

Concrete bridge reinforcement

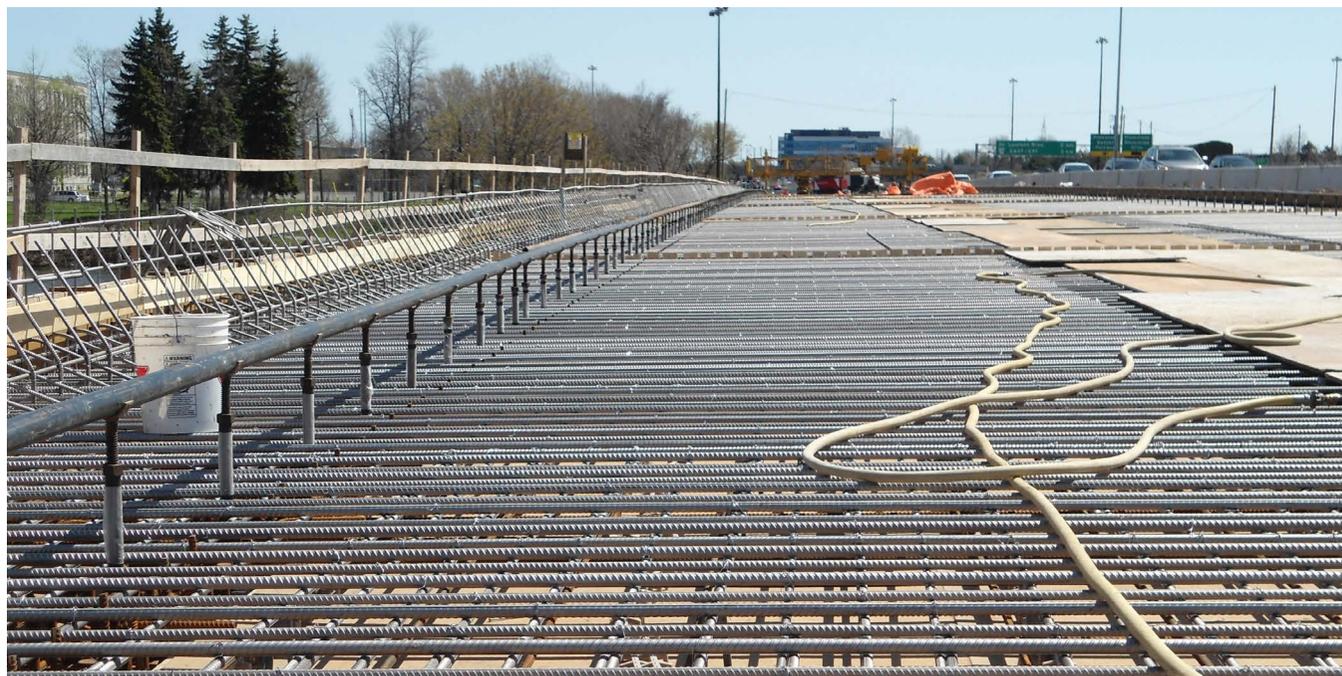
Ottawa, Ontario, Canada

The Canadian capital is exposed to a climate that is characterized by cold winters which require large quantities of deicing salt to be used. Concrete is porous and cracks are difficult to avoid. Over time, salt-containing water penetrates into the concrete and makes coated carbon steel reinforcement corrode. The resulting rust increases the bar's volume and causes cracks which accelerate concrete degradation further. Over a decade ago, the Province of Ontario studied the behaviour of galvanized and epoxy-coated carbon steel rebar and its stainless steel counterparts. The results confirmed the superior durability of stainless steel. Besides the direct cost of corrosion repair, the authorities also took into account the indirect cost resulting from traffic disruptions caused by bridge repair. In a memorandum, they stipulated that in bridges used by more than 100,000 vehicles per day only stainless steel rebar should be specified. A recent project in which this policy was implemented is the Hurdman Bridge, finished in 2014. It is part of one of the country's busiest highways and duplex stainless steel reinforcing bars were selected for the deck and barrier walls. For tie wires, which keep the rebar in place when

the concrete is poured, austenitic alloy 316 was used and also the rebar couplers were made from stainless steel. The decision for the stainless steel option is an indicator of the responsible use of taxpayers' money and motorists' time. (Adapted from Moly Review 1/2015, courtesy of IMoA)

Details

Environment:	Urban
Owner/developer:	Ministry of Transportation, Ontario
Stainless steel grade:	2205 (EN 1.4462) for rebar, 316 (EN 1.4401) for connectors
Product type:	Rebar
Total quantity:	320 t
Producer or supplier:	Valbruna
More information:	imoa.info/tmrstainless.com



Where de-icing salt is used in winter, stainless steel reinforcement is an advantage. Photo: Frank Smith

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