26 09 23 LIGHTING CONTROL DEVICES

PART 1 - GENERAL

1.1 Lighting control devices are identified on the drawings per legend symbols or as specifically noted. Catalog numbers from acceptable manufacturers for the common wiring devices shall be as listed herein. Catalog numbers are not listed for all devices. Other devices, such as key switches, clock hanger outlets, etc. shall be furnished by one of the manufacturers listed and shall be equal in quality to the device series listed.

1.2 When shop drawings are required for wiring devices the submittal shall be comprehensive for all wiring device configurations listed in the legend and for devices specifically noted on the drawings, including wall box dimmers, occupancy sensors and load control relays.

PART 2 - PRODUCTS

2.1 Toggle type AC switches shall be listed by Underwriters Laboratories, Inc. Switches shall be 20 ampere, 120/277 volt AC and ivory in color unless noted otherwise.

Acceptable Manufacturer	General Purpose	Red Pilot Lighted	Illuminated Handle	Momentary
Eaton	AH1221 series	AH1221 PL series	AH1221 LT series	1995 series
Bryant	4901 series	4901 PL series	4901 GL series	4921 series
Hubbell	HBL1221 series	HBL1221 PL series	HBL1221 IL series	HBL1557 series
Leviton	1221-S series	1221 PL series	1221 LH series	1257 series
P&S	PS20AC2 series	PS20AC2 RPL series	20AC1 SL series	1251 series

2.2 Ceiling/Wall Mount Occupancy Sensor

A. Sensor shall be dual technology to detect human presence in controlled area by ultrasound and passive infrared. Dual sensing with both technologies must occur to activate lighting system. Sensor to be fully adaptive with self-adjusting and self-calibration.

B. Sensor shall have signal processing to respond to only those signals caused by human motion. Sensor to operate instantly for room motion and time off delay adjustable for 5 – 30 minutes. Sensor to be equipped with a walk-thru mode.

C. Sensor area coverage to be minimum of 1000 SF for one sensor. Provide multiple sensors where needed for space coverage.

D. Sensor shall have provisions for manual-off function for lighting circuit from remote momentary switch (reset when not occupied) or maintained (off override).

E. Power pack for remote mounting to match occupancy sensor.

F. Verify color with Architect.

G. All components to have 5-year warranty.

H. Manufactured by Watt-Stopper, Greengate (Cooper Controls), Hubbell Control Solutions, Leviton, Sensor Switch or Lutron.

2.3 Wall Switch Occupancy Sensor (Small Offices and similar room w/single entry door)

A. Switching w/manual and automatic control. Sensor shall use PIR sensing and shall have photocell/daylight override, vandal resistant lens. Sensor to be fully adaptive with self-adjusting and self-calibration.

B. Switches to provide two level and incorporate two dedicated relays in addition to the manual switches.

C. Verify color with Architect.

D. All components to have 5-year warranty.

E. Manufactured by Watt Stopper, Greengate (Cooper Controls), Hubbell Control Solutions, Leviton, Sensor Switch or Lutron.

2.4 E.C. is to provide an additional single-pole, double throw isolated contact with each occupancy sensor for remote interface with HVAC.

2.5 Provide a device plate to suit each particular application. Cover all empty outlet boxes with a blank plate. Coverplates shall be manufactured by Pass and Seymour, Hubbell, Cooper, Bryant, Leviton or Mulberry; Taymac is an acceptable manufacturer for weatherproof non-metallic coverplates Multi-Mac Series, “While-In-Use” type, 3.5 inches depth, opaque grey, locking tab, marked “EXTRA Duty”. Provide jumbo sized plates for outlets installed in masonry walls.

2.6 In finished spaces, wall plates shall be unbreakable Lexan or nylon, non-combustible, minimum 0.100 inch thick, with color matching metal screws; "smooth" styling. Plates shall match color of devices.

PART 3 - EXECUTION

3.1 Locate devices as shown on the drawings, coordinate exact location with other trades, to avoid interference. Check for potential interference from door swings, cabinets, HVAC equipment and other wall mounted devices.

3.2 Clean debris from device boxes prior to installation of devices. Adjust devices and coverplates to be flush and level.

3.3 Control Cabling Installation

A. Lighting control low voltage wiring shall be furnished and installed in accordance with manufacturer’s recommendations in compliance with all Local, State and National codes. This Contractor shall be responsible for furnishing and installing all required cabling between components to form a complete and operational system meeting all the requirements of this specifications.

B. Provide firestop material and seal all cable penetrations as required.

C. All wiring shall be organized and run parallel or perpendicular to building lines above ceilings. Provide all required cable management systems such as J-hooks to support wiring to meet building codes and manufacturer’s recommendations.

D. Cables shall not be laid upon ceilings, structure or equipment or supported in a manner that would violate any codes or standards.

E. All cabling installed in accessible ceiling spaces shall be UL plenum rated.

F. All control and signal cable shall be installed continuous and without splices. Provide appropriate connectors or pre-manufactured cables for each application.

3.4 Identification/Labeling

A. Contractor shall identify all major items of equipment and tag all cables with permanent type markers to denote equipment served. Cables shall be tagged at both ends and at each point where the cable is administered.

3.5 Occupancy Sensor Installation

A. Verify location of occupancy sensor(s) with selected manufacturer prior to rough-in to minimize false activation of the device. Locate sensor and adjust activation field to avoid nuisance activation by movement outside of the controlled space. Sensors shall sense any human motion in the space and allow turn on with entrance into the space.

B. Provide all material and labor for a complete and operational system including power and slave packs, auxiliary relay modules and backboxes. Verify application voltage rating and provide proper rated devices.

C. Low voltage wiring can be open wired above accessible ceilings, utilize plenum rated cabling. Installation in exposed or inaccessible locations shall be installed in conduit.

D. Coordinate time delay off setting of each occupancy sensor with the Owner. Maximum time delay off shall be 30 minutes. Minimum off delay is 10 minutes for intermittent use spaces.

E. Maintain 6 feet (minimum) to 8 ft. distance from an HVAC air outlet.

3.6 Training Requirements

A. Provide all training and utilize specified manuals and record documentation. Training shall be provided to all Owner designated staff at the project site.

B. Demonstrate adjustment, operation and maintenance of the system including each component and control.

END OF SECTION