

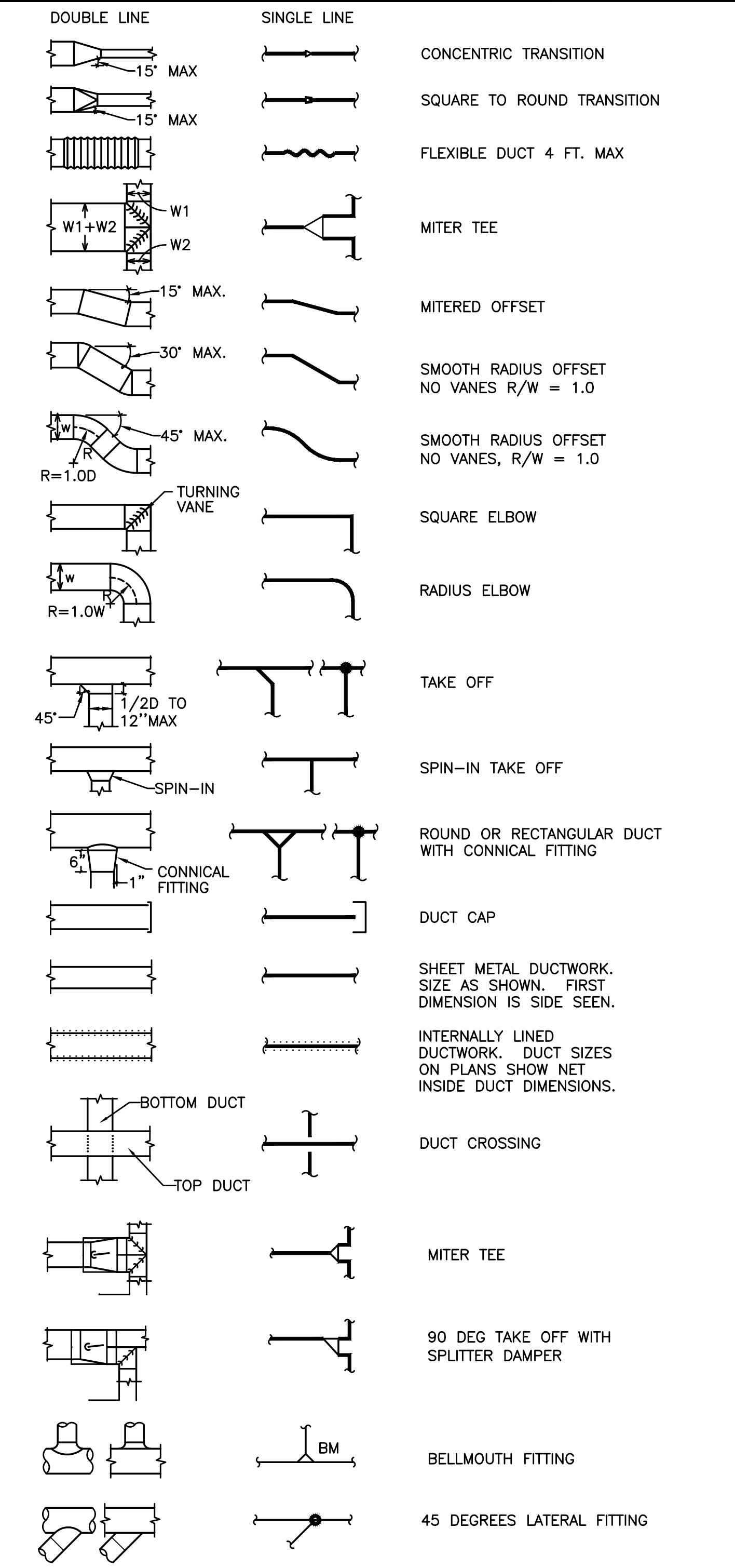


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MECHANICAL LEGEND

Table with two columns: Symbol and Description. Includes items like SUPPLY AIR DIFFUSER, RETURN AIR DIFFUSER, EXHAUST AIR DIFFUSER, DIRECTIONAL AIR FLOW, MANUAL VOLUME DAMPER, etc.

AIR DISTRIBUTION DETAILS



MECHANICAL GENERAL NOTES

- A. THE DRAWINGS ARE DIAGRAMMATIC. PROVIDE ALL MATERIAL (NEW AND UNDAMAGED) AND LABOR FOR A COMPLETE AND OPERABLE SYSTEM. VERIFY ALL BUILDING MEASUREMENTS DIMENSIONS AND EQUIPMENT LOCATIONS BEFORE PROCEEDING WITH ANY OF THE WORK.
B. VERIFY ALL EXISTING CONDITIONS RELATIVE TO THE SCOPE OF WORK. REPORT DISCREPANCIES BACK TO THE ENGINEER.
C. VERIFY INDICATED (E) DUCTWORK/PIPE SIZES PRIOR TO RECONNECTING NEW EQUIPMENT. EQUIPMENT SHALL NOT BE CONNECTED TO EXISTING DUCT/PIPE OF SMALLER DIAMETER THAN NEW DUCT/PIPE. REPORT DISCREPANCIES BACK TO ENGINEER.
D. DO NOT FABRICATE EQUIPMENT SUPPORTS/BASES W/O CONFIRMING SPACE EXISTS AND THE BUILDING ATTACHMENT POINTS.
E. REFER TO THE MECHANICAL SPECIFICATIONS FOR MATERIALS, EQUIPMENT, AND ADDITIONAL CONSTRUCTION INSTRUCTIONS NOT COVERED BY THESE PLANS.
F. ALL INSTALLATIONS SHALL COMPLY WITH APPLICABLE FEDERAL AND STATE CODES INCLUDING, 2019 OREGON STRUCTURAL SPECIALTY CODE (OSSC) INCLUDING APPENDIX N FOR OREGON FIRE CODE REGULATIONS, 2021 OREGON PLUMBING SPECIALTY CODE (OPSC), 2019 OREGON MECHANICAL SPECIALTY CODE (OMSC), 2021 OREGON ENERGY EFFICIENCY SPECIALTY CODE (OEEESC)-BASED ON ASHRAE 90.1-2019, AND NATIONAL FIRE PROTECTION ASSOCIATION (NFPA). WHERE TWO CODES DIFFER THE MORE STRICT OF THE TWO SHALL BE FOLLOWED.
G. OBTAIN ALL NECESSARY PERMITS AND INSPECTIONS REQUIRED BY THE GOVERNING AUTHORITIES HAVING JURISDICTION. SUBMIT ALL CERTIFICATES PRIOR TO ACCEPTANCE.
H. COORDINATE ALL MECHANICAL AND CONTROL WORK WITH GENERAL CONTRACTOR, CONTROL CONTRACTOR, ELECTRICAL AND ARCHITECTURAL.
I. COORDINATE OTHER TRADES FOR PATCH/REPAIR OF WALLS WHERE EXISTING SENSORS ARE REMOVED OR MODIFIED.
J. PATCH & REPAIR WALLS / FLOORS / CEILING WHERE OLD DUCTWORK/PIPES HAVE BEEN REMOVED TO MATCH EXISTING FINISHES.
K. COORDINATE WITH OTHER CRAFTS AS REQUIRED TO COMPLETE WORK IN ACCORDANCE WITH CONSTRUCTION SCHEDULE.
L. PROVIDE OWNER INSTRUCTION BY QUALIFIED PERSONNEL ON EQUIPMENT AND SYSTEMS AT OWNER'S REQUEST.
M. ALL DUCTWORK SHALL BE GALVANIZED STEEL, UNLESS OTHERWISE INDICATED, CONFORMING TO LATEST SMACNA, ASHRAE, OMSC, NFPA, AND UL STANDARDS.
N. MANUFACTURERS AND MODEL NUMBERS LISTED IN THE EQUIPMENT SCHEDULES ARE THE BASIS OF DESIGN.
O. CUT WALLS FOR PROPER EQUIPMENT, DUCT OR PIPE INSTALLATION. FILL HOLES WHICH ARE CUT OVERSIZED FOR A TIGHT FIT AROUND OBJECTS PASSING THROUGH.
P. PROVIDE UL LISTED FIRESTOP SYSTEM TO MAINTAIN THE CODE REQUIRED F AND T RATING OF THE CONSTRUCTION ASSEMBLY AT A DUCT/PIPE PENETRATION THROUGH A RATED BUILDING CONSTRUCTION.
Q. INSTALL LABELS ON ALL MECHANICAL EQUIPMENT. SEE SPECIFICATIONS FOR CRITERIA.
R. CONTROLS AND WIRING SHALL MEET ALL ELECTRICAL REQUIREMENTS OF APPLICABLE ELECTRICAL SPECIFICATIONS AND REQUIREMENTS OF OWNER, BUILDING OFFICIALS AND EQUIPMENT SUPPLIERS OF EQUIPMENT INSTALLED ON PROJECT.
S. ELECTRIC MOTORS SHALL HAVE BUILT-IN THERMAL OVERLOAD PROTECTION OR BE PROTECTED EXTERNALLY WITH SEPARATE THERMAL OVERLOAD DEVICES, WITH LOW-VOLTAGE RELEASE OR LOCK OUT AS REQUIRED.
T. ALL NEW EQUIPMENT, PIPING, CONDUIT, AND DUCTWORK SHALL BE INSTALLED PER CURRENT SEISMIC CODE REQUIREMENTS.
U. PROVIDE LOW LEAK AUTOMATIC DAMPERS ON OUTSIDE AIR, EXHAUST AIR AND RELIEF AIR CONTROL DAMPERS WHERE THESE ARE INDICATED.

SYSTEM COMMISSIONING-VERIFICATION AND TESTING REQUIREMENTS: ASHRAE 90.1-2019 REQUIREMENTS SECTION 4.2.5 THROUGH 4.2.5.3

THE OWNER OR GC SHALL PROCURE A COMMISSIONING PROVIDER THAT MEETS ONE OF THE FOLLOWING. THE COMMISSIONING PROVIDER SHALL BE:
a. A THIRD PARTY ENTITY NOT ASSOCIATED WITH THE BUILDING PROJECT
b. AN OWNER'S QUALIFIED EMPLOYEE.
c. AN INDIVIDUAL ASSOCIATED WITH THE DESIGN FIRM, BUT NOT DIRECTLY ASSOCIATED WITH THE DESIGN OR INSTALLATION OF THE BUILDING SYSTEMS.

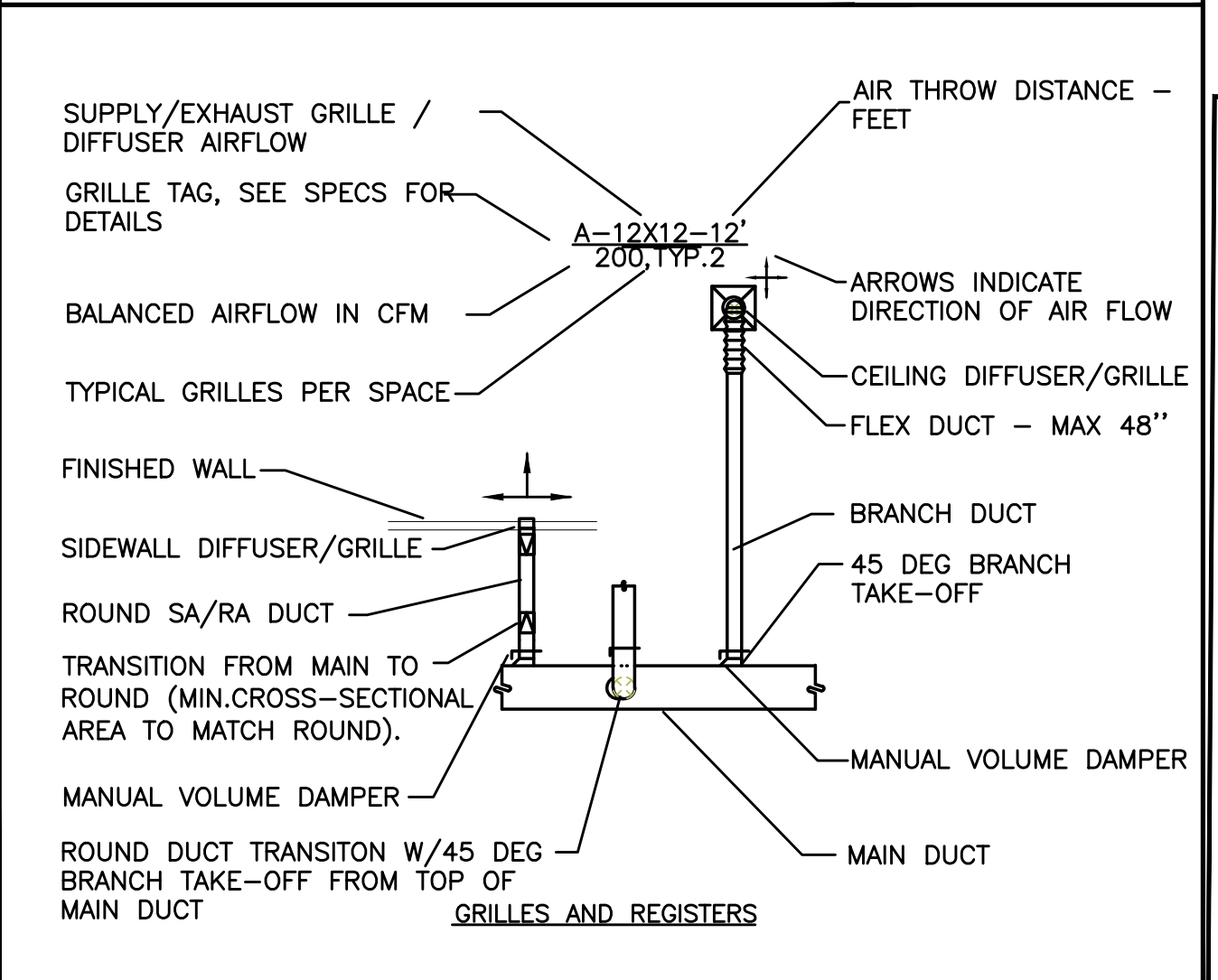
EXCEPTIONS:

- 1. BUILDING IS LESS THAN 10,000 SQ FT

CONTRACTOR RESPONSIBILITIES

- THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING ALL THE REQUIREMENTS OF ASHRAE 90.1-2019.
• THE GENERAL CONTRACTOR OR OWNER SHALL HIRE AND UTILIZE AN APPROVED CX AGENT
• THE CX AGENT SHALL
1. PREPARE A CX PLAN
2. OVERSEE THE TAB MEASUREMENTS
3. CONDUCT THE PR-FUNCTIONAL & FUNCTIONAL TESTS
4. PREPARE THE PRELIMINARY CX REPORT
5. REVIEW THE TAB REPORT
6. REVIEW THE O&M'S
7. PREPARE THE SYSTEMS MANUALS
• SYSTEMS REQUIRED TO BE COMMISSIONED
1. SERVICE WATER HEATERS
2. MIXING VALVES & RECIRC SYSTEMS
3. ROOFTOP UNITS
4. SPLIT SYSTEM FAN COILS
5. KITCHEN RANGE HOOD, MAKE UP AIR UNIT AND GREASE FANS
6. EXHAUST FANS
7. LIGHTING CONTROL SYSTEMS
8. OCCUPANCY SENSORS
9. EMERGENCY POWER SYSTEMS (GENERATOR)
10. THERMOSTAT OPERATIONS AND SET POINTS

AIR DISTRIBUTION DETAILS



3.2 DUCTWORK INSULATION

- A. Ductwork: Insulate the following:
1. All supply and return ductwork in systems routed in unconditioned spaces or exposed to the outside conditions.
2. All outside air intake ducts.
3. All ductwork required to be insulated by code.
4. The last 5' of duct work connected to a louver or exhaust termination.
B. Insulation Thickness: Select board and blanket insulation of thickness required to provide the following installed R-value.
1. All heating or cooling system supply and return ducts located on the exterior of the insulated building envelope, including ventilated attics, and all outside air intake ducts, R-8.
2. All heating and cooling system supply and return ducts located in unconditioned spaces within the building insulation envelope, R-5.
3. All heating and cooling system supply ducts located in conditioned spaces and where exposed in unfinished spaces or concealed from view in finished spaces, R-3.3. Exposed ductwork in finished spaces shall not be externally insulated.
4. Ducts located within or below concrete slabs on grade, R-4.
C. Fittings: Install with wire, straps, and duct adhesive as required. To prevent sagging on all rectangular or square ducts over 24" wide, install Granweld or equal welding pins on the bottom. Maximum spacing 18" on center in both directions.
D. Installation: Applied with butt joints, all seams sealed with vapor seal mastic or taped with 2" wide vapor-proof, pressure-sensitive tape. Seal all penetrations with vapor barrier adhesive.
E. Internally Lined Ductwork: Where internally lined ductwork is indicated on the Drawings and/or specified, no exterior insulation is required. Select duct lining to provide the required R-value. Carefully lap the ends of the exterior insulation a minimum of 6" past the interior insulation unless otherwise shown. Seal the end of vapor barrier jacket to the duct with mastic where the vapor barrier is required.
E.1. Line Supply and Return ducts for 10' on intake and discharge of fan.
E.2. Line Supply ducts routed in vertical shafts directly below RTUs

MECHANICAL SHEET INDEX

- M0.01 TITLE SHEET & MECHANICAL CODE REQUIREMENTS
M2.01 MECHANICAL FLOOR PLAN
M2.02 MECHANICAL ROOF PLAN
M6.00 MECHANICAL SCHEDULES
M6.01 MECHANICAL DETAILS
M6.02 MECHANICAL DETAILS

SALEM NAVIGATION CENTER 1185 22nd ST. SE SALEM, OREGON 97305



PROJECT NO. 21-0913 ISSUE DATE FEB 28, 2022

SHEET MECHANICAL SCHEDULES AND DETAILS M0.01 PERMIT SET





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SHEET NOTES:

- (A) — ROUTE 12" Ø HOOD EXHAUSTS FROM EACH COLLAR UP TO 16X8 GREASE THROUGH ROOF TO GREASE FANS, FIRE WRAP, OR USE DOUBLE WALL DUCT FOR SECTION BETWEEN CEILING AND ROOF STRUCTURE. SEE CAPTIVE AIR DRAWINGS FOR HOOD, GREASE DUCT, GREASE FANS ETC.
- (B) — ROUTE 26X20 MUA UP THROUGH ROOF TO MUA-1. SEE CAPTIVE AIR DRAWINGS FOR MUA DETAILS.
- (C) — RE-ROUTE DUCTS TO AVOID CROSSING FIRE RATED WALL.
- (D) — EXISTING DIFFUSER AND ASSOCIATED DUCTWORK TO BE REMOVED, CAP DUCT AS NEEDED.
- (E) — SAUNA HEATER, WALL CONTROLLER AND RELAY BOX, SEE HOMECRAFT 15000 W SAUNA HEATER, FHS1 15 OR EQUAL.
- (F) — REFRIGERANT PIPING UP THROUGH ROOF TO HP'S
- (G) — 1.5 KW CADET STYLE WALL HEATER FOR FREEZE PROTECTION/AUXILIARY HEAT

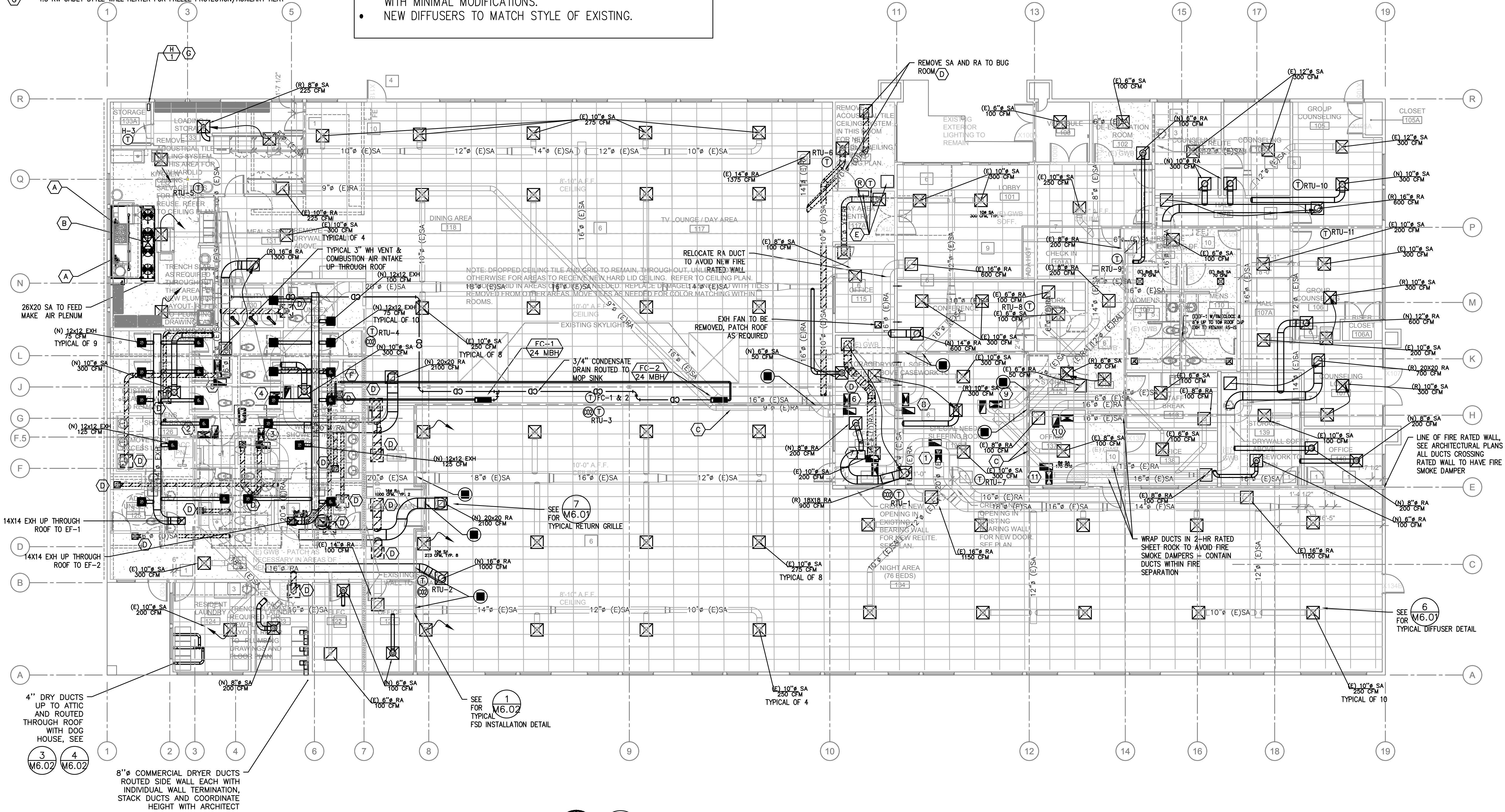
DUCT WORK & DIFFUSER MODIFICATIONS:

- DUCT WORK AND DIFFUSERS TO BE MODIFIED TO MATCH NEW SPACE LAYOUTS AND CEILING GRIDS.
- CEILING RADIATION DAMPERS TO BE REMOVED FROM ALL CEILING GRILLES (COORDINATE WITH ARCHITECT)
- BALANCE DIFFUSERS TO AIR-FLOWS LISTED
- SHIFT ANY DIFFUSERS TO NEAREST CEILING GRID PANEL, COORDINATE LOCATIONS WITH LIGHTING PLANS
- MOST (IF NOT ALL) DIFFUSERS ARE INSTALLED WITH MIN OF 5' OF FLEX DUCT TO ALLOW FOR SHIFTING OF DIFFUSERS WITH MINIMAL MODIFICATIONS.
- NEW DIFFUSERS TO MATCH STYLE OF EXISTING.

FIRE RATED WALLS:

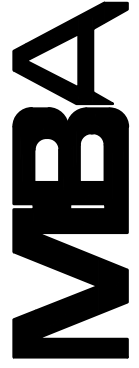
- PROVIDE FIRE SMOKE DAMPERS AT ALL DUCTS PENETRATING THE RATED WALLS. DUCTS CAN BE MODIFIED/MOVED TO AVOID ADDING FSDs WHERE POSSIBLE. SEE (1) M6.02 FOR FSD DETAIL AND REQUIREMENTS.
- PROVIDE SHEET METAL SLEEVES AS REQUIRED FOR FSD INSTALLATION AND MAINTAINING FIRE RATING OF NEW WALLS.

(E) X" Ø SA/RA/EXH XXX CFM	EXISTING DIFFUSER - SHIFT LOCATION AS NEEDED FOR NEW GRID
(R) X" Ø SA/RA/EXH XXX CFM	RELOCATED DIFFUSER - SHIFT LOCATION AS SHOW WITH ARROW
(N) X" Ø SA/RA/EXH XXX CFM	NEW DIFFUSER
#	EXISTING SUPPLY OR RETURN DUCT UP THROUGH ROOF TO RTU. # = RTU NUMBER



MECHANICAL FLOOR PLAN - NEW  
SCALE: 1/8" = 1'-0"

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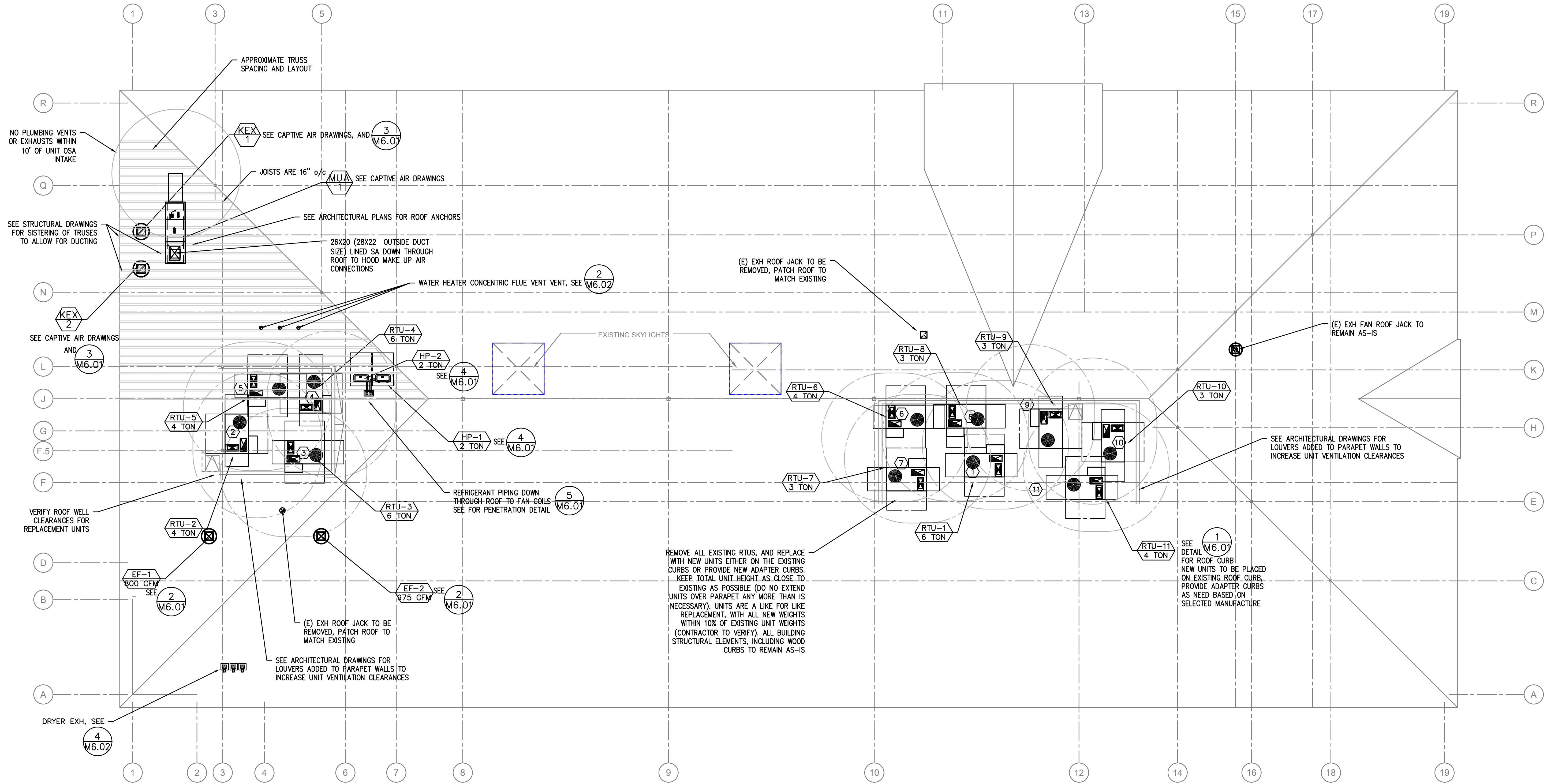
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MECHANICAL FLOOR PLAN - NEW  
M2.01  
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1 MECHANICAL ROOF PLAN - NEW  
M2.02 SCALE: 1/8" = 1'-0"

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MECHANICAL ROOF PLAN - NEW  
M2.02  
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ROOFTOP HVAC UNITS

MARK NUMBER	RTU-1 6 TON	RTU-2 4 TON	RTU-3 6 TON	RTU-4 6 TON	RTU-5 4 TON	RTU-6 4 TON	RTU-7 3 TON	RTU-8 3 TON	RTU-9 3 TON	RTU-10 3 TON	RTU-11 4 TON
SYSTEM	NIGHT AREA	LAUNDRY	NIGHT AREA	DAY AREA	KITCHEN	DAY AREA	SPECIAL NEEDS	ENTRY	CHECK IN	GROUP	COUNCELING
TYPE	CV	CV	CV	CV	CV	CV	CV	CV	CV	CV	CV
DISCHARGE	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL
TOTAL CFM	2500	1600	2500	2450	1500	1500	1100	1200	1140	1200	1500
ECONOMIZER	ENTHALPY	ENTHALPY	ENTHALPY	ENTHALPY	ENTHALPY	ENTHALPY	NONE-100% OSA	NONE-100% OSA	NONE-100% OSA	NONE-100% OSA	ENTHALPY
MIN. OSA	240	140	240	240	200	250	500	500	500	500	250
MAX OSA (FULL OCCUPANCY)	1000	800	1000	1000	800	800	NA	NA	NA	NA	800
CO2 CONTROL	YES	YES	YES	YES	YES	YES	NA	NA	NA	NA	YES
EXTERNAL SP. (*H2O)	1.00	1.00	1.00	1.00	1.00	1.00	0.75	0.75	0.75	0.75	1.00
TOTAL SP. (*H2O)	---	---	---	---	---	---	---	---	---	---	---
RPM	2638	2032	2638	2638	2032	2032	1982	1982	1982	1982	2032
WHEEL TYPE/ SIZE	VANE AXIAL (DIRECT)	F.C. --- (DIRECT)	VANE AXIAL (DIRECT)	VANE AXIAL (DIRECT)	F.C. --- (DIRECT)	F.C. --- (DIRECT)	F.C. --- (DIRECT)	F.C. --- (DIRECT)	F.C. --- (DIRECT)	F.C. --- (DIRECT)	F.C. --- (DIRECT)
MOTOR HP.	1.96 BHP	0.90 BHP	1.96 BHP	1.96 BHP	0.90 BHP	0.90 BHP	0.57 BHP	0.57 BHP	0.57 BHP	0.57 BHP	0.90 BHP
POWER EXH FAN/ACCESSORY	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES
MIN FILTER SIZE	4-16X16	2-16X25	4-16X16	4-16X16	2-16X25	2-16X25	2-16X25	2-16X25	2-16X25	2-16X25	2-16X25
FILTER TYPE	2"- 30%	2"- 30%	2"- 30%	2"- 30%	2"- 30%	2"- 30%	2"- 30%	2"- 30%	2"- 30%	2"- 30%	2"- 30%
GAS INPUT/OUTPUT (MBH)	110/88	110 / 88	110/88	110/88	110 / 88	110 / 88	110 / 88	110 / 88	110 / 88	110 / 88	110 / 88
EFF. (AFUE)	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%
STAGES/TYPE	2-MED HEAT	2- MED HEAT	2-MED HEAT	2-MED HEAT	2- MED HEAT	2- MED HEAT	2-S.S. MED HEAT	2-S.S. MED HEAT	2-S.S. MED HEAT	2-S.S. MED HEAT	2- MED HEAT
TOTAL CLG. (TONS)	6.0	4.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	4.0
SENSIBLE CLG. (MBH)	56.78	32.19	56.78	56.78	32.19	32.19	25.39	25.39	25.39	25.39	32.19
ENT. EVAP AIR TEMP (DB/WB.)	80/67	80/67	80/67	80/67	80/67	80/67	80/67	80/67	80/67	80/67	80/67
LVG. EVAP AIR TEMP (DB/WB.)	55/54	55/54	55/54	55/54	55/54	55/54	55/54	55/54	55/54	55/54	55/54
AMBIENT AIR (°F)	95	95	95	95	95	95	95	95	95	95	95
EER/IEER	11/15.0	14 SEER	11/15.0	11/15.0	14 SEER	14 SEER	14 SEER	14 SEER	14 SEER	14 SEER	14 SEER
REFRIGERANT	410A	410A	410A	410A	410A	410A	410A	410A	410A	410A	410A
REFRIGERANT CHARGE	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
DESIGN WEIGHT (LBS.)	850	800	850	850	800	800	750	750	750	750	800
SMOKE DETECTOR (RETURN DUCT)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
ADAPTER ROOF CURB - *	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
CONVENIENCE OUTLET - ALWAYS POWERED	YES	NO	YES	YES	NO	NO	NO	NO	NO	NO	NO
VOLTAGE/PHASE - ***	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3
MCA/MOCP - ***	32/45 AMPS	28/40 AMPS	32/45 AMPS	32/45 AMPS	28/40 AMPS	28/40 AMPS	22/30 AMPS	22/30 AMPS	22/30 AMPS	22/30 AMPS	28/40 AMPS
BASIS OF DESIGN - CARRIER MODEL **	48FCEM07B3A5	48FCEA05A2A5	48FCEM07B3A5	48FCEM07B3A5	48FCEA05A2A5	48FCEA05A2A5	48FEA04A2A5	48FEA04A2A5	48FEA04A2A5	48FEA04A2A5	48FCEA05A2A5

\* - PROVIDE ADAPTER CURB IF REQUIRED FOR UNIT REPLACEMENT - PREFERENCE IS NO ADAPTER CURB TO KEEP UNIT HEIGHT BELOW EXISTING PARAPETS.  
 \*\* - CARRIER UNITS LISTED AS BASIS OF DESIGN, UNITS SELECTED TO BE DIRECT REPLACEMENT OF ORIGINAL BUILDING/DESIGN UNITS - SOME UNITS HAVE BEEN REPLACED AND/OR ARE OF DIFFERENT MANUFACTURERS, CONTRACTOR RESPONSIBLE FOR ALL FIELD MEASUREMENTS AND PROVIDING ALL ADAPTER CURBS AS NEEDED FOR UNIT REPLACEMENT. PROVIDE NEW UNIT DISCONNECTS FOR ALL UNITS.  
 \*\*\* - ELECTRICAL DATA LISTED FOR REFERENCE ONLY, COORDINATE WITH ELECTRICAL CONTRACTOR FOR VOLTAGE AND PHASE REQUIREMENTS. ELECTRICAL CONTRACTOR RESPONSIBLE FOR SIZING ALL CONDUCTORS & OVERCURRENT PROTECTION. VERIFY WITH EQUIPMENT SUBMITTALS FOR EQUIPMENT ELECTRICAL REQUIREMENTS.

EXHAUST FANS

MARK NUMBER	EF-1 800 CFM	EF-2 975 CFM
TYPE	ROOF DIRECT DRIVE	ROOF DIRECT DRIVE
SYSTEM	MENS	WOMENS
CFM	800	975
TOTAL SP. (IN H2O)	0.5	0.5
RPM	1537	1538
TIP SPEED (FPM)	4377	4506
MOTOR WATTS OR HP	1/6 HP	1/4 HP
CONTROLLED BY	CONTINUOUS	CONTINUOUS
INTERLOCK WITH	NONE	NONE
FAN SPEED CONTROLLER ****	YES/EC MOTOR	YES/EC MOTOR
WHEEL TYPE	BI	BI
BACK DRAFT DAMPER	MOTORIZED	MOTORIZED
ISOLATION	RUBBER	RUBBER
DESIGN WEIGHT (LBS)	33	40
MAX. SONES	8.5	10.7
MAX AMPS - ***	2.2	2.85
POWER (VOLTS/PHASE/HZ)-***	120/60/1	120/60/1
BASIS OF DESIGN:	GREENHECK G-095-VG	GREENHECK G-099-VG

\*\*\*- ELECTRICAL DATA LISTED FOR REFERENCE ONLY, COORDINATE WITH ELECTRICAL CONTRACTOR FOR VOLTAGE AND PHASE REQUIREMENTS  
 \*\*\*\* PROVIDE WITH SPEED CONTROLLER FOR ROUGH ADJUSTMENT OF FAN SPEED

Unit	Existing MBH	Existing tons	Existing cfm	Existing osa cfm	New tons	New cfm	New osa cfm
AC-1	70	6	2500	400	6	2500	400
AC-2	46	4	1400	200	4	1600	200
AC-3	70	6	2500	400	6	2500	400
AC-4	70	6	2500	400	6	2450	400
AC-5	46	4	1400	200	4	1500	200
AC-6	46	4	1400	250	4	1500	250
AC-7	33	3	1200	500	3	1100	500
AC-8	33	3	1200	500	3	1200	500
AC-9	33	3	1200	200	3	1140	200
AC-10	33	3	1200	400	3	1200	400
AC-11	46	4	1400	400	4	1400	400

BED BUG-SPA HEATER

**HOME-CRAFT**  
 Sauna Heaters and Controls, Installation and Wiring Instructions  
 For three phase installation

**General Specifications**  
 IT IS UNLAWFUL TO INSTALL THIS UNIT WITHOUT FIRST OBTAINING A PERMIT FROM YOUR LOCAL ELECTRICAL INSPECTION AUTHORITY. Electrical wiring and hook-up should be done only by a certified electrician. Electrical connection by a non-certified person voids the warranty. Never install electrical wiring such that it could be exposed to heat radiating from the sauna heater. The control box must be installed on the outside of the sauna room. Do not install any electrical receptacles inside the sauna room.

The following wire sizes and circuit breaker specifications are provided as a guide only. Your local electrical code may require different sizes and will supersede this guide.

Note: **no combustible materials are permitted under the heater.** Examples: duckboard flooring, towels, paper towels, etc.

**Sauna Heater Specifications**

Model	Watts	Voltage	Phase	Amps	Circuit Breaker	Wire 90° C Copper	Digital Control
HSH 7.5	7500	208	3	20.9	30	10	TKE1-3
HSH 9	9000	208	3	25.0	40	8	TKE1-3
FHSH 12	12000	208	3	33.4	50	8	TKE2-3
FHSH 15	15000	208	3	41.7	60	6	TKE2-3

**Figure 1. HSH clearances to wood surfaces**

**Figure 2. FHSH clearances to wood surfaces**

**Figure 3. Heater Location**

Model	Weight	Clearance to ceiling	Minimum room cubic footage	Maximum room cubic footage	Minimum ceiling height
FHSH 12	120 LBS	52 inches	450	700	84"
FHSH 15	120 LBS	52 inches	600	900	84"

**2. Sauna Heater Installation**  
 Note: remove plastic protective coating on outside of heater after complete installation but before start-up.

Homecraft sauna heaters come fully assembled. Mounting hardware is in the heater carton.

**Installation Steps:**

2A. Screw the wall mounting brackets (Model HSH) to the wall as shown in Figure 3.

2B. Lay the heater on the floor and remove the bottom plate. Open the appropriate knock-out and install the sealight connector. Connect the wiring as shown in the wiring guide. Replace the bottom plate.

2C. Hang the heater in place on the wall mounting brackets (Model HSH) and secure the lower heater support bracket to the wall with the screws supplied. Fill the heater rock basket with the sauna rocks provided. Note: the sauna heater should not be operated without the recommended quantity of rocks. ENSURE PROPER AIRFLOW AROUND THE ROCKS.

Last edited December 16, 2004

INDOOR UNITS - \*

MARK NUMBER	FC-1 24 MBH	FC-2 24 MBH
SYSTEM	DINING AREA 118	TV LOUNGE/DAY AREA 117
TYPE	WALL MOUNTED	WALL MOUNTED
EFFICIENCY	SEE OUTDOOR UNIT	SEE OUTDOOR UNIT
NOMINAL COOLING CAPACITY	24,000 BTUH	24,000 BTUH
HEATING CAPACITY	24,000 BTUH	24,000 BTUH
TOTAL SUPPLY CFM	800	800
OSA CFM	---	---
EXTERNAL SP. (*H2O)	0.125	0.125
VOLTS/PHASE	208-1	208-1
MCA/MOP	SEE OUTDOOR UNIT	SEE OUTDOOR UNIT
WEIGHT	50	50
BASIS OF DESIGN	CARRIER 40MAQB24-3	CARRIER 40MAQB24-3
OUTDOOR UNIT	HP-1 2 TON	HP-2 2 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

OUTDOOR UNITS - SPLIT SYSTEM HEAT PUMP

MARK NUMBER	HP-1 2 TON	HP-2 2 TON
SYSTEM	DINING AREA 118	TV LOUNGE/DAY AREA 117
TYPE	1-PORT HEAT PUMP	1-PORT HEAT PUMP
NORMAL COOLING CAPACITY	24,000 BTUH	24,000 BTUH
NORMAL HEATING CAPACITY	24000 BTUH	24000 BTUH
EFFICIENCY SEER/EER	20/12.5	20/12.5
EFFICIENCY HSPF/COP	10/3.22	10/3.22
REFRIGERANT	410 A	410 A
REFRIGERANT CHARGE	---	---
MAX OPERATING TEMPS	122/-4	122/-4
MAX PIPING LENGTH	98 FT	98 FT
MAX PIPING HEIGHT	65 FT	65 FT
VOLTS-PHASE - **	208/230-1 PHASE	208/230-1 PHASE
MCA/MOP - **	15/25 AMPS	15/25 AMPS
COMPRESSOR	VARIABLE SPEED	VARIABLE SPEED
WEIGHT	150 LBS	150 LBS
BASIS OF DESIGN	CARRIER 38MAQB24-3	CARRIER 38MAQB24-3

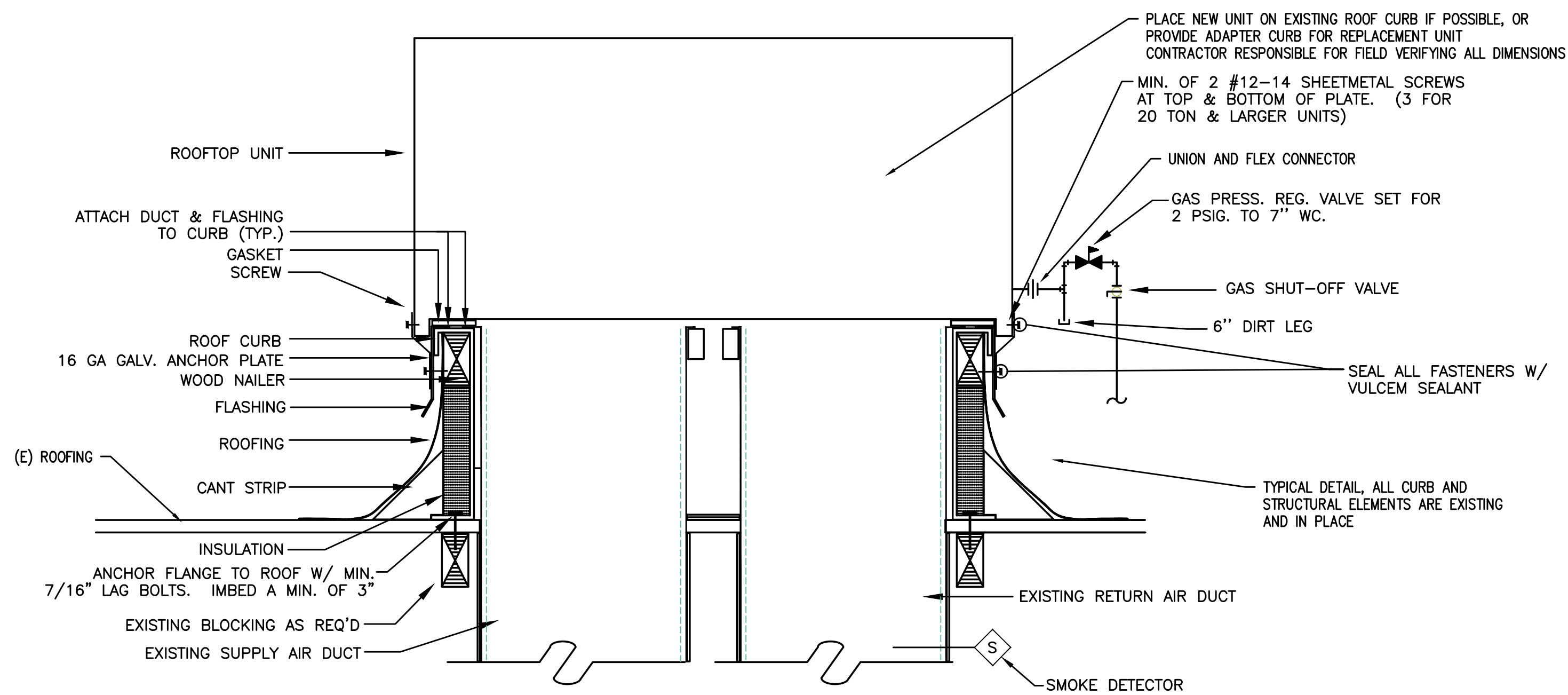
\*\* - ELECTRICAL DATA LISTED FOR REFERENCE ONLY, COORDINATE WITH ELECTRICAL DESIGN BUILD CONTRACTOR FOR VOLTAGE AND PHASE REQUIREMENTS. ELECTRICAL CONTRACTOR RESPONSIBLE FOR SIZING ALL CONDUCTORS & OVERCURRENT PROTECTION. VERIFY WITH EQUIPMENT SUBMITTALS FOR EQUIPMENT ELECTRICAL REQUIREMENTS



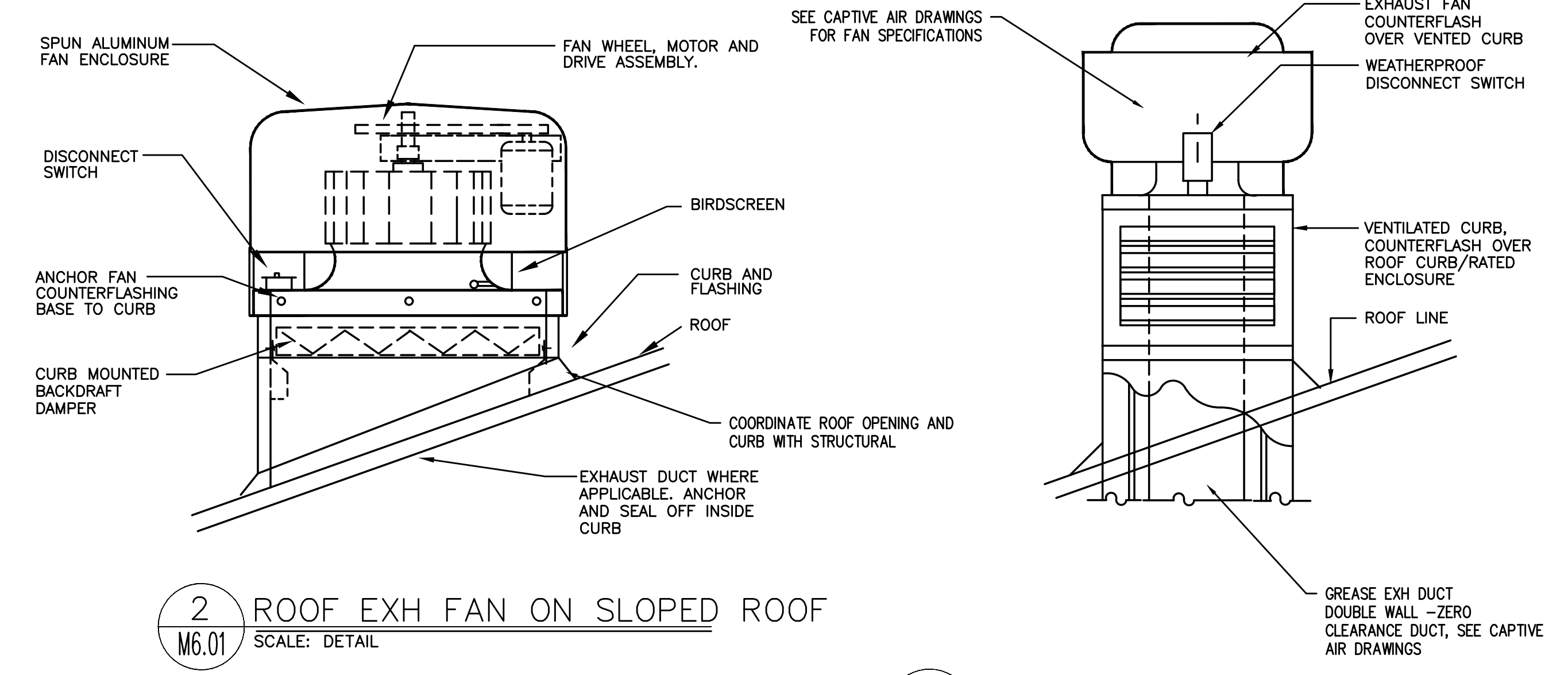




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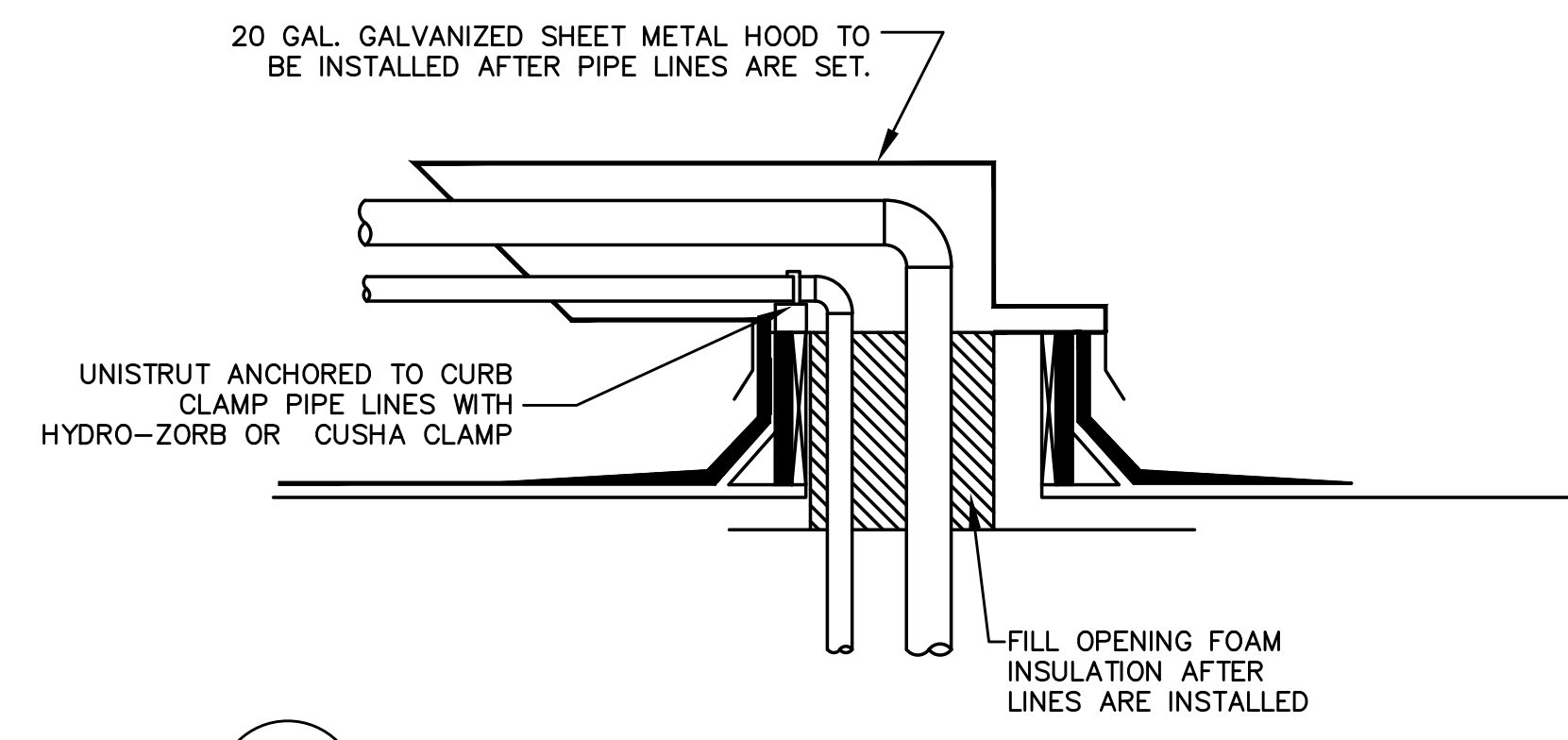


1 ROOF TOP UNIT W/ CURB  
M6.01 SCALE: DETAIL

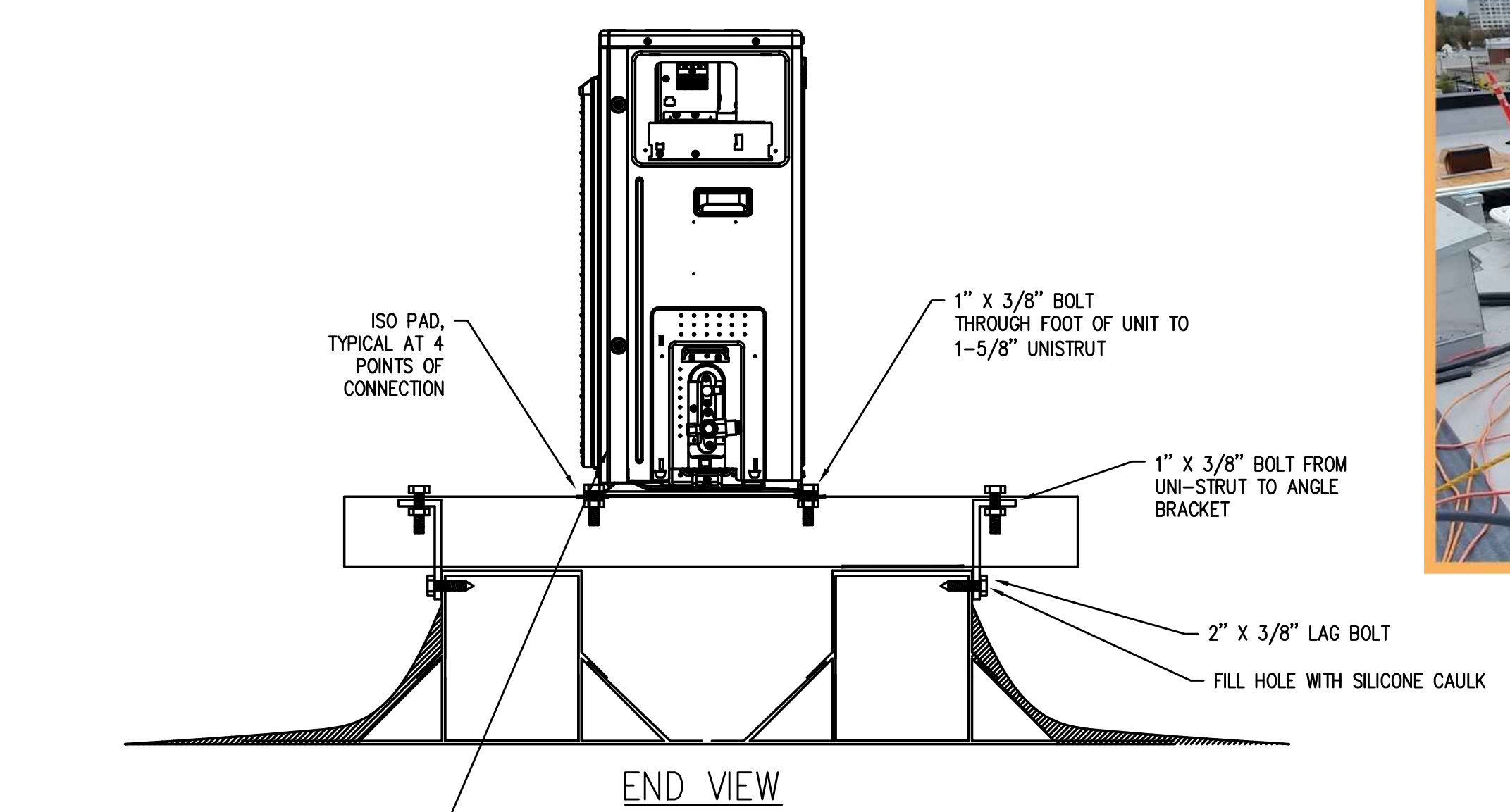


2 ROOF EXH FAN ON SLOPED ROOF  
M6.01 SCALE: DETAIL

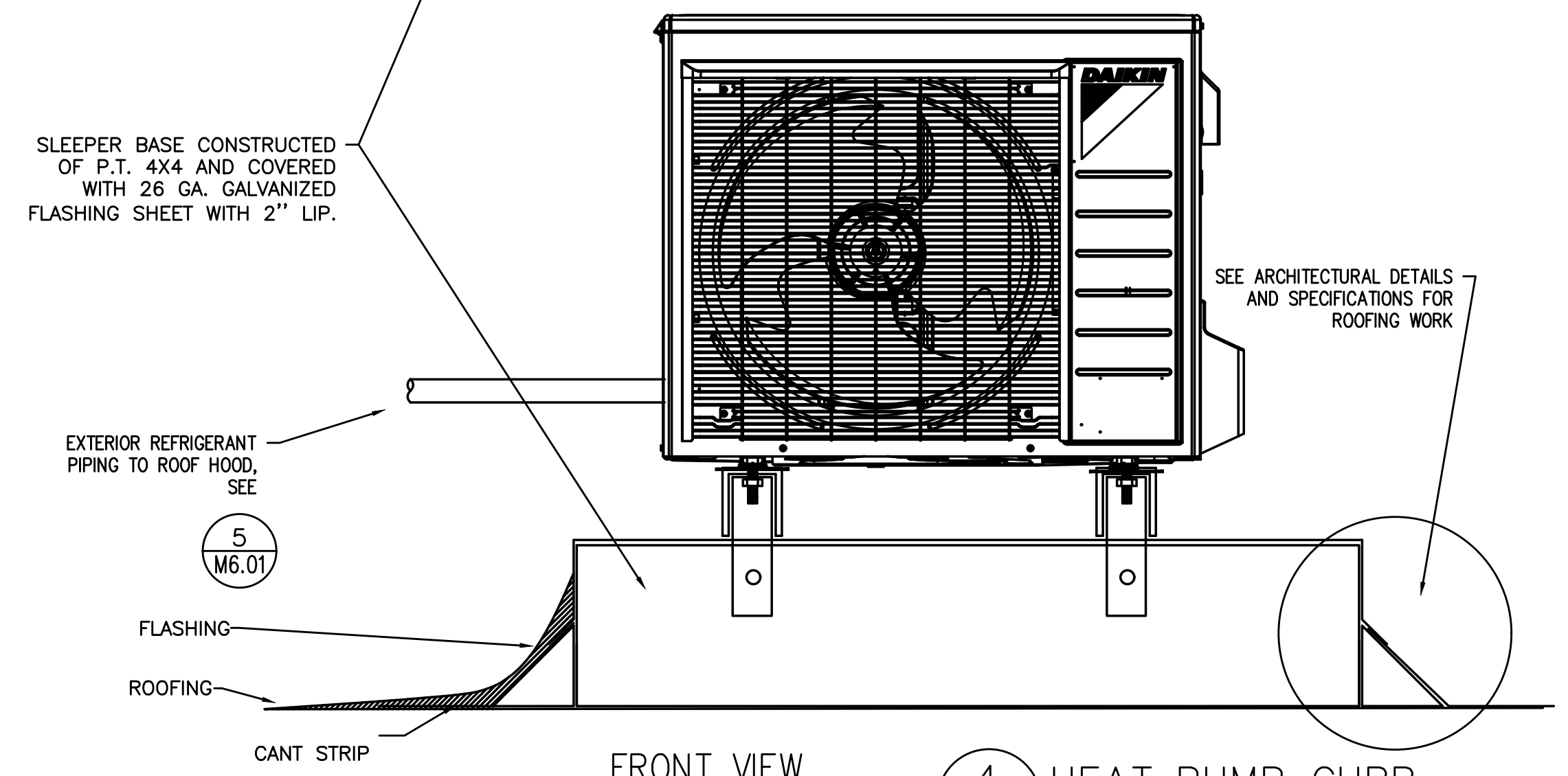
3 ROOF GREASE EXH FAN  
M6.01 SCALE: DETAIL



5 REFRIGERANT ROOF PENETRATIONS  
M6.01 DETAIL

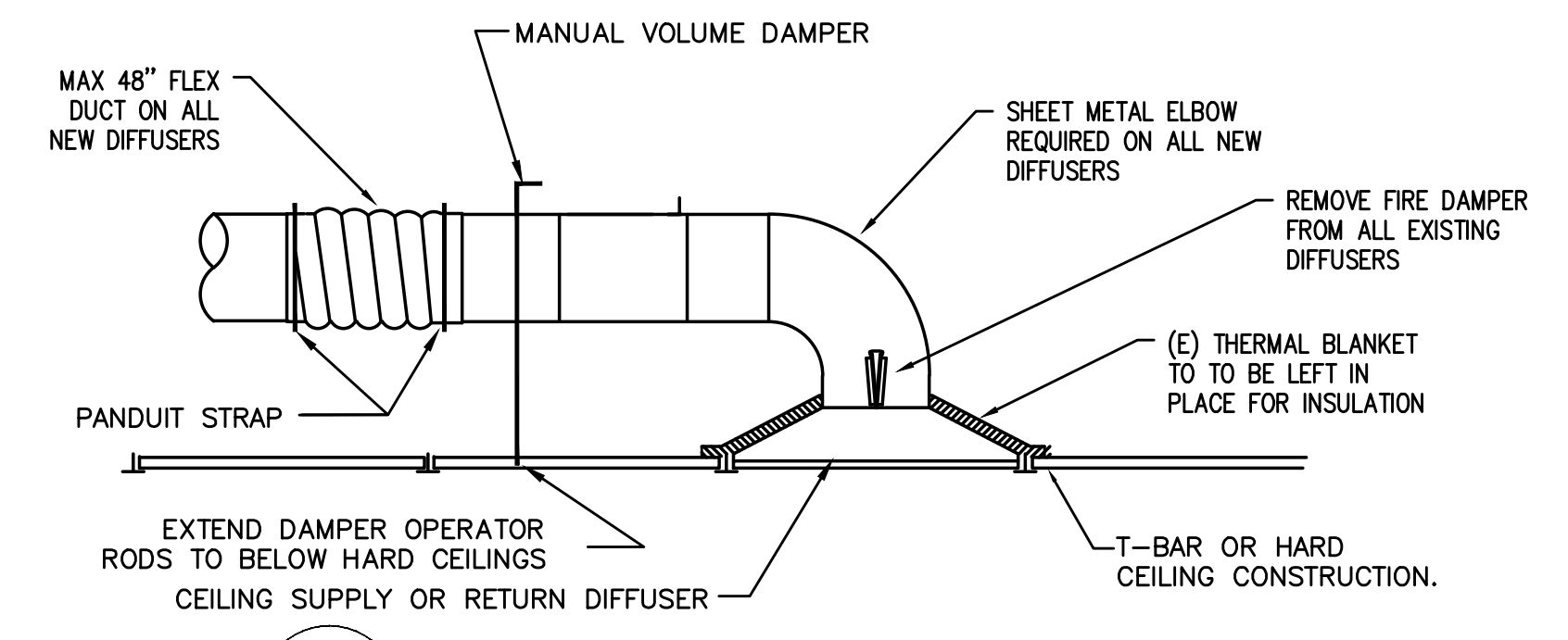


END VIEW

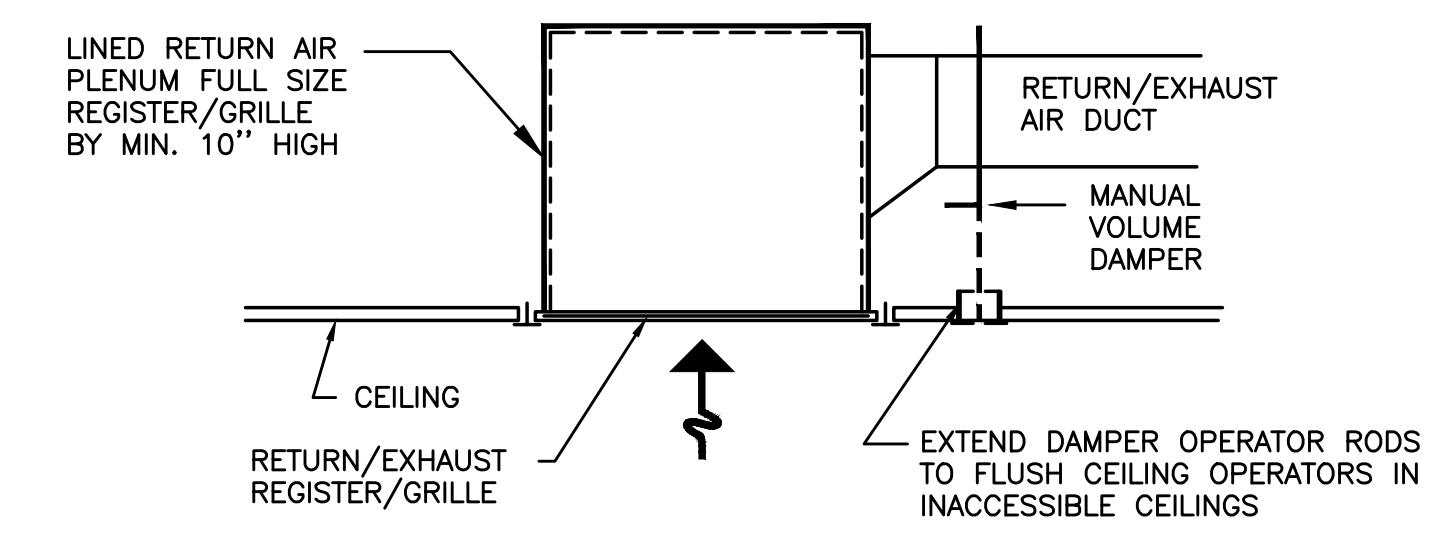


FRONT VIEW

4 HEAT PUMP CURB  
M6.01 DETAIL



6 CEILING DIFFUSER  
M6.01 DETAIL



7 CEILING DIFFUSER  
M6.01 DETAIL

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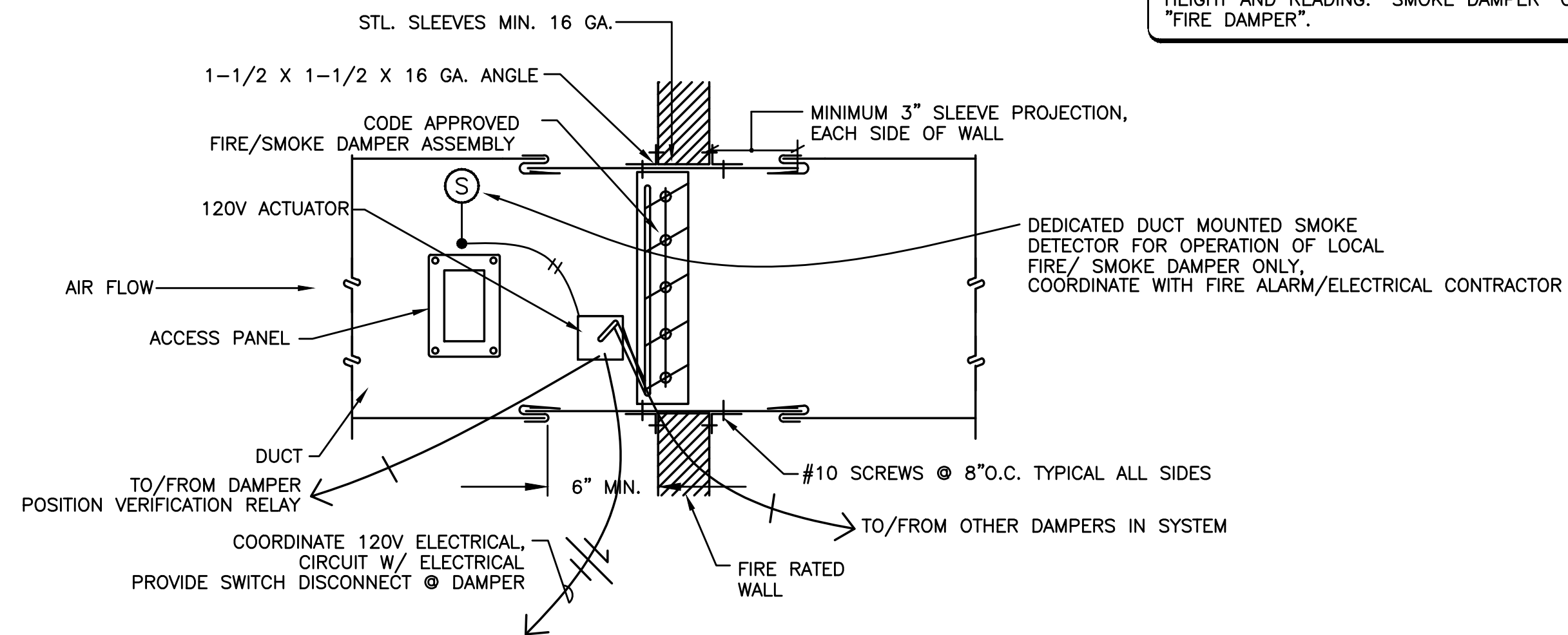
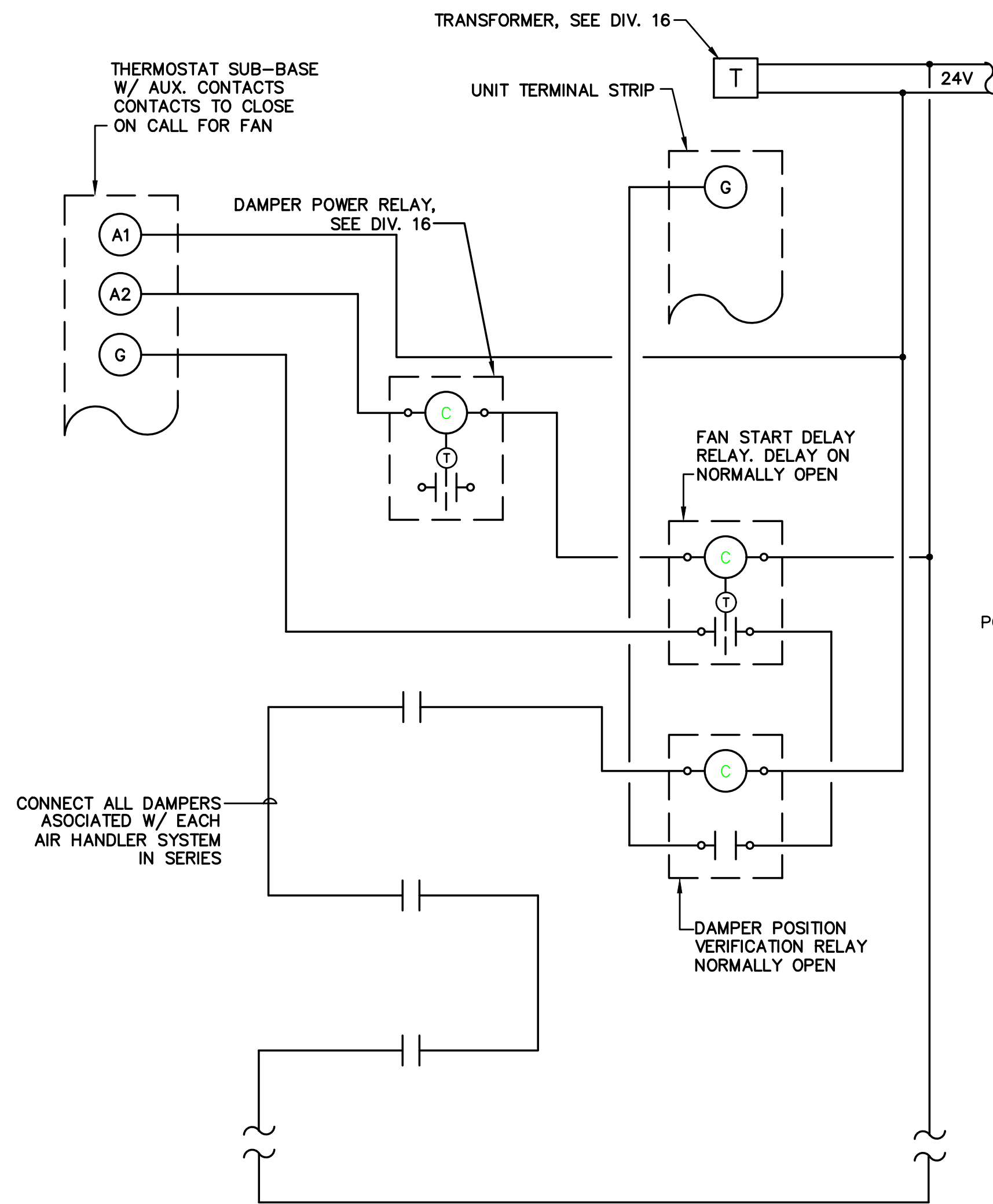
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MECHANICAL DETAILS

M6.01

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

**NOTE:**

PROVIDE ALL REQUIRED CONTROL WIRING TO ACCOMPLISH:

**FIRE/SMOKE DAMPER** - FIRE/SMOKE DAMPER TO CLOSE UPON ACTIVATION OF LOCAL SMOKE DETECTOR AND SHUT DOWN ASSOCIATED UNIT

**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.

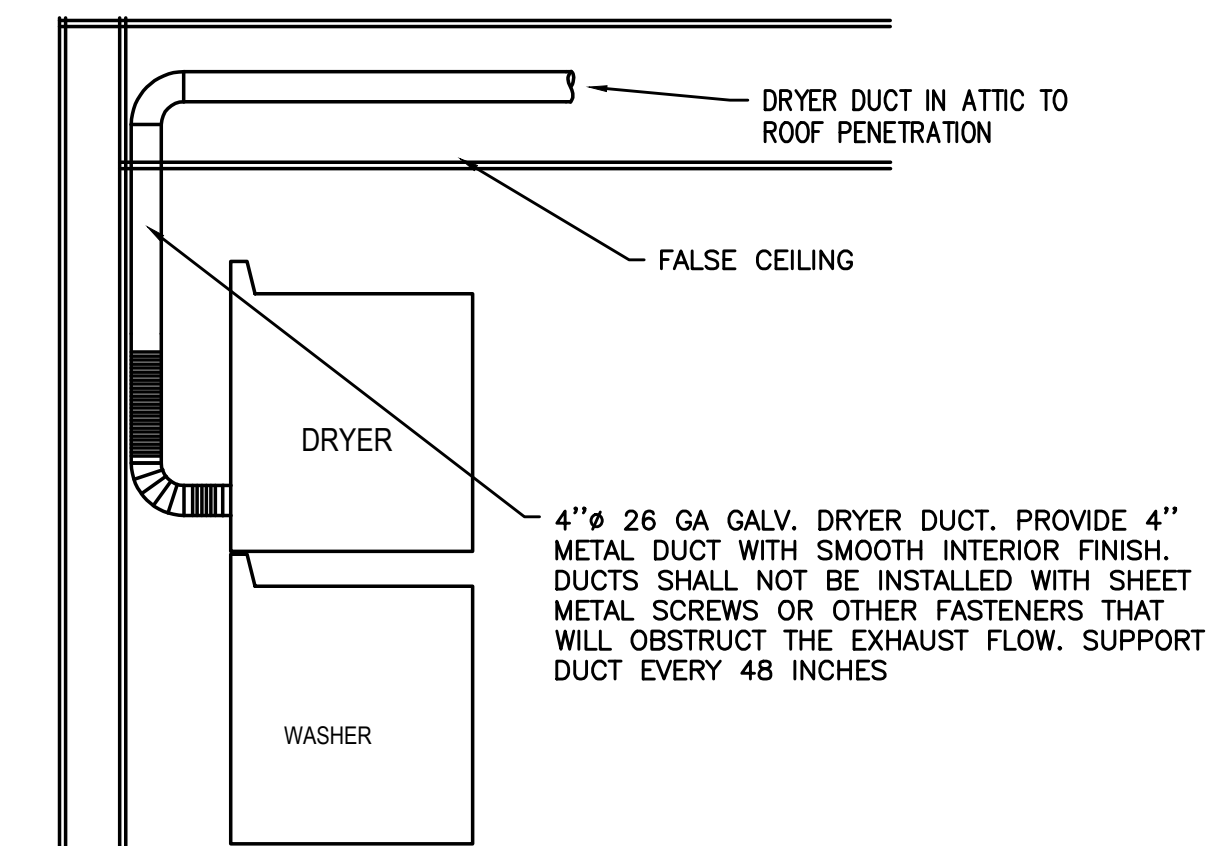
**GENERAL NOTES:**

PROVIDE ACCESS IN CEILING OR WALL FOR DAMPER AND SMOKE DETECTOR

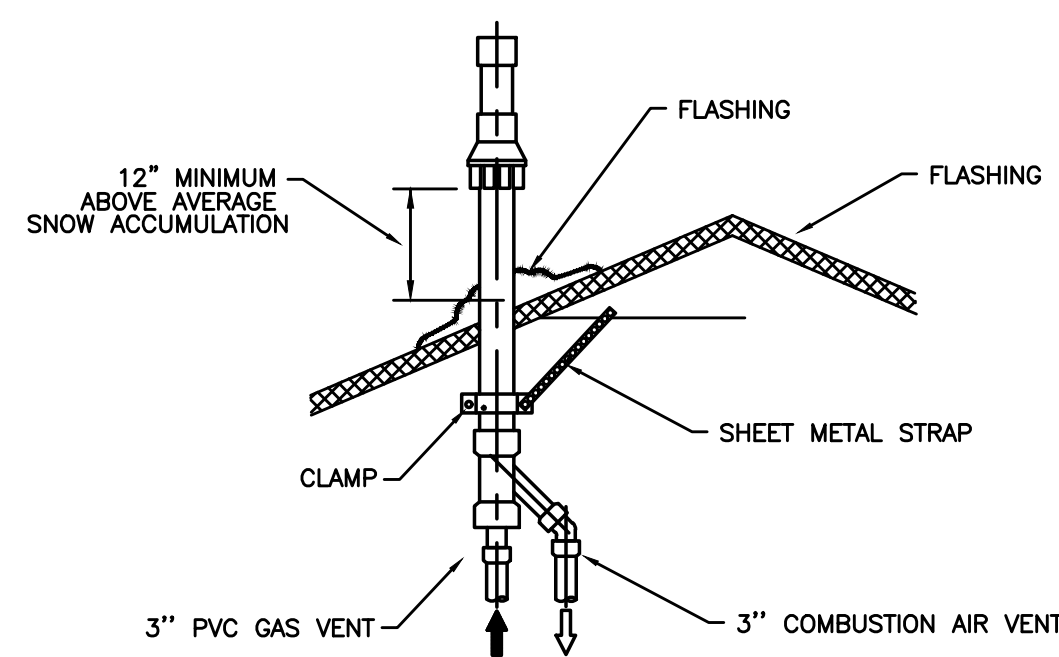
SEE ELECTRICAL DRAWINGS FOR WIRING INSTALLATION

**DRYER DUCT LABEL**

PROVIDE PERMANENT LABEL WITHIN 6' OF DRYER STATING THE EQUIVALENT LENGTH OF THE INSTALLED DRYER DUCT



3 TYPICAL DRYER INSTALLATION  
M6.02 NOT TO SCALE



2 CONCENTRIC SLOPED ROOF TERMINATION  
M6.02 DETAIL

**RVL28**  
Low-Profile Roof Vent

**Technical Data Sheet**

**FEATURES & BENEFITS**

- Enhances aesthetics with low profile that blends in with roof.
- Maximize inventory turns with single hood size and separate 4 to 8 inch easy snap-in adapters.
- Excellent for areas with high wind.
- Eliminates leaky joints and maximizes water protection with one-piece, molded hood.
- Oversized flange ensures watertight installation.
- Long lasting durability with UV-protected, impact resistant polymer resin.
- Intake/exhaust conversion via removable damper.
- \* For dryer applications use 'no screen' (NS) model.

**PRODUCT DIMENSIONS**

HOOD SIZE: H: 10" / W: 10.6" / D: 4.6"

**COLOURS**

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

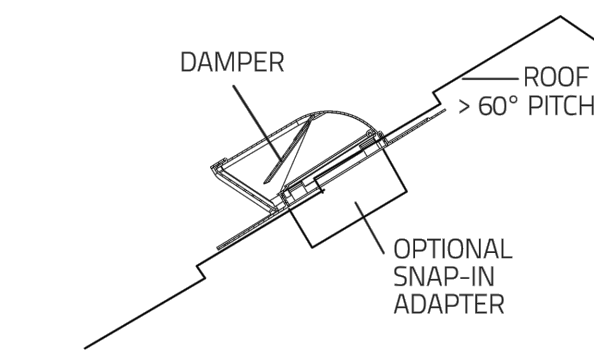
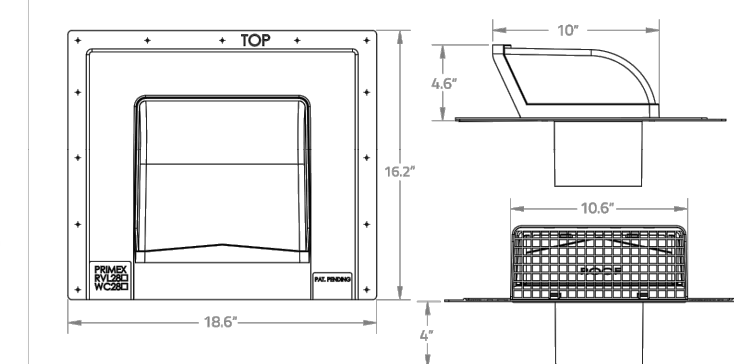
**APPLICATIONS**

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

**PART NUMBER/SIZING**

Part #	Size	Free Area	Description	Pkg
RVL28	7.5" x 7.25" x 9.38"	27.8 sq. in.	With screen	6/box
RVL28NS*	7.5" x 7.25" x 9.38"	40.3 sq. in.	w/o screen	6/box
<b>ADAPTER</b>				
RV28-4	4" Dia.	12.6 sq. in.	4" Adapter	30/box
RV28-5	5" Dia.	19.6 sq. in.	5" Adapter	30/box
RV28-4	4" Dia.	27.8 sq. in.	28.3 NS 4" Adapter	25/box
RV28-7	7" Dia.	27.8 sq. in.	38.5 NS 7" Adapter	25/box
RV28-8	8" Dia.	27.8 sq. in.	40.3 NS 8" Adapter	18/box

**TECHNICAL DRAWING**



4 LOW PROFILE ROOF PENETRATION  
M6.02 NOT TO SCALE

CONTACT US FOR MORE INFORMATION:  
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1/18



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