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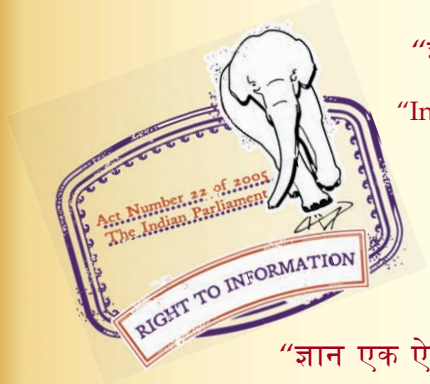
IS 9472 (1980): Code of practice for laying mosaic parquet flooring [CED 13: Building Construction Practices including Painting, Varnishing and Allied Finishing]



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IS : 9472 - 1980
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Indian Standard

CODE OF PRACTICE FOR LAYING OF MOSAIC PARQUET FLOORING

UDC 69·025·333 : 69·025·351·3 : 006·76

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

October 1980

Indian Standard

CODE OF PRACTICE FOR LAYING OF MOSAIC PARQUET FLOORING

Building Construction Practices Sectional Committee, BDC 13

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Indian Standard

CODE OF PRACTICE FOR LAYING OF MOSAIC PARQUET FLOORING

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 29 February 1980, after the draft finalized by the Building Construction Practices Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Timber mosaic parquet floors are used in auditoria, squash courts, skating-rinks, dancing halls, drawing rooms, etc. Mosaic parquet consists of many small pieces (slats) which are able to compensate very successfully the inevitable warping of wood due to variations in humidity without resulting in gaps so objectionable in strip parquet. At the same time, glueing also remains perfect. Alterations in the degree of humidity of wood (either due to water content of the air or of basic floor) lead to only minimum moisture expansion or shrinkage which is normally not visible to naked eye.

0.3 With mosaic parquet, new patterns in the flooring may be provided which are not possible by means of conventional strip parquet without involving additional cost. The characteristics of mosaic parquet suit the taste of modern architects. By insertion of slats in different colours or by mixing different species of wood it is possible to obtain a wide range of patterns. Mosaic parquet has advantages like acoustic absorption, heat insulation, aesthetics, durability, etc.

0.4 In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard describes the quality of timber used in mosaic parquets, the dimensions and manufacture of mosaic parquets, and methods of laying of parquet flooring.

2. TERMINOLOGY

2.0 For the purpose of this standard, definition of terms as given in IS : 707-1976* and the following shall apply.

2.1 Component Square — Assembly of slats placed edge to edge making up a square, the side of which is equal to the length of the slat.

2.2 Floating Floor — An insulated floor in which rebated wood battens rest on rubber isolators. The battens are loaded with slabs to prevent springing; and are boarded in the usual way.

2.3 Floor Seals — Any substance used in timber floor finishing to fill pores in surface so as to decrease porosity of surface for finish coatings.

2.4 Mosaic Parquet Panel — Aggregate made up from wood components (slats) laid on a single layer and preassembled by juxtaposition (either by means of material temporarily fixed, for example, paper-glued on the face) or of a sufficiently flexible material, permanently fixed. Generally, the panel is square in shape, being made up from slats assembled in component squares, laid in a chequered pattern (*see* Fig. 1).

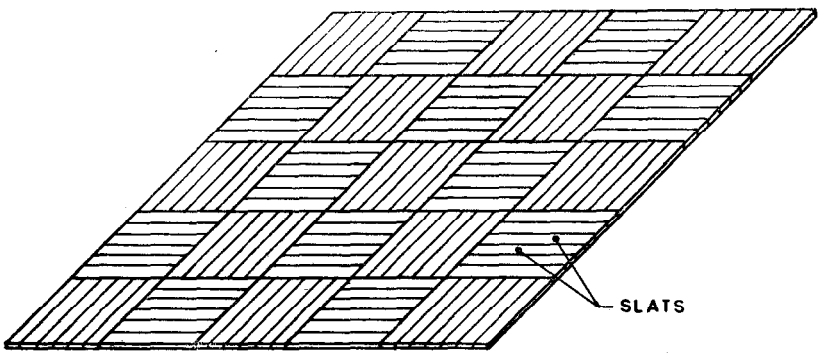

FIG. 1 TYPICAL ILLUSTRATION OF MOSAIC PARQUET PANEL

2.5 Panels — Regular patterns of parquet floor having large areas and laid in symmetrical designs.

*Glossary of terms applicable to timber technology and utilization (*second revision*).

2.6 Parquet Floors — A construction in which floors consist mainly of sub-floor of timber boards and floor finish of timber parquets which are laid in variety of panel designs as well as in square edged hard wood battens.

2.6.1 *Parquet* — Aggregates of parquet slats assembled in horizontal plane and forming the upper part of a floor.

2.7 Slat (of Mosaic Parquet) — Solid wood component of small dimensions having regular form and planed edges (*see* Fig. 1).

3. NECESSARY INFORMATION

3.1 The following information shall be taken into account before laying mosaic parquet flooring:

a) Floor to be covered;
b) Type of panel design to be adopted;
c) Species and grade of timber to be used;
d) Thickness of flooring;
e) Relationship to the level of finished floor;
f) Type of damp-proofing, if any;
g) Type and thickness of screeded bed, if any;
h) Preservative treatment, if any;
j) Any work consequent upon services passing through flooring;
k) Type of underlay, if any;
m) Method of fixing;
n) Treatment of skirtings;
p) Treatment of junction with adjacent flooring; and
q) Any dressing or polish required.

4. QUALITY OF TIMBER

4.1 Species of timber recommended for use in floor panels specified according to the percentage of indentation for hardness taking teak as 100 are given in Appendix A.

4.2 Timber selected for construction of floor panels and supporting members shall conform to the requirements given in **4.2.1** to **4.2.4.**

4.2.1 The percentage indentation for hardness for species of timber shall not be less than 55 (taking the value for teak as 100) as given in Appendix A so as to withstand constant wear and tear.

4.2.2 The species selected from amongst those given in Appendix A shall preferably be of non-refractory nature, free from defects such that it is rapidly seasoned; and is easily seasoned in open air and sun with systematic stacking.

4.2.3 Thickness of floor boards shall be between 25 mm and 40 mm.

4.2.4 Depending upon availability and strength, any of the species given in Appendix A may be used for floor boards.

4.3 General Requirements

4.3.1 Wood used shall be sound and free from any damage caused by insects or by fungus, which may affect the wear resistance properties of the wood. Ring-shakes are not permitted.

4.3.2 Any treatment applied shall not affect either appearance or fixing and bonding characteristics of the material.

5. CLASSES OF PARQUET PANELS

5.1 Mosaic parquet panels are divided into two classes. In both classes, sound knots with a diameter not exceeding 2 mm each and loose knots with a diameter not exceeding 1 mm each shall be permitted. The standard classes shall comply with the respective conditions stated in **5.2** and **5.3**.

5.2 Class I — Slats may be quarter, half quarter or rectangular sawn provided that the number of tangential sawn slats does not exceed 30 percent of slats in each panel. Face shall be free from knots other than those specified in **5.1** as well as from decay and abnormal colourations. Knots up to 5 mm in diameter each and with other slight defects are permitted for backs.

NOTE 1 — An abnormality in chemical composition of wood causing a change of properties and affecting usefulness of the material is considered to be ' decay '.

NOTE 2 — A colouration which is different from the normal average colouration of sound wood of a given species is considered to be ' abnormal colouration '.

5.3 Class II — Only one of the defects mentioned in (a) to (g) below shall be permitted on the face of any one slat:

a) Sound knots, of a colour very nearly approaching that of adjoining wood (sound knots);
b) Loose knots, of a colour contrasting with that of adjoining wood;
c) Cross grain;
d) Waned wood;
e) Seasoning checks;
f) Resin pockets; and
g) Stains.

5.3.1 The above defects should not exceed the limits specified in Table 1.

TABLE 1 LIMITS FOR DEFECTS IN TIMBER USED FOR CLASS II PARQUET PANELS

Maximum Length of Seasoning Checks	Width of Wanes and Resin Pockets in Relation to Width of Slat	Largest Dimension of Knots in Relation to the Width of Slat	
mm		Loose Knots	Sound Knots
(1)	(2)	(3)	(4)
30	1/25	1/5	1/2

5.3.2 Traces of modullary sheath are not permitted.

5.3.3 Back may exhibit knots or other defects of a larger size provided these do not impair wear resistance of the material.

6. TREATMENT AND PROTECTION OF TIMBER

6.1 Seasoning

6.1.1 All timber used shall be thoroughly seasoned in accordance with IS : 1141-1973*.

6.2 Preservation

6.2.1 After seasoning timber shall be treated with preservatives in accordance with IS : 401-1967†.

6.2.1.1 In case of water soluble preservatives timber shall be seasoned again for the second time after preservation.

6.2.1.2 In construction in which anti-termite chemical measures [*see* IS : 6313 (Parts I, II and III)-1971‡] have been incorporated, timber may not be chemically treated.

7. DIMENSIONS AND WORKMANSHIP

7.0 General — The dimensions and tolerances given in **7.1** and **7.2**, refer to slats with a reference moisture content of 12 percent on dry mass.

*Code of practice for seasoning of timber (*first revision*).
†Code of practice for preservation of timber (*second revision*).
‡Code of practice for anti-termite measures in buildings:

Part I Constructional measures.
Part II Pre-constructional chemical treatment measures.
Part III Treatment for existing buildings.

7.1 Dimensions — The rectangular slats shall have the following dimensions:

a) *Thickness* : 6, 8 and 10 mm; the 6 mm thickness is not suitable for softwood and for softer grades of hardwood;

b) *Width* : 18 to 25 mm, preferred widths being 20 and 25 mm; and

c) *Length* : 100 to 165 mm, preferred lengths being 100, 125 and 150 mm.

7.2 Tolerances — The tolerances on above dimensions are given in Table 2.

NOTE — A panel, however, is considered to be acceptable if not more than 5 percent of the slats have dimensions with deviations exceeding twice the size of the deviations indicated above.

TABLE 2 TOLERANCES ON DIMENSIONS OF SLATS AND PANELS

SL No.	CHARACTERISTIC	THICKNESS	WIDTH	LENGTH	DIAGONAL*
		mm	mm	mm	mm
(1)	(2)	(3)	(4)	(5)	(6)
i)	On a single panel	—	± 0·5	± 0·5	± 0·8
ii)	On each component square of a panel	± 0·2	± 0·2	± 0·2	—
iii)	On any point of any slat making up a panel	± 0·2	± 0·2	± 0·2	—

*In relation to the nominal theoretical diagonal.

7.3 Workmanship — Slats shall have machine planned edges and finely sawn faces ends. Faces, edges and ends shall be square and sharp edged.

8. CONSTRUCTION

8.1 Protection Against Moisture — Entry of ground moisture may be prevented by inclusion of damp-proof layer (*see* IS : 1322-1970*) at an appropriate position in the building. This layer shall be impervious to moisture in liquid and vapour form and shall extend without a break over the whole area of flooring.

8.2 Adhesives for Mosaic Parquet Construction

8.2.1 Mosaic parquet is glued by means of solvent and dispersion adhesives. Epoxy resin or phenolic resin (resorcinol formaldehyde) or

*Specification for bitumen felt for waterproofing and damp-proofing (*second revision*).

urea-formaldehyde synthetic adhesives are suitable for mosaic parquet construction. They are resistant against shearing strains and are clean and simple to employ. Solvent adhesives (sometimes called emulsion adhesives) are viscous solutions of natural or synthetic resins with good adhesive powers mainly using spirits as a solvent. Synthetic resins are also used for dispersion adhesives.

8.2.2 All parquet adhesives are diluted (mixed) with various mineral components because these are intended to serve, at the same time, as a kind of 'primer'. These are applied by means of a toothed steel trowel, as thin as possible. Only a limited area shall be primed at a time in order to prevent presetting.

8.3 Mosaic Parquet Over Battened Floors

8.3.1 Mosaic parquet may be fixed to battened floors provided floors are even and have been equalized by grinding. Attention shall be paid to the fact that mosaic parquet is laid diagonally towards the direction of the battens. As battens often expand or shrink to a certain extent, open gaps thus arising will be visible if parquets are laid parallel to the direction of the battens.

8.3.2 In very old and uneven battened floors it is recommendable to insert plywood, block board or particle board between the batten floor and the mosaic parquet if these floors are to be covered with parquet. The boards may be glued or nailed to the floor, and the old batten floor shall be equalized by grinding prior to application of the board.

8.4 Laying — Adhesive shall be applied on the prepared and dry background surface and on the back of the parquet, if necessary. In order to obtain effective adherence, it may be necessary to slide parquet panel or apply pressure over panel depending upon the type of adhesive used. Joints of the work shall be very thin and fine.

8.5 Finishing — Mosaic parquet floors shall be finished in accordance with the recommendations given in IS : 2338 (Part I)-1967*, IS : 2338 (Part II)-1967† and IS : 4597-1968‡.

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*Code of practice for finishing of wood and wood-based materials: Part I Operations and workmanship.

†Code of practice for finishing of wood and wood-based materials: Part II Schedules.

‡Code of practice for finishing of wood and wood based products with nitrocellulose and cold catalysed materials.

APPENDIX A

(*Clauses* 4.1, 4.2.1, 4.2.2 *and* 4.2.4)

SPECIES OF TIMBER RECOMMENDED FOR SLATS USED IN MOSAIC PARQUET PANEL

A-1. The following species listed according to percentage of indentation for hardness taking teak (*Tectona grandis* Linn. f.) as 100 may be used for floor boards:

1.	**Gurjan** (*Dipterocarpus* spp.)	135
2.	**Rohini** (*Soymida febrifuga* A. Juss.)	130
3.	**Padauk** (*Pterocarpus dalbergioides* Roxb.)	130
4.	**Satinwood** (*Chloroxylon swietenia* DC)	130
5.	**Maniawga** (*Carallia brachiatta* Merr.) (Syn. C. integerrimma DC)	125
6.	**Axlewood** (*Anogeissus latifolia* Bedd.)	120
7.	**Kala Siris** (*Albizia odoratissima* Benth.)	120
8.	**Bijasal** (*Pterocarpus marsupium* Roxb.)	100
9.	**Laurel** (*Terminalia alata* Roth.)	100
10.	**White Chuglam** (*Terminalia bialata* Kurz) (Sapwood)	100
11.	**Teak** (*Tectona grandis* Linn. f.)	100
12.	**Lendi** (*Lagerstroemia parviflora* Roxb.)	95
13.	**White Cedar** (*Dysoxylum malabaricum* Bedd.)	95
14.	**Kindal** (*Terminalia paniculata* Roth.)	95
15.	**Pali** (*Palaquium ellipticum* Engler.)	90
16.	**Kokko** (*Albizia lebbeck* Benth.)	90
17.	**Rosewood** (*Dalbergia latifolia* Roxb.)	90
18.	**Kassi** (*Bridelia* spp.)	85
19.	**Sissoo** (*Dalbergia sissoo* Roxb.)	85
20.	**Piney** (*Kingiodendron pinnatum* Harms) (Syn. *Hardwickia pinnata* Roxb.)	85
21.	**Jarul** (*Lagerstroemia speciosa* Pers.) (Syn. *L flosreginae* Retz)	80

22.	**Hollock** (*Terminalia myriocarpa* Heurck & Muell. Arg.)	75
23.	**Anjan** (*Hardwickia binata* Roxb.)	70
24.	**Fir** (*Abies pindrow* Royle.)	65
25.	**Cypress** (*Cupressus torulosa* D. Don)	60
26.	**Machilus** (*Machilus macrantha* Nees.)	55

A-1.1 For detailing species of timber suitable for floor boards (listed in order of hardness strength) other important characteristics, namely, shock resistability and retention of shape have also been taken into account.

(*Continued from page* 2)

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