Building Over Water: Montreal's Pont Île-aux-Tourtes Bridge

Montreal, Canada

Connecting Montreal to the Mainland with Engineering Precision

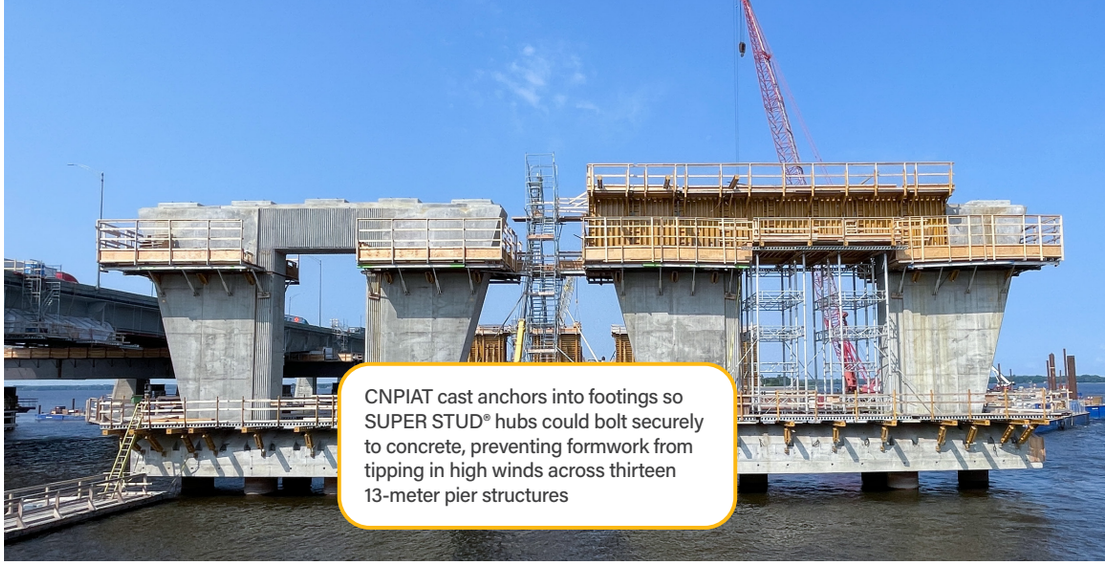
The Pont Île-aux-Tourtes bridge connects the Island of Montreal to the mainland across the St. Lawrence River — a 2-kilometer, 24-span structure replacing aging infrastructure. Construction Nouveau Pont Île-aux-Tourtes (CNPIAT) is building 22 massive pier structures, thirteen of them in open water, where wind loads, limited access, and tough site conditions all demand formwork solutions that go well beyond standard approaches.

Partnership Built on Scale and Capability

CNPIAT brought EFCO onto the project for capabilities few formwork suppliers can match. The project calls for a comprehensive system of *PLATE GIRDER*® formwork featuring 12-foot *PLATE GIRDER*®, E-Z DECK® shoring towers, SUPER STUD® work platforms, E-BEAM® components, and heavy-duty support brackets. Together, these proven products let CNPIAT establish an efficient forming cycle for structures reaching 13 meters (roughly 45 feet) in height.



Finished Project Rendering



CNPIAT cast anchors into footings so SUPER STUD® hubs could bolt securely to concrete, preventing formwork from tipping in high winds across thirteen 13-meter pier structures

Minimizing Ties, Maximizing Efficiency

EFCO's *PLATE GIRDER*® system addressed one of CNPIAT's top concerns: reducing tie penetrations in architecturally finished concrete. Side by side 12-foot *PLATE GIRDER*® panels require only one row of ties down the center, while competitive panel systems need ties every 2 to 3 feet — that's 50% fewer ties with EFCO. On the tallest pier (11.52 meters, approx. 38 ft tall) by 24' wide, that translated to just 11 tie penetrations total. That difference adds up fast: fewer tie holes to patch, lower material costs, quicker stripping, and cleaner finishes on bridge elements the public sees every day.

The large panel sizes also reduce joints in the finished product and keep ties out of complex architectural areas with sloped bulkheads and unique "sail support" details — steel rod elements that resemble sailboat sails. EFCO pre-drilled all holes in the *PLATE GIRDER*® face sheets at precise angles and spacing so CNPIAT crews could bolt sloping forms into place without field layout work. And because the system uses positive bolted connections throughout, reassembly requires fewer joints and moves faster than competitive systems that rely on wedges or pins.

Engineered for Water-Based Construction

Working over the St. Lawrence River ruled out conventional ground-based shoring and introduced extreme wind loads that called for innovative engineering. EFCO designed SUPER STUD® work decks that served double duty: safe access platforms for crews and integrated wind-bracing systems that redirected lateral loads down through the formwork into the footings below.

Getting there required close coordination months before pier forming even started. CNPIAT had to cast specific anchors into the footings during the initial pours so SUPER STUD® hubs could bolt securely to the concrete and prevent formwork from tipping in high winds. This integrated bracing approach kept everything stable without external support structures, which would have been nearly impossible to install in open water.

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The engineering work extended to detailed assembly drawings that broke complex assemblies into manageable gangs crews could pre-build on the ground. That level of planning was especially critical for sections over water, where access and working space were tight.

Pre-Assembly: The Biggest Efficiency Gain

EFCO engineered more than 95 percent of the formwork so CNPIAT could build complete form gangs flat — on land or barges — then lift entire assemblies into position in single crane picks. SUPER STUD® stiffbacks mounted on the exterior of the *PLATE GIRDER*® provided the rigidity needed to hoist tall form sections from horizontal to vertical in one pick. The forms were preassembled in back-to-back "U" shapes, so the entire form system could be set in place with just two picks per pier.

After concrete placement and stripping, crews barged complete form gangs back to shore, reconfigured them for the next pour, and returned them to position — all without extensive assembly work over water. That approach cut out dangerous over-water construction activities, substantially reduced crane time, and sped up the overall forming cycle. Fewer picks to strip, fewer joints to reassemble, and faster cycling thanks to positive bolted connections and no superfluous pieces.

Why CNPIAT Chose EFCO

CNPIAT needed a formwork partner that could operate at this scale while solving complex engineering problems. EFCO delivered 1.75 million pounds of equipment — 12 complete sets of pier forms and 6 cap-forming systems, within 60 days, then provided continuous field service support throughout the multi-year build. The engineering team developed custom lap angles that let metric panels connect with imperial forms, solving a dimensional challenge specific to Canadian construction while drawing on EFCO's deep lease inventory.

The EFCO team worked alongside CNPIAT's crews, turning architectural complications into executable construction sequences. The project is a clear case study in delivering the Lowest in-Place Concrete Cost: rapid equipment mobilization that prevents schedule delays, engineered solutions like SUPER STUD® work decks that eliminate costly workarounds, *PLATE GIRDER*® systems that minimize tie penetrations and patching labor, single-lift pre-assembly that reduces crane time and over-water work, positive bolted connections that accelerate forming cycles, and field support that keeps crews productive throughout.

For contractors facing jobs that demand formwork innovation, precision engineering, and real support from bid through completion, EFCO's work on Pont Île-aux-Tourtes shows what a true partnership looks like.



EFCO engineered more than 95% of formwork for complete pre-assembly on land or barges, enabling entire form gangs to be lifted into position in single crane picks over the St. Lawrence River.



EFCO EQUIPMENT

PLATE GIRDER®, E-Z DECK®, SUPER STUD®

EFCO FORMWORK SPECIALISTS - GEORGETOWN

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