



## Florida Department of Transportation

JEB BUSH  
GOVERNOR

605 Suwannee Street  
Tallahassee, FL 32399-0450

JOSÉ ABREU  
SECRETARY

November 9, 2004

Mr. Donald Davis  
Program Operations Engineer  
Federal Highway Administration  
545 John Knox Road  
Tallahassee, Florida 32303

Re: Office of Design, Specifications  
Section 993  
Proposed Specification: 9930050 – Reflector Units for Guardrail

Dear Mr. Davis:

We are submitting, for your approval, two copies of a proposed Supplemental Specification for Reflector Units for Guardrail.

This change was proposed by Philip Lancaster of the State Materials Office to include requirements for the use of retroreflective sheeting, in addition to acrylic plastic, in the manufacture of reflector units for guardrail and barrier wall.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via Email to SP965DB or [duane.brautigam@dot.state.fl.us](mailto:duane.brautigam@dot.state.fl.us).

If you have any questions relating to this specification change, please call Duane F. Brautigam, State Specifications Engineer at 414-4110.

Sincerely,

Signature on file

Duane F. Brautigam, P.E.  
State Specifications Engineer

DFB/sh

Attachment

cc: General Counsel  
Florida Transportation Builders' Assoc.  
State Construction Engineer

**REFLECTOR UNITS FOR GUARDRAIL.  
(REV 9-21-04)**

ARTICLE 993-5 (Page 947) is deleted and the following substituted:

**993-5 Reflector Units for Guardrail *and Concrete Barrier Wall.***

**993-5.1 General:** Reflector units for use on guardrail *and concrete barrier wall* installations shall consist of a hermetically sealed acrylic plastic prismatic reflex reflector *or retroreflective sheeting permanently adhered to 0.040 inch [1.0 mm] thick sheet aluminum of 6061-T6 (ASTM B 209) [(ASTM-B 209M)] prepared in accordance with recommendations of the sheeting manufacturer.-*

**993-5.2 Reflector Element:**

**993-5.2.1 Acrylic Plastic:** These reflectors shall be of acrylic plastic meeting the requirements of Federal Specification L-P-380, Type I, Class 3. The manufacturer shall stipulate the raw material used in the compound in order that the Department may readily check the suitability of the raw material.

The reflector shall consist of a clear transparent, or translucent amber plastic face, herein referred to as the lens, with a heat sealable plastic coated metallic foil back fused to the lens under heat and pressure around the entire perimeters of the lens to form a unit permanently sealed against dust, water and water vapor.

The reflector lens shall consist of a smooth front surface, free from projections or indentations and the necessary identification markings, and a rear surface having a prismatic configuration such that it will affect total internal reflection of light.

When the reflectors are tested as specified in 993-1.3 for Type A Delineators, the specific intensity of the colorless reflectors shall not be less than 119 at 0 degree entrance angle and not less than 47 at 20 degree entrance angle, and the specific intensity of the amber reflectors shall be not less than 71 at 0 degree entrance angle and not less than 28 at 20 degree entrance angle.

**993-5.2.2 Retroreflective Sheeting:** *Retroreflective sheeting for these reflector units shall be Type III, IV, V, or VII meeting the requirements of Section 994. The sheeting shall be yellow or white, depending on the locations of use for each. The minimum reflective surface area of the marker shall be 9 in<sup>2</sup> [5805 mm<sup>2</sup>]. The adhesive backing for these markers shall be Class I.*

**993-5.3 Installation:** Markers shall be installed at locations identified in the plans and in accordance with the Design Standards, Index Nos. 400 *and 410.*