

Special Specification 3061

Raising and Undersealing Concrete Slabs with Foam Systems



1. DESCRIPTION

Raise and underseal concrete slabs at locations shown on the plans and as directed.

2. MATERIAL

Furnish a closed cell hydro-insensitive, high-density polyurethane foam system with a minimum free rise density of 3.0 lb./cu. ft., with a minimum compressive strength of 50 psi. Use epoxy material meeting the requirements of DMS-6100, "Epoxies and Adhesives," Type III, Class C.

3. EQUIPMENT

Provide machinery, tools, and equipment necessary for proper execution of the work. At a minimum, provide the following:

- 3.1. **Drill.** Use a drill capable of drilling holes of the required diameter and depth.
- 3.2. **Pump.** Furnish a pump unit with the appropriate attachments capable of injecting the polyurethane:
 - Under the concrete slab at the depth(s) required in the plans.
 - At a controlled flow rate with a digital reading of the cumulative pounds used.
- 3.3. **Level.** Provide control equipment to indicate when the final grade has been achieved and to monitor slab movement.

4. CONSTRUCTION

- 4.1. **Preparation.** Prepare a profile of each area to determine the extent of the concrete slab that requires adjustment or raising. Ensure that the finished concrete slabs will conform to the grades and cross-section of the slabs as shown in the plans or as directed. Determine the exact locations of the injection holes for each treated area. Obtain approval for the injection hole locations.
- 4.2. **Drilling.** Use drilling operations that do not damage the surrounding concrete. Drill injection holes with diameters less than or equal to 3/4 in. through the concrete as proposed or as directed. When an injection point is through a terminal anchor slab and sleeper slab, provide a tube to insure the polyurethane material does not migrate between the two slabs.
- 4.3. **Injection.** Inject high-density polyurethane formulation directly under the slab. Do not extend the nozzle end below the bottom of the concrete. Cease injection when directed, no improvement is observed, or material extrudes from locations other than slab penetrations. Take precautions to prevent the intrusion of injected material into any drainage facility and other structures. Remove any excessive polyurethane material after the nozzle is removed from the hole. Seal the hole with an approved method and material.
- 4.4. **Grade Control.** Control the final elevations within 1/4 in. of the proposed profile elevations. The Engineer may check the treated area to confirm that the pavement has been aligned properly to facilitate drainage.

- 4.5. **Repairs.** As directed, repair any pavement slab or bridge approach/departure slab that has cracked or did not achieve required grades as a result of the Contractor's operation at no additional cost to the Department.

Fill injection holes with epoxy or approved concrete patching materials.

5. **SET TIME**

Formulate the high-density polyurethane to set and obtain 90% of its compressive strength within 15 min. after injection. Attain the manufacturer's recommended compressive strength unless otherwise shown on the plans.

6. **MEASUREMENT**

This Item will be measured by the pound of high-density polyurethane injected and accepted.

7. **PAYMENT**

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Raising and Undersealing Concrete Slab." This price is full compensation for furnishing and injecting polyurethane material, concrete repairs, labor, materials, tools, and incidentals.