

POLISHING CONCRETE- Standard Procedure

This is a GUIDE to the normal procedure involved in polishing concrete, including exposed aggregate concrete surfaces. The procedure is virtually the same with terrazzo, and other natural stone products.

Note that this is quite different to creating a polish effect by grinding and then coating concrete floors with a clear coating such as epoxy or polyurethane, these use the coating to produce the sheen.

Firstly, a very important word: - no two slabs are the same, even on the one job. Therefore you:

- Cannot predict what the slab will look like - whether the aggregate is going to be evenly exposed; or patchy, because the contractor who placed the concrete pushed it down with his boots. The great thing you can tell the customer before you quote the job is that “your slab is special; it will be totally unique to you.”
- Cannot predict how much topping will need to be ground off to expose the aggregate.
- Cannot always predict how hard the concrete will be to grind. A test patch before you quote can give you some idea both on how **hard** and how **much** may need to come off.
- How readily the surface will take on the required sheen. This can change dramatically depending on how porous the slab is due to water being added to the mix when pouring or air bubbles from not being vibrated.

TYPICAL PROCEDURE

1. The **FIRST CUT** is the grinding of the required amount off the top to expose the aggregate; some want ‘salt and pepper’ with the aggregate partially exposed, or the customer may prefer a heavy exposure. The first cut is always done in several passes and at an even speed so no part of the floor is overground and forms an ‘ocean wave’.

The first cut is done with coarse production grinding disc or tooling, 30-60mesh is common; 25 and 16mesh also is used to do the first part of the first cut.

In practice the amount that is removed is often 2- 3mm and is removed in .5mm per pass. This means that if 3mm is removed, this will be done in 6 **even** passes to ensure flatness. So to quote a six pass floor properly, you need to quote on grinding 6 times the floor area.

A shotblaster in the hands a skilled operator can drastically reduce both the cost and time to get just the top off the slab; especially if the slab is highly toweled (burnished).

2. **SECOND CUT**: Following the first cut it is best to do one thorough fine grind with 120-150mesh diamond discs to remove the all score marks from the coarser discs before you move into the polishing process. The important point here is that the phenolic polishing pads are not intended to remove score marks and wear fast on a coarse ground surface.

Guide to quoting: So far in this example you have taken 7 even passes to do the job. If you charge at \$8 per m² for a single pass grind, this job is 7 passes x \$8 per sq m = \$56:00m² for this stage. Tip: know what it costs to grind each m².

POLISHING and HARDENING STAGE

Following the First and second cut, the floor is ready for the polishing and Hardening stage. You will need to make an inspection at this point.

1. If the floor is very dense, with little or no porosity in the sand/cement matrix, then you may be best to start the polishing with 100mesh then 200 mesh Phenolic (resin bond) polishing pads. Then apply a **Colloidal Silicate Hardener** (there are many brands and usually have different names just for marketing purposes); there may be some differences in quality or concentration; this will harden the surface, and help to 'close' the surface, (some people use the term 'densify'), and help create a sheen as you move further into the polishing process. In the case of a particularly dense slab, polishing can come up well without any treatment, but usually won't be as well 'sealed'. If you apply the hardener to an already hard dense floor, it can make the initial polish slow and time consuming.
2. If the floor is porous and not really hard matrix it may be better to apply a generous application of the Colloidal Silicate Hardener before you begin the polishing process. Now do the 100 and the 200mesh polishing with the Phenolic pads.

Now that you have completed polishing to 100 then 200mesh grades you may find that this is the time to apply colloidal silicate (or another application, if you have already applied a coat before the 100mesh pads).

Now you can do the 400mesh pads, and then the 800mesh. Many guys will at this point have a pump bottle or pressure garden sprayer with them while polishing while doing the 800mesh process (and finer grades) and spray a small amount of hardener on the surface as they go. This wetted surface helps to further close over the surface and develop the sheen.

With 800mesh, you should have a nice '60-70%' sheen, and if you need/want to go further, the 1500mesh and BUFF grades will give exceptional levels of sheen.

Note: These Colloidal Silicates are available with additives that create a sealer within the surface that further helps stains from penetrating the floor.

Guide to QUOTING

As a guide, the various steps from 100, 200, 400, 800, 1500 and then 'Buff' to produce the polished finish will take at **least** as long as each pass with the first cut grind.

This means that there are 4 x the time to polish the floor to 800mesh grade, and six times the time to get to 'BUFF'. This is where most contractors come unstuck; they forget to allow for every step.

Interesting SALES point: Polished concrete is very good value for money; if you charge \$120 to \$160 per m² this not a lot different to a good quality vinyl, including cost of laying. The difference is that it last forever, it is easy to maintain, looks great and it is unique to the customer, 'no-one else in the world has got a floor precisely the same as you.'