

GUIDE SPECIFICATION & INSTALLATION – CT 4591

BRIDGE DECK SELF-ADHERING PAVING STRIP MEMBRANE

DESCRIPTION - This work shall consist of furnishing and placing an asphalt-coated paving fabric reinforced membrane on a repaired, widened, or new bridge deck prior to placement of a bituminous concrete overlay. The membrane shall be installed as indicated on the plans and contract documents.

MATERIAL REQUIREMENTS - The bridge deck membrane shall be a nonwoven, needle-punched, polypropylene fabric coated with rubberized asphalt adhesive on the bottom and top-coated with an asphalt tack coat. A release sheet, which is removed just prior to placement, shall cover the adhesive. The membrane shall be **CT 4591** or approved equal and shall meet the physical requirements specified in Table 1.

Table 1 Physical Requirements of Bridge Deck Self-Adhesive Strip Membrane

Property ⁽¹⁾	Test Method	Minimum Average Roll Value (English)	Minimum Average Roll Value (Metric)
Strip Tensile	ASTM-D-882 ⁽²⁾ (modified)	50 lbs/in	8.76 kN/m
Puncture Resistance	ASTM-E-154	200 lbs	0.890 kN
Permeance - Perms	ASTM-E-96, method B	0.05 max	0.05 max
Pliability	ASTM-D-146 ⁽³⁾ (modified)	No cracks in fabric or rubberized asphalt	No cracks in fabric or rubberized asphalt

Notes

- 1 - Minimum average roll values unless otherwise noted
- 2 - Using 12 in/min (300mm/min) test speed and 1 inch (25 mm) initial distance between grips
- 3 - Using 180° bend on ¼ inch (6.4 mm) mandrel at -25°F (-32°C)

The bridge deck self-adhesive strip membrane shall be stored and handled in accordance with the manufacturer's recommendations. 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.

USE – Bridge deck self-adhesive strip membrane is used to provide a continuous waterproof membrane on bridge decks of Portland cement concrete, bituminous concrete, wood and steel. It is applied in strips and overlapped to form a continuous membrane sheet. The membrane adheres to the deck surface and is then overlaid with a bituminous concrete overlay using standard paving procedures.

CONSTRUCTION METHODS - The bridge deck membrane shall be installed in accordance with the manufacturer's recommendations and the following requirements.

Preparation of existing surface: The bridge deck surface shall be cleaned of dirt and other foreign materials and shall be completely dry. Cracks greater than 3/8 inch (10 mm) in width shall be filled with a suitable crack filler. Areas of pavement distress shall be repaired prior to membrane application. Excess preservative on wooden bridge decks must be removed.

Primer placement: A primer shall be furnished and placed on the prepared deck surface as specified by the membrane manufacturer. The primer must cure completely before the bridge deck membrane is placed.

Membrane placement: The bridge deck membrane shall be placed parallel to the bridge, starting at the low or downslope side of the deck. Adjacent membrane strips shall be overlapped at least 4 inch (102 mm) in the direction of water runoff. The membrane shall be rolled after placement. Additional mastic shall be applied at the membrane edges as recommended by the manufacturer. Any wrinkles or bubbles in the membrane shall be repaired as specified by the manufacturer. Membrane which is damaged due to the Contractor's operations shall be removed and replaced at the Contractor's expense. The installed membrane shall be approved by the Engineer prior to paving operations.

Overlay placement: A standard pre-paving tack coat shall be applied over the deck surface and bridge deck membrane. Paving mix should be applied as specified in the plans and contract documents; however, a compacted thickness of the first lift of asphalt concrete over the Petrotac shall no be less than 1½ inches (38 mm).

Vehicle traffic: 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. Harsh traffic conditions, such as high speeds and braking, should be avoided. Warning signs shall be posted to alert drivers that the surface may be slippery. Signs shall also post a safe speed.

Temperature: The pavement temperature shall be at least 45°F (8 °C) and rising for membrane installation.

MEASUREMENT AND PAYMENT - The bridge deck membrane will be measured in place by the square yard (square meter), without credit for overlaps. The accepted quantities of bridge deck membrane will be paid for at the contract unit price per square yard (square meter) in place.