

L3 The Eurocodes

Increasing competitiveness

The Eurocodes

The Eurocodes are a set of European Standards (EN) for the design of buildings and other civil engineering works and construction products.

The Eurocodes provide common structural design rules for everyday use for the design of whole structures, components and products of both a traditional and an innovative nature.

EN 1990	Eurocode: Basis of structural design
EN 1991	Eurocode 1: Actions on structures
EN 1992	Eurocode 2: Design of concrete structures
EN 1993	Eurocode 3: Design of steel structures
EN 1994	Eurocode 4: Design of composite steel and concrete structures
EN 1995	Eurocode 5: Design of timber structures
EN 1996	Eurocode 6: Design of masonry structures
EN 1997	Eurocode 7: Geotechnical design
EN 1998	Eurocode 8: Design of structures for earthquake resistance
EN 1999	Eurocode 9: Design of aluminium structures

The EN Eurocodes

The Eurocodes cover in a comprehensive manner all principal construction materials, all major fields of structural engineering and a wide range of types of structures and products.

Key figures

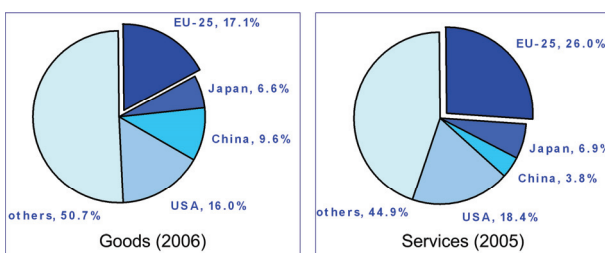
11.8 million people are directly employed in the construction sector, i.e. 7% of total employment and 28% of industrial employment in the EU¹.

Poor-quality regulation costs European businesses at least €50 billion per year². 87% of companies say that the most important priority is to have one set of rules, instead of 25².

In its first ten years of existence, the Single Market created 2.5 million jobs and €877 billion of extra prosperity. EU exports to third countries have increased from 6.9% of EU GDP to 11.2%³.

An efficiently functioning internal market in services could increase trade between 15 to 30%, as well as foreign direct investment between 20 to 35%⁴.

The European Union is a major trading power and the world's leading exporter of goods and services.



Share of world trade (data from Eurostat)

The Eurocodes & EU legislation

The following key directives form the official link of the Eurocodes with EU legislation:

- o Council Directive 89/106/EEC on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products (Construction Products Directive – CPD);
- o Directive 2004/18/EC of the European Parliament and of the Council on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts (Public Procurement Directive).

The CPD sets out 6 Essential Requirements (ER). The Eurocodes embody in technical terms ER 1 “Mechanical resistance and stability” and parts of ER 2 “Safety in case of fire” and ER 4 “Safety in use”.

Opportunities for industry

The Eurocodes are reference Standards for CE Marking of construction products, components and kits. Through a unique declaration of conformity, producers have greater opportunities for exports in the Single Market.

The Single Market is a vital springboard for the European construction industry to achieve economies of scale and expand into the global markets.

By constituting a common language between owners, contractors, designers and manufacturers, the Eurocodes and related European Standards help to harmonise the services market and encourage exchange of engineering services.

Public procurement accounts for 15% of the GDP⁵ and covers services and works purchased by the public sector. The Eurocodes are to be used as reference in technical specifications for public calls for tenders, i.e. as a common and transparent basis for fair competition.

The Eurocodes encourage innovation in the design of structures and products leading to greater specialisation and more economic solutions.

They serve as a common basis for R&D and facilitate industrial, scientific and technical cooperation. Research and innovation will boost employment and growth.

The Eurocodes ease the cross-border movement of products and engineering services and promote the competitiveness of regional economies.

The Eurocodes contribute to the simplification of the regulatory and administrative environment with the objective to promote the creation, development and competitiveness of businesses, including small and medium-sized enterprises.

Use of the Eurocodes outside the EU will contribute to the alignment of technical regulations and attestation procedures, making international trading easier.

Attestation of Conformity

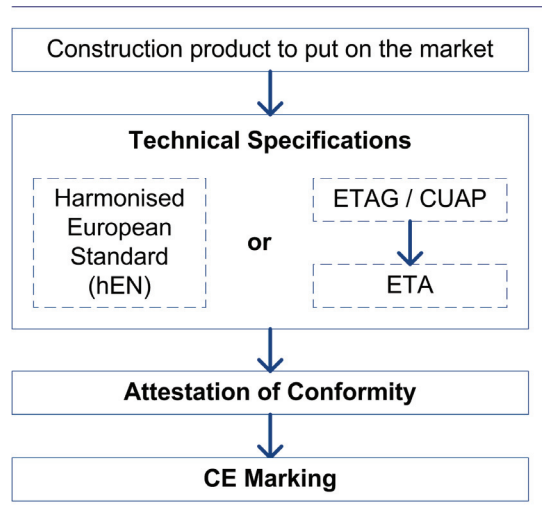
The Construction Products Directive is based on four elements:

1. A harmonised system of technical specifications which are harmonised European Standards (hEN) and European Technical Approvals (ETA).

For innovative products that are too early in their life to be covered by a Standard, an ETA may be issued on the basis of an ETA Guideline (ETAG), or through the Common Understanding of Assessment Procedure (CUAP).

The Eurocodes are reference Standards for drawing up hENs and ETAs for construction products.

2. An agreed system of Attestation of Conformity for each product family which may involve a third party (a Notified Body) to assess conformity.
3. A framework of Notified Bodies.
4. CE Marking of construction products, based on the provisions of the technical specifications.



CE Marking of products according to the CPD

The Eurocodes and CE Marking



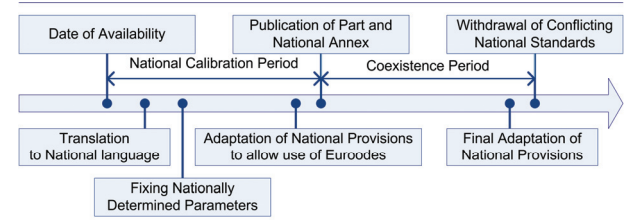
CE Marking is mandatory for any product covered by a harmonised European standard (hEN) or European Technical Approval (ETA) under the framework of the CPD.

The declared values of material and product properties that accompany CE Marking are used as input for the calculations needed to design a structure according to the Eurocodes.

The use of the Eurocodes for the design of structural products and construction works raises a presumption of conformity with the related Essential Requirements of the Construction Products Directive.

National publication of the EN Eurocodes

All 58 Eurocode Parts were made available in 2007. There can be a period of co-existence of the Eurocodes and national rules until 2010, after which all conflicting National Standards must be withdrawn.



National implementation of EN Eurocode Part

National Standards Bodies must publish the National Standard transposing the EN Eurocode Part and the National Annex.

The National Annex may contain information on the Nationally Determined Parameters to be used in the country concerned, decisions on the application of informative annexes and reference to non-contradictory complementary information.

National Authorities should adapt national provisions so that the Eurocode Part can be used on their territory.

Getting ready

In order to take full advantage of the application of the Eurocodes, industry and the profession must be ready to use them. Successful implementation requires collaboration of stakeholders and a strategic approach.

Training is key to the implementation and should involve both continuing professional development and university education.

Guidance material should be produced and distributed. Such material could include implementation aids, designer handbooks and manuals, guidelines with worked examples, training and design software, etc.

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

Support is available at national level by means of websites, publications and courses. The European Commission website on the Eurocodes serves as a platform for exchange and dissemination of training and awareness material.

¹ http://ec.europa.eu/enterprise/construction/index_en.htm

² Commission Communication COM/2003/0238

³ http://ec.europa.eu/internal_market/top_layer/benefits_en.htm

⁴ Commission Communication COM/2005/0011

⁵ Commission's report on the economic effects of public procurement (03/02/2004)

For more information

Eurocodes <http://eurocodes.jrc.ec.europa.eu>

DG ENTR <http://ec.europa.eu/enterprise/construction>

CEN www.cen.eu

EOTA www.eota.eu