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MECHANICAL NOTES

1. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF A COMPLETE AND FUNCTIONAL HVAC SYSTEM IN ACCORDANCE WITH THESE DRAWINGS. THE INSTALLATION SHALL COMPLY WITH THE 2012 INTERNATIONAL BUILDING CODE, THE 2012 INTERNATIONAL MECHANICAL CODE AND ALL OTHER APPLICABLE STATE, COUNTY AND LOCAL ORDINANCES AND THE LATEST EDITION OF THE FOLLOWING PUBLICATIONS; SMACNA HVAC DUCT CONSTRUCTION STANDARDS; ASHRAE 15, 34, 82; NFPA 70, 72, 90A, 90B, 91, 98; 101 ANSI Z10.1, Z10.3, Z21.8, Z21.83.
2. THE CONTRACTOR SHALL PAY ALL COSTS OF PERMIT, INSPECTIONS AND ALL OTHER COSTS INCIDENTAL TO THE COMPLETION AND TESTING OF THIS WORK.
3. THE CONTRACTOR SHALL VISIT THE SITE AND COORDINATE WORK WITH OTHER TRADES.
4. THE CONTRACTOR SHALL SUPPLY THE ARCHITECT/OWNER WITH "AS-BUILT" DRAWINGS.
5. CONTRACTOR SHALL SUBMIT, FOR APPROVAL FIVE (5) COPIES OF MANUFACTURER'S SHOP DRAWINGS FOR EACH PIECE OF EQUIPMENT AND CONTROLS INCLUDED IN CONTRACT.
6. ALL MATERIAL SHALL BE NEW, OF GOOD QUALITY AND APPROVED FOR INTENDED PURPOSE. ALL WORK SHALL BE PERFORMED AT INDUSTRY STANDARD QUALITY LEVEL BY CERTIFIED PROFESSIONALS. ALL EQUIPMENT SHALL BE UL OR ETL LISTED.
7. ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL WITH SEALED SEAMS AND JOINTS, EXTERNAL BLANKET INSULATION (R-8 MINIMUM). THE CONTRACTOR SHALL PROVIDE ALL SHEET METAL DUCTWORK, HANGERS, AUXILIARY SUPPORT STEEL, ETC. ALL FLEXIBLE DUCT SHALL BE RATED CLASS I. UL-181 LISTED WITH METALIZED INNER AND OUTER FOIL LINERS. MINIMUM R-8 INSULATION WITH A MAXIMUM TOTAL LENGTH NOT TO EXCEED 5'-0". UL LISTED FOR PLENUM INSTALLATIONS, PROVIDE FLEXIBLE DUCTWORK ELBOW SUPPORTS AT EACH DIFFUSER, GRILLE, AND REGISTER EQUAL TO "FLEXFLOW ELBOW" MANUFACTURED BY THERMAFLEX". ALL METAL DUCTS SHALL BE FABRICATED IN ACCORDANCE WITH LATEST EDITION OF SMACNA.
8. CONTRACTOR SHALL COORDINATE EXACT LOCATION OF ROOFTOP UNITS AND ALL EQUIPMENT WITH ARCHITECTURAL AND STRUCTURAL PLANS. SECURE ROOF CURBS TO BUILDING STRUCTURE FOR PROPER SUPPORT OF UNITS. ROOF CURBS SHALL BE COMPATIBLE WITH ROOFING SYSTEM AND FLASHED ACCORDING TO NRCA RECOMMENDATIONS.
9. OUTSIDE AIR INTAKES SHALL NOT BE TAKEN FROM A LOCATION CLOSER THAN 10 FEET FROM ANY CHIMNEY, EXHAUST VENT OUTLET OR SANITARY SEWER VENT, UNLESS SUCH VENT IS NOT LESS THAN 3 FEET ABOVE THE OUTSIDE AIR INTAKE.
10. DUCT SIZES SHOWN ARE AIRWAY INSIDE DIMENSIONS. INCREASE SIZE OF DUCTWORK FOR INTERNAL LINING IF USED.
11. ALL AIR DEVICES (DIFFUSERS, REGISTERS AND GRILLES) SHALL BE ALUMINUM CONSTRUCTION (UNLESS EXPLICITLY NOTED OTHERWISE ON AIR DISTRIBUTION SCHEDULE) WITH EXPOSED SURFACE OFF-WHITE BAKED ENAMEL FINISH OR AS SPECIFIED BY ARCHITECT. DEVICES SHALL BE SPECIFIED TO BE SUPPLIED BY TITUS OR METALAIRE. PROVIDE OPPOSED BLADE DAMPERS AT ALL DIFFUSERS AND REGISTERS AS INDICATED ON PLANS. PROVIDE BALANCING DAMPERS FOR ALL AIR DEVICES.
12. THERMOSTAT/HUMIDISTAT TO RECEIVE REMOTE TEMPERATURE/HUMIDITY SENSOR INPUT.
13. THERMOSTAT/HUMIDISTAT LOCATION SHALL BE APPROVED BY OWNER AND ENGINEER BEFORE INSTALLATION. INSTALL THERMOSTAT/HUMIDISTAT 48" A.F.F. IN ACCORDANCE WITH A.D.A. REQUIREMENTS. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR ALL REQUIREMENTS FOR JUNCTION BOXES, CONDUITS, CONTROL WIRING, POWER, ETC, AND DEFINE RESPONSIBILITIES AND SCOPE OF WORK FOR EACH TRADE PRIOR TO ANY INSTALLATION, WHEN POSSIBLE, WHENEVER THERE ARE MORE THAN ONE SENSOR OR THERMOSTAT SIDE BY SIDE THEY SHALL BE GANGED TOGETHER WITHIN THE SAME COVER PLATE.
14. REFRIGERANT LINES SHALL BE COPPER, TYPE "ACR" HARD DRAWN WITH WROUGHT COPPER BRAZING-JOINT TYPE FITTINGS. USE BRAZING MATERIALS FOR HIGH PRESSURE PIPING PER AWS A5.8 BCuP SERIES COPPER-PHOSPHORUS ALLOY OR BAg1 SILVER ALLOY. REFRIGERANT LINES SHALL BE SIZED PER EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. ALL EXPOSED INSULATION SHALL BE PROTECTED WITH UV RESISTANT PAINT OR ALUMINUM SHIELD.
15. 1/2" THICK PIPE INSULATION FOR REFRIGERANT SUCTION PIPING SMALLER THAN 1" SIZE, 1" THICK PIPE INSULATION FOR PIPING 1" AND LARGER. PIPE INSULATION SHALL BE ARMACELL, "ARMAFLEX" CLOSED CELL ELECTROMETRIC INSULATION, 0.27 THERMAL CONDUCTIVITY AT 75°F, PER THE INTERNATIONAL ENERGY CODE, TABLE C403.2.8 FOR MINIMUM PIPING INSULATION THICKNESS. PROVIDE FILTER/DRYER AND SIGHT GLASS IN ALL LIQUID LINES.
16. ALL BRANCH TAKE-OFFS TO BE PROVIDED WITH MANUAL VOLUME DAMPERS. PROVIDE LONG RADIUS ELBOWS (1.5XDIAMETER) WHERE FEASIBLE, SQUARE ELBOWS AND TEE'S SHALL BE FURNISHED WITH SINGLE WALL TURNING VANES. PROVIDE MANUAL VOLUME DAMPERS WITH EXTRACTOR AT ALL FLEX TAKE-OFFS. PROVIDE REMOTE, CABLE OPERATED VOLUME DAMPERS IN INACCESSIBLE AND HARD CEILING AREAS, "YOUNG REGULATOR". MODEL 270.
17. PROVIDE NEW FILTERS FOR ALL AIR CONDITIONING EQUIPMENT BEFORE AIR BALANCING. REPLACE AIR FILTERS PRIOR TO FINAL ACCEPTANCE BY OWNER. ALL FILTERS SHALL BE EQUAL TO MANUFACTURER'S RECOMMENDATIONS.
18. PROVIDE SMOKE DETECTORS FOR HVAC UNITS GREATER THAN 2000 CFM AIRFLOW. SMOKE DETECTORS SHALL BE FURNISHED WITH REMOTE ANNUNCIATION/TEST STATION AS REQUIRED BY AUTHORITY HAVING JURISDICTION, COORDINATION PRIOR TO INSTALLATION. DETECTORS SHALL BE BY ONE MANUFACTURER, COORDINATE VOLTAGE ETC. WITH ELECTRICAL CONTRACTOR AND FIRE ALARM SYSTEM IF REQUIRED BEFORE ORDERING. UPON DETECTION, SMOKE DETECTORS SHALL SHUTDOWN ASSOCIATED AIR MOVING EQUIPMENT AND SOUND ALARM.
19. HVAC CONTRACTOR SHALL PROVIDE A TESTING AND AIR BALANCING REPORT PER I.M.C. 2012. FOR ALL MECHANICAL EQUIPMENT, AIR DEVICES, DAMPERS, AHU'S AND FANS. THE TESTING AND AIR BALANCING AGENT SHALL BE AABC ACCREDITED. THE TESTING AND AIR BALANCING REPORT SHALL BE IN ACCORDANCE WITH THE ASSOCIATED AIR BALANCE COUNCIL (AABC) STANDARDS AND SHALL INCLUDE AIR QUANTITIES FOR ALL SUPPLY. RETURN AND EXHAUST GRILLES AND THE ENTERING, LEAVING AIR DB/WB TEMPERATURES (F) FROM AIR HANDLING UNITS AND EVAPORATORS.
20. ALL DUCTWORK AND PIPING INSULATION WILL HAVE A FIRE/SMOKE RATING EQUAL TO OR LESS THAN 25/50.
21. MECHANICAL PLANS IN GENERAL, ARE DIAGRAMMATIC IN NATURE, AND ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL, PLUMBING, ELECTRICAL, FIRE SPRINKLER, AND STRUCTURAL PLANS AND SHALL BE CONSIDERED AS ONE SET OF DOCUMENTS. DUCT AND PIPING OFFSETS, BENDS AND TRANSITIONS SHALL BE REQUIRED TO BE PROVIDED AND INSTALLED FOR A COMPLETE FUNCTIONAL SYSTEM AND SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. CHANGES IN DUCTWORK SIZE AND ROUTE WILL BE REQUIRED TO AVOID STRUCTURAL, PLUMBING, FIRE SPRINKLER AND ARCHITECTURAL BUILDING FEATURES. DUCTWORK CHANGES MAY BE MADE BY CONTRACTOR USING EQUIVALENT SIZED DUCT. CONTACT ENGINEER IF DUCT AREA WILL NOT FIT.
22. CONTRACTOR'S WARRANTY: CONTRACTOR SHALL PROVIDE A WARRANTY FOR A PERIOD OF (1) ONE YEAR, AFTER BUILDING OCCUPANCY. FOR ALL MECHANICAL SYSTEMS, DUCTWORK, CONTROLS, ACCESSORIES AND ALL OTHER EQUIPMENT. PARTS AND LABOR UNDER THESE DRAWINGS AND SPECIFICATIONS. CONTRACTOR SHALL PROVIDE WARRANTY FOR COMPRESSORS FOR (5) FIVE YEARS. ANY REPAIRS REQUIRING SYSTEM SHUTDOWN SHALL BE DONE DURING NON-OPERATIONAL PERIODS OR AS AGREED WITH OWNER.

OUTSIDE AIR CALCULATIONS

AREA SERVED OR UNIT TAG	NET OCCUPIABLE AREA SQ. FT.	MAX. OCCUPANCY P/1000 SQ. FT.	TOTAL NO. OF PEOPLE	VENTILATION RATE CFM/P	VENTILATION RATE SQ. FT.	VENTILATION EFFECTIVENESS	TOTAL CFM O/A REQUIRED	TOTAL CFM O/A PROVIDED	NOTES
OCCUPIABLE STORAGE	1,645	2	6	5	0.12	80%	285		1
SALES	2,800	15	42	7.5	0.12	80%	814		1
RTU-1								800	
RTU-2								800	
RTU-3								320	
TOTALS							**1,099**	**1,920**	

NOTES:

1. CALCULATIONS ARE BASED ON ESTIMATED MAXIMUM OCCUPANCY RATES PER ARCHITECTURAL PLANS AND ASHRAE 62.1-2010 VENTILATION RATES.

AIR BALANCE SCHEDULE

AREA SERVED	EQUIPMENT TAG	SUPPLY AIR (CFM)	RETURN AIR (CFM)	OUTSIDE AIR (CFM)	EXHAUST AIR (CFM)
SALES	RTU-1	4,800	4,000	800	X
SALES	RTU-2	4,800	4,000	800	X
STORAGE	RTU-3	2,100	1,780	320	X
MEN'S RESTROOM	EF-1	X	X	X	210
WOMEN'S RESTROOM	EF-2	X	X	X	210
FOOD PREP	EF-3	X	X	X	600
FROZEN CARBONATED BEVERAGE	EF-4	X	X	X	600
TOTALS		**11,700**	**9,780**	**1,920**	**1,620**

NOTES:

1. BUILDING IS (1,920 CFM OA - 1,620 CFM EA) 300 CFM POSITIVE WHEN ALL EXHAUST FANS ARE OPERATING.

MECHANICAL LEGEND

- S/A CEILING DIFFUSER
- R/A CEILING GRILLE
- E/A CEILING GRILLE
- DUCTWORK UP THRU ROOF
- SLOT / LINEAR DIFFUSER
- WALL LOUVER / WALL DIFFUSER
- VOLUME CONTROL DAMPER
- REDUCER OR INCREASER
- FLEX DUCT
- DUCTWORK
- ROUND UP
- DD — MANUAL VOLUME DAMPER WITH EXTRACTOR
- S — DUCT SMOKE DETECTOR
- CEILING EXHAUST FAN
- ROOF EXHAUST FAN
- A / CFM — SUPPLY AIR DIFFUSER OR GRILLE DESIGNATION
- A / CFM — RETURN/EXHAUST AIR GRILLE DESIGNATION
- EQP X — EQUIPMENT TAG
- RT — REMOTE TEMPERATURE SENSOR
- RH — REMOTE HUMIDITY SENSOR
- T — THERMOSTAT
- SUPPLY AIR
- RETURN AIR
- U/C — DOOR UNDER CUT
- PIPE UP
- PIPE DOWN

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GEORGIA REGISTERED No. 29966 PROFESSIONAL ENGINEER JUSTIN B. TRACY
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