



Design Standard Occupancy Sensors

Purpose:

This design standard has the purpose of creating a consistent application of the lighting control requirements throughout the South San Francisco Unified School District therefore achieving a standard of quality for maintenance, reliability, and operation throughout all renovation and new building projects.

Design Standard:

Design and specify occupancy sensors, combined occupancy sensors/wall switches, and/or automatic switches to sense the presence of human activity within the desired space. Local on/off manual switches shall have ability to override sensor.

- Occupancy Sensors
 - i) Passive Infrared Sensors:
 - a. Sensor Function: Detects human presence in the floor area being controlled by detecting changes in the Infrared energy. Sensor detects small movements, i.e., when a person is writing while seated at a desk.
 - ii) Ultrasonic Occupancy Sensors:
 - a. Sensor Function: Detects human presence in the controlled floor area by detecting Doppler shifts in 40kHz ultrasound created by sensor.
 - iii) Dual Technology Sensors:
 - a. General: Sensor has combined capability of passive infrared and ultrasonic sensors as described above.
- Combined Occupancy Sensor/Wall Switches ("Sensor Switches"):
 - i) Completely self-contained sensor system that fits into a standard single gang box. Internal transformer power supply, latching dry contact relay switching mechanism compatible with electronic ballasts, compact fluorescent, and inductive loads. Triac and other harmonic generating devices are not allowed.
- Upon detection of human activity by the detector, sensor initiates a time delay to maintain the lights on for a preset period of time. The detector shall have field adjustable time delay settings from 30 seconds to 30 minutes.
- Set sensors for specific conditions.
- LED lamp built into sensor indicates when occupant is detected.
- Provide zero cross relay control with sensors and sensor/switches; relay contacts close and open when AC voltage signal is at zero.
- Install occupancy sensors as directed by manufacturer's instructions. Provide connections to control circuits, occupancy sensors, power supply pack and low voltage wiring.



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- Provide power packs for the sensor to control the number of circuits and/or switch legs within its area of coverage.
- Sensor locations shall be coordinated with furnishings and equipment plans prior to installation.
- Field adjust each sensor to maximize its coverage of the room space.
- Relocate sensors with ultrasonic technology to avoid being closer to HVAC diffusers and power packs than recommended by manufacturer.
- Field set time delay for each device as noted below:
 - i) Classrooms and Conference Rooms: 15 minutes.
 - ii) All Restrooms: 15 minutes. 30 minutes if interlocked with the exhaust fan.
 - iii) Storage Rooms, Janitor's Closets: 5 minutes.
 - iv) Offices: 15 minutes.
 - v) All Other Spaces: 15 minutes.
 - vi) Timer Switches: 2 hours.
- Prior to applying dimming controls, maintain fluorescent lighting at full output for minimum of 100 hours. If this is not done, replace lamps and ballasts of affected luminaires at no cost to Owner.

Approved Manufacturers:

- Cooper Greengate (Formerly Novitas)

Substitutes Allowed:

- No Substitutions.

Associated Design Standards:

- 26 09 15 - Design Standard Lighting Relay Control Panel
- 26 50 00 – Design Standard Lighting

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