

Concrete EN-day

Frequently asked questions

The second of our Bulletins covers some frequently asked questions. The suites of European standards with which we have to work are aptly called 'first-generation standards'. They reflect compromises and the need to incorporate materials and practices used outside of the UK. They also reflect the level of consensus that could be reached at this time and, in the case of the concrete standards, leave a number of key areas to be addressed by provisions valid in the place of use. CEN rules do not permit national standard bodies to tailor a European standard to local needs. These standards represent a significant first step in European technical harmonisation, but create for users of standards a more complex system.

What new standards?

BS 5328: Concrete has been superseded by BS EN 206-1: *Concrete - Part 1: Specification, performance, production and conformity* together with its complementary British standard BS 8500: *Concrete - Complementary British Standard to BS EN 206-1* and it will be withdrawn on the 1 December 2003. The 'complementary' standard provides provisions where required, eg for durability, or permitted, eg the combination concept, in BS EN 206-1 and covers materials and procedures outside the scope of BS EN 206-1, eg fibres and fibre concrete.

The new standards should be used for all concrete to be supplied after 1 December 2003.

Do I have to use the new standards?

The new standards contain the latest

recommendations from the British Standards Institution and should be used.

What happens to existing contracts?

Concrete producers are gearing up for a clean changeover on 1 December 2003 to avoid confusion and additional costs of operating dual systems. In the vast majority of cases the changeover will not change the actual quality of concrete you receive, but should you feel it necessary, your particular circumstances can be discussed with your concrete producer.

Will concrete cost more?

Where the specification requirements for concrete are not changed, the cost difference, if any, will be small and reflect the increased margin needed by the producer to reduce the risk of non-conformity to an acceptable level.

Are the new standards better?

They reflect the increasing complexity of concrete and consequently appear more complex and difficult to use. This is a disadvantage but this has to be balanced against real benefits such as the provisions to improve the sustainability of concrete with, for example, the use of recycled aggregates. The fact that the producer is required to verify that the claims on the delivery ticket are valid, ie conformity, should also be regarded as an improvement.

Do I have to use BS EN 206-1 or BS 8500?

EN 206-1 (note the BS is missing) applies in all CEN member states and it has not been possible to agree all the parameters that need to be included in a concrete specification. For

example, the requirements for concrete to resist the exposure classes given in EN 206-1 may be different for technically sound and justifiable reasons. Whilst the exposure class will be the same, the concrete, say, required to resist freeze-thaw attack in the south of England will be different to that in Finland. The recommendations for the UK are given in BS 8500-1 and those for Finland in their national provisions. You need to hold the derived document (more about that later) or both BS EN 206-1 and BS 8500.

For the purposes of specification of concrete for use within the UK, you will find it easier to use only BS 8500-1. If you are a producer, you need to use both BS EN 206-1 and BS 8500-2. A derived document, which is a composite of BS EN 206-1 and BS 8500, is under development and this will provide the specifier and user with an integrated approach to the specification of concrete. It should be available by mid-year. As well as providing a composite of the requirements in BS EN 206-1 and BS 8500, it provides guidance on the new terms and additional guidance for the specifier. A commentary is also provided to give some guidance on how the requirements of the standards should be applied.

Why do the new standards appear so complex?

This is because they cover every situation and option. The new language, eg strength class, consistence, and the new classes make the standards appear more complex, but most specifiers should quickly become familiar with the new terms. The new exposure classes and

the selection of concrete quality are more complex where there are multiple exposures, but the process should lead to more appropriate concrete specification. The good news is that computer software, called ConSpec, will be available from September for free downloading from the QPA website (http://www.qpa.org/pro_rea.htm) and this will identify the choices and make the whole process very simple.

Can't I just specify a 'grade'?

No and you should not have been doing that with BS 5328. Convert the 'grade' to a strength class using QPA BRMCA Committee Bulletin 1, Table 1 and specify other appropriate limiting values. If none are specified there are no implicit limiting values in BS 8500 nor were there any in BS 5328. If you need a maximum w/c ratio or a minimum cement or combination content, they have to be specified.

What is the difference between consistence and workability?

'Consistence' is the BS EN 206-1 word for 'workability'. The preferred way of specifying consistence is to use one of the slump or flow classes given in BS EN 206-1.

Why should I use a slump or flow class?

Sets of slump and flow classes are given in BS EN 206-1 with sensible steps between classes. For nearly all applications selecting one of these classes will be appropriate. Please specify the class needed for the intended method of placing and finishing. Do not ask the concrete producer to "wet-it-up".

How do I select the appropriate concrete and draft a specification?

Follow the guidance in BS 8500-1, Annex A. Alternatively, use the computer software called 'ConSpec' which will be available in September for free downloading from the QPA website. This is an updated version of software developed for use with BS 5328.

What is conformity?

Testing and assessment undertaken by the concrete producer to validate the claims made on the delivery ticket. Where non-conformity that was not obvious at the time of delivery is confirmed, the producer is required to inform the specifier.

What is identity testing?

In all but name, acceptance testing of a particular batch or batches of concrete by the user.

Will our site test methods have to change because BS 8500 calls up tests in the BS EN 12350 and BS EN 12390 series and not BS 1881?

In most cases the tests are almost identical. The procedures for doing the slump, flow and cube test are similar. The main difference with the slump and flow test is that the ENs requires the measured value to be rounded to the nearest 10mm and not 5mm as in BS 1881. The EN cube test has some differences in approach but these should not result in significantly different test values. There is no requirement to change from a 100mm cube to a 150mm cube or a 150mm diameter by 300mm cylinder.

Do I need to specify accredited third party product conformity?

This is strongly recommended as it provides an independent check that conformity was undertaken correctly and that the appropriate action was taken in the rare cases of non-conformity. The certification bodies in the UK understand concrete families and have the expertise to assess the complex conformity provisions in BS EN 206-1.

Is it correct that from December 2003, fresh concrete will be covered by a CE-mark?

No. In practice, CE-marking needs a "harmonised European standard" or a European Technical Approval and BS EN 206-1 is not a harmonised standard, ie it does not have an Annex that give the basis on which the CE-mark is affixed and the level of attestation of conformity. By specifying a requirement for third party certification you will get more protection than you would with CE-marking, as certification covers all aspects of the specification and not just the 'essential requirements'.

Where can I get more help?

- Visit:
<http://www.bca.org.uk/activities/matstand>
http://www.qpa.org/pro_rea.htm
From September 2003, ConSpec will be available for free downloading from the QPA website.
- Talk to your concrete producer.
- Attend the most convenient of the Concrete Society half-day briefings on the new Concrete Standards (details of venues and dates are given at <http://www.bs8500.info/briefsched.htm>)



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