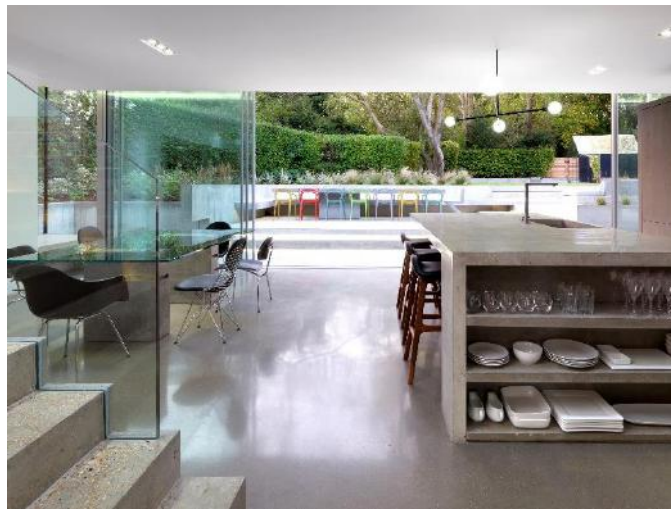


Taking a shine to concrete

Concrete doesn't have to be dull. Polishing laitance or to expose the aggregate is extremely popular for Industrial, Commercial and Residential projects.



Polished concrete is considered a good sustainable design flooring option because it makes use of the materials already present. Most modern buildings are built on a concrete slab; polishing the exposed concrete eliminates the energy and material consumed by applying a floor covering. It is something to consider when building or modernising towards a more “green” solution.

A laitance polish is where only the very thin top layer is polished to a finish. It is carried out with the use of resin diamonds or a very fine and gentle pass with metals first, so as to not expose any aggregate. The importance of a good initial install is critical, as this method is only polishing the top layer and will not level out a badly laid, uneven surface. A minimal amount of material is removed. This gives a deep cloudy look with plenty of character.

An exposed aggregate polish is where the cement, sand and stone in concrete can be ground and polished to a terrazzo type finish, with its composition naturally dictating the finished result.

When new concrete is laid, colouring agents and coloured aggregate can also be incorporated into the mix to produce a decorative effect. It is important that the concrete is laid in a uniform manner to produce a consistent finish. Exposed aggregate polished concrete is produced by removing the top surface laitance and grinding down to the centre of the first layer of aggregate then polishing to the degree of shine required.



When the concrete floor is old, uneven or covered, it isn't ready to simply start the polishing process, another preparation method may be needed first. It is important to note that grinding will not level out a badly laid uneven surface and will skip over any low spots. Before considering concrete polishing, it needs to be established if the surface is cracked or has evident defects and what type of aggregate it is; its size, colour mix and percentage.

For shining concrete, The Preparation Group recommends the Terrco® Multi-head Grinding and Polishing system. Terrco® are U.S. experts and provide the most robust, efficient grinding and polishing equipment on the market today, equipment that produces precise, uniform floors, fast. The benefit of using a multi-head grinder is that

the configuration of the heads provides a more efficient operation, with greater surface coverage for high production rates with minimal effort.



Terrco® machines can be used for wet or dry grinding and polishing. Wet grinding extends the life of the diamond (but creates slurry that must be collected and disposed of carefully by using an industrial vacuum with dry/wet capability such as the M450.) Dry grinding is a cleaner process, with the machine connected to an Industrial Vacuum or Filtration Unit.

After completing the grinding process and in the early resin stage of the polishing, a chemical hardener or densifier can be applied. The timing of this depends on the composition of the concrete. The densifier bonds the surface, provides extra protection from contaminant penetration and produces a better polish. It reacts with the calcium hydroxide in the concrete to form a hard, crystalline structure. It is essential that the last grind prior to applying the densifier is scratch free, as the resulting hardened surface makes removing scratches much more time consuming.

In simple terms, the process of polishing concrete is similar to sanding wood. Heavy-duty polishing machines are used to gradually grind down surfaces to the desired degree of shine and smoothness. The closest equivalent example would be polished granite or marble.

Grinding & Polishing - Diamonds and Stages

	Stage	Diamonds			Production rate	Diamond life
		Grade	Bond			
Grinding	1		30-40 grit	Metal	Up to 120m ² /hr	Up to 2000m ²
	2		60-80 grit	Metal	Up to 150m ² /hr	Up to 3500m ²
Polishing	3		50 grit	Resin	Up to 200m ² /hr	Up to 1200m ²
	4	Apply densifier – Only if surface is free from scratches				
	5		100 grit	Resin	Up to 250m ² /hr	Up to 1600m ²
	6	Apply water vapor to mist surface				
	7		100 grit	Resin	Up to 250m ² /hr	Up to 1600m ²
	8		200 grit	Resin	Up to 300m ² /hr	Up to 2000m ²
	9		400 grit	Resin	Up to 300m ² /hr	Up to 2000m ²
	10	Option to apply sealer				

When the polishing process is complete, the only maintenance required is cleaning using a diamond impregnated pad such as Storm Diamond Pads and water, suitable for all Rotary Scrubber Dryers.