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IS 8720 (1978): Methods of sampling of timber scantlings from depots and their conversion for testing [CED 9: Timber and Timber Stores]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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IS : 8720 - 1978  
Reaffirmed 2006

*Indian Standard*

METHODS OF SAMPLING OF  
TIMBER SCANTLINGS FROM DEPOTS AND  
THEIR CONVERSION FOR TESTING

UDC 674·038·3 : 620·1



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INDIAN STANDARDS INSTITUTION  
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# Indian Standard

## METHODS OF SAMPLING OF TIMBER SCANTLINGS FROM DEPOTS AND THEIR CONVERSION FOR TESTING

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AMENDMENT NO. 1 MAY 1983

TO

IS:8720-1978 METHODS OF SAMPLING OF TIMBER  
SCANTLINGS FROM DEPOTS AND THEIR  
CONVERSION FOR TESTING

[The Timber Sectional Committee, BDC 9 was of the view, that the sample size specified as 10%, needs to be rationalized in accordance with IS:2500(Part I)-1973 Specification for sampling inspection tables: Part I Inspection by attributes and by count of defects (*first revision*), and a table showing size of sample depending on lot size has been included in this amendment.]

Alteration

(Page 4, clause 3.3) - Substitute the following for the existing clause:

'3.3 The number of scantlings to be selected from the lot shall depend upon the size of lot as given below:

<i>Lot Size</i>	<i>Number of Scantlings</i>
Up to 150	20
151 to 300	32
301 to 500	50

3.3.1 The scantlings shall be selected at random from the lot.

NOTE - For random selection procedures, guidance may be obtained from IS:4905-1968<sup>5</sup>.

(BDC 9)

# *Indian Standard*

## METHODS OF SAMPLING OF TIMBER SCANTLINGS FROM DEPOTS AND THEIR CONVERSION FOR TESTING

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 30 January 1978, after the draft finalized by the Timber Sectional Committee had been approved by the Civil Engineering Division Council.

**0.2** Evaluation of basic properties of timber is an important base for establishing design functions of structural timber. For this purpose small clear specimens and specimens in structural sizes are tested according to standard procedures laid down in IS : 1708-1969\* and IS : 2408-1963†. In order to obtain a good average figure which is truly representative of the species, it is necessary to take samples from different trees and further from different logs. IS : 2455-1963‡ contained information pertaining to sampling from logs besides presentation of data. However, based on the work developed at ISO level, it has been felt necessary to cover the subject under separate standards dealing with:

- a) Sampling of model trees and logs for timber testing and their conversion,
- b) Sampling of timber scantlings from depots and their conversion for testing, and
- c) Presentation of data of physical and mechanical properties of timber.

Accordingly IS : 2455-1974§ now covers only sampling of model trees and logs in forest areas and their conversion for determination of physical and mechanical properties of wood. The methods of presentation of data of physical and mechanical properties of timber are being separately covered in IS : 8745-1978||. This standard covers methods of sampling of timber scantlings from depots and their conversion for testing.

\*Methods of testing small clear specimens of timber (*first revision*).

†Methods of static tests of timbers in structural sizes.

‡Methods of sampling and presentation of data for timber testing.

§Methods of sampling of model trees and logs for timber testing and their conversion (*first revision*).

||Methods of presentation of data of physical and mechanical properties of timber.



## **IS : 8720 - 1978**

**0.3** In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevalent in different countries in addition to relating it to the practices in the field in this country.

**0.4** 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 lays down the methods of sampling of timber in the form of scantlings from depots, and their conversion into test specimens for determination of physical and mechanical properties.

### **2. TERMINOLOGY**

**2.1** For the purpose of this standard definitions given in IS : 707-1976† and IS : 2455-1974‡ shall apply.

### **3. SELECTION OF SCANTLINGS**

**3.1** Before selection, all information regarding the species, source of procurement and date of procurement shall be noted. It shall also be ascertained that the lot which may constitute logs, or converted material, may contain only one species, though in different lengths, from different places and from different trees. Material shall be taken out from a lot which contains minimum of 50 and maximum of 500 logs or converted material. Number of logs or converted material in a lot shall be recorded.

**3.2** Only one scantling of about 13 × 13 cm in cross-section and 1.5 m in length shall be taken out from the individual logs or the converted timber for the purpose of tests. Care being taken to see that the scantling is representative of the material in question.

**3.3** Ten percent of the total scantlings subject to a minimum of 20 shall be selected randomly from the lot according to IS : 4905-1968§.

**3.4** The scantlings shall be sound, straight grained and free from decay, centre-heart, large knots, twisted grain and such other defects which affect the strength properties.

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

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

‡Methods of sampling of model trees and logs for timber testing and their conversion (*first revision*).

§Methods for random sampling.

- 3.5** All scantlings chosen from a lot shall be taken as one consignment.
- 3.6** All the scantlings in a consignment shall be properly marked as below :
- a) Name and location of depot by suitable abbreviation,
  - b) Abbreviation of species, and
  - c) Consignment and scantling number.
- 3.7** All the scantlings shall be packed in such a manner that they may not be affected by moisture or mechanical hazards during transportation to testing place.

**4. STORAGE OF SCANTLINGS BY THE TESTING AUTHORITY**

**4.1** Material shall be tested as early as possible in condition as received. However, if the material is required to be stored for some period, due care shall be taken so that the material may not deteriorate during storage. Necessary prophylactic treatment shall be provided as given in IS : 401-1967\*

**5. MARKING AND CONVERSION OF SCANTLINGS INTO TEST SPECIMENS**

- 5.1** Before conversion all the scantlings shall be identified.
- 5.2** Each scantling shall be marked as shown in Fig. 1 at one end and sawn length-wise in 4 sticks of the same length and 6 × 6 cm in cross-section.

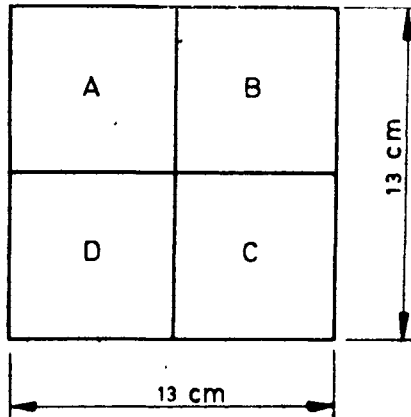


FIG. 1 MARKING OF SCANTLINGS

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

**5.2.1** All the sticks shall be marked to indicate its identity as below:

Project No.—Consignment No.—Scantling No.—Stick Mark  
For example, 1—20—5—B

**5.3** All the sticks shall be placed in a conditioning chamber maintained at  $27 \pm 2^\circ\text{C}$  and  $65 \pm 5$  percent RH for about a week so as to minimize the moisture variation within the material.

**5.4** After conditioning all the sticks shall be planed on four sides to  $5 \times 5$  cm cross-section before cutting into proper test specimens.

**5.5** Specimens for the tests shall be selected from the sticks in accordance with the schedule given in Appendix A. The length of the test specimens for various test shall be in accordance with IS: 1708-1969\*. In instances where sticks do not provide sufficient material, the test specimens may be taken from the uninjured portion of the static and impact bending tests. However, proper care shall be exercised in the selection of specimens giving due regard to the direction of the growth rings and visible defects.

**5.6** All the specimens shall be clear, straight grained, free from decay and other defects. Where inevitable, discretion shall be used to allow defects such that their presence may not influence the results.

**5.7** All the test specimens shall also be marked with the indicative number of the concerned test for easy selection at the time of testing.

## **A P P E N D I X A**

( *Clause 5.5* )

### **SCHEDULE FOR SELECTION OF THE TEST SPECIMENS FROM THE 4 STICKS OF EACH SCANTLING**

<i>Sl No.</i>	<i>Test</i>	<i>Method of Selection</i>
i)	Static bending	One specimen from each of the diagonally opposite sticks ( two specimens in total)
ii)	Impact bending	One specimen in any one of the remaining two sticks ( one specimen only ) but not exceeding six in lot
iii)	Izod	One specimen from uninjured portion of each of the tested static and impact bending specimen

\*Methods of testing small clear specimens of timber (*first revision*).

<i>Sl No.</i>	<i>Test</i>	<i>Method of Selection</i>
iv)	Compression parallel to grain	One specimen from each stick ( 4 specimens in total from a scantling )
v)	Compression perpendicular to grain	One specimen from one of the two sticks from which specimens of static bending are taken ( only one specimen )
vi)	Hardness	One specimen from the other stick selected for static bending ( only one specimen )
vii)	Shear parallel to grain	One pair of specimens from the remaining stick. One specimen of the pair shall be tested in radial direction and the other shall be tested in tangential direction ( two specimens in total )
viii)	Tension perpendicular to grain	One pair as mentioned for shear test ( two specimens in total )
ix)	Tension parallel to grain	One specimen from the remaining material
x)	Torsion	One specimen from the remaining material
xi)	Nail and screw withdrawal	One specimen from the remaining material

NOTE 1 — Selection of specimens for test shall be in order mentioned above.

NOTE 2 — No separate specimen shall be taken for evaluation of moisture content and specific gravity. These properties shall be calculated from the above test specimens.

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# INDIAN STANDARDS

## ON

### TIMBER

IS :

- 190-1974 Specification for coniferous sawn timber ( baulks and scantlings ) ( *third revision* )  
287-1973 Recommendations for maximum permissible moisture content of timber used for different purposes ( *second revision* )  
399-1963 Classification for commercial timbers and their zonal distribution ( *revised* )  
401-1967 Code of practice for preservation of timber ( *second revision* )  
656-1975 Specification for logs for plywood ( *second revision* )  
707-1976 Glossary of terms applicable to timber technology and utilization ( *second revision* )  
876-1970 Specification for wood poles for overhead power and telecommunication lines ( *second revision* )  
1140-1970 Specification for logs for matches ( *first revision* )  
1141-1973 Code of practice for seasoning of timber ( *first revision* )  
1150-1976 Trade names and abbreviated symbols for timber species ( *second revision* )  
1326-1976 Specification for non-coniferous sawn timber ( baulks and scantlings ) ( *first revision* )  
1329-1975 Specification for aircraft timber ( baulks and scantlings ) ( *first revision* )  
1331-1971 Specification for cut sizes of timber ( *second revision* )  
1708-1969 Method of testing small clear specimen of timber ( *first revision* )  
1898-1975 Specification for timber for use in aircraft construction ( *first revision* )  
1900-1974 Method of testing wood poles  
1902-1961 Code of practice for preservation of bamboo and cane for non-structural purposes  
2178-1962 Specification for timber for use in aircraft propeller construction  
2179-1962 Specification for timber for lorry bodies  
2203-1976 Specification for wooden cross arms ( *first revision* )  
2372-1963 Specification for timber for cooling towers  
2377-1967 Tables for volume of cut sizes of timber ( *first revision* )  
2408-1963 Methods of static tests of timber in structural sizes  
2455-1974 Method of sampling of model trees and logs for timber testing and their conversion ( *first revision* )  
2683-1966 Guide for installation of pressure impregnation plants for timber ( *first revision* )  
2753 ( Part I )-1964 Method of estimation of preservatives in treated timber and in treating solutions: Part I Determination of copper, arsenic, chromium, zinc, boron, creosote and fuel oil  
2753 ( Part II )-1968 Method of estimation of preservatives in treated timber and in treating solutions: Part II Determination of copper in copper naphthanate and pentachlorophenol  
3337-1978 Specification for ballies for general purposes ( *first revision* )  
3364 ( Part I )-1976 Method of measurement and evaluation of defects in timber: Part I Logs ( *first revision* )  
3364 ( Part II )-1976 Method of measurement and evaluation of defects in timber: Part II Converted timber ( *first revision* )  
3731-1966 Grading rules for teak squares  
4422-1967 Specification for willow clefts for cricket bats  
4423-1967 Guide for handsawing of timber  
4424-1967 Specification for use of timber in coal mines  
4833-1968 Method for the field testing of preservatives in wood species  
4873-1968 Method for laboratory testing of wood preservative against fungi  
4895-1968 Grading rules for teak logs  
4907-1968 Methods of testing timber connectors  
4970-1973 Key for identification of commercial timber ( *first revision* )  
5246-1969 Specification for coniferous logs  
5247-1969 Specification for converted timber ( coniferous ) for packing cases — crates and light furniture  
5248-1967 Specification for teak logs for production of sliced veneers

**IS :**

- 5806-1970 Specification for non-coniferous timber in converted form for ammunition/explosives boxes
- 5966-1970 Specification for non-coniferous timber in converted form for general purposes
- 5978-1970 Code of practice for design of wood poles for overhead power and telecommunication lines
- 6056-1970 Specification for jointed wood poles for overhead power and telecommunication lines
- 6341-1971 Method of laboratory test for efficacy of wood preservatives against soft rot
- 6342-1971 Specification for rosewood logs for production of sliced veneers
- 6346-1971 Methods of test for timber props for mines
- 6497-1972 Method of test for the efficacy of preservatives and evaluating the natural durability of timbers used in cooling towers
- 6534-1971 Guiding principles of grading of timber
- 6707-1972 Specification for willow logs for artificial limbs
- 6711-1972 Code of practice for maintenance of wood poles for overhead power and telecommunication lines
- 6791-1973 Method of testing natural durability of timber and efficacy of the wood preservatives against marine borers
- 6874-1973 Methods of test for round bamboos
- 7308-1973 Specification for non-coniferous logs
- 7315-1974 Guidelines for design installation and test of timber seasoning kilns ( compartment type with cross-forced air circulation )
- 8242-1976 Methods of test for split bamboos
- 8292-1976 Methods for evaluation of wood working qualities of timber

# 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	Conversion
Force	newton	N	1 N = 0.101972 Kgf
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 <sup>2</sup>
Frequency	hertz	Hz	1 Hz = 1 c/s ( s <sup>-1</sup> )
Electric conductance	siemens	S	1 S = 1 A/V
Pressure, stress	pascal	Pa	1 Pa = 1 N/m <sup>2</sup>

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