

SECTION 523 PATTERNED PAVEMENT

523-1 Description.

Construct patterned pavement on asphalt or concrete pavement areas at locations and with the color and pattern as specified in the Plans. Use products listed on the Qualified Products List (QPL), as approved for use in areas subject to vehicular traffic or non-vehicular traffic, respectively, as specified herein. Install products in accordance with manufacturer's recommendations.

For the purpose of this Specification, patterned pavements are defined as surface markings applied either as an overlay to the pavement surface or imprinted in the pavement surface. Vehicular traffic areas are defined as those subject to vehicles within the traveled way, shoulders and auxiliary lanes. Non-vehicular travel areas include medians, islands, curb extensions, sidewalks, borders, plazas and other areas typically subject to foot traffic only.

For installation of overlay products in areas subject to vehicular traffic, the finished thickness shall not exceed 180 mils. Products requiring removal of pavement or requiring blockouts or trenches below the top of pavement, shall not be used.

Provide the pattern type and color as specified in the Plans. Variations within a pattern shall comply with ADA requirements.

523-2 Materials.

523-2.1 General: Use only patterned pavement products approved for use in vehicular and non-vehicular areas, as appropriate, and listed on the QPL. Meet manufacturer's specifications for all patterns, textures, templates, sealers, coatings and coloring materials.

Material coatings used to achieve the pattern and color shall produce an adherent, weather resistant, skid resistant, wear resistant surface under service conditions. Color shall be integral and consistent throughout the installation. The composition of materials is intended to be left to the discretion of the manufacturer.

Materials shall be characterized as non-hazardous as defined by Resource Conservation and Recovery Act (RCRA), Subpart C, Table 1 of 40 CFR 261.24 "Toxicity Characteristic". Materials shall not exude fumes which are hazardous, toxic or detrimental to persons or property.

523-2.2 Qualified Products List (QPL): Manufacturers seeking evaluation of their product shall submit an application in accordance with Section 6 along with the following documentation:

1. Manufacturer's recommendations for applicability of use on concrete or asphalt surfaces.
2. Manufacturer's recommendation for applicability of use in vehicular or non-vehicular travel areas.
3. Manufacturer's specifications and procedures for materials and installation for each use above.
4. For products proposed for use in vehicular traffic areas, independent test data verifying the material meets the requirements of this Section including verification that the product, installed in accordance with the manufacturer's specifications and procedures, has been tested in accordance with either:

a. ASTM E-274, Skid Resistance of Paved Surfaces using a standard ribbed full scale tire at a speed of 40 mph (FN40R), and has a minimum FN40R value of 35, or

b. ASTM E-1911, Measuring Paved Surface Frictional Properties Using the Dynamic Friction Tester (DFT), at a speed of 40 mph (DFT40), and has a minimum DFT40 value of 40.

5. For products proposed for use in non-vehicular traffic areas, independent test data verifying the material meets the requirements of this Section including verification that the product, installed in accordance with the manufacturer's specifications and procedures, has been tested in accordance with ASTM E-303 using the British Pendulum Tester and has a British Pendulum Number (BPN) of at least 40.

6. For products proposed for use as a bike lane application, independent testing verifying that the material can meet the color as identified in the April 15, 2011, Interim Approval for Optional use of Green Colored Pavement for Bike Lanes, Interim Approval (IA-14) Memorandum Valid Under the 2009 MUTCD

(http://mutcd.fhwa.dot.gov/resources/interim_approval/ia15/ia15_m1_9.pdf).

523-2.3 Performance Requirements for Products in Vehicular Travel Areas: In addition to the submittal requirements of 523-2.2, QPL approval will be contingent on a field service test demonstrating that the patterned pavement product meets the following performance measures at the end of three years from opening to traffic:

1. The average thickness shall be a minimum of 50% of the original thickness.
2. Wearing of the material coating shall not expose more than 15% of the underlying surface area as measured within the traveled way.
3. Friction performance of patterned/textured pavement materials shall meet or exceed one of the following test method values:

(a) FN40R value of 35 in accordance with ASTM E-274; or,

(b) DFT40 value of 40 in accordance with ASTM E-1911

Manufacturers shall provide a field service test installation of each product within a marked crosswalk on a roadway with an ADT of 6,000 to 12,000 vehicles per day per lane, on a site approved by the Department. The test installation shall be a minimum six feet wide and extend from pavement edge to pavement edge across all traffic lanes and shoulder pavement at the crosswalk location. The test installation shall be tested by the manufacturer in accordance with FM 5-592.

523-3 Construction.

523-3.1 Product Submittals: Prior to installation, submit pattern and color samples to the Engineer for confirmation that the product meets the pattern and color specified in the Plans. Do not begin installation until acceptance by the Engineer.

523-3.2 Pavement Cuts: Complete all utility, traffic loop detector, and other items requiring a cut and installation under the finished surface, prior to product installation.

523-3.2 Surface Protection: Protect treated surfaces from traffic and environmental effects until the product is completely installed, including drying and curing according to the manufacturer's instructions.

523-3.3 Installation Acceptance: For installation on new asphalt roadways, apply patterned pavement a minimum of 14 days after placement of the adjacent pavement.

Upon completion of the installation, the Engineer will check the area at random locations for geometric accuracy. If any of the chosen areas are found to be deficient, correct the entire patterned area at no additional cost to the Department.

Provide certification that the patterned pavement was installed in accordance with the manufacturer's requirements.

523-4 Method of Measurement.

The quantity to be paid will be the plan quantity in square yards of patterned pavement, completed and accepted. No deduction will be made for areas occupied by landscaping, manholes, inlets, drainage structures, or by any public utility appurtenances within the area.

523-5 Basis of Payment.

Price and payment will be full compensation for all work specified in this Section.

Payment will be made under:

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| Item No. 523- 1- | Patterned Pavement (Vehicular Areas) - per square yard. |
| Item No. 523- 2- | Patterned Pavement (Non-Vehicular Areas) - per square yard. |