

LYSAGHT'S REFEREE

A HANDBOOK OF
USEFUL INFORMATION

CENTENARY EDITION



With the Compliments of
JOHN LYSAGHT (AUSTRALIA) PTY. LTD.

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Glen.

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LYSAGHT'S



REFEREE

CENTENARY EDITION

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FOREWORD

For many years Lysaght's Referee has enjoyed the reputation of being one of the handiest and most useful reference books available to the architect, builder, farmer, plumber, student, and country storekeeper.

It is with special pride that John Lysaght (Aust.) Pty. Ltd. presents this completely revised and up-to-date centenary edition.

Compiled by an expert staff and from recognised authoritative sources, the user will find it a mine of practical information, the greatest care having been taken throughout to ensure the accuracy of the data and tables supplied. At the same time, no responsibility can be accepted for any errors that may have escaped the attention of the editors, nor is any originality claimed for any information contained in its pages that may be readily obtainable elsewhere. The Company will be glad to receive suggestions for inclusion in later editions.

Each copy is, of course, issued entirely without cost and with the compliments of the Company.

JOHN LYSAGHT (AUSTRALIA) PTY. LTD.

LYSAGHT'S — 1857-1957

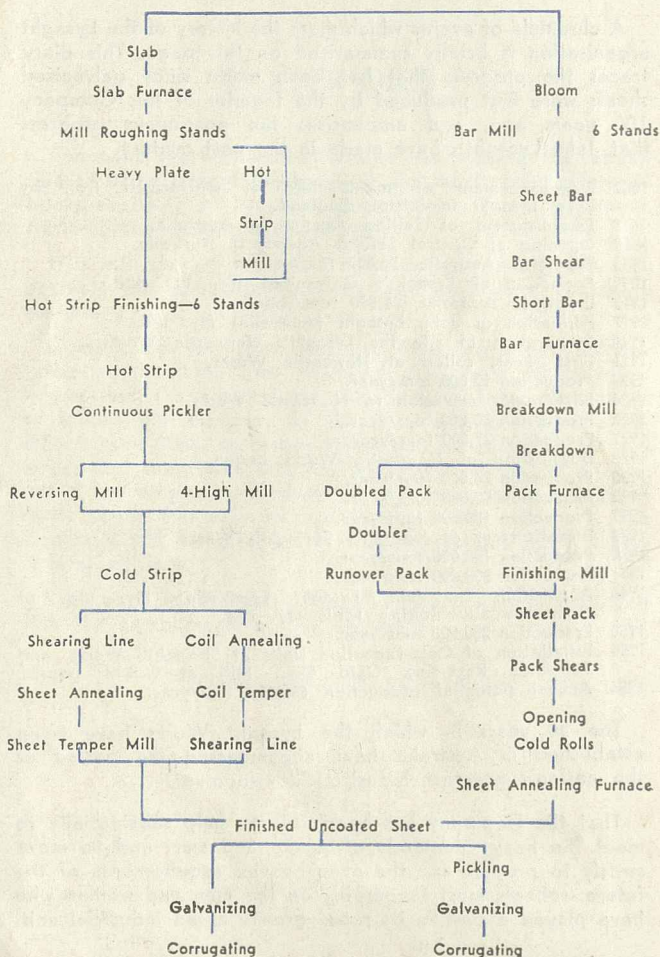
A chronicle of events which mark the history of the Lysaght organisation is briefly summarised on this page. This diary traces the progress that has been made since galvanized sheets were first produced by the founder of this Company 100 years ago, and emphasises the continuous progress that John Lysaght's have made in the past century.

- 1857 Commencement of manufacture of Galvanized Iron by John Lysaght in Bristol, England.
- 1879 Establishment of Selling Agency in Australia.
- 1880 Opening of Central Selling Agency in Australia.
- 1895 Export to Australia, 30,000 tons/year.
- 1899 Formation of Lysaght's Galvanized Iron Pty. Ltd.
- 1913 Export to Australia, 85,000 tons/year.
- 1917 Formation of John Lysaght (Australia) Pty. Ltd.
- 1918 Preparation of site for Lysaght's Newcastle Works.
- 1921 First sheets rolled at Newcastle Works.
- 1923 Production 13,000 tons/year.
- 1924 First major extension to Newcastle Works.
- 1925 Production 20,000 tons/year.
- 1927 Production 27,000 tons/year.
- 1928 Duplication of Newcastle Works began.
- 1930 Production 36,000 tons/year.
- 1932 Production 58,000 tons/year.
- 1937 Production 100,000 tons/year.
- 1938 Establishment of Lysaght's Springhill Works.
- 1939 Production 130,000 tons/year.
- 1941 Production 200,000 tons/year.
- 1946 Acquisition by John Lysaght (Australia) Pty. Ltd. of Commonwealth Rolling Mills Pty. Ltd.
- 1950 Production 250,000 tons/year.
- 1955 Installation of Cold-reduction Units at Springhill Works, and Four-high Reversing Cold Strip Mill at C.R.M. Works.
- 1956 Annual potential production 650,000 tons/year.

The 34 years in which the Lysaght Works have been established in Australia have encompassed the period of the nation's greatest industrial development.

That the Company has been able to help substantially to meet the heavy demands of peace and war, and to move swiftly to prepare for the even heavier requirements of the future, reflects most favourably on the men and women who have played a part in its rapid growth as an industrial unit.

PRODUCTION OF STEEL SHEET FLOW DIAGRAM



GALVANIZED IRON

Ferrous metals, being susceptible to corrosion, must be protected from the action of air and water to prevent deterioration from rusting. The most satisfactory protective process is one of galvanizing, zinc affording valuable electro-chemical protection to steel.

The LIFE of a GALVANIZED SHEET
is dependent

upon the WEIGHT and PERFECTION of its zinc coating.

Produced entirely from the highest quality Australian steel—now recognised as being the equal of the finest British steel—Lysaght Steel Sheets are galvanized with an evenly deposited coating of protective zinc, the quality of which has long been a feature of Lysaght Galvanized Iron, effectively safeguarding the sheet from the effects of corrosion.

One of the best-known and most widely recommended building sheets in the world to-day is Lysaght's Orb brand Corrugated Galvanized Iron. First introduced in England in 1857, and manufactured in Australia since 1921, Corrugated Galvanized Iron has proved itself unequalled for all types of roofing, walling and fencing projects, particularly where economy, ease of erection, great tensile strength, long life, and the ability to withstand the ravages of fire are important considerations. It has thus been used extensively in the construction of factories, storage bins, and silos, stables, dairies, as well as country homes.

Equally well and favourably known to the builder and plumber is Lysaght's Queen's Head brand Galvanized Iron, now universally accepted as being the finest flat galvanized steel sheet for working-up purposes available to the trade.

Lysaght sheets conform to the standards set down by the Standards Association of Australia.

ZINCANNEAL

GENERAL.—Zincanneal quality sheets are an outstanding Lysaght development. By suitable high temperature treatment, zinc is combined with the steel base to form a zinc-iron alloy having remarkable properties as a coating. The resistance to atmospheric corrosion is particularly good, excellent service being obtained under severe conditions such as those met with in coastal locations.

Zincanneal is produced in both flat and corrugated forms.

PAINTING.—Painting can be carried out immediately on erection or fabrication without priming or fear of subsequent peeling. Zincanneal is uninjured by heat up to temperature of 600°F. It can be stove enamelled without damaging the protective surface in any way.

ZINCANNEAL SOLDERING.—Zincanneal is quite satisfactory for soldered joints, but it is generally found to require more care than ordinary galvanized sheets. The flux should be more active than that used with an ordinary galvanized sheet, and raw spirits, or 50% raw spirits and 50% killed spirits are recommended. Equally good results have been obtained with 60/40 and 50/50 solder. Experience has shown that the soldering iron should not be too hot.

WELDING.—Having a steel base, Zincanneal can be welded or brazed by any normal means. The heat generated by electric arc welding does not destroy the rust-resisting properties, and this material is quite suitable for spot welding. High pressure and high current should be employed, with a minimum time of application. Extensive weathering and corrosion tests have shown that in spite of the temperatures involved in the electric welding processes, considerable protection still remains at the weld.

NOTE.—Zincanneal coatings must NOT be confused with lead Terne coatings. Containers of Zincanneal are made to hold ice, water, and food, as in refrigerator cabinets and ice moulds, and the coatings are NOT injurious or poisonous in any way.

BRANDS AND QUALITIES CORRUGATED SHEET

RED ORB.— This universally known sheet has a uniformly heavy zinc coating applied to an especially hard steel base. The extreme rigidity and stiffness specially recommend it for applications such as roofing, walling, or fixing where maximum strength is required. This quality is available in 26 and 24 gauges, and is not suitable for curving.

LYSAGHT

AUSTRALIA

BLUE ORB.— Blue Orb sheets carry the same high-grade coatings as Red Orb, applied to a ductile steel base of the highest quality. It is particularly suitable for applications requiring curving.

LYSAGHT

AUSTRALIA

RED Z.A. — This quality has the Zinccanneal coating applied to an especially hard steel base, providing great rigidity and strength for structural applications such as roofing, walling, and fencing, where these properties are of major importance. Red Zinccanneal is not suitable for curving.

LYSAGHT
ZINCANNEAL
AUSTRALIA

BLUE Z.A.— This quality has the Zinccanneal coating applied to a high quality ductile steel base, and may be curved with ease.

LYSAGHT
ZINCANNEAL
AUSTRALIA

LYSAGHT



GUINEA
AUSTRALIA

GUINEA.—A superior corrugated sheet, available in both 24 and 26 gauges, second only to "Orb" in quality and appearance, and recommended for use when price is a consideration.

ZINCANNEAL SECONDS.—Zincanneal Seconds may contain small uncoated areas, corners off, or broken sides. Defects may be included, such as rough and lumpy coatings, salt stains, bright patches, yellow stains, black stains, and tree marks. Such sheets carry the brand:—

Z.A.
SECONDS

MILL REJECTS.—Complete sheets which are too badly damaged for grading into Seconds are packed together as Waste. Any one package of Waste consists of defective sheets of approximately the same gauge, size and coating, with all defects including large uncoated areas, corner and end faults, broken sides, and holes. Pinched, crinkled and cobbled sheets are also included.

PACKING

All sheets are packed in crates or bundles weighing approximately 10 cwt. or one ton.

GALVANIZED CORRUGATED:

All Red Orb sheets are packed in one-ton bundles.

All 10/3" Blue Orb sheets are packed in one-ton crates, with the exception of 5' and 6' lengths, which are packed in half-ton crates.

All 8/3" Blue Orb sheets are packed in half-ton crates.

All Guinea material and Mill Rejects sheets are packed in bundles.

ZINCANNEAL CORRUGATED:

Prime sheets are packed in crates.

Seconds are packed in crates.

Waste is packed in bundles.

CORRUGATED SHEETS

Explanatory Notes on Brands and Sheet Marks

For the information of users, to facilitate identification and to provide means of determining the life of Australian-made sheets, Lysaght steel sheets carry certain identifying numbers and symbols.

DATE OF MANUFACTURE.—The year of manufacture has been incorporated in the Maltese Cross of the Orb brand, and at the base of the Guinea brand.



The day and number of the month of manufacture are stamped to the left and right of the Orb brand respectively.

Sheets are branded on one side only, with the exception of 24G Blue Orb (which is used mainly for tankmaking). On the reverse side to the normal brand is a Tect-A-Tank brand, incorporating the year of manufacture.



INSPECTOR'S NUMBER.—Between the brand and the end of the sheet is stamped the identification number of the inspector who passed the sheet.

PLACE OF ORIGIN.—Sheets manufactured at Port Kembla Works have the letter "K" incorporated in all brands.

GAUGE NUMBER.—Below the brand on all 22, 24, 26 gauge sheets are stamped the respective figures, 22G, 24G, 26G.

ZINCANNEAL SHEETS.—Zincanneal sheets, in addition to the inspector's number, carry a processing draft number, which incorporates the date of manufacture.

PACKING.—The packer's initials are stamped on the side of the crate, and a large packer's slip giving the packer's name and the date of packing is enclosed in all crates.

CRATE AND BUNDLE MARKINGS

Corrugated Sheet—Galvanized and Zincanneal

To facilitate identification, information is stencilled on crates and bundles, in black ink in general, but in red ink for Red qualities of sheet.

Clips are of the same material as contained in the crate or bundle. The initials of the packer are stencilled on the sides of all crates.

CORRUGATED GALVANIZED IRON:

Red Orb.—One clip is marked with the number and weight of sheets. The other clip on the same side of the bundle is marked R.O. and shows the gauge number (usually 26G).

MILL REJECTS.—One clip is marked MR and with the gauge. The other clip on the same side of the bundle is marked with the weight.

Blue Orb.—When in crates, the following symbols are stencilled on one end of the crate, with the number and weight of the sheets—



26G (1" corr.) 26G (3" corr.) 24G 22G 20G

the size, number and weight of sheets is marked on the other end of the crate.

Guinea Blue.—The following code of colour clips is used on one side of the bundle:—

26G	Plain Clips
24G	Yellow Clips
22G and heavier	Blue Clips

On the other side of the bundle one clip is marked Guinea with the gauge. The other clip is marked with the number and weight of the sheets.

MILL REJECTS.—In Mill Reject quality, Blue and Red varieties may be mixed. The following code of colour clips is used on one side of the bundle:—

26G	Black Clips
24G	Black Clips
22G and heavier	Blue Clips

On the other side of the bundle one clip is marked MR with the gauge. The other clip is marked with the weight of sheets.

CORRUGATED ZINCANNEAL:

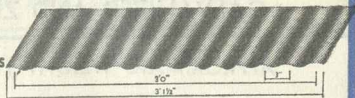
Corrugated Firsts are marked ZINCANNEAL, with the number and weight of sheets on one end of the crate. The other end is marked with the size, number and weight of sheets.

Corrugated Seconds are marked similarly to Firsts, except that the mark Zincanneal is followed by a 2.

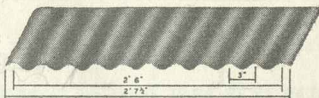
Corrugated Mill Rejects.—One clip is marked ZINCANNEAL MR with the gauge. The other clip is marked with the weight of the bundle. For Red Mill Rejects, the clips on the opposite side are painted red.

STANDARD CORRUGATED SHEETS GALVANIZED AND ZINCANNEAL

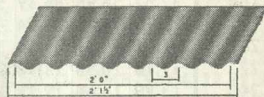
12-3" corrugations
26G only 5-12ft. lengths



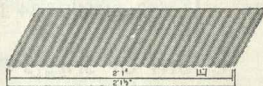
10-3" corrugations
16G-26G 5-12ft. lengths



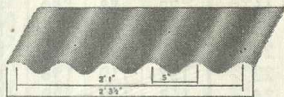
8-3" corrugations
16G-26G 5-12ft. lengths



25-1" corrugations
26G only 5-10ft. lengths



5-5" corrugations
14G-20G 5-12ft. lengths



CORRUGATIONS.—Lysaght sheets are produced in corrugations of three different spacings.

3"—The standard 3-inch corrugation is the pitch in common usage. The depth of corrugation is approximately $\frac{3}{4}$ ", and sheets are produced in three widths: 12-3 inch and 10-3 inch corrugations, most popular for roofing and siding; and 8-3 inch corrugations, used largely in the Blue Orb quality for tank-making.

5"—The standard 5-inch corrugated pitch is produced in a width of 5-5 inch corrugations $1\frac{1}{2}$ " deep. This corrugation is used for heavy gauge sheets. These are recommended for wide unsupported coverage tasks, such as awnings, where maximum strength of the sheet as a beam is desirable, or for domestic or industrial roofs.

1"—The standard 1-inch corrugation sheet, produced in 26G only, is 25 corrugations wide, $\frac{1}{4}$ " deep. This sheet is most popular for linings, awnings, ceilings, showers, or sheds and country halls, and is gaining an increased popularity as division walls in large country stores.

8-3in. CORRUGATED STEEL SHEET

GALVANIZED AND ZINCANNEAL

APPROXIMATE WEIGHT PER SHEET—LBS.

Gauge	Length							
	5'	6'	7'	8'	9'	10'	11'	12'
16	32.52	38.95	45.39	51.83	58.26	64.70	71.14	77.57
18	26.18	31.36	36.54	41.73	46.91	52.09	57.27	62.45
20	21.21	25.41	29.60	33.80	38.00	42.20	46.40	50.59
22	17.18	20.58	23.98	27.38	30.78	34.18	37.58	40.98
24	13.89	16.64	19.39	22.14	24.89	27.64	30.39	33.14
26	9.53	11.44	13.34	15.25	17.15	19.06	20.97	22.88

COUNT OF SHEETS PER NOMINAL TON

16	72	58	50	44	40	36	32	30
18	86	72	62	54	48	44	40	36
20	106	90	76	68	60	54	50	46
22	132	110	96	84	74	66	60	56
24	168	140	120	104	94	84	76	70
26	240	200	170	150	132	120	108	100

COVERAGE.—Mean area of surface covered by 1 ton of sheet— $1\frac{1}{2}$ corrugations side lap, 6" end lap—sq. ft.

16	581	593	601	608	613	617	620	623
18	722	737	747	755	761	766	770	773
20	891	909	922	932	939	945	950	955
22	1100	1122	1138	1150	1160	1167	1173	1179
24	1361	1388	1408	1423	1434	1444	1451	1457
26	1983	2019	2046	2066	2082	2093	2103	2111

NOTE.—Following long-established British practice, 26-gauge Galvanized Iron, both corrugated and plain, manufactured in Australia, is lighter than true 26 gauge.

10-3in. CORRUGATED STEEL SHEET GALVANIZED AND ZINCANNEAL

APPROXIMATE WEIGHT PER SHEET—LBS.

Gauge	Length							
	5'	6'	7'	8'	9'	10'	11'	12'
16	39.68	47.54	55.39	63.24	71.10	78.96	86.81	94.66
18	32.06	38.40	44.75	51.09	57.44	63.78	70.13	76.47
20	25.97	31.11	36.25	41.39	46.53	51.67	56.81	61.95
22	21.04	25.20	29.36	33.53	37.69	41.86	46.02	50.18
24	17.01	20.38	23.74	27.11	30.48	33.84	37.21	40.58
26	11.63	13.96	16.28	18.60	20.93	23.26	25.59	27.91

COUNT OF SHEETS PER NOMINAL TON

16	58	48	42	36	32	30	26	24
18	70	58	50	44	40	36	32	28
20	86	72	62	54	48	44	40	36
22	106	88	76	68	60	54	50	46
24	136	114	98	86	76	68	62	58
26	194	162	138	122	108	98	88	82

COVERAGE.—Mean area of surface covered by 1 ton of sheet— $1\frac{1}{2}$ corrugations side lap, 6" end lap—sq. ft.

16	603	615	624	631	636	641	643	646
18	747	762	773	781	787	792	797	801
20	922	941	954	964	972	978	983	988
22	1138	1161	1178	1190	1200	1207	1214	1219
24	1406	1436	1457	1472	1484	1493	1501	1508
26	2058	2096	2124	2145	2161	2173	2183	2192

NOTE.—Following long-established British practice, 26-gauge Galvanized Iron, both corrugated and plain, manufactured in Australia, is lighter than true 26 gauge.

5-5in. CORRUGATED STEEL SHEET GALVANIZED AND ZINCANNEAL

APPROXIMATE WEIGHT PER SHEET—LBS.

Gauge	Length				
	6'	7'	8'	9'	10'
16	41.04	47.82	54.60	61.34	68.15
18	32.68	38.08	43.48	48.87	54.27
20	26.24	30.58	34.92	39.25	43.59

COUNT OF SHEETS PER ONE-TON CRATE

16	55	47	42	37	33
18	69	59	52	46	42
20	86	74	65	58	52

COVERAGE.—Mean area of surface covered by 1 ton of sheet— $1\frac{1}{2}$ corrugations side lap, 6" end lap—sq. ft.

16	608	614	619	623	626
18	763	771	777	783	786
20	950	960	968	974	979

12-3in. CORRUGATED GALVANIZED SHEET

APPROXIMATE WEIGHT PER SHEET—LBS.

Gauge	Length							
	5'	6'	7'	8'	9'	10'	11'	12'
26	13.96	16.76	19.55	22.34	25.13	27.94	30.73	33.50

COUNT OF SHEETS PER ONE-TON CRATE

26	168	140	120	106	94	84	76	70
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COVERAGE.—Mean area of surface covered by one ton of sheet— $1\frac{1}{2}$ corrugations side lap, 6" end lap—sq. ft.

26	2153	2178	2196	2211	2221	2229	2235	2242
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GALVANIZED FLAT SHEETS

QUEEN'S HEAD.—Prime sheets of Lysaght galvanized flat steel sheets are branded with the well-known Queen's Head brand. These quality flat sheets are the most uniform and reliable plain galvanized sheets on the market.

LYSAGHT



QUEEN'S HEAD

AUSTRALIA

LYSAGHT



AUSTRALIA

FLEUR DE LIS.—A superior galvanized flat sheet, for that class of work in which a cheaper sheet is asked for. It will be found equal to all such requirements.

EXPLANATORY NOTES ON MARKINGS OF FLAT SHEETS.—For the information of users, the year of manufacture is incorporated in the frame of the Queen's Head and Fleur de Lis brands, the figures being located at the base of the Queen's neck. Figures on either side of the brand show the day and month of manufacture. Sheets are branded on one side only, and sheets manufactured at Springhill Works have the letter "K" shown in all brands. Between the brand and the end of the sheet is stamped the identification number of the inspector who passed the sheet. The packer's initials are stamped on the side of the crate, and the packer's slip, giving the packer's name and date of packing, is enclosed in all crates. Should you find it necessary to make a complaint, please endeavour to quote packer's initials, inspector's number, year of manufacture, and any other details that might assist us to investigate and remedy your complaint.

PACKING.—Sheets are packed in crates or bundles as follows:—

Queen's Head: 18G and lighter—one-ton crates.

16G and heavier—one-ton bundles.

Fleur de Lis Flats: As for Q.H.

Mill Rejects Flats: As for Q.H.

Red Orb: All gauges—one-ton bundles.

Blue Orb: All gauges—one-ton crates.

Fleur de Lis and Mill Rejects—one-ton bundles.

Z.A. Corrugated: Firsts and Seconds—one-ton crates.

Mill Rejects—one-ton bundles.

Z.A. Panel and R.L.: All gauges—half-ton crates.

Seconds and Mill Rejects—one-ton crates.

Terne Plate: All gauges—one-ton crates.

Seconds and Mill Rejects—one-ton crates.

ZINCANNEAL FLAT SHEET

GENERAL.—Prime Zincanneal flat sheets are produced in two qualities—Z.A. R.L. (Zincanneal Roller Levelled) and Z.A. Panel Quality.

Z.A. R.L.—This quality is especially suited to, and enjoys increasing popularity for flashings, gutters, downpipes, capping, vents, duct work, and formed work generally, where a perfectly flat sheet is not required.

LYSAGHT
ZINCANNEAL
AUSTRALIA
R.L.

Z.A. PANEL QUALITY. —

These sheets are subjected to a final surface improvement process, and finished dead flat. The surface provides an ideal base for baked enamels and similar fine finishes.

LYSAGHT
ZINCANNEAL
AUSTRALIA
PANEL QUALITY

SECONDS. — In the production of prime sheets certain sheets are rejected for imperfections of surface or dimensions into Seconds R.L., or Seconds Panel Quality.

Zincanneal Seconds may contain small uncoated areas, corners off, or broken sides. Extensive appearance defects may be included, such as rough and lumpy coatings, bright patches, yellow stains, black stains, and tree marks.

Z.A.
SECONDS

R.L.

Z.A.
SECONDS

PANEL QUALITY

MILL REJECTS.—Complete sheets which are too badly damaged for grading into Seconds are packed as Mill Rejects. Any one package of Mill Rejects consists of defective sheets of approximately the same gauge and size, with all defects, including large uncoated areas, corners off, and faults, broken sides, and holes. Pinched, crinkled and cobbled sheets are also included.

PACKING.—All grades are packed in crates, weighing approximately 1 ton.

CRATE AND BUNDLE MARKINGS

Flat Sheet—Galvanized and Zincanneal

GALVANIZED

QUEEN'S HEAD.—When in bundles the number and weight of sheets is stencilled on a clip in the side of the bundle. All bundles of 16 gauge and heavier have blue clips. 14G and heavier are not branded, the tally being marked Q.H.N.B.



FLEUR DE LIS.—When in crates, one end is marked Fleur de Lis, with the number and weight of sheets. The other end is marked with the size, number, and weight of sheets. The clips are painted red.

When in bundles, the markings are similar to those of Queen's Head bundles, the mark Q.H. being replaced by Fleur de Lis.

MILL REJECTS.—When in crates, one end is marked MR and the gauge. Both ends are marked with the weight of sheets. Clips are painted red. When in bundles the markings are similar to those of Queen's Head bundles, the mark Q.H. being replaced by MR, and the only dimension shown is the gauge.

TIGHT-COATED FLATS.—When in crates one end is marked T.C.N.B., with the number and weight of sheets. The other end is marked with the size, number and weight of sheets. When in bundles, the markings are similar to those of Queen's Head bundles, the mark Q.H. being replaced by T.C.N.B.

SPECIAL SHEETS.—Certain special sheets are produced by Lysaght's for restricted use. C30 C.A. is a special springy sheet. The sheets are not branded, but the crates are marked C30 C.A. N.B.

ZINCANNEAL

PANEL QUALITY.—Crates of prime sheets are marked ZINCANNEAL PANEL, with the number and weight of sheets on one end of the crate. The other end is marked with size, number and weight of sheets.

PANEL SECONDS AND MILL REJECTS are marked similarly to Firsts, except that the mark ZINCANNEAL PANEL is followed by 2 or MR. The clips are painted red.

R.L. FIRSTS, SECONDS, AND MILL REJECTS.—As for Panel, except the mark R.L. replaces PANEL.

FLAT SHEETS

GALVANIZED AND ZINCANNEAL

		Approximate Weight Per Sheet in lbs.				Count of Sheets Per Nominal ton			
	Gauge	Width				Width			
		24"	30"	36"	48"	24"	30"	36"	48"
6 FEET LENGTHS	12	49.61	61.94	74.28	98.96	46	36	30	24
	14	39.62	49.48	59.33	79.04	58	46	38	30
	16	31.68	39.56	47.44	63.20	72	58	48	36
	18	25.23	31.50	37.77	50.32	90	72	60	46
	20	20.26	25.30	30.34	40.42	112	90	74	56
	22	16.28	20.33	24.37	32.47	138	112	92	70
	24	13.06	16.30	19.55	26.04	172	138	118	88
	26	8.97	11.22	13.46	17.95	248	198	168	124
	26Z.A.	10.50	13.11	15.72	20.94	214	172	142	108
8 FEET LENGTHS	12	66.00	82.41	98.83	131.66	34	28	24	18
	14	52.72	65.83	78.94	105.16	44	34	30	22
	16	42.15	52.63	63.12	84.08	54	44	36	28
	18	33.56	41.91	50.26	66.95	68	54	46	34
	20	26.96	33.66	40.37	53.78	84	68	56	42
	22	21.66	27.04	32.43	43.20	104	84	70	52
	24	17.37	21.69	26.01	34.65	130	106	88	66
	26	11.97	14.96	17.95	23.93	184	148	126	92
	26Z.A.	13.97	17.44	20.92	27.87	160	128	108	80

NOTE. — Following long-established British practice, 26-gauge Galvanized Iron, both corrugated and plain, manufactured in Australia, is lighter than true 26g. and, as Zincanneal is now manufactured in 26 Birmingham gauge, both values are given in the above tables.

PRICE
PER
SHEET

8 x 3"

CORRUGATIONS

GALVANIZED & ZINCANNEAL

APPROX. PRICES PER SHEET BASED ON GIVEN RATES PER TON Gauge

Price per ton	106 Sheets 5ft.	89 Sheets 6ft.	76 Sheets 7ft.	66 Sheets 8ft.	59 Sheets 9ft.	53 Sheets 10ft.	48 Sheets 11ft.	44 Sheets 12ft.
£78	14/9½	17/6½	20/7½	23/7½	26/5½	29/5½	32/6	35/5½
£79	14/11½	17/9	20/10½	23/11½	26/9½	29/10	32/11	35/11
£80	15/2	18/-	21/2	24/3	27/1½	30/2½	33/4	36/4½
£81	15/4	18/2½	21/5	24/6½	27/5½	30/7	33/9	36/10
£82	15/6½	18/5	21/8	24/10	27/9½	30/11½	34/2	37/3½
£83	15/8½	18/8	21/11	25/2	28/2	31/4	34/7	37/9
£84	15/11	18/10½	22/2½	25/5½	28/6	31/8½	35/-	38/2
£85	16/1	19/1	22/5½	25/9	28/10	32/1	35/5	38/8
£86	16/3½	19/4	22/7½	26/1	29/2	32/5½	35/10	39/1
£87	16/5	19/6½	22/11	26/4½	29/6	32/10	36/3	39/7
£88	16/7½	19/9½	23/2	26/8	29/10	33/2½	36/8	40/-
£89	16/9½	20/-	23/5	27/-	30/2	33/7	37/1	40/5½
£90	17/-	20/3	23/8	27/3½	30/6	33/11½	37/6	40/11
£91	17/2	20/5½	23/11½	27/7	30/10½	34/4	37/11	41/4½
£92	17/4½	20/8	24/2½	27/10½	31/2½	34/9	38/4	41/10
£93	17/6½	20/11	24/6	28/2	31/6½	35/1	38/9	42/3½
£94	17/9	21/1½	24/9	28/6	31/10½	35/6	39/2	42/9
£95	17/11	21/4	25/-	28/9½	32/2½	35/10½	39/7	43/2
£96	18/1½	21/7	25/3	29/1	32/6½	36/3	40/-	43/8

20

PRICE PER SHEET

Price per ton	130 Sheets 5ft.	109 Sheets 6ft.	93 Sheets 7ft.	82 Sheets 8ft.	73 Sheets 9ft.	66 Sheets 10ft.	60 Sheets 11ft.	55 Sheets 12ft.
£80	12/4	14/8	17/2½	19/6	21/11	24/3	26/8	29/1
£81	12/5½	14/10½	17/5	19/9	22/2½	24/6½	27/-	29/5½
£82	12/7½	15/0½	17/7½	20/-	22/6	24/10½	27/4	29/10
£83	12/9½	15/3	17/10	20/3	22/9	25/1	27/8	30/2
£84	12/11	15/5	18/1	20/6	23/-	25/5½	28/-	30/6½
£85	13/1	15/7½	18/3½	20/9	23/3½	25/9	28/4	30/11
£86	13/3	15/9½	18/6	21/-	23/7	26/1	28/8	31/3½
£87	13/5	15/11½	18/8½	21/3	23/10	26/4½	29/-	31/8
£88	13/6½	16/2	18/11	21/5½	24/1½	26/8	29/4	32/-
£89	13/8½	16/4	19/2	21/8½	24/5	27/-	29/8	32/4½
£90	13/10	16/6	19/4½	21/11½	24/8	27/3½	30/-	32/9
£91	14/-	16/8½	19/7	22/2½	24/11½	27/7	30/4	33/1
£92	14/2	16/11	19/9½	22/5½	25/2½	27/10½	30/8	33/5½
£93	14/4	17/1	20/-	22/8½	25/6	28/2	31/-	33/10
£94	14/5½	17/3	20/3	22/11½	25/9	28/6	31/4	34/2
£95	14/7½	17/5	20/5½	23/2	26/0½	28/9½	31/8	34/6½
£96	14/9½	17/7½	20/8	23/5	26/4	29/1	32/-	34/11
£97	14/11	17/9½	20/10½	23/8	26/7	29/5	32/4	35/3½
£98	15/1	18/-	21/1	23/11	26/10½	29/8½	32/8	35/7½

Gauge

22

THIS TABLE IS NOT A PRICE LIST

PRICE
PER
SHEET

8 x 3"

CORRUGATIONS

GALVANIZED & ZINCANNEAL

Gauge APPROX. PRICES PER SHEET BASED ON GIVEN RATES PER TON

24

Price per ton	161 Sheets 5ft.	135 Sheets 6ft.	116 Sheets 7ft.	101 Sheets 8ft.	90 Sheets 9ft.	81 Sheets 10ft.	74 Sheets 11ft.	68 Sheets 12ft.
£81	10/1	12/-	14/-	16/0½	18/-	20/-	21/11	23/10
£81/10/-	10/1½	12/1	14/1	16/2	18/1½	20/1½	22/0½	24/-
£82	10/2	12/2	14/2	16/3	18/3	20/3	22/2	24/1½
£82/10/-	10/3	12/3	14/3	16/4	18/4	20/4½	22/3½	24/3
£83	10/4	12/3½	14/4	16/5½	18/5½	20/6	22/5½	24/5
£83/10/-	10/4½	12/4½	14/5	16/6½	18/7	20/7½	22/7	24/7
£84	10/5	12/5½	14/6	16/7½	18/8	20/9	22/8½	24/8½
£84/10/-	10/6	12/6	14/7	16/9	18/9½	20/10½	22/10	24/10
£85	10/7	12/7	14/8	16/10	18/11	21/-	23/-	25/-
£85/10/-	10/7½	12/8	14/9	16/11	19/-	21/1½	23/1½	25/2
£86	10/8	12/9	14/10	17/0½	19/1½	21/3	23/3	25/3½
£86/10/-	10/9	12/10	14/11	17/1½	19/3	21/4½	23/4½	25/5½
£87	10/10	12/10½	15/-	17/3	19/4	21/6	23/6	25/7
£87/10/-	10/10½	12/11½	15/1	17/4	19/5½	21/7½	23/8	25/9
£88	10/11	13/0½	15/2	17/5	19/7	21/9	23/9½	25/11
£88/10/-	11/-	13/1½	15/3	17/6	19/8	21/10½	23/11	26/0½
£89	11/1	13/2½	15/4	17/7½	19/9½	22/-	24/1	26/2
£89/10/-	11/1½	13/3½	15/5	17/9	19/11	22/1½	24/2½	26/4
£90	11/2	13/4	15/6	17/10	20/-	22/3	24/4	26/6
£90/10/-	11/3	13/5	15/7	17/11	20/1½	22/4	24/5½	26/7½
£91	11/4	13/6	15/8	18/-	20/3	22/5½	24/7	26/9
£91/10/-	11/4½	13/7	15/9	18/1½	20/4	22/7	24/9	26/11
£92	11/5	13/7½	15/10	18/2½	20/5½	22/8½	24/10½	27/1
£92/10/-	11/6	13/8½	15/11	18/4	20/7	22/10	25/-	27/2½
£93	11/7	13/9½	16/-	18/5	20/8	22/11½	25/1½	27/4
£93/10/-	11/7½	13/10½	16/1	18/6	20/9½	23/1	25/3½	27/6
£94	11/8½	13/11	16/2	18/7½	20/11	23/2½	25/5	27/8
£94/10/-	11/9	14/-	16/3	18/8½	21/-	23/4	25/6½	27/9½
£95	11/10	14/1	16/4	18/10	21/1½	23/5½	25/8	27/11½
£95/10/-	11/10½	14/2	16/5	18/11	21/3	23/7	25/10	28/1
£96	11/11	14/3	16/6	19/-	21/4	23/8½	25/11½	28/3
£96/10/-	12/-	14/3½	16/7½	19/1½	21/5½	23/10	26/1	28/5
£97	12/1	14/4½	16/8½	19/2½	21/7	23/11½	26/2½	28/6½
£97/10/-	12/1½	14/5½	16/9½	19/4	21/8	24/1	26/4	28/8
£98	12/2	14/6	16/10½	19/5	21/9½	24/2½	26/6	28/10
£98/10/-	12/3	14/7	16/11½	19/6	21/11	24/4	26/7½	29/-
£99	12/3½	14/8	17/0½	19/7½	22/-	24/5½	26/9	29/1½
£99/10/-	12/4½	14/9	17/1½	19/8½	22/1½	24/7	26/11	29/3
£100	12/5	14/10	17/3	19/10	22/3	24/8½	27/0½	29/5
£100/10/-	12/6	14/11	17/4	19/11	22/4	24/10	27/2	29/7
£101	12/6½	15/-	17/5	20/-	22/5½	24/11½	27/3½	29/8½
£101/10/-	12/7½	15/0½	17/6	20/1	22/7	25/1	27/5	29/10
£102	12/8	15/1½	17/7	20/2½	22/8	25/2½	27/7	30/-
£102/10/-	12/9	15/2	17/8	20/3½	22/9½	25/4	27/8½	30/2
£103	12/9½	15/3	17/9	20/5	22/11	25/5½	27/10	30/3½

THIS TABLE IS NOT A PRICE LIST

PRICE
PER
SHEET

8 x 3"

CORRUGATIONS

GALVANIZED & ZINCANNEAL

APPROX. PRICES PER SHEET BASED ON GIVEN RATES PER TON Gauge

Price per ton	235 Sheets 5ft.	196 Sheets 6ft.	168 Sheets 7ft.	147 Sheets 8ft.	131 Sheets 9ft.	118 Sheets 10ft.	107 Sheets 11ft.	98 Sheets 12ft.
£85	7/3	8/8	10/1½	11/7	13/-	14/5	15/11	17/4
£85/10/-	7/3½	8/8½	10/2	11/7½	13/1	14/6	16/-	17/5½
£86	7/4	8/9	10/3	11/8½	13/1½	14/7	16/1	17/6½
£86/10/-	7/4½	8/9½	10/3½	11/9	13/2½	14/8	16/2	17/8
£87	7/5	8/10½	10/4½	11/10	13/3½	14/9	16/3	17/9
£87/10/-	7/5½	8/11	10/5	11/11	13/4½	14/10	16/4½	17/10½
£88	7/6	8/11½	10/6	12/-	13/5	14/11	16/5½	17/11½
£88/10/-	7/6½	9/0½	10/6½	12/0½	13/6	15/-	16/6½	18/1
£89	7/7	9/1	10/7	12/1½	13/7	15/1	16/7½	18/2
£89/10/-	7/7½	9/1½	10/8	12/2	13/8	15/2	16/9	18/3½
£90	7/8	9/2	10/8½	12/3	13/9	15/3	16/10	18/4½
£90/10/-	7/8½	9/3	10/9½	12/4	13/10	15/4	16/11	18/6
£91	7/9	9/3½	10/10	12/4½	13/11	15/5	17/-	18/7
£91/10/-	7/9½	9/4	10/11	12/5½	14/-	15/6	17/1½	18/8
£92	7/10	9/5	10/11½	12/6	14/0½	15/7	17/2½	18/9½
£92/10/-	7/10½	9/5½	11/-	12/7	14/1½	15/8	17/3½	18/10½
£93	7/11	9/6	11/1	12/8	14/2½	15/9	17/4½	19/-
£93/10/-	7/11½	9/6½	11/1½	12/9	14/3½	15/10	17/5½	19/1
£94	8/-	9/7	11/2½	12/9½	14/4½	15/11	17/6½	19/2½
£94/10/-	8/0½	9/7½	11/3	12/10	14/5	16/-	17/8	19/3½
£95	8/1	9/8	11/4	12/11	14/6	16/1	17/9	19/5
£95/10/-	8/1½	9/9	11/4½	13/-	14/7	16/2	17/10	19/6
£96	8/2	9/9½	11/5	13/1	14/8	16/3½	17/11½	19/7
£96/10/-	8/2½	9/10	11/6	13/1½	14/9	16/4½	18/0½	19/8½
£97	8/3	9/11	11/7	13/2½	14/10	16/5½	18/1½	19/9½
£97/10/-	8/3½	9/11½	11/7½	13/3½	14/11	16/6½	18/3	19/11
£98	8/4	10/-	11/8	13/4	14/11½	16/7½	18/4	20/-
£98/10/-	8/4½	10/0½	11/9	13/5	15/0½	16/8½	18/5	20/1
£99	8/5	10/1	11/9½	13/6	15/1½	16/9½	18/6	20/2½
£99/10/-	8/5½	10/2	11/10	13/6½	15/2½	16/10½	18/7	20/4
£100	8/6	10/2½	11/11	13/7½	15/3	16/11½	18/8½	20/5
£100/10/-	8/6½	10/3	12/-	13/8	15/4	17/0½	18/9½	20/6
£101	8/7	10/4	12/0½	13/9	15/5	17/1½	18/10½	20/7½
£101/10/-	8/7½	10/4½	12/1	13/10	15/6	17/2½	18/11½	20/8½
£102	8/8	10/5	12/2	13/10½	15/7	17/3½	19/1	20/10
£102/10/-	8/8½	10/5½	12/2½	13/11½	15/8	17/4½	19/2	20/11
£103	8/9	10/6	12/3	14/-	15/9	17/5½	19/3	21/-
£103/10/-	8/9½	10/7	12/4	14/1	15/10	17/6½	19/4	21/1½
£104	8/10	10/7½	12/4½	14/2	15/10½	17/7½	19/5½	21/3
£104/10/-	8/10½	10/8	12/5½	14/2½	15/11½	17/8½	19/6½	21/4
£105	8/11	10/8½	12/6	14/3½	16/0½	17/9½	19/7½	21/5
£105/10/-	8/11½	10/9	12/7	14/4½	16/1½	17/10½	19/8½	21/6½
£106	9/-	10/10	12/7½	14/5½	16/2	18/-	19/10	21/7½
£106/10/-	9/1	10/10½	12/8	14/6	16/3	18/1	19/11	21/8½
£107	9/1½	10/11	12/9	14/7	16/4	18/2	20/-	21/10

26

PRICE PER SHEET

THIS TABLE IS NOT A PRICE LIST

PRICE
PER
SHEET

10 x 3"

CORRUGATIONS

GALVANIZED & ZINCANNEAL

Gauge APPROX. PRICES PER SHEET BASED ON GIVEN RATES PER TON

20

Price
per
ton

86 Sheets 5ft.	72 Sheets 6ft.	62 Sheets 7ft.	54 Sheets 8ft.	48 Sheets 9ft.	43 Sheets 10ft.	39 Sheets 11ft.	36 Sheets 12ft.
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£78	18/1	21/8	25/3	28/10	32/6	36/3½	40/-	43/2
£79	18/4	21/11½	25/7	29/2½	32/11	36/9	40/6	43/8½
£80	18/6½	22/3	25/11	29/7	33/4	37/2½	41/0½	44/3
£81	18/9½	22/6	26/2½	29/11	33/9	37/8	41/6½	44/9½
£82	19/-	22/9½	26/6½	30/3½	34/2	38/2	42/0½	45/4
£83	19/3	23/0½	26/10½	30/8	34/7	38/7½	42/7	45/11
£84	19/6	23/4	27/2½	31/0½	35/-	39/1	43/1	46/5½
£85	19/8½	23/7½	27/6	31/5	35/5	39/6½	43/7	47/-
£86	19/11½	23/10½	27/10	31/9½	35/10	40/-	44/1½	47/7
£87	20/3	24/2	28/1	32/3	36/3	40/6	44/7½	48/4
£88	20/5½	24/5½	28/5	32/7	36/8	40/11	45/1½	48/10½
£89	20/8½	24/9	28/8½	32/11½	37/1	41/5	45/8	49/5½
£90	20/11	25/-	29/0½	33/4	37/6	41/10½	46/2	50/-
£91	21/2	25/3½	29/4½	33/8½	37/11	42/4	46/8	50/7
£92	21/5	25/7	29/8	34/1	38/4	42/9½	47/2	51/1½
£93	21/7½	25/10	30/-	34/5½	38/9	43/3	47/8½	51/8
£94	21/10½	26/1½	30/4	34/10	39/2	43/9	48/3	52/3
£95	22/1	26/5	30/8	35/2	39/7	44/2½	48/9	52/9½
£96	22/4	26/8	31/-	35/7	40/-	44/8	49/3	53/4

Gauge

22

Price
per
ton

106 Sheets 5ft.	89 Sheets 6ft.	76 Sheets 7ft.	67 Sheets 8ft.	59 Sheets 9ft.	54 Sheets 10ft.	49 Sheets 11ft.	45 Sheets 12ft.
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£80	15/-	18/-	20/11½	23/11	27/1½	29/7½	32/8	35/7
£81	15/2½	18/2½	21/3	24/2	27/5½	30/-	33/1	36/-
£82	15/5	18/5	21/6	24/6	27/9½	30/4½	33/6	36/5½
£83	15/7	18/8	21/9	24/9½	28/2	30/9	33/10½	36/11
£84	15/9½	18/10½	22/-	25/1	28/6	31/1½	34/3½	37/4
£85	15/11½	19/1	22/3½	25/4½	28/10	31/6	34/8½	37/9½
£86	16/2	19/4	22/6½	25/8	29/2	31/10	35/1	38/3
£87	16/4	19/7	22/10	26/-	29/6	32/3	35/6	38/8
£88	16/6	19/9½	23/1	26/3½	29/10	32/7	35/11	39/1½
£89	16/8½	20/-	23/4	26/7	30/2	32/11½	36/4	39/7
£90	16/11	20/3	23/7	26/10½	30/6	33/4	36/9	40/-
£91	17/2	20/5½	23/11½	27/2	30/10	33/8½	37/2	40/5½
£92	17/4½	20/8	24/2½	27/5½	31/2½	34/1	37/7	40/11
£93	17/6½	20/11	24/6	27/9½	31/6½	34/5½	37/11½	41/4
£94	17/9	21/1½	24/9	28/1	31/10½	34/10	38/4½	41/9½
£95	17/11	21/4	25/-	28/4½	32/2½	35/2	38/9½	42/3
£96	18/1½	21/7	25/3	28/8	32/6½	35/7	39/2½	42/8
£97	18/4	21/9½	25/6½	28/11½	32/11	35/11	39/7	43/1½
£98	18/6	22/0½	25/9½	29/3	33/3	36/3½	40/-	43/7

THIS TABLE IS NOT A PRICE LIST

PRICE
PER
SHEET

10 x 3"

CORRUGATIONS

GALVANIZED & ZINCANNEAL

APPROX. PRICES PER SHEET BASED ON GIVEN RATES PER TON Gauge

Price per ton	132 Sheets 5ft.	110 Sheets 6ft.	94 Sheets 7ft.	83 Sheets 8ft.	73 Sheets 9ft.	66 Sheets 10ft.	60 Sheets 11ft.	55 Sheets 12ft.
£81	12/3½	14/9	17/3	19/6	22/2½	24/6½	27/-	29/5½
£81/10/-	12/4	14/10	17/4	19/7½	22/4	24/8½	27/2	29/8
£82	12/5	14/11	17/5½	19/9	22/5½	24/10	27/4	29/10
£82/10/-	12/6	15/-	17/6½	19/10½	22/7½	25/-	27/6	30/-
£83	12/7	15/1	17/8	20/-	22/9	25/2	27/8	30/2
£83/10/-	12/8	15/2	17/9½	20/1½	22/10½	25/4	27/10	30/4½
£84	12/9	15/3½	17/10½	20/3	23/-	25/5½	28/-	30/6½
£84/10/-	12/10	15/4½	18/-	20/4½	23/2	25/7½	28/2	30/9
£85	12/10½	15/5½	18/1	20/6	23/3½	25/9	28/4	30/11
£85/10/-	12/11½	15/6½	18/2½	20/7½	23/5	25/11	28/6	31/1
£86	13/0½	15/8	18/3½	20/9	23/7	26/1	28/8	31/3½
£86/10/-	13/1½	15/9	18/5	20/10	23/8½	26/2½	28/10	31/5½
£87	13/2	15/10	18/6	20/11½	23/10	26/4½	29/-	31/8
£87/10/-	13/3	15/11	18/7½	21/1	24/-	26/6	29/2	31/10
£88	13/4	16/-	18/9	21/2½	24/1½	26/8	29/4	32/-
£88/10/-	13/5	16/1	18/10	21/4	24/3	26/10	29/6	32/2
£89	13/6	16/2½	18/11½	21/5½	24/5	27/-	29/8	32/4½
£89/10/-	13/7	16/3½	19/0½	21/7	24/6½	27/1½	29/10	32/6½
£90	13/8	16/4½	19/2	21/8½	24/8	27/3½	30/-	32/9
£90/10/-	13/8½	16/5½	19/3	21/10	24/9½	27/5	30/2	32/11
£91	13/9½	16/6½	19/4½	21/11	24/11	27/7	30/4	33/1
£91/10/-	13/10½	16/8	19/6	22/0½	25/1	27/9	30/6	33/3½
£92	13/11½	16/9	19/7	22/2	25/2½	27/10½	30/8	33/5½
£92/10/-	14/-	16/10	19/8	22/3½	25/4	28/0½	30/10	33/8
£93	14/1	16/11	19/9½	22/5	25/6	28/2	31/0	33/10
£93/10/-	14/2	17/-	19/11	22/6½	25/7½	28/4	31/2	34/-
£94	14/3	17/1	20/-	22/8	25/9	28/6	31/4	34/2
£94/10/-	14/4	17/2	20/1½	22/9½	25/11	28/8	31/6	34/4½
£95	14/5	17/3½	20/2½	22/11	26/0½	28/9½	31/8	34/6½
£95/10/-	14/6	17/4½	20/4	23/-	26/2	28/11½	31/10	34/9
£96	14/7	17/5½	20/5	23/2	26/4	29/1	32/-	34/11
£96/10/-	14/7½	17/6½	20/6½	23/3	26/5½	29/3	32/2	35/1
£97	14/8½	17/8	20/8	23/4½	26/7	29/5	32/4	35/3½
£97/10/-	14/9½	17/9	20/9	23/6½	26/8½	29/7	32/6	35/6
£98	14/10	17/10	20/10	23/7½	26/10½	29/8½	32/8	35/8
£98/10/-	14/11	17/11	20/11½	23/9	27/-	29/10	32/10	35/10
£99	15/-	18/-	21/1	23/10½	27/1½	30/-	33/-	36/-
£99/10/-	15/1	18/1	21/2	24/-	27/3½	30/2	33/2	36/2
£100	15/2	18/2	21/3½	24/1	27/5	30/4	33/4	36/4½
£100/10/-	15/3	18/3½	21/5	24/2½	27/6½	30/5½	33/6	36/6½
£101	15/4	18/4½	21/6	24/4	27/8	30/7½	33/8	36/9
£101/10/-	15/5	18/5½	21/7	24/5½	27/10	30/9	32/10	36/11
£102	15/5½	18/6½	21/8½	24/7	27/11½	30/11	34/-	37/1
£102/10/-	15/6½	18/8	21/10	24/8½	28/1	31/1	34/2	37/3½
£103	15/7½	18/9	21/11	24/10	28/3	32/0½	34/4	37/5½

24

PRICE PER SHEET

THIS TABLE IS NOT A PRICE LIST

PRICE
PER
SHEET

10 x 3"

CORRUGATIONS

GALVANIZED & ZINCANNEAL

Gauge APPROX. PRICES PER SHEET BASED ON GIVEN RATES PER TON

26

Price per ton	193 Sheets 5ft.	161 Sheets 6ft.	138 Sheets 7ft.	120 Sheets 8ft.	107 Sheets 9ft.	96 Sheets 10ft.	88 Sheets 11ft.	80 Sheets 12ft.
£85	8/10	10/7	12/4	14/2	15/11	17/8½	19/4	21/3
£85/10/-	8/10½	10/7½	12/5	14/3	16/-	17/10	19/5	21/4½
£86	8/11	10/8	12/6	14/4	16/1	17/11	19/6½	21/6
£86/10/-	8/11½	10/9	12/7	14/5	16/2	18/-	19/8	21/7½
£87	9/-	10/10	12/8	14/6	16/3	18/1½	19/9½	21/9
£87/10/-	9/1	10/10½	12/8½	14/7	16/4	18/3	19/10½	21/10½
£88	9/1½	10/11	12/9½	14/8	16/5½	18/4	20/-	22/-
£88/10/-	9/2	11/-	12/10½	14/9	16/6½	18/5½	20/1½	22/1½
£89	9/3	11/1	12/11	14/10	16/7½	18/6½	20/3	22/3
£89/10/-	9/3½	11/1½	13/-	14/11	16/9	18/8	20/4	22/4½
£90	9/4	11/2	13/1	15/-	16/10	18/9	20/5½	22/6
£90/10/-	9/4½	11/3	13/2	15/1	16/11	18/10½	20/7	22/7½
£91	9/5	11/4	13/3	15/2	17/-	18/11½	20/8	22/9
£91/10/-	9/6	11/4½	13/3½	15/3	17/1	19/1	20/9½	22/10½
£92	9/6½	11/6	13/4½	15/4	17/2½	19/2	20/11	23/-
£92/10/-	9/7	11/6½	13/5	15/5	17/3½	19/3½	21/0½	23/1½
£93	9/8	11/7	13/6	15/6	17/4½	19/4½	21/2	23/3
£93/10/-	9/8½	11/7½	13/6½	15/7	17/6	19/6	21/3	23/4½
£94	9/9	11/8	13/7½	15/8	17/7	19/7	21/4½	23/6
£94/10/-	9/9½	11/9	13/8½	15/9	17/8	19/8½	21/6	23/7½
£95	9/10	11/10	13/9	15/10	17/9	19/9½	21/7	23/9
£95/10/-	9/11	11/10½	13/10	15/11	17/10	19/11	21/8½	23/10½
£96	9/11½	11/11	13/11	16/-	17/11½	20/-	21/10	24/-
£96/10/-	10/-	12/-	14/-	16/1	18/0½	20/1½	21/11	24/1½
£97	10/1	12/0½	14/1	16/2	18/1½	20/2½	22/0½	24/3
£97/10/-	10/1½	12/1½	14/1½	16/3	18/3	20/4	22/2	24/4½
£98	10/2	12/2	14/2½	16/4	18/4	20/5	22/3½	24/6
£98/10/-	10/2½	12/3	14/3½	16/5	18/5	20/6½	22/5	24/7½
£99	10/3	12/3½	14/4½	16/6	18/6	20/7½	22/6	24/9
£99/10/-	10/4	12/4½	14/5	16/7	18/7½	20/9	22/7½	24/10½
£100	10/4½	12/5	14/6	16/8	18/8½	20/10	22/9	25/-
£100/10/-	10/5	12/6	14/7	16/9	18/9½	20/11½	22/10	25/1½
£101	10/5½	12/6½	14/8	16/10	18/10½	21/0½	22/11½	25/3
£101/10/-	10/6	12/7½	14/8½	16/11	19/-	21/2	23/1	25/4½
£102	10/7	12/8	14/9½	17/-	19/1	21/3	23/2	25/6
£102/10/-	10/7½	12/9	14/10½	17/1	19/2	21/4½	23/3½	25/7½
£103	10/8	12/9½	14/11	17/2	19/3	21/5½	23/5	25/9
£103/10/-	10/9	12/10½	15/-	17/3	19/4	21/7	23/6½	25/10½
£104	10/9½	12/11	15/1	17/4	19/5½	21/8	23/8	26/-
£104/10/-	10/10	13/-	15/2	17/5	19/6½	21/9½	23/9	26/1½
£105	10/10½	13/0½	15/2½	17/6	19/7½	21/10½	23/10½	26/3
£105/10/-	10/11	13/1½	15/3½	17/7	19/8½	22/-	24/-	26/4½
£106	11/-	13/2	15/4½	17/8	19/10	22/1	24/1	26/6
£106/10/-	11/0½	13/3	15/5	17/9	19/11	22/2½	24/2½	26/7½
£107	11/1	13/3½	15/6	17/10	20/-	22/3½	24/4	26/9

THIS TABLE IS NOT A PRICE LIST

PRICE
PER
SHEETFLAT GALVANIZED &
ZINC ANNEAL

APPROX. PRICES PER SHEET BASED ON GIVEN RATES PER TON Gauge

20

Price per ton	6' Lengths				8' Lengths			
	110 Sheets 24"	89 Sheets 30"	74 Sheets 36"	55 Sheets 48"	83 Sheets 24"	67 Sheets 30"	55 Sheets 36"	42 Sheets 48"
£79	14/4½	17/9	21/4	28/9	19/0½	23/7	28/9	37/7½
£79/10/-	14/5½	17/10	21/6	28/11	19/2	23/9	28/11	37/10½
£80	14/6½	18/-	21/7½	29/1	19/3½	23/10½	29/1	38/1
£80/10/-	14/7½	18/1	21/9	29/3½	19/5	24/0½	29/3½	38/4
£81	14/9	18/2½	21/11	29/5½	19/6	24/2	29/5½	38/7
£81/10/-	14/10	18/4	22/0½	29/8	19/8	24/4	29/8	38/10
£82	14/11	18/5½	22/2	29/10	19/9	24/6	29/10	39/0½
£82/10/-	15/-	18/6½	22/3½	30/-	19/10½	24/7½	30/-	39/3½
£83	15/1	18/8	22/5½	30/2	20/-	24/9½	30/2	39/6½
£83/10/-	15/2	18/9½	22/7	30/4½	20/1½	24/11½	30/4½	39/9
£84	15/3½	18/10½	22/8½	30/6½	20/3	25/1	30/6½	40/-
£84/10/-	15/4½	19/-	22/10	30/9	20/4½	25/3	30/9	40/3
£85	15/5½	19/1½	23/-	30/11	20/6	25/4½	30/11	40/6
£85/10/-	15/6½	19/2½	23/1½	31/1	20/7½	25/6½	31/1	40/8½
£86	15/8	19/4	23/3	31/3½	20/9	25/8	31/3½	40/11½
£86/10/-	15/9	19/5½	23/4½	31/5½	20/10	25/10	31/5½	41/2½
£87	15/10	19/6½	23/6	31/8	20/11½	26/-	31/8	41/5
£87/10/-	15/11	19/8	23/8	31/10	21/1	26/1½	31/10	41/8
£88	16/-	19/9½	23/9½	32/-	21/2½	26/3½	32/-	41/11
£88/10/-	16/1	19/11	23/11	32/2	21/4	26/5	32/2	42/2
£89	16/2½	20/-	24/1	32/4½	21/5½	26/7	32/4½	42/3
£89/10/-	16/3½	20/1½	24/2½	32/7	21/7	26/8½	32/7	42/7½
£90	16/4½	20/3	24/4	32/9	21/8½	26/10½	32/9	42/10½
£90/10/-	16/5½	20/4	24/5½	32/11	21/10	27/-	32/11	43/1
£91	16/6½	20/5½	24/7	33/1	21/11	27/2	33/1	43/4
£91/10/-	16/8	20/7	24/9	33/3½	22/1	27/4	33/3½	43/7
£92	16/9	20/8	24/10½	33/5½	22/2	27/5½	33/5½	43/10
£92/10/-	16/10	20/9½	25/-	33/8	22/3½	27/7½	33/8	44/0½
£93	16/11	20/11	25/1½	33/10	22/5	27/9	33/10	44/3½
£93/10/-	17/-	21/-	25/3½	34/-	22/6½	27/11	34/-	44/6½
£94	17/1	21/1½	25/5	34/2½	22/8	28/1	34/2½	44/9½
£94/10/-	17/2	21/3	25/6½	34/4½	22/9½	28/2½	34/4½	45/-
£95	17/3½	21/4½	25/8	34/7	22/11	28/4½	34/7	45/3
£95/10/-	17/4½	21/5½	25/10	34/9	23/-	28/6	34/9	45/6
£96	17/5½	21/7	25/11½	34/11	23/1½	28/8	34/11	45/8½
£96/10/-	17/6½	21/8½	26/1	35/1	23/3	28/10	35/1	45/11½
£97	17/8	21/9½	26/2½	35/3½	23/4½	28/11½	35/3½	46/2½
£97/10/-	17/9	21/11	26/4½	35/5½	23/6	29/1	35/5½	46/5
£98	17/10	22/0½	26/6	35/8	23/7½	29/3	35/8	46/8
£98/10/-	17/11	22/2	26/7½	35/10	23/9	29/5	35/10	46/11
£99	18/-	22/3	26/9	36/-	23/10½	29/6½	36/-	47/2
£99/10/-	18/1	22/4½	26/11	36/2	24/-	29/8½	36/2	47/4½
£100	18/2	22/6	27/0½	36/4½	24/1	29/10½	36/4½	47/7½

PRICE PER SHEET

THIS TABLE IS NOT A PRICE LIST

PRICE
PER
SHEET

FLAT

GALVANIZED &
ZINCANNEAL

Gauge APPROX. PRICES PER SHEET BASED ON GIVEN RATES PER TON

22

Price per ton	6' Lengths				8' Lengths			
	138 Sheets 24"	110 Sheets 30"	92 Sheets 36"	69 Sheets 48"	103 Sheets 24"	83 Sheets 30"	69 Sheets 36"	52 Sheets 48"
£81	11/9½	14/9	17/7½	23/6	15/9	19/6	23/6	31/2
£81/10/-	11/10	14/10	17/9	23/7½	15/10	19/7½	23/7½	31/4½
£82	11/11	14/11	17/10	23/9	15/11	19/9	23/9	31/6½
£82/10/-	12/-	15/-	17/11½	23/11	16/0½	19/10½	23/11	31/9
£83	12/1	15/1	18/1	24/1	16/1½	20/-	24/1	31/11
£83/10/-	12/1½	15/2	18/2	24/2½	16/2½	20/1½	24/2½	32/1½
£84	12/2½	15/3½	18/3½	24/4	16/4	20/3	24/4	32/4
£84/10/-	12/3½	15/4½	18/4½	24/6	16/5	20/4½	24/6	32/6
£85	12/4½	15/5½	18/6	24/8	16/6	20/6	24/8	32/8½
£85/10/-	12/5	15/6½	18/7	24/9½	16/7	20/7½	24/9½	32/11
£86	12/6	15/7½	18/8½	24/11	16/8½	20/9	24/11	33/1
£86/10/-	12/7	15/8½	18/10	25/1	16/9½	20/10	25/1	33/3½
£87	12/8	15/10	18/11	25/3	16/11	20/11½	25/3	33/5½
£87/10/-	12/8½	15/11	19/0½	25/4½	17/-	21/1	25/4½	33/8
£88	12/9½	16/-	19/2	25/6	17/1	21/2½	25/6	33/10
£88/10/-	12/10½	16/1	19/3	25/8	17/2	21/4	25/8	34/0½
£89	12/11	16/2	19/4½	25/9½	17/3½	21/5½	25/9½	34/3
£89/10/-	13/-	16/3	19/6	25/11½	17/4½	21/7	25/11½	34/5
£90	13/1	16/4½	19/7	26/1	17/6	21/8½	26/1	34/7½
£90/10/-	13/2	16/5½	19/8½	26/3	17/7	21/10	26/3	34/10
£91	13/2½	16/6½	19/9½	26/4½	17/8	21/11	26/4½	35/-
£91/10/-	13/3	16/7½	19/11	26/6½	17/9½	22/0½	26/6½	35/2½
£92	13/4	16/9	20/-	26/8	17/10½	22/2	26/8	35/5
£92/10/-	13/5	16/10	20/1½	26/10	17/11½	22/3½	26/10	35/7
£93	13/6	16/11	20/2½	26/11½	18/1	22/5	26/11½	35/9
£93/10/-	13/7	17/-	20/4	27/1	18/2	22/6½	27/1	35/11½
£94	13/7½	17/1	20/5	27/3	18/3	22/8	27/3	36/2
£94/10/-	13/8½	17/2	20/6½	27/5	18/4	22/9½	27/5	36/4
£95	13/9	17/3½	20/8	27/6½	18/5½	22/11	27/6½	36/6½
£95/10/-	13/10	17/4½	20/9½	27/8	18/6½	23/-	27/8	36/9
£96	13/11	17/5½	20/10½	27/10	18/8	23/1½	27/10	36/11
£96/10/-	14/-	17/6½	21/-	28/-	18/9	23/3	28/-	37/1½
£97	14/1	17/7½	21/1	28/1½	18/10	23/4½	28/1½	37/4
£97/10/-	14/1½	17/9	21/2½	28/3½	18/11½	23/6	28/3½	37/6
£98	14/2½	17/10	21/4	28/5	19/0½	23/7½	28/5	37/8½
£98/10/-	14/3½	17/11	21/5	28/6½	19/1½	23/9	28/6½	37/11
£99	14/4	18/-	21/6½	28/8½	19/3	23/10½	28/8½	38/1
£99/10/-	14/5	18/1	21/7½	28/10	19/4	24/-	28/10	38/3½
£100	14/6	18/2½	21/9	29/-	19/5	24/1	29/-	38/5½
£100/10/-	14/7	18/3½	21/10	29/1½	19/6	24/2½	29/1½	38/8
£101	14/8	18/4½	21/11½	29/3½	19/7½	24/4	29/3½	38/10
£101/10/-	14/8½	18/5½	22/1	29/5	19/8½	24/5½	29/5	39/0½
£102	14/9½	18/6½	22/2	29/7	19/10	24/7	29/7	39/3

THIS TABLE IS NOT A PRICE LIST

PRICE
PER
SHEET

FLAT

GALVANIZED &
ZINC ANNEAL

APPROX. PRICES PER SHEET BASED ON GIVEN RATES PER TON Gauge

Price per ton	6' Lengths				8' Lengths			
	172 Sheets 24"	137 Sheets 30"	115 Sheets 36"	86 Sheets 48"	129 Sheets 24"	103 Sheets 30"	86 Sheets 36"	65 Sheets 48"
£81	9/5½	11/10	14/1	18/10	12/7	15/9	18/10	24/11
£81/10/-	9/6	11/11	14/2	18/11½	12/7½	15/10	18/11½	25/1
£82	9/7	12/-	14/3	19/1	12/8½	15/11	19/1	25/3
£82/10/-	9/7½	12/0½	14/4	19/2	12/9½	16/-	19/2	25/5
£83	9/8	12/1½	14/5½	19/4	12/10½	16/1½	19/4	25/6½
£83/10/-	9/9	12/2½	14/6½	19/5	12/11½	16/2½	19/5	25/8½
£84	9/9½	12/3	14/7½	19/6½	13/1½	16/4	19/6½	25/10
£84/10/-	9/10	12/4	14/8½	19/8	13/2½	16/5	19/8	26/-
£85	9/11	12/5	14/9½	19/9½	13/2	16/6	19/9½	26/2
£85/10/-	10/-	12/6	14/10½	19/10½	13/3	16/7½	19/10½	26/4
£86	10/0½	12/7	14/11½	20/-	13/4	16/8½	20/-	26/5½
£86/10/-	10/1	12/7½	15/0½	20/1½	13/5	16/9½	20/1½	26/7½
£87	10/2	12/8½	15/1½	20/3	13/6	16/11	20/3	26/9
£87/10/-	10/2½	12/9½	15/2½	20/4	13/7	17/-	20/4	26/11
£88	10/3	12/10	15/4	20/5½	13/8	17/1	20/5½	27/1
£88/10/-	10/4	12/11	15/5	20/7	13/8½	17/2	20/7	27/3
£89	10/4½	13/-	15/6	20/8½	13/9½	17/3½	20/8½	27/5
£89/10/-	10/5	13/1	15/7	20/10	13/10½	17/4½	20/10	27/6½
£90	10/5½	13/2	15/8	20/11	13/11½	17/6	20/11	27/8½
£90/10/-	10/6½	13/2½	15/9	21/0½	14/0½	17/7	21/0½	27/10
£91	10/7	13/3½	15/10	21/2	14/1½	17/8	21/2	28/-
£91/10/-	10/8	13/4½	15/11	21/3½	14/2½	17/9	21/3½	28/2
£92	10/8½	13/5½	16/-	21/5	14/3½	17/10½	21/5	28/4
£92/10/-	10/9	13/6	16/1	21/6	14/4	17/11½	21/6	28/5½
£93	10/10	13/7	16/2	21/7½	14/5	18/1	21/7½	28/7½
£93/10/-	10/10½	13/8	16/3	21/9	14/6	18/2	21/9	28/9½
£94	10/11	13/9	16/4	21/10½	14/7	18/3	21/10½	28/11
£94/10/-	11/-	13/9½	16/5	22/-	14/8	18/4	22/-	29/1
£95	11/1	13/10½	16/6½	22/1	14/9	18/5½	22/1	29/3
£95/10/-	11/1½	13/11½	16/7½	22/2½	14/10	18/6½	22/2½	29/5
£96	11/2	14/-	16/8½	22/4	14/11	18/8	22/4	29/6½
£96/10/-	11/3	14/1	16/9½	22/5½	14/11½	18/9	22/5½	29/8½
£97	11/3½	14/2	16/10½	22/7	15/0½	18/10	22/7	29/10
£97/10/-	11/4	14/3	16/11½	22/8	15/1½	18/11	22/8	30/-
£98	11/5	14/4	17/0½	22/9½	15/2½	19/0½	22/9½	30/2
£98/10/-	11/5½	14/4½	17/1½	22/11	15/3½	19/1½	22/11	30/4
£99	11/6	14/5½	17/2½	23/0½	15/4	19/3	23/0½	30/5½
£99/10/-	11/7	14/6½	17/4	23/2	15/5	19/4	23/2	30/7½
£100	11/7½	14/7	17/5	23/3	15/6	19/5	23/3	30/9
£100/10/-	11/8	14/8	17/6	23/4½	15/7	19/6	23/4½	30/11
£101	11/9	14/9	17/7	23/6	15/8	19/7½	23/6	31/1
£101/10/-	11/10	14/10	17/8	23/7½	15/9	19/8½	23/7½	31/3
£102	11/10½	14/11	17/9	23/9	15/10	19/10	23/9	31/5

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PRICE PER SHEET

THIS TABLE IS NOT A PRICE LIST

PRICE
PER
SHEET

FLAT

GALVANIZED
PLUS Z.A.

Gauge APPROX. PRICES PER SHEET BASED ON GIVEN RATES PER TON

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Price per ton	6' Lengths				8' Lengths			
	250 Sheets 24"	200 Sheets 30"	166 Sheets 36"	125 Sheets 48"	187 Sheets 24"	150 Sheets 30"	125 Sheets 36"	94 Sheets 48"
£85	6/10	8/6	10/3	13/7½	9/1	11/4	13/7½	18/1
£85/10/-	6/10½	8/6½	10/4	13/8½	9/2	11/5	13/8½	18/2½
£86	6/11	8/7½	10/4½	13/9½	9/2½	11/6	13/9½	18/3½
£86/10/-	6/11½	8/8	10/5	13/10	9/3	11/6½	13/10	18/5
£87	7/-	8/8½	10/6	13/11	9/4	11/7½	13/11	18/6
£87/10/-	7/-	8/9	10/6½	14/-	9/4½	11/8	14/-	18/7½
£88	7/0½	8/9½	10/7	14/1	9/5	11/9	14/1	18/9
£88/10/-	7/1	8/10	10/8	14/2	9/6	11/10	14/2	18/10
£89	7/1½	8/11	10/9	14/3	9/6½	11/10½	14/3	18/11
£89/10/-	7/2	8/11½	10/9½	14/4	9/7	11/11	14/4	19/0½
£90	7/2½	9/-	10/10	14/5	9/7½	12/-	14/5	19/2
£90/10/-	7/3	9/0½	10/11	14/6	9/8	12/1	14/6	19/3
£91	7/3½	9/1	10/11½	14/7	9/9	12/2	14/7	19/4½
£91/10/-	7/4	9/1½	11/0½	14/8	9/9½	12/2½	14/8	19/6
£92	7/4½	9/2½	11/1	14/9	9/10	12/3	14/9	19/7
£92/10/-	7/5	9/3	11/2	14/10	9/11	12/4	14/10	19/8
£93	7/5½	9/3½	11/2½	14/10½	9/11½	12/5	14/10½	19/9½
£93/10/-	7/6	9/4	11/3½	14/11½	10/-	12/6	14/11½	19/11
£94	7/6½	9/5	11/4	15/0½	10/1	12/6½	15/0½	20/-
£94/10/-	7/7	9/5½	11/5	15/1½	10/1½	12/7	15/1½	20/1½
£95	7/7½	9/6	11/5½	15/2½	10/2	12/8	15/2½	20/2½
£95/10/-	7/8	9/6½	11/6	15/3½	10/2½	12/9	15/3½	20/4
£96	7/8½	9/7½	11/7	15/4½	10/3	12/9½	15/4½	20/5
£96/10/-	7/9	9/8	11/7½	15/5½	10/4	12/10½	15/5½	20/6½
£97	7/9½	9/8½	11/8	15/6½	10/4½	12/11	15/6½	20/8
£97/10/-	7/10	9/9	11/9	15/7½	10/5	13/-	15/7½	20/9
£98	7/10½	9/10	11/10	15/8½	10/6	13/1	15/8½	20/10
£98/10/-	7/11	9/10½	11/10½	15/9	10/6½	13/1½	15/9	20/11½
£99	7/11½	9/11	11/11	15/10	10/7	13/2½	15/10	21/1
£99/10/-	8/-	9/11½	12/-	15/11	10/8	13/3½	15/11	21/2
£100	8/0½	10/-	12/0½	16/-	10/8½	13/4	16/-	21/3½
£100/10/-	8/1	10/0½	12/1½	16/1	10/9	13/5	16/1	21/5
£101	8/1½	10/1	12/2	16/2	10/10	13/6	16/2	21/6
£101/10/-	8/2	10/2	12/3	16/3	10/10½	13/6½	16/3	21/7
£102	8/2½	10/2½	12/3½	16/4	10/11	13/7	16/4	21/8½
£102/10/-	8/3	10/3	12/4½	16/5	10/11½	13/8	16/5	21/10
£103	8/3½	10/4	12/5	16/6	11/-	13/9	16/6	21/11
£103/10/-	8/4	10/4½	12/6	16/7	11/1	13/9½	16/7	22/-
£104	8/4½	10/5	12/6½	16/8	11/1½	13/10½	16/8	22/1½
£104/10/-	8/5	10/5½	12/7	16/9	11/2	13/11	16/9	22/3
£105	8/5½	10/6	12/8	16/10	11/3	14/-	16/10	22/4
£105/10/-	8/6	10/6½	12/8½	16/11	11/3½	14/1	16/11	22/5½
£106	8/6½	10/7	12/9½	17/-	11/4	14/1½	17/-	22/7

THIS TABLE IS NOT A PRICE LIST

TERNE PLATE

GENERAL.—Terne Plate or Tin-lead coated sheets are produced mainly for canister makers, where a tin-lead lining is essential.

SIZES.—While a variety of sizes are manufactured from time to time to customers' particular specifications, the only sizes regularly processed are 8' x 30" x 28G and 8' x 36" x 26G.

WEIGHT PER SQ. FT. OF SHEET IN LBS.:

28G	0.6581	20G	1.6200
26G	0.8207	18G	2.0202
24G	1.0308	16G	2.5306
22G	1.2956		

STOCK SIZE SHEETS:

Size and Gauge	Weight of Sheet in lbs.	No. of Sheets per Ton Crate
8' x 30" x 28G	13.304	85
8' x 36" x 26G	19.894	57
6' x 36" x 26G	14.953	75
6' x 36" x 24G	18.738	60
6' x 36" x 22G	23.605	48
6' x 36" x 20G	29.515	38
6' x 36" x 18G	36.807	31
6' x 36" x 16G	46.106	25
75½" x 37½" x 24G	20.436	55

PACKING.—All Terne Plate, Prime Sheets (or Firsts), Seconds and Mill Rejects are packed in crates.

CASE MARKINGS.—To facilitate identification, information is stencilled on cases.

Prime Sheets (or Firsts) are marked TERNE PLATE, with the number and weight of sheets on one end of the crate. The other end is marked with the number and weight of the sheets.

Seconds are marked similarly to Prime Sheets, except that the mark TERNE PLATE is followed by 2. The clips are painted red.

Mill Reject crates are marked TERNE PLATE MR, with the gauge and weight of sheets on one end of the crate. The other end is marked with the gauge and weight, clips being painted red.

STEEL SHEET TRADE CUSTOMS

GENERAL.—While there have been many trade practices developed by the mutual consent of the purchaser and manufacturer, there are possible opportunities for misunderstanding unless trade customs are thoroughly understood.

Special arrangements, not covered in these notes, apply to Electrical Steels.

In the following pages the word manufacturer refers to the manufacturer of the steel sheets. The word customer means the merchant, distributor or ultimate user of the sheets.

ORDERING SHEET.—Sheets are supplied in a wide range of standard qualities and finishes and, when the buyer states his requirements, it is customary for the manufacturer to recommend the type of sheet which will be suitable.

Sheets Ordered for Specific Purposes.—The purpose for which sheets are ordered should be stated on the order; when sheets are ordered without the purpose being shown, the responsibility for the material being satisfactory must be assumed by the customer, PROVIDED the sheets are up to standard for the grade ordered.

SHEETS ORDERED TO CHEMICAL AND PHYSICAL TESTS AND TO SPECIFIED TREATMENT.—When a customer desires a definite fabricated result, there should be the least possible stipulation on the manufacturer as to how the material must be made.

When it is necessary to supply material to chemical specifications, then the manufacturer cannot in addition assume the responsibility of meeting physical tests and workability results. Similarly, when physical specifications have to be met, there should not be imposed upon the manufacturer the additional necessity of meeting chemical analysis and workability results.

When a customer specifies a definite treatment, then the responsibility for the characteristics of the sheet rests with the customer.

Sheets ordered to a specified chemical analysis can be accepted on the basis of heat analysis only.

SHEET DIMENSIONS.—Wherever possible the customer should confine his requirements to those thicknesses which correspond with the even Birmingham gauge numbers.

SURFACE INSPECTIONS.—Unless otherwise specified, each prime sheet must have one side which meets the surface requirements of the grade.

SURFACE INSPECTION TOLERANCE.—The following is the acceptable practice on inspection tolerance:

A 2% surface inspection tolerance is to apply on all primes shipped. The result of a customer's inspection, which degrades primes into seconds, if acceptable by the manufacturer, applies on all quantities in excess of the 2% tolerance.

OFF-GAUGE MATERIAL.—Thickness inspection becomes the responsibility of the user whenever it is considered a necessity.

It is standard practice in many plants to perform this gauge inspection, and any sheets which the customer finds outside the thickness tolerance are subject to rejection. Disposition of such material must be given by the manufacturer.

If a customer decides not to perform a thickness inspection on every piece, and if as a result some over-gauge sheet should cause damage to his equipment, the responsibility for such damage rests on the customer.

The basis of all sheet gauging is weight per unit area, and in the case of coated and some uncoated sheets this is the only practical and acceptable criterion of gauge.

AGEING OF STEEL SHEETS.— It is generally recognised that sheets over six months old cannot be relied upon to give consistent and satisfactory results in deep drawing. Ageing markedly increases the tendency to "Stretcher-strain," and in extreme cases is responsible for breakage. Under no circumstances can a manufacturer be held responsible for the performance of sheets after twelve months have elapsed from date of manufacture.

STRETCHER STRAINING.— Stretcher straining of deep drawing sheets may be caused by ageing of the sheets, temperature of the sheets, variation in the use of die lubricants, or the manner in which the sheets are drawn, over all of which the manufacturer of the sheets has no control.

Prior pre-stressing by approved equipment will usually correct stretcher straining and, when necessary, sheets should be so treated immediately before being drawn. Since this process is considered the responsibility of the customer, any costs or charges for this operation rest with the customer.

HEAT TREATMENT BY BUYER.— The manufacturer cannot assume responsibility for material working satisfactorily after any heat treatment which he has not approved.

Where heat treatment is part of the normal manufacturing processes to which the material is subjected, the manufacturer will guarantee the material will respond to the approved heat treatment conditions.

BREAKAGE TOLERANCE—DEEP DRAWING SHEETS:

(a) General Comment.— Until the drawing operations of any individual stamping have been properly developed to produce suitable stampings for production runs, full absorption of breakage loss must be assumed by the customer.

When material of the correct gauge and quality has been ordered, and a full opportunity given to the manufacturer to understand the hazards to be met, then the customer

is entitled to protection against breakage loss under the following conditions:

After blanking size has been properly developed and the dies are approved for production, and the processes are standardised, then a breakage tolerance shall be established with the manufacturer, and any breakages in excess of this tolerance shall be the responsibility of the manufacturer. This breakage tolerance varies with each individual job, and must be determined by the nature and severity of the requirement.

(b) **Normal Breakage.**—The general practice has been for the customer to absorb breakage up to and including 3% of the sheets run, that is, the ordinary drawing and stamping operations. It is recognised that, besides the naturally slight variation in the steel, there are many things to cause breakage, such as die lubrication, hold-down pressure, press stroke, scored dies, improperly placed blanks, temperature of sheets, etc.

(c) **Special Breakage Tolerance.**—There are many applications where it is necessary for the sheet manufacturer to be allowed more than 3% for breakage.

(d) **Method of Establishing Special Breakage Tolerances.**—As new deep drawing jobs develop, it is necessary to determine what percentage of breakage the customer should stand. In such cases, the manufacturer should not be responsible for any breakage until a run has been made after the dies have been adjusted and a sufficient number of sheets drawn to ascertain the results which will be obtained. The result of this run will determine the percentage of breakage the customer will stand, and such tolerance will then be continued until better results are obtained with the drawing or stamping in question. For instance, if the best practical result is 15% breakage, the manufacturer should be allowed that figure until less breakage is obtained. Under no conditions, however, should the manufacturer be responsible for breakage of 3% or under.

For the purpose of establishing a new breakage tolerance or for adjusting an existing tolerance, the minimum number of pressings which would be considered as constituting a run is 500.

(e) **Basis for Computing Claims.**—Whenever breakage exceeds the normal breakage tolerance on any part, the manufacturer should be notified immediately and the run discontinued, or the responsibility shall rest with the customer. After inspection of the broken pressings and the dies, the manufacturer shall decide whether the run is to continue or whether the material is to be withdrawn.

Percentage breakage is to be calculated on quantity production of a continuous run, which may cover a weekly or monthly period or be based on a minimum quantity of two tons or the whole order, whichever is the less.

The same tolerances which apply to breakage apply also to stampings rejected as unusable for any other cause, with the exception that the manufacturer accepts all responsibility for laminated sheets.

FABRICATION FAILURES—SHEETS OTHER THAN DEEP DRAWING.—Where excessive fabrication failures occur due to sub-standard material, the manufacturer shall accept a claim based on the value of the sheets concerned.

ARTICLES REJECTED FOR CAUSES OTHER THAN BREAKAGE.—When parts are rejected as unusable, defects as would normally be due to an unsatisfactory metallurgical condition or to a defective surface in the original sheets, are the responsibility of the manufacturer.

Rejections for such causes should be kept separate for inspection, and the rejection or salvage of such material shall be subject to negotiation. Defects arising from incorrect adjustment of the customer's equipment, inadequate lubrication, etc., cannot be considered under this heading.

LIMITATION OF LIABILITY. Should it be determined that material which has been fabricated is defective, it is not the responsibility of the manufacturer to assume any labour costs involved in the pressing or stamping of the defective sheets. The customer should not proceed with the drawing, fabricating or pressing of the material if it is proving unsuitable. In this event the manufacturer should be notified immediately. After the latter has made an investigation and the material is found to be defective, it then becomes a matter of negotiation between the customer and manufacturer as to what disposition is to be made of the material which has not yet been fabricated, and also to determine whether the material which has already been used can be salvaged in the interests of both parties.

QUALITIES OF BLACK SHEETS

HOT ROLLED COMMERCIAL BLACK.—Commercial Black is a standard heavy gauge black sheet provided in finishes of commercial quality. The physical properties are such that the material is suitable for the majority of commercial forming operations. These sheets are not intended or guaranteed for pressing or drawing operations.

COLD ROLLED COMMERCIAL BLACK is a standard commercial quality sheet with a surface superior to hot rolled pickled finish, but with a light oxidised coating, for use where a bright finish is not required. The physical properties are such that the material is suitable for the majority of commercial forming operations. These sheets are not intended or guaranteed for pressing or drawing operations.

COLD ROLLED COMMERCIAL BRIGHT is a standard bright sheet of commercial quality with a surface superior to hot rolled pickled finish. The physical properties are such that the material is suitable for the majority of commercial forming operations. These sheets are not intended or guaranteed for pressing or drawing operations.

HOT ROLLED DEEP DRAWING is a standard heavy gauge sheet for use where surface before or after drawing is of secondary importance. These sheets are intended for the production of parts too difficult for the fabricating properties of commercial sheets.

COLD ROLLED GENERAL PURPOSE DEEP DRAWING is a standard bright sheet for use where surface before or after drawing is of secondary importance. These sheets are notable for their extra deep drawing properties.

COLD ROLLED EXTRA DEEP DRAWING sheet is a standard type combining a superior surface finish with extra deep drawing properties. This quality should be used in applications calling for sheets in which either or both the extra deep drawing or superior surface are of prime importance.

ENAMEL FLAT sheets are chemically constituted and suitably processed to adapt them to the fabricating and enamelling requirements of articles for vitreous coating under proper conditions. The physical properties are such that the material is suitable for shallow pressing, bending and forming, but is not recommended for drawing.

ENAMEL DEEP DRAWING sheets are chemically constituted and suitably processed to adapt them to the fabricating and enamelling requirements of articles for vitreous coating under proper conditions. The physical properties are such that the material is suitable for pressing, forming, bending, and also for severe drawing and spinning.

TACK PLATES are sheets specially processed to meet the requirements of the tack-making trade, and are not supplied for any other purpose. These sheets may be ordered oiled or unoled.

SECONDS are sheets which are rejected from the above grades for surface imperfections, split edges, or faulty dimensions.

UNCLASSIFIED REJECTS.—The general defects encountered in this quality are tears or splits, generally on the edges, surface imperfections such as scale. All material in any one bundle is of approximately the same gauge.

CARBON STEELS

QUALITIES.—For sheet steel with high tensile strength or increased hardenability and abrasion-resistance, a higher carbon content is needed than is found in the ordinary quality black sheet. This carbon content varies with the purpose for which the steel sheet is needed, and gives rise to the standard carbon qualities.

C30 is a higher tensile sheet used mainly for structural work.

C65 is for shovels, plough discs, and miscellaneous hard-wearing or cutting edges.

HC80 is a superior quality carbon steel sheet used for circular and straight saws or other high grade cuttings edges.

It is the aim of the Company to provide sheets for any application where there is a reasonable demand. New grades of plain carbon or low alloy steel sheets will be developed as required by the trade.

HEAT TREATMENT.—For C65 and HC80, oil quenching is recommended from a temperature of about 820°C. This may be followed by a tempering treatment to obtain the desired hardness. Tempering time for these qualities (9 gauge to 16 gauge) is about 15 to 20 minutes at the tempering temperature.

ELECTRICAL STEELS

GENERAL.—The steel core components of motors, alternators and transformers are made up of high quality special sheet steel laminations. The stringency of laboratory tests, and inspection and supervision carried out by a staff of trained metallurgists, ensure that Lysaght's Electrical Steels are to the standard of the best sheets produced overseas for similar applications. Various qualities are made for different purposes, and full details will be provided on application to this Company.

The STALLOY types are used for transformer work and other applications where low electrical losses are essential. MOTOR 100, MEDIUM RESISTANCE, and SPECIAL LOHYS are used for motors of all types, large motor-generators, small transformers, and reactors.

Electrical steel sheets are available in a variety of surface finishes, depending primarily on the degree of interlamination resistance required.

ELECTRICAL STEEL DATA

Quality	Thick- ness	Core Losses at 50 Cycles			
		Guar Max. Loss B=10,000 gauss		Approx. equivalent	
				B=13,000	B=15,000
		W./lb.	W./Kg.	W./Kg.	W./Kg.
Special Lohys ..	.018"	1.23	2.71	4.60	6.60
Med. Resistance	.020"	1.14	2.51	4.18	6.00
Motor 100	.020"	1.00	2.20	3.66	5.30
Stalloy 150	.020"	.81	1.78	3.04	4.55
Stalloy 140	.020"	.74	1.63	2.77	4.17
Stalloy 130	.020"	.68	1.50	2.55	3.84
Stalloy 120	.020"	.63	1.39	2.36	3.56
Stalloy 150	.014"	.68	1.50	2.52	3.75
Stalloy 140	.014"	.63	1.40	2.35	3.50
Stalloy 130	.014"	.59	1.30	2.20	3.10
Stalloy 120	.014"	.54	1.20	2.02	2.80
Stalloy 110	.014"	.50	1.10	1.87	2.55
Stalloy 105	.014"	.475	1.05	1.80	2.47
Stalloy 100	.014"	.455	1.00	1.74	2.35
Stalloy 95	.014"	.43	0.95	1.65	2.25
Stalloy 90	.014"	.41	0.90	1.57	2.12

NOTE.—Electrical Steel Sheets are available in a variety of surface finishes, depending primarily on the degree of interlamination resistance required. Full details are available in Lysaght's Electrical Steel Catalogue.

BIRMINGHAM GAUGE

The standard gauge table used for Black Steel Sheets is known as the Birmingham Gauge, or B.G. It must not be confused with either the Birmingham Wire Gauge (B.W.G.) or the Standard Wire Gauge (S.W.G.).

GAUGE TABLE

Gauge	Thickness		lbs. per sq. ft.	Gauge	Thickness		lbs. per sq. ft.
	Ins.	Mms.			Ins.	Mms.	
8	.1570	3.988	6.41	20	.0392	.996	1.60
9	.1398	3.551	5.70	21	.0349	.886	1.42
10	.1250	3.175	5.10	22	.0312	.794	1.27
11	.1113	2.827	4.54	23	.0278	.707	1.13
12	.0991	2.517	4.04	24	.0247	.629	1.01
13	.0882	2.240	3.60	25	.0220	.560	.90
14	.0785	1.994	3.20	26	.0196	.498	.80
15	.0699	1.775	2.85	27	.0174	.443	.71
16	.0625	1.587	2.55	28	.0156	.396	.64
17	.0556	1.412	2.27	29	.0139	.353	.57
18	.0495	1.257	2.02	30	.0123	.312	.50
19	.0440	1.118	1.80				

GAUGE TOLERANCES

Tolerances permitted by the trade in Uncoated Sheets:

Birmingham Gauge No.	Inches	Range for Application of Tolerances	Tolerance Plus or minus
8	.1570		.009"
9	.1398		.009"
10	.1250	.1323-.1181	.009"
11	.1113	.1180-.1052	.009"
12	.0991	.0151-.0936	.009"
13	.0882	.0935-.0833	.007"
14	.0785	.0832-.0742	.007"
15	.0699	.0741-.0662	.006"
16	.0625	.0661-.0591	.006"
17	.0556	.0590-.0526	.005"
18	.0495	.0525-.0468	.005"
19	.0440	.0467-.0416	.004"
20	.0392	.0415-.0370	.004"
21	.0349	.0368-.0330	.0035"
22	.03125	.0329-.0295	.0035"
23	.02782	.0294-.0263	.003"
24	.02476	.0262-.0234	.003"
25	.02204	.0233-.0208	.003"
26	.01961	.0207-.0185	.003"
27	.01745	.0184-.0165	.002"
28	.0156	.0164-.0148	.002"
29	.0139	.0147-.0131	.002"
30	.0123	.0130-	.002"

PACKING OF UNCOATED STEEL SHEETS

Uncoated sheets are packed in envelopes, bundles, or crates.

STEEL ENVELOPES.—Envelopes are made of black steel sheet, which, in addition to protecting the contents, can be used for working-up purposes when empty.

BUNDLES.—Bundles are a convenient method of packing sheets of the heavier gauges.

CRATES.—Crates consist of a timber base supporting Sisal-kraft wrapped sheets.

PACKING STANDARD

Standard Packing:

Weight of package: One or two tons.

	All States	N.S.W.
Hot Rolled Commercial Black	Bundles unwrapped, steel strapping.	Bundles unwrapped, steel strapping.
C.R. Commercial Black and C.R. Commercial Bright	Envelopes or crates, sisalkraft wrapped with skids.	Envelopes or bundles, sisalkraft wrapped with skids.
Hot Rolled Deep Drawing	Crates, sisalkraft wrapped with skids.	Bundles, sisalkraft wrapped with skids.
C.R. Extra Deep Drawing	Crates, sisalkraft wrapped with skids.	Crates, sisalkraft wrapped with skids.
C.R. General Purpose Deep Drawing, Enamel Flat, Enamel D.D., and Tack Plate	Crates, sisalkraft wrapped with skids.	Bundles, sisalkraft wrapped with skids.

Unless otherwise specified, sheets are supplied as follows:—

OILED	UNOILED
Pickled sheets. C.R. Commercial Bright. Hot Rolled Deep Drawing. Cold Rolled Extra Deep Drawing. Cold Rolled General Purpose Deep Drawing. Tack Plate.	H.R. Commercial Black. C.R. Commercial Black. Enamel Flat. Enamel Deep Drawing.

BLACK STEEL SHEETS

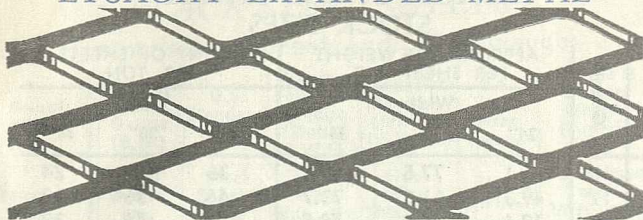
Comparison of Sheet and Wire Gauges

Gauge Name	Birmingham Gauge (B.G.)	U.S. Standard Gauge	Birmingham Wire Gauge (Stubs') (B.W.G.)	Imperial Standard (British) (I.S.W.G.)	U.S. Steel Wire Gauge	Browne & Sharpe Gauge (American)
Principal Use	Steel Sheets, etc.	Steel Sheets, etc.	Steel Wire, Shts., etc.	Steel Wire, Shts., etc.	Steel Wire	Non-ferrous Sheets, Wire, etc.
Gge. No.	Thickness or Diameter in Inches					
4/0	.5416	.398	.454	.400	.3938	.4600
3/0	.5000	.368	.425	.372	.3625	.4096
2/0	.4452	.337	.380	.348	.3310	.3648
0	.3964	.306	.340	.324	.3065	.3249
1	.3532	.2757	.300	.300	.2830	.2893
2	.3147	.2604	.284	.276	.2625	.2576
3	.2804	.2451	.259	.252	.2437	.2294
4	.2500	.2298	.238	.232	.2253	.2043
5	.2225	.2145	.220	.212	.2070	.1819
6	.1981	.1991	.203	.192	.1920	.1620
7	.1764	.1832	.180	.176	.1770	.1443
8	.1570	.1685	.165	.160	.1620	.1285
9	.1398	.1532	.148	.144	.1483	.1144
10	.1250	.1379	.134	.128	.1350	.1019
11	.1113	.1225	.120	.116	.1205	.0907
12	.0991	.1072	.109	.104	.1055	.0808
13	.0882	.0919	.095	.092	.0915	.0720
14	.0785	.0766	.083	.080	.0800	.0641
15	.0699	.0689	.072	.072	.0720	.0571
16	.0625	.0613	.065	.064	.0625	.0508
17	.0556	.0551	.058	.056	.0540	.0453
18	.0495	.0490	.049	.048	.0475	.0403
19	.0440	.0429	.042	.040	.0410	.0359
20	.0392	.0368	.035	.036	.0348	.0320
21	.0349	.0337	.032	.032	.0317	.0285
22	.0312	.0306	.028	.028	.0286	.0253
23	.0278	.0276	.025	.024	.0258	.0226
24	.0247	.0245	.022	.022	.0230	.0201
25	.0220	.0214	.020	.020	.0204	.0179
26	.0196	.0184	.018	.018	.0181	.0159
27	.0174	.0169	.016	.0164	.0173	.0142
28	.0156	.0153	.014	.0148	.0162	.0126
29	.0139	.0138	.013	.0136	.0150	.0113
30	.0123	.0123	.012	.0124	.0140	.0100
31	.0110	.0107	.010	.0116	.0132	.00893
32	.0098	.0100	.009	.0108	.0128	.00795
33	.0087	.0092	.008	.0100	.0118	.00708
34	.0077	.0084	.007	.0092	.0104	.00630
35	.0069	.0077	.005	.0084	.0095	.00561
36	.0061	.0069	.004	.0076	.0090	.00500

BLACK STEEL SHEET STOCK SIZES

	Gauge	APPROXIMATE WEIGHT PER SHEET—LBS.			COUNT OF SHEETS PER TON		
		Width			Width		
		24"	30"	36"	24"	30"	36"
6-FOOT LENGTHS	10	62.1	77.5	92.9	36	29	24
	12	49.3	61.8	73.7	46	36	30
	14	39.1	48.8	58.5	57	46	38
	16	31.0	38.7	46.5	72	58	48
	18	24.6	30.8	36.9	91	73	61
	20	19.5	24.4	29.3	115	92	77
	22	15.5	19.4	23.2	142	116	96
	24	12.3	15.4	18.4	182	146	122
	26	9.8	12.2	14.6	230	184	154
	28	7.8	9.7	11.6	289	231	193
	30	6.2	7.7	9.2	367	294	245
7-FOOT LENGTHS	10	72.3	90.3	108.3	31	25	21
	12	57.4	71.7	85.9	39	31	26
	14	45.6	56.9	68.2	49	39	33
	16	36.2	45.1	54.1	62	50	41
	18	28.7	35.0	43.0	78	63	52
	20	22.8	28.4	34.1	99	79	66
	22	18.1	22.6	27.0	124	99	83
	24	14.3	17.9	21.5	156	125	104
	26	11.4	14.2	17.0	197	158	132
	28	9.0	11.3	13.5	248	198	166
	30	7.2	9.0	10.7	315	252	110
8-FOOT LENGTHS	10	82.6	103.1	123.6	27	22	18
	12	65.5	81.8	98.1	34	27	23
	14	52.0	64.9	77.9	43	35	29
	16	41.3	51.5	61.8	54	43	36
	18	32.8	40.9	49.1	69	55	46
	20	26.0	32.5	38.9	87	69	58
	22	20.6	25.8	30.9	105	87	72
	24	16.4	20.5	24.5	137	110	91
	26	13.0	16.2	19.5	173	138	115
	28	10.3	12.9	15.5	217	174	145
	30	8.2	10.2	12.3	276	221	184

LYSAGHT EXPANDED METAL



INTRODUCTION.—Expanded Metal has been manufactured for some 60 years, and is now used in almost every branch of engineering and building trade. It is made from sheet metal which, by slitting and stretching, without any waste of material, converts it into a network of diamond-shaped mesh. Unlike netting, Expanded Metal is not an interlacing of loose or separate pieces. The strands are all part of the parent metal, rigidly unified at their junctions.

Lysaght Expanded Metal is produced in two types:—

- (a) Lathing Mesh (and Accessories), for plastering work in the building trade.
- (b) Ornamental Mesh, where a high degree of accuracy and finish is required.

SIZES OF MESHES.—Lysaght machines are capable of producing a variety of meshes from 1/8" upwards but, following popular demand, general usage for plastering is 13/32" mesh, which is the measurement across the short diagonal.

BASE MATERIALS.—Many ductile materials can be expanded, such as steel, aluminium, copper, monel metal, brass and other alloys, but the chief material for Expanded Metal is Lysaght high grade, low carbon steel sheet.

PACKING.—Sheets of ornamental mesh are packed in skeleton cases. Lathing mesh sheets are supplied in bundles of 10.

PROTECTIVE COATING.—For protective measures, unless otherwise specified, all Lysaght Expanded Steel Metal lathing is supplied coated with a rust inhibitor before despatch.

PLASTER LATHING.—Expanded Metal is most extensively used as a plaster lathing. Plaster should be applied *in situ*, without joints to mar the surface, on a background of Expanded Metal. The most important requirement of the background is that it should provide an adequate key for the plaster. In each square foot of Expanded Metal lathing there are approximately 500 meshes, each mesh forming a key for the support of the rendering. For plastering purposes, sheets must be stretched tight and fixed firmly to studs at not more than 18" centres with galvanized 1½" clouts. The long way of the mesh **MUST** be horizontal, and sheets should be fixed so that the strands all slope **DOWNWARDS** and **INWARDS**. Sheets should not finish in a corner, but should be bent at right angles on to adjoining studs or supports. Sides of sheets should overlap one inch and be wired together.

PLASTER ENCASEMENT OF STEEL WORK.—For fireproofing, both with concrete and lightweight aggregates, Expanded Metal is extensively used. Suspension channels, furring pieces and corner beadings are made for this type of construction, also lightweight single and double partition components.

Lysaght Expanded Metal Lathing

Mesh size	Strand Width	Catalogue No.	Weight per sq. yd.	Sheet Sizes		Sheets per Bundle
				Width	Lengths	
13/32" x 1"	1/16"	PL 25	2.5 lb.	27"	8' & 9'	10
S.W.M. x L.W.M.	1/16"	PL 34	3.4 lb.	27"	8' & 9'	5

A general purpose flat expanded diamond mesh lath used for walls, ceilings, and for fireproofing steel columns and beams. It is easily bent and formed to suit ornamental work.

MATERIAL.—Steel painted with rust inhibitor, or galvanized if specified. (PL34 has a yellow edge.)

SIZE AND WEIGHT (Per sq. yd.).— 96" x 27"—PL25—2.50 lbs.
PL34—3.40 lbs.

PACKING (Per bundle).— PL25—10 sheets (20 sq. yds.)—50 lbs.
PL34— 5 sheets (10 sq. yds.)—34 lbs.

NOTE.— PL25 and PL34 can also be supplied in lengths of 108" when specified.

Lysaght Expanded Metal Lathing Accessories

LYSAGHT COLD ROLLED CHANNEL



An accurately formed channel of uniform straightness and weight. The channels are used for the framing of suspended and furred ceilings and for wall furring, studding and stiffening of solid and hollow partitions.

MATERIAL.—Steel I6G, painted with rust inhibitor.

LENGTHS.— 16' and 20'.

SIZES AND WEIGHTS (per 1000 lin. ft.).— LC 75— $\frac{3}{4}$ " x $\frac{1}{2}$ "—300 lb.
LC150—1 $\frac{1}{2}$ " x $\frac{1}{2}$ "—500 lb.
LC200—2" x $\frac{1}{2}$ "—600 lb.

PACKING.

Lengths of Bundle	Minimum weight of Bundle	
	LC75 20 lengths/bundle	LC150 10 lengths/bundle
16'	96lb.	80lb.
20'	120lb.	100lb.

LYSAGHT CHANNEL CLIP



A heavy gauge hanger clip for use with joist clips to support furring or carrying channels.

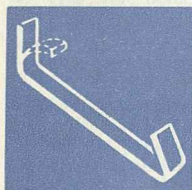
MATERIAL.—Steel, 12G, galvanized.

SIZES.—CC 75— $\frac{3}{4}$ " x $\frac{3}{4}$ ";
CC150— $1\frac{1}{2}$ " x $\frac{3}{4}$ ".

PACKING AND WEIGHT.—

CC 75—Box of 100 pieces—7lb. nominal.
CC150—Box of 100 pieces—10lb. nominal.

LYSAGHT JOIST CLIP



A heavy gauge clip for attaching to the undersides of steel girders and beams to support channel clips or hangers for furred or suspended ceilings.

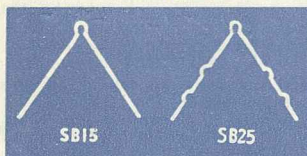
MATERIAL.—Steel, 12G, galvanized.

SIZES.—JC9— $7\frac{1}{2}$ " x $\frac{3}{4}$ "; JC12— $10\frac{1}{2}$ " x $\frac{3}{4}$ ".

PACKING AND WEIGHTS.—

JC 9—Box of 100 pieces—19lb. nominal.
JC12—Box of 100 pieces—25lb. nominal.

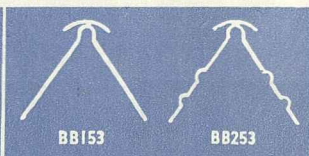
LYSAGHT CORNER BEADING



SB15

SB25

SMALL NOSE—SB15, 25, 30



BB153

BB253

BULL NOSE—BB153, BB253

A die-straight bead with perforated flanges. Used for reinforcing the corners of columns, beams and masonry work. Staggered perforations provide an excellent plaster key right up to the nose of the bead.

A broad-nose corner bead spot-welded to a wing section. Used to reinforce exterior corners where rounded edges are desired.

SB15	26G. galv.	8', 9', 10' & 12'	$1\frac{1}{2}$ " wing,	145lb. per 1000 l/ft.
SB25	" "	" " " " "	$2\frac{1}{2}$ "	" 235 " " " "
SB30	" "	" " " " "	3"	" 290 " " " "
BB153}	20G. steel trim	8', 9' & 10'	$1\frac{1}{2}$ "	" 310 " " " "
BB253}	26G. wing	" " " " "	$2\frac{1}{2}$ "	" 405 " " " "

LYSAGHT CASING BEADS—SC4, SC6, SC7

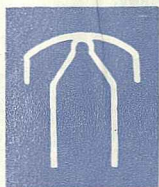
A short wing square casing bead used as a plaster stop and trim around door, window and other openings.

MATERIAL.—24G steel galv.

LENGTHS.—7' and 10'.

SIZES AND WEIGHTS.—

SC4	$\frac{1}{2}$ " x $1\frac{1}{8}$ "	leg—160lb. per 1000 l/ft.
SC6	$\frac{3}{4}$ " x $1\frac{1}{8}$ "	" —180 " " " "
SC7	$\frac{7}{8}$ " x $1\frac{1}{8}$ "	" —190 " " " "

LYSAGHT PARTITION TRIM—PT258

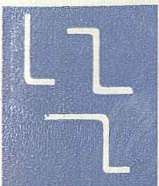
A partition cap spot-welded to a wing section. Used for 2" solid partitions, also as a stair rail cap.

MATERIAL.—20G galv. steel trim (prime painted).
26G galv. steel wing.

LENGTHS.—7', 8', 9', 10' and 12'.

SIZE AND WEIGHTS.—PT258: $2\frac{1}{2}$ " wing x 2" width of trim—680lb. per 1000 l/ft.

PACKING.—100 pieces per package.

LYSAGHT CEILING RUNNER

A specially designed steel section for fastening to the ceiling in order to provide positive anchorage and alignment of $\frac{3}{4}$ " and $1\frac{1}{2}$ " channels.

MATERIAL.—26G galv.

LENGTHS.—10' only.

SIZES AND WEIGHTS.—

CR500	$\frac{3}{4}$ " x $2\frac{3}{8}$ "	185lb. per 1000 l/ft.
CR510	$\frac{3}{4}$ " x $2\frac{5}{8}$ " x $1\frac{1}{4}$ "	280 " " " "
CR516	$\frac{3}{4}$ " x $1\frac{7}{8}$ " x 2"	280 " " " "

LYSAGHT BEAM RUNNER—BR75, BR150

A steel section similar in application to the ceiling runner. Attached to a beam, it holds the $\frac{3}{4}$ " and $1\frac{1}{2}$ " channels in alignment.

MATERIAL.—26G steel galv.

LENGTH.—10' only.

SIZES AND WEIGHTS.—

BR 75	$3\frac{1}{2}$ " x $1\frac{3}{4}$ "	280lb. per 1000 l/ft.
BR150	$2\frac{1}{2}$ " x 2"	280 " " " "

PACKING.—20 pieces per package.

LYSAGHT BASE TRIM—BT250



An accurately formed wall and partition Base Trim suitable for any type of wall requiring a flush plastered finish.

MATERIAL.—20G steel galvanized.

LENGTH.—10' only.

SIZE AND WEIGHT.—BT250: $2\frac{1}{2}''$ x $\frac{1}{8}''$ —500lb. per 1000 l/ft.

PACKING.—10 pieces per package.

LYSAGHT BASE TRIM SPLICE PLATE—SP250

Used to butt join Base Trims to provide an unbroken line.

MATERIAL.—20G steel galvanized.

SIZE.—SP250: 4' x $2\frac{1}{2}''$.

PACKING.—100 pieces per package (8lb. nominal weight).

LYSAGHT BASE TRIM CLIP

A special clip for holding the Base Trim to the $\frac{3}{4}''$ channel studs.

MATERIAL.—24G steel galvanized.

SIZE.— $2''$ x $1''$ x $\frac{9}{16}''$ slot.

PACKING.—1,000 per box—7lb. nominal weight.

LYSAGHT FLOOR RUNNERS—FR100

A steel channel suitable for 2" solid partitions with metal base trims.

MATERIAL.—22G galvanized.

LENGTH.—10' only.

SIZE AND WEIGHT.—FR100: $1''$ x $\frac{3}{8}''$ —150lb. per 1000 l/ft.

PACKING.—20 pieces per bundle.

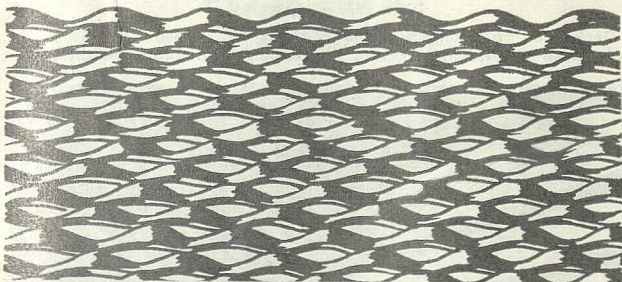
LYSAGHT ORNAMENTAL MESH

Extensively used for decorative and protective finishes as well as for containers of many kinds, Lysaght Expanded Metal Ornamental Mesh is produced in the following mesh sizes:—

- "A" Mesh— $1/8"$ x $7/16"$
- "C" Mesh— $1/4"$ x $1-1/8"$
- "D" Mesh— $3/8"$ x $1-11/16"$
- "FM" Mesh 23mm. x 64mm.

Available in varying strand widths from $1/32"$ to $1/4"$, and in gauges 16 and lighter in mild steel, 20 and lighter in stainless steel, and 12 and lighter in aluminium, etc. Widths: 2', 3', 4'; various lengths.

WEIGHT PER SQUARE YARD.—Variable, dependent on gauge, mesh size, and width of strand.



FLATTENED EXPANDED METAL ORNAMENTAL MESH

Lysaght Expanded Metal Ornamental Mesh can be flattened by a cold rolling operation which brings the strands of the mesh into the same plane. The gauge or thickness is slightly reduced without appreciably affecting the strength.

TYPICAL USES:

Decorative Finishes.—Radios, heaters, grilles, ornamental trims, display counters, window dressing, modern furniture.

Protective Finishes.—Switchboards, transformers, refrigerator motor backings, machinery guards, ventilators.

Containers.—Baskets, bins, cages, carriers, pallets, trays.

STEEL DECKING

Lightweight fireproof building construction is rapidly becoming an integral part of modern building methods.

Steel Decking is used extensively in this type of construction. The decks can be used for floors, roofs, and as wall cladding.

Lysaght's Works Pty. Limited, Newcastle Works, is equipped to manufacture a wide range of decks to specified shapes.

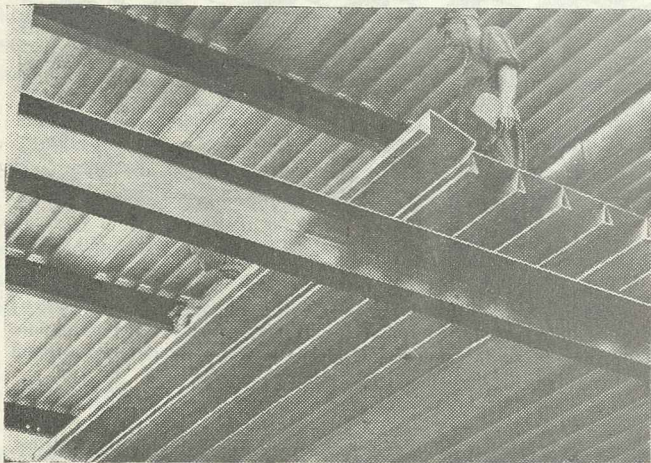
The Company would be pleased to advise on matters relating to the use of Steel Decking in lightweight building construction, and would welcome opportunities to submit quotations for the supply of steel sheets formed to particular specifications.

STEEL FLOOR AND ROOF DECKS

"TRI-LOK"

(Pat. Pend. 22374/56)

Decks of galvanized high-grade steel. Also available in galvanized phosphate treated, Zincanneal and Black finishes.

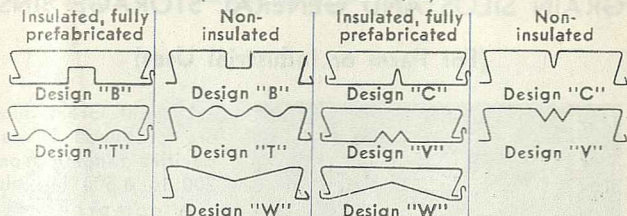


This special type deck is used in modern construction projects for roof or floor decking and, with slight variation of size and gauge, as wall cladding.

The illustration above shows "TRI-LOK" Decking being placed in position.

"TRI-LOK" WALL CLADDING

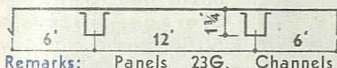
(Pat. Pend. No. 22374/56)



For further details write to Lysaght's Works Pty. Ltd., Newcastle Works, or John Lysaght (Aust.) Pty. Ltd., all capital cities.

ROOF DECKS (RUBEROID TYPE)

Profile

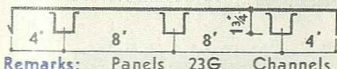


Remarks: Panels 23G, Channels

Product: 2 Channel, "B" type Deck.

Size: 24" finished width. 21G. Spot-welded assembly.

Profile

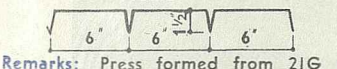


Remarks: Panels 23G, Channels

Product: 3 Channel, "B" type Deck.

Size: 24" finished width. 21G. Spot-welded assembly.

Profile

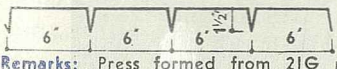


Remarks: Press formed from 21G

Product: 2 Channel, "C" type Deck.

Size: 18" finished width.

Profile

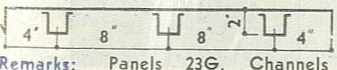


Remarks: Press formed from 21G

Product: 3 Channel, "C" type Deck.

Size: 24" finished width.

Profile



Remarks: Panels 23G, Channels

Product: 3 Channel, "D" type Deck.

Size: 24" finished width. 21G. Spot-welded assembly.

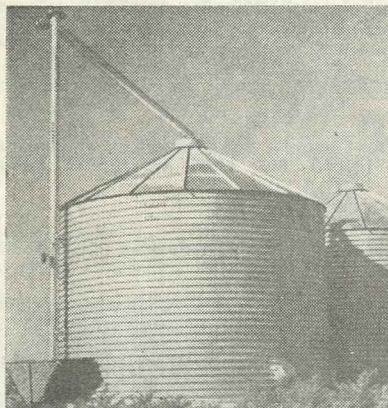
Standard lengths for all Decks range from 4' to 12' in increments of 4'.

The channels are enlarged at one end of each panel to facilitate fitting. Present finish is by stove painting.

LYSAGHT SPECIAL PRODUCTS

GRAIN SILOS AND GENERAL STORAGE BINS

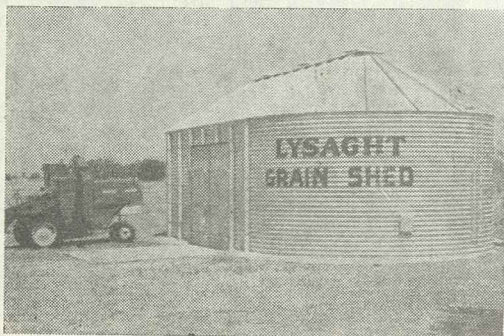
(For Farm or Industrial Uses)



Lysaght Grain Silos are produced in capacities ranging from 200 to 8,500 bushels.

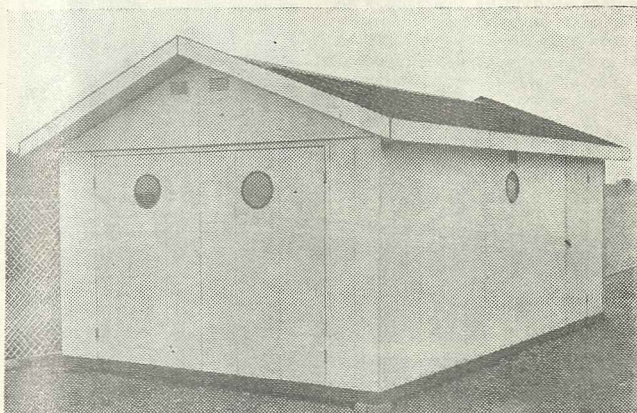
A comprehensive range of Lysaght Augers (Spiral Conveyors) is available for filling and emptying.

11,500-bushel Grain Sheds and large steel Storage Silos to 50,000-bushel capacity are available in ready-to-assemble form.



For further details and agents' names, write to Lysaght's Works Pty. Limited, Newcastle, or John Lysaght (Aust.) Pty. Limited, capital cities.

LYSAGHT SPECIAL PRODUCTS (continued) ALL-STEEL GARAGE



19' 6" long x 12' 0" wide.

Wall height 7' 0" — Over-all height 10' 0".

STEEL GARAGE

Flat specially formed Zincanneal Rust-resistant steel panels.

Includes:

Double doors, 6' 8" high x 8' 8" wide.

Side Door, 6' 8" high x 2' 8" wide.

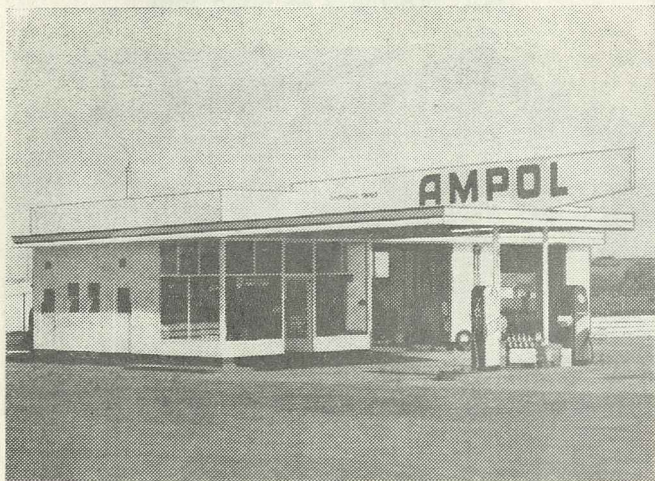
Porthole-type Fixed Windows.

Pressed Louvre Ventilators.

Barge Boards, Fascia-type, concealed guttering.

WATERPROOF — FIREPROOF

LYSAGHT SPECIAL PRODUCTS (continued) FORMED STEEL PANELS AND FLOOR UNITS



Typical All-steel Service Station erected in N.S.W.

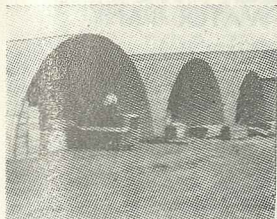
Manufacture of these items in quantity can be carried out to individual design and specification.

Dimensions of the panels depend primarily on structural strength required and finished appearance, and, secondly, on convenience of installation. Zincanneal steel panels are favoured for walls, roofs, ceilings, etc., whilst galvanized steel panels are normally used in floor construction. Manufacturing limitations in regard to panel form are not severe, and little difficulty is experienced in prefabricating panels to individual requirements.

(These have already been used in Service Stations, Garages, and floors in multi-storeyed buildings.)

LYSAGHT SPECIAL PRODUCTS (continued)

UTILITY TUNNEL



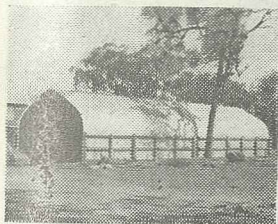
An economical all-purpose shelter. Specially designed to eliminate need for structural support.

Construction: Heavy gauge galv. corrugated steel sheets.

Length: Multiples of 10' 5" (to any length).

Available in the following heights and widths:—

Diameter	Base width	Height
14' 4"	4' 4"	7' 6"
14' 4"	13' 8"	9' 3"
19' 1"	19' 1"	9' 10½"
23' 10½"	23' 10½"	12' 3"

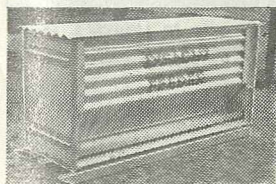


OPEN-END BARN

Designed for temporary bulk or bagged grain storage, and also as an all-purpose shelter.

No internal framework, but some form of external buttress necessary.

Height, 18' 6"; width, 27' 3"; length, multiples of 12' 6" (to any length).



SHEEP SELF-FEEDER

50-bushels capacity. Total trough length 16' — 8' each side. Full opening hinged lid. Adjustable swinging troughs. Sturdy skid base for towing.



UTILITY SHED

Basic unit 20' long x 10' wide. Maximum headroom, 8'; minimum, 6' 6".

Optional extras available.—Front wall, double hinged doors, barge board, side door, rear window frame.

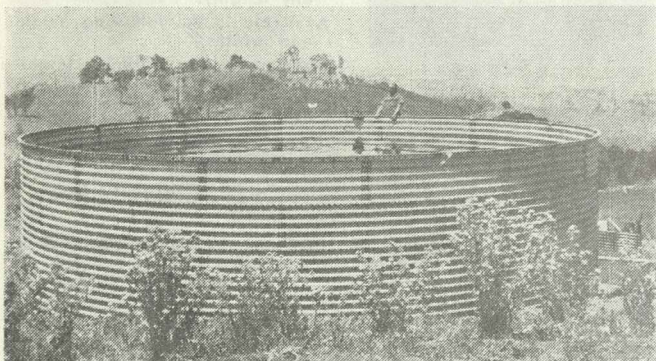
LYSAGHT SPECIAL PRODUCTS (continued)

LARGE-CAPACITY WATER TANK

(READY TO ASSEMBLE)

Large-capacity Water Tank Sets of heavy gauge galvanized curved sheets are manufactured by Lysaght's Works Pty. Limited, Newcastle, in six standard sizes:—

10,000 tall or squat 25,000 50,000 75,000 100,000 gallons.



For further details and agents' names, write to Lysaght's Works Pty. Limited, Newcastle, or John Lysaght (Aust.) Pty. Limited, capital cities.

SPECIAL HARDWARE PRODUCTS

LYSAGHT-MARSDEN BRAND.—Manufactured by Lysaght's Works Pty. Ltd., Newcastle Works, from high carbon steels and heat-treated under rigid supervision.

LYSAGHT-MARSDEN BRAND CARPENTERS' SAWS.—In a full range of Rip, Hand, Panel and Tenon Saws. The only all-Australian Taper-ground Saw.

LYSAGHT-MARSDEN BRAND CANE KNIVES.—Of highest quality, with 15", 12" or 9" handles.

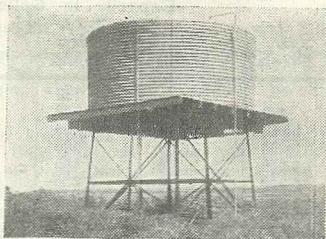
LYSAGHT-MARSDEN BRAND CIRCULAR SAW BLANKS.—From 6" to 48" diameter, and in a full range of gauges.

SEEDLING TUBES (as used by Forestry Commissions) are manufactured from galvanized sheets in the following standard sizes:—

6" x 6" (1 $\frac{3}{4}$ " dia.) crimped or plain.

8" x 6" (1 $\frac{3}{4}$ " dia.) " " "

LYSAGHT ORB CORRUGATED STEEL SHEETS FOR TANK-MAKING



In Australia to-day many millions of gallons of water are safely stored in tanks made from Lysaght's Orb Corrugated Galvanized Iron. Ranging in size from the familiar 500-gallon householder tank to giants capable of holding 100,000 gallons, they have proved themselves the most economical and efficient means of storing water available to the country dweller.

In industry, where supplies of "soft" rain water are a necessary part of the manufacturing process, Lysaght's Orb Galvanized Iron provides adequate storage facilities at low cost extended over many years.

CAPACITY OF TANKS—CALCULATIONS

SQUARE OR RECTANGULAR SECTION.—All dimensions in feet:—

length x breadth x depth x $6\frac{1}{4}$ = capacity in gallons.

CIRCULAR.—Capacity in gallons given by either of the following rules:—

A. $\frac{\pi}{4} \times (\text{diameter})^2 \times \text{height} \times 6\frac{1}{4}$.

B. Multiply circumference by itself and by half the height — $C^2 \times h/2$.

C. Multiply diameter by itself and by five times the height — $D^2 \times 5h$.

Example.—Diameter 6ft., height 6ft.

$6 \times 6 \times 30\text{ft.} = 1,080$ gals approximately.

Capacity of Corrugated Galvanized Sheet Tanks

WALL SHEETS ALL OF ONE SIZE FOR EACH TANK

Height of Tank	No. of Sheets to the Tank Perimeter	Capacity in Gallons				
		8ft. Sheets	9ft. Sheets	10ft. Sheets	11ft. Sheets	12ft. Sheets
4' or Two Rings	1	—	—	180	220	270
	2	470	600	740	910	1,080
	3	1,060	1,350	1,680	2,050	3,450
	4	1,900	2,400	3,000	3,600	4,300
	5	3,000	3,700	4,600	5,500	6,600
	6	4,200	5,200	6,500	7,900	9,500
	7	5,500	7,000	10,900	10,300	12,400
	8	7,200	9,200	12,400	13,400	16,200
6' or Three Rings	4	2,800	3,600	4,500	5,300	6,300
	5	4,400	5,400	6,700	8,200	9,900
	6	6,100	7,800	9,700	11,300	13,600
	7	8,200	10,000	12,500	15,400	18,600
	8	10,000	13,000	16,400	20,100	24,300
	9	12,700	16,500	20,800	25,500	30,700
	10	15,700	20,400	25,600	31,500	37,900
	11	19,100	24,700	31,000	38,100	45,900
8' or Four Rings	12	22,700	29,400	36,900	45,400	54,600
	4	—	—	5,700	7,000	8,400
	5	5,600	7,200	9,000	10,500	12,600
	6	8,100	9,800	12,300	15,100	18,200
	7	10,300	13,300	16,700	20,600	24,800
	8	13,400	17,400	21,900	26,900	32,400
	9	18,200	22,000	27,700	34,000	41,000
	10	21,000	27,200	34,200	42,000	50,600
	11	25,400	32,900	41,400	50,800	61,200
	12	30,200	39,200	49,300	60,500	72,900

The above allows sheet end lap of—

4" for tanks up to 5,000 gallons.

6" for tanks from 5,000 gallons to 10,000 gallons.

9" for tanks over 10,000 gallons.

GAUGE OF WALL SHEETS

Maximum diameters allowable

Height of Tank in ft.	Gauge					
	24	22	20	18	16	14
	ft.	ft.	ft.	ft.	ft.	ft.
4	30	38	48	60	75	90
6	20	25	32	40	50	60
8	15	18	24	30	36	42

CORRUGATED GALVANIZED IRON TANKS

RECOMMENDATIONS

1. Use only Lysaght Orb Galvanized Sheet.
2. Curve sheets gently and gradually. Severe changes in curvature on each pass and rapid speeds tend to force the zinc coating off the sheets. Curving rolls should be smoothly dressed, aligned, etc.
3. Tanks intended for use as rainwater tanks should be treated with TECT-A-TANK before filling. Tanks intended for the storage of underground or river waters can be painted inside with zinc dust/zinc oxide paint or a paint made of
 - 2½ lb. of cement,
 - 1 pint of boiled linseed oil,
 - 1 oz. of gold size or ¼ pint of terebine.The mixture should be well stirred during use.
4. All tanks should be fed individually from the supply, and not by connecting one tank to another. If tanks are connected to a common main, then cocks must be provided between each tank and the main to prevent inter-tank flow of water.
5. Provide strainers to prevent contamination by leaves, etc.
6. Provide ample ventilation in the case of covered tops.
7. Where practicable, install in shade.
8. In case of early failure of tank, advise the nearest office of John Lysaght (Aust.) Pty. Ltd., because renewal in the same form may give a repetition of the first experience. In very few cases has early failure been entirely due to any fault in the galvanized sheet.
9. If it is suspected that the water to be stored is corrosive to galvanized iron, send a sample of about two pints to the nearest office of John Lysaght (Aust.) Pty. Ltd., together with all relevant information. When sampling water, use perfectly clean vessels and stoppers, and rinse each one several times with the water being sampled before finally filling. The water will be analysed and a report made to the user stating any recommendations and/or precautions.

CURVING ROLLS

Experience indicates that a better and more even grip of the sheets is obtained if the flutes of the roll are slightly shallower than the flutes of the sheet. The reason for this is that the standard ¾" depth of corrugations includes twice the thickness of metal in the sheet. As curving is applied principally to 24G, the recommended depth of flute for the curving rolls is 11/16" bare (actually 43/64").

Corr. Galv. Iron Tanks in Common Use

Capacity of Tank Gallons	Height	Dia- meter	Walls 8/3" Corrugations Orb Sheets			Bottom & Roof Widths of 6' Sheets Q.H.	
			No.	Length	Gauge	Bottom 24G	Roof 26G
100	2' 0"	3' 2"	1	10' 0"	24	1-24"	1-24"
200	4' 0"	3' 2"	2	10' 0"	24	1-24"	1-24"
300	6' 0"	3' 2"	3	10' 0"	24	1-24"	1-24"
300 Squat	4' 0"	4' 0"	2	6' 0"	24	1-36"	1-36"
			2	7' 0"	24		
400	6' 0"	3' 8"	6	6' 0"	24	1-36"	1-36"
400 Squat	4' 0"	4' 4"	4	7' 0"	24	1-36"	1-36"
500	6' 0"	4' 0"	3	6' 0"	24	1-36"	1-36"
			3	7' 0"	24		
500 Squat	4' 0"	4' 11"	4	8' 0"	24	2-30"	2-30"
600	6' 0"	4' 4"	6	7' 0"	24	1-36"	1-36"
600 Squat	4' 0"	5' 3"	2	8' 0"	24	1-36"	1-36"
			2	9' 0"	24	1-30"	1-30"
800	6' 0"	5' 0"	6	8' 0"	24	1-36"	1-36"
					24	1-30"	1-30"
800 Squat	4' 0"	6' 3"	4	10' 0"	24	1-30"	1-30"
					24	2-24"	2-24"
1,000 Small	6' 0"	5' 7"	6	9' 0"	24	2-36"	2-36"
1,000 Full	6' 0"	5' 11"	3	9' 0"	24	2-36"	2-36"
			3	10' 0"	24		
1,000 Squat	4' 0"	6' 11"	4	11' 0"	24	1-36"	1-36"
						2-30"	2-30"
1,000 Squat	4' 0"	7' 4"	6	8' 0"	24	3-36"	3-36"
1,200	6' 0"	6' 3"	6	10' 0"	24	1-30"	1-30"
						2-24"	2-24"
1,500	6' 0"	7' 1"	3	7' 0"	24	2-30"	2-30"
			6	8' 0"	24	1-36"	1-36"
2,000	6' 0"	8' 3"	9	9' 0"	24	3-36"	3-36"
						1-30"	1-30"
3,000	6' 0"	10' 0"	3	9' 0"	24	6-36"	6-36"
			9	8' 0"	24		
4,000	6' 0"	11' 6"	6	10' 0"	24		
			6	9' 0"	24	7-36"	7-36"
5,000	6' 0"	13' 0"	9	9' 0"	24		
			6	8' 0"	24	9-36"	9-36"
						36" wide	*
10,000	6' 0"	18' 0"	18	10' 0"	22	17-22G	
15,000	6' 0"	22' 6"	12	10' 0"	22	26-22G	
			12	9' 0"			
20,000	6' 0"	25' 6"	15	10' 0"	22	32-22G	
				9' 0"			
30,000	6' 0"	32' 6"	33	10' 0"	20	50-20G	

*Above 2,000 gallons only 36"-wide sheets are considered.

As tanks of 10,000 gallons capacity and above are not usually provided with tops, no material is included in this data for same.

Lysaght TECT-A-TANK

Makes Tanks Last Longer —

Another Lysaght Achievement

As a result of years of research in the field of corrosion, Lysaght's have now produced a product which greatly increases the life of new galvanized iron tanks used for the storage of rain water. This product, known as Tect-A-Tank, has proved far superior to any previously known means of protection. Field trials have proved its value. It is particularly effective in areas subject to heavy down-pours where, due to the high purity of the water, it has been common in the past for a proportion of early failures to occur in untreated tanks. Its use is limited to new tanks, and the treatment is not suitable for bore, well or river waters.

Tect-A-Tank consists of a mixture of specially developed crystals packed in hygienic plastic tubes of two lengths, suitable for use in either tall or squat tanks. Each tube will treat any tank up to 1,500 gallons. For larger tanks an additional tube is used for each 1,000 gallons increase in capacity. Tect-A-Tank is easy to use. The tube is simply hung in the new tank before it starts to fill with rain water.

The crystals commence their work immediately any water enters the tank, and dissolve completely in six to nine months, forming a microscopic protective film on the interior, the effect of which will last for the life of the tank. Because of the design of the tube, full protection is afforded to the whole of the tank, whether filling takes place at once or in stages over a lengthy period. One application of Tect-A-Tank is sufficient to obtain a long tank life. The empty tube may be removed if desired, but is not harmful if left in the tank. Tect-A-Tank dissolved in rain water is harmless for drinking purposes, has no taste or odour, and does not affect the hardness of the water.

Fuller technical details on Tect-A-Tank can be provided on application to Lysaght's Works Pty. Limited, Newcastle.

Tect-A-Tank is available from plumbers and hardware stores. If unobtainable locally, communicate with Lysaght's Works Pty. Limited, Newcastle, or offices of John Lysaght (Aust.) Pty. Limited in the capital cities.

MISCELLANEOUS DATA

- 1 Cubic foot of distilled water at 62°F. weighs 62.321 lb. For all practical purposes, 62.5 lb.
- 1 Gallon of water weighs 10 lb.
- 1 Cubic foot = $6\frac{1}{4}$ gallons.
- 8 Gallons = 1 bushel. 1 Bag = 3 bushels.
- 1 Bushel is equivalent to 1.28 cubic feet of space.
- 1 Bushel of wheat weighs approximately 60 lb.
- 1 Bushel of oats weighs 40 lb.

ELECTRICAL STAMPINGS . . .



for all requirements

Joseph Sankey & Sons

(Aust.) Pty. Ltd.

GENERAL.—Sankeys are a world-wide organisation who for many years have specialised in the manufacture of stampings for the electrical industry. The Newcastle plant is one of the largest in the Southern Hemisphere capable of producing a great variety of stampings.

Electrical laminations are produced from a comprehensive range of special Australian silicon steels rolled and processed in Newcastle by Lysaght's Works Pty. Ltd. Details of these steels are shown on page

ELECTRIC MOTORS.—The essential core of an electric motor is built up of a large number of thin stampings or laminations to form a stator and a rotor. Sankeys manufacture laminations for motors ranging from the tiniest fan motor to large industrial motors of 100 h.p. or more.

Most of these laminations are manufactured to customers' particular designs, but tools are also held in stock to produce a range of standard blank sizes, in which case slot details are supplied by the customer.

RADIO AND TELEVISION.—In every radio set there is at least one small transformer; in television sets there are several. These small transformers are relatively simple, consisting mainly of a stack of laminations in the form of E's and I's.

Sankeys manufacture a large range of standard sizes of E and I laminations from 9/16" to 2-1/4" centre limb width.

LIGHTING.—Modern fluorescent lighting operates on a very low voltage, which necessitates the use of a special type of transformer called a ballast. The standard U-shape lamination is produced by Sankeys for this purpose, as well as other special shapes to customers' designs.

TRANSFORMERS.—The vast development of electricity generation and distribution in Australia calls for a great number of large transformers. The cores of such transformers are composed of accurately sheared and holed strips of high grade electrical steel. Sankeys are producing many of these cores, being equipped with the modern plant necessary to ensure the accuracy of shearing and holing required.

Enquiries are welcomed for the supply of small or large quantities of stampings, either from Sankeys' standard range or to your own particular design. In the latter case, detailed and dimensioned drawings will facilitate quotation.

Please address your enquiries to Joseph Sankey & Sons (Aust.) Pty. Ltd., P.O., NEWCASTLE, or to John Lysaght (Aust.) Pty. Ltd. in all capital cities.

G.K.N. GROUP AGENCIES

Many companies of the G.K.N. Group manufacture goods which reach the Australian market. Full information about the following products, also literature and quotations, may be obtained on application to John Lysaght (Australia) Pty. Limited.

G.K.N. (S.W.) LTD.

Castle Works & Rolling Mills—Cardiff, Wales, U.K.

Steel Bars and Sections. Hot and Cold Rolled Strip, fully hard, annealed and re-rolled to intermediate tempers as specified. Packing Case Hoops, Tube Strips, and High-tensile Strapping, etc. Wire, hard drawn brights, also bright and black annealed.

G.K.N. (MIDLANDS) LTD.

Atlas Works—Darlaston, Staffs., U.K.

Railway Track Fastenings, Dogspikes, Fishbolts, Spring Washers.

G.K.N. (MIDLANDS) LTD.

Cwmbran Works—Cwmbran, Mon., U.K.

Railway Track Fastenings, Cast Iron Sleeper Plates, etc.

JOSEPH SANKEY & SONS LTD.

Hadley Castle Works—Wellington, U.K.

Motor Vehicle Wheels and Chassis Frames, Pressings.

SANKEY-SHELDON LIMITED

46 Cannon Street, London, E.C.4, U.K.

Steel Furniture, Metal Trim Unistrut.

EXORS. OF JAMES MILLS LTD.

Bredbury Steel Works—Woodley, near Stockport, England, U.K.

Bright Free-cutting Steel, leaded and non-leaded, Rounds, Flats, Hexagons, Squares and Special Sections. Railway Track Fastenings. Macbeth Spring Spikes. Mills Spring Steel Jaws and Keys. Rail Lubricators, Hurcol and Aladdin.

BAYLISS JONES & BAYLISS LTD.

Victoria Works, Wolverhampton, U.K.

Railway Track Fastenings. Telephone and Transmission Line Hardware. Steel Fence Posts. Rolled Steel Sections.

THE TENTOR BAR CO. LTD.

43 Upper Grosvenor Street, London, W.1, England, U.K.

Steel Reinforcing Bars.

TWISTEEL REINFORCEMENT LIMITED

43 Upper Grosvenor Street, London, W.1, England, U.K.

Design serviced. Steel Reinforcement.

USKSID ENGINEERING CO. LTD.

Uskside Iron Works—Newport, England, U.K.

Mining and Industrial Equipment. Winders and Haulages. Belt Conveyors. Electrical Coat Cutters. Heavy Duty Pumps. Compressed Air Jigging Conveyor Engines, etc.

SOMERSET WIRE CO. LTD.

Steel Wire Manufacturers—Bridgwater, Somerset, England, U.K.

High Tensile Steel Wires, Bright and Galvanized, Wire for Prestressed Concrete. Bedding and Seating Rope and Industrial Spring making.

UNISTRUT

Unistrut is a frame construction system which enables the fabrication of a large variety of strong sections.

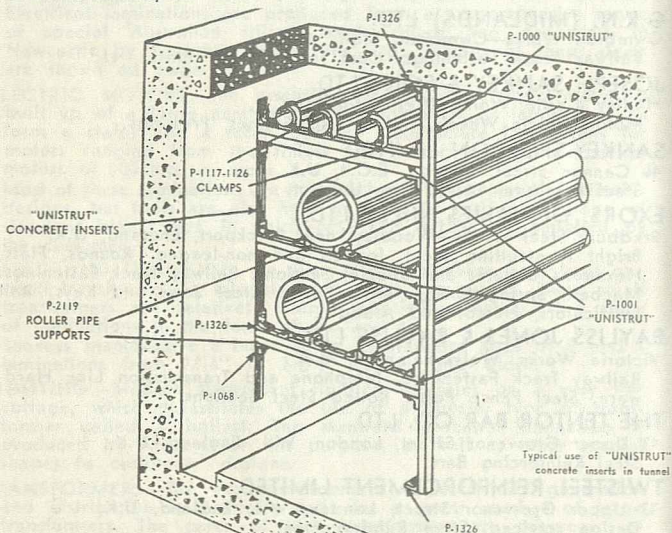
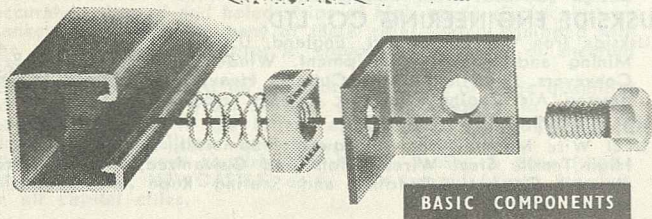
The method of construction allows the pulling down and re-use of all components as and when necessary.

Unistrut basically consists of formed steel channel sections, spring-loaded bolts and nuts, and other joining components.

All of these components may be fitted at any given position to give a structure to practically any design.

Particularly suitable for use in concrete structures, where special concrete inserts may be used.

Load data and details available from John Lysaght (Aust.) Pty. Ltd. in all capital cities.



FIXING OF CORRUGATED SHEETS GALVANIZED IRON OR ZINCANNEAL

GENERAL.—Of all building materials in common use, Lysaght Corrugated Galvanized Iron or Zincanneal sheeting is one of the most popular, being adaptable for roofs, side walls, and vertical sheeting of all descriptions.

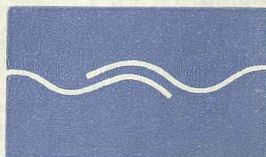
As is well known, corrugated sheet-steel is produced in three pitches of corrugations, 5", 3", and 1", sometimes referred to as ripple iron. 3" pitch is that in most common use, and is produced in three widths, 8 x 3", 10 x 3", and 12 x 3" corrugations.

When a corrugated sheet is placed flat and observed, it will be found that there are a number of crests and hollows. If these are counted there will be found to be more of one than the other. If there are more crests than hollows, then the sheet is the "right way" up. This side of the sheet should be bearing Lysaght's brand.

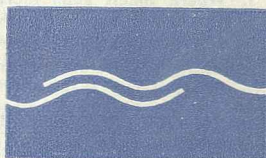
SIDE LAPS.—Sheets are said to be lapped one corrugation when both sheets are laid the right way up, and, as illustrated, the crest of one sheet fits over the crest of the other sheet. This lap is used for covering walls, or for roofs in dry areas.

Sheets are said to be lapped one and a half corrugations when sheets are laid with every second one up-side down, and with one crest and one hollow of each sheet matched. This is the standard lap for roofs. It is only used for wall sheeting where special protection from driving rain is required.

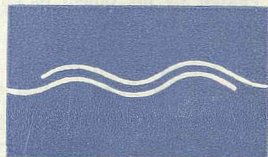
Sheets are said to be lapped two corrugations when two crests and one hollow of each sheet are matched, both sheets being the right way up. This is only required for special roof protection, e.g., low-pitched roofs such as awnings and lean-to's. The following table shows details of sheet sizes and coverages for the various side laps. In the following paragraphs we shall confine our remarks to the application of 3" corrugation steel sheet.



1 Corrug. Side Lap



1 1/2 Corrs. Side Lap



2 Corrs. Side Lap

COVERAGE

	8 x 3" Corr.	10 x 3" Corr.	12 x 3" Corr.
Overall width of sheet ..	2' 1 1/2"	2' 7 1/2"	3' 1 1/2"
One corrugation lap	2' 0"	2' 6"	3' 0"
One and a half corruga- tions lap	1' 10 1/2"	2' 4 1/2"	2' 10 1/2"
Two corrugations lap	1' 9"	2' 3"	2' 9"

For estimating the number of sheets required for one side of a pitched roof, it is usual to divide the length of roof to be covered by the width of the corrugated sheet used, allowing the appropriate deduction for the side lap required—e.g., using 10 x 3" corrugations sheet, side lap one corrugation, length of roof 50'. Then number of sheets required = 20—i.e., $50 \div 2.5$. It is usual to add one sheet for wastage, making a total of 21.

PITCH OF ROOFS.—Corrugated steel sheets are suitable for any roof pitch. Though a slope greater than $\frac{1}{4}$ is preferred in snow country, for most Australian conditions slopes $\frac{1}{4}$ and less are more pleasing to the eye.

END LAPS.—For pitches steeper than 1 in 4 use 6" end lap minimum; for pitches less than 1 in 4 use 9" end lap.

SIDING.—For siding use one corrugation side lap and 4" end lap.

FIXING OF SHEETS.—Sheets are fixed as follows:—

1. Roof sheets should be fixed through the top of every second corrugation at ends of sheets and every third corrugation at intermediate fixings.
2. Wall sheets should be fixed through the top of every third corrugation at end fixings and every fourth corrugation at intermediate fixings.
3. Where sheets span more than 3' between battens or purlins, it is advisable to fix the side lap at an intermediate point with a self-tapping screw or gutter bolt.

Following are details of the various nails, screws, etc., used for fixing corrugated sheeting.

GALVANIZED ROOFING NAILS.—Galvanized roofing nails are manufactured in lengths of 2" and $2\frac{1}{4}$ ". They are normally purchased by the cwt. from manufacturers, but may be purchased by the pound in small quantities. For estimating purposes it may be assumed that a 1-lb. packet of $2\frac{1}{4}$ " contains 100 nails, and that approx. 70 nails or 1 lb. of nails are required for one square of roofing. Galvanized roofing nails are the most suitable for fixing roofing sheets to hardwood roof timbers.

GALVANIZED TWISTED-SHANK ROOFING NAILS.—Galvanized twisted-shank roofing nails are similar to the standard roofing nail, with the exception that the shank has been twisted in order to obtain a better grip in the timber roof members. They are manufactured in lengths of 2" and $2\frac{1}{4}$ ", and are normally used where the roof timbers are oregon or cypress. These nails are purchased by the cwt. from the manufacturers, but can be obtained from local hardware stores in 1-lb. lots. Approximately 70 $2\frac{1}{4}$ " roofing nails weigh 1 lb.

GALVANIZED ROOFING SCREWS.—Galvanized roofing screws are normally used in the softer roofing timbers such as oregon and cypress. Screws should be used in conjunction with lead or diamond galvanized sheet steel washers. For estimating purposes 70 screws and washers are required per 100 sq. ft. of roof area. $1\frac{3}{4}$ " screws can be used, though 2" are normal for 3" corrugations sheet.

$2\frac{1}{4}$ " and $2\frac{1}{2}$ " are required for 5" corrugations sheet.

$1\frac{1}{2}$ "—56 screws per lb., or $1\frac{1}{4}$ lb. per square of roofing.

2"—50 screws per lb., or 1.4 lb. per square of roofing.

Though lead washers may be used alone, it is preferable that they be accompanied by a steel washer.

An impregnated paper washer should be used in conjunction with diamond metal washers.

Lead washers are bought approximately 64 per lb.

GALVANIZED HOOK BOLTS.—Galvanized hook bolts are used in a variety of shapes to fix corrugated steel sheet to steel structural members. These are available in lengths from 4" to 6", width from $2\frac{1}{2}$ " to $\frac{3}{8}$ ". For estimating purposes it may be assumed that half a gross of bolts are required for each square of roofing. Hook bolts should be ordered 2" longer than the width of purlin or rafter with which they are to be used, and to have a minimum thread of $1\frac{1}{2}$ ".

When fixing, both edges of the sheet should be secured first to prevent the sheet spreading or becoming fan-shaped, which trouble may become more pronounced as the job progresses. When sheeting roofs or walls, the sheets of iron should be fixed in threes, the two outer sheets placed either under or over the middle sheet for one and a half corrugations; the building will then be quite proof against rain or wind.

A corrugated iron roof will last longer if the ends and side laps of sheets are painted, before fixing, with zinc dust, red oxide, or any good quality roofing paint. These points of contact are where corrosion may begin.

Zincanneal sheeted roofs may be painted immediately on erection, but unless using zinc dust paints, galvanized iron roofs should not be painted until the sheet has weathered—say six (6) months after erecting.

The development of metallic zinc dust paints has made possible the painting of new galvanized sheets without weathering or priming. The ingredients are obtained from leading manufacturers, and the paint has a covering capacity of 420 sq. ft. per gallon if sprayed, and 445 sq. ft. if brushed.

RIDGING

To ensure the correct finish to the ridge of a roof, it is necessary to provide ridge capping, which may be either of the Standard or Ventilating type.

STANDARD RIDGE CAPPING (See Fig. 1).—Standard Ridge Capping (Ridge Capping with Roll) should be formed to the pattern as shown in Australian Standard Specification No. SPR3-1931. It will be found, however, that manufacturers in the various States may depart slightly from the standard pattern, but in the main the variation will be slight. When ordering various sizes of Ridge Capping, it should be noted that the size referred to is the width of the flat sheet from which the ridging is formed. The most popular sizes are 14" to 18", the 18" being used mainly for domestic construction, 14" to 16" being used for small sheds such as country farm structures.

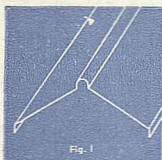


Fig. 1

Standard Ridge Capping should be of 24G Queen's Head Galvanized Iron or Zincanneal sheet, formed from the required width of sheet in 6' or 8' lengths—Fig. 1.

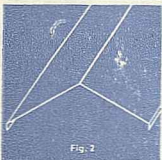


Fig. 2

All Ridge Capping shall be securely fixed in conjunction with the roofing sheets with galvanized screws and lead washers or specially twisted galvanized roofing nails pierced through the top of every second corrugation and dressed well down into the corrugations.

PLAIN RIDGE CAPPING (See Fig. 2). — The plumber makes his own ridging, and normally forms it as a plain Ridge Capping without roll, as in Figure 2. This is prepared in lengths of 6' or 8' from 24G Queen's Head or Zincanneal flat sheet, and is applied to the roof in a similar manner as Standard Ridge Capping.

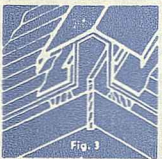


Fig. 3

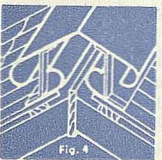


Fig. 4

VENTILATING RIDGES.—Where it is necessary to obtain the maximum amount of ventilation in a building, it will be found that the application of a Ventilating Ridge will provide the requisite flow of air. Where it is desired to bird-proof ventilating ridges, $\frac{1}{2}$ " galvanized wire mesh should be soldered to underside of Ridge Capping, taken down behind flashing, and either soldered to flashing or fixed to roof batten—Figs. 3 and 4.

EAVES GUTTERS OR SPOUTING

The chief types of Eaves Gutters (alternatively called spouting) are as illustrated. With few exceptions, common practice is to use the standard quadrant type (Fig. 1). Though the shape of this is set out in Australian Standard Specification SPR13-1931, a number of manufacturers still fabricate quadrant guttering (or spouting) to their own particular pattern. Where replacements have to be made of small lengths of guttering to old buildings, then the material is formed to a pattern conforming to the existing installation.

STANDARD EAVES GUTTERS (OR SPOUTING).—

Eaves gutters of the type and size selected should be formed from 24G Queen's Head Galvanized or Zincanneal R.L. flat sheet in 6' or 8' lengths, fixed in position with required falls to outlets; lapped, double riveted, and soldered at joints. Cut gutters to receive thimble connection of downpipes and properly solder at these junctions.

EAVES GUTTERS FIXING.—Eaves gutters can be fixed to the eaves with a variety of straps or brackets according to the method of fixing and type of bracket or gutter selected.

Brackets can be fixed:—

- To fascia boards with galvanized nails.
- To rafters with galvanized nails.
- In all-steel constructions to corrugated roofing sheets with galvanized bolts, nuts, and washers.

Brackets are formed from 16G galvanized strip and fastened over or on to the guttering.

In general, straps are bent over the lip of the gutter. To support the gutters against heavy snow or leaf loads, handling of gutters when cleaning, etc., an overstrap can be provided to fasten on to the rafters. Constructions exist using a distance tube and spike, or in which the bracket is riveted or attached by a nut and washer to the guttering.

SIZE OF GUTTERS.—The size of the gutter necessary will depend upon the size and number of downpipes necessary to carry away the maximum rainfall from any given roof. The size of the gutter should be such that the entry of the downpipe will fit snugly into the bottom of the gutter, and will not project up the outer face. Galvanized crimp wire gratings must be provided at all downpipe outlets.



DOWNPIPES

GENERAL.—Downpipes are formed from 24G Queen's Head Galvanized or Zincanneal R.L. flat sheets in 6' or 8' lengths. The longitudinal joint may be formed with a $\frac{3}{8}$ " seamed joint, or alternatively lapped $\frac{1}{4}$ " and soldered.

TYPES.—Downpipes may be of round or rectangular section. The normal range of round downpipes is from 2"-6" dia., 3" being the usual size for cottage construction, 4" for farm sheds, while 5" and 6" sizes are generally confined to factory buildings. The downpipes may be formed from tapered strips, so that one end is slightly larger than the other, to allow lengths of downpipes to be fitted together, or alternatively one end of the pipe can be crimped.

ROUND				RECTANGULAR			
Dia. inches	Area sq. in.	Roof area drained sq. ft.	Area of building roofed sq. ft.	Size of Piping inches	Area sq. in.	Roof area drained sq. ft.	Area of building roofed sq. ft.
2"	3.14	314	304	3" x 2"	6	600	582
2½"	4.9	490	475	4" x 2"	8	800	775
3"	7.07	707	686	4" x 3"	12	1,200	1,165
4"	12.56	1,256	1,218	4" x 4"	16	1,600	1,555
5"	19.63	1,963	1,905	5" x 4"	20	2,000	1,940
6"	28.27	2,827	2,742	6" x 4"	24	2,400	2,315

SIZE OF DOWNPIPES.—For every 100 square feet of actual roof area drained, 1 sq. inch of downpipe is required, whether round or square. This calculation is based on the assumption that the maximum rainfall does not exceed 5" per hour.

It is considered the best practice to drain to different points, using smaller downpipes, rather than to one large outlet. Where possible, downpipes should be spaced at not more than 40' centres.

FIXING OF DOWNPIPES.—Downpipes may be secured:—

1. To weatherboards with 16G galvanized or Zincanneal straps.
2. To brickwork joints with galvanized steel wall hooks, one to each length of downpipe, or with 16G iron straps fixed to wall blocks with galvanized screws and washers.

For additional holding capacity 16G galvanized iron straps can be soldered to the downpipe and fixed to the downpipe together with a self-tapping screw through the middle of the bracket.

3. To corrugated iron wall siding sheets with 16G straps bolted to the sheet with a pair of 3/16" galvanized gutter bolts and washers.

Downpipes should be blocked out 1" clear of all walls and painted prior to fixing.

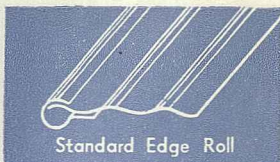
When buildings are erected on the boundary of a street alignment, the lower length of downpipe should be of cast iron, and chased into the outside face of the building for a minimum length of 6 feet.

SOLDERING.—Downpipes are fitted so that the lower length fits inside the upper lengths some 1½"-2". Joints are sweated and soldered.

Finishes — Edge Rolls — Barge Boards

STANDARD EDGE ROLL:

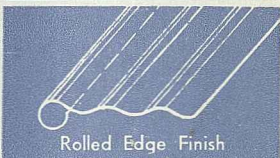
To ensure a perfect finish to the end of a corrugated sheet roof, an **EDGE ROLL** should be used. This may be obtained through any merchant.



Standard Edge Roll

ROLLED EDGE FINISH:

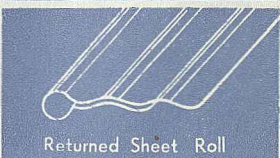
Where an **EDGE ROLL** is unavailable, a suitable finish may be formed by rolling the last corrugation of a sheet around a pipe of suitable diameter.



Rolled Edge Finish

RETURNED SHEET ROLL:

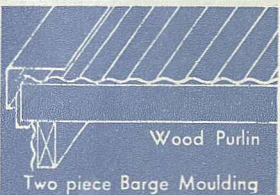
Where portion of a sheet remains after the roof has been fixed, the simplest edge finish is to return the corrugated sheet upon itself, as shown, to form a returned sheet roll.



Returned Sheet Roll

BARGE FINISH:

A barge finish, which may be preferred to an edge roll, is a two-piece barge moulding formed from 24 gauge flat sheet as illustrated.



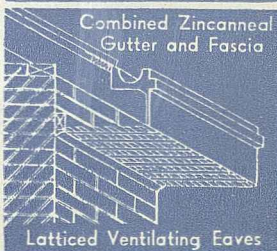
Wood Purlin

Two piece Barge Moulding

COMBINED EAVES GUTTER AND FASCIA:

The combined eaves gutter and fascia shall be of 24G Queen's Head Galvanized Iron or Zinc-anneal.

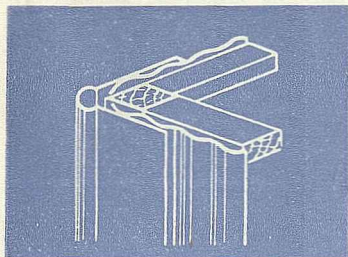
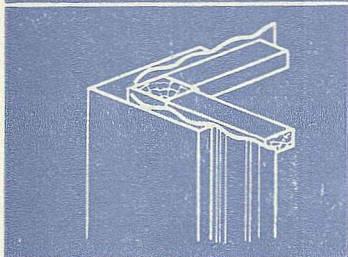
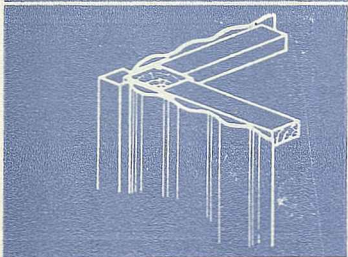
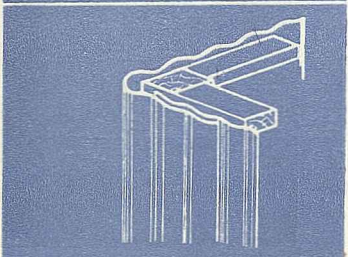
The latticed ventilating eaves soffit can be formed from 1" wide strips of 26G Queen's Head, interlaced and riveted or soldered at certain joints.



Combined Zincanneal Gutter and Fascia

Latticed Ventilating Eaves

STANDARD CORNER FINISHES



Walls of Corrugated Galvanized Iron or Zincanneal fixed vertically may be finished at the corners in a variety of ways, as shown in the illustration.

STANDARD RIDGING. — When using standard or plain ridging, sheeting need not completely cover the side of the buildings, but may be one or two corrugations short of the length of the building, so that the capping laps over the corrugated sheet at least 3".

PLAIN RIDGING. — Plain ridging may be fixed in a similar manner to standard ridging.

SPECIAL CORNER MOULDS. — Special corner finish mouldings may be constructed from 24G Queen's Head or Zincanneal R.L. sheets in 6' or 8' lengths. These are fastened to the corner posts in conjunction with corrugated sheets by galvanized roofing nails or screws and washers.

RETURN SHEET. — Sheets can be corner finished by taking one corrugated sheet round the corner and over the adjacent sheet to give a minimum of one and a half corrugations side lap.

ROOF TIMBERS (A.S. No. O-56—1948)

RAFTERS FOR SHEET ROOFS—SINGLE SPAN

Cross-sectional Dimensions—Inches

Spacing in.	Span ft.	Groups A & B					Group C		Group D
		Standard Grade	Common Grade	Standard Grade	Common Grade	Standard Grade	Standard Grade	Common Grade	Standard Grade
18	4	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½
	5	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½
	6	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½
	7	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½
	8	3 x 2	3 x 2	3 x 2	3 x 2	3 x 2	3 x 2	3 x 2	4 x 1½
	9	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½
	10	4 x 1½	4 x 1½	4 x 2	4 x 2	4 x 2	4 x 2	4 x 2	5 x 1½
	11	5 x 1½	5 x 1½	5 x 1½	5 x 1½	5 x 1½	5 x 1½	5 x 1½	5 x 1½
	12	5 x 1½	5 x 1½	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2
24	4	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½
	5	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½
	6	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½
	7	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½
	8	3 x 2	3 x 2	3 x 2	3 x 2	3 x 2	3 x 2	3 x 2	3 x 2
	9	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½
	10	4 x 2	4 x 2	4 x 2	4 x 2	4 x 2	4 x 2	4 x 2	4 x 2
	11	5 x 1½	5 x 1½	5 x 1½	5 x 1½	5 x 1½	5 x 1½	5 x 1½	5 x 1½
	12	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2
30	4	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½
	5	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½
	6	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½
	7	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½
	8	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½
	9	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½
	10	4 x 2	5 x 1½	5 x 1½	5 x 1½	5 x 1½	5 x 1½	5 x 1½	5 x 1½
	11	5 x 1½	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2
	12	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2
36	4	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½
	5	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½
	6	4 x 1½	3 x 2	3 x 2	3 x 2	3 x 2	3 x 2	3 x 2	3 x 2
	7	3 x 2	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½
	8	4 x 1½	4 x 2	4 x 2	4 x 2	4 x 2	4 x 2	4 x 2	4 x 2
	9	4 x 2	4 x 2	4 x 2	4 x 2	4 x 2	4 x 2	4 x 2	4 x 2
	10	5 x 1½	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2
	11	5 x 1½	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2
	12	6 x 2	6 x 2	6 x 2	6 x 2	6 x 2	6 x 2	6 x 2	6 x 2
48	4	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½	3 x 1½
	5	3 x 1½	3 x 2	3 x 2	3 x 2	3 x 2	3 x 2	3 x 2	3 x 2
	6	3 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½
	7	4 x 1½	5 x 2	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½	4 x 1½
	8	4 x 1½	5 x 2	4 x 2	4 x 2	4 x 2	4 x 2	4 x 2	4 x 2
	9	5 x 2	6 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2
	10	5 x 2	6 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2	5 x 2
	11	6 x 2	—	6 x 2	—	—	—	—	7 x 2

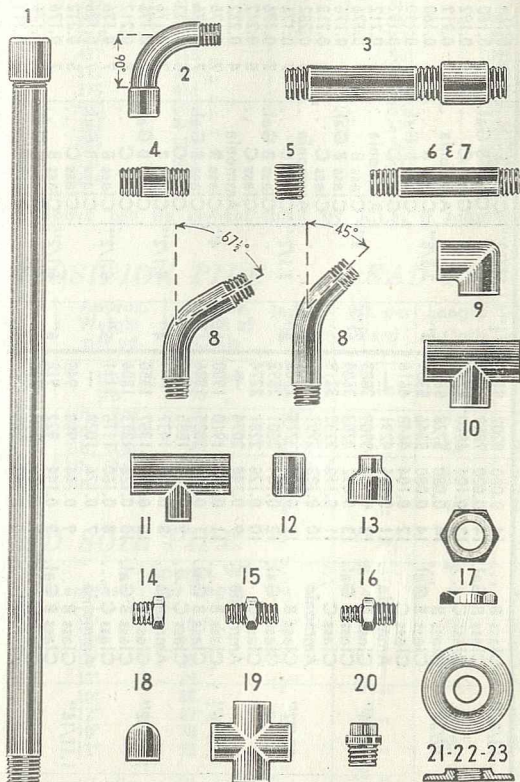
ROOF TIMBERS (A.S. No. O-56—1948)**PURLINS FOR SHEET ROOFS—SINGLE SPAN**

Spacing in.	Span ft.	Cross-sectional Dimensions—Inches				
		Groups A & B		Group C		Group D
		Standard Grade	Common Grade	Standard Grade	Common Grade	Standard Grade
30	10	4 x 2	5 x 1½	5 x 1½	5 x 2	5 x 1½
	11	5 x 1½	5 x 2	5 x 2	6 x 2	6 x 2
	12	5 x 2	5 x 2	6 x 2	6 x 2	6 x 2
	13	6 x 2	6 x 2	6 x 2	6 x 3	6 x 3
	14	6 x 2	6 x 2	6 x 3	6 x 3	7 x 3
	15	6 x 3	6 x 3	7 x 3	6 x 3	7 x 3
	16	7 x 3	6 x 3	7 x 3	—	8 x 3
	17	7 x 3	—	8 x 3	—	8 x 3
	18	8 x 3	—	9 x 3	—	9 x 3
	19	8 x 3	—	9 x 3	—	9 x 3
	20	9 x 3	—	10 x 3	—	10 x 3
36	10	5 x 1½	5 x 2	5 x 1½	6 x 2	5 x 2
	11	5 x 1½	5 x 2	6 x 2	6 x 2	6 x 2
	12	6 x 2	6 x 2	6 x 2	6 x 2	6 x 2
	13	6 x 2	6 x 2	6 x 3	6 x 3	6 x 3
	14	6 x 3	6 x 3	7 x 3	6 x 3	7 x 3
	15	7 x 3	6 x 3	7 x 3	—	7 x 3
	16	7 x 3	6 x 3	8 x 3	—	8 x 3
	17	8 x 3	—	8 x 3	—	9 x 3
	18	8 x 3	—	9 x 3	—	9 x 3
	19	9 x 3	—	9 x 3	—	10 x 3
	20	9 x 3	—	10 x 3	—	10 x 3
42	10	5 x 1½	5 x 2	5 x 2	6 x 2	6 x 2
	11	5 x 2	6 x 2	6 x 2	6 x 2	6 x 2
	12	6 x 2	6 x 2	6 x 2	6 x 3	6 x 3
	13	6 x 2	6 x 3	6 x 3	6 x 3	7 x 3
	14	6 x 3	6 x 3	7 x 3	—	7 x 3
	15	7 x 3	6 x 3	7 x 3	—	8 x 3
	16	7 x 3	—	8 x 3	—	8 x 3
	17	8 x 3	—	8 x 3	—	9 x 3
	18	8 x 3	—	9 x 3	—	9 x 3
	19	9 x 3	—	10 x 3	—	10 x 3
	20	9 x 3	—	10 x 3	—	10 x 3
48	10	5 x 2	6 x 2	5 x 2	6 x 2	6 x 2
	11	5 x 2	6 x 2	6 x 2	6 x 3	6 x 2
	12	6 x 2	6 x 3	6 x 2	6 x 3	6 x 3
	13	6 x 3	6 x 3	6 x 3	—	7 x 3
	14	6 x 3	6 x 3	7 x 3	—	7 x 3
	15	7 x 3	—	8 x 3	—	8 x 3
	16	8 x 3	—	8 x 3	—	8 x 3
	17	8 x 3	—	9 x 3	—	9 x 3
	18	9 x 3	—	9 x 3	—	10 x 3
	19	9 x 3	—	10 x 3	—	10 x 3
	20	10 x 3	—	10 x 3	—	11 x 3

STEWARTS & LLOYDS (AUSTRALIA) PTY. LTD.

(INCORPORATED IN VICTORIA)

S. & L. SCREWED AND SOCKETED STEEL TUBES AND FITTINGS



PIPE CHARACTERISTICS

Plain End and Screwed and Socketed Pipes

Nom. Bore ins.	Outside Dia. ins.	Quality	Thickness Ft. per ton		Nom. Bore ins.	Outside Dia. ins.	Quality	Thickness		Ft. per ton
			SWG In.	P/E				SWG In.	P/E	
1"	13/32"	Class B ...	14	0.080	8202	8146	Class B ...	8	0.160	745
		Class B Gal.	14	0.080	7859	7840	Class B Gal.	8	0.160	724
		Class C ...	12	0.104	6830	6788	Class C ...	6	0.192	634
		Class B ...	14	0.080	5728	5684	Ammonia ...	5	0.212	583
		Class B Gal.	14	0.080	5346	5309	Class B ...	8	0.160	590
		Class C ...	12	0.104	4648	4616	Class B Gal.	8	0.160	586
		Ammonia ...	11	0.116	4291	—	Class C ...	6	0.192	571
		Class B ...	13	0.092	3909	3883	Ammonia ...	5	0.212	499
		Class B Gal.	13	0.092	3703	3684	Class B ...	7	0.176	456
		Class C ...	11	0.110	3232	3219	Class B Gal.	7	0.176	423
		Ammonia ...	10	0.128	2991	—	Class C ...	5	0.212	413
		Class B ...	12	0.104	2715	2702	Ammonia ...	4	0.232	355
		Class B Gal.	12	0.104	2601	2592	Class B ...	7	0.176	327
		Class C ...	10	0.128	2281	2274	Class B Gal.	7	0.176	359
		Ammonia ...	9	0.144	2074	—	Class C ...	5	0.212	351
		Class B ...	11	0.116	1910	1900	Ammonia ...	4	0.232	301
		Class B Gal.	11	0.116	1835	1826	Class B ...	7	0.176	277
		Class C ...	9	0.144	1585	1580	Class B Gal.	7	0.176	312
		Ammonia ...	8	0.160	1437	—	Class C ...	5	0.212	302
		Class B ...	10	0.128	1357	1350	Class B ...	7	0.176	262
		Class B Gal.	10	0.128	1313	1306	Class B Gal.	7	0.176	262
		Class C ...	8	0.160	1115	1111	Class C ...	5	0.212	276
		Ammonia ...	7	0.176	1028	—	Class B Gal.	7	0.176	267
		Class B ...	9	0.144	950	945	Class B ...	7	0.176	231
		Class B Gal.	9	0.144	922	918	Class B Gal.	7	0.176	224
		Class C ...	7	0.176	794	791	Class C ...	5	0.212	217
		Ammonia ...	6	0.192	736	—	Class B Gal.	7	0.176	213
		Class B ...	9	0.144	950	945	Class C ...	5	0.212	187
		Class B Gal.	9	0.144	922	918	Class B ...	7	0.176	188
		Class C ...	7	0.176	794	791	Class B Gal.	7	0.176	183
		Ammonia ...	6	0.192	736	—	Class C ...	5	0.212	157

Weights per foot of screwed and socketed tubing are based on the overall length of tube plus socket, screwed to basic engagement, and for the following lengths of tube:—
 $\frac{1}{4}$ " and $\frac{1}{2}$ " 15' overall; $\frac{3}{4}$ " 19' overall; $\frac{1}{2}$ " to 6" 21' 6" overall.

A.I.S. SPUN CAST IRON PIPE

SPIGOT AND SOCKET—12-FOOT LENGTHS

Dia- meter	Wall Thickness	Weight of 12' length	Dia- meter	Wall Thickness	Weight of 12' length
4"	.250	148 lb.		.406	575 lb.
	.312	178 "		.531	729 "
	.344	193 "	12"	.375	640 "
(Gas)	.390	216 "		.469	780 "
6"	.281	249 "		.594	963 "
	.344	296 "	15"	.437	920 "
	.437	365 "		.531	1095 "
8"	.312	367 "		.656	1323 "
	.375	431 "	18"	.468	1194 "
	.500	554 "		.552	1379 "
9"	.344	447 "		.677	1660 "
	.406	516 "	20"	.500	1420 "
	.531	653 "		.593	1646 "
10"	.344	487 "		.718	1965 "

The above can be cement lined by A.I.S. if required.

COMPOSITION PIPE

LEAD PIPE

Size Inside Dia.	Approx. Weight per yd.	Approx. length of Coils	Inside Dia.	Wt. per Yard	Length of Coils	Thickness of Wall
1"	1 lb.	165 feet				
5/16"	1 lb.	96 "	1/2"	3 lb.	45'	3/32"
1/4"	1 lb. 5oz.	70 "	1/2"	7 "	45'	1/4"
3/16"	1 lb. 7oz.	70 "	1/2"	9 "	45'	5/16"
1/8"	2 lb. 1oz.	45 "	3/4"	5 "	45'	7/64"
1/16"	2 lb. 13oz.	45 "	3/4"	9 "	45'	3/16"
	3 lb. 11oz.	55 "	3/4"	11 "	45'	1/4"
			1"	6 "	45'	1/8"
			1"	9 "	45'	3/16"
			1 1/4"	8 "	45'	1/8"
			1 1/4"	12 "	45'	3/16"
			1 1/2"	17 "	45'	1/4"
			1 1/2"	16 "	45'	1/4"
			2"	16 "	45'	3/16"
			2"	20 "	45'	5/32"
			2"	28 "	45'	1/4"

LEAD SOIL PIPE

Inside Dia.	Lengths	Approx. Wt. per length
1 1/2"	10'	18 lb.
1 1/2"	10'	21 "
2"	10'	30 "
2"	12'	39 "
3"	10'	58 "
3"	12'	69 "
4"	10'	78 "
4"	12'	90 "

And up to 6" dia. x 3/8" wall
if required.

GENERAL INSTRUCTIONS FOR PAINTING

To obtain the best possible results from paint it is essential that the surface is clean and firm, and that the necessary primer or sealer is applied to ensure durability and adhesion and prevent excessive absorption. Check the instructions on the container of each type of paint.

Ensure all surfaces are free from dirt, grease, oil, rust, and moisture, so that a finish resistant to peeling, cracking, blistering or discolouration is obtained.

Stir all materials thoroughly before use, a good plan being to decant the vehicle off the surface of the pigment, work up the pigment mass, and add the decanted liquid slowly while stirring. Where practicable, place the container upside down for as long as possible before opening.

When painting masonry, cement render, plaster and similar surfaces, allow to age for at least one month to ensure moisture and alkali content is reduced to safe, workable condition. Cement sealers are designed to form an alkali-resistant barrier, and to prevent excessive absorption.

Softwood requires an oil-based undercoat reduced with raw linseed oil. Hardwood requires a similar undercoat thinned with turpentine only.

Iron and steel should be primed with a red-lead primer or other recommended metal primer.

Galvanized iron can be treated in any of three ways:—

- Allow to age for at least six months before painting.
- Apply a coat of galvanized iron zinc dust primer.
- Pre-treat with a commercial preparation to produce a zinc phosphate coating. In each case apply finish without further undercoating.

Always allow ample drying time between successive coats.

Keep brushes and equipment clean. Always clean up immediately job is finished, removing paint spots from glass, etc.

COVERING CAPACITY OF FIRST QUALITY PAINTS

(Average surface)

	Sq. ft. per gall. per coat
Exterior Gloss Paints	800-850
Flat Enamel and Oil Finishes	600
Cold Water Paints	1,000
Kalsomine	400 sq. ft. per 5lb. pkt.
Cement Sealer	500-600
Galvanized Iron Primer	900
Roof Paint	800
Aluminium Paint	900
Flat Oil Stain	800
Oil Varnish Stain	800
Varnishes	900

ZINC DUST-ZINC OXIDE PAINT.— For painting sheet laps and roofs.

Zinc Dust	6 lb.	Raw Linseed Oil ..	1 gallon
Zinc Oxide Paste	12 "	Liquid Driers ..	½ pint

N.B.—Zinc Oxide Paste is 82% zinc oxide and 18% raw linseed oil.

HOW TO MAKE GOOD CONCRETE

PROPORTIONS.—Correct proportions of cement, aggregate, and water depend on nature of work for which concrete is intended, and character and condition of aggregate. Table of quantities for various classes of work is given below.

Class of Work	Proportions of nominal mix (volumes)	Materials required to make 10 cub. yds. of concrete			Yield of mixture per bag of cement (c. ft.)	Water in gals. per bag of cement
		Cement (bags)	Sand (c. yds.)	Metal or gravel (c. yds.)		
High structural strength concrete for thin reinforced walls, slender reinforced columns, fence posts, heavy-duty floors.	1:1½:3	76	4.2	8.5	3.55	4.7
Commonly adopted mixture for reinforced concrete beams and floor slabs, roads, footpaths, etc., silos, etc.	1:2:4	60	4.4	8.9	4.50	5.4
For strong foundations, lean mix roads.	1:2½:5	49	4.5	9.1	5.50	6.1
Foundations for roads, machinery, buildings, etc., and for concrete in mass walls.	1:3:6	41	4.6	9.1	6.60	6.9
Watertight plaster coats for cellars, tanks, dairy walls, etc.	1:2	128	9.5	—	2.10	4.2
Surface rendering for two-course concrete paths.	1:2½	110	10.1	—	2.45	4.5
Mortar for wall plaster, rough-casting, and stucco.	1:3	96	10.6	—	2.80	4.9

Job proportioning may be by volume or weight; volumetric method is usual for small jobs. Water should be carefully measured, allowance being made for moisture content of sand.

CONCRETE (continued)

MATERIALS

PORTLAND CEMENT.—Normal type suited to all normal work; High-Early Strength and Low-Heat for special applications only.

Packing.—Paper bags hold 1 cu. ft. = 94 lb. nett.

Storage.—Must be dry; stack away from exterior walls, and in a manner to prevent air circulation through stack.

At time of use, cement should be free-flowing and free from lumps.

SAND OR FINE AGGREGATE.—Must be clean and free from earth, clay, humus, etc.; a coarse sand is best for concrete making, but particles should preferably be graded from coarse to fine. A sand containing silt and/or clay should be washed before use.

COARSE AGGREGATE.—May be gravel or crushed stone, graded from the largest particles down to the size of the largest sand grains to be used. Particles should be clean, hard, impervious and free from organic matter.

OTHER AGGREGATE.—(1) Crushed blast furnace slag may be an economic and satisfactory material. (2) Cinders and coke-breeze should be used only for unimportant work unless previous experience has shown material from the same source to be satisfactory. (3) Lightweight aggregate of the bloated clay or shale type is suitable for structural concretes with strengths up to 4000-5000 p.s.i. The concrete density varies from 90 to 105 p.c.f. (4) Exceptionally lightweight aggregate—vermiculite or perlite—can be used for concretes where no structural strength is required. It has excellent sound-absorbing and heat-resisting properties. It is suitable for use as a fire-proofing medium.

USES OF CONCRETE.—Information relating to concrete problems will be given upon request to the Cement and Concrete Association of Australia, 14 Spring Street, Sydney.

WATER.—Should be drinkable.

MIXING

Concrete should preferably be mixed in a concrete mixer, hand or power operated, or may be hand mixed.

Mixers, when used, should revolve at speeds recommended by makers, and a mixing time of 1½ to 2 minutes after addition of all ingredients is recommended.

HAND MIXING is carried out as follows:—

Equipment.—Shovel, mixing board, watering can, measuring box.

Method.—(1) Sand measured and spread on mixing board.

(2) Cement spread over sand.

(3) Sand and cement turned over with shovels until thoroughly mixed and uniform colour throughout.

(4) Coarse aggregate measured, spread on top, and mixing process repeated until colour again uniform.

(5) Water added slowly in depression in centre and mixed as added until whole has a quaky, jelly-like consistency.

CONCRETE (continued)

PLACING

- (1) When concrete is thoroughly mixed, place without delay; concrete made with ordinary Portland cement should be placed within half an hour of mixing in summer and three-quarters of an hour in winter.
- (2) Place with care, avoiding chuting and dumping, which causes segregation of coarse from fine material.
- (3) Place as near as possible to final position; working concrete along in forms causes segregation.
- (4) Work thoroughly in mass of concrete against forms to ensure good packing.
- (5) When placing against hardened concrete—
 - (a) Thoroughly wire-brush surface and wash to remove all loose particles.
 - (b) Apply layer of mortar of same composition as new concrete (but without coarse aggregate), and of plastic consistency, to surface—preferably brushing in.
 - (c) Immediately place fresh concrete.

CURING.—As soon as placed, protect concrete against drying out by shading. When hard enough to resist finger impressions, cover, and keep moist for at least one week.

WATERTIGHT CONCRETE.—Essential requirements for watertight concrete are as follows:—

- (1) Suitable design (to prevent cracking).
- (2) Sound, well-graded aggregates of low porosity.
- (3) Limited amount of mixing water.
- (4) Plastic, workable mixes.
- (5) Thorough mixing.
- (6) Proper placing and compacting.
- (7) Favourable curing conditions.

Waterproofing admixtures may provide additional insurance where low hydraulic heads only are to be resisted, but are not a substitute for good concrete.

COLOURED CONCRETE.—Colour pigments for use with cement must be—

- (1) Proof against lime, alkali, and action of direct sunlight.
- (2) Very finely ground, insoluble in water, and uniform in shade and quality.

The most suitable pigments are metallic oxides of a high degree of purity; low-grade pigments must be used in larger quantities, thereby reducing strength and quality of the concrete or mortar. A pure white is obtained only by use of white Portland cement with white sand, crushed marble, etc.

For economy, pigment and cement should be ground together; or, failing this, sieved together to a uniform colour throughout. A steel floating trowel gives a darker colour than a wooden float. Concrete cured in sunlight will give a lighter colour than if cured in shade.

Coloured concrete is darker when wet than when dry.

Trowelling on partly hardened surfaces causes colour blotches. Amount of pigment depends on a number of factors, and may vary from about 5 to 12 lb. per bag of cement.

CONCRETE (continued)

Use of the following pigments is recommended:—

Colour	Pigment
Red	Iron oxide.
Yellow	Iron oxide or hydroxide.
Brown	Iron oxide.
Black	Iron oxide or manganese dioxide. (Lamp black should NOT be used.)
Green	Chromium oxide.
Blue	Cobalt oxide.

Pigments may be mixed to give other effects as desired.

Coloured cements with white cement as a base are available.

FORMWORK.—The following points must be observed if a good concrete job is to be obtained at lowest cost.

- (1) Shuttering must be strong and rigid.
- (2) It must be designed for removal without excessive damage to concrete or timber.
- (3) It must be carefully made and erected to avoid gaps between boards, panels, etc., which may require filling with clay, putty, or other suitable material.
- (4) It must be treated to prevent concrete from adhering to it.
- (5) It must not be removed until concrete has sufficient strength; this period will be longer in cold than in warm weather.

REINFORCED CONCRETE.—Concrete is strong in compression, weak in tension; hence, when tensile stresses are to be carried, steel bars are used to reinforce the concrete. Determination of the amount and placing of the steel require expert knowledge, and are not matters for the layman; once determined, the steel must be accurately placed on the job.

PAVING AND RENDERING.—Materials required for 1,000 sq. ft. of surface:—

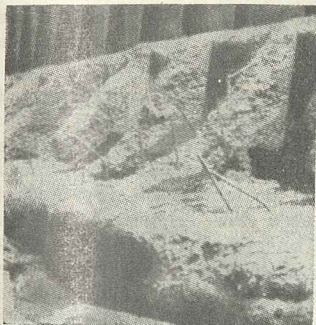
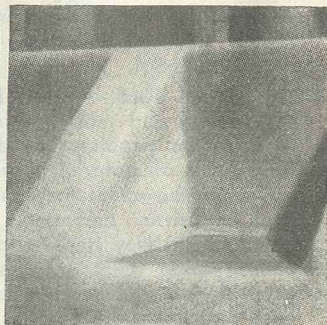
Paving thickness	Concrete Mix					
	1:2:4			1:2½:5		
	Cement (bags)	Sand (c.ft.)	Metal (c.ft.)	Cement (bags)	Sand (c.ft.)	Metal (c.ft.)
2" (Light foot traffic)	38	75	150	31	77	154
3" (Normal footpath)	56	112	224	46	115	230
4" (Car drives, etc.)	76	150	298	62	154	308
6" (Heavy trucks, etc.)	112	224	448	92	230	460

Render thickness	1:2		1:2½		1:3	
	Cement (bags)	Sand (c.ft.)	Cement (bags)	Sand (c.ft.)	Cement (bags)	Sand (c.ft.)
½"	20	40	1	43	15	44
¾"	30	60	2	63	22	68
1"	40	80	3	85	30	88

FACTS EVERY CONTRACTOR SHOULD KNOW
ABOUT

GUNITE

FOR
WATERPROOF LININGS, REPAIR,
REINFORCEMENT, PROTECTION



BEFORE
GUNITE REPAIRS TO SEAWALL

GUNITE

WHAT IT IS.— GUNITE is a registered trade mark, and is a pneumatically placed material SHOT into position at extremely high velocity by the CEMENT GUN process.

WHAT IT DOES.— GUNITE achieves the ultimate in concrete construction, being a "no-slump" concrete with perfect compaction. Cement, aggregate and a finely divided spray of water are united under pressure in the nozzle of a Cement Gun, and the resultant mix projected into place at velocities in excess of 500 feet per second. Concrete deposited in this way can be built up in thickness without slump, becomes integral with the surface encased, and results in a material of unparalleled density and strength. It is widely used throughout England and America to give structural strength and protection to a wide variety of engineering and architectural structures.

SPECIFICATIONS.—Actual physical tests have proved that a GUNITE can be made to satisfy any of the following:—

Compression.—Strengths, with special mix designs, have been recorded in excess of 11,500 lb./sq. inch. Normal first-quality GUNITE is guaranteed in excess of 6,000 p.s.i.

Impermeability.—Thin Gunitite Slabs have shown no sign of leakage when subjected to heads of water up to 1,600 feet.

Adhesion.—With properly prepared surfaces, strengths of 600 p.s.i. in shear have been recorded without failure. Attempts to break the bond between concrete and the parent material invariably result in failure within the parent material.

SUGGESTED USES.—GUNITE presents the quickest, most economical and most efficient means of effecting repairs to concrete structures of all types—particularly where a thick layer of material is required on vertical or overhead surfaces—the encasement and protection of steel against fire, abrasives, corrosion, etc., the reconstruction and lining of chimney stacks and bunkers, the lining of tunnels, canals, pipe lines, sewers, reservoirs, and tanks; the grouting of stone embankments, retaining walls, and the like; the protection of piles, the construction of swimming pools, and the placing of refractory materials.

Based on the experience of associate Cement Gun Companies in England and America, a staff of operators has been specially trained for CEMENT-GUN work in Australia. The services of the Company's engineers are always freely available for consultation, and contract estimates will be submitted on application.

CEMENT-GUN
PTY. LTD.

Contractors for GUNITE.

Selling Agents for the CEMENT-GUN.
189 BOTANY ROAD, WATERLOO, N.S.W.

BRICKS AND BRICKWORK

1,000 common bricks weigh about $3\frac{1}{2}$ tons.

Standard brick size = $9'' \times 4\frac{1}{2}'' \times 3''$.

Standard measure = 1 rod = $16\frac{1}{2}' \times 16\frac{1}{2}' \times 13\frac{1}{2}''$.

1 Rod = 272 super feet $\times 1\frac{1}{2}$ brick thickness.

= 408

= 816 " " $\times 1$ " "

= 306 cubic feet or $11\frac{1}{3}$ cubic yards.

QUANTITIES OF MATERIALS REQUIRED FOR ONE UNIT OF BRICKWORK

Unit Quantity	Bricks		Mortar: Lime or Cement Cu. Ft.	2:1 Cement Mortar	
	No.	Cu. Ft.		Cement	Sand
				Bags	Cu. Ft.
<u>$\frac{1}{4}$" Joints</u>					
1 Rod	3,703	260	48	23	46
1 Cu. Yd.	327	22.97	4.03	2	4
<u>$\frac{3}{8}$" Joints</u>					
1 Rod	3,429	241	65	23.2	70
1 Cu. Yd.	302	21.27	5.73	2.04	6.12

Weight of Brickwork.—In lime mortar, about 112 lb. per cu. ft.

—In cement mortar, about 120 lb. per cu. ft.

Paving requires per sq. yd.—32 bricks on flat; 48 bricks on edge.

MORTAR FOR BRICKWORK.

- (a) Cement mortar should be used where a high degree of impermeability is required, as in walls and piers below dampcourse, or where high strength is required, as in piers or walls carrying heavy loads. Usual proportions are 1 part cement to 3 parts sand, or 1 part cement to 4 parts sand by volume.
- (b) Lime mortar is frequently used where strength is of less importance; it is more workable than cement mortar, resulting in a higher rate of bricklaying. Usual proportions are 3 to 4 parts of sand to 1 part of hydrated lime or lime putty by volume.
- (c) Composition mortars consist of cement, hydrated lime, and sand, and are intermediate between cement and lime mortars in regard to strength and workability. Proportions used vary from a cement mortar with added lime equal to 10% of cement volume (to improve workability) to a lime mortar gauged with 10% cement immediately before use to improve robustness of the job; satisfactory proportions for normal brickwork are 1 part cement to 1 part hydrated lime or lime putty to 6 parts sand by volume.

LABOUR.—A good tradesman should lay, per 8-hour day, 600/700 bricks of $9''$ work in cement-struck joint; 700/1,000 bricks of $14''$ work in lime or compo. mortar; 500 bricks in selected face work.

BRICKWORK DIMENSIONS

N.S.W. STANDARDS

NOTES.—^{0.00} should be added for bed under sills bearers, etc.
Openings are ^{0.13} longer than piers. Four courses equals 1'-1½".

Courses or Bricks	Piers	Openings	Heights	Courses or Bricks	Piers	Openings	Heights
13	10'	1-1/2"	10'	10'	1-1/2"	10'	3' 7-7/8"
13½	10'	6-3/16"	10'	10'	6-3/16"	10'	3' 11-1/4"
14	10'	10-7/8"	10'	10'	10-7/8"	10'	4' 2-5/8"
14½	11'	3-9/16"	11'	11'	3-9/16"	11'	4' 6"
15	11'	8-1/4"	11'	11'	8-1/4"	11'	4' 9-3/8"
15½	12'	0-5/16"	12'	12'	0-5/16"	12'	5' 0-3/4"
16	12'	5-5/8"	12'	12'	5-5/8"	12'	5' 4-1/8"
16½	12'	10-5/16"	12'	12'	10-5/16"	12'	5' 7-1/2"
17	13'	3"	13'	13'	3"	13'	5' 10-7/8"
17½	13'	7-11/16"	13'	13'	7-11/16"	13'	6' 2-1/4"
18	14'	0-3/8"	14'	14'	0-3/8"	14'	6' 5-5/8"
18½	14'	5-1/16"	14'	14'	5-1/16"	14'	6' 9"
19	14'	9-3/4"	14'	14'	9-3/4"	14'	7' 0-3/8"
19½	15'	2-7/16"	15'	15'	2-7/16"	15'	
20	15'	7"	15'	15'	7"	15'	
20½	15'	11-13/16"	15'	15'	11-13/16"	15'	
21	16'	4-1/2"	16'	16'	4-1/2"	16'	
21½	16'	9-3/16"	16'	16'	9-3/16"	16'	
22	17'	1-7/8"	17'	17'	1-7/8"	17'	
22½	17'	6-9/16"	17'	17'	6-9/16"	17'	
23	17'	11-1/4"	17'	17'	11-1/4"	17'	
23½	18'	3-13/16"	18'	18'	3-13/16"	18'	
24	18'	8-5/8"	18'	18'	8-5/8"	18'	
24½	19'	1-5/16"	19'	19'	1-5/16"	19'	
25	20'	6-3/4"	20'	20'	6-3/4"	20'	

Courses or Bricks	Piers	Openings	Heights
1½	4-5/16"	5-1/16"	3-3/8"
1	9"	9-3/4"	6-3/4"
1½	1'-1-11/16"	1'-2-7/16"	10-1/8"
2	1'-6-3/8"	1'-7-1/8"	1'-1-1/2"
2½	1'-11-1/8"	1'-11-7/8"	1'-4-7/8"
3	2'-3-3/4"	2'-4-1/2"	1'-8-1/4"
3½	2'-8-7/16"	2'-9-3/16"	1'-11-5/8"
4	3'-1-1/8"	3'-1-1/8"	2' 3"
4½	3'-5-13/16"	3'-6-9/16"	2' 6-3/8"
5	3'-10-1/2"	3'-11-1/4"	2' 9-3/4"
5½	4'-3-3/16"	4'-3-15/16"	3' 1-1/8"
6	4'-7-7/8"	4'-8-5/8"	
6½	5'-0-7/16"	5'-0-13/16"	
7	5'-5-1/4"	5'-6"	
7½	5'-9-15/16"	5'-10-11/16"	
8	6'-2-5/8"	6'-3-3/8"	
8½	6'-7-5/16"	6'-8-1/16"	
9	7' 0"	7' 0-3/4"	
9½	7'-4-11/16"	7'-5-7/16"	
10	7'-9-3/8"	7'-0-1/8"	
10½	8'-1-15/16"	8'-2-11/16"	
11	8'-6-3/4"	8'-7-1/2"	
11½	8'-11-7/16"	9'-1-3/16"	
12	9'-4-1/8"	9'-4-7/8"	
12½	9'-8-3/16"	9'-8-15/16"	

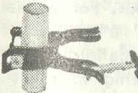
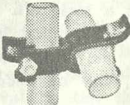
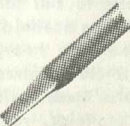
MILLS

SCAFFOLDS

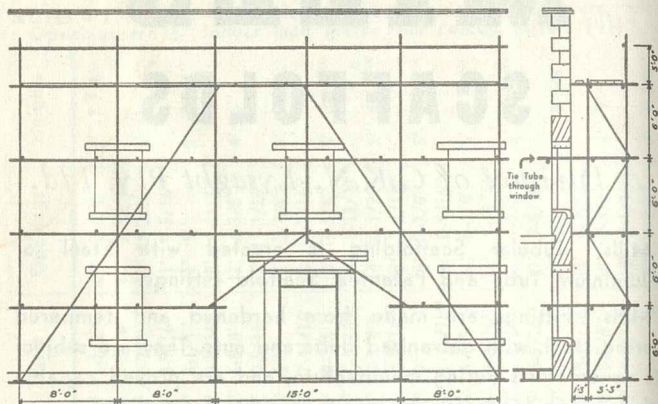
A Division of G.K.N.-Lysaght Pty. Ltd.

"Mills" Tubular Scaffolding is erected with Steel or Aluminium Tube and Patented Scaffold Fittings.

"Mills" Fittings are made from hardened and tempered spring steel, with galvanized bolts and nuts. They are subject to severe tests during manufacture, and are proved capable of carrying loads far in excess of normal practice.

	<p>90° CLIP: Standard load-bearing fitting, crossing tubes at right angles.</p>		<p>SWIVEL CLIP: Used on braces and similar members.</p>
<p>END-TO-END COUPLER: For butting tubes together.</p>		<p>PUT LOG CLIP: For light connections at right angles where there is no load.</p>	
	<p>BASE PLATE: Used at the base of columns to distribute the load.</p>		<p>BLADE-ENDED PUT LOG TUBE: For bricklayers' scaffolds.</p>

INDEPENDENT SCAFFOLD

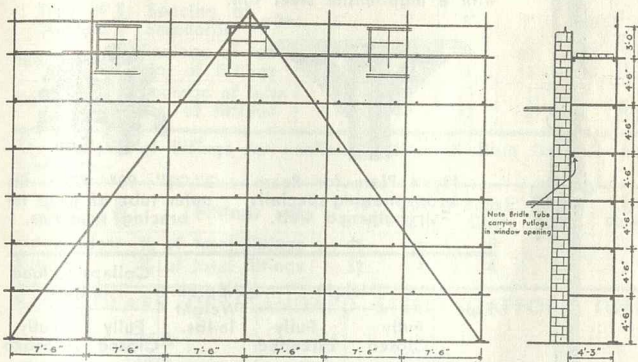


Sometimes called the double scaffold, since it incorporates two rows of uprights or standards, and is not dependent on the building itself in any way as a factor in the carrying of loads. For normal work the standards are placed in pairs 3' 3" or 4' 0" apart (to provide a platform the width of four or five 9" scaffold planks between standards), the distance between pairs being 6' to 10'.

INTERNAL SCAFFOLD

Such a scaffold may be used for access to the ceiling and walls of a large room, cinema, or theatre auditorium, or any other structure where the construction or maintenance requires access to points which are not available from ground level. The arrangement of the scaffold can be made to suit the particular work in hand, but for normal use, when such a scaffold is required as a working platform only, and not for carrying heavy loads, the uprights or standards are placed at 8' to 10' centres in each direction, and lifts are spaced at 6' intervals. These scaffolds, which are sometimes referred to as "birdcage" scaffolds, require adequate bracing to prevent movement

PUTLOG SCAFFOLD



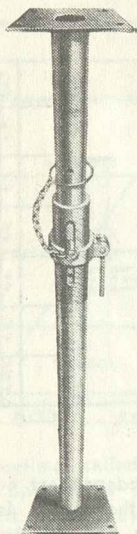
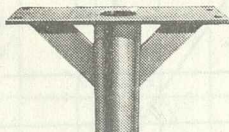
Sometimes called the single scaffold, as against the independent or double scaffold. In this construction, one end of the putlog is fixed between the courses of brickwork, the other end to the standard by 90° clip, or else to the ledger by putlog clip. For normal work the standards are placed at intervals of 7' 6", and the lifts or working platforms at intervals to suit the job. A minimum amount of bracing is required, since use is made of the wall itself. The scaffold can be rapidly erected as the work progresses, if provision is made for the putlogs while the brickwork is green.

SPECIAL USES

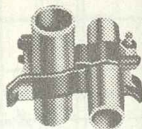
"Mills" Scaffolding is widely used for supporting concrete slab and wall formwork, and for an endless variety of structures, including stationary and mobile towers, temporary and semi-permanent buildings, storage racks, fun fair units, loading stages, temporary seating, grandstands, workshops, garages, jetties, foot bridges and platforms. "Mills" trained staff will design a tubular structure to suit any purpose.

MILPROP AND BEAMPROP

"Mills" Expanding Props cover a range from 6' 0" to 15' 0", with three types. They are robust and dependable, and are adjusted by nut and handle, with a high-tensile steel pin.



Head Plate for Beam-prop, showing specially strengthened web.

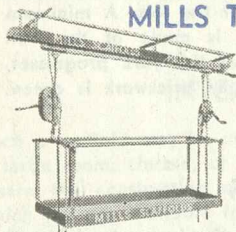


2 1/2" / 2 3/8" 90° Clip fits outer tube of prop for bracing purposes.

Type	Height		Approx. Weight in lbs.	Collapsing load in tons	
	Fully Closed	Fully Extended		Fully Closed	Fully Extended
A	6' 0"*	10' 6"	53	11.40	8.63
B	8' 0"	12' 6"	60	10.15	7.25
C	10' 6"	15' 0"	69	7.87	3.80

* 6' 6" for Beam Prop.

MILLS TRAVELLING CRADLE



Saves time and cuts rigging costs. The painter can traverse a building horizontally and thus avoid many weary hours of raising and lowering fixed stages.

AVAILABILITY AND SERVICE

All "Mills" Scaffolding is available ex stock for HIRE OR OUT-RIGHT PURCHASE, and teams of trained scaffolders will erect the simplest or the most difficult jobs at shortest notice. Literature illustrating the wide range of "Mills" equipment, and price lists and estimates for all types of structures, are available from any "MILLS" SCAFFOLDS office.

ESTIMATING DATA

The approximate quantities of tube and fittings required for standard scaffolds are:—

Type of Scaffold ↓	Spacing of Standards →	6'	7'	8'	9'	10'	Per 100 sq. ft. of wall area
Independent	Footage of tube No. of fittings	104 23	95 20	86 18	80 16	77 15	
Putlog	Footage of tube No. of fittings	79 15	74 14	72 13	(7' 6") (7' 6")		

The analysis of fittings for scaffolds estimated from the previous table is:—

Type of Scaffold ↓	Fittings →	90° Clip	Swivel Clip	E. to E. Cplr.	Putlog Clip	Base Plate
Independent	% of total fittings	46	6	15	28	5
Putlog	% of total fittings	39	4	14	40	3

PARTICULARS OF STANDARD STEEL SCAFFOLD TUBE

Trade Name	Gge.	Thick-ness of metal	I.D.	O.D.	Area sq. in.	Weight per ft. lb.	I	Z	K
2"	6	.192"	1.525"	1.909"	1.036"	3.516	.3866"	.405"	.611"

LOADING DATA FOR TUBULAR STEEL STRUCTURES

LEDGERS OR TRANSOMS

Clear Spans in feet	Safe Concentrated Load at centre of Span lbs.	Safe Distributed Load evenly distributed lbs.	Safe Concentrated Load at end of Cantilever lbs.	Safe Distributed Load on Cantilever lbs.
1	2430	4860	608	1216
2	1215	2430	304	608
3	810	1620	202	404
4	607	1214	152	304
5	486	972	121	242
6	405	810	101	202
7	347	694	87	174
8	303	606	76	152
9	270	540	67	134
10	243	486	—	121
11	221	442	—	110
12	202	404	—	101

COLUMNS OR STRUTS

Unsupported Height in ft.	Safe Load for Welded Tube in tons
1	5.46
2	5.27
3	4.94
4	4.49
5	3.91
6	3.20
7	2.41
8	1.84
9	1.46
10	1.18
11	.97
12	.82

Dotted lines indicate practical limit of safety for general use
Safe Load on "Mills" 90° or Swivel Clip, 2,800 lbs.

WILLIAMS CONCRETE FORM HARDWARE

Distributed under Licence by Mills Scaffolds

The "Williams" system of tying formwork has the following principal applications:—

1. Securing wall forms by the use of two clamps assembled to an expendable high-tensile crimped rod.
2. Securing cantilever forms used on block pours for dam and other mass construction.
3. Securing formwork on foundation pours "off rock."
4. Securing formwork on elevated pours "off rock."

Fig. 1 shows method of tying wall forms with Williams Hex-lock clamps. Positive disconnection leaves crimped rod end $1\frac{1}{2}$ " back from finished surface. Bonded patch stands hammer test. Fig. 2 illustrates how the Tie-down and Pigtail system secures cantilever forms.

USE WILLIAMS FORM HARDWARE FOR ECONOMY, SAFETY AND FAST POURING

HIGH TENSILE INNER RODS
CRIMPED TO ACT AS JACK-TIES
OR PREVENT TURNING OR PULLING

CLAMP HAS POSITIVE $1\frac{1}{2}$ "
OR MORE DISCONNECTION
BACK FROM CONCRETE SURFACE

WILLIAMS
PATENTED
"NAIL IN
THE STUD"
EXTERNAL
SPACING

Angularly
Adjustable
For Batters
Up to 45°

WATER
SUPPORT

FOR RIGID ALIGNMENT USE WILLIAMS
FORM ALIGNERS IN YOUR FOOTINGS

Fig. 1

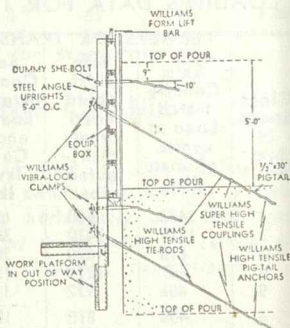


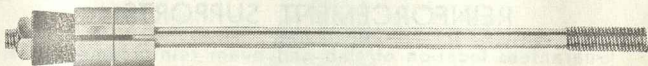
Fig. 2

"VIBRA-LOCK"
CLAMP.
Angle adjustable
to 45°.

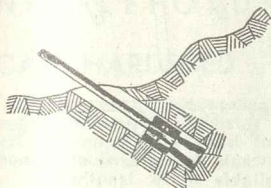
"HICKEY" ROD
SPLICER AND
ROD COUPLINGS
for quick assembly
to tie rods and
rock anchors.

HIGH TENSILE ROCK ANCHOR

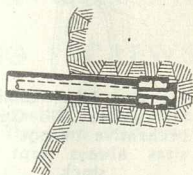
DEVELOPS FULL STRENGTH OF $\frac{3}{4}$ " RODS — 35,000 LBS.



The latest type anchor for roof-bolting work in tunnels, mines, and heavy construction.



Drill hole $1\frac{5}{8}$ " bottom size.



Shell expanded by several blows of 8lb. sledge against heavy-bore tube dropped down over anchor rod.

Rock Anchors are equally effective in concrete. Just drill $1\frac{5}{8}$ " dia. hole, and expand the shell as above. Concrete should be at least two months old to develop full strength of anchor.

THE WEDGE-LOCK TIE A RE-USABLE WIRE FORM TIE

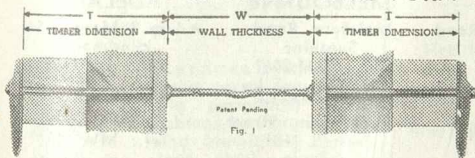


Fig. 1

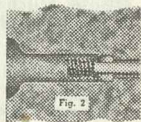


Fig. 1. — Meets all Engineers' and Architects' specifications, and is watertight.

Breaking load . . . 6,250 lb.
Working load . . . 5,000 lb.

Fig. 2.—Double-lead thread takes only three turns for assembly. Outer unit may be re-attached to secure knee braces for scaffolding, or as a jack tie to eliminate offsets at construction joints.

CONSTRUCTION ACCESSORIES

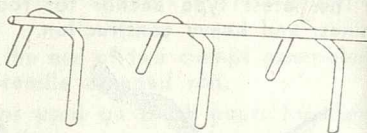
Distributed by Mills Scaffolds

REINFORCEMENT SUPPORTS

Guarantees location of slab and beam reinforcement steel at correct centres.



Bar and High Chairs.
Heights to 12". Comprehensive range of sizes always kept in stock.



Continuous chair reinforcement supports available in 10' lengths.

DUPLEX NAIL



Gives double security for temporary nailing of formwork or other timber which has to be dismantled. Lower head ensures tight joint. Top head enables extraction without damaging timber.

For illustrative literature and technical service, apply to any of the following MILLS SCAFFOLDS offices:—

SYDNEY

410-416 Mitchell Road,
Alexandria
Tel.: LA 7361

BRISBANE

436-444 Ann Street,
Tel.: B 9002

MELBOURNE

McIntyre Road,
Sunshine
Tel.: MM 2067

FREMANTLE

8 Packenham Street,
Tel.: L 1151

ADELAIDE

Adam & Manton Sts.,
Hindmarsh
Tel.: LU 4808

NEWCASTLE

Lysaght's Works
Tel.: MW 1361

PORT KEMBLA

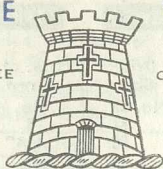
C.R.M. Works — Tel. J 0422
and from

G. F. BREWSTER & CO. LTD., HOBART—Tel. B 7365

JOHN LYSAGHT (N.Z.) LTD., NEW ZEALAND

NETTLEFOLDS PTY. LTD. SUNSHINE VICTORIA

THE GUARANTEE



OF QUALITY

NETTLEFOLDS-PARKER-KALON (N.P.K.) CASE-HARDENED SELF-TAPPING SCREWS

Case-hardened Self-tapping Screws are used for joining and making fastenings to metal sheets and other metal parts. These screws eliminate the need for tapping holes. They tap their own threads as they are driven in.

THREAD TYPES

HEAD TYPES



Z

For joining and making fastenings to metal sheets from 28 gauge (.016) up to 6 gauge (.198).



A

For assembling light metal sheets up to 18 gauge (.050).



U

Hardened metallic drive screw for making permanent fastenings to iron, brass and aluminium castings, steel, plastics, etc.

C'sunk Head



Raised Head



Round Head



Mush. Head



Hex. Head



Binding Head



Phillips Recessed Head



NOTE.—For drill hole sizes, see page 94.

HOLE SIZES FOR NETTLEFOLDS-P.K. SELF-TAPPING SCREWS

TYPE "Z" N.P.K. SCREWS

Dia. of Screw	Steel Sheet Gauge	Dia. of Hole	Drill Size
No. 2 .088"	28-26	.063	No. 52
	24	.067	51
	22	.070	50
	20-18	.073	49
	16	.076	48
No. 4 .114"	28-26	.086	44
	24	.089	43
	22-20	.093	42
	18	.096	41
	16	.099	39
No. 6 .139"	14	.101	38
	28-26	.104	37
	24-22	.106	36
	20	.110	35
	18	.111	34
No. 7 .154"	16	.116	32
	14	.120	31
	12	.128	30
	26-20	.116	32
	18	.120	31
No. 8 .166"	16	.128	30
	14	.136	29
	12	.140	28
	10-1/8	.149	25
	10-1/8	.152	24
No. 10 .189"	26-18	.144	27
	16	.152	24
	14	.157	22
	12	.161	20
	10-1/8	.169	18
No. 12 .215"	8	.173	17
	24-22-20	.166	19
	18	.169	18
	16	.177	16
	14	.182	14
No. 14 .246"	12	.185	13
	10-1/8	.196	9
	8	.201	7
	14	.204	6
	12	.209	4
	10-1/8	.228	1
	8-6-3/16	.234	15/64

TYPE "A" N.P.K. SCREWS

Dia. of Screw	Steel Sheet Gauge	Dia. of Hole	Drill Size
No. 4 .114"	28-26	.086	No. 44
	24-22	.093	42
	20	.098	40
No. 6 .141"	28-26-24	.099	39
	22	.101	38
	20	.106	36
No. 7 .158"	28-26	.104	37
	24	.110	35
	22	.113	33
	20	.116	32
	18	.120	31
No. 8 .168"	26-24	.113	33
	22	.116	32
	20	.120	31
	18	.128	30
No. 10 .194"	26-24-22	.128	30
	20	.136	29
	18	.149	25
No. 12 .221"	24	.147	26
	22	.149	25
	20	.152	24
	18	.157	22
No. 14 .254"	24	.180	15
	22	.189	12
	20	.191	11
	18	.196	9

TYPE "U" N.P.K. SCREWS

Dia. of Screw		Dia. of Hole	Drill Size
No. 00	.060"	.052	No. 55
0	.075"	.067	51
2	.100"	.086	44
4	.116"	.104	37
6	.140"	.120	31
7	.154"	.136	29
8	.167"	.144	27
10	.182"	.161	20
12	.212"	.191	11
14	.242"	.221	2

NOTE.—The recommended hole sizes for all types may be varied slightly if necessary. For hard material, use larger drill. For soft material, use smaller drill.

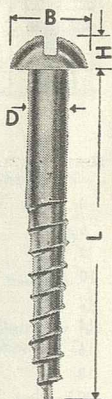
Galv. Cone-head Roofing Screws

ASSURE
PERMANENT
ROOF FIXINGS

Dia. of Head "B" = twice diameter of Shank "D".
Depth of Head "H" = .7 of the dia. of Shank "D".

APPROXIMATE NUMBER PER CWT.

Length "L"	Screw Gauge					
	10 (.192)		12 (.220)		14 (.248)	
	Gross	Doz.	Gross	Doz.	Gross	Doz.
1½	62	11	48	11	—	—
1¾	—	—	43	1	31	2
2	—	—	39	5	29	2
2¼	—	—	34	—	27	—
2½	—	—	30	9	24	4
3	—	—	—	—	20	3
3½	—	—	—	—	17	—
4	—	—	—	—	15	6



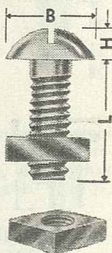
Galvanized Mushroom-head Bolts and Nuts

HEAD DIMENSIONS

Dia. of Head "B" = 2.25 dia. of Shank "D".
Depth of Head "H" = ¾ of dia. of Shank "D".
Available in 1-gross packets.

NUT DIMENSIONS

Whit. Thread	3/16"	7/32"	1/4"	9/32"	5/16"
Across Flats	3/8"	7/16"	1/2"	1/2"	9/16"
Thickness	.112"	.131"	.150"	.150"	.169"



Galv. Tank Rivets and Washers

RIVETS

Packed in 7 lb. packets and ½ cwt. bags.
Number of gross per cwt.:

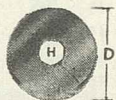
Sizes: 5/16" x 3/16" = 157 gross 9 doz. per cwt.

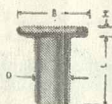
Sizes: 3/8" x 3/16" = 141 gross 9 doz. per cwt.

WASHER DIMENSIONS

(Weights shown are approx. weights per gross)

"D"	"H"	Gge.	Wgt.
11/16"	3/16"	16	.95 lb.
13/16"	1/4"	16	1.35 "
3/4"	9/32"	16	1.08 "
13/16"	5/16"	16	1.22 "





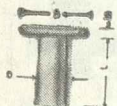
MILD
STEEL

COOPERS' RIVETS

Available in sizes No. 4 to 28.
In $\frac{1}{2}$ cwt. bags.

DIMENSIONS AND WEIGHTS

No.	"D"	"B"	"H"	"L"	Weight per approx. 1,000
4	.192	.384	.050	.290	4 lb.
6	.220	.440	.060	.320	6 "
8	.248	.496	.065	.385	8 "
10	.262	.524	.075	.405	10 "
12	.276	.552	.075	.455	12 "
14	.290	.580	.080	.470	14 "
16	.304	.608	.080	.500	16 "
18	.318	.636	.080	.520	18 "
20	.332	.664	.080	.550	20 "
22	.332	.664	.085	.575	22 "
24	.346	.692	.090	.570	24 "
26	.346	.692	.090	.635	26 "
28	.360	.720	.100	.640	28 "



MILD
STEEL

TINMEN'S RIVETS

Tinned or Black.
Available in sizes No. 4 to 20, in $\frac{1}{2}$ cwt. bags.

DIMENSIONS AND WEIGHTS

No.	"D"	"B"	"H"	"L"	Weight per approx. 1,000
4	.094	.188	.023	.180	10 oz.
6	.108	.216	.027	.199	14 "
8	.122	.244	.030	.230	1 $\frac{1}{4}$ lb.
9	.136	.272	.034	.246	1 $\frac{1}{2}$ "
10	.150	.300	.037	.271	2 "
11	.150	.300	.037	.297	2 $\frac{1}{2}$ "
12	.164	.328	.041	.319	3 "
13	.187	.374	.047	.338	4 "
14	.206	.412	.051	.359	5 "
16	.218	.436	.055	.445	7 "
18	.250	.500	.062	.502	10 "
20	.276	.552	.069	.563	14 "

REAPER RIVETS

ROUND AND COUNTERSUNK HEAD

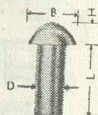
Available in sizes No. 5 and No. 6 Wire Gauge, $\frac{3}{8}$ " to $1\frac{1}{4}$ " long, in 7 lb. packets and $\frac{1}{2}$ cwt. bags.

HEAD DIMENSIONS:

Round Head.—Diameter of Head "B" = 1.5 of diameter of Shank "D". Depth of Head "H" = .55 of diameter of Shank "D".
"L" = length.

APPROXIMATE NUMBER OF RIVETS PER POUND

Length	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"	$1\frac{1}{4}$ "
No. 5 (.212")	171	154	137	120	103	86	52
No. 6 (.192")	186	169	152	135	118	101	67

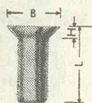


Countersunk Head.—Diameter of Head "B" = 1.6 of diameter of Shank "D". Depth of Head = .3 of diameter of Shank "D".
Countersunk 90°.

"L" = length.

APPROXIMATE NUMBER OF RIVETS PER POUND

Length	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"	$1\frac{1}{4}$ "
No. 5 (.212")	201	184	167	150	133	116	82
No. 6 (.192")	216	199	182	164	148	131	97

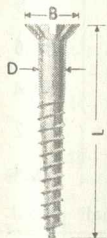


WOOD SCREWS

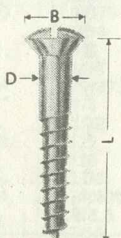
Nettlefold's Wood Screws are machine-turned to ensure perfect heads, concentricity of head with shank, freedom from burrs, and good appearance. Available in mild steel, brass, and other metals, and with Countersunk, Round, Raised or Special Heads.

HEAD TYPES AND DIMENSIONS

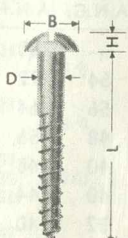
Countersunk Head



Raised Head



Round Head



Phillips Recessed Head



"B" = twice dia. of Shank "D".
Included angle C'sink "A", 90°.

"B" = twice dia. of Shank "D".
Included angle C'sink "A", 90°.

"B" = twice dia. of Shank "D".
"H" = $\frac{3}{4}$ of dia. "D".

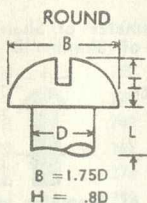
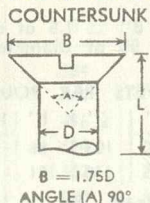
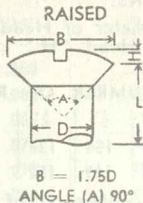
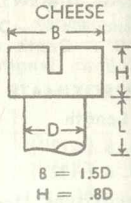
Raised Round or Countersunk

NOTE.—For decimal equivalents of screw gauges, see page 96.

MACHINE SCREWS

Obtainable in Mild Steel, Brass, or other metals, in Whitworth, B.S.F., B.A., and S.A.E. Threads.

HEAD TYPES AND DIMENSIONS



DECIMAL EQUIVALENTS AND THREADS PER INCH

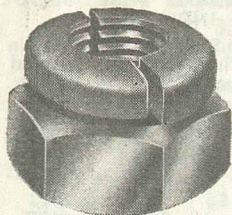
Whitworth	Decimal	T.P.I.	B.A.	Decimal	T.P.I.	
1/8"	.1250	40	10	.067	72.6	
5/32"	.1563	32	9	.075	65.1	
3/16"	.1875	24	8	.087	59.1	
1/4"	.2500	20	7	.098	52.9	
5/16"	.3125	18	6	.110	47.9	
3/8"	.3750	16	5	.126	43.0	
1/2"	.5000	12	4	.142	38.5	
S.A.E.	Decimal	T.P.I.				
		A.N.C.	A.N.F.			
0	.060	—	80	3	.161	34.8
1	.073	64	72	2	.185	31.4
2	.086	56	64	1	.209	28.2
3	.099	48	56	0	.236	25.4
4	.112	40	48			
5	.125	40	44	B.S.F.	Decimal	T.P.I.
6	.138	32	40	1/4"	.2500	26
8	.164	32	36	5/16"	.3125	22
10	.190	24	32	3/8"	.3750	20
12	.216	24	28			
1/4"	.250	20	28			

DECIMAL EQUIVALENTS

WOOD SCREW GAUGE, IMPERIAL STANDARD WIRE GAUGE,
AND FRACTIONS OF AN INCH

Screw Gauge (S.G.)	Imp. St. Wire Gauge	Fraction of an Inch	Equiv. in Decimal of Inch	Screw Gauge (S.G.)	Imp. St. Wire Gauge	Fraction of an Inch	Equiv. in Decimal of Inch
	30		.0124			3/16	.1875
	29		.0136	10	6		.192
	28		.0148			13/64	.203125
		1/64	.015625	11			.206
	27		.0164		5		.212
	26		.018			7/32	.21875
	25		.020	12			.220
	24		.022		4		.232
	23		.024	13			.234
	22		.028			15/64	.234375
		1/32	.03125	14			.248
	21		.032			1/4	.250
	20		.036		3		.252
	19		.040	15			.262
		3/64	.046875	16	2		.276
	18		.048			9/32	.28125
4/0			.054	17			.290
	17		.056		1		.300
3/0			.057	18			.304
2/0			.060			5/16	.3125
		1/16	.0625		0		.324
0			.063	20			.332
	16		.064			11/32	.34375
1			.066		2/0		.348
	15		.072	22			.360
		5/64	.078125		3/0		.372
2			.080			3/8	.375
	14		.092	24			.388
	13		.09375		4/0		.400
3		3/32	.094			13/32	.40625
	12		.104	26			.416
4			.108		5/0		.432
		7/64	.109375			7/16	.4375
	11		.116	28			.444
5			.122		6/0		.464
		1/8	.125			15/32	.46875
	10		.128	30			.472
6			.136	32	7/0	1/2	.500
		9/64	.140625	36			.556
	9		.144			9/16	.5625
7			.150	40			.612
		5/32	.15625			5/8	.625
	8		.160			11/16	.6875
8			.164			3/4	.750
		11/64	.171875			13/16	.8125
	7		.176			7/8	.875
9			.178			15/16	.9375

AEROTIGHT SELF-LOCKING NUTS



Designed for use on:—

Steel Buildings

Farm and all types of
machinery

Automobiles

Aircraft

Earth-moving Equipment

and in all cases where vibration
causes the ordinary type of nut
to work loose and fall off.

The nut is an all-metal one-piece nut, and is not dependent on any form of auxiliary fastening device. The self-retaining feature of the nut is obtained by frictional grip created between the threads of the bolt and nut.

Fit G.K.N. Aerotight Lock Nuts whenever VIBRATION is encountered, and solve this problem once and for all.

NETTLEFOLDS STOCKS include:—

Sheet Metal Screws and Drive Screws, Roofing Screws
Mushroom-head Bolts and Nuts, Tank Rivets and Washers
Tinmen's Rivets, Copper Rivets and Washers, Coopers' Rivets

M.S. Rivets, all types of heads

Metal Thread Screws

Wood Screws, Slotted and Recessed Heads

Screwdrivers and Bits for Phillips Recessed Screws

Cotter Pins, Gate Hooks, Cup Hooks

Screw Eyes, Screw Hooks

Sporting Spikes

Pressed Nuts, Strip Nuts and Cages, etc.

NETTLEFOLDS BRIGHT BOLT AND NUT DIVISION
manufacture

Bright Steel Bolts and Nuts, Set Screws, Taper Pins, and
Bright Steel Specials of all descriptions.

NETTLEFOLDS PTY. LTD., 252 Johnston St., Annandale

'Phone: WB 3418

NETTLEFOLDS PTY. LTD.

BALLARAT ROAD, SUNSHINE, W.20, VICTORIA

'Phone: MM 1261

BRITISH WEIGHTS AND MEASURES

LENGTH

12 inches (ins.)	= 1 Foot (ft.)	4 Rods	} = 1 Chain
3 Feet	} = 1 Yard (yd.)	22 Yards	
36 Inches		100 Links	
5½ Yards	} = 1 Rod, pole, or perch	8 Furlongs	} = 1 Mile
16½ Feet		80 Chains	
40 Rods		320 Rods	
	= 1 Furlong	1760 Yards	

SQUARE

Square Inches	Square Feet	Square Yards	Square Rods	Square Chains	Acres	
144	1	—	—	—	—	1 Sq. Ft.
1,296	9	1	—	—	—	1 Sq. Yd.
39,204	272½	30½	1	—	—	1 Sq. Rod
627,264	4,356	484	16	1	—	1 sq. chain
6,272,640	43,560	4,840	160	10	1	1 Acre
4,014,489,600	27,878,400	3,097,600	102,400	2,560	640	1 Sq. Mile

CUBIC

1 Cubic Ft.	= 1728 cubic ins.	1 Perch of stone	= 24¾ cubic ft.
1 Cubic Yd.	= 27 cubic ft.	1 Bushel	= 1.284 cubic ft.
1 Cord Ft.	= 16 cubic ft.	1 Gall. of water	= 6.229 cubic ft.
1 Cord of wood	= 128 cubic ft.	1 Shipping ton	= 40 cubic ft.

AVOIRDUPOIS

16 Drams	= 1 Ounce (oz.)	= 437.5 Grains
16 Ounces	= 1 Pound (lb.)	= 7,000 Grains
14 Pounds	= 1 Stone	
2 Stone	= 1 Quarter	= 28 Pounds
4 Quarters	= 1 Hundredweight (cwt.)	= 112 Pounds
20 Cwts.	= 1 Ton	= 2,240 Pounds
100 Pounds	= 1 Hundredweight (cwt.) (U.S.A.)	
2,000 Pounds	= 1 Short Ton (U.S.A.)	

CAPACITY

4 Gills	= 1 Pint	4 Pecks	= 1 Bushel
2 Pints	= 1 Quart	8 Bushels	= 1 Quarter
4 Quarts	= 1 Gallon	5 Quarters	= 1 Load
2 Gallons	= 1 Peck	1 Bag	= 3 Bushels

APPROXIMATE EQUIVALENTS

1 Millimetre	= 1/25th of inch	1 Kilogramme	= 2½ lbs.
2½ Centimetres	= 1 inch	1,000 Kilogrammes	= 1 Ton
1 Metre	= 39¾ inches	6½ Sq. Centimetres	= 1 Sq. inch
1 Kilometre	= 5 Furlongs (½ m.)	1 Sq. Metre	= 10¾ Sq. ft.

(See Conversion Table, page 100)

GENERAL CONVERSION TABLE

Multiply by	To Convert	Into	
14.696	Atmospheres	Lb./sq. in.	.068
1013.3	"	Millebars	.000987
33.9	"	Feet of Water	.0295
.556	B.Th.Ü.	C.H.U.	1.8
778.3	"	Ft. lb.	.00129
3.929×10^{-4}	"	H.P. Hours	2,525.06
16.387	Cubic inches	Cubic cons.	.061
28.316	Cubic feet	Litres	.0353
6.229	"	Gallons (Imp.)	.161
.765	Cubic yards	Cub. metres	1.308
50.803	Cwt.	Kilogrammes	.0197
.0175	Degrees	Radians	57.296
30.48	Feet	Centimetres	.0328
.138	Foot-lb.	K'grammetres	7.233
.33	Foot-tons	Tonne-metres	3
4.546	Gallons (Imp.)	Litres	.22
10	Gallons of water	Pounds	.1
1.201	Gallons (Imp.)	Gallons (U.S.A.)	.833
1.014	Horse-power	Force-de-cheval	.986
745.7	"	Watts	.00134
33,000	"	Ft. lb./min.	1/33,000
76.04	"	Kgm./sec.	.0131
2.54	Inches	Cms.	.3937
.0736	Inches of water	Inches of Mercury	13.595
.738	Joules	Ft. lb.	1.356
1.152	Knots	Miles/hour	.868
70.306	Lb./sq. in.	Gm./sq. cm.	.0142
2.306	"	Head of Water (ft.)	.434
.7	"	" (M.)	1.429
4.882	Lb./sq. ft.	Kgm./sq. metre	.205
16.018	Lb./cub. ft.	Kgm./cub. metre	.0624
.593	Lb./cub. yd.	"	1.686
16,093	Miles	Metres	.000621
.88	Miles/Hour	Ft./min.	.0114
1.462	"	Ft./sec.	.682
196.85	Mètres/Sec.	Ft./min.	.00508
1.152	Nautical miles	Statute Miles	.868
28.35	Ounces	Grammes	.0353
.454	Pounds (Avoir.)	Kilogrammes	2.205
.454	Pounds of Water	Litres	2.202
6.452	Square inches	Square cms.	.155
.093	square feet	Square metres	10.764
.836	square yards	"	1.196
1.12	Tons	Short tons (U.S.A.)	.893
1016	"	Kilogrammes	.00098
1.575	Tons/sq. in.	Kgm./sq. mm.	.625
44.26	Watts	Ft. lb./min.	.0227
.102	"	Kgm./sec.	9.807
914	Yards	Metres	1.094
	To Obtain	From	Multiply by above

GEOMETRY AND MENSURATION

CIRCLE.—Circumference = diameter $\times \frac{22}{7}$ (or 3.1416).

Area = diameter² $\times 0.7854$.

Area of sector of circle = length of arc $\times$ half radius.

Area of segment of circle = area of sector, less area of triangle.

Side of square of area equal to circle = 0.8852 diameter.

Diameter of circle equal in area to square = 1.1284 side.

SPHERE.—Surface area = 3.1416 $\times$ diameter².

Volume = 0.5236 diameter³.

AREAS generally.

Square, rectangle, rhombus, or rhomboid = base $\times$ height.

Triangle = half base $\times$ perpendicular height.

Trapezoid = half sum of two parallel sides $\times$ height.

Area of any figure of four or more unequal sides is found by dividing it into triangles, finding areas of each, and adding together.

Regular polygon (circumscribe circle) = half radius of circle $\times$ length of one side $\times$ number of sides.

Parabola = base $\times$ height $\times 2/3$.

Ellipse = long axis $\times$ short axis $\times 0.7854$.

SURFACES AND VOLUMES

CUBES.—a = length of one side, volume = a³, surface area = 6a².

RECTANGULAR PRISM.—Volume = area of base $\times$ height = bl $\times$ h.

Total surface area = 2(bl + lh + bh).

REGULAR PRISM.—Volume = $\frac{1}{2}n \times r \times a \times h$, where n = number of sides, r = radius of inscribed circle, a = length of side.

CYLINDER (Right Circular).—Volume = 0.7854 $\times$ diameter² $\times$ height.

Lateral surface area, 3.1416 $\times$ diameter $\times$ height.

Total surface area = 3.1416 (diameter $\times$ height + diameter).

ANY PRISM OR CYLINDER.—Volume = h $\times$ area of base. Lateral surface area = length of cylinder $\times$ perimeter of normal sector.

REGULAR PYRAMID OR CONE.—Volume = 1/3 (area of base $\times$ height). Lateral area of regular figure = half (perimeter of base $\times$ slant height).

ANY PYRAMID OR CONE.—Volume = 1/3 (area of base $\times$ distance from vertex to plane of base).

FRUSTUM OF ANY PYRAMID OR CONE.—Volume = h/3 (A₁ + A₂ + $\sqrt{A_1 A_2}$), where A₁ and A₂ are the areas of bases made by parallel planes.

LOGARITHMS

	0	1	2	3	4	5	6	7	8	9	1	3	5	7	9
10	0000	0043	0086	0128	0170	0212	0253	0294	0334	0374	4	12	21	29	37
11	0414	0453	0492	0531	0569	0607	0645	0682	0719	0755	4	11	19	26	34
12	0792	0828	0864	0899	0934	0969	1004	1038	1072	1106	3	10	17	24	31
13	1139	1173	1206	1239	1271	1303	1335	1367	1399	1430	3	10	16	23	29
14	1461	1492	1523	1553	1584	1614	1644	1673	1703	1732	3	9	15	21	27
15	1761	1790	1818	1847	1875	1903	1931	1959	1987	2014	3	8	14	20	25
16	2041	2068	2095	2122	2148	2175	2201	2227	2253	2279	3	8	13	18	24
17	2304	2330	2355	2380	2405	2430	2455	2480	2504	2529	2	7	12	17	22
18	2553	2577	2601	2625	2648	2672	2695	2718	2742	2765	2	7	12	16	21
19	2788	2810	2833	2856	2878	2900	2923	2945	2967	2989	2	7	11	16	20
20	3010	3032	3054	3075	3096	3118	3139	3160	3181	3201	2	6	11	15	19
21	3222	3243	3263	3284	3304	3324	3345	3365	3385	3404	2	6	10	14	18
22	3424	3444	3464	3483	3502	3522	3541	3560	3579	3598	2	6	10	14	17
23	3617	3636	3655	3674	3692	3711	3729	3747	3766	3784	2	6	9	13	17
24	3802	3820	3838	3856	3874	3892	3909	3927	3945	3962	2	5	9	12	16
25	3979	3997	4014	4031	4048	4065	4082	4099	4116	4133	2	5	9	12	15
26	4150	4166	4183	4200	4216	4232	4249	4265	4281	4298	2	5	8	11	15
27	4314	4330	4346	4362	4378	4393	4409	4425	4440	4456	2	5	8	11	14
28	4472	4487	4502	4518	4533	4548	4564	4579	4594	4609	2	5	8	11	14
29	4624	4639	4654	4669	4683	4698	4713	4728	4742	4757	1	4	7	10	13
30	4771	4786	4800	4814	4829	4843	4857	4871	4886	4900	1	4	7	10	13
31	4914	4928	4942	4955	4969	4983	4997	5011	5024	5038	1	4	7	10	12
32	5051	5065	5079	5092	5105	5119	5132	5145	5159	5172	1	4	7	9	12
33	5185	5198	5211	5224	5237	5250	5263	5276	5289	5302	1	4	6	9	12
34	5315	5328	5340	5353	5366	5378	5391	5403	5416	5428	1	4	6	9	11
35	5441	5453	5465	5478	5490	5502	5514	5527	5539	5551	1	4	6	9	11
36	5563	5575	5587	5599	5611	5623	5635	5647	5658	5670	1	4	6	8	11
37	5682	5694	5705	5717	5729	5740	5752	5763	5775	5786	1	3	6	8	11
38	5798	5809	5821	5832	5843	5855	5866	5877	5888	5899	1	3	6	8	10
39	5911	5922	5933	5944	5955	5966	5977	5988	5999	6010	1	3	5	8	10
40	6021	6031	6042	6053	6064	6075	6085	6096	6107	6117	1	3	5	8	10
41	6128	6138	6149	6160	6170	6180	6191	6201	6212	6222	1	3	5	7	9
42	6232	6243	6253	6263	6274	6284	6294	6304	6314	6325	1	3	5	7	9
43	6335	6345	6355	6365	6375	6385	6395	6405	6415	6425	1	3	5	7	9
44	6435	6444	6454	6464	6474	6484	6493	6503	6513	6522	1	3	5	7	9
45	6532	6542	6551	6561	6571	6580	6590	6599	6609	6618	1	3	5	7	9
46	6628	6637	6646	6656	6665	6675	6684	6693	6702	6712	1	3	5	7	8
47	6721	6730	6739	6749	6758	6767	6776	6785	6794	6803	1	3	5	6	8
48	6812	6821	6830	6839	6848	6857	6866	6875	6884	6893	1	3	4	6	8
49	6902	6911	6920	6928	6937	6946	6955	6964	6972	6981	1	3	4	6	8
50	6990	6998	7007	7016	7024	7033	7042	7050	7059	7067	1	3	4	6	8
51	7076	7084	7093	7101	7110	7118	7126	7135	7143	7152	1	3	4	6	8
52	7160	7168	7177	7185	7193	7202	7210	7218	7226	7235	1	2	4	6	7
53	7243	7251	7259	7267	7275	7284	7292	7300	7308	7316	1	2	4	6	7
54	7324	7332	7340	7348	7356	7364	7372	7380	7388	7396	1	2	4	6	7

Difference 2 4 6 8 obtained by interpolation.

LOGARITHMS

	0	1	2	3	4	5	6	7	8	9	1	3	5	7	9
55	7404	7412	7419	7427	7435	7443	7451	7459	7466	7474	1	2	4	5	7
56	7482	7490	7497	7505	7513	7520	7528	7536	7543	7551	1	2	4	5	7
57	7559	7566	7574	7582	7589	7597	7604	7612	7619	7627	1	2	4	5	7
58	7634	7642	7649	7657	7664	7672	7679	7686	7694	7701	1	2	4	5	7
59	7709	7716	7723	7731	7738	7745	7752	7760	7767	7774	1	2	4	5	7
60	7782	7789	7796	7803	7810	7818	7825	7832	7839	7846	1	2	4	5	6
61	7853	7860	7868	7875	7882	7889	7896	7903	7910	7917	1	2	4	5	6
62	7924	7931	7938	7945	7952	7959	7966	7973	7980	7987	1	2	3	5	6
63	7993	8000	8007	8014	8021	8028	8035	8041	8048	8055	1	2	3	5	6
64	8062	8069	8075	8082	8089	8096	8102	8109	8116	8122	1	2	3	5	6
65	8129	8136	8142	8149	8156	8162	8169	8176	8182	8189	1	2	3	5	6
66	8195	8202	8209	8215	8222	8228	8235	8241	8248	8254	1	2	3	5	6
67	8261	8267	8274	8280	8287	8293	8299	8306	8312	8319	1	2	3	5	6
68	8325	8331	8338	8344	8351	8357	8363	8370	8376	8382	1	2	3	4	6
69	8388	8395	8401	8407	8414	8420	8426	8432	8439	8445	1	2	3	4	6
70	8451	8457	8463	8470	8476	8482	8488	8494	8500	8506	1	2	3	4	6
71	8513	8519	8525	8531	8537	8543	8549	8555	8561	8567	1	2	3	4	5
72	8573	8579	8585	8591	8597	8603	8609	8615	8621	8627	1	2	3	4	5
73	8633	8639	8645	8651	8657	8663	8669	8675	8681	8686	1	2	3	4	5
74	8692	8698	8704	8710	8716	8722	8727	8733	8739	8745	1	2	3	4	5
75	8751	8756	8762	8768	8774	8779	8785	8791	8797	8802	1	2	3	4	5
76	8808	8814	8820	8825	8831	8837	8842	8848	8854	8859	1	2	3	4	5
77	8865	8871	8876	8882	8887	8893	8899	8904	8910	8915	1	2	3	4	5
78	8921	8927	8932	8938	8943	8949	8954	8960	8965	8971	1	2	3	4	5
79	8976	8982	8987	8993	8998	9004	9009	9015	9020	9025	1	2	3	4	5
80	9031	9036	9042	9047	9053	9058	9063	9069	9074	9079	1	2	3	4	5
81	9085	9090	9096	9101	9106	9112	9117	9122	9128	9133	1	2	3	4	5
82	9138	9143	9149	9154	9159	9165	9170	9175	9180	9186	1	2	3	4	5
83	9191	9196	9201	9206	9212	9217	9222	9227	9232	9238	1	2	3	4	5
84	9243	9248	9253	9258	9263	9269	9274	9279	9284	9289	1	2	3	4	5
85	9294	9299	9304	9309	9315	9320	9325	9330	9335	9340	1	2	3	4	5
86	9345	9350	9355	9360	9365	9370	9375	9380	9385	9390	1	2	3	4	5
87	9395	9400	9405	9410	9415	9420	9425	9430	9435	9440	0	1	2	3	4
88	9445	9450	9455	9460	9465	9469	9474	9479	9484	9489	0	1	2	3	4
89	9494	9499	9504	9509	9513	9518	9523	9528	9533	9538	0	1	2	3	4
90	9542	9547	9552	9557	9562	9566	9571	9576	9581	9586	0	1	2	3	4
91	9590	9595	9600	9605	9609	9614	9619	9624	9628	9633	0	1	2	3	4
92	9638	9643	9647	9652	9657	9661	9666	9671	9675	9680	0	1	2	3	4
93	9685	9689	9694	9699	9703	9708	9713	9717	9722	9727	0	1	2	3	4
94	9731	9736	9741	9745	9750	9754	9759	9763	9768	9773	0	1	2	3	4
95	9777	9782	9786	9791	9795	9800	9805	9809	9814	9818	0	1	2	3	4
96	9823	9827	9832	9836	9841	9845	9850	9854	9859	9863	0	1	2	3	4
97	9868	9872	9877	9881	9886	9890	9894	9899	9903	9908	0	1	2	3	4
98	9912	9917	9921	9926	9930	9934	9939	9943	9948	9952	0	1	2	3	4
99	9956	9961	9965	9969	9974	9978	9983	9987	9991	9996	0	1	2	3	4

Common Logarithms = Hyperbolic Logarithms $\times 0.43429$.

ANTILOGARITHMS

	0	1	2	3	4	5	6	7	8	9	1	3	5	7	9
.00	1000	1002	1005	1007	1009	1012	1014	1016	1019	1021	0	1	1	2	2
.01	1023	1026	1028	1030	1033	1035	1038	1040	1042	1045	0	1	1	2	2
.02	1047	1050	1052	1054	1057	1059	1062	1064	1067	1069	0	1	1	2	2
.03	1072	1074	1076	1079	1081	1084	1086	1089	1091	1094	0	1	1	2	2
.04	1096	1099	1102	1104	1107	1109	1112	1114	1117	1119	0	1	2	2	2
.05	1122	1125	1127	1130	1132	1135	1138	1140	1143	1146	0	1	1	2	2
.06	1148	1151	1153	1156	1159	1161	1164	1167	1169	1172	0	1	1	2	2
.07	1175	1178	1180	1183	1186	1189	1191	1194	1197	1199	0	1	1	2	2
.08	1202	1205	1208	1211	1213	1216	1219	1222	1225	1227	0	1	1	2	3
.09	1230	1233	1236	1239	1242	1245	1247	1250	1253	1256	0	1	1	2	3
.10	1259	1262	1265	1268	1271	1274	1276	1279	1282	1285	0	1	1	2	3
.11	1288	1291	1294	1297	1300	1303	1306	1309	1312	1315	0	1	2	2	3
.12	1318	1321	1324	1327	1330	1334	1337	1340	1343	1346	0	1	2	2	3
.13	1349	1352	1355	1358	1361	1365	1368	1371	1374	1377	0	1	2	2	3
.14	1380	1384	1387	1390	1393	1396	1400	1403	1406	1409	0	1	2	2	3
.15	1413	1416	1419	1422	1426	1429	1432	1435	1439	1442	0	1	2	2	3
.16	1445	1449	1452	1455	1459	1462	1466	1469	1472	1476	0	1	2	2	3
.17	1479	1483	1486	1489	1493	1496	1500	1503	1507	1510	0	1	2	2	3
.18	1514	1517	1521	1524	1528	1531	1535	1538	1542	1545	0	1	2	2	3
.19	1549	1552	1556	1560	1563	1567	1570	1574	1578	1581	0	1	2	3	3
.20	1585	1589	1592	1596	1600	1603	1607	1611	1614	1618	0	1	2	3	3
.21	1622	1626	1629	1633	1637	1641	1644	1648	1652	1656	0	1	2	3	3
.22	1660	1663	1667	1671	1675	1679	1683	1687	1690	1694	0	1	2	3	3
.23	1698	1702	1706	1710	1714	1718	1722	1726	1730	1734	0	1	2	3	4
.24	1738	1742	1746	1750	1754	1758	1762	1766	1770	1774	0	1	2	3	4
.25	1778	1782	1786	1791	1795	1799	1803	1807	1811	1816	0	1	2	3	4
.26	1820	1824	1828	1832	1837	1841	1845	1849	1854	1858	0	1	2	3	4
.27	1862	1866	1871	1875	1879	1884	1888	1892	1897	1901	0	1	2	3	4
.28	1905	1910	1914	1919	1923	1928	1932	1936	1941	1945	0	1	2	3	4
.29	1950	1954	1959	1963	1968	1972	1977	1982	1986	1991	0	1	2	3	4
.30	1995	2000	2004	2009	2014	2018	2023	2028	2032	2037	0	1	2	3	4
.31	2042	2046	2051	2056	2061	2065	2070	2075	2080	2084	0	1	2	3	4
.32	2089	2094	2099	2104	2109	2113	2118	2123	2128	2133	0	1	2	3	4
.33	2138	2143	2148	2153	2158	2163	2168	2173	2178	2183	0	1	2	3	4
.34	2188	2193	2198	2203	2208	2213	2218	2223	2228	2234	1	2	3	4	5
.35	2239	2244	2249	2254	2259	2265	2270	2275	2280	2286	1	2	3	4	5
.36	2291	2296	2301	2307	2312	2317	2323	2328	2333	2339	1	2	3	4	5
.37	2344	2350	2355	2360	2366	2371	2377	2382	2388	2393	1	2	3	4	5
.38	2399	2404	2410	2415	2421	2427	2432	2438	2443	2449	1	2	3	4	5
.39	2455	2460	2466	2472	2477	2483	2489	2495	2500	2506	1	2	3	4	5
.40	2512	2518	2523	2529	2535	2541	2547	2553	2559	2564	1	2	3	4	5
.41	2570	2576	2582	2588	2594	2600	2606	2612	2618	2624	1	2	3	4	5
.42	2630	2636	2642	2649	2655	2661	2667	2673	2679	2685	1	2	3	4	6
.43	2692	2698	2704	2710	2716	2723	2729	2735	2742	2748	1	2	3	4	6
.44	2754	2761	2767	2773	2780	2786	2793	2799	2805	2812	1	2	3	4	6
.45	2818	2825	2831	2838	2844	2851	2858	2864	2871	2877	1	2	3	5	6
.46	2884	2891	2897	2904	2911	2917	2924	2931	2938	2944	1	2	3	5	6
.47	2951	2958	2965	2972	2979	2985	2992	2999	3006	3013	1	2	3	5	6
.48	3020	3027	3031	3041	3048	3055	3062	3069	3076	3083	1	2	4	5	6
.49	3090	3097	3105	3112	3119	3126	3133	3141	3148	3155	1	2	4	5	6

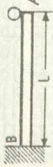
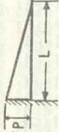
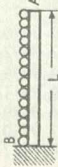
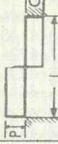
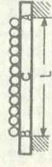
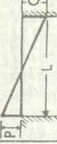
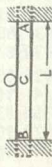
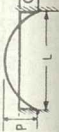
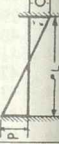
Difference 2 4 6 8 obtained by interpolation.

ANTILOGARITHMS

	0	1	2	3	4	5	6	7	8	9	1	3	5	7	9
.50	3162	3170	3177	3184	3192	3199	3206	3214	3221	3228	1	2	4	5	7
.51	3236	3243	3251	3258	3266	3273	3281	3289	3296	3304	1	2	4	5	7
.52	3311	3319	3327	3334	3342	3350	3357	3365	3373	3381	1	2	4	5	7
.53	3388	3396	3404	3412	3420	3428	3436	3443	3451	3459	1	2	4	6	7
.54	3467	3475	3483	3491	3499	3508	3516	3524	3532	3540	1	2	4	6	7
.55	3548	3556	3565	3573	3581	3589	3597	3606	3614	3622	1	2	4	6	7
.56	3631	3639	3648	3656	3664	3673	3681	3690	3698	3707	1	3	4	6	8
.57	3715	3724	3733	3741	3750	3758	3767	3776	3784	3793	1	3	4	6	8
.58	3802	3811	3819	3828	3837	3846	3855	3864	3873	3882	1	3	4	6	8
.59	3890	3899	3908	3917	3926	3936	3945	3954	3963	3972	1	3	5	6	8
.60	3981	3990	3999	4009	4018	4027	4036	4046	4055	4064	1	3	5	6	8
.61	4074	4083	4093	4102	4111	4121	4130	4140	4150	4159	1	3	5	7	9
.62	4169	4178	4188	4198	4207	4217	4227	4236	4246	4256	1	3	5	7	9
.63	4266	4276	4285	4295	4305	4315	4325	4335	4345	4355	1	3	5	7	9
.64	4365	4375	4385	4395	4406	4416	4426	4436	4446	4457	1	3	5	7	9
.65	4467	4477	4487	4498	4508	4519	4529	4539	4550	4560	1	3	5	7	9
.66	4571	4581	4592	4603	4613	4624	4634	4645	4656	4667	1	3	5	7	10
.67	4677	4688	4699	4710	4721	4732	4742	4753	4764	4775	1	3	5	8	10
.68	4786	4797	4808	4819	4831	4842	4853	4864	4875	4887	1	3	6	8	10
.69	4898	4909	4920	4932	4943	4955	4966	4977	4989	5000	1	3	6	8	10
.70	5012	5023	5035	5047	5058	5070	5082	5093	5105	5117	1	4	6	8	11
.71	5129	5140	5152	5164	5176	5188	5200	5212	5224	5236	1	4	6	8	11
.72	5248	5260	5272	5284	5297	5309	5321	5333	5346	5358	1	4	6	9	11
.73	5370	5383	5395	5408	5420	5433	5445	5458	5470	5483	1	4	6	9	11
.74	5495	5508	5521	5534	5546	5559	5572	5585	5598	5610	1	4	6	9	12
.75	5623	5636	5649	5662	5675	5689	5702	5715	5728	5741	1	4	7	9	12
.76	5754	5768	5781	5794	5808	5821	5834	5848	5861	5875	1	4	7	9	12
.77	5888	5902	5916	5929	5943	5957	5970	5984	5998	6012	1	4	7	10	12
.78	6026	6039	6053	6067	6081	6095	6109	6124	6138	6152	1	4	7	10	13
.79	6166	6180	6194	6209	6223	6237	6252	6266	6281	6295	1	4	7	10	13
.80	6310	6324	6339	6353	6368	6383	6397	6412	6427	6442	1	4	7	10	13
.81	6457	6471	6486	6501	6516	6531	6546	6561	6577	6592	2	5	8	11	14
.82	6607	6622	6637	6653	6668	6683	6699	6714	6730	6745	2	5	8	11	14
.83	6761	6776	6792	6808	6823	6839	6855	6871	6887	6902	2	5	8	11	14
.84	6918	6934	6950	6966	6982	6998	7015	7031	7047	7063	2	5	8	11	15
.85	7079	7096	7112	7129	7145	7161	7178	7194	7211	7228	2	5	8	12	15
.86	7244	7261	7278	7295	7311	7328	7345	7362	7379	7396	2	5	8	12	15
.87	7413	7430	7447	7464	7482	7499	7516	7534	7551	7468	2	5	9	12	16
.88	7586	7603	7621	7638	7656	7674	7691	7709	7727	7745	2	5	9	12	16
.89	7762	7780	7798	7816	7834	7852	7870	7889	7907	7925	2	5	9	13	16
.90	7943	7962	7980	7998	8017	8035	8054	8072	8091	8110	2	6	9	13	17
.91	8128	8147	8166	8185	8204	8222	8241	8260	8279	8299	2	6	9	13	17
.92	8318	8337	8356	8375	8395	8414	8433	8453	8472	8492	2	6	10	14	17
.93	8511	8531	8551	8570	8590	8610	8630	8650	8670	8690	2	6	10	14	18
.94	8710	8730	8750	8770	8790	8810	8831	8851	8872	8892	2	6	10	14	18
.95	8913	8933	8954	8974	8995	9016	9036	9057	9078	9099	2	6	10	15	19
.96	9120	9141	9162	9183	9204	9226	9247	9268	9290	9311	2	6	11	15	19
.97	9333	9354	9376	9397	9419	9441	9462	9484	9506	9528	2	7	11	15	20
.98	9550	9572	9594	9616	9638	9661	9683	9705	9727	9750	2	7	11	16	20
.99	9772	9795	9817	9840	9863	9886	9908	9931	9954	9977	2	7	11	16	20

Difference 2 4 6 8 obtained by interpolation.

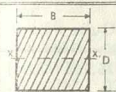
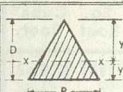
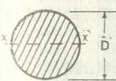
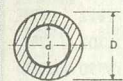
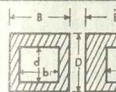
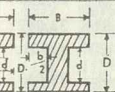
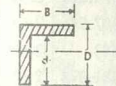
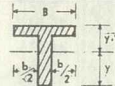
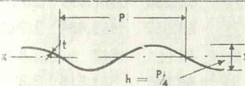
BEAM LOADING

Method of Loading	Location of Maximum		Bending Moment		Shearing Forces		Maximum Deflection
	Bending	Deflection	Maximum	Diagram	Maximum	Diagram	
	B	A	$P = WL$		$P = W$		$\frac{WL^3}{3EI}$
	B	A	$P = \frac{WL}{2}$		$P = W$		$\frac{WL^3}{8EI}$
	C	C	$P = \frac{WL}{4}$		$P = \frac{W}{2}$ $Q = \frac{W}{2}$		$\frac{WL^3}{48EI}$
	C	C	$P = \frac{WL}{8}$		$P = \frac{W}{2}$ $Q = \frac{W}{2}$		$\frac{5WL^3}{384EI}$
	C	D not max. at C	$P = \frac{Wab}{L}$		$P = \frac{Wb}{L}$ $Q = \frac{Wb}{L}$		$\frac{Wab}{9EI} \sqrt{\frac{b(2L-b)}{3}}$
	at A, B and C	C	$P = \frac{WL}{4}$ $Q = \frac{WL}{8}$		$P = \frac{W}{2}$ $Q = \frac{W}{2}$		$\frac{WL^3}{192EI}$
	A or B C	C	$P = \frac{WL}{8}$ $Q = \frac{WL}{12}$		$P = \frac{W}{2}$ $Q = \frac{W}{2}$		$\frac{WL^3}{384EI}$

Properties of Sections

I = Moment of Inertia.

Z = Modulus of Section.

	$I_{xx} = \frac{B D^3}{12}$ $Z_{xx} = \frac{B D^2}{6}$		$\bar{y} = \frac{2D}{3} \quad y = \frac{D}{3}$ $I_{xx} = \frac{B D^3}{36}$ $Z_{xx} = \frac{B D^2}{24}$
	$I = \frac{\pi D^4}{64} = .049 D^4$ $Z = \frac{\pi D^3}{32} = .098 D^3$		$I_{xx} = \frac{\pi (D^4 - d^4)}{64}$ $Z_{xx} = \frac{\pi (D^4 - d^4)}{32 D}$
	$I_{xx} = \frac{(B D^3 - b d^3)}{12}$ $Z_{xx} = \frac{(B D^3 - b d^3)}{6 D}$		
	$A = B D - b d$ $y = \frac{B D^2 - b d^2}{2 A}$ $I_{xx} = \frac{B D^3 - b d^3}{3} - A y^2$		$A = \text{Area}$ $y = D - y$ $Z = I/y$
	$I = \frac{P^3 t}{106}$ $Z = \frac{P^2 t}{13.2}$		

Strength of Corrugated Sheets

In calculations involving corrugated Galvanized or Zincanneal sheets, use the values of thickness for uncoated sheet as given by the Birmingham Gauge Table, with the exception of 26G. For 26G—thickness is .0162.

t = Thickness of sheet in inches.

P = Pitch of corrugations, e.g., 5", 3", 1".

S = Safe pressure lb. per sq. inch distributed load.

L = Unsupported length of sheet in inches, simply supported beam.

$$S = 9,000 \text{ Pt}/L^2.$$

Example: 3" corrugations, 22G sheet—t = 1/32", P = 3".

$$S = \frac{9,000 \times 3}{32 \times L^2} = \frac{845}{L^2} \text{ lb./sq. in.}$$

26G Red Orb sheets have the same strength as 24G Blue Orb.

Squares, Cubes, Square Roots and Cube Roots

No.	Square	Cube	Sq. Root	Cube Root	No.	Square	Cube	Sq. Root	Cube Root
$\frac{1}{8}$	.015	.0019	.353	.5	$4\frac{1}{4}$	18.062	76.765	2.061	1.61
$\frac{1}{4}$	.062	.0156	.500	.620	$4\frac{1}{2}$	20.250	91.125	2.121	1.65
$\frac{3}{8}$	.140	.0527	.612	.721	$4\frac{3}{4}$	22.562	107.171	2.179	1.68
$\frac{1}{2}$	.250	.1250	.707	.793	5	25	125	2.236	1.71
$\frac{5}{8}$	.390	.244	.790	.855	$5\frac{1}{4}$	27.562	144.703	2.291	1.73
$\frac{3}{4}$	.562	.421	.866	.908	$5\frac{1}{2}$	30.250	166.375	2.345	1.76
$\frac{7}{8}$	.765	.670	.935	.956	$5\frac{3}{4}$	33.062	190.109	2.397	1.79
1	1	1	1.000	1	6	36	216	2.449	1.81
$1\frac{1}{8}$	1.265	1.423	1.060	1.04	$6\frac{1}{4}$	39.062	244.140	2.500	1.84
$1\frac{1}{4}$	1.562	1.953	1.118	1.07	$6\frac{1}{2}$	42.250	274.625	2.549	1.86
$1\frac{3}{8}$	1.890	2.599	1.172	1.11	$6\frac{3}{4}$	45.562	307.546	2.598	1.88
$1\frac{1}{2}$	2.250	3.375	1.224	1.14	7	49	343	2.645	1.91
$1\frac{5}{8}$	2.610	4.291	1.274	1.17	$7\frac{1}{4}$	52.562	381.078	2.692	1.93
$1\frac{3}{4}$	3.062	5.359	1.322	1.20	$7\frac{1}{2}$	56.250	421.875	2.738	1.95
$1\frac{7}{8}$	3.515	6.591	1.369	1.23	$7\frac{3}{4}$	60.062	465.484	2.783	1.97
2	4	8	1.414	1.26	8	64	512	2.828	2
$2\frac{1}{8}$	4.515	9.595	1.457	1.28	$8\frac{1}{4}$	68.062	561.515	2.872	2.02
$2\frac{1}{4}$	5.062	11.390	1.500	1.30	$8\frac{1}{2}$	72.250	614.125	2.915	2.04
$2\frac{3}{8}$	5.640	13.396	1.541	1.33	$8\frac{3}{4}$	76.562	669.921	2.958	2.06
$2\frac{1}{2}$	6.250	15.625	1.581	1.35	9	81	729	3	2.08
$2\frac{5}{8}$	6.890	18.088	1.620	1.37	$9\frac{1}{4}$	85.562	791.453	3.041	2.09
$2\frac{3}{4}$	7.562	20.796	1.658	1.40	$9\frac{1}{2}$	90.25	857.375	3.082	2.11
$2\frac{7}{8}$	8.265	23.763	1.695	1.42	$9\frac{3}{4}$	95.062	926.859	3.122	2.13
3	9	27	1.732	1.44	10	100	1000	3.162	2.15
$3\frac{1}{8}$	9.765	30.517	1.767	1.46	$10\frac{1}{4}$	105.062	1076.89	3.201	2.17
$3\frac{1}{4}$	10.562	34.328	1.802	1.48	$10\frac{1}{2}$	110.250	1157.625	3.240	2.18
$3\frac{3}{8}$	11.390	38.443	1.837	1.50	$10\frac{3}{4}$	115.562	1242.296	3.278	2.20
$3\frac{1}{2}$	12.250	42.875	1.870	1.51	11	121	1331	3.316	2.22
$3\frac{5}{8}$	13.140	47.634	1.903	1.53	$11\frac{1}{4}$	126.562	1423.828	3.354	2.24
$3\frac{3}{4}$	14.062	52.734	1.936	1.55	$11\frac{1}{2}$	132.250	1520.875	3.391	2.25
$3\frac{7}{8}$	15.015	58.185	1.968	1.57	$11\frac{3}{4}$	138.062	1622.234	3.427	2.27
4	16	64	2	1.58	12	144	1728	3.464	2.29

TRIGONOMETRICAL RATIOS, ETC.

Angle									
Deg.	Rad.	Chord	Sine	Tan- gent	Co- tan- gent	Co- sine			
0°	0	0	0	0	∞	1	1.414	1.5708	90°
.5	.0087	.009	.0087	.0087	114.6	1	1.408	1.5621	89.5
1	.0175	.017	.0175	.0175	57.2900	.9998	1.402	1.5533	89
1.5	.0262	.025	.0262	.0262	38.19	.9997	1.396	1.5446	88.5
2	.0349	.035	.0349	.0349	28.6363	.9994	1.389	1.5359	88
2.5	.0436	.044	.0436	.0437	22.90	.9990	1.383	1.5272	87.5
3	.0524	.052	.0523	.0524	19.0811	.9986	1.377	1.5184	87
3.5	.0611	.061	.0610	.0612	16.35	.9981	1.370	1.5097	86.5
4	.0698	.070	.0698	.0699	14.3006	.9976	1.364	1.5010	86
4.5	.0785	.079	.0785	.0787	12.71	.9969	1.358	1.4923	85.5
5	.0873	.087	.0872	.0875	11.4301	.9962	1.351	1.4835	85
5.5	.0960	.096	.0958	.0963	10.39	.9954	1.345	1.4748	84.5
6	.1047	.105	.1045	.1051	9.5144	.9945	1.338	1.4661	84
6.5	.1134	.113	.1132	.1139	8.7769	.9936	1.332	1.4573	83.5
7	.1222	.122	.1219	.1228	8.1443	.9925	1.325	1.4486	83
7.5	.1309	.131	.1305	.1317	7.5958	.9914	1.319	1.4399	82.5
8	.1396	.139	.1392	.1405	7.1154	.9903	1.312	1.4312	82
8.5	.1484	.148	.1478	.1495	6.6912	.9890	1.306	1.4224	81.5
9	.1571	.157	.1564	.1584	6.3138	.9877	1.299	1.4137	81
9.5	.1658	.166	.1650	.1673	5.9758	.9863	1.292	1.4050	80.5
10	.1745	.174	.1736	.1763	5.6713	.9848	1.286	1.3963	80
10.5	.1833	.183	.1822	.1853	5.3955	.9833	1.279	1.3875	79.5
11	.1920	.192	.1908	.1944	5.1446	.9816	1.272	1.3788	79
11.5	.2007	.200	.1994	.2035	4.9152	.9799	1.265	1.3701	78.5
12	.2094	.209	.2079	.2126	4.7046	.9781	1.259	1.3614	78
12.5	.2182	.218	.2164	.2217	4.5107	.9763	1.252	1.3526	77.5
13	.2269	.226	.2250	.2309	4.3315	.9744	1.245	1.3439	77
13.5	.2356	.235	.2334	.2401	4.1653	.9724	1.238	1.3352	76.5
14	.2443	.244	.2419	.2493	4.0108	.9703	1.231	1.3265	76
14.5	.2531	.252	.2504	.2586	3.8667	.9681	1.224	1.3177	75.5
15	.2618	.261	.2588	.2679	3.7321	.9659	1.217	1.3090	75
15.5	.2705	.270	.2672	.2773	3.6059	.9636	1.211	1.3003	74.5
16	.2793	.278	.2756	.2867	3.4874	.9613	1.204	1.2915	74
16.5	.2880	.287	.2840	.2962	3.3759	.9588	1.197	1.2828	73.5
17	.2967	.296	.2924	.3057	3.2709	.9563	1.190	1.2741	73
17.5	.3054	.304	.3007	.3153	3.1716	.9537	1.183	1.2654	72.5
18	.3142	.313	.3090	.3249	3.0777	.9511	1.176	1.2566	72
18.5	.3229	.322	.3173	.3346	2.9887	.9483	1.168	1.2479	71.5
19	.3316	.330	.3256	.3443	2.9042	.9455	1.161	1.2392	71
19.5	.3403	.339	.3338	.3541	2.8239	.9426	1.154	1.2305	70.5
20	.3491	.347	.3420	.3640	2.7475	.9397	1.147	1.2217	70
20.5	.3578	.356	.3502	.3739	2.6746	.9367	1.140	1.2130	69.5
21	.3665	.364	.3584	.3839	2.6051	.9336	1.133	1.2043	69
21.5	.3752	.373	.3665	.3939	2.5836	.9304	1.126	1.1956	68.5
22	.3840	.382	.3746	.4040	2.4751	.9272	1.118	1.1868	68
			Co- sine	Co- tan- gent	Tan- gent	Sine	Chord	Rad.	Deg.
									Angle

TRIGONOMETRICAL RATIOS, ETC.

Angle		Chord	Sine	Tangent	Co-tangent	Co-sine			
Deg.	Rad.								
22.5°	.3927	.390	.3827	.4142	2.4142	.9239	1.111	1.1781	67.5
23	.4014	.399	.3907	.4245	2.3559	.9205	1.104	1.1694	67
23.5	.4102	.407	.3987	.4348	2.2998	.9171	1.097	1.1606	66.5
24	.4189	.416	.4067	.4452	2.2460	.9135	1.089	1.1519	66
24.5	.4276	.424	.4147	.4557	2.1943	.9100	1.082	1.1432	65.5
25	.4363	.433	.4226	.4663	2.1445	.9063	1.075	1.1345	65
25.5	.4451	.441	.4305	.4770	2.0965	.9026	1.067	1.1257	64.5
26	.4538	.450	.4384	.4877	2.0503	.8988	1.060	1.1170	64
26.5	.4625	.458	.4462	.4986	2.0057	.8949	1.052	1.1083	63.5
27	.4712	.467	.4540	.5095	1.9626	.8910	1.045	1.0996	63
27.5	.4800	.475	.4617	.5206	1.9210	.8870	1.037	1.0908	62.5
28	.4887	.484	.4695	.5317	1.8807	.8829	1.030	1.0821	62
28.5	.4974	.492	.4772	.5430	1.8418	.8788	1.023	1.0734	61.5
29	.5061	.501	.4848	.5543	1.8040	.8746	1.015	1.0647	61
29.5	.5149	.509	.4924	.5658	1.7675	.8704	1.008	1.0559	60.5
30	.5236	.518	.5000	.5774	1.7321	.8660	1.000	1.0472	60
30.5	.5323	.526	.5075	.5890	1.6977	.8616	.993	1.0385	59.5
31	.5411	.534	.5150	.6009	1.6643	.8572	.985	1.0297	59
31.5	.5498	.543	.5225	.6128	1.6319	.8526	.977	1.0210	58.5
32	.5585	.551	.5299	.6249	1.6003	.8480	.970	1.0123	58
32.5	.5672	.560	.5373	.6371	1.5697	.8434	.962	1.0036	57.5
33	.5760	.568	.5446	.6494	1.5399	.8387	.954	.9948	57
33.5	.5847	.576	.5519	.6619	1.5108	.8339	.947	.9861	56.5
34	.5934	.585	.5592	.6745	1.4826	.8290	.939	.9774	56
34.5	.6021	.593	.5664	.6873	1.4550	.8241	.931	.9687	55.5
35	.6109	.601	.5736	.7002	1.4281	.8192	.923	.9599	55
35.5	.6196	.609	.5807	.7133	1.4019	.8141	.916	.9512	54.5
36	.6283	.618	.5878	.7265	1.3764	.8090	.908	.9425	54
36.5	.6370	.626	.5948	.7400	1.3514	.8039	.900	.9338	53.5
37	.6458	.635	.6018	.7536	1.3270	.7986	.892	.9250	53
37.5	.6545	.643	.6088	.7673	1.3032	.7934	.885	.9163	52.5
38	.6632	.651	.6157	.7813	1.2799	.7880	.877	.9076	52
38.5	.6720	.659	.6225	.7954	1.2572	.7826	.871	.8988	51.5
39	.6807	.668	.6293	.8098	1.2349	.7771	.861	.8901	51
39.5	.6894	.676	.6361	.8243	1.2131	.7716	.853	.8814	50.5
40	.6981	.684	.6428	.8391	1.1918	.7660	.845	.8727	50
40.5	.7069	.692	.6494	.8541	1.1708	.7604	.837	.8639	49.5
41	.7156	.700	.6561	.8693	1.1504	.7547	.829	.8552	49
41.5	.7243	.709	.6626	.8847	1.1308	.7490	.821	.8465	48.5
42	.7330	.717	.6691	.9004	1.1106	.7431	.813	.8378	48
42.5	.7418	.725	.6756	.9163	1.0913	.7373	.805	.8290	47.5
43	.7505	.733	.6820	.9325	1.0724	.7314	.796	.8203	47
43.5	.7592	.741	.6884	.9490	1.0538	.7254	.789	.8116	46.5
44	.7679	.749	.6947	.9657	1.0355	.7193	.781	.8029	46
44.5	.7767	.757	.7009	.9827	1.0176	.7133	.773	.7941	45.5
45	.7854	.765	.7071	1.0000	1.0000	.7071	.765	.7854	45
			Co-sine	Co-tangent	Tangent	Sine	Chord	Rad.	Deg.
								Angle	

Temperature Conversion Table

FAHRENHEIT — CENTIGRADE

°F.	°C.	°F.	°C.	°F.	°C.	°F.	°C.	°F.	°C.
-459.4	-273	66	18.9	110	43.3	154	67.8	198	92.2
-50	-45.6	67	19.4	111	43.9	155	68.3	199	92.8
-40	-40	68	20	112	44.4	156	68.9	200	93.3
-30	-34.4	69	20.6	113	45	157	69.4	201	93.9
-20	-28.9	70	21.1	114	45.6	158	70	202	94.4
-10	-23.3	71	21.7	115	46.1	159	70.6	203	95
0	-17.8	72	22.2	116	46.7	160	71.1	204	95.6
10	-12.2	73	22.8	117	47.2	161	71.7	205	96.1
20	-6.7	74	23.3	118	47.8	162	72.2	206	96.7
30	-1.1	75	23.9	119	48.3	163	72.8	207	97.2
32	0	76	24.4	120	48.9	164	73.3	208	97.8
33	0.6	77	25	121	49.4	165	73.9	209	98.3
34	1.1	78	25.6	122	50	166	74.4	210	98.9
35	1.7	79	26.1	123	50.6	167	75	211	99.4
36	2.2	80	26.7	124	51.1	168	75.6	212	100
37	2.8	81	27.2	125	51.7	169	76.1		
38	3.3	82	27.8	126	52.2	170	76.7		
39	3.9	83	28.3	127	52.8	171	77.2		
40	4.4	84	28.9	128	53.3	172	77.8		
41	5	85	29.4	129	53.9	173	78.3		
42	5.6	86	30	130	54.4	174	78.9		
43	6.1	87	30.6	131	55	175	79.4		
44	6.7	88	31.1	132	55.6	176	80		
45	7.2	89	31.7	133	56.1	177	80.6		
46	7.8	90	32.2	134	56.7	178	81.1		
47	8.3	91	32.8	135	57.2	179	81.7		
48	8.9	92	33.3	136	57.8	180	82.2		
49	9.4	93	33.9	137	58.3	181	82.8		
50	10	94	34.4	138	58.9	182	83.3		
51	10.6	95	35	139	59.4	183	83.9		
52	11.1	96	35.6	140	60	184	84.4		
53	11.7	97	36.1	141	60.6	185	85		
54	12.2	98	36.7	142	61.1	186	85.6		
55	12.8	99	37.2	143	61.7	187	86.1		
56	13.3	100	37.8	144	62.2	188	86.7		
57	13.9	101	38.3	145	62.8	189	87.2		
58	14.4	102	38.9	146	63.3	190	87.8		
59	15	103	39.4	147	63.9	191	88.3		
60	15.6	104	40	148	64.4	192	88.9		
61	16.1	105	40.6	149	65	193	89.4		
62	16.7	106	41.1	150	65.6	194	90		
63	17.2	107	41.7	151	66.1	195	90.6		
64	17.8	108	42.2	152	66.7	196	91.1		
65	18.3	109	42.8	153	67.2	197	91.7		

C. to F.
Multiply by 9, divide by 5, add 32.

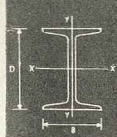
F. to C.
Subtract 32, multiply by 5, divide by 9.

WEIGHTS OF STEEL PLATES

POUNDS PER LINEAL FOOT

Thickness in inches

Width Inches	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2
12	2.55	5.10	7.65	10.20	12.75	15.30	17.85	20.40
13	2.76	5.53	8.29	11.05	13.81	16.58	19.34	22.10
14	2.98	5.95	8.93	11.90	14.88	17.85	20.83	23.80
15	3.19	6.38	9.56	12.75	15.94	19.13	22.31	25.50
16	3.40	6.80	10.20	13.60	17.00	20.40	23.80	27.20
17	3.61	7.23	10.84	14.45	18.06	21.68	25.29	28.90
18	3.83	7.65	11.48	15.30	19.13	22.95	26.78	30.60
19	4.04	8.08	12.11	16.15	20.19	24.23	28.26	32.30
20	4.25	8.50	12.75	17.00	21.25	25.50	29.75	34.00
21	4.46	8.93	13.39	17.85	22.31	26.78	31.24	35.70
22	4.68	9.35	14.03	18.70	23.38	28.05	32.73	37.40
23	4.89	9.78	14.66	19.55	24.44	29.33	34.21	39.10
24	5.10	10.20	15.30	20.40	25.50	30.60	35.70	40.80
26	5.53	11.05	16.58	22.10	27.63	33.15	38.68	44.20
28	5.95	11.90	17.85	23.80	29.75	35.70	41.65	47.60
30	6.38	12.75	19.13	25.50	31.88	38.25	44.63	51.00
32	6.80	13.60	20.40	27.20	34.00	40.80	47.60	54.40
34	7.23	14.45	21.68	28.90	36.13	43.35	50.58	57.80
36	7.65	15.30	22.95	30.60	38.25	45.90	53.55	61.20
38	8.08	16.15	24.23	32.30	40.38	48.45	56.53	64.60
40	8.50	17.00	25.50	34.00	42.50	51.00	59.50	68.00
42	8.93	17.85	26.78	35.70	44.63	53.55	62.48	71.40
44	9.35	18.70	28.05	37.40	46.75	56.10	65.45	74.80
46	9.78	19.55	29.33	39.10	48.88	58.65	68.43	78.20
48	10.20	20.40	30.60	40.80	51.00	61.20	71.40	81.60
50	10.6	21.3	31.9	42.5	53.1	63.8	74.40	85.0
52	11.1	22.1	33.2	44.2	55.3	66.3	77.4	88.4
54	11.5	23.0	34.4	45.9	57.4	68.9	80.3	91.8
56	11.9	23.8	35.7	47.6	59.5	71.4	83.3	95.2
58	12.3	24.7	37.0	49.3	61.6	74.0	86.3	98.6
60	12.8	25.5	38.3	51.0	63.8	76.5	89.3	102.0
62	13.2	26.4	39.5	52.7	65.9	79.1	92.2	105.4
64	13.6	27.2	40.8	54.4	68.0	81.6	95.2	108.8
66	14.0	28.1	42.1	56.1	70.1	84.2	98.2	112.2
68	14.5	28.9	43.4	57.8	72.3	86.7	101.2	115.6
70	14.9	29.8	44.6	59.5	74.4	89.3	104.1	119.0
72	15.3	30.6	45.9	61.2	76.5	91.8	107.1	122.4
74	15.7	31.5	47.2	62.9	78.6	94.4	110.1	125.8
76	16.2	32.3	48.5	64.6	80.8	96.9	113.1	129.2
78	16.6	33.2	49.7	66.3	82.9	99.5	116.0	132.6
80	17.0	34.0	51.0	68.0	85.0	102.0	119.0	136.0
82	17.4	34.9	52.3	69.7	87.1	104.6	122.0	139.4
84	17.9	35.7	53.6	71.4	89.3	107.1	125.0	142.8



Properties of Australian "I" Beams

Reference Marks	Size ins. D x B	Wgt. per ft.	Sect. Area sq. in.	Moment of Inertia		Modulus of Section	
				About XX	About YY	About XX	About YY
ASB126	*24 x 7½	100	29.4	2581	63.55	215.1	16.68
	24 x 7½	95	27.9	2533	62.54	211.1	16.68
	24 x 7½	90	26.5	2443	60.44	203.6	16.12
ASB125	22 x 7	75	22.1	1677	41.07	152.4	11.73
ASB124	20 x 6½	65	19.1	1226	32.56	122.6	10.02
ASB123	18 x 6	55	16.2	842	23.64	93.5	7.88
	†16 x 8	75	22.1	973	68.30	121.7	17.08
ASB121	16 x 6	50	14.7	618	22.47	77.3	7.49
ASB120	15 x 6	45	13.2	492	19.87	65.6	6.62
ASB119	14 x 5½	40	11.8	377	14.79	53.9	5.38
ASB118	13 x 5	35	10.3	283	10.82	43.6	4.33
ASB117	12 x 8	65	19.1	488	65.18	81.3	16.30
ASB116	12 x 5	30	8.8	207	8.77	34.5	3.51
ASB115	10 x 8	70	20.6	345	71.61	69.0	17.90
ASB114	10 x 8	55	16.2	289	54.74	57.7	13.69
ASB113	10 x 6	40	11.8	205	21.76	41.0	7.25
ASB112	10 x 4½	25	7.4	122	6.49	24.5	2.88
ASB111	9 x 7	50	14.7	208	40.17	46.3	11.48
ASB110	9 x 4	21	6.2	81	4.15	18.0	2.07
ASB109	8 x 6	35	10.3	115	19.54	28.8	6.51
ASB108	8 x 4	18	5.30	55.6	3.506	13.91	1.753
ASB107	7 x 3½	15	4.42	35.9	2.408	10.26	1.376
ASB106	6 x 5	25	7.35	45.2	9.876	15.05	3.951
ASB105	6 x 3	12	3.53	20.99	1.461	7.00	.974
ASB104	5 x 2½	9	2.65	10.91	.789	4.36	.631
ASB103	4 x 3	10	2.94	7.79	1.326	3.89	.884
ASB102	4 x 1¾	5	1.47	3.66	.186	1.80	.210
	3 x 2½	5.7	1.69	2.55	.418	1.70	.358

* Nominal size, width about 7½ in.

† Not at present available.

Allowable Stresses in Steel

Material	Tensile	Bending	Shearing	Bearing
Rolled sections	20,200	22,400	14,600	26,900
Shop rivets	11,200	—	13,400	26,900
Field rivets	9,000	—	11,200	22,400
Fitted bolts	11,200 (min.)	—	13,400	26,900
Black bolts	11,200 (min.)	—	9,000	17,900
Cast steel	20,200	22,400	14,600	26,900
Cast iron	2,500	3,000	1,500	12,000

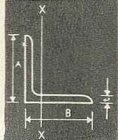
Lysaght Steel Sheets	Sunstar	Deep Drawing	C30	C60, C80
Ultimate Tensile tons/sq. in.	20-25	20-22	30-40	50-60
Yield point	14-18	12-14	20-28	30-40
% Elongation on 2 inches	20-25	36-44	10-15	10-15

ROLLED STEEL "I" BEAMS AS GIRDERS

SAFE DISTRIBUTED LOAD IN TONS, ABOUT AXIS XX

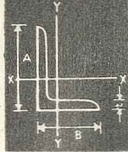
Size Inches	Weight per ft. lb	SPAN IN FEET																	Size Inches
		4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	36	40	
24 x 7½	100		205.0	178.5	142.5	119.0	102.0	89.2	79.2	71.4	64.8	59.5	54.8	51.0	47.5	44.6	39.7	35.7	24 x 7½
24 x 7½	95		182.0	175.0	140.0	117.0	100.0	87.6	78.0	70.2	63.3	58.5	54.0	50.2	46.8	43.9	39.1	35.1	24 x 7½
24 x 7½	90			165.3	135.3	112.6	96.4	84.4	75.0	67.4	61.5	56.2	51.9	48.1	45.0	42.2	37.4	33.7	24 x 7½
22 x 7	75		147.0	127.0	101.6	84.6	72.5	63.4	56.4	50.8	46.2	42.3	39.1	36.3	33.8	31.7	28.2	25.4	22 x 7
20 x 6½	65		120.0	101.8	81.4	67.8	58.1	50.8	45.1	41.7	37.0	33.8	31.2	29.0	27.1	25.4	22.6	20.3	20 x 6½
18 x 6	55		101.0	77.6	62.0	51.8	44.3	38.8	34.3	31.0	28.2	25.9	23.9	22.1	20.6	19.4	17.2	15.4	18 x 6
16 x 8	75		102.4	101.1	81.0	67.4	57.8	50.5	44.9	40.4	36.8	33.5	31.1	28.9	27.0	25.2	22.5	20.3	16 x 8
16 x 6	50		85.4	64.0	51.2	42.6	36.6	32.0	28.4	25.6	23.3	21.4	19.6	18.3	17.1	16.1	14.2	12.8	16 x 6
15 x 6	45		72.5	54.4	43.5	36.2	31.1	27.1	24.1	21.6	19.9	18.1	16.7	15.6	14.4	13.5	12.1	10.8	15 x 6
14 x 5½	40	69.1	59.3	44.6	35.6	29.7	25.5	22.3	19.8	17.8	16.2	14.8	13.7	12.7	11.8	11.1	9.8	8.8	14 x 5½
13 x 5	35	60.6	48.1	36.2	29.0	24.0	20.6	18.0	16.1	14.4	13.1	12.0	11.1	10.3	9.7	9.0	8.0	7.2	13 x 5
12 x 8	65		68.6	67.4	54.0	44.9	38.4	33.7	30.0	27.0	24.5	22.5	20.8	19.3	18.1	16.8	14.9	13.6	12 x 8
12 x 5	30	52.7	38.1	28.5	22.9	19.1	16.3	14.3	12.7	11.5	10.3	9.6	8.8	8.1	7.6	7.1	6.3	5.7	12 x 5
10 x 8	70	79.9	76.5	57.5	45.9	38.3	32.8	28.7	25.5	23.0	20.9	19.2	17.7	16.4	15.3	14.3			10 x 8
10 x 8	55		53.2	47.9	38.3	31.8	27.2	23.9	21.3	19.2	17.4	15.9	14.7	13.6	12.7	11.9			10 x 8
10 x 6	40	48.0	45.4	34.1	27.2	22.8	19.4	17.1	15.2	13.6	12.4	11.3	10.4	9.7	9.1	8.6			10 x 6
10 x 4½	25	40.4	27.0	20.3	16.2	13.6	11.6	10.1	9.0	8.1	7.5	6.7	6.2	5.7	5.4	5.1			10 x 4½
9 x 7	50		48.0	38.4	30.7	25.6	21.9	19.2	17.1	15.5	13.9	12.8	11.8	10.9	10.2				9 x 7
9 x 4	21	29.9	19.9	14.9	12.0	10.0	8.5	7.5	6.6	6.0	5.4	5.0	4.6	4.2					9 x 4
8 x 6	35	37.3	31.7	23.9	19.0	15.9	13.6	12.0	10.6	9.6	8.6	8.0	7.3	6.8					8 x 6
8 x 4	18	23.0	15.4	11.6	9.2	7.7	6.6	5.7	5.1	4.6	4.2	3.9	3.5	3.2					8 x 4
7 x 3½	15	17.1	11.3	8.5	6.8	5.7	4.9	4.2	3.7	3.4	3.1	2.9	2.6						7 x 3½
6 x 5	25	24.9	16.7	12.4	10.0	8.4	7.1	6.1	5.6	5.0	4.5								6 x 5
6 x 3	12	11.6	7.7	5.9	4.6	3.9	3.4	2.9	2.6	2.4									6 x 3
5 x 2½	9	7.2	4.9	3.6	2.9	2.4	2.0	1.7											5 x 2½
4 x 3	10	6.5	4.4	3.2	2.6	2.1	1.9	1.6											4 x 3
4 x 1¾	5	3.0	2.0	1.5	1.2	1.0	.9	.7											4 x 1¾

Equal Angles Properties



The tabulated values of section moduli for single angles, when used for the determination of bending stresses in angles, apply only to sections consisting of two angles back to back or toe to toe, for which twice the tabulated values are the section moduli.

Reference Number	Size A x B x t inches	Weight per ft. lb.	Sect. Area sq. in.	M. of I. about XX	Min. mod. of Sect. about XX	Reference Number	Size A x B x t inches	Weight per ft. lb.	Sect. Area sq. in.	M. of I. about XX	Min. mod. of Sect. about XX
ASEA 143	8 x 8 x 5/8	32.68	9.61	58.26	10.05	ASEA 121	2 1/2 x 3/16	3.10	0.92	0.53	0.29
" 144	8 x 8 x 3/4	38.89	11.44	68.58	11.94	" 122	2 1/2 x 1/4	4.04	1.19	0.68	0.38
" 145	8 x 8 x 7/8	45.00	13.24	78.44	13.77	" 123	2 1/2 x 5/16	4.98	1.46	0.83	0.47
" 146	8 x 8 x 1	51.01	15.00	87.85	15.55	" 124	2 1/2 x 3/8	5.90	1.73	0.96	0.55
ASEA 139	6 x 6 x 3/8	14.82	4.36	14.95	3.40	" 117	2 1/2 x 1/2	7.65	2.25	1.21	0.71
BSEA 113	6 x 6 x 7/16	17.19	5.05	17.22	3.95	ASEA 118	2 1/2 x 3/16	2.77	0.81	0.39	0.23
ASEA 140	6 x 6 x 1/2	19.55	5.75	19.48	4.49	" 119	2 1/2 x 1/4	3.61	1.06	0.49	0.30
ASEA 141	6 x 6 x 9/16	21.55	6.43	21.60	5.01	" 120	2 1/2 x 5/16	4.45	1.31	0.59	0.37
ASEA 142	6 x 6 x 5/8	24.17	7.11	23.73	5.54	" 121	2 1/2 x 3/8	5.26	1.55	0.69	0.44
" 143	6 x 6 x 3/4	28.69	8.44	27.74	6.54	ASEA 113	2 x 2 x 1/8	1.67	0.49	0.18	0.12
BSEA 113	6 x 6 x 7/8	33.04	9.72	31.40	7.50	" 114	2 x 2 x 3/16	2.43	0.72	0.26	0.18
" 138	6 x 6 x 1	37.40	11.00	35.06	8.45	" 115	2 x 2 x 1/4	3.19	0.94	0.34	0.24
ASEA 135	5 x 5 x 5/16	10.30	3.03	7.20	1.97	" 116	2 x 2 x 5/16	3.92	1.15	0.41	0.29
ASEA 136	5 x 5 x 3/8	12.28	3.61	8.53	2.35	" 117	2 x 2 x 3/8	4.62	1.36	0.47	0.34
" 137	5 x 5 x 1/2	16.16	4.75	11.04	3.08	ASEA 110	1 1/2 x 1/2 x 1/8	1.46	0.43	0.12	0.09
" 138	5 x 5 x 5/8	19.93	5.86	13.37	3.78	" 111	1 1/2 x 3/16	2.11	0.62	0.17	0.14
ASEA 132	4 x 4 x 5/16	8.17	2.40	3.61	1.24	" 112	1 1/2 x 1/4	2.76	0.81	0.22	0.18
" 133	4 x 4 x 3/8	9.72	2.86	4.26	1.48	" 113	1 1/2 x 5/16	3.39	1.00	0.26	0.22
" 134	4 x 4 x 1/2	12.75	3.75	5.46	1.93	" 114	1 1/2 x 3/8	4.02	1.18	0.31	0.26
BSEA 110	4 x 4 x 5/8	15.67	4.61	6.56	2.36	ASEA 107	1 1/2 x 1/8	1.23	0.36	0.07	0.07
ASEA 109	3 1/2 x 3 1/2 x 1/4	5.74	1.70	1.96	0.76	" 108	1 1/2 x 3/16	1.79	0.53	0.11	0.10
ASEA 129	3 1/2 x 3 1/2 x 5/16	7.11	2.09	2.38	0.94	" 109	1 1/2 x 1/4	2.34	0.69	0.13	0.13
" 130	3 1/2 x 3 1/2 x 3/8	8.45	2.48	2.80	1.12	" 110	1 1/2 x 5/16	2.85	0.84	0.16	0.16
" 131	3 1/2 x 3 1/2 x 1/2	11.05	3.25	3.57	1.46	ASEA 104	1 1/2 x 1/8	1.02	0.30	0.04	0.05
BSEA 109	3 1/2 x 3 1/2 x 5/8	13.55	3.98	4.27	1.77	" 105	1 1/2 x 3/16	1.48	0.43	0.06	0.07
" 125	3 x 3 x 3/16	3.73	1.10	0.93	0.42	" 106	1 1/2 x 1/4	1.91	0.56	0.07	0.09
ASEA 126	3 x 3 x 1/4	4.89	1.44	1.20	0.55	" 107	1 1/2 x 5/16	2.34	0.69	0.09	0.11
" 127	3 x 3 x 5/16	6.05	1.78	1.47	0.68	ASEA 101	1 x 1 x 1/8	0.80	0.23	0.02	0.03
" 128	3 x 3 x 3/8	7.17	2.11	1.72	0.81	" 102	1 x 1 x 3/16	1.15	0.34	0.03	0.04
" 129	3 x 3 x 1/2	9.35	2.75	2.18	1.05	" 103	1 x 1 x 1/4	1.49	0.44	0.04	0.05
" 130	3 x 3 x 5/8	11.42	3.36	2.59	1.27						



Unequal Angles Properties

The tabulated values of section moduli for single angles, when used for the determination of bending stresses in angles, apply only to sections consisting of two angles back to back or toe to toe, for which twice the tabulated values are the section moduli.

Reference Number	Size A x B x t inches	Wgt. per ft. lb.	Sect. Area inches	Min. mod. of Section		Reference Number	Size A x B x t inches	Wgt. per ft. lb.	Sect. Area inches	Min. mod. of Section	
				Abt. XX	Abt. YY					Abt. XX	Abt. YY
ASUA 124	6 x 4 x 3/8	13.54	3.98	3.82	1.95	BSUA 109	4 x 3 x 1/4	5.75	1.69	0.98	0.53
" 125	6 x 4 x 1/2	17.84	5.25	5.03	2.56	ASUA 111	3 x 3 x 1/4	7.11	2.09	1.20	0.71
" 126	6 x 4 x 5/8	22.04	6.48	6.21	3.16	BSUA 107	3 x 3 x 5/16	8.45	2.49	1.42	0.84
" 127	6 x 4 x 3/4	26.13	7.69	7.33	3.72	ASUA 112	4 x 3 x 3/8	9.83	2.89	1.63	0.96
ASUA 128	6 x 4 x 3/8	12.28	3.61	3.23	1.54	" 113	4 x 3 x 7/16	11.05	3.25	1.85	1.09
" 129	6 x 4 x 1/2	16.16	4.75	4.25	2.02	ASUA 109	4 x 3 x 1/2	13.55	3.98	2.26	1.33
" 130	6 x 4 x 5/8	19.93	5.86	5.23	2.48	ASUA 110	4 x 3 x 5/8	5.32	1.56	0.74	0.56
" 131	6 x 4 x 3/4	23.59	6.94	6.16	2.91	BSUA 106	3 x 3 x 5/16	6.58	1.93	0.92	0.69
" 132	6 x 4 x 7/8	27.10	7.98	7.10	3.38	ASUA 107	3 x 3 x 3/8	7.81	2.30	1.10	0.83
" 133	6 x 4 x 1	30.60	9.00	8.03	3.86	ASUA 108	3 x 3 x 1/2	10.20	3.00	1.42	1.07
BSUA 116	6 x 3 x 5/16	9.32	2.74	2.65	1.00	ASUA 109	3 x 3 x 5/8	12.49	3.67	1.73	1.30
ASUA 121	6 x 3 x 3/8	11.63	3.42	3.16	1.18	ASUA 110	3 x 3 x 1/2	3.74	1.10	0.56	0.30
BSUA 116	6 x 3 x 7/16	13.54	3.99	3.65	1.36	ASUA 107	3 x 2 x 3/16	4.89	1.44	0.73	0.39
ASUA 122	6 x 3 x 1/2	15.30	4.50	4.15	1.54	BSUA 106	3 x 2 x 1/4	6.05	1.78	0.90	0.49
" 123	6 x 3 x 5/8	18.86	5.55	5.11	1.89	ASUA 110	3 x 2 x 5/16	7.17	2.11	1.07	0.58
" 124	6 x 3 x 3/4	22.31	6.56	6.02	2.22	ASUA 107	3 x 2 x 3/8	9.35	2.75	1.39	0.73
ASUA 118	5 x 4 x 3/8	11.00	3.24	3.07	0.87	ASUA 108	3 x 2 x 1/2	3.40	1.00	0.42	0.30
" 119	5 x 4 x 1/2	14.45	4.25	4.06	1.14	BSUA 105	3 x 2 x 3/16	4.46	1.31	0.54	0.39
" 120	5 x 4 x 5/8	17.80	5.24	5.02	1.41	ASUA 104	3 x 2 x 1/4	5.51	1.62	0.67	0.48
ASUA 112	5 x 4 x 3/4	21.05	6.19	5.90	1.66	BSUA 104	3 x 2 x 5/16	6.54	1.92	0.79	0.56
ASUA 119	5 x 4 x 5/16	9.15	2.69	1.92	1.30	ASUA 106	3 x 2 x 1/2	8.50	2.50	1.02	0.72
" 120	5 x 4 x 3/8	11.00	3.24	2.28	1.52	BSUA 104	3 x 2 x 3/16	3.03	0.90	0.41	0.19
" 121	5 x 4 x 1/2	14.45	4.25	2.99	1.98	ASUA 105	3 x 2 x 1/4	4.04	1.19	0.52	0.25
" 122	5 x 4 x 5/8	17.80	5.24	3.67	2.43	BSUA 104	3 x 2 x 5/16	4.98	1.47	0.65	0.30
ASUA 117	5 x 4 x 3/4	21.05	6.19	4.35	2.88	ASUA 106	3 x 2 x 3/8	5.90	1.74	0.76	0.36
BSUA 112	5 x 3 x 1/4	6.60	1.94	1.48	0.59	ASUA 101	3 x 2 x 1/2	7.65	2.25	0.99	0.46
ASUA 116	5 x 3 x 5/16	8.17	2.40	1.83	0.72	ASUA 102	2 x 2 x 3/16	2.75	0.81	0.29	0.19
BSUA 112	5 x 3 x 3/8	9.72	2.86	2.18	0.85	ASUA 103	2 x 2 x 1/4	3.61	1.06	0.37	0.24
ASUA 117	5 x 3 x 7/16	11.30	3.33	2.52	0.98	ASUA 104	2 x 2 x 5/16	4.45	1.31	0.46	0.30
" 118	5 x 3 x 1/2	12.75	3.75	2.86	1.11	ASUA 104	2 x 2 x 3/8	5.26	1.55	0.54	0.35
" 119	5 x 3 x 5/8	15.67	4.61	3.50	1.36						

WEIGHTS AND AREAS OF SQUARE AND ROUND STEEL BARS

Thickness or diam. in inches	Weight in lb. of Square bar one foot long	Weight in lb. of Round bar one foot long	Area of Square Bar in inches	Area of Round Bar in inches	Circumfer- ence of Round bar in inches
3/16	.120	.094	.0352	.0276	.5891
1/4	.212	.167	.0625	.0491	.7854
5/16	.332	.261	.0977	.0767	.9818
3/8	.478	.376	.1406	.1104	1.1781
7/16	.651	.511	.1914	.1503	1.3745
1/2	.850	.668	.2500	.1963	1.5708
9/16	1.076	.945	.3164	.2485	1.7672
5/8	1.328	1.043	.3906	.3068	1.9635
11/16	1.607	1.262	.4727	.3712	2.1599
3/4	1.913	1.502	.5625	.4418	2.3562
13/16	2.245	1.763	.6602	.5185	2.5526
7/8	2.603	2.044	.7656	.6013	2.7489
15/16	2.988	2.347	.8789	.6903	2.9453
1	3.400	2.670	1.0000	.7854	3.1416
1 1/8	4.303	3.380	1.2656	.9940	3.5343
1 1/4	5.313	4.172	1.5625	1.2272	3.9270
1 3/8	6.428	5.049	1.8906	1.4849	4.3197
1 1/2	7.650	6.008	2.2500	1.7671	4.7124
1 5/8	8.978	7.051	2.6406	2.0739	5.1051
1 3/4	10.41	8.178	3.0625	2.4053	5.4978
1 7/8	11.95	9.388	3.5156	2.7612	5.8905
2	13.60	10.68	4.0000	3.1416	6.2832
2 1/8	15.35	12.06	4.5156	3.5466	6.6759
2 1/4	17.21	13.52	5.0625	3.9761	7.0686
2 3/8	19.18	15.06	5.6406	4.4301	7.4613
2 1/2	21.25	16.69	6.2500	4.9087	7.8540
2 5/8	23.43	18.40	6.8906	5.4119	8.2467
2 3/4	25.71	20.19	7.5625	5.9396	8.6394
2 7/8	28.10	22.07	8.2656	6.4918	9.0321
3	30.60	24.03	9.0000	7.0686	9.4248
3 1/4	35.92	28.21	10.563	8.2958	10.210
3 1/2	41.65	32.71	12.250	9.6211	10.996
3 3/4	47.82	37.55	14.063	11.045	11.781
4	54.40	42.73	16.000	12.566	12.566
4 1/4	61.41	48.24	18.063	14.186	13.352
4 1/2	68.85	54.07	20.250	15.904	14.137
4 3/4	76.71	60.25	22.563	17.721	14.923
5	85.00	66.76	25.000	19.635	15.708
5 1/2	102.9	80.78	30.250	23.758	17.279
6	122.4	96.13	36.000	28.274	18.850

One cubic foot of steel weighs 489.6 lb.

Areas and Circumferences of Circles in Inches

Dia. in ins.	Areas				Dia. in ins.	Circumferences			
	0 in.	$\frac{1}{4}$ in.	$\frac{1}{2}$ in.	$\frac{3}{4}$ in.		0 in.	$\frac{1}{4}$ in.	$\frac{1}{2}$ in.	$\frac{3}{4}$ in.
0	.0	.0490	.1963	.4417	0	.0	.7854	1.570	2.356
1	.7854	1.227	1.767	2.405	1	3.141	3.927	4.712	5.497
2	3.141	3.976	4.908	5.939	2	6.283	7.063	7.854	8.639
3	7.068	8.295	9.621	11.04	3	9.424	10.21	10.99	11.78
4	12.56	14.18	15.90	17.72	4	12.56	13.35	14.13	14.92
5	19.63	21.64	23.76	25.96	5	15.70	16.49	17.27	18.06
6	28.27	30.68	33.18	35.78	6	18.84	19.63	20.42	21.20
7	38.48	41.28	44.18	47.17	7	21.99	22.77	23.56	24.34
8	50.26	53.45	56.74	60.13	8	25.13	25.91	26.70	27.48
9	63.61	67.20	70.88	74.66	9	28.27	29.05	29.84	30.63
10	78.54	82.51	86.59	90.76	10	31.41	32.20	32.98	33.77
11	95.03	99.40	103.8	108.4	11	34.55	35.34	36.12	36.91
12	113.1	117.8	122.7	127.6	12	37.69	38.48	39.27	40.05
13	132.7	137.8	143.1	148.4	13	40.84	41.62	42.41	43.19
14	153.0	159.4	165.1	170.8	14	43.98	44.76	45.55	46.33
15	176.7	182.6	188.6	194.8	15	47.12	47.90	48.69	49.48
16	201.0	207.3	213.8	220.3	16	50.26	51.05	51.83	52.62
17	226.9	233.7	240.5	247.4	17	53.40	54.19	54.97	55.76
18	254.4	261.5	268.8	276.1	18	56.54	57.33	58.11	58.90
19	283.5	291.0	298.6	306.3	19	59.69	60.47	61.26	62.04
20	314.1	322.0	330.0	338.1	20	62.83	63.61	64.40	65.18
21	346.3	354.6	363.0	371.5	21	65.97	66.75	67.54	68.32
22	380.1	388.8	397.6	406.4	22	69.11	69.90	70.68	71.47
23	415.4	424.5	433.7	443.0	23	72.25	73.04	73.82	74.61
24	452.3	461.8	471.4	481.1	24	75.39	76.18	76.96	77.75
25	490.8	500.7	510.7	520.7	25	78.54	79.32	80.11	80.89
26	530.9	541.1	551.5	562.0	26	81.68	82.46	83.25	84.03
27	572.5	583.2	593.9	604.8	27	84.82	85.60	86.39	87.17
28	615.7	626.8	637.9	649.1	28	87.96	88.75	89.53	90.32
29	660.5	671.9	683.3	695.1	29	91.10	91.89	92.67	93.46
30	706.8	718.6	730.6	742.6	30	94.24	95.03	95.81	96.60
31	754.8	767.0	779.3	791.7	31	97.40	98.20	98.90	99.70
32	804.2	816.9	829.6	842.4	32	100.5	101.3	102.1	102.9
33	855.3	868.3	881.4	894.6	33	103.7	104.5	105.2	106.0
34	908.0	921.3	934.8	948.4	34	106.8	107.6	108.4	109.2
35	962.1	975.9	989.8	1003.8	35	110.0	110.7	111.5	112.3
36	1017.9	1032.1	1046.4	1060.7	36	113.1	113.8	114.6	115.5
37	1075.2	1089.8	1104.5	1119.2	37	116.2	117.0	117.8	118.6
38	1134.1	1149.3	1164.2	1179.3	38	119.4	120.2	121.0	121.7
39	1194.6	1210.0	1225.4	1241.0	39	122.5	123.3	124.1	124.8
40	1256.6	1272.4	1288.3	1304.2	40	125.7	126.4	127.2	128.0

WEIGHTS OF FLAT ROLLED STEEL

POUNDS PER LINEAL FOOT

Width inches	Thickness in Inches															
	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1
1	.053 .106 .159 .213	.106 .213 .319 .425	.159 .319 .478 .638	.213 .425 .638 .850	.27 .53 .80 1.06	.32 .64 .96 1.28	.37 .74 1.12 1.49	.43 .85 1.28 1.70	.48 .96 1.43 1.91	.53 1.06 1.59 2.13	.58 1.17 1.75 2.34	.64 1.28 1.91 2.55	.69 1.38 2.07 2.76	.74 1.49 2.23 2.98	.80 1.59 2.39 3.19	.85 1.70 2.55 3.40
2	.266 .319 .372 .425	.531 .638 .744 .850	.797 .956 1.116 1.275	1.063 1.275 1.488 1.700	1.33 1.59 1.86 2.13	1.59 1.91 2.23 2.55	1.86 2.23 2.60 2.98	2.13 2.55 2.98 3.40	2.39 2.87 3.35 3.83	2.66 3.19 3.72 4.25	2.92 3.51 4.09 4.68	3.19 3.83 4.46 5.10	3.45 4.14 4.83 5.53	3.72 4.46 5.21 5.95	3.98 4.78 5.58 6.38	4.25 5.10 5.95 6.80
3	.478 .531 .584 .638	.956 1.063 1.169 1.275	1.434 1.594 1.753 1.913	1.913 2.125 2.338 2.550	2.39 2.66 2.92 3.19	2.87 3.19 3.51 3.83	3.35 3.72 4.09 4.46	3.83 4.25 4.68 5.10	4.30 4.78 5.26 5.74	4.78 5.31 5.84 6.38	5.26 5.84 6.43 7.01	5.74 6.38 7.01 7.65	6.22 6.91 7.60 8.29	6.69 7.44 8.18 8.93	7.17 7.97 8.77 9.56	7.65 8.50 9.35 10.20
4	.691 .744 .797 .850	1.381 1.488 1.594 1.700	2.072 2.231 2.391 2.550	2.763 2.975 3.188 3.400	3.45 3.72 3.98 4.25	4.14 4.46 4.78 5.10	4.83 5.21 5.58 5.95	5.53 5.95 6.38 6.80	6.22 6.69 7.17 7.65	6.91 7.44 7.97 8.50	7.60 8.18 8.77 9.35	8.29 8.93 9.56 10.20	8.98 9.67 10.36 11.05	9.67 10.41 11.16 11.90	10.36 11.16 11.95 12.75	11.05 11.90 12.75 13.60
5	.903 .956 1.009 1.063	1.806 1.913 2.019 2.125	2.709 2.869 3.028 3.188	3.613 3.825 4.038 4.250	4.52 4.78 5.05 5.31	5.42 5.74 6.06 6.38	6.32 6.69 7.07 7.44	7.23 7.65 8.08 8.50	8.13 8.61 9.08 9.56	9.03 9.56 10.09 10.63	9.93 10.52 11.10 11.69	10.84 11.48 12.11 12.75	11.74 12.43 13.12 13.81	12.64 13.39 14.13 14.88	13.55 14.34 15.14 15.94	14.45 15.30 16.15 17.00
6	1.116 1.169 1.222 1.275	2.231 2.338 2.444 2.550	3.347 3.506 3.666 3.825	4.463 4.675 4.888 5.100	5.58 5.84 6.11 6.38	6.69 7.01 7.33 7.65	7.81 8.18 8.55 8.93	8.93 9.35 9.78 10.20	10.04 10.52 11.00 11.48	11.16 11.69 12.22 12.75	12.27 12.86 13.44 14.03	13.39 14.03 14.66 15.30	14.50 15.19 15.88 16.58	15.62 16.36 17.11 17.85	16.73 17.53 18.33 19.13	17.85 18.70 19.55 20.40

STRUCTURAL DATA

STRENGTH OF STEEL WIRE ROPES

Commercial ropes are made in the following qualities, breaking strains being quoted as percentage of the 100-110-ton rope list.

Black Best Patent (80/90 tons sq. in.)	80%
Galvanized Hawser (80/95 tons sq. in.)	85%
Black Special Patent (90/100 tons sq. in.)	90%
Special Plough (110/120 tons sq. in.)	110%

Other special qualities are available in both black and galvanized wire for mining, aircraft work, etc. When ropes are fitted with an independent wire rope core (I.W.R.C.), add 10% to the weight of rope shown and 7½% to the list breaking strains.

FACTORS OF SAFETY

Cranes (Hook Hoist, Grab Hoist, Derrick Fall, and Boom Lines)	6
Service Winch or Block Ropes	6
Shovels and Excavating Equipment	5 to 6 min.
Derrick Crane Guys	5
Logging Skylines, Main Cableways	4
Logging Spar Tree Guys and Stack Guys	3 to 4 min.
Incline Haulages	6 to 8 min.

ORDERING OF WIRE ROPES

When in doubt, the following rope characteristics should be provided to the ropemaker, accompanied, if possible, by a simple line sketch of the rope rigging, showing the size of sheaves, drums, and type of attachments.

Description of Rope	Example
1. Dimensions:	
(a) Length	3,000 ft.
(b) Circumference or diameter	3½" circ.
2. Construction:	
Number of strands	6
Number of wires per strand	x 19
Arrangement of wires in each strand	9/9/1
Lay: Direction and type	R.H.O.L.
Core: Steel or hemp	Hemp
Kind of fabrication	Preformed
3. Grade:	
Quality of steel (acid or basic)	Basic
Tensile strength of wire	Best Plough or 100/110 t.s.i.
4. Lubrication:	
Petroleum jelly, graphite, etc.	Graphite
5. Service:	
Type of equipment on which rope is to be used	Caterpillar Logging Winch

POINTS IN ROPE USAGE

1. Where conditions are very abrasive, use the coarsest rope construction compatible with reasonable flexibility over the sheaves and drums used, and in plough steel or special plough steel wire. Such ropes should be preformed.
2. Where the rope can be anchored at both ends to prevent rotation of the load, Langs Laid ropes are more capable of withstanding increased wear and bending life than Ordinary Lay ropes. These ropes also should be preformed.
3. Use ropes fitted with an I.W.R.C. when they are subjected to heavy loading over small sheaves and drums.
4. When working conditions are corrosive or are not conducive to ready and regular maintenance, use galvanized wire ropes.
5. Always seize ropes before cutting.
6. To obtain maximum life from ropes they should be kept well lubricated from the time they are installed.

SHEAVES AND DRUMS

Small sheaves and drums with bad-fitting grooves are responsible for considerable rope abuse, and care should be taken to check and true up sheave and drum grooving regularly.

The compactness of much modern rope-using equipment has resulted in the use of very small sheaves and drums, which produce heavy bending stresses and compression loads in the rope, and where possible the sheave sizes shown below should be used. The "critical" sheave size is accepted by ropemakers as being that below which long economical rope life cannot be expected.

SHEAVE AND DRUM DIAMETERS (D = dia. of rope)

Rope Constructions	Sheave diameter			Rope Constructions	Sheave diameter		
	Rec.	Min.	Crit.		Rec.	Min.	Crit.
6 x 7 (6/1)	72D	42D	28D	6 x 37 Seale	30D	19D	14D
6 x 9/9/1 Seale	54D	34D	22D	6 x 37 Filler	27D	18D	14D
6 x 19 Warr.	48D	27D	20D	6 x 41			
6 x 19 Filler	45D	24D	18D	8 x 9/9/1	36D	22D	16D
x 19 (12/6/1)	45D	24D	18D	6 x 7/3	72D	42D	28D
6 x 24 (15/9/J)	36D	22D	16D	Flattened			
x 37	30D	19D	14D	6 x 12/12/3	48D	32D	21D
(18/12/6/1)				Flat. Strand			

SHEAVE GROOVE SIZES

Rope dia. inches	Groove dia. Tolce.		Rope dia. inches	Groove dia. Tolce.	
	min.	max.		min.	max.
1/4 to 5/16	+1/64"	+1/32"	1-3/16 to 1 1/2	+1/16"	+1/8"
5/16 to 3/4	+1/32"	+1/16"	1-9/16 to 2 1/4	+3/32"	+3/16"
3/4 to 1 1/2	+3/64"	+3/32"	2-5/16 & larger	+1/8"	+1/4"

Example: Groove diameter for 1" diameter rope should be 1-3/64" minimum and 1-3/32" maximum.

GALVANIZED WIRE NETTING

STANDARD QUALITY

RABBIT		SHEEP AND DOG		POULTRY	
Size	Weight per 100 yds., lb.	Size	Weight per 100 yds., lb.	Size	Weight per 100 yds., lb.
12 x 1 $\frac{1}{4}$ x 17	63	30 x 3 x 17	59	36 x $\frac{1}{2}$ x 22	110
36 x 1 $\frac{1}{4}$ x 17	165	36 x 3 x 17	67	36 x 1 x 20	86
42 x 1 $\frac{1}{4}$ x 17	183	36 x 3 x 16	89	36 x 2 x 19	60
12 x 1 $\frac{1}{2}$ x 17	55	30 x 4 x 17	48	72 x 2 x 19	114
36 x 1 $\frac{1}{2}$ x 17	138	36 x 4 x 17	57	—	—
42 x 1 $\frac{1}{2}$ x 17	160	36 x 4 x 16	73	—	—

DRIED FRUIT RACK AND FISH NETTING

36 x 2 x 17	106	60 x 2 x 17	158	36 x 2 x 16	136
48 x 2 x 17	138	72 x 2 x 17	190	72 x 2 x 16	252

NAILS

APPROXIMATE NUMBER PER LB.

Size	No. per lb.	Size	No. per lb.	Size	No. per lb.
1" x 16G	1080	2" x 11G	158	3" x 9G	67
1" x 15G	840	2" x 10G	120	3" x 8G	60
1" x 14G	723	2" x 9G	100	3" x 7G	48
1 $\frac{1}{2}$ " x 14G	460	2 $\frac{1}{2}$ " x 13G	200	3" x 6G	39
1 $\frac{1}{2}$ " x 13G	340	2 $\frac{1}{2}$ " x 12G	150	3 $\frac{1}{2}$ " x 8G	44
1 $\frac{1}{2}$ " x 12G	240	2 $\frac{1}{2}$ " x 11G	130	3 $\frac{1}{2}$ " x 7G	40
1" x 11G	206	2 $\frac{1}{2}$ " x 10G	100	4" x 7G	35
2" x 14G	280	2 $\frac{1}{2}$ " x 9G	80	4" x 6G	30
2" x 13G	230	2 $\frac{1}{2}$ " x 8G	65	5" x 5G	21
2" x 12G	190	3" x 10G	81	6" x 4G	13

FENCE AND BALING WIRES**LENGTH PER CWT. — BREAKING STRAIN**

Gauge	Length per cwt. (yds.)	Approx. weight in lb. (per mile)	Approx. Breaking Strain in lb.	
			Fence Std. Galv.	Baling Self-coloured
8	564	360	15.76	—
9	675	292	—	912
10	854	231	1008	—
12	1293	152	—	475
14	2186	90	—	281
		High Tensile		
12½	1500	135	850	Standard

STRUCTURAL DATA

QUANTITY OF WIRE PER MILE OF FENCING

No. of Wires	Gauge								
	8			10			12½ High-tensile		
	Cwt.	Qr.	Lb.	Cwt.	Qr.	Lb.	Cwt.	Qr.	Lb.
1	3	1	0	2	0	14	1	0	14
2	6	1	14	4	0	14	2	1	14
3	2	2	14	6	1	0	3	2	0
4	12	3	14	8	1	0	4	2	14
5	16	0	14	10	1	14	5	3	14
6	19	1	0	12	1	14	7	0	0

STEEL POSTS — "STAR" PATTERN

Spacings of Posts in feet	No. of Posts per mile	Approximate weight per mile					
		5' 6" lengths			6' 0" lengths		
		Cwt.	Qr.	Lb.	Cwt.	Qr.	Lb.
8	660	45	1	14	49	2	0
9	586	40	1	0	43	3	14
10	528	36	1	0	39	2	0
11	480	33	0	0	36	0	0
12	440	30	1	0	33	0	0
15	352	24	1	0	26	1	14
18	293	20	0	14	22	0	0

STRENGTH OF VARIOUS NON-FERROUS METALS & ALLOYS

Average values for strength based on test data from various testing laboratories. Data are lacking for values of strength in compression. In the absence of such data, a safe practice would be to consider the ultimate in compression as having a value equal to the elastic limit in tension.

Metal	Approximate Composition, per cent.	Weight lb. per cu. in.	Strength in Tension, lb./sq. in.	
			Elastic limit	Ultimate
Copper, cast	Copper, 100	0.310	8,000	25,000
Hard drawn		0.321	30,000	40,000
Zinc, cast	Zinc, 100	0.256	—	9,000
Rolled		0.260	4,000	24,000
Lead, Rolled	Lead, 100	0.411	800	*2,700
Lead alloy, cast ..	Lead, 95.5, anti-mony, 4.5	0.380	4,000	6,400
Nickel, rolled and annealed	Nickel, 100	0.340	12,000	70,000
Cold-rolled		0.340	70,000	165,000
Aluminium, cast ..	Aluminium, 100 ..	0.093	—	13,000
Rolled and annealed		0.097	8,500	14,000
Cold-rolled		0.097	20,000	30,000
Hard-drawn wire ..		0.097	30,000	40,000
Duralumin, rolled and heat-treated	Aluminium, 96; magnesium, 1.5; copper, 2.5	0.102	19,000	55,000
60-40 Brass, cast ..	Copper, 60; zinc, 40 ..	0.310	12,000	35,000
Rolled and annealed		0.310	16,000	60,000
Cold-drawn		0.310	43,000	96,000
Phosphor bronze, cast	Copper, 95; tin, 5; phosphorus, trace ..	0.320	16,000	32,000
Rolled and annealed		0.320	13,000	46,000
Cold-drawn		0.320	60,000	85,000
Aluminium-bronze, Cast	Copper, 90; aluminium, 10 ..	0.270	25,000	60,000
Hot-rolled		0.270	30,000	70,000
Cold-drawn		0.270	80,000	90,000
Manganese-bronze, Cast	Copper, 60; zinc, 39; iron and manganese, 1 ..	0.30	30,000	70,000
Rolled		0.30	45,000	70,000
Monel Metal, hot-rolled	Nickel, 67; copper, 28; iron, silicon, carbon and manganese, 5	0.32	48,000	88,000
Cold-rolled and annealed		0.32	60,000	110,000

* Under long-continued static load lead will flow very slowly under stresses as low as 600 lb. per sq. in.

TINPLATE GAUGE TABLE

Wt. of Basis box (31,360 sq. in.) lb.	Index or name	Thickness: based on 40.8 lb. sq. ft.		Thickness: based on 41.82 lb. sq. ft.		Nearest gauge No. B.G. std. sheet gauge
		Inch	Mm.	Inch	Mm.	
50 } 55 } 60 }	Taggers	0.00563 0.00619 0.00675	0.143 0.157 0.172	0.00549 0.00604 0.00659	0.139 0.153 0.167	36.7 35.9 35.2
65 } 70 } 75 } 80 } 85 } 90 } 95 }	Lights	0.00732 0.00788 0.00844 0.00900 0.00957 0.0101 0.0107	0.186 0.200 0.214 0.229 0.243 0.257 0.272	0.00714 0.00769 0.00824 0.00878 0.00933 0.00988 0.0104	0.181 0.195 0.209 0.223 0.237 0.251 0.265	34.5 33.8 33.3 32.7 32.2 31.8 31.3
100 108 110 112	CL or ICL IC "Common substance"* "112 lb."	0.0113 0.0122 0.0124 0.0126	0.286 0.309 0.314 0.320	0.0110 0.0119 0.0121 0.0123	0.279 0.301 0.307 0.312	30.7 30.1 29.9 29.8
118 122 125 136	IXL or XL IX or X ²	0.0133 0.0137 0.0141 0.0153	0.337 0.349 0.357 0.389	0.0130 0.0134 0.0137 0.0149	0.329 0.340 0.349 0.379	29.3 29.1 28.9 28.2
139 156 156	DC 2X or XX SDC	0.0156 0.0176 0.0176	0.397 0.446 0.446	0.0153 0.0171 0.0171	0.388 0.435 0.435	28.0 26.9 26.9
176 176	3X or XXX SDX	0.0198 0.0198	0.503 0.503	0.0193 0.0193	0.491 0.491	25.9 25.9
180 196 196	DX 4X or XXXX SDXX	0.0203 0.0221 0.0221	0.515 0.560 0.560	0.0198 0.0215 0.0215	0.502 0.547 0.547	25.7 25.0 25.0
216 216	5X or XXXXX SDXXX	0.0243 0.0243	0.617 0.617	0.0237 0.0237	0.602 0.602	24.2 24.2
236 236	6X or XXXXXX SDXXXX	0.0266 0.0266	0.675 0.675	0.0259 0.0259	0.658 0.658	23.4 23.4
240 256	D3X or DXX 7X or XXXXXXX	0.0270 0.0288	0.686 0.732	0.0264 0.0281	0.669 0.714	23.3 22.7

*Standard size 28" x 20"—112 sheets per double box.

COPPER—SHEET AND STRIP

GENERAL.—1. Types available: High Conductivity, Commercial, De-oxidised, Arsenical.

2. Finishes available: Hard (Cold) Rolled; Semi, Medium or Half Hard (Cold) Rolled; Soft (Cold) Rolled; Hot (Soft) Rolled.

TRADE SIZES.—Sheets: 26G and heavier (48" x 14" sheathing), 4' x 2', 6' x 2', 6' x 2' 6", 6' x 3', 8' x 3', 6' x 4', 8' x 4', according to gauge.

Strip: .002" and heavier, 5/16" to 15" wide (special manufacture).

WEIGHT PER SQUARE FOOT.—It is customary to order copper sheets by the Imperial Standard Wire Gauge or by weight in pounds and ounces per square foot. A table showing the weight per square foot equivalents to the various gauge numbers, calculated on the assumption that one square foot of rolled copper, 1 inch in thickness, weighs 46½ lb., is detailed below.

I.S.W.G. No.	Decimal of inch	Wt. per sq. ft. in lbs.	Equiv. per sq. ft. in lbs.	I.S.W.G. No.	Decimal of inch	Wt. per sq. ft. in lbs.	Equiv. per sq. ft. in oz.
7/0	.500	23.25	—	23	.024	1.116	18
6/0	.464	21.57	—	24	.022	1.023	16
5/0	.432	20.08	—	25	.020	.930	14
4/0	.400	18.60	—	26	.018	.837	13
3/0	.372	17.29	—	27	.0164	.762	12
2/0	.348	16.18	—	28	.0148	.688	11
0	.324	15.06	—	29	.0136	.632	—
1	.300	13.950	—	30	.0124	.576	9
2	.276	12.834	—	31	.0116	.539	—
3	.252	11.718	—	32	.0108	.502	8
4	.232	10.788	—	33	.0100	.465	—
5	.212	9.858	10	34	.0092	.428	—
6	.192	8.928	9	35	.0084	.391	—
7	.176	8.184	8	36	.0076	.353	—
8	.160	7.440	7½	37	.0068	.316	—
9	.144	6.696	—	38	.0060	.279	—
10	.128	5.952	6	39	.0052	.242	—
11	.116	5.394	—	40	.0048	.223	—
12	.104	4.836	5	41	.0044	.205	—
13	.092	4.278	4½	42	.0040	.186	—
14	.080	3.720	3¾	43	.0036	.167	—
15	.072	3.348	—	44	.0032	.149	—
16	.064	2.976	3	45	.0028	.130	—
17	.056	2.604	2½	46	.0024	.112	—
18	.048	2.232	2¼	47	.0020	.093	—
19	.040	1.860	2	48	.0016	.074	—
20	.036	1.674	1¾	49	.0012	.056	—
21	.032	1.488	1½	50	.0010	.047	—
22	.028	1.302	1¼				

BRASS—SHEET AND STRIP

GENERAL.—1. Commercial Brass is made in three grades: 7/30 (Deep Drawing); 65/35; 63/37 (Basis Brass).

2. Finishes available: Soft (Cold) Rolled; Semi, Medium or Half Hard (Cold) Rolled; Hard (Cold) Rolled; Extra Hard (Strip only).

TRADE SIZES.—Sheets: 26 gauge and heavier—4' x 2', 6' x 2', 6' x 2' 6", 6' x 3'. Strip: .002" and heavier—5/16" to 15" wide (special manufacture).

WEIGHT PER SQUARE FOOT.—The weight per square foot of rolled brass varies slightly with the composition of the alloy. For the basis of all calculations the figure used is that one square foot of rolled brass weighs 44½ lb. per square foot one inch in thickness.

I.S.W.G. No.	Decimal of an inch	Weight per sq. ft. in lb.	I.S.W.G. No.	Decimal of an inch	Weight per sq. ft. in lb.
7/0	.500	22.250	23	.024	1.068
6/0	.464	20.648	24	.022	.979
5/0	.432	19.224	25	.020	.890
4/0	.400	17.800	26	.018	.801
3/0	.372	16.540	27	.0164	.729
2/0	.348	15.486	28	.0148	.658
0	.324	14.418	29	.0136	.605
1	.300	13.350	30	.0124	.551
2	.276	12.282	31	.0116	.516
3	.252	11.214	32	.0108	.480
4	.232	10.324	33	.0100	.445
5	.212	9.434	34	.0092	.409
6	.192	8.544	35	.0084	.373
7	.176	7.832	36	.0076	.338
8	.160	7.120	37	.0068	.302
9	.144	6.408	38	.0060	.267
10	.128	5.696	39	.0052	.231
11	.116	5.162	40	.0048	.213
12	.104	4.628	41	.0044	.195
13	.092	4.094	42	.0040	.178
14	.080	3.560	43	.0036	.160
15	.072	3.204	44	.0032	.142
16	.064	2.848	45	.0028	.124
17	.056	2.492	46	.0024	.106
18	.048	2.136	47	.0020	.089
19	.040	1.780	48	.0016	.071
20	.036	1.602	49	.0012	.053
21	.032	1.424	50	.0010	.044
22	.028	1.246	—	—	—

OTHER COPPER ALLOYS ARE—Gilding Metal (four grades), 90/10, 88/12, 85/15, 80/20 (Sheet and Strip); Nickel Silver, 10% (Sheet and Strip), 15%, 18%, 20% (Strip only); Engraving Brass (free cutting), Sheet and Strip; Naval Brass (improved Muntz Metal), Sheets and Sheathing; Phosphor Bronze (Strip only).

ZINC AND ZINC SHEET

Zinc is manufactured in Australia, and is sold by the ton in the form of slabs weighing approximately 56 lb. each. Zinc can normally be obtained in the form of plates, sheets, and strip.

WEIGHT OF SHEET ZINC

Gauge	Approx. Thickness		Approx. weight per sq. ft.			Approx. weight of Sheets					
						6' x 3'		7' x 3'		8' x 3'	
	In.	Mm.	Lb.	Oz.	Drms.	Lb.	Oz.	Lb.	Oz.	Lb.	Oz.
3	.007	.171	0	3	15	4	6	5	2	5	14
4	.008	.209	0	4	13	5	6	6	5	7	3
5	.010	.247	0	5	11	6	6	7	7	8	8
6	.011	.291	0	6	11	7	8	8	12	10	0
7	.013	.337	0	7	12	8	11	10	2	12	10
8	.015	.386	0	8	14	9	15	11	10	13	5
9	.018	.450	0	10	5	11	9	13	8	15	7
10	.020	.500	0	11	7	12	13	15	0	17	2
12	.026	.660	0	15	2	17	0	19	13	22	11
14	.032	.820	1	2	12	21	1	24	9	28	2
16	.043	1.080	1	8	12	27	13	32	7	37	2
18	.053	1.340	1	14	11	34	8	40	4	46	0
20	.063	1.600	2	4	10	41	3	48	1	54	15
22	.077	1.960	2	12	14	50	7	58	14	67	5
24	.091	2.320	3	5	3	59	13	69	12	79	12
26	.105	2.680	3	13	7	69	1	80	10	92	2

PROCESS ENGRAVERS' ZINC

Process engravers' zinc is supplied in 40" x 20" plates, polished on one side, and in 8, 10, 12, 14 and 16 I.S.W.G. The following table gives weights of these standard sizes of plates.

40" x 20" x	8G	10G	12G	14G	16G
Weight of plate	33 lb.	26½ lb.	22 lb.	16½ lb.	13 lb.
No. of Plates/Case ..	14	18	22	30	36

LEAD AND LEAD SHEET

WEIGHT PER SQUARE FOOT

Thick	Lb.	Thick	Lb.	Thick	Lb.
1/16"	3.7	7/16"	25.9	3/4"	44.7
1/8"	7.4	1/2"	29.5	13/16"	48.3
3/16"	11.1	9/16"	33.2	7/8"	51.0
1/4"	14.8	5/8"	36.9	15/16"	55.1
5/16"	18.5	11/16"	40.6	1"	59.4
3/8"	22.2				

STANDARD SIZES (20' and 30' lengths)

Sheet Lead.—Widths: 2' 6", 3', 3' 9", 5', 7' 6"; weights: 3 lb./sq. ft. and heavier.

Dampcourse.—Widths: 4½", 6", 9", 12", 14", 18"; weights: 2, 3, 4, 5 and 6 lb./sq. ft.

MONEL METAL AND NICKEL

WEIGHTS OF ROUNDS, SQUARES, AND HEXAGONS

Size in inches	Lb. per foot			Size in inches	Lb. per foot		
	Rounds	Squares	Hexs.		Rounds	Squares	Hexs.
7/32	.146	—	—	2	12.178	15.504	13.426
1/4	.190	—	.209	2 1/8	13.747	17.503	15.156
5/16	.297	.379	.327	2 1/4	15.411	19.622	16.991
3/8	.428	.545	.472	2 3/8	17.171	21.863	18.921
7/16	.583	.742	.643	2 1/2	19.027	24.225	20.977
1/2	.761	.969	.839	2 5/8	20.977	26.708	23.127
9/16	.963	1.226	1.062	2 3/4	23.022	29.312	25.382
5/8	1.189	1.514	1.311	2 7/8	25.162	32.038	27.741
11/16	1.439	1.832	1.586	3	27.399	34.884	30.207
3/4	1.712	2.180	1.887	3 1/4	32.155	40.940	35.451
13/16	2.010	2.559	2.216	3 1/2	37.291	47.481	41.113
7/8	2.331	2.968	2.570	3 3/4	42.810	54.506	47.198
15/16	2.766	3.407	2.940	4	48.706	62.016	53.698
1	3.044	3.876	3.356	4 1/4	54.985	70.010	60.621
1-1/16	3.436	4.376	3.778	4 1/2	61.644	78.489	67.963
1-1/8	3.853	4.906	4.248	4 3/4	68.714	87.452	75.757
1-3/16	4.293	5.466	4.733	5	76.105	96.900	83.906
1-1/4	4.756	6.056	5.243	5 1/4	83.908	106.832	92.509
1-5/16	5.244	6.677	5.782	5 1/2	92.086	117.249	101.525
1-3/8	5.756	7.328	6.346	5 3/4	100.648	128.150	110.964
1-7/16	6.291	8.009	6.934	6	109.590	139.536	120.823
1-1/2	6.849	8.721	7.551	6 1/4	118.916	151.406	131.105
1-9/16	7.432	9.463	8.194	6 1/2	128.617	163.761	141.800
1-5/8	8.039	10.235	8.863	6 3/4	138.703	176.600	152.910
1-11/16	8.669	11.038	9.558	7	149.168	189.924	164.458
1-3/4	9.321	11.870	10.276	7 1/4	160.009	203.733	176.410
1-13/16	10.001	12.733	11.026	7 1/2	171.238	218.025	188.790
1-7/8	10.702	13.627	11.799	7 3/4	182.843	232.802	201.584
1-15/16	11.428	14.550	12.599	8	194.827	248.064	214.797

ALUMINIUM

	Alloy and Temper	U.T.S. lb./sq. in.	Elonga- tion % on 2"	Description
Sheet	2S-O	12,000	35	{ Commercially pure aluminium, used where strength not im- portant.
	2S-H14	17,000	9	
	3S-O	15,500	35	{ Aluminium alloyed with mangan- ese, used where medium strength is required with formability and resistance to corrosion.
	3S-H14	21,000	8	
	3S-H18	30,000	4	
	M57S-O	26,500	24	{ Aluminium alloyed with magnesium and manganese, used where high strength and corrosion- resistance are required.
	M57S-H34	34,000	9	
	M57S-H38	39,000	7	
Extrusions	2S-F	12,000	35	{ Commercially pure aluminium, strength unimportant.
	50S-T5	26,000	18	{ Aluminium alloyed with silicon and manganese, medium strength.
	51S-T5	44,000	12	{ Aluminium alloyed with silicon and manganese, high strength.

WEIGHT PER SQUARE FOOT

I.S.W.G.	Decimals of an inch	Weight per sq. ft. lb.	I.S.W.G.	Decimals of an inch	Weight per sq. ft. lb.
—	.500	7.042	12	.104	1.465
—	.4375	6.161	14	.080	1.127
—	.375	5.281	16	.064	0.9013
—	.3125	4.401	18	.048	0.6760
—	.250	3.521	19	.040	0.5633
—	.187	2.641	20	.036	0.5070
8	.160	2.253	22	.028	0.394
10	.128	1.803	24	.022	0.3098
—	.125	1.760	26	.018	0.2535



Extruded Flat Brass Sections

Dimensions, ins.		Est. Wght. per ft. in lb.	Dimensions, ins.		Est. Wght. per ft. in lb.	Dimensions, ins.		Est. Wght. per ft. in lb.
A	B		A	B		A	B	
3-3/4	3/4	10.268	1-1/2	1/16	.342	3/4	5/8	1.71
3-9/16	.35	4.549	1-3/8	7/8	4.389	3/4	1/2	1.368
3-1/2	1/2	6.384	1-3/8	1/2	2.508	3/4	3/8	1.026
3	3/4	8.216	1-3/8	3/8	1.881	3/4	5/16	.855
3	1/4	2.736	1-3/8	3/16	.94	3/4	1/4	.684
2-13/16	.95	9.747	1-3/8	1/8	.627	3/4	3/16	.513
2-3/4	5/16	3.135	1-5/16	9/16	2.692	3/4	1/8	.342
2-1/2	3/8	3.42				3/4	1/16	.171
2-3/8	1/2	4.332	1-1/4	1	4.561	11/16	1/8	.314
2-1/4	7/8	7.182	1-1/4	3/4	3.421	5/8	1/2	1.14
2-1/4	1/4	2.052	1-1/4	5/8	2.85	5/8	3/8	.855
2-1/8	1/2	3.876	1-1/4	1/2	2.281	5/8	1/4	.57
2	1	7.296	1-1/4	3/8	1.71	5/8	3/16	.427
2	1/2	3.648	1-1/4	1/4	1.14	5/8	1/8	.285
2	7/16	3.192	1-1/4	3/16	.855	9/16	5/16	.64
2	3/8	2.736	1-1/4	1/8	.57	1/2	3/8	.684
2	1/4	1.824	1-1/4	3/16	.285	1/2	5/16	.570
2	3/16	1.368	1-1/8	1/2	2.052	1/2	1/4	.456
2	1/8	.912	1-1/8	1/4	1.026	1/2	3/16	.342
1-3/4	1-1/8	7.182	1-1/8	7/32	.898	1/2	1/8	.228
1-3/4	1	6.384	1-1/8	3/16	.77	1/2	1/16	.114
1-3/4	1/4	1.596				7/16	3/8	.599
1-3/4	1/8	.798	1	7/8	3.192	3/8	5/16	.428
1-1/2	1-1/4	6.840	1	3/4	2.736	3/8	1/4	.342
1-1/2	1	5.472	1	5/8	2.28	3/8	3/16	.256
1-1/2	3/4	4.108	1	1/2	1.824	3/8	1/8	.171
1-1/2	1/2	2.736	1	3/8	1.368	3/8	7/64	.149
1-1/2	3/8	2.052				3/8	1/16	.085
1-1/2	1/4	1.368	7/8	3/4	2.394	11/32	17/64	.334
1-1/2	3/16	1.026	7/8	5/8	1.995	5/16	1/4	.285
1-1/2	1/8	.684	7/8	1/2	1.596	5/16	3/32	.107
			13/16	1/2	1.482	1/4	5/64	.081
						1/4	3/16	.171
						1/4	1/8	.114
						1/4	.075	.068
						3/16	1/8	.085

NON-FERROUS METALS

Brass and Copper—Rods and Bars

WEIGHT PER LINEAL FOOT—LB.

SQUARE

ROUND

Side inches	Brass	Copper	Dia. in inches	Brass	Copper
1/8	.057	.06	1/8	.045	.047
3/16	.128	.135	3/16	.101	.106
1/4	.228	.240	1/4	.179	.189
5/16	.357	.376	5/16	.280	.294
3/8	.513	.541	3/8	.403	.424
7/16	.699	.736	7/16	.549	.578
1/2	.913	.962	1/2	.717	.755
9/16	1.15	1.21	9/16	.91	.955
5/8	1.43	1.51	5/8	1.12	1.18
11/16	1.73	1.82	11/16	1.35	1.43
3/4	2.05	2.16	3/4	1.61	1.70
13/16	2.41	2.54	13/16	1.89	1.99
7/8	2.80	2.95	7/8	2.19	2.31
15/16	3.21	3.38	15/16	2.52	2.65
1	3.65	3.85	1	2.87	3.02
1-1/8	4.62	4.87	1-1/8	3.63	3.83
1-1/4	5.70	6.01	1-1/4	4.48	4.73
1-3/8	6.90	7.27	1-3/8	5.42	5.72
1-1/2	8.21	8.65	1-1/2	6.45	6.80
1-5/8	9.64	10.16	1-5/8	7.57	7.99
1-3/4	11.18	11.78	1-3/4	8.78	9.26
1-7/8	12.83	13.52	1-7/8	10.08	10.63
2	14.60	15.39	2	11.47	12.10
2-1/8	—	—	2-1/8	12.94	13.66
2-1/4	—	—	2-1/4	14.51	15.31
2-3/8	—	—	2-3/8	16.17	17.06
2-1/2	—	—	2-1/2	17.92	18.90

Whitworth Standard Hexagon Sizes

Associa- tion	Across flats min. to max.		Lb. per lin. ft.	Standard		Across flats min. to max.		Lb. per lin. ft.
				Whit.	Fine			
No. 3	ins. .279	ins. .282	.251	ins. 1/2	ins. 9/16	ins. .915	ins. .920	2.68
No. 2	.321	.324	.332	9/16	5/8	1.002	1.010	3.22
No. 1	.362	.365	.421	5/8	11/16	1.092	1.100	3.82
No. 0	.410	.413	.539	11/16	3/4	1.192	1.200	4.55
Standard				3/4	7/8	1.292	1.300	5.34
				7/8	1	1.468	1.480	6.92
Whit.	Fine			1	1-1/8	1.658	1.670	8.81
ins.	ins.			1-1/8	1-1/4	1.845	1.860	10.94
—	7/32	.410	.413	1-1/4	1-3/8	2.035	2.050	13.29
—	1/4	.440	.445	1-3/8	1-1/2	2.200	2.220	15.58
1/4	5/16	.520	.525	1-1/2	1-5/8	2.390	2.410	18.36
5/16	3/8	.595	.600	1-5/8	1-3/4	2.555	2.580	21.03
3/8	7/16	.705	.710	1-3/4	2	2.735	2.760	24.07
7/16	1/2	.815	.820	2	—	3.125	3.150	31.35

NON-FERROUS WIRE

WEIGHT PER 100 FEET IN POUNDS

Thickness Inches	I.S.W.G.	Copper or Bronze	-Brass or Muntz	Alumin- ium	Nickel Silver	Monel Metal or Nickel
0.5	7/0	75.7	71.9	22.93	74.1	76.1
0.372	3/0	41.9	39.8	12.77	41	42.76
0.324	0	31.8	30.2	7.63	31.1	31.9
0.276	2	23.1	21.9	7.00	22.6	23.16
0.252	3	19.2	18.3	5.83	18.8	19.20
0.232	4	16.3	15.5	4.96	15.9	16.37
0.192	6	11.2	10.6	3.4	10.9	11.18
0.160	8	7.75	7.36	2.35	7.58	7.77
0.128	10	4.96	4.71	1.53	4.85	4.98
0.104	12	3.27	3.11	0.99	3.20	3.28
0.080	14	1.94	1.84	0.66	1.9	1.93
0.064	16	1.24	1.18	0.377	1.21	1.25
0.048	18	0.698	0.663	0.212	0.682	0.695
0.036	20	0.392	0.373	0.119	0.384	0.387
0.028	22	0.237	0.226	0.072	0.232	0.238
0.022	24	0.146	0.139	0.044	0.143	0.147
0.018	26	0.0981	0.0932	0.0297	0.096	0.098
0.0148	28	0.0663	0.0630	0.0201	0.0649	0.066
0.0124	30	0.0465	0.0442	0.0141	0.0455	0.046
0.0108	32	0.0353	0.0336	0.0108	0.0345	0.035
0.0092	34	0.0256	0.0243	0.0077	0.0250	0.025
0.0076	36	0.0175	0.0166	0.0053	0.0171	0.017

C.M.A. Cables—Single V.I.R., Braided and Compounded

Nominal area in sq. in.	No. and dia. of wires in ins.	Overall dia. in inches		Weight per 100 yds. in lb.		Rating Current SAA Wiring Rules in Amps.	Stand. Resist. (ohms) per 1000 yds. @ 60°F.
		660V	250V	660V	250V		
.0015	1/.044	.205	.150	7	5	8	15.79
.002	3/.029	.225	.175	8	6	10	12.36
.003	1/.064	.230	.175	10	7	15	8.019
.003	3/.036	.245	.195	10	8	15	7.463
.0045	7/.029	.265	.205	13	10	20	5.281
.007	7/.036	.290	.230	17	14	27	3.427
.010	7/.044	.315	.280	23	20	35	2.294
.0145	7/.052	.340	.310	29	27	45	1.643
.0225	7/.064	.380	.355	41	38	55	1.084
.03	19/.044	.410	.390	50	48	65	0.8468

Weight of Drawn Copper Bars

STANDARD RECTANGULAR SIZES

POUNDS PER LINEAL FOOT

Size ins.	Pounds	Size ins.	Pounds	Size ins.	Pounds
1 — x 16	$\frac{1}{16}$.1206	1	1.447	1	2.894
	$\frac{1}{8}$.1507	$1\frac{1}{4}$ 1.809	$1\frac{1}{4}$ 3.617		
	$\frac{3}{16}$.1809	$1\frac{1}{2}$ 2.170	$1\frac{1}{2}$ 4.341		
	$\frac{1}{4}$.2110	$1\frac{3}{4}$ 2.532	$1\frac{3}{4}$ 5.064		
	$\frac{5}{16}$.2412	2 2.894	2 5.788		
	$\frac{3}{8}$.3014	$2\frac{1}{4}$ 3.256	$2\frac{1}{4}$ 6.511		
1 — x 8	$\frac{1}{2}$.3617	$2\frac{1}{2}$ 3.617	$2\frac{1}{2}$ 7.235		
	$\frac{5}{8}$.2412	$2\frac{3}{4}$ 3.979	$2\frac{3}{4}$ 7.958		
	$\frac{3}{4}$.3014	3 4.341	3 8.681		
	$\frac{7}{8}$.3617	— x 3 4.702	3 $3\frac{1}{4}$ 9.405		
	1 .4220	8 $3\frac{1}{4}$ 5.064	— x $3\frac{1}{2}$ 10.13		
	$1\frac{1}{8}$.4823	$3\frac{1}{2}$ 5.426	4 $3\frac{3}{4}$ 10.85		
	$1\frac{1}{4}$.6029	$3\frac{3}{4}$ 5.788	4 11.58		
	$1\frac{1}{2}$.7235	4 6.149	$4\frac{1}{4}$ 12.30		
	$1\frac{3}{4}$.8440	$4\frac{1}{4}$ 6.511	$4\frac{1}{2}$ 13.02		
	2 .9646	$4\frac{1}{2}$ 6.873	$4\frac{3}{4}$ 13.75		
	$2\frac{1}{4}$ 1.085	5 7.235	5 14.47		
	$2\frac{1}{2}$ 1.206		$5\frac{1}{4}$ 15.19		
$2\frac{3}{4}$ 1.326		$5\frac{1}{2}$ 15.92			
3 1.447		$5\frac{3}{4}$ 16.64			
3 — x 16	$\frac{1}{2}$.3617	1 1.929	6 17.36		
	$\frac{5}{8}$.4522	$1\frac{1}{4}$ 2.412			
	$\frac{3}{4}$.5426	$1\frac{1}{2}$ 2.894	1 3.858		
	$\frac{7}{8}$.6330	$1\frac{3}{4}$ 3.376	$1\frac{1}{4}$ 4.823		
	1 .7235	2 3.858	$1\frac{1}{2}$ 5.788		
	$1\frac{1}{8}$.9043	$2\frac{1}{4}$ 4.341	$1\frac{3}{4}$ 6.752		
	$1\frac{1}{4}$ 1.085	$2\frac{1}{2}$ 4.823	2 7.717		
	$1\frac{1}{2}$ 1.266	$2\frac{3}{4}$ 5.305	$2\frac{1}{4}$ 8.681		
	$1\frac{3}{4}$ 1.447	3 5.788	$2\frac{1}{2}$ 9.646		
	2 1.628	$3\frac{1}{4}$ 6.270	$2\frac{3}{4}$ 10.61		
	$2\frac{1}{4}$ 1.809	— x $3\frac{1}{2}$ 6.752	3 11.58		
	$2\frac{3}{4}$ 1.989	2 $3\frac{3}{4}$ 7.235	1 $3\frac{1}{2}$ 12.54		
3 2.170	4 7.717	$3\frac{1}{2}$ 13.50			
1 — x 4	$\frac{1}{2}$.4823	$4\frac{1}{4}$ 8.199	$3\frac{3}{4}$ 14.47		
	$\frac{5}{8}$.6029	$4\frac{1}{2}$ 8.681	4 15.43		
	$\frac{3}{4}$.7235	$4\frac{3}{4}$ 9.164	$4\frac{1}{4}$ 16.40		
	$\frac{7}{8}$.8440	5 9.646	$4\frac{1}{2}$ 17.36		
	1 .9646	$5\frac{1}{4}$ 10.13	$4\frac{3}{4}$ 18.33		
	$1\frac{1}{8}$ 1.206	$5\frac{1}{2}$ 10.61	5 18.29		
	$1\frac{1}{4}$ 1.447	$5\frac{3}{4}$ 11.09	$5\frac{1}{4}$ 20.26		
	$1\frac{3}{4}$ 1.688	6 11.58	$5\frac{1}{2}$ 21.22		
	2 1.929		$5\frac{3}{4}$ 22.19		
	$2\frac{1}{4}$ 2.170		$\frac{1}{2}$ 23.15		
	$2\frac{1}{2}$ 2.412				
	$2\frac{3}{4}$ 2.653				
	3 2.894				

SOLID DRAWN COPPER TUBES — COMMERCIAL QUALITY

Standard sizes—weight in lb. per linear foot. Calculated on a basis of copper at .323 lb. per cubic inch.

To find the weight of tubes composed of the following metals, multiply the weights of the equivalent copper tubes by the constants shown:—60/40 brass, 0.942; 70/30 brass, 0.958; aluminium, 0.304.

Imperial Standard Wire Gauge	1	2	4	6	8	10	11	12	13	14	16	18	20	22	24
Dec. equiv. in inches	.300	.276	.232	.192	.160	.128	.116	.104	.092	.080	.064	.048	.036	.028	.022
External diameter inch															
1/8	—	—	—	—	—	—	—	—	—	—	—	—	.038	.033	.027
3/16	—	—	—	—	—	—	—	—	—	—	—	.082	.066	.054	.043
1/4	—	—	—	—	—	—	—	—	—	—	.14	.12	.093	.075	.060
5/16	—	—	—	—	—	—	—	—	—	.19	.15	.12	.10	.077	.064
3/8	—	—	—	—	—	—	—	—	—	.29	.24	.19	.15	.12	.094
7/16	—	—	—	—	—	—	—	—	—	.35	.29	.23	.18	.14	.11
1/2	—	—	—	—	—	.58	—	.50	—	.41	.34	.26	.20	.16	.13
9/16	—	—	—	—	—	—	—	—	—	.47	.39	.30	.23	.18	—
5/8	—	—	—	—	—	—	—	.66	—	.53	.44	.34	.26	.20	—
11/16	—	—	—	—	—	—	—	.74	—	.59	.48	.37	.28	.22	—
3/4	—	—	—	—	—	.97	—	.82	—	.65	.53	.41	.31	.25	—
13/16	—	—	—	—	—	1.06	—	.89	.80	.71	.58	.45	.34	.27	—
7/8	—	—	—	—	—	1.16	—	.97	—	.77	.63	.48	.37	.29	—
15/16	—	—	—	—	—	1.25	—	1.05	—	.83	.68	.52	.39	.31	—
1	—	—	—	—	1.76	1.35	—	1.13	—	.89	.73	.55	.42	.33	—
1-1/32	—	—	—	—	—	—	—	—	1.04	.92	—	—	—	—	—
1-1/8	—	—	—	—	2.17	1.87	1.54	1.29	—	1.01	.82	.63	.48	.37	—
1-1/4	—	—	—	2.46	2.11	1.74	—	1.45	—	1.13	.92	.70	.53	.42	—
1-9/32	—	—	—	—	—	—	—	1.48	—	—	—	—	—	—	—
1-3/8	—	—	—	2.75	2.36	1.94	—	1.60	—	1.26	1.02	.77	.58	—	—
1-1/2	—	—	—	3.04	2.60	2.13	—	1.76	—	1.38	1.11	.85	.64	—	—
1-5/8	—	—	—	3.33	2.84	2.32	—	1.92	—	1.50	1.21	.92	.69	—	—
1-3/4	—	—	—	3.62	3.08	2.52	—	2.08	—	1.62	1.31	.99	.75	—	—
1-7/8	—	—	—	3.92	3.33	2.71	—	2.23	—	1.74	1.41	1.06	.80	—	—
2	—	—	—	4.21	3.57	2.90	—	2.39	—	1.86	1.50	1.14	.86	—	—
2-1/8	—	5.32	4.50	3.81	3.09	—	—	2.55	—	1.98	1.60	1.21	.92	—	—
2-1/4	—	5.67	4.79	4.05	3.29	—	—	2.71	—	2.10	1.70	1.28	.97	—	—
2-5/16	—	—	—	—	—	—	3.09	—	—	2.17	—	—	—	—	—
2-3/8	—	—	6.03	5.08	4.30	3.49	—	2.86	—	2.23	1.79	1.35	1.02	—	—
2-1/2	—	—	6.38	5.37	4.54	3.68	—	3.02	—	2.35	1.89	1.43	1.08	—	—
2-5/8	—	—	6.73	5.66	4.78	3.87	—	3.18	—	2.47	1.99	1.50	1.13	—	—
2-3/4	—	—	7.08	5.95	5.02	4.07	—	3.34	—	2.59	2.08	1.57	1.18	—	—
2-7/8	—	—	7.43	6.25	5.27	4.26	—	3.49	—	2.71	2.18	1.65	1.24	—	—
2-15/16	—	—	—	—	—	—	3.97	—	—	2.77	—	—	—	—	—
3	—	9.12	7.78	6.54	5.51	4.45	—	3.65	—	2.83	2.28	1.72	1.29	—	—
3-1/4	—	9.96	8.48	7.12	5.99	4.84	—	3.97	—	3.07	2.47	1.86	—	—	—
3-7/16	—	—	—	—	—	5.13	—	—	—	—	—	—	—	—	—
3-1/2	—	10.79	9.19	7.70	6.48	5.23	—	4.28	—	3.32	2.67	2.01	—	—	—
3-3/4	—	—	11.63	8.89	8.28	6.96	5.62	4.60	—	3.56	2.86	2.15	—	—	—
4	13.47	12.47	10.59	8.87	7.45	6.00	—	4.91	—	3.80	3.05	2.30	—	—	—
4-1/4	14.38	13.31	11.29	9.45	7.93	6.39	—	5.23	—	4.04	3.25	—	—	—	—
4-1/2	15.28	14.14	12.00	10.03	8.42	6.78	—	5.54	—	4.29	3.44	—	—	—	—
4-3/4	16.19	14.98	12.70	10.61	8.90	7.17	—	5.86	—	4.53	—	—	—	—	—
5	17.11	15.82	13.40	11.20	9.39	7.55	—	6.17	—	4.77	3.83	—	—	—	—
5-1/2	18.92	17.49	14.81	12.36	10.36	8.33	—	6.80	—	—	—	—	—	—	—
6	20.75	19.17	16.21	13.53	11.33	9.10	—	7.43	—	—	—	—	—	—	—
6-1/2	22.56	20.84	17.62	14.69	12.30	9.88	—	8.06	—	—	—	—	—	—	—
7	24.39	22.52	19.02	15.86	13.27	10.65	—	8.69	—	—	—	—	—	—	—
7-1/2	26.20	24.19	20.43	17.02	14.24	11.43	—	9.32	—	—	—	—	—	—	—
8	28.03	25.87	21.83	18.19	15.21	12.20	—	—	—	—	—	—	—	—	—
8-1/2	29.84	27.54	23.24	19.35	16.18	12.98	—	—	—	—	—	—	—	—	—
9	31.67	29.22	24.64	20.52	17.15	13.75	—	—	—	—	—	—	—	—	—
9-1/2	33.45	30.86	26.06	21.86	18.11	14.54	—	—	—	—	—	—	—	—	—

ELECTRICITY

FUNDAMENTAL UNITS:

The AMPERE is the unit in which electric current strength is measured.

The OHM is the unit in which resistance to the flow of an electric current is measured.

The VOLT is the unit of electric pressure. A pressure of 1 volt is required to force a current of 1 ampere through a resistance of 1 ohm.

WATT.—This is the unit of power or rate of doing work.

$$\text{Watts} = \text{Volts} \times \text{Amperes}$$

KILOWATT HOUR.—For commercial purposes electrical energy is charged for in units of 1,000 watt hours, and is called the Board of Trade unit or kilowatt hour.

$$\text{K.W.H.} = \frac{\text{Volts} \times \text{Amperes} \times \text{Hours}}{1,000} \quad \text{or} \quad \frac{\text{Watts} \times \text{Hours}}{1,000}$$

Example: To find the cost of burning three 60 watt lamps for five hours, assuming the cost per unit to be 6d.—

$$\text{Cost} = \frac{60 \times 3 \times 5 \times 6d.}{1,000} = 5.4d.$$

$$\text{HORSEPOWER} = \frac{\text{Watts}}{746} \quad \text{Kilowatts} = \frac{\text{Watts}}{1,000}$$

The normal voltage for household appliances is 240; for 3-phase motors, etc., 415.

HINTS:

Do NOT take risks with electricity.

Do NOT use frayed or damaged cords or flexibles on portable appliances—THEY ARE DANGEROUS.

WATER is injurious to most electrical equipment.

DO NOT handle wet or damp metal-clad switchgear unless it is effectively EARTHED. If in doubt, have it inspected by a competent electrician, or cover the hand with a rubber glove, several thicknesses of dry cloth or similar material before attempting to touch.

A cable carrying electric current (amperes) greater than its capacity will develop heat. This is injurious to insulation (except in special applications) and uneconomical.

The fuse is there for protection. ALWAYS use the correct wire sizes and material (usually copper) when replacing fuses. Over-size fuse wire is dangerous.

In all cases of electric shock remove person from danger zone and apply artificial respiration until medical aid arrives.

Average District Rainfall Throughout Australia

PERIOD 1910 TO 1950 (100 Points = 1 Inch)

	DISTRICT	Annual fall, Points	DISTRICT	Annual fall, Points
N.S.W.	Trans-Darling North	829	Hunter	3463
	Trans-Darling South	967	Cudgegong	2310
	Cis-Darling North	1282	Central Plateau	3342
	Cis-Darling South	1287	Warrumbungles Highlands	2285
	Upper Bogan	1746	Warrumbungles Lowlands	2193
	Lower Macquarie	1713	Sydney	4190
	West Gwydir	1838	Nepean	3004
	East Gwydir	2181	Illawarra	4296
	Nandewars	2606	South Coast	3628
	Liverpool Plains	2428	Upper Murrumbidgee	2579
	West New England	3045	Snowy Mountains	3338
	East New England	4019	Jugiong	3337
	Clarence	5544	Tumut	2327
	Orara	5563	East Riverina	1846
	Manning	5350	West Riverina	1371
VIC.	Mallee North	1123	East Gippsland	3021
	Mallee South	1335	West Gippsland	3570
	Wimmera North	1578	West Central	2355
	Wimmera South	1892	East Central	3572
	Lower North	1655	North Central	2706
	Upper North	1951	Volcanic Plains	2432
	Lower North-east	3038	West Coast	2929
	Upper North-east	4365		
TAS.	Northern	3911	Central Plateau	4034
	East Coast	2985	West Coast—	
	Midland	2314	Mountain Region	8706
	South-eastern	2891	King Island	3543
	Derwent	2975	Flinders Island	3016
S.A.	North-west Interior	741	Central West	1688
	Far North Interior	613	Central East	2338
	Western	1394	Murray Valley	1210
	Upper North	1247	Murray Mallee	1183
	North-east	771	South-east—Upper	1658
	Lower North	1665	South-east—Lower	2550
W.A.	North Kimberley	2515	S.W. North Coast	1590
	East Kimberley	1872	S.W. Central Coast	3549
	West Kimberley	2008	S.W. South Coast	3675
	De Grey	1181	S.W. Central North	1386
	Fortescue	995	S.W. Central South	1710
	West Gascoyne	845	Eucla	830
	East Gascoyne	953	South-east	1037
	Murchison	869	North-east	891
N.T.	Northern Rivers	4163	Northern Plateau	1135
Q.L.D.	Peninsula North	5837	Upper Western	1430
	Peninsula South	3594	Lower Western	1037
	Carpentaria—Lower	2449	Port Curtis	3659
	Carpentaria—Upper	2351	Moreton	4500
	Barron	6594	East Darling Downs	3625
	Herbert	7233	West Darling Downs	2128
	East Central Coast	3694	Maranoa	2066
	West Central Coast	2399	Warrego	1621
	Central Highlands	2318	Far South-west	1205
	Central Lowlands	1754		

*Occupation of the Population — Australia***CENSUS OF 1921, 1933 AND 1947**

(Exclusive of Full-blood Aboriginals)

Class of Occupation	Census 1921	Census 1933	Census 1947
Fishing and Trapping	10,752	14,611	16,393
Agricultural and Pastoral, etc.	481,355	547,787	459,502
Forestry	30,280	26,133	22,124
Mining, etc.	66,766	68,520	54,391
Industrial—			
Manufacturing	445,574	511,511	799,215
Building	95,274	107,446	232,433
Roads, Earthworks, etc.	137,106	217,656	—
Other	39,852	29,558	30,585
TOTAL INDUSTRIAL	717,806	866,171	1,062,233
Transport and Communication	207,737	223,893	295,567
Commerce, etc.	330,678	451,172	479,230
Public Administration, etc.	215,229	232,212	348,811
Entertainment, etc.	17,830	24,250	225,566
Domestic Service	209,814	242,378	No entry
No Industry, etc.	61,414	195,430	232,534
Pensioners }	3,086,073	263,064	4,382,927
Dependants }		3,474,218	
TOTAL	5,435,734	6,629,839	7,579,358

Government Railways Statistics, 1953-54

Government	Route Mileage	Gross Revenue £000	Working Expenses £000	Net Revenue £000
Commonwealth	2,201	3,402	2,897	505
N.S.W.	6,101	74,569	68,197	6,372
Victoria	4,482	35,707	35,951	-244
Queensland	6,560	30,223	29,103	1,120
South Australia	2,564	12,718	14,934	-2,216
Western Australia ...	4,111	11,111	14,298	-3,187
Tasmania	614	2,133	2,804	671
TOTAL	26,633	£169,863	£168,184	£1,679

GAUGES OF GOVERNMENT RAILWAYS

5' 3"	6,034 miles	3' 6"	13,242 miles
4' 8½"	7,283 miles	Other	74 miles

Area and Population

State or Territory	Year of formation into separate Colony or Territory	Present Area in square miles	Estimated Population, 30th September, 1955		
			Male	Female	Persons
N.S.W. ..	1786	309,432	1,760,819	1,744,281	3,505,100
Vic.	1851	87,884	1,283,637	1,262,554	2,546,191
Qld.	1859	670,500	691,386	657,140	1,348,526
S.A.	1834	380,070	419,173	406,751	825,924
W.A.	1829	975,920	341,642	322,446	664,088
Tas.	1825	26,215	161,002	154,343	315,345
N. Ter. ..	1863	523,620	10,844	6,755	17,599
A.C.T. ..	1911	940	17,669	15,607	33,276
TOTAL ..	—	2,974,581	4,686,172	4,569,877	9,256,049

NOTE.—The six States with their included Territories were Federated under the name "Commonwealth of Australia" on January 1, 1901.

Population and Vital Statistics AUSTRALIA, 1949 TO 1954

Heading	1939	1945	1954
Population at 31st December (,000 omitted)			
Males ..	3,539	3,722	4,598
Females ..	3,466	3,708	4,492
Total ...	7,005	7,430	9,090
Births			
Males ..	63,053	82,457	103,555
Females ..	59,838	78,103	98,701
Total ...	122,891	160,560	202,256
Rate ...	17.6	21.7	22.5
Marriages			
No.	64,249	62,822	71,229
Rate ...	9.2	8.5	7.9
Deaths			
Males ..	38,837	38,211	45,787
Females ..	30,310	32,020	36,018
Total ...	69,147	70,231	81,805
Rate ...	9.9	9.5	9.1
Deaths of children under one year			
Males ..	2,711	2,685	N.A.
Females ..	1,987	2,032	N.A.
Total ...	4,698	4,717	4,546
Rate ...	38.2	29.4	22.5
Natural increase	53,744	90,329	120,451
Rate of natural increase ...	7.71	12.22	13.40

NOTE.—In the case of Births, Marriages, Deaths, and Natural Increase, the "Rate" is the number per 1,000 of mean population; in the case of Deaths of Children under one year, it is the number per 1,000 births.

CURRENCIES IN USE IN FOREIGN COUNTRIES

Country	Currency and Fractional Divisions
ADEN	East African Shilling—100 Cents.
AFGHANISTAN	Afghani—100 Puls.
ALASKA	U.S. Dollar—100 Cents.
ALBANIA	Lek—100 Quintars.
ALGERIA	Algerian Franc—100 Centimes.
ARGENTINA	Argentine Peso—100 Centavos.
AUSTRALIA	Aust. Pound—20 Shillings, 240 Pence.
AUSTRIA	Schilling—100 Groschen.
AZORES	Portuguese Escudo—100 Centavos.
BAHAMAS	British West Indian Pound—20 Shillings, 240 Pence.
BAHREIN	Indian Rupee—16 Annas, 192 Pice.
BALI (Indonesia)	Indonesian Rupiah—100 Sen.
BARBADOS (Br. W. Ind.)	British West Indian Dollar—100 Cents.
BELGIUM	Belgian Franc—100 Centimes.
BERMUDA	Bermuda Pound—20 Shillings, 240 Pence.
BISMARCK ARCHIPELAGO	Aust. Pound—20 Shillings, 240 Pence.
BOLIVIA	Boliviano—100 Centavos.
BORNEO, BRITISH NTH.	North Borneo Dollar—100 Cents.
BORNEO (Indonesia)	Malayan Dollar—100 Cents.
BRAZIL	Indonesian Rupiah—100 Sen.
BULGARIA	Cruzeiro—100 Centavos.
BURMA	Lev—100 Stotinki.
CAMEROONS, BRITISH	Kyat—100 Pyas.
CANADA	British West African Pound—20 Shillings, 240 Pence.
CANARY ISLANDS	Canadian Dollar—100 Cents.
CAPE VERDE ISLANDS ..	Spanish Peseta—100 Centimos.
CAROLINE ISLANDS	Portuguese Col. Escudo—100 Centavos.
CELEBES (Indonesia)	U.S. Dollar—100 Cents.
CEYLON	Indonesian Rupiah—100 Sen.
CHILE	Ceylonese Rupee—100 Cents.
CHINA (People's Republic)	Chilean Peso—100 Centavos.
CHINA, PORTUGUESE ..	Jen Men Piao—People's Bank Dollar.
COLOMBIA, REPUBLIC ..	Pataca—100 Avos.
CONGO, BELGIAN	Colombian Peso—100 Centavos.
COSTA RICA	Congolese Franc—100 Centimes.
CUBA	Colon—100 Centimos.
CYPRUS	Cuban Peso—100 Centavos.
CZECHOSLOVAKIA	Cyprus Pound—180 Piastres, 7,200 Paras.
DENMARK	Czech. Crown (Koruna)—100 Heller.
EAST AFRICA, BRITISH ..	Krone—100 Oere.
	East African Shilling—100 Cents.

CURRENCIES IN FOREIGN COUNTRIES (Cont.)

Country	Currency and Fractional Divisions
EAST AFRICA, PORTUGUESE (Mozambique) .	Portuguese Colonial Escudo—100 Centavos.
ECUADOR	Sucre—100 Centavos.
EIRE	Irish Pound—20 Shillings, 240 Pence.
EGYPT	Egyptian Pound — 100 Piastres, 1,000 Milliemes.
EQUATORIAL AFRICA, FRENCH	CFA-Franc—100 Centimes.
ETHIOPIA	Ethiopian Dollar—100 Cents.
FALKLAND ISLANDS	Falk. Is. Pound—20 Shillings, 240 Pence.
FIJI ISLANDS	Fiji Pound—20 Shillings, 240 Pence.
FINLAND	Markka (Finmark)—100 Pennia.
FORMOSA (Nat. China)	Taiwan Dollar—100 Cents.
FRANCE	Franc—100 Centimes.
GERMANY (Eastern)	Ostmark—100 Pfennig.
GERMANY (Western)	Deutsche Mark—100 Pfennig.
GIBRALTAR	Gibltr. Pound—20 Shillings, 240 Pence.
GREAT BRITAIN AND NORTHERN IRELAND	Pound Sterling—20 Shillings, 240 Pence.
GREECE	Drachma—100 Lepta.
GREENLAND	Danish Kroner—100 Oere.
GUATEMALA	Quetzal—100 Centavos.
GUIANA, BRITISH	British West Indian Dollar—100 Cents.
GUIANA, FRENCH	French Franc—100 Centimes.
GUIANA, NETHERLANDS	Surinam Guilder (Florin)—100 Cents.
GUINEA, PORTUGUESE	Portuguese Col. Escudo—100 Centavos.
HAITI	Gourde—100 Centimes.
HAWAII	U.S. Dollar—100 Cents.
HONDURAS, REPUBLIC	Lempira—100 Centavos.
HONDURAS, BRITISH	British Honduras Dollar—100 Cents.
HONGKONG	Hongkong Dollar—100 Cents.
HUNGARY	Forint—100 Filler.
ICELAND	Krona—100 Aurar (Oere).
INDIA	Rupee—16 Annas, 192 Pice.
INDIA, PORTUGUESE (Goa, Damao, Dju)	Portuguese Indian Rupee—16 Tangas, 192 Reis.
INDO-CHINA	Indo-Chinese Piastre—100 Cents.
INDONESIA	Indonesian Rupiah—100 Sen.
IRAN (Persia)	Rial—100 Dinars.
IRAQ (Mesopotamia)	Iraqi Dinar—5 Riyals, 20 Dirhams, 1,000 Fils.
ISRAEL	Israeli Pound—1,000 Prutot.
ITALY	Lira—100 Centesimi.
JAMAICA	British West Indian Pound—20 Shillings, 240 Pence.
JAPAN	Yen—100 Sen, 1,000 Rin.

CURRENCIES IN FOREIGN COUNTRIES (Cont.)

Country	Currency and Fractional Divisions
JAVA (Indonesia)	Indonesian Rupiah—100 Sen.
JORDAN	Jordan Dinar—1,000 Mils.
JUGOSLAVIA	Dinar—100 Paras.
KOREA, SOUTH	Hwan—100 Won.
LEBANON	Lebanese Pound—100 Piastres.
LIBERIA	U.S. Dollar—100 Cents.
LIBYA	Libyan Pound — 100 Piastres, 1,000 Milliemes.
MADAGASCAR	CFA-Franc—100 Centimes.
MADEIRA	Portuguese Escudo—100 Centavos.
MALAYA	Malayan Dollar—100 Cents.
MALTA	Maltese Pound—20 Shillings, 240 Pence.
MARIANNE ISLANDS ...	U.S. Dollar—100 Cents.
MARSHALL ISLANDS ...	U.S. Dollar—100 Cents.
MAURITIUS	Mauritius Rupee—100 Cents.
MEXICO	Mexican Peso—100 Centavos.
MOLUCCA ISLANDS	Indonesian Rupiah—100 Sen.
MONACO	French Franc—100 Centimes.
MOROCCO (French)	Moroccan Franc—100 Centimes.
MOROCCO (Spanish) ...	Spanish Peseta—100 Centimos.
MOZAMBIQUE	Portuguese Col. Escudo—100 Centavos.
NEPAL	Rupee—100 Pice.
NETHERLANDS, THE	Guilder (Florin)—100 Cents.
NEW GUINEA, WEST (Netherlands)	New Guinea Guilder—100 Cents.
NEW CALEDONIA	CFP-Franc—100 Centimes.
NEW GUINEA, EAST ...	Aust. Pound—20 Shillings, 240 Pence.
NEW HEBRIDES	CFP-Franc—100 Centimes.
NEW ZEALAND	N.Z. Pound—20 Shillings, 240 Pence.
NICARAGUA	Cordoba—100 Centavos.
NORWAY	Norwegian Krone—100 Oere.
OCEANIA, FRENCH	CFP-Franc—100 Centimes.
PAKISTAN	Pakistan Rupee—16 Annas, 192 Pice.
PANAMA	Balboa (Panamanian Dollar)—100 Centesimos.
PAPUA	Aust. Pound—20 Shillings, 240 Pence.
PARAGUAY	Guarani—100 Centimos.
PERU	Sol—100 Centavos.
PHILIPPINES, THE	Philippine Peso—100 Centavos.
POLAND	Zloty—100 Groszy.
PORTUGAL	Escudo—100 Centavos.
PUERTO RICO	U.S. Dollar—100 Cents.
RIO DE ORO	Spanish Peseta—100 Centimos.
RUMANIA	Leu—100 Bani.
SALVADOR, EL	Colon—100 Centavos.
SAMOA, WESTERN	N.Z. Pound—20 Shillings, 240 Pence.
SAMOA (U.S.)	U.S. Dollar—100 Cents.

CURRENCIES IN FOREIGN COUNTRIES (Cont.)

Country	Currency and Fractional Divisions
SARAWAK (Borneo)	Sarawak Dollar—100 Cents; Malayan Dollar—100 Cents.
SAUDI-ARABIA	Riyal—22 Qursh Dari, 88 Halals.
SEYCHELLES	Seychelles Rupee—100 Cents.
SINGAPORE	Malayan Dollar—100 Cents.
SOLOMON ISLANDS ...	Aust. Pound—20 Shillings, 240 Pence.
SOMALILAND, PROTECTORATE	East African Shilling—10 Cents.
SOMALILAND, FRENCH	Djibouti Franc—100 Centimes.
SOMALILAND, ITALIAN	Somalo—100 Centesimi.
SOUTH AFRICA, BRITISH (Northern and Southern Rhodesia, Nyasaland) ..	South Rhodesian Pound—20 Shillings, 240 Pence.
SOUTH AFRICA, UNION	S.A. Pound—20 Shillings, 240 Pence.
SOUTH-WEST AFRICA ..	S.A. Pound—20 Shillings, 240 Pence.
SPAIN	Peseta—100 Centimos.
SUDAN	Egyptian Pound — 100 Piastres, 1,000 Milliemes.
SUMATRA (Indonesia) ..	Indonesian Rupiah—100 Sen.
SWEDEN	Krona—100 Oere.
SWITZERLAND	Franc—100 Centimes (Rappen).
SYRIA	Syrian Pound—100 Piastres.
TANGIER	Moroccan Franc—100 Centimes; Spanish Peseta—100 Centimos.
THAILAND (Siam)	Baht or Tical—100 Satang.
TIBET	Rupee—circa 6 Trangkaz.
TIMOR, ARCHIPELAGO ..	Indonesian Rupiah—100 Sen.
TIMOR, PORTUGUESE ..	Pataca—100 Avos.
TOGOLAND, BRITISH ...	British West Africa Pound—20 Shillings, 240 Pence.
TONGA ISLANDS	Tongan Pound—20 Shillings, 240 Pence.
TRIESTE, FREE TERRITORY	Italian Lira—100 Centesimi.
TUNISIA	Tunisian Franc—100 Centimes.
TURKEY	Turkish Pound—100 Piastres, 4,000 Paras.
URUGUAY	Uruguayan Peso—100 Centesimos.
U.S.S.R.	Rouble—100 Kopecks.
UNITED STATES OF AMERICA	Dollar—100 Cents.
VATICAN CITY	Lira—100 Centesimi.
VENEZUELA	Bolívar—100 Centimos.
WEST AFRICA, BRITISH ..	British West African Pound—20 Shillings, 240 Pence.
WEST AFRICA, FRENCH ..	CFA-Franc—100 Centimes.
WEST AFRICA, PORTUGUESE (Angola)	Angolar—100 Centavos.
WEST INDIES, BRITISH ..	British West Indian Pound—20 Shillings, 240 Pence.
YEMEN (Arabia)	Indian Rupee—16 Annas, 192 Pice.

POSTAGE RATES

WITHIN THE COMMONWEALTH

(Including Lord Howe Island, Norfolk Island, Papua, New Guinea, New Ireland, New Hanover, Admiralty, Nauru, Bougainville, Buka.)

Classification	Rate of Postage	Maximum Weight
First Class Mail—		
Letters and Letter Cards	4d. first oz., 2½d. each add. oz.	—
Post Cards	4d. each	
Second Class Mail—		
Commercial Papers	3½d. first 2 oz., 2d. each add. 2 oz.	5 lb.
Printed Matter (comprising printed papers, catalogues, books, periodicals, newspapers, NOT registered at a G.P.O.)	3½d. first 4 oz., 2d. each add. 4 oz.	6½ lb. Single Vol. 11 lb.
Patterns, Samples, Merchandise ...	3½d. first 2 oz., 2d. each add. 2 oz.	1 lb.
Third Class Mail—		
Books, periodicals, newspapers (registered at a G.P.O.)	2½d. first 6 oz., 2d. each add. 6 oz.	6½ lb. Single Vol. 11 lb.

Fourth Class Mail—Parcel Post:

Scale Destination	1 lb.	2 lb.	3 lb.	4-5 lb.	6-8 lb.	9-11 lb.
1. Within 30 miles of office of posting ...	1/-	1/4	1/8	2/1	2/9	3/4
2. Within N.S.W. beyond 30 miles (including Norfolk Island, Lord Howe Island and Cocos) ..	1/6	1/10	2/3	2/11	3/8	4/8
3. Queensland, Victoria, and Tasmania	2/6	3/-	3/8	4/4	6/-	8/-
4. S. Aust., W. Aust., N.T.	3/-	3/9	5/-	6/-	8/4	11/8
				1-3 lb.	4-7 lb.	8-11 lb.

Papua, New Guinea, New Britain, New Ireland, New Hanover, Admiralty, Bougainville, Buka	2/6	5/-	7/3
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Max. weight of parcels within the Commonwealth and beyond, 11 lb.

POSTAGE RATES BEYOND THE COMMONWEALTH

Classification	N.Z., Fiji, and Islands	Within the British Empire	Foreign Countries	Maximum Weights
Letters and Letter Cards	4d. first oz. 2½d. ea. add.	4d. first oz. 2½d. ea. add.	7½d. first oz. 4½d. ea. add.	4½ lb.
Post Cards	4d. each	4d. each	4½d. ea.	
Commercial Papers	3½d. first 2 oz. 2d. ea. add. 2 oz.	3½d. up to 2 oz., 5d. from 2 to 4 oz., 2d. ea. add. 2 oz.	3½d. first 2 oz. 2d. ea. add. 2 oz. min. 7½d.	4½ lb.
Printed Matter	3½d. first 4 oz. 2d. ea. add. 4 oz.	3½d. first 4 oz. 2d. ea. add. 4 oz.	3½d. first 2 oz. 2d. ea. add. 2 oz.	6½ lb. Single vols. to 11 lb.
Samples	3½d. first 2 oz. 2d. ea. add. 2 oz.	3½d. first 2 oz. 2d. ea. add. 2 oz.	3½d. first 2 oz. 2d. ea. add. 2 oz.	1 lb. U.K. only 5 lb.
Merchandise	3½d. first 2 oz. 2d. ea. add. 2 oz.	No rate	No rate	1 lb.
Small Packets to certain countries	3½d. ea. 2 oz. min. 1/3	3½d. ea. 2 oz. min. 1/3	3½d. ea. 2 oz. min. 1/3	2 lb. must be unsealed
Newspapers & Periodicals	2½d. first 6 oz. 2d. ea. add. 6 oz.	U.K. and Ire- land, 2½d. first 6 oz., 2d. ea. add. 6 oz.*	3½d. first 2 oz., 2d. ea. add. 2 oz.	6½ lb.

* To other places within the British Empire, 3d. first 4 oz., 2d. each additional 4 oz.

AIR MAIL RATES BEYOND THE COMMONWEALTH

Country of Address	Letters, etc., per ½ oz. s. d.	Post- cards s. d.
Commonwealth of Australia, Papua, New Guinea, Norfolk Island	Ordinary postage rates plus 3d. per ½ oz. Air Mail Fee	
(All classes of articles except parcels)	8d. per ½ oz.	4
New Zealand	2 0	1 0
United Kingdom, Europe, Africa	1 0	6
Malaya, Indonesia		
Burma, Ceylon, Hong Kong, India, Pakistan, Siam, Philippines	1 3	8
China, Japan, U.S.S.R.	2 0	1 0
Canada, U.S.A.	2 0	1 0
Central America, West Indies	2 6	1 3
South America	3 0	1 6

Parcel Post beyond Australia, enquire at any Post Office regarding Rates of Postage and Customs Declarations.

AEROGRAMS.—A lightweight airletter service is available to most overseas countries. The special forms used are obtainable at Post Offices. Price 10d., inclusive of postage.

MONEY ORDERS & POSTAL NOTES

The Money Order system provides a safe and convenient means of sending money anywhere in Australia or abroad. Commission charged on orders payable in Australia is 1/- for each £5 or fraction of £5, and 6d. each additional £5 or fraction of £5. For orders payable in United Kingdom and foreign countries, the rate of commission is 6d. for each £1 or portion of £1 up to £6, and 4d. for each additional £1, with a minimum of 1/-. For orders payable in New Zealand and New Guinea the rate of commission is 4d. for each £1 or fraction of £1, with a minimum of 1/-. A limit of £8 sterling, £10 Australian, per week is imposed on money orders issued on sterling countries, and £5 Australian per month on money orders issued on non-sterling countries. Postal Notes in denominations from 1/- to 20/- (poundage from 2d. to 6d.) are available for remitting small amounts within Australia, Papua-New Guinea, and Norfolk Island.

TELEGRAPH SERVICE

RATES WITHIN THE COMMONWEALTH

Ordinary Rate Telegrams.—Not exceeding 12 words (including address and signature):

Within a 15-mile radius of the office of origin 2/3d.

Beyond a 15-mile radius 2/6d.

Additional word in each case 2d.

Urgent Rate Telegrams.—Urgent rate telegrams are charged at double the ordinary rate, and are treated with the utmost expedition at all stages.

Lettergrams.—24 words or portion thereof 2/-d.

Each additional word 1d.

Rates to and from Countries Overseas

BRITISH EMPIRE DESTINATIONS, excepting as indicated below:

Rates Per Word:

Ordinary (minimum 5 words) 1/8d.

Letter Telegrams (minimum 22 words) 18/4d.

Each additional word 10d.

Social and Greeting Telegrams (minimum 11 words) .. 8/4d.

Each additional word 10d.

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Social Letter Telegrams are accepted for transmission between places in the Commonwealth and Empire points overseas, with certain minor exceptions. Charges are 8/4 for a minimum of 10 words and 10d. each additional word.

Note.—The service indication "GLT" must appear before the address, but is not charged for.

TELEGRAMS TO AND FROM THE PACIFIC ISLANDS, ETC.—Telegrams may be exchanged between Australia and Islands in the Pacific Ocean such as Fiji, Caroline Island, Cook Islands, Friendly Islands, Gilbert and Ellice Islands, Lord Howe Island, New Caledonia, New Hebrides, Samoa, Society Islands, Solomon Islands, Union Island, Willis Island, New Guinea, Papua, and many other islands adjacent to those mentioned.

RADIO-TELEGRAMS.—Radio-telegrams to ships at sea may be lodged at any Telegraph Office, or telephone subscribers may utilise the phonogram facility to lodge these messages. The rates vary from 9d. to 1/4 per word.

CODE ADDRESSES.—A code address for telegrams may be registered. For Commonwealth telegrams the charge is £3/3/- per annum; for international telegrams only, £1/1/- yearly; and for both Commonwealth and international telegrams, £3/3/-. Particulars of a code address and relative full address may be published in the Post Office Guide on payment of a fee of 5/- per annum.

RATES TO NEW ZEALAND.—Telegrams are accepted for transmission to places in New Zealand via cable.

Ordinary Rate (minimum 5 words)	6d. per word
Letter Telegram (minimum 22 words)	5/6d. " "
Each additional word	3d. " "
Social Letter Telegram (GLT)—	
Minimum 10 words	2/6d. " "
Each additional word	3d. " "

Detailed information regarding overseas telegraph rates may be obtained promptly by calling the Cable Clerk at the G.P.O. Country residents should inquire at the local Post Office.

OTHER OVERSEAS COUNTRIES:

	Per word Min. 5 wds.	LT Min. 22 wds.	Each addl. wd.
Belgium, France, Germany, Italy, Norway, Sweden, Switzerland, Greece, U.S.S.R., Spain	2/6	27/6	1/3
Israel	1/8	18/4	10d.
U.S.A., Netherlands	2/-	22/-	1/-
Japan	3/6	38/6	1/9
South American countries	4/-	44/-	2/-
China, Egypt, Indonesia, Philippines	3/-	33/-	1/6

Refer Overseas Telecommunications Commission (Australia) for further particulars and rates for other destinations.

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FIRST AID TO THE INJURED

The following notes of First Aid have been contributed by The St. John Ambulance Association, of St. John House, 21 Macquarie Place, Sydney, the recognised teachers of First Aid, and have been taken from the St. John Manual, "First Aid to the Injured."

In all cases of illness or accident first send for a doctor or ambulance, notifying them clearly of the case to be treated and location of the accident.

FIRST AID KIT.—It is recommended that every home be equipped with an adequate First Aid Kit, the suggested contents for which are:—

Dressings: Bandages 1" and 2", broad bandage, cotton wool, lint, sling, gauze. Suggest cutting lint and gauze into 2" x 2" strips, placing each in a clean rag (to be sewn up) and sterilise by baking in the oven one hour.

Iodine (tincture).

Castor Oil.

Soda Bicarb.

Condy's Crystals.

Sal volatile.

SHOCK.—All cases of accident or sudden illness result in a condition known as Shock, which must be treated primarily.

TREATMENT OF SHOCK.—Lay patient on his back, loosen clothing about the neck, chest, and waist, and ensure a free circulation of air. Keep patient warm by covering with coats and blankets, but do not overheat the patient. When able to swallow give strong tea or coffee with plenty of sugar, or milk as hot as can be drank.

Haemorrhage (Bleeding)—General Rules for Treatment

Place patient in suitable position. Elevate bleeding part except in the case of broken limb. Expose wound, removing only whatever clothing is necessary. Remove any visible and easily removed foreign bodies. All others are left severely alone. When bleeding has stopped keep the patient warm. Give plenty of fluids, especially warm tea or water with sugar if available.

SCALP.—Apply small firm pad on the wound, securing it by a narrow bandage.

NECK.—Apply thumb of one hand on the artery, pressing backwards against the spine, taking care to avoid windpipe.

FACE.—Below the level of the eye. Apply direct pressure on the wound from the outside of the cheek against the jawbone.

ARMPIT.—Place hard pad (size of billiard ball) in the armpit. Apply centre of narrow bandage on the pad, cross the bandage on shoulder, pull the ends tight, and tie under the opposite armpit.

UPPER ARM.—Apply pressure with fingers on the artery by grasping the arm at its centre from behind and compress the artery against the bone.

FOREARM.—Pressure may be applied by the thumb placed on either of the pulsating arteries (according to the side of the arm the wound occurs).

PALM OF HAND.—When foreign body or broken bone is not present, apply dressing and firm pad, making the patient grasp it. Bandage hand.

FINGERS.—Apply small pad on wound and secure firmly with bandage.

THIGH.—Place thumbs one on the other on the pulsating artery at the centre of the groin, grasping the thigh with hands. When wound occurs in upper region of artery keep the pressure up until the arrival of doctor. Each fresh assistant places his thumbs over those of his predecessor, who slips his away, and thus gushes of blood are prevented during the change.

LEG.—Front or back: Apply pressure by fingers or pad if bleeding at the ankle and bandage on pulsating arteries on front (below knee) and back (halfway down leg) of leg if haemorrhage occurs there.

SOLE OF FOOT.—Apply dressing and firm pad over the bleeding point, and maintain firm pressure by bandaging. Support foot in an elevated position.

ANTISEPTICS.—In wounds and on the skin, no antiseptics which burn or irritate should be used. When prepared antiseptics are not available, normal saline solution (one teaspoonful of common salt to one pint of sterile water) should be used.

If sterilised dressings are not available, sterilise the fingers, cut piece of clean gauze, lint, or boracic lint to required size and apply to wound. Dressing should be covered with cotton wool and kept in place with bandage.

COLD COMPRESS.—Used to ease pain, lessen swelling, control internal bleeding. A clean handkerchief or piece of lint is soaked in cold water and applied to affected part. Change frequently.

HOT COMPRESS.—Used to ease pain. Piece of flannel or lint soaked in very hot water and wrung dry and shaken to expel steam and applied to affected part.

Fractures (Broken Bones)—Signs and Symptoms

Pain at or near seat of fracture; loss of power in the limb; swelling about the seat of fracture; deformity of limb; unnatural mobility.

TREATMENT.—Attend to fracture on spot. No attempt must be made to move patient until limb has been rendered immovable as practicable by splints or other means of restraint. Steady and support injured limb, placing it in as natural position as possible. Apply splints and bandages.

SPLINTS.—These may be improvised from walking sticks, umbrellas, broom handles, rifles, folded coats, pieces of wood, or other similar objects. When splints are not available, tie fractured limb to the body, and in all cases a fractured lower limb should be bandaged to its fellow.

FRACTURED SKULL.—Apply ice or cold water to head continuously, keeping patient absolutely quiet in a darkened room. Promote warmth to lower part of the body by applying hot water bottles to the sides of the abdomen and lower limbs.

LOWER JAW.—Place palm of hand below injured bone and press it gently against the upper jaw, applying bandage under the chin, carrying both ends upward and tying above the head.

COLLAR BONE.—Place pad about 2" thick in armpit. Place arm in sling; secure injured limb firmly to the side by broad bandage passed round elbow and trunk.

RIBS.—Apply two broad bandages or strong towel folded about 8" wide firmly round the chest, securing with three or four safety pins on side opposite to the injury.

FOREARM.—Apply splints on the front and back of forearm from elbow to fingers, unless there is a wound at the site of injury. Bandage above fracture and around the wrist. Place arm in sling.

UPPER ARM.—Near shoulder: Apply broad bandage with upper border level with top of shoulder; pass it round the limb and body and tie on opposite side under armpit.

Middle of shaft: Apply splints from shoulder to elbow in front and back and outer side of arm. Secure splints by bandages above and below fracture.

HAND.—Apply carefully padded splint to front of hand and secure by bandage.

THIGH.—Apply bandage around ankles and feet; place splint along injured side from armpit to beyond the foot; secure with bandages.

LEG.—Apply splints on outer and inner side of leg and secure by bandages. When no splints are available, tie feet, ankles, knees, and thighs together.

CRUSHED FOOT.—Apply carefully padded splint to sole of foot from heel to toes and secure with bandages.

General

DISLOCATION OF JOINTS.—Steady and support limb in most comfortable position. Apply cold compresses to relieve pain. Do not attempt to reduce dislocation.

SPRAINS.—Apply firm bandage; wet the bandage with cold water and keep it wet.

STRAINS.—Support the injured part and apply hot compresses.

RUPTURE (HERNIA).—Lay patient down, raise and support head and shoulders; bend the knees and place pillow under them. Apply ice or cold compress to affected part. Make no attempt to reduce swelling.

BURNS AND SCALDS.—Do not remove clothes and do not break away any blisters. Saturate area with warm alkaline solution (1 dessertspoonful baking soda to 1 pint warm water) or warm saline solution (1 teaspoonful common salt to 1 pint warm water). Cover area with lint, gauze or linen soaked in similar solution. Bandage firmly in position. Give large quantities of warm, weak, sweet tea.

FOREIGN BODY IN EYEBALL.—Do not attempt to remove. Drop medicinal paraffin or castor oil on eyeball after pulling down lower lid. Close the lids, apply soft pad of cotton wool and secure by bandage.

QUICKLIME OR OTHER CORROSIVE ALKALI IN EYE.—Bathe the eye with solution of vinegar and cold water (1 part in 4) and treat as for the foreign body. If vinegar is not available, wash freely with cold water.

CORROSIVE ACID IN THE EYE.—Bathe the eye with solution of baking soda (1 dessertspoonful in pint of cold water) and treat as for foreign body.

FOREIGN BODY IN EAR CHANNEL.—Fill ear with olive oil, when insect will float and may be removed. Do not probe or syringe the ear.

FOREIGN BODY IN NOSE.—Instruct patient to breathe through the mouth. Seek medical aid at once.

SUNSTROKE.—Sponge body with cold water continuously. Apply ice bags to head and spine; fan vigorously. Give Epsom or Glauber Salts (1 tablespoon to tumbler of water). Place patient in cool spot.

APOPLEXY (STROKE).—Apply ice or cold water to head continuously; apply hot water bottles to lower limbs and feet. If face flushed, raise head, loosen clothing.

FAINING.—Sprinkle face with hot and cold water alternately; apply warmth to pit of stomach and over the heart. Loosen all clothing, give air.

BITES.—Snake Bite, Spider Bite.—Immediately arrest circulation in limb by means of constriction on limb between the wound and the heart on the upper arm or thigh (as the case may be). Release constriction after 20 minutes, immediately replacing it. Give hot drinks, such as strong coffee, tea, or milk. Encourage bleeding by scarifying puncture marks. If available, rub in Condy's crystals.

Poisons

EMETIC.—To make patient vomit:—

1. Mustard powder—a tablespoonful in a tumblerful ($\frac{1}{2}$ pint) of lukewarm water, or
2. Salt—two tablespoonsful in a tumblerful ($\frac{1}{2}$ pint) of lukewarm water.

POISONS.—Except when lips and mouth are burned, promptly give an EMETIC.

When lips and mouth are burned DO NOT give an emetic, but give the following antidotes:—

If an acid is known to be the poison, give one of the following alkalis:—Lime-water in large quantities or 1 tablespoonful of whitening, chalk, or magnesia in $\frac{1}{2}$ pint of water, repeated frequently, or carb. soda.

If an alkali is known to be the poison, give one of the following acids:—Vinegar or lemon juice or lime juice, each diluted with an equal quantity of water, by the tumblerful.

If these antidotes are not readily available, or if it is not known whether the corrosive poison is an acid or alkali, give copious draughts of cold water or milk.

CARBOLIC ACID (PHENOL) AND LYSOL POISONS.—Give $\frac{1}{2}$ pint of medicinal paraffin or Epsom or Glauber Salts, 1 tablespoonful in tumbler of milk or water.

IODINE POISON.—Before the emetic give starch and water freely or thin cornflour or arrowroot.

PHOSPHORUS.—Give Epsom or Glauber Salts, 1 tablespoonful in a tumblerful of water. Oil or fat in any form must not be given.

ALCOHOL.—Promote warmth of the body, ensure rest and shelter; adopt general rules which apply; give strong coffee.

STRYCHNINE (Contained in many vermin killers).—Between the convulsions give an emetic and perform artificial respiration. Adopt the general rules which apply.

PRUSSIC ACID AND CYANIDE OF POTASSIUM.—Not a moment should be lost in carrying out treatment. Apply artificial respiration even if breathing has not ceased. If patient can swallow, give freely brandy, whisky, or sal volatile diluted with an equal quantity of water. Dash cold water on head and spine continuously. Adopt the general rules which apply.

Artificial Respiration for Mild Asphyxiation Electric Shock, Drowning, etc.

SCHAFER'S METHOD.—At once place the patient face downwards with arms extended above the head and head turned to one side so as to keep the nose and mouth away from the ground. Do not waste time loosening clothing; no pad is to be placed under the patient, nor need the tongue be drawn out. Kneel at one side of the patient, facing his head and sitting on your heels. Place your hands on the small of the patient's back, their lower edges just clearing the top of the pelvis, the wrists nearly touching, the thumbs as near each other as possible without strain, and the fingers passing over the loins on either side and pointing towards the ground. Bending your body from the knees and somewhat straightening the hip joints, swing slowly forward, keeping your arms quite straight and rigid. Swing your body slowly backwards to its first position. Alternate these movements by a rhythmic swaying forwards and backwards of your body from the knee joints, twelve times a minute. Rhythm is—pressure two seconds and relaxation three seconds. When natural breathing begins, regulate the movements of artificial respiration to correspond with it, and promote circulation by rubbing the limbs vigorously towards the heart and applying warmth. Artificial respiration must be continued perseveringly until respiration is restored or until a doctor pronounces life to be extinct.

The above are brief notes only on First Aid. It is strongly recommended that classes in First Aid and Home Nursing be attended so as to give members of a household a thorough knowledge of how to render First Aid in case of accident and the care of sick persons in the home. Branches of the St. John Ambulance Association are in existence at Ambulance Stations in all country towns. Enquiries are welcomed by the Head Office of the Association, 21 Macquarie Place, Sydney.

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