

BRIDGE POLICY CIRCULAR

BPC 2003/03

BITUMINOUS SURFACINGS FOR TIMBER BRIDGE DECKS

No. Drawings Following	0	No. Appendix Sheets Following	1
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Background

The RTA has two principal types of timber bridge decks:

1. Traditional timber cross decking with longitudinal running sheeting (TD); and
2. Stress Laminated Timber plate (SLT) decks.

TD decks cannot be sealed to ensure durability, but the application of a sprayed bituminous surfacing will reduce the wear of the timber and provide an improved frictional surface for traffic.

SLT decks require a waterproofing membrane below a wearing surface to ensure durability of the deck and an appropriate frictional surfacing for traffic.

Bituminous surfacing treatments are not generally suitable for use in areas of braking traffic – even where aggregate “scatter coats” are used to provide surface protection for the seal in early life.

This circular provides advice on the selection of appropriate treatments for use on timber bridge decks.

Action Required

TD

The application of a wearing surface to TD decks is not mandatory, but is highly recommended. The appropriate surfacing for TD decks is a bituminous spray seal applied in accordance with RTA QA Specification B351. Further guidance on the design of these seals is provided in the Guide Notes to the specification.

SLT

SLT decks shall be waterproofed and a wearing surface applied

For new SLT decks, the Drawings shall show the waterproofing system and bituminous surfacing selected from Appendix 1.

Where a sprayed polymer modified bituminous membrane (SPMBM) is used for the waterproofing system, the membrane shall be applied in accordance with RTA B351.

Where a sprayed seal is applied as a wearing surface over a SPMBM, the seal shall be applied in accordance with RTA B351. Further guidance on the design of the membrane and seal is given in the Guide Notes to the Specification.

Where it is proposed to use any sheet membrane or liquid applied membrane other than a SPMBM, advice shall be obtained from the Manager, Bridge Specification and Rehabilitation.

Where a sprayed bituminous waterproofing membrane is proposed and the temperature is likely to fall below 18 °C within 8 hours of completing the waterproofing, advice shall be sought from the Manager, Bituminous Surfacing, Pavements Branch on the appropriate action to take.



Gordon Chirgwin
Manager, Bridge Policies, Standards & Records

Date 15/2/03

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Appendix 1

BPC 2003/03 Selection of Waterproofing System for Stress Laminated Timber Bridge Decks

System	Details	Use
SPMBM/DGA or BM/DGA/GGA	SPMBM with 10 mm cover aggregate and nominal 70 mm DGA or DGA/GGA protection. Asphalt thickness allows for correction course	High traffic or high braking or high turning areas. GGA should only be used where warranted by traffic.
SPMBM/Sprayed Seal	Double double sprayed seal. First layer consists of SPMBM with 14 mm cover aggregate. Second layer consists of unmodified bituminous sprayed seal with 7 mm cover aggregate. Total thickness 14 mm. Deck joints should be set 15 mm higher to accommodate the seals.	Where asphaltic concrete is uneconomic. Not to be used for high traffic or high braking areas.
Sheet membranes and polymer liquid membranes with DGA or DGA/GGA	Acceptable torch applied bituminous sheet membrane or polymer liquid membrane with 70 mm of DGA or DGA/GGA protection. Membrane thickness 5 mm. A levelling course of hot sprayed bitumen or bitumen emulsion with sand cover is required for bituminous sheet membranes where the deck has a textured surface. Details of acceptable membranes shall be obtained from Manager, Bridge Specification and Rehabilitation, Bridge Section.	Areas warranting Sprayed SPMBM/DGA or SPMBM/DGA/GGA where construction timing precludes the use of sprayed SPMBM. <i>Note: These systems are expensive compared with all other systems</i>

BM – Bituminous Membrane

DGA – Dense Graded Asphaltic Concrete

GGA - Gap Graded Asphaltic Concrete

SPMBM – Sprayed Polymer Modified Bituminous Membrane Seal – See RTA QA Specification B351 for details.