

Acrow Bridge's Temporary Modular Steel Truss System Enables Renovation of Historic Covered Bridge in Québec

The repair of the 120-year-old Marchand Bridge will benefit from the support of six temporary structures through early 2020



The Félix-Gabriel-Marchand Bridge in Mansfield et Pontefract, a municipality of Western Québec, spans the Coulonge River. Built in 1898, it is Québec's longest covered road bridge and among the longest in the world. Notable for its unique combination of Town Lattice and queen post trusses, it is the only surviving covered bridge in Québec built in the 19th century outside of the Eastern Townships.

A mainstay of the region's tourism industry, despite ongoing repairs the bridge was closed for safety reasons in May 2014 after a structural evaluation found that the structure was sinking.

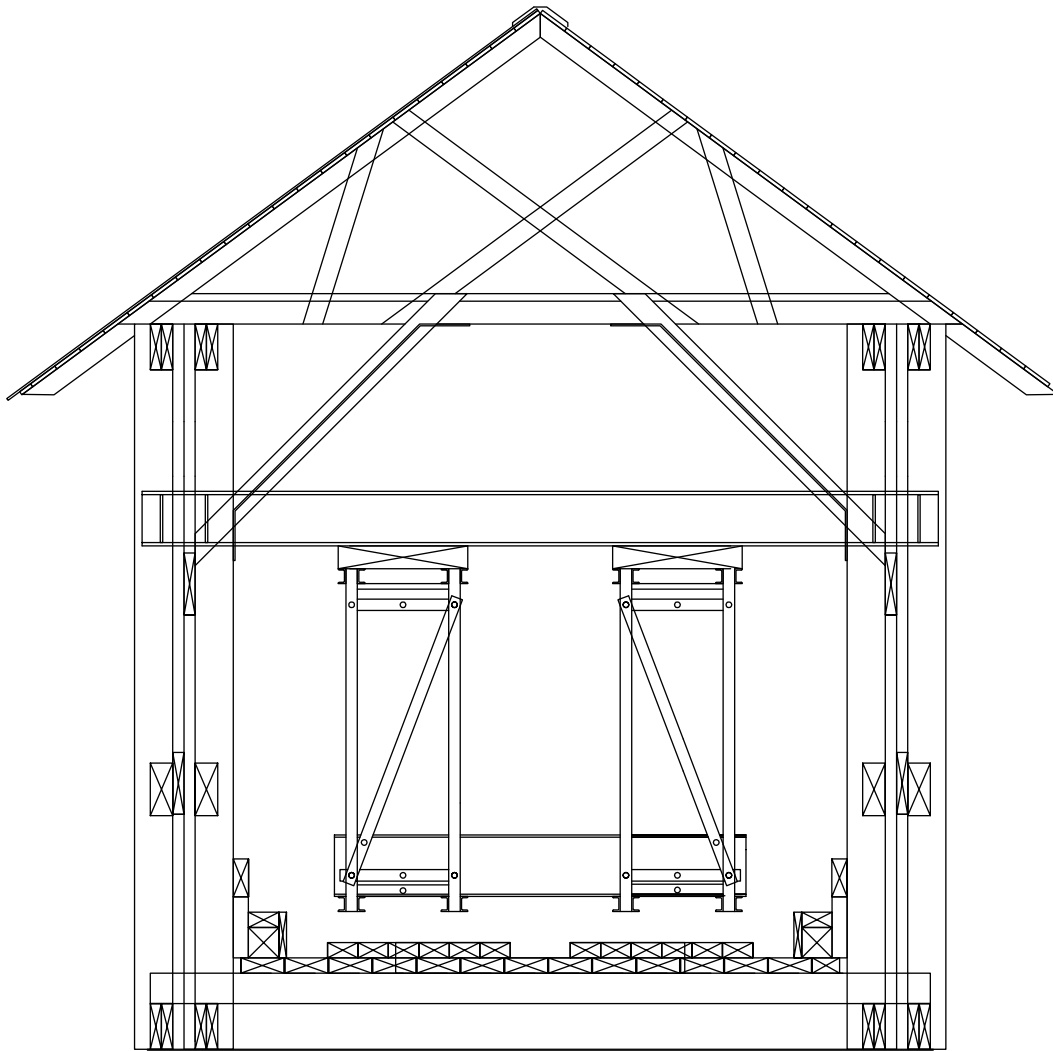
Rehabilitation work, begun in January 2018, involved strengthening the bridge, replacing the roof and deteriorated supports, and realigning it both vertically and horizontally. Six temporary Acrow structures of 24.6 meters (80 feet) each were installed in late June and are being used to lift the bridge and provide support during the renovation.

Because of the bridge's poor state, installation posed a problem as launching rollers were prohibited on the existing floor of the structure.

Instead, the floor was opened at the five piles and steel supports installed to receive the rollers. A cable was used to pull the complete structure to the full length of 146.3 meters (480 feet). Once the structure was completely launched, pins were removed every 24.6 meters (80 feet) to create the six spans. Acrow's DS structure is 2.74 meters (8.99 feet) wide, narrower than the existing bridge, to allow 915 millimeters (three feet) of access for workers on either side.

Acrow supplied the rental bridging components to contractor Eurovia Québec Inc. Agence Chenail, which is working under the direction of the Ministère des Transports du Québec. The design engineer is CIMA+. Acrow's temporary system is expected to be in place until the completion of the job, now anticipated for early 2020.

"It is always gratifying to work on historic restoration projects such as this," said Ken Scott, President, Acrow Ltd. Added Bill Killeen, CEO of Acrow Bridge, "Acrow systems can provide innovative solutions to difficult situations and provide value to contractors and government agencies alike."



Specifications

Bridge length:

Six structures 24.6 meters (80 feet) each for an overall length of 146.3 meters (480 feet)

Bridge width:

2.74 meters (9 feet)

Live load:

Covered bridge+snow load+work platform

Bridge finish:

- All major components galvanized to AASHTO M111 – ASTM A 123
- All bolts are hot dipped galvanized
- All pins are electro galvanized

Bridge design:

- (A) Panel chords, diagonals, verticals, panel reinforcing chords, rakers to AASHTO M223 GD 65
- (B) Raker brace, transom, top chord brace, swaybrace, transom brace, diagonal chord brace to AASHTO GD 50
- (C) Panel pins to ASTM A 193 GD b7
- (D) Bolts to AASHTO M164M – A325

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