



Project Information

Manufacturer	Bridge Preservation
Project Owner	Canadian Pacific Railway
Project Name	Mavis Road Underpass Grade Separation Deck Waterproofing
Contract Number	XB-Galt-016.56
General Contractor	Dagmar Construction (Andy Stone)
Coating Contractor	Bridge Tite Group (Jeary LaBelle)
Structure Type	Post-Tensioned Concrete Rail Bridge Deck and Abutment
Date of Installation	November 2001
Square Feet	6,800
Location	Mississauga, Ontario, Canada

Surface Preparation

Water blasting of concrete decks 1, 2, and 3 was accomplished by using high-pressure equipment to remove laitance and expose a sound surface. Water blasting was chosen for this deck due to the constant rain during preparation. Surface preparation is critical as it provides the mechanism by which the Bridge Deck Membrane System will adhere and ensure long service life.

Inspection and Testing

Pictured here is a laser surface temperature gage (right side). Accurate readings of the deck surface temperature (45.1° F) become extremely important in consideration of “Dew Point” requirements of the Bridge Deck



Waterproofing System. Should the deck temperature be below the “Dew Point”, Bridge Preservation will not allow the System to be installed. Condensation on the surface filling the steel mil crevices or concrete pores would interfere with bond.

Ambient temperature and relative humidity (40.2%) readings enable the “Dew Point” (24.6° F) to be calculated and therefore enables the proceed decision to be made. From the devices used, the deck temperature was well above the “Dew Point” allowing the installation to proceed.



A metal insert is adhered to the deck using Bridge Deck Concrete Primer to enable direct tensile bond strength to be determined. The results of the pull values will indicate whether or not the surface preparation is adequate. Due to the very high compressive strength of the concrete (6,000 psi) the tensile strengths/bond strengths were very high, in some cases exceeding 600 psi in direct tensile pull resistance at yield point. An Elcometer was used to provide direct tensile pull force to the metal insert, determining bond strength as well as a final check of adequate surface preparation.

Priming and Coating Application

The priming process is one of the most important procedures and is critical to the long-term service life of the Bridge Deck Membrane System provided by Bridge Preservation. The procedure is carefully monitored by Bridge Preservation personnel, as are all procedures involved in waterproofing bridge decks. Bridge Deck Concrete Primer being installed on the deck, evenly, at approximately 200 ft² per US gallon.

The abutments were sprayed with the Bridge Deck Membrane first to allow the General Contractor to begin back filling.

Vertical and horizontal surfaces pose no problem for the application of Bridge Deck Membrane due to the thixotropic consistency of the membrane regardless of installation temperature.

Ballast, Ties, Rail and Trains can be in-service with Bridge Preservation's Bridge Deck Waterproofing System in just hours after being installed.

