



CASE STUDY

THE EIFFEL TOWER – A MAINTENANCE LEGACY

When Gustave Eiffel constructed his famous tower in 1889 for the International Exposition and centennial celebrations of the French Revolution, it was envisaged to be a temporary structure. Little did he know that it would still stand as the much-loved landmark of Paris over 130 years later.

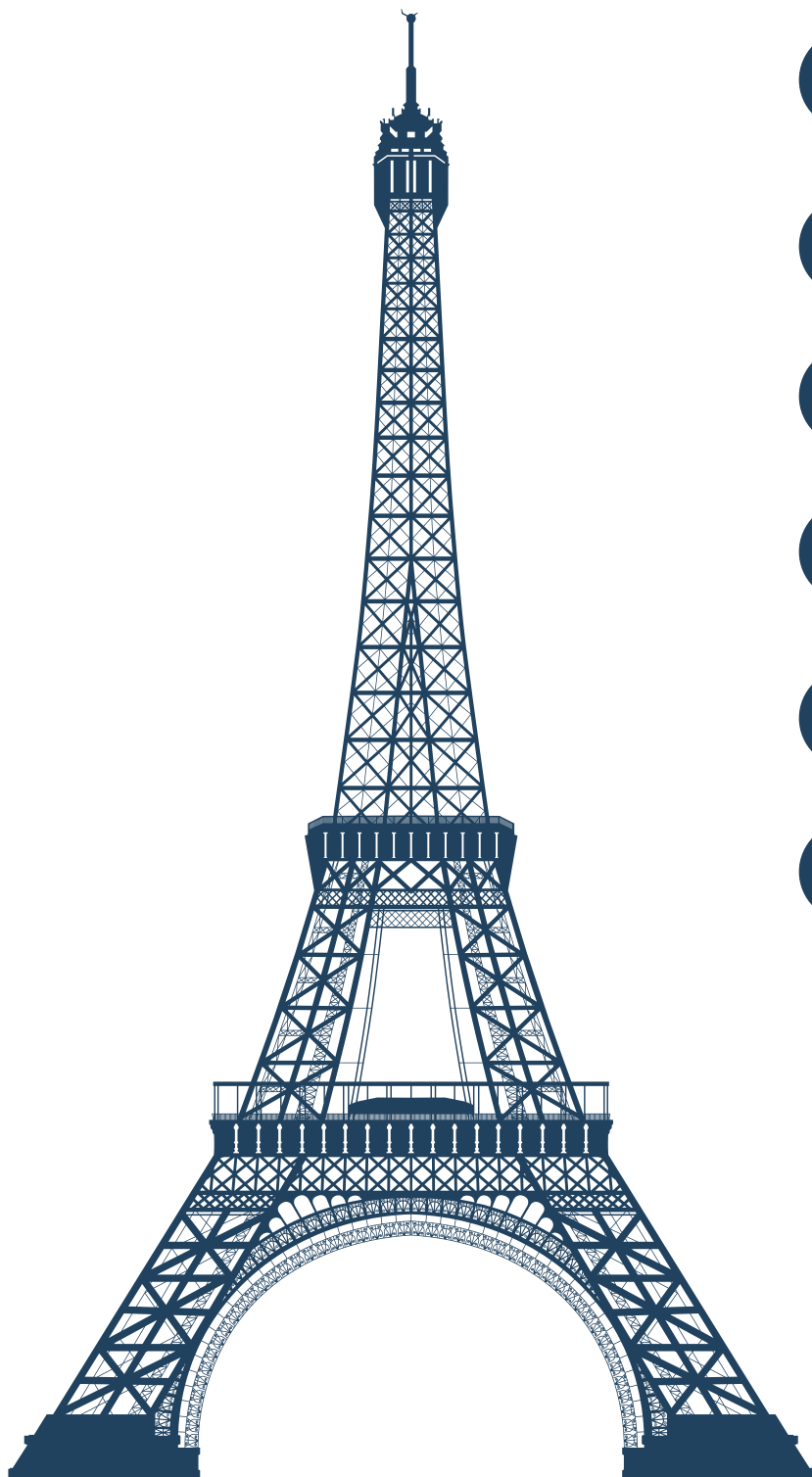
But this longevity has come at a price. The Eiffel Tower's ironwork has been repainted 19 times and a maintenance painting cycle takes 18 months at a cost of €4 million¹³. The repainting costs are estimated to be ~14% of the current construction cost of the tower.

But it is the costs in resources, risks for worker safety and the structural consequences of this repeated painting that goes unseen by the millions of tourists that visit this iconic structure. With ~40 tonnes of residual paint added to the structure at every repaint, the structural consequences of this additional mass will eventually have to be solved.

In recent painting programmes, it has been necessary to start to remove all 19 previous paint layers from certain areas of the tower to maintain its structural integrity.

A lesson for today's structures which are far too often built without durability and avoidance of maintenance in mind.

Built in 1889, The Eiffel Tower's ironwork has been repainted 19 times



Each repaint applies 60 tonnes of paint and 15-20 tonnes of paint are eroded between each repaint



Removal of all existing paint before repainting cannot be done without lengthy closures



Each repaint adds ~40 tonnes of paint – making it 700 tonnes heavier than its intended design



25 painters, wearing 1,500 sets of work gear and 1,000 pairs of leather gloves



Relying on 50km of safety lines and 8000m² of safety nets, 1,500 paint brushes and 5,000 abrasive discs



€4 million for most recent repaint

The upper sections of the Eiffel Tower are painted every 5 years and the lower sections every 10 years



Image credits: Stéphane Compoint

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Galvanized steel can provide innovative solutions that optimise durability and facilitate circularity of steel structures and components. These solutions can be easily implemented using this well-established and simple method of protecting steel.

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