**SP-150416**
**(New)**

**SPECIAL PROVISIONS**
**FOR**
**IDENTITY ELEMENT LIGHTING**

**Scott County**
**IM-NHS-074-1(206)5--03-82**

**Effective Date**
**October 16, 2018**

**THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.**

**150416.01 DESCRIPTION.**
This item shall consist of furnishing and installing an aesthetic lighting luminaire, as described below, including power supply/driver, branch circuit/extension, mounting hardware, fusing, and surge protection.

**150416.02 MATERIALS.**
Provide lighting materials that meet the requirements of Division 41, except as modified here.

**A.** Aesthetic Luminaire Type “LF”. The luminaire shall be: Lumenpulse Lumenfacade 3ft; LOG-HO-240-36-40K-10x60-WAM2-SI-NO+LOGLCD leader cables as needed.

**1.** Information Required. The Supplier shall submit the following information relative to the luminaire he proposes to furnish:
- **a.** Outline drawing.
- **b.** Complete description and weight.
- **c.** Candlepower distribution curve.
- **d.** Luminaire efficacy.
- **e.** Manufacturer’s name and catalogue designation of the luminaire.
- **f.** IES formatted photometric curve in electronic format.

**2.** Sample. One completely assembled luminaire with cord and plug of the manufacturer’s intended luminaire to be furnished, shall be submitted upon request of the Engineer within 15 business days of such request.

**3.** Assembly. Each luminaire shall be delivered completely assembled, wired and ready for installation. It shall consist of extruded, anodized, low copper content aluminum housing rated IP66, a hinged mounting plate, clear polycarbonate lens, 46W LED array with 10 degree by

60 degree optics, terminals for power in, locking hinge mounting bracket, integral power supply, gaskets and all necessary hardware. Order cables as necessary to connect fixtures to J-box.

**4.** Finish. The luminaire shall have an anodized aluminum finish. The luminaire finish shall have passed salt spray testing to ASTM B117 standards. Surface texture and paint quality shall be subject to inspection and approval by the Engineer. Color shall be Silver SandText. Paint chips shall be submitted for approval by the Engineer.

**5.** Connections. All power cables will be UL rated. Order Leader cables and other jumper cables as needed to connect the fixtures to their J-boxes.

**6.** Control. Fixture shall be controlled via photocell or timeclock.

**7.** Photometric Requirements. The manufacturer shall demonstrate that the luminaire meets or exceeds the specified photometric requirements. The manufacturer shall provide published photometric luminaire data as part of the submitted package. The proposal shall contain luminaire photometric performance with results equal to or better than those listed as minimum requirements identified below in this Special Provision. Submittal information shall include a summary demonstrating achievement of all listed performance requirements.

Minimum Performance Requirements:

| | |
|---|---|
| Minimum Delivered Lumens at Full Output | 2402 lms |
| Minimum Efficacy | 52 lms/W |
| Beam Spread | 10 degrees by 60 degrees |

**8.** Power Supply. The power supply must be integral to the fixture. It must be designed to furnish proper electrical characteristics for starting and operating a 46 watt, white LED array at maximum ambient temperatures of 122°F. The power supply will be capable of meeting the voltage requirements specified by the engineer.

- **a.** LED Array Operation. The power supply must operate the white LED array at an input voltage specified by engineer.
- **b.** Power Factor. The power factor of the power supply over the design range of input voltages specified above must not be less than 0.95.
- **c.** LED Array Wattage. The power supply must deliver 46 watts at 120V to a white LED array when operating at the nominal input voltage. Wattage must not vary by more than ±5%.
- **d.** The power supply input current must have Total Harmonic Distortion (THD) of less than 5% when operated at nominal line voltage.
- **e.** The power supply must be thermally protected to drop the power to the LED array if necessary to maintain a safe operating temperature.
- **f.** The power supply must be UL certified.

**9.** Testing. All testing shall be done on a prototype of the actual luminaire to be provided under this Special Provision by an independent testing company. If recent test results are available, they may be considered as meeting the testing requirements of this Special Provision. The Engineer will have the final approval of which tests are adequate. The manufacturer shall be responsible for all costs associated with the specified testing, incidental to this contract.

- **a.** Photometric testing shall be in accordance with published IESNA lighting measurement testing and calculation guidelines. The tests, at a minimum, shall yield:
  - A polar candela distribution table.
  - A flood summary table.

- An LM-79 report
- An LM-80 report

**b.** Electrical testing shall conform to applicable NEMA and ANSI standards and at a minimum shall yield:
- Regulation data.
- Power factor.
- A table of power supply characteristics.

**c.** Initial testing (start of life testing)
- Any automatic thermal management features.
- Current waveform shape and inrush current.
- Record voltage waveform.
- Photometry data for the test fixture shall be recorded and compared to data for the same fixture provided by the manufacturer.
- Results for voltage and current waveforms for ignition voltage, crest factors, power factor.

**10.** Fixture must be RoHS compliant and have passed RoHS testing.

**11.** Thermal testing in accordance with UL. At no time shall any of the components exceed the manufacturer's recommended operating temperatures.

**12.** Vibration testing in accordance with ANSI Standard C136.31. Upon completion of the test, all set screws, castings and components shall be secure and undamaged. The luminaire will not be energized for this test.

**13.** Warranty. The manufacturer shall warrant the performance and construction of these luminaires to meet the requirements of this special provision and shall warrant all parts, components and appurtenances against defects due to design, workmanship or material developing within a period of 5 years after the date of manufacture as indicated on the luminaire. This will be interpreted particularly to mean compatible performance of power supply, failure of any component, discolorations or fogging of lenses impairing the transmission of light. Any luminaire or part thereof, not performing as required or developing defects within this period shall be replaced by the manufacturer without expense to the State.

**14. White LED Array (LF).**

**a.** Light Output. White light with 4000K correlated color temperature (CCT), with all LEDs falling within a 4-step MacAdam ellipse. At 120,000 hours and at a mean temperature of 25°C, the mean lumen output shall not be less than 70% of the initial lumen output.

**b.** Testing. All LEDs shall be tested according to the applicable requirements in LM79-08 and LM80-08 and shall operate between a minimum ambient temperature of -13°F and a maximum ambient temperature of 122°F.

**c.** LED Array Characteristics. White LED array shall meet the following:

| Maximum Wattage | Rated Life (hours) | Initial Lumens |
|---|---|---|
| 46 | 120,000 | 2402 |

**B.** Aesthetic Luminaire Type "LF-1". The luminaire shall be: Lumenpulse Lumenfacade, 2ft; LOG-RO-240-24-40K-10x60-UMAS-SI-NO + LOGLCD leader cables as needed.

**1.** Information Required. The Supplier shall submit the following information relative to the luminaire he proposes to furnish:

**a.** Outline drawing.

**b.** Complete description and weight.
**c.** Candlepower distribution curve.
**d.** Luminaire efficacy.
**e.** Manufacturer's name and catalogue designation of the luminaire.
**f.** IES formatted photometric curve in electronic format.

**2.** Sample. One completely assembled luminaire with cord and plug of the manufacturer's intended luminaire to be furnished, shall be submitted upon request of the Engineer within 15 business days of such request.

**3.** Assembly. Each luminaire shall be delivered completely assembled, wired and ready for installation. It shall consist of extruded, anodized, low copper content aluminum housing rated IP66, a hinged mounting plate, clear polycarbonate lens, 17W LED array with 10 degree by 60 degree optics, terminals for power in, locking hinge mounting bracket, integral power supply, gaskets and all necessary hardware. Order cables as necessary to connect fixtures to J-box.

**4.** Finish. The luminaire shall have an anodized aluminum finish. The luminaire finish shall have passed salt spray testing to ASTM B117 standards. Surface texture and paint quality shall be subject to inspection and approval by the Engineer. Color shall be Silver SandText. Paint chips shall be submitted for approval by the Engineer.

**5.** Connections. All power cables will be UL rated. Order Leader cables and other jumper cables as needed to connect the fixtures to their J-boxes.

**6.** Control. Fixture shall be controlled via timeclock.

**7.** Photometric Requirements. The manufacturer shall demonstrate that the luminaire meets or exceeds the specified photometric requirements. The manufacturer shall provide published photometric luminaire data as part of the submitted package. The proposal shall contain luminaire photometric performance with results equal to or better than those listed as minimum requirements identified below in this Special Provision. Submittal information shall include a summary demonstrating achievement of all listed performance requirements.

Minimum Performance Requirements:

| | |
|---|---|
| Minimum Delivered Lumens at Full Output | 737 lms |
| Minimum Efficacy | 43 lms/W |
| Beam Spread | 10 degrees by 60 degrees |

**8.** Power Supply. The power supply must be integral to the fixture. It must be designed to furnish proper electrical characteristics for starting and operating a 17 watt, white LED array at maximum ambient temperatures of 122°F. The power supply will be capable of meeting the voltage requirements specified by the engineer.
**a.** LED Array Operation. The power supply must operate the white LED array at an input voltage specified by engineer.
**b.** Power Factor. The power factor of the power supply over the design range of input voltages specified above must not be less than 0.95.
**c.** LED Array Wattage. The power supply must deliver 17 watts at 120V to a white LED array when operating at the nominal input voltage. Wattage must not vary by more than ±5%.
**d.** The power supply input current must have Total Harmonic Distortion (THD) of less than 5% when operated at nominal line voltage.
**e.** The power supply must be thermally protected to drop the power to the LED array if necessary to maintain a safe operating temperature.

**f.** The power supply must be UL certified.

**9.** Testing. All testing shall be done on a prototype of the actual luminaire to be provided under this Special Provision by an independent testing company. If recent test results are available, they may be considered as meeting the testing requirements of this Special Provision. The Engineer will have the final approval of which tests are adequate. The manufacturer shall be responsible for all costs associated with the specified testing, incidental to this contract.

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**14. White LED Array (LF-1).**

**a.** Light Output. White light with correlated 4000K color temperature (CCT), with all LEDs falling within a 4-step MacAdam ellipse. At 120,000 hours and at a mean temperature of 25°C, the mean lumen output shall not be less than 70% of the initial lumen output.

**b.** Testing. All LEDs shall be tested according to the applicable requirements in LM79-08 and LM80-08 and shall operate between a minimum ambient temperature of -13°F and a maximum ambient temperature of 122°F.

**c.** LED Array Characteristics. White LED array shall meet the following:

| Maximum Wattage | Rated Life (hours) | Initial Lumens |
|---|---|---|
| 17 | 120,000 | 738 |

**150416.03 METHOD OF MEASUREMENT AND BASIS OF PAYMENT.**

This work shall be included in the cost of identity elements.