

Sydney Harbour Bridge

Sydney

Case Study



A complex solution for an Australian icon

Beyond providing tailored facade access solutions for many of the tallest and most complex buildings all over the world, Manntech's expert team of designers and engineers have also been called upon to develop and execute bespoke access systems which meet the maintenance needs of other types of structures, including the iconic Sydney Harbour Bridge.

This world-famous landmark, like the Eiffel Tower and the Statue of Liberty, stands as an instantly recognisable symbol of the city and the country as a whole, attracting local and international visitors to Sydney Harbour all year round. In addition to its cultural importance, the bridge also represents a vital part of Sydney's infrastructure, providing transport links between the CBD and the North Shore for trains, cars, cyclists and pedestrians. Manntech have been tasked with delivering a practical, convenient and safe means of accessing the entire bridge structure above road level to allow for important inspections and maintenance work.

The specific challenges involved called for the experience and problem-solving ability on which Manntech have built their reputation for innovative access solutions which meet the specific requirements of each project. In terms of scale, the bridge measures 1149 meters in length including the approaches, 48.8 meters in width and 134 meters from the highest point of the arch to the water level. In spite of its age, having been built in 1932, it remains a world-beating engineering achievement as the sixth longest spanning-arch bridge and the second widest long-span bridge in the world.

In fact, it is still the tallest steel arch bridge anywhere on earth to this day. In addition to the scale of the structure, there are a number of restrictions around the bridge's status as a protected historical landmark. The installation needs to comply with heritage guidelines and secure approval from the governing body. In practical terms, this means the comprehensive access system must be deployed without cutting or drilling anywhere on the bridge's steelwork structure and that the large-scale Arch Maintenance Unit must achieve a total weight under 71 tonnes. A further practical consideration required for the upcoming installation process is managing visitors who required access for the popular bridge climbing experience.

In response to these requirements and challenges, Manntech developed a truly unique access solution encompassing a wide range of equipment and techniques to deliver all of the required coverage and functionality within the technical parameters of this exceptional structure. The bespoke Arch Maintenance Unit system developed for this specific purpose is a unique gantry-based design encompassing two motorised gantries with two Building Maintenance Units located on each, three different cradle designs for a total of six available cradles, two drive bogies and two material trolleys. The complete access system spans the entire width of the bridge providing practical access for both sides with 464 pedestals, racks and tracks, a 1.2 kilometer long walkway and 1 kilometer of conductor bars supplying power. This carefully considered and precision engineered complete access solution will ensure that this significant landmark remains attractive and structurally sound for many years to come.

Facts and Figures

Completion:
2023

Commencement:
2017

Height:
134 metres

Length:
1149 metres

Number of BMUs:
4

Outreach:
38 metres

Building Type:
Bridge

For more information

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