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IS : 1200 (Part XXII) - 1982

Indian Standard

METHOD OF MEASUREMENT OF BUILDING
AND CIVIL ENGINEERING WORKS

PART XXII MATERIALS

(First Reprint MARCH 1987)

UDC 69.003.12:691



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INDIAN STANDARDS INSTITUTION

MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG

NEW DELHI 110002

Gr 2

September 1982

*Indian Standard*METHOD OF MEASUREMENT OF BUILDING
AND CIVIL ENGINEERING WORKS

PART XXII MATERIALS

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Indian Standard

METHOD OF MEASUREMENT OF BUILDING AND CIVIL ENGINEERING WORKS

PART XXII MATERIALS

0. FOREWORD

0.1 This Indian Standard (Part XXII) was adopted by the Indian Standards Institution on 20 April 1982, after the draft finalized by the Civil Works Measurement Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Measurement occupies a very important place in the planning and execution of any civil engineering work, from the time of first estimates to final completion and settlement of payments. Methods being followed for measurement are not uniform, and considerable differences exist between the practices followed by different construction agencies and also between various Central and State Government Departments. While it is recognized that each system of measurement has to be specifically related to administrative and financial organization with departments responsible for the work, a unification of the various systems at the technical level has been accepted as very desirable, specially as it permits a wider circle of operation for civil engineering contractors and eliminates ambiguities and misunderstandings arising out of inadequate understanding of various systems followed.

0.3 The practice for the method of measurement of supply of materials like sand, boulders, aggregates, etc varies considerably from one place to another with the result that a lot of practical difficulties arise in supply of such items. It has, therefore, been felt that methods of measurement of supply of such materials, as are generally taken from time to time for buildings and civil engineering works in substantial quantities, should be formulated. This part covers measurements of such materials.

0.4 In reporting the result of a measurement in accordance with this standard, if the final value observed or calculated is to be rounded off, it shall be done in accordance with IS : 2-1960*.

*Rules for rounding off numerical values (revised).

1. SCOPE

1.1 This standard (Part XXII) covers the method of measurement of materials normally used in buildings and civil engineering works.

2. GENERAL

2.1 **Description of Item** — Description of each item shall, unless otherwise stated, include, wherever necessary, conveyance and delivery, handling, unloading, storing, etc.

2.2 **Limits of Measurement** — Dimensions shall be measured net in decimal system to the nearest 0.01 m, area to nearest 0.01 m², volume to nearest 0.01 m³, weight to nearest 1 kg, unless otherwise stated (*see also* relevant Indian Standard).

2.3 **Bills of Quantities** — Bills of quantities shall fully describe materials.

3. METHOD OF MEASUREMENT OF MATERIALS

3.1 Various types of materials shall be measured as mentioned in Table 1.

TABLE 1 MEASUREMENT OF MATERIALS

NAME OF MATERIAL	HOW MEASURED
<i>Aggregates</i>	
Brick/stone of 40 mm nominal size and above	In m ³ after making a deduction of 7.5 percent from stack measurements and as per type
Brick/stone aggregates of less than 40 mm size cinder, sand, <i>moorum</i> , fly ash, pozzolana, stone, stone dust	In m ³ of gross stack measurements according to nominal size and type
<i>Aluminium Flats</i>	In kg, stating size
<i>Aluminium Strip and Edging</i>	In running metre stating size
<i>Asbestos Cement Products</i>	
Barge boards	Enumerated, stating size
Ridge	In pairs, according to size and type
Gutters	Enumerated, stating size, type and length
Roof lights, north light curves	Enumerated, stating size and type
Sheets	Enumerated stating type, size and length
Ventilators, eaves fillers, apron pieces, louvers, cowls, ridge finials, septic tanks	Enumerated and described

(*Continued*)

TABLE 1 MEASUREMENT OF MATERIALS — *Contd*

NAME OF MATERIAL.	HOW MEASURED
<i>Bitumen Products</i>	
Bitumen felt	In m ² , stating type, grade and width
Bitumen hot sealing compound	By weight, in kg, stating grade and type
Bitumen road tar	In tonnes, stating type
Joint filler (sealing compound)	In kg
<i>Boards</i>	
Plywood, etc	In m ² , stating type and thickness
<i>Bricks/Brick Tiles</i>	
	Enumerated, stating class and size
<i>Blocks (Building, Clay, Cement, Stone, etc)</i>	
	Enumerated stating size, type and grade if any
<i>Cement/Lime Pozzolana Mixture</i>	
	In kg, stating type
<i>Distemper</i>	
	In kg
<i>Doors/Windows/Ventilator Frames</i>	
	In linear metres and described (outside dimensions measured)
<i>Doors/Windows/Ventilators (Excluding Fittings and Finishes)</i>	
	In m ² and described
<i>Fibre Glass Felt</i>	
	In m ² stating thickness and grade
<i>Filler Fibrous/Non fibrous</i>	
	In m ² and described
<i>Fittings for Doors and Windows</i>	
	Enumerated
<i>Galvanized Steel Barbed Wire</i>	
	In kg, stating type and size
<i>Galvanized Steel Sheets (Corrugated/Plain)</i>	
	In quintals or enumerated, stating type and size
<i>Glass Sheets (Plain/Pin Head/Frosted/Wired/Splinter proof)</i>	
	In m ² , stating type, thickness and size
<i>Glass Strips</i>	
	In running metres, stating thickness and width
<i>Jali Cement—Concrete/Clay</i>	
	In m ² , stating thickness and type
<i>Lead for Caulking</i>	
	In kg
<i>Lime</i>	
	In kg, stating class
<i>Marble Chips</i>	
	In quintal, stating size and described
<i>Marble Dust</i>	
	In kg
<i>Marble Pieces</i>	
	In kg, stating colour

(Continued)

TABLE 1 MEASUREMENT OF MATERIALS — *Contd*

NAME OF MATERIAL	HOW MEASURED
<i>Marble Slab</i>	In m ² , stating thickness and type
<i>Metal Beading</i>	In running metres, stating type and size
<i>Paints, Emulsions and Thinners</i>	In litres, stating type and class
<i>Paint (Stiff) and Pigment</i>	In kg, stating type and class
<i>Pipes and Accessories</i>	
Pipe fittings	Enumerated and described
Pipes (except mild steel)	In running metres and described
<i>Precast Units for Flooring</i>	Enumerated and described
<i>Rope Manila</i>	In kg and described
<i>Rubber Rings for Pipes</i>	Enumerated and described
<i>Steel</i>	
Mild steel sheets	In tonnes, stating size and thickness
Mild steel expanded metal	In m ² and described
Wire fabric/chain fabric	In m ² and described
Hoop iron/bolts/rivets/bars/structural sections/rails/mild steel pipes	In kg or tonnes and described
<i>Stone</i>	
Boundary stone/kilometre stone	Enumerated, stating size and type
Kerb stone	Enumerated, stating size
Floor stone slabs	In m ² and described
Soling stone, boulders, rubble	In m ³ , after making a deduction of 15 percent from gross stack measurements, stating nominal size and type
<i>Sanitary Fittings</i>	
Cisterns / clamps / cocks / ferrules / foot-rests / gratings / hydrants / traps / bath tubs / urinals / valves / wash basins / WC pans / showers / towel rails / bidets	Enumerated and described
Files	Enumerated, stating type and size
<i>Timber</i>	
Blocks/baulks	Enumerated, stating type and size
Ballies	Enumerated, specifying diameter and described (diameter shall be measured at 1.5 m from the thick end)

(*Continued*)

TABLE 1 MEASUREMENT OF MATERIALS — *Contd*

NAME OF MATERIALS	HOW MEASURED
Bamboos	Enumerated and described
Scantlings/planks/battens	In m ³ , stating size and type
Tiles (Other than sanitary)	In m ² , stating size and type
Wall Tiles False Ceiling Tiles Roofing Tiles	Enumerated, stating type and size
Water Proofing Compound	In kg
Water Proofing Paste Emulsion Liquid	In litres
Wire	In kg and described
Wire Rope	In running metre and described



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