

Geregistreeerde Belgische norm

NBN EN 1991-1-5

1e uitg., januari 2004

Normklasse: B 03

Eurocode 1: Belastingen op constructies - Deel 1-5: Algemene belastingen - Thermische belasting (+ AC:2009)

Eurocode 1: Actions sur les structures - Partie 1-5: Actions générales - Actions thermiques (+ AC:2009)

Eurocode 1: Actions on structures - Part 1-5: General actions - Thermal actions (+ AC:2009)

Toelating tot publicatie: 24 december 2003

Vervangt NBN ENV 1991-2-5 (2002).

Deze Europese norm NBN EN 1991-1-5:2004 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.



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*norme belge
enregistrée*

NBN EN 1991-1-5

1e éd., janvier 2004

Indice de classement: B 03

**Eurocode 1: Actions sur les structures - Partie 1-5: Actions générales -
Actions thermiques (+ AC:2009)**

Eurocode 1: Belastingen op constructies - Deel 1-5: Algemene belastingen - Thermische belasting (+ AC:2009)

Eurocode 1: Actions on structures - Part 1-5: General actions - Thermal actions (+ AC:2009)

Autorisation de publication: 24 décembre 2003

Remplace NBN ENV 1991-2-5 (2002).

La présente norme européenne NBN EN 1991-1-5:2004 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.



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NATIONAAL VOORWOORD van EN 1991-1-5:2004

1. De norm NBN EN 1991-1-5:2004 «Eurocode 1: Belastingen op constructies – Deel 1-5: Algemene belastingen - Thermische belasting (+AC:2009)» omvat de nationale bijlage NBN EN 1991-1-5 ANB:2009 met een normatief karakter in België. Hij vervangt vanaf de datum van de publicatie in het Belgische Staatsblad van de bekrachtiging van de norm NBN EN 1991-1-5 ANB:2009 de volgende normen:

NBN ENV 1991-2-5:2002 «Eurocode 1: Grondslag voor ontwerp en belastingen op draagsystemen - Deel 2-5: Warmtebelastingen, samen met Belgische toepassingsrichtlijn (gehomologeerde versie + NAD) ».

Het corrigendum EN 1991-1-5:2003/AC:2009, zoals door CEN gepubliceerd, is na deze norm toegevoegd.

2. De Nederlandstalige versie van EN 1991-1-5 is tot stand gekomen op basis van een voorkeurterminologie die in samenwerking tussen het NBN en het NEN is opgesteld. Daarbij werd voor elk begrip een unieke woordkeuze gemaakt. Dit heeft als gevolg dat in de norm uitdrukkingen voorkomen die in één van de twee landen minder gebruikelijk zijn. Hierna volgt een lijst met synoniemen:

Oorspronkelijke term (Engels)	Verplichte term (Nederlands)	Synoniem (B); (N)
serviceability limit state	bruikbaarheidsgrenstoestand	gebruiksgrenstoestand (NBN B 03) (B)
effects of actions	belastingseffecten	belastingsuitwerken
resistance	weerstand	capaciteit, sterkte
construction work	bouwwerk	werk (B)
road bridge	wegbrug (B)	verkeersbrug (N)

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

Vermelde norm met Engelse titel	Nederlandstalige titel (NBN)
EN 1990:2002 Eurocode: Basis of structural design	NBN EN 1990:2002 Eurocode - Grondslagen van het constructief ontwerp
prEN 1991-1-6 Eurocode 1: Actions on structures - Part 1-6: General actions - Actions during execution	Zie EN 1991-1-6:2005 Eurocode 1 - Deel 1-6: Algemene belastingen - Belasting tijdens uitvoering
EN 13084-1 Free-standing industrial chimneys - Part 1: General requirements	NBN EN 13084-1:2007 Vrijstaande schoorstenen - Deel 1: Algemene eisen
ISO 2394 General principles on reliability for structures	NBN ISO 2394:1992 Algemene beginselen voor de betrouwbaarheid van draagsystemen
ISO 3898 Bases of design of structures - Notations - General symbols	NBN ISO 3898:1992 Grondslagen voor het ontwerpen van draagsystemen - Notaties - Algemene symbolen
ISO 8930 General principles on reliability for structures - List of equivalent terms	NBN ISO 8930:1992 Algemene beginselen voor de betrouwbaarheid van draagsystemen - Lijst van gelijkwaardige termen

Avant-propos national à la NBN EN 1991-1-5:2004

1. La norme NBN EN 1991-1-5:2004 «Eurocode 1: Actions sur les constructions – Partie 1-5 Actions générales – Actions thermiques (+AC:2009)» comprend l'annexe nationale NBN EN 1991-1-5 ANB:2009 qui a un caractère normatif en Belgique. Elle remplace à partir de la date de publication au Moniteur Belge de l'homologation de la norme NBN EN 1991-1-5 ANB:2009 les normes suivantes :

NBN ENV 1991-2-5:2002 «Eurocode 1 - Bases de calcul et actions sur les structures - Partie 2-5 : Actions sur les structures - Actions thermiques y compris le document d'application belge (version homologuée + DAN)».

Le corrigendum EN 1991-1-5:2003/AC:2009, tel que publié par le CEN, est ajouté à cette norme.

2. La version de langue française de l'EN 1991-1-5 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 1991-1-5	Terme équivalent en Belgique
client	le maître de l'ouvrage assisté de ses bureaux d'architectes, d'ingénierie et de consultance

English version

Eurocode 1: Actions on structures - Part 1-5: General actions - Thermal actions

Eurocode 1: Actions sur les structures - Partie 1-5: Actions
générales – Actions thermiques

This European Standard was approved by CEN on 18 September 2003.

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 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 Management Centre has the same status as the official versions.

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



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

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EN 1991-1-5: 2003 (E)

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EN 1991-1-5: 2003 (E)

Foreword

This document (EN 1991-1-5) 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 May 2004, and conflicting national standards shall be withdrawn at the latest by March 2010.

Annexes A and B are normative. Annexes C and D are informative.

This document supersedes ENV 1991-2-5:1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Background to the Eurocode Programme

In 1975, the Commission of the European Communities 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 harmonization 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 1980's.

In 1989, the Commission and the Member States of the EU and EFTA decided, on the basis of an agreement between the Commission and CEN, to transfer the preparation and the publication of the Eurocodes to CEN through a series of mandates, in order to provide them with a future status of European Standard (EN). This links *de facto* the Eurocode 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 settings up the internal market).

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

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 alloy structures

Eurocode standards recognize 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 recognize that Eurocodes serve as reference documents for the following purposes:

- as a means of providing compliance of building and civil engineering works with the essential requirements of Council Directive 89/106/EEC, particularly Essential Requirement N°1 - Mechanical resistance and stability - and Essential Requirement N°2 - Safety in case of fire;
- as a basis for specifying contracts for construction works and related engineering services;
- as a framework for drawing up harmonized technical specifications for construction products (ENs and ETAs)

The Eurocodes, as far as they concern the construction works themselves, have a direct relationship with the Interpretative Documents referred to in Article 12 of the CPD, although they are of a different nature from harmonized product standards. 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 a 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 design conditions are not specifically covered and additional expert consideration will be required by the designer in such cases.

EN 1991-1-5: 2003 (E)

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 and/or classes where alternatives are given in the Eurocode,
- values to be used where a symbol only is given in the Eurocode,
- country specific data (geographical, climatic, etc.), e.g. snow map,
- the procedure to be used where alternative procedures are given in the EN Eurocode.

It may also contain

- decisions on the application of informative annexes,
- references to non-contradictory complementary information to assist the user to apply the Eurocode.

Links between Eurocodes and product harmonized technical specifications (ENs and ETAs)

There is a need for consistency between the harmonized technical specifications for construction products and the technical rules for works. Furthermore, all the information accompanying the CE Marking of the construction products which refer to Eurocodes should clearly mention which Nationally Determined Parameters have been taken into account.

Additional information specific to EN 1991-1-5

EN 1991-1-5 gives design guidance for thermal actions arising from climatic and operational conditions on buildings and civil engineering works.

Information on thermal actions induced by fire is given in EN 1991-1-2.

EN 1991-1-5 is intended for clients, designers, contractors and relevant authorities.

EN 1991-1-5 is intended to be used with EN 1990, the other Parts of EN 1991 and EN 1992-1999 for the design of structures.

In the case of bridges, the National annexes specify whether the general non-linear or the simplified linear temperature components should be used in design calculations.