



Finishes - Classes, quality and colour of off-form grey precast (AS 3610)

The improper use of AS3610 leads to more arguments than probably any other issue in the precast industry. Although a recent spot check of specifications from actual projects correctly showed the Precast Concrete Handbook as the source reference document, there is still misunderstanding and confusion on the correct use of AS3610 Formwork for Concrete. Class 1 is very often incorrectly specified, finishes are confused and AS3610 is sometimes incorrectly used for coloured off-form concrete. Commercially, NOT using AS3610 correctly can be dangerous. In the event that the finished project does not meet the designer's expectations, then the only instrument available to mediate is removed.

AS3610 Formwork for Concrete sets out the requirements for the design, fabrication, erection and stripping of formwork. Some sections of the Standard, in particular sections 3 and 5, are applicable to precast concrete. These sections talk about the quality

of a formed concrete surface for grey concrete. The important words here are a formed surface and grey concrete.

Section 3

In terms of applicability, this section makes it abundantly clear that the Standard applies only to off-form surfaces. It does not apply to any surface treated with a secondary finishing operation (using chemical or mechanical means) such as polished, honed, grit (sand) blasted, acid etched and other such architectural finishes.

Table 3.2.1 defines in detail the characteristics of the surface classes, with five classes of finish, where Class 1 is the highest standard and Class 5 the lowest. The table has been revised to show clearly where each surface class should be specified. Classes 1, 2 and 3 are used where the visual

quality is important. Classes 4 and 5 are specified where the visual quality is not significant. Therefore, it is important that a class of finish is specified on all drawings and documentation for a project.

Section 5

This section covers the evaluation of any completed works, with Section 5.3 dealing with the physical quality of precast concrete. Colour evaluation is important and the standard has photographic charts for the assessment of colour by the use of tones.

The following Commentary has been added to Part 1 of the Standard to clarify the intent of tonal ranges –

“The tonal range illustrated in Fig A4, Appendix A, is not intended to represent the actual colour of the concrete but to indicate a range in the tones of the colour specified in Table 3.5.3. Hence Class 1 concrete may have a colour towards the dark end of the range in Figure A4, provided the tonal range is not less than 4 tones. For the specified Class, the project documentation may permit a greater tonal range than the minimum number of tones shown in Table 3.5.3.”

The Standard also states in section 3.4.3 that “For concrete of other colours or where the grey is not within the range of Figure A4, Appendix A, the project documentation shall contain a means of determining and recording the acceptable tonal range.”

Class 1:

- Is the highest standard with the most rigorous specification and is only recommended for use in very special features of buildings of a monumental nature;
- Is suitable for selected small elements or areas of special importance in limited quantities;
- Should be for elements contained in a single pour (this implies that different pours will differ in appearance from one another); and
- Shall not be specified for whole elevations or extended surfaces.

Often, Class 1 is wrongly specified for a project



Class 1 finish - only reserved for restricted uses.

Class 2 is that which will be specified for most good quality architectural precast concrete. A Class 2 finish is intended for external and internal façades that can be viewed in detail. A Class 2 finish is a high quality finish requiring very substantial input by the designer and the precaster.



Class 2 finish - covers most good quality architectural precast.

Class 3 has application for buildings and structure where visual is important but which is of less importance architecturally. It provides an acceptable standard for many industrial and civil structures and will result in cost savings for the owner.

Note - The only difference between Classes 2 and 3 are the type, number and dimensions of permitted surface defects. A Class 3 finish will give a good visual quality when the project is viewed as a whole.

Classes 4 and 5 are for situations where the visual quality is not important and apply to surfaces which are concealed from general view or are never seen.

National Precast is pleased that Standards Australia recognises the difficulty of achieving complete colour control and accepts that there may be situations where the subject work will be

approved even though elements have tonal variations outside those recorded. An example of this is elements with local dark (or light) patches of colour which do not detract from the overall appearance.

From a practical point of view for the architect or customer, the use of test samples is of paramount importance rather than relying on code interpretations.

Remember...

- Appreciate that AS3610 is written for off-form grey finishes. Many architectural precast concrete surfaces are not off-form and many surfaces may be unformed.
- If using AS3610 in documentation, it should be read in conjunction with the Commentary which sets out the intent of the Code committee.
- Like most documents, it requires pragmatic interpretation.
- Don't use the document in an attempt to obtain unrealistic quality. Good design and detailing are still the prime requirements for a quality appearance.
- Avoid the temptation to specify the impossible; be realistic in terms of the status of the project and importantly, the budget.
- Appreciate that the most realistic measure of what is achievable is that which has been achieved on previous projects of a similar nature.
- Talk to your local precaster during the design stage for input into practicality of design.