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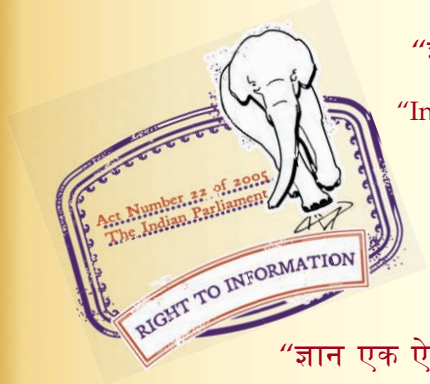

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IS : 5389 - 1969
(Reaffirmed 2004)

Indian Standard

CODE OF PRACTICE FOR LAYING OF HARDWOOD PARQUET AND WOOD BLOCK FLOORS

(First Reprint AUGUST 1983)

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

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April 1970

Indian Standard

CODE OF PRACTICE FOR LAYING OF HARDWOOD PARQUET AND WOOD BLOCK FLOORS

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Indian Standard

CODE OF PRACTICE FOR LAYING OF HARDWOOD PARQUET AND WOOD BLOCK FLOORS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 23 October 1969, after the draft finalized by the Building Construction Practices Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Hardwood parquet and wood block floors are used in auditoria, squash courts, skating-rinks, dancing halls, etc. This code is intended to serve as a guide for selection of timber, laying of floors and also the construction of floor with special reference to the species of timber available in various parts of this country.

0.3 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.

0.4 In the preparation of this standard considerable assistance has been rendered by Forest Research Institute and Colleges, Dehra Dun, who supplied the necessary data in regard to this type of timber floors.

---

1. SCOPE

1.1 This standard covers the fabrication and laying of hardwood parquet and wood block floors, and their relevant components.

1.2 Details regarding mosaic parquet flooring are not covered in this standard.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions of terms and those given in IS : 707-1968* shall apply.

*Glossary of terms applicable to timber and timber products (*first revision*).

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

2.2 Hardwood Floors — A construction in which the floors consist mainly of sub-floor of cement concrete and surface floor of wood blocks.

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

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

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

3. NECESSARY INFORMATION

3.1 Exchange of Information — Consultation and exchange of information shall be arranged at an early date between all parties concerned with the building operations so that each may have full knowledge of the particulars of the work and be able to co-operate in producing the conditions required by others to complete a satisfactory job.

3.1.1 For efficient planning and execution of the flooring work, detailed data and information as given below shall be taken into account:

a) the floor to be covered;
b) type of timber flooring to be laid;
c) species and grade of timber to be used;
d) thickness of flooring;
e) relationship to a datum of the level of the 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 the flooring;
k) type of underlay, if any;
m) method of fixing;
n) treatment of skirtings;
p) treatment of junction with adjacent flooring;
q) any dressing or polishing required; and
r) general conditions of contract which may affect this particular work.

3.2 Time Schedule — When a time schedule is prepared, arrangements shall be made amongst other things for:

a) all services to be laid before the base is formed;

b) any concrete in the base to have time to harden and dry before flooring is laid; and

c) where required, flooring to be protected, on completion, from damage by other trades.

4. MATERIALS

4.1 Species of Timber

4.1.1 Species of timber, recommended for floor boards and parquet floors specified along with percentage of indentation for hardness taking teak as 100, are given in Appendix A. The species of different hardnesses shall not be used together to avoid uneven wear of the floor.

4.1.2 Sawn timber selected for construction of the floor blocks, parquets and the supporting members shall conform to the requirements specified in **4.1.2.1** to **4.1.2.4**.

4.1.2.1 The appearance of timber shall be a matter of agreement between the purchaser and the vendor.

4.1.2.2 The hardness shall be sufficient to withstand constant wear and tear for the purpose required.

4.1.2.3 The species shall preferably be of non-refractory nature such that it is rapidly seasoned free from defects; and is easily seasoned in open air and sun with systematic stacking.

4.1.2.4 Thickness of floor blocks and parquets shall be from 25 to 40 mm.

4.2 Nails — The nails shall conform to IS : 723-1961* and shall be diamond pointed.

5. TREATMENT AND PROTECTION OF TIMBER

5.1 Seasoning — All timber used for timber floors shall be thoroughly seasoned in accordance with IS : 1141-1958†.

5.2 Preservation

5.2.1 After seasoning, the timber shall be treated with preservatives in accordance with IS : 401-1967‡.

*Specification for mild steel wire nails (*revised*).

†Code of practice for seasoning of timber (*tentative*).

‡Code of practice for preservation of timber (*second revision*).

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

5.2.1.2 In such construction where anti-termite measures are incorporated, the timber may not be chemically treated.

5.3 Measures for Termite Control — The protection against termites shall be provided to timber floors, particularly to the ground floor, in accordance with relevant Indian Standard.

5.4 Protection Against Moisture — The entry of ground moisture may be prevented by the inclusion of damp-proof layer (*see* IS : 1609-1966*). This layer should be impervious to moisture both in liquid and vapour form and shall extend without break over the whole area of flooring.

6. FABRICATION AND LAYING

6.1 Parquet Floors

6.1.1 *Patterns* — The common types are shown in Fig. 1 and 2.

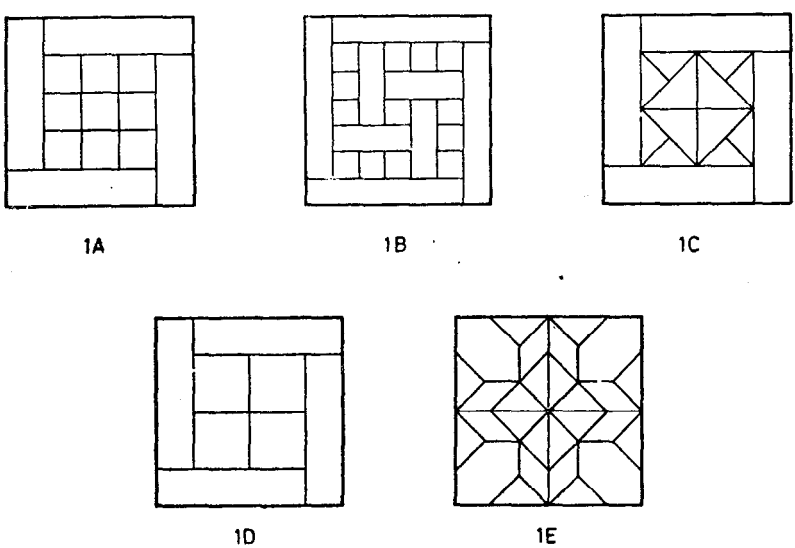


FIG. 1 DIFFERENT DESIGNS OF PANEL FOR PARQUET FLOORING

*Code of practice for laying damp-proof treatments using bitumen felts (*first revision*).

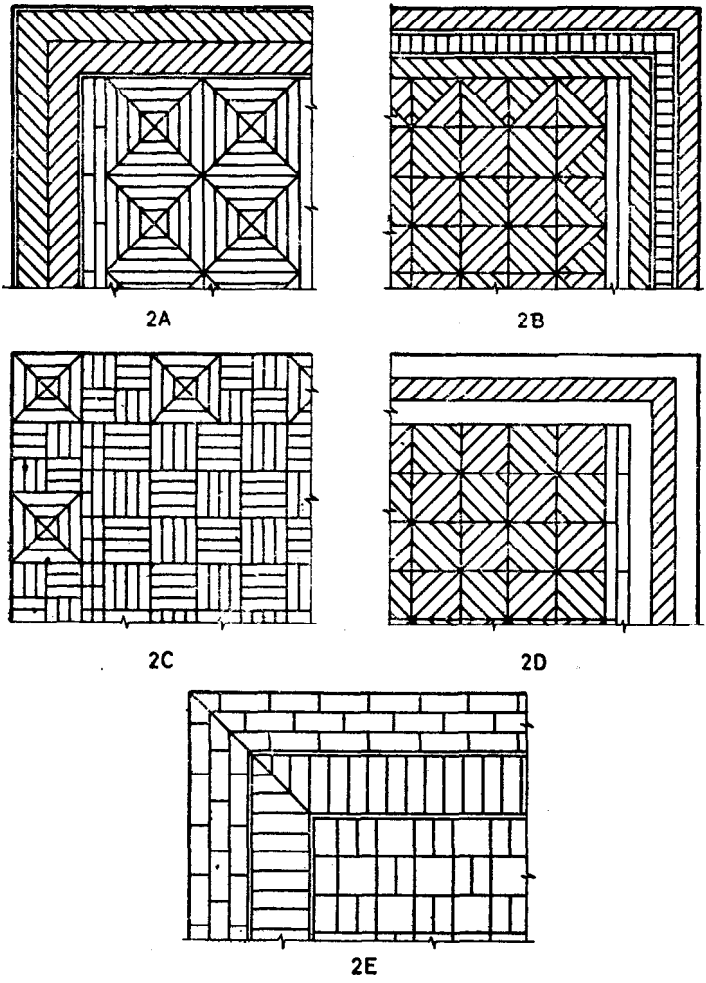


FIG. 2 PARQUET FLOOR LAID IN PANELS

6.1.2 *Laying of Floor*

6.1.2.1 Various components of the floors shall conform to the following:

a) *Sub-floor* — This shall consist of ordinary timber boarded floor 50 to 75 mm thick (*see* IS : 3670-1966*). In order to get a true and level surface for parquets, the sub-floor shall be planed before laying of parquets. Loose boards, if any, shall be nailed to make them firm. The whole job shall be carried out on stabilized dry conditions. The sub-floor may also be of cement concrete [*see* **6.2.3** (a)].

b) *Panels* — These shall generally be of 30 to 35 cm^2, but occasionally they may be as small as 15 cm^2 and as large as 90 cm^2.

c) *Square edged hardwood battens* — These shall generally be 15 to 50 cm in length, 5 to 10 cm in width and 5 to 10 mm in thickness.

6.1.2.2 The actual laying of floor shall be done as given below:

a) Border shall be fitted first to the width up to 60 cm;

b) The portion of floor inside the border area is laid and fitted dry;

c) Every individual piece of the parquet is taken up in turn, placed in position with mastics (*see* IS : 3037-1965†);

d) Before the mastic has hardened the nails are rapidly driven in;

e) The floor is scraped or planed to an even surface and sand-papered; and

f) The nail holes punched in are filled with putty and the floor is polished with the use of power-driven sanding machines.

6.2 Wood Block Floors

6.2.1 The common type of wood block flooring shall be in herring-bone or basket pattern (*see* Fig. 3) or simple variation of these patterns. The blocks shall be of the types given below:

a) A simple square end block with dove-tailed grooves on the bottom as shown in Fig. 4A,

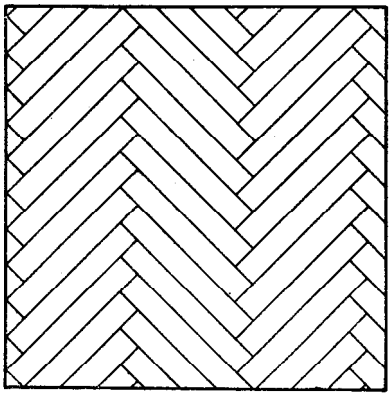
b) A tongued and grooved block as shown in Fig. 4B,

c) A block with tongues on the ends as shown in Fig. 4C, and

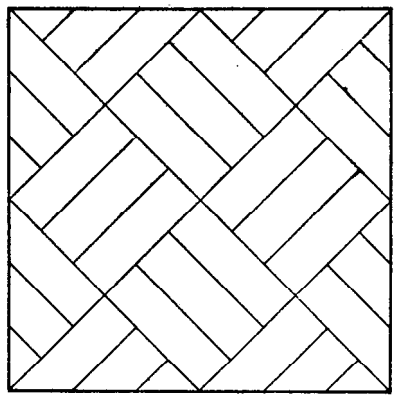
d) A block having a dove-tailed groove on the bottom and with a narrow groove alround as shown in Fig. 4D.

*Code of practice for construction of timber floors.

†Specification for bitumen mastic for use in waterproofing of roofs.

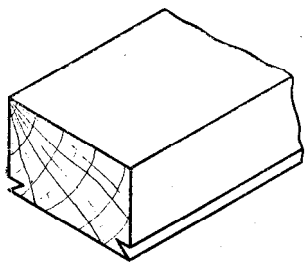


3A HERRING-BONE PATTERN

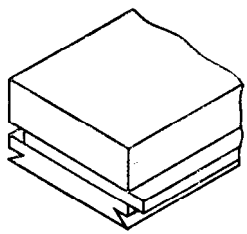


3B BASKET PATTERN

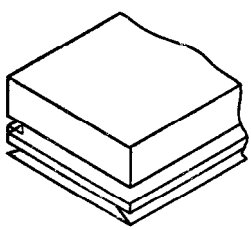
FIG. 3 PATTERNS OF WOOD BLOCK FLOORING



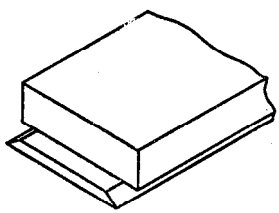
4A WITH DOVE-TAILED GROOVES ON THE BOTTOM



4B TONGUED AND GROOVED



4C WITH TONGUES ON THE ENDS



4D WITH A DOVE-TAIL GROOVE ON THE BOTTOM WITH A NARROW GROOVE ALROUND

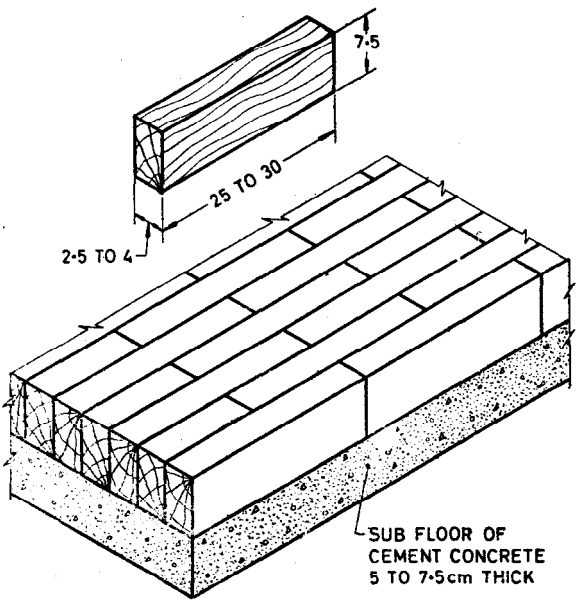
FIG. 4 DIFFERENT TYPES OF WOOD BLOCKS

6.2.2 *Preparation of Blocks* — The blocks may be prepared as given in **6.2.1** and also by having two small battens at the bottom and each batten being nailed from the bottom to the blocks. Then it may be laid either on mastic or bitumen, the bitumen being in semi-fluid condition.

6.2.3 *Laying of Floor* — Different components of floor shall conform to the following (*see* Fig. 5):

a) *Sub-floor* — It shall consist of cement concrete flooring of thickness 5 to 7·5 cm. It shall be finished smooth and the top of sub-floor be made truly levelled without lumps, ridges, or waviness.

b) *Main floor* — It shall consist of solid wood blocks usually of sizes 25 × 7·5 cm to 30 × 7·5 cm with the thickness of 2·5 to 4 cm approximately. The wood blocks shall be dipped in liquid mastic composition adhering to the cement. The mastic composition used shall be as thin as possible so that the level of the cement bed is lower than the proposed finished surface with difference equal to the net depth of the wood blocks.



All dimensions in centimetres.

FIG. 5 WOOD BLOCK FLOOR

6.2.4 *Method of Laying of Solid Wood Blocks* — Actual method of laying of solid wood blocks shall be as follows:

a) The centre of the floor shall be laid first with the border cut and fitted to it;

b) Generally two rows of wood blocks shall be laid longitudinally to serve as border; and

c) The floor so laid shall be scrapped or planed to an even surface and sand-papered; or made smooth by power-driven sanding machines.

7. FLOOR SEALS

7.1 The pores of timber floor shall be sealed with an efficient type of floor seal. The type of floor seal depends upon the purpose of the floor.

7.2 Choice of Floor Seal — Depending upon the appearance and wearing characteristics needed, a floor seal of traditional oils, paste, wax, button polish, etc, or synthetic resin floor polishes may be used. Where appearance is an important consideration, special type of floor seals which are foreign products as given in IS : 3670-1966* may be used.

APPENDIX A

(*Clause* 4.1.1)

SPECIES OF TIMBER RECOMMENDED FOR TIMBER FLOOR BOARDS

Sl No.	Trade Name	Botanical Name	Relative Hardness
1.	**anjan**	*Hardwickia binata* Roxb.	70
2.	**axlewood (Bakli)**	*Anogeissus latifolia* Wall.	120
3.	**bijasal**	*Pterocarpus marsupium* Roxb.	100
4.	**cypress**	*Cupressus torulosa* D. Don.	60
5.	**fir**	*Abies pindrow* Royle	65
6.	**gurjan**	*Dipterocarpus* spp.	135
7.	**haldu**	*Adina Cordifolia* Roxb. Hk. f.	100

*Code of practice for construction of timber floors.

Sl No.	Trade Name	Botanical Name	Relative Hardness
8.	**jarul**	*Lagerstroemia speciosa* Pers.	80
9.	**kalasiris**	*Albizia odoratissima* Benth.	120
10.	**kasi**	*Bridelia retusa* Spreng	85
11.	**kindal**	*Terminalia paniculata* Roth	95
12.	**kokko**	*Albizia lebbeck* Benth.	90
13.	**laurel**	*Terminalia tomentosa Wight* et Arn.	100
14.	**lendi**	*Lagerstroemia parviflora* Roxb.	95
15.	**machilus**	*Machilus macrantha* Nees.	65
16.	**maniawga (Carallia)**	*Carallia brachiata Lour.* Merr	125
17.	**padauk**	*Pterocarpus dalbergioides* Roxb.	90
18.	**pali**	*Palaquium ellipticum dalz.* Engler	90
19.	**piney**	*Hardwickia Pinnata* Roxb.	85
20.	**rohini**	*Soymida Febrifuga* A. Juss.	130
21.	**rosewood**	*Dalbergia latifolia* Roxb.	90
22.	**satin wood**	*Chloroxylon Swietenia* DC.	130
23.	**silver oak**	*Grevillea robusta* A. Cunn.	85
24.	**sissoo**	*Dalbergia sissoo* Roxb.	85
25.	**teak**	*Tectona grandis* Linn. f.	100
26.	**white cedar**	*Dysoxylum malabaricum* Bedd.	95
27.	**white chuglam**	*Terminalia bialata* Steud.	100

NOTE — For detailing the species of timber suitable for floor boards, other important characteristics, namely, shock resisting ability, strength as a beam and retention of shape, have also been taken into account.

(*Continued from page* 2)

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INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s²
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m²
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m²

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Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

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