Spec Floors
Spectacular Concrete Finishes
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CONCRETE FLOORING
GUIDELINES FOR NEW SLABS

These guidelines have been developed from the experience we at Spec Floors have with concrete. These guidelines must be followed to ensure we can deliver our clients the best results possible for their desired flooring system.

1. CONCRETE WILL CRACK – To reduce the amount of cracking the following options are available:
   - Addition of extra steel – standard mesh as per BCA may be enhanced with heavier and additional steel
   - Increasing the strength (mpa) of the concrete – This method will also enhance the shine for polished concrete and strengthens the colours of cement if added. It will also speed up the curing period. We recommend pouring at 32 mpa.
   - Sound base for slab whether suspended or not (additional supports, compact fill) – correct site preparation and cooler weather will help reduce cracking.
   - Timing, (Early morning pours preferable due to reduced work time with MPA)
   - Job Planning taking weather forecasts into consideration
   - Key areas include internal corners and along beams and piers (strip piers will dry at different rates to the remainder of the slab and will cause shrinkage cracking)
2. Minimal or no use of retarders is required, in particular the paint on products which will cause additional removal costs and may have adverse reactions with our hardening and polishing chemicals.
3. Waste water pipes must be left protruding from the slab as we cut them off level with the slab during the polishing process. If pipes are not to be cut off they must be marked clearly.
4. Shower recesses only require a 5mm fall. To achieve this set the floor drain 5mm below floor height and for full exposure floor finishes finish concrete 3 – 4 mm above floor drain ensure cement is worked around drain to ensure tight encased drain.
5. Floor heating and other wires protruding from the concrete must have conduit to protect them from being cut off and be clearly marked. Hydronic floor heating requires a layer of mesh over the hydronic system and concrete needs to be 30mm above that. After we grind it will then give the required depth of 25mm for the hydronics.
6. The addition of extra aggregate and or oxides will change the appearance of the floor with a large variety of options available. Examples of aggregate options include, but are not limited to: standard quarry mix, Blue metal, Tarrawingee stone and Myrtleford stone. You may choose from different grades or sizes of aggregate – 7mm, 10mm or 20mm. Any aggregate, oxide, casting or colour choices need to be discussed with the concreter as they will be responsible for the supply and poring of the slab.
7. As a guideline aggregate has an MPA of approximately 180. Standard concrete has an MPA of 25. Therefore, polished concrete with the addition of hardeners improves the cement MPA by 3 - 4 time times to 75 – 100 MPA. The result is a much harder floor surface than standard concrete and a more decorative finish. Note: hardeners are only used during the Hiperfloor polished concrete process and burnished acrylic process – not coating systems.
8. As a guideline if poured correctly, full exposure polished concrete floors will have approx. 4mm – 5mm removed from the concrete surface. This should be allowed for in set downs to adjoining floor coverings to ensure an even, flat floor upon completion. (i.e. 4mm polished concrete plus 11mm tile plus glue = 15mm set down to adjoining floor). Equally if poured correctly, zero exposure floors have only the very top 1mm removed in the polishing process. Adjoining floor set downs should also be considered to avoid floor height variations upon completion.

INSTALLATION OF THE CONCRETE

Ultimately we are seeking a flat concrete finish with minimal air pockets and even distribution of aggregate. The following points will assist towards the achievement of these key points:

1. When pouring inside brick work the use of neoprene foam to raise the height of the actual slab by approximately 5mm above the brickwork avoids damage and allows for simpler troweling and grinding.
2. The slab, when being poured for an exposed polished concrete finish, should be done as per exposed aggregate – poured, vibrated and screeded as you go. Footprints must be filled with concrete not slurry - this eliminates footprints (areas with no aggregate showing) in the finished floor.
3. Tolerances for finished surfaces shall not exceed
    - For any 3 metre length: + / - 3mm (not more than 3mm below a 3000mm straightedge)
    - For any 1 metre length: + / - 2mm (not more than 2mm below a 1000mm straightedge)
    - For any 300mm length: + / - 1mm (not more than 1mm below a 300mm straightedge)
4. Any exposed edges should be finished with an edging trowel (push in not down) ensuring above tolerances are maintained, edge shrinkage is usually apparent.
5. Any edges to brick or c section should be finished proud of edge, the setting of melamine with silicon will assist practically with C section.
6. Troweling the surface using hand or mechanical (helicopter) trowel will reduce the size of air pockets and ensure a flat finish. A second helicopter troweling to achieve burnished finish will also disperse additional air pockets and seal off the top of the slab. This will also help with moisture retention and therefore slow the initial curing down and therefore reduce surface cracking.
7. The slab, when being poured for a zero exposure polished concrete finish should (in addition to the above points) be panned to eliminate as many surface imperfections as possible, increase surface flatness and increase the amount of slurry at the slab surface.
8. Floor drains need to be set up with absolute minimal fall and not deeply dished as per normal practices. (Approx. 5mm over 1m.) See above details for shower recesses/floor drain set out practice.
9. For full exposure floors - If you decide to do casting or seeding of aggregate, stone or other objects (i.e. glass) into the top layer of concrete instead of including them in the whole concrete mix it needs to be done after the screed and before bull floating and troweling.

CURE PERIODS

After years of experience and dedication to the concrete polishing industry we have found that to achieve a premium finish with exposed polished concrete a 2- 3 week cure period is required before any building work, including framing, commences*. Spec Floors will only commence grinding work after this cure period. We do this for a number of reasons:

- 2-3 weeks allows for the optimal concrete density to be achieved,
- 2-3 weeks ensures grouting systems will be effective**
- 2-3 weeks ensures the chemical reaction with the densifier to be achieved effectively

Grinding before sufficient cure can result in substantial stone loss and an inferior finish.

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* Zero exposure polishing or coating systems are completed as a single stage and therefore done after building has commenced. Please see process information on the flooring system chosen for more details.

** Grouting systems are not practical with zero exposure concrete floors. Any surface imperfections such as cracks, pitting and air holes will be visible after polishing. If grouting is required there is a high chance of exposing aggregate and considerable extra cost will be incurred.

GLOSSARY OF POLISHED CONCRETE TERMINOLOGY

Exposure: the amount of aggregate that is revealed from the concrete polishing or coating process

Casting/Seeding: the process of manually adding by hand products into the concrete surface during the pour process

MPA: Strength/hardness rating of concrete

Grouting: A step in exposed concrete polishing or coating systems which uses machines to fill small cracks and imperfections to flatten the surface and enhance floor appearance.