

Concrete Grinding/Polishing Procedure Cheat Sheet

(for existing concrete slabs)

Prep for Grinding

Size of Floor, which Grinder is needed?

Edges – will edging need to be done, how much, are there corners?

Condition of floor – does floor need patching, crack chasing, and will the expansion joints be filled or left open?

Determine hardness of concrete – what diamonds will I use?

Floor Cleaning – Ideally an Auto scrubber is used for in-between coat cleaning (after vacuuming)

Process of Grinding

Determine type of diamonds to be used with Moh's hardness Test. Make sure to check several areas on the floor and look for different colors in concrete. Hardness can vary greatly from slab to slab. Also check diamonds after a pass or two to determine if the concrete is too soft causing excessive wear or if the concrete is too hard and it's not grinding much at all.

Edge grinding is done alongside the main grinding at the same steps. Edge Grinder and Vacuum required. (Same vacuum can be used for both grinders if only one person is grinding) Corner grinding is achieved by using triangular Velcro pads on an oscillating tool (i.e. Fein MultiMaster).

Steps of Grinding

14 Grit: Use this grit if the concrete is extremely hard, has sealers on it, or a heavier profile for a coating is desired. Only use as the first step in polishing if absolutely necessary as it can take a lot of time to get the heavy scratches out left by 14 grit. However, if the concrete really does need 14 grit it will be faster to use 14 grit and the resulting time to remove those scratches than to go to 30 grit (for fear of the 14 grit scratches) and spend a long time on 30 Grit. If exposed aggregate is desired in polishing, time may be spent on this step depending how deep the aggregate is (varies greatly from floor to floor) If the aggregate is deep it will not be worth grinding that deep. **Running the grinder at a low RPM may increase grinding speed in the course steps** (14 and 30 Grit) by allowing the diamonds to penetrate the floor without overheating. This is most effective on soft concrete or concrete less than a year old. Experiment with speed when starting to find optimum RPM (Signs of optimum RPM are lots of dust generated, the sound of the diamonds on the floor, and quickly exposed aggregate). Above 70 Grit, full RPM is recommended.

Finish step by vacuuming floor with the concrete vacuum and wand and running the auto scrubber over entire floor (mopping and wet vac pickup is an option for smaller floors). The key is to clean up all dust and residual diamond grit that will have come off of tooling. If you do not clean up after each step, subsequent grits will create scratches as it grinds over top of residual heavier grit left on floor.

30 Grit: Use this grit for a standard concrete grind as a prep for painting, coatings or polishing. For polishing, this is usually the longest step. All of your primary grinding is finished in this step. This means you might go over the floor 2-4

times to ensure a complete grind. If trying to remove concrete to get rid of surface imperfections or to get exposed aggregate, it must be completed by the end of this step. Running the Grinder at a lower RPM can increase the grinding speed (see previous step). 70 grit and higher will not remove any more of the concrete surface, they simply remove the scratches from the previous step on your way to a polish.

Any patch/repair work to be done should be done AFTER grinding with 30 grit at least once and should be finished up with a 30 grit grind after patch work (to blend with surface). Grinding up to 30 grit once before repair work exposes any issues with the floor previously unseen (and in some cases removes some of the imperfections eliminating some repair work). Crack chasing and filling is also done now...could also be done between 30 and 70 grit.

Finish step by vacuuming floor and running the auto scrubber over entire floor.

70 Grit: This is now a double button segment and this step is usually a single pass, sometimes two passes depending on floor conditions.

Finish step by vacuuming floor and running the auto scrubber over entire floor.

120 Grit: Double button segment, typically a one pass step

Finish step by vacuuming floor and running the auto scrubber over entire floor.

50 or 100 Grit Transitions: This step drops down in grit but is a resin pad and prepares the floor to be polished. This is now a Velcro Puck that uses the Velcro pad holders on the Grinder. Position the Pucks, 3 per head, in a triangle. Approximate placement is fine.

Finish step by vacuuming floor and running the auto scrubber over entire floor.

DENSIFY: At this point apply the concrete densifier with a microfiber mop and allow to dry. (Densifier can also be applied after 200 grit if desired)

200 Grit Polishing: One pass. Very seldom do you stop at this step but you can, smooth but no shine.

Finish step by vacuuming floor and running the auto scrubber over entire floor.

400 Grit Polishing: 400 Grit Polishing step, one pass. This is often a good finish for commercial applications as it reflects light well but is not overly slippery. You can see the general fuzzy reflection of a florescent tube bulb in this finish. Often the finish of a Home Center floor.

Finish step by vacuuming floor and running the auto scrubber over entire floor.

800 Grit Polishing: One Pass. This finish has a high shine and will reflect fairly clearly a florescent tube bulb overhead. An excellent home basement, garage, showroom or other non-industrial application.

Finish step by vacuuming floor and running the auto scrubber over entire floor.

1500 Grit and above: Higher shines than 800 Grit are available, advanced notice required to get these pucks in.

Sealing: For a high gloss finish use the Ameripolish 3DSP or for a more heavy duty industrial floor use the penetrating SR-2. For a combination of properties, the SR-2 can be applied on top of the 3DSP but not vice versa. Sealers must be applied extremely light to avoid streaking. It is better to apply sealer twice than to apply too heavily. (For example, a one foot square of concrete with sealer misted onto it should be spread to cover 5 square feet) Spread around sealer with a microfiber mop (pre-wetted with sealer). Finish each application with heat/horsehair pads on the grinder to make the seal job a uniform shiny finish.

Concrete Grinding Techniques

Always go the opposite way after each complete floor grind, even if you are doing the same grit again.

One Pass is considered one trip up and back, essentially grinding the same area twice in “one pass”. When making the return trip always move the grinder over about one inch (commonly a wheel's width is used) to make sure you don't create lines on the floor. When doing another pass, always overlap passes by a few inches, the distance from the support arm to the edge of the grinder. This gives an easy visual to properly overlap.

To insure proper walking speed when grinding, reference dust lines left by grinder. These “dust lines” should be approximately half an inch apart.



On 25” Grinder, make sure the planetary is spinning, especially throughout the heavier grits. Hitting things or grinding excessive transitions can cause the planetary belt to tear. Extra belts are included and easily replaced by removing cover on bottom side of grinder between the 3 heads.

Repair work on a concrete floor

Patch Material:

Rapid Set Tru PC from CTS Cement from <http://www.ctscement.com>

Rapid Set Cement All from CTS Cement – cheaper alternative, available at Home Depot

Rapid Refloor from McGuire: <http://www.metzgermcguire.com/> Use for patching of light dimples and air bubble holes, can use trowel to apply (comes in caulk style tube)

Joint Material:

Chase Cracks with a handheld grinder or walk behind crack chaser. Go only as deep as necessary because the RS-88 joint filler is expensive.

Use a McGuire RS-88 two component heavy duty, semi-rigid polyurea joint filler. Apply, allow to dry for 15 minutes and scrape smooth to floor with a razor blade. You can put a grinder on it after at least an hour. This product is readily available at many paint stores.

To clean cracks and blemishes before applying any of the above product, use a Nyalox brush drill attachment (a plastic wire wheel equivalent) to prevent scratching the concrete surface.