HFA

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WAWA

STORE NUMBER :7419
7312 APPLELEAF LANE
SELLERSBURG, IN 47172

JOB NUMBER: 42-24-30008

ISSUE BLOCK		
1	REV 1	06/24/25
2	REV 2	10/02/25

CHECKED BY:	MJS
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DOCUMENT DATE:	06/24/25
PROTO:	U63FB-R FLY THRU
CYCLE:	2024.Q4.G5
PLAN ISSUE:	CNST SET

HVAC FLOOR PLAN

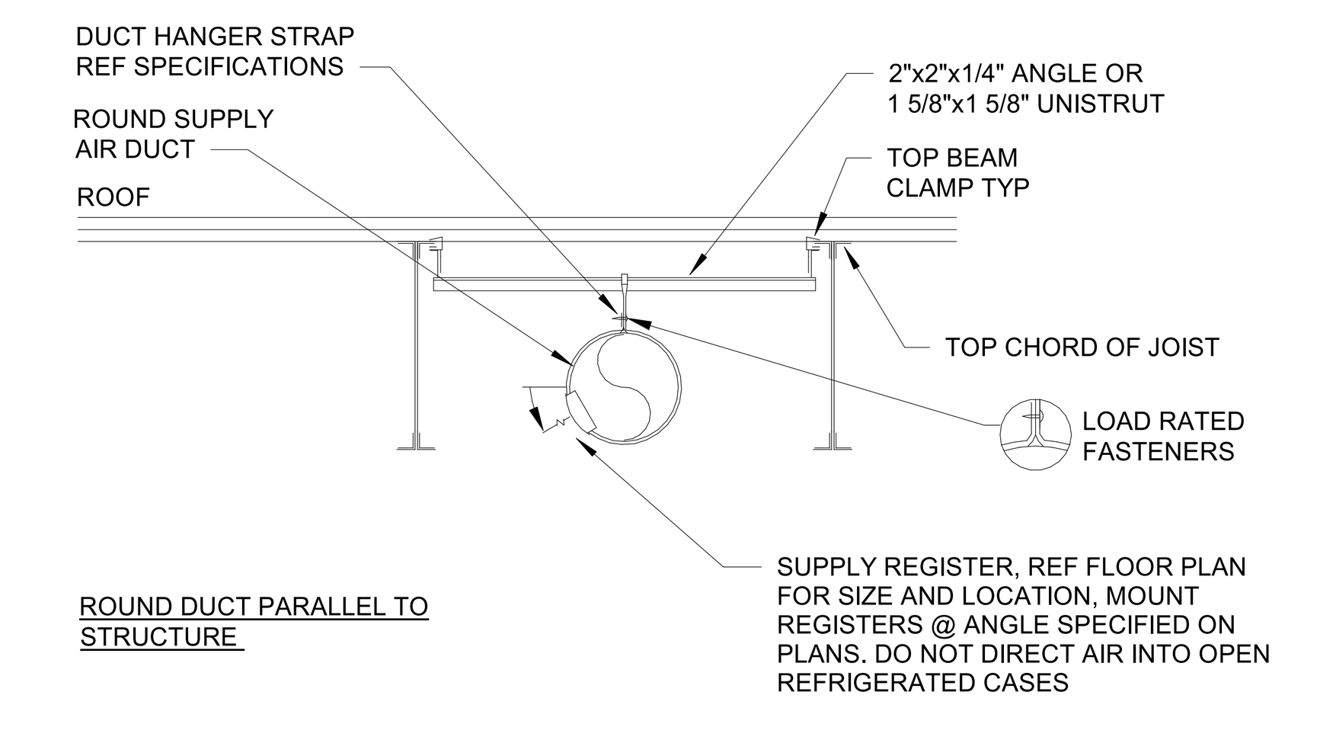
SHEET: M1.0

KEYNOTES

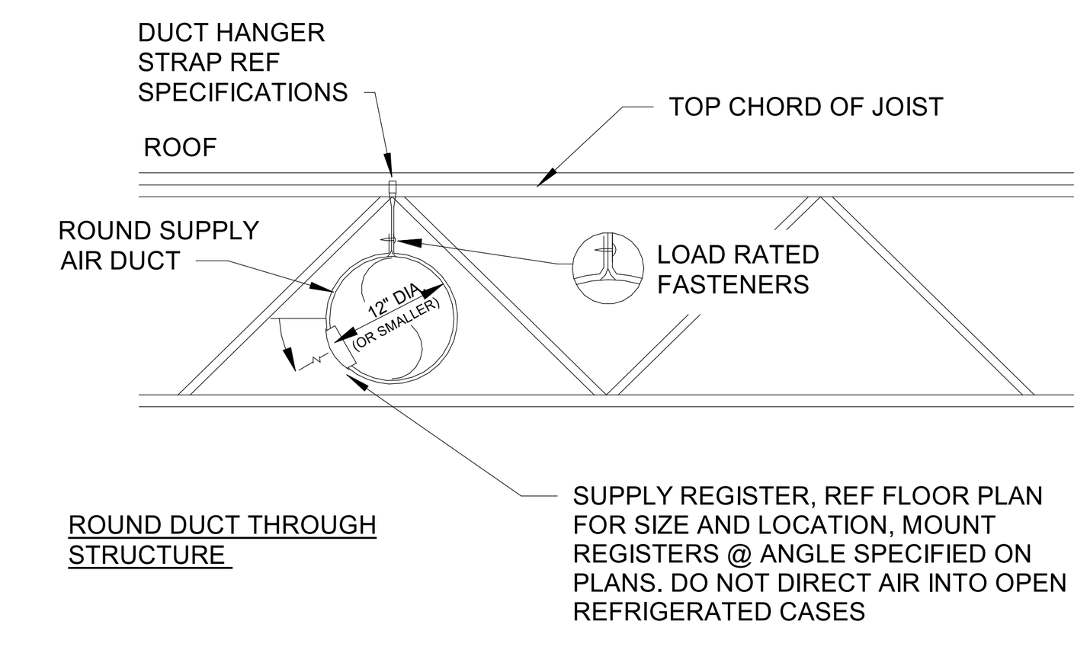
#	NOTE
23.01	SUPPLY AND RETURN DUCT UP TO RTU ON ROOF, TRANSITION AS REQUIRED. FIELD VERIFY DUCT ROUTING PRIOR TO FABRICATION. PROVIDE FLEX CONNECTION FOR VIBRATION ISOLATION.
23.02	MOUNT REMOTE TEMPERATURE/HUMIDITY SENSOR IN AREA SHOWN AT 54" AFF. COORDINATE EXACT LOCATION WITH TENANT CONSTRUCTION MANAGER. THE ENTIRE CONTROL SYSTEM SHALL BE PROVIDED COMPLETE IN EVERY RESPECT BY THE MECHANICAL CONTRACTOR.
23.03	WALL MOUNTED CO2 SENSOR TO RTU-2. SENSOR TO MONITOR CO2 LEVELS THROUGH REMOTE BAS. SENSOR BY WAWA BAS VENDOR.
23.04	UNDERCUT DOOR 1" FOR AIR PASSAGE.
23.05	EXHAUST DUCT ROUTED TO FAN ON ROOF. COORDINATE ROUTING OF DUCT WITH ALL DISCIPLINES. PROVIDE TRANSITIONS AND FITTING AS REQUIRED.
23.07	EXHAUST DUCT SHALL BE GALVANIZED STEEL. PROVIDE SIDEWALL VENT WITH SCREEN AND FLAPPER DAMPER, CROWN MODEL 349 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.
23.08	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 KEYED RESET. REMOTE SD TEST SUPERVISORY SIGNAL SHALL BE LED TYPE WITH AUDIBLE BEEPING ALERT.
23.09	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.
23.11	PROVIDE REMOTE TEST STATION FOR SMOKE DETECTORS WITH AUDIBLE AND VISUAL ALARM WITH KEYED RESET. MOUNT TEST STATION 48 INCHES AFF. MOUNT AUDIBLE AND VISUAL ALARM IN CONSTANTLY ATTENDED LOCATION. CONSTANTLY ATTENDED LOCATION IS NOT REQUIRED WHERE DUCT SMOKE DETECTOR ACTIVATES THE BUILDING'S ALARM SYSTEM.
23.28	ROUTE DUCTWORK AS HIGH AS POSSIBLE PARALLEL TO STRUCTURE. REF 2-M1.0 TYP.
23.29	ROUTE DUCTWORK WITHIN THE JOIST SPACE. COORDINATE THRU WEBBING. REF 3-M1.0 TYP.
23.40	PAINT RETURN GRILLE TO MATCH FINISH OF WALL.
23.41	FAN CONTROLLER WIRED TO SWITCH IN OFFICE. REF ELECTRICAL PLANS.
23.42	WHERE INDIANA LIQUOR LICENSE CAN BE OBTAINED AND BEER CAVE CONVERSION IS REQUESTED, BALANCE DIFFUSER FOR 150 CFM INSTEAD OF VALUE INDICATED IN AIR DEVICE TAG ON PLANS.
23.43	WHERE INDIANA LIQUOR LICENSE CAN BE OBTAINED AND BEER CAVE CONVERSION IS REQUESTED, BALANCE DIFFUSER FOR 300 CFM INSTEAD OF VALUE INDICATED IN AIR DEVICE TAG ON PLANS.

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
AC-X	AIR CURTAIN
	LINEAR SLOT DIFFUSER WITH PLENUM
TH	COMBINATION TEMPERATURE/HUMIDITY SENSOR
T	TEMPERATURE SENSOR
C	CO2 SENSOR
A XXX CFM	TYPE MARK CFM
RTU-10	MECHANICAL EQUIPMENT TAG
	CONDENSATE PIPING
EF-X	ROOF MOUNTED EXHAUST FAN
EF-X	INLINE EXHAUST FAN
RTU-X	PACKAGED ROOFTOP AIR CONDITIONER



2 M1.0 EXPOSED DUCT SUPPORT AND GRILLE
NTS



3 M1.0 EXPOSED DUCT SUPPORT AND GRILLE
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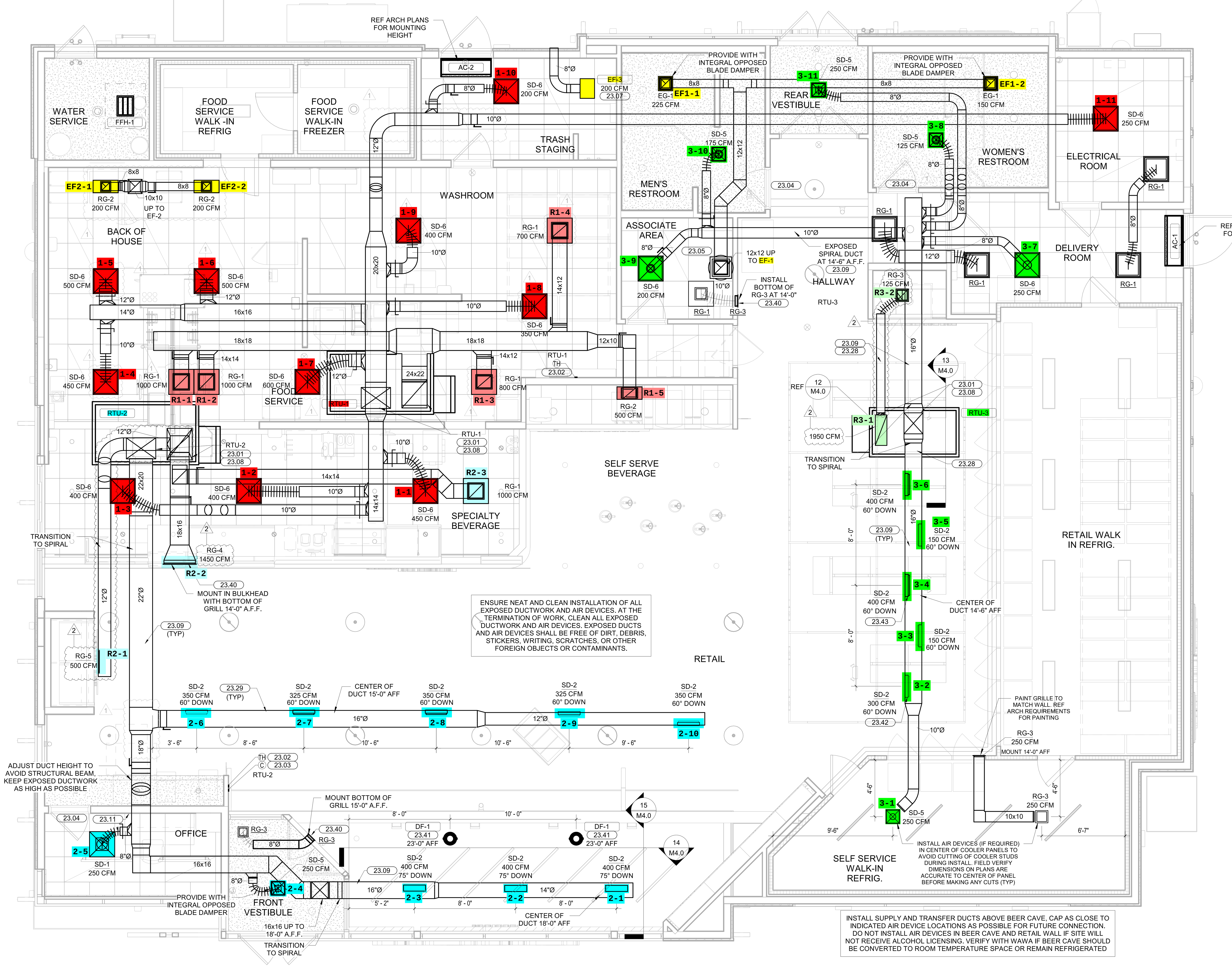
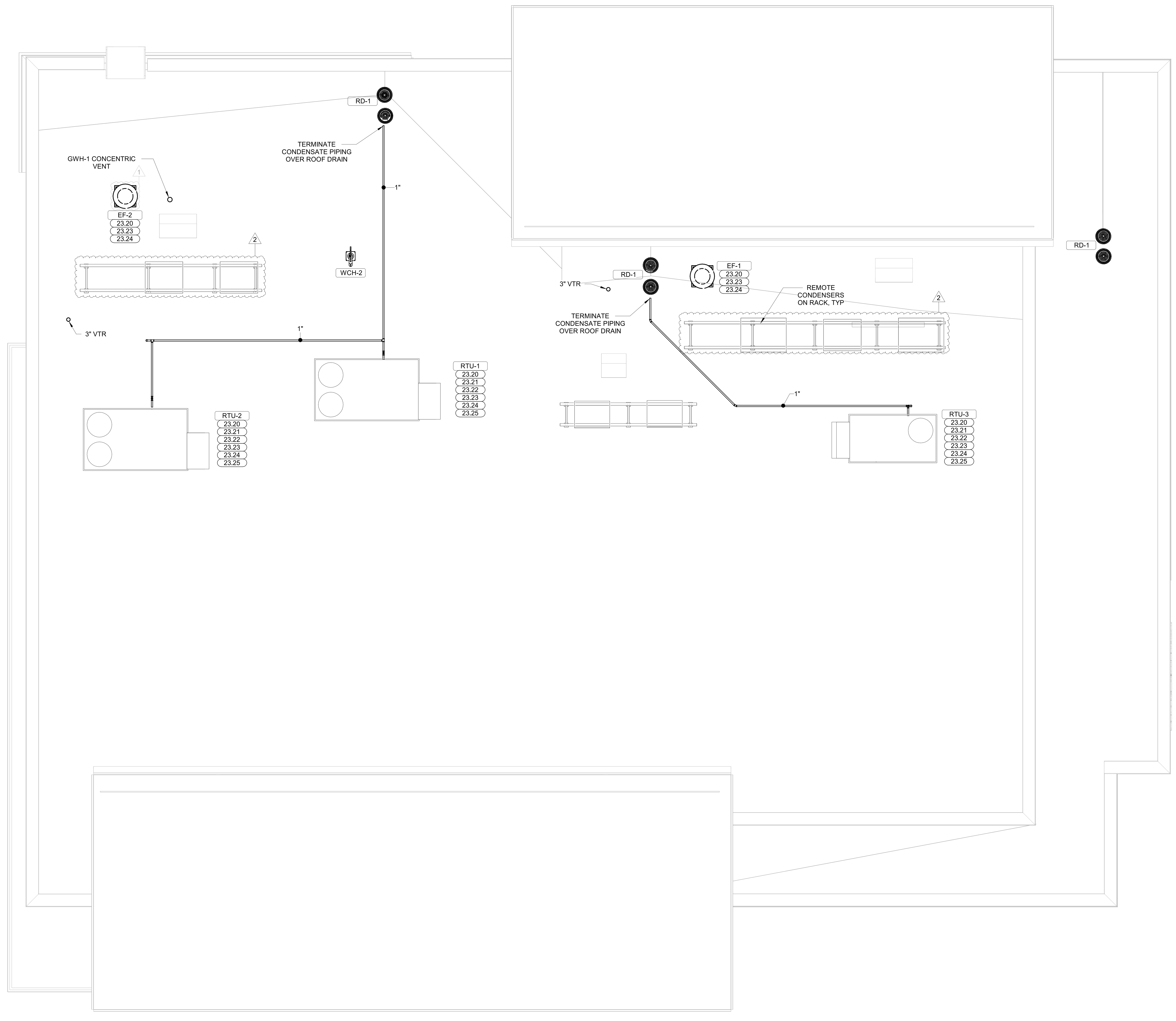


1 HVAC FLOOR PLAN
1/4" = 1'-0"

JOHN KENNETH RALEY REGISTERED No 11800661 STATE OF INDIANA PROFESSIONAL ENGINEER

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	CONTRACTOR TO INSTALL OWNER-SUPPLIED ROOFTOP UNIT WITH PRE-FABRICATED MINIMUM 18 INCH HIGH INSULATED ROOF CURB. MAINTAIN MINIMUM HEIGHT OF 8" 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 BE INTERLOCKED WITH BAS SYSTEM TO PROVIDE ALARM WHEN ACTIVATED AND 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.



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

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STATE OF INDIANA
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HVAC ROOF PLAN

SHEET:
M2.0

PACKAGED ROOFTOP UNIT SCHEDULE

MARK	AREA SERVED	BASIS OF DESIGN MANUFACTURER	MODEL	NOMINAL CAPACITY (TONS)	FAN SUPPLY AIRFLOW (CFM)	OUTSIDE AIRFLOW (CFM)	EXT. SP (IN. WG)	NOM. MOTOR HP	DIRECT EXPANSION COOLING ENTERING AIR DB (°F)	ENTERING AIR WB (°F)	LEAVING AIR DB (°F)	LEAVING AIR WB (°F)	TOT. CAPACITY (Btu/h)	SENS. CAPACITY (Btu/h)	EER	GAS HEATING ENT. AIR DB (°F)	LVG. AIR DB (°F)	INPUT (Btu/h)	OUTPUT (Btu/h)	ELECTRICAL DATA VOLTS	PHASE	MCA (AMPS)	MOCP (AMPS)	WEIGHT (LBS)	NOTES
RTU-1	BACK OF HOUSE	LENNOX	LGT150H5E	12.5	4500	500	0.70	3.75	80.0	67.0	58.3	56.5	131900	89700	11	60.0	89.6	180000	144000	208	3	64	80	1440	1, 3-14
RTU-2	SALES/OFFICE	LENNOX	LGT102H5E	8.5	3400	450	0.50	3.75	80.0	67.0	58.5	57.2	95700	70500	12.1	60.0	88.3	130000	104000	208	3	44	50	1385	1-14
RTU-3	SALES/RESTROOM	LENNOX	LGT072H5E	6.0	2400	325	0.50	1.5	80.0	67.0	57.1	56.8	69900	52900	12.2	60.0	80.4	65000	52000	208	3	34	50	940	1, 3-14

NOTES:

1. FURNISHED BY WAWA. INSTALLED BY GC.
2. PROVIDE CO2 SENSOR FOR RTU2 ONLY. SENSOR TO BE INTERLOCKED WITH BAS.
3. PROVIDE HUMIDITROL HOT GAS REHEAT.
4. PROVIDE REMOTE WALL MOUNTED COMBINATION TEMPERATURE/HUMIDITY SENSOR.
5. PROVIDE WITH 2" FACTORY PLEATED MERV 8 FILTERS.
6. PROVIDE WITH 18" ROOF CURB.
7. PROVIDE WITH FACTORY INSTALLED HACR CIRCUIT BREAKERS AND DISCONNECT.
8. PROVIDE WITH FACTORY INSTALLED 15A GFCI SERVICE OUTLET, EC TO PROVIDE FIELD WIRING.
9. PROVIDE WITH FACTORY INSTALLED DISCONNECT.
10. PROVIDE WITH FACTORY INSTALLED SINGLE ENTHALPY CONTROLLED ECONOMIZER AND UNIT POWERED EXHAUST FAN.
11. PROVIDE WITH FACTORY INSTALLED DIRTY FILTER SWITCH.
12. PROVIDE WITH FACTORY INSTALLED DRAIN PAN OVERFLOW SWITCH.
13. PROVIDE WITH FACTORY INSTALLED SUPPLY AND RETURN SMOKE DETECTORS.
14 PROVIDE WITH BAS MONITORING POINT OF THE OUTSIDE AIR DAMPER POSITION.

AIR CURTAIN SCHEDULE

MARK	MANUFACTURER	MODEL	AREA SERVED	FAN MOTORS HP	V	PH	FLA	HEAT INPUT (KW)	WEIGHT (LB)	NOTES
AC-1	POWERED AIRE	BCE-1-48	DELIVERY ROOM	0.5 hp	120	1	7.3	0	99	1,2,3,4
AC-2	POWERED AIRE	BCE-1-48	TRASH STAGING	0.5 hp	120	1	7.3	0	99	1,2,3,4

NOTES: -NO SUBSTITUTIONS PERMITTED-

1. PROVIDED BY GC.
2. MOUNT INSIDE BUILDING ABOVE DOOR.
3. PROVIDE WITH MODEL SM-300 COMMERCIAL MAGNETIC REED DOOR SWITCH, ENERGIZE AIR CURTAIN ON WHEN DOOR IS OPEN.
4. PROVIDE ALL NECESSARY MOUNTING BRACKETS AND ACCESSORIES.

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	TRASH ROOM	GREENHECK	SP-B200	200	0.50	120	1	0.167	14	1,2,4,5

NOTES:

1. PROVIDED BY GC.
2. PROVIDE DISCONNECT SWITCH.
3. PROVIDE 12" HIGH PREFABRICATED INSULATED ROOF CURB.
4. MECHANICAL CONTRACTOR TO PROVIDE EXHAUST FAN, & WIRED SPEED CONTROLLER.
5. WIRE FOR CONTINUOUS OPERATION.

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)
ASSOCIATE AREA	Office - Enclosed	71	215 SF	0.3	0.06	5.0	6 CFM	0.8	7
ELECTRICAL ROOM	Equipment Room	116	0 SF	0.0	0.00	5.0	0 CFM	0.8	0
OFFICE	Office - Enclosed	92	215 SF	0.4	0.06	5.0	8 CFM	0.8	10
WOMEN'S RESTROOM	Restrooms	147	108 SF	1.4	0.00	0.0	0 CFM	0.8	0
MEN'S RESTROOM	Restrooms	139	108 SF	1.3	0.00	0.0	0 CFM	0.8	0
SELF SERVE BEVERAGE	Merchandising Sales Area - Retail	2143	100 SF	21.4	0.12	7.5	418 CFM	0.8	522
SELF SERVE BEVERAGE	Personal Services Sales Area - Retail	237	72 SF	3.3	0.12	7.5	53 CFM	0.8	66
REAR VESTIBULE	Corridor/Transition	54	0 SF	0.0	0.06	0.0	3 CFM	0.8	4
FRONT VESTIBULE	Corridor/Transition	73	0 SF	0.0	0.06	0.0	4 CFM	0.8	5
DELIVERY ROOM	Active Storage	150	359 SF	0.4	0.12	0.0	18 CFM	0.8	22
HALLWAY	Corridor/Transition	170	0 SF	0.0	0.06	0.0	10 CFM	0.8	13
WASHROOM	Food Preparation	142	54 SF	2.6	0.12	7.5	37 CFM	0.8	46
SPECIALTY BEVERAGE	Food Preparation	103	54 SF	1.9	0.12	7.5	27 CFM	0.8	33
BACK OF HOUSE	Food Preparation	105	54 SF	1.9	0.12	7.5	27 CFM	0.8	34
FOOD SERVICE	Food Preparation	969	54 SF	18.0	0.12	7.5	251 CFM	0.8	314
TRASH STAGING	Active Storage	124	359 SF	0.3	0.12	0.0	15 CFM	0.8	19
WATER SERVICE	Equipment Room	67	0 SF	0.0	0.00	5.0	0 CFM	0.8	0
									TOTAL = 1097 CFM

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

TOTAL OSA PROVIDED 1275 CFM > TOTAL REQUIRED OSA 1096 CFM

AIR DEVICE SCHEDULE

TYPE	SERVICE	MFG	MODEL	STYLE	MOUNTING	FACE SIZE	NOTES
EG-1	EXHAUST	PRICE	630FF	LOUVERED GRILLE	SURFACE	12x12	2
RG-1	RETURN	PRICE	630FF	LOUVERED GRILLE	LAY-IN	24x24	2
RG-2	RETURN	PRICE	630FF	LOUVERED GRILLE	LAY-IN	24x12	2
RG-3	RETURN	PRICE	630FF	LOUVERED GRILLE	REF. PLANS	12x12	2
RG-4	RETURN	PRICE	630FF	LOUVERED GRILLE	SURFACE	30x22	2
RG-5	RETURN	PRICE	SDGER	SPIRAL DUCT MOUNTED RETURN	DUCT	12x12	-
SD-1	SUPPLY	PRICE	AMD	MODULAR LOUVERED FACE DIFFUSER	LAY-IN	24x24	1,4
SD-2	SUPPLY	PRICE	SDGE	SPIRAL DUCT MOUNTED GRILLE	DUCT	20x4	5,6
SD-5	SUPPLY	PRICE	AMD	MODULAR LOUVERED FACE DIFFUSER	SURFACE	12x12	3,4
SD-6	SUPPLY	PRICE	AMDA	MODULAR LOUVERED FACE DIFFUSER	LAY-IN	24x24	1,4,7

2

NOTES: -PROVIDED BY GC. NO SUBSTITUTIONS PERMITTED-

1. FOR LAY-IN CEILINGS PROVIDE WITH 18"X18" FULL FACE APPEARANCE DIFFUSER NECK. PROVIDE WITH FACTORY SQUARE TO ROUND NECK ADAPTER MODEL "SR". ROUND NECK SIZE SHALL BE EQUAL TO FLEX SIZE SERVING DIFFUSER.
2. HINGE PREFERRED - "QR" STYLE (1/4 TURN FASTENERS) NOT ACCEPTABLE. FILTER TYPE RETURN GRILLES PROVIDED SOLELY FOR MAINTENANCE PURPOSES. OMIT FILTER UPON INSTALLATION.
3. PROVIDE WITH TYPE 6 BEVELED SURFACE MOUNT FRAME AND FACTORY SQUARE TO ROUND NECK ADAPTER MODEL "SR".
4. PROVIDE WITH BACKPAN INSTALLATION.
5. PROVIDE WITH DOUBLE DEFLECTION TURNING VANES.
6. PROVIDE WITH INTEGRAL OPPOSED BLADE DAMPER.
7. PROVIDE WITH ADJUSTABLE PATTERN DEFLECTOR. PROVIDE WITH 12"X12" DIFFUSER NECK. PROVIDE WITH FACTORY SQUARE TO ROUND NECK ADAPTER MODEL "SR". ROUND NECK SIZE SHALL BE EQUAL TO FLEX SIZE SERVING DIFFUSER.

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

NOTES:

1. PROVIDED BY GC.
2. PROVIDE ALL NECESSARY MOUNTING BRACKETS AND ACCESSORIES.
3. PROVIDE WALL MOUNTED SPEED CONTROL IN OFFICE, 4 STEP SPEED CONTROL ON/OFF MODEL TRIAC-120-1.5. REF ELECTRICAL PLANS.
4. COLOR: WHITE.

ELECTRICAL UNIT HEATER SCHEDULE

MARK	MANUFACTURER	MODEL	AREA SERVED	ELECTRICAL DATA 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

NOTES:

1. PROVIDED BY GC.
2. COORDINATE MOUNTING FRAME TYPE WITH ARCHITECTURAL DRAWINGS.
3. PROVIDE FACTORY ACCESSORIES AS REQUIRED FOR CORRECT CEILING-TYPE INSTALLATION.
4. PROVIDE WITH INTERNAL DISCONNECT SWITCH, FACTORY FAN DELAY SWITCH, FACTORY HIGH TEMPERATURE CUTOUT SWITCH, AND INTEGRAL THERMOSTAT.

LENNOX SETUP PARAMETERS

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

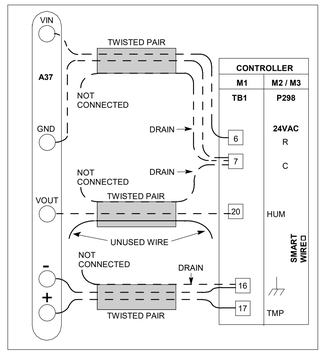
- **BACNET CONFIGURATION**: GO TO SETTINGS>GENERAL>CONFIGURATION ID1 POSITION 5 SET TO "B"
- **NETWORK CONFIGURATION:** GO TO SETUP>NETWORK INTEGRATION, SET TO BACNET
- **CONTROL MODE:** SET CONTROL MODE TO ROOM SENSOR: CO2, TEMP. & HUMIDITY TO "NO" ZE
- **ENTHALPY CONFIGURATION:** CHANGE CONFIG ID1 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 FULL 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
- PARAMETER 161 ECON FREE COOL OFFSET: 10 (DEFAULT)
- PARAMETER 162 FREE COOL ENTHALPY SET POINT (SINGLE ENTHALPY): 19 MA (60% 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



TYPICAL LENNOX SENSOR WIRING DIAGRAM. INSTALLER TO USE SEPARATE TWISTED-PAIR, SHIELDED CABLES AS NOTED.

WIRE RUNS OF 50' (15 m) OR LESS:
USE THREE SEPARATE SHIELDED CABLES CONTAINING 20AWG MINIMUM, TWISTED PAIR CONUCTORS WITH OVERALL SHIELD (BELDEN TYPE 8762 OR 88760 [PLENUM] OR EQUIVALENT). CONNECT CABLE SHIELD DRAIN WIRES AS SHOWN IN DIAGRAM.

WIRE RUNS OF 150' (46 m) OR LESS:
USE THREE SEPARATE SHIELDED CABLES CONTAINING 18AWG MINIMUM, TWISTED PAIR CONUCTORS WITH OVERALL SHIELD (BELDEN TYPE 8762 OR 88760 [PLENUM] OR EQUIVALENT). CONNECT CABLE SHIELD DRAIN WIRES AS SHOWN IN DIAGRAM.

1 M3.0 TEMPERATURE/HUMIDITY SENSOR WIRING DIAGRAM

NOT TO SCALE

AIR BALANCE

MARK	OUTSIDE AIRFLOW (CFM)	EXHAUST AIRFLOW (CFM)	TOTAL AIRFLOW
EF-1		375	-375 CFM
EF-2		400	-400 CFM
EF-3		200	-200 CFM
RTU-1	500		500 CFM
RTU-2	450		450 CFM
RTU-3	325		325 CFM
		TOTAL POSITIVE =	300 CFM

CONTROL SEQUENCE OF OPERATIONS: RTU (GAS)

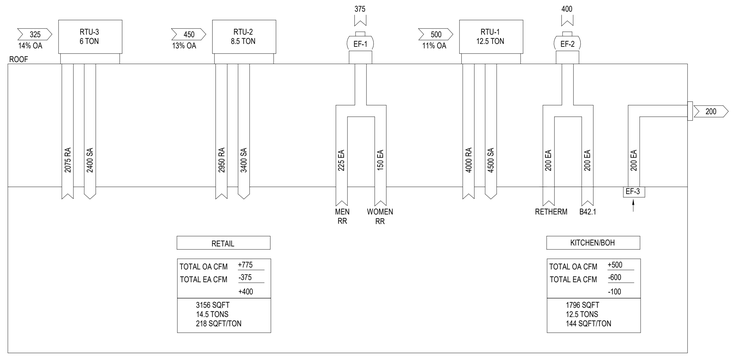
RTU SEQUENCE OF OPERATION

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

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

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

SMOKE DETECTOR
1. WHEN SMOKE DETECTOR IS ACTIVATED SUPPLY AIR FAN SHALL SHUTDOWN.
2. FIRE ALARM SHALL BE SIGNALED.
3. SUPPLY AIR FAN SHALL BE MANUALLY RESET. KEYPAD SET IN MANAGER'S OFFICE.



AIR BALANCE SCHEMATIC

NTS

HVAC GENERAL NOTES:

1. REFER TO WRITTEN BOOK SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. 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 WITHOUT EXTRA COST TO OWNER.
3. 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.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT, MATERIALS AND LABOR TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM AS INDICATED ON THE DESIGN DOCUMENTS.
5. CONTRACTOR SHALL PROVIDE ALL ROOFING OPENINGS, FLASHINGS, AUXILIARY STEEL, THREADED RODS, VIBRATION ISOLATORS, TURNBUCKLES, ETC. TO SUPPORT HIS EQUIPMENT ON OR FROM THE STRUCTURE.
6. ANY CHANGES AND/OR MODIFICATIONS MUST BE REVIEWED AND APPROVED BY THE ENGINEER OR OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
7. REMOVE ALL TRASH, DEBRIS AND DEMOLITION MATERIAL FROM PREMISES AT THE END OF EACH WORK DAY.
8. SCHEDULE ALL WORK, CUTTING AND BUILDING SERVICE INTERRUPTIONS WITH BUILDING OWNER AND CONSTRUCTION MANAGER, PRIOR TO COMPLETING WORK.
9. 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.
10. ALL NEW AND EXISTING PIPES AND DUCTS SHALL HAVE UL FIRE RATED SLEEVES AND/OR FIRE RATED DAMPERS, WHEN PASSING THROUGH FIRE RATED CONSTRUCTION.
11. COORDINATE LOCATION OF NEW DUCTWORK, AIR DEVICES AND EQUIPMENT WITH LIGHT FIXTURES, SPRINKLER PIPING AND HYDRONIC PIPING.
12. ALL TEMPERATURE AND HUMIDITY SENSORS SHALL BE INSTALLED 54" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE ON PLAN. COORDINATE FINAL LOCATIONS WITH EQUIPMENT, FURNITURE, TENANT AND ARCHITECT PRIOR TO INSTALLATION.
13. VERIFY ALL EQUIPMENT VOLTAGES, WIRING REQUIREMENTS, AND REQUIRED BREAKER SIZES WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.
14. 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.
15. 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.
16. 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.
17. 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.
18. 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.
19. ALL INSTALLATION OF THE MECHANICAL EQUIPMENT SHALL COMPLY WITH THE MANUFACTURER'S SPECIFICATION AND CLEARANCE REQUIREMENTS.
20. ALL HVAC WORK SHALL BE IN ACCORDANCE WITH NFPA 90A, 90B, 96, 54 AND NFC 101. LIFE SAFETY CODE.
21. 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.
22. 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.
23. 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.
24. 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.
25. 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.
26. ALL LOW VOLTAGE WIRING AND CONDUIT REQUIRED FOR MECHANICAL EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.
27. 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.
28. IN THE EVENT OF FAN SHUT DOWN, ALL DUCT MOUNTED DETECTORS SHALL REMAIN IN OPERATION.
29. 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.
30. 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.
31. 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.
32. FIELD VERIFY THE EXACT LOCATION OF ALL EQUIPMENT WITH ARCHITECT/OWNER PRIOR TO INSTALLATION. INFORM OWNER OF ANY EQUIPMENT ITEMS THAT REQUIRE RELOCATION.
33. PROVIDE VIBRATION ISOLATION DEVICES AND FLEXIBLE CONNECTIONS TO ALL MOVING MACHINERY.
34. 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. CONCEALED 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. SEAL ALL JOINTS AND SEAMS PRIOR TO ADDING DUCTWRAP. INSULATION WRAP SHALL BE SEALED WITH FAB AND MASTIC MEETING UL 181.
35. ALL DUCTWORK SHALL MAINTAIN SYSTEM PRESSURE. THE AIR DISTRIBUTION COMPONENTS SHALL BE SEALED IN ACCORDANCE WITH SMACNA REQUIREMENTS. TWO INCH PRESSURE CLASS.
36. DUCT INSULATION CLOSURE SYSTEM SHALL CONSIST OF GLASS FABRIC AND NON MIGRATING MASTIC, SEAL AIR TIGHT.
37. ALL FLEXIBLE DUCTS SHALL BE SUPPORTED EVERY 4'-0" WITH 2" WIDE GALVANIZE. 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.
38. ALL BRANCH TAKE-OFFS SHALL BE PROVIDED WITH MANUAL BALANCING DAMPERS LOCATED ABOVE ACCESSIBLE CEILINGS AS CLOSE TO MAIN TRUNK AS POSSIBLE. WHEN AIR DEVICE IS NOT ACCESSIBLE PROVIDE DAMPER AT AIR DEVICE.
39. 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.
40. ALL SUPPLY DUCT BENDS FROM THE VERTICAL TO HORIZONTAL AND ANGLED TURNS OF DUCTWORK SHALL HAVE TURNING VANES INSTALLED.
41. 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.
42. WAWA TO PROVIDE T&B VERIFICATION BY WORKING DIRECTLY WITH A T&B CONTRACTOR. GC/MC SHALL BALANCE TO DESIGNED CFM VALUES ON FLOOR PLAN, ANY CORRECTIONS FOUND IN 3RD PARTY T&B REPORT WILL BE THE RESPONSIBILITY OF THE GC TO CORRECT. GC SHALL FORMALLY SUBMIT CORRECTED REPORT TO DESIGN TEAM FOR REVIEW.
43. IT SHALL BE THE RESPONSIBILITY OF THIS T&B AGENCY TO PROVIDE THE LOCAL BUILDING DEPARTMENT AND OWNER WITH PROPER TEST & BALANCE DATA ON AABC OR NEBB FORMS.
44. 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.
45. ALL NEW EXPOSED SUPPLY AND RETURN DUCTWORK SHALL BE INTERNALLY INSULATED SPIRAL DOUBLE-WALL STEEL WITH MAXIMUM THERMAL CONDUCTANCE OF 0.27 BTU/HR/FT^2/°F. DUCT FITTINGS TO BE SLIP JOINT CONNECTION TYPE. FLANGE-TO-FLANGE CONNECTION TYPES ARE NOT ALLOWED. EXPOSED DUCTWORK TO BE PAINTED, REFER TO ARCHITECTURAL PLANS.
46. 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.
47. ALL RESTROOM MAKE-UP AIR SHALL BE GALVANIZED STEEL TRANSFER DUCTS WITH ZERO LEAKAGE BACKDRAFT DAMPERS AND DOOR UNDERCUTS.
48. MECHANICAL CONTRACTOR TO FIELD VERIFY WITH STRUCTURE ALL DUCT ROUTING PRIOR TO FABRICATION.
49. 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.
50. 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.
51. 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.
52. ENSURE NEAT AND CLEAN INSTALLATION OF ALL EXPOSED DUCTWORK AND AIR DEVICEES. 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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DOCUMENT DATE: 06/24/25
PROTO: U63FB-R FLY THRU
CYCLE: 2024.Q4.G5
PLAN ISSUE: CNST SET

JOHN KENNETH RAILEY
No 11800661

HVAC NOTES AND SCHEDULES

SHEET:
M3.0

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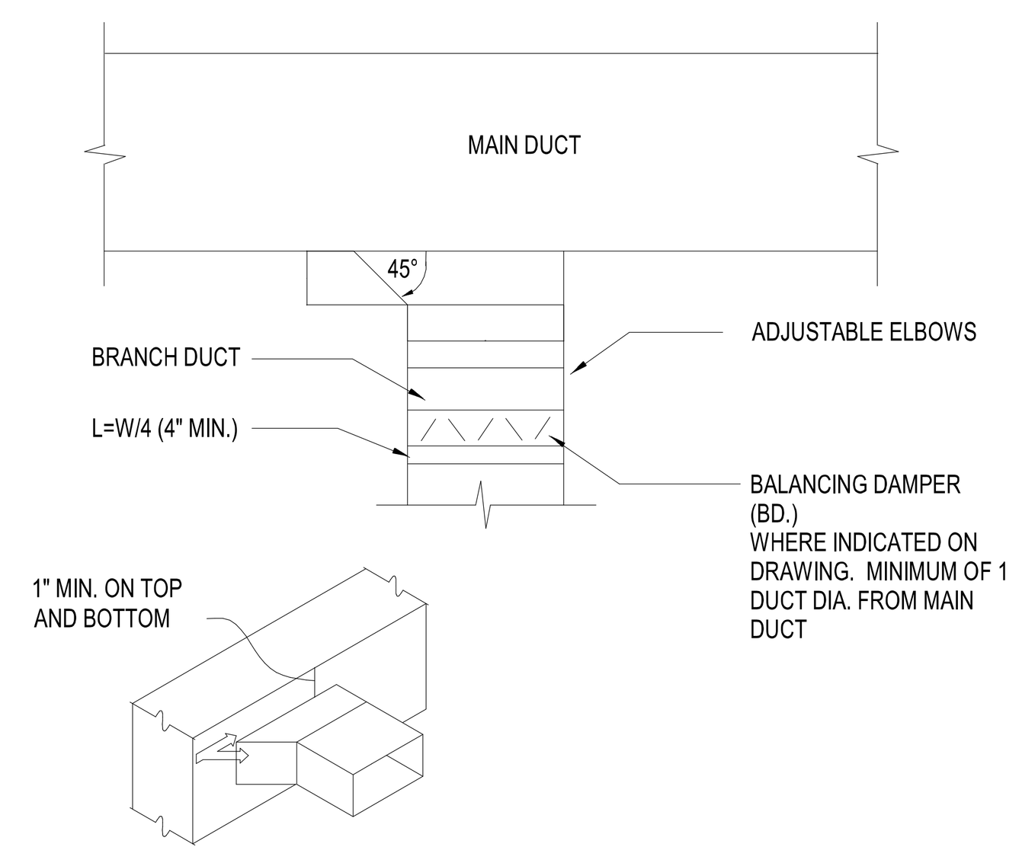

1 M4.0 RECTANGULAR BRANCH CONNECTION
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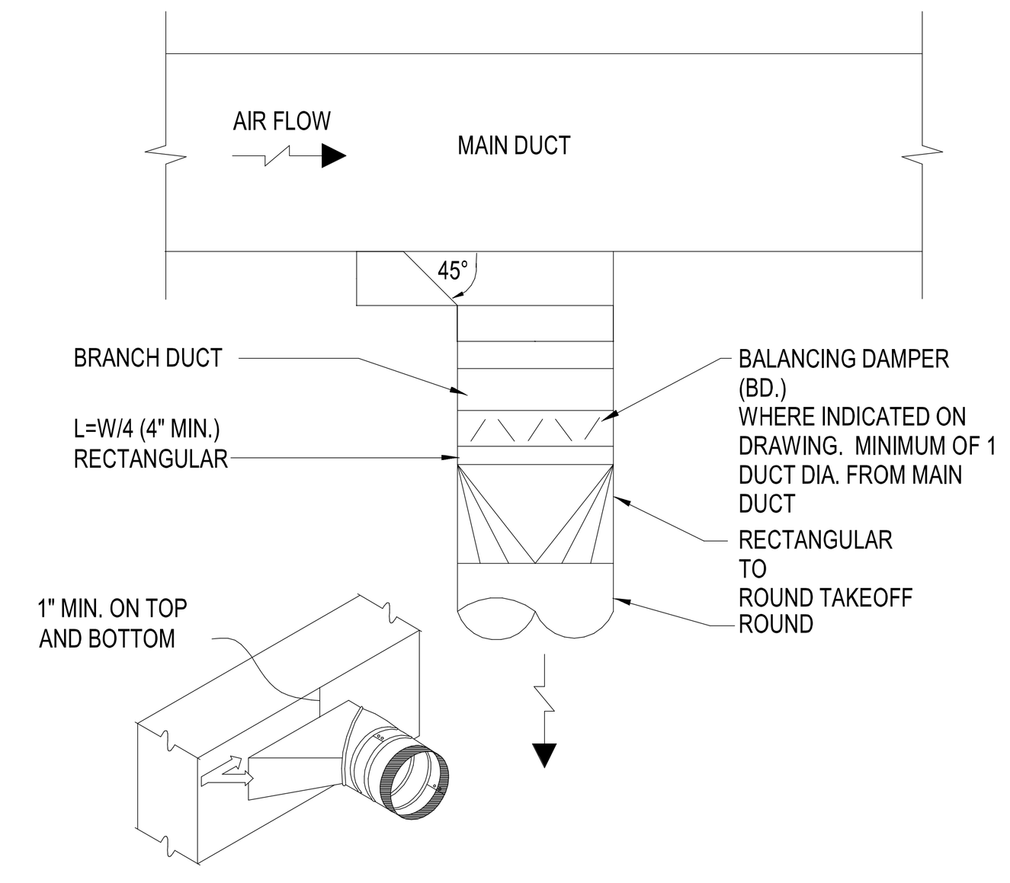

2 M4.0 ROUND BRANCH CONNECTION
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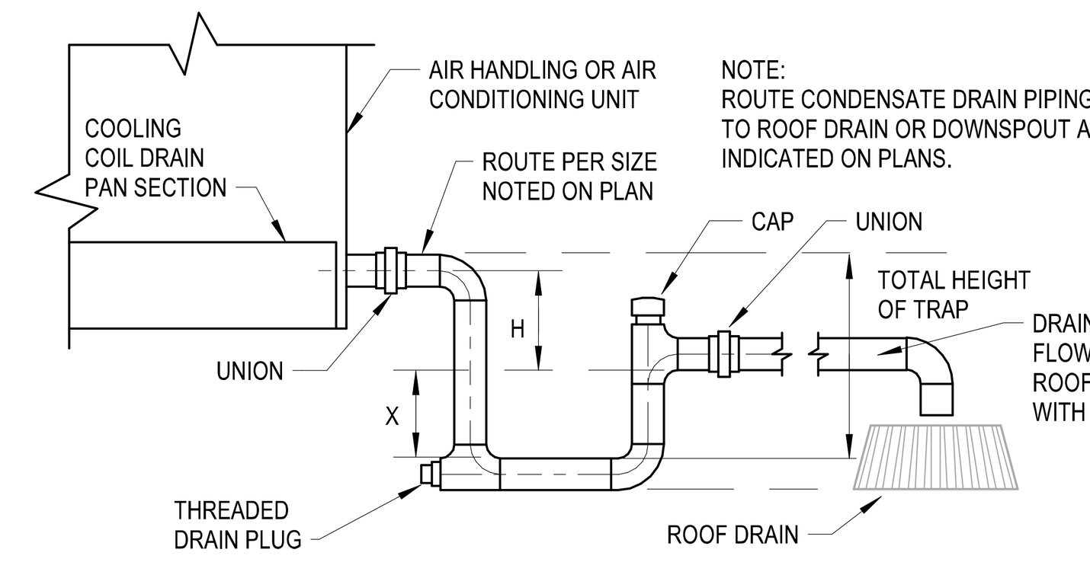


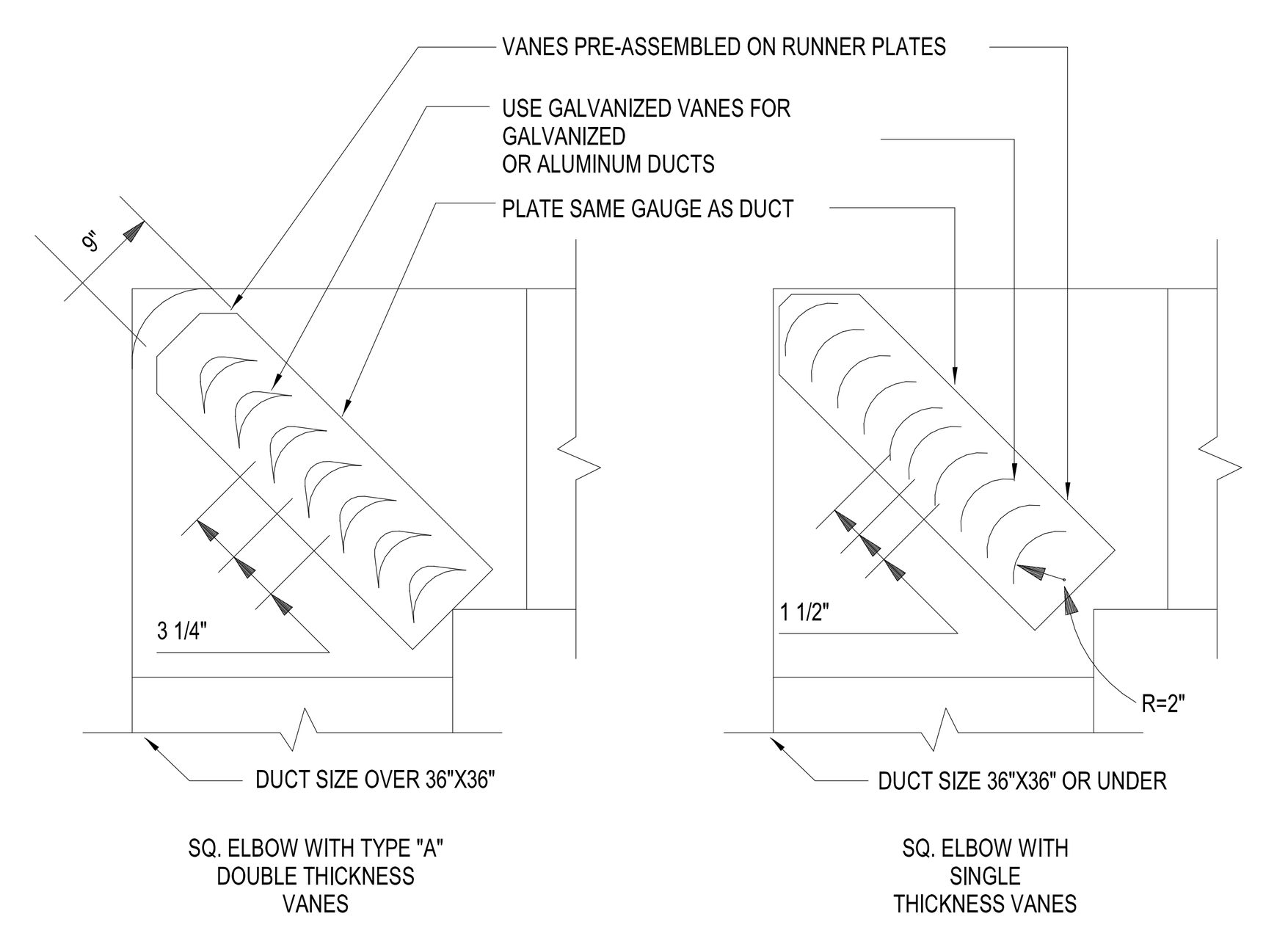
NOTE:
ROUTE CONDENSATE DRAIN PIPING TO ROOF DRAIN OR DOWNSPOUT AS INDICATED ON PLANS.

DRAIN TRAPPING HEIGHT		
FAN ARRANGEMENT	H	X
BLOW-THRU (POSITIVE STATIC PRESSURE)	A	B
DRAW-THRU (NEGATIVE STATIC PRESSURE)	D	C

A = MINIMUM 1"
B = AT LEAST 1" PLUS CASING STATIC PRESSURE
C = 1/2 "D"
D = AT LEAST 1" PLUS CASING STATIC PRESSURE

TOTAL HEIGHT OF TRAP = X + H + (1.5 x PIPE DIAMETER) (WITHOUT INSULATION)

3 M4.0 HVAC CONDENSATE DRAIN DETAIL
NOT TO SCALE



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.

SINGLE VANE SCHEDULE

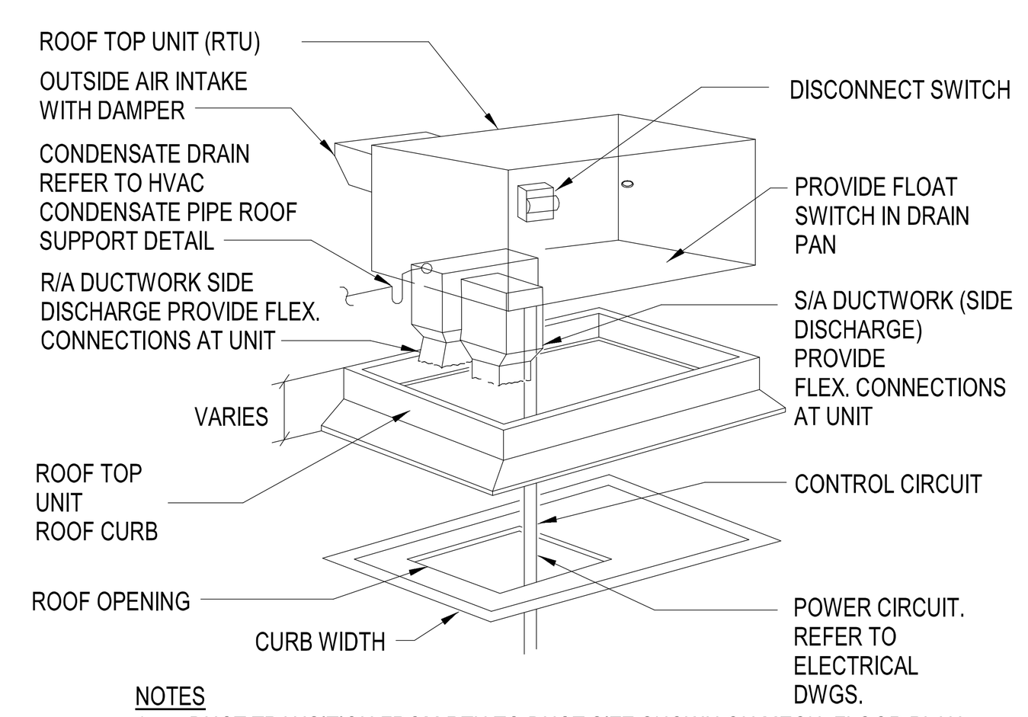
	R	SP	GA
SMALL	2"	1 1/2"	24
LARGE	4 1/2"	3 1/4"	22

* MAXIMUM UNSUPPORTED VANE LENGTH

SMALL SINGLE VANE	36"
LARGE SINGLE VANE	36"
SMALL DOUBLE VANE	60"
LARGE DOUBLE VANE	72"

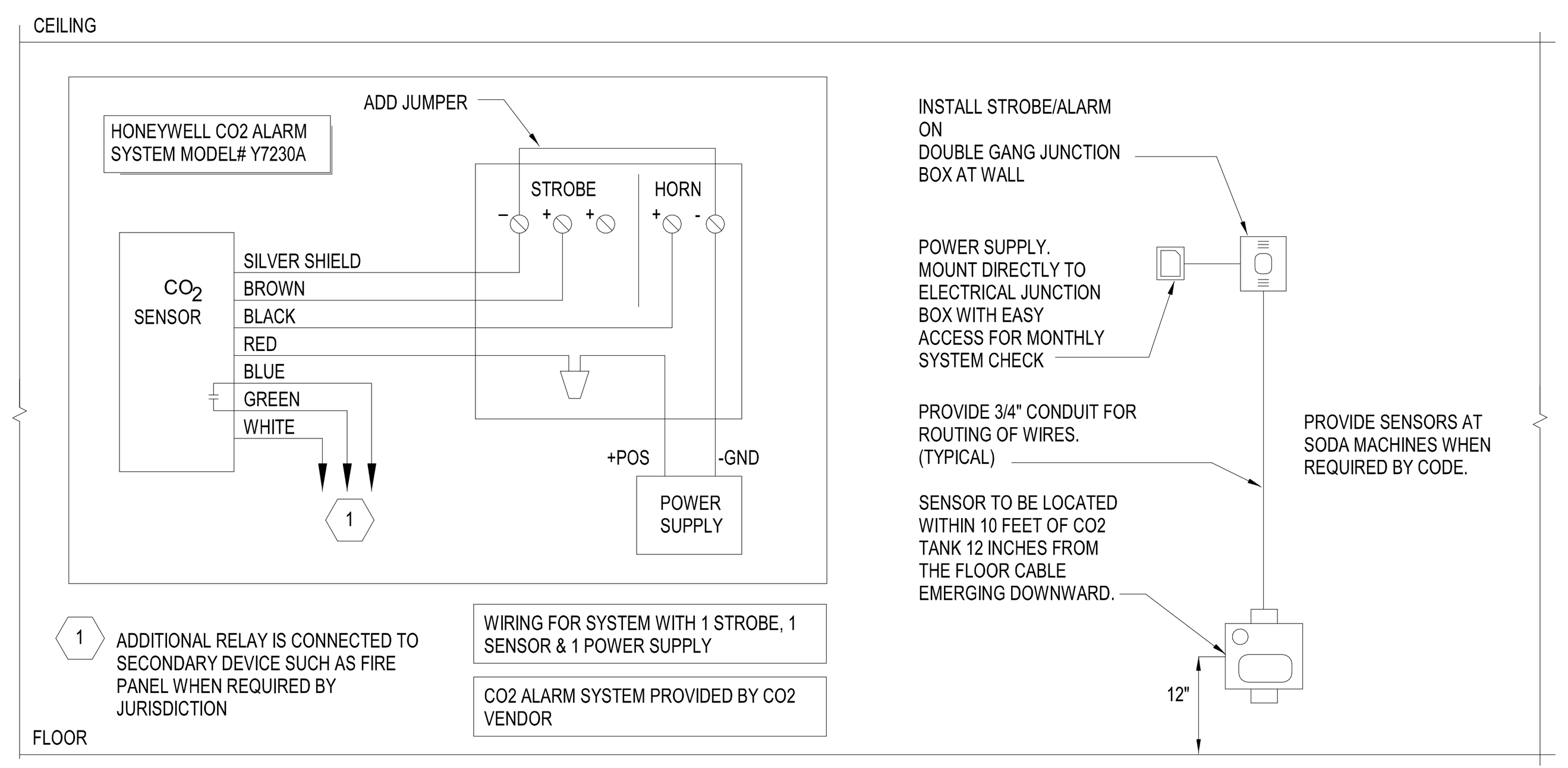
NOTE:
FOLLOW PER SMACNA STANDARDS.

4 M4.0 TURNING VANE DETAIL
NTS

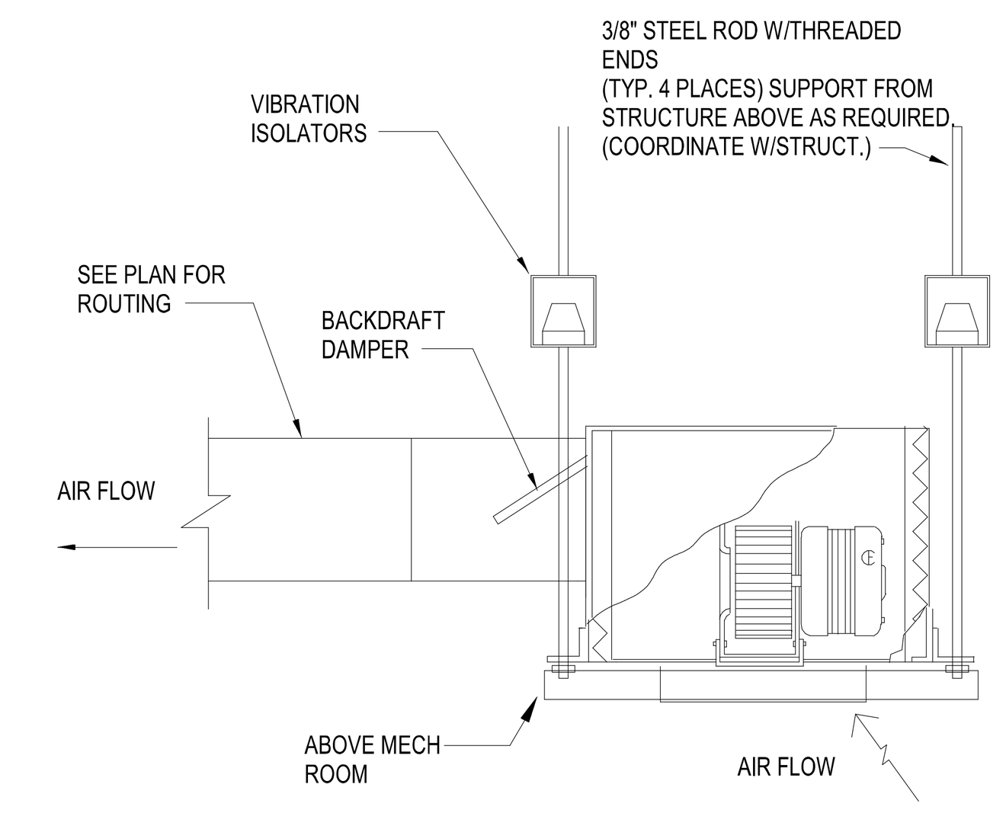


NOTES
1. DUCT TRANSITION FROM RTU TO DUCT SIZE SHOWN ON MECH. FLOOR PLAN SHALL BE MADE BETWEEN RTU & TOP OF ROOF WITHIN CURB.
2. SIZE OF OPENING IN ROOF DECK TO BE AS SMALL AS POSSIBLE. COORDINATE W/STRUCT. DWGS (6" MIN. LARGER THAN DUCT SIZE SHOWN)
3. INSTALL PER MANUFACTURER'S RECOMMENDATION AND INSTALLATION MANUAL.

5 M4.0 ROOF TOP UNIT MOUNTING DETAIL
NTS



6 M4.0 CO2 ALARM SYSTEM DETAIL
NTS



7 M4.0 CEILING EXHAUST FAN DETAIL
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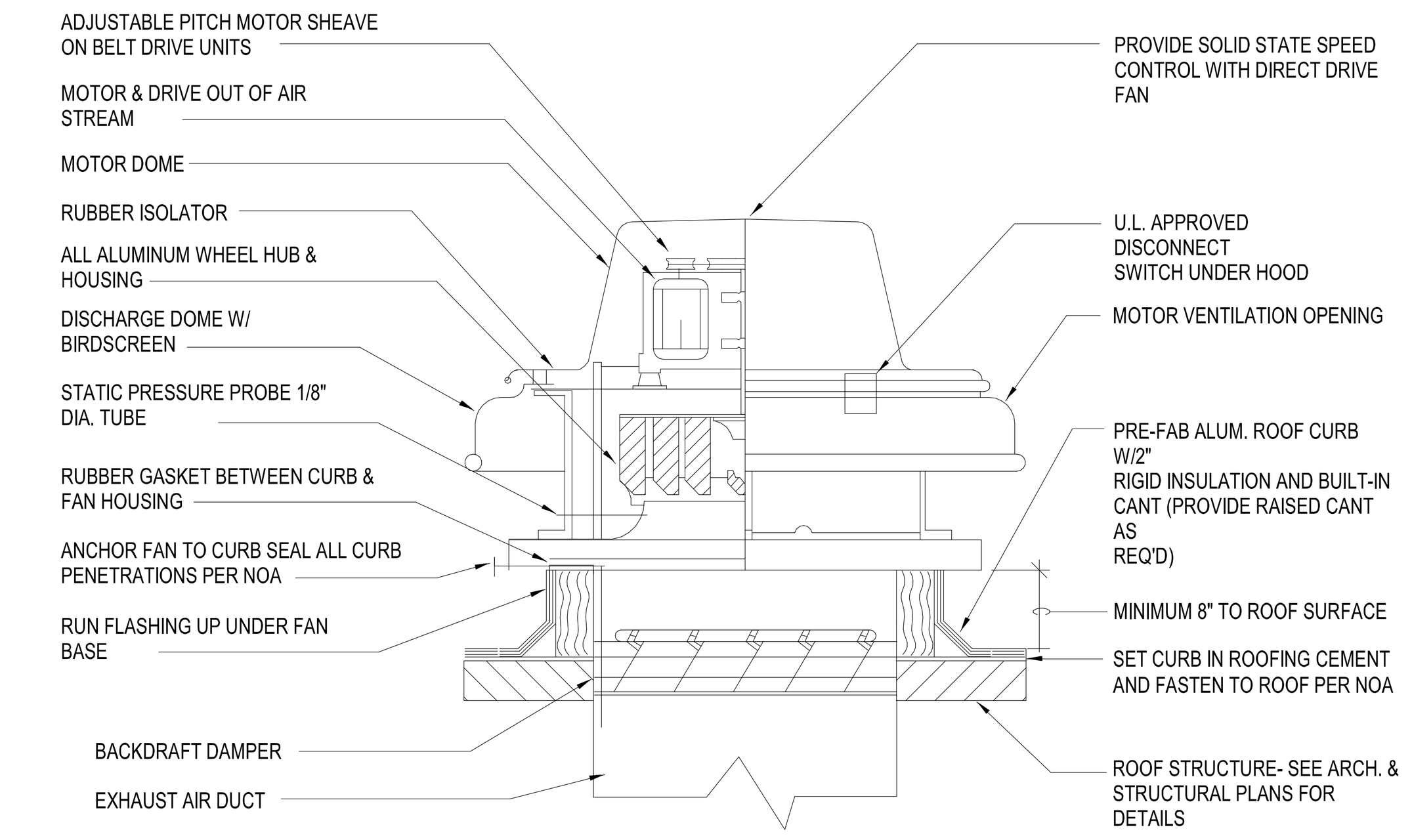

8 M4.0 TYPICAL EXHAUST FAN DETAIL
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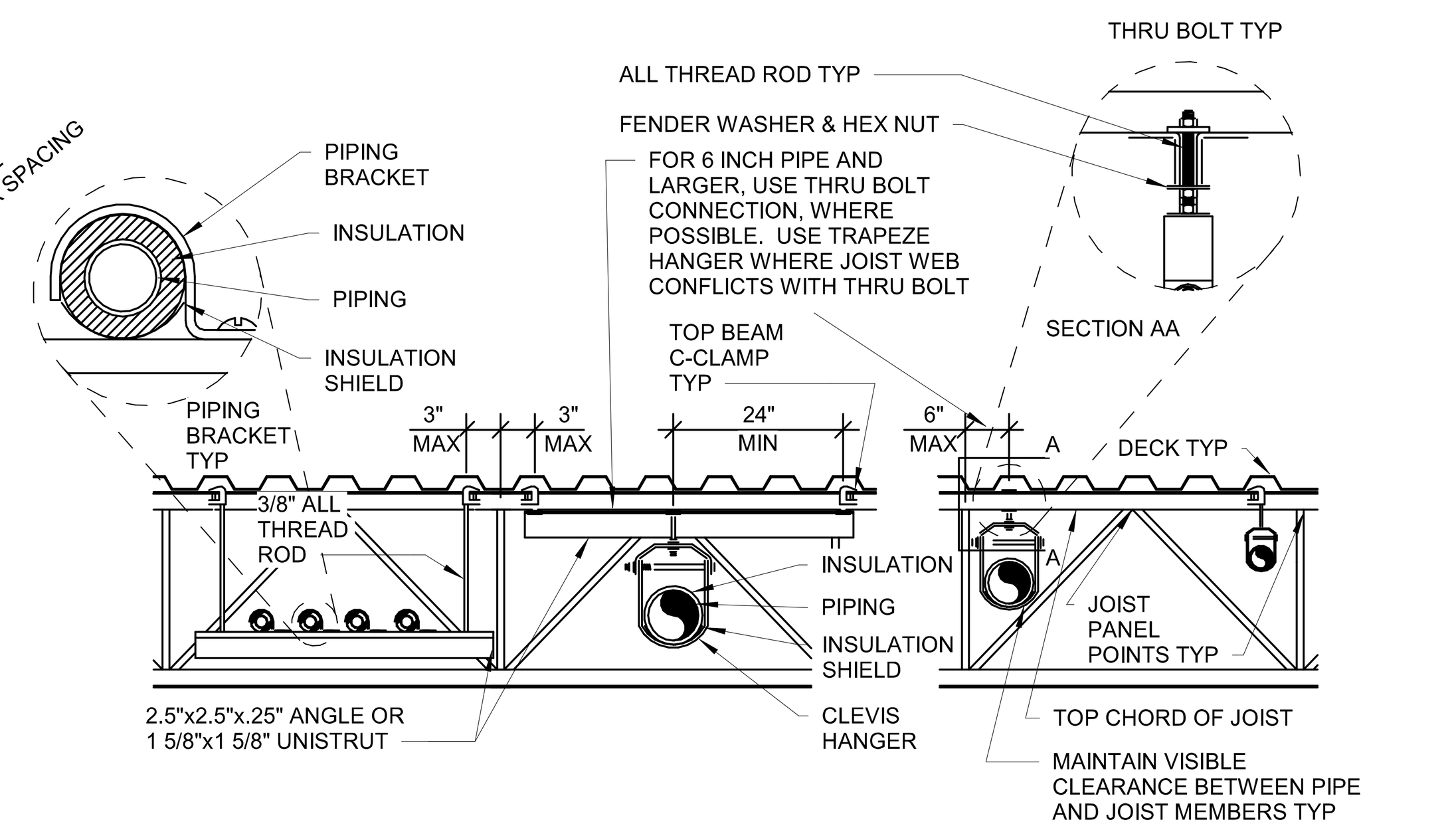
PIPE SIZE	STEEL PIPE HANGER SPACING	COPPER PIPE HANGER SPACING
1/2"	6'	6'
6'	6'	6'
1"	6'	8'
1-1/4"	6'	10'
1-1/2"	6'	10'
2"	10'	10'
2-1/2"	10'	10'
3"	10'	10'
4"	10'	10'



NOTES:
1. COORDINATE EXACT HANGING REQUIREMENTS WITH TRUSS MANUFACTURER.
2. INSTALL HANGER INSIDE INSULATION OR OTHERWISE PENETRATE VAPOR BARRIER. DO NOT HANG ONE PIPE FROM ANOTHER EXCEPT IN CHASES. SLOPE ALL WATER PIPING SLIGHTLY TOWARD DRAINABLE LOCATIONS. HANGER SPACING FOR PIPE SIZES AS INDICATED IN TABLE AND IN ACCORDANCE WITH AHJ REQUIREMENTS.
3. LOCATE HANGERS WITHIN 1'-0" OF ALL VALVES, FITTINGS, AND EQUIPMENT CONNECTIONS.
4. ANCHOR WATER PIPE AGAINST SWAYING DUE TO CHANGES IN WATER VELOCITY, CHAINS AND PERFORATED STRAP IRON AND STEEL ARE NOT ACCEPTABLE. DO NOT SUSPEND PIPE FROM JOIST BRACING MEMBERS.
5. PROVIDE SEISMIC BRACING IF/AS REQUIRED BY LOCAL AUTHORITIES.
6. REFER TO LOCAL CODES AND SPECIFICATIONS FOR FURTHER INFORMATION.
7. LOCATE HANGERS WITHIN 3 INCHES OF JOIST PANEL POINTS U.N.O.
8. INDIVIDUAL PIPES 3 INCH AND SMALLER NOT REQUIRED TO BE WITHIN 3 INCHES OF PANEL POINT.
9. FOR PIPE RUNNING PARALLEL TO JOISTS, ATTACH TRAPEZE BEAM CLAMPS TO JOISTS ON EACH SIDE OF PIPE TYP.
10. TRAPEZE HANGERS AND ALL THREAD RODS ARE SIZED TO CARRY (MAX) 6 - 3 INCH DIAMETER COPPER PIPES FULL OF WATER (37.62 LBS/FT) OR EQUIVALENT. IF LOAD EXCEEDS MAXIMUM, CONTACT THE EOR FOR PROPER SIZING

9 M4.0 PIPE HANGER FOR JOIST DETAIL
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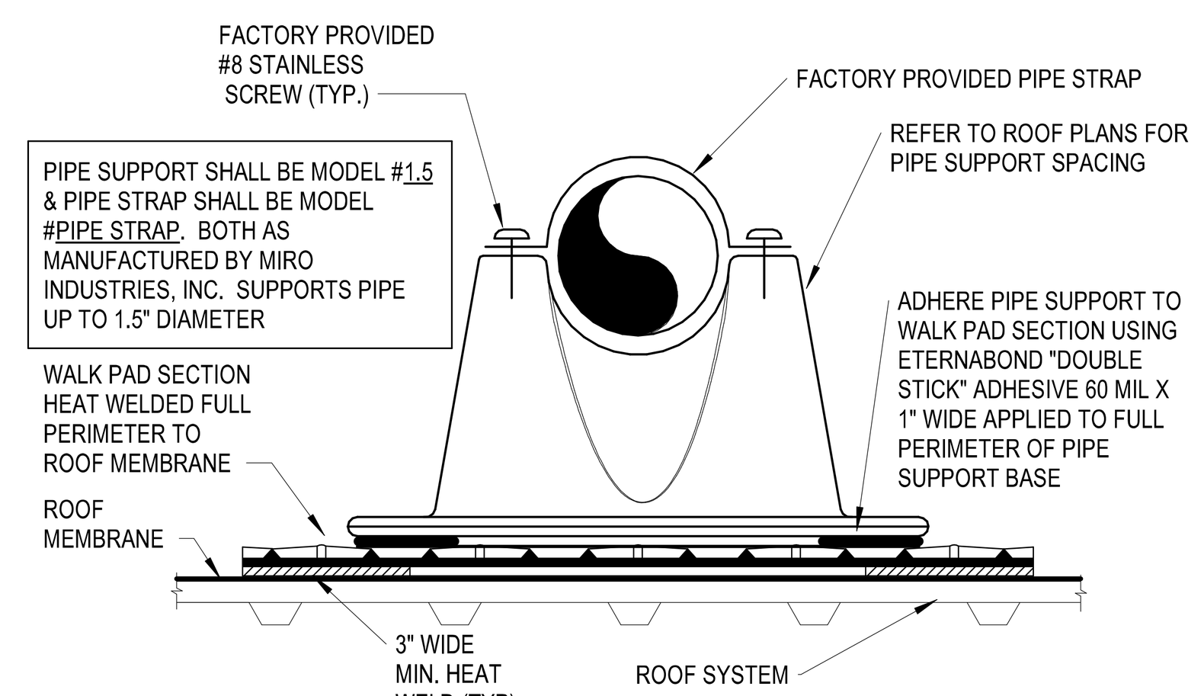

10 M4.0 HVAC CONDENSATE PIPE ROOF SUPPORT DETAIL
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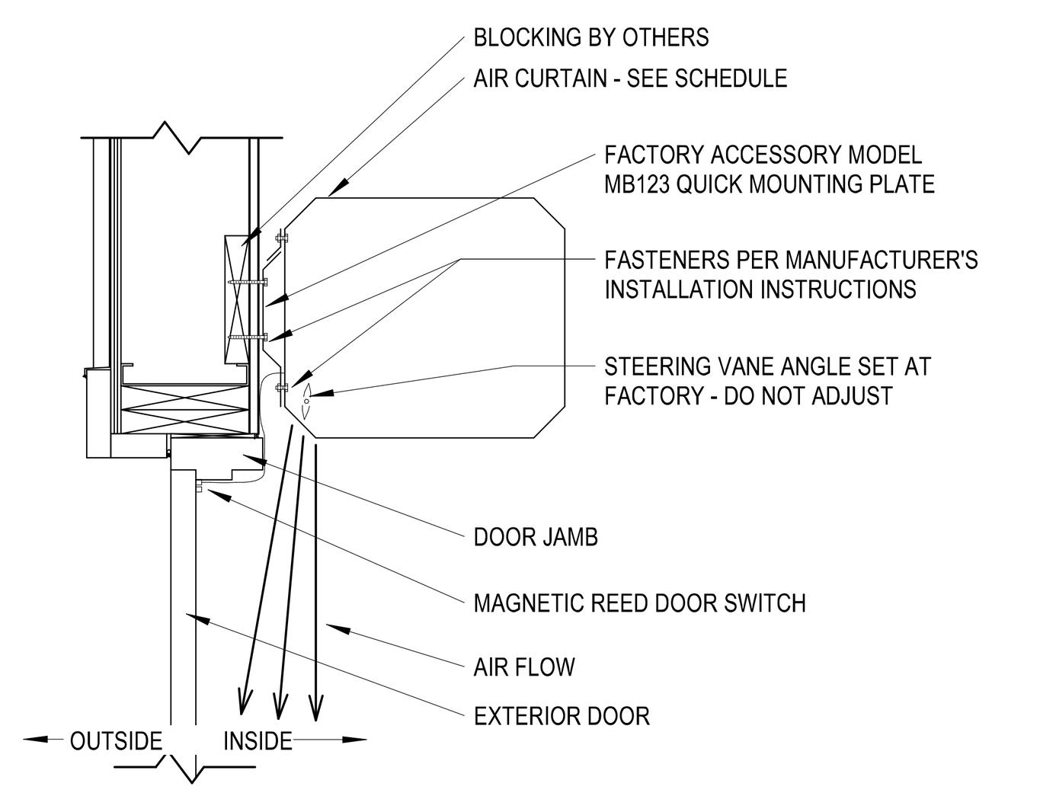

11 M4.0 HVAC AIR CURTAIN INSTALLATION DETAIL
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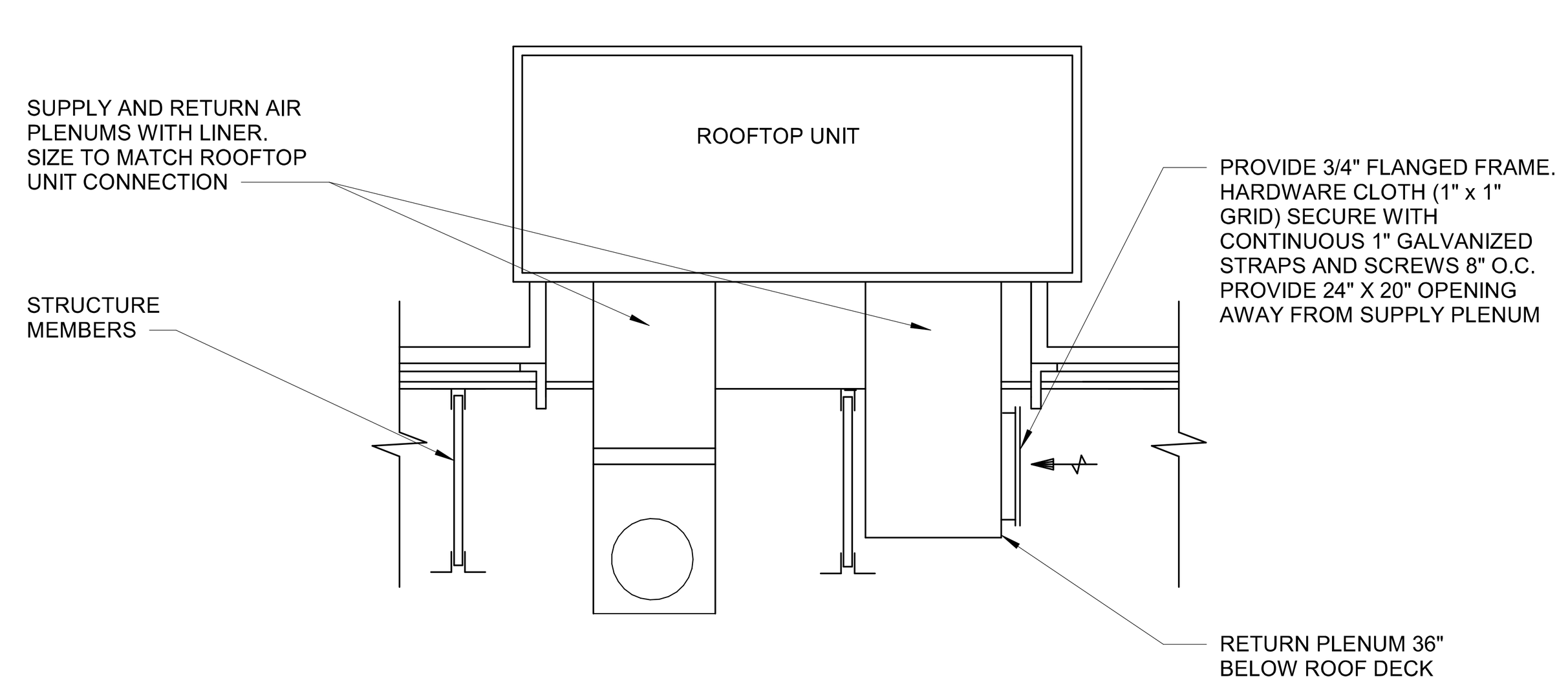

12 M4.0 RTU DUCTWORK DROP DETAIL
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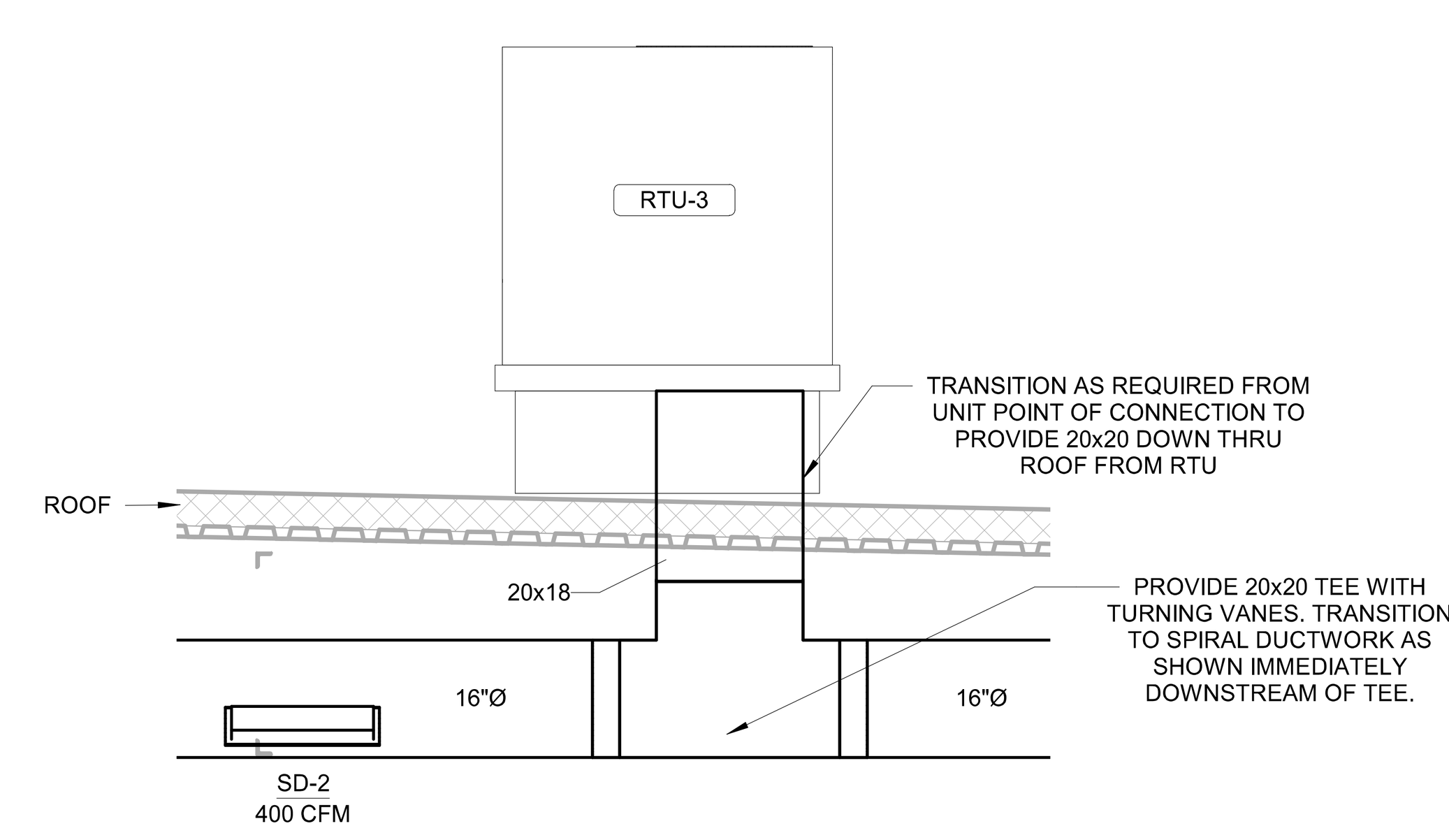
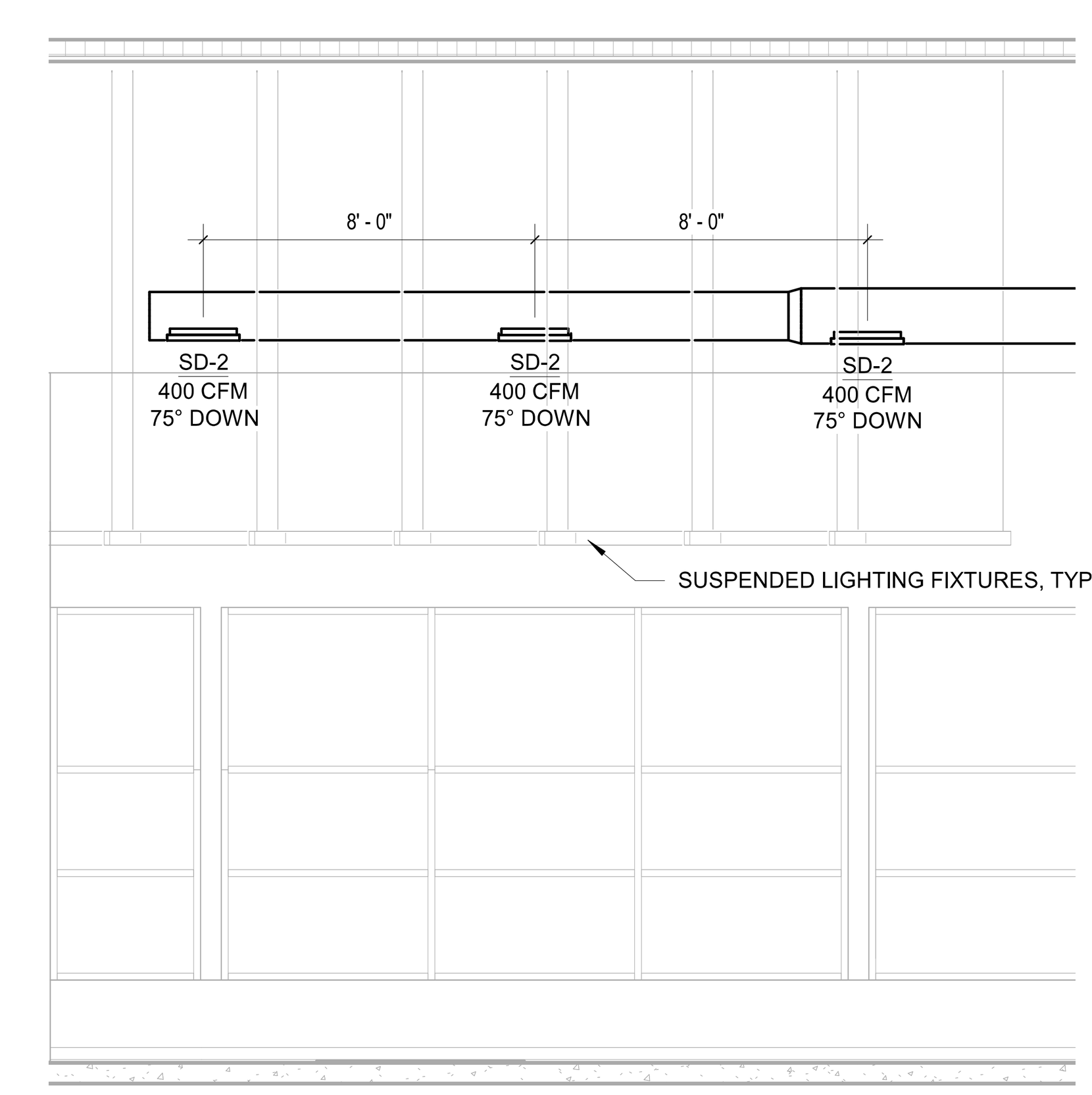
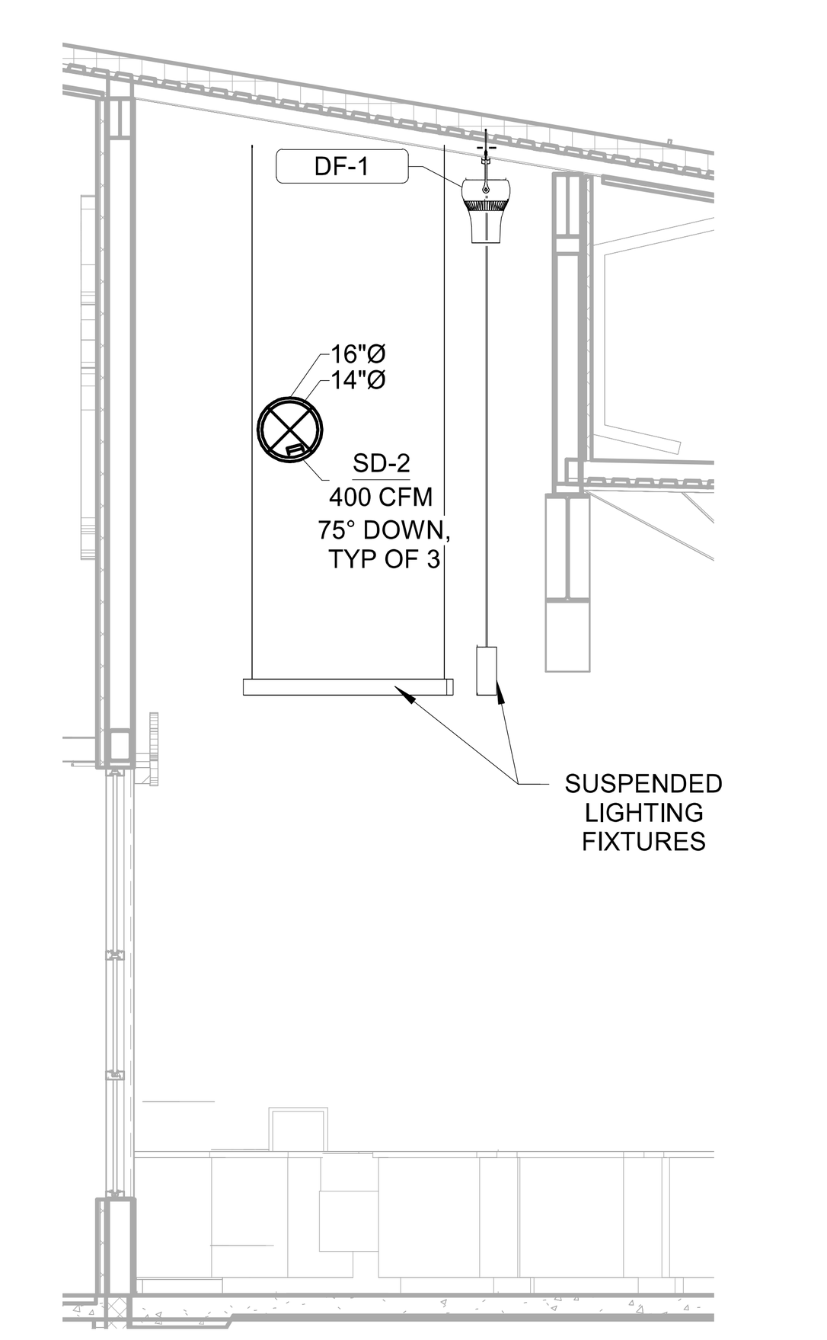


13 M4.0 RTU-3 SUPPLY DUCTWORK DROP
1/2" = 1'-0"



14 M4.0 FRONT RETAIL DIFFUSER LAYOUT
1/4" = 1'-0"



15 M4.0 FRONT RETAIL DIFFUSER ANGLE DETAIL
1/4" = 1'-0"

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MECHANICAL DETAILS

SHEET:
M4.0