

MECHANICAL SPECIFICATIONS

- 1) Provide all heating, ventilation and air conditioning items indicated on the drawings, described in this specification or required for a complete and proper installation.
2) Comply with all pertinent codes, ordinances and regulations. Refer to website for Dept. of Community Affairs for current Codes Editions.
3) The contractor shall not attempt to precisely scale dimensions from these drawings to obtain construction dimensions and clearances.
4) Furnish without extra charge, any additional material and labor required to comply with the above codes and standards, even though the work may not be described in the contract documents.
5) All equipment and material shall be new and of first quality. Equipment and material shall be the same or equal to the basis of design listed on these drawings and shall be UL listed.
6) Cooperate and coordinate with other trades in order that all systems in the work may be installed in the best arrangement.
7) Examine the areas and conditions under which work of this section will be installed. Correct conditions detrimental to the proper and timely completion of the work.
8) Avoid interference with structure, and with work of other trades. Install all equipment per manufacturer's instructions.
9) All other materials not specifically described but required for a complete and proper installation shall be as selected by the contractor subject to acceptance by the Engineer.
10) All ductwork shall be fabricated from galvanized sheet metal duct and conform to SMACNA "HVAC Duct Construction Standards--Metal and Flexible".
11) Flexible duct: Flex master; Atco UPC436(R=6.0); Atco UPC431 (R=8) or Thermalex, Type 3, insulated. 5"-0" Maximum length unless noted otherwise.
12) Outside duct insulation: Insulate ducts and fittings with 2, staggered layers of 7-inch foamed plastic sheet insulation, (Arma-Flex sheets) 6-pound density, having a thermal conductivity of not more than 0.28 at 75°F.
13) Duct Liner: Owens Corning Aeroflex Plus, or equivalent. Incombustible glass fiber complying with ASTM C 1071; flexible blanket; impregnated surface and edges coated with acrylic polymer shown to be fungus and bacteria resistant by testing to ASTM G 21.
14) Condensate drain piping shall be ASTM D2665 PVC with solvent welded fittings. Drain piping shall be no smaller than the drain connection size on equipment.
15) Refrigerant piping shall conform to manufacturer's recommendations and installation instructions.
16) Thermostats: Provide 24 volt, programmable 24-hour, 7-day thermostat to control heating stages in sequence with switch between stages and supply fan to maintain temperature setting.
17) Provide fire and smoke rated flexible connections between fans and ducts.
18) Install all equipment in accordance with manufacturer's instructions and recommendations including clearances recommended for proper operation or service.
19) Indoor duct insulation: Full-faced fiberglass, Owens Corning type 75 or eqv, 2.2" thick(R=8), unless the insulated duct is outside building insulation envelope (attic, crawlspace or unconditioned space)
20) All supply, return and outside air ducts shall be insulated.
21) All low-pressure duct branches shall contain manual balancing dampers.
22) Make all duct elbows right angle type with single -thickness turning vanes or construct with centerline radius 1-1/2 times the duct width.
23) Duct sizes shown on plans are clear, interior dimensions.
24) Do not cut into or reduce the size of any structural member without the permission of the Architect.
25) Provide weather-proof flashing at all duct and pipe penetrations through the building walls and roof.
26) Support all HVAC units, ductwork, piping and other appurtenances from structure, provide vibration isolation at all fans which are not internally isolated.
27) Thoroughly clean all components and remove all dirt, scale, oil, and other foreign substances.
28) Perform all tests necessary to demonstrate the integrity of the complete installation to the approval of the Engineer and all other authorities having jurisdiction.
29) The entire system shall be warranted for a period of one (1) year beginning with Owner's acceptance of the work.
30) SUBMITTALS AND SUBMITTAL PROCEDURES:
a. Contractor shall review the submittal data and check for the purpose of compliance with safety requirements, verification of dimensions, contract documents and methods and means prior to submitting to design professional.
b. Transmit each submittal electronically in PDF format.
c. Sequentially number submittal files and transmittal form.
d. Identify Project, the Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
e. Attach the Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
f. Submittal data for all items in project shall be submitted at one time.
g. Deliver submittals electronically to the Design Professional.
h. Schedule submittals to expedite the Project, and coordinate submission of related items.
i. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
j. Provide space for the Contractor and the Architect/ review stamps.
k. When revised for resubmission, identify all changes made since previous submission.
l. Distribute copies of reviewed submittals as appropriate.
m. Submittals not requested will not be recognized or processed.
n. Provide files containing only related items (such as piping, equipment, air distribution, etc.)
31) Instruct Owner's representative in the operation of the systems, using the operation and maintenance manual as a teaching aid.
32) Provide an operation and maintenance manual. As a minimum, the manual shall contain:
a. A complete list of all equipment and appurtenances with equipment designations (per Drawings), manufacturers, and catalog numbers.
b. Copies of manufacturers' brochures and instructions for operation and maintenance of all mechanical equipment, including replacement parts lists.

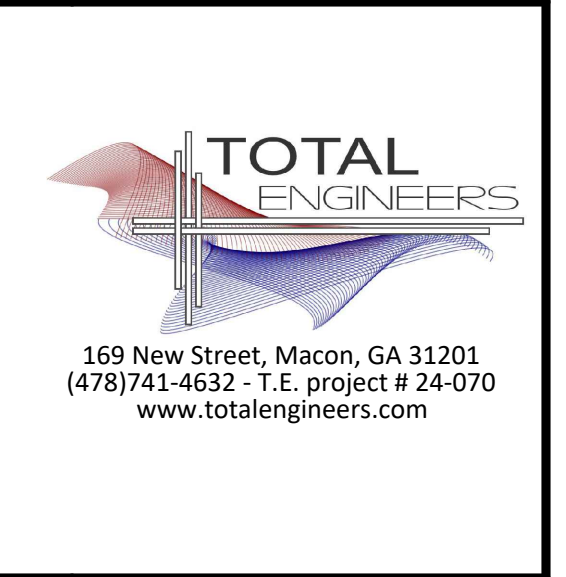
- c. Typed system operation and maintenance instructions, including inspection, lubrication, and service instructions and schedules.
d. List of names, addresses and phone numbers of distributors of all equipment and appurtenances.
e. Manufacturers' warranties.

- 33) Horizontal Air Handler unit: Indoor fan-coil unit shall be direct-expansion horizontal heat pump air handler with electric strip heat suspended from structure with auxiliary drip pan and condensate drain.
34) Vertical Air Handler unit: Indoor fan-coil unit shall be direct-expansion vertical heat pump air handler with electric strip heat mounted on plenum with auxiliary drip pan and condensate drain.
35) Small Split Air Handler unit (4 WAT): The unit shall be a four-way cassette style indoor unit that recesses into the ceiling with a ceiling grille.
36) Small Split Condensing unit: Casing: House components in welded steel frame with galvanized steel panels with weather resistant, baked enamel finish.
37) Air Source Heat Pumps (HP): outdoor-mounted, air-cooled split system outdoor section suitable for rooftop installation, consisting of a hermetic compressor, an air-cooled coil, propeller-type slow-throw outdoor fan; accumulator, full refrigerant charge, and control box.
38) Provide a duct smoke detector on the supply duct of each air handling unit or rooftop unit with design airflow exceeding 2,000 CFM, and where smaller air handling units have common return ductwork and total air flow exceeds 2,000 CFM.
39) Fire dampers: curtain type with blades outside air stream except when located behind grilles when blades may be in air stream.
40) Grilles, Registers and Diffusers: Grilles, registers, and diffusers as indicated on the drawings have been selected from the catalog of the manufacturer noted on the basis of design.
41) Basic motor requirements: basic requirements apply to mechanical equipment motors, unless otherwise indicated.
42) Hangers and supports: Building attachments: concrete inserts or structural-steel fasteners appropriate for building materials, and beam clamps.
43) Sealant materials: joint and seam sealants, general: the term "sealant" is not limited to materials of adhesive or mastic nature but includes tapes and combinations of open-weave fabric strips and mastics.
44) Packaged Roof Top Units--Gas Heat: Outdoor packaged units, ground mounted, electrically controlled, 2-stage stage cooling with gas heat units, as scheduled, including scroll hermetic compressor(s) for cooling duty and an indirect fired gas furnace section for heating duty.
45) BI-POLAR IONIZATION DESIGN & PERFORMANCE CRITERIA:
The Bi-polar ionization system shall be capable of effectively killing microorganisms downstream of the bi-polar ionization equipment (mold, bacteria, virus, etc.).
Velocity Profile: The air purification device shall not have maximum velocity profile.
Humidity Plasma Generators shall not require preheat protection when the relative humidity of the entering air exceeds 85%.
Equipment Requirements: Electrode Specifications (Bi-polar Ionization): Each Plasma Generator with Bi-polar ionization output shall include the required number of electrodes and power generators sized to the air handling equipment capacity.
Air Handler & Plenum Mounted Units (non--ductless mini--split units): Where so indicated on the plans and/or schedules Plasma Generator(s) shall be supplied and installed.
Ozone Generation: The operation of the electrodes or Bi-polar ionization units shall conform to UL 867-2007 with respect to ozone generation.
Control Requirements: All Plasma Generators shall have internal short circuit protection, overload protection, and automatic fault reset circuit breakers.

- 47) Louvers: 6" deep, 12 gauge (0.081) etched and 30-minute clear anodized extruded aluminum, drainable blades and frame; back mounted 1/2" mesh 19-gauge screen; flange frame.
48) Fabric Duct Specification:
Product must be classified in accordance with the 25/50 flame spread/smoke development requirements of UL723 based on NFPA 90A - 1993, "Installation of Air Conditioning and Ventilating Systems".
Fabric Duct air dispersion system must design in software which documents, calculates and provides: pressure loss, inlet velocity, turbulent condition warnings, throw capability, entrainment, deflection, flow models, sizing, installation methods, sound generated and temperature corrections.
Manufacturer must provide a 10 Year Non-Prorated Warranty. Prorated warranties are not accepted.
Product Fabric Duct systems from damage during shipping, storage and handling. Store products inside and protect from weather.
Phioda Fabric Duct Air Dispersion System shall be constructed of Classic (PMS) fabric. The material is a woven fire retardant and permeable fabric complying with the following characteristics:
a. Fabric: 100% Flame Retardant Polyester
b. Weight: 6.5 oz./yd² per ASTM D3776 minimum
c. Strength: warp1880/ weft1109N Per ISO13934
d. Shrinkage: Max. 0.5X per ISO 6330-2000
e. Available Standard Colors: White (RAL 9016), Light Grey (Pantone 420/RAL 7035), Dark Grey (Pantone 424/RAL 7037), Yellow (Pantone 135/RAL 1017), Light Blue (Pantone 2915/RAL 5012)
f. Temperature Range: -75F to +230F
g. Permeability: 2 cm (v/-1) (to prevent condensation only)
h. Fire Retardant: Must meet the requirements in NFPA 90-A, ICC AC-167 and UL2518
Air Dispersion Method
A. Laser Cut Perforations/Holes (long throw)
-4mm - 3/4 diameter project dependent.
-Laser cut (punching method not acceptable)
-location, number and size determined by manufacturer
-directional Textile Air Control Pockets to prevent excessive air deflection
Provide system in sections optimized for maintenance (16' maximum for diameters over 32"), connected by zippers. Zippers must provide closure completely around the circumference to prevent leakage.
Each section to have a unique tag including information about: manufacturers order number, position, diameter of section, length of section, maintenance instruction, code compliance and contact details for spare parts.
Zipped inlet connection.
Endcap can be zipped or sewn to the last duct section as required.
Equalizers (flow correctors) and/or dampers to be included as shown on plans or schedules.
Include hooks which slide into track profile or snap on to wire/cable or continuous fabric strip which slides into track if shown in detail or noted on plans
Include SS inlet damp for securing to metal outlet connection point.
Do not use fabric duct air diffusers in concealed locations (unless pressurized plenum space intended for air distribution).
Fabric diffusers shall be designed from minimum 0.25" water gage to 3/4" as the maximum - 0.5" being the standard.
Design temperatures between -75F and 230F
Manufacturer shall approve all technical design parameters.
Single Cable/Wire Suspension - One row cable system located 1.25" above 12 o'clock of Fabric duct system.
Internal Rings (ALU, SS, or Heat-resistant plastic)
Internal Aluminum Arcs (placed in roof of duct at factory from 10 to 2, holds duct open)
Tensioning device to remove wrinkles/creases
Ceiling Ventilator shall have corrosion resistant galvanized steel housing with four-point mounting capability.
Electric Wall Mount Heater: Heater shall be UL listed and labelled with terminal box and cover, and built-in controls.
Acceptable Manufacturers are:
Carrier, Trane, York, Lennox
Mitsubishi, Dakin, Hitachi, Toshiba
Titus, Nalor, Price, Tuttle & Bailey, Kruger, Metal Aire (Color selection submitted to Architect)
Twin-City, Cook, Greenheck, Penn Barry, Acme, American Cool Air, Captive Air, Solar & Palau
Markel, Q-Mark, Roywall, Indco
United Erectech, Greenheck, Ruskin, Arrow United, Lloyd Industries, Air Balance (Color selection submitted to Architect)
Provide thermostats by same manufacturer as equipment



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MECHANICAL SPECIFICATIONS
Retrofit & Renovations for
Madison Methodist Church
Madison, Georgia 30650
1091 Confederate Highway

JOB NO.: 02405
DRAWN BY: JWK/KMP
CHECKED BY: KMP
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DATE: 12-02-24
REVISIONS:
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