Implementation of the Eurocodes in Croatia

Vlasta Gačeša-Morić

Croatian Standards Institute (HZN)
Croatian Standards Institute (HZN)
2005-07-01

National Standards Body – public institution

- Law on Standardization (NN 80/2013)
- 2010-01-01 HZN became a full member of CEN&CENELEC
- 2013-07-01 Croatia became a member of EU
Adoption and Implementation of the Eurocodes – Croatian approach (1)

Agreement on Cooperation in the Process of Adoption of the Eurocodes as Croatian Standards

signed on 2007-09-05 by

Ministry of Construction and Physical Planning, Croatian Chamber of Civil Engineers and Croatian Standards Institute
Adoption and Implementation of the Eurocodes – Croatian approach (2)

Agreement on Cooperation in the Process of Adoption of the Eurocodes as Croatian Standards

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Work Plan on Adoption of the Eurocodes as Croatian Standards for the Period 2008 – 2010

↓

annual bilateral contracts
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Work Plan on Adoption of the Eurocodes (2)

- Work Plan was not realized on time for various reasons:
  - lack of awareness at the high management level
  - insufficient capacities (human resources)
  - difficulties with reaching consensus on certain NDPs
  - time consuming work on new maps for actions on structures and seismic impact
- completion was postponed several times
HZN/TO 548, *Structural Eurocodes* (1)

- NMC to CEN/TC 250
- established 2006-11-28
- chairman: Prof. Ivica Džeba PhD., CEng.
- structure based on the structure of CEN/TC 250
  - 9 SCs
  - 3 WGs
- conditions for organized and planned work on all Eurocodes within single TC provided
- 137 experts from different institutions/firms are involved
HZN/TO 548, Structural Eurocodes (2)

- decisions:
  - ENs to be adopted in original (en) immediately
  - adoption to be followed by translation into Croatian
  - NAs to be developed & published as soon as possible
  - NAs to be published as separate documents
HZN/TO 548, Structural Eurocodes \((3)\) SCs

- PO 1, Eurocode 1: Actions on structures
- PO 2, Eurocode 2: Design of concrete structures
- PO 3, Eurocode 3: Design of steel structures
- PO 4, Eurocode 4: Design of composite steel and concrete structures
- PO 5, Eurocode 5: Design of timber structures
- PO 6, Eurocode 6: Design of masonry structures
- PO 7, Eurocode 7: Geotechnical design
- PO 8, Eurocode 8: Earthquake resistance design of structures
- PO 9, Eurocode 9: Design of aluminium structures
HZN/TO 548, *Structural Eurocodes* (4) WGs

- RS 1, *Translation*
- RS 2, *National Annexes*
- RS 3, *Eurocode 0*  
  (not active any more)
HZN/TO 548, *Structural Eurocodes* (5) new SCs (2016-02-08)

- PO 10, *EN 1990 Basis of structural design*
- PO 11, *Structural Glass*
Eurocodes – ENs in Croatia (1)
1st edition

- HRN EN 1990:2008 en
- HRN EN 1991:2008 en
- HRN EN 1992:2008 en
- HRN EN 1993:2008 en
- HRN EN 1994:2008 en
- HRN EN 1995:2008 en
- HRN EN 1996:2008 en
- HRN EN 1997:2008 en
- HRN EN 1998:2008 en
- HRN EN 1999:2008 en

(with all corresponding amendments and corrigenda)
Eurocodes – ENs in Croatia (2)

2nd edition

- HRN EN 1990:2011 hr
- HRN EN 1991:2012 hr
- HRN EN 1992:2013 hr
- HRN EN 1993:2014 hr
- HRN EN 1994:2012 hr
- HRN EN 1995:2013 hr
- HRN EN 1996:2012 hr
- HRN EN 1997:2012 hr
- HRN EN 1998:2011 hr
- HRN EN 1999:2015 hr

(consolidated with all published amendments and corrigenda)
Eurocodes – ENs in Croatia (3)
problems

- hr versions – consolidated with amendments and corrigenda published before publishing HRNs – user-friendly, but...
- new amendments and corrigenda published after the publication of consolidated versions – "never-ending story"
- capacity to carry out the work on time (translation, consolidation, possible modifications of NAs)
- publication of separate documents adopting new As & ACs – not transparent enough?
Eurocodes – ENs in Croatia (4)
new documents

- publication of new documents continued
  - numerous amendments (14)
    EN 1991 (2), EN 1992 (2), EN 1993 (6),
  - new standards
    EN 1992-4:2018
- all published amendments translated into Croatian
  and published as separate documents
Eurocodes – NAs in Croatia (1)


(57 parts)
Eurocodes – NAs in Croatia (2)

- exception: HRN EN 1997:2012/NA
  - not published (not aware that it had to be)
  - more formality than a need
  - working draft nrHRN EN 1997-2/NA prepared
  - not convinced it is necessary – use of other national procedures except form the nrHRN EN 1997-2 are allowed in Croatia, Annexes A to X remain informative
  - HZN/TO 548 will decide about the publication
Eurocodes – NAs in Croatia (3)

- new maps for actions on structure (based on 30 years period 1971 – 2000):
  - snow load map (HRN EN 1991-1-3/NA)
  - basic wind velocity map (HRN EN 1991-1-4/NA)
  - air temperature maps (HRN EN 1991-1-5/NA)

(made by Croatian Meteorological and Hydrological Service)
Eurocodes – NAs in Croatia (4)
Eurocodes – NAs in Croatia (5)

Fundamental value of the basic wind velocity $v_{b,0}$
Eurocodes – NAs in Croatia (6)

Map of maximum/minimum shade air temperatures
Eurocodes – NAs in Croatia

- new maps for seismic impact – reference peak ground acceleration:
  - reference return period 475 years
  - reference return period 95 years

(made by University of Zagreb, Faculty of Science, Department of Geophysics)
Seismic zone map for peak ground acceleration for return period $T_{\text{NCR}} = 475/T_{\text{DLR}} = 95$ years
## Eurocodes – NAs in Croatia (9)

### Proportion of accepted recommended values of NDPs

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Eurocodes – NAs in Croatia (10)
new documents

- publication of NAs continued
  - updated/modified NAs (8)
  - new NAs in preparation
    nrHRN EN 1992-4/NA
- all published updated/modified NAs translated into English
Eurocodes – NAs in Croatia

- Croatian NDPs are regularly uploaded in JRC EN Eurocodes NDP Database (established by JRC EC)
- upload of NDPs made by the National Authority – Ministry of Construction and Physical Planning
Eurocodes Implementation in Croatia

- Implementation achieved by means of technical regulations
- Technical regulations prepared by the Ministry of Construction and Physical Planning
- 6 regulations – one for each type of structures (concrete, steel, composite steel and concrete, timber, masonry & aluminium) – withdrawn
- Technical regulation for building structures – a single regulation for all types of structures published 2017-03
Eurocodes  
HZN – further activities

- M/515 Mandate for amending existing Eurocodes and extending the scope of structural Eurocodes
- active participation of Croatian experts in the development of the new generation of Eurocodes (CEN/TC 250/SCs/WGs)
  - regularly participate in certain SC meetings (SC 5, SC 7, SC 9, SC 11)
  - experts working in WGs (14) (timber structures, aluminium structures, structural glass)
- preparing of NDPs for the new generation of Eurocodes
Thank you for your attention!

Stay in touch

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