



Florida Department of Transportation

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GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

JARED W. PERDUE, P.E.
SECRETARY

October 26, 2023

Khoa Nguyen
Director, Office of Technical Services
Federal Highway Administration
3500 Financial Plaza, Suite 400
Tallahassee, Florida 32312

Re: State Specifications Office
Section: 994
Proposed Specification: **9940201 Retroreflective and Nonreflective Sheeting and Sign Panel Fabrication.**

Dear Mr. Nguyen:

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

The changes are proposed by Awilda Merced to clarify clear overlay requirements for all digitally printed signs.

Please review and transmit your comments, if any, within two weeks (10 business days). Comments should be sent via email daniel.strickland@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at (850) 414-4130.

Sincerely,

Signature on file

Daniel Strickland, P.E.
State Specifications Engineer

DS/jb

Attachment

cc: Florida Transportation Builders' Assoc.
State Construction Engineer

RETROREFLECTIVE AND NONREFLECTIVE SHEETING AND SIGN PANEL FABRICATION.
(REV 7-10-23)

ARTICLE 994-2 is deleted and the following substituted:

994-2 Retroreflective and Nonreflective Sheeting Systems.

994-2.1 Materials: Retroreflective sheeting material shall be classified in accordance with and meet the requirements of ASTM D4956. Overlay materials include colored and colorless transparent overlays (to provide UV protection) and vinyl. Inks include transparent and opaque silkscreen inks as well as inkjet inks used in digital print systems.

994-2.2 Approved Product List (APL): All sheeting, process inks and overlay materials shall be listed as a system on the Department's Approved Product List (APL). Sign sheeting systems shall consist of base sheeting with ink and/or overlay materials. Products with an ASTM classification of Type XI or greater will not be accepted for qualification on the APL for fluorescent orange. Manufacturers seeking evaluation of their products need to submit product data sheets, performance test reports from an independent laboratory showing the sign sheeting system meets the requirements of this Section, and a APL application in accordance with Section 6. Information on the APL application shall include the individual materials comprising the sign sheeting system and identify colors, ASTM base sheeting classification, adhesive backing class, availability of transparent and/or opaque backing and availability of liner types.

994-2.3 Performance Requirements:

994-2.3.1 General: Sheeting, process inks and overlay materials shall be tested in accordance with, and meet all the performance requirements of ASTM D4956, including Supplemental Requirement S2, Reboundable Sheeting Requirements, except as amended in this Section.

For performance requirements that are color dependent, each color included in the APL application shall be tested and meet the requirements identified in ASTM D4956 or this Section as applicable. All sign sheeting systems consisting of inks and/or overlays will be tested as a system consisting of white base sheeting and each color of ink and/or overlay.

Panels for testing sheeting shall be prepared in accordance with 994-3 for testing. The in-service life for the sign sheeting system shall equal the life of the reflective base sheeting of the system.

994-2.3.2 Retroreflective Intensity: The retroreflectivity of sheeting and sheeting systems shall meet the minimum initial requirements as stated for all observation and entrance angles as identified in ASTM D4956. The 0.2 and 0.5 degree observation angles with an entrance angle of minus 4 degrees per ASTM D4956 shall be used for in-service requirements.

Rotational sensitivity shall be tested in accordance with AASHTO M268. Rotationally sensitive sheeting will be noted on the APL.

994-2.3.3 Clear Overlay Films: Clear overlay film shall be compatible with the sign sheeting system and not delaminate or discolor for the in-service life of the system.

994-2.3.4 Outdoor Weathering: Outdoor weathering exposure of sign sheeting systems shall be performed in accordance with ASTM D4956, and meet the requirements for each system, color, and classification. All testing shall be conducted at an exposure location

meeting the Tropical Summer Rain Climate Type (Miami, Florida or equivalent). Outdoor weathering is not required for Type VI fluorescent pink.

994-2.3.5 Packaging and Labeling: Packaging and labeling shall meet the requirements of ASTM D4956.

994-2.3.6 Samples: Field samples shall be obtained in accordance with the Department's Sampling, Testing and Reporting Guide Schedule and on a random basis at the discretion of the Engineer.

SUBARTICLE 994-3.5.4 is deleted and the following substituted:

994-3.5.4 Digital Printing Process: Digital print systems shall include a digital printer, with appropriate software and drivers, flexible white or colored prismatic retroreflective sheeting with colorless overlay in accordance with the recommendation of the sheeting manufacturer. The use of a certified digital sign fabricator will be required. Digital sign fabricators shall be certified by the reflective sheeting manufacturer or a third-party certifier approved by the reflective sheeting manufacturer. Inks or ribbons shall be of a type and quality formulated to produce colors that meet the chromaticity requirements given in ASTM D4956 for retroreflective sheeting material when printed and finished as recommended by the sheeting manufacturer.

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