IS 3182 (1986): broken brick (burnt clay) fine aggregates for use in lime mortar [CED 4: Building Limes and Gypsum Products]

BLANK PAGE

IS : 3182 - 1986
(Reaffirmed 2000)

Indian Standard

SPECIFICATION FOR BROKEN BRICK (BURNT CLAY) FINE AGGREGATE FOR USE IN LIME MORTAR

(Second Revision)

First Reprint MAY 1996

UDC 666.972.124:691.421-493:691.534

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

Gr 2

December 1986

Indian Standard

SPECIFICATION FOR BROKEN BRICK (BURNT CLAY) FINE AGGREGATE FOR USE IN LIME MORTAR

(Second Revision)

Building Limes Sectional Committee, BDC 4

Chairman	*Representing*
SHRI C. D. THATTE	Gujarat Engineering Research Institute, Vadodara
Members	
RESEARCH OFFICER (GERI) (*Alternate* to Shri C. D. Thatte)	
DR S. C. AHLUWALIA	National Council for Cement and Building Materials, New Delhi
SHRI S. P. S. AHUJA	Engineer-in-Chief's Branch (Ministry of Defence), New Delhi
MAJ V. K. SURI (*Alternate*)	
SHRI S. K. BANERJEE	National Test House, Calcutta
SHRI D. K. KANUGO (*Alternate*)	
SHRI N. G. BASAK	Directorate General of Technical Development, New Delhi
SHRI S. K. GHOSH (*Alternate*)	
SHRI H. U. BIJLANI	All India Housing Development Association, New Delhi
SHRI S. J. BAHADUR (*Alternate*)	
SHRI B. K. CHAKRABORTY	Housing and Urban Development Co-operation, New Delhi
SHRI P. S. SRIVASTAVA (*Alternate*)	
SHRI S. K. CHAUDHARY	Lime Manufacturers' Association of India, New Delhi
DR N. G. DAVE	Central Building Research Institute (CSIR), Roorkee
SHRI S. K. MALHOTRA (*Alternate*)	
DIRECTOR	A.P. Engineering Research Laboratories, Hyderabad
JOINT DIRECTOR (*Alternate*)	
DIRECTOR	Central Soil and Materials Research Station, New Delhi
DEPUTY DIRECTOR (*Alternate*)	

(*Continued on page* 2)

(*Continued from page* 1)

Members	*Representing*
HOUSING COMMISSIONER	Rajasthan Housing Board, Jaipur
RESIDENT ENGINEER (*Alternate*)	
JOINT DIRECTOR RESEARCH (B&S)	Research, Designs and Standards Organization (Ministry of Railways), Lucknow
DEPUTY DIRECTOR RESEARCH (B&S) (*Alternate*)	
SHRI N. MACEDO	Dyer's Stone Lime Co Pvt Ltd, Delhi
SHRI H. L. MARWAH	Builder's Association of India, Bombay
SHRI HARISH C. KOHLI (*Alternate*)	
DR S. C. MAUDGAL	Department of Science & Technology, New Delhi
SHRI Y. R. PHULL	Central Road Research Institute (CSIR), New Delhi
SHRI M. L. BHATIA (*Alternate*)	
DR A. V. R. RAO	National Buildings Organization, New Delhi
SHRI J. SEN GUPTA (*Alternate*)	
SHRI M. V. NAGARAJ RAO	Public Works Department, Government of Madhya Pradesh, Bhopal
SHRI C. V. KAND (*Alternate*)	
SHRI K. V. SINGH	Department of Mines & Geology, Government of Rajasthan, Udaipur
SHRI J. N. KACKER (*Alternate*)	
SUPERINTENDING ENGINEER (PLANNING & DESIGN)	Public Works Department, Government of Tamil Nadu, Madras
EXECUTIVE ENGINEER (BUILDING CENTRE DIVISION) (*Alternate*)	
SUPERINTENDING SURVEYOR OF WORKS (NDZ)	Central Public Works Department, New Delhi
SURVEYOR OF WORKS I (NDZ) (*Alternate*)	
SHRI V. VASUDEVAN	Khadi & Village Industries Commission, New Delhi
SHRI E. RAMACHANDRAN (*Alternate*)	
SHRI G. RAMAN, Director (Civ Engg)	Director General, ISI (*Ex-officio Member*)

Secretary

SHRI N. C. BANDYOPADHYAY
Deputy Director (Civ Engg), ISI

AMENDMENT NO. 1 MARCH 2010
TO
IS 3182 : 1986 SPECIFICATION FOR BROKEN BRICK (BURNT CLAY) FINE AGGREGATE FOR USE IN LIME MORTAR

(Second Revision)

(*Page* 4, *clause* **2.1**, *line* 3) — Substitute 'IS 1077 : 1992*' *for* 'IS : 1077-1986*'.

(*Page* 4, *clause* **4.1**) — Substitute 'IS 2430 : 1986‡' *for* 'IS : 2430-1969‡'.

(*Page* 4, *footnotes marked* * *and* ‡) — Substitute the following for the existing:

'*Specification for common burnt clay building bricks (*fifth revision*).
‡Methods for sampling of aggregates for concrete (*first revision*).'

(CED 4)

Reprography Unit, BIS, New Delhi, India

Indian Standard

SPECIFICATION FOR BROKEN BRICK (BURNT CLAY) FINE AGGREGATE FOR USE IN LIME MORTAR

(Second Revision)

0. FOREWORD

0.1 This Indian Standard (Second Revision) was adopted by the Indian Standards Institution on 30 June 1986, after the draft finalized by the Building Limes Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Ground broken brick (burnt clay), commonly known as *SURKHI*, is also used as fine aggregate in the preparation of lime mortar where fine aggregates derived from natural sources are not available in plenty or where its cost is prohibitive. It is a good alternative to sand where well-burnt bricks are available in sufficient quantity. It can be used in mortars for masonry and other works requiring lower loads and less severe conditions of service. Fine aggregates prepared from bricks of varying strengths and properties are used for lime mortar in different parts of the country. To give a rational approach for use of this type of aggregate in lime mortar, this standard has been formulated.

0.3 This standard was first published in 1967 and subsequently revised in 1975. The present revision has been prepared with a view to incorporating the modifications found necessary in the light of experience gained during the use of this standard. In this revision, the requirements of broken brick fine aggregates in respect of specific gravity, water soluble matter and material finer than 75 μm IS sieve have also been incorporated.

0.4 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*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

---

*Rules for roundig off numerical values (*revised*).

1. SCOPE

1.1 This standard covers the requirements for broken brick (burnt clay) fine aggregate for use in lime mortar.

2. GENERAL QUALITY

2.1 The broken brick fine aggregate shall be prepared from broken/ solid bricks conforming to class designation 50 and above of IS : 1077-1986*. It shall be free from underburnt clay particles, soluble salts and adherent coating of soil or silt.

2.2 The broken brick fine aggregate material shall be 100 percent passing 4·75 mm IS sieve.

3. PHYSICAL REQUIREMENTS

3.1 Grading — The fine aggregate shall be of the grading specified in Table 1 when tested for sieve analysis according to IS : 2386 (Part 1)-1963†.

TABLE 1 REQUIREMENTS OF GRADING FOR BROKEN BRICK FINE AGGREGATE

IS Sieve Designation [*see* IS : 460 (Part 1)-1985*]	Percent Passing (By Mass)
4·75 mm	100
2·36 mm	90-100
1·18 mm	70-100
600 µm	40-100
300 µm	5-70
150 µm	0-15
75 µm	Nil

*Specification for test sieves: Part 1 Wire cloth test sieves (*third revision*).

3.2 The broken brick fine aggregate, when tested in accordance with the method of test indicated, shall also conform to the requirements given in Table 2.

4. SAMPLING

4.1 The method of sampling shall be in accordance with IS : 2430-1969‡.

*Specification for common burnt clay building bricks (*fourth revision*).
†Methods of test for aggregates for concrete: Part 1 Particle size and shape.
‡Methods for sampling of aggregates for concrete.

TABLE 2 REQUIREMENTS OF BROKEN BRICK FINE AGGREGATE

(*Clause* 3.2)

Sl No.	Characteristic	Requirement	Reference to Method of Test
i)	Specific gravity	2·4-2·7	IS : 2386 (Part 3)-1963*
ii)	Clay and silt, percent, *Max*	5	IS : 2386 (Part 2)-1963†
iii)	Materials finer than 75 μm IS sieve, percent, *Max*	15	IS : 2386 (Part 1)-1963‡
iv)	Water soluble matter, percent, *Max*	1	Appendix B of IS : 3068-1986§

*Methods of test for aggregates for concrete: Part 3 Specific gravity, density, voids, absorption and bulking.

†Methods of test for aggregates for concrete: Part 2 Estimation of deleterious materials and organic impurities.

‡Methods of test for aggregates for concrete: Part 1 Particle size and shape.

§Specification for broken brick (burnt clay) coarse aggregate for use in lime concrete (*second revision*).

BUREAU OF INDIAN STANDARDS

Headquarters:

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

Telephones: 331 01 31, 331 13 75 — Telegrams: Manaksanstha (Common to all Offices)

Regional Offices:	*Telephone*
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002	331 01 31 331 13 75
*Eastern : 1/14 C. I. T. Scheme VII M, V. I. P. Road, Maniktola, CALCUTTA 700054	36 24 99
Northern : SCO 445-446, Sector 35-C, CHANDIGARH 160036	2 18 43 3 16 41
Southern : C. I. T. Campus, MADRAS 600113	41 24 42 41 25 19 41 29 16
†Western : Manakalaya, E9 MIDC, Marol, Andheri (East), BOMBAY 400093	6 32 92 95

Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMADABAD 380001	2 63 48 2 63 49
‡Peenya Industrial Area 1st Stage, Bangalore Tumkur Road BANGALORE 560058	38 49 55 38 49 56
Gangotri Complex, 5th Floor, Bhadbhada Road, T. T. Nagar, BHOPAL 462003	6 67 16
Plot No. 82/83, Lewis Road, BHUBANESHWAR 751002	5 36 27
53/5, Ward No. 29, R.G. Barua Road, 5th Byelane, GUWAHATI 781003	3 31 77
5-8-56C L. N. Gupta Marg (Nampally Station Road), HYDERABAD 500001	23 10 83
R14 Yudhister Marg, C Scheme, JAIPUR 302005	6 34 71 6 98 32
117/418 B Sarvodaya Nagar, KANPUR 208005	21 68 76 21 82 92
Patliputra Industrial Estate, PATNA 800013	6 23 05
T.C. No. 14/1421, University P.O., Palayam TRIVANDRUM 695035	6 21 04 6 21 17

Inspection Offices (With Sale Point):

Pushpanjali, First Floor, 205-A West High Court Road, Shankar Nagar Square, NAGPUR 440010	2 51 71
Institution of Engineers (India) Building, 1332 Shivaji Nagar, PUNE 411005	5 24 35

*Sales Office in Calcutta is at 5 Chowringhee Approach, P. O. Princep Street, Calcutta 700072 — 27 68 00

†Sales Office in Bombay is at Novelty Chambers, Grant Road, Bombay 400007 — 89 65 28

‡Sales Office in Bangalore is at Unity Building, Narasimharaja Square, Bangalore 560002 — 22 36 71

Reprography Unit, BIS, New Delhi, India