

**CONCRETE  
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# **Concrete surfaces for painting**

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# CONCRETE SURFACES FOR PAINTING

## 1. Introduction

The number of enquiries relating to the problems of preparing or producing a concrete surface suitable for painting appears to be increasing. This is a particularly difficult problem when the end result is required to look like a painted plaster. Most specifications seem to call for 'a made-good concrete finish'. After the concrete has been painted the results are often disappointing and arguments arise between the parties involved as to why these problems have arisen and whose fault they are.

## 2. General requirements and problems

Very often the specifier expects to see a painted finish similar to that on a plastered surface. An 'as formed' concrete surface has inherent blemishes not present in plaster work, such as blow-holes and steps caused by inaccuracies in the construction and of the material used for the formwork. (See References 1 and 2)

Often a Type C finish in accordance with Clause 6.10.3 of BS 8110, Reference 3, is specified as it is believed to provide an 'as-struck' finish which is then made good suitable for painting. A study of the relevant clause in the British Standard shows that to produce a Type C finish, first produce a Type B finish which is then improved to a Type C finish by carefully removing all fins and other projections, thoroughly washing down and filling the **most noticeable** blemishes with a cement and fine aggregate paste to match the colour of the original concrete.

Blow-holes varying in size up to 10mm, and possibly 15mm, are inevitable in concrete cast against vertical, smooth, impermeable form-face material, and it is necessary to fill only the larger blow-holes when a Type C finish is specified. Even if the surface is completely 'bagged in' using normal making-good methods and material, the smaller blow-holes of about 2mm or less will not be filled.

When the concrete is painted, depending upon the colour and consistency of the paint applied, these small blow-holes, which are unobtrusive on the concrete surface before painting, become very apparent particularly if a thin light coloured paint is used. The thicker the consistency of the paint the greater the chance that the smaller holes will be bridged by the paint. Similarly, if the paint is a dark colour or in particular a flecked paint, these holes are much less visible as they blend into the paint colour or texture.

Depending upon the texture and colour of the paint, attempts to fill in or grind off slight steps on the surface of the concrete may become more obvious. Attempts to fill in the step with anything but a very smooth proprietary repair material will result in a slightly textured sandpaper finish which will be emphasised when painted with a light coloured gloss paint. Even a very smooth repair will be visible when painted due to the different planes on the face of the concrete. If the step is ground off, this will result in various surface planes at slightly different angles to each other and of a different texture to the surrounding concrete. Again, if painted with a gloss paint the different planes become more visible. Matt textured paints tend to reduce but not

eliminate this effect.

### 3. Producing a concrete surface suitable for painting

- i) Produce a good surface finish, e.g. Class B in accordance with BS 8110.  
**Note:** If steps or visible signs of making-good to steps caused by inaccuracies of the form face material are to be avoided, feature grooves should be specified at these positions or the use of special large sheets of form face material requested. Both these requirements will increase the cost of producing the finish.
- ii) Once produced, the major blemishes, say those greater than 10mm in diameter, should be 'filled-in' using the technique and fine materials recommended in the BCA publication "*Concrete on site - Making-good and finishing*", Reference 4. As the surface is to be painted there is no necessity to match the colour of the repair material to the existing concrete.
- iii) All minor blemishes and the surface of the major blemishes which have been made good should be filled in or skim-coated with a fine proprietary filler to ensure a finish as smooth as the surrounding surface cast against good quality form-face material.
- iv) The concrete should be given a priming coat of a light coloured paint which will emphasise all the smaller blow-holes not filled by the fine proprietary filler. If considered unsightly, these small blow-holes will have to be filled, probably individually, with the same material.
- v) Complete the painting of these walls.

If concrete is to be painted, the requirements should be set out in the tender documents and it would seem logical that steps i) and ii) above should be part of the package of the formwork and concreting contractor, while steps iii), iv) and v) should be carried out by the painting contractor.

### 4. Summary

The majority of specifications in British Standards or other publications for concrete finishes are for 'as struck' finishes with possibly some minor making-good. None of these finishes will be suitable for painting, particularly if the requirement is for a painted finish similar to that obtainable with a plastered surface.

The application of paint to a concrete surface, particularly a light coloured gloss paint, emphasises minor surface blemishes which are inevitable in the production of a good quality 'as struck' concrete surface. To make -good, an 'as struck' concrete surface suitable for painting requires the use of different making-good materials and much more time than producing an 'as struck' finish. This will obviously increase the cost of such a requirement.

As with all concrete finishes, a sample panel should be produced and this sample

panel, once made-good and painted, should be inspected from the normal viewing distance when illuminated by the designed lighting, either natural or artificial. Inadequate or incorrectly placed site lighting may not show defects which may be seen under the finished lighting, and this must be borne in mind when inspecting the samples.

The production of a concrete surface suitable for painting will depend upon the quality of the finish required but, particularly if it is to supplant a painted plastered finish, it is a skilled operation, requiring more time, more operations and different materials from those required to produce a good 'as struck' finish. The result of these special materials and increased operations is that the production of such finishes may well be more expensive.

## **REFERENCES:**

1. British Cement Association '*Appearance Matters 1 - Visual Concrete: Design and production*'.
2. British Cement Association '*Appearance Matters 3 - The control of blemishes in concrete*'.
3. British Standard 8110: '*Structural use of concrete*', Part 1: 1985 '*Code of Practice for design and construction*'.
4. British Cement Association '*Concrete on Site No.8: Making-good and finishing*'.

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