BS EN 13369:2023

BSI Standards Publication

Common rules for precast concrete products

National foreword

This British Standard is the UK implementation of EN 13369:2023. It supersedes BS EN 13369:2018, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/524, Precast concrete products.

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

EN 13369:2023 and the respective European product standards contain provisions for specific precast products related to design, detailing, tolerances and production which the designer should consider. For products to be used in the UK, matters relating to design should respect decisions made in the UK National Annex to the relevant Eurocode.

Reference is made to "other provisions valid in the place of use". In the following subclauses, provisions valid in the UK are noted.

- 4.1.3 – Characteristics of reinforcing steel should be determined in accordance with BS 4449, BS 4483, BS 4482 and BS 8666.
- 4.1.4 – Characteristics of prestressing steel should be determined in accordance with BS 5896 and BS 4486.
- 4.2.1.1 – EN 206 is accompanied in the UK by the complementary British Standards BS 8500-1, *Concrete – Complementary British Standard to BS EN 206 – Part 1: Method of specifying and guidance for the specifier* and BS 8500-2, *Concrete – Complementary British Standard to BS EN 206 – Part 2: Specification for constituent materials and concrete*.

NOTE: EN 206 is referred to in various other clauses; where this occurs, users are encouraged to refer to BS 8500-1 and/or BS 8500-2 for details on how EN 206 may be implemented in the UK.

Annex A contains guidance on exposure classes and the minimum concrete cover to reinforcement for precast concrete products. For concrete exposed to environmental conditions in the UK, there is guidance on the quality of concrete and minimum recommended cover for durability, for all conditions, in Annex A of BS 8500-1:2015+A1:2016, *Concrete – Complementary British Standard to BS EN 206 – Part 1: Method of specifying and guidance for the specifier*.

For particular applications, the UK committee recommends users refer to the following standards.

For agricultural buildings:

- BS 5502-21:1990, *Buildings and structures for agriculture — Part 21: Code of practice for selection and use of construction materials*
- BS 5502-22:2003+A1:2013, *Buildings and structures for agriculture — Part 22: Code of practice for design, construction and loading*

For maritime works:

- BS 6349-1-4:2021, *Maritime works – Part 1-4: General – Code of practice for materials*

In informative Annex C, Clauses C.1 to C.4 provide methods to reduce the material safety factors. These are broadly aligned with Annex A

of EN 1992-1-1:2004+A1:2014, which the UK committee advises takes precedence. In particular where direct structural strength is used when declaring the potential strength (including via Annex B), a reduction in γ_c is included implicitly in the conversion factor η (4.2.2.2.5) and no further reduction in γ_c is recommended (see PD 6687-1, *Background paper to the National Annexes to BS EN 1992-1, BS EN 1992-3 and BS EN 1992-4*).

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English Version

Common rules for precast concrete products

Règles communes pour les produits préfabriqués en béton

Allgemeine Regeln für Betonfertigteile

This European Standard was approved by CEN on 28 August 2023.

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European foreword

This document (EN 13369:2023) has been prepared by Technical Committee CEN/TC 229 “Precast concrete products”, the secretariat of which is held by AFNOR.

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 2024 and conflicting national standards shall be withdrawn at the latest by May 2024.

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 supersedes EN 13369:2018.

The main changes compared to the previous edition are listed below:

a) normative references have been updated taking into account the amendment A2 of EN 206;

b) the specifications regarding the concrete strength at the end of curing were revised;

c) Annex A was revised with the deletion of environmental conditions classes;

d) the vocabulary in Annex D was revised to comply with the Construction Product Regulation;

e) Annex H on prestressing losses was revised;

f) an informative Annex related to the performance-based approach was added.

EN 13369 is a common reference for the following group of specific product standards prepared by Technical Committee CEN/TC 229:

— EN 1168, *Precast concrete products — Hollow core slabs*;

— EN 12737, *Precast concrete products — Floor slats for livestock*;

— EN 12794, *Precast concrete products — Foundation piles*;

— EN 12839, *Precast concrete products — Elements for fences*;

— EN 12843, *Precast concrete products — Masts and poles*;

— EN 13198, *Precast concrete products — Street furniture and garden products*;

— EN 13224, *Precast concrete products — Ribbed floor elements*;

— EN 13225, *Precast concrete products — Linear structural elements*;

— EN 13693, *Precast concrete products — Special roof elements*;

— EN 13747, *Precast concrete products — Floor plates for floor systems*;

— EN 13748-1, *Terrazzo tiles — Part 1: Terrazzo tiles for internal use*;

— EN 13748-2, *Terrazzo tiles — Part 2: Terrazzo tiles for external use*;

— EN 13978-1, *Precast concrete products — Precast concrete garages — Part 1: Requirements for reinforced garages monolithic or consisting of single sections with room dimensions*;

— EN 14843, *Precast concrete products — Stairs*;

— EN 14844, *Precast concrete products — Box culverts*;

— EN 14991, *Precast concrete products — Foundation elements*;

— EN 14992, *Precast concrete products — Wall elements*;

— EN 15037-1, *Precast concrete products — Beam-and-block floor systems — Part 1: Beams*;

— EN 15037-2, *Precast concrete products — Beam-and-block floor systems — Part 2: Concrete blocks*;

— EN 15037-3, *Precast concrete products — Beam-and-block floor systems — Part 3: Clay blocks*;

— EN 15037-4, *Precast concrete products — Beam-and-block floor systems — Part 4: Expanded polystyrene blocks*;

— EN 15037-5, *Precast concrete products — Beam-and-block floor systems — Part 5: Lightweight blocks for simple formwork*;

— EN 15050, *Precast concrete products — Bridge elements*;

— EN 15258, *Precast concrete products — Retaining wall elements*;

— EN 15435, *Precast concrete products — Normal weight and lightweight concrete shuttering blocks — product properties and performances*;

— EN 15498, *Precast concrete products — Wood-chip concrete shuttering blocks — Product properties and performances*.

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 organizations 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.

Introduction

This document is intended to outline the general common specifications applicable to a large variety of precast concrete products manufactured in a factory environment. It acts as a reference standard for other standards to enable a more consistent approach to standardization in the field of precast concrete products and to reduce the variations brought about by a large number of standards produced in parallel by different groups of experts. At the same time, it allows those experts the flexibility to include variations in specific product standards where they are required.

This document has been produced as part of the total CEN programme for construction and refers to the relevant specifications of associated standards EN 206 for concrete and the EN 1992 series for the design of concrete structures. The installation of some precast concrete products is dealt with by EN 13670.

As it is not a harmonized standard, it is not allowed to be used on its own for the purpose of CE marking of precast concrete products.

The design of precast concrete products should be verified to ensure the fitness of their properties for the particular application, particular attention being paid to design co-ordination with other parts of the construction.

1 Scope

This document provides the specifications, the basic performance criteria and the Assessment and Verification of Constancy of Performance (AVCP) for unreinforced, reinforced and prestressed precast concrete products made of compact light-, normal- and heavyweight concrete according to EN 206 with no appreciable amount of entrapped air other than entrained air. Concrete containing fibres for other than mechanical properties (steel, polymer or other fibres) is also covered. It does not cover precast reinforced components of lightweight aggregate concrete with open structure nor glass-fibre reinforced concrete.

It can also be used to specify products for which there is no standard. Not all of the specifications (Clause 4) of this document are relevant to all precast concrete products.

Some European product standards refer to this document. They can include specific provisions that take precedence over the provisions of this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 206:2013+A2:2021, *Concrete - Specification, performance, production and conformity*

EN 934-2, *Admixtures for concrete, mortar and grout - Part 2: Concrete admixtures - Definitions, requirements, conformity, marking and labelling*

EN 1008, *Mixing water for concrete - Specification for sampling, testing and assessing the suitability of water, including water recovered from processes in the concrete industry, as mixing water for concrete*

EN 1097-6, *Tests for mechanical and physical properties of aggregates - Part 6: Determination of particle density and water absorption*

EN 1992-1-1:2004,[1] *Eurocode 2: Design of concrete structures - Part 1-1: General rules and rules for buildings*

EN 12350-2, *Testing fresh concrete - Part 2: Slump test*

EN 12350-4, *Testing fresh concrete - Part 4: Degree of compactability*

EN 12350-5, *Testing fresh concrete - Part 5: Flow table test*

EN 12350-6, *Testing fresh concrete - Part 6: Density*

EN 12350-7, *Testing fresh concrete - Part 7: Air content - Pressure methods*

EN 12350-8, *Testing fresh concrete - Part 8: Self-compacting concrete - Slump-flow test*

EN 12350-9, *Testing fresh concrete - Part 9: Self-compacting concrete - V-funnel test*

EN 12350-10, *Testing fresh concrete - Part 10: Self-compacting concrete - L box test*

EN 12350-11, *Testing fresh concrete - Part 11: Self-compacting concrete - Sieve segregation test*

[1] As impacted by EN 1992-1-1:2004/AC:2010 and EN 1992-1-1:2004/A1:2014.