

Surface Finishes

Published Date: 03/07/2009

Surface finishes should not be confused with surface uniformity. Finishes are an intended quality, either by default or by taking deliberate measures to achieve a visual appearance, whereas surface uniformity is a physical quality, generally of evenness.

The sector of precast where surface finish is most important is that of Architectural concrete, such as external cladding, columns etc.

The most common methods of achieving finishes are given in "BS EN 14992:2007 – Precast Concrete Products. Wall elements" and the classifications are summarised below.

Surface finishes may be created at four stages of manufacture:

1. Before casting
2. Before demoulding
3. After demoulding (before surface hardening)
4. After demoulding (after surface hardening)

Before casting:

- 1a. Profiled from the mould
- 1b. Profiled/patterned from a lining in the mould
- 1c. Cast-on finishes (e.g. brick, natural stone, reconstituted stone, tiles etc)
- 1d. Use of retarders to achieve finish (see item n)

Before demoulding:

The finish of the top surface is achieved by action on the exposed surface of the concrete after casting but while still in the mould.

- 2a. Trowelled – smooth or profiled
- 2b. Floated
- 2c. Tamped with a straight edge
- 2d. Brushed to give a rough surface
- 2e. Profiled with a roller

After demoulding (before surface hardening)

The finish is achieved while the concrete is partially hardened

- 3a. Water wash-off to expose aggregates (usually in conjunction with a retarder)

Surface Finishes

Published Date: 03/07/2009

After demoulding (after surface hardening)

The degree of hardening will have an effect on the efficiency of certain treatments.

- 4a. Before castinAcid etching to remove surface (this may be of differing intensity/depth)
- 4b. Sand or shot blasting
- 4c. Grinding to give a rough surface
- 4d. Hand polishing (rubbing) or mechanical polishing with a disc
- 4e. Tooling (may be with bush hammer, chisel or point)
- 4f. Flamed

It is also possible to apply decorative finishes such as paint, and hand set stone (fixed on site).

Most, if not all, of the treatments are highly skilled operations, which should only be entrusted to precasters with a proven track record. As they are physical actions that remove or change the surface of the concrete it must be remembered that they are one-way actions. Eg. if acid etching is 'overdone', it is not possible to undo it.

Surface finishes are not easy to illustrate, but the following are examples of what may be achieved.



Project in Nottingham using a form liner to replicate lace. The image covers an area of concrete approx 300mm x 150mm. (Photo: Trent Concrete Ltd)



Project in Swansea using a cast-on finish of natural slate, and project in Manchester using brick
(Photo: Trent Concrete Ltd)