensor. Fan shall be UL and cUL listed for tub/shower enclosure when used with a GFCI protected circuit. Fan can be used to comply with ASHRAE 62.2, LEED, ENERGY STAR®, IAP2, EarthCraft, California Title-24 and VA Ventilation Code.



FV-05-11VKS1



For complete Installation Instructions visit [us.panasonic.com/ventfans](http://us.panasonic.com/ventfans)

Model	Quantity	Comments	Project:
			Location:
			Architect:
			Engineer:
			Contractor:
			Submitted by:
			Date:

### WhisperGreen Select

FV-05-11VKS1

#### Plug 'N Play™ Modules

Plug 'N Play™ modules provide up to two additional features (multi-speed is already built-in to FV-05-11VKS1). Select from Motion Sensor, Condensation Sensor and LED Night Light.

**FV-VS15VK1: Multi-Speed with Time Delay - N/A for this Fan, already built-in.**  
 Allows you to select the proper CFM settings to satisfy ASHRAE 62.2 continuous ventilation requirements. The fan runs continuously at a pre-set lower level (0-30 CFM, in 10 CFM increments), then elevates to a maximum level of operation (60-110 CFM) when the wall switch is turned on, or when the motion sensor or Condensation Sensor module is activated. A High/Low delay timer returns the fan to the pre-set CFM level after a period of time set by the user.

**FV-MSVK1: Motion Sensor**  
 Automatically activates when someone enters the room. Once the settings have been applied, the fan becomes truly automatic. This module also activates a 20 minute delay off timer for the fan.

**FV-CSVK1: Condensation Sensor**  
 Helps control bathroom condensation to prevent mold and mildew. Sensor technology detects relative humidity and temperature to anticipate dew point, automatically turning the fan on to control humidity. Built-in Relative Humidity (RH) sensitivity adjustment enables fine tuning for moist conditions and for satisfying CalGreen requirements. When the condensation sensor is used in conjunction with multi-speed functionality, the fan will kick up to high speed when the condensation sensor detects moisture in the room. This module also activates a 20 minute delay off timer for the fan.

**FV-NLVK1: LED Night Light**  
 A photocell automatically turns on the 1 watt LED night light when darkness is sensed in the room. High/Low brightness switch enables you to tune the photocell to work in conjunction with the darkness level of your bathroom. This module also activates an automatic 20 minute delay off timer for the fan.

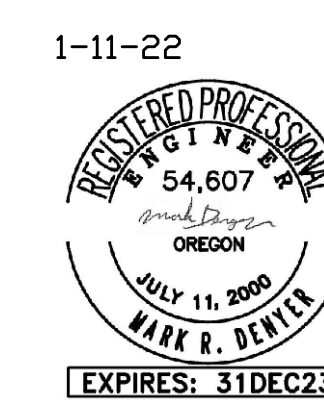
Fan Specifications	WhisperGreen Select™ FV-05-11VKS1											
Static Pressure in Inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25
Air Volume (CFM)	110	100	106	96	95	82	75	71	65	61	50	45
Noise (sones)	-0.3	0.8	-0.3	0.7	-0.3	0.6	-0.3	0.4	-0.3	0.4	-0.3	-0.3
Power Consumption (watts)	8.8	16.3	6.2	14.0	6.5	11.2	5.3	10.3	4.5	8.8	2.8	2.2
Energy Efficiency (CFM/Watt)	11.3	7.2	13.0	7.9	14.5	8.0	13.3	8.4	17.2	8.7	17.5	8.8
Speed (RPM)	801	1000	900	1170	802	1140	814	1101	772	1110	290	1101
Current (amps)	0.19	0.16	0.20	0.14	0.07	0.12	0.08	0.10	0.09	0.06	0.04	0.05
MAX. Current (amps)	0.37											
Power Rating (Watt)	1000											
ENERGY STAR rated	Yes											

Panasonic Eco Solutions Company of North America  
 Eco Products Division  
 Two Riverfront Plaza  
 Newark, NJ 07102  
[us.panasonic.com/ventfans](http://us.panasonic.com/ventfans)

2 EF-1 SUBMITTAL  
 M6.02 DETAIL  
**Panasonic**

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 SKYLABARCHITECTURE.COM OFFICE 503 525 9315

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 PROJECT #  
 18051  
 DATE  
 December 17, 2021  
 ISSUANCE  
 PERMIT SET  
 REVISIONS



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 CONTACT: MARK CENTER

SHEET MECHANICAL DETAILS

M6.02



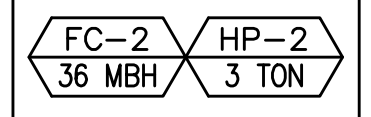
**SVZ-KP36NA & SUZ-KA36NAHZ**  
36,000 BTU/H MULTI-POSITION AIR HANDLER  
36,000 BTU/H HYPER-HEATING UNIVERSAL OUTDOOR UNIT



Job Name: \_\_\_\_\_ Date: \_\_\_\_\_  
System Reference: \_\_\_\_\_



Indoor Unit: \_\_\_\_\_ SVZ-KP36NA  
Outdoor Unit: \_\_\_\_\_ SUZ-KA36NAHZ



- INDOOR UNIT FEATURES**
- Ducted air handler provides a solution to cool and heat large zones
  - Highly efficient inverter enclosed ECM motor
  - Selectable external static pressure: 0.30, 0.50 and 0.80 in.WG with 3 fan speeds at each static setting
  - 1 inch R4.2 fiberglass free insulation reduces condensation and boosts efficiency
  - Positive pressure cabinet with air leakage of less than 2.0% at 1.0 in.WG (Tested per ASHRAE Standard 193)
  - Unique slow through design allows simple coil cleaning when the blower is removed
  - Multi-position installation: horizontal (left or right), vertical (up or down)
  - Optional electric heat kit for additional heat capacity
  - Optional humidifier control and ERV control
  - Built-in humidifier control, ERV control and auxiliary heat control
  - Optional downflow kit
  - Multiple control options available:
    - kumo cloud™ smart device app for remote access
    - Third-party interface options
    - Wired or wireless controllers
- OUTDOOR UNIT FEATURES**
- Outdoor unit powers the indoor unit, and should a power outage occur, the system is automatically restarted when power returns
  - INVERTER-driven compressor and LEV provides high efficiency and comfort while using only the energy needed to maintain maximum performance
  - HP2™ hyper heat performance offers 100% heating capacity at 0°F
  - Hot-Start Technology: no cold air rush at equipment startup or when restarting after Defrost Cycle
  - Quiet operation
  - Built-in base pan heater
  - Innovative Julet Lap DC Motor leads to high efficiency and reliability
  - Pulse Amplitude Modulation technology

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**SPECIFICATIONS: SVZ-KP36NA & SUZ-KA36NAHZ**

Model	Capacity	BTU/h	W
Cooling at 95°F	Maximum Capacity	36,000	3,900
	Rated Capacity	36,000	3,900
	Minimum Power Input	W	3,700
Heating at 47°F	Maximum Capacity	40,000	4,300
	Rated Capacity	40,000	4,300
	Minimum Power Input	W	4,100
Heating at 17°F	Maximum Capacity	32,000	3,400
	Rated Capacity	32,000	3,400
	Minimum Power Input	W	3,200
Heating at -13°F	Maximum Capacity	28,000	3,000
	Rated Capacity	28,000	3,000
	Minimum Power Input	W	2,800

Efficiency	Value
SEER	14.9
SEER <sub>2</sub>	9.5
HSPF (H)	9.5
LOEC at 47°F	3.3
COP at 47°F at Maximum Capacity	1.9
COP at 17°F at Maximum Capacity	1.6
COP at -13°F at Maximum Capacity	1.2
ENERGY STAR Certified	Yes

Electrical	Value
Compressor Voltage Range	VAC 208-230
Voltage Indoor - Outdoor: 01-02	VAC 208/230
Voltage Indoor - Outdoor: 03-03	VAC 230
Short-circuit Current Rating (SCCR)	KA 5
Recommended Fuse/Breaker Size (Outdoor)	A 20
Recommended Wire Size (Indoor - Outdoor)	AWG 14

Indoor Unit	Value
MCA	A 2.3
Fan Motor Full Load Amperage	A 2.3
Fan Motor Output	W 244
Fan Motor Type	DC Motor
Airflow Rate at Cooling, Dry	CFM 740-970-970
Airflow Rate at Heating, Dry	CFM 740-970-970
Sound Pressure Level (Cooling)	dBA 35-40-42
Sound Pressure Level (Heating)	dBA 35-40-42
External Static Pressure	in.WG 0.30-0.50-0.80
Coil Pan Size	in. [mm] 34 [875]
Coating on Heat Exchanger	Hot-dip coated steel (ZAM)
Unit Dimensions	W x D x H: in. [mm] 21 x 25.58 x 43.30 [548 x 648 x 1113]
Package Dimensions	W x D x H: in. [mm] 21 x 25.58 x 43.30 [548 x 648 x 1113]
Unit Weight	Lbs. [kg] 119 [54]
Package Weight	Lbs. [kg] 141 [64]

Outdoor Unit Operating Temperature Range	Value
Cooling (Inlet Air Temp. Maximum / Minimum)	°F 80 DB, 67 WB / 55 DB, 16 WB
Heating at 47°F (Indoor / Outdoor)	°F 70 DB, 60 WB / 47 DB, 43 WB
Heating at 17°F (Indoor / Outdoor)	°F 70 DB, 60 WB / 17 DB, 13 WB

Conditions	Value
Heating at 9°F (Indoor / Outdoor)	°F 70 DB, 60 WB / 9 DB, 4 WB
Heating at -13°F (Indoor / Outdoor)	°F 70 DB, 60 WB / -13 DB, -14 WB

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**SPECIFICATIONS: SVZ-KP36NA & SUZ-KA36NAHZ**

Model	Value
MCA	A 2.3
MCSR	A 4.2
Fan Motor Output	W 244
Airflow Rate	CFM 740
Refrigerant Control	LEV
Defrost Method	Reverse Cycle
Sound Pressure Level (Cooling)	dBA 35
Sound Pressure Level (Heating)	dBA 35
Compressor Type	Scroll
Compressor Model	ANHS3P JAMMT
Compressor Rated Load Area	18
Compressor Locked Rotor Amps	A 27.5
Compressor O2 Type / Charge	4.4 / R410A
External Finish Color	Heavy Metalcoat SV 7.81.1
Base Pan Heater	Ballast
Unit Dimensions	W x D x H: in. [mm] 41.516 x 14.316 x 52.115 [1050 x 360 x 1330]
Package Dimensions	W x D x H: in. [mm] 43 x 18 x 57 [1100 x 460 x 1440]
Unit Weight	Lbs. [kg] 221 [100]
Package Weight	Lbs. [kg] 255 [116]
Cooling Air Temp. (Maximum / Minimum)	°F 115 DB / 55 DB
Heating Air Temp. (Maximum / Minimum)	°F 75 DB, 65 WB / -13 DB, -14 WB
Heating Thermal Lock-out / Re-heat Temperature	°F 31
Type	R410A
Charge	Lbs. [oz] 17.7 [500]
Chargeless Piping Length	ft. [m] 100 [30.5]
Additional Refrigerant Charge Per Additional Piping Length	oz. [g] 0.8 [23]
Gas Pipe Size (D. [Flare])	in. [mm] 5/8 [15.9]
Liquid Pipe Size (D. [Flare])	in. [mm] 3/8 [9.5]
Maximum Piping Length	ft. [m] 240 [73]
Maximum Height Difference	ft. [m] 100 [30]
Maximum Number of Bends	18

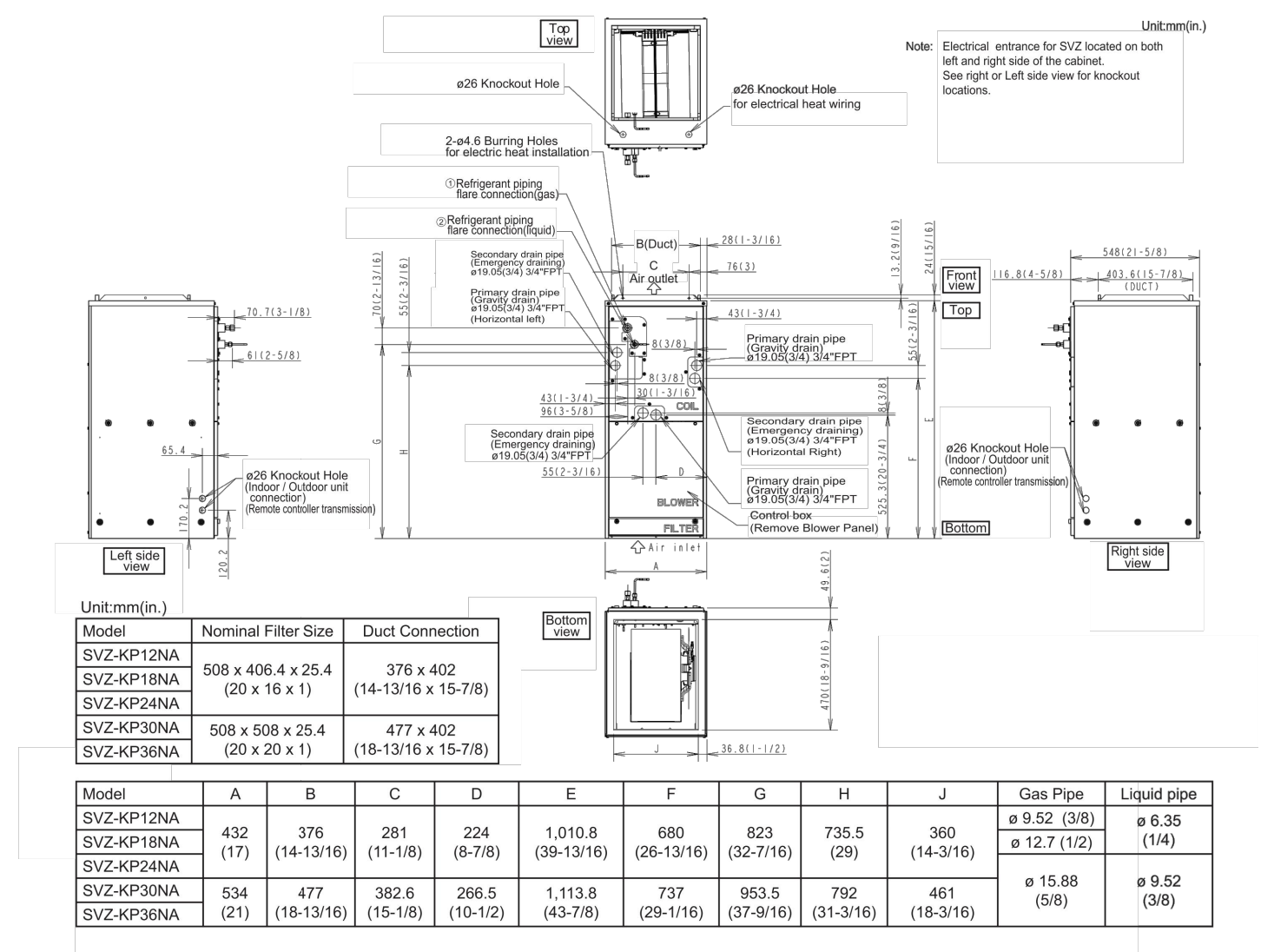
**NOTES:**

- AWR Rated Conditions
- Rated data is determined at a fixed compressor speed
- Conditions
- Outdoor Unit Operating Temperature Range (Cooling Air Temp. Maximum / Minimum)
- Applications should be restricted to comfort cooling only; equipment cooling applications are not recommended for low ambient temperature conditions.
- Applications should be restricted to comfort cooling only; equipment cooling applications are not recommended for low ambient temperature conditions.
- Outdoor Unit Operating Temperature Range (Cooling Thermal Lock-out / Re-heat Temperature; Heating Thermal Lock-out / Re-heat Temperature)
- System cut-out in heating mode to avoid thermostat error and automatically restarts at these temperatures.

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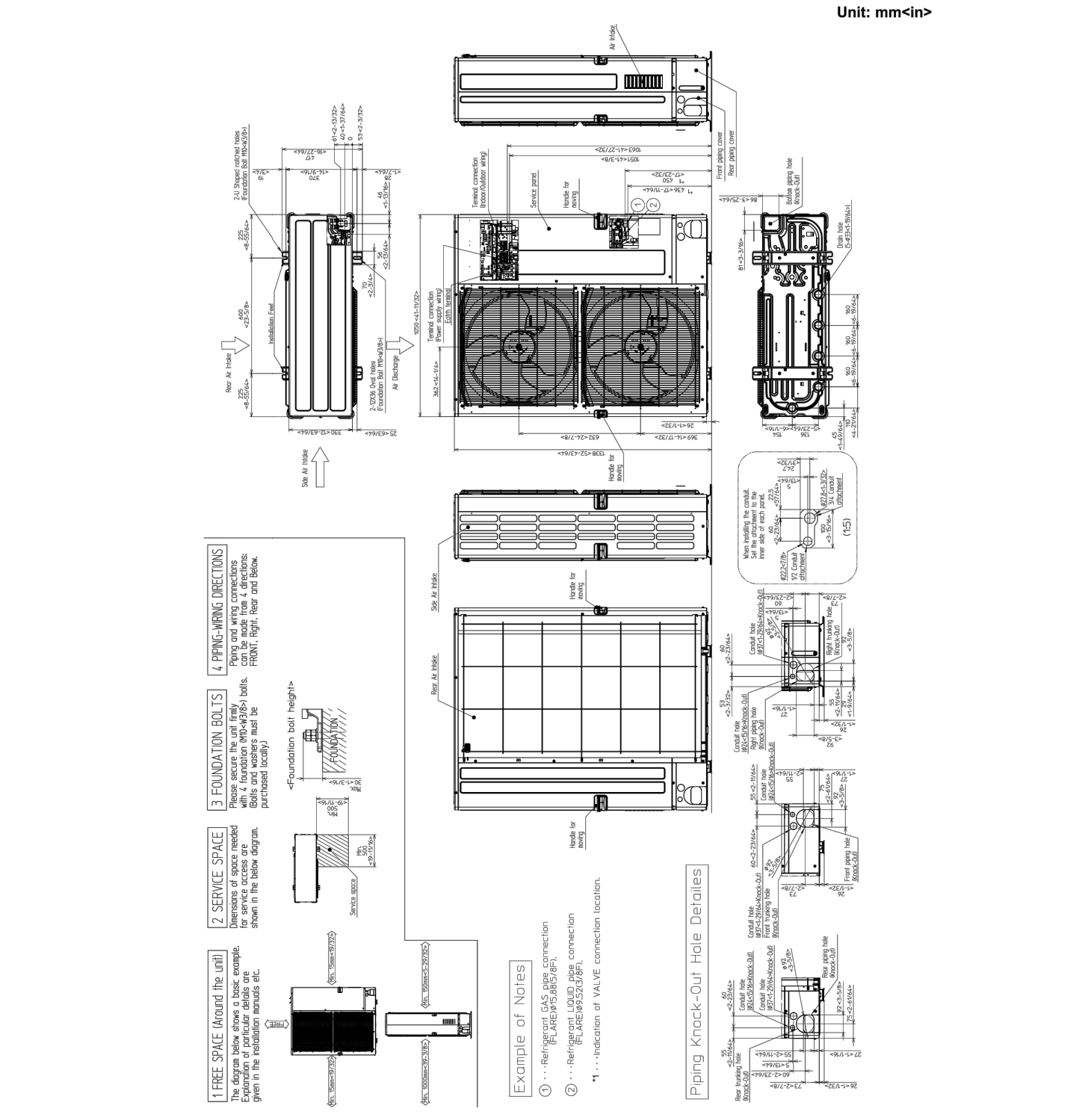
**1 DUCTED HEAT PUMP SUBMITTAL**  
M6.03 DETAIL

**INDOOR UNIT DIMENSIONS: SVZ-KP36NA**

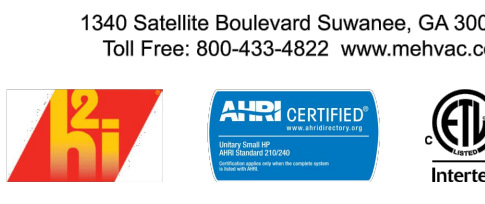


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**OUTDOOR UNIT DIMENSIONS: SUZ-KA36NAHZ**



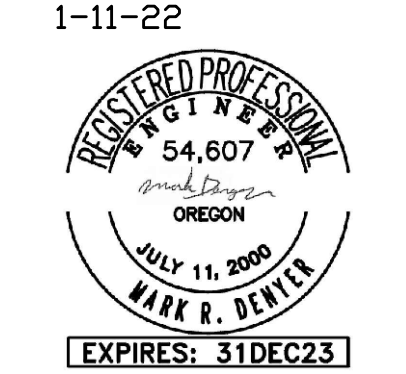
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DATE  
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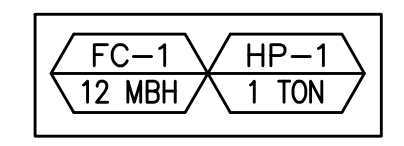


**M-SERIES** SUBMITTAL DATA: MLZ-KP12NA & SUZ-KA12NA2  
12,000 BTUH EZ FIT™ RECESSED CASSETTE HEAT PUMP SYSTEMS



Job Name:	Date:	
System Reference:	Date:	
Indoor Unit MLZ-KP12NA	Outdoor Unit SUZ-KA12NA2	Wireless Remote Controller

- INDOOR UNIT FEATURES**
- Fits between 1" joist spacing
  - Stylish, square design panel
  - Built-in condensate IR mechanism (18.8")
  - Serviceable from the bottom (electrical and flare connections)
  - Adjustable fan speeds and vane directions
  - Removable antibacterial and deodorizing filter
  - Multiple control options available:
    - Hand-held Remote Controller (provided with unit)
    - kumo cloud™ smart device app for remote access
    - Third-party interface options
    - Wired or wireless controllers
  - Pocket inside the access panel for kumo cloud™ Wireless Interface



- OUTDOOR UNIT FEATURES**
- Variable speed INVERTER-driven compressor
  - Innovative Joint Lap DC Motor leads to high efficiency and reliability
  - Pulse Amplitude Modulation technology
  - High-performance grooved piping for increased heat exchange efficiency

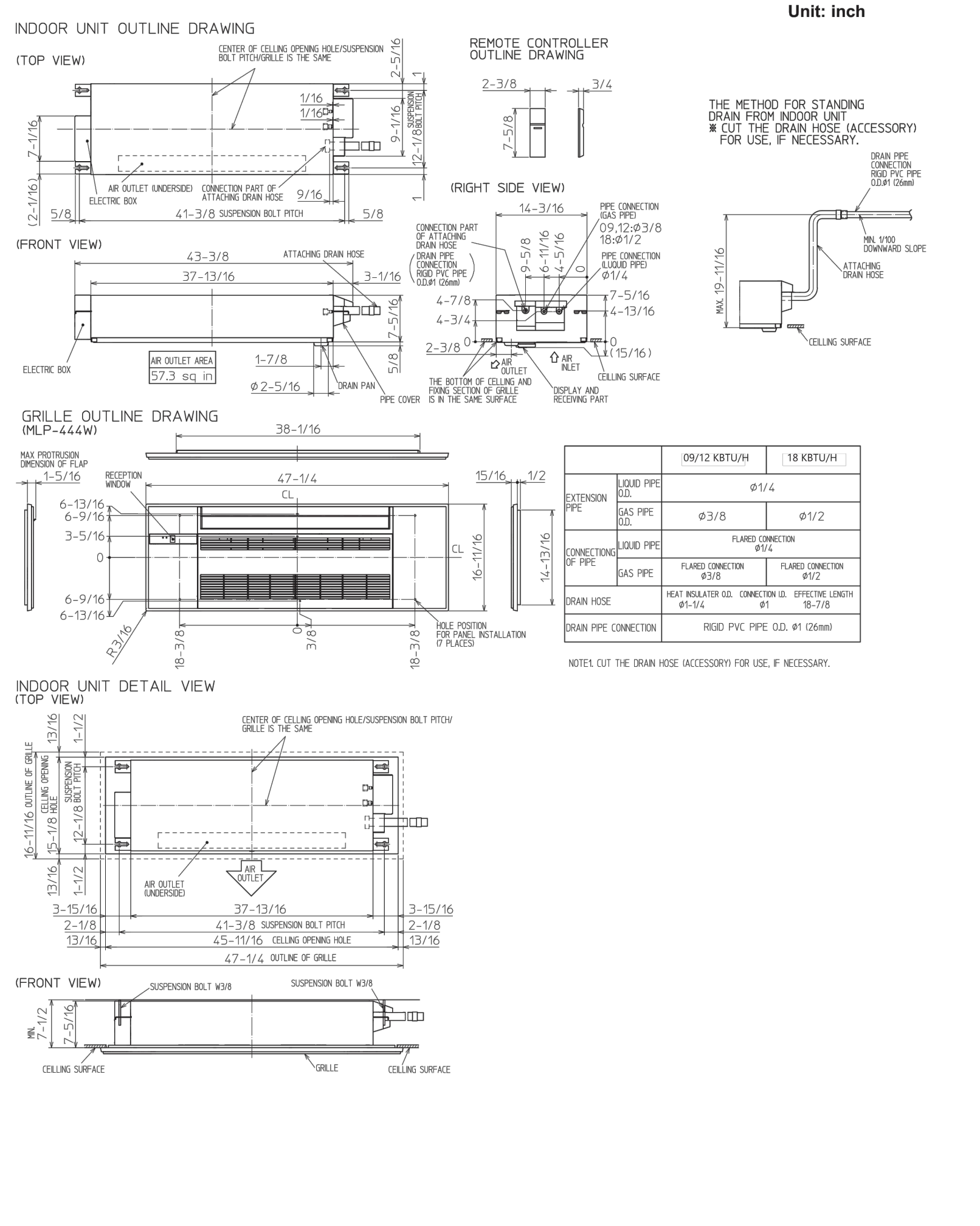
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**SPECIFICATIONS: MLZ-KP12NA & SUZ-KA12NA2**

Cooling at 80°F <sup>1</sup>	Maximum Capacity	BTUH	12,000	
	Rated Capacity	BTUH	12,000	
	Minimum Capacity	BTUH	3,600	
Cooling at 82°F	Maximum Capacity	BTUH	11,100	
	Rated Capacity	BTUH	11,100	
	Minimum Capacity	BTUH	3,300	
Heating at 47°F <sup>2</sup>	Maximum Capacity	BTUH	9,000	
	Rated Capacity	BTUH	9,000	
	Minimum Capacity	BTUH	2,700	
Heating at 47°F <sup>3</sup>	Maximum Capacity	BTUH	9,000	
	Rated Capacity	BTUH	9,000	
	Minimum Capacity	BTUH	2,700	
Heating at 5°F <sup>4</sup>	Maximum Capacity	BTUH	7,500	
	Rated Capacity	BTUH	7,500	
	Minimum Capacity	BTUH	2,250	
Heating at 4°F <sup>5</sup>	Maximum Capacity	BTUH	5,900	
	Rated Capacity	BTUH	5,900	
	Minimum Capacity	BTUH	1,770	
Efficiency	SEER		19.8	
	SEER <sup>6</sup>		12.9	
	HSPF (H)		12.1	
	COP at 47°F <sup>7</sup>		3.40	
	COP at 17°F in Maximum Capacity <sup>8</sup>		2.44	
	COP at 5°F in Maximum Capacity <sup>9</sup>		2.36	
	ENERGY STAR <sup>®</sup> certified units (ENERGY STAR products are third-party certified by an EPA-recognized Certification Body.)			Yes
	Voltage, Phase, Frequency			208/230V, 1 phase, 60Hz
	Guaranteed Voltage Range	V AC		187-255
	Electrical	Voltage - Indoor - Outdoor, S1-S2	V AC	208/230
Voltage - Indoor - Outdoor, S2-S3		V DC	24	
Short-circuit Current Rating (SCCR)		KA	Wireless type	
Recommended Fuse/Breaker Size (Outdoor)		A		15
Recommended Wire Size (Indoor - Outdoor)		AWG		14
Indoor Unit	MCA	A	1	
	Fan Motor Full Load Amperage	A	0.76	
	Fan Motor Output	W	30	
	Airflow Rate at Cooling, Dry	CFM		332-297-258-212
	Airflow Rate at Cooling, Wet	CFM		282-262-219-180
	Airflow Rate at Heating, Dry	CFM		350-311-272-212
	Sound Pressure Level (Cooling)	dBA		40-36-32-27
	Sound Pressure Level (Heating)	dBA		40-36-32-26

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**DIMENSIONS: MLZ-KP12NA**



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**1** CEILING CASSETTE SUBMITTAL  
M6.04 DETAIL



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SHEET MECHANICAL DETAILS

**M6.04**