

# इंटरनेट

# मानक

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IS 2095-2 (2001): Gypsum Plaster Boards, Part 2:  
Coated/Laminated Gypsum Plaster Boards [CED 4: Building  
Limes and Gypsum Products]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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भारतीय मानक  
जिप्सम के प्लास्टर बोर्डों की विशिष्टि  
भाग 2 लेपित/परत चढ़े हुए जिप्सम के प्लास्टर बोर्ड

(दूसरा पुनरीक्षण)  
*Indian Standard*

**GYPSUM PLASTER BOARDS — SPECIFICATION**

PART 2 COATEDILAMINATED GYPSUM PLASTER BOARDS

*(Second Revision)*

ICS 91.100.10

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

**AMENDMENT NO. 1 SEPTEMBER 2006  
TO  
IS 2095 (PART 2) : 2001 GYPSUM PLASTER  
BOARDS — SPECIFICATION**

**PART 2 COATED/LAMINATED GYPSUM PLASTER BOARDS**

***( Second Revision )***

*(Page 2, clause 10, Title) — Substitute 'ADDITIONAL' for  
'OPTIONAL'.*

**( CED 4 )**

**Reprography Unit, BIS, New Delhi, India**

**AMENDMENT NO. 2 MARCH 2010**  
**TO**  
**IS 2095 (PART 2) : 2001 GYPSUM PLASTER BOARDS —**  
**SPECIFICATION**

**PART 2 COATED/LAMINATED GYPSUM PLASTER BOARDS**

*( Second Revision )*

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

'2095 (Part 1) : 1996	Gypsum plaster boards — Specification : Part 1 Plain gypsum plaster boards ( <i>second revision</i> )
2095 (Part 3) : 1996	Gypsum plaster boards — Specification : Part 3 Reinforced gypsum plaster boards ( <i>second revision</i> )
8272 : 1984	Gypsum plaster for use in the manufacture of fibrous plaster boards — Specification ( <i>first revision</i> )'

(CED 4)

## FOREWORD

This Indian Standard (Part 2) (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Gypsum and Gypsum Based Products for Buildings Sectional Committee had been approved by the Civil Engineering Division Council.

The internal surfaces of walls and ceilings of most of the buildings are finished internally by applying plaster in one or more coats. In order to reduce the demand of site labour, the use of building boards, such as gypsum plaster board, fibre hard board, cement coir board and asbestos cement-building boards as covering for walls and ceiling is increasing steadily. Gypsum boards have the specific advantage of being lighter than the boards of similar nature such as fibre hard board and asbestos cement building boards. Gypsum boards also possess better fire-resisting, thermal and sound insulating properties.

Sufficient quantities of natural gypsum and by-product gypsum are available in India. Though natural gypsum has been mostly used in the manufacture of gypsum boards, by-product gypsum after suitable treatment if required, is also equally suitable for manufacturing such boards.

Gypsum boards may be manufactured as plain, coated/laminated and reinforced boards.

The boards may be used to provide dry lining finishes to masonry walls, to ceilings, to steel or timber frame partitions, or as ceilings to structural steel columns and beams, or in the manufacture of prefabricated partition panels.

Plain boards that is gypsum plaster boards comprise of a gypsum plaster core with or without fibre incased in and firmly bonded to strong paper liners to form rectangular boards. These gypsum boards are used as wall boards and base boards with improved water-resistance and core cohesion at elevated temperatures. The coated/laminated boards also characterized by gypsum plaster and namely, waste paper fibre, sisal coir glass, etc, produced by pressing to form board of surface suitable for lamination or papering.

Coated/laminated gypsum boards are used for laying for concrete ceiling. With concrete it combines firmly and represents readymade interior plastering. Glass reinforced gypsum boards (GRG) are pseudo ductile materials having reasonably high flexural and impact strengths.

Gypsum boards specified in the standard have been covered in three parts, Part 1 covers Plain boards, Part 2 covers coated/laminated boards and Part 3 covers reinforced boards.

This part deals with coated/laminated gypsum plaster boards, its manufacture, tests and sampling.

A scheme of labelling environment friendly products to be known as ECO Mark is being introduced at the instance of the Ministry of Environment and Forests (MEF), Government of India. The ECO Mark shall be administered by the Bureau of Indian Standards under the *BIS Act*, 1986 as per the Resolution No. 71 dated 21 February 1991 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 optional environment friendly requirements.

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

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.

## *Indian Standard*

# GYPSUM PLASTER BOARDS — SPECIFICATION

## PART 2 COATED/LAMINATED GYPSUM PLASTER BOARDS

### *(Second Revision)*

#### 1 SCOPE

This standard (Part 2) covers the method of manufacture, tests and sampling of gypsum boards for use as a lining material for ceiling, dry surfacing material for walls or for light weight partitions.

#### 2 REFERENCES

The Indian Standards listed below 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 agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards given below:

<i>IS No.</i>	<i>Title</i>
2542 (Part 2/ Sec 1 to 8): 1981	Method of test for gypsum plaster, concrete and products : Part 2 Gypsum products ( <i>first revision</i> )
2547 (Part 1): 1976	Gypsum building plaster : Part 1 Excluding premixed light weight plaster ( <i>first revision</i> )
4905 : 1968	Methods for random sampling
9489 : 1980	Method of test for thermal conductivity of materials by means of heat flow meter
12679 : 1989	By-product gypsum for use in plaster, blocks and boards

#### 3 TERMINOLOGY

**3.0** For the purpose of this standard, the following definitions shall apply.

##### 3.1 Gypsum Fibre Board

A composition of gypsum plaster and waste paper fibre forming body of regular dimensions.

##### 3.2 Laminated/Coated Gypsum Board

Gypsum boards based on material conforming to IS 2095 (Part 1) or IS 2095 (Part 3) or IS 8272 intimately bonded with wood veneers, plastic films, paper, etc.

#### 4 MATERIALS

##### 4.1 Gypsum Plaster

Gypsum plaster shall conform to Type B hemihydrate plaster of IS 2547 (Part 1) or IS 8272 or plaster produced from by-product gypsum conforming to IS 12679.

##### 4.2 Fibres

The reinforcing fibre may be cellulosic fibre produced out of waste paper like newspaper, magazines, old card boards, corrugated cartones containing cellulose.

##### 4.3 Water

Potable waters are generally considered satisfactory for mixing plaster.

##### 4.4 Oil and Greases

The oil and greases used in the preparation of benches and moulds for casting shall be such as will leave the plaster surface of the product clean and unstained.

#### 5 METHOD OF MANUFACTURE

In these boards, the cellulosic fibres produced from the waste paper are intimately blended/embedded in the gypsum mass. The waste paper is processed in the fibre mills to form cellulosic fibres. The gypsum plaster and the cellulosic fibres are fed into a mixer to form uniformly blended mass. The mixture of gypsum plaster and the fibres are transported to a spreading unit wherein the mixture is evenly spread over a perforated belt or moulds and humidified. A continuous or hand press may be used to press the gypsum fibre mix to form gypsum fibre boards. After setting, the boards are demoulded and dried.

The board is moistened with a bonding agent for surface treatment. A retarded water absorption and anti-dust properties are realized. This corresponds to a prime coating effected in the factory for a painting or lamination/papering. The board is now finished can be packed in a stack.

#### 6 DIMENSIONS AND TOLERANCES

##### 6.1 Shape

The board shall be rectangular or square in shape.

##### 6.2 Dimensions

The length, width and thickness of the boards shall be as specified in Table 1.

##### 6.3 Mass

The minimum mass of the boards per square metre shall be as given in Table 1.



6.4 Fibre Gypsum Plaster Ratio

The minimum fibre plaster ratio of boards shall be as per the value specified in Table 1.

Table 1 Dimensions and Other Particulars of Gypsum Fibre Board  
(Clauses 6.2, 6.3 and 6.4)

Nominal Thickness mm	Length mm	Width mm	Mass of Board kg/m <sup>2</sup> (Min)	Fibre: Gypsum and Plaster (Min)
10	1 500	1 000	11.5	1:8

NOTE — Gypsum plaster boards may also be manufactured in other dimensions subject to mutual agreement between the purchaser and the manufacturer.

6.5 Tolerances

Tolerances shall be as given below:

- a) Length : +0, -6 mm
- b) Width: +0, -5 mm
- c) Thickness +0, -6 mm

7 FINISH

The surface of the boards shall be true and free from imperfections that would render the boards unfit for uses. The edge shall be straight and the corners shall be square.

8 TESTS

8.1 Visual Inspection

All boards shall be sound, free from cracks, broken edges and such other imperfections that would render them unfit for use.

8.2 Transverse Bending Strength

The transverse bending strength when tested in accordance with IS 2542 (Part 2/Sec 1) shall not be less than 5 N/mm<sup>2</sup>.

8.3 Thermal Conductivity

The thermal conductivity of gypsum board when tested in accordance with IS 9489 shall be less than 0.25 kcal/mh °C.

9 SAMPLING

9.1 Lot

All gypsum fibre boards manufactured from similar materials under essentially similar conditions of production in a day shall be grouped together to constitute a lot.

9.1.1 Samples shall be selected and inspected separately from each lot for determining its conformity or otherwise to the requirements of this standard.

9.2 The number of boards to be selected for the sample

from a lot shall depend upon the size of the lot and shall be in accordance with col 1 and 2 of Table 2.

9.2.1 The boards for the sample shall be selected at random from the lot and in order to ensure the randomness of selection, the procedure given in IS 4905 may be followed.

Table 2 Scale of Sampling and Permissible Number of Defectives  
(Clause 9.2)

Number of Boards in the Lot	Number of Boards to be Selected	Permissible Number of Defectives	Sub-sample Size
Upto 100	6	0	3
101 to 150	8	0	3
151 to 300	13	1	4
301 to 500	20	2	5
501 to 1 000	32	3	7
1 001 and above	50	5	10

9.3 All the boards selected under 9.2 shall be inspected for visual defects, shapes, dimensions, mass of boards and fibre ratio. A board which is found not conforming to any one or more the requirements inspected for shall be considered as defective.

9.3.1 A lot shall be considered as having found conforming to the requirements of visual inspection, shape, dimensions, mass of plaster and fibre ratio if the number of defectives as observed in 9.3 does not exceed the corresponding permissible number of defectives given in col 3 of Table 2.

9.4 A lot having found conforming to visual inspection, shape, dimensions and mass of plaster and fibre shall then be tested for transverse bending strength and thermal conductivity as per IS 2542 (Part 2/Sec 1 to 8) and IS 9489. For each test a number of boards in accordance with col 4 of Table 2 shall be selected at random from those inspected under 9.3 and found conforming to the requirements inspected for under that clauses.

9.4.1 A lot shall be declared as having found satisfactory for the requirements of transverse bending if only all the boards tested for these tests under 9.4 pass the test individually.

10 OPTIONAL REQUIREMENT FOR ECOMARK

10.1 General Requirement

10.1.1 The product shall conform to the requirements of quality and performance as specified in the standard.

10.1.2 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 along with the authorization, if required under the *Environment (Protection) Act*, 1986, while applying for ECO Mark.

### 10.2 Specific Requirements

For ECO Marking gypsum plaster boards shall be manufactured using phospho-gypsum (*see* 4.1).

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

## 11 PACKING AND MARKING

11.1 Gypsum fibre boards shall be packed so as to keep them dry, free from moisture and any kind of damage.

11.2 Each board shall be clearly and permanently marked with the following information:

- a) Manufacturer's name and trade-mark,
- b) Size of boards,
- c) Batch number, and
- d) The criteria for which product has been labelled as ECO Mark, if applicable and the list of identified critical ingredients in descending order of quality, percent by mass.

### 11.3 BIS Certification Marking

Each board may also be marked with the Standard Mark.

11.3.1 The use of the 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 manufacturers or producers may be obtained from the Bureau of Indian Standards.

## ANNEX A

### (Foreword)

#### COMMITTEE COMPOSITION

##### Gypsum and Gypsum Based Products for Buildings Sectional, Committee, CED 21

<i>Organization</i>	<i>Representative(s)</i>
National Council for Cement and Building Materials, Allied Ceramics Pvt Ltd, Kolkata	SHRI D. B. N. RAO ( <i>Chairman</i> ) SHRI D. R. SEN
Associated Instrument Mfrs India Pvt (AIMIL) Ltd, New Delhi	SHRI S. C. JAIN
Bhanu International, Vishakhapatnam	SHRI N. KALIDAS DR (Ms) N. BHANUMATIDAS ( <i>Alternate</i> )
- Buildings Materials Technology Promotion Council, New Delhi	SHRI J. SENGUPTA SHRI V. K. SETHI ( <i>Alternate</i> )
Central Building Research Institute, Roorkee	DR MANJEET SINGH DR MRIDUL GARG ( <i>Alternate</i> )
Central Glass and Ceramic Research Institute, Kolkata	SHRI S. CHATTERJEE SHRI BISHNUPADA GHOSH ( <i>Alternate</i> )
Central Public Works Department, New Delhi	SHRI R. SUBRAMANIAN SHRI S. D. SINGH ( <i>Alternate</i> )
Department of IP&P, Ministry of Industry, New Delhi	SHRI P. K. JAIN SHRI B. B. SHARMA ( <i>Alternate</i> )
Directorate General of Technical Development, New Delhi	SHRI D. S. MEHTA SHRI P. C. BHATTACHARYA ( <i>Alternate</i> )
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Indian Gypsum Ltd, Jind, Haryana	SHRI R. S. BALAIN SHRI R. S. TYAGI ( <i>Alternate</i> )
J&K Minerals Ltd, Srinagar	SHRI A. U. KHAN
National Council for Cement and Building Materials, Ballabgarh	DR K. MOHAN DR K. M. SHARMA ( <i>Alternate</i> )
Office of the Development Commissioner (SSI), New Delhi	SHRI A. S. SOOD SHRI SURESH YADAV ( <i>Alternate</i> )
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Rajasthan State Mines & Minerals Ltd, Bikaner, Rajasthan	SHRI M. N. ROY
Regional Research Laboratory, Jammu Tawi	DR J. K. DHAR SHRI P. S. JOHAR ( <i>Alternate</i> )
Research, Design and Standards Organization, Lucknow	JOINT DIRECTOR (CHEMICAL) DEPUTY DIRECTOR (CHEMICAL) ( <i>Alternate</i> )
Sri Ram Institute for Industrial Research, Delhi	SHRI P. K. KAIKER Ms LAXMI RAWAL ( <i>Alternate</i> )
Directorate General, BIS	SHRI S. K. JAIN, Director (Civ Engg) [Representing Director General ( <i>Ex-officio Member</i> )]

*Member Secretary*  
SHRI S. CHATURVEDI  
Joint Director (Civ Engg), BIS

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**BUREAU OF INDIAN STANDARDS**

**Headquarters :**

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110 002  
Telephones : 323 01 31, 323 33 75, 323 94 02

Telegrams : Manaksanstha  
(Common to all offices)

**Regional Offices :**

	Telephone
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110 002	{ 323 76 17 323 38 41
Eastern : 1/14 C.I.T. Scheme VII M, V. I. P. Road, Kankurgachi KOLKATA 700 054	{ 337 84 99, 337 85 61 337 86 26, 337 91 20
Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160 022	{ 60 38 43 60 20 25
Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600 113	{ 254 12 16, 254 14 42 254 25 19, 254 13 15
Western : Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400 093	{ 832 92 95, 832 78 58 832 78 91, 832 78 92

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