

DIV. 23 - MECHANICAL SPECIFICATIONS

23 0500 - COMMON WORK RESULTS FOR HVAC

A. CUTTING OF EXISTING OR NEW CONSTRUCTION BY SAWING, DRILLING, BREAKING, CHIPPING, GRINDING, AND SIMILAR OPERATIONS, REQUIRED TO INSTALL SYSTEMS SHOWN, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR DIRECTLY RELATED TO THE WORK BEING PERFORMED.

23 0593 - TESTING, ADJUSTING, AND BALANCING

A. ASHRAE 62.1-2019: VENTILATION SYSTEMS SHALL BE BALANCED AT LEAST TO THE EXTENT THAT IS NECESSARY IN ORDER TO VERIFY AIRFLOW (SUPPLY, RETURN, EXHAUST, ETC.) QUANTITIES ARE WITHIN PLUS OR MINUS 10% OF THE CFM INDICATED IN THE CONSTRUCTION DOCUMENTS.

23 0700 - HVAC INSULATION

- A. DUCTWORK INSULATION: INSULATION AND INSTALLATION SHALL COMPLY WITH OMC 604.
- B. INSULATION SHALL BE MINERAL-FIBER WITH ALL-PURPOSE FACTORY-APPLIED FSK JACKET WHICH MEETS OR EXCEEDS THE 25/50 FLAME SPREAD/SMOKE DEVELOPED RATINGS.
- C. DUCTWORK THAT IS NOT INTERNALLY LINED OR CONSTRUCTED WITH 1" THICK FIBERBOARD SHALL BE PROVIDED WITH 1" THICK MIN. FSK INSULATION THAT MEETS OR EXCEEDS CODE REQUIRED MINIMUM INSTALLED R-VALUE.
- D. MINIMUM DUCT INSULATION R-VALUE SHALL BE PER TABLE 6.8.2B "MINIMUM DUCT INSULATION R-VALUE, COMBINED HEATING AND COOLING SUPPLY DUCTS AND RETURN DUCTS." REFER TO CLIMATE ZONE 5 IN ASHRAE 90.1-2019 FOR R-VALUES.

23 3113 - METAL DUCTS

- A. DUCTWORK SYSTEMS SHALL COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE" AND OMC 603 FOR ACCEPTABLE MATERIALS, MATERIAL THICKNESSES, AND DUCT CONSTRUCTION METHODS.
- B. MATERIAL: GALVANIZED SHEET STEEL; LOCK-FORMING QUALITY; COMPLYING WITH ASTM A 653/ A 653M AND HAVING G60 COATING DESIGNATION; DUCTS SHALL HAVE MILL-PHOSPHATIZED FINISH FOR SURFACES EXPOSED TO WEAR.
- C. DUCT LINER: FIBROUS-GLASS; 1" THICK WITH THERMAL CONDUCTIVITY OF 0.26 AT 75 DEG F MEAN TEMPERATURE; COMPLY WITH NFPA 90A OR NFPA 90B AND NAIMA AH124. SURFACES EXPOSED TO AIRSTREAM SHALL BE COATED TO PREVENT EROSION OF GLASS FIBERS. MAXIMUM 25/50 FLAME-SPREAD/SMOKE-DEVELOPED INDEX PER ASTM E 84.
- D. HANGER AND SUPPORTS: GALVANIZED SHEET STEEL OR THREADED STEEL ROD; SIZE AND INSTALLED PER SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE" AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- E. RECTANGULAR DUCT: FABRICATE DUCTS, ELBOWS, TRANSITIONS, ETC. IN ACCORDANCE WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE."
- F. ROUND DUCT: LONGITUDINAL- AND SPIRAL LOCK-SEAM DUCTS SHALL BE FABRICATED OF GALVANIZED STEEL ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE."

23 3116 - NONMETAL DUCTS

- A. FIBROUS-GLASS DUCTS SHALL COMPLY WITH SMACNA'S "FIBROUS GLASS DUCT CONSTRUCTION STANDARDS" FOR DUCT AND FITTING FABRICATION, CLOSURE, REINFORCEMENT AND INSTALLATION METHODS.
- B. FIBROUS-GLASS DUCTS (DUCT BOARD) SHALL BE CLASS 1 WITH FLAME-SPREAD INDEX OF 25 WITH NO EVIDENCE OF PROGRESSIVE COMBUSTION, AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50. DUCTS SHALL COMPLY WITH NFPA 90A AND NFPA 90B.
- C. DUCT BOARD SHALL BE A RIGID, RESIN BONDED FIBROUS GLASS BOARD WITH A TOUGH, DAMAGE-RESISTANT, FLAME RETARDANT, REINFORCED ALUMINUM FOIL (FRK) FACING DURABLE MAT AIR STREAM SURFACE. SHALL ISOLATE THE GLASS FIBER SUBSTRATE FROM THE AIRSTREAM. INTERIOR SURFACE SHALL ALSO INCLUDE AN EPA REGISTERED BIOGIDE THAT PROTECTS THE AIR STREAM SURFACE FROM MICROBIAL GROWTH AND MEETS ASTM C 1338, ASTM G 21 (FUNGI TEST) AND ASTM G 22 (BACTERIA TEST).
- D. HANGER AND SUPPORTS: GALVANIZED SHEET STEEL; GALVANIZED-STEEL HANGER WIRE; AND GALVANIZED-STEEL CHANNELS.
- E. CLOSURE MATERIAL: FOIL-SCRIM TAPE COMPLYING WITH UL 181A.
- F. REQUIRED MARKINGS: EI-RATING, UL LABEL, AND OTHER MARKINGS REQUIRED BY UL 181 ON EACH FULL SHEET OF DUCT BOARD; UL RATINGS FOR CLOSURE MATERIALS.
- G. SIZES SHOWN ON THE DRAWINGS ARE INSIDE DIMENSIONS. FIBROUS-GLASS DUCTS DO NOT NEED EXTERIOR INSULATION.
- H. MANUFACTURERS: OWENS CORNING #800 (1.5" THICKNESS, R-6) OR EQUAL.

23 3300 - DUCT ACCESSORIES

- A. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE" FOR ACCEPTABLE MATERIALS, MATERIAL THICKNESSES, AND DUCT CONSTRUCTION METHODS.
- B. MANUAL BALANCING DAMPERS: SINGLE-BLADE, OPPOSED-BLADE DESIGN, STANDARD LEAKAGE RATING WITH LINKAGE OUTSIDE OF AIRSTREAM, AND SUITABLE FOR HORIZONTAL OR VERTICAL INSTALLATIONS. INCLUDE LOCKING DEVICE TO HOLD SINGLE-BLADE DAMPERS IN A FIXED POSITION WITHOUT VIBRATION.
- C. TURNING VANES: FABRICATE 1-1/2" WIDE DOUBLE-WALL VANE, CURVED BLADES OF GALVANIZED SHEET STEEL SET 3/4" O.C.; SUPPORT WITH BARS PERPENDICULAR TO BLADES SET 2" O.C.; AND SET INTO VANE RUNNERS SUITABLE FOR DUCT MOUNTING.
- D. 4" FLEXIBLE CANVAS CONNECTOR: FLAME-RETARDANT OR NONCOMBUSTIBLE FABRICS, COATINGS, AND ADHESIVES COMPLYING WITH UL 181, CLASS 1. GLASS FIBER DOUBLE COATED WITH NEOPRENE; 26 OZ./SQ. YD. MINIMUM WEIGHT; SERVICE TEMP -40 TO +200 DEG F.
- E. FLEXIBLE DUCTS: INSULATED CONNECTORS SHALL COMPLY WITH UL 181, CLASS 1, BLACK POLYMER FILM SUPPORTED BY HELICALLY WOUND, SPRING-STEEL WIRE; FIBROUS-GLASS INSULATION; POLYETHYLENE VAPOR BARRIER FILM. CONNECT TO DUCT WITH NYLON STRAPS.
- F. FIRE DAMPERS: LABELED ACCORDING TO UL 555; RATED FOR 1.5 HOURS; CURTAIN TYPE WITH BLADES OUTSIDE OF AIRSTREAM (UNO). FABRICATED ROLL-FORMED, GALVANIZED-STEEL FRAME. SLEEVE SHALL BE INTEGRAL WITH DAMPER OR PROVIDED BY THE MECHANICAL CONTRACTOR. DAMPER TO BE COMPLETE WITH REPLACEABLE 165 DEG F RATED FUSIBLE LINK. FIRE DAMPERS SHALL BE STATIC TYPE FOR USE IN HVAC SYSTEMS THAT ARE AUTOMATICALLY SHUT DOWN IN THE EVENT OF FIRE.

23 3423 - EXHAUST FANS

- A. POWER VENTILATORS SHALL BE OF SIZE, CAPACITY, AND ELECTRICAL REQUIREMENTS AS INDICATED ON THE DRAWING AND AS SPECIFIED HEREIN.
- B. UNITS SHALL BE LISTED, LABELED AND COMPLY WITH NFPA 70, AMCA AND UL 1075.
- C. UNITS SHALL INCLUDE: INTEGRAL OR PLUG TYPE DISCONNECT; GRAVITY BACKDRAFT DAMPER; VIBRATION ISOLATION; DUCT CONNECTION; 12" ROOF CURB

23 3713 - DIFFUSERS, REGISTERS, AND GRILLES

- A. DEVICES SHALL HAVE A WHITE ENAMEL BAKED FINISH UNLESS NOTED OTHERWISE.
- B. DEVICES SHALL BE AS FOLLOWS:
 SUPPLY: LAY-IN: 24"x24" or 12"x12"; NECK SIZE ON PLAN TITUS #0MNI PRICE #5PD
 SURFACE: DBL DEFLECTION; SIZE ON PLAN TITUS #300RS PRICE #520D
 RETURN: LAY-IN: LOUVER FACE; SIZE ON PLAN TITUS #350RL PRICE #530
 3/4" SPACING; 45 DEG DEFLECTION
- C. PROVIDE SHEET METAL ROUND TO RECTANGULAR RETURN AIR BOX (FULL SIZE) AT EACH RETURN AIR DEVICE WITH NECK/COLLAR AS SHOWN FOR DUCTED RETURNS; FLAT BLACK INTERIOR.
- D. DEVICE NECK SIZE W/AIRFLOW RANGES IF NOT SHOWN ON PLANS:
 SUPPLY: 8"DIA 0 - 125 CFM RETURN/ 8"DIA 0 - 125 CFM
 8"DIA 125 - 225 CFM EXHAUST: 8"DIA 125 - 225 CFM
 10"DIA 225 - 335 CFM 10"DIA 225 - 400 CFM
 12"DIA 340 - 450 CFM 12"DIA 400 - 700 CFM
 14"DIA 450 - 650 CFM 14"DIA 700 - 1,100 CFM
- E. BASIS OF DESIGN: TITUS, PRICE, OR EQUAL.

MIN. DUCT INSUL. R-VALUE (NOTE 1)						
SUPPLY & RETURN FOR SERVICE(S)	CLIMATE ZONE	DUCT LOCATION				NOTES
		EXTERIOR (NOTE 2)	UNCONDITIONED SPACE AND BURIED DUCTS	INDIRECTLY CONDITIONED SPACES (NOTE 3 & 4)		
HEATING & COOLING	0 TO 4	R-8	R-6	R-1.9		
	5 TO 8	R-12	R-6	R-1.9		
HEATING ONLY	0 TO 1	NONE	NONE	NONE		
	2 TO 4	R-6	R-6	R-1.9		
	5 TO 8	R-12	R-6	R-1.9		
COOLING ONLY	0 TO 6	R-8	R-6	R-1.9		
	7 TO 8	R-1.9	R-1.9	R-1.9		

NOTES:
 1. INFORMATION TAKEN FROM ANSI/ASHRAE/ESNA STANDARD 90.1-2019, TABLE 6.8.2.
 2. MINIMUM INSULATION R-VALUES MAY BE EXCEEDED, INSULATION R-VALUES, MEASURED IN IN-FT2-F/BU, ARE FOR THE INSULATION INSTALLED AND DO NOT INCLUDE FILM RESISTANCE.
 3. INCLUDES ATTICS ABOVE INSULATED CEILING, PARKING GARAGES AND CRAWL SPACES.
 4. INCLUDES RETURN AIR PLENUMS WITH OR WITHOUT EXPOSED ROOF ABOVE.
 5. RETURN DUCTS IN THIS DUCT LOCATION DO NOT REQUIRE INSULATION.

DUCT CONSTRUCTION & SEALING						
DUCT SYSTEM	SMACNA CLASSIFICATION (NOTE 1)					
	SUPPLY AIR	RETURN AIR	EXHAUST AIR			
	S.P. CONSTRUCTION	S.P. CONSTRUCTION	S.P. CONSTRUCTION	S.P. CONSTRUCTION	S.P. CONSTRUCTION	S.P. CONSTRUCTION
	S.F. CLASS	S.F. CLASS	S.F. CLASS	S.F. CLASS	S.F. CLASS	S.F. CLASS
DUCT MAINS	3" B	-2" B	-2" B	B	B	2
DUCT BRANCHES	1" B	-1" B	-1" B	B	B	2

NOTES:
 1. FOR DUCT SYSTEMS NOT LISTED, REFER TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE" FOR REQUIREMENTS.
 2. REFER TO SPECIFICATIONS FOR DUCT CONSTRUCTION OPTIONS CONCERNING: METAL DUCT, DUCT LINER, DUCT INSULATION AND DUCT ACCESSORIES.

MINIMUM DUCT SEAL LEVEL (NOTE 1)						
DUCT LOCATION	DUCT TYPE					
	SUPPLY	RETURN	EXHAUST			
	< 2 in. W.C.	> 2 in. W.C.				
OUTDOOR	A	A	A	C		
UNCONDITIONED SPACES	B	A	B	C		
CONDITIONED SPACES (NOTE 2)	C	B	C	B		

NOTES:
 1. THIS IS A COMPILATION OF ASHRAE 90.1 & SMACNA DUCT CONSTRUCTION STDS.
 2. INCLUDES INDIRECTLY CONDITIONED SPACES SUCH AS RETURN AIR PLENUMS.
 SEAL CLASS REQUIREMENTS:
 CLASS A ALL TRANSVERSE JOINTS, LONGITUDINAL SEAMS, AND DUCT WALL PENETRATIONS. PRESSURE-SENSITIVE TAPES SHALL NOT BE USED AS THE PRIMARY SEALANT, UNLESS IT HAS BEEN CERTIFIED TO COMPLY W/ UL-181A OR UL-181B BY AN INDEPENDENT TESTING LABORATORY AND THE TAPE IS USED IN ACCORDANCE WITH THAT CERTIFICATION.
 CLASS B ALL TRANSVERSE JOINTS AND LONGITUDINAL SEAMS. PRESSURE-SENSITIVE TAPES SHALL NOT BE USED AS THE PRIMARY SEALANT, UNLESS IT HAS BEEN CERTIFIED COMPLY W/ UL-181A OR UL-181B BY AN INDEPENDENT TESTING LABORATORY AND THE TAPE IS USED IN ACCORDANCE WITH THAT CERTIFICATION.
 CLASS C ALL TRANSVERSE JOINTS

OUTDOOR AIR SCHEDULE														
NUMBER	ROOM DESIGNATION	ROOM AREA (SQ. FT.)	NO. OF PEOPLE	NO. OF FIXTURES	ASHRAE 62.1-2019/2013 HEALTH CARE GUIDELINE REQ.	AIR DISTRIBUTION						AIR MOVEMENT W/ADJACENT AREA REQUIRED ACH	DESIGN ACH	
						MIN. O/A REQ'D	DESIGN O/A	MINIMUM COMBINED OUTDOOR AIR RATE PER ASHRAE 62.1-2019, TABLE 6-1, IS	DESIGN O/A	MINIMUM COMBINED OUTDOOR AIR RATE PER ASHRAE 62.1-2019, TABLE 6-1, IS	DESIGN O/A			MINIMUM COMBINED OUTDOOR AIR RATE PER ASHRAE 62.1-2019, TABLE 6-1, IS
RTU1 - Lobby & Waiting O/A Damper @ 15%														
100	COMMON SPACE LOBBY	976	10		5 .06	109	300	2,000	2,000					
101,111	WAITING, CHECK-IN	1,163	30		30 7.5 .06	295	300	2,000	2,000			-	2 10	
SYSTEM TOTALS =						403	600	4,000	4,000					
SYSTEM SUMMARY:						CONDITIONED AREA: 2,139 SF	MIN. O/A REQ'D: 403 CFM	DESIGN AIRFLOW: 4,000 CFM	DESIGN O/A: 403 CFM	MINIMUM COMBINED OUTDOOR AIR RATE PER ASHRAE 62.1-2019, TABLE 6-1, IS 11.0 CFM PER PERSON FOR LOBBIES.				
RTU2 - UC North O/A Damper @ 10%														
120	CORRIDORS	827			.06	50	90	900	900					
121	INPATIENT CARE STATION	321	6		5 5 .06	49	80	800	800					
122	VITALS	138	2		20 15	30	30	300	300			-	6 14	
123	PATIENT RESTROOM	59	1			10	100			110	IN	10	12	
124	HB THERAPY	119	2		20 15	30	30	300	300			-	6 17	
125	EXAM	124	2		20 15	30	30	300	300			-	6 16	
126	EXAM	125	2		20 15	30	30	300	300			-	6 16	
127	EXAM	125	2		20 15	30	30	300	300			-	6 16	
128	EXAM	125	2		20 15	30	30	300	300			-	6 16	
130	NUTRITION	179	2		5 5 .12	31	40	400	400			-	6 14	
SYSTEM TOTALS =						310	400	4,000	3,900	110				
SYSTEM SUMMARY:						CONDITIONED AREA: 2,142 SF	MIN. O/A REQ'D: 310 CFM	DESIGN AIRFLOW: 4,000 CFM	DESIGN O/A: 400 CFM	MINIMUM COMBINED OUTDOOR AIR RATE PER ASHRAE 62.1-2019, TABLE 6-1, IS 7.5 CFM PER PERSON FOR MULTITUDE ASSEMBLY; 15.0 CFM PER PERSON FOR EXAM/PATIENT AREAS; 17.0 CFM PER PERSON FOR OFFICES.				
RTU3 - UC South O/A Damper @ 15%														
113	EVS	45			.12	5				80	IN	10	12	
114	FAMILY RESTROOM	95				15	100			150	IN	10	11	
115	PUBLIC SAFETY OFFICE	141	2		5 5 .06	18	45	300	300					
132	EXAM	116	2		20 15	30	45	300	300			-	6 17	
133	EXAM	117	2		20 15	30	45	300	300			-	6 17	
134	TREATMENT	161	3		20 15	45	75	500	500			-	6 20	
135	EXAM	117	2		20 15	30	45	300	300			-	6 17	
136	CONSULT	117	4		5 5 .06	27	45	300	300			-	6 17	
140	BACK CORRIDOR	355			.06	21	45	300	300					
141	SOILED UTILITY	55			.12	7	11	75		80	IN	10	10	
142	STAFF RESTROOM	53	1			11	75			110	IN	10	14	
143	STAFF LOUNGE	154	4		50 5 .12	39	45	300	300					
144	FLEX OFFICE	110	1		5 5 .06	12	45	300	300					
145	SUPPLIES	211			.12	25	49	325	325					
146	MED GAS	54			.12	6	19	125		150	IN	10	18	
147	MECHANICAL	190			.12	23	60	400	400					
SYSTEM TOTALS =						318	600	4,000	3,600	570				
SYSTEM SUMMARY:						CONDITIONED AREA: 2,091 SF	MIN. O/A REQ'D: 318 CFM	DESIGN AIRFLOW: 4,000 CFM	DESIGN O/A: 300 CFM	MINIMUM COMBINED OUTDOOR AIR RATE PER ASHRAE 62.1-2019, TABLE 6-1, IS 15.0 CFM PER PERSON FOR EXAM/PATIENT AREAS; 17.0 CFM PER PERSON FOR OFFICES.				
RTU4 - Shell O/A Damper @ 17.5%														
-	SHELL	5,370			.12	644	700	4,000	4,000					
SYSTEM TOTALS =						644	700	4,000	4,000					
SYSTEM SUMMARY:						CONDITIONED AREA: 5,370 SF	MIN. O/A REQ'D: 644 CFM	DESIGN AIRFLOW: 4,000 CFM	DESIGN O/A: 700 CFM	MINIMUM COMBINED OUTDOOR AIR RATE PER ASHRAE 62.1-2019, TABLE 6-1, IS 6.0 CFM PER PERSON FOR ASSEMBLY SPACES.				
RTU5 - Community / Public RR's O/A Damper @ 15%														
101	EVS	28			.12	3	8	50		80	IN	10	19	
102	RESTROOM	53	1			11	75			110	IN	10	14	
103	RESTROOM	53	1			11	75			110	IN	10	14	
104	COMMUNITY ROOM	665	40		120 5 .06	240	270	1,800	1,800					
SYSTEM TOTALS =						243	300	2,000	1,800	300				
SYSTEM SUMMARY:						CONDITIONED AREA: 799 SF	MIN. O/A REQ'D: 243 CFM	DESIGN AIRFLOW: 2,000 CFM	DESIGN O/A: 300 CFM	MINIMUM COMBINED OUTDOOR AIR RATE PER ASHRAE 62.1-2019, TABLE 6-1, IS 6.0 CFM PER PERSON FOR ASSEMBLY SPACES.				

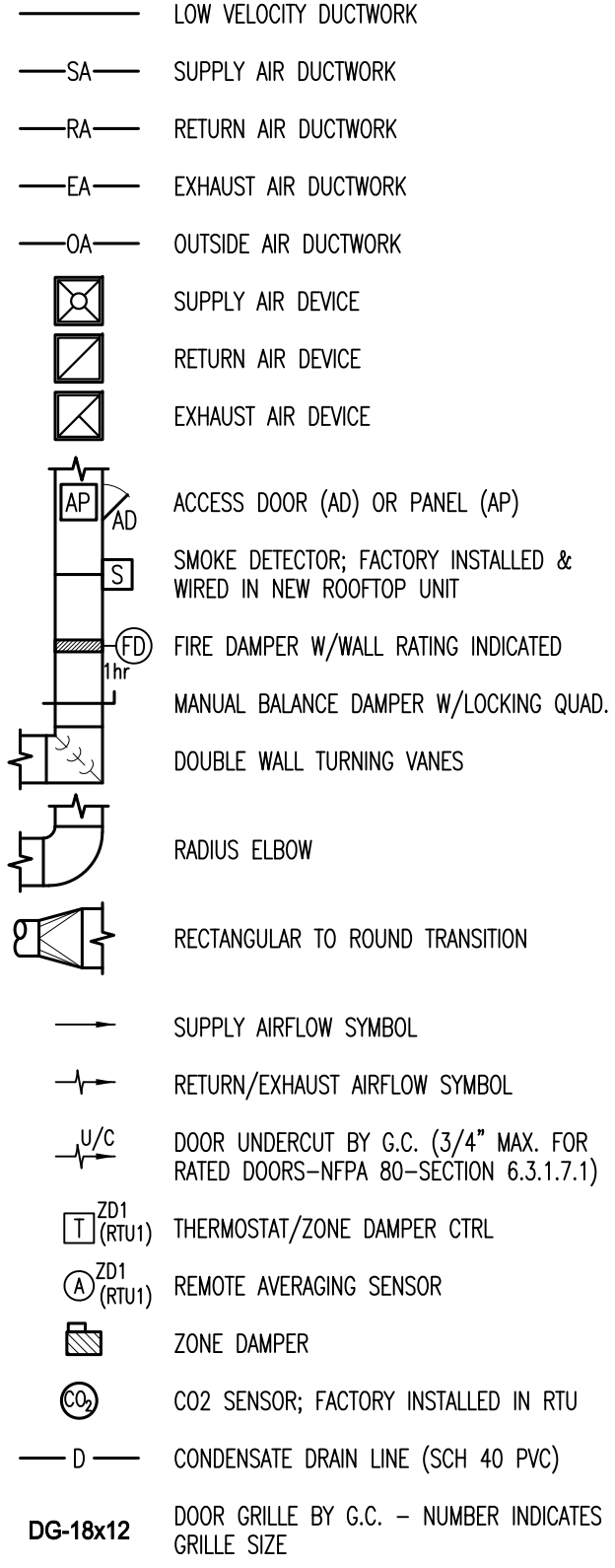
GENERAL NOTES

- A. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE CONTRACT DRAWINGS, IN ACCORDANCE WITH THE MEP'S RECOMMENDATIONS, AS SPECIFIED AND AS REQUIRED BY ALL APPLICABLE STATE, CITY AND LOCAL CODES AND REGULATIONS. ALL MECHANICAL WORK SHALL BE INSPECTED AND APPROVED BY THE AUTHORITY HAVING JURISDICTION PRIOR TO COVER-UP.
- B. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY UNLESS NOTED OTHERWISE. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST RESULTS SHALL BE DETERMINED AND COORDINATED WITH FIELD CONDITIONS.
- C. LOCATION OF AIR DEVICES SHALL BE COORDINATED WITH REFLECTED CEILING PLANS, SPRINKLER HEAD LAYOUTS, ETC. PRIOR TO DOING ROUGH-IN OR INSTALLATION WORK. PROVIDE DUCT RUNOUTS TO DIFFUSERS, GRILLES AND REGISTERS SAME SIZE AS THE DEVICE NECK.
- D. ALLOWABLE LENGTH OF FLEXIBLE DUCT FOR CONNECTIONS TO AIR DEVICES SHALL NOT BE LIMITED IN LENGTH (OMC 603.6.1.1). SUPPORT DUCTWORK PER SMACNA AND INSTALL WITHOUT SHARP BENDS, KINKS, ETC. FLEXIBLE CONNECTORS/DUCT SHALL NOT PASS THROUGH ANY WALL, FLOOR, CEILING OR FIRE-RESISTANCE-RATED ASSEMBLY (OMC 603.6.2.2 & OMC 607.7).
- E. REFER TO ARCHITECTURAL SHEETS FOR LOCATION OF WALLS THAT EXTEND UP TO ROOF DECK/STRUCTURE AND WALLS THAT ONLY EXTEND UP TO THE BOTTOM OF THE ROOF JOIST/FRAMING OR ABOVE CEILING SYSTEM.
- F. CONTRACTOR HAS THE OPTION OF PROVIDING ROUND OR RECTANGULAR GALV. SHEET METAL DUCTWORK WITH 2" THICK FSK WRAPPED INSULATION (R-6 VALUE AFTER INSTALLATION) OR 1" THICK FIBERGLASS DUCTBOARD. DUCTWORK MAY BE RE-SIZED AT 0.08" TO 0.10" W.G. PER 100' OF DUCT AS NECESSARY IN ORDER TO ACCOMMODATE FIELD CONDITIONS.
- G. INSTALL ALL REFRIGERANT PIPING AND ACCESSORIES IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND ANSI/ASHRAE STANDARD 15 "SAFETY STANDARD FOR REFRIGERATION SYSTEMS."
- H. EQUIPMENT: PROVIDE SERVICE AND OPERATING CLEARANCES AROUND ALL SIDES OF EACH PIECE OF EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED REQUIREMENTS AND RECOMMENDATIONS. COORDINATE ROOF MOUNTED EQUIPMENT WITH SCREEN WALL, WHERE APPLICABLE, PROVIDED BY OTHERS.

SCOPE OF WORK

- A. PACKAGED ROOFTOP UNITS SHALL BE PROVIDED AS SHOWN. RETURN AIR DUCT DUCT MOUNTED SMOKE DETECTORS AND CO2 SENSORS TO FACTORY PROVIDED AND INSTALLED WITHIN EACH ROOFTOP UNIT.
- B. FULLY DUCTED SYSTEM AIR DISTRIBUTION SYSTEMS WITH AIR DEVICES, ZONE/BYPASS DAMPERS, CONTROLS, ACCESSORIES, ETC. INSTALLED FOR A FULLY FUNCTIONAL AND OPERATIONAL SYSTEM.
- C. MINI SPLIT SYSTEMS PROVIDED AS DETERMINED BY TENANT WITH OUTDOOR UNITS LOCATED ON THE ROOF; SYSTEMS REQUIRED FOR IT/SERVER ROOMS, MED ROOMS AND LABS.
- D. EXTERIOR FRAMED WALL AND/OR ROOF OPENINGS SHALL BE PROVIDED BY G.C.
- E. MEDICINE, CLEAN/LINEN ROOMS, ETC. SHALL BE PROVIDED WITH A MINIMUM OF 4 ACH AND SHALL BE POSITIVE TO THE ADJACENT SPACES; DO NOT RETURN ALL AIR FROM THIS SPACE IN ORDER TO MAINTAIN THIS REQUIREMENT IF A STAND-ALONE MINI SPLIT WASN'T INSTALLED FOR THE AREA.
- F. RESTROOM(S), SOILED/DIRTY ROOMS, JANITOR CLOSETS, ETC. SHALL BE PROVIDED EXHAUST AT 10 ACH; DISCHARGE TO THE EXTERIOR IN A CODE COMPLIANT MANNER.
- G. AIRBORNE INFECTION ISOLATION (AI) ROOM SHALL COMPLY WITH ASHRAE 170-2021 WITH CONTINUOUS EXHAUST TO MAINTAIN 12 ACH; PROVIDE WITH ROOM PRESSURE MONITOR AND CONTROLLER.

LEGEND



COMcheck Software Version COMcheckWeb
Mechanical Compliance Certificate

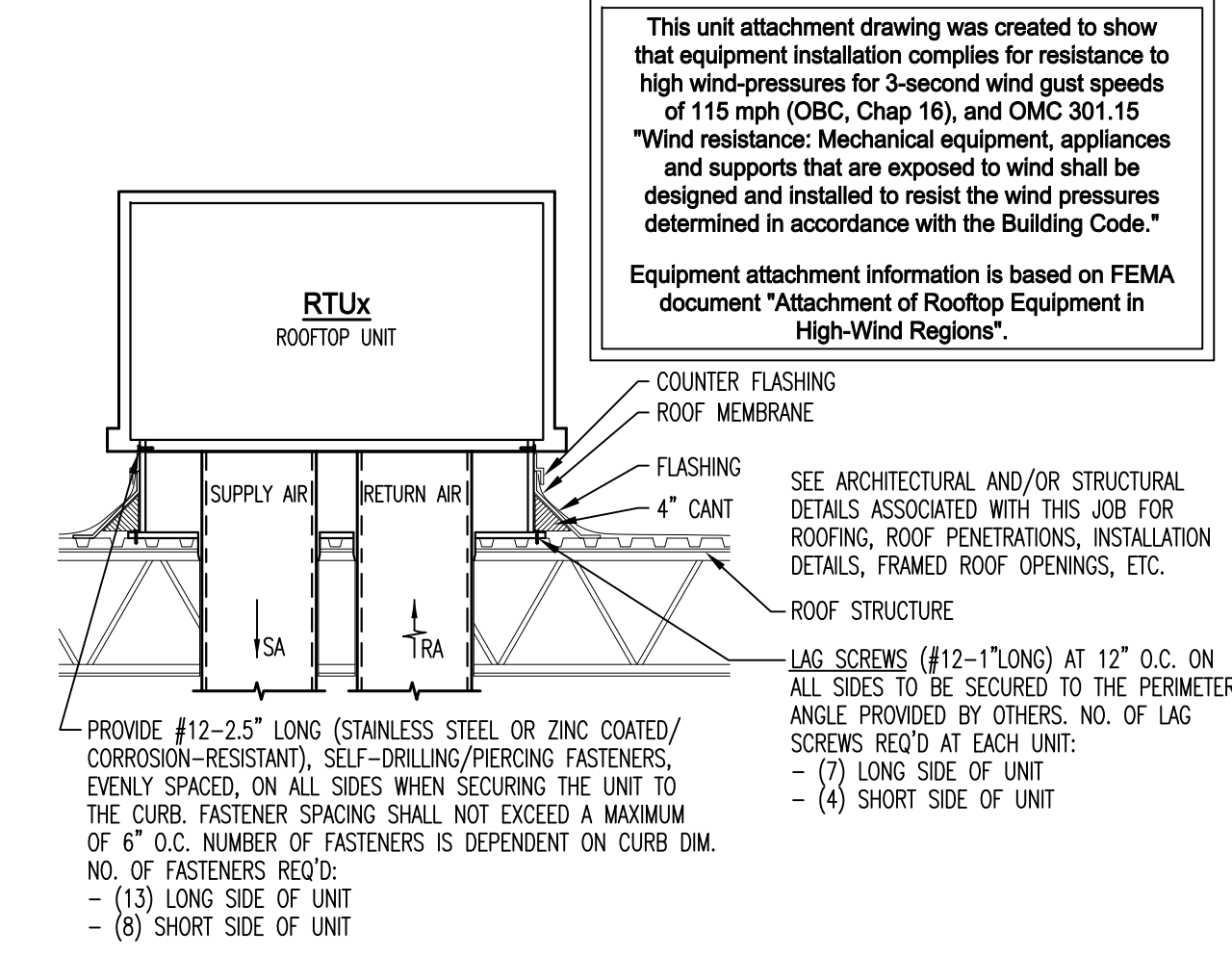
Project Information
 Energy Code: 90.1 (2019) Standard
 Project Title: DCH Westside Germantown
 Location: Dayton, Ohio
 Climate Zone: 5a
 Project Type: New Construction

Construction Site: 1711 Germantown St. Dayton, Ohio 45417
 Owner/Agent:
 Designer/Contractor: Detmer Mechanical Services 9181 N. Dixie Dr. Dayton, Ohio 45414 937-709-3877

- Mechanical Systems List**
Quantity System Type & Description
- 4 RTU1 thru RTU4 (Single Zone).
 Heating: 1 each - Central Furnace, Gas, Capacity = 224 kBtu/h
 Proposed Efficiency = 81.00% Et, Required Efficiency: 80.00 % Et (or 80% AFUE)
 Cooling: 1 each - Single Package DX Unit, Capacity = 122 kBtu/h, Air-Cooled Condenser, Air Economizer
 Proposed Efficiency = 11.00 EER, Required Efficiency = 11.00 EER
 Proposed Part Load Efficiency = 15.00 IEER, Required Part Load Efficiency = 14.60 IEER
 Fan System: FAN SYSTEM 1 | 1 Ton RTU SF -- Compliance (Motor nameplate HP and fan efficiency method) : Passes
 - Fans:
 FAN 1 Supply, Constant Volume, 4000 CFM, 3.0 motor nameplate hp, 1.00 fan energy index
 - 1 RTU5 (Single Zone).
 Heating: 1 each - Central Furnace, Gas, Capacity = 110 kBtu/h
 Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et (or 80% AFUE)
 Cooling: 1 each - Single Package DX Unit, Capacity = 62 kBtu/h, Air-Cooled Condenser, Air Economizer
 Proposed Efficiency = 13.40 SEER2, Required Efficiency = 13.40 SEER2
 Proposed Part Load Efficiency = 0.00 - Required Part Load Efficiency = 0.00
 Fan System: FAN SYSTEM 2 | 5 Ton RTU SF -- Compliance (Motor nameplate HP and fan efficiency method) : Passes
 - Fans:
 FAN 2 Supply, Constant Volume, 2000 CFM, 2.0 motor nameplate hp, 1.00 fan energy index

Mechanical Compliance Statement
 Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2019) Standard requirements in COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

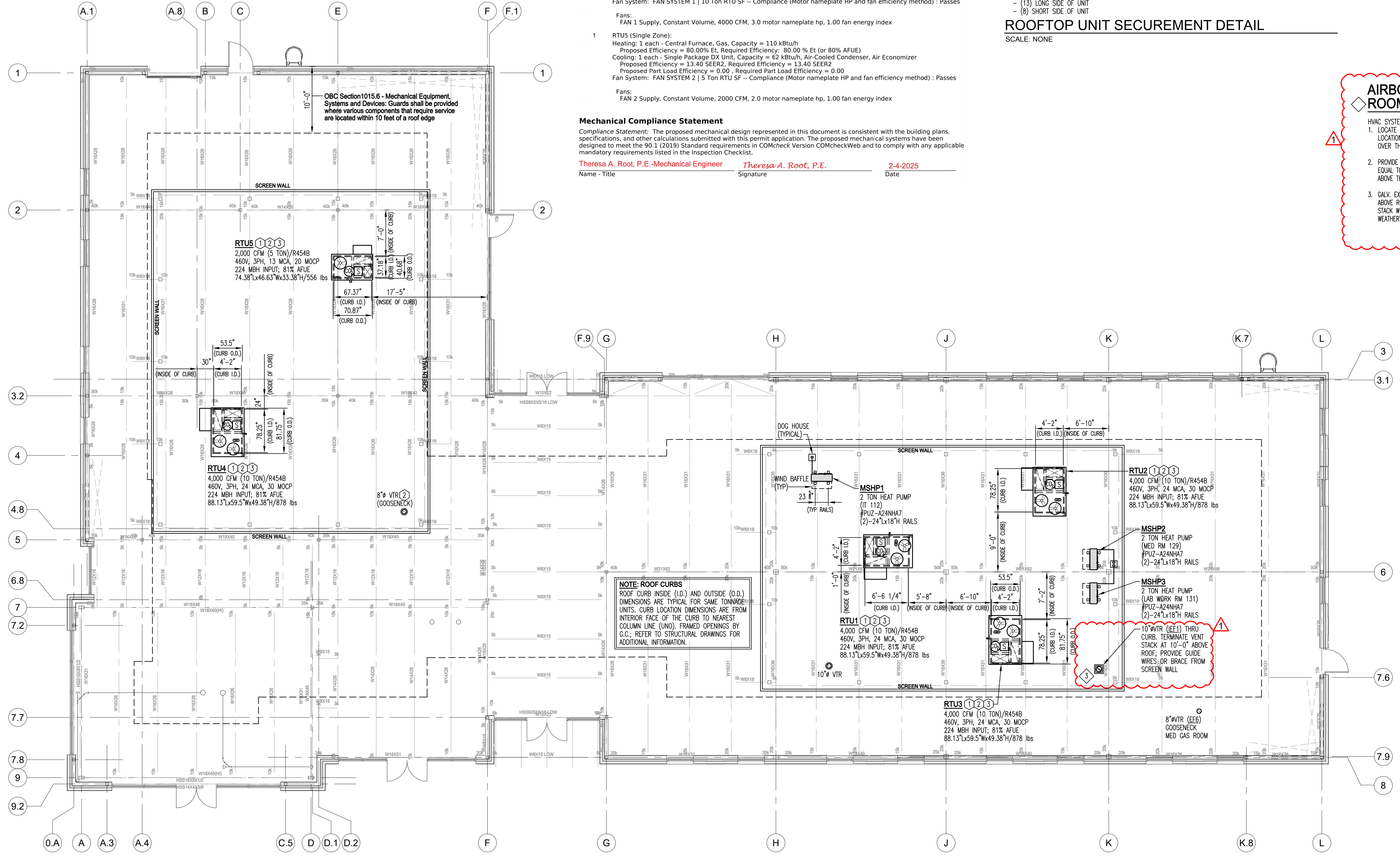
Theresa A. Root, P.E. - Mechanical Engineer
 Name - Title Theresa A. Root, P.E. Signature Date 2-4-2025



ROOFTOP UNIT SECUREMENT DETAIL
 SCALE: NONE

- CONSTRUCTION NOTES**
- COORDINATE LOCATION OF ROOFTOP UNIT WITH STRUCTURAL FRAMING. SHIFT AS NECESSARY. PROVIDE FULL SIZE SCHEDULE 40 PVC CONDENSATE DRAIN W/TRAP ROUTED/DIRECTED TOWARDS AREA ROOF DRAIN. COORDINATE MFR REQUIRED UNIT CLEARANCES W/RESPECT TO SCREEN WALL.
 - PROVIDE FULL SIZE SUPPLY AND RETURN AIR DROPS DOWN THRU CURB INTO SPACE W/DUCTWORK LAYOUT AS SHOWN.
 - IF NOT FACTORY INSTALLED, INSTALL RETURN AIR DUCT MOUNTED SMOKE DETECTOR AND CO2 SENSOR PER THE MFR'S INSTRUCTIONS; DEVICES PROVIDED WITH RTU. SMOKE DETECTORS SHALL BE INTERLOCKED AS FOLLOWS TO SHUT DOWN UNITS TOGETHER UPON DETECTION OF SMOKE BY ANY UNIT:
 - RTU1, RTU2 & RTU3 (DCH URGENT CARE)
 - RTU4 (SHELL) - NO INTERLOCKING REQUIRED
 - RTU5 (COMMUNITY ROOM) - NO INTERLOCKING REQUIRED
 - MINI SPLIT OUTDOOR UNIT (AC/HP) SHALL BE INSTALLED ON, AND SECURED TO (2)-18"x24" EQUIPMENT RAILS WITH (2)-STRAPS AND A MINIMUM OF (2)-SCREWS ON EACH STRAP TO COMPLY WITH OMC 301.15 WIND RESISTANCE AND FEMA'S "ATTACHMENT OF ROOFTOP EQUIPMENT IN HIGH-WIND REGIONS." EQUIPMENT RAILS SHALL BE SECURED/ATTACHED TO ROOF FRAMING. ROUTE REFRIGERANT LINE SET DOWN TO RESPECTIVE INDOOR UNIT THRU COMMON DOG HOUSE/PIPE CURB. SEAL ALL PENETRATIONS WEATHERTIGHT.

- AIRBORN INFECTION ISOLATION (AII) ROOM NOTES:**
- HVAC SYSTEM(S) SHALL COMPLY WITH ASHRAE 170-2021
 - LOCATE INLINE EXHAUST FAN (WIRED FOR CONTINUOUS OPERATION) IN AN ACCESSIBLE LOCATION FOR MAINTENANCE IN CORRIDOR. EXHAUST GRILLE SHALL BE INSTALLED OVER THE HEAD OF THE PATIENT BED.
 - PROVIDE WALL MOUNTED ROOM PRESSURE CONTROL MONITOR (RPMC) NEXT TO THE DOOR EQUAL TO ORC IRMC RPM. THRU-THE-WALL ROOM PRESSURE SENSORS SHALL BE MOUNTED ABOVE THE DOOR. ROOM PRESSURE CONTROLS SHALL MAINTAIN NEGATIVE ROOM PRESSURE.
 - CAV. EXHAUST DUCT SHALL BE ROUTED UP THRU ROOF CURB AND EXTENDED 10'-0" ABOVE ROOF; VERIFY TOP OF STACK W/ADJACENT SCREEN WALL. PROVIDE AND ANCHOR STACK W/GUIDE WIRES SECURED TO ROOF STRUCTURE. FLASH/SEAL DUCTWORK AT CURB WEATHERTIGHT.



MECHANICAL ROOF PLAN
 SCALE: 1/8"=1'-0"

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ISSUANCES

No.	Description	Date
1	Issued for Construction	3-10-25
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Drawn By:
 Checked By:
 Client Number: 627
 Project Number: 8066

STATE OF OHIO
 THERESA A. ROOT
 E68169
 REGISTERED PROFESSIONAL ENGINEER
 Theresa A. Root
 Quality Signed by Theresa A. Root
 License No. E68169, Exp. Date 12-31-27

DRAWING TITLE
MECHANICAL ROOF PLAN

SHEET NO.
M100

AIRBORN INFECTION ISOLATION (AII) ROOM NOTES:

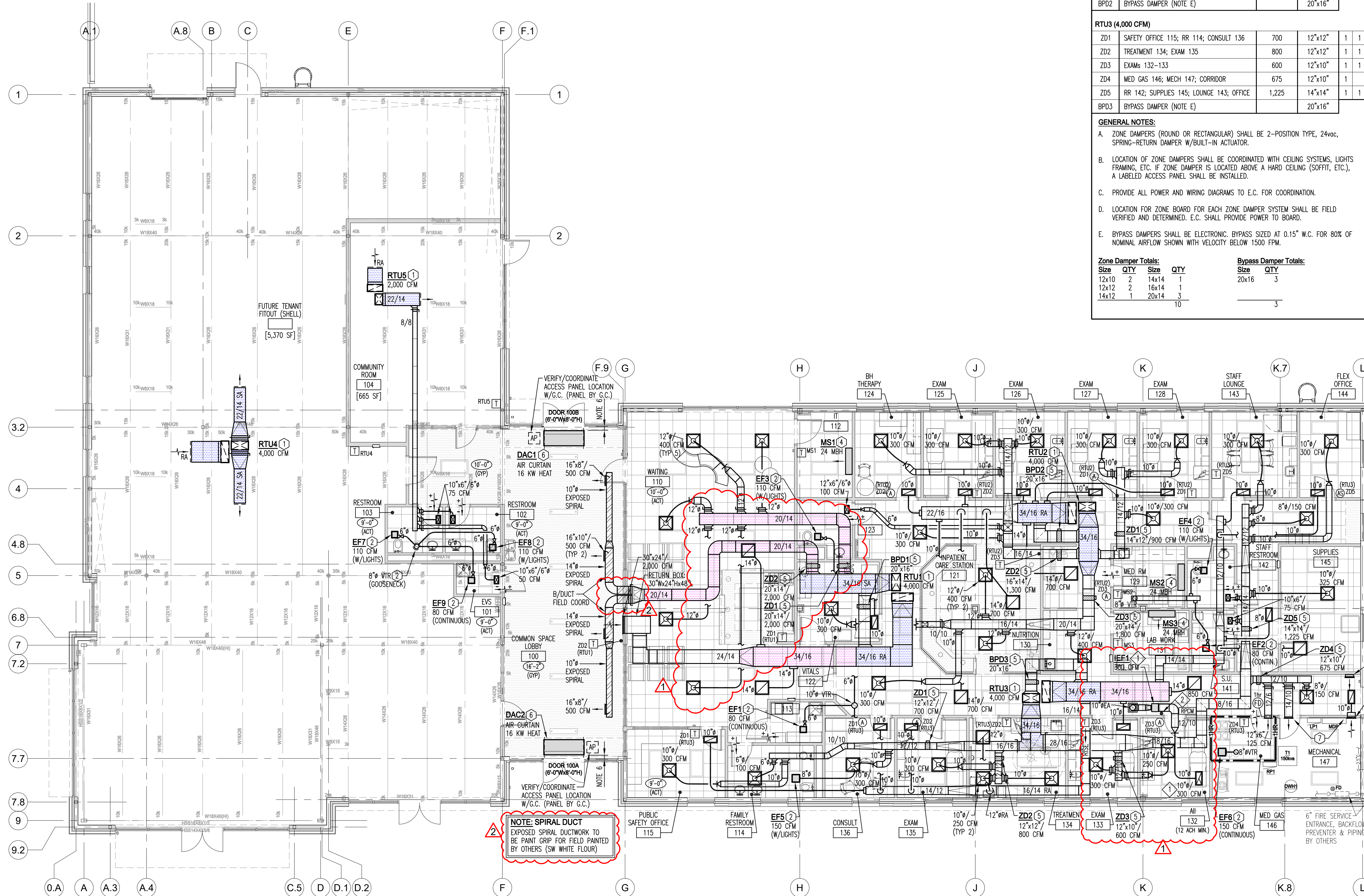
- HVAC SYSTEM(S) SHALL COMPLY WITH ASHRAE 170-2021
1. LOCATE INLINE EXHAUST FAN (WIRED FOR CONTINUOUS OPERATION) IN AN ACCESSIBLE LOCATION FOR MAINTENANCE IN CORRIDOR. EXHAUST GRILLE SHALL BE INSTALLED OVER THE HEAD OF THE PATIENT BED.
2. PROVIDE WALL MOUNTED ROOM PRESSURE CONTROL MONITOR (RPCM) NEXT TO THE DOOR EQUAL TO CRC IRMC RPM. THRU-WALL ROOM PRESSURE SENSORS SHALL BE MOUNTED ABOVE THE DOOR. ROOM PRESSURE CONTROLS SHALL MAINTAIN NEGATIVE ROOM PRESSURE.
3. GALV. EXHAUST DUCT SHALL BE ROUTED THRU ROOF CURB AND EXTENDED 10'-0" ABOVE ROOF. VERIFY TOP OF STACK W/ADJACENT SCREEN WALL. PROVIDE AND ANCHOR STACK W/GUIDE WIRES SECURED TO ROOF STRUCTURE. FLASH/SEAL DUCTWORK AT CURB WEATHERTIGHT.

ZONE DAMPER SCHEDULE

UNIT TAG	AREA(S) SERVED	DESIGN AIRFLOW RATE (CFM)	SIZE (INCHES)	THERMOSTAT (WIRED) SENSOR (REMOTE/MS)	QTY
RTU1 (4,000 CFM)					
ZD1	WAITING 110	2,000	20"x14"		1
ZD2	COMMON LOBBY 100	2,000	20"x14"		1
BPD1	BYPASS DAMPER (NOTE E)		20"x16"		
RTU2 (4,000 CFM)					
ZD2	EXAMS 127-128; CORRIDOR	900	14"x12"		1
ZD2	EXAMS 124-126; RR 123; CORR.	1,300	16"x14"		1
ZD3	VITALS 122; NURSE STA. 121; NUTRITION 130	1,800	20"x14"		1
BPD2	BYPASS DAMPER (NOTE E)		20"x16"		
RTU3 (4,000 CFM)					
ZD1	SAFETY OFFICE 115; RR 114; CONSULT 136	700	12"x12"		1
ZD2	TREATMENT 134; EXAM 135	800	12"x12"		1
ZD3	EXAMS 132-133	600	12"x10"		1
ZD4	MED GAS 146; MECH 147; CORRIDOR	675	12"x10"		1
ZD5	RR 142; SUPPLIES 145; LOUNGE 143; OFFICE	1,225	14"x14"		1
BPD3	BYPASS DAMPER (NOTE E)		20"x16"		
GENERAL NOTES:					
A. ZONE DAMPERS (ROUND OR RECTANGULAR) SHALL BE 2-POSITION TYPE, 24vdc, SPRING-RETURN DAMPER W/BUILT-IN ACTUATOR.					
B. LOCATION OF ZONE DAMPERS SHALL BE COORDINATED WITH CEILING SYSTEMS, LIGHTS FRAMING, ETC. IF ZONE DAMPER IS LOCATED ABOVE A HARD CEILING (SOFFIT, ETC.), A LABELED ACCESS PANEL SHALL BE INSTALLED.					
C. PROVIDE ALL POWER AND WIRING DIAGRAMS TO E.C. FOR COORDINATION.					
D. LOCATION FOR ZONE BOARD FOR EACH ZONE DAMPER SYSTEM SHALL BE FIELD VERIFIED AND DETERMINED. E.C. SHALL PROVIDE POWER TO BOARD.					
E. BYPASS DAMPERS SHALL BE ELECTRONIC. BYPASS SIZED AT 0.15" W.C. FOR 80% OF NOMINAL AIRFLOW SHOWN WITH VELOCITY BELOW 1500 FPM.					
Zone Damper Totals:		Bypass Damper Totals:			
Size	QTY	Size	QTY		
12x10	2	14x14	1		
12x12	2	16x14	1		
14x12	1	20x14	3		
				3	

CONSTRUCTION NOTES

- COORDINATE AND PLAN LOCATIONS OF ROOFTOP UNITS WITH STRUCTURAL FRAMING AND FUTURE SCREEN WALL (BY OTHERS); ENSURE PROPER CLEARANCE AROUND UNITS FOR AIRFLOW AND MAINTENANCE. DIRECT SCH 40 PVC CONDENSATE DRAIN LINE OVER TO AREA ROOF DRAIN.
- CEILING EXHAUST FAN SHALL BE INTERLOCKED WITH LIGHT SWITCH UNLESS NOTED OTHERWISE TO BE WIRED FOR CONTINUOUS OPERATION PER EQUIPMENT LIST. COORDINATE LOCATION WITH LIGHTS, SPRINKLER HEADS, ETC. AND SHIFT AS REQ'D. COMBINE AND ROUTE EXHAUST DUCTWORK THRU COMMON EXTERIOR ROOF VENT SHOWN WITH SCREENED WALL AREA. RESTROOMS, DIRTY, JANITOR, SOILED UTILITY ROOMS, ETC. SHALL BE NEGATIVE TO THE ADJACENT SPACE AT 10 ACH.
- MEDICINE/CLEAN SUPPLIES/CLEAN LINEN ROOMS ARE REQUIRED BY CODE TO BE POSITIVE TO THE ADJACENT SPACE AT 4 ACH. DO NOT RETURN ALL AIR FROM THIS SPACE.
- FIELD VERIFY LOCATION OF WALL/CEILING MTD INDOOR CASSETTE W/OWNER'S FINAL ROOM LAYOUT TO AVOID CONFLICT WITH EQUIPMENT, CASEWORK, ETC. ROUTE LINE SET OVER TO GRADE MOUNTED A/C UNIT. ROUTE FULL SIZE, SCH 40 PVC DRAIN LINE SLOPED OR PUMPED OVER TO NEAREST DRAIN OR MOP BASIN.
- INSTALL ZONE AND BYPASS DAMPER IN AN ACCESSIBLE LOCATION. DO NOT INSTALL ABOVE LIGHT FIXTURES, SPRINKLER HEADS, DUCTWORK, ETC. IF AT ALL POSSIBLE. PROVIDE CONTROL WIRING TO RESPECTIVE THERMOSTAT, AVERAGING SENSOR AND ZONE CTRL. PANEL (IF REQ'D). INDICATE APPROXIMATE LOCATION OF DAMPER/PANEL LOCATED ABOVE CEILING WITH A LABEL ON CEILING GRID.
- FIELD VERIFY/DETERMINE LOCATION OF RECESSED DOOR AIR CURTAIN WITH SOFFIT CONSTRUCTION AND G.C. PRIOR TO ANY ROUGH-IN WORK. SOFFIT MAY NEED TO BE WIDENED. THE BOTTOM OF THE DISCHARGE NOZZLE SHOULD BE LOCATED IN SUCH A MANNER THAT IT IS SPACED OUT FROM THE WALL 3/8" FOR EVERY INCH THE UNIT IS ABOVE THE DOOR OPENING (DOOR: 6'-0" Wx8'-0"). PROVIDE AN ACCESS PANEL IN HARD LID APPLICATIONS. TURN OVER DOOR SWITCH(ES) (SHIPPED LOOSE IN BRIGHTLY COLORED BAG LOCATED INSIDE OF CABINET) TO AUTOMATED DOOR INSTALLER.
- FIELD VERIFY AND COORDINATE HVAC WORK WITH DOMESTIC WATER & SPRINKLER PIPING, GAS PIPING, AND ELECTRICAL CONDUITS ALL PASSING ABOVE/THRU THIS THIS WALL.
- SURFACE MOUNTED ELECTRIC WALL HEATER; INSTALL PER MFR'S INSTRUCTIONS. UNIT SHALL BE LOCATED AT LEAST 12" FROM ADJACENT WALL AND 12" AFF.



MECHANICAL FLOOR PLAN
SCALE: 1/8"=1'-0"



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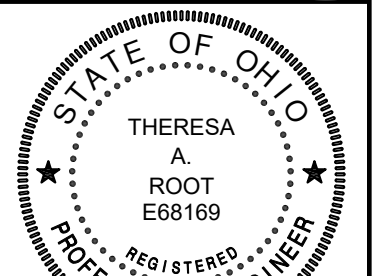


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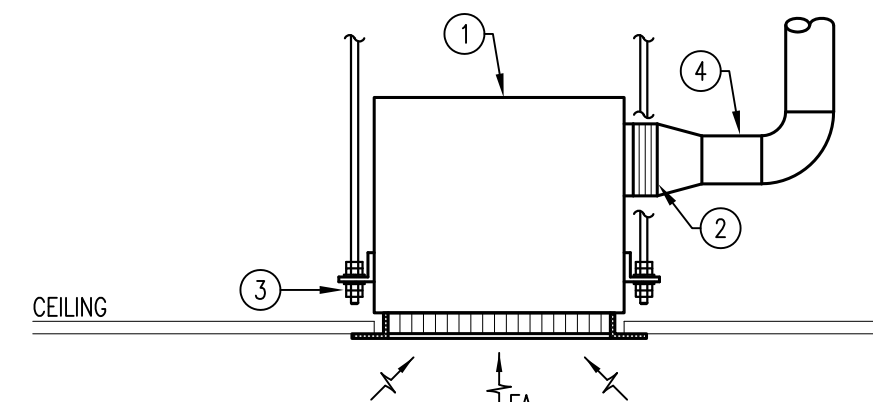
No.	Description	Date
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Drawn By
Checked By
Client Number
627
Project Number
8066



DRAWING TITLE
MECHANICAL FLOOR PLAN

SHEET NO.
M101



DETAIL NOTES

1. CEILING MOUNTED EXHAUST FAN SHALL BE INTERLOCKED WITH LIGHT SWITCH BY E.C. OR WIRED FOR CONTINUOUS OPERATION. SEE PLAN AND EQUIPMENT LIST (SHT M100) FOR REQUIREMENTS.
2. 4" WIDE FLEXIBLE CANVAS CONNECTION.
3. INSTALL EXHAUST FAN ON VIBRATION ISOLATION KIT BY FAN MANUFACTURER.
4. PROVIDE TRANSITION FROM COLLAR TO DUCT SIZE INDICATED ON THE PLAN.

GENERAL NOTES

- A. INSTALL FAN LEVEL AND PLUMB IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- B. COORDINATE DUCTWORK ROUTING WITH FRAMING PLANS AND OTHER TRADES.
- C. TERMINATE DUCT OUT THRU ROOF OR WALL PER PLANS. SEAL AROUND ALL OPENINGS WEATHERTIGHT. COMBINE EXHAUST DUCTS THRU ROOF AS MUCH AS PRACTICAL/POSSIBLE TO MINIMIZE NUMBER OF ROOF PENETRATIONS.

CEILING MTD EXHAUST FAN

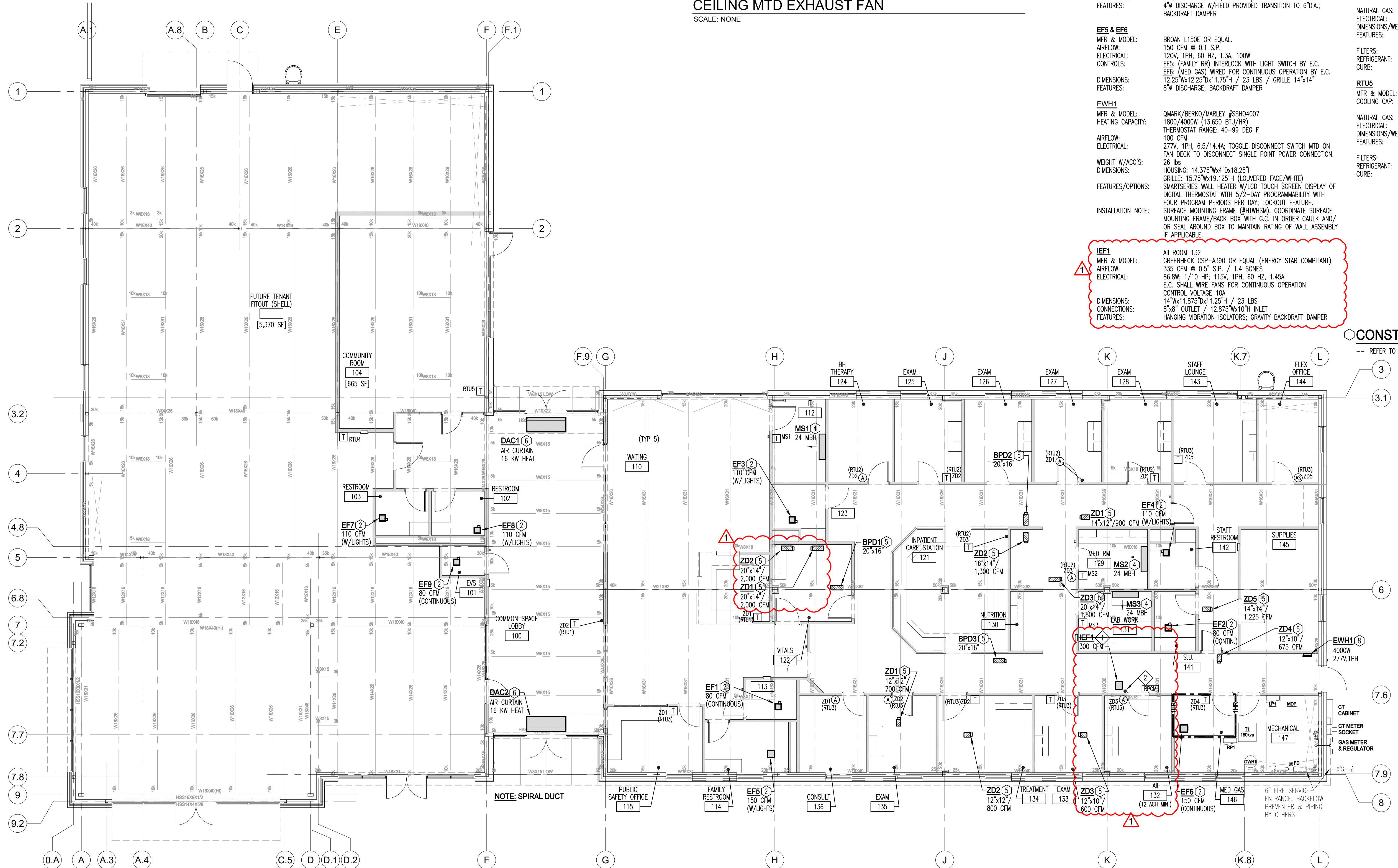
SCALE: NONE

EQUIPMENT LIST

- DAC1 & DAC2**
 MFR & MODEL: COMMON SPACE LOBBY 100
 BERNER AIR CURTAIN W/ELECTRIC HEAT #ARE12-2072E
 3,174 CFM
 HEATING CAP: 16 KW / 54.6 MBH
 ELECTRICAL: (2)-1/2 HP, 480V, 3PH, 23.4A, 30 MOCP; 1 CKT
 DOOR WIDTH: 72"
 DIMENSIONS/WEIGHT: 72"x26"x15"H / 190 LBS
 FEATURES: DOOR SWITCH (TURN OVER TO DOOR INSTALLER TO INTERLOCK WITH DOOR OPERATIONS); FACTORY INSTALLED INTELLISWITCH DIGITAL CONTROLLER; WHITE ALUMINUM EXTERIOR PANEL; WASHABLE FILTER
- EF1, EF2 & EF9**
 MFR & MODEL: BROAN AEROK OR EQUAL (ENERGY STAR COMPLIANT)
 AIRFLOW: 80 CFM @ 0.1 S.P.
 ELECTRICAL: 120V, 1PH, 60 HZ, 0.3A, 24.5W
 E.C. SHALL WIRE FANS FOR CONTINUOUS OPERATION
 DIMENSIONS: 10"Wx9.25"Dx5.75"H / 10 LBS / GRILLE 12.25"x12.25"
 FEATURES: 4" DISCHARGE W/FIELD PROVIDED TRANSITION TO 6" DIA.; BACKDRAFT DAMPER
- EF3, EF4, EF7 & EF8**
 MFR & MODEL: BROAN AE110K OR EQUAL (ENERGY STAR COMPLIANT)
 AIRFLOW: 110 CFM @ 0.1 S.P.
 ELECTRICAL: 120V, 1PH, 60 HZ, 0.3A, 23.4W
 INTERLOCK W/LIGHT SWITCH BY E.C.
 DIMENSIONS: 10"Wx9.25"Dx5.75"H / 10 LBS / GRILLE 12.25"x12.25"
 FEATURES: 4" DISCHARGE W/FIELD PROVIDED TRANSITION TO 6" DIA.; BACKDRAFT DAMPER
- EF5 & EF6**
 MFR & MODEL: BROAN L150E OR EQUAL
 AIRFLOW: 150 CFM @ 0.1 S.P.
 ELECTRICAL: 120V, 1PH, 60 HZ, 1.3A, 100W
 EF5: (FAMILY RR) INTERLOCK WITH LIGHT SWITCH BY E.C.
 EF6: (MED GAS) WIRED FOR CONTINUOUS OPERATION BY E.C.
 DIMENSIONS: 12.25"Wx12.25"Dx11.75"H / 23 LBS / GRILLE 14"x14"
 FEATURES: 8" DISCHARGE; BACKDRAFT DAMPER
- EWVH1**
 MFR & MODEL: QMARK/BERKO/MARLEY #SSHO4007
 HEATING CAPACITY: 1800/4000W (13,650 BTU/HR)
 THERMOSTAT RANGE: 40-99 DEG F
 AIRFLOW: 100 CFM
 ELECTRICAL: 277V, 1PH, 6.5/14.4A; TOGGLE DISCONNECT SWITCH MTD ON FAN DECK TO DISCONNECT SINGLE POINT POWER CONNECTION.
 WEIGHT W/ACC'S: 26 lbs
 DIMENSIONS: HOUSING: 14.375"Wx4"Dx18.25"H
 GRILLE: 15.75"Wx19.125"H (LOUVERED FACE/WHITE)
 FEATURES/OPTIONS: SMARTSERIES WALL HEATER W/LCD TOUCH SCREEN DISPLAY OF DIGITAL THERMOSTAT WITH 5/2-DAY PROGRAMMABILITY WITH FOUR PROGRAM PERIODS PER DAY; LOCKOUT FEATURE. SURFACE MOUNTING FRAME (#HTWHSM). COORDINATE SURFACE MOUNTING FRAME/BACK BOX WITH G.C. IN ORDER CAULK AND/OR SEAL AROUND BOX TO MAINTAIN RATING OF WALL ASSEMBLY IF APPLICABLE.
- IEF1**
 MFR & MODEL: ALL ROOM 132
 GREENHECK CSP-A390 OR EQUAL (ENERGY STAR COMPLIANT)
 AIRFLOW: 335 CFM @ 0.5" S.P. / 1.4 SONES
 ELECTRICAL: 86.8W; 1/10 HP; 115V, 1PH, 60 HZ, 1.45A
 E.C. SHALL WIRE FANS FOR CONTINUOUS OPERATION
 DIMENSIONS: 14"Wx11.875"Dx11.25"H / 23 LBS
 CONNECTIONS: 8"x8" OUTLET / 12.875"Wx10"H INLET
 FEATURES: HANGING VIBRATION ISOLATORS; GRAVITY BACKDRAFT DAMPER
- MS1 / MSHP1**
 MFR & MODEL: IT ROOM 112
 MED ROOM 129
 LAB WORK ROOM 131
 MITSUBISHI PAK-AZAKA1(WALL MTD)/PUZ-A24NH47 (HEAT PUMP)
 COOLING CAP: 24,000 BTUH / 10,000 BTUH (MAX./MIN.)
 HEATING CAP: 28,000 BTUH (47F)/18,300 BTUH (17F)/15,200 BTUH (5F)
 AIRFLOW (DRY): 635/705/775 CFM
 MOISTURE REMOVAL: 5.0 PINTS/HR
 ELECTRICAL: 208/230V, 1PH, 60 Hz; INDOOR UNIT POWERED FROM OUTDOOR INDOOR UNIT: 0.36 FLA, 1 MCA
 OUTDOOR UNIT: 0.4 FLA, 19 MCA, 26 MOCP
 24.4 SEER/21.3 SEER2; 12.2 EER/12.2 EER2
 11.0 HSPF/9.3 HSPF2
 DIMENSIONS/WEIGHT: INDOOR UNIT: 46.1"Wx11.625"Dx14.375"H / 46 LBS
 OUTDOOR UNIT: 37.4"Wx14.1875"Dx40.88"H / 153 LBS
 R-410A
 REFRIGERANT PIPING: 5/8" GAS, 3/8" LIQUID / MAX. PIPE LENGTH 165 FT / MAX. HEIGHT DIFFERENCE 100 FT / MAX # OF BENDS 15
 DRAIN PIPE SIZE: 5/8" DIA.
 ACCESSORIES: LOW AMBIENT WIND BAFFLE (#WB-PAS)
 CONDENSATE PUMP: WALL MOUNTED CONTROLLER (PAC-YT53CRAU-I) INVERTER DRIVE (OUTDOOR UNIT); REFRIG LINE SET (R410A) (AS REQUIRED)
- RTU1 thru RTU4**
 MFR & MODEL: BRYANT #582LE12M22A42MPRA
 COOLING CAP: 4,000 CFM (10 TON); 122.6 MBH; 2-STAGE COOLING
 11.0 ARI SEER / 15.0 IEER
 224/181 MBH INPUT/OUTPUT; 81% AFUE; 2-STAGE HEATING
 2.39 BHP; 460V, 3PH, 24 MCA, 30 MOCP
 88.125"x59.5"Wx49.375"H / 678 lbs
 ECONOMIZER W/ENTHALPY CONTROL; CO2 AND RETURN AIR DUCT SMOKE DETECTOR (FACTORY INSTALLED)
 FILTERS: (4)-20"x20"x2" THROWAWAY
 REFRIGERANT: R-454B
 CURB: MICROMETL #MM-0597-014A
- RTU5**
 MFR & MODEL: BRYANT #582LE06A10A2FBPA
 COOLING CAP: 2,000 CFM (5 TON); 62.16 MBH; 1-STAGE COOLING
 14.0 ARI SEER / 13.4 ARI SEER2
 110/88 MBH INPUT/OUTPUT; 80% AFUE; 1-STAGE HEATING
 1.24 BHP; 460V, 3PH, 13 MCA, 20 MOCP
 74.375"x46.625"Wx33.375"H / 556 lbs
 ECONOMIZER W/ENTHALPY CONTROL; CO2 AND RETURN AIR DUCT SMOKE DETECTOR (FACTORY INSTALLED)
 FILTERS: (2)-16"x25"x2" THROWAWAY
 REFRIGERANT: R-454B
 CURB: MICROMETL #MM-0537-014A

CONSTRUCTION NOTES

-- REFER TO SHEET M101 FOR KEYED CONSTRUCTION NOTES --



MECHANICAL EQUIPMENT PLAN

SCALE: 1/8"=1'-0"



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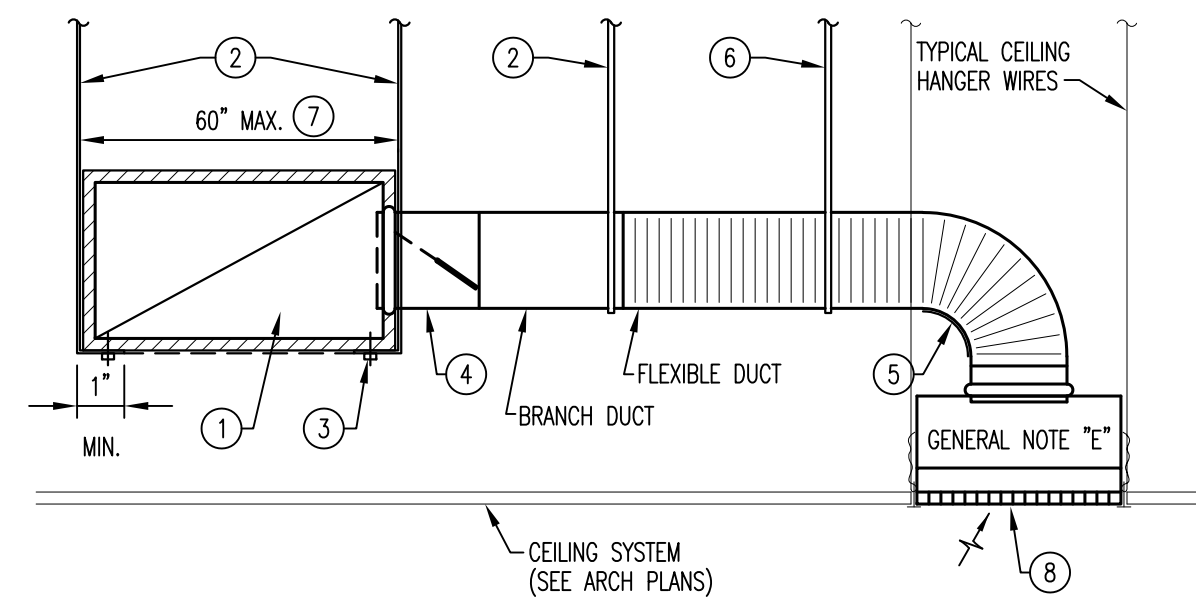
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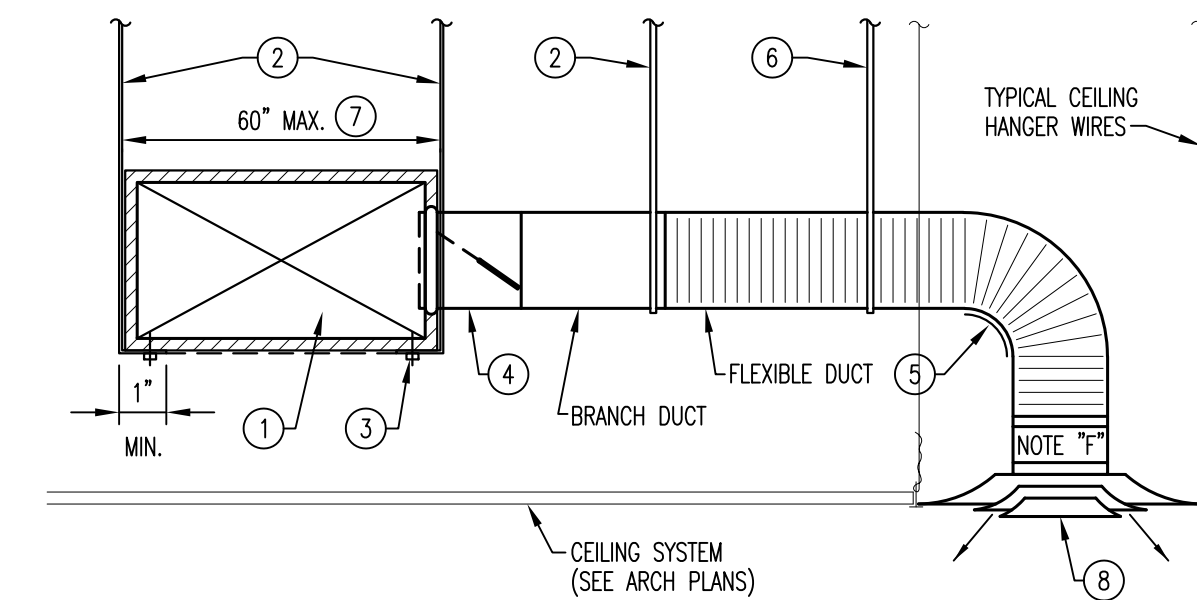
SHEET NO.
M102



- DETAIL NOTES**
1. RETURN OR EXHAUST DUCT; SEE PLANS FOR SIZES.
 2. DUCT STRAP HANGER ATTACHED TO STRUCTURE PER SMACNA RECOMMENDATIONS.
 3. SCREWS - MAY BE OMITTED IF HANGER LOOPS.
 4. SPIN-IN BRANCH TAP FITTING, STRAIGHT SIDE WITH MANUAL LOCKING DAMPER. DAMPER SHAFT IN HORIZONTAL INTEGRAL INSULATION GUARD SLEEVE REQUIRED FOR TAP FITTING TO MAIN DUCT WITH INTERNAL INSULATION.
 5. RADIUS'D ELBOW, ADJUSTABLE SHEET METAL ELBOW OR FLEXIBLE DUCT SUPPORT (INSTALLED PER MFR'S INSTRUCTIONS) IF REQUIRED TO ENSURE PROPER AIRFLOW INTO AIR DEVICE.
 6. ADDITIONAL DUCT STRAP HANGER REQ'D IF LENGTH OF FLEXIBLE DUCT EXCEEDS 4 FEET.
 7. 60" MAXIMUM UNLESS FOOT OF STRAP IS PLACED UNDER A BOTTOM REINFORCEMENT.
 8. RETURN/EXHAUST GRILLE; SEE PLAN FOR TYPE.

- GENERAL NOTES**
- A. THE CEILING SUPPORT SYSTEM MUST SUPPORT DIFFUSER WEIGHT WHEN FLEXIBLE CONNECTIONS ARE USED. THE DIFFUSER DOES NOT SUPPORT CEILING TILE(S).
 - B. EXPOSED AND CONCEALED TEE BAR FRAMES ARE PROVIDED BY THE CEILING CONTRACTOR.
 - C. STRETCH FLEXIBLE DUCT TO AT LEAST 90% OF FULLY EXTENDED LENGTH. SUPPORT PER SMACNA WITH NO BENDS, KINKS OR SAGS.
 - D. DUCTWORK MATERIAL, TYPE, AND METHOD OF INSTALLATION SHALL COMPLY WITH CURRENT SMACNA STANDARDS.
 - E. SHEET METAL PLENUM SHALL BE SAME SIZE AS AIR DEVICE; PAINTED FLAT BLACK INTERIOR WITH A COLLAR/NECK SIZE PER PLAN.

RETURN/EXHAUST DUCT CONNECTION
SCALE: NONE



- DETAIL NOTES**
1. SUPPLY DUCT WITH INSULATION WHERE INDICATED; SEE PLANS FOR SIZES.
 2. DUCT STRAP HANGER ATTACHED TO STRUCTURE PER SMACNA RECOMMENDATIONS.
 3. SCREWS - MAY BE OMITTED IF HANGER LOOPS.
 4. SPIN-IN BRANCH TAP FITTING, STRAIGHT SIDE WITH MANUAL LOCKING DAMPER. DAMPER SHAFT IN HORIZONTAL INTEGRAL INSULATION GUARD SLEEVE REQUIRED FOR TAP FITTING TO MAIN DUCT WITH INTERNAL INSULATION.
 5. RADIUS'D ELBOW, ADJUSTABLE SHEET METAL ELBOW OR FLEXIBLE DUCT SUPPORT (INSTALLED PER MFR'S INSTRUCTIONS) IF REQUIRED TO ENSURE PROPER AIRFLOW INTO AIR DEVICE.
 6. ADDITIONAL DUCT STRAP HANGER REQ'D IF LENGTH OF FLEXIBLE DUCT EXCEEDS 4 FEET.
 7. 60" MAXIMUM UNLESS FOOT OF STRAP IS PLACED UNDER A BOTTOM REINFORCEMENT.
 8. CEILING DIFFUSER; SEE PLAN FOR TYPE. WHERE REQUIRED, PROVIDE A SQUARE TO ROUND ADAPTER.

- GENERAL NOTES**
- A. THE CEILING SUPPORT SYSTEM MUST SUPPORT DIFFUSER WEIGHT WHEN FLEXIBLE CONNECTIONS ARE USED. THE DIFFUSER DOES NOT SUPPORT CEILING TILE(S).
 - B. EXPOSED AND CONCEALED TEE BAR FRAMES ARE PROVIDED BY THE CEILING CONTRACTOR.
 - C. STRETCH FLEXIBLE DUCT TO AT LEAST 90% OF FULLY EXTENDED LENGTH. SUPPORT PER SMACNA WITH NO BENDS, KINKS OR SAGS.
 - D. DUCTWORK MATERIAL, TYPE, AND METHOD OF INSTALLATION SHALL COMPLY WITH CURRENT SMACNA STANDARDS.
 - E. LOCKING DAMPER(S) REQUIRED IF BRANCH DUCT DUCT SERVES MORE THAN ONE DEVICE.
 - F. PROVIDE HARD DUCT/SPOOL PIECE AT AIR DEVICE COLLAR/NECK (SCREWED AND SEALED) PRIOR TO ATTACHING FLEX DUCTWORK TO IMPROVE AIRFLOW INTO AIR DEVICE.

SUPPLY DIFFUSER DUCT CONNECTION
SCALE: NONE

DUCTWORK CONST. NOTES

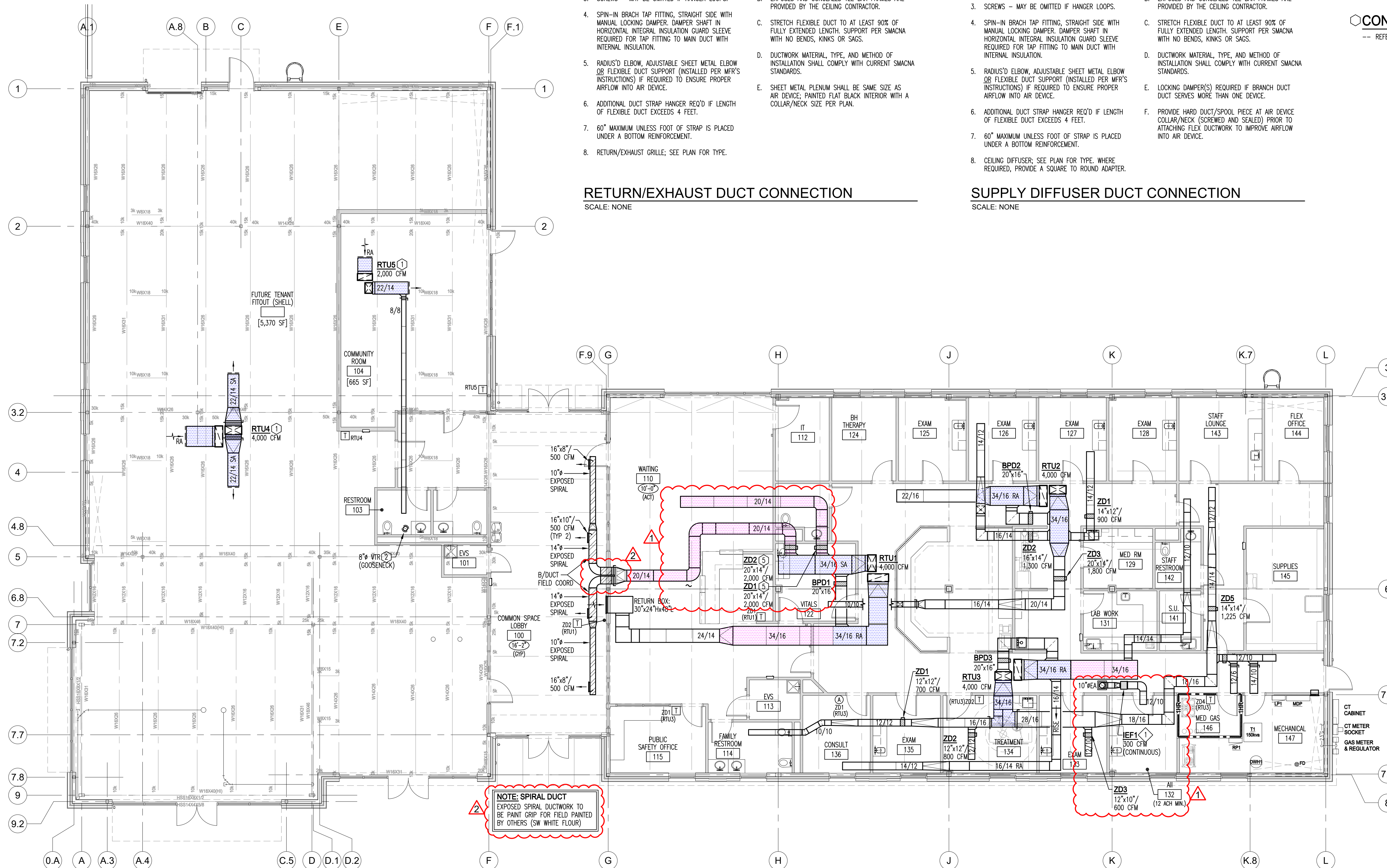
- INTERNALLY LINED (1", R-6) GALVANIZED, SHEET METAL DUCTWORK FROM THE UNIT DOWN THRU ROOF AND THRU THE FIRST 5 FT HORIZONTAL SECTION. AVG SECTION LENGTH W/TDC FLANGE 56.25".
- GALVANIZED, SHEET METAL DUCTWORK FOR SECTIONS SHOWN. DUCTWORK DUCTWORK SHALL BE WRAPPED W/INSULATION (R-6 INSTALLED).
- SHEET METAL TRANSITIONS SHALL BE AT LEAST 24" L (MINIMUM).

NON-COLORED (NO HATCHED) DUCTWORK
ALL OTHER DUCTWORK, OFFSETS AND/OR TRANSITIONS SHALL BE FIELD DETERMINED & FABRICATED BY M.C.

NOTE:
UNLESS NOTED OTHERWISE, DUCT DIMENSIONS SHOWN ARE INSIDE, FREE CLEAR AREA FOR AIRFLOW. COORDINATE WORK AND OPENINGS REQUIRED BASED ON FINAL OUTSIDE/ FINISHED DUCT DIMENSIONS IF DUCT IS LINE OR OTHER.

CONSTRUCTION NOTES

-- REFER TO SHEET M101 FOR KEYED CONSTRUCTION NOTES --



MECHANICAL MAIN DUCTWORK
SCALE: 1/8"=1'-0"



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Professional Engineer Seal: THERESA A. ROOT, License No. E68169, Exp. Date 12-31-27

DRAWING TITLE
MECHANICAL MAIN DUCTWORK

SHEET NO.
M103