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 can be freely discussed. It is published in association with the Modular Society.

CLOTHING THE SKELETON

In a few days time we shall be entering the third year of the seven-year programme for the change to metric. The programme published by BSI in 1966 serves us well but the time has come to expand it. BSI has provided the skeleton but it is up to the whole industry, the professions and building ministries included, to clothe it. To be able to do so requires effort and it requires facts. In BSI itself this work of clothing the skeleton goes on; already one expanded programme has been published (PD 6249, 'BMN' 27 Oct. 1967) and committee B/94/4 continues to develop not only the programme but also the organisation and method of work needed to establish recommendations for component sizes. Preliminary exercises have been undertaken by teams from BSI, Ministry of Public Building and Works, and the Component Co-ordination Group to test the method of working on partitions, windows and columns. By the time this issue of 'BMN' is published the first mass meeting of the newly constituted Functional Group Panels will have been held.

But what of the rest of us? The determination of co-ordinated sizes is the key to the change but supply and demand will determine its success. In an interview with 'BMN' last month P. A. Denison referred to the chicken and egg problem—how can designers specify metric before the components are available? How can manufacturers make to metric dimensions before there is an apparent demand? If Government, the professions, the manufacturers and contractors can get together to determine sizes, can they not get together to forecast demand?

Over the last few weeks the Government has been making its policy abundantly clear at conferences at the RIBA, Modular Society and Building Exhibition. And it is a policy for building with co-ordinated metric components. They stop short at the daunting task of publishing a programme of change showing where the demand for metric components will lie. But if Government stops short of publishing its programme manufacturing industry certainly seems shy of making known the different timescale required for changing the many manufacturing processes and the order of cost involved. The Government needs this information to plan ahead realistically as much as manufacturing industry needs to know the Government's programme. However, although Government sponsors over 50 per cent of building this still leaves the rest unaccounted for. It is very much more difficult to plan for the private sector, but at a recent meeting at the RIBA Alex Gordon, chairman of the Professional Services Board, quoted RIBA statistics to show that architects were responsible in one way or another for 80 per cent of building design. If this figure is correct the RIBA would appear to have a considerable responsibility for advising architects when to go metric, for on this advice will depend the demand placed on the industry. BSI's programme shows a period of change for architects from 1969 to 1971. But this is a case where the skeleton needs to be clothed and more factual information is required. The RIBA is at present besieged by the Prices and Incomes Board, but it is to be hoped that in preparing evidence for the board it has not lost sight of the part that it needs to play in metrication. It too has a major contribution to make in forecasting demand; it has the right to advise members and through its survey of new work could forewarn industry of the value of projects being designed in metric measurement.

MEASUREMENT DILEMMA

We are grateful to George Atkinson of BRS for pointing out in this month's correspondence the continuing dilemma of how to express metric measurements. We have found some difficulty ourselves in that we mainly publish other people's reports and to change their methods of expression might detract from their own arguments. A firm recommendation has yet to be made but in the meantime the recommendation given in BSI's Guide for the use of the metric system in the construction industry is that the comma as used at present to indicate thousands should be replaced by a space and the comma used to indicate the decimal marker. It is also suggested that the kilometre, metre and millimetre only should be used as units of linear measure.

The Metric Change

4. THE NATIONAL BUILDING AGENCY

Although the National Building Agency is an independent organisation, much of its work on metrication is closely integrated with that of Government Departments. The following account of the NBA's activities therefore takes its place as the fourth in our series on the way Government bodies are organising for the changeover.

The size of the housing programme involving approximately £1,000m. expenditure per year ensures that the effective change to metric of the housing sector is of vital importance to the whole building industry. It has been agreed with the Ministry of Housing and Local Government that the special expertise of the National Building Agency will be associated with those activities the Ministry itself is undertaking to ensure that the change to metric proceeds smoothly and that it results in the development and much more widespread use of standard components and assists the general industrialisation of house building. Currently the agency is preparing for the British Standards Institute a study to determine the critical activities involved in the changeover to metric and its effect on the whole industry, including the Government Departments, trade associations and users participating in the work. This study involves preparing networks of activities and the time durations involved. It will assist the BSI to co-ordinate the work of Ministries, trade interests and the professions involved, to highlight bottlenecks, so that concentrated efforts can be mounted to ensure that the programme for the changeover is maintained on schedule.

In regard to public authority housing the NBA will carry out four major rôles:

1) Component development. The NBA will assist the Ministry of Housing and Local Government in the development of standards and dimensional guidance for certain components.

2) Site assessment of metric components. It will report on and assess the experience of metric schemes as they are undertaken throughout the country and to feedback the information gained from pilot studies to the whole building industry.

3) Training for metric. From the spring of 1968 onwards the NBA will be arranging a training programme aimed specifically at designers engaged in housing. The first of these seminars will be for group leaders and architects involved in drawing board work on local authority and new town housing. The seminars will be concerned with the metric design disciplines, the use of components, and designing for productivity.

4) Clearing house of information. The NBA will also operate a clearing house of information for the benefit of contractors, manufacturers, clients and the professions on the progress and effective use of metrication in housing, including components that are on offer from industry. A design bulletin is in preparation on the problems and alternative solutions possible during the changeover period until metric components become fully available.

LETTERS

Consistency in Measurement

Sir,—Let us start right.

'BMN' ('Building,' 24 Nov. 1967) includes 1700mm (Vogue advertisement); 2,700mm etc. (Draft BS for D.C.); 2·70 metres etc. (Country Landowners' Association comments); 21.5cm etc. (BDA Statement); 2.25dm etc. but also 112.5mm (Modular Society reply); 2·25M and 2½M (Metric Instruments List).

BRS is adopting for its publications the rules given in the BSI Guide PD 6031 which require 1 700mm etc. I quote below the four relevant paragraphs. 2.3. Presentation of values. Although clear rulings on the subject of presentation of numerical values were set out as long ago as 1953 in BS 1957, 'The presentation of numerical values,' at no time has it been more important that they be observed than now, a time when the industry is to adopt a new system of weights and measures.

2.3.1. Decimal point. The second most important feature of the metric system after that of coherence is that of the decimal principles which run throughout. Where the use of multiples and sub-multiples cannot obviate fractional expressions, the same rules that apply to full number annotation apply to fractional notation, namely the decimal fraction.

In order to show decimal fractions, a decimal marker has to be used. Whilst this marker has conventionally been represented in the UK as a full-stop either on the line or slightly raised, in the interests of European conformity the comma is adopted in this guide, concerned as it is with construction industry usage, as the decimal marker.

2.3.2. Layout. The use of the comma to indicate the decimal marker clearly means that its use conventionally to separate groups of three digits thus:

1,201,928·021,47

would have to cease and the provisions of BS 1957 should be fully enforced, namely separation of groups of three digits by means of a gap thus:

1 201 928,021 47

2.3.3. Symbols. All symbols for unit expressions should be as listed in Tables 1 to 6, or their combinations. The same symbols are used for both singular and plural expressions and they do not have full-stops as do abbreviations.

If it is inconvenient to use symbols, as in some computer applications, then abbreviations or full expressions can be used. However, only the symbol will be readily understood internationally.

Incidentally, this follows the practice of German technical publications even in the 1930s.

G. A. ATKINSON,
Head, Design Division, BRS.

*** Mr. Atkinson is also a member of the BSI Metric Panel for the Construction Industry. Editorial comment, page 47.—Ed.

The 4 ft. Sheet

Sir,—The letter in your issue of 27 October entitled 'Controlling Dimensions' underlines a view commonly held by those not concerned with industrial production.

The nearest equivalent to 4 ft. is 1,200 m., which would mean a reduction in width of the sheet. Since a plant of a given capital cost normally runs at a given speed, any reduction in width 'by the moving of stops inwards' would simply reduce the output of the machine and hence raise the cost of the production. If this is to be avoided, then the machine has to be made wider and the sheet split into two parts. In one case, the cost of production for a given capital investment rises, and in the other case the capital investment for production rises.

This is a very simple approach to the problem naturally, but it is worth considering one aspect of the changeover in this light.

J. A. de NORMAN,
Building Development Group, ICI,
Rosanne House, Welwyn Garden City

Draft BS 'Scoop'

Sir,—Your 'BMN' is rapidly acquiring the status of 'our bible.' The 'scoop' of BSI's 67/27 945 ('BMN,' 24 Nov. 1967) will not, I would hope, be a single example. The response it receives at 'Building' and at BSI from the wide readership of the publication should be interesting to note. I only hope that such of my Federation's membership as are moved to write will also send a copy to our office.

R. F. JAMIESON,
Convener, Metric Committee,
Scottish NFBTE, Glasgow, C3.

NEWS FROM THE INDUSTRY

Australia to Make Change?

If world trends were any guide, Australia would have to switch to the metric system one day, A. F. A. Harper of the Commonwealth Scientific and Industrial Research Organisation National Standards Laboratory told a meeting of the CSIRO Advisory Council in Melbourne last month. Mr. Harper said that a change to the metric system in Australia seemed inevitable and the sooner it was started the simpler it would be.

The Federal Government is expected to consider the change when it receives a report next year from a select committee appointed by the Senate to advise on the practicability of the early adoption of the metric system. Mr. Harper, who is secretary of the National Standards Commission, is technical consultant to the Senate committee.

Metric Doors on Show

A display of metric doors and door sets has been installed by The British Woodwork Manufacturers' Association at The Building Centre, London. These were first introduced earlier this year (see 5 May issue of 'Building') following a study on doors and door sets by Building Design Partnership, who were appointed as independent consultants by BWMA.

The three door sets which are shown in the exhibition are prototypes made by members of BWMA following the proposals in the reports by BDP.

The first is a door height unit, with a type 3 frame (alternative solid section). Frame, door and trim have been pre-finished, and the frame has pre-drilled fixing holes.

The second is a room-height unit for a 2,300 m. (7 ft. 6½ in.) ceiling, with a type 3 frame (two-piece section). The frame and trim have been primed as they would normally be for delivery. The door is veneered and clear-finished.

The third is room height for a 2,350 m. (7 ft. 8½ in.) ceiling with a type 1 frame.

Manchester Meeting

The Manchester & District Branch of the Incorporated Association of Architects and Surveyors is organising a one day symposium on the Metric System in the Construction Industry, at the University of Manchester on Friday, 5 April 1968. In conjunction with this, the Extra Mural Department of the University is sponsoring one, or, if numbers warrant, a series of short talks, on the Metric System as it affects the general public. Full details will be announced later but anybody wishing advance information should contact: A. E. Brownbill, 90 Mottram Old-road, Stalybridge, Cheshire.

Glasgow Display

The unit shown in the photograph below stands in the foyer of the Glasgow College of Building. It reflects some of the work put in by members of the staff who are attempting to keep up to date with the metric programme.

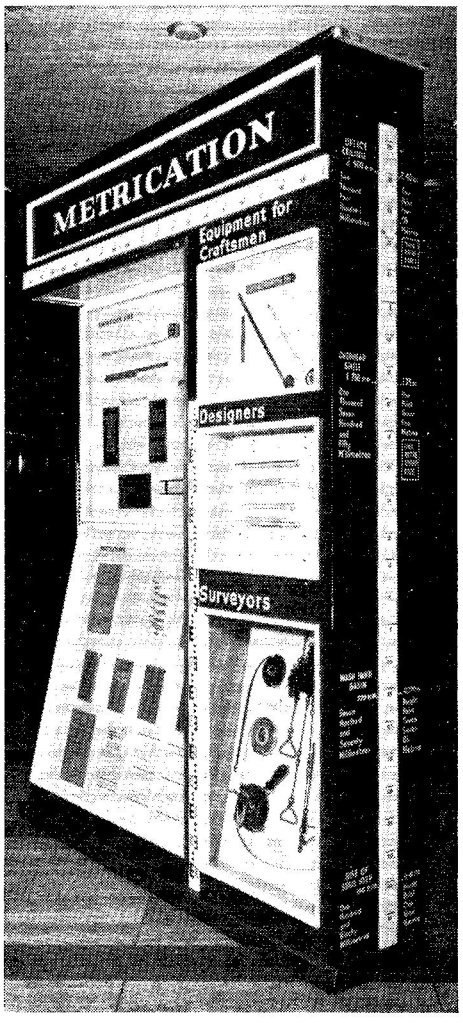
On display, in seven separate sections, are:

1) Rules and tapes; 2) scale rules for designers of metric projects; 3) tapes, chains and levelling staff; 4) conversion aids; 5) current official publications on the change; 6) a vertical metre stick with typical heights; and 7) an outline of typical constructional details and components in metric sizes.

It is intended to maintain the exhibition up to date with information about metric products and official publications on metrication during the period of change, so that it is a ready reference source for students and industry.

The college is open from 8.30 a.m. to 9.30 p.m. Monday to Friday and welcomes visitors to the exhibit at any time during these hours. Any further information from manufacturers and others about new materials which could be incorporated in the display will be welcomed.

Glasgow College of Building's metric display



Building Centre Trust's Lectures

The Building Centre Trust has been busy in the last six months with its lecture programme on the change to the metric system in the construction industry. More than 100 lectures have been arranged, to be held throughout the country, at places as far apart as Inverness and Truro. Some 45 per cent of the lectures are taking place in the Midlands and the South East.

The British Standards Institution assembled the pool of 120 lecturers, and the Building Centre Trust undertakes to provide speakers for anybody in the industry on request. Many of the lecturers are also giving privately arranged talks; there have been over 50 of these. It has been estimated that so far 32 per cent of audiences have been architects, engineers and quantity surveyors, 15 per cent manufacturers of building products and components, and 30 per cent interested local authority staff, technical college staff and students. Contractors account for another 10 per cent.

Modular Forum

A meeting last month of the Modular Society standards committee on fixtures, furniture and equipment discussed a number of aspects concerning the change to metric-modular. One point that came out of the discussion was the opportunity offered to make a thorough review of design, especially of kitchen furniture. Another was that specials were underpriced, because although they cost more in estimating, setting out and cutting, these costs were overlooked and not reflected properly in the price. It was felt that the number of specials could be reduced by having more standard sizes. The new standards should also leave the door open for the production of additional sizes provided that they, too, were modular.

PUBLICATIONS

An important reference document on progress on the preparation of metric standards for industry in general is supplied with the publication by the BSI of PD 6286: Metric standards published and in progress (price 10s. 9d. including postage). It pinpoints the 800 British Standards already published in metric terms, those independent of any system of units and the 500 or so standards now being revised in the BSI's phase 1 programme.

The information in PD 6286 is complete to 31 August 1967. To give industry a continuing information service during the transition to the metric system the BSI Yearbook will be annotated, starting next year, to identify standards which are metric, metric and inch, or independent of units, following the classifications adopted in this PD.

Going Metric in the Construction Industry. 1: Why and when (the first of a series of 12). HMSO, price 3s.

METRIC PRODUCTS

As the programme for metric adoption progresses, more and more products will be made to metric sizes or for ready conversion to metric. We shall be listing these products as they come on the market and, to help us provide as complete a service as possible, we should be glad to learn of any changes to metric made by manufacturers.

Acoustic Ceiling

Danish aluminium acoustic strip and tile ceilings of A/S Ikas Isolering, Copenhagen, are being introduced into this country by Coronet Engineering Ltd. The products are formed from aluminium sheets, perforated and unperforated, and thermo-lacquered in standard white—other colours to order. In strip form, the modules are 100 mm. and 120 mm. with lengths up to 20 ft. and have as standard a black tissue inlay with a 15 mm. mineral wool pad. The acoustic absorption coefficients show an 85 per cent absorption of noise energy at 400 cycles per second (cps). Tile sizes include 45 cm. by 45 cm. and 60 cm. by 30 cm. of which only the latter conforms to BS 4011.

Mould Flooring

Mills 'M' moulds are designed for use in the in situ construction of waffle floors. A characteristic of this type of floor is the light weight and, generally, the absence of projecting beams below the soffit level. It is particularly suitable for use where the supporting columns are laid out on a square or nearly square grid.

The floor is constructed by erecting supports to carry the moulds, which are made of injection-moulded plastic material ensuring dimensional accuracy and strength. The moulds are so shaped that when placed together they form a series of intersecting channels in two directions. Reinforcement is then fixed, and concrete placed. The system of erection has been developed by Mills Scaffold Co. Ltd. The moulds are available in three depths, 200, 300 and 400 mm. and in one plan size designed to produce ribs in two directions at 800 mm. centres. This offers a very economical form of long span floor construction.

A handbook, giving details of the moulds as well as characteristics and design data for these floors, is obtainable from Kaiser Floors Ltd., 53-55 Uxbridge-road, London, W5.

Roof and Floor Components

Five new Metricom components for roofs and floors are designed and developed on a kit of parts approach. The factory built timber/plywood range consists of M1, M2, M3 for tiled pitched roofs, M4 for flat or low pitched roofs and M5 for domestic floors. Designed and developed by Industrialised Structural Systems Ltd., considerable flexibility in each of the various applications is allowed for. This means that the components can be used on traditional or rationalised traditional building, or for system building.

METRICATION MONTH

Building Metrication News will in future carry each month an index of references to metrication published elsewhere in 'Building' during the intervening weeks.

'Large sections of the industry now believe that the BSI programme for the (metric) change is unrealistic, said a paper by W. A. Balmain at a conference on 'Marketing in the building industry' at the International Building Exhibition. **(24 Nov., p. 143).**

It was no use having metric dimensions for components if they differed from those in use on the Continent, said J. A. de Norman at a conference on 'Component development in the future' at the International Building Exhibition; it was a matter for Government Agencies to settle. **(1 Dec., p. 95).**

The private sector of the building industry needed to work together to thrash out the final BSI metrication policy rather than leave it to the Government, said F. S. Drake in a letter to 'Building.' **(1 Dec., p. 102).**

The advent of metrication was going to be the greatest catalyst for change in the industry, said Philip Dunstone speaking about the future rôle of the quantity surveyor at a CITB conference on 'Construction—the challenge of change' at the International Building Exhibition. **(8 Dec., p. 102).**

R. Chichester-Clark, Opposition spokesman on building, called for full standardisation of all building component parts to standard European measurements. **(15 Dec., p. 76).**

Metric Instruments List

We are indebted to the Drawing Office Material Manufacturers and Dealers' Association (DOMMDA), 157 Victoria-street, London SW1, for information used in compiling these details of metric items for the drawing office.

Cloth and Paper	W. H. Bretnall & Co Ltd	Hall Harding Ltd	G. H. Smith & Partners Ltd	Winterbottom Products Ltd	Recorder Charts Ltd
Tracing cloth	—	A0, 1, 2, 3 and 4 also 750 and 1040 mm wide rolls	—	A0, 1, 2, 3, 4, 5 and 6	—
Pencil cloth	—	A0, 1, 2, 3 and 4	—	A0, 1, 2, 3, 4, 5 and 6	—
Five point	—	—	—	A0, 1, 2, 3, 4, 5 and 6	—
Dowse	—	—	—	A0, 1, 2, 3, 4, 5 and 6	—
Detail paper	—	A0, 1, 2, 3 and 4 also 750 and 1040 mm wide rolls	—	—	—
Natural tracing paper	841 mm wide rolls	750 and 1040 mm wide rolls	841 mm wide rolls	—	—
Lacquered tracing paper	—	A0, 1, 2, 3 and 4	—	—	—
Prepared tracing paper	—	750 and 1040 mm wide rolls	—	—	—
Pattern printed sheets	—	A1 and 2	—	—	—
Translucent drawing paper	—	A0, 1, 2, 3 and 4	—	—	—
Mounted drawing paper	—	750 and 1040 mm wide rolls	—	—	—
Tinted drawing paper	—	750 and 1040 mm wide rolls	—	—	—
Gridded drafting paper	—	—	—	—	2 mm × 6 mm 2 mm × 1 cm × 2 cm 2 mm × 1 cm × 3 cm in A3 and A4 sizes