

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

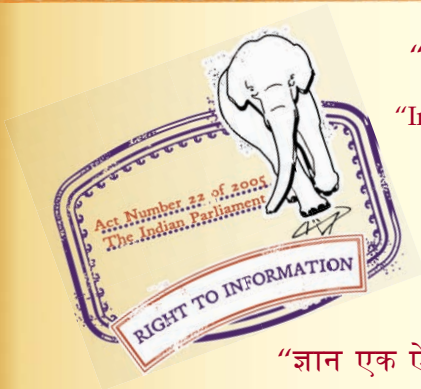
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 1127 (1970): Recommendations for dimensions and workmanship of natural building stones for masonry work
[CED 6: Stones]



“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



IS : 1127 - 1970
(Reaffirmed 1993)

Indian Standard

**RECOMMENDATIONS FOR DIMENSIONS
AND WORKMANSHIP OF NATURAL BUILDING
STONES FOR MASONRY WORK**

(*First Revision*)

Fourth Reprint OCTOBER 1998

UDC 691.21

© Copyright 1971

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

Indian Standard

RECOMMENDATIONS FOR DIMENSIONS AND WORKMANSHIP OF NATURAL BUILDING STONES FOR MASONRY WORK

(First Revision)

Stones Sectional Committee, BDC 6

Chairman

SHRI O. MUTHACHEN

Representing

Central Public Works Department, New Delhi

Members

SHRI K. K. AGRAWALA	Builders' Association of India, Bombay
SHRI K. K. MADHOK (Alternate)	
SHRI T. N. BHARGAVA	Ministry of Shipping & Transport (Roads Wing)
CHIEF ARCHITECT	Central Public Works Department, New Delhi
SHRI G. C. DAS	National Test House, Calcutta
DR M. P. DHIR	Central Road Research Institute (CSIR), New Delhi
SHRI R. L. NANDA (Alternate)	
SHRI M. K. GUPTA	Himalayan Tiles and Marble Pvt Ltd, Bombay
SHRI H. D. GUPTA	Public Works Department, Government of Rajasthan
DR IQBAL ALI	Engineering Research Laboratory, Government of Andhra Pradesh
SHRI A. B. LINGAM (Alternate)	
SHRI JACOB THOMAS	Public Works Department, Government of Kerala
SHRI V. S. KAMAT	The Hindustan Construction Co Ltd, Bombay
SHRI V. S. KRISHNASWAMY	Geological Survey of India
SHRI T. R. MEHANDRU	Institution of Engineers (India), Calcutta
SHRI G. S. MEHROTRA	Central Building Research Institute (CSIR), Roorkee
SHRI K. H. PARIKH	Associated Stone Industries (Kotah) Ltd, Ramganj- mandi, Rajasthan
SHRI J. S. SHAH (Alternate)	
SHRI PREM SWARUP	Department of Geology & Mining, Government of Uttar Pradesh
SHRI A. K. AGARWAL (Alternate)	
SHRI RABINDER SINGH	National Buildings Organization, New Delhi
DR A. V. R. RAO (Alternate)	
SHRI H. SEETHARAMAIAH	Public Works Department, Government of Mysore
SHRI M. L. SETHI	Department of Geology and Mining, Government of Rajasthan
SHRI Y. N. DAVE (Alternate)	

(Continued on page 6)

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

Indian Standard

RECOMMENDATIONS FOR DIMENSIONS AND WORKMANSHIP OF NATURAL BUILDING STONES FOR MASONRY WORK

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 15 May 1970, after the draft finalized by the Stones Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Data in regard to the dimensions and workmanship of the natural building stones, based on the information collected up to the year 1957, by this Institution were included in the earlier version of this standard which was published in 1957. In the next 13 years considerable changes in the method of construction of stone masonry have occurred so as to keep in line with the latest development in the building construction. It has been, therefore, found necessary that this standard should be revised and its requirements should now be based on the practice followed in this country by the various organizations like Military Engineering Services, Central Public Works Department, Railways, State Public Works Departments, etc.

0.3 Details regarding construction of stone masonry have been prescribed separately in IS:1597 (Part I)-1967* and IS:1597 (Part II)-1967†. In this standard recommendations in regard to the dimensions and workmanship of the natural building stones which are required for the various types of the stone masonry have been covered.

0.4 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.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated,

*Code of practice for construction of stone masonry: Part I Rubble stone masonry.

†Code of practice for construction of stone masonry: Part II Ashlar masonry.

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.

1. SCOPE

1.1 This standard lays down recommendations for the dimensions and workmanship of natural building stones used for various types of stone masonry.

2. TERMINOLOGY

2.0 For the purpose of this standard, the definitions given in 2 of IS: 1597 (Part I)-1967† shall apply.

3. DIMENSIONS AND TOLERANCES

3.1 The recommended dimensions of natural building stones measured at edges shall be as given in Table 1.

3.1.1 The recommended dimensions given in Table 1 have been worked out on the basis that the thickness of the mortar joints are 3 mm for ashlar masonry, 6 mm for block in course and 10 mm for square rubble.

3.2 Tolerances—The following tolerances shall be allowed on the dimensions:

a) For stones required in ashlar masonry:

- | | |
|-----------------------|------------|
| 1) Length and breadth | ± 5 mm |
| 2) Height | ± 3 mm |

b) For stones required for other than ashlar masonry:

- | | |
|-----------------------|---|
| 1) Length and breadth | $\begin{matrix} + 5 \text{ mm} \\ - 10 \text{ mm} \end{matrix}$ |
| 2) Height | ± 5 mm |

4. WORKMANSHIP

4.1 In the case of stratified rocks, stones for building purposes shall be so quarried and dressed that when set in the building, the stones are laid along the plane of stratification.

*Rules for rounding of numerical values (*revised*).

†Code of practice for construction of stone masonry: Part I Rubble stone masonry.

TABLE 1 DIMENSIONS OF NATURAL BUILDING STONES

(Clause 3.1)

Sl. No.	TYPE OF MASONRY	LENGTH mm	BREADTH mm	HEIGHT mm
i)	Stones for ashlar	597 697 797	297 347 397	297 347 397
ii)	Stones for block in course	394 494	194 244	194 244
iii)	Stones for square rubble	90 140 190 240 290 390 440 490 590	90 90, 140 90, 140, 190 90, 140, 190 90, 140, 190, 240 90, 140, 190, 240, 290 90, 140, 190, 240, 290 90, 140, 190, 240, 290 90, 140, 190, 240, 290 90, 140, 190, 240, 290	90 90, 140 90, 140, 190 90, 140, 190 90, 140, 190, 240, 290 90, 140, 190, 240, 290 90, 140, 190, 240, 290 90, 140, 190, 240, 290 90, 140, 190, 240, 290 90, 140, 190, 240, 290
iv)	Stones for random rubble	May be of any size and shape but not less than 150 mm in any direction		
v)	Stones for sills and lintels	a) 890, 990, 1 090, 1 190, 1 290	90, 190, 290, 390, 490	90, 140, 190
		b) 1 390, 1 490, 1 590, 1 690, 1 790	190, 290, 390, 490, 590	140, 190, 240, 290
vi)	Stones for arches, domes and circular moulded work	The dimensions depend on the particulars of the curve		
vii)	Coping stones	190, 290, 390, 490, 590, 690, 790	200, 300, 400, 500, 600	100, 150, 200
viii)	Kerb stones	390, 490, 590, 690, 790	100, 200, 300	300, 400, 500

4.2 No sharp protrusions, pinnings or depressions shall be allowed on any side of building stones, appropriate to each type of masonry described in 4.3.

4.3 Dressing of Stones

4.3.1 Ashlar Masonry

4.3.1.1 Plain ashlar—Every stone shall be cut to the required size and shape, chisel dressed on all beds and joints so as to be free from bushing; dressed surface shall not show a depth of gap of more than 3 mm from straight edge placed on it. The exposed faces and joints, 6 mm from the face shall be fine tooled so that a straight edge can be laid along the face of the stone in contact with every point. All visible angles and edges shall be true and square and free from chippings. The corner stones (quoins) shall be dressed square and the corners shall be straight and perpendicular.

4.3.1.2 Ashlar sunk or moulded—Dressing shall be done in the same manner as in plain ashlar (*see 4.3.1.1*). The faces shall then be gauged, cut, grooved, rebated, sunk or plain moulded as required for the work. For this purpose a full size layout of the moulding shall be prepared on platforms for which sheet templates shall be cut and the stone dressed to the templates to a uniform and fine finish. The dressed surface shall not be more than 3 mm from straight edge placed on it. All visible angles and edges shall be true and free from chippings. The faces of joints, 6 mm from the face shall also be fine tooled so that a straight edge placed on it, is in contact with every point. It shall be finest surface that can be given to a stone with the chisel and with rubbing.

4.3.1.3 Ashlar rough tooled—The dressing of stone blocks shall be similar to plain ashlar (*see 4.3.1.1*) except that face exposed in view shall have a fine chisel draft 2.5 mm wide round the edges and shall be rough tooled between the draft such that the dressed surface shall not deviate more than 3 mm from the straight edge placed over it.

4.3.1.4 Ashlar block in course—The stones are dressed all squared, and the faces are usually hammer-dressed.

4.3.2 Random Rubble Masonry—Stones shall be hammer-dressed on the face, the sides and the beds to enable these to come in proximity with the neighbouring stone. The bushing on the face shall not be more than 40 mm on an exposed face.

4.3.3 Coursed Rubble Masonry

4.3.3.1 Coursed rubble (first sort)—Face stone shall be hammer-dressed on all beds and joints so as to give them approximately rectangular shape. These shall be square on all joints and bed faces. The bed joints faces shall be chisel drafted for at least 80 mm back from the face and for the

side joints faces at least 40 mm. No portion of the dressed surface shall show a gap more than 6 mm from straight edge placed on it. The remaining unexposed surface portion of the stone shall not project beyond the surface of bed and side joints. The requirements regarding bushing shall be same as for random rubble masonry (*see 4.3.2*).

4.3.3.2 Coursed rubble (second sort) — All requirements are the same as for coursed rubble (first sort) (*see 4.3.3.1*) except that no portion of dressed surface of joints shall show a depth of gap more than 10 mm from a straight edge placed on it.

4.3.4 Stones for Arches, Domes or Circular Moulded Work — The dressing shall be done in the same manner as for ashlar sunk or moulded (*see 4.3.1.2*) except that for arch or dome work, the stones shall be dressed to the required shape so that the surface of joints shall be truly radial.

4.3.5 Stones for Moulded and Carved Columns — The dressing shall be done in the same manner as for plain ashlar (*see 4.3.1.1*). The surface of joints with the adjoining stones shall be truly vertical, horizontal, radial and circular as the case may be. The face may be dressed to uniform curves of planes as required for the work.

(Continued from page 1)

<i>Members</i>		<i>Representing</i>
SUPERINTENDING ENGINEER	(DESIGN AND MARINE WORKS)	Public Works Department, Government of Tamil Nadu
DEPUTY CHIEF ENGINEER	(I & D)	(Alternate)
SHRI S. V. SURYANARAYANA		Central Water and Power Commission, New Delhi
SHRI M. V. YOGI		Engineer-in-Chief's Branch, Army Headquarters (Ministry of Defence)
SHRI K. N. SUBHA RAO	(Alternate)	
SHRI R. NAGARAJAN,	Director (Civ Engg)	Director General, ISI (<i>Ex-officio Member</i>)

Secretary

SHRI K. M. MATHUR
Assistant Director (Civ Engg), ISI

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

5-8-58C, 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 63 76

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

Pattiputra Industrial Estate, PATNA 800013 26 23 05

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

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

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

*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