

IS : 1200 ( Part XVIII ) - 1974

( Reaffirmed 1992 )

## *Indian Standard*

# METHOD OF MEASUREMENT OF BUILDING AND CIVIL ENGINEERING WORKS

## **PART XVIII DEMOLITION AND DISMANTLING**

( *Third Revision* )

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Fourth Reprint SEPTEMBER 1998

UDC 69.003.12:69.059.62

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**BUREAU OF INDIAN STANDARDS**  
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*Indian Standard***METHOD OF MEASUREMENT OF BUILDING  
AND CIVIL ENGINEERING WORKS****PART XVIII DEMOLITION AND DISMANTLING***( Third Revision )*

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## *Indian Standard*

### METHOD OF MEASUREMENT OF BUILDING AND CIVIL ENGINEERING WORKS

#### PART XVIII DEMOLITION AND DISMANTLING

#### *( Third Revision )*

#### 0. FOREWORD

0.1 This Indian Standard ( Part XVIII ) ( Third Revision ) was adopted by the Indian Standards Institution on 5 August 1974, 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 planning and execution of any civil engineering work from the time of first estimates to final completion and settlement of payments of the project. The methods followed for the measurement are not uniform and considerable differences exist between the practices followed by one construction agency and another and also between various Central and State Government departments. While it is recognized that each system of measurement has to be specifically related to the administrative and financial organizations within the department responsible for 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 eliminate ambiguities and misunderstandings arising out of inadequate understanding of the various systems followed.

0.3 Among the various Civil Engineering items, measurement of building had been first to be taken up for standardization and this standard having provisions relating to all building works, was first published in 1958 and revised in 1964.

0.4 In the course of usage of this standard by various construction agencies in country, several clarifications and suggestions for modifications were received and as a result of study, the Sectional Committee decided that its scope, besides being applicable to building should be expanded so as to cover also the method of measurement applicable to civil engineering works like industrial and river valley project works. Since each type of trade is not

related to one another, the Sectional Committee decided that each type of trade as given in IS : 1200-1964\* be issued in different parts which will be helpful to specific users in various trades. This part covering method of measurement of demolition and dismantling applicable to building as well as civil engineering works was therefore issued as second revision in 1971. The third revision incorporates all the changes decided by the Sectional Committee in the past 3 years including the provision of dismantling of masonry and concrete met during excavation.

**0.5** 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 measurement, 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.

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## **1. SCOPE**

**1.1** This standard ( Part XVIII ) covers the method of measurement of demolition and dismantling in buildings and civil engineering works.

**NOTE** — For the purpose of this standard the term 'dismantling' implies carefully taking up or down and removing without damage. The articles shall be passed by hand, where necessary, and lowered to the ground, and not thrown, and where these are fixed by nails, screws, bolts, etc, these shall be taken out with proper tools and not by tearing or ripping off and the term 'demolition' implies taking up or down, or breaking up.

## **2. GENERAL RULES**

**2.1 Clubbing of Items** — Items may be clubbed together provided the break-up for such items is agreed to be on the basis of the detailed description of the items stated in this standard.

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

### **2.3 Measurements**

**2.3.1** Measurement of all work, except hidden work, shall be taken before demolition or dismantling and no allowance for increase in bulk shall be made.

**2.3.2** All work shall be measured net in the decimal system as fixed in its place, as given in 2.3.2.1 to 2.3.2.3.

\*Method of measurement of building works (first revision).

†Rules for rounding off numerical values (revised).

**2.3.2.1** Dimensions shall be measured to the nearest 0.01 m.

**2.3.2.2** Areas shall be worked out to the nearest 0.01 m<sup>2</sup>.

**2.3.2.3** Cubic contents shall be worked out to the nearest 0.01 m<sup>3</sup>.

**2.4 Work to be Measured Separately** — Work executed in the following conditions shall be measured separately:

- a) Work in or under water,
- b) Work in liquid mud,
- c) Work in or under foul conditions,
- d) Work under tides, and
- e) Work in snow.

**2.4.1** In the case of work under tides the levels of high and low water tides shall be stated.

**2.4.2** Where springs requiring pumping are likely to be encountered, the work shall be measured against a separate specific provision made for the purpose.

**2.5 Bill of Quantities/Item of Work** — Item of work shall fully describe the materials and workmanship and represent the work to be executed.

**2.6 Measurement in Stages** — Work shall be measured under the following categories in convenient stages stating the height or depth:

- a) Below ground/datum level, and
- b) Above ground/datum level.

**NOTE** — The ground/datum level shall be defined in each case.

## **2.7 Precautions**

**2.7.1** Attention shall be drawn to any necessary precautions to be taken for the protection of the public and the owner's property.

**2.7.2** Temporary shoring for the safety of portions not required to be pulled down or of adjoining property, and temporary enclosures or partitions shall be included in the main item.

**2.7.3** If precautions are required to be taken to keep down dust, nuisance, etc, it shall be so stated.

**2.8 Demolition and Dismantling** — Works required to be demolished and those required to be dismantled shall each be measured separately.

**2.9 Lead** — The description shall include separation of serviceable material from the unserviceable, stacking within 100 m and disposal of debris. Removal of materials beyond 100 m shall be measured separately ( see 2.9.1 ).

The distance for removal shall be measured over the shortest practicable route and not necessarily the route actually taken.

**2.9.1** Distances exceeding 100 m and up to 1 km shall be measured in units of 100 m and those exceeding 1 km in units of 500 m.

**2.10** Works laid dry and with mortar shall be measured separately and the type of mortar shall be stated. Framed and unframed works shall be measured separately.

**2.11 Disconnecting/Maintaining of Services** — Attention shall be directed to any necessary disconnecting or maintaining of services, whether temporary or permanent; and an item shall be provided for making good if required.

### **3. WALLS AND PIERS**

**3.1** Walls, independent piers, columns and their footing and foundation of brick, stone or concrete shall be described and measured in cubic metres. All copings, corbels, cornices and other projections shall be included with the wall measurements.

**3.1.1** In measuring the thickness of plastered walls, the thickness of the plaster shall be excluded.

**3.2** Ashlar face stones, dressed stone work, precast concrete articles, etc, if required to be taken down in tact, shall be so stated and measured separately in cubic metres.

**3.3** Honeycomb work and hollow block walling of bricks, stone or concrete shall be measured as solid.

**3.4** Cleaning of bricks and stacking them for measurement, including all extra handling and removal and disposal of rubbish as stated, shall be enumerated in thousands of cleaned bricks.

**3.5** Cleaning of stone obtained from demolished/dismantled stone masonry of any description including ashlar facing, dressed stonework, stone slabs or flagging and precast concrete blocks including all extra handling and disposal of rubbish as stated shall be measured in cubic metres of cleaned stone.

### **4. REINFORCED CONCRETE AND REINFORCED BRICK WORK**

**4.1** Reinforced concrete structures and reinforced brick roofs and walls with their footing and foundation shall be measured in cubic metres and if reinforcement is required to be cut, it shall be so stated.

**4.2** Where reinforcement is required to be separated, scraped and cleaned, the work shall be stated separately and measured in kilograms of salvaged steel.

## 5. ROOFS

**5.1** Roof coverings generally including battens, boarding mats, bamboo *JAFFARI*, other subsidiary support, shall be measured in square metres stating the thickness and size or gauge. Ridges, hips and valleys shall be girthed and included with the roof area. Corrugated and semicorrugated surfaces shall be measured flat and not girthed.

**5.2** Mud on roofs shall be measured in cubic metres.

**5.3** Lead sheets in roofs shall be measured in kilograms and hips, valleys, flashings, linings to gutters, etc, shall be included in this weight.

**5.4** Supporting members, such as rafters, purlins, beams, joists and trusses, where of wood, shall be measured in cubic metres and where of steel or iron sections, in kilograms. If the span exceeds 10 m, it shall be so stated.

## 6. CEILINGS

**6.1** Stripping of ceiling shall be measured in square metres and described.

**6.2** Supporting joists, beams, etc, shall be measured in cubic metres or in kilograms as specified in 5.4.

## 7. CONCRETE AND BRICK ROOFS AND FLOORS

**7.1** Concrete and brick roofs and floors shall be measured in cubic metres. Beams, cantilevers and other supports of similar material shall be included in the item.

## 8. FLOORS AND PAVINGS

**8.1** Floors and pavings except concrete pavings, shall be measured in cubic metres and mode of fixing shall be described. Concrete pavings shall be measured in square metres stating their thickness.

## 9. PARTITIONS, TRELLIS WORK ( *JAFFARI* ), ETC

**9.1** Partitions or light walls of lath and plaster, trellis work ( *JAFFARI* ), expanded metal, thin concrete or terra-cotta slabs and other similar materials, including framework, if any, shall be measured in square metres stating the thickness.

## 10. WOODWORK

**10.1** Ballies shall be measured in running metres.

**10.2** All other woodwork under 40 cm<sup>2</sup> in section shall be measured in running metres and average 40 cm<sup>2</sup> and over in cubic metres.



**10.3** Boarding including wooden *CHAJJAS* and sunshades with supports shall be measured in square metres stating the thickness.

## **11. STEEL AND IRON WORK**

**11.1** All steel and iron work shall be measured in kilograms. The weight shall be computed from standard tables unless the actual weight can be readily determined.

**11.2** Riveted work, where rivets are required to be cut, shall be measured separately.

**11.3** Structural steel required to be re-erected shall be measured separately.

**11.4** In framed steel gates the weight of any covering material or filling, such as iron sheets and expanded metal, shall be added to the weight of the main article if such covering is not ordered to be taken out separately.

## **12. DOORS AND WINDOWS**

**12.1** Doors, windows, clear storey windows, ventilators, etc ( wood or steel ) whether to be removed while dismantling of walls or by making recesses in walls, when the walls are not to be dismantled, shall be enumerated. Those exceeding 3 m<sup>2</sup> in the size of openings shall be measured separately. Removal of *CHOWKHATS*, architraves, holdfasts and other attachments shall be included in the item.

## **13. POSTS OR STRUTS**

**13.1** Posts or struts ( wood, steel or R. C. C. ) any section including taking out embedded portion shall be measured in running metres.

## **14. FENCING WIRE MESH**

**14.1** Fencing wire mesh of any type with frame work shall be measured in square metres. If the frame work is required to be separated and wire mesh put into rolls, it shall be so stated.

## **15. GLAZING**

**15.1** Taking out any description of serviceable glass, except polished plate, from old sashes, skylights, etc ( any thickness, weight or size ) raking out old putty, etc, shall be measured in square metres.

**15.2** Irregular or circular plans shall be measured as rectangular or square.

## **16. WATER PIPE LINES AND SEWER LINES**

**16.1** Water pipe lines including rain water pipes with clamps and specials, sewer lines ( salt glazed ware or concrete ), etc, shall be described by their

internal diameter and length and measured in running metres inclusive of joints ( the measurement shall be taken along the centre line of pipe and fittings ).

16.2 If the joints, specials and fittings, etc, are required to be separated, it shall be so stated and enumerated.

16.3 Pucca drains shall be measured in cubic metres and described.

16.4 Valve, cisterns, public foundation platforms, fire hydrants, etc, shall be enumerated.

16.5 Manholes and inspection chambers shall be enumerated stating the size and depth of manhole/inspection chamber. They shall be classified into different groups depending upon the depth, such as up to half metre depth, half to one metres, one to two metres depth and so on. The depth of manhole shall be the distance between the top of manhole cover and invert level of the drain.

16.6 Ventilating shafts, gulley traps, flushing cisterns and other appurtenant items of work shall be enumerated.

## **17. OIL AND GAS PIPE LINES**

17.1 Oil and gas pipe lines shall be measured as in 16.

## **18. ROAD WORK**

18.1 Different types of road surfaces shall be measured separately.

18.2 Road paving shall be measured in square metres and described.

18.3 Concrete paving shall be measured as in 8.1. If concrete is reinforced with bars or fabric reinforcement, it shall be so stated and measured separately.

18.4 Soling and sub-bases shall be measured in cubic metres separately for each type of material.

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