

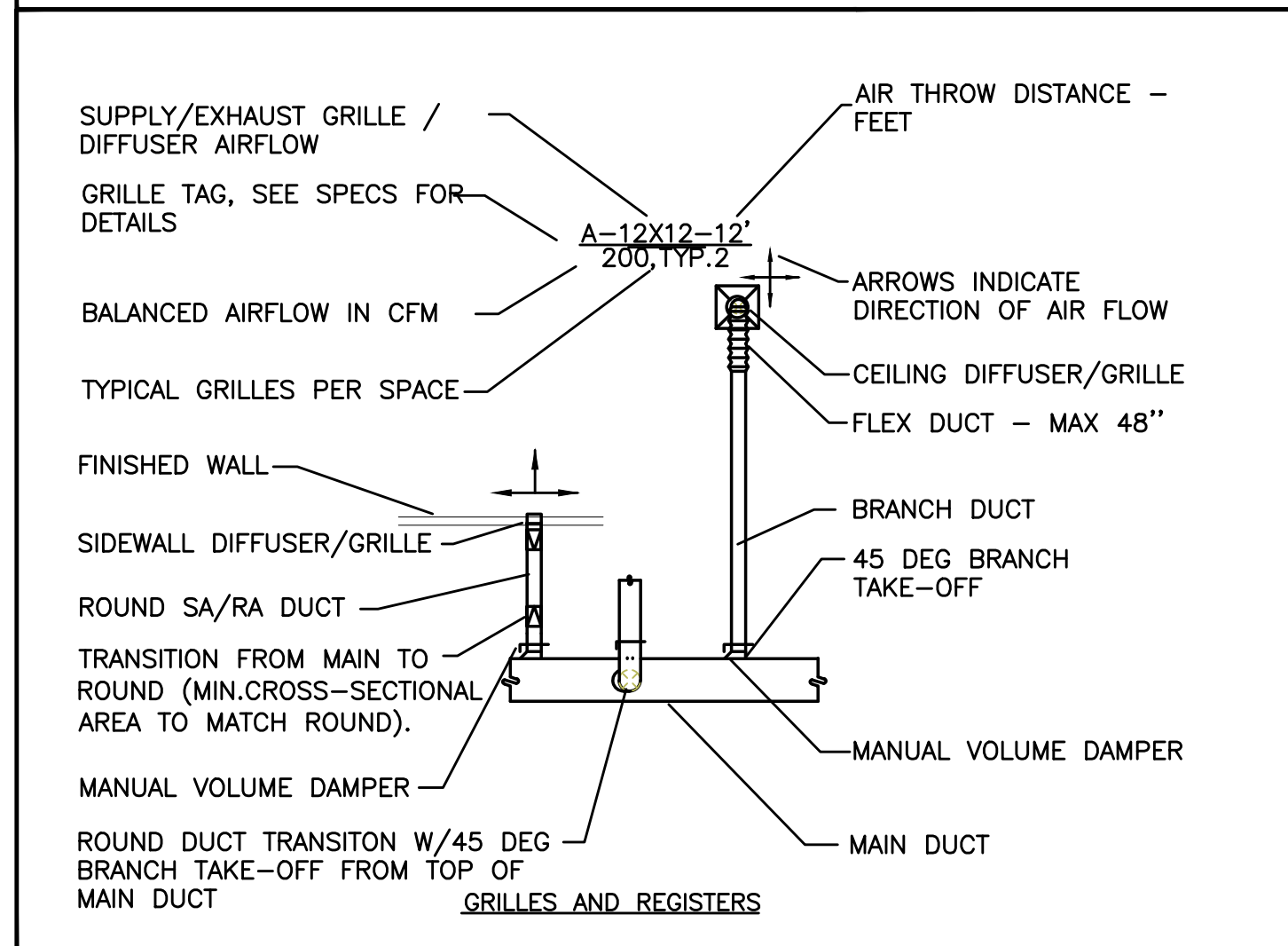
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M2.02B LEVEL 2 MECH PLAN ZONE B
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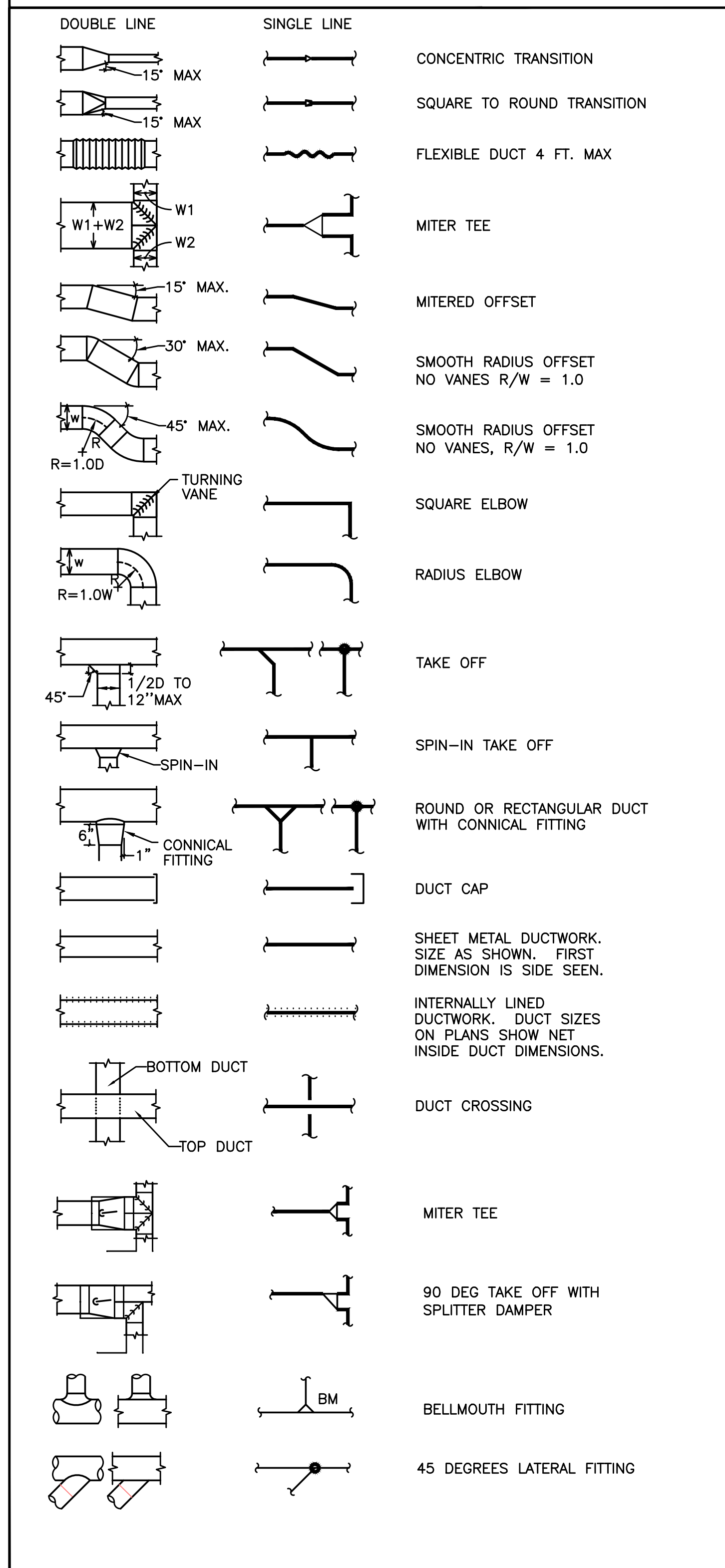
MECHANICAL LEGEND

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

AIR DISTRIBUTION DETAILS



AIR DISTRIBUTION DETAILS



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 PRE-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 UNIT - HALLWAY VENTILATION
4. SPLIT SYSTEM FAN COILS
5. PTHP'S (SAMPLE SELECTION).
6. DWELLING UNIT EXHAUST FANS (SAMPLE SELECTION).
7. LIGHTING CONTROL SYSTEMS
8. OCCUPANCY SENSORS
9. EMERGENCY POWER SYSTEMS (GENERATOR)
10. THERMOSTAT OPERATIONS AND SET POINTS
11. FIRE PIT 7 BBQ TIMERS AND AUTO-SHUT OFF
12. FIRE PUMP AND DOMESTIC WATER BOOSTER PUMP.

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 2' of duct work connected to a heater or exhaust termination.
B. Insulation Thickness: Select board and blanket insulation of thickness required to provide the following installed R-value.
1. All heating and 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-5.
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 Gramrod 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.

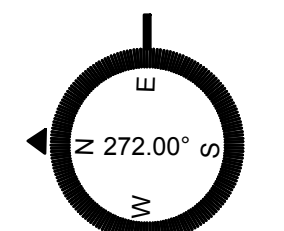
FIRE PENETRATION REQUIREMENTS FOR DUCTS:

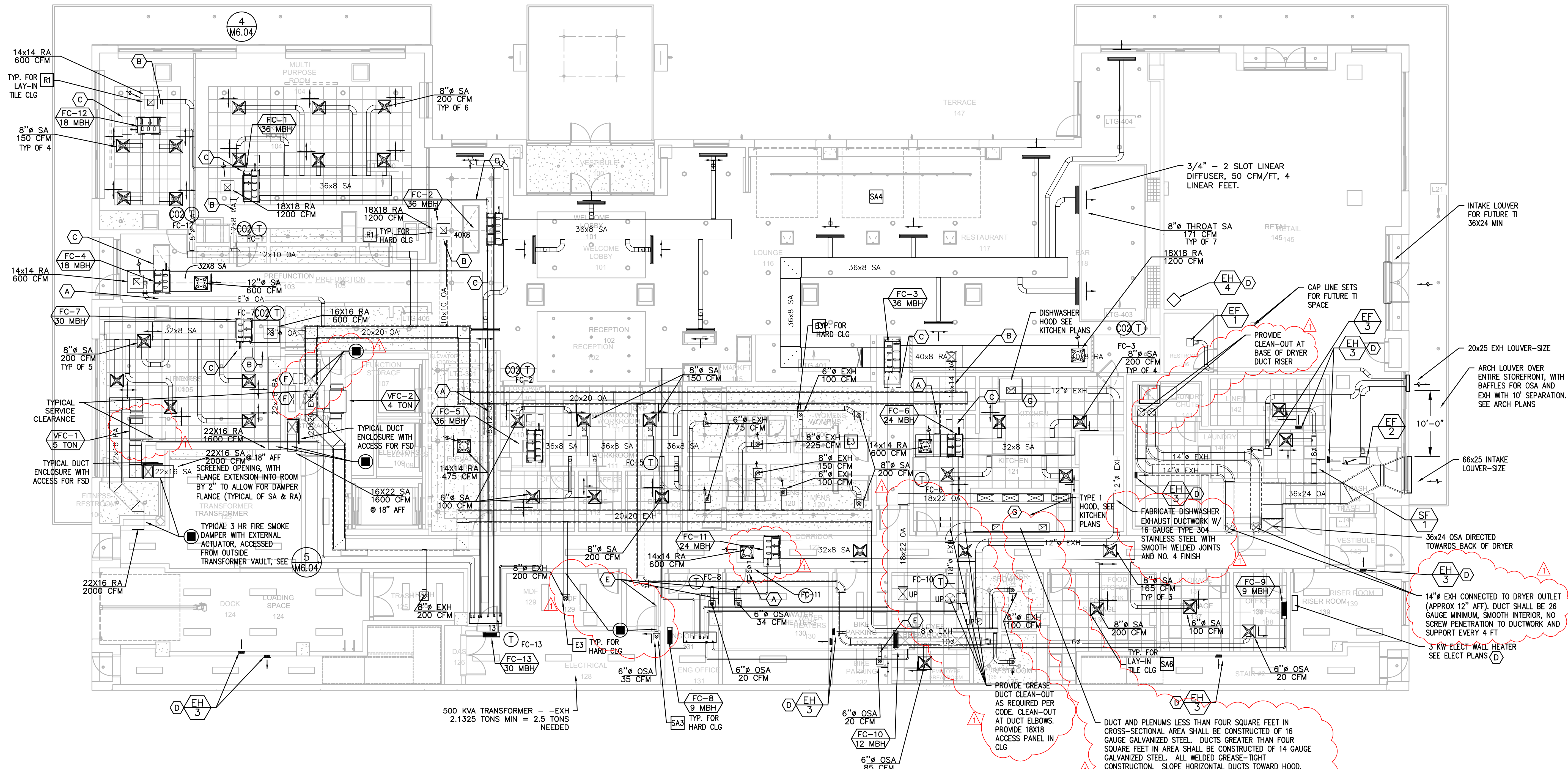
2019 OMSC (OREGON MECHANICAL SPECIALTY CODE) & 2019 OSSC (OREGON STRUCTURAL SPECIALTY CODE)
CODE SECTIONS -SPECIFIC REQUIREMENTS, EXCEPTIONS AND DESIGN APPROACH REQUIREMENTS.
SECTION 607.6 - HORIZONTAL ASSEMBLIES
PENETRATIONS BY DUCTS OF A FLOOR/CEILING OR ROOF/CEILING ASSEMBLY SHALL BE PROTECTED BY A SHAFY ENCLOSURE THAT COMPLIES WITH SECTIONS 713.3, 712.6.1 THROUGH 712.6.3 (OSSC) (SEE BELOW FOR VERTICAL ASSEMBLIES) OR VERTICAL FIRE PARTITIONS - THIS WILL APPLY TO ALL DUCTS THAT ARE ROUTED UP IN A RATED SHAFT).
OR
SECTIONS 607.6.1 THROUGH 607.6.3 THROUGH PENETRATIONS OF NOT MORE THAN TWO FLOORS TO BE PROTECTED WITH EITHER LISTED FIRE DAMPER OR A THROUGH PENETRATION PER SECTION 714.5
EXCEPTIONS: DUCTS PERMITTED TO PENETRATE THREE FLOORS OR LESS IF ALL 5 EXCEPTIONS ARE MET UNDER SECTION 607.6.1.
SECTION 607.5.5 SHAFT ENCLOSURES - PENETRATIONS ARE PERMITTED BY DUCTS WITH A LISTED FIRE AND SMOKE DAMPER OR
EXCEPTIONS: (THE FOLLOWING EXCEPTIONS ARE USED IN PART OR IN WHOLE ON THIS PROJECT)
1. FIRE DAMPERS ARE NOT REQUIRED FOR ANY OF THE FOLLOWING
1.1 STEEL EXHAUST SUBDUCTS ARE EXTENDED NOT LESS THAN 22 INCHES ON A SUBDUCT SYSTEM WITH CONTINUOUS FLOW
1.2 PENETRATIONS ARE TESTED IN ACCORDANCE WITH ASTM E119 OR UL263 (SEE ATTACHED CUT SHEETS ON UL PENETRATION DETAILS).
2. GROUP R OCCUPANCIES USING A SUB DUCT SYSTEM AS NOTED ABOVE.
3. SMOKE DAMPERS ARE NOT REQUIRED AT PENETRATIONS OF EXHAUST SHAFTS IN PARKING GARAGES WHEN SHAFTS ARE SEPARATED FROM OTHER SHAFTS BY NOT LESS THAN A 2 HOUR RATING.
4. FIRE OR FIRE SMOKE DAMPERS ARE NOT REQUIRED IN KITCHEN OR CLOTHES DRYER EXHAUST SYSTEMS.
OSSC
SECTION 713.8 PENETRATIONS.
PENETRATIONS IN A SHAFT ENCLOSURE SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 714.5 AS REQUIRED FOR FIRE BARRIERS.
SECTION 714.2 A LISTED PENETRATION FIRESTOP SYSTEM SHALL BE INSTALLED.
SECTION 714.4.1 THROUGH PENETRATIONS
EXCEPTIONS #2
THE MATERIAL USED TO FILL THE ANNULAR SPACE SHALL PREVENT THE PASSAGE OF FLAME AND HOT GASSES SUFFICIENT TO IGNITE COTTON WASTE WHEN SUBJECTED TO ASTM E119 OR UL 263.
SECTION 714.4.1.2 THROUGH PENETRATION FIRE STOP SYSTEM
THROUGH PENETRATIONS SHALL BE PROTECTED BY AN APPROVED PENETRATION FIRE STOP SYSTEM INSTALLED AS TESTED IN ACCORDANCE WITH ASTM E814 OR UL1479 (ASSEMBLY TEST) AND SHALL HAVE A F RATING NOT LESS THAN THE REQUIRED FIRE RESISTIVE RATING OF THE WALL PENETRATING.
DUCT CONSTRUCTION AND ROUTING:
• UNLESS PROJECT EXPLICITLY USES A SUB DUCT SYSTEM, SERVED BY ROOF FANS ON A BACK UP POWER SUPPLY, ALL DUCTS ARE ROUTED INDIVIDUALLY TO SIDEWALL OR ROOF TERMINATIONS WITH NO INTER-CONNECTIONS OF DUCT WORK.
• ALL DUCTWORK IS CONSTRUCTED PER OSMC AND PER SMACNA STANDARDS PER THE REQUIRED PRESSURE CLASSES. ALL DUCTWORK WILL BE SEALED TO BE AIR-TIGHT AND WILL NO ALLOW TRANSFER OF SMOKE BETWEEN UNITS OR TO LEAK SMOKE INTO SHAFTS.
BUILDING CONSTRUCTION - FIRE RATED WALLS AND RATED SHAFTS:
• SEE ARCHITECTURAL LIFE SAFETY PLANS FOR RATED WALLS AND SHAFTS
• SEE ARCHITECTURAL WALL SECTION DETAILS AND SHAFT WALL CONSTRUCTION DETAILS FOR REQUIRED FIRE RATINGS AND CONSTRUCTION METHODS.
• PROVIDE A UL LISTED FIRE STOP SYSTEM TO MATCH DUCT CONSTRUCTION AND WALL OR FLOOR CEILING CONSTRUCTION TO ENSURE COMPLIANCE WITH ASTM E119 AND UL 263 STANDARDS - WHICH IS DEMONSTRATED BY THE USE OF UL CONSTRUCTION METHODS COMPLYING WITH ASTM E814 OR UL1479.

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 (OEESC)-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 RATINGS 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

07/21/2022





- PLAN NOTES:**
- (A) — 2-POSITION OUTSIDE AIR DAMPER TO OPEN WHENEVER UNIT OPERATES (PROVIDE CAR DAMPER SET TO OSA CFM LISTED ON VENTILATION SCHEDULE. SEE M6.04)
 - (B) — MOTORIZED OUTSIDE AIR DAMPER TO MODULATE IN RESPONSE TO CO2 SENSORS. MODULATE BETWEEN 10% OF OSA TO 100% OF OSA (SEE VENTILATION SCHEDULE) IN RESPONSE TO CO2 LEVELS RISING BETWEEN 650 PPM AND 1000 PPM (PROVIDE CAR DAMPER TO LIMIT FLOW TO MAX OUTSIDE AIR LISTED ON VENTILATION SCHEDULE. SEE M6.04)
 - (C) — TYPICAL FAN COIL ACCESS PANEL TO ALLOW FOR FULL MAINTENANCE ACCESS AND FULL REMOVAL OF FAN COIL. DISCONNECT SWITCH TO BE LOCATED WITHIN REACH OF ACCESS PANEL. SEE ARCHITECTS RCP PLANS FOR ALL ACCESS PLAN LOCATIONS.
 - (D) — ELECT WALL HEATER BY ELECTRICAL CONTRACTOR, SHOWN FOR REFERENCE SIZE LISTED ON THE PLANS
 - (E) — PROVIDE CAR DAMPER, SEE DETAIL 5/M6.03.
 - (F) — 18X18 FSD ACCESS PANEL
 - (G) — SEE KITCHEN VENDOR DRAWINGS INCLUDED IN THE ARCHITECTURAL SET, KITCHEN VENDOR DRAWINGS SPECIFY TYPE 1 HOODS, DISHWASHER HOODS, MAKE UP AIR SYSTEMS, GREASE FANS, DISHWASHER HOOD FANS, COOLER CONDENSING UNITS AND ALL REQUIRED MOUNTING AND ATTACHMENT DETAILS. SEE ALSO STRUCTURAL DRAWINGS FOR ALL ROOF STRUCTURAL ATTACHMENT DETAILS.
 - (H) — SEE SHEET A117 FOR THE DELEGATED DESIGN OF THE ROOF RAIL SYSTEM INCLUDED IN THE ARCHITECTURAL SET FOR CONDENSING UNIT SUPPORTS. RAIL SYSTEM IS VENDOR DESIGNED AND INCLUDES ALL STRUCTURAL AND SEISMIC ANCHOR DETAILS. SEE STRUCTURAL DRAWINGS FOR ALL ROOF STRUCTURAL ATTACHMENT DETAILS. RAIL SYSTEM IS DESIGNED SUCH THAT CONDENSING UNITS ARE BOLTED TO ROOF RAIL SYSTEM PER CONDENSING UNIT MANUFACTURE REQUIREMENTS. THIS ITEM WILL BE A DEFERRED SUBMITTAL.

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

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07/21/2022

REGISTERED PROFESSIONAL ENGINEER
 54.607
 OREGON
 JULY 11, 2000
 MARK R. DENVER
 EXPIRES: 31DEC23

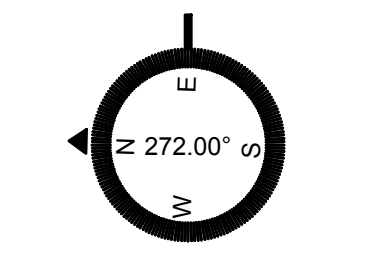
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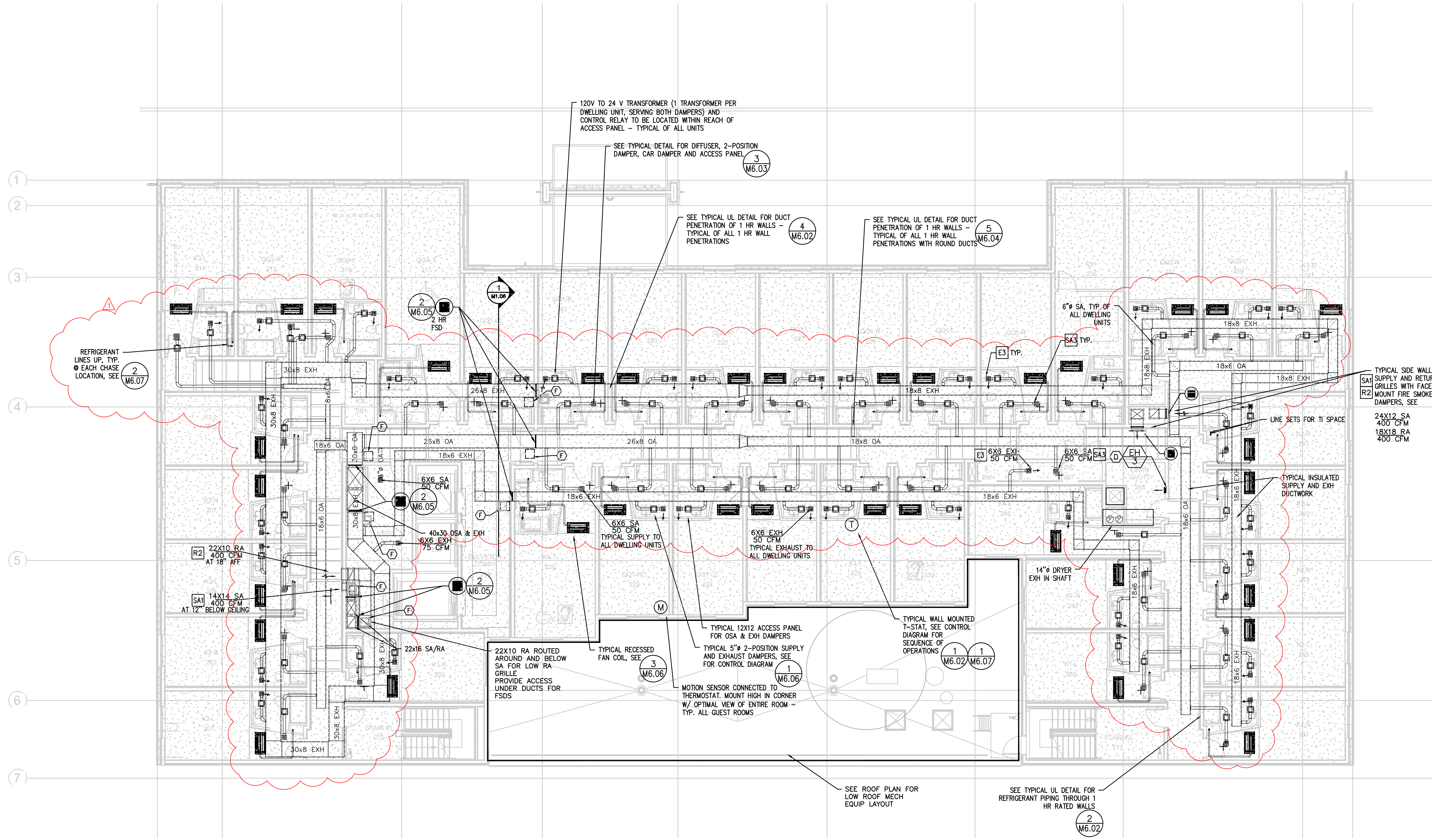
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MECHANICAL PLAN LEVEL 1
 M101

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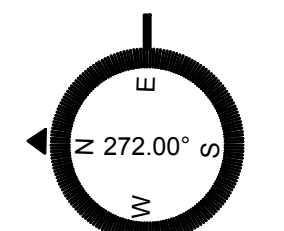
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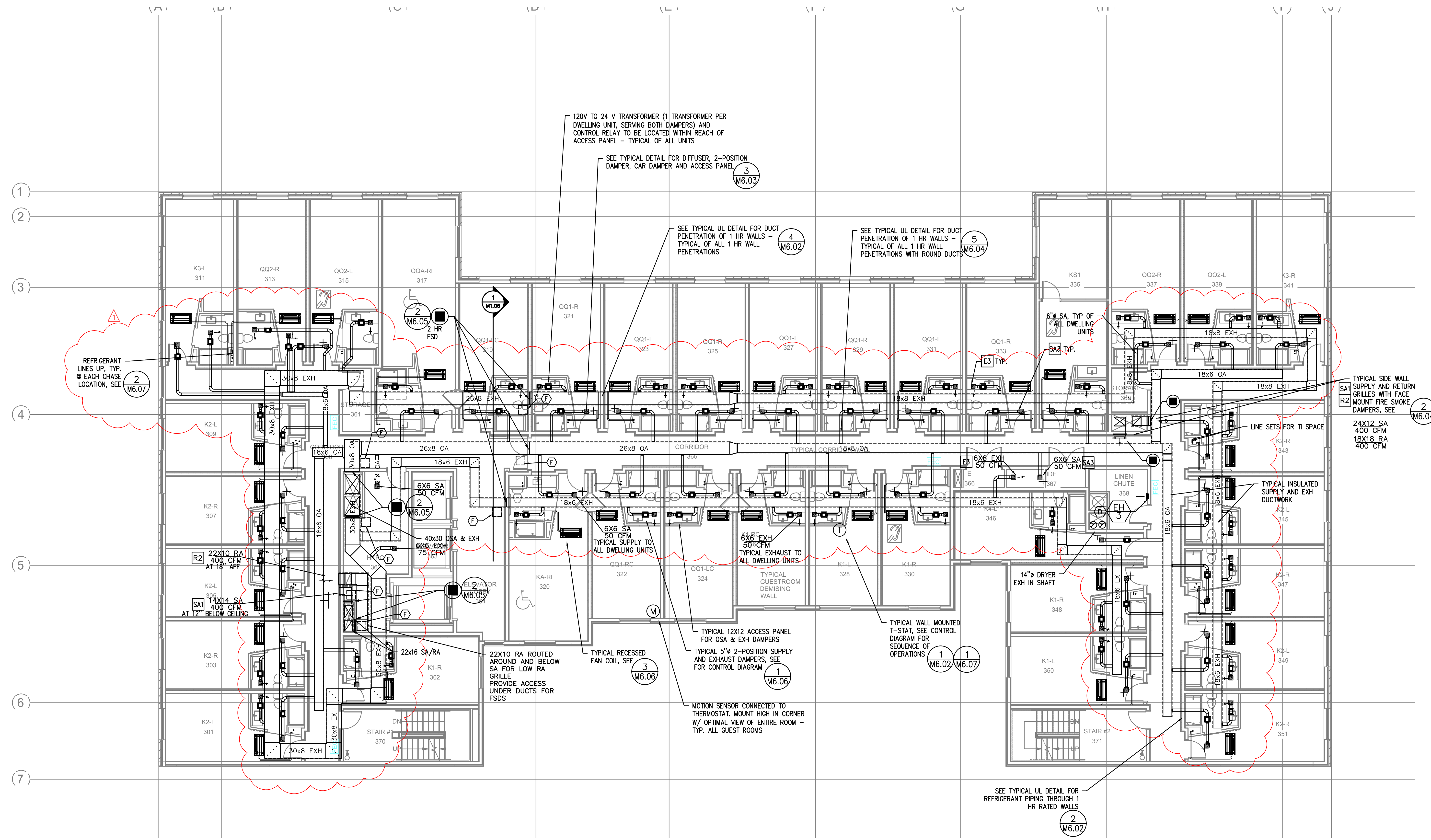


MECHANICAL PLAN
LEVEL 2
M102

PLAN NOTES:

- (A) 2-POSITION OUTSIDE AIR DAMPER TO OPEN WHENEVER UNIT OPERATES (PROVIDE CAR DAMPER SET TO OSA CFM LISTED ON VENTILATION SCHEDULE. SEE (M6.07)
- (B) MOTORIZED OUTSIDE AIR DAMPER TO MODULATE IN RESPONSE TO CO2 SENSORS. MODULATE BETWEEN 10% OF OSA TO 100% OF OSA (SEE VENTILATION SCHEDULE) IN RESPONSE TO CO2 LEVELS RISING BETWEEN 650 PPM AND 1000 PPM (PROVIDE CAR DAMPER TO LIMIT FLOW TO MAX OUTSIDE AIR LISTED ON VENTILATION SCHEDULE. SEE (M6.04)
- (C) TYPICAL FAN COIL ACCESS PANEL TO ALLOW FOR FULL MAINTENANCE ACCESS AND FULL REMOVAL OF FAN COIL. DISCONNECT SWITCH TO BE LOCATED WITHIN REACH OF ACCESS PANEL. SEE ARCHITECTS ROP PLANS FOR ALL ACCESS PLAN LOCATIONS.
- (D) ELECT WALL HEATER BY ELECTRICAL CONTRACTOR, SHOWN FOR REFERENCE SIZE LISTED ON THE PLANS
- (E) PROVIDE CAR DAMPER. SEE DETAIL 5/M6.03.
- (F) 18X18 FSD ACCESS PANEL
- (G) SEE KITCHEN VENDOR DRAWINGS INCLUDED IN THE ARCHITECTURAL SET, KITCHEN VENDOR DRAWINGS SPECIFY TYPE 1 HOODS, DISHWASHER HOODS, MAKE UP AIR SYSTEMS, GREASE FANS, DISHWASHER HOOD FANS, COOLER CONDENSING UNITS AND ALL REQUIRED MOUNTING AND ATTACHMENT DETAILS. SEE ALSO STRUCTURAL DRAWINGS FOR ALL ROOF STRUCTURAL ATTACHMENT DETAILS.
- (H) SEE SHEET A117 FOR THE DELEGATED DESIGN OF THE ROOF RAIL SYSTEM INCLUDED IN THE ARCHITECTURAL SET FOR CONDENSING UNIT SUPPORTS. RAIL SYSTEM IS VENDOR DESIGNED AND INCLUDES ALL STRUCTURAL AND SEISMIC ANCHOR DETAILS. SEE STRUCTURAL DRAWINGS FOR ALL ROOF STRUCTURAL ATTACHMENT DETAILS. RAIL SYSTEM IS DESIGNED SUCH THAT CONDENSING UNITS ARE BOLTED TO ROOF RAIL SYSTEM PER CONDENSING UNIT MANUFACTURE REQUIREMENTS. THIS ITEM WILL BE A DEFERRED SUBMITTAL.

MECHANICAL PLAN LEVEL 2
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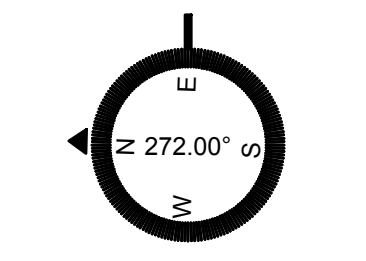
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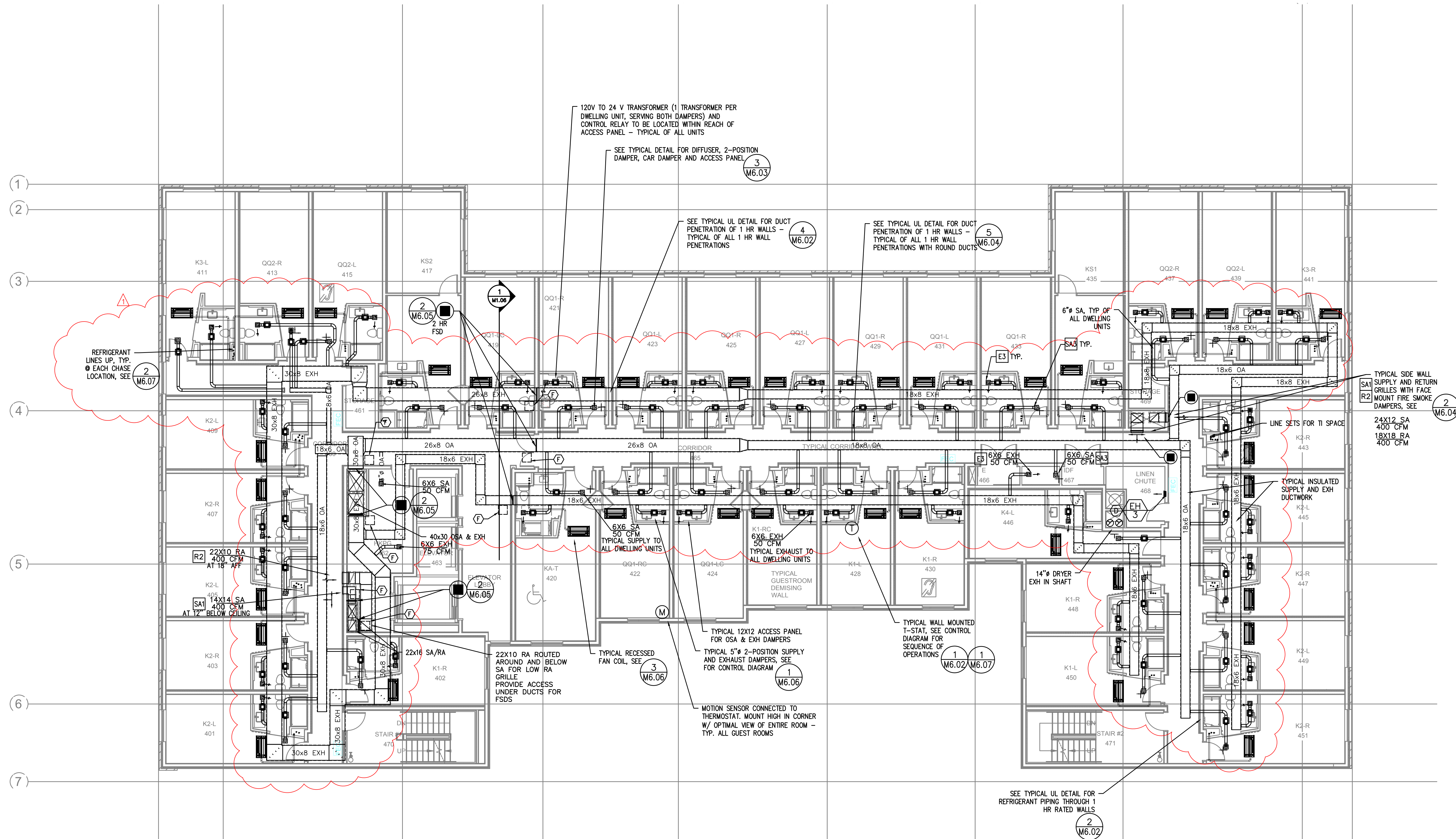
1 MECHANICAL PLAN LEVEL 3
M1.03 SCALE: 1/8" = 1'-0"

10/19/2022 BUILDING REVIEW COMMENTS
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MECHANICAL PLAN
LEVEL 3
M103

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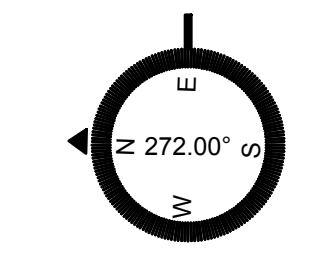
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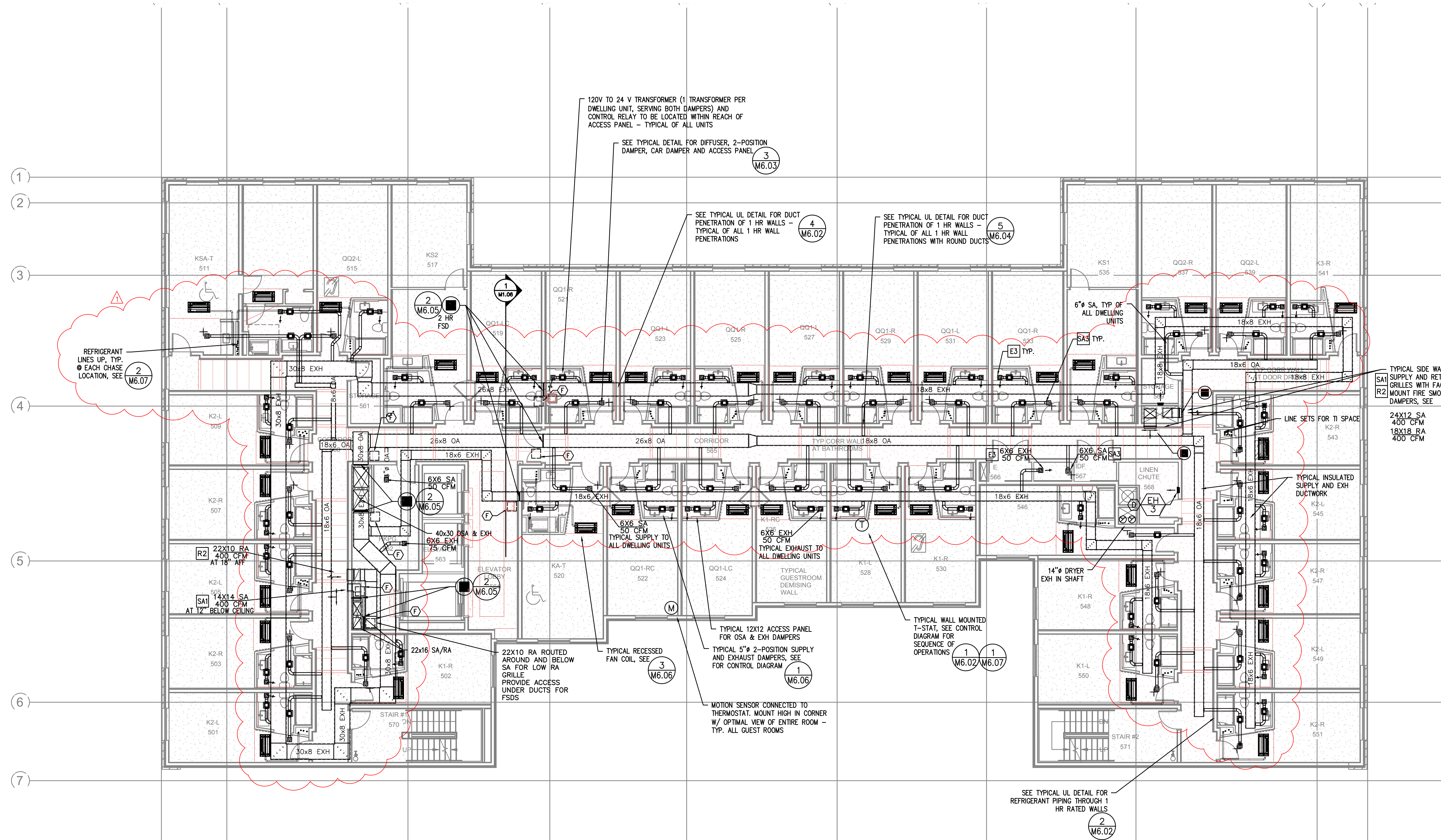
PLAN NOTES:

- (A) 2-POSITION OUTSIDE AIR DAMPER TO OPEN WHENEVER UNIT OPERATES (PROVIDE CAR DAMPER SET TO OSA CFM LISTED ON VENTILATION SCHEDULE. SEE 4 M6.01
- (B) MOTORIZED OUTSIDE AIR DAMPER TO MODULATE IN RESPONSE TO CO2 SENSORS. MODULATE BETWEEN 10% OF OSA TO 100% OF OSA (SEE VENTILATION SCHEDULE) IN RESPONSE TO CO2 LEVELS RISING BETWEEN 650 PPM AND 1000 PPM (PROVIDE CAR DAMPER TO LIMIT FLOW TO MAX OUTSIDE AIR LISTED ON VENTILATION SCHEDULE. SEE 4 M6.04
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- (H) SEE SHEET A117 FOR THE DELEGATED DESIGN OF THE ROOF RAIL SYSTEM INCLUDED IN THE ARCHITECTURAL SET FOR CONDENSING UNIT SUPPORTS. RAIL SYSTEM IS VENDOR DESIGNED AND INCLUDES ALL STRUCTURAL AND SEISMIC ANCHOR DETAILS. SEE STRUCTURAL DRAWINGS FOR ALL ROOF STRUCTURAL ATTACHMENT DETAILS. RAIL SYSTEM IS DESIGNED SUCH THAT CONDENSING UNITS ARE BOLTED TO ROOF RAIL SYSTEM PER CONDENSING UNIT MANUFACTURE REQUIREMENTS. THIS ITEM WILL BE A DEFERRED SUBMITTAL.

1 MECHANICAL PLAN LEVEL 4
SCALE: 1/8" = 1'-0"



MECHANICAL PLAN
LEVEL 4
M104



BASKERVILL, P.O. BOX 400, RICHMOND, VA 23218-0400

07/21/2022



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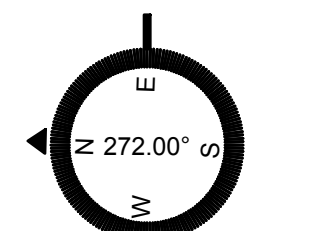
PROJECT NUMBER
2.210516.0

CAMBRIA PORTLAND
165 NW PARK AVENUE, PORTLAND, OR 97209

- PLAN NOTES:**
- (A) 2-POSITION OUTSIDE AIR DAMPER TO OPEN WHENEVER UNIT OPERATES (PROVIDE CAR DAMPER SET TO OSA CFM LISTED ON VENTILATION SCHEDULE. SEE 4 M6.07)
 - (B) MOTORIZED OUTSIDE AIR DAMPER TO MODULATE IN RESPONSE TO CO2 SENSORS. MODULATE BETWEEN 10% OF OSA TO 100% OF OSA (SEE VENTILATION SCHEDULE) IN RESPONSE TO CO2 LEVELS RISING BETWEEN 650 PPM AND 1000 PPM (PROVIDE CAR DAMPER TO LIMIT FLOW TO MAX OUTSIDE AIR LISTED ON VENTILATION SCHEDULE. SEE 4 M6.04)
 - (C) TYPICAL FAN COIL ACCESS PANEL TO ALLOW FOR FULL MAINTENANCE ACCESS AND FULL REMOVAL OF FAN COIL. DISCONNECT SWITCH TO BE LOCATED WITHIN REACH OF ACCESS PANEL. SEE ARCHITECTS ROP PLANS FOR ALL ACCESS PLAN LOCATIONS.
 - (D) ELECT WALL HEATER BY ELECTRICAL CONTRACTOR, SHOWN FOR REFERENCE SIZE LISTED ON THE PLANS
 - (E) PROVIDE CAR DAMPER, SEE DETAIL 5/M6.03.
 - (F) 18X18 FSD ACCESS PANEL
 - (G) SEE KITCHEN VENDOR DRAWINGS INCLUDED IN THE ARCHITECTURAL SET. KITCHEN VENDOR DRAWINGS SPECIFY TYPE 1 HOODS, DISHWASHER HOODS, MAKE UP AIR SYSTEMS, GREASE FANS, DISHWASHER HOOD FANS, COOLER CONDENSING UNITS AND ALL REQUIRED MOUNTING AND ATTACHMENT DETAILS. SEE ALSO STRUCTURAL DRAWINGS FOR ALL ROOF STRUCTURAL ATTACHMENT DETAILS.
 - (H) SEE SHEET A117 FOR THE DELEGATED DESIGN OF THE ROOF RAIL SYSTEM INCLUDED IN THE ARCHITECTURAL SET FOR CONDENSING UNIT SUPPORTS. RAIL SYSTEM IS VENDOR DESIGNED AND INCLUDES ALL STRUCTURAL AND SEISMIC ANCHOR DETAILS. SEE STRUCTURAL DRAWINGS FOR ALL ROOF STRUCTURAL ATTACHMENT DETAILS. RAIL SYSTEM IS DESIGNED SUCH THAT CONDENSING UNITS ARE BOLTED TO ROOF RAIL SYSTEM PER CONDENSING UNIT MANUFACTURE REQUIREMENTS. THIS ITEM WILL BE A DEFERRED SUBMITTAL.

1 M1.05 MECHANICAL PLAN LEVEL 5
SCALE: 1/8" = 1'-0"

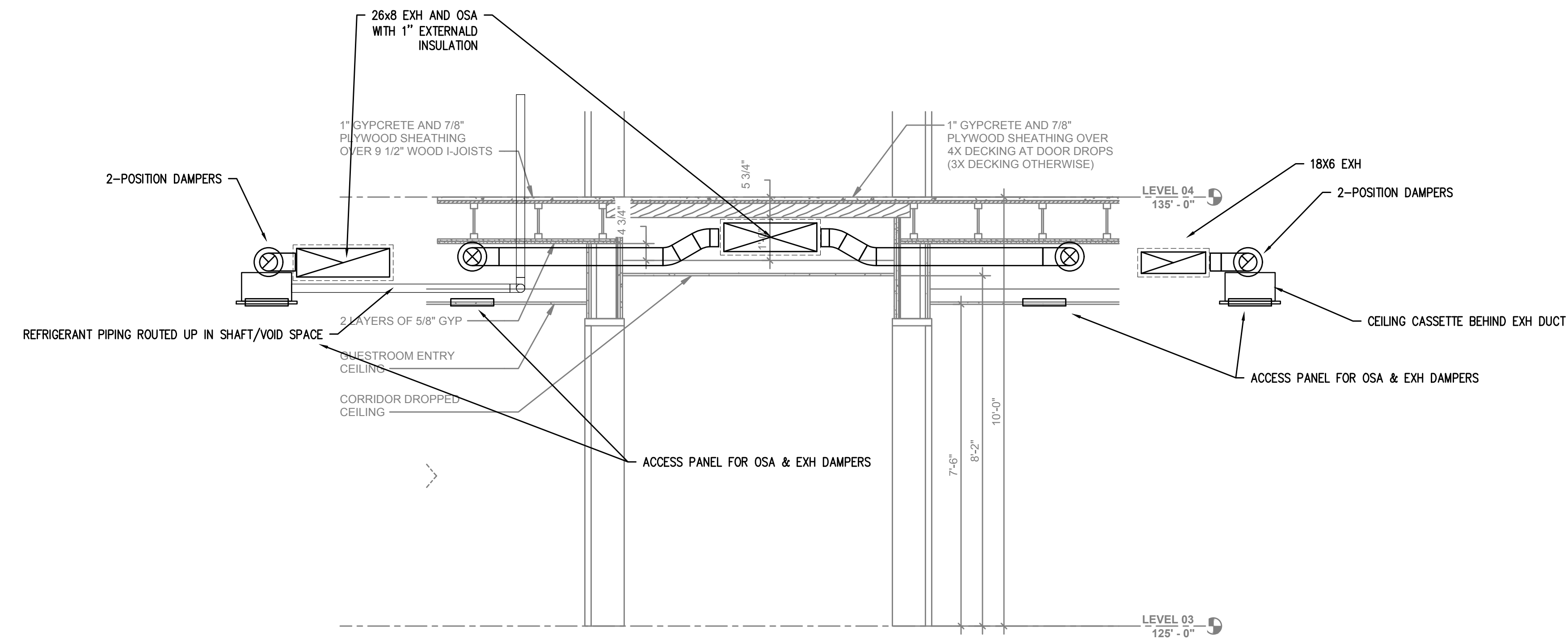
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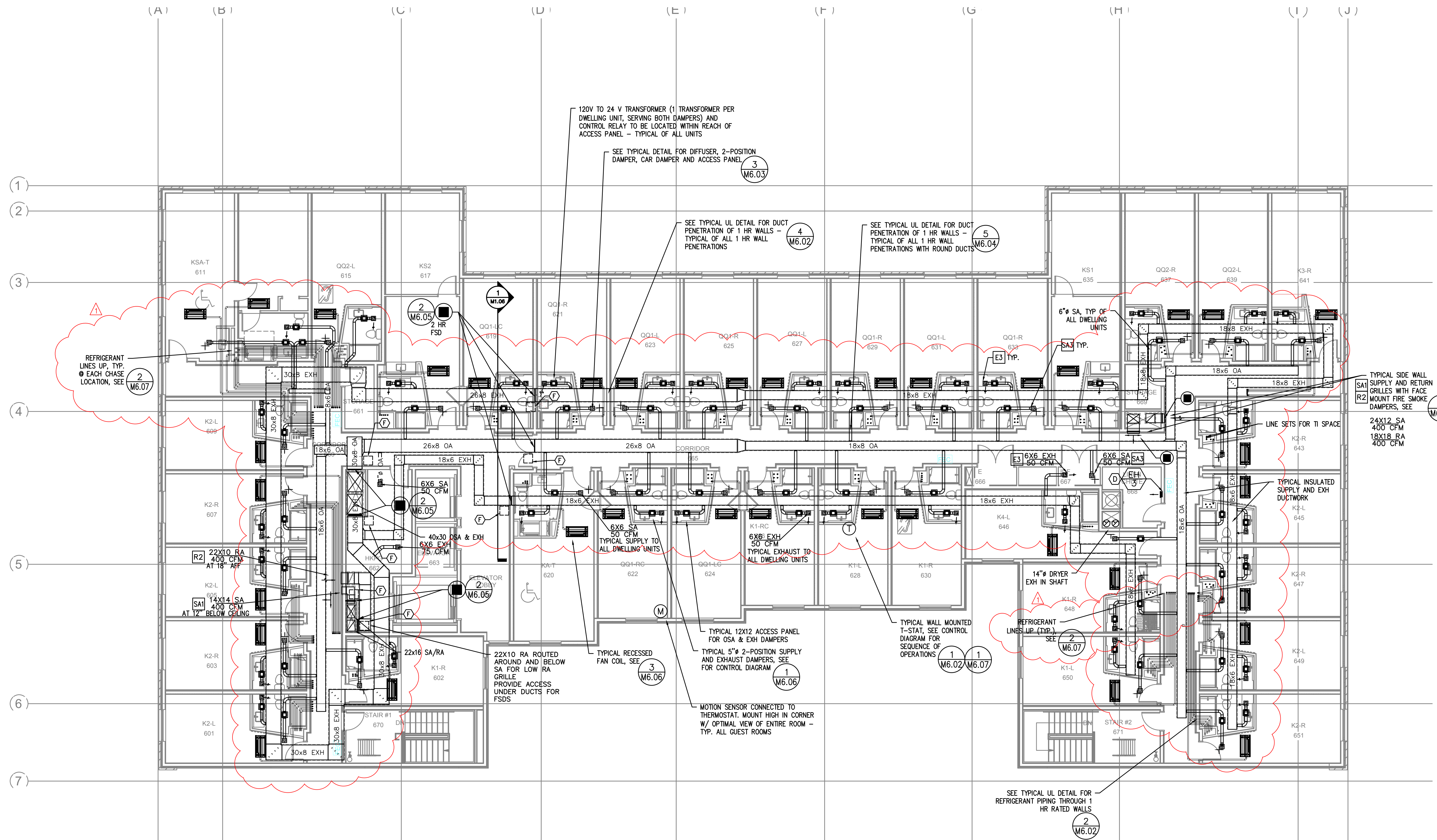
MECHANICAL PLAN
LEVEL 5
M105

P:\Projects_CAD\Cambria Hotel\Draws\Cambria_M105.dwg August 29 2022 4:09pm By:Jesse

- (B) MOTORIZED OUTSIDE AIR DAMPER TO MODULATE IN RESPONSE TO CO2 SENSORS. MODULATE BETWEEN 10% OF OSA TO 100% OF OSA (SEE VENTILATION SCHEDULE) IN RESPONSE TO CO2 LEVELS RISING BETWEEN 650 PPM AND 1000 PPM (PROVIDE CAR DAMPER TO LIMIT FLOW TO MAX OUTSIDE AIR LISTED ON VENTILATION SCHEDULE. SEE DETAIL 5/M6.03.)
- (C) TYPICAL FAN COIL ACCESS PANEL TO ALLOW FOR FULL MAINTENANCE ACCESS AND FULL REMOVAL OF FAN COIL. DISCONNECT SWITCH TO BE LOCATED WITHIN REACH OF ACCESS PANEL. SEE ARCHITECT'S ROP PLANS FOR ALL ACCESS PANEL LOCATIONS.
- (D) ELECT WALL HEATER BY ELECTRICAL CONTRACTOR, SHOWN FOR REFERENCE SIZE LISTED ON THE PLANS
- (E) PROVIDE CAR DAMPER, SEE DETAIL 5/M6.03.
- (F) 18X18 FSD ACCESS PANEL.
- (G) SEE KITCHEN VENDOR DRAWINGS INCLUDED IN THE ARCHITECTURAL SET, KITCHEN VENDOR DRAWINGS SPECIFY TYPE 1 HOODS, DISHWASHER HOODS, MAKE UP AIR SYSTEMS, GREASE FANS, DISHWASHER HOOD FANS, COOLER CONDENSING UNITS AND ALL REQUIRED MOUNTING AND ATTACHMENT DETAILS. SEE ALSO STRUCTURAL DRAWINGS FOR ALL ROOF STRUCTURAL ATTACHMENT DETAILS.
- (H) SEE SHEET A117 FOR THE DELEGATED DESIGN OF THE ROOF RAIL SYSTEM INCLUDED IN THE ARCHITECTURAL SET FOR CONDENSING UNIT SUPPORTS. RAIL SYSTEM IS VENDOR DESIGNED AND INCLUDES ALL STRUCTURAL AND SEISMIC ANCHOR DETAILS. SEE STRUCTURAL DRAWINGS FOR ALL ROOF STRUCTURAL ATTACHMENT DETAILS. RAIL SYSTEM IS DESIGNED SUCH THAT CONDENSING UNITS ARE BOLTED TO ROOF RAIL SYSTEM PER CONDENSING UNIT MANUFACTURE REQUIREMENTS. THIS ITEM WILL BE A DEFERRED SUBMITTAL.



2 TYPICAL HALLWAY SECTION
M1.06 SCALE: 1/2" = 1'-0"



PLAN NOTES:

- (A) 2-POSITION OUTSIDE AIR DAMPER TO OPEN WHENEVER UNIT OPERATES (PROVIDE CAR DAMPER SET TO OSA CFM LISTED ON VENTILATION SCHEDULE. SEE DETAIL 5/M6.03.)
- (4) 22X10 RA ROUTED AROUND AND BELOW SA FOR LOW RA GRILLE. PROVIDE ACCESS UNDER DUCTS FOR FSDS.

1 MECHANICAL PLAN LEVEL 6
M1.06 SCALE: 1/8" = 1'-0"

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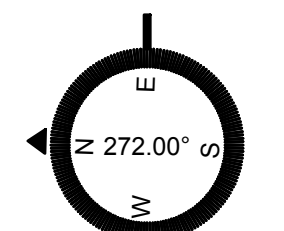


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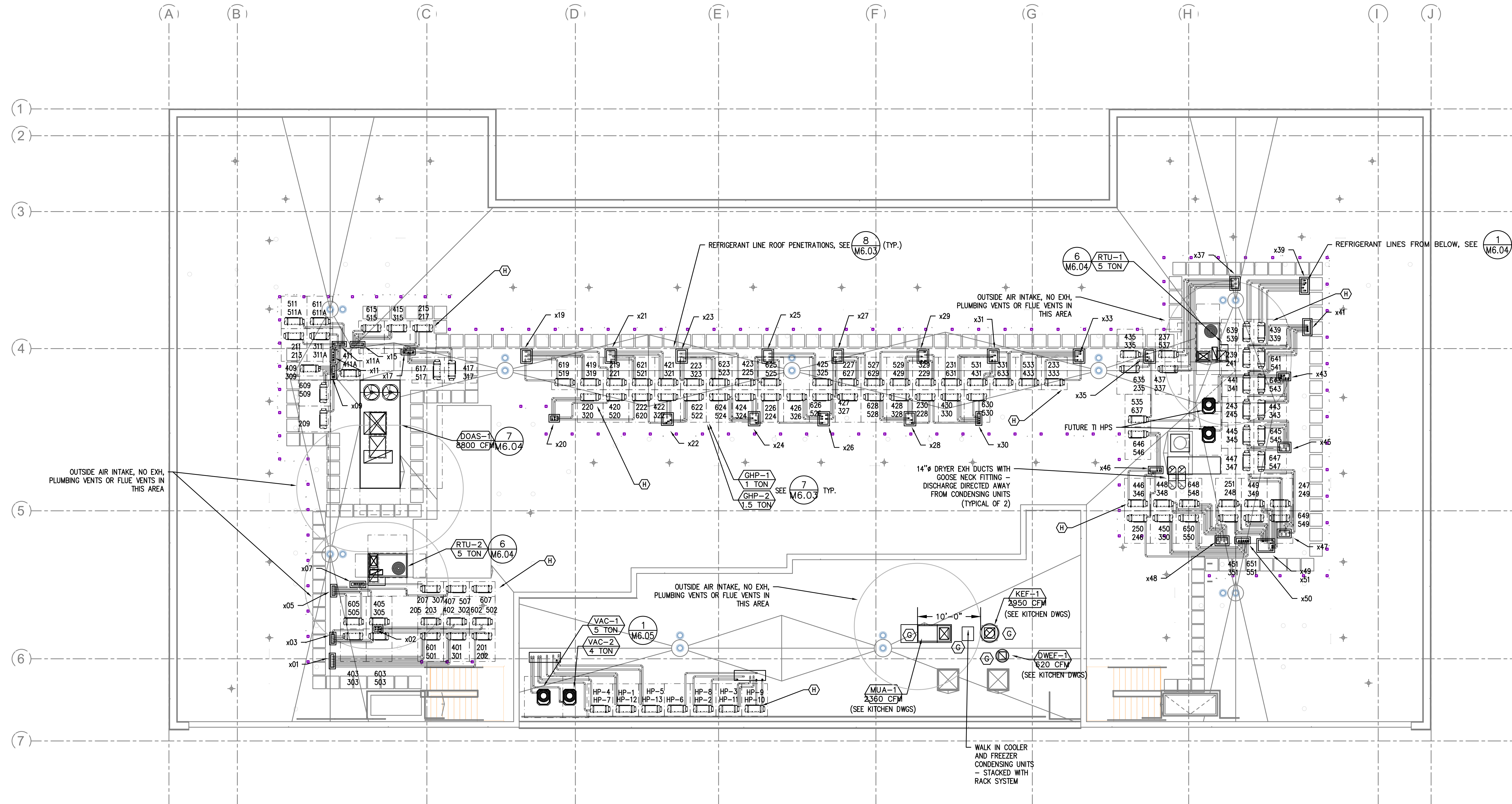
PROJECT NUMBER
2.210516.0

CAMBRIA PORTLAND
165 NW PARK AVENUE, PORTLAND, OR 97209

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MECHANICAL PLAN
LEVEL 6
M106



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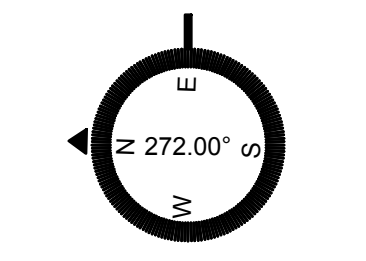
PROJECT NUMBER
2.210516.0

CAMBRIA PORTLAND
165 NW PARK AVENUE, PORTLAND, OR 97209

- PLAN NOTES:**
- (A) 2-POSITION OUTSIDE AIR DAMPER TO OPEN WHENEVER UNIT OPERATES (PROVIDE CAR DAMPER SET TO OSA CFM LISTED ON VENTILATION SCHEDULE. SEE 4
M6.07)
 - (B) MOTORIZED OUTSIDE AIR DAMPER TO MODULATE IN RESPONSE TO CO2 SENSORS. MODULATE BETWEEN 10% OF OSA TO 100% OF OSA (SEE VENTILATION SCHEDULE) IN RESPONSE TO CO2 LEVELS RISING BETWEEN 650 PPM AND 1000 PPM (PROVIDE CAR DAMPER TO LIMIT FLOW TO MAX OUTSIDE AIR LISTED ON VENTILATION SCHEDULE. SEE 4
M6.04)
 - (C) TYPICAL FAN COIL ACCESS PANEL TO ALLOW FOR FULL MAINTENANCE ACCESS AND FULL REMOVAL OF FAN COIL. DISCONNECT SWITCH TO BE LOCATED WITHIN REACH OF ACCESS PANEL. SEE ARCHITECTS RCP PLANS FOR ALL ACCESS PLAN LOCATIONS.
 - (D) ELECT WALL HEATER BY ELECTRICAL CONTRACTOR, SHOWN FOR REFERENCE SIZE LISTED ON THE PLANS
 - (E) PROVIDE CAR DAMPER, SEE DETAIL 5/M6.03.
 - (F) 18X18 FSD ACCESS PANEL
 - (G) SEE KITCHEN VENDOR DRAWINGS INCLUDED IN THE ARCHITECTURAL SET. KITCHEN VENDOR DRAWINGS SPECIFY TYPE 1 HOODS, DISHWASHER HOODS, MAKE UP AIR SYSTEMS, GREASE FANS, DISHWASHER HOOD FANS, COOLER CONDENSING UNITS AND ALL REQUIRED MOUNTING AND ATTACHMENT DETAILS. SEE ALSO STRUCTURAL DRAWINGS FOR ALL ROOF STRUCTURAL ATTACHMENT DETAILS.
 - (H) SEE SHEET A117 FOR THE DELEGATED DESIGN OF THE ROOF RAIL SYSTEM INCLUDED IN THE ARCHITECTURAL SET FOR CONDENSING UNIT SUPPORTS. RAIL SYSTEM IS VENDOR DESIGNED AND INCLUDES ALL STRUCTURAL AND SEISMIC ANCHOR DETAILS. SEE STRUCTURAL DRAWINGS FOR ALL ROOF STRUCTURAL ATTACHMENT DETAILS. RAIL SYSTEM IS DESIGNED SUCH THAT CONDENSING UNITS ARE BOLTED TO ROOF RAIL SYSTEM PER CONDENSING UNIT MANUFACTURE REQUIREMENTS. THIS ITEM WILL BE A DEFERRED SUBMITTAL.

1
M1.07 MECHANICAL PLAN LEVEL 7
SCALE: 1/8" = 1'-0"

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MECHANICAL PLAN
LEVEL 7
M107

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DEDICATED OUTDOOR AIR SYSTEM

Table with columns: MARK NUMBER, SYSTEM, NOMINAL SIZE - TONS, TYPE, TYPE/SIZE, FAN SUPPLY FAN, EXHAUST FAN SUPPLY FAN, FILTER SIZE, HEATING, COOLING, DESIGN WEIGHT (LBS.), BASIS OF DESIGN, ELECTRICAL (VOLTS/PHASE), ENERGY WHEEL ECONOMIZER CONTROL, FACTORY WIRED DISCONNECT, ENERGY RECOVERY TYPE, OA/EA TEMP (SUMMER), OA/EA TEMP (WINTER), ENTHALPY RECOVERY (SUMMER/WINTER), TOTAL EFFECTIVENESS (SUMMER/WINTER).

ROOFTOP HVAC UNITS

Table with columns: MARK NUMBER, SYSTEM, TYPE, DISCHARGE, FAN SECTION, COOLING, DESIGN WEIGHT (LBS.), SMOKE DETECTOR (SUPPLY DUCT), SPRING ISOLATION ROOF CURB, CONVENIENCE OUTLET, VOLTAGE/PHASE, MCA/MOCP, BASIS OF DESIGN - CARRIER MODEL.

Table for Cambria Hotel Laundry Two 120 lb dryers. Columns: Quantity, Exh CFM, Total, free area, Make up air, Total. Includes sub-tables for Vent Size, Combustion Air Calcs (2 OPENINGS), and Combustion Air Calcs (1 OPENING).

Table with columns: Refrigerant, Max lbs/1000 cu ft, Room Area, room Height, Volume, Max charge, Max Charge Allowed, Unit size, Unit charge, Piping Charge, Pass/Fail.

PROVIDE MICROWELL CURB 0403-972E. 21" TALL, 375 LBS. ELECTRICAL DATA LISTED FOR REFERENCE ONLY. COORDINATE WITH ELECTRICAL DESIGN BUILD CONTRACTOR FOR VOLTAGE AND PHASE REQUIREMENTS.

Table for ELECTRIC DUCT HEATER. Columns: MARK NUMBER, SIZE (KW), CFM, DUCT SIZE, STEPS, MCA, POWER (VOLTS/PHASE), BASIS OF DESIGN.

Table for ELECTRIC WALL MOUNT HEATER. Columns: MARK NUMBER, SIZE (KW), CFM, DUCT SIZE, STEPS, MCA, POWER (VOLTS/PHASE), BASIS OF DESIGN.

DEFERRED SUBMITTALS - MECHANICAL

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

Table with columns: EQUIPMENT, DESCRIPTION, WEIGHT, SUBMITTED, INSPECTOR CHECK.

WALL HUNG SPLIT SYSTEM HEAT PUMP

Table with columns: MARK NUMBER, SYSTEM, TYPE, EFFICIENCY, NOMINAL COOLING CAPACITY, HEATING CAPACITY, TOTAL SUPPLY CFM, OSAs, BASIS OF DESIGN, OUTDOOR UNIT, TYPE, NORMAL COOLING CAPACITY, NORMAL HEATING CAPACITY, EFFICIENCY SEER/EER, EFFICIENCY HSPF/COP, REFRIGERANT, REFRIGERANT CHARGE, MAX OPERATING TEMPS, MAX PIPING LENGTH, MAX PIPING HEIGHT, VOLTS-PHASE, MCA/MOCP, COMPRESSOR, WEIGHT (LBS), BASIS OF DESIGN.

WALL HUNG FC/HP NOTES:

- 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. INDOOR UNIT IS WIRE THROUGH THE OUTDOOR UNIT.

DIFFUSER & GRILLE SCHEDULE

Table with columns: TAG, MANUFACTURER, MODEL, DESCRIPTION, FACE TYPE, FACE SIZE, COLOR, MATERIAL, NOTES.

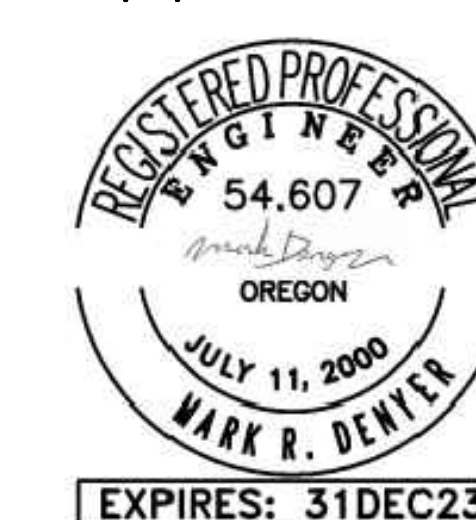
- ANY GRILLE/DIFFUSER MOUNTED DIRECTLY ON EXPOSED DUCT SHALL MATCH COLOR OF DUCT (IF PAINTED) OR SHALL HAVE CLEAR ANODIZED FINISH (IF DUCT IS UNPAINTED). MAXIMUM TOTAL PRESSURE DROP SHALL NOT EXCEED 0.15" WG WITH DUCT TRANSITION. MAXIMUM N/C LEVEL SHALL BE (20/25/30). ALL VISIBLE SURFACES AND DUCTWORK BEHIND FACE SHALL BE PAINTED BLACK. COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLANS FOR BORDER TYPES. NECK SIZE AND CFM SHOWN ARE ON PLANS (EX: SA 12X12-400 REFERS TO TAG "SA" WITH 12X12 NECK AND 400 CFM). PROVIDE RECTANGULAR/SQUARE TO ROUND TRANSITION AS REQUIRED AND SIZED FOR MAXIMUM 0.01" WG TOTAL PRESSURE DROP. ADJUSTABLE HORIZONTAL/VERTICAL DISCHARGE. PROVIDE BORDER TYPE (11/22/xx) (WITH BORDER TYPE 2CRA FOR 2-SLOT DIFFUSER). PLENUM CONNECTION SIZE, SLOT LENGTH, AND CFM SHOWN ON PLANS (EX: S18-120-2000 REFERS TO TAG "S1" WITH 8" ROUND CONNECTION, 120" CONTINUOUS SLOT LENGTH AND 2000 CFM). PROVIDE MANUFACTURERS INSULATED PLENUM. PROVIDE LIGHT SHIELD FOR UNDUCTED SLOT RETURN GRILLES. GRILLES SHALL BE ENTIRELY NON-FERROUS CONSTRUCTION FOR MRI IMAGING EQUIPMENT ROOM APPLICATION. PROVIDE MANUFACTURERS INSULATED PLENUM.

CAMBRIA VENTILATION AIR SCHEDULE - LEVEL - 1

Large table with columns: ROOM NUMBER AND NAME, AREA (SQ. FT.), OCCUPANT LOAD, NUMBER OF OCCUPANTS, OUTSIDE AIR REQUIREMENT, OUTSIDE AIR REQUIRED (CFM), ZONE OSA (CFM), SUPPLY AIR (CFM), PRIMARY OSA FRACTION, RETURN AIR (CFM), EXHAUST AIR (CFM), Zone Ventilation Efficiency, Connected OSA CFM, ASSOCIATED FAN COIL UNIT, AIR SYSTEMS.

CORRECTED TOTAL OUTDOOR AIR FLOW RATE 3740 CFM Corrected OSA Fraction Zs = 1.03

07/21/2022



PROJECT NUMBER 2.210516.0

CAMBRIA PORTLAND 165 NW PARK AVENUE, PORTLAND, OR 97209

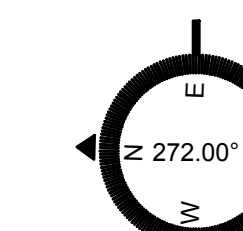




Table with columns: UNIT, GHP-X, CAPACITY, VERTICAL RISE, HORIZONTAL LENGTH, ELBOWS, TOTAL EQ LENGTH, MAX VERTICAL, MAX TOTAL, MAX BENDS, PASS/FAIL VERTICAL, PASS/FAIL TOTAL, PASS/FAIL BENDS. Includes summary rows for GHP-1, GHP-2, and Total.

Table with columns: UNIT, GHP-X, CAPACITY, VERTICAL RISE, HORIZONTAL LENGTH, ELBOWS, TOTAL EQ LENGTH, MAX VERTICAL, MAX TOTAL, MAX BENDS, PASS/FAIL VERTICAL, PASS/FAIL TOTAL, PASS/FAIL BENDS. Includes summary rows for GHP-1, GHP-2, and Total.

TRANSFORMER VAULT - SPLIT SYSTEM COOLING ONLY *
Table with columns: MARK NUMBER, SYSTEM, TYPE, EFFICIENCY, NOMINAL COOLING CAPACITY, TOTAL SUPPLY CFM, MOTOR HP, EXTERNAL SP. (H2O), VOLTS/PHASE, MCA/MOCP, WEIGHT, BASIS OF DESIGN, OUTDOOR UNIT.

VAC/VFC NOTES:

* - PROVIDE ALL UNITS THAT CANNOT BE DRAINED BY GRAVITY WITH CONDENSATE PUMP...
** - ELECTRICAL DATA LISTED FOR REFERENCE ONLY, COORDINATE WITH ELECTRICAL DESIGN...

RECESSED CASSETTE - SPLIT SYSTEM HEAT PUMP *, ***, ***
Table with columns: MARK NUMBER, SYSTEM, TYPE, EFFICIENCY, NOMINAL COOLING CAPACITY, HEATING CAPACITY, TOTAL SUPPLY CFM, OSA CFM, EXTERNAL SP. (H2O), VOLTS/PHASE, MCA, FAN MOTOR (WATTS), WEIGHT, BASIS OF DESIGN, OUTDOOR UNIT, SYSTEM, TYPE, NORMAL COOLING CAPACITY, NORMAL HEATING CAPACITY, EFFICIENCY SEER/EER, EFFICIENCY HSPF/COP, REFRIGERANT, REFRIGERANT CHARGE, MAX OPERATING TEMPS, MAX PIPING LENGTH, MAX PIPING HEIGHT, VOLTS-PHASE, MCA/MOCP (AMP), COMPRESSOR, BASIS OF DESIGN.

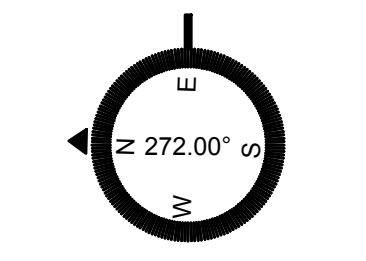
GUEST ROOM GFC/GHP NOTES:

* - PROVIDE ALL UNITS THAT CANNOT BE DRAINED BY GRAVITY WITH CONDENSATE PUMP...
** - ELECTRICAL DATA LISTED FOR REFERENCE ONLY, COORDINATE WITH ELECTRICAL DESIGN...

Professional Engineer seal for Mark R. Denton, Oregon, No. 54,607, expires 31DEC23.

CAMBRIA PORTLAND logo and address: 165 NW PARK AVENUE, PORTLAND, OR 97209.

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MECHANICAL SCHEDULES
M601

DUCTED SPLIT SYSTEM HEAT PUMP - *									
MARK NUMBER	FC-1 36 MBH	FC-2 36 MBH	FC-3 36 MBH	FC-4 18 MBH	FC-5 36 MBH	FC-6 24 MBH	FC-7 30 MBH	FC-11 24 MBH	FC-12 18 MBH
SYSTEM	MULT 104	LOBBY 101	RESTAURANT 117	PRE-FUNCTION 103	CENTRAL OFFICES	KITCHEN 121	FITNESS 105	CORRIDOR 122	MULTI 104B
TYPE	DUCTED	DUCTED	DUCTED	DUCTED	DUCTED	DUCTED	DUCTED	DUCTED	DUCTED
EFFICIENCY	SEE OUTDOOR UNIT	SEE OUTDOOR UNIT	SEE OUTDOOR UNIT	SEE OUTDOOR UNIT	SEE OUTDOOR UNIT	SEE OUTDOOR UNIT	SEE OUTDOOR UNIT	SEE OUTDOOR UNIT	SEE OUTDOOR UNIT
NOMINAL COOLING CAPACITY	32,930 BTUH	32,930 BTUH	32,930 BTUH	18,000 BTUH	32,930 BTUH	23,600 BTUH	28,200 BTUH	23,600 BTUH	18,000 BTUH
HEATING CAPACITY	32,940 BTUH	32,940 BTUH	32,940 BTUH	16,700 BTUH	32,940 BTUH	23,900 BTUH	28,700 BTUH	23,900 BTUH	16,700 BTUH
ELECT HEAT CAPACITY (KW)	10 KW	10 KW	10 KW	6.0 KW	10 KW	7.5 KW	7.5 KW	7.5 KW	6.0 KW
TOTAL SUPPLY CFM	1233	1233	1233	557	1233	955	1000	955	557
OSA CFM MIN/MAX	30/293	58/578	93/929	31/NA	54/NA	165/NA	179/NA	56/NA	131/NA
CO2 CONTROL	YES	YES	YES	NO	NO	NO	YES	NO	NO
EXTERNAL SP. (*H2O)	0.64	0.64	0.64	0.40	0.64	0.64	0.64	0.64	0.40
VOLTS/PHASE	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1	208/1
MCA/MOCP (2-WIRE OPERATION, SINGLE CIRCUIT) - **	45.5/60	45.5/60	45.5/60	29.4/35	45.5/60	36.1/50	36.1/50	36.1/50	29.4/35
WEIGHT	150	150	150	115	150	140	145	140	115
BASIS OF DESIGN	CARRIER FMC423600AL	CARRIER FMC423600AL	CARRIER FMC423600AL	CARRIER FMC421800AL	CARRIER FMC423600AL	CARRIER FMC423000AL	CARRIER FMC423000AL	CARRIER FMC423000AL	CARRIER FMC421800AL
OUTDOOR UNIT	HP-1 3 TON	HP-2 3 TON	HP-3 3 TON	HP-4 1.5 TON	HP-5 3 TON	HP-6 2 TON	HP-7 2.5 TON	HP-11 2 TON	HP-12 1.5 TON
SYSTEM	MULT 104	LOBBY 101	RESTAURANT 117	PRE-FUNCTION 103	CENTRAL OFFICES	KITCHEN 121	FITNESS 105	CORRIDOR 122	MULTI 104B
TYPE	1-PORT HEAT PUMP	1-PORT HEAT PUMP	1-PORT HEAT PUMP	1-PORT HEAT PUMP	1-PORT HEAT PUMP	1-PORT HEAT PUMP	1-PORT HEAT PUMP	1-PORT HEAT PUMP	1-PORT HEAT PUMP
NORMAL COOLING CAPACITY	36,000 BTUH	36,000 BTUH	36,000 BTUH	16,500 BTUH	36,000 BTUH	24,000 BTUH	30,000 BTUH	24,000 BTUH	16,500 BTUH
NORMAL HEATING CAPACITY	40,000 BTUH	40,000 BTUH	40,000 BTUH	19,000 BTUH	40,000 BTUH	24,000 BTUH	30,000 BTUH	24,000 BTUH	19,000 BTUH
EFFICIENCY SEER/EER	14.0/11.0	14.0/11.0	14.0/11.0	14.0/11.5	14.0/11.0	14.0/11.5	14.0/11.5	14.0/11.5	14.0/11.5
EFFICIENCY HSPF/COP @ 47°F	8.2/4.14	8.2/4.14	8.2/4.14	8.2/3.74	8.2/4.14	8.2/4.02	8.2/3.8	8.2/4.02	8.2/3.74
REFRIGERANT	410 A	410 A	410 A	410 A	410 A	410 A	410 A	410 A	410 A
REFRIGERANT CHARGE	7.05 LBS	7.05 LBS	7.05 LBS	4.30 LBS	7.05 LBS	5.73 LBS	7.05 LBS	5.73 LBS	4.30 LBS
MAX OPERATING TEMPS	-13/122	-13/122	-13/122	-13/122	-13/122	-13/122	-13/122	-13/122	-13/122
MAX PIPING LENGTH	213 FT	213 FT	213 FT	98 FT	213 FT	164 FT	213 FT	164 FT	98 FT
MAX PIPING HEIGHT	98 FT	98 FT	98 FT	65 FT	98 FT	65 FT	98 FT	65 FT	65 FT
VOLTS-PHASE - **	460/3 PHASE	460/3 PHASE	460/3 PHASE	208/1 PHASE	460/3 PHASE	208/1 PHASE	208/1 PHASE	208/1 PHASE	208/1 PHASE
MCA/MAX FUSE - **	7.6/15	7.6/15	7.6/15	11.8/20	7.6/15	16.5/25	17.2/30	16.5/25	11.8/20
COMPRESSOR	CONSTANT SPEED	CONSTANT SPEED	CONSTANT SPEED	CONSTANT SPEED	CONSTANT SPEED	CONSTANT SPEED	CONSTANT SPEED	CONSTANT SPEED	CONSTANT SPEED
WEIGHT	240	240	240	175	240	185	235	185	175
BASIS OF DESIGN	CARRIER 25HHA436A006	CARRIER 25HHA436A006	CARRIER 25HHA436A006	CARRIER 25HHA418A003	CARRIER 25HHA436A006	CARRIER 25HHA424A003	CARRIER 25HHA430A003	CARRIER 25HHA424A003	CARRIER 25HHA418A003

* - 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

EXHAUST FANS			
MARK NUMBER	EF 1	EF 2	EF 3
TYPE	CEILING CABINET	CEILING CABINET	CEILING CABINET
SYSTEM	RESTROOM	TRASH	LAUNDRY
CFM	110	200	400
TOTAL SP. (IN H2O)	0.125	0.125	0.5
RPM	1190	740	1645
TIP SPEED (FPM)	--	--	4818
MOTOR WATTS OR HP	47.3 W	127 W	1/4 HP
CONTROLLED BY	LIGHTS	CONTINUOUS	CONTINUOUS
INTERLOCK WITH	NONE	NONE	NONE
FAN SPEED CONTROLLER	NO	YES	NO
WHEEL TYPE	FC	BI	FC
BACK DRAFT DAMPER	GRAVITY	GRAVITY	GRAVITY
ISOLATION	RUBBER	RUBBER	RUBBER
DESIGN WEIGHT (LBS)	25	23	40
MAX. SONES	3.0	1.7	11.9
MAX AMPS - ***	0.40	1.8	3.5
POWER (VOLTS/PHASE/HZ) - ***	120/60/1	120/60/1	120/60/1
BASIS OF DESIGN:	BROAN A110	BROAN L200	GREENHECK G-099-VG

* - FAN TO INCLUDE 10 WATT DIMMABLE LED CHIP PANEL -COORDINATE SWITCHING WITH ELECTRICAL CONTRACTOR.
 ** - 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 DESIGN BUILD CONTRACTOR FOR VOLTAGE AND PHASE REQUIREMENTS

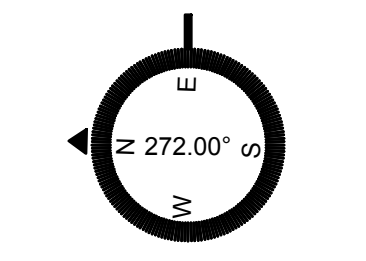
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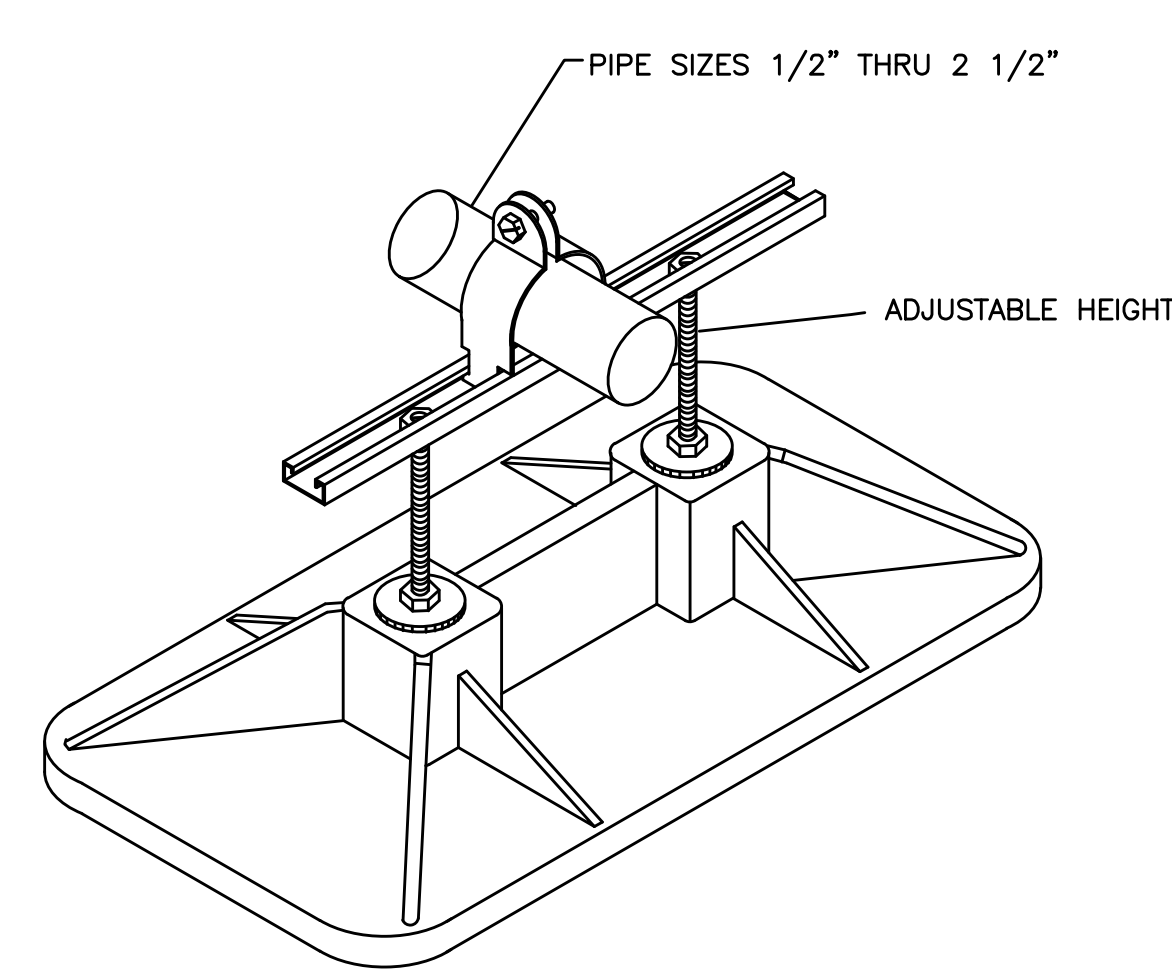
PROJECT NUMBER
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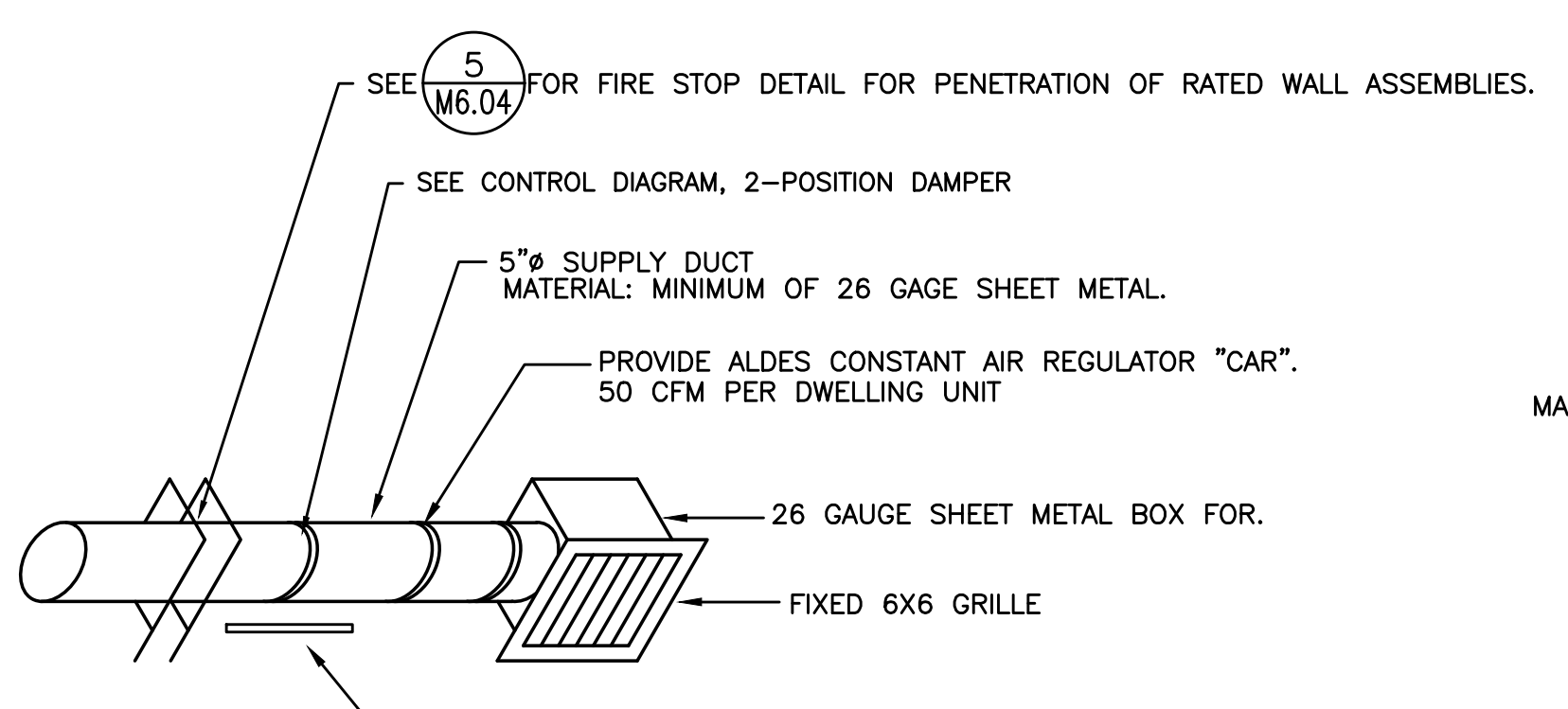
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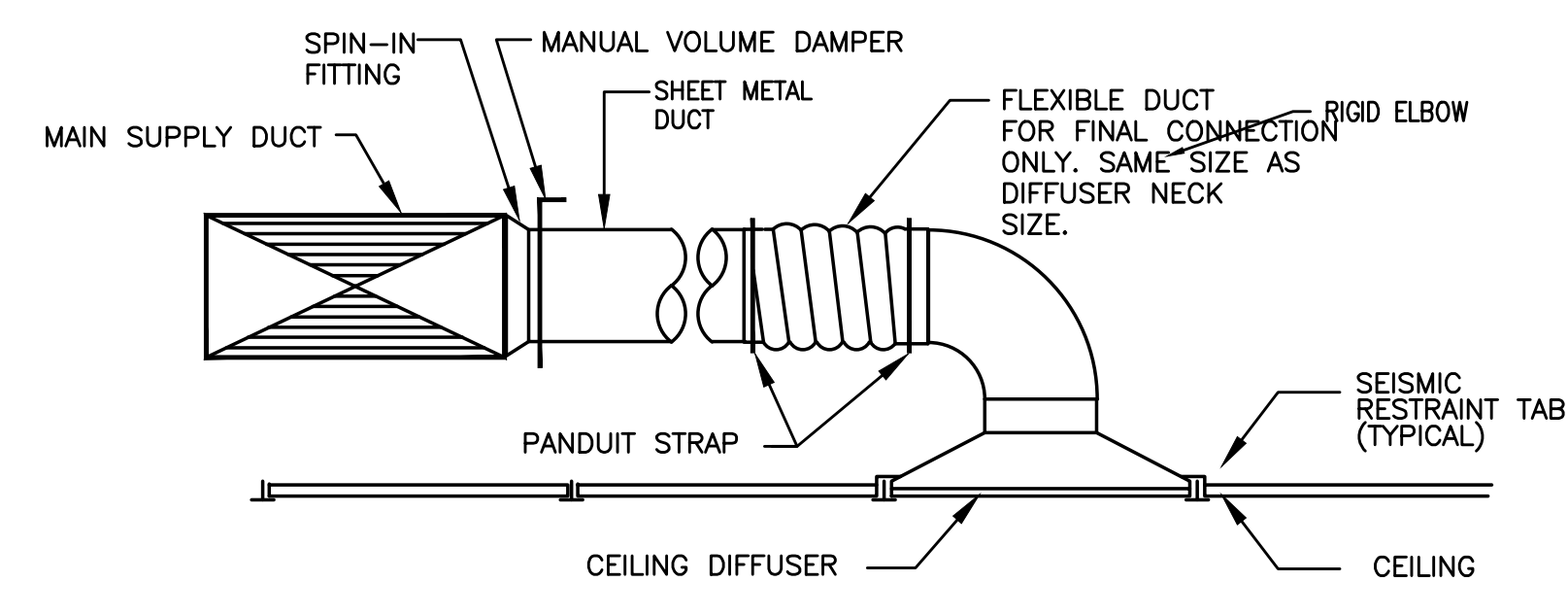
MECHANICAL
SCHEDULES
M602



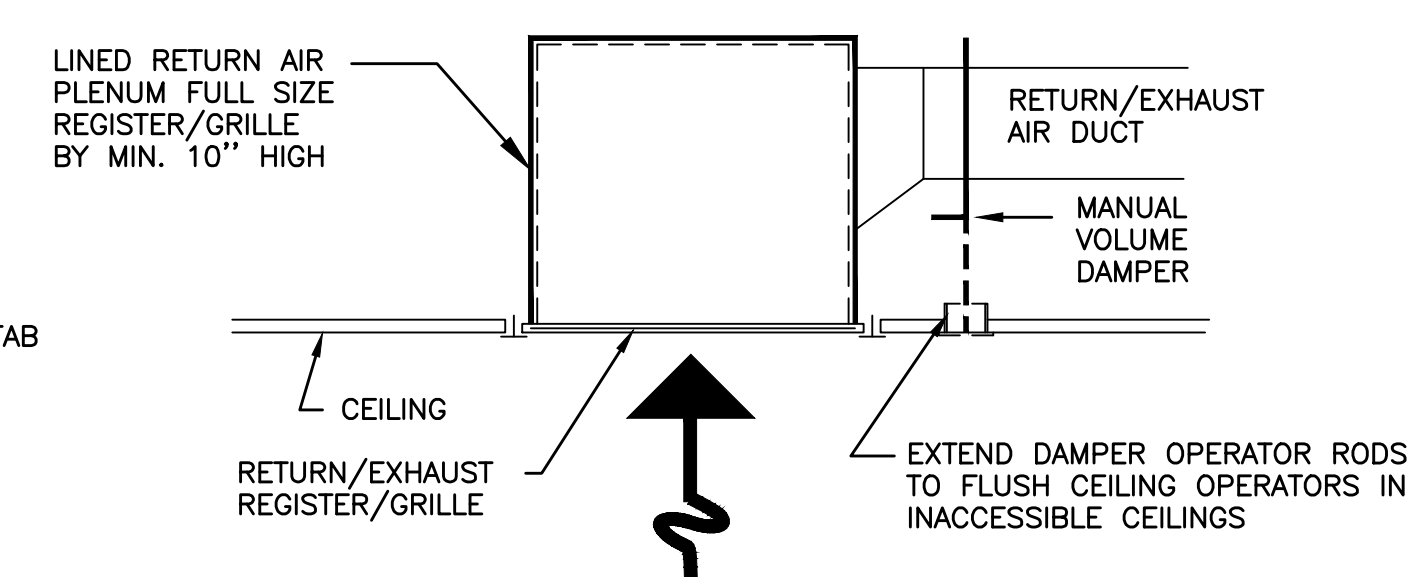
1 ROOF PIPING SUPPORT DETAIL
M6.03 SCALE: DETAIL



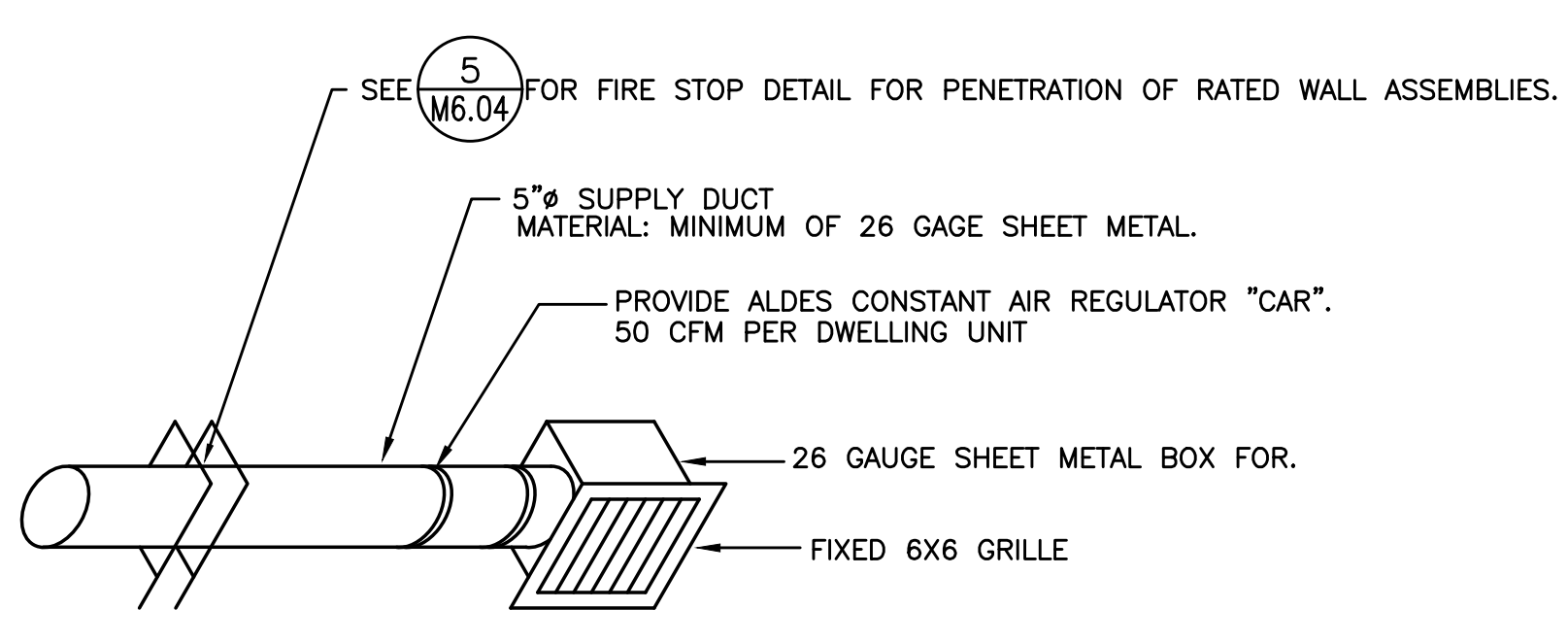
2 CONSTANT AIR REGULATOR (CAR) - CEILING
M6.03 NOT TO SCALE



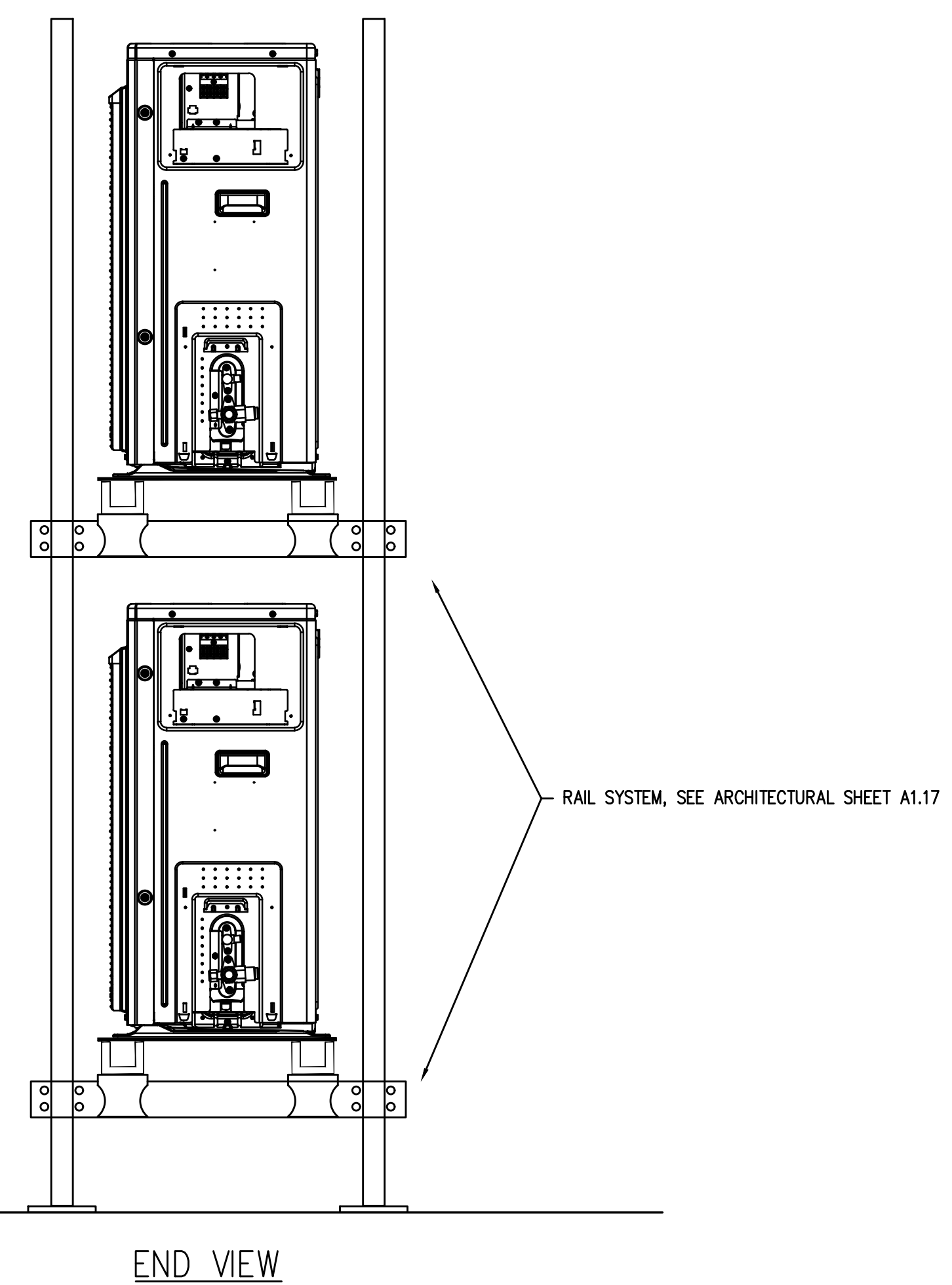
3 TYP. DIFFUSER DETAIL
M6.03 DETAIL



4 TYP. RETURN GRILL DETAIL
M6.03 DETAIL



5 CONSTANT AIR REGULATOR (CAR) - CEILING
M6.03 NOT TO SCALE



7 OUTDOOR HEAT PUMP ON RAIL SYSTEM (GHP-1 & GHP-2)
M6.03 NOT TO SCALE

GREENHECK
Building Value in Air.

Cut Sheet - Not for Submittal
Printed Date: 06/08/2022
Mark: FSD-1
Model: FSD-331

FSD-331 Combination Fire Smoke Damper

APPLICATION & DESIGN
Model FSD-331 is a high performance combination fire smoke damper with Class I leakage. High strength airflow blades ensure the lowest resistance to airflow in HVAC systems with velocities to 4,000 fpm and pressures to 8 in. wg. Model FSD-331 may be installed horizontally or vertically (with blades running horizontally) and is rated for airflow and leakage in either direction.

DAMPER RATINGS
UL 555 Fire Resistance Rating
Fire Rating: 3 hours
Dynamic Closure Rating: Actual ratings are size dependent
Velocity: Up to 4,000 fpm
Pressure: 8 in. wg
UL 555S Leakage Rating
Leakage Class: I
Operational Rating: Actual ratings are size dependent
Velocity: Up to 4,000 fpm
Pressure: 8 in. wg
Temperature: Up to 350 F depending on actuator

PRODUCT DETAILS
Frame Type: Channel
Frame Thickness: 16 ga
Closure Device: RRL
Closure Temperature: 165 F
Blade Action: Opposed
Blade Seal: Silicone
Axle/Linkage Material: Plated Steel
Axle Bearings: 316 SS
Performance Method: Volume
Sizing: Nominal

ACTUATOR INFORMATION
Actuator Type: 120 VAC
Actuator Mounting: External
Actuator Location: Right Side
Operating Mode: Two Position
Actuator Operation: Spring Return
Fall Position: Closed
Time Cycle: Standard
Operating Temperature: 220 F
Velocity: 2,000 fpm
Pressure: 4 in. wg
NEMA Enclosure: 1

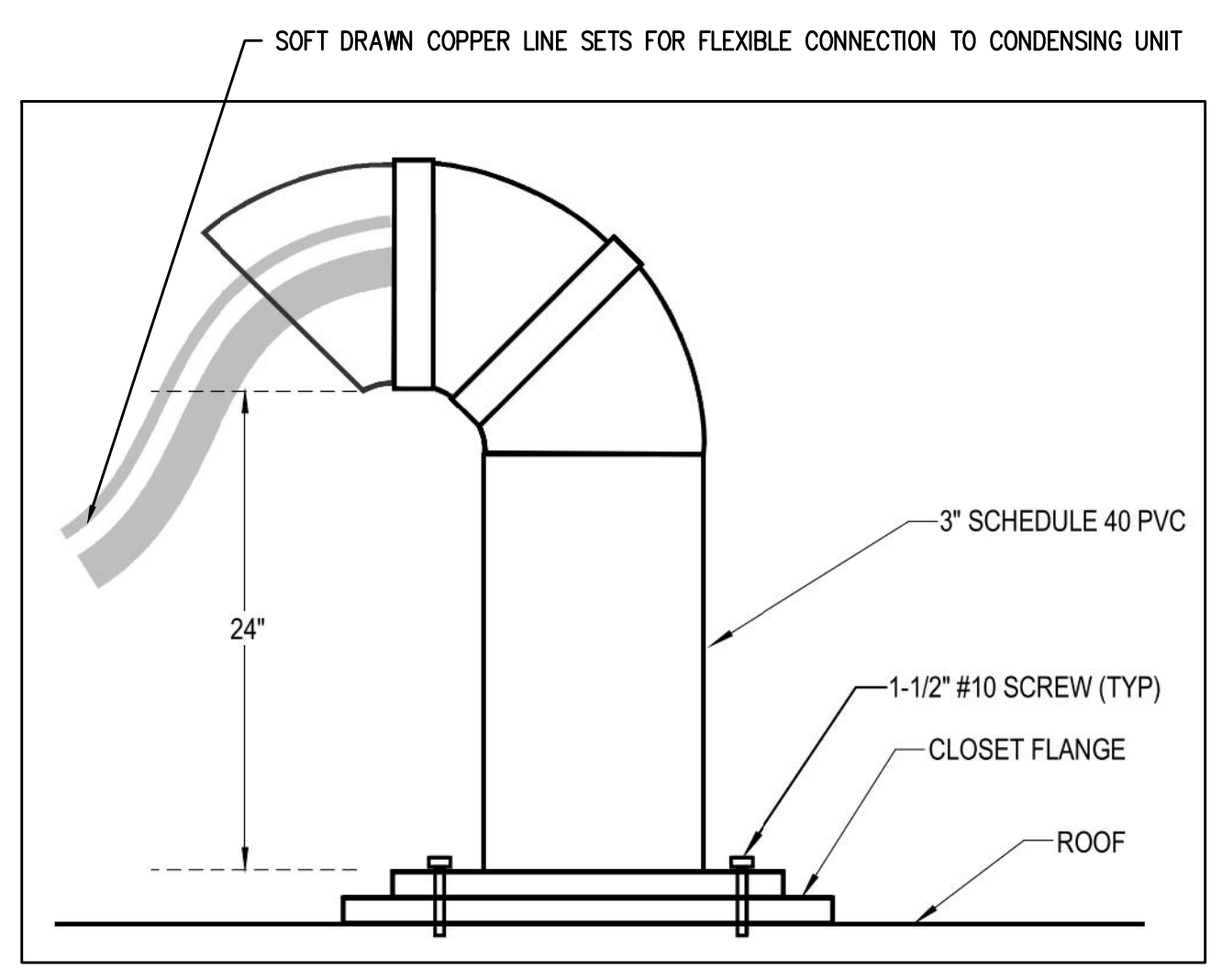
OPTIONS & ACCESSORIES
Union Label: No Preference

SUMMARY

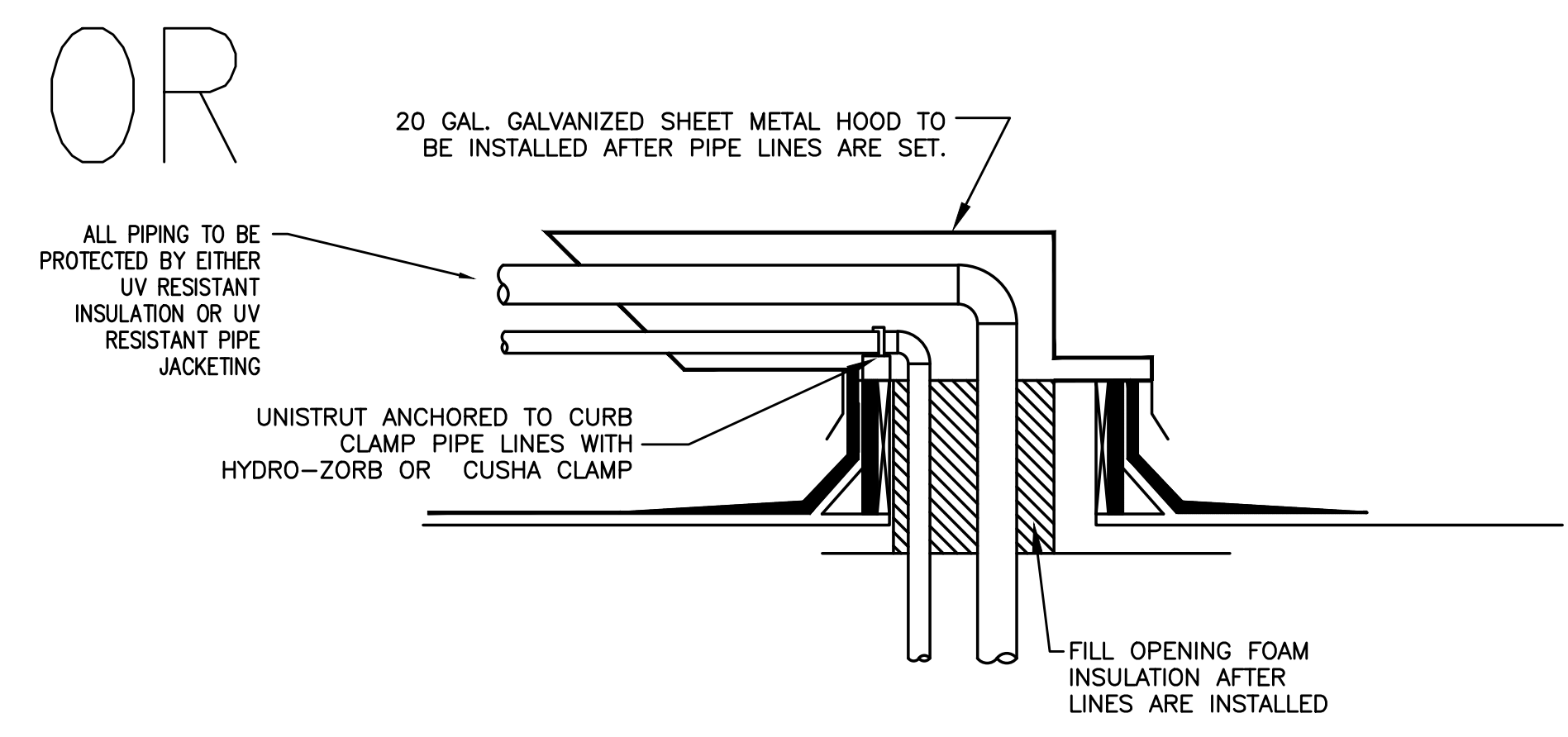
ID #	TAG	QTY	Width	Height	CONFIGURATION
1-1	FSD-1	1	22.000 in.	16.000 in.	AMCA: AMCA 5.3 Perf. Volume: 2,000 CFM Perf. Velocity: 818 fpm Perf. Pressure Drop: 0.016 in. wg Actuator Contained: Yes Drive Arrangement: Drive-MLS-11-1FER-1 Actuator Mfr: Honeywell Actuator Model: MSA-104F1010 Actuator Qty: 1 Act. Orientation: Parallel Sleeve Length: 16.000 in. Sleeve Thickness: 20 ga Damper Location: 7.188 in. Mounting: Vertical Component Location Code: N/A

CAPS 4.37.1115
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6 3 HOUR FIRE/SMOKE DAMPER
M6.03 NOT TO SCALE



8 REFRIGERANT ROOF PENETRATIONS
M6.03 DETAIL



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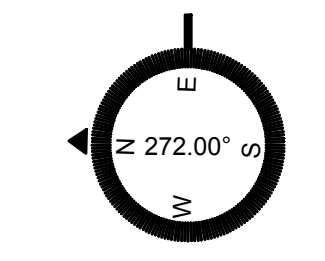
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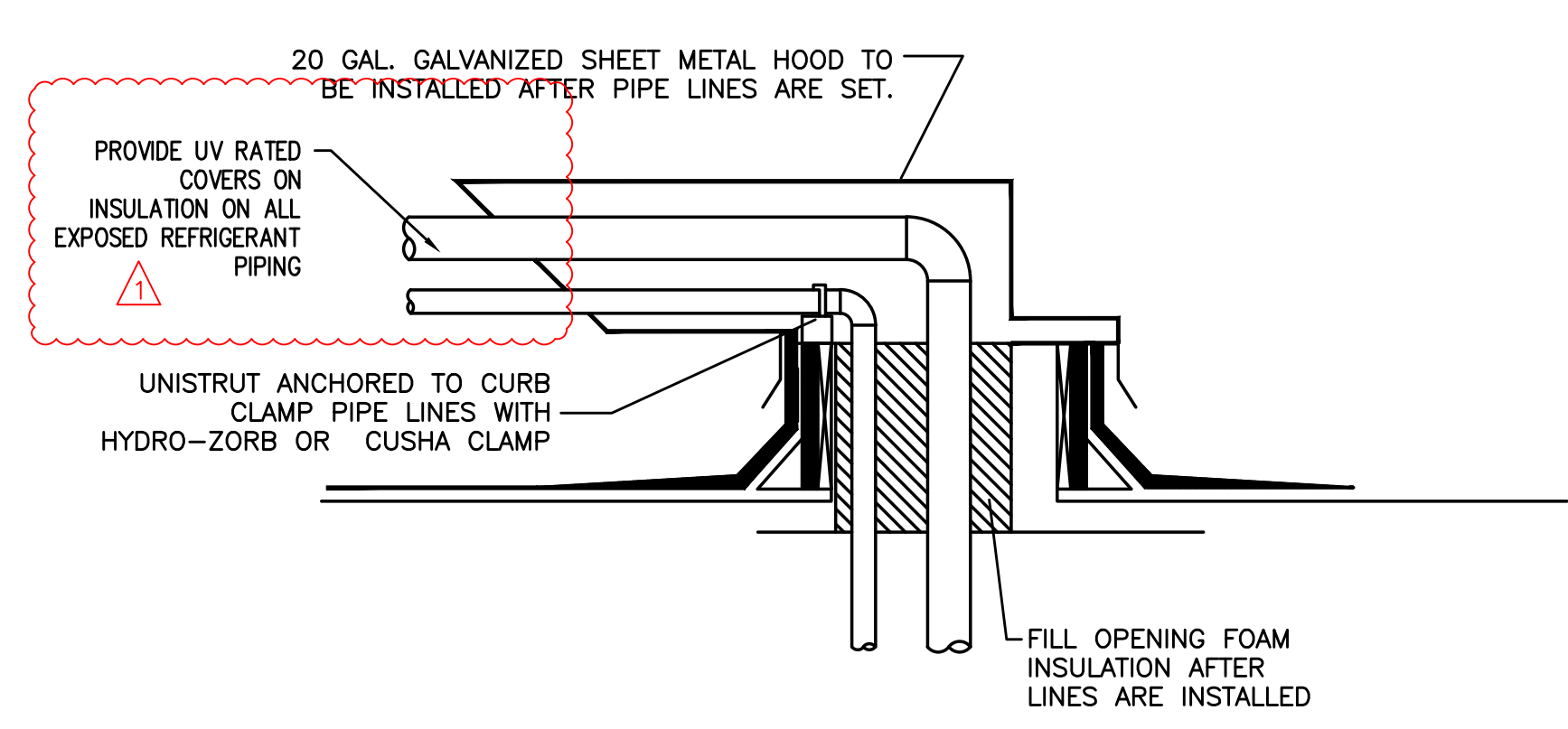
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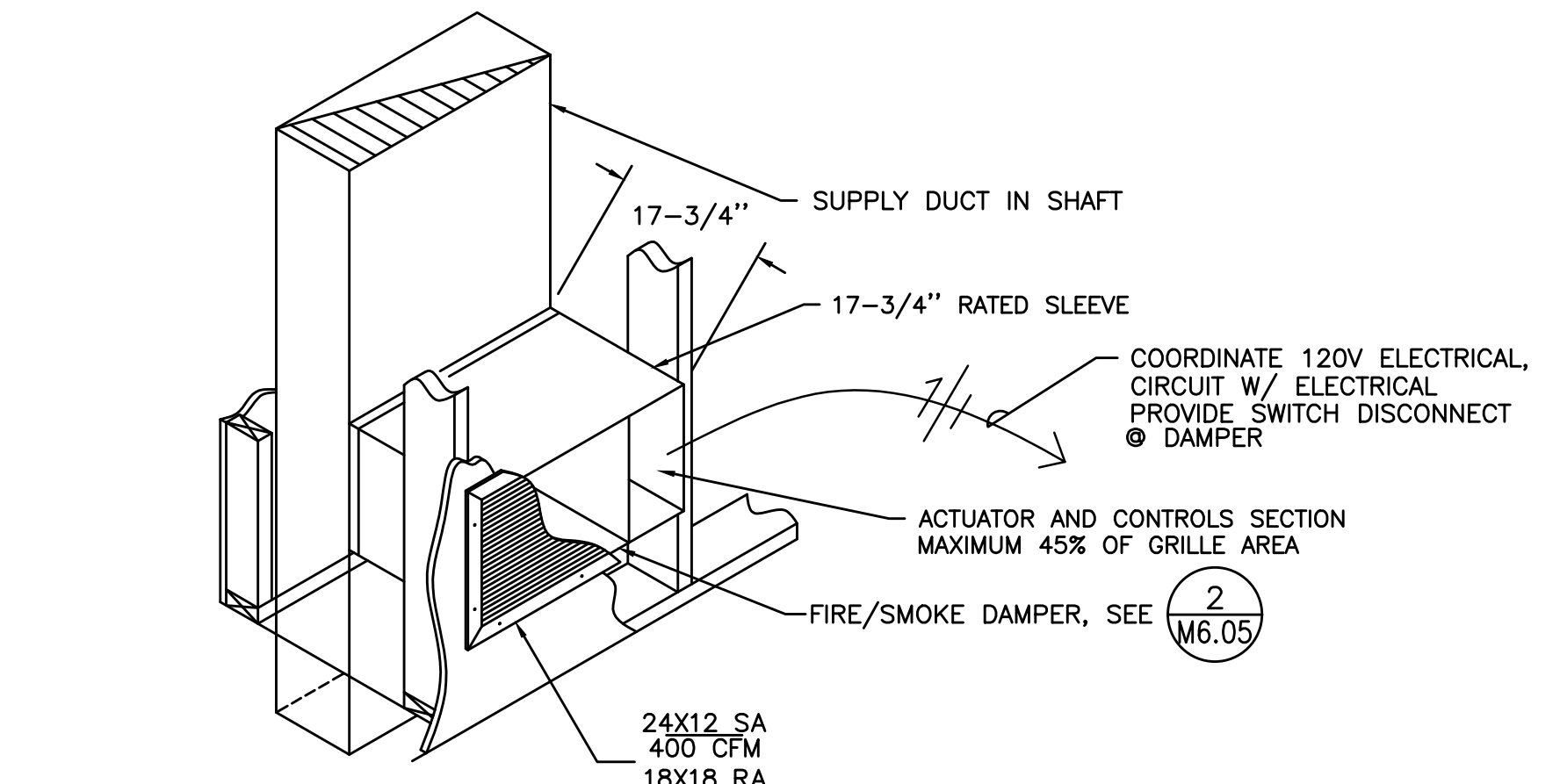
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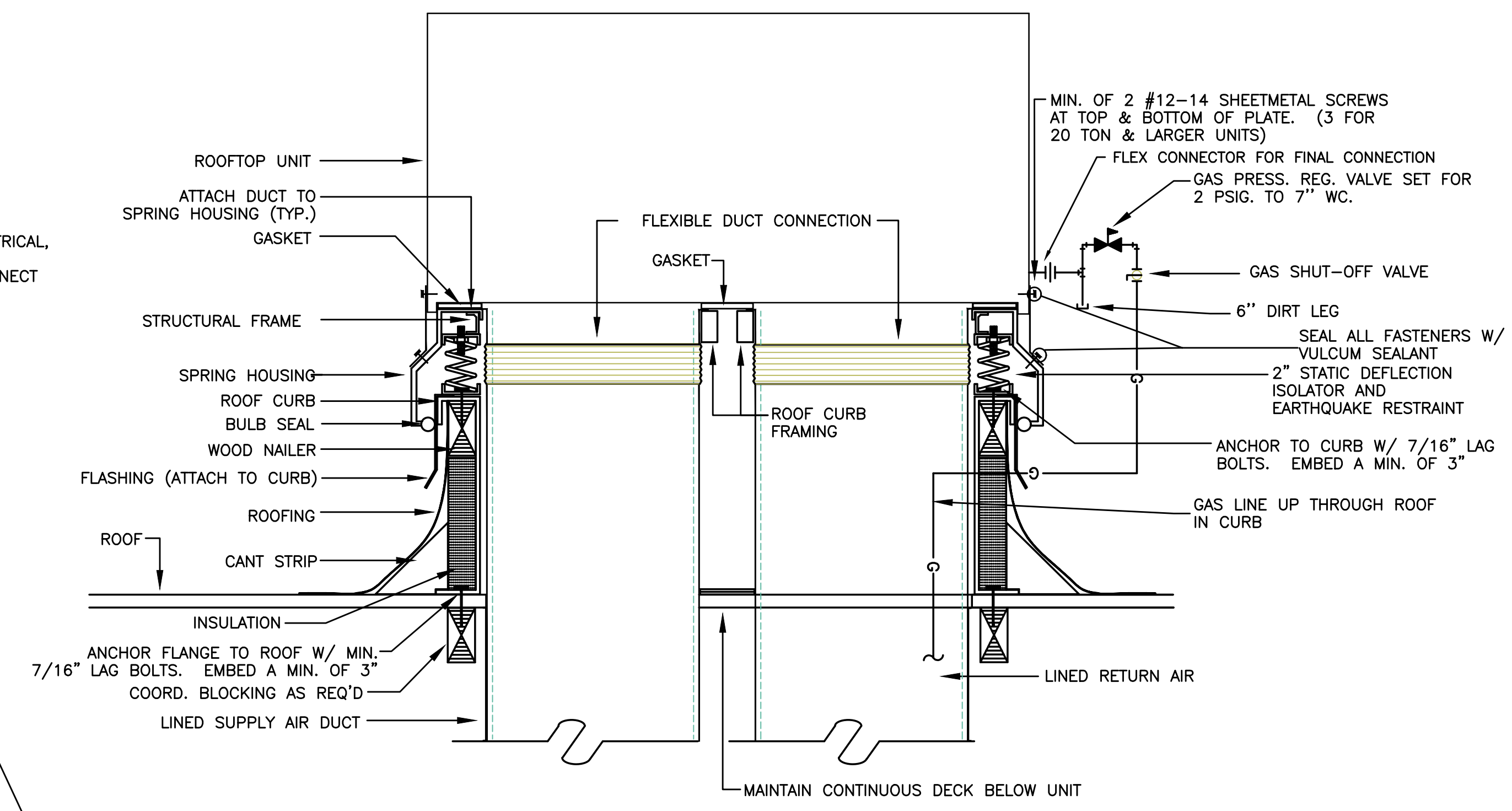
MECHANICAL
DETAILS
M603



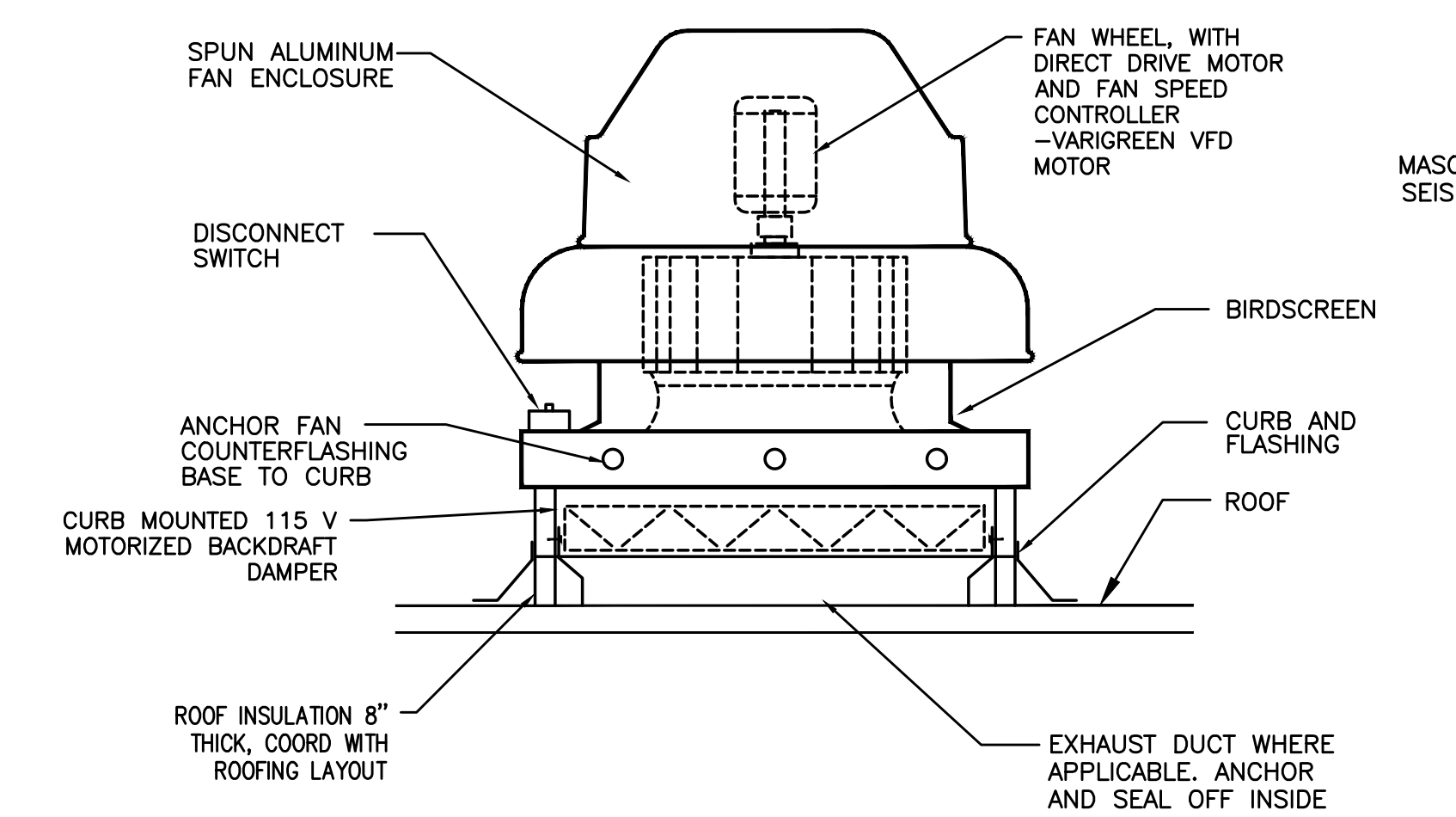
1 REFRIGERANT ROOF PENETRATIONS
M6.04 DETAIL



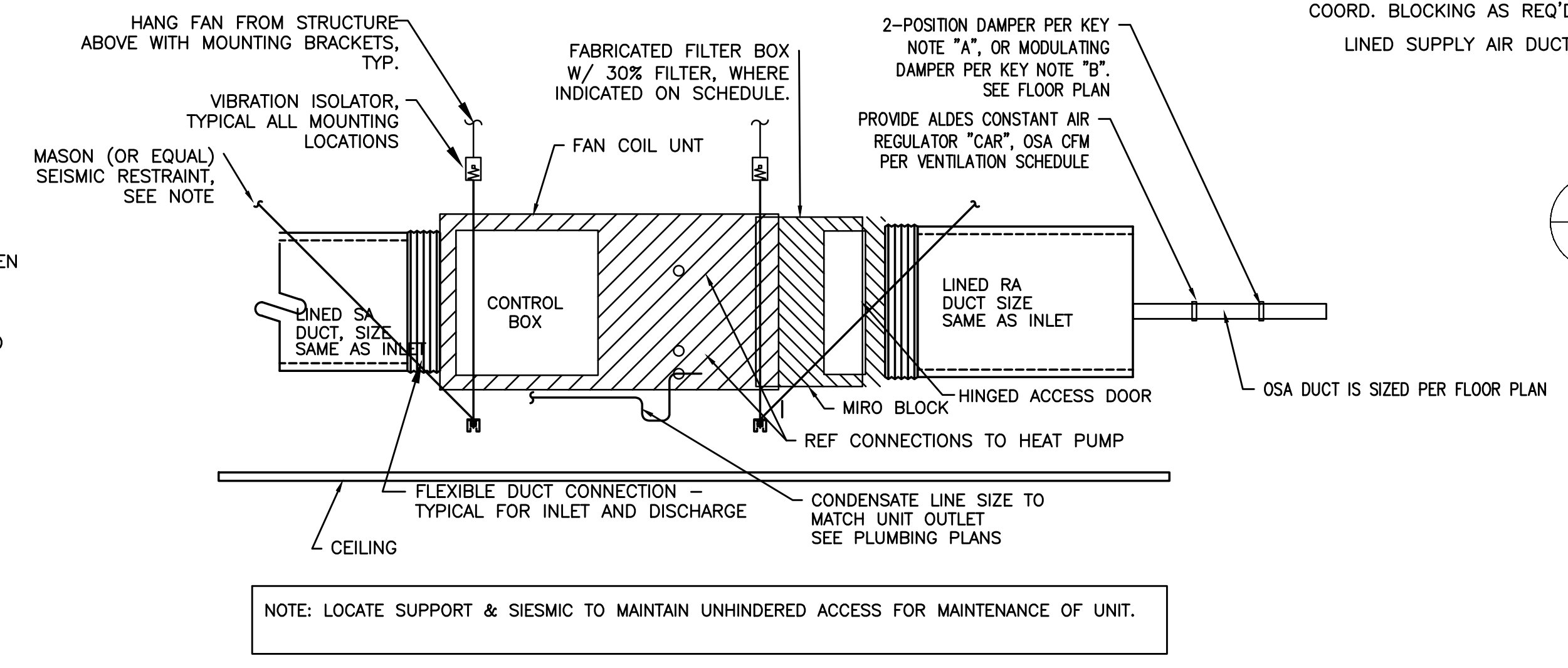
2 HIGH SUPPLY W/ FIRE/SMOKE DAMPER
M6.04 SCALE: DETAIL



6 ROOF TOP UNIT W/ VIBRATION ISOLATION CURB
M6.04 SCALE: DETAIL



3 ROOF EXHAUST FAN
M6.04 DETAIL



4 DUCTED FAN COIL
M6.04 SCALE: DETAIL

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MECHANICAL
DETAILS

M604

System No. W-L-7018

ANSIUL1479 (ASTM E814)	CANULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Rating — 1/2 Hr	FT Rating — 1-1/2 Hr
	FH Rating — 2 Hr
	FTH Rating — 1-1/2 Hr

SECTION A-A

1. Wall Assembly — The 2 hr fire-rated gypsum wallboard/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. 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 — Two layers of nom 5/8 in. (16 mm) thick gypsum wallboard as specified in the individual Wall and Partition Design No. Max diam of opening is 9 in. (229 mm).

2. Metallic Sleeve — Cylindrical sleeve fabricated from min 0.016 in. (0.40 mm) thick (No. 28 gauge) galv steel sheet steel and having a min 2 in. (51 mm) lap along the longitudinal seam. Length of sleeve to be 1/8 in. (3 mm) less than thickness of wall. Sleeve to be installed by coiling the sheet metal to a diam smaller than the through opening, inserting the coil through the openings and releasing the coil to let it uncoil against the circular cutouts in the gypsum wallboard layers.

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System No. W-L-7018

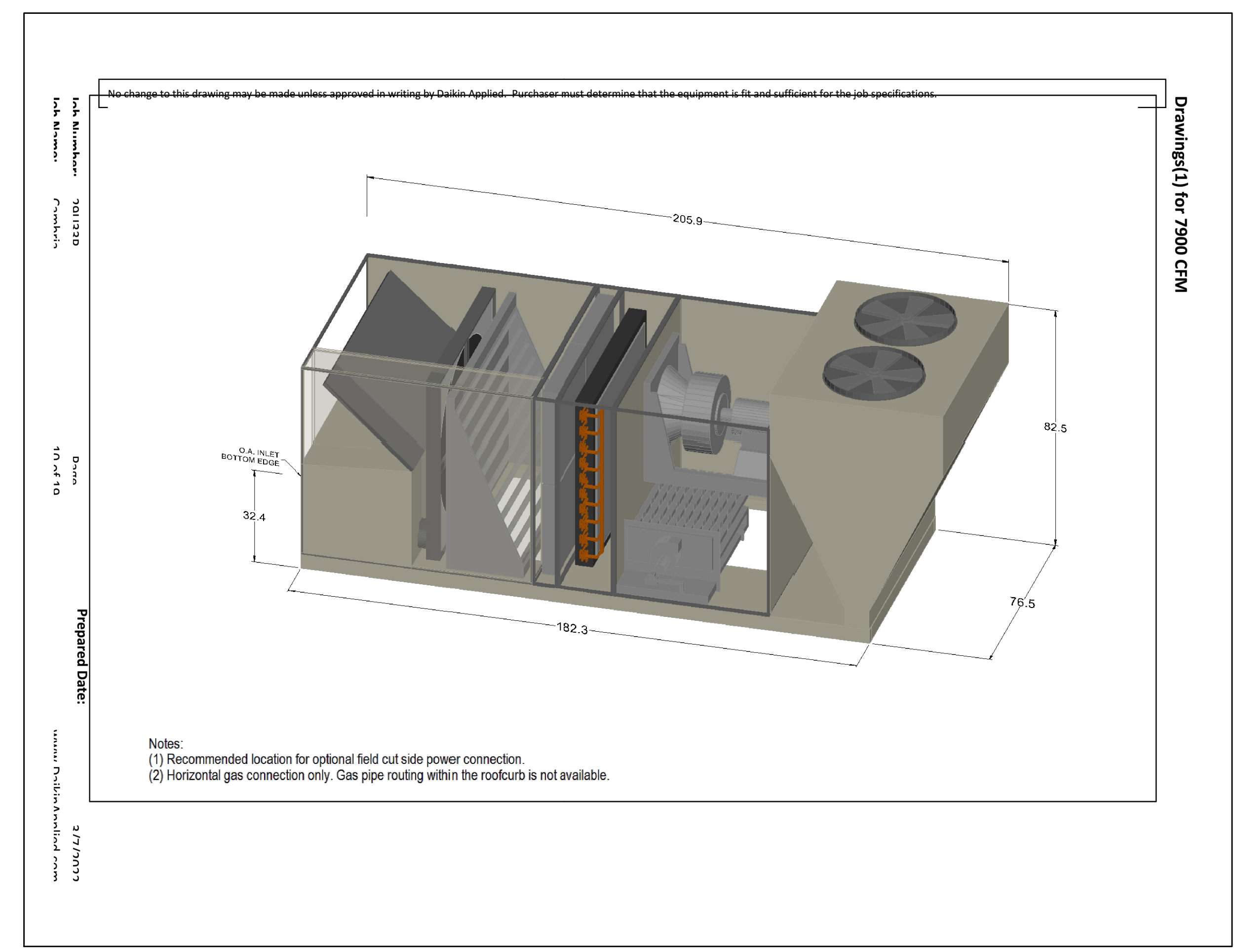
3. Steel Duct — Nom 6 in. (152 mm) diam (or smaller) No. 28 gauge (or heavier) galv steel duct to be installed concentrically within the firestop system. Duct to be rigidly supported on both sides of the wall assembly.
4. Pipe Covering — Nom 1 in. (25 mm) thick hollow cylindrical heavy density (3.5 pcf or 56 kg/m³) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. The annular space between the insulated pipe and the steel sleeve shall be min 0 in. (point contact) to max 1 in. (25 mm).
See Pipe Equipment Covering — Materials — (BRGU) Category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
5. Fill, Void or Cavity Material — Sealant — Min 1-1/4 in. (32 mm) depth of sealant applied within the annulus, flush with each surface of the wall assembly. At the point contact location between insulated pipe and wall, a min 1/2 in. (13 mm) diam bead of sealant shall be applied on both surfaces of wall, lapping 1/4 in. (6 mm) beyond the periphery of the opening.
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.

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 BY CEILING OR WALL FOR DAMPER AND SMOKE DETECTOR
SEE ELECTRICAL DRAWINGS FOR WIRING INSTALLATION

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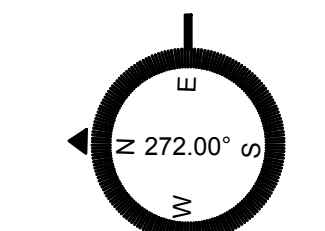


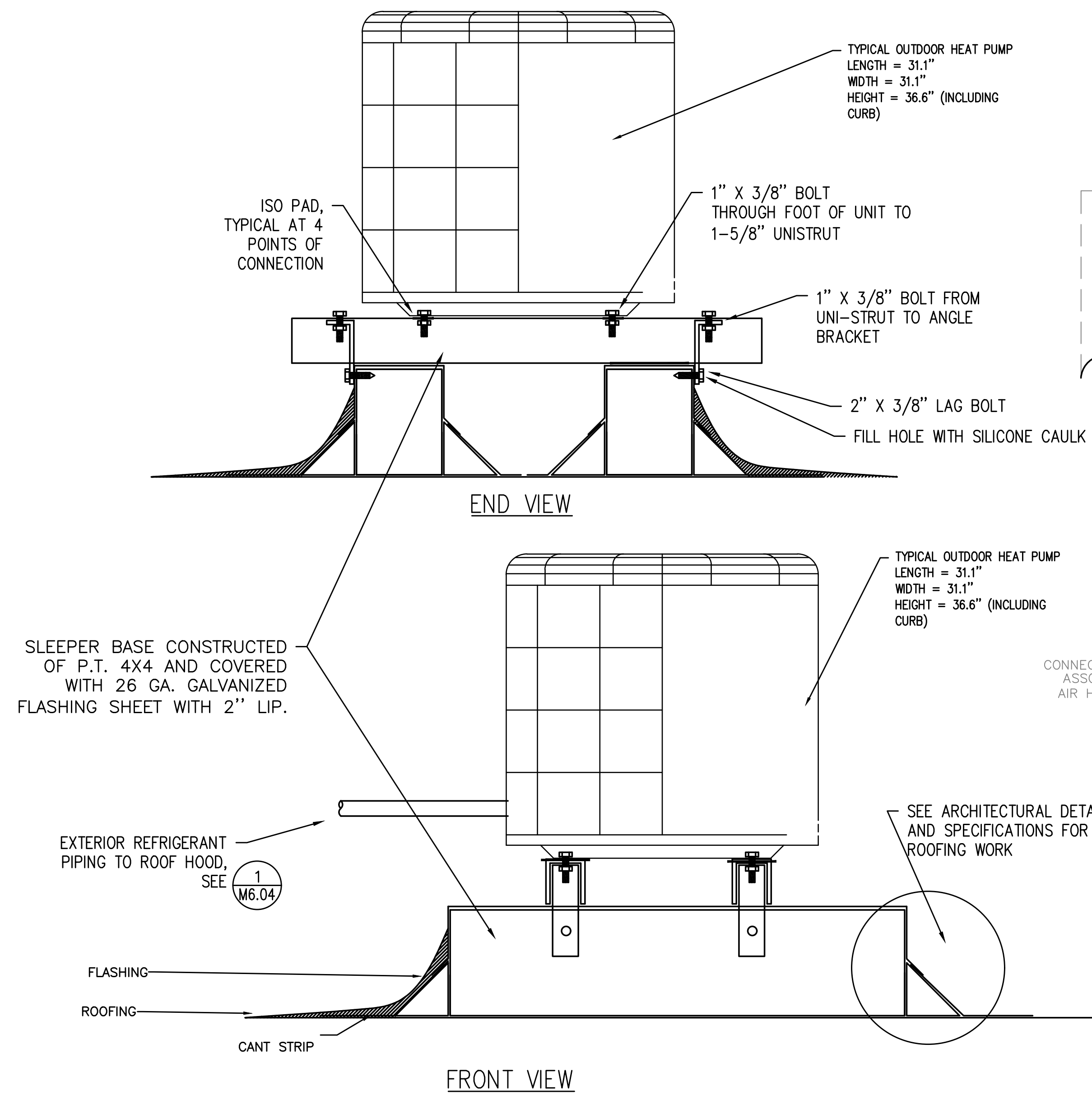
Notes:
(1) Recommended location for optional field cut side power connection.
(2) Horizontal gas connection only. Gas pipe routing within the roofcurb is not available.

7 DOAS UNIT
M6.04 DETAIL

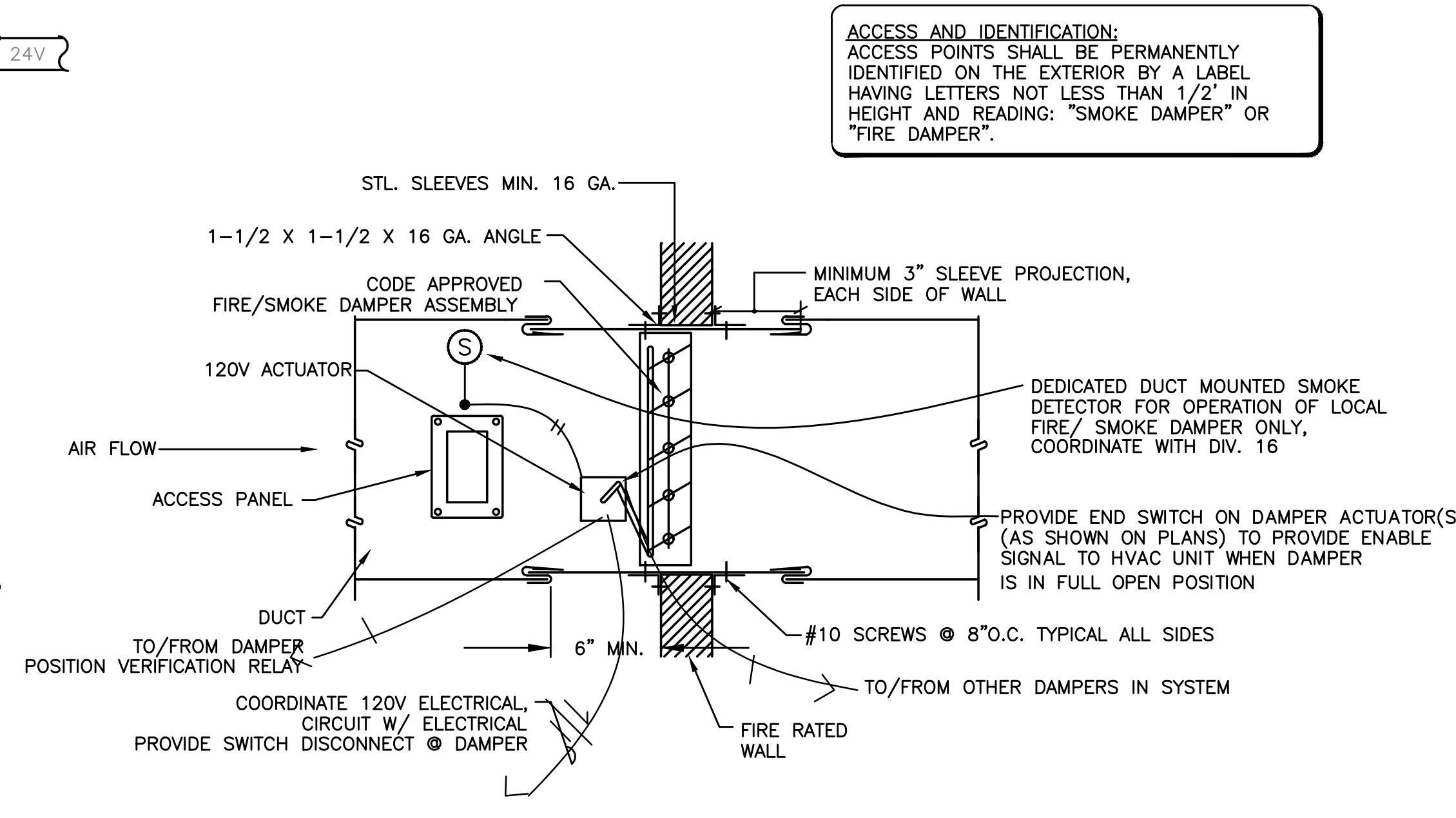
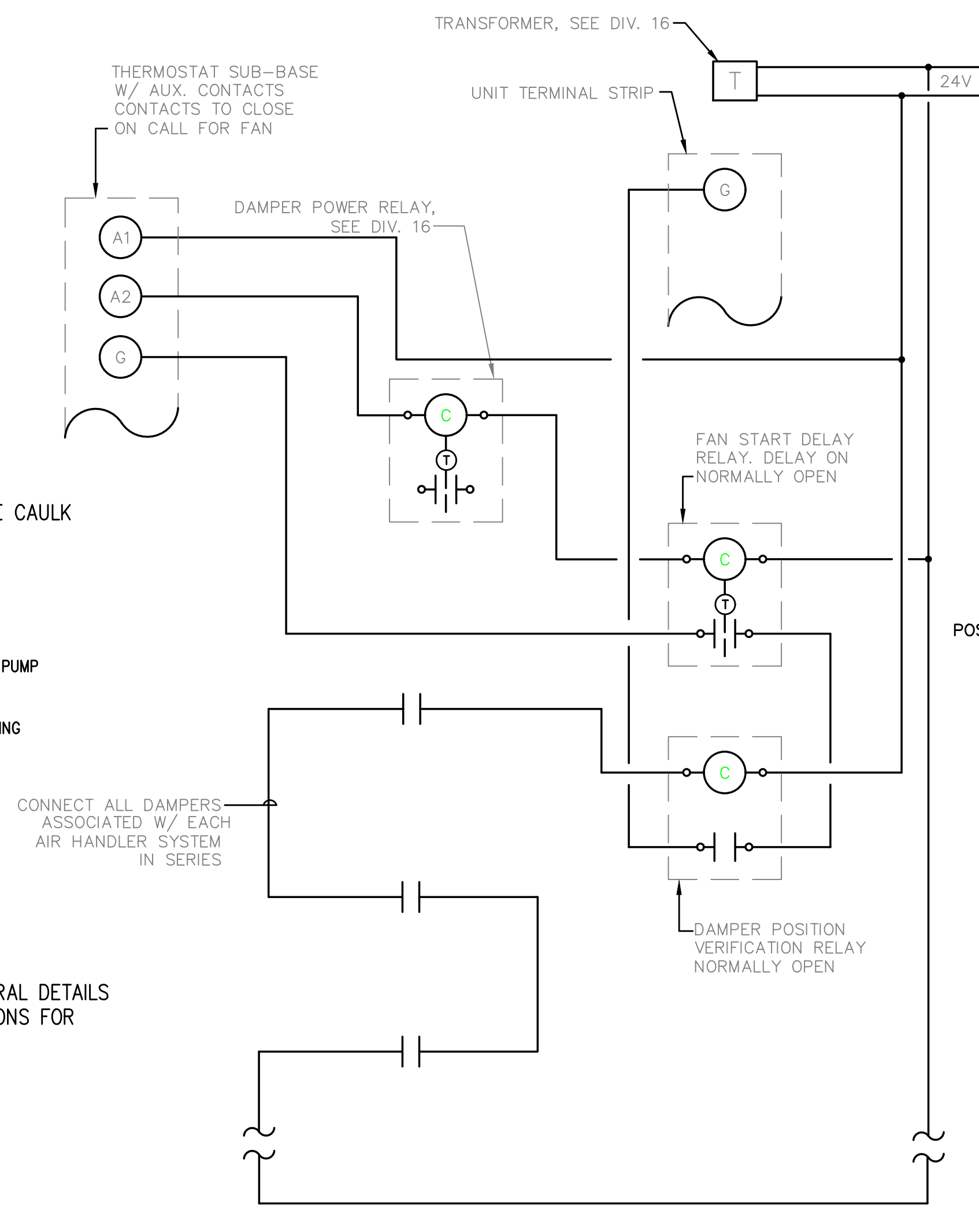
SEE DETAIL 6/M6.04 FOR DOAS CURB INFORMATION

5 FIRE PENETRATION DETAIL — 5" or 6" DUCTS
M6.04 DETAIL





1 HEAT PUMP CURB (VAC-1 & 2)
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

2 FIRE/SMOKE DAMPER W/ SMOKE DETECTOR
NOT TO SCALE

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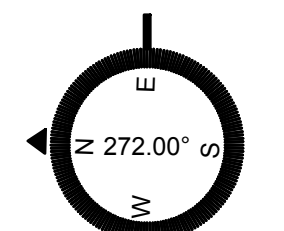
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MECHANICAL
DETAILS
M605

Honeywell Home
ARD and EARD Series Damper

SUBMITTAL SHEET

Job Name	Cambria Hotel	Model	
Engineer	MFA	P. Dia	Qty
Mechanical Contractor	Jacobs	Notes	
Contractor P.O. No.		Qty	Notes
Representative		Approved	Service
Notes		Tag No.	

APPLICATION
The ARD is a power close and spring open zone damper. It has a 24-volt motor used to control circulating air in HVAC systems and is used when normally-open damper is required. The ARD is typically used with TrueZONE electronic zoning systems and others.
The EARD is a power open and spring closed fresh air damper. It has a 24-volt motor used to control circulating air in fresh air ventilation. The EARD is typically controlled by an IAQ thermostat or other whole house ventilation control.

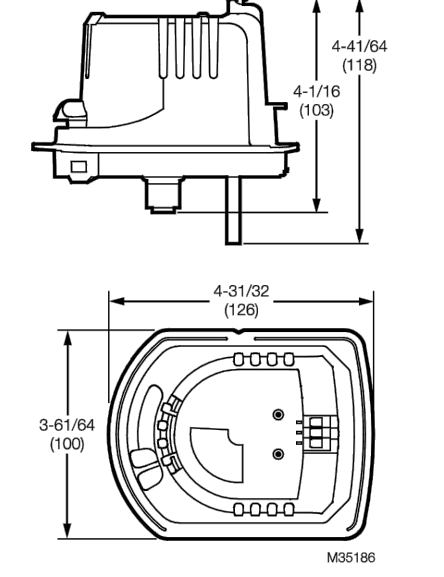
- ARD AND EARD FEATURES**
- ARD Features**
- Adjustable close position range stops.
 - Shipped as power closed/spring return open damper.
 - Available in 5 to 10 inch, 12, 14, 16, 18, and 20 inch diameter sizes.
 - Male (crimped) and female (uncrimped) ends to connect to any rigid or flexible round duct.
 - Rated to operate up to 1 in. wc.
 - Blade closes off tightly against gasket for minimal leakage.
 - Fail-safe, normally open operation.
 - Simple, easy-to-wire, two-wire (M1 and M6) installation. Optional third wire (M4) powers LED in open position only (does not power motor).
- EARD Features**
- Adjustable open position range stops.
 - Shipped as power open/spring return closed damper.
 - Available in 5 to 8 inch diameter sizes.
 - Blade closes off tightly against gasket for minimal leakage.
 - Galvanized steel damper construction.
 - Rated to operate up to 1 in. wc.
 - Simple, easy-to-wire, two-wire installation. Male (crimped) and female (uncrimped) ends to connect to any rigid or flexible round duct.

SPECIFICATIONS
IMPORTANT
The specifications given in this publication do not include normal manufacturing tolerances. Therefore, this unit may not exactly match the listed specifications. Also, this product is tested and calibrated under closely controlled conditions, and some minor differences in performance can be expected if those conditions are changed.
Motor Electrical Rating: 24 Vac, 50 Hz, 8 VA.
Motor Electrical Connection: Push terminals. Solid (not stranded) wire is recommended.
Motor Nominal Angular Rotation: 90°.
Motor Torque: Minimum 71 in.-oz. (500 millinewton meters) output torque available when motor is energized and device is at the spring return initial start position.
Nominal Motor Timing at 77 °F (25 °C) Ambient: Energized at rated load: 30 seconds. De-energized (spring return): 10 seconds.
Motor Ambient Temperature Rating: 40 to 140 °F (5 to 60 °C).
Leakage: Less than 1% at 1/2 in. wc.
Pressure Drop: Maximum at full open: 0.0329 in. wc at 200 CFM.
Maximum Static Pressure: 1 in. wc for all models.
Motor Shaft Rotation Direction: Clockwise, when energized and viewed from the base or shaft end.
Motor Mounting Means: Direct connection to damper shaft.
Motor Mounting Position: Multi-prise.

Construction
ARD Dampers
Frame: Galvanized steel spiral duct, crimped on downstream side.
ARD Sizes: 5 to 10 inch, 12, 14, 16, 18, and 20 inch diameter.
Gauge: ARD5-ARD12: 24 gauge frame, and 22 gauge blade.
Blade: ARD14-ARD20: 22 gauge frame, and 20 gauge blade.

EARD Dampers
Frame: Galvanized steel spiral duct.
ARD Sizes: 5 to 8 inch diameter.

Dimensions in inches (mm)



Replacement Parts
Actuator assembly:
ARD: MB47D-ZONE
EARD: MB47D-VENT

Table 1. ARD models.

ARD5TZ
ARD6TZ
ARD7TZ
ARD8TZ
ARD9TZ
ARD10TZ
ARD12TZ
ARD14TZ
ARD16TZ
ARD18TZ
ARD20TZ

Table 2. EARD models.

EARD5TZ
EARD6TZ
EARD7TZ
EARD8TZ

Damper Dimensions:
ARD and EARD dampers are all approx. 2" longer than the damper diameter. Damper diameter is the number listed after ARD. (Example ARD8TZ is 8" diameter).

Table 3. Approximate ARD/EARD Bleed Rate.

Range stop setting	Bleed Rate
0	Closed
1	16%
2	30%
3	50%

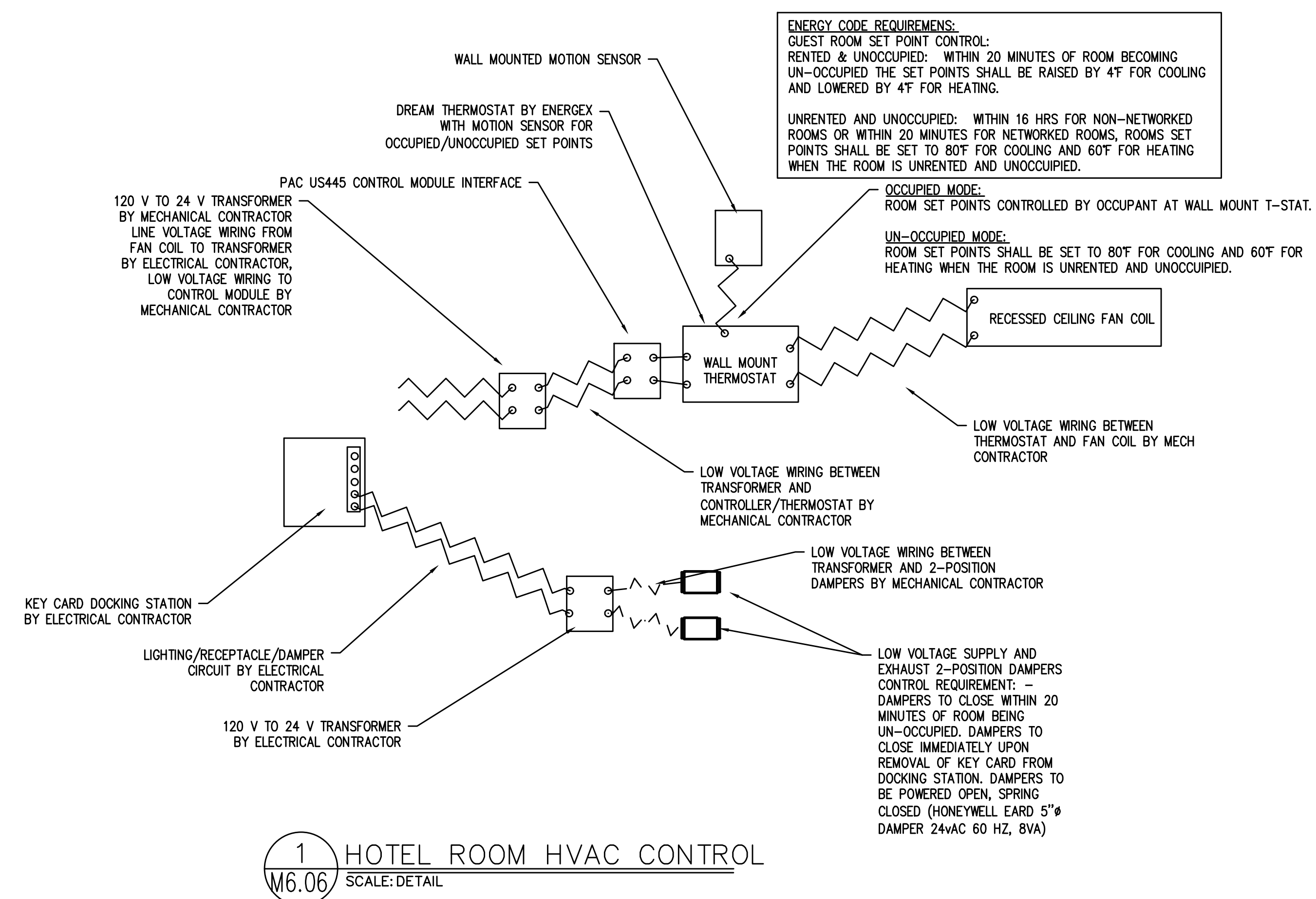
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1 HOTEL ROOM HVAC CONTROL
 M6.06 SCALE: DETAIL

T85320CC-1
 2 H / 2 C - Thermostat with Occupancy Sensor

commercial grade SD card interface, makes EASY programming

Performance PRO[®] Multi-fan

Easy to install occupancy based temperature control, large display, simple user operation, for control of commercial: fan coil, conventional, water source, heat pump and PTAC

ENERGY SAVINGS

- Occupied Timer:** Sets Occupancy Duration for 30 min, 1, 2, 4, 5, 6, 16, 20, 24 Hours. Once the timer expires with no detection the thermostat goes into Setback Ramping.
- Setback Ramping:** Determines how the control will ramp to setback values. Economy - goes directly to setback values. Comfort 1 - sets back at 1°F per Hour until the selected setback value is reached. Comfort 2 - sets back at 2°F per Hour until the selected setback value is reached.
- Setback Setpoints:** Temperature values can be set to OFF or 50-90F (10-32C).
- Low/ High Temp Protection:** Freeze protection on this control is set at 40°F (heat). Over temp protection is set at 110°F (cool).
- Night Lock ON Protection:** To assure comfort settings for guest room operation an optional configuration will hold user setpoints from 10 PM and 8 AM, once occupancy is detected.

PECO AN ASTROTRON COMPANY Powering your future T 85320CC

3 RECESSED CEILING FAN COIL DETAIL
 M6.06 SCALE: 1/8" = 1'-0"

System No. W-L-8081

ANSI/UL1479 (ASTM E814)	CANULC S115
F Rating - 1 and 2 Hr (See Item 1)	F Rating - 1 and 2 Hr (See Item 1)
T Rating - 0 and 1 Hr (See Item 1)	FH Rating - 1 and 2 Hr (See Item 1)
	FTH Rating - 0 and 1 Hr (See Item 1)

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 specified in the individual U300 or U400 Series Wall or Partition Design 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 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
 B. Gypsum Board — Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Max diam of opening is 6 in. (152 mm).
 The hourly F, FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T, FT, FTH Ratings of the firestop system are 0 hr for 1 hr fire rated wall assemblies and 1 hr for 2 hr fire rated wall assemblies.
 2. Air Conditioning (AC) Line Set — Max of three AC line sets bundled within the opening. Each line set consists of one metallic pipe, one insulated metallic pipe and one electrical cable. The aggregate cross-sectional area of the penetrants does not exceed 84 percent of the cross-sectional area of the wall opening. The annular space between the penetrants and the periphery of opening shall be min 0 in. (point contact) to max 1-1/2 in. (38 mm). Penetrants to be rigidly supported on both sides of wall assembly.
 2A. Metallic Pipes — The following types and sizes of metallic pipes, conduits or tubing may be used:
 A. Steel Pipe — Nom 1 in. (25 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
 B. Iron Pipe — Nom 1 in. (25 mm) diam (or smaller) cast or ductile iron pipe.
 C. Conduit — Nom 1/2 in. (13 mm) diam (or smaller) steel conduit or EMT.
 D. Copper Pipe or Tube — Nom 1 in. (25 mm) diam (or smaller) Type L (or heavier) copper tube or Regular (or heavier) copper pipe.

Hilti Firestop Systems
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System No. W-L-8081

2B. Cables — Max 4 pair No. 18 AWG (or smaller) thermostat cable with PVC insulation and jacket.
 2C. Pipe Covering — The following pipe covering shall be used with the metallic pipes (Types 2A, 2B and 2D only) having a nom diam greater than 1/2 in. (13 mm).
 A. Tube Insulation - Plastics# — Nom 1 in. (25 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing.
 See Plastics (PMFZZ) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component Tube Insulation meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.
 3. Firestop System — The details of the firestop system shall be as follows:
 A. Fill, Void or Cavity Material - Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall assembly. Fill material forced into grouped penetrant interstices to max extent possible within opening.
 HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant
 B. Fill, Void or Cavity Material - Wrap Strip - Nom 3/16 in. (5 mm) thick by 1-3/4 in. (44 mm) wide intumescent wrap strip. Wrap strip is continuously wrapped around the outer circumference of bundled penetrants two times with ends butted and held in place with tape. Wrap strip installed flush with both surfaces of wall assembly.
 HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP648-E-V25/1-3/4" Wrap Strip
 C. Steel Collar — Steel collar fabricated from coils of precut min 0.016 in. (0.41 mm) thick (No. 28 gauge) galv steel available from fill material manufacturer. Collar shall be min 1-3/4 in. (44 mm) deep with 1 in. (25 mm) wide by 2 in. (51 mm) long anchor tabs on 1-3/4 in. (44 mm) centers for securement to both surfaces of wall. In addition, collars contain preformed retainer tabs 1/2 in. (13 mm) wide by 3/16 in. (5 mm) long, located opposite the anchor tabs. Collar shall be tightly wrapped over the wrap strip, overlapping min 1 in. (25 mm) at seam and compressed with a min 1/2 in. (13 mm) wide by 0.028 in. (0.71 mm) thick stainless steel band at collar mid-height. Every other anchor tab of collar secured to surface of wall with min 1-1/2 in. (38 mm) long drywall or laminate screws with min 3/4 in. (19 mm) steel washers.

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

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2 MULTIPLE HVAC LINESET PENETRATION
 M6.06 SCALE: DETAIL

System No. W-L-7040

ANSI/UL1479 (ASTM E814)	CANULC S115
F Ratings - 1 and 2 Hr (See Items 1 and 3)	F Ratings - 1 and 2 Hr (See Items 1 and 3)
T Rating - 0 Hr	FT Rating - 0 Hr
L Rating at Ambient - Less Than 1 CFM/sq ft	FH Ratings - 1 and 2 Hr (See Items 1 and 3)
L Rating at 400°F - Less Than 1 CFM/sq ft	FTH Rating - 0 Hr
	L Rating at Ambient - Less Than 1 CFM/sq ft
	L Rating at 400°F - Less Than 1 CFM/sq ft

1. Wall Assembly — The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, U400 or V400 Series Wall and Partition Designs in the 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). Additional framing members shall be used to completely frame around opening.
 B. Gypsum Board — Nom 5/8 in. (16 mm) thick with square or tapered edges. The gypsum wallboard type, number of layers and sheet orientation shall be as specified in the individual Wall and Partition Design Number. Max area of opening is 1300 in.² (0.84 m²) with the dimension of 50 in. (1,27 m).
 The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
 2. Steel Duct — Nom 24 in. by 48 in. (610 by 1219 mm) (or smaller) No. 24 gauge (or heavier) galv steel duct to be installed within the firestop system. The annular space shall be min 0 (point contact) in. to a max 2 in. (51 mm) Duct to be rigidly supported on both sides of the wall assembly.

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System No. W-L-7040

3. Firestop System — The firestop system shall consist of the following:
 A. Fill, Void or Cavity Material - Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within annulus flush with both surfaces of wall. At point contact location, a min 1/2 in. (13 mm) diam bead of fill material shall be applied to the wall/duct interface on both surfaces of wall.
 HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, FS-ONE MAX Intumescent Sealant, CP601S Elastomeric Firestop Sealant or CP606 Flexible Sealant
 B. Steel Retaining Angle — No. 18 MSG (0.046 in.) galv steel angles cut to fit contour of duct with a 2 in. overlap on the duct and a min 1 in. overlap on the gypsum board assembly on both surfaces of wall. 2 in. leg of angle secured to duct with min No. 6 by 3/4 in. long sheet metal screws, spaced a max of 6 in. OC. When bead of fill material is used at joint contact locations, angles shall be installed prior to full material curing.

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

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4 DUCTWORK PENETRATION
 M6.06 SCALE: DETAIL

BASKERVILL, P.O. BOX 400, RICHMOND, VA 23218-0400

07/21/2022



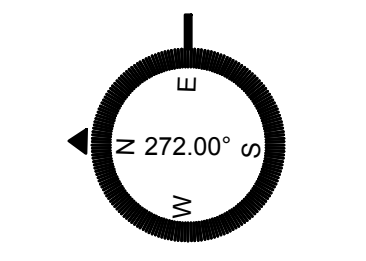
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PROJECT NUMBER
 2.210516.0

CAMBRIA PORTLAND
 165 NW PARK AVENUE, PORTLAND, OR 97209

10/19/2022 BUILDING REVIEW COMMENTS
 ISSUE

07/21/2022
 CONSTRUCTION DOCUMENTS



MECHANICAL
 DETAILS
 M606



MODEL: PAC-US445CN-1

Job Name: _____ Date: _____
System Reference: _____

ADVANCED FEATURES:

- 240VAC Heat
- Stop to heating or cooling for 2 hours since W1 or Y1 is no longer active (default)
- Turn off the unit or go to fan mode immediately depending on G signal
- Fan Speed during cooling: Manual off if G is off
- OFF (default)
- Extra low
- Fan speed during heating: Manual off
- OFF (default)
- Extra low
- Fan speed
- Custom Auto (default, more comfortable than Auto)
- Medium
- High
- Auto (more efficient than Custom Auto)
- Two-stage thermostat operation
 - Control as selected (default)
 - Full capacity
- Ball/Pressure-Independent Drafting
- CO2 operation during heating
- OFF (default)
- ON
- Auto-recovery after power failure
- Based on Thermostat Power Supply Source
- Set Emergency and test mode operations
- OFF Thermostat control heat and fan speeds (default)
- ON Test mode operation
- Thermostat Interface DIP switch settings for each HEAT™ ON Y1 & Y2

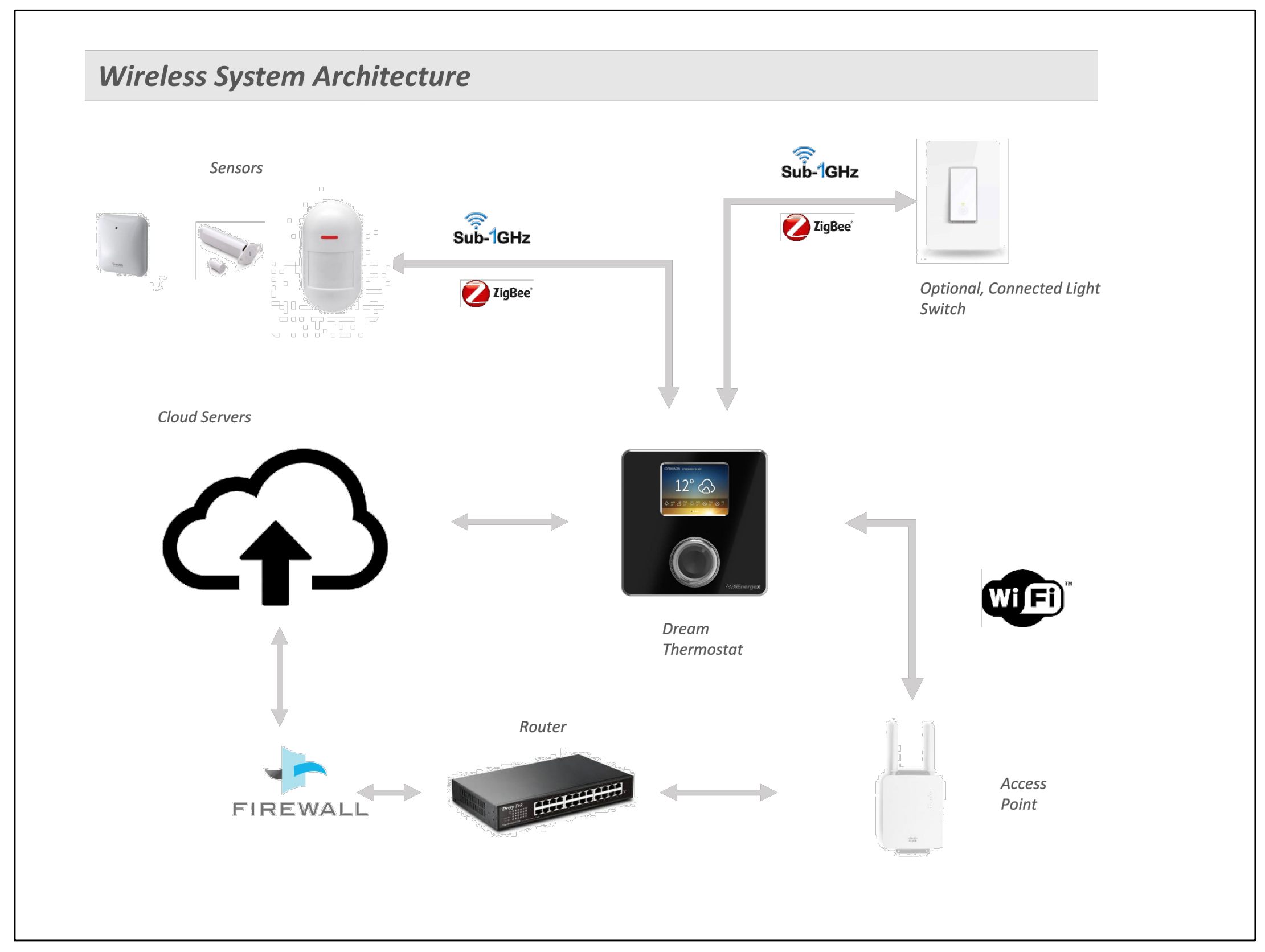
TERMINALS:

Connector	Purpose	Purpose
TC	Common (In)	To Transformer
C	Common (Out)	To Thermostat
TR	24VAC (In)	To Transformer
R	24VAC (Out)	To Transformer
G3	Fan High	High Fan Speed
G2	Fan Medium	Medium Fan Speed
G1	Fan Low	Low Fan Speed
Y2	Y2	Stage 2 Cooling
Y1	Y1	Stage 1 Cooling
W2	W2	Stage 2 Heating
W1	W1	Stage 1 Heating
G	G	Fan

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DIMENSIONS AND WIRING DIAGRAMS: PAC-US445CN-1

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1 GUEST ROOM THERMOSTAT CONTROL
SCALE: DETAIL

System No. W-L-1410

ANSI/UL1419 (ASTM E814)	CANULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Rating — 0 Hr	FT Rating — 0 Hr
FH Ratings — 1 and 2 Hr (See Item 1)	FH Ratings — 1 and 2 Hr (See Item 1)
	FTH Rating — 0 Hr

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 specified in the individual U30, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- 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. (408 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
- Gypsum Board — One or two layers of nom 5/8 in. (16 mm) thick gypsum board as specified in the individual Wall and Partition Design. Max diam of opening is 5 in. (127 mm).

2. Through penetration — One metallic pipe or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space shall be 0 in. (point contact) to 1 in. (25 mm). Pipe or conduit to be rigidly supported on the penetrated side of the wall assembly. The following types and sizes of metallic pipes or conduits may be used:

- Steel pipe — Nom 3 in. (76 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
- Conduit — Nom 3 in. (76 mm) diam (or smaller) rigid electrical metallic tubing (EMT), nom 3 in. (76 mm) diam steel conduit or nom 1 in. (25 mm) diam (or smaller) flexible steel conduit.
- Copper tubing — Nom 1 in. (25 mm) diam (or smaller) Type L (or heavier) copper tubing.
- Copper Pipe — Nom 1 in. (25 mm) diam (or smaller) Rigid (or heavier) copper pipe.

3. Fill, Void or Cavity Material — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus. Flush with surface of wall. Min 1/2 in. (13 mm) diam bead of sealant applied at point contact location.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, FS-ONE MAX Intumescent Sealant, CFS-S-SIL, GG Sealant, CP615 Customers: Sealant, CP 606 Sealant or CP15 Putty.

++ Bearing the UL Classification Mark

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2 VERTICAL FLOOR PENETRATION — REFRIGERANT PIPING
SCALE: DETAIL

UL/cUL SYSTEM NO. F-C-1009

METAL PIPE THROUGH WOOD FLOOR/CEILING ASSEMBLY

F-RATING = 1-HR. OR 2-HR.
T-RATING = 1/4-HR.
L-RATING AT AMBIENT = LESS THAN 1 CFM / SQ FT
L-RATING AT 400° F = 4 CFM / SQ FT

- WOOD FLOOR/CEILING ASSEMBLY (UL/cUL CLASSIFIED L500 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN).
- (OPTIONAL) FIRE-RATED OR NON-RATED SINGLE, DOUBLE, OR STAGGERED WOOD STUD/GYPSUM CHASE WALL ASSEMBLY CONSISTING OF NOMINAL 2" x 6" OR PARALLEL 2" x 4" LUMBER PLATES AND STUDS.
- PENETRATING ITEM TO BE ONE OF THE FOLLOWING:
 - MAXIMUM 4" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
 - MAXIMUM 4" NOMINAL DIAMETER CAST OR DUCTILE IRON PIPE.
 - MAXIMUM 4" NOMINAL DIAMETER COPPER PIPE OR TUBING.
 - MAXIMUM 4" NOMINAL DIAMETER STEEL CONDUIT OR EMT.
- MINIMUM 3/4" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT, HILTI CP 606 FLEXIBLE FIRESTOP SEALANT, OR HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT FLUSH WITH TOP SURFACE OF FLOOR OR SOLE PLATE.
- MINIMUM 3/4" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT, HILTI CP 606 FLEXIBLE FIRESTOP SEALANT, OR HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT FLUSH WITH BOTTOM SURFACE OF CEILING OR LOWER TOP PLATE.

NOTES:

- DIAMETER OF OPENING TO BE MAXIMUM 1" LARGER THAN DIAMETER OF PIPE OR SQUARE-CUT WITH A MAXIMUM DIMENSION 1" GREATER THAN THE DIAMETER OF PIPE.
- WHEN LUMBER PLATES ARE DISCONTINUOUS, ATTACH A NOMINAL 1-1/2" WIDE 20 GA. (OR HEAVIER) GALVANIZED STEEL PLATE TO EACH END OF LUMBER PLATE. STEEL PLATES SHOULD OVERLAP 2" ONTO LUMBER, AND SECURED WITH STEEL SCREWS OR NAILS.
- ANNULAR SPACE = MINIMUM 0", MAXIMUM 1"
- L-RATINGS APPLY ONLY WHEN HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT IS USED.

HILTI Hilti Firestop Systems
HILTI, Inc. Plano, Texas USA (800) 879-8000
Sheet 1 of 1
Scale 3/32" = 1"
Date Apr. 16, 2018
Drawing No. FC 1009u
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