PD 6697:2019



BSI Standards Publication

Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2



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Foreword

Publishing information

This Published Document is published by BSI and came into effect on 31 July 2019. It was prepared by Subcommittee B/525/6, *Use of masonry*, under the authority of Technical Committee B/525, *Building and civil engineering structures*. A list of organizations represented on these committees can be obtained on request to their secretary.

Supersession

This Published Document supersedes PD 6697:2010, which is withdrawn.

Information about this document

This Published Document is a background paper that gives non-contradictory complementary information for use in the UK with the following parts of BS EN 1996 *Design of masonry structures,* and their UK National Annexes:

- Part 1-1: General rules for reinforced and unreinforced masonry structures;
- Part 2: Design considerations, selection of materials and execution of masonry.

This new edition of PD 6697 incorporates technical changes only. It does not represent a full review or revision of the standard, which will be undertaken in due course.

Use of this document

This publication is not to be regarded as a British Standard.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

The word "should" is used to express recommendations of this standard. The word "may" is used in the text to express permissibility, e.g. as an alternative to the primary recommendation of the clause. The word "can" is used to express possibility, e.g. a consequence of an action or an event.

Notes and commentaries are provided throughout the text of this standard. Notes give references and additional information that are important but do not form part of the recommendations. Commentaries give background information.

Contractual and legal considerations

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.

PUBLISHED DOCUMENT

0 Introduction

When there is a need for guidance on a subject that is not covered by the Eurocode, a country can choose to publish documents that contain non-contradictory complementary information that supports the Eurocode. This Published Document provides just such information and has been cited as a reference in the UK National Annex to BS EN 1996-1-1.

1 Scope

This Published Document contains non-contradictory complementary information and additional guidance for use in the UK with BS EN 1996-1-1 and BS EN 1996-2.

BS EN 1996-1-2 and BS EN 1996-3 are not specifically dealt with, but this Published Document may be relevant.

Most of the material in this Published Document is taken from those parts of BS 5628-1, BS 5628-2, BS 5628-3 and BS EN 845 (all parts) that were not contradictory to the new BS EN 1996 series, but had to be withdrawn when those British Standards were withdrawn.

This Published Document does not cover the detailing of components for seismic design.

2 Normative references

The following referenced documents are indispensable for the application 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.

BS 493, Specification for air bricks and gratings for wall ventilation

BS 1186-2, Timber and workmanship in joinery – Part 2: Specification for workmanship

BS 1186-3, Timber and workmanship in joinery – Part 3: Specification for wood trim and its fixing

BS 4486, Specification for hot rolled and hot rolled and processed high tensile alloy steel bars for the prestressing of concrete

BS 4729, Clay bricks of special shapes and sizes - Recommendations

BS 5440-1, Fluing and ventilation for gas appliances of rated input not exceeding 70 kW net (1st, 2nd and 3rd family gases) – Part 1: Specification for installation of gas appliances to chimneys and for maintenance of chimneys

BS 5617, Specification for urea-formaldehyde (UF) foam systems suitable for thermal insulation of cavity walls with masonry or concrete inner and outer leaves

BS 5618, Code of practice for thermal insulation of cavity walls (with masonry or concrete inner and outer leaves) by filling with urea-formaldehyde (UF) foam systems

BS 5642-1, Sills, copings and cappings – Part 1: Specification for window sills of precast concrete, cast stone, clayware, slate and natural stone

BS 5642-2, Sills, copings and cappings – Part 2: Specification for copings and cappings of precast concrete, cast stone, clayware, slate and natural stone

BS 5896, High tensile steel wire and strand for the prestressing of concrete – Specification

BS 6213, Selection of construction sealants – Guide

BS 6510, Steel framed windows and glazed doors - Specification

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BS 7456, Code of practice for stabilization and thermal insulation of cavity walls (with masonry or concrete inner and outer leaves) by filling with polyurethane (PUR) foam systems

BS 7457, Specification for polyurethane (PUR) foam systems suitable for stabilization and thermal insulation of cavity walls with masonry or concrete inner and outer leaves

BS 8000-3, Workmanship on building sites - Part 3: Code of practice for masonry

BS 8000-8, Workmanship on building sites – Part 8: Code of practice for plasterboard partitions and dry linings

BS 8000-16, Workmanship on building sites – Part 16: Code of practice for sealing joints in buildings using sealants

BS EN 206, Concrete – Specification, performance, production and conformity

BS EN 459-1, Building lime – Part 1: Definitions, specifications and conformity criteria

BS EN 485-1, Aluminium and aluminium alloys – Sheet, strip and plate – Part 1: Technical conditions for inspection and delivery

BS EN 485-2, Aluminium and aluminium alloys – Sheet, strip and plate – Part 2: Mechanical properties

BS EN 490, Concrete roofing tiles and fittings for roof covering and wall cladding – Product specifications

BS EN 515, Aluminium and aluminium alloys – Wrought products – Temper designations

BS EN 573-3, Aluminium and aluminium alloys – Chemical composition and form of wrought products – Part 3: Chemical composition and form of products

BS EN 771-1:2003, Specification for masonry units – Part 1: Clay masonry units

BS EN 771-2, Specification for masonry units – Part 2: Calcium silicate masonry units

BS EN 771-3, Specification for masonry units – Part 3: Aggregate concrete masonry units (Dense and lightweight aggregates)

BS EN 771-5, Specification for masonry units – Part 5: Manufactured stone masonry units

BS EN 771-6, Specification for masonry units – Part 6: Natural stone masonry units

BS EN 845-1, Specification for ancillary components for masonry – Part 1: Wall ties, tension straps, hangers and brackets

BS EN 845-2, Specification for ancillary components for masonry – Part 2: Lintels

BS EN 845-3, Specification for ancillary components for masonry – Part 3: Bed joint reinforcement of steel meshwork

BS EN 934-3, Admixtures for concrete, mortar and grout – Part 3: Admixtures for masonry mortar – Definitions, requirements, conformity and marking and labelling

BS EN 942, Timber in joinery – General requirements

BS EN 988, Zinc and zinc alloys - Specification for flat rolled products for building

BS EN 998-2, Specification for mortar for masonry – Part 2: Masonry mortar

BS EN 1052-1, Methods of test for masonry – Part 1: Determination of compressive strength

BS EN 1052-4, Methods of test for masonry – Part 4: Determination of shear strength including damp proof course

BS EN 1304, Clay roofing tiles and fittings – Product definitions and specifications

BS EN 1652:1998, Copper and copper alloys – Plate, sheet, strip and circles for general purposes

BS EN 1990:2002+A1:2005, Eurocode - Basis of structural design

BS EN 1992-1-1, Eurocode 2 – Design of concrete structures – Part 1-1: General rules and rules for buildings

BS EN 1995, *Eurocode 5 – Design of timber structures*

BS EN 1996-1-1:2005+A1:2012, Eurocode 6 – Design of masonry structures – Part 1-1: General rules for reinforced and unreinforced masonry structures

BS EN 1996-2:2006, Eurocode 6 – Design of masonry structures – Part 2: Design considerations, selection of materials and execution of masonry

BS EN 12588, Lead and lead alloys - Rolled lead sheet for building purposes

BS EN 13162, Thermal insulation products for buildings – Factory made mineral wool (MW) products – Specification

BS EN 13163, Thermal insulation products for buildings – Factory made expanded polystyrene (EPS) products – Specification

BS EN 13164, Thermal insulation products for buildings – Factory made extruded polystyrene foam (XPS) products – Specification

BS EN 13165, Thermal insulation products for buildings – Factory made rigid polyurethane foam (PU) products – Specification

BS EN 13166, Thermal insulation products for buildings – Factory made phenolic foam (PF) products – Specification

BS EN 13167, Thermal insulation products for buildings – Factory made cellular glass (CG) products – Specification

BS EN 13914-1, Design, preparation and application of external rendering and internal plastering – Part 1: External rendering

BS EN 14411, Ceramic tiles – Definition, classification, characteristics, assessment and verification of constancy of performance and marking

BS EN 15287-1, Chimneys – Design, installation and commissioning of chimneys – Part 1: Chimneys for non-roomsealed heating appliances

BS EN ISO 11600, Building construction – Jointing products – Classification and requirements for sealants

DD 86-2, Damp-proof courses - Part 2: Methods of test for creep deformation

NA to BS EN 1990:2002+A1:2005, UK National Annex to Eurocode – Basis of structural design

NA to BS EN 1996-1-1:2005+A1:2012, UK National Annex to Eurocode 6 – Design of masonry structures – Part 1-1: General rules for reinforced and unreinforced masonry structures

prEN 10138 (all parts), Prestressing steels

3 Terms and definitions

For the purposes of this Published Document the terms and definitions given in BS EN 1996-1-1 and BS EN 1996-2 and the following apply.

3.1 actual dimension

either work size of the unit or, where applicable for solid walls sum of the work size of the units together with the work size of the joints between them

3.2 consequence classes

3.2.1 consequence (building) class 1

- single occupancy houses not exceeding four storeys;
- agricultural buildings;
- buildings into which people rarely go, provided no part of the building is closer to another building, or area where people do go, than a distance 1.5 times the building height

3.2.2 consequence (building) class 2A

- five-storey single occupancy houses;
- hotels not exceeding four storeys;
- flats, apartments and other residential buildings not exceeding four storeys;
- offices not exceeding four storeys;
- industrial buildings not exceeding three storeys;
- retailing premises not exceeding three storeys of less than 1 000 m² floor area in each storey;
- single-storey educational buildings;
- all buildings not exceeding two storeys to which members of the public are admitted and which contain floor areas not exceeding 2 000 m² at each storey

3.2.3 consequence (building) class 2B

- hotels, flats, apartments and other residential buildings greater than four storeys but not exceeding 15 storeys;
- educational buildings greater than one storey but not exceeding 15 storeys;
- retailing premises greater than three storeys but not exceeding 15 storeys;
- hospitals not exceeding three storeys;
- offices greater than four storeys but not exceeding 15 storeys;
- all buildings to which members of the public are admitted which contain floor areas exceeding 2 000 m^2 but less than 5 000 m^2 at each storey;
- car parking not exceeding six storeys

3.2.4 consequence class 3

- all buildings defined above as class 2A and 2B that exceed the limits on area and number of storeys;
- all buildings to which members of the public are admitted in significant numbers;
- grandstands accommodating more than 5 000 spectators;
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