

## **RATIFICACIÓN DE DOCUMENTOS EUROPEOS JUNIO 2011**

### HOJA DE ANUNCIO

En cumplimiento del punto 11.2.6.4 de las Reglas Internas de CEN/CENELEC Parte 2, se ha otorgado el rango de norma española al Documento Europeo siguiente:

| <b>Documento<br/>Europeo</b> | <b>Título</b>                                                                                                                     | <b>Fecha de<br/>Disponibilidad</b> |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| EN 1999-1-4:2007             | Eurocódigo 9: Diseño de estructuras de aluminio. Parte 1-4: Láminas conformadas en frío. (Ratificada por AENOR en junio de 2011.) | 2007-02-28                         |

Este anuncio causará efecto a partir del primer día del mes siguiente al de su publicación en la revista UNE. La correspondiente versión oficial de este documento se encuentra disponible en la sede de AENOR, Calle Génova 6, 28004 MADRID.

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English Version

## **Eurocode 9 - Design of aluminium structures - Part 1-4: Cold-formed structural sheeting**

Eurocode 9 - Calcul des structures en aluminium - Partie 1-4: Les structures à plaques formées à froid

Eurocode 9 - Bemessung und Konstruktion von Aluminiumtragwerken - Teil 1-4: Kaltgeformte Profiltafeln

This European Standard was approved by CEN on 12 November 2006.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This European Standard (EN 1999-1-4:2007) has been prepared by Technical Committee CEN/TC250 « Structural Eurocodes », the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2007, and conflicting national standards shall be withdrawn at the latest by March 2010.

This European Standard supersedes ENV 1999-1-1:1998, ENV 1999-1-2:1998 and ENV 1999-2:1998.

CEN/TC 250 is responsible for all Structural Eurocodes.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Bulgaria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italia, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom

### Background of the Eurocode programme

In 1975, the Commission of the European Community decided on an action programme in the field of construction, based on article 95 of the Treaty. The objective of the programme was the elimination of technical obstacles to trade and the harmonisation of technical specifications.

Within this action programme, the Commission took the initiative to establish a set of harmonised technical rules for the design of construction works, which, in a first stage, would serve as an alternative to the national rules in force in the Member States and, ultimately, would replace them.

For fifteen years, the Commission, with the help of a Steering Committee with Representatives of Member States, conducted the development of the Eurocodes programme, which led to the first generation of European codes in the 1980s.

In 1989, the Commission and the Member States of the EU and EFTA decided, on the basis of an agreement<sup>1</sup> between the Commission and CEN, to transfer the preparation and the publication of the Eurocodes to the CEN through a series of Mandates, in order to provide them with a future status of European Standard (EN). This links de facto the Eurocodes with the provisions of all the Council's Directives and/or Commission's Decisions dealing with European standards (e.g. the Council Directive 89/106/EEC on construction products - CPD - and Council Directives 93/37/EEC, 92/50/EEC and 89/440/EEC on public works and services and equivalent EFTA Directives initiated in pursuit of setting up the internal market).

The Structural Eurocode programme comprises the following standards generally consisting of a number of Parts:

|         |             |                                                   |
|---------|-------------|---------------------------------------------------|
| EN 1990 | Eurocode 0: | 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                    |

<sup>1</sup> Agreement between the Commission of the European Communities and the European Committee for Standardisation (CEN) concerning the work on EUROCODES for the design of building and civil engineering works (BC/CEN/03/89).

Eurocode standards recognise the responsibility of regulatory authorities in each Member State and have safeguarded their right to determine values related to regulatory safety matters at national level where these continue to vary from State to State.

### Status and field of application of Eurocodes

The Member States of the EU and EFTA recognise that Eurocodes serve as reference documents for the following purposes:

- as a means to prove compliance of building and civil engineering works with the essential requirements of Council Directive 89/106/EEC, particularly Essential Requirement No.1 – Mechanical resistance and stability, and Essential Requirement No 2 – Safety in case of fire
- as a basis for specifying contracts for the execution of construction works and related engineering services
- as a framework for drawing up harmonised technical specifications for construction products (En's and ETA's)

The Eurocodes, as far as they concern the construction works themselves, have a direct relationship with the Interpretative Documents<sup>2</sup> referred to in Article 12 of the CPD, although they are of a different nature from harmonised product standards<sup>3</sup>. Therefore, technical aspects arising from the Eurocodes work need to be adequately considered by CEN Technical Committees and/or EOTA Working Groups working on product standards with a view to achieving full compatibility of these technical specifications with the Eurocodes.

The Eurocode standards provide common structural design rules for everyday use for the design of whole structures and component products of both a traditional and an innovative nature. Unusual forms of construction or design conditions are not specifically covered and additional expert consideration will be required by the designer in such cases.

### National standards implementing Eurocodes

The National Standards implementing Eurocodes will comprise the full text of the Eurocode (including any annexes), as published by CEN, which may be preceded by a National title page and National foreword, and may be followed by a National annex [informative].

The National Annex (informative) may only contain information on those parameters which are left open in the Eurocode for national choice, known as Nationally Determined Parameters, to be used for the design of buildings and civil engineering works to be constructed in the country concerned, i.e. :

- values for partial factors and/or classes where alternatives are given in the Eurocode;
- values to be used where a symbol only is given in the Eurocode;
- geographical and climatic data specific to the Member State, e.g. snow map;
- the procedure to be used where alternative procedures are given in the Eurocode;
- references to non-contradictory complementary information to assist the user to apply the Eurocode.

### Links between Eurocodes and harmonised technical specifications (EN's and ETA's) for products

There is a need for consistency between the harmonised technical specifications for construction products and the technical rules for works<sup>4</sup>. Furthermore, all the information accompanying the CE Marking of the

<sup>2</sup> According to Art. 3.3 of the CPD, the essential requirements (ERs) shall be given concrete form in interpretative documents for the creation of the necessary links between the essential requirements and the mandates for harmonised ENs and ETAGs/ETAs.

<sup>3</sup> According to Art. 12 of the CPD the interpretative documents shall :

- a) give concrete form to the essential requirements by harmonising the terminology and the technical bases and indicating classes or levels for each requirement where necessary ;
- b) indicate methods of correlating these classes or levels of requirement with the technical specifications, e.g. methods of calculation and of proof, technical rules for project design, etc. ;
- c) serve as a reference for the establishment of harmonised standards and guidelines for European technical approvals.

The Eurocodes, *de facto*, play a similar role in the field of the ER 1 and a part of ER 2.

<sup>4</sup> see Art.3.3 and Art.12 of the CPD, as well as clauses 4.2, 4.3.1, 4.3.2 and 5.2 of ID 1.

construction products which refer to Eurocodes shall clearly mention which Nationally Determined Parameters have been taken into account.

## **National Annex for EN 1999-1-4**

This standard gives alternative procedures, values and recommendations for classes with notes indicating where national choices may have to be made. Therefore the National Standard implementing EN 1999-1-4 should have a National Annex containing all Nationally Determined Parameters to be used for the design of aluminium structures to be constructed in the relevant country.

National choice is allowed in EN 1999-1-4 through clauses:

- 2(3)
- 2(4)
- 2(5)
- 3.1(3)
- 7.3(3)
- A.1(1)
- A.3.4(3)