

# MUDJACKING

## Mudjacking is the Answer to Replacement

Mudjacking is the economical alternative to replacing cracked and settled concrete slabs of any size. It first involves drilling small holes through the concrete surface. A cement grout is then injected through these holes raising the slab to the desired grade. This procedure can be used to raise virtually any concrete slab, any height.

With mudjacking, a "lift" of 12 inches or more is possible - also a slab can be raised to a tolerance of plus or minus .01 inches.

Current mudjacking technology has been refined from method, first used in 1933, which employed mud. A flowable cementaceous sand/clay grout is now commonly used.

## Many Concrete Advantages

Mudjacking offers you a package of advantages not available with any other method.

**For most projects, mudjacking is:**

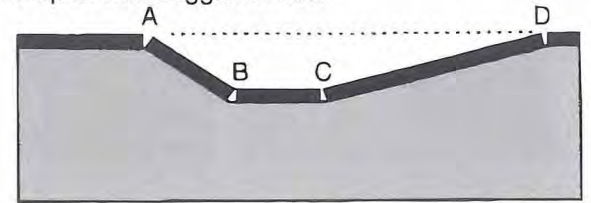
- faster, cleaner and less costly than replacement.
- readily done at night or other off-hour times.
- completed without requiring access for large equipment (the grout can be pumped several hundred feet).
- completed without significantly altering the surface texture and appearance.

**Other valuable advantages of mudjacking:**

- helps provide a stabilizing effect, and a semi-structural bridge support.
- fills voids and cavities.
- helps prevent the migration of water beneath the slab, maintaining a moisture content — less affected by freeze-thaw cycles & moisture fluctuations.
- helps protect adjacent concrete structures from water damage — avoiding foundation settlement/cracking, leaks, and basement floor heaves.

## What to Expect

Properly executed mudjacking will not create new cracks, but hardly-visible existing cracks may tend to open with sagged areas.



In a typical settled slab illustrated here, cracks are wider at "A" and "D" on the top and "B" and "C" on the bottom. On the surface, cracks "A" and "D" (in tension) are wide and visible, while cracks "B" and "C" (in compression) are either very fine or not visible at all.

Mudjacking will produce a closing force on cracks "A" and "D", and an opening force on "B" and "C" as the slab is being raised.

Mudjacking is commonly used as the only economical and practical method capable of safely raising large areas of concrete, which may be located alongside full basement foundations. Mudjacking involves a distribution of weight over many injection holes, generally spaced 3 to 4 feet apart...however, spacing is dependent on the strength and thickness of the concrete being raised. Mudjacking does require pressure to raise concrete slabs and does not exert lateral pressure on adjacent foundation walls, beyond the basic physical weight of liquid grout filling the existing void/cavity or the space created as the slab is raised. The grout being pumped into the injection holes is not mechanically confined and is free to escape through any of the adjacent injection holes, through cracks or joints and along the edge of the slab. When any of these things occur, pumping is halted and moved to another hole in order to further distribute the slab's weight. Movement from one hole to another hole, adding more grout each time, takes place many times until the slab reaches the required height.

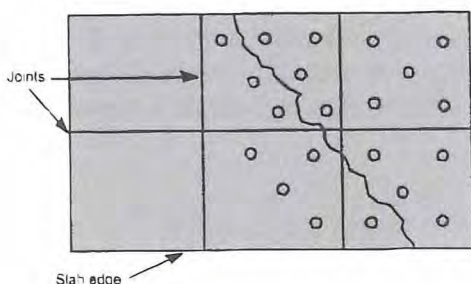
NOTE: To ensure a successful project, many binding problems are avoided — by cleaning cracks, chipping or saw-cutting — prior to mudjacking.

## How Injection Holes are Drilled

Rotary percussion drills are typically used, but core drilling can be done in special circumstances.

The exact layout and spacing of injection holes depends on the thickness, condition, and configuration of the slab. Holes are usually placed in a staggered pattern, spaced three to eight feet apart (see diagram). Existing cracks or joints required special hole-positioning.

After mudjacking is completed, injection holes are patched with concrete - so they closely match the original finish and colour.



## How Grout is Injected

Grout injection is generally started at the point of greatest settlement. It is usually done about one-quarter inch at a time in any given location. Injection is changed frequently from one point to another, so that no location leads another by more than about one-quarter inch.

To maintain close control and prevent leakage at the slab edges, a stiff grout is generally used for the actual lifting. Only a portion of the holes are used for lifting, while other holes are used for a more flowable grout, filling all remaining cavities, a very important step to the long term success of the project.

To monitor the lifting procedure, simple control devices, such as string lines, are stretched across the area being lifted. As the concrete slab comes in contact with the line, lifting is halted.

## Avoid Problems

Poor Mudjacking techniques, equipment and materials used can present a very disappointing project to the customers.

Most customers have no way of determining just how complete a job they have received and paid for until it may be too late.

Projects that do not address filling of all void conditions under the slab will quickly demonstrate excessive crack damage and shifting with little or no control of water seepage conditions.

Often unnecessary cracks are created during the raising process as a result of careless rushing, poor hole location and improper material type, all of which is evidence of an inexperienced operation.

## GUNNER Will Do The Job Properly

At Gunner Corp., we have completed hundreds of projects each year, residential, commercial and industrial. We have the skills and the expertise, the top line equipment, and the proper material. Above all, we have the desire to make sure every jacking project is a completed success for you.

We take pride in being able to solve your problems and under specific Gunner specifications, we can guarantee our work for years of successful use and appearance.

We offer payment plans, tailored to individual needs - so you can get the job done when it should be done.

For a free estimate on your concrete settlement problem, call Gunner today. We have your concrete solution.



## Other GUNNER Corp. Repairs & Services

### Compaction Grout Jacking Foundation Raising

Foundation settlement conditions raised and stabilized.

### Shotcrete/Gunite

Cracking and collapsing foundation walls permanently supported by installing a structurally engineered monolithic sprayed concrete layer.

### Liquid Backfill

Most settlement problems are a result of poor backfilling, grading techniques and materials. **Liquid Backfill** is a clay base material that is pumped into trenches and excavations or regrading conditions around foundations. The result is a compacted base, which prevents water seepage. A **"Control Grade"**...stabilizing and protecting foundations.

### Liquid Topsoil

Quick, easy and economical method of installing a compacted topsoil material in open or hard to reach areas — eliminating the wheelbarrow.