

BMN

Building Metrication News

Consultant editor

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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.

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Changes for BMN

Since we started Building Metrication News in September 1967, we have had a lot of support and encouragement. In the early days the question was still being asked, are we going to change to metric? So then our emphasis had to be to remind or inform people of the change and to provide a forum for discussion. Now the change is underway the question is no longer, are we going to change but how are we going to do it? Consequently in BMN we now need to provide facts, advice and feedbacks. To find out what information was most needed, in what form and when, we recently invited a number of people, highly involved and well versed in the metric change, to a long evening meeting. As a result of the valuable and wide ranging discussion we had we can now outline something of the future programme we plan (which is not to say we still do not welcome or cannot implement further advice received from readers).

The first comment we had was on timing. The twice monthly publication, which isn't even quite fortnightly, was held to be confusing. It was suggested, on the one hand, that we should go back to publishing monthly and on the other that we should change to publishing weekly. The conflict being between the need to give up-to-date news quickly and yet to have one summary of everything that is happening or has happened at regular but not too frequent intervals. The solution we have chosen is to publish a metric news page each week and a summary once a month. This will start in July.

Timing in another form was the subject of considerable further discussion. People are changing to metric at different times, and what they want to read about depends upon their own state of change. Often we are asked why we don't do an article when in fact we have already done it; it appeared at the right moment for some but the wrong moment for others. So once a quarter we intend making a progress review. This will include a summary of progress on the programme, for example a reminder of dates on which industries are changing, plus a recap of the more important articles and digests on particular topics, such as dimensional co-ordination, tolerances and jointing. Added to this we will include a new index in July and will follow this up with quarterly supplements.

Component listing, as originally envisaged by the Modular Society when it associated itself with BMN, will still be one of our top priorities. We hope shortly to start providing lists of new metric products as they come on the market and this we shall be doing in conjunction with BSI and the Building Centre. We shall continue most of the current features, which include the metric bibliography which Sylvia Locke edits for us. Brian Jolly will continue to edit the Modular Society's series of key components and we hope that Eric Corker will be presenting further case studies following his articles on the MPBW's first metric dimensionally co-ordinated Crown office building in Penrith. We suspect that building regulations may provide us with a few problems, and if you do come against difficulties please let us know. It may help others. Later this year MPBW and RIBA statistics on metric building should be appearing which could greatly help industry to judge the pace of the change.

There is no real end to the list. We hope to introduce a series of articles in lighter vein and to aim at explaining the complexities of SI units, dimensional co-ordination and so on to 'beginners.' Perhaps this will be something which will also be appreciated by those of us who have been in the game somewhat longer.

Environmental design and SI

by J. Churton ARIBA

With the adoption of SI units of measurement,⁽¹⁾ the construction industry has at its disposal a coherent system which makes clear relationships between physical phenomena which in the imperial and technical metric systems were obscured. SI derives nearly all the quantities needed in all the technologies from only 6 base-units which are arbitrarily defined.

Table 1 Base-units

Quantity	Unit	Symbol
length	metre	m
mass	kilogramme	kg
time	second	s
electric current	ampere	A
temperature	degree Kelvin	°K
luminous intensity	candela	cd

Rules exist to:

- minimise the variety of multiples and sub-multiples in common use;
 - ensure the presentation is uniform;
 - ensure that their presentation is such that their relation to the coherent unit is always simple and obvious.
- Being a decimal system, the use of SI makes possible and necessary the logical treatment of degrees of precision and of magnitude.

This Note shows how engineering concepts used in environmental design are developed from the 6 base-units. As the combinations of these units become more complex subsidiary units derived from the 6 base-units appear to simplify

expression, identify a special concept, or supply another necessary standard of measurement. There is nothing new in this; all the system does is to clear away a tangle of conventional units, imperial and technical metric, which obscure the main tracks through the technologies. It means that the structural, mechanical, electrical, illuminating, acoustic, gas, and heating and ventilating engineer and the architect and builder will be using the same language of measurements.

Base-units

Figure 1 shows how the simpler physical concepts are built up from the SI base-units length, mass and time. Note the distinction between mass and force. This has been observed by habit only in limited fields of mechanics but it is now brought to general light by

(1) The use of SI units: PD 5686 (January 1969) British Standards Institution, London.

Fig. 1

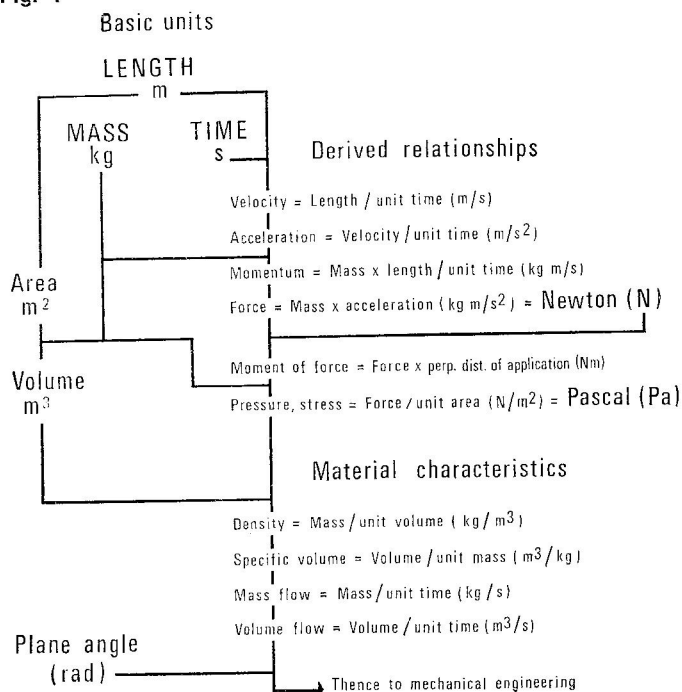


Fig. 2

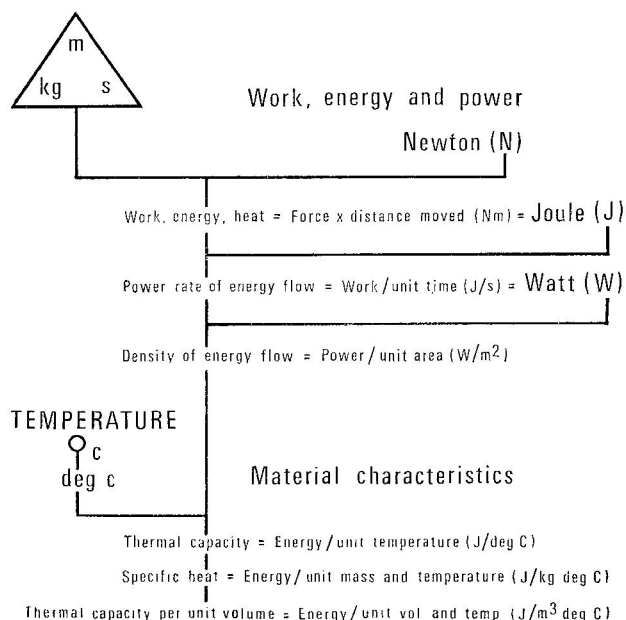


Fig. 3

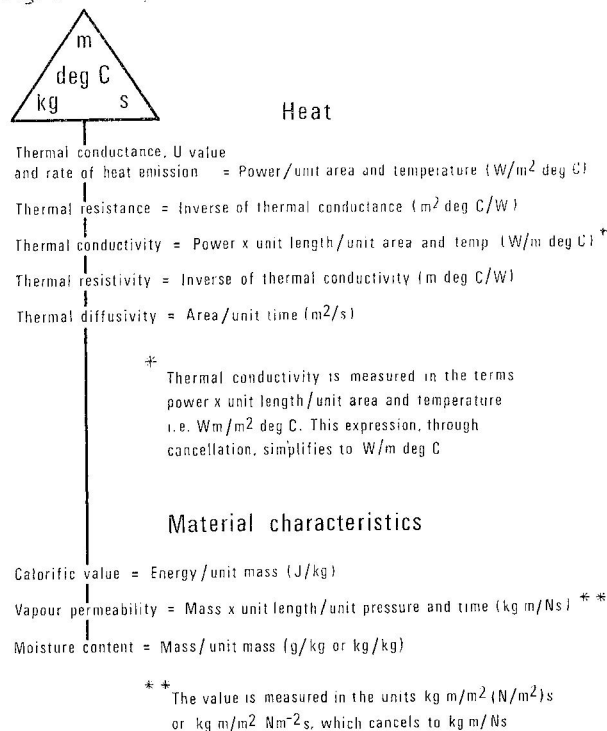
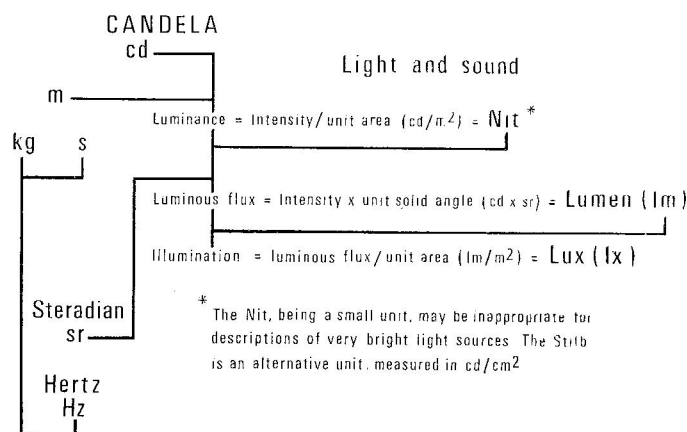


Fig. 4



Four simple diagrams show how the engineering concepts in environmental design are built up from the six SI base-units.

the tidying up process. Recognising the distinction means clarifying our notion of 'weight'. When building material is ordered we judge the amount by measuring its size or weighing it against a standard unit mass. But when the material is put to work in a structure the load it imparts is not its mass weight but the pull exerted on it by gravity. Since 'g' does not remain constant everywhere, and does not act equally on every kind of mechanical load, there is good reason for using a formal unit of force that is independent of it. We are asked to accept such a unit, the Newton, so as to avoid confusions between loads that are assisted by the local 'g' and loads that are not. In doing so — though the exercise is mainly academic in static engineering — we have to supply the gravity term in the places where the influence of 'g' is felt. What we shall probably do with our static masses is to sum them in the usual way and then to convert them to forces by multiplying them by conventional acceleration of the order of 10 m/s^2 .

Extension of base-units

Figure 2 extends the use of SI base-units. It contains another well established but not too familiar notion: the equivalence of all forms of energy. We have always been inclined to identify work and heat by the units in which it has seemed most appropriate to measure them: mechanically for the one and calorimetrically for the other. At the same time we know from experiment that each form of energy has its equivalent in another form. The new system says in effect that, having established equivalence, we should settle for a single energy unit. It may look odd to select a mechanical unit to represent heat energy. But the existing calorimetric units, Btu and Calorie, are both temperature-dependent whilst the Joule is absolute; hence its better claim for inclusion in the system.

The next derived unit, the Watt, reaches out beyond its conventional usage to replace such units as Horsepower and Btu per hour. It joins the Newton and Joule in a trio of units whose values are interchangeable:

$$W = J/s = N \text{ m/s and } J = N \text{ m} = W \text{ s}$$

As indication of the scale of these three units, a force of 1 Newton is relieved when the packet of 100 cigarettes that you buy is removed from its shelf. Work to the value of 1 Joule is done in passing it across the counter and power to the extent of 1 Watt is expended during the handover. The potential energy of the packet is out of all proportion to these values as, by the time you have smoked the contents, something like 1 million joules of heat energy will have been released at a power level of over 20 Watts — assuming a consistent effort in chain-smoking.

Fig. 3 brings in the units dealing with heat. It should be noted that all the units relate to properties of materials except the first one.

They are the direct equivalents of those that we are accustomed to use and, if

they seem unfamiliar one should realise that 'rate of heat flow' and 'power' mean the same thing.

A marginal difficulty

The table shows up one of the marginal difficulties of SI. As in the case of thermal conductivity and vapour permeability, like units in both the numerator and denominator of symbolic expressions cancel out with the result that the simplified expression does not explicitly describe what has been measured. Though it is not a permissible SI convention to do so, it may be helpful during the changeover to retain all the parameters of these expressions in parenthesis after the formal units:

$$W/m \text{ deg C } (Wm/m^2 \text{ deg C})$$

The unit, Vapour Permeability, is related in imperial measure to a Standard Atmosphere, but in SI to the standard Newton force, although the system admits the units, Bar and Millibar.

Table 4 introduces the Candela, last of the 6 base-units. Unlike the other units, which have either precise identity or a definite physical status, this unit is not explicitly defined; all we know is that 60 such units comprise the luminance of a standard source of light, so chosen that its output is reproducible at an absolute level. Both the Candela and its derivative, the Lumen, are already in use in Britain. The latter, being non-linear, is unaffected by the metric change but when it is related to square measure as in the Lux, illumination units become about one-tenth of the size of those we now use.

The numerical value of the Glare Index will not change; the only alterations will be the constants of the Glare Formula and of course the substitution of metric linear dimensions and eye level height.

Anchor points

In figure 4, further anchor points in SI appear with the Steradian and Hertz. The former is a standard solid angle and the latter merely one cycle/second. In acoustics and sound transmission engineering, little will be changed. The metric version of the customary Sabine formula for reverberation time uses the constant, 0.16, volume and surface area being measured in metres. Whilst sound intensity and sound pressure have the respective SI units of W/m^2 and mN/m^2 , the decibel unit, which bears constant relationships to both of them is in general international use.

Standard of performance in relation to sound insulation are generally qualitative and their expression is more often in terms of some simple characteristic as mass or density or specific forms of construction. Grading curves and other noise rating criteria are in common international use and will ultimately be standardised internationally.

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Conversion aids

Two-way conversion tables

A need for two-way conversion tables was noted by Eric Corker in his report on the MPBW Penrith metric project ('Building,' 14 February). Architects, he found, frequently had to do quick conversions to explain their figures to clients in metric terms. Similarly quantity surveyors and structural and mechanical engineers needed to reconvert to check that their estimates and calculations were within reasonable limits. This requirement has since been met by the publication of 'Direct reading two-way metric conversion tables', compiled by A. J. Biggs and published by Pitman (price 10s.). It contains 160 tables, designed primarily as a bridge from imperial to metric and SI metric units. A three column method is used for each table to allow a value expressed either in imperial or metric terms to be converted at sight. Although conversions to SI have been included, square and cubic centimetres have been used for area and volume and millimetres for length.

Metric reckoner

Another set of tables for conversion purposes has been issued under the title 'Metrec,' an abbreviation for metric reckoner. The tables have been specially prepared and designed for the use of the Gronwyn system for converting imperial to metric. This is purely an adding operation and wholly dispenses with the need for multiplying.

Metrec has been devised by G. Wyn Roberts and is published by Charles Knight. Price is 10s.

Metric converter

The BSI is marketing a new simple metric converter for general domestic or office use. It is sturdily made in blue and black plastics with silver lettering, measures only 160 mm x 100 mm and is sold in a transparent case.

Metric and imperial equivalents are presented on a white slide, viewed through adjacent windows in the coloured plastics envelope—an arrangement which gives conversions at a glance with little chance of confusion. Units in constant use—length, weight, volume and area—are covered. For two years BSI has marketed a more elaborate slide for industrial use, giving precise conversions for a much wider range of units, but the new converter is particularly designed for general use to meet the growing need for a simple pocket or handbag converter.

The BSI Readimetric Converter may be obtained from the BSI Sales Branch at 101-113 Pentonville-road, London, N1. Price 12s. 6d. (plus 2s. postage to non-subscribers). A discount of 10% is offered on orders for 500 and over. Later this year the converter will be on sale through stationers under an exclusive retailing agreement with the manufacturers, Blundell Harling Ltd.

Metrication the computer and SI

This series of conversion tables, compiled by R.M.E. Diamant and B.A.L. Hart appears in this section periodically. They are to be used like logarithmic tables, using a ruler to ensure clear distinction of the horizontal lines. The tables have been set with the help of the English Electric KD9F computer at the University of Salford

Table 17

Kilojoules to British thermal units to horsepower hours to foot tons to kilowatt hours to kilocalories.

1kJ=0.9478134 Btu
1kJ=0.2392684 foot ton
1kJ=0.2388915 kcal
1kJ=0.0003725 hp hour
1kJ=0.0002778 kWh

diff	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5
kJ	Btu		HP hour		foot ton		kWh		kilocal	
0		0.474		0.0002		0.165		0.0001		0.1194
1	0.948	1.422	0.0004	0.0006	0.329	0.494	0.0003	0.0004	0.2389	0.3583
2	1.896	2.370	0.0007	0.0009	0.659	0.823	0.0006	0.0007	0.4778	0.5972
3	2.843	3.317	0.0011	0.0013	0.988	1.152	0.0008	0.0010	0.7167	0.8361
4	3.791	4.265	0.0015	0.0017	1.317	1.482	0.0011	0.0012	0.9556	1.0750
5	4.739	5.213	0.0019	0.0020	1.646	1.811	0.0014	0.0015	1.1945	1.3139
6	5.687	6.161	0.0022	0.0024	1.976	2.140	0.0017	0.0018	1.4333	1.5528
7	6.635	7.109	0.0026	0.0028	2.305	2.470	0.0019	0.0021	1.6722	1.7917
8	7.583	8.056	0.0030	0.0032	2.634	2.799	0.0022	0.0024	1.9111	2.0306
9	8.530	9.004	0.0034	0.0035	2.963	3.128	0.0025	0.0026	2.1500	2.2695
10	9.478	9.952	0.0037	0.0039	3.293	3.457	0.0028	0.0029	2.3889	2.5084
11	10.426	10.900	0.0041	0.0043	3.622	3.787	0.0031	0.0032	2.6278	2.7473
12	11.374	11.848	0.0045	0.0047	3.951	4.116	0.0033	0.0035	2.8667	2.9861
13	12.322	12.795	0.0048	0.0050	4.280	4.445	0.0036	0.0037	3.1056	3.2250
14	13.269	13.743	0.0052	0.0054	4.610	4.774	0.0039	0.0040	3.3445	3.4639
15	14.217	14.691	0.0056	0.0058	4.939	5.104	0.0042	0.0043	3.5834	3.7028
16	15.165	15.639	0.0060	0.0061	5.268	5.433	0.0044	0.0046	3.8223	3.9417
17	16.113	16.587	0.0063	0.0065	5.598	5.762	0.0047	0.0049	4.0612	4.1806
18	17.061	17.535	0.0067	0.0069	5.927	6.091	0.0050	0.0051	4.3000	4.4195
19	18.008	18.482	0.0071	0.0073	6.256	6.421	0.0053	0.0054	4.5389	4.6584
20	18.956	19.430	0.0075	0.0076	6.585	6.750	0.0056	0.0057	4.7778	4.8973
21	19.904	20.378	0.0078	0.0080	6.915	7.079	0.0058	0.0060	5.0167	5.1362
22	20.852	21.326	0.0082	0.0084	7.244	7.409	0.0061	0.0062	5.2556	5.3751
23	21.800	22.274	0.0086	0.0088	7.573	7.738	0.0064	0.0065	5.4945	5.6140
24	22.748	23.221	0.0089	0.0091	7.902	8.067	0.0067	0.0068	5.7334	5.8528
25	23.695	24.169	0.0093	0.0095	8.232	8.396	0.0069	0.0071	5.9723	6.0917
26	24.643	25.117	0.0097	0.0099	8.561	8.726	0.0072	0.0074	6.2112	6.3306
27	25.591	26.065	0.0101	0.0102	8.890	9.055	0.0075	0.0076	6.4501	6.5695
28	26.539	27.013	0.0104	0.0106	9.220	9.384	0.0078	0.0079	6.6890	6.8084
29	27.487	27.960	0.0108	0.0110	9.549	9.713	0.0081	0.0082	6.9279	7.0473
30	28.434	28.908	0.0112	0.0114	9.878	10.043	0.0083	0.0085	7.1667	7.2862
31	29.382	29.856	0.0115	0.0117	10.207	10.372	0.0086	0.0087	7.4056	7.5251
32	30.330	30.804	0.0119	0.0121	10.537	10.701	0.0089	0.0090	7.6445	7.7640
33	31.278	31.752	0.0123	0.0125	10.866	11.030	0.0092	0.0093	7.8834	8.0029
34	32.226	32.700	0.0127	0.0129	11.195	11.360	0.0094	0.0096	8.1223	8.2418
35	33.173	33.647	0.0130	0.0132	11.524	11.689	0.0097	0.0099	8.3612	8.4806
36	34.121	34.595	0.0134	0.0136	11.854	12.018	0.0100	0.0101	8.6001	8.7195
37	35.069	35.543	0.0138	0.0140	12.183	12.348	0.0103	0.0104	8.8390	8.9584
38	36.017	36.491	0.0142	0.0143	12.512	12.677	0.0106	0.0107	9.0779	9.1972
39	36.965	37.439	0.0145	0.0147	12.841	13.006	0.0108	0.0110	9.3168	9.4362
40	37.913	38.386	0.0149	0.0151	13.171	13.335	0.0111	0.0112	9.5557	9.6751

Table 17. Forms of energy. Kilojoule to British thermal units to horsepower hours to foot tons to kilowatt hours to kilocalories.

Key components

External doorsets and door panels

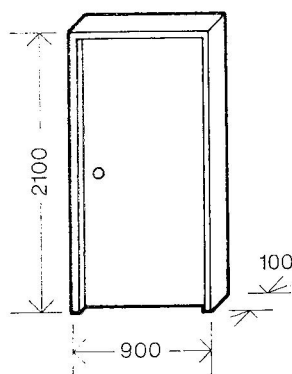


This is the 6th of a series of data sheets prepared by The Modular Society under the editorship of Brian Jolly, ARIBA, published monthly in BMN.

The purpose of this sixth data sheet is to present the proposals of the Modular Society for the Key external doorset and door panel which should be included in any manufacturer's range of these components, to justify their choice as Key Components and to demonstrate their use in current building practice. The proposals outlined in this data sheet are put forward as a basis for discussion—see introductory article in 'Building,' 10 January 1969. Comments will be welcomed. The Society wish to thank correspondents who have already submitted views on earlier data sheets.

Key external doorset

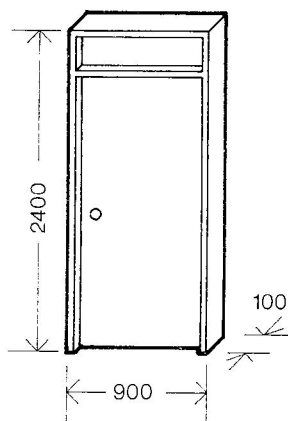
A doorset consists of a doorleaf, frame, and door furniture. The term, door height set, is preferred by the BWMA for this component.



Key external door panel

A door panel consists of a doorleaf, frame with fanlight or solid upper panel, and door furniture. The term, floor to ceiling height set, is preferred by the BWMA for this component.

The terms doorset and doorpanel are here used to distinguish between those components that encompass only the actual door opening and those components which, like the partition panels and external wall panels, span between the floor and ceiling. The terms door height set and floor to ceiling height set

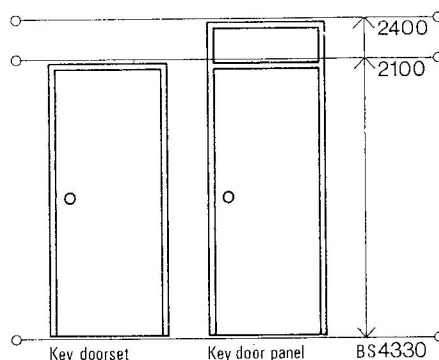


are preferred by the BWMA for these components and are used in the ISO draft standard. However, for consistency with the previous Key Component data sheets and since one term does not include the word 'door,' the former terms have been retained in this sheet. Since it is intended that a Key Component shall refer to the most common currently accepted component types, this data sheet is concerned primarily with light pedestrian traffic doorsets and door panels, which have single leaf side hung door leaves.

Heights

Both the doorset height of 2 100 mm and the door panel height of 2 400 mm are BS 4011 first preference metric sizes, being simple multiples of 300 mm. Both sizes are simple multiples of the International basic module of 100 mm. These heights also conform to ISO Draft Recommendations, prepared by the BWMA.

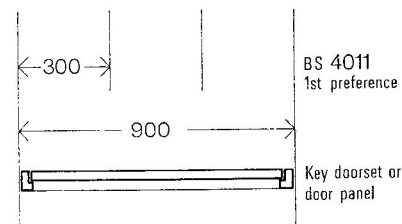
The doorset height of 2 100 mm conforms with the single intermediate controlling dimension for the doorhead level recommendation of BS 4330. The door panel height of 2 400 mm conforms with the lowest floor to ceiling controlling dimension recommendation of BS 4330 which is a multiple of the BS 4011 first preference increment of 300 mm. The door leaf size is common to both components. Therefore, where a doorpanel includes a transome over the door opening, this should be located at the 2 100 mm level.



Widths

The doorset and door panel width of 900 mm is a BS 4011 first preference size and a simple multiple of both the 100 mm International basic module and BS 4330 planning grid increment of 300 mm. It is also one of the widths includ-

ed in the ISO Draft Recommendations for the sizes of these components.

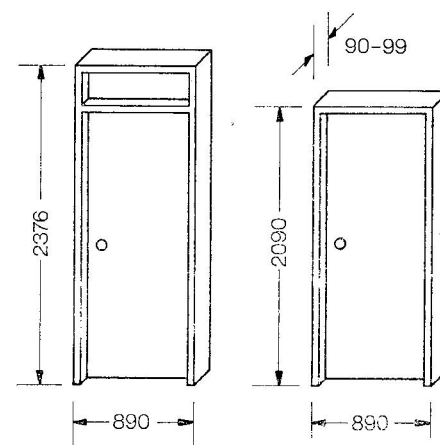


Thickness

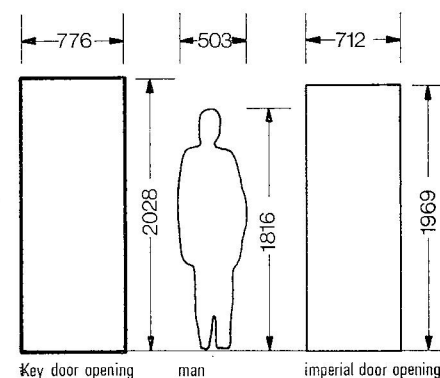
The single thickness of 100 mm for the doorset and door panel is both a BS 4011 second preference metric size and equal to the International basic module. It is presented in this data sheet as the size most consistent with current practice which complies with both of these recommendations.

Work sizes

The manufacturing heights and widths quoted below are in accordance with those contained in the ISO Draft Recommendations prepared by the BWMA. The doorset work height is 2 090 mm, which accommodates a 2 040 mm door-leaf height and a 30 mm frame. The door panel work height is 2 376 mm. The work width of both doorset and door panel is 890 mm, to take in 826 mm wide door leaf and 30 mm frame. The work thickness may vary between 90 mm and 99 mm depending on the type of construction. The proposed standard door leaf thickness is 40 mm.



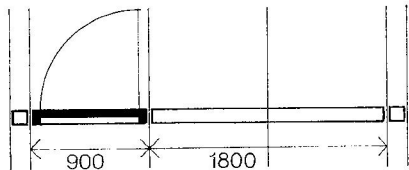
The door opening sizes of both the Key doorset and door panel and a 6ft. 6in. x 2ft. 6in. door leaf are shown below compared with the size of the 90%ile British male.



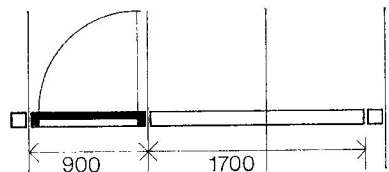
BUILDING METRICATION NEWS

Planning with key external doorsets and door panels

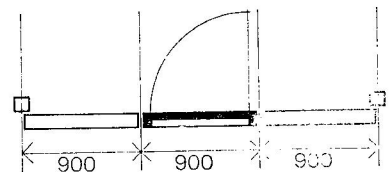
The external doorset and door panel are shown below related, for convenience, to a planning grid of 900 mm.



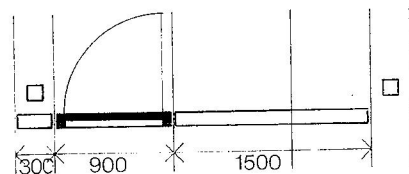
A run of external walling including a 900 mm doorset and structural columns, where the structural zones interrupt the planning grid.



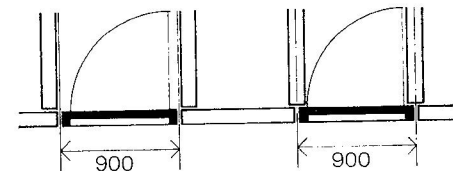
A run of external walling including a 900 mm doorset and structural columns, where the structural zones are included within the planning grid.



A run of external walling, including only the 900 mm doorset, the columns being centred within a 300 mm zone behind the walling.

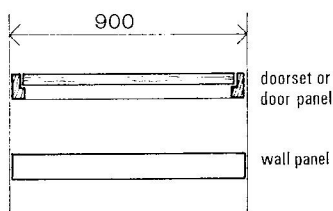
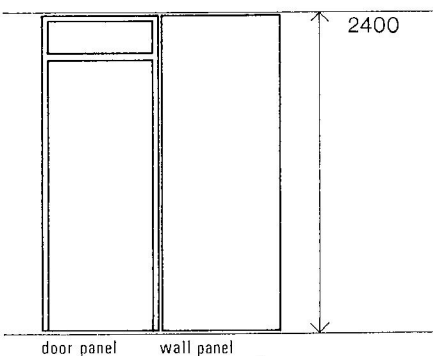
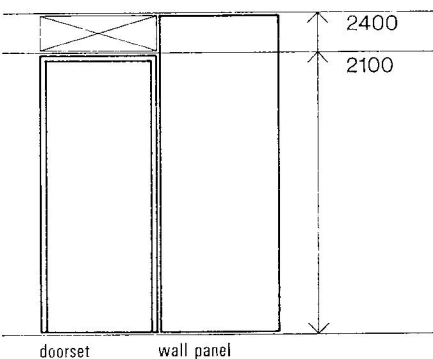


The diagram below shows alternative positions for partitions meeting the external walling at a doorset.

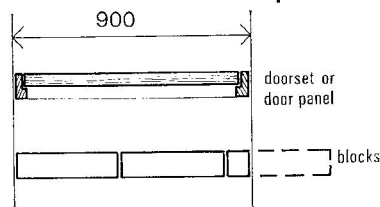
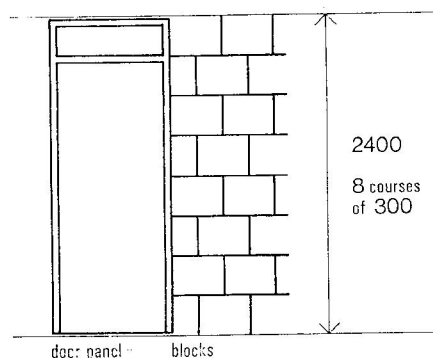
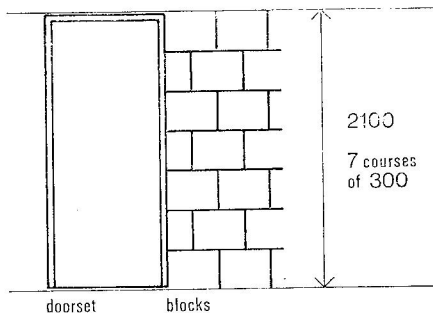


Co-ordination with other key components

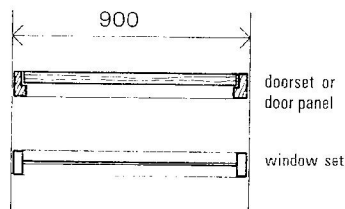
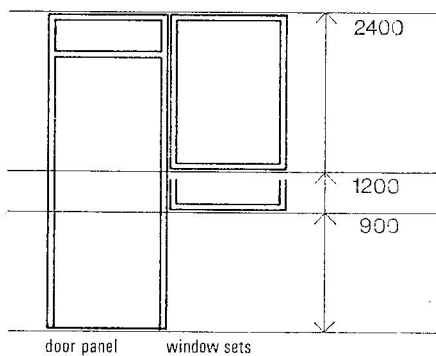
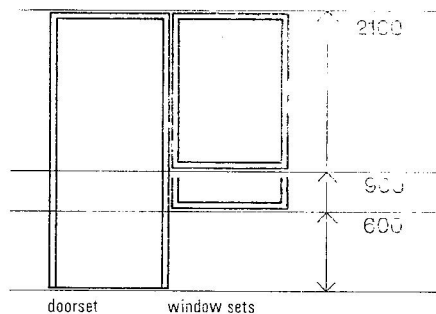
External wall panels.



Blocks.

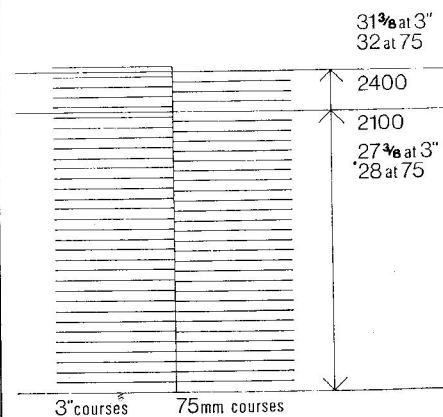


Window sets.



Co-ordination with imperial sized blocks

Key doorsets and door panels will be required to fit into openings in dimensionally co-ordinated brickwork using the 3in. brick at four courses to 300 mm. For comparison the numbers of 3in. and 75 mm courses are shown below for both the doorset and door panel heights.



News from the industry

Metriation Board make-up

After the first meeting of the recently constituted Metriation Board, its chairman, Lord Ritchie Calder, explained the way it expected to operate. Much of the work of the board will be done through steering committees.

A board member will head each committee and he hoped that outside interests will be represented on them—such as the BSI, the British Productivity Council and the Confederation of British Industry. There will also be a link with the Little Neddies.

The committees will determine the course of events inside each sector. Their rôle will also be to foster the change, integrate the work with that being done by the trade associations, advocate publicity methods and advise the board.

Lord Ritchie-Calder said the board's main objectives were:

(1) To ensure there was a coherent set of compatible inter-related programmes covering every sector of the economy.

(2) To give a lead to industry on the problems to be overcome and the means of tackling them.

(3) To advise the Government on action to be taken—particularly amendments to legislation and purchasing policy.

(4) To explain the objectives to the community.

He envisaged that public relations would be a major occupation of the Board and steering committee.

Paving flags and kerbs

The National Paving and Kerb Association, in conjunction with the British Precast Concrete Federation have agreed to recommend the following metric sizes to the BSI for incorporation in BS 368 and 340:

Paving flags

Type A 600 × 450 mm

Type B 600 × 600 mm

Type C 600 × 750 mm

Type D 600 × 900 mm

All these sizes are to be available in thicknesses of 50 mm and 63 mm.

Kerbs

Maximum linear dimension: 900 mm.

Sections and profiles: As at present contained in BS 340.

Radius kerbs: The following radii will be produced: 1.5 m, 3.0 m, 4.5 m, 6.0 m, 7.5 m, 9.0 m, 10.5 m and 12.0 m. These are the dimensions from the radial point to the face of the kerb, whether for external or internal radii. The industry has been recommended to make the change effective from 1 April 1970, after which date the present imperial sizes will no longer be manufactured.

Industrialised building in metric

Gardiner Building Systems Ltd. of Bristol have won a contract for the biggest metric building project yet undertaken in Britain using an industrialised building system. The system is Gardiner's Thermagard Mark V, launched two years ago. The project is Leicestershire's new Wigstone College of Further Education, expected to cost around £500 000.

Thermagard Mark V uses spun concrete columns and castellated steel beams, linked by precision-engineered splice boxes. From the outset, the company offered the system based on either imperial or metric dimensions. The metric version has horizontal and vertical grids of 300 mm. Floor to ceiling heights are 2 400, 2 700 and 3 000 mm.

Retraining for metric

Following investigations into the changeover to metric, the Cheltenham-based Walker Crossweller group estimates that it will cost about £3 000 to retrain its 600 employees in the use of metric units.

According to Dennis Arbon, a director of the group, the Metriation Board has asked for details of the findings and research documents. The group—which makes showers, industrial valves and instruments—began the inquiry last August. It hopes to complete conversion to metrication by 1973.

RIBA and metric

The technical section of the RIBA's Professional Services Department, under the new assistant secretary, Kenneth Claxton (A), is now responsible for all matters concerning metrication and dimensional co-ordination. Growing interest in the metric change and an increasing number of inquiries has prompted the RIBA to make this full time appointment. Besides acting as a clearing house for inquiries the section will also be involved in organising seminars up and down the country.

Light rolled products

GKN (South Wales) Ltd. announce that the following sizes of rolled products will become standard as part of the metric change:—

(1) As from week ending 28 June to 25 July, 5.5 mm to 9.0 mm in $\frac{1}{2}$ mm steps 3/0 gauge to 7/0 gauge. Over 7/0 gauge as at present.

(2) As from week ending 16 August, 5.5 mm to 13 mm in $\frac{1}{2}$ mm steps. Over 13 mm in imperial sizes as at present. Sizes 5.5 mm to 9.0 mm inclusive, in 550/600 lb. coils. Sizes 9.5 mm and over will be supplied in 1 100/1 200 lb. coils.

Certain stocks of imperial sizes in the above metric range may be available from the company—a subsidiary of GKN Rolled and Bright Steel Ltd.—up to the end of 1969, but metric sizes only will be supplied from 1 January 1970.

BUILDING METRICATION NEWS

A printed card is available from GKN (South Wales) Ltd. showing metrication of rod sizes up to 13.0 mm with imperial equivalents, and also a pvc covered card with similar data.

Steel fabric reinforcement

Working in close liaison with BSI, the Reinforcement Manufacturers' Association have agreed to adopt the following programme for the manufacture and supply of metric sized steel fabric for the reinforcement of concrete: (1) Before 1 June 1969 no metric sizes of steel fabric will be manufactured as standard. (2) After 1 June 1969 metric and imperial sizes of steel fabric will be manufactured as standard. (3) After 1 January 1970 only metric sizes of steel fabric will be manufactured and supplied as standard.

Tables of preferred types of metric fabric have also been drawn up.

Metric wire sizes

The Institute of Iron and Steel Wire Manufacturers, which represents the major producers of ferrous wire in the UK, has announced plans for the industry's conversion to metric wire sizes and mechanical properties. Wire mills are completing their internal production and commercial arrangements for the transition; and many of them are already operational in imperial and metric standards.

The wire industry has accepted proposals by the public and private sector wire rod suppliers under which rods will be supplied in metric sizes from January 1970. Its own target date for the adoption of metric standards is 1 July 1970.

Publications providing full technical data in metric standards will be available later in the year from the institute at Rodwell Tower, Piccadilly, Manchester, M1 2HX.

RIBA wallsheet

A wallsheet, 'Building metric,' has been issued by the RIBA describing in text and diagrammatic form many of the changes that will have to be made in the changeover period from imperial to metric measurement. Cost of an individual sheet is 8s. 6d. from the institute.

'Think metric' posters

The Construction Industry Training Board has produced two more metric posters in their 'Think metric' series. One is concerned with temperature and under the title 'Keep a Cool Head' shows a reading of 36.9°C as normal body temperature. To familiarise the industry with the litre as a liquid measurement, poster No. 7 shows a litre of beer, made up of a pint mug and a portion of another pint placed on top. This emphasises that a litre is approximately 0.75 larger than 1 pint. Further instruction suggests that the metric changeover will make it necessary to 'Drink metric'



as well as 'Think metric.'

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

Poster on timber sizes

A coloured poster (size 952 mm × 635 mm) on standard metric sizes for sawn softwood, based on Draft British Standard Specification, has been produced by TRADA in collaboration with Educational Productions Ltd. The poster illustrates typical full size metric sections of softwood for common uses, including posts, boards, joists and studs; it also contains a complete range of metric sizes and lengths in scale 1:10. The poster is printed on heavy quality paper, and is available from the Timber Research and Development Association, Hughenden Valley, High Wycombe, Bucks. A single poster costs 5s. with reductions for bulk orders.

MHEA metrication officer

H. G. Harwood has been appointed metrication officer to the Mechanical Handling Engineers' Association. He will represent the association in all future discussions on metric and also keep its members informed of developments. Regular bulletins on metrication are to be published.

Publications

Ductwork specification

A specification covering the manufacture and installation of ductwork for low velocity low pressure air systems, rectangular and circular section, has been published in both British and metric units by the Duct Work Group of the Heating and Ventilating Contractors' Association. It is believed to be the first ductwork specification published in metric units in Britain.

The metric version is designed to meet the needs of designers, contractors and manufacturers engaged on long term installations which will span the change to metric. The British version is designed to meet present-day needs of installations being designed and installed in imperial units.

The specification is complementary to the parallel high velocity ductwork specification (circular and rectangular) published by the HVCA in 1963 and 1968 respectively. It applies to systems having average velocities not in excess of 10 m/sec. and positive or negative static pressures not greater than 5 millibars for ductwork distribution systems and 10 millibars for plant connections. Copies of the new specifications (DW/121—Metric units, DW/122/B—British units) are available from: Heating and

Ventilating Contractors' Association, 172 Buckingham Palace-road, London, SW1. Price 30s. per copy (40s. to non-members).

Concrete reinforcement

British Standard 4461:1969, Specification for cold worked steel bars for the reinforcement of concrete (metric units), is the metric version of BS 1144 (which will be withdrawn in January 1970). It specifies requirements for steel bars, for the reinforcement of concrete, that have been cold worked to such an extent that their yield point has been eliminated. Nine preferred metric sizes of bar are listed, and details are given of the process of manufacture, chemical composition, effective cross-sectional area of deformed bars, deviations on dimensions and mass, and inspection and testing procedures.

Copies of BS 4461 are priced at 6s. (8s. including postage to non-subscribers).

British Standard 4449:1969, Specification for hot-rolled steel bars for the reinforcement of concrete (metric units), is the metric version of BS 785: Part 1 (which will be withdrawn in January 1970). It specifies requirements for steel bars, in the hot-rolled condition only, and covers three types of bar, namely plain and deformed mild steel and high yield deformed steel. As in the previous standard, nine preferred metric sizes of bar are listed and similar relevant details are given.

Copies of BS 4449 cost 8s. (10s. including postage to non-subscribers).

CEGB metric manual

A metric manual has been prepared for the CEGB for research, design, construction, operation and services staff for general guidance on implementing metric. It outlines the programme for new construction work and for existing stations, the application of SI units, drawing office practice, ISO metric threads, which it is now the Board's policy to specify, and civil engineering requirements. Copies cost £4 from W. A. Carter, Services Department, CEGB, Courtenay House, 18 Warwick-lane, London, EC4.

Letters

MM gets the stick

Sir—I quote from 'Towards Tomorrow' on BBC 1 on 27 May—primary teacher to 7-year-old who was explaining a metric stick saying that 100 cm equals 1 m and 1000 mm equals 1 m—"Never mind about millimetres because they are too small".

How true though I, looking up my SI, to find she was wrong—or was she thought I.

JOHN C. P. GIBB, RA (EDIN),
ARIBA, ARIAS,

Crudens Ltd., Olivebank,
Musselburgh, Midlothian.

Coming events

WEDNESDAY, 18 JUNE

Changing to metric: a symposium on the programme for the change to metric for manufacturers and suppliers sponsored by The Building Centre of Northern Ireland. The symposium has been arranged to explain the BSI timetable and help Northern Ireland manufacturers and suppliers with timing the phasing-in of new metric sized building components. Held at 4 Arthur-place, Belfast, BT1 4HJ, from 3-6 p.m. Fee £3. Numbers limited to 60. Applications to be made to The Building Centre of Northern Ireland Ltd.

THURSDAY, 26 JUNE

Metrication for civil and structural engineers: a one-day course including talks on SI units, drawing office and survey practice and site problems. To be held at Brixton School of Building, Ferndale-road, London, SW4, from 9.30-4.15. Registration fee £1 15s. Applications should be sent to the secretary of the School.

Metrication: a discussion on metrication for timber buyers will indicate the effects it will have on a) the timber market, b) timber purchasing in the building industry, and c) the supply of wood based panel products. The meeting, organised by the Institute of Purchasing and Supply, will be held at the Kensington Palace Hotel, London. Fees are 7 gns. for members of the Institute, 10 gns. for non-members. Further information from the secretary of the Institute, York House, Westminster Bridge-road, London, SE1.

MONDAY, 22 SEPTEMBER

Face to face with metrication: the two-day BSI 1969 Standards Conference under this title is to be attended by Lord Ritchie-Calder, Lord Blackett, Eric Lubbock, Mr. Whitehorn, Deputy Director-General of CBI, and a number of senior executives of large industrial concerns. All talks and discussion points have been chosen to highlight the fact that the time for detailed planning and execution of the metric change is now with us. Practical guidance is offered to those faced with making the change in their own organisation. The final session, in particular, will, under Lord Blackett, indicate new tools which developments in electronics will make available to management. Other areas covered will be exports, mechanical engineering, power cables, structural steel and training. The Conference, to take place at the Imperial College on 22 and 23 September, is organised by the Standards Associates section of BSI. Conference fee is £12 (£11 for members of the Standards Associates Section). Further particulars obtainable from Miss Snashall, BSI, 2 Park-street, London, W1.

Metrication Index

An index of references to metrication published in 'Building,' but not in BMN, since 23 May.

The composition of the Metrication Board was announced by Anthony Wedgwood Benn, Minister of Technology, in a Parliamentary written reply. In addition to the chairman, deputy chairman and director, already known, eight further members have been appointed. They include Herbert J. Cruickshank, currently chairman of the metric working party of the MPBW's National Consultative Committee. F. Howard Whitaker is secretary to the Board. Further appointments are expected in due course (30 May, p. 98).