

CONCRETE CLEANING INSIDE-OUT (PART ONE)

by

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Before I get started telling the secrets to effective indoor residential concrete cleaning, let me introduce myself. I am the S.O.B. (son-of-boss) at [Marko Janitorial Supply](#) located in Spartanburg, South Carolina, USA. This is a position I have held since my father, Richard C. Meehan, started me off mowing the lawn around the parking lot in 1968 – with a sling blade. I was eight. My expertise comes from growing with the biz, so to speak.

Indoor residential concrete cleaning can be hard work, much like using a hand tool to cut the grass. There are ways to make it easier and more profitable though; but first, let's discuss Economics. With skyrocketing costs affecting every aspect of doing business, you may ask how it would be possible to profit from labor intensive, time consuming slab cleaning jobs for finicky clients, otherwise called homeowners. That's easy – Efficiency. Yes, a cleaning company must become a lean, mean, efficient cleanup machine.

Speaking of efficient machines, there are several key pieces of equipment that a pro cleaning company must have to pull off a decent job on a dirty indoor slab of concrete. The foremost of these is called a [rotary floor machine](#). It's nothing more than a heavy duty electric motor attached to a brush and a handle. This machine comes in a variety of diameters and horsepower. However, since time is money in the cleaning industry, the bigger the machine, the better. Twenty-inch diameter rotaries with one-and-a-half horses are perfect for most floor cleaning jobs, especially concrete. Typically they will spin a brush at one-hundred-seventy-five RPM's. There's enough weight – around eighty-five pounds – to give some reasonable down-pressure, enough size to cover about two thousand square feet of floor space per hour, and enough torque to prevent bogging. Don't be tempted to get a faster machine, as it will create problems on rougher surfaces, mainly due to creating excessive friction. Splashing becomes an issue with higher speeds too. [Cleaning chemicals splashed on expensive silk wallpaper is not a pretty sight. This usually instigates a lawsuit.] Since efficiency is the key to making money, the fact that this basic janitorial machine can be



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used for stripping, polishing, sanding, scrubbing, grinding, and carpet cleaning, makes it versatile and indispensable.

A rotary floor machine requires a rotary brush. Pad drivers to hold polypropylene scrubbing pads usually come with new rotaries, but most concrete surfaces will chew them up in a heartbeat. You will need a brush, maybe even a fleet of them, depending upon the variety of surfaces encountered on the job. Not just any



Rotary Scrub Pad

brush will do either. Nearly all concrete surfaces have a texture, especially decorative concrete. If there's any texture to the surface at all, a rotary scrubbing pad will simply disintegrate. Get good brushes with silicon carbide embedded in their bristles. These come in a variety of grits for a variety of purposes. You'll want to create a set of brushes to handle many different textures of concrete, from smooth to grainy. Start by obtaining a light duty 500-grit, a medium duty 180-grit, and an aggressive 80-grit brush. These brushes run about \$280 USD each. The silicon carbide in the bristles helps the brush to withstand the sanding effect that comes with scrubbing concrete. Simply put, they last far longer than no-grit brushes or pads. This saves lots of money in the long run.



500 Grit Rotary Brush

Large volumes of water, soap, and debris will be produced during most concrete cleaning jobs, so we need a machine to get all that stuff up – fast. Yes, a wet/dry [tank vacuum](#) with a hose, wand, and squeegee tool will do nicely. As was the case with the rotary floor machine, size *does* matter. Resist the urge to cut costs by going cheap here. It is imperative to choose a quality machine of the right size for slab work. Once again though, this piece to the efficiency puzzle will come in handy for virtually all other cleaning jobs. Nothing beats a stainless steel canister, crush-proof vinyl hose, and a set of metal tools. A capacity between twelve and twenty gallons will reduce the emptying cycles during the job. Remember, time is money. If a worker has to stop every two minutes to empty a little canister vacuum into a toilet somewhere at the other end of the building, the job will never get done.



Squeegee Tool

So far the equipment investment has reached about \$2000 USD. Considering that this amount can be made back on three or four jobs – spend the dough. The cheapest labor out there is around \$6 USD per hour. If it takes two people six hours instead of three to complete the job, that's \$36 USD deducted from the overall profit.



Dual Sided Deck Brush

I've said a lot about equipment and not much yet about concrete. Sorry, you'll need to be patient. The right equipment makes a thorough job; a thorough job makes a happy customer. We all want happy customers and a profit, so bear with me.

Other tools needed include a deck scrub brush on a sturdy handle, a grout brush for scrubbing out grooves, a large capacity mop bucket with wringer, a good mop capable of handling rough surfaces without falling apart, a floor squeegee, a scraper

blade with razor replacements, a couple of pumice sticks, a can of freeze-type gum and wax remover, and absorbent cloths. Why all these sundries? Have you ever been on a job and had a machine break down? Have you ever needed a tool to get in tight spaces and corners? There is *always* detail work that will have to be done. Keep those minor tools handy. Time, my friend, must be cut to increase profits – not the quality of work!



One more group of products must be secured prior to tackling an indoor slab. Because concrete can be stained, textured, sealed, polished, oiled, sanded, waxed, and soiled in virtually unlimited artistic ways, a good set of cleaning chemicals must be obtained. In general, mild cleaning agents *without* abrasives are best. Remember, you've just purchased a set of good silicon carbide scrub brushes. Overdoing abrasives is a bad idea even though it may seem the best way to get the surface clean. The rule of thumb is this: use the mildest combination of chemicals and materials that are capable of getting the job done without doing harm. Sounds like a doctor's oath, doesn't it?

Concrete is simulated stone, not stone itself, but even stone surfaces are not impervious to the myriad ways we have of messing them up in our quest to get them clean. Despite what you may have heard muriatic acid products are not "the bomb" for cleaning indoor slabs! Get pro advice from your local cleaning chemical expert before trying to get that soiled spot (as opposed to decorative stain) out of indoor concrete.

Two major groups of cleaning chemicals will become your staples for most jobs: neutral cleaners and degreasers. Use an all-purpose cleaner, commonly referred to as a neutral cleaner, for almost all indoor concrete cleaning jobs. They are safe around the house. They don't eat up a customer's possessions with vile fumes. They don't eat your flesh or the dog's feet like muriatic acid. They also will not change the surface of the concrete no matter how long they soak.

If a stronger detergent is needed, perhaps because the customer used oil-based dust mop treatments for years on end to mop the concrete (old method), choose a water-based degreaser containing either butyl or DE-limonene to scrub with. Be sure to prevent this type of product from going places beyond the slab. Some paints, varnishes, waxes, and polyurethanes don't take kindly to water-based degreasers. They can cause fogging, peeling, or bubbling if left to soak. With a little vigilance, these products make excellent indoor heavy cleaners for many tough situations. Although there are various types of decorative concrete stains, I have never seen one that can be harmed by even the harshest water-based detergent. However, that doesn't mean you can assume that the expensive simulated stone surface under your feet can't be harmed by your degreaser. Always test an out of the way spot before jumping to the middle of the highly visible portion of the floor.

Concrete is made from three components: Portland cement, water, and aggregate (rock, sand, or gravel). Portland cement is a combination of calcium, silicon, aluminum, iron and small amounts of other ingredients. Take note that calcium is usually the culprit when it comes to reactions between cleaning chemicals and a slab. If a detergent is too acidic or too basic there is a chance that the calcium in the slab will react in unpleasant ways, like changing the surface color or pitting the once-smooth finish. (Beyond the scope of this article – see next issue.)

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Finally, we have arrived at the actual cleaning of an indoor slab. For our purposes, we'll assume that we're dealing with the best acid-stained concrete with a stamped texture pattern available today, coated with the finest acrylic floor finish by the installer. If we handle this floor properly, the same procedure will apply to most other indoor concrete floors.



Image from <http://concretelife.net>

After removing all furniture in preparation to begin scrubbing with the rotary floor machine, thoroughly scan the area for goopy spots, milky areas, stains – any problem must be handled first. If the original coating is in need of replacement due to wear, incorrect cleaning methods, or other abuse, it is important to obtain the acrylic floor finish ahead of time too. Confer with the homeowner about the level of shine expected and plan for the cost. Acrylic finishes come in as many flavors as ice

cream, or so it seems. All good quality brands are expensive, in the neighborhood of \$30 USD per gallon. Always have some on hand in case a spot, or even the whole floor, requires a recoating.

Once chewing gum, grease spots, candle wax, and other surface issues have been removed using your specialty products and tools, it is time to scrub the floor. Locate a nearby water source for filling the mop bucket. Determine the best way to dispose of waste water from the tank vacuum. Move the cleaning equipment and detergent to a handy location. Visually slice the area into sections of about ten feet by ten feet, like a grid. Plan to work toward an exit from the area so you don't keep traipsing over your cleaned sections. For efficiency, two people are optimum for areas up to five thousand square feet. One runs the rotary machine; the other handles the mop, the tank vacuum, and the carting of water, both clean and dirty.

Procedure:

1. Protect your client's personal possessions by having delicate items removed from the work area.
2. Apply rolled absorbent rags or liquid-absorbing logs across doorways or areas that need protection from liquids (like carpeting next to the concrete). This is called damming. Keep a watchful eye on these and replace as needed.
3. Mix neutral cleaner (or degreaser as the job indicates) according to directions in a mop bucket of *warm* water. Using a rayon mop head (withstands rougher surfaces without fraying) apply copious amounts of liquid to the farthest grid section from the exit. Spread solution over the entire section. Don't apply so much liquid that it runs everywhere, but make sure to apply enough that it has a chance to soak five minutes without drying. If Water Person notices the area trying to dry, he or she can reapply more solution to keep wet.

4. Continue to apply cleaning solution over the next section of the grid. This allows the first section to have five minutes of soaking time. Soaking time is critical because it allows the detergent to loosen and float away ground-in debris and body oils (present everywhere humans go).
5. While Water Person is applying solution to the floor, Rotary Person should be preparing the rotary floor machine by moving it into place on the first grid section and attaching the brush. [At this point, for the purposes of this article, I must assume that a proper instruction in the use of a rotary floor scrubber and tank vacuum has already been obtained.] Remembering our rule of “do no harm,” it is best to begin scrubbing with the 500-grit light duty rotary brush. This grit will polish waxed floors to a shine, so no harm can possibly be done to a high grade acrylic concrete floor finish on a stained surface.
6. At this point, Water Person should be moving on to the third grid while Rotary Person begins the side-to-side, forward-to-back, and circular scrubbing of the first grid. All three motion styles need to be used in order to get the bristles of the brush into every dip, groove, or pit, in the slab. Now, Water Person needs to stop applying cleaning chemicals and do some detail scrubbing in corners or places the rotary machine cannot reach using the deck scrub brush. Once the detail work is complete, Water Person will either apply further solution to the floor to stay ahead of Rotary Person, or change to the tank vacuum.
7. As Rotary Person moves from the first grid to the second, Water Person begins the recovery of the soapy, dirty water from the first grid. Most likely, the large capacity tank vacuum won't need emptying for quite a while, but a watchful eye must be kept on it to insure that it does not overflow. (If a gallon of water has been applied at this point, and the tank vacuum has a twelve-gallon capacity, well, you see how to estimate when emptying will be required...)
8. By now, Rotary Person will probably be moving to the third grid section. Water Person should stop vacuuming up liquids long enough to apply cleaning solution to the next two grids. Once again, soaking time is imperative!
9. These steps will be repeated until both Persons have moved out of the exit. In general, this procedure will commence at the rate of one thousand square feet per hour. Timing depends on the team, however. Practice in advance of the job and get the timing down. Preparation ahead will tighten up the quote for the job and put more dollars in the pocket in the end. Efficiency is the key.
10. WARNINGS: Do not rush. Do not allow liquids to spread indiscriminately around someone's home. Do not attempt running large equipment in confined

areas without prior practice. Do not skip any steps. Do not walk away and leave the work area unattended once work begins. Do not assume that you know everything about how to do this type of work simply because you've been in the biz for years. And, DO NOT go in someone's home without proper liability and bonded insurance!

At this point, I will pause with Part One. The next issue of *Eclean* will have Part Two, where I will cover more details about indoor slab cleaning, especially how to quote a job like this. The teaser: refinishing indoor concrete is a snap, but other floors in the home may benefit from the same acrylic finishing. Don't lose the opportunity to make more money while you're right there. Never forget: efficiency is the key if you want to retain more profits from your hard work!