STANDARDISERINGEN I SVERIGE
SWEDISH STANDARDS INSTITUTION

SVENSK STANDARD SS-ENV 1993-1-1

Handläggande organ	Fastställd	Utgåva
Byggstandardiseringen, BST	1995-01-20	1

Stålkonstruktioner – Dimensionering. Eurocode 3 – Del 1-1: Allmänna regler och regler för byggnader

Eurocode 3: Design of steel structures – Part 1-1: General rules and rules for buildings

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Byggstandardiseringen, BST	1995-01-20	1	1 (1+344)

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Den europeiska förstandarden ENV 1993-1-1:1992 gäller som svensk standard och publiceras i form av en svensk försöksstandard, som innehåller den engelska versionen av ENV 1993-1-1:1992 med det inarbetade tillägget AC:1992.

Försöksstandarden förutsätter att den tillämpas i kombination med reglerna i ett svenskt anpassningsdokument, NAD, till standarden. För utgivningen av NAD-dokumentet svarar Boverket i samråd med Banverket och Vägverket.

ENV 1993-1-1:1992 bedöms genomgå en betydande omarbetning i samband med att den publiceras som europastandard, EN. Det finns f n inte några planer på att översätta den till svenska.

SS-ENV 1993-1-1 kommer att följas av ytterligare ett antal delar med regler för dimensionering av stålkonstruktioner, bl a tilläggsregler för speciella konstruktioner som broar, cisterner, master och torn och regler för dimensionering med hänsyn till brand.

Enligt 1:5 i Boverkets Byggregler BKR 94 (BFS 1993:58) godtas metoder och konstruktionslösningar enligt denna standard som alternativ till sådana som anges i BKR 94, med de tillägg och ändringar som anges i NAD.

Standarder kan beställas hos SIS som även lämnar allmänna upplysningar om svensk och utländsk standard.
Postadress: SIS, Box 3295, 103 66 STOCKHOLM
Telefon: 08 - 613 52 00. *Telefax*: 08 - 411 70 35

Upplysningar om **sakinnehållet** i standarden lämnas av BST.
Telefon: 08 - 23 72 50. *Telefax*: 08 - 20 89 93.

Prisgrupp Y

Tryckt i mars 1995

EUROPEAN PRESTANDARD
PRÉNORME EUROPÉENNE
EUROPÄISCHE VORNORM

ENV 1993-1-1

April 1992

UDC 624.92.014.2 : 624.07

Descriptors: Buildings, steel structures, computation, building codes, rules of calculation

English version

Eurocode 3: Design of steel structures — Part 1.1: General rules and rules for buildings

Calcul des structures en acier
Partie 1.1: Règles générales et règles pour les bâtiments

Bemessung und Konstruktion von Stahlbauten
Teil 1.1: Allgemeine Bemessungsregeln, Bemessungsregeln für den Hochbau

This European Prestandard (ENV) was approved by CEN on 1992-04-24 as a prospective standard for provisional application. The period of validity of this ENV is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the ENV can be converted into a European Standard (EN).

CEN members are required to announce the existence of this ENV in the same way as for an EN and to make the ENV available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the ENV) until the final decision about the possible conversion of the ENV into an EN is reached.

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

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

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Foreword

0.1 Objectives of the Eurocodes

(1) The Structural Eurocodes comprise a group of standards for the structural and geotechnical design of buildings and civil engineering works.

(2) They are intended to serve as reference documents for the following purposes:

a) As a means to prove compliance of building and civil engineering works with the essential requirements of the Construction Products Directive (CPD)

b) As a framework for drawing up harmonised technical specifications for construction products.

(3) They cover execution and control only to the extent that is necessary to indicate the quality of the construction products, and the standard of the workmanship, needed to comply with the assumptions of the design rules.

(4) Until the necessary set of harmonised technical specifications for products and for methods of testing their performance is available, some of the Structural Eurocodes cover some of these aspects in informative annexes.

0.2 Background to the Eurocode Programme

(1) The Commission of the European Communities (CEC) initiated the work of establishing a set of harmonized technical rules for the design of building and civil engineering works which would initially serve as an alternative to the different rules in force in the various Member States and would ultimately replace them. These technical rules became known as the "Structural Eurocodes".

(2) In 1990, after consulting their respective Member States, the CEC transferred the work of further development, issue and updates of the Structural Eurocodes to CEN, and the EFTA Secretariat agreed to support the CEN work.

(3) CEN Technical Committee CEN/TC 250 is responsible for all Structural Eurocodes.

0.3 Eurocode programme

(1) Work is in hand on the following Structural Eurocodes, each generally consisting of a number of parts:

EN 1991	Eurocode 1	Basis of design and 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

In addition the following may be added to the programme:

EN 1999	Eurocode 9	Design of aluminium structures

(2) Separate sub-committees have been formed by CEN/TC250 for the various Eurocodes listed above.

(3) This part of the Structural Eurocode for Design of Steel Structures, which had been finalised and approved for publication under the direction of CEC, is being issued by CEN as a European Prestandard (ENV) with an initial life of three years.

(4) This Prestandard is intended for experimental practical application in the design of the building and civil engineering works covered by the scope as given in 1.1.2 and for the submission of comments.

(5) After approximately two years CEN members will be invited to submit formal comments to be taken into account in determining future action.

(6) Meanwhile feedback and comments on this Prestandard should be sent to the Secretariat of sub-committee CEN/TC250/SC3 at the following address:

BSI Standards
2 Park Street
London W1A 2BS
England

or to your national standards organisation.

0.4 National Application Documents

(1) In view of the responsibilities of authorities in member countries for the safety, health and other matters covered by the essential requirements of the CPD, certain safety elements in this ENV have been assigned indicative values which are identified by [ ]. The authorities in each member country are expected to assign definitive values to these safety elements.

(2) Many of the harmonized supporting standards, including the Eurocodes giving values for actions to be taken into account and measures required for fire protection, will not be available by the time this Prestandard is issued. It is therefore anticipated that a National Application Document (NAD) giving definitive values for safety elements, referencing compatible supporting standards and providing national guidance on the application of this Prestandard, will be issued by each member country or its Standards Organisation.

(3) **It is intended that this Prestandard is used in conjunction with the NAD valid in the country where the building or civil engineering works are located.**

0.5 Matters specific to this Prestandard

0.5.1 General

(1) The scope of Eurocode 3 is defined in 1.1.1 and the scope of this Part of Eurocode 3 is defined in 1.1.2. Additional Parts of Eurocode 3 which are planned are indicated in 1.1.3; these will cover additional technologies or applications, and will complement and supplement this Part.

(2) In using this Prestandard in practice, particular regard should be paid to the underlying assumptions and conditions given in 1.3.

(3) In developing this Prestandard, background documents have been prepared, which give commentaries on, and justifications for, some of the provisions in the Prestandard.

0.5.2 Use of Annexes

(1) The nine chapters of this Prestandard are complemented by a number of Annexes, some normative and some informative.

(2) The normative annexes have the same status as the chapters to which they relate. Most have been introduced by moving some of the more detailed Application Rules, which are needed only in particular cases, out of the main part of the text to aid its clarity.

0.5.3 Concept of Reference Standards

(1) In using this Prestandard reference needs to be made to various CEN and ISO standards. These are used to define the product characteristics and processes which have been assumed to apply in formulating the design rules.

(2) This Prestandard mentions 10 "Reference Standards" which are detailed in normative Annex B. Each Reference Standard makes reference to the whole or, or part of, a number of CEN and/or ISO standards. Where any referenced CEN or ISO standard is not yet available, the National Application Document should be consulted for the standard to be used instead. It is assumed that only those grades and qualities given in normative Annex B will be used for buildings and civil engineering works designed to this Prestandard.

0.5.4 Weldable structural steel

(1) An important product standard quoted in the defined Reference Standard for weldable structural steels is EN 10025, in which grades Fe 360, Fe 430 and Fe 510 are relevant.

(2) However, EN 10025 also contains other steel grades besides these three weldable grades. It has been recognised that even for these three steel grades, which past experience has shown to be weldable, the specifications in EN 10025 are such that within the tolerance limits for the chemical analysis, steels could be supplied that might prove to be difficult to weld. Therefore in referring to EN 10025 in normative Annex B, an additional requirement has been included in B.2.1.1(2) concerning weldability of the steel, which should be quoted when steels to EN 10025 are ordered.

(3) The means for achieving adequate weldability has not been specified in this Prestandard. However, EN 10025 offers the definition of Carbon Equivalent Values (CEV) that can be negotiated with the steel suppliers to ensure adequate weldability.

0.5.5 Partial safety factors for resistances

(1) This Prestandard gives general rules for the design of steel structures which relate to limit states of members such as fracture in tension, failure by instability phenomena or rupture of the connections.

(2) It also gives particular rules related to the design of buildings such as rules for frames, beams, lattice girders and beam-to-column connections.

(3) Most of the rules have been calibrated against test results in order to obtain consistent values of the partial safety factors for resistance γ_M.

(4) In order to avoid a large variety of γ_M values, two categories were selected:

$\gamma_{M1} = 1,1$ to be applied to resistances related to the yield strength f_y (eg for all instability phenomena)

$\gamma_{M2} = 1,25$ to be applied to resistances related to the ultimate tensile strength f_u (eg net section strength in tension or bolt and weld resistances).