

SECTION 23 00 00 - MECHANICAL GENERAL REQUIREMENTS

- PART 1 - GENERAL
1. THE TERM "TENANT," "TENANT'S CONSTRUCTION MANAGER," "OWNER," OR "OWNER'S CONSTRUCTION MANAGER" SHALL REFER TO CLIENT.
2. THE TERM "FURNISH" MEANS TO SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS...

- PART 2 - PRODUCTS
1. PRODUCTS SHALL BE AS DESCRIBED IN THE DRAWINGS AND AS REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM.

- PART 3 - EXECUTION
1. UNLESS DIMENSIONS HAVE BEEN PROVIDED, THE DRAWINGS ARE DIAGRAMMATIC IN NATURE, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT AND REQUIRED EQUIPMENT. THEY SHALL NOT BE SCALED.
2. COMPLETE ALL WORK IN COMPLIANCE WITH THE CODES LISTED ON THE ARCHITECTURAL SHEETS INCLUDING ALL LOCAL AMENDMENTS, ALL RELEVANT NFPA CODES AND STANDARDS...

(END OF SECTION 23 00 00)

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 AT THE GENERAL CONTRACTOR'S EXPENSE, CERTIFIED BY NEBB OR TABB AS A TAB TECHNICIAN. BALANCE THE SYSTEM IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING STANDARDS.

PART 2 - PRODUCTS: N/A

- PART 3 - EXECUTION
1. AIR SYSTEMS
A. PROVIDE ALL LABOR AND MATERIALS REQUIRED TO BALANCE THE SYSTEM AS NOTED ON THE PLANS.
B. FAN SYSTEMS SHALL BE ADJUSTED SUCH THAT THE LOWEST FAN SPEED IS UTILIZED TO DELIVER THE REQUIRED CFM TO THE AIR TERMINALS.
2. WATER SYSTEMS
A. PROVIDE ALL LABOR AND MATERIALS REQUIRED TO BALANCE THE SYSTEM AS NOTED ON THE PLANS.

(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.
2. QUALITY ASSURANCE
A. INSULATION INSTALLED INDOORS SHALL HAVE A FLAME-SPREAD INDEX OF 25 OR LESS, AND SMOKE-DEVELOPED INDEX OF 50 OR LESS.

- PART 2 - PRODUCTS
1. INTERIOR DUCTWORK SHALL HAVE FLEXIBLE FIBERGLASS DUCT WRAP LAMINATED TO FOIL REINFORCED KRAFT VAPOR BARRIER FACING WITH 2" STAPLING FLANGE AND AN INSTALLED THICKNESS OF 1-1/2" WITH AN R-VALUE OF 6.0.
2. EXTERIOR DUCTWORK SHALL BE INSULATED WITH 2" THICK RIGID INSULATION WITH A MINIMUM R-VALUE OF 12.0, PROTECTED WITH ROOFING MEMBRANE.

- 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; FREE OF VOIDS THROUGHOUT THE LENGTH OF DUCT AND FITTINGS.
3. PENETRATIONS
A. ROOF PENETRATIONS: INSTALL INSULATION CONTINUOUSLY THROUGH ROOF PENETRATIONS. FOR APPLICATIONS REQUIRING ONLY INDOOR INSULATION, TERMINATE INSULATION ABOVE ROOF SURFACE AND SEAL WITH JOINT SEALANT.

(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. FLAT-OVAL DUCTS AND FITTINGS
E. SHEET METAL MATERIALS
F. SEALANTS AND GASKETS
G. 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."

- PART 2 - PRODUCTS
1. RECTANGULAR DUCTS AND FITTINGS:
A. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" BASED ON INDICATED STATIC-PRESSURE CLASS UNLESS NOTED OTHERWISE.
B. TRAVERSE JOINTS: SELECT JOINT TYPES AND FABRICATE ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 2-1 FOR STATIC-PRESSURE CLASS, APPLICABLE SEALING REQUIREMENTS, MATERIALS INVOLVED, DUCT SUPPORT INTERVALS AND OTHER PROVISIONS AS REQUIRED.
C. LONGITUDINAL SEAMS: SELECT SEAM TYPES AND FABRICATE ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 2-2 FOR STATIC-PRESSURE CLASS, APPLICABLE SEALING REQUIREMENTS, MATERIALS INVOLVED, DUCT SUPPORT INTERVALS AND OTHER PROVISIONS AS REQUIRED.

- PART 3 - EXECUTION
1. INSTALLATION
A. DRAWING PLANS, SCHEMATICS AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF DUCTWORK ROUTING. COORDINATE INSTALLATION WITH WORK OF ALL OTHER TRADES AND EXISTING CONDITIONS. ACCOMMODATE DUCT HANGER, RODS, INSULATION AND OTHER REQUIREMENTS AS REQUIRED.
B. DUCT DIMENSIONS ON PLANS INDICATE DIMENSIONS OF THE INTERNAL FREE AREA.
C. INSTALL DUCTS ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" IN MAXIMUM PRACTICAL LENGTHS WITH FEWEST POSSIBLE JOINTS.
2. SEALANTS AND GASKETS
A. MAXIMUM FLAME-SPREAD INDEX: 25 (WHEN TESTED ACCORDING TO UL 723).

- PART 3 - EXECUTION
1. INSTALLATION
A. DRAWING PLANS, SCHEMATICS AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF DUCTWORK ROUTING. COORDINATE INSTALLATION WITH WORK OF ALL OTHER TRADES AND EXISTING CONDITIONS. ACCOMMODATE DUCT HANGER, RODS, INSULATION AND OTHER REQUIREMENTS AS REQUIRED.
B. DUCT DIMENSIONS ON PLANS INDICATE DIMENSIONS OF THE INTERNAL FREE AREA.
C. INSTALL DUCTS ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" IN MAXIMUM PRACTICAL LENGTHS WITH FEWEST POSSIBLE JOINTS.
2. SEALANTS AND GASKETS
A. MAXIMUM FLAME-SPREAD INDEX: 25 (WHEN TESTED ACCORDING TO UL 723).

- PART 3 - EXECUTION
1. INSTALLATION
A. DRAWING PLANS, SCHEMATICS AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF DUCTWORK ROUTING. COORDINATE INSTALLATION WITH WORK OF ALL OTHER TRADES AND EXISTING CONDITIONS. ACCOMMODATE DUCT HANGER, RODS, INSULATION AND OTHER REQUIREMENTS AS REQUIRED.
B. DUCT DIMENSIONS ON PLANS INDICATE DIMENSIONS OF THE INTERNAL FREE AREA.
C. INSTALL DUCTS ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" IN MAXIMUM PRACTICAL LENGTHS WITH FEWEST POSSIBLE JOINTS.
2. SEALANTS AND GASKETS
A. MAXIMUM FLAME-SPREAD INDEX: 25 (WHEN TESTED ACCORDING TO UL 723).

- PART 3 - EXECUTION
1. INSTALLATION
A. DRAWING PLANS, SCHEMATICS AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF DUCTWORK ROUTING. COORDINATE INSTALLATION WITH WORK OF ALL OTHER TRADES AND EXISTING CONDITIONS. ACCOMMODATE DUCT HANGER, RODS, INSULATION AND OTHER REQUIREMENTS AS REQUIRED.
B. DUCT DIMENSIONS ON PLANS INDICATE DIMENSIONS OF THE INTERNAL FREE AREA.
C. INSTALL DUCTS ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" IN MAXIMUM PRACTICAL LENGTHS WITH FEWEST POSSIBLE JOINTS.
2. SEALANTS AND GASKETS
A. MAXIMUM FLAME-SPREAD INDEX: 25 (WHEN TESTED ACCORDING TO UL 723).

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" FOR ACCEPTABLE MATERIALS, THICKNESS AND DUCT CONSTRUCTION METHODS UNLESS NOTED OTHERWISE. SHEET METAL MATERIALS SHALL BE FREE FROM PITTING, SEAM MARKS, ROLLER MARKS, STAINS, DISCOLORATIONS AND OTHER IMPERFECTIONS.
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. SUITABLE FOR HORIZONTAL OR VERTICAL APPLICATIONS.

- 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. WHERE DAMPERS ARE INSTALLED IN DUCTS WITH DUCT LINER, INSTALL DAMPERS WITH HAT CHANNELS OF SAME DEPTH AS LINER AND TERMINATE LINER WITH NOSING AT HAT CHANNEL.
C. WHERE DAMPERS ARE INSTALLED IN WRAPPED DUCT, PROVIDE INSULATION STAND-OFFS AS REQUIRED.
D. SET DAMPERS TO FULLY OPEN POSITION BEFORE TESTING, ADJUSTING AND BALANCING.
E. INSTALL TEST HOLES AT FAN INLETS AND OUTLETS AND WHERE REQUIRED FOR TESTING AND BALANCING PURPOSES.
F. INSTALL FIRE DAMPERS ACCORDING TO UL LISTING.
G. INSTALL FLEXIBLE CONNECTORS TO CONNECT DUCTS TO EQUIPMENT.

- 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. WHERE DAMPERS ARE INSTALLED IN DUCTS WITH DUCT LINER, INSTALL DAMPERS WITH HAT CHANNELS OF SAME DEPTH AS LINER AND TERMINATE LINER WITH NOSING AT HAT CHANNEL.
C. WHERE DAMPERS ARE INSTALLED IN WRAPPED DUCT, PROVIDE INSULATION STAND-OFFS AS REQUIRED.
D. SET DAMPERS TO FULLY OPEN POSITION BEFORE TESTING, ADJUSTING AND BALANCING.
E. INSTALL TEST HOLES AT FAN INLETS AND OUTLETS AND WHERE REQUIRED FOR TESTING AND BALANCING PURPOSES.
F. INSTALL FIRE DAMPERS ACCORDING TO UL LISTING.
G. INSTALL FLEXIBLE CONNECTORS TO CONNECT DUCTS TO EQUIPMENT.

- 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. WHERE DAMPERS ARE INSTALLED IN DUCTS WITH DUCT LINER, INSTALL DAMPERS WITH HAT CHANNELS OF SAME DEPTH AS LINER AND TERMINATE LINER WITH NOSING AT HAT CHANNEL.
C. WHERE DAMPERS ARE INSTALLED IN WRAPPED DUCT, PROVIDE INSULATION STAND-OFFS AS REQUIRED.
D. SET DAMPERS TO FULLY OPEN POSITION BEFORE TESTING, ADJUSTING AND BALANCING.
E. INSTALL TEST HOLES AT FAN INLETS AND OUTLETS AND WHERE REQUIRED FOR TESTING AND BALANCING PURPOSES.
F. INSTALL FIRE DAMPERS ACCORDING TO UL LISTING.
G. INSTALL FLEXIBLE CONNECTORS TO CONNECT DUCTS TO EQUIPMENT.

(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 NFPA 90B.
2. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" FOR ACCEPTABLE MATERIALS, MATERIAL THICKNESS AND DUCT CONSTRUCTION METHODS UNLESS NOTED OTHERWISE.
3. COMPLY WITH ASTM E 96/ 96M.
4. INSULATED, FLEXIBLE DUCT UL 181, CLASS 1, FACTORY FABRICATED AND INSULATED. PROVIDED WITH INTERIOR LINER, FIBROUS-GLASS INSULATION AND VAPOR-BARRIER FLIM.

- 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. FLEXIBLE DUCTWORK IS ONLY PERMITTED TO CONNECT TO SUPPLY-AIR GRILLES, REGISTERS AND DIFFUSERS. MAXIMUM LENGTH SHALL BE 60 INCHES.
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. PROVIDE ADDITIONAL SUPPORT AT BENDS. DUCTS MAY REST ON CEILING JOISTS OR TRUSS SUPPORTS. SPACING BETWEEN THESE ELEMENTS SHALL NOT EXCEED 48 INCHES.

(END OF SECTION 23 33 46)

SECTION 23 34 03 - UTILITY SET POWER VENTILATORS

- PART 1 - GENERAL
1. SECTION REQUIREMENTS
A. SUBMITTALS: PROVIDE SHOP DRAWINGS INDICATING THE DIMENSIONS, WEIGHTS, REQUIRED CLEARANCES, COMPONENTS, ELECTRICAL CHARACTERISTICS, CFM, STATIC PRESSURE AND FAN CURVE.
B. WARRANTY: SUBMIT A WRITTEN WARRANTY, SIGNED BY THE MANUFACTURER AGREEING TO REPAIR OR REPLACE COMPONENTS OF RTUS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN THE MANUFACTURER'S STANDARD WARRANTY PERIOD.

- PART 2 - PRODUCTS
1. DESCRIPTION
2. MANUFACTURERS: AS NOTED IN THE MECHANICAL SCHEDULES. NO SUBSTITUTIONS SHALL BE PERMITTED.
3. CHARACTERISTICS: PROVIDED WITH:
A. BASE: CONSTRUCTED OF GALVANIZED STEEL.
B. HOUSING: CONSTRUCTED OF ALUMINIZED AND GALVANIZED STEEL. FAN SCROLL SHALL BE CONTINUOUSLY SEALED AND TACK WELDED.
C. WHEEL: CENTRIFUGAL, BACKWARD INCLINED AND NON-OVERLOADING; BALANCED IN TWO PLANES IN ACCORDANCE WITH AMCA STANDARDS. WHEEL BLADES SHALL BE AERODYNAMICALLY DESIGNED TO MINIMIZE TURBULENCE AND REDUCE NOISE. WHEEL SHALL BE CONSTRUCTED OF HEAVY GAUGE WELDED ALUMINUM ANY BALANCING WEIGHTS SHALL BE WELDED OR RIVETED TO THE BLADES OR WHEEL. WHEEL SHALL BE FIRMLY ATTACHED TO THE MOTOR SHAFT WITH SET SCREWS.
D. MOTOR: HEAVY DUTY BALL BEARING TYPE MOUNTED OUT OF THE AIRSTREAM AT THE VOLTAGE AND PHASE NOTED IN THE SCHEDULES. MOTOR COMPARTMENT SHALL BE COOLED BY OUTSIDE AIR. MOTOR COMPARTMENT SHALL BE COMPLETELY REMOVABLE WITH THE MOTOR COVER ASSEMBLY HAVING WING BOLTS TO SECURE THE ASSEMBLY TO THE HOUSING.
E. BELTS AND DRIVES: BELTS SHALL BE HEAT AND OIL RESISTANT, NON-STATIC TYPE. DRIVES SHALL BE CAST TYPE AND SIZED FOR A MINIMUM OF 150% THE INSTALLED MOTOR HORSEPOWER. FAN OPERATING SPEED SHALL BE FACTORY SET USING ADJUSTABLE PITCH PULLEYS. MOTORS OVER 2 HP TO BE FURNISHED WITH DOUBLE-GROOVE PULLEYS.
F. ACCESSORIES: AS NOTED ON THE MECHANICAL SCHEDULES.

- PART 3 - EXECUTION
1. INSTALLATION
A. UNIT SUPPORT: INSTALL ON ROOF RAFTS ON ROOF STRUCTURE. LEVEL, SECURE, PER STRUCTURAL DETAILS AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. CONNECTIONS
A. COMPLY WITH DUCT INSTALLATION REQUIREMENTS SPECIFIED IN OTHER HVAC SECTIONS. DRAWINGS INDICATE GENERAL ARRANGEMENTS OF DUCTS.
B. CONNECT TO FANS WITH FLEXIBLE DUCT CONNECTORS.
C. WHERE INSTALLING PIPING ADJACENT TO FANS, ALLOW SPACE FOR SERVICE AND MAINTENANCE.
D. CONNECT ELECTRICAL WIRING IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
E. GROUND EQUIPMENT IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
3. FIELD QUALITY CONTROL
A. AFTER INSTALLING FANS, TEST UNITS FOR COMPLIANCE WITH REQUIREMENTS.
B. INSPECT OR AND REMOVE SHIPPING BOLTS, BLOCKS AND TIE-DOWN STRAPS.
C. CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATIONS.
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.

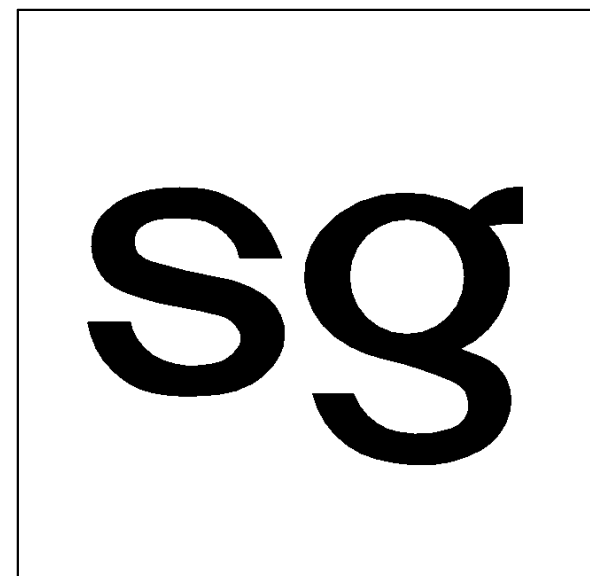
(END OF SECTION 23 34 03)

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. NO SUBSTITUTIONS SHALL BE PERMITTED.
2. REGISTERS: MANUFACTURER, MODEL, MATERIAL, FINISH, MOUNTING AND ACCESSORIES SHALL BE AS NOTED IN THE MECHANICAL SCHEDULES. NO SUBSTITUTIONS SHALL BE PERMITTED, UNLESS OTHERWISE NOTED. ALL CEILING DIFFUSERS SHALL BE FOUR-WAY.
3. DIFFUSERS: MANUFACTURER, MODEL, MATERIAL, FINISH, MOUNTING AND ACCESSORIES SHALL BE AS NOTED IN THE MECHANICAL SCHEDULES. NO SUBSTITUTIONS SHALL BE PERMITTED, UNLESS OTHERWISE NOTED. ALL CEILING DIFFUSERS SHALL BE FOUR-WAY.

- PART 3 - EXECUTION
1. INSTALLATION
A. INSTALL GRILLES, REGISTERS & DIFFUSERS LEVEL AND PLUMB.
B. INSTALL GRILLES, REGISTERS & DIFFUSERS AS INDICATED. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION.
C. INSTALL GRILLES, REGISTERS & DIFFUSERS WITH AIRTIGHT CONNECTIONS TO DUCTS AND TO ALLOW SERVICE AND MAINTENANCE OF DAMPERS, EXTRACTORS AND OTHER ACCESSORIES.
D. ALL AIR DEVICE COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC OR SHEET METAL UNTIL THE FINAL START-UP OF THE HEATING COOLING AND VENTILATION EQUIPMENT.
E. WHEN INDICATED ON THE PLANS, PAINT THE GRILLES, REGISTERS & DIFFUSERS PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS WITH AN ENAMEL PAINT, COLOR AS INDICATED.
F. 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)



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ENGINEER OF RECORD:
NATIONAL ENGINEERING
4635 TRUEMAN BOULEVARD
SUITE 250
HILLIARD, OH 43026
614-751-9610

STAMP:
CONSTRUCTION ISSUE SET

PROJECT INFORMATION:
MIDTOWN ICEBLOCKS
PROJECT INFORMATION:
1629 S STREET
SACRAMENTO, CA 95811

DRAWN BY: BRW
CHECKED BY: XXX
PROJECT MANAGER: JMJ
SG DESIGN MANAGER: TR
SG CONSTR. MANAGER: DK
PROJECT NO: 2401228
TEMPLATE VERSION: 02/03/2025

Table with 3 columns: REV., DATE, DESCRIPTION

MECHANICAL SPECIFICATIONS

M010

SECTION 23 81 29 - MINI-SPLIT SYSTEMS

PART 1 - GENERAL

1. SECTION REQUIREMENTS

- A. SUBMITTALS: PROVIDE 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. COMPRESSORS SHALL HAVE A WARRANTY OF SEVEN YEARS.

PART 2 - PRODUCTS

1. DESCRIPTION

- A. HEAT PUMP AIR CONDITIONING SYSTEM CAPABLE OF HEATING AND COOLING.
- B. SYSTEM SHALL CONSIST OF AN OUTDOOR UNIT, INDOOR UNIT AND AN INTEGRAL DIRECT DIGITAL CONTROLS SYSTEM.
- C. ENERGY COMPLIANCE: COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE ENERGY CODE LISTED ON THE COVER SHEET.
- D. 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 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. CHARACTERISTICS: PROVIDED WITH:
 - A. AN AIR-COOLED, DIRECT EXPANSION SPECIFICALLY FOR USE WITH MINI-SPLIT COMPONENTS.
 - B. UNITS SHALL BE EQUIPPED WITH A SINGLE VARIABLE SPEED INVERTER COMPRESSOR.
 - C. UNIT SHALL BE FACTORY ASSEMBLED, PIPED AND WIRED AND RUN TESTED AT THE FACTORY.
 - D. ALL LINESETS TO THE INDOOR UNITS SHALL BE INSULATED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 - E. THE OUTDOOR UNIT SHALL HAVE AN ACCUMULATOR WITH REFRIGERANT LEVEL SENSORS AND CONTROLS. UNITS SHALL ACTIVELY CONTROL LIQUID LEVEL VIA LINEAR EXPANSION VALVES.
 - F. UNIT CASING SHALL BE GALVANIZED STEEL, BONDERIZED AND FINISHED.
 - G. OUTDOOR UNIT COIL SHALL BE OF NONFERROUS CONSTRUCTION WITH LANCED OR CORRUGATED PLATE FINS ON COPPER TUBING, PROTECTED WITH AN INTEGRAL GUARD. REFRIGERANT FLOW SHALL BE CONTROLLED BY MEANS OF AN INDIVIDUAL ELECTRONIC LINEAR EXPANSION VALVE.
 - H. UNIT POWER SHALL BE AS NOTED IN THE EQUIPMENT SCHEDULES.
 - I. CONTROL CIRCUITING BETWEEN THE INDOOR UNIT AND THE OUTDOOR UNIT SHALL BE PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

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. R-VALUE SHALL BE 3.0 OR GREATER.
- E. ALL REFRIGERANT PIPING CONNECTIONS BETWEEN OUTDOOR AND INDOOR UNITS SHALL BE FLARE TYPE.
- 5. WALL-MOUNTED UNIT.
 - A. THE WALL-MOUNTED INDOOR UNIT 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 HAVE MULTI-DIRECTIONAL DRAIN AND REFRIGERANT PIPING WITH SEPARATE BACK PLATE TO SECURE THE UNIT TO THE WALL.
 - C. INDOOR FAN SHALL BE DIRECT DRIVEN, BALANCED AND WITH PERMANENTLY LUBRICATED BEARINGS AND FIVE SPEED SETTINGS.
 - D. INDOOR UNIT SHALL HAVE AN ADJUSTABLE GUIDE VANE WITH THE ABILITY TO CHANGE AIRFLOW FROM SIDE TO SIDE AND A MULTI-POSITION HORIZONTAL AIR SWEEP TO PROVIDE UNIFORM DISTRIBUTION UP AND DOWN WITH FIVE SELECTABLE POSITIONS AND "AUTO."
 - E. UNIT SHALL BE FURNISHED WITH A WASHABLE RETURN AIR FILTER.
 - F. COIL SHALL BE CONSTRUCTED OF SMOOTH PLATE FINS ON COPPER TUBING WITH INNER GROOVES.
 - G. UNIT POWER SHALL BE AS NOTED IN THE EQUIPMENT SCHEDULES.
 - H. CONTROL CIRCUITING BETWEEN THE INDOOR UNIT AND THE OUTDOOR UNIT SHALL BE PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 6. MEDIUM-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 TWO-POSITION, FIELD-ADJUSTABLE 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 UNIT AND THE OUTDOOR UNIT SHALL BE PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

PART 3 - EXECUTION

1. INSTALLATION

- A. OUTDOOR UNITS: INSTALL OUTDOOR UNITS ON MANUFACTURER'S FURNISHED SNOW LEGS.
- B. DUCTED INDOOR UNITS: INSTALL UNITS LEVEL FROM STRUCTURE, ON NEOPRENE TYPE VIBRATION ISOLATORS AS NOTED ON THE STRUCTURAL DRAWINGS.
- C. WALL-MOUNTED INDOOR UNITS: INSTALL UNITS LEVEL, MOUNTED TO THE WALL ON THE FURNISHED BACK PLATE AS NOTED IN THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 2. CONNECTIONS
 - A. COMPLY WITH DUCT INSTALLATION REQUIREMENTS SPECIFIED IN OTHER HVAC SECTIONS. DRAWINGS INDICATE GENERAL ARRANGEMENTS OF DUCTS.
 - 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 AND REMOVE SHIPPING BOLTS, BLOCKS AND TIE-DOWN STRAPS.
 - C. CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATIONS.
 - 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

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ENGINEER OF RECORD:



NATIONAL
ENGINEERING
NATIONAL ENGINEERING
4635 TRUEMAN BOULEVARD
SUITE 250
HILLIARD, OH 43026
614-751-9610

STAMP:

**CONSTRUCTION
ISSUE SET**

PROJECT INFORMATION:
MIDTOWN ICEBLOCKS

PROJECT INFORMATION:
**1629 S STREET
SACRAMENTO, CA 95811**

DRAWN BY: JMJ
CHECKED BY: JAE
PROJECT MANAGER: JMJ
SG DESIGN MANAGER: TR
SG CONSTR. MANAGER: DK
PROJECT NO: 2401228
TEMPLATE VERSION: 02/03/2025

REVISIONS
REV. DATE DESCRIPTION

**MECHANICAL
SPECIFICATIONS**

M011

CERTIFICATE OF COMPLIANCE NRCC-MCH-E	
Project Name: sweetgreen - Midtown Iceblocks	Report Page: (Page 12 of 12)
Project Address: 1629 S Street Sacramento, CA 95811	Date Prepared: 2025-03-24T09:09:12-04:00

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Joshua Everett	Documentation Author Signature:
Company: National Engineering, LTD.	Signature Date: 03/24/2025
Address: 4635 Trueman Boulevard, Suite 250	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Hilliard, OH 43026	Phone: 614-349-8054

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

- The information provided on this Certificate of Compliance is true and correct.
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
- The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
- The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
- I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Joshua Everett	Responsible Designer Signature:
Company: National Engineering, LTD.	Date Signed: 03/24/2025
Address: 4635 Trueman Boulevard, Suite 250	License: 40597
City/State/Zip: Hilliard, OH 43026	Phone: 614-349-8054

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance
 Report Version: 2022.0.000
 Schema Version: rev 20220101
 Generated Date/Time: 2025-03-24 06:09:16
 Documentation Software: Energy Code Ace
 Compliance ID: 282906-0325-0004
 Report Generated: 2025-03-24 06:09:16

CERTIFICATE OF COMPLIANCE NRCC-MCH-E	
Project Name: sweetgreen - Midtown Iceblocks	Report Page: (Page 11 of 12)
Project Address: 1629 S Street Sacramento, CA 95811	Date Prepared: 2025-03-24T09:09:12-04:00

Q. MANDATORY MEASURES DOCUMENTATION LOCATION

This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.

01	02
Compliance with Mandatory Measures documented through MCH	Plan sheet or construction document location
Mandatory Measures Note Block	
03	04
Mandatory Measure	Plan sheet or construction document location
Heating Equipment Efficiency per 110.1	M500
Cooling Equipment Efficiency per 110.1	M600
Furnace Standby Loss Control per 110.2(d)	N/A
Duct Insulation per 120.4	M010
Heat Pump with Supplemental electric Resistance Heater Controls per 110.2(b)	N/A
The air duct and plenum system is designed per 120.4(a)-(f)	M010
Kitchen range hoods shall be rated for sound in accordance with Section 7.2 of ASHRAE 62.2	N/A

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance
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Project Name: sweetgreen - Midtown Iceblocks	Report Page: (Page 10 of 12)
Project Address: 1629 S Street Sacramento, CA 95811	Date Prepared: 2025-03-24T09:09:12-04:00

N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-4>

Form/Title	Systems/Spaces To Be Field Verified
NRCC-MCH-01-E - Must be submitted for all buildings	

O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-4>

Form/Title	Systems/Spaces To Be Field Verified
NRCA-MCH-02-A - Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH-02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap.	
NRCA-MCH-03-A - Constant Volume Single Zone HVAC NOTE: This form does not automatically move to "Yes". If Constant Volume Single Zone HVAC Systems are included in the scope, permit applicant should move this form to "Yes".	AHU-1 and AHU-2

P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

There are no NRCV forms required for this project.

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance
 Report Version: 2022.0.000
 Schema Version: rev 20220101
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 Documentation Software: Energy Code Ace
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 LOS ANGELES, CALIFORNIA 90018

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 SG CONSTR. MANAGER: DK
 PROJECT NO: 2401228
 TEMPLATE VERSION: 02/03/2025

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**TITLE 24
 CALCULATIONS**

M021



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ISSUE SET**

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MIDTOWN ICEBLOCKS

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SACRAMENTO, CA 95811**

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PROJECT MANAGER: JMJ
SG DESIGN MANAGER: TR
SG CONSTR. MANAGER: DK
PROJECT NO: 2401228
TEMPLATE VERSION: 02/03/2025

REVISIONS
REV. DATE DESCRIPTION
4 07/17/2025 CLIENT REVISIONS

HVAC PLAN

M100

CODED NOTES

- 1 INSTALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTION AND PER THE STRUCTURAL DETAILS.
- 2 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 LINESET, SPECIAL TIES AND MAKE ALL FINAL CONNECTIONS BETWEEN THE CONDENSING UNIT AND EVAPORATOR COIL.
- 3 PROVIDE SUPPLY DIFFUSER CONNECTION PER DETAIL 8/M500.
- 4 REFER TO THE ARCHITECTURAL RCP FOR CEILING MOUNTED EQUIPMENT LOCATION. TYPICAL.
- 5 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.
- 6 PROVIDE HVAC CONTROLLER FOR THE MECHANICAL EQUIPMENT AT THIS LOCATION AT 48" AFF. COORDINATE WITH ELECTRICAL SWITCHING IN THE AREA AND EXTEND WIRING TO REMOTE TEMPERATURE SENSOR AND UNITS. LABEL EACH THERMOSTAT ACCORDINGLY. COORDINATE THERMOSTAT LOCATION WITH WALL-MOUNTED EQUIPMENT SO THAT THE THERMOSTATS ARE NOT BLOCKED BY SHELVING, COAT RACKS OR DOORS.
- 7 INSTALL THE 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.
- 8 PAINT ALL DUCTWORK VISIBLE THROUGH THE GRILLES IN THE DINING AREA BLACK. TYPICAL.
- 9 PROVIDE DUCTED TRANSFER GRILLE IN LOCATION AS SHOWN.
- 10 INSTALL THE TYPE II HOOD, HD-2 IN LOCATION SHOWN. SUPPORT PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. INSTALL HOOD ACCORDING TO THE REQUIREMENTS OF IT'S LISTING, THE BUILDING CODE, ALL NFPA REQUIREMENTS AND THE LOCAL AUTHORITY HAVING JURISDICTIONS REQUIREMENTS.
- 11 EXISTING DUCTWORK TO/FROM ROOF TO REMAIN. CONNECT IN LOCATION SHOWN. REFER TO SHEET M110 FOR CONTINUATION.
- 12 REFER TO DETAIL 2/M500 FOR AIR HANDLING UNIT INSTALLATION DETAILS.
- 13 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.
- 14 NOT USED.
- 15 THE GENERAL CONTRACTOR SHALL PROVIDE A DUCT-MOUNTED SMOKE DETECTOR IN THE SUPPLY AIR STREAM. UPON DETECTION OF SMOKE, THE SUPPLY AIR FAN SHALL DE-ENERGIZE. COORDINATE ALL REQUIREMENTS WITH THE LANDLORD AND ALARM PROVIDER.
- 16 THE GENERAL CONTRACTOR SHALL FURNISH A REME HALO AIR PURIFICATION SYSTEM AND REQUIRED TRANSFORMER, PURCHASED THROUGH SWEETGREEN'S VENDOR (NATIONAL TAB, CONTACT WILL TURNBOUGH (855-682-8822, EXT 4.2) (WILL@NATIONALTAB.COM)) AND INSTALL SYSTEM IN THE SUPPLY AIR DUCTWORK AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ADJUST AS REQUIRED FOR THE SUPPLY AIRFLOW.
- 17 MOTORIZED DAMPER. REFER TO THE SEQUENCE OF OPERATIONS FOR MORE INFORMATION.
- 18 INSTALL RETURN GRILLE WITH LOUVERS FACING UP SUCH THAT THE INTERIOR OF THE DUCTWORK IS NOT VISIBLE FROM THE RESTROOM HALLWAY.
- 19 CAP EXISTING DUCTWORK AND LEAVE UNUSED.

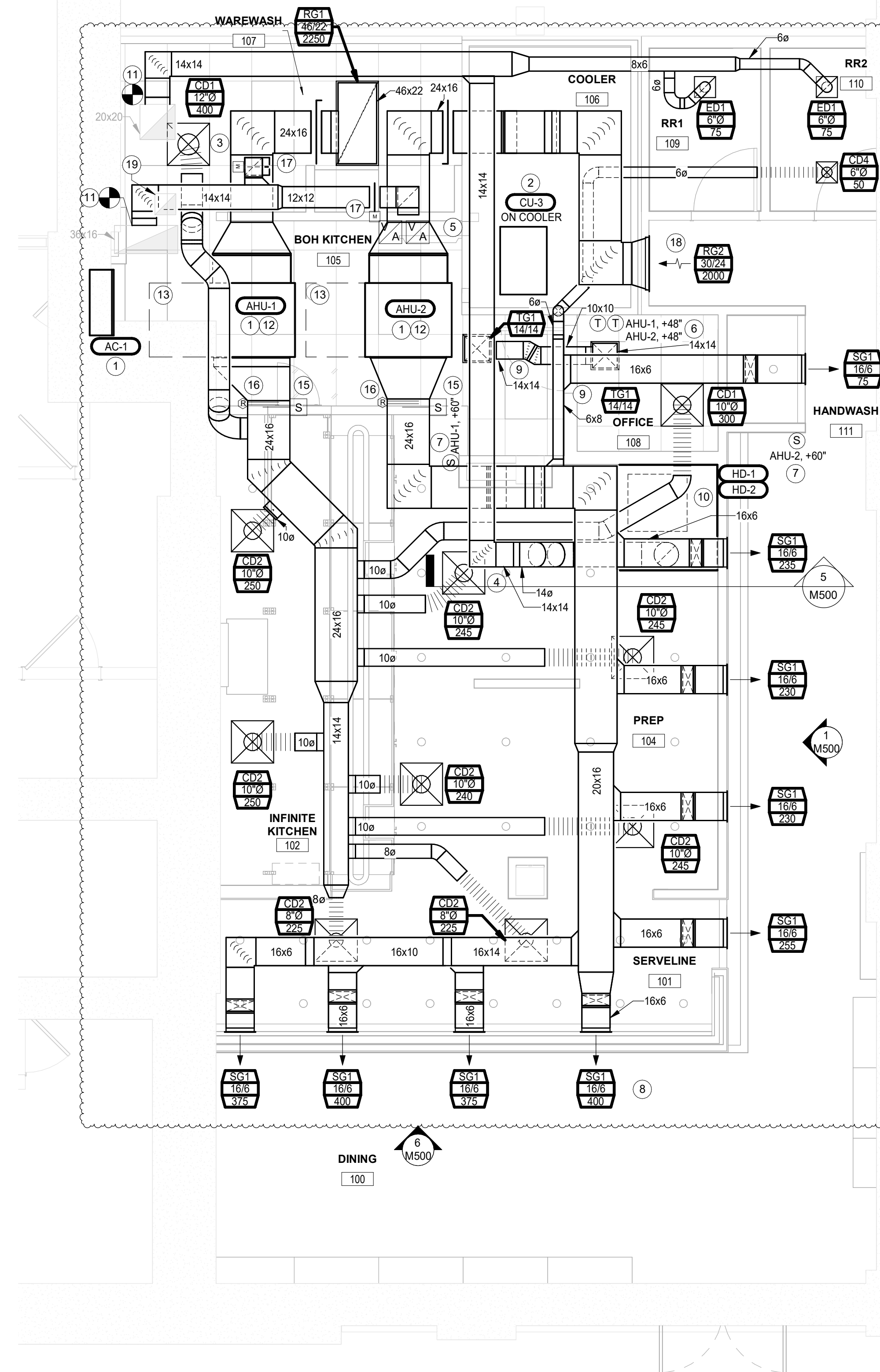
SYMBOLS & ABBREVIATIONS

HVAC SYMBOLS

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

HVAC ABBREVIATIONS

(E)	EXISTING
(R)	RELOCATED
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
BC	BLOWER COIL
CD	CEILING DIFFUSER
CU	CONDENSING UNIT
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
EXT'G	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
SG	SUPPLY GRILLE
SR	SUPPLY REGISTER
VSC	VARIABLE SPEED CONTROL
WSP	WATER SOURCE HEAT PUMP





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ENGINEER OF RECORD:



STAMP:

CONSTRUCTION
ISSUE SET

PROJECT INFORMATION:
MIDTOWN ICEBLOCKS
PROJECT INFORMATION:
**1629 S STREET
SACRAMENTO, CA 95811**

DRAWN BY: JAE
CHECKED BY: JAE
PROJECT MANAGER: JMJ
SG DESIGN MANAGER: TR
SG CONSTR. MANAGER: DK
PROJECT NO: 2401228
TEMPLATE VERSION: 02/03/2025

REVISIONS
REV. DATE DESCRIPTION

HVAC ROOF PLAN

M110

CODED NOTES

- 1 INSTALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND THE STRUCTURAL DETAILS.
- 2 CONNECT TO THE EXISTING DUCTWORK ROUTED TO/FROM THE SPACE. REFER TO SHEET M100 FOR CONTINUATION.
- 3 EXTEND VENTILATION AIR DUCTWORK TO BE 10' FROM EXHAUST FAN DISCHARGE. TERMINATE WITH A GOOSENECK WITH BIRDSCREEN A MINIMUM OF 24" ABOVE THE ROOF SURFACE.
- 4 EXHAUST TERMINATION SHALL BE NO CLOSER THAN 10'-0" FROM ALL VENTILATION AIR INTAKES.
- 5 EXISTING VENTILATION AIR FAN AND INTAKE SERVING ADJACENT SPACES TO REMAIN.
- 6 EXISTING EQUIPMENT LOCATED ON ROOF THROUGHOUT TO REMAIN.
- 7 PROVIDE REFRIGERANT PIPING BETWEEN THE CONDENSING UNIT AND THE AIR HANDLING UNIT PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. REFRIGERANT SHALL BE ROUTED THROUGH THE EXISTING SHAFT/FROM SPACE. COORDINATE EXACT ROUTING WITH FIELD CONDITIONS AND SUPPORT AS NECESSARY.
- 8 CAP EXISTING DUCTWORK AND LEAVE UNUSED.

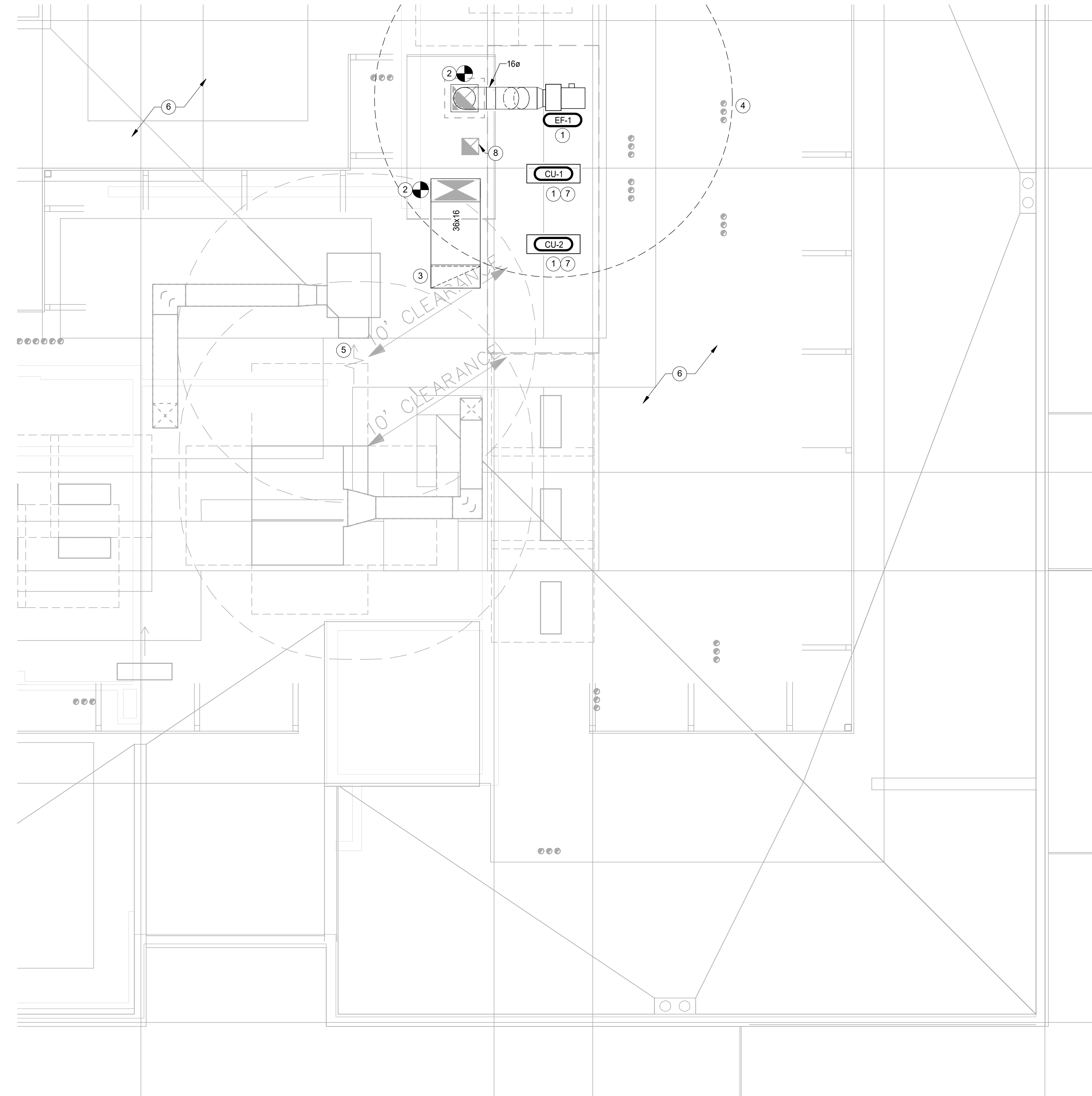
SYMBOLS & ABBREVIATIONS

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

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



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

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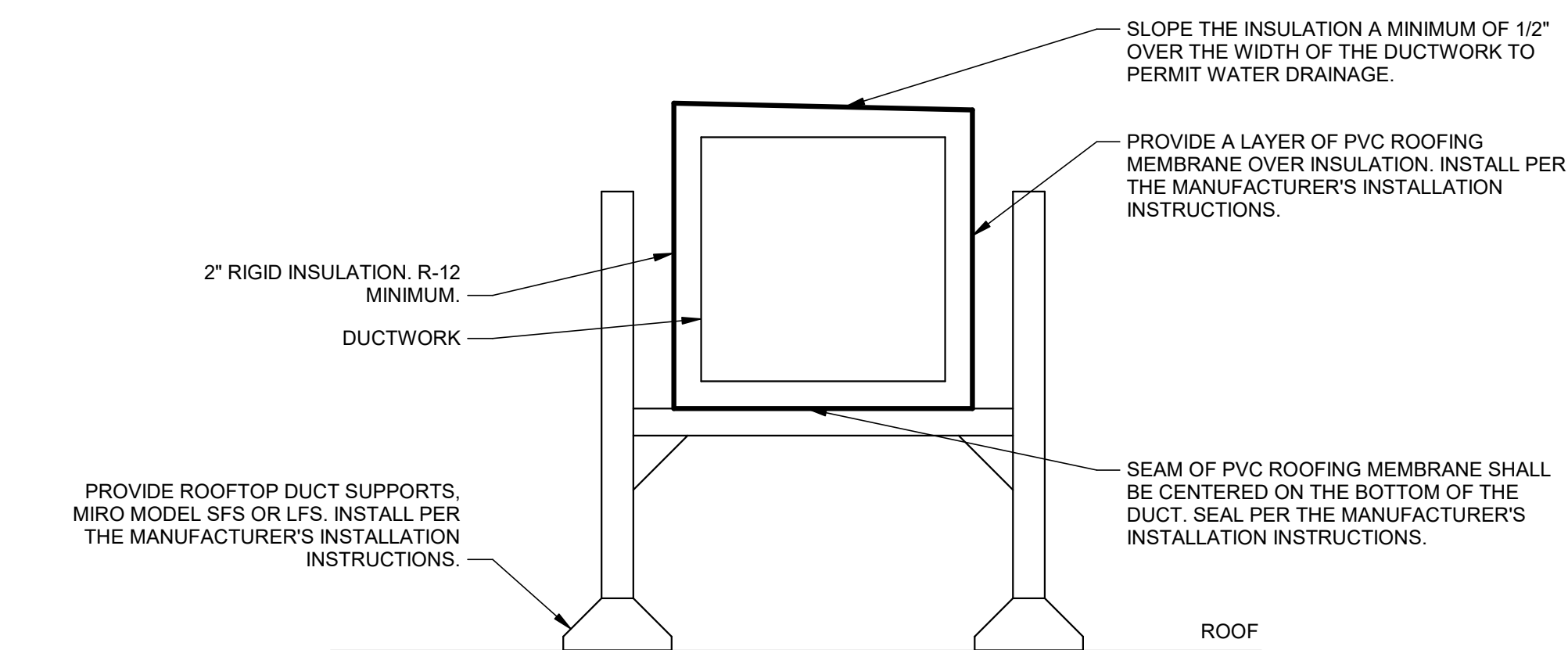
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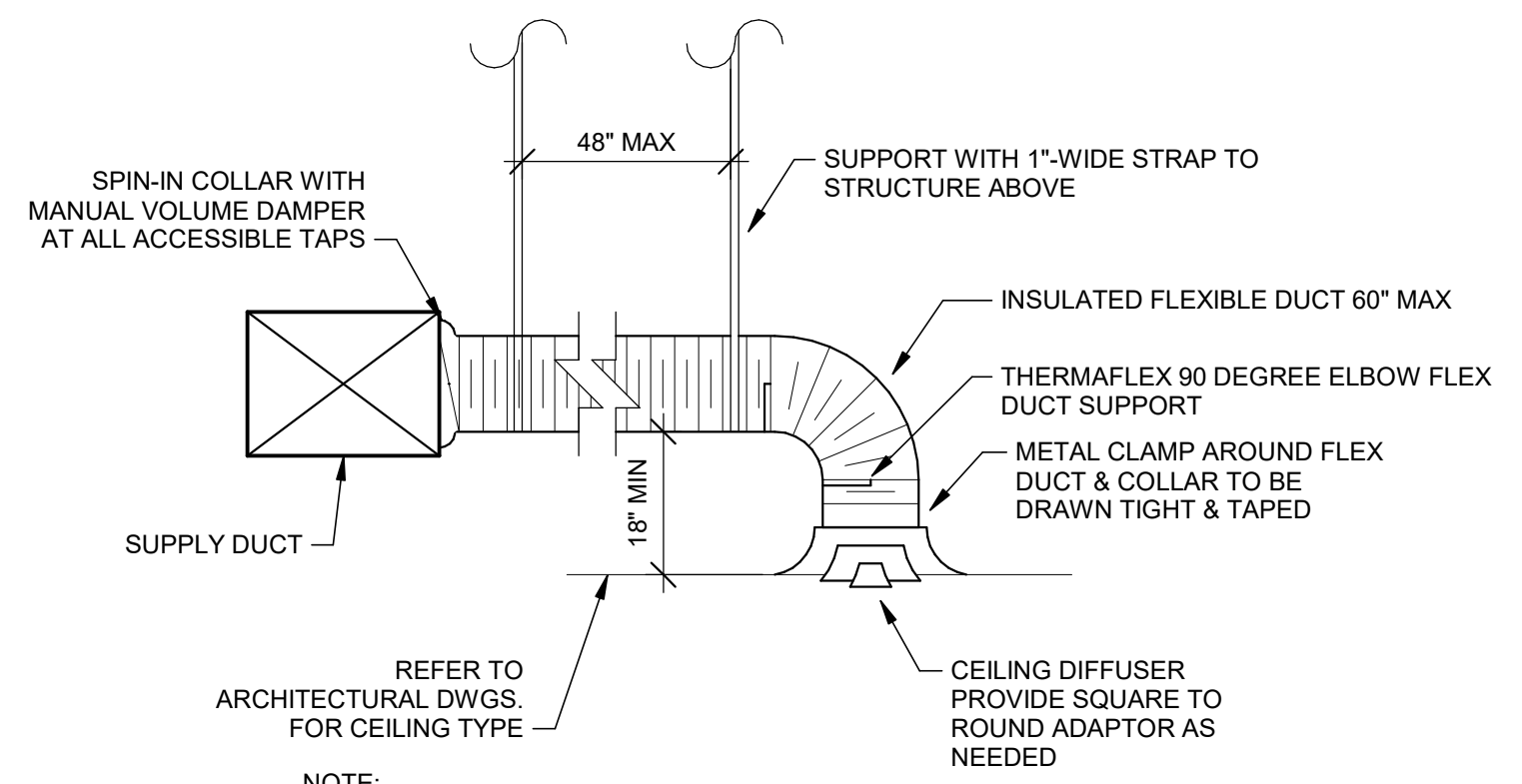
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REV. DATE DESCRIPTION
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HVAC DETAILS

M500

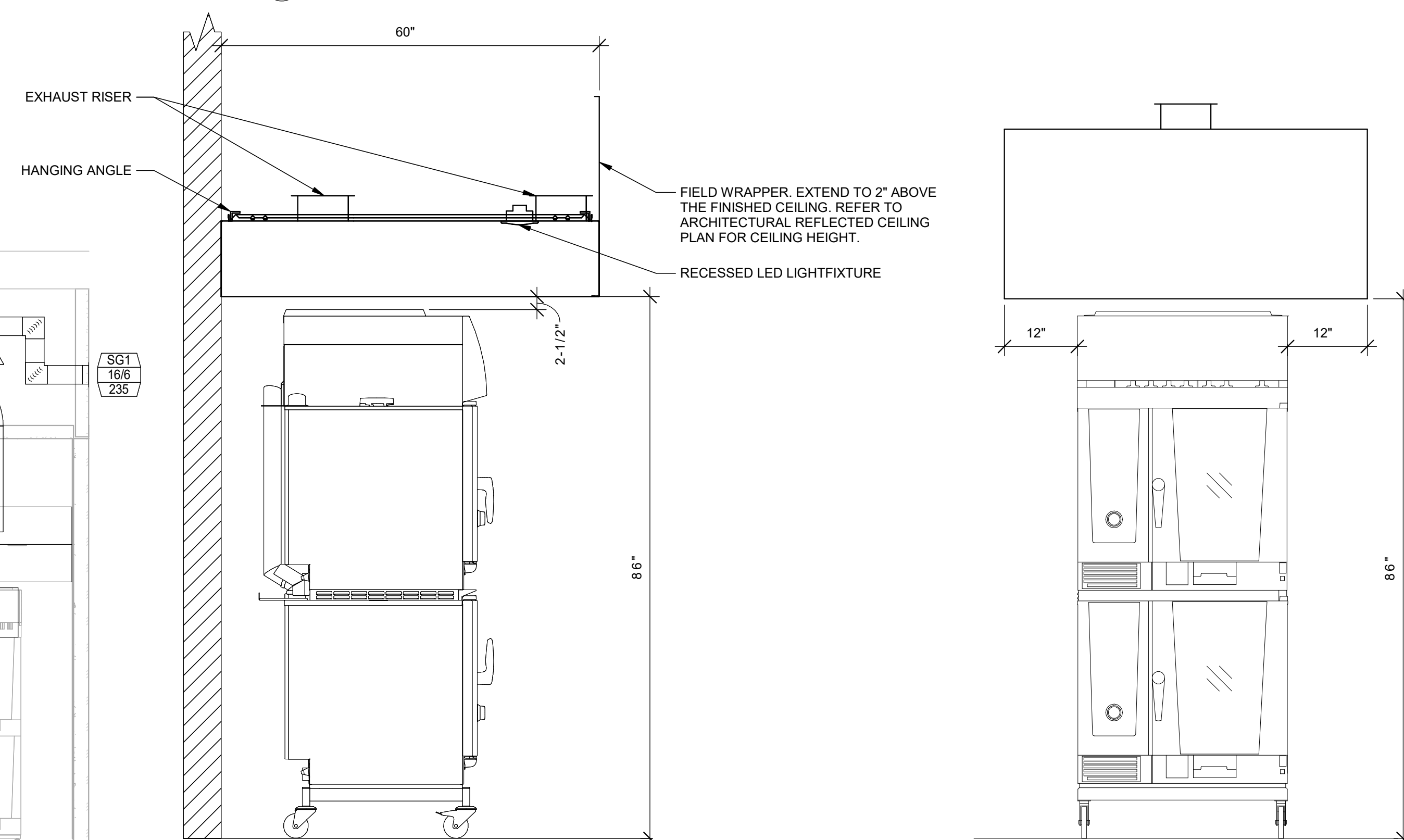


7 ROOF-MOUNTED DUCTWORK DETAIL
N.T.S.

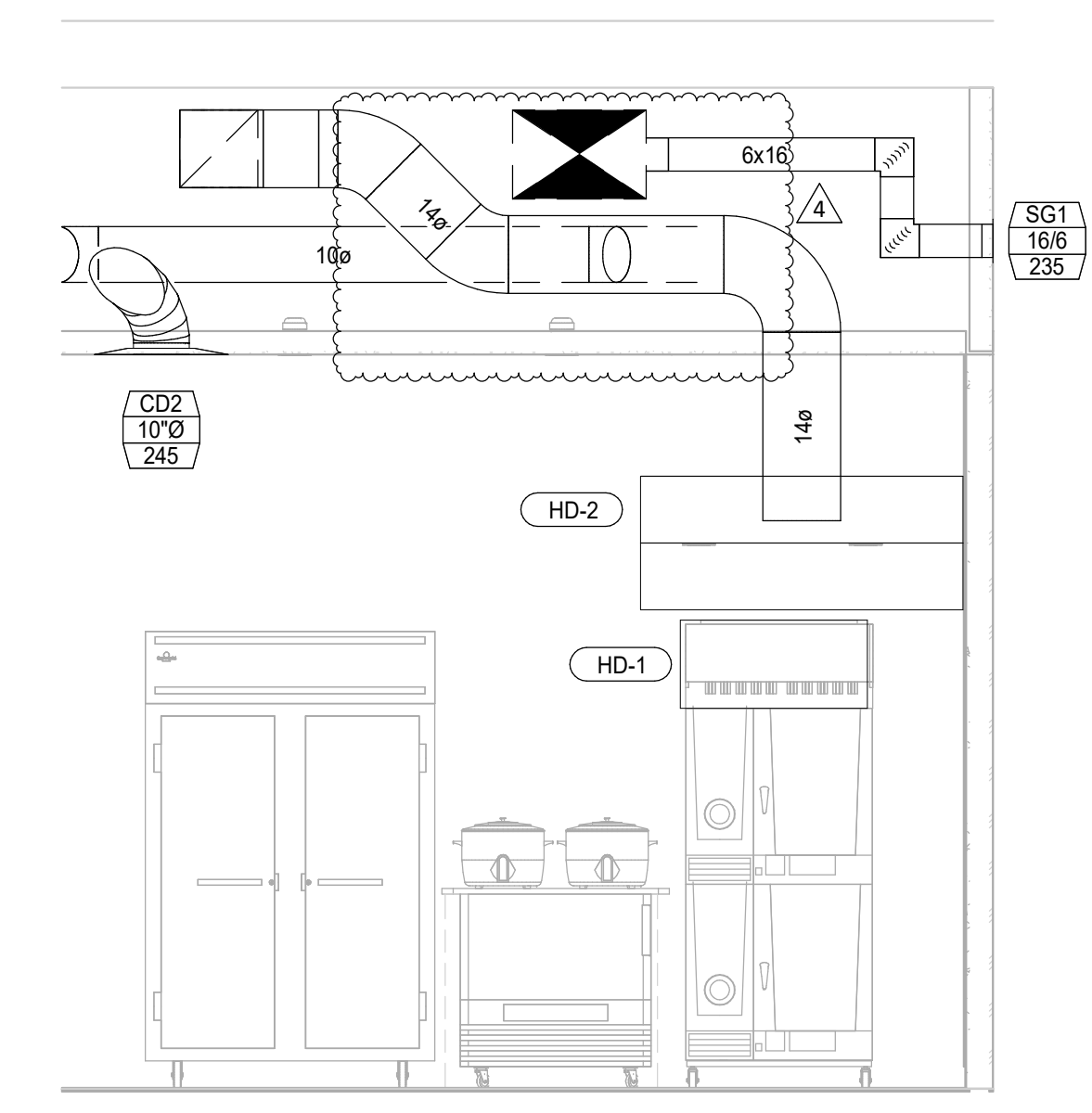


8 DIFFUSER CONNECTION
N.T.S.

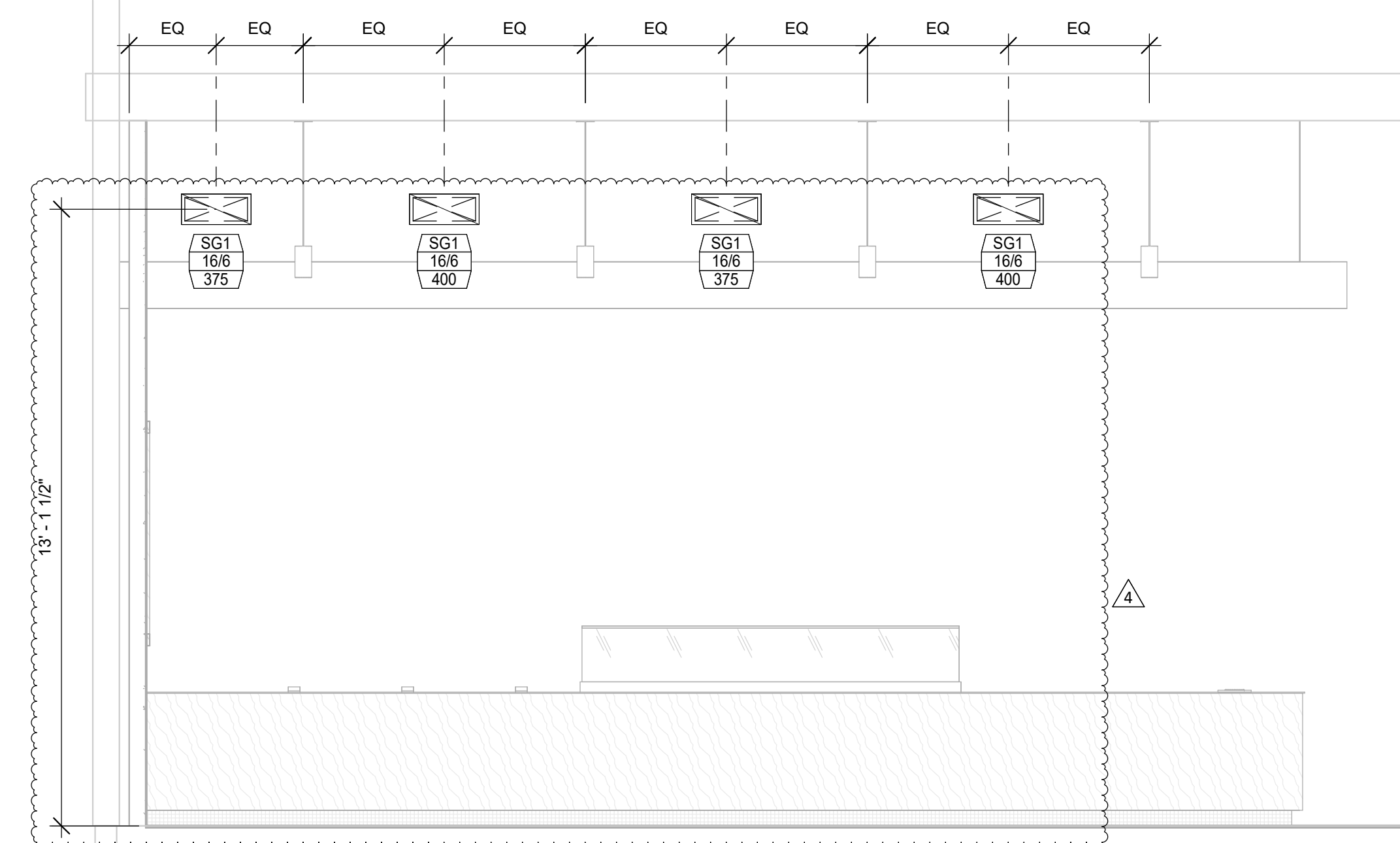
NOTE:
1. METHOD OF INSTALLATION FOR AIRTIGHT SEAL IS TYPICAL FOR ALL FLEX CONNECTIONS TO AIR DISTRIBUTION DEVICES.



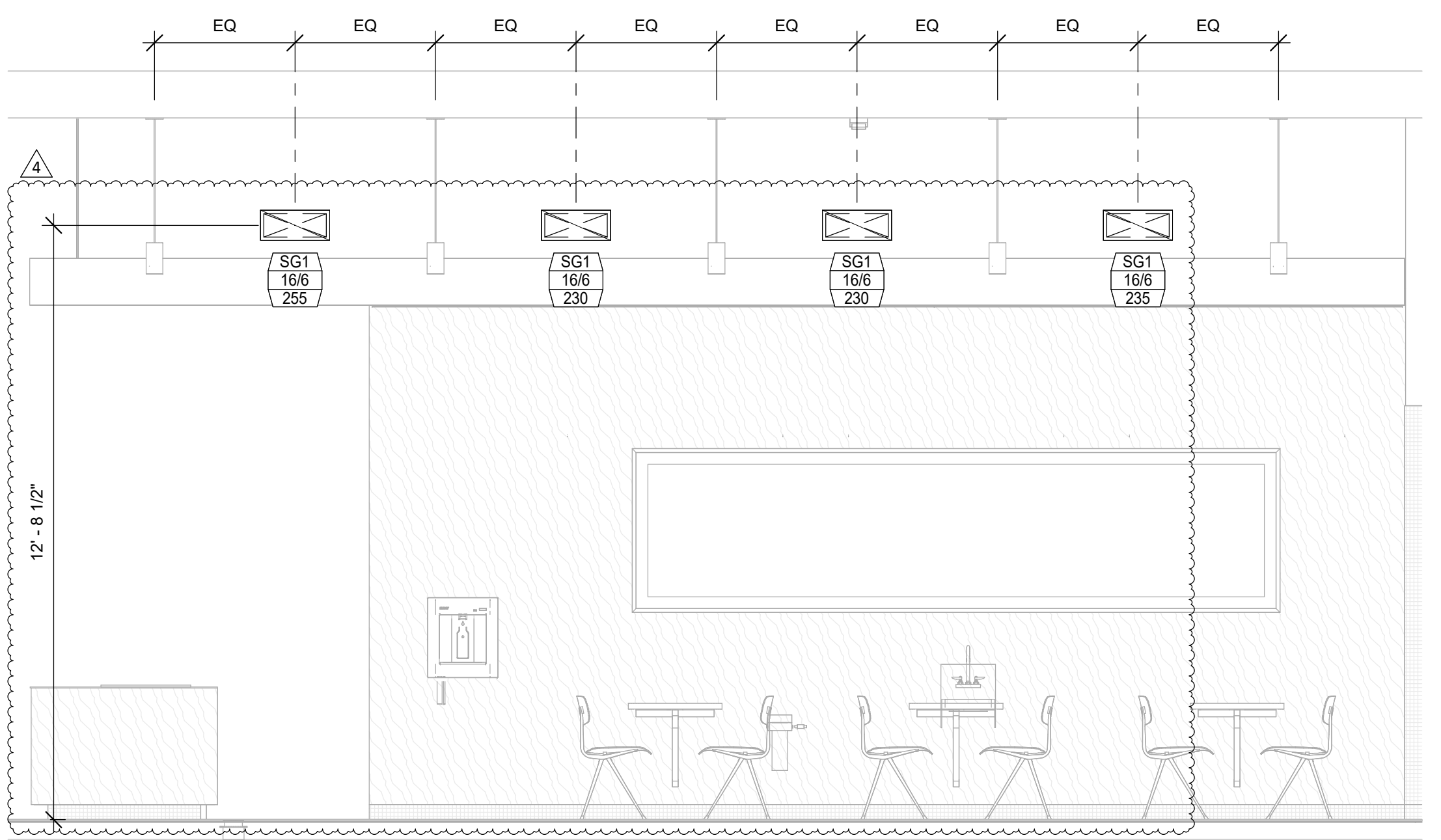
4 HOOD ELEVATIONS
N.T.S.



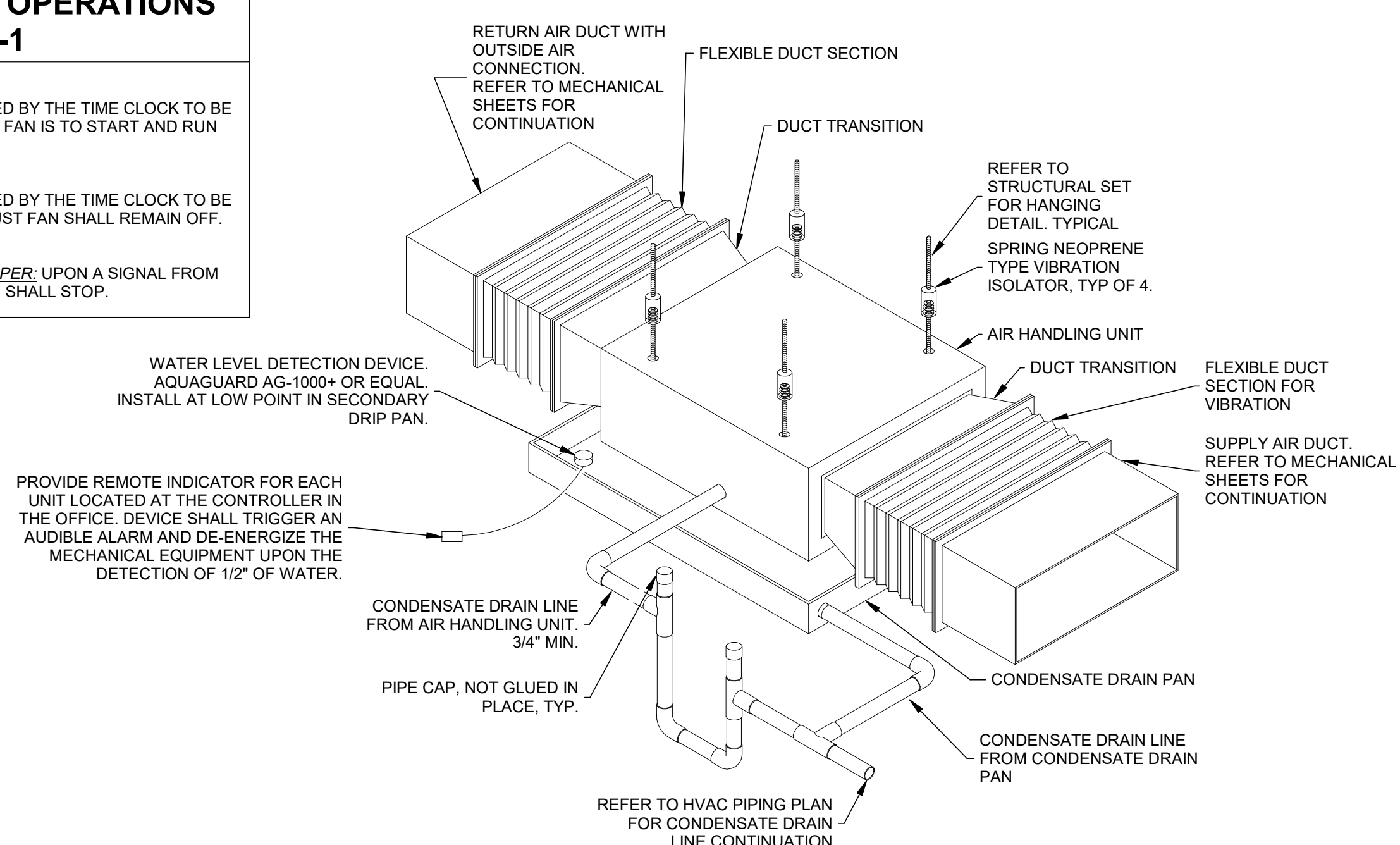
5 HOOD DUCT ELEVATION
N.T.S.



6 DINING ELEVATION
N.T.S.



1 DINING ELEVATION
N.T.S.



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

SEQUENCE OF OPERATIONS AHU-1 & AHU-2

GENERAL:
THE VRF SYSTEM SHALL BE A HEAT PUMP CAPABLE OF HEATING OR COOLING ONLY. SIMULTANEOUS HEATING AND COOLING SHALL NOT BE POSSIBLE. THE CONDENSING UNIT SHALL MODULATE CAPACITY AS REQUIRED TO SATISFY THE AIR HANDLING UNIT DEMAND.

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 DAMPER SHALL POWER TO THE OPEN POSITION.
HEATING: ON A FALL IN SPACE TEMPERATURE BELOW THE SETPOINT OF 70 DEGREES (ADJUSTABLE) THE SYSTEM SHALL BE SWITCHED TO HEATING MODE AND THE HEATING CAPACITY SHALL MODULATE UP TO MAXIMUM TO MAINTAIN THE TEMPERATURE SETPOINT.
COOLING: ON A RISE IN SPACE TEMPERATURE ABOVE THE SETPOINT OF 72 DEGREES (ADJUSTABLE) THE SYSTEM 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 STOP AND THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED.
HEATING: ON A FALL IN SPACE TEMPERATURE BELOW THE SETPOINT OF 65 DEGREES (ADJUSTABLE) THE AIR HANDLING UNIT FANS SHALL START. THE SYSTEM SHALL BE SWITCHED TO HEATING MODE AND THE HEATING CAPACITY SHALL MODULATE UP TO MAXIMUM TO MAINTAIN THE TEMPERATURE SETPOINT.
COOLING: ON A RISE IN SPACE TEMPERATURE ABOVE THE SETPOINT OF 85 DEGREES (ADJUSTABLE) THE AIR HANDLING UNIT FANS SHALL START AND THE SYSTEM 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 FANS SHALL STOP.

3 SEQUENCE OF OPERATIONS
N.T.S.

SEQUENCE OF OPERATIONS EF-1

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.

3 SEQUENCE OF OPERATIONS
N.T.S.



sweetgreen

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LOS ANGELES, CALIFORNIA 90018

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ENGINEER OF RECORD:



NATIONAL ENGINEERING
NATIONAL ENGINEERING
4635 TRUEMAN BOULEVARD
SUITE 250
HILLIARD, OH 43026
614-751-9610

STAMP:

CONSTRUCTION
ISSUE SET

PROJECT INFORMATION:
MIDTOWN ICEBLOCKS

PROJECT INFORMATION:
1629 S STREET
SACRAMENTO, CA 95811

DRAWN BY: XXX
CHECKED BY: XXX
PROJECT MANAGER: JMU
SG DESIGN MANAGER: TR
SG CONSTR. MANAGER: DK
PROJECT NO: 2401228
TEMPLATE VERSION: 02/03/2025

REVISIONS
REV. 2 DATE 06/30/2025 DESCRIPTION CODE COMMENTS

HVAC SCHEDULES

M600

TYPE II HOOD SCHEDULE

Table with columns: TAG, DESCRIPTION, HOOD CONSTRUCTION (WIDTH, DEPTH, MATERIAL), MAXIMUM COOKING TEMPERATURE (DEG. F), EXHAUST COLLARS (AIRFLOW, DIAMETER, PRESSURE DROP, WEIGHT), SUPPLIER, INSTALLER, MANUFACTURER, MODEL, REMARKS.

EXHAUST CALCULATIONS (PER TABLE 403.7 OF THE 2022 CALIFORNIA MECHANICAL CODE)

Table with columns: ROOM NUMBER, ROOM NAME, OCCUPANCY CLASSIFICATION, NUMBER OF FIXTURES, EXHAUST AIRFLOW RATE (CFM), REQUIRED EXHAUST (CFM), AREA (SF), Ra, REQUIRED EXHAUST (CFM), PROVIDED EXHAUST (CFM).

VENTILATION CALCULATIONS, AHU-1 (PER TABLE 402.1 OF THE 2022 CA MECHANICAL CODE)

Table with columns: ROOM NUMBER, ROOM NAME, OCCUPANCY CLASSIFICATION, ROOM AREA (SF), OCCUPANT DENSITY, OCCUPANTS, Rp, VENTILATION (CFM), Ra, VENTILATION (CFM), EFFECTIVENESS, ZONE OUTDOOR AIRFLOW (CFM).

VENTILATION CALCULATIONS, AHU-2 (PER TABLE 402.1 OF THE 2022 CA MECHANICAL CODE)

Table with columns: ROOM NUMBER, ROOM NAME, OCCUPANCY CLASSIFICATION, ROOM AREA (SF), OCCUPANT DENSITY, OCCUPANTS, Rp, VENTILATION (CFM), Ra, VENTILATION (CFM), EFFECTIVENESS, ZONE OUTDOOR AIRFLOW (CFM).

AIR BALANCE SCHEDULE

Table with columns: TAG, SUPPLY AIRFLOW (CFM), RETURN AIRFLOW (CFM), OUTSIDE AIRFLOW (CFM), EXHAUST AIRFLOW (CFM), SUBTOTAL (CFM).

TRANE NATIONAL ACCOUNT - HVAC SYSTEM INFORMATION

EQUIPMENT SHALL BE PROCURED THROUGH A TRANE NATIONAL ACCOUNT. CONTACT THE TRANE NATIONAL ACCOUNT TEAM FOR HVAC SYSTEM INFORMATION.

TIM SMITH
(920)-455-9261
TIM.SMITH@TRANE.COM

- HVAC EQUIPMENT IS OWNER PURCHASED AND ASSIGNED TO THE INSTALLING CONTRACTOR.
- INSTALLING CONTRACTOR RESPONSIBLE TO VERIFY UNIT CONFIGURATIONS, COORDINATE DELIVERY WITH TRANE, RECEIVE & UNLOAD EQUIPMENT, INSPECT EQUIPMENT, PROPERLY INSTALL EQUIPMENT INCLUDING FIELD INSTALLED ITEMS, STARTUP, AND 1ST YEAR LABOR WARRANTY & ADMINISTRATION.
- ANY CHANGES OR VARIATION TO THE EQUIPMENT PACKAGE THAT WOULD AFFECT THE HVAC EQUIPMENT PACKAGE SHOULD BE BROUGHT TO THE ATTENTION OF THE TRANE NATIONAL ACCOUNT TEAM AT THE TIME OF QUOTATION.

GRILLS, REGISTERS, AND DIFFUSERS SCHEDULE

Table with columns: TAG, DESCRIPTION, FACE SIZE, MATERIAL, FINISH, MOUNTING, SUPPLIER, INSTALLER, MANUFACTURER, MODEL, REMARKS.

RECIRCULATING HOOD SCHEDULE

Table with columns: TAG, DESCRIPTION, MAX COOKING TEMP., EXHAUST PLENUM AIRFLOW (CFM), APPROXIMATE WEIGHT [lbs], SUPPLIER, INSTALLER, ELECTRICAL DATA (WATTS, V/PH), BASIS FOR DESIGN (MANUFACTURER, MODEL), REMARKS.

AIR CURTAIN SCHEDULE

Table with columns: TAG, DESCRIPTION, OPENING WIDTH, AIRFLOW (MAX VELOCITY, AVERAGE VELOCITY, AIRFLOW), MOCAP (A), MCA (A), V/PH, SUPPLIER, INSTALLER, MANUFACTURER, MODEL, REMARKS.

FAN SCHEDULE

Table with columns: TAG, EXHAUST AIRFLOW (CFM), E.S.P. (IN. W.C.), DRIVE TYPE, MOTOR POWER (HP), WEIGHT (LB), ELECTRICAL (MCA, MOCAP, V/PH), SUPPLIER, INSTALLER, MANUFACTURER, MODEL, REMARKS.

CONDENSING UNIT SCHEDULE

Table with columns: TAG, DESCRIPTION, PAIRED WITH, NUMBER OF COMPRESSORS, REFRIGERANT TYPE, WEIGHT (LB), ELECTRICAL (MOCAP, MCA, V/PH), SUPPLIER, INSTALLER, MANUFACTURER, MODEL, REMARKS.

AIR HANDLING UNIT SCHEDULE

Table with columns: TAG, DESCRIPTION, COOLING CAPACITY (TONS), EER, AIRFLOW (TOTAL, RETURN, OA), COOLING (NET TOTAL, NET SENSIBLE, EAT), HEATING (EAT, TOTAL, LAT), WEIGHT (LB), ELECTRICAL (MOCAP, FLA, V/PH), SUPPLIER, INSTALLER, MANUFACTURER, MODEL, REMARKS.