

GENERAL NOTES

- GENERAL NOTES, SYMBOL LIST AND DETAILS ARE APPLICABLE TO ALL HVAC/MECHANICAL DRAWINGS.
- THE CONTRACTOR SHALL COMPLY WITH ALL LAWS, STANDARDS, ORDINANCES, RULES AND REGULATIONS OF ALL LOCAL AND STATE GOVERNMENTAL AUTHORITIES, THE RULES OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), THE NATIONAL ELECTRIC CODE (NEC) AND ASHRAE AS INTERPRETED BY THE GOVERNMENTAL AUTHORITY AND PUBLIC UTILITIES HAVING JURISDICTION OVER ANY OF THE SYSTEMS HEREIN SPECIFIED.
- DRAWINGS ARE DIAGRAMMATIC. DETERMINE LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD. RELOCATE EXISTING WORK (IF ANY) THAT INTERFERES WITH WORK OF THIS CONTRACT AS APPLICABLE.
- ALL PERMIT AND INSPECTION CERTIFICATES SHALL BE DELIVERED TO THE OWNER IN DUPLICATE.
- THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE BEST ENGINEERING PRACTICE. UNLESS OTHERWISE SHOWN OR SPECIFIED, FOLLOW THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS AND PROVIDE ALL REQUIRED AUXILIARY ITEMS.
- ALL EQUIPMENT PROVIDED SHALL BE NEW (UNLESS INDICATED OTHERWISE) AND THE CURRENT MODEL FOR WHICH REPLACEMENT PARTS ARE AVAILABLE. SUBSTITUTIONS SHALL ONLY BE ACCOMPLISHED AT THE DISCRETION OF THE DESIGN ENGINEER.
- SHOP DRAWINGS ARE TO BE SUBMITTED AND APPROVED BEFORE THE EQUIPMENT IS INSTALLED. SUBMIT SIX (6) COPIES OF SHOP DRAWINGS TO THE ARCHITECT OF THE FOLLOWING AS APPLICABLE: A. GAS FURNACE B. WATER HEATER C. WALL HEATER D. FANS E. PLUMBING FIXTURES OR ANY OTHER EQUIPMENT SHOP DRAWING AS REQUESTED BY THE ARCHITECT
- COORDINATE THIS WORK WITH THAT OF OTHER TRADES.
- DIMENSIONS SHOWN ON PLAN ARE HORIZONTAL. DIMENSIONS SHOWN IN ELEVATION ARE VERTICAL EXCEPT IN WAY OF STRUCTURAL STEEL, DIMENSIONS ARE MEASURED PERPENDICULAR TO FLANGE.
- NEITHER ACCURACY NOR COMPLETION OF SERVICES AND UTILITY LOCATIONS SHOWN ON DRAWINGS IS GUARANTEED. DETERMINE EXACT LOCATIONS OF EXISTING SERVICES AND UTILITIES IN FIELD, WHETHER OR NOT SHOWN ON DRAWINGS. EXERCISE CAUTION AND IDENTIFY LOCATIONS OF UNMARKED UTILITY LINES AS NECESSARY TO PERFORM WORK OF THIS SECTION.
- MANUFACTURERS MODEL NUMBERS ARE SPECIFIED SOLELY TO ESTABLISH STANDARDS OF QUALITY FOR PERFORMANCE AND MATERIALS.
- PRODUCT INSTALLATION SHALL ADHERE TO MANUFACTURERS RECOMMENDATIONS.
- PROVIDE ACCESS PANELS FOR EQUIPMENT THAT REQUIRES PERIODIC SERVICE.
- PROVIDE HANGERS, INSERTS, ANCHORS, SUPPLEMENTAL STEEL & SUPPORTS AS REQUIRED TO SUPPORT DUCTWORK, PIPING AND EQUIPMENT FROM STRUCTURE.
- SCHEDULE WORK OF THIS SECTION TO AVOID INTERFERING WITH EXISTING OPERATIONS IN THE FACILITY.
- COORDINATE ROOF PENETRATIONS WITH WORK OF OTHER SECTIONS AND WITH FLASHING REQUIREMENTS. MECHANICAL CONTRACTOR TO NOTIFY OWNER PRIOR TO STARTING WORK TO VERIFY COMPLIANCE WITH BOND AND WARRANTY OF EXISTING ROOF.
- RUN DUCTS AND PIPING CONCEALED, UNLESS OTHERWISE SPECIFIED AND CLEAR OF CEILING INSERTS.
- INSTALL THERMOSTATS 4'-6" ABOVE FINISHED FLOOR OR AS DIRECTED OTHERWISE BY ARCHITECT.
- STRUCTURAL WELDING SHALL BE CONTINUOUS 1/4" FILLET UNLESS REQUIRED OTHERWISE.
- THE ENGINEER IS NOT RESPONSIBLE FOR, AND WILL NOT HAVE CONTROL OF, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION WORK, NOR WILL HE BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- PROVIDE OPENINGS IN BUILDING CONSTRUCTION FOR PASSAGE OF DUCTWORK, PIPING AND CONDUIT. REPAIR ALL WALLS, CEILINGS AND FLOORS, PENETRATED. THE REPAIRS SHALL BE WITH MATERIALS AND FINISHES THAT COMPLY WITH LOCAL CODES, UNLESS STATED OTHERWISE. ALL PENETRATIONS IN FIREWALLS SHALL BE SEALED WITH SUITABLE MATERIALS TO PRESERVE FIREWALL INTEGRITY. DO NOT PENETRATE STRUCTURAL MEMBERS WITHOUT PRIOR APPROVAL. ALL PENETRATIONS THROUGH THE ROOF SHALL BE BY THE GENERAL CONTRACTORS. THE MEP ENGINEER IS NOT RESPONSIBLE FOR THE EVALUATION OF STRUCTURAL INTEGRITY OF THE BUILDING FOR OPENINGS BEING MADE THROUGHOUT THE BUILDING SYSTEM FOR THE INSTALLATION OF MECHANICAL SYSTEM.
- THE CONTRACTOR SHALL TEST ALL EQUIPMENT PROVIDED UNDER THE CONTRACT AND DEMONSTRATE TO THE OWNER IT'S PROPER OPERATION.

GENERAL NOTES CONTINUED.

AIR SYSTEMS

- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR DEVICES (IF PROVIDED).
- INTERNAL AIRFLOW DIMENSIONS ARE SHOWN FOR DUCTS. INCREASE DUCT SIZE AS NECESSARY TO MAINTAIN FREE FLOW AREA INDICATED.
- USE FLAT TRANSVERSE SEAM FOR DUCTWORK WHERE SPACE AVAILABLE DICTATES.
- DIFFUSER SIZES SHOWN ARE NECK SIZES. REGISTERS AND GRILLE SIZES ARE NOMINAL.
- PROVIDE VOLUME DAMPERS OR OTHER APPROVED BALANCING DEVICES AT DUCT BRANCHES AND RUN OUTS, AND AT REGISTER GRILLE AND DIFFUSER NECKS IN SUPPLY, RETURN AND EXHAUST DUCTWORK WHETHER SHOWN OR NOT.
- PROVIDE 36" CLEARANCE IN FRONT OF ALL ELECTRIC CONTROL PANELS PER N.E.C. AND MFG. REQUIREMENTS.
- ALL INSTALLED OUTDOOR AIR INTAKES AND EXHAUSTS SHALL HAVE AUTOMATIC OR GRAVITY BACKDRAFT DAMPERS THAT CLOSE WHEN THE VENTILATION SYSTEM IS NOT OPERATING, PER2013 IECC R403.5

COMMISSIONING OF GENERAL NOTES

- SUBMIT A COPY OF THE APPROVED SUBMITTALS FOR EQUIPMENT TO BE COMMISSIONED TO THE COMMISSIONING AUTHORITY.
- THE COMMISSIONING AUTHORITY REQUIRES THE FOLLOWING DOCUMENTATION FOR THE COMMISSIONING PROCESS: INSTALLATION, OPERATING, AND MAINTENANCE (I-O-M) MANUAL, APPROVED EQUIPMENT SUBMITTALS, AND WARRANTY INFORMATION, LISTING OWNER RESPONSIBILITIES FOR MAINTAINING THE WARRANTY IN FORCE, COPIES OF THE FILED CHECKOUT FORMS ISSUED BY THE FACTORY OR FIELD TECHNICIANS SHALL BE PROVIDED TO THE COMMISSIONING AUTHORITY.
- REFER TO COMMISSIONING PLAN TO BE ISSUED, LISTING EQUIPMENT AND SYSTEMS IN THE COMMISSIONING SCOPE, AND OTHER GUIDELINES.
- THE COMMISSIONING AUTHORITY AND CONTRACTOR(S) SHOULD MEET TO DISCUSS COMMISSIONING SCHEDULE, INSTALLATION OBSERVATIONS, IF ANY, AND TEST PROCEDURES. THE CXA WILL REVIEW THE INSTALLATION FOR QUALITY, CORRECT OPERATOR ACCESS, ET AL.
- AT PROJECT COMPLETION, THE GC SHALL SCHEDULE A DATE FOR THE MECHANICAL, ELECTRICAL AND CONTROLS CONTRACTOR (IF ANY), TO EXECUTE FUNCTIONAL PERFORMANCE TESTS ON THE MECHANICAL AND ELECTRICAL SYSTEMS.
- THE CONTRACTOR SHALL INCLUDE THE CXA IN ANY OPERATOR TRAINING ON THE MECHANICAL EQUIPMENT.
- CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS, EITHER IN SUBMITTALS OR IN THE INSTALLATION, IS NOT RELIEVED BY THE COMMISSIONING AUTHORITY'S REVIEW.

AIR LEAKAGE TEST FOR BUILDING ENVELOPE:

- THE BUILDING OF DWELLING UNIT TOTAL AREA SHALL BE TESTED AND VERIFIED AS HAVING AN AIR LEAKAGE RATE OF LESS THAN TO 0.25 CFM/SQ.FT UNDER A DIFFERENTIAL PRESSURE OF 0.3 INCHES W.G. (75 PA).
- TESTING SHALL OCCUR AFTER ROUGH-IN AND AFTER INSTALLATION OF PENETRATIONS OF THE BUILDING ENVELOPE, INCLUDING PENETRATIONS FOR UTILITIES, HEATING, SYSTEMS, PLUMBING, AND ELECTRICAL EQUIPMENT AND APPLIANCES.
- TESTING SHALL BE DONE IN ACCORDANCE WITH ASTM E 779 TEST FAN MEASUREMENT EQUIPMENT SHALL THEIR CALIBRATION VERIFIED IN COMPLIANCE WITH ASTM E1258-88(2008).
- WHERE REQUIRED BY THE CODE OFFICIAL, TESTING SHALL BE CONDUCTED BY AN APPROVED THIRD PARTY & WITNESSED BY COMMISSIONING AGENT.
- A WRITTEN REPORT OF THE RESULTS OF THE TEST SHALL BE SIGNED BY THE PARTY CONDUCTING THE TEST AND PROVIDED TO THE CODE OFFICIAL.
- THE TESTING AGENCY IS REQUIRED TO PERFORM A DIAGNOSTIC EVALUATION IN ACCORDANCE WITH ASTM E1186-03 WHETHER THE BUILDING ACHIEVES THE AIR TIGHTNESS REQUIREMENT OR NOT.
- THE DIAGNOSTIC EVALUATION WILL ASSIST THE BUILDING CONTRACTOR AND OTHER RESPONSIBLE PARTIES IN IDENTIFYING AND ELIMINATING AIR LEAKAGE. TESTING SHALL BE PERFORMED AT ANY TIME AFTER CREATION OF ALL PENETRATIONS OF THE BUILDING THERMAL ENVELOPE.
- TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH A METHOD APPROVED BY THE CODE OFFICIAL INCLUDING, BUT NOT LIMITED TO, AN APPROVED SAMPLING PROTOCOL.

DURING TESTING

- EXTERIOR WINDOWS AND DOORS, FIREPLACE AND STOVE DOORS SHALL BE CLOSED, BUT NOT SEALED, BEYOND THE INTENDED WEATHER STRIPPING OR OTHER INFILTRATION CONTROL MEASURES.
- DAMPERS INCLUDING EXHAUST, INTAKE, MAKEUP AIR, BACKDRAFT AND FLUE DAMPERS SHALL BE CLOSED, BUT NOT SEALED BEYOND INTENDED INFILTRATION CONTROL MEASURES;
- INTERIOR DOORS. IF INSTALLED AT THE TIME OF THE TEST, SHALL BE OPEN;
- EXTERIOR DOORS FOR CONTINUOUS VENTILATION SYSTEMS AND HEAT RECOVERY VENTILATORS SHALL BE CLOSED AND SEALED;
- HEATING AND COOLING SYSTEMS, IF INSTALLED AT THE TIME OF THE TEST, SHALL BE TURNED OFF; AND
- SUPPLY AND RETURN REGISTERS, IF INSTALLED AT THE TIME OF THE TEST, SHALL BE FULLY OPEN.

DUCTWORK

SINGLE LINE DUCT	DESCRIPTION	DOUBLE LINE DUCT
	SUPPLY DUCT UP	
	SUPPLY DUCT DOWN	
	ROUND DUCT UP SUPPLY/ RETURN/ EXHAUST	
	ROUND DUCT DOWN SUPPLY/ RETURN/ EXHAUST	
	STANDARD RADIUS ELBOW (R = W) SUPPLY/ RETURN/ EXHAUST	
	MITERED ELBOWS W/ VANES	
	SPLIT TAKE-OFF (TOP AND BOTTOM)	
	BULLHEAD SPLIT SUPPLY	
	CEILING DUCT MTD. DIFF/GRILLE	
	TAKEOFF TO DIFF/GRILLE	
	RECTANGULAR TO ROUND OVAL (φ) TO ROUND	
	HORIZONTAL OFFSET SUPPLY/RETURN /EXHAUST	
	45° TAP TAKE-OFF RECTANGULAR / ROUND (φ) - OVAL (φ)	
	90° TAP TAKE-OFF RECTANGULAR / ROUND (φ) - OVAL (φ)	
	BULLHEAD CONVERGE RETURN/EXHAUST RECTANGULAR / ROUND (φ) - OVAL (φ)	
	SIDEWALL DUCT MTD. REG./GRILLE	
	OPEN END DUCT W/ 1/4" x 1/4" WMS	

DRAWING LIST

SHEET NO.	SHEET NAME
M001	GENERAL NOTES, LEGENDS & ABBREVIATIONS
M002	EQUIPMENT SCHEDULES & DETAILS
M003	HVAC NOTES
M101	HVAC FLOOR PLANS

GENERAL ABBREVIATIONS

ARCH	ARCHITECT	N/A	NOT APPLICABLE
CFM	CUBIC FEET PER MINUTE	NO. NTS	NUMBER NOT TO SCALE
DP	DRAIN PIPE	OA	OUTSIDE AIR
DIA	DIAMETER	OD	OUTSIDE DIAMETER
EF	EXHAUST FAN	RD	RETURN DIFFUSER
EG	EXHAUST GRILL	RET	RETURN
ELEV	ELEVATION	RG	REFRIGERANT GAS
EX	EXHAUST	RL	REFRIGERANT LIQUID
FG	FLOOR GRILL	RM	ROOM
FPM	FEET PER MINUTE	RPM	REVOLUTIONS PER MINUTE
FT	FEET	SD	SUPPLY DIFFUSER
GAL	GALLONS	SQ	SQUARE
HP	HORSEPOWER	SQFT	SQUARE FEET
HZ	HERTZ	T	TEMPERATURE
IN	INCHES	TG	TRANSFER GRILLE
KW	KILOWATT	VD	VOLUME DAMPER
KEF	KITCHEN EXHAUST FAN	W	WIDTH
MECH	MECHANICAL	WG	WALL GRILL
MIN	MINIMUM	WB	WET BULB TEMPERATURE

EQUIPMENT SYMBOLS AND CALL OUTS

	MANUAL BALANCING VOLUME DAMPER
	AIR HANDLING UNIT (AHU)
	OUT DOOR UNIT (ODU)
	EXHAUST FAN (EF)
	KITCHEN RE-CIRCULATION FAN (KEF)
	SIDE WALL GRILL
	CEILING DIFFUSER(SUPPLY/RETURN)
	DUCT/WALL GRILL DIFFUSER(SUPPLY/RETURN)
	TRANSFER GRILL
	7-DAY PROGRAMMABLE THERMOSTAT
	SUPPLY DUCT
	EXHAUST DUCT
	RETURN AIR DUCT

NO.	DATE	DESCRIPTIONS	REVISIONS
00	11/23/2020	INITIAL DESIGN	

GENERAL NOTES, LEGENDS AND ABBREVIATIONS

SITE ADDRESS:
1235 Atkins Rd,
Fuquay-Varina, NC 27526



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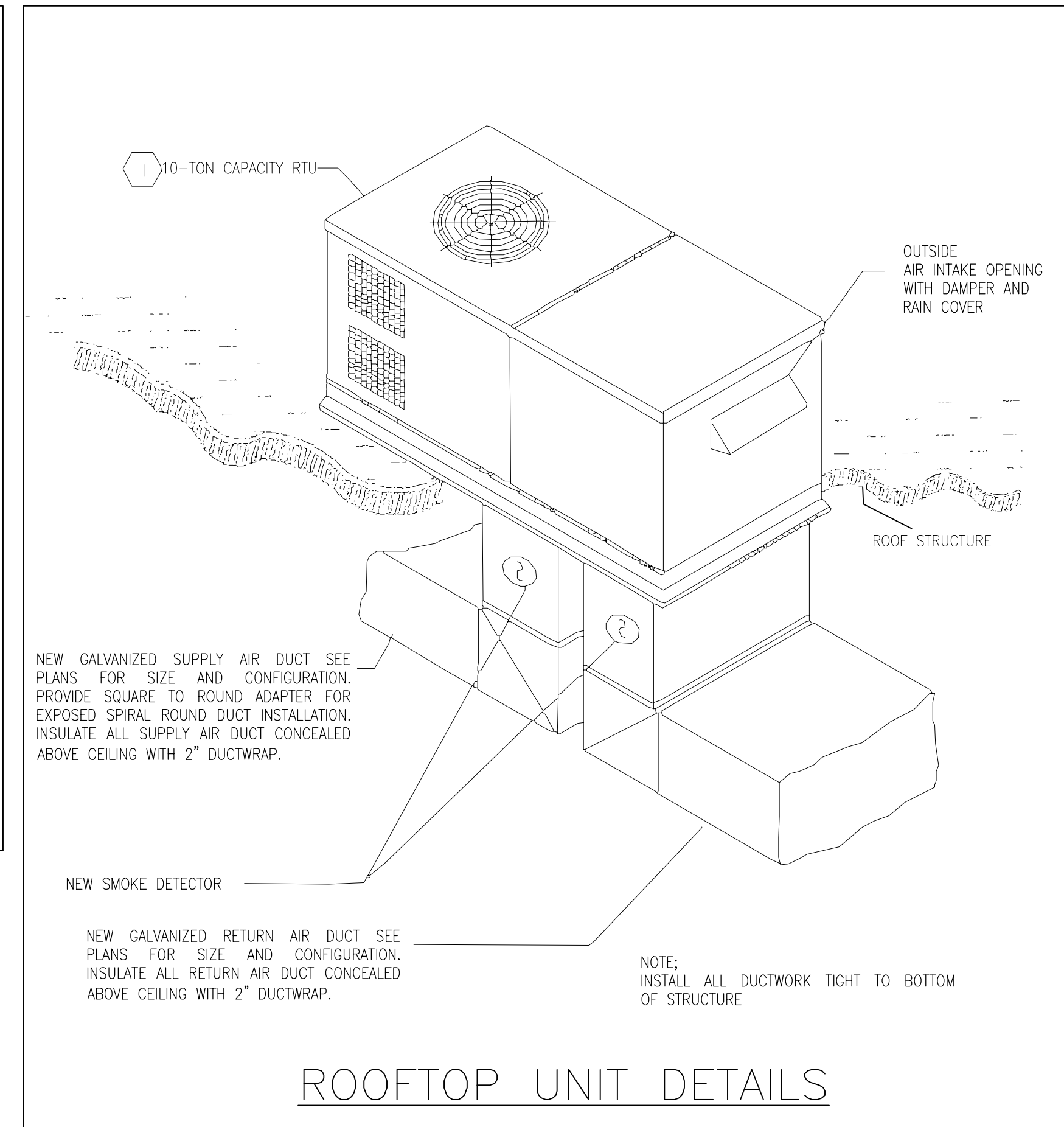
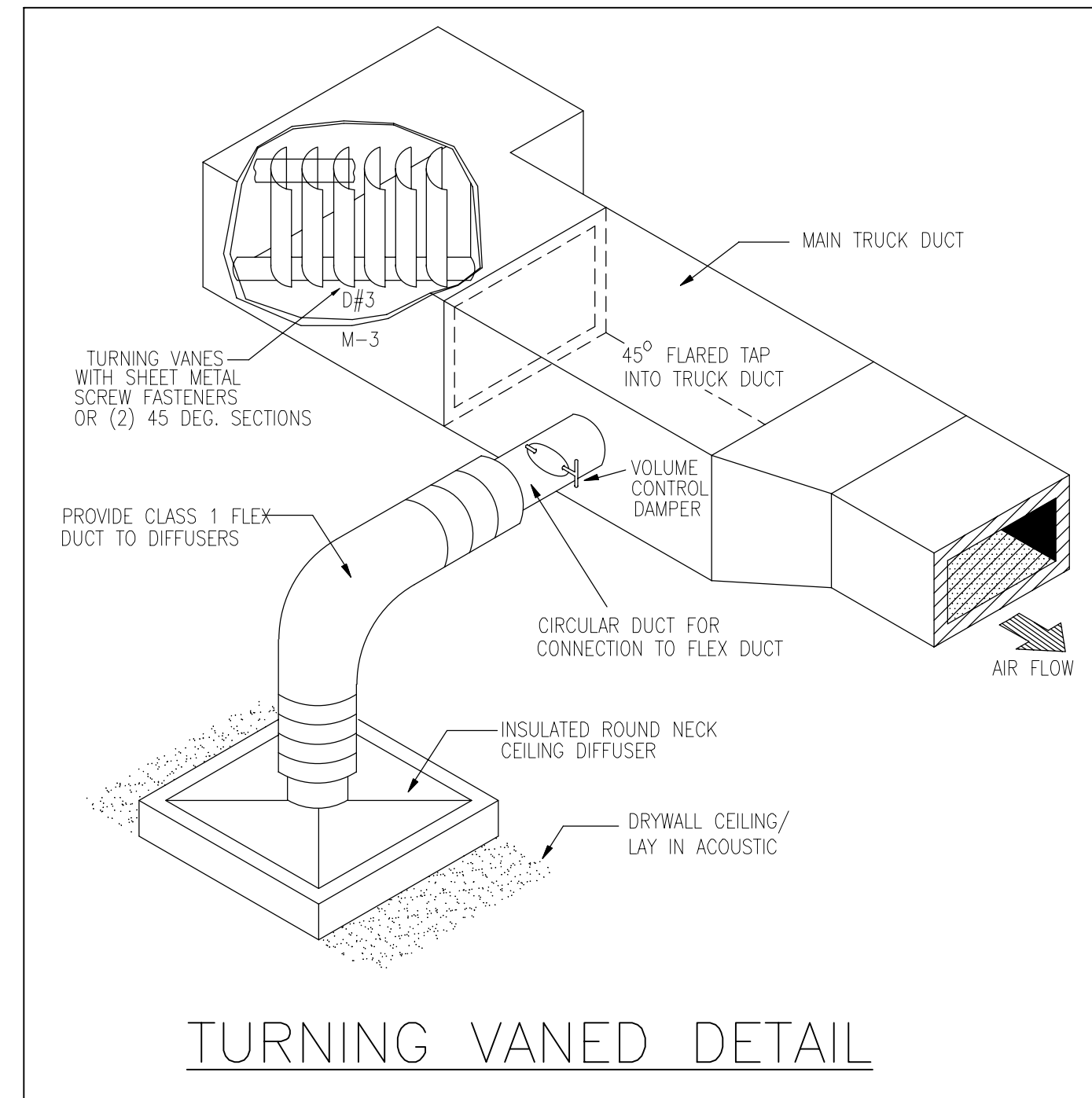
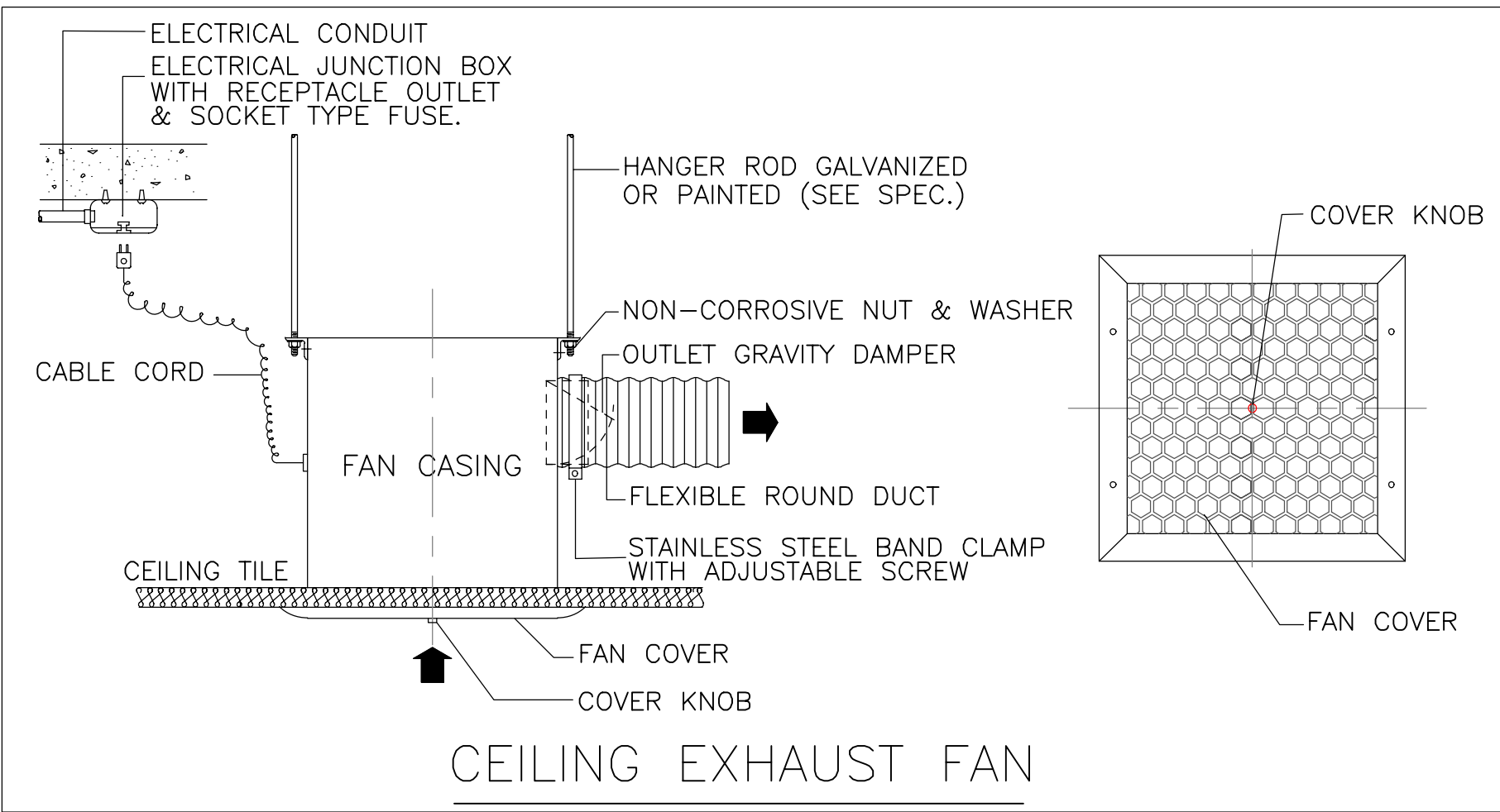
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DRAWN BY:	ST
CHECKED BY:	MKC
DATE:	11-23-20
SCALE:	AS SHOWN
M001	20-1035

AIR DISTRIBUTION SCHEDULE

DWG TAG	SERVICE	MOUNTING	DESCRIPTION	MNF OR EQUAL	MODEL OR EQUAL
A	SUPPLY AIR	SURFACE MNT	SUPPLY AIR REGISTER WITH OPPOSED BLADE DAMPER MAX NC LEVEL 25	TITUS	300RL
B	RETURN/EXHAUST AIR	"	RETURN AIR REGISTER WITH OPPOSED BLADE DAMPER, 0.67" SPACING, FIXED DEFLECTION, MAX NC LEVEL 25	"	350RL
D	SUPPLY AIR	"	DIRECTIONAL CEILING DIFFUSER, ADJUSTABLE PATTERN WITH FLAT BORDER, OPPOSED BLADE DAMPER	"	250
E	RETURN/EXHAUST AIR	"	CEILING GRILLE WITH FLAT BORDER, ALUMINUM, OPPOSED BLADE DAMPER	"	350FL

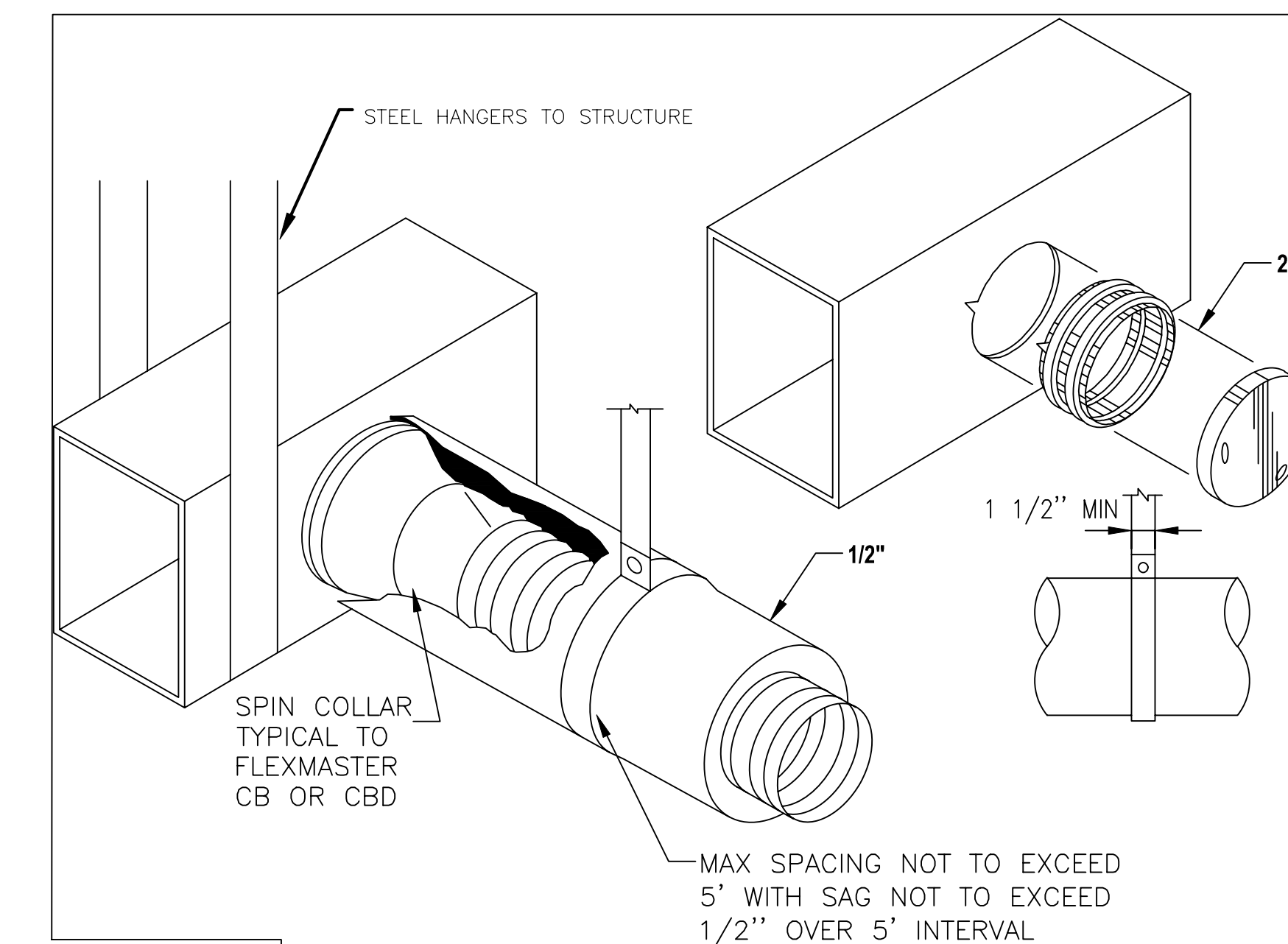
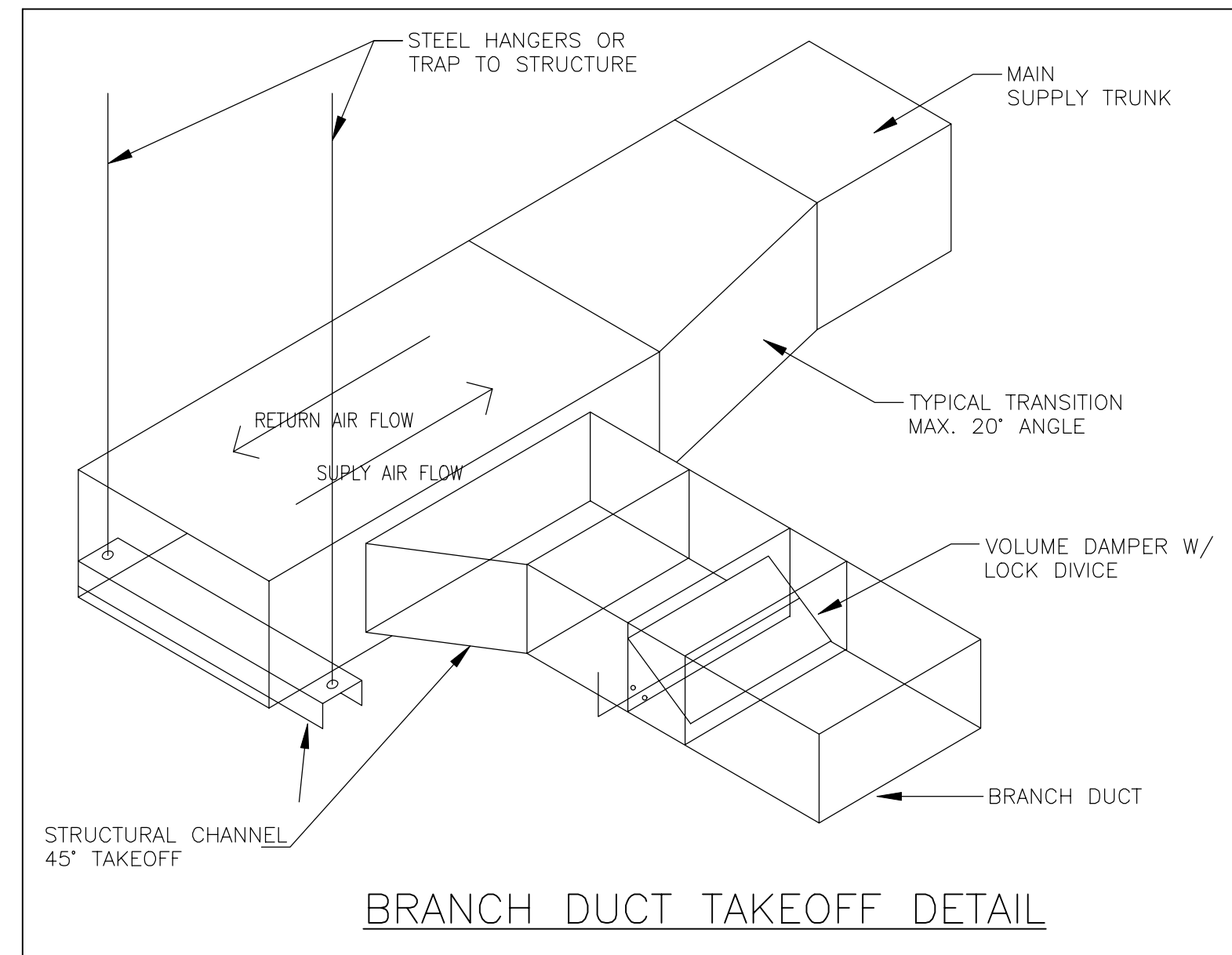


PACKAGE UNIT SCHEDULE												
LOCATION	SERVE	TAG NAME	CFM	DIMENSION W*D*H(INCH)	WEIGHT (Lbs.)	MOTOR PH VOLT	EER/IEER	TOTAL (MBH)	SENSIBLE (MBH)	SYSTEM POWER(kw)	REFRIGERANT	BASIS OF DESIGN
OUTDOOR	SLAUGHTER HOUSE	AHU-1	2400	94*59*44	901	1 208-230	11.2/11.8	75	56	3.25	R-410A	RHEEM'S MODEL#RKNL-B073DM15EBYF
OUTDOOR	SLAUGHTER HOUSE	AHU-2	1600	60*34*39	411	1 208-230	11.4/14	48	42	2.25	R-410A	RHEEM'S MODEL#RSNJA048JK000F

PROGRAMMABLE HEAT PUMP THERMOSTAT SHALL BE HONEYWELL VISION-PRO 8000 TOUCH SCREEN OR APPROVED ALTERNATE

NOTES:

- INDOOR AND OUTDOOR UNITS SHALL BE SELECTED FROM SAME MANUFACTURER.
- CONTRACTOR SHALL VERIFY WITH HEAT PUMP MANUFACTURER TO MAKE SURE THAT THE MAX. REFRIGERANT PIPE LENGTH DOES NOT PASS THE MAXIMUM ACCEPTABLE LENGTH, TOTAL EQUIVALENT RUN SHALL BE TAKEN INTO CONSIDERATION INCLUDING ALL ELBOWS FOR THE ACTUAL PIPE RUN.
- CONTRACTOR SHALL VERIFY WITH UNIT MANUFACTURER TO PROVIDE ALL REQUIRED ACCESSORIES TO PROVIDE PROPERLY OPERATIONAL SYSTEM.
- PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT WITH A MINIMUM OF 5 DEGREE F DEADBAND FOR THE INDOOR UNIT.
- ALL PIPING PENETRATIONS THRU THE BUILDING ENVELOP (WALLS & ROOF) SHALL BE SEALED AND WATER TIGHT.
- ALL REFRIGERANT PIPE SIZES SHALL FOLLOW MANUFACTURER'S INSTRUCTION, MAX. PIPE LENGTH SHALL BE TAKEN INTO CONSIDERATION.
- CONTRACTOR SHALL SUBMIT ALL WARRANTY INFO INCLUDING O & M MANUALS FOR THE NEW EQUIPMENT TO THE OWNER.
- CONTRACTOR TO VERIFY WITH UNIT MANUFACTURER THAT HEAT PUMP CAN OPERATE PROPERLY WITH 100 CFM OF OUTSIDE AIR.
- PROVIDE ANTI SHORT CYCLE TIMER, EVAPORATOR DEFROST CONTROL, RUBBER ISOLATORS AND EXTREME CONDITION MOUNT KIT.



GAUGE	THK.	1" STRAP CAPABILITY	MAXIMUM LOAD
24	.028	840	168
22	.034	1070	216
20	.040	1298	259

* ELASTIC LIMIT ASSUMED 30ksi; RECOMMEND MAX LOAD (20% OF YIELD STRENGTH).

- NOTES:**
- FLEX DUCT WITH EXTERNAL INSULATION AND VAPOR BARRIER JACKETING TYPICAL TO "FABRIFLEX"
 - INSPECTOR SERIES" SPIN DOORS
 - PROVIDE HANGER SPACING IAW FBCM AND SMASNA

EXHAUST FAN SCHEDULE										REMARKS	WATTAGE
TAG NAME	CFM	ESP (IN)	MOTOR POWER (WATT)	QUANTITY	TYPE	MOUNTING	VOLTS	PHASE	BASIS OF DESIGN	REMARKS	WATTAGE
EF-01	90	0.25	15	01	DIRECT DRIVE, ECM MOTOR	CEILING MOUNTED	120	1	PANASONIC WHISPER GREEN SELECT FV-05-11VK1	CAPABLE OF CONNECTIVITY TO VENTILATION DAMPER, ENERGY STAR RATED	5.5 watts

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EQUIPMENT SCHEDULES & DETAILS

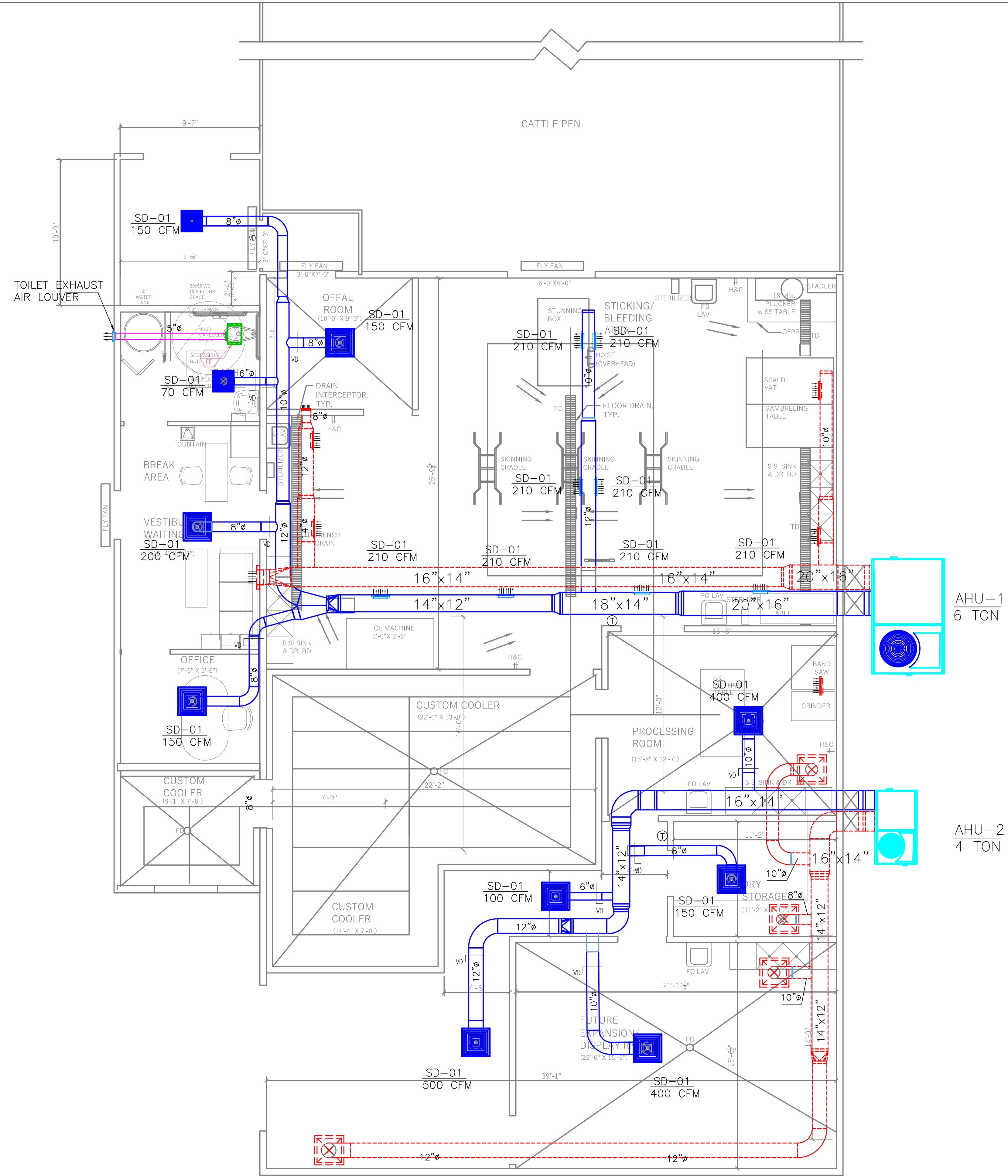
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HVAC FLOOR PLAN
SCALE: 1/4"=1'

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