

# *Geregistreeerde Belgische norm*

**NBN EN 1999-1-1**

2e uitg., december 2007

**Normklasse: B 51**

## **Eurocode 9 - Ontwerp en berekening van aluminiumconstructies - Deel 1-1: Algemene regels**

Eurocode 9 - Calcul des structures en aluminium - Partie 1-1: Règles générales

Eurocode 9 - Design of aluminium structures - Part 1-1: General structural rules

### **Toelating tot publicatie: 12 september 2007**

Vervangt NBN ENV 1999-1-1 (1998).

Deze Europese norm EN 1999-1-1:2007 heeft de status van een Belgische norm.

Deze Europese norm bestaat in drie officiële versies (Duits, Engels, Frans).

Er is bij het NBN ook een Nederlandstalige versie beschikbaar, die dezelfde status heeft als de officiële versies.

Deze norm mag in België slechts samen met zijn nationale bijlage (ANB) worden toegepast. Deze laatste legt hoofdzakelijk de waarden van de parameters vast die op nationaal vlak worden bepaald.

*norme belge  
enregistrée*

**NBN EN 1999-1-1**

2e éd., décembre 2007

**Indice de classement: B 51**

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**Eurocode 9 - Calcul des structures en aluminium - Partie 1-1: Règles générales**

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Eurocode 9 - Design of aluminium structures - Part 1-1: General structural rules

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**Autorisation de publication: 12 septembre 2007**

Remplace NBN ENV 1999-1-1 (1998).

La présente norme européenne EN 1999-1-1:2007 a le statut d'une norme belge.

La présente norme européenne existe en trois versions officielles (allemand, anglais, français).

Une version en néerlandais, ayant le même statut que les versions officielles, est également disponible au NBN.

Cette norme ne peut être utilisée en Belgique qu'en combinaison avec son annexe nationale (ANB) qui fixe principalement la valeur des paramètres à déterminer au niveau national.

## Nationaal voorwoord van NBN EN 1999-1-1:2007

1. De norm NBN EN 1999-1-1:2007 «Eurocode 9: Ontwerp en berekening van aluminiumconstructies – Deel 1-1 Algemene regels» omvat de nationale bijlage NBN EN 1999-1-1 ANB:2011 met een normatief karakter in België. Hij vervangt vanaf de datum van de publicatie van zijn bekrachtiging in het Belgische Staatsblad de volgende norm:

NBN ENV 1999-1-1:1998 Eurocode 9: Ontwerp en berekening van aluminium-constructies – Deel 1-1: Algemene regels - Algemene regels en regels voor de gebouwen

2. De Europese normen (EN) waarnaar de tekst van deze norm met hun Engelse titel verwijst, dragen in België de volgende Nederlandstalige titels :

<b>Vermelde norm met Engelse titel</b>	<b>Nederlandstalige titel (NBN)</b>
EN 485-2 Aluminium and aluminium alloys. Sheet, strip and plate. Part 2: Mechanical properties	EN 485-2 Aluminium en aluminiumlegeringen - Plaat en band - Deel 2: Mechanische eigenschappen
EN 755-2 Aluminium and aluminium alloys. Extruded rod/bar, tube and profiles. Part 2: Mechanical properties	EN 755-2 Aluminium en aluminiumlegeringen - Geëxtrudeerde staven, buizen en profielen - Deel 2: Mechanische eigenschappen
EN 1990 Basis of structural design	EN 1990 Grondslagen van het constructief ontwerp
EN 1991-1-2 Basis of design and actions on structures Part 1-2: Actions on structures exposed to fire	EN 1991-1-2 Belastingen op constructies - Deel 1-2: Algemene belastingen - Belasting bij brand
EN 1999-1-1 Design of aluminium structures: Part 1-1: General structural rules	EN 1999-1-1 Ontwerp en berekening van aluminiumconstructies - Deel 1-1: Algemene regels
EN 1090-3 Execution of steel structures and aluminium structures – Part 3: Technical requirements for aluminium structures	EN 1090-3 Uitvoering van staalconstructies en aluminiumconstructies - Deel 3: Technische eisen voor aluminiumconstructies
EN 13501-2 Fire classification of construction products and building elements. Part 2 Classification using data from fire resistance tests	EN 13501-2 Brandclassificatie van bouwproducten en bouwdelen - Deel 2: Classificatie op grond van resultaten van brandwerendheidsproeven, behalve voor ventilatiesystemen
ENV 13381-1 Fire tests on elements of	ENV 13381-1 Proeven ter bepaling van de

<p>building construction: Part 1: Test method for determining the contribution to the fire resistance of structural members: By horizontal protective membranes</p>	<p>bijdrage tot de vuurweerstand van dragende bouwdelen - Deel 1: Horizontale vuurwerende bekledingen</p>
<p>ENV 13381-2 Fire tests on elements of building construction. Part 2: Test method for determining the contribution to the fire resistance of structural members: By vertical protective membranes.</p>	<p>ENV 13381-2 Proeven ter bepaling van de bijdrage tot de vuurweerstand van dragende bouwdelen - Deel 2: Verticale vuurwerende bekledingen</p>
<p>ENV 13381-4 Fire tests on elements of building construction. Part 4: Test method for determining the contribution to the fire resistance of structural members: By applied protection to steel structural elements.</p>	<p>ENV 13381-4 Proeven ter bepaling van de bijdrage tot de vuurweerstand van dragende bouwdelen - Deel 4: Vuurwering aangebracht op stalen bouwdelen</p>

3. Een amendement (EN 1999-1-1:2007/A1:2009) werd opgesteld door CEN en dient samen met NBN EN 1999-1-1 en zijn ANB gebruikt te worden.

# AVANT-PROPOS NATIONAL À LA NBN EN 1999-1-1:2007

1. La norme NBN EN 1999-1-1:2007 « Eurocode 9: Calcul des structures en aluminium – Partie 1-1: Règles générales » comprend l'annexe nationale NBN EN 1999-1-1 ANB:2011 qui a un caractère normatif en Belgique. Elle remplace à partir de la date de publication de l'homologation de la norme au Moniteur Belge de la norme NBN EN 1999-1-1 ANB:2011 la norme suivante :

NBN ENV 1999-1-1:1998 Eurocode 9: Conception et dimensionnement des structures en aluminium - Partie 1-1: Règles générales - Règles générales et règles pour les bâtiments

2. La version de langue française de l'EN 1999-1-1:2007 a été rédigée en France par l'AFNOR.  
En conséquence, on y rencontre certaines expressions d'usage moins courant en Belgique.

Une liste de termes équivalents est donnée ci-après :

Terme de l'EN 1999-1-1	Terme équivalent en Belgique
Client	le maître de l'ouvrage assisté de ses bureaux d'architectes, d'ingénierie et de consultance
Poteau	Colonne

3. Note complémentaire du NBN : les corrections éditoriales suivantes sont à apporter à la version française de la NBN EN 1999-1-1:2007 :

Origine	Paragraphe	Texte à corriger	Nouveau texte
EN 1999-1-1	7.2.1 (1)	EN 1090	EN 1990
	7.2.2 (1)	EN 1090	EN 1990
	8.1.1 tableau 8.1	résistance des plaques à la capacité portante	résistance des plats à la pression diamétrale

Outre les corrections indiquées, un amendement (EN 1999-1-1:2007/A1:2009) est établi au CEN et doit être utilisé avec la NBN EN 1999-1-1 et son ANB.



English Version

## Eurocode 9: Design of aluminium structures - Part 1-1: General structural rules

Eurocode 9: Calcul des structures en aluminium - Partie 1-1: Règles générales

Eurocode 9: Bemessung und Konstruktion von Aluminiumtragwerken - Teil 1-1: Allgemeine Bemessungsregeln

This European Standard was approved by CEN on 18 September 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.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This European Standard (EN 1999-1-1:2007) 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 November 2007, and conflicting national standards shall be withdrawn at the latest by March 2010.

This European Standard supersedes ENV 1999-1-1: 1998.

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

Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, 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).