

EXPECTED IMPLEMENTATION JANUARY 2016

990 TEMPORARY TRAFFIC CONTROL DEVICE MATERIALS. (REV 7-22-15) (FA 8-11-15) (1-16)

ARTICLE 990-5 is deleted and the following substituted:

990-5 Temporary Retroreflective Pavement Markers.

Temporary retroreflective pavement markers (RPM's) shall meet the requirements of Section 970 and this Section, and be one of the products listed on the APL. Manufacturers seeking evaluation of their product must submit an application in accordance with Section 6 and include independent testing showing the product meets the requirements of this section.

990-5.1 Class A Temporary Retroreflective Pavement Markers: Class A markers must meet the following:

990-5.1.1 Composition: Markers must be made of non-ferrous materials. Markers with studs or mechanical attachments will not be allowed.

990-5.1.2 Dimensions: Marker minimum and maximum surface dimensions are based on an x and y axis where the y dimension is the axis parallel to the centerline and the x axis is 90 degrees to the y axis.

The marker's retroreflective face shall be completely visible and above the pavement surface after installation, measured from a line even with the pavement perpendicular to the face of the marker.

990-5.1.3 Optical Performance: Ensure that the specific intensity of each white retroreflecting surface at 0.2 degrees observation angle shall be at least the following when the incident light is parallel to the base of the marker:

| Horizontal Entrance Angle | Specific Intensity (SI) |
|---------------------------|-------------------------|
| 0 deg. | 3 |
| 20 deg. | 1.2 |

For yellow retroreflectors, the specific intensity shall be 60% of the value for white.

For red retroreflectors, the specific intensity shall be 25% of the value for white. Retroreflectivity of all RPM's shall not be less than 0.2 specific intensity any time after installation.

990-5.1.4 Strength Requirements: Markers shall support a load of 5,000 pounds. Three markers per lot or shipment will be randomly tested as follows:

Position the marker base down, between the flat, parallel 0.5 inch steel plates of a compression testing machine. Place on top of the marker, a flat piece of 60 (Shore A) durometer rubber, 6 inches by 6 inches by 0.37 inches, centered on the marker. Apply the compressive load through the rubber to the top of the marker at a rate of 0.1 inches per minute.

Either cracking or significant deformation of the marker at any load less than 5,000 pounds will constitute failure.

990-5.1.5 Adhesion: Use bituminous adhesive materials for bonding the markers to the pavement that meet the requirements of Section 970 and are listed on the APL.

990-5.1.6 Removability: Ensure that the pavement marker is removable from asphalt pavement and Portland cement concrete pavement intact or in substantially large pieces,

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either manually or by mechanical devices at temperatures above 40°F, and without the use of heat, grinding or blasting.

990-5.2 Class D Temporary Retroreflective Pavement Markers: Class D markers must meet the following:

990-5.2.1 Body Requirements: Markers must be made of nonferrous material. Marker dimensions are based on an x and y axis where the y dimension is parallel to the centerline and the x axis is 90° to the y axis.

The base must be a minimum of 4 inches along the x axis and a minimum of 2 inches along the y axis.

The vertical wall must be a minimum of 4 inches long with a minimum height of 2 inches and a maximum height of 3 inches with retroreflective sheeting affixed to the upper portion of the vertical wall. The retroreflective sheeting must be a minimum of 0.25 inch in width and extend the full length of the vertical wall.

990-5.2.2 Color Requirements: The color of the body and the retroreflective strips must be yellow.

990-5.2.3 Flexibility and Deformation Resistance: The vertical wall of the tabs must be flexible to bend under normal traffic and resistant to permanent deformation for a minimum of one month.

990-5.2.4 Adhesion: The tabs must adhere to the pavement such that no tab dislodges. Install in accordance with the manufacturer's instructions.

990-5.2.5 Retroreflective Sheeting: The retroreflective sheeting shall be Type IV or greater and meet the requirements of Section 994.

990-5.2.6 Removability: Ensure the entire pavement marker is removable without damaging the asphalt surface.

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