

ASPHALT PAVEMENT TEXTURING SPECIFICATION

PART 1 – GENERAL

1.1 DESCRIPTION

- A. **Asphalt pavement texturing** is a highly suitable solution for a wide variety of decorative pavement applications. Paved entranceways, parking lots, residential driveways, sidewalks, plazas, medians, and cross-walks are some examples of successful applications of **asphalt pavement texturing**.
- B. **Asphalt pavement texturing** is executed by elevating the temperature of an asphalt pavement surface and then pressing a metal template into the surface to replicate, in relief, the grout depressions common to hand-laid brick or cobblestone, or any other design as shown on the drawings or described in the specifications. The imprinted asphalt pavement surface is then coated with a coating or system of coatings specifically formulated for asphalt pavement.
- C. **Asphalt pavement texturing** is a highly specialized process that requires the skill of a **qualified applicator** working with the proper **equipment** and applying highly specialized **coating(s)** designed specifically for application to asphalt pavement.
- D. This specification will include guidance with respect to the minimum requirements/qualifications of the applicator, equipment and coating in the execution of this Work.

1.2 REFERENCES

- A. ASTM D-4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Tester.
- B. ASTM D-4060 Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
- C. ASTM D522-93A Standard Test Method for Mandrel Bend Test of Attached Organic Coatings.
- D. ASTM G-155 QUV Accelerated Weathering Environment. Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials.
- E. ASTM D-2486 MEK rub test for chemical resistance.
- F. ASTM E-303 British Pendulum test for friction.
- G. EPA 24 ASTM D3960-05 Volatile Organic Compounds.

1.3 DEFINITIONS

- A. **“Qualified Applicator”** is a contractor or applicator who has completed asphalt pavement texturing work and can provide certification and references upon request.
- B. **“Owner”** means the Owner and refers to the representative person who has decision making authority for the Work.
- C. **“Textured asphalt Pavement”** is asphalt pavement that has been subjected to imprinting or stamping in a specific pattern.

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- D. **“Non-textured asphalt pavement”** is asphalt pavement that is unstamped and is sometimes referred to as “flatwork”.
- E. **The “Work”** is the asphalt pavement texturing work contemplated in this bid submission and specification.
- F. **“Scuffing”** is a “tear” of the asphalt pavement caused by an external force. Stationary vehicle tires turning on the pavement surface is a typical cause.

1.4 SUBMITTALS

The documents required as part of this bid submission are as follows:

- A. Proof of applicator’s ability. A copy of the current year license as provided to the proposed applicator issued by a recognized authority in the execution of asphalt pavement texturing work. Failing that, at least 3 reference sites and written references from 3 previous customers for work performed by this applicator.
- B. A list of the major equipment to be used in the execution of the Work. This list will include the asphalt pavement reheat machinery, spray equipment, compactor(s) and templates.
- C. The name of the coating(s) and the coating supplier’s name.
- D. Certified performance test results of the coating materials as outlined in Table 1.
- E. Confirmation of coating color(s).

PART 2 – PRODUCTS

2.1 MATERIALS – COATINGS

Properly designed asphalt pavement coatings have been scientifically formulated to provide the optimal balance of performance properties for a durable, long lasting color and texture to asphalt pavement surfaces. Some of these key properties include wet wear durability, crack resistance, fade resistance, adhesion, and friction properties. These properties must be backed up by a Certificate of Analysis from an independent laboratory or an equal document that certifies these performance properties.

The asphalt pavement coating must be environmentally safe and meet EPA requirements for Volatile Organic Compounds (VOC).

Only use asphalt pavement coatings from qualified pavement coating suppliers who can provide proof of these required performance properties.

2.2 MINIMUM PERFORMANCE PROPERTIES OF ASPHALT COATING

The following table outlines the minimum required performance properties of the asphalt pavement coating. These performance properties must be ascertained by a Certificate of Analysis issued by an approved testing facility.

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TABLE 1: Required Performance Properties of Asphalt Pavement Coating

Characteristic	Test Specification	Minimum Required result
Durability Taber Abrasion (cycles to wear-through)	ASTM D-4060 Abrasion Resistance of Organic Coatings (wet wear) 7 day cure, 24 hour soak;H-10 wheel	Wear Index (WI) < 5.0
Color stability	ASTM G-155 QUV 2,000 hours (CIE units)	Brick color ΔE < 1.5
Flexibility: Mandrel Bend	ASTM D522-93A Flexibility as measured by Mandrel bend 0.5mm thick sample passes 10 mm at 21°C 0.5mm thick sample passes 125mm at -18°C	
Chemical resistance	ASTM D-2486 Modified MEK scrubs 16 dry mils, number of scrubs until 50% substrate exposed	>5000
Adhesion to Asphalt	ASTM D-4541	Substrate Failure
Friction Wet	ASTM E-303 British Pendulum Tester	>55
Environmental Sensitivity	EPA 24 ASTM D3960-05 Volatile Organic Compounds	VOC < 150

2.3 EQUIPMENT

The following specialized equipment shall be used in the execution of the Work.

- A. Metal wire rope templates are used to create the desired imprint pattern. Only use templates that have been supplied by a manufacturer who has the proven expertise in manufacturing these templates for this type of application.
- B. Asphalt pavement reheat equipment specifically designed for asphalt pavement texturing is to be used in the execution of this work. The primary asphalt pavement re-heat equipment must cycle the heat application and must allow the equipment operator to check the pavement surface temperature during the heating process. These controls are necessary to enable the pavement temperature to be elevated gradually, giving the operator the ability to ensure that the pavement is not overheated or adversely affected. Heaters without these controls are strictly prohibited as the primary re-heat equipment.
- C. Hand-held portable heating devices may be used only for areas where it is difficult to operate the re-heat machine. These may not be used as the primary pavement re-heating device.

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- D. Finishing tools that are designed to enable the applicator to complete the imprinting of the asphalt pavement in areas which may be inaccessible to the template such as curbs and manhole covers are permitted.
- E. Vibratory Plate Compactors shall be used for pressing the templates into the heated asphalt pavement to create the specified pattern.
- F. Specialized coating spray equipment must be used in the application of the coating and must be capable of applying the coating to the asphalt pavement surface in a thin, controlled film which will optimize the drying and curing time of the coating. More specifically, the spray equipment pump must be capable of providing a continuous recirculation of the coating in order to keep the solids within the coating in suspension.

PART 3 - EXECUTION

3.1 GENERAL

The pavement texturing system shall be supplied and installed by a Qualified Applicator in accordance with the plans and specifications or as directed by the Owner. Do not begin the Work until confirmation of the Applicator's qualifications is provided.

3.2 PRE-CONDITIONS – ASPHALT PAVEMENT

A highly stable asphalt pavement free of defects is a pre-requisite for the installation of a pavement texturing system. Do not install the pavement texturing system over poor quality asphalt pavement.

3.2.1 Pre-requisites for new asphalt pavement

A durable and stable asphalt pavement mix design installed according to best practices over a properly prepared and stable substrate is a pre-requisite for all long-lasting asphalt pavement surfaces. The application of a pavement texturing system does not change this requirement.

Generally, the asphalt pavement mix design for roadways as prescribed by the local jurisdiction will be sufficient for the application of a pavement texturing system.

3.2.2 Pre-requisites for existing asphalt pavement

Depending upon the condition and age, existing asphalt pavement may or may not be suitable for the successful application of a **pavement texturing system**. Minimally, the asphalt pavement must be in excellent condition and not have any defects including cracks, ruts or potholes nor demonstrate any flushing, raveling or like deficiencies.

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3.2.3 Pavement Marking Removal: recommended guidelines

Pavement markings may be removed by sandblasting, water-blasting, grinding, or other approved mechanical methods. The removal methods should, to the fullest extent possible, cause no significant damage to the pavement surface.

The Owner shall determine if the removal of the markings is satisfactory for the application of the **pavement texturing system**. Work shall not proceed until this approval is granted.

3.2.4 Surface Preparation

The asphalt pavement surface shall be dry and free from all foreign matter, including but not limited to dirt, dust, de-icing materials, and chemical residue.

3.3 LAYOUT

Layout of the pattern for imprinting into the surface of the asphalt pavement shall be as per the drawings and specifications.

3.4 HEATING THE ASPHALT PAVEMENT

The Applicator shall use asphalt pavement reheat equipment as described in Section 2.3.

- A. The optimal pavement temperature for imprinting the template is dependent upon mix design, modifiers used in the mix, the age of the pavement and weather. The surface temperature of the pavement should not exceed 325°F as determined by an infra-red thermometer reading taken after the heat is applied to the asphalt pavement.
- B. In order to achieve the proper depth of imprint it is important to elevate the asphalt pavement temperature to a minimum depth of 1/2 inch (12.5mm) without burning the pavement surface. This can only be accomplished using asphalt pavement reheat equipment that is specifically designed for this Work.

3.5 SURFACE IMPRINTING

- A. The pavement surface shall be dry and free from all foreign matter, including but not limited to dirt, dust, de-icing materials, and chemical residue.
- B. Once the asphalt pavement has reached imprinting temperature, the templates shall be placed in position and pressed into the surface using vibratory plate compactors. The top of the template is to be flush with the surrounding asphalt pavement and can then be removed. Areas that have an imprint depth less than 3/8 inch shall be re-heated and re-stamped prior to applying the coatings. Hand tooling is a permitted method to achieve proper imprint depth in areas difficult to get at with the template.

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3.6 APPLICATION OF ASPHALT PAVEMENT COATING

3.6.1 Application Guidelines.

- A.** The qualified applicator shall refer to the asphalt pavement coating supplier's recommendations for methods of application. Special care and attention must be paid to ensure asphalt pavement coatings are applied in environmental conditions that permit proper cure.
- B.** The coating application shall proceed as soon as possible upon completion of the imprinting of the asphalt pavement.
- C.** The pavement surface shall be completely dry and thoroughly cleaned prior to application of the asphalt pavement coating(s).
- D.** Depending upon the condition and age of the pre-existing pavement, primer may be required. Refer to the asphalt pavement coating supplier's specifications.
- E.** The qualified applicator shall use spray equipment specifically designed for the application of the coating(s) as outlined in Section 2.3 above.
- F.** Refer to the asphalt pavement coating supplier's recommendations for coating coverage rate, number of recommended passes and recommended film thickness.

3.7 OPENING TO TRAFFIC

Minimally, the surface coating must be 100% dry before traffic is permitted. Refer to the asphalt pavement coating supplier's guide.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

The measured area is the actual area that has received the asphalt pavement texturing. No deduction will be made for the area(s) occupied by manholes, inlets, drainage structures, bollards or by any public utility appurtenances within the area.

4.2 PAYMENT

Payment will be full compensation for all work completed as per conditions set out in the contract. For unit price contracts, the payment shall be calculated using the measured area as determined above.