



ABN 73 606 37 99 44

13 Duke Street, Paralowie, SA, 5108

Mob: 0438 100 750

Minimal Exposure Polished Concrete

“Salt and Pepper”

There are a number of factors to consider when desiring a ‘salt and pepper’ exposure of aggregate within a polished concrete floor.

Most people obviously want a high quality product for the price they pay for their polished concrete. The first step in ensuring a great outcome is to consider the strength of the concrete being polished. The optimal strength of concrete being considered for polishing is 32mpa (megapascals). A megapascal is a pressure measurement unit which is derived from measuring pressure and stress in a substance. A concrete floor with a higher pressure and stress rating will naturally be denser in composition which will ultimately result in a better polished concrete finish. This is true of any exposure level when it comes to polished concrete, but it is **IMPERATIVE** for excellent results when seeking a salt and pepper finish. A salt and pepper finish will be even better on a 40mpa concrete substrate but a 32mpa rated concrete substrate is of a high enough standard. If the strength of the concrete substrate begins to drop to 25mpa or even 20mpa, the standard of the polished concrete begins to decline because the density of the concrete is not present to produce a consistent result. As the strength of the concrete declines, it becomes less resistant to the abrasion processes of concrete polishing which results in a more pronounced exposure of aggregates than what people who are seeking a salt and pepper finish are happy with. Concrete substrates with less density are also more porous in composition which also impacts on the end result of the polishing process.

The second step to consider is the manner and method in which the concrete is being installed. Concrete is installed as per normal; the formwork is erected, the

concrete truck delivers the concrete and the concrete workers install and screed the concrete. The key to delivering a substrate that is adequate for an optimal salt and pepper polished finish is how well the concrete workers finish the concrete installation.

There are basically three layers to concrete once it has been installed:

1. Cream Polished or Surface Cream: The top layer of the concrete is made from trowelled cement paste that contains the cement fines of the mix. Only 0.4 to 0.8 mm is removed from the slab surface, resulting in little or no aggregate exposure. The cream is the purest, most consistent in color, and has the fewest imperfections providing the concrete has been finished well.

2. Salt and Pepper: The layer just below the cream made from fine aggregate – sand and very small stone that gives the concrete a “salt and pepper” look. To achieve this look, 0.4 to 2.0 mm of the cream is removed by grinding the surface, exposing small amounts of fine aggregate randomly scattered throughout.

3. Exposed Aggregate: The layer below the cream and salt and pepper made from coarse aggregate within the concrete mix. To reach this layer, 3.0 to 5.0 mm is ground from the surface, removing the top two layers. Coarse aggregate comes in three sizes: small, medium and large.

In preparation for a salt and pepper floor the concrete workers need to ‘agitate’ the surface more with their screed poles. This pushes the coarse aggregates in the concrete mix below the precipitating two layers of the cream and the fines. Once they have done this adequately, they then proceed to screed off the surface of the concrete as per normal.

It is also the concrete workers responsibility to ensure the surface of the concrete is finished as flat as possible. **Any undulations, imperfections and inconsistencies within the concrete floor will always remain in a salt and pepper polished floor as the concrete grinder/polisher cannot cut any deeper than 0.4 to 2.0mm when seeking a salt and pepper finish.** Cutting deeper will result in the exposure of more and more coarse aggregate.

The concrete worker should also burnish the concrete floor with trowels and concrete burnishing copters to produce a hard and seamless surface. Burnishing the concrete after it has been agitated and screeded flat has a threefold purpose:

1. It traps the fines of the concrete into the surface which is optimal for the salt and pepper finish;
2. It hardens the surface of the concrete which is ideal for the light grinding of the concrete to produce the desired result and;

3. It also creates a denser surface that ultimately produces a better polished concrete floor.

The last thing to consider in preparing a polished concrete floor is the cure time of the concrete. Once the concrete has been installed and adequately finished, it should be left to 'cure' for a minimum of 7 days before any concrete grinding/polishing takes place.

Curing is the process in which the concrete is protected from loss of moisture and kept within a reasonable temperature range. The result of this process is increased strength and decreased permeability. Curing is also a key player in mitigating cracks in the concrete, which severely impacts durability.

Concrete actually takes up to one month for the initial curing to be complete and can take up to two years for curing to be totally complete.

If moisture escapes too quickly from a concrete substrate while the chemical reactions within the concrete are taking place, surface and movement cracks usually result. The best way to minimise this risk is to apply a chemical curing compound soon after the concrete is installed. A curing compound knits together on the surface of the concrete and acts like a sheet to trap moisture in the concrete substrate keeping the concrete moist for longer. It is recommended that a curing compound be used in preparation for a salt and pepper floor as opposed to covering the concrete with plastic. The reason for this is that plastic can leave patterns on the concrete surface where it has been laying. This is a common occurrence when the concrete is still somewhat soft. These patterns left by the imprint of the plastic can also seep into the substrate to varying degrees leaving patterns in the floor that cannot be removed from a minimal exposure process. It should also be noted that the person doing the curing needs to be extra careful that the concrete is set enough before walking on it as footprints can leave a permanent marker in minimally exposed floors as well.

If these steps are completed adequately, the concrete will have the best possible chance of being an excellent product and the polishing product will also be amazing.