

SECTION 16420

SERVICE ENTRANCE EQUIPMENT

Part 1 -Design Directives

Most buildings on the Dartmouth campus receive electric power from the college owned medium voltage distribution system. As such the service conductors entering the building for the purposes of code compliance are considered to be feeders not a service entrance. The rules that govern these conductors and the main disconnect for each building are found in NEC article 225.

Engineering, materials and installation requirements for building electric service is found in the following sections:

Medium voltage switches: 16300

Loadcenter Transformers: 16460

Building distribution switchboards: 16425

Part 2 -Products

Cutler Hammer
GE
Square D

Part 3 EXECUTION

3.1 ELECTRICAL ENERGIZING REQUIREMENTS

- A. HIGH VOLTAGE Electrical Equipment and Vaults/Rooms: Prior to energizing high voltage equipment, the following items need to be completed by the contractor:*
- 1. 3rd party testing company needs to be submitted for DC FOM approval.
 - a. EPS out of Merrimack, NH does a lot of testing work on campus*
 - b. 3-C also has done some testing on campus.**
 - 2. HV switch(es) need to be tested by 3rd party testing company per specifications and test reports delivered to DC-FOM Engineering and project commissioning agent.*
 - 3. HV switch(es) need to be started up and tested manufacturer per specifications and reports delivered to DC-FOM Engineering and project commissioning agent.*
 - 4. HV Switch(es) shall be cleaned, wiped with de-natured alcohol and soft rags to be free of all dust and dirt.*
 - 5. The Electric vault where HV cables and terminations are exposed need to have fencing, with gate installed per DC-FOM approved sketch. FOM will provide padlocks.*
 - 6. The electric room shall have all work by other than electrical trades work complete (no exceptions!).
 - a. Doors with panic hardware installed.*
 - b. Doors have signage installed for safety (Warning or Danger for HV Electric)*
 - c. Locks installed- DC-FOM will make pass-key 7Mead (I think).**

- d. *All ventilation fans and ductwork complete*
 - e. *All painting complete.*
 - f. *All floor sealing complete.*
 - g. *All firestopping complete*
 - h. *All fireprotection- sprinkler system complete.*
 - i. *Electric room clean and free of dust and dirt and sealed/protected from dust and dirt entry.*
7. *AHJ approval for energizing incoming HV cables to HV switch(es).*
 8. *Note that DC-FOM will install, terminate and have independent testing company perform cable testing.*
- B.** *LOW VOLTAGE Electrical Equipment and Rooms:* *Prior to energizing low voltage equipment, the following items need to be completed by the contractor:*
1. *Short ckt and coordination study and arc flash haz study needs to be submitted and approved by DC-FOM and engineer of record.*
 2. *Transformer and switchboards need to be tested by 3rd party testing company per specifications and test reports delivered to DC-FOM Engineering and project commissioning agent.*
 3. *Transformer and switchboards need to be started up and tested manufacturer per specifications and reports delivered to DC-FOM Engineering and project commissioning agent.*
 4. *All protective device settings need to be adjusted per the coordination study.*
 5. *Transformer and switchboards shall be cleaned, wiped with de-natured alcohol and soft rags to be free of all dust and dirt.*
 6. *The electric room should have all work by other than electrical trades work complete (no exceptions!).*
 - a. *Doors with panic hardware installed.*
 - b. *Doors have signage installed for safety (Danger for Electric)*
 - c. *Locks installed- DC-FOM will make pass-key 7Mead (I think).*
 - d. *All ventilation fans and ductwork complete*
 - e. *All painting complete.*
 - f. *All floor sealing complete.*
 - g. *All firestopping complete*
 - h. *All fireprotection- sprinkler system complete.*
 - i. *Electric room clean and free of dust and dirt and sealed/protected from dust and dirt entry.*
 7. *AHJ approval for energizing transformer and switchboards.*