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METHOD OF MEASUREMENT OF BUILDING AND CIVIL ENGINEERING WORKS

PART XXII MATERIALS

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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 m^2, volume to nearest 0·01 m^3, 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
Aggregates	
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, *moorum*, fly ash, pozzolana, stone, stone dust	In m^3 of gross stack measurements according to nominal size and type
Aluminium Flats	In kg, stating size
Aluminium Strip and Edging	In running metre stating size
Asbestos Cement Products	
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
Bitumen Products	
Bitumen felt	In m², 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
Boards	
Plywood, etc	In m², stating type and thickness
Bricks/Brick Tiles	Enumerated, stating class and size
Blocks (Building, Clay, Cement. Stone, etc)	Enumerated stating size, type and grade if any
Cement/Lime Pozzolana Mixture	In kg, stating type
Distemper	In kg
Doors/Windows/Ventilator Frames	In linear metres and described (outside dimensions measured)
Doors/Windows/Ventilators (Excluding Fittings and Finishes)	In m² and described
Fibre Glass Felt	In m² stating thickness and grade
Filler Fibrous/Non fibrous	In m³ and described
Fittings for Doors and Windows	Enumerated
Galvanized Steel Barbed Wire	In kg, stating type and size
Galvanized Steel Sheets (Corrugated/Plain)	In quintals or enumerated, stating type and size
Glass Sheets (Plain/Pin Head/Frosted/Wired/ Splinter proof)	In m², stating type, thickness and size
Glass Strips	In running metres, stating thickness and width
Jali Cement—Concrete/Clay	In m², stating thickness and type
Lead for Caulking	In kg
Lime	In kg, stating class
Marble Chips	In quintal, stating size and described
Marble Dust	In kg
Marble Pieces	In kg, stating colour

(*Continued*)

TABLE 1 MEASUREMENT OF MATERIALS — *Contd*

NAME OF MATERIAL	HOW MEASURED
Marble Slab	In m^2, stating thickness and type
Metal Beading	In running metres, stating type and size
Paints, Emulsions and Thinners	In litres, stating type and class
Paint (Stiff) and Pigment	In kg, stating type and class
Pipes and Accessories	
Pipe fittings	Enumerated and described
Pipes (except mild steel)	In running metres and described
Precast Units for Flooring	Enumerated and described
Rope Manila	In kg and described
Rubber Rings for Pipes	Enumerated and described
Steel	
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
Stone	
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
Sanitary Fittings	
Cisterns / clamps / cocks / ferrules/foot-rests / gratings / hydrants /traps/bath tubs/urinals /valves/wash basins/WC pans/showers/towel rails/bidets	Enumerated and described
Tiles	Enumerated, stating type and size
Timber	
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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