

ITEM 670.60----25- PHOTO ELECTRIC CONTROL UNIT

1. DESCRIPTION:

- 1.01 Under this Item the contractor shall furnish and install three plug-in, locking type photo electric control units (PEC).
- 1.02 Refer to Special Note "General Electrical Requirements" for code conformance, local authority jurisdiction, testing, training, submission requirements, training, equipment and material provisions, and general requirements.

2. MATERIAL:

2.01 Photoelectric Controls

- a. Controls shall be suitable for mounting in all three-pronged locking type receptacles that conform to Electrical Engineering Institute (EEI) or National Electrical Manufacturers Association (NEMA) standard specifications.
- b. The plug used in the PEC shall be of the three, three wire, locking type. It shall be part of the photoelectric control unit.
- c. The photocell shall be cadmium sulfide and hermetically sealed to prevent electrolysis from moisture. The manufacturer shall certify that each cell has had 24 hours of light preconditioning before assembly.
- d. The photoelectric control shall be solid state and shall be capable of being faced in any direction.
- e. The photoelectric control shall have an operating voltage range of 105-285 volts. 60 cycle and shall be suitable for operation on nominal distribution voltage of 120 and 208 volts.
- f. The controls shall be temperature compensated, and shall be suitable for operation from - 29°C to +50°C and shall be completely unaffected by humidity. The load switch and relay contacts shall be rated at 15 amperes continuous at 120V AC and shall be capable of making and breaking an 1800V-A HID lamp load, together with its associated ballast and transformer equipment, without excessive arcing.
- g. All contract mechanism shall provide fast, positive make and break action with absolute minimum contact chatter or bounce, assure freedom from contact pressure, and achieve low contact resistance throughout contact life. The photoelectric control shall be able to withstand an inrush current of a maximum of 170Amperes.
- h. Time delay devices shall be built into the photoelectric control to prevent switching of artificial lighting due to transient lighting changes. The photoelectric controls shall also be equipped with a built-in expulsion-type surge and lighting protection arrester.
- i. The housing for the photoelectric control shall be weather resistant and shall be unaffected by ultraviolet rays. A neoprene sponge gasket shall be cemented to the bottom of the base to seal out weather, dust and insects, and shall conform to EEI-NEMA Standards.
- j. Provision shall be made for grounding metallic enclosures. If the device fails when operating within the specified voltage range, the failure shall be contained within the enclosure. The device shall fail in the off position.

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2. MATERIAL: (cont'd)

2.01 Photoelectric Controls: (cont'd)

- k. The PEC shall turn on at twenty-two (22) lux maximum and off at eleven (11) lux minimum horizontal, both over a range of input voltage 105 to 130 volts in an ambient temperature of 25°C and over a range of temperature from -29°C to 50°C with relative humidity of 95%. The ratio of turn-off light level shall be one (1) or ½. The turn-on light level turn off level shall at no time be greater than the turn on level.
- l. The life expectancy of the unit shall be minimum of ten years.
- m. The vendor shall guarantee the PEC against defects of materials and parts, workmanship, and failure to operate properly in service for a period of three (3) years after date of installation.
- n. The internal circuitry of the PEC shall be such that in the event of failure of any component of the control system, the artificial lighting is energized.
- o. The photoelectric control unit shall be as manufactured by:
 - Fisher Pierce Div., Sigma Instruments Inc.
 - Braintree, MA 02185 - 7700 series
 - Dayton Electric Manufacturing Co.
 - Chicago, IL 60648 - Lock-in Type
 - or equal

3. CONSTRUCTION DETAILS:

3.01 Pre-Tests

Prior to installation of the PECs, the contractor shall submit to the Engineer documentation on successful performance of the following tests:

- a. Raintightness
- b. Resistance to impact
- c. Overload
- d. Dielectric withstand
- e. Surge protection

Photoelectric controls will be accepted upon the manufacturer's certification that they meet the requirements of this section.

The manufacturer's name or trademark, rating in each volts, amperes, frequency, and style number shall be permanently attached to the PEC. A serial number approximately 1/8 in in height shall be affixed to each PEC.

A 1.0 in orange band shall be painted inside the cap to permit identification. The paint shall be Armorthane REZ-N-LACQUER C-ORANGE 1313 or equal.

3.02. Installation:

Installation junction box, of the size shown on the contract drawings, on the wing of the

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3. CONSTRUCTION DETAILS: (cont'd)

3.02. Installation: (cont'd)

underpass wall. Mount PECs, one per phase, on top of the junction box. Mounting height of the junction box above finished grade shall be determined in the field. Wire the PECs as shown on the contract drawings. Only approximate location of the junction box is shown on the contract drawing, determine the exact location in the field. After completion, the installation shall be tested in the presence of the Engineer.

4.0 METHOD OF MEASUREMENT:

This work will be measured as the number of PECs and junction boxes furnished and satisfactorily installed.

5.0 BASIS OF PAYMENT:

The unit price bid shall include the cost of the control unit and necessary material and equipment to satisfactorily complete the work, as described above.