Type ‘A‘ Finish at 5 Meter’s Internal Wall

Type ‘A‘ Finish at 1 Meter’s Internal Wall

CASE STUDY - TYPE A FINISH - SHEFFIELD UNIVERSITY

Type A - Ordinary Finish - Guidance

Type A finish is normally used where appearance is not critical, the concrete is not exposed to view or where a regular surface is required for applied finishes such as plaster or render. Preparation would be required to fill blemishes and reduce irregularities if the surface is to be painted.

The following variations in the finish are permitted:

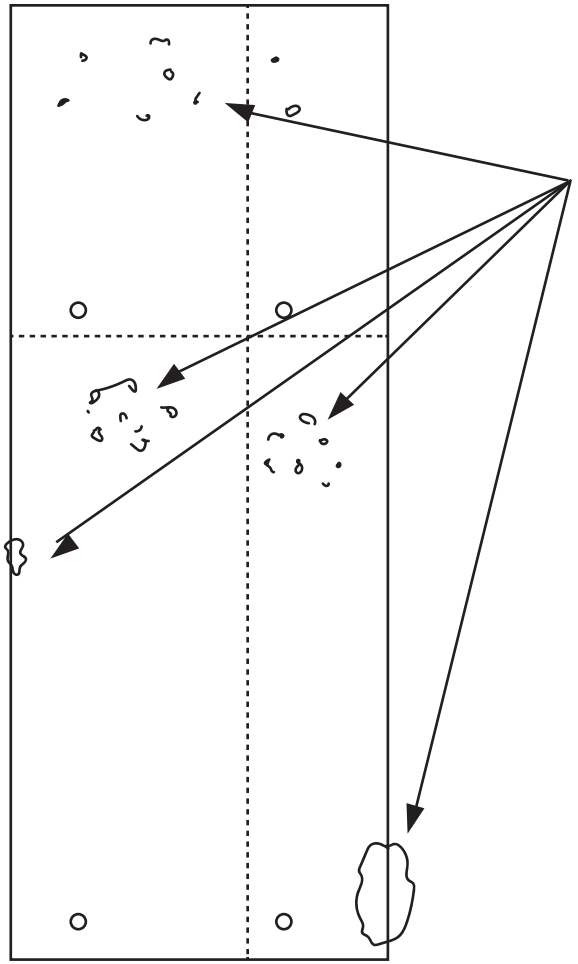
General	The formwork face material may leave a wood grain imprint on the concrete but this is not specifically part of the finish. The constructor is free to use a different type of face material, to give greater re-use of the form face, but the surface must be suitable for the application of the required finish.
Colour	There are no requirements for colour consistency or shade with this finish.
Blowholes	Permitted up to 20mm dia. [i.e. covered by a 1p coin] measured on the surface. Permitted up to 10mm deep measured from the surface. Frequency of blemishes to be spread over the pour as described in the interpretation on page 5.
Abrupt Irregularities	Permitted up to 3mm, but up to 5mm at construction or movement joints, as measured on the normal surface of the finished face. Frequency of irregularity to be spread over the pour and as illustrated in the interpretation on page 5. This irregularity is independent of any tolerance allowed in the construction and is meant to encompass formwork face irregularities.
Making Good	Making good is permitted to improve the finish.

This finish can be suitable for use as a Class 2 finish as outlined in BS 8110 6.2.7.2. at the specifier's discretion. Type A finish is not applicable to Class I and Special Class finishes.

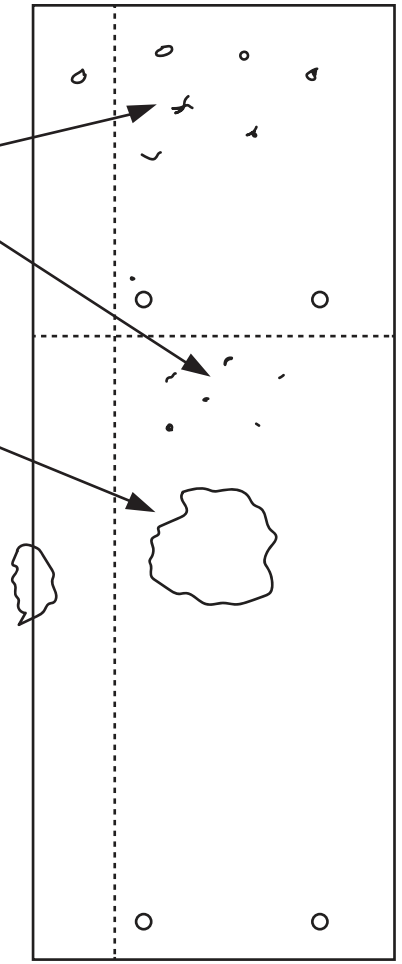
Type A - Ordinary Finish - Interpretation

These panels are typical of what should be expected of a Type A finish subject to the comments below:

SIDE 1 - First Use



SIDE 2 - Reused



Surface Blemishes

Blowholes larger than specified may need filling for exposed finish
Note: Mastic sealing of joints in formwork would reduce grout loss at edges

Abrupt Irregularities

Poker damage to form face need removed for exposed finish
All joints and “nailheads’ within specification

Making Good

Grout loss should be made good [as done to panel return]
Typical bolt hole making good shown~ recessed and flush

General

Both side have a greater frequency of small and large blowholes than should be expected

Type ‘B‘ Finish at 5 Meter’s Internal Wall

Type ‘B‘ Finish at 1 Meter’s Internal Wall

CASE STUDY - TYPE B FINISH - SHEFFIELD UNIVERSITY

Type B - Plain Finish - Guidance

Type B finish is normally used where the finish is exposed to view in the completed works. The suitability of the finish should have regard to BS8110 6.2.7.1. and 6.2.7.3. which states it is "impossible to achieve dense, flat, smooth, even-coloured, blemish-free concrete surfaces direct from the formwork". Type B finish is as-struck from the forms and any subsequent working of the face will result in a type C finish.

The following variations in the finish are permitted:

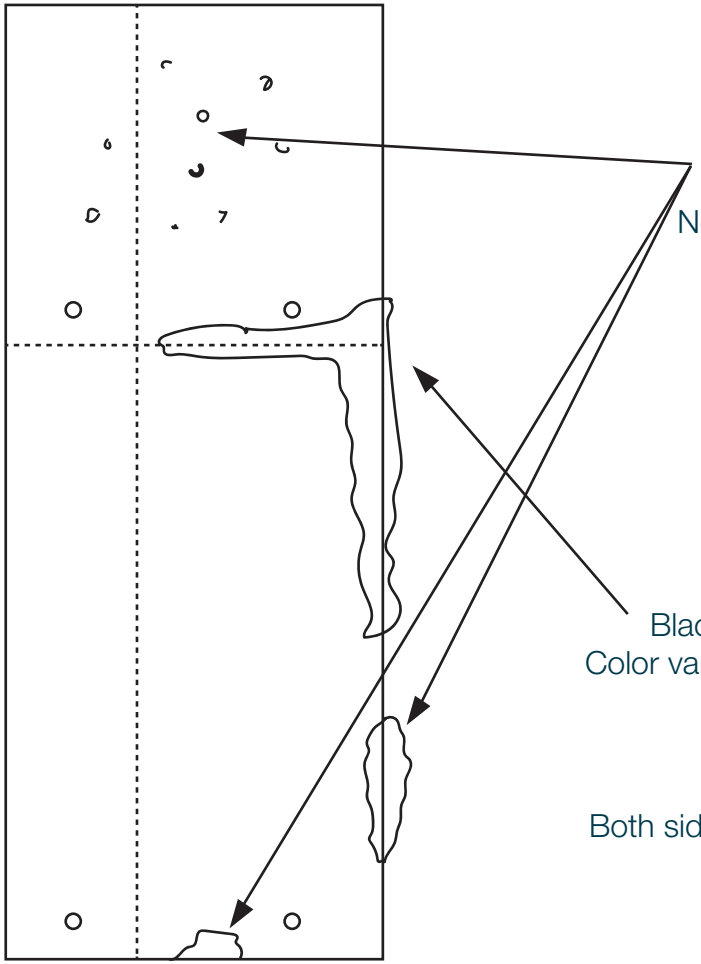
General	The formwork face material will leave marks from the sheet edges and perhaps some local dark discolouration. The constructor is free to use a different type of face material, to give greater re-use, but the surface must meet the requirement of type B finish.
Colour	Variation in colour should be kept to a minimum but attention is drawn to the guide on appearance above and in the interpretation on page 7.
Blowholes	Permitted up to 10mm dia. [approx. diameter of a pen] measured on the surface. Permitted up to 5mm deep measured from the surface. Frequency of void to be spread over the pour and as described in the interpretation on page 7.
Abrupt Irregularities	Permitted up to 2mm, but up to 3mm at construction or movement joints, as measured on the normal surface of the finished face. Frequency of irregularity to be spread over the pour and as illustrated in the interpretation on page 7. This irregularity is independent of any tolerance allowed in the construction and is meant to encompass formwork face irregularities.
Making Good	Making good should not be used to improve the finish. If the finish is to be improved it should be categorised as a Type C finish. Making good as a remedial action may be permitted but care in colour matching is required.

This finish can be suitable for use as a Class 1 or Class 2 finish as outlined in BS 8110 6.2.7.2. at the specifier's discretion. Type B finish is not applicable to Special Class finishes.

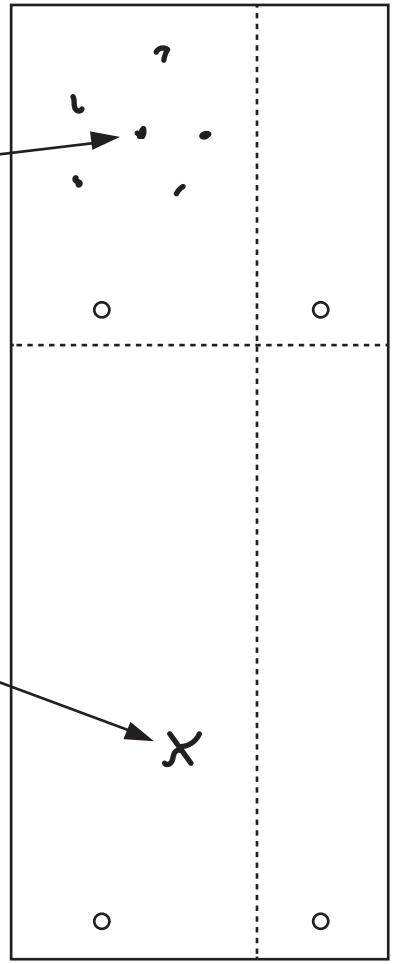
Type B - Plain Finish - Interpretation

These panels are typical of what should be expected of a Type B finish subject to the comments below

SIDE 1 - First Use



SIDE 2 - Reused



Surface Blemishes

Larger holes require filling to meet 10mm requirement and fewer should be expected

Note: Examples of bolt hole filling - flush and recessed

Note: Mastic scaling of joints in formwork would reduce grout loss at edges

Abrupt Irregularities

All within 2mm requirement

Colour

Black stains caused by handling during erection of panels.

Color variation is as expected on reuse may reduce with weathering

General

Both sides meet the specification with filling of large hole blemishes

Type ‘C‘ Finish at 5 Meter’s Internal Wall

Type ‘C‘ Finish at 1 Meter’s Internal Wall

CASE STUDY - TYPE C FINISH - SHEFFIELD UNIVERSITY

This finish is obtained by first producing a type B finish. The surface is then improved by carefully removing all fins and other projections, thoroughly washing down, and then filling the most noticeable surface blemishes with a cement and fine aggregate paste to match the color of the original concrete. This release agent should be carefully chosen to ensure that the concert surface will not be stained or discolored. After the concrete has been properly cured, the face should be rubbed down, where necessary, to produce a smooth and even surface.

The surface of a type 'C' in certain light does not appear flat but minor undulations can be seen but again is within tolerance.

The type of finish may be specified by reference to 6.2.7.3, to the method of production, e.g. cast against close-jointed sawn boards, by describing the surface, e.g. by indicating the required profile, by photographs or by samples.

6.2.7.2 Quality of finish

A high quality finish is one that is visually pleasing; it may include colour variations and physical discontinuities but these are likely to be distributed systematically or randomly over the whole surface rather than being concentrated in particular areas. When deciding on the quality of finish to be specified. consideration should be given to the viewing distance and the exposure conditions.

There is no method whereby the quality of finish that will be accepted can unequivocally be defined. To achieve the quality required calls for good communication between experienced personnel conversant with the production of finishes and close collaboration with the site. The quality of finish can be identified in the following very broad terms:

a) class 2: applies to surfaces that are to be exposed to view but where appearance is not critical; such surfaces might be the walls of fire escape stairs or plant rooms and columns and beams to structures that are normally viewed in the shade e.g. car parks and warehouses;

b) class 1: is appropriate to most surfaces exposed to view including the external walls of industrial, commercial and domestic buildings,

c) special class: is appropriate to the highest quality of finish of appearance, such as might be found in cathedrals and other prestigious buildings, where it is possible to justify the high cost of their production. These broad descriptions may be amplified by written descriptions of the method of finish, by photographs, by samples or by reference to existing structures.

6.2.7.3 Type of surface finish

Smooth off-the-form and board marked finishes are not recommended for external use, but where they are specified for interior use the following types may be quoted for the guidance of both designers and contractors.

NOTE Designers should appreciate that it is virtually impossible to achieve dense, flat, smooth, even-coloured, blemish-free concrete surfaces directly from the formwork. Some degree of making good is inevitable, even with precast work.

a) Type A finish. This finish is obtained by the use of properly designed formwork or moulds of timber, plywood, plastics, concrete or steel. Small blemishes caused by entrapped air or water may be expected. but the surface should be free from voids, honeycombing and other blemishes.

b) Type B finish. This finish can only be obtained by the use of high quality concrete and formwork. The concrete should be thoroughly compacted and all surfaces should be true, with clean arises. Only very minor surface blemishes should occur, with no staining or discoloration from the release agent.

c) Type C finish. This finish is obtained by first producing a type B finish. The surface is then improved by carefully removing all fins and other projections, thoroughly washing down, and then filling the most noticeable surface blemishes with a cement and fine aggregate paste to match the colour of the original concrete. The release agent should be carefully chosen to ensure that the concrete surface will not be stained or discoloured. After the concrete has been properly cured, the face should be rubbed down, where necessary, to produce a smooth and even surface.