January 12, 2017

# REVISION OF SECTIONS 630 AND 713

**RETROREFLECTIVE SHEETING**

**NOTICE**

This is a standard special provision that revises or modifies CDOT’s *Standard Specifications for Road and Bridge Construction*. It has gone through a formal review and approval process and has been issued by CDOT’s Project Development Branch with formal instructions regarding its use on CDOT construction projects. It is to be used as written without change. Do not use modified versions of this special provision on CDOT construction projects, and do not use this special provision on CDOT projects in a manner other than that specified in the instructions unless such use is first approved by the Standards and Specifications Unit of the Project Development Branch. The instructions for use on CDOT construction projects appear below.

Other agencies that use the *Standard Specifications for Road and Bridge Construction* to administer construction projects may use this special provision as appropriate and at their own risk.

**Instructions for use on CDOT construction projects:**

Use this standard special provision in all projects.

Section 630 and 713 of the Standard Specifications is hereby revised for this project as follows:

In subsection 630.02, delete the sixth and seventh paragraphs, including Table 630-1, and replace them with the following:

Retroreflective sheeting for all signs requiring an orange background shall be Fluorescent.

## Table 630-1

# Retroreflective Sheeting Types

|  |  |  |  |
| --- | --- | --- | --- |
| **Sheeting** | **Type IV** | **Type VI****(Roll-up sign material)** | **Fluorescent1** |
| Application | Work Zone | Work Zone | Work Zone |
| All Orange Construction Signs |  |  | X |
| Orange Construction Signs that are used only during daytime hours for short term or mobile operations |  | X**4** | X |
| Barricades (Temporary) | X |  | X |
| Vertical Panels | X |  | X |
| Flaggers Stop/Slow Paddle | X |  | X |
| Drums and Tubular Markers**2** | X6 |  | X |
| Non-orange Fixed Support signs with prefix “W” | X |  |  |
| Special Warning Signs |  |  | X |
| STOP sign (R1-1)YIELD sign (R1-2)WRONG WAY sign (R5-1a)DO NOT ENTER sign (R5-1)EXIT sign (E5-1a) | X |  |  |
| DETOUR sign (M4-9) or (M4-10) |  |  | X |
| All other fixed support signs**3** | X |  | X |
| All other signs used only during working hours | X |  | X |
| All other signs that are used only during daytime hours for short term or mobile operations | X | X**5** | X |
| **1** Fluorescent sheeting shall be of a brand that is on the CDOT Approved Products List.**2** Drum and Tubular Marker sheeting shall be manufactured for flexible devices, and sheeting materials shall conform to Section 713.**3** Fixed support signs are defined as all signs that must remain in use outside of working hours. They shall be mounted in accordance with Standard Plan S-630-1.**4** RS 24 only.**5** White only.6 For projects advertised prior to September 1, 2017, Type IV or Fluorescent sheeting will be permitted. For projects advertised on or after September 1, 2017, only Fluorescent sheeting will be permitted. |

In subsection 630.07 (b), delete the first sentence of the second paragraph and replace it with the following:

Tubular Markers shall be retroreflectorized as shown in Table 630-1.

Delete Subsection 713.10(b) and replace with the following:

1. *Retroreflective Sheeting.* Reflective sheeting for traffic control devices shall be listed on the CDOT Approved Products List, and conform to the requirements of ASTM D 4956.
2. Retroreflective Quality Requirements

1. Drums and Tubular Markers. Retroreflective sheeting shall conform to ASTM D4956 Type IV, with the following modifications:

The Minimum Coefficient of Retroreflection (RA) shall conform to the following minimum values.

|  |  |  |
| --- | --- | --- |
| **Observation Angle** | **Entrance Angle**  | **Minimum Coefficient of Retroreflection (RA)****[cd/fc/ft2 (cd/lx.m2)]** |
| **White**  | **Fluorescent Orange**  |
| 0.2o  | -4o  | 500  | 200  |
| 0.2o  | 30o  | 200  | 80  |
| 0.5o  | -4o  | 225  | 90  |
| 0.5o  | 30o  | 85  | 34  |

1. Daytime Color

1. Drums and Tubular Markers. All fluorescent orange sheeting shall meet the color requirements of ASTM D4956, with the following modifications:

The chromaticity coordinates and total luminance factor shall conform to the requirements as described in 23 CFR Part 655 Appendix to Subpart F.

The Fluorescence Luminance Factor (YF) shall conform to the following minimum values.

|  |  |  |
| --- | --- | --- |
| **Color** | **YF Initial Requirement**  | **YF Minimum Requirement**  |
| Fluorescent Orange | 20  | 15  |