

Interchange on Autoroutes 640 and 15 – Boisbriand, QC, Canada

Project overview

Concrete restoration products from MAPEI were used to help support beams used in the overpasses and restore poured concrete on the infrastructure rehabilitation project at the interchange of Autoroutes 640 and 15 in Boisbriand, Quebec.



Project information

Project category:	Infrastructure
Period of construction:	1974
Period of renovation:	2013-2015
Year of MAPEI involvement:	2013-2015
MAPEI coordinator:	Michel Lafortune
Project owner:	Quebec Ministry of Transportation (MTQ)
MAPEI distributor:	Reno Direct
General contractor:	Joint venture between EBC Inc. and Demix Construction
Concrete contractor:	Joint venture between EBC Inc. and Demix Construction
Engineers:	Cima/Genivar/Dessau consortium
Project manager:	Information not available
Photographer:	Michel Lafortune
Project size:	9,000,000 sq. ft. (836 127 m ²)



MAPEI products used

- *Planitop*® 23
- *Planigrout*® 712



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Highway interchange rehabilitation supported by MAPEI products

As a part of the transformation of the former General Motors site in Boisbriand, and to improve the Highway 15/Highway 640 interchange, the MTQ (Quebec Ministry of Transportation) commissioned a consortium of engineers – including Genivar, Dessau and Cima – to carry out a large-scale reconfiguration of these interchanges. The project brought together the expertise of a multi-disciplinary team of transportation, urban infrastructure and traffic engineers.

The interchange was reconfigured by using directional ramps. Potential conflict zones were reduced by eliminating weaving traffic patterns, while local service was improved by separating the through traffic and local traffic, and by adding one lane in each direction on Highway 640 between Highway 15 and Route 117. Designed to facilitate traffic flow in that section of Boisbriand, the jobsite for the four-phase project became a center for work, housing, services and leisure, with residential, commercial and industrial zones.

The work on the intersection of Highways 640 and 15 in Boisbriand is one of the major infrastructure renovations in the greater Montreal area completed within recent years. It took four years for the project to be completed, mainly because contractors could only work from May to November due to the cold weather in Montreal. The project was completed in November 2014.

The contractors, in a joint venture between EBC and Demix, performed the following scope of work:

- Demolition of existing interchange structures and construction of four replacement bridges (one bridge with a metal frame and three with precast concrete beams)
- Construction of a retaining wall along Ramp C
- Earthworks, drainage, pavement foundation, retaining walls, street lighting and other work required to complete the project according to plans and specifications

How MAPEI products were used on the jobsite

The MTQ asked the MAPEI representative to do a patch test on the project jobsite, because the color of the product originally specified was too dark compared to the new concrete pour, making the patches very apparent. **Planitop 23** repair mortar was selected for the patch on the overpass. Using a sandblaster to sandblast the **Planitop 23**, the MAPEI representative showed that the MAPEI product was lighter, better matching the existing concrete on the interchange. The MTQ accepted the MAPEI product, which also led to the use of **Planigrout 712** DOT grout in this job.

The contractor used a full truckload of **Planitop 23** and a full truckload of **Planigrout 712** (1,120 bags per truckload) to complete the needed concrete constructions and repairs.

When the formwork was removed from the poured concrete used to build the overpasses, holes about the size and shape of an ice cream cone were left in the concrete. Workers filled the “cones” with **Planitop 23**. “There were thousands of those little holes all over the interchange, leading to the use of a full truckload of **Planitop 23** for this project,” said MAPEI representative Michele Lafortune.

When the forms were removed, workers also found that concrete beneath was sometimes not well-compacted, giving the concrete a honeycombed look. In those areas, **Planitop 23** was also used to fix the honeycombing issue.

Planigrout 712 was used to support the concrete beams under the overpass. The contractor built small pads from **Planigrout 712** for the beams to rest on, thus ensuring that each beam was perfectly level.

MAPEI's **Planitop 23** and **Planigrout 712** performed well, and the contractor and the MTQ were very pleased.

