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मानक

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“पुराने को छोड़ नये के तरफ”

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“Step Out From the Old to the New”

IS 14842 (2000): Coir Veneer Board for General Purposes
-Specification [CED 20: Wood and other Lignocellulosic
products]



“ज्ञान से एक नये भारत का निर्माण”

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“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS 14842 : 2000
REAFFIRMED : 2010

भारतीय मानक
सामान्य प्रयोजन के लिए नारियल जटा
विनियर बोर्ड — विशिष्टि

Indian Standard

**COIR VENEER BOARD FOR
GENERAL PURPOSES — SPECIFICATION**

ICS 79.060.99

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

October 2000

Price Group 4

**AMENDMENT NO. 1 DECEMBER 2004
TO
IS 14842 : 2000 COIR VENEER BOARD FOR GENERAL
PURPOSES — SPECIFICATION**

(Page 2, clause 8.2) — Substitute the following for the existing:

8.2 The dimensions of coir veneer board shall be as follows:

2 400 mm × 1 200 mm 1 800 mm × 1 200 mm
2 100 mm × 1 200 mm 1 800 mm × 900 mm
2 100 mm × 900 mm

(Page 2, clause 8.3) — Add the following Note after the clause:

NOTE — Any other dimensions (length, width and thickness) as agreed to between the manufacturer and the purchaser may also be used.

(Page 2, clause 8.3.1) — Substitute the following for the existing:

8.4 Tolerances

Tolerance on the nominal sizes of finished boards shall be as given below:

<i>Dimension</i>	<i>Tolerance</i>
Length	+6 - 0 mm
Width	+3 - 0 mm

Thickness:

i) Less than 6 mm	10 percent
ii) 6 mm and above	5 percent
Edge straightness	2 mm per 1 000 mm or 0.2 percent
Squareness	2 mm per 1 000 mm or 0.2 percent

(Page 2, clause 9.2, line 3) — Substitute '8.4' for 'IS 12049'.

Amend No. 1 to IS 14842 : 2000

(Page 3, clause 11.3, Table 1) — Add the following new clause after Table 1:

11.4 Modulus of Rupture (MOR) and Modulus of Elasticity (MOE)

Three test specimens for MOR and MOE from each sample may be drawn as specified in IS 1734 (Part 11) : 1983. Modulus of rupture and modulus of elasticity shall be determined for each test specimen in accordance with the method prescribed in IS 1734 (Part 11) and the average and minimum individual values shall not be less than the values given below:

Average and Minimum Individual Values of Modulus of Elasticity (MOE) and Modulus of Rupture (MOR)

Grade	MOE (N/mm ²)	MOR (N/mm ²)
BWR		
Average	3 000	30
Minimum Individual	2 700	27
MR		
Average	2 500	25
Minimum Individual	2 200	22

(Page 3, existing clause 11.4) — Renumber '11.4' as '11.5'.

(Page 3, existing clause 11.4, second and third line) — Substitute '11.2, 11.3 and 11.4' for '11.2 and 11.3'.

(Page 3, Annex A) — Add 'IS 1734 (Part 11) : 1983 Methods of Test for Plywood : Part 11 Determination of static bending strength (*second revision*)' at the appropriate place and delete 'IS 12049 : 1987 Dimensions and tolerances relating to wood based panel materials'.

(CED 20)

**AMENDMENT NO. 2 JUNE 2005
TO
IS 14842 : 2000 COIR VENEER BOARD FOR
GENERAL PURPOSES — SPECIFICATION**

*(Page 4, Annex C, clause C-2.4, line 3) — Substitute '27° ± 2°C' for
'270°C ± 20°C'.*

(CED 20)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 3 DECEMBER 2008
TO
IS 14842 : 2000 COIR VENEER BOARD FOR
GENERAL PURPOSES — SPECIFICATION

(Second cover page, Foreword) — Insert the following after fourth para as a separate para:

'A scheme of labeling environment friendly products to be known as Eco-Mark has been introduced at the instance of the Ministry of Environment and Forests (MoEF), Government of India. The Eco-Mark shall be administered by the Bureau of Indian Standards (BIS) under the *BIS Act*, 1986 as per the Resolution No. 71 dated 21 February 1991 and Resolution No. 425 dated 28 October 1992 published in the Gazette of the Government of India. For a product to be eligible for Eco-Mark, it shall also carry the Standard Mark of the BIS besides meeting additional environment friendly requirements. For this purpose, the Standard Mark of BIS would be a single mark being a combination of the ISI Mark and the Eco logo. Requirements to be satisfied for a product to qualify for the BIS Standard Mark for Eco friendliness will be optional. Manufacturing units will be free to opt for ISI Mark alone also.

The Eco-Mark criteria is based on the Gazette Notification No. 170 dated 18 May 1996 for Wood Substitutes as Environment Friendly Products published in the Gazette of the Government of India.'

(Page 1, clause 3.2, third and fifth lines) — Delete 'kraft'.

(Page 1, clause 5.4) — Add the following:

'For Eco-Mark only species of wood from sources other than natural forests such as wood from rubber, coconut, cashew, industrial and social forestry plantations, etc, and shade trees from tea and coffee estates shall be used for the manufacture of plywood.'

(Page 1, clause 5.5, Title and first line) — Delete 'Kraft'.

(Page 1, clause 5.6, third line) — Delete 'Kraft'.

(Page 1, clause 6.1, sixth line) — Delete 'Kraft'.

(Page 1, clause 6.1, seventh line) — Substitute 'resin, and wax if required' for 'resin and wax'.

Amend No. 3 to IS 14842 : 2000

(Page 1, clause 6.2.1) — Add the following at the end of the clause:

‘Alternatively, the veneers may be given a preservative treatment of CCA (Copper-Chrome-Arsenic) or ACC (Acid-Copper-Chrome) or CCB (Copper-Chrome-Boron) type as per IS 10013 (Parts 1, 2 and 3), respectively.’

(Page 2, clause 6.3, first line) — Delete ‘Kraft’.

(Page 2, clause 6.4, Title and second line) — Delete ‘Kraft’.

(Page 2, clause 6.5) — Substitute ‘assembled either alternatively or as core’ for ‘assembled alternatively’ in the second line and delete ‘kraft’ in the fourth line.

(Page 2, clause 6.6, second line) — Delete ‘Kraft’.

(Page 2, clause 11.2.2) — Insert the following at the end:

‘NOTE — The test shall be only applicable to Moisture Resistant (MR) Grade.’

[Page 3, clause 11.5 (see also Amendment No. 1)] — Insert the following new clause after 11.5 and renumber the subsequent clauses:

12 ADDITIONAL REQUIREMENTS FOR ECO-MARK

12.1 General Requirements

12.1.1 Coir veneer board shall conform to the requirements of quality as specified in this standard.

12.1.2 The manufacturer shall produce to BIS environmental consent clearance from the concerned State Pollution Control Board as per the provisions of the *Water (Prevention and Control of Pollution) Act, 1974* and *Air (Prevention and Control of Pollution) Act, 1981* and *Water (Prevention and Control of Pollution) Cess Act, 1977* alongwith the authorization, if required under the *Environment (Protection) Act, 1986*, while applying for Eco-Mark appropriate with enforced Rules and Regulations of Forest Department.

12.2 Specific Requirements

The coir veneer boards shall conform to the specific requirements given for

Amend No. 3 to IS 14842 : 2000

Eco-Mark under relevant clauses of the standard.

NOTE — The manufacturer shall provide documentary evidence by way of certificate or declaration to Bureau of Indian Standards while applying for Eco-Mark.

(Page 3, clause 12.1, renumbered as 13.1) — Insert the following matter after 'd)'.

'e) The criteria for which the coir veneer board has been labelled as Eco-Mark.'

(Page 3, Annex A) — Insert the reference of the following at the appropriate place:

<i>IS No.</i>	<i>Title</i>
10013	Specification for water soluble type wood preservatives:
(Part 1) : 1981	Acid-copper-chrome (ACC) preservative
(Part 2) : 1981	Copper-chrome-arsenic (CCA) wood preservative
(Part 3) : 1981	Copper-chrome-boron (CCB) wood preservative

(CED 20)

Reprography Unit, BIS, New Delhi, India

FOREWORD

This Indian Standard was adopted by Bureau of Indian Standards, after the draft finalized by the Wood Products Sectional Committee had been approved by the Civil Engineering Division Council.

Coir veneer board is a panel material manufactured from renewable material fibres such as coir, jute with kraft paper impregnated with suitable resin adhesive and wood veneers.

The technology for coir veneer board was developed by Coir Board at their Research Institute. Coir fibres in combination with jute fibres, kraft paper and wood veneers are converted into a composite rigid board with smooth finish. This can be used as a panel material like any other wood based panel.

Unless otherwise provided for in an agreement between the purchaser and the supplier all the tests shall be carried out as per this standard. For testing any other mechanical property for general purpose coir veneer board, subject to agreement between the purchaser and the supplier, reference shall be made to the provisions of IS 1734 : 1983 'Methods of test for plywood'.

The Committee responsible for the preparation of this standard is given at Annex D .

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 of 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.

*Indian Standard***COIR VENEER BOARD FOR
GENERAL PURPOSES — SPECIFICATION****1 SCOPE**

This standard covers the method of manufacture and the requirement of coir veneer board (coconut fibre with veneer) for general purposes.

2 NORMATIVE REFERENCES

The standards listed in Annex A contain provisions which through reference in this text, constitute provisions 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 in Annex A.

3 TERMINOLOGY

3.1 For the purpose of this standard the following definitions shall apply.

3.2 Coir Veneer Board (Coconut Fibre with Veneer)

Coir veneer board is manufactured with a combination of coconut fibre needled felt, veneer and jute fibres with kraft paper. Coconut fibre needled felt can be used as core/crossbands or as outer skins formed with jute fibres and kraft paper. However, the composite ply should be a balanced construction on either side of central ply. The blended mass of glued fibres is laid to form a mat which is pre needled.

3.3 Sizing Material

Alum, wax resin or other additive may be introduced to the agglomerate for coir veneer board prior to forming, primarily to increase water resistance.

4 GRADES

4.1 Coir veneer board for general purposes shall be of the following two grades:

- a) Boiling water resistant (BWR) grade, and
- b) Moisture resistant (MR) grade.

4.1.1 Boards shall be manufactured in accordance with 5 and 6 and shall conform to the requirements given in 7, 8, 9 and 11.

5 MATERIAL**5.1 Coconut Fibre**

Coconut fibre layer used in the manufacture of coir veneer board shall be uniform with a minimum of 600 g/m².

5.2 Jute

Jute fibre layer used in the manufacture of coir veneer board shall be uniform with a minimum of 60 g/m².

5.3 Adhesive

Adhesive for manufacture of coir veneer board shall conform to BWR/MR of IS 848 for BWR/MR grade of boards.

5.4 Veneer

Any species of timber may be used for the manufacture of veneers.

5.5 Kraft Paper

Kraft paper used in the manufacture of coir veneer board shall be uniform with a minimum of 40 g/m².

5.6 Thickness

The thickness of all veneers and minimum grammage of coconut fibre needled felt jute fibre and kraft paper shall be uniform with a tolerance of ± 5 percent.

6 MANUFACTURE

6.1 Coconut fibres manufactured by mechanical process as per IS 9308 (Part 2) or IS 9308 (Part 3) are processed through needled felt plant (Non-woven system) to make uniform mat in different densities according to the requirement. Jute fibres are carded and spread to give a uniform layer on kraft paper. These fibre mats thus produced are blended with resin and wax. The impregnated fibre mats are sandwiched with wood veneer in a press under controlled temperature and pressure.

6.2 Veneer

Veneer shall be either rotary cut or sliced. Treatment as specified below shall be given at the veneer stage.

6.2.1 Treatment

Veneers from non-durable species and sapwood of all species shall be soaked in 1.25 percent boric acid equivalent (BAE) solution at a temperature of 85-90° C for a period of 10-40 min depending upon the thickness of the veneers or the veneers may be dipped in 2 percent boric acid equivalent (BAE) solution for 2 min and block stacked at least for 2 h.

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6.2.2 Thickness

The thickness of all veneers shall be uniform with a tolerance of ± 5 percent.

6.3 Application of Adhesive

Coconut fibre needled felt and jute fibres with kraft paper shall be applied with the adhesive either by spraying or soaking/spreading process.

6.4 Conditioning of Adhesive Coated Coconut Fibre Needled Felt and Jute Fibre with Kraft Paper and Veneer

Adhesive coated coconut fibre needled felt and jute fibre with kraft paper to attain cohesiveness shall be allowed sufficient length of open, assembly time and/or passed through a band dryer at a temperature ranging between 80°C and 90°C to bring down the moisture content of adhesive coated coconut fibre needled felt to 8 to 12 percent.

6.5 Assembly

Adhesive coated and conditioned coconut fibre needled felt and veneer shall be assembled alternatively with layer of conditioned adhesive coated jute fibres with kraft paper forming as face layer. Care shall be taken to see on either side of the central ply same material and same thickness is used to get balanced construction.

6.6 Hot Pressing

Assembly of the adhesive coated coconut fibre needled felt, jute fibre with kraft paper and veneer shall be hot pressed at not less than 140° C for BWR grade and at 100°C to 110° C for MR grade at a specific pressure of 2.0 to 3.0 N/mm².

7 PERMISSIBLE DEFECTS

7.1 Gaps in cores and crossbands shall not be permitted.

7.2 Splits in cores and crossbands may be permitted to an extent of 2 per core or crossband.

7.3 Overlap shall be permitted in core/crossbands only.

8 DIMENSIONS AND TOLERANCES

8.1 The dimensions and tolerances of coir veneer board shall be quoted in the following order. The first dimension shall represent the length, the second dimension the width and the third dimension the thickness.

8.2 The dimensions and tolerances of coir veneer board shall be as prescribed for plywood in IS 12049.

8.3 Thickness of coir veneer board shall be 3 mm, 4 mm, 5 mm, 6 mm, 9 mm, 12 mm, 16 mm, 18 mm, 20 mm and 25 mm.

8.3.1 The following tolerance on the nominal thickness shall be permissible

- a) Less than 6 mm $\pm 10\%$
- b) 6 mm and above $\pm 5\%$

NOTE — Any other dimension as agreed to between the manufacturer and the purchaser may be used.

9 WORKMANSHIP AND FINISH

9.1 Coir veneer board shall be of uniform thickness and density throughout the length and width of the boards.

9.2 The squareness and edge straightness of the board when measured according to the procedure given in Annex B shall be as specified in IS 12049.

10 SAMPLING

10.1 The method of drawing representative samples and the criteria for conformity shall be as prescribed in IS 7638.

11 TESTS

11.1 Test Specimen

Eighteen test specimens, cut from each of the boards selected under 9.1 shall be subjected to the tests specified in 11.2.1, 11.2.2 and 11.2.3.

11.2 Glue Adhesion

Glue adhesion shall be deemed satisfactory if the coir veneer board complies with requirements specified in 11.2.1, 11.2.2 and 11.2.3.

11.2.1 Glue Shear Strength in Dry State

Coir veneer board shall be tested in accordance with Annex C. The average and the minimum individual glue shear strength shall not be less than the values specified in Table 1.

11.2.2 Mycological Test

Coir veneer board shall be tested in accordance with IS 1734 (Part 7) for mycological test. The average and the minimum individual glue shear strength values determined in accordance with Annex C shall not be less than the values specified in Table 1.

11.2.3 Water Resistant Test

Coir veneer board shall be tested in accordance with IS 1734 (Part 6) for water resistance test. The average and the minimum individual glue shear strength values determined in accordance with Annex C shall not be less than the values specified in Table 1.

11.3 Moisture Content

Coir veneer board when tested in accordance with IS 1734 (Part 1) shall have a moisture content not less than 5 percent and not more than 15 percent.

Table 1 Average and Minimum Individual Glue Shear Strength for Coir Veneer Board
(Clauses 11.2.1, 11.2.2 and 11.2.3)

SI No.	Grade	Shear Strength, Min (N)		
		Dry State	Mycological	Water Resistance
(1)	(2)	(3)	(4)	(5)
i)	BWR			
	Average	1 350	1 000	1 000
	Minimum individual	1 100	800	800
ii)	MR			
	Average	1 000	800	800
	Minimum individual	800	650	650

11.4 Re-Test

If the samples selected as specified in 10.1 are found not to be fully complying with the requirement of 11.2 and 11.3, a further similar set of samples shall be taken at random from the same batch and subjected to the tests. If any of the samples in the second set is also found not to comply fully with the requirements of tests, all the boards in the batch represented by the samples shall be rejected.

12 MARKING

12.1 Each coir veneer board shall be legibly and

indelibly marked or stamped with the following :

- Indication of the source of manufacture,
- Year of manufacture,
- Batch No., and
- The grade and type as follows:
 - Boiling water resistant (BWR), and
 - Moisture resistant (MR).

12.2 All marking shall be done on the face of coir veneer board near one corner.

12.3 BIS Certification Marking

Coir veneer board may also be marked with the Standard Mark.

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

13 DELIVERY

Unless otherwise specified, coir veneer board shall be delivered in a clean condition and shall be suitably packed.

ANNEX A

(Clause 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	Title	IS No.	Title
848 : 1974	Synthetic resin adhesive for plywood (phenolic and aminoplastics) (<i>first revision</i>)	7638 : 1999	Wood/lignocellulosic based panel products — Method for sampling (<i>second revision</i>)
1734	Method of test for plywood:	9308	Specification for mechanically extracted coir fibres :
(Part 1) : 1983	Determination of density and moisture content (<i>second revision</i>)	(Part 2) : 1987	Mattress coir fibre (<i>first revision</i>)
(Part 6) : 1983	Determination of water resistance (<i>second revision</i>)	(Part 3) : 1987	Decorticated coir fibre (<i>first revision</i>)
(Part 7) : 1983	Mycological test (<i>second revision</i>)	12049 : 1987	Dimensions and tolerance relating to wood based panel materials

ANNEX B
(Clause 9.2)

METHOD FOR TEST FOR SQUARENESS AND EDGE STRAIGHTNESS

B-1 PROCEDURE FOR EDGE STRAIGHTNESS

B-1.1 The straightness of the edges and ends of coir veneer board shall be verified against a straightedge not less than the full length of the coir veneer board. If the edge on the end of coir veneer board is convex, it shall be held against the straightedge in such a way as to give approximately equal gap at each end. The largest gap between the straightness and the edge

shall be measured to the nearest millimetre and recorded.

B-2 PROCEDURE FOR SQUARENESS

B-2.1 The squareness of coir veneer board shall be checked with a 1 200 mm × 1 200 mm square, by applying one arm of the square to the coir veneer board. The maximum width of the gap shall be recorded.

ANNEX C

(Clauses 11.2.1, 11.2.2 and 11.2.3)

METHOD OF TEST FOR COIR VENEER BOARD FOR DETERMINATION OF GLUE SHEAR STRENGTH

C-1 OBJECT

C-1.1 This test is intended to estimate the tenacity with which the bonding material holds the coir veneer board together.

C-2 TEST SPECIMEN

C-2.1 Six test specimens shall be cut from the coir veneer board from three locations separated by the greatest possible distance from each other.

C-2.2 The test specimens shall be prepared as shown in Fig. 1.

C-2.3 The test pieces for 3-ply coir veneer board shall be prepared by gluing an additional 3-ply coir veneer board as shown in Fig. 1A. The test pieces for 5-ply shall be prepared as shown in Fig. 1B. The test pieces for 7-ply coir veneer board shall be prepared as shown in Fig. 1C.

The specimen is glued with room temperature setting epoxy resin and clamped/tied overnight.

NOTE — This method of preparation of specimen will avoid the failure on notches.

C-2.4 Before test, the specimen shall be conditioned to constant mass at relative humidity of 65 ± 5 percent and at a temperature of $270^\circ \text{C} \pm 20^\circ \text{C}$.

C-3 PROCEDURE

C-3.1 Each test specimen shall be gripped symmetrically at two ends in the jaws of a suitable testing machine, and shall be pulled apart. The distance between the notches on the test specimen and the end of the gripping jaws of the testing machine shall be between 10 mm and 20 mm. The pull should be, as far as possible, in the centre line of the central

veneer. The grain of the centre ply shall be perpendicular to the direction of application of load. The width of each specimen and distance between the notches shall be measured to nearest 0.025 cm to determine the shear area.

C-3.2 During the test, the load shall be applied to the test specimens as uniformly as possible, and so adjusted as to have the traverse of the moveable head of 1 mm/min.

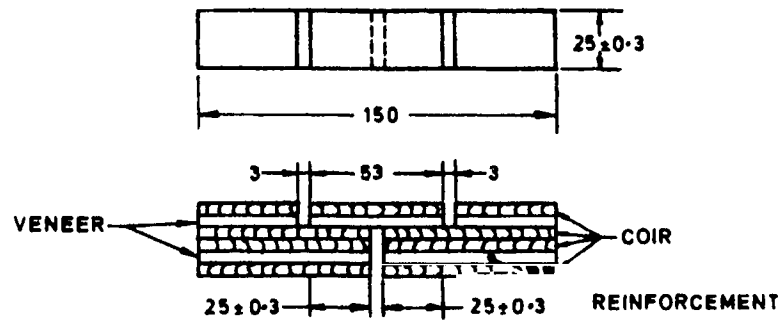
C-3.3 The maximum load at the time of complete failure of each specimen shall be recorded. Record shall be made regarding the type of failure whether in ply or in glue by visual examination of the area under shear. In case of ply failure, the percentage ply failure shall also be recorded.

C-4 REPORT

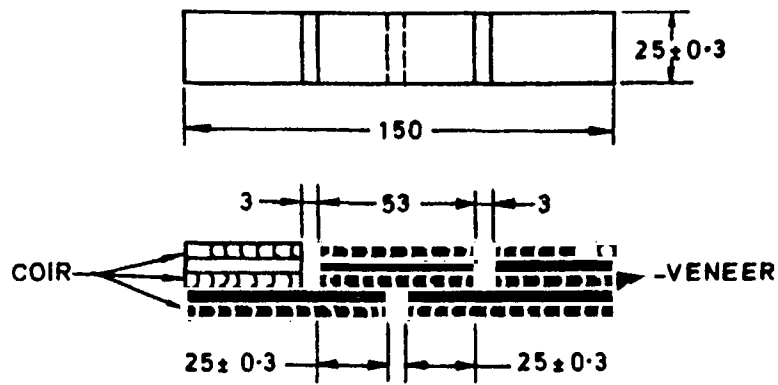
C-4.1 Shear strength of the specimens determined in accordance with C-3 shall be straight averaged.

C-4.2 All details shall be recorded under the following sub-heads.

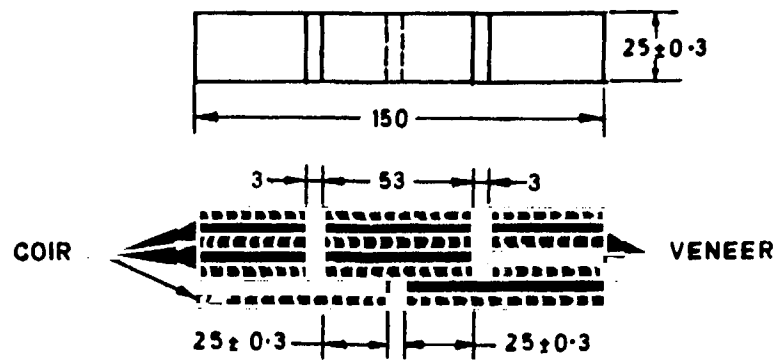
- a) Name of the manufacturer/source from whom the coir veneer board is procured,
- b) Type and grade of coir veneer board,
- c) Adhesive used,
- d) End use of coir veneer board,
- e) Specimen No./Ref,
- f) Area of cross-section of bonding surface under shear,
- g) Maximum load, and
- h) Percentage failure of glue/ply.



1A 3-ply Test Specimen



1B 5-ply Test Specimen



1C 7-ply Test Specimen

All dimensions in millimetres.

FIG. 1 TEST SPECIMEN FOR GLUE ADHESION TEST

ANNEX D
(Foreword)

COMMITTEE COMPOSITION

Wood Products Sectional Committee, CED 20

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