

What next for UK Eurocodes strategy?

Kathy Stansfield reports:

The recommendations of a 'National strategy for implementation of the Eurocode prepared by IStructE have been welcomed by the Office of the Deputy Prime Minister. Geoff Harding from the ODPM praised the Institution for the quality of the report and its delivery to a very tight budget and a timetable restricted to only 3 months.

The acknowledgment came during a lively meeting on the Eurocodes strategy which attracted more than 200 people to Imperial College last month.

Mr Harding said that he would welcome a proposal from IStructE to organise a Steering Group to take forward preparations for the introduction of the Eurocodes. The need for such a group was one of the main recommendations in the report.

It was the first opportunity to debate the issues since the report was completed in April as ODPM had placed an embargo on its publication until July. Indeed, the commission for the research itself narrowly missed the ODPM's moratorium on research which is likely to continue until at least the end of the financial year, according to Mr Harding.

The questions over the resources necessary for the final push in a process which has taken 30 years still remain to be settled. Government funds will be needed as well as resources from within the construction industry.

IStructE President, Professor David Nethercot, who chaired the committee which produced the strategy document, told delegates: 'Designers are unlikely to adopt Eurocodes until there is no alternative. Significant investment in training is needed'. There was also a need to co-ordinate the introduction of Eurocodes across the construction

industry, with guidance for clients, designers, regulators, contractors, academics and suppliers.

Prof. Nethercot said that the Eurocodes would be 'the most technically advanced suite of guidance available anywhere in the world' and that there was a good chance that they would be adopted outside the EU.

However, he acknowledged that the sheer volume of material to be absorbed posed problems for practitioners. He said that the structural engineering community needed 'a timeframe in which to plan necessary changes to their ways of working'. One of the most important messages in the strategy was the need for appropriate training and the appropriate time.

The strategy suggested the need for a regularly updated website and a technical helpdesk. BSI must sort out copyright issues so that the necessary information can be made available in various formats.

John Redmond of Hurst Peirce & Malcolm, who was on the committee, said that design costs would increase and insurance claims could rise as a result of the introduction of the codes which contained 'fundamental changes not seen for a generation'. The strategy document suggests that it could cost as much as £250 000 for smaller firms of up to 16 staff to prepare for the Eurocodes, much of this resulting from training needs.

A huge task faces software suppliers who will have to update all their products. Committee member Alan Rathbone of CSC (UK) Ltd pleaded for a consistent UK view, clarification and collaboration at a detailed level. Preparing an Engineering Specification for each piece of software was a major pre-implementation activity. As well as the content of the actual codes, there would be the National Annexes

and non-contradictory, complementary information (NCCI) to take into consideration, he said. All of this would have to be phased in but there were still too many uncertainties.

The views amongst delegates ranged from those who felt that there were advantages in using the Eurocodes as a means of obtaining work within the EU and globally, to those, particularly in small to medium sized practices, who view them as costly and to be avoided for as long as possible.

Some UK organisations, such as the Highways Agency (HA), are well advanced in preparing for working with Eurocodes and on calibration studies with BSI. Sibdas Chakrabarti from the HA told delegates that a huge amount could be saved in research costs by working with European counterparts. Meanwhile other EU countries such as Germany have already incorporated much of the codes into their DIN standards.

There was a lot of debate and misconceptions about the National Annexes (NA) and the NCCI, seen by some as offering a way out of full compliance with the codes. The NAs are still in the early stages, currently being considered by the relevant BSI committees which will eventually issue drafts for comment. They are not, however, the place for background information, warned Geoff Harding. And, he added: 'The NCCI is there to ensure that the guidance falls within the scope of the Eurocodes, not outside it'.

Geoff Harding also explained that Government funding had been provided for calibration studies for



Geoff Harding: ODPM accepts the recommendations

the ENV versions of the codes; the extent to which further calibration of the ENs was required varied from code to code. Roger Johnson argued that the earlier calibration had been carried out assuming the recommended values for some of the partial factors of safety. If these were not adopted in the UK, much of the work would need to be redone.

In response to a question on where the Government stands on public works and Eurocodes requirements, Geoff Harding said: 'The Public Works Directive will require projects to be designed according to the Eurocodes. But it also allows the use of equivalent design rules, so it is not a formal driver'. However he was not sure whether this would change in the future.

- A summary of the strategy appeared in *The Structural Engineer* 3 August 2004; the full document is on the website: www.istructe.org.uk/eurocodes.



More than 200 people attended the lively debate on Eurocodes

Terminal 5 comes under spotlight



An Evening Meeting on 'Heathrow Terminal 5 – design & construction of the 156m span roof' will take place at HQ on Thursday 4 November at 18.00h.

The presentation will cover the evolution of the structural form and build sequence; the innovative node design; the analysis of tolerances and fit up; the fabrication, jigs and castings; the temporary works and strand jacking; and the behaviour during prestressing and load transfer. It will demonstrate how good design and teamwork can bring additional value to clients.

The paper was published in the 21 September issue of *The Structural Engineer*.

Using industrial waste as aggregate under investigation

The added value attributes of industrial waste, when used as aggregate in bulk construction materials like asphalt and concrete, will be investigated in a DTI/WRAP funded project being conducted by BRE, NISP (National Industrial Symbiosis Programme) and MiniWaste Faraday.

The aim of the project is to reduce the disposal of industrial wastes to landfill by demonstrating that these materials can offer real benefits over their primary aggregate alternatives - for example:

- superior abrasion resistance,
- enhanced thermal properties,
- beneficial effects on reinforcement corrosion,
- increased durability.

Following a desk study and industry

workshop, the project will conduct practical demonstrations on a selection of materials not previously used in construction. Results will be disseminated early next year in published papers, and via the WRAP AggRegain website and the BRE website.

'Feedback from waste industry stakeholders is vital to ensure that this work is effective,' says Flavie Moulinier of BRE. 'I'd like to invite anyone wishing to express a view on the potential of particular wastes to add value as aggregate in concrete or asphalt, to contact me.'

- Further information on the project, or to provide feedback, contact Flavie Moulinier (tel 01923 664 560, email moulinierf@bre.co.uk).

Winners collect awards



Pat Buckland collects the Oscar Faber Award for his paper 'Lion's Gate: contributions to suspension bridge engineering' published in *The Structural Engineer*, 20 May 2003 and presented for discussion on 5 June 2003, from IStructE President, David Nethercot. He was unable to attend the presentation in June.



The President presenting Norman Train with his Sir Arnold Waters Medal for his paper 'Contaminated land: UK framework for identification, investigation and remediation' presented at a meeting of the South Eastern Counties Branch.

Events...

Ground heave damage

A seminar on 'Damage to buildings from ground heave: Diagnosis and risk mitigation' will be held on **15 October** at BRE, Watford.

It is aimed at developers, consultants, contractors, building owners and surveyors, who are involved in building development, remedial measures and dispute resolution. It will cover an overview of ground heave; heave of clay soils due to removal of trees; expansion of lime and cement stabilised foundation material caused by sulfate attack; doming of concrete floor slabs due to attack by sulfates in fill and hardcore; uplift of floor slabs as a result of expansive oxidation of pyrites in underlying ground and hardcore and case studies of floor slab heave. The event costs £176.25 (including VAT).

- Further information: Kellie Percival, BRE Events, Garston, Watford, WD25 9XX (tel: 01923 664 766; fax: 01923 664 790; email: events@bre.co.uk).

Verrazano-Narrows Bridge exhibition

In celebration of the 40th anniversary of the opening of the Verrazano-Narrows Bridge linking Brooklyn and Staten Island, New York, the Brooklyn Historical Society in conjunction with MTA Bridges and Tunnels is opening an exhibition on the story of the building of one of the last colossal public works projects in New York City.

The exhibition runs from **November 19 2004 to March 20, 2005**. With scale models of the bridge, original construction drawings by Lili Rethi, photographs, bridge artifacts, and memorabilia from bridge designer Othmar Ammann (the bridge's designer), the exhibition will explore how the bridge's builders overcame political and engineering hurdles, the bridge design and suspension technology, the role of master planner Robert Moses, and the bridge's legacy for New Yorkers. The exhibition will also include a documentary film featuring the stories of some of the 12 000 workers who built the bridge, the neighbourhood people affected by it, and Robert Moses, as well as original construction footage.

- How to get there: Brooklyn Historical Society (corner of Pierrepont and Clinton Streets in Brooklyn Heights, Brooklyn, New York. Hours: Weds, Thur, Sat 10-5; Fri 10-8; Sun noon-5. Admission \$6 for adults and \$4 for students and seniors. For more information, please call 001 718 222 4111 or see the website: www.brooklynhistory.org.

Recruitment exhibitions

The next 2004 National Engineering Recruitment Exhibition (NER) and The National Construction Recruitment Exhibition (NCR) will take place on **26/27 November** at the NEC, Birmingham.

Supported by IStructE, IChemE, CIC, WES and IIE, the exhibition will profile engineering and construction opportunities for both skilled professionals and graduates. Disciplines will include civil, rail, aerospace, construction, mechanical, IT, automotive, manufacturing, process engineering and defence. Engineering challenges hosted by exhibitor INPUT will give visitors the chance to put various skills to the test and provide a platform for them to discuss their career plans with industry experts.

- Further details see websites (www.engineerjobs.co.uk & www.construction-job.co.uk).

People

New staff at HQ:

Paula Hillman is the new Finance Manager

Scarlett Mok is the new Administrative Assistant in the library

Nathalie Storzynski is the new Journal Administrator on *The Structural Engineer*

LIBRARY BOOK AMNESTY



Have you got some badly overdue IStructE Library books?

For the month of November there will be an amnesty on all fines for overdue books so please return them to the Library.

There are normally no fines for overdues but borrowers are reminded that if they do not respond to their second overdue letter they will then incur a £20 fine. Books can be renewed by phone, email or in person so please be considerate towards other users.

Henderson Colloquium 2004

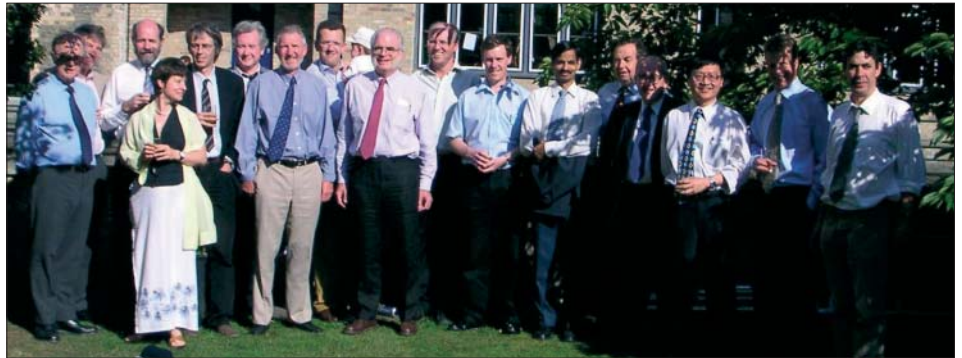
Designing for the consequences of hazards

Andrew Martin (Arup) reports on the Henderson Colloquium 2004 organised by the International Association for Bridge and Structural Engineering, British Group, and held at Cambridge from 4-6 July 2004. The theme was 'Designing for the consequences of hazards'.

The participants, who represented the breadth of structural engineering, each presented a paper related to the topic and in discussions over two days similarities and differences were identified and discussed.

The headline conclusions of the Colloquium can be summarised as:

- Strategies for addressing hazards now have to be central to the design of all facilities and the structures that support them.
- Some hazards are more foreseeable than others. Where sufficient historic data is available, benefits are being achieved by using probabilistic methods to address dominant hazards in a rational way. Strictly, a hazard is not foreseeable, and so the concept of structural robustness is used to cater for the unknown. Robustness is crucial and the ways to achieve it were discussed at length and are reported in the Overview of the Proceedings. There was no support for the



traditional tie force approach in the UK Building Regulations, but the Regulations are already moving forward.

- Where there is insufficient data the maximum use should be made of the judgment of experienced practitioners who are likely to be aware of the breadth of issues involved, the range of strategies possible, and the appropriateness of strategies to their context. The most effective role for a client or regulator is to state the high-level objectives, and to monitor, through audit trails, the designer's proposals for meeting the objectives.
- Often the data is only meagre. A plea was made

Participants at the recent Henderson Colloquium in Cambridge

for the use Bayesian statistical methods, which allow subjective judgments to be incorporated into formal, rational procedures. This plea seemed to encapsulate the aspirations of the Colloquium.

The proceedings of the Colloquium will be made available to the engineering profession and the wider world through the IABSE British Group section of the IStructE website.

Standards news

The following standards publications (advised in the Sept 2004 issue of BSI's Update Standards) can be ordered from BSI Customer Services, 389 Chiswick High Road, London W4 4AL (tel: 020 8996 9001; fax: 020 8996 7001; email: orders@bsi-global.com).

BS EN publications

BS EN 302: Adhesives for load-bearing timber structures: test methods
BS EN 302-1: 2004 Determination of bond strength in longitudinal tensile shear strength
 supersedes BS EN 302-1: 1992
BS EN 302-2: 2004 Determination of resistance to delamination
 supersedes BS EN 302-2: 1992
BS EN 302-3: 2004 Determination of the effect of acid damage to wood fibres by temperature and humidity cycling on the transverse tensile strength
 supersedes BS EN 302-3: 1992
BS EN 302-4: 2004 Determination of the effect of wood shrinkage on the shear strength
 supersedes BS EN 302-4: 1992
BS EN 302-6: 2004 Determination of the conventional pressing time
 no current standard is superseded
BS EN 302-7: 2004 Determination of the conventional working life
 no current standard is superseded
BS EN 572: Glass in building. Basic soda lime silicate glass products
BS EN 572-1: 2004 Definitions and general physical and mechanical properties
 supersedes BS EN 572-1: 1995

BS EN 572-2: 2004 Float glass
 supersedes BS EN 572-2: 1995
BS EN 572-3: 2004 Polished wire glass
 supersedes BS EN 572-3: 1995
BS EN 572-4: 2004 Drawn sheet glass
 supersedes BS EN 572-4: 1995
BS EN 572-5: 2004 Patterned glass
 supersedes BS EN 572-5: 1995
BS EN 572-6: 2004 Wired patterned glass
 supersedes BS EN 572-6: 1995
BS EN 572-7: 2004 Wired or unwired channel shaped glass
 supersedes BS EN 572-7: 1995
BS EN 12326: Slate and stone products for discontinuous roofing and cladding
BS EN 12326-1: 2004 Product specification
 supersedes BS 680-2: 1971
BS EN 12391: Chimneys. Execution standard for metal chimneys
BS EN 12391-1: 2003 Chimneys for non-roomsealed heating appliances
 no current standard is superseded
BS EN 13055: Lightweight aggregates
BS EN 13055-2: 2004 Lightweight aggregates for bituminous mixtures and surface treatments and for unbound and bound applications
 no current standard is superseded
BS EN 13295: 2004 Products and systems for the protection and repair of concrete structures. Test methods.
 Determination of resistance to carbonation
 no current standard is superseded
BS EN 13369: 2004 Common rules for precast concrete products
 supersedes BS EN 13369: 2001
BS EN 13396: 2004 Products and systems for the protection and repair of concrete structures. Test methods
 Measurement of chloride ions ingress

no current standard is superseded
BS EN 14019: 2004 Curtain walling. Impact resistance. Performance requirements
 no current standard is superseded
BS EN 14227-1: 2004 Cement bound granular mixtures
 no current standard is superseded
BS EN 14227-2: 2004 Slag bound mixtures
 no current standard is superseded
BS EN 14227-1: 2004 Fly ash bound mixtures
 no current standard is superseded
BS EN 14227-1: 2004 Fly ash for hydraulically bound mixtures
 no current standard is superseded
BS EN 14869: Structural adhesives. Determination of shear behaviour of structural bonds
BS EN 14869-1: 2004 Torsion test method using butt-bonded hollow cylinders
 no current standard is superseded

Published documents

PD 7974: Application of fire safety engineering principles to the design of buildings
PD 7974-6: 2004 Human factors. Life storage strategies. Occupant evacuation, behaviour and condition (Sub system 6)
 no current standard is superseded

Amendments to British Standards

BS EN 1916: 2002 Concrete pipes and fittings, unreinforced, steel fibre and reinforced
 CORRIGENDUM 1 AMD 15288
BS EN 1917: 2002 Concrete manholes and inspection chambers, unreinforced, steel fibre and reinforced

CORRIGENDUM 1 AMD 15289
BS EN 12326: Slate and stone products for discontinuous roofing and slating
BS EN 12326-2: 2000 Methods of test
 AMENDMENT 1 AMD 15166
BS EN 13164: 2001 Thermal insulation products for buildings. Factory made products of extruded polystyrene foam (XPS). Specification
 AMENDMENT 1 AMD 15259
BS EN 13165: 2001 Thermal insulation products for buildings. Factory made rigid polyurethane foam (PUR) products. Specification
 AMENDMENT 1 AMD 15258
BS EN 13164: 2001 Thermal insulation products for buildings. Factory made products of phenolic foam (PF). Specification
 AMENDMENT 1 AMD 15257

New work started

BS EN 772: Methods of test for masonry units
BS EN 772-20/Amendment 1
 Determination of flatness of faces of aggregate concrete, manufactured stone and natural stone

Documents not issued as DPCs

EN 772: Methods of test for masonry units
EN 772-11: 2000/Amendment 1
 Determination of water absorption of aggregate concrete, manufactured stone and natural stone masonry units due to capillary action and the initial rate of water absorption of clay masonry units. (Ratified by CEN and adopted in the UK and published as an amendment to BS EN 772-11: 2000)