

DIVISION 16 - ELECTRICAL

Section 16530 - Site Lighting

Introduction

When designing site lighting for the University two areas of major concern arise. The first and most prominent is that of safety for the students and faculty members. Since many times students need to be out and around the facility at late hours it is important to provide lighting such that they can see well enough to feel safe when they are traveling from one building to another.

The second area of concern is to minimize site lighting so as to meet within the guidelines for both Kitt Peak and Mt. Hopkins Observatories.

Lighting design should be in keeping with IES Lighting Standards and the Pima County Lighting Ordinance. Follow the ordinance. Special situations may receive a variance. Submit written requests to the University for written approval.

As a part of the design we expect to see details of both bollard and light pole foundations. Foundation designs shall be sealed by a Structural Engineer.

All outdoor lighting shall be fully shielded LED. Unshielded lighting shall be upon request from UA Electrical Engineer.

Light fixtures should be located in such a manner that they can be easily maintained using standard equipment. All exterior building light fixtures and poles shall be readily accessible and not restricted by other site improvements.

The design should be made in a manner such that is both energy efficient and cost effective as well as meeting the requirements for the local regulations.

The design should be flexible for both the field installation for expansion and for maintenance.

Where large areas are involved provide handholes for maintenance use to trouble shoot the underground wiring when needed, and to allow for easier expansion if required in the future.

As part of the design development phase provide cut sheets and point to point design calculations for all site lighting.

Where site lighting is to be designed either on the fringes of campus or off campus, insure that no light trespass occurs.

Refer to section 02870; as it pertains to street lighting.

Ingrade lighting shall be avoided.

Part 1 - General

- Provide submittals on all fixtures, including poles, bases, and ballasts at the Schematic Design Phase.
- Pole foundations are required for all lighting poles. These shall be engineered concrete foundations, engineered by a structural engineer, registered in the State of Arizona. All lighting poles in drive lanes shall have a minimum 30" above grade bases.
- All metal parts of lighting systems shall be bonded to pole UFER and equipment ground. This includes the steel lids on concrete pull boxes.

- Pole foundations shall be grounded with 20 ft. of bare #2 copper wire buried below the concrete foundation. No ground rod shall be installed at pole location.

Part 2 - Products

- Provide high quality products which are both architectural in nature and have an efficient lighting design.
- Use enough fixtures to provide adequate light especially in exterior corridors or areas between buildings to allow proper levels for personnel safety.
- Where available match fixtures in surrounding areas to be able to allow some continuity with the lighting in a general area.
- Light poles need to be designed for a minimum of a 100 mph wind loading. (80 mph + 1.3 gust factor)
- All pole mounted fixtures shall be fused and shall be breakaway type.
- Pole mounted fixtures shall have fuses in base of pole with handhole access.
- **Part 3 - Execution**
- Include requirements for aligning light fixtures, light poles, and bollards to be both level and uniform in layout and light distribution.

End of Section 16530