The Eurocodes: a landmark for the construction industry

Malcolm Greenley
Programme Manager – BSI Secretary to CEN/TC 250
The Member States of the EU and EFTA\(^{(1)}\) recognize that Eurocodes serve as reference documents for the following purposes:

- as a means to prove compliance of building and civil engineering works with the essential requirements of Council Directive 89/106/EEC, particularly Essential Requirement No.1 – Mechanical resistance and stability – and Essential Requirement No.2 – Safety in case of fire;
- as a basis for specifying contracts for construction works and related engineering services;
- as a framework for drawing up harmonised technical specifications for construction products (ENs and ETAs)

\(^{(1)}\) EFTA: European Free Trade Association (Iceland, Norway, Switzerland, Liechtenstein)
In addition, the Eurocodes are expected to:

- improve the functioning of the single market for products and engineering services by removing obstacles arising from different nationally codified practices for the assessment of structural reliability;

- improve the competitiveness of the European construction industry and the associated professionals and industries, in countries across Europe.
How much did the Eurocodes cost???

Europe-wide Meetings - € 80M

European technical development and drafting work - € ?00 M
The Evolution of Eurocodes includes the activities required by the implementation and use of the EN Eurocodes on the following topics:

- Maintenance,
- Harmonization,
- Further development.
- Promotion, education and training

The problem is not to teach Eurocodes, but to teach the design of structures with the Eurocodes.
The Eurocodes: Promotion and Education

- The correct use of the Eurocodes promotes innovation and competitiveness of industry

- The correct use of the Eurocodes needs a high quality background information on their scientific and technical basis to avoid any misinterpretation

- Several facets for the promotion of Eurocodes:
  - Education of students in EU Engineering schools and Universities,
  - Education of engineers inside companies
  - Education of public and private “clients” on all technical and legal aspects
  - International promotion – flexibility is key
**EUROCODE 6**

**Background and applications**

European climatic and geophysical extreme conditions

- **Sub-arctic temperatures** -40°C
- **Wind gusts** up to 150 knots (77 m/s)
- **Snow loads** up to 25 kN/m²
- **Seismic activity** > 7.0 Richter scale
- **Dry Mediterranean temperatures** >45°C

The European Union

- European Union
- Economic and Monetary Union
- EFTA
- New Members
- Candidate Countries
Examples of extreme events across Europe
Global Promotion of Eurocodes

Some locations where Eurocode promotion has occurred

The E.U./JRC, BSI, and experts have promoted Eurocodes globally through promotional seminars and lectures at conferences.
E.U. Commission actively support the Promotion of the Eurocodes through the Joint Research Centre:

Eurocodes Workshop, Varese 27th to 29th November 2006

Delegates attended from:
Algeria, Egypt, Jordan, Lebanon, Morocco, Tunisia and Albania
EU-China Conference on Standards and Energy Efficiency in buildings
Conclusions from the conference:

- The Eurocodes are recognised as design codes for practice of high quality and coherence.

- Especially with regard to the large number of different regions in China the Chinese are highly interested in the way of handling specific local/regional conditions.

- In addition Eurocodes are a good basis for better mutual understanding, technical discussions, and exchange of experience.

- It is thought that in the short term China is unlikely to adopt the Eurocodes, however interestingly it is believed they have been translated into Mandarin.
Eurocodes Conference in Singapore – July 2008 to launch their National Annexes as DPCs
Singapore have published 5 Eurocode parts in SS EN wrappers
The main conclusion are:

Eurocodes are recognized as the most advanced, fully integrated suite of structural codes in the world and due to their flexibility allows adaption for use in any region.

Many countries have based their national codes on European standards – (BS, DIN, NF) and will need to change to maintain their relevance.

Several countries Singapore, South Africa, Malaysia, Vietnam have already committed to the adoption of Eurocodes.

Other countries are awaiting the experiences of the full pan Europe implementation in March 2010.
Further promotion in key areas is necessary – Conferences and Workshops

Revisit countries which have expressed interest and support with Workshops and Training

Assistance with development of National Annexes (funding and technical resource)
Interesting websites for further reference

Joint Research Centre – E.U. Commission (JRC) -
http://eurocodes.jrc.ec.europa.eu/

BSI - http://www.bsi-global.com/en/

Eurocodes Expert - http://www.eurocodes.co.uk/

Institution of Structural Engineers - http://www.istructe.org/

CLG – UK government -
http://www.communities.gov.uk/planningandbuilding/planningbuilding/buildingregulationsresearch/buildingdivisionresearch

Concrete Centre - http://www.concretecentre.com

Steel Construction Institute –
http://www.steel-sci.org/Information/Eurocodes

and Access steel at : http://www.access-steel.com/
New – The BSI Structural Eurocodes Companion

Provides a valuable overview of the Eurocodes

Contributions from some of the UK’s leading experts on Eurocodes

Free Download - from BSOL

PP 1990:2007 Extracts from the Structural Eurocodes for students of structural design

PP 1990 is a user-friendly guide which introduces the principles of Structural Eurocodes to students of civil engineering, structural engineering and structural design.

This revised edition of PP 1990 includes updated extracts from nine of the ten published Eurocodes'. Each extract is accompanied with commentary and worked examples written by experts from industry and UK universities. This second edition also has the benefit of featuring extracts and explanatory text on the relevant published UK National Annexes which supply information on any nationally determined parameters referred to in the Eurocode text.

It is important for students to be aware of the Structural Eurocode series. The series details common design principles and rules for the design of structures and component products, and describes a common series of methods for calculating the structural strength of elements used in construction. From 2010 this set of unified international codes of practice will replace national codes in the European Community. They are already mandatory for European public works and are set to become the benchmark standard for the private sector, throughout Europe and Worldwide.

DOWNLOAD FREE SAMPLE PAGES AT: www.bsi-global.com/PP1990

To order please contact BSI Customer Services on +44 (0)20 8996 9001 or Orders@bsi-global.com

PP 1990:2007 is also a valuable resource for postgraduate study and as a development tool and resource for engineers and technicians.
Thank you for your attention

e-mail: malcolm.greenley@bsigroup.com