



St. Pancras International Station

London, United Kingdom



Project

Serving over 6.5M passengers each year, the undercroft area at St. Pancras International Station includes 680 cast iron columns, cross members and buckle plates, all of which require 60 minutes fire protection. These cast iron columns support the rail deck and platforms for the Eurostar trains, and house a number of shop units and cafés.

With St. Pancras replacing Waterloo Station as the London end of the Eurostar, the decision was taken to refurbish the Main Train Shed. The paint had to protect and decorate the 140 year old structure, matching the English Heritage's original colours.

The new 'train shed' was constructed to replace the existing one whilst the maintenance work was carried out. Now complete, the train shed will become the terminal set to serve trains from the North. This project required a coating specification to give at least 25 years anti-corrosion protection, 60 minutes passive fire protection to a preferable finish.

Substrates: Steel, cast and wrought iron.

Requirements: To provide anti-corrosion protection and decoration as well as 60 minutes fire protection to the Undercroft area.

Specifications: Undercroft: Wet abrasive blast-clean followed by Macropoxy™ M902 at 100µm DFT, FIRETEX® FX1000 or FX7000 to required Dry Film Thickness (DFT) and Acrolon™ C237 at 50µm DFT.

Main train shed: UHP Water blast to remove all unsound paint, Macropoxy™ M902 and Macropoxy™ M905 at 100µm DFT and Acrolon™ C237 at 50µm DFT.

New train shed extension: Blast clean to Sa2½ (BS EN ISO 8501-1), Epigrip™ J984* at 50µm DFT, Macropoxy™ C401 at 125µm DFT, Macropoxy™ C237 in two coats.

Area coated: Total area approximately 150,000m².

Client: London and Continental Railways.

Main contractor: CORBER (Costain, Laing O'Rourke, Bachy and Emcor Rail).

Consultant engineer: ARUP.

System

The system selected for the undercroft comprised: Macropoxy™ M902 applied at 100µm for anti-corrosive properties, followed by FIRETEX® FX1000 or FX7000 to give 60 minutes fire protection, and Acrolon™ C237 which has excellent colour and gloss retention properties. All the iron was prepared with a wet abrasive blast-clean.

The paint system for the main train shed was selected due to its Network Rail certification and approval. Ultra high pressure water blasting was used to prepare the surface, the coating system consisted of Macropoxy™ M902 followed by Macropoxy™ M905 (both at 100µm) and then covered with the Acrolon™ C237 topcoat at 50µm.

The steel in the new train shed extension was blast cleaned to Sa2½ and then a four coat system was used. The system chosen is not a standard specification but was selected after discussions with Rail Link Engineering and Watson's Steel for a practical and cost effective system whilst maintaining performance levels for the project. The zinc rich primer Epigrip™ J984* was applied at 50µm, followed by the Macropoxy™ MIO C401 at 125µm. The new train shed was finished with two coats of Acrolon™ C237 at 50µm.



* Now superseded by Zinc Clad™ IV E (80%).

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