The following information shall be included in specifications prepared for use on all University of Cincinnati construction and renovation projects. This information is supplemental and not intended to be a complete specification.

**GENERAL STANDARDS**

**Power Distribution**

**Grounding** - Provide a grounding conductor in all raceways for the primary grounding path. Raceways shall serve as the secondary ground path. Provide isolated ground provisions for branch circuit panelboards.

**Equipment Isolation** - Segregate motor, equipment, and lighting loads from other, more sensitive equipment loads throughout the distribution system and to the extent practical. Evaluate and specify the appropriate K-ratings for distribution transformers.

**Equipment Circuits** - Many power quality problems in laboratories and similar facilities are related to equipment on receptacles that are on the same circuit. The Engineer shall take this into consideration when determining the number of circuits, the layout of receptacles on the same circuit, and equipment requiring dedicated circuits.

**Dedicated Grounding** - For research laboratories, design shall meet the requirements of a research institution. At minimum provide Ufer ground, a dedicated ground system, and easily accessible points of attachment to the building grounding system in the building main equipment room.

**Additional Requirements** - Evaluate and provide the following for laboratory bench circuits, computer circuits, sensitive equipment, and panelboards as required:

- Dedicated circuits
- Isolated grounds and isolated ground receptacles
- Transient surge suppressors
- Power conditioning
- Uninterruptible power supplies for critical loads

**Surge Protection**

Provide distribution-class surge arrestors on the building main transformer primary terminals to protect from surges and transients on the primary distribution system. In some cases, transient surge protection in the branch circuit panelboards might be required. The focus should be on panels with dedicated circuits that have isolated grounding provisions.

**Transient Voltage Surge Suppression:** Apply as needed. These devices are not a substitute for good wiring practices by the designer.
Lightning Protection

University Requirements - Lightning protection is to be installed where equipment or liability value is high. Consult with University of Cincinnati Construction Management (CM) in determining if a lightning protection system is required. Lightning protection is required for all buildings.

Code Requirements - Lightning protection systems shall conform to Underwriters Laboratories (UL) Code 96A (Lightning Protection Bulletin) and National Fire Protection Association (NFPA) Code #78. The system shall be designed as a master label system.

Design Evaluation

The following information is required to evaluate the design:

Programming Phase
Statement of design intent including the anticipated power quality challenges and the mitigation provisions anticipated

Schematic Design Phase
Identification of areas of the building and equipment that require a high degree of power quality
Description of the overall design concept for maintaining power quality in these areas and for this equipment
Outline specifications

Design Development Phase
Design details of the power quality provisions
Draft specifications

Construction Documents Phase
Power quality provisions fully implemented in the design
Complete specifications

Submittals
Develop submittal requirements for the appropriate specification sections.

PRODUCT STANDARDS
(No Standards for this Section)

EXECUTION STANDARDS
(No Standards for this Section)

--- END OF SECTION ---