



sweetgreen

3101 W. EXPOSITION BLVD. LOS ANGELES, CALIFORNIA 90018

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08/09/24

PROJECT INFORMATION: FAIRFAX CORNER 4225 Fairfax Corner East Avenue Fairfax, VA 22030

DRAWN BY: Author CHECKED BY: Checker PROJECT MANAGER: KG SG DESIGN MANAGER: LK SG CONSTR. MANAGER: XX PROJECT NO: 20240072 TEMPLATE VERSION: 12.20.2022

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HVAC LEGEND AND NOTES

H-000

GENERAL ABBREVIATIONS

Table with 2 columns: ABBREV, DESCRIPTION. Includes items like A COMPRESSED AIR, ACU AIR CONDITIONING UNIT, ACCU AIR COOLED CONDENSING UNIT, etc.

Table with 2 columns: ABBREV, DESCRIPTION. Includes items like CF CHEMICAL FEED, CFH CUBIC FEET PER HOUR, CFM CUBIC FEET PER MINUTE, etc.

Table with 2 columns: ABBREV, DESCRIPTION. Includes items like DX DIRECT EXPANSION, E EXISTING (BEFORE SYMBOL), EA EXHAUST AIR, etc.

Table with 2 columns: ABBREV, DESCRIPTION. Includes items like FPT FAN POWERED TERMINAL BOX, FPM FEET PER MINUTE, FPS FEET PER SECOND, etc.

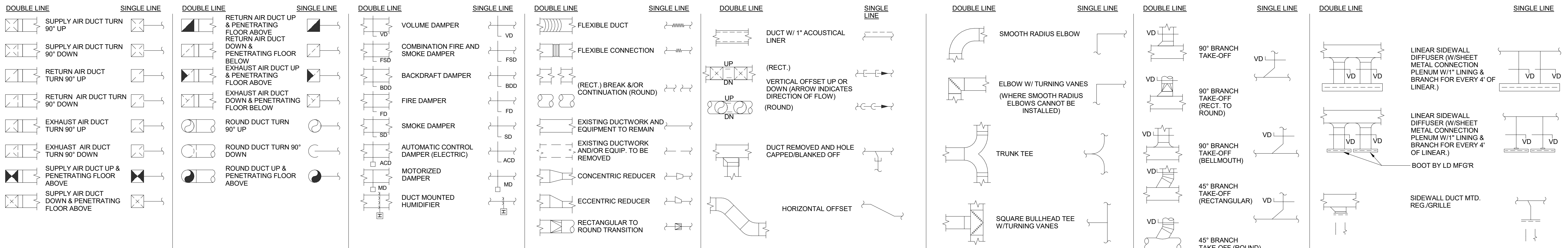
Table with 2 columns: ABBREV, DESCRIPTION. Includes items like HWR HOT WATER RETURN, HWS HOT WATER SUPPLY, HX HEAT EXCHANGER, etc.

Table with 2 columns: ABBREV, DESCRIPTION. Includes items like MTHW MEDIUM TEMPERATURE HOT WATER, MUA MAKE UP AIR, MV AIR VENT (MANUAL), etc.

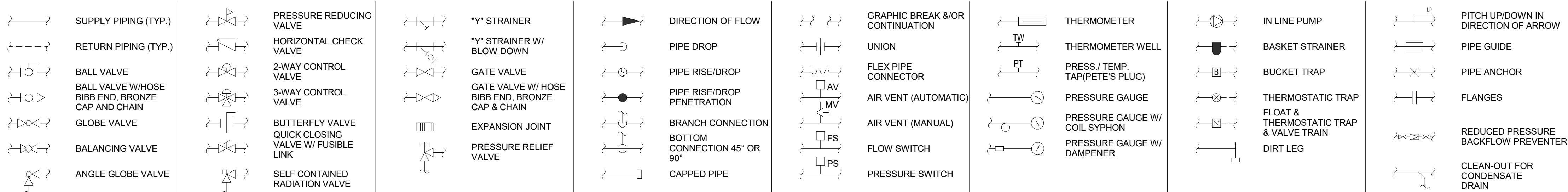
Table with 2 columns: ABBREV, DESCRIPTION. Includes items like PSIG POUNDS PER SQUARE INCH GAUGE, PTAC PACKAGED TERMINAL AIR CONDITIONER, PTHP PACKAGED TERMINAL HEAT PUMP, etc.

Table with 2 columns: ABBREV, DESCRIPTION. Includes items like TAC THRU WALL AIR CONDITIONER, TB TERMINAL BOX, TEMP TEMPERATURE, etc.

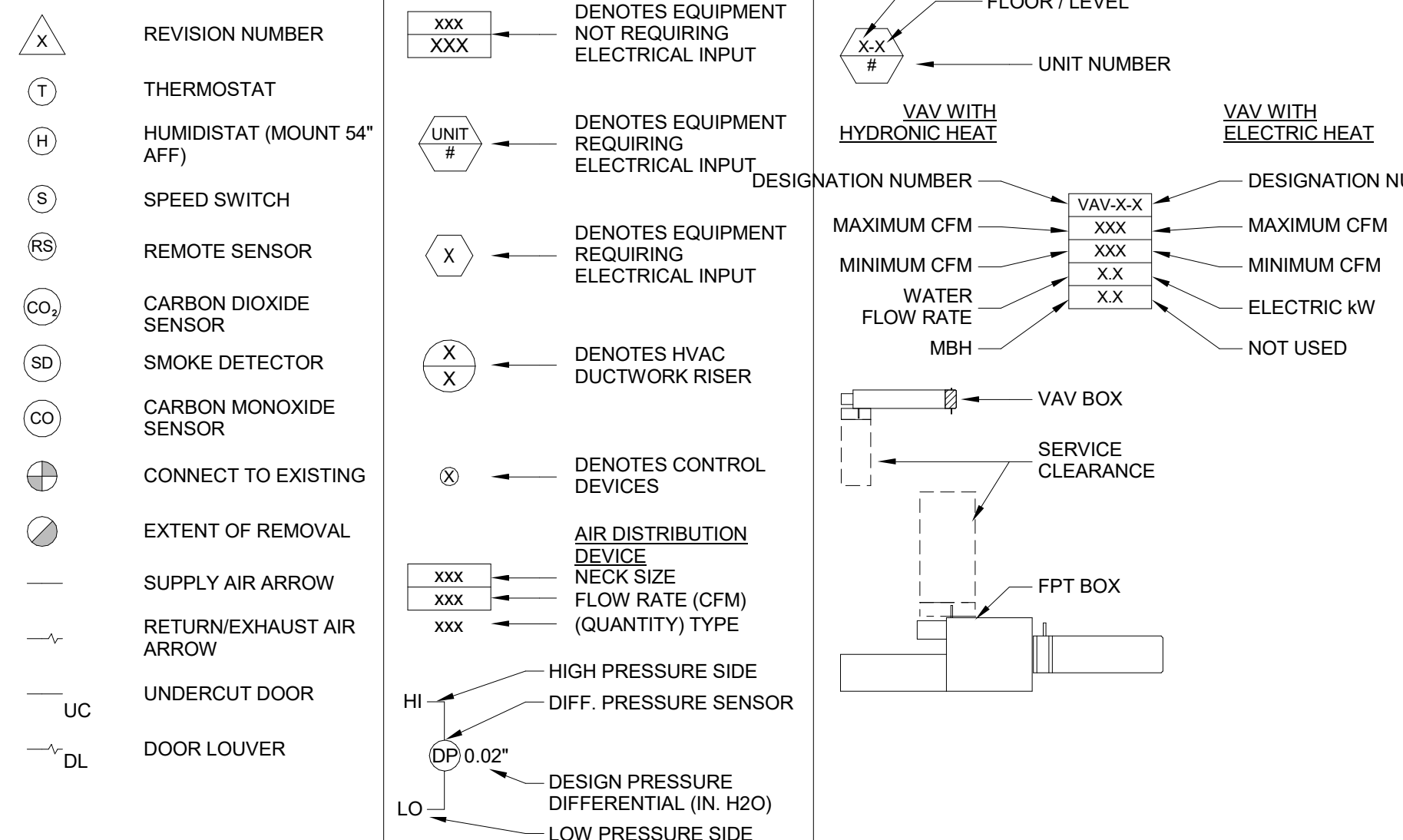
SHEETMETAL SYMBOLS



PIPING SYMBOLS



GENERAL SYMBOLS



GENERAL NOTES

- 1. THE HEATING, VENTILATING AND AIR CONDITIONING (HVAC) CONTRACTOR SHALL VISIT THE SITE TO DETERMINE ALL PRE-EXISTING CONDITIONS AND WORK NECESSARY PRIOR TO SUBMISSION OF BID PRICE.
2. THE HVAC CONTRACTOR SHALL BE FAMILIAR WITH ALL CONTRACT DOCUMENTS FOR ALL TRADES AND COORDINATE WITH OTHER CONTRACTORS.
3. DRAWINGS ARE DIAGRAMMATIC ONLY. FINAL ROUTING OF DUCTWORK, PIPING AND EQUIPMENT LOCATIONS SHALL BE DETERMINED IN THE FIELD. ADDITIONAL OFFSETS, ELBOWS, ETC., SHALL BE PROVIDED AND INSTALLED WITHOUT ADDITIONAL COST TO THE OWNER.
4. ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA STANDARDS.
5. SUPPLY AND RETURN DUCT MAINS FROM AIR HANDLING EQUIPMENT SHALL BE INTERNALLY LINED AS PER SPECIFICATIONS A MINIMUM OF 15'-0" FROM THE UNIT UNLESS OTHERWISE NOTED. ALL DUCTWORK DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS.
6. VOLUME DAMPERS SHALL BE INSTALLED AT BRANCHES, SPLITS, AND TAKE-OFFS. ALL LOW PRESSURE SUPPLY, RETURN AND EXHAUST DUCTWORK.
7. MINIMUM SIZE OF ALL HVAC PIPING SHALL BE 3/4" UNLESS OTHERWISE NOTED.
8. INSTALL SMOKE DETECTORS IN DUCT SYSTEMS IN ACCORDANCE WITH NFPA.
9. THE HVAC CONTRACTOR SHALL COORDINATE ALL ELECTRICAL AND PLUMBING REQUIREMENTS WITH THE ELECTRICAL AND PLUMBING CONTRACTORS.
10. THE HVAC CONTRACTOR SHALL FIELD MEASURE EXACT SIZES AND VERIFY ALL OPENINGS FOR SHAFTS AND LOUVERS PRIOR TO SUBMISSION OF SHOP DRAWINGS AND INSTALLATION.
11. REFER TO ARCHITECTURAL DRAWINGS FOR FINAL LOCATIONS OF DIFFUSERS, REGISTER, GRILLES, THERMOSTATS, ETC.
12. THE HVAC CONTRACTOR SHALL FURNISH AND INSTALL ALL INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE HVAC WORK COMPLETE AND READY FOR OPERATION.
13. ALL HVAC WORK SHALL BE IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
14. ALL HVAC EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS.
15. FIRE DAMPERS AND ACCESS PANELS SHALL BE INSTALLED AT ALL 2-HOUR RATED PARTITIONS AND FLOOR PENETRATIONS. IN ADDITION COMBINATION FIRE/SMOKE DAMPERS AND ACCESS PANELS SHALL BE INSTALLED AT PENETRATIONS OF ALL RATED SHAFT ENCLOSURES CONNECTING THREE STORIES OR MORE. REFER TO ARCHITECTURAL DRAWINGS FOR PARTITION LOCATIONS.
16. TRANSFER DUCTS IN RATED PARTITIONS SHALL BE INSTALLED WITH FIRE DAMPERS.
17. ISOLATION VALVES SHALL BE INSTALLED IN SUPPLY AND RETURN PIPING ON EACH FLOOR AT EACH MAIN BRANCH AND AT EACH BRANCH OR RUN-OUT SERVING MORE THAN ONE PIECE OF EQUIPMENT.
18. SHUTOFF VALVES SHALL BE INSTALLED IN THE SUPPLY AND RETURN PIPING TO ALLOW EQUIPMENT TO BE SERVICED WITHOUT SUCH THAT EQUIPMENT CAN BE SERVICED WITHOUT CUTTING, AND WITH MINIMAL DISRUPTION OF PIPING SERVING THE EQUIPMENT.
19. THE HVAC CONTRACTOR SHALL FURNISH TO THE GENERAL CONTRACTOR ALL INFORMATION REQUIRED FOR SETTING OF WALL, ROOF AND PARTITION OPENINGS FOR HVAC WORK. THIS INFORMATION SHALL BE FURNISHED IN A TIMELY MANNER SUCH THAT CONSTRUCTION SCHEDULE IS NOT JEOPARDIZED.
20. THE HVAC CONTRACTOR SHALL INFORM AND COORDINATE WITH THE OWNER ALL NECESSARY INTERRUPTIONS TO EXISTING BUILDING SYSTEMS AND SERVICE THAT MAY AFFECT THE NORMAL OPERATION OF OCCUPIED PORTIONS OF THE BUILDING. THE OWNER SHALL BE INFORMED OF ANY INTERRUPTIONS AT LEAST TWO (2) WEEKS IN ADVANCE.
21. THE HVAC CONTRACTOR SHALL COORDINATE ANY PREMIUM WORK REQUIRED FOR THIS PROJECT WITH THE GENERAL CONTRACTOR.
22. THE HVAC CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR PHASING REQUIREMENTS OF THE PROJECT.
23. THE AUTOMATIC TEMPERATURE CONTROL (ATC) CONTRACTOR SHALL COORDINATE THERMOSTAT LOCATIONS WITH ARCHITECTURAL DRAWINGS. THERMOSTATS SHALL BE INSTALLED 54" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.
24. EXISTING FIBEROUS DUCT LINERS WHICH ARE CUT DURING RENOVATION SHALL BE RE-SEALED SO THAT NO FIBEROUS LINER MEDIA IS EXPOSED TO THE AIRSTREAM.



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HVAC SCHEDULES

H-001

DAIKIN NATIONAL ACCOUNT - HVAC SYSTEM INFORMATION

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

PAUL ROMERO
(714)632-9800
PROMERO@NSWCLA.COM

-INSTALLING CONTRACTOR RESPONSIBLE TO: VERIFY UNIT CONFIGURATIONS, COORDINATE DELIVERY WITH DAIKIN, RECEIVE AND UNLOAD EQUIPMENT, INSPECT EQUIPMENT, PROPERLY INSTALL EQUIPMENT INCLUDING FIELD ITEMS, STARTUP, AND 1ST YEAR LABOR WARRANTY AND ADMINISTRATION.

-ANY CHANGES OR VARIATION TO THE EQUIPMENT PACKAGE THAT WOULD AFFECT THE HVAC EQUIPMENT PACKAGE SHOULD BE BROUGHT TO THE ATTENTION OF THE DAIKIN NATIONAL ACCOUNT TEAM AT THE TIME OF QUOTATION.

VRF FAN COIL UNIT SCHEDULE

Table with columns: ITEM, LOCATION, SERVICE, TYPE, FAN (CFM, ESP), NOMINAL (CFM), MIN OA (CFM), REFRIGERANT TYPE, HEATING COIL DATA (TOTAL MBH, EAT, LAT), COOLING COIL DATA (SENS MBH, EAT, EAT, EAT, EAT), ELECTRICAL DATA (V, PH, HZ, MOC), MANUFACTURER / MODEL NUMBER, REMARKS.

- NOTES:
1. UNIT SHALL BE SET TO "HIGH ESP" SETTING BY CHANGING THE SWITCH IN THE INDOOR UNIT ELECTRICAL BOX.
2. ASSOCIATED CONDENSING UNIT SHALL BE BY THE SAME MANUFACTURER.
3. FOR COOLING, EQUIPMENT SIZED FOR 91°F AMBIENT TEMPERATURE. FOR HEATING, EQUIPMENT SIZED FOR 5°F AMBIENT TEMPERATURE.
4. PROVIDE WITH PRE-MANUFACTURED OR FIELD FABRICATED FILTER RACK WITH 2" MERV 8, PLEATED THROWAWAY FILTERS.
5. PROVIDE FACTORY MOUNTED STARTER INSTALLED ON SERVICE SIDE OF UNIT.
6. DISCONNECT SWITCH PROVIDED BY DIVISION 26 CONTRACTOR.
7. PROVIDE NECESSARY MOUNTING BRACKET AND ACCESSORIES REQUIRED FOR MOUNTING UNIT.
8. PROVIDE UNIT WITH INTEGRAL CONDENSATE PUMP.
9. PROVIDE AUXILIARY DRAIN PAN WITH FLOOD DETECTION SWITCH TO SHUT UNIT OFF WHEN WATER IS PRESENT IN DRAIN PAN.
10. PROVIDE ROOM MOUNTED TEMPERATURE SENSOR LOCATED AS INDICATED ON PLANS. INTERLOCK REMOTE T-STAT WITH MANUFACTURER'S VRF SYSTEM CONTROLLER FOR CONTROL OF VRF SYSTEM.
11. CONTRACTOR TO COORDINATE WITH NATIONAL TAB TO PROVIDE UV-PHI INDOOR AIR PURIFICATION SYSTEM, MODEL REME-H (24). INSTALL IN SA DUCT MAIN PER MANUFACTURER'S INSTRUCTIONS.
12. PROVIDE VIBRATION ISOLATION HANGER KITS.

VRF BRANCH SELECTOR SCHEDULE

Table with columns: MARK, # PORTS, SERVICE, FAN (V, PH, HZ, MCA, MOC), MANUFACTURER / MODEL NUMBER, REMARKS.

- NOTES:
1. BRANCH SELECTOR SHALL BE BY SAME MANUFACTURER AS VRF EQUIPMENT.
2. DISCONNECT SWITCH PROVIDED BY DIVISION 26 CONTRACTOR.
3. PROVIDE WITH ALL-THREADED HANGING RODS.
4. FINAL BRANCH SELECTOR SIZE SHALL BE DETERMINED BY VRF MANUFACTURER'S CALCULATION.
5. PROVIDE SHUTOFF VALVES ON EACH OUTLET PORT OF BRANCH SELECTOR BOX.

VRF AIR COOLED CONDENSING UNIT SCHEDULE

Table with columns: ITEM, LOCATION, REFRIGERANT TYPE, COOLING CAPACITY (TOTAL (MBH), MIN EFF (EER), MIN EFF (IEER)), HEATING CAPACITY (TOTAL (MBH), AMBIENT (DB), MIN EFF COP 47°F), CONFIGURATION, DISCONNECT TYPE, ELECTRICAL (V, PH, HZ, MCA, MOC), OPERATING WEIGHT (LBS), MANUFACTURER / MODEL NUMBER, REMARKS.

- NOTES:
1. PROVIDE LOW AMBIENT KIT FOR COOLING DOWN TO 0°F.
2. EQUIPMENT SIZED FOR 95°F AMBIENT TEMPERATURE.
3. PROVIDE CONDENSER HAIL GUARDS.
4. MOUNT EQUIPMENT ON PRE-ENGINEERED EQUIPMENT SUPPORTS WITH MINIMUM 18" HEIGHT REQUIRED. ANCHOR SUPPORTS TO PREFAB EQUIPMENT RAILS CAPABLE OF WITHSTANDING WIND VELOCITIES AS PER 780CMR1604.11.
5. DISCONNECT SWITCH PROVIDED BY DIVISION 26 CONTRACTOR.
6. UNIT TO BE FURNISHED WITH INTEGRAL MOTOR STARTER.
7. PROVIDE MANUFACTURER'S VRF SYSTEM CONTROLLER FOR CONTROL OF VRF SYSTEM.
8. ALL PIPING ASSOCIATE WITH EQUIPMENT TO BE SIZED BASED ON MANUFACTURER'S RECOMMENDATIONS.
9. PROVIDE A FACTORY APPLIED COIL CORROSION COATING THE CONDENSER COIL WHICH IS CAPABLE OF WITHSTANDING GREATER THAN 6,000 HRS OF ASTM B117 SALT SPRAY TEST.
10. UNIT CAPACITY SHALL BE SIZED ACCOUNTING FOR ALL APPLICABLE DERATES FOR PIPING, AMBIENT TEMPERATURE, CONNECTED LOAD AND DEFROST.

RECIRCULATING HOOD SCHEDULE

Table with columns: ITEM, AIRFLOW (CFM), WATTS, ELECTRICAL (V, PH, HZ), MANUFACTURER / MODEL NUMBER, REMARKS.

- NOTES:
1. HOOD SHALL BE FURNISHED AS INSTALLED BY FOOD SERVICE EQUIPMENT CONTRACTOR.
2. MOUNT BOTTOM OF HOOD AT 6'-6" ABOVE FINISHED FLOOR.
3. KITCHEN HOOD IS VENTLESS CANOPY RECIRCULATING HOOD. EQUIPMENT VENTS TO SPACE.

ELECTRIC DUCT HEATING COIL SCHEDULE (FLANGED FINN-TUBULAR TYPE)

Table with columns: ITEM, DESIGN RANGE (CFM), COIL DATA (AIR SIDE: MBH, EAT, LAT; INLET DUCT SIZE, COIL SIZE, OUTLET DUCT SIZE), ELECTRICAL (MIN NUMBER OF STAGES, NOM INPUT (KW), V, PHASE, HZ, DISC TYPE), MANUFACTURER / MODEL NUMBER, REMARKS.

- NOTES:
1. ALL INLET AND OUTLET DUCT SIZES ARE TO BE AS INDICATED IN SCHEDULE UNLESS NOTED OTHERWISE ON PLANS.
2. UNIT AIR PRESSURE DROP SHALL NOT EXCEED SCHEDULED VALUE.
3. PROVIDE FACTORY MOUNTED DISCONNECT ON SERVICE SIDE OF UNIT.
4. PROVIDE PROOF OF AIRFLOW SWITCH AND THERMAL OVERLOAD PROTECTION.
5. PROVIDE MAGNETIC CONTACTORS.
6. PROVIDE SCR CONTROLS TO MODULATE HEATER OUTPUT FROM 0 TO 100 PERCENT CAPACITY.
7. PROVIDE CONTROL POWER TRANSFORMER AND LOW VOLTAGE THERMOSTAT WITH STAGES AS REQUIRED TO CONTROL HEATER.
8. PROVIDE FLANGED, GASKETED, FINN-TUBULAR TYPE EDH WITH SCR CONTROL CABINET.

AIR DISTRIBUTION DEVICE SCHEDULE

Table with columns: ITEM, SERVICE, TYPE, NECK SIZE, AIR PATTERN, MATERIAL, MANUFACTURER / MODEL NUMBER, REMARKS.

- NOTES:
1. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR MOUNTING TYPE.
2. DEVICES IN GRID CEILINGS SHALL BE LAY-IN TYPE UNLESS OTHERWISE NOTED.
3. DEVICES IN SHEETROCK AND PLASTER CEILINGS SHALL BE SURFACE MOUNTED.
4. ALL COLOR AND FINISHES TO BE APPROVED BY ARCHITECT.
5. PROVIDE WITH MATCHING OPPOSED BLADE DAMPER.

DOOR HEATER AIR CURTAIN SCHEDULE

Table with columns: ITEM, AREA SERVED, MAX AIRFLOW (CFM), LENGTH (IN), HEATING CAPACITY, ELECTRICAL (MOTOR (HP), V, PHASE, HZ, MCA (A), MOC (A)), MANUFACTURER / MODEL NUMBER, REMARKS.

- NOTES:
1. EQUIPMENT FURNISHED AND INSTALLED PER THE RESPONSIBILITY SCHEDULE, REFER TO ARCHITECTURAL DRAWINGS.
2. MOUNT UNIT PER MANUFACTURER'S RECOMMENDATIONS TO FACE WALL AND SUPPORT VERTICALLY.
3. PROVIDE INTEGRAL STARTER AND DISCONNECT SWITCH.
4. REFER TO SEQUENCE OF OPERATIONS FOR UNIT CONTROLS.
5. PROVIDE AIR CURTAIN WITH NORMALLY CLOSED DOOR LIMIT SWITCH FOR INSTALLATION ON DOOR. THE AIR CURTAIN SHALL ENERGIZE WHEN THE DOOR OPENS.
6. PROVIDE WITH DELAY MICROSWITCH WITH ADJUSTABLE DELAY TIMERS PRE MOUNTED IN THE AIR CURTAIN CONTROL PANEL.
7. PROVIDE WITH INTEGRAL THERMOSTAT.
8. MOUNT UNIT PER MANUFACTURER'S RECOMMENDATIONS TO BE SUSPENDED FROM STRUCTURE.

RESTAURANT AIR BALANCE SCHEDULE

Table with columns: OUTDOOR AIR SOURCE EQUIPMENT, AREA/ EQUIPMENT SERVED, ROOM AREA (SF), # OF PEOPLE, OA CFM/PERSON, OA CFM/SF, MINIMUM OA (CFM), SUPPLY AIR (CFM), DESIGN OA (CFM), PERCENT OA/SA.

Table with columns: EXHAUST EQUIPMENT, AREA/ EQUIPMENT SERVED, EXHAUST (CFM), KITCHEN NEGATIVE AIRFLOW, SUPPLY EQUIPMENT, AREA/ EQUIPMENT SERVED, SUPPLY CFM, BUILDING POSITIVE AIRFLOW.

- NOTES:
1. OUTSIDE AIR VALUES TAKEN FROM APPLICABLE CODE STANDARDS.

FAN SCHEDULE

Table with columns: ITEM, LOCATION, SERVICE, CFM, FAN RPM, S.P. (IN.), MOTOR (HP), DRIVE, CONTROL, V, PH, HZ, OPERATING WEIGHT (LBS), MANUFACTURER / MODEL NUMBER, REMARKS.

- NOTES:
1. FAN SHALL BE UL 782 LISTED FOR GREASE APPLICATIONS.
2. PROVIDE WITH 20" TALL VENTED HINGED PREFAB ROOF CURB WITH GREASE TRAP AND ABSORBER.
3. UNIT SHALL BE CONTROLLED BY KITCHEN HOOD DEMAND CONTROL VENTILATION SYSTEM. FAN VFD FACTORY MOUNTED AND WIRED IN KITCHEN VENTILATION CONTROL PANEL. COORDINATE WITH KITCHEN HOOD VENDOR TO INTERLOCK THE OPERATION OF THE EXHAUST FAN WITH MJA-1.
4. PROVIDE WITH FACTORY MOUNTED AND WIRED NEMA 3R DISCONNECT SWITCH.

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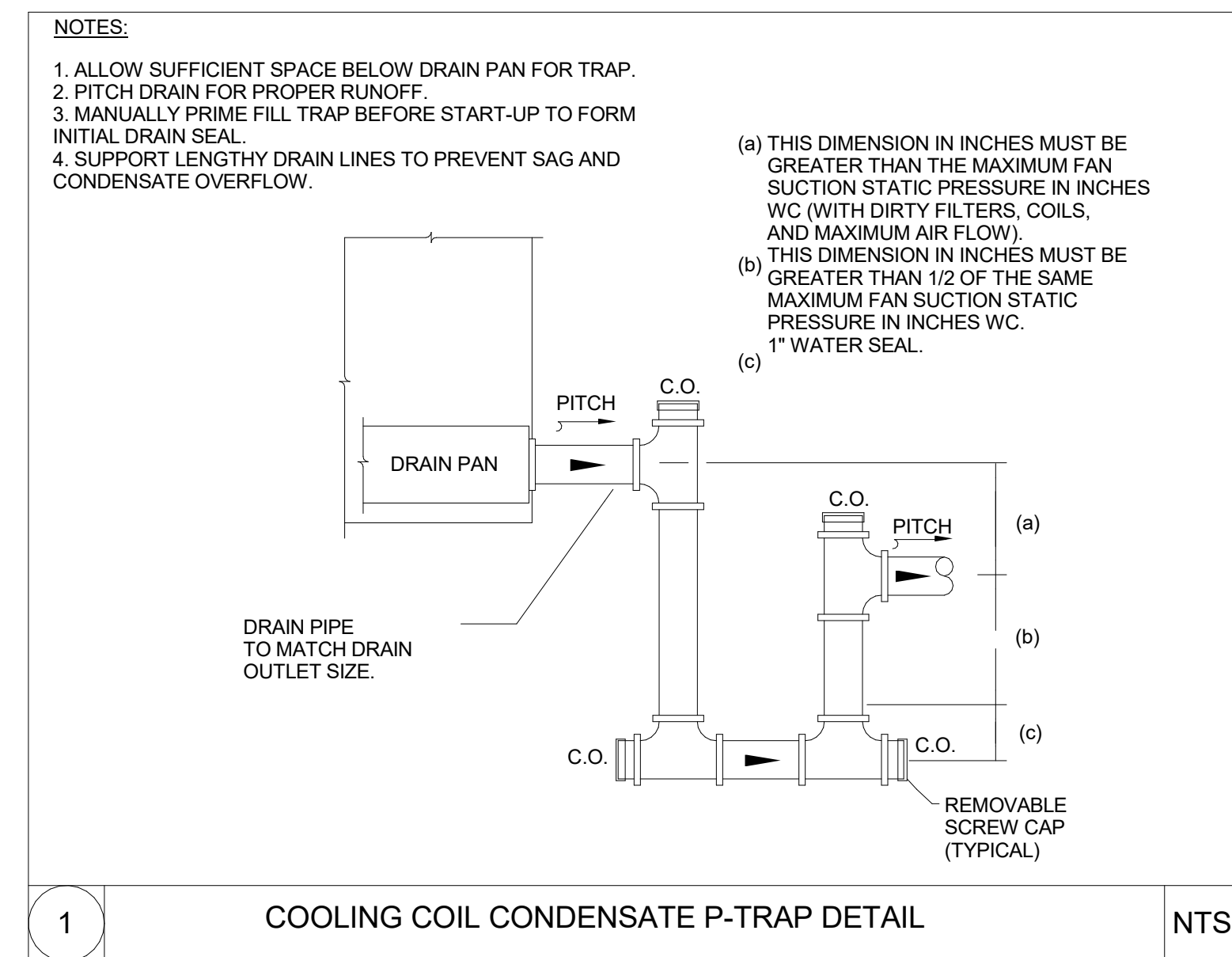
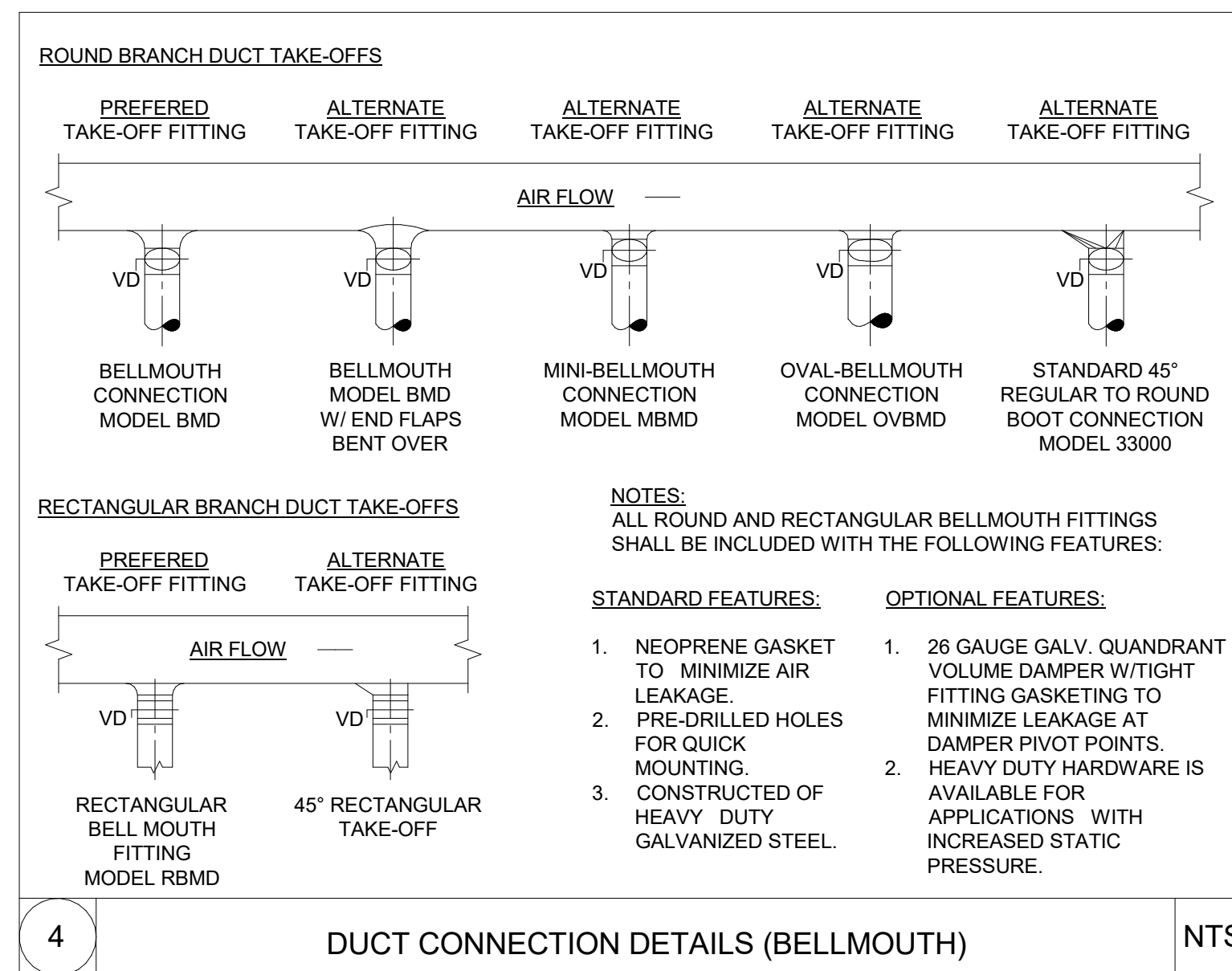
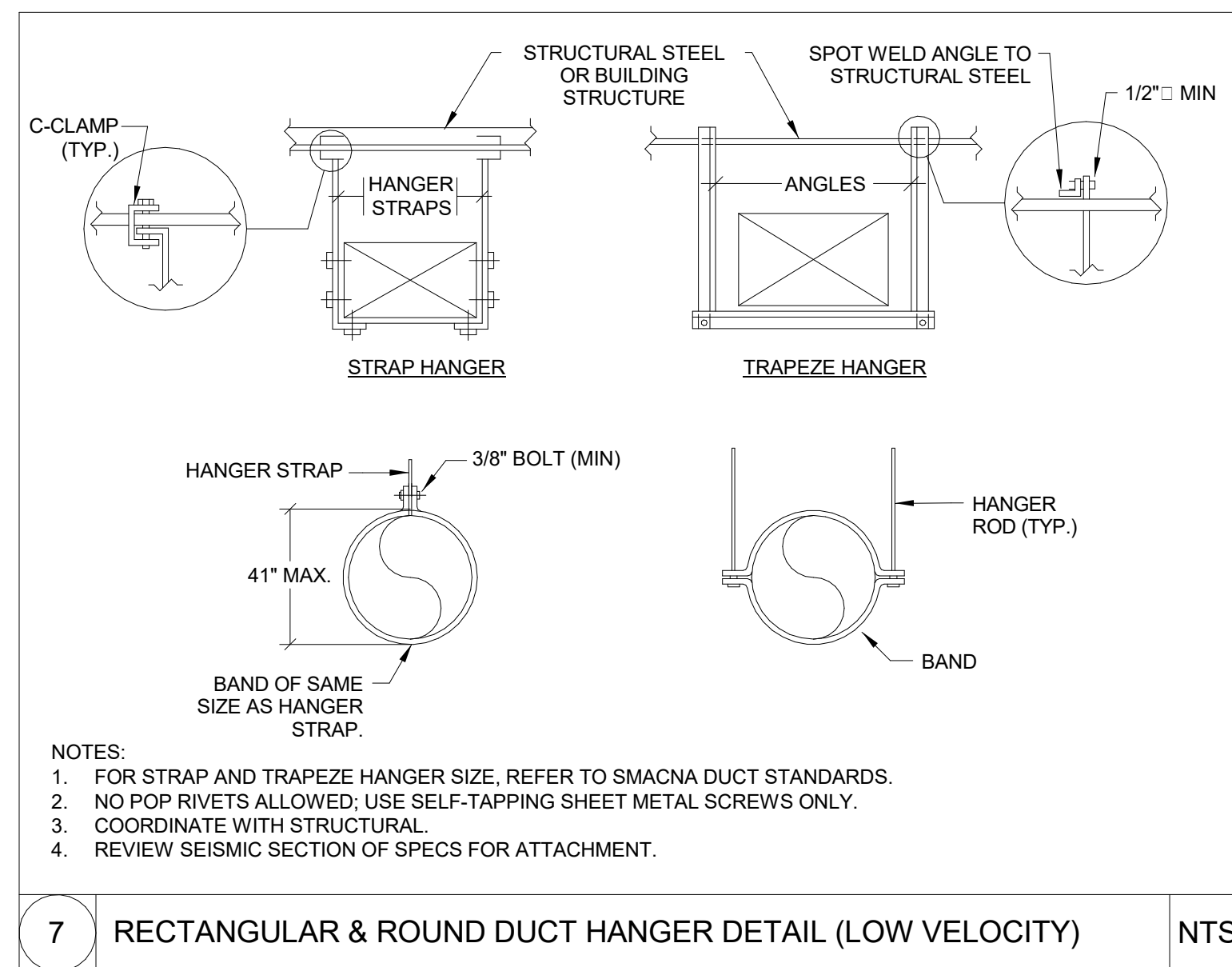
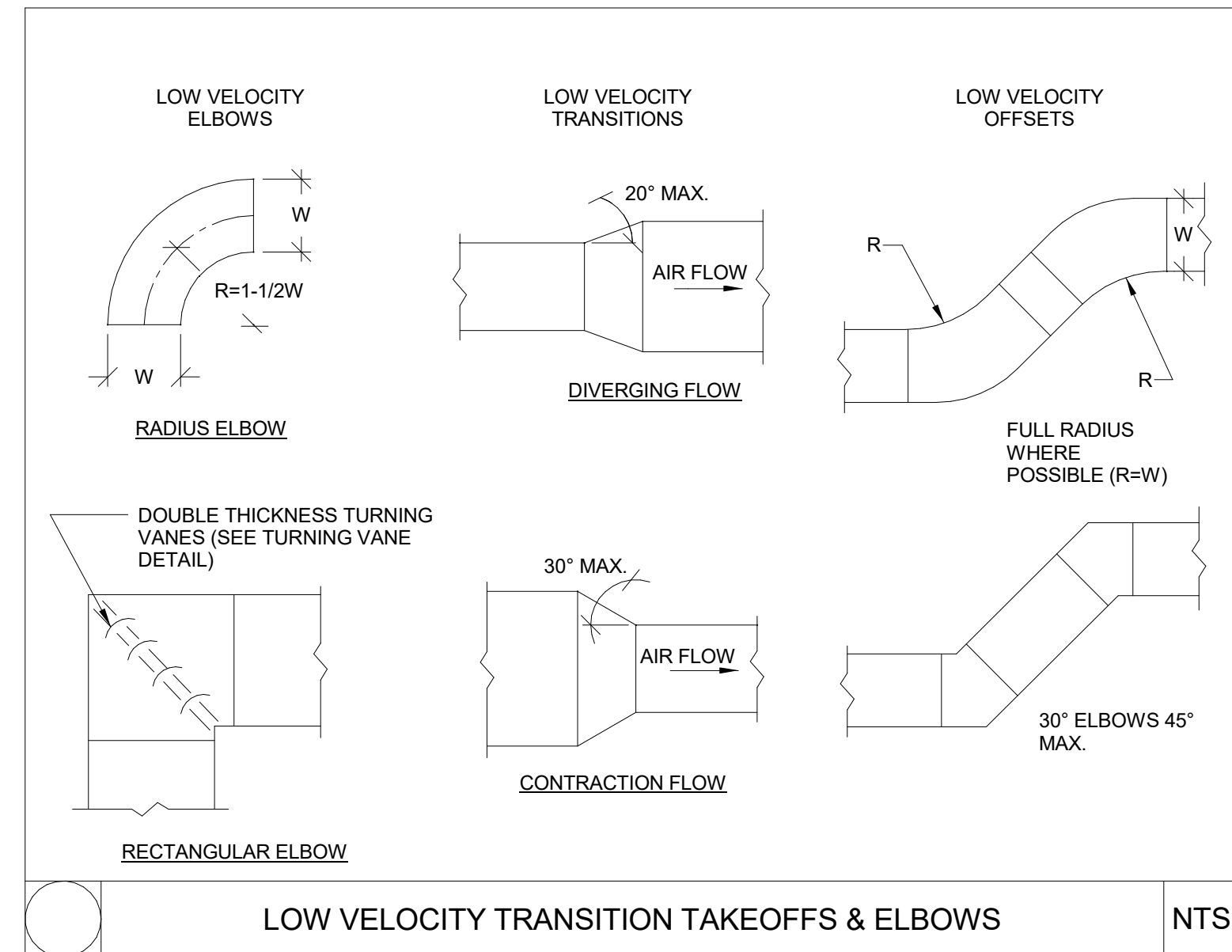
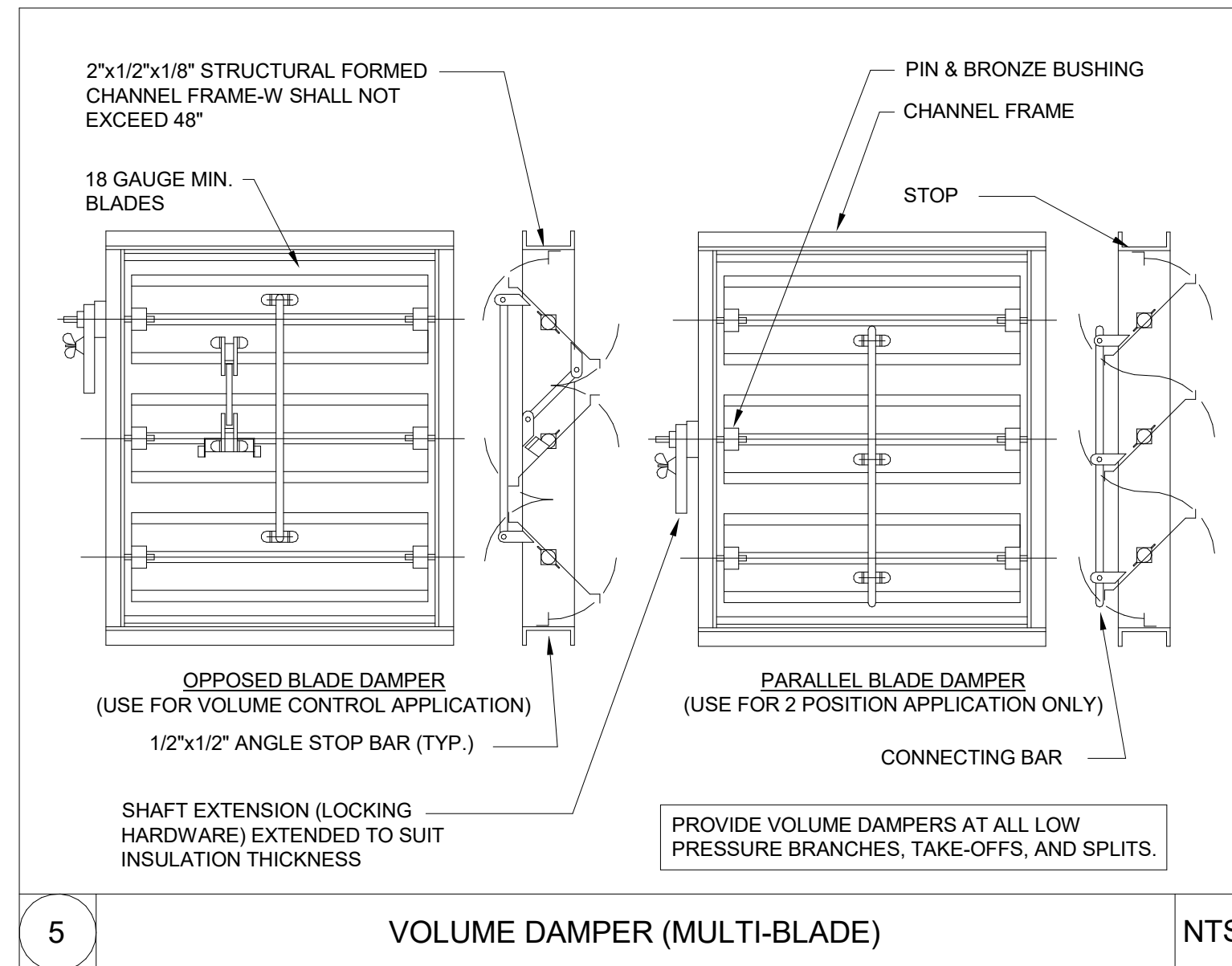
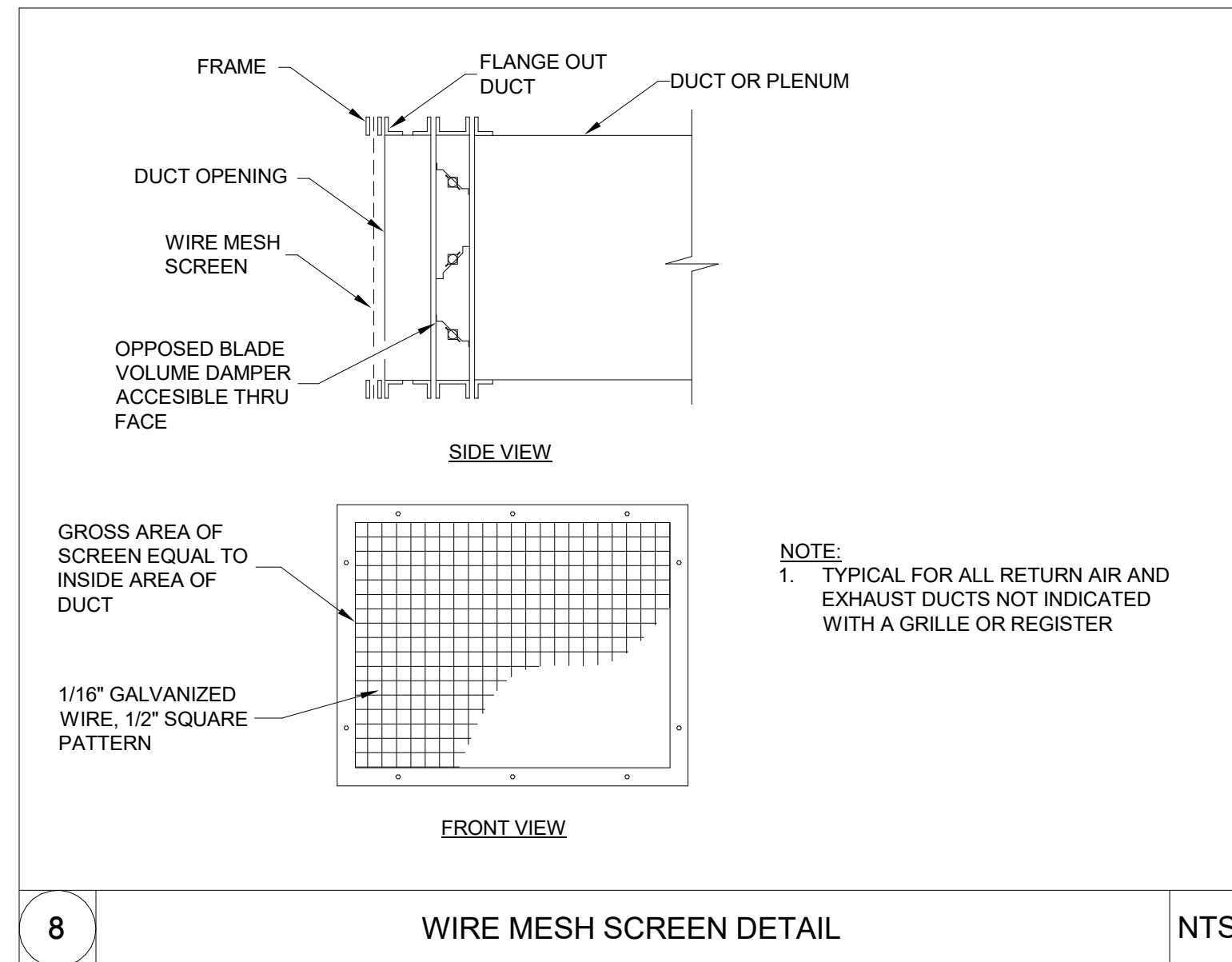
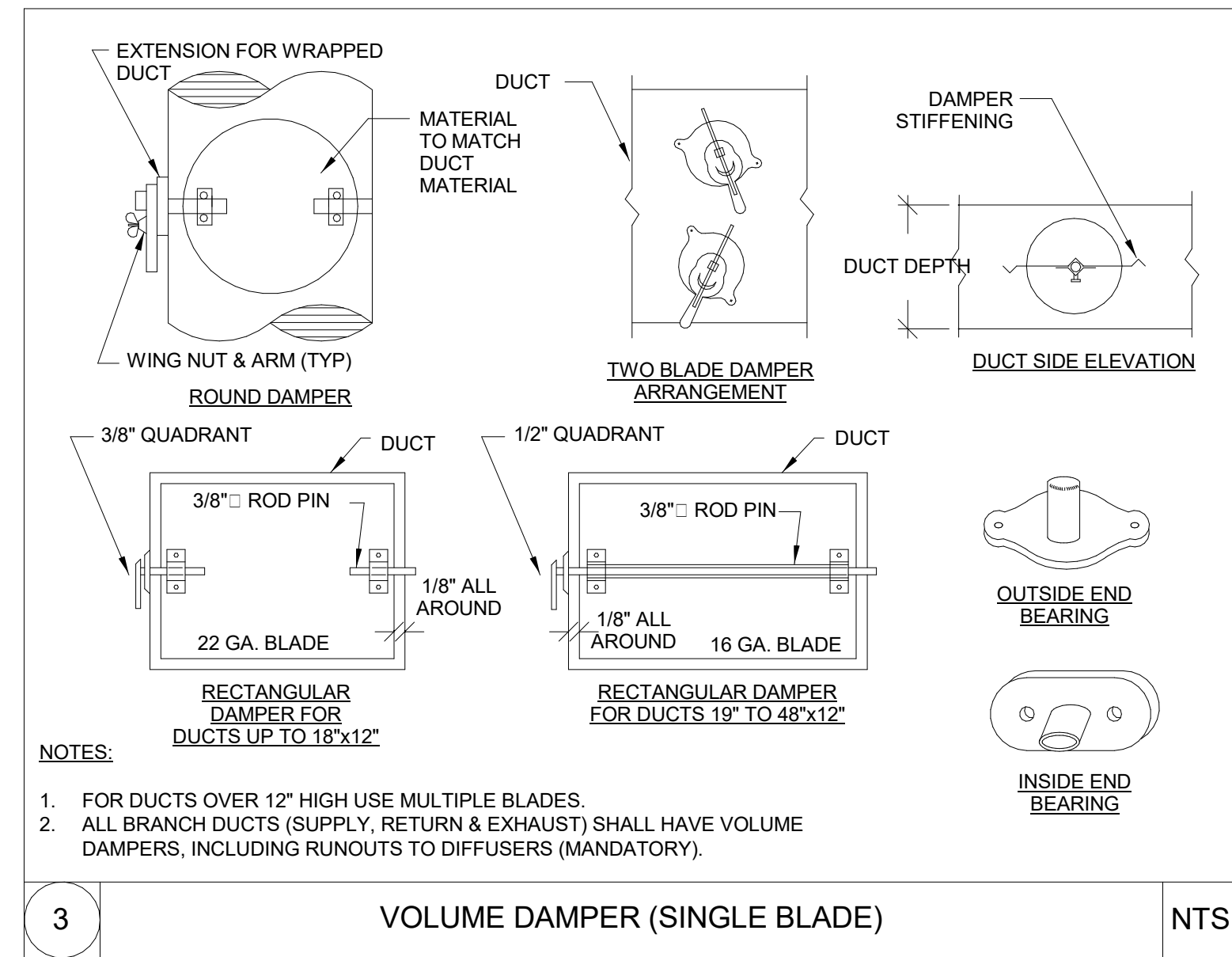
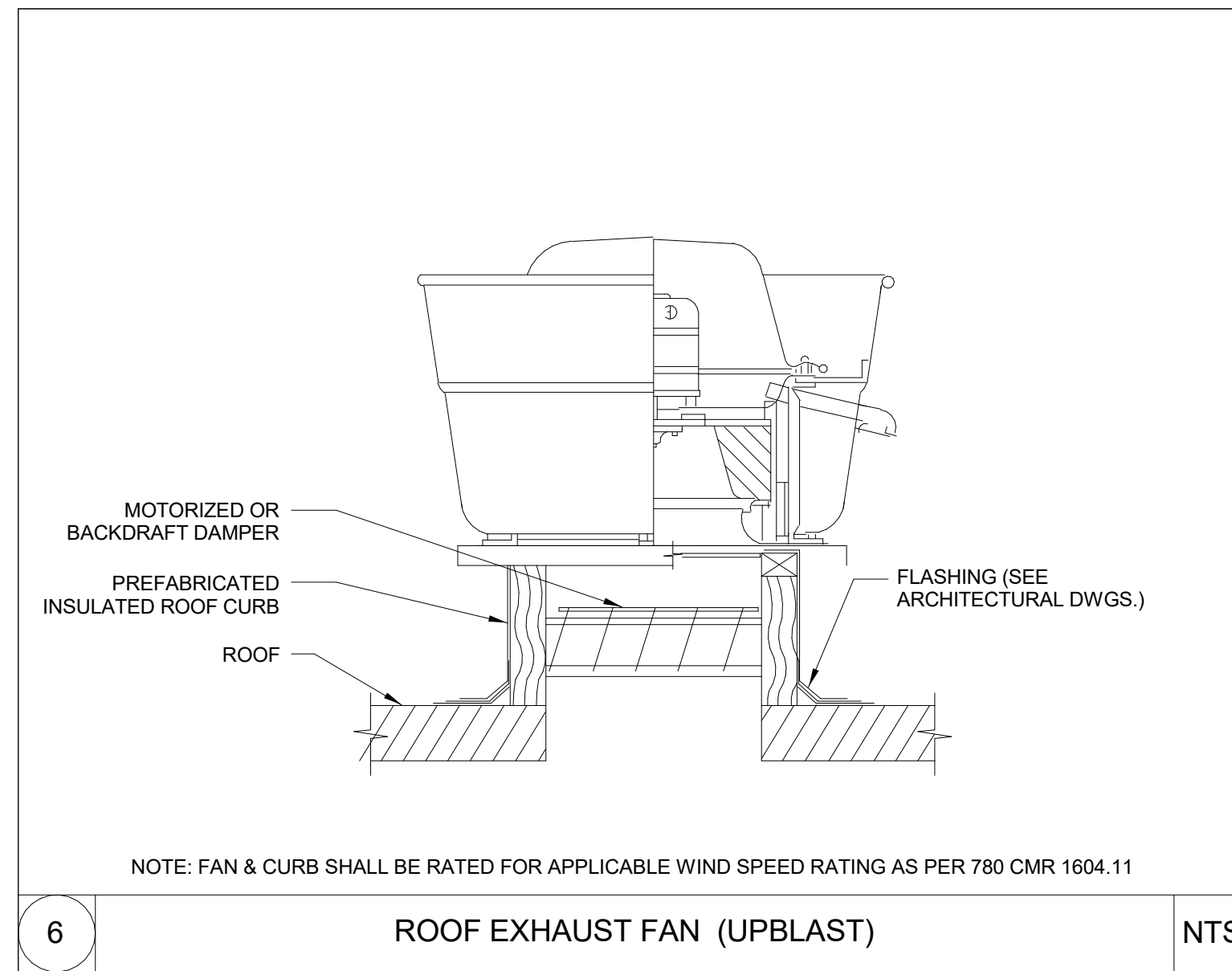
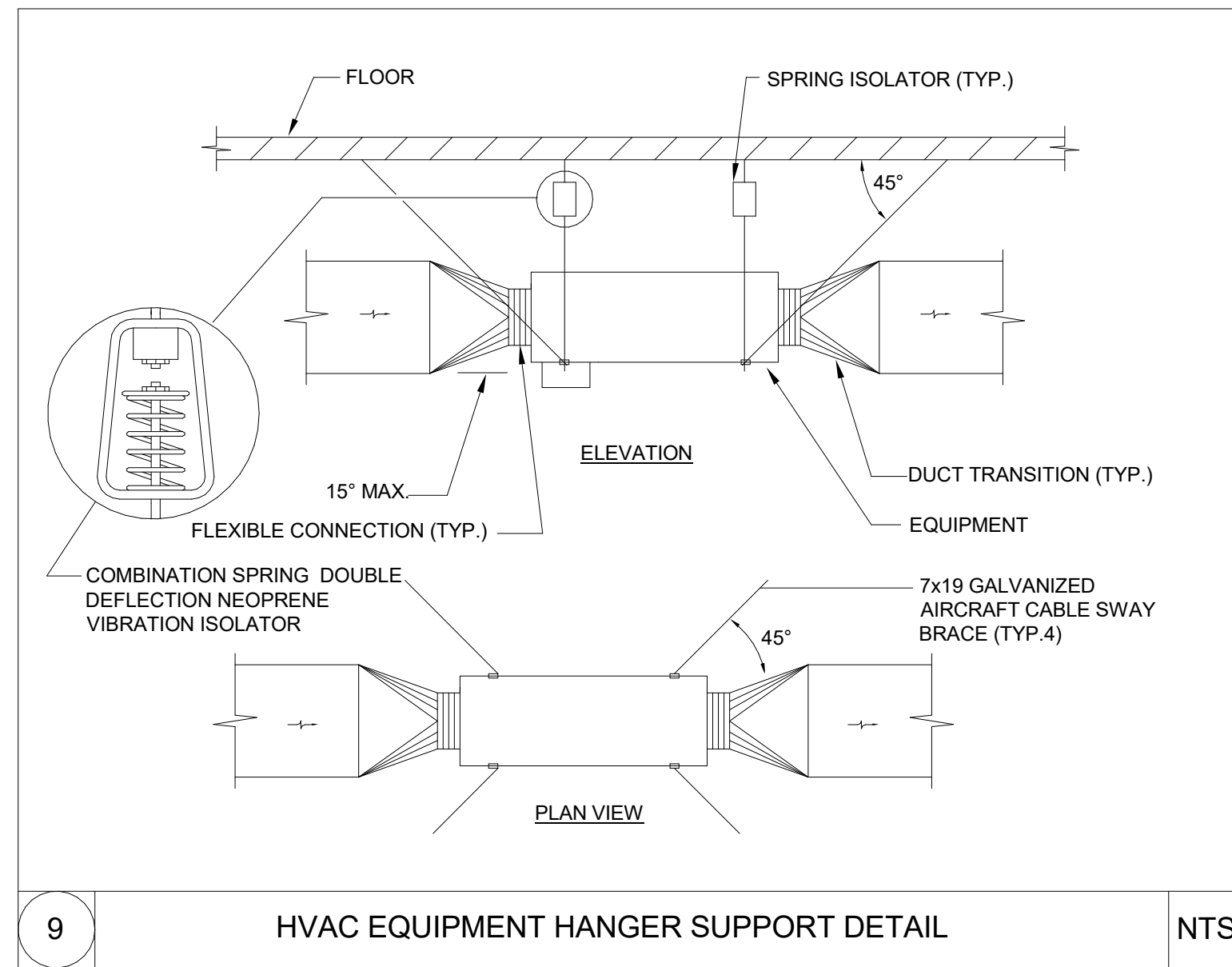
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HVAC DETAILS

H-002



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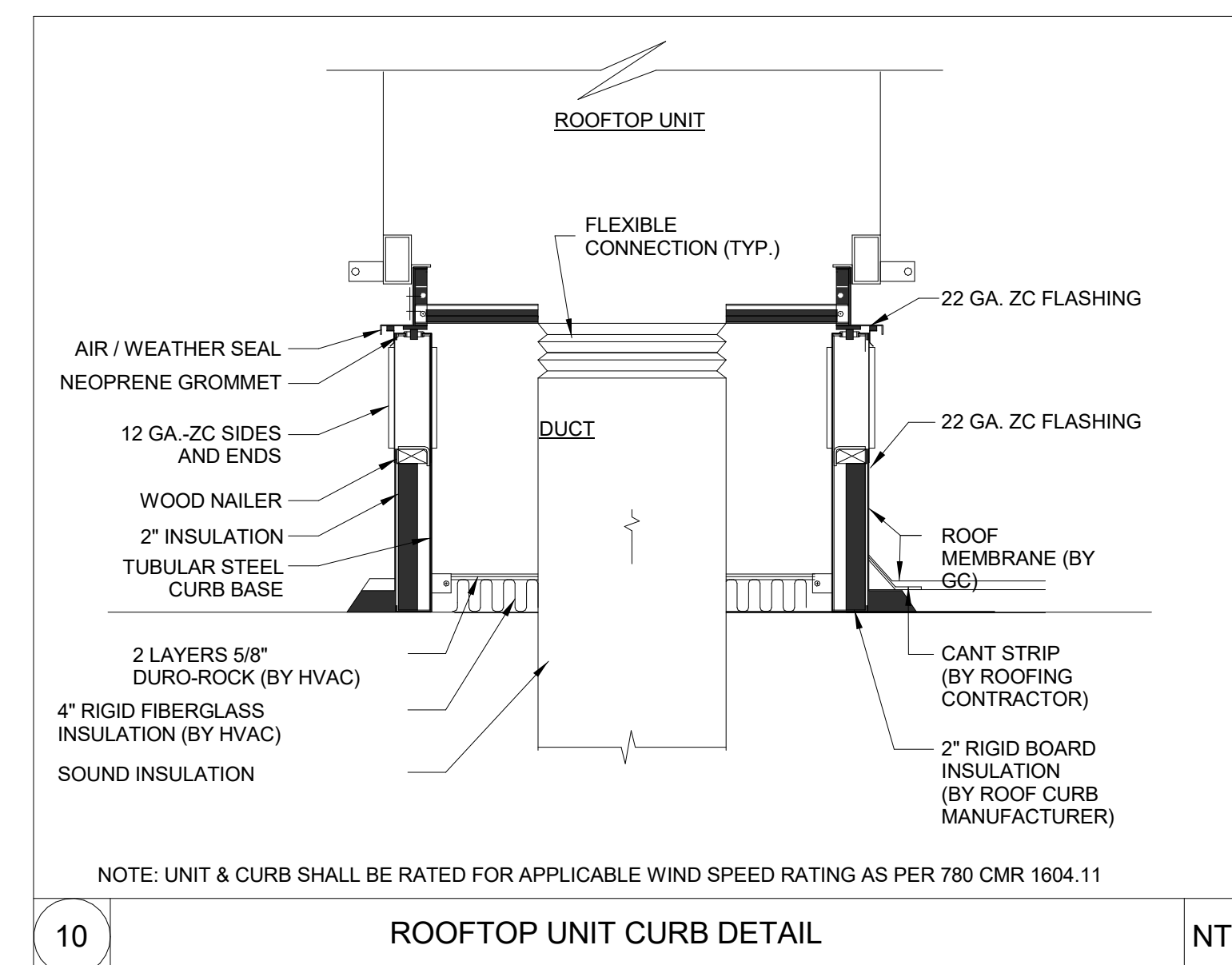
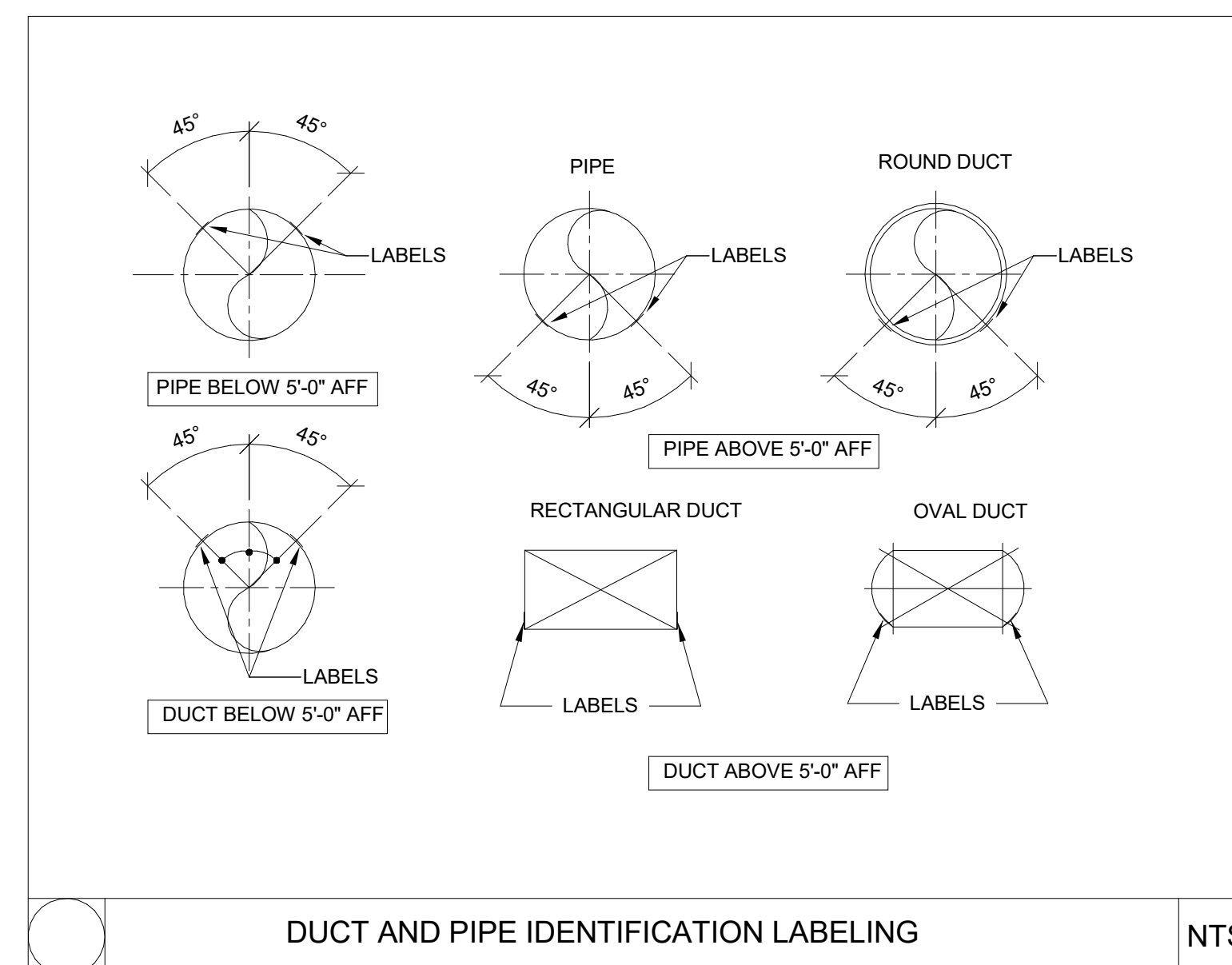
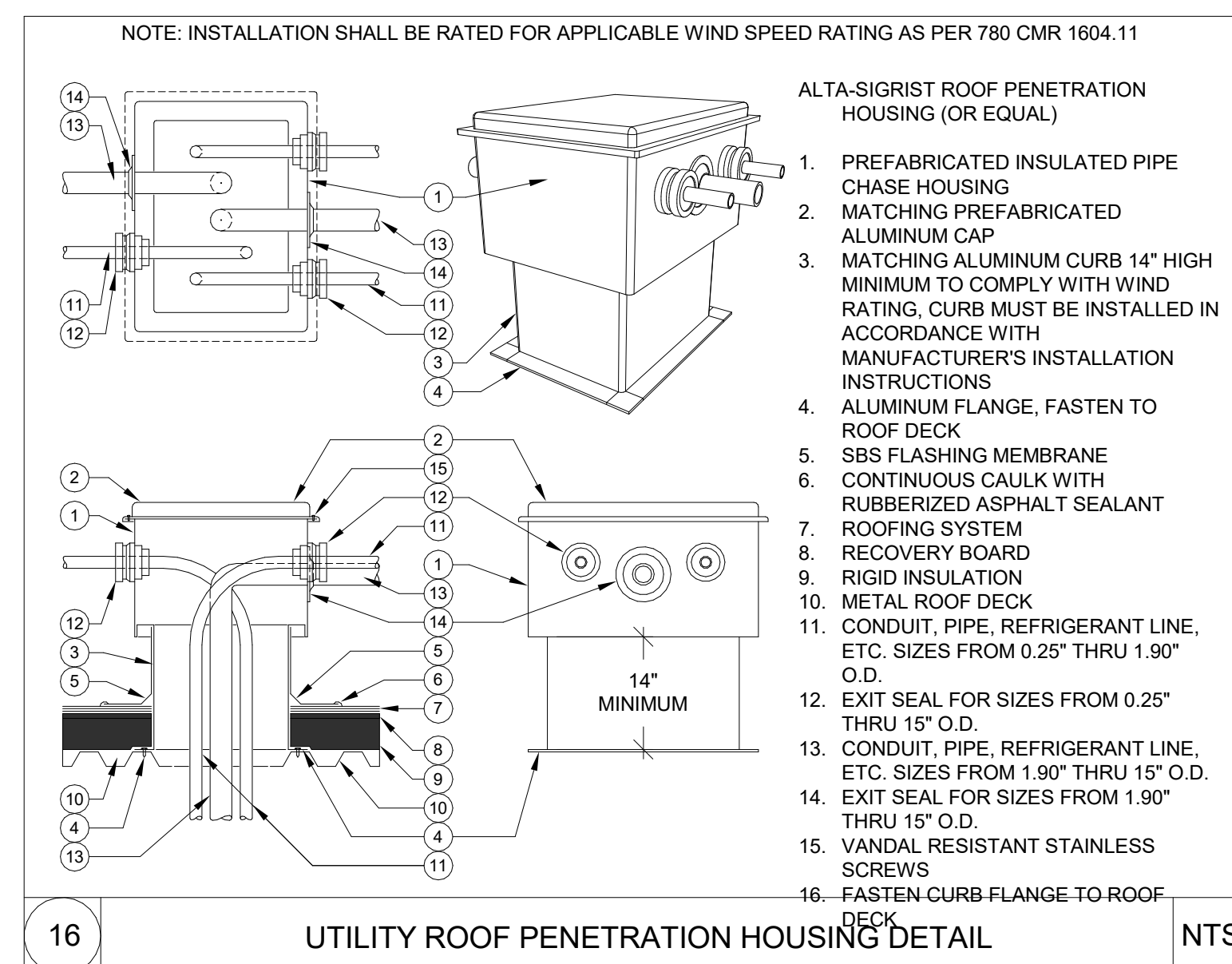
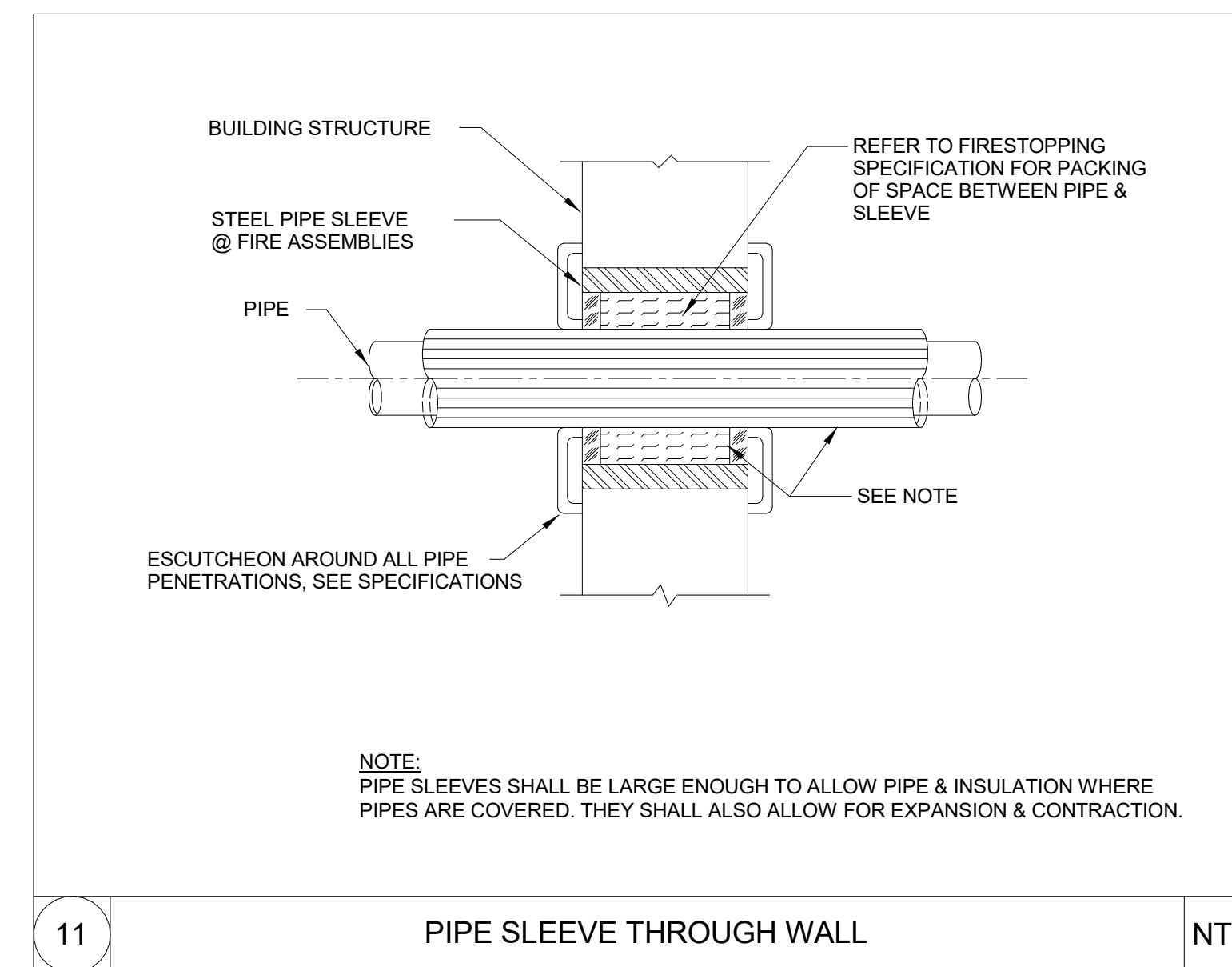
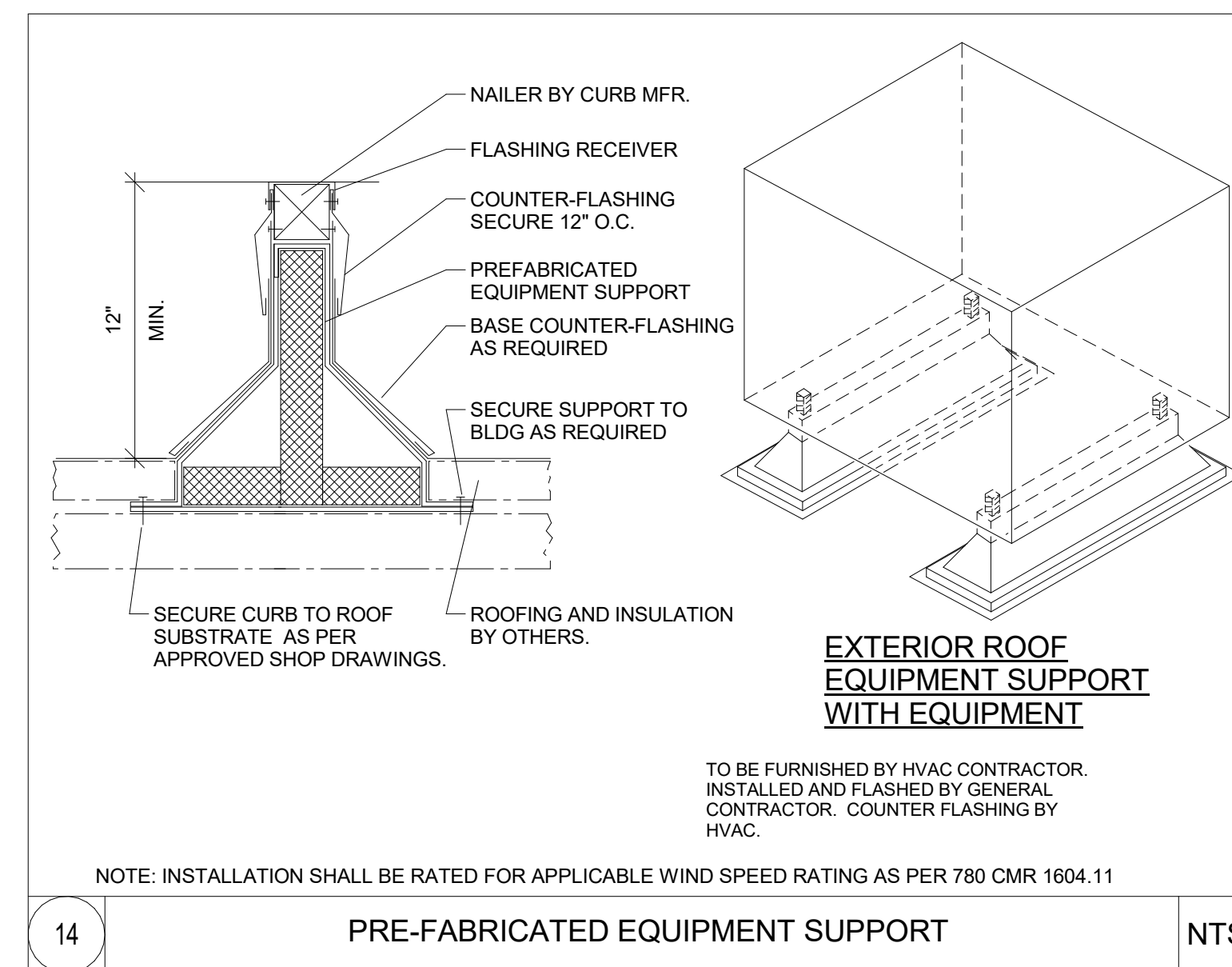
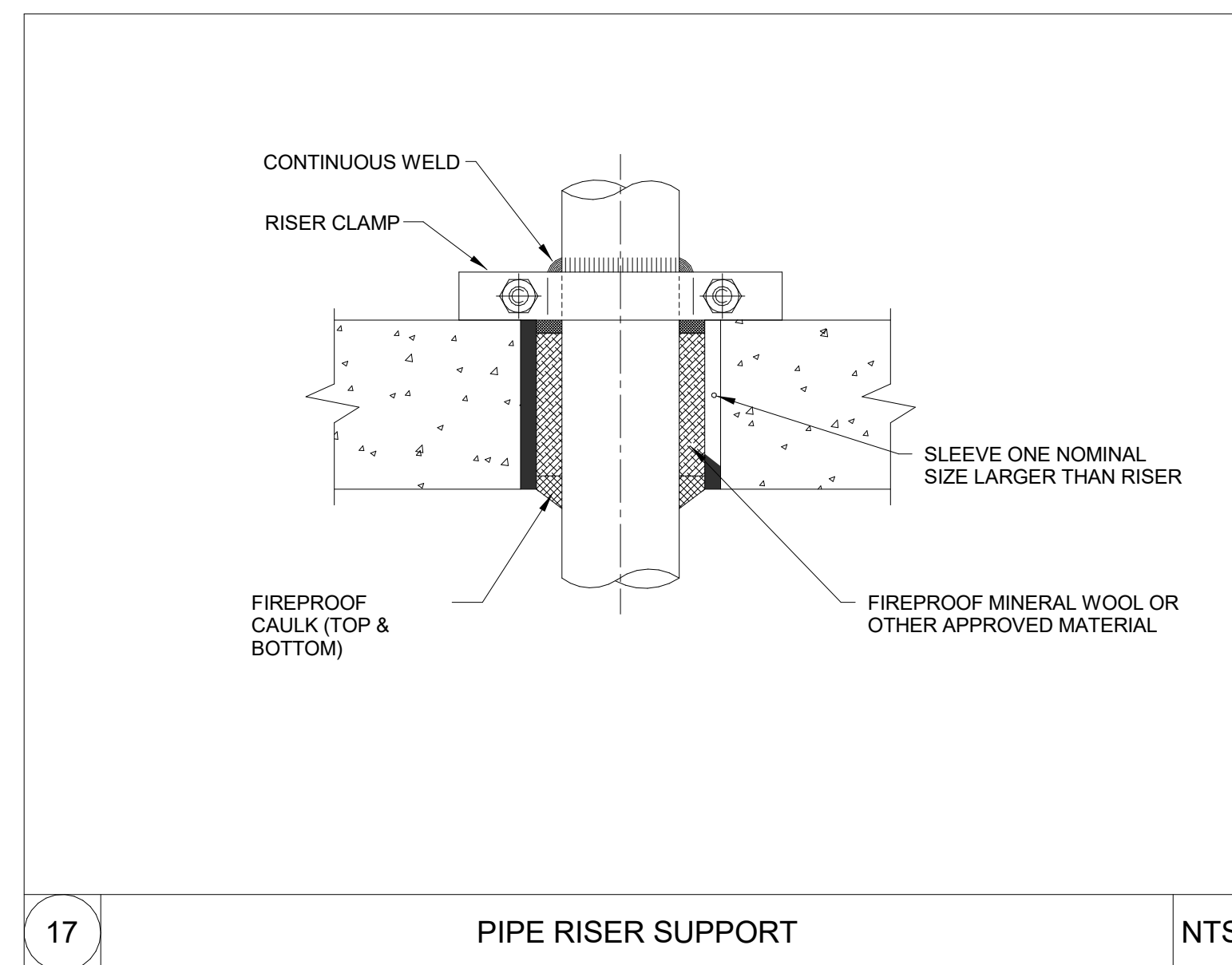
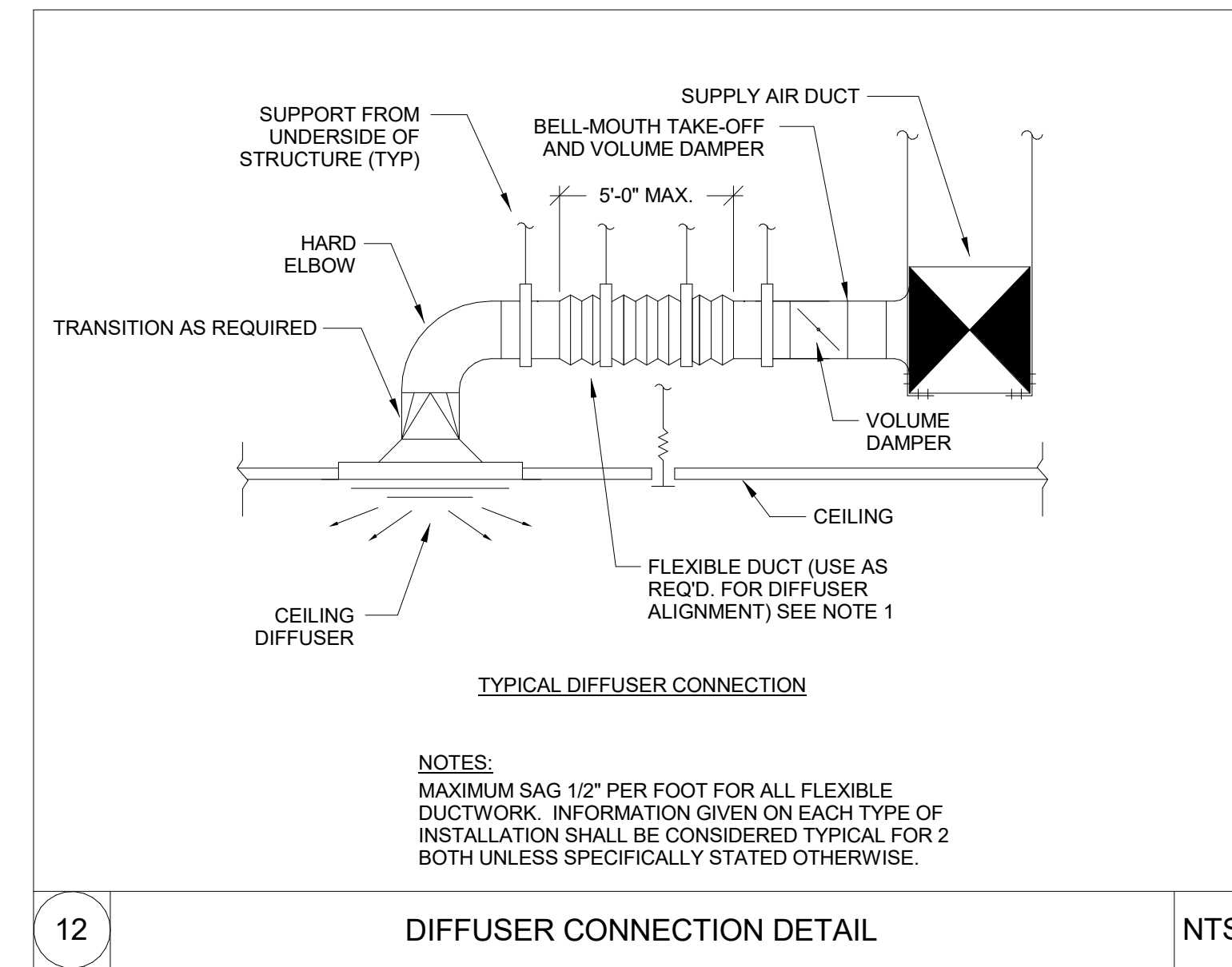
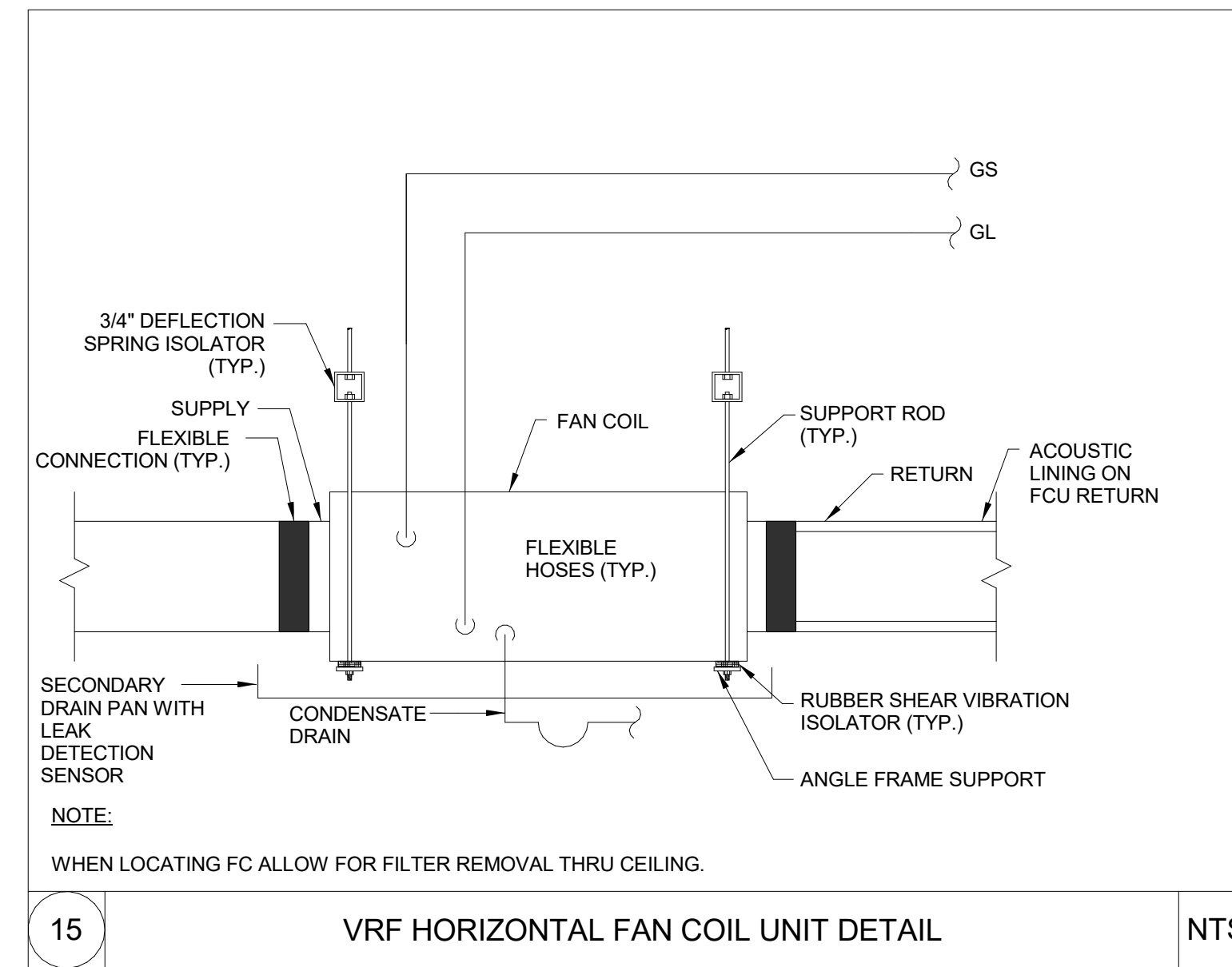
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REVISIONS
REV. DATE DESCRIPTION
1 08/09/2024 PERMIT SET
11/15/2024 IFC

HVAC DETAILS

H-003



POINTS LIST - VRF SYSTEM

POINT ID	DESCRIPTION	POINT TYPE	DEFAULT SET POINT	FAIL POSITION	STATUS ALARM	ALARM RANGE	NOTES
BAS MONITORING, MANAGEMENT, AND ALARM INTERFACE WITH VRF CENTRAL CONTROLLER							
FCU-ST-X	VRF FAN COIL UNIT "X" STATUS	BV					
FCU-ALM-X	VRF FAN COIL UNIT "X" ALARM	BV			X	COMMON ALARM	G
FCU-MODE-X	VRF FAN COIL UNIT "X" MODE	BV					
CU-ST-X	COMPRESSOR "X" STATUS	BV					
AIR SENSING							
SAT	SUPPLY AIR TEMPERATURE	AI					A
ZONE LEVEL SENSORS							
Z-T	ZONE TEMPERATURE	AV	SCHED.		X	Z-T <=> SPT +/- 5 F	B, E, F, J
FCU SUPPLY FAN							
SF-C	SUPPLY FAN COMMAND (START/STOP)	BO					
SF-ST-X	SUPPLY FAN STATUS	BV			X	SF-ST <=> SF-C	
FILTERS							
DF-RA	DIRTY FILTER INDICATION (RA FILTER)	BV	SCHED.		X	ON ACTIVATION	J
LEAK DETECTION							
FCU-CND	CONDENSATE OVERFLOW DETECTION	BI			X	ON ACTIVATION	A

NOTES:
 A. BAS CONTRACTOR SHALL PROVIDE DEVICE.
 B. DEVICE PROVIDED BY VRF MANUFACTURER.
 C. REFERENCE PROJECT DESIGN CONDITIONS SCHEDULE FOR SETPOINT.
 D. REFERENCE VARIABLE REFRIGERANT FLOW FAN COIL UNIT SCHEDULE FOR THE TEMPERATURE CONTROL METHOD UTILIZED FOR EACH FCU.
 E. DISPLAY MALFUNCTION CODE SPECIFIED BY THE MANUFACTURER AT BAS FRONT END UPON ALARM.
 F. POINT SHALL BE ADJUSTABLE.

SEQUENCE OF OPERATIONS VARIABLE REFRIGERANT FLOW SYSTEM (VRF)

The sequence of operations is organized into the following main categories: operating modes; control setpoint resets; safeties, overrides and interlocks; and component control loops. The operating modes describe the criteria that either enable or disable the various modes of operation. If a mode of operation is not listed within a component control loop section then that mode of operation has no direct influence on the operation of the component. The control setpoint reset section describes the logic and reference variables that will be used to reset control setpoints to a new value within its reset range. The safeties, overrides, and interlocks section outlines the hardwired interlocks that are required to meet life safety requirements. Safeties and interlocks take precedence over all other control strategies outlined in this document. The control responses of each component for the various modes of operation are described in the component control loop sections. Setpoints shall be adjustable (adj.) as noted.

The sequence of operations, the points list and control diagrams shall be used to provide a complete description of the control philosophy for the controlled equipment. Individual setpoint values, reset ranges, and alarm action levels are listed in the points list. Components and control sensor locations are graphically depicted on the control diagram. The controls contractor shall be responsible for coordinating any necessary time delay setpoints to establish stable system operation.

GENERAL DESCRIPTION

The VRF system described by this sequence of operations consists of condensing unit(s), branch selector boxes, fan coil unit(s), and a central controller that operate together to provide space conditioning as shown on the drawings. The VRF system shall be furnished with factory digital controls (DDC).

The ventilation air is distributed directly to each fan coil unit.

Heat Recovery System Control

Each condensing unit shall be capable of serving multiple fan coil units. Each fan coil unit or bank of fan coil units associated with an individual branch selector box shall be capable of independent heating or cooling operation and independent temperature control.

Manufacturer Central Controller:

The VRF manufacturer shall furnish a central controller that shall provide centralized management of system scheduling, temperature setpoints, mode, alarms, fan speed, unoccupied space temperature limits, remote controller restrictions, and mode changeover.

Central Controller BAS Interface:

The manufacturer furnished central controller shall interface with the building automation system (BAS) via a manufacturer furnished gateway. BAS shall provide centralized monitoring and management of system scheduling, temperature setpoints, mode, alarms, fan speed, unoccupied space temperature limits, remote controller restrictions, and mode changeover.

OPERATING MODES

OCCUPIED MODE:

The unit shall be in occupied mode per the Project Design Conditions Schedule shown on the control drawings.

COOLING MODE:

The unit shall be in cooling mode subject to the manufacturer's controller.

HEATING MODE:

The unit shall be in heating mode subject to the manufacturer's controller.

UNOCCUPIED MODE:

The unit shall be in unoccupied mode for all periods not included in the occupied hours of operation. Overrides of unoccupied schedule are defined at the zone level control. Coordinate with the owner for timed occupancy schedule overrides and zone level setpoint adjustment.

CONTROL SETPOINT RESETS

Not used.

OPTIMAL START/STOP:

The unit shall start prior to scheduled occupancy based on the time necessary for the zones to reach their occupied setpoints.

SAFETIES, OVERRIDES AND INTERLOCKS

LEAK DETECTION INTERLOCK:

The fan coil unit shall automatically be disabled upon detection of water in the overflow drain pan.

EXTERIOR OPENING INTERLOCK:

The zone temperature (Z-T) setpoint shall be reset to 85 degrees F in cooling and 55 degrees F in heating whenever exterior operable opening status (OP-ST-X) is open. Setpoint change shall occur after 5 minutes of opening being opened.

COMPONENT CONTROL LOOPS

CONDENSING UNIT CONTROL

When in All Modes:

The unit shall operate subject to the manufacturer integrated controls in unison with the fan coil units to satisfy the heating and/or cooling demand.

FAN COIL UNIT CONTROL

When in All Modes:

The unit shall operate subject to the manufacturer integrated controls in unison with the condensing unit to satisfy the heating and/or cooling demand.

When in Occupied Mode:

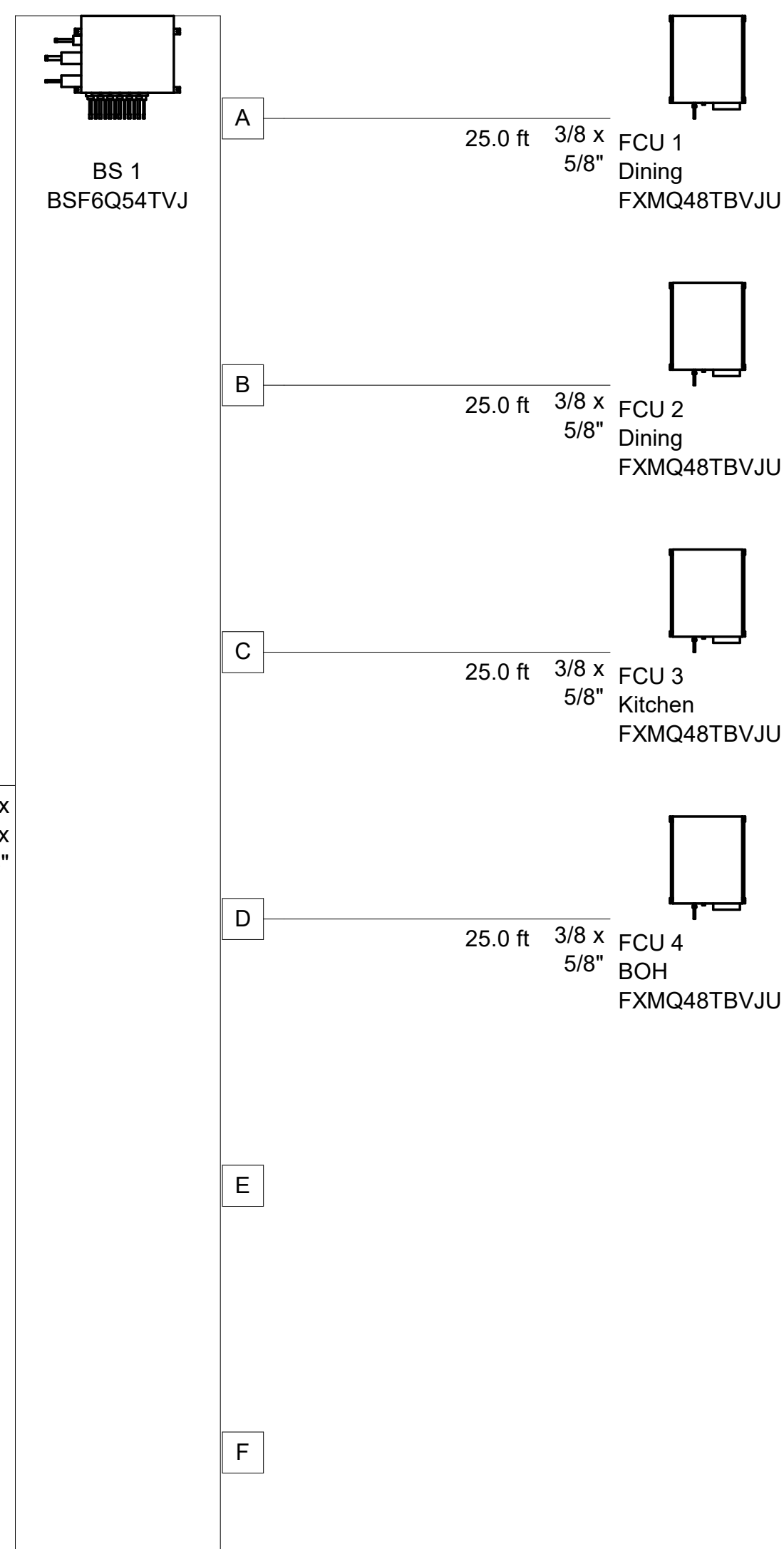
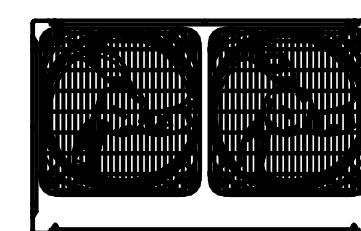
Fan shall be energized to maintain minimum outside air requirements per the Air Balance schedule.

FILTER MONITORING

When in All Modes:

The controller shall monitor the fan runtime to provide maintenance reminder at 50% of filter elapsed time of 1100 hours (adj.) and an alarm at 100% elapsed time of 2200 hours (adj.).

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REYQ216AATDA

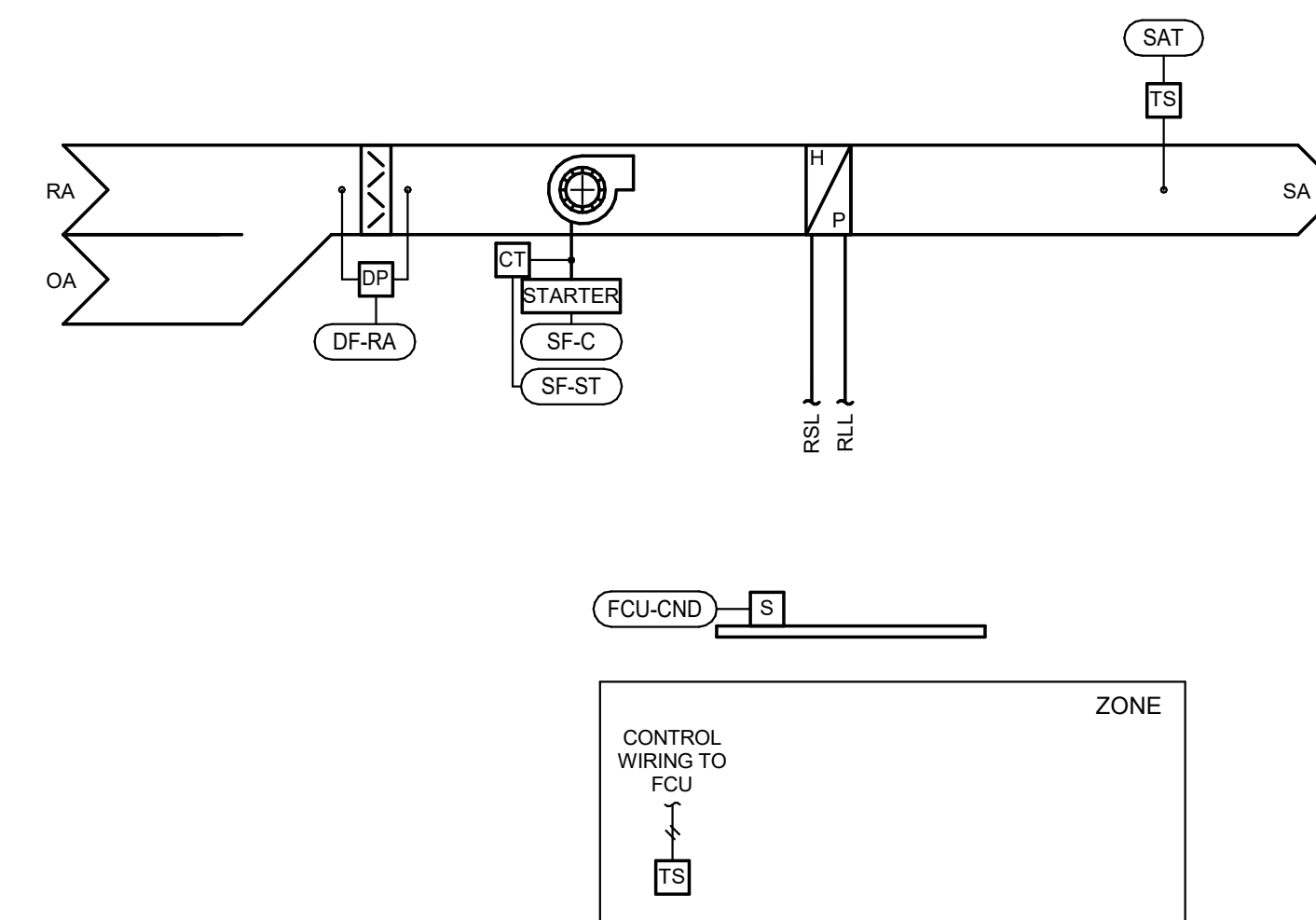


WARNING: THE PIPE DIAMETER VALUES ARE PURELY INDICATIVE. DEPENDING ON THE REQUIRED PIPE LENGTHS, A DIFFERENT PIPE DIAMETER MIGHT BE REQUIRED.

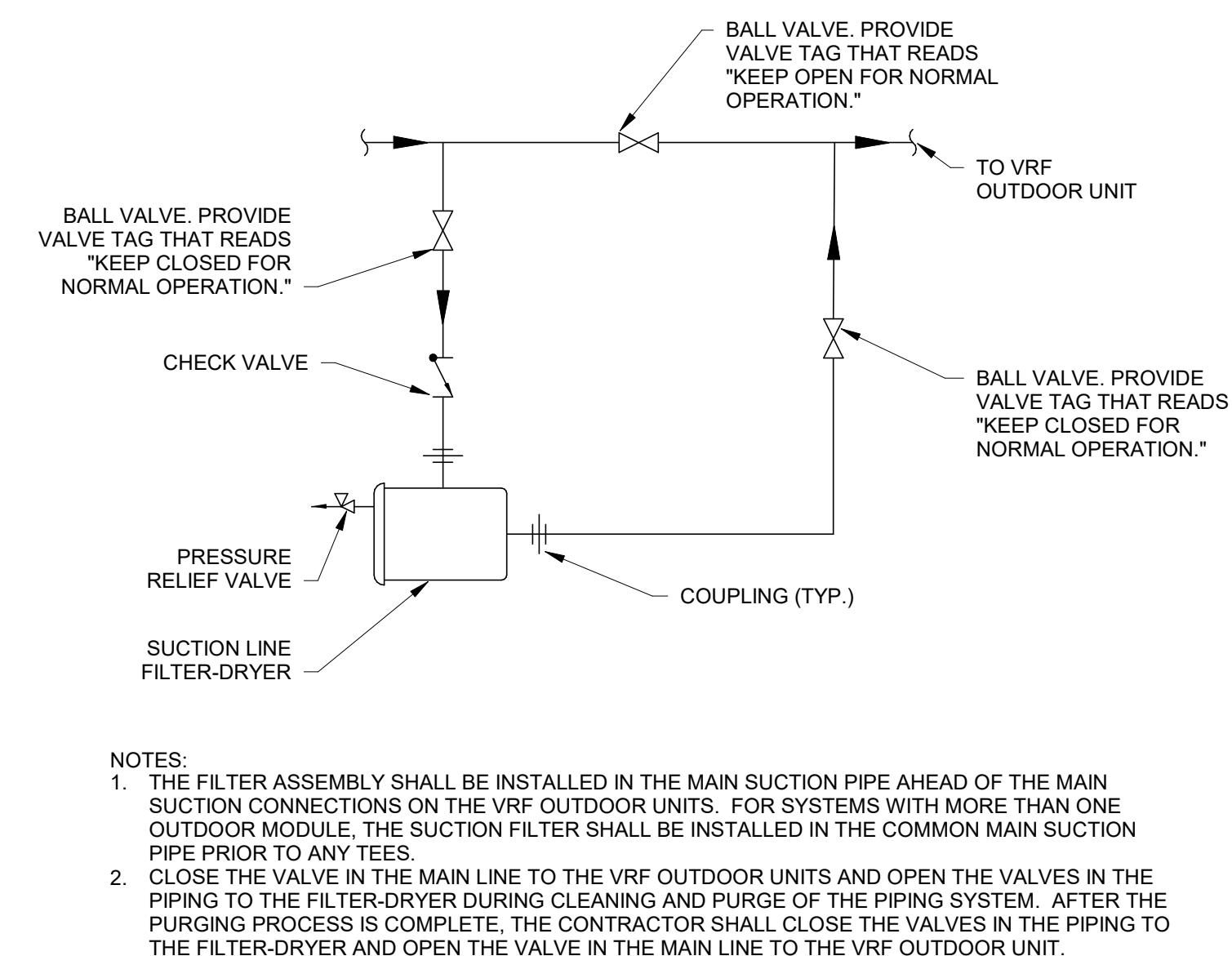
NOTES:

- ARRANGEMENT SHOWN IS SCHEMATIC. COORDINATE WITH THE MANUFACTURER THE FINAL HORIZONTAL AND VERTICAL REFRIGERANT PIPE ROUTING TO DETERMINE ACTUAL CIRCUITING, REFRIGERANT LINE QUANTITIES, LENGTHS, SIZES, FITTING TYPES, AND LOCATIONS.
- MANUFACTURER SHALL PROVIDE DETAILED REFRIGERANT PIPING DIAGRAMS AND SHOP DRAWINGS INCLUDING DIMENSIONAL DATA FOR ALL REFRIGERANT PIPING DEVICES. THE MANUFACTURER SHALL SIZE AND LOCATE THE ASSOCIATED REFRIGERANT TRAPS BASED ON THE ACTUAL ROUTING AND FURNISH OTHER APPURTENANCES TO PROVIDE A FULLY FUNCTIONAL AND OPERATIONAL SYSTEM. COORDINATE WITH THE MANUFACTURER SHOP DRAWINGS TO MAINTAIN SERVICEABILITY AND ACCESSIBILITY OF SYSTEM COMPONENTS.

③ VRF PIPING DIAGRAM
12" = 1'-0"



① VRF CONTROL DIAGRAM
12" = 1'-0"



② VRF SUCTION LINE FILTER ASSEMBLY DETAIL
12" = 1'-0"

sg

sweetgreen

3101 W. EXPOSITION BLVD.
LOS ANGELES, CALIFORNIA 90018

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CHECKED BY: Checker
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SG DESIGN MANAGER: LK
SG CONSTR. MANAGER: XX
PROJECT NO: 20240072
TEMPLATE VERSION: 12.20.2022

REVISONS
REV. DATE DESCRIPTION
1 11/15/2024 IFC

HVAC DETAILS

H-004



sweetgreen

3101 W. EXPOSITION BLVD.
LOS ANGELES, CALIFORNIA 90018

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TEMPLATE VERSION: 12.20.2022

Table with 3 columns: REV., DATE, DESCRIPTION. Rows include 06/24/2024 50% CHECK SET, 07/10/2024 80% CHECK SET, 07/29/2024 100% CHECK SET, 08/09/2024 PERMIT SET, 11/15/2024 IFC

HVAC SPECIFICATIONS

H-005

DIVISION 23: HEATING, VENTILATING, AND AIR CONDITIONING
1. GENERAL INSTRUCTIONS
1.1. GENERAL REQUIREMENTS
1.1.1. ALL REQUIREMENTS UNDER DIVISION 01 AND THE GENERAL AND SUPPLEMENTARY CONDITIONS OF THESE SPECIFICATIONS APPLY TO THIS SECTION AND DIVISION, WHERE THE REQUIREMENTS OF THIS SECTION AND DIVISION EXCEED THOSE OF DIVISION 01, THIS SECTION AND DIVISION TAKE PRECEDENCE...

1.6.4. PROVIDE MATERIALS WITH TRIM THAT WILL PROPERLY FIT THE TYPES OF CEILING, WALL, OR FLOOR FINISHES ACTUALLY INSTALLED. MODEL NUMBERS LISTED IN THE SPECIFICATIONS OR SHOWN ON THE DRAWINGS ARE NOT INTENDED TO DESIGNATE THE REQUIRED TRIM.
1.7. ORDINANCES AND CODES
1.7.1. WORK PERFORMED UNDER THIS CONTRACT SHALL, AT A MINIMUM, BE IN CONFORMANCE WITH APPLICABLE NATIONAL, STATE AND LOCAL CODES HAVING JURISDICTION...

THE DRAWINGS AND SPECIFICATIONS, ERRORS IN DIMENSIONS, DETAILS, SIZE OF MEMBERS, OR QUANTITIES, OMISSIONS OF COMPONENTS OR FITTINGS, COORDINATION OF ELECTRICAL REQUIREMENTS, AND NOT COORDINATING ITEMS WITH ACTUAL BUILDING CONDITIONS AND ADJACENT WORK, PROCURED WITH THE PROCUREMENT AND INSTALLATION OF EQUIPMENT ONLY AFTER RECEIVING APPROVED SHOP DRAWINGS RELATIVE TO EACH ITEM.
2.5. ROUGH-IN
2.5.1. COORDINATE WITHOUT DELAY ALL ROUGH-IN WITH OTHER DIVISIONS, CONCEAL PIPING, CONDUIT, AND ROUGH-IN EXCEPT IN UNFINISHED AREAS AND WHERE OTHERWISE SHOWN.
2.6. STRUCTURAL SUPPORT SYSTEMS
2.6.1. STRUCTURAL STEEL USED FOR SUPPORT OF EQUIPMENT, DUCTWORK AND PIPING SHALL BE NEW, CLEAN, AND CONFORM TO ASTM DESIGNATION A-36...

2.6.1. STRUCTURAL STEEL USED FOR SUPPORT OF EQUIPMENT, DUCTWORK AND PIPING SHALL BE NEW, CLEAN, AND CONFORM TO ASTM DESIGNATION A-36. SUPPORT MECHANICAL COMPONENTS FROM THE BUILDING STRUCTURE. DO NOT SUPPORT MECHANICAL COMPONENTS FROM CEILINGS, OTHER MECHANICAL OR ELECTRICAL COMPONENTS, AND OTHER NON-STRUCTURAL ELEMENTS.
2.7. PRE-ENGINEERED ROOF EQUIPMENT SUPPORTS AND CURBS
2.7.1. PROVIDE PREFABRICATED EQUIPMENT SUPPORT RAILS AND ROOF CURBS MANUFACTURED BY AES INDUSTRIES, CUSTOM CURBS, INC., PATE COMPANY, THYBAR OR APPROVED EQUAL. PROVIDE WITH FULLY MITERED RAISED CANT AND STEP TO MATCH ROOF INSULATION THICKNESS, WELDED, MINIMUM 18 GAUGE GALVANIZED STEEL SHELL, INTERNALLY REINFORCED TO LOAD BEARING FACTORS OF EQUIPMENT BEING SUPPORTED...

2.332. BASIS OF DESIGN ZONE TEMPERATURE CONTROL AND CAPACITY REQUIREMENTS SHOWN ON THE DRAWINGS.

2.333. CONDENSING UNITS SHALL BE AIR-COOLED OR WATER COOLED COOLING ONLY OR HEAT PUMP AS DEFINED ON THE EQUIPMENT SCHEDULES.

2.334. THE CONDENSING UNIT SHALL BE A DIRECT EXPANSION (DX), MULTI-ZONE AIR-CONDITIONING SYSTEM WITH VARIABLE SPEED INVERTER DRIVEN COMPRESSORS USING R-410A REFRIGERANT. ALL ZONES SHALL BE CAPABLE OF OPERATING SEPARATELY WITH INDIVIDUAL TEMPERATURE CONTROL.

2.335. THE OUTDOOR UNIT SHALL BE INTERCONNECTED TO INDOOR UNIT TYPES SPECIFIED UNDER VRF FAN COIL UNITS SECTION. THE INDOOR UNITS SHALL BE CONNECTED TO THE CONDENSING UNIT UTILIZING MANUFACTURER SPECIFIED PIPING JOINTS AND HEADERS TO ENSURE CORRECT REFRIGERANT FLOW AND BALANCING. FIELD FABRICATED TEES, Y-FITTINGS, HEADERS, OR OTHER BRANCH FITTINGS SHALL NOT BE ALLOWED. SEE VRF REFRIGERANT PIPING FOR INTERCONNECTING PIPING SPECIFICATIONS.

2.336. PROVIDE THE CONDENSING UNIT WITH HIGH PRESSURE SENSOR AND SWITCH, LOW PRESSURE SENSOR, CONTROL CIRCUIT FUSES, CRANKCASE HEATERS, FUSIBLE PLUG, OVERLOAD RELAY, INVERTER OVERLOAD PROTECTOR, THERMAL PROTECTORS FOR COMPRESSOR AND FAN MOTORS, OVER CURRENT PROTECTION FOR THE INVERTER AND ANTI-RECYCLING TIMERS.

2.337. THE REFRIGERANT CIRCUIT SHALL BE PROVIDED WITH A SUB-COOLING FEATURE TO ENSURE LIQUID REFRIGERANT DOES NOT FLASH WHEN SUPPLYING TO THE VARIOUS INDOOR UNITS.

2.338. UNIT SHALL EMPLOY AN ILM MANAGEMENT SYSTEM THAT ENSURES EQUIPMENT IS PROPERLY PROTECTED FOR THE LIFE OF THE EQUIPMENT. ANY OIL RECOVERY CYCLES SHALL NOT CAUSE OCCUPANT DISCOMFORT OR ERRATIC SYSTEM OPERATION.

2.339. THE CONDENSING UNIT SHALL BE CAPABLE OF HEATING OPERATION AT 0 F DRY BULB AND COOLING OPERATION AT 23 F DRY BULB AMBIENT TEMPERATURE WITHOUT ADDITIONAL LOW AMBIENT CONTROLS OR AN AUXILIARY HEAT SOURCE.

2.340. THE ELECTRICAL REQUIREMENTS SHALL BE AS SCHEDULED ON THE DRAWINGS.

2.341. THE AIR COOLED CONDENSER COIL SHALL BE MANUFACTURED FROM COPPER TUBES EXPANDED INTO ALUMINUM FINNS TO FORM A MECHANICAL BOND. THE COIL AND FINNS SHALL BE FACTORY FINISHED WITH AN ANTI-OXIDATION COATING. FLARE CONNECTIONS, CONDENSATE DRAIN PAN, CONDENSATE SAFETY SHUT OFF AND ALARM, SELF-DIAGNOSTICS, AUTO-RESTART FUNCTION, 3MINUTE FUSED TIME DELAY, AND TEST RUN SWITCH. UNIT SHALL BE EQUIPPED WITH A RETURN AIR THERMISTOR UNIT CABINET. CABINET SHALL BE CONSTRUCTED WITH SOUND ABSORBING FOAMED POLYSTYRENE AND POLYETHYLENE INSULATION. AIRFLOW RATE SHALL BE ADJUSTABLE. MOTOR SHALL BE BRUSHLESS DIGITALLY CONTROLLED TYPE WITH PERMANENTLY LUBRICATED BEARINGS. MOTOR SHALL BE THERMALLY PROTECTED.

2.342. COILS SHALL BE OF THE DIRECT EXPANSION TYPE CONSTRUCTED FROM COPPER TUBES EXPANDED INTO ALUMINUM FINNS TO FORM A MECHANICAL BOND. THE COIL SHALL BE OF A WAFFLE LOUVER OR SMOOTH PLATE FIN AND RIFLED BORE TUBE DESIGN. THE REFRIGERANT CONNECTIONS SHALL BE FLARE CONNECTIONS. A CONDENSATE DRAIN PAN SHALL BE INSTALLED UNDER THE COIL. A THERMISTOR SHALL BE LOCATED ON THE LIQUID AND GAS LINE. ELECTRICAL CHARACTERISTICS SHALL BE AS SCHEDULED ON THE DRAWINGS.

2.343. VRF CENTRAL CONTROLLER

2.344. PROVIDE FACTORY FURNISHED CENTRAL CONTROLLER CAPABLE OF OPERATING AND MONITORING THE VRF SYSTEM. CENTRAL CONTROLLER SHALL HAVE THE FOLLOWING CAPABILITIES:

1. CAPABILITY OF OPERATING INDEPENDENTLY OR IN CONJUNCTION WITH A BUILDING AUTOMATION SYSTEM (BAS).
2. CAPABILITY TO MANAGE MULTIPLE VRF INDOOR UNITS OR GROUPS OF INDOOR UNITS WITHOUT REQUIRING MEMORY EXPANSION KITS.
3. CAPABILITY TO MANAGE MULTIPLE OUTDOOR UNITS FROM A SINGLE INTERFACE POINT WITH OPTIONS FOR REMOTE INTERNET MONITORING INTERFACE AND MALFUNCTION REPORTING.
4. CAPABILITY TO RECEIVE EXPANSION KITS TO INCREASE THE MANAGEMENT CAPACITY OF THE CONTROLLER.
5. CAPABILITY TO RECEIVE ADDITIONAL INPUTS AND OUTPUTS TO CONTROL THIRD PARTY EQUIPMENT, SUCH AS EXHAUST FANS.
6. CAPABILITY TO BE INSTALLED IN A DASHY CHAIN CONFIGURATION FROM THE OUTDOOR UNIT, TO THE SYSTEM CONTROLLER, TO THE POWER SUPPLY.
7. CAPABILITY TO GROUP, NAME, AND DISPLAY A COLLECTION OF INDOOR UNITS TOGETHER FOR CONTROL AND MONITORING PURPOSES.
8. CAPABILITY TO LOCK OUT CENTRAL CONTROLLER DISPLAY AND INDIVIDUAL ZONE DISPLAY.

2.345. CENTRAL CONTROLLER SHALL HAVE TOUCH SCREEN DISPLAY AND CAPABILITY TO DISPLAY THE FOLLOWING PARAMETERS FOR EACH VRF INDOOR UNIT: ON/OFF, OPERATING MODE, TEMPERATURE SETPOINT, SPACE TEMPERATURE, MALFUNCTION ERROR, FORCED STOP, SCHEDULE, INDIVIDUAL AUTO-CHANGEOVER, FILTER, SCREEN LOCK, TIME, DATE, AND DAY OF WEEK. EACH EDITABLE PARAMETER SHALL BE ADJUSTABLE THROUGH THE CENTRAL CONTROLLER. SCHEDULING FUNCTION SHALL ALLOW INDEPENDENT SCHEDULES WITH MULTIPLE EVENTS SETTABLE FOR EACH DAY. CENTRAL CONTROLLER SHALL HAVE BATTERY BACKUP AND SETTINGS STORED IN NON-VOLATILE MEMORY.

2.346. VRF REFRIGERANT PIPING AND INSULATION

2.347. QUALITY ASSURANCE

2.348. CERTIFIED PIPING INSTALLERS: MINIMUM OF TWO, CERTIFIED BY THE MANUFACTURER OR MANUFACTURER'S REPRESENTATIVE, AND PRESENT ON-SITE DURING CONSTRUCTION TO PROVIDE SUPERVISION AND QUALITY ASSURANCE INSPECTION OF THE VRF PIPING INSTALLATION. IF THE CERTIFIED TRAINING HAS NOT BEEN COMPLETED WITHIN THE LAST 12 MONTHS PRIOR TO THE CONSTRUCTION START DATE, THE MANUFACTURER OR MANUFACTURER'S REPRESENTATIVE SHALL CONDUCT A MINIMUM 2 HOUR REFRESHER TRAINING CLASS.

2.349. QUALITY BRAZING PROCESSES AND BRAZING OPERATIONS IN ACCORDANCE WITH ASME "BOILER AND PRESSURE VESSEL" CODE, SECTION IX, "WELDING AND BRAZING QUALIFICATIONS".

2.350. REGULATORY REQUIREMENTS: COMPLY WITH PROVISIONS OF THE FOLLOWING CODES: ANSIAISME B31.5, "REFRIGERANT PIPING AND HEAT TRANSFER COMPONENTS" AND ANSIAISRAE STANDARD 15, "SAFETY STANDARD FOR REFRIGERATION SYSTEMS AND DESIGNATION AND CLASSIFICATIONS OF REFRIGERANTS".

2.351. PIPE, PIPE FITTINGS AND PIPE SPECIALTIES SHALL BE MANUFACTURED IN PLANTS LOCATED IN THE UNITED STATES OR CERTIFIED TO MEET THE SPECIFIED ASTM AND ANSI STANDARDS.

2.352. REFERENCE STANDARDS:

1. ASTM B280 FOR SEAMLESS COPPER TUBE FOR AC AND REFRIGERATION FIELD SERVICE.
2. ASME B31.5 FOR REFRIGERANT PIPING AND HEAT TRANSFER COMPONENTS.
3. ANSIAISME B2.2 FOR BRAZING PROCEDURE AND PERFORMANCE QUALIFICATION.

2.353. SUBMITTALS

2.354. PRODUCT DATA FOR EACH TYPE VALVE SPECIFIED AND EACH TYPE REFRIGERANT PIPING SPECIALTY SPECIFIED.

2.355. SHOP DRAWINGS SHOWING LAYOUT OF REFRIGERANT PIPING, SPECIALTIES, AND FITTINGS INCLUDING, BUT NOT NECESSARILY LIMITED TO, PIPE AND TUBE SIZES, VALVE ARRANGEMENTS AND LOCATIONS, SLOPES OF HORIZONTAL RUNS, WALL AND FLOOR PENETRATIONS, AND EQUIPMENT CONNECTION DETAILS. SHOW INTERFACE AND SPATIAL RELATIONSHIP BETWEEN PIPING AND PROXIMATE TO EQUIPMENT.

2.356. VRF INSTALLER CURRENT TRAINING CERTIFICATES SIGNED BY MANUFACTURER'S DESIGNATED TRAINING AGENT IN COMPLIANCE WITH "QUALITY ASSURANCE."

2.357. DELIVERY, STORAGE, AND HANDLING

2.358. DEHYDRATE, CHARGE, AND SEAL COMPONENTS PRIOR TO SHIPMENT UNTIL CONNECTED INTO THE SYSTEM. DELIVER AND STORE PIPING AND SPECIALTIES IN SHIPPING CONTAINERS WITH LABELING IN PLACE. PROTECT PIPING AND SPECIALTIES FROM ENTRY OF CONTAMINATING MATERIALS BY LEAVING END CAPS, PLUGS, AND COVERINGS IN PLACE UNTIL INSTALLATION.

2.41. MANUFACTURERS

2.411. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

1. REFRIGERANT VALVES AND SPECIALTIES: AS FURNISHED THE VRF EQUIPMENT.
2. MANUFACTURER OR RECOMMENDED BY VRF INSTALLATION INSTRUCTIONS.

2.42. PIPE AND TUBING MATERIALS

2.421. COPPER TUBING: ASTM B280, TYPE ACR, HARD-DRAWN STRAIGHT LENGTHS, AND SOFT-ANNEALED COILS. SEAMLESS COPPER TUBING. TUBING SHALL BE FACTORY CLEANED, READY FOR INSTALLATION, AND HAVE ENDS CAPPED TO PROTECT CLEANLINESS OF PIPE INTERIORS PRIOR TO SHIPPING.

2.422. REFRIGERANT LINE KITS: SOFT-ANNEALED COPPER TUBING WITH PIPE DIAMETERS AS RECOMMENDED BY THE MANUFACTURER AND OF LENGTH AS REQUIRED FOR THE INSTALLATION. TUBING SHALL BE FACTORY OR FIELD INSULATED WITH FLEXIBLE CELLULAR INSULATION WITH THICKNESS AS SPECIFIED BELOW.

2.423. FITTINGS AND JOINED MATERIALS

2.424. WROUGHT-COPPER FITTINGS FOR SOLDER-JOINT: ANSI B16.22, STREAMLINED PATTERN. MECHANICAL FLARED FITTINGS: ASME B16.26, CAST COPPER ALLOY FITTINGS FOR FLARED COPPER TUBE.

2.425. BRAZING FILLER METALS:

1. AWS AS.8, CLASSIFICATION BAg-5: SILVER (AG) 44.0-46.0 PERCENT, ZINC (Z) 23.0-27.0 PERCENT, AND COPPER (CU) 31.0-31.6 PERCENT.
2. AWS AS.8, CLASSIFICATION BCuP-5: PHOSPHORUS (P) 4.8-5.2 PERCENT, SILVER (AG) 14.5-15.5 PERCENT, AND COPPER (CU) REMAINDER.

2.426. GENERAL COMPLETE VALVE ASSEMBLY SHALL BE UL-LISTED AND DESIGNED TO CONFORM TO ARI 760 AND VRF MANUFACTURER'S INSTALLATION REQUIREMENTS, WHERE INSULATION IS INDICATED OR TREATED AND PROVIDED EXTENDED STEMS ARRANGED TO RECEIVE INSULATION.

2.427. THERMAL EXPANSION VALVES: THE VRF EQUIPMENT SHALL BE FURNISHED INTEGRAL WITH THERMAL EXPANSION VALVES UNLESS OTHERWISE NOTED. COORDINATE REFRIGERANT PIPING INSTALLATION REQUIREMENTS WITH VRF MANUFACTURER'S INSTALLATION INSTRUCTIONS.

2.428. PROVIDE SUPERVISION AND ON-JOB CHECKING WITH MSS SP-110, WITH 700 PSI MAXIMUM OPERATING PRESSURE, A WORKING TEMPERATURE RANGE OF MINUS 40 TO PLUS 300 DEGREES F. CAST BRONZE BODY ACCORDING TO ASTM B584, BRONZE TRIM, BRAZED ENDS, PTFE SEAT AND SEAL.

2.429. GUARANTEED FOR A PERIOD OF ONE YEAR FOLLOWING THE ACCEPTANCE OF THE SYSTEM BY THE ARCHITECT/ENGINEER. CORRECT DEFECTS OCCURRING DURING THIS PERIOD AT NO ADDITIONAL COST TO THE OWNER.

2.430. INSTALL CONTROL DEVICES WITH TOP OF DEVICE AT 48 INCHES AFF TO MEET ADA REQUIREMENTS UNLESS OTHERWISE NOTED ON THE PLANS.

2.431. THERMOSTAT CONTROL EQUIPMENT

2.432. PROVIDE THERMOSTAT CONTROL EQUIPMENT WITH SUFFICIENT COMMUNICATION, PROGRAMMING, INPUT AND OUTPUT CONNECTIONS, AND MODULATING OR STAGING CAPABILITY TO MEET THE SEQUENCE OF OPERATIONS. PROVIDE THERMOSTATS WITH THE FEATURES AS INDICATED:

1. LCD OR LED DISPLAY SCREEN.
2. BUTTON OR TOUCHSCREEN INTERFACE.
3. DISPLAY LANGUAGE SELECTION.
4. DISPLAY TEMPERATURE SETPOINT.
5. ADJUST TEMPERATURE SETPOINT.
6. LIMIT TEMPERATURE SETPOINT ADJUSTMENT WITHIN PLUS OR MINUS 3 DEGREES F.
7. DISPLAY OPERATING MODE.
8. ADJUST OPERATING MODE.
9. ADJUST SCHEDULE, MINIMUM SEVEN DAY OCCUPIED/UNOCCUPIED.
10. SECURITY LOCKOUT.
11. INSULATED BACKING FOR EXTERIOR WALL MOUNTING.
12. AT CONTRACTOR'S OPTION WHERE MULTIPLE SENSORS ARE SHOWN, THE SENSORS MAY BE PROVIDED WITH THE THERMOSTAT IN A SINGLE DEVICE.

2.433. PROVIDE PROGRAMMABLE THERMOSTATS THAT SHALL CONTROL PACKAGED EQUIPMENT BY THE PACKAGED EQUIPMENT MANUFACTURER OR HONEYWELL, JOHNSON CONTROLS, TRANE, OR EQUAL. PROVIDE WALL OR DUCT-MOUNTED HUMIDISTAT AS INDICATED ON THE DRAWINGS THAT IS COMPATIBLE WITH THE THERMOSTAT.

2.434. PROVIDE ECONOMIZER CONTROLLERS FOR EQUIPMENT SPECIFIED TO INCLUDE ECONOMIZER IN ITS SEQUENCE OF OPERATION BUT IS NOT FACTORY FURNISHED WITH ECONOMIZER CONTROLS INCLUDED. ECONOMIZER CONTROLLER SHALL BE HONEYWELL YW7220 ADE ECONOMIZER MODULE KIT OR EQUAL. ECONOMIZER MODULE KIT SHALL INCLUDE THE ECONOMIZER LOGIC MODULE, DAMPER ACTUATOR, AND SENSORS OF TYPE REQUIRED TO IMPLEMENT THE TYPE OF ECONOMIZER SCHEDULED ON THE DRAWINGS.

2.435. SENSORS AND RELAYS

2.436. MANUFACTURERS AND MODEL NUMBERS ARE LISTED FOR REFERENCE AS TO QUALITY AND FEATURES REQUIRED FOR THE SENSORS AND RELAYS. PROVIDE GENERAL-PURPOSE TYPE SENSING ELEMENTS FOR USE IN INPUT AND OUTPUT SENSORS. PROVIDE TRANSMITTERS OR TRANSDUCERS WITH SENSORS ADAPTABLE TO COMPATIBILITY WITH THE CONTROLLERS USED, WITH RANGE SUITABLE FOR THE SYSTEMS ENCOUNTERED. TRANSMITTERS AND TRANSDUCERS SHALL HAVE OFFSET AND SPAN ADJUSTMENTS, TEMPERATURE COMPENSATION, SHOCK AND VIBRATION IMMUNITY, AND ZEROING CAPABILITY. ACCURACY REQUIREMENTS SHALL INCLUDE THE COMBINED EFFECTS OF LINEARITY, HYSTERESIS, REPEATABILITY, AND THE TRANSMITTER.

2.437. PROVIDE SENSORS THAT MEET THE FOLLOWING MINIMUM PERFORMANCE:

1. DRY-BULB TEMPERATURE SENSORS AT A MINIMUM SHALL BE ACCURATE TO +/- 2 DEGREES FAHRENHEIT OVER THE RANGE OF 40 TO 80 DEGREES FAHRENHEIT.
2. HUMIDITY SENSORS AT A MINIMUM SHALL BE ACCURATE WITHIN +/- 3 PERCENT FULL RANGE BETWEEN 20 AND 95 PERCENT, WITH DRIFT LESS THAN 1 PERCENT FULL SCALE PER YEAR.

2.438. PROVIDE REMOTE SENSORS WHERE INDICATED ON THE DRAWINGS AND INTEGRATE THEM WITH THE THERMOSTAT CONTROL EQUIPMENT. REMOTE SENSORS SHALL HAVE THE FOLLOWING FEATURES:

1. WIRED CONNECTION.
2. TEMPERATURE SENSOR.
3. AT CONTRACTOR'S OPTION WHERE MULTIPLE REMOTE SENSORS ARE SHOWN FOR A SINGLE UNIT, THE SENSORS MAY BE PROVIDED IN A SINGLE DEVICE.

2.439. PROVIDE ACI BUTTON-TYPE SENSOR OR EQUAL, WITH APPROPRIATE RESISTANCE RATING COMPATIBLE WITH CONTROLLERS USED, AND WITH PLASTIC FINISH FOR REMOTE TEMPERATURE SENSORS WHERE NOTED ON THE PLANS.

2.440. SMOKE DETECTORS FURNISHED AND INSTALLED AS INDICATED IN THIS SECTION OR AS SCHEDULED ON THE PLANS (OR HEAT DETECTORS, IF PERMITTED BY CODE) SHALL SHUT DOWN EACH ASSOCIATED UNIT SUPPLY FAN UPON ACTIVATION WHERE REQUIRED BY CODE. PROVIDE REMOTE VISUAL AND AUDIBLE ALARM DEVICE IN AN APPROVED LOCATION IF SMOKE DETECTORS ARE NOT CONNECTED TO A FIRE ALARM PANEL AND LABEL DEVICE AS 'AIR DUCT DETECTOR TROUBLE'. PROVIDE 24 VOLT OR 120 VOLT TIMESWITCHES INTERMATIC SERIES FM1020 OR EQUAL PROGRAMMABLE TYPE WITH 7-DAY PROGRAMMING WITH UP TO TWO "ONS" AND "OFFS" PER DAY. BATTERY BACKUP SHALL PROVIDE 48 HOURS OF MEMORY RETENTION. OVERRIDE TIMER SWITCHES SHALL BE SPRING WOUND, 6-HOUR, NORMALLY OPEN TYPE. COORDINATE 120 V WIRING OF TIMESWITCH WITH ELECTRICAL CONTRACTOR IF 120 V MODEL IS PROVIDED.

2.441. PROVIDE RELAYS WITH CONTACT RATING, CONFIGURATION, AND COIL VOLTAGE THAT IS SUITABLE FOR THE APPLICATION. RELAY SHALL BE GENERAL PURPOSE, ENCLOSED PLUG-IN TYPE AND PROTECTED BY A HEAT AND SHOCK RESISTANT DUCT COVER. NUMBER OF CONTACTS AND OPERATIONAL FUNCTION SHALL BE AS REQUIRED. TRANSIENT SUPPRESSION SHALL BE PROVIDED AS AN INTEGRAL PART OF THE RELAY. CONTACTORS SHALL BE SINGLE COIL, ELECTRICALLY OPERATED, MECHANICALLY HELD, DOUBLE-BREAK, SILVER-TO-SILVER TYPE PROTECTED BY ARCING CONTACTS. POSITIVE LOCKING SHALL BE OBTAINED WITHOUT THE USE OF HOOKS, LATCHES, OR SEMI-PERMANENT MAGNETS. OPERATING AND RELEASE TIMES SHALL BE 100 MILLISECONDS OR LESS.

2.442. WIRING

2.443. PROVIDE ELECTRICAL AND CONTROL WIRING AS SPECIFIED UNDER THE SECTION 'ELECTRICAL WIRING'.

2.444. SEQUENCE OF OPERATION

2.445. VRF UNIT CONTROL

2.446. REFERENCE THE VRF UNIT CONTROLS FOR SEQUENCE OF OPERATIONS.

2.447. AIR CURTAIN CONTROL

2.448. INTERLOCK AIR CURTAIN WITH DOOR LIMIT SWITCH TO ENERGIZE WHEN THE DOOR OPENS. UNITS SCHEDULED WITH HEATING COILS SHALL CYCLE THE STAGES OF HEAT TO MAINTAIN ROOM TEMPERATURE SETPOINT OF 70F (ADJ).

2.449. EXHAUST FAN CONTROL (EF-X)

2.450. EF-1 INTERLOCK FAN OPERATION WITH THE TIME CLOCK. FAN SHALL OPERATE DURING OCCUPIED HOURS.

2. DURING EVACUATION, APPLY HEAT TO POCKETS, ELBOWS, AND LOW SPOTS IN PIPING.

3. MAINTAIN VACUUM ON SYSTEM FOR MINIMUM OF 5 HOURS AFTER CLOSING VALVE BETWEEN VACUUM PUMP AND SYSTEM.

4. BREAK VACUUM WITH REFRIGERANT GAS, ALLOW PRESSURE TO BUILD UP TO 2 PSI.

5. COMPLETE CHARGING OF SYSTEM, USING NEW FILTER DRYER CORE IN CHARGING LINE. PROVIDE FULL OPERATING CHARGE.

2.482. AFTER CHARGING, CLOSE THE BYPASS ISOLATION VALVE AND OPEN ISOLATION VALVES AROUND THE BYPASS SUCTION FILTER. PLACE ALL UNITS IN COOLING MODE. USE THE MANUFACTURER'S MAINTENANCE TOOLS AND HOSES TO PARTITION THE INDOOR UNIT CONNECTED CAPACITY INTO THIRDS, FOR EACH PARTITIONED ZONE, FLOW REFRIGERANT THROUGH THE BYPASS SUCTION FILTER FOR 20 MINUTES IN ACCORDANCE TO THE MANUFACTURER'S INSTRUCTIONS. REPEAT FOR EACH PARTITIONED ZONE. PROVIDE ADDITIONAL REFRIGERANT FOR REPLACEMENT OF ANY REFRIGERANT LOST DURING LEAK TESTING, REPAIR, OR CHARGING.

2.483. PROVIDE VRF FACTORY TRAINED REPRESENTATIVE FOR CHARGING AND SYSTEM STARTUP. TRAIN OWNERS MAINTENANCE PERSONNEL ON PROCEDURES AND SCHEDULES RELATED TO SYSTEM STARTUP, SHUTDOWN, TROUBLESHOOTING, SERVICING, AND PREVENTIVE MAINTENANCE.

2.49. TEMPERATURE CONTROLS

2.50. GENERAL REQUIREMENTS

2.501. PROVIDE A COMPLETE TEMPERATURE CONTROL SYSTEM INCLUDING CONTROL PANELS, CONTROLLERS, CONTROL POWER TRANSFORMERS, THERMOSTATS, SENSORS, TIME SWITCHES, OVERRIDE TIMERS, ACTUATORS, RELAYS, AND WIRING AS REQUIRED TO CONTROL THE SYSTEMS AS SPECIFIED ON THE DRAWINGS.

2.502. SUBMIT SHOP DRAWINGS OF EQUIPMENT PROVIDED FOR TEMPERATURE CONTROL. SUBMIT OPERATION AND MAINTENANCE DATA, INCLUDING TROUBLE-SHOOTING MAINTENANCE GUIDE, STEP-BY-STEP PROCEDURES INDEXED FOR EACH CONTROLLER AND THERMOSTAT FUNCTION, INSPECTION PERIOD, CLEANING METHODS AND MATERIALS, AND CALIBRATION TOLERANCES.

2.503. PROVIDE ECONOMIZER CONTROLLERS FOR EQUIPMENT SPECIFIED TO INCLUDE ECONOMIZER IN ITS SEQUENCE OF OPERATION BUT IS NOT FACTORY FURNISHED WITH ECONOMIZER CONTROLS INCLUDED. ECONOMIZER CONTROLLER SHALL BE HONEYWELL YW7220 ADE ECONOMIZER MODULE KIT OR EQUAL. ECONOMIZER MODULE KIT SHALL INCLUDE THE ECONOMIZER LOGIC MODULE, DAMPER ACTUATOR, AND SENSORS OF TYPE REQUIRED TO IMPLEMENT THE TYPE OF ECONOMIZER SCHEDULED ON THE DRAWINGS.

2.51. THERMOSTAT CONTROL EQUIPMENT

2.511. PROVIDE THERMOSTAT CONTROL EQUIPMENT WITH SUFFICIENT COMMUNICATION, PROGRAMMING, INPUT AND OUTPUT CONNECTIONS, AND MODULATING OR STAGING CAPABILITY TO MEET THE SEQUENCE OF OPERATIONS. PROVIDE THERMOSTATS WITH THE FEATURES AS INDICATED:

1. LCD OR LED DISPLAY SCREEN.
2. BUTTON OR TOUCHSCREEN INTERFACE.
3. DISPLAY LANGUAGE SELECTION.
4. DISPLAY TEMPERATURE SETPOINT.
5. ADJUST TEMPERATURE SETPOINT.
6. LIMIT TEMPERATURE SETPOINT ADJUSTMENT WITHIN PLUS OR MINUS 3 DEGREES F.
7. DISPLAY OPERATING MODE.
8. ADJUST OPERATING MODE.
9. ADJUST SCHEDULE, MINIMUM SEVEN DAY OCCUPIED/UNOCCUPIED.
10. SECURITY LOCKOUT.
11. INSULATED BACKING FOR EXTERIOR WALL MOUNTING.
12. AT CONTRACTOR'S OPTION WHERE MULTIPLE SENSORS ARE SHOWN, THE SENSORS MAY BE PROVIDED WITH THE THERMOSTAT IN A SINGLE DEVICE.

2.512. PROVIDE PROGRAMMABLE THERMOSTATS THAT SHALL CONTROL PACKAGED EQUIPMENT BY THE PACKAGED EQUIPMENT MANUFACTURER OR HONEYWELL, JOHNSON CONTROLS, TRANE, OR EQUAL. PROVIDE WALL OR DUCT-MOUNTED HUMIDISTAT AS INDICATED ON THE DRAWINGS THAT IS COMPATIBLE WITH THE THERMOSTAT.

2.513. PROVIDE ECONOMIZER CONTROLLERS FOR EQUIPMENT SPECIFIED TO INCLUDE ECONOMIZER IN ITS SEQUENCE OF OPERATION BUT IS NOT FACTORY FURNISHED WITH ECONOMIZER CONTROLS INCLUDED. ECONOMIZER CONTROLLER SHALL BE HONEYWELL YW7220 ADE ECONOMIZER MODULE KIT OR EQUAL. ECONOMIZER MODULE KIT SHALL INCLUDE THE ECONOMIZER LOGIC MODULE, DAMPER ACTUATOR, AND SENSORS OF TYPE REQUIRED TO IMPLEMENT THE TYPE OF ECONOMIZER SCHEDULED ON THE DRAWINGS.

2.52. SENSORS AND RELAYS

2.521. MANUFACTURERS AND MODEL NUMBERS ARE LISTED FOR REFERENCE AS TO QUALITY AND FEATURES REQUIRED FOR THE SENSORS AND RELAYS. PROVIDE GENERAL-PURPOSE TYPE SENSING ELEMENTS FOR USE IN INPUT AND OUTPUT SENSORS. PROVIDE TRANSMITTERS OR TRANSDUCERS WITH SENSORS ADAPTABLE TO COMPATIBILITY WITH THE CONTROLLERS USED, WITH RANGE SUITABLE FOR THE SYSTEMS ENCOUNTERED. TRANSMITTERS AND TRANSDUCERS SHALL HAVE OFFSET AND SPAN ADJUSTMENTS, TEMPERATURE COMPENSATION, SHOCK AND VIBRATION IMMUNITY, AND ZEROING CAPABILITY. ACCURACY REQUIREMENTS SHALL INCLUDE THE COMBINED EFFECTS OF LINEARITY, HYSTERESIS, REPEATABILITY, AND THE TRANSMITTER.

2.522. PROVIDE SENSORS THAT MEET THE FOLLOWING MINIMUM PERFORMANCE:

1. DRY-BULB TEMPERATURE SENSORS AT A MINIMUM SHALL BE ACCURATE TO +/- 2 DEGREES FAHRENHEIT OVER THE RANGE OF 40 TO 80 DEGREES FAHRENHEIT.
2. HUMIDITY SENSORS AT A MINIMUM SHALL BE ACCURATE WITHIN +/- 3 PERCENT FULL RANGE BETWEEN 20 AND 95 PERCENT, WITH DRIFT LESS THAN 1 PERCENT FULL SCALE PER YEAR.

2.523. PROVIDE REMOTE SENSORS WHERE INDICATED ON THE DRAWINGS AND INTEGRATE THEM WITH THE THERMOSTAT CONTROL EQUIPMENT. REMOTE SENSORS SHALL HAVE THE FOLLOWING FEATURES:

1. WIRED CONNECTION.
2. TEMPERATURE SENSOR.
3. AT CONTRACTOR'S OPTION WHERE MULTIPLE REMOTE SENSORS ARE SHOWN FOR A SINGLE UNIT, THE SENSORS MAY BE PROVIDED IN A SINGLE DEVICE.

2.524. PROVIDE ACI BUTTON-TYPE SENSOR OR EQUAL, WITH APPROPRIATE RESISTANCE RATING COMPATIBLE WITH CONTROLLERS USED, AND WITH PLASTIC FINISH FOR REMOTE TEMPERATURE SENSORS WHERE NOTED ON THE PLANS.

2.525. SMOKE DETECTORS FURNISHED AND INSTALLED AS INDICATED IN THIS SECTION OR AS SCHEDULED ON THE PLANS (OR HEAT DETECTORS, IF PERMITTED BY CODE) SHALL SHUT DOWN EACH ASSOCIATED UNIT SUPPLY FAN UPON ACTIVATION WHERE REQUIRED BY CODE. PROVIDE REMOTE VISUAL AND AUDIBLE ALARM DEVICE IN AN APPROVED LOCATION IF SMOKE DETECTORS ARE NOT CONNECTED TO A FIRE ALARM PANEL AND LABEL DEVICE AS 'AIR DUCT DETECTOR TROUBLE'. PROVIDE 24 VOLT OR 120 VOLT TIMESWITCHES INTERMATIC SERIES FM1020 OR EQUAL PROGRAMMABLE TYPE WITH 7-DAY PROGRAMMING WITH UP TO TWO "ONS" AND "OFFS" PER DAY. BATTERY BACKUP SHALL PROVIDE 48 HOURS OF MEMORY RETENTION. OVERRIDE TIMER SWITCHES SHALL BE SPRING WOUND, 6-HOUR, NORMALLY OPEN TYPE. COORDINATE 120 V WIRING OF TIMESWITCH WITH ELECTRICAL CONTRACTOR IF 120 V MODEL IS PROVIDED.

2.526. PROVIDE RELAYS WITH CONTACT RATING, CONFIGURATION, AND COIL VOLTAGE THAT IS SUITABLE FOR THE APPLICATION. RELAY SHALL BE GENERAL PURPOSE, ENCLOSED PLUG-IN TYPE AND PROTECTED BY A HEAT AND SHOCK RESISTANT DUCT COVER. NUMBER OF CONTACTS AND OPERATIONAL FUNCTION SHALL BE AS REQUIRED. TRANSIENT SUPPRESSION SHALL BE PROVIDED AS AN INTEGRAL PART OF THE RELAY. CONTACTORS SHALL BE SINGLE COIL, ELECTRICALLY OPERATED, MECHANICALLY HELD, DOUBLE-BREAK, SILVER-TO-SILVER TYPE PROTECTED BY ARCING CONTACTS. POSITIVE LOCKING SHALL BE OBTAINED WITHOUT THE USE OF HOOKS, LATCHES, OR SEMI-PERMANENT MAGNETS. OPERATING AND RELEASE TIMES SHALL BE 100 MILLISECONDS OR LESS.

2.527. WIRING

2.528. PROVIDE ELECTRICAL AND CONTROL WIRING AS SPECIFIED UNDER THE SECTION 'ELECTRICAL WIRING'.

2.529. SEQUENCE OF OPERATION

2.530. VRF UNIT CONTROL

2.531. REFERENCE THE VRF UNIT CONTROLS FOR SEQUENCE OF OPERATIONS.

2.532. AIR CURTAIN CONTROL

2.533. INTERLOCK AIR CURTAIN WITH DOOR LIMIT SWITCH TO ENERGIZE WHEN THE DOOR OPENS. UNITS SCHEDULED WITH HEATING COILS SHALL CYCLE THE STAGES OF HEAT TO MAINTAIN ROOM TEMPERATURE SETPOINT OF 70F (ADJ).

2.534. EXHAUST FAN CONTROL (EF-X)

2.535. EF-1 INTERLOCK FAN OPERATION WITH THE TIME CLOCK. FAN SHALL OPERATE DURING OCCUPIED HOURS.

3.4. MOTOR OPERATED DAMPER CONTROL (MD-X)

3.4.1. MD-1 THE MOTORIZED DAMPER SHALL MODULATE TO THE OPEN POSITION WHEN SF-1 IS ENERGIZED.

3.5. SUPPLY FAN CONTROL (SF-X)

3.5.1. SF-1 INTERLOCK FAN OPERATION WITH THE TIME CLOCK. FAN SHALL OPERATE DURING OCCUPIED HOURS.

3.6. COMMISSIONING

3.6.1. PROVIDE COMMISSIONING THAT VERIFIES AND DOCUMENTS THE COMMISSIONED BUILDING SYSTEMS HAVE BEEN DESIGNED, INSTALLED, AND FUNCTION ACCORDING TO THE OWNER'S PROJECT REQUIREMENTS, CONSTRUCTION DOCUMENTS, AND TO MINIMUM CODE REQUIREMENTS. RETAIN THE SERVICES OF A THIRD-PARTY REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY THAT IS REGULARLY ENGAGED IN CONDUCTING COMMISSIONING TO DEVELOP A COMMISSIONING PLAN, SUPPORTING DOCUMENTATION, AND REPORTS. REFER TO THE LATEST ADOPTED EDITION OF THE APPLICABLE ENERGY CODE FOR MORE INFORMATION. COMPLETE ALL RELATED COMMISSIONING REQUIREMENTS PRIOR TO FINAL INSPECTIONS. SUBMIT FINAL TAB REPORT AND FINAL COMMISSIONING REPORT TO THE ENGINEER AND OWNER WITHIN 90 DAYS OF THE DATE OF RECEIPT OF THE CERTIFICATE OF OCCUPANCY.

3.6.2. IECC COMMISSIONING REQUIREMENTS: PROVIDE COMMISSIONING OF ALL MECHANICAL SYSTEMS INCLUDED IN THE SCOPE OF WORK, EXCEPT FOR PACKAGED EQUIPMENT NOT EQUIPPED WITH AN ECONOMIZER. PACKAGED EQUIPMENT INCLUDES UNITARY AIR CONDITIONERS AND CONDENSING UNITS, UNITARY AIR-COOLED AND WATER-COOLED HEAT PUMPS, AND PACKAGED TERMINAL AIR CONDITIONING UNITS. CONTRACT THE THIRD-PARTY REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY TO DEVELOP A COMMISSIONING PLAN, PRELIMINARY COMMISSIONING REPORT, AND FINAL COMMISSIONING REPORT.

3.6.3. COMMISSIONING PLAN SHALL INCLUDE THE FOLLOWING:

1. NARRATIVE DESCRIPTION OF ACTIVITIES AND PERSONNEL REQUIRED DURING COMMISSIONING.
2. LIST OF EQUIPMENT AND SYSTEMS TO BE TESTED WITH DESCRIPTION OF TESTS TO BE PERFORMED.
3. LIST OF FUNCTIONS TO BE TESTED, INCLUDING CALIBRATION AND ECONOMIZER CONTROLS.
4. LIST OF CONDITIONS UNDER WHICH THE TESTS SHALL BE PERFORMED.
5. LIST OF MEASURABLE CRITERIA FOR PERFORMANCE.

3.6.4. SUBMIT A COPY OF THE PRELIMINARY COMMISSIONING REPORT TO THE A/E. PRELIMINARY COMMISSIONING REPORT SHALL INCLUDE THE FOLLOWING:

1. RESULTS OF PRELIMINARY FUNCTIONAL PERFORMANCE TESTS. ORGANIZE EQUIPMENT AND COMPONENTS SPECIFIED BY OTHER DIVISIONS IN SEPARATE SECTIONS FOR INDEPENDENT REVIEW.
2. LIST OF DEFERRED TESTS THAT CANNOT BE PERFORMED AT THE TIME OF FINAL COMMISSIONING, INCLUDING MEASURABLE CRITERIA FOR TEST ACCEPTANCE.
3. COMPLETED COMMISSIONING COMPLIANCE CHECKLIST. REFER TO ENERGY CODE FOR THE FORM.
4. ITEMIZATION OF DEFICIENCIES FOUND DURING TESTING THAT HAVE NOT BEEN CORRECTED AT THE TIME OF PRELIMINARY COMMISSIONING REPORT PREPARATION.
5. LIST OF DEFERRED TESTS THAT CANNOT BE PERFORMED AT THE TIME OF PRELIMINARY COMMISSIONING REPORT PREPARATION BECAUSE OF CLIMATIC CONDITIONS.
6. LIST OF CLIMATIC CONDITIONS REQUIRED FOR THE PERFORMANCE OF THE DEFERRED TESTS.

3.6.5. FINAL COMMISSIONING REPORT SHALL INCLUDE THE FOLLOWING:

1. RESULTS OF FINAL FUNCTIONAL PERFORMANCE TESTS. ORGANIZE EQUIPMENT AND COMPONENTS SPECIFIED BY OTHER DIVISIONS IN SEPARATE SECTIONS FOR INDEPENDENT REVIEW.
2. LIST OF FUNCTIONAL PERFORMANCE TESTING PROCEDURES USED DURING COMMISSIONING, INCLUDING MEASURABLE CRITERIA FOR TEST ACCEPTANCE.
3. ITEMIZATION OF RESOLVED DEFICIENCIES FOUND DURING PRELIMINARY COMMISSIONING.
4. LIST OF DEFERRED TESTS THAT CANNOT BE PERFORMED AT THE TIME OF FINAL COMMISSIONING REPORT PREPARATION BECAUSE OF CLIMATIC CONDITIONS.

3.6.6. CONDUCT FUNCTIONAL PERFORMANCE TESTS ON EQUIPMENT, CONTROLS, AND ECONOMIZERS.

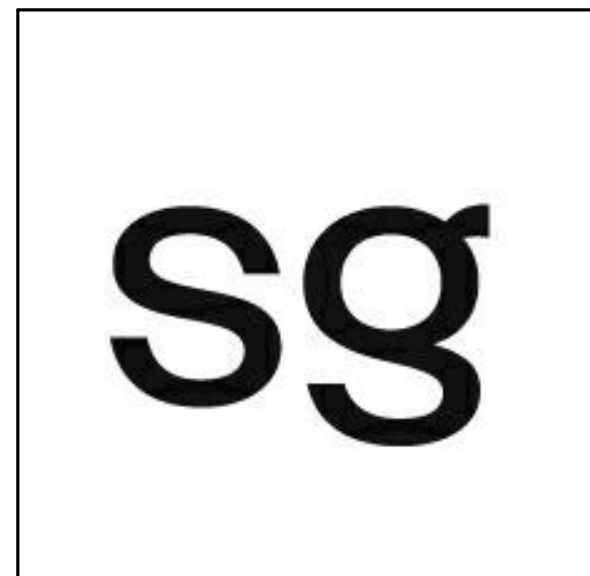
3.6.7. ACCEPTANCE TESTING

3.6.7.1. PERFORM ACCEPTANCE TEST PROCEDURES IN ACCORDANCE WITH THE SPECIFICATIONS LISTED IN THE REFERENCE JOINT APPENDICES FOR THE BUILDING ENERGY EFFICIENCY STANDARDS OF CALIFORNIA. REFERENCE THE NON-RESIDENTIAL CERTIFICATE OF COMPLIANCE (NRC) FORMS ON THE DRAWINGS FOR THE SYSTEMS WHICH SHALL BE TESTED. SUBMIT NON-RESIDENTIAL CERTIFICATE OF ACCEPTANCE (NRC) FORMS FOR EACH SYSTEM FOR WHICH THE CM/AT IS RESPONSIBLE.

3.7. ALTERNATES

3.7.1. DESCRIPTION

3.7.1.1. REFER TO THE ARCHITECTURAL PORTION OF THE SPECIFICATION FOR LIST OF ALTERNATES. APPLICABLE SECTIONS OF THE BASE SPECIFICATIONS SHALL APPLY TO ALL WORK REQUIRED BY THE ALTERNATE UNLESS OTHERWISE SPECIFIED. DETERMINE WHETHER OR NOT AND HOW EACH ALTERNATE AFFECTS WORK. INCLUDE LABOR, MATERIALS, EQUIPMENT, AND TRANSPORTATION SERVICES NECESSARY FOR AND INCIDENTAL TO THE COMPLETION OF WORK UNDER EACH PARTICULAR ALTERNATE. FURNISH SEPARATE BID FOR EACH ALTERNATE APPLICABLE TO WORK, STATING THE AMOUNT TO BE ADDED OR DEDUCTED FROM THE BASE BID.



3101 W. EXPOSITION BLVD.
LOS ANGELES, CALIFORNIA 90018

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08/09/24

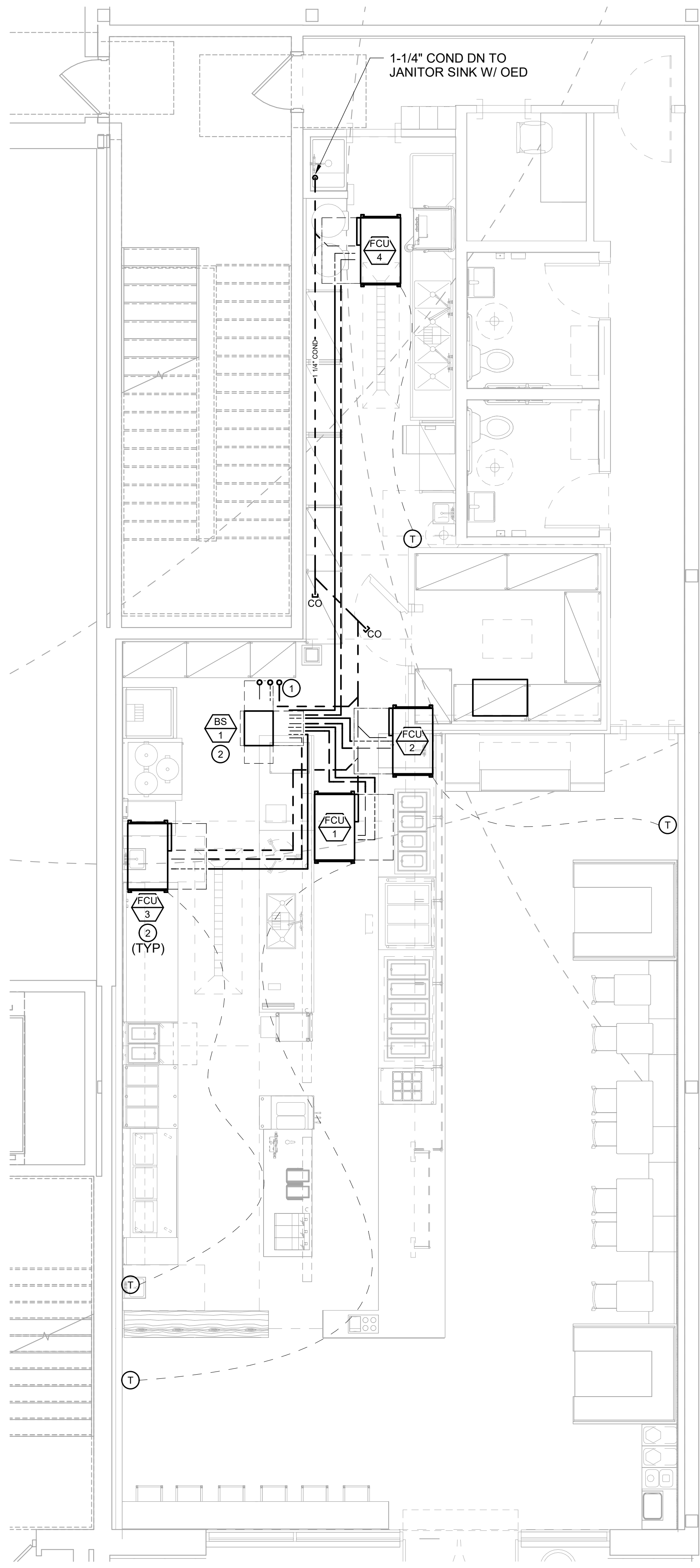
PROJECT INFORMATION:
FAIRFAX CORNER
4225 Fairfax Corner East Avenue
Fairfax, VA 22030

DRAWN BY: Author
CHECKED BY: Checker
PROJECT MANAGER: KG
SG DESIGN MANAGER: LK
SG CONSTR. MANAGER: XX
PROJECT NO: 20240072
TEMPLATE VERSION: 12.20.2022

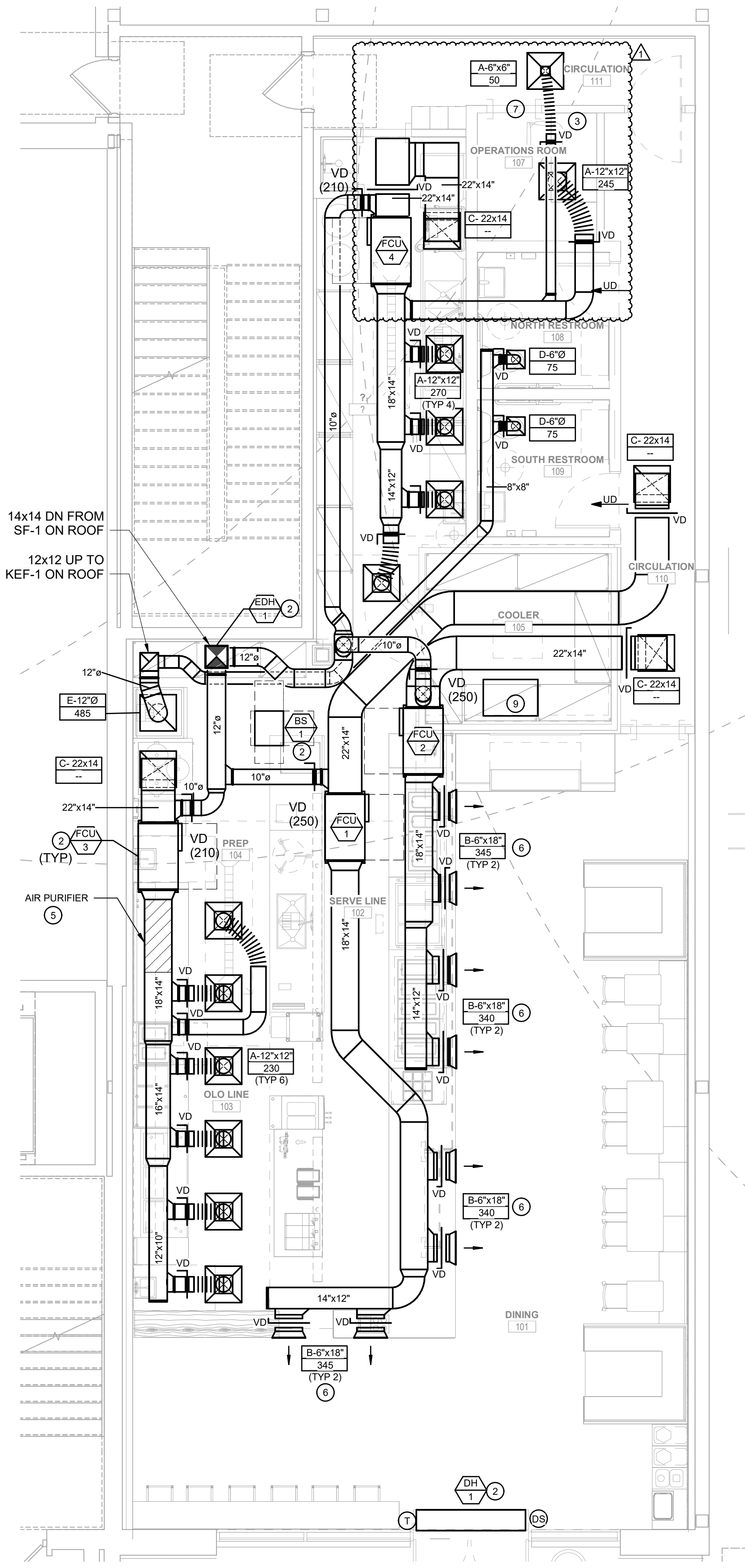
REVISIONS
REV. DATE DESCRIPTION
1. 11/15/2024 IFC

HVAC SPECIFICATIONS

H-007



2 HVAC FIRST FLOOR PIPING PLAN
1/4" = 1'-0"



1 HVAC FIRST FLOOR DUCTWORK PLAN
1/4" = 1'-0"

HVAC KEY NOTES:

- 1 ROUTE REFRIGERANT LINES UP TO CONDENSING UNIT ON ROOF.
- 2 INSTALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 3 MOUNT VRF CONTROLLER ON WALL COORDINATE ELECTRICAL REQUIREMENTS OF DEVICE WITH ELECTRICAL CONTRACTOR.
- 4 INSTALL REMOTE TEMPERATURE SENSOR FOR ASSOCIATED RTU AT THIS LOCATION AT 5'-0" AFF. COORDINATE LOCATION WITH EQUIPMENT AND WALL MOUNTED EQUIPMENT.
- 5 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 AS SHOWN. ADJUST AS REQUIRED FOR THE SUPPLY AIRFLOW. INSTALL PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 6 MOUNT SUPPLY GRILLE IN VERTICAL FACE OF SOFFIT 14' A.F.F.
- 7 CONTRACTOR TO COORDINATE 1" UNDERCUT ON DOOR FOR RETURN AIR PATH.
- 8 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.
- 9 WALK-IN COOLER CONDENSING UNIT (BY OTHERS)



sweetgreen

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PROJECT MANAGER: KG
SG DESIGN MANAGER: LK
SG CONSTR. MANAGER: XX
PROJECT NO: 20240072
TEMPLATE VERSION: 12.20.2022

REV.	DATE	DESCRIPTION
	06/24/2024	50% CHECK SET
	07/10/2024	80% CHECK SET
	07/29/2024	100% CHECK SET
	08/09/2024	PERMIT SET
A	09/25/2024	ADDENDUM A
1	11/15/2024	IFC

HVAC FIRST FLOOR PLAN

H-101



sweetgreen

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LOS ANGELES, CALIFORNIA 90018

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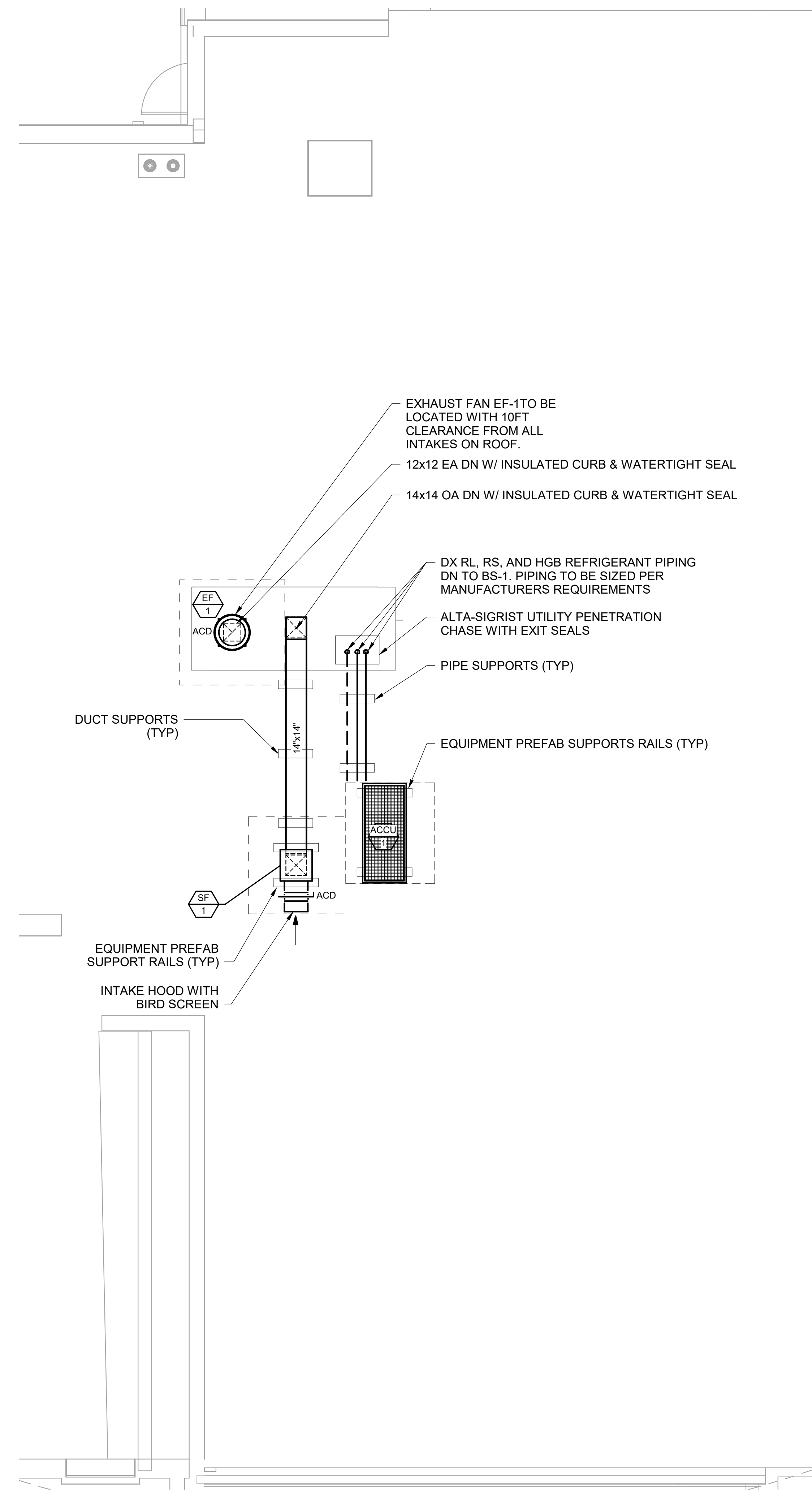
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	07/29/2024	100% CHECK SET
	08/09/2024	PERMIT SET
1	11/15/2024	IFC

HVAC ROOF PLAN

H-102



① HVAC ROOF PLAN
1/4" = 1'-0"

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