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मानक

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IS 2849 (1983): non-load bearing gypsum partition blocks (solid and hollow types) [CED 4: Building Limes and Gypsum Products]



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IS : 2849-1983  
(Reaffirmed 2007)

*Indian Standard*

SPECIFICATION FOR  
NON-LOAD BEARING GYPSUM PARTITION  
BLOCKS (SOLID AND HOLLOW TYPES)

( *First Revision* )

UDC 691.311-431 : 69.022.324/327



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

*Indian Standard*

SPECIFICATION FOR  
NON-LOAD BEARING GYPSUM PARTITION  
BLOCKS ( SOLID AND HOLLOW TYPES )  
*( First Revision )*

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**IS : 2849 - 1983**

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**AMENDMENT NO.1 AUGUST 1991  
TO  
IS 2849 : 1983 SPECIFICATION FOR  
NON-LOAD BEARING GYPSUM PARTITION BLOCKS  
( SOLID AND HOLLOW TYPES )  
( *First Revision* )**

( *Page 6, clause 5.3* ) — Substitute ' $2.0 \text{ N/mm}^2$ ' for ' $0.5 \text{ N/mm}^2$  ( $5.0 \text{ kgf/cm}^2$ )'.

( CED 21 )

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Reprography Unit, BIS, New Delhi, India

**AMENDMENT NO. 2 NOVEMBER 1995**  
**TO**  
**IS 2849 : 1983 SPECIFICATION FOR NON-LOAD**  
**BEARING GYPSUM PARTITION BLOCKS ( SOLID AND**  
**HOLLOW TYPES )**

( *First Revision* )

( *Page 3, clause 0.2* ) — Add the following clause after 0.2:

'0.3 Apart from low grade natural gypsum, million tonnes of bye-product phosphogypsum is available from the fertilizer industries. The calcined plaster produced from the phosphogypsum can be used on the production of gypsum partition blocks, panels and boards.'

( *Page 3, clause 0.3* ) — Renumber clause '0.3' as '0.4'.

( *Page 3, clause 0.4* ) — Renumber clause '0.4' as '0.5' and add the following at the end of this clause:

'Certain additional sizes of gypsum partition blocks have been included in Table 1.'

( *Page 3, clause 0.5* ) — Renumber clause '0.5' as '0.6'.

( *Page 4, Table 1* ) — Substitute the following for the existing Table 1:

TABLE 1 SIZES OF GYPSUM PARTITION BLOCKS ( SOLID AND HOLLOW )				
All dimensions in millimetres.				
LENGTH	HEIGHT	BREADTH	HOLLOW BLOCKS SIDE AND EDGE THICKNESS, <i>M<sub>m</sub></i>	
			Circular Holes	Elliptical or Rectangular Holes
<i>L</i> (1)	<i>H</i> (2)	<i>B</i> (3)	<i>t</i> (4)	<i>t</i> (5)
700 Max in multiples of 100	700 Max in multiples of 100	60	—	—
		75	15	20
		80	—	—
		100	20	20
		125	25	30
		150	15	20

NOTE — Dimensions other than length, height and breadth are for guidance only.

( CED 21 )

Reprography Unit, BIS, New Delhi, India



**AMENDMENT NO. 3 SEPTEMBER 2000**  
**TO**  
**IS 2849 : 1983 SPECIFICATION FOR NON-LOAD**  
**BEARING GYPSUM PARTITION BLOCKS (SOLID AND**  
**HOLLOW TYPES)**

( *First Revision* )

( *Foreword* ) — Insert the following clause before last clause:

**'0.5** A scheme for labelling environment friendly products known as ECO Mark has been introduced at the instance of the Ministry of Environment and Forests (MEF), Government of India. The ECO Mark would be administered by the Bureau of Indian Standards (BIS) under the *Bureau of Indian Standards Act*, 1986 as per the Resolution No. 71 dated 21 February 1991 and No. 425 dated 28 October 1992 published in the Gazette of the Government of India. For a products to be eligible for marking with ECO logo, it shall also carry the ISI Mark of BIS besides meeting additional optional 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 the ISI Mark alone also.

This amendment 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. This amendment is, therefore, being issued to this standard to include environment friendly requirements for wood substitutes.'

( *Page 4, clause 3.1* ) — Insert the following at the end of the clause:

'By-product gypsum conforming the requirements of IS 12679 : 1987 shall be used for the preparation of plaster.'

( *Page 8* ) — Insert the following after clause 8 and renumber the subsequent clauses:

**9 OPTIONAL REQUIREMENTS FOR ECO MARK**

**9.1 General Requirements**

### **Amend No. 3 to IS 2849 : 1983**

**9.1.1** The product shall conform to the requirements for quality and performance as specified in the standard.

**9.1.2** The product manufacturer must produce the consent clearance from the concerned State Pollution Control Board as per the provisions of *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* along with the authorization, if required under *Environment (Protection) Act, 1986* and the Rules made thereunder to BIS while applying for ECO Mark appropriate with enforced Rules and Regulations of the Forest Department.

**9.1.3** The product or product packaging may display in brief the criteria based on which the product has been labelled environment friendly.

**9.1.4** The material used for product packing shall be recyclable, reusable or biodegradable.

### **9.2 Specific Requirements**

**9.2.1** Building boards generally used as partitioning, panelling, cladding and false ceiling shall be made from industrial wastes such as phospho-gypsum.

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

( CED 21 )

**AMENDMENT NO. 4 AUGUST 2006  
TO  
IS 2849 : 1983 SPECIFICATION FOR NON-LOAD  
BEARING GYPSUM PARTITION  
BLOCKS (SOLID AND HOLLOW TYPES)**

***(First Revision)***

[ Page 8, clause 9, Title ( see also Amendment No. 3 ) ] – Substitute  
'ADDITIONAL' for 'OPTIONAL'.

( CED 4 )

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Reprography Unit, BIS, New Delhi, India

*Indian Standard*  
SPECIFICATION FOR  
NON-LOAD BEARING GYPSUM PARTITION  
BLOCKS ( SOLID AND HOLLOW TYPES )  
( *First Revision* )

**0. FOREWORD**

**0.1** This Indian Standard ( First Revision ) was adopted by the Indian Standards Institution on 29 November 1983, after the draft finalized by the Gypsum Building Materials Sectional Committee had been approved by the Civil Engineering Division Council.

**0.2** The various sources of gypsum in this country, when fully exploited, will yield large quantities of low grade gypsum in addition to high grade gypsum. Low grade gypsum has fair prospects of economic use as a building material, namely, plaster, plaster boards and partition blocks.

**0.3** Gypsum partition blocks are very useful in the construction of non-load bearing partitions in normally dry conditions and also under conditions of controlled temperature and humidity because of good thermal insulation and small dead load, and facility of speedy construction. This standard, it is hoped, would promote manufacture and use of gypsum partition blocks.

**0.4** This standard was first published in 1964. This revision has been taken up with a view to up-dating the standard based on the experience in the use of this standard and also the current knowledge on the subject. Apart from revising the sampling and criteria for conformity, the revision also incorporates a change in non-combustibility test of the blocks.

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

## 1. SCOPE

1.1 This standard covers requirements for gypsum partition blocks for use in non-load bearing construction in the interior of buildings and for the protection of columns, elevator shafts, etc, against fire.

## 2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 2469-1976\* shall apply.

## 3. COMPOSITION

3.1 Blocks shall consist of set gypsum plaster complying with IS : 2547 ( Part 1 )-1976†, with or without aggregates. The mass of combustible materials shall not exceed 15 percent of the mass of the dry block.

## 4. TYPE AND SHAPE

4.1 Block may be solid type or hollow type and shall be truly rectangular in shape with straight and square edges and true surfaces. If agreed to between the purchaser and the supplier, blocks may be supplied in special shapes provided the requirements as otherwise prescribed in this standard are met.

## 5. REQUIREMENTS

5.1 **Dimensions** — The dimensions of the blocks shall be as given in Table 1.

**TABLE 1 SIZES OF GYPSUM PARTITION BLOCKS  
( SOLID AND HOLLOW )**

( All dimensions in millimetres. )

LENGTH	HEIGHT	BREADTH	HOLLOW BLOCKS SIDE AND EDGE THICKNESS, <i>Min</i>	
			Circular Holes	Elliptical or Rectangular Holes
<i>L</i>	<i>H</i>	<i>B</i>	<i>t</i>	<i>t</i>
(1)	(2)	(3)	(4)	(5)
700 Max	300 Max	75	15	20
in multiples	in multiples			
of 100	of 100	100	20	20
		125	25	30
		150	15	20

NOTE — Dimensions other than length, height and breadth are for guidance only.

\*Glossary of terms relating to gypsum ( *first revision* ).

†Specification for gypsum building plaster: Part 1 Excluding premixed lightweight plasters ( *first revision* ).

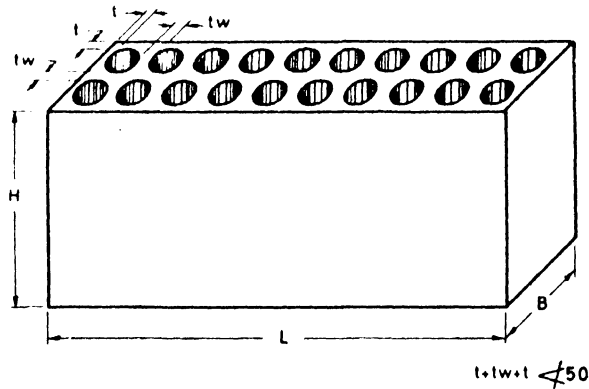
**5.1.1 Tolerances** — The tolerances on  $L$ ,  $H$  and  $B$  shall be as below:

Length  $\pm 3.0$  mm

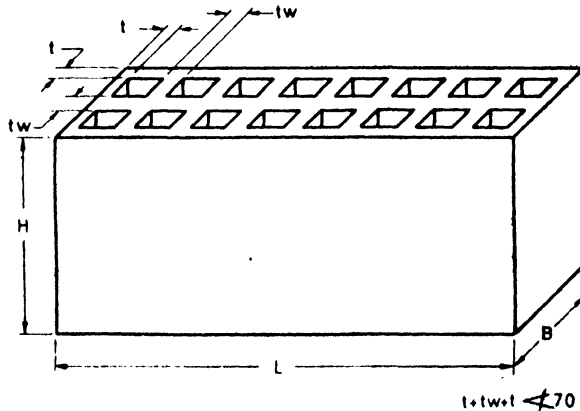
Height and Breadth  $\pm 1.5$  mm

**5.1.2** In hollow blocks, the hollow spaces shall be symmetrically spaced. The sum of the thicknesses of the two side shells plus the thickness of the central vertical web of 150 mm wide blocks shall not be less than 50 mm for blocks having circular holes and not less than 70 mm for blocks having elliptical or rectangular holes ( see Fig. 1 ).

**NOTE** — It is recommended that there shall be only one row of holes lengthwise in the case of blocks 75, 100 and 125 mm wide.



1A WITH CIRCULAR HOLES



1B WITH ELLIPTICAL OR RECTANGULAR HOLES

FIG. 1 NON-LOAD BEARING GYPSUM PARTITION BLOCKS

## IS : 2849 - 1983

**5.2 Scoring** — When the surfaces of the block are scored, the scoring shall not reduce materially the thickness of the shell. Surfaces of the block shall be such that they afford a suitable bond with plaster.

**5.3 Compressive Strength** — When tested in accordance with IS : 2542 ( Part 2/Sec 1 to 8 )-1981\*, the compressive strength of the block shall be not less than  $0.5 \text{ N/mm}^2$  (  $5.0 \text{ kgf/cm}^2$  ) based on gross area.

**5.4 Non-combustibility** — When tested in accordance with 6.2.1, no block shall:

- a) cause the temperature readings of the furnace thermocouple to rise by more than  $50^\circ\text{C}$  above the initial furnace temperature,
- b) cause the temperature readings of the specimen thermocouple to rise by more than  $50^\circ\text{C}$  above the initial furnace temperature, or
- c) flame for more than 10 seconds.

## 6. TESTS

**6.1 Visual Inspection** — All blocks shall be sound and free from cracks, broken-edges and other imperfections that would render them unfit for use.

**6.2** The methods of tests for the requirements specified in 5.1 and 5.3 shall be in accordance with IS : 2542 ( Part 2/Sec 1 to 8 )-1981\*.

**6.2.1** The test for non-combustibility specified in 5.4 shall be conducted in accordance with IS : 3808-1979†.

## 7. SAMPLING

**7.1 Lot** — In any consignment, all the blocks of the same type and size and from the same batch of manufacture shall be grouped together to constitute a lot.

**7.2** All the blocks in the lot shall be visually examined for soundness, free from cracks, broken edges and other imperfections that would render the blocks unfit for use. All the defective blocks shall be removed from the lot.

**7.3** The lot which has been visually examined shall then be subjected to dimensional requirements and for this purpose, the number of blocks to be selected from the lot shall be in accordance with col 1 and 2 of Table 2.

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\*Methods of test for gypsum plaster, concrete and products: Part 2 Gypsum products ( *first revision* ).

†Method of test for non-combustibility of building materials ( *first revision* ).

**TABLE 2 SAMPLE SIZE AND ACCEPTANCE NUMBER**

( Clauses 7.3, 7.4.1 and 7.4.2 )

LOT SIZE	SAMPLE SIZE FOR DIMENSIONAL REQUIREMENTS	ACCEPTANCE NUMBER	SAMPLE SIZE FOR COMPRESSIVE STRENGTH
(1)	(2)	(3)	(4)
Up to 100	8	0	3
101 ,, 300	13	0	5
301 ,, 500	20	1	7
501 and above	32	2	10

**7.3.1** These blocks shall be selected from the lot at random. In order to ensure the randomness of selection, procedure given in IS : 4905-1968\* may be followed.

#### **7.4 Number of Tests and Criteria for Conformity**

**7.4.1** All the blocks selected at random in accordance with col 1 and 2 of Table 2 shall be subjected to dimensional requirements. A block failing to satisfy this requirement shall be termed as defective. The lot shall be considered as conforming to dimensional requirements if the number of defectives found in the sample is less than or equal to the corresponding acceptance number given in col 3 of Table 2; otherwise the lot shall be rejected without further testing.

**7.4.2** The lot which has been found as conforming to the dimensional requirements shall then be tested for compressive strength. For this purpose the sample size is given in col 4 of Table 2. The lot shall be considered as conforming to this requirement if no defective is found in the sample.

**7.4.3** The lot shall be considered as conforming to the requirements of this standard if 7.4.1 and 7.4.2 are satisfied.

### **8. MANUFACTURER'S CERTIFICATE**

**8.1** The manufacturer shall satisfy himself that the blocks conform to the requirements of this specification and, if requested, shall supply a certificate to this effect to the purchaser or his representative.

**8.2** If the purchaser or his representative requires independent tests, the samples shall be taken before or immediately after delivery at the option of the purchaser or his representative and the tests shall be carried out in accordance with this specification.

\*Methods for random sampling.



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**8.3** The manufacturer shall supply free of charge the blocks required for testing.

**8.4** Unless otherwise specified in the enquiry or order, the cost of the tests shall be borne as follows:

- a) By the manufacturer in the event of the results showing that the blocks do not conform to this specification, or
- b) By the purchaser in the event of the results showing that the blocks conform to this specification.

## **9. MARKING**

**9.1** Each block shall be clearly and permanently marked with the following information:

- a) Manufacturer's name or trade-mark,
- b) Size of block, and
- c) Year of manufacture.

**9.1.1** Each block may also be marked with the ISI Certification Mark.

**NOTE**—The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution ( Certification Marks ) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors may be obtained from the Indian Standards Institution.

## 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	Definition
Force	newton	N	1 N = 1 kg.m/s <sup>2</sup>
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
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m <sup>2</sup>

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