

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

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 5247-2 (1982): converted timber (coniferous) : Part 2
Packing cases and crates [CED 9: Timber and Timber Stores]



“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”

BLANK PAGE



IS : 5247 (Part II) - 1982

Indian Standard
SPECIFICATION FOR
CONVERTED TIMBER (CONIFEROUS)
PART II PACKING CASES AND CRATES
(*First Revision*)

UDC 674·038·3 : 621·798·12



© Copyright 1983

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

Indian Standard
**SPECIFICATION FOR
 CONVERTED TIMBER (CONIFEROUS)**
PART II PACKING CASES AND CRATES
(First Revision)

Timber Sectional Committee, BDC 9

<i>Chairman</i>	<i>Representing</i>
INSPECTOR GENERAL OF FORESTS	Ministry of Agriculture
<i>Members</i>	
ADDITIONAL INSPECTOR GENERAL OF FORESTS	Ministry of Agriculture
SHRI S. K. BANERJEE	National Test House, Calcutta
SHRI D. K. KANUNGO (<i>Alternate</i>)	
CHIEF CONSERVATOR OF FORESTS	Forest Department, Government of Himachal Pradesh, Simla
CONSERVATOR OF FORESTS (<i>Alternate</i>)	
SHRI V. N. DESHPANDE	Engineer-in-Chief's Branch, Army Headquarters
SHRI S. K. GUPTA (<i>Alternate</i>)	
DIRECTOR	Indian Plywood Industries Research Institute, Bangalore
SHRI V. SIVANANDA (<i>Alternate</i>)	
DIRECTOR, FOREST RESEARCH AND UTILIZATION	Forest Department, Government of Karnataka, Bangalore
DIRECTOR (TRACK)	Ministry of Railways (Railway Board)
JOINT DIRECTOR CE (TM) (<i>Alternate</i>)	
CMDE V. P. GARG	Ministry of Defence (Naval Headquarters), New Delhi
ASSISTANT INDUSTRIAL MANAGER (<i>Alternate</i>)	
SHRI D. P. GHOSH	Ministry of Defence (DGI)
SHRI S. K. KAPOOR (<i>Alternate</i>)	
SHRI U. B. KANCHAN	Ministry of Defence (R & D)
SHRI B. B. MEHTA (<i>Alternate</i>)	
SHRI K. S. LAULY	Federation of Indian Plywood and Panel Industry, New Delhi
EXECUTIVE DIRECTOR (<i>Alternate</i>)	
SHRI D. N. LOHANI	Forest Department, Government of Uttar Pradesh, Lucknow

(Continued on page 2)

© Copyright 1983

INDIAN STANDARDS INSTITUTION

This publication is protected under the *Indian Copyright Act (XIV of 1957)* and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

IS : 5247 (Part II) - 1982

(Continued from page 1)

<i>Members</i>	<i>Representing</i>
SHRI J. S. MATHARU	Directorate General of Technical Development, New Delhi
SHRI P. V. MEHTA (<i>Alternate</i>)	
DR A. N. NAYER	In personal capacity (C-59, Inderpuri, New Delhi 110012)
SHRI R. C. PRASAD	Bihar State Forests Development Corporation Ltd, Patna
SHRI B. M. PRASAD (<i>Alternate</i>)	
PRESIDENT	Indian Academy of Wood Science, Dehra Dun
GENERAL SECRETARY (<i>Alternate</i>)	
DR A. PURUSHOTHAM	Indian Plywood Manufacturing Co Ltd, Bombay
SHRI S. S. RAJPUT	Forest Research Institute & Colleges (Timber Mechanics Branch), Dehra Dun
DR V. RANGANATHAN	In personal capacity (28-C, N. Block, Malviya Nagar Extn Saket, New Delhi 110017)
DR R. S. RATRA	National Buildings Organization, New Delhi
SHRI A. C. SEKHAR	In personal capacity (26 S.B.H. Colony, P.O. Srinagar, Hyderabad 500873)
SHRI SHARAN SINGH	Directorate General of Supplies & Disposals, New Delhi
SHRI F. C. SHARMA	Directorate General of Civil Aviation, New Delhi
DR M. C. TEWARI	Forest Research Institute & Colleges, Dehra Dun
SHRI S. N. SHARMA (<i>Alternate</i>)	
SHRI G. RAMAN, Director (Civ Engg)	Director General, ISI (<i>Ex-officio Member</i>)

Secretary

SHRI VIJAY RAJ
Assistant Director (Civ Engg), ISI

Timber Conversion and Grading Subcommittee, BDC 9 : 10

Convener

SHRI A. C. SEKHAR In personal capacity (26 S.B.H. Colony, Srinagar
P.O., Hyderabad 500873)

Members

CHIEF CONSERVATOR OF FORESTS Agriculture Forests and Cooperation Department,
Government of Gujarat, Gandhinagar

ADDITIONAL CHIEF CONSERVATOR OF FORESTS (*Alternate*)

CHIEF CONSERVATOR OF FORESTS Forest Department, Government of Himachal
Pradesh, Simla

CONSERVATOR OF FORESTS (*Alternate*)

CHIEF CONSERVATOR OF FORESTS Forest Department, Government of West Bengal,
Calcutta

CONSERVATOR OF FORESTS (*Alternate*)

DIRECTOR (TRACK) Ministry of Railways (Railway Board)

JOINT DIRECTOR, CE (TM) (*Alternate*)

(Continued on page 9)

Indian Standard
SPECIFICATION FOR
CONVERTED TIMBER (CONIFEROUS)
PART II PACKING CASES AND CRATES
(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (Part II) (First Revision) was adopted by the Indian Standards Institution on 24 December 1982, after the draft finalized by the Timber Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Specification for coniferous sawn timber is covered in IS : 190-1974*. Timber suitable for light furniture, packing cases and crates has to be converted from such sawn timber. This specification was first published in 1969 for such converted timber with a view to minimizing the wastage during further conversion. Since then the specification has been used extensively by the furniture and packaging industry. Based on their experience it has now been considered necessary to revise the requirements of converted timber, for ensuring its efficient utilization. As such this revision has been taken up.

0.3 This revision is being published in two parts for convenience of use. Part I covers the requirements of converted timber for light furniture, while this part covers those for packing cases and crates. The grading has been deleted in this part and the permissible defects have also been modified.

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.

*Specification for coniferous sawn timber baulks and scantlings (*third revision*).

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

1. SCOPE

1.1 This standard covers the coniferous species of timber suitable for manufacture of packing cases and crates and specifies the requirements of such timber in converted form (planks and scantlings).

2. TERMINOLOGY

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

2.1 **Crack** — An actual rupture of the wood tissue, that is, a separation of the fibres in the longitudinal direction.

3. SPECIES

3.1 The planks and scantlings shall be of the species of timber listed below:

Standard Trade Name	Botanical Name	Abbreviated Symbols
Chir	<i>Pinus roxburghii</i> (Syn. <i>P. longifolia</i>)	CHR
Cypress	<i>Cupressus torulosa</i>	CYP
Deodar	<i>Cedrus deodara</i>	DEO
Fir	<i>Abies</i> spp. (Other than <i>Abies densa</i>)	FIR
Kail	<i>Pinus wallichiana</i> (Syn. <i>P. excelsa</i>)	KAL
Khasi Pine	<i>Pinus kesiya</i> (Syn. <i>P. insularis</i> ; <i>P. khasya</i>)	KPI
Red Fir	<i>Abies densa</i>	RFI
Spruce	<i>Picea smithiana</i> (Syn. <i>P. morinda</i>)	SPR
—	<i>Pinus patula</i>	—

4. DIMENSIONS AND TOLERANCES

4.1 **Dimensions** — The dimensions of the planks and scantlings shall be as ordered.

4.2 **Tolerances** — The following tolerances in width and thickness may be permitted on the nominal sizes offered by the suppliers:

- a) Width $\begin{matrix} + 3 \\ - 2 \end{matrix}$ mm Irrespective of width of pieces
- b) Thickness $\begin{matrix} + 3 \\ - 0 \end{matrix}$ mm Irrespective of thicknesses of pieces

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

4.2.1 The minus tolerance in width and thickness shall not be permitted in more than 25 percent of the supplies accepted at any one time.

NOTE — When pieces of definite width range, say 150 to 250 mm are demanded a minus tolerance on the minimum width, that is, 150 mm and plus tolerance on 250 mm shall not be permitted.

5. MEASUREMENTS

5.1 When nominal sizes are ordered, length, width and thickness of planks and scantlings shall be measured on the basis of accepted sizes. Plus tolerances shall not be added while computing the volume.

5.2 The measurements of length, width, thickness and computation of the volume of the planks and scantlings shall be made as follows:

- a) The length shall be measured in metres in midline of a piece. The fractions of a metre shall be rounded off to the nearest lower 0.01 m,
- b) The width shall be measured at the narrowest place in centimetres and shall be rounded off to the nearest lower one centimetre,
- c) The thickness shall be measured at the narrowest place in centimetres or millimetres and shall be rounded off to the nearest lower 0.5 cm, and
- d) The volume shall be computed in cubic metres correct to three places of decimal on the basis of accepted sizes.

6. REQUIREMENTS

6.1 The planks and scantlings shall be sawn straight and square trimmed at the ends. These shall be free from brashness, shakes, wane, spring, insect attack, any kind of decay (rot) and any other defect (except those permitted in 7), which is likely to reduce the strength or usefulness of the material.

6.2 Moisture Content — Unless otherwise specified, the moisture content of planks and scantlings at the time of inspection at any time in the year and at any place in India, shall not exceed 18 percent when determined in accordance with the method given in IS : 287-1973*.

7. PERMISSIBLE DEFECTS

7.1 Plugging of defects shall not be permissible. Permissible defects shall be considered collectively and not singly.

*Recommendations for maximum permissible moisture content of timber used for different purposes (second revision).

IS : 5247 (Part II) - 1982

7.2 Defects to the extent as specified in **7.2.1** to **7.2.9** shall be permissible. The defects shall be measured and evaluated as given in IS : 3364 (Part II)-1976*.

7.2.1 *Distortion or Warping*

7.2.1.1 *Bow* — shall be permissible up to a maximum of 0.5 cm/m length of the piece.

7.2.1.2 *Cup* — shall be permissible up to a maximum of 0.6 cm/30 cm width of the piece.

7.2.2 *End Splits* — The longest end split at each end of the piece shall be measured and the lengths added together. The total length shall not exceed 25 mm per 30 cm length of the piece.

7.2.3 *Knots*

7.2.3.1 *Live knots*

- a) Live knots measuring up to 30 mm in diameter shall be permissible provided they are not too grouped and numerous or located as to affect unduly the strength or usefulness of the sawn timber;
- b) Live knots measuring over 30 mm and up to 50 mm in diameter shall be permitted to the extent of one knot per 20 cm length of the piece to the following extent:
 - 1) Width up to 150 mm. The diameter of the knot shall not exceed $\frac{1}{4}$ width of the piece, and
 - 2) Width over 150 mm. The diameter of the knot shall not exceed 50 mm; and
- c) Live knots measuring over 50 mm and up to 80 mm in diameter shall be permitted to the extent of one knot per 50 cm length of the piece and the knot shall be 25 mm away from the edge.

7.2.3.2 *Dead knots*

- a) Dead knots measuring up to 6 mm in diameter shall be permissible provided these are not too numerous and are not located in such a manner as to affect unduly the strength or usefulness of the piece,
- b) Dead knots measuring over 6 mm and up to 25 mm in diameter shall be permissible provided such knots are not more than **one** per 20 cm length of the piece, and

*Methods of measurement and evaluation of defects in timber : Part II Converted timber (*first revision*).

- c) Dead knots measuring over 25 mm and up to 45 mm in diameter shall be permissible to the extent of one knot per metre length of the piece.

7.2.3.3 Live and dead knot (combined) — Knots live on one face and dead on the other shall be treated as dead knot and evaluated in accordance with **7.2.3.2**.

7.2.4 Sap Stain (Blue Stain) — shall be permissible unless otherwise specified.

7.2.5 Cross Grain — shall be permissible up to a maximum deviation of 1 in 10.

7.2.6 Surface Cracks — Surface cracks on any face (excluding the ends) shall be permissible to the following extent:

<i>Thickness of the Timber Pieces</i>	<i>Depth of the Deepest Permissible Cracks</i>
Up to 50 mm	2 mm
Over 50 mm and up to 100 mm	3 mm
Over 100 mm	6 mm

7.2.7 Twist — shall be permissible up to a maximum of 5 mm per 30 cm length of the piece when measured across the diagonals on the worst surface. Twist shall be permissible in not more than 10 percent of the number of pieces supplied at any one time.

7.2.8 Centre Heart — shall be permissible only in pieces over 300 cm² in cross-sectional area, provided it is sound and not farther than 25 mm from the nearest edge.

7.2.9 Borer Holes — shall be permissible on two faces only (dead infestation), provided such holes are not deeper than 5 mm and are well scattered.

8. MARKING

8.1 Each piece of timber shall be legibly and indelibly marked on one of the broad faces at a distance of 30 cm from the end with the following information:

- a) Abbreviated symbol for the name of the species;
- b) Size (dimensions in which accepted);
- c) Supplier's name or initials or recognized trade-mark, if any; and
- d) Year of supply.

IS : 5247 (Part II) - 1982

8.1.1 The timber may also be marked with the ISI Certification Mark.

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.

9. END COATING

9.1 To prevent and to minimize end cracking, splitting, etc, the ends of each plank and scantling, up to a distance of at least 25 mm more than the length of the longest split, shall be adequately coated with any of the materials mentioned in IS : 1141-1973*. Application of end coating on the timber shall be done soon after the inspection of the sawn timber.

10. PROPHYLACTIC TREATMENT

10.1 All timbers may be given prophylactic treatment as specified in IS : 401-1982† subject to the agreement between the purchaser and the supplier.

*Code of practice for seasoning of timber (*first revision*).

†Code of practice for preservation of timber (*third revision*).

(Continued from page 2)

Members

SHRI Y. P. GARG
DR R. GNANAHARAN
SHRI D. N. LOHANI
SHRI J. S. MATHARU

Representing

Himachal Pradesh Forests Lassees Association, Simla
Kerala Forests Research Institute, Peechi
Forests Department Government of U.P., Lucknow
Directorate General of Technical Development,
New Delhi

SHRI P. V. MEHTA (*Alternate*)
SHRI NIRMAL SINGH
SMT MANJU DIXIT (*Alternate*)
OFFICER-IN-CHARGE, LOGGING
BRANCH
SHRI F. C. SHARMA
SHRI R. T. SOMAIYA
SHRI JIMMY WADIA (*Alternate*)
SHRI S. S. RAJPUT

Ministry of Defence (DGI)
Forest Research Institute & Colleges (Logging
Branch), Dehra Dun
Directorate General of Civil Aviation, New Delhi
Bombay Timber Merchants Association Ltd, Bombay
Forest Research Institute & Colleges (Timber
Mechanics Branch), Dehra Dun

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/s ²
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/m
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/m ²

PUBLICATIONS OF INDIAN STANDARDS INSTITUTION

INDIAN STANDARDS

Over 10 000 Indian Standards covering various subjects have been issued so far. Of these, the standards belonging to the Civil Engineering Group fall under the following categories

Aggregates, concrete	Modular co-ordination
Apparatus for testing cement and concrete	Multi-purpose river valley projects
Asbestos cement products	Pipes
Bricks and blocks	Planning, regulation and control
Builder's hardware	Plaster, paint and allied finishes
Cement	Plywood and allied products
Concrete design and construction	Poles
Concrete testing	Pozzolanas
Construction equipment	Reinforcement, concrete
Construction practices	Roof and roof coverings
Doors and windows	Safety in construction
Drawing office practice and equipment	Sieves and wire gauzes
Fire fighting equipment	Soil engineering
Fire safety	Stones, building
Flexible floor coverings	Structural design
Floor finishes	Tar and bitumen
Fluid flow measurement	Tiles
Fluid flow measuring instruments	Timber
Foundation engineering	Timber design and construction
Functional design of buildings	Timber stores
Furniture	Wall and ceiling finish
Gypsum products	Waterproofing and damp-proofing
Lime, building	Water supply, drainage and sanitation
Loading standards, structural safety	Water supply, sanitation and drainage fittings
Measurement and estimation of civil engineering	Wood-based materials
	Unclassified

OTHER PUBLICATIONS

ISI Bulletin (Published Every Month)					
Single Copy	...	...	...	...	Rs 4-00
Annual Subscription	...	...	...	...	Rs 36-00
Standards : Monthly Additions					
Single Copy	...	...	...	...	Re 0-30
Annual Subscription	...	...	...	...	Rs 3-00
Annual Reports (from 1948-49 Onwards )	...	...	...	...	Rs 2-00 to 7-00
ISI Handbook 1980	...	...	...	...	Rs 100-00

INDIAN STANDARDS INSTITUTION

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

Telephones : 26 60 21, 27 01 31

Telegrams : Manaksanstha

Regional Offices :

Western : Novelty Chambers, Grant Road	BOMBAY 400007	Telephone 37 97 29
Eastern : 5 Chowringhee Approach	CALCUTTA 700072	27 50 90
Southern : C.I.T. Campus, Adyar	MADRAS 600020	41 24 42
Northern : B69, Phase VII	S.A.S. NAGAR (MOHALI) 160051	—

Branch Offices :

'Pushpak' Nurmohamed Shaikh Marg, Khanpur	AHMADABAD 380001	2 03 91
'F' Block, Unity Bldg, Narasimharaja Square	BANGALORE 560002	2 76 49
Gangotri Complex, Bhadbhada Road, T.T. Nagar	BHOPAL 462003	6 27 16
22E Kalpana Area	BHUBANESHWAR 751014	5 36 27
5-8-56C L.N. Gupta Marg	HYDERABAD 500001	22 10 83
R 14 Yudhister Marg, G Scheme	JAIPUR 302005	6 98 32
117/418 B Sarvodaya Nagar	KANPUR 208005	4 72 92
Patliputra Industrial Estate	PATNA 300013	6 28 08
Hantex Bldg (2nd Floor), Rly Station Road	TRIVANDRUM 695001	32 27

Printed at Printograph, New Delhi, India