



Florida Department of Transportation

CHARLIE CRIST
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

STEPHANIE KOPELOUSOS
INTERIM SECRETARY

MEMORANDUM

DATE: January 9, 2007
TO: Specification Review Distribution List
FROM: Duane F. Brautigam, P.E., State Specifications Engineer
SUBJECT: Proposed Specifications Change: 9920001-Highway Lighting Materials

In accordance with Specification Development Procedures, we are sending you a copy of a proposed new specification change for Highway Lighting Materials.

This change was proposed by Chester Henson of the Roadway Design Office to specify criteria for concrete foundations and bases as well as alternate foundations for light poles.

Please share this proposal with others within your responsibility. Review comments are due within four weeks and should be sent to Mail Station 75 or to my attention via e-mail at SP965DB or duane.brautigam@dot.state.fl.us. Comments received after February 6, 2007 may not be considered. Your input is encouraged.

DFB/sh

Attachment

COMMENTS:

Submitted by:

Phone #:

HIGHWAY LIGHTING MATERIALS.

(REV 1-8-07)

ARTICLES 992-1 thru 992-4 (Pages 902-904) is deleted and the following substituted:

992-1 Basic Design Criteria.

992-1.1 General: ~~Unless otherwise specified in the plans or the specifications,~~ *T*he light poles and bracket arms shall be in accordance with the requirements of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, *the Florida* *FDOT Structures Manual* and with the specific requirements contained in this Section.

992-1.2 Wall Thickness of Steel *High Mast* Poles: The minimum wall thickness for galvanized steel poles shall be ~~0.1196~~ *0.1793* inch (~~7H~~ gauge).

992-1.3 Design Calculations: ~~The Contractor shall submit for approval, design calculations of the light poles (including bracket arms) and anchor bolts.~~

992-1.34 Light Pole Assembly: The light pole assembly shall conform to the applicable requirements of IES, EEI, and NEMA (Illuminating Engineering Society, Edison Electric Institute, and National Electrical Manufacturers Association).

992-2 Light Poles.

992-2.1 Galvanized Steel: Unless otherwise shown, galvanized steel light poles shall be one piece, continuous-tapered, round or *minimum of 12 sided* ~~octagonal~~ poles and shall be manufactured from one length of steel sheet, formed in continuous tapered tube, with one continuous arc-welded vertical seam. They shall be galvanized in accordance with ASTM A 123.

992-2.2 Aluminum: Aluminum light poles shall be *round*, one piece, continuous-tapered, ~~round or octagonal shaft, of high-strength, corrosion-resistant~~ aluminum, and of *an* approved alloy meeting the requirements ~~of~~ *for* the design as specified ~~Design Standards~~ *in 992-1*.

992-2.3 Length: The poles shall be of such length as to provide the approximate luminaire mounting height shown in the plans or directed by the Engineer.

992-2.4 Bases: Anchor base poles shall have a wiring hand hole with a weatherproof metal cover near the base, with a grounding lug located inside the pole near the hand hole. Transformer base poles shall have a grounding lug in the transformer base. A heavy cast base shall be attached to the lower end of each shaft by a continuous arc weld, inside and outside of the shaft, or by a combination of arc welding and a press fit, subject to the approval of the Engineer. The base shall be arranged for anchoring to a transformer base or a concrete foundation with four anchor bolts 1 inch (minimum size), unless otherwise shown in the plans.

992-2.5 General: The lighting pole assembly shall conform to the applicable requirements of IES, EEI and NEMA. The base shall be provided with the necessary anchorage, hardware, and bolt covers. An ornamental cap shall be provided to fit over the top of the pole to exclude moisture. All poles not located behind guardrail or bridge rail, or that are not wall mounted, shall be frangible, except as shown in the plans.

992-3 Bracket Arms.

~~A~~ *Steel or* aluminum bracket arms shall be of truss-type construction, consisting of upper and lower members with vertical struts, and shall have the luminaire end formed to accommodate a 2 inch pipe slipfitter. The bracket arms shall meet the design requirements of 992-1. Bracket arms shall be attached to ~~either steel or~~ aluminum poles, with machine bolts and pole adapters, unless approved otherwise.

~~Steel bracket arms shall be used with steel standards, and aluminum bracket arms shall be used with aluminum standards.~~

~~Steel brackets shall be galvanized in accordance with ASTM A 123.~~

992-4 Luminaires, Ballasts, etc.

Luminaires shall consist of a precision-cast aluminum housing and reflector holder, a refractor-holder latch on the street side, and a hinge with a safety catch on the house side of the luminaire; also a slipfitter suitable for attaching to a 2 inch mounting bracket, gasketing between the reflector and the refractor and the socket entry, an adjustable bracket capable of producing the specified IES type light distributions, and a heat-resistant, high-transmission glass prismatic refractor. Luminaires may be mercury vapor, *induction*, metal halide, or high pressure sodium vapor, as indicated in the plans.

Unless otherwise indicated in the plans, the luminaires shall have internal ballasts of the regulated output (constant wattage) type, suitable for operating on the circuits shown in the plans. The ballasts shall be pre-wired to the lamp socket and terminal board, requiring only connection of the power-supply leads to the ballast primary terminals. ~~The efficiency of the ballast shall be at least 84% and the~~ *have a* power factor ~~of~~ *shall be* at least ~~95~~*90*%. The ballast shall provide for regulation within ~~±6~~*±2*% variation in lamp watts ~~at~~ *and* a primary voltage variation of ~~±10~~*±13*% *for lamps of 400w or less and provide for regulation within ±10% variation in lamp watts at a primary voltage variation of ±10% for lamps of 750w or greater.*

The luminaires shall meet the requirements shown in the plans.

992-4.1 Certification: The Contractor shall provide the Engineer a certification conforming to the requirements of Section 6 from the manufacturer of the luminaries and electrical ballasts confirming that the requirements of this Section are met. Each certification shall cover only one LOT for luminaries and/or electrical ballasts.