

Samuel De Champlain Bridge



Location: Montreal, Canada
Crosses: St. Lawrence River
Type: Cable-stayed bridge for roadway
Opened in: 2019 (replacement)
Materials: Duplex 2304,
North American Stainless
Stainless steel products: rebar
Structural designer: Poul Ove Jensen of the Firm
Dissing & Weitling and Claude
Provencher from the Firm
Provencher & Roy
Photographs: Courtesy of North American
Stainless
More information: northamericanstainless.com



History

The old Champlain bridge over the St Lawrence River, commissioned in 1962, conveyed some 57 million vehicles per year, the highest traffic for a bridge in Canada. At peak hours, up to 6200 vehicles crossed the bridge in a single direction. The bridge was not only remarkable by its length, 3.4 km, but also because it features a sufficient clearance

over the seaway to allow the passage of sea-going vessels to and from the Great Lakes. The new bridge design is that of a cable-stayed bridge with a main span of 240m. The bridge carries three separate transportation corridors; each of these supported by its own steel superstructure. Both North and South corridors have three lane highways with inner and outer shoulders. The North corridor also includes a 3.5m lane for pedestrians and cyclists.

Why stainless steel?

The deck and the concrete of the old bridge were badly damaged by corrosion mainly caused by deicing salts over the years, while the traffic was much higher than what the bridge was designed for. Maintenance was more and more expensive just to keep it in service. The new bridge is built of reinforced concrete. New features include higher traffic capacity, lanes for public transportation vehicles (such a light rail service), larger clearances for ships above the seaway and an elegant design. 2304 duplex stainless steel rebar was used to resist corrosion by de-icing salts in the critical areas.

