

15000 Basic Mechanical Requirements

Part 1: General

- 1.01 These standards apply to all mechanical and plumbing systems

Part 2: Design Guidelines

2.01 Warranty and Guarantee

- Specifications shall reflect the following warranty requirements. Warranty period starts from date of owner acceptance.

Chiller and refrigeration compressors - five years parts and labor

HVAC controls – two years parts and labor

2.02 Bid alternates

- The following vendor specific systems and components shall be developed as bid alternates.

M-1 HVAC controls – Control system by either Invensys, Johnson or TAC

M-2 Laboratory controls system – (To be determined)

M-3 Mechanical specialties

- steam valves – Spence
- metering Chilled water BTU and water flow - Onicon
Steam – Aliant target type meter

2.03 Mechanical Rooms

- Mechanical rooms shall be provided with at least one floor drain piped to the sanitary system.
- At least one hose bib shall be provided.
- Mechanical rooms shall be designed to provide adequate maintenance clearances for all systems and equipment. Clearances around air handlers shall be a minimum of 3 feet except for coil and fan shaft-pull, which is greater.
- Illumination levels shall be at least 50 FC
- Mechanical room floors shall be coated with the following system.
Alkyd gloss enamel, modified with urethane. Color: gray
Duron - Dura Clad industrial coating or approved equal
- Clearances shall be maintained to allow for routine maintenance activities without the removal or disassembly of fixed piping, supports or equipment.
- Domestic water backflow preventers shall be located in mechanical rooms. Exterior “Hot Boxes” or below grade vaults are not allowed unless prior approval is obtained.

- Mechanical rooms shall be provided with at least two duplex GFCI 120V electrical outlets with two separate dedicated 20A circuits. The outlets should be located in clear wall space five feet on either side of the centerline of the entry door.

2.04 Life Cycle Cost Analyses

- Energy costs are of follows:
 - Electricity - \$.067/kwh (includes demand)
 - Steam - \$11.65/ 1000 lbs
 - Gas - PSNC Rate 125

2.05 Air Systems

- Ducted supply and return systems are required. Return plenums are not allowed without prior approval
- Terminal reheat shall be provided for all interior zones unless the designer can demonstrate otherwise.
- For most return air systems, the air handler shall include a preheat coil. Exceptions may include AHU's dedicated to core or interior zones. Heating coils in return air systems shall be hot water.
- Sound levels shall be specified for all devices.
- Fan rooms shall not be used as return or supply air plenums

2.06 Equipment Locations

- Location of mechanical equipment that affects the aesthetics or appearance of the campus or building must be approved by the University Architect.
- Locate humidifiers and terminal boxes in hallways rather than over occupied or critical spaces.

2.07 Steam Systems

- Condensate return from equipment shall be gravity fed to the condensate pump unless otherwise approved by Facilities. Do not lift condensate by steam pressure. All modulated steam equipment shall have gravity return.

2.08 Humidification

- Direct steam humidification (from boiler) is preferred over a clean steam generator unless programmatic requirements state otherwise

2.09 Safety Equipment

- Chiller rooms and boiler rooms shall be equipped with a combination eyewash/deluge safety shower