



Application Procedure for 3M™ Markers Series 290 in Grooved Pavement Surfaces

Information Folder 290 Groove

August 2010

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Table of Contents

Introduction	Page 1
Pavement Grooving Specifications	Page 1
Marker Application Procedure Summary	Page 2
Figure of One-Way Marker Application	Page 3
Figure of Two-Way Marker Application	Page 4
Figure of Recessed Groove Details	Page 5

Introduction

A recessed application method to install 3M™ Markers Series 290 in Portland Cement Concrete (PCC) or Asphalt Cement Concrete (ACC) in snowplow regions is described. Recessed grooving allows the pavement marker to be installed below the pavement surface, which helps protect the marker from snowplow damage.

Note: Follow the application instructions for bitumen or two-part epoxy adhesives (see Information Folder 290 - Pavement Surface Preparation and Application Procedures for 3M™ Markers) to assist in marker installation after grooving is completed.

Pavement Grooving Specifications

The following procedures have been used and found to be acceptable.

1. Cutting Head - Gang stacked. 1/4 - 1/2 inch (1.25cm) wide diamond tipped cutting blades are recommended to produce the best finished grooved surface. The spacers between each blade must be placed correctly, so the rise in the finished groove between the blades is 10 mil or less.
2. Groove width - Marker width plus 1/2 inch (1.3cm) ± 1/8 inch (.32cm).

3. Groove depth - Tapered to a depth of 3/4 inch (1.9 cm) minimum. Typically, the range of depth for the groove is between 0.75 inches (1.9 cm) and 0.90 inches (2.3 cm). The height of the marker plus adhesive pad should not exceed the top of the pavement surface. The slope of the groove is 1.0 degree and the length of the ramp to the application surface is 42 inches (1.07 m) (See Figures 1, 2, and 3).
4. Application surface - The marker application area of the groove must have a smooth/flat surface that is a minimum of 6 inches (15.2cm) long for a one-way application and a minimum of 7.5 inches (19.1 cm) for a two-way application (Figure 4). If a coarse tooth pattern is present, increase the number of blades and decrease the number of spacers on the cutting head.

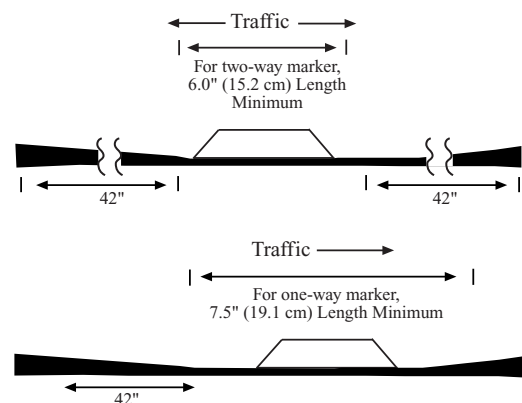


Figure 4: Lengths of flat surfaces at the bottom of the recessed grooves for marker applications.

5. Grooving speed - Speed will vary with width of the groove, size of application, and equipment being used.
6. Groove position - The recommended position of the groove is a minimum of 2 inches (5cm) from the edge of the longitudinal seam.
7. Groove cleaning - If cooling the blades with water is necessary, flush the groove with water immediately after grooving to clean the surface. Allow the groove surface to dry completely (24 hour minimum dry time) before marker application.

Marker Application Procedure Summary

The following is a summary of the guidelines for marker application.

Follow the application instructions for Pavement Surface Preparation and Application Procedures for 3M™ Markers (Information Folder 290).

Series 290 markers are designed for application to properly prepared asphalt or Portland cement concrete surfaces using recommended bitumen or two-part epoxy adhesives. Adhesives other than those recommended must be evaluated by the user to determine suitability.

1. Do not apply markers in the following situations:
 - a. On longitudinal or transverse seams or joints in the pavement.
 - b. Over existing pavement markings such as paint, thermoplastic, or preformed tapes.
 - c. During rainfall or immediately after rainfall.
2. Follow the recommendations of the adhesive manufacturer for application temperatures and ambient weather requirements.
3. All applications must be made on a dry surface that has been swept clean or blown with high-pressure air to remove all dirt and dust.
4. Do not allow adhesive to build up in front of the marker lens.

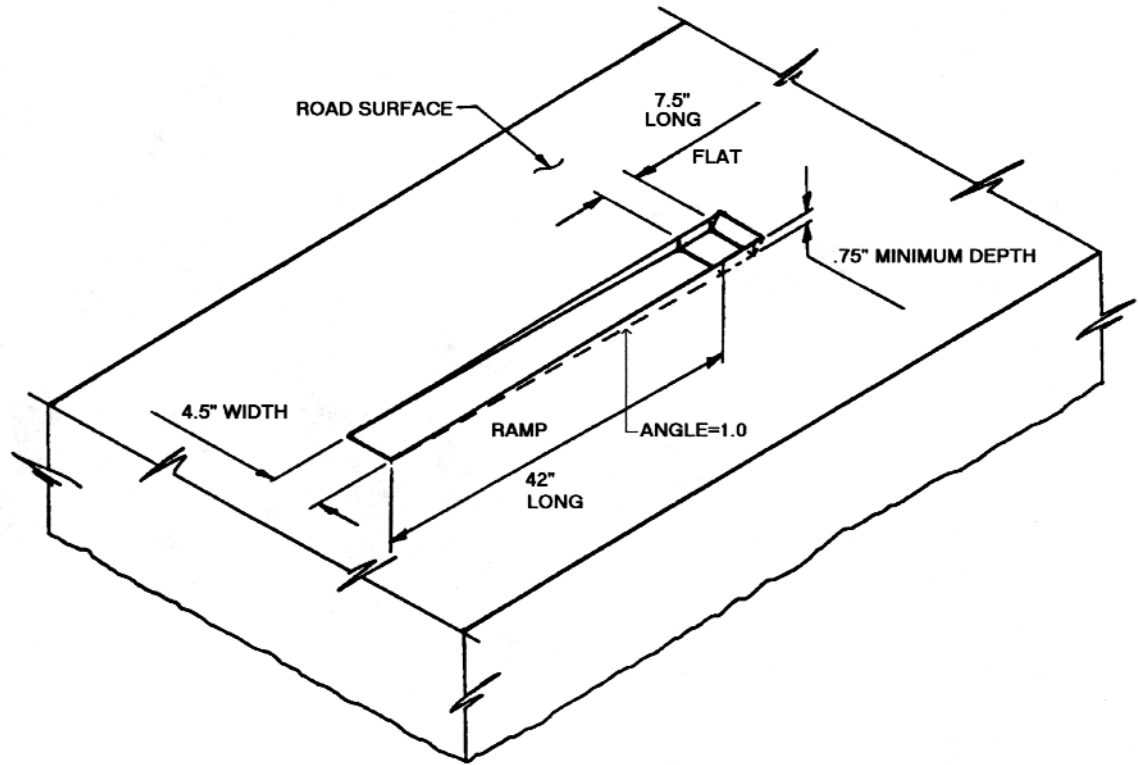


Figure 1 - One Way Marker Application

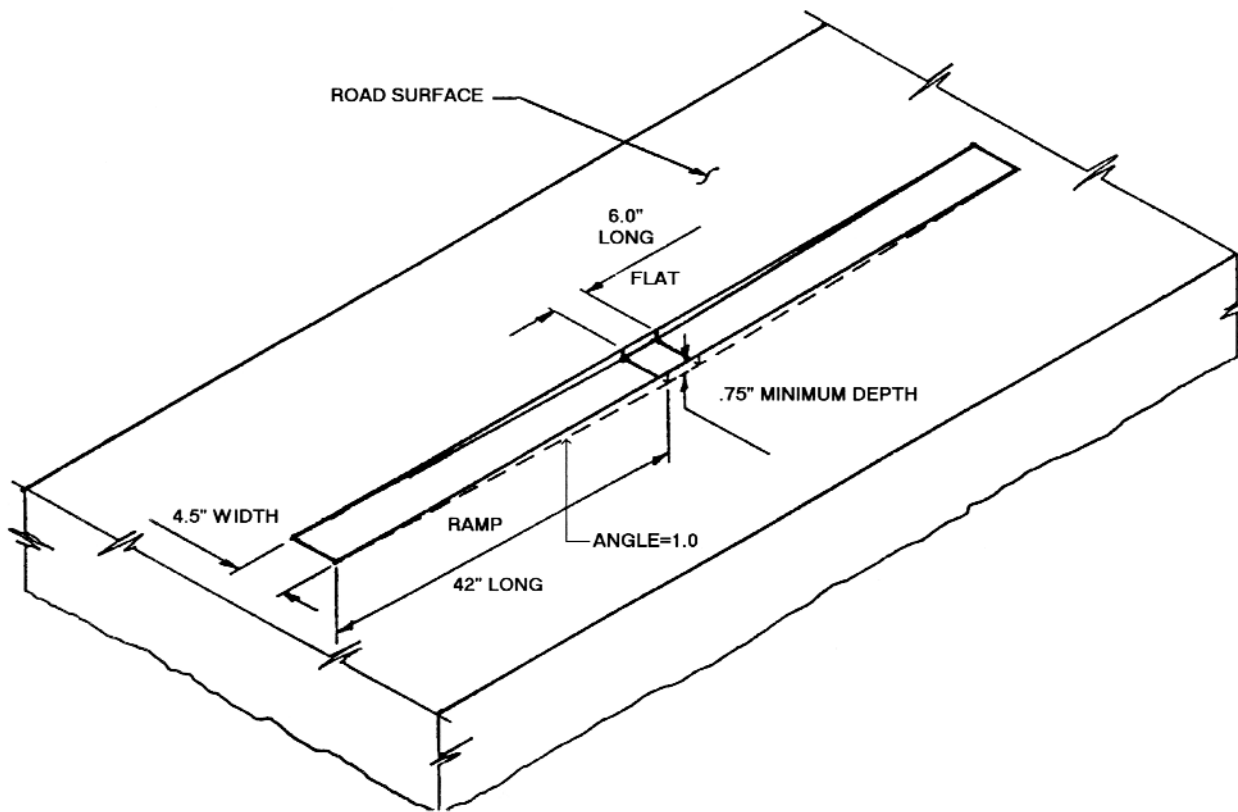
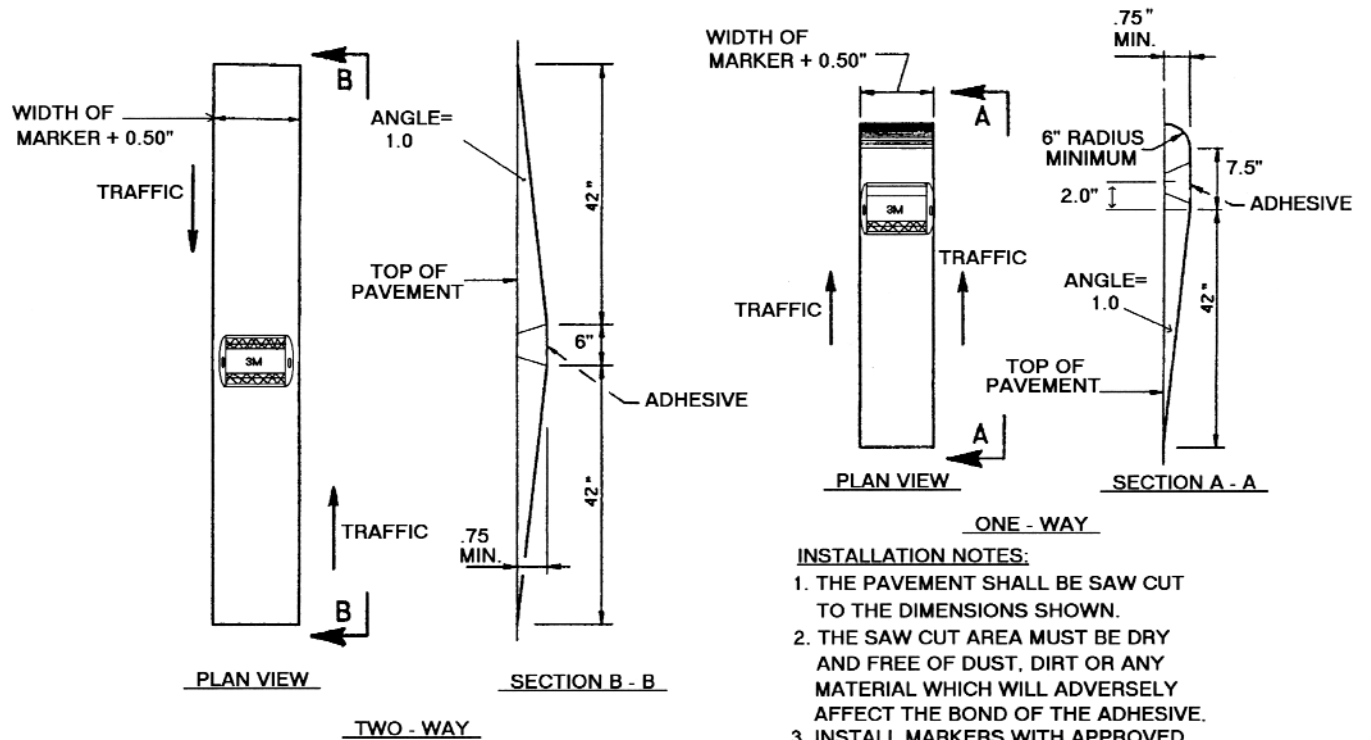


Figure 2 - Two Way Marker Application



NOTE:
 RECESSED MARKERS INSTALLED ON
 CONCRETE PAVEMENT SHOULD BE
 INSTALLED A MINIMUM OF 2" (5cm) FROM
 THE PAVEMENT JOINT OR EDGE.

Figure 3 - Recessed Groove Details

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