

BRITISH STANDARD 644 : Part 3 : 1951

**Wood Double-hung
Sash and Case Windows
(Scottish Type)**

BRITISH STANDARD SPECIFICATION

WOOD DOUBLE-HUNG
SASH AND CASE WINDOWS
(SCOTTISH TYPE)

B.S. 644 : Part 3 : 1951

Incorporating amendments issued June, 1955 (PD 2210),
March, 1963 (PD 4829) and February, 1965 (PD 5459).

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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 27th August, 1951.

The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

A complete list of British Standards, numbering over 4000, indexed and cross-indexed for reference, together with an abstract of each standard, will be found in the Institution's Yearbook.

This standard makes reference to the following British Standards :—

- B.S. 544. Linseed oil putty for use in wooden frames.
- B.S. 565. Glossary of terms relating to timber and
woodwork .
- B.S. 745. Animal glue for wood.
- B.S. 952. Classification of glass for glazing and
terminology for work on glass .
- B.S. 1186. Quality of timber and workmanship in
joinery .
- B.S. 1204. Synthetic resin adhesives (phenolic and
aminoplastic) for wood. Part 1, Gap-filling
adhesives. Part 2, Close-contact adhesives .
- B.S. 1331. Builders' hardware for housing.
- B.S. 1444. Cold-setting casein glue for wood.
- B.S. 1455. Plywood manufactured from tropical
hardwoods .

British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.

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CO-OPERATING ORGANIZATIONS

The B.S.I. Committee on Building and Engineering Services in Scotland, in consultation with whom this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations :—

Association of County Councils in Scotland
 Building Research Laboratory, Scotland (D.S.I.R.)
 Convention of Royal Burghs
 Council of Industrial Design
 Counties of Cities Association
 Department of Agriculture for Scotland
 Department of Health for Scotland
 Federation of Civil Engineering Contractors, Scottish Branch
 Institution of Civil Engineers, Edinburgh
 Institution of Electrical Engineers, Scottish Centre
 Institution of Municipal Engineers, Scottish Branch
 Institution of Structural Engineers, Scottish Branch
 Institution of Water Engineers, Scottish Section
 Ministry of Works, Scottish Office
 Royal Incorporation of Architects in Scotland
 Royal Institution of Chartered Surveyors, Scottish Branch
 Scottish National Building Trades Federation (Employers)

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
 *Board of Trade
 *British Door Association
 British Furniture Trade Confederation
 *British Railways, The Railway Executive
 Building Research Laboratory (D.S.I.R.)
 *English Joinery Manufacturers' Association (Incorporated)
 *Flush Door Manufacturers' Association
 *Forest-Products Research Laboratory (D.S.I.R.)
 Institution of Civil Engineers
 *Institution of Municipal Engineers
 Institution of Structural Engineers
 Ministry of Health
 *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 standard :—

Admiralty
 British Metal Window Manufacturers' Association
 Department of Health for Scotland
 Joint Fine Research Organization (D.S.I.R. and F.O.C.)
 National Federation of Constructional Glass Associations

**BRITISH STANDARD SPECIFICATION FOR
WOOD DOUBLE-HUNG SASH AND
CASE WINDOWS
(SCOTTISH TYPE)**

FOREWORD

This British Standard deals with types of wood double-hung sash and case windows which are in general use in Scotland, and which are not covered by B.S. 644, Part 2, 'Double-hung sash windows.' The standard was prepared by the B.S.I. Joinery Committee in consultation with the B.S.I. Committee on Building and Engineering Services in Scotland. It was originally published in 1949 and is extended in this edition to include types using spiral balance devices as an alternative method of suspension to the use of cords or chains and weights.

In addition to the specification of the windows themselves, an appendix is included containing recommendations for glazing.

SPECIFICATION

SCOPE

1. This British Standard specifies the quality, construction and design of wood double-hung sash and case windows, Scottish type. Three methods of counter-balancing the sashes are provided for, as follows:—

Type W. By means of cords or chains and weights.

Type S. By means of spiral balance devices in the sashes.

Type H. By means of spiral balance devices in the frames for use when the lower sash is required to open inwards for cleaning.

NOTE 1. Since the overall dimensions vary between multi-light windows of Types S and H it is recommended that one type only be used throughout a building.

NOTE 2. The standard does not make provision for windows opening inwards for cleaning when cords or chains and weights are used (Type W) as the necessary fittings and adjustments to the windows are supplied and made on the site by the fixer.

DEFINITIONS

2. For the purposes of this standard the definitions given in B.S. 565, 'Glossary of terms relating to timber and woodwork', shall apply.

FITTINGS

3. *a. Type W.* Sash and case windows of Type W shall be fitted with sash pulleys but not with cords, chains, weights, lifts or fasteners.

b. Type S. Sash and case windows of Type S shall be fitted with spiral balance devices but not with lifts or fasteners.

c. Type H. Sash and case windows of Type H shall be fitted with spiral balance devices and with the associated hinging devices that are necessary, but not with lifts or fasteners.

TIMBER AND PLYWOOD

4. The timber shall be in accordance with B.S. 1186, 'Quality of timber and workmanship in joinery'.

All plywood shall be of a quality at least sufficient to comply with the requirements for Bonding BR of B.S. 1455, 'Plywood manufactured from tropical hardwoods'.

ADHESIVES

5. The adhesives used in the construction of the windows shall comply with one of the following British Standards:—

B.S. 745. Animal glue for wood.

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

B.S. 1444. Cold-setting casein glue for wood.

TYPES AND SIZES

6. The range of types and sizes of sash and case window units shall be as shown in Figs. 1 and 2. The sashes shall be supplied with or without astragals, as required. The width and height of the windows shall be in accordance with Tables 1, 2 and 3. A schedule of glass sizes and daylight glass areas is given in Table 4.

TOLERANCE ON SIZES

7. The dimensions given in Tables 1, 2 and 3 shall be subject to a tolerance of $\pm \frac{1}{8}$ in.

WORKING CLEARANCE

8. Sashes, as delivered, shall operate freely but not loosely in the cases

SECTIONS

9. The various wood sections shall be machined accurately to the profiles and finished sizes shown in Figs. 3 to 9.

CONSTRUCTION

10. *a. Cases for Type W windows (for cords or chains and weights).* The members shall be framed together in the manner described below in order to secure rigidity throughout the cases.

Pulley stiles and lintels shall be tongued at least $\frac{3}{16}$ in. deep into grooves in the outside and inside facings. Pulley stiles shall also be ragged into the sills and at least $\frac{1}{4}$ in. deep into the lintels.

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Outside facings shall be scribed or mitred at their intersections. Outside facings shall be cut away at the junction with the sills, as shown in Figs. 6 and 9, to prevent the formation of water pockets on the sills and shall be slightly grooved on the outside to receive harling. Inside facings shall be grooved on the face for ingo plates. Both outside and inside facings shall be carried to the bottom of the sill and nailed securely, the sill being recessed to allow this, as shown in Figs. 8 and 9.

In the case of multi-light windows, the outside mullion plates shall be cut away at the junction with the sills to prevent the formation of water pockets on the sills and shall extend to the bottom of the sill and to the top of the lintel facing. The inside mullion plates shall be carried to the bottom of the sills and nailed securely, the sill being recessed to allow this, and shall extend to the top of the lintel facing. Pulley stiles, lintels, and outside and inside facings shall be similar to those described above.

Packing pieces, 2 in. $\times$ 1 $\frac{1}{4}$ in., shall be fixed between the outside and inside facings above each pulley stile. Pulley stiles shall be mortised and fitted with sash pulleys, fixed with the centres of the pulleys not more than 4 $\frac{1}{2}$ in. and not less than 3 $\frac{1}{2}$ in. from the underside of the lintels. Removable pocket pieces shall be fitted in each pulley stile to give access to the weights and sash cords or chains. The length of the pocket piece shall be 12 in. for windows not exceeding 4 ft. in height with an addition of 3 in. for every additional 12 in. in height. The lowest edge of the pocket opening shall be 8 in. above the highest part of the sill.

Pulley stiles and lintels shall be grooved $\frac{1}{4}$ in. deep and be provided with parting beads, which shall be cut away at the junctions with the sills to prevent the formation of water pockets, as shown in Fig. 6.

All sash openings shall be provided with baton rods, mitred at the angles and pinned loosely in position before delivery, for subsequent fixing on the site.

The jambs of cases shall be provided with timber or plywood back lining. Multi-light windows with double pulley weights shall be provided with parting slips hung from the lintel of the frame and left free from the outer and inner mullion facings.

Sills shall be in two pieces tongued together, sunk and weathered, throated, and grooved on the inner faces for window boards. They shall be grooved on the underside for a mortar key or metal weather bar.

b. Cases for Type S windows (with spiral balance devices in sashes). The members shall be framed together in the manner described below in order to secure rigidity throughout the cases.

Pulley stiles and lintels shall be tongued at least $\frac{3}{16}$ in. deep into grooves in the outside and inside facings. Pulley stiles shall also be ragged into the sills and at least $\frac{1}{4}$ in. deep into the lintels.

Outside facings shall be scribed or mitred at their intersections. Outside facings shall be cut away at the junction of the sills, as shown in