



Risk Management Briefing

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Eurocodes – liability, implementation and maintenance

The adoption of Eurocodes on 1 April 2010 to replace British structural design standards and also civil design standards has resulted in two particular concerns. The first is whether the structural Eurocodes could impose a warranty for fitness for purpose and the second is the practical problems that have resulted from their introduction and their interaction with British Standards, particularly in relation to the Building Regulations. This Risk Management Briefing summarises the background to the Eurocodes and explains these two concerns.

Purpose

The underlying rationale for the introduction of the Eurocodes is the harmonisation of structural and civil design standards throughout the EU to promote a single market for services, which is a fundamental principle of the Treaty of Rome. The implementation of the Eurocodes can therefore be seen as opening up opportunities for UK companies to compete on level terms in a wider market across the EU.

Under European Directive 2004/18/EC (the Public Procurement Directive), the Eurocodes are the mandatory standard design specification for publicly

funded projects. They are also the de facto standard for the private sector. This means that if a designer proposes to use an alternative design standard, he or she will be required to demonstrate the design is of a 'technically equivalent' standard to the Eurocodes.

Comparison with British Standards

Eurocodes were developed by the European standards committee, Comité Européen de Normalisation ("the CEN"), by agreement between the EU Member States. The CEN comprises 30 Member States' National Standards Bodies including the British Standards Institute (BSI). The CEN/TC250 (Technical Committee 250) is responsible for overseeing the implementation and the maintenance of the Eurocodes. In the UK, BSI is responsible for publishing the Eurocodes, as BS EN standards.

The Eurocodes superseded a number of the British Standards ("BSs") relating to the behaviour of structures generally, the design of concrete and steel structures and their composites, timber and masonry structures and geotechnical design. EN 1990 'Code: Basis of structural design' is the head document in the Eurocode suite. It provides the required safety, serviceability and durability standards for the remaining Eurocodes. The Eurocodes are, generally, wider in scope than the equivalent BSs. Where there are items that are not covered by the British Standards, BSI have issued complimentary standards, conforming with the Eurocode principles.

Eurocodes are less prescriptive than the BSs, since they are principally concerned with structural behaviour, as opposed to member design. As a result, they leave some matters to be decided at a national level, so-called Nationally Determined Parameters. Before Eurocodes could be used for design within the individual Member States, a national calibration period was required. National Standards Bodies, such as BSI, are not permitted to alter the text within the approved Eurocodes. However, they are able to publish an associated National Annex. For example, the safety factors given in the Eurocodes are recommended values and may be altered by the National

Annex. The National Annexes contain guidance on those issues and may, where appropriate, refer to other non-contradictory complimentary information (referred to as NCCI).

Replacement of National Standards

The CEN prescribed a standard procedure for the withdrawal of the relevant national standards, after publication of the relevant Eurocodes. Once the National Annexes have been published, a period of co-existence with corresponding national design codes comes into effect, lasting until all of the relevant Eurocode parts have become available for the particular design type in question.

In pursuance of the CEN procedure, on 29 January 2010 the Department for Communities and Local Government (“the CLG”) issued a Circular Letter to the Building Control Bodies, confirming the introduction of a new suite of British Standards for structural design based on the Eurocodes, and withdrawing the conflicting British design standards. British Standards were accordingly withdrawn on 31 March 2010, and since that date BSI committees have stopped updating them.

Contractual obligations concerning Eurocodes

The wording in EN 1990 (basis of structural design) published in 2002 as later amended states:

A structure shall be designed and executed in such a way that it will, during its intended life, with appropriate degrees of reliability and in an economic way, sustain all actions and influences likely to occur during execution and use and meet the specified serviceability requirements of a structure or structural element.

If a consultant accepts a contractual obligation to comply with relevant Eurocodes he or she will, as a result, be accepting an obligation to comply with this specific requirement. It is thought that by doing so the consultant will have accepted an obligation equivalent to a warranty for fitness for purpose because although there is a separate requirement in the Eurocodes to use reasonable skill and care, this is not expressed as an overriding provision; in fact it is the above provision that is expressed to have precedence.

It is thought that a need for a change to these provisions of the Eurocodes is recognised but this could well take some years to achieve. It is therefore important that either no such obligation is accepted or that the consultant agrees to *'use reasonable skill and care in complying with [relevant Eurocode]'*; so that the contractual obligation is on the proper basis.

Interaction with Building Regulations

As regards compliance with the Building Regulations, it remains the case that these Regulations permit any proven method of safe design to be adopted. One method of demonstrating compliance is through adherence to Approved Documents. Confusingly, the Approved Documents that relate to Eurocodes (A and C) still refer to the old, now superseded BS's. The Approved Documents like the Building Regulations will not be updated until 2013.

In the January 2010 Circular Letter that announced the changes, the CLG advised the Building Control Bodies 'to continue to consider the appropriate use of relevant standards on a case by case basis', bearing in mind that the Eurocodes were formally to become the new national standards as of 1 April 2010. After that date, as noted above, there was a permitted period of transition between the withdrawn BSs and the (then) new BS ENs. This meant that any established method of safe design could be adopted, but a proven history for that method was required.

Withdrawal accordingly did not "outlaw" the BSs but in practical terms, it meant that the withdrawn standards would no longer be maintained. It was anticipated that clients and insurers would insist on compliance with the up to date Eurocodes and that there would, in all likelihood, be a commensurate reduction in the need for associated software packages. The January 2010 Circular Letter advised Building Control Bodies 'to be aware of the risk of designs inappropriately mixing new design standards based on the BS ENs and withdrawn BS design standards'. BSI currently has a statement on its website which cautions against the use of any combination of Eurocodes and withdrawn British Standards. It states 'there should be no technical reason

why the design rules in the Eurocodes need to be augmented by the use of withdrawn British Standards.'

This being the case, until the Approved Documents are revised in 2013 it would be prudent for the client and the construction team to clarify from the outset of a project which standards are to apply.

It is thought that there is a good knowledge of Eurocodes in the civil sector but that there has been an apparent reluctance to use them otherwise. This could be because of cost, a lack of training/education, the lack of promotion and the fact that they will not be incorporated into building regulations until 2013. Some errors have been found in them and it is anticipated more will be discovered as they become more widely used. (If a consultant is aware of these errors he or she clearly should not be following Eurocodes even if there is an obligation to do so.)

Updating the Approved Documents

In January 2012, CLG published an impact assessment of the required changes to Approved Document A. In this document the recommended option was to update all references in the Document to Eurocodes (ie BS ENs). This document recognises that updating references will impose some additional, one-off costs on industry. There is also a proposal (on page 6) that guidance should be provided to make clear the "currently referenced withdrawn standards should be viewed as also demonstrating compliance with the Building Regulations until at least 2015". In this way, the intention is that updating to Eurocodes would be done so as to minimise the cost to business.

Maintenance of the Eurocodes

Maintenance of the Eurocodes is essential to ensure their credibility and longevity. The Maintenance Working Programme for the Eurocodes has been divided into three parts: short, medium and long term. The short term takes place within a year of publication, dealing with technical amendments or editorial errors of an urgent nature, say relating to matters of health and safety.

In 2009, the CEN/T250 published the Eurocodes medium-term strategy, extending until 2013. In the medium term, the Eurocodes would be subject to technical and editorial improvement, clarifying any matters of interpretation that have been identified. However, after publication in 2010, the CEN/TC250 confirmed that there would be no fundamental changes to those Eurocodes until after 2013, allowing a period of stability to emerge. They would only be subject to revision and evaluation during that period, through the preparation of technical reports.

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