

1 MECHANICAL FLOOR PLAN  
SCALE: 1/4" = 1'-0"

### KEYED NOTES

- IF NOT EXISTING (RTU-1), EC TO FURNISH DUCT MOUNTED SMOKE DETECTOR AND PROVIDE COMPATIBLE REMOTE ANNUNCIATOR/TEST SWITCH. MC TO INSTALL SMOKE DETECTOR IN RETURN DUCT, PRIOR TO ANY OUTDOOR AIR CONNECTIONS. MC TO PROVIDE INTERLOCK WIRING BETWEEN SMOKE DETECTOR AND UNIT TO SHUT DOWN UNIT UPON DETECTION OF SMOKE. EC SHALL PROVIDE WIRING FOR FINAL CONNECTION TO CENTRAL FIRE ALARM SYSTEM, IF APPLICABLE, AND WIRING TO REMOTE ANNUNCIATOR/TEST SWITCH.
- RTU DROPS DOWN FROM ROOF. REFER TO ROOF PLAN FOR CONTINUATION.
- PROVIDE THERMOSTAT AND MOUNT ON WALL 4 FEET A.F.F. COORDINATE THERMOSTAT LOCATION WITH FURNITURE LAYOUT AND OWNER'S REP PRIOR TO ROUGH-IN OF BACKBOX AND WIRE. FINAL THERMOSTAT LOCATION TO BE CONFIRMED WITH OWNERS REPRESENTATIVE.
- VOLUME DAMPER IN EACH BRANCH SUPPLY AND RETURN DUCT (TYPICAL THROUGHOUT). LOCATE ABOVE LAY-IN CEILING ONLY. DAMPER TO BE ACCESSIBLE AFTER CONSTRUCTION IS COMPLETED.
- REFER TO ARCHITECTURAL PLANS FOR ELEVATIONS OF SUPPLY REGISTERS/RETURN GRILLES. PAINT REGISTERS/RETURNS TO MATCH WALL COLOR.

### GENERAL NOTES

- THE DRAWINGS ARE DIAGRAMMATIC IN NATURE. EXACT LOCATIONS OF DEVICES AND ROUTING OF DUCTWORK SHALL BE DETERMINED BY CONTRACTOR AFTER COORDINATION WITH ALL OTHER TRADES AND FIELD DETERMINATION OF FINAL CONSTRUCTION DETAILS. MINOR ADJUSTMENTS TO DUCT ROUTING AND CONFIGURATION TO AVOID CONFLICT WITH BUILDING STRUCTURE OR OTHER TRADES SHALL BE INCLUDED IN CONTRACTOR'S PRICE. CONTRACTOR SHALL OBTAIN ENGINEERS APPROVAL IN WRITING FOR ANY MODIFICATIONS TO SYSTEM DESIGN PRIOR TO INSTALLATION.
- ALL EXPOSED MATERIALS AND EQUIPMENT SHALL BE INSTALLED AND SUPPORTED IN A FIRST-CLASS AND WORKMANLIKE FASHION. DUCTWORK SHALL RUN PARALLEL AND/OR PERPENDICULAR TO MAIN BUILDING STRUCTURE. ANY WORK THAT IS NOT DONE IN A FIRST-CLASS OR WORKMANLIKE FASHION, IN THE ARCHITECTS OPINION, SHALL BE REDONE AT THE CONTRACTORS EXPENSE.
- ALL DUCT JOINTS, SEAMS AND CONNECTIONS SHALL BE SECURELY FASTENED AND SEALED. DUCTS SHALL BE SUPPORTED WITH APPROVED HANGERS AT INTERVALS NOT EXCEEDING TEN FEET. DUCT COVERINGS AND LININGS SHALL HAVE A FLAME-SPREAD INDEX NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX NOT MORE THAN 50.
- PROVIDE VOLUME DAMPERS AT ALL ROUND BRANCH DUCT TAKE-OFFS THAT ARE ACCESSIBLE. PROVIDE TURNING VANES AT ALL 90 DEGREE SQUARE ELBOWS IN SUPPLY AIR DUCTS. PROVIDE 45 DEGREE HEEL AT ALL RECTANGULAR SUPPLY AND RETURN BRANCH DUCT TAKE-OFFS.
- OUTDOOR AIR INTAKES SHALL BE 10'-0" MINIMUM AWAY FROM ANY EXHAUST AND PLUMBING VENT OUTLET.
- WIRE UP ALL LOW VOLTAGE (24V) THERMOSTATS.
- CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL PIPES, DUCTWORK, UNITS, ETC. WITH ALL OTHER TRADES AND SHIFT LOCATION OR OFFSET WHERE NECESSARY. PROVIDE TRANSITIONS IN DUCTWORK TO AVOID CONFLICT WITH EXISTING DUCTWORK AND OTHER STRUCTURES.
- CONTRACTOR SHALL COORDINATE ALL AIR DEVICES WITH ELECTRICAL AND ARCHITECTURAL REFLECTED CEILING PLANS.
- COORDINATE LOCATION OF ALL EXTERIOR LOUVER OR OUTLET WITH ARCHITECTURAL ELEVATION PLAN.
- COORDINATE ROOF WORK WITH BUILDING OWNER'S ROOFING CONTRACTOR TO ASSURE THAT THE ROOF WARRANTY IS NOT VOIDED.
- INSTALL DUCTWORK AS HIGH AS POSSIBLE.
- EXHAUST AIR DUCTS SHALL BE EQUIPPED WITH BACKDRAFT DAMPERS.
- ALL DUCT OPENINGS AND OTHER AIR DISTRIBUTION OPENINGS SHALL BE COVERED DURING CONSTRUCTION EXCEPT FOR TESTING AND INSPECTION.
- PROVIDE BUILDING OWNER OR REPRESENTATIVE WITH DETAILED OPERATING AND MAINTENANCE INSTRUCTIONS AND WARRANTIES /WRITTEN GUARANTEE FOR EACH SYSTEM. O&M INSTRUCTIONS SHALL BE CONSISTENT WITH OSHA REQUIREMENTS IN CCR TITLE 8, SECTION 5142 AND OTHER RELATED REGULATIONS.
- ALL DUCT ELBOWS SHALL BE LONG RADIUS OR MITERED.

### HVAC LEGEND

	DRAWING NOTE SYMBOL
	NEW RECTANGULAR DUCTWORK AND SIZE
	NEW ROUND DUCTWORK AND SIZE
	BALANCING/VOLUME DAMPER
	FLEX DUCT
	THERMOSTAT
	NEW SUPPLY AIR DIFFUSER AND CFM
	NEW RETURN GRILLE
	NEW EXHAUST GRILLE AND CFM
	AIR FLOW DIRECTION
	SMOKE DETECTOR
	SUPPLY DUCT UP THROUGH ROOF
	RETURN/EXHAUST DUCT UP THROUGH ROOF
	MOTOR OPERATED DAMPER
	CONNECT TO EXISTING

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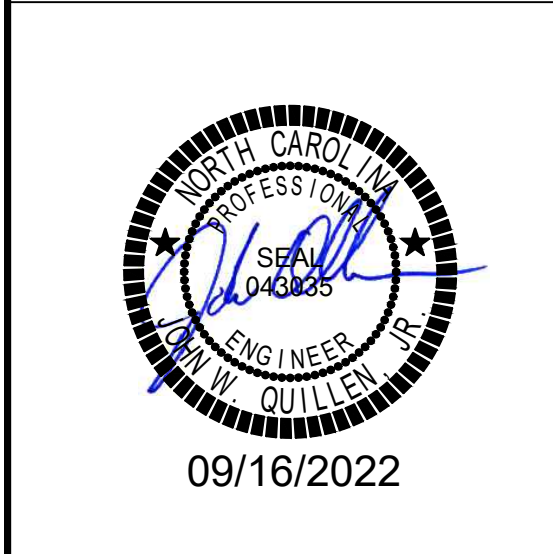
### ISSUE INFORMATION

09/16/22
REVISIONS
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### SEAL



### PROJECT INFORMATION

**MATTHEWS TOWNSHIP SHOPPING CENTER**  
1915 MATTHEWS TOWNSHIP PARKWAY  
UNIT 1200  
MATTHEWS, NC 28105  
PROJECT #:  
12113

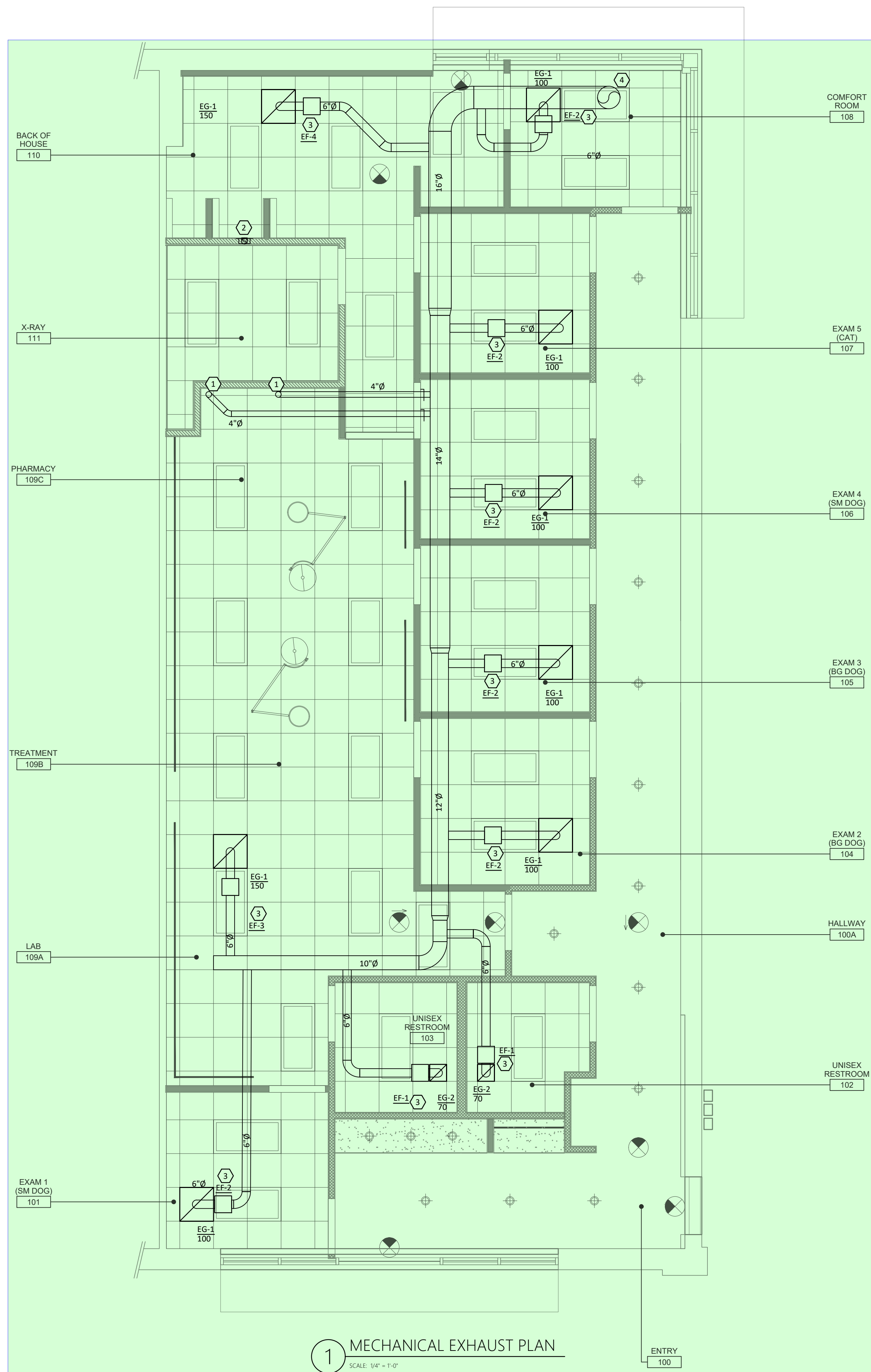
### SHEET TITLE

**MECHANICAL FLOOR PLAN**

### SHEET NUMBER

**M1.0**

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1 MECHANICAL EXHAUST PLAN  
SCALE: 1/4" = 1'-0"

### KEYED NOTES

- 4" Ø EXHAUST DUCT CONNECTIONS FOR BOTH CAGE VENTILATION SYSTEM OUTLETS, INCLUDING BACKDRAFT DAMPER IN DUCT. EXTEND TO EXHAUST MAIN MANIFOLD DUCT ABOVE CEILING. FIELD COORDINATE WITH G.C. PRIOR TO ANY DUCTWORK INSTALLATION. BID OPTION: CONTRACTOR TO INCLUDE PRICE TO FURNISH INLINE FAN AT 100-CFM 120-V, IN CASE FAN IS NOT INCLUDED WITH CAGE SYSTEM.
- 4 INCH SMOOTH DUCT TO ROOF. DRYER VENT PIPE TO BE 28 GAUGE GALVANIZED STEEL. ALL CONNECTIONS TO BE ALUMINUM POP RIVETS, NO SHEET METAL SCREWS ALLOWED. SEAMS TAPED W/ DUCT TAPE. PROVIDE A MEANS OF CLEANOUT IN EACH VERTICAL RISER. FIRE DAMPER THAT WILL OBSTRUCT THE EXHAUST FLOW SHALL BE PROHIBITED IN CLOTHES DRYER EXHAUST DUCTS. ALL CLOSED DRYER EXHAUST RUNS SHALL BE LIMITED TO 35', INCLUDING ELBOWS, FROM THE DRYER CONNECTION TO THE OUTLET. THIS LENGTH MAY BE INCREASED BASED ON THE DRYER MANUFACTURER'S INSTALLATION INSTRUCTIONS SHOWING A LENGTH EXCEEDING 35'. AS AN OPTION, A DRYER EXHAUST POWER VENTILATOR MAY BE USED WHERE DRYER DUCT RUNS EXCEED 35'. REFER TO ROOF PLAN FOR ADDITIONAL INFORMATION. ROUTE EXHAUST DUCT TO IN WALL DRYER BOX, IN-O-VATE TECHNOLOGIES INC MODEL #350. COORDINATE VENT BOX LOCATION WITH DRYER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE INLINE FAN IN LOCATION INDICATED AND HANG FROM JOISTS. REFER TO FAN SCHEDULE FOR ADDITIONAL INFORMATION.

16" EXHAUST DUCT UP TO ROOF. REFER TO ROOF PLAN FOR CONTINUATION.

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### HVAC LEGEND

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	NEW ROUND DUCTWORK AND SIZE
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	FLEX DUCT
	THERMOSTAT
	NEW SUPPLY AIR DIFFUSER AND CFM
	NEW RETURN GRILLE
	NEW EXHAUST GRILLE AND CFM
	AIR FLOW DIRECTION
	SMOKE DETECTOR
	SUPPLY DUCT UP THROUGH ROOF
	RETURN/EXHAUST DUCT UP THROUGH ROOF
	MOTOR OPERATED DAMPER
	CONNECT TO EXISTING

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### ISSUE INFORMATION

09/16/22

### REVISIONS

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### SEAL



### PROJECT INFORMATION

**MATTHEWS TOWNSHIP SHOPPING CENTER**  
1915 MATTHEWS TOWNSHIP PARKWAY  
UNIT 1200  
MATTHEWS, NC 28105  
PROJECT #:  
12113

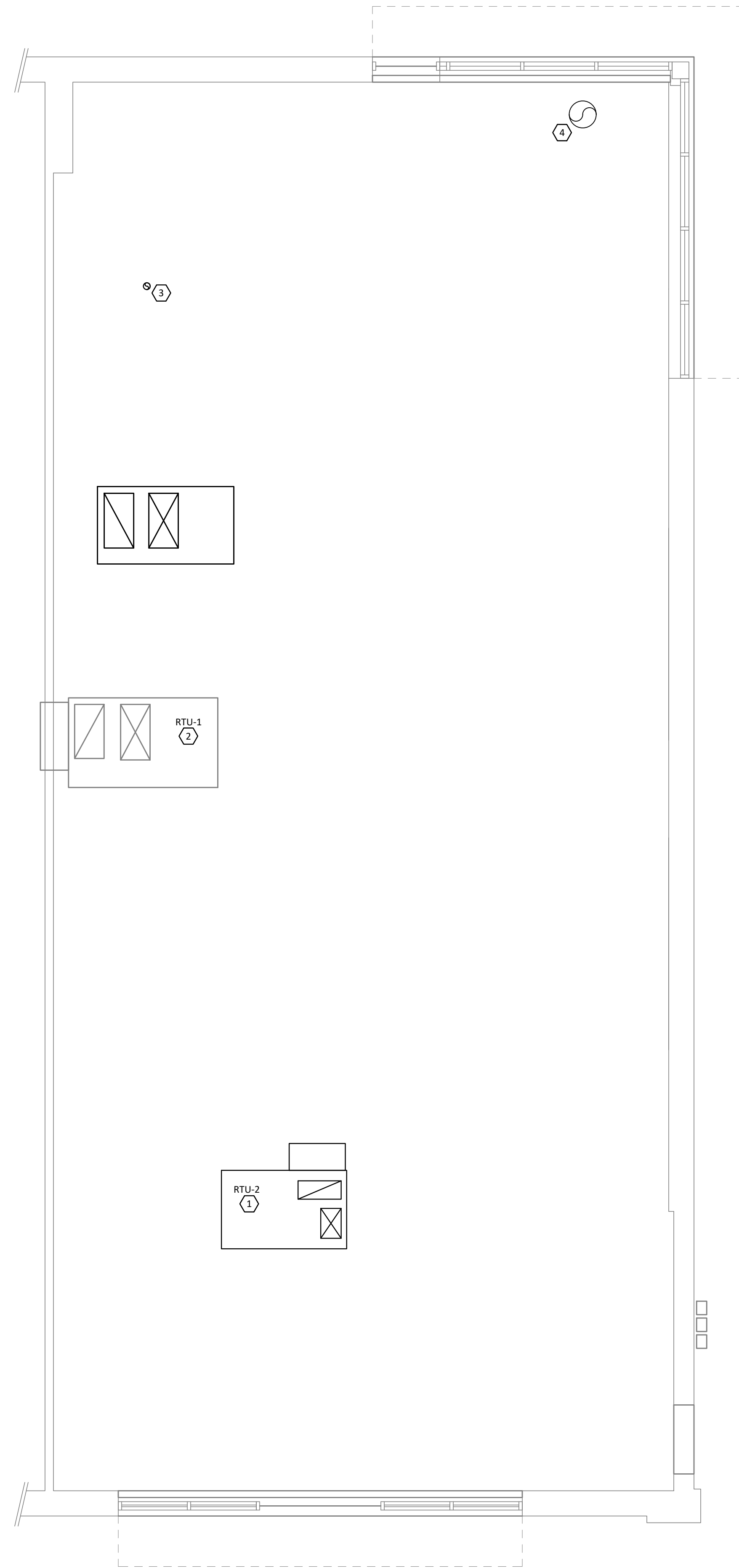
### SHEET TITLE

**MECHANICAL EXHAUST PLAN**

### SHEET NUMBER

**M1.1**

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

**KEYED NOTES**

1. PROVIDE NEW ROOFTOP UNIT AND CURB. ROUTE SUPPLY/RETURN DROPS DOWN THROUGH ROOF. REFER TO HVAC PLAN FOR CONTINUATION. COORDINATE ROOFTOP UNIT LOCATION WITH STRUCTURE BELOW. PROVIDE NEW THERMOSTAT, CONTROL WIRING, AND STAND ALONE CONTROLS FOR RTU OPERATION. ROUTE CONDENSATE TO ROOF. BALANCE SUPPLY AND OUTSIDE AIRFLOW AS SCHEDULED.
2. EXISTING ROOFTOP UNIT TO REMAIN. MECHANICAL CONTRACTOR TO FIELD VERIFY EXACT LOCATION PRIOR TO BID AND SERVICE UNIT TO ASSURE IT IS OPERATING PROPERLY. REPLACE ALL FILTERS PRIOR TO LEAVING JOB SITE. BALANCE SUPPLY AND OUTSIDE AIR TO CFM SCHEDULED.
3. PROVIDE DRYER JACK MODEL DJK486J, OR EQUIVALENT DRYER VENT. AND INSTALL ON 12" HIGH INSULATED ROOF CURB. MAINTAIN MINIMUM 10' CLEARANCE FROM ANY OUTDOOR AIR INTAKES.
4. 16" EXHAUST VENT FROM EXHAUST FANS BELOW. TERMINATE WITH MANUFACTURER'S STANDARD ROOF EXHAUST CAP AND INSTALL ON 12" INSULATED ROOF CURB. MAINTAIN MINIMUM 10' CLEARANCE FROM ANY OUTDOOR AIR INTAKES.

**GENERAL NOTES**

- A. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE. EXACT LOCATIONS OF DEVICES AND ROUTING OF DUCTWORK SHALL BE DETERMINED BY CONTRACTOR AFTER COORDINATION WITH ALL OTHER TRADES AND FIELD DETERMINATION OF FINAL CONSTRUCTION DETAILS. MINOR ADJUSTMENTS TO DUCT ROUTING AND CONFIGURATION TO AVOID CONFLICT WITH BUILDING STRUCTURE OR OTHER TRADES SHALL BE INCLUDED IN CONTRACTOR'S PRICE. CONTRACTOR SHALL OBTAIN ENGINEER'S APPROVAL IN WRITING FOR ANY MODIFICATIONS TO SYSTEM DESIGN PRIOR TO INSTALLATION.
- B. OUTDOOR AIR INTAKES SHALL BE 10'-0" MINIMUM AWAY FROM ANY EXHAUST AND PLUMBING VENT OUTLET.
- C. CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL ROOFTOP EQUIPMENT WITH ALL OTHER TRADES.
- D. COORDINATE ROOF WORK WITH BUILDING OWNER'S ROOFING CONTRACTOR TO ASSURE THAT THE ROOF WARRANTY IS NOT VOIDED. (REMOVE THIS KEYED NOTE IF EQUIPMENT IS BEING PROVIDED BY LANDLORD).
- E. ALL ROOF CURB OPENINGS, PRIOR TO EQUIPMENT INSTALLATION, SHALL BE COVERED DURING CONSTRUCTION.
- F. PROVIDE BUILDING OWNER OR REPRESENTATIVE WITH DETAILED OPERATING AND MAINTENANCE INSTRUCTIONS AND WARRANTIES /WRITTEN GUARANTEE FOR EACH SYSTEM. O&M INSTRUCTIONS SHALL BE CONSISTENT WITH OSHA REQUIREMENTS IN CFR TITLE 8, SECTION 5142 AND OTHER RELATED REGULATIONS.

**ROOF PENETRATIONS**

COORDINATE ROOF WORK WITH BUILDING OWNER'S ROOFING CONTRACTOR TO ASSURE THAT THE ROOF WARRANTY IS NOT VOIDED.

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**ISSUE INFORMATION**

09/16/22

**REVISIONS**

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**SEAL**

09/16/2022

**PROJECT INFORMATION**

**MATTHEWS TOWNSHIP SHOPPING CENTER**  
1915 MATTHEWS TOWNSHIP PARKWAY  
UNIT 1200  
MATTHEWS, NC 28105  
PROJECT #: 12113

**SHEET TITLE**

**MECHANICAL ROOF PLAN**

**SHEET NUMBER**

**M1.2**

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ROOFTOP UNIT SCHEDULE

TAG	MANUFACTURER	MODEL	NOMINAL TONNAGE	SUPPLY CFM	OA CFM	ESP IN IN. W.C.	TOT BTUH	SENS BTUH	(S)EER	STAGE	HTG IN BTUH	HTG OUT BTUH	ELECTRICAL				WEIGHT	REMARKS		
													BHP	VOLTAGE	PHASE	FLA				
EXISTING RTU-1	TRANE	YSC092E3	7.5	3000	690	1.0	94,000	70,500	11.2	2	150,000	120,000	-	208	3	-	39.3	50	EXIST.	A,H
NEW RTU-2	TRANE	YSJ072A3S0M	6.0	2400	550	1.16	73,650	55,500	14.6	2	120,000	97,200	3.1	208	3	-	38.0	50	1186	A,B,C,D,E,F,G

REMARKS:  
 A. ALL HVAC EQUIPMENT TO BE FIELD LABELED TO IDENTIFY WHICH AREAS OF THE BUILDING THEY SERVE.  
 B. MERV 13 PLEATED FILTER.  
 C. DRY BULB ECONOMIZER WITH BAROMETRIC RELIEF.  
 D. SMOKE DETECTOR WITH REMOTE ANNUNCIATOR (BY EC).  
 E. 14" HIGH INSULATED ROOF CURB.  
 F. UNIT MOUNTED NON POWERED CONVENIENCE OUTLET.  
 G. UNIT MOUNTED NON FUSED DISCONNECT SWITCH.  
 H. EXISTING ROOFTOP UNIT. MECHANICAL CONTRACTOR TO SERVICE ROOFTOP UNIT TO ASSURE IT IS OPERATING PROPERLY AND REPLACE ALL FILTERS.

BAROMETRIC RELIEF

BAROMETRIC RELIEF IS USED ON ROOFTOP UNITS TO RELIEVE ANY BUILT UP PRESSURE IN BUILDING. BAROMETRIC RELIEF DAMPER SET TO OPEN AT 0.01" STATIC PRESSURE (ADJUSTABLE) FULLY OPEN AT 0.05" STATIC PRESSURE.

AIR BALANCE SCHEDULE				
EXHAUST		SUPPLY		
UNIT	CFM	UNIT	CFM	OA CFM
EF-1	70	RTU-1	2400	550
EF-1	70	RTU-2	3000	690
EF-2	100			
EF-2	100			
EF-2	100			
EF-2	100			
EF-2	100			
EF-2	100			
EF-3	150			
EF-4	150			
TOTAL	1040	TOTAL	1240	

CLINIC IS 200 CFM POSITIVE

VENTILATION SCHEDULE

ROOM #	ROOM NAME	Az	OCCUPANCY	Rp	Ra	Pz	Rp x Pz	Az x Ra	CFM	Eff	Voz=	CFM	OA	Voz / Vpz	Ev	Vot =
Urgent Vet - Matthews NC																
Table 403.3.1.1																
Vbz = Az x Ra + Rp x Pz																
100	Lobby	462	Lobbies	5	0.06	8	40	28	68	0.8	85	1100	253	0.08	1.00	85
101	Exam 1	92	Medical Room	7.5	0.18	3	23	17	39	0.8	49	400	92	0.12	1.00	49
102	Unisex Restroom	52	Restroom	0	0	0	0	0	0	0.8	0	50	12	0.00	1.00	0
103	Unisex Restroom	55	Restroom	0	0	0	0	0	0	0.8	0	50	12	0.00	1.00	0
104	Exam 2	98	Medical Room	7.5	0.18	3	23	18	40	0.8	50	400	92	0.13	1.00	50
105	Exam 3	98	Medical Room	7.5	0.18	3	23	18	40	0.8	50	400	92	0.13	1.00	50
	RTU-2	857									234	2400	550			234
23%																
106	Exam 4	94	Medical Room	7.5	0.18	3	23	17	39	0.8	49	350	81	0.14	1.00	49
107	Exam 5	94	Medical Room	7.5	0.18	3	23	17	39	0.8	49	350	81	0.14	1.00	49
108	Comfort Room	88	Medical Room	7.5	0.18	4	30	16	46	0.8	57	375	86	0.15	1.00	57
109	Treatment	580	Medical Room	7.5	0.18	8	60	104	206	0.8	206	1400	322	0.15	1.00	206
110	Back House	220	Office	5	0.06	4	20	13	33	0.8	42	275	63	0.15	1.00	42
111	X-ray	85	Medical Room	7.5	0.18	2	15	15	30	0.8	38	250	58	0.15	1.00	38
	RTU-1	1161									441	3000	690			441

AIR DEVICE SCHEDULE

TAG	MANUFACTURER	MODEL	FUNCTION	FACE SIZE	DUCT SIZE	BORDER TYPE	MATERIAL	FINISH	REMARKS
CD-1	PRICE	SPD	SUPPLY	24x24	-	LAY-IN	ALUMINUM	WHITE	A,B
CD-2	PRICE	SPD	SUPPLY	12x12	-	LAY-IN	ALUMINUM	WHITE	A,B
RG-1	PRICE	630L	RETURN	24x24	-	LAY-IN	ALUMINUM	WHITE	B
RG-2	PRICE	630L	RETURN	24x12	-	LAY-IN	ALUMINUM	WHITE	B
RG-3	PRICE	630L	RETURN	20x18	18x16	SURFACE	ALUMINUM	WHITE	A
EG-1	PRICE	630L	EXHAUST	24x24	-	LAY-IN	ALUMINUM	WHITE	B
EG-2	PRICE	630L	EXHAUST	12x12	-	LAY-IN	ALUMINUM	WHITE	B
SR-1	PRICE	520L	SUPPLY	14x8	12x6	SURFACE	ALUMINUM	WHITE	A

REMARKS:  
 A. PROVIDE VOLUME DAMPERS IN TAKEOFFS WHERE ACCESSIBLE. WHERE DAMPERS ARE NOT ACCESSIBLE, PROVIDE OPPOSED BLADE DAMPER AT DIFFUSER.  
 B. COORDINATE FRAME TYPE WITH ARCHITECTURAL REFLECTED CEILING PLAN.

EXHAUST FAN SCHEDULE

TAG	MANUFACTURER	MODEL	CFM	ESP	WATTS	VOLTAGE	PHASE	WEIGHT LBS	SONES	REMARKS
E102, E103	COOK	GNVF-340	70	0.375	41	120	1	28	2.0	A,B,C,D,E,F,G
E101, E104, E105, E106, E107, E108	COOK	GNVF-340	100	0.375	41	120	1	28	2.0	A,B,C,D,E,F,G
E109	COOK	GNVF-340	150	0.375	41	120	1	28	2.0	A,B,C,D,E,F,G
E110	COOK	GNVF-340	150	0.375	41	120	1	28	2.0	A,B,C,D,E,F,G

REMARKS:  
 A. VARI-FLOW MOTOR / CONTROLLER, "QUIET" RATING AT 2.0-SONES MAX.  
 B. GALVANIZED METAL HOUSING  
 C. BACKDRAFT DAMPER  
 D. GEMINI ISOLATOR KIT  
 E. PROVIDE WITH ROOF MOUNTED EXHAUST CAPS TO SERVE ALL FANS  
 F. DISCONNECT BY EC. WALL SWITCH BY EC (EF-4 ONLY).  
 G. PROVIDE ALUMINUM CEILING GRILLES, DUCTED TO EACH FAN, AS SHOWN ON PLANS.

ISSUE INFORMATION

09/16/22

REVISIONS

NO.	DATE	DESCRIPTION

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SEAL



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 1915 MATTHEWS TOWNSHIP PARKWAY  
 UNIT 1200  
 MATTHEWS, NC 28105  
 PROJECT #:  
 12113

SHEET TITLE

**MECHANICAL SCHEDULES**

SHEET NUMBER

**M2.0**

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REVISIONS


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SEAL



09/16/2022

PROJECT INFORMATION

**MATTHEWS TOWNSHIP SHOPPING CENTER**  
1915 MATTHEWS TOWNSHIP PARKWAY  
UNIT 1200  
MATTHEWS, NC 28105  
PROJECT #:  
12113

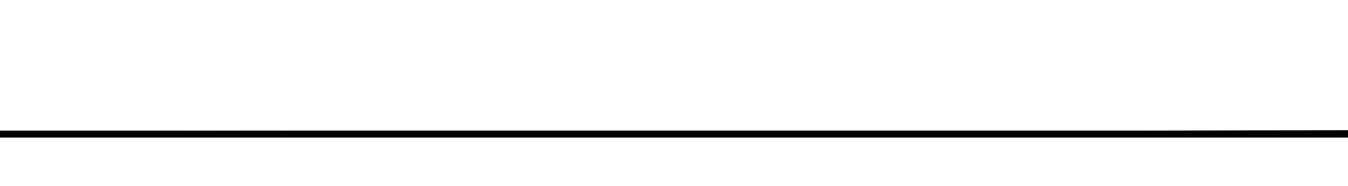
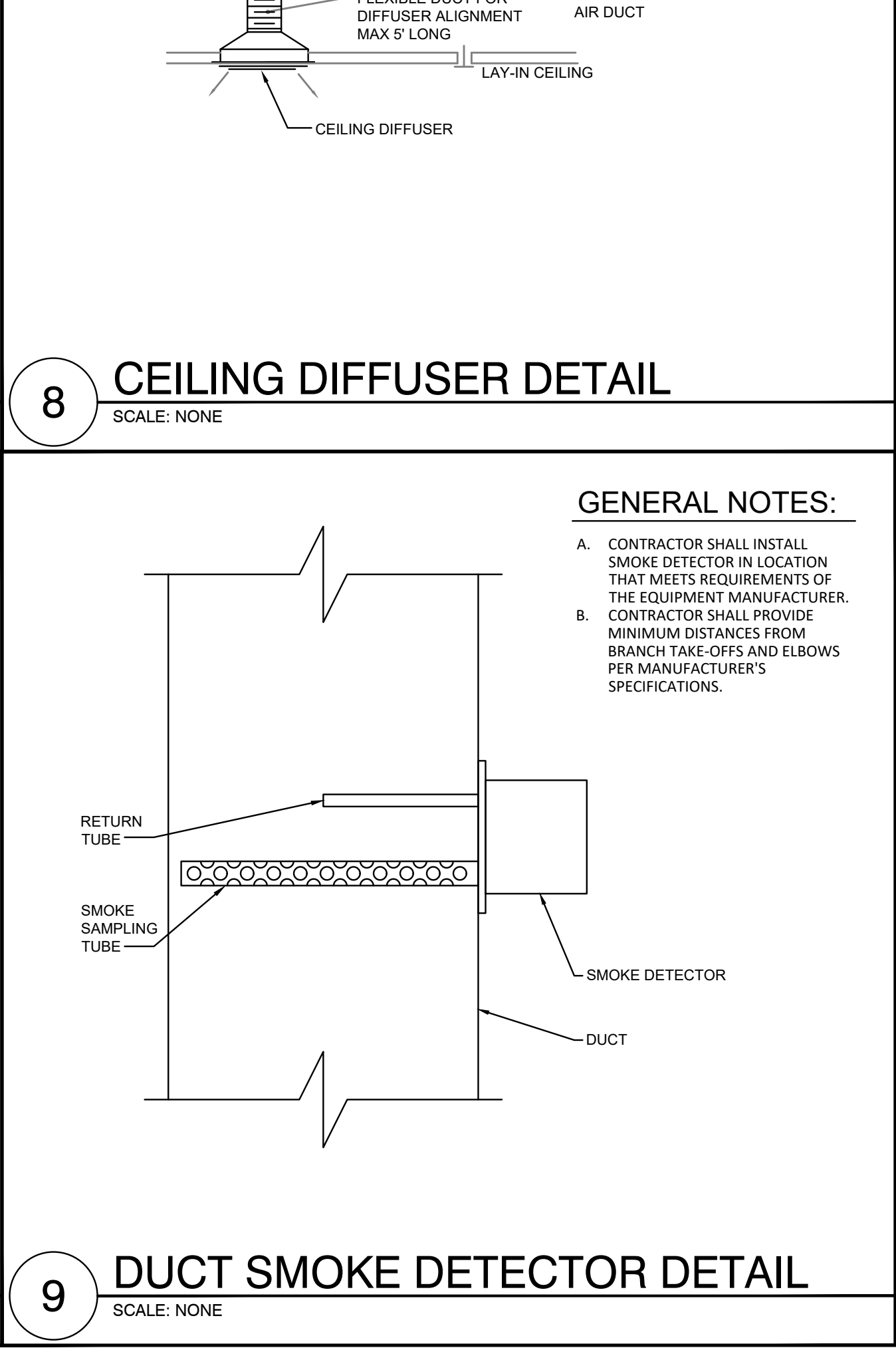
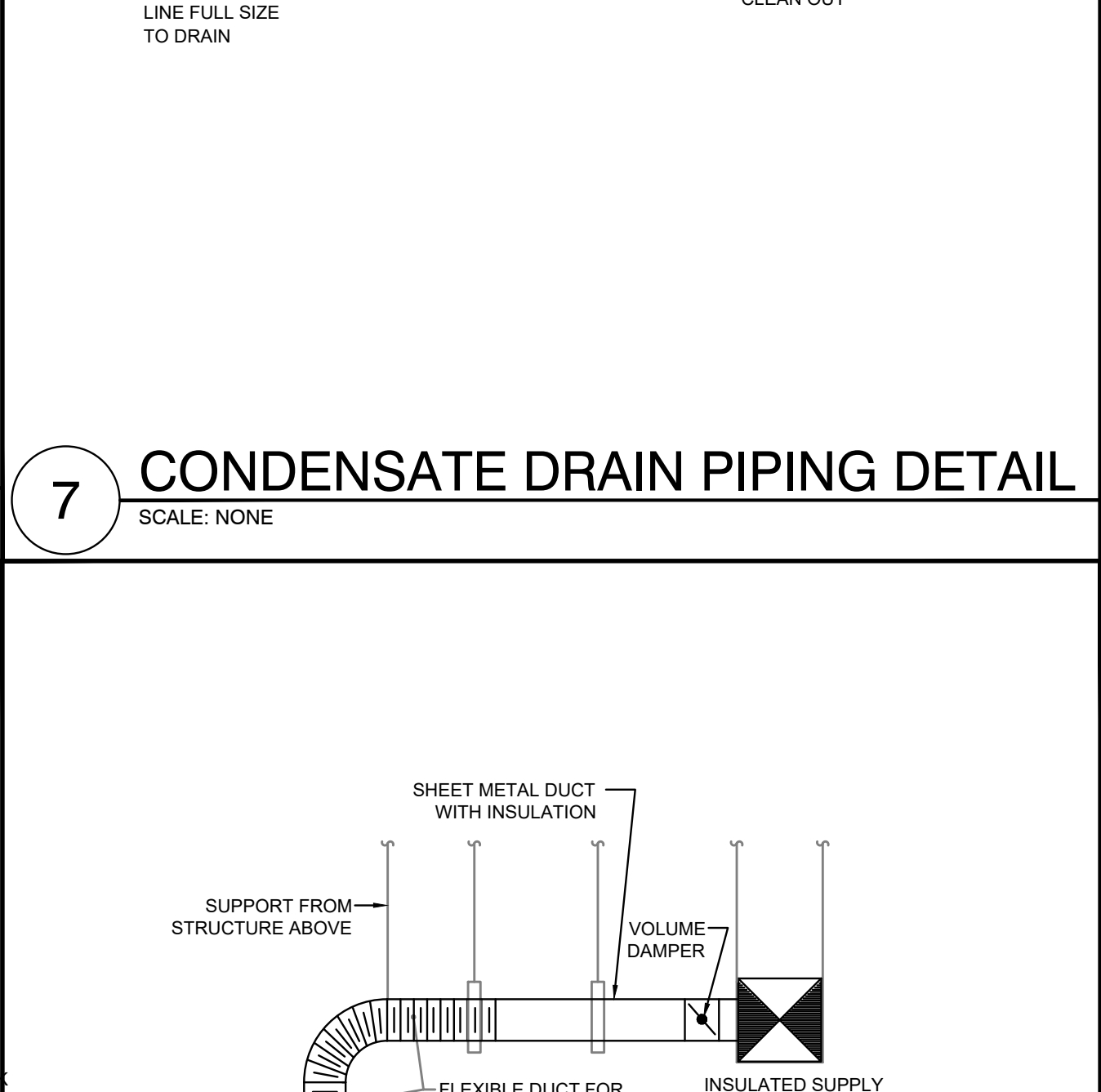
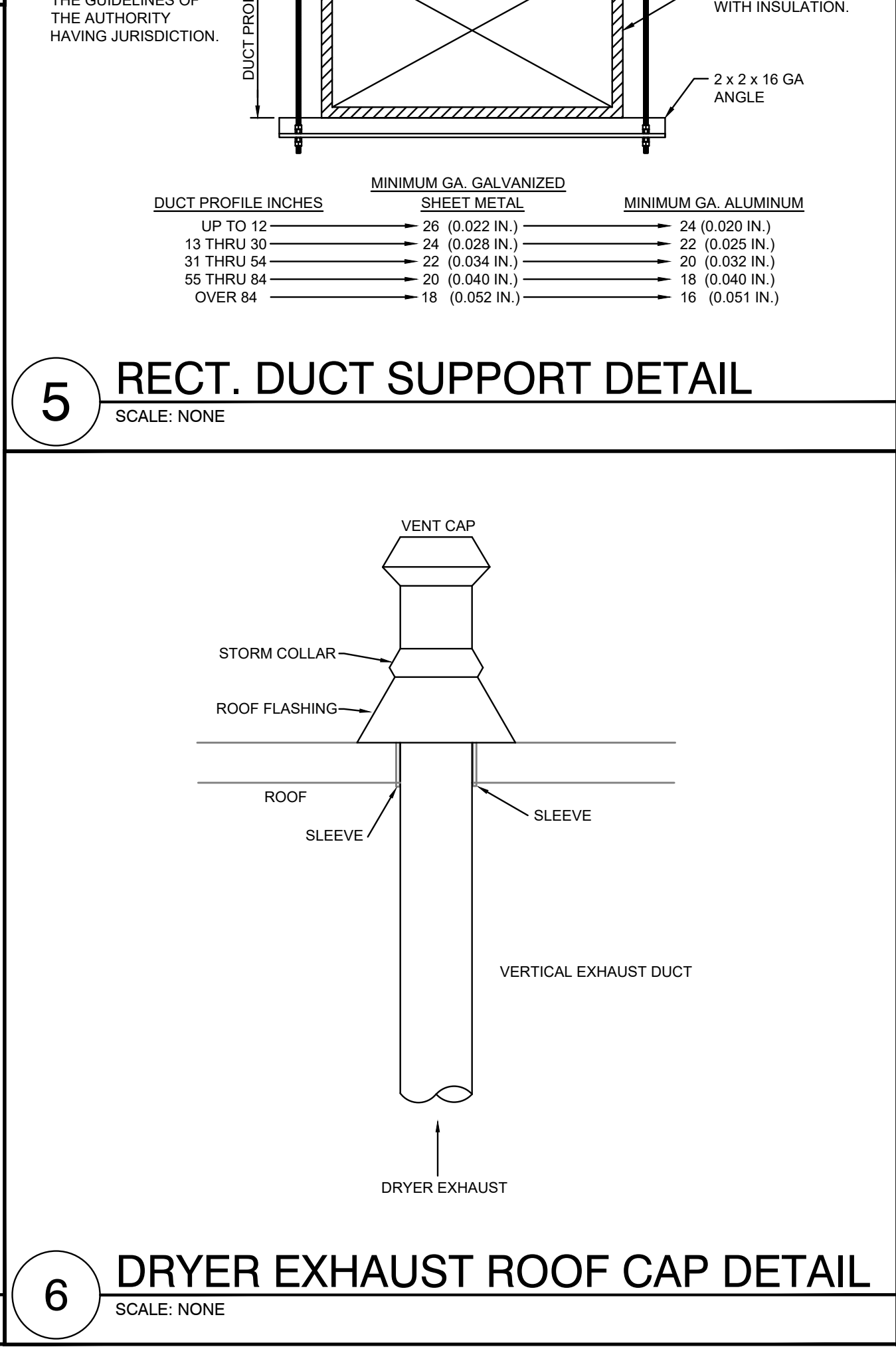
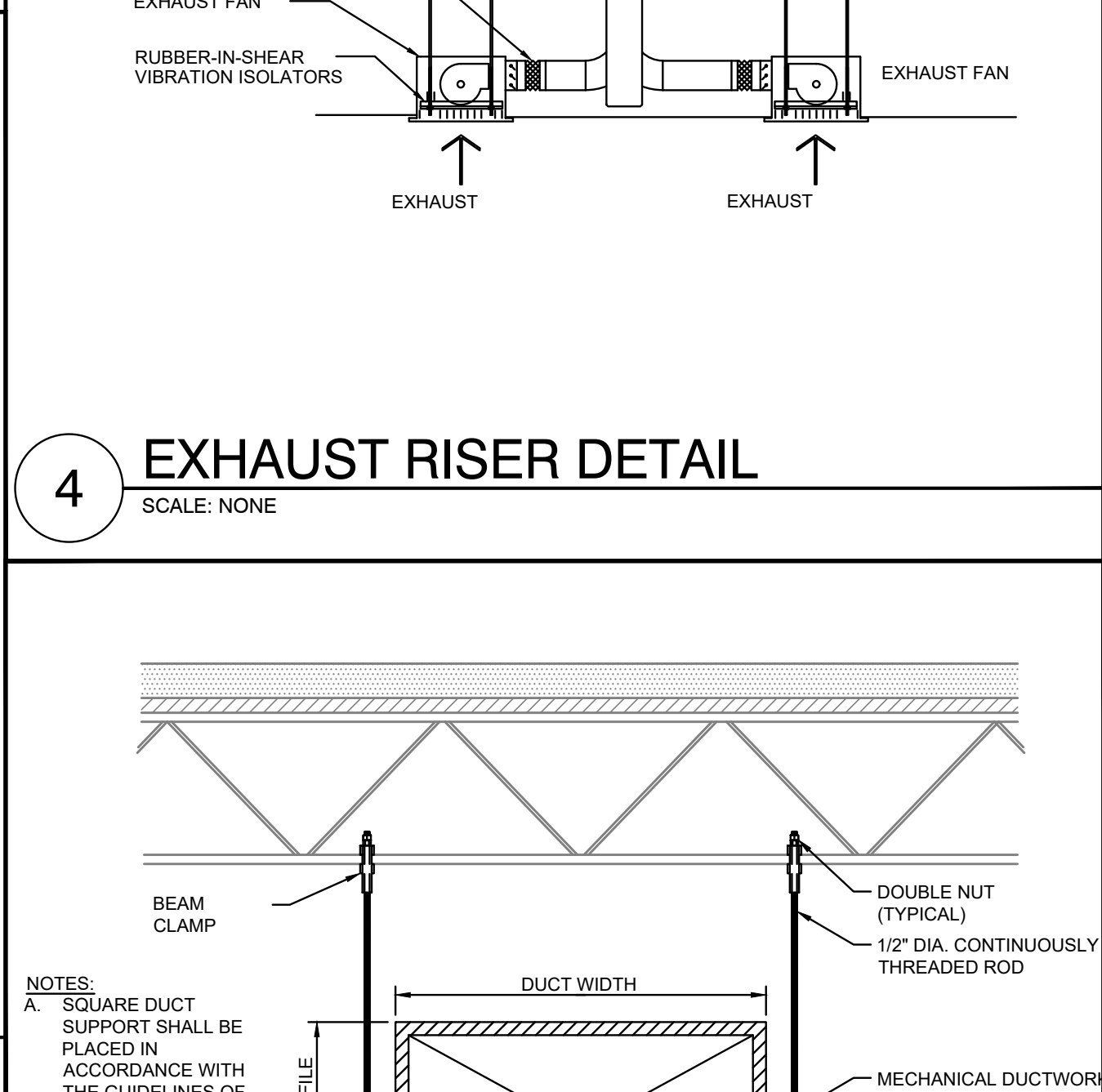
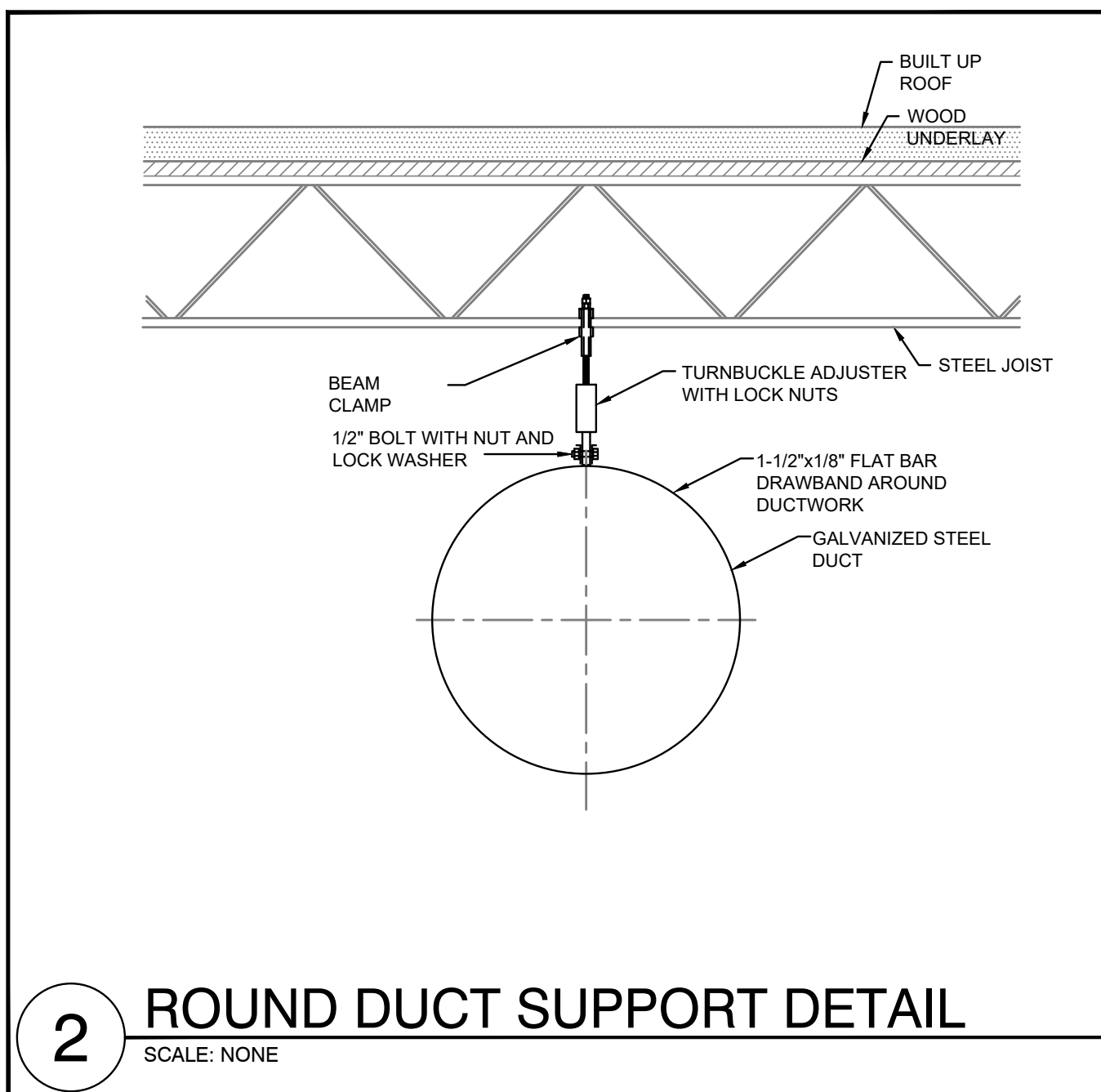
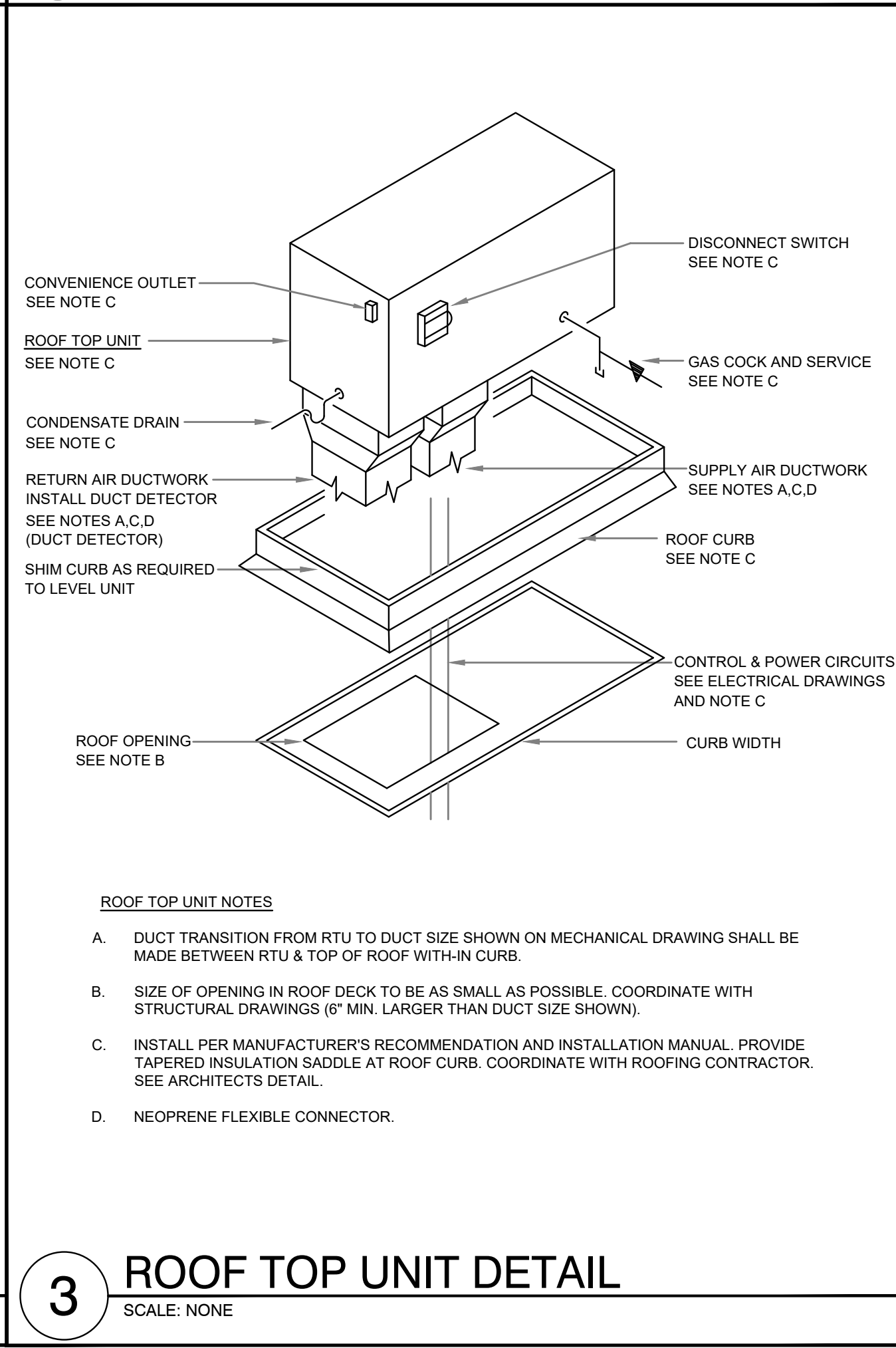
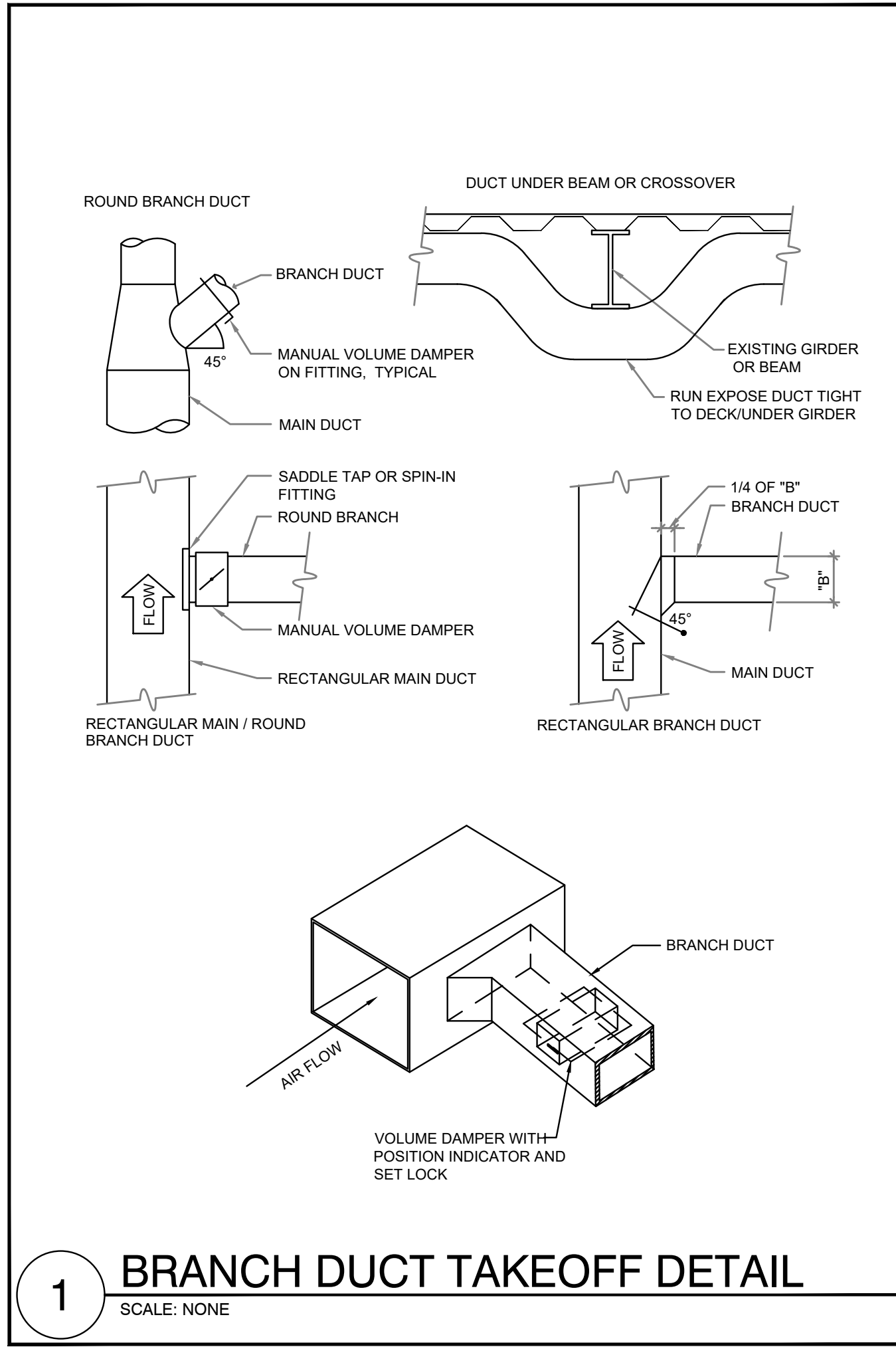
SHEET TITLE

**MECHANICAL DETAILS**

SHEET NUMBER

**M2.1**

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GENERAL NOTES:

- CONTRACTOR SHALL INSTALL SMOKE DETECTOR IN LOCATION THAT MEETS REQUIREMENTS OF THE EQUIPMENT MANUFACTURER.
- CONTRACTOR SHALL PROVIDE MINIMUM DISTANCES FROM BRANCH TAKE-OFFS AND ELBOWS PER MANUFACTURER'S SPECIFICATIONS.

DIVISION 23 MECHANICAL SPECIFICATIONS

23 05 01 COMMON REQUIREMENTS FOR HVAC

ALL MECHANICAL WORK AND TESTS SHALL BE DONE IN STRICT ACCORDANCE WITH THE LATEST STATE, COUNTY, AND LOCAL REGULATIONS, LAWS, AND ORDINANCES WHICH MAY BE APPLICABLE.

BEFORE SUBMITTING A BID, EXAMINE DOCUMENTS OF ALL OTHER TRADES, VISIT THE SITE AND GET ACQUAINTED WITH ALL CONDITIONS THAT MAY IN ANY WAY AFFECT THE EXECUTION OF THIS CONTRACT. TAKE MEASUREMENTS AND BE RESPONSIBLE FOR EXACT SIZE AND LOCATIONS OF ALL OPENINGS REQUIRED. VERIFY INSTALLATION MAY BE MADE IN COMPLETE ACCORDANCE WITH ALL PERTINENT CODES AND REGULATIONS. IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE PROFESSIONAL ENGINEER OF RECORD. DO NOT PROCEED WITH THE INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.

IT IS NOT THE INTENT OF THE DRAWINGS THAT EXISTING CONDITIONS BE ACCURATELY SHOWN. EXISTING MECHANICAL WORK IS SHOWN TO LIMITED EXTENT ON DRAWINGS AND IS SHOWN FOR GENERAL REFERENCE ONLY. LOCATIONS AND INFORMATION WERE DERIVED FROM CURSORY SITE VISUAL OBSERVATIONS OR FROM DOCUMENTS THAT WERE PREPARED FOR PREVIOUSLY INSTALLED WORK WHEN AVAILABLE.

THE WORK COVERED BY THESE SPECIFICATIONS SHALL CONSIST OF PROVIDING ALL NEW MATERIAL, LABOR, EQUIPMENT, AND SERVICES NECESSARY FOR A COMPLETE MECHANICAL INSTALLATION AS SPECIFIED HEREIN. WORK IN THIS SECTION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING ITEMS:

- PACKAGED ROOF TOP UNITS
TOILET EXHAUST FANS
LOW VOLTAGE THERMOSTATS
DUCT
DAMPERS
DIFFUSERS, REGISTERS, AND LOUVERS

WHENEVER THE WORDS "CONTRACTOR" APPEAR ON MECHANICAL DRAWINGS OR IN THESE SPECIFICATIONS, IT SHALL REFER TO THE MECHANICAL SUB-CONTRACTOR. WHENEVER THE WORD "PROVIDE" APPEARS IN THESE DOCUMENTS, IT SHALL BE INTERPRETED TO MEAN "FURNISH AND INSTALL".

COORDINATE ALL WORK WITH THE OWNER TO MINIMIZE INTERRUPTION OF BUILDING OPERATION.

COORDINATE THE INSTALLATION OF MECHANICAL ITEMS WITH THE SCHEDULES FOR WORK OF ALL OTHER TRADES TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK.

THIS CONTRACTOR SHALL VERIFY AND SATISFY HIMSELF THAT ALL EQUIPMENT FURNISHED WILL PROPERLY FIT IN THE SPACE PROVIDED, THAT IT WILL FUNCTION PROPERLY, AND THAT ALL PARTS OF EQUIPMENT REQUIRING SERVICE ARE READILY ACCESSIBLE.

ALL PIPING SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING WALLS AND FRAMING SYSTEM. ALL VERTICAL RUNS SHALL BE HELD AGAINST WALLS, COLUMNS, ETC., AS POSSIBLE TO PERMIT MAKING OF PIPE JOINTS.

CONTRACTOR SHALL PROVIDE A GUARANTEE IN WRITTEN FORM STATING THAT ALL WORK SHALL BE FREE OF DEFECTS OR ERRORS, AND ALL EQUIPMENT, MATERIALS, OR PARTS FOR A PERIOD OF ONE YEAR FROM THE DATE OF OWNER'S FINAL ACCEPTANCE AND SHALL REPAIR, REVISE OR REPLACE AT NO COST TO THE OWNER ANY SUCH DEFECTS OCCURRING WITHIN THE GUARANTEE PERIOD.

CONTRACTOR SHALL ALSO STATE IN WRITTEN FORM THAT ANY ITEMS OR OCCURRENCES ARISING DURING THE GUARANTEE PERIOD WILL BE ATTENDED TO IN A TIMELY MANNER AND WILL IN NO CASE EXCEED THREE (3) WORKING DAYS FROM DATE OF NOTIFICATION BY OWNER.

PROVIDE A COMPLETE INSTALLATION IN CONFORMANCE WITH THE FOLLOWING STANDARDS.

- AGA: AMERICAN GAS ASSOCIATION
ASHRAE: AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS
NFPA: NATIONAL FIRE PROTECTION ASSOCIATION
SMACNA: SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION.
STATEWIDE BUILDING CODE
INTERNATIONAL MECHANICAL CODE

CONTRACTOR SHALL DO ALL CUTTING AND PATCHING REQUIRED FOR INSTALLATION OF THIS WORK. ALL OPENINGS IN WALLS, FLOORS OR CEILINGS SHALL BE PROPERLY SEALED AND RESTORED IN KIND. FLASH AND COUNTERFLASH AT ROOF OPENINGS.

ALL EQUIPMENT SHALL BE LISTED AND LABELED, UNLESS OTHERWISE APPROVED.

ALL WIRING SHALL MEET THE REQUIREMENTS LISTED IN THE ELECTRICAL SPECIFICATIONS. ALL CONTROL AND INTERLOCK WIRING AND CONDUIT (120V OR 24V) SHALL BE BY THE MECHANICAL CONTRACTOR.

EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE CONDITIONS OF LISTING AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND THIS CODE.

CLEANING: THIS CONTRACTOR SHALL REMOVE FROM THE PREMISES ALL ACCUMULATION OF DIRT, DEBRIS, WASTE MATERIALS AND RUBBISH CAUSED BY HIS EMPLOYEES OR WORK, AT LEAST ONCE A WEEK, EXCEPT THAT COMBUSTIBLE MATERIALS SHALL BE REMOVED DAILY.

DURING PROGRESS OF THE WORK, MAINTAIN ON DRAWINGS AT THE SITE, AN ACCURATE RECORD OF THE INSTALLATION OF THE MECHANICAL SYSTEM, INDICATING ALL ITEMS WHICH HAVE BEEN CHANGED OR ADDED.

APPLY FOR AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED BY LOCAL AUTHORITY, FOR THE APPROVAL OF WORK.

A CERTIFICATE OF FINAL INSPECTION AND APPROVAL SHALL BE SUBMITTED WITH THE CONTRACTOR'S REQUEST FOR FINAL PAYMENT. NO FINAL PAYMENT WILL BE APPROVED WITHOUT THIS CERTIFICATE.

GUARANTEE ALL WORKMANSHIP, MATERIAL, AND EQUIPMENT AND REPLACE ANY FOUND DEFECTIVE WORK WITHOUT COST TO THE OWNER, FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE.

EXISTING CONDITIONS

DO NOT REUSE REMOVED MECHANICAL MATERIALS UNLESS SPECIFICALLY INDICATED ON DRAWINGS. EXISTING SYSTEMS MAY BE UTILIZED ONLY TO THE EXTENT INDICATED ON DRAWINGS.

IF REQUIRED TO ACCOMMODATE CONSTRUCTION RELATED ACTIVITIES TEMPORARILY REMOVE, STORE IN PROTECTED LOCATION ON SITE, AND REINSTALL CONFLICTING MECHANICAL EQUIPMENT, OR DEVICES THAT ARE TO REMAIN OR TO BE RELOCATED.

WHERE THE TERM "DEMOLITION" IS USED HEREIN, INTERPRET IT TO MEAN "DEMOLITION" OR "SELECTIVE DEMOLITION" WHERE APPLICABLE.

PROVIDE MECHANICAL DEMOLITION WORK AS REQUIRED TO ACCOMMODATE PROJECT DEMOLITION AND AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION. DISCONNECT AND REMOVE WORK TO BE ABANDONED, AND AS REQUIRED TO ACCOMMODATE WORK OF OTHER TRADES, IN AREAS AFFECTED BY THIS PROJECT.

LEGALLY DISPOSE OF MATERIALS TO SALVAGED OR RETAINED.

23 05 03 SUBMITTALS FOR MECHANICAL SYSTEMS

DESIGN BASIS MANUFACTURERS OF MATERIAL AND EQUIPMENT ARE SPECIFIED AND PLANS ARE DETAILED ACCORDING TO THIS MATERIAL. CONTRACTOR SHALL BASE HIS BID ON FURNISHING AND INSTALLING THIS MAKE OF MATERIAL AND EQUIPMENT.

AN ACCEPTABLE MANUFACTURER'S NAME AND MODEL NUMBER OF A PRODUCT MAY BE PROVIDED IN THESE DOCUMENTS. THIS IS THE EQUIPMENT INCLUDED DURING THE DESIGN PROCESS AND FORMS THE BASIS OF A STANDARD OF QUALITY. WHERE MORE THAN ONE MAKE OF MATERIAL OR EQUIPMENT IS SPECIFIED, THE CONTRACTOR SHALL STATE IN HIS BID WHICH MAKE HE PROPOSES TO FURNISH AND INSTALL. SHOP DRAWING APPROVAL SHALL BE OBTAINED PRIOR TO SHIPMENT OF EQUIPMENT.

VERIFY THE MODEL NUMBER OR PRODUCT IS STILL ACCURATE AND MEETS ALL REQUIREMENTS SHOWN ON THE DRAWINGS. IF THERE IS A DISCREPANCY BETWEEN THE REQUIREMENTS AND THE PRODUCT OR MODEL NUMBER, THE STRICTER OF THE TWO SHALL GOVERN.

SUBMIT SHOP DRAWINGS AND/OR PRODUCT DATA (ELECTRONIC COPIES) ON THE FOLLOWING ITEMS FOR REVIEW BEFORE FABRICATION OR SHIPMENT:

- PACKAGED ROOF TOP UNITS
TOILET EXHAUST FANS
LOW VOLTAGE THERMOSTATS
DUCT
DAMPERS
DIFFUSERS, REGISTERS, AND LOUVERS

MAINTENANCE MANUALS: THE MANUALS SHALL INCLUDE WIRING DIAGRAMS, MAINTENANCE AND OPERATING INSTRUCTIONS, PARTS LISTINGS, AND COPIES OF OTHER SUBMITTALS INDICATED FOR INCLUSION.

REVIEW AND CORRECTIONS OR COMMENTS MADE ON SHOP DRAWINGS, PRODUCT DATA, CATALOGS, CUT SHEETS, CHARTS, AND OTHER ITEMS DURING CONSTRUCTION PHASE SUBMITTAL REVIEW DO NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS, FOR PROVIDING A COMPLETE AND FUNCTIONING PROJECT, NOR SHALL THEY RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR DEVIATIONS OR ERRORS OF ANY SORT. THIS REVIEW IS FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH INFORMATION GIVEN AND THE DESIGN CONCEPT EXPRESSED IN THE CONTRACT DOCUMENTS. CONTRACTOR REMAINS RESPONSIBLE FOR DETERMINING THE ACCURACY AND COMPLETENESS OF OTHER DETAILS SUCH AS DIMENSIONS AND QUANTITIES, FOR SUBSTANTIATING INSTRUCTIONS FOR INSTALLATIONS, VERIFYING MATERIALS REQUIRED, OBTAINING FIELD MEASUREMENTS AND RELATED CRITERIA, COORDINATING WORK WITH OTHER DISCIPLINES AND PERFORMING WORK IN COMPLIANCE WITH THE

CONTRACT DOCUMENTS.

ANY CHANGES TO ITEMS SPECIFIED MUST BE SUBMITTED IN WRITING AS A SUBSTITUTION, WITH COMPLETE DOCUMENTATION OF PRICE DIFFERENTIAL AND EQUIPMENT DETAILS. ANY SUBSTITUTIONS PROVIDED SHALL BE REVIEWED AT MARQUE ENGINEERING'S HOURLY RATES. REVIEW SHALL BE PAID FOR BY THE CONTRACTOR TO MARQUE ENGINEERING AT NO COST TO THE OWNER. BY USING PRE-APPROVED SUBSTITUTIONS, THE CONTRACTOR ACCEPTS ALL RESPONSIBILITY AND ASSOCIATED COSTS FOR ALL REQUIRED MODIFICATIONS TO THE CONTRACT DOCUMENTS TO INCLUDE BUT NOT LIMITED TO MATERIAL OR EQUIPMENT COSTS FOR THEIR OR OTHER TRADES, AND ENSURING THAT SUBSTITUTED MATERIALS AND EQUIPMENT TO BE FURNISHED FIT INTO SPACE AVAILABLE.

EXTENSIVE REVISIONS NECESSITATED TO THE CONTRACT DOCUMENTS, OR SUBSTITUTION ACTIONS RELATED TO ANY SPECIFIED PRODUCT NOT ABLE TO BE PROVIDED DUE TO A FAILURE TO COMMENCE WORK, RELEASE PRODUCT OR COORDINATE CONSTRUCTION ACTIVITIES SHALL BE PROVIDED AT MARQUE ENGINEERING'S HOURLY RATES. COSTS SHALL BE BORN BY THE CONTRACTOR AT NO COST TO THE OWNER.

23 05 29 HANGERS AND SUPPORTS

SUPPORT ALL PIPING, DUCTWORK AND EQUIPMENT BY HANGERS OR BRACKETS. FURNISH STRUCTURAL STEEL MEMBERS WHERE REQUIRED TO SUPPORT PIPING AND EQUIPMENT. NO PORTION OF PIPING OR VALVES SHALL BE SUPPORTED BY EQUIPMENT.

DUCTWORK - SUPPORT BY MEANS OF HANGERS AS FOLLOWS:

DUCT WIDTH 30 OR LESS
HANGER SIZE (16 GAUGE)

TYPE MAX. SPACING 8

A PAIR OF HANGERS SHALL BE LOCATED AT EVERY TRANSVERSE JOINT AND ELSEWHERE ACCORDING TO THE TABLE.

23 05 93 HVAC SYSTEM TESTING, ADJUSTING AND BALANCING FOR HVAC

ALL SYSTEMS AND EQUIPMENT SHALL BE CAREFULLY ADJUSTED TO PROVIDE COMFORTABLE AND UNIFORM CONDITIONS IN EACH AND EVERY SPACE TO THE OWNER'S SATISFACTION. PROVIDE ANY REQUIRED SERVICES TO SATISFY QUANTITIES INDICATED. PROVIDE A CERTIFIED AIR BALANCE OF THE DIFFUSERS AND AIR HANDLERS.

AIR SYSTEM:

AIR BALANCE AND TESTING SHALL NOT BEGIN UNTIL THE SYSTEM HAS BEEN COMPLETED AND IS IN FULL WORKING ORDER. CONTRACTOR SHALL PUT ALL HEATING, VENTILATING AND AIR CONDITIONING SYSTEM AND EQUIPMENT INTO FULL OPERATION AND SHALL CONTINUE THE OPERATION OF SAME DURING EACH WORKING DAY OF TESTING AND BALANCING. CONTRACTOR SHALL SUBMIT WITHIN 30 DAYS AFTER RECEIPT OF CONTRACT, COPIES OF SUBMITTAL DATA FOR THE TESTING AND BALANCING OF THE AIR CONDITIONING, HEATING, AND VENTILATING SYSTEMS. THE AIR BALANCE AND TESTING AGENCY SHALL PROVIDE PROOF OF HAVING SUCCESSFULLY COMPLETED AT LAST FIVE PROJECTS OF SIMILAR SIZE AND SCOPE.

CONTRACTOR SHALL PROCURE THE SERVICES OF AN INDEPENDENT AIR BALANCE AND TESTING AGENCY, APPROVED BY THE ENGINEER, AND A MEMBER OF ASHRAE OR NEBB, WHICH SPECIALIZES IN THE BALANCING AND TESTING OF HEATING VENTILATION AND AIR CONDITIONING SYSTEMS, TO BALANCE, ADJUST AND TEST AIR MOVING EQUIPMENT AND AIR DISTRIBUTION OR EXHAUST SYSTEMS AS HEREIN SPECIFIED.

ALL WORK BY THIS AGENCY SHALL BE DONE UNDER THE DIRECT SUPERVISION OF A QUALIFIED HEATING AND VENTILATING ENGINEER EMPLOYED BY THIS AGENCY. ALL INSTRUMENTS USED BY THIS AGENCY SHALL BE ACCURATELY CALIBRATED AND MAINTAINED IN GOOD WORKING ORDER.

23 07 13 DUCT INSTALLATION

INSULATE ALL SUPPLY, DIFFUSER PLENUMS, AND OUTSIDE AIR DUCTWORK OF ALL UNITS WITH OWENS CORNING "ALL SERVICE DUCT WRAP" TYPE 150 GRASS FIBER INSULATION UNLESS OTHERWISE NOTED. INSULATION SHALL BE 1-1/2" THICK (2" THICK FOR SUPPLY AND RETURN IN TRUSS SPACE). 1.5 PCF. DENSITY WITH FRK JACKET .002 THICK REINFORCED ALUMINUM FOIL VAPOR BARRIER. INSULATION SHALL CONFORM TO NFPA 90A AND 90B PER ASTM E-84 FOR FLAME SPREAD AND SMOKE DEVELOPED RATING.

INSULATE ALL EXTERIOR SUPPLY AND RETURN DUCTWORK WITH RIGID FIBERGLASS BOARD INSULATION WITH OUTDOOR JACKET. INSULATION SHALL BE 2" THICK WITH A 'K' VALUE OF 0.23 AT 75 F. INSTALL ON DUCTWORK USING IMPALE ANCHORS AND WIRES. SEAL VAPOR BARRIER WITH VAPOR BARRIER ADHESIVE.

PROVIDE INSULATION ON ALL CONCEALED SUPPLY, RETURN DUCTWORK. ALL LINERS, INSULATION AND ADHESIVES SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50.

RIGID FIBERGLASS DUCTWORK INSULATION: GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 612, TYPE II, WITHOUT FACING AND WITH VAPOR BARRIER ALL-SERVICE JACKET MANUFACTURED FROM KRAFT PAPER, REINFORCING SCRIM, ALUMINUM FOIL, AND VINYL FILM. INSULATION SHALL HAVE A MINIMUM R VALUE AS REQUIRED BY CODE.

FLEXIBLE FIBERGLASS DUCTWORK INSULATION: GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 553, TYPE II, WITHOUT FACING AND WITH VAPOR BARRIER ALL-SERVICE JACKET MANUFACTURED FROM KRAFT PAPER, REINFORCING SCRIM, ALUMINUM FOIL, AND VINYL FILM. INSULATION SHALL HAVE A MINIMUM R VALUE AS REQUIRED BY CODE.

VAPOR BARRIER MATERIAL FOR DUCTWORK: PAPER-BACKED ALUMINUM-FOIL, EXCEPT AS OTHERWISE INDICATED; STRENGTH AND PERMEABILITY RATING EQUIVALENT TO FACTORY-APPLIED VAPOR BARRIERS ON ADJOINING DUCTWORK INSULATION, WHERE AVAILABLE, WITH FOLLOWING ADDITIONAL CONSTRUCTION CHARACTERISTICS:

HIGH PUNCTURE RESISTANCE: LOW VAPOR TRANSMISSION (FOR DUCTS IN EXPOSED AREAS: MECH. ROOMS, ETC.)
MODERATE PUNCTURE RESISTANCE: MEDIUM VAPOR TRANSMISSION (FOR DUCTS IN CONCEALED AREAS).

INSTALLATION IS NOT PERMITTED ABOVE DRYWALL CEILINGS AND INACCESSIBLE CEILINGS.

23 09 93 SEQUENCE OF OPERATION

PACKAGED ROOFTOP UNIT

STARTUP

THE UNIT SHALL OPERATE ON A 7 DAY/NIGHT PROGRAMMABLE THERMOSTAT. DURING STARTUP, THE FAN SHALL RUN WITH THE DAMPERS IN THE FULL RECIRCULATION POSITION. PROVIDE OCCUPIED CHANGEOVER SEQUENCE WITH OPTIMUM START FUNCTION. WHEN THE RETURN AIR TEMPERATURE REACHES OCCUPIED SETPOINT (ADJUSTABLE), THE MINIMUM OUTSIDE AIR DAMPER SHALL OPEN TO THE CONTROLLED MINIMUM OUTDOOR AIR POSITION.

SUPPLY FAN CONTROL

THE SUPPLY FAN SPEED SHALL BE CONSTANT AND SET TO THE REQUIRED CFM.

SPACE TEMPERATURE CONTROL

PROVIDE LOCAL WALL MOUNTED ROOM TEMPERATURE THERMOSTAT WITH DIGITAL DISPLAY OF ROOM TEMPERATURE AND SETPOINT (+/- DEG. F. ADJUSTABLE), AND OVERRIDE FEATURE.

MINIMUM OUTSIDE AIR CONTROL

DURING OCCUPIED MODE THE MINIMUM OUTSIDE AIR DAMPER SHALL BE OPEN. PROVIDE MOTORIZED OUTDOOR AIR DAMPER.

ECONOMIZER CONTROL

DRY BULB CONTROLLED ECONOMIZER: OPERATED TO AUTOMATICALLY USE OUTDOOR AIR FOR "FREE COOLING" WHEN OUTDOOR AIR TEMPERATURE IS AT ACCEPTABLE LEVELS. AUTOMATICALLY MODULATED OUTDOOR AND RETURN AIR DAMPERS MAINTAIN PROPER DISCHARGE AIR TEMPERATURE INTO THE CONDITIONED SPACE. ADJUSTABLE MINIMUM POSITION CONTROL IS STANDARD. ECONOMIZER SHALL HAVE POWERED OR BAROMETRIC RELIEF, AS SCHEDULED.

COOLING CONTROL

COOLING SHALL BE CONTROLLED TO MAINTAIN SPACE TEMPERATURE SETPOINT. ON A CALL FOR COOLING THE HEATING SHALL BE OFF. ON A FURTHER CALL FOR COOLING, ENABLE THE ECONOMIZER MODE. ON A FURTHER CALL FOR COOLING, DISABLE THE ECONOMIZER MODE AND THE MECHANICAL COOLING SHALL BE STAGED ON.

HEATING CONTROL

HEATING SHALL BE CONTROLLED TO MAINTAIN SPACE TEMPERATURE SETPOINT. ON A CALL FOR HEATING, THE MECHANICAL COOLING SHALL BE OFF. ON A FURTHER CALL FOR HEATING, THE ECONOMIZER MODE SHALL BE DISABLED. ON A FURTHER CALL FOR HEATING THE GAS HEATING SHALL BE STAGED ON.

SMOKE DETECTOR

WHEN THE SMOKE DETECTOR IS ALARMED, THE SYSTEM SHALL BE ALARMED AND THE AIR HANDLER SHALL FAIL SAFE WITH MANUAL RESET. ELECTRICAL CONTRACTOR SHALL FURNISH, HVAC CONTRACTOR SHALL MOUNT & ELECTRICAL CONTRACTOR SHALL WIRE A UL LISTED PHOTOELECTRIC SMOKE DETECTOR PER LOCAL CODE AUTHORITY HAVING JURISDICTION.

UNOCCUPIED MODE

DURING THE UNOCCUPIED MODE OF OPERATION, THE RTU SHALL GO INTO NIGHT SETBACK MODE. AT NIGHT SETBACK/SHUTDOWN THE RTU SHALL GO TO FAIL SAFE POSITION. FAIL SAFE POSITION IS DEFINED BY THE FOLLOWING: THE SUPPLY FAN IS OFF, THE OUTDOOR AIR INTAKE DAMPER IS CLOSED, THE HEATING IS OFF AND THE MECHANICAL COOLING IS OFF. THE SUPPLY FAN SHALL CYCLE IN CONJUNCTION WITH EITHER THE HEATING OR COOLING SYSTEM TO MAINTAIN A MINIMUM/MAXIMUM SPACE TEMPERATURE DEPENDING ON THE SEASON.

LOW VOLTAGE THERMOSTATS SHALL BE PROVIDED AND WIRED BY THE HVAC CONTRACTOR. ELECTRICAL CONTRACTOR SHALL PROVIDE 4" SQUARE 12-1/2" DEEP WALL OUTLET BOXES WITH 1/2" SINGLE-GANG RINGS FOR ALL THERMOSTATS/SENSORS. ELECTRICAL CONTRACTOR SHALL PROVIDE ONE 3/4" EMPTY CONDUIT FROM EACH THERMOSTAT/SENSOR LOCATION, TURNED OUT ABOVE ACCESSIBLE CEILINGS (IN JOIST SPACE OR AGAINST OVERHEAD SLAB/DECK). HVAC/TEMPERATURE CONTROL CONTRACTOR SHALL PROVIDE ALL OTHER NECESSARY CONDUIT, RACEWAY AND WIRING RELATED WORK. CONDUIT SHALL BE IDENTIFIED IN CEILING CAVITY AND SHALL BE PROVIDED WITH SWEEP BENDS, BUSHINGS AND DRAGLINE.

EXHAUST FANS SHALL BE TIED TO LIGHT SWITCH, WHICH SHALL BE FURNISHED, INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. WHEN ACTIVATED, EXHAUST FAN MOTOR DAMPER SHALL OPEN AND FAN SHALL START.

ALL DUCT SMOKE DETECTORS, FOR SMOKE DETECTORS, WILL BE FURNISHED PROVIDED AND WIRED BY ELECTRICAL CONTRACTOR. INSTALLED BY THE HVAC CONTRACTOR, AND WIRED BY THE ELECTRICAL CONTRACTOR PER LOCAL CODES. HVAC CONTRACTOR WILL INTERLOCK FAN WITH SMOKE DETECTOR.

MOTOR OPERATED DAMPERS: ALL FRESH AIR INTAKES AND EXHAUST LOUVERS SHALL HAVE MOTOR OPERATED DAMPERS. DAMPERS SHALL BE LOW LEAK WITH BLADE AND EDGE SEALS. 24 V MOTOR OPERATED DAMPERS SHALL BE PROVIDED AND WIRED BY THE MECHANICAL CONTRACTOR, UNLESS OTHERWISE NOTED. PROVIDE ALL NECESSARY TRANSFORMERS, CONTACTORS, CONTROLS AND WIRING FOR INTERLOCKING EQUIPMENT TO MOTOR OPERATED DAMPERS.

23 22 00 CONDENSATE DRAIN PIPING

INSTALL TRAP AT EVAPORATOR COIL DRAIN. EXTEND DRAIN LINE FROM COIL TRAP TO DRAIN. PIPING SHALL BE STANDARD WEIGHT, PVC PIPE AND FITTINGS AND WITH JOINTS OF PVC SOLVENT CEMENT. PROVIDE CLEANOUTS THROUGHOUT RUN AND AT TOPS OF TRAPS.

23 30 00 AIR DISTRIBUTION SYSTEM

CEILING AIR DIFFUSERS:

SQUARE: SQUARE HOUSING, CORE OF SQUARE CONCENTRIC LOUVERS, SQUARE OR ROUND DUCT CONNECTION.

VAV DIFFUSER: THE VAV SQUARE PLAQUE DIFFUSER SHALL BE SUPPLIES TO DELIVER A 360 DEGREE RADIAL, HORIZONTAL AIR FLOW PATTERN. THE BACK CONE SHALL BE A ONE-PIECE DIE-FORMED DESIGN WITH SMOOTH, AERODYNAMICALLY DESIGNED SURFACES AND NO CORNER JOINTS.

CONSTRUCTION:

DIFFUSER CONSTRUCTION SHALL BE 2x24 STEEL WITH ONE-PIECE BACK PAN, AERODYNAMICALLY DESIGNED INNER CONE DAMPER ASSEMBLY, AND PLAQUE FACEPLATE.

A PLAQUE ASSEMBLY SHALL BE INCORPORATED AND SHALL DROP NO MORE THAN 1/2" INCH BELOW THE CEILING PLAN TO ASSURE PROPER AIR DISTRIBUTION PERFORMANCE

THE PLAQUE ASSEMBLY SHALL BE COMPLETELY REMOVABLE FROM THE DIFFUSER FACE TO ALLOW FOR FULL ACCESS TO ANY DAMPERS OR OTHER DUCTWORK COMPONENTS LOCATED NEAR THE DIFFUSER NECK.

POWER REQUIREMENTS:

THE VAV DIFFUSERS SHALL BE POWERED BY 24VAC, 3.0 VA PER UNIT, WITH SUPPLY POWER FREQUENCY: 60 HZ

MODULATING DAMPER ASSEMBLY:

THE MODULATING DAMPER ASSEMBLY SHALL HAVE THE FOLLOWING FEATURES:

- QUIET, ULTRA-LONG LIFE BRUSHLESS A DRIVE MOTOR
DIRECT DRIVE SYSTEM WITHOUT GEARS, BELTS, OR LEVERS, RESULTING IN ZERO MAINTENANCE AND LONG LIFE

A WALL MOUNTED THERMOSTAT WILL PROVIDE ROOM TEMPERATURE SENSING AS WELL AS SET-POINT ADJUSTMENT FOR HEATING AND COOLING.

LINEAR: EXTRUDED ALUMINUM CONTINUOUS SLOT, SINGLE OR MULTIPLE.

DIFFUSER MOUNTINGS:

SURFACE MOUNT: DIFFUSER SHALL HAVE ROLLED EDGE BELOW FINISHED CEILING FOR SURFACE MOUNTING OR DIFFUSER SHALL BE FURNISHED WITH ACCESSORY PLASTER FRAME.

LAY-IN: DIFFUSER HOUSING SIZED TO FIT BETWEEN CEILING EXPOSED SUSPENSION TEE BARS AND REST ON TOP SURFACE OF TEE BAR.

DIFFUSER ACOUSTIC PERFORMANCE: NC LESS THAN OR EQUAL TO 30

DIFFUSER ACCESSORIES: PLASTER RING; PERIMETER RING DESIGNED TO ACT AS PLASTER STOP AND DIFFUSER ANCHOR.

DIFFUSER FINISHES: WHITE ENAMEL; SEMI-GLOSS WHITE ENAMEL PRIME FINISH.

CEILING AND WALL REGISTERS & GRILLES:

STEEL CONSTRUCTION: MANUFACTURER'S STANDARD STAMPED SHEET STEEL FRAME AND ADJUSTABLE BLADES.

REGISTER AND GRILLE FINISHES: WHITE ENAMEL; SEMI-GLOSS WHITE ENAMEL PRIME FINISH.

REGISTER AND GRILLE ACOUSTIC PERFORMANCE: NC LESS THAN OR EQUAL TO 30

23 31 13 METAL DUCTS

CONSTRUCTION, INSTALLATION AND SUPPORT OF ALL DUCTWORK SHALL CONFORM TO THE LATEST EDITION OF SMACNA "HVAC DUCT CONSTRUCTION STANDARD -METAL AND FLEXIBLE".

ASSEMBLE AND INSTALL DUCTWORK IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ACHIEVE AIR-TIGHT (5% LEAKAGE FOR SYSTEMS RATED 3" AND UNDER; 1% FOR SYSTEMS RATED OVER 3") AND NOISELESS (NO OBSERVABLE NOISE) SYSTEMS. INSTALL EACH RUN WITH MINIMUM NUMBER OF JOINTS. ALIGN DUCTWORK ACCURATELY AT CONNECTIONS, WITHIN 3/8" MISALIGNMENT TOLERANCE AND WITH INTERNAL SURFACES SMOOTH.

SUPPORT VERTICAL DUCTS AT EVERY FLOOR. SUPPORT DUCT WITH APPROVED HANGERS AT INTERVALS NOT EXCEEDING 10 FEET.

DUCTS SHALL BE GALVANIZED SHEET METAL OF STANDARD GAUGES. DUCTWORK SHALL HAVE A MINIMUM THICKNESS OF .24 GAUGE. ALL DUCT ELBOWS SHALL BE EITHER FULL RADIUS OR WITH TURNING VANES.

WHERE DUCTWORK IS INDICATED TO BE EXPOSED IN OCCUPIED SPACES, PROVIDE MATERIALS WHICH ARE FREE FROM VISUAL IMPERFECTIONS INCLUDING PITTING, SEAM MARKS, ROLLER MARKS, STAINS AND DISCOLORATIONS, AND OTHER IMPERFECTIONS, INCLUDING THOSE WHICH WOULD IMPAIR PAINTING.

EXPOSED DUCTWORK WHICH IS TO BE PAINTED SHALL HAVE PAINT GRIP APPLIED.

PROVIDE VOLUME DAMPERS IN ALL BRANCH DUCTS OR AS REQUIRED FOR BALANCING TO REQUIRED AIR FLOWS.

PROVIDE RADIUS TYPE FITTINGS FABRICATED OF MULTIPLE SECTIONS WITH MAXIMUM 15 DEG. CHANGE OF DIRECTION PER SECTION, UNLESS DETAILED OTHERWISE. USE 45 DEG. LATERALS AND 45 DEG. ELBOWS FOR BRANCH TAKEOFF CONNECTIONS. WHERE 90 DEG. BRANCHES ARE INDICATED, PROVIDE CONICAL TYPE TEES.

PROVIDE DUCT SEALANT AND/OR CEMENT WHICH IS NON-HARDENING, NON-MIGRATING MASTIC OR OF LIQUID ELASTIC SEALANT, TYPE APPLICABLE FOR FABRICATION/INSTALLATION DETAIL, AS COMPOUNDED AND RECOMMENDED BY MANUFACTURER SPECIFICALLY FOR SEALING JOINTS AND SEAMS IN DUCTWORK.

FLEXIBLE DUCTS SHALL EITHER BE SPIRAL-WOUND SPRING STEEL WITH FLAMEPROOF VINYL SHEATHING OR CORRUGATED ALUMINUM. THE MAXIMUM LENGTH OF FLEX DUCT ON THE SUPPLY EQUALS 5 FEET. FLEX IS NOT ALLOWED FOR RETURN, RELIEF OR EXHAUST APPLICATIONS.

FLEXIBLE DUCTS SHALL CONFORM TO THE REQUIREMENTS OF UL 181 FOR CLASS 0 OR CLASS 1 FLEXIBLE AIR DUCTS AND SHALL BE SO IDENTIFIED.

WHERE INSTALLED IN UNCONDITIONED SPACES OTHER THAN RETURN AIR PLENUMS, PROVIDE 1" THICK 1-1/2 LB. CONTINUOUS FLEXIBLE FIBERGLASS SHEATH WITH VINYL VAPOR BARRIER JACKET.

SHOP FABRICATE DUCTWORK IN 4, 8, 10 OR 12-FT LENGTHS, OR REQUIRED TO COMPLETE RUNS.

FABRICATE DUCTWORK WITH DUCT LINER IN EACH SECTION OF DUCT WHERE INDICATED. LAMINATE LINER TO INTERNAL SURFACES OF DUCT IN ACCORDANCE WITH INSTRUCTIONS BY MANUFACTURERS OF LINING AND ADHESIVE, AND FASTEN WITH MECHANICAL FASTENERS. DUCT LINER TO BE 3-LB DENSITY FOR ACOUSTIC REQUIREMENTS 1" THICK OR AS NOTED. SIZE OF DUCTWORK SHOWN ON THE DRAWINGS IS FREE NET AREA, OUTSIDE DIMENSION OF DUCTS WILL NEED TO BE INCREASED IF LINED DUCT IS USED.

DUCT LINER SHALL BE OF FIBROUS GLASS OF THICKNESS INDICATED. 3-LB DENSITY. ALL LINERS, INSULATION AND ADHESIVES SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50.

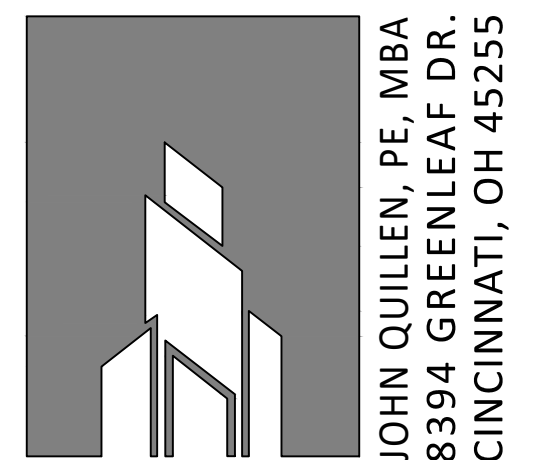
23 33 13 DAMPERS

DAMPERS WITH LOCKING DEVICE, WHERE ACCESSIBLE, SHALL BE RUSKIN MD-35. OPPOSED BLADE FOR RECTANGULAR

DUCTS 12 INCHES AND ABOVE, AND MODEL MD-25 PARALLEL BLADE FOR DUCTS 10 INCHES AND BELOW, AND MODEL MDRS-25 FOR ROUND DUCTS. INSTALL PER MANUFACTURER'S INSTRUCTIONS. SINGLE BLADE ROUND DAMPERS WITH LOCKING DEVICE SHALL BE IN SPIN-IN COLLARS.

FIRE DAMPERS SHALL BE RUSKIN MODEL 1BD, STYLE B WITH BLADE PACKAGE OUT OF AIR STREAM. HORIZONTAL, INSTALL WHERE INDICATED ON DRAWINGS AND AS REQUIRED BY AUTHORITY HAVING LOCAL JURISDICTION.

ELECTRIC MOTORIZED DAMPER SHALL BE SIZED TO OPERATE WITH SUFFICIENT RESERVE POWER TO PROVIDE SMOOTH MODULATING ACTION OR TWO-POSITION ACTION. INSTALL PER MANUFACTURER'S INSTRUCTIONS.



ISSUE INFORMATION

09/16/22

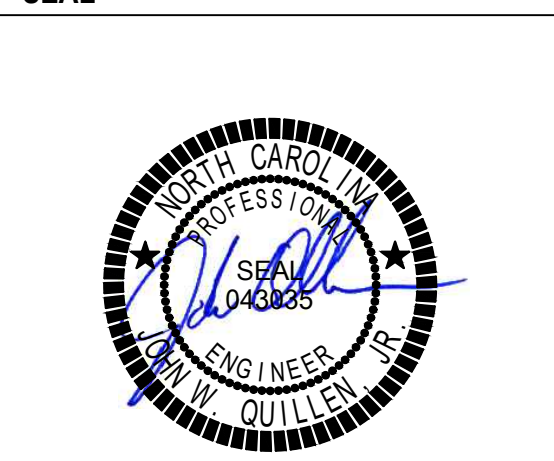
REVISIONS

Table with 2 columns: Description, Date. Includes a revision symbol (triangle) and several empty rows for revisions.

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SEAL



09/16/2022

PROJECT INFORMATION

MATTHEWS TOWNSHIP SHOPPING CENTER
1915 MATTHEWS TOWNSHIP PARKWAY
UNIT 1200
MATTHEWS, NC 28105
PROJECT #: 12113

SHEET TITLE

MECHANICAL SPECIFICATIONS

SHEET NUMBER

M3.0

### COMcheck Software Version 4.1.5.1 Mechanical Compliance Certificate

**Project Information**  
 Energy Code: 2015 IECC  
 Project Title: URGENT VET - MATTHEWS TOWNSHIP  
 Location: Matthews, North Carolina  
 Climate Zone: 3a  
 Project Type: Alteration

Construction Site: 1913 MATTHEWS TOWNSHIP PARKWAY UNIT 1200 MATTHEWS, NC 28105  
 Owner/Agent: John Quillen  
 Designer/Contractor: John Quillen 8394 Greenleaf Dr. Cincinnati, OH 45255

**Mechanical Systems List**

Quantity	System Type & Description
1	RTU 1 (Single Zone) Heating: 1 each - Other: Gas, Capacity = 120 kWh No minimum efficiency requirement applies Cooling: 1 each - Single Package DX Unit, Capacity = 94 kWh, Air-Cooled Condenser, Air Economizer Proposed Efficiency = 11.20 EER, Required Efficiency = 11.00 EER + 12.6 IEER Fan System: None
1	RTU 2 (Single Zone) Heating: 1 each - Other: Gas, Capacity = 97 kWh No minimum efficiency requirement applies Cooling: 1 each - Single Package DX Unit, Capacity = 74 kWh, Air-Cooled Condenser, Air Economizer Proposed Efficiency = 14.50 EER, Required Efficiency = 11.00 EER + 12.6 IEER Fan System: None
1	WH-1 Electric Storage Water Heater, Capacity: 50 gallons Proposed Efficiency: 0.84 SL, 5/8" (1" = 12 kWh), Required Efficiency: 0.84 SL, 5/8" (1" = 12 kWh)

**Mechanical Compliance Statement**  
 Compliance Statement: The proposed mechanical alteration project 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 2015 IECC requirements in COMcheck. The user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is terminated in a separate table, a reference to that table is provided.

John Quillen  
 Name - Title: \_\_\_\_\_  
 Signature: \_\_\_\_\_ Date: 09/16/2022

Project Title: URGENT VET - MATTHEWS TOWNSHIP Report date: 09/16/22  
 Data filename: G:\Projects\12113 - Urgent Vet - Matthews, NC\URGENT VET MATTHEWS, NC.cck Page 1 of 10

### COMcheck Software Version 4.1.5.1 Inspection Checklist

Energy Code: 2015 IECC  
 Requirements: 100.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is terminated in a separate table, a reference to that table is provided.

Section # & Req ID	Plan Review	Complies?	Comments/Assumptions
C103.2 (F162)	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C103.2 (F163)	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the service water heating systems and equipment and document where exceptions to the standard are claimed. Hot water system sized per manufacturer's sizing guide.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

**Additional Comments/Assumptions:**

Project Title: URGENT VET - MATTHEWS TOWNSHIP Report date: 09/16/22  
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Section # & Req ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C403.2.4 (F09)	Snow/ice melting system sensors for future connection to controls. Freeze protection systems have automatic controls installed.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

**Additional Comments/Assumptions:**

Project Title: URGENT VET - MATTHEWS TOWNSHIP Report date: 09/16/22  
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Section # & Req ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.5 (F161)	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C404.5.1 (F161)	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C404.5.2 (F161)	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C404.6.3 (F17)	Pumps that circulate water between a header and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C404.6.3 (F17)	Pumps that circulate water between a header and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C404.6.3 (F17)	Pumps that circulate water between a header and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C404.7 (F18)	Water distribution system that pumps water from a heated water supply pipe back to the heated water source through a cold water supply pipe in a demand recirculation water system. Pumps within this system have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C404.7 (F18)	Water distribution system that pumps water from a heated water supply pipe back to the heated water source through a cold water supply pipe in a demand recirculation water system. Pumps within this system have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.

**Additional Comments/Assumptions:**

Project Title: URGENT VET - MATTHEWS TOWNSHIP Report date: 09/16/22  
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Section # & Req ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.7 (F18)	Water distribution system that pumps water from a heated water supply pipe back to the heated water source through a cold water supply pipe in a demand recirculation water system. Pumps within this system have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

**Additional Comments/Assumptions:**

Project Title: URGENT VET - MATTHEWS TOWNSHIP Report date: 09/16/22  
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Section # & Req ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.2.4 (ME41)	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-5.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.12 (ME65)	HVAC fan systems at design conditions do not exceed allowable fan system motor nameplate hp or fan system amp.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.12 (ME65)	HVAC fan systems at design conditions do not exceed allowable fan system motor nameplate hp or fan system amp.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.12 (ME117)	Fans have efficiency grade (IEG) >= 67. The total efficiency of the fan at the design point of operation <= 15% of maximum total efficiency of the fan.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.12 (ME117)	Fans have efficiency grade (IEG) >= 67. The total efficiency of the fan at the design point of operation <= 15% of maximum total efficiency of the fan.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.13 (ME71)	Unenclosed spaces that are heated use only radiant heat.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.3 (ME53)	HVAC equipment efficiency verified.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Mechanical Systems list for values.
C403.2.4 (ME98)	Demand control ventilation provided for spaces >500 ft <sup>2</sup> and >25 people/1000 ft <sup>3</sup> occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3.000 cfm.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.6 (ME155)	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C403.2.7 (ME37)	Exhaust air energy recovery systems meeting Table C403.2.7(1) and C403.2.7(2).	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C403.2.8 (ME160)	Kitchen exhaust systems comply with requirements for air and conditioned supply air, intakes, and safety hood rating requirements and maximum exhaust duct criteria.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C403.2.9 (ME60)	HVAC ducts and plenums insulated. Where ducts or plenums are installed in or under a slab, verification may need to occur during foundation inspection.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.

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Section # & Req ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.2.9 (ME10)	Ducts and plenums sealed based on static pressure and location.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.9 (ME11)	Ductwork operating >3 in. water column requires air leakage testing.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C403.2.9 (ME11)	Ductwork operating >3 in. water column requires air leakage testing.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C403.4.4 (ME110)	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C403.4.4 (ME110)	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C403.2.2 (ME53)	Air outlets and zone terminal devices have means for air balancing.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.3 (ME123)	Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit. Have fan-powered condensers that comply with Sections C403.5.1 and refrigeration compressor systems that comply with C403.5.2.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.

**Additional Comments/Assumptions:**

Project Title: URGENT VET - MATTHEWS TOWNSHIP Report date: 09/16/22  
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Section # & Req ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.5 (F18)	Furnish O&M manuals for HVAC systems within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.2 (F147)	HVAC systems and equipment capacity does not exceed calculated loads.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.4 (F147)	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.4 (F147)	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.4 (F147)	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.4 (F147)	Thermostatic controls have a 5°F deadband.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.4 (F140)	Temperature controls have setpoint overlap restrictions.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.4 (F140)	Each zone equipped with setback controls using automatic time clock or programmable control system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.4 (F140)	Automatic Controls: Setback to 55°F (heat) and 65°F (cool). 7-day clock, 2-hour occupant override, 10-hour backup.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C404.3 (F157)	Heat traps installed on supply and discharge piping of non-circulating systems.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.1 (F128)	All piping installed in accordance with section details and Table C403.2.10.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.1 (F128)	Commissioning plan developed by registered design professional or approved agency.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.3 (F131)	HVAC equipment has been tested to ensure proper operation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Project Title: URGENT VET - MATTHEWS TOWNSHIP Report date: 09/16/22  
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Section # & Req ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.3 (F131)	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.4 (F129)	Preliminary commissioning report completed and certified by registered design professional or approved agency.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.5 (F17)	Furnish HVAC as-built drawings submitted within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.5 (F143)	An air and/or hydronic system balancing report is provided for HVAC systems.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.5 (F139)	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

**Additional Comments/Assumptions:**

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Section # & Req ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.5 (F139)	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

**Additional Comments/Assumptions:**

Project Title: URGENT VET - MATTHEWS TOWNSHIP Report date: 09/16/22  
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**ISSUE INFORMATION**

09/16/22

**REVISIONS**

Rev	Description

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**SEAL**

09/16/2022

**PROJECT INFORMATION**

**MATTHEWS TOWNSHIP SHOPPING CENTER**  
 1915 MATTHEWS TOWNSHIP PARKWAY UNIT 1200 MATTHEWS, NC 28105

PROJECT #: 12113

**SHEET TITLE**

**MECHANICAL ENERGY COMPLIANCE**

**SHEET NUMBER**

**M4.0**