

 <p>Manitoba Infrastructure</p> <p>MATERIALS ENGINEERING BRANCH</p>	Standard No.: APL114
	<p style="text-align: right;"><u>Effective Date</u></p> <p>Current: July 2024</p> <p>Previous: February 2021</p>
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Materials Specification For: Bar Reinforcements	

Bar reinforcements for Portland Cement Concrete shall meet the diameter and length specified in the Contract.

All bar ends shall be free of burrs and distortions.

Epoxy-Coated Dowel Bars

Plain Round Bars: ASTM A615M, Grade 60 or higher.

Epoxy Coating: AASHTO M254, Type B. Minimum Coating Thickness of 0.15 mm after cure.

Corrosion Resistant Steel

Corrosion-resistant steel for load transfer dowels shall meet the requirements of one of the following:

1. Stainless Steel Solid dowels shall be ASTM A276, Type 316L.
2. Zinc Clad dowel bars shall have a minimum 1.02 mm A710 Zinc alloy clad in to a plain steel inner bar meeting the chemical and physical properties of ASTM A615M, Grade 60. A710 Zinc shall be composed of: ZN-99.5 percent, by weight, minimum; CU-0.1-0.25-percent, by weight; and Fe-0.0020-percent, by weight, maximum.
3. Glass Fiber Reinforced Polymer (GFRP) Coated Steel Bars shall be Carbon steel bars, ASTM A615M, Grade 60 or higher, with a fully bonded 3.175 mm thick GFRP coating meeting the Material Specifications of Section 4 of The AASHTO LRFD Bridge Design Guide Specifications for GFRP Reinforced Concrete Bridge Decks & Traffic Railings – 2009 Edition.
4. Martensitic Microcomposite Formable Steel (MMFX) ChromX 4120 (epoxy coated) Grade 100 [690] high strength reinforcing steel bars shall meet ASTM A1035/A1035 M Type CM Grade 100[690].

Corrosion-resistant steel for tie bars and deformed dowels shall be Stainless Steel Solid rebar meeting ASTM A955, Type XM-28.