

Miscellaneous Construction for Concrete Structures

The [Contract Specifications](#), Section 51-1.03E, *Concrete Structures – General – Construction – Miscellaneous Construction*, contains twelve unique sections of information for concrete from *Placing Mortar* to *Hinge Tiedowns*. This attachment includes additional information for *Placing Mortar*, *Drill and Bond Dowels*, *Drill and Grout Dowels* and *Drill and Bond Dowels (Chemical Adhesive)*.

1. When Placing Mortar:

Small concrete holes and recesses are filled with dry pack mortar. The mixing ratio is 1.0 parts cement to 2 parts sand. Use minimum amount of water needed to moisten the mortar so it sticks together. For best results verify these recommended steps are followed for placing mortar:

- a. Clean the area to be patched with stiff brush, removing loose and non-concrete materials, flush with water and allow the area to become surface dry.
- b. Area being repaired is mortar tight.
- c. Tightly pack the mortar with a suitable tamping device in half-inch increments until the recess is filled.
- d. Cure with water method for 72 hours.

2. When Drilling and Bonding Dowels:

- a. Drilled holes are a half-inch larger than the nominal dowel diameter. Adjacent concrete must not be damaged when drilling, including concrete below the drill bit; heavy handed drilling can lead to spalling.
- b. Verify that the contractor located the dowel holes away from the rebar. If positive location of rebars is required prior to drilling, the use of a profometer (rebar locator) may be necessary.
- c. Visually inspect dowel drilling operations for cleanliness of drilled hole, dowel placement and stabilization, concrete preparation and placement (bonding material must completely fill the drilled hole), required curing and post cure acceptance inspection. Magnesium phosphate is not cured. Curing inhibits the release of gas that in turn delays the hardening process.

3. When Drilling and Grouting Dowels:

- a. Drilling operations are the same as with *Contract Specifications*, 51-1.03E(3), *Concrete Structures – General – Construction – Miscellaneous Construction – Drill and Bond Dowels* except the hole is 1/4 inch larger than the nominal dowel diameter.
 - b. Inspect the drilling and preparation, placement of grout and dowel, stabilization of dowel, and cure as in *Contract Specifications*, 51-1.03E(3).
4. When Drilling and Bonding Dowels (Chemical Adhesive):
- a. Drilling operations are similar to *Contract Specifications*, 51-1.03E(3), except the dowels are installed per manufacturer's instructions. If questions arise concerning hole diameter and depth, coordinate solution with Structures Design.
 - b. Inspect the drilling and preparation, required dowel preparation, placement of adhesive, and stabilization of placed dowel. Cure is not required.