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JOB PROGRESS:
 ITEM DATE

REVISIONS:
 DATE NO.

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ALEXANDRIA
 AN APARTMENT COMMUNITY
 FOR
 BOBO FAMILY GROUP
 HUNTSVILLE, ALABAMA

JOB NUMBER:
 DRAWN BY: RK
 CHECKED BY: RK

MECHANICAL SCHEDULES & NOTES
 SHEET NO.

M-10

AIR HANDLING UNITS

MARK	SERVICE	TONS	CFM	ESP	OA CFM	COOLING CAPACITIES TOTAL (MBH)	ELEC. HEAT @ 240/1	HEAT STAGES	MAX HP	ELECTRICAL			UNIT WT (LBS)	BASIS OF DESIGN	REMARKS	MARK	ELECTRICAL			MIN. SEER	UNIT WT (LBS)	BASIS OF DESIGN	REMARKS	AHRJ REF. #
										MCA	MOCP	VOLTAGE					MCA	MOCP	VOLTAGE					
AHU-A	UNITS	1.5	600	0.5"	③	18	5 KW	1	1/2	29.9	30	240/1	109	GOODMAN AWUF-310516A	①②⑤	HPU-A	12.2	20	240/1	14.0	154	GOODMAN GSZ140181K	①④⑥	201638161
AHU-B	UNITS	2.0	800	0.5"	③	24	5 KW	1	1/2	29.9	30	240/1	109	GOODMAN AWUF-310516A	①②⑤	HPU-B	14.6	25	240/1	14.0	154	GOODMAN GSZ140241K	①④⑥	201638735
AHU-C	UNITS	2.5	1000	0.5"	③	30	8 KW	1	1/2	42.9	45	240/1	109	GOODMAN AWUF-310816A	①②⑤	HPU-C	17.8	30	240/1	14.0	182	GOODMAN GSZ140301K	①④⑥	20164211
AHU-1	CLUBROOM	4.0	1500	0.5"	③	48	12.5 KW	2	1.0	75	80	240/1	194	LENNOX CBX27UH-048	①②⑤⑦⑧	HPU-1	29.0	50	240/1	14.0	273	LENNOX 14HPX-048	①④⑥	104911937
AHU-2	LEASING OFFICES	3.5	1400	0.5"	③	42	12.5 KW	2	1.0	75	80	240/1	194	LENNOX CBX27UH-042	①②⑤⑦⑧	HPU-2	24.2	40	240/1	14.0	272	LENNOX 14HPX-042	①④⑥	104911933
AHU-3	FITNESS	1.5	525	0.5"	③	1.5	5 KW	1	1/2	31	35	240/1	148	LENNOX CBX27UH-024	①②⑤⑦⑧	HPU-3	12.2	20	240/1	14.0	165	LENNOX 14HPX-018	①④⑥	104911934
AHU-4	FITNESS	5.0	1750	0.5"	③	60	12.5 KW	2	1.0	75	80	240/1	216	LENNOX CBX27UH-060	①②⑤⑦⑧	HPU-4	29.4	50	240/1	14.0	295	LENNOX 14HPX-060	①④⑥	10490769

- ① DISCONNECT ② CONDENSATE OVERFLOW SWITCH ③ SEE CALCULATIONS FOR OUTSIDE AIR SETTING (COMMON AREAS ONLY) ④ PROVIDE AUX. HEAT LOCKOUT ⑤ PROVIDE SMOKE DETECTOR TO SHUT DOWN BLOWER MOTOR
 ⑥ LOCKING FREON CAP ⑦ TWO STAGE ELECTRIC HEAT ⑧ PROVIDE SMOKE DETECTOR TO SHUT DOWN UNIT BLOWER AND ACTIVATE BUILDING ALARM

VENTILATION REQUIREMENTS (COMMON AREAS)

SPACE	EQUIPMENT	GROSS SQ.FT.	NET SQ.FT.	PEOPLE PER 1000 SQ.FT.	PEOPLE	VENTILATION PER PERSON	V/P	VENTILATION PER SQ.FT.	V/A	TOTAL CFM V/P + V/A	VENTILATION RATE PROCEDURE
CLUBROOM	AHU-1	1124	674	30	20	5	100	0.06	4.04	140.4	140
OFFICE	AHU-1	150	N/A	5	1	5	5	0.06	9	14	20
	AHU-1										160
OFFICE	AHU-2	688	N/A	5	4	5	20	0.06	40.0	60	60
CORRIDOR	AHU-2	187	N/A	N/A	N/A	N/A	0	0.06	11.2	11.2	20
LOBBY	AHU-2	295	177	30	6	5	30	0.06	10.6	40.6	40
	AHU-2										120
FITNESS		2163	1298	10	13	20	260	0.06	77.8	337.8	340
	AHU-3										140
	AHU-4										280
TOTAL OA REQ'D.											420

NOTE:
 OUTSIDE AIR TO AIR HANDLING UNITS SHALL CONFORM TO 2012 IMC TABLE 403.3.

FANS

MARK	SERVICE	TYPE	CFM	RPM	HP	INTERMITTENT FAN CFM	VENTILATION FAN	DRIVE	ROOF OR OPNG	SIZE	V/P	UNIT WT (LBS)	BASIS OF DESIGN GREENHECK	REMARKS	
EF-A	UNIT BATH	CABINET	50	800	18 W	-	-	0.125	DIRECT	1	120/1	10	SP-150	①②③	
EF-B	UNIT KITCHEN	CABINET	100	950	17 W	-	-	0.20	DIRECT	N/A	0.5	120/1	21	SP-A110	①②④⑦
EF-C	LEASE POWDER RM.	CABINET	70	675	16 W	-	-	0.125	DIRECT	N/A	0.6	120/1	9	SP-B70	①②③
EF-D	CART STORAGE	CABINET	100	950	80 W	-	-	0.15	DIRECT	N/A	2.2	120/1	10	SP-B110	①②③⑥
EF-E	POOL EQUIP	CABINET	100	950	80 W	-	-	0.2	DIRECT	N/A	2.2	120/1	10	SP-B110	①②⑤
EF-F	FITNESS TOILET	CABINET	140	1050	128 W	-	-	0.2	DIRECT	N/A	3.4	120/1	10	SP-B150	①②③
EF-G	MAINT. TOILET	CABINET	70	675	16 W	-	-	0.125	DIRECT	N/A	0.9	120/1	9	SP-B70	①②③

- ① BACKDRAFT DAMPER ② DISCONNECT SWITCH ③ CONTROLLED W/LIGHTS ④ SEPARATE SWITCH ⑤ CONTROLLED W/ THERMOSTAT ⑥ CONTROLLED WITH CO SENSOR ⑦ CEILING RADIATION DAMPER

MECHANICAL AND SPECIFICATIONS

- THE CONTRACTOR SHALL PROVIDE A COMPLETE HVAC SYSTEM TO INCLUDE ALL LABOR, MATERIALS, TOOLS, AND EQUIPMENT FOR A COMPLETE AND FUNCTIONAL SYSTEM INCLUDING ALL NECESSARY APPURTENANCES CUSTOMARILY INCLUDED & NOT SPECIFICALLY CALLED OUT.
- DEVIATION FROM MATERIALS, METHODS AND PROCEDURES SET FORTH HEREIN MUST BE APPROVED IN WRITING. APPROVAL WILL NOT BE GIVEN UNLESS THE PROPOSED SYSTEM IS EQUAL IN PERFORMANCE, DURABILITY, LONGEVITY, AND RELIABILITY TO THAT SPECIFIED.
- ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL CODES, LAWS, AND ORDINANCES.
- THE CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY FAMILIARIZE HIMSELF WITH ALL DETAILS OF THE WORK AND THE CONDITIONS AND SHALL VERIFY DIMENSIONS AND CLEARANCES AND BE ASSURED THAT THE EQUIPMENT PURCHASED WILL FIT INTO THE AVAILABLE SPACE.
- SUBMISSION OF A BID OR PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT THE CONTRACTOR HAS FAMILIARIZED HIMSELF WITH THE PLANS, SPECIFICATIONS, AND BUILDING SITE. CLAIMS MADE SUBSEQUENT TO BIDS FOR MATERIALS AND/OR LABOR DUE TO DIFFICULTIES ENCOUNTERED IN THE PERFORMANCE OF THE WORK SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND NO CLAIMS WILL BE MADE.
- THE CONTRACTOR SHALL REVIEW STRUCTURAL DRAWINGS BEFORE FABRICATING OR INSTALLING DUCTWORK OR EQUIPMENT TO AVOID ANY CONFLICTS.
- ALL HARD DUCTWORK SHALL BE FABRICATED OF GALVANIZED STEEL OF THICKNESS AND GAUGES TO CONFORM TO SMACNA DUCT CONSTRUCTION STANDARDS. (RECTANGULAR OR EQUIVALENT ROUND)
- ALL DUCT SHALL BE AIRTIGHT, FREE OF LEAKS, AND SHALL BE INSPECTED FOR LEAKS PRIOR TO INSTALLATION OF FINISHED CEILING SYSTEM.
- DUCTWORK, DAMPERS, LOUVERS, DIFFUSERS, AND OTHER DISTRIBUTION EQUIPMENT AND MATERIALS SHALL CONFORM TO THE FOLLOWING:

A. ASHRAE/ANSI	E. AMCA STANDARD HANDBOOK 99
B. SBCCI/ASME	F. AIR DIFFUSION COUNCIL TEST
C. SMACNA	CODE 1062R3
D. NFPA	G. ANY LOCAL CODES NOT COVERED ABOVE
- ALL DUCT SIZES ARE CLEAR NET INSIDE DIMENSIONS.
- ALL LOW PRESSURE ROUND DUCT AND FLEXIBLE DUCT SHALL BE CONNECTED TO LOW PRESSURE DUCT WITH SPIN-IN FITTINGS AND MANUAL DAMPERS.
- LOW PRESSURE INSULATED FLEXIBLE DUCT SHALL BE A MAXIMUM OF FIFTEEN (15) FEET LONG AND SHALL BE SIZED AS FOLLOWS, UNLESS NOTED OTHERWISE:

CFM	FLEXDUCT DIAMETER
0 - 80	6"
81 - 165	8"
166 - 300	10"
301 - 500	12"
- ALL SUPPLY AND RETURN AIR DUCTWORK SHALL BE LINED WITH 1", 1-1/2" DENSITY FIBERGLASS 5'-0" DOWNSTREAM FROM UNIT.
- ALL DUCTWORK NOT LINED SHALL BE INSULATED WITH R-6 FOIL BACKED EXTERNAL INSULATION IN CONDITIONED SPACES, INCLUDING BETWEEN CONDITIONED SPACES, AND R-8 IN ATTICS AND NON-CONDITIONED SPACES.
- ALL THERMOSTATS SHALL BE INSTALLED 4'-6" AFF AND SHALL HAVE CLEAR LOCKING COVERS.
- ALL THERMOSTATS IN HANDICAPPED UNITS SHALL BE INSTALLED 4'-0" AFF AND SHALL HAVE CLEAR LOCKING COVERS.
- ALL MITERED SUPPLY DUCT ELBOWS SHALL BE PROVIDED WITH TURNING VANES.
- SUPPLY REGISTER (SR) SHALL BE TITUS MODEL 272RL OR APPROVED EQUAL. SIZED AS PER DRAWINGS.
- SIDEWALL RETURN AIR GRILLE (SRAG) SHALL BE TITUS MODEL 25RL OR APPROVED EQUAL. SIZED AS PER DRAWINGS.
- RETURN AIR GRILLES (RAG) SHALL BE TITUS 50F EGG-CRATE TYPE, 24" x 24" UNLESS OTHERWISE NOTED.
- OUTSIDE AIR INTAKE (OAI) SHALL BE BROWN MODEL 641FA WALL CAP WITH MESH SCREEN AND NO BACKDRAFT DAMPER. INLET SIZE IS 6" DIA.
- TRANSFER GRILLES (TG) SHALL BE TITUS MODEL 25RL OR APPROVED EQUAL. SIZED AS PER DRAWINGS.
- REFRIGERANT PIPING SHALL BE SIZED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR LIQUID, VAPOR HORIZONTALS AND VAPOR RISERS. JOINTS SHALL BE MADE WITH SILVER SOLDER.
- INSULATE REFRIGERANT SUCTION LINES WITH ARMAFLEX OR EQUAL. INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- REFRIGERANT CIRCUIT ACCESS PORTS LOCATED OUTDOORS SHALL BE FITTED WITH LOCKING TYPE TAMPER RESISTANT CAPS.
- MANUAL DAMPERS SHALL BE INCLUDED IN OUTSIDE AIR INTAKE DUCTS TO REGULATE OUTSIDE AIR TO THE AIR HANDLING UNITS.
- UNDERCUT RESTROOM DOORS 3/4" FOR EXHAUST MAKE-UP.
- CONDENSATE DRAIN MUST TERMINATE AT AN APPROVED POINT. VERIFY AT SITE.
- ALL LOW VOLTAGE CONTROL WIRING SHALL BE UNDER THIS CONTRACTOR.
- ALL INSULATING MATERIALS SHALL HAVE A COMPOSITE FLAME SPREAD OF 25 AND SMOKE DEVELOPED OF 50 (ASTM E-84, NFPA 255 & UL 723).
- THERMOSTATS AND OTHER CONTROL ITEMS SHALL BE A PRODUCT OF THE EQUIPMENT MANUFACTURER. (THERMOSTATS SHALL BE EQUAL TO PROGRAMMABLE HONEYWELL T7300).
- HEAT PUMPS HAVING SUPPLEMENTARY ELECTRIC RESISTANCE HEAT SHALL HAVE CONTROLS THAT, EXCEPT DURING DEFROST, PREVENT SUPPLEMENTAL HEAT OPERATION WHEN THE HEAT PUMP COMPRESSOR CAN MEET THE HEATING LOAD.
- PROVIDE SMOKE DETECTORS IN ALL SUPPLY AIR DUCTS, OF UNITS SERVING EGRESS CORRIDORS OR, 2,000 CFM OR GREATER, ARRANGED TO SHUT DOWN UNIT BLOWER AND ACTIVATE BUILDING ALARM.
- CEILING RADIATION DAMPERS (CRD-1) SHALL BE AIRE TECHNOLOGIES SERIES 58 OR APPROVED EQUAL FOR 1 HOUR WOOD TRUSS FLOOR/CEILING AND ROOF/CEILING ASSEMBLIES. DAMPER SHALL BE UL555C LISTED AND UL 263 CLASSIFIED. DAMPER IS INSTALLED FOR SUPPLY AND RETURN AIR DUCTS TO PASS THROUGH THE CEILING MEMBRANE ABOVE AN AIR HANDLER. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- CEILING RADIATION DAMPERS (CRD-2) SHALL BE AIRE TECHNOLOGIES SERIES 50 WITH BOOT, OR APPROVED EQUAL FOR 1 HOUR WOOD TRUSS FLOOR/CEILING AND ROOF/CEILING ASSEMBLIES. DAMPER SHALL BE UL555C LISTED AND UL 263 CLASSIFIED. DAMPER IS INSTALLED FOR OPENINGS FOR CEILING REGISTERS AND GRILLES. PROVIDE WITH FACTORY MOUNTED BOOT. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- CEILING RADIATION DAMPERS (CRD-3) SHALL BE AIRE TECHNOLOGIES CRD SERIES 55 FOR ROUND DUCT PENETRATION APPLICATIONS, OR APPROVED EQUAL FOR 1 HOUR WOOD TRUSS FLOOR/CEILING AND ROOF/CEILING ASSEMBLIES. DAMPER SHALL BE UL555C LISTED AND UL 263 CLASSIFIED. DAMPER SHALL BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- PROVIDE AIR EXTRACTORS AT DUCT TAKE-OFFS AS REQUIRED FOR AIR BALANCING.
- BALANCE ALL AIR SYSTEMS TO PRODUCE THE VOLUMES AND QUANTITIES SHOWN ON THE DRAWINGS OR SPECIFIED.
- THE CONTRACTOR SHALL VERIFY ALL ELECTRICAL CHARACTERISTICS WITH ELECTRICAL DRAWINGS BEFORE PURCHASING EQUIPMENT.
- CLOTHES DRYER EXHAUST 90 DEGREE ELBOWS SHALL BE IN-0-VATE TECHNOLOGIES MODEL "THE DRYER ELL", L190, 4" DIAMETER, 10" RADIUS 18" OVERALL LENGTH RATED AT 1'-6" EQUIVALENT LENGTH OR APPROVED EQUAL. 45 DEGREE ELBOWS SHALL BE SAME MANUFACTURER'S, LT45, 4" DIAMETER, 10" RADIUS 9" OVERALL LENGTH RATED AT 9" EQUIVALENT LENGTH. INSTALL WHERE INDICATED ON DRAWINGS.

MECHANICAL EQUIPMENT

- ELECTRIC BASEBOARD HEATER (EBBH-A) SHALL BE MARKEL SERIES RPH CAPABLE OF 500 WATTS. SUPPLIED WITH THERMOSTAT.
- ALL MECHANICAL EQUIPMENT WHICH HAVE ELECTRICAL CONNECTIONS SHALL BE SUPPLIED WITH DISCONNECT (PROVIDED BY ELECTRICAL CONTRACTOR.)
- OUTSIDE AIR TO AIR HANDLING UNITS SHALL CONFORM TO 2015 IMC TABLE 403.3.
- INTAKE BACKDRAFT DAMPER SHALL BE RUSKIN MODEL B02A1 OR APPROVED EQUAL, SELECTED TO FIT INTAKE LOUVERS. DAMPER BLADES BEGIN TO OPEN AT 0.03" W.C. AND ARE FULLY OPEN AT 0.10" W.C. SIZED AS ON DRAWINGS.

Order Plans @