

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”

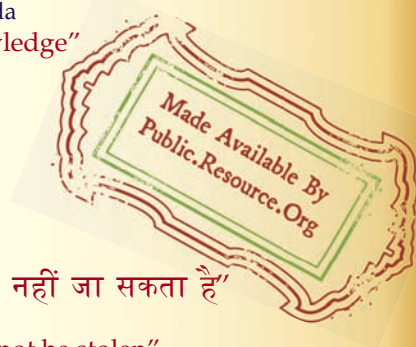
IS 4891 (1988): preferred cut sizes of structural timber - Specification [CED 13: Building Construction Practices including Painting, Varnishing and Allied Finishing]



“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



Indian Standard

**SPECIFICATION FOR PREFERRED
CUT SIZES OF STRUCTURAL TIMBER**

(First Revision)

UDC 674.4 : 691.11 : 389.171

© Copyright 1989

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

Indian Standard

SPECIFICATION FOR PREFERRED CUT SIZES OF STRUCTURAL TIMBER

(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards on 19 September 1988, after the draft finalized by the Building Construction Practices Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Timber finds its use in several items of construction works, particularly in roof trusses, purlins, rafters, doors, windows, partitions, etc. Due to extreme shortage of timber, there is need for its rational use and this is an essential aspect of timber design.

0.2.1 As a step in this direction, Forest Research Institute, Dehra Dun has developed stock designs for a number of standard roof trusses and purlins making it feasible to use the small dimensioned stocks of timber. Based thereon is a need for formulating a set of cut sizes for structural timber. Such a set of preferred cut sizes will facilitate large scale procurement, seasoning, chemical treatment, marketing and prefabrication of various building components as also the dimensional coordination between door frames, partitions, etc.

0.2.2 This standard was first published in 1968 and present revision has been undertaken to incorporate the sizes based on experience gained in design and use of timber structural parts as well as from Indian Standards published on the subject. This revision, therefore, contains updated data on sizes adopted in standard designs, door/window components and deviations in sectional dimensions during conversion for effective shrinkage due to the effect of change in moisture content.

0.2.3 This standard is necessary adjunct to IS : 1331-1971* on cut sizes of timber which cover sizes for all uses.

0.3 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 cut sizes of timber (*second revision*).

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

1. SCOPE

1.1 This standard covers preferred cut sizes of timber for use in the following units:

- a) Roof trusses;
- b) Roof purlins, rafters, floor beams, etc;
- c) Partitions framing, covering;
- d) Centering; and
- e) Door/window/ventilators.

2. PREFERRED SIZES

2.1 Preferred cut sizes shall be as covered in Tables 1 to 4. These sizes are sawn sizes obtained from air dried timbers. The seasoning and preservation of timber is carried out in accordance

with IS : 1141-1973* and IS : 401-1982†.

2.2 For centering the preferred sizes shall be the same as for partition framing covered in Table 3.

2.3 Tolerances

- 2.3.1** a) 1) For measurement up to 100 mm:
0 to +3 mm
- 2) Measurement above 100 mm:
-3 to +6 mm
- b) Length for all sizes:
0 to +10 mm

*Code of practice for seasoning of timber.

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

**TABLE 1 PREFERRED CUT SIZES OF STRUCTURAL TIMBERS FOR ROOF TRUSSES
(SPAN FROM 3 TO 20 METRES)**

(Clause 2.1)

THICKNESS IN mm	WIDTH IN mm							
	40	50	60	80	100	—	—	—
20	40	50	60	80	100	120	140	160
25	40	50	60	80	100	120	140	160
30	40	50	60	80	100	120	140	160
35	—	—	60	80	100	120	140	160
40	—	—	60	80	100	120	140	160
50	—	—	60	80	100	120	140	160
60	—	—	—	80	100	120	140	160
80	—	—	—	—	100	120	140	160

NOTE 1 — For truss spans marginally above 20 m, preferred cut sizes of structural timber may be allowed.

NOTE 2 — Preferred lengths of timber : 1, 1.5, 2, 2.5 and 3 m.

**TABLE 2 PREFERRED CUT SIZES OF STRUCTURAL TIMBER FOR ROOF PURLINS,
RAFTERS, FLOOR BEAMS, ETC**

(Clause 2.1)

THICKNESS IN mm	WIDTH IN mm						
	80	100	120	140	—	—	—
50	80	100	120	140	—	—	—
60	80	100	120	140	160	—	—
80	—	100	120	140	160	—	—
100	—	—	—	140	160	180	200

NOTE — Preferred lengths of timber: 1.5, 2, 2.5 and 3 m.

**TABLE 3 PREFERRED CUT SIZES OF STRUCTURAL TIMBERS FOR PARTITION
FRAMING AND COVERING**

(Clauses 2.1 and 2.2)

THICKNESS IN mm	WIDTH IN mm								
	40	50	60	80	—	—	—	—	—
10	40	50	60	80	—	—	—	—	—
15	40	50	60	80	100	—	—	—	—
20	40	50	60	80	100	120	160	200	—
25	40	50	60	80	100	120	160	200	240
30	40	50	60	80	100	120	160	200	240
40	40	—	60	80	100	120	160	200	240
50	—	50	—	80	100	120	160	200	240
60	—	—	60	80	100	120	160	200	240
80	—	—	—	80	100	120	160	200	240

NOTE — Preferred lengths of timber : 0.5, 1, 1.5, 2, 2.5 and 3 m.

TABLE 4 PREFERRED CUT SIZES OF TIMBER FOR DOOR/WINDOW/VENTILATOR COMPONENTS

(Clause 2.1)

THICKNESS IN mm	WIDTH IN mm														
15	—	—	—	—	—	—	—	—	—	—	160	180	200	220	240
20	—	—	—	—	50	60	80	100	—	—	—	—	—	—	—
25	25	—	—	—	50	60	80	100	—	—	—	—	—	—	—
30	—	30	—	—	50	60	80	100	—	—	—	—	—	—	—
35	—	—	35	—	50	60	80	100	—	—	160	—	—	—	240
40	—	—	—	40	50	60	80	100	—	—	160	—	—	—	240
50	—	—	—	—	—	—	80	100	120	—	—	—	—	—	—
60	—	—	—	—	—	—	—	100	120	140	—	—	—	—	—

NOTE 1 — Preferred timber lengths (wall opening module of 100 mm) for frames: 590, 790, 890, 990, 1 190, 1 290, 1 990 and 2 090 mm.

Preferred timber lengths for shutters:

460, 500, 560, 700, 800, 900, 1 100, 1 200, 1 905 and 2 005 mm.

NOTE 2 — For beading of 15 mm thickness, 25 and 40 mm width, and for 20 mm thickness, 25, 30 and 40 mm width may be allowed.

NOTE 3 — For lock and bottom rail of 30, 35 and 40 mm thickness, 150 and 200 mm width and for 50 mm thickness, 150, 200 and 240 mm width may be allowed.

2.3.2 Tolerances in door/window/ventilators components shall be permissible as under:

a) Frames ± 3 mm

b) Shutters

1) Doors

i) Width ± 3 mm

ii) Thickness ± 1 mm

No tolerance for panels

2) Window/ventilators, etc

Width 40 mm and less ± 1 mm

Above 40 mm ± 3 mm

2.3.3 Cut sizes of timber as stocked and specified in tables are normally at moisture content of 20 percent. But at the time of fabrication and erection, the timber members are required to possess 12 to 20 percent of moisture content of

the oven-dry weight according to IS : 287-1973*. Thus a lateral shrinkage effect in the stocked sizes of timber will take place and, therefore, the ultimate shrinkage to which the timber will be subjected to has got to be compensated in the very first instance at the time of converting the timber at 20 percent moisture content for stocking purposes.

2.3.4 A method for adjustment of dimensions at different moisture content is given in Appendix A along with an illustrative example.

2.3.5 Other sizes may be produced or stocked to meet specific demands or to ensure full utilization of the logs or their off-cuts.

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

APPENDIX A

(Clause 2.3.4)

ADJUSTMENT OF DIMENSIONS AT DIFFERENT MOISTURE CONTENTS

A-1. All the tabulated sizes shall be taken as standard at 20 percent moisture content.

A-2. For dimensions along the grain, no allowances shall be made for moisture content differing from 20 percent moisture contents.

A-3. For cross-sectional dimensions, the following allowances shall be made irrespective of radial or tangential directions.

A-3.1 For timbers of specific gravity below 0.6 (or dimensional stability 60 percent of teak and

above), the change in the dimensions shall be calculated on the basis of 0.2 percent per unit moisture content differing from standard 20 percent moisture content.

A-3.2 For species of specific gravity 0.6 and above (or dimensional stability below 60 percent of teak), the change in the dimensions shall be calculated on the basis of 0.3 percent per unit moisture content differing from standard 20 percent moisture content.

A-3.3 Example:

Data

- 1) Exact dimension required = 100 mm
for actual fabrication
later according to the
engineering drawing
- 2) Moisture content at the = 12 percent
time of fabrication later
- 3) Moisture content in the = 20 percent
first instance at the time
of sawing and storing
- 4) Specific gravity of the = below 0.6
timber species used

SOLUTION

- a) Let the dimension in the = x mm
first instance at the time of
sawing/storing be

- b) Difference in moisture content = 20-12
between time of storing
and the time of use later = 8 percent
- c) Now for 1 percent difference = 0.2 per-
cent (for
percentage deviation in cor- cent (for
responding dimension timber spe-
cies with
specific gra-
vity below
0.6)
- d) For 8 percent difference in = 0.2×8
moisture content, percent- percent
age deviation = 1.6 percent
- e) For 8 percent difference in = 1.6 percent
moisture content, the physi- of x
cal deviation from cor- = $0.016 x$ mm
responding dimension at the
time of sawing and storing
- f) Therefore, $x - 0.016 x$ will = 100 mm
have to be
or x = 101.63 mm

Similarly, the corresponding dimensions (that is, 1.63 mm oversize) in the first instance at the time of sawing/storing for all the four zones into which India is divided according to moisture content vide IS : 287-1973* can be worked out.

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

BUREAU OF INDIAN STANDARDS

Headquarters:

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

Telephones : 3310131, 3311375

Telegrams : Manaksanstha
(Common to all offices)

Regional Offices:

Telephone

Central: Manak Bhavan, 9 Bahadur Shah Zafar Marg,
NEW DELHI 10002

3310131, 3311375

*Eastern : 1/14 C. I. T. Scheme VII M, V. I. P. Road, Maniktola,
CALCUTTA 700054

362499

Northern : SCO 445-446, Sector 35-C, CHANDIGARH 160036

21843, 31641

Southern : C. I. T. Campus, MADRAS 600113

412442, 412519, 412916

†Western : Manakalaya, E9 MIDC, Marol, Andheri (East),
BOMBAY 400093

6329295

Branch Offices:

'Pushpak', Nurmohamed Shalkh Marg, Khanpur, AHMADABAD 380001

26348, 26349

Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road,
BANGALORE 560058

384955, 384956

Gangotri Complex, 5th Floor, Bhadbhada Road, T. T. Nagar,
BHOPAL 462003

66716

Plot No. 82/83, Lewis Road, BHUBANESHWAR 751002

53627

53/5 Ward No. 29, R. G. Barua Road, 5th Byelane, GUWAHATI 781003

—

5-8-56C L. N. Gupta Marg (Nampally Station Road),
HYDERABAD 500001

231083

R14 Yudhister Marg, C Scheme, JAIPUR 302005

63471, 69832

117/418 B Sarvodaya Nagar, KANPUR 208005

216876, 218292

Patilputra Industrial Estate, PATNA 800013

62305

T.C. No. 14/1421, University P.O., Palayam, TRIVANDRUM 695035

62104, 62117

Inspection Offices (With Sale Point):

'Pushpanjali', First Floor, 205A West High Court Road, Shankar Nagar
Square, NAGPUR 440010

25171

Institution of Engineers (India) Building, 1332 Shivaji Nagar,
Pune 411005

52435

*Sales Office in Calcutta is at 5 Chowringhee Approach, P. O. Princep Street,
Calcutta 700072

276800

†Sales Office in Bombay is at Novelty Chambers, Grant Road, Bombay 400097

896528