

260900 Instrumentation and Control For Electrical Systems

Sections Included In This Standard:

- 1.1 Controls Exterior
- 1.2 Controls Interior
- 1.3 Meters and Instrumentation

1.1 CONTROL EXTERIOR

1. All security lighting shall have photo-cell and timer control; parking lot, architectural, and other lighting, which may not need to be on all night shall have combination photo-cell and timer control. Time control shall be provided by the Building Automation / Control System, if present.
2. Building and parking lot lights shall be separately controlled.
3. Lighting in the perimeter zones of multi-level parking garages shall be wired and controlled separately, to stay off when there is sufficient daylight.

1.2 CONTROLS INTERIOR

1. All interior lighting, excluding emergency lighting, shall be automatically controlled. Interior lighting is to be programmed to turn off after normal occupancy hours and equipped with a manual override for after-hour use. Consideration shall be given to the full range of lighting control options including occupancy sensors, dual level control, automatic sweep timers and separate switching of daylight zones.
2. Lighting control systems shall be programmable without needing assistance from the manufacturer or distributor.
3. The preferred lighting control systems are Wattstopper, nLight and Crestron. Other systems will be considered on a case by case basis and approval must be in writing from Facilities Services.
3. Where code requires occupancy sensors, sensor location must be considered based upon the size of the room and the installation requirements. Preferred method is to provide ceiling mounted or overhead occupancy sensors for large rooms.
 - a. The size of the room may determine that a wall mounted sensor might be a better option. Furniture in the room (especially offices and rooms with high ceilings) needs to be taken into account when determining sensor location.
 - b. Lighting controller should be placed near the entry door to the space. The ceiling grid shall be labeled for location.
4. Low voltage controls shall be considered. Low voltage controls may provide reduced installation costs and improved flexibility for future changes in switching configurations and control methods.
5. Outlets controlled by occupancy sensor, where required by code.

- a. All duplex outlets within a space shall be split with one being constant power and one being switched. Other patterns of outlet control needs to be approved in writing by Facilities Services.
 - i. The outlet needs to be labeled as to which is the controlled outlet and which is not. This shall be done with pre-marked (from the factory) outlets.
 - ii. The switched outlet shall always be the top outlet. This standard cannot override code or standard requirements for ground orientation. Outlets need to be purchased from manufacturers that meet this standard.
 - b. Relays for outlet control should be located near the entry door to the space. The ceiling grid shall be labeled for location.
6. All new Occupancy sensors added shall have a set of dry contacts for future control of other systems (i.e. HVAC), unless they are being wired to control those systems already.
7. When building level lighting control is used, the system control shall support all protocols (BACnet, LON, etc.) or be stand alone with IP access. All programming code and necessary dedicated workstations with software will be provided to PPD and/or the end user as appropriate.
8. In the absence of special user needs such as lighting control systems for performing arts spaces, lighting for auditoriums and classrooms larger than 75 seats shall be directly controllable by A/V control system interfaces and be BACnet compatible. In the event the system chosen integrates the A/V and lighting control functions in one unit, maintenance of the lighting component shall become the responsibility of the same resources that maintain the A/V system. Permanently labeled zone and scene push-button lighting controls will be provided at appropriate locations, including the instructor location, with the capability of adding additional button or touch-screen control interfaces as needed by the end-user. In auditoriums, some room lighting shall be controllable from manual controls strategically located at means of egress.

1.3 METERS AND INSTRUMENTATION

- A. Electrical Metering: Refer to Utilities Standard ~~Section 260500~~ for electrical metering requirements.

END OF SECTION