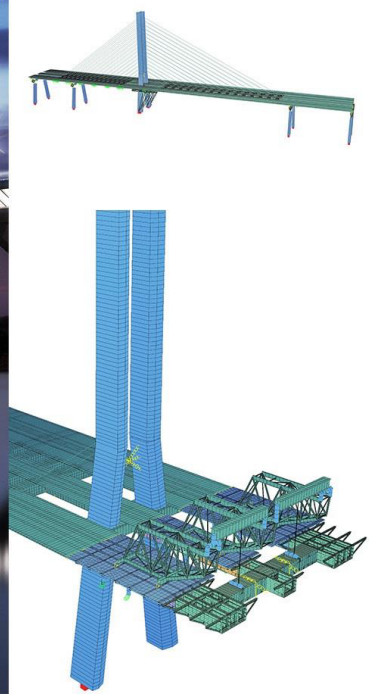
New Champlain Bridge over St Lawrence river

Montreal, Canada / 2015 - 2017

Structural type	cable - stayed composite box girder: highway + railway
Characteristics	spans: 80+124+240+73 m, harp cables arrangement and composite deck
Construction sequence	cantilever construction
Owner	Canadian Ministry of Infrastructure
Client	CJV: Dragados – SNC Lavalin
Scope	construction support



The existing Champlain Bridge is located in one of the busiest road transportation corridors, having more than 50 million cars, buses and trucks crossing it per year. Now, the new 3.4 km Champlain Bridge has been constructed and it has been a big engineering challenge.

The new bridge spans Saint Lawrence River. The structure was planned as a group of three: the East Approach Viaduct, the Main Bridge and the West Approach Viaduct.

The structure is formed by three composite decks. Light-rail from Montreal metro network will go over the central one. The other two will be used for road traffic and also, cyclists and pedestrians will be able to cross the bridge over one of them.

The Main Bridge is a one pylon cable-stayed bridge, spanning 240 m at 38 m over the water level. The pylon is 160 m high, and its configuration shows two vertical towers. Cables display a harp shape and are anchored to the towers as well as to the deck transversal cross-beams. These beams are located every 8.4 m in the back span and every 12.6 in the main span. They connect the three composite decks, so the total width of the bridge is 60 m.

FHECOR has been part of the Construction Engineering Team for the cable-stayed bridge. We´ve been designing construction processes, as well as the many auxiliary elements needed for building this big structure. We want to highlight some of our works in the construction of the New Champlain Bridge:

- Design of 15 shoring temporary towers 40 m tall.
- Design of 3 delta-frames, key to begin the construction of the main deck. These steel structures provided temporary support to the first segments until the deck was long enough to reach the first cable and be hanged.
- Deep study of the segments lifting sequence. This includes the assembly of the three steel decks and transversal cross-beams in the assembly area, 1000 tons - 60 m width segments transportation, segment lifting using Heavy Lifting equipment and assembly of every segment with millimetric tolerances.
- Design of the auxiliary elements required to finish the construction (closure of the main span).

FHECOR has been involved in this project for 4 years, working every day with the construction team to design the details needed, revising shop drawings, assessing them during the assembly process and solving problems and non-conformities. Last but not least, we ´ve provided site support for the most singular operations during construction.

FHECOR

C/ Barquillo 23, 2° | 28004 Madrid | España
T. (+34) 917 014 460 | F. (+34) 915 327 864
www.fhecor.com | fhecor@fhecor.es