How to get the best polished concrete floor

The complete step-by-step floor polishing guide to achieve a full gloss 3000# finish

Modern, durable and stylish, polished concrete floors are also one of the most eco-friendly flooring options available today. When correctly done, polished concrete floors can enhance the value of both domestic and commercial buildings.

To achieve the best polished concrete floor, your tools, tips and techniques need to be first class. The All Preparation Equipment team have put together this step-by-step guide to help you get the best result from your concrete floor polishing project.

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The number one thing you must do before attempting a full 3000# polish is to **choose a quality built planetary concrete grinder.** These machines will flatten, hone and level the concrete floor, and give you a much higher gloss finish thanks to their planetary grinding action.

With a reputation built on over 80 years of designing and manufacturing grinders (and from feedback from our happy customers!) the king of planetary concrete grinders is undoubtedly Schwamborn. Made in Germany, Schwamborn concrete grinders feature the knock-on diamond grinding shoe system, variable speeds, and water tanks – all of which give you the edge before you even start the job.

Before you start grinding, check the surface carefully for any defects, including cracks, honeycombing, or pinholes. Any minor defects will be taken care of curing the grouting process; but if you spot any significant damage, you’ll need to rectify it with high quality repair mortar before going any further.

**APE’S TOP TIPS**

- **Wear the right PPE** (Personal Protective Equipment) at all times whilst working. Breathing in concrete dust is harmful. Use a dust mask, ear protection, foot, hand and eye protection while grinding.
- **Take care to keep the grinder flat.** If you hold it on an edge you’ll create gouges in the concrete surface which will be very difficult to remove.
- **Be careful not to over-grind the edge** as it is often easier to grind than the centre of the slab.
- **If the concrete is a new or freshly poured slab,** you may risk pulling out the aggregate prior to proper curing.
- **Make sure you let the grinder do the work,** rather than your body weight. That’s because pushing too hard can create a 3-4mm deep ‘gutter’ around the edge of the grinding area – which will be a big problem to contend with later.
**STEP 2**

**BEGIN GRINDING ‘EAST TO WEST’**

Using a walk-behind Schwamborn planetary concrete grinder with medium bond 30/40# diamond tools, start grinding the main surface area. Start at one side and grind ‘east to west’ across the entire floor, overlapping each grinding pass by about 1.4 of the machine width. Make sure you grind as close as possible to the previously ground edge areas, overlapping the grinding marks with the walk-behind grinder.

Set your variable speed grinder at about half speed for this stage.

**STEP 3**

**CONTINUE GRINDING ‘NORTH TO SOUTH’**

Once you’ve completed the ‘east to west’ grinding, it’s time to change directions and move to a ‘north to south’ pattern, again taking care to slightly overlap with each pass and grind right up to the hand-ground edge areas.

Repeat this grinding process until you’ve exposed the desired amount of concrete aggregate. It’s important to note that this stage is where the finished ‘look’ is determined. The next steps won’t remove as much material or expose more aggregate – so if you decide you’d like to see more aggregate in the finished polished floor, go back and repeat steps 2 and 3 until you get the look you want.

**APE’S TOP TIPS**

- **Use a slight swinging motion** as you move forward with the walk-behind concrete grinder, and grind as close as you can to the hand-ground edges to blend these areas together.

- **Modify your pace** depending on the concrete surface you’re dealing with. You’ll know your pace is right if your grinder leaves a solid grind, without obvious swirl patterns in the concrete. If swirls are present, it’s a sure sign you need to slow down.

- **Switch to a softer diamond bond** of the same grit if you notice you’re suddenly not grinding as effectively as you were. This can happen as you uncover harder concrete once the softer top layer has been removed.

- **Vacuum up residual concrete dust** if it starts to cause problems. You’re removing a lot of concrete – and it has to go somewhere. Take a break from grinding and tidy up the area if necessary. Often a squeegee is used to push excess dust into a pile for collection.
STEP 4
CHECK YOUR AGGREGATE EXPOSURE

Once you feel you’ve exposed the right amount of aggregate, switch off your grinder and do a thorough vacuum of the floor area. This will let you get a clear look at the exposed aggregate as well as any imperfections in the concrete floor.

If you’re satisfied with the aggregate exposure, move on to step 5. If you want to expose more aggregate, go back and repeat steps 2 and 3.

STEP 5
REMOVE SCRATCH MARKS FROM THE FLOOR EDGES

Going back to your hand-held grinder or Schwamborn DSM250 edge grinder, replace the 30/40# diamond disc with a medium bond 60/80# diamond disc. Regrind the perimeter per step 1 above.

APE’S TOP TIP

- Take care to grind as close as you can to the edges of the concrete floor. After this stage, the initial 30/40# scratches should be removed and only very fine scratches should be visible in the edge areas.
STEP 6
REMOVE SCRATCH MARKS FROM THE MAIN FLOOR AREA

Just as you’ve done with the edge areas, it’s now time to replace the tooling on the walk-behind floor grinder with 60/80# diamond tooling. Use the same technique described in steps 2 and 3 above, grind ‘east to west’ and then ‘north to south’.

APE’S TOP TIPS

- After you’ve completed this stage’s ‘east to west’ and ‘north to south’ passes, the initial scratch marks from the 30/40# should be gone. If you can still see significant scratches, repeat step 6 until they are thoroughly removed.
- It’s a good idea to vacuum the area at this point to get a clear look and check for scratches.
- Take care when removing diamond tooling as they may be very hot!

STEP 7
FURTHER GRINDING AND CHECKING FOR DEFECTS

With the walk-behind grinder, change to 120# diamond tooling and repeat steps 2 and 3 once more. Then, carry out a detailed vacuum to remove all dust and get a clear view of your work so far.

APE’S TOP TIP

- If you do notice that extensive repairs are needed, make sure you stick to the product instructions for your chosen repair material. You may wish to perform the grouting step first, as this is often enough to fill up the small divots, pinholes or cracks (known as defects) in the concrete.
STEP 8
GROUTING THE FLOOR

Once any necessary repairs have been completed, and the repair material has thoroughly cured, it’s time to begin grouting the concrete floor. Liquid grout can be an effective way to fill any defects where small pieces of aggregate have been pulled out during the grinding process.

Make sure you only do small areas at a time. It’s important to work out how many m² you have the manpower to grout at a time, before it sets ‘off’ on the surface.

With a small portable hand pump, spray about a 5-10m² area with the liquid grout. You may also use a microfiber mop or soft broom for the application. Next, using the medium bond 120# with your walk-behind grinder, grind over the sprayed area. Keep the variable speed control at about halfway, but reduce speed if the surface has extensive defects.

Depending on the type of grout you’re using, you may wish to hydrate the floor first to prevent the grout soaking in below the surface. Often there’s no need to use the vacuum during this stage, as you want the small amount of dust created to mix with the liquid grout, to form a paste which will fill small defects. Grind over the concrete floor until this paste turns back to concrete dust.

APE’S TOP TIPS

• Make sure you only work on about 5-10m² at a time. Trying to work on a larger area will result in the liquid grout hardening – which will mean re-doing your careful grinding work! Larger grinders will cover larger areas – so assess your ability first!

• You may find you need extra applications of grout to fully plug all defects. If you find that defects are still visible after 3 grout applications, it’s time to use a repair mortar instead.

• Thoroughly wash your equipment before the grout sets hard as a paste.

• After grouting, give the floor area a light vacuum to remove any excess grout or concrete dust.
STEP 9
APPLY CONCRETE DENSIFIER

The next stage is applying a chemical treatment called densifier to the concrete floor area, to harden the newly exposed surface. Densifiers penetrate into the substrate of the concrete floor to dramatically harden the top 2-5mm.

It’s a great idea to discuss the best type of densifier for your specific project with the polishing team at All Preparation Equipment.

Spray the entire floor area with densifier using a knapsack sprayer, then leave it to cure for about 6-12 hours. Once fully cured, use the walk-behind grinder with 120# diamonds to grind away the ‘skin’ of excess densifier that forms. One pass is generally sufficient.

APE’S TOP TIPS

• **Densifier curing time will vary** depending on the weather conditions where you’re working – generally the hotter the temperature, the faster the densifier will cure.

• For this reason, it’s a good idea to **do your densifying the last thing in the evening** before knocking off work. This will let the densifier chemical cure overnight when temperatures are generally lower.

• **Don’t leave the densifier to cure** for longer than 12 hours, because the ‘skin’ that forms can become difficult to remove and may need re-grinding.

• **Take care to remove all densifier** from the top layer of concrete, because if left in place it can become tacky and can’t be polished.

• It’s a good idea to **run your potassium densifier first** before doing lick coats with your lithium blend. This not only enhances your surface, but will also save you money.

STEP 10
BEGIN POLISHING YOUR CONCRETE FLOOR

Once you’ve removed the densifier, it’s time to begin polishing the concrete! Most hand-held AND walk-behind grinders will need a special adaptor such as a flexible Velcro pad for this stage.

Because we’re entering the final stages of achieving a beautifully polished concrete floor, it’s important to remember to be consistent and methodical in your approach.
STEP 11
POLISH WITH 100# RESIN PADS

Using a 100# resin pad on your hand grinder or Schwamborn edging grinder, complete your edging process as you did in step 1. It’s often a good practice to add a ‘lick coat’ of densifier and work it in with your grinding machine at this stage.

Then, with 100# resin pads on your walk-behind grinder, move over the floor area in one direction (i.e., east to west OR north to south). While there’s no harm in also grinding in the opposite direction, there’s really no need if you’ve completed all the previous steps correctly.

STEP 12
MOVE ON TO 200# RESIN PADS

With a 200# resin pad on your hand grinder or Schwamborn edging grinder, complete the edging process again as per step 1. Once more, adding a ‘lick coat’ of densifier and working it in with your grinding machine can be a good idea at this step.

Then move on to your walk-behind grinder with 200# resin pads, and move over the floor in the opposite direction to the one you used in step 11. Note that you should increase your variable speed to about ¾ to full speed for this stage.

STEP 13
SWITCH TO 400# RESIN PADS

Once again, use a 400# resin pad on your hand grinder or Schwamborn edging grinder to complete the edging process as you did in step 1. Depending on the penetration from the previous ‘lick coat’, it may not be necessary to do another ‘lick’ of densifier here.

Move on once more to your walk-behind grinder using 400# resin pads, and grind over the floor in the opposite direction to step 12. Keep the same variable speed of ¾ to full speed as you did in step 12. The lick coats that you apply with lithium will help bring up the sheen level in your floor faster.

STEP 14
MOVE ON TO 800# RESIN PADS

Attach a 800# resin pad on your hand grinder or Schwamborn edging grinder and complete the edging process just as you did in step 1.

Then go back to your walk-behind grinder using 800# resin pads, and grind over the floor in the opposite direction to step 13. Increase your variable speed to maximum for this step. If your grinder features adjustable weights, remove the weight off the grinding head as much as possible.
**STEP 15**
**SWITCH TO 1500# RESIN PADS**

Using a 1500# resin pad on your hand grinder or Schwamborn edging grinder, complete your edging process as you did in step 1. Then use 1500# resin pads on your walk-behind grinder to move over the floor area in the opposite direction to step 14. **Keep the variable speed at maximum,** and ensure **weights stay off** the grinder head.

**STEP 16**
**COMPLETE THE POLISHING JOB WITH 3000# RESIN PADS**

The final step of the concrete polishing process! Attach a 3000# resin pad to your hand grinder or Schwamborn edging grinder and complete your edging process as per step 1. Then move on to your walk-behind grinder with 3000# resin pads, and do a final grind over the floor in two directions (north to south AND east to west). Maintain **maximum variable speed** and **keep the weights off** the grinder head.

If you’ve completed all steps correctly, your concrete floor should now be extremely glossy, with all scratches successfully removed.
**STEP 17**

**ENJOY YOUR BEAUTIFUL NEW POLISHED CONCRETE FLOOR**

Good job! You’ve successfully created a high gloss polished concrete floor. It’s time to celebrate with a cold beverage of your choice.

**STEP 18**

**TAKE PHOTOS OF THE FLOOR TO IMPRESS YOUR NEXT CUSTOMER**

Not everyone can create a high quality polished concrete floor like you just have. So remember to keep a record of your good work by taking photos of the finished product for your portfolio or sales brochure. You never know what extra business it could bring!

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**APE’S TOP TIPS**

- A good habit to get into is **vacuuming or washing the floor between grinding and applying densifier**. If not cleaned, the densifier can lock dust in and create a cloudy look. This way, the floor area stays very clean and there’s little chance of scratching your beautifully polished floor with stray dust or grit.

- **For extra sheen**, buff the finished polished concrete floor with a high speed burnishing machine and buffing pad.

- **Consider using a chemical “stain guard”** on the polished concrete floor. While this won’t completely stop staining, it can increase the time it takes for any spilled material to penetrate into the concrete.

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