

This guide specification has been prepared by Propex Operating Company, LLC (Propex) to assist design professionals in the preparation of a specification section covering asphalt-coated paving fabric reinforced membrane over pavement cracks, joints and other pavement distress areas prior to placement of a pavement overlay. It may be used as the basis for developing either a project specification or an office master specification. Since it has been prepared according to the principles established in the Manual of Practice published by The Construction Specifications Institute (CSI) including the use of section numbers and titles from the 2004 Edition of MasterFormat, this guide specification may be used in conjunction with most commercially available master specifications sections with minor editing.

The following should be noted in using this guide specification:

- *Optional text requiring a selection by the user is enclosed within brackets, e.g.: “Section [01 33 00] [____].”*
- *Items requiring user input are enclosed within brackets, e.g.: “Section [____ - ____].”*
- *Optional paragraphs are separated by an “OR” statement, e.g.:*

***** OR *****

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1 GENERAL

1.1 SECTION INCLUDES

Edit the following paragraph to suit project requirements.

- A. This work shall consist of furnishing and placing an asphalt-coated paving fabric reinforced membrane over pavement cracks, joints and other pavement distress areas prior to placement of a pavement overlay.
- B. The membrane shall be installed as indicated on the plans and contract documents.

1.2 RELATED SECTIONS

Edit the following paragraphs to coordinate with other sections of the Project Manual.

- A. Section [31 20 00 – Earth Moving] [____].
- B. Section [32 12 16 - Asphalt Paving] [____].
- C. Section [32 01 16 - Flexible Paving Rehabilitation] [____].

1.3 UNIT PRICES

Include the following article only for unit price contracts or lump sum contract with unit price adjustments. Delete for lump sum contracts.

- A. The pavement repair membrane will be measured in place by the square meter (square yard), without credit for overlaps.
- B. The accepted quantities of pavement repair membrane will be paid for at the contract unit price per square yard in place.

1.4 REFERENCES

The following article assumes that the date of each reference standard will be the latest edition as of the date of the project specification. This provision must be defined in Division 1; coordinate with Division 1 statements.

- A. American Association of State Highway and Transportation Officials (AASHTO) “Standard Specification for Geotextile Specification for Highway Applications” Designation M 288-06.
- B. Texas Department of Transportation, Manual of Testing Procedures: TEX-616-J: Asphalt Retention and Potential Change of Area.
- C. American Society for Testing and Materials (ASTM):
 - 1. D 276 - Method for Identification of Fibers in Textiles (Melting Point).
 - 2. D 3786 - Standard Test Method for Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics .
 - 3. D 4354 - Practice for Sampling of Geosynthetics for Testing.
 - 4. D 4355 - Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus).
 - 5. D 4439 - Terminology for Geotextiles.
 - 6. D 4533 - Test Method for Index Trapezoid Tearing Strength of Geotextiles.
 - 7. D 4632 - Test Method for Grab Breaking Load and Elongation of Geotextiles.
 - 8. D 4759 - Practice for Determining the Specification Conformance of Geosynthetics.
 - 9. D 4833 - Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.
 - 10. D 4873 - Guide for Identification, Storage, and Handling of Geotextiles.
 - 11. D 5199 - Test Method for Measuring Nominal Thickness of Geotextiles and Geomembranes.
 - 12. D 5261 - Test Method for Measuring Mass per Unit Area of Geotextiles.
- D. Geosynthetic Accreditation Institute - Laboratory Accreditation Program (GAI-LAP).

1.5 DEFINITIONS

- A. Minimum Average Roll Value (MARV): Property value calculated as typical minus two standard deviations. Statistically, it yields a 97.7 percent degree of confidence that any sample taken during quality assurance testing will exceed value reported.
- B. Maximum Average Roll Value (MaxARV): Property value calculated as typical plus two standard deviations. Statistically, it yields a 97.7 percent degree of confidence that any sample taken during quality assurance testing will be below the value reported.
- C. Typical Roll Value: Property value calculated from average or mean obtained from test data.

1.6 SUBMITTALS

Edit the following to coordinate with Division 1.

- A. Submit under provisions of Section [01 33 00] [____]:
 - 1. Certification:
 - a) The Contractor shall provide the Engineer a certificate stating the name of the Pavement Repair Membrane manufacturer, product name, style, chemical compositions of filaments or yarns and other pertinent information to fully describe the Pavement Repair Membrane.

- b) The Manufacturer is responsible for establishing and maintaining a quality control program to assure compliance with the requirements of the specification. Documentation describing the quality control program shall be made available upon request.
- c) The manufacturer's certificate shall state that the furnished Pavement Repair Membrane meets MARV requirements of the specification as evaluated under the manufacturer's quality control program. A person having legal authority to bind the Manufacturer shall attest to the certificate.

2. Manufacturing Quality Control (MQC) test results shall be provided upon request.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Pavement Repair Membrane labeling, shipment and storage shall follow ASTM D 4873.
- B. Product labels shall clearly show the manufacturer or supplier name, style name, and roll number.
- C. Each shipping document shall include a notation certifying that the material is in accordance with the manufacturer's certificate.
- D. Each Pavement Repair Membrane roll shall be boxed with a material that will protect the Pavement Repair Membrane from damage due to shipment, water, sunlight, and contaminants.
- E. The protective boxing shall be maintained during periods of shipment and storage. If the boxing is damaged prior to installation, the outer wrap of Pavement Repair Membrane material must be discarded before installation.
- F. During storage, Pavement Repair Membrane rolls shall be elevated off the ground and adequately covered to protect them from the following: Site construction damage, extended exposure to ultraviolet (UV) radiation, precipitation, chemicals that are strong acids or strong bases, flames, sparks, temperatures in excess of 71 deg C (160 deg F) and any other environmental condition that might damage the Pavement Repair Membrane.

1.8 QUALITY ASSURANCE SAMPLING, TESTING, AND ACCEPTANCE

- A. Pavement Repair Membrane:
 - 1. Pavement Repair Membrane shall be subject to sampling and testing to verify conformance with this specification. Sampling for testing shall be in accordance with ASTM D 4354.
 - 2. Acceptance shall be in accordance with ASTM D 4759 based on testing of either conformance samples obtained using Procedure A of ASTM D 4354, or based on manufacturer's certifications and testing of quality control samples obtained using Procedure B of ASTM D 4354.
- B. Incidental Materials:
 - 1. Incidental materials recommended by the manufacturer for proper membrane installation, such as primer, tack coat, and mastic, shall be furnished and used in accordance with the manufacturer's recommendations.

2 PRODUCTS

2.1 MANUFACTURERS

- A. Propex Operating Company, LLC, Chattanooga, Tennessee, 37419, USA, Phone (800) 621-1273.

2.2 MATERIALS

- A. Petrotac[®] Pavement Repair Membrane:
 - 1. Polypropylene, staple fiber, needlepunched nonwoven fabric.
 - 2. Coated with rubberized asphalt adhesive on the bottom.
 - 3. Top-coated with an asphalt tack coat.
 - 4. A release sheet, which is removed just prior to placement, shall cover the adhesive.
 - 5. Resistant to ultraviolet degradation.

6. Minimum Average Roll Values:

Property	Test Method	Units	Property Requirement
Strip Tensile ¹	ASTM D 882	N/m (lb/in)	8760 (50)
Puncture Resistance	ASTM E 154	N (lb)	890 (200)
Permeance	ASTM E 96 Method B	Perms	0.05 (max)
Pliability ²	ASTM D 146	N/A	No cracks in fabric or rubberized asphalt

Note:

1. Using 12 in/min test speed and 1" distance initial distance between grips.
2. Using 180° bend on ¼" mandrel at -25° F.

7. QUALITY CONTROL

- a) Manufacturing Quality Control (MQC): Testing shall be performed at a laboratory accredited by GAI-LAP for tests required for the Pavement Repair Membrane, at frequency exceeding ASTM D 4354.

3 EXECUTION

3.1 Pavement repair membrane is used for repair of pavement cracks, joints, and other pavement distress areas. It is applied in strips over cracks and joints in Portland cement or bituminous concrete pavements. The membrane adheres to the existing surface and is then overlaid with a bituminous concrete overlay using standard paving procedures. The pavement repair membrane shall be installed in accordance with the manufacturer's recommendations and the following requirements.

3.2 PREPARATION

- A. The pavement surface shall be cleaned of dirt and other foreign materials.
- B. The surface shall be completely dry, with no lingering moisture around pavement cracks.
- C. Cracks greater than 3/8" in width shall be filled with a suitable crack filler.
- D. Areas of severe alligator cracking or pavement subsidence shall be excavated and replaced prior to membrane application.
- E. If necessary, Portland cement concrete slabs shall be stabilized.

3.3 PRIMER PLACEMENT

- A. When required, a primer shall be furnished and placed on the prepared pavement as specified by the membrane manufacturer.
- B. Use of a primer is recommended if the pavement temperature is below 70°F.
- C. No prime coat is needed when the pavement is clean, dry and at a temperature is 70°F or above.

3.4 INSTALLATION OF THE PAVEMENT REPAIR MEMBRANE

- A. The pavement repair membrane shall be centered over joints and cracks to be treated and shall be rolled after placement.
- B. Transverse joints and cracks shall be treated before longitudinal joints.
- C. Should a crack require more than one strip, the strips shall be overlapped at least 4" in the direction of paving.

- D. Any wrinkles or bubbles in the membrane shall be repaired as specified by the manufacturer.
- E. Membrane that is damaged due to the Contractor's operations shall be removed and replaced at the Contractor's expense.
- F. The installed membrane shall be approved by the Engineer prior to paving operations.

3.5 OVERLAY PLACEMENT

- A. A standard pre-paving tack coat shall be applied over the pavement and pavement repair membrane.
- B. Paving mix should be applied as specified in the plans and contract documents; however, a compacted overlay thickness of less than 1½" is not recommended.

3.6 VEHICLE TRAFFIC

- A. If necessary, traffic can be permitted on the membrane before the overlay is placed. However, as a safety precaution, such traffic should be only temporary and must be approved by the Engineer.
- B. Harsh traffic conditions, such as high speeds, turning, and braking, should be avoided.
- C. Warning signs shall be posted to alert drivers that the surface may be slippery. Signs shall also post a safe speed.

3.7 TEMPERATURE

- A. The pavement temperature shall be at least 45°F and rising for membrane installation.

END OF SECTION