BRITISH STANDARD

BS 648:1964

Incorporating Amendment Nos. 1 and 2

Schedule of

Weights of building materials

UDC 691:624.045

Co-operating organizations

The committee responsible for the preparation of this British Standard includes representatives from the following organizations:

Association of Municipal Corporations
D.S.I.R. — Building Research Station
District Surveyors Association
Institution of Municipal Engineers
Institution of Structural Engineers
National Federation of Building Trades Employers
Royal Institute of British Architects
The Royal Institution of Chartered Surveyors

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Contents

Foreword

The title of this standard should not be taken to imply that all of the materials quoted are necessarily used solely or even principally in building.

This schedule was first published in 1935 as an attempt to provide a solution to the problems which had arisen through structural and other calculations being based on different data for the weights of materials concerned. The 1949 revision was undertaken with a view to making the information more complete by the inclusion of certain extra materials, together with such changes in the data as had been found to be necessary.

The present revision continues this process of improvement and development. It contains additional new materials which have since come into use for building purposes and amends the weights of many other materials in the light of up-to-date information. Some materials have been introduced into the standard which will not be present as such in a completed building but a knowledge of whose weights is important for calculations both prior to and during the course of execution of the works. Weights of blockwork, brickwork and stonework have, however, been given in preference to weights of blocks, bricks and stone, as likely to be more helpful to users in view of the main purpose of this standard. At the same time the opportunity has been taken of including in the schedule much of the supplementary information previously given in an appendix.

It has not been found possible to include weights for the many different forms of composite construction coming into use, many of which are still in process of development and capable of many variations and combinations; weights of as many individual component materials as were feasible have, however, been given, from which it is hoped that users will be able to derive any composite weights required. The committee was aware, nevertheless, of certain integrally composite materials, which are difficult to describe generically, mainly specialized products of individual manufacturers and which it was felt to be inadvisable to attempt to cover in a standard schedule.

The data has been recast under each alphabetically arranged main heading, through subsidiary headings of diminishing order. The main headings generally denote materials; however, some denote functions, where it is felt that these will be more helpful to the reader. The alphabetical arrangement of main headings has been perpetuated; but it has not been found possible to favour one system universally for the sub-headings where commonness of useage has in many instances been felt likely to be more useful; whilst dimensional criteria have been applied to headings of lesser orders. The former column headings and rulings have been eliminated as superflous.

The object of the schedule is to standardize the data employed in calculations rather than to provide more exact data for this purpose. The “standard” weight of a material, as given in the schedule, is not necessarily the mean between the extreme weights, but a fair average value and may be regarded as sufficiently accurate for general purposes in calculating dead loads in building work. In cases where extreme accuracy is required the actual material to be employed should be weighed and the most adverse conditions of use taken into account.

Wherever possible, a standard weight has been quoted, but in many instances it has been necessary to include tolerances on each side of this figure. There were some cases where, owing to many different densities being produced, often for as many different purposes of equal importance, it was not possible to choose a single notional figure of any particular significance to which tolerances might be applied, and here a range has been given instead.

The committee having in mind the foregoing practical considerations, no weight has been given to more than one decimal place. The use of decimals has been standardized in preference to fractions, for dimensions as well as for weights.

Where maximum and minimum weights are given in this schedule they represent the extremes of the samples investigated and afford some indication of the variations in weights which may be encountered. They should not be taken as the absolute maximum or minimum weights of the material in question.

In preparing this schedule every care has been exercised to ensure that the standard weights represent average materials of normal composition or structure and, where described as "as laid", fixed in the usual manner. In general, weights of appropriate materials relate to a moisture content state of the material when in approximate equilibrium with the exterior atmosphere.

The references to other British Standards given in brackets in the schedule are intended for identification only and are not to be taken to imply that the weights have been derived from the British Standard quoted. Where the standard for the material specifies weights, however, the figures in the schedule have in general been based upon them.

Notwithstanding the fact that the Fifth Edition of the Standard Method of Measurement of Building Works, which was published during the preparation of the present schedule specifies the yard rather than the foot as the unit of measurement in most Sections, this present schedule standardizes the use of the foot as being most generally useful. The quotation of a 1-inch unit of thickness has, however, been adhered to in general except where a material is normally made principally in much lesser thicknesses.

To help overcome confusion arising from the custom of different industries using different series of thickness gauges (i.e. Birmingham, English Zinc, and Standard Wire) and for the sake of uniformity, the thicknesses in decimals of an inch have been given first in the schedule followed in parentheses by the customary gauge appropriate to the particular material. Only a few typical thicknesses used in building have been given for each material, but the weights of other gauges may be derived by proportional calculations using the decimal inch equivalents from the tables given in Appendix A.

Where thicknesses of material greater than 1 in are customarily employed but the weights are non-proportional, then the weights of a selection of representative thicknesses have been given.

Some materials are produced in a wide range of sizes, often not solely for building purposes and here, in order to keep the amount of space occupied within reasonable bounds, an attempt has been made to limit the information to representative sizes and, wherever possible, to those most commonly used in building. The space formerly occupied by listing many sizes of some materials has been reduced and information on other entirely different materials substituted to take its place and so increase the general usefulness of the standard.

NOTE 1 This standard was prepared in imperial units from which the metric values were derived. Both sets of values are of the same order of accuracy.

NOTE 2 The data given in the standard are in units of *mass* either per unit length, or per unit area, or per unit volume. For most purposes of structural calculation in SI units the *forces* in newtons imposed by the dead loads of the materials may be obtained by multiplying by 10 (strictly 9.80665) the values given in kilogrammes in the schedule. The degree of approximation implied by this is commensurate with that already indicated in the data given in the schedule, for the reasons explained in the Foreword.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages
This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 43 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Schedule

Aggregates		
Coarse		
Normal weight, e.g. natural aggregates	90 ± 10 lb/ft^3	(1 442 ± 160 kg/m^3)
Lightweight, e.g. clinker, foamed slag, expanded clay and sintered pulverized-fuel ash	20 – 50 lb/ft^3	(320.4 – 800.9 kg/m^3)
Heavyweight, e.g. barytes, magnetite and ilmenite	145 ± 5 lb/ft^3	(2 323 ± 80 kg/m^3)
Steel shot	260 ± 10 lb/ft^3	(4 245 ± 80 kg/m^3)
Fine		
Normal weight, e.g. sand	100 ± 10 lb/ft^3	(1 602 ± 160 kg/m^3)
Lightweight, e.g. clinker, foamed slag, expanded clay and sintered pulverized-fuel ash	35 – 65 lb/ft^3	(560.6 – 1 041 kg/m^3)
Heavyweight, e.g. barytes, magnetite and ilmenite	155 ± 5 lb/ft^3	(2 483 ± 80 kg/m^3)
Steel shot	260 ± 10 lb/ft^3	(4 165 ± 160 kg/m^3)
Combined ("all-in" ballast)	125 ± 5 lb/ft^3	(2 002 ± 80 kg/m^3)
Aluminium		
Cast	173 lb/ft^3	(2 771 kg/m^3)
Wrought forms		
Sheet		
Flat 0.048 in (18 SWG)	0.7 lb/ft^2	(3.4 kg/m^2)
0.036 in (20 SWG)	0.5 lb/ft^2	(2.4 kg/m^2)
0.028 in (22 SWG)	0.4 lb/ft^2	(2.0 kg/m^2)
0.022 in (24 SWG)	0.3 lb/ft^2	(1.5 kg/m^2)
Corrugated (BS 2855) (including 20 per cent added weight for laps "as laid")		
0.048 in (18 SWG)	0.9 lb/ft^2	(4.4 kg/m^2)
0.028 in (22 SWG)	0.6 lb/ft^2	(2.9 kg/m^2)
0.022 in (24 SWG)	0.4 lb/ft^2	(2.0 kg/m^2)
Other wrought forms	173 lb/ft^3	(2 771 kg/m^3)
Asbestos		
Felt per 1 in (25.4 mm) thick	0.8 lb/ft^2	(3.9 kg/m^2)
Fibres, sprayed (including binder)	5–15 lb/ft^3	(80–240 kg/m^3)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Asbestos cement		
Sheeting		
Flat 0.25 in (6.4 mm)		
Wallboard	1.4 lb/ft²	(6.8 kg/m²)
Semi-compressed	2.3 lb/ft²	(11.2 kg/m²)
Fully-compressed	2.5 lb/ft²	(12.2 kg/m²)
Corrugated		
(including 10 per cent added weight for laps)		
Corrugations 2.875 in (73.0 mm)		
pitch (BS 690)	3.4 lb/ft²	(16.6 kg/m²)
Corrugations 5.75 in (146.1 mm)		
pitch (BS 690)	3.4 lb/ft²	(16.6 kg/m²)
3.5 in (88.9 mm) corrugations,		
15 in (381.0 mm) pitch		
(BS 690)	4.5 lb/ft²	(21.9 kg/m²)
Asphalt		
Roofing 2 layers, 0.75 in		
(19.1 mm) (BS 988 and BS 1162)	8.6 lb/ft²	(41.9 kg/m²)
Damp-proofing (BS 1097 and BS 1418)		
0.75 in (19.1 mm)	8.3 lb/ft²	(40.5 kg/m²)
1.0 in (25.4 mm)	11.0 lb/ft²	(53.7 kg/m²)
1.125 in (28.6 mm)	12.4 lb/ft²	(60.5 kg/m²)
Flooring (BS 1076, BS 1410 and BS 1451)		
1 in (25.4 mm) thick	11 ± 1 lb/ft²	(53.7 ± 4.9 kg/m²)
Road and footpaths (BS 594 and BS 1446)		
0.5 in (12.7 mm)	6.0 lb/ft²	(29.3 kg/m²)
0.75 in (19.1 mm)	9.0 lb/ft²	(43.9 kg/m²)
Battens		
Slating and tiling, 1.5 in × 0.75 in		
(38.1 mm × 19.1 mm) softwood		
4 in (101.6 mm) gauge	0.7 lb/ft²	(3.4 kg/m²)
Bitumen damp-proof courses (BS 743)		
Hessian base (Type 5A)	0.8 lb/ft²	(3.9 kg/m²)
Fibre felt (Type 5B)	0.7 lb/ft²	(3.4 kg/m²)
Asbestos based (Type 5C)	0.8 lb/ft²	(3.9 kg/m²)
Hessian base and lead (Type 5D)	0.9 lb/ft²	(4.4 kg/m²)
Fibre felt and lead (Type 5E)	0.9 lb/ft²	(4.4 kg/m²)
Asbestos base and lead (Type 5F)	1.0 lb/ft²	(4.9 kg/m²)
Bitumen roofing felts (BS 747)		
Bitumen felts (fibre base)		
Saturated bitumen (Type 1A)	0.1 lb/ft²	(0.5 kg/m²)
	0.2 lb/ft²	(1.0 kg/m²)
Sanded bitumen (Type 1B)	0.4 lb/ft²	(2.0 kg/m²)
	0.5 lb/ft²	(2.4 kg/m²)
	0.6 lb/ft²	(2.9 kg/m²)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Bitumen roofing felts (cont)		
Bitumen felts (fibre base) (cont)		
Self-finished bitumen (Type 1C)	0.2[a] lb/ft^2	(1.0 kg/m^2)
	0.3[a] lb/ft^2	(1.5 kg/m^2)
	0.4[a] lb/ft^2	(2.0 kg/m^2)
	0.5[a] lb/ft^2	(2.4 kg/m^2)
	0.6[a] lb/ft^2	(2.9 kg/m^2)
Coated and sanded bitumen felt (Type 1D)	0.4 lb/ft^2	(2.0 kg/m^2)
	0.5 lb/ft^2	(2.4 kg/m^2)
	0.6 lb/ft^2	(2.9 kg/m^2)
Mineral surfaced bitumen (Type 1E)	0.7 lb/ft^2	(3.4 kg/m^2)
Reinforced bitumen felt (Type 1F)	0.2 lb/ft^2	(1.0 kg/m^2)
Bitumen felts (asbestos base)		
Saturated bitumen asbestos (Type 2A)	0.1 lb/ft^2	(0.5 kg/m^2)
	0.2 lb/ft^2	(1.0 kg/m^2)
Self-finished asbestos (Type 2B)	0.3[a] lb/ft^2	(1.5 kg/m^2)
	0.4[a] lb/ft^2	(2.0 kg/m^2)
	0.5[a] lb/ft^2	(2.4 kg/m^2)
Mineral surfaced bitumen asbestos (Type 2C)	0.7 lb/ft^2	(3.4 kg/m^2)
Fluxed pitch felts (fibre base)		
Saturated fluxed pitch (Type 3A)	0.1 lb/ft^2	(0.5 kg/m^2)
	0.2 lb/ft^2	(1.0 kg/m^2)
Sanded fluxed pitch (Type 3B)	0.4 lb/ft^2	(2.0 kg/m^2)
	0.6 lb/ft^2	(2.9 kg/m^2)
Impregnated flax felts and hair felts		
Impregnated flax (Type 4A)		
Black		
Roofing	0.4 lb/ft^2	(2.0 kg/m^2)
Sarking	0.3 lb/ft^2	(1.5 kg/m^2)
Black sheathing	0.2 lb/ft^2	(1.0 kg/m^2)
Brown		
No. I Inodorous	0.3 lb/ft^2	(1.5 kg/m^2)
No. 2 Inodorous	0.2 lb/ft^2	(1.0 kg/m^2)
Brown sheathing	0.2 lb/ft^2	(1.0 kg/m^2)
Impregnated hair (Type 4B)		
Black		
Black hair sheathing	0.4 lb/ft^2	(2.0 kg/m^2)
Brown		
Brown bituminous hair	0.4 lb/ft^2	(2.0 kg/m^2)
Bitumen felts (glass fibre base)		
Bitumen glass fibre (Type 5A)	0.3 lb/ft^2	(1.5 kg/m^2)
	0.4 lb/ft^2	(2.0 kg/m^2)
Mineral surfaced bitumen glass fibre (Type 5B)	0.6 lb/ft^2	(2.9 kg/m^2)
Blockwork, walling		
Clay		
Hollow, per 1 in (25.4 mm) thick	5.3 lb/ft^2	(25.9 kg/m^2)

[a] When fine sand is used in lieu of talc this weight is increased by approximately 0.1 lb. (0.5 kg/m^2)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Blockwork, walling (cont)		
Clay (cont)		
Perforated (approximately 50 per cent perforated)		
Medium density, per 1 in (25.4 mm) thick	5.8 lb/ft²	(28.3 kg/m²)
High density, per 1 in (25.4 mm) thick	6.7 lb/ft²	(32.7 kg/m²)
Concrete		
Ballast and stone aggregate		
Cellular per 1 in (25.4 mm) thick	8.3 lb/ft²	(40.5 kg/m²)
Hollow per 1 in (25.4 mm) thick	7.1 lb/ft²	(34.7 kg/m²)
Solid per 1 in (25.4 mm) thick		
Stone aggregate	11.2 lb/ft²	(54.7 kg/m²)
Slate aggregate	10.0 lb/ft²	(48.8 kg/m²)
Lightweight aggregate		
Cellular per 1 in (25.4 mm) thick	5.9 lb/ft²	(28.8 kg/m²)
Hollow per 1 in (25.4 mm) thick	5.3 lb/ft²	(25.9 kg/m²)
Solid per 1 in (25.4 mm) thick	6.6 lb/ft²	(32.2 kg/m²)
Aerated		
Based on 35 lb/ft³ (560.6 kg/m³) density		
Per 1 in (25.4 mm) thick	3.0 lb/ft²	(14.6 kg/m²)
Based on 50 lb/ft³ (800.9 kg/m³)		
Per 1 in (25.4 mm) thick	4.0 lb/ft²	(19.5 kg/m²)
Organic aggregates e.g. sawdust, peat, etc.		
Based on 80 lb/ft³ (1281.5 kg/m³) density		
Per 1 in (25.4 mm) thick	7 lb/ft²	(34.2 kg/m²)
Diatomaceous earth		
2 in (50.8 mm) thick	6.8 lb/ft²	(33.2 kg/m²)
2½ in (63.5 mm) thick	7.9 lb/ft²	(38.6 kg/m²)
3 in (76.2 mm) thick	9.0 lb/ft²	(43.9 kg/m²)
4 in (101.6 mm) thick	10.9 lb/ft²	(53.2 kg/m²)
4½ in (114.3 mm) thick	11.6 lb/ft²	(56.6 kg/m²)
Board, laminated (i.e. battenboard, blockboard and laminboard)		
Per 1 in (25.4 mm) thick	2.3 ± 0.2 lb/ft²	(11.2 ± 1.0 kg/m²)
Brass		
Copper 60 per cent, zinc 40 per cent (CZ 123 of BS 2870)	526 lb/ft³	(8 426 kg/m³)
Copper 70 per cent, zinc 30 per cent (CZ 106 of BS 2870)	532 lb/ft³	(8 522 kg/m³)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Brickwork			
Clay			
Solid, per 1 in (25.4 mm) thick			
Low density		10.4 lb/ft^2	(50.8 kg/m^2)
Medium density		11.2 lb/ft^2	(54.7 kg/m^2)
High density		12.1 lb/ft^2	(59.1 kg/m^2)
Perforated, per 1 in (25.4 mm) thick			
Low density	25 per cent voids	7.9 lb/ft^2	(38.6 kg/m^2)
	15 per cent voids	8.8 lb/ft^2	(43.0 kg/m^2)
Medium density	25 per cent voids	8.3 lb/ft^2	(40.5 kg/m^2)
	15 per cent voids	9.6 lb/ft^2	(46.9 kg/m^2)
High density	25 per cent voids	9.2 lb/ft^2	(44.9 kg/m^2)
	15 per cent voids	10.0 lb/ft^2	(48.8 kg/m^2)
Concrete, per 1 in (25.4 mm) thick		12 lb/ft^2	(58.6 kg/m^2)
Lightweight/Flue			
Diatomaceous earth, per 1 in (25.4 mm) thick		3.4 lb/ft^2	(16.6 kg/m^2)
Calcium silicate (sand lime and flint lime)			
Per 1 in (25.4 mm) thick		10.4 lb/ft^2	(50.8 kg/m^2)
Bronze, phosphor, wrought (BS 369 and BS 407)		558 lb/ft^3	(8 938 kg/m^3)
Carpet		$0.6\ ^{+0.1}_{-0.2}$ lb/ft^2	($2.9\ ^{+0.5}_{-1.0}$ kg/m^2)
Cast stone		140 lb/ft^3	(2 243 kg/m^3)
Cement		90 lb/ft^3	(1 442 kg/m^3)
Concrete			
Aerated		$40\ ^{+60}_{-10}$ lb/ft^3	$\left(641\ ^{+961}_{-160}\ \text{kg/m}^3\right)$
Brick aggregate		125 ± 10 lb/ft^3	(2 002 ± 160 kg/m^3)
Natural aggregates		144 lb/ft^3	(2 307 kg/m^3)
Lightweight aggregates			
Normal		70 ± 30 lb/ft^3	(1 121 ± 481 kg/m^3)
Structural		$110\ ^{+15}_{-10}$ lb/ft^3	$\left(1\ 762\ ^{+240}_{-160}\ \text{kg/m}^3\right)$

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Concrete (cont)		
Heavy weight aggregates		
e.g. barytes, ilmenite, magnetite, etc.	200 ± 10 lb/ft^3	(3 204 ± 160 kg/m^3)
Steel shot	330 ± 15 lb/ft^3	(5 286 ± 240 kg/m^3)
No-fines	110 ± 5 lb/ft^3	(1 762 ± 80 kg/m^3)
Organic aggregate	80 ± 35 lb/ft^3	(1 281 ± 561 kg/m^3)
Diatomaceous earth	$80\ ^{+7}_{-4}$ lb/ft^3	$\left(1\ 281\ ^{+112}_{-64}\ \text{kg/m}^3\right)$
Copper		
Cast	545 lb/ft^3	(8 730 kg/m^3)
Wrought		
Sheet and strip		
0.048 in (18 SWG)	2.2 lb/ft^2	(10.8 kg/m^2)
0.036 in (20 SWG)	1.7 lb/ft^2	(8.3 kg/m^2)
0.028 in (22 SWG)	1.3 lb/ft^2	(6.3 kg/m^2)
0.022 in (24 SWG)	1.0 lb/ft^2	(4.9 kg/m^2)
Other wrought forms	558 lb/ft^3	(8 938 kg/m^3)
Cork		
Granular, 0.188 in (4.8 mm) size, loosely packed	7.5 lb/ft^3	(120 kg/m^3)
Board		
Normal per 1 in (25.4 mm) thick	0.9 lb/ft^2	(4.4 kg/m^2)
Semi-compressed per 1 in (25.4 mm) thick	1.0 lb/ft^2	(4.9 kg/m^2)
Compressed per 1 in (25.4 mm) thick	1.5 lb/ft^2	(7.3 kg/m^2)
Flooring per 1 in (25.4 mm) thick	2.0 lb/ft^2	(9.8 kg/m^2)
Expanded metal, steel		
For concrete reinforcement (BS 1221)		
References (*BS* 1221)		
327	0.9 lb/ft^2	(4.4 kg/m^2)
331	0.6 lb/ft^2	(2.9 kg/m^2)
332	0.5 lb/ft^2	(2.4 kg/m^2)
348	1.3 lb/ft^2	(6.3 kg/m^2)
351	0.9 lb/ft^2	(4.4 kg/m^2)
352	0.6 lb/ft^2	(2.9 kg/m^2)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Expanded metal, steel (cont)

For plastering (BS 1369 and BS 405)		
References		
24 gauge (BS 1369)	0.3 lb/ft^2	(1.5 kg/m^2)
XM 104 (BS 405)	0.5 lb/ft^2	(2.4 kg/m^2)
XM 125 (BS 405)	0.6 lb/ft^2	(2.9 kg/m^2)
For general purposes (BS 405)		
References (BS 405)		
XM 46	0.9 lb/ft^2	(4.4 kg/m^2)
XM 51	0.3 lb/ft^2	(1.5 kg/m^2)
XM 75	0.7 lb/ft^2	(3.4 kg/m^2)
XM 79	0.2 lb/ft^2	(1.0 kg/m^2)
XM 104	0.5 lb/ft^2	(2.4 kg/m^2)
XM 125	0.6 lb/ft^2	(2.9 kg/m^2)

Felt

Insulating per 1 in (25.4 mm) thick	1.0 lb/ft^2	(4.9 kg/m^2)

Fibre building board

Insulating boards	0.5 in (12.7 mm)	0.7 lb/ft^2	(3.4 kg/m^2)
Hardboard			
Normal	0.125 in (3.2 mm)	0.7 lb/ft^2	(3.4 kg/m^2)
Tempered	0.125 in (3.2 mm)	0.7 lb/ft^2	(3.4 kg/m^2)
Laminated	0.188 in (4.8 mm)	0.7 lb/ft^2	(3.4 kg/m^2)
Acoustic (unfaced)	0.5 in (12.7 mm)	0.7–1.0 lb/ft^2	(3.4–4.9 kg/m^2)
	0.75 in (19.1 mm)	0.9–1.4 lb/ft^2	(4.4–6.8 kg/m^2)

Flagstones

Concrete		
2 in (50.8 mm) thick	24 lb/ft^2	(117 kg/m^2)
2.5 in (63.5 mm) thick	30 lb/ft^2	(146 kg/m^2)
Natural stone		
2 in (50.8 mm) thick	28 lb/ft^2	(137 kg/m^2)
2.5 in (63.5 mm) thick	35 lb/ft^2	(171 kg/m^2)

Floors

Hollow clay blocks		
Without ribs (including reinforcement and mortar jointing between blocks but excluding any concrete topping)		
4 in (101.6 mm)	30 lb/ft^2	(146 kg/m^2)
5 in (127.0 mm)	35 lb/ft^2	(171 kg/m^2)
6 in (152.4 mm)	39 lb/ft^2	(190 kg/m^2)
7 in (177.8 mm)	47 lb/ft^2	(229 kg/m^2)
8 in (203.2 mm)	53 lb/ft^2	(259 kg/m^2)

NOTE These weights are based on the use of hollow blocks of varying size and depth. For each 1 inch (25.4 mm) of thickness of concrete topping add 12 lb/ft^2 (58.6 kg/m^2).

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword

Floors (cont)

Hollow clay blocks (cont)

With concrete ribs between blocks (including reinforcement but excluding any concrete topping)

3 in (76.2 mm)	19 lb/ft^2	(92.8 kg/m^2)
3.5 in (88.9 mm)	22 lb/ft^2	(107 kg/m^2)
4 in (101.6 mm)	25 lb/ft^2	(122 kg/m^2)
4.5 in (114.3 mm)	27 lb/ft^2	(132 kg/m^2)
5 in (127.0 mm)	29 lb/ft^2	(142 kg/m^2)
5.5 in (139.7 mm)	31 lb/ft^2	(151 kg/m^2)
6 in (152.4 mm)	33 lb/ft^2	(161 kg/m^2)
7 in (177.8 mm)	37 lb/ft^2	(181 kg/m^2)
8 in (203.2 mm)	41 lb/ft^2	(200 kg/m^2)

NOTE These weights are based on the use of blocks of varying size and depth and of lesser density than those used without concrete ribs between the blocks.

For each 1 in (25.4 mm) thickness of concrete topping add 12 lb/ ft^2 (58.6 kg/m^2).

Hollow concrete units (including any concrete topping necessary for constructional purposes)

4 in (101.6 mm)	35 lb/ft^2	(171 kg/m^2)
5 in (127.0 mm)	40 lb/ft^2	(195 kg/m^2)
6 in (152.4 mm)	45 lb/ft^2	(220 kg/m^2)
7 in (177.8 mm)	50 lb/ft^2	(244 kg/m^2)
8 in (203.2 mm)	55 lb/ft^2	(269 kg/m^2)
9 in (228.6 mm)	65 lb/ft^2	(317 kg/m^2)

Glass

Sheet

24 oz (680.4 g) 0.11 in (2.8 mm) thick	1.5 lb/ft^2	(7.3 kg/m^2)
32 oz (907.2 g) 0.156 in (4.0 mm) thick	2 lb/ft^2	(9.8 kg/m^2)

Cast, clear plate and armoured plate

0.125 in (3.2 mm) thick	1.8 lb/ft^2	(8.8 kg/m^2)
0.25 in (6.4 mm) thick	3.3 lb/ft^2	(16.1 kg/m^2)
0.5 in (12.7 mm) thick	6.5 lb/ft^2	(31.7 kg/m^2)
1.0 in (25.4 mm) thick	13.3 lb/ft^2	(64.9 kg/m^2)

Wired cast

0.25 in (6.4 mm) thick	3.5 lb/ft^2	(17.1 kg/m^2)

Glass blocks

Hollow

(BS 1207) 3.875 in (98.4 mm) thick

8 in (203.2 mm) (20$\frac{1}{4}$ blocks per yd^2)	17 lb/ft^2	(83.0 kg/m^2)
6 in (152.4 mm) (36 blocks per yd^2)	20 lb/ft^2	(97.6 kg/m^2)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Glass fibre			
Thermal insulation of roofs and walls			
Per 1 in (25.4 mm) thick		0.1 lb/ft^2	(0.5 kg/m^2)
Acoustic insulation of floating floors			
Per 1 in (25.4 mm) thick		0.2 lb/ft^2	(0.1 kg/m^2)
Slab			
Per 1 in (25.4 mm) thick		0.4–1.0 lb/ft^2	(2.0–4.9 kg/m^2)
Formboard			
Per 1 in (25.4 mm) thick		1.1 lb/ft^2	(5.4 kg/m^2)
Roof board			
Per 1 in (25.4 mm) thick		1.3 lb/ft^2	(6.3 kg/m^2)
Glazing, patent			
[Bars at 2 ft (0.6 m) centres and wired cast glass 0.25 in (6.4 mm) thick]			
Lead-covered steel bars			
Spans up to 6 ft (1.8 m)		5.3 lb/ft^2	(25.9 kg/m^2)
Spans 6 ft to 11 ft (1.8–3.4 m)		6.0 lb/ft^2	(29.3 kg/m^2)
Aluminium bars			
Spans up to 11 ft (3.4 m)		4.0 lb/ft^2	(19.5 kg/m^2)
Gunmetal		553 lb/ft^3	(8 858 kg/m^3)
Gutters			
Cast iron (BS 1205)			
Half-round	3 in (76.2 mm)	1.8 lb/ft of effective length	(2.7 kg/m)
	4 in (101.6 mm)	2.1 lb/ft	(3.1 kg/m)
	4.5 in (114.3 mm)	2.4 lb/ft	(3.6 kg/m)
	5 in (127.0 mm)	2.7 lb/ft	(4.0 kg/m)
	6 in (152.4 mm)	3.2 lb/ft	(4.8 kg/m)
Ogee	4 in (101.6 mm)	2.4 lb/ft	(3.6 kg/m)
	4.5 in (114.3 mm)	2.8 lb/ft	(4.2 kg/m)
	5 in (127.0 mm)	3.1 lb/ft	(4.6 kg/m)
Asbestos cement			
Half-round	3 in (76.2 mm)	1.4 lb/ft of effective length	(2.1 kg/m)
	4 in (101.6 mm)	2.0 lb/ft	(3.0 kg/m)
	4.5 in (114.3 mm)	2.4 lb/ft	(3.6 kg/m)
	5 in (127.0 mm)	2.6 lb/ft	(3.9 kg/m)
	6 in (152.4 mm)	2.9 lb/ft	(4.3 kg/m)
	8 in (203.2 mm)	3.9 lb/ft	(5.8 kg/m)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Gutters (cont)			
Asbestose cement (cont)			
Ogee	4 in (101.6 mm)	2.5 lb/ft	(3.7 kg/m)
	4.5 in (114.3 mm)	3.0 lb/ft	(4.5 kg/m)
	5 in (127.0 mm)	3.0 lb/ft	(4.5 kg/m)
	6 in (152.4 mm)	3.5 lb/ft	(5.2 kg/m)
	8 in (203.2 mm)	5.1 lb/ft	(7.6 kg/m)
Plastics			
PVC 4 in (101.6 mm)		0.4 lb/ft	(0.6 kg/m)
Aluminium			
Half-round, 6 ft (1.8 m) lengths			
4 in (101.6 mm)			
Cast		0.8 lb/ft	(1.2 kg/m)
Wrought 0.08 in (14 SWG)		0.6 lb/ft	(0.9 kg/m)
4.5 in (114.3 mm)			
Cast		0.9 lb/ft	(1.3 kg/m)
Wrought 0.08 in (14 SWG)		0.7 lb/ft	(1.0 kg/m)
5 in (127.0 mm)			
Cast		1.0 lb/ft	(1.5 kg/m)
Wrought 0.08 in (14 SWG)		0.8 lb/ft	(1.2 kg/m)
6 in (152.4)			
Cast		1.1 lb/ft	(1.6 kg/m)
Wrought 0.08 in (14 SWG)		0.9 lb/ft	(1.3 kg/m)
Ogee, 6 ft (1.8 m) lengths			
4 in (101.6 mm)			
Cast		0.9 lb/ft	(1.3 kg/m)
Wrought 0.08 in (14 SWG)		0.8 lb/ft	(1.2 kg/m)
4.5 in (114.3 mm)			
Cast		1.1 lb/ft	(1.6 kg/m)
5 in (127.0 mm)			
Cast		1.3 lb/ft	(1.9 kg/m)
Wrought 0.08 in (14 SWG)		0.9 lb/ft	(1.3 kg/m)
Rectangular, 6 ft (1.8 m) lengths			
4 in × 2 in (101.6 mm × 50.8 mm)			
Wrought		0.8 lb/ft	(1.2 kg/m)
4 in × 3 in (101.6 mm × 76.2 mm)			
Cast		1.5 lb/ft	(2.2 kg/m)
5 in × 2½ in (127.0 mm × 63.5 mm)			
Wrought		1.0 lb/ft	(1.5 kg/m)
5 in × 4 in (127.0 mm × 101.6 mm)			
Cast		2.0 lb/ft	(3.0 kg/m)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Gutters (cont)		
Aluminium (cont)		
6 in × 3 in (152.4 mm × 76.2 mm)		
Wrought	1.2 lb/ft	(1.8 kg/m)
Precast concrete		
22 in (558.8 mm) on bed and		
7 in (177.8 mm) high	62 ± 2 lb/ft	(92 ± 3 kg/m)
Gypsum panels and partitions		
Building panels		
3 in thick (76.2 mm)	9 lb/ft^2	(43.9 kg/m^2)
4 in thick (101.6 mm)	10 lb/ft^2	(48.8 kg/m^2)
5 in thick (127.0 mm)	12 lb/ft^2	(58.6 kg/m^2)
6 in thick (152.4 mm)	13 lb/ft^2	(63.5 kg/m^2)
Dry partition		
2.25 in (57.2 mm) thick	4.2 lb/ft^2	(20.5 kg/m^2)
2.5 in (63.5 mm) thick	5.3 lb/ft^2	(25.9 kg/m^2)
Iron		
Cast	450 lb/ft^3	(7 208 kg/m^3)
Wrought	480 lb/ft^3	(7 689 kg/m^3)
Lathing		
Wood	1.3 lb/ft^2	(6.3 kg/m^2)
Expanded metal, steel		
For plastering (BS 1369 and BS 405)		
References		
24 gauge (BS 1369)	0.3 lb/ft^2	(1.5 kg/m^2)
XM 104 (BS 405)	0.6 lb/ft^2	(2.9 kg/m^2)
XM 125 (BS 405)	0.6 lb/ft^2	(2.9 kg/m^2)
Ribbed perforated metal sheet		
0.015 in (28 BG)	0.8 lb/ft^2	(3.9 kg/m^2)
0.019 in (26 BG)	0.9 lb/ft^2	(4.4 kg/m^2)
0.024 in (24 BG)	1.1 lb/ft^2	(5.4 kg/m^2)
Clay	1 lb/ft^2	(4.9 kg/m^2)
Lead		
Sheet (BS 1178)		
0.067 in (1.7 mm)	4.0 lb/ft^2	(19.5 kg/m^2)
0.084 in (2.1 mm)	5.0 lb/ft^2	(24.4 kg/m^2)
0.101 in (2.6 mm)	6.0 lb/ft^2	(29.3 kg/m^2)
0.118 in (3.0 mm)	7.0 lb/ft^2	(34.2 kg/m^2)
Cast	707 lb/ft^3	(11 325 kg/m^3)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Linoleum		
(BS 810)		
3.2 mm	0.9 lb/ft^2	(4.4 kg/m^2)
4.5 mm	1.2 lb/ft^2	(5.9 kg/m^2)
6.7 mm	2.0 lb/ft^2	(9.8 kg/m^2)
Magnesium alloys		
Cast	108 lb/ft^3	(1 730 kg/m^3)
Wrought		
Sheet, flat		
3 SWG	2.4 lb/ft^2	(11.8 kg/m^2)
10 SWG	1.2 lb/ft^2	(5.9 kg/m^2)
16 SWG	0.6 lb/ft^2	(2.9 kg/m^2)
20 SWG	0.3 lb/ft^2	(1.5 kg/m^2)
Other wrought forms	108 lb/ft^3	(1 730 kg/m^3)
Magnesium oxychloride		
Normal type (sawdust filler)		
1 in (25.4 mm) thick	7.2 ± 0.6 lb/ft^2	(35.2 ± 2.9 kg/m^2)
Heavy duty type (mineral filler)		
1 in (25.4 mm) thick	11 ± 0.6 lb/ft^2	(53.7 ± 2.9 kg/m^2)
Metal faced plywood		
Aluminium		
0.188 in (4.8 mm) thick		
Faced 1 side	0.8 lb/ft^2	(3.9 kg/m^2)
Faced 2 sides	1.1 lb/ft^2	(5.4 kg/m^2)
0.25 in (6.4 mm) thick		
Faced 1 side	1.0 lb/ft^2	(4.9 kg/m^2)
Faced 2 sides	1.3 lb/ft^2	(6.3 kg/m^2)
0.375 in (9.5 mm) thick		
Faced 1 side	1.3 lb/ft^2	(6.3 kg/m^2)
Faced 2 sides	1.5 lb/ft^2	(7.3 kg/m^2)
0.5 in (12.7 mm) thick		
Faced 1 side	1.7 lb/ft^2	(8.3 kg/m^2)
Faced 2 sides	2.0 lb/ft^2	(9.8 kg/m^2)
0.75 in (19.1 mm) thick		
Faced 1 side	2.5 lb/ft^2	(12.2 kg/m^2)
Faced 2 sides	2.8 lb/ft^2	(13.7 kg/m^2)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Metal faced plywood (cont)		
Galvanized steel		
0.188 in (4.8 mm) thick		
Faced 1 side	1.0 lb/ft^2	(4.9 kg/m^2)
Faced 2 sides	1.6 lb/ft^2	(7.8 kg/m^2)
0.25 in (6.4 mm) thick		
Faced 1 side	1.3 lb/ft^2	(6.3 kg/m^2)
Faced 2 sides	1.8 lb/ft^2	(8.8 kg/m^2)
0.375 in (9.5 mm) thick		
Faced 1 side	1.5 lb/ft^2	(7.3 kg/m^2)
Faced 2 sides	2.0 lb/ft^2	(9.8 kg/m^2)
0.5 in (12.7 mm) thick		
Faced 1 side	1.9 lb/ft^2	(9.3 kg/m^2)
Faced 2 sides	2.5 lb/ft^2	(12.2 kg/m^2)
0.75 in (19.1 mm) thick		
Faced 1 side	2.8 lb/ft^2	(13.7 kg/m^2)
Faced 2 sides	3.3 lb/ft^2	(16.1 kg/m^2)
Pavement lights, glazed		
Cast iron or reinforced concrete	25 ± 5 lb/ft^2	(122.1 ± 24.4 kg/m^2)
Pipes		
Cast iron		
Rainwater (BS 460)		
2.5 in (63.5 mm) nominal size	3.3 lb/ft	(4.9 kg/m)
3.0 in (76.2 mm) nominal size	4.0 lb/ft	(6.0 kg/m)
4.0 in (101.6 mm) nominal size	5.2 lb/ft	(7.7 kg/m)
Flue or smoke (BS 41)		
4.0 in (101.6 mm) nominal size	6.0 lb/ft	(8.9 kg/m)
4.5 in (114.3 mm) nominal size	6.7 lb/ft	(10.0 kg/m)
5.0 in (127.0 mm) nominal size	8.3 lb/ft	(12.4 kg/m)
6.0 in (152.4 mm) nominal size	11.3 lb/ft	(16.8 kg/m)
7.0 in (177.8 mm) nominal size	15.2 lb/ft	(22.6 kg/m)
8.0 in (203.2 mm) nominal size	19.7 lb/ft	(29.3 kg/m)
9.0 in (228.6 mm) nominal size	25.3 lb/ft	(37.7 kg/m)
10.0 in (254.0 mm) nominal size	31.3 lb/ft	(46.6 kg/m)
12.0 in (304.8 mm) nominal size	42.7 lb/ft	(63.5 kg/m)
Soil, waste and ventilating (BS 416)		
Medium		
3.0 in (76.2 mm) nominal size (min. int. dia.)	6.2 lb/ft	(9.2 kg/m)
4.0 in (101.6 mm) nominal size (min. int. dia.)	8.0 lb/ft	(11.9 kg/m)
6.0 in (152.4 mm) nominal size (min. int. dia.)	12.2 lb/ft	(18.2 kg/m)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Pipes (cont)		
Cast iron (cont)		
Soil, waste and ventilating (BS 416) (cont)		
Heavy		
3.0 in (76.2 mm) nominal size		
(min. int. dia.)	6.8 lb/ft	(10.1 kg/m)
4.0 in (101.6 mm) nominal size		
(min. int. dia.)	9.0 lb/ft	(13.4 kg/m)
Extra heavy		
4.0 in (101.6 mm) nominal size		
(min. int. dia.)	10.7 lb/ft	(15.9 kg/m)
6.0 in (152.4 mm) nominal size		
(min. int. dia.)	15.8 lb/ft	(23.5 kg/m)
Drain (BS 437)		
4 in (101.6 mm) nominal size		
(min. int. dia.)	17.5 lb/ft	(26.0 kg/m)
6 in (152.4 mm) nominal size		
(min. int. dia.)	25.0 lb/ft	(37.2 kg/m)
Asbestos cement		
Rainwater ((BS 569)		
3 in (76.2 mm) nominal size		
(int. dia.)	3 lb/ft	(4.5 kg/m)
4 in (101.6 mm) nominal size		
(int. dia.)	4 lb/ft	(6.0 kg/m)
Soil, waste and ventilating (BS 582)		
4 in (101.6 mm) nominal size		
(int. dia.)	4 lb/ft	(6.0 kg/m)
Drainage and sewerage (BS 3656)		
4 in (101.6 mm) nominal size		
Class 3	6.1 ± 0.3 lb/ft	(9.1 ± 0.4 kg/m)
6 in (152.4 mm) nominal size		
Class 3	9.9 ± 0.5 lb/ft	(14.7 ± 0.7 kg/m)
9 in (228.6 mm) nominal size		
Class 2	14.8 ± 0.7 lb/ft	(22.0 ± 1.0 kg/m)
Class 3	17.1 ± 0.9 lb/ft	(25.4 ± 1.3 kg/m)
12 in (304.8 mm) nominal size		
Class 1	22.4 ± 1.1 lb/ft	(33.3 ± 1.6 kg/m)
Class 2	25.8 ± 1.3 lb/ft	(38.4 ± 1.9 kg/m)
Class 3	29.9 ± 1.5 lb/ft	(44.5 ± 2.2 kg/m)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Pipes (cont)		
Asbestos cement (cont)		
Pressure (BS 486)		
4 in (101.6 mm) nominal size		
Classes A and B	6.7 ± 0.3 lb/ft	(10.0 ± 0.4 kg/m)
Classes C and D	7.1 ± 0.4 lb/ft	(10.6 ± 0.6 kg/m)
6 in (152.4 mm) nominal size		
Classes A and B	9.6 ± 0.5 lb/ft	(14.3 ± 0.7 kg/m)
Class C	12.7 ± 0.6 lb/ft	(18.9 ± 0.9 kg/m)
Class D	14.4 ± 0.7 lb/ft	(21.4 ± 1.0 kg/m)
9 in (228.6 mm) nominal size		
Class A	15.2 ± 0.8 lb/ft	(22.6 ± 1.2 kg/m)
Class B	18.1 ± 0.9 lb/ft	(26.9 ± 1.3 kg/m)
Class C	23.2 ± 1.2 lb/ft	(34.5 ± 1.8 kg/m)
Class D	28.2 ± 1.4 lb/ft	(42.0 ± 2.1 kg/m)
12 in (304.8 mm) nominal size		
Class A	22.4 ± 1.1 lb/ft	(33.3 ± 1.6 kg/m)
Class B	26.5 ± 1.3 lb/ft	(39.4 ± 1.9 kg/m)
Class C	39.3 ± 2.0 lb/ft	(58.5 ± 3.0 kg/m)
Class D	50.0 ± 2.7 lb/ft	(74.4 ± 4.0 kg/m)
Copper		
Water supply		
(average weights of tube, fittings and clips)		
0.5 in (12.7 mm) nominal size	0.3 lb/ft	(0.4 kg/m)
0.75 in (19.1 mm) nominal size	0.5 lb/ft	(0.7 kg/m)
1 in (25.4 mm) nominal size	0.8 lb/ft	(1.2 kg/m)
1.25 in (31.8 mm) nominal size	1.1 lb/ft	(1.6 kg/m)
1.5 in (38.1 mm) nominal size	1.3 lb/ft	(1.9 kg/m)
Rainwater, soil, waste and ventilating (BS 659)		
3 in (76.2 mm) nominal size (int. dia.)	2.1 lb/ft	(3.1 kg/m)
4 in (101.6 mm) nominal size (int. dia.)	3.3 lb/ft	(4.9 kg/m)
6 in (152.4 mm) nominal size (int. dia.)	5.4 lb/ft	(8.0 kg/m)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Pipes (cont)		
Steel		
Screwed and socketed (BS 1387)		
Light		
1.25 in (31.8 mm) nom. bore	1.8 lb/ft	(2.7 kg/m)
1.5 in (38.1 mm) nom. bore	2.2 lb/ft	(3.3 kg/m)
2 in (50.8 mm) nom. bore	2.8 lb/ft	(4.2 kg/m)
3 in (76.2 mm) nom. bore	4.7 lb/ft	(7.0 kg/m)
4 in (101.6 mm) nom. bore	6.8 lb/ft	(10.1 kg/m)
Medium		
1.25 in (31.8 mm) nom. bore	2.1 lb/ft	(3.1 kg/m)
1.5 in (38.1 mm) nom. bore	2.5 lb/ft	(3.7 kg/m)
2 in (50.8 mm) nom. bore	3.5 lb/ft	(5.2 kg/m)
3 in (76.2 mm) nom. bore	5.8 lb/ft	(8.6 kg/m)
4 in (101.6 mm) nom. bore	8.3 lb/ft	(12.4 kg/m)
6 in (152.4 mm) nom. bore	13.3 lb/ft	(19.8 kg/m)
Heavy		
1.25 in (31.8 mm) nom. bore	2.6 lb/ft	(3.9 kg/m)
1.5 in (38.1 mm) nom. bore	3.0 lb/ft	(4.5 kg/m)
2 in (50.8 mm) nom. bore	4.2 lb/ft	(6.3 kg/m)
3 in (76.2 mm) nom. bore	6.9 lb/ft	(10.3 kg/m)
4 in (101.6 mm) nom. bore	9.9 lb/ft	(14.7 kg/m)
6 in (152.4 mm) nom. bore	14.7 lb/ft	(21.9 kg/m)
Add 5 per cent extra if galvanized.		
Soil waste and ventilating		
3 in (76.2 mm) nom. int. dia.	2.0 lb/ft	(3.0 kg/m)
4 in (101.6 mm) nom. int. dia.	2.5 lb/ft	(3.7 kg/m)
Plastics		
Polythene		
General purposes		
Light		
0.5 in (12.7 mm) nom. int. dia.	0.04 lb/ft	(0.06 kg/m)
1.0 in (25.4 mm) nom. int. dia.	0.2 lb/ft	(0.3 kg/m)
2.0 in (50.8 mm) nom. int. dia.	0.4 lb/ft	(0.6 kg/m)
Medium		
0.438 in (11.1 mm) nom. int. dia.	0.06 lb/ft	(0.09 kg/m)
0.875 in (22.2 mm) nom. int. dia.	0.3 lb/ft	(0.4 kg/m)
2.25 in (57.2 mm) nom. int. dia.	0.7 lb/ft	(1.0 kg/m)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Pipes (cont)		
Plastics (cont)		
Polythene (cont)		
General purposes (cont)		
Heavy		
0.5 in (12.7 mm)		
nom. int. dia.	0.1 lb/ft	(0.1 kg/m)
1.0 in (25.4 mm)		
nom. int. dia.	0.4 lb/ft	(0.6 kg/m)
2.0 in (50.8 mm)		
nom. int. dia.	0.9 lb/ft	(1.3 kg/m)
High density		
Class B		
0.5 in (12.7 mm)		
nom. int. dia.	0.06 lb/ft	(0.09 kg/m)
1.0 in (25.4 mm)		
nom. int. dia.	0.1 lb/ft	(0.1 kg/m)
2.0 in (50.8 mm)		
nom. int. dia.	0.4 lb/ft	(0.6 kg/m)
Class C		
0.5 in (12.7 mm)		
nom. int. dia.	0.08 lb/ft	(0.1 kg/m)
1.0 in (25.4 mm)		
nom. int. dia.	0.2 lb/ft	(0.3 kg/m)
2.0 in (50.8 mm)		
nom. int. dia.	0.6 lb/ft	(0.9 kg/m)
Class D		
0.5 in (12.7 mm)		
nom. int. dia.	0.1 lb/ft	(0.1 kg/m)
1.0 in (25.4 mm)		
nom. int. dia.	0.2 lb/ft	(0.3 kg/m)
2.0 in (50.8 mm)		
nom. int. dia.	0.4 lb/ft	(0.6 kg/m)
Cold water		
Normal		
0.5 in (12.7 mm) nom. bore	0.07 lb/ft	(0.1 kg/m)
1.0 in (25.4 mm) nom. bore	0.2 lb/ft	(0.3 kg/m)
2.0 in (50.8 mm) nom. bore	0.5 lb/ft	(0.7 kg/m)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Pipes (cont)		
Plastics (cont)		
Polythene (cont)		
High density (cont)		
Heavy		
0.5 in (12.7 mm) nom. bore	0.1 lb/ft	(0.1 kg/m)
1.0 in (25.4 mm) nom. bore	0.3 lb/ft	(0.4 kg/m)
Rainwater		
2.5 in (63.5 mm) nom. size	0.4 lb/ft	(0.6 kg/m)
Soil		
4 in (101.6 mm) nom. size	0.9 lb/ft	(1.3 kg/m)
PVC		
Cold water supply (BS 3505)		
Class AA		
6 in (152.4 mm) nom. size	2.1 lb/ft	(3.1 kg/m)
Class B		
2 in (50.8 mm) nom. size	0.4 lb/ft	(0.6 kg/m)
3 in (76.2 mm) nom. size	0.8 lb/ft	(1.2 kg/m)
4 in (101.6 mm) nom. size	1.2 lb/ft	(1.8 kg/m)
6 in (152.4 mm) nom. size	2.6 lb/ft	(3.9 kg/m)
Class C		
1 in (25.4 mm) nom. size	0.2 lb/ft	(0.3 kg/m)
2 in (50.8 mm) nom. size	0.5 lb/ft	(0.7 kg/m)
3 in (76.2 mm) nom. size	1.0 lb/ft	(1.5 kg/m)
4 in (101.6 mm) nom. size	1.7 lb/ft	(2.5 kg/m)
6 in (152.4 mm) nom. size	3.7 lb/ft	(5.5 kg/m)
Class D		
0.5 in (12.7 mm) nom. size	0.1 lb/ft	(0.1 kg/m)
1 in (25.4 mm) nom. size	0.2 lb/ft	(0.3 kg/m)
2 in (50.8 mm) nom. size	0.6 lb/ft	(0.9 kg/m)
3 in (76.2 mm) nom. size	1.3 lb/ft	(1.9 kg/m)
4 in (101.6 mm) nom. size	2.2 lb/ft	(3.3 kg/m)
6 in (152.4 mm) nom. size	4.8 lb/ft	(7.1 kg/m)
Lead (BS 602)		
Pressure		
Service pipes above ground		
0.5 in (12.7 mm)		
nom. int. dia.	$1.7\ ^{+1.3}_{-0.3}$ lb/ft	$\left(2.5\ ^{+1.9}_{-0.4}\ \text{kg/m}\right)$
0.75 in (19.1 mm)		
nom. int. dia.	$3.7\ ^{+\ 1.3}_{-2.0}$ lb/ft	$\left(5.5\ ^{+1.9}_{-3.0}\ \text{kg/m}\right)$

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Pipes (cont)		
Lead (BS 602) (cont)		
Pressure (cont)		
Service pipes above ground (cont)		
1 in (25.4 mm)		
nom. int. dia.	$5.3\ ^{+1.7}_{-2.7}$ lb/ft	$\left(7.9\ ^{+2.5}_{-4.0}\ \text{kg/m}\right)$
1.25 in (31.8 mm)		
nom. int. dia.	$9.3\ ^{+0}_{-4.7}$ lb/ft	$\left(13.8\ ^{+0}_{-7.0}\ \text{kg/m}\right)$
Cold water distributing pipes above ground		
0.5 in (12.7 mm)		
nom. int. dia.	1.3 lb/ft	(1.9 kg/m)
0.75 in (19.1 mm)		
nom. int. dia.	1.7 lb/ft	(2.5 kg/m)
1 in (25.4 mm)		
nom. int. dia.	2.3–2.7 lb/ft	(3.4–4.0 kg/m)
1.25 in (31.8 mm)		
nom. int. dia.	3.0–4.0 lb/ft	(4.5–6.0 kg/m)
Hot water distributing pipes above ground		
0.5 in (12.7 mm)		
nom. int. dia.	1.3–1.7 lb/ft	(1.9–2.5 kg/m)
0.75 in (19.1 mm)		
nom. int. dia.	1.7–3.3 lb/ft	(2.5–4.9 kg/m)
1 in (25.4 mm)		
nom. int. dia.	2.7–6.0 lb/ft	(4.0–8.9 kg/m)
1.25 in (31.8 mm)		
nom. int. dia.	4.0–9.3 lb/ft	(6.0–13.8 kg/m)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Pipes (cont)		
Lead (cont)		
Pressure (cont)		
Gas pipes		
0.375 in (9.5 mm) nom. int. dia.	0.5 lb/ft	(0.7 kg/m)
0.5 in (12.7 mm) nom. int. dia.	0.7–1.0 lb/ft	(1.0–1.5 kg/m)
0.625 (15.9 mm) nom. int. dia.	1.0–1.2 lb/ft	(1.5–1.8 kg/m)
0.75 in (19.1 mm) nom. int. dia.	1.3–1.7 lb/ft	(1.9–2.5 kg/m)
1 in (25.4 mm) nom. int. dia.	2.0–2.3 lb/ft	(3.0–3.4 kg/m)
1.25 in (31.8 mm) nom. int. dia.	2.3–3.0 lb/ft	(3.4–4.5 kg/m)
1.5 in (38.1 mm) nom. int. dia.	3.0–4.0 lb/ft	(4.5–6.0 kg/m)
2 in (50.8 mm) nom. int. dia.	4.0–5.3 lb/ft	(6.0–7.9 kg/m)
Non–pressure		
Rainwater, soil, waste and soil-and-waste ventilating pipes		
1.25 in (31.8 mm) nom. int. dia.	2.0 lb/ft	(3.0 kg/m)
1.5 in (38.1 mm) nom. int. dia.	2.3 lb/ft	(3.4 kg/m)
2 in (50.8 mm) nom. int. dia.	3.3 lb/ft	(4.9 kg/m)
3 in (76.2 mm) nom. int. dia.	5.0 lb/ft	(7.4 kg/m)
4 in (101.6 mm) nom. int. dia.	6.3 lb/ft	(9.4 kg/m)
6 in (152.4 mm) nom. int. dia.	11.3 lb/ft	(16.8 kg/m)
Pitch fibre (complete with couplings)		
2 in (50.8 mm) nom. size (min. int. dia.)	1.2 lb/ft	(1.8 kg/m)
3 in (76.2 mm) nom. size (min. int. dia.)	2.0 lb/ft	(3.0 kg/m)
4 in (101.6 mm) nom. size (min. int. dia.)	2.6 lb/ft	(3.9 kg/m)
5 in (127.0 mm) nom. size (min. int. dia.)	4.3 lb/ft	(6.4 kg/m)
6 in (152.4 mm) nom. size (min. int. dia.)	5.0 lb/ft	(7.4 kg/m)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Pipes (cont)

Clay, salt-glazed (BS 65 and BS 540)		
3 in (76.2 mm) int. dia.	8 lb/ft	(11.9 kg/m)
4 in (101.6 mm) int. dia	11 lb/ft	(16.4 kg/m)
6 in (152.4 mm) int. dia.	17 lb/ft	(25.3 kg/m)
9 in (228.6 mm) int. dia.	27 lb/ft	(40.2 kg/m)
12 in (304.8 mm) int. dia.	46 lb/ft	(68.5 kg/m)
Concrete		
Unreinforced or reinforced (BS 556)		
Spigot and socket		
4 in (101.6 mm) nom. int. dia.	21–22 lb/ft	(31.3–32.7 kg/m)
6 in (152.4 mm) nom. int. dia	28–32 lb/ft	(41.7–47.6 kg/m)
9 in (228.6 mm) nom. int. dia.	45–50 lb/ft	(67.0–74.4 kg/m)
12 in (304.8 mm) nom. int. dia.	70–78 lb/ft	(104.2–116.1 kg/m)
15 in (381.0 mm) nom. int. dia.	95–102 lb/ft	(141.4–151.8 kg/m)
18 in (457.2 mm) nom. int. dia.	125–133 lb/ft	(186.0–197.9 kg/m)
24 in (609.6 mm) nom. int. dia.	202–210 lb/ft	(300.6–312.5 kg/m)
30 in (762.0 mm) nom. int. dia.	281–315 lb/ft	(418.2–468.8 kg/m)
36 in (914.4 mm) nom. int. dia.	370–392 lb/ft	(550.6–583.4 kg/m)
48 in (1 219 mm) nom. int. dia.	630–644 lb/ft	(937.5–958.4 kg/m)
54 in (1 372 mm) nom. int. dia.	785–905 lb/ft	(1 168–1 347 kg/m)
60 in (1 524 mm) nom. int. dia.	925–975 lb/ft	(1 377–1 451 kg/m)
72 in (1 829 mm) nom. int. dia.	1 296 lb/ft	(1 929 kg/m)

NOTE For pipes with ogee joints, i.e. without a collar, deduct 10 per cent from the above weights.

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Pipes (cont)		
Aluminium		
Rainwater, with ears (BS 2997)		
2 in (50.8 mm) nom. int. dia.		
Cast	0.8 lb/ft	(1.2 kg/m)
Wrought		
Heavy, 0.048 in (18 SWG) min. thickness	0.5 lb/ft	(0.7 kg/m)
Light, 0.028 in (22 SWG) min. thickness	0.3 lb/ft	(0.4 kg/m)
2.5 in (63.5 mm) nom. int. dia.		
Cast	1.0 lb/ft	(1.5 kg/m)
Wrought		
Heavy, 0.048 in (18 SWG) min. thickness	0.6 lb/ft	(0.9 kg/m)
Light, 0.028 in (22 SWG) min. thickness	0.4 lb/ft	(0.6 kg/m)
3 in (76.2 mm) nom. int. dia.		
Cast	1.6 lb/ft	(2.4 kg/m)
Wrought		
Heavy, 0.048 in (18 SWG) min. thickness	0.7 lb/ft	(1.0 kg/m)
Light, 0.028 in (22 SWG) min. thickness	0.5 lb/ft	(0.7 kg/m)
4 in (101.6 mm) nom. int. dia.		
Cast	1.7 lb/ft	(2.5 kg/m)
Wrought		
Heavy, 0.048 in (18 SWG) min. thickness	1.0 lb/ft	(1.5 kg/m)
Brass		
0.5 in (12.7 mm) outs. dia.		
0.064 in (16 SWG)	0.3 lb/ft	(0.4 kg/m)
0.036 in (20 SWG)	0.2 lb/ft	(0.3 kg/m)
0.022 in (24 SWG)	0.1 lb/ft	(0.1 kg/m)
0.75 in (19.1 mm) outs. dia.		
0.064 in (16 SWG)	0.5 lb/ft	(0.7 kg/m)
0.036 in (20 SWG)	0.3 lb/ft	(0.4 kg/m)
0.022 in (24 SWG)	0.2 lb/ft	(0.3 kg/m)
1 in (25.4 mm) outs. dia.		
0.064 in (16 SWG)	0.7 lb/ft	(1.0 kg/m)
0.036 in (20 SWG)	0.4 lb/ft	(0.6 kg/m)
0.022 in (24 SWG)	0.3 lb/ft	(0.4 kg/m)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Pipes (cont)		
Brass (cont)		
1.25 in (31.8 mm) outs. dia.		
0.064 in (16 SWG)	0.9 lb/ft	(1.3 kg/m)
0.036 in (20 SWG)	0.5 lb/ft	(0.7 kg/m)
0.022 in (24 SWG)	0.3 lb/ft	(0.4 kg/m)
1.5 in (38.1 mm) outs. dia.		
0.064 in (16 SWG)	1.1 lb/ft	(1.6 kg/m)
0.036 in (20 SWG)	0.6 lb/ft	(0.9 kg/m)
0.022 in (24 SWG)	0.4 lb/ft	(0.6 kg/m)
2 in (50.8 mm) outs. dia.		
0.064 in (16 SWG)	1.4 lb/ft	(2.1 kg/m)
0.036 in (20 SWG)	0.8 lb/ft	(1.2 kg/m)
0.022 in (24 SWG)	0.5 lb/ft	(0.7 kg/m)
3 in (76.2 mm) outs. dia.		
0.064 in (16 SWG)	2.2 lb/ft	(3.3 kg/m)
0.036 in (20 SWG)	1.2 lb/ft	(1.8 kg/m)
0.022 in (24 SWG)	0.8 lb/ft	(1.2 kg/m)
4 in (101.6 mm) outs. dia.		
0.064 in (16 SWG)	2.9 lb/ft	(4.3 kg/m)
0.036 in (20 SWG)	1.7 lb/ft	(2.5 kg/m)
0.022 in (24 SWG)	1.0 lb/ft	(1.5 kg/m)
Pitchmastic		
Flooring		
1 in (25.4 mm) thick	11.1 ± 1.1 lb/ft	(16.5 ± 1.6 kg/m)
Plaster		
Gypsum		
Two coat, 0.5 in (12.7 mm) thick		
Normal sanded undercoat and neat finishing	4.5 lb/ft^2	(22.0 kg/m^2)
One coat, 0.2 in (5.1 mm) thick, neat gypsum	1.4 lb/ft^2	(6.8 kg/m^2)
Lime (non-hydraulic and hydraulic) 0.5 in (12.7 mm) thick	5.0 lb/ft^2	(24.4 kg/m^2)
Barium sulphate 0.5 in (12.7 mm) thick	8.0 lb/ft^2	(39.1 kg/m^2)
Lightweight		
Perlite aggregate, 2 coat, 0.5 in (12.7 mm) thick	2.0 lb/ft^2	(9.8 kg/m^2)
Vermiculite aggregate, 2 coat, 0.5 in (12.7 mm) thick	2.2 lb/ft^2	(10.7 kg/m^2)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Plasterboard, gypsum		
Solid core		
0.375 in (9.5 mm)	1.7 lb/ft^2	(8.3 kg/m^2)
0.5 in (12.7 mm)	2.3 lb/ft^2	(11.2 kg/m^2)
0.75 in (19.1 mm)	3.5 lb/ft^2	(17.1 kg/m^2)
Perforated lath		
0.375 in (9.5 mm)	1.6 lb/ft^2	(7.8 kg/m^2)
0.5 in (12.7 mm)	2.2 lb/ft^2	(10.7 kg/m^2)
Plastics		
Flooring		
Flexible PVC		
0.062 in (1.6 mm)	0.5 lb/ft^2	(2.4 kg/m^2)
0.080 in (2.0 mm)	0.7 lb/ft^2	(3.4 kg/m^2)
0.100 in (2.5 mm)	0.8 lb/ft^2	(3.9 kg/m^2)
0.125 in (3.2 mm)	1.0 lb/ft^2	(4.9 kg/m^2)
PVC (Vinyl) asbestos tiles		
0.062 in (1.6 mm)	0.7 lb/ft^2	(3.4 kg/m^2)
0.080 in (2.0 mm)	0.9 lb/ft^2	(4.4 kg/m^2)
0.100 in (2.5 mm)	1.2 lb/ft^2	(5.9 kg/m^2)
0.125 in (3.2 mm)	1.4 lb/ft^2	(6.8 kg/m^2)
0.188 in (4.8 mm)	2.1 lb/ft^2	(10.3 kg/m^2)
Flat sheet		
Acrylic		
0.125 in (3.2 mm)	0.8 lb/ft^2	(3.9 kg/m^2)
0.25 in (6.4 mm)	1.5 lb/ft^2	(7.3 kg/m^2)
Cellulose acetate		
0.063 in (1.6 mm)	0.4 lb/ft^2	(2.0 kg/m^2)
0.125 in (3.2 mm)	0.9 lb/ft^2	(4.4 kg/m^2)
Synthetic resin bonded paper		
Melamine faced 0.063 in (1.6 mm) thick	0.4–0.5 lb/ft^2	(2.0–2.4 kg/m^2)
Corrugated (including Allowance for laps)		
Acrylic	0.9 lb/ft^2	(4.4 kg/m^2)
Glass-fibre reinforced polyester	0.8 lb/ft^2	(3.9 kg/m^2)
PVC	0.8 lb/ft^2	(3.9 kg/m^2)
Expanded and foamed		
Expanded PVC per 1 in (25.4 mm) thick	0.3 ± 0.2 lb/ft^2	(1.5 ± 1.0 kg/m^2)
Expanded polystyrene per 1 in (25.4 mm) thick	0.1 lb/ft^2	(0.5 kg/m^2)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Plastics (cont)		
Expanded and foamed (cont)		
Foamed polystyrene per 1 in (25.4 mm) thick	0.1 ± 0.02 lb/ft^2	(0.5 ± 0.1 kg/m^2)
Foamed polyurethane per 1 in (25.4 mm) thick	0.5 ± 0.3 lb/ft^2	(2.4 ± 1.5 kg/m^2)
Foamed phenolic resin per 1 in (25.4 mm) thick	0.3 ± 0.1 lb/ft^2	(1.5 ± 0.5 kg/m^2)
Domelights		
Acrylic		
0.188 in (4.8 mm)	1.1 lb/ft^2	(5.4 kg/m^2)
0.25 in (6.4 mm)	1.5 lb/ft^2	(7.3 kg/m^2)
Damp-proof course		
Polythene 0.02 in (0.5 mm) nom. thickness	0.1 lb/ft^2	(0.5 kg/m^2)
Plywood		
Per mm thick	0.125 ± 0.025 lb/ft^2	(0.6 ± 0.1 kg/m^2)
Quilt		
Eelgrass per 1 in (25.4 mm) thick	0.3–0.4 lb/ft^2	(1.5–2.0 kg/m^2)
Glass fibre per 1 in (25.4 mm) thick	0.2 lb/ft^2	(1.0 kg/m^2)
Hair per 1 in (25.4 mm) thick	1 ± 0.1 lb/ft^2	(4.9 ± 0.5 kg/m^2)
Kapok per 1 in (25.4 mm) thick	0.1 lb/ft^2	(0.5 kg/m^2)
Mineral wool per 1 in (25.4 mm) thick	0.7 ± 0.3 lb/ft^2	(3.4 ± 1.5 kg/m^2)
Reinforced concrete	150 lb/ft^3	(2 403 kg/m^3)
Rendering		
Portland cement : sand (1 : 3)		
0.5 in (12.7 mm) thick	6.0 lb/ft^2	(29.3 kg/m^2)
Rubber		
Flooring		
Sheet or tiles		
0.125 in (3.2 mm)	1.1 lb/ft^2	(5.4 kg/m^2)
0.188 in (4.8 mm)	1.7 lb/ft^2	(8.3 kg/m^2)
0.25 in (6.4 mm)	2.2 lb/ft^2	(10.7 kg/m^2)
0.375 in (9.5 mm)	3.3 lb/ft^2	(16.1 kg/m^2)
Latex-hydraulic cement		
0.25 in (6.4 mm) thick	2.6 ± 0.3 lb/ft^2	(12.7 ± 1.5 kg/m^2)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Rubber (cont)		
Cellular		
Expanded		
Light density [max. static load 1.5 lbf/in^2 (0.10 kgf/cm^2)] per 1 in (25.4 mm) thick	1.1 lb/ft^2	(5.4 kg/m^2)
Standard density [max. static load 2 lbf/in^2 (0.14 kgf/cm^2)] per 1 in (25.4 mm) thick	1.6 lb/ft^2	(7.8 kg/m^2)
Heavy density [max. static load 7.5 lbf/in^2 (0.53 kgf/cm^2)] per 1 in (25.4 mm) thick	2.5 lb/ft^2	(12.2 kg/m^2)
Expanded ebonite per 1 in (25.4 mm) thick	0.4 lb/ft^2	(2.0 kg/m^2)
Sand	100 ± 5 lb/ft^3	(1 602 ± 80 kg/m^3)
Screeding		
Portland cement : sand (1 : 3) 0.5 in (12.7 mm) thick	6 lb/ft^2	(29.3 kg/m^2)
Shingles		
Cedar wood	1.5 lb/ft^2	(7.3 kg/m^2)
Slate		
Slab (Westmorland, etc.) 1 in (25.4 mm) thick	15 lb/ft^2	(73.2 kg/m^2)
Slating (including 3 in (76.2 mm) laps and nails)		
Welsh		
Thin	5 lb/ft^2	(24.4 kg/m^2
Thick	10 lb/ft^2	(48.8 kg/m^2)
Westmorland		
Thin	10 lb/ft^2	(48.8 kg/m^2)
Thick	16 lb/ft^2	(78.1 kg/m^2)
Cornish		
Thin	6 lb/ft^2	(29.3 kg/m^2)
Thick	10 lb/ft^2	(48.8 kg/m^2)
Soils		
Non-cohesive (or granular) i.e. sands and gravels		
Loose	115 ± 10 lb/ft^3	(1 842 ± 160 kg/m^3)
Dense	130 ± 10 lb/ft^3	(2 082 ± 160 kg/m^3)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Soils (cont)		
Cohesive, i.e. silts and clays		
Soft	100 ± 15 lb/ft^3	(1 602 ± 240 kg/m^3)
Firm	110 ± 10 lb/ft^3	(1 762 ± 160 kg/m^3)
Stiff	125 ± 10 lb/ft^3	(2 002 ± 160 kg/m^3)
Steel		
Mild		
Solid	490 lb/ft^3	(7 849 kg/m^3)
Sheet		
Corrugated (including 20 per cent for laps "as laid")		
0.05 in (18 BG)	2.8 lb/ft^2	(13.7 kg/m^2)
Flat 0.05 in (18 BG)	2.0 lb/ft^2	(9.8 kg/m^2)
Protected		
Corrugated (including 20 per cent for laps "as laid")		
0.039 in (20 BG)	3.2 lb/ft^2	(15.6 kg/m^2)
Flat 0.039 in (20 BG)	2.2 lb/ft^2	(10.7 kg/m^2)
Cast	490 lb/ft^3	(7 849 kg/m^3)
Fabric		
(BS 1221, Table 1, Table 2 or Table 4)		
Oblong Mesh		
References (BS 1221)		
101, 201 and 401	1.8 lb/ft^2	(8.8 kg/m^2)
103, 203 and 403	1.4 lb/ft^2	(6.8 kg/m^2)
106, 206 and 406	0.9 lb/ft^2	(4.4 kg/m^2)
108, 208 and 408	0.6 lb/ft^2	(2.9 kg/m^2)
109, 209 and 409	0.5 lb/ft^2	(2.4 kg/m^2)
113	0.2 lb/ft^2	(9.8 kg/m^2)
Square mesh		
References (BS 1221)		
121, 221 and 421	1.0 lb/ft^2	(4.9 kg/m^2)
123, 223 and 423	0.7 lb/ft^2	(3.4 kg/m^2)
124, 224 and 424	0.6 lb/ft^2	(2.9 kg/m^2)
125, 225 and 425	0.5 lb/ft^2	(2.4 kg/m^2)
Stonework, natural		
Limestone		
Light, e.g. Bathstone	130 lb/ft^3	(2 082 kg/m^3)
4 in (101.6 mm) thick	43 lb/ft^2	(209.9 kg/m^2)
6 in (152.4 mm) thick	65 lb/ft^2	(317.4 kg/m^2)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Stonework, natural (cont)		
Limestone (cont)		
Medium, e.g. Portland stone	140 lb/ft^3	(2 243 kg/m^3)
3 in (76.2 mm) thick	35 lb/ft^2	(170.9 kg/m^2)
4 in (101.6 mm) thick	47 lb/ft^2	(229.5 kg/m^2)
Heavy, e.g. marble	170 lb/ft^3	(2 723 kg/m^3)
0.75 in (19.1 mm) thick	10.5 lb/ft^2	(51.3 kg/m^2)
1.5 in (38.1 mm) thick	21 lb/ft^2	(102.5 kg/m^2)
Sandstone		
Light, e.g. Woolton	137 lb/ft^3	(2 195 kg/m^3)
4 in (101.6 mm) thick	46 lb/ft^2	(224.6 kg/m^2)
6 in (152.4 mm) thick	69 lb/ft^2	(336.9 kg/m^2)
Medium, e.g. Darley Dale	145 lb/ft^3	(2 323 kg/m^3)
4 in (101.6 mm) thick	48 lb/ft^2	(234.4 kg/m^2)
6 in (152.4 mm) thick	73 lb/ft^2	(356.4 kg/m^2)
Heavy, e.g. Mansfield Red	150 lb/ft^3	(2 403 kg/m^3)
4 in (101.6 mm) thick	50 lb/ft^2	(244.1 kg/m^2)
6 in (152.4 mm) thick	75 lb/ft^2	(366.2 kg/m^2)
Granite		
Light, e.g. Peterhead	162 lb/ft^3	(2 595 kg/m^3)
2 in (50.8 mm) thick	27 lb/ft^2	(131.8 kg/m^2)
3 in (76.2 mm) thick	40 lb/ft^2	(195.3 kg/m^2)
Medium, e.g. Cornish	165 lb/ft^3	(2 643 kg/m^3)
2 in (50.8 mm) thick	28 lb/ft^2	(136.7 kg/m^2)
3 in (76.2 mm) thick	41 lb/ft^2	(200.2 kg/m^2)
Heavy, e.g. Guernsey	183 lb/ft^3	(2 931 kg/m^3)
2 in (50.8 mm) thick	30 lb/ft^2	(146.5 kg/m^2)
3 in (76.2 mm)	46 lb/ft^2	(224.6 kg/m^2)
NOTE For cramps add 5 lb/ft^3	(80.1 kg/m^3)	
Straw slab, compressed		
Per 1 in (25.4 mm) thick	2.0 ± 0.2 lb/ft^2	(9.8 ± 1.0 kg/m^2)
Tarmacadam		
Roads and footpaths 1 in (25.4 mm) thick	12 lb/ft^2	(58.6 kg/m^2)
Terra cotta, solid	132 lb/ft^3	(2 114 kg/m^3)
Terrazzo		
Paving 0.625 in (15.9 mm)	6.7 ± 0.7 lb/ft^2	(32.7 ± 3.4 kg/m^2)
Tiles		
1 in (25.4 mm)	10 ± 1.0 lb/ft^2	(48.8 ± 4.9 kg/m^2)
Partitions		
1.5 in (38.1 mm)	16.7 ± 1.7 lb/ft^2	(81.5 ± 8.3 kg/m^2)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Thatching		
Reed (including battens) 1 ft (304.8 mm) thick	8.5 lb/ft²	(41.5 kg/m²)
Thermal capacity roof coverings		
Shingle and felspar		
Per 1 in (25.4 mm) thick	7.5 lb/ft²	(36.6 kg/m²)
Tiling, floor		
Asphalt 0.125 in (3.2 mm) thick	1.3 lb/ft²	(6.3 kg/m²)
Clay		
0.5 in (12.7 mm) thick	5.6 lb/ft²	(27.3 kg/m²)
0.875 in (22.2 mm) thick	9.2 lb/ft²	(44.9 kg/m²)
Cork compressed		
0.25 in (6.4 mm) thick	0.5 lb/ft²	(2.4 kg/m²)
Hardboard faced, bitumen based		
0.125 in (3.2 mm) thick	0.8 lb/ft²	(3.9 kg/m²)
PVC flexible		
0.062 in (1.6 mm) thick	0.5 lb/ft²	(2.4 kg/m²)
0.080 in (2.0 mm) thick	0.7 lb/ft²	(3.4 kg/m²)
0.1 in (2.5 mm) thick	0.8 lb/ft²	(3.9 kg/m²)
0.125 in (3.2 mm) thick	1.0 lb/ft²	(4.9 kg/m²)
PVC (vinyl) asbestos		
0.062 in (1.6 mm) thick	0.7 lb/ft²	(3.4 kg/m²)
0.080 in (2.0 mm) thick	0.9 lb/ft²	(4.4 kg/m²)
0.1 in (2.5 mm) thick	1.2 lb/ft²	(5.9 kg/m²)
0.125 in (3.2 mm) thick	1.4 lb/ft²	(6.8 kg/m²)
0.188 in (4.8 mm) thick	2.1 lb/ft²	(10.3 kg/m²)
Concrete 0.625 in (15.9 mm) thick	7.8 lb/ft²	(38.1 kg/m²)
Tiling, roof		
Clay		
Plain		
Machine made, 4 in (101.6 mm) gauge	13.0 lb/ft²	(63.5 kg/m²)
Hand made, 4 in (101.6 mm) gauge	14.5 lb/ft²	(70.8 kg/m²)
Single lap (interlocking)	8 ± 1 lb/ft²	(39.1 ± 4.9 kg/m²)
Concrete		
Slate aggregate 12 in (304.8 mm) gauge	9.0 lb/ft²	(43.9 kg/m²)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Tiling, roof (cont)		
Concrete (cont)		
Stone aggregate		
Plain, 3 in (76.2 mm) gauge	19.0 lb/ft^2	(92.8 kg/m^2)
4 in (101.6 mm) gauge	14.0 lb/ft^2	(68.4 kg/m^2)
4.5 in (114.3 mm) gauge	12.5 lb/ft^2	(61.0 kg/m^2)
Interlocking (single lap)	10 ± 1.5 lb/ft^2	(48.8 ± 7.3 kg/m^2)
Tiling, wall		
Clay 0.375 in (9.5 mm) thick	4.0 lb/ft^2	(19.5 kg/m^2)
Fibre, acoustic 0.75 in (19.1 mm) thick	1.1 lb/ft^2	(5.4 kg/m^2)
Plastics		
Polystyrene		
Dense 0.070 in (1.8 mm) (BS 2552)	0.4 lb/ft^2	(2.0 kg/m^2)
Expanded 0.188 in (4.8 mm)	0.4 lb/ft^2	(2.0 kg/m^2)
PVC 0.060 in (1.5 mm)	0.7 lb/ft^2	(3.4 kg/m^2)
Timber		
Softwoods, e.g. pine, spruce, Douglas fir	$30\ ^{+7}_{-2}$ lb/ft^3	$\left(480.6\ ^{+112.1}_{-32.0}\ \text{kg/m}^3\right)$
Pitchpine, longleaf dense	42 lb/ft^3	(672.8 kg/m^3)
Hardwoods, e.g. Burma teak, oak, maple	$45\ ^{+33}_{-38}$ lb/ft^3	$\left(720.8\ ^{+528.6}_{-608.7}\ \text{kg/m}^3\right)$
Vermiculite		
Exfoliated		
Fine aggregate for plaster	8–10 lb/ft^3	(128.1–160.2 kg/m^3)
Coarse aggregate for plaster	5.5–7 lb/ft^3	(88.1–112.1 kg/m^3)
Fine aggregate for concrete	4.5–5.5 lb/ft^3	(72.1–88.1 kg/m^3)
Coarse aggregate for concrete and loose fill	4–5 lb/ft^3	(64.1–80.1 kg/m^3)
Crude	36–55 lb/ft^3	(576.7–881.0 kg/m^3)
Water		
1 in (25.4 mm) deep (e.g. for ponding on roofs, etc.)	5.2 lb/ft^2	(25.4 kg/m^2)
(e.g. for concrete mix calculations and weights in tanks, etc.)	62.4 lb/ft^3	(1 000 kg/m^3)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword

Water (cont)		
1 in² (645 mm²) cross-sectional area (e.g. for calculations on weights in service pipes, etc.)	0.43 lb/ft	(0.64 kg/m)
Weather boarding		
0.75 in (19.1 mm)	1.5 lb/ft²	(7.3 kg/m²)
1 in (25.4 mm)	1.8 lb/ft²	(8.8 kg/m²)
Wood floors, strip		
Softwood		
0.875 in (22.2 mm)	2.3 lb/ft²	(11.2 kg/m²)
1.125 in (28.6 mm)	2.8 lb/ft²	(13.7 kg/m²)
Pitchpine		
0.875 in (22.2 mm)	3.1 lb/ft²	(15.1 kg/m²)
1.125 in (28.6 mm)	3.9 lb/ft²	(19.0 kg/m²)
Hardwood		
0.875 in (22.2 mm)	3.3 lb/ft²	(16.1 kg/m²)
1.125 in (28.6 mm)	4.3 lb/ft²	(21.0 kg/m²)
Wood floors, block (including mastic)		
Softwood		
0.875 in (22.2 mm)	2.6 lb/ft²	(12.7 kg/m²)
1.125 in (28.6 mm)	3.1 lb/ft²	(15.1 kg/m²)
Pitchpine		
0.875 in (22.2 mm)	3.4 lb/ft²	(16.6 kg/m²)
1.125 in (28.6 mm)	4.2 lb/ft²	(20.5 kg/m²)
Hardwood		
0.875 in (22.2 mm)	3.6 lb/ft²	(17.6 kg/m²)
1.125 in (28.6 mm)	4.6 lb/ft²	(22.5 kg/m²)
Wood chipboard		
Uniform		
0.5 in (12.7 mm)	2 lb/ft²	(9.8 kg/m²)
0.75 in (19.1 mm)	3 lb/ft²	(14.6 kg/m²)
Three-layer boards		
Light		
0.5 in (12.7 mm)	1.5 lb/ft²	(7.3 kg/m²)
0.75 in (19.1 mm)	2 lb/ft²	(9.8 kg/m²)
Heavy		
0.5 in (12.7 mm)	2 lb/ft²	(9.8 kg/m²)
0.75 in (19.1 mm)	3 lb/ft²	(14.6 kg/m²)

NOTE All thicknesses are "finished thicknesses".

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Wood wool		
Slabs, 36 lb/ft^3 (576.7 kg/m^3) per		
1 in (25.4 mm) thick	3 lb/ft^2	(14.6 kg/m^2)
Zinc		
Solid	446 lb/ft^3	(7 144 kg/m^3)
Sheet (BS 849)		
0.025 in (No. 12 zinc gauge)	0.9 lb/ft^2	(4.4 kg/m^2)
0.031 in (No. 14 zinc gauge)	1.2 lb/ft^2	(5.9 kg/m^2)
0.041 in (No. 16 zinc gauge)	1.6 lb/ft^2	(7.8 kg/m^2)

NOTE For structural calculation in SI units, attention is drawn to NOTE 2 of the Foreword.

Appendix A Wire and sheet gauges

Standard wire gauges (SWG)

No.	7/0	6/0	5/0	4 /0	3/0	2/0	0	1	2	3	4	5	6
in	0.500	0.464	0.432	0.400	0.372	0.348	0.324	0.300	0.276	0.252	0.232	0.212	0.192
mm	12.700	11.786	10.973	10.160	9.449	8.839	8.230	7.620	7.010	6.401	5.893	5.385	4.877
No.	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**
in	0.176	0.160	0.144	0.128	0.116	0.104	0.092	0.080	0.072	0.064	0.056	0.048	0.040
mm	4.470	4.064	3.658	3.251	2.946	2.642	2.337	2.032	1.829	1.626	1.422	1.219	1.016
No.	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**
in	0.036	0.032	0.028	0.024	0.022	0.020	0.018	0.0164	0.0148	0.0136	0.0124	0.0116	0.0108
mm	0.914	0.813	0.711	0.610	0.559	0.508	0.457	0.4166	0.3759	0.3454	0.3150	0.2946	0.2743
No.	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
in	0.0100	0.0092	0.0084	0.0076	0.0068	0.0060	0.0052	0.0048	0.0044	0.0040	0.0036	0.0032	0.0028
mm	0.2540	0.2337	0.2134	0.1930	0.1727	0.1524	0.1321	0.1219	0.1118	0.1016	0.0914	0.0813	0.0711
No.	**46**	**47**	**48**	**49**	**50**								
in	0.0024	0.0020	0.0016	0.0012	0.0010	—	—	—	—	—	—	—	—
mm	0.0610	0.0508	0.0406	0.0305	0.0254	—	—	—	—	—	—	—	—

Birmingham gauges for hoops and sheets (BG)

No.	15/0	14/0	13/0	12/0	11/0	10/0	9/0	8/0	7/0	6/0
in	1.0	0.958 3	0.916 7	0.875 0	0.833 3	0.791 7	0.750	0.708 3	0.666 6	0.625
mm	25.40	24.34	23.28	22.22	21.17	20.11	19.05	17.99	16.93	15.875
No.	**5/0**	**4/0**	**3/0**	**2/0**	**0**	**1**	**2**	**3**	**4**	**5**
in	0.588 3	0.541 6	0.500	0.445 2	0.396 4	0.353 2	0.314 7	0.280 4	0.250	0.222 5
mm	14.943	13.757	12.700	11.308	10.068	8.971	7.993	7.122	6.35	5.651
No.	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
in	0.198 1	0.176 4	0.157 0	0.139 8	0.125 0	0.111 3	0.099 1	0.088 2	0.078 5	0.069 9
mm	5.032	4.48	3.988	3.55	3.175	2.827	2.517	2.24	1.994	1.775
No.	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
in	0.062 5	0.055 6	0.049 5	0.044 0	0.039 2	0.034 9	0.031 25	0.027 82	0.024 76	0.022 04
mm	1.588	1.412	1.257	1.118	0.996	0.886	0.794	0.707	0.629	0.560
No.	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**
in	0.019 61	0.017 45	0.015 62	0.013 9	0.012 3	0.011 0	0.009 8	0.008 7	0.007 7	0.006 9
mm	0.498	0.443 2	0.396 9	0.353 1	0.312 4	0.279 4	0.248 9	0.221 0	0.195 6	0.175 3
No.	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
in	0.006 1	0.005 4	0.004 8	0.004 3	0.003 86	0.003 43	0.003 06	0.002 72	0.002 42	0.002 15
mm	0.154 9	0.137	0.122	0.109	0.098	0.087	0.078	0.069	0.061 5	0.054 6
No.	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**
in	0.001 92	0.001 70	0.001 52	0.001 35	0.001 20	0.001 07	0.000 95	—	—	—
mm	0.048 8	0.043 2	0.038 6	0.034 3	0.030 5	0.027 2	0.024 1	—	—	—

Zinc gauges for zinc sheets

Zinc gauge	Thickness		Zinc gauge	Thickness	
No.	in	mm	No.	in	mm
1	0.004	0.1016	13	0.028	0.7112
2	0.006	0.1524	14	0.031	0.7874
3	0.007	0.1778	15	0.036	0.9144
4	0.008	0.2032	16	0.041	1.0414
5	0.010	0.2540	17	0.046	1.1684
6	0.011	0.2794	18	0.051	1.2954
7	0.013	0.3302	19	0.057	1.4478
8	0.015	0.3810	20	0.063	1.6002
9	0.017	0.4318	21	0.070	1.7780
10	0.019	0.4826			
11	0.022	0.5588			
12	0.025	0.6350			

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