REFRIGERANT PIPING NOTES

REFRIGERANT PIPE SIZING AND ROUTING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE INTO ACCOUNT LENGTH OF RUN, ELEVATION CHANGES, AND FIELD CONDITIONS. ALL ACCESSORIES FOR LONG LINE APPLICATIONS (HARD-START KIT, THERMOSTATIC EXPANSION VALVE (TXV), LIQUID LINE SOLENOID AT THE OUTDOOR UNIT. AN INVERTED REFRIGERANT TRAP AT THE INDOOR UNIT. ETC.) SHALL BE PROVIDED AND INSTALLED WHEN THE DEVELOPED LENGTH FALLS IN THE CATEGORY OF A LONG LINE APPLICATION. THE CONTRACTOR SHALL SUBMIT CALCULATIONS IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER. ALL REFRIGERANT ROUTING SHALL BE INSTALLED CONCEALED.

ELECTRICAL COORDINATION NOTES

ALL ELECTRICAL WORK SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70). THE EQUIPMENT INDICATED ON THE DRAWINGS HAS BEEN COORDINATED WITH THE ELECTRICAL SYSTEMS. IF THIS CONTRACTOR SELECTS TO USE ALTERNATE EQUIPMENT, HE SHALL BE RESPONSIBLE FOR ALL COORDINATION WITH THE ELECTRICAL ENGINEER AND SHALL BEAR ANY ADDED EXPENSE TO THE ELECTRICAL CONTRACTOR AND CONSULTANTS RESULTING FROM SUCH ALTERNATE SELECTION.

BUILDING PRESSURIZATION TABLE			
SYSTEM	OUTSIDE AIR (CFM)	EXHAUST AIR (CFM)	
DOAS-1	+ 1000	-	
EF-1	-	- 520	
TOTAL OUTSIDE AIR	+ 1000		
TOTAL EXHAUST	-	- 520	
RESULTING POSITIVE PRESSURE	+ 480	-	
NUMBER OF DOORS OR SLIDING WINDOWS TO OUTSIDE	8		
POSITIVE PRESSURE PER DOOR	+ 60		

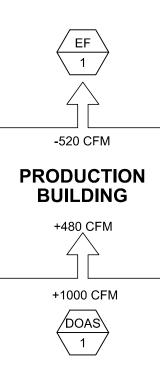
HVAC DESIGN DATA					
LOCATION		DAYTONA BEACH, FLORIDA			
CLIMATE ZONE			2	A	
OUTDOOR AIR	SUI	MMER	WINTER	BUILDING CONSTRU	JCTION
DESIGN	DB	WB	DB	WALL R-VALUE	13
CONDITIONS	(DEG F)	(DEG F)	(DEG F)	ROOF R-VALUE	30
	95	78	36	WINDOW GLAZING	-
INDOOR AIR	SUI	MMER	WINTER	WINDOW U-FACTOR	0.29
DESIGN	DB	RELATIVE	DB	WINDOW SHGC	0.29
CONDITIONS	(DEG F)	HUMIDITY	(DEG F)		
ALL UNITS	75	50%	72		

VI				JAL				
MECHANICA								
CALCULATE					CAL, SEC	FION 40	3.3 OUTI	DOOR
AIR AND LOC	CAL EXHA	UST AIRFI		ATES.				
Vbz = BRE	EATHING 2	ZONE VEN	TILATI	ON				
Az = ZONE	E FLOOR /	AREA (SF)	1					
Pz = ZONE	E POPULA	TION (PEC	OPLE)					
Rp = PEO					PERSON)			
Ra = AREA								
Ez = ZONE					NESS			
Voz = ZON								
SCH OA =	SCHEDU	LED OUTS	SIDE AII	RFLOV	VRATE			
	Vb	z = RpPz +	RaAz	(E		l 4-1)		
		Voz = Vbz	/도			2)		
		VUZ – VUZ				2)		
		TIONS						
VENTILATION								
/ENTILATION	Az	Pz	Ra	Rp	Vbz	Ez	Voz	SCH O
			Ra 0.06	Rp 5	Vbz 160.9	Ez 0.8	Voz 201.2	SCH 0/ 205
UNIT	Az	Pz						

UNIT	Az	Pz	Ra	Rp	Vbz	Ez	Voz	SCH OA
AH/HP-1	2183	6	0.06	5	160.9	0.8	201.2	205
AH/HP-2	1797	6	0.06	5	137.8	0.8	172.3	205
AH/HP-3	1420	7	0.06	5	120.2	0.8	150.3	165
AH/HP-4	814	16	0.06	5	128.8	0.8	161.1	165
AH/HP-5	945	9	0.06	5	101.7	0.8	127.1	165
AH/HP-6	479	4	0.06	5	48.7	0.8	60.9	95
NOTES								

1. THE MINIMUM VENTILATION RATE REQUIRED FOR THE PRODUCTION

BUILDING IS 872.9 CFM. THE VENTILATION IS PROVIDED BY A 100% DEDICATED OUTDOOR AIR SYSTEM (DOAS) AND PROVIDES 1000 CFM OF OUTSIDE AIR TO THE PRODUCTION BUILDING.



PRODUCTION BUILDING PRESSURIZATION M1.001 NOT TO SCALE

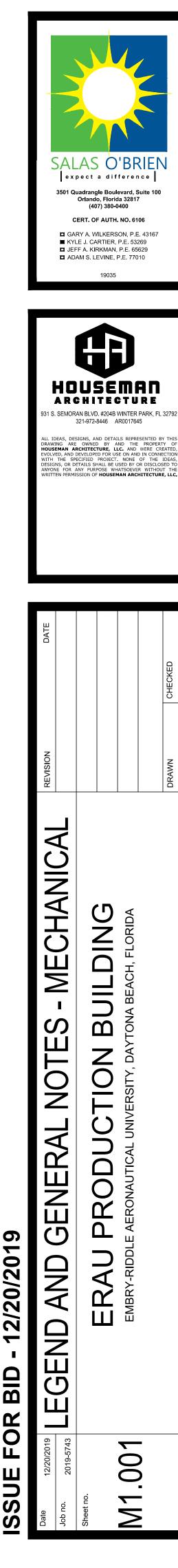
GENERAL NOTES

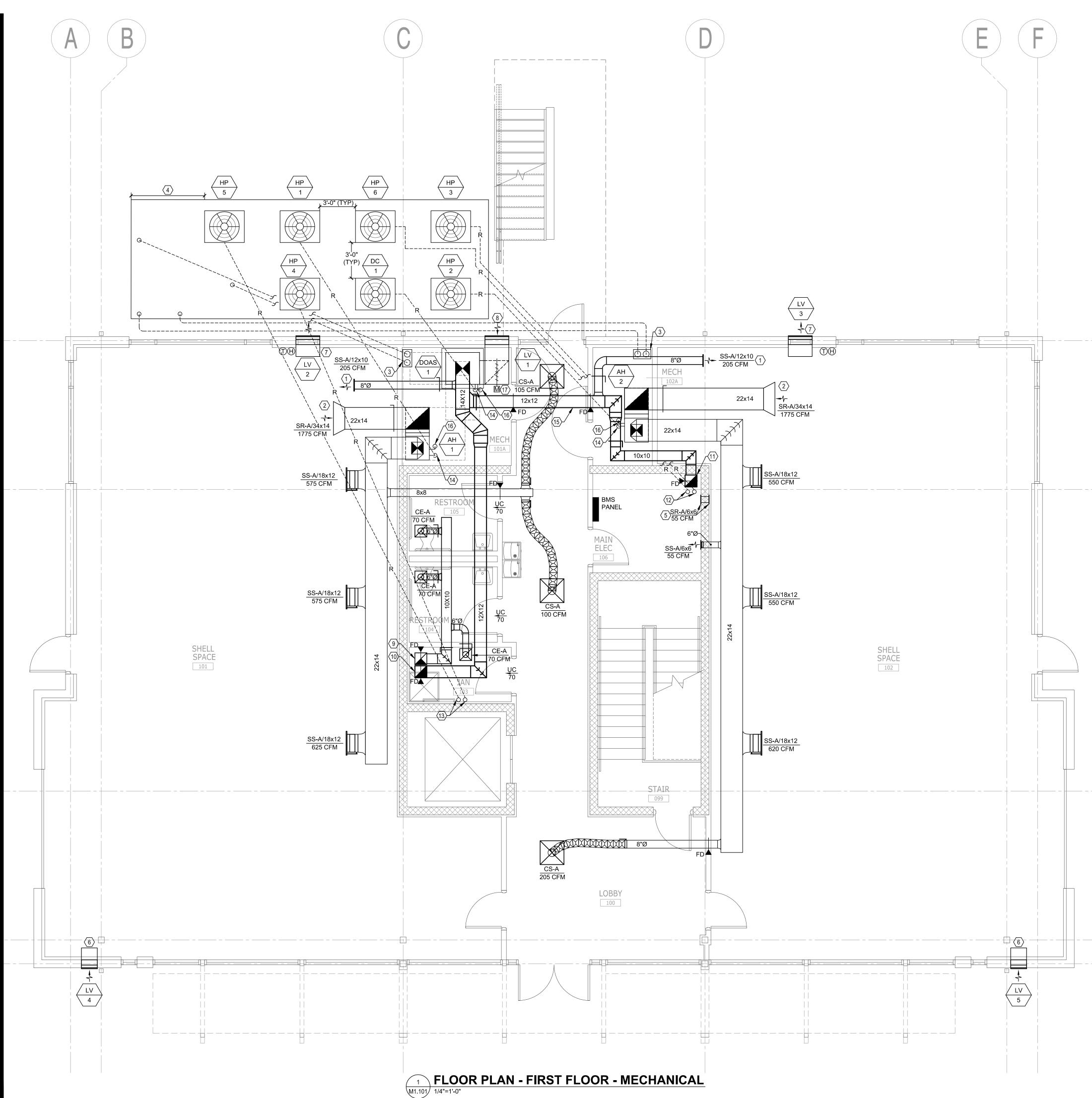
- 1. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) SYSTEMS.
- 2. REFER TO TYPICAL DETAILS FOR ADDITIONAL INFORMATION REGARDING THE INSTALLATION OF DUCTWORK, PIPING, AND EQUIPMENT.
- 3. THE CONTRACTOR IS EXPECTED TO ORDER MATERIALS IN SUFFICIENT TIME TO AVOID DELAYING THE COMPLETION OF THE PROJECT. DELAY IN DELIVERIES WILL NOT BE CONSIDERED A JUSTIFIABLE REASON FOR SUBSTITUTION OF MATERIALS.
- 4. THE CONTRACTOR SHALL COMPLY WITH THE 2017 FLORIDA BUILDING CODE AND ALL OTHER APPLICABLE CODES AND STANDARDS.
- 5. ALL REQUESTS FOR INFORMATION (RFI'S) SUBMITTED BY THE CONTRACTOR SHALL INCLUDE A PROPOSED SOLUTION.
- 6. INSTALLATION OF EQUIPMENT SHALL COMPLY WITH EQUIPMENT MANUFACTURER'S INSTALLATION AND CLEARANCE REQUIREMENTS. THE CONTRACTOR SHALL VERIFY INSTALLATION CLEARANCES WILL BE MAINTAINED AND DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER PRIOR TO THE ACQUISITION OF EQUIPMENT.
- 7. THE GENERAL CONTRACTOR SHALL COORDINATE THE WORK OF THE DIFFERENT TRADES SO THAT INTERFERENCE BETWEEN HVAC, PIPING, EQUIPMENT, STRUCTURAL, AND ELECTRICAL WORK WILL BE AVOIDED. ALL NECESSARY OFFSETS IN DUCTWORK, PIPING, AND FITTINGS REQUIRED TO INSTALL THE WORK PROPERLY SHALL BE PROVIDED COMPLETE IN PLACE AT NO ADDITIONAL COST TO THE OWNER.
- 8. THE CONTRACTOR IS RESPONSIBLE TO REPAIR, AT HIS COST, ANY DAMAGED ITEMS DUE TO WORK PERFORMED. DAMAGED ITEMS SHALL BE BROUGHT BACK TO LIKE-NEW CONDITION OR REPLACED WITH ORIGINAL.
- 9. DUCTWORK, PIPING, AND EQUIPMENT LOCATIONS SHOWN ARE SCHEMATIC. PRIOR TO EXCAVATION, LAYOUT AND CONSTRUCTION OF THE MECHANICAL SYSTEMS, THE CONTRACTOR SHALL SUBMIT LAYOUT AND FABRICATION SHOP DRAWINGS FOR APPROVAL. CONTRACTOR SHALL NOT COMMENCE WORK WITHOUT APPROVED SHOP DRAWINGS ON THE CONSTRUCTION SITE.
- 10. INSULATE ALL SURFACES SUBJECT TO CONDENSATION.
- 11. ALL DUCTWORK DIMENSIONS SHOWN ON THE DRAWINGS ARE THE INTERNAL CLEAR DIMENSIONS.
- 12. FLEX DUCTS SHALL BE ONE CONTINUOUS PIECE (NO SPLICES) AND SHALL BE A MAXIMUM LENGTH OF 10 FEET.
- 13. INSIDE AREAS OF DUCTWORK VISIBLE THROUGH DIFFUSERS, REGISTERS, GRILLES, AND LOUVERS SHALL BE PAINTED FLAT BLACK.
- 14. INSULATE ALL LOUVER PLENUMS AND BLANK-OFFS TO PREVENT CONDENSATION.
- 15. ALL RESTROOM MAKE-UP AIR SHALL BE BY WAY OF DOOR UNDERCUTS.
- 16. ALL NEW SUPPLY AND RETURN DUCTWORK SHALL BE GALVANIZED STEEL, EXTERNALLY INSULATED WITH 2.2 INCH THICK, 3/4 POUND DENSITY FIBERGLASS DUCTWRAP WITH VAPOR BARRIER. INSTALLED R VALUE SHALL BE A MINIMUM OF 6.0. SEAL ALL JOINTS AND SEAMS WITH GLASS FABRIC AND MASTIC MEETING UL 181.
- 17. REFER TO ARCHITECTURAL AND/OR STRUCTURAL SHEETS FOR LOUVER MOUNTING HEIGHTS.
- 18. PROVIDE A 4-INCH THICK, REINFORCED CONCRETE EQUIPMENT PAD WITH 6-INCH BORDER ALL AROUND FOR ALL EXTERIOR GRADE-MOUNTED MECHANICAL EQUIPMENT.
- 19. PROVIDE COLD GALVANIZED PAINT ON ALL FIELD CUTS/WELDS OF GALVANIZED STEEL SUPPORTS AND THREADED RODS.
- 20. ROUTE CONDENSATE TO HUB DRAIN AND TERMINATE INDIRECTLY. HUB DRAIN SHALL CONNECT TO STORM.
- 21. ROUTE ALL UNDERGROUND REFRIGERANT PIPING IN LONG RADIUS SCHEDULE 40 PVC CONDUIT. PVC CONDUIT SHALL BE 4" DIA FOR ONE SET OF LINES, AND 6" DIA FOR UP TO 3 SETS OF LINES.
- 22. THE BUILDING WILL HAVE A FIRE ALARM SYSTEM. PROVIDE A DUCT-MOUNTED SMOKE DETECTOR IN THE SUPPLY OF EACH AIR HANDLING UNIT. THE UNIT SHALL SHUT DOWN UPON ACTIVATION OF THE DEVICE. THE DUCT SMOKE DETECTOR SHALL BE INSTALLED BY THE MECHANICAL CONTRACTOR. THE DUCT SMOKE DETECTORS SHALL BE PROVIDED, WIRED, AND INTERFACED WITH THE FIRE ALARM SYSTEM BY THE ELECTRICAL CONTRACTOR.
- 23. ALL TEMPERATURE SENSORS/CONTROLS SHALL BE LOCATED TO ALLOW THE PARALLEL APPROACH BY A PERSON IN A WHEELCHAIR AND MOUNTED 54" AFF. WHERE ONLY FORWARD APPROACH IS POSSIBLE, SENSORS/CONTROLS SHALL BE MOUNTED 48" AFF.
- 24. THE CONTRACTOR SHALL PERFORM A COMPLETE CERTIFIED TEST AND BALANCE OF EACH MECHANICAL SYSTEM IN ACCORDANCE WITH A NATIONAL STANDARD. SEE SPECIFICATIONS FOR DETAILS AND PROVIDE THREE (3) WRITTEN COPIES OF THE COMPLETED TEST AND BALANCE REPORT TO THE OWNER FOR REVIEW.

HVAC ABBREVIATIONS

	IVAC ABBREVIATIONS
ABBREV.	DESCRIPTION
AC AFF	ALTERNATING CURRENT ABOVE FINISHED FLOOR
AFMS	AIRFLOW MEASURING STATION
AH AHU	AIR HANDLER AIR HANDLING UNIT
AMP	AMPERE
ANSI ASHRAE	AMERICAN NATIONAL STANDARDS INSTITUTE AMERICAN SOCIETY OF HEATING, REFRIGERATING
	AND AIR CONDITIONING ENGINEERS
ASME A/V	AMERICAN SOCIETY OF MECHANICAL ENGINEERS AUDIBLE/VISUAL
AWG	AMERICAN WIRE GAUGE
BDD BHP	BACKDRAFT DAMPER BRAKE HORSEPOWER
BLDG	BUILDING
BMS BTU	BUILDING MANAGEMENT SYSTEM BRITISH THERMAL UNITS
CFM	
CU CxA	CONDENSING UNIT COMMISSIONING AGENT
D	DEPTH
dB DB	DECIBEL DRY BULB
DC DDC	DIRECT CURRENT DIRECT DIGITAL CONTROL
DEG F	DEGREE FAHRENHEIT
DIA DOAS	DIAMETER DEDICATED OUTDOOR AIR SYSTEM
EA	EXHAUST AIR, EACH
EAT ECM	ENTERING AIR TEMPERATURE ELECTRICALLY COMMUTATED MOTOR
EFF	EFFICIENCY
EER EF	ENERGY EFFICIENCY RATIO EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
ETC FBC	ET CETERA FLORIDA BUILDING CODE
FBC-M	FLORIDA BUILDING CODE - MECHANICAL
FD FLA	FIRE DAMPER, FLOOR DRAIN FULL LOAD AMPS
FPM	FEET PER MINUTE
FPS FRP	FEET PER SECOND FIBERGLASS REINFORCED PLASTIC
FT	FEET
FT-H2O GA	FEET OF WATER GAGE
GAL	
GPM H	GALLONS PER MINUTE HEIGHT
HB HD	HOSE BIBB HUB DRAIN
H-O-A	HAND-OFF-AUTOMATIC
HP HR	HORSEPOWER HOUR
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
HZ IN	HERTZ INCH
IN.W.G.	INCHES OF WATER - GAUGE
IPS KW	IRON PIPE SIZE KILOWATT
L	LENGTH
LAT LBS	LEAVING AIR TEMPERATURE POUNDS
MAX MBH	MAXIMUM THOUSAND BTU PER HOUR
MCA MIN	MINIMUM CURRENT AMPACITY MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MSS MVD	MANUFACTURERS STANDARDIZATION SOCIETY MANUAL VOLUME DAMPER
N	NORTH
N/A	NOT APPLICABLE/NONE ASSOCIATED/NONE AVAILABLE
NC	NOISE CRITERIA
NFPA NIC	NATIONAL FIRE PROTECTION ASSOCIATION NOT IN CONTRACT
NTS	NOT TO SCALE
OA PH	OUTDOOR AIR PHASE
PRV PSI	PRESSURE RELIEF OR REGULATING VALVE POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
QTY RA	QUANTITY RETURN AIR
RH	RELATIVE HUMIDITY
RLA RM	RUNNING LOAD AMPS ROOM
RPM	REVOLUTIONS PER MINUTE
RTU SA	ROOFTOP UNIT SUPPLY AIR
SD	SMOKE DETECTOR
SEER SF	SEASONAL ENERGY EFFICIENCY RATIO SQUARE FEET
SMACNA	SHEET METAL AND AIR CONDITIONING
SP	CONTRACTORS NATIONAL ASSOCIATION STATIC PRESSURE
STD	STANDARD
T TSP	THERMOSTAT TOTAL STATIC PRESSURE
TYP UH	TYPICAL UNIT HEATER
UL	UNDERWRITERS LABORATORIES
UNO V	UNLESS NOTED OTHERWISE VOLTAGE
VA	VOLT AMPERE
VAV VFD	VARIABLE AIR VOLUME VARIABLE FREQUENCY DRIVE
W	WATT, WIDTH
WB WWF	WET BULB WELDED WIRE FABRIC
YR	YEAR

SYMBOL	CHANICAL LEGEND DESCRIPTION
GENERAL	
CS-A 100 CFM OR SS/12X6 100 CFM	AIR DEVICE TAG MARK - TYPE OR (INxIN) AIRFLOW (CFM)
UC 100	UNDER CUT DOOR
	AIR FLOW AMOUNT (CFM)
$\langle 1 \rangle$ or $\langle D \rangle$	REFERENCE NOTE
X X-X	DETAIL NUMBER SHEET DETAIL APPEARS
$\left\langle \begin{array}{c} x \\ x \end{array} \right\rangle$	TYPE OF EQUIPMENT EQUIPMENT NUMBER
x x-x	SECTION NUMBER SHEET SECTION APPEARS
$\widehat{}$	POINT OF DISCONNECTION
•	POINT OF CONNECTION
SYMBOL HVAC	DESCRIPTION
24x12 Z	RECTANGULAR DUCT, FIRST FIGURE IS
	DIMENSION OF SIDE SHOWN (IN INCHES) FLAT OVAL DUCT, FIRST FIGURE IS
{ 24x12Ø }	DIMENSION OF SIDE SHOWN (IN INCHES)
24Ø	ROUND DUCT, DIAMETER SHOWN (IN INCHES)
	SUPPLY DUCT RISER
	RETURN DUCT RISER
	EXHAUST DUCT RISER
	SUPPLY DUCT DOWN
	RETURN DUCT DOWN
	EXHAUST DUCT DOWN
TT	DUCT CONTINUES
MVD	MANUAL VOLUME DAMPER
	BACKDRAFT DAMPER MOTORIZED DAMPER
	FIRE DAMPER (HORIZONTAL)
FD	FIRE DAMPER (VERTICAL)
	SMOKE DAMPER (HORIZONTAL) SMOKE DAMPER (VERTICAL)
F/SD	COMBINATION FIRE/SMOKE DAMPER (HORIZONTAL)
F/SD	COMBINATION FIRE/SMOKE DAMPER (VERTICAL)
©	DUCT-MOUNTED SMOKE DETECTOR
	DUCT ACCESS DOOR - TOP DUCT ACCESS DOOR - BOTTOM
	DUCT ACCESS DOOR - BOTTOM DUCT ACCESS DOOR - SIDE
	DUCT RISE OR DROP IN DIRECTION OF FLOW
	SQUARE TO ROUND DUCT TRANSITION
	TERMINAL UNIT
	CROSS HATCHED AREA = MINIMUM CLEARANCE FOR HEATER ACCESS. MAINTAIN CLEARANCE.
 ── (SINGLE LINE DUCTWORK
ицера К	BELL MOUTH TAP W/MVD MVD HAS REMOTE CONTROL IN RIGID CEILING
r₀ B	FLEXIBLE DUCT
	SUPPLY OUTLET (SEE AIR DEVICE SCHEDULE)
	RETURN INLET (SEE AIR DEVICE SCHEDULE)
	RETURN INLET WITH BALANCING DAMPER
	EXHAUST INLET (SEE AIR DEVICE SCHEDULE)
	LINEAR DIFFUSER
	ELBOW W/TURNING VANES
	CARBON MONOXIDE SENSOR CARBON DIOXIDE SENSOR
(CO ₂) (NO)	NITROGEN OXIDE SENSOR
	SMOKE DETECTOR A/V ANNUNCIATOR
Ĥ	HUMIDISTAT
R	REFRIGERANT SENSOR
SD	DUCT SMOKE DETECTOR
T	THERMOSTAT
TS	TEMPERATURE SENSOR
SHOWN MAY BE USE	COMPILATION OF SYMBOLS AND NOT ALL SYMBOLS ED ON THE CONTRACT DRAWINGS. S OR TEXT (EXAMPLE: AHU) INDICATE EXISTING





REFERENCE NOTES

- $\langle 1 \rangle$ OUTSIDE AIR DUCT SERVING THE SPACE WITH DISCHARGE DIRECTLY TO THE SPACE. PROVIDE SIDEWALL SUPPLY AIR DEVICE AND BALANCING DAMPER IN THE DUCT AS SHOWN AND BALANCE AIRFLOW TO VALUE INDICATED.
- $\langle 2 \rangle$ PROVIDE FLARED END DUCT FITTING AT END OF RETURN AIR DUCT AS SHOWN. COVER ENTIRE OPENING WITH 18 GAUGE 1/4 INCH BY 1/4 INCH WELDED WIRE MESH.
- $\langle 3 \rangle$ PROVIDE TWO (2) 6-INCH SCHEDULE 80 PVC SLEEVES THROUGH THE FLOOR TO THE EXTERIOR. ROUTE SLEEVES UNDERGROUND TO THE CONCRETE HOUSEKEEPING PAD AND TURN UP. FILL ALL OPEN ENDS WITH EXPANDABLE FOAM TO CREATE AN AIR AND WATER TIGHT SEAL. SLEEVES ARE INTENDED TO ACCOMMODATE ANY REFRIGERANT PIPING NEEDS OF ANY HVAC EQUIPMENT THAT MAY BE ADDED TO THE FIRST FLOOR SPACES IN THE FUTURE.
- $\langle 4 \rangle$ PROVIDE A 4-INCH THICK, CONTINUOUS CONCRETE HOUSEKEEPING PAD ON GRADE FOR GRADE MOUNTED EQUIPMENT. PROVIDE PAD WITH 6X6-W1.4XW1.4 WELDED WIRE FABRIC AT MID-DEPTH OF SLAB THROUGHOUT. TURN DOWN EDGES OF WIRE MESH 90 DEGREES INTO THICKENED EDGE ALONG ALL EDGES. PROVIDE 8" WIDE X 12" DEEP THICKENED EDGE (4" ABOVE GRADE, 8" BELOW GRADE), WITH 2-#4 CONTINUOUS BARS, ONE AT TOP CORNER, OTHER AT 3" FROM BOTTOM OF THICKENED EDGE. PROVIDE CORNER BARS AT ALL CORNERS. PROVIDE COMPACTION OF SOIL BELOW SLAB TO 95% OF MODIFIED PROCTOR, AND PROVIDE 4,000 PSI CONCRETE. EXTEND THE PAD AN ADDITIONAL 6 FEET PAST THE LAST HEAT PUMP CONDENSING UNIT FOR FUTURE HVAC EQUIPMENT.
- $\langle 5 \rangle$ SIDEWALL RETURN AIR TRANSFER DUCT FROM THE ELECTRICAL ROOM MOUNTED AS HIGH IN THE WALL AS POSSIBLE. PROVIDE INDICATED AIR DEVICE ON BOTH SIDES OF THE DUCT.
- $\langle 6 \rangle$ WALL LOUVER FOR FUTURE OUTSIDE AIR INTAKE USE. PROVIDE 12-INCH DEEP GALVANIZED STEEL BACK PAN FULL SIZE OF LOUVER AND SEAL BACK PAN AIR AND WATER TIGHT. INSULATE BACK PAN WITH INSULATION TO PREVENT CONDENSATION.
- $\langle 7 \rangle$ WALL LOUVER FOR FUTURE EXHAUST AIR DISCHARGE USE. PROVIDE 12-INCH DEEP GALVANIZED STEEL BACK PAN FULL SIZE OF LOUVER AND SEAL BACK PAN AIR AND WATER TIGHT. INSULATE BACK PAN WITH INSULATION TO PREVENT CONDENSATION.
- $\langle 8 \rangle$ OUTSIDE AIR INTAKE LOUVER. PROVIDE GALVANIZED STEEL DUCT FULL SIZE OF LOUVER EXTENDING THE DISTANCE OF DOAS-1 UNIT WIDTH. PROVIDE DUCT EXTENSION AND CONNECTION FROM LOUVER DUCT TO UNIT. CONNECT LOUVER DUCT FULL SIZE OF UNIT CONNECTION.
- $\langle 9 \rangle$ 8x8 EXHAUST AIR DUCT RISER UP TO FLOOR ABOVE. PROVIDE FIRE DAMPER AT FLOOR PENETRATION WITH ACCESS PANEL IN RISER ABOVE.
- $\langle 10 \rangle$ 10x10 OUTSIDE AIR DUCT RISER UP TO FLOOR ABOVE. PROVIDE FIRE DAMPER AT FLOOR PENETRATION WITH ACCESS PANEL IN RISER ABOVE.
- $\langle 11 \rangle$ 10x10 OUTSIDE AIR DUCT RISER UP TO FLOOR ABOVE. PROVIDE FIRE DAMPER AT FLOOR PENETRATION WITH ACCESS PANEL IN RISER ABOVE.
- (12) REFRIGERANT PIPING SLEEVE FROM AIR HANDLING UNITS AH-3 AND AH-6 DOWN FROM ABOVE. ROUTE SLEEVE AND PIPING DOWN UNDERGROUND OUT TO GRADE MOUNTED HEAT PUMPS HP-3 AND HP-6. COORDINATE FINAL LOCATION IN ELECTRICAL ROOM CORNER WITH ELECTRICAL GEAR IN THE ROOM TO AVOID ANY INTERFERENCE.
- (13) REFRIGERANT PIPING SLEEVE FROM AIR HANDLING UNITS AH-4 AND AH-5 DOWN FROM ABOVE. ROUTE SLEEVE AND PIPING DOWN UNDERGROUND OUT TO GRADE MOUNTED HEAT PUMPS HP-4 AND HP-5. COORDINATE FINAL LOCATION IN JANITOR'S CLOSET WITH MOP SINK IN THE ROOM TO AVOID ANY INTERFERENCE.
- (14) ROUTE REFRIGERANT SLEEVE AND PIPING FROM AIR HANDLING UNIT UNDERGROUND OUT TO GRADE MOUNTED HEAT PUMP/CONDENSING UNIT.
- (15) 10x10 OUTSIDE AIR DUCT ACROSS THE CORRIDOR TO MECHANICAL ROOM 102A AND ELECTRICAL ROOM VERTICAL SHAFT. PROVIDE FIRE DAMPER IN DUCT AT EACH WALL PENETRATION.
- (16) ROUTE UNIT CONDENSATE TO HUB DRAIN AND TERMINATE INDIRECTLY. CONDENSATE PIPE SIZE SHALL MATCH UNIT CONNECTION. HUB DRAIN CONNECTS TO THE STORM SYSTEM.
- $\langle \overline{17} \rangle$ motorized damper in outside air duct riser to DOAS-1 INTAKE.

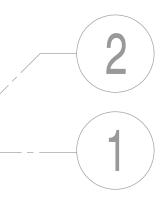


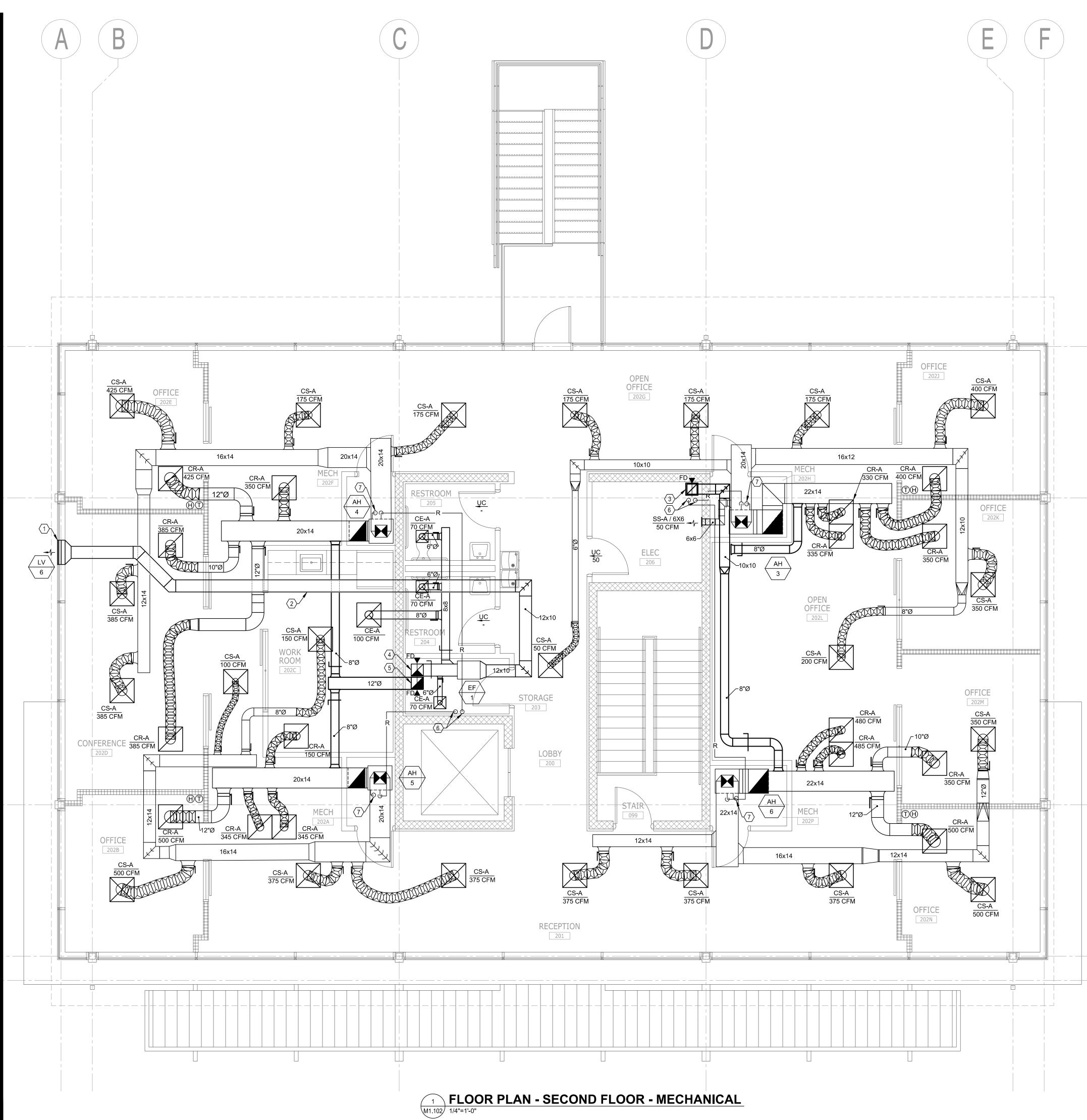


GRAPHIC SCALE 1/8"=1'-0" 0' 2' 4' 8









REFERENCE NOTES

- $\langle 1 \rangle$ EXHAUST AIR LOUVER IN EXTERIOR WALL. COORDINATE FINAL LOCATION WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS. PROVIDE 12-INCH DEEP GALVANIZED STEEL BACK PAN FULL SIZE OF LOUVER AND CONNECT 12X10 EXHAUST DUCT INTO BACK PAN.
- $\langle 2 \rangle$ ROUTE 12X10 EXHAUST DUCT HIGH IN TRUSS SPACE TO PASS OVER DUCTS BELOW. PROVIDE TRANSITIONS AND OFFSETS UP AND DOWN IN DUCT TO ACHIEVE INTENDED ROUTING.
- (3) 10X10 SUPPLY AIR DUCT UP FROM BELOW. PROVIDE FIRE DAMPER IN DUCT AT FLOOR PENETRATION WITH ACCESS PANEL IN THE DUCT RISER ABOVE THE FLOOR.
- $\langle 4 \rangle$ 8X8 EXHAUST AIR DUCT UP FROM BELOW. PROVIDE FIRE DAMPER IN DUCT AT FLOOR PENETRATION WITH ACCESS PANEL IN THE DUCT RISER ABOVE THE FLOOR.
- $\langle 5 \rangle$ 10X10 SUPPLY AIR DUCT UP FROM BELOW. PROVIDE FIRE DAMPER IN DUCT AT FLOOR PENETRATION WITH ACCESS PANEL IN THE DUCT RISER ABOVE THE FLOOR.
- 6 REFRIGERANT PIPING SLEEVES THROUGH THE FLOOR DOWN TO FLOOR BELOW. ROUTE REFRIGERANT PIPING FROM RESPECTIVE AIR HANDLING UNIT OUT TO GRADE MOUNTED HEAT PUMP.
- $\langle 7 \rangle$ ROUTE UNIT CONDENSATE TO HUB DRAIN AND TERMINATE INDIRECTLY. CONDENSATE PIPE SIZE SHALL MATCH UNIT CONNECTION. HUB DRAIN CONNECTS TO THE STORM SYSTEM.

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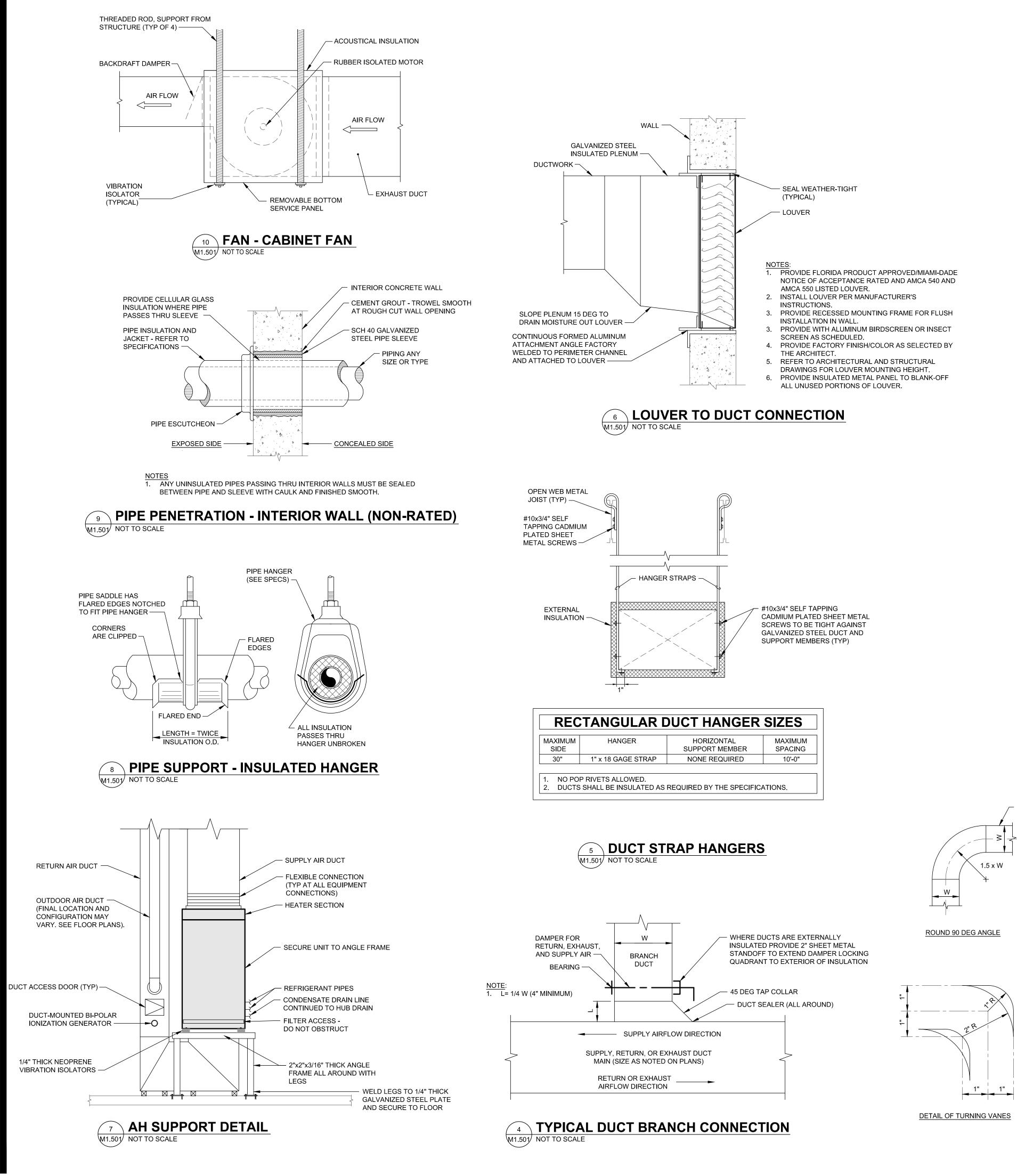


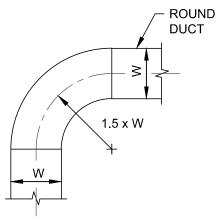


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2019-5743 ERAU PRODUCTION BUI		
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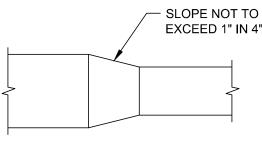
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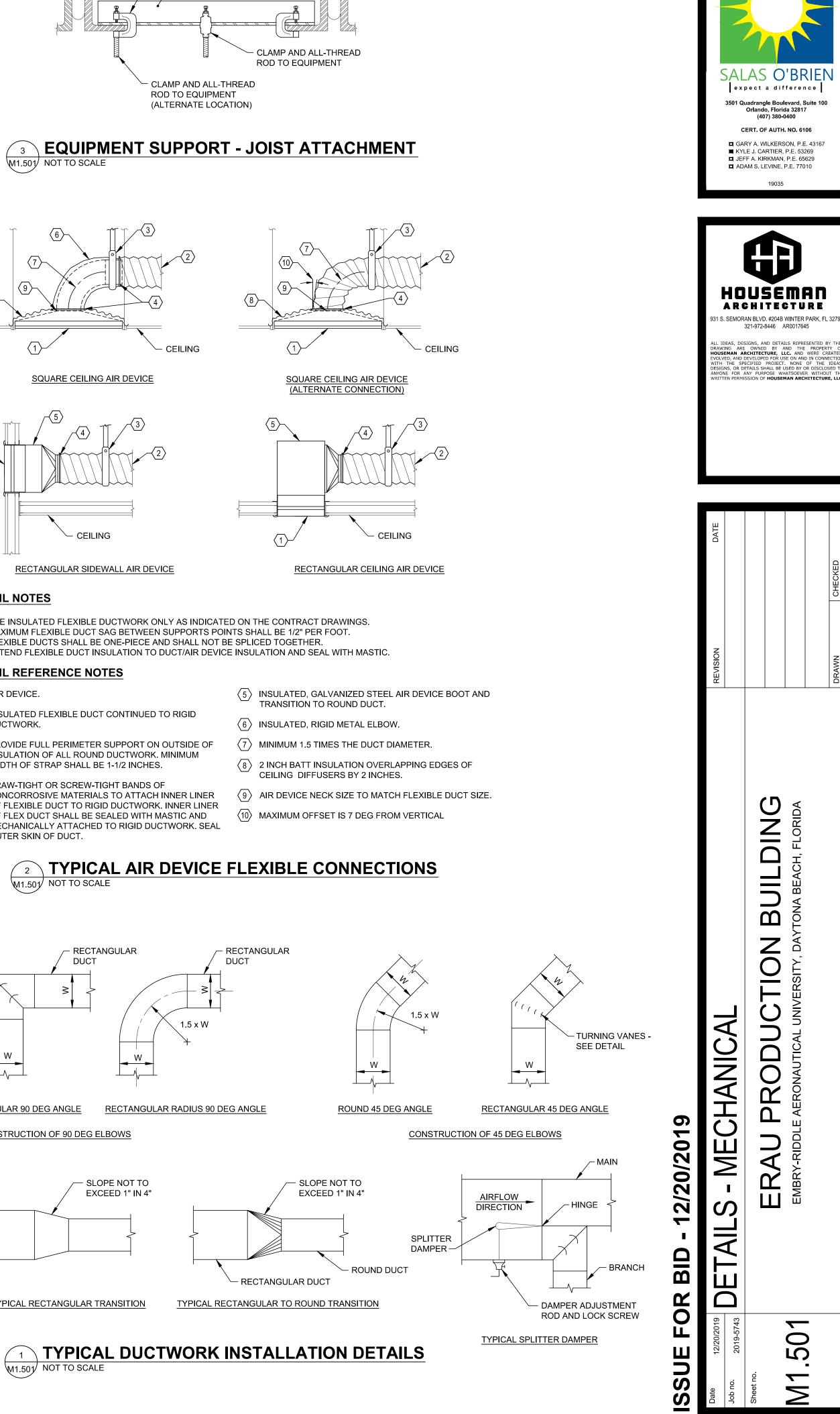
GRAPHIC SCALE 1/8"=1'-0" 0' 2' 4' 8'

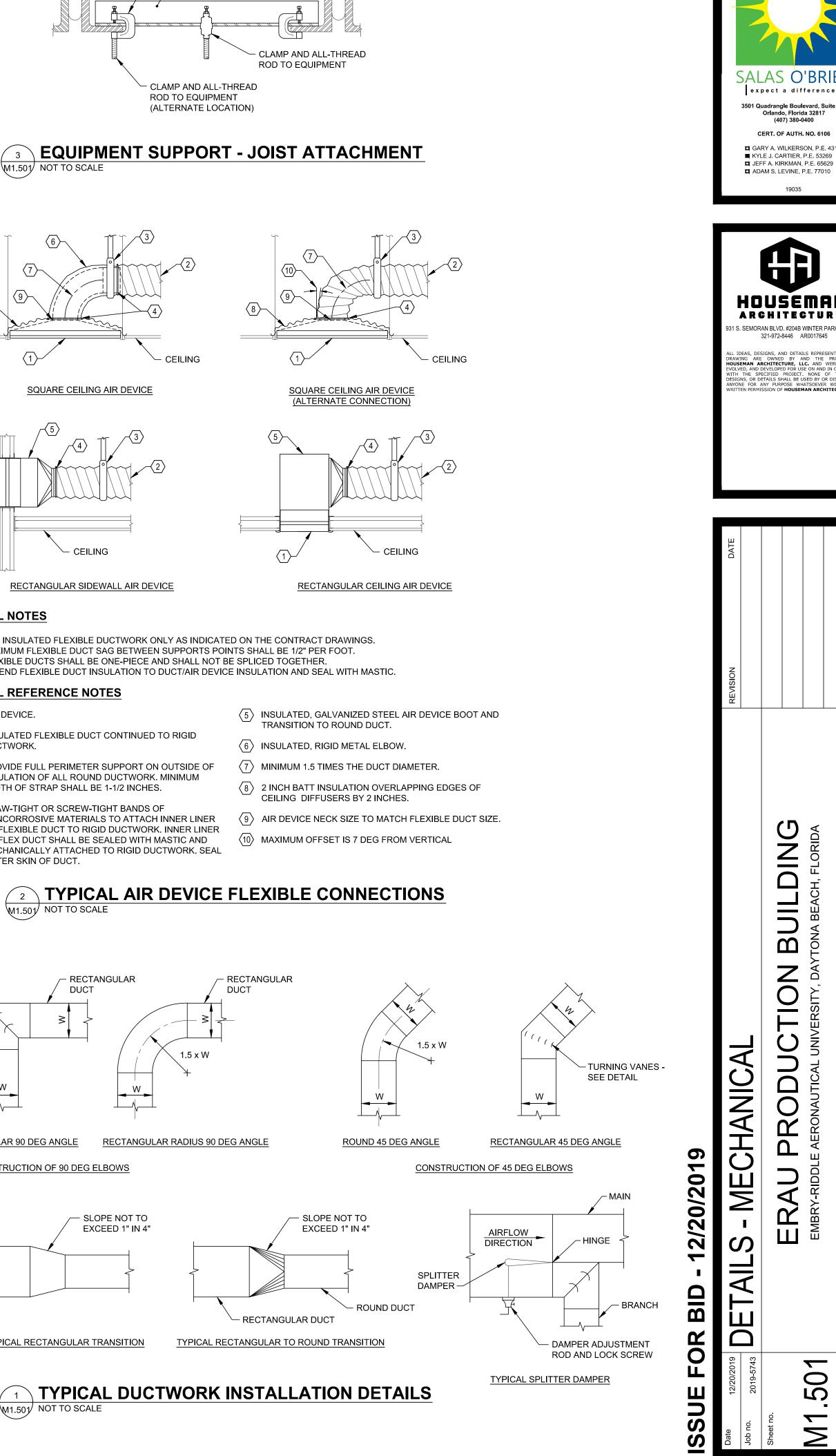




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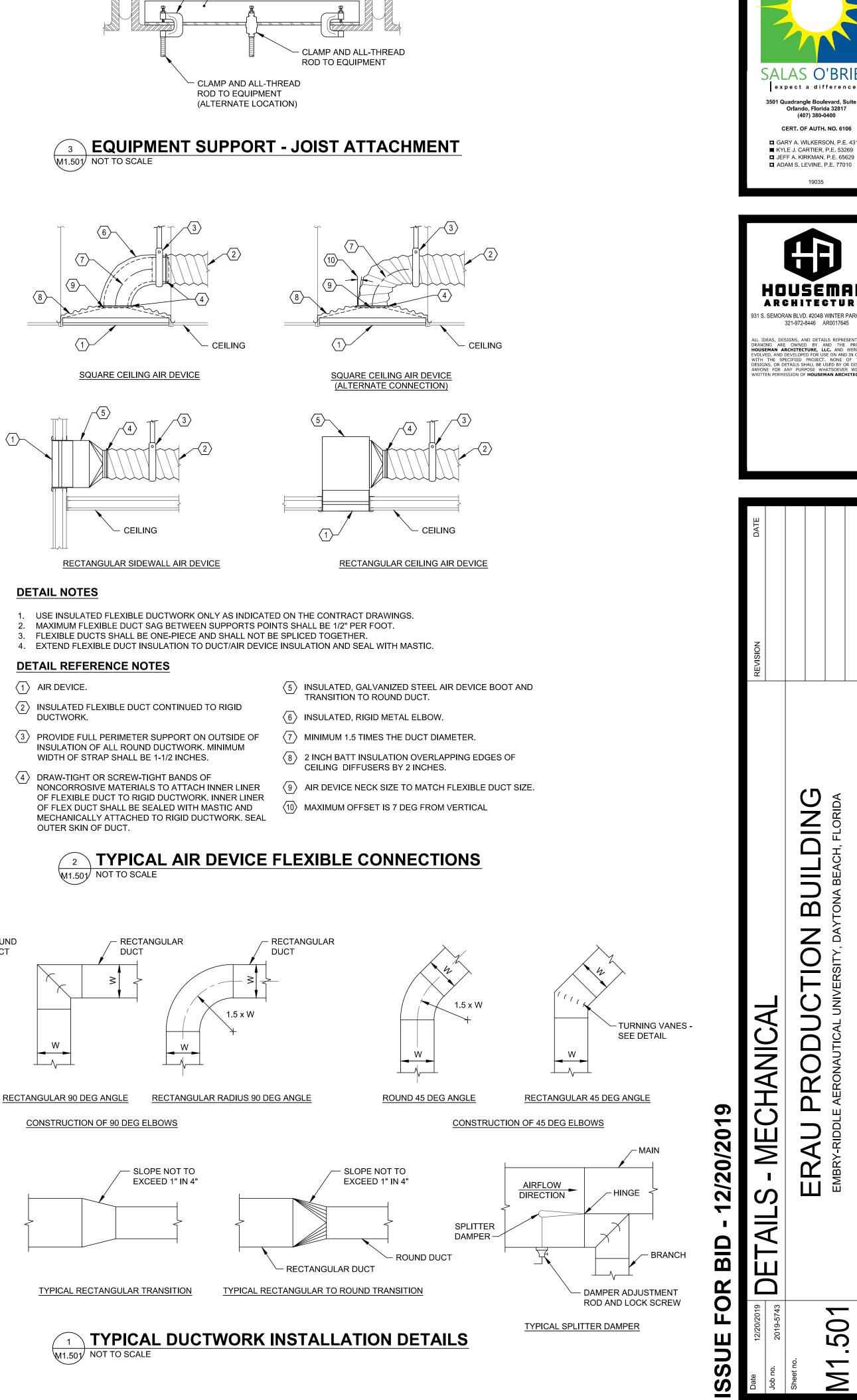


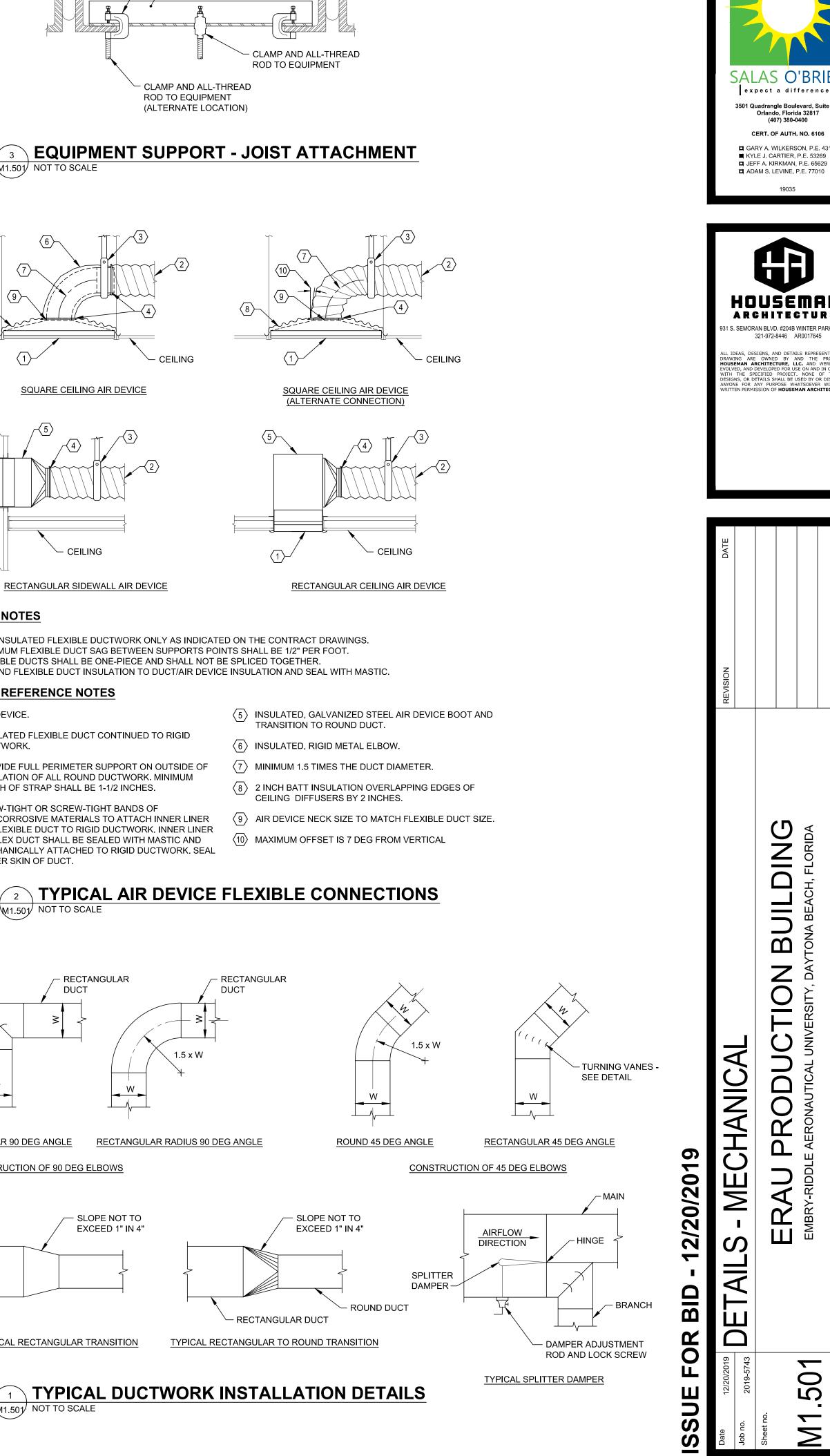


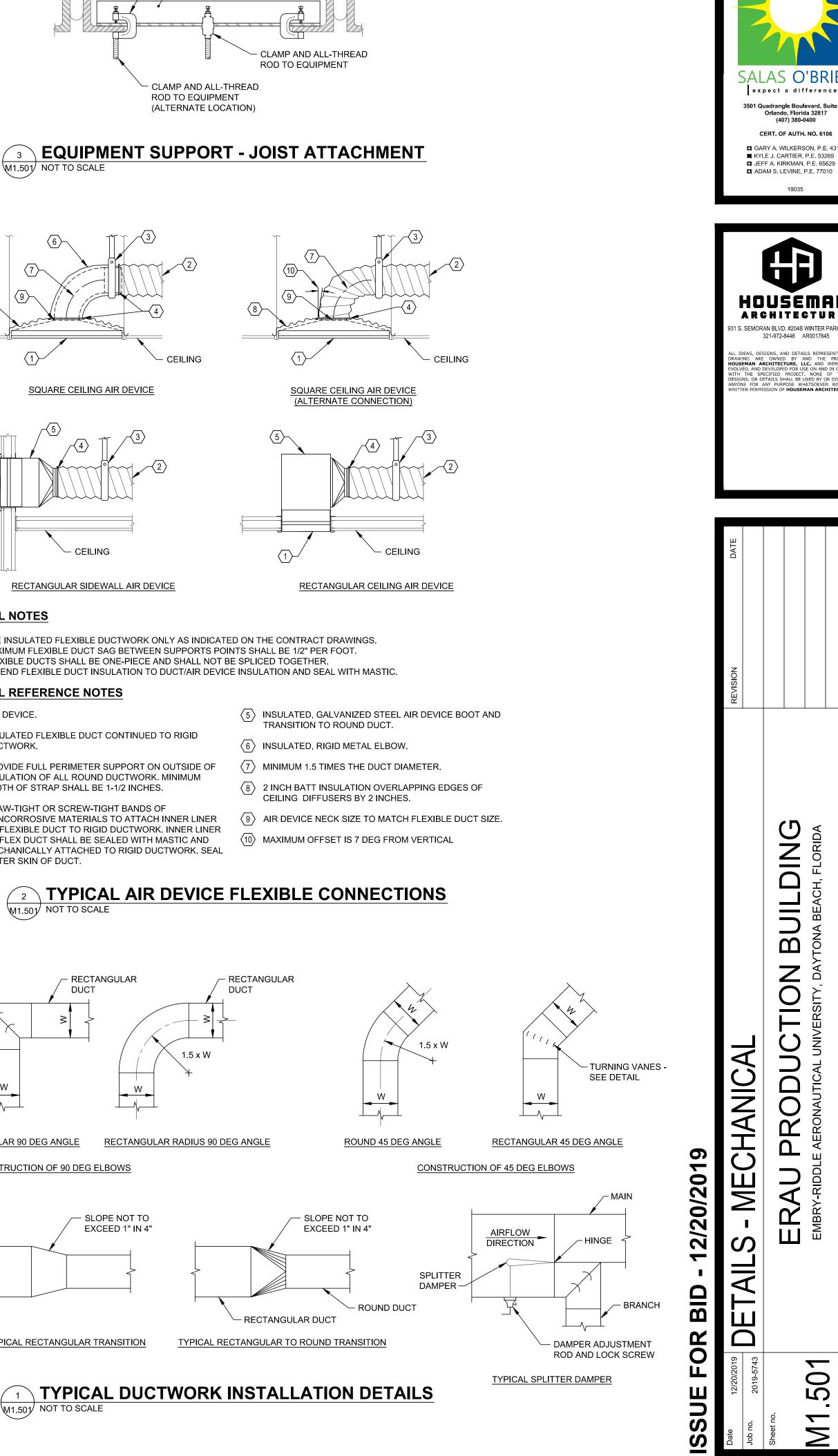
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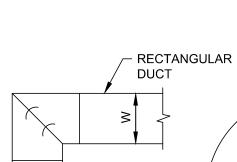
C CLAMP

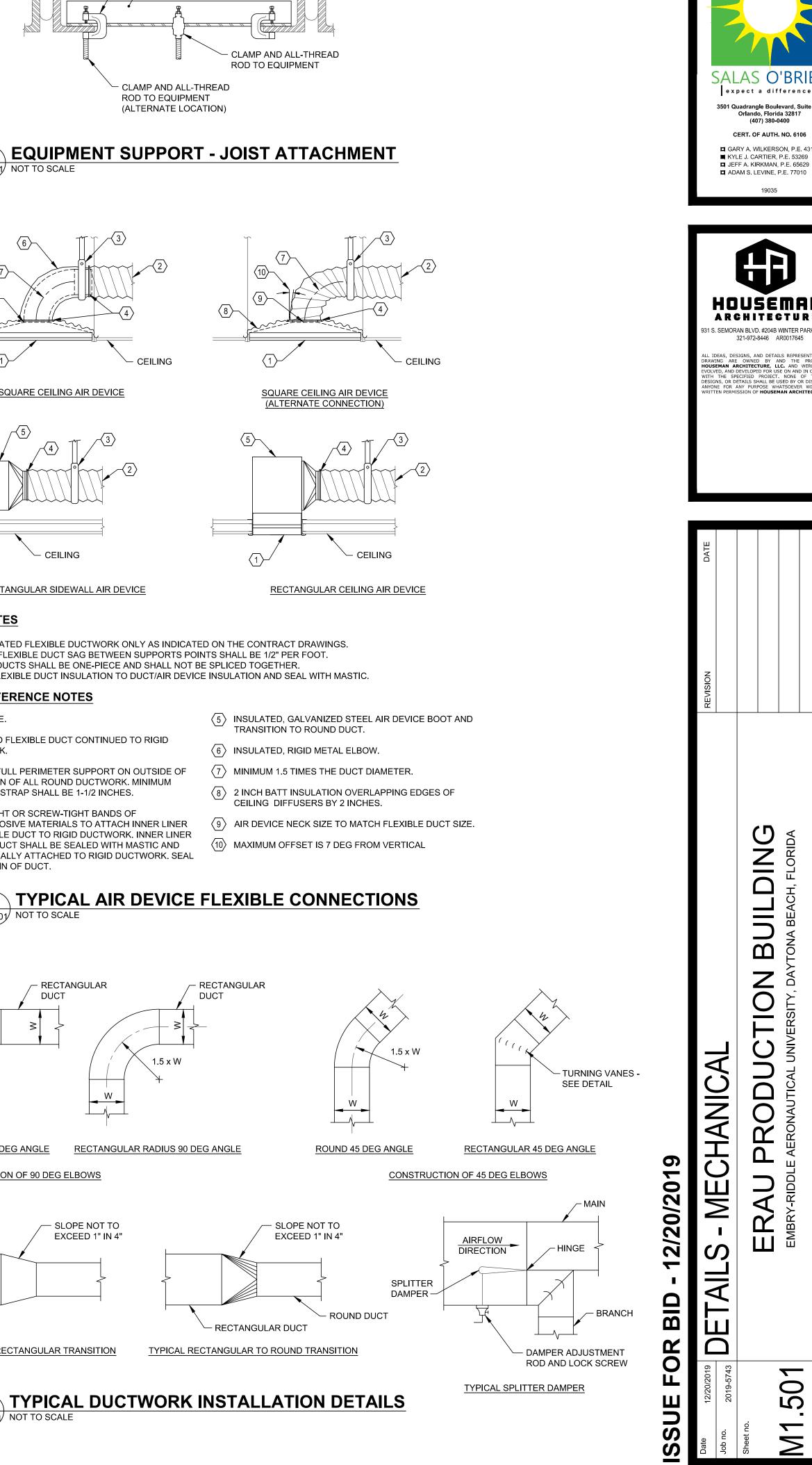
SUPPORT ANGLE

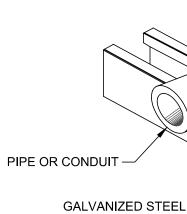






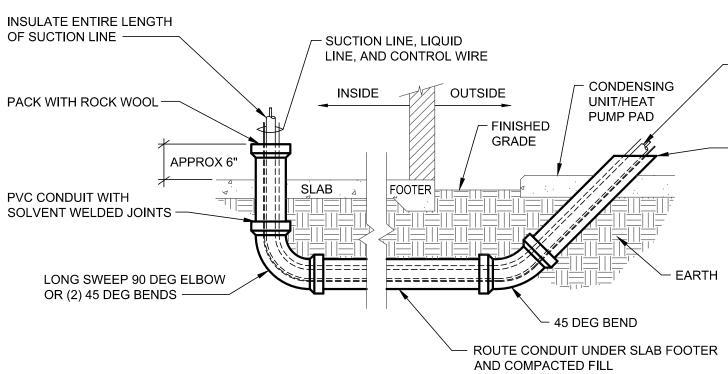






CHANNEL STRUT —

M1.502 NOT TO SCALE



- GALVANIZED STEEL PIPE

CLAMP AND HARDWARE

TYPICAL PIPE SUPPORT

PREVENT CONTACT OF DISSIMILAR

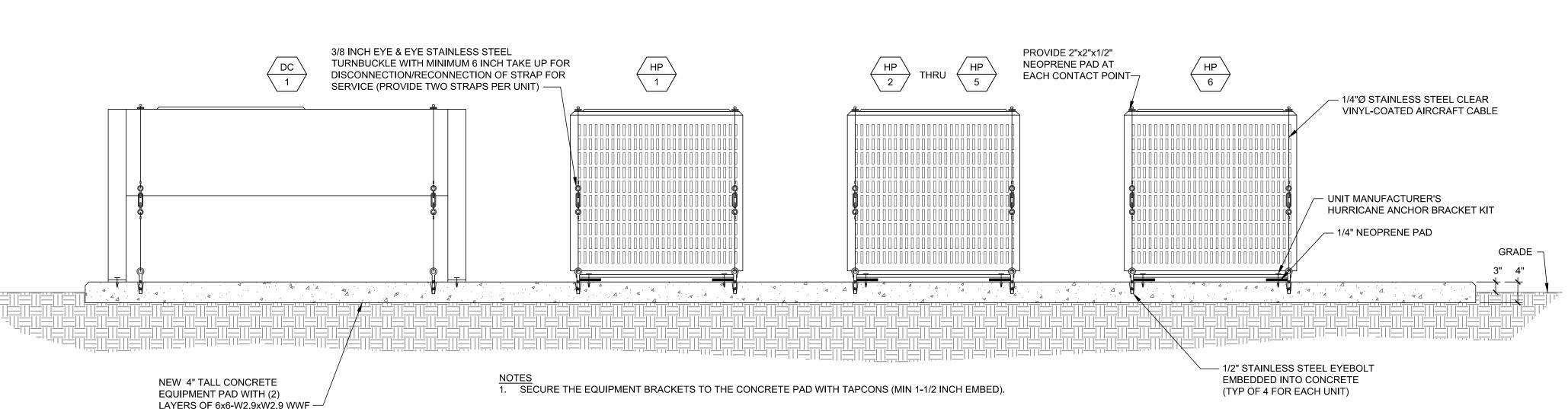
METALS WITH NEOPRENE SLEEVES OR INSULATION AT PIPE CLAMPS

DIRECT CONTACT OF DISSIMILAR

METALS IS STRICTLY PROHIBITED.

NOTES 1. PVC CONDUIT SHALL BE 4"Ø FOR ONE SET OF LINES, AND 6"Ø FOR UP TO 3 SETS OF LINES.





TYPICAL OUTDOOR EQUIPMENT INSTALLATION DETAIL 1 M1.502 NOT TO SCALE

LAYERS OF 6x6-W2.9xW2.9 WWF -

BURIED CONDUIT FOR REFRIGERANT LINES AND CONTROLS

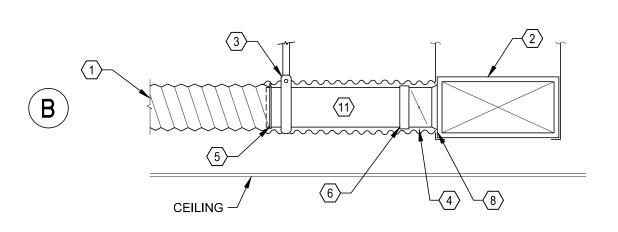
PROVIDE ALUMINUM JACKET ON ALL EXTERIOR EXPOSED INSULATION (REFER TO SPECIFICATIONS)

SEAL OPEN END WITH NON TOXIC

EXPANDABLE FOAM AND CAULK

WEATHER-TIGHT. EXTEND PVC 4"

ABOVE PAD.



6

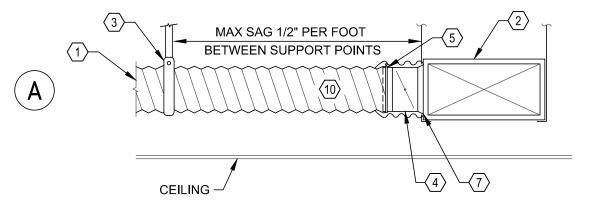
 $\langle 3 \rangle$

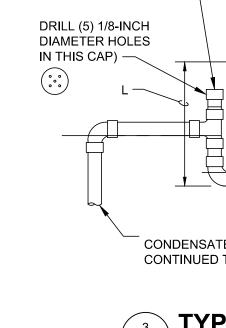
(13)-

CEILING -

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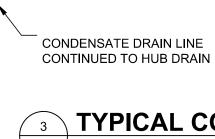
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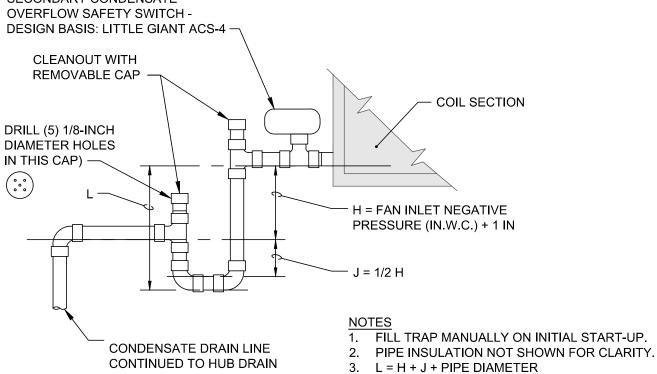


SECONDARY CONDENSATE **OVERFLOW SAFETY SWITCH -**

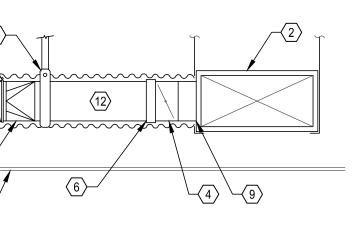
> CLEANOUT WITH REMOVABLE CAP -











DETAIL REFERENCE NOTES

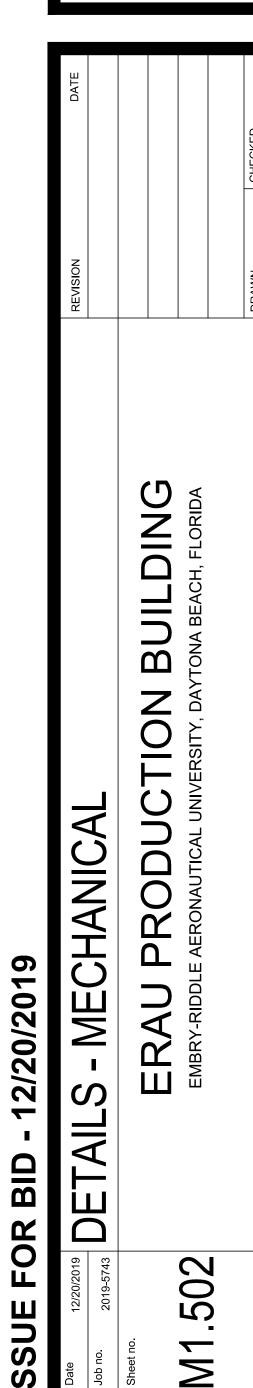
- $\langle 1 \rangle$ INSULATED FLEXIBLE DUCT CONTINUED TO AIR DEVICE.
- $\langle 2 \rangle$ INSULATED SUPPLY DUCT (SIZE AS SHOWN ON PLANS).
- (3) PROVIDE FULL PERIMETER SUPPORT ON OUTSIDE OF INSULATION OF ALL ROUND DUCTWORK. MINIMUM WIDTH OF STRAP SHALL BE 1-1/2 INCHES. MAX SUPPORT SPACING = 5'-0".
- 4 VOLUME DAMPER WITH 2" STAND-OFF FOR INSULATION AND LOCKING QUADRANT PLATE.
- $\langle 5 \rangle$ DRAW-TIGHT OR SCREW-TIGHT BANDS OF NONCORROSIVE MATERIALS TO ATTACH INNER LINER OF FLEXIBLE DUCT TO RIGID DUCTWORK. INNER LINER OF FLEX DUCT SHALL BE SEALED WITH MASTIC AND MECHANICALLY ATTACHED TO RIGID DUCTWORK.
- (6) ADJUSTABLE CLAMP SEALED WITH MASTIC AND MECHANICALLY ATTACHED TO RIGID DUCTWORK.
- $\langle 7 \rangle$ Bell mouth round tap mounted in side of duct UNLESS SPECIFICALLY SHOWN OTHERWISE. APPLY DUCT SEALER AT ALL DUCT CONNECTIONS. IF FLEX DUCT IS EQUAL TO OR GREATER THAN RECTANGULAR DUCT DEPTH USE METHOD "C".
- $\langle 8 \rangle$ PROVIDE BELLMOUTH ROUND TAP. APPLY DUCT SEALER AT ALL DUCT CONNECTIONS. IF FLEX DUCT IS EQUAL TO OR GREATER THAN RECTANGULAR DUCT DEPTH USE METHOD
- $\langle 9 \rangle$ RECTANGULAR TAP WITH 45 DEGREE TRANSITION.
- $\langle 10 \rangle$ INSULATED FLEXIBLE DUCTWORK.

"C".

- NSULATED RIGID ROUND DUCTWORK
- 2) INSULATED RECTANGULAR DUCTWORK.
- $\langle 13 \rangle$ RECTANGULAR TO ROUND TRANSITION.





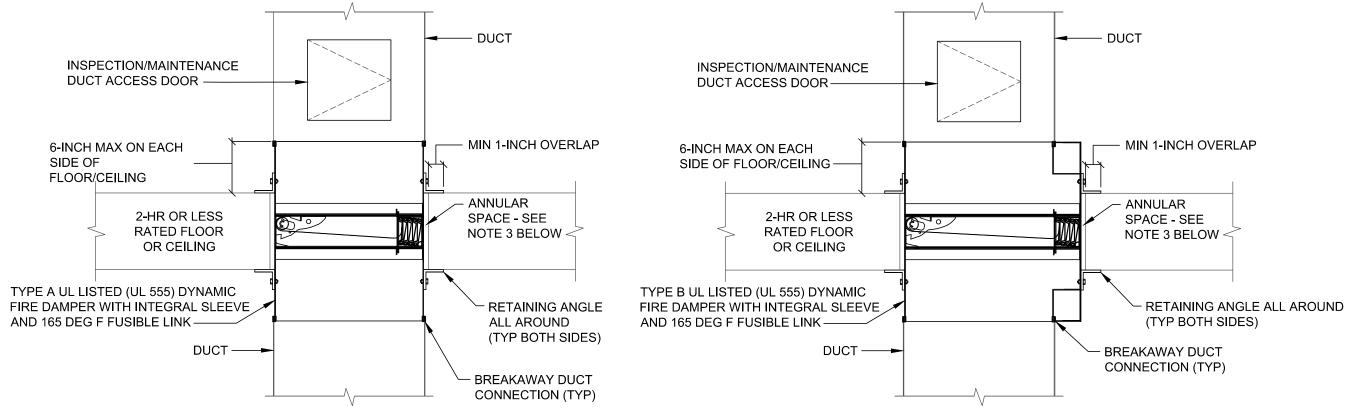


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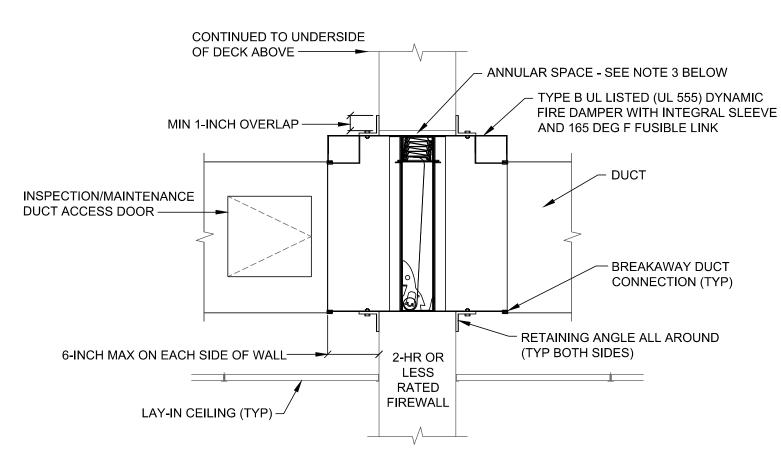
1. THE DESIGN BASIS IS A GREENHECK DFD-150X, TYPE B FIRE DAMPER. THE ACTUAL INSTALLED FIRE DAMPER'S INSTALLATION MANUAL WILL SUPERCEDE THIS DETAIL AND BE BASED ON THE THE WALL TYPE IN WHICH IT IS INSTALLED.

TYPE A DAMPER

- 2. MAINTAIN A COPY OF THE FIRE DAMPER MANUFACTURER'S INSTALLATION INSTRUCTIONS ON SITE AND MAKE AVAILABLE FOR REVIEW BY THE AUTHORITY HAVING JURISDICTION.
- 3. ANNULAR SPACE BETWEEN DAMPER AND FLOOR OPENING SHALL BE 1/8-INCH PER FOOT OF WIDTH OF DAMPER WITH A MINIMUM

- CLEARANCE OF 1/4-INCH AND A MAXIMUM CLEARANCE OF 1-1/2-INCHS, UNLESS OTHERWISE RECOMMENDED BY DAMPER
- MANUFACTURER.
- 4. RETAINING ANGLE GAUGE: RETAINING ANGLES FOR 1-1/2 HOUR RATED DAMPERS WITH A WIDTH AND HEIGHT 48-INCHES OR LESS MUST BE A MINIMUM OF 20 GA. WIDTH OR HEIGHT GREATER THAN 48-INCHES MUST BE A MINIMUM OF 16 GAUGE. 5. RETAINING ANGLE SIZE: THE LEG OF THE RETAINING ANGLE ON THE DAMPER SLEEVE SHALL BE A MINIMUM OF 1-1/4-INCHES. THE LEG
- OF THE RETAINING ANGLE ON THE WALL SHALL BE LONG ENOUGH TO COVER THE ANNULAR SPACE AND OVERLAP THE WALL BY A MINIMUM OF 1-INCH.
- 6. RETAINING ANGLE ATTACHMENT TO SLEEVE: RETAINING ANGLES MUST BE ATTACHED TO THE DAMPER USING ONE OR MORE OF THE FOLLOWING METHODS OF ATTACHMENT (REFER TO LABEL ON OUTSIDE OF SLEEVE FOR "NO SCREW" AREA):
- #10 (3/4-INCH MAX) SHEET METAL SCREWS • 1/4-INCH BOLTS AND NUTS
- 3/16-INCH STEEL POP RIVETS 7. A MINIMUM OF TWO CONNECTIONS PER SIDE, TOP, AND BOTTOM, 12-INCHES O.C. MAXIMUM FOR OPENINGS OF 48-INCHES WIDE AND 36-INCHES HIGH AND LESS. DAMPERS GREATER THAN 48-INCHES WIDE OR 36-INCHES HIGH REQUIRE THE CONNECTIONS TO BE NO
- MORE THAN 6-INCHES O.C. THE ANGLES MUST BE ATTACHED TO ALL 4 SIDES OF THE SLEEVE. ENSURE THAT FASTENERS DO NOT INTERFERE WITH THE OPERATION OF THE DAMPER. 8. RETAINING ANGLE ATTACHMENT TO WALL/FLOOR - FOR TWO-SIDED ANGLE INSTALLATIONS THE RETAINING ANGLES SHALL NOT BE
- ATTACHED TO THE WALL. 9. SLEEVE GAUGE AND CONNECTION TYPE REQUIREMENTS - THE SIZE OF THE DAMPER/DUCT DETERMINES THE REQUIRED SLEEVE GAUGE AND THE REQUIRED DUCT TO SLEEVE CONNECTION (SEE TABLE BELOW). THE SLEEVE THICKNESS MUST ALSO NOT BE LESS
- THAN THE GAUGE OF THE CONNECTING DUCT. ANY DUCT CONNECTION OTHER THAN THE BREAKAWAY CONNECTIONS DESCRIBED BELOW ARE CONSIDERED RIGID. 10. SIZE THE ACCESS DOOR TO ALLOW INSPECTION AND REPLACEMENT OF THE FUSIBLE LINK. SEE TABLE BELOW FOR SIZES.





TYPE B DAMPER

- NOTES 1. THE DESIGN BASIS IS A GREENHECK DFD-150X, TYPE B FIRE DAMPER. THE ACTUAL INSTALLED FIRE DAMPER'S INSTALLATION MANUAL WILL SUPERCEDE THIS DETAIL AND BE BASED ON THE THE WALL TYPE IN WHICH IT IS INSTALLED.
- 2. MAINTAIN A COPY OF THE FIRE DAMPER MANUFACTURER'S INSTALLATION INSTRUCTIONS ON SITE AND MAKE AVAILABLE FOR REVIEW BY THE AUTHORITY HAVING JURISDICTION.
- 3. ANNULAR SPACE BETWEEN DAMPER AND WALL OPENING SHALL BE 1/8-INCH PER FOOT OF WIDTH OF DAMPER WITH A MINIMUM CLEARANCE OF 1/4-INCH AND A MAXIMUM CLEARANCE OF 1-1/2-INCHS, UNLESS OTHERWISE RECOMMENDED BY DAMPER MANUFACTURER.
- 4. RETAINING ANGLE GAUGE: RETAINING ANGLES FOR 1-1/2 HOUR RATED DAMPERS WITH A WIDTH AND HEIGHT 48-INCHES OR LESS MUST BE A MINIMUM OF 20 GA. WIDTH OR HEIGHT GREATER THAN 48-INCHES MUST BE A MINIMUM OF 16 GAUGE.
- 5. RETAINING ANGLE SIZE: THE LEG OF THE RETAINING ANGLE ON THE DAMPER SLEEVE SHALL BE A MINIMUM OF 1-1/4-INCHES. THE LEG OF THE RETAINING ANGLE ON THE WALL SHALL BE LONG ENOUGH TO COVER THE ANNULAR SPACE AND OVERLAP THE WALL BY A MINIMUM OF 1-INCH.
- 6. RETAINING ANGLE ATTACHMENT TO SLEEVE: RETAINING ANGLES MUST BE ATTACHED TO THE DAMPER USING ONE OR MORE OF THE FOLLOWING METHODS OF ATTACHMENT (REFER TO LABEL ON OUTSIDE OF SLEEVE FOR "NO SCREW" AREA): • #10 (3/4-INCH MAX) SHEET METAL SCREWS
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- 8. RETAINING ANGLE ATTACHMENT TO WALL/FLOOR FOR TWO-SIDED ANGLE INSTALLATIONS THE RETAINING ANGLES SHALL NOT BE ATTACHED TO THE WALL.
- 9. SLEEVE GAUGE AND CONNECTION TYPE REQUIREMENTS THE SIZE OF THE DAMPER/DUCT DETERMINES THE REQUIRED SLEEVE GAUGE AND THE REQUIRED DUCT TO SLEEVE CONNECTION (SEE TABLE BELOW). THE SLEEVE THICKNESS MUST ALSO NOT BE LESS THAN THE GAUGE OF THE CONNECTING DUCT. ANY DUCT CONNECTION OTHER THAN THE BREAKAWAY CONNECTIONS DESCRIBED BELOW ARE CONSIDERED RIGID.
- 10. SIZE THE ACCESS DOOR TO ALLOW INSPECTION AND REPLACEMENT OF THE FUSIBLE LINK. SEE ADJACENT TABLE FOR SIZES.



TYPE B DAMPER

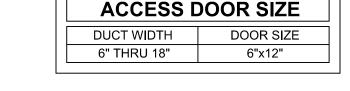
SLEEVE GAUGE

14 GA - 10 GA

16 GA

24 GA

26 GA



SLEEVE REQUIREMENTS

DUCT

DIMENSIONS

ALL DUCT SIZES

36-IN MAX WIDTH

24-IN MAX HEIGHT

24-IN MAX DIA

13-IN - 30-IN WIDE

12-IN WIDE AND UNDER

DUCT TO SLEEVE

CONNECTION

RIGID OR

BREAKAWAY

RIGID OR

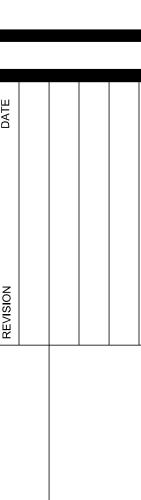
BREAKAWAY

BREAKAWAY

ONLY

SLEEVE REQUIREMENTS				
SLEEVE GAUGE	DUCT DIMENSIONS	DUCT TO SLEEVE CONNECTION		
14 GA - 10 GA	ALL DUCT SIZES	RIGID OR BREAKAWAY		
16 GA	36-IN MAX WIDTH 24-IN MAX HEIGHT 24-IN MAX DIA	RIGID OR BREAKAWAY		
16 GA	ALL DUCT SIZES	BREAKAWAY		
18 GA	85-IN WIDE AND OVER	ONLY		
20 GA	55-IN - 84-IN WIDE			
22 GA	31-IN - 54-IN WIDE			
24 GA	13-IN - 30-IN WIDE			
26 GA	12-IN WIDE AND UNDER			

ACCESS [DOOR SIZE
DUCT WIDTH	DOOR SIZE
6" THRU 18"	6"x12"
19" THRU 36"	12"x18"
37" AND ABOVE	18"x18"



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3501 Quadrangle Boulevard, Suite 100 Orlando, Florida 32817 (407) 380-0400

CERT. OF AUTH. NO. 6106 🛱 GARY A. WILKERSON, P.E. 43167

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	LOUVER SCHEDULE									
MARK	MATERIAL	LOUVER SIZE	DESIGN	FREE AREA	VELOCITY	SERVICE	MAX PRESS	ACCESS.	NOTES	MAN
		W(IN)xH(IN)xD(IN)	CFM	(SF)	(FPM)		DROP (IN.W.G.)			MC
LV-1	ALUMINUM	24x30x5.5	1000	2.04	463	EXHAUST	0.1	1,2	1-5	GREE
LV-2	ALUMINUM	24x30x5.5	-	2.04	-	EXHAUST	0.1	1,2	1-5	GREE
LV-3	ALUMINUM	24x30x5.5	-	2.04	-	INTAKE	0.1	2,3	1-5	GREE
LV-4	ALUMINUM	16x96x5.5	-	4.96	-	INTAKE	0.1	2,3	1-5	GREE
LV-5	ALUMINUM	16x96x5.5	-	4.96	-	INTAKE	0.1	2,3	1-5	GREE
LV-6	LV-6 ALUMINUM 24x24x5.5 520 1.52 326 EXHAUST 0.1 1,2 1-5 GREEN									
ACCES	ACCESSORIES (PROVIDE THE FOLLOWING)									
1. B										
2. L	OUVER SHALI	BE FACTORY FINI	SHED WITH	H 70% KYNAR	500/HYLAR S	5000 FINISH;	COLOR: TO BE S	ELECTED	BY ARCHIT	FECT

3. INSECT SCREEN NOTES

1. LOUVER IS A FLORIDA PRODUCT APPROVED WIND-DRIVEN RAIN LOU

2. LOUVER IS A MIAMI-DADE QUALIFIED LOUVER WITH A PUBLISHED NO

3. COORDINATE LOUVER ELEVATIONS AND OPENINGS WITH ARCHITEC

4. PROVIDE COLOR SAMPLES TO THE ARCHITECT FOR COLOR SELECT 5. LOUVER SHALL BE AMCA 540 AND AMCA 550 LISTED.

Y	SERVICE	MAX PRESS DROP (IN.W.G.)	ACCESS.	NOTES	MANUFACTURER & MODEL NUMBER
	EXHAUST	0.1	1,2	1-5	GREENHECK EHV-550D
	EXHAUST	0.1	1,2	1-5	GREENHECK EHV-550D
	INTAKE	0.1	2,3	1-5	GREENHECK EHV-550D
	INTAKE	0.1	2,3	1-5	GREENHECK EHV-550D
	INTAKE	0.1	2,3	1-5	GREENHECK EHV-550D
	EXHAUST	0.1	1,2	1-5	GREENHECK EHV-550D
R 5000 FINISH; COLOR: TO BE SELECTED BY ARCHITECT DUVER. IOTICE OF ACCEPTANCE. CTURAL AND/OR STRUCTURAL DRAWINGS. TION BEFORE PROCURING LOUVER.					
			60UI		-
	MARK	FAN		EDUL	
	MARK				EF-1
	MANUFACT				EF-1 GREENHECK
	MANUFACT MODEL	URER			EF-1 GREENHECK CSP-A700
	MANUFACT	URER			EF-1 GREENHECK
F	MANUFACT MODEL APPLICATIC	URER		(EF-1 GREENHECK CSP-A700
	MANUFACT MODEL APPLICATIC AN	URER		(EF-1 GREENHECK CSP-A700 EXHAUST
 	MANUFACT MODEL APPLICATIC AN LOCATION AIR FLOW (1	URER		(EF-1 GREENHECK CSP-A700 EXHAUST STORAGE CEILING
	MANUFACT MODEL APPLICATIC AN LOCATION AIR FLOW (1	URER DN CFM) ESSURE (IN.W.G.)		ABOVE	EF-1 GREENHECK CSP-A700 EXHAUST STORAGE CEILING 520
	MANUFACT MODEL APPLICATIC AN LOCATION AIR FLOW (I STATIC PRE DRIVE/TYPE WATTS	URER DN CFM) ESSURE (IN.W.G.) E		ABOVE	EF-1 GREENHECK CSP-A700 EXHAUST STORAGE CEILING 520 0.5 IRECT / CENT 172
	MANUFACT MODEL APPLICATIC AN LOCATION AIR FLOW (I STATIC PRE DRIVE/TYPE WATTS VOLTAGE/P	URER DN CFM) ESSURE (IN.W.G.) E		ABOVE	EF-1 GREENHECK CSP-A700 EXHAUST STORAGE CEILING 520 0.5 IRECT / CENT
	MANUFACT MODEL APPLICATIC AN LOCATION AIR FLOW (I STATIC PRE DRIVE/TYPE WATTS VOLTAGE/P NIT REQUIF	URER DN CFM) ESSURE (IN.W.G.) E PHASE/HZ REMENTS		ABOVE	EF-1 GREENHECK CSP-A700 EXHAUST STORAGE CEILING 520 0.5 IRECT / CENT 172 115/1/60
	MANUFACT MODEL APPLICATIC AN LOCATION AIR FLOW (I STATIC PRE DRIVE/TYPE WATTS VOLTAGE/P NIT REQUIF MAXIMUM S	URER DN CFM) ESSURE (IN.W.G.) E PHASE/HZ REMENTS SONES		ABOVE	EF-1 GREENHECK CSP-A700 EXHAUST STORAGE CEILING 520 0.5 IRECT / CENT 172 115/1/60
	MANUFACT MODEL APPLICATIC AN LOCATION AIR FLOW (I STATIC PRE DRIVE/TYPE WATTS VOLTAGE/P NIT REQUIF MAXIMUM S OPERATING	URER DN CFM) ESSURE (IN.W.G.) E PHASE/HZ REMENTS SONES S WEIGHT (LBS)		ABOVE	EF-1 GREENHECK CSP-A700 EXHAUST STORAGE CEILING 520 0.5 IRECT / CENT 172 115/1/60 0.7 50
	MANUFACT MODEL APPLICATIC AN LOCATION AIR FLOW ((STATIC PRE DRIVE/TYPE WATTS VOLTAGE/P NIT REQUIF MAXIMUM S OPERATING ACCESSOR	URER DN CFM) ESSURE (IN.W.G.) E PHASE/HZ REMENTS SONES S WEIGHT (LBS)		ABOVE	EF-1 GREENHECK CSP-A700 EXHAUST STORAGE CEILING 520 0.5 IRECT / CENT 172 115/1/60 0.7 50 1,2,3
	MANUFACT MODEL APPLICATIC AN LOCATION AIR FLOW (I STATIC PRE DRIVE/TYPE WATTS VOLTAGE/P NIT REQUIF MAXIMUM S OPERATING ACCESSOR NOTES	URER DN CFM) ESSURE (IN.W.G.) E PHASE/HZ REMENTS SONES & WEIGHT (LBS) IES		ABOVE	EF-1 GREENHECK CSP-A700 EXHAUST STORAGE CEILING 520 0.5 IRECT / CENT 172 115/1/60 0.7 50
	MANUFACT MODEL APPLICATIO AN LOCATION AIR FLOW (I STATIC PRE DRIVE/TYPE WATTS VOLTAGE/P NIT REQUIF MAXIMUM S OPERATING ACCESSOR NOTES CCESSORIE 1. FAN SP 2. MANUF	URER DN CFM) ESSURE (IN.W.G.) E PHASE/HZ REMENTS SONES S WEIGHT (LBS)		ABOVE	EF-1 GREENHECK CSP-A700 EXHAUST STORAGE CEILING 520 0.5 IRECT / CENT 172 115/1/60 0.7 50 1,2,3
	MANUFACT MODEL APPLICATIC AN LOCATION AIR FLOW (STATIC PRE DRIVE/TYPE WATTS VOLTAGE/P NIT REQUIE MAXIMUM S OPERATING ACCESSOR NOTES CCESSORIE 1. FAN SP 2. MANUF	URER DN CFM) ESSURE (IN.W.G.) E PHASE/HZ REMENTS SONES B WEIGHT (LBS) IES ES (PROVIDE THE PEED CONTROLLE ACTURER'S VIBR		ABOVE	EF-1 GREENHECK CSP-A700 EXHAUST STORAGE CEILING 520 0.5 IRECT / CENT 172 115/1/60 0.7 50 1,2,3

DEDICATED OUTSIDE AIR SPLIT SYSTEM SCHEDULE				
MARK	DOAS-1			
LOCATION	MECH RM			
MANUFACTURER	DESERT AIRE			
MODEL	QV05			
	1000			
OUTSIDE AIR FLOW (CFM) ESP/TSP (IN.W.G.)	1000 1.0 / 1.7			
HP	1.0			
EVAPORATOR				
NOMINAL TONS	5.0			
TOTAL COOLING CAPACITY (MBH)	80.0			
SENSIBLE COOLING CAPACITY (MBH)	43.9			
ENTERING AIR TEMP (DB/WB)	95.0 / 78.0			
	54.7 /54.0			
PROTECTIVE COIL COATING ELECTRIC HEATER	ELECTROFIN			
CAPACITY (KW)	10.0			
ENTERING/LEAVING AIR TEMPERATURE (DEG F)	37.0 / 69.0			
CONTROL	SCR			
COMPRESSORS				
QUANTITY	1			
TYPE	SCROLL			
FILTERS	1			
EFFICIENCY	MERV 11			
TYPE	DISPOSABLE			
GENERAL WEIGHT	700			
ELECTRICAL	700			
VOLTAGE/PHASE/HZ	208/3/60			
COMPRESSOR 1 RLA (AMPS)	22.4			
MOTOR RLA (AMPS)	4.2			
HEATER DRAW (AMPS)	27.8			
UNIT MCA (AMPS)	42			
UNIT MOCP (AMPS)	50			
OUTDOOR UNIT				
MARK	DC-1			
LOCATION	GRADE			
MANUFACTURER	DESERT AIRE			
MODEL	RC5S024C3K40900			
REFRIGERANT	R-410A			
OUTDOOR DESIGN TEMPERATURE (DEG F)	95			
	1			
TOTAL HEAT REJECTION (MBH) PROTECTIVE COIL COATING	98.0 ELECTROFIN			
UNIT WEIGHT (LBS)	250			
ELECTRICAL	200			
VOLTAGE PHASE/HZ	208/3/60			
MINIMUM CIRCUIT AMPACITY	5			
MAXIMUM FUSE SIZE	9			
SYSTEM PERFORMANCE				
AHRI 920 RATING	7.7			
ACCESSORIES (PROVIDE THE FOLLOWING)	,			
1. MODULATING HOT GAS REHEAT				
2. HOT GAS BYPASS				
 20-GAUGE STAINLESS STEEL DRAIN PAN LOUVERED CONDENSER COIL GUARD 				
 LOUVERED CONDENSER COIL GUARD PROTECTIVE EVAPORATOR AND CONDENSER COI 				
6. CONTROLS				
MODEL CM3500 CONTROLLER OR EQUAL				
 OUTSIDE AIR SENSOR (FIELD INSTALLED) SUPPLY AIR TEMPERATURE CONTROL 				
SUPPLY AIR TEMPERATURE CONTROL SUPPLY AIR DUCT TEMPERATURE SENSOR (FIE				
REMOTE DISPLAY TERMINAL	,			
INPUTS FROM BMS TO START AND STOP UNIT				
OUTPUTS TO BMS FOR ALARMS				
 THE REFRIGERANT PIPING DESIGN AND SIZING SE RESPONSIBILITY OF THE MECHANICAL CONTRACT 				
CONTRACTOR SHALL CONSIDER LENGTH OF RUN				
CONDITIONS WHEN SIZING PIPING.				

	SPLIT SY	STEM AIR H	ANDI FR SC			
MARK		AH-2	AH-3		AH-5	AH-6
LOCATION	MECH RM					
MANUFACTURER	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE
MODEL	GAM5B0C60	GAM5B0C60	GAM560C48	GAM5B0C48	GAM5B0C48	GAM5B0C60
FAN						
TOTAL AIR FLOW (CFM)	1980	1980	1575	1545	1500	1975
VENTILATION AIR FLOW (CFM)	205	205	165	165	165	95
EXTERNAL STATIC PRESSURE (IN.W.G.)	0.5	0.5	0.5	0.5	0.5	0.5
DRIVE/SPEED	DIRECT / HIGH					
MOTOR HP	1.0	1.0	3/4	3/4	3/4	1.0
EVAPORATOR COIL						1
SENSIBLE CAPACITY (MBH)	43.4	43.4	34.4	33.6	33.1	43.6
TOTAL CAPACITY (MBH)	53.1	53.1	44.0	43.9	43.8	53.6
ENTERING AIR TEMP (DB/WB)	73 / 61.2	73 / 61.2	73 / 61.2	72.8 / 61.3	72.8 / 61.3	74.0 / 62.0
LEAVING AIR TEMP (DB/WB)	52.6 / 51.5	52.6 / 51.5	52.7 / 51.0	52.6 / 50.9	52.3 / 50.6	53.5 / 52.3
HEAT PUMP HEATING CAPACITY					1	I
HEATING CAPACITY (MBH) @ 47°F	52.5	52.5	41.5	41.5	41.5	52.5
AUXILIARY ELECTRIC HEATING COIL						
INPUT (KW @ 208V)	7.2	7.2	7.2	7.2	7.2	7.2
ELECTRICAL (CIRCUIT 1)						
VOLTAGE/PHASE/HZ	208/3/60	208/3/60	208/3/60	208/3/60	208/3/60	208/3/60
MINIMUM CIRCUIT AMPACITY	34	34	32	32	32	34
MAXIMUM FUSE SIZE	35	35	35	35	35	35
FILTERS	•					•
TYPE	THROW AWAY					
SIZE / QUANTITY	22x20x1 / 1					
UNIT REQUIREMENTS						
OPERATING WEIGHT (LBS)	200	200	200	200	200	200
ACCESSORIES	1-3	1-3	1-3	1-3	1-3	1-3
NOTES	1	1	1	1	1	1
ACCESSORIES (PROVIDE THE FOLLOWING)		,		,		

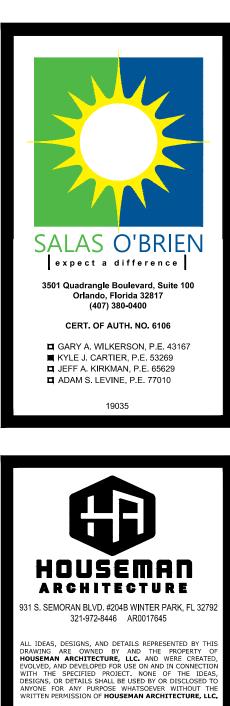
1. SINGLE POINT POWER CONNECTION WITH FACTORY-INSTALLED PULL-TYPE DISCONNECT 2. PROTECTIVE EVAPORATOR COIL COATING 3. CONDENSATE OVERFLOW SAFETY SWITCH WHICH WILL SHUT DOWN THE AIR HANDLER IF THE PRIMARY CONDENSATE DRAIN LINE CLOGS. DESIGN BASIS: LITTLE GIANT PUMP

COMPANY ACS-5 NOTES

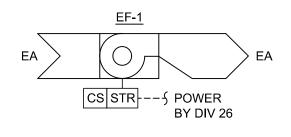
1. LOCK-OUT ELECTRIC HEAT WHEN HEAT PUMP COMPRESSOR IS OPERATING.

OCATION	HP-1	HP-2	HP-3	HP-4	HP-5	HP-6
OUATION	GRADE	GRADE	GRADE	GRADE	GRADE	GRADE
IANUFACTURER	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE
10DEL NUMBER	4TWA4060	4TWA4060	4TWA4048	4TWA4048	4TWA4048	4TWA4060
IOMINAL TONS	5.0	5.0	4.0	4.0	4.0	5.0
EFRIGERANT	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A
DMPRESSER						
UTDOOR DESIGN TEMPERATURE (DEG F)	95	95	95	95	95	95
UMBER OF STAGES	1	1	1	1	1	1
UMBER OF COMPRESSERS	1	1	1	1	1	1
DNDENSER FAN						
UMBER OF FANS	1	1	1	1	1	1
10TOR HP	1/5	1/5	1/5	1/5	1/5	1/5
ECTRICAL						
OLTAGE/PHASE/HZ	208/3/60	208/3/60	208/3/60	208/3/60	208/3/60	208/3/60
OMPRESSOR RLA EACH	15.9	15.9	13.7	13.7	13.7	15.9
ONDENSER FAN MOTOR FLA EACH	1.1	1.1	1.1	1.1	1.1	1.1
1INIMUM CIRCUIT AMPACITY	21	21	18	18	18	21
1AXIMUM PROTECTION RATING	35	35	30	30	30	35
IIT REQUIREMENTS						
ER/SEER	12.0 / 14.5	12.0 / 14.5	12.0 / 14.5	12.0 / 14.5	12.0 / 14.5	12.0 / 14.5
COP @ 47°F / HSPF	3.5 / 8.5	3.5 / 8.5	3.4 / 8.2	3.4 / 8.2	3.4 / 8.2	3.5 / 8.5
INIT WEIGHT (LBS)	400	400	400	400	400	400
CCESSORIES	1-7	1-7	1-7	1-7	1-7	1-7
IOTES	1	1	1	1	1	1

AIR DEVICE SCHEDULE												
MARK	MANUFACTURER	MODEL	TYPE	BORDER	AIR PATTERN	FACE/NECK	FINISH	MATERIAL	MAX NC	MAX PRESS DROP (IN.W.G.)	ACCESS.	NOTE
SUPPL	AIR DEVICES			·	·				•	•		
CS-A	TITUS	TMS-AA	CEILING SUPPLY	LAY-IN	4-WAY	24x24/SEE TABLE 1	WHITE	ALUMINUM	25	0.08	1	1,2
SS-A	TITUS	272FL	SIDEWALL SUPPLY	SURFACE	2-WAY	REFER TO DRAWINGS	WHITE	ALUMINUM	25	0.08	1	1,2
RETUR	N AIR DEVICES				•					•		
CR-A	TITUS	TMS-AA	CEILING RETURN	LAY-IN	1-WAY	24x24/SEE TABLE 1	WHITE	ALUMINUM	25	0.08	1	1,2
SR-A	TITUS	350FL	SIDEWALL RETURN	SURFACE	1-WAY	REFER TO DRAWINGS	WHITE	ALUMINUM	25	0.08	1	1,2
EXHAU	ST AIR DEVICES		1		-							
CE-A	TITUS	50F	CEILING EXHAUST	LAY-IN	1-WAY	12x12/SEE TABLE 1	WHITE	ALUMINUM	25	0.08	2,3	1,2
 INSULATED DUCT BOOT FOR CONNECTION TO ROUND DUCTWORK OPPOSED BLADE DAMPER ADJUSTABLE FROM FACE OF AIR DEVICE 12x12 GRILLE IN A 24x24 LAY-IN PANEL NOTES												
 USE NECK SIZES LISTED IN TABLE 1 BELOW IF THE SIZE IS NOT INDICATED ON THE PLANS. PAINT DUCTWORK THAT IS VISIBLE THROUGH FRONT OF AIR DEVICE MATTE BLACK. 												
TABLE 1 LEGEND												
AIR DEVICE NECK SIZING TABLE AIR DEVICE TAG EXAMPLES CFM RANGE 0-110 111-220 221-420 421-550 551-750 MARK - TYPE OR (INXIN) CS-A a= SS/12x6												
CFM RANGE 0-110 111-220 221-420 421-550 551-750 MARK - TYPE OR (INxIN) CS-A OR SS/12x6 NECK SIZE 6" DIA 8" DIA 10" DIA 12" DIA 14" DIA AIRFLOW (CFM) 100 CFM 100 CFM												

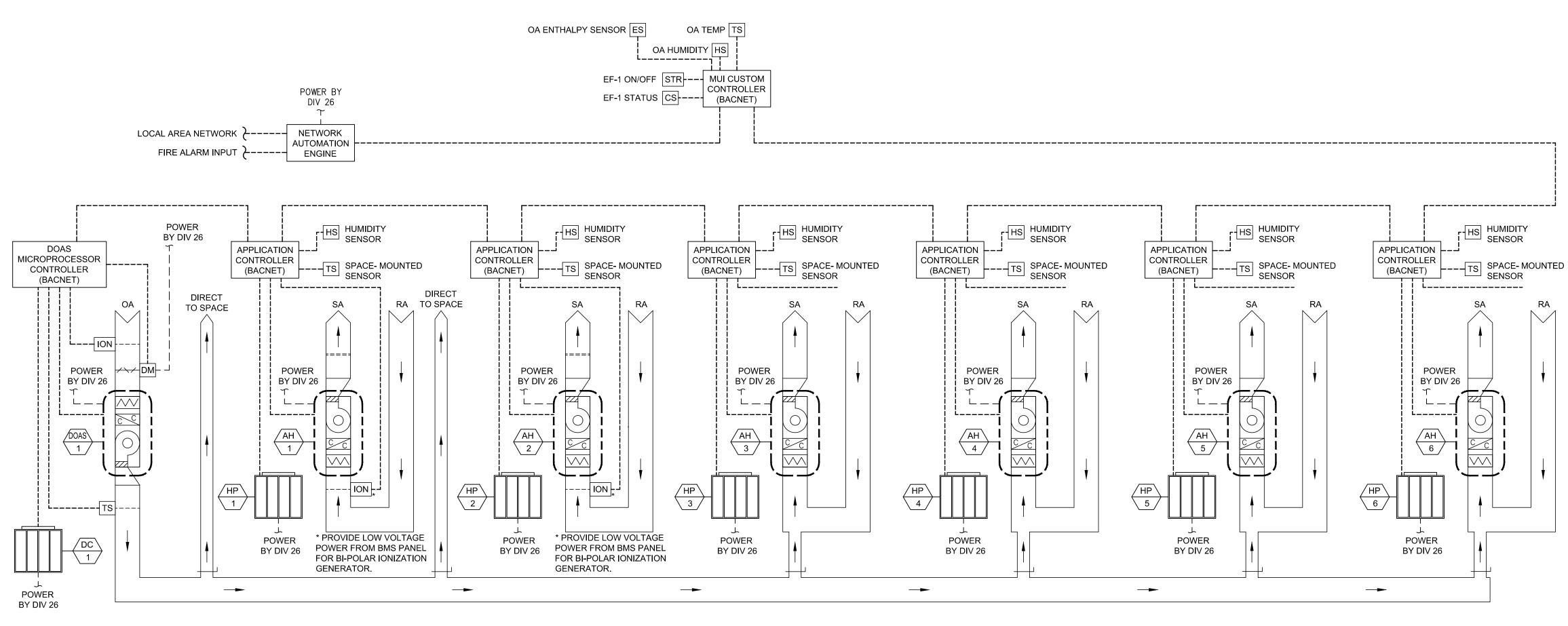


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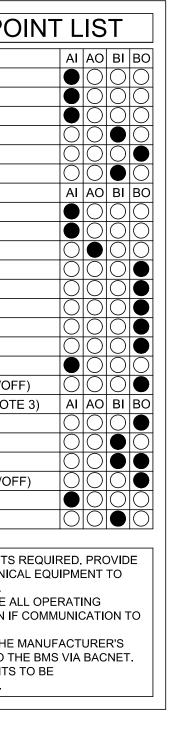
THE INLINE FAN SERVING THE RESTROOMS AND JANITOR CLOSET SHALL BE CONTROLLED BY THE BMS TO OPERATE ON A TIME-OF-DAY SCHEDULE. THE TIME-OF-DAY SCHEDULE SHALL BE COORDINATED TO MATCH THE 100% DEDICATED OUTDOOR AIR SPLIT SYSTEM (DOAS) SCHEDULE. THE EXHAUST FAN STATUS WILL BE MONITORED BY THE BMS.

EXHAUST FAN SEQUENCE AND SCHEMATIC M1.701 NOT TO SCALE



CONTROL SCHEMATIC BUILDING HVAC CONTROLS M1.701 NOT TO SCALE

CONTROL SYSTEM GENERAL NOTES	TYPICAL CONTROL PO
1. A BUILDING MANAGEMENT SYSTEM (BMS) SHALL BE PROVIDED AS PART OF THIS PROJECT.	OUTDOOR AIR TEMPERATURE (DEG F)
 2. THE WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING: a. MICROPROCESSOR BASED CONTROLLERS b. SENSORS c. ROUTERS AND COMMUNICATION d. PANELS e. SWITCHES f. WIRING AND CONDUIT g. SOFTWARE OPERATING SYSTEMS, PROGRAMMING, AND FULL OPERATOR WORKSTATION SYSTEM GRAPHICS 	OUTDOOR AIR HUMIDITY (% RH) OUTDOOR AIR ENTHALPY (BTUS/LB DRY AIR) BUILDING FIRE ALARM EF-1 ON/OFF EF-1 STATUS (CURRENT SWITCH) SPLIT SYSTEM CONTROLLER (SEE NOTE 2)
 h. COMMISSIONING, CALIBRATION, ACTIVATION, AND DE-BUGGING i. DEMONSTRATIONS AND TRAINING 3. THE CONTRACTOR IS RESPONSIBLE FOR ALL STARTERS, RELAYS, AND WIRING REQUIRED TO ACCOMPLISH THE 	ZONE TEMPERATURE SENSOR 1 (DEG F) ZONE HUMIDITY (% RH) ZONE TEMPERATURE SET POINT (DEG F)
SEQUENCES OF OPERATION DEFINED ON THIS SHEET.	SYSTEM ENABLE/DISABLE FAN
4. ENSURE THAT THE MEASURED SIGNALS ARE COMMUNICATED QUICKLY TO THE CONTROL LOOPS (AND NOT DELAYED DUE TO NETWORK TIMING).	COOLING MODE HEATING MODE - HEAT PUMP
5. ALL SET POINTS SHALL BE USER-ADJUSTABLE.	HEATING MODE - AUX ELECTRIC HEAT DUCT-MOUNTED SA TEMP SENSOR (DEG F)
6. SEQUENCES ARE PERFORMANCE-BASED AND GENERALLY DO NOT REFER TO SPECIFIC DEAD-BANDS, RESET RATIOS, DELAYS, AND RANGES REQUIRED FOR STABLE OPERATION. THESE PARAMETERS SHALL BE FULLY ADJUSTABLE AT THE OPERATOR SOFTWARE INTERFACE.	RA NEEDLEPOINT BIPOLAR IONIZATION (ON/C 100% OA SPLIT SYSTEM CONTROLLER (SEE NO SYSTEM ENABLE/DISABLE
7. COORDINATE THE RANGE, SET POINT, DEAD-BAND, CHARACTERISTICS AND MOUNTING LOCATIONS OF SENSORS WITH THE ACTUAL EQUIPMENT FURNISHED. INSTALL SENSORS, TUBING, AND WIRING TO BE ACCESSIBLE AND AS NOT TO IMPEDE OR ENCROACH UPON EQUIPMENT SERVICE AND ACCESS AREAS.	MODE (COOLING/HEATING/ECONOMIZING) OA DAMPER POSITION WITH END SWITCH OA NEEDLEPOINT BIPOLAR IONIZATION (ON/C
8. WHERE PROPOSED SEQUENCES COULD DEFEAT THE EQUIPMENT MANUFACTURER'S EQUIPMENT SAFETIES OR BE DETRIMENTAL TO THE EQUIPMENT CONTROLLED, ALERT THE ENGINEER PRIOR TO PROCEEDING WITH WORK.	SA DUCT-MOUNTED TEMP SENSOR (DEG F) ALARM
9. PROVIDE MODIFICATION TO THE SET POINTS, DEAD-BANDS, DELAYS AND RANGES BASED UPON THE ACTUAL PERFORMANCE OF THE CONTROLLED EQUIPMENT IN ORDER TO PROVIDE STABLE OPERATION WITHOUT EXCESSIVE CYCLING OR HYSTERESIS. DO NOT MODIFY THE SEQUENCE WITHOUT SUBMITTING AN ALTERNATE SEQUENCE TO THE ENGINEER FOR REVIEW AND APPROVAL.	NOTES 1. THIS SCHEDULE SHOWS THE MINIMUM POINT ALL POINTS AS REQUIRED FOR THE MECHANI PERFORM THE SEQUENCE OF OPERATIONS. 2. SPLIT SYSTEM CONTROLLERS SHALL HOUSE
10. IN ADDITION TO SPECIFIC EQUIPMENT ALARMS NOTED IN THE CONTRACT DOCUMENTS, PROVIDE STANDARD ALARMS FOR ITEMS SUCH AS SENSOR FAILURE, OUT-OF-RANGE (HIGH/LOW LIMITS) AND SIMILAR ITEMS.	SEQUENCES FOR STAND-ALONE OPERATION BMS IS TEMPORARILY LOST. 3. 100% OA UNIT SHALL BE CONTROLLED BY THI CONTROLLER AND SHALL COMMUNICATE TO
11. COORDINATE SEQUENCES AND DATA ACQUISITION REQUIREMENTS AND PROVIDE FOR TREND LOGGING, REPORT GENERATION, CALCULATED RUN-HOURS, AND SIMILAR PREVENTATIVE MAINTENANCE FUNCTIONS.	THE POINTS LISTED ARE THE MINIMUM POINT MONITORED/ADJUSTED THROUGH THE BMS.
12. POWER WIRING SHALL NOT BE RUN IN THE SAME CONDUIT AS LOW VOLTAGE WIRING, SIGNAL, OR COMMUNICATIONS WIRING. FINAL CONNECTION TO SENSORS AND ACTUATORS MAY BE MADE WITH FLEXIBLE CONDUIT NOT TO EXCEED 30 INCHES IN LENGTH. COMMUNICATION CABLING CONCEALED ABOVE CEILINGS SHALL BE PLENUM-RATED AND MAY BE RUN WITHOUT CONDUIT, BUT SHALL BE SUPPORTED IN CABLE TRAY (WHERE AVAILABLE), OR SUPPORTED WITH BRIDAL RINGS. EXPOSED COMMUNICATION CABLING SHALL BE RUN IN CONDUIT, EXCEPT WHERE CABLE TRAY IS AVAILABLE TO BE USED.	
13. WIRING SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT VERSION OF THE NATIONAL ELECTRICAL CODE (NEC). CONDUCTORS SHALL BE COPPER, ONE-PIECE, INSTALLED WITHOUT SPLICES. WIRING SHALL BE COLOR-CODED.	
14. POWER (120V AND ABOVE) AND CONDUIT TO UNIT CONTROLLERS AND PANELS SHALL BE PROVIDED AND TERMINATED BY THE ELECTRICAL CONTRACTOR. TRANSFORMERS, DC POWER RECTIFIERS, AND EXTENSION OF LOW-VOLTAGE POWER TO ACTUATORS, TRANSMITTERS, AND SIMILAR CONTROL DEVICES AND SENSORS SHALL BE PROVIDED BY THE CONTROLS CONTRACTOR.	
15. "POWER BY DIV 26" REFERS TO POWER PROVIDED BY THE ELECTRICAL CONTRACTOR REGARDLESS OF THE PROJECT SPECIFICATION NUMBERING.	
16. ALL AIR-MOVING EQUIPMENT SHALL SHUTDOWN DURING A FIRE ALARM AND SHALL AUTOMATICALLY RETURN TO NORMAL OPERATION AFTER THE FIRE ALARM HAS BEEN CLEARED.	
TS	



	CONTROL LEGEND
SYMBOL CONTROLS	DESCRIPTION
JUNIKULS	
CS	CURRENT SWITCH
DM	DAMPER MOTOR - ELECTRIC
DPS	DIFFERENTIAL PRESSURE SWITCH
ES	ENTHALPY SENSOR
HS	HUMIDITY SENSOR
ION	BIPOLAR IONIZATION BAR
RLY	RELAY
SD	SMOKE DETECTOR
STR	MOTOR STARTER WITH RELAYS
T/HS	TEMPERATURE AND HUMIDITY SENSOR
TS	TEMPERATURE SENSOR
DIV 16	ELECTRICAL CONTRACTOR
F/A	FIRE ALARM SYSTEM
T	THERMOSTAT
]	MANUAL DAMPER
	CONTROL DAMPER
	FAN
	COOLING COIL
	HEATING COIL
$\left \right\rangle$	AIR FILTERS

SEQUENCE OF OPERATION - BUILDING HVAC SYSTEM

SUPPLY FANS

THE SUPPLY FAN SHALL BE STARTED AND STOPPED BY THE BMS BASED ON AN OCCUPANCY SCHEDULE. THE FAN START SHALL BE SUBJECT TO SAFETIES SUCH AS FIRE ALARM, SMOKE DETECTORS, OVERLOADS, ETC.

PROVIDE INTEGRAL PUSH BUTTON OVERRIDE ON ZONE TEMPERATURE SENSOR TO START THE RESPECTIVE ZONE SPLIT SYSTEM, DEDICATED OUTSIDE AIR SYSTEM AND BUILDING EXHAUST FAN FOR 2 HOURS (ADJUSTABLE) DURING TIMES WHEN THE BMS SYSTEM HAS THE UNITS SCHEDULED OFF. THE FAN START SHALL BE SUBJECT TO SAFETIES SUCH AS FIRE ALARM, SMOKE DETECTORS, OVERLOADS, ETC.

OCCUPIED MODE

- DOAS-1 OUTSIDE AIR DAMPER SHALL OPEN
- DOAS-1 SHALL BE ENABLED TO OPERATE CONTINUOUSLY • AH-1, AH-2, AH-3, AH-4, AH-5 AND AH-6 TEMPERATURE SET POINTS SHALL BE SWITCHED TO THE OCCUPIED MODE SET POINTS
- AH-1, AH-2, AH-3, AH-4, AH-5 AND AH-6 SHALL ENTER FAN-ON MODE AND CYCLE
- THE COOLING AND HEATING AS NEEDED TO MAINTAIN ZONE TEMPERATURE • AH-1 AND AH-2 BI-POLAR IONIZATION GENERATOR SHALL BE INTERLOCKED
- WITH AIR HANDLING UNIT FAN TO ENERGIZE WHENEVER FAN OPERATES.

UNOCCUPIED MODE

RA

 \land

- AH-1, AH-2, AH-3, AH-4, AH-5 AND AH-6 TEMPERATURE SET POINTS SHALL BE SWITCHED TO THE UNOCCUPIED MODE SET POINTS
- AH-1, AH-2, AH-3, AH-4, AH-5 AND AH-6 SHALL SHALL SWITCH TO FAN-AUTO MODE AND THE UNITS SHALL CYCLE AS NEEDED TO MAINTAIN THE ZONE TEMPERATURE
- DOAS-1 SHALL BE DISABLED AND SHALL NOT OPERATE IN THE UNOCCUPIED MODE DOAS-1 OUTSIDE AIR DAMPER SHALL CLOSE
- AH-1 AND AH-2 BI-POLAR IONIZATION GENERATOR SHALL CYCLE WITH THE FAN.

UNOCCUPIED MODE - HUMIDITY CONTROL

IF THE BUILDING HUMIDITY IN ANY ZONE RISES ABOVE THE UNOCCUPIED MAXIMUM SPACE RELATIVE HUMIDITY SET POINT THE FOLLOWING SHALL OCCUR:

- DOAS-1 SHALL REMAIN DISABLED AND THE DOAS-1 OUTDOOR AIR DAMPER SHALL REMAIN CLOSED
- AH-1, AH-2, AH-3, AH-4, AH-5 OR AH-6 SHALL BE SWITCHED TO FAN-ON MODE AND THE TEMPERATURE SET POINTS SHALL BE RESET 70 DEGREES F. THE UNIT(S) SERVING THE ZONE(S) WHERE THE HUMIDITY HAS BEEN DETERMINED TO BE ABOVE THE HUMIDITY SET POINT SHALL START AND SHALL OPERATE UNTIL THE SENSED HUMIDITY IS 5% BELOW THE UNOCCUPIED SET POINT.
- AH-1, AH-2, 1H-3, AH-4, AH-5 OR AH-6 SHALL REVERT TO THE UNOCCUPIED MODE WHEN THE ZONE RELATIVE HUMIDITY IS LOWERED 5% BELOW THE UNOCCUPIED HUMIDITY SET POINT

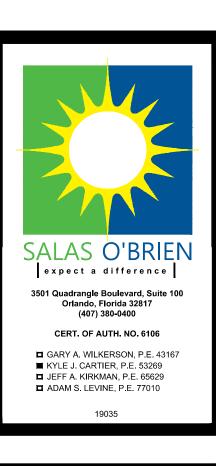
ECONOMIZER MODE (DOAS-1 ONLY):

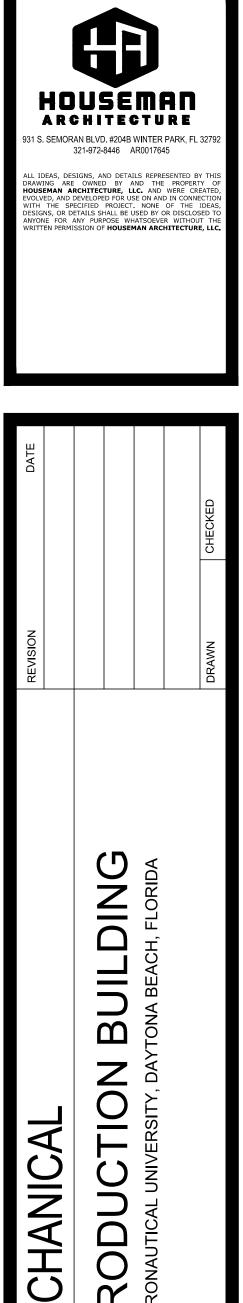
WHEN THE OUTSIDE AIR ENTHALPY CONDITIONS AS MEASURED BY THE OUTSIDE AIR ENTHALPY SENSOR IS LESS THAN OR EQUAL TO 28 BTUS/LB OF DRY AIR, THE DOAS UNIT COMPRESSOR SHALL BE TURNED OFF AND THE DOAS SHALL DELIVER 100% OUTSIDE AIR TO THE BUILDING. ONCE THE OUTSIDE AIR ENTHALPY CONDITIONS AS MEASURED BY THE OUTSIDE AIR ENTHALPY SENSOR ARE GREATER THAN 28 BTUS/LB OF DRY AIR, THE DOAS SHALL RETURN TO NORMAL OCCUPIED MODE OPERATION.

SET POINTS (USER ADJUSTABLE)

OCCUPIED SPACE COOLING TEMPERATURE SET POINT: OCCUPIED SPACE HEATING TEMPERATURE SET POINT: UNOCCUPIED SPACE COOLING SET POINT: UNOCCUPIED SPACE HEATING SET POINT

75 D	EG F
72 D	EG F
80 D	EG F
60 D	FGF





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