

Eurocode 3: Design of steel structures —

Part 1-10: Material toughness and through-thickness properties

ICS 91.010.30; 91.080.10

National foreword

This British Standard is the UK implementation of EN 1993-1-10:2005, incorporating corrigenda December 2005 and March 2009. It supersedes DD ENV 1993-1-1:1992, which is withdrawn.

The start and finish of text introduced or altered by corrigendum is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN corrigendum. For example, text altered by December 2005 corrigendum is indicated by **[AC1]** **<AC1>**.

The structural Eurocodes are divided into packages by grouping Eurocodes for each of the main materials: concrete, steel, composite concrete and steel, timber, masonry and aluminium; this is to enable a common date of withdrawal (DOW) for all the relevant parts that are needed for a particular design. The conflicting national standards will be withdrawn at the end of the co-existence period, after all the EN Eurocodes of a package are available.

Following publication of the EN, there is a period allowed for national calibration during which the National Annex is issued, followed by a co-existence period of a maximum three years. During the co-existence period Member States are encouraged to adapt their national provisions. At the end of this co-existence period, the conflicting parts of national standard(s) will be withdrawn.

In the UK, the primary corresponding national standards are:

BS 449-2:1969, *Specification for the use of structural steel in building. Metric units*

BS 5400-3:2000, *Steel, concrete and composite bridges. Code of practice for design of steel bridges*

BS 5950-1:2000, *Structural use of steelwork in building. Code of practice for design. Rolled and welded sections*

BS EN 1993-1-10 will partially supersede BS 449-2, BS 5400-3 and BS 5950-1, which will be withdrawn by March 2010.

The UK participation in its preparation was entrusted by Technical Committee B/525, *Building and civil engineering structures*, to Subcommittee B/525/31, *Structural use of steel*.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Amendments/corrigenda issued since publication

Amd. No.	Date	Comments
16293 Corrigendum No. 1	June 2006	Implementation of CEN corrigendum December 2005
16569 Corrigendum No. 2	September 2006	Revision of national foreword and supersession details
	28 February 2010	Implementation of CEN corrigendum March 2009

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Where a normative part of this EN allows for a choice to be made at the national level, the range and possible choice will be given in the normative text as Recommended Values, and a note will qualify it as a Nationally Determined Parameter (NDP). NDPs can be a specific value for a factor, a specific level or class, a particular method or a particular application rule if several are proposed in the EN.

To enable EN 1993-2 to be used in the UK, the NDPs have been published in a National Annex, which has been issued separately by BSI.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

English version

Eurocode 3: Design of steel structures - Part 1-10: Material toughness and through-thickness properties

Eurocode 3 - Calcul des structures en acier vis-à-vis de la
ténacité et des propriétés dans le sens de l'épaisseur -
Partie 1-10 : Choix des qualités d'acier

Eurocode 3: Bemessung und Konstruktion von Stahlbauten
- Teil 1-10 : Stahlsortenauswahl im Hinblick auf
Bruchzähigkeit und Eigenschaften in Dickenrichtung

This European Standard was approved by CEN on 20 June 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

This European Standard EN 1993, Eurocode 3: Design of steel structures, has been prepared by Technical Committee CEN/TC250 « Structural Eurocodes », the Secretariat of which is held by BSI. CEN/TC250 is responsible for all Structural Eurocodes.

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 2005, and conflicting National Standards shall be withdrawn at latest by March 2010.

This Eurocode supersedes ENV 1993-1-1.

According to the CEN-CENELEC Internal Regulations, the National Standard Organizations of the following countries are bound to implement these European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Background to 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 harmonization of technical specifications.

Within this action programme, the Commission took the initiative to establish a set of harmonized 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 agreement¹ 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 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

¹ 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/03/80).