

## Explanatory Note: The Eurocodes

### Coverage and Application

The EN Eurocodes - drafted by CEN (European Committee for Standardization) - will become the reference design codes in the construction and civil engineering world. The Eurocodes are a series of 10 European standards and each of these codes consists of several parts:

- Eurocode 0: General rules for structural design
- Eurocode 1: Loads (Snow, Wind, Traffic, Temperature, ..)
- Eurocode 2: Concrete structures
- Eurocode 3: Steel structures
- Eurocode 4: Composite steel-concrete structures
- Eurocode 5: Timber structures
- Eurocode 6: Masonry
- Eurocode 7: Geotechnics structures
- Eurocode 8: Seismic design
- Eurocode 9: Aluminium structures

In the first place, the Eurocodes are created for the structural engineer and have to be included in the design and calculation process of buildings and all other types of structures including: geotechnical aspects, structural fire design, situations including earthquakes, execution, temporary structures and so on. For the design of special structures (e.g. nuclear installations, dams, etc) other, more specific provisions than those given in the Eurocodes might be necessary.

Not only the engineer will have to deal with the Eurocodes, also for other partners in the building cycle the Eurocodes play an important role:

- Producers and suppliers: their products (in the case of bearing functionality) have to satisfy the European product codes to get the CE-mark. These product codes refer to the Eurocodes. Besides this, they are in contact with clients who are working with the Eurocodes.
- Building contractors: detailing provisions are given in the Eurocodes
- Architects: they co-ordinate the engineers and contractors, so minimum knowledge of the Eurocodes is required.

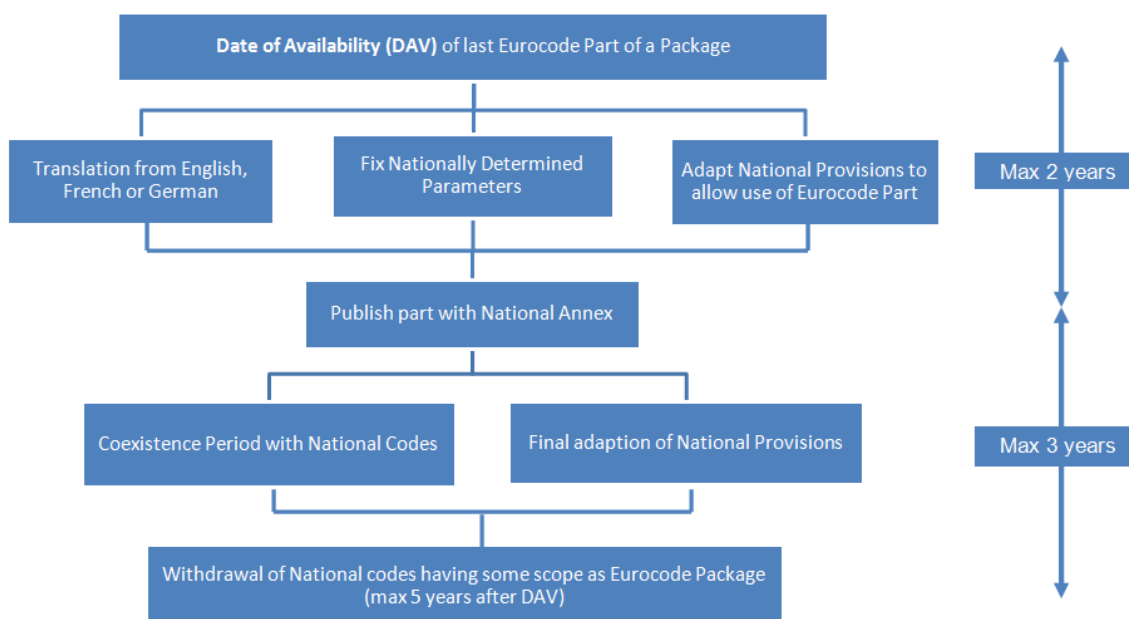
Almost all countries in Europe will go over to the Eurocodes. Furthermore, Eurocode promotion has occurred also in certain countries outside Europe. The Eurocodes are recognized as the most fully integrated series of structural codes in the world which can be used in any region. Besides this, many countries have based their National Codes on European standards (e.g. BS), so there is also a need to change over to the Eurocodes.

## Time schedule

The former conflicting National Standards will be withdrawn at the time of official implementation of the EN Eurocodes. Following timetable illustrates the period between the date where the CEN has delivered the EN Eurocodes part to the National Standardization Body of each country and the date of withdrawal of the former National Standards. Dates of the different parts can be found following this link:

<http://www.cen.eu/cenorm/sectors/sectors/construction/eurocodes/eurocodesstatus20080825.pdf>

*Note: the last update is made on 25/08/2008, some correction papers are not taken into account*



Most parts are now in a coexistence period which theoretically lasts up to maximum 3 years. During this period the Eurocodes can still be used in parallel with the National Standards. As prescribed in the foreword of each Eurocode, the full implementation of the EN Eurocodes is foreseen in March 2010. At that time, the conflicting former National Standards will be withdrawn and may not be used anymore. However, delays and exceptions are expected. For more information about the progress of the implementation of the Eurocodes in the different Member States, see Annex A.

## National Annexes

In order to fulfill the local differences between the member states concerning geographical, climatical and traditional building practice, the Eurocodes provide for national choices in the form of Nationally Determined Parameters (NDPs). Each member state is allowed to make its own choice for these NDP's in a so called National Annex. This National Annex thus complements the actual Eurocode document. For each of the NDP's the EN Eurocodes provide recommended values and procedures and the member states are advised not to diverge too much from these recommended values.

A National Annex is not necessary if an EN Eurocode part contains no allowed choices for NDPs or if this part is not relevant for the Member State (e.g. seismic design). Summarized, this means that the Eurocodes will be published by the National Standards Body to be used in that country, together with the National Annexes. Note that the articles for which a National choice is allowed are available in the foreword of each of the Eurocode parts.

## Recommendations

Until the end of the coexistence period (theoretically march 2010) with the National Standards, the use of the Eurocodes is not mandatory. They can be used, just as the former National Standard can also be used.

Officially, an EN Eurocode part is only valid if its National Annex is published. In case the National

Annex doesn't exist yet, the EN Eurocode part may be used with the biggest care on behalf of the designers.

However, it is recommended to use during this transition period the EN Eurocode together with its National Annex if existing and the ENV Eurocode (pre-standard for subsequent conversion into EN) with its National Application Document in the other cases.

Attitudes with respect to the continuing use of the former National Standards after the full implementation of the Eurocodes, depend from country to country. Theoretically, all conflicting National Standards shall have been withdrawn at the end of the coexistence period. Moreover, a recommendation of the European Committee (Commission Recommendation of 11 December 2003) exists which stimulates the Member States the adoption of the Eurocodes.

## References

- Useful links for more detailed information about the Eurocodes:
  - <http://eurocodes.jrc.ec.europa.eu/>
  - <http://www.cen.eu/cenorm/members/national+members/index.asp>
  - [http://www.bbri.be/antenne\\_norm/eurocodes/](http://www.bbri.be/antenne_norm/eurocodes/)
  
- Published documents:
  - Commission Recommendation of 11 December 2003:  
<http://eurocodes.jrc.ec.europa.eu/showpage.php?id=214>
  - Guidance Paper L: Application and use of Eurocodes:  
<http://eurocodes.jrc.ec.europa.eu/doc/gpk.pdf>

## Annex A: Progress of the Eurocodes in the Member States

### Belgium:

5 Eurocode parts with NAs are published:  
EN 1990, EN 1991-1-1, EN 1991-1-2, EN 1991-1-3 en EN 1991-1-5.

See also:

[www.bbri.be/antenne\\_norm/eurocodes/nl/normes/eurocodes/tables/table\\_belg\\_EN.html](http://www.bbri.be/antenne_norm/eurocodes/nl/normes/eurocodes/tables/table_belg_EN.html)

### Netherlands:

Eurocodes related to buildings are already in use, Eurocodes related to bridges are expected for 07/2010. The continuing use of the former National Standard – NEN code – is expected to last up to 1 year after this date.

Articles not covered by the Eurocodes will be combined in a 'Rest Norm'.

### France:

Full implementation of Eurocodes is expected in March 2010. Before the National Standard BAEL can still be adopted.

See also: Le tableau d'avancement des Eurocodes on the web page

[www.afnor.org/secteurs/activite/construction/les-eurocodes/les-eurocodes#p22352](http://www.afnor.org/secteurs/activite/construction/les-eurocodes/les-eurocodes#p22352)

### Germany:

The Eurocodes are expected at the end of 2010.

### Czech Republic:

From 01/04/2010 the codes CSN EN and CSN EN ISO will be the only valid Standards. The conflicting parts of the former Standard CSN will be cancelled at that date'.

All major parts of concrete and steel are covered at the moment in CSN EN.

### Slovakia:

Eurocode parts related to concrete are already in use since July 2009. Conflicting National Standards for concrete are withdrawn.

Other National Standards for the design of structures will become invalid from April 2010.

### Austria:

From 30/06/09, the Eurocodes together with the National Annexes are accepted for the design of structures.

## **Switzerland:**

At the moment, there are no fixed plans to replace the Swiss Standards by the Eurocodes. Eurocodes may be used as alternative design rules under some conditions.

## **UK:**

The Eurocodes will replace the existing conflicting British Standards on 31/03/10.

Published EN parts + National Annex (last update: 08/09/09)

Design of concrete bridges, Design of timber bridges, Design of all aluminium structures  
For the other parts, the final NA is not published yet by BSI.

## **Romania:**

Until 31/03/10 the former Romanian Standards can be used in parallel with the Eurocodes.

## **Finland:**

Eurocode parts for aluminium are expected to be in use before 31/03/2010.  
Eurocode parts for bridges are expected to be in use from 31/03/2010.  
Other Eurocode parts are expected to be in use at the end of 2009.

## **Sweden:**

On January 2011 the previous Swedish Standard will be withdrawn.

## **Luxembourg:**

National Annexes are not available at the moment.

## **Greece:**

At the moment, the National Annexes of the Eurocodes have come to public judgement. This means that the Greek Annexes have come to their final form and the State expects project engineers to test-drive it and make any comments from the 15th of November.

## **Poland:**

Withdrawal of former National Standards is foreseen on 31/03/10. Till that time, PN-B Standards or Eurocodes can be used.

## **Denmark:**

The old Danish Standards are withdrawn already. The Eurocodes together with the National Annexes are adopted in Denmark.

**Ireland:**

All conflicting National Standards will be withdrawn from 31/03/10.

**Spain:**

For concrete: new Spanish Concrete Code EHE08 is introduced; this code is similar to the Eurocode but with some differences. In 2010, the two codes will be available, but probably the EHE will be the main code.

For steel: in 2010, 3 codes for steel will be available, namely CTE, EAE and EC3. These 3 codes are similar but probably, the EAE Standard will be the main Standard.

There are no Spanish National Annexes available.

**Bulgaria:**

Eurocodes are implemented in Bulgaria as BDS EN, but the National Annexes are not approved yet because the new maps for wind, snow and seismic action will be ready at the end of 2009. Design according to the Eurocodes is permitted in Bulgaria provided it is proved that structures designed according Eurocodes (or other National design Standards) correspond to Bulgarian Norms for Design. Eurocodes are only for voluntary use at the moment. The obligatory Codes are the Bulgarian Norms.

Eurocodes will be obligated in Bulgaria in 2010 and National Standards will be withdrawn.

**Lithuania:**

Most parameters are determined at the moment; the National Annexes will be published for official use in December.

**Iceland:**

The Eurocodes with National Annex are expected in March 2010. Till that time one can use the ENV parts with their National Application Documents.

**Norway:**

It is planned to withdraw the existing National Standards in March 2010. Today, it is possible to use the Eurocodes if the corresponding National Annex is available.

See also:

<http://www.standard.no/no/Fagomrader/Bygg-og-anlegg/Eurokoder/Samlet-oversikt-over-Eurokodene/>