

Timber for and workmanship in joinery

Part 1. Specification for timber

Bois de menuiserie
Partie 1. Bois — Spécifications

Holz für Tischlerarbeiten
Teil 1. Anforderungen an das Holz

Committees responsible for this British Standard

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British Wood Preserving and Damp-proofing Association
British Woodworking Federation
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Department of the Environment (Property Services Agency)
Fibre Building Board Organisation (FIDOR)
Incorporated Association of Architects and Surveyors
Institute of Clerks of Works of Great Britain Inc.
Joinery Managers' Association Ltd.
London Housing Consortium
Royal Institute of British Architects
Royal Institution of Chartered Surveyors
Society of Chief Architects of Local Authorities
Steel Hingemakers' Association
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Foreword

This revision of this Part of BS 1186 has been prepared under the direction of the Timber Standards Policy Committee and supersedes BS 1186 : Part 1 : 1986 which is withdrawn.

The changes in this revision follow the desire to simplify the method of establishing limits of knot sizes and other characteristics, in line with BS 1186 : Part 3. The opportunity has also been taken to make a number of minor amendments.

NOTE. This Part of BS 1186 is seen as the basis for a European Standard, and will be a discussion document in CEN/TC 175 Round and Sawn Timber.

BS 1186 : Part 2 deals with workmanship in joinery and Part 3 with wood trim.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Section 1. General

0 Introduction

NOTE. Commercial grading, i.e. the classification of solid timber as a raw material, is not appropriate for referencing in joinery specifications. Similarly the grading system in this Part of BS 1186 is not appropriate for the purchase specifications of solid timber.

0.1 Most specifications for timber have tended historically to refer to commercial gradings which, in themselves, are insufficient to ensure the proper use of timber for joinery. This revision of this Part of BS 1186 continues the policy followed in the previous edition, to eliminate all references to commercial grading of timber and instead place responsibility on the manufacturer to ensure that the actual timber for the joinery complies with this Part.

0.2 Although there are various stages at which the quality of timber used for joinery can be assessed (e.g. in the sawn, machined or finally assembled condition) the classification given in this Part of BS 1186 applies to the timber in the component. This Part does not specify that classes be marked on timber.

0.3 To meet the requirements of various items of joinery an assessment of the suitability of timbers for different uses is given in appendices B and C. To establish the class (see clause 3) appropriate to a piece of timber for a particular use, reference should be made to the relevant British Standard for the product in question. If, however, classes are not defined in the standard or if no British Standard exists, then it is necessary for the class or classes to be selected and agreed between the joinery manufacturer and the purchaser (see appendix A which gives recommendations on the specifying of timber for joinery).

0.4 The use of laminated, finger-jointed and edge-jointed timber is included to enable more effective use to be made of the available supplies of timber and to promote greater consistency of production and economy of products of improved stability. Laminating, finger-jointing and edge-to-edge-jointing are not detrimental to the joinery item and are more likely to confer dimensional stability.

0.5 Recommendations for maintaining moisture content, and a procedure for establishing moisture content in the event of a dispute, are given in appendices D and E respectively.

1 Scope

This Part of BS 1186 specifies requirements for the classification, species, moisture content and quality of softwood, hardwood and wood based panel products used in joinery, at the time the joinery is handed over from the manufacturer to the first purchaser and from subsequent suppliers to purchasers.

It applies to laminated, finger-jointed and edge-jointed timber for joinery which is suitable for use with opaque and non-opaque finishes (see clause 19).

It does not apply to the following:

- (a) softwood flooring (see BS 1297);
- (b) cladding;
- (c) profiled boards and wood trim (see BS 1186 : Part 3);
- (d) glued-laminated structural timber (see BS 4169).

Appendix A gives recommendations for specifying timber for joinery.

NOTE. The titles of the publications referred to in this Part of BS 1186 are listed on the inside back cover.

2 Definitions

For the purposes of this Part of BS 1186, the definitions given in BS 6100 : Section 1.0, BS 6100 : Section 4.1 and BS 6100 : Section 4.4 apply, together with the following. Nomenclature is defined in BS 7359.

2.1 consignment

Delivery of joinery items made to the purchaser at any one time.

2.2 check¹⁾

Separation of fibres along the grain forming a crack or fissure that does not extend through timber or veneer from one surface to the other.

2.3 component²⁾

Product manufactured as a distinct unit to serve a specific function or functions.

2.4 dead knot¹⁾

Knot having fibres intergrown with those of the surrounding wood to the extent of approximately 25 % or less of the cross-sectional perimeter.

2.5 joinery²⁾

Assembly of worked timber components and panel products other than structural timber or cladding.

2.6 jointed timber

Piece of timber made up from smaller pieces joined together end-to-end such as with finger joints or built up with face-to-face or with edge-to-edge joints.

2.7 lamination

Layer in laminated timber.

2.8 loose knot¹⁾

Dead knot that is not held firmly in place.

2.9 opacity

Extent to which surface features and colour of wood are hidden or remain visible through the applied finish.

NOTE 1. BS 6952 : Part 1 refers to three categories: transparent, semi-transparent and opaque. For the purpose of this Part of BS 1186, transparent and semi-transparent finishes are considered to be non-opaque.

NOTE 2. Opacity and colour of finishes are related and there may be practical differences in opacity within a product range. A range of semi-transparent wood stains may include a black which is effectively opaque.

2.10 ring shake¹⁾

Shake following the line of a growth ring.

2.11 shake¹⁾

Separation of fibres along the grain, irrespective of the extent of penetration, due to stresses developing in a standing tree, or in felling or in drying of converted timber.

2.12 sound knot¹⁾

Knot free from rot, solid across its face and at least as hard as the surrounding wood.

2.13 split¹⁾

Separation of fibres along the grain forming a crack or fissure that extends through timber or veneer from one surface to the other.

2.14 threshold³⁾

Piece of timber that is located at the foot of a door and is not a frame member.

2.15 tight knot¹⁾

Knot held firmly in place.

2.16 unsound knot¹⁾

Knot not solid across its face or softer than the surrounding wood due to rot or other defects.

3 Classification of timber

3.1 General

For the purposes of this Part of BS 1186, timber for joinery, whether solid or laminated, shall be classified as follows:

Class CSH and Class 1	Timber for high quality or specialized joinery.
Class 2 and Class 3	Timber for general purpose joinery.

NOTE. Class CSH which is timber for 'clear' grades of softwood or hardwood and Class 1 may require special selection and may consequently cost more.

3.2 Surface category

Within each class the surface categories shall be as follows.

- (a) *Exposed*. Surfaces which after final completion of the work are not concealed.
- (b) *Concealed*. Surfaces which after final completion of the work are concealed, not merely by decoration.

NOTE 1. For the purposes of this Part of BS 1186, decoration does not constitute concealment.

NOTE 2. Surfaces of moving parts, e.g. windows, doors, drawers, which are visible when open, are classified as exposed surfaces.

¹⁾Definition taken from BS 6100 : Section 4.1.

²⁾Definition taken from BS 6100 : Section 1.0.

³⁾Definition taken from BS 6100 : Section 4.4.

Section 2. Selection of timber species including sheet materials

4 Species of timber and their uses

Timber species shall not be used in applications for which they are shown as unsuitable in appendices B and C. (See A.1 and A.2.)

NOTE 1. Timber for joinery should be of a species which is suitable for its required purpose. Appendices B and C list some of the species of timber generally available for joinery in the UK, and indicate the purposes and conditions for which they are or are not suitable. These lists are not exhaustive and there are other species which are suitable for use in joinery but which may not be so readily available in the UK.

Some species are suitable when preservative treated; this is indicated in appendices B and C and the treatments shall be in accordance with BS 5589.

NOTE 2. If two or more species are used in the same unit or subassembly of joinery, distortion or unequal reaction may result. In such cases selection of the differing species should ensure that any reaction in the joinery item does not lead to distortion or adversely affect painting or other finish.

5 Wood based panel products

Where the wood based panel products given in table 1 are used they shall comply with the requirements specified therein.

NOTE. Where wood based panel products are specified they should be suitable in performance terms, including grade and bonding, for the joinery component of which they form part.

Table 1. Requirements for wood based panel products

Material	To comply with
Fibre building boards: hardboard medium board medium density fibreboard (MDF) softboard	BS 1142
Particle boards: wood chipboard and cement bonded particle board	BS 5669 : Parts 2, 4 and 5
Plywood	BS 6566 : Parts 1 to 8
Blockboard and laminboard	BS 6566 : Parts 1 to 7

Section 3. Moisture content

NOTE 1. The requirements of this section are aimed at reducing to a minimum any movement or distortion of items of joinery by ensuring, as far as possible, that the moisture content of the timber is close to that which will be attained in service. The requirements relate only to solid timber and not to wood based panel products which usually have equilibrium moisture contents which differ from those of solid timber.

NOTE 2. For guidance on ways to maintain the correct moisture content within reasonable limits during storage and transportation refer to appendix D.

6 Average moisture content (as a percentage)

The average moisture content (as a percentage) of timber shall comply with table 2 when measured in accordance with clause 7.

NOTE 1. All joinery should be protected, stored and installed in such a manner as to maintain the moisture content stated in table 2.

NOTE 2. If no category or stated in-service condition is applicable, the purchaser and the supplier should agree appropriate alternatives.

7 Measurement

The moisture content shall be checked at the time of handover from the manufacturer to the first purchaser and from subsequent suppliers to purchasers: if it does not comply with table 2, the supplier shall be informed within 24 h. In the event of a dispute the fuller sampling and measurement procedure given in appendix E shall be used.

An electrical resistance moisture meter shall be used which is capable of making individual measurements with an accuracy of $\pm 2\%$ at moisture contents from 7 % to 28 %.

The meter shall be accompanied by the manufacturer's instructions and all procedures shall comply with these instructions.

NOTE 1. In reading the meter, due allowance should be made for temperature effects.

NOTE 2. Electrical resistance moisture meters can give grossly inaccurate results when used on timber containing inorganic salts such as may be the case after treatment with flame retardants or some water-borne preservatives. In such cases it may be appropriate to refer to the meter manufacturer for a correction factor. They also often give inaccurate results when testing wood based panel products.

NOTE 3. Normally only random checks are required at the time of handover.

NOTE 4. When a meter with penetrating probes is used, it is preferable to insert the probes into a concealed surface so as not to spoil the appearance.

Table 2. Moisture content of solid timber by categories related to in-service conditions

Category	Subcategory based on intended in-service condition	Average moisture content
External joinery	—	% 13 to 19
Internal joinery	For unheated buildings	13 to 17
	For buildings with heating providing room temperatures of 12 °C to 21 °C	10 to 14
	For buildings with heating providing room temperatures in excess of 21 °C	8 to 12 ¹⁾
¹⁾ Joinery at this moisture content will only be available by special order or agreement and should be the subject of special protection and storage to maintain its condition.		

Section 4. Quality of timber

8 Classification

Timber shall comply with the criteria specified in clauses 9 to 18 and shall be placed into one of the classes in 3.1, with knot sizes limited to those shown in figure 1. Small sections of timber (up to 15 mm × 15 mm) shall be Class 1 or Class CSH.

NOTE. Some timber defects may have to be remedied by the manufacturer and requirements for this remedial action are specified in clause 18.

9 Knots and knot clusters

NOTE. Sound knots, tight knots and knot clusters are not detrimental to the use of timber in joinery but it is considered desirable to limit their size and distribution.

9.1 Size

9.1.1 The maximum knot size for Class CSH timber for exposed surfaces shall be 6 mm.

9.1.2 No individual knot or knot cluster shall exceed the size limit shown in figure 1, as appropriate, for the following:

- (a) the class of timber (see 3.1);
- (b) the surface category (see 3.2);
- (c) the size of the finished piece.

These size limits shall apply even if a piece of timber is laminated or jointed (see figures 2 and 3).

9.2 Distribution

9.2.1 For all classes, when considering distribution of knots, those knots of 10 mm or less shall be disregarded.

NOTE. Class CSH has a 6 mm maximum knot size for exposed surfaces (see 9.1.1).

9.2.2 Knots or knot clusters larger than 10 mm shall be distributed at centres no closer than 150 mm on average measured over the length of the piece.

NOTE. The distribution may be calculated using the following equation:

$$\frac{\text{length of piece}}{\text{number of knots or knot clusters}} = \text{distribution}$$

9.3 Knot characteristics

9.3.1 Unsound knots, dead knots and loose knots shall not be present except on concealed surfaces, and on exposed surfaces if the timber has been made good in accordance with 18.1.

9.3.2 When splay, branched or margin knots are loose they shall be treated as dead knots.

NOTE. Provided splay, branched or margin knots are sound they do not adversely affect the surface which cuts along the knot rather than through the knot and there is no limit placed on them.

9.3.3 Arris knots shall comply with 9.3.1 and 9.3.2 on both of the faces on which they appear.

9.4 Measurement of sizes of knots and knot clusters

9.4.1 Individual round, oval, arris, splay, margin and branched knots shall be measured to the nearest millimetre as shown in figures 4 to 9 respectively.

9.4.2 Sizes of knot clusters shall be measured, to the nearest millimetre, as the sum of the mean dimensions of all knots forming the clusters as shown in figure 10.

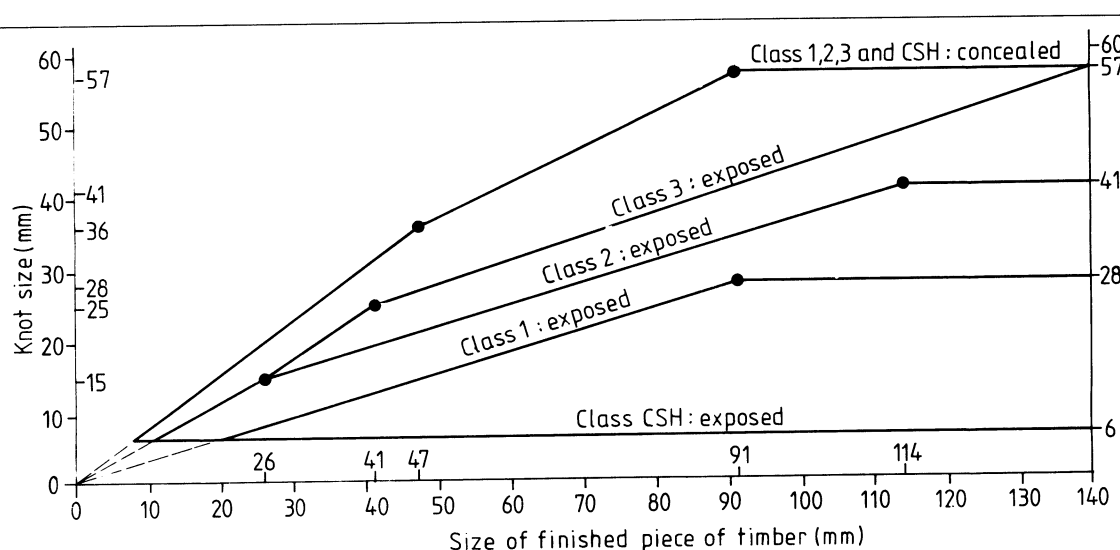


Figure 1. Maximum limit of knot size and distribution for round or oval knots on exposed or concealed surfaces