



Bridge Deck Waterproofing

Eliminator® Product in Action

Crusell Bridge, Helsinki

Client: MUNICIPAL OF HELSINKI

Main Contractor: SKANSKA INFRA OY

Authorised Contractor: SKANSKA INFRA OY



The Crusell Bridge, Helsinki, a 175m long, 25m wide asymmetrical cable stayed structure provides two vehicle lanes, two light traffic routes and a tramway down the centre of the deck, crosses the bay between Jätkäsaari Island and Ruoholahti. The bridge type, which gives it a thin profile, was the first of its kind in Finland and was the winner of an international design competition. The structure aims to reduce congestion in the city and provide an important route to and from the newly constructed residential area on Jätkäsaari. With the bridge playing such an important role in the local infrastructure it was essential that it was given the highest level of waterproofing protection.

Eliminator was selected for use on this important link because as well as having a track record of success on some of the world's most important structures and a range of projects in Finland, it offered rapid application and cure, which would enable fast project progression.

Having received full training from Stirling Lloyd and with previous experience of applying **Eliminator** the system was applied by the Main Contractor, Skanska Infra Oy.

Rapid Application

Prior to application of the **Eliminator** system the deck was prepared, by sandblasting. Tensile adhesion tests were then undertaken across the whole deck to confirm that the required adhesion of 1.5MPa between the **Eliminator** and the deck would be achieved. So strong was **Eliminator's** bond that the tests found levels up to 4.1MPa. With these tests concluded, the deck was then primed using Stirling Lloyd's PAR1 primer, which sealed the concrete and enhanced the adhesion of the subsequent membrane to the deck.

The first coat of **Eliminator**, pigmented yellow, was then spray applied to the 4,000m² deck. Once cured, which took less than one hour, the second coat of **Eliminator**, pigmented a

contrasting grey colour to provide a visual coverage check, was then applied.



Throughout the application of both coats wet film thickness checks were taken to back up the visual check and confirm that the required minimum thickness of 1.4mm per coat was being applied.



Ref. PIA_Elim027(2E).pdf
Available from stirlinglloyd.com



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The Crusell Bridge had a large number of details, such as upstands for the pylons and cables, therefore it was important that the selected system could provide complete protection around these features. **Eliminator**'s simple, seamless spray application and thixotropic nature enable these details to be easily accommodated.

To confirm that a 100% effective, seamless waterproofing membrane had been achieved the system was electrically integrity tested. A non-destructive holiday detection method can be used, as the membrane acts as an insulator. This method can locate any defect, even as small as a pin hole, and confirmed that the **Eliminator** system had provided a completely waterproof finish.

For All Traffic

With such a wide variety of uses for the structure the waterproofing system needed to be able to cope with the various specified surfacing systems.



On the two main carriageways Stirling Lloyd's Tack Coat No 2 was used to enhance the bond between **Eliminator** and the asphalt; therefore optimising surfacing performance and waterproofing properties. A thinner surfacing specification was used for the bicycle and pedestrian lanes, which was only 20mm in depth. This was bonded to the **Eliminator** membrane using SA1030. The tramways were surfaced with concrete so there was no requirement for any additional bond or tack coats as **Eliminator** achieves a strong bond to this material directly.

For the Future

Now complete the structure's 49-metre high pylons is lit up at night; to complement the lighting scheme, designed by local lighting designer Julle Oksanen, the cables have been painted white to make them more visible when the light reflects off the pylons. This impressive lighting scheme confirms this elegant structure's place as a new landmark for the city. By selecting a long lasting, proven waterproofing system the client, Municipal of Helsinki, has ensured that this important transport asset will be well protected and will continue to provide the residents of Jätkäsaari easy access to the rest of the capital.