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# मानक

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**IS : 1130-1969**  
( Reaffirmed 1993 )

*Indian Standard*

**SPECIFICATION FOR  
MARBLE ( BLOCKS, SLABS AND TILES )**

( Fifth Reprint OCTOBER 1998 )

UDC 691.215.3

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

# Indian Standard

## SPECIFICATION FOR MARBLE (BLOCKS, SLABS AND TILES)

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Central Public Works Department, New Delhi

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Engineering Research Laboratory, Andhra Pradesh

Public Works Department, Government of Kerala

Central Public Works Department (Architectural Wing), New Delhi

Makrana Marble & Stone Co, Makrana (Rajasthan)

The Hindustan Construction Co Ltd, Bombay

Public Works Department, Government of Rajasthan

Builders' Association of India, Bombay

Geological Survey of India, Calcutta

Institution of Engineers (India), Calcutta

Central Building Research Institute (CSIR), Roorkee

Ministry of Transport (Roads Wing), New Delhi

Associated Stone Industries (Kotah) Ltd, Ramganj-  
mandi (Rajasthan)

SHRI J. S. SHAH (*Alternate*)

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SHRI RABINDER SINGH

National Buildings Organization, Ministry of Health,  
Family Planning, Works, Housing and Urban  
Development, New Delhi

DR A. V. R. RAO (*Alternate*)

SHRI SATJIT SINGH

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SHRI Y. N. DAVE (*Alternate*)

SUPERINTENDING ENGINEER  
(DESIGNS & MARINE WORKS)

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SHRI M. V. YOGI

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Public Works Department, Mysore

Department of Geology and Mining, Rajasthan

Public Works Department, Government of Tamil  
Nadu

Central Water & Power Commission, New Delhi

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG

NEW DELHI 110002

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**Panel for Marble ( Blocks, Slabs and Tiles ), BDC 6 : P1**

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**Department of Geology and Mining, Government of  
Rajasthan**

**Makrana Marble and Stone Co, Makrana ( Rajasthan )**

**Hindustan Marble Pvt Limited, Bombay**

# *Indian Standard*

## SPECIFICATION FOR MARBLE (BLOCKS, SLABS AND TILES)

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 7 May 1969, after the draft finalized by the Stones Sectional Committee had been approved by the Civil Engineering Division Council.

**0.2** Marbles are metamorphic rocks capable of taking polish, formed from the re-crystallization of limestones or dolomitic limestones and are distinguished from lime stone by even visibly crystalline nature and non-flaggy stratification.

NOTE — Sometimes rocks, such as serpentine are also polished and used in trade as marble.

**0.3** Marble is a product of nature, hence it is impossible to guarantee uniformity of colour veining, or other characteristics that may be represented in any sample submitted. A sample will indicate only an average of colour, veining and other general texture and specified finish.

**0.4** Marble is extensively found at Makrana, Abu, Ambaji, Bar, Kishangarh, Bhainslana, Bundi, Falna, Baroda and Narnaul.

**0.4.1** Marble slabs are used for flooring, stairs, facing, table tops, etc, and marble tiles are used in floors, dados and skirtings, etc. Marble blocks are either used for monuments or for further converting to slabs or tiles.

**0.5** The physical properties of the marble vary considerably from place to place. Even in the same place, there is large variation in the quality and shading or overall design which necessitates proper selection in the procurement of marble. This standard has, therefore, been formulated to provide guidance with respect to quality and dimensions of marble (slabs, blocks and tiles).

**0.6** In the preparation of this standard, considerable assistance has been rendered by Engineering Research Institute, Baroda, by supplying test results for the physical properties of all types of marbles.

**0.7** The Sectional Committee responsible for the preparation of this standard has taken into consideration the views of producers, consumers and technologists and has related the standard to the manufacturing and trade practices followed in the country in this field.

**0.8** 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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## 1. SCOPE

**1.1** This standard lays down the requirements for sizes, physical properties, quality and workmanship of marble (blocks, slabs and tiles).

## 2. TERMINOLOGY

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

**2.1 Sand and/or Abrasive Finish** — A flat non-reflective surface.

**2.2 Hone Finish** — A velvety smooth surface with little or no gloss.

**2.3 Polished Finish** — A highly polished glossy surface which brings out the full colour and character of the marble.

## 3. CLASSIFICATION

**3.1** The marble shall be classified broadly in the following two categories:

- a) White, and
- b) Coloured.

**3.2** A short note on grouping of marble in the above two categories is given in Appendix A.

## 4. GENERAL REQUIREMENTS

**4.1** The marble, as far as possible, shall be free from foreign inclusions and prominent cracks.

## 5. SIZES

**5.1** The marble blocks shall be supplied in the sizes given below:

<i>Length</i>	<i>Width</i>	<i>Thickness</i>
30 to 250 cm (in stages of 10 cm)	30 to 100 cm (in stages of 10 cm)	30 to 100 cm (in stages of 10 cm)

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



**5.2** The marble slabs shall be supplied in the sizes given below:

<i>Length</i>	<i>Width</i>	<i>Thickness</i>
70 to 250 cm (in stages of 10 cm)	30 to 100 cm (in stages of 10 cm)	20 to 150 mm (in stages of 10 mm)

**5.3** The marble tiles shall be supplied preferably in sizes given below:

<i>Sizes of Tiles</i>	<i>Thickness</i>
$60 \times 60$ cm } $50 \times 50$ cm } $40 \times 40$ cm } $30 \times 30$ cm } $20 \times 20$ cm } $10 \times 10$ cm }	18 to 24 mm in the same piece

**5.3.1** The sizes other than those mentioned above may be supplied as agreed to between the supplier and the purchaser.

## 6. TOLERANCE

**6.1** The following tolerances shall be allowed in the dimensions of blocks, slabs and tiles:

<i>6.1.1 Blocks</i>	<i>Tolerance</i>
a) Length } b) Width } c) Thickness }	+2 percent

<i>6.1.2 Slabs</i>	
a) Length } b) Width } c) Thickness	+2 percent +2 percent $\pm 3$ percent

<i>6.1.3 Tiles</i>	
a) Linear dimension	+4 percent
b) Thickness, see 5.3	

## 7. PHYSICAL PROPERTIES

**7.1** The physical properties of marble for blocks, slabs and tiles shall conform to the requirements given in col 3 of Table 1 when tested in accordance with the method mentioned in col 4.

TABLE 1 PHYSICAL PROPERTIES OF MARBLE

( Clause 7.1 )

SL No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST
(1)	(2)	(3)	(4)
i)	Moisture absorption after 24 hours immersion in cold water	Max 0.4% by weight	IS : 1124-1957*
ii)	Hardness	Min 3	Mhos Scale
iii)	Specific gravity	Min 2.5	IS : 1122-1957†

\*Method of test for water absorption of natural building stones.

†Methods of determination of specific gravity and porosity of natural building stones.

## 8. WORKMANSHIP

8.1 The edges of the slabs and tiles shall be true.

8.2 Machine cut slabs and tiles with square edges may be supplied if so specified by the producer.

8.3 The marble slabs and tiles shall be supplied with one of the following finishes:

- a) Sand and/or abrasive finish,
- b) Hone finish, or
- c) Polished finish.

## 9. MARKING

9.1 Each type of marble blocks, slabs and tiles may be marked in a suitable manner with the manufacturer's identification mark or initials.

9.1.1 The product may also be marked with Standard mark.

9.2 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. 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.

## 10. SAMPLING

**10.1 Lot** — In any consignment all the blocks/slabs/tiles of the same group, size and finish shall be grouped together to constitute a lot.

**10.1.1** Samples shall be selected and tested separately for each lot for determining its conformity or otherwise to the requirements of the specification.

**10.2** The number of blocks/slabs/tiles to be selected for the sample shall depend upon the size of the lot and shall be in accordance with Table 2.

**TABLE 2 SAMPLE SIZE AND CRITERIA FOR CONFORMITY**

NUMBER OF BLOCKS/ SLABS/TILES IN THE LOT	NUMBER OF BLOCKS/ SLABS/TILES TO BE SELECTED IN SAMPLE	PERMISSIBLE NUMBER OF DEFECTIVES	SUB-SAMPLE SIZE IN NUMBERS
(1)	(2)	(3)	(4)
Up to 25	3	0	2
26 „ 100	5	0	2
101 „ 200	8	0	3
201 „ 500	13	0	4
501 „ 1 000	20	1	5

**10.2.1** The blocks/slabs/tiles in the sample shall be selected at random and in order to ensure the randomness of selection, random number tables may be used.

**10.3** All the blocks/slabs/tiles selected in the sample shall be examined for dimensions, workmanship and general requirements. Any block/slab/tile failing in any one or more of the above requirements shall be considered as defective. A lot shall be considered as conforming to these requirements if the number of defective obtained is not more than the permissible number of defectives given in col 3 of Table 2.

**10.4** The lot having found satisfactory with respect to dimensions, workmanship and general requirements shall be tested for physical properties of the marble. For this purpose a sub-sample of size given in col 4 of Table 2 shall be selected at random. These blocks/slabs/tiles in the sub-sample shall be tested for moisture absorption, hardness and specific gravity. A lot shall be considered having been satisfied the requirements of the physical properties if none of the blocks/slabs/tiles tested for these requirements fails in any of these tests.

## 11. INSPECTION

**11.1** The purchaser or his authorized representative shall if he so desires be granted facilities for inspection of finished blocks, slabs and tiles prior to despatch from the supplier's works.

**11.2** The manufacturer or supplier shall provide facilities for conducting the tests enumerated in Table I.

**11.3** The supplier shall supply a certificate stating that the blocks, slabs and tiles supplied, comply with this standard.

## APPENDIX A

( Clause 3.2 )

### CLASSIFICATION OF MARBLE

#### A-1. TYPES OF MARBLE

**A-1.1** The marble shall be classified broadly in following two categories:

- a) White marble, and
- b) Coloured marble.

#### A-2. WHITE MARBLE\*

##### A-2.1 Plain White Marble

- a) *Makrana First Quality White Marble* — Plain white marble without streaks available at Chosira, Doongri, Pahar Kuwan and Bhot.
- b) *Makrana Second Quality White Marble* — White marble having lighter shades or spots available at Chosira, Pahar Kuwan, Doongri and Ulodi Doongri.
- c) *Abu White Marble* — White marble with blue and grey shades available at Ambaji.

**A-2.2 Abu Panther Marble** — White marble with irregular blue and black spots available at Ambaji.

##### A-2.3 White Veined Marble

- a) *Makrana Doongri Adanga Marble* — Light greyish white marble having grey and brown veins available at Doongri and Pahar Kuwan.

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\*Further addition shall be made when a new marble is brought in trade.

- b) *Makrana Chak Doongri Marble* — White marble having black streaks available at Chak Doongri.
- c) *Abu White Veined Marble* — White marble with grey or black veins available at Ambaji.

### A-3. COLOURED MARBLE\*

#### A-3.1 Black Marble

**A-3.1.1 Plain Black Marble** — Black marble sawn along veins, locally known as 'peta pasu sawing' available at Bhainslana.

##### A-3.1.2 Black Zebra Marble

- a) *Bhainslana Black Zebra Marble* — Black marble having grey or white veins available at Bhainslana.
- b) *Kishangarh Black Zebra Marble* — Black marble with grey and/or white veins available at Kishangarh.
- c) *Abu Black Zebra Marble* — Black marble having white patches and streaks available at Abu.
- d) *Narnaul Black Zebra Marble* — Black marble with thin, white veins available at Narnaul.
- e) *Makrana Dhobi Doongri Zebra Marble* — Greyish black marble with white flowery pattern available at Dhobi Doongri.

#### A-3.2 Green Marble

- a) *Baroda Green Marble* — Dark green marble with flowery pattern available at Baroda.
- b) *Abu Green Marble* — Light green marble with green and/or brown streaks on white ground available at Ambaji.
- c) *Falna Green Marble* — Green marble with prominent yellowish pattern available at Falna.
- d) *Bundi Green Marble* — Green marble with pinkish shades available at Umar (Bundi).

#### A-3.3 Pink Marble

**A-3.3.1 Plain Pink Marble** — Pink marble with light or dark shades available at Makrana and Bar.

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\*Further addition shall be made when a new marble is brought in trade.

**A-3.3.2 Pink Adanga Marble**

- a) *Makrana Pink Adanga* — Pink marble with brown or greenish and white streaks available at Makrana. It has both light and dark shades of pink.
- b) *Bar Pink Adanga Marble* — Pink marble with green veins available at Bar.
- c) *Bundi Pink Adanga Marble* — Pink marble with grey streaks available at Umar (Bundi).

**A-3.4 Grey Marble**

- a) *Kumari Grey Marble* — Grey marble having light blue shades available at Makrana.
- b) *Bundi Grey Marble* — Grey marble with pink or green or black streaks available at Umar (Bundi).

**A-3.5 Brown Marble**

**A-3.5.1 Bar Brown Marble** — Brown marble with light and dark brown shades available at Bar.

**A-3.5.2 Narnaul Brown Marble** — Brown marble having teak wood shade available at Narnaul.

**NOTE** — Limestones of Cuddapah, Chittorgarh and Jaisalmer of black, chocolate and yellow colours are used in the trade as substitutes to the marble.

## BUREAU OF INDIAN STANDARDS

### Headquarters:

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

Telephones: 323 0131, 323 3375, 323 9402

Fax : 91 11 3234062, 91 11 3239399, 91 11 3239382

Telegrams : Manaksanstha  
(Common to all Offices)

### Central Laboratory :

Plot No. 20/9, Site IV, Sahibabad Industrial Area, Sahibabad 201010

Telephone

8-77 00 32

### Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002 323 76 17

\*Eastern : 1/14 CIT Scheme VII M, V.I.P. Road, Maniktola, CALCUTTA 700054 337 86 62

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022 60 38 43

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113 235 23 15

†Western : Manakalaya, E9, Behind Marol Telephone Exchange, Andheri (East), MUMBAI 400093 832 92 95

### Branch Offices::

'Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMEDABAD 380001 550 13 48

‡Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road, BANGALORE 560058 839 49 55

Gangotri Complex, 5th Floor, Bhadbhada Road, T.T. Nagar, BHOPAL 462003 55 40 21

Plot No. 62-63, Unit VI, Ganga Nagar, BHUBANESHWAR 751001 40 36 27

Kalaikathir Buildings, 670 Avinashi Road, COIMBATORE 641037 21 01 41

Plot No. 43, Sector 16 A, Mathura Road, FARIDABAD 121001 8-28 88 01

Savitri Complex, 116 G.T. Road, GHAZIABAD 201001 8-71 19 96

53/5 Ward No.29, R.G. Barua Road, 5th By-lane, GUWAHATI 781003 54 11 37

5-8-56C, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001 20 10 83

E-52, Chitaranjan Marg, C-Scheme, JAIPUR 302001 37 29 25

117/418 B, Sarvodaya Nagar, KANPUR 208005 21 68 76

Seth Bhawan, 2nd Floor, Behind Leela Cinema, Naval Kishore Road, LUCKNOW 226001 23 89 23

NIT Building, Second Floor, Gokulpat Market, NAGPUR 440010 52 51 71

Pattiputra Industrial Estate, PATNA 800013 26 23 05

Institution of Engineers (India) Building 1332 Shivaji Nagar, PUNE 411005 32 36 35

T.C. No. 14/1421, University P. O. Palayam, THIRUVANANTHAPURAM 695034 6 21 17

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\*Sales Office is at 5 Chowringhee Approach, P.O. Princep Street, CALCUTTA 700072 27 10 85

†Sales Office is at Novelty Chambers, Grant Road, MUMBAI 400007 309 65 28

‡Sales Office is at 'F' Block, Unity Building, Narashimaraja Square, BANGALORE 560002 222 39 71

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Printed at Printograph, New Delhi, Ph : 5726847