भारतीय मानक **IS 1200 (Part 6) : 2024**

Indian Standard

भवन निर्माण और सिविल इंजीनियरिंग कार्यों की मापन पद्धति

भाग 6 अग्रिसह कार्य

(तीसरा पुनरीक्षण)

Method of Measurement of Building and Civil Engineering Works

Part 6 Refractory Work

(Third Revision)

ICS 17.020; 91.040.01; 93.010

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Method of Measurement of Works of Civil Engineering (Excluding Water Resources Development) Sectional Committee, CED 44

FOREWORD

This Indian Standard (Part 6) (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Method of Measurement of Works of Civil Engineering (Excluding Water Resources Development) Sectional Committee had been approved by the Civil Engineering Division Council.

Measurement occupies a very important place in the planning and execution of any civil engineering work from the time of first estimates to the final completion and settlement of payments for a project, methods followed for measurement are not uniform and considerable differences exist among practices followed by different construction agencies and also among various Central and State Government departments. While it is recognized that each system of measurement has to be specifically related to administrative and financial organizations within a department responsible for the work, a unification of various systems at technical level has been accepted as very desirable specially as it permits a wider range of operation for civil engineering contractors and eliminates ambiguities and misunderstanding of various systems followed.

Among various civil engineering items, measurement of buildings was the first to be taken up for standardization and this standard having provisions relating to building work was first published in 1958, revised in 1964 and in 1974. In the course of usage of this standard by various construction agencies in the country, several clarifications and suggestions for modifications were received and as a result of study, the Committee responsible for this standard decided that its scope besides being applicable to buildings should be expanded to cover method of measurement of civil engineering works like industrial and river valley projects.

Since different trades are not related to one another, the Committee decided that each trade as given in IS 1200 : 1964 shall be issued separately as a different part. This will also be helpful to users in using the specific standard. This part covers method of measurement of refractory work.

In this revision of the standard, the existing amendment has been included and the provisions have been spelt in the format as per latest and best practices. Also, the references to cross referred standards have been made up-to-date.

This standard contributes to the Sustainable Development Goal 9 ‘Build resilient infrastructure, promote sustainable industrialization and foster innovation’.

The composition of the Committee responsible for formulation of this standard is given in 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 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. 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

METHOD OF MEASUREMENT OF BUILDING AND CIVIL ENGINEERING WORKS

PART 6 REFRACTORY WORK

(Third Revision)

1 SCOPE

This standard (Part 6) covers the method of measurement of refractory work.

2 REFERENCES

The standards given 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 agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of these standards:

IS No.	*Title*
IS 1200	Methods of measurement of building and civil engineering works:
(Part 8) : 1993	Steelwork and ironwork (*fourth revision*)
(Part 13) : 2024	Painting of building surfaces (*sixth revision*)

3 TERMS AND DEFINITIONS

3.1 Bills of Quantities — The bills of quantities shall fully describe the materials and workmanship and accurately represent the work to be executed.

3.2 Booking of Dimensions — In booking dimensions, the order shall be consistent and generally in the sequence of length, breadth or width and height or depth or thickness.

3.3 Clubbing of Items — Items may be clubbed together provided that the individual items of the clubbed items is agreed to be on the basis of the detailed description of the items stated in this standard.

3.4 Deduction — Where a minimum area is defined for the deduction of opening, voids or both, such area shall refer only to openings or voids within the space measured.

3.5 Description of Items — The description of each item shall, unless otherwise stated be deemed to include, where necessary, conveyance, delivery, handling, unloading, storing waste, return of packing, necessary scaffoldings, platforms, walkways, tools and tackles, stacking item wise, opening of packages and disposal of wood, straw, etc. This shall also include use of necessary equipment, safety appliances, lighting at place of work, ventilation facilities, where necessary.

3.6 Measurement — Unless otherwise stated, hereinafter all work shall be measured net in the decimal system, as fixed in place, as given in 3.6.1 to 3.6.4.

3.6.1 Dimensions shall be measured to the nearest 0.01 m.

3.6.2 Area shall be worked out to the nearest 0.01 m^2.

3.6.3 Cubic contents shall be worked out to the nearest 0.01 m^3.

3.6.4 Weight shall be worked out to the nearest 0.001 tonne.

3.7 Wastage — All measurement of cutting shall, unless otherwise stated, be deemed to include consequent wastage.

3.8 Work to be Measured Separately — The refractory work to be carried out in hot conditions shall be so specified indicating range of temperature and work shall be measured separately.

4 METHOD OF MEASUREMENTS

4.1 The items of work wherever necessary and unless otherwise stated shall be deemed to include the following:

a) Dressing of the bricks/blocks including cutting, grinding and chipping to achieve proper thickness of joint and alignment as required in the drawings for all classes of work;

b) Dressing of bricks/blocks including cutting, grinding and chipping wherever necessary for expansion joints, sliding joints, binding joints, etc to ensure proper

curvature and keying in arches, curved surface, etc;

c) Forming of expansion joints, sliding joints, etc excluding filling (for filling *see* 4.8); and

d) Finishing, pointing, clearing and cleaning of masonry joints, gaps, hollows, cavities, opening passages, ducts, etc, for up to 0.1 m^2 each (*see* 4.3).

4.2 The refractory and insulation bricks and blocks, types of mortars and powders to be used shall be fully described. Other auxiliary and filling materials, such as paper, cardboard, asbestos materials, mineral wool, water glass, coke pitch, carbon mass, special sands, crumbs, powders, admixtures and plasticizers required to be incorporated in the works shall also be described.

4.3 All refractory work unless otherwise specified shall be measured in cubic metres. The measurement shall be inclusive of mortar joints, expansion joints and sliding joints. Deductions for voids, openings, etc, shall be made only when the area of each such opening and void exceeds 0.01 square metre.

4.4 The method of measurement on volumetric basis as specified in 4.3 shall also apply for castable refractory work or refractory concreting, rammed, mass filling, filling of loose insulation materials, such as mica crumbs, slag wools, asbestos powders, fireclay mass and carbon mass.

4.5 Where the brick/block lining is separated from the shell or wall surface by the use of asbestos, cardboard, etc, such insulating material shall be fully described and measured separately in square metres.

4.6 Where insulation plaster is applied over the refractory surface, the same shall be fully described and measured separately in square metres.

4.7 Refractory grout work shall be fully described and measured in cubic metres on the basis of theoretical volume to be grouted.

4.8 Fillings of expansion joints, sliding joint with paper, cardboard, etc shall be fully described and measured separately in running metres.

4.9 Unless otherwise stated fixing of anchors, hangers and supporting steel members for the refractory brickwork shall be separately measured [*see* IS 1200 (Part 8)].

4.10 Unless otherwise stated painting of finished masonry with cement or fireclay mortars, water glass, etc, shall be separately measured [*see* IS 1200 (Part 13)].

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Method of Measurement of Works of Civil Engineering Construction (Excluding Water Resources Development) Sectional Committee, CED 44

Organization	*Representative(s)*
In Personal Capacity (*Flat No.-370 Asiad Village Complex Siri Fort, New Delhi - 110049*)	SHRI SARVAGYA KUMAR SRIVASTAVA **(*Chairperson*)**
Association of Consulting Civil Engineers India, Bengaluru	SHRI CHANDAN GHOSH SHRI NANDKISHORE K. CHOUDHARY (*Alternate*)
Border Roads Organization, New Delhi	SHRI R. SRINIVASA RAO
Central Public Works Department, New Delhi	SHRI PREM MOHAN SHRI DINESH K. UJJAINIA (*Alternate*)
Central Water Commission, New Delhi	SHRI AJAY SHIVLAL BANODE SHRI KIRAN PRAMANIK (*Alternate*)
CSIR - Central Building Research Institute, Roorkee	DR S. K. SINGH SHRI SUBHASH CHAND BOSE GURRAM (*Alternate* I) SHRIMATI HINA GUPTA (*Alternate* II)
Engineers India Limited, New Delhi	SHRI INDRAJIT NEOG SHRI RABISANKAR KARMAKAR (*Alternate*)
Guru Gobind Singh Indraprastha University, New Delhi	SHRI SHAILESH SHARMA
Hindustan Construction Company Limited, Mumbai	SHRI HARISH M. P.
Institute of Valuers, New Delhi	COL (RETD) B. B. SHARMA SHRI AJIT FAUZDAR (*Alternate*)
Malla Reddy Engineering College, Hyderabad	SHRI B. VAMSI KRISHNA
RICS India Private Limited, Gurugram	SHRI ASHWANI AWASTH
In Personal Capacity (*A-103, Ganesh Residency, Near Yash Avenue, IOC Road, Chandkheda, Ahmedabad - 382424*)	SHRI VISWASKUMAR B. DARAJI
In Personal Capacity (*688, Sector 10, Panchkula - 134109*)	SHRI ASHOK KUMAR GROVER
In Personal Capacity, New Delhi (*Balbir Verma & Associates K-11, Ground Floor Kailash Colony, New Delhi - 110048*)	SHRI BALBIR VERMA
BIS Directorate General	SHRI DWAIPAYAN BHADRA, SCIENTIST 'E'/DIRECTOR AND HEAD (CIVIL ENGINEERING) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary
SHRIMATI DIVYA S.
SCIENTIST 'D'/JOINT DIRECTOR
(CIVIL ENGINEERING), BIS

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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