January 31, 2013

REVISION OF SECTIONS 627 AND 708

PAVEMENT MARKING PAINT

**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 for 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 CDOT’s Standards and Specifications Unit. The instructions for use on CDOT construction projects appear below.

Other agencies which 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 on projects having pavement marking paint.

Sections 627 and 708 of the Standard Specifications are hereby revised for this project as follows:

In subsection 627.04, delete the first paragraph and replace with the following:

**627.04 Pavement Marking with Waterborne, Low Volatile Organic Compound (VOC) Solvent Base, and High Build Acrylic Waterborne Paint (High Build)**. Striping shall be applied when the air and pavement temperatures are no less than 45 °F for waterborne and high-build paint, and no less than 40 °F for low VOC solvent base paint on asphalt or portland cement concrete pavements. The pavement surface shall be dry and clean. Surface cleaning shall be required when there is deicing material on the road. Weather conditions shall be conducive to satisfactory results.

In subsection 627.04 delete the table and replace it with the following

|  |  |  |
| --- | --- | --- |
|  | **Description** | **Paint** |
|  |  | Waterborne | Low VOC | High Build |
|  |  |  |
| Alignment  | Lateral Deviation | 2.0 inch per 200 foot Max |
| Coverage Rate | Sq. Ft. per Gallon | 90-100 | 90-100 | 67-73 |
| Thickness | Mil | 16-18 | 16-18 | 22-24 |
| Width | Inches | Per Plans +/- 0.25 |
| Dry Time | Minutes | 5-10 | 5-10 | 5-10 |
| Beads | Application Rate, lbs/gal | 7-8 | 9-10 |

Subsection 627.13 shall include the following:

**Pay Item Pay Unit**

Pavement Marking Paint (High Build) Gallon

Delete subsection 708.05 and replace with the following:

**708.05 Pavement Marking Materials**. Except for pavement marking paint, pavement marking materials shall be selected from the Department’s Approved Products List (APL). Prior to start of work, a Certified Test Report (CTR) for all pavement marking materials shall be submitted in accordance with subsection 106.13.

For white paint, the color after drying shall be a flat-white, free from tint, and shall provide the maximum amount of opacity and visibility under both daylight and artificial light. For yellow paint, the Federal Standard 595B shall be used to designate colors and the ASTM E308 shall be used to quantitatively define colors. After drying, the yellow paint shall visually match Federal Standard 595B color chip number 33538, and shall be within 6 percent of central color, PR-1 Chart, where x = 0.5007 and y = 0.4555 (The four pairs of chromaticity coordinates determine the acceptable color in terms of the CIE 1931 Standard Colorimetric System measured with Standard Illuminant D65.)

1. *Low VOC Solvent Base Paint*. Low VOC Paint shall be ready mixed, and shall be capable of being applied to Asphalt or Portland Cement Concrete Pavements.
2. *Acrylic Waterborne Paint*. Acrylic waterborne paint shall be a lead-free, 100 percent Acrylic resin polymer waterborne *product*. The finished product shall maintain its consistency during application at temperatures compatible with conventional equipment.
3. *High Build Acrylic Waterborne Paint.* High build acrylic waterborne paint binder (nonvolatile portion of vehicle) shall be 100 percent HD 21 acrylic cross linking polymer, by weight, as determined by infrared analysis or other chemical analysis available to the Department.

Waterborne and High Build Acrylic Waterborne paint shall meet the following requirements:

**Performance Requirements**: The paint shall be water resistant and shall show no softening or blistering.

**Table 708-1
WATERBORNE AND HIGH BUILD ACRYLIC WATERBORNE PAINT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Property** | **White** | **Yellow** | Test Method |
| Nonvolatile portion of vehicle (white and yellow), % | 43.0 | 43.0 | ASTM D 2205 |
| **Pigment Composition**  |  |  |  |
| Percent by weight♦ | 60.0 | 60.0 | ASTM D 4451ASTM D 3723 |
| Paint  |  |  |  |
|  Titanium Dioxide Content, lb/gal | 1.0 | 0.2 | ASTM D 5381 |
|  |  |  |  |
| **Properties of the Finished Paint** |  |  |  |
| Total Non-volatiles, (solids) % by weight  | 77.0 | 77.0 | FTMS 141C - Method 4053.1, ASTM D 2369, or ASTM D 4758 |
| Density, lbs/gal **■** | 14.0-14.6 | 14.0-14.6 | ASTM D 2205 |
| Consistency (Viscosity) White and Yellow, Krebs-Stormer Units | 85-95 | 85-95 | ASTM D 562 |
| Freeze Thaw Stability | Shall complete 5 or more test cycles successfully | ASTM D 2243 |
| Fineness of Grind, Cleanliness Rating B, minimum | 3 | 3 | ASTM D 1210 |
|  Scrub Resistance | 800 | 800 | ASTM D2486 |
| Directional Reflectance: [5 mil Wet Film] | 90 | 50 | ASTM E 1347 |
| Dry Opacity (Contrast Ratio): [5 mil Wet Film] | 0.95 | 0.95 | ASTM D 2805 |
| ♦Percent by weight shall include percent of organic yellow pigment.**■**Density shall not vary more than 0.3 lbs. /gal between batches. |