

Specification for

Compressed straw building slabs

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Timber Standards Policy Committee (TIB/-) to Technical Committee TIB/10, upon which the following bodies were represented:

- Association of Building Component Manufacturers
- British Woodworking Federation
- Department of the Environment (Building Research Establishment)
- Department of the Environment (Construction Industries Directorate)
- Department of the Environment (Property Services Agency)
- Fibre Building Board Organisation (FIDOR)
- Furniture Industry Research Association
- Royal Institute of British Architects
- Timber Research and Development Association
- Timber Trade Federation

This British Standard, having been prepared under the direction of the Timber Standards Policy Committee, was published under the authority of the Board of BSI and comes into effect on 28 February 1991

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First published July 1966
Metric version published as BS 4046-2: November 1971
Second edition February 1991

The following BSI references relate to the work on this standard:
Committee reference TIB/10
Draft for comment 89/17168 DC

ISBN 0 580 19168 0

Amendments issued since publication

Amd. No.	Date	Comments

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Foreword

This British Standard has been prepared under the direction of the Timber Standards Policy Committee. It supersedes BS 4046-2:1971, which is withdrawn. The first standard for compressed straw building slabs was published in 1966. A metric version was published in 1971 as BS 4046-2. The first edition then became BS 4046-1 and was withdrawn in 1983.

This revision includes a number of alterations and additions to reflect changes in the manufacture and applications of compressed straw slabs in recent years.

Compressed straw slabs are no longer used for roof decking applications, and references to such applications have been deleted. Similarly, reference to facings treated to meet class 1 spread of flame in accordance with BS 476-7 has been deleted as such slabs are no longer manufactured.

Requirements for both 50 mm and 58 mm thick slabs are now included, with both square and tapered edges. The composition has been extended to include the incorporation of additives to the straw core to avoid insect infestation in certain environments of use.

It is indicated which test methods are routine tests carried out as part of the production process, and which are considered as type tests required when a change in the manufacturing method occurs which may affect performance characteristics.

Additional test methods are included, covering the determination of tapered edge profile, bending strength, modulus of elasticity, resistance to impact, withdrawal of wood screws, boron content, and dimensional changes associated with changes in relative humidities.

The question of providing precision data for the methods of test has been considered by the technical committee, but it is deemed that such data is not applicable to non-homogeneous materials.

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.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 14, an inside back cover 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 specifies requirements for compressed straw building slabs when used internally in buildings. The classification of slab types, their performance characteristics and physical properties, test methods and marking requirements are specified.

Appendix A gives methods of sampling, conditioning and preparation of test specimens and test pieces and methods of tests.

Appendix B gives guidance on the use of compressed straw building slabs. This includes particular reference to the need for proper sealing of the cut edges to provide continuity of the surface covering and protection from moisture, mould growth and insect pests.

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.

2.1

compressed straw slab

slab consisting of natural straws compressed by heat and pressure, encased in and firmly bonded to facings of paper or other materials to form rectangular slabs

NOTE The core may contain insecticides and other additives.

2.2

lot

quantity of slabs manufactured under conditions which are presumed uniform

2.3

test slab

slab required for testing or from which pieces are cut for testing

2.4

test piece

piece cut from a test slab

2.5

test specimen

piece cut from a test piece to comply with the dimensional requirements specified in any of the appropriate tests.

3 Classification

3.1 General

Compressed straw slabs are classified according to the composition of the core, the facings used and the profile of the longitudinal edge.

3.2 Composition of core

The composition of the core shall be as follows.

Type A: with a solid core formed of untreated straw.

Type B: with a solid core formed of straw treated during manufacture with boron-based insecticides.

Type C: as A but with continuous voids formed longitudinally centrally in the straw core, not exceeding 23 mm diameter, capable of accepting a conduit of 20 mm overall diameter and as shown in Figure 1.

Type D: as B but with continuous voids arranged as described in C.

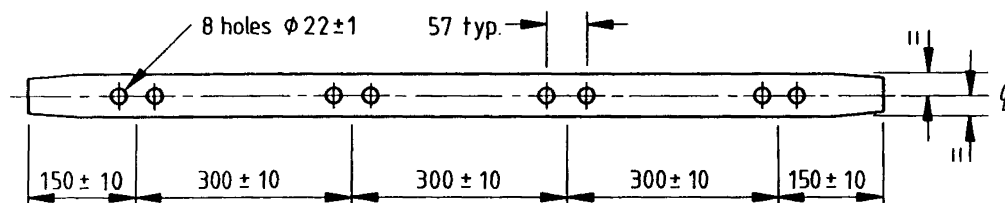
3.3 Facings

The facings shall be of the following paper types.

Type a: *plain*: paper facings suitable for accepting direct decoration.

Type b: *plastering*: paper facings suitable for accepting gypsum plaster skim coat (see BS 1191-1).

Type c: *showerproof*: paper facings complying with the requirements for class A papers as specified in BS 1521.



All dimensions are in millimetres.

Figure 1 — Typical arrangement of longitudinal voids

Table 1 — Summary of tests for performance and physical characteristics

Performance/physical characteristics	Size of test specimen	Number of tests		Test method appendix reference	Requirement clause reference
		Routine	Type		
Dimensional tolerances	Whole slab	1 in 20	6	A.2	5
Taper profile	Whole slab	1 in 100	6	A.3	6
Squareness	Whole slab	1 in 100	6	A.4	7
Mass	Whole slab	1 in 20	6	A.5	8
Moisture content	50 g	1 in 100	6	A.6.1	9
Moisture content	Whole slab	1 in 100	6	A.6.2	9
Modulus of elasticity	1 200 mm × 300 mm	1 in 300	2	A.7	10
Bending strength	1 200 mm × 300 mm	—	2	A.8	11
Resistance to impact	Whole slab	—	2	A.9	12
Screw holding	100 mm × 100 mm	—	4	A.10	13
Thermal conductivity	300 mm × 300 mm	—	2	A.11	14
Boron content	5 g to 10 g	—	6	A.12	15
Dimensional changes	1 000 mm × 1 000 mm	—	2	A.13	16

Table 2 — Test levels for dimensional tolerances

	Work size	Maximum manufacturing	Minimum manufacturing	Method of test
	mm	mm	mm	
Length	1 800 to 3 600 in 10 mm increments	work size – 1.0	work size – 7.0	A.2.1
Width	1 200	work size – 1.0	work size – 3.0	A.2.1
Thickness	50 and 58	work size + 3.0	work size – 1.0	A.2.2
Thickness variation	The thickness of the centre of the slab shall not exceed that at 100 mm from an edge by more than 1.5 mm.			A.2.2

3.4 Edge profile

The profile of the longitudinal edge shall be of the following types.

Type 1: *Square edge*.

Type 2: *Tapered edge*, of which the dimensions of the taper shall be as given in clause 6 and as shown in Figure 2.

The following is an example of a full classification of a slab type:

type Db(2), a boron-treated slab with longitudinal voids and plastering type facings and tapered longitudinal edges.

4 Tests for performance and physical characteristics

NOTE Methods of sampling, conditioning and preparation of test specimens and test pieces are given in A.1 and the methods of test for the various performance and physical characteristics are given in A.2 to A.13.

4.1 Routine tests

Table 1 lists the routine tests that shall be carried out regularly during production.

4.2 Type tests

Table 1 lists the type tests that shall be carried out whenever a change of method of manufacture is made that may affect the performance characteristics of the product.

5 Dimensional tolerances

When measured in accordance with A.2 the dimensions of the slab shall be as given in Table 2.

6 Taper profile

When measured in accordance with A.3, the tapered edges shall be within the following dimensions:

- depth of taper 1.0 mm to 2.0 mm;
- width of taper 60 mm to 80 mm.

7 Squareness

When measured in accordance with A.4, the deviation shall be not more than 5 mm/m measured on the 1 200 mm side.