MECHANICAL SPECIFICATIONS

A. GENERAL REQUIREMENTS

1. SCOPE OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, HOISTING, RIGGING, INSURANCE, ETC., TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED FOR A COMPLETE INSTALLATION.

2. ALL WORK SHALL BE IN ACCORDANCE WITH NFPA 90-A4B, ASHRAE GUIDES, "SMACNA" DUCT CONSTRUCTION STANDARDS, NFPA 101, NATIONAL, STATE AND LOCAL CODES, INCLUDING ALL SUPPLEMENTS.

3. MANUFACTURES SHALL PROVIDE THEIR STANDARD GUARANTEES AND WARRANTIES FOR WORK UNDER THIS CONTRACT.

4. LOCATIONS OF PIPING, DUCTWORK, CONDUITS AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ALL TRADE INSTALLATIONS. LINES WHICH PITCH SHALL HAVE THE RIGHT-OF-WAY OVER THOSE WHICH DO NOT PITCH. OFFSETS, TRANSITIONS AND CHANGES OF DIRECTION IN ALL SYSTEMS SHALL BE MADE AS REQUIRED TO MAINTAIN PROPER HEADROOM AND PITCH OF SLOPING LINES WHETHER OR NOT INDICATED ON THE DRAWINGS. ALL WORK SHALL BE INSTALLED IN A WAY TO PERMIT REMOVAL AND ALLOW PROPER ACCESS TO ALL EQUIPMENT INCLUDING DUCT ACCESS DOORS.

5. FINAL LOCATION OF ALL AIR DISTRIBUTION DEVICES, T-STATS CONTROL DEVICES, ETC. SHALL BE COORDINATED WITH THE ARCHITECTURAL PLANS AND SECTIONS AND/OR OTHER ARCH. DETAILS. OFFSETS OF DUCTWORK, ADDED SHEET METAL, FITTINGS, ELBOWS ETC. SHALL BE PROVIDED AS REQUIRED TO COMPLY WITH ARCH. PLANS.

6. ALL EQUIPMENT SHALL BE NEW AND WITHOUT BLEMISH OR DEFECT. ALL EQUIPMENT SHALL MEET THE AUTHORITIES HAVING JURISDICTION. WHERE ACCEPTANCE IS CONTINGENT UPON THE PRODUCTS LISTING OR LABELED, THE PRODUCT SHALL BE LISTED OR LABELED.

7. ALL EQUIPMENT OF ONE TYPE, SUCH AS VALVES, FANS, AIR HANDLING UNITS, SHALL BE THE PRODUCT ON ONE MANUFACTURER UNLESS SPECIFIED OTHERWISE ON THE DOCUMENTS.

8. PROVIDE ALL HANGERS AND SUPPORTS AS REQUIRED TO SUPPORT ALL NEW DUCTWORK AND EQUIPMENT.

9. PAY FOR ALL PERMITS AND FEES, OBTAIN ALL APPROVALS.

10. IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO STUDY ALL DRAWINGS AND DETAILS SO THAT THE INSTALLATION OF ALL EQUIPMENT CAN BE FULLY COORDINATED. THE MECHANICAL CONTRACTOR SHALL VISIT THE SITE TO SATISFY HIMSELF THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWINGS AND/OR SITE CONDITIONS, THE MECHANICAL CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO SIGNING OF CONTRACT. FAILURE TO DO SO WILL NOT BE ALLOWED AS A BASIS FOR ADDITIONAL COMPENSATION TO CORRECT A DIFFICULTY OR DIFFERENCE FROM CONDITIONS INFERRED OR INDICATED ON THE DRAWINGS THAT WOULD HAVE BEEN APPARENT DURING SAID VISIT.

11. ALL CUTTING, CORE DRILLING, PATCHING, ETC. REQUIRED FOR THE INSTALLATION OF THE NEW MECHANICAL SYSTEMS SHALL BE BY CONTRACTOR.

12. HVAC WORK IS DIAGRAMMATIC. EXACT LOCATION OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS. EQUIPMENT, DUCTS OR PIPES INTERFERING WITH THE INSTALLATION SHALL BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER. COORDINATE WITH ALL TRADES TO AVOID INTERFERENCE OF EQUIPMENT.

13. INSTALLATION METHODS SHALL PERMIT ACCESSIBILITY FOR SERVICE AND/OR REPLACEMENT OF EQUIPMENT PROVIDED.

14. MECHANICAL CONTRACTOR IS TO COORDINATE ALL CONDENSATE DRAINAGE PIPING INSTALLATION REQUIREMENTS WITH THE PLUMBING CONTRACTOR.

15. MECHANICAL CONTRACTOR IS TO COORDINATE ALL ELECTRICAL WIRING CIRCUITS INSTALLATION REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR.

16. ALL DEBRIS TO BE REMOVED DAILY.

B. SCOPE OF WORK

1. INSTALL ALL DUCTWORK, PIPING, EQUIPMENT, ETC. AS INDICATED IN THE CONSTRUCTION DOCUMENTS OR SPECIFICATIONS.

2. PROVIDE ALL NEW DISCONNECTS AND CAPPING TO FACILITATE CONSTRUCTION ALL REMOVAL AND DISPOSAL SHALL BE BY THE GENERAL CONTRACTOR.

3. TEST AND BALANCE AS SHOWN ON PLANS BY MECHANICAL CONTRACTOR. TAB REPORT WILL BE REQUIRED TO BE SUBMITTED TO ENGINEER FOR APPROVAL. TEST AND BALANCE OF AIR CONDITIONING SYSTEMS SHALL BE PERFORMED WITH ROOM TO ROOM TEMERATURE MEASUREMENTS AND DAMPER ADJUSTMENTS IN ORDER TO PROVIDE COINCIDING TEMPERATURE MEASUREMENTS IN ALL ROOMS SERVED BY COMMON AIR CONDITIONING SYSTEMS.

4. THE EQUIPMENT INDICATED ON THE DRAWINGS HAS BEEN COORDINATED WITH THE ELECTRICAL SYSTEMS. IF THE CONTRACTOR SELECTS TO USE ALTERNATE EQUIPMENT, THEY SHALL BE RESPONSIBLE FOR ALL COORDINATION WITH THE ELECTRICAL ENGINEER AND SHALL BEAR ANY EXPENSE TO THE ELECTRICAL CONTRACTOR RESULTING FROM SUCH ALTERNATE SELECTIONS.

5. CONTRACTOR SHALL NOT DEVIATE FROM THESE DESIGN DOCUMENTS WITHOUT PRIOR APPROVAL FROM ENGINEER. CONTRACTOR IS RESPONSIBLE FOR ALL AS-BUILT DRAWINGS.

C. MATERIALS

1. SUPPLY/RETURN RECTANGULAR DUCTWORK EXPOSED OR ABOVE CEILINGS CONSTRUCTION: 1.5" THK. FIBROUS-GLASS DUCT BOARD, COMPLY W/ UL181, CLASS 1, ANTI-MICROBIAL TREATED FIBROUS GLASS DUCT FIRE-RESISTANT, REINFORCED FOIL-SCRIM-KRAFT EXTERNAL BARRIER W/ SUPPORT, CONNECT, AND SEAL ACCORDING TO DUCT MANUFACTURER'S SPECIFICATIONS AND SMACNA'S "FIBROUS GLASS DUCT CONSTRUCTION STANDARD". PRESSURE CLASS: 1" W.G. MIN.

2. FLEXIBLE DUCTWORK: ALL FLEXIBLE DUCTWORK SHALL COMPLY WITH UL 181, CLASS 1. FACTORY FABRICATED, INSULATED, ROUND DUCT, WITH AN OUTER GLASS-REINFORCED, SILVER MYLAR JACKED ENCLOSING 1-1/2" THICK GLASS-FIBER INSULATION AROUND A CONTINUOUS POLYETHYLENE INNER LINER. SUPPORT, CONNECT, AND SEAL ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARD--METAL AND FLEXIBLE". PRESSURE CLASS: 1/2" W.G. PROVIDE VOLUME DAMPER FOR EACH FLEXIBLE RUNOUT TO AIR DEVICE (SUPPLY ONLY.).

3. FRESH AIR SUPPLY/TOILET EXHAUST DUCTWORK: GALVANIZED SHEET METAL DUCT AND FITTINGS PER INDUSTRY STANDARDS, SMACNA STANDARDS AND FLORIDA BUILDING CODE.

4. EXHAUST FANS: REFER TO EXHAUST FAN SCHEDULE FOR EXHAUST FAN SPECIFICATIONS.

5. AIR DISTRIBUTION DEVICES: SEE AIR DEVICE SCHEDULE. INSTALL AIR DEVICES PER MANUFACTURER'S SPECIFICATIONS.

6. SPIN-IN FLEXIBLE DUCTWORK CONNECTORS: ALL SPIN-IN FLEXIBLE DUCTWORK CONNECTORS SHALL BE INDUSTRY STANDARD WITH INTEGRAL BALANCING DAMPERS AND INTEGRAL AIR FLOW EXTRACTORS AS REQUIRED FOR SPECIFIED AIR FLOW VALUES AS SHOWN.

7. DAMPERS AND DAMPER ACTUATORS: DAMPERS SHALL BE PROVIDED AS RECOMMENDED BY DAMPER MANU- FACTURER FOR SPECIFIC APPLICATION AND DUCT MATERIAL. INSTALL DAMPERS AND DAMPER COMPONENTS SUCH AS ACTUATORS PER HVAC EQUIPMENT SPECIFICATIONS AND/OR DAMPER MANUFACTURER'S SPECIFICATIONS. ACCEPTABLE DAMPER MANUFACTURERS ARE RUSKIN, GREENHECK AND EQUALS. DAMPER ACTUATORS BY HONEYWELL OR EQUALS. ALL EQUAL PRODUCTS MUST MEET SAME APPROVAL RATINGS.

8. FIRE DAMPER (IF REQUIRED): RUSKIN MODEL IBDT OR EQUAL. INSTALL PER ALL APPLICABLE CODES.

D. SUBMITTALS:

1. CONTRACTOR SHALL PROVIDE SUBMITTALS TO ENGINEER (VIA ARCHITECT) FOR ALL NEW EQUIPMENT & MATERIALS FOR FINAL APPROVAL PRIOR TO ORDERING/PURCHASING.

SPLIT SYSTEM SCHEDULE

PROJECT LOCATION			
AIR HANDLER	MARK	AHU-1,2,3,4,5 & 6	
MANUFACTURER		CARRIER	
MODEL		FE4AN	
SIZE		006	
SUPPLY AIR	CFM	1900	
RETURN AIR	CFM	1650	
OUTSIDE AIR	CFM	250	
EXT STATIC PRESS	IN. WG	0.5	
MOTOR (ECM)	HP	3/4	
ENTERING AIR	°F DB	80	
ENTERING AIR	°F WB	67	
COOLING CAPACITY	MBTU	51.0	
ELECTRIC HEAT	KW	7.5/10.0	
ELECTRICAL	V/Φ	208/230-1	
MIN CIRCUIT AMPS	AMPS	53.8/58.5	
FUSE AMPS	AMPS	60/60	
BLOWER	AMPS	6.8	
WEIGHT	LBS	200	
CONDENSING UNIT	MARK	CU-1, 2,3,4,5 & 6	
MANUFACTURER		CARRIER	
MODEL		25VNA860A*30	
# COMPRESSORS		1	
SYSTEM SEER / EER		17.0	
HEAT PUMP HSPF / COP		10.0/3.10	
HEATING CAPACITY	MBTU	60.0	
SUCTION LINE(S)	OD INCHES	1-1/8	
LIQUID LINE(S)	OD INCHES	3/8	
ELECTRICAL	V/Φ	208/230-1	
MIN CIRCUIT AMPS	AMPS	40.8	
FUSE AMPS	AMPS	60	
COMPRESSOR	RLA	31.3	
COND FAN	AMPS	1.4	
WEIGHT	LBS	286	

NOTES:
1. PROVIDE CARRIER OR APPROVED EQUAL WITH REFRIGERANT 410A
2. PROGRAMABLE MULTI STAGE THERMOSTAT
3. PROVIDE SINGLE POINT ELECTRICAL CONNECTION
4. PROVIDE ECM SOFT RAMP ON-OFF INDOOR FAN MOTORS
5. FIELD ROUTE REFRIGERANT PIPING FROM AIR HANDLERS TO CONDENSING UNITS
6. COOLING CAPACITY SHOWN FOR 95°F OUTDOOR TEMPERATURE.
7. PROVIDE FACTORY E-COATED EVAPORATOR AND CONDENSER COILS SUBMIT A WRITTEN COATING WARRANTY FOR APPROVAL

ROOF TOP UNIT SCHEDULE

ROOF TOP UNIT:			RTU-1,3,4,5,6	RTU-2
MANUFACTURER	-		CARRIER	CARRIER
MODEL	-		50HCQ-A06A2A5	50HCQ-A06A2A5
SUPPLY	CFM		1600	2000
OUTSIDE AIR	CFM		150	200
ENTERING AIR	DB/WB		78/67	78/67
LEAVING AIR	DB/WB		57.2/56.3	57.4/56.8
CAPACITY	TONS		4.0	5.0
TOTAL COOLING	MBH		47.300	61.500
SENSIBLE COOLING	MBH		36.800	48.300
EXT. S.P.	IN. H2O		.5"	.5"
TOTAL S.P.	IN. H2O		1.01"	1.01"
ELECTRIC HEAT	KW/V.		6.5/208V. 3P.	7.9/208V. 3P.
EVAPORATOR FAN	HP/FLA		1.2 - 4.9	1.2 - 4.9
COMPRESSOR	NO./RLA		1 - 13.1	1 - 15.9
CONDENSING FAN	NO./FLA		1 - 1.4	1 - 1.4
HEATING CAPACITY	MBH		46.000	55.000
HEATING RATING	HSPF		8.10	8.20
ELECTRICAL DATA	V/Φ		208/230V. 3P.	208/230V. 3P.
MCA	AMPS		51.0	62.0
FUSE/MOCP	-		60	70
EFFICIENCY	SEER/EER		15.8	15.0
WEIGHT	LBS.		580	610
NOTES	PER BELOW		1-6	1-6

NOTES:
1. HVAC CONTRACTOR SHALL COORDINATE ELECTRICAL DATA WITH ELECTRICAL CONTRACTOR PRIOR TO ORDER OF EQUIPMENT.
2. UNIT SHALL HAVE A SINGLE POINT ELECTRICAL CONNECTION.
3. PROVIDE MANUFACTURER STANDARD 14" HIGH CURB.
4. PERMANENTLY LABEL ALL SYSTEMS WITH THE RTU DESIGNATION.
5. PROVIDE FACTORY TWO-POSITION OUTSIDE AIR DAMPER. DAMPER SHALL CLOSE WHEN UNIT IS NOT RUNNING.
6. INSTALL FILTERS IN UNIT PRIOR TO START UP AND PROVIDE NEW SET OF FILTERS AT COMPLETION OF CONSTRUCTION.
7. PROVIDE FACTORY E-COATED ON COILS & SUBMIT A WRITTEN COATING WARRANTY FOR APPROVAL

FAN SCHEDULE

MARK	USAGE	MANUF	MODEL NO.	CFM	ESP	ELECTRICAL	AMPS	WEIGHT
EF-1	TOILET EXH.	GREENHECK	SP-A90	75	.25	120V/1PH	0.15	12 LBS
EF-1	TOILET EXH.	GREENHECK	SP-A190	150	.375	120V/1PH	0.45	17 LBS

NOTES:
1. SUPPORT EXHAUST FANS TO BUILDING STRUCTURE PER MANUFACTURER'S INSTRUCTIONS.
2. TOILET EXHAUST FANS TO BE SWITCHED W/ RESTROOM LIGHTING.
3. PROVIDE SPEED CONTROLLER.

AIR DEVICE SCHEDULE

MARK	MANUF	MODEL	PATTERN	USAGE	BORDER	FINISH	ACCESSORIES
A	TITUS	TMS-AA-24X24-3-26	4-WAY	SUPPLY	LAY-IN	WHITE	PROVIDE W/ OBD MODEL AG-75 PROVIDE W/ INSULATED BACKPAN
B	TITUS	TMS-AA-12X12-3-26	2-WAY	SUPPLY	SURFACE	WHITE	PROVIDE W/ OBD MODEL AG-15 AS REQUIRED FOR AIR BALANCING
C	TITUS	300FL-12x8	2-WAY	SUPPLY	SURFACE	WHITE	PROVIDE W/ OBD MODEL AG-15 AS REQUIRED FOR AIR BALANCING
D	TITUS	355FL-24X24	-	RETURN	LAY-IN	WHITE	PROVIDE W/ OBD MODEL AG-15 AS REQUIRED FOR AIR BALANCING
E	TITUS	355FL-12x8	-	RETURN	SURFACE	WHITE	PROVIDE W/ OBD MODEL AG-15 AS REQUIRED FOR AIR BALANCING

NOTES: 1. SOME AIR DEVICES REQUIRE DUCTBOARD PLENUM CONNECTION.
2. COORDINATE AND ADJUST AIR DEVICE LOCATIONS WITH ELECTRICAL CONTRACTOR AND LIGHTING PLAN.

ISSUED FOR:
permit

JULY 23, 2019

GARLAND PATTERSON, P.E.
PE 14175

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MECHANICAL SCHEDULE, NOTES & DETAILS

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