

Specification for

Wood door frames and linings

UDC 694.5:69.022.99

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW



Document Sharing Hub

Co-operating organizations

The Timber Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:—

- Association of Consulting Engineers (Incorporated)
- British Door Association*
- British Furniture Trade Confederation
- British Railways, The Railway Executive
- D.S.I.R. — Forest Products Research Laboratory*
- English Joinery Manufacturers' Association (Incorporated)*
- Flush Door Manufacturers' Association*
- Institution of Civil Engineers
- Institution of Municipal Engineers*
- Institution of Structural Engineers
- Ministry of Housing and Local Government
- Ministry of Materials*
- Ministry of Works*
- National Federation of Building Trades Employers*
- Royal Institute of British Architects*
- Royal Institution of Chartered Surveyors*
- Timber Development Association*
- Timber Trade Federation of the U.K.*

The Government departments and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:—

- Admiralty
- British Metal Window Manufacturers' Association
- Department of Health for Scotland
- D.S.I.R. — Building Research Laboratory
- Joinery Managers' Association
- Joint Fire Research Organization of D.S.I.R. and F.O.C.
- National Federation of Constructional Glass Associations

This British Standard, having been approved by the Timber Industry Standards Committee and endorsed by the Chairman of the Building Divisional Council, was published under the authority of the General Council on 21 January 1953

© BSI 12-1999

First published June 1949
First revision January 1953

ISBN 0 580 35948 4

Amendments issued since publication

Amd. No.	Date of issue	Comments
1666	July 1953	
1848	April 1954	
2214	June 1955	
3051	May 1958	
3837	June 1960	
5464	February 1965	Indicated by a sideline in the margin

Contents

	Page
Co-operating organizations	Inside front cover
Foreword	ii
1 Scope	1
2 Definitions	1
3 Timber	1
4 Types and sizes	1
5 Sections and tolerances	1
6 Construction	1
7 Adhesives	2
8 Finish	3
9 <i>Deleted</i>	
10 Knotting and priming	3
11 Type and size references	3
Appendix Information to be supplied by purchaser at time of placing order	5
Figure 1 — Frame for inward opening external door	6
Figure 2 — Frame for inward opening external door, with transom and direct glazing	7
Figure 3 — Frame for outward opening external door	8
Figure 4 — Frame for outward opening external door, with transom and direct glazing	9
Figure 5 — Frame for garage doors	10
Figure 6 — Frame for internal door	11
Figure 7 — Storey frame for internal doors	12
Figure 8 — Storey frame with transom and direct glazing, for internal door	13
Figure 9 — Linings for internal doors	14
Figure 10 — Standard sections for inward opening external door frames	15
Figure 11 — Standard sections for outward opening external door frames	16
Figure 12 — Standard section for garage door frame	17
Figure 13 — Combination of window units with door frame units to form wing light frames	18
Figure 14 — Standard sections for internal door frames	19
Figure 15 — Standard sections for linings for internal doors, also glazing fillets and stops	20
Table 1 — Type and size references for frames for external doors	4
Table 2 — Type and size references for frames for internal doors	4
Table 3 — Type and size references for linings	4

Foreword

This standard makes reference to the following British Standards:—

BS 459-1, *Panelled and glazed wood doors*.

BS 459-2, *Flush doors*.

BS 459-3, *Fire-check flush doors and frames*.

BS 459-4, *Matchboarded doors*.

BS 565, *Glossary of terms relating to timber, and woodwork*.

BS 644-1, *Wood casement windows*.

BS 745, *Animal glue for wood*.

BS 1186, *Quality of timber and workmanship in joinery — Part 1: Quality of timber*.

BS 1204, *Synthetic resin adhesives (phenolic and amino-plastic) for wood — Part 1: Gap-filling adhesives — Part 2: Close-contact adhesives*.

BS 1210, *Wood screws*.

BS 1444, *Cold-setting casein glue for wood*.

This British Standard, which was first published in June, 1949, has now been revised in order to amend the specification for door frames with winglights, as the window portion of such frames is now provided by windows and frames complying with BS 644-1, “*Wood casement windows*.”

The diagrams showing the frames and the timber sections from which they are made have been rearranged and revised, and tables of type and size references have been provided. It should be noted that sizes of frames and linings are now based on the actual net size of the doors for which they are intended.

NOTE Attention is drawn to the appendix which lists a number of points on which the purchaser is required to state his requirements when placing an order for wood door frames and linings.

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 20 and a back cover.

This standard has been updated (see copyright 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 relates to the quality, construction, and range of types and sizes of standard wood frames and linings for external and internal doors. It also refers to the use of external door frames combined with windows complying with the requirements of BS 644-1, "*Wood casement windows*" when door frames with winglights are required.

Wood frames for fire-check doors are not included in this specification as they are covered by BS 459-3, "*Fire-check flush doors and frames*."

2 Definitions

For the purposes of this British Standard the definitions given in BS 565, "*Glossary of terms relating to timber and woodwork*," shall apply.

3 Timber

The timber shall be in accordance with the requirements of BS 1186, "*Quality of timber and workmanship in joinery*", Part 1, "*Quality of timber*".

4 Types and sizes

The range of types and sizes shall be as shown in Table 1, Table 2 and Table 3. The references are given separately for type and size, but they may be combined, as for example FN 26.

Types and sizes for external door frames are shown in Figure 1, Figure 2, Figure 3, Figure 4 and Figure 5. Those for internal door frames and linings are shown in Figure 6, Figure 7, Figure 8 and Figure 9.

External door frames shall be supplied with or without sills as ordered.

Where external door frames are required with winglights, the window portion shall be casement windows and frames, complying with the requirements of BS 644, Part 1, of the type selected by the purchaser, attached by the supplier to either or both sides of the external door frames specified in this British Standard.

5 Sections and tolerances

The various wood sections shall be machined accurately to the profiles and dimensions shown in Figure 10, Figure 11, Figure 12, Figure 14 and Figure 15 with a tolerance on their overall dimensions of $\pm 1/16$ in. The sizes indicated are the finished sizes.

On the door frames when assembled a tolerance of -0 in. $+1/8$ in. shall be allowed on the heights and widths measured in the rebates.

6 Construction

a) *External door frames*. External door frames shall be constructed as shown in Figure 1, Figure 2, Figure 3, Figure 4 or Figure 5. All external door frames, except those for garage doors, shall be supplied completely assembled, unless otherwise specified by the purchaser. Garage door frames may be supplied in sets, for site assembly, by agreement between the purchaser and the manufacturer.

The heads, jambs and sills shall be scribed and framed together with either mortise and tenon or combed joints. The transoms shall be scribed and framed to the jambs with mortise and tenon joints.

Jambs (if mortised and tenoned) shall be through-tenoned into the mortises of the heads and sills the full width of the member and not less than $1/2$ in. thick. Heads and sills shall have horns not less than $1 1/2$ in. long. Transoms shall be through-tenoned into the jambs in the same manner.

The tenons shall be close-fitting in the mortises and pinned with corrosion-resisting metal pins, star-shaped and not less than $5/16$ in. diameter, or with wood dowels not less than $3/8$ in. diameter. Alternatively, the tenons may enter tapered mortises and be wedged. In either case the joints shall be made either with an adhesive complying with Clause 7 or with a lead base paint.

Combed (or laminated) joints shall be close-fitting and of not less than two laminations per member, glued with an adhesive complying with Clause 7 or made with a white lead base paint and pinned together with metal pins or wood dowels as described above. The dowels or pins shall be of sufficient length to engage properly with the outer laminations on both sides of the joints. Combed joints will not have horns.

Sills of the sections FN 3 and FX 3 shown in Figure 10 and Figure 11 shall be of hardwood and shall be cut in the solid from one piece of timber. Alternatively, they may be made from two pieces of timber as indicated by the dotted line in the diagrams, provided that the two pieces are properly glued together with an adhesive complying with the requirements of Type BR of BS 1204, "*Synthetic resin adhesives (phenolic and amino-plastic) for wood*", Part 1, "*Gap-filling adhesives*", or Part 2, "*Close-contact adhesives*", or Grade A of BS 1444, "*Cold-setting casein glue for wood*", and pinned with not less than three $1\frac{1}{2}$ in. rustproof pins of the lost head type.

Sills for inward opening external doors shall be of hardwood and may be either of the section FN 3 or of the alternative section FN 4 shown in Figure 10. In the latter case they shall be grooved for and fitted with a 1 in. $\times$ $\frac{1}{4}$ in. sherardized or galvanized iron water bar bedded in mastic in the top face of the sill.

When door frames are supplied without sills the purchaser may order them to be fitted with dowels. In that case $\frac{1}{2}$ in. diameter corrosion-resisting metal dowels shall be properly fitted into the feet of the jambs.

Fanlight openings shall be provided with glazing fillets as indicated on the Figures. These shall be pinned temporarily in position in the fanlight opening.

Where casement windows are required to be attached to form wing frames, this shall be done by the manufacturer as shown in Figure 13 with glue and with $2\frac{1}{2}$ in. No. 12 gauge mild steel countersunk wood screws, complying with the requirements of BS 1210, "*Wood screws*", placed not more than 12 in. apart in the height of the window frame, with pelleted heads, and the joint covered with $1\frac{3}{8}$ in. $\times$ $\frac{3}{8}$ in. cover fillets and quadrant beads as shown. The head weathering moulding shall be in a continuous length across the combined width of the composite frame, the door frame head being specially grooved for this purpose when winglights are attached.

b) *Internal door frames*. Internal door frames shall be constructed as shown in Figure 6, Figure 7 or Figure 8. Storey frames with transoms shall be supplied completely assembled, and all other internal door frames shall be supplied unassembled, unless otherwise specified by the purchaser.

The heads, jambs and transoms shall be framed together with either mortise and tenon or tongued joints.

The tenons shall be the full width of the member, not less than $\frac{1}{2}$ in. thick, and shall be close-fitting in the mortises.

The extensions of the jambs, in the case of storey frames, shall be reduced, as indicated in Figure 7, to allow for plastering.

Door stops shall be supplied in bundles cut to lengths, unless otherwise specified by the purchaser. Double glazing fillets to fanlight openings shall be supplied cut to size and pinned temporarily in position to the frame, unless otherwise ordered by the purchaser.

c) *Door linings*. Door linings (see Figure 9 and Figure 15) shall be shop-prepared, for assembly by the purchaser. Door stops shall be supplied in bundles cut to lengths, unless otherwise specified by the purchaser.

The jambs shall be provided with tongues not less than $\frac{3}{8}$ in. thick and the heads shall be grooved not less than $\frac{3}{8}$ in. deep to receive them. Alternatively there shall be housings not less than $\frac{3}{8}$ in. deep in the heads to take the full thickness of the jambs. In the latter case, the heads shall project not less than $1\frac{1}{2}$ in., on each side, beyond the backs of the jambs.

7 Adhesives

The adhesives used in the construction of door frames shall conform to the requirements of one of the following British Standards:—

BS 745, *Animal glue for wood*.

BS 1204, *Synthetic resin adhesives (phenolic and aminoplastic) for wood. Part 1, Gap-filling adhesives, or Part 2, Close-contact adhesives*.

BS 1444, *Cold-setting casein glue for wood*.

8 Finish

All external and other assembled door frames shall be cramped together so as to be square and flat.

Each assembled door frame shall have a temporary diagonal brace fitted inside the rebates.

All assembled door frames without sills shall be fitted with temporary stretchers.

The surfaces normally exposed to view after installation shall be true, clean and smoothly finished.

10 Knotting and priming

(Replacing Clauses 9 and 10.) This British Standard relates to joinery “in the white”. If the purchaser wishes it to be knotted and primed or otherwise finished he should specify his requirements in detail.

NOTE 1 Priming alone does not provide full protection against weather, and therefore all work should receive further coats of paint within a reasonable period. Any cut surfaces, particularly those exposing end grain, should be primed before the joinery is set in position.

NOTE 2 It is essential that the user should assure himself that, when aluminium primer is used, it is of a type especially prepared for this purpose. Unless suitable aluminium primers are used a satisfactory basis for subsequent painting cannot be obtained. A British Standard for such primers is under consideration.

NOTE 3 It is essential that joinery supplied “in the white” be handled and stored under dry conditions. It should be knotted and primed immediately after delivery and should receive further coats of paint within a reasonable period. Any surfaces subsequently cut, particularly those exposing end grain, should be primed before the joinery is fixed in position.

11 Type and size references

The following notation has been adopted for the type and size references given in Table 1, Table 2 and Table 3.

TYPES OF FRAME OR LINING

FN	Frame for inward opening external door.
FX	Frame for outward opening external door. (see Figure 11 and Figure 15.)
FG	Frame for garage doors
S	with sill .
T	with transom .
DF	Door frame , internal.
SF	Storey frame , internal.
FF	Storey frame, internal, with transom.
DL	Door lining .

WIDTH OF INTERNAL DOOR FRAMES OR LININGS

The width of an internal door frame or linings, in inches, is given *before* the letter indicating the type of frame, e.g. $4\frac{1}{4}$ DF.

THICKNESS OF LININGS

The thickness of linings is $1\frac{1}{16}$ in. (out of $1\frac{1}{4}$ in. timber) unless otherwise indicated. To denote linings $\frac{13}{16}$ in. thick (out of 1 in.) the Figure 1 is added *after* the letters DL, e.g. $5\frac{1}{4}$ DL1.

SIZE OF DOOR

The size of door for which the frames or linings are suitable are indicated by two (or three) figures forming the last component of the reference, as follows:—

- 20 — frame or linings to suit door 2 ft. 0 in. × 6 ft. 6 in.
- 23 — frame or linings to suit door 2 ft. 3 in. × 6 ft. 6 in.
- 26 — frame or linings to suit door 2 ft. 6 in. × 6 ft. 6 in.
- 29 — frame or linings to suit door 2 ft. 9 in. × 6 ft. 6 in.
- 30 — frame or linings to suit door 3 ft. 0 in. × 6 ft. 6 in.
- 310 — frame for pair of doors 3 ft. 10 in. × 6 ft. 6 in.
- 70 — frame for pair of doors 7 ft. 0 in. × 6 ft. 6 in.

Table 1 — Type and size references for frames for external doors

NOTE The appropriate type and size references should be combined, e.g. FN 26; FNTS 29; FXS 310; FG 70, etc.

Description of frame	Type reference for		Size reference	Door width
	Frame without sill	Frame with sill		
Frame 3 ¹ / ₄ in. wide for inward opening external door, as Figure 1	FN	FNS	26 29	2 ft. 6 in. 2 ft. 9 in.
Frame 3 ¹ / ₄ in. wide for inward opening external door, with transom, as Figure 2	FNT	FNTS	26 29	2 ft. 6 in. 2 ft. 9 in.
Frame 3 ¹ / ₄ in. wide for outward opening external door as Figure 3	FX	FXS	26 29 310	2 ft. 6 in. 2 ft. 9 in. 3 ft. 10 in.
Frame 3 ¹ / ₄ in. wide for outward opening external or casement door, with transom, as Figure 4	FXT	FXTS	26 29 310	2 ft. 6 in. 2 ft. 9 in. 3 ft. 10 in.
Frame 3 ³ / ₄ in. wide for pair of outward opening garage doors, as Figure 5	FG	—	70	7 ft. 0 in.

Table 2 — Type and size references for frames for internal doorsNOTE Any size reference may be combined with any type reference, e.g. 3³/₄ SF 26.

Description of frame	Type reference for frames				Size reference	Door width
	2 ³ / ₄ in. wide	3 ¹ / ₄ in. wide	3 ³ / ₄ in. wide	4 ¹ / ₄ in. wide		
Frame for internal door as Figure 6	—	—	3 ³ / ₄ DF	4 ¹ / ₄ DF	20	2 ft. 0 in.
Storey frame for internal door as Figure 7	2 ³ / ₄ SF	3 ¹ / ₄ SF	3 ³ / ₄ SF	4 ¹ / ₄ SF	23	2 ft. 3 in.
					26	2 ft. 6 in.
Storey frame for internal door, with transom and glazing, as Figure 8	2 ³ / ₄ FF	3 ¹ / ₄ FF	3 ³ / ₄ FF	4 ¹ / ₄ FF	29	2 ft. 9 in.

Table 3 — Type and size references for liningsNOTE Any size reference may be combined with any type reference, e.g. 5¹/₄ DL 26; 4³/₄ DL1/20.

Description of lining (see Figure 15)	Type reference	Size reference	Door width
1 ¹ / ₁₆ in. Linings 4 ³ / ₄ in. wide for internal door	4 ³ / ₄ DL	20	2 ft. 0 in.
1 ¹ / ₁₆ in. Linings 5 ¹ / ₄ in. wide for internal door	5 ¹ / ₄ DL	23	2 ft. 3 in.
		26	2 ft. 6 in.
1 ¹ / ₁₆ in. Linings 5 ³ / ₄ in. wide for internal door	5 ³ / ₄ DL	29	2 ft. 9 in.
1 ¹³ / ₁₆ in. Linings 4 ³ / ₄ in. wide for internal door	4 ³ / ₄ DL1		
1 ¹³ / ₁₆ in. Linings 5 ¹ / ₄ in. wide for internal door	5 ¹ / ₄ DL1		
1 ¹³ / ₁₆ in. Linings 5 ³ / ₄ in. wide for internal door	5 ³ / ₄ DL1		