

## 5. Mixing instructions

When the trowable mortar material has been approved by the Office of Materials Management, further performance testing by the manufacturer will not be required unless the formulation or manufacturing process has been changed, in which case new certified test results will be required. Acceptance variances shall be established by the Laboratory.

The Contractor shall furnish the Engineer a copy of the manufacturer's comprehensive job specific preparation, mixing and application instructions. Any significant changes to these instructions which are recommended by the representative for an unanticipated situation shall be approved by the Engineer prior to the adoption of such changes.

**843.04 Removal of Concrete.** The Engineer shall sound the structure and outline the areas to be removed. All loose, soft, honey-combed, disintegrated concrete, and 6mm (1/4 inch) depth of sound concrete shall be removed. Where the bond between the concrete and a reinforcing bar has been destroyed, or where more than one-half of the periphery of such a bar has been exposed, the adjacent concrete shall be removed to a depth that will provide a minimum 13mm (1/2 inch) clearance around the bar except where other reinforcing bars make this impractical. After completion of the secondary removal operation, the Engineer will resound the areas to ensure that only sound concrete remains. All work shall be done in a manner that will not damage or shatter the concrete that is to remain, and will not cut, elongate or damage the reinforcing steel in any way. Concrete may be removed by chipping or hand dressing. Chipping hammers shall not be heavier than the nominal 15.9 kg. (35pound) class. Where existing reinforcing bars would be less than 25mm (1 inch) from the proposed finished surface of concrete, they shall, if practical, be driven back into recesses cut in the masonry to obtain that coverage unless otherwise approved by the Engineer.

**843.05 Surface Preparation.** Cleaning shall precede application of the patching material by not more than 24 hours. The surface to be patched shall be cleaned by abrasive blasting followed by an air blast or by ultra-high pressure water blasting. Blasting abrasives containing more than 1% free silica will not be allowed. Exposed reinforcing and structural steel shall be cleaned to remove all loose and built-up rust, asphalt residue, and all other contaminants detrimental to achieving an adequate bond. It may be necessary to use hand tools to remove scale from the reinforcing steel or anchor bolts. The surface shall be free of spalls, laitance and all traces of foreign material. If necessary, detergent cleaning shall precede blast cleaning to ensure the removal of containments that are detrimental to achieving an adequate bond. Ultra-high hydro-demolition of 69 MPa (10,000 psi) or more is an acceptable method of total surface preparation. Any additional surface preparation shall be in accordance with the manufacturer's recommendations for the patching material which is used. All unchipped surfaces that will receive new material shall be mechanically roughened.

**843.06 Patching.** The mixing, proportioning, placing and curing procedures, as well as, tools, equipment, labor and materials used shall be in accordance with the manufacturer's specifications and recommendations. The finished surface of the repair area shall be flush with the surrounding area and conform to the original concrete surface.

**843.07 Curing.** Patches shall be cured in accordance with the manufacturer's recommendations.

**843.08 Inspection and Sounding of Concrete Patches.** After curing and before final acceptance, all patches shall be sounded. All unsound or cracked patch areas shall be removed and repatched according to this specification at the Contractor's expense. Aerosol paint for outlining shall be provided by the Contractor. All sounding and replacement of rejected areas will be the responsibility of the contractor and included in the unit bid price for this item. Sounding and repatching shall continue until only sound, uncracked patches remain.

**843.09 Method of Measurement.** The quantity shall be the actual area of the exposed surface of all accepted patches, irrespective of depth or thickness of the patch. If the patch includes corners or edges of members, all of the exposed surfaces shall be included. The cost of all labor, equipment, incidentals and materials for sounding and patching shall be included in the unit price bid for this item.

**843.10 Basis of Payment.** Payment will be made at the contract price bid for:

Item	Unit	Description
843	Square meter (square foot)	Patching concrete structures with trowelable mortar