

Review of the sixth edition

Standard Method of Measurement of Building Works

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A Joint Committee was set up in June, 1912 upon which was imposed the task of drawing up a comprehensive set of Standard Rules of Measurement of Building Works. In 1918 representatives of the building trades were added to the committee. Extract from Preface, SMM1, 1922.

Thus, the Standard Method of Measurement of Building Works was born in 1922 and so appeared the first set of rules upon which bills of quantities were to be based.

We have progressed a long way since that time. In the words of the preface to the Sixth Edition; 'Rapid developments in the design and construction of buildings such as have occurred over the last few years have their repercussions both on measurement itself and on what it is cost significant to measure.' In an attempt to resolve some of these problems, the RICS and the NFBTE established, in January, 1971, a Joint Working Party on Measurement Conventions, whose researches culminated in a report later that year. This, in turn, led to the formulation of a development unit to examine the practicalities of the report's recommendations. The Development Unit quickly realised, that due to the far reaching nature of the report, an early Sixth Edition was needed to meet the immediate requirements of the industry, whilst longer term studies should be pursued in anticipation of a more radical Seventh Edition. Thus has been produced, what its preface calls, 'an interim edition.' What changes does it contain?

Format

The format of SMM6 is very similar to that of the SMM5 except that some modernisation of terms and reformatting of titles has taken place. Much of the previously explanatory aspect of the rules have been removed and now appear in a Practice Manual. The trade order remains as before, with the exception that Carpentry(N) and Joinery(P) have been combined to form Woodwork (N). The following sections have been re-lettered accordingly. More reliance has been placed on drawn information than in the previous edition and some sections call for the use of general locating drawings and component details. The use of 'bill diagrams', widely employed by measuring quantity surveyors in the past, is now suggested in some areas of the sixth edition. Many

sections also call for a separate item relating to the provision, maintenance and removal of plant.

Section A: General Rules

The old introduction is now incorporated within the general rules, and the bills of quantities item is extended to include for provisional sums as an alternative for work which cannot be measured. A new **Clause A5** covers the requirements relating to drawn information and introduces a range of definitions for the various detailed requirements of the subsequent work sections. **Clause A5.2** states that the requirement of the SMM for detailed descriptions shall be deemed to be fulfilled if drawings indicating fully the items required to be described are provided. The clauses relating to grouping of sizes and short lengths have been omitted from this section, whilst a new clause (**A6**) is introduced relating to standard products and clauses relating to work in special conditions have been combined (**A9**)

Section B: Preliminaries

Again, this section closely follows the requirements of SMM5 calling for details of the project and site, contractual requirements, obligations and restrictions imposed by the employer and matters relating to works by Nominated Sub-Contractors and Suppliers. Finally, there is a sub-section entitled 'General facilities and obligations' which gives a list of items to be included for pricing as preliminaries by the Contractor if he so desires.

Section C: Demolition

The principal changes in this section are an updating of wording to reflect current practice and technology. Section C now embodies the new plant clause requirement.

Section D: Excavation and Earthwork

This section is the first to show major changes in relation to those contained in SMM5. Basically, the measurement of excavation now reflects the use of machines rather than men, the requirements relating to planking and strutting (now called supporting the face of the earth) are radically simplified and the rules relating to the ascertainment and remeasurement of work below the water table have been drastically amended.

In detail, a general description of the work in the section is now required,

unless location drawings provide the relevant information. The new plant clause is also included. **Clause D3.1a** calls for the Ground Water level and the date on which it was established to be described in the Bill and also calls for the water level to be re-established as the work proceeds. Any difference between the pre-contract and actual water table levels calls for automatic remeasurement. Site Preparation works remain virtually unaltered, but Excavation depths are amended to reflect machine working. Types of excavation are more specifically stated and generally, excepting trenches not exceeding 0.30m in width and service trenches, all excavation is to be measured in cubic metres irrespective of depth. As previously mentioned, earthwork support has been somewhat simplified and is now classified not only by stages of depths relating to excavation (given in **Clause D.11**) but also into three stages of trench widths; not exceeding 2.00m, 2.00-4.00m and exceeding 4.00m. Disposal of all water becomes the responsibility of the contractor. Disposal of excavated material remains similar to that required by SMM5 whilst the classification of filling materials is extended and clarified. Surface treatments are similar to SMM5 but an item for protection is new.

Section E: Piling

This section has been amended to reflect modern methods and includes, for the first time, a sub-section relating to diaphragm walling. Locational drawings are required, as is an item for plant.

Section F: Concrete Work

This is a much amended section which now classifies concrete work into three sub-sections; concrete framed structures, steel framed structures and other concrete work. Each sub-section is to give in its heading an approximate total volume of *in situ* concrete required.

The section requires a general description of the work involved unless this is adequately provided by location drawings, and there is a mandatory requirement to provide certain location drawings for work involving concrete framed structures and concrete to steel framed structures. A plant item is also included. All concrete is now to be measured cube and in the case of floor, walls and slabs, classified into four categories of thickness. Surface treatments are to be measured separately in square metres.

Beams, except deep beams (defined as beams having a depth/width ratio exceeding 3:1), are now included in the measurement of the suspended slab. Heavily reinforced concrete (defined as members having a reinforcement content exceeding 5 per cent by volume) are also to be measured separately. The remaining rules relating to quality, categories of measurement, jointing, surface finishes, reinforcement, etc are similar to SMM5.

Special attention should be drawn to the formwork section, since substantial changes have been made to this sub-section. In an attempt to relate measurement more fully to actual practice, formwork to walls and slabs is to be measured superficial and is to include an indication of the number of areas. Columns and beams are to be measured lineal. The practice manual amplifies the SMM rules, but the provision of bill diagrams are recommended in relation to sections which are not square or rectangular.

The rules for measurement of precast concrete work have been somewhat simplified but the requirement for all precast concrete units, other than copings, kerbs, channels and other similar units, to be enumerated may lead to more BQ items.

Section G: Brickwork and Blockwork

Brickwork is now to be classified under three headings; Foundations, Load bearing superstructure and Non-load bearing superstructure. A general description of the work in the section is required unless location drawings adequately answer this requirement. There is also a call for the inclusion of a description outlining the sequence of the work where this is dictated by the design. There is a mandatory requirement for the provision of some location drawings and a plant item is also required.

The rules for measurement of general brickwork and work classifications are similar to SMM5 except that the requirements for measuring reduced brickwork for areas two-brick thick and over has been omitted and brickwork and blockwork in narrow trenches, defined as trenches the width of which does not exceed the thickness of the wall by more than 0.50 m and is deeper than 1.00 m from the top of the excavation to the base of the wall, must be given separately. This has allowed the elimination of virtually all cutting items except that for fair circular cutting. Brick facework remains unaltered except that the rules relating to Brickwork built fair both sides or entirely of facing bricks are now included within the facework section. Blockwork remains similar to SMM5 but provision has been made for blockwork which is designed to be built without cutting. Damp proof courses show minor alterations.

Section H: Underpinning

This section has been redrafted to align with the requirements of the Excavation,



Second opinion

Concrete and Brickwork sections, but there are no other fundamental revisions. The requirement for location drawings and plant is included, however, as is a new item dealing with protection of the completed work.

Section J and K: Rubble Walling and Masonry

Apart from requiring a general description of the work involved unless this is adequately provided by location drawings, a mandatory requirement for some location drawings and the standard plant provisions clause, this section remains virtually unaltered.

Section L: Asphalt Work

This section is little changed except for a mandatory requirement for some location drawings and the plant provisions clause.

Section M: Roofing

In principle, other than the now normal location drawing and plant requirements, this section contains no fundamental amendments. There are, however, a number of detailed alterations which are worthy of comment. The pitch or pitches of slate or tile roofing is to be stated in the description. The rules applying to corrugated troughed sheet roofing have been extended to cladding and the section on thatch roofing has been omitted. Long strip metal roofing is to be kept separate stating the length of roof slope, divided into four classifications, whilst the requirement for sheet metal flashings and gutters suggest bill diagrams when detailed profiles are required.

Section N: Woodwork

This section appears radically different from SMM5 but, in essence, it is similar in many areas being, more often than not, a simple rationalisation of the original requirements laid down by the former Carpentry and Joinery work sections. The new section is split into eight principal sub-sections viz General, Carcassing, First Fixings, Second Fixings, Composite Items, Sundries, Ironmongery and Protection.

The information required by the general section is basically an amalgam of similar requirements from the old Carpentry and Joinery sections suitably

amended, but it does contain two major differences. First, lengths of timber exceeding 4.20 m (rather than 6.00 m) are now required to be stated separately in stages of 0.30 m (rather than 1.50 m). Secondly, the number of different cross-section shapes shall be given in the description even where of identical overall cross-section dimensions. The sundries, ironmongery and protection sections are virtually unaltered.

The rules for carcassing are a much simplified version of those given for structural timbers in the old carpentry section, and are covered under five heads; floors, partitions, flat roofs, pitched roofs and kerbs and bearers, thus all timbers of the same section in, for example, a pitched roof are to be measured together. The rules for First Fixing combine the former Boarding and Flooring sections together with the rules for firring, drips, bearers, nosings, margins, fillets, rolls, grounds, battens and framework. Second Fixings include skirtings, picture rails, architraves, cover fillets, stops, glazing beads, shelves, window boards, handrails and the like.

The composite item sub-section marks a substantial change from SMM5. Since by definition, most composite items are those which will normally be manufactured off-site, all such items, except door frames, are to be enumerated. As a result, these items are to be fully described and it seems likely that bill diagrams will be widely used in this sub-section to alleviate the need for long, unwieldy and tortuous bill descriptions. Detailed information, of one type or the other, is required, however, and if it is not available, then a provisional sum is the only answer.

Section P: Structural Steelwork

This section requires a general description of the work involved unless this is adequately provided by the location drawings. Also required is a description outlining the sequence of work where this is dictated by the design. A plant item is a further mandatory requirement. Location drawings are required for fabricated steelwork and should show the type and size of structural steel members, their position in relation to each other and also the details of the connections or particulars of the reactions, movements and axial loads at connections. Each different building or independent structure is also to be given separately under an appropriate heading sub-divided to distinguish between unfabricated steelwork, fabricated steelwork and erection. Without an engineer's framing drawings, the changes in the rules relating to structural steelwork will mean the inclusion of a provisional sum. Interesting minor changes include the requirement for off site painting of steel and other surface treatments (other than galvanising) to be given in square metres whilst site painting is to be measured in accordance with the rules of Section V (Painting and Decorating). Galvanising is to be measured in tonnes. An item is now required for protection.

Section Q: Metalwork

The changes in this section are mainly designed to bring the rules for 'Composite items' in the metalwork and woodwork sections into line with each other. There is, therefore, a concentration on enumeration. The Plates and bars section has been amended to allow handrails, duct covers and the like to be transferred into the composite item section, whilst the sections dealing with sheet metal and work in wire mesh or expanded metal have been combined. Surprisingly, no plant item is required for this section.

Section R: Plumbing and Mechanical Engineering Installations

The general information clause calls for a description of the installations unless this is adequately provided by location drawings. In addition, for mechanical engineering work, detailed specifications together with drawings indicating the scope of the work are to be provided. A plant item is again a mandatory requirement. The classification of work has been extended to deal with the more sophisticated engineering installations encountered today, but generally the remainder of the section, excepting the sub-section relating to equipment, remains substantially as SMM5. In the equipment section, however, many of the items which were specified in some detail have now been collected together and it is the measurer's responsibility to describe the various items by reference to either catalogue or drawings or both. Alternative methods for measuring ductwork and insulation to ductwork are now included.

Section S: Electrical Installation

The general information clause calls for a description of the installations unless this is adequately provided by location drawings. In addition detailed specifications together with drawings indicating the scope of the work are to be provided. A plant item is, once more, a mandatory requirement. The remainder of the section remains substantially unaltered, although it has been somewhat reworded. One major departure is to enumerate the final sub-circuits to allow flexibility of installation to the electrician, himself.

Section T: Floor, Wall and Ceiling Finishes

A general description of the work in the section is required unless it is shown on the relevant location drawings and an item for plant is also required. The major change in this section is that, with the exception of such items as skirtings, cills and cornices, all finishings are to be given superficially, although widths under 300 mm are to be kept separate. Plain sheet finishings and lathing and baseboarding have been combined to form a new section dealing with dry-lining and partitions, the wood lathing provisions having been removed. New sections have been provided to deal with Mosaic work, Flexible sheet finishings

and Fitted carpeting. The section on self-finished partitions has been omitted.

Section U: Glazing

A general description of the work in the section is required unless it is shown on the relevant location drawings. The section has been somewhat simplified thus allowing the measurer to adequately describe some of the more specialised items. Where fifty or more panes of a particular glass are identical, they must be given separately indicating the number and sizes of the identical panes. Glass over 10 mm thick, glass under 10 mm thick but in pane sizes exceeding 4.00 m² and special types of glass are all to be enumerated.

Section V: Painting and Decorating

A general description of the work is called for unless the location drawings provide the required detail. Work classifications are divided into new and redecoration works internally and externally. Rules for measurement have now been rationalised onto a single basis similar to that given on general surfaces in SMM5 except that work on isolated surfaces not exceeding 300 mm girth shall be given in metres in stages of 150 mm and not in stages of 100 mm as before and work on isolated surfaces not exceeding 0.50 m² are to be enumerated rather than 0.10 m² as before. Paper hanging now calls for the number of pieces required to be given in addition to the area in square metres.

Section W: Drainage

Layout drawings for drainage are to be provided and a plant item is required. The excavation items are brought into line with the changes contained in Section D (Earthwork) whilst the items dealing with pipework have been modified and somewhat extended.

Section X: Fencing

A general description of the work in the section is required unless this is adequately provided by location drawings. In addition, a protection item is added as a mandatory requirement.

Practice Manual

This new departure, which the original report of the Measurement Conventions

Working Party saw as a useful adjunct to the rules set out in SMM6, gives basic guidance on how the rules should be interpreted. The rules are mandatory, however, the guidance in the practice manual is not. The manual follows the order of SMM6 and incorporates many of the examples formerly included in the rules themselves. In addition, it provides some line diagrams to provide further assistance and clarification of the rules.

Whether the practice manual will succeed is an interesting experiment which will need reviewing in the light of experience. It is difficult to conceive of a set of rules needing a further document to explain their meaning, but the JCT have, for many years now, issued explanatory practice notes to guide users of the Standard Form of Contract, so perhaps the practice manual will also serve this purpose.

As to our 'interim' sixth edition, I can only conclude by quoting the words of the German poet, Christian Morgenstern:

*And so he comes to the conclusion
The whole affair was an illusion
'For look', he cries triumphantly
'What's not permitted CANNOT be!'*

Seventh edition

The Standard Method of Measurement Development Unit, of which I am a member, has just produced a report outlining its proposals for the seventh edition. This report has been circulated to all branches and the Development Unit are anxious to receive as many comments as possible on its contents. It will be some time before the Development Unit's proposals are complete and SMM7 is not envisaged for a number of years. Finally, the Development Unit wish to monitor the implementation of and difficulties related to SMM6, so that the changes incorporated in that edition can be assessed.

Should you wish to comment on any topic you think will be helpful to the Development Unit in its work, please send these comments direct to P G Jordan, Technical Secretary, SMM Development Unit, 82 New Cavendish Street, London W1M 8AD.



Punch operators