Sample Project Special – 412psj

01-31-2013

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# Revision of Section 412

# Polyurethane Slab Jacking

Section 412 of the Standard Specifications is hereby revised for this project as follows;

Subsection 412.01 shall include the following:

This work includes raising concrete roadway slabs.

Subsection 412.02 shall include the following:

The material used for raising concrete slabs shall be a water blown two-component urethane polymer system conforming to the following free rise properties:

|  |  |  |
| --- | --- | --- |
| **Property** | **ASTM Test Method** | **Value** |
| Density, lbs/ft³ minimum | D1622  | 3.6 – 4.2 |
| Compressive Strength, psi minimum | D1621  | 50 |

The polyurethane material shall reach 90 percent of full compressive strength within 15 minutes from injection.

The polyurethane material shall be on the CDOT Approved Products List. The Contractor shall supply Certified Test Results to the Engineer on the above ASTM Test Methods for each lot used prior to placement on the project. Lots not meeting these requirements shall not be used on the project and shall be replaced and re-tested at the Contractor’s expense.

Add subsection 412.41 immediately following subsection 412.04 as follows:

**412.041 Slab Jacking.** Slabs shall be raised and supported in accordance with the following:

1. *Contractor experience.*The Contractor shall have a minimum of three years of experience in using high density polyurethane material to raise concrete slabs.
2. *Equipment.* The Contractor shall provide all necessary equipment to perform the work including, but not limited to the following:
3. A pneumatic drill and an electric drill capable of drilling 5/8 inch diameter holes. A truck-mounted pumping unit capable of injecting the high density polyurethane formulation between the concrete pavement and the subbase and capable of controlling the rate of rise of the pavement.
4. A laser leveling unit to ensure that the concrete is raised to an even plane and to the required elevations.
5. *Construction Requirements.*

**Preparation.** A preliminary profile shall be performed to determine where and how much the slabs need to be raised. The profile shall be taken in each wheel path of the area to be raised. At least one profile shall be taken in the shoulders of the area to be raised. The interval between each point on the profile shall not exceed 10 feet. The plot of the preliminary profile shall be provided to the Engineer prior to raising any slabs.

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# Polyurethane Slab Jacking

**Drilling**. A series of 5/8 inch holes shall be drilled at a maximum of 8 foot intervals through the concrete. The exact location and spacing of the holes shall be determined by the Contractor. The drilled holes shall not crack the slabs.

**Injecting**. The high density polyurethane formulation shall then be injected into the drilled holes to raise the slab to the required elevations. The Contractor shall construct cofferdams or other temporary structures to ensure that excessive material does not escape. The amount of rise shall be controlled by regulating the rate of injection of the high density polyurethane material. When the nozzle is removed from the hole, all excessive polyurethane material shall be removed from the area and the hole sealed with a nonexpansive cementitious grout, as approved by the Engineer.

**Final Profile.** Final elevations shall be within 1/4 inch of the elevations proposed by profile. A tight string line may be used to monitor and verify elevations for areas with a length less than 50 feet. For longer sections, a laser level shall be used to monitor and verify elevations. The Engineer may direct the Contractor to flood the area with water to confirm that the paving has been realigned properly. A final profile shall be performed to determine how much the slabs were raised. The profile shall be taken in each wheel path of the affected area. At least one profile shall be taken in the shoulders of the affected area. The interval between each point on the profile shall not exceed 10 feet. The plot of the final profile shall be provided to the Engineer for the project records.

All pavement blowouts, excessive pavement lifting which may result from the process or new cracks that form within 45 days of placement shall be repaired or replaced at the Contractor’s expense.

Subsection 412.23 shall include the following:

Polyurethane Slab Jacking will be measured by the pound of injected polyurethane material.

Subsection 412.24 shall include the following:

## Pay Item Pay Unit

Polyurethane Slab Jacking Pound

Payment will be full compensation for all work and materials necessary to bring the slabs to grade. All sampling and testing will not be measured and paid for separately, but shall be included in the work.

Non-expansive cementitious grout will not be measured and paid for separately, but shall be included in the work.