

230000-H: SUPPLEMENTAL BASIC MECHANICAL REQUIREMENTS GUIDELINE

Related Sections

Basis Guideline: [230000](#) - "Basic Mechanical Requirements"

For an explanation of the use of these guidelines, see "[Design Guidelines for UMHHC Facilities](#)"

Master Specification sections:
[MS220500](#) - "Common Work Results for Mechanical"

The UM Master Specifications may be used as a reference and/or basis, but the A/E is completely responsible for contract specifications (meeting the intent of the UMHHC Guidelines and Preferred Manufacturers List) that are used in MM projects.

General

Michigan Medicine (MM) Design Guidelines are applicable to projects in facilities owned, operated or leased by MM. The Architect/Engineer (A/E) shall adhere to MM Design Guidelines for all design work in these facilities. Deviations to the MM Mechanical Guidelines shall be reviewed and approved by the MM FPD Mechanical Engineer prior to incorporating into the documents. The Architect/Engineer (A/E) shall be responsible for the professional quality, technical accuracy, code compliance and the coordination of all design, drawings, specifications and calculations.

Compliance with these guidelines shall include compliance with all MM "front-end" sections, i.e. "Special Instructions to Designers" (SID's) as well as "Special Building Areas" (SBA's).

Design Requirements- Maintenance Accessibility

The AE shall clearly indicate the maintenance access and equipment removal path on the design drawings. Provide and show a clear access path from grade, stair and/ or elevator to equipment installed. Path shall be free of obstructions that would prohibit the use of a wheeled dolly/ hand truck (for equipment removal) and should not require stepping on or over piping/ ductwork/ conduit. Pathways should allow adequate clearance to remove/ replace the largest equipment component (i.e. typically a coil or fan) or the entire equipment assembly for packaged equipment (i.e. chiller, etc) without having to remove/ replace infrastructure or permanent building elements. Where obstructions are present, provide a permanently installed walkway or ramp to allow unobstructed access between the equipment installed and the maintenance access point on the floor/ roof.

Ladders, stairs, catwalks and platforms shall be provided to areas where access is required for inspection or maintenance. Of particular importance is access to fans, pumps, motors, balancing and flow control dampers, steam traps, sanitary clean-outs, and sensors located high above suspended ceilings. Do not rely on walking across ductwork/ piping to reach these components.

In mechanical rooms, arrange equipment suspended from the structure above with clearance below to allow unobstructed access from catwalks or a ladder. Where direct access from below is not possible, provide a platform/ catwalk system to allow access. For major equipment (ie AHU's, fans or pumps over 10HP, etc) requiring access \geq 8 ft above finished floor, provide a permanently installed working platform directly in front of the equipment/ access door.

Provide hinged access doors to all maintainable equipment (i.e. VAV boxes, fans, valves, dampers, etc) located behind walls or above permanent non lay-in type ceilings. Access door shall be large enough for shoulder clearance (i.e. 24"x24" min.) or equipment removal, except where only hand access is required (i.e. balancing damper).

Each new piping connection to an existing main or branch pipe shall have a new shut-off valve installed as part of each project.

Warranty

All work shall carry a minimum one year parts and labor warranty with the exception of HVAC and air compressors which shall be specified with a 5 year parts and labor warranty.

Utility Sources

The use of central utilities rather than stand-alone systems is encouraged. The A/E must closely communicate with the University/Health Systems' Project Manager early in the design phase of the project to determine the best probable sources of central services. The MM FPD Mechanical Engineer will approve sources prior to schematic design.

As part of the investigative report/ schematic design, the A/E must demonstrate that the project under design will not adversely affect utility availability for other spaces and not utilize inordinate amounts of future capacity for all utilities. Summarize and review impact on central utilities with MM FPD Mechanical Engineer.

Existing Code Violations/ Deficiencies

As a part of investigative report phase, the A/E will receive the listing of any outstanding code violations (i.e. Facilities Conditions Assessment or FCA list) in areas to be renovated for incorporation into the project. Items uncovered during surveys and site visits are to be brought to the attention of the University/Health System Project Manager who will seek funding for incorporation of such items into the project.

Utility Shutdowns

During Construction:

Where new infrastructure is required to connect into existing infrastructure, or when existing infrastructure needs to be relocated, the contractor shall be required to follow MM's shut-down procedures, and receive approvals for the shutdown, prior to the infrastructure tie-in is started.

While means exist in the industry for infrastructure hot-taps, and/or performing certain electrical tie-ins while energized, MM has strict policies on both of these. Those policies are in large part reflected in the shutdown request form.

In lieu of this, MM infrastructure systems are often isolated and shut-down to make the necessary tie-ins. Coordinating these shut-downs can be very labor intensive for MM staff, and can be disruptive to patient care.

Processing these shutdown requests often takes weeks of preparation and coordination, utilizing extensive levels of resources and often present high levels of risk for the hospital. For these reasons the contractor is requested to combine multiple similar shutdowns, whenever possible, into one shutdown. The contractor is also strongly encouraged to submit the shutdown requests as early as possible.

During Design:

When preparing their designs, the A/E needs to be aware of the difficulty of scheduling and performing shut-downs in a hospital environment. And, where shut-downs are required under the A/E's design, the A/E shall have a general understanding of the areas and services that will be impacted by the proposed shut-down.

Infrastructure tie-ins shall be designed to limit the impact of the shut-down on the overall facility while accomplishing the project's capacity requirements of the tie-in.

The A/E shall be responsible for investigating shut-down impacts thru coordination with the assigned MM FPD Engineers, and thru the use of MM Master Riser Schematics and Record Drawings. In addition, the A/E shall make provisions in their infrastructure designs to facilitate future tie-ins, whether anticipated or not, thru the means of isolatable connection points (i.e. line-size valve and caps).