

# FACILITIES STANDARD

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NAME: Power Factor Correction Capacitors  
NUMBER: 16151

ORIGINAL DATE : 11-05-98  
REVISION DATE :

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**PURPOSE:**

1. The general purpose of each Facilities Standard is to provide minimal criteria for construction materials at University facilities regarding code compliance, warranty, approved products, execution and uniformity.
2. To protect the health and safety of patients, visitors, students, faculty and staff, in addition to protecting non-project UAB property, all construction must be in accordance with: NFPA 241 safeguarding construction, alteration and demolition operations; Standard Building Code, Chapter 33, regarding site work, demolition and construction; NFPA 101 Life Safety Code.
3. Construction safety is the responsibility of the contractor in accordance with the regulations and codes of the agency having jurisdiction, and according to the guidelines adapted by OSHA.
4. The **Power Factor Correction Capacitors Standard** establishes a series of guidelines for specifying this particular item on any construction project at the University. ***This Facilities Standard is not to be regarded as a specification.***

**GENERAL:**

1. Power factor correction capacitors will be required to improve power factor at the service switchgear to 95%. The Engineer shall furnish a load flow analysis study for determining the need and exact size of the capacitors.
  2. Power factor correction capacitors installed at switchboards shall, in general, be of the automatically switched type, based on the power factor of the running load. Such capacitor shall be fed from a feeder breaker in the switchboard, and not just tapped off the board bus.
  3. Individual motor power factor correction capacitor shall be non-PCB biodegradable fluids, installed external to the Motor Control Center. They shall be connected to the load side of the contactor. For solid state starters, capacitors shall be connected to the line side of the current transformers, in order to accurately set the solid state motor protector. Even though this method provides the greatest system benefit, capacitor must be carefully matched to
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individual load in order to avoid damaging equipment. It cannot be applied to open transition starters, and shall be carefully applied to solid state starters. MCC bus connected capacitor is a safer installation.

4. If the total harmonic generated by no-linear load, e.g. variable speed drives, soft starters, personal computers and electronic ballasts, increase to around 15% of the system capacity, the Engineer shall furnish a harmonic analysis study to determine potential resonance with the capacitors.

### **PRODUCTS:**

1. Capacitor approved manufacturers:
  - a) General Electric
  - b) Sprague Electric
  - c) RTE Aerovar
  - d) McGraw Edison

### **EXECUTION:**

1. When harmonic filtering is recommended and specified by the Engineer, the capacitor vendor shall be responsible for purchasing, installation , and wiring of the tuning reactor into the capacitor circuit. Capacitor and tuning reactor shall be installed in one enclosure as a complete harmonic filter unit.

**END OF STANDARD**

Prepared by: \_\_\_\_\_

Revised by:

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Samy A. George

Reviewed and

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Recommended by: \_\_\_\_\_

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