Harmonized European standards for construction in Egypt

JRC Support for the Eurocodes

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Organised with the support of the Egyptian Organization for Standardization and Quality
Eurocodes and JRC role

• Policy support
• Research and innovation
• Coordination
• Scientific/Technical support
• Support to the Implementation of the Eurocodes
JRC: Research and Innovation

- The European Laboratory for Structural Assessment (ELSA) of the JRC has contributed to development and updating of the Eurocodes by:
  - Participating in several pre-normative research projects
  - Carrying out reference seismic tests
  - Fostering networking and participation of the Member States research institutions and industry, as well as promoting international collaboration
JRC: Research and Innovation

- ELSA has contributed to bringing the Eurocodes to their present stage - especially EN 1998 - Eurocode 8, which covers the design of all civil engineering structures in seismic zones.
- The ELSA reaction wall has been operated for several reference tests, for example:
  - the design of reinforced concrete buildings with the new tempcore reinforcing steel
  - the design of composite (steel and concrete) buildings
  - the explicit consideration of the infill walls in the seismic design of infilled structures
  - the assessment and re-design/retrofitting of existing vulnerable constructions
JRC: Support to the Implementation of the Eurocodes

- Administrative Arrangement between DG ENTR and the JRC signed in December 2004
- The activities initiated on 1 March 2005
- **Objective**: Contribution to the implementation, harmonization, training, international promotion and further development of the Eurocodes
JRC: Support to the Implementation of the Eurocodes

- Five main objectives:
  - Harmonization of European design of constructions and construction products
  - Implementation of the Eurocodes, comprising aspects of training
  - International promotion of the Eurocodes, in order to increase impact and competitiveness of EU industry internationally
  - Achieve increased protection of constructions against earthquakes and fire
  - Foster innovation in construction, so as to increase competitiveness of EU industry
## JRC: Support to the Implementation of the Eurocodes

**MoU between JRC and DG ENTR**

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**Harmonized European standards for construction in Egypt**
Implementation and Promotion: e-tools

- Objective: develop e-tools to facilitate national implementation, training, further harmonisation and development of the Eurocodes
- Maintenance and development of:
  - Eurocodes website
  - NDPs database
  - Background Documents Database
  - Eurocodes Centralised Helpdesk
JRC Eurocodes website

http://eurocodes.jrc.ec.europa.eu

Harmonized European standards for construction in Egypt
NDPs database

• Tool to notify the European Commission on the selected values of the NDPs by the MS

• NDPs and National Annexes are uploaded on the database

• Facilitates extraction of information on the progress of the uploading of the NDPs and the NAs and the adoption of the recommended values

• Source of data for further harmonization of the Eurocodes
NDPs database

- The database site has restricted and controlled access
- Statistics on the upload are provided at the Eurocodes website (public access)
NDPs database

- NDPs Database is the unique data source for further harmonisation
- The principal objectives of further harmonization are:
  - the reduction of NDPs in the Eurocodes resulting from different design cultures in structural analysis
  - the reduction of NDPs through the strict use of recommended values
  - the gradual alignment of safety levels across Member States

Note: It is important to harmonize not only the values of the NDPs (harmonization across national borders), but also the methodologies used for their assessment, as well as the design procedures used for different structures (harmonization across different materials).
Background Documents Database

• Source of information for:
  ✓ the theoretical origin of the Eurocodes technical rules
  ✓ the recommendations for the NDPs
  ✓ for the National decision on the choice of the NDPs
• Main source of support to further harmonization and development of the Eurocodes
• Approximately 70 background documents on the database supplied by CEN/TC250 and SCs
Eurocodes Centralised Helpdesk

- **Objective**: NSBs submit filtered comments to CEN/TC250(/SCs) and receive answers
- Link between the European Commission, national standards bodies, national authorities, CEN/TC250 and SCs
- Restricted access to:
  - NSBs and CEN/TC250
  - European Commission
  - EU and EFTA National Authorities, other countries (in the future)
- Launch after clarification of legal aspects
Eurocodes Centralised Helpdesk

Selected Q&A will appear as FAQ on the Eurocodes website

Database accessible through http://eurocodes.jrc.ec.europa.eu
Training and Promotion

International workshops

Awareness material

Training workshops

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Training Workshops

• Three levels of training:

✓ **Level 1** - policy of Eurocodes implementation, National Annexes, co-existence with National Codes, the Eurocodes system, etc. aimed at National Authorities, NSBs and senior personnel in the companies

✓ **Level 2** - introductory courses to each individual Eurocode

✓ **Level 3** - comprehensively describes design examples of a number of typical structures using a particular package of Eurocodes
Level 1 Training Workshop

Eurocodes: Background and Applications

Brussels, 18-20 Feb 2008

- 320 participants, 60 lecturers
- All Eurocodes covered (-EC6)
- All presentation available on the Eurocodes website
Applications

Workshop: "Eurocodes: Background and
Level 2/3 Workshop

Bridge Design to Eurocodes

Vienna, 4-6 Oct 2010

• Approximately 140 participants
• All presentations are available in the JRC Eurocodes website
• A JRC report with the background information and worked design examples will be prepared and uploaded on the JRC Eurocodes website
Workshop: Bridge Design to Eurocodes
Level 2/3 Workshop

Seismic Design of Buildings

Lisbon, 10-11 Feb

• Approximately 200 registered participants

• All presentations will be available in the JRC Eurocodes website

• A JRC report with the background information and worked design examples will be prepared and uploaded on the JRC Eurocodes website
Future Level 2/3 Workshop

- Eurocode 2: Design of Reinforced Concrete Buildings  
  Programme coordination: Giuseppe Mancini (SC2)  
  2 days, Brussels, 2011 (date to be decided)
Promotion

• Strategy for international promotion

• EU-Russia regulatory dialogue

• TAIEX workshops in Candidate countries, Potential Candidates and Neighbour countries

International workshops

Awareness material

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International Workshops

Eurocodes workshop in Moscow

Moscow, 9-10 Oct 2008

- Objective: gather and make available information on EU and Russia standardisation systems
- Support from CMC, CEN/TC250
- Russian Federal Agency on Technical Regulation and Metrology, World Academy of Sciences for Complex Security
International Workshops

Participants

- Moscow government, Federal agency on technical regulation and metrology
- Russian Research Institute of Fire Protection, Moscow State Construction University, “Kurchatov Institute” and others
- Chamber of commerce and industry, Union of railway constructors, architects, and others
- Ove Arup & Partners Int., Telecom, Mosproekt, Transmagistralstroy, Foratec EnergoTransStroy and others
International Workshops

Conclusions

• Willingness for active cooperation in standardisation
• Need to seek greater convergence in technical regulation
• The Eurocodes: a starting point for convergence and collaboration
• Develop framework for collaborative pre-normative research projects: performance-based standards, sustainability requirements, …
International Workshops

Workshop “Training the trainers”

Moscow, 9-10 Dec 2010

Topics:

• EN 1990 - Eurocode: Basis of structural design
• EN 1991 - Eurocode 1: Actions on structures
• EN 1992 - Eurocode 2: Design of concrete structures
International Workshops

- 2nd Workshop on the Evaluation of Eurocode 7: Pavia, Italy (April, 2010)
- IABSE-fib Conference on CODES IN STRUCTURAL ENGINEERING: Developments and Needs for International Practice, Cavtat, Dubrovnik-Neretva, Croatia (May, 2010)
- Eurocodes Workshop, Lisbon, Portugal (May, 2010)
- Unified GCC Building code workshop, Doha, State of Qatar (October, 2010)
Promotion

• Contacts with European Universities

• Objectives:
  - updates on Eurocodes website
  - disseminate training material (incl. Eurocodes workshops)

• More than 10,000 emails

• Positive feedback from university students and professors
Awareness Material

• Development of booklets and leaflets that serve as awareness, training and promotion material: available in the JRC Eurocodes website
TC250 Newsletter

- Periodically published by CEN/TC250 as a means of communication with the users of the Eurocodes

- Objective
  - transfer technical and non-technical information
  - Increase visibility of the work of the technical committees
  - Inform the public about the planned activities related to the Eurocodes
JRC Reports published in collaboration with TC250

- Classification of documents:
  - Prenormative reports
  - Background documents
  - Scientific/technical information
- Published at the request of the relevant subcommittee
- Review by CEN/TC250 and JRC
- Prenormative reports will contain a first draft of the proposed Eurocode part and could be converted to CEN Technical Specifications
- Available on Eurocodes website
JRC Reports published in collaboration with TC250 – Some Examples

NEEDS TO ACHIEVE IMPROVED FIRE PROTECTION AS REGARDS THE IMPLEMENTATION AND DEVELOPMENT OF THE EN EUROCODES

Support to the implementation, harmonization and further development of the Eurocodes

C. Andreou, S. Bitar, M. Giroud, G. Piano, G. Tolaini
Further development

• New **materials**: FRP, glass, …

• New **fields of design**: robustness, existing structures, membrane structures, …

• **Sustainability**: recyclability, durability, use of environmentally compatible materials
Further development

• Extend European Standards for Construction to cover all six Essential Requirements and sustainability

• Head-Standards for all BWRs

For each Basic Works Requirement:

✓ Basic principles
✓ Performance assessment methodology
✓ Minimum performance requirements
✓ Performance classes
Further development

Basic Requirements for Construction Works (BWRs)

- BWR1 - MECHANICAL RESISTANCE AND STABILITY
- BWR2 - SAFETY IN CASE OF FIRE
- BWR3 - HYGIENE, HEALTH AND THE ENVIRONMENT
- BWR4 – SAFETY IN USE
- BWR5 – PROTECTION AGAINST NOISE
- BWR6 – ENERGY ECONOMY AND HEAT RETENTION
- BWR7 – SUSTAINABLE USE OF NATURAL RESOURCES

Goal:
“A set of Interoperable European Standards addressing all BWRs”
• For further information on the Eurocodes, visit the JRC Eurocodes website!

http://eurocodes.jrc.ec.europa.eu
Key Abbreviations

- CEN: European Committee for Standardisation
- DG ENTR: Directorate-General for Enterprise and Industry
- MoU: Memorandum of Understanding
- MS: Member States
- NDP: Nationally Determined Parameters
- NSB: National Standardisation Bodies
Contact Us

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