

**PART 1 - GENERAL**

<u>1.1 Section Includes</u>	.1	Concrete repair mortar as required to rehabilitate existing concrete wall and roof slab.
<u>1.2 References</u>	.1	Canadian Standards Association (CSA):  .1 CSA-A23.1-04, Concrete Materials and Methods of Concrete Construction. .2 CSA-A23.2-04, Methods of Test for Concrete.
<u>1.3 Submittals</u>	.1	Samples: .1 Submit samples in accordance with Section 01 33 00 "Shop Drawings and Other Submittal Procedures". .2 Submit repair mortar samples.
	.2	Product Data: .1 Provide product data. .2 Include mixing and installation instructions for repair mortar.  .3 Include manufacturer's material safety data sheets (MSDS) for the safe handling of the specified materials and products, in accordance with Workplace Hazardous Materials Information Service (WHMIS) requirements.
<u>1.4 Mock-ups</u>	.1	Construct a mock-up in accordance with Section 01 45 00 "Testing and Quality Control". Mock-up to include surface preparation, mortar preparation and installation, curing and environmental protection.
	.2	Construct the mock-up where directed.
	.3	Allow 3 business days for inspection of the mock-up by the Departmental Representative before proceeding with concrete repair work, in accordance with Section 04 05 00 - Common Work Results for Masonry.
	.4	When accepted, the mock-up will demonstrate a minimum standard for this work. The accepted mock-up may remain as part of the finished work.
<u>1.5 Delivery, Storage and Handling</u>	.1	Deliver, store, handle and protect materials in accordance with Section 01 61 00 "Common Product Requirements".
	.2	Store materials in a dry area and supported free of the ground.
	.3	Store dry between 5 to 32 degrees Celsius (°C). Condition between 15 to 24 degrees Celsius (°C) before using.

1.6 Special  
Precautions

- .1 Comply with the recommendations of the manufacturer's MSDS for the product.
- .2 Caution: The repair mortar contains Portland cement, silica sand and a polymer that may, in certain cases, cause skin irritation. Avoid breathing dust. Use only with adequate ventilation. In confined areas, the use of a NIOSH/MSHA approved respirator is recommended. Consult MSDS and the product label for additional information.
- .3 First Aid: In the case of skin contact, wash with plenty of soap and water for several minutes. Contact a physician if irritation persist. For eye contact, flush immediately with plenty of water for at least 15 min while holding eyes wide open. Contact a physician. For respiratory problems, transport the victim to fresh air. Remove contaminated clothing and wash before re-use. Contact a physician if necessary. For ingestion, drink plenty of water. Do not induce vomiting. contact a physician.
- .4 Keep out of reach of children. The specified product is intended for industrial use only.

1.7 Environmental  
Requirements

- .1 Maintain an ambient and surface temperature of no less than 7 to 10 degrees Celsius (°C) and rising during and 48 hours after repair.
- .2 Provide for temporary enclosures and heating equipment to if necessary to maintain specified temperature. Take precautions to ensure proper curing as specified.

1.8 Existing  
Conditions

- .1 Record and report to the Departmental Representative site conditions non-conforming to those specified before beginning work.

**PART 2 - PRODUCTS**

2.1 Materials

- .1 Repair Concrete: cementitious, fibre-reinforced, high strength non-sag repair mortar with corrosion inhibitor.  
Acceptable materials: Sika Monotop-623 by Sika Canada Inc.

**PART 3 - EXECUTION**

3.1 Surface Preparation

- .1 Remove deteriorated concrete from exposed surfaces of concrete walls and roof slab by chipping or other appropriate mechanical means, to sound material. Use light chipping hammers (maximum 7kg weight) for concrete removal to prevent damage to existing concrete. At edges of repair area, make min 12 mm deep sawcuts to prevent feather edges. Do not overcut corners with saw. Stop cuts short of intersections and make transition between sawcuts with chipping hammer.

3.1 Surface Preparation (continued)

- .2 Remove all dirt, oil, grease and other bond inhibiting materials from surface.
- .3 Obtain aggregate fracture with minimum surface profile of +/- 3 mm.
- .4 Clean any exposed reinforcing bars to remove all loose rust. Provide 20-25 mm clear around full circumference of all exposed reinforcing bars. If reinforcing bars are excessively corroded (more than 20% material loss) advise Departmental Representative.
- .5 Clean exposed reinforcing and concrete in repair area with light abrasive blasting after unsound concrete has been removed, followed by high pressure air to remove loose material.
- .6 Departmental Representative to be advised minimum 3 business days before any repair concrete is placed so preparation can be inspected and approved.

3.2 Concrete Surface Repair

- .1 Comply fully with manufacturer's written instructions.
- .2 At the time of application, surfaces should be damp (saturated surface dry) with no glistening water.
- .3 Scrub mortar into the substrate, filling all pores and voids. Alternatively, a compatible bonding agent as recommended by the mortar manufacturer can be used.
- .4 Trowel apply repair mortar in maximum 50 mm thicknesses. Multiple lifts may be required.
  - .1 When applying in several lifts, leave profile of mortar rough and score the surface immediately in a cross-hatch pattern approx. 6 mm deep to provide a key. Allow to reach initial set to ensure it will support the next lift without being displaced.
- .5 Apply mortar before the bond coat dries, then screed. Force the product against the edge of the repair, working toward the centre.
- .6 Allow the mortar to reach initial set, then finish with a wood or sponge float to match existing surface.
- .7 Cure by recognized curing methods, such as, mist spray of water/damp burlap, white polyethylene film or water-based curing compound as recommended by the manufacturer.
- .8 Commence curing immediately after placing and finishing. Maintain moist curing for the period as recommended by manufacturer.
- .9 Protect freshly applied mortar from direct sunlight, wind rain and frost as recommended by manufacturer.

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PWGSC  
Stabilization Repairs  
Carleton Martello Tower  
Saint John, N.B.  
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**CONCRETE REHABILITATION**

**SECTION 03 01 00**

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**END OF SECTION**