इंटरनेट मानक

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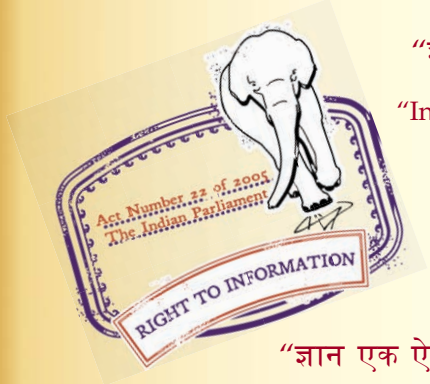
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 7308 (1999): Non-coniferous logs - [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"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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IS 7308 : 1999
Reaffirmed 2004

भारतीय मानक

गैर-शंकुधारी लट्ठे — विशिष्टि

(पहला पुनरीक्षण)

Indian Standard

NON-CONIFEROUS LOGS — SPECIFICATION

(*First Revision*)

ICS 79.040

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

June 1999

Price Group 7

FOREWORD

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

Non-coniferous logs are purchased by several Government departments in bulk, which are further converted and used for various purposes. This standard has, therefore, been formulated to cover minimum requirements on the basis of which non-coniferous logs may be procured.

Provisions in respect of teak logs, which cannot be covered in a general specification of this nature have been covered in a separate Indian Standard IS 4895:1985 'Specification for teak logs (*first revision*)'. Accordingly, 'teak' does not find a mention under Annex A enlisting non-coniferous species to which this standard is applicable.

Separate Indian Standards have also been prepared for logs keeping in view the end use to which these may be put. Reference should, therefore, be made to the standards given below when logs are required for a specific purpose:

IS 656 : 1988	Specification for logs for plywood (*third revision*)
IS 1140 : 1988	Specification for logs for matches (*second revision*)
IS 5248 : 1988	Specification for teak logs for production of sliced veneers (*first revision*)
IS 6342 : 1987	Specification for rosewood logs for production of sliced veneers (*first revision*)
IS 6707 : 1972	Specification for willow logs for artificial limbs
IS 13240 : 1991	Specification for walnut logs for production of sliced veneers

Logs being intended for conversion, their grading is based on the estimated sawn out-turn by normal method of conversion which again is dependent on : (a) the general quality of wood and (b) the probable loss due to visible defects under normal methods of conversion. Subject to these conditions, the rules covered in this standard provide for its acceptance the maximum number of defects permissible in a given grade. This, however, does not mean that a log having all the permissible defects for a grade would necessarily qualify it for the particular grade. It does not also mean that a log having any one of the defects slightly in excess of the permissible limits would disqualify it for acceptance. Their location, distribution and combination with other defects are important in the final acceptance and determination of the grade. For example, the total absence of a certain defect, say, flutes, may permit a lenient view of another defect. It should therefore, be understood that it is impossible to lay down standards for a natural product like timber strictly based on mathematical calculations and, in practice, much has to be left to the judgement of individual graders.

In the formulation of the standard, due weightage has been given to the 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.

(Continued on third cover)

Indian Standard
NON-CONIFEROUS LOGS — SPECIFICATION
(First Revision)

1 SCOPE

This standard covers the requirements of the three grades of non-coniferous logs for conversion into sawn timber.

2 NORMATIVE REFERENCES

The following standards contain provisions which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
401 : 1982	Code of practice for preservation of timber (*third revision*)
707 : 1976	Glossary of terms applicable to timber technology and utilization (*second revision*)
1141 : 1993	Code of practice for seasoning of timber (*second revision*)
1150 : 1976	Trade names and abbreviated symbols for timber species (*second revision*)
3364 (Part 1) : 1976	Methods of measurement and evaluation of defects in timber : Part 1 Logs (*first revision*)

3 TERMINOLOGY

3.1 For the purpose of this standard, the definitions given in IS 707 and the following shall apply.

3.2 Curvature (Bend)

The greatest deviation from a straight line drawn between the ends of a log.

3.3 Check (Crack)

A separation of fibres in the longitudinal direction.

3.4 Defect

An abnormality or irregularity which lowers the values of wood by decreasing its strength or affecting adversely its working or finishing qualities or both, or its appearance or out-turn on conversion. For the purpose of these rules, defects are divided according to kind and are evaluated in units with regard to size and distribution.

3.5 In-Bark

Patches of bark partially or wholly enclosed in the stem of a tree by later growth.

3.6 Knobbly

A log is said to be knobbly when a mass of small sized knots is present on the surface.

3.7 Shatter

An injury suffered in felling.

3.8 Unit of Defect

Unit of defect is a quantitative representation of the approximate degrade of the material for each defect.

4 GRADES

4.1 The non-coniferous logs shall be classified in three grades, namely, Grade I, Grade II and Grade III as below depending on cumulative values of the permissible defects (*see* **8**):

Grade I — No single log of length 2.5 m shall contain more than 3 units of defects.

Grade II — No single log of length 2.5 m shall contain more than 6 units of defects.

Grade III — No single log of length 2.5 m shall contain more than 9 units of defects.

4.2 For logs other than 2.5 m in length, the limits given in **4.1** shall be derived by the following equation:

$$\frac{\text{Permissible number of defects}}{\text{other than 2.5 m in length in logs}} = \frac{L}{2.5} \times P$$

where

L = length of log in m, and

P = permissible defect value for 2.5 m length.

5 SPECIES

The species of timber covered by this specification shall be as given in Annex A and Annex B. The nomenclature and abbreviated symbols of the species are based on IS 1150.

6 GENERAL REQUIREMENTS

6.1 The logs shall not be knobbly. They shall be free from brashness, hollow heart, shatter, spiral grain, any kind of decay (rot), live insect attack and any other defect (except those permitted in **8**) which may reduce the usefulness of logs for conversion in sawn timber.

6.2 All buttresses, remnants of branches, large knots, etc, shall be trimmed flush with the bole of log. The two ends should be clean cut with a saw and shall be as close to the plane at right angle to the axis as possible.

7 DIMENSIONS AND MEASUREMENTS

7.1 Dimensions

The minimum dimensions of logs shall be the following:

Length	2.5 m
Mean girth	100 cm

NOTE — Dimensions of logs less than the above may be permitted if so desired by the purchaser.

7.2 Measurements

The measurements of length, girth and the calculation of volume of logs shall be made as given in **7.2.1** to **7.2.3** below.

7.2.1 *Length*

It shall be taken as the shortest distance in metres from one end to the other. The length shall be rounded off to the nearest lower 0.05 m.

7.2.2 *Mean Girth*

In a log of regular taper, the mean girth shall be measured at the mid-length of a log but not over the bark or any protuberances. The girth shall be measured in centimetres and rounded off to the nearest lower cm.

7.2.2.1 In a log of irregular taper, three girth measurements shall be taken, that is, one near the mid-length and at each end but not over the bark or any protuberance, the mean girth shall be obtained by taking the average of these three measurements.

7.2.2.2 If the girth measurements are taken over the bark, a deduction of 10 percent on account of the bark shall be made from the mean girth.

7.2.3 *Volume*

The volume of logs shall be calculated by the quarter-girth formula as given below, the volume shall be expressed in cubic metres correct to three decimal places:

$$V = L \left[\frac{G}{4}\right]^2 L$$

where

V = volume in m^3,

G = girth in m, and

L = length in m.

8 PERMISSIBLE DEFECTS IN LOGS AND THEIR EVALUATION

8.1 Plugging or covering of the visible defects shall not be permissible in any form.

8.2 The defect values apply to individual log and not to consignments as a whole. The permissible defects and their evaluation are given in **8.3** to **8.12**. All defects shall be measured as in IS 3364 (Part 1).

8.3 Checks and Splits

8.3.1 For every 2.5 m length of logs, checks less than 50 mm in length and 2 mm in width shall not be considered for evaluation provided they are not so numerous as to effect the out-turn of the material on conversion.

8.3.2 Checks up to 200 mm in length and more than 2 mm in width shall be evaluated as shakes as per IS 3364 (Part 1).

8.3.3 Checks more than 200 mm shall not be permitted.

8.3.4 Splits up to 250 mm in length shall be permitted and evaluated as per IS 3364 (Part 1).

8.4 Curvature

8.4.1 For every 2.5 m length of a log measured from its butt end, a deviation of not more than 150 mm shall be permissible. The defect value shall be evaluated as per IS 3364 (Part 1).

8.4.2 Only a single curvature shall be permissible in any one log.

8.5 Flutes

8.5.1 Number of flutes in a log shall not be more than 3.

8.5.2 Length of any flute measured from the butt end of a log shall not exceed half length of the log.

8.5.3 Depth of any flute at its deepest point shall not exceed 75 mm and the aggregate depth of all flutes in a log shall not exceed 150 mm. The unit of defect shall be evaluated as per IS 3364 (Part 1).

8.5.4 Logs affected with permissible flutes shall not be more than 10 percent of the logs in a lot in Grade I, 20 percent in Grade II and 30 percent in Grade III.

8.6 Holes

8.6.1 Holes up to 2 mm in diameter other than those due to live powder post beetles shall be permitted and shall not be evaluated for defect value.

8.6.2 Holes having diameter more than 2 mm and upto 12 mm shall be permitted up to 5 in number per m^2 area. These shall be evaluated as per IS 3364 (Part 1).

8.6.3 Holes more than 12 mm in diameter shall not be permitted unless agreed to between purchaser and supplier.

8.7 Hollow Heart

8.7.1 Hollow heart up to 6.0 cm in diameter shall be permitted. It shall be permissible only in 10 percent of the logs in a lot.

8.7.2 Hollow heart shall be evaluated as per IS 3364 (Part 1) as heart rot.

8.8 In-bark

8.8.1 In-bark up to 200 mm in diameter shall be permissible provided it does not affect the usefulness of log for conversion.

8.8.2 In-bark shall be evaluated as knot as per IS 3364 (Part 1).

8.9 Knots

8.9.1 Sound knots up to 150 mm in diameter occuring 4 in number and up to 250 mm diameter occuring 2 in number in a length of 2.5 m of log shall be permissible.

8.9.2 Unsound knots up to 100 mm in diameter occuring 4 in number in a length of 2.5 m shall be permissible.

8.9.3 The unit of defects shall be evaluated as per IS 3364 (Part 1).

8.9.4 The number, size and distribution of knots (sound or unsound) shall be such as not to have a deterimental effect on the usefulness of the log for conversion into sawn timber and not more than half the number is in the central half of a log.

8.10 Rot

8.10.1 Rot (decay) shall be permissible to the extent of 5 percent of the surface area of the log provided the number of logs having rot up to permissible limit shall not be more than 10 percent of the total number of logs in a lot.

8.10.2 Rot shall be evaluated as per IS 3364 (Part 1).

8.11 Shakes

8.11.1 All types of shakes up to 250 mm in length shall be permitted. The defect value shall be evaluated as per IS 3364 (Part 1).

8.11.2 For more than one shake the units of defects shall be added together.

8.11.3 For star shake the value of largest shakes shall be multiplied by half the number of shakes in the star.

8.12 Twist

8.12.1 Twist up to 10° slope shall be permissible and shall be evaluated as per IS 3364 (Part 1).

9 END COATING

Soon after the inspection, the ends of each log up to a distance of at least 150 mm shall be adequately coated with any of the end coatings mentioned in IS 1141.

10 PROPHYLACTIC TREATMENT

Soon after the inspection all debarked logs shall be given a prophylactic treatment in accordance with IS 401.

11 MARKING

11.1 Each log shall legibly and indelibly marked at suitable place preferably at ends to indicate the following:

a) Abbreviation of species,
b) Supplier's identification mark and year of supply,
c) Length and mean girth of the log,
d) Grade I by a square,
e) Grade II by a triangle, and
f) Grade III by a circle.

11.2 BIS Certification Marking

11.2.1 Each log may also be marked with the Standard Mark.

11.2.2 The use of Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. Details of conditions under which a licence for the use of the Standard Mark may be granted to the manufacturers or the producers may be obtained from the Bureau of Indian Standards.

ANNEX A

(*Foreword* and *Clause* 5)

NON-CONIFEROUS SPECIES OF INDIAN TIMBERS

Standard Trade Name	Botanical Name	Abbreviated Symbol
Aglaia	*Aglaia spp.*	AGL
Aini	*Artocarpus hirsutus*	AIN
Amari	*Amoora wallichi*	AMA
Anjan	*Hardwickia binata*	ANJ
Arjun	*Terminalia arjuna*	ARJ
Ash	*Fraxinus spp.*	ASH
Axlewood(Bakli)	*Anogeissus latifolia*	AXL
Babul	*Acacia nilotica* (Syn. A.*arabica*)	BAB
Bael	*Aegle marmelos*	BAE
Bahera	*Terminalia bellirica*	BAH
Ballagi	*Poeciloneuron indicum*	BAL
Banati	*Lophopetalum wightianum*	BAN
Benteak	*Lagerstroemia lanceolata*	BEN
Bhendi	*Thespesia populnea*	BHE
Bijasal	*Pterocarpus marsupium*	BIJ
Birch	*Betula alnoides*	BIR
Black Chuglam	*Terminalia manii*	BCH
Black Locust	*Robinia pseud-acacia*	BLO
Black Wattle	*Acacia mearnsii*	BWA
Blue Gum	*Eucalyptus globulus*	BLG
Bola	*Morus laevigata*	BOL
Bonsum	*Phoebe* spp.	BON
Boxwood	*Buxus sempervirens*	BOX
Bruguiera	*Bruguiera* spp.	BRU
Bulletwood	*Manilkara* spp.	BUL
Casuarina	*Casuarina equisetifolia*	CAS
Celtis	*Celtis australis*	CEL
Champ	*Michelia spp.*	CHM
Chaplash	*Artocarpus chaplasha*	CHP
Charoli	*Buchanania lanzan*	CHO
Chickrassy	*Chukrasia velutina* (Syn.C.*tabularis*)	CHI
Chilauni	*Schima wallichii*	CHL
Chooi	Sagcraea elliptica	COO
Cinnamon	*Cinnamomum* spp.	CIN
Civit	*Swintonia floribunda*	CIV
Debdaru	*Polyalthia fragrance*	DEB
Dhaman	*Grewia tiliifolia*	DHA
Dillenia	*Dillenia* spp.	DIL
Dipika(Lapse)	*Mansonia dipikae*	DIP
Domsal	*Miliusa velutina*	DOM

Standard Trade Name	Botanical Name	Abbreviated Symbol
Dudhi	*Wightia* spp.	DUD
Ebony	*Diospyros* spp. (other than D.*marmorate*)	EBO
Elm	*Ulmus wallichiana*	ELM
Gardenia	*Gardinia* spp.	GAR
Garuga	*Garuga pinnata*	GAU
Gamari	*Gmelina arborea*	GAM
Gluta	*Gluta travancorica*	GLU
Gurjan	*Dipterocarpus* spp.	GUR
Haldu	*Adina cordifolia*	HAL
Haldu Sopa	*Adina oligocephala*	HSO
Hathipaila	*Ptrerospermum acerifolium*	HAT
Hill Mahua	*Diploknema butyracea*	HMA
Hiwar	*Acacea leucophloea*	HIW
Hollock	*Terminalia myriocarpa*	HOL
Hollong	*Dipterocarpus macrocarpus*	HON
Hoom	*Miliusa tomentosa* (Syn. *Saccopetalum tomentosum*)	HOO
Hopea	*Hopea* spp.	HOP
Horse Chestnut	*Aesculus indica*	HCH
Indian Chestnut	*Castanopsis* spp.	ICH
Indian Oak	*Quercus* spp.	IOA
Irul	*Xylia xylocarpa*	IRU
Israeli Babul	*Acacia tortillis*	IBA
Jaman	*Syzygium* spp.	JAM
Jarul	*Lagerstroemia speciosa*	JAR
Jathikai	*Knema attenuata*	JAT
Jhand	*Prosopis cineraria*	JHA
Jhingan	*Lannea coromandelica* (Syn.L.*grandi*)	JHI
Jungali Nimbu	*Atalantia monophylla*	JNI
Jutili	*Altingia excelsa*	JUT
Kadam	*Anthocephalus cadamba*	KAD
Kaim	*Mitragyna parvifolia*	KAI
Kainji	*Litsea wightiana*	KAJ
Kala-siris	*Albizia odoratissima*	KSI
Kanju	*Heloptelea intergrifolia*	KAN
Karanji	*Pongamia pinnata*	KRN
Karol	*Mesua floribunda*	KAO
Kathal	*Artocarpus integrifolius*	KAT
Karani	*Cullenia exelsa*	KAR
Kasi	*Bridelia* spp.	KAS
Keora	*Sonneratia apetala*	KEO
Khair	*Acacia catechu*	KHA
Kindal	*Terminalia paniculata*	KIN
Kokko	*Albizia lebbeck*	KOK

Standard Trade Name	Botanical Name	Abbreviated Symbol
Kumbi	*Careya arborea*	KUM
Kurchi	*Holarrhena antidysenterica*	KUR
Kusum	*Schleichera oleosa*	KUS
Kuthan	*Hymenodictyon excelsum*	KUT
Lakooch	*Artocarpus lakoocha*	LAK
Lampati	*Duabanga sonneratioides*	LAP
Laural	*Terminalia alata*	LAU
Lemon-scented Gum	*Eucalyptus citriodara*	LGU
Lendi	*Legerstroemia parviflora*	LEN
Machilus	*Machilus* spp.	MAC
Mahogany	*Swietenia* spp.	MAG
Mahua	*Madhuca longifolia*	MAU
Makai	*Shorea assamica*	MAK
Mango	*Mangifera indica*	MAN
Maple	*Accr* spp.	MAP
Mesua	*Mesua ferrea*	MES
Milla	*Vitex* spp.	MIL
Mulberry	*Morus* spp.	MUL
Myrobalan	*Terminalia chebula*	MYR
Mullilam	*Zanthoxylum rhetsa*	MUI
Mundani	*Acrocarpus fraxinifolius*	MUN
Murtenga	*Bursera serrata*	MUR
Mysore Gun	*Eucalyptus tereticornis*	MGU
Narikel	*Pterygota alata*	NAR
Neem	*Azadirachta indica*	NEE
Nimi-chambeli	*Milingtonia hortensis*	NCH
Oak	*Quercus semicarpifolia*	OAK
Olive	*Olea* spp.	OLI
Padauk	*Pterocarpus dalbergioides*	PAA
Padri	*Stereospermum* spp.	PAD
Pali	*Palaquium ellipticum*	PAL
Parrotia(Pohu)	*Parrotiopsis jacquemontiana*	PAR
Persian lilac	*Melia azedarach*	PLI
Pipli	*Exbucklandia populnea*	PIP
Piney	*Hardwickia pinnata*	PIN
Ping	*Cynometra polyandra*	PIG
Pitraj	*Aphanamiis polystachya*	PIT
Poon	*Calophyllum* spp.	POO
Poplar	*Populus deltoides*	POP
Pussur	*Xylocarpus* spp.	PUS
Pyinma	*Lagerstroemia hypoleuca*	PYI
Raini	*Mallotus philippensis*	RAI
Red Bombwe	*Planchonia andamanica*	RBO
Red Dhup	*Parishia insignis*	RDH
River-red Gum	*Eucalyptus camaldulensis*	RGU
Rohini	*Soymida febrifuga*	ROH

Standard Trade Name	Botanical Name	Abbreviated Symbol
Rosewood	*Dalbergia latifolia*	ROS
Rubberwood	*Hevea brasiliensis*	RUB
Rudrak	*Elaeocarpus* spp.	RUD
Safed Siris	*Albizia procera*	SSI
Sal	*Shorea robusta*	SAL
Salai	*Boswellia serrata*	SAA
Sandan	*Ougeinia dalbergioides*	SAD
Satinwood	*Chloroxylon swietenia*	SAT
Semul	*Bembax ceiba*	SEM
Sianahor (Kayea)	*Mesua assamica* (Syn. *Kayea assamica*)	SIA
Silver Oak	*Grevillea robusta*	SOA
Siris	*Albizia chinensis*	SIR
Sissoo	*Dalbergia sissoo*	SIS
Suhabul	*Leucaena leucocephala*	SUB
Sundri	*Heritiera* spp.	SUN
Talura	*Shorea talura*	TLR
Taprie Siris	*Albizia* spp.	TSI
Tali	*Palaquium polyanthum*	TAL
Thingan	*Hopea odorata*	THI
Thitmin	*Podocarpus merifolia*	THT
Toon	*Cedrela toona*	TOO
Uriam	*Bischofia javanica*	URI
Vellapine	*Vateria indica*	VEL
White Bombwe	*Terminalia procera*	WBO
White Cedar	*Dysoxylum malabaricum*	WCE
White Chuglam	*Terminalia bialata (sapwood)*	WCH
White Dhup	*Canarium* spp.	WDH
Willow	*Salix* spp.	WIL
Yew	*Taxus baccata*	YEW
Yon	*Anogeissus acuminata*	YON

ANNEX B

(*Clause 5*)

IMPORTED TIMBERS

Sl No. (1)	Standard Trade Name (2)	Botanical Name (3)	Abbreviated Symbols (4)	Country from Where Imported (5)
1.	Abura	*Mitragyna stipulosa*	ABU	A
2.	African Padauk	*Pterocarpus soyauxii*	APA	A
3.	Afrormosia	*Afrormosia angolensis*	AFR	A
4.	Alan Batu	*Shorea albida*	ABA	M
5.	Amoora	*Amoora cucullata*	AMO	PNG
6.	Balau (Selangan Batu) $	*Shorea atrinervosa,S. foxworthyi S.glauca,S. laevis,S. materialis, S. maxwelliana,S. submontana and S. sumatrana*	BLU	M
7.	Bintangor	*Calophyllum biflorum, C.calaba, C. canum, C. coriaceum, C. depressinervosum, C. ferrugineum, C. inophyllode,C. inophyllum, C. macrocarpum, C. pulcherrimum, C. sclerophyllum, C. symingtonianum, C. tetrapterum and C. wallichianum*	BIN	M
8.	Cedar Java	*Bischofia javanica*	CJA	PNG
9.	Dahoma	*Newtonia glandulifera and piptadeniastrum africanum*	DAH	A
10.	Dark-red Meranti $	*Shorea argentifolia, S. curtisii, S. ovata, S.paufiflora, and S. platyclados*	DME	M
11.	Durian $	*Coelostegia borneensis, C. griffithii,Durio carinatus, D. grandiflorus, D. graveolens, D. lowianus,D. malaccensis, D. oxleyanus, D. singaporensis,D. wyatt-smithii, D. zibethinus, Neesia altissima, N. Kostermansiana and N. malayana and N. synandra*	DUR	M
12.	Iroko	*Chlorophora excelsa*	IRO	A
13.	Kapur	*Dryobalonops aromatica, D. beccarii,D. keithii, D. lanceolata, D. oblongifolia and D. rappa*	KAU	M
14.	Kempas	*Koompassia malaccensis*	KEM	M
15.	Keruing$	*Dipterocarpus apterus, D. baudii, D. chartaceus,D. concavus, D. confertus, D. cornutus,D. costatus,D. costulatus, D. crinitus, D. dyeri,D. gracilis, D. grandiflorus,D. kerrii, D. kunstleri, D.lowii, D. obtusifolius, D. rotundifolius, D. sublamellatus, and D. verrucosus*	KER	M
16.	Light-red Meranti $	*Shorea dasyphylla,S. hemsley*ana, *S. johorensis,S. lepidota, S. leprosula,S. ovalis, S. palembanica,S. parvifolia, and S. teysmanniana*	LME	M
17.	Merawan $	*Hopea beccariana H. dryobalanoides,H. dyeri, H. ferruginea, H. glaucescens, H. griffithii,H. latifolia, H. mengarawan,H. montana, H. myrtifolia, H. nervosa, H. odorata, H. pubescens, H. sangal, H. sublanceolata, and H. sulcata*	MER	M

Sl No. (1)	Standard Trade Name (2)	Botanical Name (3)	Abbreviated Symbols (4)	Country from Where Imported (5)
18.	Merbatu	*Maranthes corymbosa, Parinari costata, P. elmeri, P. oblongifolia, P. rigida, and P. rubiginosa*	MEB	M
19.	Merbau (Kwila)	*Intsia bijuga and I. palembanica*	MRB	M,PNG
20.	Mersawa	*Anisoptera costata, A. curtisii A. laevis, A. marginata, A. megistocarpa, and A. scaphula*	MEA	M
21.	Nyatoh $	*Ganua curtisii, G. kingiana, G.motleyana, Palaquium clarkeanum, P.gutta, P. hexandrum, P. hispidum, P. impressinervi um, P. maingayi, P. microphyllum, P. obovatum, P. oxleyanum, P. regina-montium, P. rostratum P. semaram, P. xanthochymum, Payena dasphylla, P. lanceolata, P. maingayi, and P. obscura*	NYA	M
22.	Nyatoh Kuning	*Planchonella maingayi and Pouteria malaccensis*	NKU	M
23.	Okoume	*Aucocumea klaineana*	OKO	A
24.	Red Balau	*Shorea collina, S. guiso, S. kunstleri, and S. ochrophloia*	RBA	M
25.	Resak $	*Cotylelobium malayanum, C. melanoxylon, Vatica bella, V. cuspidata, V. flavida, V. havilandii, V. heteroptera, V. lowii, V. maingayi, V. mangachapoi, V. nitens, and V. scortechinii*	RES	M
26.	Sapele	*Entandophragma cylindricum*	SAP	A
27.	Terminalia Brown	*Terminalia brassii*	TBR	PNG
28.	Terminalia Pale Brown Group	*Terminalia katikii, T. macadamii T. oreadum, T. sepicans, and* T. solomonensis	TPB	PNG
29.	Terminalia Pale Yellow Group	*Terminalia archboldiana, T. complanata, T. longespicata*	TPY	PNG
30.	Terminalia Red Brown Group	*Terminalia canaliculata, T.catapha, T. eddowesii, T. impediens, T. kaernbachii, T. microcarpa, T. morobensis and T. rubiginosa*	TRB	PNG
31.	Terminalia Yellow Brown group	*Terminalia megalocarpa, T. steenisiana, T. calamansanai*	TYB	PNG
32.	Tualang	*Koompassia excelsa*	*TUA*	*M*
33.	Utile	*Entandophragma utile*	UTI	A
34.	Vitex	*Vitex cofassus*	VIT	PNG
35.	White Meranti	*Shorea agamii, S. assamica, S. bracteolata, S. dealbata, S. henryana, S. hypochra, S. lamellata, S. resinosa, and S. roxburghii*	WME	M
36.	Yellow Meranti	*Shorea dolichocarpa S. faguetiana, S. gibbosa, S. hopeifolia, S. longisperma, S. maxima, and S. multiflora*	YME	M

A = Africa, M = Malaysia, PNG = Papua New Guinea

$ = Actual species of timber which are marked under this trade name are many more. But here, only major species have been mentioned.

ANNEX C

(Foreword)

COMMITTEE COMPOSITION

Timber Sectional Committee, CED 9

Chairman
SHRI S. SHYAM SUNDER
12989/D, 12th Main, Hal II Stage, Bangalore 660008

Members	*Representing*
SHRI A. K. ANANTHANARAYANA SMT B.S. KAMALA *(Alternate)*	Institute of Wood Science and Technology, Bangalore
SHRI ANIL AGARWAL SHRI H. C. PANT *(Alternate)*	Ministry of Defence, Directorate of Standardization, New Delhi
SHRI S. M. AGARWAL SHRI B. B. GARG *(Alternate)*	WIMCO Ltd, New Delhi
SHRI A. K. BANSAL SHRI K. DAMODARAN *(Alternate)*	Indian Plywood Industries Research and Training Institute, Bangalore
SHRI G. P. BADOLA SHRI ATUL KHERA *(Alternate)*	Forest Department, Government of Madhya Pradesh, Bhopal
SHRI A. K. CHATTERJEE SHRI O. P. SHARMA *(Alternate)*	Directorate General of Technical Development, New Delhi
CHIEF CONSERVATOR OF FORESTS ADDITIONAL CHIEF CONSERVATOR OF FORESTS *(Alternate)*	Forest Department, Government of Uttar Pradesh, Lucknow
CHIEF CONSERVATOR OF FORESTS CONSERVATOR OF FORESTS *(Alternate)*	Himachal Pradesh Forest Department, Simla
CHIEF CONSERVATOR OF FORESTS (GENERAL)	Forest Department, Government of Karnnataka, Bangalore
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DIRECTOR	Forest Research Institute, Dehra Dun
DEPUTY DIRECTOR OF NAVAL ARCHITECHTURE ASSISTANT DIRECTOR OF NAVAL ARCHITECTURE *(Alternate)*	Naval Headquarters, New Delhi
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DR R. GNANAHARAN	Kerala Forest Research Institute, Peechi
INSPECTOR GENERAL OF FORESTS ADDITIONAL INSPECTOR GENERAL OF FORESTS *(Alternate)*	Ministry of Environment and Forests, New Delhi
SHRI D. B. JAIN SHRI DARBARA SINGH *(Alternate)*	Directorate General of Supplies and Disposals, New Delhi
SHRI D. K. KANUGO SHRI B. K. MANDAL *(Alternate)*	National Test House, Calcutta
SHRI S. KUMAR SHRI S. C. MALHOTRA *(Alternate)*	Andaman Chamber of Commerce and Industry, Port Blair

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Members	*Representing*
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SHRI B. A. MATHEWS	Forest Department, Andaman and Nicobar Islands, Port Blair
SHRI A. MUKHERJEE SHRI A. K. AGARWAL *(Alternate)*	Directorate of Standardization, New Delhi
DR A. N. NAYER	In personal capacity (*C-59 Inderpuri, New Delhi 110012*)
SHRI R. C. PRASAD SHRI B. M. PRASAD *(Alternate)*	Bihar State Forest Development Corporation Ltd, Patna
PRESIDENT EXECUTIVE DIRECTOR *(Alternate)*	Federation of Indian Plywood and Panel Industry, New Delhi
SHRI S. S. RAJPUT	Convener, Timber Terminology and Classification Subcommittee CED 9:1; Timber Testing Subcommittee, CED 9:9; and Timber Conversion and Grading Subcommittee, CED 9:10
SHRI B. B. SHAMBARKAR SHRI A. K. AGARWAL *(Alternate)*	Engineer-in-Chief's Branch, New Delhi
SHRI S. N. SHARMA	Convener, Timber Seasoning and Treatment Subcommittee, CED 9:3
SHRI K. S. SHUKLA	Forest Research Institute, Forest Products Division, Dehra Dun
SHRI N. M. WALLECHA SHRI ANAND PRAKASH *(Alternate)*	Directorate General of Civil Aviation, New Delhi
SHRI VINOD KUMAR, Director (Civ Engg)	Director General, BIS (*Ex-officio Member*)

Member-Secretary
SHRI T. B. NARAYANAN
Joint Director (Civ Engg), BIS

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Timber Conversion and Grading Subcommittee, CED 9:10

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CHIEF CONSERVATOR OF FORESTS CONSERVATOR OF FORESTS *(Alternate)*	Forest Department, Government of Himachal Pradesh, Simla
CHIEF CONSERVATOR OF FORESTS CONSERVATOR OF FORESTS *(Alternate)*	Forest Department, Government of West Bengal, Calcutta
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SHRI N.K. UPADHYAY	Directorate General of Supplies and Disposal, New Delhi
SHRI V. K. WADHWA SHRI B. K. BHATIA *(Alternate)*	Forest Research Institute, Dehra Dun

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This standard was first published in 1974. In this revision defect values for different defects have been revised and their evaluation has been brought in line with IS 3364 (Part 1):1976 'Methods of measurement and evaluation of defects in timber: Part 1 Logs (*first revision*)'. Based on the experience gained, the list of species of timber given in Annex A has been updated. Further the foreign timber species in use in India have also been included.

This standard contains clauses **7.1** and **8.6.3** which permit the purchaser to use his option for selection to suit his requirements at the time of placing orders.

The composition of the technical committee responsible for the formulation of this standard is given at Annex C.

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.

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