The evolving Eurocodes

Anthony Burd Head of Market Development for Construction at BSI discusses the continuing development and evolution of the definitive construction standards suite
Introduction
When the first generation of Eurocodes were published in 2007, they were considered the most comprehensive and technologically advanced suite of standards for structure and geotechnical design in the world. Their impact has been considerable, affecting the day-to-day work of around 500,000 professional engineers across Europe.

In accordance with the CEN requirements, the deadline for the withdrawal of conflicting national standards was set for March 2010. On 31 March, 2010, conflicting British Standards were withdrawn and replaced with Eurocodes. As the withdrawn British Standards will not be maintained or updated, they are becoming increasingly out of date.

Building Regulation
In 2013, the Department for Communities and Local Government confirmed in their Sixth Statement of New Regulation that Approved Document A, the statutory guidance which supports the structural part of the English Building Regulations (2010), would be amended to reference British Standards based on Eurocodes. By amending Approved Document A to reference Eurocodes, the construction industry is offered an alternative, state of the art, technical solution for meeting regulatory requirements.

This important change to the National statutory guidance came into effect in October, 2013 in England (The Technical Handbooks to the Building Regulations in Scotland were amended to reference Eurocodes in October 2010). Professor D A Nethercot (OBE, FREng, FTSE Emeritus Professor of Civil Engineering Imperial College London, UK), explains why the use of Eurocodes is recommended over referring to withdrawn British Standards:

“The announcement that Approved Document A is to replace its reference to the now withdrawn British Standards by directly referring to the Eurocodes is an important signal to the UK Construction Industry that it should now be working to the Eurocodes. As the supporting infrastructure of Design Guides, Manufacturers' Literature and Computer Software migrates to being Eurocode based, official endorsement that the 'new era' is now the 'status quo' should accelerate the Industry's transition. Whilst working to British Standards (or to any other acceptable approach) is still permitted, this change signals a distinct shift to an expectation that the 'normal' approach will be to use the Eurocodes and thus to benefit from their more comprehensive coverage and the associated newly created and up to date design aids”.

Help and support
There is a wealth of guidance offered by industry to the UK designer (e.g. the ICE, IStructE, Concrete Centre, SCI, TRADA, BDA, IMS etc.) to aid Eurocode implementation. BSI has also created Eurocodes PLUS, which is an online tool that makes Eurocodes more accessible by allowing civil and structural engineers to find specific Eurocodes at the click of a button.
It is widely recognized that long-term confidence in the codes requires the Eurocodes to evolve in an appropriate matter. Therefore, in December 2012, the European Commission (EC) and Industry Directorate General sent Mandate M/515 to CEN, inviting them to develop a detailed work programme of the future activities of the technical committee responsible for Structural Eurocodes (CEN/TC 250). In 2013, CEN/TC 250 also developed a detailed work programme, which will lead to the second generation of Eurocodes.

**New CEN/TC 250 committee chairman**

The UK hosts some of the world’s leading experts in structural design and were heavily involved in the formation of the first set of Eurocodes. This precedent still remains and in October, 2013, Dr Steve Denton, Parsons Brinckerhoff’s Director of Engineering and a Visiting Professor at the University of Bath, was appointed Chairman of CEN/TC 250. Steve has expressed his enthusiasm in leading the effort, which will be backed by the Secretariat support of BSI:

“I am delighted to have been appointed to this role and deeply flattered by the confidence that has been placed in me by colleagues across Europe. The next six years will be a crucial time as we work to build on the huge achievements of the past. As a practicing engineer, I look forward to ensuring we maintain focus on the needs of designers in our work.”
**Eurocodes timeline**

The work programme has been split into four overlapping phases, which has been carried out to ensure that the work is undertaken as efficiently as possible and to enable interdependencies between activities. The work is due to commence late 2014, with the view of the second generation of Eurocodes to be completed by 2020.

There is a demand for the Eurocodes to be revised to incorporate improvements to the existing suite reflecting the state of the art and needs of the market, particularly in relation to improving ease of use for practical users of the standards. This will be done through improving the clarity of the standards; simplifying routes through the Eurocodes; limiting, where possible, the inclusion of alternative application rules; avoiding or removing rules of little practical use in design. CEN/TC 250 also recognizes that further harmonization is needed, which will lead to a reduction in Nationally Determined Parameters and therefore should further reduce barriers to trade of products and services. The new work programme will lead to substantial additions to existing Eurocodes, incorporating enhanced coverage of robustness; relevant sustainability and climate change considerations; and the implementation of initial requirements for assessments and retrofit of existing structures. The work programme also includes the development of a new Eurocode on structural glass.

In addition to the work based on the M/515 mandate, a 5 year review of existing Eurocodes will also commence in 2014. This will be complementary activity to the execution of M/515, timed to be compatible with the phasing of the overall work programme. Nonetheless, Eurocodes are constantly being maintained to ensure they remain current and fit for purpose.

**New documents in 2014**

In 2013, amendments to BS EN 1996-1-1 *Design of masonry structures: General rules for reinforced and unreinforced masonry structures* and the National Annex were published with the following amendments to be published in 2014:

- BS EN 1991-1-7 Eurocode 1. Actions on structures : General actions
- BS EN 1995-1-1 Eurocode 5. *Design of timber structures : General*
- BS EN 1999-1-1 Eurocode 9. *Design of aluminium structures: General structural rules*
- BS EN 1997-1 Eurocode 7. *Geotechnical design : General rules*

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