



Gold standard: it is highly likely that structural designers of the £2.4 billion publicly funded facilities for London's 2012 Olympics will have to use Eurocodes

Half of Eurocodes now published

by Simon Fullalove, Editor

The massive publishing programme for the 58 new European structural design codes – the most advanced structural codes in the world – has now reached the half-way mark.

'It confirms beyond any doubt that the Eurocodes will very soon revolutionise how most of the world designs its building and civil engineering structures,' says Professor Haig Gulvanessian, chairman of the UK's pan-industry Eurocodes Expert advisory group.

As detailed elsewhere in this issue, the total number of Eurocodes made available by the European Committee for Standardisation (CEN) Technical Committee 250 reached 29 in November 2005.

According to Malcolm Greenley of the international secretariat of British Standards Institute (BSI), a further five parts have passed formal vote and are under finalisation, nine more parts complete formal voting in December 2005 and the remaining 15 parts are very close to being technically finalised.

'Overall it is a positive picture and publication of all 58 parts should be achieved before the end of 2006,' he says.

UK national annexes imminent

BSI has so far published 23 BS EN versions of the codes and by the end of 2005 these too will reach the half-way figure of 29.

However, the key to implementation of Eurocodes in the UK as elsewhere is publication of national annexes. These are intended to be as short as possible, addressing only nationally determined parameters where there are specific national requirements concerning geographic, climatic and traditional conditions and safety – and the European Commission eventually wants to phase them out.

BSI has already published the national annex for the

'head code' BS EN 1990 and is due to publish eight more by the end of February 2006 – including all those for the three-part timber code BS EN 1995.

Barring any major hiccups, BSI hopes to publish virtually all national annexes by the end of 2006 – which is well inside the statutory two-year time limit. The only flies in the ointment are a content and copyright dispute with the steel industry over Eurocode 3 annexes and some UK acceptance issues with parts of aluminium code EN 1999.

Either way it means most building and civil engineering design can or must use Eurocodes from 2007 onwards and that the target deadline for withdrawing all existing UK national standards by March 2010 will be comfortably met.

A worldwide set of standards

As reported in this issue, Eurocode implementation is not only progressing well in the UK and other 'old' European Union nations but also in the 10 new member states and four accession and candidate countries.

Further a field – and thanks primarily to BSI-led seminars – Malaysia, Singapore and Vietnam have decided to base their future structural design standards on the Eurocodes and Hong Kong, China and India are all interested. A further seminar was held in Dubai in November 2005.

Spanish-speaking South American countries are also understood to be eagerly awaiting production of the Spanish-language versions of Eurocodes by Spain's national standards authority AENOR.

UK industry gets ready

The UK Government fully supports implementation of the Eurocodes in the UK and IStructE has recently set

up a pan-industry implementation committee to support this. Eurocodes Expert is likely to play a significant role, both providing guidance and training resources directly as well as being the primary online information source via its website at www.eurocodes.co.uk.

'The courses and guidance available in the UK greatly surpasses anything available in other European member states,' says Gulvanessian. 'It is now down to UK industry to take full advantage of it – and thus get maximum benefit from the huge opportunities provided by the Eurocodes.'

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Editorial:

by Haig Gulvanessian

As detailed in this third issue of *Eurocodes News*, half of the 58 Eurocodes have now been published and I confidently expect the whole suite will be published by the end of 2006. In particular the packages for buildings and bridges should be published by the middle of 2006.

Allowing for the preparation of national annexes and a period of co-existence, the latest date for the withdrawal of the BS and other national codes will be by early 2010. It is therefore a certainty that from early 2010 the Eurocodes will generally be the only structural codes available for European building and civil engineering designers.

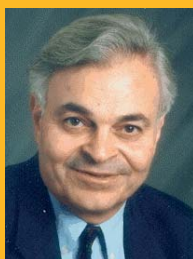
For the purpose of obtaining CE marking for structural products, components and kits of parts, and for public works contracts, the Eurocodes may have to be used earlier. Design professionals must therefore begin to prepare for implementation now.

Government fully supports the implementation of the Eurocodes in the UK. As indicated in this issue and on the Eurocodes Expert website, numerous training courses, designer's guides, handbooks and other training aids are now available to help and ease preparation for implementation. Indeed, the courses and guidance available in the UK greatly surpasses anything available in the other European member states.

Very importantly, the Eurocodes will provide opportunities to the UK profession in both the European and world markets. But with every opportunity, there comes a threat. It is vital that decisions taken by companies about when to implement Eurocodes strategically considers their competition from the rest of Europe.

The Eurocodes are the most advanced structural codes in the world enjoying greater catchments of expertise than our present national codes. There is real certainty they will be implemented in the next few years and we should get ourselves into a position to take advantages of the opportunities they will provide.

Professor Gulvanessian is construction division director of BRE, visiting professor at Imperial College and chairman of the EN1990 and EN1991 drafting committees. He is also chairman of the Eurocodes Expert advisory group.



Plans to harmonise national parameters announced

by Simon Fullalove, Editor

Horst Bossenmayer, president of the Deutsches Institut für Bautechnik and chairman of Eurocode drafting committee CEN/TC250, has revealed plans to limit the ability of European countries to tailor the codes to their individual needs.

In a report on progress of the Eurocodes to the 60th Standing Committee on Construction, Bossenmayer said however that efforts to harmonise the so-called nationally determined parameters contained in each country's national annexes to the new standards would not start until 'after some years of experience on design of construction works with Eurocodes.'

CEN/TC250, in conjunction with the Eurocode national correspondents group and possibly the European Laboratory for Structural Assessment, would begin by collecting all national annexes for each

Eurocode part and prepare a database of nationally determined parameters. Sets of parameters would then be used to calculate the mechanical resistance and stability of given construction works and products to see what effect the differences between parameters have in practice.

When the impact of certain parameters is not significant, the European Commission and the national correspondents group will encourage pan-European use of the same values. However, if the impact of others is significant, countries will need to justify the need for continuing differences.

'The aim will be to reduce the number of nationally determined parameters in order to increase the level of harmonisation of the calculation rules,' said Bossenmayer. ■

IStructE sets up UK implementation committee

by Dr Susan Doran, Technical Director, Institution of Structural Engineers

The UK Institution of Structural Engineers has set up a pan-industry standing committee on implementing Eurocodes in Britain. It is chaired by former IStructE president and head of civil engineering at Imperial College London, David Nethercot.

Creation of the committee was one of the key recommendations in the IStructE's April 2004 report to Government entitled *National Strategy for Implementation of the Structural Eurocodes: Design Guidance*.

The new committee's terms of reference are to oversee, update and modify the implementation of the Eurocodes strategy proposed in the report. Activities include

- liaising with all relevant organisations to ensure UK resources are employed in a way that achieves maximum effectiveness
- assisting establishment of a national information service and help desk
- advising on the need for Government support for those activities for which there is either no alternative body capable of undertaking the task and/or where a partnership arrangement is necessary to achieve the desired result
- advising on issues of timing so the transition is effected smoothly and efficiently

- ensuring needs of industry and the profession are captured and given proper attention in the overall process.

The April 2004 report called on the Government to support the UK structural engineering design community during transition to the new codes in order to protect its current competitive advantage, both in the UK and overseas.

Britain currently exports £1.5 billion of structural design services each year.

Nethercot also chaired the pan-industry committee that prepared the strategy report and Eurocodes Expert was represented on the committee by manager Rekha Thawrani.

The training and information resources of Eurocodes Expert are referred to in the report along with a suggestion that its website could become the official on-line source for the Eurocode implementation programme.

The report was prepared at the request of the Office of the Deputy Prime Minister between February and April 2004. It can be downloaded from www.istructe.org.uk/eurocodes.

For more information contact Dr Susan Doran, IStructE technical director, on 020 7201 9110 or email doran@istructe.org.uk ■

UK road design manual updated for Eurocodes

by Sibdas Chakrabarti, Project Manager, Highways Agency

The UK Highways Agency is currently updating its *Design Manual for Roads and Bridges* (DMRB) to bring it into line with the new Eurocodes. The revised bridge design directives in the manual will then fulfil the role of 'non-conflicting complementary information' to supplement the Eurocodes.

The Agency's strategy in revising the manual is as follows.

- Of the 58 Eurocode parts, concentrate on the 25 that relate to highway bridges.
- Examine the suite of approximately 50 DMRB parts for modification and withdrawal, where appropriate.
- Provide supplementary information in the DMRB supporting the content of the Eurocodes and national annexes.
- Provide guidance in the DMRB based on easily available information. The guidance contained in the DMRB will be non-conflicting complementary

information.

- Take the opportunity to rationalise the DMRB, consolidating and withdrawing documents.
- Change the titles and format of the DMRB to meet the requirements of its new role complementing the Eurocodes.

Highways Agency awarded framework contracts to Parsons Brinckerhoff and Atkins in 2003 to help with Eurocode implementation including updating the DMRB. Framework consultants have also been asked to design schemes both to UK and Eurocode requirements as part of a calibration exercise. Project manager is Sibdas Chakrabarti and progress is recorded on the Agency's website at www.highways.gov.uk/business/euro_codes.

For further information contact Stewart Garden on 01306 878359 or email stewart.garden@highways.gsi.gov.uk ■

UK national annexes at risk, says ICE

Britain could end up losing its ability to adapt the Eurocodes to suit national conditions due to lack of Government funding, according to the Institution of Civil Engineers' structures and buildings board.

The board claimed in *New Civil Engineer* magazine in May this year that UK standards organisation BSI has insufficient funds to carry out proper development of national annexes for the 59 parts of the Eurocodes.

According to the board, a number of BSI committees have become dormant and knowledgeable people who have retired are not being replaced. Board member John Lane said he fears that if BSI's input into structural design development is reduced even more, there could be pressure to abandon nationally determined parameters altogether.

The board has thus joined forces with BSI to conduct a survey of staff and committee members to rate the service they believe they can provide and to assess how easy it is for them to attend meetings to discuss development of standards. According to Lane, the findings and recommendations to improve the effectiveness of the BSI committee process will be published in January 2006. ■

International round up

Adopting Eurocodes in the larger Europe

A major workshop took place in Ispra in northern Italy on 7-9 November 2005 to assist the European Union's 14 new, accession and candidate countries progress their adoption of the new European structural design codes.

The event was jointly organised by the Joint Research Centre's European Laboratory for Structural Assessment (JRC ELSA) and the EU Enterprise Directorate and is linked to JRC's 'Safeconstruction' research project in support of standardisation in construction and construction products.

According to Artur Pinto of JRC ELSA: 'The main conclusion was that the process for the implementation of EN Eurocodes in the new member and accession countries is under way. There is a good progress on Eurocodes translations and the preparation of the national annexes and nationally determined parameters, especially on EN 1990 and EN 1991. The work on the seismic hazard map and the maps of snow loads, wind and temperature is still going on.'

Most countries have decided to follow the recommended values, classes and methods when deciding the nationally determined parameters unless they had strong reasons to do otherwise. However, more funding is needed for translation.

Eurocodes Expert chairman Haig Gulvanessian was one of main speakers on the first day of the workshop along with Horst Bossenmeyer, chairman of the main Eurocodes drafting committee CEN/TC250, and most of the other key players in the Eurocodes implementation programme.

The second and third days involved 40-minute presentations from the 53 representatives of each of the 10 new member countries (Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia) and the two accession countries (Bulgaria and Romania) and the two candidate countries (Croatia and Turkey).

Issues discussed included adoption of national

standards implementing Eurocodes, associated problems and research and legislation needs, strategies for training and training materials, problems with developing nationally determined parameters, identification of research institutions with Eurocodes experience, and ways to achieve approved design guidelines.

For more information email artur.pinto@jrc.it or visit <http://elsa.jrc.it>.

Austrian Eurocodes website launched

The Austrian Standards Institute ON has launched a website dedicated to implementation of German versions of the new European structural design codes in Austria at www.eurocode.at.

Eurocodes Expert chairman Haig Gulvanessian recently visited Vienna and said: 'I am extremely impressed with everything that the Austrians are doing with implementation of the Eurocodes.'

The new Austrian Eurocodes site, which is in both German and English, mirrors the Eurocodes Expert website but focuses on news and information concerning implementation of German-language versions of the Eurocodes in Austria.

It also provides an overview of each individual Eurocode part and includes details of forthcoming German-language training events.

For more information email jochen.fornather@on-norm.at

Progress with Spanish language versions

Spain's national standards authority AENOR has so far published the following the following Spanish versions of Eurocodes:

- UNE-EN 1990
- UNE-EN 1991-1-1
- UNE-EN 1991-1-2
- UNE-EN 1991-1-3

- UNE-EN 1991-1-5
- UNE-EN 1991-2

Publication of Eurocodes in Spain is considered critical for their take-up in the Spanish-speaking countries of South America.

For further information contact Raquel Martinez Egido at ramartinez@aeon.es or visit www.aeon.es.

Malaysia and Vietnam to adopt Eurocodes

The Governments of Singapore, Malaysia and Vietnam have announced they will base their future national structural design standards on the new Eurocodes, in consultation with British Standards Institution (BSI).

The announcements follow recent high-level Eurocode seminars in the three countries run by BSI in partnership with the Office of the Deputy Prime Minister and UK Trade and Investment.

Other promotional seminars have been held recently in Dubai, Hong Kong, Beijing and Shanghai and feedback has been 'encouraging', according to BSI. Further opportunities in India and the Middle East are now being explored.

BSI director Mike Low says: 'In emerging markets, countries are often implementing standards from a variety of international sources and having difficulty interpreting them. Education and training are vital for the successful implementation of standards and that's where BSI is taking a lead role.'

Stimulating adoption of Eurocodes in non-European markets should benefit British manufacturers and suppliers of construction-related products, systems and services, according to BSI.

'We are providing a channel for UK businesses to reach new markets and a platform on which to build their international relationships,' says Low.

For more information contact Giles Grant at BSI on 020 8996 7844 or email giles.grant@bsi-global.com ■

EN 1990 'Eurocode 0' – Basis

CEN is due to publish a new bridges annex for EN 1990 *Basis of structural design* – also known as 'Eurocode 0' – in December 2005. It will effectively amend the existing published version of the code, which currently only has an annex covering buildings.

BSI is likely to publish an amended UK version of Eurocode 0, containing both annexes A1 and A2, in

March 2006.

A revised UK national annex (not to be confused with the code annexes) is likely to follow in June 2006. The current national annex was published in December 2004, the first to appear in the UK.

Eurocodes Expert published *Designers Guide to EN 1990 Eurocode: Basis of Structural Design* written by

Haig Gulvanessian, chairman of the Eurocode 0 drafting committee, with Jean-Armand Calgareo and Milan Holický in 2002 – see publications list on page 8 for further details.

Eurocodes Expert is also running a one-day course on Eurocode 0 in London on 16 March 2006 – see events list on page 7 for further details. ■

BS EN number	Title	CEN availability date	BSI publication date	BS superseded	UK national annex publication date
BS EN 1990:2002	Basis of design for structural Eurocodes	04/02 (amended with Annex A2 for bridges 12/05)	07/02 (03/06)	-	12/04 (06/06)

Bold = published

EN 1991 Eurocode 1 – Actions

CEN has published seven of the 10 parts of *Eurocode 1: Actions on structures* and is set to publish the remainder by May 2006. Parts 1-7 and 3 are out for voting and Part 4 is already approved.

BSI has published UK versions of six parts and is due to publish the UK national annex for the first part in December 2005. UK national annexes for all parts are scheduled for publication by November 2006.

Eurocodes Expert is publishing a series of designers' guides on various parts on Eurocode 1 in early 2006 (see publications list on page 8) and is running a one-day course on Eurocode 1 in London on 16 February 2006. ■

BS EN number	Title	CEN availability date	BSI publication date	BS superseded	UK national annex publication date
BS EN 1991-1-1:2002	Eurocode 1: Actions on structures – Part 1-1: General actions – Densities, self-weight, imposed loads for buildings	04/02	07/02	BS 6399-1:1996	12/05
BS EN 1991-1-2:2002	Eurocode 1: Actions on structures – Part 1-2: General actions – Actions on structures exposed to fire	11/02	11/02	-	02/06
BS EN 1991-1-3:2003	Eurocode 1: Actions on structures – Part 1-3: General actions – Snow loads	07/03	07/03	BS 6399-3:1988	12/05
BS EN 1991-1-4	Eurocode 1: Actions on structures – Part 1-4: General actions – Wind actions	04/05	04/05	BS 6399-2:1997 BS 5400-2	08/06
BS EN 1991-1-5:2003	Eurocode 1: Actions on structures – Part 1-5: General actions – Thermal actions	10/03	03/04	BS 5400-2:1978	09/06
BS EN 1991-1-6	Eurocode 1: Actions on structures – Part 1-6: General actions – Actions during execution	07/05	11/05	-	10/06
BS EN 1991-1-7	Eurocode 1: Actions on structures – Part 1-7: General actions – Accidental actions	05/06*	05/06	-	10/06
BS EN 1991-2:2003	Eurocode 1: Actions on structures – Part 2: Traffic loads on bridges	09/03	10/03	BS 5400-1,2	11/06
BS EN 1991-3	Eurocode 1: Actions on structures – Part 3: Actions induced by cranes and machinery	05/06*	06/06	-	10/06
BS EN 1991-4	Eurocode 1: Actions on structures – Part 4: Silos and tanks	02/06**	02/06	-	11/06

Bold = published, ** = positively voted and awaiting publication, * = at formal vote

EN 1992 Eurocode 2 – Concrete

CEN published the general and fire design parts of (1-1 and 1-2) of *Eurocode 2: Design of concrete structures* in 2004 and part 2 on bridges in November 2005. In December 2005, BSI is likely to publish a UK version for part 2 as well as national annexes for parts 1-1 and 1-2, such that it will soon be possible for the first time to produce Eurocode-compliant designs for concrete buildings.

The current British standard BS 8110 *Design of Reinforced Concrete Structures*, BS 8007 *Design of Concrete Structures for Retaining Aqueous Liquids* and BS 5400 *Steel and Concrete Bridge Design* are due to be withdrawn by 2010, but BS 8110 may be withdrawn as early as January 2008.

PD6687 – the background document to the UK

national annex – explains that while not all Eurocodes are available or are covered by UK national annexes, relevant current British Standards can be used.

Examples include design of foundations and couplers.

In the long term, Eurocode 2 is anticipated to result in more economic structures so conceptual design done to, say, BS 8100 may confidently be taken through to detail design using Eurocode 2.

Eurocodes Expert has just published *Designers' guide to EN 1992-1-1 Eurocode 2 Design for concrete structures* written by Nary Narayanan, chairman of the Eurocode 2 subcommittee, and Andrew Beeby, professor of structural design at Leeds University. Eurocodes Expert is also running a one-day course on

Eurocode 2 in Bristol on 10 January 2006.

The Institution of Structural Engineers will publish a Eurocode 2 design manual early in 2006. The manual is being written by a task group chaired by Derek Pike. The IStructE/Concrete Society publication *Standard method of detailing structural concrete* is also being updated to reflect Eurocode requirements, part-financed by the DTI Partners in Innovation Scheme.

Additionally a range of online support resources, including eight *How to design* leaflets, is being made available via The Concrete Centre's dedicated Eurocode 2 website www.eurocode2.info. For further information contact Andrew Minson at the Concrete Centre on 070 0450 0500 or email aminson@concretecentre.com ■

BS EN number	Title	CEN availability date	BSI publication date	BS superseded	UK national annex publication date
BS EN 1992-1-1	Eurocode 2: Design of concrete structures – Part 1-1: General – Common rules for building and civil engineering structures	12/04	12/04	BS 8110-1:1997 BS 8110-2 BS 8110-3	12/05
BS EN 1992-1-2	Eurocode 2: Design of concrete structures – Part 1-2: General – Structural fire design	12/04	02/05	-	12/05
BS EN 1992-2	Eurocode 2: Design of concrete structures – Part 2: Bridges	11/05	12/05	BS 5400-4:1990 BS 5400-7 BS 5400-8	10/06
BS EN 1992-3	Eurocode 2: Design of concrete structures – Part 3: Liquid-retaining and containment structures	04/06**	04/06	BS 8007	11/06

Bold = published, ** = positively voted and awaiting publication

EN 1993 Eurocode 3 – Steel

EN 1993 *Eurocode 3: Design of steel structures* has more parts than any other Eurocode. CEN and BSI have so far published five of the 20 parts while a further eight parts are out for voting and due to be available in March 2006. The later-added part 1-12 on high-strength steels will be the last to be published in November 2006.

Dates for UK national annexes are currently a little uncertain, though most are likely to be out by the end of 2006. The Steel Construction Institute (SCI) crossed swords with BSI earlier in 2005 over plans to neutralise the potential 6–8% cost savings offered by Eurocode 3

over BS 5950. BSI was planning to do this by increasing the recommended material safety factor from 1.00 to 1.05 or 1.10 in the national annex – but SCI director Graham Owens persuaded construction minister Nigel Griffiths to intervene.

There has also been a disagreement between BSI and the steel industry over content and copyright of the national annexes. The British Constructional Steelwork Association has funding to draft national annexes for the first five published parts of Eurocode 3 and the first two parts of Eurocode 4 but wants to include its own

additional information against the advice of BSI, which wants minimal content and full copyright. Work will thus not start until the issue is resolved, which is due to be by the end of November 2005.

Eurocodes Expert published *Designers' Guide to EN 1993-1-1* written by Leroy Gardner and David Nethercot in 2004 and in early 2006 is publishing *Designers' Guide to EN 1993-2* by Chris Hendry and David Smith. It also running one-day courses on Eurocode 3 in Birmingham and Altrincham on 18 January 2006 and 20 March 2006 respectively.

To facilitate use of the steel Eurocodes for routine buildings, the key players in the European steel industry are launching the STEEL website in June 2006 at www.eurosteel.info. This multi-lingual site, an

alpha version of which is already available, will provide a series of on-line, Eurocode-compliant design guides for routine multi-storey buildings, industrial buildings, residential construction and fire

performance.

For further information contact Christine Roszykiewicz, STEEL project manager at the SCI on 01344 623345 or email christine@steel-sci.com ■

BS EN number	Title	CEN availability date	BSI publication date	BS superseded	UK national annex publication date
BS EN 1993-1-1	Eurocode 3: Design of steel structures – Part 1-1: General – General rules for the structural design of buildings and civil engineering works in steel	05/05	05/05	BS 5400-3, BS 5950-1-	10/06
BS EN 1993-1-2	Eurocode 3: Design of steel structures – Part 1-2: General – Structural fire design	04/05	04/05	BS 5950-8	10/06
BS EN 1993-1-3	Eurocode 3: Design of steel structures – Part 1-3: General – Cold formed thin gauge members and sheeting	03/06*	05/06	BS 5950-4, BS 5950-5, BS 5950-6	10/06
BS EN 1993-1-4	Eurocode 3: Design of steel structures – Part 1-4: General – Structures in stainless steel	03/06*	06/06	-	10/06
BS EN 1993-1-5	Eurocode 3: Design of steel structures – Part 1-5: General – Strength and stability of planar plated structures without transverse loading	03/06*	06/06	BS 5400-3, BS 5960-1	10/06
BS EN 1993-1-6	Eurocode 3: Design of steel structures – Part 1-6: General – Strength and stability of shell structures	03/06*	06/06	-	10/06
BS EN 1993-1-7	Eurocode 3: Design of steel structures – Part 1-7: General – Design values for plated structures subjected to out of plane loading	05/06	10/06	BS 5400-3	12/06
BS EN 1993-1-8	Eurocode 3: Design of steel structures – Part 1-8: General – Design of joints	05/05	05/05	BS 5400-3, BS 5950-1, BS 5950-9	10/06
BS EN 1993-1-9	Eurocode 3: Design of steel structures – Part 1-9: General – Fatigue strength	05/05	05/05	BS 5400-10, BS 7608	10/06
BS EN 1993-1-10	Eurocode 3: Design of steel structures – Part 1-10: General – Material toughness and through-thickness assessment	05/05	05/05	BS 5400-3, BS 5950-1	10/06
BS EN 1993-1-11	Eurocode 3: Design of steel structures – Part 1-11: General – Design of structures with tension components	03/06*	05/06	-	10/06
BS EN 1993-1-12	Eurocode 3: Design of steel structures – Part 1-12: General – Supplementary rules for high strength steels	11/06	11/06	-	12/06
BS EN 1993-2	Eurocode 3: Design of steel structures – Part 2: Bridges	03/06*	06/06	BS 5400-3	10/06
BS EN 1993-3-1	Eurocode 3: Design of steel structures – Part 3-1: Towers, masts and chimneys – Towers and masts	03/06*	06/06	BS 8100-1	10/06
BS EN 1993-3-2	Eurocode 3: Design of steel structures – Part 3-2: Towers, masts and chimneys – Chimneys	03/06*	06/06	BS 4076:1989	10/06
BS EN 1993-4-1	Eurocode 3: Design of steel structures – Part 4-1: Silos, tanks and pipelines – Silos	05/06	10/06	-	12/06
BS EN 1993-4-2	Eurocode 3: Design of steel structures – Part 4-2: Silos, tanks and pipelines – Tanks	05/06	10/06	-	12/06
BS EN 1993-4-3	Eurocode 3: Design of steel structures – Part 4-3: Silos, tanks and pipelines – Pipelines	05/06	10/06	-	12/06
BS EN 1993-5	Eurocode 3: Design of steel structures – Part 5: Piling		10/06	BS 499	12/06
BS EN 1993-6	Eurocode 3: Design of steel structures – Part 6: Crane supporting structures	05/06	10/06	BS 2853	12/06

Bold = published, * = at formal vote

EN 1994 Eurocode 4 – Composite

CEN has now published all three parts of EN1994 *Eurocode 4: Design of composite steel and concrete structures* and BSI will publish the last two parts in

December 2005. UK national annexes for all parts should be available by October 2006.

Eurocodes Expert published *Designers' Guide to*

EN1994-1-1: Eurocode 4: Design of composite steel and concrete structures written by Roger Johnson and David Anderson in 2004. ■

BS EN number	Title	CEN availability date	BSI publication date	BS superseded	UK national annex publication date
BS EN 1994-1-1	Eurocode 4: Design of composite steel and concrete structures – Part 1-1: General – Common rules and rules for buildings	12/04	02/05	BS 5950-3-1:1990 BS 5940-2-	10/06
BS EN 1994-1-2	Eurocode 4: Design of composite steel and concrete structures – Part 1-2: General – Structural fire design	09/05	12/05	-	10/06
BS EN 1994-2	Eurocode 4: Design of composite steel and concrete structures – Part 2: Bridges	11/05	12/05	BS 5400-5:1979	10/06

Bold = published

EN 1995 Eurocode 5 – Concrete

CEN and BSI published all three parts of EN1995 *Eurocode 5: Design of timber structures* at the end of 2004 and UK national annexes have since been drafted and circulated for public comment with a view to being available in February 2006. As such EN 1995 will be the first complete material Eurocode available for use in the UK.

The nationally determined parameters for design against excessive floor vibrations resulted in a considerable volume of submissions but the issue is now nearing resolution. Vibration was not really an

issue with existing national codes, which were written for traditional solid timber joisted floors which, if correctly sheathed and supported, perform well.

However, newer types of timber composite floor, which often have longer spanning capability and are being used to provide large, open room spaces are more prone to vibration. It was thus important the nationally determined parameters and accompanying notes were chosen carefully, leaving scope for further research results.

Eurocodes Expert is set to publish *Designers' Guide*

to EN 1995-1-1 Eurocode 5: Design of timber structures – Common rules and rules for buildings by Chris Mettem, chief research engineer at Trada Technology, in January 2006.

The Institution Structural Engineers has also created a task group chaired by Richard Harris of Buro Happold to develop a Eurocode 5 designers' manual, due for publication in autumn 2006.

For further information contact Chris Mettem on 01494 569600 or email cmettem@trada.co.uk ■

BS EN number	Title	CEN availability date	BSI publication date	BS superseded	UK national annex publication date
BS EN 1995-1-1	Eurocode 5: Design of timber structures – Part 1-1: General – Common rules and rules for buildings	11/04	12/04	BS 5268-2:2002 BS 5268-3 BS 5268-6-1 BS 5268-6-2 BS 5268-7-1 BS 5268-7-7	02/06
BS EN 1995-1-2	Eurocode 5: Design of timber structures – Part 1-2: General – Structural fire design	11/04	12/04	BS 5268-4-1 BS 5268-4-2	02/06
BS EN 1995-2	Eurocode 5: Design of timber structures – Part 2: Bridges	11/04	12/04	-	02/06

Bold = published

EN 1996 Eurocode 6 – Masonry

By December 2005 CEN will have published all four parts of *Eurocode 6: Design of Masonry Structures*.

The first two parts are already published and the remaining parts are approved and waiting for publication.

BSI should have UK versions of all parts published by April 2006, followed by national annexes in October 2006.

Eurocodes Expert is publishing *Designers' Guide to EN 1996 Eurocode 6: Design of Masonry Structures*

written by John Morton in January 2006.

The Institution of Structural Engineers is also publishing a Eurocode 6 design manual in March 2007, which is currently being drafted by a task group chaired by John Moore. ■

BS EN number	Title	CEN availability date	BSI publication date	BS superseded	UK national annex publication date
BS EN 1996-1-1	Eurocode 6: Design of masonry structures – Part 1-1: General – Rules for reinforced and unreinforced masonry, including lateral loading	11/05	12/05	BS 5628-1:1992 BS 5268-2 - BS 5268-3	07/06
BS EN 1996-1-2	Eurocode 6: Design of masonry structures – Part 1-2: General – Structural fire design	05/05	06/05	-	07/06
BS EN 1996-2	Eurocode 6: Design of masonry structures – Part 2: Selection and execution of masonry	12/05**	04/06	-	10/06
BS EN 1996-3	Eurocode 6: Design of masonry structures – Part 3: Simplified calculation methods for masonry structures	12/05**	04/06	-	10/06

Bold = published, ** = positively voted and awaiting publication

EN 1997 Eurocode 7 – Geotechnical

CEN and BSI published the general rules part of *Eurocode 7: Geotechnical design* at the end of 2004 and the remaining part on ground investigation and testing is due out in summer 2006, followed by the UK national annex in November 2006.

It is the world's first geotechnical code to share a common philosophy with the design methodology for structures.

Eurocodes Expert published *Designers Guide to EN 1997-1* written by Roger Frank, Christophe Bauduin,

Richard Driscoll, Michael Kavvas, Niels Krebs Ovesen, Trevor Orr and Bernd Schuppener in 2004. It is also running two-day courses on the code in London on 24–25 January 2006 and in Birmingham on 21–22 March 2006. ■

BS EN number	Title	CEN availability date	BSI publication date	BS superseded	UK national annex publication date
BS EN 1997-1	Eurocode 7: Geotechnical design – General rules	11/04	12/04	BS 6031:1981 BS 8004 BS 8081 BS 8002 BS 8006 BS 8008 BS 5930	08/06
BS EN 1997-2	Eurocode 7: Geotechnical design – Part 2: Ground investigation and testing	08/06	09/06	-	11/06

Bold = published

EN 1998 Eurocode 8 – Earthquake

CEN has published four of the six parts of *Eurocode 8: Design of structures for earthquake resistance* and Part 2 on bridges is now approved and should be out in December 2005.

BSI is also likely to have published these five parts by December and national annexes for most parts are due to be completed in summer 2006.

The UK national forewords to parts 1 and 5 state: 'There are generally no requirements in the UK to consider seismic loading, and the whole of the UK may be considered an area of very low seismicity in which the provisions of EN 1998 need not apply. However, certain types of structure, by reason of their function, location or form, may warrant an explicit consideration

of seismic actions. It is the intention in due course to publish separately background information on the circumstances in which this might apply in the UK.'

Funding is being sought to provide the promised background information, both on appropriate levels of seismicity to design for in the UK, and on the types of structure for which an explicit seismic design might be required. The intention is to refer to this background information in the UK national annexes, which will also give guidance on appropriate values for the nationally determined parameters, where appropriate.

Eurocodes Expert has just published *Designers' guide to EN 1998-1 & 1998-5 Eurocode 8 Design provisions for earthquake resistant structures* written by

Michael Fardis, chairman of the Eurocode 8 subcommittee and professor of concrete structures at Patras University in Greece. His co-authors are Eduardo Carvalho, Amr Alnashai, Ezio Faccioli, Paolo Pinto and Andre Plumier.

The Institution of Structural Engineers, the Society for Earthquake and Civil Engineering Dynamics (SECED) and SECED's French counterpart, AFPS, are producing a design manual to cover the seismic design of building structures in areas of moderate to high seismicity, which will aim to cover the requirements of parts 1 and 5 for the majority of straightforward buildings.

For further information contact Edmund Booth on 020 8925 0011 or email edmund@booth-seismic.co.uk ■

BS EN number	Title	CEN availability date	BSI publication date	BS superseded	UK national annex publication date
BS EN 1998-1	Eurocode 8: Design of structures for earthquake resistance – Part 1: General rules for seismic actions and rules for buildings	12/04	04/05	-	07/06
BS EN 1998-2	Eurocode 8: Design of structures for earthquake resistance – Part 2: Bridges	12/05**	12/05	-	07/06
BS EN 1998-3	Eurocode 8: Design of structures for earthquake resistance – Part 3: Strengthening and repair of buildings	06/05	12/05	-	08/06
BS EN 1998-4	Eurocode 8: Design of structures for earthquake resistance – Part 4: Silos, tanks and pipelines	06/06	07/06	-	12/06
BS EN 1998-5	Eurocode 8: Design of structures for earthquake resistance – Part 5: Foundations, retaining structures and geotechnical aspects	11/04	04/05	-	07/06
BS EN 1998-6	Eurocode 8: Design of structures for earthquake resistance – Part 6: Towers, masts and chimneys	06/05	11/05	-	07/06

Bold = published, ** = positively voted and awaiting publication

EN 1999 Eurocode 9 – Aluminium

CEN and BSI are scheduled to publish all five parts of Eurocode 9: Design of aluminium structures during 2006 and BSI is hoping to get national annexes published by December 2006.

However, there are currently some issues in Britain with CEN's proposals for fatigue and continuous control for EN 1999-1-3 and UK experts are currently trying to negotiate a solution.

Further developments will be announced in the news pages of the Eurocodes Expert website at www.eurocodes.co.uk ■

BS EN number	Title	CEN availability date	BSI publication date	BS superseded	UK national annex publication date
BS EN 1999-1-1	Eurocode 9: Design of aluminium structures – Part 1-1: General – Common rules	06/06	07/06	-	12/06
BS EN 1999-1-2	Eurocode 9: Design of aluminium structures – Part 1-2: General – Structural fire design	06/06	07/06	-	No NA
BS EN 1999-1-3	Eurocode 9: Design of aluminium structures – Part 1-3: Additional rules for structures susceptible to fatigue	10/06	11/06	-	12/06
BS EN 1999-1-4	Eurocode 9: Design of aluminium structures – Part 1-4: Supplementary rules for trapezoidal sheeting	09/06	10/06	-	12/06
BS EN 1999-1-5	Eurocode 9: Design of aluminium structures – Part 1-5: Supplementary rules for shell structures	09/06	10/06	-	12/06

Frequently asked questions

Eurocodes Expert is developing a database of responses to frequently asked questions about the Eurocodes. The latest additions to the list of FAQs on the website at www.eurocodes.co.uk all relate to EN 1990 'Eurocode 0' and are as follows.

What is the relationship between EN 1990 and ISO 2394?

Normally, in civil engineering, ISO standards are rather 'pre-standards' that distil an international consensus from the broadest possible base of stakeholder groups. In principle, scientific discussions can take place in ISO commissions more than in CEN commissions as they are in less of a hurry. But, in some cases, ISO standards are used to give more weight to other standards, such as US standards for concrete. In the case of ISO 2394, the principles of the document are very close to the principles of EN 1990, primarily because many experts were both members of ISO and CEN groups. However, EN 1990 is a fully operable code, while ISO 2394 is not.

Why does the term 'reliability index' not appear in the formal part of EN 1990?

Many countries and experts involved in the drafting and commenting of ENV 1991-1 (now EN 1990) were very reluctant to the official introduction of the concept of 'reliability index' in the formal part of these documents. In fact, this concept is useful for calibration studies for design codes and for direct application in special cases by experts. But for average European design engineers, this concept is not useful and not fully understood. For that reason, it has been introduced only in the annexes to EN 1990.

Which annexes in EN 1990 are a formal part of the code, and which are informal?

Generally, 'normative' annexes are part of the standard. 'Informative' annexes are only complementary documents containing, in general, advanced ideas or concepts, innovative methods or numerical values which are not unanimously agreed. But these documents, or parts of them, may be used depending on the national competent authority in a member state.

What are the differences between 'design reference period' and 'design working life'?

The design working life is the assumed period for which a structure is to be used for its intended purpose with anticipated maintenance but without major repair being necessary. The design working life is normally decided by the client. The reference period is a conventional period for the determination of characteristic values of variable actions. Two basic reference periods are introduced in EN 1990: 1 year and 50 years, and the target values of β index are given for these two reference periods. For the characteristic values of material properties, it is assumed to take into account the β value corresponding to 50 years (3,8).

How is reliability index β decided and does it cover all kinds of construction?

The target values of β , listed in annex C of EN 1990, come from studies and research carried out by CEB in the 70s. In fact, the main target value (3,8) resulted from several examples with various national codes. Some documentation may be found in CEB bulletins. This target value is usable for the construction works (mainly buildings) belonging to the medium class of consequences (CC2 in EN 1990). Other values may have to be defined for other types of construction works.

Eurocodes Expert Users' Group

Eurocodes Expert has established a Eurocodes Users' Group to provide support and aid on the use, interpretation and implementation of the new codes.

Joining the Users' Group will help you and your organisation to understand Eurocode developments as well as feed back your views and needs to Eurocodes Expert.

Users' Group membership benefits include

- free copy of the *Eurocodes News* newsletter with updates on the Eurocodes programme and timetable, case studies and articles by industry experts
- email help for basic queries on the Eurocodes programme, implementation and available support
- low-cost presentations to organisations on conversion and implementation
- regular email updates on the Eurocode programme
- 20% discount on Eurocode publications.

Membership of the Users' Group will be free until May 2006.

To subscribe, visit www.eurocodes.co.uk or call the Eurocodes Expert manager on 020 7665 2446. ■

Eurocodes events

Listed below are all forthcoming Eurocode-related training events listed on the Eurocodes Expert database. Please let the editor know of any other Eurocode-related events organised by recognised construction industry associations.

Date	Event	Venue	Duration	Cost	Organiser	Telephone	Email
10 January 2006	Design of concrete structures to Eurocode 2	Bristol	1 day	£235.00	Eurocodes Expert	0800 1830133	eurocodes@thomastelford.com
18 January 2006	Design of steel structures to Eurocode 3	Birmingham	1 day	£235.00	Eurocodes Expert	0800 1830133	eurocodes@thomastelford.com
24 January 2006	Geotechnical design to Eurocode 7	London	2 days	£445.00	Eurocodes Expert	0800 1830133	eurocodes@thomastelford.com
16 February 2006	EN 1991 Eurocode 1: Actions on structures	London	1 day	£235.00	Eurocodes Expert	0800 1830133	eurocodes@thomastelford.com
28 February 2006	The structural Eurocodes – an introduction	Birmingham	Evening	FREE	Institution of Structural Engineers	01788 823633	col.d@zetnet.co.uk
16 March 2006	Eurocodes: the basis of structural design (EN 1990)	London	1 day	£235.00	Eurocodes Expert	0800 1830133	eurocodes@thomastelford.com
21 March 2006	Geotechnical design to Eurocode 7	Birmingham	2 days	£445.00	Eurocodes Expert	0800 1830133	eurocodes@thomastelford.com
29 March 2006	Design of steel structures to Eurocode 3	Altrincham	1 day	£235.00	Eurocodes Expert	0800 1830133	eurocodes@thomastelford.com
24 April 2006	Eurocode 3 – structural steelwork	Guildford	Evening	FREE	Institution of Structural Engineers	01483 233050	mitchell-horton@m-h96.freereserve.co.uk



Eurocodes publications

Eurocodes Expert aims to provide details of all significant publications relating to Eurocodes, including the codes themselves, guide books, journal papers and articles.

Several of the documents are free to download via the Eurocodes Expert website at www.eurocodes.co.uk, which also includes contact details for all other publications.

Listed below are all publications from the Eurocodes Expert database for 2004–2006. They are categorised by the Eurocodes they relate to, with the most recent or forthcoming publications shown first.

Please let the editor know of any errors or omissions. In due course it is hoped to include software titles.

Author	Title	Year published	Publisher	Cost
General				
Bar P and Bossenmayer H	Report on progress on Eurocodes to 60th SCC	2004	European Commission	FREE
Bright N and Roberts J	Structural Eurocodes: Guide to the structural Eurocodes for students of structural design	2004	BSI	£60
IStructE	National strategy for implementation of the structural Eurocodes: design guidance	2004	Institution of Structural Engineers	FREE
EN 1990 Eurocode 0 – Basis				
Gulvanessian H, Holický M	Eurocodes: using reliability analysis to combine action effects	2005	Institution of Civil Engineers – Structures and Buildings	FREE
Gulvanessian H, Calgario J-A, Holický M	Designers' guide to EN 1990 Eurocode: Basis of structural design	2002	Eurocodes Expert	£50
EN 1991 Eurocode 1 – Actions				
Moore D, Bailey C, Lennon T, Wang Y	Designers' guide to EN 1991-1-2, EN 1993-1-2 and EN 1994-1-2: Fire engineering (Actions on steel and composite structures)	2006	Eurocodes Expert	£55
Cook N	Designers' guide to EN 1991-1-4 Eurocode 1: Actions on structures – Wind actions	2006	Eurocodes Expert	£50
Calgario J-A, Tschumi M, Shetty N, Gulvanessian H	Designers' guide to EN 1992-2, 1991-1-3 and 1991-1-5 to 1.7 Eurocode 1: Actions on structures – Traffic loads and other actions on bridges	2006	Eurocodes Expert	£60
Kirby BR	Calibration of Eurocode 1: actions on structures – Part 1.2: actions on structures exposed to fire	2004	Institution of Structural Engineers – The Structural Engineer	£195
Breeze G	Dynamic response of buildings to wind loads – comparing Eurocode prEN 1991-1-4 with other current UK methods	2004	Institution of Structural Engineers – The Structural Engineer	£195
Sims P	Current UK status of Eurocode on snow loads (EN 1991-1-3)	2004	Eurocodes Expert	
EN 1992 Eurocode 2 – Concrete				
Hendry CR, Smith DA	Designers' guide to EN 1992-2 Eurocode 2: Design of concrete structures – Part 2: Bridges – Design and detailing rules	2006	Eurocodes Expert	£65
Calgario J-A, Tschumi M, Shetty N, Gulvanessian H	Designers' guide to EN 1992-2, 1991-1-3 and 1991-1-5 to 1.7 Eurocode 2: Design of concrete structures	2006	Eurocodes Expert	£60
IStructE task group chaired by Derek Pike	Eurocode 2 Manual (Concrete)	2006	Institution of Structural Engineers / Concrete Centre / BCA	£TBA
IStructE / Concrete Society task group chaired by Jo Kenward	Standard method of detailing structural concrete – 3rd edition	2005	Institution of Structural Engineers / Concrete Society	£TBA
Narayanan R, Beeby A	Designers' guide to EN 1992-1-1: Eurocode 2: Design of concrete structures	2005	Eurocodes Expert	£65
Concrete Industry Eurocode 2 Group (CIEG)	Eurocode 2 design flowcharts	2005	Concrete Industry Eurocode 2 Group (CIEG)	FREE
Concrete Industry Eurocode 2 Group (CIEG)	How to design concrete structures using Eurocode 2: deflections	2005	Concrete Industry Eurocode 2 Group (CIEG)	FREE
Moss R, Brooker O	How to design concrete structures using Eurocode 2: flat slabs	2005	Concrete Industry Eurocode 2 Group (CIEG)	FREE
Webster R, Brooker O	How to design concrete structures using Eurocode 2: foundations	2005	Concrete Industry Eurocode 2 Group (CIEG)	FREE
Concrete Industry Eurocode 2 Group (CIEG)	How to design concrete structures using Eurocode 2: columns and walls	2005	Concrete Industry Eurocode 2 Group (CIEG)	FREE
Moss R, Brooker O	How to design concrete structures using Eurocode 2: slabs	2005	Concrete Industry Eurocode 2 Group (CIEG)	FREE
Moss R, Brooker O	How to design concrete structures using Eurocode 2: beams	2005	Concrete Industry Eurocode 2 Group (CIEG)	FREE
Brooker, O	How to design concrete structures using Eurocode 2: getting started	2005	Concrete Industry Eurocode 2 Group (CIEG)	FREE
Narayanan R, Brooker O	How to design concrete structures to Eurocode 2: introduction to Eurocodes	2005	Concrete Industry Eurocode 2 Group (CIEG)	FREE
Moss R, Webster R	Eurocode 2 v. BS 8110	2005	Concrete Industry Eurocode 2 Group (CIEG)	FREE
Webster R	Practical use of Eurocode 2	2005	Concrete Industry Eurocode 2 Group (CIEG)	FREE
EN 1993 Eurocode 3 – Steel				
Moore D, Bailey C, Lennon T, Wang Y	Designers' guide to EN 1991-1-2, EN 1993-1-2 and EN 1994-1-2: Fire engineering (Actions on steel and composite structures)	2006	Eurocodes Expert	£55
Lim JBP, King CM, Rathbone AJ, Davies J M, Edmonson V	Eurocode 3 and the in-plane stability of portal frames	2005	Institution of Structural Engineers – The Structural Engineer	£195
Gardner L, Nethercot D	Designers' guide to EN 1993-1-1 Eurocode 3: Design of steel structures – General rules and rules for buildings	2005	Eurocodes Expert	£50
EN 1994 Eurocode 4 – Composite				
Moore D, Bailey C, Lennon T, Wang Y	Designers' guide to EN 1991-1-2, EN 1993-1-2 and EN 1994-1-2: Fire engineering (Actions on steel and composite structures)	2006	Eurocodes Expert	£55
Johnson R P, Anderson D	Designers' guide to EN 1994-1-1: Eurocode 4: Design of composite steel and concrete structures	2004	Eurocodes Expert	£50
EN 1995 Eurocode 5 – Timber				
Mettem CJ	Designers' guide to EN 1995-1-1 Eurocode 5: Design of timber structures – Common rules and rules for buildings	2006	Eurocodes Expert	£55
IStructE task group chaired by Richard Harris	Eurocode 5 Manual (Timber)	2006	Institution of Structural Engineers / Trada	£TBA
EN 1996 Eurocode 6 – Masonry				
Morton J	Designers' guide to EN 1996 Eurocode 6: Design of masonry structures	2006	Eurocodes Expert	£50
EN 1997 Eurocode 7 – Geotechnical				
Frank R, Bauduin C, Driscoll R, Kavvasas M, Krebs Ovesen N, Orr T, Schuppener B	Designers' guide to EN 1997-1 Eurocode 7: Geotechnical design – General rules	2004	Eurocodes Expert	£50
EN 1998 Eurocode 8 – Earthquake				
Fardis M, Carvalho E, Alnashai A, Faccioli E, Pinto P, Plumier A	Designers' guide to EN 1998-1 and 1998-5 Eurocode 8: Design provisions for earthquake resistant structures	2005	Eurocodes Expert	£75
Booth E, Skipp B	Eurocode 8 and its implications for UK-based structural engineers	2004	Institution of Structural Engineers – The Structural Engineer	£195



Constructive contributions to the newsletter are always welcomed and should be emailed to the editor Simon Fullalove at simon@fullalove.com telephone: 020 8744 2028 fax: 020 8891 2462

The current issue of the newsletter is also available on the Eurocodes Expert web site at www.eurocodes.co.uk.

All other enquires should be made to the Eurocodes Expert manager Rekha Thawrani, Thomas Telford Ltd, 1 Heron Quay, London, E14 4JD

telephone 020 7665 2303 fax 020 7538 2847 e-mail eurocodes@thomastelford.com

New concrete and earthquake design guides



Eurocodes Expert has just published two authoritative designers' guides on the new European concrete and earthquake structural design codes. Both are written by the chairmen of the relevant CEN drafting committees.

Designers' guide to EN 1992-1-1 Eurocode 2 Design for concrete structures is written by Nary Narayanan, chairman of the Eurocode 2 subcommittee and consultant with Clark Smith Partnership. His co-author is Andrew Beeby, professor of structural design at Leeds University.

Designers' guide to EN 1998-1 & 1998-5 Eurocode 8 Design provisions for earthquake resistant structures is written by Michael Fardis, chairman of the Eurocode 8 subcommittee and professor of concrete structures at Patras University in Greece. His co-authors are Dr Eduardo Carvalho, Professor Amr Alnashai, Professor Ezio Faccioli, Professor Paolo Pinto and Professor Andre Plumier.

The 256-page concrete design guide will cost £65 and the 336-page seismic guide costs £75.

Further details are in the publications database on the Eurocodes Expert website at www.eurocodes.co.uk or contact the ICE bookshop on 020 7665 2019, email bookshop@ice.org.uk

New training courses on Eurocodes 2, 3 and 7

Eurocodes Expert Training has launched a series of new one- and two-day courses on the new Eurocodes covering concrete, steel and geotechnical design. The new courses build on the continuing success of the Eurocode 0 and 1 courses covering basis of structural design and actions.

The first one-day course on Eurocode 2, entitled *Design of concrete structures to Eurocode 2*, will take place on 10 January 2006 in Bristol. Using worked examples and tutorials, delegates will undertake design and analysis of the basic elements such as beams, slabs and columns under simple and complex loading, making comparisons with BS 8110 where appropriate.

The new one-day Eurocode 3 course, entitled *Design of steel structures to Eurocode 3*, was launched on 25 November 2005 in London and will be repeated in Birmingham on 18 January 2006 and in Altrincham on 29 March 2006. It focuses on understanding the provisions of Part 1-1: General rules and rules for buildings, supplemented by material on loading, joints and plated structures. Departures from BS 5950 are also highlighted.

Finally, the new two-day Eurocode 7 course, entitled *Geotechnical design to Eurocode 7*, was launched in Bristol on 22 November 2005 and will be repeated in London on 24 January 2006 and in Birmingham on 21 March 2006. Day 1 covers geotechnical standardisation, principles of Eurocode 7 and verification of strength and stability, while day 2 covers design by testing, verification of serviceability, consequences for UK practice and preparing a geotechnical design report.

The costs per delegate are £235 for the one-day events and £445 for the two-day events.

For further information please call Eurocodes Expert Training on 0800 1830133 or email eurocodes@thomastelford.com