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METHOD OF MEASUREMENT OF
BUILDING AND CIVIL ENGINEERING WORKS

PART XXI WOODWORK AND JOINERY

(Second Revision)

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*Indian Standard***METHOD OF MEASUREMENT OF
BUILDING AND CIVIL ENGINEERING WORKS****PART XXI WOODWORK AND JOINERY***(Second Revision)*

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*Indian Standard***METHOD OF MEASUREMENT OF
BUILDING AND CIVIL ENGINEERING WORKS****PART XXI WOODWORK AND JOINERY***(Second Revision)***0. FOREWORD**

0.1 This Indian Standard (Part XXI) (Second Revision) was adopted by the Indian Standards Institution on 24 March 1973, 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 the final completion and settlement of payments for a project. Methods followed for measurement are not uniform and considerable differences exist between 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 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 misunderstandings of various systems followed.

0.3 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 and was revised in 1964.

0.4 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 technical 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 project works.

0.5 Since different trades are not related to one another the Sectional 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.

*Method of measurement of building works (revised).

0.5.1 This part covers method of measurement of woodwork and joinery; applicable to buildings as well as to civil engineering works.

0.6 In reporting the result of a measurement made 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*

1. SCOPE

1.1 This standard (Part XXI) covers the method of measurement of woodwork and joinery in buildings and civil engineering works.

2. GENERAL RULES

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

2.2 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.

2.3 Description of Items — The description of each item shall, unless otherwise stated, be held to include where necessary, conveyance and delivery, handling, unloading, storing, fabrication, hoisting, all labour for finishing to required shape and size, setting, fitting and fixing in position, straight cutting and waste.

2.4 Measurements — Unless otherwise stated all works shall be measured net in decimal system, as fixed in position as given in 2.4.1 and 2.4.1.1.

2.4.1 Length and width shall be measured to the nearest 0.01 m. Width of single or detached planks shall, however, be measured to the nearest 2 mm. Thickness shall be measured to the nearest 2 mm.

2.4.1.1 Scantlings, battens, and baulks shall, however, be measured to the nearest 2 mm in each cross-sectional dimension.

NOTE — Scantling means a piece of timber whose cross-sectional dimensions exceed 5 cm but do not exceed 20 cm in both directions; batten means a piece of sawn timber whose cross-sectional dimensions do not exceed 5 cm in either direction; and baulk means a piece of sawn timber whose cross-sectional dimensions exceed 5 cm in one direction and 20 cm in other direction.

2.4.2 Areas shall be worked out to the nearest 0.01 m².

2.4.3 Cubical contents shall be worked out to the nearest 0.001 m³.

*Rules for rounding off numerical values (revised).

2.5 Bills of Quantities — Bills of quantities shall fully describe materials and workmanship, and accurately represent the work to be executed.

3. GENERAL

3.1 The description and type of the wood to be used shall be stated; each kind of wood shall be measured separately.

3.2 The work shall be measured in cubic metres unless otherwise stated hereinafter.

3.3 The work shall be measured separately for 'fixed' and 'framed and fixed'. 'Framed and fixed' work shall be that which involve mortice and tenon or dove-tailed joints.

3.4 All work shall include nails. Work 'secret fixed', 'fixed with screws' or 'fixed with screws and cups' or 'fixed with bolts and washers' shall be so described and measured separately. If screws are of other than ordinary steel, they shall be so described. Screws used for fixing builders hardware shall be measured along with the hardware.

3.5 All work shall be measured net as fixed, that is, no extra measurement shall be made for shape, joints, etc, except as mentioned in 3.5.1 to 3.5.4.

3.5.1 Scantlings, battens, etc, in sections other than rectangular shall be measured as the least rectangle from which the section can be obtained.

3.5.2 In case of scantlings, battens, etc, with varying sections, largest section shall be measured.

3.5.3 Mitred pieces shall be measured along longest length.

3.5.4 Circular or segmental portions shall be measured net separately.

3.6 The description of items shall include all the necessary keys, wedges, dowels, wood or bamboo pins to tenoned joints and clenching of nail heads.

3.7 In measuring framed timber, length of tenons and scarfs shall be added to site length of framed member. Extra lengths where required to be embedded in walls/floors shall be added to site lengths.

3.8 Unless specifically mentioned a tolerance of 1.5 mm shall be allowed for each wrought face.

3.9 Items of plain woodwork exceeding 20 cm in width, if required in one width, shall be so described and measured separately.

3.10 All lineal labours, such as rebates (straight or splayed) beads and chambers shall be described and included with the item.

3.11 Plugging to walls for planks, etc, shall be described and measured in running metres per row stating the spacing of plugs. Plugging to walls for fittings or detached work, etc, shall be described and enumerated.

3.12 Wrought timber shall be so described and measured separately except where planing is measured separately.

NOTE — The term 'wrought' carries the same meaning as 'planed'.

3.13 Planing shall be measured in square metres for all wrought surfaces, unless timber has been described as wrought.

3.14 The following labours shall be measured separately in square metres when the timbers measured in cubic metres and in running metres stating the thickness when timber is measured in square metres:

- a) Scribing,
- b) Notching exceeding 15 cm each in girth, and
- c) Circular cutting.

3.15 Unless included in the description of main item the following labours shall be measured separately in running metres stating width or girth, and include all mitres and stops:

- a) Rebates, tongues and grooves;
- b) Beads, staff beads and flutes; and
- c) Mouldings.

3.16 The following labours shall be measured separately in numbers:

- a) Ends, splayed or rounded and wrought;
- b) Wrought and pointed or rounded ends to posts, etc, including mitred intersections where necessary;
- c) Rafter feet projecting with splayed or moulded ends;
- d) Notches not exceeding 15 cm each in girth stating thickness;
- e) Boring holes (other than for bolt), stating diameter and depth of holes; and
- f) Cutting holes square in section, stating size and depth of holes.

4. TYPES OF WORK

4.1 Doors and windows leaves shall be described, method of fixing indicated and measured in square metres. Each type shall be measured separately.

NOTE — Where there is a combination of two or more types of doors or windows, it shall either be measured as clubbed item or the different portions measured separately, the dividing line being the centre of the rail separating the different portions.

4.1.1 No extra width or labour shall be measured for rebated and/or splayed meeting stiles of doors and windows.

4.2 Boarding shall be described and measured in square metres under the following headings stating the finished thickness in each case:

- a) Roof boarding;
- b) Ceiling;
- c) Floors;
- d) Panelling;
- e) Weather boarding; and
- f) Shelves, fittings racks, bins almirah linings and the like.

4.2.1 Description shall include all straight and raking cutting and waste and heading joints where required.

4.2.2 Side joints shall be described and work with different kinds of joints shall be measured separately.

4.2.3 In the case of rebated, tongued and grooved, grooved and filled and secret jointed boarding and weather boarding the measurement shall be net as fixed, extra width of rebates, tongues, etc, being ignored.

4.2.4 Boarding fixed to curved surfaces in narrow widths shall be measured separately and shall include shooting the joints to proper splay.

4.2.5 In case of boarded floors the width of boards, the method of jointing and nailing shall be described; if floors are to be traversed or finished for polishing, it shall be so stated.

4.2.6 In case of weather boarding, width and thickness of boards and lap shall be stated. In case of feather-edged boarding, thickness shall be the maximum thickness.

4.2.6.1 All chamfering, rebating, etc, to edges of weather boarding shall be described.

4.3 Batten work shall be described and measured in running metres.

4.4 Trellis work shall be measured in square metres stating size of laths and spacing.

4.4.1 One-way and two-way trellis work shall each be measured separately.

4.4.2 Posts, rails, stiles, braces and other supports for trellis work and for doors and windows frames in trellis work shall be measured separately.

4.4.3 Doors and windows formed in trellis work shall be measured alongwith trellis work.

4.5 Shoring and Strutting — Shoring and strutting timbers (use and waste) shall be measured in cubic metres and shall include necessary

bolts, wedges, dog-spikes, nails, putting together, erecting, maintaining in position for the required period, striking and removal.

4.6 Bally Work — Bally work shall be measured in running metres stating mean diameter.

NOTE — Mean diameter shall be the average of diameters at the ends.

4.7 Staircases — Work to staircases shall be measured under a separate heading and measured in detail as in 4.7.1 to 4.7.16. Where detailed working drawings are available staircases may be measured as an omnibus item fully described stating the tread area in square metres.

4.7.1 Landings including bearers shall be measured as for boarded floors.

4.7.2 Treads and risers shall be measured in square metres, the area being obtained by multiplying the length of tread by the exposed width of tread plus the rise from step to step. Winders and riser shall be included with the item.

4.7.3 Housing of treads, risers, fliers and winders shall be included in the description, as also all labours, such as cross-tonguing, cross-grooving, cross-rebating, framing and gluing, wedging and blocking.

4.7.4 Carriages, if provided, shall be measured separately.

4.7.5 Returned ends to treads with shaped brackets under a rounded, quadrant of curtail ends to treads and risers shall be enumerated.

4.7.6 Wall strings shall be measured in running metres stating the width and thickness and shall include plugging to wall and housing for treads and risers.

4.7.7 Outer strings shall be measured in for wall strings and shall include housing for treads and risers, tenoning or notching at ends to fit newel posts, landings, etc.

4.7.8 Cut strings shall be measured as for outer strings and shall include cutting of upper edge for treads.

4.7.9 Ramped, circular and wreathed portion shall be measured separately and so described.

4.7.10 Hand-rails shall be measured in running metres along top centre line stating extreme section of straight portions and whether rounded or moulded.

4.7.11 Circular level, ramped and wreathed hand-rails shall be measured separately. Quadrants, short ramps and wreaths and scroll ends shall be enumerated.

4.7.12 Mitres, housing joints and hand-rail screws and dowels at junction of circular part with straight one shall be enumerated.

4.7.13 Balusters shall be described and enumerated stating size and shall include framings or housing at ends.

4.7.14 Newels shall be described and measured in running metres stating the section, and if turned, the length of turning shall be stated.

4.7.15 Sunk panels and mouldings planted-on housed-in to newels shall be stated.

4.7.16 Newel caps and pendants shall be described and enumerated.

4.8 Cased Frames of Vertical Sliding Windows — Cased frames of vertical sliding windows shall be described and measured in running metres, along the outer edge.

4.9 Skirtings, Cornices, Picture and Dado Rails, etc — Skirtings, cornices, picture rails, dado rails and similar mouldings shall be described including method of fixing and measured in running metres.

4.10 Trap Doors — Trap doors shall be described and enumerated as 'extra-over' relevant item.

4.11 Pelmet boxes shall be described and measured in running metres along the sides and face planking.

4.12 Turned Work — Turned work shall be measured in running metres stating the girth.

4.13 Sundries — The following types of work shall be fully described and enumerated:

- a) Wardrobes and cupboards;
- b) Draining boards;
- c) Plate racks;
- d) Curtain brackets;
- e) Towel rails;
- f) Toilet fixtures;
- g) Back boards to cisterns; and
- h) Small fittings, such as door and window stops.



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