

SECTION 16570
LIGHTING CONTROL EQUIPMENT

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The general provisions of the Contract, including General and Supplementary General Conditions, and Division 1 General Requirements, apply to work specified in this Section.
- B. Requirements of Section 16050, "Basic Electrical Materials and Methods," apply to this Section.

1.02 SUMMARY

- A. This Section includes the following types of lighting controls:
 - 1. Contactors and Relays.
 - 2. Occupancy sensors.

1.03 SUBMITTALS

- A. Product data for products specified in this Section. Include dimensions and data on features and components. Include wiring diagrams and ratings.
- B. Closeout Submittal: Maintenance data for products for inclusion in Operating and Maintenance Manual specified in Division 1.

1.04 QUALITY ASSURANCE

- A. Comply with National Electrical Code for components and installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. Contactors and Relays:
 - a. Automatic Switch Co.
 - b. General Electric Co.
 - c. Square D Co. Manual Dimmers:
 - 2. Occupancy sensors.
 - a. Watt-Stopper.

2.02 INFRA-RED OCCUPANCY SENSORS

- A. Description: Passive infrared sensors which detect and respond to small changes in infrared energy, and switch lights off after a delay period when no activity is detected. The device shall be capable of detecting small movements, such as a person is writing while seated at a desk.

- B. Provide devices that have the following features:
1. Coverage: 900 square feet, with a field of view of 180 degrees.
 2. Compatibility: Sensor shall be capable of switching 0 to 800 watt incandescent or fluorescent 120 volts, and 0 to 1200 watts for 277 volts, and shall be compatible with electronic ballasts.
 3. Digital time delay, adjustable from 30 seconds to 15 minutes.
 4. Short Wavelength Filter: Daylight filter which ensures that the sensor will not respond to short-wavelength infrared waves such as those emitted by the sun.
 5. Daylight Illumination: Sensor shall have a daylight feature adjustable from 2.4 to 300 foot-candles that holds lighting "off" when a desired foot-candle level is present.
- C. Housing: Furnish sensor for installation in a single gang box, with a removable cover plate secured with screws, which allows access to mounting hardware and adjustment controls but prevents tampering.
1. Mounting: Ceiling mounting.
 2. Cover plate color: white.
- D. Product: Subject to requirements, furnish one of the following products or approved equal:
1. Watt Stopper #CI-200.

2.03 DUAL-TECHNOLOGY OCCUPANCY SENSORS

- A. Description: Dual Technology sensors that combine passive infra-red and ultrasonic methods, and switch lights off after a delay period when no activity is detected. The device shall be capable of detecting small movements, such as a person is writing while seated at a desk.
- B. Provide devices that have the following features:
1. Coverage: Maximum 1,000 square feet, with a field of view of 180 degrees.
 2. Control: 24 Volt DC using power pack module.
 3. Digital time delay, adjustable from 15 seconds to 15 minutes.
 4. Short Wavelength Filter: Daylight filter which ensures that the sensor will not respond to short-wavelength infrared waves such as those emitted by the sun.
- C. Mounting: Wall/ceiling mounting, with swivel bracket.
- D. Product: Subject to requirements, furnish one of the following products or approved equal:
1. Watt Stopper #DT-200.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General: Install equipment according to manufacturer's written instructions.
- B. Mounting heights indicated are to bottom of unit for suspended items and to center for wall-mounted ones.

3.02 CONTROL WIRING INSTALLATION

- A. Install wiring between control devices as specified in Section 16120 for hard wired connections.
- B. Bundle, train, and support wiring in enclosures.

3.03 FIELD QUALITY CONTROL

- A. Visual and Mechanical Inspections: Include the following inspections:
 - 1. Inspect for defects and physical damage, NRTL labeling, and nameplate compliance with current project drawings.
 - 2. Verify proper protective device settings and fuse types and ratings.
 - 3. Verify settings of photoelectric devices with photometer calibrated to NIST standards within the past 6 months.
 - 4. Exercise mechanical parts and operable devices according to manufacturer's instructions to verify proper operation.
- B. Electrical Tests: Exercise particular caution when testing devices containing solid-state components. Perform the following tests according to manufacturer's instructions:
 - 1. Insulation resistance tests of conducting parts of control components and connecting supply, feeder, and control circuits. Insulation resistance less than 100 megohms is not acceptable.
 - 2. Continuity test of circuits.

3.04 CLEANING AND ADJUSTING

- A. Remove paint splatters and other spots, dirt, and debris. Touch up scratches and mars of finish to match original finish. Clean equipment and devices internally and externally using methods and materials recommended by manufacturers.
- B. Occupancy Adjustments: Upon request within 1 year of date of substantial completion, adjust light levels, make program changes, and adjust sensors and controls.

END OF SECTION 16570