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मानक

IS 8001 (1976): packaging of plywood, blockboards and flush doors for export [CED 9: Timber and Timber Stores]



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# Indian Standard SPECIFICATION FOR PACKAGING OF PLYWOOD, BLOCKBOARDS AND FLUSH DOORS FOR EXPORT

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

July 1976

# Indian Standard

## SPECIFICATION FOR PACKAGING OF PLYWOOD, BLOCKBOARDS AND FLUSH DOORS FOR EXPORT

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(Continued on page 2)

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# Indian Standard

## SPECIFICATION FOR PACKAGING OF PLYWOOD, BLOCKBOARDS AND FLUSH DOORS FOR EXPORT

### **0.** FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 27 February 1976, after the draft finalized by the Wood and Wood Products Containers Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

**0.2** Plywood industry is now well established in India and it produces various types of materials including commercial plywood, blockboards and flush doors. Its capacity utilization is quite satisfactory and compares very well with that of other countries. It is over 85 percent of installed capacity. Hardboard and particle board industries have also come into existence to produce in appreciable quantities which can be increased substantially if required. Since there is a worldwide shortage of timber and timber products, India is in a favourable position to export these materials to neighbouring countries. Actually, export of these in appreciable quantity has started which is likely to increase in future. This brings in the problem of proper packaging of these materials while they are in transit, whether by sea or by road, so that these materials are not damaged during transportation.

**0.3** There exists an Indian Standard IS: 3071-1965\* for packaging a wide variety of articles. For the above purpose also crates of different sizes using sawn wood planks as main component are generally used. The other method may be to tie them only by hoop iron.

**0.4** The intention of this standard is to classify the modes of packaging keeping in view its cost which is as low as possible in comparison to these products, convenience in its handling and its strength to stand the various types of hazards faced in different modes of transport.

**0.5** This standard is one of a series of Indian Standards on wooden containers. Other standards published so far in the series are:

IS:1503-1967 Specification for wooden packing cases (first revision)

- IS: 2674-1964 Specification for plywood cases battened construction
- IS: 3071-1965 Specification for wooden crates

<sup>\*</sup>Specification for wooden crates.

**0.6** 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.

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#### 1. SCOPE

**1.1** This standard covers the requirements of the crates as well as the materials, such as sawn wood planks, hoop iron strips, etc, intended for the fabrication of crates for packing plywood, flush door panels, etc, weighing not more than 250 kg. It also includes the type of timber, size of frame sections and battens/struts and the mode of assembly of the same for packaging the intended materials.

#### **2. TERMINOLOGY**

2.0 For the purpose of this standard, the following definitions and those given in IS: 707-1968<sup>+</sup> shall apply.

2.1 Crate Corners — A crate corner is that part where three faces of a crate meet.

2.2 Crate Edge — A crate edge is the line where two faces of a crate meet.

2.3 Edge Members — Those parts of the framework forming the edges of the crate.

2.4 Framework — The framework is the structure consisting of the edge members, diagonal braces and struts that contribute primarily to the strength and the rigidity of the crate.

#### 2.5 Objectionable Knots

2.5.1 A live knot in a frame member shall be considered objectionable if its diameter in the direction of the width of the frame exceeds one-third the width of the frame member; provided such knots do not reach 6 mm from the edge of the member and are not so numerous or grouped or so located as to affect unduly the strength of the frame members, or are situated within 25 mm from a place through which a nail will be driven.

2.5.2 A dead knot in a frame member shall be considered objectionable, if its diameter in the direction of the width of the frame exceeds one-fourth of the width of the frame in the case of an unplugged knot or one-third of the frame width in the case of a glued and plugged knot; provided such knots do not reach 6 mm from the edge of the member and are not so

<sup>\*</sup>Rules for rounding off numerical values ( revised ).

<sup>&</sup>lt;sup>†</sup>Glossary of terms applicable to timber and timber products (*first revision*).

numerous or grouped or so located as to affect unduly the strength of the frame members, or are situated within 25 mm from a place through which a nail will be driven.

2.6 Girth Battens — Girth battens are those which are fixed all round the crate.

2.7 Struts — A strut is an intermediate frame member parallel to a pair of edge members used to relieve those edge members of some of their load.

**2.8 Three-Way-Corner** — A corner formed by three edge members so arranged that each member is nailed into the side grain of another member and has the third member nailed to it in the same way. All nails are thus driven into the side grain of the timber.

2.9 Spacing Blocks — Any block or wood strip fastened to the inside of the crate to hold the contents in position.

#### 3. TYPES OF PACKAGING

3.1 The packaging may be of any of the following types:

- a) Wooden crates [ see Fig. 1A and 1B]; and
- b) Combination of wooden frame and hoop iron (see Fig. 2).

#### 4. MATERIALS

**4.1 Timber** — Any of the species of timber given in Appendix A of  $IS:3071-1965^*$  shall be used for the manufacture of the crate. The crates shall be accorded a suitable preservative treatment as agreed to between the purchaser and the supplier.

**4.1.1** The timber shall be seasoned to a moisture content not exceeding 18 percent and the inclination of the grain shall not exceed 1 in 10. The timber shall be free from centre heart (pitch), insect attack, any kind of decay (rot), objectionable knots, warping, splits and any other defect which will reduce the strength or usefulness of the crate. Pin holes (dead infestation) shall be permissible provided they are not of powder-post beetles and are scattered (not concentrated).

4.1.2 As far as possible, only one species of timber should be used in the manufacture of one crate. However, either mixed coniferous or mixed non-coniferous timbers may be used; but coniferous and non-coniferous timbers shall not be mixed.

4.2 Nails — Plainhead nails conforming to IS: 723-1972<sup>†</sup> shall be used.

<sup>\*</sup>Specification for wooden crates.

<sup>+</sup>Specification for steel countersunk head wire nails ( first revision ).





ENLARGED DETAIL AT X (THREE WAY CORNER)

IA Without Girth Battens

FIG. 1 WOODEN CRATE - Contd



a = EDGE MEMBERS c = STRUTS h = HOOP IRON



**4.3 Hoop Iron** — In case hoop iron is to be substituted for wooden battens or struts, the same shall be not less than 19 mm wide and 0.45 mm thick. Each crate shall be hoop-ironed with 2 to 3 hoops width-wise and 5 to 6 hoops length-wise depending on the size of the crate (see Fig. 2).

#### 5. CONSTRUCTION

5.1 The fabrication of the crate shall be as shown in Fig. 1A, 1B or 2. The size of the crate shall be as given in Table 1.

5.2 The grain of the timber shall be in the direction of the longest dimension.

**5.3** The edge members and struts shall be of sufficient strength and size to permit adequate fastening of various parts and to support the loads and stand against the shocks encountered in storage or transit (see Table 2).

5.4 Girth battens shall be fixed at equal distances from the end according to considerations of anticipated hazards in the journey.

5.5 The frame members meeting at a corner shall be of the same thickness.

5.6 The size of the nails used in making the crates shall depend on the thickness of frame members to be nailed according to Table 3.

5.7 The nails should be put at 15 mm from either edges of the edge members and struts used in the crate. The distance between two struts shall not exceed 50 mm. Hoop iron strips may also be used as indicated in 4.3 for fastening the crates and on the joints of the crates using struts for strengthening. No frame members shall have fewer than two nails in each end.

#### 6. SIZE AND TOLERANCE OF FRAME MEMBERS

6.1 The size of the frame members shall be in accordance with Table 2. The tolerances in width of the members may be  $\pm 3$  mm and in thickness  $\pm 1.5$  mm.

**6.2** The inner dimensions of the crate will depend on the size of the panels to be despatched and may be in accordance with Table 1.

#### 7. PRECAUTIONS FOR PACKING THE CONTENT

7.1 While packing decorative panels care should be taken that the decorative sides face each other and the commercial faces are on the exposed side of the crate. In case both the sides of the panel are decorative two extra commercial plywood panels should be given on the top and at the bottom before wrapping and crating the contents.

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18.1

TABLE 1	SIZE	OF	CRATES	FOR	EXPORT	OF	THE
PANEL PRODUCTS							

#### (Clauses 5.1 and 6.2)

All	dimensions	in	millimetres.	

SL	Kind of Panel Products	SIZE OF MATERIAL		INNER SIZE OF CRATE		
NO.		Length	Width	Length	Width	
(1)	(2)	(3)	(4)	(5)	(6)	
i)	Plywood, commercial	2 400	1 200	2 4 1 0	1 210	
	and decorative	2 400	900	2 410	910	
		2 100	1 200	2 1 1 0	1 210	
		2 100	900	2110	910	
		1 800	1.200	1 810	1 210	
		1 800	900	1810	910	
		1 500	1 200	1 5 1 0	1 2 1 0	
		1 500	900	1 510	910	
		1 200	1 200	1 210	1 210	
		1 200	900	1 210	910	
		900	900	910	910	
ii)	Flush doors	1 905	700	1 915	710	
		2 005	700	2015	710	
		2 005	800	2 015	810	
		2 0 0 5	900	2015	915	
		2 0 0 5	560	2015	570	
iii)	Blockboards	2 400	1 200	2 4 1 0	1 210	
		2 400	900	2 4 1 0	910	
		2-100	1 200	2 1 1 0	1 210	
		2 100	900	2 110	910	
		1 800	1 200	1 810	1 210	
		1 800	900	1 810	910	
		1 500	1 200	1 510	1 210	
		1 500	900	1 510	910	
		1 200	1 200	1 210	1 210	
		1 200	900	1 210	910	
		900	900	910	910	

Tolerance on crate dimensions:

Length Width Height +5 mm to take care of the deviation in the dimension of plywood.

Note - Inner height of the crate shall be the total thickness of the panel product plus 10 mm.

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# TABLE 2SIZES OF THE EDGE MEMBERS, SURROUNDINGMEMBERS AND STRUTS OF THE CRATE

(Clauses 5.3 and 6.1)

All dimensions in millimetres.

HEIGHT OF CRATE

Size of Edge Member, Struts and Surrounding Member (Width×Thickness)

 $50 \times 20$ 

 $50 \times 25$ 

Up to and including 120 More than 120 and up to 300

#### TABLE 3 THICKNESS OF FRAME MEMBERS AND SIZE OF NAILS

( Clause 5.6 )

All dimensions in millimetres.

Thickness of Frame Member	NAILS		
	Length	Diameter	
20	60	3.12	
25	100	4.0	

7.2 The wrapping material shall be of such types, as to give protection to the material packed against moisture and damage to the content in transportation.

Note — It is advisable to use some plastic sheets/waterproof paper, etc, prior to crating for export and may also be wrapped and sewn subsequently with hessian cloth.

#### 8. NUMBER OF PANELS TO BE PACKED IN EACH CRATE

**8.1** The number of panels to be packed in each crate shall be subject to a mass of the contents and crate not exceeding 250 kg.

#### 9. WORKMANSHIP AND FINISH

9.1 The frame members shall be of even thickness, rectangular section, trimmed square at the ends and reasonably smooth.

9.2 The nails shall be well clinched and the clinching shall be done along the grain of the timber.

#### **10. DELIVERY**

10.1 The crate shall be delivered either in individual components or assembled as may be required by the purchaser.

#### 11. MARKING

**11.1** Unless otherwise specified each bundle of shooks shall be legibly and indelibly marked or stencilled with the following information:

- a) Manufacturer's name or trade-mark, if any;
- b) Year of manufacture; and
- c) Class and size.

11.1.1 The crates may also be marked with the ISI Certification Mark, where so required.

Note — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI 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 ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

#### INDIAN STANDARDS

ON

#### WOOD AND WOOD PRODUCTS CONTAINERS

IS:

- 1503-1967 Wooden packing cases (first revision)
- 1613-1960 Milk bottle crates
- 1707-1960 Wood wool for general packaging purposes
- 2674-1964 Plywood cases -- battened construction
- 3071-1965 Wooden crates
- 3728-1966 Wooden boxes for packaging apples
- 6662-1972 Timber species suitable for wooden packaging
- 6703-1972 Glossary of wooden packaging terms
- 7630-1975 Plywood drums
- 7698-1975 Returnable wooden crates for vegetables
- 7992-1976 Plywood cases for packing tobacco for export

### AMENDMENT NO. 1 JANUARY 1981

T0

### IS:8001-1976 SPECIFICATION FOR PACKAGING OF PLYWOOD, BLOCKBOARDS AND FLUSH DOORS FOR EXPORT

### Alteration -

(Page 9, Table 1):

- a) Columns 3, 4, 5 and 6, last entries Delete.
- b) Under 'Tolerance on crate dimensions' -Substitute '+ 5 mm' for '+ 5 mm'.

(MCPD 16)

Reprography Unit, BIS, New Delhi, India