BMN
Building Metrication News

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This section appears in the second and fourth issues 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

Picking up the baton

For three years a very small group of diehards have battled to prepare the way for metric change. Now that the change is really starting these diehards are being reinforced by the men who have to get on with the job. The emphasis switches from the committee room table to the drawing board. But are the professional organisations prepared, as Michael Clarke put it in an interview in the last issue of BMN, to get more involved and to direct their members? There is little evidence, certainly as far as the RIBA is concerned, that this is so. Michael Clarke was not the only person to be disappointed to see only the briefest mention of metric in the recent report of the four RIBA boards. It certainly looks as if Miss Mackintosh and Mr. Aubrey Jones between them have not only stolen all the thunder but that neither time nor money has been left over for metrication. Top men at Portland-place have obviously and properly been concerned at the long term and significant implications of the referendum and the report of the Prices and Incomes Board. Let us hope that some of them can now turn their attention to the long term and significant implications of metric which will effect every practising architect as well as his and his client's pocket.

The problem, however, that now faces the professions is not so much how to prepare members but how to give them support during the change. Several thousand architects have already attended lectures given by the BSI/Building Centre pool of speakers and this work goes on. What is needed now is an operational programme aimed at supporting the office metrication officer and the man on the drawing board. If this assumption is correct then we need feed back from him, so that he can be provided with whatever information and advice he needs. His views have to be fed back to the institutes and there has to be someone there to receive them—a metrication officer—full time. A man capable of implementing the needs of members, one who has direct access to all departments of an institute.

The requests of members may reveal that quite specific jobs of work need to be done as the change progresses. Occasionally these will have to be undertaken by the institute concerned but more often than not it is likely that there is some activity going on already, perhaps in a ministry, perhaps in one of the other professions or sectors of the industry, which will help to solve the problem. In this case joint working or a feed in of the information required will help to provide a service. There is no point in each organisation duplicating work if it can be undertaken jointly. After all, even if plenty of money were available, which it is not, there is no point in wasting it. But one of the main activities of a professional body must be to collaborate with other sectors of the industry to foresee problems which may arise and to find ways of averting them. The Construction Industry Metric Change Liaison Group (CIMCLG) exists for this purpose. Its members include the RIBA, RICS, Modular Society, NFBTE, AIBCM and NFBPM. The new chairman of CIMCLG is Peter Cocke, of the Architects Co-Partnership and the RIBA's metric convenor, who recently took over from W. Balmain, chairman of AIBCM. So far the group has acted on a voluntary basis with the exception of the secretariat provided originally by the RIBA and now by the NFBTE. But again this group needs more than voluntary support. It needs the time of metrication officers from each institute, because time spent on this work is going to save an infinite number of difficulties over the next few years and therefore a lot of members' money.

Learning metric by sight

When the construction industry changes to the metric system, the problems of learning and understanding it will be caused mainly by the dissimilarity of the units in which we shall have to think and work. Under the present imperial system the units of linear, square and cubic measurement are the inch, foot and yard, which are so familiar to us that we can assess the size of common objects fairly accurately by looking at them. In this first of two articles, L. J. F. Stone, MPBW's Metrication Officer, suggests methods by which metric measurement can be assimilated.

Few of us would have much difficulty in assessing the length in inches of the pencil shown below by visual means. If, however, we were asked to assess the length in millimetres few of us could, at present, do so without first assessing the length in inches and then converting it to millimetres by multiplying by 25 (25.4 mm = 1 in).
Why is this?
To find the answer it is necessary to consider the mental processes which enable us to assess the size of common objects in inches, feet or yards by observation. Our training and experience have enabled us to store in our minds pictures of certain basic sizes, particularly 1in., 6in. and 1ft. and these are, in fact, our mental measuring rules. When we want to assess the size of an object we do so by applying these mental measuring rules to the length, width or height.
In the case of the pencil illustrated this would undoubtedly have been achieved by applying the mental image of 1in. or 6in. to the apparent length. In other words, our minds have become so accustomed to applying the mental image of units of measurement to objects that there is no need physically to offer up a rule in order to determine the approximate size.
The reason why we cannot do this in metric units is that the mind's eye has no images of metric sizes comparable with those it has for 1in., 6in. and 1ft. In order, therefore, to assess size in metric terms with the same facility as we do at present in imperial terms, we must devise an alternative series of mental metric images.

Assessing Common Objects

Linear dimensions

When we change to the metric system we shall use only two units for linear square and cubic measurements. These

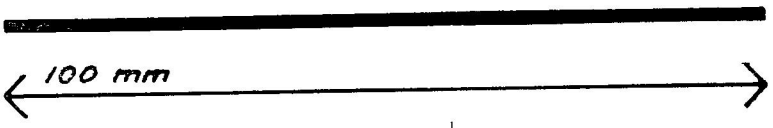
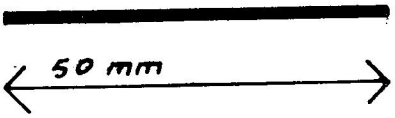


Fig 2, above, a 100 mm guideline and, Figs 3 and 4 below, guidelines for 50 and 25 mm



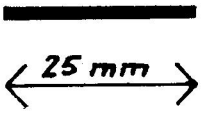
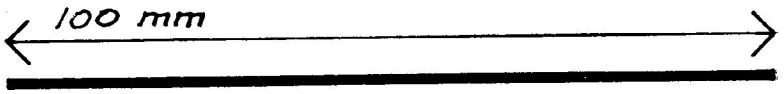


Fig 5, below, assessing the dimensions of a glass tumbler by using 100 mm images



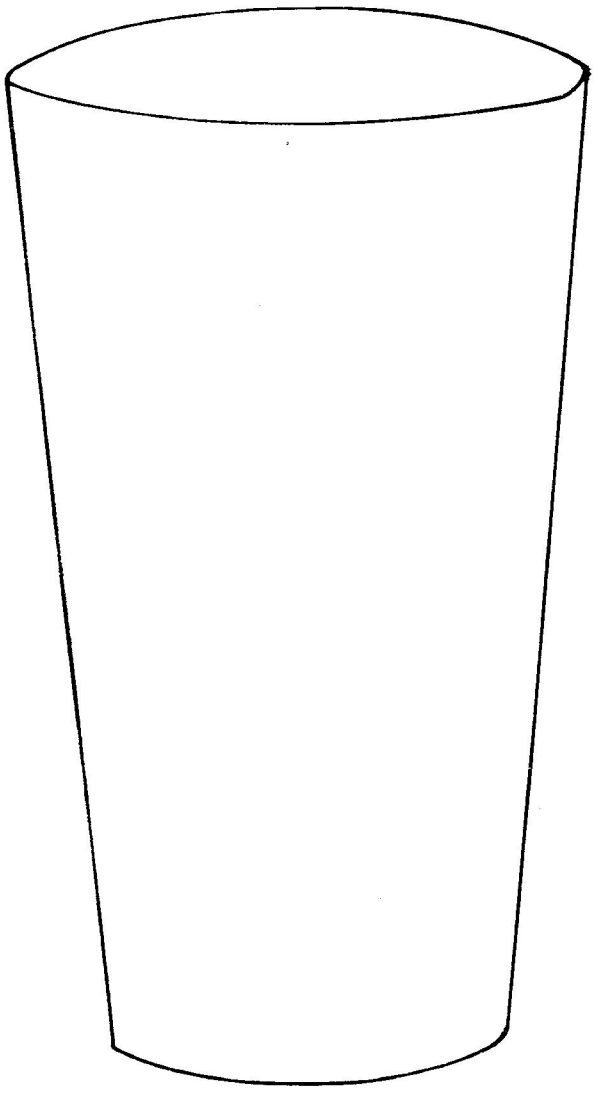


Fig 6, opposite, assessing the size of a box of matches by 25 or 50 mm images

Fig 7 shows an area of 1 000 sq millimetres. Fig 8, an area of 5 000 sq millimetres and Fig 9, an area of 10 000 sq millimetres

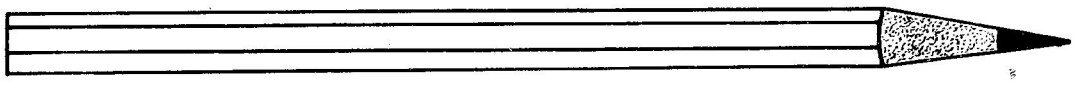


Fig 1
a pencil is easy to assess in inches. Try it in millimetres

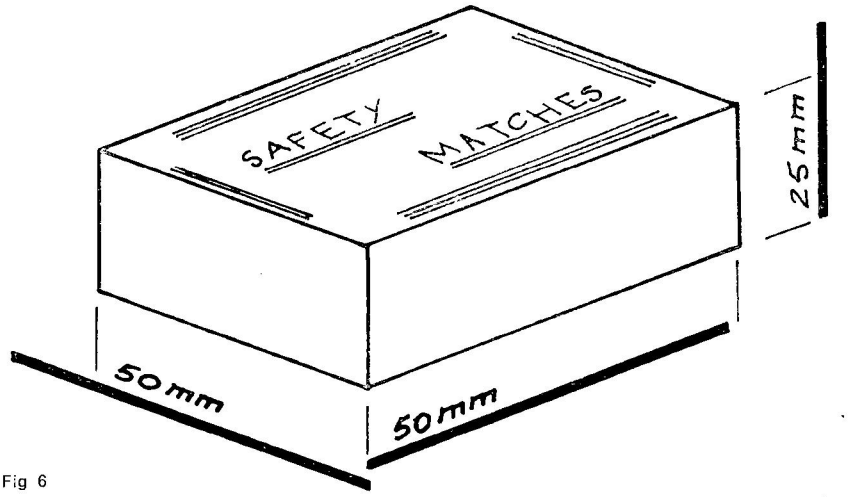


Fig 6

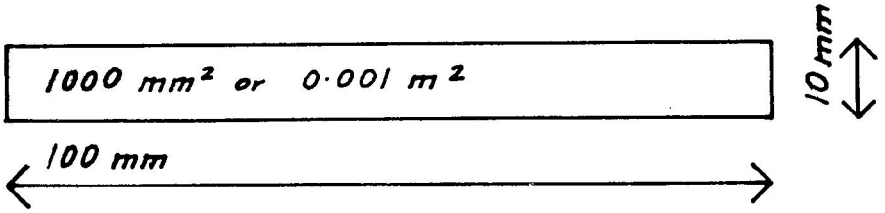
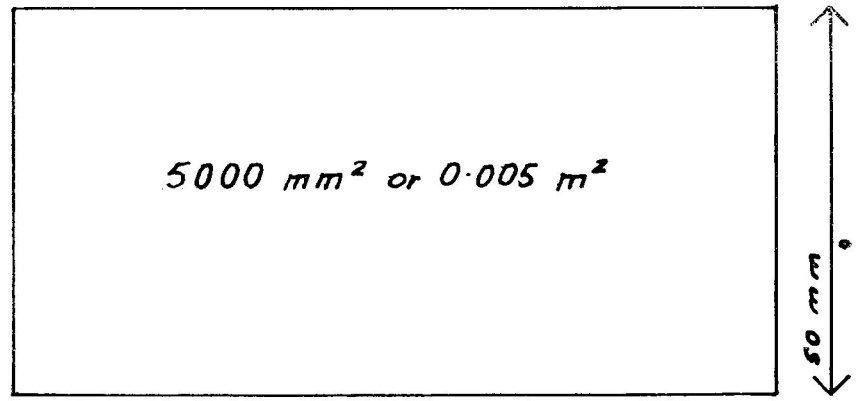
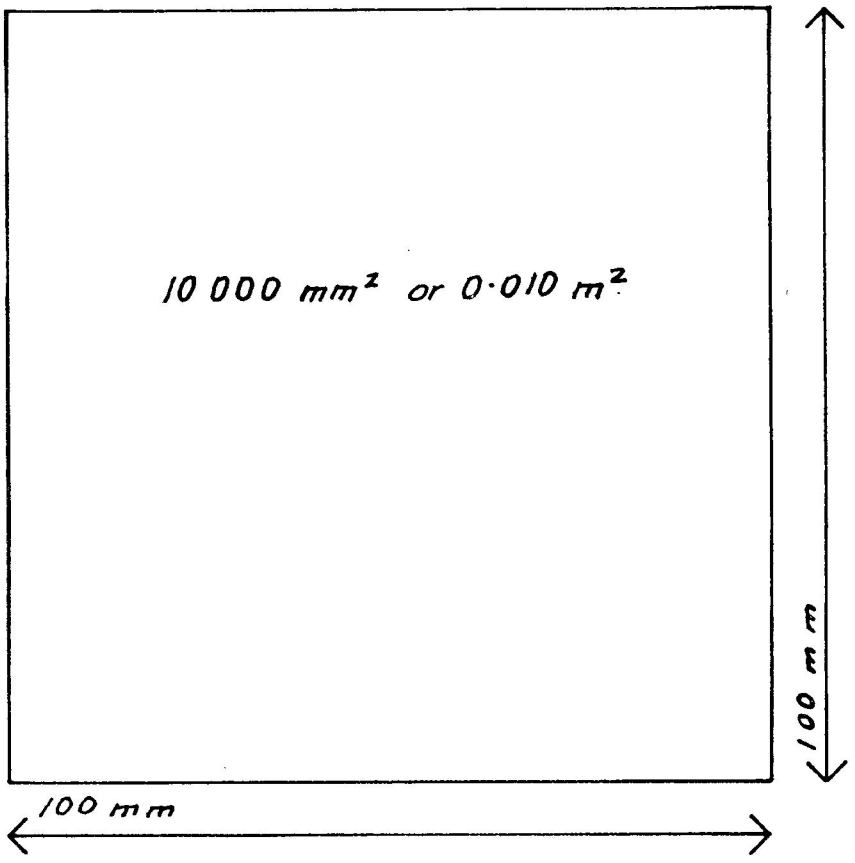


Fig 7



above, Fig 8, below, Fig 9



are the millimetre and the metre which equals 1 000 mm. The millimetre is too small for use in assessing the size of even comparatively small objects and the metre is too large. As we will have no other unit we must resort to a multiple of a millimetre, the most useful being 100 mm as indicated in Figure 2. If a larger image is required, 300 mm will prove effective.

These images are easily absorbed and once assimilated should provide the means of assessing the size of smaller common objects in millimetres without resort to conversion factors.

As an example, the dimensions of a glass tumbler can be assessed in millimetres by offering up to it the mental image of 100 mm (Figure 5).

Similarly the size of a box of matches can be assessed by the use of the 25 mm or 50 mm images (Figure 6).

Images for the assessment of the size of larger objects, or rooms or distances will also need to be developed and stored, but the choice of such images will depend to a greater extent on the method now used by the individual for assessing such sizes in imperial terms. Here are a few suggestions:

a) A 6 ft. 6in. door is almost 2 m high;
b) A desk is approximately 0.75 m high;
c) A cricket pitch is almost exactly 20 m long (20.11 m precisely).

Areas

Mastery of the new linear units will greatly assist in the appreciation of areas in terms of millimetres but here also some clear basic mental images of size will need to be created and the 100 mm multiple will again provide the starting point.

There are 1 000 000 sq.mm in 1 sq.m and this disparity of size between the square millimetre and the square metre makes the square millimetre very much more difficult to visualise and use in relation to area than the millimetre is in the context of linear measurements. Despite this, the same technique of choosing a multiple will be effective in providing a picture of the new unit.

When expressing millimetres as decimals of a metre, up to three places of decimals are involved but when expressing square millimetres as decimals of a square metre, there are up to six places. Thus 1 sq.mm is 0.000001 of a square metre, and 1 000 sq.mm are 0.001 of a square metre.

In many cases areas and sectional areas will be expressed in terms of square metres, and in the lower ranges of size this will mean an expression to three or more places of decimals which it is extremely difficult to envisage without a mental image which can be used as a yardstick.

Using the 100 mm multiple as a starting point we can produce a range of readily identifiable areas in terms of square milimetres or decimals of a square metre. Figure 7 is 1 000 sq.mm in area which is equal to 0.001 sq.m. Figure 8 is 5 000 sq.mm or 0.005 sq.m and Figure 9 is 10 000 sq.mm or 0.010 sq.m. These images of area will be most usefully memorised primarily in decimals of a square metre rather than in square millimetres as the principal unit of measurement of area will be the square

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metre and smaller areas than one metre will be expressed as decimals of a metre. Once a linear image of 100 mm. has been memorised it is comparatively easy to visualise a series of rectangles based on a 100 mm side which produce a variety of areas in terms of square millimetres as, for example, the rectangle in Figure 8 (100 mm x 50 mm) which is 5 000 sq.mm in area. It is not nearly as easy to visualise this same area as 0.005 of a square metre and therefore a more conscious effort must be made to recognise it in the less familiar unit.

It is not too difficult to visualise a square metre as this is only a little bigger than the very familiar square yard, but there is no single metric unit in the S.I. system equivalent to our most familiar small area, the square foot. A square foot equates to 92 865 sq.mm and we can, therefore, use our present image of it as a very good basis of our appreciation of areas in metric units.

An area of 100 000 sq.mm, which is one-tenth of a square metre, is less than 10% larger than a square foot.

For areas of land, the hectare will take the place of the acre. A hectare is equal to 10 000 sq.m but can probably be more easily envisaged if it is remembered that one quarter of an acre is approximately equal to one tenth of a hectare (0.101 exactly).

We have now set up a series of basic areas which, when memorised, will enable us readily to appreciate two dimensional size in terms of square metres, square millimetres and hectares.

Volume

Let us now turn to cubic measurements. Although there are 1 000 000 000 cu.mm in a cubic metre, we must not allow this great disparity in size of units to confuse the issue. When we assess cubic size in imperial terms we seldom use the cubic foot for volumes of more than one or two cubic feet. Beyond this we begin to think and talk in terms of fractions of a cubic yard and we should not change this approach when working in metric units.

In other words, apart from very small volumes we should think in terms of decimals of a cubic metre.

For small volumes there is a suitable unit in the S.I. system. This is a cube with sides of 100 mm which should, by now, be easily envisaged. It is in fact the litre, but can also be memorised as one thousandth part or 0.001 of a cubic metre. By building up combinations of this unit, decimals of a cubic metre can be envisaged without difficulty. For example the build up indicated in Figure 10 is 0.100 or one-tenth of a cubic metre. It is a three-dimensional shape a half-metre long, a half-metre high and a four-tenths of a metre wide. The larger volumes of a quarter and a half of a cubic metre are not difficult to assess once the length of a metre is appreciated.

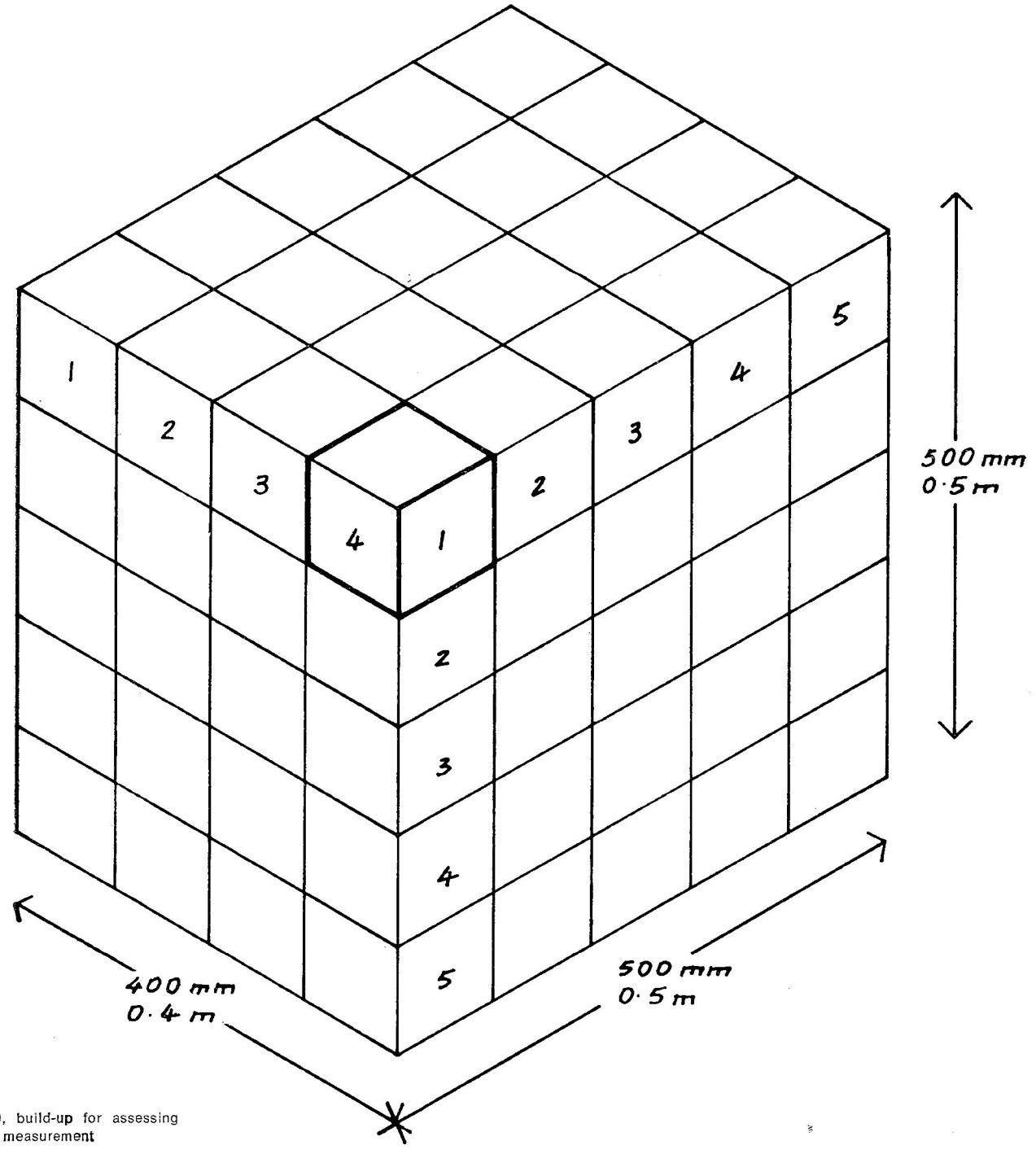

Fig 10, build-up for assessing cubic measurement

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Metric bibliography

A selection of the more important material of interest to the construction industry made by the Ministry of Public Building and Works, the Ministry of Housing and Local Government, the Building Centre Trust, the British Standards Institution, the Royal Institute of British Architects and 'Building'; with notes by Sylvia Locke ARIBA.

This selection includes most of the publications in the Metric Bibliography Parts I and II published in Building Metrication News in July and August 1968, together with additional official and Association publications and a selection of articles. The RIBA library has grouped together for convenient reference one copy of each of the items listed (apart from the periodical articles).

Revisions of standard text books in which British units are converted to metric units, Official series, such as MPBW Advisory Leaflets, and Building Research Station publications since November 1968 are not included. Metric versions of British Standards and new metric Standards, including those listed in this bibliography will be found in the BS Yearbook supplemented by BSI News, which is published monthly and also contains regular reports on the progress of the change to metric and other useful articles.

Current information on developments in metrication is published regularly in the Illustrated Carpenter and Builder, in the BMP Weekly Information of the National Council of Building Material Producers, in the National Builder as 'Metric notes,' and in Building as 'Building Metrication News.' The latter also includes a Metrication Index to other articles on the subject in Building.

Individual references to articles in the regular series have not as a rule been included in the bibliography.

Introduction

1 *Advantages of going metric* by Robert Mellish (Municipal and Public Services Journal 24 May 1968)
Statement by the Minister of Public Buildings and Works on what is being done to solve the problem of the demands of the building industry through greater standardisation and metric dimensional co-ordination.

2 *Going metric in the construction industry: 1 Why and when* MPBW Anthony Williams & Burles (HMSO)
The historical development of the metric system, its growing international acceptance, the basic units of measure, the need to co-ordinate dimensions in the construction industry, and the programme for the change.

History and timetable

3 *Change to the metric system in the United Kingdom* Report by the Standing Joint Committee on Metrication (HMSO)
Gives a summary of progress since 1965 and recommends that a date line for the change should be set for the whole country, that a Board should see that programmes for all industries are co-ordinated and legislation should be passed to enable metric units to be used in all sectors of industry.

4 *Metrication: The first moves* by D. A. Shepherd (Board of Trade Journal 30 December 1966)
From the first proposal by the Confederation of British Industry it describes the steps leading up to the start of the change, the setting up of the Standing Joint Committee on Metrication and refers to some legislative, financial and technical implications.

5 *PD 6245 Going metric: First stages* BSI 1967
The programme for the change is presented in the form of a bar chart with explanatory notes. Typical building products are listed according to their dimensional priority.

6 *PD 6030 Programme for the change to the metric system in the construction industry* BSI 1967
Describes the events leading to the decision to change to metric together with some of the problems involved in the change and the general programme to be followed.

7 *PD 6249 Dimensional co-ordination in building. Estimate of timing of BSI work* BSI 1967
A detailed timetable in the form of bar charts for the production by BSI of controlling dimensions, dimensional recommendations for particular components and the metrication of relevant British Standards.

Aids for members of the construction industry

8 *PD 6031 A guide for the use of the metric system in the construction industry (revised)* BSI 1968
Gives some general guidance on the use of units, scales and the conversion of existing values, with illustrations of some basic design data and the change from the comma to the decimal point.

9 *PD 6421 and PD 6422 The change to metric in the construction industry; are you on the critical path . . . a guide to the programming of your changeover* NBA, BSI 1968
A network diagram illustrating the requirements leading to the start of the construction of a building, using dimensionally co-ordinated products and involving all sectors of the construction industry. PD 6422 is the same diagram published to A1 size.

SI units

Of interest to members of the design team

10 *PD 5686 The use of SI units* BSI 1967
An account of the metric system leads to a description of the SI system. The recommended SI units, with their multiples are listed with a few definitions. (A new edition is in preparation.)

11 *BS 3763 The International System (SI)* BSI 1964
The basic units and some derived units are listed with their definitions. A selection of multiples, sub-multiples and supplementary units is also included.

12 *Systeme International d'Unites (SI)* BSI News October 1968
A paper given at a symposium 'Preparing for metrication' of the Production Engineering Research Association of Great Britain in May 1968. A very clear description of SI units, and their coherence is compared with the complexity of traditional systems of units. The principles of their practical application are given with three worked examples.

13 *Thirteenth general conference on weights and measures* by H. Barrell (Nature 16 November 1968)
A report of the Paris conference in October 1967 includes the agreements on new and revised units of measure.

14 *National Conference, the change to the International System (SI) units of energy* Ministry of Technology, SE and E Anglia Regional Office, and PERA
Conference held on 31 October and 1 November. Preprints only were available at the date of this bibliography, but the Conference report will give amended versions of some of the papers to ensure a stricter conformity with the latest standards.

Of interest to designers of heating and hot water installations

15 *Metrication. The international system of metric units* by H. M. Glass (The Gas Council) 1968
Introduces the SI system of units with detailed descriptions of those units relevant to the gas industry with a list of conversion factors, units and symbols.

Of interest to members of the design team concerned with drainage and water installations.

16 *Metric units with reference to water, sewerage and related subjects. Report of working party* MHLG (HMSO) 1965
Lists recommended units and their application in the field of water, sewerage and all related subjects, together with the basic conversion factors and a selection of multiples and sub-multiples.

Conversion tables

Of interest to members of the design team

17 *Changing to the metric system. Conversion factors, symbols and definitions* National Physical Laboratory, Pamela Anderton and P. H. Bigg (HMSO) 1967
Information on SI units and other metric terms are given with metric conversion factors for both commonly used and specialised units.

18 *BS 350 Conversion factors and tables, Part I 1959 Basis of tables. Conversion factors, Part II 1962 Detailed conversion tables. PD 6203 Supplement No. 1 (1967) to BS 350 Part II Additional tables for SI conversions* BSI
Part I is a list of metric conversion factors, amended to include reference to the SI units, and form the basis of the detailed conversion tables that are contained in Part II and PD 6203. These may be used in conjunction with the BSI conversion slide.

19 *A) Metric conversion tables; B) Metric modular conversion tables* RIBA Journal January 1966
A table of metric equivalents for values up to an inch followed by a table of equivalents from 1in. to 21ft. relating the British to the metric module.

20 *Metric conversion factors* Construction Industry Research and Information Association 1968
A small booklet listing conversion factors for SI units and British units given to up to nine decimal places.

21 *Metric system and British equivalents* by John Brook (E. & F. N. Spon Ltd.) 1967
A small pocket book with a series of tables giving equivalents of millimetres from 1 to 1,000, and metres from 1 to 100 in decimals and fractions of an inch. A table also gives fractions of an inch from 1/64in. to 1in. in decimals of an inch and millimetre equivalents.

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22 *Going metric SI* Brixton School of Building
A selection of information from detailed sources to guide the staff and students of the School. Explains the metric and SI systems and units, with conversion factors, lists metric sizes for some common objects, the properties of some materials, equivalent scales and a list of standard abbreviations and A sizes for paper.

Of interest to quantity surveyors and those working out costs

23 *Metric conversion tables* RICS 1968
Lists conversions of currency, weight, and linear, square and cubic dimensions. Detailed tables give the equivalents in decimal currency per linear, square and cubic metre of the traditional shillings and pence per square foot, cubic yard, etc.

Of interest to engineers

24 *Metrigrams* Design Engineering 1968
Twenty-eight graphs for reading off the conversions of units from either system including length, area, volume, pressure and force, with the conversion factors listed for each.

25 *Metrication TN9 (revised)* by A. Gerard Boulton (Water Resources Board) 1967
Sets out the units in most frequent use, their application and the basic conversion factors with selected conversion tables.

Dimensional co-ordination

A number of useful articles will be found in the Modular Quarterly, in particular the 1967 No. 3 Special issue and the 1963 supplement, Modular Primer by E. Corker and A. Diprose

26 *BS 2900 Modular co-ordination in building, Part 1 Glossary* BSI 1957
Contains terms which are used in the dimensional co-ordination of buildings with their descriptions and an alphabetical index. This standard is at present being revised. A draft for comment was included in 'Building Metrication News,' 26 July 1968.

27 *BS 3626 Recommendations for a system of tolerances and fits for buildings* BSI 1963
Describes, with diagrams, a system of stating tolerances and the location and dimensioning of building components by relation to grid lines and planes. This standard is at present being revised. A draft for comment was included in 'Building Metrication News,' 27 December 1968.

28 *BS 4011 Recommendations for the co-ordination of dimensions in building. Basic sizes for building components and assemblies* BSI 1966
Recommends a series of basic sizes in descending order of preference based on the 100 mm module.

29 *BS 4176 Specification for floor to floor heights. Metric units* BSI 1967
A range of dimensions for all but single-storey buildings and excluding top storeys.

30 *BS 4330 Recommendations for the co-ordination of dimensions in building. Controlling dimensions. Metric units. PD 6246 Steps to basic spaces for building components* BSI 1968
A framework for controlling dimensions for use in the design of buildings. Tables of dimensions cover floor to floor and floor to ceiling heights, changes in level, zones for floors, roofs, load-bearing walls and columns and the spacing of such walls and columns. Advice is given on the selection of dimensions for window sill and window head heights and a door set height.

31 *Dimensional co-ordination for building. DC4 Recommended vertical dimensions for educational, health, housing, office and single-storey general purpose industrial buildings* MPBW (HMSO) 1967
Recommended dimensions for floor to floor and floor to ceiling heights, the zones controlling the thickness of floors and roofs, and changes in level within and between buildings.

32 *Dimensional co-ordination for building. DC5 Recommended horizontal dimensions for educational, health, housing, office and single-storey general purpose industrial buildings* MPBW (HMSO) 1967
Recommended dimensions for the spacing of load-bearing walls and columns and the zone controlling the size and thickness of columns and walls.

33 *Dimensional co-ordination for building. DC6 Guidance on the application of recommended vertical and horizontal dimensions for educational, health, housing, office and single-storey general purpose industrial buildings* MPBW (HMSO) 1968
Advice on selecting dimensions from those recommended in DC4 and DC5, with notes illustrated by diagrams, on methods of using grids and zones for the location of building components and assemblies.

34 *Dimensional co-ordination for building. DC7 Recommended intermediate vertical dimensions for educational, health, housing, and office buildings and guidance on their application* MPBW (HMSO) 1968
Recommended dimensions for window sill and window head heights and a single door head height.

35 *Component development. The way ahead for building technology* by R. Prentice (Building 9 December 1966)
Reports on the work of the ministries on performance standards and user requirements and the setting up of a team to study building component co-ordination.

36 *Component co-ordination and the change to metric. What the official agencies are doing* by Roman Grunberg (The Architects' Journal 15 May 1968)
Argues the case for combining the change to metric with dimensional co-ordination in the construction industry, and outlines the work of the government departments, the British Standards, the British Standards Institution and other official organisations.

37 *The co-ordination of dimensions for building* by Bruce Martin (RIBA 1965)
A history of dimensional co-ordination and a description of the present state of development in the United Kingdom. A clear, simple, illustrated exposition of the principles of modular co-ordination, and methods of applying it to the sizing of components and the design of buildings.

38 *Conference on metric components* MPBW (and report in Building Metrication News 27 October 1967)
A conference held on 13 October by the MPBW with the Inter-departmental Building Development Liaison Committee at the RIBA at which the work on metric component development was reported and the cost of the changeover and the difficulties of the manufacturers were discussed.

39 *Change to metric and dimensional co-ordination* by P. D. Edmondson (Claycraft May 1968)
The problem of metric sizes for bricks and the effect of the change on the brick industry.

Architecture

40 *The AJ Metric Handbook* by Leslie Fairweather and Jan A. Sliwa (The Architectural Press Ltd.) 1968
A great deal of factual information given in metric units and grouped in 22 sections. Three sections cover anthropometric and circulation data, 13 sections cover different building types and the remaining sections include data on structural and services engineering with worked examples of calculations.

41 *Metric summaries of AJ information sheets* The Architects' Journal from 31 July 1968
A series of sheets to be filed with the original information sheets and giving changes to metric units, and references to revised sheets and the AJ Metric Handbook.

42 *The architect and the change to metric* by Anthony Williams and Burles (RIBA Journal March 1968 reprint)
Shows how the change will affect the architect at each stage of the design and construction of a building.

43 *Change to metric—an architect's view* by W. J. Nicholson (Municipal Building Management 1968 issue 2)
A paper given at the annual weekend school of the Institute of Municipal Building Management at Buxton on 5-7 April 1968. This should be read with items 48, 63 and 91.

Building—general

44 *Public Health Act 1961. The Building Regulations 1965. Metric equivalents of dimensions* MHLG (HMSO)
In Part I metric equivalents are given for each value referred to in each regulation and table. In Part II, 16 tables summarise in numerical order the values of the different units used.

45 *The AJ guide to the building regulations* by A. J. Elder (The Architects' Journal 3, 10, 17 and 24 July 1968 reprint)
The guide takes each regulation in turn, including amendments, and gives a working explanation with diagrams and graphs, using the metric equivalent for each dimension, etc.

46 *Building Metrication News* edited by Anthony Williams, Building 1967 and 1968
A consolidation of the BMN which appeared in the fourth issue of 'Building' from September 1967 to August 1968, and will appear bi-monthly in 1969.

47 *The change to metric. A guide to building contractors* NFBTE May 1968
Introduces the change to metric and the BSI programme, with notes on what will be affected, what work has been done and suggestions for the first steps to be taken by contractors.

48 *Going metric from the contractor's point of view* by T. G. Williams (Municipal Building Management 1968, issue 2)
A paper given at the annual weekend school of the Institute of Municipal Building Management at Buxton on 5-7 April 1968. This should be read with items 43, 53 and 91.

49 *The use of metric measure in building* by Bruce Martin (System Building and Design April 1967)
A simple and clear description of the choice and use of metric units in relation to the size of an object and the scale appropriate to it.

50 *Grade stresses for structural timber, Bulletin No. 47 (third edition, Metric units)* Forest Products Research Laboratory, Ministry of Technology (HMSO)
Explains methods of visual and mechanical grading of timber. It includes grading rules, characteristics affecting strength, and tables giving basic and grade stresses for many softwoods and hardwoods, all in metric units.

51 *Inches die by inches* by V. Serry (Timber Trades Journal June 1968)
A history of the development of variety reduction and metric sizes for timber, with BSI's proposals for softwood. The effect on the timber trade of the programme for the change.

(continued on page 115)

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52 *Metrication of timber* by G. B. Crow (RIBA Journal May 1968)
The development of standardisation in timber sizes in the international field and the present position on metric sizes. There is also a reference in 'Building,' 28 June 1968.

53 *Change to metric—viewpoint of the manufacturer* by P. S. Hobbs (Municipal Building Management 1968, issue 2)
A paper given at the annual weekend school of the Institute of Municipal Building Management at Buxton on 5-7 April 1967. This should be read with items 43, 48 and 91.

Building—housing

54 *Housing standards, costs and subsidies. Circular 36/67* MHLG (HMSO) 1967
New mandatory standards for space and heating for housing which came into force on 1 January 1969 are outlined in Appendix 1. The subsidy to be determined by calculations based on costs yardsticks; the methods and tables to be used are set out in Appendix 2.

55 *Metrication of housebuilding, Circular 1/68 (MHLG) and 1/68 (Welsh Office)* MHLG (HMSO) 1968
The BSI programme for the change to metric is outlined and dates are given when the Ministry will expect or require the submission of metric plans, and possibly the specification of components to the new metric standards.
Appendix 1 gives the metric equivalents of the mandatory housing standards set out in circular 36/67.
Appendix 2 gives the method of conversion for density so that metric schemes can be calculated using Appendix 2 of circular 36/67.

56 *Vertical dimensional standards in housing, 31/67 (MHLG) and 27/67 (Welsh Office)* MHLG (HMSO) 1967
States the floor to floor and floor to ceiling heights that will be mandatory for schemes submitted for subsidy after 1 January 1972.

57 *Metrication and dimensional co-ordination in public sector housing, Circular 27/68* Scottish Development Department
Introduces the appendix in which is set out for Scotland the information and recommendations given in the MHLG Circular 1/68, but omitting the two English appendices.

58 *Space in the home. Metric Edition. MHLG Design Bulletin 6* MHLG (HMSO) 1968
A new edition of the original bulletin based on the recommendations of the Parker Morris report. The text and illustrations remain the same but in all cases metric dimensions are given.

59 *Metric house shells. Two storey* NBA April 1968
The booklet argues the advantages of variety reduction in house plans. Using the standard set out in MHLG circular 1/68, a diagram illustrates all possible rectangles for 4-, 5- and 6-person, two-storey houses. From this a selection is made of 22 standard shells. Diagrams illustrate 31 different ground floor plans which are possible within the seven 7-person house shells.

60 *Metric house shells. Two storey. Technical Appendix* NBA 1968
More details are given for the 22 metric house shells selected, including the suitability of each type for particular requirements, the total range of shells for metric 'Parker Morris' areas using a 300 mm grid and detailed dimensional information for the range.

61 *Co-ordination of components in housing. Metric dimensional framework. MHLG Design Bulletin 16* MHLG (HMSO)
The objects of component co-ordination and the factors affecting a dimensional framework of a building are set down with recommended grids, zones, and vertical dimensions for housing. Methods of using the framework in design are described and illustrated and an appendix analyses the relationship of components and grids and the interchangeability of components.

62 *Metric housing—the transitional period* NBA 1968
Describes in detail how ft.-in. components can be used within a metric framework, including the traditional brick, with illustrations of plans, sections and elevations. See also item 37, 'The co-ordination of dimensions for buildings' by Bruce Martin.

63 *Metrication and house shells* (Official Architecture and Planning November 1968)
Discusses the MHLG Design Bulletin 16 and circular 1/68, reaffirmed in circular 52/68, in which is laid down what local authorities must do; the NBA training courses covering practical problems on site; dimensional co-ordination, and the NBA publications on metric house shells and the use of ft.-in. components.

Building—health buildings

64 *Metrication of health building. Ministry of Health and Social Welfare circular HM(68)25* MHSW (HMSO)
The BSI programme for the change to metric to be followed by the Regional Hospital Boards when considering health buildings. The DC documents (MPBW) are referred to and notes given on new and revised publications in metric now in preparation.

65 *Metrication of Health Building. Scottish Hospital Memorandum 50/68* Scottish Home and Health Department
Gives the same information as the Ministry of Health and Social Welfare circular HM(68)25.

Building—educational buildings

66 *Metrication in the construction industry. Administrative memorandum No. 14/68* Department of Education and Science
Application of the metric change programme to educational building, with appendices on 'Metric analogues for school premises regulations 1959, and 'Building Bulletin No. 7, Fire and design of schools—metric equivalents.'

67 *The Co-ordination of components for educational building, DES Building Bulletin 42* DES (HMSO)
Building Bulletin 42 follows from Building Bulletin 24, 'Controlling dimensions for educational building.' It divides building components into functional groups and sets out the factors to consider when preparing performance specifications for components, including size and shape. The method of relating a component to its position in a building by means of the use of grids. There are appendices on jointing and fixing, tolerances and a list of recommended metric controlling dimensions in place of the ft.-in. dimensions of Building Bulletin 24.

Engineering—general

68 *PD 6424 Adoption of the metric system in engineering: basic programme and guide* BS 1968
The programme for the change to metric by the engineering industry with background information on SI units, legislation, etc. and some recommendations on retraining, problems of stocking, etc. and an outline network analysis for the introduction of a metric product.

69 *Change to the metric system. Programme for equipment required by members of EEUA (1967)* Engineering Equipment Users' Association 1967
A programme for basic engineering equipment is set out as a bar chart with notes, based on the BSI programme and including equipment used in the construction industry.

70 *Metrication. 'Plans and progress to date* by G. Weston (Chartered Mechanical Engineer May 1968) and *Metric programme for the engineering industry* BSI News August 1968
An introduction and summary of PD 6424, 'Adoption of the metric system in engineering; basic programme and guide.'

Engineering—civil

71 *Metrication* by F. Wally (Proceedings of the Institution of Civil Engineers May 1968)
Reproduces the BSI programme for the change with a useful table of SI units, their symbols and conversion factors. Brief notes advise on surveying and discuss the use of the Newton.

72 *The Municipal Engineer's interest in the change to the metric system in the construction industry* Journal of the Institution of Municipal Engineers September 1968
Takes the BSI programme and gives the present position item by item, and the work being done on codes of practice on accuracy and jointing. Refers to the programme for civil engineering work, metric notation, the use of SI units and the metrication of regulations.

73 *Change to the metric system* by D. S. Moncrieff (Journal of the British Granite and Whinstone Federation Autumn 1967, reprint)
Refers to the programme for the change to metric, the importance of using metric sizes rather than metric equivalents, and explains the chance this gives of the rationalisation of grading in the UK and of sizing of test sieves at international level.

74 *Metrication of force, stress and loading in structural engineering* The Structural Engineer May 1968
Discusses the choice of units to be used and gives the arguments for SI units, in particular the Newton, with an example of a calculation for a simply supported concrete beam using SI units. The equivalent calculations in approximate British units is set alongside, step by step, for ease of comparison.
Corrections to this article will be found in the June edition of the Structural Engineer.

75 *Steel reinforcement for concrete—change to metric sizes* by N. P. Roberts (Proceedings of the Institution of Civil Engineers August 1968, also BSI News September 1968)
Gives the timetable for the changeover in the manufacture of metric sized reinforcing bars with tables giving millimeter bar sizes with the metric area and weight, and inch bar sizes with metric areas, each with the nearest substitute metric and imperial sizes.

76 *Metrication—highway design. Technical Memorandum T8/68* Ministry of Transport
This memorandum on design standards for roads gives tables, clauses, and sections using metric units to supersede those in the MoT manuals 'Roads in urban areas' and 'Layout of roads in rural areas,' together with information on features common to both types of road, and some advice on drawing sizes and scales.

Engineering—electrical

77 *An introduction to the metric system* Central Electricity Generating Board December 1967
A description of the SI units with an outline programme for new CEGB projects with some additional details for operating staff and those designing and constructing new power stations.

78 *Metrication; plans and progress* Electrical Times 18 May 1967
Reports on the BSI programme for the changeover, the action of the CEGB, and stresses the

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importance of the manufacture of standard metric sized material and fasteners.

79 *Benefits and implementation of metrication* by A. J. Gilbert (Electrical Review 16 February) and *Change to metric in the electrical industry* by A. J. Gilbert (Electronics and Power June 1968)
That the application of BS 2045 Basic series of preferred numbers leads to greater efficiency is demonstrated with an example of an electrical machine. The problems to be solved by management, standards organisation, designer, manufacturer and sales department are considered in turn.

80 *The IES Code. Recommendations for lighting building interiors* The Illuminating Engineering Society March 1968
A guide to the principles of designing a well lit building cross referenced to recommendations on methods of implementing them, with supporting tables and schedules.

81 *Evaluation of discomfort glare. The IES glare index system for artificial lighting installations. IES Technical Report No. 10* The Illuminating Engineering Society
The glare index for an installation can be calculated by following the method given with the necessary tables and graphs, for the calculation procedure, which is explained in detail.

82 *Going metric in the face of difficulties* Electrical Review 6 December 1968
Report of a two-day symposium on metrication in the electrical industry.

83 *From feet to metres* by J. G. Holmes (Light and lighting April 1968)
A commentary on the revised IES code in metric units with a further detailed exposition of the new luminance units, including the lux.

Engineering—mechanical

84 *BS Handbook No. 18: Metric standards for engineering* BSI 1966
Starting with the basic information on SI units the handbook contains summaries or extracts of 83 British Standards, ISO Standards or ISO draft proposals, and 55 standards adopted by some European countries, together with a further list of 55 ISO recommendations or draft recommendations of interest to particular sections of the engineering industry.

85 *BS 2856 Precise conversions of inch and metric sizes on engineering drawings* BSI 1957
Gives the basis and rules for the conversion of inch and millimetre sizes which will provide the degree of accuracy required for precise dimensional interchangeability.

86 *BS 4318 Recommendations for preferred metric basic sizes for engineering* BSI 1968
A list of preferred metric basic sizes for the mechanical engineering industry from 1 mm to 300 mm and guidance on the choice of sizes larger than 300 mm.

87 *Change to metric. Reference manual* The Institution of Heating and Ventilation Engineers 1968
General notes include exact definitions of some basic SI units, and are followed by recommended metric units with the relevant conversion factors tables in detail on the facing page. Other useful tables include airflow velocities, and consumption and storage capacities for water. Appendices give worked examples including calculations for heat transmission

Surveying—general

88 *Metric guide* RICS March 1968
Describes the programme for the change to metric, the metric units to be used, some conversion factors and with fully detailed examples argues the merits of alternative methods of notation.

Surveying—quantity surveying

89 *Standard method of measurement of building works. Fifth edition metric* RICS and NFBTE July 1968
An edition of the SMM which, almost identical in other respects with the 'imperial' fifth edition, gives all units in rounded metric sizes and indicates which units of measure are to be used.

90 *Code for the measurement of building work in small dwellings. Second edition metric* RICS and NFBTE July 1968
An edition of the code which indicates which metric units of measure are to be used and gives in metric units the very few dimensions referred to.

91 *Change to metric and the quantity surveyor* by N. B. Harries (Municipal Building Management 1968, issue 2)
A paper given at the annual weekend school of the Institute of Municipal Building Management at Buxton on 5-7 April 1967. This should be read with items 43, 48 and 53.

Town planning, parks, etc.

92 *Metrication for planners* by M. Clark (Journal of the Town Planning Institute September/October 1968)
Discusses the programme for the change, SI units, decimal currency, techniques of thinking and measuring in the new units, the effect of the change on instruments and their use, and the Ordnance Survey's proposals.

93 *Going metric, some effects on the work of playing field officers* by I. Newton (Parks and Sports Grounds July and September 1968)
Compares British with SI and other metric units, illustrates a standard soccer pitch with British and internationally approved metric equivalent dimensions, and refers to the programmes for the change of the different sports associations and clubs.

94 *Notes on the metrication of running tracks* National Playing Fields Association
The present position in the changeover is summarised, with the recommendations of the Amateur Athletic Association for metric track sizes and advice on metric markings and ways of altering existing tracks.

Training and education

95 *Re-training aids* Construction Industry Training Board
MT1 Metriconstruction. B1 The use of metric units in construction. C1 Metric in the office.
Recommendations with exercises in decimal calculations arranged for clerical, technical and supervisory staff.

MSC Metric Summary Card
A small booklet giving information on SI units and symbols, other metric units and symbols, decimal notation, scales and approximate conversions.

BT2 Scales on drawings
Exercises in using metric scales and dimensions.

T5 Taking off in metric
An A5, 63-page book with two drawings giving an exercise based on the SMM.

T3 Metric design for heating and ventilation services
An A4, 74 page book giving instruction in the use of SI units for calculations.

T4 Metric design for electrical services
An A4, 50 page book giving instruction in the use of SI units for calculations.

B3 Fitters' and Plumbers' Reference Card
A small plastic covered card giving metric units for length, area, volume, mass, heat and pressure, with notes on scales and methods of expression

SS1 Metric in Construction, Supervisors' course, Script complete or SS2 Metric in Construction, Supervisors' course, Syllabus complete
A fully scripted course designed for use where no trainer is employed, and a syllabus designed for use by an experienced trainer.

GRA Guide to all metrication Re-training aids
A diagram relating the reference cards and exercises to the courses with a list of the aids with prices.

LTG Metrication learning texts. Administration Guide
A table to determine which aids are suitable for those to be retained.

MCT Metric Conversion Tables
A small 6 page booklet on stiff plastic-covered card.

96 *Education and training in the construction industry for the change to the metric system, a survey* MPBW (Building 22 March 1968)
A survey of what action has been taken by government departments, education and training organisations, professional and other institutions and trade organisations to prepare programmes and provide training in the use of metric units for operative, technical and management staff.

97 *Metrication in schools* The Royal Society
A report of a conference on 20 March 1968 with papers and discussion on SI units, and their educational advantages, the situation in industry, colleges and departments of education. The problem of the introduction of the metric system in primary schools, the production of text books, and the attitudes of examination boards was also covered.

Metrication overseas

98 *Moves to metric in other countries—Australia favours the change* BSI News September 1968
A summary of the report of the Australian Senate Select Committee on the metric system of weights and measures, issued as a Parliamentary Paper No. 19 (of the Parliament of the Commonwealth of Australia).

99 *Moves to metric in other countries—US metric advisory committee* BSI News November 1968
A summary of the programme for action of the USA Standards Institute's Metric Advisory Committee.

100 *Some observations on metric practice. Current Papers Design Series 44* by H. W. Harrison (Building Research Station) 1966
Reviews the practice of other countries in the use of the metric system, and discovers no significant trend. Possible metric storey heights for dwellings are considered with reasons for reaching a decision in the UK. An appendix summarises European practice and standard storey heights for each country.

101 *Metric component development. International organisations involved* by G. Atkinson (Building 21 July 1967)
Organisations concerned with dimensional co-ordination, standardisation and agréments are listed with their addresses and a short note on what they each do.

102 *The Metric System* by R. F. Legget. Canadian Building Digest No. 100 (National Research Council, Division of Building Research, Ottawa)

(concluded on page 119)

A reference to the effect that Britain's change to the metric system will have in Canada introduces a history of the development of the metric system and a description of SI units.

103 *Going metric* by H. W. Robertson (New Zealand Engineering 15 August 1968)
Describes the change to the metric system in Britain and considers whether New Zealand should make the change.

104 *Japan goes metric. Science Abroad. Japan 61* by C. R. S. Manders (International Scientific Relations Division, DES
A summary of traditional Japanese units, the use of these together with both British and metric units. The progress of the change to the metric system which started in 1912 and the problems of the building industry where standard dimensions are based on the traditional units.

Decimal currency

105 *Decimal currency in the UK* The Treasury (HMSO) 1966
A statement of the decision to adopt decimal currency in February 1971. The background to the decision and the benefits to be expected from it. The £ to be retained and divided into 100 new pence with the arguments given for the choice. A description of the coinage proposed, and the programme for the change during the intervening years.

106 *Decimal Currency Act 1967* (HMSO)
The new currency to be the pound sterling and the new penny. A decimal currency board to be set up to facilitate the transition to the new currency.

107 *Decimal currency. Expression of amounts in printing, writing and speech* Decimal Currency Board (HMSO) 1968
A small pamphlet describing the new pound and the new penny, the symbols and abbreviations and the methods of expression to be used.

108 *Britain's new coins* Decimal Currency Board
A history of £sd coins and detailed descriptions of the new coins with photographs.

109 *Fact and forecasts* Decimal Currency Board (HMSO)
Summarises the relationship between the old and new coins and gives the dates of the coinage changes. With some conversion tables there are notes on what the banks will do, the task of the Decimal Currency Board and what each organisation should do.

Printing and paper sizes

110 *ISO paper sizes in the public service* Board of Trade Journal 27 October 1967
Refers to the government decision to use ISO sizes for stationery and forms, with illustrations of A and B sizes and envelopes. Discusses the size of the organisational problem and the anticipated savings.

111 *Paper revolution* by C. W. Berry (O. & M. Bulletin February 1968)
Discusses ISO sizes in detail, the reasons for their adoption, the effect on government departments and gives the Post Office's preferred sizes for envelopes.

112 *Form design guide sheet* HMSO
Sets out to full size on one sheet the line spacing and type face divisions on all sides of an A4, A5 and foolscap sheet.

113 *Going metric with the printing industry* British Federation of Master Printers
Introduces the metric units to be used with a conversion table for the new range of substances for paper and board and the A, B and C ranges of sizes in the ISO series. Advice is given on the effect of the change on printing machinery and equipment, and typographic measurement. A list of aids includes the BFMP metric conversion calculator, and reference cards for the R 20 series and ISO sizes.

114 *BS 4000 Specification for sizes of paper and boards* BSI 1968
This specification is for sizes of paper and board for administrative, commercial and technical uses. It gives the trimmed sizes in the ISO A series; the B series is in an appendix; the untrimmed sizes and details of packaging and labelling. In the appendices are tables of the traditional British sizes and the ISO, R58 range of substances for paper based on the R 20 series of preferred numbers.

Publications

Revised guide to metric system

Essential guidance for the metric change was published by BSI in 1967 in PD 6031, at the same time as the issue of the metric programme. Since then, the building industry has become more closely involved, and in order to ensure consistency in presentation of metric drawings and literature and in selection of units the Second Edition of PD 6031, Use of the metric system in the construction industry, has now been published.

This new edition includes, in addition to basic information, guidance on metric notation, the use of unit symbols, the choice of multiples and sub-multiples of SI units, linear measurements on drawings, and preferred scales. It also clarifies certain aspects of SI, such as the use of units which are not strictly SI, or are given special names, for example, tonne, litre and hectare. The first edition's section on basic design data has been omitted as it is considered that this has served its purpose of familiarising users with metric values. In any case, detailed design information is now becoming available from more authoritative sources.

In view of the Decimal Currency Board's decision to retain the point for the decimal marker, BSI has considered it necessary to retract its recommendation for the comma and it is only in this respect that the first edition is no longer valid.

A vital addition to the publication is an appendix containing tables of units to be adopted in general building and civil engineering, and in the following specific applications: structures, heating, ventilating and mechanical services, electrical supply and lighting, water supply, sewage and sewerage treatment, roads and highways, and soil mechanics and foundations.

The tables list existing units, SI units (and selected decimal multiples and sub-multiples), SI unit symbols, and conversion factors for each specific quantity.

At the present time, BS 1192, Building drawing practice, is under revision, and when that revision is published it will give more detailed information on metric drawing practice and the use of preferred scales.

Copies of 6031 2nd Edition may be obtained from the BSI Sales Office at 101-113 Pentonville-road, London, N1. Price 8s. each (postage 9d. extra to non-subscribers).

Going metric—2

As the second publication in the 'Going Metric' series, the MPBW has produced an authoritative guide to the principles and application of dimensional co-ordination. The bulletin explains the concept of dimensional co-ordination and the dimensional controls required in the design of buildings and the sizing of components. It examines methods of locating components within the spaces allocated to them in buildings, and the factors to be considered in sizing and assembling components.

'Going Metric in the construction industry—2. Dimensional Co-ordination' is available from HMSO, price 7s. 6d. It has been prepared in association with Anthony Williams, under an editorial panel consisting of M. Clarke (BSI), J. S. Colomb (Crittall Manufacturing Co. Ltd.), J. M. Gilham (Gilbert-Ash Ltd.), and M. F. Chaplin (MPBW).

Copper tubes and fittings

To keep in step with the metric programme, Yorkshire Imperial Metals Ltd. have published the first of their metrication bulletins which are to be issued periodically to provide up-to-date information on their tubes and fittings.

The first edition gives a general introduction to the metric system and includes the table of equivalent sizes for BS659, 1967. It then goes on to explain how the sizes will be designated in order to avoid confusion during the changeover. It also contains notes on fittings, a section on working pressures and temperatures, concluding with a table of metric equivalents to the present pressure and temperature ratings for fittings to BS864. Included also are two pages of useful conversion tables and a reproduction of part of the BSI publication PD 6031.

Copies of this bulletin may be obtained from Yorkshire Imperial Metals Ltd., PO Box 166, Leeds.

METRICATION INDEX

An index of references to metrication published in 'Building' since the December Building Metrication News appeared but excluding the 10 January issue of BMN.

Appointment of Lord Ritchie Calder as chairman of the Metrication Board (27 December, p. 17).

Proposals by the Brick Development Association for a metric sized brick of 225 x 112.5 x 75 mm have been forwarded to BSI following an examination of brick sizes in conjunction with the National Building Agency (3 January, p. 36).

Letter concerning the metric brick. A length of 225 mm is deprecated (3 January, p. 57).

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News from the industry

Ordnance survey

Adoption of the metric system is referred to in the 1967-68 annual report of the Ordnance Survey. The previous year's report referred to consultations that were taking place between the Ordnance Survey and the users of its maps about its proposals for introducing metric units and decimal scales. The essence of these proposals was that the metric system should be adopted for all future production of maps at the scale of 1 : 25 000 and larger, and that lists of bench marks should in future give heights in metres instead of feet. The proposals have been generally accepted by the authorities consulted, who have however made some valuable comments and suggestions. As a result there have been a number of modifications. Two of these are of considerable significance: first it is now proposed to adopt the 1 : 10 000 scale in place of the 6-inch (1:10 650) concurrently with the adoption of metric contours; second, it is proposed to show areas of parcels of land in both hectares and acres on the 1 : 2 500 map. The inquiries showed clearly that there was a strong desire on the part of users for an immediate change from the 6-inch to a fully decimal scale; and it was also clear that the agricultural community was not yet ready for the elimination of the acre. The modified proposals will now be submitted to Ministers.

Two more metric posters

The Construction Industry Training Board has produced two further posters in a series designed to help the construction industry in the changeover to the metric system. Instructional poster No. 2, 'The Foot,' whilst less provocative than the CITB's first poster, 'Miss Metric,' continues the Think Metric theme. Under the photograph of a human foot is the inscription—'This is not a foot it's 300 mm.'

'Stamp' is the name given to poster No. 3 which shows a letter with five penny postage stamps on it. Each stamp is 20 mm wide from perforation to perforation making a total of 100 mm. Wording on this poster is 'Stamp 100 mm on your mind.'

Both posters are 594 mm by 841 mm, international A1 size. They may be purchased for 1s. 3d. each from CITB, Radnor House, Norbury, London, SW16.

Supplement to GLC preambles

With the change to metric under way, the GLC has produced a Metric Supplement for all users of the Preambles for Bills of Quantities. This provides a metric equivalent for each imperial dimension contained in the Preambles. Bearing in mind the factors influencing the phasing of the change to metric by the construction industry, the figures in the supplement have each been calculated under one of four main categories of measurement as influenced by design, statutory requirements, materials associated with British Standards and other manufactured products.

In anticipation of eventual computer use, upper case type face has been used and a space left between figures and the unit of measurement.

The Supplement is available, free of charge, by written or personal application to the Information Centre, County Hall, London, SE1, to all existing or intending purchasers of the GLC/ILEA. 'Preambles for Bills of Quantities' costs £5 5s. per volume, plus postage.

NFBTE area committee

The NFBTE has set up an Area Metrication Committee to cover the counties of Devon and Cornwall. The committee was formed at the instigation of members of the Federation's south western region, and consists of builders from that organisation and representatives of the RIBA, RICS and the National Federation of Builders and Plumbers' Merchants.

The committee has held its inaugural meeting, and considered broad guide lines for effecting a smooth change over to metric.

Schools and metric

At a meeting of the Gloucestershire and South Worcestershire Productivity Association, Mr. B. S. Scott said he thought that the full benefit of the change would not be felt until the primary schools were teaching metric from the word 'go.' In 1969, examinations for the building industry will be in both imperial and metric but in 1970 they will be wholly in metric. He said that by and large builders are not sending apprentices for training and this is something they should start doing immediately.

With regard to courses, Mr. Scott drew attention to a course which the Building Group of the Gloucestershire and South Worcestershire Productivity Association has arranged on 'Measurement of Building Work in Metric,' which starts on 28 January.

Accommodation for old people

Two Design Bulletins concerned with accommodation for old people, published by the MHLG in 1962, have been re-issued in metric terms.

The first (Design Bulletin No. 1—'Some Aspects of Designing for Old People'—HMSO, 3s. each) was based on studies made by the Ministry's Research and Development Group while designing a block of old people's flatlets for Stevenage Development Corporation. It contained advice on the interior design and equipment of accommodation for old people in general. The second (Design Bulletin No. 2—'Grouped Flatlets for Old People—A Sociological Study'—HMSO, 7s. 6d.) collected, from the first six local authority schemes built in England and Wales information on how old people used the facilities provided and what they thought of them.

In addition to re-expressing all dimensions in metric equivalent, Design Bulletin No. 1 brings certain anthropometric data up to date in the light of more recent research.

The National Building Agency has recently published a guide to the use of existing imperial components within the metric dimensional framework—entitled 'Metric Housing—The Transitional Period.'

The British Standards Institution also intends to publish early in 1969 a new British Standard 'Dimensional Recommendations in Designing for the Elderly.

COMING EVENTS

Wednesday, 12 February

Change to metric in the construction industry: The first of a course of seven evening meetings to be held on consecutive Wednesdays until 26 March, at Taunton Technical College, at which lecturers from the BSI and Building Centre pool of speakers will deal with the implications of the Change for architects, engineers, quantity surveyors, manufacturers and builders. Each meeting will comprise a lecture followed by questions and open discussion. The course fee is 3 guineas.

Applications should be sent to D. R. Rimmer, Department of Building and Surveying, Taunton Technical College, Wellington-road, Taunton, Somerset.

Friday, 18 April

Metric system in the construction industry: A one day symposium organised by the Manchester & District Branch of the Incorporated Association of Architects and Surveyors at the University of Manchester. This is a follow up to the Symposium held in April last year, and the papers will cover the more detailed application of the metric system as far as it will be known.

Full details will be announced later but anyone requiring advance information should contact: A. E. Brownbill, 90 Mottram Old-road, Stalybridge, Cheshire. SK15 2TE.

The following lectures on the change to Metric have been arranged by MPBW's Directorate of Research and Information.

Tuesday, 4 February

Hinckley. Speaker: A. M. Harrison (L. C. Wakeman & Partners) at the College of Further Education, London-road, 7.15.

Tuesday, 11 February

Oban. Speaker: Ronald F. Jamieson (J. McCock & Son Ltd.) Convener Metric Committee, Scottish UFBTE at Dunolly Halls, 7.30.

Cinderford. Speaker: K. M. Brear of Building Centre Trust and BSI Pool of Speakers, at the White Hart Hotel, St. Whites-road, 7.15. (In association with West Gloucestershire College of Further Education).

Witney. Speaker: J. A. Sliwa, assistant regional architect of Oxford Regional Hospital Board, at West Oxfordshire Technical College, Holloway-road, 7.15.

Wednesday, 12 February

Welshpool. Speaker: G. J. Partridge, of Liverpool College of Building, at the Council Chamber, Town Hall, 7.30.

Tuesday, 18 February

Newton St. Boswells, Scotland. Speakers: P. Shaw (Muirhead Muir & Webster) and M. F. Brake, of Scottish Development Department, at St. Boswells Public Hall, 7.30.

Wednesday, 19 February

Cardiff. Speaker: A. M. Harrison of L. C. Wakeman & Partners (quantity surveyors), Birmingham, at the Reardon Smith Lecture Theatre, Cathays Park, 7.30.