

Tobin Memorial Bridge

Lindapter Holo-Bolts provided a quick, secure, and easy to install solution for the refurbishment of the bridge.



Project Background

Location: Massachusetts, USA
Product: Holo-Bolt by Lindapter
Client: Massachusetts Department Of Transportation
Specifier: Vanasse Hangen Brustlin Inc.
Quantity: 50,000



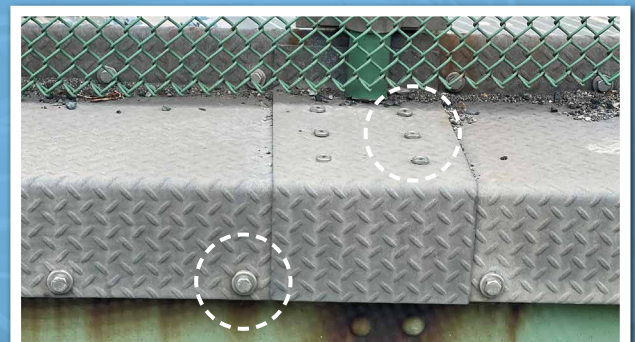
Due to suburban growth and increased vehicle congestion in the 1940's, the existing bridge over the Mystic River needed to be upgraded. Between April 1948 and February 1950, construction work was undertaken to upgrade the bridge which is now known as the Mystic Bridge (or the Maurice J. Tobin Bridge). The 11,811 foot long bridge spans the Mystic River between Boston and Chelsea. With an estimated 225,000 rivets and 50,000 bolts, and a total of around 45,000 tons of steel, the bridge is a double-decker span that can carry six lanes of traffic into or out of the city. The Tobin must endure harsh conditions such as 80 mph winds, salt spray, and plough impacts.

Client Requirement

Over 60 years after the first upgrade, regular accidents on the bridge were producing major traffic problems, the demand for more effective traffic management and safer work zones emerged. The client required a durable solution for renovating the bridge including substructure repairs and improvements to safety walkways used by maintenance personnel.



The bridge required upgrades to improve traffic management and safer work zones



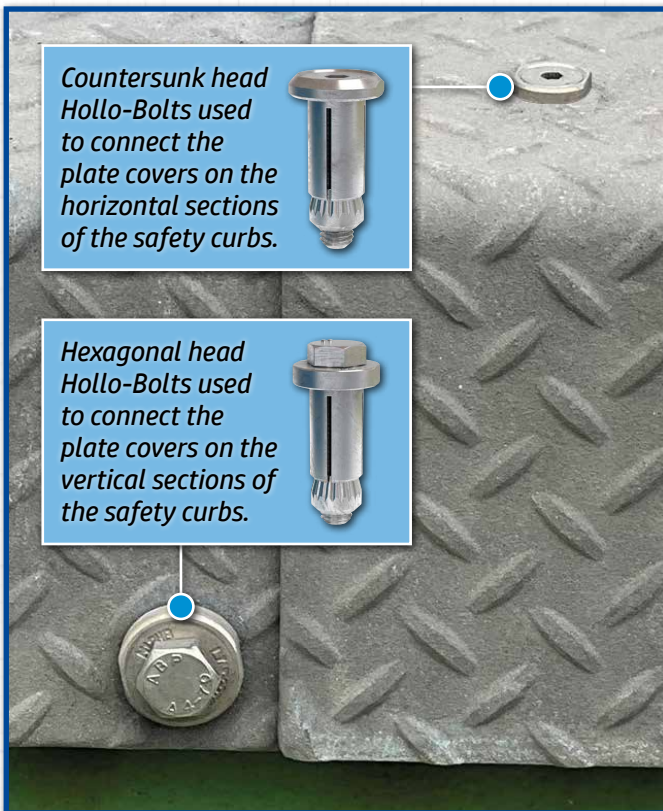
Holo-Bolts provided a solution for substructure repairs and improvements to safety walkways

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Design Solution

In 2013, Lindapter proposed a durable design solution to the project engineers Vanasse Hangen Brustlin Inc. (VHB). Meetings and negotiations continued with VHB in 2014 to secure all the phases of the project.

Due to limited and challenging access to the bridge structure, a bolted connection with one-sided access was required for the repair of the safety curbs on the walkway. VHB specified Hollo-Bolt due to its high strength capacity and ability to be installed from one side of the bridge steel. In addition to these advantages, Hollo-Bolt had just been awarded its first ICC-ES Seismic Approval for Category A, B and C, later approved for use in all Seismic Design Categories A to F.



Installation

The renovation of the bridge involved installing new checker plate walkway covers on the safety curbs on each side of the bridge. The checker plate covers were formed off-field into “S” shapes and then installed onto the safety curbs using 1/2” stainless steel Hollo-Bolts with hexagonal head on the vertical sections. 5/16” stainless steel Hollo-Bolts with countersunk head were then used on the horizontal sections to reduce trip hazards for bridge maintenance personnel and contribute to a safer walkway.

Installation was quick and easy. Each bolt was inserted into pre-drilled holes and tightened with a calibrated torque wrench to the recommended tightening torque to provide the necessary clamping force. In total over 50,000 1/2” hexagonal head and 5/16” countersunk were used to repair the safety curbs.

Result

This project had numerous stages that began in the field in 2017 and continued through to 2022. The safety curbs are an essential feature of the bridge and play an important role in improving the safety of all users including drivers, pedestrians, and cyclists. Hollo-Bolts provided a weld free connection that was quick and easy to install from one side, with no specialist equipment required, proving to be an efficient, secure and long-term solution. The Lindapter solution provided many advantages over traditional methods of bolting or welding, including shorter construction schedules, consistent quality control and reduced disruption in the field.

Key Benefits



- ✓ Fast, convenient installation from one side
- ✓ Stainless steel Hollo-Bolts offer a durable and long-lasting solution
- ✓ Safer installation as no hot works required
- ✓ No bridge closures were needed
- ✓ Countersunk Hollo-Bolts reduced potential trip hazards

Watch the **Hollo-Bolt (HEX)** installation video



Watch the **Hollo-Bolt (CSK)** installation video

