This is a preview of PD 6693-1:2025. Click here to purchase the full version from the ANSI store.

PD 6693-1:2025



BSI Standards Publication

Recommendations for the design of timber structures to Eurocode 5: Design of timber structures

Part 1: General – Common rules and rules for buildings

bsi.

This is a preview of PD 6693-1:2025. Click here to purchase the full version from the ANSI store.

Publishing and copyright information

The BSI copyright notice displayed in this document indicates when the document was last issued.

© The British Standards Institution 2025

Published by BSI Standards Limited 2025

ISBN 978 0 539 28062 3

ICS 91.010.30; 91.040.01; 91.080.20

The following BSI references relate to the work on this document:
Committee reference B/525/5
Draft for comment 24/30477845 DC

Amendments/corrigenda issued since publication

Date	Text affected

© THE BRITISH STANDARDS INSTITUTION 2025 – ALL RIGHTS RESERVED

This is a preview of PD 6693-1:2025. Click here to purchase the full version from the ANSI store.

Contents

		Page
	Foreword	**V**
	Introduction	1
1	Scope	1
2	Normative references	1
3	Terms, definitions and abbreviated terms	1
4	Design responsibilities	2
5	Effective anchorages of timber floors to walls for buildings of Consequence Class 2a	2
6	Horizontal tie forces for Consequence Class 2b timber buildings of load-bearing wall construction	3
7	Assignment of timbers to BS EN 338 strength classes [BS EN 1995-1-1:2004+A2:2014, 3.2]	3
7.1	Assignment of temperate hardwoods	3
	Table 1 — Assignment of temperate hardwoods to BS EN 338 strength classes	3
7.2	Assignment of large cross-section British-grown Douglas fir	3
7.3	Characteristic properties of strength class TR26	3
	Table 2 — Characteristic properties of strength class TR26	4
8	Factor $k_{c,90}$ for compression perpendicular to grain [BS EN 1995-1-1:2004+A2:2014, 6.1.5]	4
9	Effective lengths of compression members [BS EN 1995-1-1:2004+A2:2014, 6.3.2]	4
	Table 3 — Effective lengths of compression members	4
	Table 4 — Effective lengths of compression members in trussed rafters	5
10	Limits on notches and circular holes in joists and studs for which no calculations are required	5
11	Design of beams with holes	6
11.1	Design of beams with circular holes	6
11.2	Design of beams with rectangular holes	7
12	Characteristic properties of fasteners	8
13	Yield moment of annular ring-shanked nails [BS EN 1995-1-1:2004+A2:2014, 8.3.1.1(4)]	8
14	Diameters for evaluating lateral load-carrying capacities of screws [BS EN 1995-1-1:2004+A2:2014, 8.7.1]	8
15	Axially loaded screws [BS EN 1995-1-1:2004+A2:2014, 8.7.2]	9
16	Connections made with punched metal plate fasteners [BS EN 1995-1-1:2004+A2:2014, 8.8.1]	9
17	Misalignment tolerances in punched metal plate fastener joints [BS EN 1995-1-1:2004+A2:2014, 8.8.5.1]	10
18	Trusses with punched metal plate fasteners [BS EN 1995-1-1:2004+A2:2014, 9.2.2]	10
	Table 5 — Maximum lengths of internal members and maximum bay lengths of chords	10
	Figure 1 — Tension stress condition perpendicular to grain at joints	11
	Table 6 — Modification factor, K_e, to account for loading eccentricities in girder trusses	11
19	Masonry shielding to wall diaphragms	11
20	Simplified analysis of wall diaphragms [BS EN 1995-1-1:2004+A2:2014, 9.2.4.3]	11
20.1	Construction of wall diaphragms	12
20.2	General arrangements of wall diaphragms	12
	Figure 2 — Division of racking wall into wall diaphragms	13
20.3	Distribution of horizontal wind loads between wall diaphragms	14
20.4	Design requirements for wall diaphragms under wind load	14
20.5	Calculation of design racking strength	15
	Figure 3 — Forces transmitted into underlying construction by bottom rail of wall diaphragm	16
	Table 7 — Values of sheathing combination factor, K_{comb}	17
	Figure 4 — Calculation of design stabilizing and destabilizing moments	18
	Figure 5 — Division of wall diaphragms into wall panels	20

© THE BRITISH STANDARDS INSTITUTION 2025 – ALL RIGHTS RESERVED

This is a preview of PD 6693-1:2025. Click here to purchase the full version from the ANSI store.

22 Evaluation of design racking resistance of plasterboard-clad timber frame walls 21
Table 8 — Total design shear capacities per unit length of the perimeter fasteners for various specifications of plasterboard 22
23 Bracing to trussed rafter roofs [BS EN 1995-1-1:2004+A2:2014, 9.2.5.3] 22
24 Lateral load-carrying capacity of glued lap joints [BS EN 1995-1-1:2004+A2:2014, 10.3] 22

Annex A (informative) Exchange of information between building designer and component designer(s) 24
A.1 Exchange of information between building designer and trussed rafter designer 24
A.2 Exchange of information between building designer and floor designer 25

Annex B (informative) Effective anchorage of floors to timber frame wall buildings of Consequence Class 2a 26
Figure B.1 — Details of effective anchorage of floors to timber frame walls in buildings of Consequence Class 2a 27

Annex C (informative) Actions that may be considered in the design of trussed rafters 28
C.1 General 28
C.2 Floor imposed loading for attic truss configuration 28
Table C.1 — Relevant actions to the design of trussed rafters without a habitable room 28

Annex D (informative) Masonry shielding to timber frame wall diaphragms 29
Figure D.1 — Area of brickwork providing wind shield to timber frame structure 30

Annex E (informative) Bracing of trussed rafter roofs 31
E.1 General 31
E.2 Sarking materials 31
Table E.1 — Thickness and fixing of sarking materials 32
E.3 Non-standard roof bracing 32
Figure E.1 — Procedure for the design of roof bracing at rafter level 33
Figure E.2 — Procedure for the design of roof bracing at ceiling level 34
Figure E.3 — Limiting spans for standard bracing of trussed rafter roofs 35
Figure E.4 — Basic wind zones for buildings at site altitudes ≤150 m 36
Figure E.5 — Basic wind zones for buildings at site altitudes between 150 m and 300 m 37
Table E.2 — Maximum truss spans for Figure E.3 38
Table E.3 — Maximum design cumulative surface wind pressures (kN/m^2) on windward and leeward gable walls for roofs constructed using the details of Figure E.11 and Figure E.12 40
Table E.4 — Maximum design cumulative surface wind pressures (kN/m^2) on windward and leeward gable walls for roofs constructed using the details of Figure E.13 and Figure E.14 40
Table E.5 — Maximum design horizontal wind force (kN/m) at bottom chord level on 12.5 mm thick plasterboard ceiling diaphragms 41
Table E.6 — Maximum design horizontal wind force (kN/m) at bottom chord level on 15 mm thick plasterboard ceiling diaphragms 41
Figure E.6 — Standard bracing for rafter and web members of duo-pitch trussed rafters 42
Figure E.7 — Standard bracing for rafter and web members of mono-pitch trussed rafters 44
Figure E.8 — Bracing of detached buildings 46
Figure E.9 — Standard bracing for rafter members (Class 1) Detail C1 – Eaves detail 48
Figure E.10 — Standard bracing for rafter members (Class 1) Detail D1 – lap connection and detail E1 – crossing connection 50
Figure E.11 — Standard bracing for rafter members (Class 2) Detail C2 – Eaves detail 51

 © THE BRITISH STANDARDS INSTITUTION 2025 – ALL RIGHTS RESERVED

This is a preview of PD 6693-1:2025. Click here to purchase the full version from the ANSI store.

Figure E.13 — Standard bracing for rafter members (Class 3) Detail C3 – Eaves detail 54
Figure E.14 — Standard bracing for rafter members (Class 3) Detail D3 – splice connection and detail E3 – crossing connection 56

Annex F (informative) Optional recommendations for the support of water tanks in trussed rafter roofs **57**
Figure F.1 — Support for water tanks 57
Table F.1 — Sizes for support members for water tanks 58

Bibliography **59**

Summary of pages
This document comprises a front cover, an inside front cover, pages I to VI, pages 1 to 60, and a back cover.

© THE BRITISH STANDARDS INSTITUTION 2025 – ALL RIGHTS RESERVED

This is a preview of PD 6693-1:2025. Click here to purchase the full version from the ANSI store.

THIS PAGE DELIBERATELY LEFT BLANK

This is a preview of PD 6693-1:2025. Click here to purchase the full version from the ANSI store.

Foreword

Publishing information

This part of PD 6693 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 January 2025. It was prepared by Subcommittee B/525/5, *Structural use of timber*, 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 the committee manager.

Supersession

This part of PD 6693 supersedes PD 6693-1:2019, which is withdrawn.

Relationship with other publications

This Published Document is a background paper that gives non-contradictory complementary information for use in the UK with the Eurocode for design of timber structures, BS EN 1995-1-1, and its National Annex.

Information about this document

This is a full revision of the document, and introduces the following principal changes:

- introduction of structural properties of strength class TR26 timber;
- restriction on lateral load-carrying capacity of glued lap joints;
- extended recommendations for exchange of information between building designer and component designer;
- re-ordering and clarification of Annex E on bracing of trussed rafter roofs; and
- extended details in Annex E relating to plasterboard ceiling diaphragm load tables and eaves connection details for rafter bracing.

This publication can be withdrawn, revised, partially superseded or superseded. Information regarding the status of this publication can be found in the Standards Catalogue on the BSI website at knowledge.bsigroup.com, or by contacting the Customer Services team.

Where websites and webpages have been cited, they are provided for ease of reference and are correct at the time of publication. The location of a webpage or website, or its contents, cannot be guaranteed.

Presentational conventions

The guidance in this document is presented in roman (i.e. upright) type. Any recommendations are expressed in sentences in which the principal auxiliary verb is “should”.

Additional commentary, explanation and general informative material is presented in smaller italic type.

Where words have alternative spellings, the preferred spelling of the *Shorter Oxford English Dictionary* is used (e.g. “organization” rather than “organisation”).

© THE BRITISH STANDARDS INSTITUTION 2025 – ALL RIGHTS RESERVED

This is a preview of PD 6693-1:2025. Click here to purchase the full version from the ANSI store.

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

Compliance with a Published Document cannot confer immunity from legal obligations.

 © THE BRITISH STANDARDS INSTITUTION 2025 – ALL RIGHTS RESERVED

This is a preview of PD 6693-1:2025. Click here to purchase the full version from the ANSI store.

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, which has been prepared by BSI Subcommittee B/525/5, *Structural use of timber*, provides just such information and has been cited as a reference in the National Annex (NA) to BS EN 1995-1-1.

1 Scope

This Published Document gives non-contradictory complementary information for use with BS EN 1995-1-1 and NA to BS EN 1995-1-1.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions, or limits 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 EN 1995-1-1:2004+A2:2014, *Eurocode 5: Design of timber structures – Part 1-1: General – Common rules and rules for buildings*

NA to BS EN 1995-1-1:2004+A2:2014, *UK National Annex to Eurocode 5: Design of timber structures – Part 1-1: General – Common rules and rules for buildings*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in BS EN 1995-1-1:2004+A2:2014 and the following apply.

3.1.1 attic truss

trussed rafter that is designed to allow a habitable room within the roof space

3.1.2 bay

length of a member measured between adjacent nodes

[SOURCE: BS 5268-3:2006 (withdrawn), **3.11**]

3.1.3 chord member

member of the external profile of the truss

NOTE *For example, a rafter or a ceiling tie.*

3.1.4 girder truss

multiple trussed rafter that:

a) supports a width of roof greater than 2,5 times the normal truss spacing within the roof or greater than 1,5 m whichever is the lesser; or

b) directly supports other trusses; or

c) supports another girder

[SOURCE: BS 5268-3:2006 (withdrawn), **3.5**]

© THE BRITISH STANDARDS INSTITUTION 2025 – ALL RIGHTS RESERVED