

**SECTION 263353 – STATIC UPS**

- 1.0 The system shall be designed in accordance with ANSI C62, NEMA, NFPA 70, and UL 1778. The use of consolidated central UPS systems vs local rack mounted UPS equipment is strongly preferred, for the benefits in efficiency and reliability.
- 2.0 Submit shop drawings showing dimensions, shipping splits, access requirements, weights and floor loading, interconnections, heat load and efficiency, temperature and humidity requirements, description of operation.
- 3.0 Submit the size and nearest location of the manufacturer's service organization. Maximum response time shall be four (4) hours. Service technicians shall be factory trained on the particular model(s) of UPS systems to be furnished.
- 4.0 The UPS shall be sized to accommodate present loads, anticipated future loads, plus thirty (30) percent capacity margin.
- 5.0 The design professional shall determine reliability requirements and specify an appropriate system. Typically, this will be a battery backed, static, on-line configured system with an automatic static bypass switch, wherein the load is normally fed by the inverter. Use of "Eco-Mode" schemes, flywheels, and other energy saving features may be considered where appropriate, but will require approval from the University Engineering Department.
- 6.0 The UPS shall include an external maintenance bypass switch that allows all components in the UPS cabinet to be de-energized without affecting power to the critical load. All bypass circuit breakers, contactors and other devices shall be interlocked so that back feeds and other unintended energization is prevented.
- 7.0 The UPS shall be placed in an environment to maximize unit life and reduce maintenance costs. Typically, this will require the provision of a cooling system that is powered by the same generator or other power source that supplies the UPS system.
- 8.0 The sizing of battery systems and length of back-up time shall be closely coordinated with the University Engineering Department. Generally, the required battery capacity will be sufficient for a minimum of 15 minutes of full load operation. The need for standby generator power to the UPS will be investigated with the University Engineering Department.
- 9.0 Batteries shall be multi-cell, valve-regulated lead acid type (VRLA) with a minimum 10 year pro-rated warranty. Alternate battery technologies shall require specific approval from the University Engineering Department. Batteries shall be installed in closed cabinets.
- 10.0 The installation shall include facilities to monitor UPS system operation, including as a minimum, BAS system alarm points for:
  - UPS load on Battery
  - UPS Load on Static
  - Bypass UPS Trouble
  - UPS Failure

Consult with the University Engineering Department and the University ICS department to determine if additional monitoring facilities are required. Such additional facilities could include network interfaces that would initiate orderly shutdown of IT equipment upon pending UPS shutdown.

- 11.0 UPS shall be factory and field tested, including field load test.
- 12.0 UPS shall be 99% efficient at unity power factor with sealed, lead acid, valve-regulated batteries sized for minimum 10 minutes run time at full load.
- 13.0 UPS systems must be mounted in a conditioned room. Mounting of UPS systems in mechanical rooms, corridors, labs, etc is not permitted.
- 14.0 Approved Manufacturers:
  - A. APC Schneider Electric
  - B. Eaton Powerware
  - C. Liebert