

Revision table with columns: NO, SET, PERMIT, APPENDIX #1, AS #1, VE REVISIONS, and DATE. Includes dates like 07.07.2011, 07.15.2011, 07.29.2011, 08.18.2011.

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OWNER / DEVELOPER
Johns Hopkins Healthcare
6704 Curtis Court
Glen Burnie, MD 20160

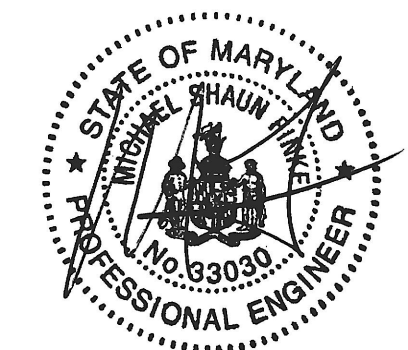
PROJECT NAME
Johns Hopkins
Healthcare Masterplan

PROJECT ADDRESS
6701 Curtis Court
Suite D
Glen Burnie, MD 20160
PROJECT MANAGEMENT
DCI Project No. 459-10-01

SEAL
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 33030
Expiration Date: 07-06-2012

SHEET TITLE
MECHANICAL SPECIFICATIONS

SCALE
AS SHOWN
SHEET NUMBER
M400



- MECHANICAL SPECIFICATIONS
1 SCOPE:
1.1 The Contractor shall furnish all labor, materials, equipment and perform all operations for the complete installation of all mechanical work and related systems as shown on the drawings, specified herein, or as may be reasonably required.
1.2 The Contractor shall verify all physical and service requirements and make all connections to equipment being furnished under this contract and by others and installed under this contract.
2 PERMITS, CODES AND INSPECTIONS:
2.1 The Contractor shall secure and pay for all permits and inspections required for the work included in this project. Upon completion of work, the Contractor shall deliver certificates of final inspection and approved by the authority having jurisdiction to the Owner.
2.2 Materials and workmanship shall conform to the following standards:
IBC International Mechanical Code, 2009 edition
NSPC National Standard Plumbing Code, 2009 edition
ANSI American National Standards Institute
NFPA National Fire Protection Association
SMACNA Standards
All applicable State, County, and Local Codes
3 COORDINATION AND SUPERVISION:
3.1 Layouts are diagrammatic only and shall be subject to minor modifications as required by field conditions or as directed by the Architect.
3.2 The Contractor shall coordinate the work and equipment specified herein and the equipment furnished by the Owner to assure a complete and satisfactory installation.
3.3 Maintain on the site at all times a competent foreman to coordinate and supervise all mechanical work to be performed.
3.4 The Contractor shall make every effort to ensure that normal functions of occupied areas continue during the construction. Any work which may be required in occupied areas shall be scheduled during unoccupied hours and prior approval shall be obtained from the Owner.
4 MATERIAL AND EQUIPMENT:
4.1 Material and equipment installed shall be new and/or relocated per the drawings, and shall be approved by UL for installation in each particular case where standards have been established.
4.2 Manufacturers catalog data, descriptions and numbers used herein or indicated on the drawings are to indicate a minimum standard of quality, appearance and performance that will be acceptable. The Contractor may submit equal equipment of another manufacturer for approval by the Architect.
5 GUARANTEE:
5.1 The Contractor shall guarantee the complete mechanical system installation as embraced by this specification, free from all mechanical and electrical defects for the period of one year beginning from the day of final acceptance of the work by the engineer.
5.2 The Contractor shall also, during the guarantee period, be responsible for the proper adjustments of all systems, equipment and apparatus installed by him and do all work necessary to insure efficient and proper functioning of the system and equipment.
6 SHOP DRAWINGS:
6.1 The Contractor shall submit, in a timely manner, a minimum of three (3) copies of manufacturer's shop drawings for all new equipment, materials, piping and insulation. The Contractor must submit this submittal to the Engineer for approval prior to purchase, installation or fabrication unless otherwise directed by the Owner.
7 EXISTING CONDITIONS:
7.1 The Contractor shall visit the site, determine all conditions and circumstances under which the work must be done or other circumstances, which will affect the work, and make all necessary allowances before submitting his bid.
8 TEMPORARY MECHANICAL SERVICES
8.1 The contractor shall furnish and install temporary mechanical services to the site as is necessary to enable his work and the work of others on the jobsite to proceed and test the operation of all apparatus, devices, equipment, etc. which will require mechanical services. The Contractor shall pay all costs and charges associated with the temporary services. THE CONTRACTOR SHALL COORDINATE WITH THE BUILDING LANDLORD PRIOR TO ANY WORK, OUTAGES, ETC. WHICH CAN AFFECT OTHER TENANTS OCCUPYING THE BUILDING. The contractor shall do what is required and reasonable to minimize down time for operations of the building and to minimize disruption to the existing operations.
9 PIPING & PIPING INSULATION
9.1 Domestic Water: ASTM B 88 copper tubing, type L, hard temper, wrought copper fittings, ANSI B16.22, NSF-61-G compliant, solder with non-corrosive paste flux.
9.2 Domestic water piping shall be insulated with 1" thick fiberglass FSK with ASJ.
9.3 Sanitary & Vent piping: piping shall be ASTM D 1785 schedule 40 solid wall PVC or service weight cast iron pipe with DWV pattern fittings "BELOW" the floor slab. Pipe shall be service weight cast iron with no-hub couplings and DWV pattern fittings "ABOVE" the floor slab.
10 VALVES
10.1 Ball, NSF-61-G compliant, Nibco No. 885-80 series
10.2 Check: NSF-61-G compliant, Nibco No. 413 series
11 PLUMBING FIXTURES (as indicated on drawings)
12 DUCT INSULATION:
12.1 Provide insulation and vapor barrier for all supply and return air ductwork.
12.2 All concealed supply and return ductwork shall be wrapped with 1 1/2" thick fiberglass faced flexible duct wrap, flame spread 25, type 150, K= .25 or equal. Cement to ducts with Benjamin-Foster Ductfast 81-99 or equal in 6" transverse strips on 12"-0" centers. Seal all duct with Hardcast, Chikders or equal.
12.3 Flexible duct constructed of double laminated of tough polyester which encapsulates a steel wire helix forms the air tight inner core. Product to be ATCO UPXC #80 or approved equal. The lobeless layer core is wrapped in a thick blanket of fiberglass insulation reinforced with scrim and sheathed in a durable black polyethylene jacket. ATCO's UPC #80 is a UL 181, Class 1 Air Duct manufactured with a durable black polyethylene jacket. The UPC #80D inner core is air-tight and is designed for low to medium operating pressures in HVAC systems.
R value 4.2, Flame Spread less than 25, Smoked Developed less than 50.
All duct connections and joints shall be made per installation instructions outlined by ATCO Rubber Products, Inc. and as required by the UL 181 listing procedure.
12.4 All supply and return ducts shown to be internally lined shall be lined with a 1" thick, 1.5 lb/ft^3 density insulation as indicated on the contract drawings. Flame spread rating shall not be more than 25 without evidence of continued progressive combustion and a smoke developed rating of no higher than 50, when tested in accordance with ASTM C 411. Liner adhesive shall conform to NFPA 90A and ASTM C 916. Duct dimensions shown on the drawings are the CLEAR INSIDE DIMENSIONS.
13 AIR DISTRIBUTION SYSTEM: (Note: TAB denotes Tuttle and Bailey) (Includes all duct systems)
13.1 Ductwork: Galvanized steel constructed in accordance with SMACNA Standards unless otherwise noted below. All seams and joints for all duct systems shall be sealed with hardcast compound, Chikders or equal. Maximum allowable leakage shall be as described in ASHRAE 2005 Handbook, "Fundamentals" Volume, Chapter 35, Table 9 and Figure 13. Comply with the requirements for leakage classification 3 for round ducts, leakage classification 12 for rectangular ducts in pressure classifications less than and equal to 2 inches water gage (both positive and negative pressures), and leakage classification 6 for pressure classifications greater than 2 inches water gage and less than and equal to 10 inches water gage. Support ducts and equipment as required by SMACNA Standards. Ductwork shall meet the requirements of SMACNA for Low and Medium Pressure Service except as noted below. Ductwork shall be constructed to the following pressure classifications:
13.1.1. High velocity supply air ducts (Supply ducts prior to VAV boxes); 4 inches water gage
13.1.2. Low velocity supply and return air ducts; 2 inches water gage, negative pressure
13.1.3. Exhaust ducts; 2 inches water gage, negative pressure
Vacuum duct systems prior to final acceptance to remove dust and debris.
13.2 Volume Dampers: TAB No. 7 or equal.
13.3 Provide turning vanes at square duct elbows.
13.4 Flexible connectors: Neoprene coated fiberglass, meeting NFPA 90A requirements.
13.5 Duct fast: Mytilo Type 5800C, or equal.
13.6 Grilles: (Exhaust & Return) See schedule on M300.
13.7 Registers: (Supply) See schedule on M300.
13.8 Diffusers: (Supply) See schedule on M300.
13.9 Return Air Grilles shall be as called out on the drawings. Air devices meeting the specifications of Titus may be submitted as an equal for approval.
13.10 Provide flexible connection where ductwork connects to any equipment containing fans. General: Flame-retarded or noncombustible fabrics, coatings and adhesives complying with UL Standard 181, Class 1.
13.11 Provide duct-mounted access doors and panels as required to maintain the mechanical systems.
14 MECHANICAL EQUIPMENT:
14.1 See drawings for equipment to be provided that are not in this specification.
14.2 Carrier VVT Zone Dampers - See Schedule on M300.
14.3 Carrier Packaged Rooftop Units - See Schedule on M300.
14.3 Exhaust Fans - The 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 1/2 inch acoustical insulation. The outlet duct collar shall include an aluminum backdraft damper which shall be spring loaded. Outlet shall be adaptable for horizontal or vertical discharge. The designer 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/ULC Listed. Ceiling fan shall be manufactured by Greenheck Fan Corporation or equal.
15 FIRE PROTECTION SPRINKLER SYSTEM
15.1 CODES
The sprinkler system shall be in accordance with the Anne Arundel County Building and Fire Codes and applicable portions of NFPA. The fire protection contractor shall be responsible for designing the systems and obtaining approval of same from the authority having jurisdiction. The system design shall as a minimum, have NICET III certification. The contractor shall visit the site prior to bidding to determine the extent of the work involved.
Areas where sprinkler heads are being relocated shall have following types of heads.
15.1.1 Finished Offices with ceilings; recessed white escutcheons with chrome heads
15.1.2 Finished Work Areas with ceilings; pendent chrome heads with chrome escutcheons
15.1.3 Areas with no ceilings; upright bronze or brass heads to match existing. Existing heads may be relocated where applicable.
16 AS-BUILT DRAWINGS
16.1 The Contractor shall turn over to the Owner at the final inspection a clean set of marked-up as-built drawings, wiring diagrams for each system and/or equipment item.
17 TESTS
17.1 Upon completion of the work and at such time as the Owner may direct, the Contractor shall conduct an operating test for approval. All systems shall be demonstrated to be in accordance with the drawings and specifications. Defects revealed shall be corrected promptly and the test re-conducted as the Owner may direct.
18 TESTING, ADJUSTING AND BALANCING
18.1 Test, adjust and balance the following mechanical systems:
18.1.1 Supply air systems, all pressure ranges.
18.1.2 Return air systems.
18.1.3 Exhaust air systems.
18.1.4 Verify proper operation of automatic temperature control system
18.2 The system shall be balanced by an independent testing and balancing agency certified by the National Environmental Balancing Bureau (NEBB) or the Associated Air Balance Council (AABC). Balancing contractor shall provide the necessary belts and sheaves to achieve the air quantities indicated on the contract drawings.
18.3 Record all data and submit to the engineer the data in report form.