6142 DPC - DIAMOND POLISHED CONCRETE

1. General

This section relates to the highest quality concrete finish for new and existing concrete surface. DPC is suitable for standard concrete and designed aggregate and solid additive mixes (glass, crushed shell, stainless steel etc).

1.2 Documents Referred To

Documents referred to in this section are:
NZS 3114 Specification for concrete surface finishes

1.3 Provide sample

Where a special aggregate mix is to be used, it is recommended that a sample be made with the specified blend, allowed to cure for 14 – 28 days and be Diamond Polished to the desired finish for approval prior to pouring the slab.
In all other cases, a small section of the slab (possibly an area that will be later covered) can be ground and polished to the desired finish for approval.

1.4 Variables – how to specify finish.

Gloss Level should be specified by final diamond polishing grit size. Ultra matt finish - **200** Grit, Matt finish - **400** Grit, Semi gloss finish – **800** Grit, Gloss finish – **3000** Grit. *Higher gloss levels are achieved by progressively diamond polishing the floor with finer resin bonded diamonds.*

Depth of Grinding should be specified as **L**, **M** or **H**. A **L**ight grind is 1-2mm, **M**edium grind is 3-4mm and a **H**eavy grind is 5-6mm surface removal. *The deeper the grind, the larger the aggregate chips that are revealed, and the more consistent the scattering of aggregate.*

A sample specification– DPC-800M *(diamond polished concrete, 800 grit semi gloss, medium depth grind 3-4mm)*

2. Products

2.1 Penetrating sealer/densifier

Creteshield 101 or Creteshield DN should be applied after metal bonded diamond grinding is finished. i.e after 120 diamond grinding.

Creteshield 101 should be used if Creteshield SR (stain resistor) is not going to be applied to the finished floor. Creteshield DN can be applied if the floor will be finished with Creteshield SR.
Supplier – Concrete Care Ltd – 0800 733 566 – www.concretecare.co.nz

2.2 Slurry

A slurry coat may need to be trowelled over the surface to fill excessive aeration of the concrete. Slurry can be made with clean grinding dust, Portland cement and Lokcote/Cemkey. This is applied after 60-70 grit or 100-120 grit grinding.

2.3 Grout

All saw cuts should be filled with a Ardex A46 before any grinding takes place. This will help prevent the edges collapsing and aggregate pulling out.
Supplier – Flooring Wholesale Ltd – 09 525 0652

2.4 Creteshield SR

Creteshield SR is a surface stain resistor and polish. It helps prevent staining agents from effecting the concrete and also increases slip resistance. Creteshield SR is applied after the floor is buffed and has a final vacuum.
Supplier – Concrete Care Ltd – 0800 733 566 – www.concretecare.co.nz

3 Execution

3.1 Concrete specification/finishing

Concrete should be at least 22.5 MPa.
Concrete should be finished to a U3 (NZS 3114). Care should be taken to make sure the slab is as flat as possible. Screeds must not be left sitting on the surface while the concrete is wet, this will push aggregate below grinding depth and leave "bald" lines in the floor.
Polishing Contractor should inspect floor and advise on suitability for Diamond Polishing.

3.2 Protection

Any delicate surface should be protected from concrete dust, or slurry if wet grinding is undertaken. All electronic devices should be removed or covered, bench tops etc should be covered with drop cloths. Zipwall dust barrier system should be used to prevent dust transfer to other areas of the site. Zipwall available from www.gotitonline.co.nz
If the site has lots of clay, it is advisable to cover the clay with sand to help prevent transfer and staining of the concrete.

All sub contractors should be advised that the concrete is to be the finished floor and care is required.

3.3 New construction

For new construction the fist stage of grinding should be completed 7-10 days after the slab is poured. This will allow the concrete to cure, but still be soft enough to easily remove the surface and expose the aggregate (if desired). This usually happens before any framing is started. The coarse grinding (metal bonded) is done at this stage.

3.4 After close in

For existing dwellings – first stage of grinding should be undertaken when the building is as bare as possible, preferably without wall linings. If wall linings are left in place and skirting boards are not removed, expect dull edges. Existing building can be completed in one stage.

New buildings – Stage two should take place after the roof is on, walls are up but not lined, external cladding is on, joinery is in. At this stage concrete slurry coated if required and ground off. Floor is densified with Creteshield 101 or DN. Diamond polishing is undertaken to desired gloss level.
Floor should be covered with 250 Micron Polythene – can be stapled to framing.

3.5 Finishing

Once building is completed (plastering, painting etc), except for other floor coverings and fittings, polythene can be removed by running a sharp knife around the skirting boards. The floor is then buffed and vacuumed, Creteshield SR now applied with polish spreader or micro fibre mop.
Floor may need to be buffed one more time.

3.6 Clean up

Remove all waste from site.

10 Preferred Supplier

Concrete Care Ltd
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N.B this is not an official masterspec specification, but rather a clarification of Spec 6141.
Can be downloaded from www.concretecare.co.nz – free for distribution and use.