

MAINTAINING POLAND'S HISTORIC PŁOCK BRIDGE

There are special challenges in protecting structures designed to stand for more than a century. Bridges in particular are often in exposed and highly corrosive environments and the length of time to first maintenance and subsequent maintenance cycles are both significantly affected by the quality of the initial coating specifications. Selecting the correct maintenance coating system is therefore vital.

Poland's historic and architecturally important Płock Bridge has undergone its first ever total anti-corrosive refurbishment. Built in 1938, the fully-riveted bridge is an important crossing on the River Vistula. Purpose built to carry both road and rail traffic, it serves as one of the main commercial links between the north and south of Poland and was twice destroyed and rebuilt in its early years.

"The bridge is not only a key piece of infrastructure for the Polish Railway Authority, it has played an important part in the history of our city", said Malgorzata Witczewska, Director of the Road Authority for Płock. "Being classified as a national heritage building, and one of only ten of its kind in Poland, it is important that the structure is protected and preserved."

The refurbishment has been funded by the Municipality of Płock and Polish Railway Lines Authority using an anti-corrosive system from International Protective Coatings.

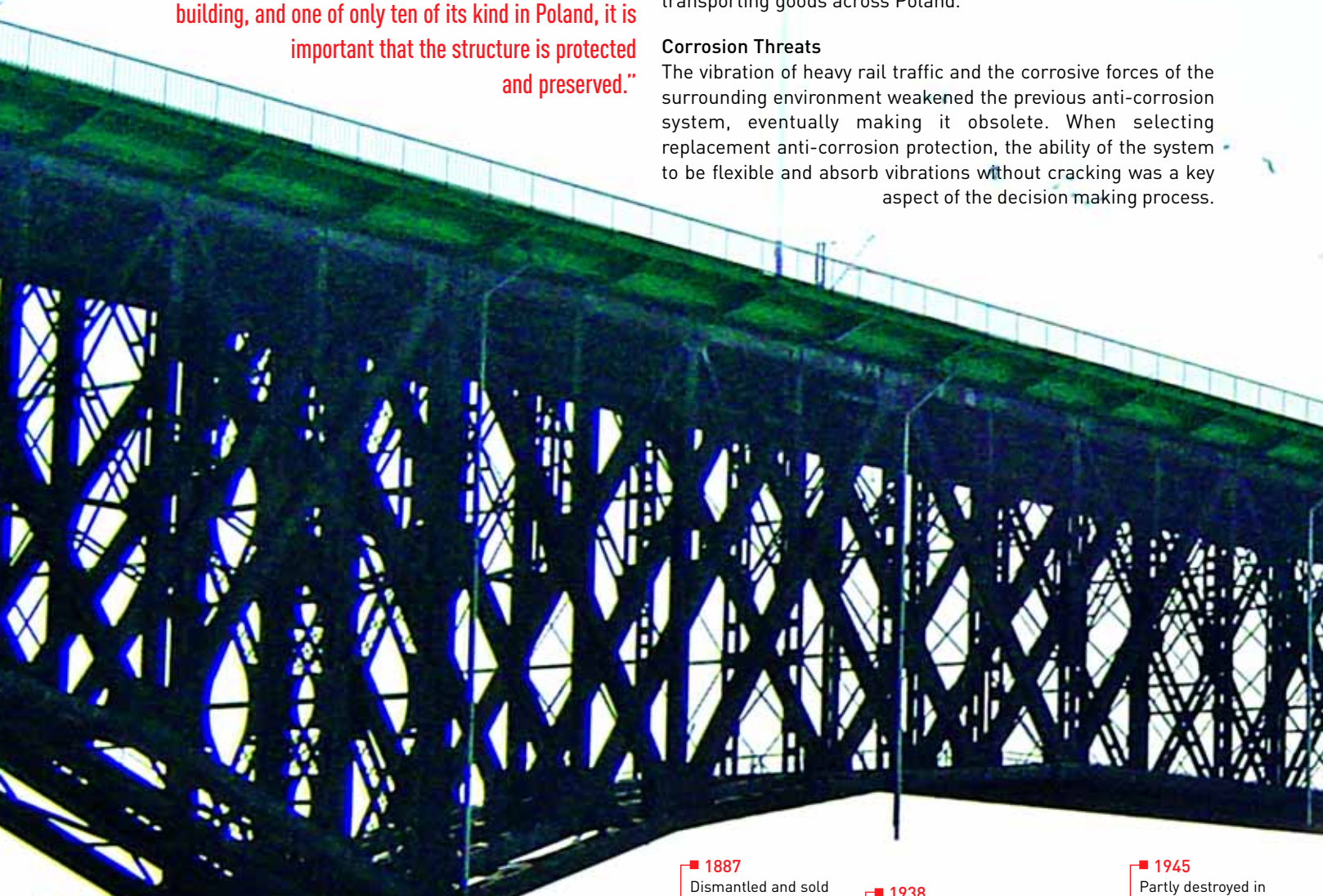
The Bridge Design

The fully-riveted steel truss bridge measures 690 metres (2,263ft) across and is supported on 8 pillars. It incorporates around 100,000 m² (1.1m ft²) of steel and weighs 5,500 tonnes (550k KG).

The bridge stands in a prime central location, carrying large volumes of road traffic entering or leaving the city. As a major rail bridge too, the structure supports heavy rail wagons transporting goods across Poland.

Corrosion Threats

The vibration of heavy rail traffic and the corrosive forces of the surrounding environment weakened the previous anti-corrosion system, eventually making it obsolete. When selecting replacement anti-corrosion protection, the ability of the system to be flexible and absorb vibrations without cracking was a key aspect of the decision making process.



A BRIEF HISTORY THE PŁOCK BRIDGE

■ **c1836-1838**
a wooden bridge stood on the site for 50 years

■ **1887**
Dismantled and sold

■ **1887-1930**
Replaced by a wooden bridge (twice after the first burnt down)

■ **1938**
Designed and built in 20 months

■ **1939-1940**
Partly destroyed at the start of World War II

■ **1940**
Rebuilt

■ **1945**
Partly destroyed in World War II

■ **1948-1950**
Repaired and re-opened

Another threat to the bridge is actually caused by a design fault. Inadequate drainage provision from the road and rail surfaces above results in water and salt flooding over the steel throughout the length of the structure, causing major corrosion. The extreme winter temperatures experienced in the region and the usual environmental challenges of a riverside location have also had an effect over the years.

The Solutions

A high performance system from International Protective Coatings, including an Interthane® finish, was eventually chosen as the best way to provide long-term protection for this important structure.

- Interthane provided a flexible top coat capable of resisting damage from the vibration of heavy loads moving across the bridge.
- Using International Protective Coatings' Chromascan® colour-mixing system, it was possible to choose a specific shade of topcoat to match the original colour of the bridge.
- International Protective Coatings' experienced technical service team were able to advise on the finer details, such as selecting a semi-gloss finish to hide any visual imperfections on the surface of the structural steel.

With experience and expertise from involvement in projects around the world, International Protective Coatings is in a unique position to deliver effective coating solutions for your bridge project.

For more information please visit www.bridge-coatings.com

- The Płock bridge under maintenance. The new anti-corrosive coating is visible on the right hand side, colour matched to the bridge's original colour, with the aged coating on the left half of the structure.

TRACK RECORD

International Protective Coatings have an extensive and varied track record in the new construction and maintenance of bridges in Poland and throughout the world:

Poland

Using Intergard®, Interseal® and Interthane® products from the standardised global range, International Protective Coatings have provided high performance solutions to a number of bridges.

Pulawy	-	67,000 m ² (721k ft ²)
Gorzow Wielkopolski	-	40,000 m ² (430k ft ²)
Starzyński Rondabout	-	30,000 m ² (322k ft ²)
Aleje Jerozolimskie	-	30,000 m ² (322k ft ²)
Ilawa Bridge	-	5,000 m ² (54k ft ²)
Płock New bridge	-	30,000 m ² (322k ft ²)
Wendy Bridge Gdynia	-	10,000 m ² (108k ft ²)

Trent Bridge, UK

Close-up view: gloss and colour durability far in excess of what was possible with traditional polyurethanes have been achieved in this maintenance project by using an Interfine® acrylic polysiloxane finish.



Sydney Harbour Bridge, Australia

Sustainable design in practice - located in one of the most beautiful harbours in the world. The operator saw real benefits of reducing the environmental impact of the maintenance painting program.



■ 1962-1964
Refurbishment and upgrade of the rail structure

■ 1965
Repainted

■ 1977
Upgraded again

■ 1982
Major damage from ice

■ 1994
Maintenance work on structure

■ 2006
First total anti-corrosive refurbishment of the bridge