

MECHANICAL SYMBOLS

(ALL SYMBOLS SHOWN ARE NOT NECESSARILY LISTED ON THE DRAWINGS)

DUCT (DUCTWORK)
SUPPLY AIR DIFFUSER - ARROWS INDICATE PATTERN, NO PATTERN SHOWN EQUALS 4-WAY.

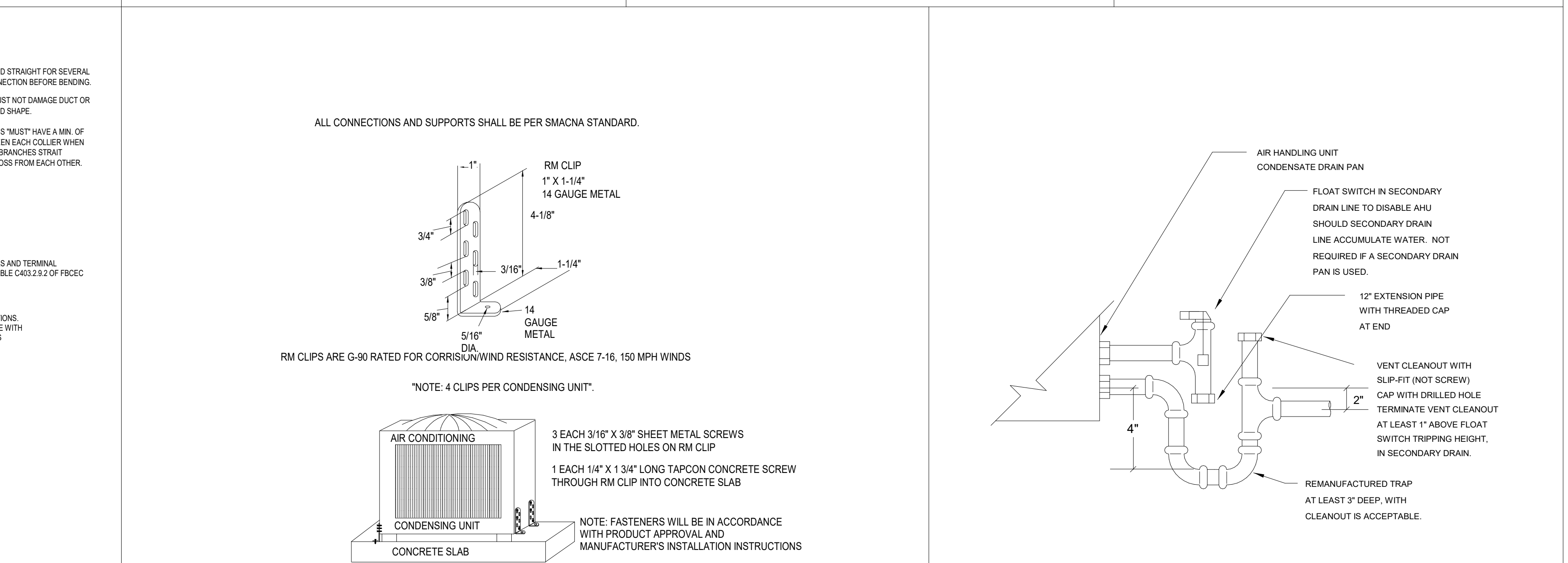
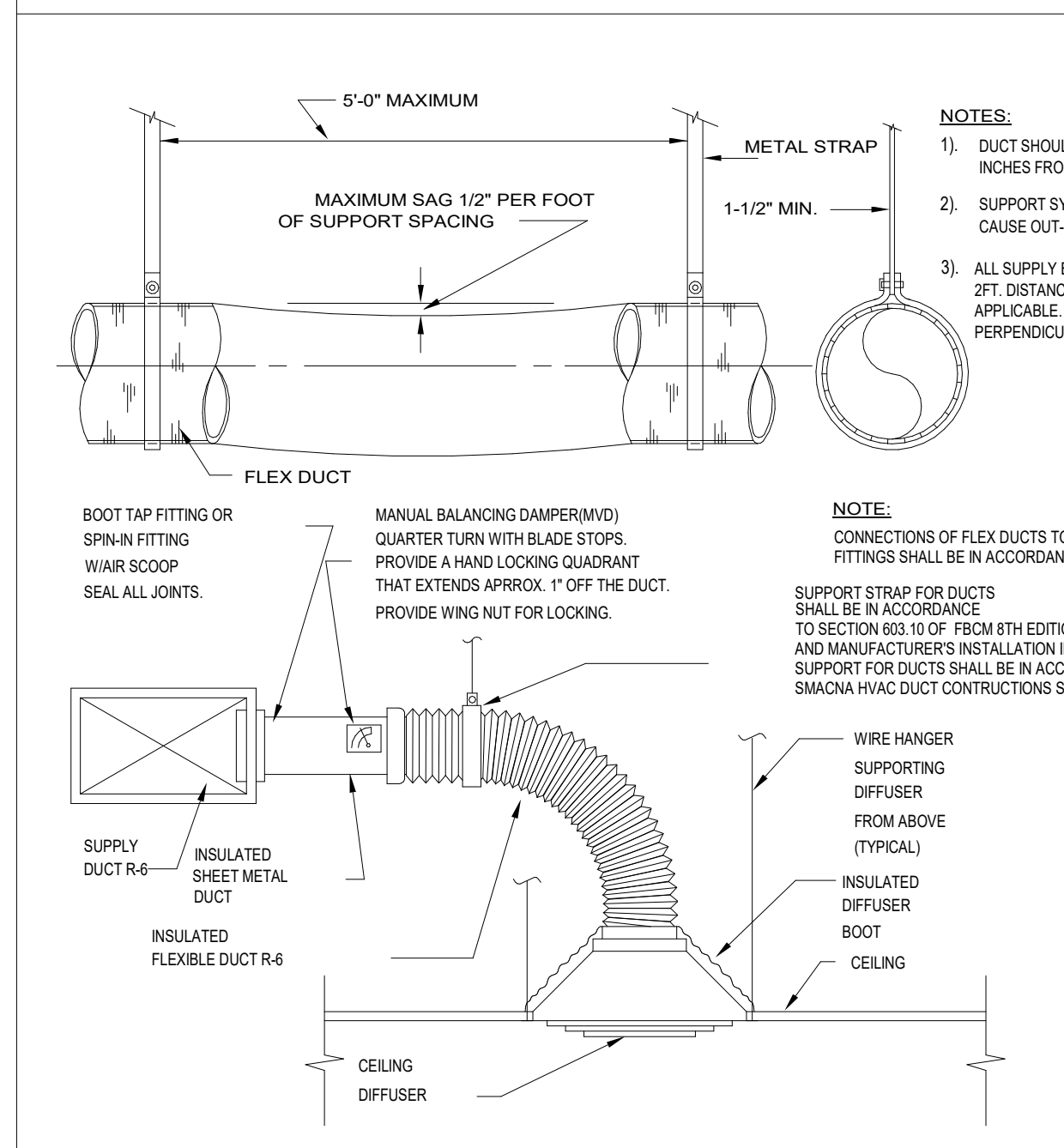
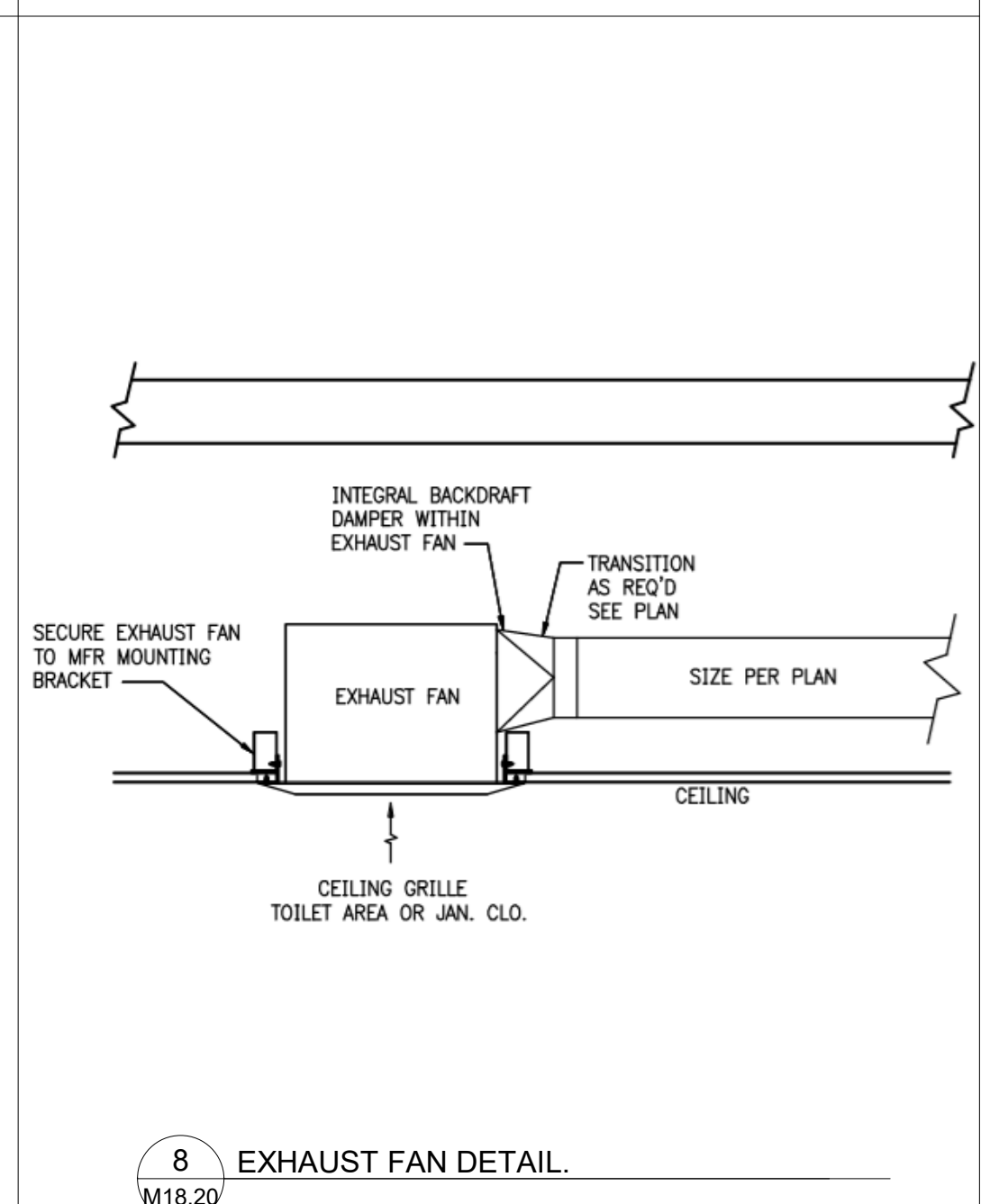
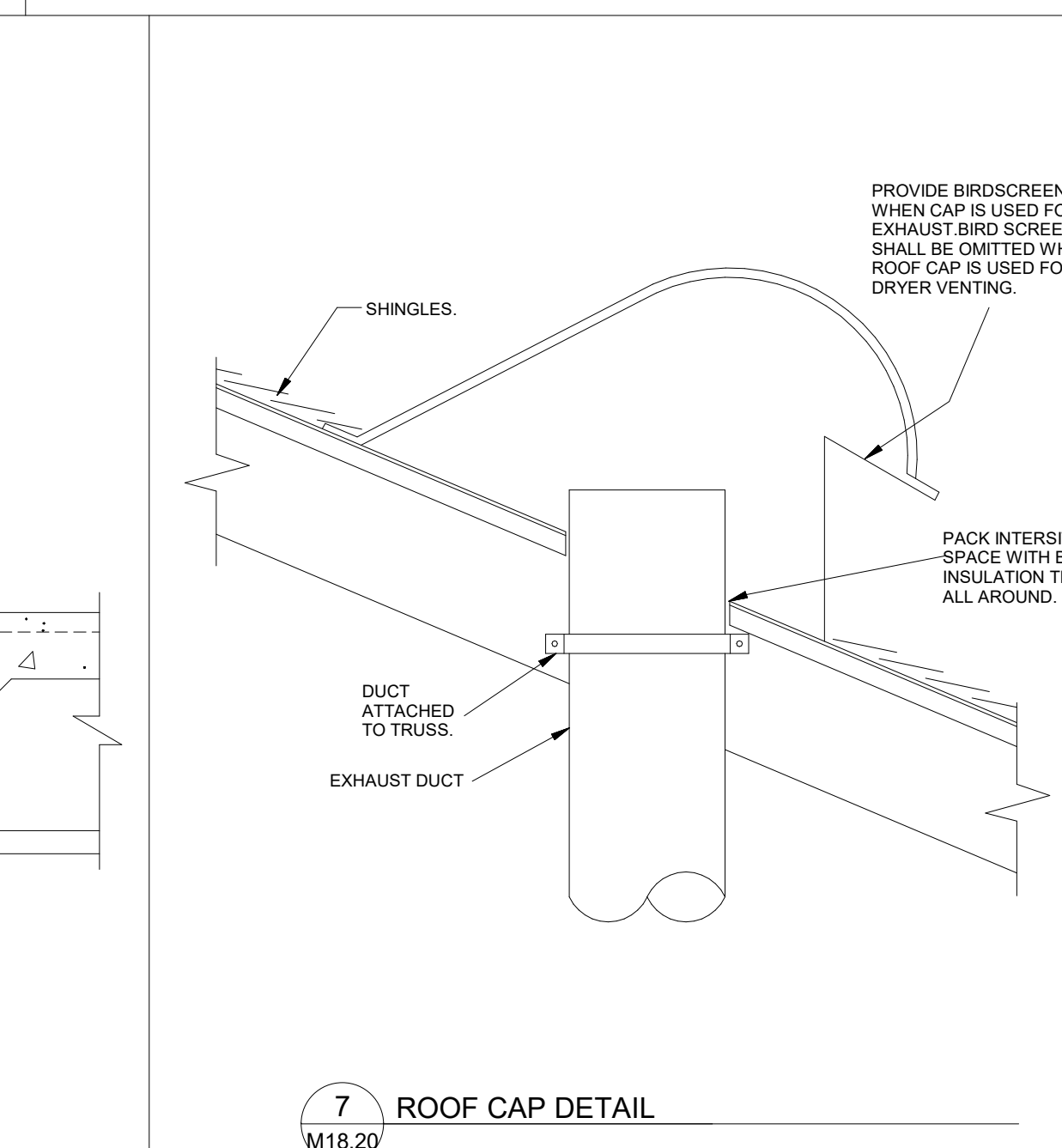
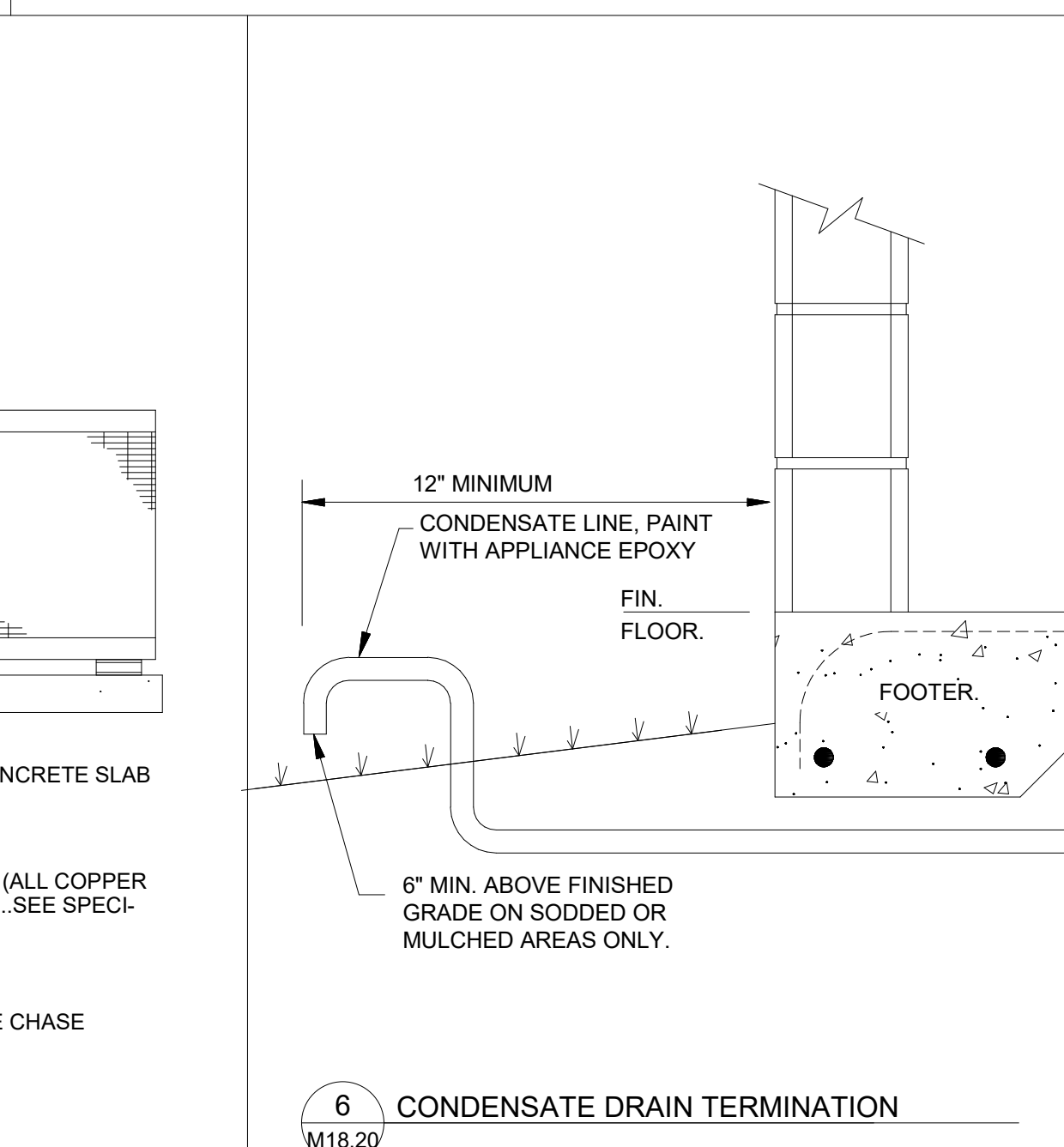
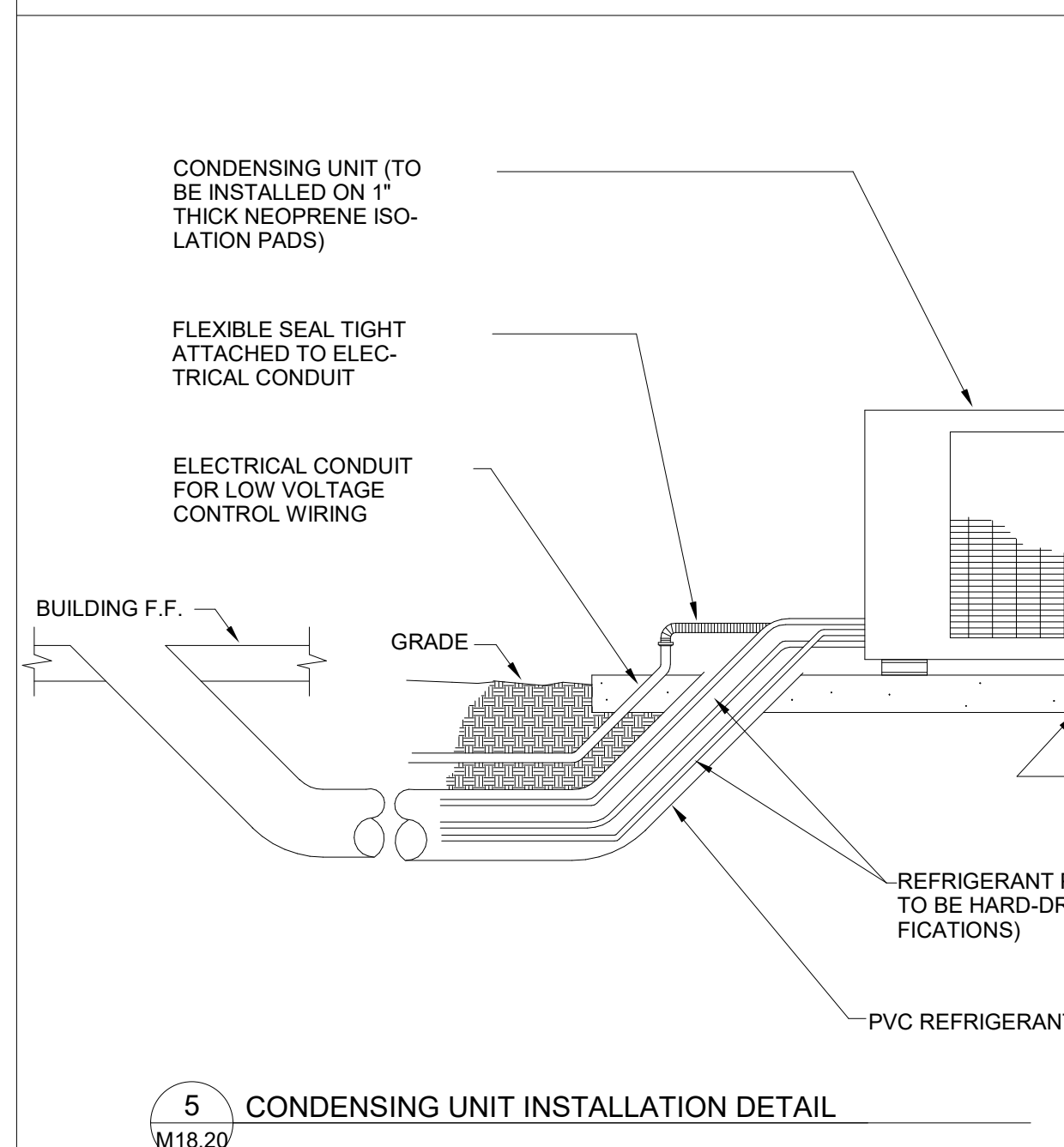
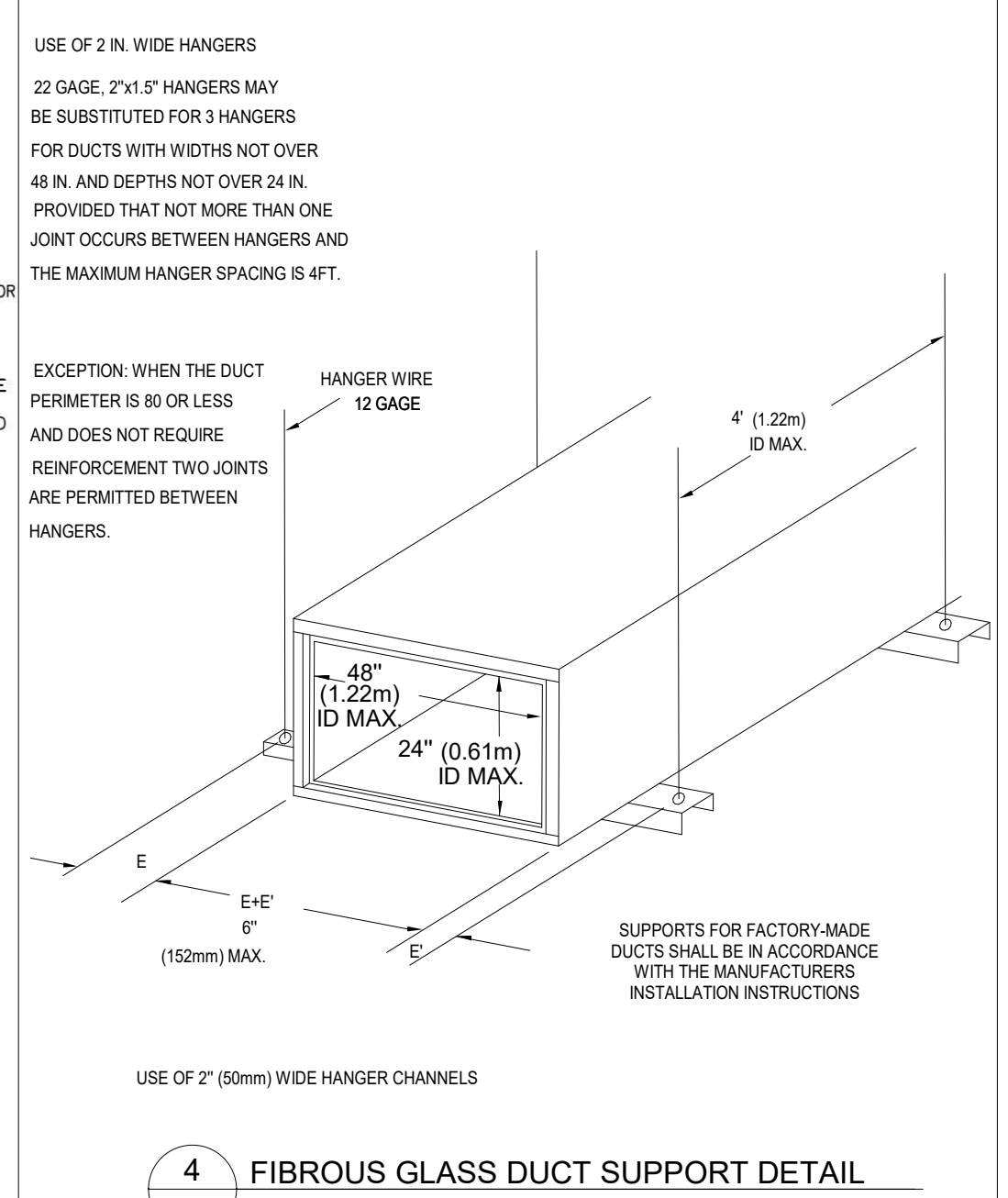
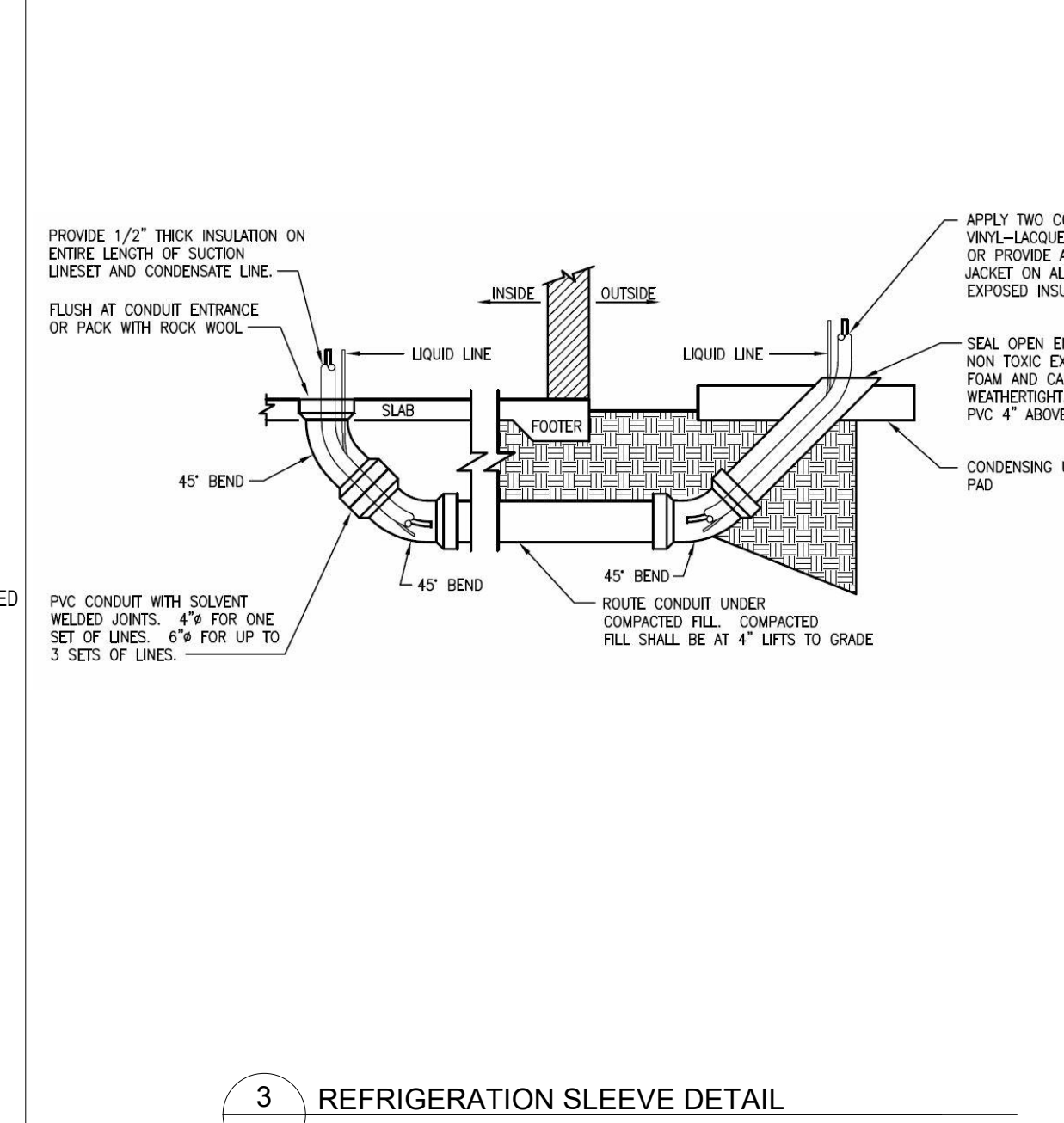
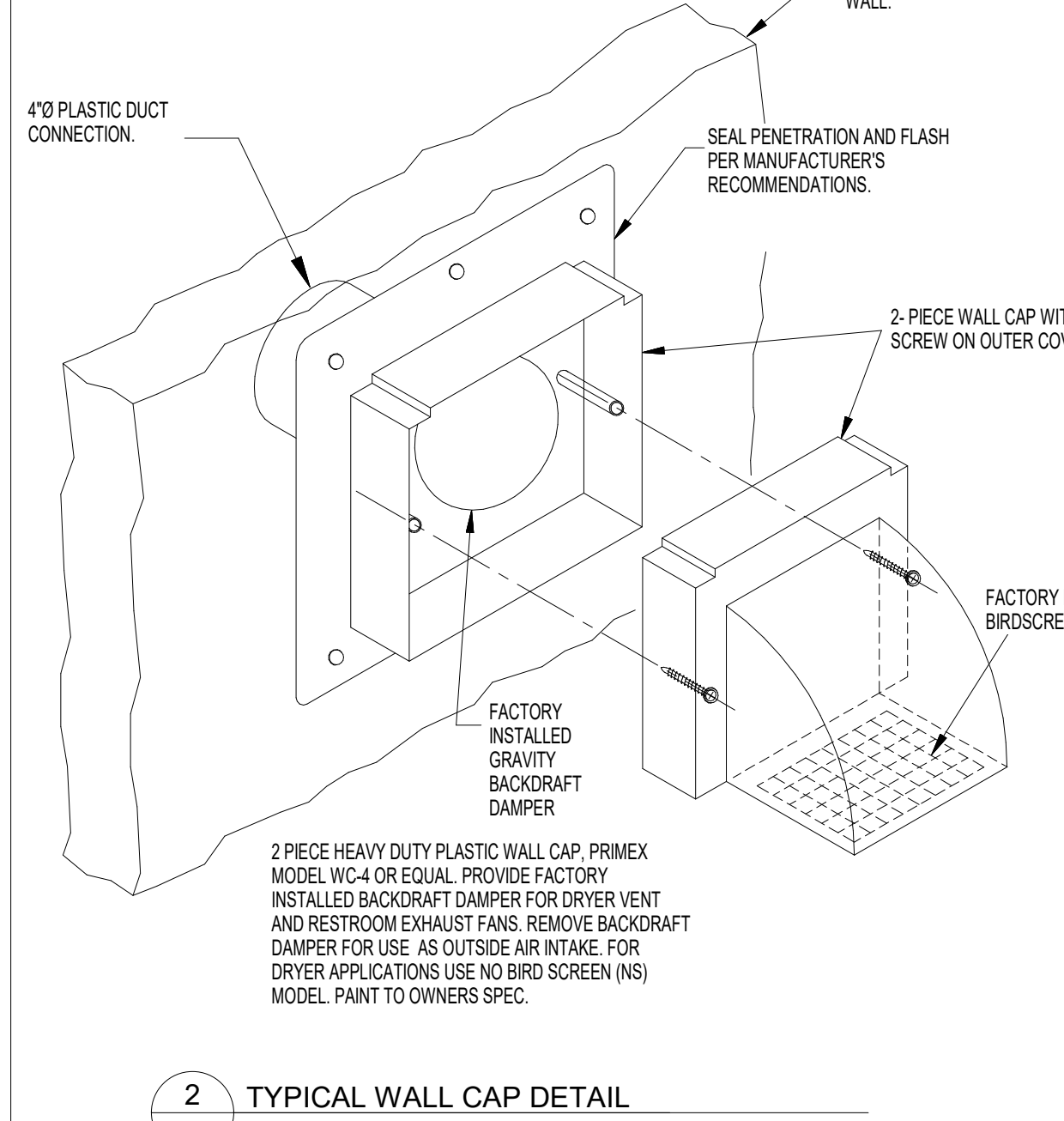
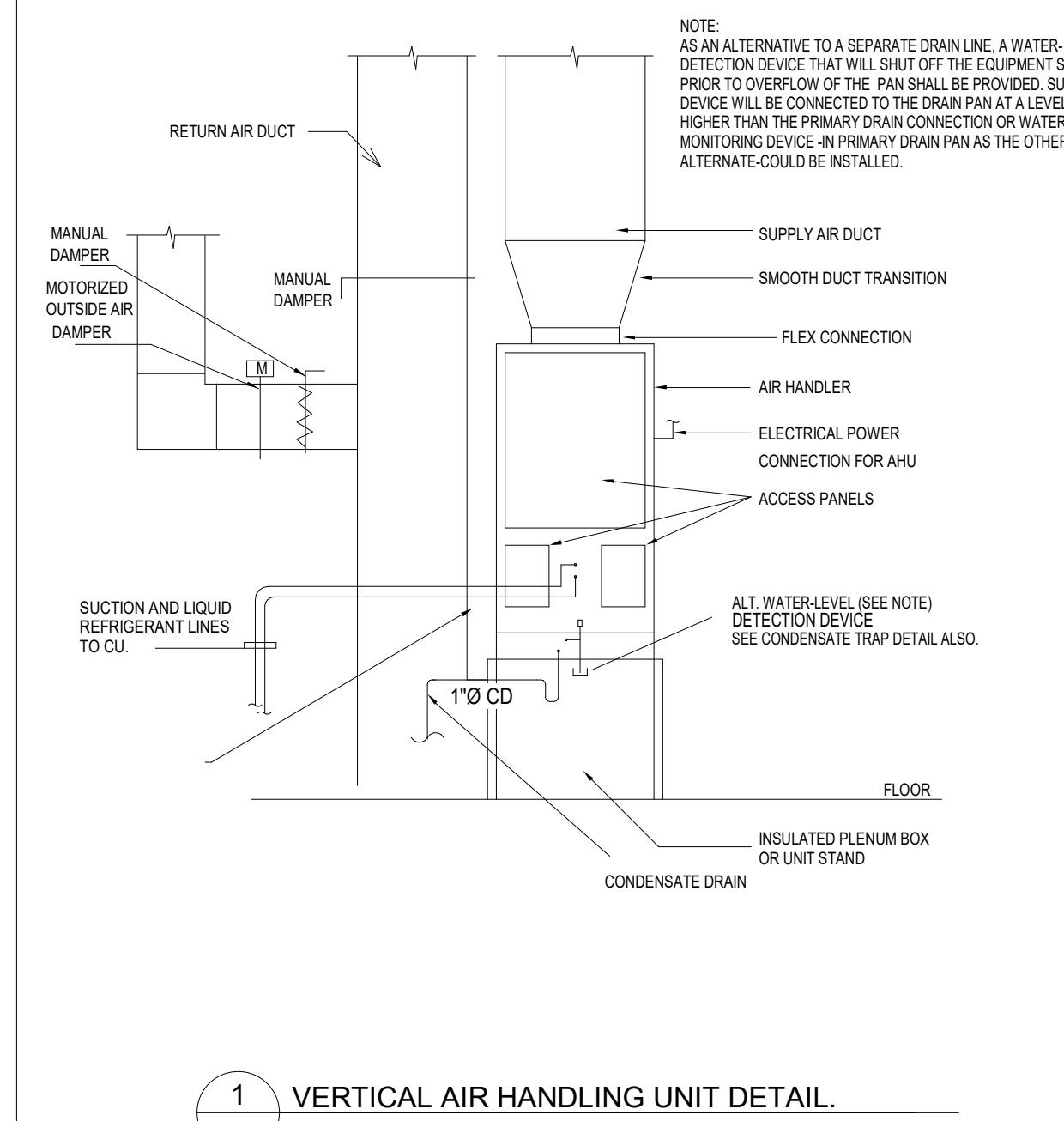
RETURN AIR DEVICE
EXHAUST DEVICE
SUPPLY AIR SLOT DEVICE
RETURN AIR SLOT DEVICE
12" ROUND DUCT, DIAMETER INDICATED IN INCHES.
20"x12" RECTANGULAR DUCT, SIZE INDICATED IN INCHES, FIRST NUMBER IS SIDE SHOWN.
24"x8" RIGID ROUND DUCT TO FLEX
24"x8" SINGLE LINE SUPPLY AIR DUCTWORK
24"x8" SINGLE LINE RETURN AIR DUCTWORK
SPIN-IN TAKE OFF-FITTING WITH DAMPER AND SCOOP
SPIN-IN TAKE OFF-FITTING ONLY
SUPPLY OR OUTSIDE AIR DUCT
RETURN AIR DUCT.
RELIEF OR EXHAUST AIR DUCT, DIFFUSER/GRIFFLE LABEL:
TYPE DESIGNATION
- AIRFLOW (CFM)
- NECK SIZE (INCHES)
90 DEGREE DUCT ELBOW.
RADIUS DUCT ELBOW - ROUND OR RECTANGULAR.
RECTANGULAR DUCT BRANCH TAKE-OFF WITH 45 DEGREE BRANCH INLET.
FLARED SPIN-IN WITH DAMPER AND FLEX DUCT (DIFFUSER CONNECTION).
ROUND DUCT BRANCH TAKE-OFF FROM RECTANGULAR MAIN WITH CONICAL TAP.
DUCT SIZE TRANSITION.
REQUIRED NECK SIZE
SA DUCT, SPIN-IN DAMPER, FLEX DUCT TO AIR DEVICE WITH CFM REQUIRED CFM
SUPPLY OR OUTSIDE AIR DUCT UP
SUPPLY OR OUTSIDE AIR DUCT DOWN
RETURN AIR DUCT UP
RETURN AIR DUCT DOWN
RELIEF OR EXHAUST AIR DUCT UP
RELIEF OR EXHAUST AIR DUCT DOWN
IN-LINE 90 DEGREE DROP (RISE) IN DUCT
INCLINED RISE IN DUCT
INCLINED DROP IN DUCT
TURNING VANES
DUCT EXTRACTOR
SPLITTER DAMPER/NECK SIZE
DUCT MOUNTED HEATING COIL

DUCT (DUCTWORK) CONT.
DUCT MOUNTED HUMIDIFIER
MOTORIZED DAMPER
DAMPER TYPE:
OPPOSITE BLADE MANUAL DAMPER
FIRE DAMPER W/ACCESS DOOR
FIRE SMOKE DAMPER W/ACCESS DOOR
FIRE DAMPER
BAROMETRIC BY-PASS DAMPER (BBD)
BACKDRAFT DAMPER (BDD)
EXISTING TO REMAIN
EXISTING TO REMOVE
FUTURE DUCT TO BE INSTALLED
AIR TRANSFER GRILLE

PIPING TYPES
CD CONDENSATE DRAIN (COLD) GRAVITY
RG REFRIGERANT HOT GAS
RL REFRIGERANT LIQUID LINE

MISCELLANEOUS
UNDERCUT DOOR 1"
DUCT SMOKE DETECTOR
SPACE THERMOSTAT
HUMIDISTAT
MANUAL PULL STATION
TEMPERATURE SENSOR
HUMIDITY SENSOR
SPACE THERMOSTAT WITH REMOTE SENSOR
THERMOSTAT/HUMIDISTAT
PNEUMATIC TUBING OR CONTROL WIRING
DRAWING NOTE REFERENCE
ROUND
OVAL OR FLAT OVAL
SECTION MARK & PAGE
OCCUPANCY SENSOR
POINT OF NEW CONNECTION
LIMIT OF DEMOLITION
EXISTING TO BE REMOVED

DRAWING/DETAIL REFERENCE KEY
REFER TO DRAWING/DETAIL NUMBER
SHEET NUMBER

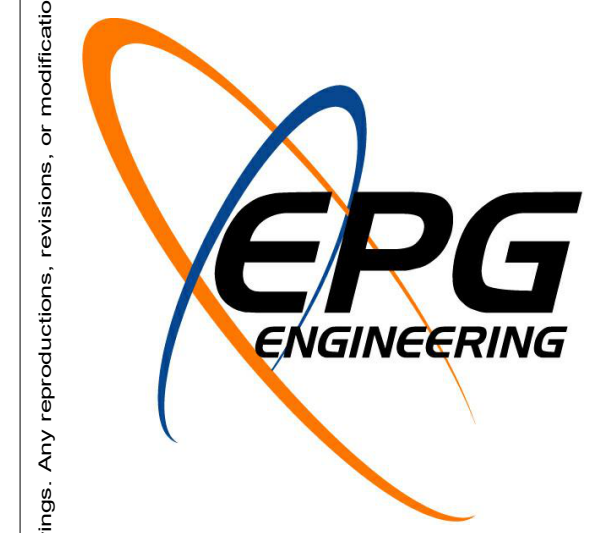


SET DISTRIBUTIONS:

3/1/23	90% Construction Documents
5/17/23	Permit Set and Bid Set

SHEET REVISIONS:

NO.	DATE	DESCRIPTION



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SHEET REVISIONS:

04/26/24	3	2023 Code Change
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PROJECT NO: EPG22106

MECHANICAL PLAN

M18.21

AIR HANDLING UNIT SCHEDULE																
MARK	COOLING COIL			FAN			AIR HANDLER							Remarks		
	Total Capacity (MBH)	ENT. AIR TEMP. (F) (DB/WB)	LEAV. AIR TEMP. (F) (DB/WB)	CFM Total	CFM O.A.	E.S.P. ("W.G.)	Fan Motor HP	Manufacturer	Model No.	Cabinet Type	Weight	TOTAL KW	MCA		Heater MOCP	V/PH/60
AHU-1	60	80/67	56/54	1800	320	0.3	1	GOODMAN OR EQUAL	ASPT60D14	VERTICAL	167 lbs	8	44	50	2401/60	1 TO 11

CONDENSING UNIT SCHEDULE (STRAIGHT COOL)															
MARK	QTY.	RLA/LRA		FLA	UNIT DATA						REMARKS				
		A	B		Manufacturer	Model No.	Nominal Capacity (MBH)	Weight	V/PH/60	MCA		MOCP	SEER	OUTDOOR DESIGN TEMP (F)	
CU-1	1	25.6	150	1	1.3	GOODMAN OR EQUAL	GXS1660	60	227 lb	230/160	34.2	50	16	95	1 TO 11

Remarks:

- PROVIDE 2" THICK 80-85% MERV-13 FILTER.
- PROVIDE HONEYWELL TH8321W1001 7-DAY PROGRAMMABLE THERMOSTAT AND INTEGRAL HUMIDISTAT.
- PROVIDE VARIABLE SPEED MOTORS FOR AIR HANDLERS. PROVIDE TWO STAGE COMPRESSORS FOR CONDENSING UNITS.
- HUMIDITY CONTROL: IF THE SPACE HUMIDITY RISES ABOVE 50% RH COMPRESSOR SHALL RUN IN FIRST STAGE, AND STAGED AIR VOLUME (VFD) AIR HANDLERS SHALL OPERATE IN LOW SPEED DURING FIRST STAGE OF COOLING, ALLOWING DEHUMIDIFICATION BY EXTENDING THE RUN TIME WITHOUT OVERCOOLING. AFTER THE DELAY TIME IF ADDITIONAL COOLING IS STILL REQUIRED COOLING SYSTEM SHALL BE BACK ON FULL CAPACITY SO THAT THE COOLING DEMAND WILL BE SATISFIED.
- PROVIDE SINGLE PHASE LOSS VOLTAGE MONITORING DEVICE EQUAL TO P251-0092 TOTALINE TO PROTECT FROM OVER OR UNDER VOLTAGE, RAPID SHORT-CYCLING, AND POWER INTERRUPTIONS.
- OUTSIDE AIR FOR VENTILATION ARE CALCULATED USING FLORIDA BUILDING CODE CHAPTER 4 FBC-M 8TH EDITION 2023.
- INSTALL AIR HANDLING AND CONDENSING UNITS PER MFG. RECOMMENDATIONS.
- REFRIGERATION LINE SIZE AND INSTALLATIONS IN ACCORDANCE WITH MFG. RECOMMENDATIONS.
- PROVIDE MANUAL AND BAROMETRIC DAMPER FOR OUTSIDE AIR INSTALLED ON RETURN DUCT.
- PROVIDE 5 MINUTE TIME DELAY TO PREVENT SHORT CYCLING OF COMPRESSOR.
- MODEL NUMBER FOR AC UNITS ARE PROVIDE TO ESTABLISH STANDARD OF QUALITY AND NECESSARY SPECIFICATIONS. COORDINATE WITH MANUFACTURE FOR FINAL MODEL NUMBERS.

REQUIRED OUTDOOR VENTILATION AIR CALCULATION (PER FBCM403.3.1.1)										
Unit Tag	Space Tag	Space			Ventilation					OA Provided CFM
		Az Area sf	Pz Occupancy people	Rp CFM/person	Ra CFM/ft2	Exhaust Airflow Rate CFM	Calculation	Vbz OA Required CFM		
AHU-1	Lounge	402	21	5	0.06	0	Vbz=RpPz+RaAz	129.1	320	
	Mech	108	0	0	0.12	0		13.0		
	Office	142	1	5	0.06	0		13.5		
	Office	142	1	5	0.06	0		13.5		
	Restrooms	230	0	0	0	70		0.0		
								169.1		

AIR DISTRIBUTION SCHEDULE
(ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS)

Mark	Description	Material	Finish	Manufacturer	Model	Remarks
CAP	Primex wall cap WC Series is ideal for exhaust and intakes applications/ The rainscreen comes in sizes ranging from 3-9 inches and multiple colours.	Polymer Resin	By owner	PRIMEX	WC Series	-
RAG	Eggcrate Return	Aluminum	Aluminum	PRICE	355 RL	2,3,4
REG-1	Single Deflection Supply Air Register Blade with 3/4" spacing.	Aluminum	Baked Off-White Enamel	TITUS	301FL	2,3,4,5
REG-2	Double Deflection Supply Air Register Blade with 3/4" spacing.	Aluminum	Baked Off-White Enamel	TITUS	300FL	2,3,4,5
TG	Transfer Grille, with opposed blade volume damper.	Aluminum	Baked Off-White Enamel	PRICE	85 Series	1,2,3,4,5

Remarks:

- Paint flat black inside of ducts behind grilles. provide duct collar with all grilles.
- See architectural ceiling plan for frame type.
- Provide surface mount border for hard ceiling.
- Provide with plenum.
- Insulated plenum.

EXHAUST FAN SCHEDULE												
Mark	Manufacturer	Model No.	Air Flow Rate	Location	SP, inches of water	RPM	Motor HP/Watts	VOLT/PH/60	Drive	Type	Weight (lb)	Remarks
EF-1	PANASONIC OR SIMILAR	FV-0510VSC1 OR EQUAL	50 CFM	BATHROOM	0.20	900	29 W	1201/60	Direct	Ceiling	12 lb	3,4,5,6
EF-2	PANASONIC OR SIMILAR	FV-0510VSC1 OR EQUAL	50 CFM	BATHROOM	0.20	900	29 W	1201/60	Direct	Ceiling	12 lb	2,4,5,6
EF-3	PANASONIC OR SIMILAR	FV-0510VSC1 OR EQUAL	100 CFM	BATHROOM	0.20	900	29 W	1201/60	Direct	Ceiling	17 lb	2,4,5,6
EF-4	PANASONIC OR SIMILAR	FV-0510VSC1 OR EQUAL	50 CFM	BATHROOM	0.20	900	29 W	1201/60	Direct	Ceiling	12 lb	2,4,5,6
EF-5	PANASONIC OR SIMILAR	FV-0510VSC1 OR EQUAL	50 CFM	BATHROOM	0.20	900	29 W	1201/60	Direct	Ceiling	12 lb	2,4,5,6

Remarks:

- Operate with wall switch.
- Operate with Occupancy sensor and Overrides Switch.
- Operate with timer switch.
- Provide Vibration Isolator.
- Provide Backdraft Damper (BDD).
- Contractor shall coordinate voltage/phase for this project before placing the order. Coordinate with electrician for any discrepancy. Provide transformer if necessary.

BRANCH DUCT SIZE CHART		
CFM	SUPPLY BRANCH DUCT SIZE(Ø")	RETURN BRANCH DUCT SIZE(Ø")
0-50	4	8
51-100	6	8
101-150	8	10
151-250	8	10
251-380	10	12
381-550	12	14
551-750	14	16
751-950	14	16

INTERIOR HELIX SHALL BE ALUMINUM TYPE FLEX-MASTER N-35

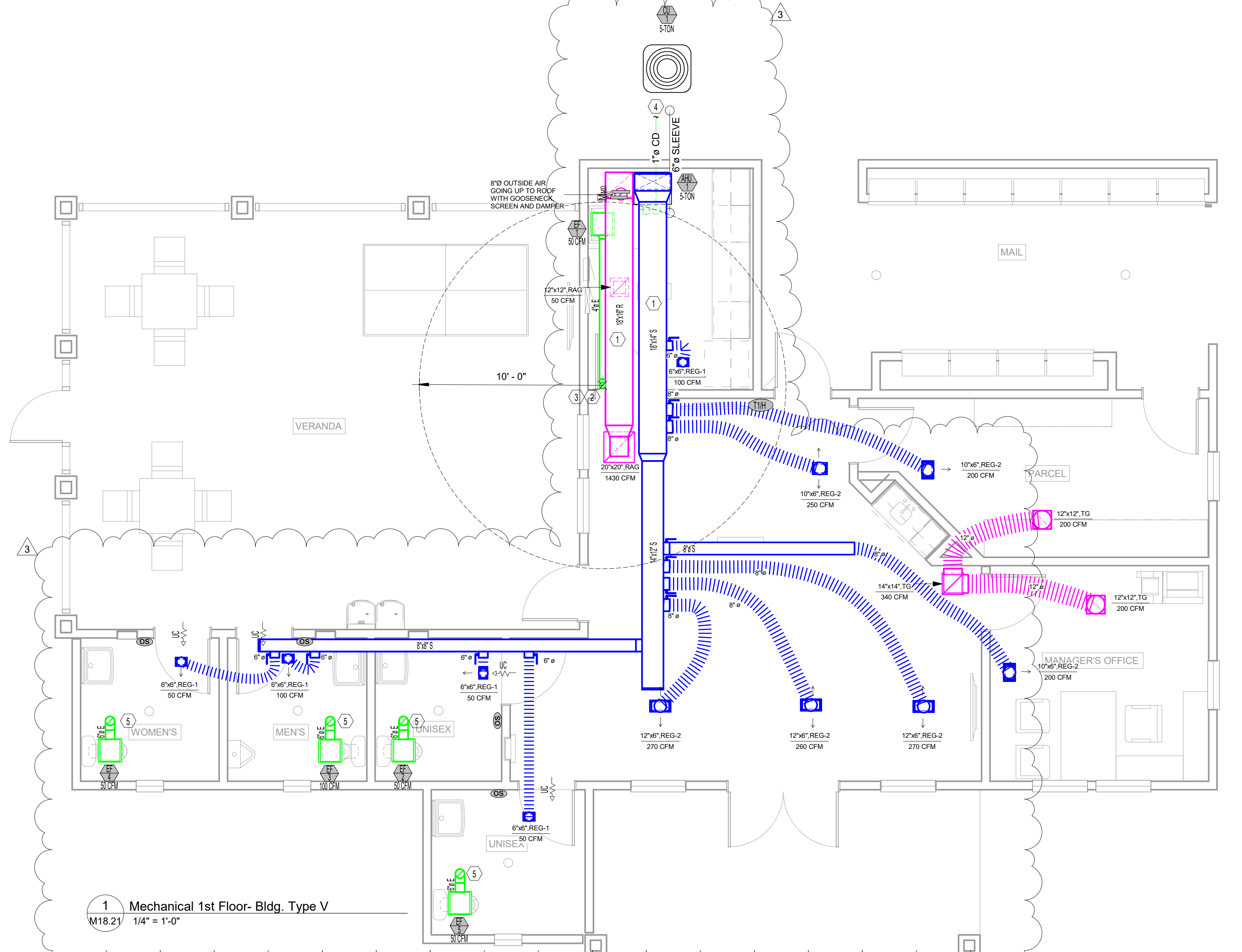
Reference Notes					
Number	Description				
1	DUCTWORK SHALL BE FIBER BOARD AS SPECIFIED ON MECHANICAL SPECIFICATIONS SHEET, DUCTWORK SECTION "A".				
2	4 EXHAUST DUCT GOING UP WITH ROOF CAP, DAMPER & SCREEN.				
3	MAINTAIN 10 FEET CLEARANCE FROM ANY FRESH AIR INTAKE. CONTRACTOR TO FIELD VERIFY AND MAINTAIN A 25 FEET RADIUS FROM THE ADJACENT TENANT'S FRESH AIR INTAKE.				
4	CONDENSATE DRAIN SHALL BE DISPOSED IN DRYWELL OR TO OTHER PROPER LOCATION PER FBCP SECTION 314.2.1. FROM FBCP AND SECTION 307.2.1 FROM FBCM 8TH EDITION 2023				
5	6" EXHAUST DUCT GOING UP WITH ROOF CAP, DAMPER & SCREEN.				

THERMOSTAT SCHEDULE						
MARK	SERVICE & LOCATION	OCCUPIED		UNOCCUPIED		%RH
		COOLING	HEATING	COOLING	HEATING	
118	LOUNGE	75	72	80	60	55

NOTES:
1. CONTRACTOR SHALL COORDINATE EXACT OPERATIONAL TIMES WITH OWNER/MANAGER PRIOR TO PROGRAMMING.

BUILDING BALANCE		
MARK	OUTSIDE AIR (CFM)	EXHAUST AIR (CFM)
AHU-1	+320	-
EF-1	-	-50
EF-2	-	-50
EF-3	-	-100
EF-4	-	-50
EF-5	-	-50
TOTAL	+320	-300

BALANCE = +300 - 320 = +20 CFM



HVAC GENERAL NOTES
GENERAL NOTES ARE FOR GENERAL REFERENCE PURPOSES. ALL NOTES MAY NOT BE USED FOR THIS PROJECT

- SEE THE ARCHITECTURAL REFLECTED CEILING PLAN FOR THE EXACT LOCATION OF AIR DISTRIBUTION DEVICES.
- ALL WALL CAPS, DISCHARGE LOUVERS, SHOWN ON THE MECHANICAL DRAWINGS, SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR
- THE SIZE AND LOCATION OF EQUIPMENT INSTALLED UNDER DIVISION 15 - MECHANICAL SHALL BE COORDINATED WITH OTHER TRADES.
- ALL THERMOSTATS SHALL BE MOUNTED WHERE INDICATED ON PLANS 5'-0" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE. IN HANDICAPPED ACCESSIBLE AREAS, MOUNT CONTROLS AT 48" (MAXIMUM) ABOVE FINISHED FLOOR.
- DISCONNECT SWITCHES REQUIRED FOR THE MECHANICAL EQUIPMENT SHALL BE PROVIDED BY DIVISION 16 ELECTRICAL.
- ALL SUPPLY AIR DUCT FROM VERTICAL TO THE HORIZONTAL AND 90- ANGLED TURNS OF DUCTWORK SHALL HAVE TURNING VANES INSTALLED.
- ALL CONTROL WIRING, CONDUIT AND HARDWARE TO COMPLETE THE H.V.A.C. CONTROL SYSTEMS SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 15 - MECHANICAL OF THESE CONTRACT DOCUMENTS.
- EXHAUST FANS AND PLUMBING VENTS SHALL BE LOCATED A MINIMUM OF 10 FEET FROM AIR INTAKES.
- BEFORE FABRICATION, VERIFY AND COORDINATE ALL DIMENSIONS IN FIELD. PRIMARILY, DUCTWORK SHALL RUN BELOW JOIST WEB SPACES.
- DUCT SIZES AND OPENINGS THRU WALL, PARTITIONS SHALL SUIT EQUIPMENT FURNISHED.
- COORDINATE DIFFUSER AND REGISTER LOCATIONS WITH ELECTRICAL LIGHTING LAYOUT AND ARCHITECTURAL REFLECTED CEILING PLANS.
- DUCTWORK LOCATIONS AND CLEARANCES SHALL BE COORDINATED WITH STRUCTURAL, ARCHITECTURAL, PLUMBING, ELECTRICAL AND SYSTEMS TRADES TO FIT THE SPACES PROVIDED. DUCTWORK CROSS SECTIONAL AREAS MAY NOT BE REDUCED.
- ALL EQUIPMENT, DUCTWORK, ETC. SHALL BE SUPPORTED FROM STRUCTURAL MEMBERS AS REQUIRED BY SMACNA STANDARDS TO PROVIDE A VIBRATION-FREE RIGID INSTALLATION.
- ALL DUCT SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS AND PIPING (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- PROVIDE UNIT MOUNTED FIRE STAT WIRED TO SHUT DOWN THE SUPPLY FAN AND INITIATE AN AIR HANDLING UNIT ALARM SIGNAL WHEN HEAT IS SENSED.
- MANUFACTURERS NAMES AND MODEL NUMBERS LISTED IN THE SPECIFICATIONS OR ON THE SCHEDULES ARE FOR THE PURPOSE OF ESTABLISHING A QUALITY OF MANUFACTURE OR A SPECIFIC DESIGN CONFIGURATION. EQUAL PRODUCTS, AS APPROVED BY THE ARCHITECT/ENGINEER, WILL BE ACCEPTABLE FROM OTHER MANUFACTURERS.
- REVIEW DRAWINGS AND PROVIDE ALL WORK FOR A COMPLETE AND OPERABLE SYSTEM, INCLUDING ALL INCIDENTALS REQUIRED BY CODE AGENCIES AND LOCAL GOVERNING BODIES. ANY DISCREPANCIES NOT BROUGHT TO THE ATTENTION OF THE ARCHITECT IN WRITING PRIOR TO BIDS WILL BE CONSIDERED CORRECTED BY THE CONTRACTOR IN HIS BID TO THE SATISFACTION OF THE ARCHITECT AND AS THE ARCHITECT DIRECTS.
- REMOVE STORE AND REINSTALL CEILING TILES AS NECESSARY TO ACCOMMODATE AIR BALANCING WORK AND INSPECTIONS.
- DUCTWORK SHALL BE LOW VELOCITY FIBERGLASS SUPER-DUCT RATED FOR 2" STATIC PRESSURE AND INSTALLED PER SMACNA FOR ALL AHU'S/RTU'S SUPPLY AND RETURN AIR. SEAL ALL JOINTS AND SEAMS WITH FAB AND MASTIC. ALL EXHAUST DUCTWORK SHALL BE SHEET METAL CONSTRUCTION.
- TRAP AND ROUTE CONDENSATE DRAINS LINES FULL SIZE OF UNIT CONNECTION, AS INDICATED. SLOPE 1/8" PER FOOT. ROUTE TO DRY WELL WHERE POSSIBLE.
- ALL REFRIGERANT PIPING SHALL BE SIZED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS FOR LENGTH OF RUN, ADD ANY EQUIPMENT NECESSARY BY MANUFACTURER.
- APPLICABLE CODE/STANDARDS
-FLORIDA BUILDING CODE 2023 - 8TH EDITION
-FLORIDA BUILDING CODE - MECHANICAL 2023 - 8TH EDITION
-FLORIDA BUILDING CODE - PLUMBING 2023 - 8TH EDITION
-FLORIDA BUILDING CODE - ENERGY CONSERVATION 2023 - 8TH EDITION
-NFPA LATEST EDITION
-SMACNA DUCT CONSTRUCTION STANDARDS
-ASHRAE STANDARD 62.1 (2022)
-NATIONAL ELECTRIC CODE (2020)
- THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS, INSPECTIONS AND PAY ALL FEES.
- PER FLORIDA ENERGY EFFICIENCY CODE SECTION R402.4 ALL APARTMENTS UNITS LOCATED WITHIN BUILDINGS THAT ARE 3 STORIES OR LESS ARE REQUIRED TO BE LEAK TESTED WITH A MAXIMUM LEAK RATE OF NO GREATER THAN 7 AIR CHANGES PER HOUR. IF LEAK TESTING RESULTS SHOW A LEAK RATE HIGHER THAN 7 AIR CHANGES PER HOUR THE UNIT THERMAL ENVELOPE MUST BE SEALED ACCORDINGLY AND RE-TESTED. A PASSING CERTIFIED BLOWER DOOR TEST REPORT MUST BE SUPPLIED TO THE AUTHORITY HAVING JURISDICTION PRIOR TO CERTIFICATE OF OCCUPANCY.
- PER FLORIDA MECHANICAL CODE SECTION 401.2 IF THE UNIT LEAK RATE IS FOUND TO BE LESS THAN 3 AIR CHANGES PER HOUR DEDICATED MECHANICAL VENTILATION WILL BE REQUIRED TO BE INSTALLED. (DOES NOT APPLY TO BUILDINGS 4 STORIES OR GREATER).
- ALL MATERIALS INSTALLED WITHIN PLENUM RETURN CLOSET SHALL BE ASTM E-84 25/50 FIRE/SMOKE RATED MATERIAL. USE PLENUM RATED FIELD WIRING EQUAL TO SOUTHWIRE WITHIN AHU CLOSET. FULLY INSULATE EXPOSED SCHEDULE 40 PVC PIPING WITH 3M FIRE BARRIER PLENUM WRAP 5A+ OR EQUAL.

ENERGY CALCULATION VALUES			
ROOF:	R-30	WOOD FRAME-EXTERIOR:	R-13
WALLS:	CONCRETE BLOCK:	R-5	
WINDOWS:	SHGC:	0.35	
	U VALUE:	0.55	
EXTERIOR DOORS:	U-VALUE:	0.46	
FLOOR SLAB:	R-3		
ALL MATERIALS USED IN THE PROJECT MUST MEET OR EXCEED THE MINIMUM VALUES NOTED.			