

SECTION 13050

SERVER ROOMS

Cooling

- Cooling is to be powered with e-power
- Redundant cooling units (N+1) for any given usage required
- Backup to campus chilled water needed – possible solutions:
  - Specific chillers for data center as backup
  - External taps into chilled water system and e-power at data center for hooking up emergency outdoor units
  - Taps to switch from chilled water to city water in emergencies.
- Separate cooling units from server room – don't cool the cooling units
- Should be configurable for room use – for example we must be able to have hot and cold aisles for efficient use.
- Temperature in room to be ????
- Location

Power

- Kill switch for any data center room required
- E-power for all power needed (as well as for cooling)
- Availability of expanded higher density power
- UPS
  - UPS in separate room
    - Prevents unnecessary cooling of batteries
    - Allows for fully functional power kill switches in server room.
  - Ups power must last long enough to guarantee continuity during a switch to generator power.
- Transformers must be outside the server room to prevent unnecessary cooling of transformers
- Redundant power – 2 power sources for every rack.
- Power requirements per rack (
- 208v 30 amp) ???

Racks

- Large racks enclosing servers, power and power cable management, and data cables and management
- Locking racks for additional protection of systems as needed
- Pre-allocated networking switches and console equipment for full remote management of all server equipment

- 48 port of patch panel per rack, cat 5e or cat 6 (GB) cabling, tested, 24 ports for networking, 24 for console.

Physical Security related issues

- Alerting on door open actions
- Full motion-activated video
- Reporting on data center door access lists and actual door use lists

PART 1 - GENERAL

1.1 Scope:

- A. This section encompasses products, assemblies, design considerations, and basic installation methods required for Server Rooms specified under this division. It is intended to provide the design engineer, equipment vender, and installation contractor with an understanding of the basic requirements and conditions necessary for consideration in the development and implementation of SHC/SOM Server Rooms, and include:

1.2 SYSTEM DESCRIPTION:

- A.
- B.
- C.

1.3 QUALITY ASSURANCE:

- A. Provide equipment and components of type and manufactures which are listed by Underwriter's Laboratories and approved by Factory Mutual and have been successfully applied in installations similar to ones within the scope of this section.
- B. The Contractor shall be regularly engaged in the installation of - - - - -. Provide evidence of such recent experience.
- C. Contractor shall submit references for at least three projects of similar type and size installed over the last five years.
- D. The Medical Center reserves the right to reject any contractor who fails to demonstrate the experience required by 1.03B

1.4 REFERENCE CODES AND STANDARDS:

- A.

1.5 SUBMITTALS:

- A. General: Shop drawings shall be submitted to the Project Manager for approval prior to the purchase and installation of equipment. The Project Manager will submit the shop drawings to the University Fire Marshal and SHC Engineering & Maintenance

Department for internal review. After receiving review comments from the University Fire Marshal and the SHC E&M Department, the contractor shall make appropriate changes to the shop drawings. Thereafter, the Project Manager will submit the shop drawings to the appropriate jurisdictional agency for required permit, review, and approval.

- B. Shop Drawings and other submittals: Shop drawings shall be computer generated (CAD) drawings, compatible with the University Maps and Records department standards. All items shall be submitted for approval within the time specified in this section, and shall include the following, as a minimum.
1. Evidence of recent experience in installation of motor-driven fire pumps and appurtenances in similar projects prior to contract award.
  2. Schedule of performance, showing all major milestones, within 14 calendar days after contract award.
  1. Complete catalog data for all components to be installed, within 21 calendar days of contract award.
  2. Complete shop drawings of equipment to be installed, including piping, and any calculations, within 28 calendar days of contract award.
  3. Testing schedule, 14 calendar days prior to scheduled start of testing.
  4. Test procedure, at same time as Testing Schedule. Test procedure shall include testing alternate power supply and automatic transfer switch, when provided.
  5. Training syllabus, 14 calendar days prior to schedule training.
  6. Recommended spare parts list with any special tools required, wiring schematics, installation/operation/maintenance manuals, and as-built drawings, at same time as training syllabus.
  7. Report showing results of Field Acceptance Test, signed by contractor, within two (2) work days of test completion.
  8. Maintenance and testing schedule, submitted at the same time as 1.5.B.9

#### 1.6 SAFETY AND INDEMNITY:

- A. Safety: The Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.

1.7 GUARANTEE:

- A. The Contractor shall issue a certificate of guarantee certifying that all materials and workmanship supplied and/or installed by the Contractor shall be free from defects for a period of not less than one year from the date of substantial completion or beneficial occupancy, whichever occurs first.

PART 2 - DESCRIPTION

2.1 ROOM CONSTRUCTION

- A. Any data center must have a weight-bearing floor capable of supporting 2000 pounds in one rack
1. Vibration requirements ?????
  2. Wall construction with backing (20 ga studs, with 16 ga backing)
  3. Ceiling Systems (See section vinyl covered sheetrock tiles)
  4. Flooring: Anti-static
  5. Paint
- B. Accessibility:
1. If not on the ground floor, a freight elevator capable of handling 2000 pounds, and be 9 feet tall with a 9 foot tall entrance
  2. Door access into the server room must be 9'-0" high x 9'-0" wide net clear
  3. Security:
    - Alerting on door open actions
    - Full motion-activation video
    - Reporting on data center door access lists and actual door use lists.
- C. Racks:
1. Average size rack for \_\_\_\_\_ "Name" servers: \_\_\_\_\_ x \_\_\_\_\_ x \_\_\_\_\_ high. Maximum load capacity: 2000 pounds.
  2. Seismic per California Building Code
- D. Fire Protection
1. Pre-Action dedicated Fire Protection (See Section ?????)
  2. Fire Alarm: 100% smoke detector coverage (See Section ???)
  3. First alert smoke detection system.
    - In addition to the fire alarm system in D.2, a secondary system will be installed that will report directly to the IT emergency call number. The purpose of this system is to provide advanced notification to the IT group and IS NOT a part of the building fire alarm notification system.
    - VESDA smoke sampling tube system with hand held smoke locator
  4. Provide appropriate fire extinguishers where needed in the data center

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END OF SECTION