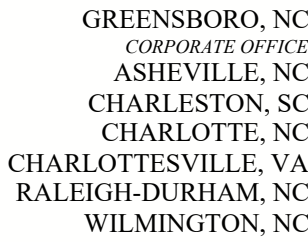


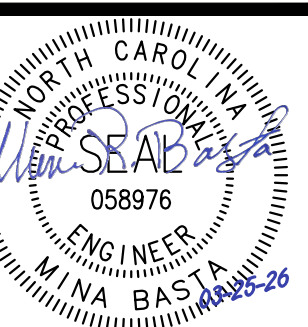
MECHANICAL SPECIFICATIONS Dwg # 260012-MB004.DWG GENERAL: THE WORK COVERED IN THE SPECIFICATIONS AND SHOWN ON THE DRAWINGS CONSISTS IN PROVIDING A COMPLETE SYSTEM INCLUDING LABOR, MATERIALS, ETC. THE TERM "PROVIDE" USED THROUGHOUT SPECIFICATIONS AND ON DRAWINGS SHALL MEAN TO "FURNISH, INSTALL AND CONNECT WITH ALL RELATED ACCESSORIES AS REQUIRED FOR COMPLETE INSTALLATION READY FOR USE." COMPLY WITH ALL APPLICABLE LOCAL AND STATE CODES, LAWS AND REGULATIONS APPLICABLE TO MECHANICAL, HEATING, VENTILATING AND AIR CONDITIONING INSTALLATION. THE ENTIRE INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE WHICH INCLUDES VOLUME III, MECHANICAL CODE. THE CONTRACTOR SHALL PAY ALL INSPECTION FEES AND SHALL INCLUDE THE COST OF SUCH FEES IN HIS PROPOSAL. CHECK AND VERIFY WITH THE OWNER, EQUIPMENT SUPPLIERS, AND ALL OTHER DOCUMENTS FOR THE PROJECT THE EXACT REQUIREMENTS FOR PROVIDING REQUIRED AND COMPLETE SERVICES FOR EQUIPMENT, SYSTEMS, ETC. AS SHOWN OR INDICATED. MINOR CHANGES IN PIPE, DUCTS, DIFFUSER, GRILLE OR EQUIPMENT LOCATIONS MAY BE MADE AT ANY TIME PRIOR TO ROUGHING-IN OF THE MECHANICAL WORK WITHOUT ANY ADDITIONAL COSTS. ALL EQUIPMENT SHALL HAVE UL LABEL AS APPLICABLE. SUBMIT ELECTRONICALLY SUBMITTAL DATA FOR APPROVAL FOR ALL MATERIALS AND EQUIPMENT. PRIOR TO SUBMITTAL, THE CONTRACTOR SHALL STAMP ALL SHOP DRAWINGS AND SUBMITTAL DATA AS "APPROVED," INDICATING FULL COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS. SHOP DRAWINGS AND SUBMITTAL DATA WILL NOT BE REVIEWED WITHOUT THE "APPROVED" STAMP. SHOP DRAWINGS AND SUBMITTAL DATA SHALL BE CLEARLY MARKED WITH EQUIPMENT SIZES, CAPACITIES, ETC. INDICATED FOR THE PROJECT. INDICATE CLEARLY THE EXACT REQUIREMENTS FOR ACCESS FOR SERVICE AND MAINTENANCE AND MINIMUM CLEARANCES FOR COMPLIANCE WITH ALL APPLICABLE CODES. ALL SHOP DRAWINGS SHALL BE SUBMITTED AS SOON AS POSSIBLE AFTER AWARD OF THE CONTRACT. FURNISH TO THE OWNER TWO (2) SETS OF MARKED UP MECHANICAL, HEATING AND AIR CONDITIONING PRINTS WITH ALL DEVIATIONS AND CORRECTIONS SHOWING THE AS-BUILT AND DIMENSIONED, IF NECESSARY. LOCATIONS, ELEVATIONS, ETC. OF ALL PIPING, EQUIPMENT, DUCTS, VALVES, ETC., UNDERGROUND, IN WALLS, ABOVE CEILINGS AND OTHERWISE CONCEALED, WHICH WILL REQUIRE SERVICE AND MAINTENANCE. FURNISH PIPING AND GROUT NEATLY IN PLACE SCHEDULE 40 BLACK STEEL PIPE SLEEVES FOR PIPING, CONDUITS, ETC., RUN THROUGH NEW WALLS, ABOVE AND BELOW SLAB ON GRADE, DIRECTLY BELOW WALL FOOTINGS, THROUGH ALL SLABS, ETC. EXTEND VERTICAL SLEEVES IN WALL SLABS MINIMUM 1" ABOVE FINISHED FLOOR AND CAULK WATERTIGHT BETWEEN SLEEVE AND SLAB, AND BETWEEN EACH PIPE AND SLEEVE. SEAL AIR- AND WATER-TIGHT AROUND ALL PIPING, CONDUITS, BOXES, DUCTWORK, ETC., RUN THRU NEW WALLS, PARTITIONS, FLOORS, CEILING, ROOF, ETC. USE FIRE BARRIER CAULK AND PUTTY EQUAL TO 3M TYPE 303 PUTTY OR TYPE CP-25 CAULK AS APPLICABLE AROUND PENETRATIONS THRU FIRE-RATED WALLS, PARTITIONS, FLOOR, CEILING, ROOF, ETC. CONTRACTOR TO CONFIRM CAULKING USED IS COMPATIBLE WITH PIPING BEING USED. ARRANGE WORK TO AVOID CUTTING WORK OF OTHER TRADES. WHERE CUTTING IS UNAVOIDABLE, CUT AND PATCH IN A MANNER NOT TO WEAKEN THE STRUCTURE OR ADVERSELY AFFECT THE FINISHED APPEARANCE. REPAIR CUT AREAS TO MATCH ADJACENT WORK. MECHANICAL GENERAL NOTES Dwg # 260012-MB002.DWG 1. CONTRACTOR SHALL PREPARE, SUBMIT AND OBTAIN APPROVAL ON SHOP DRAWINGS SHOWING ALL DUCTWORK, UTILITIES, STRUCTURAL, PIPING, CONDUIT AND OTHER INTERFERENCES, BEFORE BEGINNING INSTALLATION. SEE SPECS FOR DETAILED SHOP DRAWING REQUIREMENTS. 2. ALL DUCT LAYOUTS ARE GENERALLY DIAGRAMMATIC. CONTRACTOR SHALL VERIFY AVAILABLE SPACE FOR INDICATED DUCTS BASED ON DETAILED SHOP DWGS. AND MEASUREMENTS AND SURVEYS TAKEN OF THE AS-BUILT CONDITIONS. 3. ALL PIPE LAYOUTS ARE GENERALLY DIAGRAMMATIC. CONTRACTOR SHALL VERIFY AVAILABLE SPACE FOR INDICATED PIPES BASED ON DETAILED SHOP DWGS. AND MEASUREMENTS AND SURVEYS TAKEN OF THE AS-BUILT CONDITIONS. 4. CONTRACTOR SHALL COORDINATE LOCATIONS OF ALL DUCT AND PIPING TO INTERFACE WITH PLUMBING, FIRE PROTECTION, ELECTRICAL, CONTROLS, STRUCTURAL, AND ALL OTHER WORK, EXISTING OR NEW. SEE MECHANICAL GENERAL PROVISIONS IN SPECS FOR FURTHER DETAILS. 5. COORDINATE DUCTWORK ROUTING AND SIZES WITH PIPING, CONDUIT, STRUCTURES AND OTHER INTERFERENCES TO AVOID CONFLICTS. IF SIZE MUST BE CHANGED, USE EQUIVALENT FRICTION METHOD TO SELECT REVISED SIZE. 6. ALL DIMENSIONS ARE SHOWN FOR FREE FLOW AREA IN NEW HVAC DUCTWORK. 7. WHERE REQUIRED FOR CLEARANCE, PIPING AND CONDUIT SHALL BE INSTALLED BETWEEN LIGHTS AND UNDER DUCTWORK. 8. TO PROVIDE ADEQUATE CLEARANCE WHERE DUCT CROSSINGS ARE EXTREMELY TIGHT, LOCATE FLANGED JOINTS AND DUCT REINFORCING SO THAT FLANGES AND REINFORCING OCCUR WHERE ADEQUATE SPACE IS AVAILABLE. 9. CONTRACTOR SHALL FURNISH AND INSTALL ALL ACCESS DOORS IN DUCTWORK AS REQUIRED FOR FIRE DAMPERS, CONTROLS, LOCATIONS RECOMMENDED BY SMACNA, AND WHERE REQUIRED BY THE CONTRACT DRAWINGS AND/OR THE SPECIFICATIONS. ALL ACCESS DOORS REQUIRED MAY NOT BE SHOWN ON THE DRAWINGS. 10. ACCESS DOORS IN BUILDING FINISHES SHALL BE FURNISHED AND INSTALLED UNDER THE GENERAL CONSTRUCTION DIVISIONS OF THE SPECIFICATIONS. 11. MATERIALS, EQUIPMENT AND INSTALLATION SHALL COMPLY WITH ALL REQUIREMENTS OF THE SPECIFICATIONS. SEE MECHANICAL GENERAL PROVISIONS AND ALL OTHER MECHANICAL SECTIONS. 12. ELBOWS IN ALL DUCTWORK SHALL BE SMACNA SMOOTH RADIUS TYPE. SEE DUCTWORK SPECIFICATIONS. SQUARE MITERED ELBOWS ARE SHOWN IN MANY PLACES ON THESE DRAWINGS FOR SIMPLICITY OF DRAFTING, BUT SQUARE MITERED ELBOWS SHALL NOT BE USED EXCEPT WHERE ABSOLUTELY NECESSARY TO FIT IN A SPECIFIC SITUATION, AND WHERE SPECIFICALLY APPROVED BY THE OWNER'S REPRESENTATIVE. WHERE SQUARE MITERED ELBOWS MUST BE USED, TURNING VANS SHALL BE PROVIDED PER SPECIFICATIONS. MATERIALS: DUCTWORK: GALVANIZED STEEL, FABRICATED IN ACCORDANCE WITH LATEST SMACNA AND ASHRAE GUIDE AND STANDARDS FOR LOW PRESSURE DUCTWORK. TURNS SHALL BE SQUARE WITH TURNING VANES OR WITH PROPER SIZE RADIUS. USE FOLLOWING GAUGES FOR LOW PRESSURE DUCTWORK: WHERE THE LONGEST SECTION DIMENSION IS 0-12 INCHES - 26 GAUGE, 13-30 INCHES - 24 GAUGE. PROVIDE EASILY ACCESSIBLE SPLITTERS AND OPPOSED BLADE DAMPERS AS REQUIRED FOR BALANCING. PROVIDE LOCKING TYPE QUADRANT AND HANDLE SET IN FACE OF DUCT ARRANGED AND MARKED TO SHOW POSITION OF DAMPER, FOR EACH DAMPER WITH SCREWS TO FIX ADJUSTMENT. PROVIDE HEAVY GLASS FABRIC COATED WITH NEOPRENE FOR CONNECTIONS BETWEEN DUCTWORK AND EQUIPMENT. SUPPORT DUCTWORK UP TO 24" WIDE WITH 16 GAUGE STRAPS RVETED TO SIDE AND BOTTOM OF DUCT AND SPACED NOT MORE THAN 6 FEET APART. SUPPORT DUCTWORK OVER 24" WIDE ON THREADED RODS WITH ANGLE IRON SPACED NOT MORE THAN 6 FEET APART. SUPPORT FLEXIBLE DUCTS ON MINIMUM 4" WIDE METAL BANDS 4"x0" - 6"x0" O.C. PROVIDE SUPPLEMENTARY WOOD OR STEEL SUPPORTS BETWEEN JOISTS, BEAMS, PURLINS, TRUSSES, ETC. SEAL AND TAPE ALL DUCT JOINTS AND AT ALL FLEXIBLE CONNECTIONS TO EQUIPMENT TO REDUCE OR ELIMINATE LEAKAGE, AND TO MAINTAIN PRESSURES IN SPACES AS INDICATED. PROVIDE SUPPORT FOR EACH DUCT, OR DIFFUSER, GRILLE OR REGISTER FROM ROOF STRUCTURE, INDEPENDENTLY OF ANY CEILING TILES OR CEILING SUPPORT SYSTEM. FLEXIBLE GLASS FIBER INSULATION: INSULATE ALL GALVANIZED STEEL DUCTWORK WITH EXTERNAL GLASS FIBER BLANKET INSULATION (INDUSTRIAL TYPE). INSULATION SHALL BE TYPE ICLASS B-4, RESILIENT, FLEXIBLE BLANKET INSULATION 1" THICKNESS WITH MINIMUM DENSITY OF 1.50 LB/CU.FT., 250 °F INSULATION SERVICE TEMPERATURE, "K" VALUE 0.25 AT 75 °F MEAN TEMPERATURE (AT LABELED THICKNESS), AND PERMEANCE OF 0.02. SEAL AND TAPE ALL SEAMS. EXISTING DUCTWORK: WHERE EXISTING DUCTWORK HAS BEEN CUT OR OPENED, IT SHALL BE CLOSED, SEALED, & INSULATED WITH SAME MATERIALS TO MATCH EXISTING. CONTRACTOR SHALL EXAMINE EXISTING DUCT FOR OBVIOUS SIGNS OF LEAKAGE, JOINTS FOUND TO BE LEAKING SHALL BE SEALED WITH NON-VOC DUCT SEALANT MASTIC OR EQUIVALENT. PACKAGED ROOFTOP AIR CONDITIONING UNITS: MANUFACTURER: SEE EQUIPMENT SCHEDULE. UNIT BY CARRIER, MCGUAY, TRANE, OR DAIKIN WILL BE ACCEPTED SO LONG AS THEY ARE AT LEAST EQUAL IN PERFORMANCE AND CONSTRUCTION AND THEY FIT IN THE AVAILABLE SPACE. PACKAGED UNIT: UNIT SHALL BE SELF-CONTAINED, PACKAGED, FACTORY ASSEMBLED AND PRE-WIRED UNIT SUITABLE FOR OUTDOOR USE CONSISTING OF CABINET, COMPRESSOR(S), CONDENSING COIL, BURNER, HEAT EXCHANGER, EVAPORATOR COIL AND FAN(S), INTEGRAL SUB-COOLING CIRCUIT(S), FILTER DRIERS(S), AND CONTROLS. CONSTRUCTION AND RATINGS: UNIT SHALL BE CERTIFIED IN ACCORDANCE WITH ARI STANDARD 210/240 AND SHALL BE UL APPROVED AND LABELED. TESTING SHALL BE IN ACCORDANCE WITH ASHRAE 14. PERFORMANCE RATINGS: THE UNIT ENERGY EFFICIENCY RATING (EER) SHALL NOT BE LESS THAN THAT PRESCRIBED BY ANSI/ASHRAE 90A. CASING: THE UNIT HOUSING SHALL BE CONSTRUCTED OF 16 GAUGE ZINC COATED GALVANIZED STEEL FRAME AND PANELS WITH WEATHER RESISTANT, BAKED ENAMEL FINISH. UNIT SURFACE SHALL BE TESTED 800 HOURS IN SALT SPRAY TEST. UNIT CONTROLS SHALL BE MOUNTED IN A WEATHERPROOF PANEL PROVIDED WITH REMOVABLE SERVICE PANELS. CONDENSER COILS: COILS SHALL BE CONSTRUCTED OF ALUMINUM FINS MECHANICALLY BONDED TO SEAMLESS COPPER TUBING. COILS SHOULD BE COOLING CIRCUIT(S). COILS SHALL BE FACTORY LEAK TESTED UNDER WATER TO 425 PSIG, VACUUM DEHYDRATED, AND SEALED WITH A HOLDING CHARGE OF REFRIGERANT. PROVIDE COATED STEEL WIRE COIL GUARDS.	CONDENSOR FANS AND MOTORS: FAN(S) SHALL BE VERTICAL DISCHARGE DIRECT DRIVE PROPPELLER TYPE CONDENSER FANS WITH FAN GUARD ON DISCHARGE. FANS SHALL BE STATICALLY AND DYNAMICALLY BALANCED. MOTORS SHALL BE SUITABLE FOR OUTDOOR USE, SINGLE PHASE PERMANENT SPLIT CAPACITOR OR THREE PHASE, WITH PERMANENTLY LUBRICATED BEARINGS AND BUILT-IN CURRENT AND THERMAL OVERLOAD PROTECTION. COMPRESSORS: COMPRESSORS SHALL BE SINGLE STAGE, DIRECT DRIVE, HERMETIC TYPE WITH SUCTION AND DISCHARGE VALVES, CRANKCASE HEATER AND GEAR TYPE OIL PUMP. FOR BALANCING. PROVIDE LOCKING TYPE QUADRANT AND HANDLE SET IN FACE OF DUCT. SUCTION GAS COOLED MOTOR WITH OVER TEMPERATURE PROTECTION AND OVER CURRENT PROTECTION. PROVIDE WITH EXTERNAL HIGH AND LOW PRESSURE CUTOITS. PROVIDE DEFROST CONTROL TO INTERRUPT COMPRESSOR OPERATION WITH LOW EVAPORATOR COIL TEMPERATURE. PROVIDE EACH UNIT WITH ONE REFRIGERANT CIRCUIT FACTORY SUPPLIED WITH FLUID DRIER, SUCTION AND LIQUID LINE SERVICE VALVES, AND COMPLETELY FACTORY PIPED. CONTROLS: PROVIDE FACTORY WIRED CONDENSING UNIT WITH 24 VOLT CONTROL CIRCUIT WITH INTERNAL FUSING AND CONTROL TRANSFORMERS, CONTACTOR PRESSURE LUGS AND/OR TERMINAL BLOCK FOR POWER WIRING. UNIT SHALL HAVE SINGLE POINT POWER CONNECTIONS. PROVIDE A MINIMUM FIVE MINUTE OFF TIMER TO PREVENT THE COMPRESSOR(S) FROM SHORT CYCLING. UNIT SHALL BE PROVIDED WITH HEAD PRESSURE CONTROL AND BE CAPABLE OF PROVIDING COOLING WHEN OUTDOOR AMBIENT DROPS AS LOW AS 40°F. PROVIDE FACTORY OR FIELD INSTALLED AND WIRED CONTROLS INCLUDING, BUT NOT LIMITED TO: FAN CONTACTOR, LOW VOLTAGE TERMINAL STRIP SINGLE POINT POWER ENTRY, FACTORY INSTALLED EVAPORATOR DEFROST CONTROL TO PREVENT COIL FREEZING AT LOW EVAPORATOR TEMPERATURES. PROVIDE PROGRAMMABLE NIGHT SETBACK THERMOSTAT (WHERE SHOWN ON DRAWINGS) WITH AUTOMATIC CHANGEOVER AND SEVEN DAY PROGRAMMING. THE SEVEN DAY PROGRAMMING SHALL INCLUDE ONE OCCUPIED, ONE UNOCCUPIED, AND TWO OVERRIDE PROGRAMS FOR EACH DAY. KEYBOARD SELECTION OF HEAT, COOL, FAN AUTO OR ON, SHALL BE PROVIDED. STATUS INDICATORS SHALL INDICATE THE FOLLOWING: SYSTEM ON, AS INDICATED, COIL SEIZING, LOW VOLTAGE, LOW OIL, LOW REFRIGERANT, LOW WATER, LOW PRESSURE, LOW TEMPERATURE, LOW FLOW, LOW VOLTAGE, LOW OIL, LOW REFRIGERANT, LOW WATER, LOW PRESSURE, LOW TEMPERATURE, LOW FLOW. SUPPLY FANS: PROVIDE UNIT FAN SECTION WITH FORWARD CURVED, DOUBLE WIDTH, DOUBLE INLET CENTRIFUGAL TYPE FAN WITH ADJUSTABLE BELT DRIVE, THERMAL OVERLOAD PROTECTION, AND PERMANENTLY LUBRICATED BEARINGS. PROVIDE ACCESS TO MOTOR, DRIVE, AND BEARINGS THROUGH REMOVABLE CASING PANELS. FANS SHALL BE STATICALLY AND DYNAMICALLY BALANCED. COILS: EVAPORATOR COILS SHALL BE CONSTRUCTED OF ALUMINUM FINS MECHANICALLY BONDED TO SEAMLESS COPPER TUBING. COILS, HEADERS AND RETURN BENDS SHALL BE FULLY HOUSED WITHIN THE UNIT CASING. PROVIDE WITH FACTORY INSTALLED EXPANSION VALVES AND FACTORY PRESSURE AND LEAK TESTED TO 375 PSIG. DRAIN PAN: PROVIDE DRAIN PAN CONSTRUCTED OF PVC PLASTIC OR INSULATED GALVANIZED STEEL WITH EXTERNAL CONNECTIONS ON BOTH SIDES OF THE UNIT. FILTERS: PROVIDE TWO-INCH THROWAWAY TYPE FILTERS. FILTERS SHALL BE ACCESSIBLE FROM EITHER SIDE OF THE UNIT. PROVIDE THREE (3) SETS OF FILTERS FOR EACH UNIT FURNISHED UNDER THIS SPECIFICATION. ONE SET FOR USE DURING CONSTRUCTION, ONE SET FOR USE DURING BALANCING, ONE SET FOR OWNER'S SPARE. EXECUTION: INSTALL THE PACKAGED ROOFTOP AIR CONDITIONING UNITS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MAINTAIN REQUIRED VERTICAL AND LATERAL CLEARANCES FOR PROPER PERFORMANCE, SERVICE ACCESS, MAINTENANCE AND SAFETY. MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT Dwg # 260012-M1001.DWG METHOD OF COMPLIANCE ☒ PRESCRIPTIVE ☐ ENERGY COST BUDGET ☒ THERMAL ZONE THERMAL ZONE WINTER DRY BULB: - 20°F SUMMER DRY BULB: - 92°F db/74°F wb INTERIOR DESIGN CONDITIONS WINTER DRY BULB: 70°F SUMMER DRY BULB: 75°F RELATIVE HUMIDITY: 50% RH BUILDING HEATING LOAD: REPLACE EXISTING EQUIPMENT LOAD - UNKNOWN ADD NEW HEATING LOAD - 250 MBH BUILDING COOLING LOAD: ADD NEW COOLING LOAD - 25 TONS MECHANICAL SPACING CONDITIONING SYSTEM UNITARY DESCRIPTION OF UNIT: - SEE SCHEDULE HEATING EFFICIENCY: - SEE SCHEDULE COOLING EFFICIENCY: - SEE SCHEDULE HEAT OUTPUT OF UNIT: - SEE SCHEDULE COOLING OUTPUT OF UNIT: - SEE SCHEDULE BOILER - TOTAL BOILER OUTPUT: IF OVERSIZED, STATE REASON: N/A CHILLER TOTAL CHILLER CAPACITY: IF OVERSIZED, STATE REASON: N/A LIST EQUIPMENT EFFICIENCIES: SEE SCHEDULE EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS) HEAT OR HORSEPOWER: - SEE SCHEDULE NUMBER OF PHASES: - SEE SCHEDULE MINIMUM EFFICIENCY: - SEE SCHEDULE MOTOR TYPE: - SEE SCHEDULE # OF POLES: - SEE SCHEDULE CONTROL LEGEND Dwg # 260012-M1005.DWG POWER WIRING ----- EC ----- BY ELECTRICAL CONTRACTOR ----- CC ----- BY CONTROLS CONTRACTOR ----- SM ----- BY SUPPLIER/MANUFACTURER CONTROL WIRING ----- CC ----- BY CONTROLS CONTRACTOR ----- EC ----- BY ELECTRICAL CONTRACTOR ----- SM ----- BY SUPPLIER/MANUFACTURER CONTROL POINTS --- □ --- ○ --- BY CONTROLS CONTRACTOR --- □ CC --- ○ CC --- BY CONTROLS CONTRACTOR --- □ EC --- ○ EC --- BY ELECTRICAL CONTRACTOR --- □ SM --- ○ SM --- BY SUPPLIER/MANUFACTURER --- □ PBO --- ○ PBO --- PROVIDED BY OWNER PROVIDE CONDENSATE DRAIN PIPING SIZED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH CODE REQUIREMENTS. IN NO CASE SHALL CONDENSATE PIPING BE LESS THAN 1" PIPE SIZE. ALL PENETRATIONS SHALL BE SEALED VERMIN PROOF AND MOISTURE TIGHT. TEST AND OBTAIN SPECIFIED PERFORMANCE AS REQUIRED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ADJUST AS NECESSARY TO OBTAIN REQUIRED PERFORMANCE. GAS PIPING: GAS PIPE AND PIPE NIPPLES SHALL BE ANSI/ASTM A-106, GRADE B, SEAMLESS, ANSI/ASME B31.1 AND ANSI B36.1, STANDARD WEIGHT, CARBON STEEL, THREADED AND COUPLED, FURNISHED WITH COUPLING FOR JOINT. FITTINGS SHALL BE ANSI B16.3 AND ANSI/ASTM A-197, 150 LB., BLACK MALLEABLE IRON, SCREWED. VALVES SHALL BE PLUG-DURCO G432 CARBON STEEL BODY AND PLUG, CLASS 150, SCREWED ENDS, ASBESTOS FREE PIPING, LOOSE HANDLE TYPE WRENCH. ALL GAS PIPING SHALL BE PRIMED AND PAINTED SAFETY YELLOW AND LABELED AS "NATURAL GAS". CONNECTIONS TO EQUIPMENT SHALL INCLUDE DIRT LEG. NEW GAS LOAD AHEAD IS 108 CFH. COORDINATE CONNECTION OF NEW GAS LINE AND ADJUSTMENT OF METER/REGULATOR WITH PIEDMONT NATURAL GAS CO. ELECTRICAL WORK: POWER WIRING UP TO AND INCLUDING JUNCTION BOXES, DISCONNECT SWITCHES, ETC. AS INDICATED, WILL BE PROVIDED BY THE ELECTRICAL CONTRACTOR AT LOCATIONS AS SHOWN. WIRING, CONDUITS AND CONNECTIONS FROM LOAD SIDE OF DISCONNECT SWITCHES, JUNCTION BOXES, ETC. TO EQUIPMENT TERMINALS, AND TEMPERATURE CONTROL AND INTERLOCK WIRING, SHALL BE INCLUDED IN THE MECHANICAL CONTRACT. CONDUIT SHALL BE EMT WITH STEEL, WATERTIGHT FITTINGS, WITH ALL THINWALL COPPER CONDUCTORS IN ALL AREAS. SEE DIV. 16 SPECIFICATIONS FOR FURTHER INFORMATION ON MATERIALS AND METHODS. CLEANING, PAINTING: CLEAN ALL PIPING, HANGERS, DUCTWORK, GRILLES, DIFFUSERS, EQUIPMENT, ETC. AND LEAVE READY FOR USE. PAINT NEW GAS PIPING OUTSIDE THE BUILDING RUN AT WALL AND ABOVE ROOF. COLOR TO BE SAFETY YELLOW. GUARANTEE: REFER TO GENERAL CONDITIONS OF THE CONTRACT FOR CONTRACT COMPLETION AND WARRANTY REQUIREMENTS. GUARANTEE ALL MATERIALS, EQUIPMENT AND WORKMANSHIP FOR ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY OWNER AS STATED IN WRITING. EXCEPT REFRIGERATION COMPRESSORS WHICH SHALL HAVE ADDITIONAL A YEAR EXTENDED GUARANTEE. REPAIR AND/OR REPLACE, WITHOUT ANY COST TO THE OWNER, ANY DEFECTIVE PART OR PARTS OF THE WORK WITHIN THE GUARANTEE PERIOD FROM THE TIME THE SYSTEM IS PUT INTO OPERATION AS DETERMINED BY THE DATE OF FINAL CERTIFICATE OF PAYMENT WITH EXCEPTIONS AS NOTED. PROVIDE PERIODICAL INSPECTION AND ADJUSTMENT SERVICE THROUGHOUT THE GUARANTEE PERIOD. SYMBOLS - AIR MOVING DEVICES AND COMPONENTS Dwg # 260013-MB003.DWG FANS CENTRIFUGAL PROPELLER POWER OR GRAVITY ROOF VENTILATOR - EXHAUST (GRH OR EF) POWER OR GRAVITY ROOF VENTILATOR - SUPPLY (GIR OR SAF) DAMPERS VOLUME DAMPER PNEUMATIC OPERATED ELECTRIC OPERATED OPPOSED BLADE PARALLEL BLADE DUCTWORK DIRECTION OF FLOW DUCT LINER (DUCT DIMENSIONS FOR NET FREE FLOW AREA) DUCT SIZE (FIRST FIGURE SIDE SHOWN)(DIMENSIONS FOR NET FREE FLOW AREA) DUCT SECTION, SUPPLY (DIMENSIONS FOR NET FREE FLOW AREA) DUCT SECTION, RETURN OR EXHAUST (DIMENSIONS FOR NET FREE FLOW AREA) CHANGE OF ELEVATION (RISE [UP] - DROP [DN]) TRANSITION, FLAT ON TOP- FOT OR FLAT ON BOTTOM- FOB STANDARD BRANCH FOR SUPPLY AND RETURN, FOR ROUND SUPPLY BRANCHES, CONICAL SPIN-UP WITH VOLUME DAMPER MAY BE USED. FLEXIBLE CONNECTION FLEXIBLE DUCT SOUND ATTENUATOR SQUARE ELBOW WITH TURNING VANES. SEE GENERAL NOTES AND DUCTWORK SPECIFICATIONS. USE SMOOTH RADIUS TYPE WITH TWO SPLITTER VANES. INSTEAD OF SQUARE TYPE AS DIRECTED. ACCESS DOORS, VERTICAL OR HORIZONTAL FILTER AIR FLOW MEASURING STATION SMOKE DETECTOR TERMINAL UNIT, VARIABLE AIR VOLUME MISCELLANEOUS TRANSFER GRILL LOUVER AND SCREEN DOOR GRILLE UNDERCUT DOOR THERMOSTAT POINT OF CONNECTION (NEW TO EXISTING OR END OF DEMOLITION) POINT OF DISCONNECTION (START OF DEMOLITION)	GREENSBORO, NC CORPORATE OFFICE CHARLOTTEVILLE, NC CHARLESTON, NC CHARLOTTE, NC CHARLOTTEVILLE, VA RALPHIGH-DURHAM, NC WILMINGTON, NC QUALITY. INTEGRITY. INNOVATION. SKA Consulting Engineers, Inc. 79075 Lila Court, Dwyg, Tole, 200 Greensboro, NC 27409-3075 1-800-855-8995 www.skaeng.com SKA Logo: 2001 These drawings are instruments of service and are the property of SKA Consulting Engineers, Inc. whether the project to which they are made is successful or not. 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ID Number: 250012
 Name: 250012-M040
 Date: 3/24/2026 11:21 AM



WEST FORSYTH HIGH SCHOOL

FOR

MECHANICAL SCHEDULE

Designed By:	MRB
Drawn By:	MRB
Checked By:	MRB
Date:	03/25/2026

M4.1

PACKAGED RTU SCHEDULE

DRAWING TAG	RTU-1
AREA SERVED	CAFETERIA
LOCATION	ROOF TOP
MANUFACTURER	TRANE
SERIES	PRECEDENT - YSK300A3S0L
EFFICIENCY	
IEER @ AHRI	9.8
IEER @ AHRI	13
COOLING	
NOMINAL TONS	25
NET TOTAL (MBH)	283
NET SENSIBLE (MBH)	213
AIRFLOW (CFM)	8,000
MAX. DESIGN OUTSIDE AIR (CFM)	8,000
MIN. DESIGN OUTSIDE AIR (CFM)	4560
COOLING EAT ("F DB/F WB)	83/70
COOLING LAT ("F DB/F WB)	56/55
EVAPORATOR ROWS/FPI	4/14
COMPRESSORS	
TYPE	SCROLL
QUANTITY	2
REFRIGERANT TYPE	R454B
HEATING	
AIRFLOW (CFM)	8,000
EAT ("F)	60
LAT ("F)	82.95
HEATING INPUT/OUTPUT (BTUH)	250,000/202,500
THERMAL EFFICIENCY(%)	81%
HOT GAS REHEATING SECTION	
DEHUMIDIFICATION/HOT GAS REHEAT CAPACITY(MBH)	215.11
REHEAT COIL TEMPERATURE RISE ("F)	24.62
SUPPLY FAN	
QTY - TYPE	2 - PLENUM
AIRFLOW (CFM)	8,000
HP	5
EXT. S.P. (in. WC)	0.5
DRIVE TYPE	DIRECT
UNIT ELECTRICAL DATA	
POWER (VOLT/PHASE)	460/3
MCA (AMPS)	58
MOP (AMPS)	80
FILTER INFORMATION	
TYPE	THROWAWAY
QUANTITY / (SIZE, IN)	4 (20x24X2) & 4 (20x30X2)
MAX. OPERATING WEIGHT (LBS)	2,791
ACCESSORIES	1 THRU 17
REMARKS	A THRU F

ACCESSORIES:

1. PREMIUM EFFICIENCY MOTORS (MEET OR EXCEED EPACT/ASHRAE 90.1 STANDARDS)
2. RTU CONTROLLER INCLUDING AIR SENSORS, BACNET MS/TP COMMUNICATION CARD
3. STANDARD ECONOMIZER FEATURES FULLY MODULATING 0 TO 100 PERCENT MOTOR AND DAMPERS
4. FILTER FRAME KIT
5. PHASE MONITOR KIT
6. ONE SET REPLACEMENT FILTERS
7. ZONE TEMPERATURE & HUMIDITY SENSOR
8. UV-C LIGHTS WITH DOOR INTERLOCK
9. LOW-LEAK OA AND RA DAMPERS WITH 24 VAC MOTOR ACTUATORS
10. SUPPLY FAN VFD
11. DUCT CONNECTIONS: SIDE SUPPLY, SIDE RETURN
12. 2-INCH MERV 13 FILTERS
13. DIRTY FILTER SWITCH
14. OUTSIDE AIR INTAKE HOOD
15. VARIABLE CAPACITY COMPRESSORS
16. 120V GFI RECEPTACLE, POWERED SEPARATELY
17. 18" FULL PERIMETER KNOCKDOWN CURB

REMARKS:

- A. SEE DRAWINGS FOR UNIT LAYOUT
- B. SOUND RATINGS SHALL BE IN ACCORDANCE WITH ARI STANDARDS (270 OR 370)
- C. PROVIDE 5-YEAR COMPRESSOR AND UNIT WARRANTY AND 1-YR TOTAL PARTS WARRANTY.
- D. UL LISTED AND LABELED
- E. EQUAL MANUFACTURERS: TRANE, CARRIER, DAIKIN
- F. EXT. CASING TO BE G-99 GALV. STEEL, FINISH TO BE CAPABLE OF WITHSTANDING UP TO 2,500-HOUR SALT SPRAY EXPOSURE PER ASTM B117.



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