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 at http://www.dca.state.ga.us/development/constructioncodes/programs/codes2.asp for current Codes Editions.

3) The contractor shall not attempt to precisely scale dimensions from these drawings to obtain construction dimensions and clearances. The contractor shall verify all actual dimensions and clearances. Although these plans are diagrammatic in nature, they shall be followed as closely as site conditions, new construction, and work by other trades shall permit. Deviations from these drawings, which are required to conform to the available space or the actual building construction, shall be made at no additional cost to the owner.

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. Where the requirements of the contract documents exceed the requirements of the above codes and standards, the contract documents shall take precedence.

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. Notify Architect of any discrepancies. Do not proceed until unsatisfactory conditions have been corrected.

8) Avoid interference with structure, and with work of other trades. Install all equipment per manufacturer's instructions. Install accessible parts, including equipment, coils, valves, dampers, controls, and filters with adequate clearance for inspection, adjustments, repair and replacement.

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 for exhaust fans shall be aluminum.

11) 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. Slope at 1/8 inch per foot continuously toward drains. All indoor condensate drain piping shall be insulated with preformed flexible plastic cellular foam. All outdoor condensate drain piping shall be primed and painted with a coating system recommended by the piping manufacturer for protection against deterioration from weather and UV-light exposure. All piping shall be adequately supported to maintain proper slope and avoid sagging.

12) Refrigerant piping shall conform to manufacturer's recommendations and installation instructions. Refrigerant piping shall be ASTM B280 Type ACR or ASTM B88 Type L drawn copper tubing with wrought copper fittings. Insulate suction line with ½" thick flexible foamed plastic cellular foam (Armaflex or equivalent). All piping shall be adequately supported. Insulation installed outdoors shall be painted with two coats of Armacell WB coating or equivalent.

13) Thermostats: Provide 24 volt, programmable 24 hour, 7 day thermostat to control heating stages in sequence with delay between stages and supply fan to maintain temperature setting. For Heat Pumps include system selection switch heat-off-cool and fan control switch (auto-on), emergency heat switch (auxiliary/emergency heat indicator lights).

14) Provide fire and smoke rated flexible connections between fans and ducts. Material shall comply with NFPA 90A requirements for material in supply air stream.

15) Install all equipment in accordance with manufacturer's instructions and recommendations including clearances recommended for proper operation or service. All filters and serviceable parts shall be readily available.

16) Make all duct elbows right angle type with single -thickness turning vanes or construct with centerline radius 1-1/2 times the duct width.

17) Duct sizes shown on plans are clear, interior dimensions.

18) Do not cut into or reduce the size of any structural member without the permission of the Architect.

19) Provide weather-proof flashing at all duct and pipe penetrations through the building walls and roof. As a minimum, flashings shall be designed and installed in accordance with SMACNA standards. Flashings shall be guaranteed weatherproof for the duration of the guarantee.

20) Support all HVAC units, ductwork, piping and other appurtenances from structure, provide vibration isolation at all fans which are not internally isolated. Provide hanger rod with built in rubber-in-shear isolator. Between drain pan and unit provide 4 each rubber-in-shear isolator. Do not attach vibration isolator to drain pan. Do not screw or drive fasteners into non-structural components such as roof decks or non-load bearing walls.

21) Thoroughly clean all components and remove all dirt, scale, oil, and other foreign substances. Provide clean air filters for all equipment.

22) Perform all tests necessary to demonstrate the integrity of the complete installation to the approval of the Engineer and all other authorities having jurisdiction. Make all adjustments necessary and balance the completed system in accordance with the data shown. Balance the systems in accordance with NEBB or AABC standards. Acceptable tolerances shall be minus ten percent to plus five percent of all measurements. Balancing shall be done by an independent licensed (by NEBB or AABC) TAB contractor. Make the following tests and submit reports to the Architect:
   a) Airflow rate at each supply, return and exhaust outlet or inlet.
   b) Total airflow rate and total static pressure for each supply and exhaust fan. Test exhaust fans with room doors closed.
   c) Motor speed, for multiple speed fans (e.g. high, medium, low).
   d) For direct drive fans, provide speed settings and actual rpm, including ECM motor driven fans
   e) Provide fan and motor rpm for belt driven fans. Provide sheave sizes.
   f) Outside airflow rate to each HVAC unit and supply fan.
   g) Motor current (and compare with nameplate data) at all motors.
   h) Entering and leaving air dry-bulb and wet-bulb conditions at all cooling coils.
   i) Heat output capacity for unit heaters, heating devices and coils (kW or MBH).
   j) Manufacturer, model and serial number for each piece of HVAC equipment scheduled on drawings.
   k) Calibrate thermostats to be within one degree of actual temperature at thermostat.
   l) Verify that all HVAC devices operate as scheduled or indicated (i.e. ON-OFF, 2-stage, variable output (SCR heaters), etc.

23) The entire system shall be warranted for a period of one (1) year beginning with Owner's acceptance of the work. Compressors shall include a minimum of five (5) year parts only warranty from the manufacturer. All labor and materials necessary to repair or replace the system or portions thereof, during that time shall be warranted for a period of one (1) year from the repair of replacement.

24) 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. Contractor shall indicate approval by indicating such on the submittal.
   b. Transmit each submittal electronically in PDF format.
   c. Sequentially number submittal files and transmittal form. Revise submittals with original number and a sequential alphabetic suffix. File names shall describe item included in file.
   d. Identify Project, the Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy. Each file shall include an index of items included in file.
   e. Apply 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. Submittal shall be divided into groups with file sizes not exceeding 6 MB. If there is unavailable data such as control submittal, etc., these may be submitted later if not doing so would delay project progress. Data shall include capacities, complete installation instructions, dimensions, weights, electrical data, BHP, motor HP, operating weights and load distribution at mounting points.
   g. Deliver submittals electronically to the Design Professional.
   h. Schedule submittals to expedite the Project, and coordinate submission of related items.
   i. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
   j. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
   k. Provide space for the Contractor and the Architect/ review stamps.
   l. When revised for resubmission, identify all changes made since previous submission.
   m. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
   n. Submittals not requested will not be recognized or processed.
   o. Provide files containing only related items (such as piping, equipment, air distribution, etc.)

25) Instruct Owner's representative in the operation of the systems, using the operation and maintenance manual as a teaching aid.

26) 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.

27) Small Split Air Handler unit: Indoor unit shall be direct-expansion, suspended and ducted fan coil. Unit shall be complete with cooling coil, fan, fan motor, piping connectors, electrical controls, microprocessor control system, and integral temperature sensing. Unit shall be furnished with integral suspension hangers and mounting hardware. Units shall have rear piping inlet. Cabinet shall be fully insulated for thermal performance. Unit shall have a drip pan under the coil with built-in condensate pump accessory to remove condensate. Condensate pan shall have internal trap and auxiliary drip pan under coil header. Refer to Schedule on Drawings for additional specifications.

28) Small Split Condensing unit: Casing: House components in welded steel frame with galvanized steel panels with weather resistant, baked enamel finish. Mount contactors and controls in weatherproof panel provided with full opening access doors. Provide removable access doors or panels with quick fasteners. Compressor: Hermetically sealed, 3600 rpm maximum, resiliently mounted with positive lubrication and internal motor protection. Compressor: Hermetic reciprocating type or Hermetic scroll type. Condenser coils Coils: Aluminum fins mechanically bonded to seamless copper tubing or all aluminum fins and tube. Air test under water to 425 psig, and vacuum dehydrate. Seal with holding charge of refrigerant. Coil Guard: Louvered or PVC coat steel wire. Fans and motors: Direct driven propeller type condenser fans with fan guard on discharge. Weatherproof motors suitable for outdoor use, single phase permanent split capacitor with permanent lubricated ball bearings and built in thermal overload protection. Fan Guard: PVC coat steel wire. Refrigerant circuits: For each refrigerant circuit, provide: Filter dryer liquid line. Suction accumulator. Suctions and liquid line service valves and gage ports. Charging valve.Condenser pressure relief mechanism. Factory wired with single point power connection. Factory wired controls shall include contactor, high and low pressure cutouts, internal winding thermostat for compressor, control circuit transformer, non-recycling reset relay. Provide a surge capacitor and lightning arrestor in unit cabinet for protection from power surges due to lightning and switching transients. Provide controls to permit operation down to 0 degrees F ambient temperature where scheduled to include: Crankcase heater with thermostat. Head pressure switch to cycle fan motors in response to refrigerant condensing pressure. Solid state control to vary speed of one condenser fan motor in response to refrigerant condensing pressure. Refer to Schedule on Drawings for additional specifications.

29) Grilles, Registers and Diffusers: Grilles, registers, and diffusers as indicated on the drawings have been selected from the catalog of the manufacturer noted as the basis of design. Sizes, types, and performance of the devices to be provided must be coordinated to insure conformity with design basis. Sidewall supply grilles and registers shall have vertical front blades; sidewall return grilles shall have horizontal blades. Grilles and registers with borders shall have felt or rubber gaskets cemented to the back face and holding screws not over 18 inches on centers around the perimeter. Holding screws shall be countersunk to fit flush with face of grille or register. Grilles passing air through partitions shall be as described for wall return grilles, one for each side of partition. Register dampers shall be of the gang-operated, opposed blade type, operated through the face of the register. Operating mechanism shall not project through the register face. Mounting frame shall be coordinated with architectural reflected ceiling plans. Construction shall be of steel or aluminum as scheduled, with frame type to match ceiling construction. Sidewall supply grilles and registers shall be double-deflection type, with vertical front vanes. Construction shall be of steel, with 3/4 inch blade spacing. Return air grilles, return air registers, exhaust grilles, exhaust registers and transfer air grilles located in ceilings shall be constructed of aluminum with "egg-crate" design, with 1/2 inch x 1/2 inch x 1/2 inch grids. Frame style shall be compatible with ceiling construction. Install wall grilles and registers with horizontal edges parallel to ceiling. Concentric diffuser assemblies at roof top units shall have paint-ready exterior finish and 1-inch lined supply and return ducts that transition to diffuser size within 24 inches vertically from connection on roof top unit curb.

30) Basic motor requirements: basic requirements apply to mechanical equipment motors, unless otherwise indicated. Motors 1/2 hp and larger: Polyphase, unless otherwise scheduled. Motors smaller than 1/2 hp: Single phase, frequency rating: 60 Hz. Service factor: according to NEMA MG 1, general purpose continuous duty, design type "B." Enclosure: open drip-proof, unless otherwise indicated. Efficiency: motors shall have a higher efficiency rating than industry standard average motor as delineated in IEEE Standard 112, test method 13. Thermal protection: where indicated or required, thermal protection automatically opens power supply circuit to motor when winding temperature exceeds a safe value calibrated to temperature rating of motor insulation. Thermal protection device automatically resets when motor temperature returns to normal range, unless otherwise indicated.

31) Hangers and supports: Building attachments: concrete inserts or structural-steel fasteners appropriate for building materials, and beam clamps. Hanger materials: Galvanized, all-thread rod, threaded rod. Hangers installed in corrosive atmospheres: electrogalvanized, all-thread rod or galvanized rods with threads painted after installation. Straps and rod sizes: comply with SMACNA's "HVAC Duct Construction Standards---Metal and Flexible" for sheet steel width and thickness and for steel rod diameters. Duct attachments: sheet metal screws, blind rivets or self-tapping metal screws compatible with duct materials. Trapeze and riser supports galvanized steel shapes and plates: steel shapes complying with ASTM A 36/A 36M.

32) Sealant materials: joint and seam sealants, general: the term "sealant" is not limited to materials of advesive or mastic nature but includes caulks and combinations of open-cove backing rods and mastics. Joint and seam tape: 2 inches wide; glass-fiber fabric reinforced. Joint and seam sealant: one-part, nonsag, solvent-release-curing, polymerized butyl sealant, formulated with a minimum of 75 percent solids. Flanged joint mastics: one-part, acid-curing, silicone, elastomeric joint sealants, complying with ASTM C 920, type S, grade NS, class 25, use NT.

33) All HVAC equipment such as AH, CU, EF, AC, HP, and RTU shall have visible nameplates with their associated marks on them.

34) Ceiling Ventilator shall have corrosion resistant galvanized steel housing with four-point mounting capability. It shall be ducted to accept on wall using 6" round ductwork. Blower assembly shall be removable, have a centrifugal-type blower wheel and a permanently lubricated motor designed for continuous operation. Non-metallic damper/duct connector shall be included. Air delivery shall be no less than scheduled and sound level no greater than 0.3 sones. All air and sound ratings shall be certified by HVI. Ceiling ventilator shall be rated Energy Star® qualified, have an energy efficient permanent split capacitor motor.

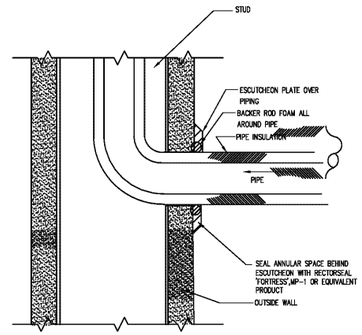
35) Electric Wall Mount Heater: Heater shall be UL listed and labelled with terminal box and cover, and built-in controls. Heater shall be made in three pieces consisting of back enclosure, heater assembly and front panel. Front panel shall be attached with concealed fasteners. Heating Elements: Nickel-chromium heating element wire shall be encased in a steel or copper sheath. Aluminum fins shall be pressure bonded to the sheath. Enclosure: Enclosure shall be minimum 20-gauge painted steel for surface mounting. Grille: Fan-forced grille type with down deflection toward floor. Finish shall be paint on steel bars. Grille shall be surrounded by decorative satin finished aluminum accent frame. Unit shall be fan forced type including fan motor, fan and controls with thermostat adjustment accessible through front grille. Unit shall also include thermal safety cutouts in the event of over temperature conditions. Refer to Schedule on Drawings for additional specifications.

36) Cabinet Exhaust Fan: Centrifugal Fan Unit: Direct driven with galvanized steel housing, resilient motor mounts, gravity backdraft damper in discharge. Disconnect Switch: Cord and plug in housing for thermal overload protected motor and wall mounted switch. Bottom of fan cabinet shall be removable for service to unit. Refer to Schedule on Drawings for additional specifications.

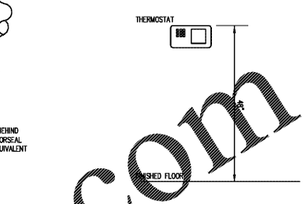
37) Large Ceiling fans (Greenheck SP): Ceiling mounted exhaust fans shall be of the centrifugal direct drive type. The fan housing shall be constructed of heavy-gauge galvanized steel. The housing interior shall be lined with 0.5 in. acoustical insulation. Outlet shall be adaptable for horizontal or vertical discharge. The grille shall be constructed of aluminum. Grilles shall be non-yellowing. The access for wiring shall be external. The motor disconnect shall be internal and of the plug-in type. The motor shall be mounted on vibration isolators. The fan wheel shall be of the forward-curved centrifugal type and dynamically balanced. All fans shall bear the AMCA Certified Ratings program AMCA Sound and Air Performance seal and shall be UL/cUL Listed. Ceiling or wall mount fans shall be model SP as manufactured by Greenheck Fan Corporation, Schofield, Wisconsin. Refer to Schedule on Drawings for additional specifications.

38) Acceptable Manufacturers are:

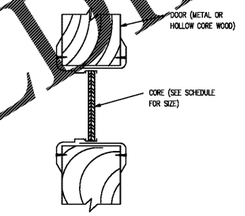
Small Split Units:	Mitsubishi, Daikin, Sanyo, Toshiba
Grilles, Registers and Diffusers:	Titus, Nailor, Price, Tuttle & Bailey (Color selection submitted to Architect)
Fans:	Twin-City, Cook, Greenheck, PennBarry, Acme, American CoolAir
Electric Heaters:	Markel, Q-Mark, Raywall
Controls-provided with unit:	Provide thermostats by same manufacturer as equipment



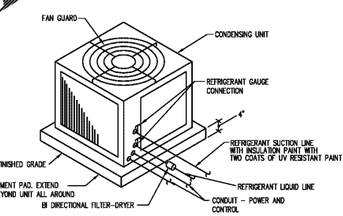
1 REFRIGERANT PIPE SLEEVE THROUGH WALL DETAIL
SCALE: N.T.S.



5 T-STAT DETAIL
SCALE: N.T.S.

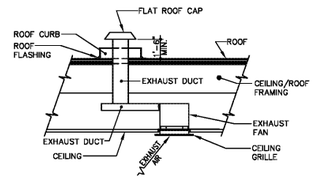


2 DOOR GRILLE DETAIL
SCALE: N.T.S.

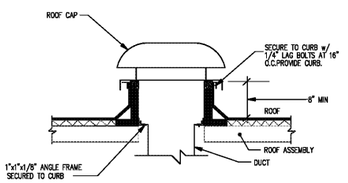


NOTE: 1) THIS DETAIL IS FOR HEAT PUMP UNIT 5 TONS AND UNDER
2) PROVIDE 4"x4"WELDED WIRE MESH REINFORCING AT CENTER LINE FOR THE CONCRETE PAD.
3) PAD MAY BE PREFABRICATED DIVERSITECH ULTRAUTE EQUIPMENT PAD OR EQUIVALENT.

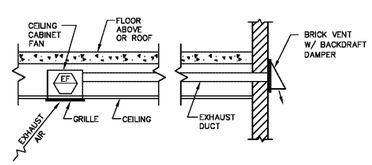
6 AIRCOOLED CONDENSING UNIT SLAB MOUNTED
SCALE: N.T.S.



3 CEILING EXHAUST FAN DETAIL
SCALE: N.T.S.



7 ROOF CAP DETAIL
SCALE: N.T.S.



4 CEILING EXHAUST FAN W/SIDEWALL DISCHARGE-DETAIL
SCALE: N.T.S.

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CENTER PARK RESTROOMS FACILITIES AND SHADE PAVILION

REVISIONS

#	DATE	DESCRIPTION

Date: 11/04/19
Drawn By: KMP/JWK
Checked By: KMP
Project Number: 2018-077

Drawing Name:
MECHANICAL DETAILS & SPECIFICATIONS

Drawing Number:
M0-1

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