SMM6 — Institute Comments

The following press release was issued by the Institute to coincide with the publication of the Sixth Edition of the Standard Method of Measurement of Building Works.

Initial reaction of IQS to the recently published SMM6 (and associated Practice Manual) is one of cautious and qualified welcome. The IQS Professional Practice Board will be analysing the changes in more detail over the next few months and it is possible that virtually the whole of one issue of *The Quantity Surveyor* will be devoted to the subject.

The purpose of a Bill of Quantities is to provide the contractor with a quantified word-picture of the proposed project for which he is tendering. Because SMM5 concentrated too much energy on cost-insignificant items it was hoped that SMM6 would eliminate the superfluous while introducing the necessary additional information required by the estimator. It is questionable whether this has been achieved.

The format of SMM6 follows that of SMM5 fairly closely but introduces one or two interesting changes.

1. The requirements in respect of graphic information are welcomed. Has the Architectural profession agreed to this and, more importantly, will this new approach encourage a move towards the provision of fully-detailed "drawn" information before B/Q's are commissioned? If so, the need for sketches in tender documents would be to a great extent superseded. Despite this question the new provision is welcomed for, although a Quantity Surveyor's art is mainly expressed in word-descriptions, he can on occasion fail to fully portray all requirements – leading to some inevitable disputes.
2. The provision in respect of "plant" items is generally welcomed despite certain reservations on the grounds of the problems it could cause when negotiating major variations.
3. The general requirement to indicate the nature and location of work will be welcomed by Quantity Surveyors on both sides of the industry and should produce more accurate pricing and more meaningful descriptions upon which variations can be evaluated.
4. The Practice Manual will be of great assistance and the graphic examples it contains should go a long way to avoid disputes in interpretation. It may be questioned why it is "non-mandatory".

Whatever its strengths or weaknesses, however, SMM6 is with us – and it is obviously in the interest of all members of the profession to familiarise themselves with it (even though individually they may have wished that it went further – or not so far) in order to make it understood and applicable by all concerned in the measurement of building works. In anticipation of a possible question, the amount of detail which will be required in bills of quantities prepared under SMM6 will depend entirely on the type and quality of the relative work. Any further question concerning the possibility that additional fees should or should not be payable in respect of bills prepared under its rules will, no doubt, be overtaken by whatever may yet emerge as a result of the implementation by HMG of the recommendations in the recent Report of the Monopolies and Mergers Commission on the provision of Surveying Services.

It is perhaps permissible for the IQS to ask whether and, if so, for how long the SJC is likely to continue in its present structure. As may be seen in the history of the JCT, the right of other interested parties to be represented in decision-making processes must be accommodated sooner or later and it is to be hoped that due recognition of that right will emerge in a new and enlarged constitution of the SJC before the long-haul leading to the publication of SMM7 is advanced much further.

Towards the Twenty-first Century — Measurement Conventions for the future

By Richard J. Hooker, FIQS
Member of the Joint Working Party on Measurement Conventions (JWP); Member of the Standing Joint Committee for the Standard Method of Measurement of Building Works (SJC); Vice Chairman of the Standard Measurement of Building Works Development Unit (DU).

PRE-SMM6 DEVELOPMENTS

In 1971 the sponsoring bodies of the Standard Method of Measurement of Building Works (SMM) created the JWP to consider whether or not the time was right to embark upon a fundamental rethink of the rules of measurement. The JWP sought the views of many interested parties and having taken due account of those views, concluded that the technical and statutory changes absorbed by the Industry since the publication of the 5th Edition, together with the techniques likely to be developed over the next twenty five years or so, demanded a fundamental re-think of the rules of measurement. Furthermore, the JWP identified certain areas which warranted consideration within any future study which might be authorised, together with broad proposals as

to how those areas might be dealt with in a future edition of the SMM. The sponsoring bodies accepted the JWP Report and, in view of the size of the task, the JWP's recommendation that a group, quite separate from the SJC, should be created to conduct the detailed development of the JWP proposals. The DU was set up in 1973 by the sponsoring bodies and was charged with the task of putting together a measurement convention appropriate to an Industry expected to cope with projects large or small, extremely complex or very simple, required in great haste or whenever they are ready; in other words, an Industry expected to cope with a range of demands probably unparalleled in any other industry.

The DU terms of reference required them to:

(*a*) (i) Reconstitute the SMM as a related series of sets of rules in order to reflect the varying degrees of quantification required at successive stages of the design/construction process by the different sectors of interest within the Industry, and to accommodate the controlled selection of contractors at varying stages of completion of the design proposals.

(ii) Devise effective presentations of the rules of measurement and code of measurement practice.

(*b*) (i) Give guidance on the application of the rules of measurement.

(ii) Prescribe standard presentations of project data applicable to the various processes of the Industry.

(iii) Provide, in conjunction with the rules of measurement, for the production of project cost control documents which identify those items whose cost is related to quantity, time, value and occurrence, so that valuation of variations, provisional sums and disturbance costs can be more readily ascertained.

(*c*) Solve the following technical problems in pursuance of (*a*) and (*b*) above:

(i) Portrayal of the complexity of buildings by grouping items of work with regard to their locational characteristics.

(ii) Establishment of standardised methods of recording primary measurements (taking-off).

(iii) Assessment of the influence of apparently insignificant constructional detail upon such issues as repetition and production flow.

(iv) Devising techniques for identifying the boundaries of integral parts of buildings.

(*d*) Consider the proposals for detailed amendments to the current edition of the SMM which are already lodged with the SJC. Put in hand an early limited revision to accommodate these detailed amendments which, at the same time, will be compatible with the emergent rules and code of measurement practice.

(e) Publicise the JWP Report, and the work of the DU, in order to encourage discussion and interest by the Industry and professions at large.

(*f*) Consult with and to make specific references to certain authorities nominated by the sponsors.

(*g*) Liaise with bodies outside the U.K. where appropriate.

(*h*) Pay particular regard to the achievement of maximum compatability between the measurement practices and conventions of the building and civil engineering sectors of the Construction Industry.

(*j*) Take account of the field tests carried out by others where relevant to the work of the DU and to sponsor and monitor field tests of the DU proposals.

(*k*) Have regard, when formulating proposals for change, to the need for concomitant changes in the Standard Forms of Contract and initiate the earliest possible discussion within the DU and sponsoring bodies of any proposals for change which it appears will require amendment of the Standard Forms of Contract.

(*l*) Use terminology derived from the Construction Industry Thesaurus wherever possible.

(*m*) Deliver to the sponsoring bodies comprehensive proposals for the implementation of the JWP recommendations—such proposals to be accompanied by an outline scheme for the introduction of the new rules and codes to the industry.

The DU primary task was to create a convention which would serve the Industry through the remainder of this century and into the next. As a secondary task, item (*d*) above required them to consider current criticisms of the 5th Edition and put forward proposals to deal with them in a manner compatible with the final proposals. It was by virtue of this requirement by the sponsoring bodies that the DU effectively considered the 6th and 7th Editions concurrently. The DU work was split into two sections namely the consideration of the technical problems as applied to all matters of measurement and, in so doing, the consideration of individual groups of items identified by their trade characteristics. For convenience only, the 6th Edition has been presented in virtually the same trade groupings as the 5th Edition, the exception being Woodwork which is a consolidation of the 5th Edition separate trades of Carpenter and Joiner. So it was that in early 1975 the DU submitted its Interim Report to the sponsoring bodies containing proposals designed to deal with the detailed criticisms of the 5th Edition (emanating mainly from specialist trades) as well as to test some of their proposals for fundamental reform. The sponsoring bodies ratified the Interim Report and in so doing instructed the SJC to implement it. The 6th Edition is the first fruit, so to speak, to be harvested from the seeds sown in early 1971. Full expression of the original concept envisaged by the JWP will come, in due course, in the 7th Edition—but more of that later.

6 IS LAUNCHED

Publication of SMM6 was achieved in July this year and only now is the Industry in a position to start forming a considered view as to its contents. The most significant general changes within the 6th Edition relate to the provision of drawn information, descriptions of work related to trade grouping as well as to the Works as a whole, introduction of time related items, identification of repetition within the production process, reduction in the number of measured items, the exclusion of trade groupings which are not in general use today, the recognition of the mechanical age in which we operate and the concept of a Practice Manual. Add to the foregoing a comprehensive amendment to the Concrete Work, Brickwork and Blockwork, Woodwork and Structural Steelwork trade groupings and, in essence, the differences between the 5th and 6th Editions have been identified.

The SJC and DU have sought to compile a set of measurement rules which will portray a more meaningful picture of the project in question whilst at the same time seeking to reduce as far as possible the effort necessary to produce that picture. Concurrently, and no less important, they have considered the need to widen the use of Bills of Quantities beyond the processes of tender, valuation and final account and, wherever possible, have fashioned the rules to facilitate this wider use.

The 6th Edition embodies a wider use of drawn information than its predecessor. Three types of drawn information are referred to, namely—location drawings (which can be a combination of block plans, site plans and/or general location drawings showing the positions occupied by various spaces in the building and the principal construction elements) referred to in the majority of trade groupings; component details (referred to mainly in the Woodwork and Metalwork groupings and which amount to manufacturing details); bill diagrams (offered as an alternative throughout the rules to the sometimes rather verbose descriptions found in certain Bills of Quantities).

It is recognised that the description of an item may not convey its full cost implications. For example, location can be particularly cost-significant as can the relationship of one specific item to another. The introduction in most trade groupings of a general description of the work provides an opportunity for this essential information to be given.

Most trade groupings now provide the opportunity to identify separately the time-related costs relative to plant. Transport to and from the site together with setting-up and clearing away is separately identified from time standing on site to facilitate more accurate valuing of variations, disturbance and the like. The exceptions from this general statement are Woodwork, Metalwork, Glazing, Painting/Decorating and Fencing.

Repetition is an important factor in determining construction costs and the first attempts to identify this are made within the Concrete Work (formwork), and Woodwork (door frame and lining sets).

As a direct consequence of providing more drawn information it has been possible to reduce the number of measured items within Bills of Quantities. This is particularly relevant in Brickwork and Blockwork (a number of labours are not now measured) Woodwork and Metalwork (the majority of composite items—i.e. those likely to be manufactured off-site—are to be enumerated). The volume of written description can be drastically reduced if full advantage is taken of the simple device of bill diagrams.

Rules relating to types of construction not widely used have been excluded (e.g. thatching and panelled wall and ceiling linings). It is left to the compiler of the Bill to present the information in a satisfactory manner and to state what rules have been adopted in so doing.

Mechanical methods of operating have influenced the rules of measurement particularly in the Excavation and Earthworks grouping (excavation generally) and in Woodwork (identification of real changes in section shapes rather than changes in description only).

Finally, in these general comments, attention is drawn to the related Practice Manual. It is apparent from the queries raised in connection with previous SMM's that problems arise out of differing interpretations of the rules of measurement. The Practice Manual seeks to anticipate this problem as well as providing examples related to the individual rules.

SIGNIFICANT CHANGES IN PARTICULAR TRADE GROUPINGS

B: PRELIMINARIES

A list is now required of the drawings from which the Bills of Quantities have been prepared and the general location drawings previously referred to are required to accompany the tender documents. A check-list of typical obligations and restrictions imposed by an Employer is now included and a similar list, for the convenience of pricing by the Contractor, indicates that drying the works is now to be the responsibility of the Contractor unless specific temperature and humidity levels are required. Attendances upon nominated subcontractors must now be more precisely defined—thus excluding the use of omnibus clauses in Bills of Quantities which tend to refer to vague possibilities rather than fully describing actual requirements.

D: EXCAVATION AND BRICKWORK

The assumption that excavation and earthwork will be generally carried out by mechanical plant explains the disappearance of the term 'get out' in relation to excavation. Where it would be difficult or impractical to carry out excavation by mechanical means e.g. alongside existing services or in small pits, the rules have been drawn up to identify these situations. A soil description is now required including details of overhead or underground services. Also a pre-contract ground water level must be established from which the bill measurement will be prepared. The water level will be re-established at the time the excavations are carried out and the measurements adjusted accordingly. Guidance on the application of this rule is given in the Practice Manual. Depth classification of excavation is now required in terms of maximum depth rather than in stages. The working space rules are similar in principle to those of the 5th Edition but have been clarified and amplified by sketches in the Practice Manual. Excavation of working space must now be measured separately and given as an item which includes filling and any additional earth support. The classification of types of excavation includes a new concept of narrow trenches (measured lineal) and excavating for pile caps and around services (all as individual items). Amplification of the meaning of the term 'special plant' in relation to excavation in rock is included in the Practice Manual. The term 'earthwork support' is now used instead of 'planking and strutting' in recognition of the wide variety of materials available for this purpose. Earthwork support now includes all shoring including the special shoring required under the 5th Edition but does not include interlocking driven sheet steel piling. Earthwork support is now classified by distance between the faces to be supported rather than by types of excavation. Clarification has been given of the terms 'next to roadway', 'next to existing buildings' and 'unstable ground' which includes running sand, running silt and similar materials. The terms 'general water', 'ground water', 'spring or running water' used in the 5th Edition are replaced by the terms 'surface water' and 'ground water'. Surface water is intended to deal with rainwater and is required to be given as an item. A similar item will be given for the disposal of ground water

where the pre-contract water level indicates that excavation work will be affected by ground water and such an item introduced into the variation account should there be a change following the recording of the post contract water level.

E: PILING AND DIAPHRAGM WALLING

This trade grouping (which includes diaphragm walling for the first time) follows very closely the Civil Engineering Standard Method of Measurement.

F: CONCRETE WORK

This trade grouping has radically altered the rules for measurement of concrete and formwork. The drawn information required to accompany the tender documents in the case of a reinforced concrete or steel framed structure will include the engineer's general arrangement drawings. The work in this section generally is required to be classified as concrete framed structures, steel framed structures or other concrete work. All insitu concrete with the exception of hollow tile floors is now to be measured cube, with rules requiring thickness classification to be given for walls, beds, suspended floors etc. Concrete having a reinforcement content exceeding 5 per cent by volume is required to be kept separate. The concrete categories generally follow the 5th Edition but certain re-grouping has taken place—e.g. foundations in trenches and pier and column bases are now measured as one item. Attached beams and columns are no longer separated but are measured cube as part of the floor slab or wall. Because concrete is now measured cube, finishes cast on to concrete are to be measured separately. The measurement of reinforcement follows the 5th Edition except that horizontal and vertical bars in excess of stated lengths are each given separately. The major change in the trade grouping occurs in the measurement of formwork. In an attempt to highlight the cost significance of this work, the measurement of formwork to soffites must include references to the number of separate surfaces contributing to the areas measured. The Practice Manual clarifies this requirement by using sketches to illustrate what is required. Formwork to beams and columns, both isolated and attached, is to be measured lineal. In the case of beams and columns of eccentric shape it is recommended that a bill diagram should accompany the description.

G: BRICKWORK AND BLOCKWORK

The major changes in this trade grouping are the elimination of reduced brickwork (all works being measured their actual thickness) and rules requiring measurement of cutting labours have largely disappeared. The location drawings will indicate the nature and extent of the brickwork and blockwork which is now to be given under three main classifications—foundations, load bearing and non load bearing work. Brickwork in deep trenches is now required to be separated. The rules for measuring blockwork follow closely those for brickwork except that cutting on blockwork built of blocks designed to be used without cutting is required to be measured.

M: ROOFING

The rules for the measurement of roofing follow very closely the requirements of the 5th Edition. The location drawings are required to show the extent of the work and the height above ground level and there is a further requirement to state the pitch or pitches (grouped together) when measuring slate or tile roofing.

N: WOODWORK

This section has been prepared in such a way as to reflect the current tendency for woodworking operations to be more of a factory process than traditional site work and is divided into four subsections. Generally, basic (previously nominal) sizes shall be stated although it is quite clear that finished sizes are equally permissible. The maximum lengths of timbers have been changed to align with the maximum marketable lengths currently obtainable. There is a requirement that labours shall be related to the items to which they refer and also to indicate the number of differing cross section shapes even where the cross sectional dimensions are identical. The Carcassing sub-section replaces the structural element of the former Carpentry Trade and there has been a considerable grouping of items e.g. purlins, rafters, struts etc. (providing they are the same cross section) can be collected together and described as 'in pitched roofs'. In the First Fixing sub-section boarding and flooring are required to be measured as before with the introduction of a height requirement and identification of restricted areas. Where the location is not apparent i.e. wall or ceiling boarding, it is necessary to identify whether it is internal or external. Sheet linings and casings (formerly measured under the rules for Floor, Wall and Ceiling Finishings) appear in the Second Fixing sub-section and are intended to cover wood based products such as plywood, blockboard etc. Another major change from the 5th Edition is the introduction of Composite Items (as the fourth sub-section) defined as being items likely to be fabricated off-site. They are mainly enumerated and can be accompanied by a bill diagram. The exceptions to enumeration are door frame and lining sets which are measured lineal with an indication of the total number involved and drawing special attention to any repetition. Fittings are now to be the subject of component details, or a provisional sum, and the fixing is to be a separate item. Under a sundries section holes are now to be given irrespective of size, the controlling factor being the thickness of the material which contains the hole. Ironmongery is dealt with as in the 5th Edition except that details of any constraints such as off-site fixing of door fittings shall be indicated.

P: STRUCTURAL STEELWORK

The information required to be shown on the location drawings will often appear on the engineers framing diagrams, and includes position of the work in relation to the rest of the project, the type and sizes of members, and details of the connections or particulars of the reactions, etc. In the case of single members and built up members the length of units shall be given in addition to the weight. An item is required to be given for the erection of structural steel work in each building or independent structure. Off-site painting is now to be measured in tonnes.

Q: METALWORK

This section follows the pattern set in the Woodwork trade grouping in that there is a greater emphasis on enumeration particularly of composite items. Except for standard items, where reference to published details such as catalogues is deemed to satisfy, component detail drawings shall be provided and referred to in the description, alternatively they shall be the subject of a provisional sum. Wiremesh coverings over 300 mm wide continue to be measured square but widths under

300 mm are now required to be measured lineally stating the exact width.

R: PLUMBING AND MECHANICAL ENGINEERING INSTALLATIONS

When mechanical engineering is the subject of measurement a detailed specification and drawings indicating the scope of the work shall accompany the tender documents. New classifications are introduced for such work as chemical installations, refuse disposal, medical suction installations, etc. Work is also required to be identified by location—internally, externally and in plant rooms. An alternative method of measuring ductwork by weight has been introduced as has an alternative method for measuring insulation to ductwork in square metres rather than in metres stating the size of the duct.

S: ELECTRICAL INSTALLATIONS

The requirement to supply specification and drawings applies equally to this trade grouping as for Plumbing and Mechanical Engineering Installations. The classifications of work have been extended from those required previously. A new clause for Final Sub-Circuits has been introduced requiring measurement by enumeration of points.

T: FLOOR WALL AND CEILING FINISHES

The major change introduced in this trade grouping is the disappearance of detailed measurement by bands of work under 300 mm wide. Such work is now required to be kept separate from general measurements but measured in square metres. This general rule applies to all sub-sections *e* which follow the 5th Edition except that plain sheet finishings have become 'flexible sheet finishings', the non flexible variety being covered by a new sub-section for dry linings and partitions or transferred to Woodwork.

V: PAINTING AND DECORATING

A height factor has been introduced for work on ceilings and beams over 3.50 metres high and on walls where the ceiling finish is dissimilar. The banding of work under 300 mm girth has been changed to 150 mm. Recognition of the high cost of work in staircase areas has been acknowledged by the introduction of such a classification and unless wall coverings of all types can be fully described the supply shall be the subject of a prime cost sum.

SMM7

Where do we go from here? In February of this year the DU submitted to the sponsoring bodies their proposals for the 7th Edition. Both bodies considered that the widest possible consultation should be sought and this is currently under way. The DU recommendations are, in essence:

(*a*) The format of the rules will be such as to accord with established trade groupings to facilitate the integration of all those documents which combine to provide the total package of project information—namely, the Bills of Quantities, drawings and specification. The format will be such as to encourage specification systems to provide information in similar groupings. Terminology will be drawn from the Construction Industry Thesaurus.

Particular reference is made to the various trade groupings covering services where major improvements can be made.

(*b*) Equitable and efficient financial administration of any project will be adversely affected if Contractors are supplied with a package of project information, the contents of which falls below a defined level of finality. The varying needs of projects make several levels of measurement desirable such as:

(i) at one extreme, a detailed level for those which are well documented, fully and firmly designed.

(ii) at the other extreme, a detailed level for those which are not well documented or fully and firmly designed;

(iii) between the foregoing would be a third level of measurement supported by drawings appropriate to this particular level.

This pattern will be adopted to an extent appropriate to each trade grouping.

(*c*) To enable Bills of Quantities to be substantially reduced in size, project information generally has to be more useful, more reliable and better presented and, with particular reference to Works by Nominated Sub-Contractors, in more detail. Further development will occur relative to the identification and isolation of time related items.

These particular proposals will be thoroughly tested on live projects.

(*d*) The Practice Manual will give advice as to how bills of quantities can be compiled to include supplementary information which, at present, Contractors have to produce themselves thus duplicating the Quantity Surveyor's work.

Bills of Quantities compiled in accordance with the 7th Edition and its Practice Manual as envisaged by the DU will be more readily administered; more accurately costed both pre- and post-contract; facilitate more equitable adjustment of variations at the appropriate time; provide reliable information for needs other than those of quantity surveyors and estimators. All that is required is that the sponsoring bodies authorise the completion of the DU proposals.

IN CONCLUSION

At this juncture it is of particular interest to return to where we started—the Report of the JWP—and to consider the recommendations contained therein. They include the following:

(*a*) That the Standard Method of Measurement be reconstituted as a related series of sets of rules of measurement accompanied by a code of measurement practice.

(*b*) That the rules of measurement applicable to project cost control documents should require the separation of items related to quantity, time, value and occurrence.

(*c*) That the proposed code of measurement practice prescribe standard presentations of project data appropriate to the various processes of the Industry and give guidance on the application of the rules of measurement.

(*d*) That the sponsoring bodies take the initiative in the pursuit of compatability between Building and Civil Engineering measurement practice.

(*e*) That in formulating proposals into a convention particular regard be paid to the following technical problems:

(i) the need for concomitant changes in the Standard Forms of Contract;

(ii) the devising of techniques for identifying the boundaries of integral parts of buildings;

(iii) the more effective presentation of the rules of measurement and the use of more precise terminology derived from the Construction Industry Thesaurus;
(iv) the portrayal of the organisational complexity of buildings by grouping items with regard to space use and locational characteristics.
(v) the influence of superficially insignificant constructional detail upon such issues as repetition and production flow;
(vi) the establishment of conventional methods of recording primary measurements.

If the sponsoring bodies authorise completion of the DU work along the lines identified in their recent Report then the resultant set of measurement rules will be very close to those envisaged by the JWP.

SMM6—Some first reactions

We are indebted to members who responded to the Institute's request for their immediate reactions upon reading SMM 6 for the first time. Subsequently, no doubt, they would have wished to polish their initial comments and, for that reason, such comments are published below without individual attribution. Comments were received from E. W. J. Ashford, R. E. Biscoe-Taylor, H. W. M. Chapman, G. Cooper, J. Franks, R. A. R. Giddis, D. D. Hayward, R. Morledge, L. T. Patterson, J. E. Revis,. D. Richbell and G. G. Trickey.

COMMENT A

Generally

The format of the 6th edition follows closely that of the 5th edition and the trade order remains the same except that the carpentry and joinery sections of the 5th edition have been combined to form a new Section N entitled Woodwork.

The Practice Manual which accompanies the 6th edition gives guidance on the communication of information of the finished work where the value is modified by position, complexity, simplicity, repetition, eccentric distribution and other cost significant factors. Thus the Contractor can now expect to have indicated to him in the Bills of Quantities variables that influence the level of pricing from such extremes as repetitive processes with easy sequential positioning to complex non-repetitive processes.

Bills of Quantities should now highlight those elements of construction which are cost significant to tendering Contractors and will place less emphasis on less significant detail which has to be measured in accordance with the 5th edition.

There is now a provision to refer to drawings rather than an elaborate description in the Bills of Quantities. This change is particularly significant to Contractors when obtaining prices from Suppliers or Sub-contractors to ensure that they are provided with the correct drawings and all other relevant information.

Attention is drawn to the implied presumption that Contractors will know the rules of the SMM and that they will therefore be expected to allow for all costs "deemed to be included" and "given in the description". Quantity Surveyors will not necessarily repeat such phrases in their descriptions. Thus rough cutting to brickwork will not be referred to in the Bills of Quantities for it will be "deemed to be included".

There is a requirement to provide for each trade and section a general description of the work included. This may be used by Quantity Surveyors as the appropriate place to cover the requirement to provide information concerning repetitive processes etc. It can be taken that these general descriptions will fairly represent the works

The 6th edition may now commence a trend to bring all trades work together in sections. The general descriptions may indicate where trades work has been fragmented. Builders work associated with Specialists Work will still be Billed separately thus giving the Contractor the opportunity to price accordingly.

To assist Contractors to appreciate the full concept of the project Bills of Quantities may indicate total quantities of key products, such as concrete, in the general description of the particular section.

Contractors will now be given the opportunity to price separately the provision of plant in a single item in each trade or section. If these items are left unpriced the plant cost will be assumed to have been included elsewhere.

The drawings from which the Bills of Quantities were prepared will be listed and should be available for inpection. There is still the requirement for the Bills to fully describe and accurately represent the quantity and quality of the works to be carried out.

Exceptional features may now be measured separately and this will give Contractors the opportunity to price those factors that have warranted the separate measurement.

Section A: General rules

SMM5 introduction is repeated. The Bills of Quantities must *describe adequately the work* to be priced and the *circumstances under which it is to be carried out.*

There is a definition of drawn information and the SMM rules shall be deemed to have been met if drawn information is provided or if there is a reference to catalogues. The rules for measurement and descriptions are similar to SMM5.

Section B: Preliminaries

Generally cover similar items as SMM5 but in a different order. The manner adopted in setting out this section leaves scope for Quantity Surveyors to set out this section according to the needs of various projects. Uniformity in format and the extent of information provided will

continue to vary. The rules for dealing with Drying out have been changed from SMM5.

Sections C: Demolition and D: Excavation and Earthwork
Section C is similar to SMM5. Section D differs in many ways from SMM5.

The measurement of excavation in stages is no longer required and all excavation is now measured to the maximum depth.

It is not to be adjusted if more or less space is actually required. Working space now covers digging, additional support and back fill.

The support of the face of the excavation is no longer described as planking and strutting. Irrespective of location one item is measured except that stages are to be stated if the width of the excavation exceeds 4 metres.

The rules for measuring and describing water in the ground has varied considerably. The water table level will no longer be established as SMM5 but is to be ascertained before work commences (the pre-contract water level) and again when the excavation is being carried out (the post-contract water level).

Any difference between the two levels established will result in the measurements being adjusted. The disposal of all water is the Contractor's responsibility. Section A in addition sets out the rules for measuring work executed in or under water. The method of measurement would now appear to recognise that most excavation is carried out with machines and the requirement to identify those areas where hand excavation is required would appear to be met by Quantity Surveyors measuring that work separately. An example of this is where work is next to existing services.

The Practice manual will assist in understanding these changes.

Section E: Piling
Rules for the measurement of diaphragm walling are now included.

Section F: Concrete Work
Concrete work is now classified as concrete framed structures, steel framed structures and other concrete work.

All concrete is now to be measured cube including floors, walls and slabs, where the thickness will be indicated in bands. Surface treatment is to be measured in square metres. Beams can now be included with suspended slabs except upstand beams and deep beams.

Contractors will need to consider the relatively higher cost of items that are now being measured as exceptions to the general work. An example of this is that of heavily reinforced concrete, having a reinforcement content exceeding 5 per cent by volume which will be measured separately. The maximum lengths of reinforcement bars are now 12m for horizontal bars and 5m for vertical bars.

There is a distinct need for the Bills of Quantities to reflect the information the Contractor needs in assessing formwork and strutting requirements. The provision of drawn information or comprehensive schedules will necessarily have to be provided. The number of areas of formwork to walls and slabs is to be stated in the manner described in the Practice Manual. Formwork to columns and beams are to be measured lineal. Formwork to edges to be classified in stages of NE 250mm high, 250-500mm high, 500-1000mm high.

Precast, prestressed and hollow block floors and contractor designed construction are generally as SMM5.

Section G: Brickwork and Blockwork
Measurement is now generally confined to superficial areas of walling – classified as in foundations, load-bearing and non-load-bearing – and lineal items such as copings. Rough cutting is no longer measured and brickwork and blockwork is now to be measured in thickness and not reduced as SMM5. Fair and circular cutting only remain. Special rules of measurement are given for blockwork which has to be built without cutting and also to brickwork and blockwork in narrow trenches.

Section H: Underpinning
Measurement will be according to the rules which reflect the changes in other trades.

Sections I: Rubble walling; K: Masonry; L: Asphalt work; M: Roofing
The stonework is generally SMM5. There are some minor changes to the Asphalt and Roofing trades.

Section N: Woodwork
SMM5 Carpentry and Joinery sections (N & P) amalgamated. Nominal (basic) sizes are implied but finished sizes can be used but it must be stated if this has been the basis of measurement. Four main sections, carcassing, first fixings, second fixings and composite items. Ironmongery remains as a sub-section.

Carcassing. Generally as SMM 5 Carpentry.

First Fixings. Includes boarding and flooring, firrings, drips, bearers, fillets, grounds and framework including all associated labours.

Second fixings. Includes unframed finishings and sheet linings and casings including all associated labours.

Composite items. This is very different from SMM5. Detailed quantities are no longer required and enumerated items for most items likely to be manufactured off site are now required. Drawn information will probably feature considerably in this section. The supply of fittings is separated from the measurement of site fixing.

Section P: Structural Steelwork
Location information is required to be given including the type and size of structural steel members and their position in relation to each other. Connections and particulars of the reactions, moments and axial loads are also required. Drawn information and design information will probably best cover these requirements.

Section M: Metalwork
The rules now generally require enumeration for composite items likely to be manufactured off site. On site fixing will be deemed to be included. Reference to drawn information and/or Bill diagrams is likely to feature in this section.

Section R: Plumbing and Mechanical Engineering and Electrical installations
Bills of Quantities will now describe the many items by reference to catalogue or drawn information. The classifications of work have been extended. Final sub-circuits in Electrical Installations are now to be enumerated.

Section T: Floor Wall and Ceiling finishing
All finishes are to be superficial except for items not exceeding 300mm.

Section U: Glazing; V: Painting
Glass 10mm thick and over and speciality glasses are to be enumerated. There are special rules for measuring glass in repetitive sizes.

Painting is similar to Finishings.

Section W: Drainage; X: Fencing
Minor changes except for those items required to comply with changes in excavation and concrete trades.

COMMENT B

Most of the 6th edition appears to be very similar to the 5th, to the point that one questions if a 6th edition is necessary at this time. Perhaps amendments to the 5th would have served a similar purpose, although it is appreciated that this could produce complications. Generally speaking, the current rationalisation appears to make good sense and the return to the inclusion of sketches in the text or appendices seems to us a good trend.

There appears to be a tendency to move towards the Civil Engineering Method of Measurement format. The inclusion of "plant" items seems to be a step forward, but we have reservations about the ways in which this item should be dealt with, if or perhaps when the work content and time period changed. Similarly enumerating composite joinery and providing drawings as an aid is, we feel, much more sensible for the estimator but could present problems when the Quantity Surveyor has to deal with variations.

Generally speaking then we see the 6th edition as a step forward but we found the prospect of a 7th edition in the not too distant future to be a little disturbing. Could it be that the 6th edition was a sop for those pressing for change at this time?

COMMENT C

I must say I was anticipating some revolutionary changes being made in the document, but find that it follows the 5th edition fairly closely. I am personally pleased to see this as in my opinion the system works reasonably well and I can see no reason to make fundamental changes to a well tried method. Having said that, and in the light of my previous remark, perhaps there was no need to make any alterations at all.

However, you asked me to make some constructive criticism of the document so may I say that I think that the Practice Manual ought to become mandatory instead of an "optional extra" as I found that I was referring to it constantly whilst reading the main document, particularly in respect of the new classification of "earthwork support" which was somewhat confusing untill read the notes. Again the practice notes make quite clear the old vexed question of working space which should obviate all the arguments that have occurred in the past, which cannot be a bad thing.

I am somewhat sceptical about the "plant items" that will now be required in each trade. Hopefully these will be given in Bills in general terms, but I can envisage quantity surveyors in some instances trying to be clever and nominate the types of plant to be used. This I think would not be acceptable to contractors to be told how they were to do the job. Even if the items are included I have a feeling that they will not be priced in each trade but will still be included in the preliminaries section of the Bill. Contractors' plant is one of two things; either hired or their own. If hired it becomes a "prime cost" item and would probably form part of the unit rate or alternatively if it were the contractors' own plant, then it becomes a capital item and would be taken care of in the preliminaries by way of an overhead expenditure of depreciation. I can also see a lot of arguments ensuing at the final account stage if major variations occur and there are substantial omissions or additions to the content of the works in any particular section.

I welcome more information given to contractors at the tendering stage in regard to nominated sub-contractors and suppliers, but I feel that this is a rather negative amendment as the quantity surveyor is in the hands of the architect and I cannot see him mending his ways and making early nominations.

I am personally a great advocate of standard phraseology and, of course, whilst there are no great changes, nevertheless the whole of Fletcher Moore will have to be revised which I would have thought was a mammoth task for so few fundamental changes. It does seem that a lot of the amendments have been made purely for the sake of change and as I have said previously I do not see a lot wrong with the present document which to my mind works perfectly well.

I think that the building industry is being bogged down with ever increasing form filling and legislation in ever increasing volume and I cannot see that the proposed changes do very much to help this situation in fact I can only see this new edition causing more delay and frustration to both the quantity surveying and the contracting industry in general. I do not know who it was, but some wit suggested that when Dr. Beeching axed 50% of our railway network and found it was a success he should have axed the other 50%. I would like to see something that would speed up our contractural procedure but I do not see it in this document. I cannot think that tinkering with the SMM in this way is a step in the right direction, particularly when it may well be amended in a relatively short time. So perhaps the answer, like the car industry, is for the quantity surveying profession to go on strike and not use it.

COMMENT D

I believe that it must be a matter of concern that the Sixth edition is to be launched in the shadow of the knowledge that the Seventh edition is in the course of preparation. This Sixth edition however, does start to bring measurement method into line with the complexities of modern building construction.

In recent years a principal purpose of Bills of Quantities, namely that they should inform precisely to enable sound estimates to be prepared, has been overlooked.

The new edition picks up this point and calls for much

greater information to be presented to the tenderers in diagrammatic and descriptive terms. This alone coupled with accurate quantities should greatly ease the estimators task.

Differentiation between "site production" and "off site production" should help to clarify costings.

General items for plant and its maintenance are now to be considered in connection with the differing trades. No doubt this will be welcome to some specialist sub contractors.

The actual methods of measurement could be criticized, one could say that the move to standardize measurement for differing trades has gone too far. Site labour is still an important cost element of building, therefore the method of measurement should take into consideration working practice rather than aim for uniformity.

It has been considered advisable to issue a Practice Manual with the Sixth edition which is helpful in that it permits glimpses of the thought processes behind the method of measurement.

COMMENT E

I feel that there is a need for a 6th edition SMM because much of the 5th edition involves considerable work on cost-insignificant items. A new edition should also provide a basis of measurement for work methods that have been adopted in the period since the preparation of the 5th edition. The new edition should therefore (a) Simplify and (b) Modernise the method of measurement. My view is that although some sections (e.g. Concrete Work and Woodwork) go some way towards modernising the SMM, very, very little is achieved in simplifying the document. In fact the likely effect will be to make a Bill of Quantities even larger and more complicated.

Information

Considerable emphasis is placed on information from the Architect and Engineer that is currently rarely available at B of Q preparation stage. I see the biggest problem will be the re-education of other professions into meeting the demands of, and perhaps even accepting, the SMM6.

Bill diagrams

The use of Bill diagrams, whilst being in my view a worthwhile innovation, will again place demands upon the designing professions that may not be acceptable. The likely effect is that it will be the Quantity Surveyor who spends additional time on abortive details that will be amended by the designing professions during the post-contract period. In addition some traditional methods of printing Bills of Quantities (e.g. duplicating) are not suitable for diagram reproduction and alternative and more expensive methods will have to be substituted. At a time when pressure is upon the Quantity Surveyor to accept fees below recommended scale and often to absorb printing costs, these are not developments that will be happily accepted.

In conclusion I find it difficult to rid myself of the feeling that SMM6 has been based upon a somewhat naive principle that design details will be available before the preparation of the Bills of Quantities. This principle is very sound but to achieve it the pre-tender period would have to be lengthened both for the designers and for the Quantity Surveyor, which is not consistent with our current situation where the Employer puts more and more pressure upon reducing this period. It is, however, in many ways an improvement on the 5th edition and should be reasonably straightforward to operate. I do wonder though what is in store in the 7th edition!

COMMENT F

My first impression is that the new edition has been prepared with Standard Phraseology very much in the mind. It seems that the suggested order of measuring items has been taken straight from Standard Phraseology prepared by Fletcher & Moore.

Much emphasis now appears to be placed on sketches or "Bill diagrams". I don't disagree with sketches but part of the Q.S. "art" is in descriptions and although, with the greater use of phraseology, the opportunity for this has receded it should be a major part of the Quantity Surveyors repertoire.

Drawings have always been important in the preparation of tenders, and I agree that they should always be available at tendering stage. Have the Architectural profession been made fully aware of this "must" concerning drawings? This I feel will be the cause of a breakdown at the tendering stage. Contractors may say "no drawings, no tender". Clients so often want their building "yesterday", if their wishes are not fulfilled, it might easily happen there will be no job at all.

Most sections now have two items for bringing on plant and maintaining and finally removing. I think this is a good point.

The brickwork, masonry or the like in trenches requiring specific items seems unnecessary. This work has always been covered in the normal way, so why at this stage alter the procedure?

I think the new way of measuring structural steelwork is very much better.

The revised categories for items less than 300 mm wide, will help both from the number of items required and ease of memory.

Summarising, I think the document as a whole has not done what should have been the intention to "modernise" and possibly reduce the volume of items.

COMMENT G

I feel that the extent of change is not radical and the attempt at rationalizing the existing document has largely been successful.

The layout and English will improve the "readability" of the document and I think minimise the nervousness which often accompanies the publication of a new document of this type.

Provision of drawn information will avoid the estimator having to try and decipher what are often so complicated descriptions that only an expert in crosswords can succeed. Although one may suspect that the new practice of supplying drawings may not be too popular in certain practice where maximum flexibility is desired.

Apart from the obvious benefit to the Contractor it does seem that before firm quantities can be prepared design will have to be largely complete, where now one suspects that the only design sometimes included is the Q.S. "covering" that work as yet undesigned, by guessed quantities.

Main changes seem to be in the areas of (a) Excavating (b) Concrete work (c) Brickwork (d) Woodwork. Having

examined these changes I feel that they are mainly to the good, and follow current construction practices.

In respect of the items for plant at the beginning of certain sections, I am not sure how much confidence the contractor will have in stating so clearly his individual estimated costs.

The Practice manual should be bound with the document itself.

COMMENT H

The changes incorporated in the newly published SMM6 and associated Practice Manual will no doubt be received with mixed feelings as, on the one hand, there is acknowledgement of the gigantic task confronting a Committee tackling such a revision but, on the other hand, dismay at the lack of simplification which might have been achieved whilst carrying out such revisions. One therefore tends to view the complex and interim documents with some concern.

Firstly, however, let us congratulate the Joint Committee in their endeavour to introduce a more-cost-conscious approach together with some modernisation of outdated sections. Sad though it may be to see Craft Sections such as Thatching and the like disappearing, none the less the emphasis to-day as we all know is on use of machinery with the associated composite items and machine labour as demonstrated now by the new Section N – Woodwork. It will be interesting to see as a result, however, whether in practice the merging of Carpenter and Joiner for example will result in improved Bills and tenders or unwieldy Bills which in some cases may prove to be difficult tasks for Estimators and Quantity Surveyors alike.

In addition to the cost-conscious move in modern approach in the documents, new stress is laid on the provision of more detailed information, including the introduction of general descriptive items of the works in many sections together with the requirement for provision of drawn information such as Location Drawings, Component Details, Bill Diagrams and Schedules of Information. The provision of such information will probably be helpful to the Estimator but is likely to place an increased burden on the Q.S. in obtaining and providing the accurate detail in the period of time normally available to him. As most Q.S.'s are only too well aware, firm drawings are seldom available when required, especially final details of items such as joinery screens etc. and even when available extracts from drawings for Bill Diagrams will create last minute problems for printers of the BQ's. Inclusion of drawings in the BQ's could also pose new problems involving such things as possible infringements of copyrights, what is the QS's responsibility for any mistakes in Architects', Engineers' or others' drawings bound in their BQ's and perhaps Claims resulting from the inclusion or non-inclusion of a Bill Diagram in connection with the Contractor's interpretation of a Q.S.'s description and other problems relating to the provision or lack of information now required under SMM6. The expression "measured in accordance with the SMM" as clarified in "Comments and Clarifications" to SMM5 may yet provide Q.S.'s with a new series of headaches when trying to comply with SMM6.

In publishing SMM6 we have a new innovation with the introduction of the accompanying but non-mandatory 38 page "Practice Manual". This appears to be a helpful document and its stated intention of first "to give guidance on the communication of information relative to quantities of finished work where their value is modified by position, complexity, simplicity, repetition, eccentric distribution or other cost significant factors", and second its intention "to encourage good practice in the measurement of building works" gets to the very heart of the manual. In use the manual should prove invaluable and its clear comments as to intention or clarification of a clause seems to leave little doubt as to the purpose or what is required. It is in itself, however, a comment on the complexity of the 128 page SMM6 that the manual with associated diagrams should be necessary in order to understand such items as the new method of measuring "earthwork support" (in lieu of the time old planking and strutting etc.) and working space items etc. It could well be that use of sketches in the manual are meant to serve as a reminder to include some Bill Diagrams in the B.Q.

Looking at SMM6 and the Practice Manual from the point of view of presentation as printed documents one does tend to find some difficulty in location of items, especially in sections such as Concrete work as the useful side headings of SMM 5 have disappeared in the new SMM6. It would also have been better if it had not been deemed necessary to put "Standard Method of Measurement" or "Practice Manual" at the top of every other page and for the main headings to have been contained instead. The need to distinguish one volume from another in this manner seems hardly necessary as SMM6 is much thicker but even so a different colour cover would have sorted out the problem and referencing could have been somewhat improved. Having now two documents to refer to one cannot help wondering how long it will be before "Comments and Clarification to SMM6" will be published and there could well be a demand for a "Standard Bill of Quantities as approved by the RICS" to suggest but two.

The preface to the Sixth Edition clearly states the stages of progress since January 1971 and how the various conclusions were arrived at. However, one cannot help feeling that the introduction of an interim edition after eight years of work is unfortunate. Would it not have been better to issue if necessary a short series of amendments to SMM5 to cover the most pressing items rather than issue an iterim SMM6 which will create considerable expense for all concerned.

Introduction of SMM6 will require much reorganisation of BQ's, retraining of staff, in some cases purchase of multiple copies of documents such as Fletcher & Moore, LAMSAC etc. apart from the new SMM's and Practices using computers will need new programmes, all at considerable expense. Students studying for exams too will find problems in changing over in mid-course. Estimators will not be without headaches as new items such as "bringing to site and removing from site of plant required" in many sections will need some thought.

All in all, it would appear better to have waited until the Committee felt able to issue not an interim but a firm SMM6 to make all the hard work and experience involved really worth while. It would also have brought about a settled outlook which all concerned badly need and not the feeling of how long before the next change and, no doubt, the "can we put it off till then" approach.

Continued on page 282

Practice notes

SMM6

Under the sub-heading *P : STRUCTURAL STEELWORK* on p. 267 of the October edition of the Journal, it is stated that off-site painting is to be measured in tonnes, whereas in Comment I on p. 282 the unit is stated to be square metres. This discrepancy disappears, of course, by reference to Clause P.9 – off-site preparation and painting is to be given in square metres; off-site galvanising in tonnes. An apology is offered to readers who may have been puzzled by the inadvertent telescoping of P.9.1 and P.9.2.

NEDO PRICE ADJUSTMENT FORMULA: HVCA LITERATURE

The Heating and Ventilating Contractors' Association (HVCA) has announced publication of a revised "Formula Supplement" which enables the NEDO Price Formula to be used with the HVCA Conditions of Trading. The new supplement (CC1/B) replaces the original supplement (CC1/A) which was published in 1975 when only Series 1 Indices were used. Since the introduction of Series 2 Indices in April 1977 the revised supplement became necessary and the opportunity has been taken to make amendments to reflect current practice since the introduction of precise contract clauses.

New Price Adjustment Formula calculation pads have also been issued by the HVCA to replace those issued in August 1977. These include reference to Series 2 Indices and provide an improved layout with more space for setting out calculations. The above mentioned items are available from HVCA Publications, 10 King Street, Penrith, Cumbria CA11 7AJ:

Formula Supplement – price £7.00 per 100 sheets
Calculation Pads – price £3.00 per pad (100 sheets)

EMPLOYMENT PROTECTION (CONSOLIDATION) ACT 1978

The Employment Protection (Consolidation) Act 1978 comes into operation on 1st November, 1978. It brings together the statutory provisions which have previously been contained in four separate Acts – the Contracts of Employment Act, the Redundancy Payments Act, the Trade Union & Labour Relations Act and the Employment Protection Act.

The new Act makes no changes in the law as such. The aim is to make it simpler by combining existing provisions under a single and comprehensive piece of legislation. However, references to existing sections and Acts in certain employment documents (such as a Statement of Terms and Conditions of Employment) may have to be amended.

BSI: GUIDE TO SI UNITS

The British Standard Institution's guide to the International System of Units, PD 5686 *The use of SI units,* provides a simple account of the development of the metric system and the way it evolved to produce the SI. The system has been rapidly coming into world-wide use and the main aims of the booklet are to introduce, explain and encourage its use in this country. The latest edition updates the information given about EEC Directives on units of measurement and thus provides the latest advice available to industrial users of the system.

PD 5686 is priced £3.20 and may be obtained from BSI Sales Department, 101 Pentonville Road, London N1 9ND.

FUTURE PROSPECTS: ARCHITECT-DESIGNED WORKS

According to the RIBA Quarterly Statistical Bulletin (September 1978), the general decline in work-load of private architects since 1973 was arrested around the beginning of 1978 and the up-turn which then became evident continues to climb on the relevant charts – with the exception of works commissioned by Local Authorities. The value of new commissions at current prices rose by 18.4% between the first and second quarters of 1978. At constant 1970 prices, however, the rise was only 13.8%. The volume of work at this stage is now at the highest level since the third quarter 1974. The increase in the value of new commissions at current prices is reflected in the figures for all buildings' types while, regionally, the most significant rises occurred in the Midlands and South East. Scotland, however, experienced a small decline in new work at this stage of the design process. The proportion of the value of new commissions involving rehabilitation represents 30% of public housing and 22% of private housing work. In non-housing, 13% of new commissions in the private sector involved rehabilitation and 19% in the public sector.

The value of work entering the production drawings stage rose by 24% between the first and second quarters of 1978. At constant prices the rise was over 20% though the rise was from a very depressed level. Production drawings work was 12% up on the same quarter of 1977. The increase in work at current prices occurred among all building types with the greatest improvement in the private sector. All regions showed an increase in workload and the most substantial improvement occurred in Wales and the South West. Figures published by the Department of the Environment for the four months ending April 1978 show a decrease in Local Authority work in all sectors except education. However, the value of education projects remains lower than August 1976 despite increased costs.

Book review

Specification 1978: Editor: Dex Harrison, FRIBA, MRTPI
The Architectural Press: 5 Volumes £16.00

Our old friend SPECIFICATION has been re-published in five separate volumes to replace the familiar two-volume editions of the last few years. The contents of the slimmer and easier-to-handle sections of the current edition are fully detailed in Volume 5 – which also contains the indexes and other summaries which have been some of the most-used features of this publication.

The opportunity has been taken to re-arrange the contents in a more logical sequence although, in general (but not exactly), Volumes 1 and 2 contain the up-dated matter found in Volume 1 of the previous edition and the rest of the technical material is accommodated in Volumes 3 and 4.

It is no exaggeration to suggest that SPECIFICATION is a *sine qua non* for everyone whose responsibility it is to specify the materials, components and workmanship required in construction works. That responsibility, moreover, is shared by quantity surveyors to the extent that the contract documentation for which they are ultimately responsible has to be accurate, unambiguous, and up-to-date.

The price, in keeping with most things, has jumped considerably but the real question is whether one can afford *not* to have the benefit of this publication within the reach of every "specifier".

A.T.G.