

# Building Metrication News



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This section appears in the fourth issue of 'Building' each month, and gives current news and information on metrication, as well as providing a forum in which the ramifications of the change to metric can be freely discussed. It is published in association with the Modular Society.

## CONTENTS

### Metric Month 119

Comment on—the Decimal Currency Board recommendation to use the stop as the decimal marker and the comma as the thousand marker—formation of a liaison group in the construction industry.

### The Metric Change 120

No. 7 in this series deals with the preparations being made in Scotland, through the Scottish office, to make the change to the metric system.

### Decimal Currency 121

The Decimal Currency Board's book on how to express decimal currency when we shall be using two units, the pound and the new penny. The switch is due to take place on 15 February, 1971.

### Education and Training 122

A MPBW survey of the preparatory work undertaken on education and training in the construction industry to meet the change to metric. It suggests that the size and difficulty of the training problem is not yet fully understood.

### Letters 126

Support for Philip Dunstone's scheme for expressing metric gauge—difficulties foreseen in the drawing office by the introduction of the 'A' series of drawing paper sizes—problems of tolerances in manufacture, setting out and assembly with standardised components.

### Metric Instruments 126

Further list of metric items for the drawing office. This month, drafting machines and scales are noted.

### Metric References 126

A list of basic metric references, including some of the more important publications from the British Standards Institution, is given which will provide a grounding on what is involved in the change to metric. Reading matter for this has been kept to a minimum, and is not therefore inclusive of all published material.

### News from the Industry 129

Formation of a Metric Change Liaison Group will allow the construction industry to adopt a common approach to metric problems—issue of metric guide by the RICS—Irish surveyors welcome adoption of the metric system—chance of reduction in timber prices—BSI defer comment on draft metric programme for the engineering industry—300 people attend Glasgow seminar on metrication.

## METRIC MONTH

### Comma or Stop

The Decimal Currency Board has now published its recommendation that the stop should be used as the decimal marker and the comma should be used as the thousand marker. The recommendation is the opposite to that already tentatively recommended by BSI for the construction industry and to continental practice. The dilemma now facing industry as a whole, not just the construction industry, is whether to back-pedal and conform to the Board's recommendation or to opt for international agreement.

Desirable as international agreement is, the idea of using two systems in this country is disastrous. It could well be, for example, in trade literature or bills of quantities that within one document the comma would be used to identify the thousand marker (for costs) and the decimal marker (for dimensions). The confusion this would create can well be imagined. To confuse the issue further, the Board recommends the use of the stop above the line when type-set, on the line when typewritten and as a hyphen on cheques.

Already there is a danger in the construction industry that BSI's programme will be held up for lack of agreement on this small but vital issue. We are in the process of revising our technical publications, trade literature, regulations and so on and yet we do not even know how to express the decimal marker. But in only nine months' time architects are to begin the changeover.

It is almost unbelievable that such a situation could arise. Someone has slipped and slipped badly. Is it the Ministry of Technology, the Decimal Currency Board or BSI? What is clear is that if the Board is not willing to reconsider its recommendation, then the construction industry is faced with a *fait accompli* and that it can only reluctantly fall in line. But is it too late? One of, if not the major objective in adopting the metric system, is to achieve international agreement on a single system of measurement. Even at this late date it would be possible for the Decimal Currency Board to review this particular aspect of its recommendations in order to achieve agreement both internationally and with British industry. The issue would now appear to be one for the chairman of the Decimal Currency Board and the director of BSI, to resolve.

### RICS Gives a Lead

Already delayed by two months by the comma/stop issue, the Royal Institution

of Chartered Surveyors has now published a most valuable book on metric conversion tables. These have been particularly prepared for surveyors and specifically for the construction industry. This book is all the more welcome since it heralds a second stage in the change to metric programme. We are now moving out of the 'tea-party' stage, when the main activities were discussion and the formation of metric panels and committees, into a stage when we can see the results of the considerable voluntary effort that is now going into the work. Our congratulations to P. H. Dunstone who is chairman of the RICS Quantity Surveyors' Metric Committee in giving a first rate and practical lead to the industry.

### Liaison in the Industry

Funds for the metric change are slight, the number of permanent staff involved is, therefore, small and much of the work inevitably falls on a comparatively limited number of people acting in a voluntary manner. As the impetus of the change grows, however, the amount of work to be done increases and the resources of all involved are stretched to the limit. It is, therefore, of particular importance that there should be as much collaboration as possible and as little duplication as is necessary. The RICS metric conversion tables are a good example. They have been prepared by one organisation and rather than the work being duplicated by others there appears to be every chance that organisations will collaborate to extend the work and to provide one document suitable for the industry as a whole.

Similarly, collaboration in providing lecturers, visual aids, etc., is going on. For some time now government departments have been giving a lead in preparing basic information, especially on user requirements, for the use of BSI committees. This they can do due to the hierarchical structure of government but more particularly because the departments had the foresight to establish a committee to co-ordinate their work. It is not in the nature of the organisation of industry or the professions to undertake similar fundamental working, but a wealth of experience exists as well as the practical knowledge of manufacture and construction. The problem existed, therefore, of how to achieve the greatest degree of collaboration in industry, how to achieve a collective understanding and how to act jointly? This problem has now largely been solved by the formation of the Construction Industry Metric Change Liaison Group, which has recently been announced. The members of the Group include AIBCM, Modular Society, NFBPM, NFBTE, RIBA and the RICS. Such a group can play an invaluable part in metric change and its work can effectively complement that of government departments.



## The Metric Change

### 7. THE SCOTTISH OFFICE

There are factors which complicate the general application in Scotland of components standards evolved centrally. In this, the seventh in our series on the preparations of central organisations to go metric, the work of the Scottish Office is described.

Previous articles in this series have described the contributions to the Metric Change by the English Ministries which have independent executive functions. In Scotland, responsibility for building in relation to housing, education and health and prisons rests with the Secretary of State, his functions being executed by departments of the Scottish Office. These functions are still further integrated in that the departments have a common technical service; architectural, engineering and quantity surveying services are provided for all three departments by the Scottish Development Department under the direction of chief technical officers.

This closely knit organisation offers ideal conditions for technical and administrative co-operation in effecting a smooth change in the public sector. Essentially, however, the part to be played by the Scottish Office must be that of watchdog on behalf of Scottish interests though, ultimately, it will act as interpreter and guide in the implementation of the Programme. The technical resources available to the various departments were designed primarily for advisory and cost-control purposes, not for research and development; nor has there been sufficient experience of 'industrial' building in the relatively limited Scottish market to enable a positive contribution, on any scale, to be made to development work on component co-ordination. The need has thus been mainly for representation on the numerous committees and working parties whose recommendations will establish the new dimensional and performance standards. The Scottish Office has been represented from the inception of the Building Development Liaison Committee\* by the chief architect, with senior administrative officers for the Departmental interests; it is also represented at appropriate technical levels on the Interdepartmental Sub-committee for Component Co-ordination\* and its executive group, the Component Co-ordination Group. There is representation also on BSI Committee B94 (Modular Co-ordination in Building) and on the five—ultimately to be six—Functional Group Panels set up

by the British Standards Institution. (At the time of writing these panels are just beginning the work of drafting new British Standards within the dimensional framework created by ISCC in the 'DC' documents and adopted for the purposes of the draft BS for Dimensional Co-ordination in Buildings—Recommendations for Controlling Dimensions.) Within the Scottish Office an interdepartmental group has been set up on which there is a representative of each of the architectural teams which serve the internal departments and of each interest for which they are responsible—Scottish Development Department for housing and building standards regulations; Scottish Education Department for all school and college building other than universities; Scottish Home and Health Department for hospitals and prisons and ancillary buildings. The Development Department's quantity surveyors are also represented and, when the work reaches a stage at which the co-ordination of mechanical and electrical and other engineering services with building components can begin, the Department's engineers will be invited to participate. From this Group are drawn the people who attend the various working meetings in the south so that every branch of the Scottish Office is kept in touch with the developing Programme. In this way a watch is kept to ensure that recommendations—for Performance Standards in particular—will take account of practices, standards and regulations which are peculiar to Scotland and that steps are taken to resolve any differences which would cut across these and might prevent the manufacturing side of the industry north of the border from participating fully in the market for nationally viable components or the user side from drawing freely on the manufacturing resources of the south.

There are indications that the interest of indigenous industry in the manufacture of the new co-ordinated components has not yet been fully awakened to the opportunity which the change will present. There is, however, to be a series of metric conferences under the auspices of MPBW in the principal towns in the latter part of May this year; these will confirm the reality of the Programme and present a challenge to be taken up.

### Differing Needs

The organisation of the Scottish Office has been described at some length for two reasons; firstly, because it is unfamiliar and confusing to many English readers but, principally, to show that Scotland is anxious to co-operate as fully as possible in an exercise which is of tremendous importance to the nation as a whole while appreciating that the development work involved in such an exercise can only be done centrally and on a national basis. At the same time it must not be forgotten that there are factors which complicate the general application in Scotland of component standards evolved centrally and, not unnaturally, based largely on English conditions and practices. Of these, the fundamental and inescapable factor is, of course, the climate; but there are also traditional differences in housing and significant differences between the English and Scottish Building Regulations (mainly as a consequence of precedence in time). Though differences under the last two heads may eventually disappear, some of them must be taken into account in the evolution of component building even though this may sometimes require dual standards or alternatives on a regional basis.

The need for different standards in certain cases was demonstrated recently in connection with a centrally sponsored programme for a number of functionally identical buildings. For speed of erection and the cost advantage of a serial contract, a well-established system of English origin was selected for their construction. Tests showed, however, that certain elements of the standard structure would not withstand the wind forces and driven rain which could be expected at some of the sites. Special modifications were therefore designed for cladding, frames and fixings. It may be significant that, in the exceptionally destructive gale which struck the central belt of Scotland on 14 January this year, no damage was caused to the modified structures and there was no leakage through the external cladding despite the accompaniment of heavy rain at some of the sites.

### The Work of Individual Departments

Certain points of fundamental difference are holding back, for the time being, some aspects of participation by the Scottish departments in the metric change but it will, nevertheless, be worthwhile briefly to review their contributions to date.

In the housing field Scottish Development Department is participating in the work of the MHLG working party on Performance Standards, applying research carried out by the development group of SLASH (a consortium of Scottish Housing Authorities); preparations

\*The functions of these committees were described in the first article in this Series; Building Metrication News, 22 September 1967.



are in hand for a small metric pilot project to test performance specifications deriving from this work. At home, the space standards laid down in the Scottish Housing Handbook are in process of revision and a Scottish equivalent of MHLG circular 1/68, dealing with the change in relation to public sector housing, will be issued shortly.

The other responsibility of Scottish Development Department, the Building Regulations, is waiting only for the final decision (in another place) on metric notation to enable publication of an edition with metric equivalents to proceed. It is not anticipated that new Regulations with sensible metric dimensions will be produced until towards the end of the changeover period but, when draft Regulations are prepared, account will be taken of new Standards produced by BSI through the Functional Group Panels.

No significant technical development work has been done by Scottish Education Department on component co-ordination for educational building. The Department is represented, however, on the sub-committee on metrication of the Joint Committee (of DES, SED and UGC) on Buildings for Higher Education. Agreement has been reached on the issue to education authorities and other interested bodies of a circular drawing their attention to the implications of the change.

Scottish Home and Health Department administers the building programmes of five Regional Hospital Boards. In general, the projects in these programmes extend over long periods and the main step so far taken has been to align the overall programme with PD 6030 so that, where appropriate, work may be started and finished to metric dimensions.

There are certain differences between English and Scottish practice in hospital design, for example, in the layout of wards but there is liaison with the Ministry of Health and Scottish Regional Hospital Boards to ensure the common use of components.

As a contribution to development, an inter-Board Study Group composed of Scottish members has established a performance specification and testing routine for hospital partitions. This has already been adopted for use throughout Britain to allow the use of standard types of partitioning within the selected component range for Health buildings.

To sum up: the resources of the Scottish Office in contributing to development work for the programme of metric change are limited by the availability of staff and there is need to resolve existing differences in requirements. Nevertheless, there is continuous participation in the work of preparing new standards for building components and preparation for guiding Scottish interests when the time comes to apply them.

## Decimal Currency

### BOOKLET ON WRITTEN AND PRINTED FORMS

The switch to decimal currency is due to take place on 15 February, 1971, and, in order to give guidance on how to express amounts of money both in written and printed documents as well as in speech, The Decimal Currency Board have issued a booklet which is summarised below.

In preparation for the day when one pound will equal 100 new pence, The Decimal Currency Board have published the first in a series of reference books on the change to decimal currency. This is due to take place on 15 February 1971 and will consist of no more than two units, the pound and the new penny. Current intermediate units of measure, such as the shilling and the florin, no longer being appropriate, are dropped. One effect of producing a pound-based decimal system is that the name and symbol of our major unit will be retained. The symbol £ will be the recognised abbreviation for the pound and will continue to be placed before the number denoting the amount, e.g. £5, £15, £150, etc. No full stop should be placed after the pound sign except where it ends a sentence.

The lower case abbreviation p for the new penny is logically justified in the booklet. For one thing it distinguishes from the present abbreviation d (which will continue to be needed during the period of the changeover) and, by selecting a letter from the alphabet rather than a symbol (such as £), it will save modification of typewriters and other

machines. It will be placed after the amount, e.g. 4p, 15p, 25½p, etc. Again no full stop is used after the p unless it ends a sentence.

For the decimal sign, The Currency Board have decided to stay with the point, commonly used in the Commonwealth and the United States, rather than the comma which is widely used on the Continent. The following rules are recommended:

a) In printed and handwritten documents the decimal point should generally be opposite the middle of the figure (not on the base line).

b) In typewritten and other documents produced on machines which have no decimal point, the use of a stop on the base line (a full stop) is the acceptable alternative.

c) The £ symbol should always appear when the point is used, and the p abbreviation should never appear when the point is used. Thus the £ and p should never appear in the same expression. Therefore, when writing amounts in pounds only—£5 or £2,500, but a permissible alternative, mainly useful in accounting, is £5.00 or £2,500.00 (if the decimal point is used it should always be followed by two noughts not one). When writing amounts in new pence 9p or 35p will be the normal expression; £0.09 or £0.35 for accounting practice. With mixed amounts of pounds and new pence, £3.10, £16.35 etc., is correct, £3.10p, £16.35p incorrect. But for cheques the hyphen is suggested as a better form of demarcation, e.g. £16-35.

### Expressing Decimal Amounts

When handwritten:  
Figures

£ 29-08  
£ 0-26

When handwritten:  
Words

Twenty-nine pounds 08  
Twenty-six pence

When printed:

£29.08  
£ 0.26

When typed:

£29.08  
£0.26

### The New Halfpenny

The new halfpenny should generally be expressed as a vulgar fraction ½. It should not be expressed as a third place of decimals. Thus 3½p or £0.03½. However, where it will be an aid to calculation to express the new halfpenny decimally as £0.005, and where there is automatic print out from machines, this may be the notation provided. For oral expression it is suggested that confusion may be avoided by interpolating the word pound where the decimal point stands, i.e. two pounds seventy-five rather than the ambiguous 'two seventy-five.'

The booklet, 'Decimal Currency: Expression of amounts in printing, writing and in speech,' is available from HMSO, price 1s.



## Education and Training

SURVEY BY THE MPBW

A survey of the preparatory work undertaken on education and training in the construction industry to meet the change to metric has been prepared by the Ministry of Public Building and Works. Its aim is not only to show current progress but also to highlight where further action may be needed.

To meet the BSI's metric change, those already in the construction industry and new recruits will need to receive adequate training in the use of metric dimensions in ample time. With some 2½m. people employed in the industry, its associated professions, and by material producers and suppliers, the training requirement is very considerable. Clearly, early plans have to be made to prepare adequate programmes for operative, technical and management training.

The MPBW survey suggests that the size and difficulty of the training problem is not fully understood. For example, it does not seem to be generally appreciated that the change is in units of mass and energy as well as in units of measurement of space. Combinations of these can give results which are unfamiliar, hard to assimilate and incapable of mental conversion. It may perhaps have been assumed too readily that technical colleges and other parts of the educational system will solve the industry's training problems and that the initiative can be left to others.

The technical colleges can be expected to introduce adapted syllabuses for the relevant initial courses of further education at the appropriate time. They may also be able to provide some conversion courses, probably to assist those with supervisory responsibilities to handle on-site training. However, the content of these conversion courses, and their timing in relation to the securing of contracts involving the metric system, will need to be settled in close consultation with the firms requiring them, and it cannot be emphasised too strongly that the final responsibility for ensuring that all levels are familiar with the metric system rests with management of the firms involved.

As developments are proceeding, the information now presented is bound to be quickly out of date. It is, therefore, intended to publish further information from time to time, which it is hoped will show the plans of a wider range of organisations than is provided in the following paragraphs.

### Government Departments

**Department of Education and Science:** HM Inspectors have dealt with the intro-

duction of metrication in a recent national short course for teachers of building subjects in technical colleges, and will do so in future courses. The Department is also considering the need to organise other short courses under the aegis of the Regional Advisory Councils.

A circular letter to be issued by the Department will inform local education authorities and colleges about notification of changes to courses, syllabuses and examinations.

**Scottish Education Department:** As a result of discussions between HM Inspectorate and Jordanhill College of Education, Glasgow, one session at a national conference of teachers of building subjects in June 1967 was devoted to an exhibition and discussion concerned with the changeover. It will receive more detailed treatment at a second such conference planned for April 1968.

**Ministry of Labour:** Limited training in the metric system is already being given in Government Training Centres; this has recently been increased and will continue to be until metric exercises have been introduced into all training syllabuses. A booklet of 'programmed learning' has been produced as an introduction to metric measurement and will shortly be available at the Centres.

#### Ministry of Public Building and Works:

The Ministry in consultation with the BSI and the industry is producing a series of bulletins to provide basic information and background material for higher and middle levels of management. The first of the series, already published, is a general introduction showing the reasons for the change and the way in which the building industry will effect it. Subsequent bulletins are planned to deal in more detail with the implications of the change and the rôles all sections of the industry will play.

**Ministry of Technology:** A Sub-committee of the Standing Joint Committee on Metrication has been set up, composed of information officers of government departments concerned and industry. The committee is studying the possibility of some kind of general familiarisation, possibly by a general film backed up by subsidiary films aimed at specific sectors. Initially the sub-committee is considering the construction industry.

## Educational and Training Organisations

### Construction Industry Training Board:

The Board has carried out research and diagnostic work to determine training requirements for the changeover to metric. It is now making the necessary arrangements to meet these requirements in line with the BSI's programme for the changeover. Professional institutions, employers' associations and individual construction firms have contributed to the Board's preparatory work. The Board plans to issue a series of special training aids from September 1968 and these will include:

- a) a syllabus for a short course for site supervisors at all levels;
- b) a series of self-teaching 'programmed learning' booklets for management, technical staff and others; and
- c) pocket conversion tables, a glossary of metric terms, and a series of posters for offices and sites.

### Council of Technical Examining Bodies:

The Council, whose membership includes the City and Guilds of London Institute and the six Regional Examining Bodies, has decided that from May-June 1970 its constituent members will set their question papers in building subjects in metric units if the industry's general programme of courses permits. Examinations from 1971 or 1972 will have reference to the new standard metric dimensions for components, materials and design, and the changeover will be completed by 1973. Information on this question is being circulated to local education authorities and colleges by the DES.

**The Royal Society:** The Society and the Council of Engineering Institutions jointly sponsored, in December 1967, a conference on teaching and examinations in SI for those concerned with these matters at universities and other institutions of higher education. This conference decided to issue a strong recommendation that SI units should be increasingly used in university and college teaching, and in particular that numerical data appearing in examinations set to those students in science, engineering and technology, who first enter courses of higher education in universities and colleges in 1969 or later, should be quoted in SI units.

**Scottish Association for National Certificates and Diplomas:** The Association has stated that:

- a) as from September 1967, new entrants to national certificate courses in building should be taught in SI units;
- b) as from 1969, examinations for the O2 stage will involve the use of other units; and
- c) existing students should acquire proficiency in the use of the metric system and be introduced to SI units throughout the courses. Higher National Certificate syllabuses will be revised in due course.



## Professional and Other Institutions

**British Standards Institution and the Building Centre:** operate a scheme to provide volunteer speakers on the metric system. Details may be obtained from W. G. Steele, Education Officer, The Building Centre, Store-street, London, W1.

**Council of Engineering Institutions:** The Education and Training Committee has decided that:

a) SI (International System) units should in general be adopted as the preferred system, accepting solutions in both SI and British units, if necessary, up to the end of 1970 (when the examinations of individual institutions will have ceased); only SI units will be used in 1971; and b) no change from units in specimen papers will be used in initial examinations without a period of both systems of units being provided for (if necessary resorting to two sets of papers).

**Institute of Building:** The institute has formed a panel of speakers on metrication from its members for the 1967-68 session. The institute's Examination Board has announced that its examinations will be conducted in metric terms from June 1969, on the assumption that the BSI programme is adhered to.

**The Institution of Civil Engineers:** Members of the institution are included in the BSI pool of speakers and various local associations are arranging meetings or discussions on metrication. All future institution publications will be metric, as appropriate, and reprints and re-issues of previous publications will either include a conversion table or, in due course, be revised.

The institution policy with regard to the use of the metric system in professional examinations conforms to that of the Council of Engineering Institutions.

**Royal Institute of British Architects:** Some 20 items about the change to metric measurement have been published in the RIBA Journal. The Heads of Architectural Schools Committee has discussed the change to metric on three occasions and schools have been asked to form study groups to consider the implications upon their architectural courses. A teachers' forum is to be held at the RIBA in April. No decision has yet been made about the RIBA examinations pending the outcome of these discussions but the Final Testimonies of Study issued in December 1967 were set in metric terms.

**Royal Institution of Chartered Surveyors:** The institution has decided that from 1970 all examination questions will be set and answers required in metric units. A number of articles on the change to metric have already been published in the 'Chartered Surveyor'; the issue for March 1968 is largely devoted to this subject and includes the RICS Metric Guide. This is also being made available as a separate publication. The metric version of the 5th Edition of the Standard

Method of Measurement will be published in June 1968.

The institution has provided members for the BSI panel of speakers and has also published metric conversion tables with 15 separate sections of conversions.

**Institution of Heating and Ventilating Engineers:** The institution's Metric Study Group has made recommendations about the system of units to be used by the industry when the changeover takes place. Tables of conversion factors and worked examples in the SI system are being produced and will be published in booklet form, probably early in 1968, pending the publication of a metric edition of the institution's Guide in 1970.

**The Institution of Municipal Engineers:** SI units will be adopted in the institution examination, diploma examinations and building inspectors' examinations in the following manner:

1) from 1968 to 1970, SI units will be used at the discretion of the examiners. If, during that time, questions are so phrased that answers can be expressed in either SI units or British units, solutions in either will be accepted;

2) from 1971 only SI units will be used. Advice on the selection of metric units, to be used by examiners and candidates, will be given in the April 1968 issue of the Journal of the institution, based on the MHLG Working Party report on metric units, with reference to water, sewage and related subjects.

**The Institution of Structural Engineers:** The institution has been involved in the work of producing metric conversions of CP111, 112, 114, 115 and 116, and a new code covering the Structural Use of Aluminium. The institution's Journal has carried items of information about progress in the change to metric. During the summer of 1968 the Journal will publish a paper examining the implications of SI units of force together with working examples in both imperial and SI units. From September 1968 all papers and other material published by the institution will be in SI units with British imperial equivalents in parenthesis, and from January 1969 its examination papers will define units in the same way. No date has been set when SI units alone will appear.

## Trade Organisations

**British Precast Concrete Federation:** The members are being kept fully informed about the change to metric measurement. The Industrial Training Committee of the federation is considering what additional arrangements are needed to supplement those of individual member companies, and is taking steps to minimise duplication of training.

**British Woodwork Manufacturers' Association:** The association is circulating an outline suggested scheme of in-company guidance for middle management which

will be available to all members. It cannot be finalised until all the appropriate British Standards, Standard Methods of Measurement and other relevant documents have been issued. Certain proposed Standards in dimensionally co-ordinated metric measure have been issued at an early date, partly to accustom firms to the metric system.

**Electrical Contractors' Association of Scotland:** The association will initiate short seminars about the implications of the change to the metric system. The Training Committee, in conjunction with the Construction Industry Training Board, will be responsible for the promotion of training courses in the colleges.

**Felt Roofing Contractors' Advisory Board:** The Board has close liaison with BSI and the CITB and will co-operate with both on the change to metric measurement; programmes and the syllabus for training will be agreed between them to enable contractors to be ready for practical application in 1969-70.

**Mastic Asphalt Employers' Federation:** The federation propose to issue the metric equivalents in the next issue of their Working Rule Agreement.

**National Association of Lift Makers:** The association's Technical Committee is considering preparing a pamphlet covering suitable conversion tables for use in the lift trade.

**National Federation of Building Trades Employers:** The federation, through a special metric sub-committee with full-time officers, is maintaining close liaison with the CITB. Advice has been given on the type of training aids and courses that will be needed for various categories of staff within construction firms. A regular series of Metric Notes is now appearing in 'The National Builder,' and members of the metric sub-committee are lecturing at meetings arranged by regions and local associations of the federation.

**Patent Glazing Conference and the Metal Window Association Ltd.:** Retraining for metric measurement has been introduced into the Fixing Supervisors' Course.

**Timber Trade Federation:** Facilities for retraining should be available next year but the form of the course has yet to be established. Training grants are available to firms paying levy to the Furniture and Timber Industry Training Board; the federation is encouraging members to take advantage of this.

**Timber Research and Development Association:** The association hopes to begin running short retraining courses beginning in September 1968. Its proposals are dependent on international agreement about the preferred metric dimensions of timber, timber-based materials and timber products.

This survey is based on material, gathered by the MPBW, from government departments, educational organisations, professional and other institutions, and trade associations.



## LETTERS

### Metric Gauge

Sir,—Philip Dunstone's article 'Metric gauge' ('BMN,' 23 February) is so far the sanest argument yet presented on any points of view in the whole concept of metrication.

The scheme is practical without being complicated, and in this world of change, this is a virtue that is sometimes overlooked. It possesses the qualities of variety reduction and co-ordination of terms and sizes that metrication as a whole is hoping to achieve, and therefore should be held as an example of the opportunities that metrication affords us.

H. A. SANDS,  
Chief Draughtsman,  
E. Hill Aldam & Co. Ltd.

### 'A' Series Drawing Paper Sizes

Sir,—We wonder whether it is appreciated that the introduction of 'A' series drawing paper sizes is likely to involve the building professions and others in considerable expense. From the information given in your supplements of 27 October and 22 December 1967, the following considerations come to light:

a) a drawing now done on double elephant paper (40 in. x 27 in.) will have to be done on AO (46 $\frac{1}{2}$  in. x 33 $\frac{1}{8}$  in.) or in two parts on A1 (33 $\frac{1}{8}$  in. x 23 $\frac{3}{8}$  in.);

b) draughtsmen not having the benefit of drafting machines already find it difficult to reach the top of an antiquarian sheet (30 in. high), and will therefore be able to reach the top of an AO sheet only with even greater discomfort;

c) if the AO sheet becomes the norm for general arrangement drawings, it will be much more cumbersome in cramped site offices than antiquarian—let alone double elephant;

d) the AO sheet will not fit into any existing plan chest;

e) The AO sheet will not fit even an antiquarian drawing board (although the tee-square will still be usable)—but, if AO drawing boards are decided upon, then all-new drawing tables will be required as the present ones are too shallow;

f) the paper suppliers you quote all offer 'A' series cut sheet sizes, but only two offer of 84 $\frac{1}{4}$  mm rolls from which such sheets can be cut without wastage;

g) another—and well known—supplier is quoted as offering 750 mm and 1040 mm rolls which relate not to 'A' sizes but to antiquarian and double elephant, etc. Hence, we are entitled to ask if we are expected to face the cost of new AO plan chests, drawing boards and tables; alternatively, if we decide to stay with the old paper sizes, will these continue to be economically available? And does the

Government propose to offer any capital grants or improved tax allowances in respect of such expenditure?

It will be very interesting to know whether your readers have considered these problems.

C. J. LISLE,  
Norman & Dawbarn.

### Standard Components and Tolerances

Sir,—I think it is generally known and appreciated that the 'change to metric' provides a unique opportunity for new and improved ranges of building components to be made with, however, fewer variations. The Government publications on 'Dimensional co-ordination' will be a very useful guide in this work. I wonder, however, whether the time will come when it may be deemed desirable or indeed necessary for the Government eventually to make standard components mandatory for all local and central government building?

What about tolerances in manufacture, setting out and assembly? Which is correct? The BS 3626, Recommendations for a system of tolerances and fits for buildings, in which it is implied that the individual tolerances should be added arithmetically (assuming that the worst errors at each stage can occur together) or the statistical approach using the total tolerance equal to the square root of the sum of the squares of individual tolerances?

This question of tolerances will be of paramount importance when considering standardised components and their interchangeability!

I feel sure that it will provoke a wide exchange of views.

H. KAYLOR,  
Consulting Engineer.

## METRICATION INDEX

An index of references to metrication published in 'Building' since Building Metrication News last appeared:

Metric conversion tables published by the RICS. (23 Feb. p. 75).

Draft proposals for the changeover to metric in the engineering industry have been published by BSI. (1 Mar. p. 68).

Costs of timber should be reduced when the industry goes metric according to Peter Morgan, President of Timber Trade Federation. (15 Mar. p. 122).

The first of a series of metric fastener standards, BS 4168:1967—Hexagon socket screws and wrench keys—gives requirements for cap screws, countersunk head screws, etc. (15 March, p. 165).

Metrication teach-in at Chester (15 March, p. 177).

## METRIC INSTRUMENTS

*As metric items for the drawing office become available we are publishing details in 'BMN.' For the provision of this information we are indebted to DOMMDA, 157 Victoria-street, London, SW1.*

### Drafting Machines

Dargue Brothers Ltd  
supplied in A0 and A2 sizes  
E. N. Mason & Sons Ltd  
Allbrit Spacemaster in A0 size  
Admel International Ltd  
Vertical in A0 size  
Zephyr—an extension of parallel motion which will accept A0

### Scales

Blundell Harling Ltd  
for desk, pocket and drafting machines.  
In the main, range is bespoke.

Hall Harding Ltd

oval section, 150 mm and 300 mm, in boxwood and boxwood celluloid edge. Flat section, 150 mm and 300 mm, in boxwood and boxwood celluloid edge. Also two special scales to RIBA request to satisfy transitional requirement: drawing in feet/inches to decimal scales of metric system. Available flat section, 6 in. and 12 in. boxwood and boxwood celluloid edge.

Ozalid Co. Ltd

Boxwood opaque perspex edged, 300 and 500 mm sizes, for use with standard G and L Kuhlmann drafting machines.

Boxwood opaque perspex edged, 300 and 400 mm sizes, for use with 'J' type and Optima drafting machines.

## BASIC METRIC REFERENCES

1 PD 6030: Programme for the change to the metric system in the construction industry. 5s.

2 BS 2900: Part 1: Modular Co-ordination in building: Glossary. 4s.

3 BS 4011: Basic sizes for building components and assemblies. 4s.

4 BS 3626: Recommendations for a system of tolerances and fits for building. 6s. (All the above are published by BSI and obtainable from BSI Sales Office, 101-113 Pentonville-road, London, N1.)

5 The co-ordination of dimensions for building, published by RIBA. 35s.

6 Modular Primer, published by Modular Society Ltd. 7s. 6d.

7 Going Metric in the construction industry. Bulletin: 1 Why and When. MPBW, published by HMSO. 3s. 6d.

8 Metric Conversion Tables, published by RICS. 20s. (17s. 6d. to members).

9 Metric Guide, published by RICS. 2s.



## NEWS FROM THE INDUSTRY

### Liaison Group Formed

A number of bodies from within the construction industry have formed a Metric Change Liaison Group. Taking part are The Association of Industrialised Building Component Manufacturers Ltd., The Modular Society, The National Federation of Builders' and Plumbers' Merchants, the NFBTE, the RIBA and the RICS. By this liaison, member bodies will be able to discuss jointly the problems arising from the change to metric, and adopt a common approach on any action required. It is intended that the membership of the group will remain small so that positive discussion can take place and areas of common ground quickly established. When other bodies are known to have an interest in a subject under discussion, they will be invited to be present so that their views may be taken into account.

For the first six months of its existence, that is until 30 June, W. A. Balmain, of Turner & Newall Ltd., will be chairman and I. Bampton, ARIBA (assistant secretary at the RIBA) will be secretary.

At the group's second meeting on 15 February, it was considered important to express a joint view to BSI on the figuring of metric, especially in view of the meeting of Committee B/-/9 on 22 February and the likely recommendations from the Ministry of Technology and the Decimal Currency Board. A decision was reached and this was expressed by each constituent body in a letter to BSI.

### Metric Guide

The March edition of the 'Chartered Surveyor,' the journal of the RICS, includes a 12-page Metric Guide, produced by the institution's Metric Co-ordination Committee. Because of the still unresolved comma-full stop controversy, the committee took the unusual step of covering both possibilities by printing, where necessary, in two colours, the comma method of decimal expression being printed in black and the full point alternative in red.

The Metric Guide is also available as a separate booklet, price 2s.

### Irish Surveyors Welcome Change

The Royal Institution of Chartered Surveyors welcomed the Government's decision, recently announced, in favour of a change to the metric system in Irish industry, and were anxious to assist in bringing this about, said Aidan Williams, chairman of the Republic's branch, at a general meeting of the institution in the Shelbourne Hotel, Dublin, last month. He said it was essential that the change should be co-ordinated and carried through in a systematic way.

It was unlikely, however, that the programme could be co-related to the changeover in the British building industry. 'We might consider though,' continued Mr. Williams, 'their idea of using the changeover to improve the design, sizing and performance of products used by the building industry and the introduction of some degree of dimensional co-ordination.'

The RICS and the Federation of Builders and Allied Employers of Ireland had already been engaged in the task of converting the standard method of measurement of building works into metric terms and the new document was now almost complete.

### Timber Price Reduction

There will be a 'golden opportunity' for a reduction in the price of timber when the industry goes metric in 1970, according to Peter Morgan, President of the Timber Trade Federation. Speaking at the federation's annual dinner in London on 6 March, Mr. Morgan said that there would inevitably be a period during the changeover in which double stocking would be necessary to meet the demands for timber in both metric and imperial sizes. But with the phasing out of imperial measures the trade should have the chance to reduce the range of stock sizes to a more reasonable level which would result in 'considerable savings both to the trade and to our customers.'

### BIET Seminar

A seminar on metrication, organised by the British Institute of Engineering Technology, was held 6-7 February at Aldermaston, Berks. A feature of the meeting was the provision of four specially written lessons, as a correspondence course, which delegates were asked to study prior to attending the seminar. Answers to questions set in these lessons were individually marked and, where they brought up points of general interest, copies were provided for the speakers at the seminar. It was found that this procedure helped delegates to approach the problems of metrication much more objectively and it is hoped that a similar pattern may be followed in subsequent meetings.

### Comment Deferred

The British Standards Institution has deferred the last date for the receipt of comments on its draft metric programme for the engineering industry from 29 March until Friday, 3 May. This decision follows representations from trade associations that their members need more time to consider the implications of the timings and to prepare their replies.

The draft programme was circulated on 21 February to about 20,000 engineering equipment manufacturers, through trade associations. BSI has stressed that it would like to receive comments on the draft as early as possible, particularly since the time taken in preparing the

final programme will now encroach on the time available for firms to start detailed individual planning for the change.

### Glasgow Meeting

Three hundred people from a wide area of central Scotland took part in a 'Seminar on metrication' at the Glasgow College of Building on 19 February. The seminar was offered by the college as a result of requests by employers' organisations and was well supported by principals and executives of construction firms. There was also a good representation of architects, surveyors and local government officers.

Six speakers covered the introduction of the metric system, the progress that has so far been made, the retraining necessary and, in a second session, some of the practical effects of metrication on the work of the building industry.

Points to emerge from the seminar, apart from the great interest now being shown in metrication, are that information available at this stage is limited, but regular sources such as 'BMN' are focal points; a need for a programme of lecture/study sessions at intervals during the change to allow current decisions to be disseminated and discussed at executive level; and the considerable numbers of people who will require retraining as the change proceeds, which will require collaboration between CITB and the colleges.

## COMING EVENTS

### THURSDAY, 28 MARCH

**Going Metric:** A general practice and quantity surveyors (JO) joint OGM. Speaker: Philip Dunstone. Held at RICS, 6 p.m.

### TUESDAY, 2 APRIL

**Change to Metric:** Discussion on the problems facing the architect through the adoption of the metric system and dimensional co-ordination. Introductory talk by Anthony Williams followed by four architects who will look at effect of change in their own offices. Panel of experts will then answer questions. RIBA, 66 Portland-pl., London, W1. 6 p.m.

### FRIDAY, 5 APRIL

**The change to metric in the construction industry:** a one day symposium organised by the Manchester and District Branch of the IAAS. Four papers to be given cover the architect's view, the structural aspect, the effect on the building contractor and quantity surveyor, and the problems raised for the manufacturer. Held at Roscoe Building, University of Manchester at 9.30.

### THURSDAY, 11 APRIL

**Conversion to metric system:** Lecture given jointly by S. Belford, Director of Building Centre, Northern Ireland, and George Crowe, Institute of Building, at the David Keir Building, Queen's University, Belfast. This follows a meeting of the Institute of Clerks of Works at 7.45.