

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 459 (1992): Corrugated and semi-Corrugated Asbestos Cement Sheets - [CED 53: Cement Matrix Products]



“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



भारतीय मानक
एस्बेस्टॉस सीमेंट की नालीदार और अर्ध-नालीदार
सीमेंट की चद्दरों की विशिष्टि
(तीसरा पुनरीक्षण)
Indian Standard
CORRUGATED AND SEMI-CORRUGATED
ASBESTOS CEMENT SHEETS - SPECIFICATION
(Third Revision)

Fourth Reprint DECEMBER 2006
(Including Amendment No 1 & 2)

UDC 691.328.5-415

© BIS 1992
BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Cement and Concrete Sectional Committee, CED 2

<i>Chairman</i>	<i>Representing</i>
DR H. C. VISVESVARAYA	In personal capacity (<i>University of Roorkee, Roorkee 247 667</i>)
<i>Members</i>	
SHRI B. R. BHARTIKAR	B. G. Shirke & Co, Pune
SHRI U. N. RATHI (<i>Alternate</i>)	Orissa Cement Limited, New Delhi
SHRI H. BHATTACHARYA	The Associated Cement Companies Ltd, Bombay
DR A. K. CHATTERJEE	Central Public Works Department, New Delhi
SHRI S. H. SUBRAMANIAN (<i>Alternate</i>)	
CHIEF ENGINEER (DESIGNS)	
SUPERINTENDING ENGINEER (S & S) (<i>Alternate</i>)	
CHIEF ENGINEER, NAVAGAM DAM	Sardar Sarovar Narmada Nigam Ltd, Gandhinagar
SUPERINTENDING ENGINEER, QCC (<i>Alternate</i>)	
CHIEF ENGINEER (RESEARCH-CUM-DIRECTOR)	Irrigation and Power Research Institute, Amritsar
RESEARCH OFFICER (CONCRETE-TECHNOLOGY) (<i>Alternate</i>)	
DIRECTOR	A. P. Engineering Research Laboratories, Hyderabad
JOINT DIRECTOR (<i>Alternate</i>)	
DIRECTOR (CMDD) (N & W)	Central Water Commission, New Delhi
DEPUTY DIRECTOR (CMDD) (N W & S) (<i>Alternate</i>)	
SHRI K. H. GANGWAL	Hyderabad Industries Limited, Hyderabad
SHRI V. PATTABHI (<i>Alternate</i>)	
SHRI V. K. GHANEKAR	Structural Engineering Research Centre (CSIR), Ghaziabad
SHRI S. GOPINATH	The India Cements Ltd, Madras
SHRI R. TAMILAKARAN (<i>Alternate</i>)	
SHRI S. K. GUHA THAKURTA	Gannon Dunkerley & Company Limited, Bombay
SHRI S. P. SANKARANARAYANAN (<i>Alternate</i>)	
DR IRSHAD MASOOD	Central Building Research Institute (CSIR), Roorkee
DR MD KHALID (<i>Alternate</i>)	
JOINT DIRECTOR, STANDARDS (B & S) (CB-I)	Research, Designs & Standards Organization (Ministry of Railways), Lucknow
JOINT DIRECTOR STANDARDS (B & S) (CB-II) (<i>Alternate</i>)	
SHRI N. G. JOSHI	Indian Hume Pipes Co Ltd, Bombay
SHRI P. D. KELKAR (<i>Alternate</i>)	
SHRI D. K. KANUNGO	National Test House, Calcutta
SHRI B. R. MEENA (<i>Alternate</i>)	
SHRI P. KRISHNAMURTHY	Larsen and Turbo Limited, Bombay
SHRI S. CHAKRAVARTHY (<i>Alternate</i>)	
SHRI G. K. MAJUMDAR	Hospital Services Consultancy Corporation (India) Ltd, New Delhi
SHRI S. O. RANGARI (<i>Alternate</i>)	
SHRI M. K. MUKHERJEE	Ministry of Transport, Department of Surface Transport (Roads Wing), New Delhi
SHRI M. K. GHOSH (<i>Alternate</i>)	
SHRI P. N. MEHTA	Geological Survey of India, Calcutta
SHRI J. S. SANGANERIA (<i>Alternate</i>)	
MEMBER SECRETARY	Central Board of Irrigation and Power, New Delhi
DIRECTOR (CIVIL) (<i>Alternate</i>)	
SHRI NIRMAL SINGH	Development Commissioner for Cement Industry (Ministry of Industry)
SHRI S. S. MIGLANI (<i>Alternate</i>)	Engineer-in-Chief's Branch, Army Headquarters
SHRI R. C. PARATE	
COL R. K. SINGH (<i>Alternate</i>)	Hindustan Prefab Ltd, New Delhi
SHRI H. S. PASRICHA	Central Road Research Institute (CSIR), New Delhi
SHRI Y. R. PHULL	
SHRI S. S. SEHRA (<i>Alternate</i>)	Indian Roads Congress, New Delhi
SHRI Y. R. PHULL	
SHRI R. H. SHARMA (<i>Alternate</i>)	Directorate General of Supplies and Disposals, New Delhi
SHRI G. RAMDAS	
SHRI R. C. SHARMA (<i>Alternate</i>)	National Council for Cement and Building Materials, New Delhi
DR C. RAJKUMAR	
DR S. C. AHLUWALIA (<i>Alternate</i>)	Structural Engineering Research Centre (CSIR), Madras
DR M. RAMAIAH	
DR A. G. MADHAVA RAO (<i>Alternate</i>)	Builders Association of India, Bombay
REPRESENTATIVE	Cement Corporation of India, New Delhi
SHRI A. U. RIJHSINGHANI	
SHRI C. S. SHARMA (<i>Alternate</i>)	National Buildings Organization, New Delhi
SHRI J. SEN GUPTA	
SHRI A. K. LAL (<i>Alternate</i>)	Gammon India Limited, Bombay
SHRI T. M. SUBBA RAO	
SHRI S. A. REDDI (<i>Alternate</i>)	

(Continued on page 6)

(Continued from page 5)

<i>Members</i>	<i>Representing</i>
SUPT ENGINEER (DESIGNS) EXECUTIVE ENGINEER (S. M. R. DIVISION) (Alternate)	Public Works Department, Government of Tamilnadu
SHRI S. B. SURI SHRI N. CHANDRASEKARAN (Alternate)	Central Soil and Materials Research Station, New Delhi
DR H. C. VISVESVARAYA SHRI D. C. CHATTURVEDI (Alternate)	The Institution of Engineers (India), Calcutta
SHRI G. RAMAN Director (Civil Engg)	Director General, BIS (<i>Ex-officio Member</i>)
 <i>Secretary</i>	
SHRI N. C. BANDYOPADHYAY Joint Director (Civil Engg), BIS	

Fibre Reinforced Cement Products Subcommittee, CED 2 : 3

<i>Convener</i>	
DR C. RAJKUMAR	National Council for Cement and Building Materials, New Delhi
<i>Members</i>	
SHRI S. K. BANERJEE	National Test House, Calcutta
SHRI N. G. BASAK	Directorate General of Technical Development, New Delhi
SHRI P. K. JAIN (Alternate)	
SHRI S. N. BASU	Directorate General of Supplies and Disposals, New Delhi
SHRI T. N. UBOVEJA (Alternate)	
SHRI S. R. BHANDARI	Shri Digvijay Cement Co Ltd, Bombay
SHRI D. N. SINGH (Alternate)	
SHRI S. GANAPATHY	Ramco Industries Ltd, Madras
SHRI S. S. GOENKA	Sarbamangala Industries, Calcutta
SHRI I. P. GOENKA (Alternate)	
SHRI MOTWANI GURBUX	All India Small Scale A. C. Pressure Pipe Manufacturer's Association, Hyderabad
SHRI H. R. OZA (Alternate)	
SHRI SRINIVASAN N. IYER	Eternit Everest Ltd, Bombay
DR V. G. UPADHYAYA (Alternate)	
JOINT DIRECTOR STANDARDS (B & S)/CB-I	Research, Designs & Standards Organization, Lucknow
JOINT DIRECTOR STANDARDS (B & S)/ CB-II (Alternate)	
SHRI P. S. KALANI	Kalani Asbestos Cement Pvt Ltd, Indore
SHRI SAURABH KALANI (Alternate)	
DR KALYAN DAS	Central Building Research Institute (CSIR), Roorkee
SHRI K. D. DHARIYAL (Alternate)	
LT-COL KAMLESH PRAKASH	Engineer-in-Chief's Branch, Army Headquarters
LT-COL A. K. BANGIA (Alternate)	
SHRI P. N. MEHTA	Geological Survey of India, Calcutta
SHRI V. K. KASLIWAL (Alternate)	
SHRI V. PATTABHI	The Hyderabad Industries Ltd, Hyderabad
SHRI A. K. GUPTA (Alternate)	
SHRI S. PRAKASH	Municipal Corporation, Delhi
DR N. RAGHAVENDRA	National Council for Cement and Building Materials, New Delhi
SHRI RAJ KUMAR	Development Commissioner, Small Scale Industries, New Delhi
SHRI S. C. KUMAR (Alternate)	
SHRI J. SEN GUPTA	National Buildings Organization, New Delhi
ASSISTANT DIRECTOR (PLASTIC) (Alternate)	
SUPTD SURVEYOR OF WORKS (CZ)	Central Public Works Department, New Delhi
SURVEYOR OF WORKS (CZ) (Alternate)	

**AMENDMENT NO. 1 MAY 2002
TO
IS 459 : 1992 CORRUGATED AND
SEMI-CORRUGATED ASBESTOS CEMENT
SHEETS — SPECIFICATION**

(*Third Revision*)

(Page 1, clause 2) — Insert the following reference at the end :

'12269 : 1987 Specification for 53 grade ordinary Portland Cement'

(Page 1, clause 3, line 10) — 'Insert 'or 53 grade ordinary Portland cement conforming to IS 12269 : 1987' after 'IS 8112 : 1989'.

(CED 53)

Printed at Prabhat Offset Press, New Delhi-2

AMENDMENT NO. 2 JUNE 2003
TO
IS 459 : 1992 CORRUGATED AND
SEMI-CORRUGATED ASBESTOS CEMENT
SHEETS —SPECIFICATION

(Third Revision)

(Page 1, clause 2) — Insert the following at the appropriate place:

IS No.	Title
'3812 : 1981	Specification for fly ash for use as pozzolana and admixture (first revision)'

(Page 1, clause 3) — Insert the following at the end:

'Fly ash, if used shall conform to IS 3812 : 1981. The corrugated and semi-corrugated asbestos cement sheets may be reinforced with strips of suitable materials; the material of strips and details regarding reinforcing shall be mutually agreed to between the manufacturer and the purchaser.'

(Page 2, Table 1) — Insert the following note:

'NOTE — Corrugated sheets of overall width 1 086 mm and effective width 1 016 mm with tolerances and other parameters same as in this table 1 may also be manufactured by mutual agreement between the manufacturer and the purchaser (see Fig 1A)'

(Page 3, Fig. 1) —Insert Fig. 1 Aafter 'Fig. 1'.

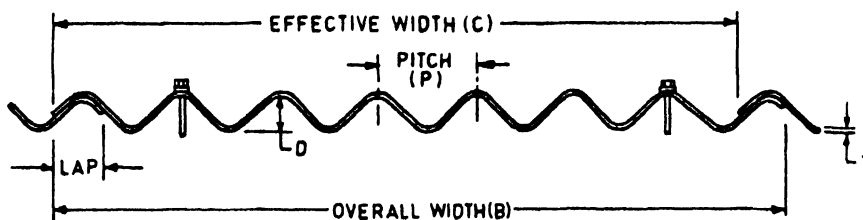


FIG. 1A CORRUGATED SHEET WITH FULL OVERLAP

(CED 53)

AMENDMENT NO. 3 MAY 2009
TO
IS 459 : 1992 CORRUGATED AND SEMI-CORRUGATED
ASBESTOS CEMENT SHEETS — SPECIFICATION

(Third Revision)

(Page 1, clause 2 (see also Amendment No. 2)) — Substitute the following for the existing entry:

‘IS 3812 (Part 1) : 2003 Pulverized fuel ash — Specification : Part 1 For use as pozzolana in cement, cement mortar and concrete *(second revision)*’

[Page 1, clause 3, third sentence (see also Amendment No. 2)] — Substitute ‘IS 3812 (Part 1)’ for ‘IS 3812 : 1981’.

FOREWORD

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

This standard was originally published in 1955 and subsequently revised in 1962 and 1970. The present revision has been taken up in the light of experience gained with the use of this standard. The major changes in this revision include deletion of acid resistance and water absorption test, and inclusion of density test as an optional requirement in line with the international practices. Impermeability test has been made optional in this revision. In the composition of such sheets, addition of some other suitable fibres and pozzolanic material have also been permitted.

In the formulation of this standard, due weightage has also been given to the international coordination among the standards and practices in different countries in addition to relating it to the practices in the field in this country.

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 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.

Indian Standard

CORRUGATED AND SEMI-CORRUGATED ASBESTOS CEMENT SHEETS — SPECIFICATION

(*Third Revision*)

1 SCOPE

This standard covers corrugated and semi-corrugated asbestos cement sheets, designed to provide structural weather exposed surfaces of roofs and building walls of industrial, residential, agricultural, commercial and institutional types of buildings and for decorative and other purposes.

2 REFERENCES

The following Indian Standards are necessary adjuncts to this standard:

<i>IS No.</i>	<i>Title</i>
269 : 1989	33 grade ordinary Portland cement (<i>fourth revision</i>)
455 : 1989	Portland slag cement (<i>fourth revision</i>)
1489 (Part 1) : 1991	Portland pozzolana cement: Flyash based
(Part 2) : 1991	Calcined clay based
5913 : 1989	Methods of test for asbestos cement products (<i>first revision</i>)
8041 : 1990	Rapid hardening Portland cement (<i>second revision</i>)
8112 : 1989	43 grade ordinary Portland cement (<i>first revision</i>)
11769 (Part 1) : 1987	Guidelines for safe use of products containing asbestos: Part 1 Asbestos cement products
12081 (Part 2) : 1987	Recommendations for pictorial warning signs and precautionary notice for asbestos and products containing asbestos: Part 2 Asbestos and its products

3 COMPOSITION

The products shall be composed of an inert aggregate consisting of clean asbestos fibre, including other suitable fibres, cemented together either by 33 grade ordinary Portland cement conforming to IS 269 : 1989, rapid hardening Portland cement conforming to IS 8041 : 1990, Portland slag cement conforming to IS 455 : 1989,

Portland pozzolana cement conforming to IS 1489 (Parts 1 and 2) : 1991 or 43 grade ordinary Portland cement conforming to IS 8112 : 1989. Pozzolanic materials, pigments and fillers which are compatible with asbestos cement may be added.

NOTE — In case of Portland pozzolana cement and Portland slag cement, addition of pozzolanic materials shall not be permitted.

4 COLOURING MATTER

4.1 Pigments which are embodied in asbestos for colouring purposes shall be of permanent colour and shall conform to the relevant Indian Standards. For guidance in ascertaining the colour and staining power of the pigments see IS 5913 : 1989.

4.2 The sheets may be left in their natural colour or colouring matter may be added in the composition. They may receive coloured or uncoloured coatings on their surfaces.

5 DIMENSIONS AND TOLERANCES

5.1 The sheets shall conform to the dimensions and tolerances given in Table 1 and Fig. 1 and 2.

5.1.1 For the purpose of measuring the thickness, a dial thickness gauge having a flat anvil of not less than 9 mm diameter accurate to measure 0.1 mm shall be used. The thickness measurement shall be made along the width on each end of the sheet. For corrugated sheets, measure at least three corrugations at each end of the sheet excluding side laps. For semi-corrugated sheets, measure at least three spots at each end of the sheet in which extreme flat portions shall be included. Thickness shall be measured at a distance not less than 20 mm from the edge. Each individual measurement shall be not less than the minimum value specified in Table 1.

5.1.2 The depth of corrugation shall be measured with the help of a depth gauge as follows:

- a) In the case of corrugated sheets, the depth of each of the six corrugations shall be measured on the smooth side and the maximum deviation in any of the cases measured shall not exceed the limits specified in Table 1.

- b) In the case of semi-corrugated sheets, the depths of two central corrugations shall be measured on the rough side and the maximum deviation in any of the two cases measured shall not exceed the limits specified in Table 1.

5.1.3 The pitch of corrugation shall be measured as follows:

- a) In the case of corrugated sheets, the total length over six pitches shall be measured and the length measured over these six pitches shall not vary from six times the specified pitch by the tolerance given (see foot note in Table 1).
- b) In the case of semi-corrugated sheets, the total length over three pitches shall be measured and the length measured over these three pitches shall not vary from three times the specified pitch by the tolerances given (see foot note in Table 1).

6 PHYSICAL AND MECHANICAL CHARACTERISTICS

6.1 Load Bearing Capacity

The load bearing capacity of corrugated and semi-corrugated sheets shall be not less than 5 N/mm width of specimen tested, when tested in accordance with IS 5913 : 1989.

6.2 Impermeability (Optional Test)

The specimens shall not show during 24 hours of test any formation of drops of water except traces of moisture on the lower surface, when tested in accordance with IS 5913 : 1989.

6.3 Frost Cracking (Optional Test)

This test may be performed by mutual agreement between the purchaser and the manufacturer for sheets to be used in special situations likely to be affected by frost. Visual examination of the specimens when tested for frost cracking in accordance with IS 5913 : 1989, shall not show any cracking, surface alteration or delamination.

6.4 Density (Optional Test)

Density of the specimens shall be not less than 1.40 g/cm³, when tested in accordance with IS 5913 : 1989.

7 GENERAL APPEARANCE AND FINISH

7.1 The surface of the sheets intended to be exposed to the weather shall be generally of smooth finish and the finish should permit any minor variation of surface appearance due to method of manufacture which does not impair the strength or performance of the sheets.

7.2 The finished products when delivered shall have a rectangular shape. The corrugations shall be true and regular. The edges of the sheets shall be straight, clean and square.

Table 1 Dimensions and Tolerances of Corrugated and Semi-Corrugated Sheets

(Clauses 5.1, 5.1.1, 5.1.2 and 5.1.3)

All dimensions in millimetres.

Sl No.	Type of Sheet	Depth of Corrugation		Pitch of Corrugation		Overall Width		Effective Width		Nominal Thickness		Length of Sheet ²⁾	
		D	Tolerance	P	Tolerance ¹⁾	B	Tolerance	C	Tolerance	T	Tolerance	L	Tolerance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
i)	Corrugated	48	+ 3 - 5	146	+ 6 - 2	1 050	+ 10 - 5	1 010	+ 10 - 5	6	+ free - 0.5	1 500 1 750 2 000 2 250 2 500 2 750 3 000	+ 5 - 10
ii)	Semi-corrugated	45	+ 3 - 5	338	+ 6 - 2	1 100	+ 10 - 5	1 014	+ 10 - 5	6	+ free - 0.5	1 500 1 750 2 000 2 250 2 500 2 750 3 000	+ 5 - 10

¹⁾ Tolerance given in this table for pitch of corrugation relates to measurement over six pitches for corrugated sheets and three pitches for semi-corrugated sheets.

²⁾ Nominal lengths other than those specified in col 13 may also be manufactured by mutual agreement between the manufacturer and purchaser.

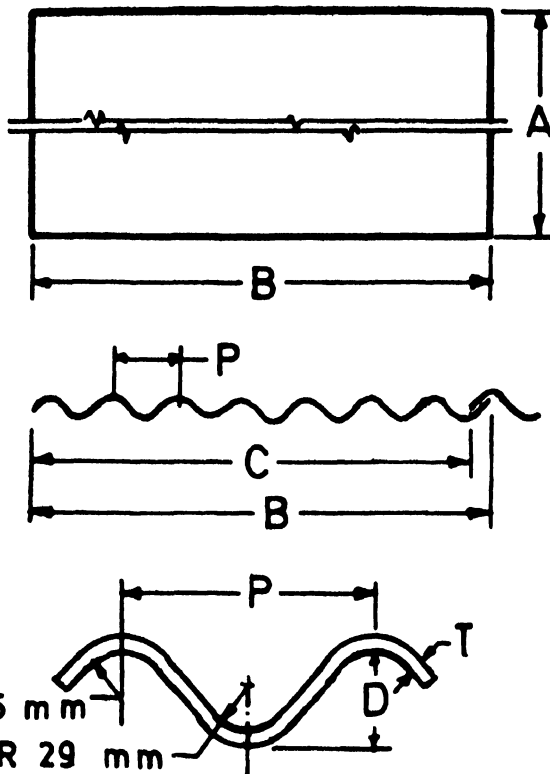


FIG. 1 CORRUGATED SHEETS

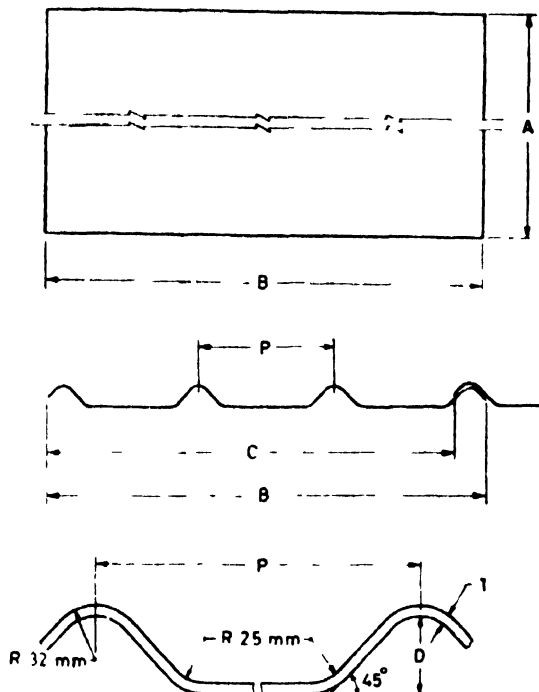


FIG. 2 SEMI-CORRUGATED SHEETS

8 SAMPLING AND NUMBER OF TESTS

8.1 Scale of Sampling

8.1.1 Lot

In any consignment all the sheets of the same type and of the same thickness and manufactured

under similar conditions of production shall be grouped together to constitute a lot.

8.1.1.1 The conformity of a lot to the requirements of this specification shall be ascertained on the basis of tests on the sheets selected from it.

8.1.2 The number of sheets to be selected at random from the lot shall be in accordance with Table 2.

Table 2 Sample Size

(Clause 8.1.2)

Lot Size	Sample Size
(1)	(2)
Up to 500	3
501 to 1 000	5
1001 to 1 500	7
1 501 and above	10

8.2 Number of Test

8.2.1 All the sheets selected as in 8.1.2 shall be measured for dimensions and examined for visual defects.

8.2.2 On each selected sheet, the tests shall be performed as indicated in 6.

9 CRITERIA FOR CONFORMITY

9.1 The lot shall be considered as conforming to the requirements of the specification if the conditions given under 9.2 and 9.3 are satisfied.

9.2 Dimensions, Visual Defects Impermeability, Frost Cracking and Density

The selected sheets shall conform to the requirements specified in 5 and 7. For impermeability, frost cracking and density test the sheets shall conform to the requirements specified in 6.

9.3 Load Bearing Capacity

From the test results of the characteristic, the average (\bar{X}) and the range (R) (difference between the maximum and minimum test result) shall be calculated. The requirement of the characteristic shall be considered to have satisfied if $\bar{X} - 0.2 R$ is greater than or equal to corresponding limit.

10 INSPECTION AND MANUFACTURER'S TEST CERTIFICATE

10.1 The purchaser or his representative shall have access at all reasonable times to the manufacturer's stock area for the purpose of inspecting the materials and products, and selecting and testing the sheets, which shall be so conducted as not to interfere unnecessarily with the loading in the carriers.

IS 459 : 1992

10.2 The manufacturer shall, upon request, furnish the purchaser or his representative with a certificate that the finished products comply with this specification in all respects.

11 TESTING FACILITIES

The manufacturer shall, in all cases and at his own expense, supply labour and appliances for such tests as may be carried out in his premises in accordance with this specification.

12 MARKING

Each sheet shall be indelibly stamped or marked

by any suitable method with the following information:

- a) Indication of source of manufacture,
- b) Year and date of manufacture, and
- c) Pictorial warning signs as given in IS 1201 (Part 2) : 1987.

13 SAFETY RULES SHEET

All deliveries of asbestos cement sheets by manufacturer shall be accompanied by safety rules sheet as given in IS 11769 (Part 1) : 1987.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 1986 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

This Indian Standard has been developed from Doc : No. CED 2 (4766).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters :

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110 002
Telephones : 2323 01 31, 2323 33 75, 2323 94 02

Telegrams : Manaksanstha
(Common to all offices)

Regional Offices :

	Telephone
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110 002	{ 2323 76 17 2323 38 41
Eastern : 1/14 C.I.T. Scheme VII M, V. I. P. Road, Kankurgachi KOLKATA 700 054	{ 2337 84 99, 2337 85 61 2337 86 26, 2337 91 20
Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160 022	{ 260 38 43 260 92 85
Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600 113	{ 2254 12 16, 2254 14 42 2254 25 19, 2254 23 15
Western : Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400 093	{ 2832 92 95, 2832 78 58 2832 78 91, 2832 78 92
Branches : AHMEDABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. NAGPUR. NALAGARH. PATNA. PUNE. RAJKOT. THIRUVANANTHAPURAM. VISAKHAPATNAM.	