BSI Standards Publication

Eurocode — Basis of structural and geotechnical design

Part 1: New structures

bsi.

National foreword

This British Standard is the UK implementation of EN 1990-1:2023+A1:2026. It supersedes BS EN 1990:2023, which will be withdrawn on 30 March 2028.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by ⟨A1⟩ ⟨A1⟩.

The UK participation in its preparation was entrusted to Technical Committee B/525/1, Actions (loadings) and basis of design.

A list of organizations represented on this committee can be obtained on request to its committee manager.

National choice is allowed in this standard where explicitly stated within notes. The National Annex to this standard contains the national choices to be used for buildings and civil engineering works constructed in the UK.

The first generation of EN Eurocodes was published between 2002 and 2007, with conflicting British Standards withdrawn in 2010. This document forms part of the second generation of EN Eurocodes.

The second generation of EN Eurocodes is expected to be published between 2023 and 2026. These documents are being published as soon as they are available. This is being done to enable users to prepare for the transition from the first generation to second generation of EN Eurocodes.

UK adoptions of the first generation of EN Eurocodes will be withdrawn by BSI on 30 March 2028. Until that date, the first generation documents should be considered as the applicable standards for buildings and civil engineering works constructed in the UK unless otherwise specified by the relevant authority or in the specification for a particular project.

This standard is intended to be used with its National Annex and other referenced documents, including other second generation Eurocodes, as an interdependent suite of documents.

While the use of provisions in this standard in conjunction with first generation Eurocodes is not precluded, it should be undertaken with care and should only be done when users are satisfied that it will not result in a lower level of reliability than the minimum level set in the first generation Eurocodes and associated UK National Annexes.

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Amendments/corrigenda issued since publication

Date	Text affected
31 March 2026	Implementation of CEN amendment A1:2026

EUROPEAN STANDARD **EN 1990-1:2023+A1**

NORME EUROPÉENNE

EUROPÄISCHE NORM March 2026

ICS 91.010.30 Supersedes EN 1990:2023

English Version

Eurocode - Basis of structural and geotechnical design - Part 1: New structures

Eurocode - Bases des calculs structuraux et géotechniques - Partie 1 : Structures neuves

Eurocode - Grundlagen der Planung von Tragwerken und geotechnischen Bauwerken - Teil 1: Neubauten

This European Standard was approved by CEN on 2 January 2023 and includes Amendment 1 approved by CEN on 28 December 2025.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 1990-1:2023+A1:2026) has been prepared by Technical Committee CEN/TC 250 "Structural Eurocodes", the secretariat of which is held by BSI. CEN/TC 250 is responsible for all Structural Eurocodes and has been assigned responsibility for structural and geotechnical design matters by CEN.

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 September 2027, and conflicting national standards shall be withdrawn at the latest by March 2028.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document includes Amendment 1 approved by CEN on 28 December 2025.

This document supersedes ▌A1⟩ EN 1990:2023 ⟨A1▌.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ▌A1⟩ ⟨A1▌.

▌A1⟩ The following main changes to EN 1990:2023 are included in the Amendment:

— inclusion of application rules for:

  — towers, masts and chimneys (Clause A.3);

  — silos and tanks (Clause A.4);

  — structures supporting cranes or machines (Clause A.5);

  — coastal structures (Clause A.6);

— inclusion of combination factors for new categories for imposed loads. ⟨A1▌

The first generation of EN Eurocodes was published between 2002 and 2007. This document forms part of the second generation of the Eurocodes, which have been prepared under Mandate M/515 issued to CEN by the European Commission and the European Free Trade Association.

The Eurocodes have been drafted to be used in conjunction with relevant execution, material, product and test standards, and to identify requirements for execution, materials, products and testing that are relied upon by the Eurocodes.

The Eurocodes recognize the responsibility of each Member State and have safeguarded their right to determine values related to regulatory safety matters at national level through the use of National Annexes.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal,

Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

0 Introduction

0.1 Introduction to the Eurocodes

〈A1〉 The Structural Eurocodes comprise the following standards generally consisting of a number of Parts:

— EN 1990 Eurocode — Basis of structural and geotechnical 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

— EN 19100 Eurocode 10 — Design of glass structures

— New parts are under development, e.g. Eurocode for design of fibre-polymer composite structures and design of tensioned membrane structures 〈A1〉

The Eurocodes are intended for use by designers, clients, manufacturers, constructors, relevant authorities (in exercising their duties in accordance with national or international regulations), educators, software developers, and committees drafting standards for related product, testing and execution standards.

NOTE Some aspects of design are most appropriately specified by relevant authorities or, where not specified, can be agreed on a project-specific basis between relevant parties such as designers and clients. The Eurocodes identify such aspects making explicit reference to relevant authorities and relevant parties.

〈A1〉 0.2 Introduction to EN 1990

EN 1990 gives the principles and requirements for safety, serviceability, robustness, and durability of new structures and existing structures that are common to all Eurocodes parts and are to be applied when using them.

EN 1990 is subdivided into various parts:

EN 1990-1 *Eurocode — Basis of structural and geotechnical design — Part 1: New structures;*

EN 1990-2 *Eurocode — Basis of structural and geotechnical design — Part 2: Assessment of existing structures.* 〈A1〉

0.3 Introduction to EN 1990-1

This document gives the principles and requirements for safety, serviceability, robustness, and durability of new structures that are common to all Eurocodes parts and are to be applied when using them.

0.4 Verbal forms used in the Eurocodes

The verb "shall" expresses a requirement strictly to be followed and from which no deviation is permitted in order to comply with the Eurocodes.

The verb "should" expresses a highly recommended choice or course of action. Subject to national regulation and/or any relevant contractual provisions, alternative approaches could be used/adopted where technically justified.

The verb "may" expresses a course of action permissible within the limits of the Eurocodes.

The verb "can" expresses possibility and capability; it is used for statements of fact and clarification of concepts.

0.5 National Annex for EN 1990-1

National choice is allowed in this document where explicitly stated within notes. National choice includes the selection of values for Nationally Determined Parameters (NDPs).

The national standard implementing EN 1990-1 can have a National Annex containing all national choices to be used for the design of buildings and civil engineering works to be constructed in the relevant country.

When no national choice is given, the default choice given in this document is to be used.

When no national choice is made and no default is given in this document, the choice can be specified by a relevant authority or, where not specified, agreed for a specific project by appropriate parties.

National choice is allowed in EN 1990-1 through notes to the following clauses:

4.2(3)	4.3(1)	4.4(2)	4.7(1)
6.1.3.2(4) – 3 choices	6.1.3.2(6)	7.1.5(7)	8.3.2.1(4)
8.3.3.1(5)	8.3.3.6(1)	8.3.4.2(2) – 2 choices	A.1.3(1)
A.1.4(1)	A.1.6.1(1) – 3 choices	A.1.6.3(1)	A.1.7(1) – 2 choices
A.1.8.1(1)	A.1.8.2.2(2)	A.1.8.2.3(2)	A.1.8.3(1)
A.1.8.3(3)	A.1.8.3(4)	A.1.8.4(2)	A.1.8.4(4) – 3 choices
A.2.3(1)	A.2.4(1)	A.2.7.1(1) – 3 choices	A.2.7.3.6(1)
A.2.7.4.1(1) – 2 choices	A.2.7.4.3(1)	A.2.7.4.5(1)	A.2.7.4.6(1) – 2 choices
A.2.7.5.1(1)	A.2.7.5.3(1)	A.2.7.5.4(1) – 2 choices	A.2.7.6.1(1)
A.2.7.6.4(1)	A.2.7.10(5) – 2 choices	A.2.7.10(9)	A.2.8(1) – 3 choices
A.2.9.1(1)	A.2.9.3.1(5)	A.2.9.3.3(1)	A.2.9.3.3(3)
A.2.9.3.3(4)	A.2.9.4.1(1) – 2 choices	A.2.9.4.2.1(3)	A.2.9.4.2.2(4)
A.2.9.4.2.2(5)	A.2.9.4.2.3(1)	A.2.9.4.2.3(2)	A.2.9.4.2.4(2) – 2 choices
A.2.9.4.2.4(4)	A.2.9.5(1)	A.2.10(1)	A.2.11.1(9)

A.2.11.4.5(3)	A.2.11.4.7(1)	A.3.2(1)	A.3.3(1)
A.3.5.1(1) – 3 choices	A.3.5.3(1)	A.3.6(1) – 3 choices	A.3.7.1(2)
A.3.7.4(3)	A.4.3.1(1)	A.4.3.1(2)	A.4.3.2(1)
A.4.3.2(2)	A.4.4.1(1)	A.4.4.1(3)	A.4.4.2(1)
A.4.6.1(1) – 2 choices	A.4.6.3(1)	A.4.6.3(2)	A.4.7(3) – 2 choices
A.4.7(4)	A.5.3(2)	A.5.4(1)	A.5.6.2(1) – 3 choices
A.5.6.2(3)	A.5.6.4(1)	A.5.7.1(1) – 2 choices	A.5.8(2)
A.6.2(1)	A.6.3(1)	A.6.4(1)	A.6.6.1(1) – 3 choices
A.6.6.3(1)	A.6.7(1) – 2 choices	B.2(1)	B.4(2)
B.5(1)	B.6(1)	B.6(2)	B.7(1)
B.8(1)	C.3.1(5)	C.3.4.2(3)	D.4.1(1)
E.4(4)	G.2(1)	G.3.1(6)	G.3.3.2(1)
G.3.3.2(2)	G.3.4(2)	G.3.4(3)	G.6(2)
G.7.1.2(2)	G.7.1.3(2)	G.7.3.2(2)	G.7.4.2(1)
G.7.5.1(1)	G.7.5.2(1) – 2 choices		

National choice is allowed in ▌A1⟩ EN 1990-1 ⟨A1▌ on the application of the following informative annexes:

Annex B Annex C Annex D Annex E

Annex F Annex H

The National Annex can contain, directly or by reference, non-contradictory complementary information for ease of implementation, provided it does not alter any provisions of the Eurocodes.

1 Scope

1.1 Scope of A1 EN 1990-1 A1

(1) This document establishes principles and requirements for the safety, serviceability, robustness and durability of structures, including geotechnical structures, appropriate to the consequences of failure.

A1 (2) This document is also applicable for existing structures as specified in EN 1990-2. A1

(3) This document is intended to be used in conjunction with the other Eurocodes for the design of buildings and civil engineering works, including temporary structures.

A1 (4) This document describes the basis for structural and geotechnical verification according to the limit state principle. A1

(5) The verification methods in this document are based primarily on the partial factor method.

NOTE 1 Alternative methods are given in the other Eurocodes for specific applications.

NOTE 2 The Annexes to this document also provide general guidance concerning the use of alternative methods.

A1 *deleted text* A1

A1 (6) This document is also applicable for the design of structures where materials or actions outside the scope of EN 1991 (all parts) to EN 1999 (all parts) are involved.

NOTE In this case, additional or amended provisions can be necessary. A1

1.2 Assumptions

(1) It is assumed that reasonable skill and care appropriate to the circumstances is exercised in the design, based on the knowledge and good practice generally available at the time the structure is designed.

(2) It is assumed that the design of the structure is made by appropriately qualified and experienced personnel.

A1 (3) The design rules provided in the Eurocodes assume that:

— execution will be carried out by personnel having appropriate skill and experience;

— adequate control and supervision will be provided during design and execution of the works, whether in factories, plants, or on site;

— construction materials and products for new structures or new structural members will be used in accordance with the Eurocodes, the relevant product and execution standards, and project specifications;

— the structure will be adequately inspected and maintained;

— the structure will be used in accordance with the assumptions.

NOTE Guidance on management measures to satisfy the assumptions for design, verification and execution is given in Annex B. A1