Eurocodes Overview – Past, Present and Future
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Eurocodes – A Background

- 1975: European Community decided on an action plan to eliminate technical obstacles to trade.

- European Commission decided to establish a set of harmonised technical rules which would serve as an alternative to national rules (i.e. British Standards).

- 58 Eurocodes were published between 2002 and 2007.

- 51 conflicting British Standards were withdrawn on 31st March, 2010.
Eurocodes – What are they?

• European design standards

• Enable the design of building and civil engineering works.

• Aim to ensure that buildings & structures don’t collapse or burn down.
Eurocodes: 10 Standards in 58 Parts for Structural and Geotechnical Design

EN 1990
Structural safety, serviceability and durability

EN 1991
Actions on structures

EN 1992  EN 1993  EN 1994
Design and detailing

EN 1995  EN 1996  EN 1999

EN 1997
Geotechnical design

EN 1998
Seismic design

Links between the Eurocodes
http://eurocodes.jrc.ec.europa.eu
Understanding Eurocodes implementation


Non contradictory complementary information

European Product Standards

European Execution Standards

Client implementation and requirements

Support to the profession
National Annex – The Solution to National Differences

- Where a National Annex is available, it MUST be used in conjunction with the Eurocode Part.

- Contain rules and NDPs (National Determined Parameters) to ensure safety remains a national, and not a European, responsibility.

National Annexes also provide:

- Country specific data (e.g. snow maps).
- Reference to non-contradictory, complementary information (NCCI).
What happened to the information in the old British Standards?

- Information from withdrawn British Standards formed Published Documents (PD) which contain non conflicting complementary information (NCCI).

Replaced by

BS 5268-3; BS 5268-6.1; BS 5268-6.2
Structural Use of Timber

PD 6693-1 Recommendations for the design of timber structures to Eurocode 5
Eurocodes – Why use them: from the experts

• Provide more flexibility to the designer.

• More advanced design methods.

• Makes it easier to trade abroad.

• Opens the market to greater competition.

• Includes new aspects not covered in older standards.
Eurocode Implementation

Are/will be the Eurocodes implemented in EU & EFTA MS?

Eurocodes across the world

Source: Joint Research Council
Eurocodes and legislation in Europe

No other standards/ regulations (will be) used in parallel

Are/will be the Eurocodes obligatory?

Source: Joint Research Council
Eurocodes and UK Legislation


• Recognised within European Directives: Public Procurement Directive (PPD); Services Directive and Construction Products Regulation (CPR)

• Understand use of Eurocodes accommodated in public contracts by:
  ▶ Highways Agency
  ▶ Rail Safety and Standards Board
EN Eurocodes
Future Developments
Timeline

- 1975: Eurocodes started
- 1990: ENVs started
- 1992: Publication of ENVs
- 1998: Conversion of ENV to EN
- 2007: Publication 1st generation of the Eurocodes
- 2010: Programming Mandate
- 2011: Response to Programming Mandate
- 2012: Specific Mandate
- 2013: Response to Specific Mandate
- 2020: Publication 2nd generation of the Eurocodes
Specific Mandate

Eurocodes development should:

- Encourage innovation
- Take into account new societal demands and needs
- Facilitate the harmonisation of national technical initiatives on new topics of interest for the construction sector
- Enhance user-friendliness
Response to Mandate

- 138 pages
- Over 1000 experts from across Europe involved
- Structure of tasks and sub-tasks
- Phased programme – 4 overlapping phases
Complete work programme

(Annex 1)
In December 2014, specific agreement for Mandate M/515 was signed by EU and CEN

- Funding ≈ €4.5M for phase 1 tasks

- Duration is 42 Months from 1 January 2015
DECISION BT C36/2014

• decides
  – to **confirm to CEN/TC 250 the overall responsibility for structural and geotechnical design rules for building and civil engineering**;

DECISION BT C91/2014

Subject: Drafting rules for future work of CEN/TC 250 ‘Structural Eurocodes’

**BT,**

• noting,
  – resolution BT S1 38/1994 as in Annex 1 to BT N 9670;
  – CEN/TC 250 Decision 341 as given in Annex 2 to BT N 9670;

• agrees that EN Eurocodes developed under mandate M/515 may continue to use a numbering system for equations, figures and tables that adopts a **two-part reference including the clause number**;

• stresses that this decision only applies for CEN/TC 250 standards **developed under Mandate M/515**.
Robustness

Assessment

Climate Change

Ease of Use

Glass
FRP
Membrane

EN 1990
EN 1991
EN 1992
EN 1993
EN 1994
EN 1995
EN 1996
EN 1997
EN 1998
EN 1999
Enhancing ‘ease of use’

CEN/TC250 which has agreed to work towards enhancing ‘ease of use’ in the further development of the Eurocodes through:

- improving the clarity;
- simplifying routes through the Eurocodes;
- limiting, where possible, the inclusion of alternative application rules; and,
- avoiding or removing rules of little practical use in design
Systematic Reviews

Q 1 Do any clauses require editorial or technical correction?
Q 2 Which clauses would benefit from improvements in clarity?
Q 3 Where should the scope of the EN be extended?
Q 4 Where could the EN be shortened?
Q 5 Are there any clauses whose application leads to uneconomic construction?
Q 6 Are there any clauses whose application necessitates excessive design effort?
Second Generation of EN Eurocodes

• Support the European Commissions overall objectives regarding safety and the Internal Market.

• Focus on ensuring the standards remain fully up to date through embracing new methods, new materials, new regulatory and market requirements.

• Fostering more economic and sustainable design and construction.

• Enhance user-friendliness.

• There will be a period of stability for the published Eurocodes until 2020.
Thank you for your time

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Questions?