



GRAYDAZE CONTRACTING

Nationwide Coatings
&
Sealant Installations

SLAB STABILIZATION

Why?

All concrete slabs are designed with control joints to allow for the changes that take place as the concrete cures and shrinks. However, differing environmental conditions will cause the top of the slabs to cure quicker and shrink beyond the capacity of the joints causing the slab panel to move upward creating a void or cavity below the slab; this phenomenon is called "curl". As the slab reaches its full cure, the panels between the joints could actually begin to rock above the voids. Once a slab begins to rock, the next steps will include joint filler failures and spalls which could lead to lost revenues in terms of forklift damage, product losses or even forklift accidents.

How?

Slab stabilization is accomplished by injecting either an expandable high density chemical foam or cementitious grout beneath the slab filling the cavity thereby stabilizing the slab. The high density foam will cure in minutes vs. days required by the cementitious grout, making the high density foam the obvious solution for an occupied facility.

Diagram

- (a) high density chemical foam is installed to fill the void and stabilize the slab;
- (b) curled areas are ground to create a level transition;
- (c) a new joint is created to accommodate movement;
- (d) completed repair

SLAB STABILIZATION REPAIR

Existing Problem: My slab is only a few years old, but is showing signs of excessive wear including spalled joints and numerous stress cracks especially at the intersections of the sawcut joints. When my forklifts travel over the joints I can hear a "clunk clunk" sound, and if I place a level on the joint I can actually see the slab depress a very small amount.

The Solution: This slab has all of the classic signs of curling. The edges of the slab have actually curled upward as it cured and created a cavity or void beneath the surface. As the forklifts or other heavy machinery cross the joints the slab will roll into the cavity and the joint surfaces will collide causing the "clunk clunk" sound and damaging the shoulder. The solution is to inject expandable chemical foam beneath the slab and fill the cavity to eliminate the rocking motion. After the cavity is filled the joints can be addressed and repaired as required, (*see floor joint spall and nosing repairs*), and the transition ground smooth and flush.

The Result: After the repair is completed and joints addressed, regular maintenance should be performed at least annually to monitor the condition of the slab and ensure the slab and joints are operating properly. This is a permanent type repair that can be completed while the plant is in operation. Most times areas to be repaired will only be closed for one shift and reopened to traffic for the following shift.

