

FIRESTOP SCHEDULE OF THROUGH PENETRATION SYSTEMS. BASIS OF DESIGN: HILTI, INC.						
TYPE OF PENETRANT	F-RATING (HR)	CONCRETE FLOORS		CONCRETE OR BLOCK WALLS	GYPSUM WALLS	HILTI PRODUCTS
		BASIS OF DESIGN UL SYSTEM				
CIRCULAR BLANK OPENINGS (0000-0999)	1	F-A-0006, C-AJ-0055, C-AJ-0090		C-AJ-0055, C-AJ-0090	--	CP 680, CP 618, FS-ONE MAX, CFS-BL
	2	F-A-0006, C-AJ-0055, C-AJ-0090		C-AJ-0055, C-AJ-0090	--	
METAL PIPES OR CONDUIT (1000-1999)	1	C-AJ-1226, F-A-1028, F-A-1017		C-AJ-1226, W-J-1067, W-J-1020	W-L-1054, W-L-1058, W-L-1164, W-L-1506	CP 680, FS-ONE MAX, CP 606, CFS-S SIL GG, CFS-D, MINERAL WOOL
	2	C-AJ-1226, F-A-1028, F-A-1017		C-AJ-1226, W-J-1067, W-L-1020, W-J-1248	W-L-1054, W-L-1058, W-L-1164, W-L-1506	
NON-METALLIC PIPE OR CONDUIT (I.E. PVC, CPVC, ABS, FRP, EMT) (2000-2999)	1	F-A-2053, F-A-2025, C-AJ-2109, C-AJ-2098, C-AJ-2271, C-AJ-2167, C-BJ-2021, C-AJ-2342		C-AJ-2109, C-AJ-2098, C-AJ-2167, C-AJ-2371, C-AJ-2342	W-L-2078, W-L-2075, W-L-2128	CP 680, CP 643N, MINERAL WOOL, CP 644, FS-ONE MAX, CFS-S SIL SL, CFS-S SIL CG, CP 648
	2	F-A-2053, F-A-2025, C-AJ-2109, C-AJ-2098, C-AJ-2271, C-AJ-2167, C-BJ-2021, C-AJ-2371, C-AJ-2342		C-AJ-2109, C-AJ-2098, C-AJ-2167, C-AJ-2371, C-AJ-2342	W-L-2078, W-L-2075, W-L-2128	
SINGLE OR BUNDLED CABLES (3000-3999)	1	F-A-3007, C-AJ-3095, C-AJ-3180, C-AJ-3283		W-J-3036, C-AJ-3095, C-AJ-3180, W-J-3060, W-J-3167	W-L-3065, W-L-3111, W-L-3112, W-L-3334, W-L-3414, W-L-3396	CP 680, CP 653, FS-ONE MAX, CP 618, CP 606, CFS-D, CFS-CC
	2	F-A-3007, C-AJ-3095, C-AJ-3334, F-A-3060		W-J-3036, C-AJ-3095, C-AJ-3180, W-J-3060, W-J-3167, W-J-3189	W-L-3065, W-L-3111, W-L-3112, W-L-3334, W-L-3414, W-L-3396	
INSULATED PIPES (5000-5999)	1	F-A-5015, F-A-5017, C-AJ-5090, C-AJ-5091, C-AJ-5090, C-AJ-5048		C-AJ-5090, C-AJ-5091, C-AJ-5061, W-J-5042	W-L-5028, W-L-5029, W-L-5047	CP 680, FS-ONE MAX, MINERAL WOOL
	2	F-A-5015, F-A-5017, C-AJ-5090, C-AJ-5091, C-AJ-5090		C-AJ-5090, C-AJ-5091, C-AJ-5061, W-J-5042	W-L-5028, W-L-5029, W-L-5047	
MECHANICAL DUCTWORK WITHOUT DAMPERS (NON-INSULATED) (7000-7999)	1	C-AJ-7046, C-AJ-7051, C-AJ-7084		C-AJ-7046, C-AJ-7051, W-J-7021, W-J-7022	W-L-7017, W-L-7040, W-L-7042, W-L-7155	CFS-S SIL GG, CP 606, FS-ONE MAX
	2	C-AJ-7046, C-AJ-7051, C-AJ-7085		C-AJ-7046, C-AJ-7051, W-J-7021, W-J-7022	W-L-7040, W-L-7042, W-L-7155	
MECHANICAL DUCTWORK WITHOUT DAMPERS (INSULATED) (7000-7999)	1	N/A**		W-J-7029, W-J-7124	W-L-7059, W-L-7153, W-L-7156, W-L-7151	FS-ONE MAX, MINERAL WOOL
	2	N/A**		W-J-7091, W-J-7112, W-J-7124	W-L-7059, W-L-7153, W-L-7156, W-L-7151	
MIXED PENETRANTS (8000-8999)	1	C-AJ-8099, C-AJ-8056, C-AJ-8143		C-AJ-8099, C-AJ-8056, W-J-8007, C-AJ-8143	W-L-1095, W-L-8013	FS-ONE MAX, CFS-BL, CP 620, CP 618
	2	C-AJ-8099, C-AJ-8056, C-AJ-8143, C-AJ-8252		C-AJ-8099, C-AJ-8056, W-J-8007, C-AJ-8143, C-AJ-8252	W-L-1095, W-L-8013	
NOTES:						
1. JOBSITE CONDITIONS OF EACH THROUGH-PENETRATION FIRESTOP SYSTEM MUST MEET ALL DETAILS OF THE UL-CLASSIFIED SYSTEM SELECTED.						
2. IF JOBSITE CONDITIONS DO NOT MATCH ANY UL-CLASSIFIED SYSTEMS IN THE SCHEDULES ABOVE, CONTACT FIRESTOP MANUFACTURER FOR ALTERNATIVE SYSTEMS OR ENGINEER JUDGMENT DRAWINGS.						
3. WHERE MORE THAN ONE APPLICABLE UL-CLASSIFIED SYSTEM IS LISTED IN THE SCHEDULES, CHOOSE THE UL SYSTEM WHICH IS MOST ECONOMICAL FOR EACH THROUGH-PENETRATION FIRESTOP SYSTEM.						
4. COORDINATE WORK WITH OTHER TRADES TO ENSURE THAT PENETRATION OPENING SIZES ARE APPROPRIATE FOR PENETRANT LOCATIONS, AND VICE-VERSA.						
5. ALL THROUGH-PENETRATION FIRESTOPS SHALL BE PROVIDED BY ONE MANUFACTURER, APPROVED MANUFACTURES: HILTI, RECTORSEAL, 3M, STL.						

CEILING SUPPLY DIFFUSERS

SYMBOL	CFM	NECK SIZE	MINIMUM - MAXIMUM 1/2 SPACING	FACE DIMENSION	
				HARD CEILING	LAY-IN CEILING
	40-80	6"Ø	4' - 5'	12x12	24x24
	85-180	8"Ø	4' - 8'	12x12	24x24
	185-340	10"Ø	8' - 10'	24x24	24x24
	345-500	12"Ø	9' - 10'	24x24	24x24
	505-600	14"Ø	10' - 12'	24x24	24x24

NOTE:

1. RUNOUT DUCTS TO DIFFUSERS SHALL BE THE SAME SIZE AS THE INDICATED NECK SIZE.

CEILING RETURN OR EXHAUST REGISTERS & GRILLES

SYMBOL	CFM	GRILLE SIZE	RUNOUT DUCT (NOTE 2)
	0-95	8x8 (NOTE 1)	6x6
	100-195	10x10 (NOTE 1)	8x8
	200-295	12x12 (NOTE 1)	10x8
	300-595	18x18 (NOTE 1)	12x12
OR 	600-695	22x22 (NOTE 1)	12x12
	700-795	24x24 (NOTE 1)	14x12
	800-1500	48x24 (NOTE 1)	18x14

NOTES:

1. USE 22x22 GRILLE SIZE FOR ALL LAY-IN CEILING APPLICATIONS. USE SIZE INDICATED FOR HARD CEILING APPLICATIONS.  
2. WHERE DUCT CONNECTION IS SHOWN, RUNOUT DUCT SHALL BE SIZE SHOWN IN SCHEDULE U.N.O.  
3. USE 18x18 GRILLE SIZE AND 12x12 RUNOUT DUCT FOR HARD CEILING APPLICATIONS WHERE SIZE OR AIRFLOW IS NOT INDICATED.  
4. USE 12x12 RUN OUT DUCT FOR LAY-IN CEILING APPLICATIONS WHERE AIRFLOW IS NOT INDICATED.

SIDEWALL REGISTERS AND GRILLES

SUPPLY AIR		RETURN AIR OR EXHAUST AIR	
CFM	REGISTER SIZE	RUNOUT DUCT	REGISTER SIZE
0-95	8x8	8x6	8x6
100-195	10x6	10x6	10x6
200-295	12x6	12x6	18x6
300-395	16x6	16x6	24x6
400-495	18x8	18x8	30x8
500-595	18x10	18x10	30x10

CEILING SUPPLY TEMPERATURE CONTROL DIFFUSERS

SYMBOL	CFM	NECK SIZE	MINIMUM - MAXIMUM 1/2 SPACING	FACE DIMENSION	
				LAY-IN CEILING	
	50 - 140	6"Ø	4' - 5'	24x24	
	145 - 220	8"Ø	4' - 8'	24x24	
	225 - 400	10"Ø	8' - 10'	24x24	
	405 - 500	12"Ø	9' - 10'	24x24	

NOTE:

1. RUNOUT DUCTS TO DIFFUSERS SHALL BE THE SAME SIZE AS THE INDICATED NECK SIZE.  
2. PROVIDE DIGITAL WALL ADJUSTER WHERE SHOWN ON PLANS.  
3. PROVIDE BYPASS R-RINGS.

AIR DISTRIBUTION

	RECTANGULAR SHEET METAL DUCT
	ROUND SHEET METAL DUCT
	FLEXIBLE RUNOUT DUCT
	ROUND OR RECTANGULAR TAKE-OFF FITTING WITH BALANCING DAMPER - SEE DETAIL BM502
	SUPPLY AIR DUCTWORK SECTION
	RETURN AIR DUCTWORK SECTION
	EXHAUST AIR DUCTWORK SECTION
	AIR BALANCING DAMPER (MANUAL)
	CONTROL DAMPER (MOTORIZED)
	FIRE DAMPER
	DUCTWORK FLEXIBLE CONNECTION
	DUCTWORK ACCESS PANEL
	DUCT ELBOW WITH SINGLE THICKNESS TURNING VANES
	SIDEWALL REGISTER AND AIR FLOW (CFM)(SEE SCHEDULE FOR SIZES UNLESS NOTED OTHERWISE)
	SQUARE CEILING SA DIFFUSER AND AIR FLOW (CFM)(SEE SCHEDULE FOR SIZES UNLESS NOTED OTHERWISE)
	RECTANGULAR CEILING RA REGISTER AND AIR FLOW (CFM)(SEE SCHEDULE FOR SIZES UNLESS NOTED OTHERWISE) WHERE CFM IS NOT INDICATED, PROVIDE STANDARD SIZE FOR CEILING TILE INDICATED IN SCHEDULE. SEE DETAIL CM502
	RECTANGULAR CEILING EA REGISTER AND AIR FLOW (CFM)(SEE SCHEDULE FOR SIZES UNLESS NOTED OTHERWISE) SEE DETAIL CM502
	ACCESS PANEL IN INACCESSIBLE CEILING (24x24, UNO) SEE DETAIL DM502
	DOOR UNDERCUT (3/4", UNO)

PIPING AND FITTINGS

	CONDENSATE DRAIN PIPING FROM COOLING COIL
	REFRIGERANT PIPING (ONE LINE REPRESENTS BOTH LIQUID AND GAS LINES)
	CAP
	ELBOW TURNED UP
	ELBOW TURNED DOWN
	TEE, OUTLET UP
	TEE, OUTLET DOWN

MISCELLANEOUS

	2 HOUR FIRE RATED WALL
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MEASUREMENTS AND CONTROLS

	COMBINATION TEMPERATURE AND HUMIDITY SENSOR
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HVAC NOTES

- TRAP AIR CONDITIONING CONDENSATE AND RUN TO SAFEWASTE AT LOCATION SHOWN ON PLANS.
- INSTALL DUCTWORK, PIPING, ETC. AS HIGH AS POSSIBLE ABOVE CEILING WHILE MAINTAINING ACCESSIBILITY FOR EQUIPMENT AND DEVICES AS APPROPRIATE.
- COORDINATE LOCATION OF ALL EQUIPMENT, DUCTWORK AND PIPING INSTALLATIONS WITH ELECTRICAL TO PROVIDE THE REQUIRED CLEARANCES AROUND ALL ELECTRICAL PANELS, SWITCHGEAR, ETC.
- INSTALLATION OF EQUIPMENT, DUCTWORK AND PIPING SHALL PROVIDE CONVENIENT ACCESS FOR REMOVAL OF FILTERS AND FOR MAINTENANCE.
- DUCT SIZES GIVEN ARE SHEET METAL SIZES.
- COORDINATE EXACT LOCATIONS OF AIR DISTRIBUTION EQUIPMENT WITH THE CEILING AND THE LIGHTING LAYOUT.
- THE RETURN AIR FROM INDIVIDUAL ROOMS IS THRU AN ABOVE-CEILING RETURN AIR FLEXUM.**
- THE CEILING DIFFUSERS SHALL BE 4-WAY THROW UNLESS OTHERWISE NOTED.
- PROVIDE NEW AIR FILTERS IN EACH UNIT REQUIRING FILTERS WHEN THE PROJECT IS READY FOR TEST AND BALANCE. DO NOT OPERATE UNITS WITHOUT FILTERS DURING CONSTRUCTION. REPLACE FILTERS DURING CONSTRUCTION ACCORDING TO FILTER MANUFACTURER'S RECOMMENDATIONS. SEAL ALL OPEN ENDS OF DUCT WORK DURING CONSTRUCTION.
- VACUUM CLEAN THE INTERIOR OF ALL HVAC EQUIPMENT AND DUCTWORK.
- WHEREVER THE DEPTH OF THE TRUNK DUCT IS LESS THAN THE ROUND RUNOUT DUCT DIAMETER, PROVIDE TRANSITION FITTING OF EQUIVALENT AREA TO THE RUNOUT DUCT.
- WHERE ROUND DUCT IS INDICATED ON PLANS, USE SPIRAL WOUND DUCTWORK. "SNAPLOCK" DUCTWORK IS NOT ACCEPTABLE.
- PROVIDE FLEXIBLE DUCT CONNECTIONS AT EACH EQUIPMENT CONNECTION.
- OUTSIDE AIR INTAKES SHALL NOT BE LOCATED ANY CLOSER THAN 15 FEET FROM ANY CHIMNEY OR EXHAUST OUTLET OR PLUMBING VENT TERMINAL.
- PROVIDE FIRE DAMPER AT EVERY DUCT PENETRATION OF FIRE RATED CONSTRUCTION, WHETHER SHOWN ON THE DRAWINGS OR NOT.
- WHERE FIRE DAMPERS ARE REQUIRED, PROVIDE DUCT ACCESS DOORS TO ALLOW RE-LINKING OF DAMPER FUSIBLE LINKS. PROVIDE CEILING/WALL ACCESS PANELS WHERE INSTALLED IN INACCESSIBLE LOCATIONS; ACCESS PANELS IN RATED CONSTRUCTION SHALL BEAR UL LABEL.
- WHERE CONTROL DAMPERS OR COILS ARE INSTALLED IN DUCTWORK, PROVIDE DUCT ACCESS DOORS TO ALLOW INSPECTION OF DEVICE. PROVIDE CEILING/WALL ACCESS PANELS WHERE INSTALLED IN INACCESSIBLE LOCATIONS; PANELS IN RATED CONSTRUCTION SHALL BEAR UL LABEL.
- IT IS RECOMMENDED THAT DUCTWORK BE FABRICATED FROM FIELD MEASUREMENTS TAKEN AS THE BUILDING STRUCTURE AND SPACE COMPETING SYSTEMS ARE PROGRESSIVELY INSTALLED. THE DUCTWORK AS SHOWN ON THE CONSTRUCTION DOCUMENTS IS DIAGRAMMATIC AND DOES NOT NECESSARILY INCLUDE ALL MODIFICATIONS REQUIRED TO AVOID THESE INTERFERENCES. BEFORE FABRICATING ANY DUCTWORK, CHECK THE PHYSICAL CONDITIONS AT THE JOB SITE AND MAKE CHANGES IN CROSS SECTIONS, ROUTING, OFFSETS AND SIMILAR ITEMS WHETHER SPECIFICALLY INDICATED OR NOT. VERIFY THAT SUFFICIENT CLEARANCES ARE AVAILABLE FOR INSTALLING DUCTWORK, PIPING, LIGHT FIXTURES, CEILING SYSTEMS AND TO PROVIDE EQUIPMENT SERVICE. COSTS REQUIRED TO CHANGE DUCTWORK TO FIT THE SPACE AVAILABLE AND AVOID INTERFERENCES CAUSED BY SPACE COMPETING SYSTEMS SHALL BE BORNE BY THE CONTRACTOR. NO ADDITIONAL REMUNERATION WILL BE PAID BY THE OWNER.
- APPLY EXTERNAL INSULATION TO SINGLE WALL SUPPLY DUCTS, RETURN DUCTS AND OUTSIDE AIR DUCTS PER SPECIFICATIONS.
- PROVIDE VOLUME CONTROL DAMPERS IN SIDE TAKE-OFF FITTINGS TO SUPPLY AIR DIFFUSERS AND EXHAUST AIR AND RETURN AIR GRILLES AND AT EACH DUCT BRANCH SERVING TWO OR MORE AIR TERMINALS, WHETHER SHOWN ON THE DRAWINGS OR NOT.
- MINIMUM PIPE SIZE FOR COOLING COIL CONDENSATE SHALL BE 3/4".
- SECTIONS OF PIPE STORED ON SITE SHALL HAVE EACH OPEN END COVERED AT ALL TIMES EXCEPT WHILE MAKING CONNECTIONS. IF DEBRIS IS FOUND INSIDE PIPE, IT SHALL BE COMPLETELY REMOVED PRIOR TO ASSEMBLY.
- PROVIDE ACCESS PANEL AT EACH LOCATION WHERE A VALVE, DAMPER OR OTHER DEVICE REQUIRING SERVICE IS LOCATED ABOVE AN INACCESSIBLE CEILING OR INSIDE A WALL. ACCESS PANELS IN RATED CONSTRUCTION SHALL BEAR UL LABEL. COORDINATE ACCESS PANEL LOCATION WITH ARCHITECT PRIOR TO INSTALLATION.
- COORDINATE LOUVER AND DEVICE LOCATIONS WITH WALL STRUCTURAL REINFORCEMENT. SEE STRUCTURAL DRAWINGS FOR LOCATION OF LINTELS, BOND BEAMS AND REINFORCING.
- COORDINATE ALL DUCT TEST WITNESSING WITH LOCAL MECHANICAL INSPECTOR.
- PRIOR TO FINAL INSPECTION, PROVIDE CERTIFIED TEST & BALANCE REPORT AND OPERATIONS & MAINTENANCE MANUALS TO THE OWNER.
- PROVIDE DUCT ACCESS DOOR AT EACH FLOW MEASURING STATION.
- DUCT CONSTRUCTION, INCLUDING SHEET METAL THICKNESSES, SEAM AND JOINT CONSTRUCTION, REINFORCEMENTS, AND HANGERS AND SUPPORTS, SHALL COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE DUCT."

APPLICABLE CODES

PERFORM WORK IN ACCORDANCE WITH THE FOLLOWING CODES AND ANY APPLICABLE STATUTES, ORDINANCES, CODES, AND REGULATIONS OF GOVERNMENTAL AUTHORITIES HAVING JURISDICTION.

- ASHRAE**
  - STANDARD 15 SAFETY STANDARD FOR REFRIGERATION SYSTEMS - 2019
  - STANDARD 55 THERMAL ENVIRONMENTAL CONDITIONS FOR HUMAN OCCUPANCY - 2017
  - STANDARD 62.1-1 ENERGY STANDARD FOR ACCEPTABLE INDOOR AIR QUALITY - 2019
  - STANDARD 90.1 ENERGY STANDARD FOR BUILDINGS EXCEPT LOW RISE RESIDENTIAL BUILDINGS - 2019
- OCCUPATIONAL SAFETY AND HEALTH REGULATIONS (OSHA).**
- NATIONAL FIRE CODES**
  - NFPA 70 NATIONAL ELECTRICAL CODE - 2020
  - NFPA 90A STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATION SYSTEMS - 2021
  - NFPA 90B STANDARD FOR THE INSTALLATION OF WARM AIR HEATING AND AIR CONDITIONING SYSTEMS - 2021A
  - NFPA 91 STANDARD FOR THE INSTALLATION OF BLOWER AND EXHAUST SYSTEMS - 2020
  - NFPA 101 LIFE SAFETY CODE - 2021 (FLORIDA EDITION)
- FLORIDA BUILDING CODE, 2023 EDITION**
  - BUILDING CODE
  - ENERGY CONSERVATION CODE
  - MECHANICAL CODE
  - PLUMBING CODE
  - ACCESSIBILITY CODE
- FLORIDA STATUTES**
  - CHAPTER 471 ENGINEERING
  - CHAPTER 533.80 BUILDING CONSTRUCTION STANDARDS; FLORIDA BUILDING CODE - ENFORCEMENT
- FLORIDA ADMINISTRATIVE CODE**
  - CHAPTER 9B-7 FLORIDA BUILDING COMMISSION HANDICAPPED ACCESSIBILITY STANDARDS
  - CHAPTER 61G15-34 RESPONSIBILITY RULES OF PROFESSIONAL ENGINEERS CONCERNING THE DESIGN OF MECHANICAL SYSTEMS
  - CHAPTER 69A-60 THE FLORIDA FIRE PREVENTION CODE

RESOLVE, IN WRITING, ANY CODE VIOLATION DISCOVERED IN CONTRACT DOCUMENTS WITH THE ENGINEER PRIOR TO BIDDING. AFTER AWARD OF THE CONTRACT, MAKE ANY CORRECTION OR ADDITION NECESSARY FOR COMPLIANCE WITH APPLICABLE CODES AT NO ADDITIONAL COST TO OWNER.

THE CONTRACTOR SHALL INCLUDE IN THE WORK, WITHOUT EXTRA COST TO THE OWNER, ANY LABOR, MATERIALS, SERVICES, APPARATUS, AND DRAWINGS REQUIRED TO COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, AND REGULATIONS.

WHERE THERE IS CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND THE APPLICABLE CODES, THE CODES SHALL GOVERN, EXCEPT WHERE THE REQUIREMENTS OF THE CONTRACT DOCUMENTS ARE MORE STRINGENT.

GENERAL NOTES

- INSTALL ALL WORK IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 2023, THE FLORIDA FIRE PREVENTION CODE, THE NATIONAL ELECTRICAL CODE 2020 EDITION, AND ALL CODES, ORDINANCES, RULES AND REGULATIONS OF AUTHORITIES HAVING JURISDICTION AT THIS SITE. WHERE CONFLICTS OCCUR BETWEEN CODES AND THE CONSTRUCTION DOCUMENTS, THE MOST RESTRICTIVE REQUIREMENTS SHALL GOVERN.
- DRAWINGS ARE DIAGRAMMATIC, INDICATIVE OF WORK TO BE FURNISHED AND INSTALLED UNDER THIS CONTRACT. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL DIMENSIONS.
- FIELD VERIFY DIMENSIONS AND CONDITIONS. IF THE CONTRACTOR IS UNABLE TO INTERPRET THE CONTRACT DOCUMENTS, CONTRACTOR IS RESPONSIBLE TO REQUEST CLARIFICATION IN WRITING TO THE ARCHITECT. IF CONTRACTOR PROCEEDS WITH ANY WORK BEFORE OBTAINING CLARIFICATION, CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DEFICIENCIES ASSOCIATED THEREWITH.
- BEFORE SUBMITTING FOR THE WORK, EACH BIDDER WILL BE RESPONSIBLE TO EXAMINE THE PREMISES AND SATISFY HIMSELF AS TO THE EXISTING CONDITIONS UNDER WHICH CONTRACTOR WILL BE OBLIGED TO OPERATE AND COMPLETE THE WORK UNDER THIS CONTRACT. NO ALLOWANCE WILL SUBSEQUENTLY BE MADE IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OR OMISSION ON CONTRACTOR'S PART.
- THE CONTRACTOR SHALL PAY FOR ALL INSPECTION PERMITS, CERTIFICATES, CONNECTION FEES, SYSTEM DEMAND CHARGES AND LICENSE FEES IN CONNECTION WITH CONTRACTOR'S WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SEQUENCING AND COORDINATING WORK OF SUBCONTRACTORS TO AVOID INTERFERENCES.
- WORK SHALL COMPLY WITH APPLICABLE O.S.H.A. AND E.P.A. REGULATIONS AND GUIDELINES.
- ERECT AND MAINTAIN ALL REASONABLE PRECAUTIONS FOR SAFETY AND HEALTH INCLUDING POSTING DANGER SIGNS AND OTHER WARNINGS AGAINST HAZARDS INCLUDING PROMULGATING SAFETY REGULATIONS. PROVIDE SAFETY PRECAUTIONS AND BARRICADES FOR PEDESTRIANS AT CONSTRUCTION VEHICLE ACCESS AND EGRESS LOCATIONS.
- THE CONTRACTOR SHALL PROVIDE MANPOWER AND EQUIPMENT NECESSARY TO MAINTAIN THE PROJECT SCHEDULE.
- THE CONTRACTOR SHALL BE RESTRICTED TO AREAS DESIGNATED BY THE OWNER FOR ON-SITE STORAGE OF CONSTRUCTION MATERIALS AND IS RESPONSIBLE FOR THE PROTECTION AND SECURITY OF ALL EQUIPMENT AND MATERIALS.
- THE CONTRACTOR SHALL MAINTAIN A CLEAN WORK ENVIRONMENT AND SHALL CLEAN CONSTRUCTION SITE OF ALL DEBRIS AT COMPLETION OF THE JOB AND BEFORE FINAL PAYMENT IS MADE.
- THE CONTRACTOR SHALL FURNISH "AS-BUILT" RECORD DOCUMENTS TO THE OWNER AT COMPLETION OF CONSTRUCTION.
- CONTRACTOR SHALL GUARANTEE THE WORK AND MATERIALS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE. THIS GUARANTEE SHALL BE IN ADDITION TO THE WARRANTIES PROVIDED BY MATERIAL SUPPLIERS AND MANUFACTURERS.
- CONTRACTOR'S APPROVAL, STAMP ON SUBMITTALS AND SHOP DRAWINGS CERTIFIES THAT THE CONTRACTOR HAS REVIEWED THE DOCUMENTS AND THAT THE CONTRACT DOCUMENT REQUIREMENTS HAVE BEEN ADHERED TO.
- THE CONTRACTOR SHALL NOT BE RELIEVED OF RESPONSIBILITY FOR DEVIATIONS FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE ARCHITECT/ENGINEER'S APPROVAL OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE ARCHITECT/ENGINEER IN WRITING OF SUCH DEVIATION AT THE TIME OF SUBMITTAL AND THE ARCHITECT/ENGINEER HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION. THE CONTRACTOR SHALL NOT BE RELIEVED OF RESPONSIBILITY FOR ERRORS OR OMISSIONS IN SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS BY THE ARCHITECT/ENGINEER'S APPROVAL THEREOF.
- AT INSTALLATION, COORDINATE AND ADJUST THE FINAL LOCATION OF ALL WALL MOUNTED DEVICES AND EQUIPMENT WITH ALL CASEWORK, SHELVE, MARKER BOARDS, BULLETIN BOARDS OR OTHER WALL MOUNTED FURNISHINGS.
- ENTRY AND/OR REMOVAL OF EQUIPMENT FROM THE BUILDING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. DISMANTLE AND REASSEMBLE EQUIPMENT AS NECESSARY FOR ENTRY INTO THE BUILDING AND/OR REMOVAL FROM THE BUILDING. CONTRACTOR SHALL PATCH AND REPAIR ANY DAMAGED MATERIALS TO MATCH THE ADJACENT UNDAMAGED SURFACES.
- PROTECT THE ROOF FROM DAMAGE WHENEVER ANY WORK ON THE ROOF IS REQUIRED.
- SUPPORTS AND HANGERS SHALL PRESENT A NEAT, ORDERLY APPEARANCE.
- ALL EXTERIOR STRUCTURES AND EQUIPMENT SHALL BE INSTALLED TO RESIST 130 MPH WIND LOAD.
- CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF ALL FIRE AND SMOKE WALL ASSEMBLIES AND ACOUSTICAL WALLS.
- BEAM AND FLOOR PENETRATIONS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER. BEAM SLEEVES AND BEAM REINFORCING APPROVED BY STRUCTURAL ENGINEER SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR.
- CONTRACTOR SHALL FURNISH ALL APPROVED DRAWINGS FOR EACH TYPE OF FIRE RATED ASSEMBLY PENETRATION BY DUCTS, PIPES OR CONDUITS. THESE DRAWINGS SHALL BE DISPLAYED ON THE JOB SITE AT ALL TIMES DURING CONSTRUCTION. SEE SPECIFICATIONS.
- CONTRACTOR SHALL COMPLY WITH "TRENCH SAFETY ACT" (FLORIDA STATUTE 563 PART III) AND OSHA STANDARD 29 CFR 1926.650 SUBPART P FOR ALL UTILITY TRENCHES IN EXCESS OF 5 FEET DEEP. CONTRACTOR SHALL INDICATE WITHIN HIS BID RESPONSE A REFERENCE TO THE TRENCH SAFETY STANDARD AND A SEPARATE LINE ITEM COST OF COMPLIANCE WITH STANDARD.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	HP	HORSEPOWER
AHAP	AS HIGH AS POSSIBLE	IN	INCHES
AHU	AIR HANDLING UNIT	MCA	MINIMUM CIRCUIT AMPACITY
BHP	BRAKE HORSEPOWER	MOCF	MAXIMUM OVERLOAD PROTECTION
BTUH	BRITISH THERMAL UNITS PER HOUR	N/A	NOT APPLICABLE
C	CONDENSATE	NIS	NOT IN SCOPE
CC	COOLING COIL	OA	OUTSIDE AIR
CD	CEILING DIFFUSER	RA	RETURN AIR
CFM	CUBIC FEET PER MINUTE	RAF	RETURN AIR GRILLE
CO	CLEAN OUT	REG	REFRIGERANT
CU	CONDENSING UNIT	RPM	REVOLUTIONS PER MINUTE
CV	CONSTANT VOLUME	SA	SUPPLY AIR
DEG	DEGREES	SAR	SUPPLY AIR REGISTER
DN	DOWN	SF	SUPPLY FAN
DOAS	DEDICATED OUTSIDE AIR SYSTEM	SMS	SHEET METAL SIZE
DSS1	DUCTLESS SPLIT SYSTEM INDOOR UNIT	SP	STATIC PRESSURE
DSSO	DUCTLESS SPLIT SYSTEM OUTDOOR UNIT	SQ FT	SQUARE FEET
EA	EXHAUST AIR	TAG	TRANSFER AIR GRILLE
EAG	EXHAUST AIR GRILLE	TAS	TRANSFER AIR SLEEVE
EF	EXHAUST FAN	TR	TRANSFORMER
F	FEET	TYP	TYPICAL
*Fdb	DEGREES FAHRENHEIT DRY BULB	UC	DOOR UNDERCUT (3/4", UNO)
*Fwb	DEGREES FAHRENHEIT WET BULB	UG	UNDERGROUND
FD	FIRE DAMPER	UNO	UNLESS NOTED OTHERWISE
FFM	FEET PER MINUTE	V	VALVE
GFPM	GALLONS PER MINUTE	VFD	VARIABLE FREQUENCY DRIVE
HC	HEATING COIL	WD	WATER GAUGE

DRAWING INDEX

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M501	DETAILS
M502	DETAILS





SPLIT SYSTEM SCHEDULE (1 - 5 TONS)								
INDOOR UNIT DESIGNATION			AHU-1	AHU-2	AHU-3	AHU-4	AHU-5	AHU-6
OUTDOOR UNIT DESIGNATION			HP-1	HP-2	HP-3	HP-4	HP-5	HP-6
	SCHEDULED TYPE		D	D	E	E	C	A
	DESCRIPTION		HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP
	SUPPLY AIR FLOW	CFM	1,200	1,200	1,600	1,600	1,000	600
	OUTSIDE AIR FLOW	CFM	160	160	250	250	100	80
	NOTES		1, 2	1, 2	1, 2	1, 2	1, 2	1, 2
NOTES:								
1	PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT / HUMIDISTAT.							
2	PROVIDE BI-POLAR IONIZATION (IG-A) AT FAN INLET, SEE SCHEDULE.							

NEEDLE POINT ION GENERATORS		
DESIGNATION		IG-A
	MAXIMUM AIRFLOW CAPACITY	CFM 2,400
	IONIZATION GENERATION	NEEDLE POINT BIPOLAR
	NEEDLE CONFIGURATION	BRUSH
	NUMBER OF BRUSHES	# 2
	WEIGHT	LBS. 0.2
	ELECTRICAL CHARACTERISTICS	VAC 24
	QUANTITY	# SEE NOTE 1
MANUFACTURER		PLASMA AIR
MODEL NUMBER		600
NOTES:		
1	INSTALL ION GENERATOR IN AHU FAN INLET PER MANUFACTURER'S INSTRUCTION. PROVIDE QUANTITY BASED ON MAXIMUM AIR FLOW.	
2	ION GENERATOR SHALL BE ENABLED WHEN THE FAN IS RUNNING AND DISABLED WHEN THE FAN IS OFF.	
3	PROVIDE POWER TO ION GENERATOR THRU AHU 24V INTERNAL TRANSFORMER.	

SPLIT SYSTEM TYPES (1 - 5 TONS)						
TYPE			A	C	D	E
DESCRIPTION			HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP
PERFORMANCE - (NOTES 1 & 2)						
	NOMINAL CAPACITY	TONS	1 1/2	2 1/2	3	4
	TOTAL COOLING CAPACITY	BTUH	18,000	28,600	35,000	46,090
	SENSIBLE COOLING CAPACITY	BTUH	13,950	22,970	26,610	36,420
	HEATING CAPACITY @ 47°F	BTUH	17,400	28,600	35,000	46,000
	HEATING CAPACITY @ 17°F	BTUH	10,000	17,000	21,600	27,800
	AIR FLOW RATE	CFM	620	1,060	1,190	1,600
	SEER2	BTU / W-HR	15.2	14.5	15.0	15.2
	HSPF2	BTU / W-HR	7.8	7.8	7.5	7.8
INDOOR UNIT DATA						
	NOMINAL CAPACITY	TONS	2	2 1/2	3	4
	FAN DRIVE TYPE		DIRECT	DIRECT	DIRECT	DIRECT
	FAN MOTOR HORSEPOWER	HP	3/4	3/4	3/4	3/4
	EXTERNAL STATIC PRESSURE	IN. WG	0.9	0.9	0.9	0.9
	AUXILIARY HEATING CAPACITY (NOTE 3)	KW - #	4.8	6.0	8.0	9.6
	AUXILIARY HEAT TEMPERATURE RISE	°F	18.4	13.4	16.0	14.2
	ELECTRICAL CHARACTERISTICS	V / PH	208 / 1	208 / 1	208 / 1	208 / 1
	MINIMUM CIRCUIT AMPACITY (NOTE 4)	AMPS	27	32.8	43	50.5
	MAXIMUM OVERLOAD PROTECTION (NOTE 4)	AMPS	30	35	45	60
	FILTERS		2" THICK PLEATED	2" THICK PLEATED	2" THICK PLEATED	2" THICK PLEATED
	CONDENSATE DRAIN SIZE	IN.	3/4	3/4	3/4	3/4
	WEIGHT	LBS.	112	129	153	153
OUTDOOR UNIT DATA						
	NOMINAL CAPACITY	TONS	1 1/2	2 1/2	3	4
	NUMBER OF COMPRESSORS OR STAGES	#	1	1	1	1
	ELECTRICAL CHARACTERISTICS	V / PH	208 / 1	208 / 1	208 / 1	208 / 1
	MINIMUM CIRCUIT AMPACITY	AMPS	11.4	17	21.5	25.5
	MAXIMUM OVERLOAD PROTECTION	AMPS	15	25	35	40
	WEIGHT	LBS.	160	174	196	269
REFRIGERANT TYPE			R-32	R-32	R-32	R-32
MANUFACTURER			DAIKIN	DAIKIN	DAIKIN	DAIKIN
MODEL NUMBER (INDOOR UNIT)			AMST24BU13	AMST30BU13	AMST36CU13	AMST48CU13
MODEL NUMBER (OUTDOOR UNIT)			DH4SEA1810	DH4SEA3010	DH4SEA3610	DH4SEA4810
DETAIL REFERENCE			B/M501	B/M501	B/M501	B/M501
NOTES:						
1	COOLING CAPACITY RATED @ 95°F AMBIENT, 80°Fdb / 67°Fwb ENTERING AIR TEMPERATURE.					
2	HEATING CAPACITY RATED @ 47°Fdb / 43°Fwb AMBIENT, 70°Fdb ENTERING AIR TEMPERATURE.					
3	AUXILIARY HEATING RATED @ 240 V					
4	FOR 3-PHASE APPLICATIONS, CIRCUIT #1 IS 1-PHASE FOR BLOWER, AND CIRCUIT #2 IS 3-PHASE FOR HEATER.					
5	REFRIGERANT PIPING SHALL BE SIZED BY MANUFACTURER.					
6	PROVIDE 2" EXTERNAL FILTER HOUSING, G90 GALVANIZED STEEL, FULLY INSULATED, MAGNETIC ACCESS DOOR. THE METAL SHOP OR APPROVED EQUAL.					

DEDICATED OUTDOOR AIR SYSTEM			
INDOOR UNIT DESIGNATION			DOAS-1
OUTDOOR UNIT DESIGNATION			CU-1
AIR FLOW RATES			
	TOTAL SUPPLY AIR	CFM	1,000
	OUTSIDE AIR	CFM	1,000
	MINIMUM SUPPLY FAN SPEED SETTING	%	100
FILTER SECTION			
	TYPE OF FILTER		2" THICK PLEATED
COOLING DATA			
	TOTAL COOLING CAPACITY	MBTUH	80.3
	SENSIBLE COOLING CAPACITY	MBTUH	46.7
	AIR ENTERING COOLING COIL	*Fdb - *Fwb	96.2    –    76.2
	AIR LEAVING COOLING COIL	*Fdb - *Fwb	53.0    –    52.5
	ISMRE (CODE MINIMUM)	LB / KW-HR	4.0
CONDENSATE DRAIN SIZE		IN.	2
HOT GAS REHEAT DATA			
	TYPE		MODULATING
	HEATING CAPACITY	MBTUH	20.9
	AIR ENTERING HOT GAS REHEAT COIL	*F	53
	AIR LEAVING HOT GAS REHEAT COIL	*F	72
HEATING DATA - ELECTRIC			
	HEATING CAPACITY - # OF STAGES	KW - #	15.8    –    SCR
	AIR ENTERING HEATING COIL	*F	25
	AIR LEAVING HEATING COIL (NOTE 12)	*F	70
SUPPLY FAN SECTION			
	FAN TYPE		PLENUM
	DRIVE TYPE		DIRECT
	FAN QUANTITY	#	1
	EXTERNAL STATIC PRESSURE	IN. WG	1
	MAXIMUM TOTAL STATIC PRESSURE (INCLUDING DIRTY FILTER)	IN. WG	2.4
	DIRTY FILTER ALLOWANCE	IN. WG	0.7
	FAN MOTOR HORSEPOWER (PER FAN)	HP - BHP	2    –    0.7
	FAN MOTOR HORSEPOWER (UNIT TOTAL)	HP - BHP	2    –    0.7
	VARIABLE FREQUENCY DRIVE		YES
INDOOR UNIT DATA			
	WEIGHT	LBS	721
	ELECTRICAL CHARACTERISTICS	V / PH	208 / 3
	MCA / MOCP	AMPS	61    /    70
OUTDOOR UNIT DATA			
	COMPRESSOR QUANTITY	#	1
	WEIGHT	LBS	425
	REFRIGERANT TYPE		R-454B
	ELECTRICAL CHARACTERISTICS	V / PH	208 / 3
	MCA / MOCP	AMPS	32    /    50
MANUFACTURER			AAON
MODEL NUMBER (INDOOR UNIT)			V3-B
MODEL NUMBER (OUTDOOR UNIT)			CFA-007
DETAIL REFERENCE			AIM501
NOTES:			
1	REFRIGERANT PIPING SHALL BE SIZED BY THE MANUFACTURER OF THE SUPPLIED SYSTEM.		
2	PROVIDE ONE (1) MODULATING COMPRESSOR.		
3	PROVIDE SUPPLY AIR TEMPERATURE AND DEWPOINT CONTROL.		
4	PROVIDE SUPPLY AIR TEMPERATURE SENSOR.		
5	PROVIDE OUTSIDE AIR TEMPERATURE AND HUMIDITY SENSORS.		
6	PROVIDE SUCTION PRESSURE TRANSDUCER.		
7	PROVIDE EBTRON GOLD SERIES AIRFLOW MEASURING STATION.		
8	PROVIDE MODULATING HEAD PRESSURE CONTROL.		
9	PROVIDE PHASE AND BROWN OUT CONTROL.		
10	PROVIDE SURGE PROTECTION DEVICES FOR SENSOR AND CONTROLS LOCATED OUTDOORS AND SUBJECT TO ELECTRICAL DAMAGE.		
11	PROVIDE FLOAT SWITCH IN AUXILIARY DRAIN PAN FOR SHUTDOWN OF UNIT UPON DETECTION.		
12	SET LEAVING AIR TEMP TO VALUE INDICATED.		
CONTROLS SEQUENCE:			
OCCUPIED MODE: THE SUPPLY FAN RUNS CONTINUOUSLY BASED ON OCCUPIED SCHEDULE THRU INTERNAL TIME CLOCK OR THE TENANT OVERRIDE PUSH BUTTON SWITCH IS ENABLED. THE MOTORIZED DAMPER SHALL OPEN WHENEVER THE FAN IS ON.			
HEATING MODE: ENABLE WHEN SUPPLY AIR TEMPERATURE FALLS BELOW SUPPLY AIR TEMPERATURE SETPOINT (70 DEG F, ADJUSTABLE).			
DEHUMIDIFICATION MODE: ENABLE WHEN OUTSIDE AIR DEWPOINT RISES ABOVE THE OUTSIDE AIR DEWPOINT SETPOINT (55 DEG F, ADJUSTABLE). COMPRESSORS SHALL MODULATE AND/OR STAGE TO MAINTAIN EVAPORATOR COIL SUCTION TEMPERATURE SETPOINT. MODULATING HOT GAS REHEAT SHALL MODULATE TO MAINTAIN SUPPLY AIR TEMPERATURE SETPOINT (72 DEG F, ADJUSTABLE).			
VENT MODE: ENABLE WHEN OUTSIDE AIR DEWPOINT FALLS BELOW OUTSIDE AIR DEW POINT SET POINT (53 DEG F, ADJUSTABLE)			
UNOCCUPIED MODE: THE SUPPLY FAN IS OFF WITH OUTSIDE AIR DAMPER CLOSED.			

CONTAMINANTS OF CONCERN			
	OUTSIDE AIR CONCENTRATION	GENERATION RATE	
	MG/M^3	MG/(MIN*PERSON)	MG/(M^3*HR)
CONCENTRATIONS FROM BIOEFFLUENTS (PEOPLE)			
	ACETONE	0.0179	0.0352
	AMMONIA	0.00375	0.0224
	HYDROGEN SULFIDE	0.000495	0.0019
	METHYL ALCOHOL	NEGUGIBLE	0.0517
	PHENOL	0.000377	0.0066
CONCENTRATIONS FROM OUTDOOR CONTAMINANTS			
	CARBON MONOXIDE	2.71	
	NITROGEN DIOXIDE	0.0284	
	OZONE	0.178	
	SULFUR DIOXIDE	0.00564	
CONCENTRATIONS FROM BUILDING INTERIORS			
	FORMALDEHYDE	0.0068	0.021
	TOTAL VOLATILE ORGANIC COMPOUNDS	0.0685	0.303

INDOOR AIR QUALITY RESULTS														
UNIT DESIGNATION		UNIT INFORMATION		CONTAMINANT CONCENTRATIONS										
		OUTDOOR AIR	FILTER	ACETONE	AMMONIA	CARBON MONOXIDE	FORMALDEHYDE	HYDROGEN SULFIDE	METHYL ALCOHOL	NITROGEN DIOXIDE	OZONE	PHENOL	SULFUR DIOXIDE	TOTAL VOC
		CFM		MG/M <sub>3</sub>	MG/M <sub>3</sub>	MG/M <sub>3</sub>	MG/M <sub>3</sub>	MG/M <sub>3</sub>	MG/M <sub>3</sub>	MG/M <sub>3</sub>	MG/M <sub>3</sub>	MG/M <sub>3</sub>	MG/M <sub>3</sub>	MG/M <sub>3</sub>
CONTAMINANT CONCENTRATION TARGETS		N/A	N/A	0.153	0.090	0.008	0.198	0.026	2.710	0.028	0.178	0.006	0.008	0.088
AHU-1.1														
	VENTILATION RATE PROCEDURE	352	NONE	0.149	0.087	2.710	0.008	0.008	0.193	0.028	0.178	0.025	0.006	0.087
	INDOOR AIR QUALITY PROCEDURE	160	IGIMERV13	0.132	0.081	0.943	0.004	0.007	0.185	0.010	0.062	0.024	0.002	0.042
AHU-1.2														
	VENTILATION RATE PROCEDURE	248	NONE	0.241	0.146	2.710	0.009	0.013	0.327	0.028	0.178	0.042	0.006	0.100
	INDOOR AIR QUALITY PROCEDURE	160	IGIMERV13	0.156	0.097	0.943	0.004	0.008	0.221	0.010	0.062	0.028	0.002	0.045
AHU-1.3														
	VENTILATION RATE PROCEDURE	472	NONE	0.119	0.068	2.710	0.008	0.006	0.149	0.028	0.178	0.019	0.006	0.083
	INDOOR AIR QUALITY PROCEDURE	250	IGIMERV13	0.099	0.060	1.042	0.004	0.005	0.135	0.011	0.068	0.017	0.002	0.040
AHU-1.4														
	VENTILATION RATE PROCEDURE	431	NONE	0.104	0.058	2.710	0.008	0.005	0.126	0.028	0.178	0.016	0.006	0.081
	INDOOR AIR QUALITY PROCEDURE	250	IGIMERV13	0.078	0.047	1.042	0.003	0.004	0.104	0.011	0.068	0.013	0.002	0.037
AHU-1.5														
	VENTILATION RATE PROCEDURE	115	NONE	0.183	0.109	2.710	0.008	0.009	0.242	0.028	0.178	0.031	0.006	0.092
	INDOOR AIR QUALITY PROCEDURE	100	IGIMERV13	0.085	0.051	0.903	0.003	0.004	0.116	0.009	0.059	0.015	0.002	0.034
AHU-1.6														
	VENTILATION RATE PROCEDURE	192	NONE	0.102	0.057	2.710	0.008	0.005	0.124	0.028	0.178	0.016	0.006	0.081
	INDOOR AIR QUALITY PROCEDURE	80	IGIMERV13	0.094	0.057	0.943	0.003	0.005	0.129	0.010	0.062	0.017	0.002	0.036
NOTES:														
1	CONTAMINANT CONCENTRATION TARGETS BASED ON MAXIMUM BUILDING CONCENTRATIONS CALCULATED FROM VENTILATION RATE PROCEDURE.													
2	INDOOR AIR QUALITY PROCEDURE CALCULATED, AS PERMITTED BY FBC MECHANICAL 2023 PER CALCULATION REQUIREMENTS OF ASHRAE 62.1.													
3	VENTILATION RATES FOR VENTILATION RATE PROCEDURE CALCULATED PER REQUIREMENTS OF FBC 2023													
4	IG: ION GENERATOR, FOR BI-POLAR IONIZATION AIR PURIFICATION.													

FANS					
DESIGNATION		EF-A1, A2	EF-B1	EF-B2, B3	
	SERVICE	CLASS 1 OR 2 EXHAUST	CLASS 1 OR 2 EXHAUST	CLASS 1 OR 2 EXHAUST	
	MOUNTING METHOD	CEILING	CEILING	CEILING	
	FAN TYPE	CENTRIFUGAL CABINET	CENTRIFUGAL CABINET	CENTRIFUGAL CABINET	
	AIR FLOW	CFM	150	50	50
	STATIC PRESSURE	IN.	0.3	0.3	0.3
	AIRSTREAM TEMPERATURE	DEG F	70	70	70
	FAN SPEED	RPM	983	900	900
	FAN DRIVE		DIRECT	DIRECT	DIRECT
	MOTOR SPEED	RPM	983	900	900
	MOTOR POWER	HP or W	20 W	14 W	14 W
	MOTOR BRAKE HORSEPOWER	BHP	N/A	N/A	N/A
	ELECTRONICALLY COMMUTATED MOTOR		YES	NO	NO
	ELECTRICAL CHARACTERISTICS	V / PH	120 / 1	120 / 1	120 / 1
	WEIGHT	LBS.	24	12	12
	NOISE LEVEL (RADIATED)	SONES or LwA	2.5 SONES	0.7 SONES	0.7 SONES
STANDARD NOTES		1, 2, 4, 11, 20, 21	1, 2, 4, 11, 20, 21	1, 2, 4, 11, 20, 50	
MANUFACTURER		GREENHECK	GREENHECK	GREENHECK	
MODEL NUMBER		SP-A390-VG	SP-A90	SP-A90	
DETAIL REFERENCE		E/M501	E/M501	E/M501	
NOTES:					
1	PROVIDE PRE-WIRED DISCONNECT SWITCH, FACTORY MOUNTED FOR SINGLE PHASE MOTORS (3/4 HP AND SMALLER). ELECTRICAL CONTRACTOR TO PROVIDE DISCONNECT SWITCH FOR 1 HP MOTOR AND LARGER.				
2	PROVIDE SOLID STATE SPEED CONTROLLER, FACTORY MOUNTED.				
4	PROVIDE BACKDRAFT DAMPER, GRAVITY OPERATED.				
11	PROVIDE RUBBER-IN-SHEAR ISOLATORS.				
21	PROVIDE WHITE, ALUMINUM INLET GRILLE.				
20	PROVIDE TIME DELAY SWITCH, INSTANT ON WITH LIGHTS AND 10-MINUTE TIME DELAY OFF. WIRED BY DIV 26 CONTRACTOR.				
50	SEE DETAIL H/M501 FOR FAN CONTROLS.				

DESIGN CONDITIONS					
OUTDOOR CONDITIONS - DESIGN DAY (TALLAHASSEE, FLORIDA)					
	COOLING (0.4% ANNUAL)	*Fdb - *Fwb		96.2	- 76.2
	HEATING (99.6% ANNUAL)	*Fdb		26.5	
INDOOR CONDITIONS - SUMMER					
	OFFICE AREAS	*Fdb - %RH		74	- 55
	TELECOMMUNICATION ROOMS	*Fdb - %RH		78	- 55
	MECHANICAL / ELECTRICAL ROOMS / SERVICE AREAS	*Fdb - %RH		80	- 50
INDOOR CONDITIONS - WINTER					
	OFFICE AREAS	*Fdb - %RH		70	- 30
	TELECOMMUNICATION ROOMS	*Fdb - %RH		65	- 30
	MECHANICAL / ELECTRICAL ROOMS / SERVICE AREAS	*Fdb - %RH		70	- 30

## VENTILATION RATE

		EXHAUST AIR	OUTSIDE AIR	
TYPE OF SPACE		CFM / FT <sup>2</sup>	CFM / PERSON	CFM / FT <sup>2</sup>
	BREAK ROOMS		5	0.06
	COMPUTER LAB		10	0.12
	CONFERENCE / MEETING		5	0.06
	CORRIDORS		0	0.06
	JANITOR / TRASH	1	0	0.00
	LIBRARIES		5	0.12
	LOBBIES		5	0.06
	OFFICE SPACE		5	0.06
	RECEPTION AREAS		5	0.06
	STORAGE ROOMS (UNOCCUPIED)		0	0.00
TOILET (PUBLIC)	50/70	0	0.00	

**NOTES:**

1 VENTILATION RATES CALCULATED PER REQUIREMENTS OF FBC, MECHANICAL 2023.

2 EXHAUST IS PER WATER CLOSET AND/OR URINAL. LOWER RATE USED.

DUCTLESS SPLIT SYSTEM TYPES			
TYPE			D1
DESCRIPTION			COOLING ONLY
PERFORMANCE - (NOTES 1 & 2)			
	NOMINAL CAPACITY	TONS	2
	TOTAL COOLING CAPACITY	BTUH	22,400
	SENSIBLE COOLING CAPACITY	BTUH	16,360
	HEATING CAPACITY @ 47 °F	BTUH	N/A
	HEATING CAPACITY @ 17 °F	BTUH	N/A
	AIR FLOW RATE (HIGH - LOW)	CFM	716 - 467
	SEER2	BTU / W-HR	21.0
	HSPF2	BTU / W-HR	N/A
INDOOR UNIT DATA			
	FILTERS		1" WASHABLE
	CONDENSATE DRAIN SIZE	IN.	3/4
	ELECTRICAL CHARACTERISTICS	V / PH	N/A
	MINIMUM CIRCUIT AMPACITY	AMPS	N/A
	MAXIMUM OVERLOAD PROTECTION	AMPS	N/A
	WEIGHT	LBS.	30.5
OUTDOOR UNIT DATA			
	COMPRESSOR TYPE		INVERTER
	ELECTRICAL CHARACTERISTICS	V / PH	208 / 1
	MINIMUM CIRCUIT AMPACITY	AMPS	16.3
	MAXIMUM OVERLOAD PROTECTION	AMPS	20
	WEIGHT	LBS.	101
	MAX REFRIGERANT LINE LENGTH	FT	99
REFRIGERANT TYPE			R32
MANUFACTURER			DAIKIN
MODEL NUMBER (INDOOR UNIT)			FTKF24AXVJU
MODEL NUMBER (OUTDOOR UNIT)			RKF24AXVJU
DETAIL REFERENCE			F/M501
NOTES:			
1	COOLING CAPACITY RATED @ 95 °F AMBIENT, 80 °Fdb / 67 °Fwb ENTERING AIR TEMPERATURE.		
2	HEATING CAPACITY RATED @ 47 °Fdb / 43 °Fwb AMBIENT, 70 °Fdb ENTERING AIR TEMPERATURE.		
3	UNIT SHALL BE CAPABLE OF OPERATION FOR AMBIENT TEMPERATURES DOWN TO 14°F		
4	REFRIGERANT PIPING SHALL BE SIZED BY MANUFACTURER.		
5	PROVIDE INTEGRAL CONDENSATE SENSOR TO SHUT UNIT OFF IF HIGH CONDENSATE LEVELS ARE DETECTED IN THE DRAIN PAN.		

## DUCTLESS SPLIT SYSTEMS

INDOOR UNIT DESIGNATION		DSSI-1
OUTDOOR UNIT DESIGNATION		DSSO-1
	SCHEDULED TYPE	D1
	DESCRIPTION	COOLING ONLY
	FAN SPEED	MEDIUM
	NOTES	1, 4

**NOTES:**

1 PROVIDE ELECTRONIC PROGRAMMABLE THERMOSTAT.

4 INDOOR UNIT RECEIVES POWER FROM OUTDOOR UNIT. PROVIDE FIELD SUPPLIED INTERCONNECTED WIRING PER MANUFACTURER'S INSTRUCTIONS.

BUILDING AIR BALANCE - EQUIPMENT SUMMARY			
OUTSIDE AIR SOURCE	CFM	EXHAUST SOURCE	CFM
DOAS-1	1,000	EF-A1 (INTERMITTENT)	150
		EF-A2 (INTERMITTENT)	150
		EF-B1	50
		EF-B2 (INTERMITTENT)	50
		EF-B3 (INTERMITTENT)	50
TOTAL	1,000	TOTAL	450
BUILDING PRESSURIZATION			(+) 550



## CRAWFORDVILLE, FL



027 Thomasville Road  
Tallahassee, Florida 32308

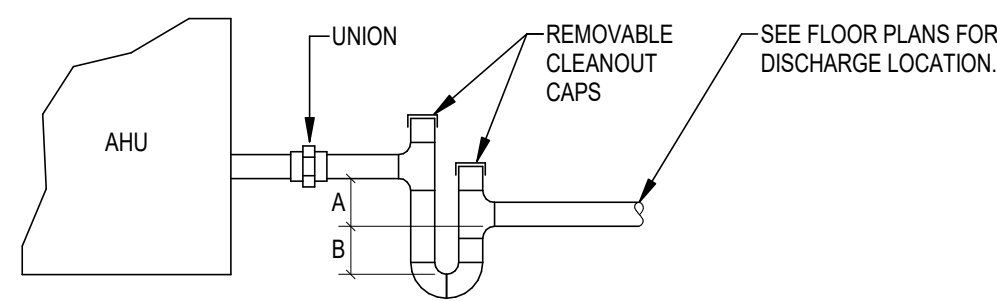
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Phase	Date	Drw	Chk
100% CDs	7/21/25	JPT	MPP

[illegible]

Phase: **100% CONSTRUCTION DOCUMENTS**

# M402

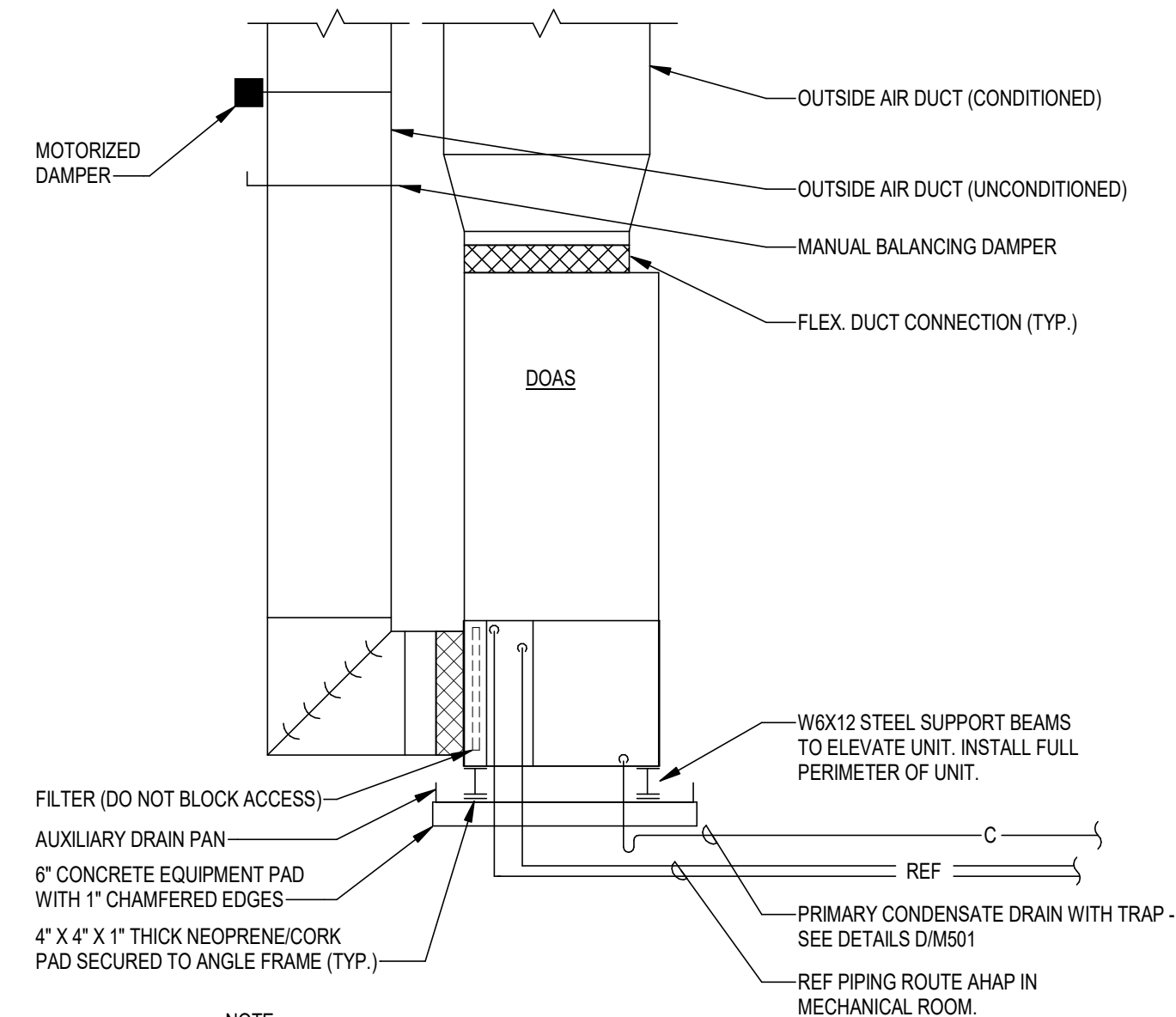


## NOTES

1. DRAIN LINE SHALL BE AT LEAST THE SAME SIZE AS THE CONNECTION ON THE DRAIN PAN (3/4" MIN.)
2. DRAIN LINE SHALL SLOPE 1/8" PER FOOT (MIN.)

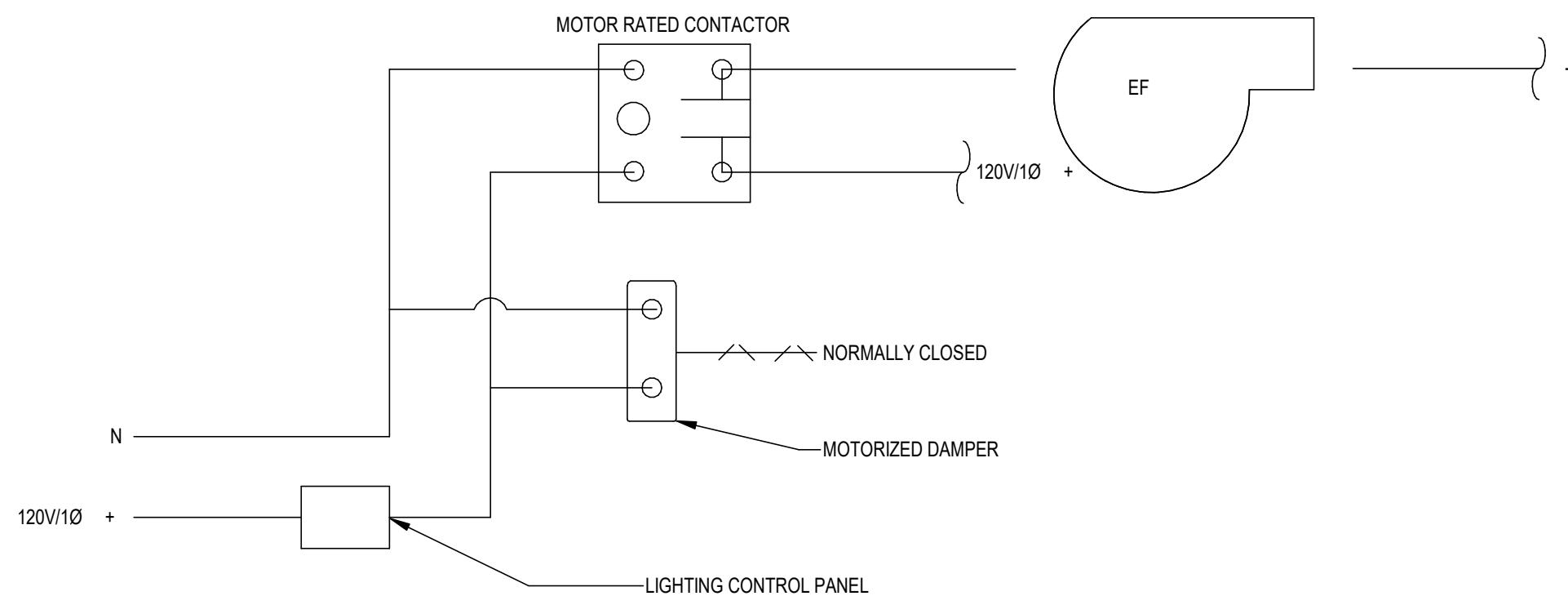
UNIT TYPE	A	B
DRAW-THRU	X PLUS 2"	X
BLOW-THRU	1" MIN.	2X

WHERE X=STATIC PRESSURE IN PAN



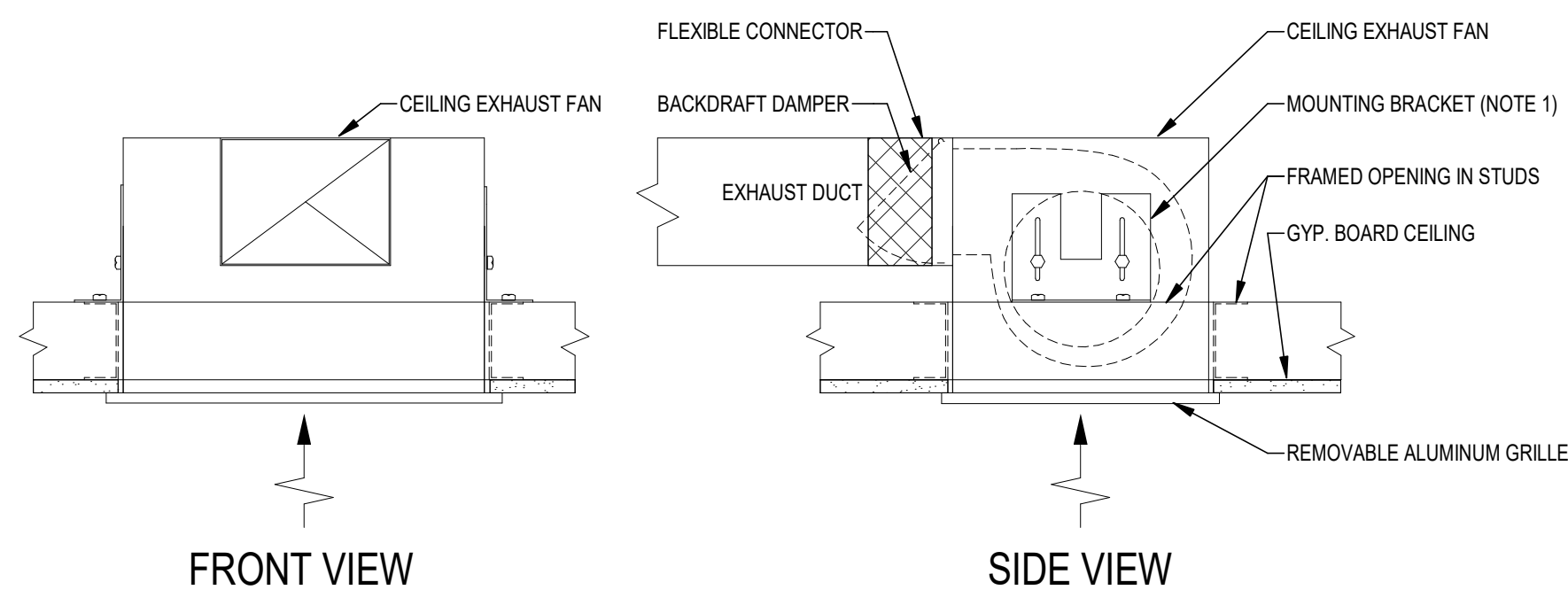
**NOTE:**

1. PROVIDE A FLOAT SWITCH IN THE AUXILIARY DRAIN PAN INTERLOCKED WITH DOAS FAN.



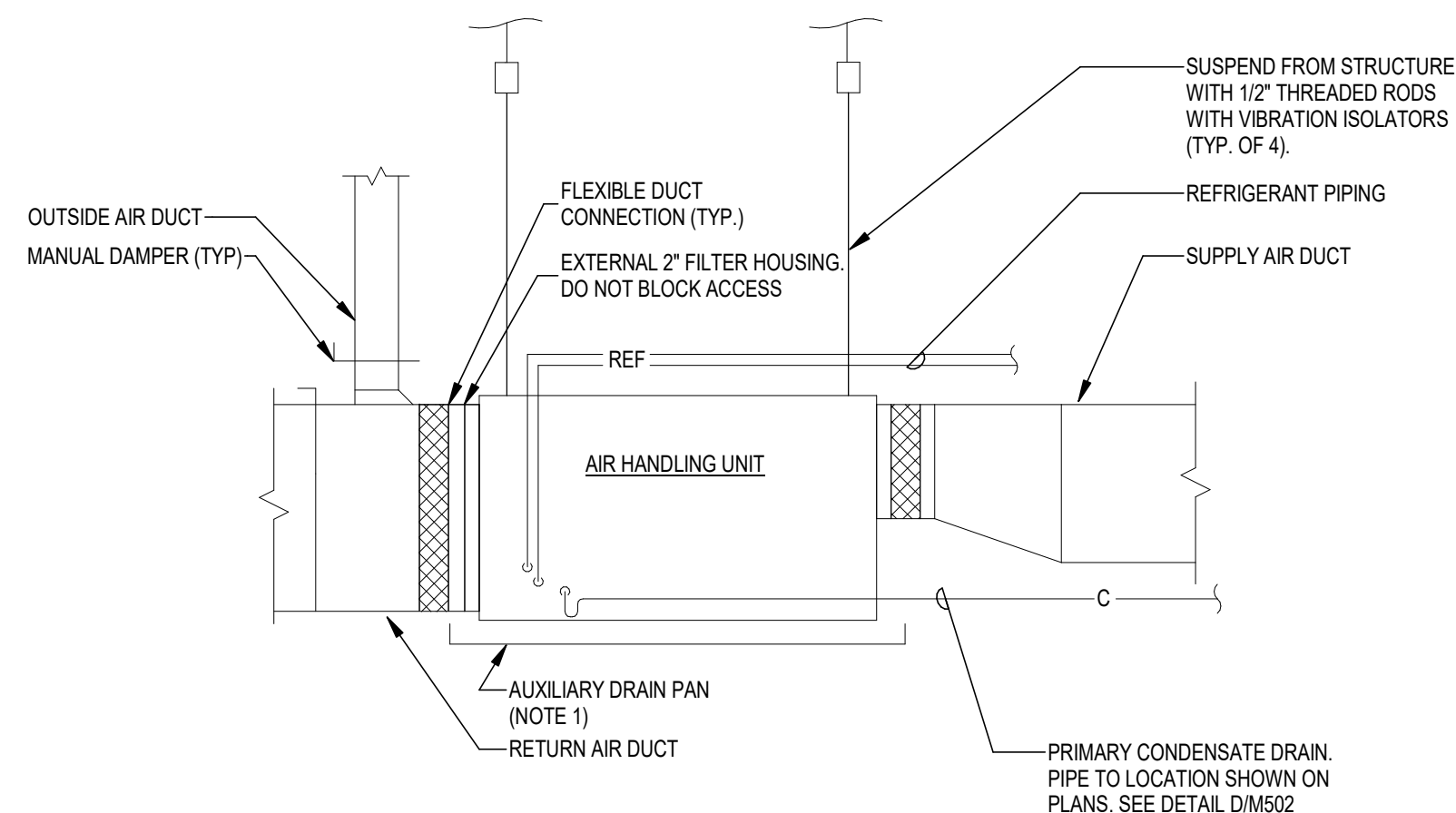
NOTES:

1. MECHANICAL CONTRACTOR SHALL PROVIDE 120V/1PH, 2 POSITION, NORMALLY CLOSED, OPPOSED BLADE, LOW LEAKAGE DAMPER AND BELIMO ACTUATOR.
2. SET LIGHTING CONTROL PANEL TO POWER OPEN DAMPER AND ENABLE EXHAUST FAN, ON OCCUPIED SCHEDULE. (INITIAL SCHEDULE 7:00 AM - 5:00 PM)
3. WIRING BY DIVISION 26 SEE ELECTRICAL DRAWINGS.



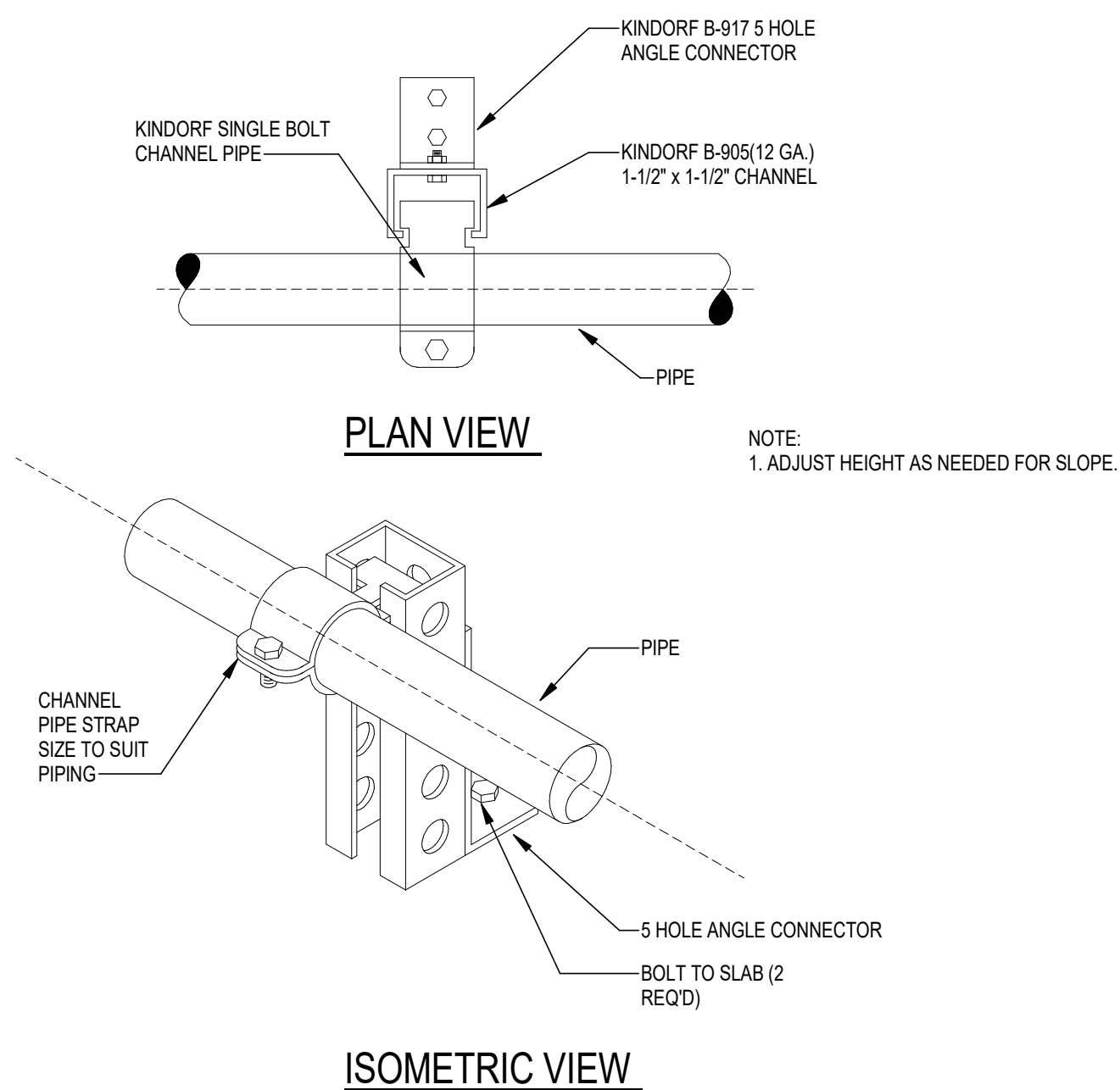
## NOTES

1. SUPPORT CEILING FAN LOCATED ABOVE LAY-IN CEILING FROM THE BUILDING STRUCTURE, INDEPENDENT OF CEILING.

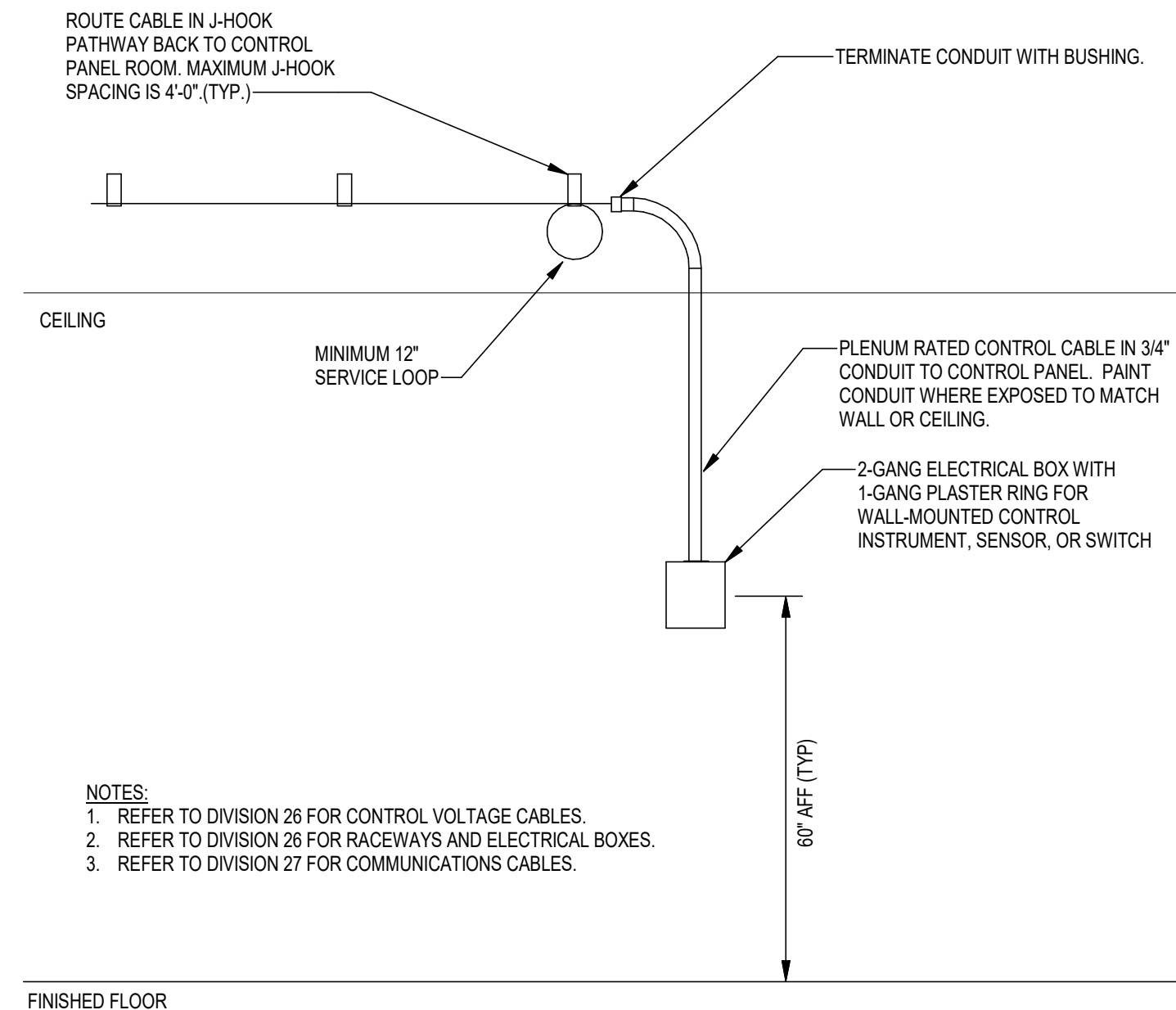
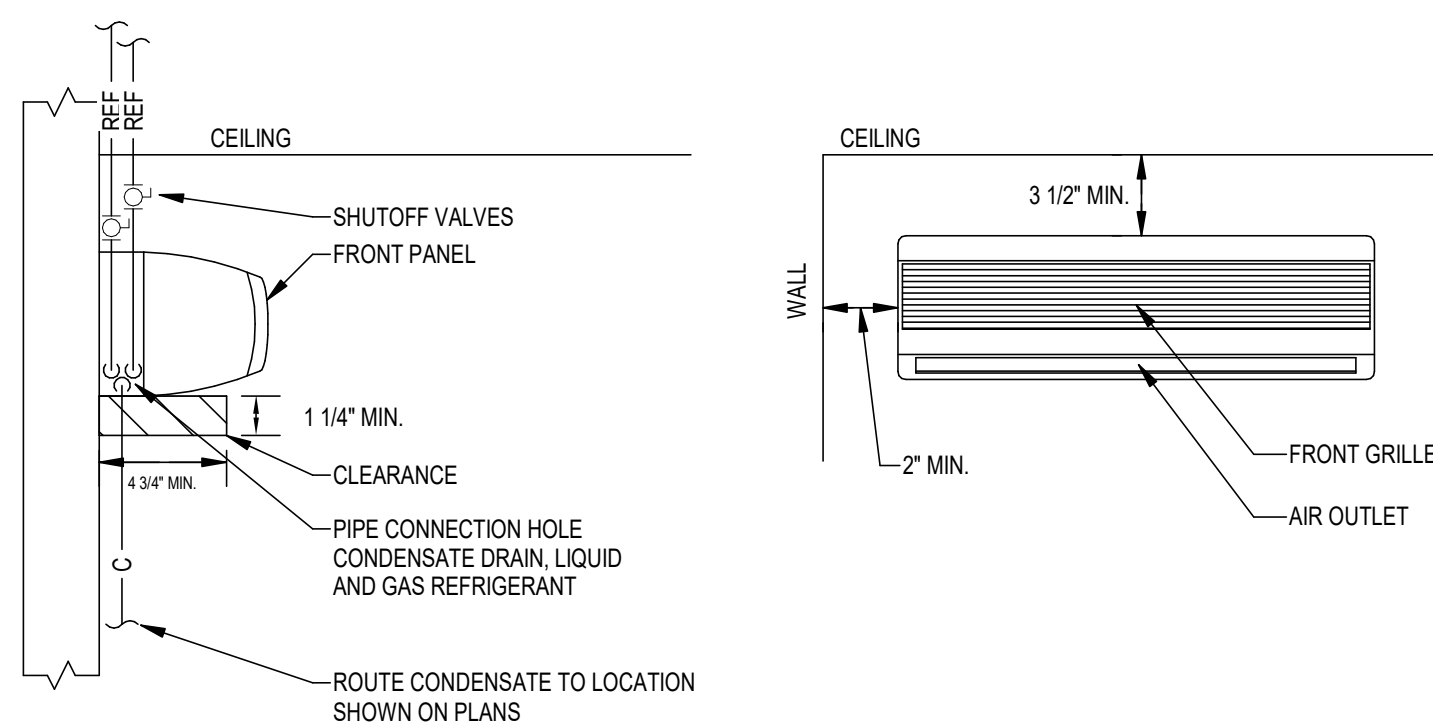


NOTE:

1. PROVIDE A FLOAT SWITCH IN THE AUXILIARY DRAIN PAN INTERLOCKED WITH AHU FAN.



1752



## NOTES

1. REFER TO DIVISION 26 FOR CONTROL VOLTAGE CABLES.
2. REFER TO DIVISION 26 FOR RACEWAYS AND ELECTRICAL BOXES.
3. REFER TO DIVISION 27 FOR COMMUNICATIONS CABLES.

FINISHED FLOOR



WAKULLA COUNTY BOCC

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COUNTY  
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LIBRARY**

CRAWFORDVILLE, FL



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Submittal			
Phase	Date	Drw	Chk
100% CDs	7/21/25	JPT	MPP

[illegible]

CRA Project # 24071

Phase: **100% CONSTRUCTION DOCUMENTS**

SHEET TITLE  
**DETAILS**

# M501

