

Alchatek

CASE STUDY
SLAB LIFT

POLE BARN CARBONDALE, ILLINOIS

Leveling Sunken Slabs *in a Pole Barn*

SLAB LIFT ACHIEVED
3 *in*

PRODUCT
AP Lift 430

01 What made this job *difficult.*

POLE BARN
CARBONDALE, ILLINOIS

A 25’ x 40’ residential pole barn in Carbondale, Illinois was built on a 6” floating concrete slab on grade. The concrete was poured into four 10’x 25’ sections. Each section had multiple cracks and breaks throughout, and in some cases the broken sections had a drop of up to 3”. A local geotech contractor was hired to stabilize the ground and level as much of the concrete as they could. During the inspection, it was discovered that the pole barn’s 4 corner beams were driven into the ground and the concrete poured around them. The front of the property was pitched towards the pole barn and it showed no signs of ever having gutters and downspouts attached.

The homeowner planned to utilize the space as a game room.

KEY CONDITION

After drilling an injection hole, the crew inserted a probe to check the depth of the void and the stability of the ground. In some areas the void was 6” and the probe was hand driven to a depth of 3’ before hitting hard ground.

THE CONSTRAINT

3 *in*

MAXIMUM DROP

In some cases the broken sections had a drop of up to 3”.

AT A GLANCE

3-4 ft
INJECTION POINT SPACING
Spacing between injection points was approximately 3-4 feet.

38 locations
TOTAL INJECTION LOCATIONS
38 total injection locations.

6 in
SLAB THICKNESS
Built on a 6" floating concrete slab on grade.

02 What was specified, *and how it went in.*

AP LIFT 430

The crew and an Alchatek consultant walked the project with the property owners. We pointed out how waterlogged the ground was and that they needed to add gutters and downspouts, as well as pitch the ground water away from the pole barn. We also talked about possible blowout from under the slab during the injection process and how to handle it. The Alchatek consultant worked with the contractor to draw up a plan, indicating exactly where the injection points would be located (knowing that the plan might change due to the ground moisture and the number of voids to be filled).

THE MATERIAL

AP Lift 430

AP LIFT 430 PHYSICAL PROPERTIES - CURED

Compressive Strength (ASTM D-1621): 50 p.s.i. or 7,200 p.s.f., 3,447 millibar. Tensile Strength (ASTM D-638): 88 p.s.i., 6,067 millibar. Expansion (Unconfined): 22-26 times. Density (ASTM-D 1622): 2.75 to 3.25 lb/ft3, 44.05 to 52.06 kg/m3. Properties will vary depending on application conditions.

THE METHOD

01
Walk
The crew and an Alchatek consultant walked the project with the property owners and pointed out the waterlogged ground and lack of gutters and downspouts.

02
Plan
The Alchatek consultant worked with the contractor to draw up a plan indicating exactly where the injection points would be located.

03
Inject
All injections were completed from inside the pole barn with a crew member on the outside to alert the others when product broke through the ground.

04
Establish & Level
They first injected the back corner with the 3" drop to establish a base slab height, then leveled everything else to that slab.

03 What the result was, *and what confirmed it.*

SLAB-TO-SLAB VARIANCE

The crew achieved a three-inch lift and was able to bring all the other slabs within 1/8” from the adjoining slab. The customer was extremely happy with the results.

SLAB-TO-SLAB VARIANCE
1/8in

All other slabs were brought within 1/8” from the adjoining slab.

START THE CONVERSATION

Send us the job.
We will send back an approach.

Send us the soil report or the failure photos and Technical Services will return a written approach within two business days.

TECH SUPPORT

404 · 618 · 0438

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Alchatek

Alchatek manufactures polyurethane resins, chemical grouts, and injection equipment for infrastructure repair: leak sealing, soil stabilization, concrete lifting, and seawall repair. Headquarters in Tucker, Georgia, with a bonded warehouse in Reno, Nevada.

Information in this document is believed accurate at the date of publication. Product performance depends on site conditions and application; consult the current Technical Data Sheet, which is the controlling document.