BRITISH STANDARD

BS 1297:1987

Specification for

Tongued and grooved softwood flooring

UDC 692.535.1:691.113:543.812

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Timber Standards Committee (TIB/-) to Technical Committee TIB/1, upon which the following bodies were represented:

British Timber Merchants Association

British Woodworking Federation

Department of the Environment (Building Research Establishment Princes Risborough Laboratory)

Department of the Environment (Housing and Construction Industries)

Forestry Commission

Home Timber Merchants' Association of Scotland

Institute of Building Control

Institute of Clerks of Works of Great Britain Inc.

Institute of Machine Wood Working Technology Ltd.

Institution of Structural Engineers

National Sawmilling Association

Scottish Special Housing Association

Scottish Timber Trade Association

Timber Drying Association

Timber Packaging and Pallet Confederation

Timber Research and Development Association

Timber Trade Federation

This British Standard, having been prepared under the direction of the Timber Standards Committee, was published under the authority of the Board of BSI and comes into effect on
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Amendments issued since publication

Amd. No.	Date of issue	Comments

Contents

Foreword

This British Standard has been revised under the direction of the Timber Standards Committee. It supersedes BS 1297:1970, which is withdrawn.

This revision extends the range of species and amends the moisture content requirements.

Compliance with this standard applies at the point of first delivery by the manufacturer.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 6, an inside back cover and a back cover.

This standard has been updated (see copy right date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard specifies a range of species, characteristics, manufacturing and moisture content requirements for tongued and grooved softwood flooring, installed in accordance with the recommendations of BS 8201.

Appendix A describes a method of knot measurement.

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

2 Definitions

For the purposes of this British Standard the definitions given in BS 6100-4 apply, together with the following.

fissure
longitudinal separation of the fibres, appearing on a face, edge or end of a piece of softwood, and including checks, shakes and splits

NOTE Nomenclature is given in BS 881, BS 589.

3 Species

For the purposes of compliance with this British Standard, tongued and grooved flooring shall be manufactured from the following species:

Imported European redwood;

Imported European whitewood;

British grown Corsican pine;

British grown Douglas fir;

British grown latch;

British grown Scots pine;

Canadian Douglas fir-larch;

Canadian Hem-fir;

Canadian Spruce-pine-fir;

USA Douglas fir-larch;

USA Hem-fir;

USA Southern pine.

NOTE The species listed above are referenced by their common name. For information concerning botanical species, other common names and Canadian and USA species combinations, reference should be made to Appendix A of BS 5268-2:1984.

4 Permitted characteristics

4.1 Knots

4.1.1 *Sound and tight knots.* The combined widths of all the knots on the face and back at any cross section shall not exceed two thirds of the width of the piece [see Figure 2(a) and Figure 2(b)].

All knots shall be measured in accordance with the method described in Appendix A.

4.1.2 *Unsound and loose knots.* Pieces shall be free from unsound knots exceeding 25 mm in diameter, and loose knots or knot holes exceeding 10 mm in diameter.

4.2 Fissures

Fissures upon the face side shall not exceed 1 mm in width or 300 mm in length or a depth greater than half the thickness of the piece.

Fissures upon the back side shall be limited only as to their depth which shall not be greater than half the thickness of the piece.

End fissures not exceeding 300 mm in length in one end of the piece, or the equivalent of 300 mm if in both ends, shall be permitted in not more than 10 % of the pieces in any one delivery.

The depth of fissures shall be measured by the use of a feeler gauge not exceeding 0.2 mm in thickness.

4.3 Wane

The face side of all pieces shall be free from wane. The back may have wane on both edges, provided that it does not impinge upon either tongue or groove.

4.4 Sapwood

Bright sapwood is permitted to an unlimited extent. Occasional sapstain shall be permitted on the face side. There is no restriction on the back side.

4.5 Rate of growth

Rate of growth shall not be less than an average of four growth rings per 25 mm (see Figure 3).

Rate of growth shall be measured on one end of the piece, and expressed as the average ring width in millimetres along a straight line 75 mm long normal to the growth rings, passing through the centre of the end of the piece [see Figure 3(a)], or commencing 25 mm from the pith where this is present [see Figure 3(b)]. When a line 75 mm in length is unobtainable, the measurement shall be made on the longest possible line normal to the growth rings and passing through the centre of the piece.

4.6 Cup

Cupping shall not exceed 1 mm for each 50 mm of width (see Figure 4).

4.7 Decay and insect attack

All pieces shall be free from decay and insect attack including attack by ambrosia beetle.

5 Manufacture

5.1 General

All pieces shall be accurately machined to uniform section throughout their length. They shall be smoothly finished on the face showing not less than ten cutter marks per 30 mm of length and thicknessed on the back hit-and-miss to the specified size. Tongues and grooves shall provide a well matched joint with level faces between contiguous pieces when laid.

5.2 Determination of sizes

5.2.1 *Cross section sizes.* Finished sizes shall be as given in Table 1 in any combination of thickness and face width. Sizes shall be measured at the moisture content specified in clause **6**.

Table 1 — Cross section sizes

	mm	mm	mm	mm
Finished thicknesses	16	19	21	28
Finished widths of face	65	90	113	137

Lengths shall be 1.8 m and longer with a minimum average in delivery of 3.0 m.

5.2.2 *Permitted deviations in cross section sizes in manufacture*. The maximum permitted deviations from specified sizes shown in Table 1 shall be:

thickness: – 0 mm, + 2 mm;

face width: ± 1 mm.

5.2.3 *Tongue and groove sizes*

5.2.3.1 *Tongue size.* The sizes of the tongue shall be as given in Table 2 and Figure 1.

Table 2 — Tongue sizes

Finished thickness, mm	*A*	16	19	21	28
Finished tongue thickness, mm	*B*	4.5	6	6	6
Finished tongue top width, mm	*C*	7	7	7	7
Face of board to top of tongue, mm	*D*	7	7	8	12

The maximum permitted deviations of the finished top width of tongue shall be – 1 mm, ± 0 mm.

The finished tongue bottom width shall be 0.5 mm greater than that of the top width (see Figure 1).

5.2.3.2 *Groove size.* The groove size shall be not less than 1 mm deeper than the width of the upper face of the tongue and the section shall be able to accommodate the tongue with a push fit.

6 Moisture content

6.1 The moisture content of any board at the time of delivery shall not exceed 19 %.

NOTE 1 Where it is intended that flooring is to be installed in buildings with continuous heating providing room temperatures of 12 °C to 19 °C or higher, it is recommended that boards with a lower moisture content than 19 % are used, otherwise there is a strong probability that some degrade in respect of fissures, cupping and shrinkage will result. The supply of boards with a lower moisture content should be the subject of special arrangements between the supplier and specifier.

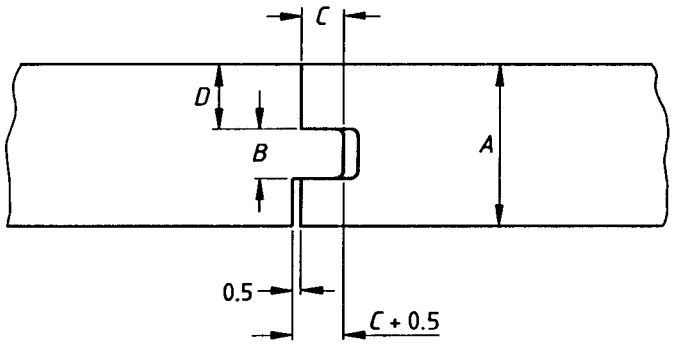
6.2 Where it is required that the moisture content be verified, such verification shall be carried out at the time of delivery.

Moisture content shall be checked using an electrical resistance moisture meter which is capable of making individual measurements with an accuracy of ± 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 If the moisture content does not comply with **6.1**, the supplier should be informed within 24 hours.

NOTE 2 Electrical resistance moisture meters could 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.



All dimensions are in millimetres.

Figure 1 — Typical section of joint

Appendix A Method of knot measurement

To obtain two-thirds width of a board 137 mm wide, first multiply by 2 and then divide by 3.

Thus 137 mm × 2 = 274 mm.

274 mm ÷ 3 = 91 mm

rounded to the nearest millimetre.

Example 1 [see Figure 2(a)]

In Figure 2(a), abcd is a cross section giving the maximum transection of the knots.

The aggregate knot width on the face and back = 50 mm + 54 mm = 104 mm.

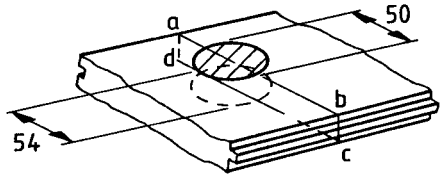
As this exceeds the stated figure of 91 mm, representing two-thirds the width of the board, the board does not comply with this standard.

Example 2 [see Figure 2(b)]

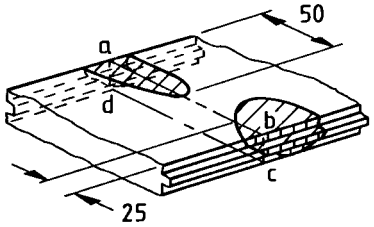
In Figure 2(b), abcd is a cross section giving the maximum transection of the knots.

The aggregate knot width on the face or back only = 50 mm + 25 mm = 75 mm. Therefore the board complies with this standard.

As the knots are slightly staggered relative to the length of the board, the cross section does not transect both knots at their widest. The section that shall be taken is the one giving the maximum transection of the knots.



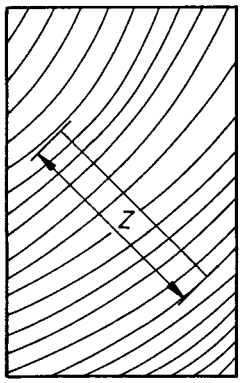
(a) Aggregate knot width on the face and back



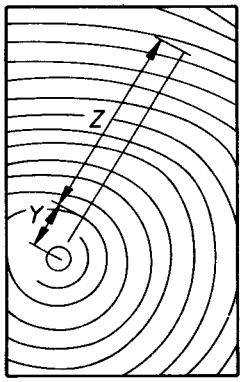
(b) Aggregate knot width on face or back only

All dimensions are in millimetres.

Figure 2 — Square cross section giving the maximum transection of the knots



(a)



(b)

Y = 25 mm
Z = 75 mm
(where possible)

Figure 3 — Measurement of rate of growth

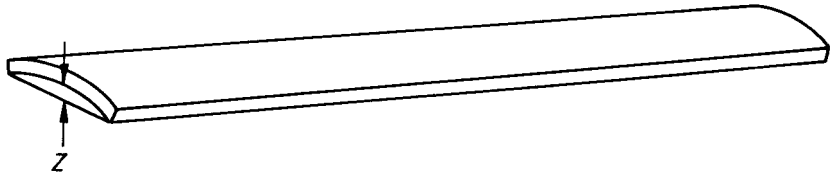


Figure 4 — Measurement of cup

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Publications referred to

BS 881, BS 589, *Nomenclature of commercial timbers, including sources of supply.*
BS 5268, *Structural use of timber.*
BS 5268-2, *Code of practice for permissible stress design, materials and workmanship.*
BS 6100, *Glossary of building and civil engineering terms.*
BS 6100-4, *Forest products.*
BS 8201, *Code of practice for flooring of timber, timber products and wood based panel products.*

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