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Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 7070 (1988): Wooden shelving racks, adjustable and non-adjustable type - [CED 35: Furniture]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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REAFFIRMED

7 NOV 2007

IS 7070 : 1988

Indian Standard

WOODEN SHELVING RACKS, ADJUSTABLE
AND NON-ADJUSTABLE TYPE —
SPECIFICATION

(First Revision)

UDC 684.462.041

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

March 1990

Price Group 2

**AMENDMENT NO.1 JANUARY 1992
TO
IS 7070 : 1988 WOODEN SHELVING RACKS,
ADJUSTABLE AND NON - ADJUSTABLE TYPE —
SPECIFICATION**

(First Revision)

(Page 1, clause 3.5) — Insert the following new clause after 3.5 and renumber the subsequent clauses accordingly:

“3.6 Medium Density Fibre Board (MDF) — MDF required for the manufacture of shelves and other components shall conform to IS 12406 : 1988 ‘Specification for medium density fibre boards for general purposes’, and shall be of Interior Grade drying IGSB if air drying finishes are adopted and Exterior Grade EGSB, if oven drying finishes are adopted.”

(Page 2, clause 5.1.1, line 3) — Insert the words ‘or MDF’ after the word ‘blockboard’.

(Page 2, clause 5.1.2, line 3) — Insert the words ‘or MDF’ after the word ‘blockboard panels’.

(Page 2, clause 5.1.3, line 3) — Insert the words ‘or MDF’ after the word ‘blockboards’.

(CED 35)

**AMENDMENT NO. 2 FEBRUARY 1997
TO
IS 7070 : 1988 WOODEN SHELVING RACKS,
ADJUSTABLE AND NON-ADJUSTABLE TYPE —
SPECIFICATION**

(First Revision)

(Second cover page, foreword) — Insert the following after third para:

‘A scheme of labelling environment friendly products to be known as ECO Mark is being introduced at the instance of the Ministry of Environment and Forests (MEF), Government of India. The ECO Mark shall be administered by the Bureau of Indian Standards (BIS) under the *BIS Act*, 1986 as per the Resolution No. 71 dated 21 February 1991 published in the Gazette of the Government of India. For a product to be eligible for ECO Mark, it shall also carry the Standard Mark of the BIS, besides meeting additional optional environment friendly requirements.’

(Page 1, clause 3.1) — Insert the following at the end of the clause:

‘For ECO Mark, the particle board shall conform to the requirements specified in IS 3087 : 1985 for ECO Mark purposes.’

(Page 1, clause 3.2) — Insert the following at the end of the clause:

‘For ECO Mark, the veneered particle board shall conform to the requirements specified in IS 3097 : 1980 for ECO Mark purposes.’

(Page 1, clause 3.3) — Substitute the following for the existing clause:

“**3.3 Plywood** — Plywood used shall conform to IS 303 : 1989 ‘Specification for plywood for general purposes (*third revision*)’.

3.3.1 For ECO Mark the plywood shall conform to the requirements specified in IS 303 : 1989 for ECO Mark purposes.”

(Page 1, clause 3.4) — Insert the following at the end of the clause:

‘For ECO Mark, the blockboard shall conform to the requirements specified in IS 1659 : 1990 ‘Specification for block boards (*third revision*)’ for ECO Mark purposes.’

(Page 1, clause 3.5) — Substitute the following for the existing clause:

Amend No. 2 to IS 7070 : 1988

“**3.5 Timber** — Any species of timber specified in IS 13622 : 1993 ‘Indian timber for furnitures and cabinets — Classification’ shall be used in the manufacture of racks.

3.5.1 For ECO Mark, only species of timber as specified in IS 13622 : 1993 from sources other than natural forests such as timber from industrial and social forestry plantations, shade trees from tea and coffee estates, etc, shall be used for the manufacture of racks.”

(Page 1, clause 3.6, see also Amendment No. 1) — Insert the following at the end of the clause:

‘For ECO Mark, the medium density fibreboard shall conform to the requirements specified in IS 12406 : 1988 for ECO Mark purposes.’

(Page 3, clause 8.6) — Insert the following new clause after 8.6 and renumber the subsequent clauses:

‘9 ADDITIONAL REQUIREMENTS FOR ECO MARK

9.1 General Requirements

9.1.1 The product shall conform to the requirements of quality and performance as specified in the standard.

9.1.2 The manufacturer shall produce to BIS environmental consent clearance from the concerned State Pollution Control Board as per the provisions of the *Water (Prevention and Control of Pollution) Act, 1974* and *Air (Prevention and Control of Pollution) Act, 1981* alongwith the authorization, if required under the *Environment (Protection) Act 1986*, while applying for ECO Mark.

9.2 Specific Requirements

The product shall conform to the specific requirements given for ECO Mark under relevant clauses of this standard.

NOTE — The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to the Bureau of Indian Standards while applying for ECO Mark.”

(Page 3, clause 10.1) — Insert the following at the end of the clause:

‘10.2 The criteria for which the product has been labelled as ECO Mark.’

(CED 35)

Reprography Unit, BIS, New Delhi, India

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards on 12 October 1988, after the draft finalized by the Furniture Sectional Committee had been approved by the Civil Engineering Division Council.

This standard was first published in 1973. In this revision, performance requirements of finish have been included. The revised standard also makes reference to the recent Indian Standards for various types of materials allowed in the standard.

This standard contains clause 8 which requires the purchaser to supply certain technical information at the time of placing order.

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 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

WOODEN SHELVING RACKS, ADJUSTABLE AND NON-ADJUSTABLE TYPE— SPECIFICATION

(*First Revision*)

1 SCOPE

1.1 This standard covers the requirements for materials, sizes, construction and finish of wooden shelving racks.

2 REFERENCES

2.1 The Indian Standards listed in Annex A are necessary adjuncts to this standard.

3 MATERIALS

3.1 Wooden Particle Board

Wood particle boards required for the manufacture of wooden shelving racks shall conform to IS 3087 : 1985 and shall be of flat-pressed single layer or flat pressed three-layer type. Where wood particle boards are finished with suitable baking paints or enamel finishes shall be manufactured with only BWR type of adhesives like phenol formaldehyde.

3.2 Veneered Particle Board

Veneered particle boards shall conform to IS 3097 : 1980. Both interior and exterior grades of veneered particle boards may be used where the shelving racks are to be finished with air-drying paints or varnishes. Where oven baking paints, enamel or varnishes are to be used, only exterior grade veneered particle boards shall be used. For wooden shelving racks, decorative veneered type, decorative veneered particle boards conforming to IS 3097 : 1980 and of the specified timber facing shall be used for the sides.

3.3 Plywood

Plywood used in the manufacture of shelving racks shall conform to IS 303 : 1975. Any of the three grades, namely, BWR, WWR and CWR of plywood may be used for shelving racks which are to be finished with air-drying paints, enamel or varnishes, only BWR grade of plywood shall be used. The plywood used shall not be inferior to Type B. In case veneered plywood is used, it shall conform to IS 1328 : 1982.

3.4 Blockboards

Blockboards used in the manufacture of shelving racks shall conform to IS 1659 : 1979 and shall be of Grade 1 or 2 where air-drying finishes are adopted, and Grade 1 only where oven-drying finishes are adopted in the manufacture of shelving racks.

3.5 Solid Wood Components

Any of the species of timber recommended for furniture and cabinet making in IS 399 : 1963 shall be used in the manufacture of racks. The wood used shall be seasoned timber with moisture content as permissible for different climatic zones in IS 287 : 1973. The specification of wood shall conform to IS 1331 : 1977. Preservation treatment as specified in IS 401 : 1982 shall be given to concealed components of non-durable wood and sap wood of durable timber.

3.6 Adhesive

Adhesives used for joinery work shall conform to IS 849 : 1951 or IS 4835 : 1979.

3.7 Wood screws, wooden dowel pins and other hardware shall conform to the relevant Indian Standards.

3.8 Paints, enamels, polish and varnish shall conform to relevant Indian Standards, wherever they exist, for air-drying as well as stoving finishes.

4 DIMENSIONS AND TOLERANCES

4.1 The overall dimensions of shelving racks, open and closed types, shall be as follows (*see* Fig. 1):

Height — 900 to 4 800 mm in increments of 300 mm with an addition of 75 mm for each height for clearance purposes, that is, heights would be ranging from 975 to 875 mm.

Width — 900 mm.

Depth — 300, 400, 500 and 600 mm.

NOTE — Minimum clearances required for the shelving racks to be put into recesses or opening where required shall be as follows:

For top	20 mm
For each side	10 mm
For depth	5 mm

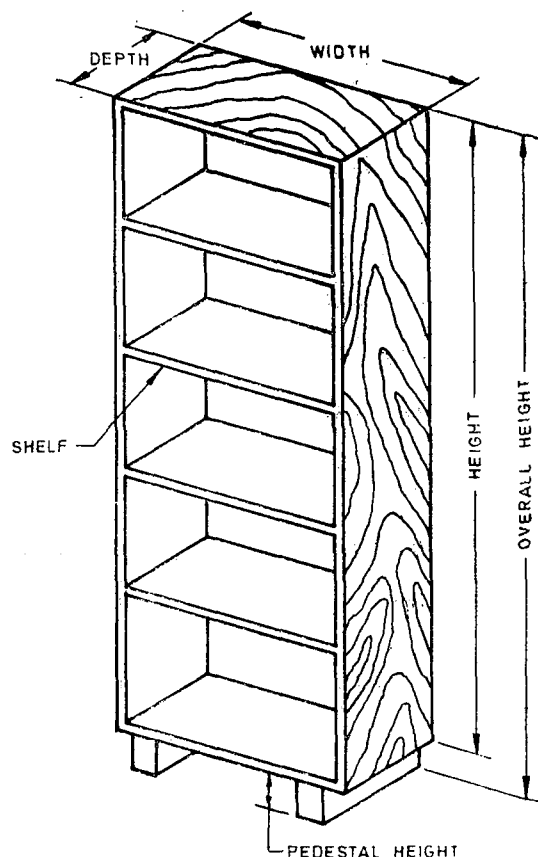


FIG. 1 TYPICAL SKETCH OF WOODEN SHELVING RACK

4.2 Tolerances

The overall dimensions specified in 5.1 shall not vary by more than ± 5 mm.

4.3 The wooden shelving racks shall be rectangular at all the measurable surfaces within a tolerance of ± 8 mm between the two diagonals of the rectangle.

5 FABRICATION

5.1 Components

The wooden shelving racks shall be first made in component forms and then assembled from the components as given in 5.1.1 to 5.1.3.

5.1.1 Sides

The sides shall be made from wood particles boards or veneered particle boards, or plywood

or blockboard as specified in 3 having a thickness of 20 or 25 mm and shall be prepared for joinery and fixtures as required. The width of the side shall correspond to the width of the top. The side shall extend between the extreme surfaces of the top, the bottom and the back.

5.1.2 Backs

The back shall be made from wood particle board panels or veneered particle board panels, or plywood panels or blockboard panels as specified in 3 and shall be of thickness not less than 12 mm. It shall be one-piece panel prepared for joinery. The width of the back panel shall correspond to the length of the top and the length shall extend between the extreme surfaces of the top and bottom of the rack.

5.1.3 Top, bottom and shelves shall be made from wood particle boards or veneered particle boards or plywood or blockboards as specified in 3 and shall be of thickness 20 or 25 mm. The length of the top and bottom shall cover the width of the shelving racks.

5.1.3.1 Shelving

The wooden shelves for adjustable type of racks shall be prepared for supporting on brackets. The brackets shall be made either of aluminium alloy conforming to 64430 WP of IS 733 : 1983 or of mild steel conforming to IS 1977 : 1975 and shall be not less than $30 \times 30 \times 3$ mm in section. The bracket shall be so designed and constructed that the shelf is securely supported and adjusted inside the brackets. In case of timber cleats for timber supports, it shall not be less than 50×25 mm and fixed rigidly with the side panels to support the shelves securely. Supporting members of metal or wooden shall be provided on the four corners to increase the load.

5.1.3.2 Wooden shelves for fixed type of shelving racks shall be of required numbers, made of materials and thickness as given in 5.1.3 and shall be fixed maintaining a minimum distance of 300 mm in height between the two shelves. These shall be fixed on metal brackets or wooden cleats as specified in 5.1.3.1 rigidly with wood screws of minimum 20 mm length to the side and back panels. In case of timber cleats, the screws shall be driven from the outside of the panel.

5.2 Joinery

The joinery details at various location of the shelving racks shall conform to IS 3845 : 1966.

5.2.1 The back shall be fixed on to the sides, top and bottom by straight butt joint recessed by half-lap cut and secured by glue and wood screws; alternatively, it shall be fixed by double

half-lapped or straight butt joint and secured by glue and wood screws. In the latter case, adjustment shall be made in the width of sides, top and bottom.

5.2.2 For adjustable type of shelving racks, the sides of the racks shall be prepared with bracket holding recesses for adjustment of brackets for shelves. The shelves may be adjustable and securely supported on all the four corners. The brackets shall be so designed and constructed that the shelf is securely supported and that the adjustment of the bracket can be affected easily. Alternatively, metal strips on each corner of the inside of the two sides with holes every 50 mm of height for taking brackets of shelves may be provided.

5.2.2.1 For shelving racks, fixed shelf type, the shelves shall be fixed as specified in **5.1.3.2**.

5.3 Pedestal shall be made from solid wood not less than 100 mm high and 65 mm wide, and shall be screwed on to the bottom securely by use of suitable screws, driven to the bottom of pedestal, not less than 50 mm in length and spaced not more than 150 mm apart.

6 ASSEMBLY

6.1 The various components shall be assembled by means of glue and screws securely fixed under pressure. Before driving screw, pilot hole should be driven into the wood panel and the screw should be dipped in glue before driving in.

7 FINISH

7.1 For finishing the surface shall be waxed, french polished or painted. The method of application of finish shall conform to IS 2338 (Part 1) : 1967. Clear lacquer melamine resin based paint polyurethane paint, when used, shall be applied as per manufacturer's instructions.

8 PERFORMANCE REQUIREMENTS OF FINISH

8.1 Every shelving cabinet shall be checked for good workmanship and free from any stain and warp.

8.2 Resistance to Dry Heat

The test sample finished surface shall be tested

for resistance to dry heat in accordance with IS 5807 (Part 1) : 1975. The minimum qualifying average ratings shall conform to **7** of IS 5807 (Part 1) : 1975.

8.3 Resistance to Wet Heat

The test sample finished surfaces shall be tested for resistance to wet heat in accordance with IS 5807 (Part 2) : 1975. The minimum qualifying average ratings shall conform to **7** of IS 5807 (Part 2) : 1975.

8.4 Resistance to Marking by Oils and Fats

The test sample finished surface shall be tested for resistance to marking by oils and fats in accordance with IS 5807 (Part 3) : 1971. The test result should conform to **5** and **6** of IS 5807 (Part 3) : 1971.

8.5 Resistance to Marking by Liquids

The test sample finished surface shall be tested for resistance to marking by liquid in accordance with IS 5807 (Part 4) : 1975. The minimum qualifying average ratings shall conform to **8** of IS 5807 (Part 4) : 1975.

8.6 Resistance to Mechanical Damage

The test sample finished surface shall be tested for impact, cross-cut and scrape tests in accordance with IS 5807 (Part 6) : 1978. The rating shall conform to **5.5** of IS 5807 (Part 6) : 1978.

9 PACKING

9.1 All the component parts shall be packed in such a way that no damage is caused to them during transit.

9.2 The purchaser may require the shelving racks to be supplied in knocked down condition, in which case, the manufacturer shall prepare the components fully for quick joining and shall supply the purchaser complete details and instructions for fixing.

10 MARKING

10.1 All wooden shelving racks shall be marked with a suitable mark identifying the manufacturer.

ANNEX A

(Clause 2.1)

LIST OF INDIAN STANDARDS REFERRED

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
287 : 1973	Recommendation for maximum permissible moisture content for timber used for different purposes in different climate zones (<i>second revision</i>)	2338 (in parts)	Code of practice for finishing of wood and wood based materials
		2338 (Part 1) : 1967	Operation and workmanship
303 : 1975	Specification for plywood for general purposes (<i>second revision</i>)	3087 : 1985	Specification for wood particle boards (medium density) for general purposes (<i>first revision</i>)
399 : 1963	Classification of commercial timbers and their zonal distribution (<i>revised</i>)	3097 : 1980	Specification for veneered particle boards (<i>first revision</i>)
401 : 1982	Code of practice for preservation of timber (<i>third revision</i>)	3845 : 1966	Code of practice for joints used in wooden furniture
733 : 1983	Specification for wrought aluminium and aluminium alloys, bars, rods and sections (for general engineering purposes) (<i>third revision</i>)	4835 : 1979	Specification for polyvinyl acetate dispersion based adhesives for wood (<i>first revision</i>)
849 : 1957	Specification for cold setting casein glue for wood	5807 (in parts)	Method of test for clear finishes for wooden furniture
		5807 (Part 1) : 1975	Resistance to dry heat (<i>first revision</i>)
1328 : 1982	Specification for veneered decorative plywood (<i>second revision</i>)	5807 (Part 2) : 1975	Resistance to wet heat (<i>first revision</i>)
1331 : 1971	Specification for cut sizes of timbers (<i>second revision</i>)	5807 (Part 3) : 1975	Resistance of marking by oils and fats
1659 : 1979	Specification for block-boards (<i>first revision</i>)	5807 (Part 4) : 1975	Resistance to marking by liquids
1977 : 1975	Specification for structural steel (ordinary quality) (<i>second revision</i>)	5807 (Part 6) : 1978	Resistance to mechanical damage

Standard Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

Bureau of Indian Standards

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Revision of Indian Standards

Indian Standards are reviewed periodically and revised, when necessary and amendments, if any, are issued from time to time. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition. Comments on this Indian Standard may be sent to BIS giving the following reference:

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Amendments Issued Since Publication

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