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WAWA
STORE NUMBER: 7400
JOB NUMBER: 144229
CUMBERLAND, IN 44229
JOB NUMBER: 42-2345-050

ISSUE BLOCK

1	REV 1	04/09/24
4	REV 4	08/20/24

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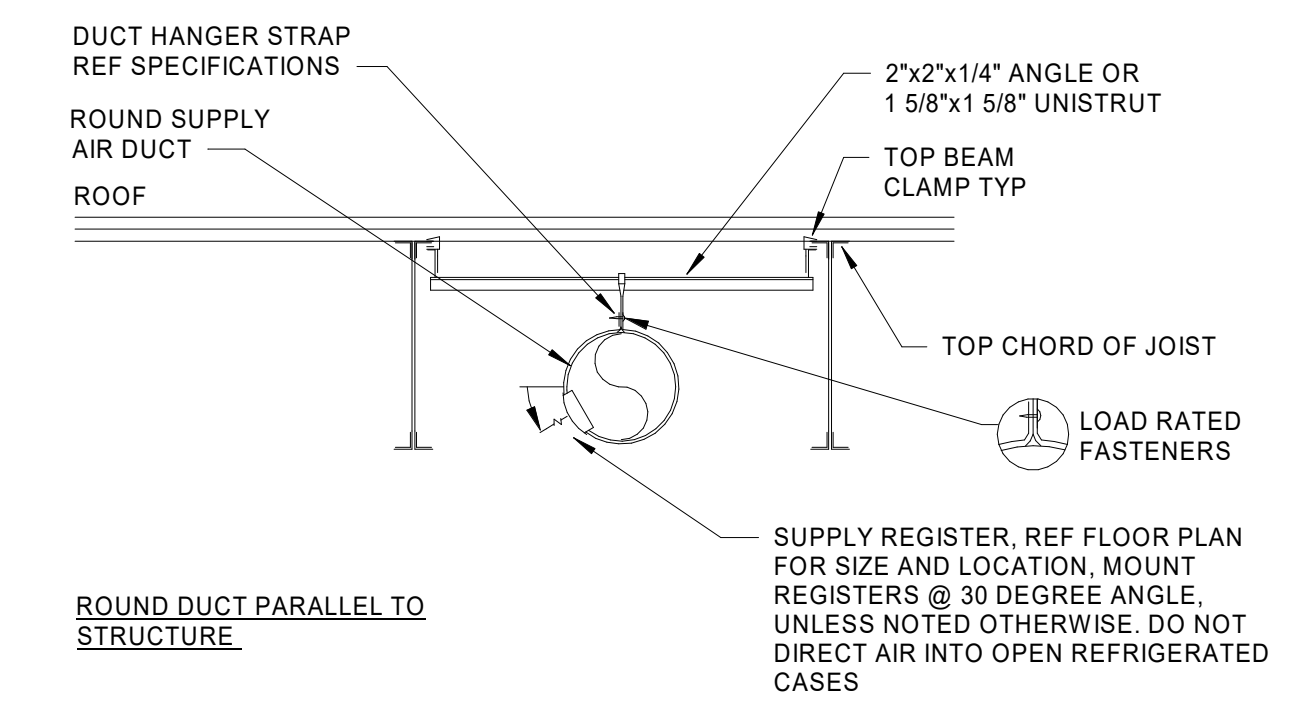


HVAC FLOOR PLAN

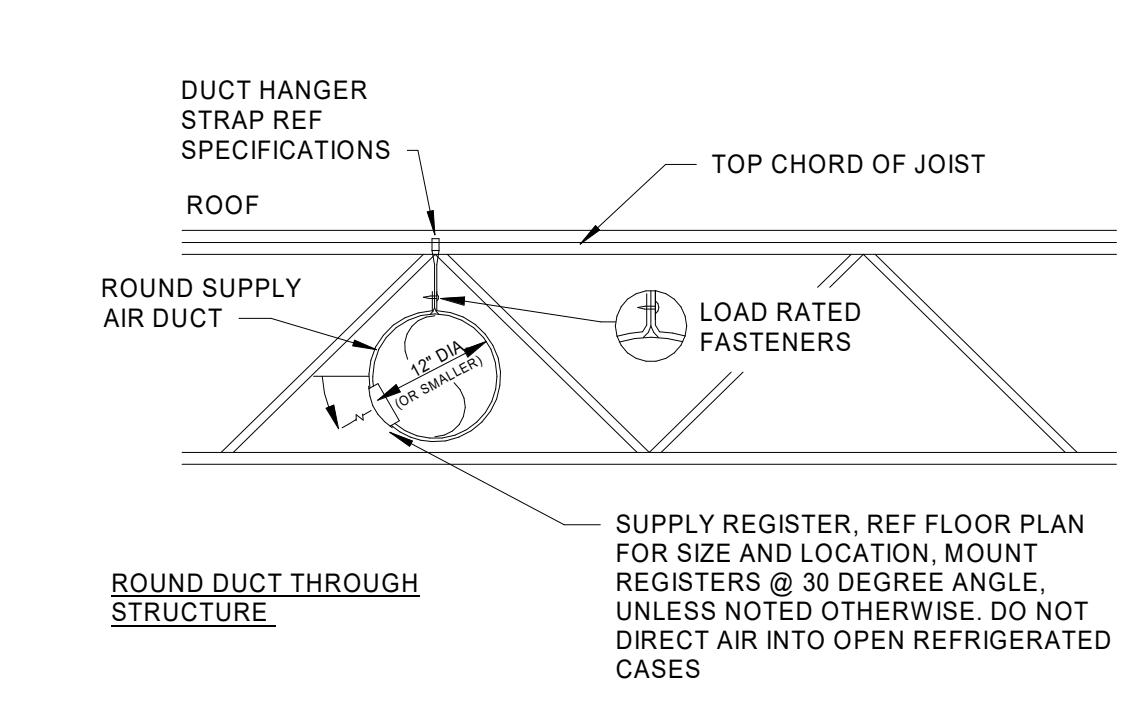
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KEYNOTES

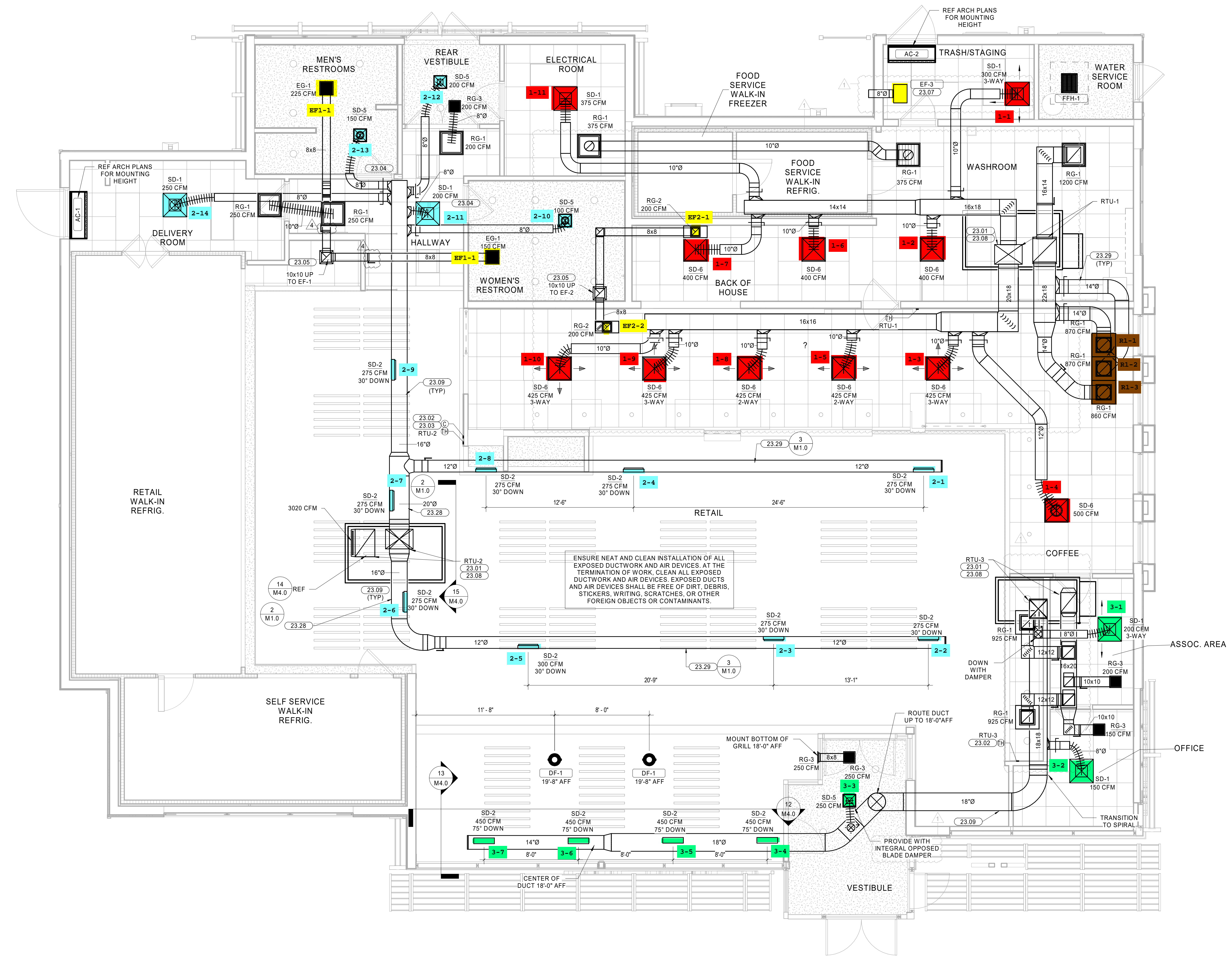
- # NOTE
- SUPPLY AND RETURN DUCT UP TO RTU ON ROOF. TRANSITION AS REQUIRED. FIELD VERIFY DUCT ROUTING PRIOR TO FABRICATION. PROVIDE FLEX CONNECTION FOR VIBRATION ISOLATION.
 - MOUNT REMOTE TEMPERATURE/HUMIDITY SENSOR IN AREA SHOWN AT 54" AFF. COORDINATE EXACT LOCATION WITH TENANT CONSTRUCTION MANAGER. THE ENTIRE CONTROL SYSTEM SHALL BE PROVIDED COMPLETE IN EVERY RESPECT BY THE MECHANICAL CONTRACTOR.
 - WALL MOUNTED CO2 SENSOR TO RTU-2. SENSOR TO MONITOR CO2 LEVELS THROUGH REMOTE BAS. SENSOR BY WAWA BAS VENDOR.
 - UNDERCUT DOOR 1" FOR AIR PASSAGE.
 - EXHAUST DUCT ROUTED TO FAN ON ROOF. COORDINATE ROUTING OF DUCT WITH ALL DISCIPLINES. PROVIDE TRANSITIONS AND FITTINGS AS REQUIRED.
 - PROVIDE A CABINET STYLE EXHAUST FAN. EXHAUST DUCT SHALL BE GALVANIZED STEEL. PROVIDE SIDEWALL VENT WITH SCREEN AND FLAPPER DAMPER. CROWN MODEL 340 OR EQUAL. EXHAUST FAN SHALL MAINTAIN 10" CLEARANCE FOR ANY OUTSIDE AIR INTAKE. MUST MEET LOCAL CODE REQUIREMENTS. FIELD VERIFY ALL ROUTING AND REQUIREMENTS PRIOR TO BID. SEAL ALL PENETRATION WEATHER TIGHT. PRE-PAINT VENT COVER TO MATCH SIDING.
 - HVAC UNIT MANUFACTURER TO PROVIDE 120V SMOKE DETECTORS FOR SUPPLY AND RETURN WITH AUXILIARY CONTACTS AS SHOWN. UPON ACTIVATION, THE SMOKE DETECTORS SHALL SHUT DOWN THE AIR DISTRIBUTION SYSTEM TO WHICH IT IS CONNECTED AND ACTIVATE A VISIBLE AND AUDIBLE SUPERVISORY SIGNAL AT A CONSTANTLY ATTENDED LOCATION VIA THE SPRINKLER/FIRE ALARM PANEL. SMOKE DETECTORS SHALL ALSO BE FURNISHED WITH WALL MOUNTED REMOTE TEST STATION WITH KEYS TO RESET. REMOTE TEST STATION SUPERVISORY SIGNAL SHALL BE LED TYPE WITH AUDIBLE BEEPING ALERT.
 - PROVIDE MCGILL AIRFLOW'S DOUBLE-WALL INSULATED SPIRAL DUCT OR EQUAL (MCGILL 614/829-1200). REFERENCE DRAWINGS FOR MOUNTING HEIGHT. PROVIDE DUCT AND FITTINGS WITH SLIP JOINT CONNECTION TYPE. FLANGE-TO-FLANGE CONNECTION TYPES ARE NOT ALLOWED.
 - ROUTE DUCTWORK AS HIGH AS POSSIBLE PARALLEL TO STRUCTURE. REF 2-M1.0 TYP.
 - ROUTE DUCTWORK WITHIN THE JOIST SPACE. COORDINATE THRU WEBBING. REF 3-M1.0 TYP.



2 EXPOSED DUCT SUPPORT AND GRILLE
M1.0 NTS



3 EXPOSED DUCT SUPPORT AND GRILLE
M1.0 NTS



HVAC LEGEND

SYMBOL	DESCRIPTION
	NEW RECTANGULAR OR ROUND DUCT
	FLEXIBLE DUCT
	SUPPLY AIR DUCTWORK UP THROUGH PLAN
	RETURN AIR DUCTWORK UP THROUGH PLAN
	EXHAUST AIR DUCTWORK UP THROUGH PLAN
	90° ELBOW WITH TURNING VANES
	MANUAL AIR VOLUME CONTROL DAMPER
	4 WAY SUPPLY DIFFUSER
	3 WAY SUPPLY DIFFUSER
	2 WAY OPPOSED SUPPLY DIFFUSER
	2 WAY CORNER SUPPLY DIFFUSER
	RETURN AIR DEVICE
	EXHAUST AIR DEVICE
	AIR CURTAIN
	LINEAR SLOT DIFFUSER WITH PLENUM
	COMBINATION TEMPERATURE/HUMIDITY SENSOR
	TEMPERATURE SENSOR
	CO2 SENSOR
	TYPE MARK CFM
	MECHANICAL EQUIPMENT TAG
	CONDENSATE PIPING
	ROOF MOUNTED EXHAUST FAN
	INLINE EXHAUST FAN
	PACKAGED ROOFTOP AIR CONDITIONER

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

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 23-4500 HVAC FLOOR PLAN REV 4

KEYNOTES	
#	NOTE
23.20	CONTRACTOR SHALL REVIEW ELECTRICAL POWER REQUIREMENTS FOR MECHANICAL EQUIPMENT THAT ARE SCHEDULED ON THE ELECTRICAL DRAWINGS AND VERIFY THAT THEY MATCH PRIOR TO ORDERING EQUIPMENT. DO NOT PURCHASE MOTORS OR ELECTRICAL EQUIPMENT UNTIL POWER CHARACTERISTICS AVAILABLE AT BUILDING HAVE BEEN CONFIRMED BY CONTRACTOR.
23.21	PROVIDE NEW ROOFTOP UNIT WITH PRE-FABRICATED MINIMUM 14 INCH HIGH INSULATED ROOF CURB. MAINTAIN MINIMUM HEIGHT OF 2" FROM ROOF SURFACE. TIE DOWN TO CURB USING LENNOX ROOF CLIPS APPROVED FOR LOCAL WIND ZONE. FIELD COORDINATE SIZE WITH MANUFACTURER REQUIREMENTS PRIOR TO BID.
23.22	MECHANICAL TO ENSURE RTU HAS PAN SENSOR (OVERFLOW SWITCH) INSIDE ROOFTOP UNIT DRAIN PAN. THIS DEVICE SHALL SHUT OFF THE EQUIPMENT SERVED IN THE EVENT THAT THE PRIMARY DRAIN BECOMES RESTRICTED.
23.23	COORDINATE ROOFTOP EQUIPMENT LOCATION AND OPENING IN THE ROOF WITH THE STRUCTURAL MEMBERS PRIOR TO CUTTING DECK.
23.24	INSTALLATION OF EQUIPMENT SHALL COMPLY WITH EQUIPMENT MANUFACTURER'S INSTALLATION AND CLEARANCE REQUIREMENTS TO ALLOW FOR INSPECTION, SERVICE, REPAIR OR REPLACEMENT.
23.25	CONDENSATE PIPING IS LOCATED ON ROOF. PROVIDED BY MECHANICAL CONTRACTOR PROVIDE SUPPORTS EVERY 4'. ROUTE TO NEAREST ROOF DRAIN/SCUPPER.

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WAWA
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PROJECT NUMBER: 2023-03-05
CUMBERLAND, IN 64229
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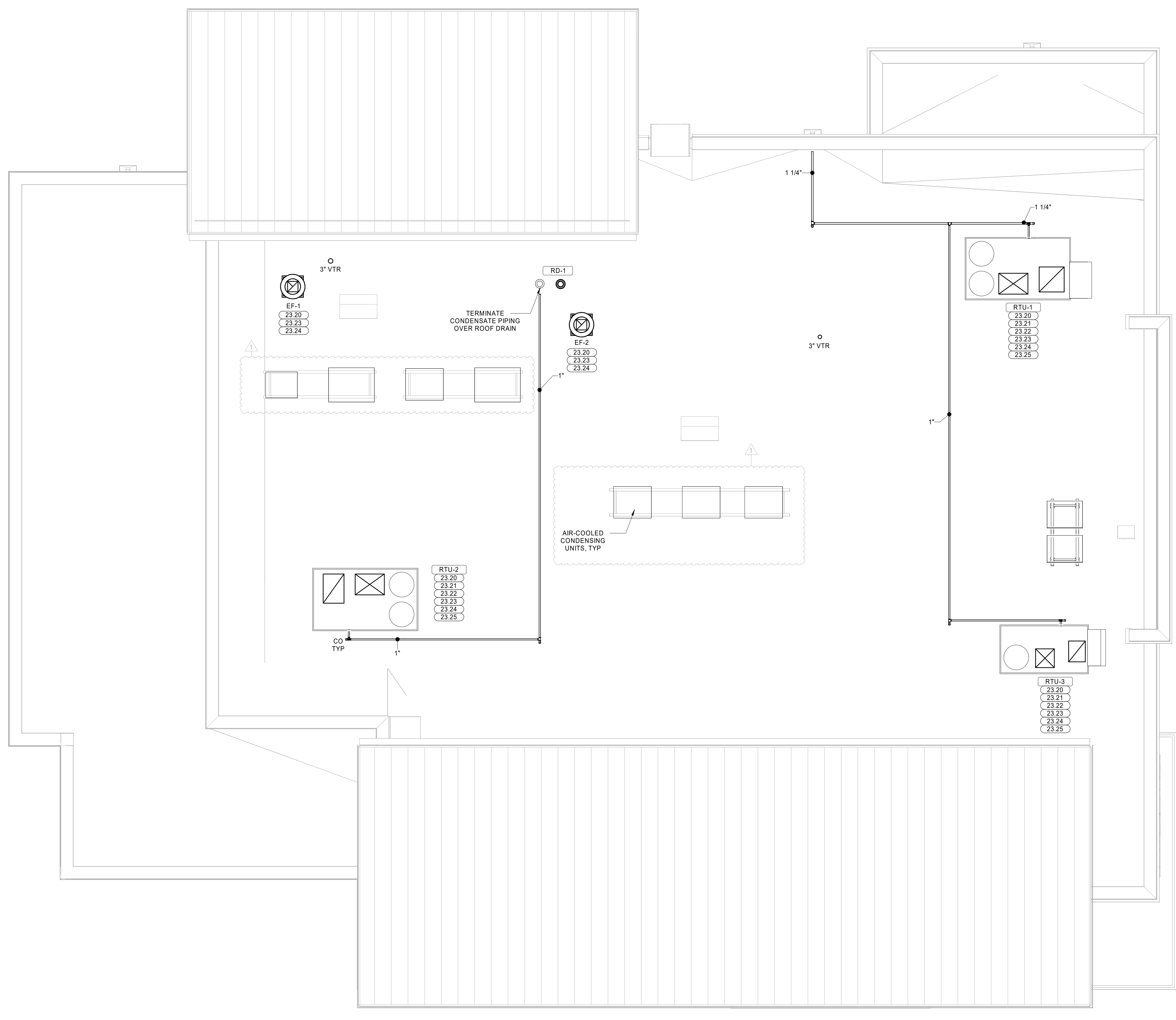
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HVAC ROOF PLAN

SHEET: M2.0



1 ROOF PLAN MECHANICAL
1/4" = 1'-0"

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MARK	AREA SERVED	BASIS OF DESIGN		FAN				DIRECT EXPANSION COOLING				GAS HEATING				ELECTRICAL DATA				WEIGHT (LBS)	NOTES				
		MANUFACTURE	MODEL	NOMINAL CAPACITY (TONS)	SUPPLY AIRFLOW (CFM)	OUTSIDE AIRFLOW (CFM)	EXT. SP (IN. WG)	NOM. MOTOR HP	ENTERING AIR DB (°F)	WB (°F)	LEAVING AIR DB (°F)	WB (°F)	TOT. CAPACITY (Btu/h)	SENS. CAPACITY (Btu/h)	EER	ENT. AIR DB (°F)	LVG. AIR DB (°F)	INPUT (Btu/h)	OUTPUT (Btu/h)			VOLTS	PHASE	MCA (AMPS)	MCCP (AMPS)
RTU-1	BACK OF HOUSE	LENNOX	LC11504HE	12.5	4500	700	0.70	3.75	80.0	67.0	58.2	56.4	136000	91900	11	0.0	0.0	0	0	208	3	63	80	1644	1, 3, 13
RTU-2	SALES	LENNOX	LG11024HE	8.5	3400	380	1.00	3.75	80.0	67.0	58.4	57.2	102000	71000	12.1	62.0	90.3	130000	104000	208	3	46	50	1495	1-13
RTU-3	FRONT OF HOUSE	LENNOX	LG10274HE	6.0	2400	200	0.50	1	80.0	67.0	57.0	56.9	72000	53100	12.2	62.0	95.2	108000	87000	208	3	32	45	865	1, 3, 13

AIR CURTAIN SCHEDULE

MARK	MANUFACTURER	MODEL	AREA SERVED	HP	V	FLA	HEAT INPUT (KW)	WEIGHT (LB)	NOTES
AC-1	POWERED AIRE	BCE-1-48	DELIVERY ROOM	0.5 hp	120	1	7.3	99	1, 2, 3, 4
AC-2	POWERED AIRE	BCE-1-48	TRASH STAGING	0.5 hp	120	1	7.3	99	1, 2, 3, 4

EXHAUST FAN SCHEDULE

MARK	AREA SERVED	MANUFACTURER	MODEL	DESIGN AIRFLOW (CFM)	EXT. S.P (IN-WG)	VOLTS	PHASE	HP	WEIGHT	NOTES
EF-1	RESTROOMS	GREENHECK	GB-098-6	375	0.38	120	1	0.167	59	1, 2, 3, 4, 5
EF-2	BACK OF HOUSE	GREENHECK	GB-098-6	400	0.38	120	1	0.167	59	1, 2, 3, 4, 5
EF-3	FRASH ROOM	GREENHECK	SP-B200	200	0.50	120	1	0.167	14	1, 2, 4, 5

AIR DEVICE SCHEDULE

TYPE	SERVICE	MFG	MODEL	STYLE	MOUNTING	FACE SIZE	NOTES
EG-1	EXHAUST	PRICE	630FF	LOUVERED GRILLE	SURFACE	12x12	4
RG-1	RETURN	PRICE	630FF	LOUVERED GRILLE	LAY-IN	24x24	4
RG-2	RETURN	PRICE	630FF	LOUVERED GRILLE	LAY-IN	24x12	4
RG-3	RETURN	PRICE	630FF	LOUVERED GRILLE	REF. PLANS	12x12	4
SD-1	SUPPLY	PRICE	AMD	MODULAR LOUVERED FACE DIFFUSER	LAY-IN	24x24	1, 6
SD-2	SUPPLY	PRICE	SDGE	SPIRAL DUCT MOUNTED GRILLE	DUCT	20x4	1, 4, 7, 8
SD-5	SUPPLY	PRICE	AMD	MODULAR LOUVERED FACE DIFFUSER	SURFACE	12x12	5, 6
SD-6	SUPPLY	PRICE	AMD	MODULAR LOUVERED FACE DIFFUSER	LAY-IN	24x24	1, 6, 10

DESTRATIFICATION FAN SCHEDULE

MARK	MANUFACTURER	MODEL	AREA SERVED	VOLTS (V)	PHASE	FLA (A)	WEIGHT (LBS)	NOTES
DF-1	AIRIUS	A-10-SP-SH-120-X	RETAIL	120	1	0.14	7	1, 2, 3, 4

ELECTRICAL UNIT HEATER SCHEDULE

MARK	MANUFACTURER	MODEL	AREA SERVED	FLA	V	PH	HEATING INPUT (KW)	NOTES
FFH-1	QMARK	EFF-1500	WATER SERVICE	12.5 A	120	1	1.5	1, 2, 3, 4

CONTROL SEQUENCE OF OPERATIONS: RTU (GAS)

RTU SEQUENCE OF OPERATION

24 HOUR CYCLE - COOLING

- SUPPLY AIR FAN SHALL RUN CONTINUOUSLY.
- OUTSIDE AIR DAMPER SHALL BE IN MINIMUM POSITION.
- RESTROOM EXHAUST FANS SHALL BE ENERGIZED (24/7).
- THERMOSTAT SHALL CYCLE COMPRESSOR(S) TO MAINTAIN ROOM SET TEMPERATURE.

24 HOUR CYCLE - HEATING

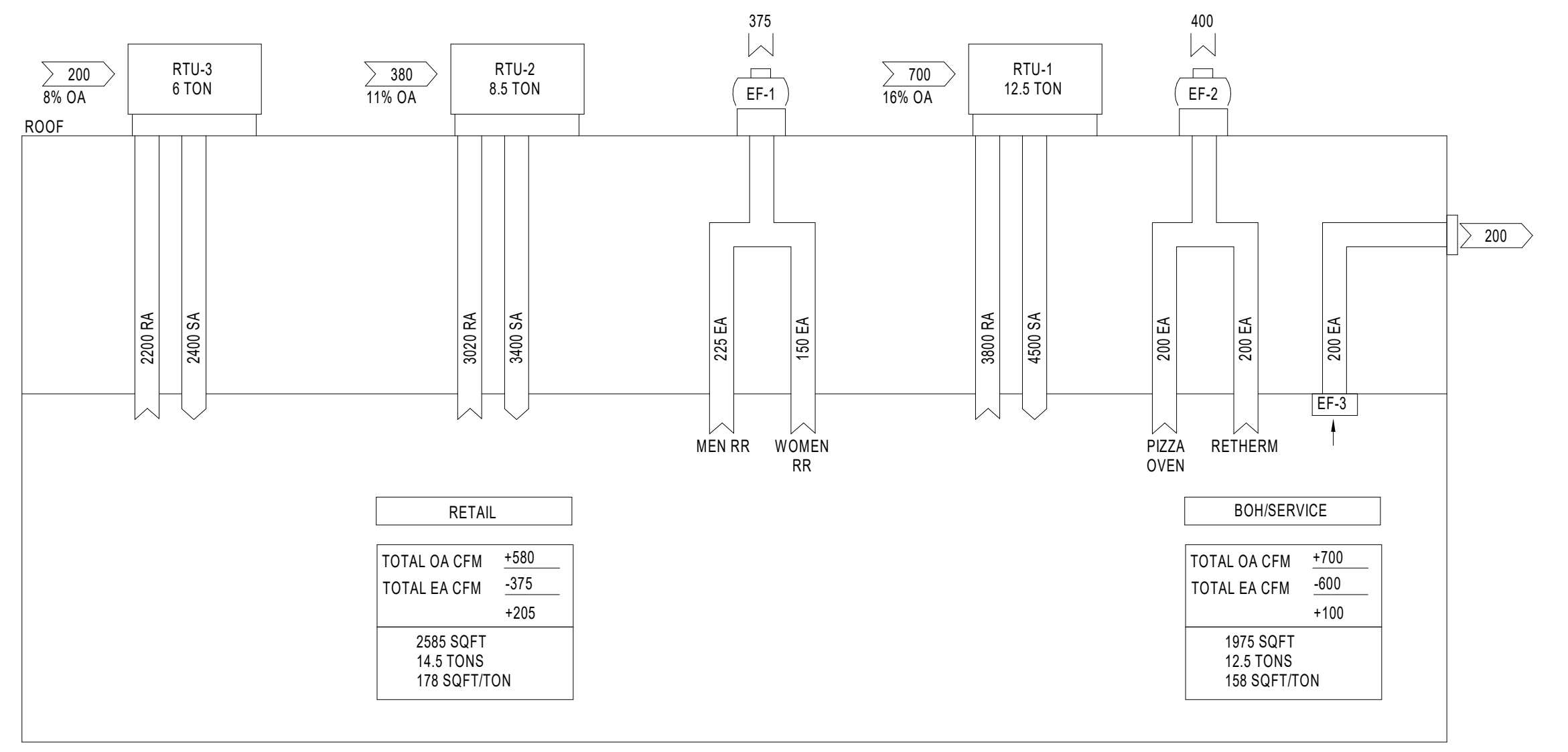
- SUPPLY AIR FAN SHALL RUN CONTINUOUSLY.
- OUTSIDE AIR DAMPER SHALL BE IN MINIMUM POSITION.
- RESTROOM EXHAUST FANS SHALL BE ENERGIZED (24/7).
- THERMOSTAT SHALL MODULATE GAS HEATER TO ACHIEVE ROOM SET TEMPERATURE.

24 HOUR CYCLE - DEHUMIDIFICATION

- SUPPLY AIR FANS SHALL RUN CONTINUOUSLY.
- MECHANICAL OUTSIDE AIR DAMPERS SHALL BE IN MINIMUM POSITION.
- RESTROOM EXHAUST FANS SHALL BE ENERGIZED (24/7).
- HUMIDISTAT SHALL CYCLE COOLING COIL STAGES TO MAINTAIN SET POINT HUMIDITY (SET AT 50%).

SMOKE DETECTOR

- WHEN SMOKE DETECTOR IS ACTIVATED SUPPLY AIR FAN SHALL SHUTDOWN.
- FIRE ALARM SHALL BE SIGNALLED.
- SUPPLY AIR FAN SHALL BE MANUALLY RESET. KEYPAD SET IN MANAGER'S OFFICE.



AIR BALANCE SCHEMATIC

RETAIL	TOTAL OA CFM +580	TOTAL EA CFM -375	TOTAL EA CFM -205
BOH/SERVICE	TOTAL OA CFM +700	TOTAL EA CFM -500	TOTAL EA CFM -100
MEN RR	256 SQFT	14.5 TONS	178 SQFT/TON
WOMEN RR	1975 SQFT	12.5 TONS	158 SQFT/TON

LENNOX SETUP PARAMETERS

UNIT ID CONFIGURATION (MECHANICAL CONTRACTOR TO DEFINE / AS APPLICABLE):

- BACNET CONFIGURATION: GO TO SETTINGS-GENERAL-CONFIGURATION ID1 POSITION 4 SET TO "B"
- NETWORK CONFIGURATION: GO TO SETUP-NETWORK INTEGRATION. SET TO BACNET
- CONTROL MODE: SET CONTROL MODE TO ROOM SENSOR. CO2 TEMP. & HUMIDITY TO "NO" ZE
- ENTHALPY CONFIGURATION: CHANGE CONFIG ID1 POSITION 2 FROM D (DUAL ENTHALPY) TO S (SINGLE ENTHALPY)
- FRESH AIR COOLING: SETUP>TEST & BALANCE>DAMPER. SCROLL TO FRESH AIR COOLING SET TO "NO"
- FRESH AIR HEAT: SETUP>TEST & BALANCE>DAMPER. SCROLL TO FRESH AIR HEAT SET TO "NO"

INDIVIDUAL PARAMETER CONFIGURATIONS (MECHANICAL CONTRACTOR TO DEFINE / AS APPLICABLE):

- PARAMETER 105 DEHUMID MODE: 7 NO CONDITIONS
- PARAMETER 106 DEHUMID SETPOINT: 50. THIS IS A CENTERED SET POINT (+/-)
- PARAMETER 107 DEHUMID DEADBAND: 3 (DEFAULT) THIS IS THE ACTUAL +/- VALUE
- PARAMETER 117 CO2 DAMPER MAX OPEN %: 50
- PARAMETER 118 CO2 START OPEN PPM: 1200
- PARAMETER 119 CO2 FILL OPEN PPM: 1500
- PARAMETER 131 FREECOOLMAX DAMPER: 100%
- PARAMETER 137 OCC HEAT SET POINT: 68 (BACK UP)
- PARAMETER 139 OCC COOLING SET POINT: 72 (BACK UP)
- PARAMETER 154 OCC BLOWER MODE: ON-CONTINUOUS 1
- PARAMETER 155 FREE COOL LOCK OUT SET POINT: 29 (DISABLED)
- PARAMETER 159 FREE COOL SUPPLY SET POINT: 55 (DEFAULT)
- PARAMETER 160 ECON FREE COOL SET POINT: 55 (DEFAULT)
- PARAMETER 161 ECON FREE COOL OFFSET: 10 (DEFAULT)
- PARAMETER 162 FREE COOL ENTHALPY SET POINT (SINGLE ENTHALPY): 19 MA (50% HUM + 60F)
- PARAMETER 163 ECON FREE COOL ENTHALPY OFFSET: 1 (DEFAULT)
- PARAMETER 164 ECONOMIZER PROFILE: 2 (DEFAULT)

CFM VALUES /MSAV FAN SPEEDS (AIR BALANCER TO DEFINE / IF APPLICABLE):

- HEAT CFM VALUE: PER THE HVAC SCHEDULE
- HIGH COOL CFM VALUE: PER THE HVAC SCHEDULE
- LOW COOL CFM VALUE: MATCH THE HIGH COOL CFM VALUE
- VENTILATION CFM VALUE: MATCH THE HIGH COOL CFM VALUE

VENTILATION SCHEDULE

NAME	OCCUPANCY CATEGORY	AREA (SF)	SF PER PERSON	# OF PEOPLE	OA PER AREA (CFM/SF)	OA PER PERSON (CFM/PERSON)	Outdoor Airflow	ZONE EFF. (E_z)	TOTAL OA (CFM)
VESTIBULE	Corridor/Transition	138	0 SF	0.0	0.06	0.0	8 CFM	0.8	10
OFFICE	Office - Enclosed	85	215 SF	0.4	0.06	5.0	7 CFM	0.8	9
RETAIL	Merchandising Sales Area - Retail	2233	72 SF	31.1	0.12	7.5	501 CFM	0.8	627
FOOD PREPARATION	Food Preparation	383	54 SF	7.1	0.18	7.5	122 CFM	0.8	153
TRASH/STAGING	Active Storage	80	359 SF	0.2	0.12	0.0	10 CFM	0.8	12
WOMEN'S RESTROOM	Restrooms	134	108 SF	1.2	0.00	0.0	0 CFM	0.8	0
ELECTRICAL ROOM	Equipment Room	113	0 SF	0.0	0.00	0.0	0 CFM	0.8	0
MEN'S RESTROOM	Restrooms	127	108 SF	1.2	0.00	0.0	0 CFM	0.8	0
REAR VESTIBULE	Corridor/Transition	55	0 SF	0.0	0.06	0.0	3 CFM	0.8	4
DELIVERY ROOM	Active Storage	136	359 SF	0.4	0.12	0.0	16 CFM	0.8	20
SPECIALTY BEVERAGE	Food Preparation	208	54 SF	3.9	0.18	7.5	66 CFM	0.8	83
COFFEE	Food Preparation	112	54 SF	2.1	0.18	7.5	36 CFM	0.8	45
HALLWAY	Corridor/Transition	135	0 SF	0.0	0.06	0.0	8 CFM	0.8	10
WATER SERVICE ROOM	Equipment Room	50	0 SF	0.0	0.00	0.0	0 CFM	0.8	0
BACK OF HOUSE	Food Preparation	136	54 SF	2.5	0.18	7.5	44 CFM	0.8	54
WASHROOM	Food Preparation	325	54 SF	6.0	0.18	7.5	104 CFM	0.8	130
ASSOCIATE AREA	Office - Enclosed	75	215 SF	0.3	0.06	5.0	6 CFM	0.8	8
SELF-SERVICE BEVERAGE	Personal Services Sales Area - Retail	57	72 SF	0.8	0.12	7.5	13 CFM	0.8	16

TOTAL = 1181 CFM

Ez = 0.8 (WARM AIR CEILING SUPPLY & CEILING RETURN)

TOTAL OSA PROVIDED 1,280 CFM > TOTAL REQUIRED OSA 1,181 CFM

AIR BALANCE

MARK	OUTSIDE AIRFLOW (CFM)	EXHAUST AIRFLOW (CFM)	TOTAL AIRFLOW
EF-1	375	-375	-000 CFM
EF-2	400	-400	-200 CFM
EF-3	200	-200	-000 CFM
RTU-1	700		700 CFM
RTU-2	380		380 CFM
RTU-3	200		200 CFM
TOTAL POSITIVE =			305 CFM

- ### HVAC GENERAL NOTES:
- REFER TO WRITTEN BOOK SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 - THE WORK TO BE DONE UNDER THESE SPECIFICATIONS AND THE DRAWINGS CONSISTS OF FURNISHING ALL EQUIPMENT, MATERIALS, LABOR AND SERVICES, AND PERFORMING ALL OPERATIONS TO COMPLETE THE MECHANICAL CONSTRUCTION WORK FOR THIS PROJECT. ANY WORK NOT SPECIFICALLY COVERED BY THESE SPECIFICATIONS OR INDICATED ON THE MECHANICAL/ELECTRICAL/PLUMBING PLANS, BUT NECESSARY TO COMPLETE OR PERFECT ANY PART OF THIS INSTALLATION IN A SUBSTANTIAL MANNER, SHALL BE PROVIDED WITH EXTRA COST TO OWNER.
 - THE TERM "FURNISH" SHALL MEAN TO OBTAIN AND SUPPLY TO THE JOB SITE. THE TERM "INSTALL" SHALL MEAN TO FIX IN POSITION AND CONNECT FOR USE. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. THE TERM "MECHANICAL WORK" OR "WORK" SHALL MEAN ALL LABOR, MATERIAL, EQUIPMENT, SCAFFOLDING, RIGGING, TOOLS, SUPERVISION, SERVICES AND OTHER INCIDENTALS NECESSARY FOR COMPLETE AND OPERABLE INSTALLATION.
 - THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT, MATERIALS AND LABOR TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM AS INDICATED ON THE DESIGN DOCUMENTS.
 - CONTRACTOR SHALL PROVIDE ALL ROOFING OPENINGS, FLASHINGS, AUXILIARY STEEL, THREADED RODS, VIBRATION ISOLATORS, TURNBUCKLES, ETC. TO SUPPORT HIS EQUIPMENT ON OR FROM THE STRUCTURE.
 - ANY CHANGES AND/OR MODIFICATIONS MUST BE REVIEWED AND APPROVED BY THE ENGINEER OR OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
 - REMOVE ALL TRASH, DEBRIS AND DEMOLITION MATERIAL FROM PREMISES AT THE END OF EACH WORK DAY.
 - SCHEDULE ALL WORK, CUTTING AND BUILDING SERVICE INTERRUPTIONS WITH BUILDING OWNER AND CONSTRUCTION MANAGER, PRIOR TO COMPLETING WORK.
 - FIELD ADJUST THE DIRECTION OF BLOW FOR ALL SUPPLY AIR DEVICES SO THAT THE DEVICES DO NOT BLOW DIRECTLY INTO SOFFITS, CURTAIN WALLS, REFRIGERATED CASES OR EXHAUST HOODS.
 - ALL NEW AND EXISTING PIPES AND DUCTS SHALL HAVE UL FIRE RATED SLEEVES AND/OR FIRE RATED DAMPERS, WHEN PASSING THROUGH FIRE RATED CONSTRUCTION.
 - COORDINATE LOCATION OF NEW DUCTWORK, AIR DEVICES AND EQUIPMENT WITH LIGHT FIXTURES, SPRINKLER PIPING AND HYDRONIC PIPING.
 - ALL TEMPERATURE AND HUMIDITY SENSORS SHALL BE INSTALLED 5" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE ON PLAN. COORDINATE FINAL LOCATIONS WITH EQUIPMENT, FURNITURE, TENANT AND ARCHITECT PRIOR TO INSTALLATION.
 - VERIFY ALL EQUIPMENT VOLTAGES, WIRING REQUIREMENTS, AND REQUIRED BREAKER SIZES WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.
 - THE MECHANICAL CONTRACTOR SHALL HAVE A QUALIFIED HVAC TECHNICIAN FROM THE UNIT MANUFACTURER PROVIDE AN EQUIPMENT OPERATION CHECK AFTER UNIT START-UP AND PRIOR TO CERTIFIED AIR BALANCING. THE CERTIFICATION, SIGNED BY THE TECHNICIAN, MUST BE INCLUDED IN THE GENERAL CONTRACTOR CLOSING DOCUMENTS FOR THE STORE.
 - ALL DRAWINGS ARE CONCEPTUAL AND SCHEMATIC AND ARE INTENDED FOR USE AS A DESIGN/BUILD GUIDELINE. THE CONTRACTORS ARE RESPONSIBLE FOR VERIFYING ALL FIELD CONDITIONS AND ADJUSTING OR MODIFYING THE SPECIFIC ELEMENTS OF THEIR WORK AS REQUIRED TO MEET THE DESIGN INTENT. THE CONTRACTORS ARE RESPONSIBLE FOR THE FOLLOWING:
 - A COORDINATION WITH OTHER TRADES.
 - PROVIDING ADDITIONAL DRAWINGS, CALCULATIONS AND OTHER DOCUMENTATION REQUIRED FOR THE BUILDING DEPARTMENT. THE MECHANICAL CONTRACTOR SHALL DOCUMENT THE INSTALLATION AND PROVIDE ALL TESTS REQUIRED TO SUBSTANTIATE CODE COMPLIANCE AS REQUIRED BY THE BUILDING DEPARTMENT AND LOCAL INSPECTOR. CONTRACTOR SHALL SUBMIT FINAL AS-BUILT DRAWINGS TO BUILDING DEPARTMENT FOR RECORD AT COMPLETION.
 - MECHANICAL PLANS ARE DIAGRAMMATIC IN NATURE, NOT SHOWING EVERY ITEM IN EXACT LOCATION OR DETAIL. MEASUREMENTS AND LOCATIONS MUST BE FIELD VERIFIED AND COORDINATED WITH ARCHITECTURAL, HVAC, FIRE PROTECTION, STRUCTURAL, ELECTRICAL AND OTHER BUILDING DRAWINGS.
 - CONTRACTOR TO INCLUDE IN BID ALL COSTS TO MAKE FIELD COORDINATION AND ADJUSTMENT TO DUCTWORK FOR FIT INTO EXISTING STRUCTURE. CONTRACTOR SHALL VERIFY AND FIELD COORDINATE FINAL LOCATION OF MECHANICAL EQUIPMENT.
 - CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS AND PERFORM ALL TESTS CALLED FOR OR REQUIRED AS A PART OF HIS WORK. FURNISHED APPROVED CERTIFICATE OF FINAL INSPECTION, AND TURN OVER TO OWNER AT COMPLETION OF PROJECT.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL TRADES, LANDLORD REQUIREMENTS, CEILING HEIGHTS AND EXISTING STRUCTURAL CONDITIONS PRIOR TO FABRICATION OF ANY DUCTWORK OR ORDERING OF ANY EQUIPMENT.
 - ALL INSTALLATION OF THE MECHANICAL EQUIPMENT SHALL COMPLY WITH THE MANUFACTURER'S SPECIFICATION AND CLEARANCE REQUIREMENTS.
 - ALL HVAC WORK SHALL BE IN ACCORDANCE WITH NFPA 90A, 90B, 96, 54 AND NFC 101. LIFE SAFETY CODE.
 - INSTALLATION SHALL COMPLY WITH ALL LOCAL, STATE AND NATIONAL CODES, AND WITH LATEST ASHRAE PUBLICATIONS. WORK SHALL BE NEAT AND WORKMANSHIP SHALL BE ACCEPTABLE TO BUILDING STANDARDS.
 - CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE TEMPERATURE CONTROL SYSTEM TO INCLUDE: PANELS, MODULES, RELAYS, WIRING, THERMOSTATS, SENSORS, DAMPERS, ACTUATORS AND ALL MISCELLANEOUS ITEMS AS REQUIRED TO FULFILL THE DESIGN INTENT AS INDICATED ON THE PLANS AND IN THE CODED NOTES. THERMOSTATS AND SENSORS SHALL BE LOCATED GENERALLY AS SHOWN BUT THEIR EXACT LOCATION SHALL BE FIELD COORDINATED TO AVOID INTERFERENCE WITH WALL MOUNTED WORK.
 - DURING THE BIDDING PERIOD, EACH CONTRACTOR SHALL VISIT THE SITE TO DETERMINE CONDITIONS AFFECTING THE WORK. BIDS SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS AND ANY MODIFICATIONS WHICH ARE REQUIRED TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. FAILURE TO VISIT THE SITE DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY IN PERFORMANCE OF WORK REQUIRED CONDITIONS IN EVIDENCE THEREBY SHALL NOT BE JUSTIFICATION FOR ADDITIONAL COMPENSATION.
 - THE EQUIPMENT SHALL BE LOCATED TO ALLOW FOR EASY ACCESS FOR SERVICING, ADJUSTING OR MAINTENANCE AND SPACE FOR REMOVAL OF INTERNAL ASSEMBLIES. PROVIDE MINIMUM CLEARANCES FOR ALL EQUIPMENT PER THE MANUFACTURERS RECOMMENDATIONS.
 - PROVIDE ALL CONTROL EQUIPMENT, MOTOR STARTERS, RELAYS, LINE VOLTAGE CONTROLS, TRANSFORMERS, LOW VOLTAGE CONTROLS, AND DEVICES NECESSARY FOR THE COMPLETE OPERATION OF THE HEATING AND AIR CONDITIONING AND VENTILATING SYSTEM.
 - ALL LOW VOLTAGE WIRING AND CONDUIT REQUIRED FOR MECHANICAL EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.
 - PROVIDE ALL FANS AND ROOFTOP UNITS WITH RELAYS TO SHUT DOWN WHEN FIRE ALARM IS INITIATED. COORDINATE LOCATION WITH THE ELECTRICAL CONTRACTOR FOR THE FIRE ALARM WIRING.
 - IN THE EVENT OF FAN SHUT DOWN, ALL DUCT MOUNTED DETECTORS SHALL REMAIN IN OPERATION.
 - CONTRACTOR TO PROVIDE TENANT WITH AS-BUILT DRAWINGS OF ALL CHANGES OR MODIFICATIONS MADE IN THE FIELD, TO THE ORIGINAL SET OF CONSTRUCTION DOCUMENTS, FOR TURN-OVER TO THE ARCHITECT/ENGINEER UPON COMPLETION OF THE PROJECT. PROVIDE ALL EQUIPMENT SHOP DRAWINGS, INFORMATION ON CONTROL DEVICES, CONTROL WIRING DIAGRAMS AND OTHER PERTINENT INFORMATION AT COMPLETION OF PROJECT.
 - IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE MECHANICAL EQUIPMENT COMPONENTS ARE INSTALLED AT LOCATIONS AND ELEVATIONS WHICH MAKE THEM READILY ACCESSIBLE FOR ROUTINE MAINTENANCE WITHOUT REQUIRING ANY EXTRAORDINARY MEASURES.
 - THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ADMINISTERING ALL WARRANTIES ON EQUIPMENT WHICH HE INSTALLS. THIS INCLUDES ALL CONDENSERS, REFRIGERANT PIPES, AND OTHER ITEMS FURNISHED BY OTHERS AS WELL AS THOSE FURNISHED BY HIM.
 - FIELD VERIFY THE EXACT LOCATION OF ALL EQUIPMENT WITH ARCHITECT/OWNER PRIOR TO INSTALLATION. INFORM OWNER OF ANY EQUIPMENT ITEMS THAT REQUIRE RELOCATION.
 - PROVIDE VIBRATION ISOLATION DEVICES AND FLEXIBLE CONNECTIONS TO ALL MOVING MACHINERY.
 - DUCT DIMENSIONS SHOWN ARE INSIDE NET DIMENSIONS, ADD TO SHEET METAL SIZE FOR INSULATION THICKNESS. HOLD DUCTWORK TIGHT TO UNDERSIDE OF STRUCTURE UNLESS OTHERWISE NOTED OR REQUIRED BY FIELD CONDITIONS. IT IS REQUIRED TO COORDINATE EXACT MOUNTING HEIGHT IN FIELD WITH SITE INVESTIGATION. SUPPLY, RETURN, OUTSIDE AIR AND RELIEF AIR DUCTS SHALL BE SHEET METAL AND BE EXTERNALLY INSULATED WITH OWENS CORNING TYPE 150 2" THICK, FOIL FACED FLEXIBLE FIBROUS GLASS BLANKET INSULATION WITH A MIN R-6.4 VALUE. EQUAL IS APPROVED. INSULATION WRAP SHALL BE SEALED WITH FAB AND MASTIC.
 - ALL DUCTWORK SHALL MAINTAIN SYSTEM PRESSURE. THE AIR DISTRIBUTION COMPONENTS SHALL BE SEALED IN ACCORDANCE WITH SMACNA REQUIREMENTS. TWO INCH PRESSURE CLASS.
 - DUCT INSULATION CLOSURE SYSTEM SHALL CONSIST OF GLASS FABRIC AND NON MIGRATING MASTIC. SEAL AIR TIGHT.
 - ALL FLEXIBLE DUCTS SHALL BE SUPPORTED EVERY 4'-0" WITH 2" WIDE GALVANIZED STEEL BANDS. MINIMUM ONE PER EACH SECTION OF FLEXIBLE DUCT. MAXIMUM LENGTH OF FLEX DUCT SHALL BE 8'-0" LONG AND SHALL MEET INSTALLATION AND MATERIAL REQUIREMENTS OF LOCAL CODES.
 - ALL BRANCH TAKE-OFFS SHALL BE PROVIDED WITH MANUAL BALANCING DAMPERS LOCATED ABOVE ACCESSIBLE CEILING AS CLOSE TO MAIN TRUNK AS POSSIBLE. WHEN AIR DEVICE IS NOT ACCESSIBLE PROVIDE DAMPER AT AIR DEVICE.
 - CONTRACTOR IS RESPONSIBLE FOR COORDINATING BOX-OUT LOCATIONS FOR ALL DRYWALL MOUNTED AIR DEVICES WITH GENERAL CONTRACTOR AND CEILING FRAMING. CONTRACTOR SHALL COORDINATE ALL DUCT AND DIFFUSER LOCATIONS WITH LIGHTING LAYOUTS AS REQUIRED.
 - ALL SUPPLY DUCT BENDS FROM THE VERTICAL TO HORIZONTAL AND ANGLED TURNS OF DUCTWORK SHALL HAVE TURNING VANES INSTALLED.
 - PROVIDE SMOOTH TRANSITIONS AT EQUIPMENT AND AIR DEVICES TO MATCH CONNECTION SIZES. ALL DUCTWORK SHALL BE SHEET METAL. FABRICATED IN ACCORDANCE WITH ASHRAE GUIDE AND SMACNA MANUAL LATEST EDITIONS.
 - THE CONTRACTOR SHALL ENGAGE AN INDEPENDENT AIR BALANCING AGENCY SUBSEQUENT TO THE APPROVAL OF THE OWNERS REPRESENTATIVE. THE T&B AGENCY CAN ONLY ACT AS HIS OWN REPORTING AGENCY IF SUITABLE INSTRUMENTS HEREINAFTER REQUIRED ARE DEMONSTRATED TO BE PART OF HIS NORMAL PROCEDURE TO THE SATISFACTION OF THE OWNERS REPRESENTATIVE. THE T&B AGENCY SHALL BE ABC OR NEBB CERTIFIED. CONTRACTOR SHALL PROVIDE LANDLORD WITH WATER AND AIR BALANCE REPORT.
 - IT SHALL BE THE RESPONSIBILITY OF THIS T&B AGENCY TO PROVIDE THE LOCAL BUILDING DEPARTMENT AND OWNER WITH PROPER TEST & BALANCE DATA ON ABC OR NEBB FORMS.
 - BUILDING AIR SYSTEMS SHALL BE BALANCED PER DATA INCLUDED ON THE DRAWINGS TO ACHIEVE RELATIVE AIR VOLUMES AS INDICATED ON THE DRAWINGS AND SCHEDULED HEREIN. REFER TO AIR FLOW DIAGRAM DETAIL.
 - ALL NEW SUPPLY AND RETURN DUCTWORK SHALL BE GALVANIZED STEEL, EXTERNALLY INSULATED WITH 1.5" FIBERGLASS DUCTWRAP. INSTALLED R VALUE SHALL BE A MINIMUM OF 6. SEAL ALL JOINTS AND SEAMS PRIOR TO ADDING DUCTWRAP. SEAL WRAP WITH GLASS FABRIC AND MASTIC MEETING UL 181.
 - PROVIDE VOLUME BALANCING DAMPER AT ALL NINETY-DEGREE DUCT TAKE-OFFS. THIS ALSO APPLIES TO TAKE-OFFS TO DIFFUSERS OR REGISTERS LOCATED DIRECTLY UNDER DUCTS.
 - ALL RESTROOM MAKE-UP AIR SHALL BE GALVANIZED STEEL. TRANSFER DUCTS WITH ZERO LEAKAGE BACKDRAFT DAMPERS AND DOOR UNDERCUTS.
 - REFRIGERANT PIPE SIZING AND ROUTING DESIGN SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL TAKE INTO ACCOUNT LENGTH OF RUN AND FIELD CONDITIONS WHEN SIZING THE PIPING TO ENSURE ALL LOSSES ARE ACCOUNTED FOR.
 - MECHANICAL CONTRACTOR TO FIELD VERIFY WITH STRUCTURE ALL DUCT ROUTING PRIOR TO FABRICATION.
 - PROVIDE ACCESS TO ALL COMPONENTS REQUIRING PERIODIC INSPECTION AND SERVICE THAT ARE LOCATED WITHIN THE SPACE OR REQUIRE ACCESS THROUGH THE SPACE. LABEL ACCESS DOORS AND PANELS OR CEILING TILES UTILIZED FOR ACCESS WITH THE NAME OF THE HIDDEN COMPONENT(S). DEMONSTRATE ACCESS TO ALL HIDDEN COMPONENTS FOR THE FIELD REPRESENTATIVE PRIOR TO OCCUPANCY.
 - ALL ROOF TOP UNITS AND ROOF TOP EXHAUST FANS SHALL BE LABELED TO INDICATE MARK NUMBERS, PANEL OF CIRCUIT ORIGIN, AND CIRCUIT NUMBER. LABELS SHALL BE SUNLIGHT RESISTANT AND SHALL BE IN PLACE PRIOR TO INSPECTION.
 - PROVIDE ALL NECESSARY TRANSITIONS AND OFFSETS IN SUPPLY AND RETURN AIR DUCTWORK TO AVOID STRUCTURE, WATER, GAS, SPRINKLER PIPING, OTHER DUCTWORK, OTHER TRADES, ETC. DUCTWORK SHALL BE INSTALLED AS HIGH AS CONDITIONS WILL ALLOW.
 - ENSURE NEAT AND CLEAN INSTALLATION OF ALL EXPOSED DUCTWORK AND AIR DEVICES. AT THE TERMINATION OF WORK, CLEAN ALL EXPOSED DUCTWORK AND AIR DEVICES. EXPOSED DUCTS AND AIR DEVICES SHALL BE FREE OF DIRT, DEBRIS, STICKERS, WRITING, SCRATCHES, OR OTHER FOREIGN OBJECTS OR CONTAMINANTS.



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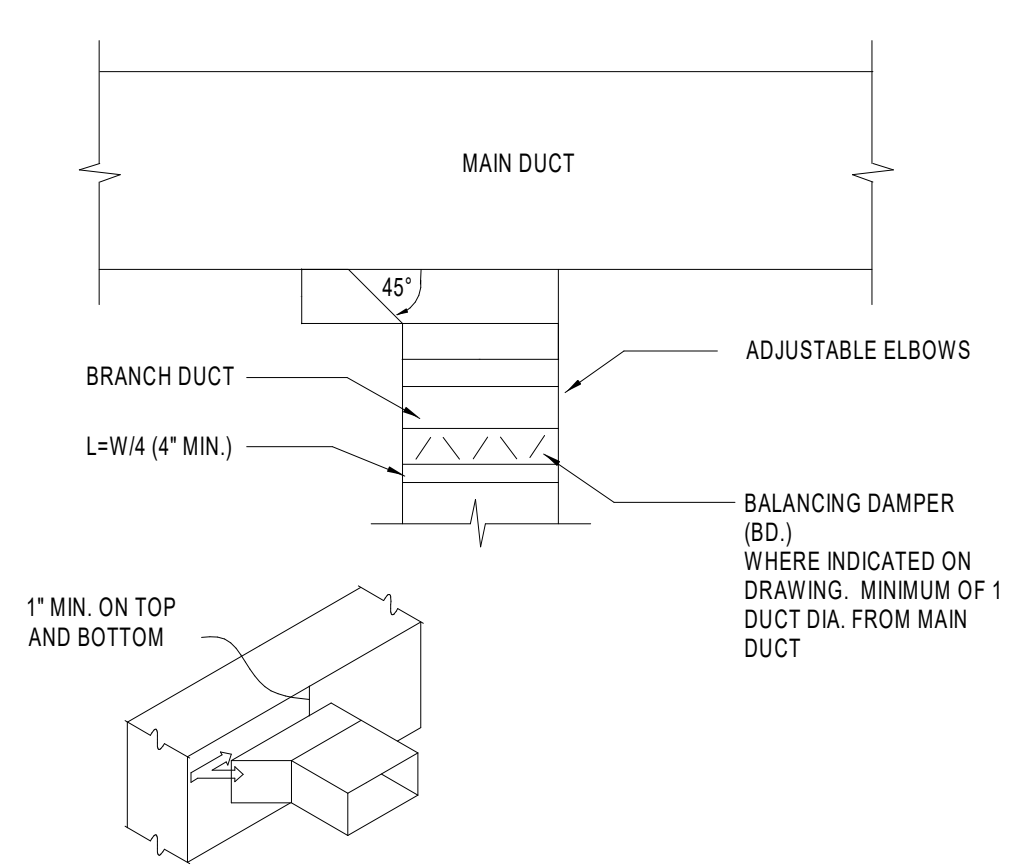
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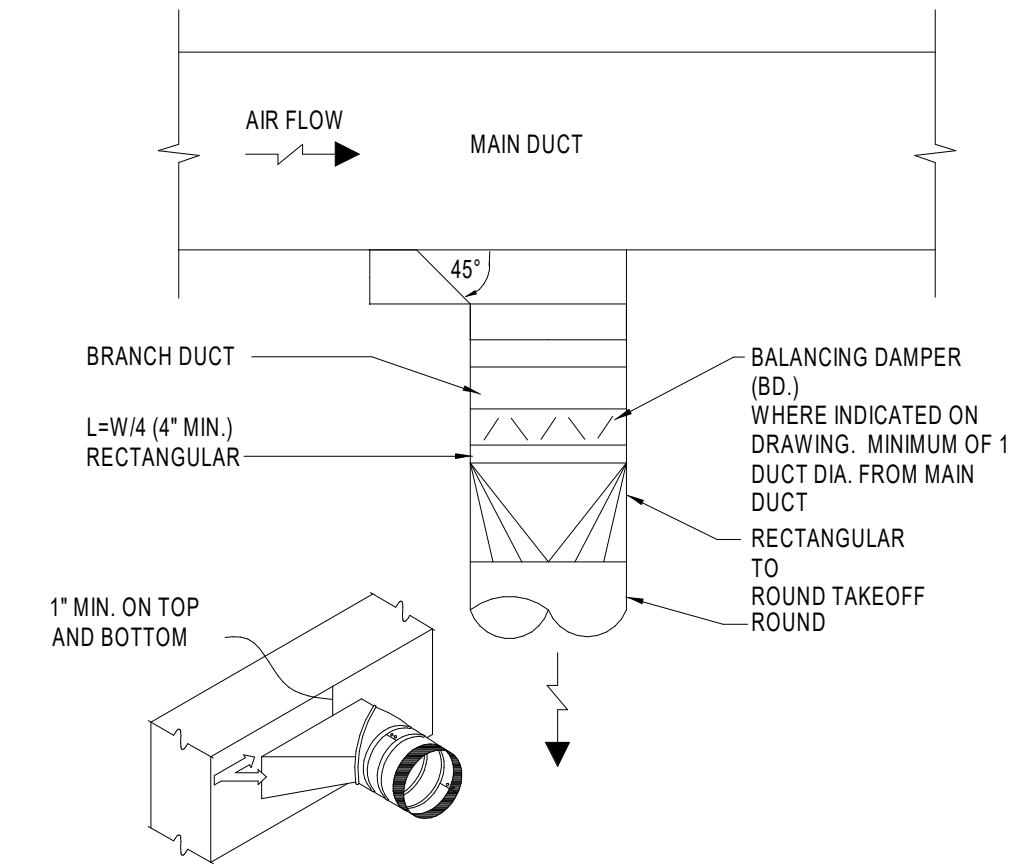


HVAC NOTES AND SCHEDULES

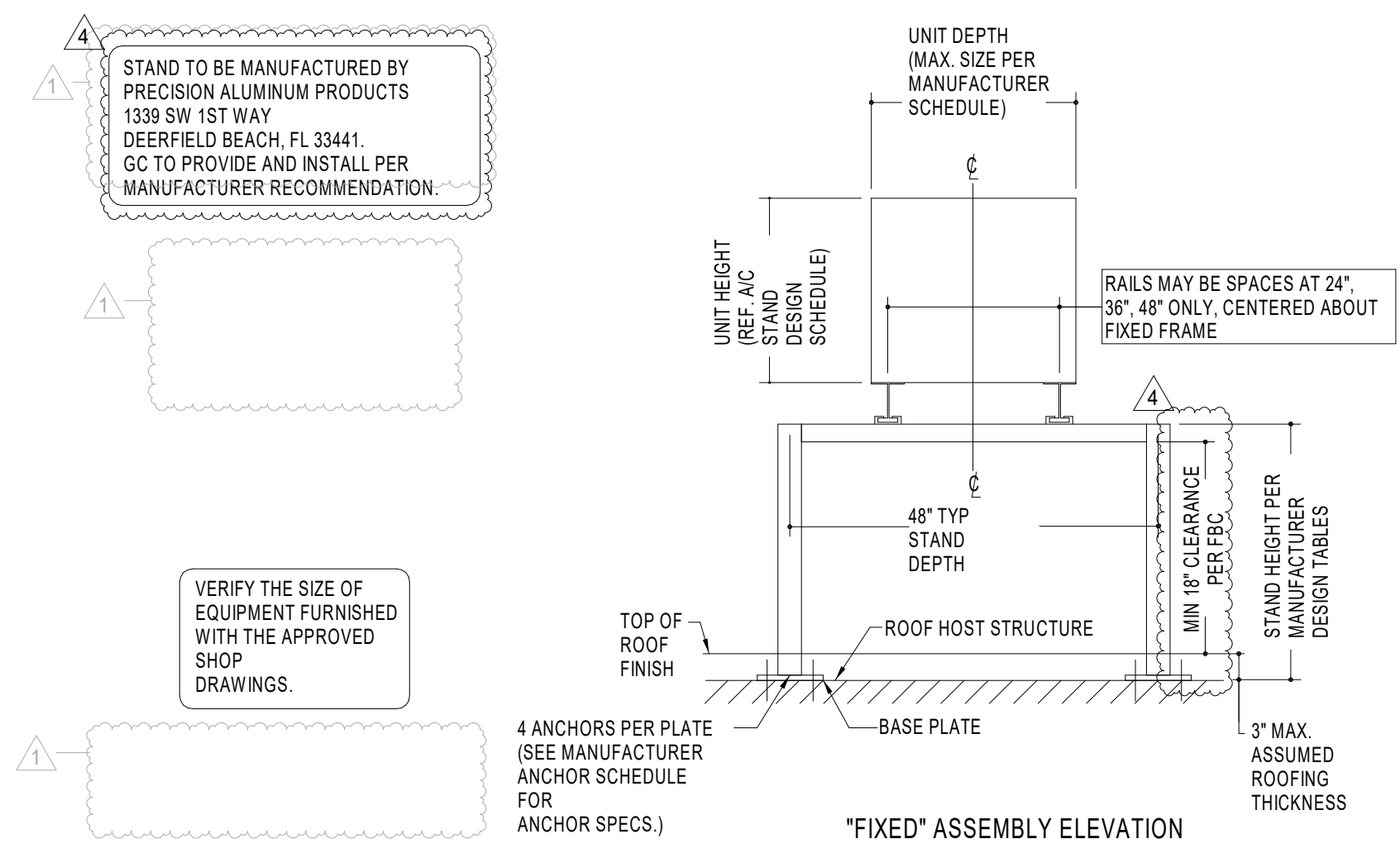
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1 RECTANGULAR BRANCH CONNECTION
M4.0 NTS

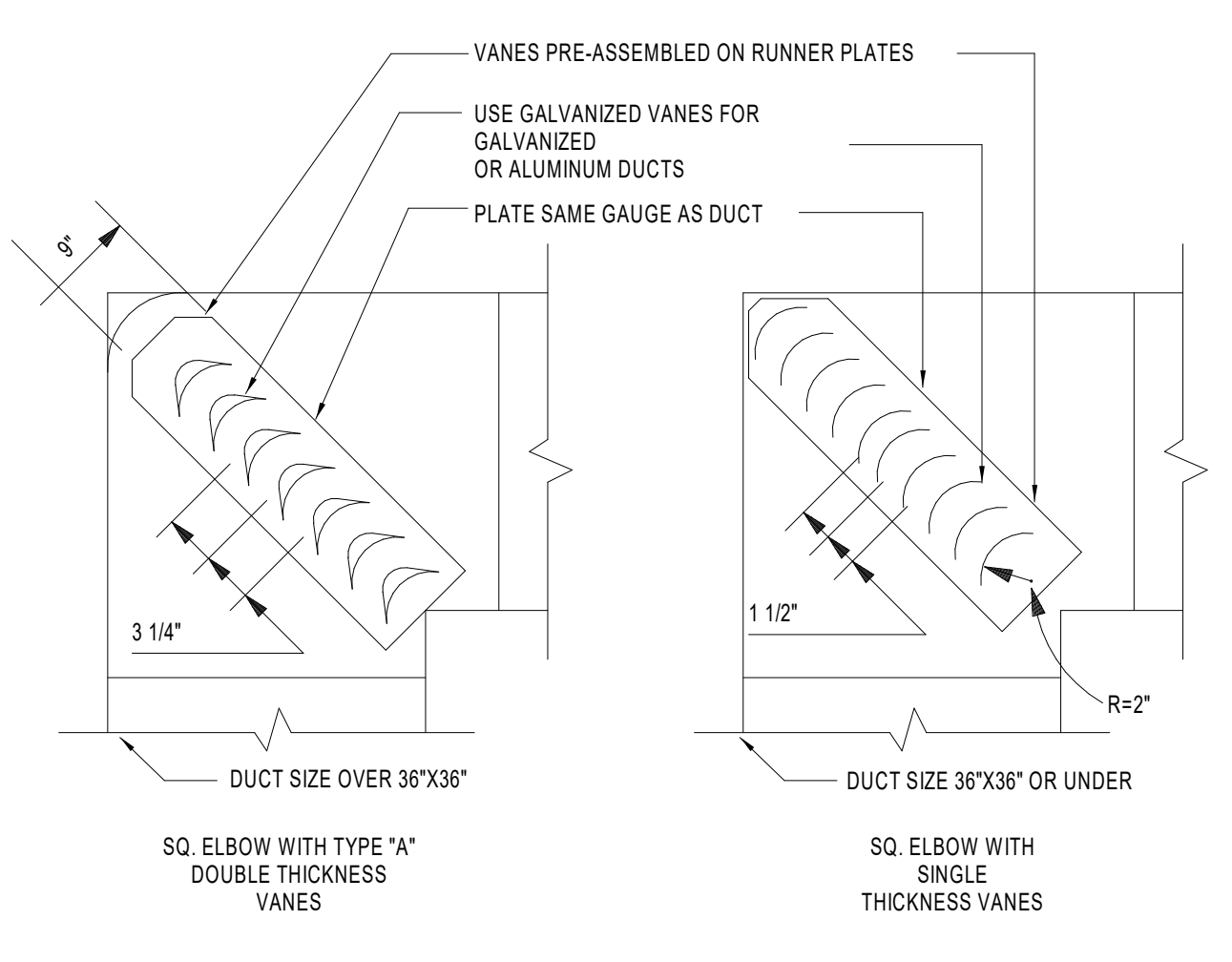


2 ROUND BRANCH CONNECTION
M4.0 NTS



3 CONDENSING UNIT FRAMING SUPPORT
M4.0 NTS

GENERAL NOTES:
 1. THIS SYSTEM HAS BEEN DESIGNED AND SHALL BE FABRICATED IN ACCORDANCE WITH THE STRUCTURAL PROVISIONS OF THE INTERNATIONAL BUILDING CODE FOR USE WITHIN AND OUTSIDE OF THE HIGH VELOCITY HURRICANE ZONE.
 2. CONTRACTOR SHALL ENSURE THAT EACH INSTALLATION ASSEMBLY MEET MINIMUM CLEARANCE HEIGHT PER IBC.
 3. ALL FASTENERS TO BE #10 OR GREATER SIZE GRADE 5 UNLESS NOTED OTHERWISE. CADMIUM PLATED OR OTHERWISE CORROSION RESISTANT MATERIAL AND SHALL COMPLY WITH ANY APPLICABLE FEDERAL, STATE, AND LOCAL CODES. PROVIDE (5) PITCHES MIN PAST THREAD PLANE.
 4. ALL EXTRUDED MEMBERS SHALL BE ALUMINUM ALLOY TYPED 6061-T6 OR 6063-T5.
 5. ALUMINUM WELDING SHALL BE PERFORMED IN ACCORDANCE WITH IBC WITH WELD FILLER ALLOYS MEETING ANSII/AS 10 STANDARDS TO ACHIEVE ULTIMATE DESIGN STRENGTH IN ACCORDANCE WITH THE ALUMINUM DESIGN MANUAL, TABLE A.3.6 WELD FILLER: 5383 ELECTRODES. ALL ALUMINUM CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE TOLERANCE, QUALITY AND METHODS OF THE AMERICAN WELDING SOCIETY'S STRUCTURAL WELDING CODE-ALUMINUM. MINIMUM WELD IS 1/8\"/>



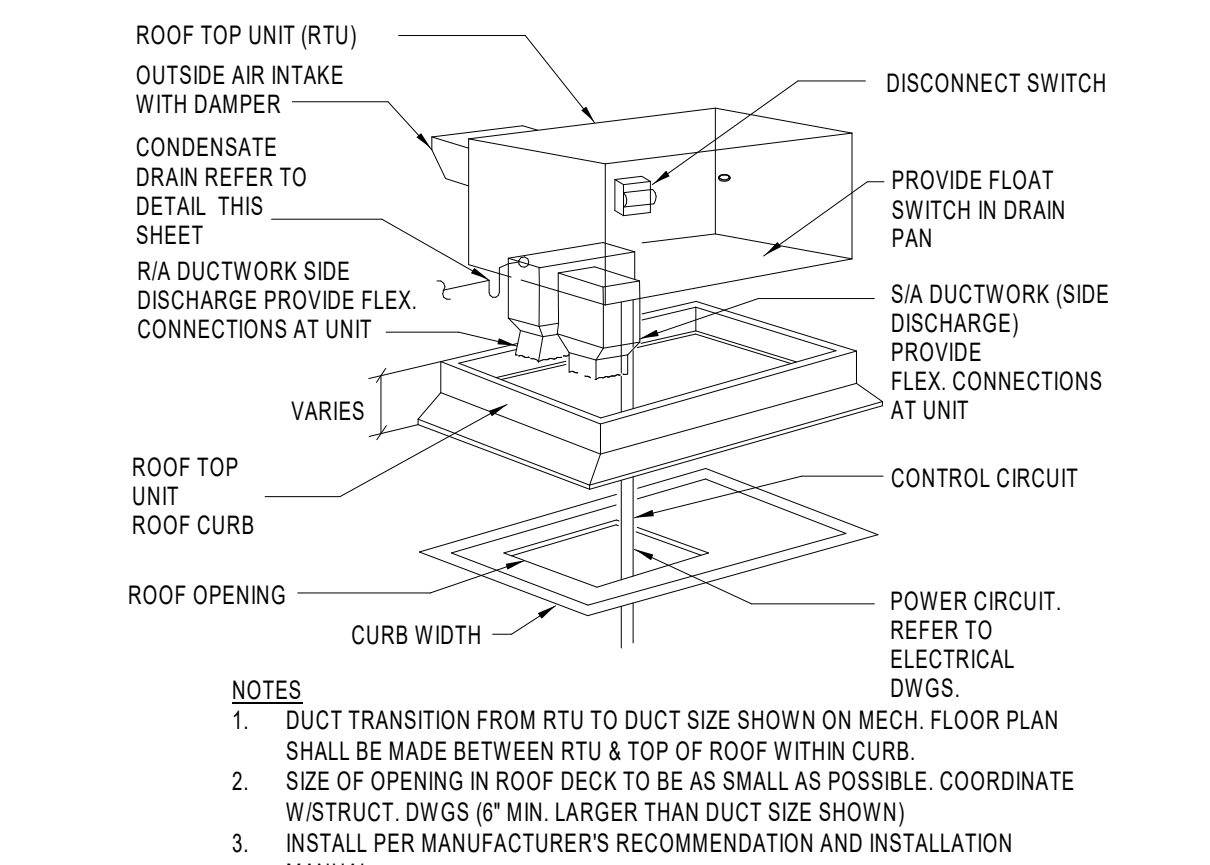
4 TURNING VANE DETAIL
M4.0 NTS

DUCT SHALL BE SECURELY FASTENED TO RUNNERS.
 ALL VANES SHALL BE SECURE AND STABLE IN INSTALLED OPERATION POSITION. IF NECESSARY AT CERTAIN VELOCITIES OR PRESSURES WELD VANES TO RUNNERS ON APPROPRIATE INTERVALS ALONG RUNNERS.
 TO PREVENT LINER DAMAGE CARE MUST BE EXERCISED WHEN INSTALLING VANES IN LINED OR FIBROUS GLASS DUCT.

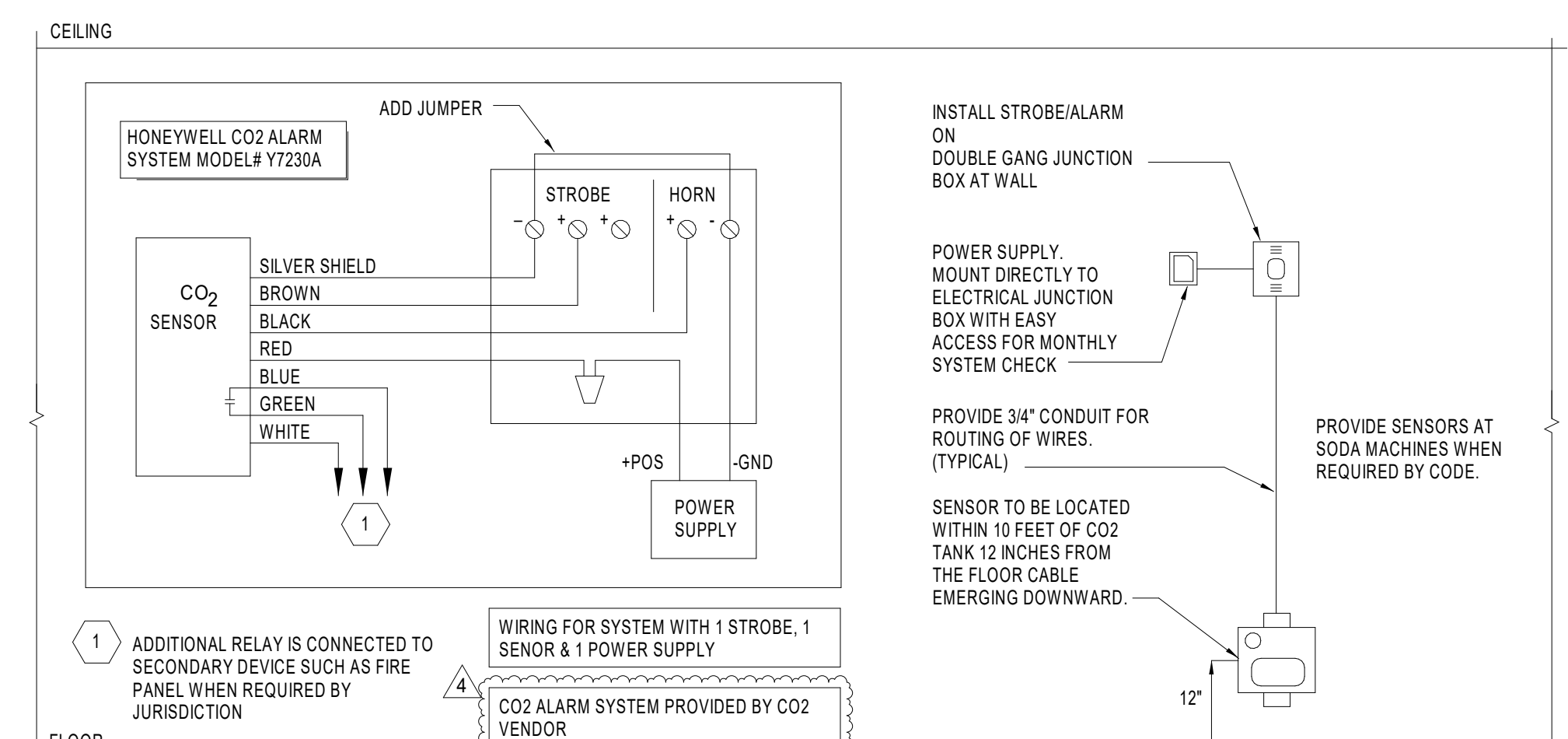
	R	SP	GA
SMALL	2"	1 1/2"	24
LARGE	4 1/2"	3 1/4"	22

* MAXIMUM UNSUPPORTED VANE LENGTH
 SMALL SINGLE VANE 36"
 LARGE SINGLE VANE 36"
 SMALL DOUBLE VANE 60"
 LARGE DOUBLE VANE 72"

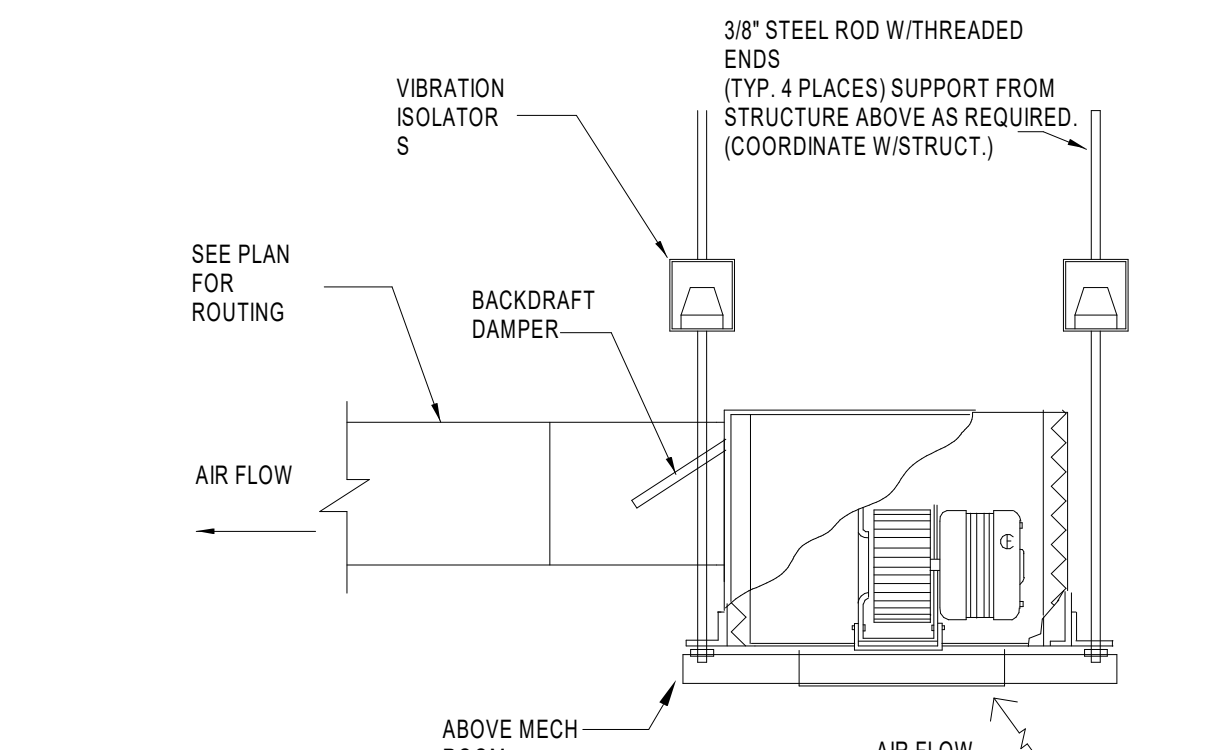
NOTE: FOLLOW PER SMACNA STANDARDS.



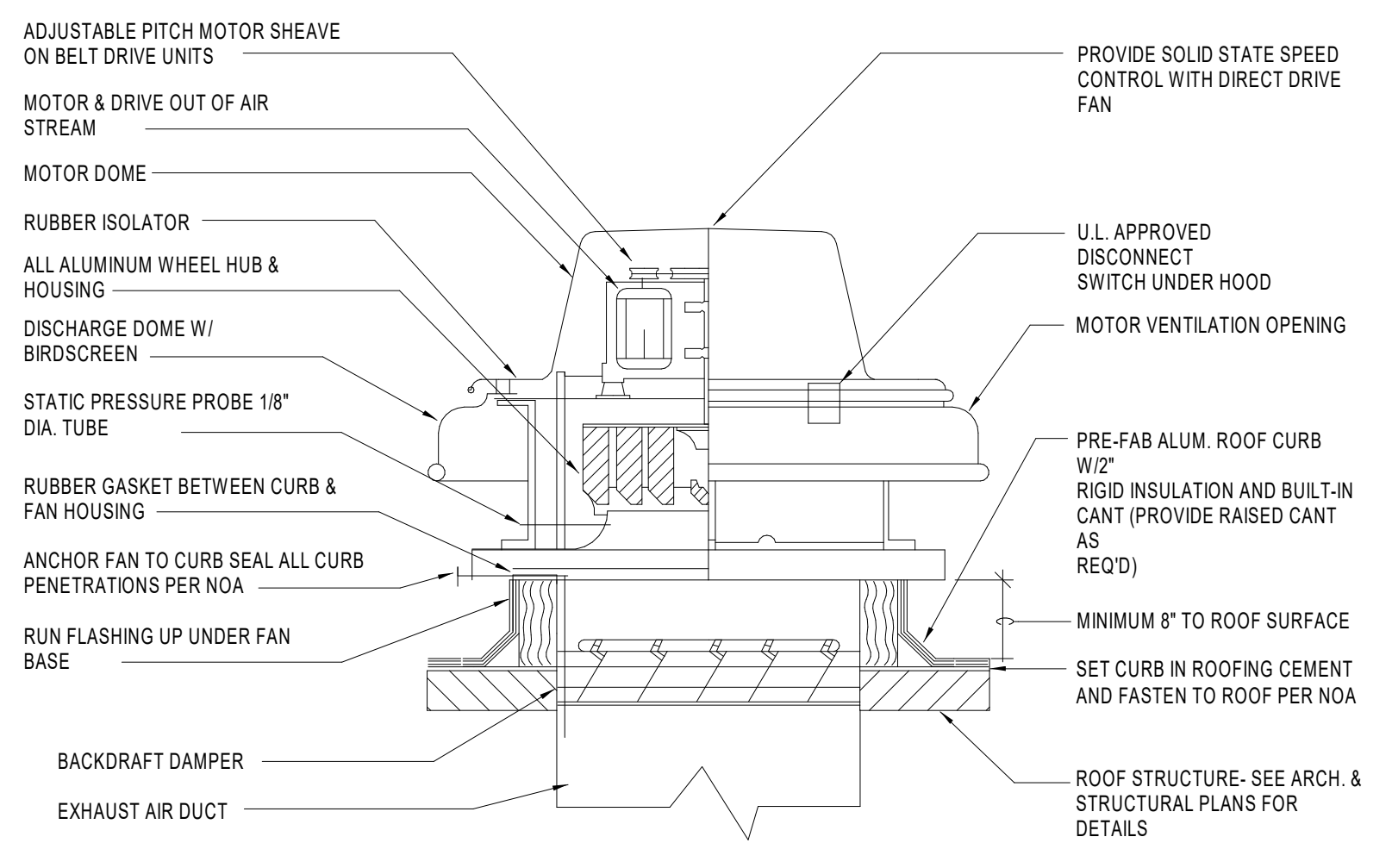
5 ROOF TOP UNIT MOUNTING DETAIL
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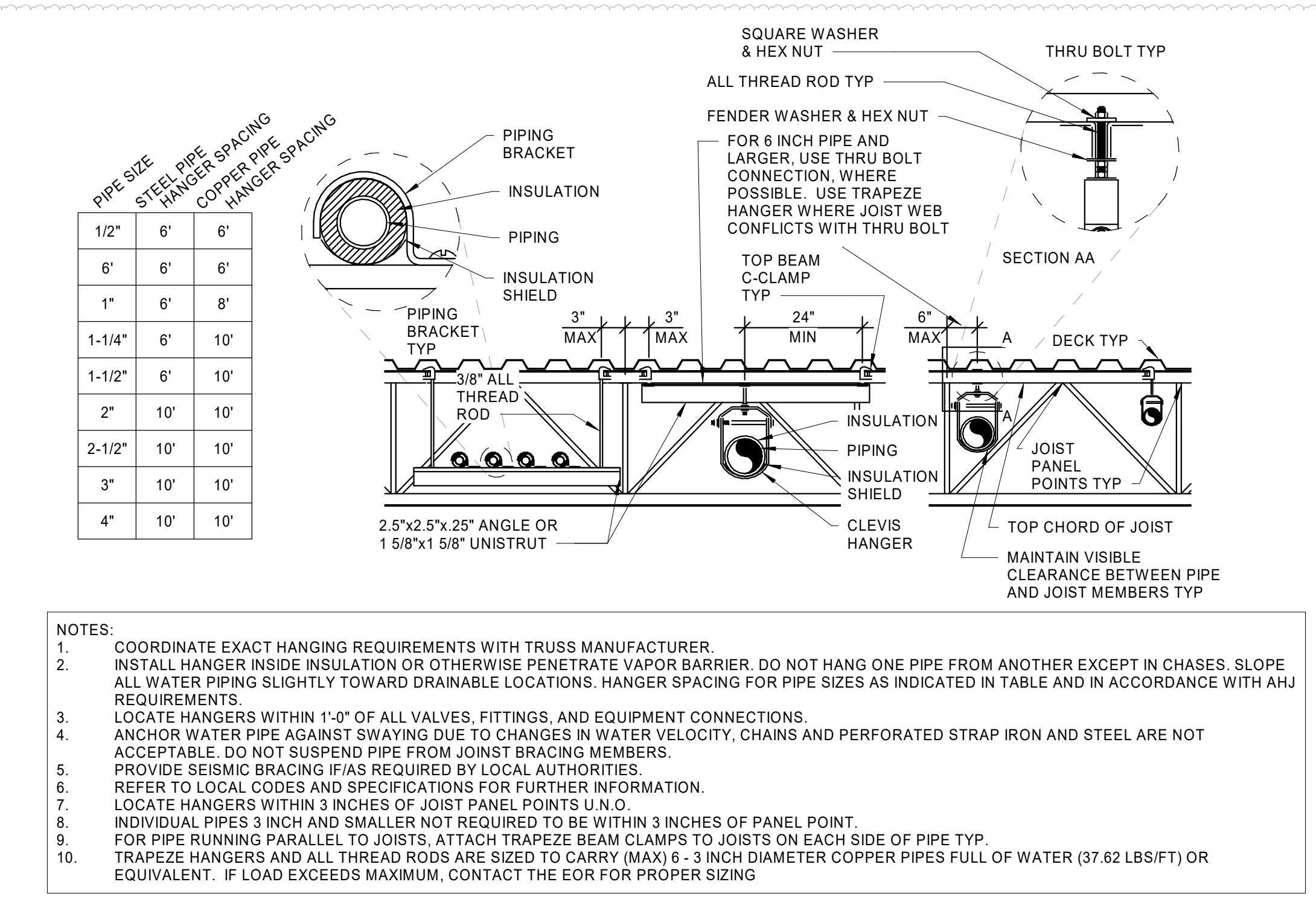
6 CO2 ALARM SYSTEM DETAIL
M4.0 NTS



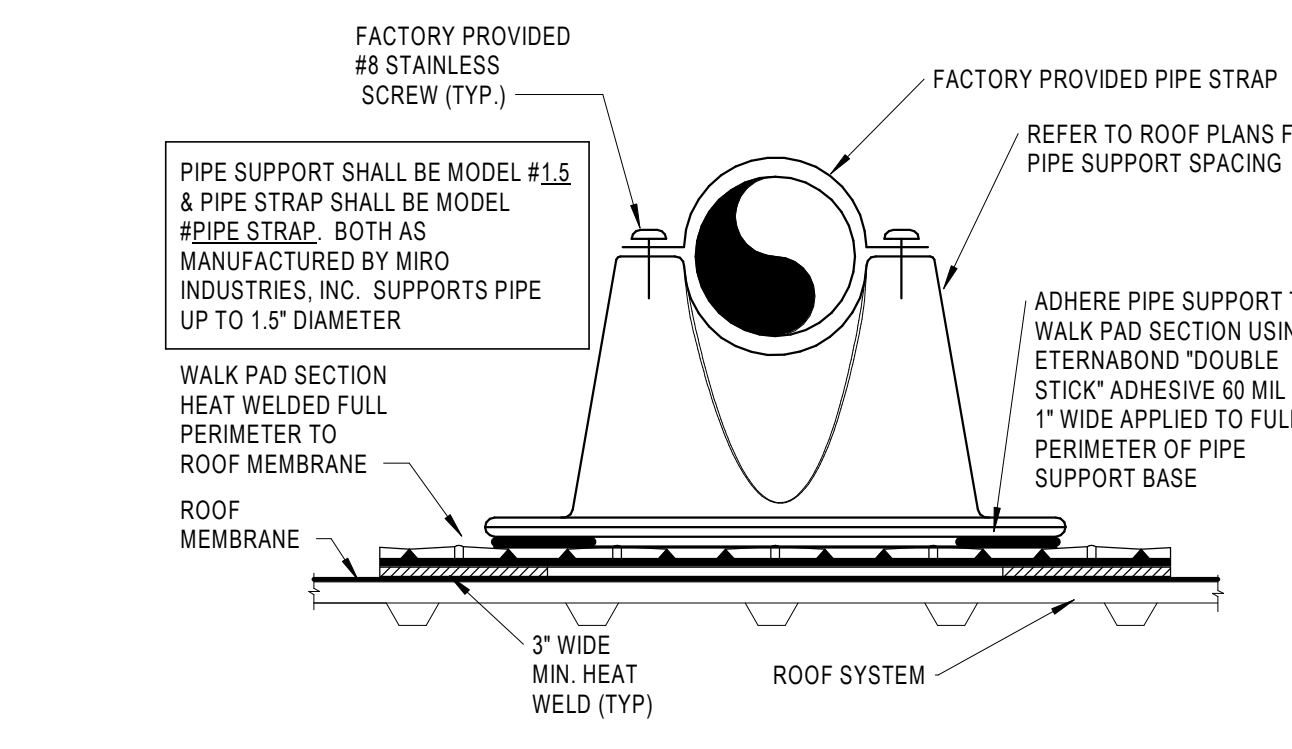
7 CEILING EXHAUST FAN DETAIL
M4.0 NTS



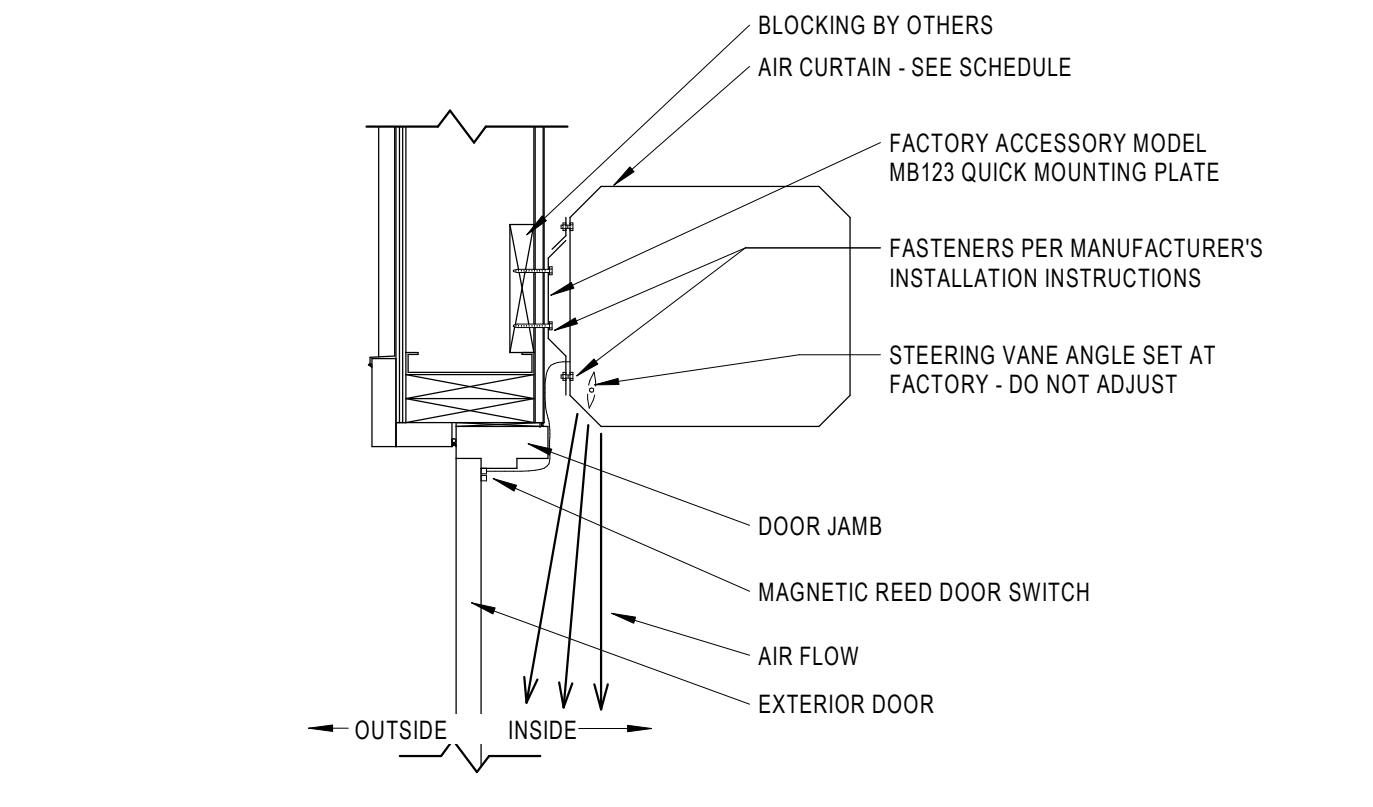
8 TYPICAL EXHAUST FAN DETAIL
M4.0 NTS



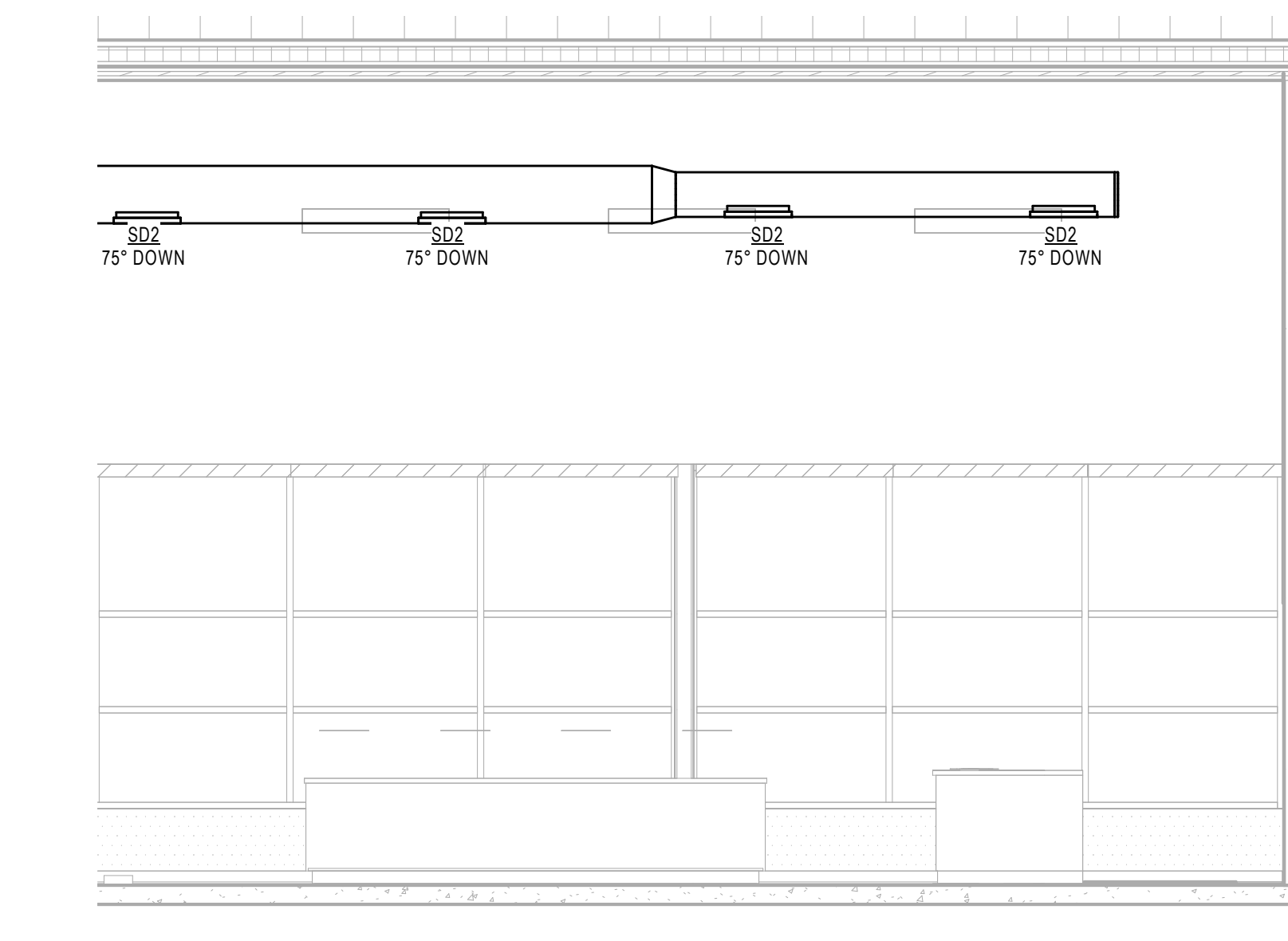
9 PIPE HANGER FOR STEEL JOIST DETAIL
M4.0 NOT TO SCALE



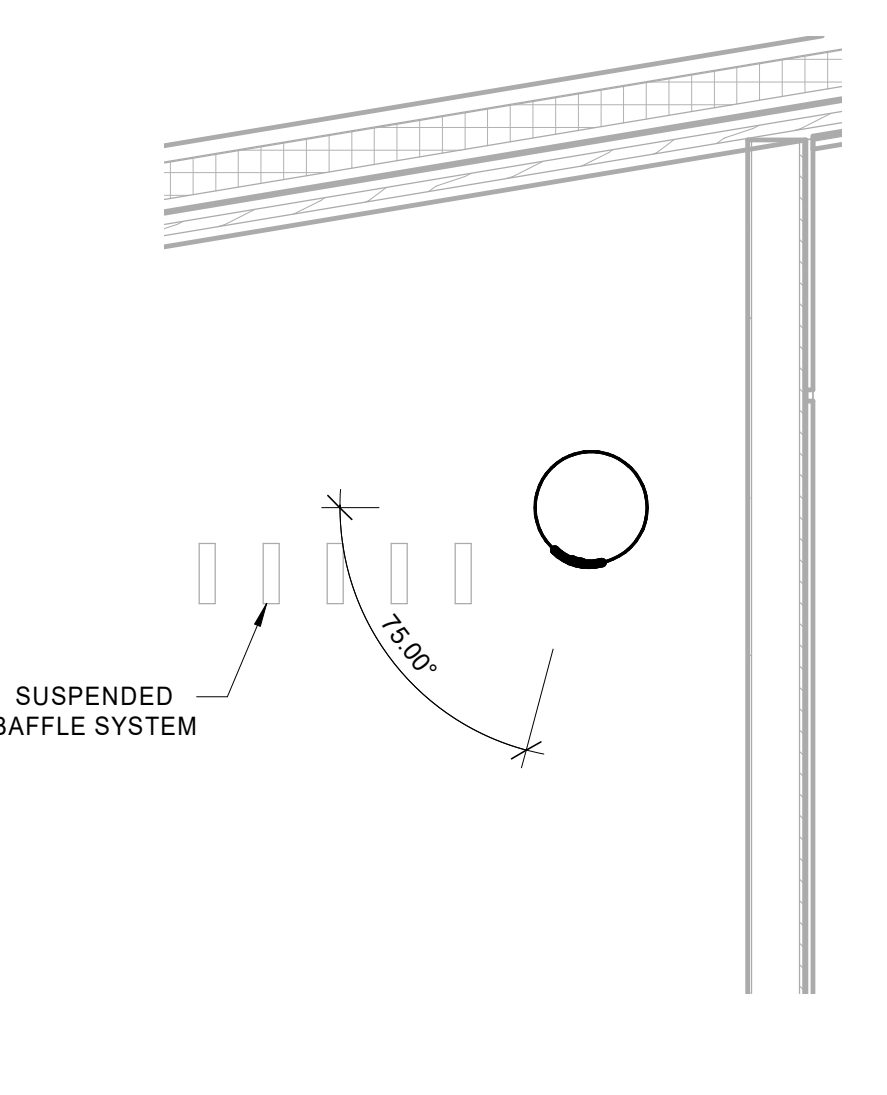
10 HVAC CONDENSATE PIPE ROOF SUPPORT DETAIL
M4.0 NTS



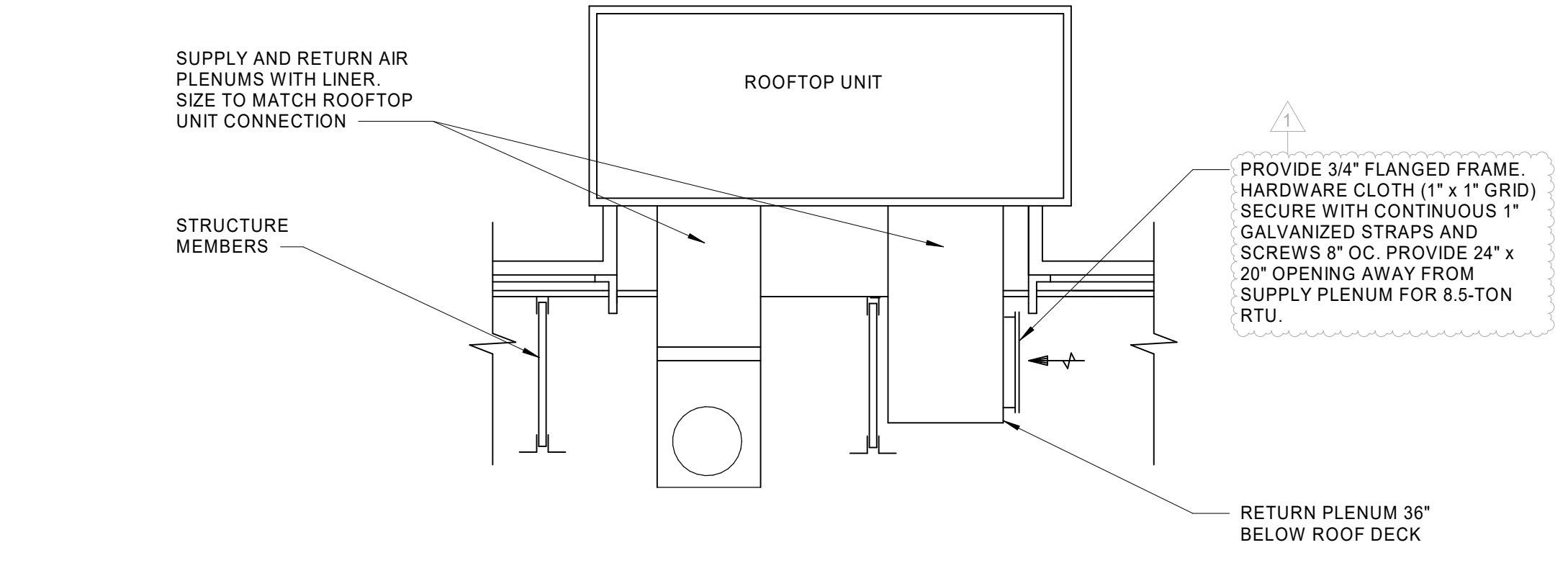
11 HVAC AIR CURTAIN INSTALLATION DETAIL
M4.0 NTS



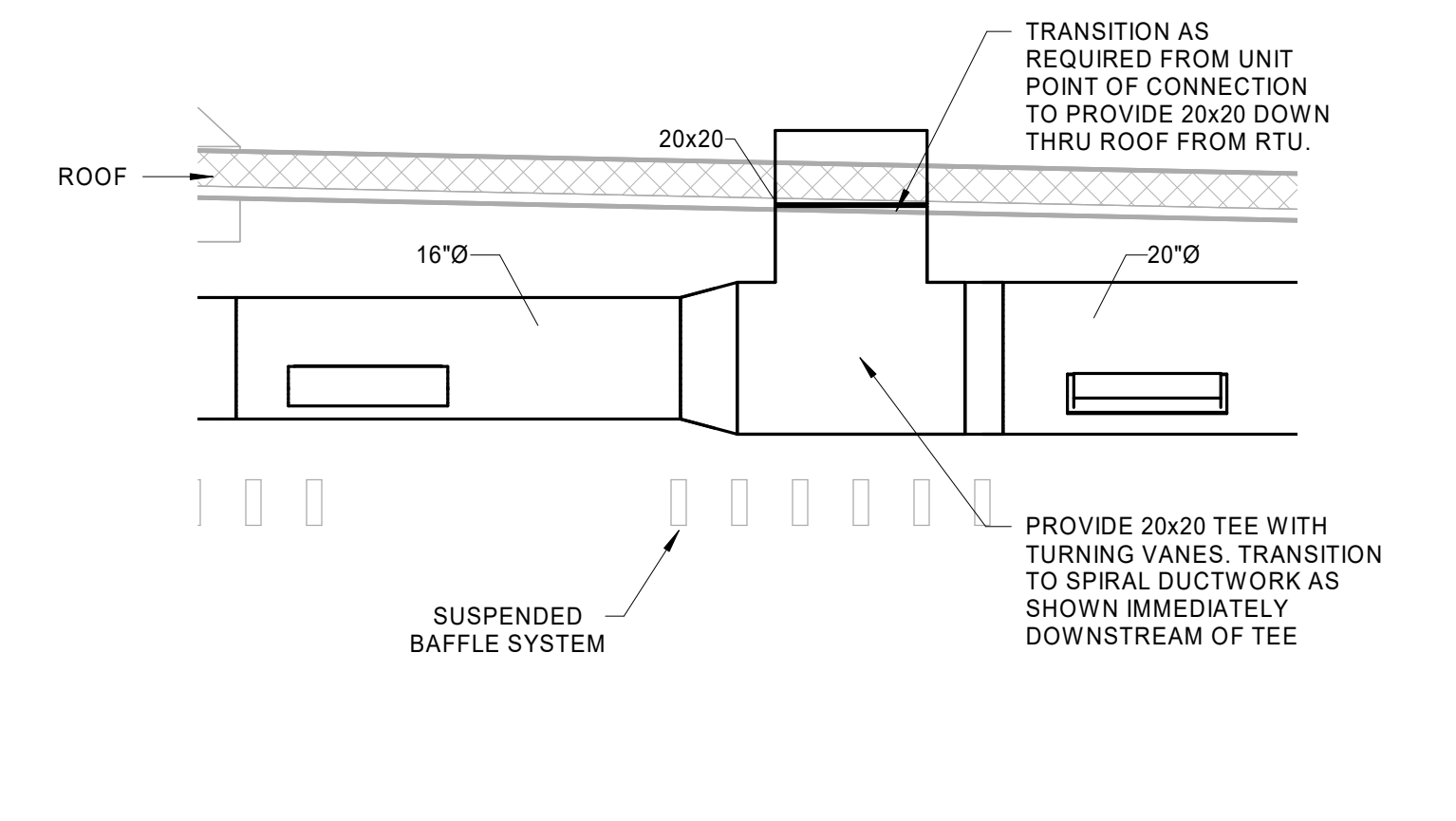
12 FRONT RETAIL DIFFUSER LAYOUT
M4.0 1/4\"/>



13 FRONT RETAIL DIFFUSER ANGLE DETAIL
M4.0 1/2\"/>



14 RTU DUCTWORK DROP DETAIL
M4.0 NOT TO SCALE



15 RTU-2 SUPPLY DUCTWORK DROP
M4.0 1/2\"/>

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