



## Florida Department of Transportation

RICK SCOTT  
GOVERNOR

605 Suwannee Street  
Tallahassee, FL 32399-0450

ANANTH PRASAD, P.E.  
SECRETARY

January 22, 2013

Monica Gourdine  
Program Operations Engineer  
Federal Highway Administration  
545 John Knox Road, Suite 200  
Tallahassee, Florida 32303

Re: Office of Design, Specifications  
Section **992**  
Proposed Specification: **9920104 Highway Lighting Materials.**

Dear Ms. Gourdine:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

These changes were proposed by Traffic Operations, Product Evaluation, and Specifications Offices as part of an ongoing effort to consolidate the Minimum Specifications for Traffic Control Signals and Devices (MSTCSD) and Standard Specifications for Road and Bridge Construction. Specifically, the changes to Section 992 were made to move the conduit requirements to Section 630 and the pull box requirements to Section 635. The changes also allow LED fixtures for sign lighting. The originator is Chester Henson of the State Roadway Design Office.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to SP965TT or [trey.tillander@dot.state.fl.us](mailto:trey.tillander@dot.state.fl.us).

If you have any questions relating to this specification change, please call me at 414-4140.

Sincerely,

Signature on file

V. Y. "Trey" Tillander, III, P.E.  
State Specifications Engineer

TT/dt

Attachment

cc: Florida Transportation Builders' Assoc.  
State Construction Engineer

**HIGHWAY LIGHTING MATERIALS.**(REV ~~11/21-21522~~-12)

SUBARTICLE 992-1.4 (Page 1133) is deleted and the following substituted:

**992-1.4 Conduit:** Conduit shall be used in accordance with the National Electrical Code and as specified in the Plans. ~~All e~~Conduit shall ~~be UL or NRTL listed and~~ meet the ~~following material~~ requirements *of Section 630.:*

~~**992-1.4.1 Rigid Metal Conduit:** Rigid steel conduit shall meet the requirements of UL 6. The steel conduit shall be hot dip galvanized with a minimum coating of 1.24 oz/ft<sup>2</sup> on both the inside and outside of the conduit. The weight of the zinc coating shall be determined using ASTM A90.~~

~~**992-1.4.2 Polyvinyl Chloride:** Polyvinyl chloride conduit shall be high impact, Schedule 40 or Schedule 80 conduit meeting the requirements of UL 651.~~

~~**992-1.4.3 Rigid Aluminum:** Rigid aluminum conduit shall meet the requirements of UL 6A.~~

~~**992-1.4.4 High Density Polyethylene (HDPE):** **HDPE conduit shall meet the requirements of UL 651A.**~~

~~**992-1.4.5 Liquid tight Flexible Metal:** The conduit shall meet the requirements of UL 360.~~

SUBARTICLE 992-1.8 (Pages 1133 – 1134) is deleted and the following substituted:

**992-1.8 Pull Boxes:** Pull boxes shall meet the requirements of Section 635, ~~except that the minimum size for highway lighting shall be 13 inches wide, 24 inches long and 12 inches deep. The cover shall be marked "lighting" and shall be bonded to the ground rod if of metal construction.~~

SUBARTICLE 992-2.5 (Page 1135) is deleted and the following substituted:

**992-2.5 Luminaire Cable:** Pole and bracket cable shall be multi-conductor Type XHHW-2- XLP- TC with three No. 10 AWG.

SUBARTICLE 992-2.7 (Page 1135) is deleted and the following substituted:

**992-2.7 Surge Protection Devices:** The *metal oxide varistor* (MOV) based SPD shall be spotted in a manner to be waterproof. UL listing is not required. SPD's per mode surge current rating shall be 20KA for 480V to ground and 40KA for neutral to ground. Maximum continuous operation voltage (MCOV) shall be not less than 550Vrms and not greater than 600Vrms. All wires and internal spacings shall be insulated for 600Vrms.

ARTICLE 992-4 (Page 1140) is deleted and the following substituted:

#### 992-4 Sign Lighting.

**992-4.1 Luminaires and Ballasts:** The luminaire shall consist of a precision cast aluminum *housing* with a corrosive resistant polyester powder coat finish. The standard color shall be gray. The cover shall be attached to the housing utilizing stainless steel *hardware* ~~bolts~~, and the housing shall be sealed to provide an IP 55 rating or greater. The mounting assembly for a sign light shall be a slipfitter type to accommodate a 1-1/2 inch, Schedule 40 steel pipe connection. The luminaire manufacturer shall place a permanent tag on the luminaire housing on which the following is imprinted: the luminaire voltage, lamp wattage and a blank area for the Contractor to inscribe the installation date. The refractor shall be tempered clear or microprismatic glass.

Induction ~~lamps~~ or *LED fixtures* shall meet the following requirements:

*Correlated Color Temperature of CCT 4500 K ( $\pm$  plus or minus 500K), maintain 94.1% Intensity at 6,000- hours (IES- LM-80) and have IESNA light distribution curves (IES- LM-79) by an EPA- ~~Recognized Laboratory~~ CRI 80, CCT 5000 K and average rated life of 100,000 hours.*

~~\_\_\_\_\_~~ The *driver* ~~generator~~/ballast may be internal or external to the fixture. *The driver/ballast shall have a power factor  $\geq$  greater than or equal to 90% at full load and a total harmonic distortion  $\leq$  less than or equal to 20% at full load. ~~If the generator is internal to the fixture, the maximum operating temperature shall not exceed 130°F when measured at the base point. The fixture shall accommodate a circuit voltage of 480- volts.~~ -If the fixture is not compatible with the circuit voltage, step-down transformers or other equivalent circuitry shall be provided by the fixture manufacturer to provide for a complete installation.*

*The fixture shall be rated for a minimum lamp efficiency of 60% lumen output at 75,000- hours @at 25°C.* -The manufacturer shall provide a five year non-prorated warranty to the Department. The warranty shall begin on the installation date.

SUBARTICLE 992-5.1 (Pages 1140 – 1141) is deleted and the following substituted:

**992-5.1 Luminaires and Ballasts:** Luminaires shall consist of a die-cast aluminum housing and reflector holder and a heat-resistant, high-transmission glass ~~prismatic~~ *prismatic* refractor. Housing shall have gasketing between the reflector and the refractor and the socket entry. Luminaires shall be high pressure sodium vapor unless otherwise indicated in the Plans.

High pressure sodium lamps shall meet the following requirements:

NEMA C78.42, *Color Rendering Index of* CRI 21 (Min), CCT 2100 K and average rated life of 24,000 hours (min).

Underdeck fixtures may be wall mounted or pendant mounted fixtures. Pendant mounted fixtures shall be vibration tested in accordance with NEMA C136.31.

**HIGHWAY LIGHTING MATERIALS.**  
**(REV 1-22-12)**

SUBARTICLE 992-1.4 (Page 1133) is deleted and the following substituted:

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Induction or LED fixtures shall meet the following requirements: Correlated Color Temperature of CCT 4500 K (plus or minus 500K), maintain 94.1% intensity at 6,000 hours (IES LM-80) and have IESNA light distribution curves (IES LM-79) by an EPA recognized laboratory. The driver/ballast may be internal or external to the fixture. The driver/ballast shall have a power factor greater than or equal to 90% at full load and a total

harmonic distortion less than or equal to 20% at full load. The fixture shall accommodate a circuit voltage of 480 volts. If the fixture is not compatible with the circuit voltage, step-down transformers or other equivalent circuitry shall be provided by the fixture manufacturer to provide for a complete installation.

The fixture shall be rated for a minimum lamp efficiency of 60% lumen output at 75,000 hours at 25°C. The manufacturer shall provide a five year non-prorated warranty to the Department. The warranty shall begin on the installation date.

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