

**SS EN 1993-1-4:2011+A1:2019**  
**EN 1993-1-4:2006+A1:2015, IDT**  
(ICS 91.040.01; 91.080.10)

**SINGAPORE STANDARD**

**Eurocode 3 : Design of steel structures**

– Part 1-4 : General rules – Supplementary rules for  
stainless steels

Incorporating Amendment No. 1

**SS EN 1993-1-4:2011+A1:2019**

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*Arup Singapore Pte Ltd*  
*Building and Construction Authority*  
*National University of Singapore*  
*Setsco Services Pte Ltd*  
*TYH Consulting Engineers*  
*Yongnam Engineering & Construction Pte Ltd*

## **National Foreword**

This Singapore Standard was prepared by the Technical Committee on Building Structure and Substructures under the purview of the Building and Construction Standards Committee.

This SS EN is the identical implementation of EN 1993-1-4 : 2006 'Eurocode 3 : Design of steel structures – Part 1-4 : General rules – Supplementary rules for stainless steels' and is adopted with permission of CEN, Avenue Marnix 17, 1000 Brussels.

Attention is drawn to the following:

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- The Singapore Standards which implement international or European publications referred to in this document may be found in the SS Electronic Catalogue at: <http://www.singaporestandardseshop.sg>

The EN gives values with notes indicating where national choices may be made. Where a normative part of the EN allows for national choice to be made, the range and possible choice will be given in the normative text, 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.

The requirements of this SS EN 1993-1-4 : 2011+A1:2019 are to be read in conjunction with the Singapore National Annex (NA) to SS EN 1993-1-4 : 2011+A1:2019 which contains information on the Singapore Nationally Determined Parameters and is published separately.

National choice is allowed in EN 1993-1-4 through the following clauses:

- 2.1.4(2)
- 2.1.5(1)
- 5.1(2)
- 5.5(1)
- 5.6(2)
- 6.1(2)
- 6.2(3)
- 7(1)
- A.2 (8)
- A.3, Table A.4

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

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2015

ICS 91.040.01; 91.080.10

Supersedes EN 1993-1-4:2006

English Version

## Eurocode 3 - Design of steel structures - Part 1-4: General rules - Supplementary rules for stainless steels

Eurocode 3 - Calcul des structures en acier - Partie 1-4:  
Règles générales - Règles supplémentaires pour les aciers  
inoxydables

Eurocode 3 - Bemessung und Konstruktion von  
Stahlbauten - Teil 1-4: Allgemeine Bemessungsregeln -  
Ergänzende Regeln zur Anwendung von nichtrostender  
Stählen

This European Standard was approved by CEN on 9 January 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 Central Secretariat or to any CEN member.

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## Foreword

This European Standard EN 1993-1-4, Eurocode 3: Design of steel structures: Part 1-4 General Rules – Supplementary rules for stainless steels, 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 April 2007 and conflicting National Standards shall be withdrawn at latest by March 2010.

This Eurocode supersedes ENV 1993-1-4.

According to the CEN-CENELEC Internal Regulations, the National Standard Organizations of the following countries are bound to implement this 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## Foreword to amendment A1

This document (EN 1993-1-4:2006/A1:2015) has been prepared by Technical Committee CEN/TC 250 “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 June 2016, and conflicting national standards shall be withdrawn at the latest by June 2016.

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## National Annex for EN 1993-1-4

This standard gives alternative procedures, values and recommendations with notes indicating where national choices may have to be made. The National Standard implementing EN 1993-1-4 should have a National Annex containing all Nationally Determined Parameters to be used for the design of steel structures to be constructed in the relevant country.

National choice is allowed in EN 1993-1-4 through clauses:

- 2.1.4(2)
- 2.1.5(1)
- 5.1(2)
- 5.5(1)
- 5.6(2)
- 6.1(2)
- 6.2(3)
- A1 – 7(1),
- A.2(8) and
- A.3, Table A.4 A1

## 1 General

### 1.1 Scope

(1) This Part 1.4 of EN 1993 gives supplementary provisions for the design of buildings and civil engineering works that extend and modify the application of EN 1993-1-1, EN 1993-1-3, EN 1993-1-5 and EN 1993-1-8 to austenitic, austenitic-ferritic and ferritic stainless steels.

**NOTE 1:** Information on the durability of stainless steels is given in Annex A.

**NOTE 2:** The execution of stainless steel structures is covered in EN 1090.

**NOTE 3:** Guidelines for further treatment, including heat treatment, are given in EN 10088.

### 1.2 Normative references

The following normative documents contain provisions which, through reference to this text, constitute provisions of this European Standard. For dated references, subsequent amendments to or revisions of any of these publications do not apply. However, parties to agreements based on this European Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

|                                |   |
|--------------------------------|---|
| EN 1990                        | <i>Eurocode 0: Basis of structural design</i>   |
| EN 508-3                       | <i>Roofing products from metal sheet. Specification for self-supporting products of steel, aluminium or stainless steel sheet. Stainless steel;</i> |
| EN 1090-2                      | <i>Execution of steel structures and aluminium structures – Part 2: Technical requirements for steel structures;</i>                                |
| EN 1993-1-1:2005 <sup>A1</sup> | <i>Design of steel structures: General rules and rules for buildings;</i>   |
| EN 1993-1-2                    | <i>Design of steel structures: Structural fire design;</i>  |
| EN 1993-1-3                    | <i>Design of steel structures: Cold formed thin gauge members and sheeting;</i>   |
| EN 1993-1-5                    | <i>Design of steel structures: Plated structural elements;</i>  |
| EN 1993-1-6                    | <i>Design of steel structures: Strength and stability of shell structures;</i>  |
| EN 1993-1-8                    | <i>Design of steel structures: Design of joints;</i>  |
| EN 1993-1-9                    | <i>Design of steel structures: Fatigue;</i>   |
| EN 1993-1-10                   | <i>Design of steel structures: Material toughness and through-thickness properties;</i>   |
| EN 1993-1-11                   | <i>Design of steel structures: Design of structures with tension components made of steel;</i>  |
| EN 1993-1-12                   | <i>Design of steel structures: Additional rules for the extension of EN 1993 up to steel grades S 700;</i>  |
| EN ISO 3506-1                  | <i>Mechanical properties of corrosion resistant stainless steel fasteners – Part 1: Bolts, screws and studs;</i>                                    |
| EN ISO 3506-2                  | <i>Mechanical properties of corrosion resistant stainless steel fasteners – Part 2: Nuts</i>  |
| EN ISO 3506-3                  | <i>Mechanical properties of corrosion resistant stainless steel fasteners – Part 3: Set screws and similar fasteners under tensile tests;</i>       |
| EN ISO 7089                    | <i>Plain washers - Normal series - Product grade A;</i>   |
| EN ISO 7090                    | <i>Plain washers, chamfered - Normal series - Product grade A;</i>  |
| EN ISO 9445                    | <i>Continuously cold-rolled stainless steel narrow strip, wide strip, plate/sheet and cut lengths - Tolerances on dimensions and form</i>           |
| EN 10029                       | <i>Specification for tolerances on dimensions, shape and mass for hot rolled steel plates 3 mm thick or above;</i>                                  |