

SECTION 23 05 93 - TESTING, ADJUSTING AND BALANCING FOR HVAC

- PART 1 - GENERAL
1. QUALITY ASSURANCE: ALL TESTING AND BALANCING WORK SHALL BE COMPLETED BY AN INDEPENDENT CONTRACTOR...
PART 2 - PRODUCTS: NA
PART 3 - EXECUTION
1. AIR SYSTEMS
A. PROVIDE ALL LABOR AND MATERIALS REQUIRED TO BALANCE THE SYSTEM AS NOTED ON THE PLANS...
3. REPORTING
A. THE TEST AND BALANCE AGENT SHALL PREPARE A REPORT INCLUDING THE FINAL VALUES OF THE AIR AND WATER SYSTEM BALANCING...
B. THE GENERAL CONTRACTOR SHALL REVIEW THE FINAL BALANCE REPORT PRIOR TO SENDING TO THE TENANT'S CONSTRUCTION MANAGER.

(END OF SECTION 23 05 93)

SECTION 23 07 13 - DUCT INSULATION

- PART 1 - GENERAL
1. INSULATION SHALL BE PROVIDED ON THE FOLLOWING DUCT SERVICES:
A. INDOOR, CONCEALED SUPPLY AND OUTDOOR AIR
B. INDOOR, CONCEALED RETURN
C. INDOOR, CONCEALED OVEN AND WAREWASH EXHAUST FROM AIR TERMINAL TO PENETRATION OF BUILDING EXTERIOR...
PART 2 - PRODUCTS
1. DUCTWORK SHALL HAVE FLEXIBLE FIBERGLASS DUCT WRAP LAMINATED TO FOIL REINFORCED KRAFT VAPOR BARRIER FACING WITH 2" STAPLING FLANGE AND AN INSTALLED R-VALUE OF 4.5.
PART 3 - EXECUTION
1. PREPARATION: CLEAN AND DRY SURFACES. REMOVE MATERIALS THAT WILL ADVERSELY AFFECT INSULATION APPLICATION.
2. GENERAL INSTALLATION REQUIREMENTS:
A. INSTALL INSULATION ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS.
B. INSTALL INSULATION AND ACCESSORIES AND FINISHES WITH SMOOTH, STRAIGHT AND EVEN SURFACES...
3. PENETRATIONS
A. ROOF PENETRATIONS: INSTALL INSULATION CONTINUOUSLY THROUGH ROOF PENETRATIONS...
B. WALL PENETRATIONS: INSTALL INSULATION CONTINUOUSLY THROUGH WALL PENETRATIONS...
C. INTERIOR WALLS: INSTALL INSULATION CONTINUOUSLY THROUGH WALLS AND PARTITIONS THAT ARE NOT FIRE RATED...

(END OF SECTION 23 07 13)

SECTION 23 31 13 - METAL DUCTS

- PART 1 - GENERAL
1. SECTION INCLUDES
A. RECTANGULAR DUCTS AND FITTINGS
B. ROUND DUCTS AND FITTINGS
C. DOUBLE-WALL DUCTWORK AND FITTINGS
D. SHEET METAL MATERIALS
E. SEALANTS AND GASKETS
F. HANGERS AND SUPPORTS
2. PERFORMANCE REQUIREMENTS
A. DUCT CONSTRUCTION, INCLUDING SHEET METAL THICKNESS, SEAM AND JOINT CONSTRUCTION, REINFORCEMENTS AND HANGERS/SUPPORTS SHALL COMPLY WITH THE LATEST VERSION OF SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
3. SECTION REQUIREMENTS
A. SUBMITTALS: NONE REQUIRED.
PART 2 - PRODUCTS
1. RECTANGULAR DUCTS AND FITTINGS:
A. COMPLY WITH SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
B. TRAVELER JOINTS: SELECT JOINT TYPES AND FABRICATE ACCORDING TO SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
C. LONGITUDINAL SEAMS: SELECT SEAM TYPES AND FABRICATE ACCORDING TO SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
2. ROUND DUCTS AND FITTINGS:
A. SPIRAL LOCK SEAM, WITHOUT INSULATION.
B. BASIS OF DESIGN: LINDBA SAFE SINGLE WALL DUCTS AND FITTINGS; ALTERNATES BY MCGILL AIRFLOW.
3. DOUBLE WALL DUCTWORK AND FITTINGS
A. SPIRAL LOCK SEAM, WITH 1" INSULATION THICKNESS.
B. BASIS OF DESIGN: LINDBA SAFE DOUBLE WALL DUCTS AND FITTINGS; ALTERNATES BY MCGILL AIRFLOW.
4. MATERIALS: GALVANIZED SHEET STEEL, COMPLY WITH ASTM A 653/A 653M, G90 COATING DESIGNATION.
5. SEALANTS AND GASKETS:
A. MAXIMUM FLAME-SPREAD INDEX: 25 (WHEN TESTED ACCORDING TO UL 723).
B. MAXIMUM SMOKE-DEVELOPED INDEX: 50 (WHEN TESTED ACCORDING TO UL 723).
C. TWO-PART TAPE SEALING SYSTEM: PROVIDE 3" TAPE CONSTRUCTED OF WOVEN COTTON FIBER IMPREGNATED WITH MINERAL GYPSUM AND MODIFIED ACRYLIC/SILICONE TO FORM A HARD, DURABLE AIRTIGHT SEAL.
6. HANGERS AND SUPPORTS:
A. RECTANGULAR DUCTWORK: HANGER RODS SHALL BE CADMIUM-PLATED STEEL RODS AND NUTS.
B. ROUND DUCTWORK: SUPPORT WITH AIRGRAFT CABLES COMPLYING WITH ASTM A 603.
PART 3 - EXECUTION
1. INSTALLATION
A. DRAWING PLANS, SCHEMATICS AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF DUCTWORK ROUTING.
B. INSTALL DUCTS ACCORDING TO SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
C. UNLESS NOTED OTHERWISE, INSTALL DUCTS PARALLEL AND PERPENDICULAR TO BUILDING LINES.
D. INSTALL DUCTS WITH CLEARANCES AS REQUIRED TO ACCOMMODATE THE INSTALLATION OF INSULATION.
E. INSTALLATION OF EXPOSED DUCTWORK: PROTECT DUCTWORK FROM DAMAGE, REPAIR/REPLACE ALL DAMAGED SECTIONS AND FINISHED WORK.
2. DUCT SEALING: CONSTRUCT DUCTS WITH 2 INCH POSITIVE AND NEGATIVE DUCT PRESSURE CLASSIFICATIONS.
3. HANGER AND SUPPORT INSTALLATION: COMPLY WITH SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
4. CONNECTIONS: MAKE CONNECTIONS TO EQUIPMENT WITH FLEXIBLE CONNECTORS COMPLYING WITH SECTION 23 33 00 'AIR DUCT ACCESSORIES'.
5. CLEANING: CLEAN ALL EXISTING DUCTWORK TO REMAIN PRIOR TO TESTING, ADJUSTING AND BALANCING.
6. PROVIDE AIR BALANCE IN ACCORDANCE WITH SECTION 23 05 93 'TESTING, ADJUSTING, AND BALANCING FOR HVAC.'
7. DUCT ELBOWS
A. RECTANGULAR: PROVIDE HOLLOW-FORMED, DOUBLE THICKNESS TURNING VANES OR RADIUSED ELBOWS WITH INSIDE RADIUS NO SMALLER THAN 1/2 OF THE DUCT WIDTH.
B. ROUND DUCT ELBOWS: PROVIDE RADIUSED ELBOWS WITH AN INSIDE RADIUS NO SMALLER THAN 1/2 OF THE DUCT WIDTH.
8. BRANCH CONFIGURATION
A. RECTANGULAR: COMPLY WITH SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
B. ROUND: COMPLY WITH SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.

(END OF SECTION 23 31 13)

SECTION 23 33 00 - AIR DUCT ACCESSORIES

- PART 1 - GENERAL
1. SECTION INCLUDES
A. BACKDRAFT AND PRESSURE RELIEF DAMPERS
B. MANUAL VOLUME DAMPERS
C. CONTROL DAMPERS
D. FIRE DAMPERS
E. TURNING VANES
F. FLEXIBLE CONNECTORS
G. DUCT ACCESSORY HARDWARE
2. SECTION REQUIREMENTS
A. SUBMITTALS: NONE REQUIRED.
PART 2 - PRODUCTS
1. COMPLY WITH NFPA 90A AND WITH NFPA 90B.
2. COMPLY WITH SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE.
3. GALVANIZED SHEET STEEL: COMPLY WITH ASTM A 653/A 653M, G90 COATING DESIGNATION.
4. BACKDRAFT AND PRESSURE RELIEF DAMPERS: GRAVITY BALANCED, AS SPECIFIED ON THE PLANS.
5. MANUAL VOLUME DAMPERS: STANDARD LEAKAGE RATING WITH LINKAGE OUTSIDE OF AIRFRAME.
6. BLADES: RECTANGULAR DAMPERS SHALL BE MULTIPLE BLADES WITH OPPOSED-BLADE DESIGN.
7. BEARINGS: MOLDED SYNTHETIC.
8. BLADE AXLES: GALVANIZED STEEL.
9. HARDWARE: ZINC-PLATED, DIE CAST CORE WITH DAL HANDLE AND A LOCKING NUT.
10. TURNING VANES: CURVED BLADES OF GALVANIZED SHEET STEEL.
11. FLEXIBLE CONNECTORS: CONSTRUCTED OF FLAME-RETARDANT OR NONCOMBUSTIBLE FABRIC.
12. FRAME: HAT SHAPED WITH MITERED AND WELDED CORNERS.
13. CLASS 1: FACTORY-FABRICATED WITH AA FABRIC STRIP 3-1/2 INCHES WIDE ATTACHED TO TWO STRIPS OF 2-3/4 INCH THICK GALVANIZED SHEET STEEL.
PART 3 - EXECUTION
1. INSTALLATION
A. INSTALL DUCT ACCESSORIES ACCORDING TO APPLICABLE DETAILS IN SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE.
B. INSTALL VOLUME DAMPERS AT POINTS NOTED ON PLANS AND AS REQUIRED FOR SYSTEM BALANCING.
C. SET DAMPERS TO FULLY OPEN POSITION BEFORE TESTING, ADJUSTING AND BALANCING.
D. INSTALL TEST HOLES AT FAN INLETS AND OUTLETS AND WHERE REQUIRED FOR TESTING AND BALANCING PURPOSES.
E. INSTALL FLEXIBLE CONNECTORS TO CONNECT DUCTS TO EQUIPMENT.
2. TESTS AND INSPECTIONS
A. OPERATE DAMPERS TO VERIFY FULL RANGE OF MOVEMENT.
B. INSPECT TURNING VANES FOR PROPER AND SECURE INSTALLATION.

(END OF SECTION 23 33 00)

SECTION 23 33 46 - FLEXIBLE DUCTS

- PART 1 - GENERAL
1. SECTION REQUIREMENTS
A. SUBMITTALS: NONE REQUIRED.
PART 2 - PRODUCTS
1. COMPLY WITH NFPA 90A AND WITH NFPA 90B.
2. COMPLY WITH SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
3. COMPLY WITH ASTM E 961/96M.
4. INSULATED, FLEXIBLE DUCT UL 181, CLASS 1, FACTORY FABRICATED AND INSULATED.
A. PRESSURE RATING: 10" W.G. POSITIVE.
B. MAXIMUM VELOCITY: 4,000 FPM
C. INSULATION R-VALUE: R4.2
5. FLEXIBLE DUCT CONNECTORS SHALL BE NYLON STRAPS IN SIZES 3 THROUGH 18 INCHES TO SUIT DUCT SIZE.
PART 3 - EXECUTION
1. INSTALLATION
A. INSTALL FLEXIBLE DUCTS ACCORDING TO APPLICABLE DETAILS IN SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
B. INSTALL IN INDOOR APPLICATIONS ONLY.
C. CONNECT FLEXIBLE DUCTS TO METAL DUCTS WITH DRAW BANDS AND TAPE.
D. INSTALL DUCTS FULLY EXTENDED.
E. DO NOT BEND DUCTS ACROSS SHARP CORNERS.
F. BENDS OF FLEXIBLE DUCTING SHALL NOT EXCEED A MINIMUM OF ONE DUCT DIAMETER.
G. AVOID CONTACT WITH METAL FIXTURES, WATER LINES, PIPES, ADJACENT DUCTWORK OR CONDUIT.
H. INSTALL FLEXIBLE DUCTS IN A DIRECT LINE, WITHOUT SAGS, TWISTS OR TURNS.
I. SUSPEND FLEXIBLE DUCTS WITH BANDS 1-1/2 INCHES WIDE AND SPACED A MAXIMUM OF 48 INCHES APART.
J. CEILING JOISTS OR TRUSS SUPPORTS, SPACING BETWEEN THESE ELEMENTS SHALL NOT EXCEED 48 INCHES.

(END OF SECTION 23 33 46)

SECTION 23 37 13 - GRILLES, REGISTERS & DIFFUSERS

- PART 1 - GENERAL
1. SECTION REQUIREMENTS
A. SUBMITTALS: NONE REQUIRED.
PART 2 - PRODUCTS
1. GRILLES: MANUFACTURER, MODEL, MATERIAL, FINISH, MOUNTING AND ACCESSORIES SHALL BE AS NOTED IN THE MECHANICAL SCHEDULES.
2. REGISTERS: MANUFACTURER, MODEL, MATERIAL, FINISH, MOUNTING AND ACCESSORIES SHALL BE AS NOTED IN THE MECHANICAL SCHEDULES.
3. DIFFUSERS: MANUFACTURER, MODEL, MATERIAL, FINISH, MOUNTING AND ACCESSORIES SHALL BE AS NOTED IN THE MECHANICAL SCHEDULES.
PART 3 - EXECUTION
1. INSTALLATION
A. INSTALL GRILLES, REGISTERS & DIFFUSERS LEVEL AND PLUMB.
B. INSTALL GRILLES, REGISTERS & DIFFUSERS AS INDICATED.
C. INSTALL GRILLES, REGISTERS & DIFFUSERS WITH AIRTIGHT CONNECTIONS TO DUCTS AND TO ALLOW SERVICE AND MAINTENANCE OF DAMPERS, EXTRACTORS AND OTHER ACCESSORIES.
D. AFTER INSTALLATION, ADJUST REGISTERS & DIFFUSERS TO AIR PATTERNS (IF NOTED) OR AS DIRECTED BY THE TENANT'S CONSTRUCTION MANAGER PRIOR TO STARTING AIR BALANCING.

(END OF SECTION 23 37 13)

SECTION 23 81 29 - VARIABLE REFRIGERANT FLOW SYSTEMS

- PART 1 - GENERAL
1. SECTION REQUIREMENTS
A. SUBMITTALS: SHOP DRAWINGS INDICATING THE DIMENSIONS, WEIGHTS, REQUIRED CLEARANCES, COMPONENTS, EFFICIENCIES, CAPACITIES, ELECTRICAL CHARACTERISTICS AND LOCATION AND SIZE OF EACH FIELD CONNECTION FOR EACH INDOOR AND OUTDOOR UNIT.
B. WARRANTY: SUBMIT A WRITTEN WARRANTY, SIGNED BY THE MANUFACTURER AGREEING TO REPAIR OR REPLACE COMPONENTS OF THE SYSTEM FOR A PERIOD OF ONE YEAR.
C. COMPRESSORS SHALL HAVE A WARRANTY OF SEVEN YEARS.
PART 2 - PRODUCTS
1. DESCRIPTION
A. A VARIABLE CAPACITY, HEAT PUMP HEAT RECOVERY AIR CONDITIONING SYSTEM CAPABLE OF SIMULTANEOUS HEATING AND COOLING.
B. SYSTEM SHALL CONSIST OF AN OUTDOOR UNIT, BRANCH CIRCUIT CONTROLLER, MULTIPLE INDOOR UNITS AND AN INTEGRAL DIRECT DIGITAL CONTROLS SYSTEM.
C. EACH INDOOR UNIT, OR GROUP THEREOF SHALL BE ABLE TO OPERATE IN EITHER COOLING OR HEATING MODE INDEPENDENTLY OF OTHER UNITS/GROUPS AND SHALL BE CAPABLE OF CHANGING MODE WITH NO INTERRUPTION TO SYSTEM FUNCTION.
D. ENERGY COMPLIANCE: COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE ENERGY CODE LISTED ON THE COVER SHEET.
E. ELECTRICAL COMPONENTS, DEVICES AND ACCESSORIES SHALL BE LABELED AND LISTED AS DEFINED IN NFPA 70 BY A QUALIFIED TESTING AGENCY.
2. MANUFACTURERS: AS NOTED IN THE MECHANICAL SCHEDULES. ALTERNATES BY DAIKIN OR PANASONIC. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL STRUCTURAL, ELECTRICAL AND OTHER REQUIREMENTS RESULTING FROM THE SUBSTITUTION. ALL CHANGE ORDERS RESULTING IN THE USE OF AN ALTERNATE SHALL BE PAID FOR BY THIS CONTRACTOR.
3. OUTDOOR UNIT CHARACTERISTICS:
A. AN AIR-COOLED, DIRECT EXPANSION MULTI-ZONE UNIT SPECIFICALLY FOR USE WITH VRF COMPONENTS.
B. UNITS SHALL BE EQUIPPED WITH A SINGLE, INVERTER-DRIVEN SCROLL-TYPE, HERMETIC, MULTI-PORT COMPRESSOR.
C. UNIT SHALL BE FACTORY ASSEMBLED, PIPED AND WIRED AND RUN TESTED AT THE FACTORY.
D. OUTDOOR UNITS MAY BE COMPRISED OF MULTIPLE MODULES, CONNECTED VIA A TWINNING KIT INSTALLED IN THE FIELD.
E. ALL LINESETS TO THE INDOOR UNITS SHALL BE INSULATED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
F. THE OUTDOOR UNIT SHALL HAVE AN ACCUMULATOR WITH REFRIGERANT LEVEL SENSORS AND CONTROLS.
G. THE OUTDOOR UNIT SHALL HAVE A HIGH-EFFICIENCY OIL SEPARATOR.
H. UNIT SHALL DEFOIST ALL CIRCUITS SIMULTANEOUSLY DURING LOW-AMBIENT TEMPERATURES (BELOW 23 DEGREES F.), WHILE IN HOT GAS DEFOIST, THE SYSTEM SHALL SLOW THE INDOOR UNIT FAN SPEED TO MAINTAIN A HIGH DISCHARGE AIR TEMPERATURE.
I. THE OUTDOOR UNIT SHALL BE FURNISHED WITH A 20 GAUGE HOT DIPPED GALVANIZED SNOW/HAIL GUARD.
J. THE OUTDOOR UNIT SHALL BE FURNISHED WITH A FOUR-LEGGED OUTDOOR MOUNTING SYSTEM FROM THE MANUFACTURER.
K. UNIT CASING SHALL BE GALVANIZED STEEL, BONDERIZED AND FINISHED.
L. OUTDOOR UNIT FAN SHALL BE DIRECT DRIVE WITH A VARIABLE SPEED PROPELLER, FAN SHALL HAVE INHERENT PROTECTION WITH PERMANENTLY LUBRICATED BEARINGS.
M. OUTDOOR COIL SHALL BE A 4-SIDED COIL, ELEVATED AT LEAST 12" FROM THE BASE OF THE UNIT. COIL SHALL BE CORRUGATED PLATE FINS ON COPPER TUBING WITH FACTORY-APPLIED CORROSION RESISTANT FINISH. UNCOATED ALUMINUM COIL/FINS ARE NOT ALLOWED.
N. UNIT SHALL HAVE PREWIRED PLUGS FOR OPTIONAL PANEL HEATERS.
O. UNIT POWER SHALL BE AS NOTED IN THE EQUIPMENT SCHEDULES.
P. CONTROL CIRCUITING BETWEEN THE INDOOR UNITS, BRANCH CIRCUIT CONTROLLER AND THE OUTDOOR UNIT SHALL BE 24V DC COMPLETED USING 2-CONDUCTOR, TWISTED PAIR SHIELDED CABLE.
4. REFRIGERANT AND REFRIGERANT PIPING
A. R410A REFRIGERANT SHALL BE REQUIRED FOR SYSTEMS.
B. POLYESTER (POE) OIL SHALL BE REQUIRED FOR SYSTEMS.
C. REFRIGERANT PIPING SHALL BE PHOSPHORUS DEOXIDIZED COPPER WITH A THICKNESS AS DEFINED BY THE MANUFACTURER'S RECOMMENDATIONS.
D. ALL PIPING SHALL BE INSULATED WITH 1/2" CLOSED-CELL INSULATION WITH A FLAME-SPREAD INDEX OF LESS THAN 25, AND A SMOKE-DEVELOPMENT INDEX OF LESS THAN 50.
E. R-VALUE SHALL BE 3.0 OR GREATER.
5. BRANCH CIRCUIT CONTROLLERS
A. BC CONTROLLERS SHALL INCLUDE MULTIPLE BRANCHES TO ALLOW SIMULTANEOUS HEATING AND COOLING.
B. BC CONTROLLERS SHALL BE EQUIPPED WITH A CIRCUIT BOARD THAT INTERFACES TO THE CONTROLS SYSTEM AND SHALL PERFORM ALL FUNCTIONS NECESSARY FOR OPERATION.
C. THE UNIT CASING SHALL BE FABRICATED OF GALVANIZED STEEL.
D. EACH CABINET SHALL HOUSE A LIQUID-GAS SEPARATOR AND MULTIPLE REFRIGERATION CONTROL VALVES AND TWO-TUBE IN-TUBE HEAT EXCHANGERS.
E. REFRIGERANT SERVICE SHUT OFF VALVES SHALL BE FIELD-PROVIDED FOR EACH BRANCH TO ALLOW SERVICE TO INDOOR UNITS WITHOUT OPERATION TO OVERALL SYSTEM.
F. BC CONTROLLERS SHALL HAVE INTEGRAL RESIN DRAIN PAN.
G. UNIT POWER SHALL BE AS NOTED IN THE EQUIPMENT SCHEDULES.
H. CONTROL CIRCUITING BETWEEN THE INDOOR UNITS, BRANCH CIRCUIT CONTROLLER AND THE OUTDOOR UNIT SHALL BE 24V DC COMPLETED USING 2-CONDUCTOR, TWISTED PAIR SHIELDED CABLE.
6. FOUR-WAY CEILING RECESSED CASSETTE UNITS WITH GRILLE
A. 4-WAY CEILING RECESSED CASSETTES WITH GRILLE FOR 2X2' GRID SHALL BE FACTORY ASSEMBLED, WIRED AND RUN TESTED, CONTAINED WITH FACTORY WIRING, PIPING, ELECTRONIC MODULATING LINEAR EXPANSION DEVICE, CONTROL BOARD AND FAN MOTOR.
B. UNIT CABINET SHALL BE CONSTRUCTED TO FIT IN A STANDARD 24" SQUARE CEILING GRID WITH PROVISIONS FOR A FIELD-INSTALLED OUTSIDE AIR INTAKE AND FOUR-WAY GRILLE WITH SELECTABLE TWO, THREE OR FOUR-WAY FLOW.
C. INDOOR FAN SHALL BE DIRECT DRIVE, BALANCED AND WITH PERMANENTLY LUBRICATED BEARINGS AND FOUR SPEED SETTINGS.
D. UNIT SHALL BE FURNISHED WITH A WASHABLE RETURN AIR FILTER.
E. COIL SHALL BE CONSTRUCTED OF SMOOTH PLATE FINS ON COPPER TUBING WITH INNER GROOVES.
F. UNIT POWER SHALL BE AS NOTED IN THE EQUIPMENT SCHEDULES.
G. CONTROL CIRCUITING BETWEEN THE INDOOR UNITS, BRANCH CIRCUIT CONTROLLER AND THE OUTDOOR UNIT SHALL BE 24V DC COMPLETED USING 2-CONDUCTOR, TWISTED PAIR SHIELDED CABLE.
7. HIGH-STATIC, CEILING CONCEALED, DUCTED INDOOR UNITS
A. FACTORY-ASSEMBLED, WIRED AND RUN TESTED, CONTAINING FACTORY WIRING, PIPING, ELECTRONIC MODULATING LINEAR EXPANSION DEVICE, CONTROL CIRCUIT BOARD AND MOTOR.
B. UNIT CABINET SHALL BE CEILING-CONCEALED, DUCTED WITH A FIXED REAR RETURN.
C. FAN SHALL BE DYNAMICALLY BALANCED, DIRECT DRIVEN BY A SINGLE MOTOR WITH PERMANENTLY LUBRICATED BEARINGS.
D. FILTER BOX SHALL BE FURNISHED WITH ALL UNITS.
E. COIL SHALL BE CONSTRUCTED OF SMOOTH PLATE FINS ON COPPER TUBING WITH INNER GROOVES.
F. UNIT POWER SHALL BE AS NOTED IN THE EQUIPMENT SCHEDULES.
G. CONTROL CIRCUITING BETWEEN THE INDOOR UNITS, BRANCH CIRCUIT CONTROLLER AND THE OUTDOOR UNIT SHALL BE 24V DC COMPLETED USING 2-CONDUCTOR, TWISTED PAIR SHIELDED CABLE.
PART 3 - EXECUTION
1. INSTALLATION
A. OUTDOOR UNITS: INSTALL OUTDOOR UNITS ON MANUFACTURER'S FURNISHED STANDS.
B. INDOOR UNITS: INSTALL UNITS LEVEL FROM STRUCTURE, ON NEOPRENE TYPE VIBRATION ISOLATORS AS NOTED ON THE STRUCTURAL DRAWINGS.
2. CONNECTIONS
A. COMPLY WITH DUCT INSTALLATION REQUIREMENTS SPECIFIED IN OTHER HVAC SECTIONS.
B. CONNECT SUPPLY AND RETURN AIR DUCTS WITH FLEXIBLE DUCT CONNECTORS AS NOTED IN SECTION 23 33 00.
C. INSTALL CONDENSATE DRAIN WITH TRAP AND INDIRECT CONNECTION AS NOTED ON THE PLANS AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
D. CONNECT REFRIGERANT PIPING PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
E. INSTALL PIPING AND DUCTWORK ADJACENT TO EQUIPMENT TO ALLOW SPACE FOR SERVICE AND MAINTENANCE.
F. CONNECT CONTROLS WIRING TO THE THERMOSTAT, TEMPERATURE SENSOR AND UNIT AS DESCRIBED IN THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
G. CONNECT ELECTRICAL WIRING IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
3. FIELD QUALITY CONTROL
A. AFTER INSTALLING ALL EQUIPMENT, TEST UNITS FOR COMPLIANCE WITH REQUIREMENTS.
B. INSPECT OR REMOVE SHIPPING BOLTS, BLOCKS AND TIE-DOWN STRAPS.
C. CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATION.
D. TEST AND ADJUST CONTROLS AND SAFETIES, REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.
E. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, START UNITS TO CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATION.
F. CLEAN FILTER HOUSINGS AND CHANGE FILTERS PRIOR TO AIR BALANCE AND IMMEDIATELY PRIOR TO TURNOVER.

(END OF SECTION 23 81 29)



sweetgreen

3101 W. EXPOSITION BLVD. LOS ANGELES, CALIFORNIA 90018

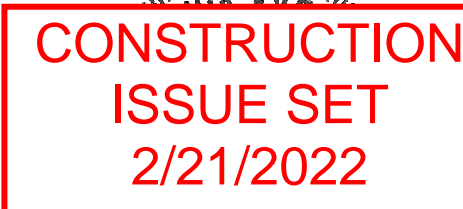
THESE DRAWINGS & SPECIFICATIONS ARE CONFIDENTIAL AND SHALL REMAIN THE SOLE PROPERTY OF SWEETGREEN CORPORATION. THEY SHALL NOT BE REPRODUCED IN WHOLE OR IN PART, SHARED WITH THIRD PARTIES OR USED IN ANY MANNER ON OTHER PROJECTS OF ANY TYPE AND MAY NOT REFLECT ACTUAL SITE CONDITIONS. NEITHER PARTY SHALL HAVE ANY OBLIGATION OR LIABILITY TO THE OTHER EXCEPT AS STATED ABOVE UNTIL A WRITTEN AGREEMENT IS FULLY EXECUTED.

ENGINEER OF RECORD:



EVERJ ENGINEERING, INC. 1509 BUCK TRAIL LANE WORTHINGTON, OH 43085 240-319-0822 www.everjengineering.com

STAMP:



Professional Engineer signature and date 09/29/2021

PROJECT INFORMATION: DOWNTOWN INDIANAPOLIS PROJECT INFORMATION: 157 NEW YORK STREET INDIANAPOLIS, IN 46204

DRAWN BY: JAE CHECKED BY: JAE PROJECT MANAGER: J. EVERETT SG DESIGN MANAGER: LK SG CONSTR. MANAGER: JB PROJECT NO: 210005

TEMPLATE VERSION: 04/02/2021

REVISIONS REV. DATE DESCRIPTION

MECHANICAL SPECIFICATIONS

M-010

| Section # & Req.ID | Footing / Foundation Inspection | Complies? | Comments/Assumptions |
|--------------------|--|--|---|
| 6.4.3.8 [FO9] | Freeze protection and snow/ice melting system sensors for future connection to controls. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Exception: Requirement does not apply. |

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: sweetgreen - Ardmore Report date: 09/07/21
 Data filename: C:\Users\Josh\Documents\Projects\2021\210005-SG-DT Indy, Ardmore, IN\Calculations\sweetgreen-Ardmore COMcheck.cck Page 3 of 10

COMcheck Software Version 4.1.4.1 Inspection Checklist

Energy Code: 90.1 (2007) Standard

Requirements: 100.0% were addressed directly in the COMcheck software
 Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

| Section # & Req.ID | Plan Review | Complies? | Comments/Assumptions |
|--------------------|--|--|---|
| 4.2.2, 6.4.2 [PR2] | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 4.2.2, 7.4.1 [PR3] | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the service water heating systems and equipment and document where exceptions to the standard are claimed. Hot water system sized per manufacturer's sizing guide. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.7.2.4 [PR5] | Detailed instructions for HVAC systems commissioning included on the plans or specifications for projects >=50,000 ft ² . | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Exception: Requirement does not apply. |

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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 Data filename: C:\Users\Josh\Documents\Projects\2021\210005-SG-DT Indy, Ardmore, IN\Calculations\sweetgreen-Ardmore COMcheck.cck Page 2 of 10

COMcheck Software Version 4.1.4.1 Mechanical Compliance Certificate

Project Information

Energy Code: 90.1 (2007) Standard
 Project Title: sweetgreen - Ardmore
 Location: Indianapolis, Indiana
 Climate Zone: 5a
 Project Type: Alteration

Owner/Agent: sweetgreen
 3101 W. Exposition Blvd.
 Los Angeles, CA 90018

Designer/Contractor: EverJ Engineering, Inc.
 1509 Buck Trail Lane
 Worthington, OH 43085

Mechanical Systems List

Quantity System Type & Description

1 VRF System (CU-1 & AHU-1-AHU-5)
 Split System Heat Pump
 Heating Mode: Capacity = 146 kBtu/h
 Proposed Efficiency = 3.36 COP, Required Efficiency = 3.20 COP
 Cooling Mode: Capacity = 226 kBtu/h, No Economizer, Economizer exception: Humidity Requirements
 Proposed Efficiency = 11.20 EER, Required Efficiency: 10.60 EER
 Fan System: None

SYSTEM VERIFICATION REQUIRED.

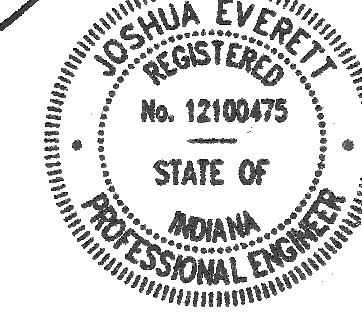
1 Water Heater 1
 Gas Storage Water Heater, Capacity: 100 gallons, Input Rating: 199 kBtu/h w/ Circulation Pump
 Proposed Efficiency: 97.00 % EI, Required Efficiency: 80.00 % EI

SWH COMPLIANCE REQUIRED.

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2007) Standard requirements in COMcheck Version 4.1.4.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Joshua Everett, P.E. - Principal
 Name - Title: Joshua Everett, P.E. Date: 09/29/2021



Project Title: sweetgreen - Ardmore Report date: 09/07/21
 Data filename: C:\Users\Josh\Documents\Projects\2021\210005-SG-DT Indy, Ardmore, IN\Calculations\sweetgreen-Ardmore COMcheck.cck Page 1 of 10

| Section # & Req.ID | Mechanical Rough-In Inspection | Plans Verified Value | Field Verified Value | Complies? | Comments/Assumptions |
|--------------------|---|----------------------|----------------------|--|---|
| 6.5.2.3 [ME19] | Dehumidification controls provided to prevent reheating, recoling, mixing of hot and cold airstreams or concurrent heating and cooling of the same airstream. | | | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.5.4.1 [ME25] | HVAC pumping systems >10 hp designed for variable fluid flow. | | | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.5.6.1 [ME30] | Exhaust air energy recovery on systems >=5,000 cfm and 70% of design supply air. | | | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Exception: Requirement does not apply. |
| 6.5.7.1 [ME32] | Kitchen hoods >5,000 cfm have make up air >=50% of exhaust air volume. | | | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Exception: Requirement does not apply. |
| 6.5.7.2 [ME33] | Fume hoods exhaust systems >=15,000 cfm have VAV hood exhaust and supply systems, direct make-up air or heat recovery. | | | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Exception: Requirement does not apply. |
| 6.5.8.1 [ME34] | Unenclosed spaces that are heated use only radiant heat. | | | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Exception: Requirement does not apply. |
| 7.4.2 [ME36] | Service water heating equipment meets efficiency requirements. | | | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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| Section # & Req.ID | Mechanical Rough-In Inspection | Plans Verified Value | Field Verified Value | Complies? | Comments/Assumptions |
|--|--|----------------------|----------------------|--|---|
| 6.4.1.4, 6.4.1.5 [ME1] | HVAC equipment efficiency verified. Non-NAECA HVAC equipment labeled as meeting 90.1. | Efficiency: _____ | Efficiency: _____ | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | See the Mechanical Systems list for values. |
| 6.4.3.4.1 [ME3] | Stair and elevator shaft vents have motorized dampers that automatically close. | | | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Exception: Requirement does not apply. |
| 6.4.3.4.2, 6.4.3.4.3, 6.4.3.4.4 [ME4] | Outdoor air and exhaust systems have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Check gravity dampers where allowed. | | | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.4.3.4.5 [ME5] | Ventilation fans >0.75 hp have automatic controls to shut off fan when not required. | | | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.4.3.9 [ME6] | Demand control ventilation provided for spaces >500 ft ² and >40 people/1000 ft ² occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm. | | | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Exception: Systems with a design outdoor airflow less than 1200 cfm. |
| 6.4.4.1.1 [ME7] | Insulation exposed to weather protected from damage, insulation outside of the conditioned space and associated with cooling systems is vapor retardant. | | | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.4.4.1.2 [ME8] | HVAC ducts and plenums insulated. | R-_____ | R-_____ | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.4.4.1.3 [ME9] | HVAC piping insulation thickness. | _____ in. | _____ in. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.4.4.2.1 [ME10] | Ducts and plenums sealed based on static pressure and location. | | | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.4.4.2.2 [ME11] | Ductwork operating >3 in. water column requires air leakage testing. | | | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Exception: Requirement does not apply. |
| 6.5.1, 6.5.1.1.1, 6.5.1.1.2, 6.5.1.1.3, 6.5.1.3 [ME12] | Air economizers provided where required, meet the requirements for design capacity, control signal, ventilation controls, high-limit shut-off, integrated economizer control, and provide a means to relieve excess outside air during operation. | | | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |

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| Section # & Req.ID | Plumbing Rough-In Inspection | Complies? | Comments/Assumptions |
|--------------------|--|--|--------------------------|
| 7.4.3 [PL1] | Service hot-water piping systems insulated. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 7.4.4.1 [PL2] | Temperature controls installed on service water heating systems (<=120°F to maximum temperature for intended use). | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 7.4.4.2 [PL3] | Automatic time switches installed to automatically switch off the recirculating hot-water system or heat trace. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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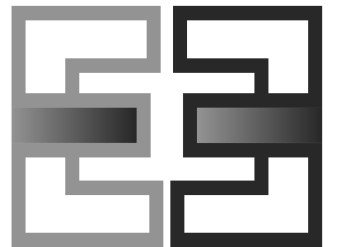


sweetgreen

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LOS ANGELES, CALIFORNIA 90018

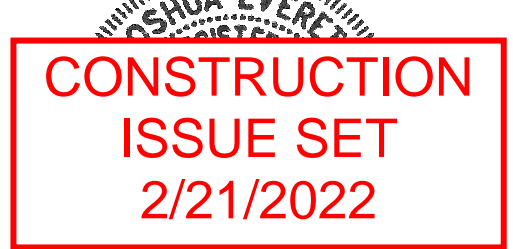
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ENGINEER OF RECORD:



EVERJ ENGINEERING, INC.
1509 BUCK TRAIL LANE
WORTHINGTON, OH 43085
240-319-0822
www.everjengineering.com

STAMP:



09/29/2021

PROJECT INFORMATION:
DOWNTOWN INDIANAPOLIS
157 NEW YORK STREET
INDIANAPOLIS, IN 46204

DRAWN BY: JAE
 CHECKED BY: JAE
 PROJECT MANAGER: J. EVERETT
 SG DESIGN MANAGER: LK
 SG CONSTR. MANAGER: JB
 PROJECT NO: 210005
 TEMPLATE VERSION: 04/02/2021

REVISIONS
REV. DATE DESCRIPTION

ENERGY COMPLIANCE FORMS

M-020

| Section # & Req.ID | Final Inspection | Complies? | Comments/Assumptions |
|--------------------|---|--|--------------------------|
| 6.4.3.3.2 [F122] | Setback controls allow automatic restart and temporary operation as required for maintenance. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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| Section # & Req.ID | Final Inspection | Complies? | Comments/Assumptions |
|---|--|--|---|
| 6.4.3.1.1 [F12] | Heating and cooling to each zone is controlled by a thermostat control. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.4.3.1.2, 6.4.3.2, 6.4.3.3, 6.4.3.3.1, 6.4.3.3.2 [F13] | Thermostatic controls have a 5 °F deadband. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.4.3.5 [F15] | Heat pump controls prevent supplemental electric resistance heat from coming on when not needed. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.4.3.7 [F16] | When humidification and dehumidification are provided to a zone, simultaneous operation is prohibited. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.7.2.1 [F17] | Furnished HVAC as-built drawings submitted within 90 days of system acceptance. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.7.2.2 [F18] | Furnished O&M manuals for HVAC systems within 90 days of system acceptance. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.7.2.3 [F19] | An air and/or hydronic system balancing report is provided for HVAC systems serving zones >5,000 ft2 of conditioned area. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Exception: Requirement does not apply. |
| 6.7.2.4 [F10] | HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 7.4.4.3 [F11] | Public lavatory faucet water temperature <=110°F. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 7.4.4.4 [F12] | Controls are installed that limit the operation of a recirculation pump installed to maintain temperature of a storage tank. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.4.3.2 [F120] | Temperature controls have setpoint overlap restrictions. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| 6.4.3.3.1 [F121] | HVAC systems equipped with at least one automatic shutdown control. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |

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| Section # & Req.ID | Rough-In Electrical Inspection | Complies? | Comments/Assumptions |
|--------------------|---|--|--------------------------|
| 10.4.1 [EL3] | Electric motors meet requirements where applicable. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |

Additional Comments/Assumptions:

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sweetgreen

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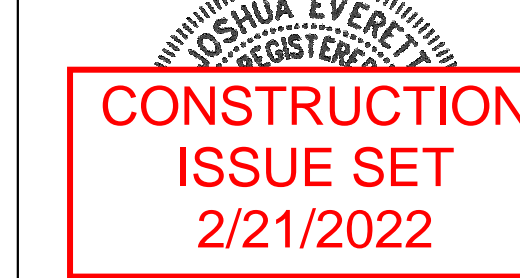
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M-021

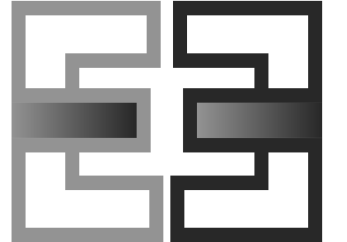


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CONSTRUCTION
ISSUE SET
2/21/2022

9/29/2021

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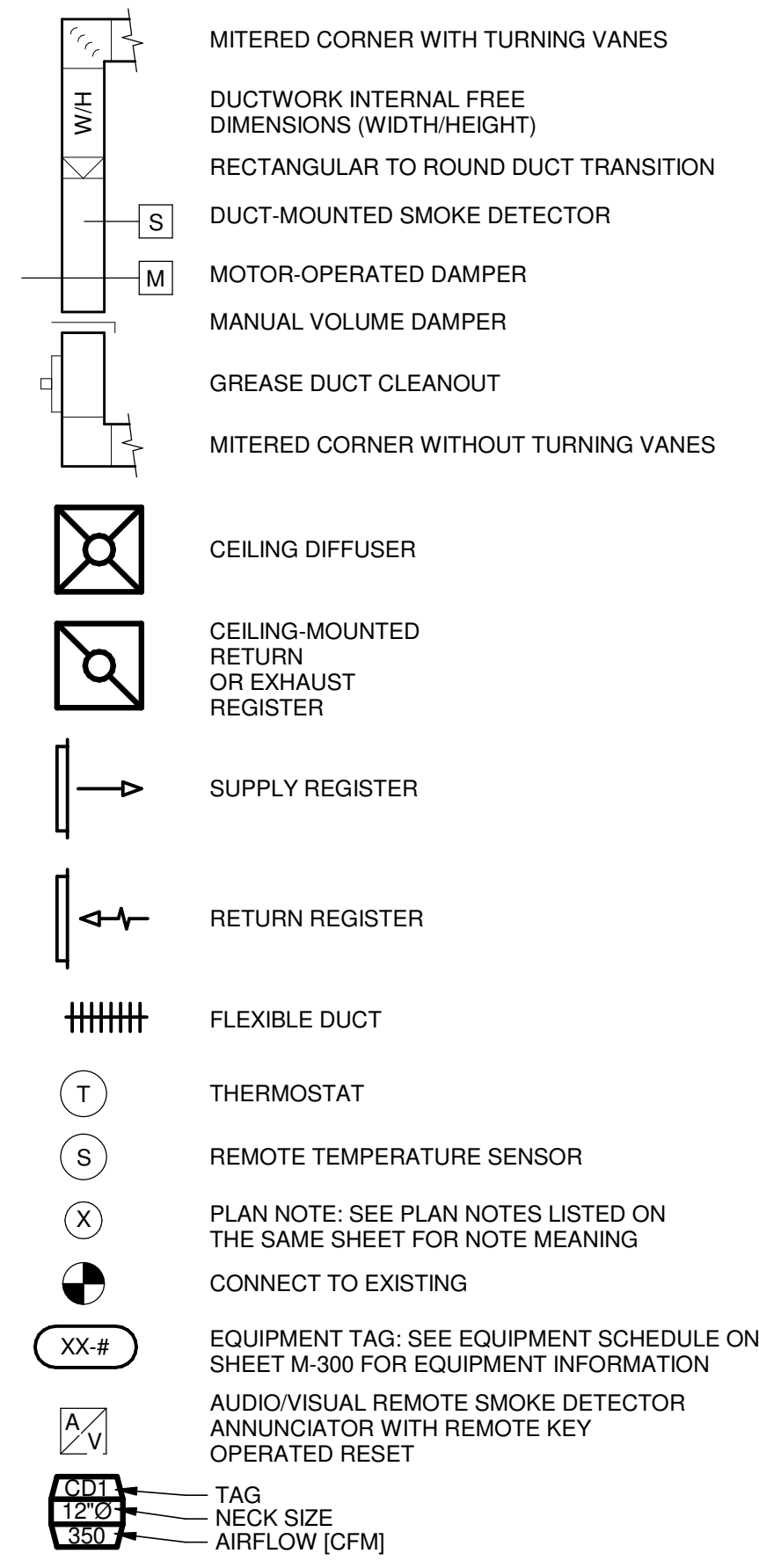
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HVAC PLAN

M-100

SYMBOLS & ABBREVIATIONS

HVAC SYMBOLS



HVAC ABBREVIATIONS

| | |
|------|-------------------------------------|
| AFF | ABOVE FINISHED FLOOR |
| AFG | ABOVE FINISHED GRADE |
| AHU | AIR HANDLING UNIT |
| BC | BLOWER COIL |
| CD | CEILING DIFFUSER |
| CU | CONDENSING UNIT |
| EF | EXHAUST FAN |
| ER | EXHAUST REGISTER |
| EXTG | EXISTING |
| GC | GENERAL CONTRACTOR |
| HES | TENANT'S HVAC EQUIPMENT SUPPLIER |
| KES | TENANT'S KITCHEN EQUIPMENT SUPPLIER |
| OBD | BLADE DAMPER |
| PL | PLENUM |
| RG | RETURN GRILLE |
| RTU | ROOFTOP UNIT |
| SD | SLOT DIFFUSER |
| SR | SUPPLY REGISTER |
| VSC | VARIABLE SPEED CONTROL |
| WSHP | WATER SOURCE HEAT PUMP |

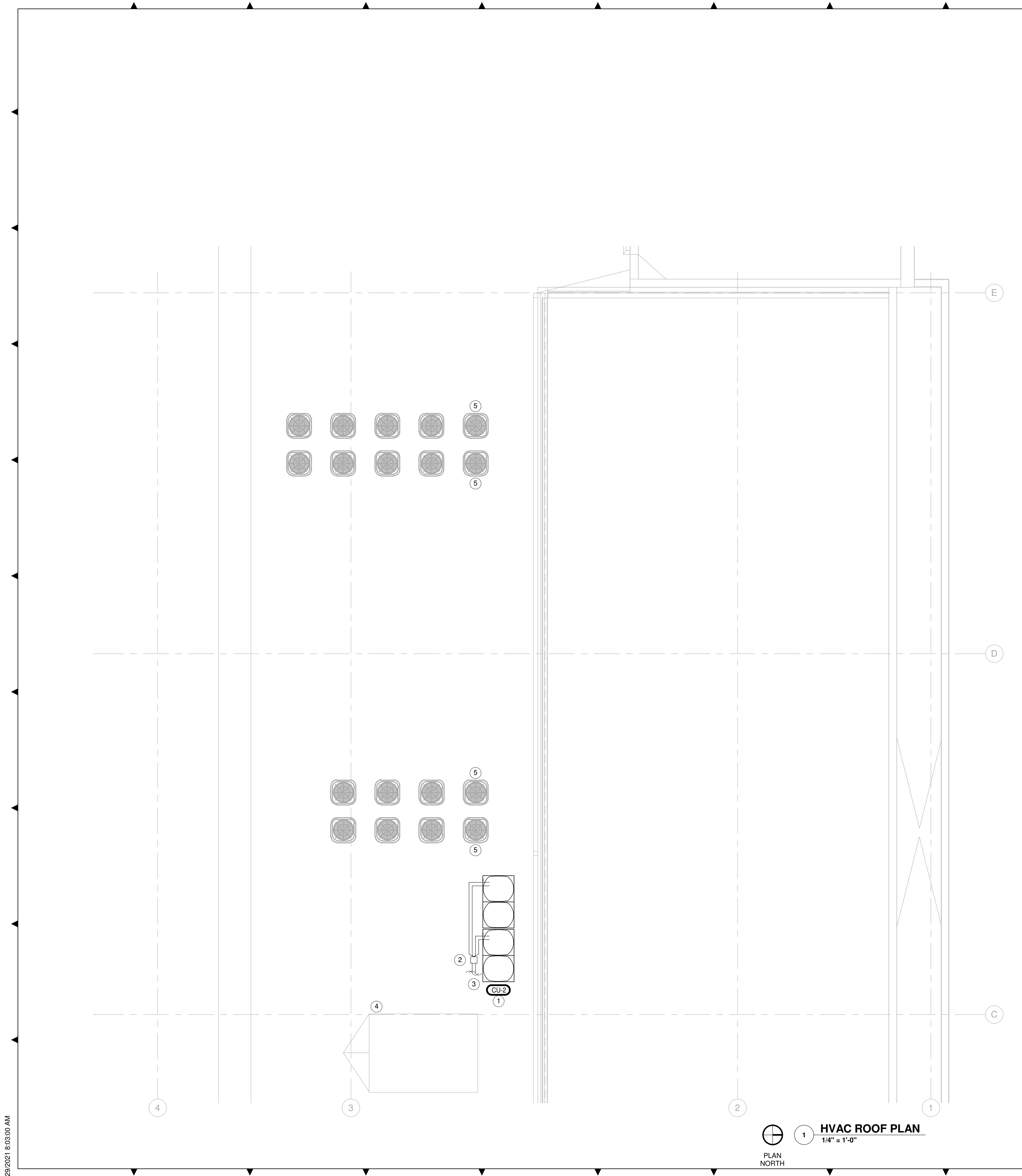
GENERAL NOTES

- GENERAL NOTES APPLY TO ALL HVAC SHEETS.
- WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AS APPROVED AND AMENDED BY THE AUTHORITY HAVING JURISDICTION, INCLUDING APPLICABLE SECTIONS OF NFPA, THE MECHANICAL CODE, AND ANY INTERIM AMENDMENTS AT THE TIME OF THE PROPOSAL. PURCHASE PERMITS ASSOCIATED WITH THE WORK. OBTAIN INSPECTIONS REQUIRED BY CODE. SEE SHEET G-001 FOR THE PREVAILING CODES.
- CONTRACTOR AND SUBCONTRACTORS SHALL REVIEW A COMPLETE SET OF THE CONSTRUCTION DOCUMENTS.
- COORDINATE WORK WITH THE WORK OF OTHER TRADES, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND OF THE EXISTING CONDITIONS AT THE PROJECT SITE.
- DRAWINGS FOR THE MECHANICAL WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWING SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, OFFSETS, ACCESSORIES, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.
- DUCT DIMENSIONS ON PLANS INDICATE DIMENSIONS OF INTERNAL FREE AREA.
- PERFORATED CEILING DIFFUSERS SHALL BE 4-WAY UNLESS NOTED OTHERWISE.
- COORDINATE ROOF WORK WITH THE LANDLORD AND THE OWNER'S CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION. UTILIZE THE LANDLORD'S ROOFING CONTRACTOR AT THE GENERAL CONTRACTOR'S EXPENSE WHEN REQUIRED.
- UNLESS NOTED OTHERWISE RECTANGULAR DUCT ELBOWS SHALL BE MITERED ELBOWS WITH DOUBLE-THICKNESS TURNING VANES.
- REPLACE AIR FILTERS WITH NEW, CLEAN MERV8 FILTERS AT TURNOVER.
- THE TERM "FURNISH OR SUPPLY" MEANS SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS. THE TERM "INSTALL" DESCRIBES THE OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS. THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.
- A FINAL REPORT FOR THE TESTING AND ADJUSTMENTS OF ALL NEW SYSTEMS FROM ALL DISCIPLINES SHALL BE COMPLETED WITH FINAL APPROVAL BY THE FIELD INSPECTOR. THIS REPORT SHALL BE SIGNED BY THE INDIVIDUAL RESPONSIBLE FOR PERFORMING THESE SERVICES.
- TESTING AND BALANCING OF THE MECHANICAL SYSTEMS TO BE COMPLETED BY NATIONAL TAB AT THE GENERAL CONTRACTOR'S EXPENSE. REFER TO THE COVER SHEET, OR CONTACT SWEETGREEN'S CONSTRUCTION MANAGER FOR CONTACT INFORMATION.
- ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, OR SHEET METAL UNTIL THE FINAL START UP OF THE HEATING, COOLING, AND VENTILATION EQUIPMENT.
- REFER TO THE TRANE AND CAPTIVE-AIRE NATIONAL ACCOUNT INFORMATION BLOCKS ON SHEET M-300 FOR REPRESENTATIVE CONTACT INFORMATION.
- CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY UNIT CONFIGURATIONS, COORDINATE DELIVERY WITH TRANE, RECEIVE AND UNLOAD EQUIPMENT, INSPECT EQUIPMENT, PROPERLY INSTALL EQUIPMENT INCLUDING FIELD INSTALLED ITEMS, EQUIPMENT STARTUP AND 1ST YEAR LABOR WARRANTY AND ADMINISTRATION.

CODED NOTES

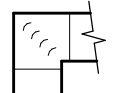
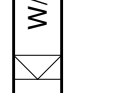
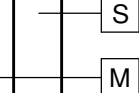

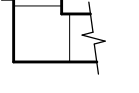








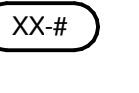
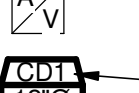
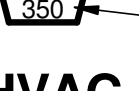
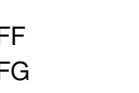


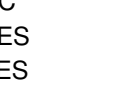
- PROVIDE EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTION AND PER THE STRUCTURAL DETAILS.
- COORDINATE MOUNTING LOCATION FOR WALK-IN COOLER CONDENSING UNIT, CU-1 ON TOP OF THE WALK-IN COOLER WITH THE KITCHEN EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN. ENSURE ALL CLEARANCE REQUIREMENTS FOR THE UNIT ARE MAINTAINED THROUGH CONSTRUCTION. KITCHEN EQUIPMENT SUPPLIER SHALL PROVIDE LINESSET, SPECIALTIES AND MAKE ALL FINAL CONNECTIONS BETWEEN THE CONDENSING UNIT AND EVAPORATOR COIL.
- PROVIDE SUPPLY DIFFUSER CONNECTION PER DETAIL 1/SHEET M-400.
- REFER TO THE ARCHITECTURAL RCP FOR CEILING MOUNTED EQUIPMENT LOCATION. TYPICAL.
- PROVIDE AUDIO VISUAL REMOTE SMOKE DETECTOR ANNUNCIATOR WITH REMOTE KEY OPERATED RESET. WIRE A UNIT BACK TO EACH SMOKE DETECTOR. MOUNT UNIT 60" AFF. TYPICAL.
- INSTALL THE OWNER-FURNISHED MAIN CONTROLLER FOR THE HVAC EQUIPMENT NOTED AT THIS LOCATION AT 48" AFF. COORDINATE WITH ELECTRICAL SWITCHING IN THE AREA AND EXTEND CONTROLS WIRING AS NOTED IN THE TRANE SHOP DRAWINGS. COORDINATE CONTROLLER LOCATION WITH WALL-MOUNTED EQUIPMENT SO THAT THE THERMOSTATS ARE NOT BLOCKED BY SHELVING, COAT RACKS OR DOORS.
- INSTALL THE OWNER-FURNISHED TEMPERATURE SENSOR FOR THE HVAC EQUIPMENT NOTED AT THIS LOCATION AT 5'-0" AFF. COORDINATION LOCATION WITH EQUIPMENT AND WALL-MOUNTED FIXTURES AS REQUIRED SUCH THAT THE SENSOR IS NOT BLOCKED.
- INSTALL THE OWNER-FURNISHED TEMPERATURE SENSOR IN AN INSULATED JUNCTION BOX FOR THE HVAC EQUIPMENT NOTED AT THIS LOCATION AT 5'-0" AFF. COORDINATION LOCATION WITH EQUIPMENT AND WALL-MOUNTED FIXTURES AS REQUIRED SUCH THAT THE SENSOR IS NOT BLOCKED.
- REFER TO DETAIL 3/SHEET M-400 FOR AIR HANDLER INSTALLATION DETAILS.
- PROVIDE EXPOSED DUCTWORK AS SHOWN, PER THE SPECIFICATIONS AND PER DETAIL 2/SHEET M-400.
- THE GENERAL CONTRACTOR SHALL FURNISH A REME HALO AIR PURIFICATION SYSTEM AND REQUIRED TRANSFORMER, PURCHASED THROUGH SWEETGREEN'S VENDOR (NATIONAL TAB) AND INSTALL SYSTEM IN THE SUPPLY AIR DUCTWORK AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ADJUST AS REQUIRED FOR THE SUPPLY AIRFLOW.
- PROVIDE TWO POSITION DAMPER IN LOCATION SHOWN. WHEN THE SPACE IS SCHEDULED TO BE IN OCCUPIED MODE, THE DAMPER SHALL POWER OPEN. DURING UNOCCUPIED MODE, THE DAMPER SHALL SPRING CLOSED.
- THE GENERAL CONTRACTOR SHALL PROVIDE A DUCT-MOUNTED SMOKE DETECTOR IN THE RETURN AIR STREAM. UPON DETECTION OF SMOKE, THE SUPPLY AIR FAN SHALL DE-ENERGIZE. COORDINATE ALL REQUIREMENTS WITH THE LANDLORD AND ALARM PROVIDER.
- MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCE ZONES: NO DUCTWORK, PIPING, CONDUIT OR OTHER SYSTEMS SHALL BE PERMITTED IN THIS AREA. COORDINATE WITH SITE CONDITIONS AND WORK OF OTHER TRADES AS REQUIRED. TYPICAL.
- INSTALL THE OWNER-FURNISHED REFRIGERANT PIPING BETWEEN THE ROOF-MOUNTED CONDENSING UNIT AND THE BRANCH CONTROLLER. REFER TO SHEET M-101 AND SHEET M-401 FOR MORE INFORMATION. COORDINATE LINESSET PATHWAY WITH THE LANDLORD AND SITE CONDITIONS AS REQUIRED. COORDINATE LINESSET LENGTH AND QUANTITIES REQUIRED WITH THE OWNER'S NATIONAL ACCOUNT REPRESENTATIVE PRIOR TO EQUIPMENT SHIPPING.
- APPROXIMATE LOCATION OF CHASE TO ROOF. PROVIDE SUPPORTS WITHIN THE CHASE AS REQUIRED FOR REFRIGERANT PIPING.
- INSTALL THE OWNER-FURNISHED REFRIGERANT PIPING BETWEEN THE BRANCH CONTROLLER AND THE AIR HANDLING UNITS. REFER TO SHEET M-401 FOR MORE INFORMATION. COORDINATE LINESSET LENGTH AND QUANTITIES REQUIRED WITH THE OWNER'S NATIONAL ACCOUNT REPRESENTATIVE PRIOR TO EQUIPMENT SHIPPING.
- INSTALL THE OWNER-FURNISHED FILTER BOX FOR THE AIR HANDLING UNIT PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- EXPOSED VENTILATION AIR DUCTWORK SHALL BE DOUBLE-WALL INSULATED DUCTWORK AS NOTED IN THE MATERIAL SCHEDULE AND THE SPECIFICATIONS.
- PROVIDE A DUCT HEATER IN THE SUPPLY-AIR STREAM IN LOCATION SHOWN. ENSURE THAT THERE IS A MINIMUM OF 4'-0" OF STRAIGHT DUCT AT THE INLET AND OUTLET OF THE HEATER. INSTALL PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- PROVIDE DUCTED TRANSFER GRILLE IN LOCATION AS SHOWN.
- EXHAUST FAN SHALL BE INSTALLED OVER THE CLEARANCE AREA REQUIRED FOR DH-1. COORDINATE IN THE FIELD AS REQUIRED.
- PROVIDE A RUSKIN CB02 COUNTERBALANCED BACKDRAFT DAMPER IN THE EXHAUST AIR STREAM AS SHOWN. DAMPER SHALL BE BALANCED TO PERMIT THE REQUIRED AIRFLOW TO EXIT DURING FAN OPERATION AND SHALL BE FULLY CLOSED UPON FAN SHUTDOWN. COMPLIANT WITH ASHRAE 90.1 (2007) SECTION 9.4.3.4.2, EXCEPTION b. INSTALL PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- LOUVER PLENUM BOX SHALL NOT BE EXTENDED INTO OR VISIBLE IN THE DINING AREA. PROVIDE INSULATED BLOCK-OFF PLATE, WITH A MINIMUM OF 1" INSULATION FOR UNUSED PORTION OF THE LOUVER.

1 HVAC PLAN
1/4" = 1'-0"
PLAN NORTH



SYMBOLS & ABBREVIATIONS

HVAC SYMBOLS

-  MITERED CORNER WITH TURNING VANES
-  DUCTWORK INTERNAL FREE DIMENSIONS (WIDTH/HEIGHT)
-  RECTANGULAR TO ROUND DUCT TRANSITION
-  DUCT-MOUNTED SMOKE DETECTOR
-  MOTOR-OPERATED DAMPER
-  MANUAL VOLUME DAMPER
-  GREASE DUCT CLEANOUT
-  MITERED CORNER WITHOUT TURNING VANES
-  CEILING DIFFUSER
-  CEILING-MOUNTED RETURN OR EXHAUST REGISTER
-  SUPPLY REGISTER
-  RETURN REGISTER
-  FLEXIBLE DUCT
-  THERMOSTAT
-  REMOTE TEMPERATURE SENSOR
-  PLAN NOTE: SEE PLAN NOTES LISTED ON THE SAME SHEET FOR NOTE MEANING
-  CONNECT TO EXISTING
-  EQUIPMENT TAG: SEE EQUIPMENT SCHEDULE ON SHEET M-300 FOR EQUIPMENT INFORMATION
-  AUDIO/VISUAL REMOTE SMOKE DETECTOR ANNUNCIATOR WITH REMOTE KEY OPERATED RESET
-  TAG
NECK SIZE
AIRFLOW [CFM]

HVAC ABBREVIATIONS

- AFF ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE
- AHU AIR HANDLING UNIT
- BC BLOWER COIL
- CD CEILING DIFFUSER
- CU CONDENSING UNIT
- EF EXHAUST FAN
- ER EXHAUST REGISTER
- EXTG EXISTING
- GC GENERAL CONTRACTOR
- HES TENANT'S HVAC EQUIPMENT SUPPLIER
- KES TENANT'S KITCHEN EQUIPMENT SUPPLIER
- OBD BLADE DAMPER
- PL PLENUM
- RG RETURN GRILLE
- RTU ROOFTOP UNIT
- SD SLOT DIFFUSER
- SR SUPPLY REGISTER
- VSC VARIABLE SPEED CONTROL
- WSHP WATER SOURCE HEAT PUMP

GENERAL NOTES

- A GENERAL NOTES APPLY TO ALL HVAC SHEETS.
- B WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AS APPROVED AND AMENDED BY THE AUTHORITY HAVING JURISDICTION, INCLUDING APPLICABLE SECTIONS OF NFPA, THE MECHANICAL CODE, AND ANY INTERIM AMENDMENTS AT THE TIME OF THE PROPOSAL. PURCHASE PERMITS ASSOCIATED WITH THE WORK. OBTAIN INSPECTIONS REQUIRED BY CODE. SEE SHEET G-001 FOR THE PREVAILING CODES.
- C CONTRACTOR AND SUBCONTRACTORS SHALL REVIEW A COMPLETE SET OF THE CONSTRUCTION DOCUMENTS.
- D COORDINATE WORK WITH THE WORK OF OTHER TRADES, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND OF THE EXISTING CONDITIONS AT THE PROJECT SITE.
- E DRAWINGS FOR THE MECHANICAL WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWING SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, OFFSETS, ACCESSORIES, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.
- F DUCT DIMENSIONS ON PLANS INDICATE DIMENSIONS OF INTERNAL FREE AREA.
- G PERFORATED CEILING DIFFUSERS SHALL BE 4-WAY UNLESS NOTED OTHERWISE.
- H COORDINATE ROOF WORK WITH THE LANDLORD AND THE OWNER'S CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION. UTILIZE THE LANDLORD'S ROOFING CONTRACTOR AT THE GENERAL CONTRACTOR'S EXPENSE WHEN REQUIRED.
- I UNLESS NOTED OTHERWISE RECTANGULAR DUCT ELBOWS SHALL BE MITERED ELBOWS WITH DOUBLE-THICKNESS TURNING VANES.
- J REPLACE AIR FILTERS WITH NEW, CLEAN MERV8 FILTERS AT TURNOVER.
- K THE TERM "FURNISH OR SUPPLY" MEANS SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS. THE TERM "INSTALL" DESCRIBES THE OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS. THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.
- L A FINAL REPORT FOR THE TESTING AND ADJUSTMENTS OF ALL NEW SYSTEMS FROM ALL DISCIPLINES SHALL BE COMPLETED WITH FINAL APPROVAL BY THE FIELD INSPECTOR. THIS REPORT SHALL BE SIGNED BY THE INDIVIDUAL RESPONSIBLE FOR PERFORMING THESE SERVICES.
- M TESTING AND BALANCING OF THE MECHANICAL SYSTEMS TO BE COMPLETED BY NATIONAL TAB AT THE GENERAL CONTRACTOR'S EXPENSE. REFER TO THE COVER SHEET, OR CONTACT SWEETGREEN'S CONSTRUCTION MANAGER FOR CONTACT INFORMATION.
- N ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, OR SHEET METAL UNTIL THE FINAL START UP OF THE HEATING, COOLING, AND VENTILATION EQUIPMENT.
- O REFER TO THE TRANE AND CAPTIVE-AIRE NATIONAL ACCOUNT INFORMATION BLOCKS ON SHEET M-300 FOR REPRESENTATIVE CONTACT INFORMATION.
- P CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY UNIT CONFIGURATIONS, COORDINATE DELIVERY WITH TRANE, RECEIVE AND UNLOAD EQUIPMENT, INSPECT EQUIPMENT, PROPERLY INSTALL EQUIPMENT INCLUDING FIELD-INSTALLED ITEMS, EQUIPMENT STARTUP AND 1ST YEAR LABOR WARRANTY AND ADMINISTRATION.

CODED NOTES

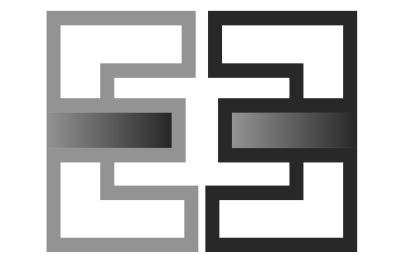
- 1 INSTALL EQUIPMENT MOUNTED ON OWNER-FURNISHED STANDS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 2 INSTALL THE OWNER-FURNISHED TWINNING KIT PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 3 INSTALL THE OWNER-FURNISHED REFRIGERANT PIPING BETWEEN THE ROOF-MOUNTED CONDENSING UNIT AND THE BRANCH CONTROLLER. REFER TO SHEET M-100 AND SHEET M-401 FOR MORE INFORMATION. COORDINATE LINESSET PATHWAY WITH THE LANDLORD AND EXISTING CONDITIONS AS REQUIRED. COORDINATE LINESSET LENGTH AND QUANTITIES REQUIRED WITH THE OWNER'S NATIONAL ACCOUNT REPRESENTATIVE PRIOR TO EQUIPMENT SHIPPING.
- 4 APPROXIMATE LOCATION OF CHASE TO ROOF. PROVIDE SUPPORTS WITHIN THE CHASE AS REQUIRED FOR REFRIGERANT PIPING.
- 5 EXISTING MECHANICAL EQUIPMENT ON THE ROOF TO REMAIN. TYPICAL.



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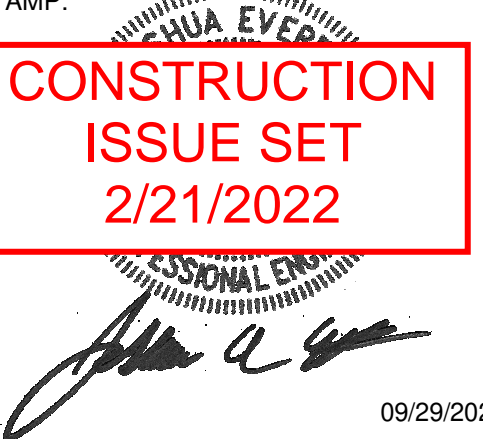
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ENGINEER OF RECORD:



EVERJ ENGINEERING, INC.
1509 BUCK TRAIL LANE
WORTHINGTON, OH 43085
240-319-0822
www.everjengineering.com

STAMP:



CONSTRUCTION
ISSUE SET
2/21/2022

09/29/2021

PROJECT INFORMATION:
DOWNTOWN INDIANAPOLIS

PROJECT INFORMATION:
**157 NEW YORK STREET
INDIANAPOLIS, IN 46204**

DRAWN BY: JAE
CHECKED BY: JAE
PROJECT MANAGER: J. EVERETT
SG DESIGN MANAGER: LK
SG CONSTR. MANAGER: JB
PROJECT NO: 210005
TEMPLATE VERSION: 04/02/2021

| REVISIONS | REV. | DATE | DESCRIPTION |
|-----------|------|------|-------------|
| | | | |

HVAC ROOF PLAN

M-101

1 HVAC ROOF PLAN
1/4" = 1'-0"
PLAN NORTH

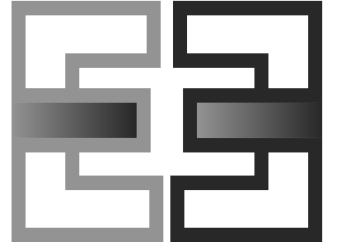


sweetgreen

3101 W. EXPOSITION BLVD.
LOS ANGELES, CALIFORNIA 90018

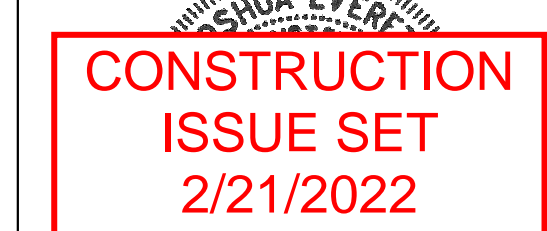
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REVISIONS
REV. DATE DESCRIPTION

HVAC PIPING PLAN

M-200

GENERAL NOTES

- A GENERAL NOTES APPLY TO ALL HVAC SHEETS.
- B WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AS APPROVED AND AMENDED BY THE AUTHORITY HAVING JURISDICTION, INCLUDING APPLICABLE SECTIONS OF NFPA, THE MECHANICAL CODE, AND ANY INTERIM AMENDMENTS AT THE TIME OF THE PROPOSAL. PURCHASE PERMITS ASSOCIATED WITH THE WORK. OBTAIN INSPECTIONS REQUIRED BY CODE. SEE SHEET G-001 FOR THE PREVAILING CODES.
- C CONTRACTOR AND SUBCONTRACTORS SHALL REVIEW A COMPLETE SET OF THE CONSTRUCTION DOCUMENTS.
- D COORDINATE WORK WITH THE WORK OF OTHER TRADES, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND OF THE EXISTING CONDITIONS AT THE PROJECT SITE.
- E DRAWINGS FOR THE MECHANICAL WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWING SHALL NOT BE SCALED FOR EXACT MEASUREMENTS, REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS, REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, OFFSETS, ACCESSORIES, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.
- F DUCT DIMENSIONS ON PLANS INDICATE DIMENSIONS OF INTERNAL FREE AREA.
- G PERFORATED CEILING DIFFUSERS SHALL BE 4-WAY UNLESS NOTED OTHERWISE.
- H COORDINATE ROOF WORK WITH THE LANDLORD AND THE OWNER'S CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION. UTILIZE THE LANDLORD'S ROOFING CONTRACTOR AT THE GENERAL CONTRACTOR'S EXPENSE WHEN REQUIRED.
- I UNLESS NOTED OTHERWISE RECTANGULAR DUCT ELBOWS SHALL BE MITERED ELBOWS WITH DOUBLE-THICKNESS TURNING VANES.
- J REPLACE AIR FILTERS WITH NEW, CLEAN MERV8 FILTERS AT TURNOVER.
- K THE TERM "FURNISH OR SUPPLY" MEANS SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS. THE TERM "INSTALL" DESCRIBES THE OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS. THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.
- L A FINAL REPORT FOR THE TESTING AND ADJUSTMENTS OF ALL NEW SYSTEMS FROM ALL DISCIPLINES SHALL BE COMPLETED WITH FINAL APPROVAL BY THE FIELD INSPECTOR. THIS REPORT SHALL BE SIGNED BY THE INDIVIDUAL RESPONSIBLE FOR PERFORMING THESE SERVICES.
- M TESTING AND BALANCING OF THE MECHANICAL SYSTEMS TO BE COMPLETED BY NATIONAL TAB AT THE GENERAL CONTRACTOR'S EXPENSE. REFER TO THE COVER SHEET, OR CONTACT SWEETGREEN'S CONSTRUCTION MANAGER FOR CONTACT INFORMATION.
- N ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, OR SHEET METAL UNTIL THE FINAL START UP OF THE HEATING, COOLING, AND VENTILATION EQUIPMENT.
- O REFER TO THE TRANE AND CAPTIVE-AIRE NATIONAL ACCOUNT INFORMATION BLOCKS ON SHEET M-300 FOR REPRESENTATIVE CONTACT INFORMATION.
- P CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY UNIT CONFIGURATIONS, COORDINATE DELIVERY WITH TRANE, RECEIVE AND UNLOAD EQUIPMENT, INSPECT EQUIPMENT, PROPERLY INSTALL EQUIPMENT INCLUDING FIELD-INSTALLED ITEMS, EQUIPMENT STARTUP AND 1ST YEAR LABOR WARRANTY AND ADMINISTRATION.

CODED NOTES

- 1 PROVIDE CONDENSATE DRAIN FROM THE WATER SOURCE HEAT PUMP AS SHOWN, PER DETAIL 3/SHEET M-400 AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE INDIRECT DRAIN PER DETAIL 5/SHEET P-400. ALL DRAIN PIPING SHALL BE CONCEALED ABOVE CEILINGS AND WITHIN FRAMED WALLS UNLESS OTHERWISE NOTED.
- 2 REFER TO SANITARY WASTE AND VENT PLAN FOR WALK-IN COOLER CONDENSATE DRAIN ROUTING.
- 3 CEILING CASSETTE UNIT SHALL HAVE A BUILT-IN CONDENSATE LIFT MECHANISM WITH A MAXIMUM LIFT OF 33". CONTRACTOR SHALL PROVIDE PIPING UP TO A HEIGHT SUFFICIENT ENOUGH TO DRAIN THE CONDENSATE VIA GRAVITY AND PROVIDE PIPING TO THE INDIRECT WASTE RECEPTOR PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. TERMINATE PER DETAIL 5/SHEET P-400. ALL DRAIN PIPING SHALL BE CONCEALED ABOVE CEILINGS AND WITHIN FRAMED WALLS UNLESS OTHERWISE NOTED.

SYMBOLS & ABBREVIATIONS

HVAC PIPING SYMBOLS

- ↖ ELBOW UP
- ↘ ELBOW DOWN
- CWS CONDENSER WATER SUPPLY
- ← CWR CONDENSER WATER RETURN
- CHWS CHILLED WATER SUPPLY
- ← CHWR CHILLED WATER RETURN
- HWS HOT WATER SUPPLY
- ← HWR HOT WATER RETURN
- CD CONDENSATE DRAIN
- (X) PLAN NOTE: SEE KEYNOTES LISTED ON THE SAME SHEET FOR NOTE MEANING
- ⊕ CONNECT TO EXISTING
- ⊞ REDUCED PRESSURE ZONE BACKFLOW PREVENTER
- ⊞-E EQUIPMENT TAG: SEE EQUIPMENT SCHEDULE ON SHEET M-300 FOR EQUIPMENT INFORMATION
- ⊞ VALVE
- ⊞ SOLENOID-OPERATED VALVE
- ⊞ CHECK VALVE
- ⊞ CIRCUIT-SETTER BALANCE VALVE RATED FOR POTABLE WATER
- (BTU) BTU METER

HVAC PIPING ABBREVIATIONS

- AFF ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE
- AHU AIR HANDLING UNIT
- BC BLOWER COIL
- CD CONDENSATE DRAIN
- CHWR CHILLED WATER RETURN
- CHWS CHILLED WATER SUPPLY
- CWR CONDENSER WATER RETURN
- CWS CONDENSER WATER SUPPLY
- EXTG EXISTING
- GC GENERAL CONTRACTOR
- HES TENANT'S HVAC EQUIPMENT SUPPLIER
- HWR HOT WATER RETURN
- HWS HOT WATER SUPPLY
- KES TENANT'S KITCHEN EQUIPMENT SUPPLIER
- RTU ROOFTOP UNIT
- WSHP WATER SOURCE HEAT PUMP

1 HVAC PIPING PLAN
1/4" = 1'-0"
PLAN NORTH

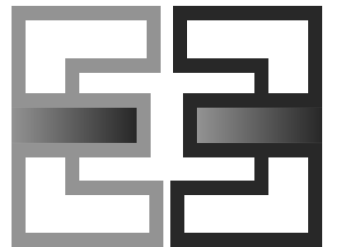


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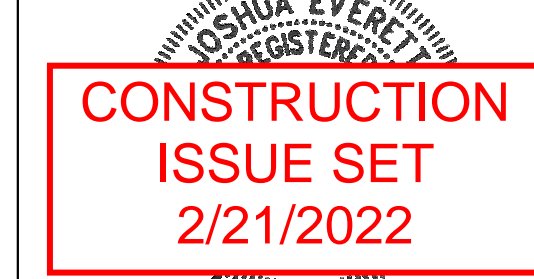
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STAMP:



09/29/2021

PROJECT INFORMATION: DOWNTOWN INDIANAPOLIS PROJECT INFORMATION: 157 NEW YORK STREET INDIANAPOLIS, IN 46204

DRAWN BY: JAE CHECKED BY: JAE PROJECT MANAGER: J. EVERETT SG DESIGN MANAGER: LK SG CONSTR. MANAGER: JB PROJECT NO: 210005 TEMPLATE VERSION: 04/02/2021

REVISIONS REV. DATE DESCRIPTION

HVAC SCHEDULES

M-300

MOTORIZED DAMPER SCHEDULE

Table with columns: TAG, OPERATION, FAIL POSITION, SPRING RETURN, VOLTAGE, REMARKS. Rows include MD-1, MD-2, MD-3.

GRILLS, REGISTERS, AND DIFFUSERS SCHEDULE

Table with columns: EVERJ TAG, Description, FACE SIZE, MATERIAL, FINISH, MOUNTING, SUPPLIER, INSTALLER, MANUFACTURER, MODEL, REMARKS. Rows include CD1, CD2, CD4, ER1, ER2, ER3, RG1, RG2, RG3, SR1.

BRANCH CONTROLLER SCHEDULE

Table with columns: TAG, DESCRIPTION, NUMBER OF PORTS, ELECTRICAL (MOCP, FLA, V/PH), SUPPLIER, INSTALLER, MANUFACTURER, MODEL, REMARKS. Row includes BC-1.

FAN SCHEDULE

Table with columns: TAG, EXHAUST AIRFLOW (CFM), E.S.P. (IN. W.C.), DRIVE TYPE, MOTOR POWER (HP), WEIGHT (LBF), V/PH, FURNISHED BY, INSTALLED BY, Manufacturer, Model, SPECIAL REMARKS. Rows include EF-1, EF-2.

AIR DOOR SCHEDULE

Table with columns: TAG, DESCRIPTION, OPENING WIDTH, AIRFLOW (CFM), ELECTRICAL (MOCP, FLA, V/PH), FURNISHED BY, INSTALLED BY, MANUFACTURER, MODEL, REMARKS. Row includes AD-1.

DUCT HEATER SCHEDULE

Table with columns: TAG, DESCRIPTION, AIRFLOW (CFM), NUMBER OF STEPS, HEATING (OUTPUT, EAT, LAT), ELECTRICAL (kW, V/PH), SUPPLIER, INSTALLER, BASIS OF DESIGN (MANUFACTURER, MODEL), REMARKS. Rows include DH-1, DH-2, DH-3, DH-4.

LOUVER SCHEDULE

Table with columns: TAG, DESCRIPTION, FACE SIZE, SIZE (FACE AREA, FREE AREA), AIRFLOW (TOTAL, PRESSURE DROP), MATERIAL, FINISH, FURNISHED BY, INSTALLED BY, Manufacturer, Model, SPECIAL REMARKS. Rows include LV-1, LV-2, LV-3, LV-4.

CONDENSING UNIT SCHEDULE

Table with columns: TAG, DESCRIPTION, PAIRED WITH, NOMINAL CAPACITY (TONS), NUMBER OF COMPRESSORS, REFRIGERANT TYPE, WEIGHT (LB), ELECTRICAL (MOCP, FLA, V/PH), SUPPLIER, INSTALLER, MANUFACTURER, MODEL, REMARKS. Rows include CU-1, CU-2.

AIR HANDLING UNIT SCHEDULE

Table with columns: TAG, DESCRIPTION, COOLING CAPACITY (TONS), EER, AIRFLOW (TOTAL, RETURN, OA), COOLING (NET TOTAL, SENSIBLE, EAT), HEATING (EAT, TOTAL, LAT), WEIGHT (LBF), ELECTRICAL (MOCP, FLA, V/PH), SUPPLIER, INSTALLER, MANUFACTURER, MODEL, REMARKS. Rows include AHU-1 through AHU-5.

AIR BALANCE SCHEDULE

Table with columns: TAG, SUPPLY AIRFLOW (CFM), RETURN AIRFLOW (CFM), OUTSIDE AIRFLOW (CFM), EXHAUST AIRFLOW (CFM), SUBTOTAL (CFM). Rows include AHU-1, AHU-2, AHU-3, AHU-4, EF-1, EF-2, Net Pressurization (CFM).

EXHAUST SCHEDULE

Table with columns: CATEGORY, AREA (SF), NUMBER OF FIXTURES, AIR RATE (CFM / FIXTURE, CFM / SF), EXHAUST REQUIRED (CFM), FLOOR AREA, VENTILATION REQUIRED (CFM), VENTILATION PROVIDED (CFM). Rows include KITCHEN, RESTROOMS, TOTAL.

VENTILATION SCHEDULE

Table with columns: CATEGORY, OCCUPANT DENSITY (# / 1000 SF), AREA (SF), OCCUPANCY BY AREA (PEOPLE), AIR RATE (CFM / PERSON, CFM / SF), VENTILATION REQUIRED (CFM), FLOOR AREA, VENTILATION REQUIRED (CFM), VENTILATION PROVIDED (CFM). Rows include CORRIDOR, DINING ROOM, OFFICE, STORAGE AREAS, TOTAL.

CAPTIVEAIRE - HVAC SYSTEM INFORMATION

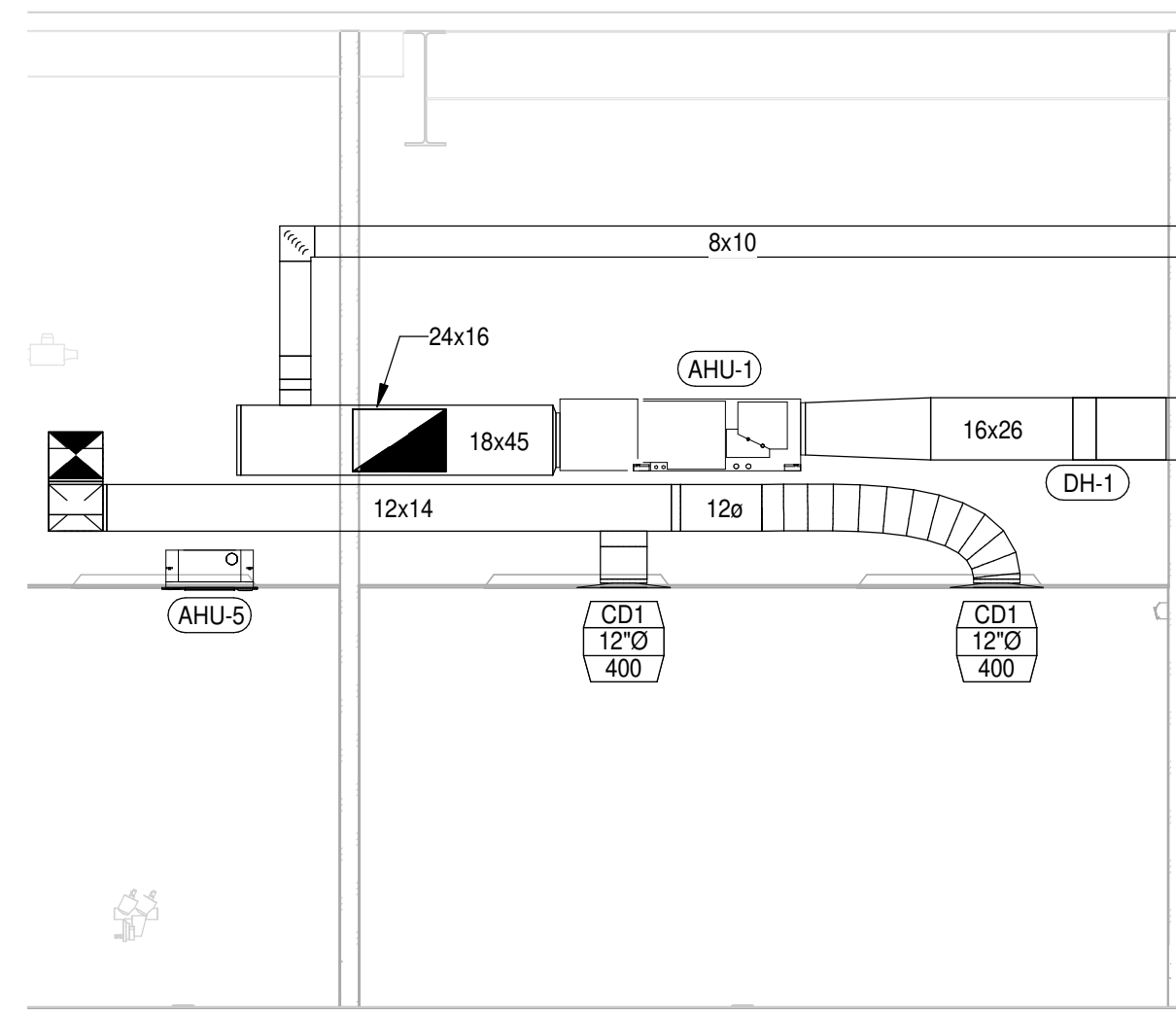
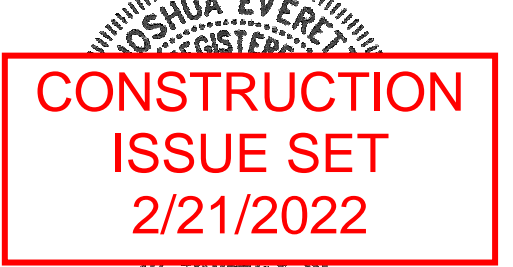
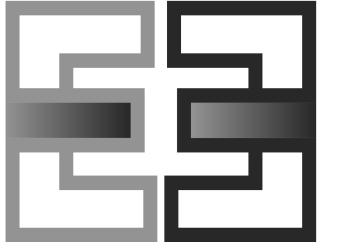
CONTACT THE CAPTIVEAIRE NATIONAL ACCOUNT TEAM FOR HVAC SYSTEM INFORMATION AT: JULIE BULLOCK (800)965-0420, ANDREW OGDEN (800)965-0420. THE GENERAL CONTRACTOR SHALL PURCHASE THE EXHAUST FAN, TYPE II HOOD (WHEN APPLICABLE) AND ASSOCIATED ACCESSORIES THROUGH SWEETGREEN'S NATIONAL ACCOUNTS REPRESENTATIVE'S NOTED ABOVE.

TRANE NATIONAL ACCOUNT - HVAC SYSTEM INFORMATION

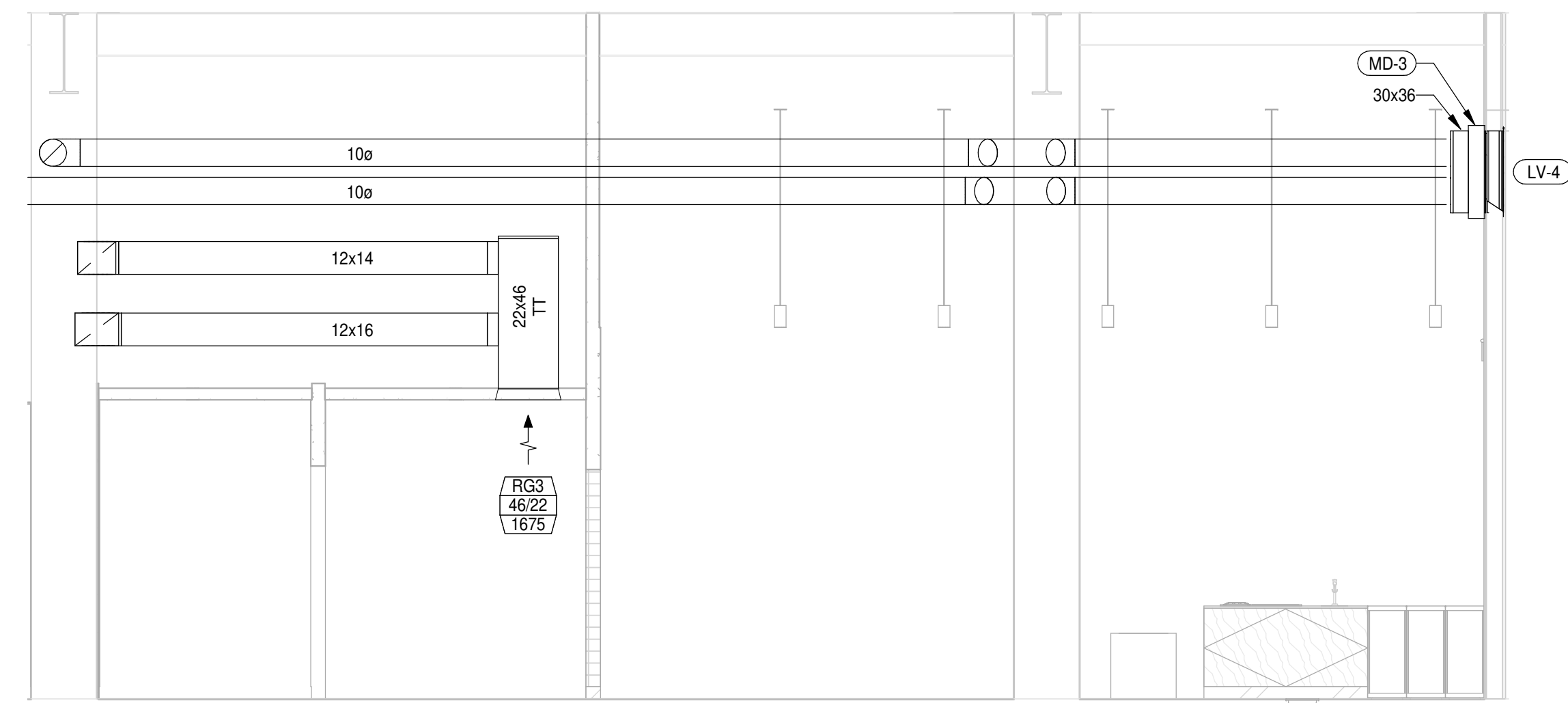
CONTACT THE TRANE NATIONAL ACCOUNT TEAM FOR HVAC SYSTEM INFORMATION AT: EMAIL - SOCIALNA@TRANE.COM, PHONE - (714)983-0505. SWEETGREEN SHALL FURNISH THE VRF SYSTEM AND ASSOCIATED ACCESSORIES THROUGH THEIR NATIONAL ACCOUNTS REPRESENTATIVES NOTED ABOVE.

MATERIAL SCHEDULE

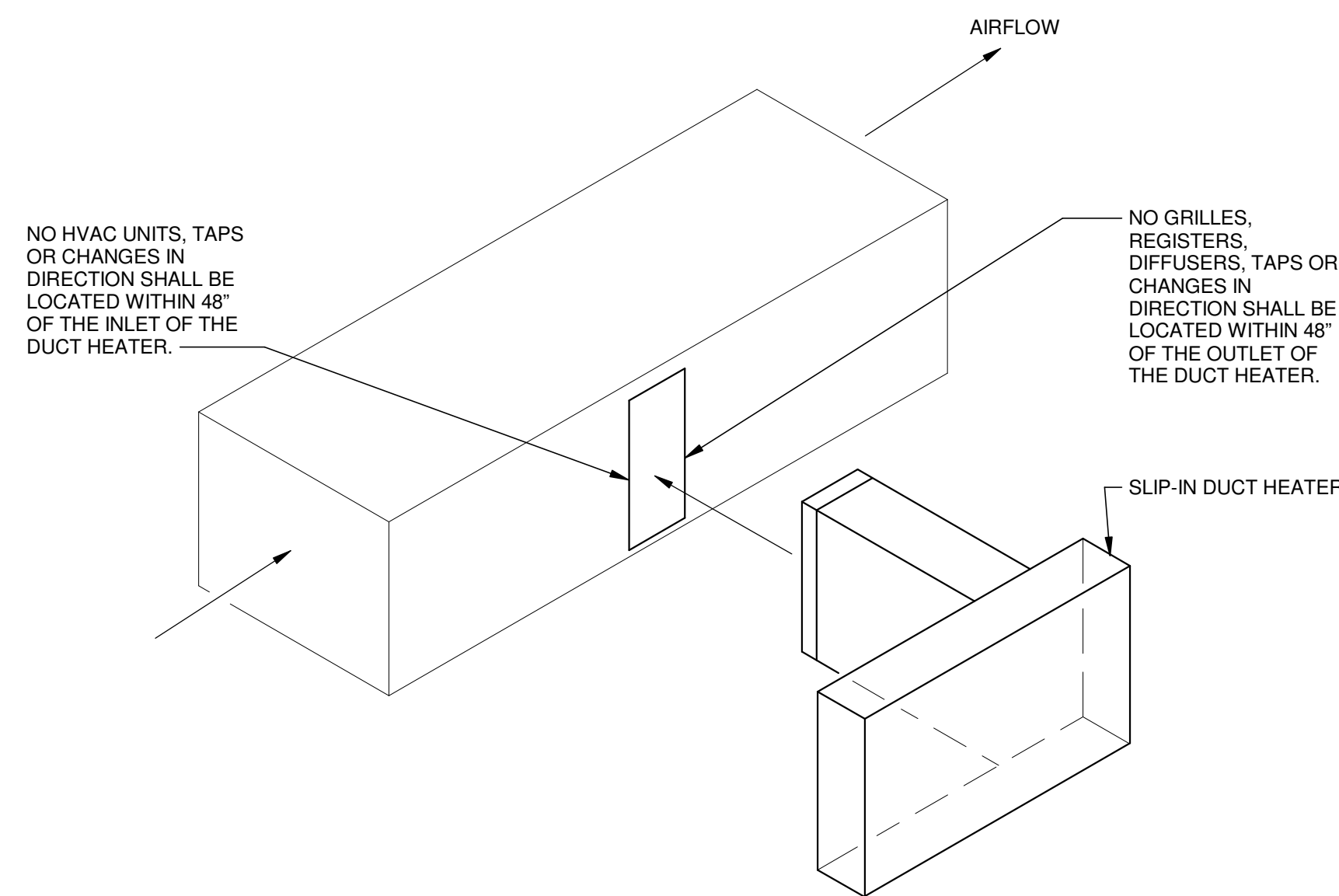
Table with columns: CATEGORY, APPLICATION, ALLOWABLE MATERIAL. Rows include DUCT (EXPOSED, CONCEALED), PIPING (HYDRONIC, CONDENSATE DRAINS).



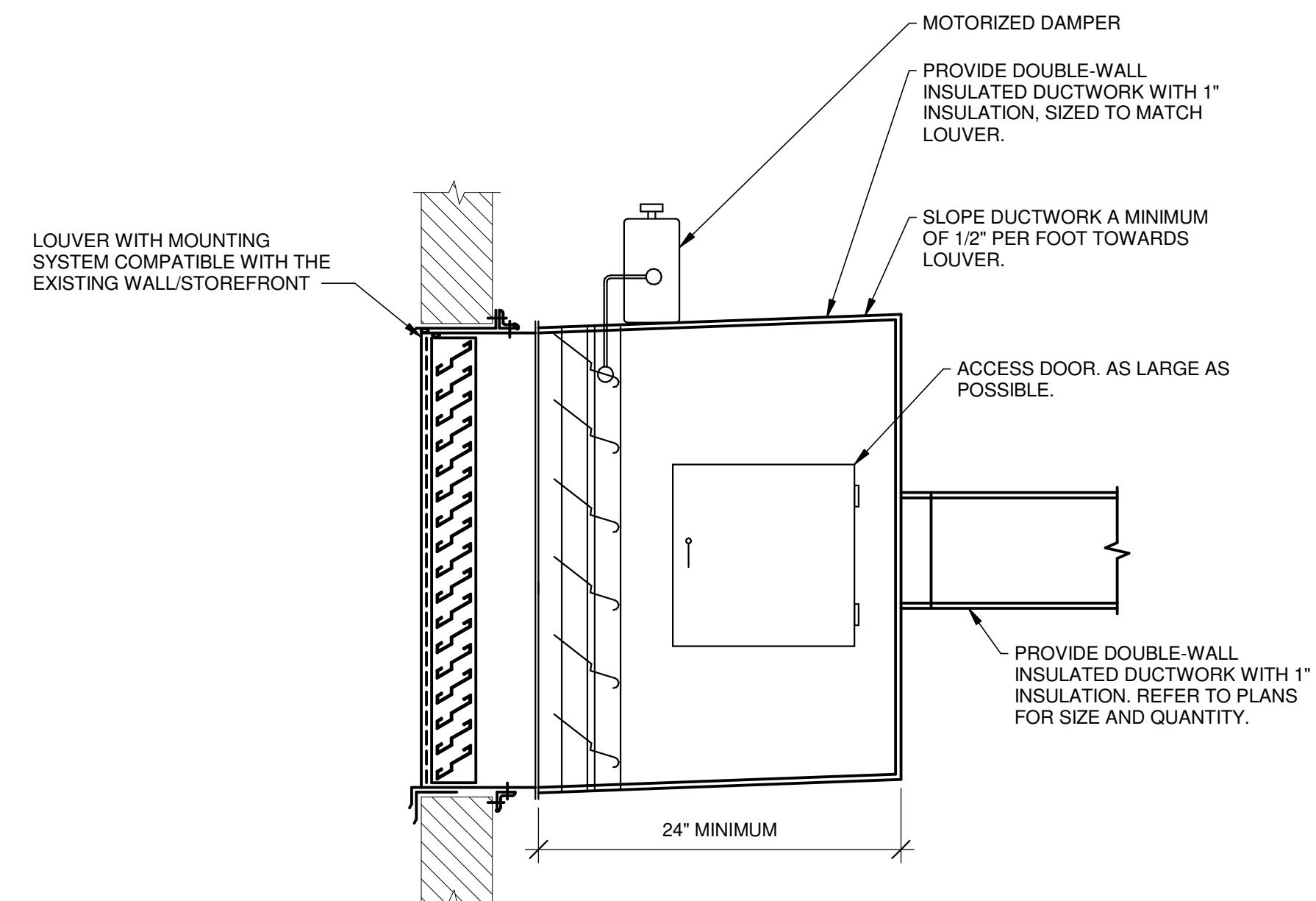
8 DUCTWORK SECTION
1/4" = 1'-0"



7 DUCTWORK SECTION
1/4" = 1'-0"



6 DUCT HEATER INSTALLATION DETAIL
1/4" = 1'-0"



5 LOUVER INSTALLATION DETAIL
N.T.S.

**SEQUENCE OF OPERATIONS
CU-1 & AHU-1 THRU AHU-5**

GENERAL:
THE VRF SYSTEM SHALL BE A HEAT PUMP, HEAT RECOVERY SYSTEM CAPABLE OF SIMULTANEOUS HEATING AND COOLING. THE CONDENSING UNIT SHALL MODULATE CAPACITY AS REQUIRED TO SATISFY THE AIR HANDLING UNIT DEMAND. THE BRANCH CIRCUIT CONTROLLER SHALL PROVIDE CONTROL TO THE SYSTEM AS REQUIRED.

OCCUPIED MODE:
FAN OPERATION/OUTSIDE AIR DAMPER: WHEN SCHEDULED BY THE TIME CLOCK TO BE IN OCCUPIED MODE, THE AIR HANDLER FANS ARE TO START AND RUN CONTINUOUSLY AND THE OUTSIDE AIR DAMPERS SHALL POWER TO THE OPEN POSITION.
HEATING: ON A FALL IN SPACE TEMPERATURE BELOW THE SETPOINT OF 70 DEGREES (ADJUSTABLE) THE AIR HANDLING UNIT SHALL BE SWITCHED TO HEATING MODE AND THE HEATING CAPACITY SHALL MODULATE UP TO MAXIMUM TO MAINTAIN THE TEMPERATURE SETPOINT. IF ADDITIONAL HEATING IS REQUIRED AND THE HEATING CAPACITY OF THE UNIT HAS BEEN REACHED, THE DUCT HEATER STAGES SHALL BE ENERGIZED AS NECESSARY TO MAINTAIN THE HEATING SETPOINT.

COOLING: ON A RISE IN SPACE TEMPERATURE ABOVE THE SETPOINT OF 72 DEGREES (ADJUSTABLE) THE AIR HANDLING UNIT SHALL BE SWITCHED TO COOLING MODE AND THE COOLING CAPACITY SHALL MODULATE UP TO MAXIMUM TO MAINTAIN THE TEMPERATURE SETPOINT.

UNOCCUPIED MODE:
FAN OPERATION/OUTSIDE AIR DAMPER: WHEN SCHEDULED BY THE TIME CLOCK TO BE IN UNOCCUPIED MODE, THE AIR HANDLER FANS ARE TO BE OFF AND THE OUTSIDE AIR DAMPERS SHALL REMAIN CLOSED.

HEATING: ON A FALL IN SPACE TEMPERATURE BELOW THE SETPOINT OF 65 DEGREES (ADJUSTABLE) THE AIR HANDLING UNIT FAN SHALL START AND THE UNIT SHALL BE SWITCHED TO HEATING MODE AND THE HEATING CAPACITY SHALL MODULATE UP TO MAXIMUM TO MAINTAIN THE TEMPERATURE SETPOINT. IF ADDITIONAL HEATING IS REQUIRED AND THE HEATING CAPACITY OF THE UNIT HAS BEEN REACHED, THE DUCT HEATER STAGES SHALL BE ENERGIZED AS NECESSARY TO MAINTAIN THE HEATING SETPOINT.

COOLING: ON A RISE IN SPACE TEMPERATURE ABOVE THE SETPOINT OF 85 DEGREES (ADJUSTABLE) THE AIR HANDLING UNIT FAN SHALL START AND THE UNIT SHALL BE SWITCHED TO COOLING MODE AND THE COOLING CAPACITY SHALL MODULATE UP TO MAXIMUM TO MAINTAIN THE TEMPERATURE SETPOINT.

EMERGENCY MODE:
FAN OPERATION/OUTSIDE AIR DAMPER: UPON A SIGNAL FROM THE FIRE ALARM SYSTEM, THE FAN SHALL STOP AND THE OUTSIDE AIR DAMPER SHALL CLOSE.

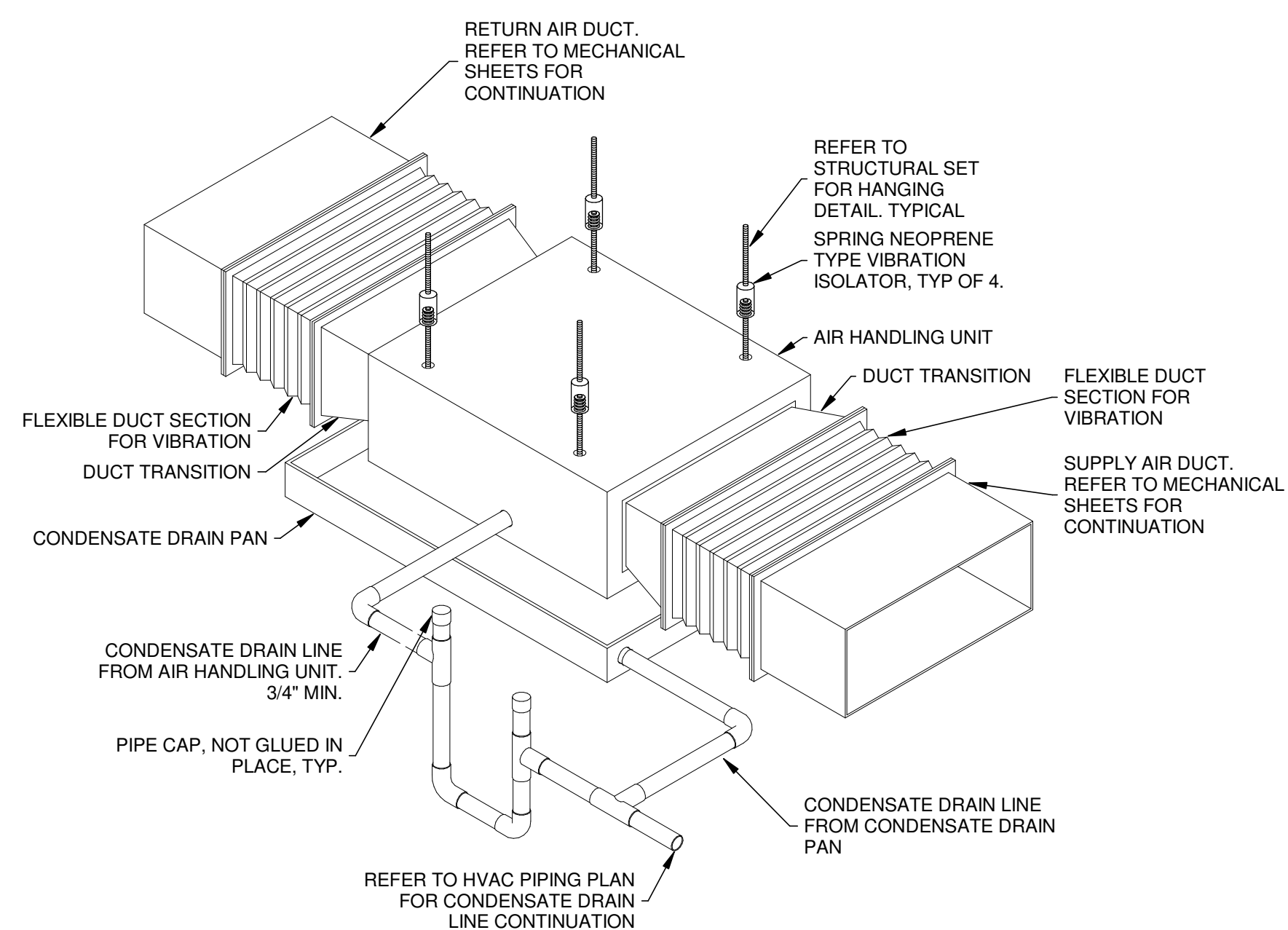
**SEQUENCE OF OPERATIONS
EF-1 & EF-2**

OCCUPIED MODE:
FAN OPERATION: WHEN SCHEDULED BY THE TIME CLOCK TO BE IN OCCUPIED MODE, THE EXHAUST FAN IS TO START AND RUN CONTINUOUSLY.

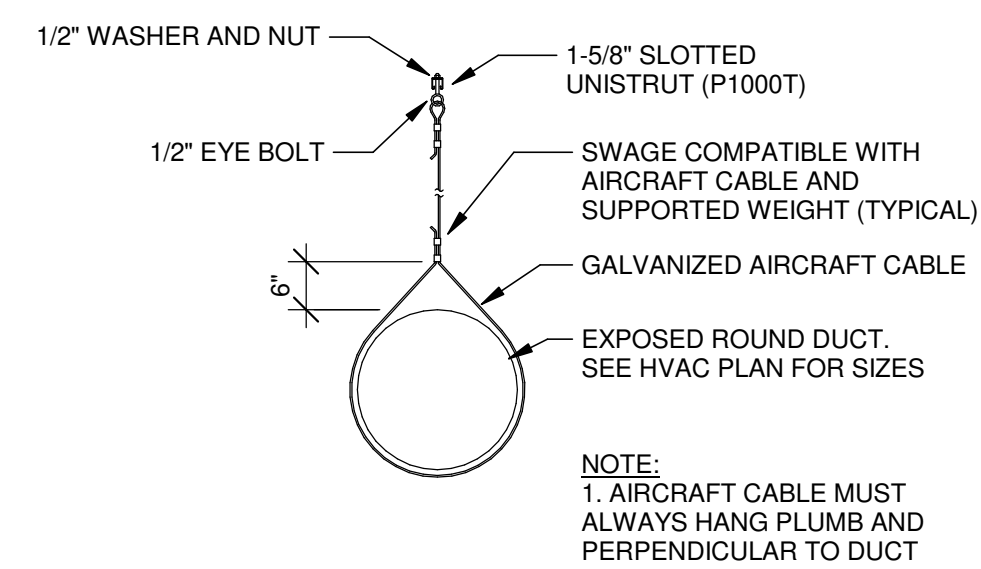
UNOCCUPIED MODE:
FAN OPERATION: WHEN SCHEDULED BY THE TIME CLOCK TO BE IN UNOCCUPIED MODE, THE EXHAUST FAN SHALL REMAIN OFF.

EMERGENCY MODE:
FAN OPERATION/OUTSIDE AIR DAMPER: UPON A SIGNAL FROM THE FIRE ALARM SYSTEM, THE FAN SHALL STOP.

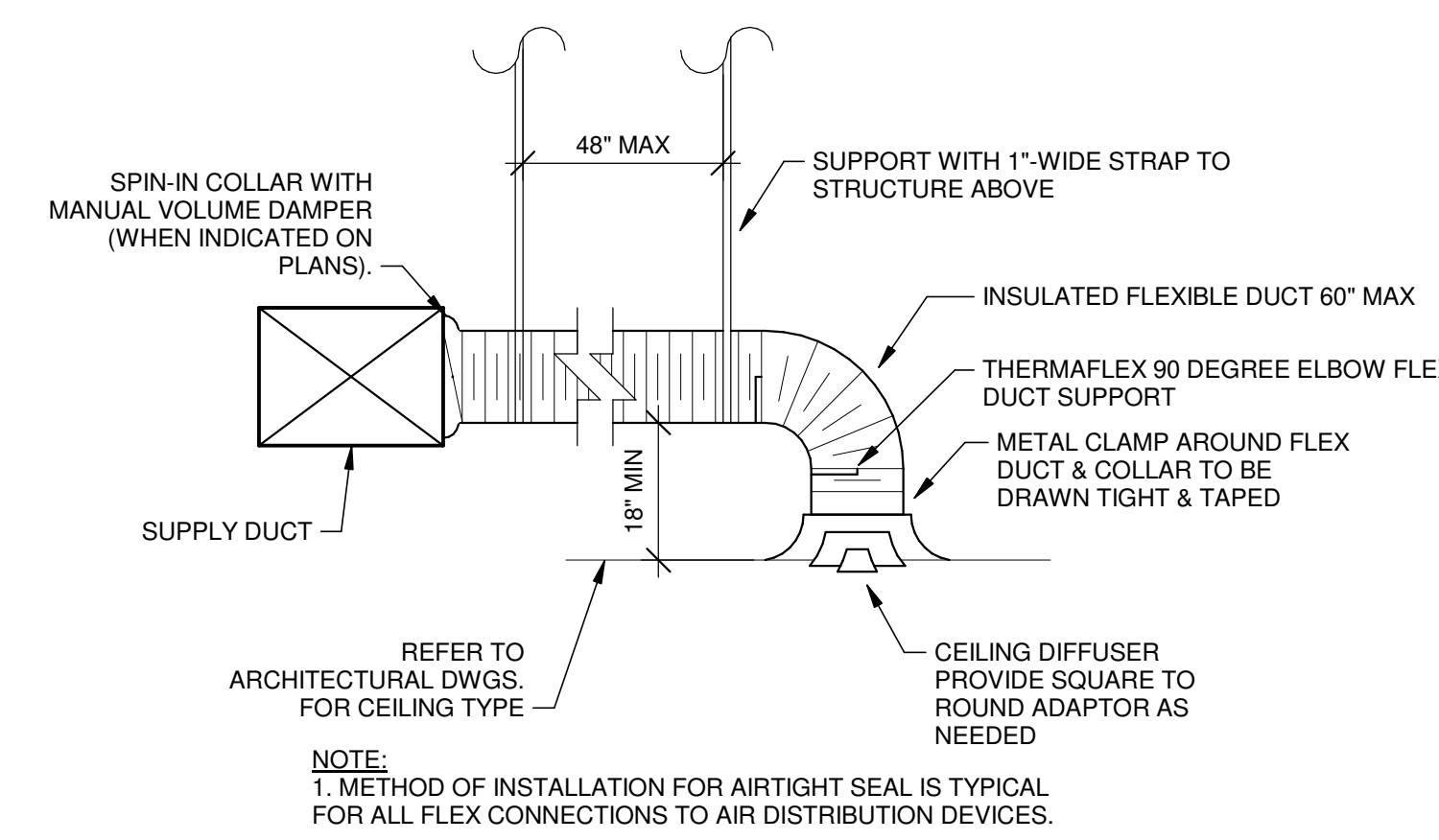
4 SEQUENCE OF OPERATIONS
N.T.S.



3 AIR HANDLING UNIT INSTALLATION DETAIL
N.T.S.



2 EXPOSED DUCTWORK SUPPORT
N.T.S.



1 DIFFUSER CONNECTION
N.T.S.

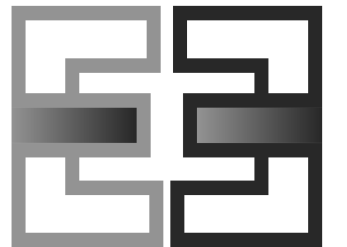


sweetgreen

3101 W. EXPOSITION BLVD.
LOS ANGELES, CALIFORNIA 90018

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ENGINEER OF RECORD:



EVERJ ENGINEERING, INC.
1509 BUCK TRAIL LANE
WORTHINGTON, OH 43085
240-319-0822
www.everjengineering.com

STAMP:



PROJECT INFORMATION:
DOWNTOWN INDIANAPOLIS
PROJECT INFORMATION:
**157 NEW YORK STREET
INDIANAPOLIS, IN 46204**

DRAWN BY: JAE
CHECKED BY: JAE
PROJECT MANAGER: J. EVERETT
SG DESIGN MANAGER: LK
SG CONSTR. MANAGER: JB
PROJECT NO: 210005
TEMPLATE VERSION: 04/02/2021

REVISIONS
REV. DATE DESCRIPTION

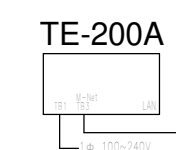
VRF DIAGRAMS

M-401

CITY MULTI SYSTEM SCHEMATIC DWG.

| DIAGRAM DISPLAY | SYMBOL DESCRIPTION | CONT.No | PAGE |
|-----------------|--------------------|---------|------|
| --- | POWER WIRE | | |
| --- | CONTROL WIRE | | |
| --- | REF. PIPE | | |

| PIPING AND CONTROLS | |
|----------------------------------|------------------------|
| SYMBOL | BRANCH PIPE MODEL NAME |
| J1 | CMY-R200NCBK |
| J2 | CMY-R302S-G1 |
| J3 | CMY-R160-J1 |
| SYMBOL LIQUID PIPE GAS PIPE SIZE | |
| P1 | 3/4" |
| P2 | 1-1/8" |
| P3 | 3/8" / 3/4" |
| P4 | 3/8" / 5/8" |
| P5 | 1/4" / 1/2" |
| P6 | 7/8" / 1-3/8" |



Diamond System Builder
sw: 4.3.1.35
db: 4.3.1.31
9/5/2021
8:22 AM

REMARKS
Originator: Derek Van Ripper
Comments:

1 VRF WIRING/PIPING DIAGRAMS N.T.S.

NOTE: DIAGRAM IS FOR REFERENCE ONLY. REFER TO THE TRANE SHOP DRAWINGS AND REVIEWED SUBMITTAL.

This drawing is schematic in nature. Final routing of piping & wiring shall be determined by the installing contractor and/or designer of record. Additional refrigerant charge is needed depending on the size and length of extended piping. Please refer the amount of pre-charge and the formula of calculation which is mentioned on the data book.
1.25mm(1/8 AWG) - 1.25mm(1/8 AWG) or more. 0.75mm(20 AWG) - between 0.5mm(24 AWG) and 0.75mm(20 AWG).

Coded Notes:
NOTE 1: Install twinning 1/2" within 15 degrees of level and with 20 inches of straight pipe on converging connection - reference installation manual for additional details including but not limited to special trapping requirements when twinning, and pipe slope requirements

