Appendix A1

STANDARD ALPHABETS

CONTENTS
(APPENDIX A1)

UPPER CASE ALPHABETS SERIES A TO E

1.0 General

The Upper Case Alphabets described herein are used for word legends in all sign groups that are fully upper case.

1.1 Alphabet Size, Stroke Width and Letter Spacing

Letter width and spacing details for various standard letter heights ranging from 50 to 300 mm are given in TABLES A1.1 to A1.5 for five upper case alphabets - SERIES A (narrow letters) to SERIES E (broad letters). Note that other letter heights can be used where appropriate and proportional details apply.

The stroke width and letter height of each alphabet equals the width and height of the capital letter "I". All characters with an arc top or bottom are extended slightly above or below the basic nominal letter height. With the general availability of computer font systems, individual characters are no longer presented graphically for these alphabets. An example calculation of word length is given in FIGURE A1.1.

1.2 Layout of Word Legends

The layout shall be as shown on the relevant sign specification diagrams.

Where a special sign is required which is not detailed, the general requirements set out below should be followed in the design of the sign. Reference should be made to the example of a similar sign given in this manual, and the layout of that sign used as a model.

The horizontal spacing between any two words in one line should generally be equal to the recommended spacing between the last letter of the first word and the first letter of the second word, plus the width of the letter N.

The vertical spacing between lines of words should be not less than 0.5 times the height of the larger lettering in adjacent lines. Where increased clarity or differentiation is required the vertical spacing between lines should be increased to at least 0.75 times the height of the larger lettering in adjacent lines.

Spacing between legend and the edges of a sign should be not less than the following wherever practicable:

(a) Signs without borders -

    (i) top and bottom spaces - 25% of adjacent letter height;

    (ii) end spaces - 50% of adjacent letter height.

(b) Signs with borders (space measured to inside of border) -

    (i) top and bottom spaces - not less than 40% of adjacent letter height;

    (ii) if top or bottom space is between 40 and 50% of adjacent letter height, end spaces for that line should be at least 100% of letter height;

    (iii) end spaces where top/bottom space is 50 percent or greater - 60 percent of letter height.

The legend should be visually centred on the sign, unless left or right word justification is specified.

1.3 Computer Generated Fonts

Correct letter spacing is essential if adequate word readability is to be achieved. Observations in New Zealand indicate that some computer generated words *have insufficient letter spacing* although individual alphabet characters are generally acceptable, and in fact preferable to those produced by any other means. *If expensive mistakes are to be avoided computer generated words must be carefully checked for correct letter spacing and overall length prior to letter transfer and final fixing.*

LETTER	LETTER WIDTHS (mm)	Edge Code		Combination of edge codes for adjacent letters right – left	LETTER SPACING (mm)
		Left	Right		
W	75	–	III	III–III (parallel)	6
A	63	III	III	III–I	17
I	14	I	I	I–I	21
K	55	I	III	III–III (not parallel)	11
A	63	III	III	III–I	17
R	55	I	II	II–I	21
E	50	I	III	III–I	17
M	65	I	I	I–II	21
O	58	II	II	II–III	17
A	63	III	III	III–I	17
N	55	I	I	I–III	17
A	63	III	–		
Sum of widths = 679				Sum of spacings = 182	

EXAMPLE
Length of 'WAIKAREMOANA' using 100 mm series C alphabet (Refer to TABLE A1.3)
Total length of word is 679 + 182 = 861

FIG. A1.1 UPPER CASE ALPHABETS – EXAMPLE WORD LENGTH CALCULATION – SERIES C

SERIES A

	LETTER HEIGHT (mm)							Edge Code	
	50	75	100	125	150	200		Left	Right
	STROKE WIDTH (mm)								
	5	7	9.5	12	14	19			
	LETTER WIDTH (mm)								
A	22	33	44	55	66	88	A	III	III
B	19	28	38	47	57	76	B	I	II
C	19	28	38	47	57	76	C	II	III
D	19	28	38	47	57	76	D	I	II
E	17	25	34	42	51	68	E	I	III
F	17	25	34	42	51	68	F	I	III
G	19	28	38	47	57	76	G	II	II
H	19	28	38	47	57	76	H	I	I
I	5	7	9.5	12	14	19	I	I	I
J	19	28	38	47	57	76	J	III	I
K	19	28	38	47	57	76	K	I	III
L	17	25	34	42	51	68	L	I	III
M	22	33	44	55	66	88	M	I	I
N	19	28	38	47	57	76	N	I	I
O	20.5	31	41	51	62	82	O	II	II
P	19	28	38	47	57	76	P	I	II
Q	20.5	31	41	51	62	82	Q	II	II
R	19	28	38	47	57	76	R	I	II
S	19	28	38	47	57	76	S	II	II
T	17	25	34	42	51	68	T	III	III
U	19	28	38	47	57	76	U	I	I
V	22	33	44	55	66	88	V	III	III
W	27	41	55	68	83	110	W	III	III
X	19	28	38	47	57	76	X	III	III
Y	22	33	44	55	66	88	Y	III	III
Z	19	28	38	47	57	76	Z	III	III

	NUMERAL WIDTH (mm)								
1	9	13	17	21	26	34	1	I	I
2	19	28	38	47	57	76	2	II	II
3	19	28	38	48	57	76	3	III	II
4	21.5	32	43	54	65	86	4	III	III
5	19	28	38	47	57	76	5	I	II
6	19	28	38	47	57	76	6	II	II
7	19	28	38	47	57	76	7	III	III
8	19	28	38	47	57	76	8	II	II
9	19	28	38	47	57	76	9	II	II
0	20.5	31	41	51	62	82	0	II	II

Edge Code Combinations	LETTER SPACING (mm) (measured horizontally between nearest points)							Examples		
I-I I-II	7	11	14	18	21	28	I-I I-II	HI, NO,	JL, PB,	15, 10
I or II-III II-II	6	9	12	15	18	24	I or II-III II-II	NA, GO,	TS, RC,	27, 60
III-III Not Parallel	4	6	8	10	12	16	III-III Not Parallel	LA, EX,	FT, VY	43,
III-III Parallel	2	3	4	5	6	8	III-III Parallel	WA, FA,	LT, AY	74,

SERIES A - LETTER WIDTHS AND SPACING TABLE A1.1

SERIES B

LETTER HEIGHT (mm)							Edge Code	
50	**75**	**100**	**125**	**150**	**200**		**Left**	**Right**
STROKE WIDTH (mm)								
6	**9.5**	**12.5**	**16**	**19**	**25**			
LETTER WIDTH (mm)								
A								

	50	75	100	125	150	200		Left	Right
A	27	40	53	66	80	106	A	III	III
B	21	32	42	53	63	84	B	I ·	II
C	21	32	42	53	63	84	C	II	III
D	21	32	42	53	63	84	D	I	II
E	19	29	38	48	57	76	E	I	III
F	19	29	38	48	57	76	F	I	II
G	21	32	42	53	63	84	G	II	II
H	21	32	42	53	63	84	H	I	I
I	6	9.5	12.5	16	19	25	I	I	I
J	22	33	44	55	66	88	J	III	I
K	22	33	44	55	66	88	K	I	III
L	19	29	38	48	57	76	L	I	III
M	25	37	49	61	74	98	M	I	I
N	21	32	42	53	63	84	N	I	I
O	23	34	45	56	68	90	O	II	II
P	21	32	42	53	63	84	P	I	II
Q	23	34	45	56	68	90	Q	II	II
R	21	32	42	53	63	84	R	I	II
S	21	32	42	53	63	84	S	II	II
T	19	29	38	48	57	76	T	III	III
U	21	32	42	53	63	84	U	I	I
V	23	35	46	58	69	92	V	III	III
W	32	47	63	79	95	126	W	III	III
X	23	35	46	58	69	92	X	III	III
Y	27	40	53	66	80	106	Y	III	III
Z	21	32	42	53	63	84	Z	III	III

NUMERAL WIDTH (mm)									
1	11	16	21	26	32	42	1	I	I
2	21	32	42	53	63	84	2	II	II
3	21	32	42	53	63	84	3	III	II
4	25	37	49	61	74	98	4	III	III
5	21	32	42	53	63	84	5	I	II
6	21	32	42	53	63	84	6	II	II
7	21	32	42	53	63	84	7	III	III
8	21	32	42	53	63	84	8	II	II
9	21	32	42	53	63	84	9	II	II
0	23	34	45	56	68	90	0	II	II

Edge Code Combinations	LETTER SPACING (mm) (measured horizontally between nearest points)						Examples			
I-I I-II	10	14	19	24	28	38	I-I I-II	HI, NO,	JL, PB,	15, 10
I or II-III II-II	8	11	15	19	23	30	I or II-III II-II	NA, GO,	TS, RC,	27, 60
III-III Not Parallel	5	8	10	12	15	20	III-III Not Parallel	LA, EX,	FT, VY	43,
III-III Parallel	3	4	5	6	8	10	III-III Parallel	WA, FA,	LT, AY	74,

TABLE A1.2   SERIES B - LETTER WIDTHS AND SPACING

LETTER HEIGHT (mm)							SERIES C	
100	**125**	**150**	**200**	**250**	**300**			
STROKE WIDTH (mm)							Edge Code	
14	**18**	**21**	**28**	**35**	**42**		**Left**	**Right**
LETTER WIDTH (mm)								
A	63	79	95	126	158	189	A	III	III
B	55	69	83	110	138	165	B	I	II
C	55	69	83	110	138	165	C	II	III
D	55	69	83	110	138	165	D	I	II
E	50	63	75	100	125	150	E	I	III
F	50	63	75	100	125	150	F	I	III
G	55	69	83	110	138	165	G	II	II
H	55	69	83	110	138	165	H	I	I
I	14	18	21	28	35	42	I	I	I
J	50	63	75	100	125	150	J	III	I
K	55	69	83	110	138	165	K	I	III
L	50	63	75	100	125	150	L	I	III
M	65	81	98	130	163	195	M	I	I
N	55	69	83	110	138	165	N	I	I
O	58	73	87	116	145	174	O	II	II
P	55	69	83	110	138	165	P	I	II
Q	58	73	87	116	145	174	Q	II	II
R	55	69	83	110	138	165	R	I	II
S	55	69	83	110	138	165	S	II	II
T	50	63	75	110	125	150	T	III	III
U	55	69	83	110	138	165	U	I	I
V	61	76	92	122	153	183	V	III	III
W	75	94	113	150	188	225	W	III	III
X	59	74	89	118	148	177	X	III	III
Y	63	79	95	126	158	189	Y	III	III
Z	55	69	83	110	138	165	Z	III	III
NUMERAL WIDTH (mm)								
1	23	29	35	46	58	69	1	I	I
2	55	69	83	110	138	165	2	II	II
3	55	69	83	110	138	165	3	III	II
4	61	76	92	122	153	183	4	III	III
5	55	69	83	110	138	165	5	I	II
6	55	69	83	110	138	165	6	II	II
7	55	69	83	110	138	165	7	III	III
8	55	69	83	110	138	165	8	II	II
9	55	69	83	110	138	165	9	II	II
0	58	73	87	116	145	174	0	II	II

Edge Code Combinations	LETTER SPACING (mm) (measured horizontally between nearest points)							Examples		
I-I I-II	21	26	32	42	53	63	I-I I-II	HI, NO,	JL, PB,	15, 10
I or II-III II-II	17	21	24	32	43	51	I or II-III II-II	NA, GO,	TS, RC,	27, 60
III-III Not Parallel	11	14	17	22	28	33	III-III Not Parallel	LA, EX,	FT, VY	43,
III-III Parallel	6	7	9	12	15	18	III-III Parallel	WA, FA,	LT, AY	74,

SERIES C - LETTER WIDTHS AND SPACING   TABLE A1.3

LETTER HEIGHT (mm)							SERIES D	
100	125	150	200	250	300			
STROKE WIDTH (mm)							Edge Code	
15.5	19.5	23	31	39	47		Left	Right
LETTER WIDTH (mm)								
A — 84	105	126	168	210	252	A	III	III
B — 67	84	100	134	168	201	B	I	II
C — 67	84	100	134	168	201	C	II	III
D — 67	84	100	134	168	201	D	I	II
E — 61	76	91	122	152	183	E	I	III
F — 61	76	91	122	152	183	F	I	III
G — 67	84	100	134	168	201	G	II	II
H — 67	84	100	134	168	201	H	I	I
I — 15.5	19.5	23	31	39	47	I	I	I
J — 63	79	94	126	158	189	J	III	I
K — 69	86	104	138	172	207	K	I	III
L — 61	76	91	122	152	183	L	I	III
M — 77	96	116	154	192	231	M	I	I
N — 67	84	100	134	168	201	N	I	I
O — 70	88	105	140	175	210	O	II	II
P — 67	84	100	134	168	201	P	I	II
Q — 70	88	105	140	175	210	Q	II	II
R — 67	84	100	134	168	201	R	I	II
S — 67	84	100	134	168	201	S	II	II
T — 61	76	91	122	152	183	T	III	III
U — 67	84	100	134	168	201	U	I	I
V — 75	94	113	150	188	225	V	III	III
W — 88	110	132	176	220	264	W	III	III
X — 67	84	100	134	168	201	X	III	III
Y — 85	106	128	170	212	255	Y	III	III
Z — 67	84	100	134	168	201	Z	III	III

NUMERAL WIDTH (mm)								
1 — 24	30	36	48	60	72	1	I	I
2 — 67	84	100	134	168	201	2	II	II
3 — 67	84	100	134	168	201	3	III	II
4 — 74	93	111	148	185	222	4	III	III
5 — 67	84	100	134	168	201	5	I	II
6 — 67	84	100	134	168	201	6	II	II
7 — 67	84	100	134	168	201	7	III	III
8 — 67	84	100	134	168	201	8	II	II
9 — 67	84	100	134	168	201	9	II	II
0 — 70	88	105	140	175	210	0	II	II

Edge Code Combinations	LETTER SPACING (mm) (measured horizontally between nearest points)						Examples		
I-I I-II	23	29	35	46	58	69	I-I I-II	HI, NO,	JL, PB,	15, 10
I or II-III II-II	18	23	27	36	50	54	I or II-III II-II	NA, GO,	TS, RC,	27, 60
III-III Not Parallel	12	15	18	24	33	36	III-III Not Parallel	LA, EX,	FT, VY	43,
III-III Parallel	6	8	9	12	15	18	III-III Parallel	WA, FA,	LT, AY	74,

TABLE A1.4   SERIES D - LETTER WIDTHS AND SPACING

SERIES E

LETTER HEIGHT (mm)							Edge Code	
100	125	150	200	250	300		Left	Right
STROKE WIDTH (mm)								
17	21	26	34	43	51			
LETTER WIDTH (mm)								
A 100	125	150	200	250	300	A	III	III
B 80	100	120	160	200	240	B	I	II
C 80	100	120	160	200	240	C	II	III
D 80	100	120	160	200	240	D	I	II
E 74	93	111	148	185	222	E	I	III
F 74	93	111	148	185	222	F	I	III
G 80	100	120	160	200	240	G	II	II
H 80	100	120	160	200	240	H	I	I
I 17	21	26	34	43	51	I	I	I
J 75	94	113	150	188	225	J	III	I
K 80	100	120	160	200	240	K	I	III
L 74	93	111	148	185	222	L	I	III
M 92	115	138	184	230	276	M	I	I
N 80	100	120	160	200	240	N	I	I
O 83	104	125	166	208	249	O	II	II
P 80	100	120	160	200	240	P	I	II
Q 83	104	125	166	208	249	Q	II	II
R 80	100	120	160	200	240	R	I	II
S 80	100	120	160	200	240	S	II	II
T 74	93	111	148	185	222	T	III	III
U 80	100	120	160	200	240	U	I	I
V 90	113	135	180	225	270	V	III	III
W 105	131	158	210	263	315	W	III	III
X 86	108	129	172	215	258	X	III	III
Y 100	125	150	200	250	300	Y	III	III
Z 80	100	120	160	200	240	Z	III	III

NUMERAL WIDTH (mm)								
1 28	37	44	59	74	89	1	I	I
2 80	100	120	160	200	240	2	II	II
3 80	100	120	160	200	240	3	III	II
4 92	115	138	184	230	276	4	III	III
5 80	100	120	160	200	240	5	I	II
6 80	100	120	160	200	240	6	II	II
7 80	100	120	160	200	240	7	III	III
8 80	100	120	160	200	240	8	II	II
9 80	100	120	160	200	240	9	II	II
0 83	104	125	166	208	249	0	II	II

Edge Code Combinations	LETTER SPACING (mm) (measured horizontally between nearest points)						Examples		
I-I I-II	26	32	39	52	65	78	I-I I-II	HI, NO,	JL, PB,	15, 10
I or II-III II-II	21	26	32	42	53	63	I or I-III II-II	NA, GO,	TS, RC,	27, 60
III-III Not Parallel	14	17	21	28	35	2	III-III Not Parallel	LA, EX,	FT, VY	43,
III-III Parallel	7	9	11	14	18	21	III-III Parallel	WA, FA,	LT, AY	74,

SERIES E - LETTER WIDTHS AND SPACING | **TABLE A1.5**

TRANSPORT MEDIUM ALPHABET

2.0 General

The TRANSPORT MEDIUM alphabet is used for lower case legends on RP type (Stopping and Parking) signs and is also the basis of the abbreviations for the metric symbols "m", "km", "km/h" and "kg".

With the exception of some RP type signs it is used for signs with light coloured legends on darker backgrounds.

2.1 Alphabet Size, Stroke Width, Letter Spacing and Tile System:

The size of the alphabet is specified by the 'x' height, 'x' being the height of the lower case letter x.

Alphabet stroke width (referred to as s/w) is equal to 25% of the 'x' height. The correct spacing between letters in a word and between lines of text is achieved by using a system of tiles, each of which contains an alphabet character which has the required clearances "built in" on all sides.

Tile edges are butted together to form word blocks.

The overall tile height if twice the 'x' height with lower case letters having 0.5 'x' top and bottom clearance to the tile edges. The height of upper case letters and numerals is 1.4 'x' with 0.1 'x' top clearance and 0.5 'x' bottom clearance to the tile edges. Lower case letters with ascenders or descenders are similarly proportioned to the upper case letters.

Tile widths given in TABLE A1.6 are expressed as a percentage of the 'x' height (see below). Note that when T, V, or Y is followed by a, e, g, o, r, s, u, w, or y, special tiles of lesser width are used for both the upper case and lower case letters. Also, when W is followed by another upper case letter, a specially increased tile width is used for the W. The bracketed dimensions given in TABLE A1.6 refer to these two situations.

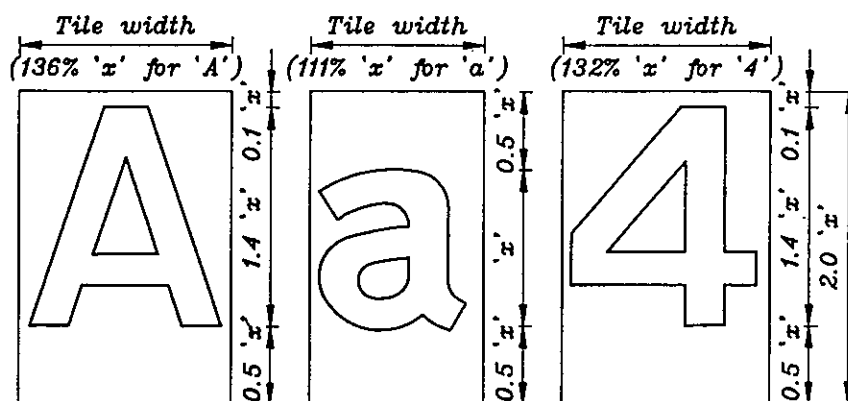### 2.2 Word Length, Spacing and Border Clearance:

TABLE A1.6 and FIGURES A1.2 to A1.4 provide the basic tile details of this alphabet to enable manual calculation of word lengths. Metric symbol details are also given on Fig. A1.4.

With the exception of metric symbols (see FIG. A1.2) all dimensioned TRANSPORT MEDIUM legends shown on the sign specification diagrams are in terms of the tile system, eg, where a 25 mm 'x' height is specified then the legend is dimensioned at the tile height of 50 mm. A word length is dimensioned by the overall length of the word block.

Unless otherwise specified, related words on the same line, as in a phrase, are to be separated by two stroke widths. For those RP type signs that are illustrated, word lengths and side border clearances to tile edges are specified. For other words that are no illustrated, the legend length is first calculated by the summation of tile widths, allowance made for side border clearances and word spaces, and then (where necessary) a compression factor is calculated. The minimum side border clearance is 2.5 s/w. Note that while word compression is readily achieved using computer font systems, compression should never exceed 70%.
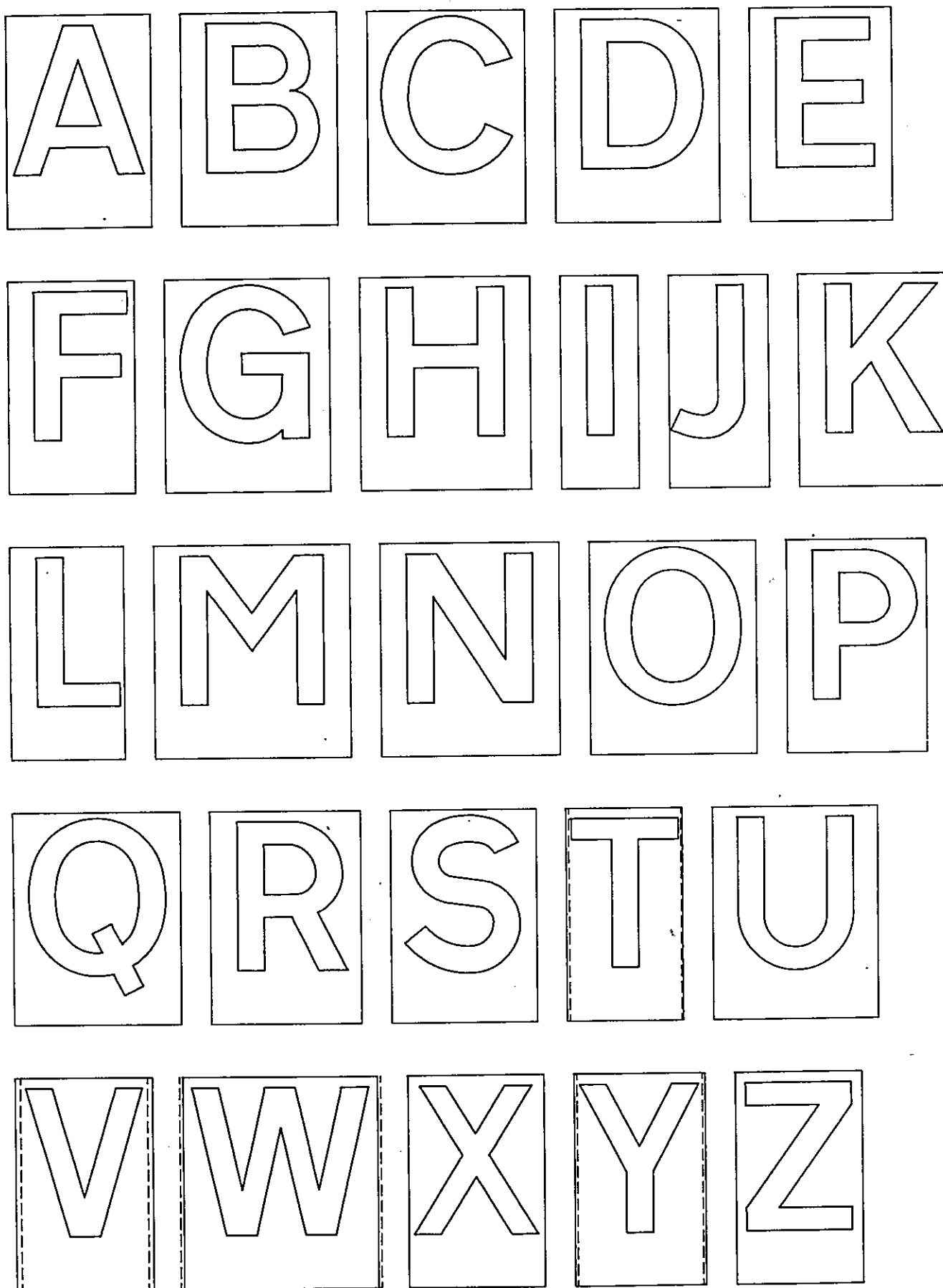
2.3 Computer Generated Fonts:

Correct letter spacing is essential if adequate word readability is to be achieved. Observations in New Zealand indicate that some computer generated words *have insufficient letter spacing* although individual alphabet characters are generally acceptable and in fact preferable to those produced by any other means. *If expensive mistakes are to be avoided computer generated words must be carefully checked for correct letter spacing and overall length, prior to letter transfer and final fixing.*

TILE WIDTHS – (% 'x' Height)		
Upper Case	Lower Case	Numerals and fractions
A 136	a 111(104)	1 79
B 147	b 117	2 120
C 148	c 103	3 127
D 154	d 119	4 132
E 132	e 109(102)	5 122
F 119	f 75	6 126
G 155	g 114(107)	7 104
H 160	h 112	8 130
I 73	I 54	9 128
J 93	j 58	Punctuation marks etc.
K 138	k 108	
L 107	l 62	
M 184	m 164	- 66
N 168	n 112	. 53
O 156	o 118(111)	' 39
P 130	p 118	(105
Q 158	q 118	) 105
R 141	r 73(59)	, 53
S 137	s 97(95)	" 92
T 109(105)	t 81	% 160
U 154	u 115(101)	& 126
V 130(120)	v 98	
W 183(189)	w 147(145)	
X 128	x 104	1 s/w 25
Y 123(118)	y 98(96)	1½ s/w 38
Z 119	z 97	2½ s/w 63

TABLE A1.6 TILE WIDTHS – TRANSP. MED.

Tile width (136% 'x' for 'A') Tile width (111% 'x' for 'a') Tile width (132% 'x' for '4')

BASIC TILE / CHARACTER PROPORTIONS

TRANSPORT MEDIUM ALPHABET - TILE DETAILS   **FIGURE A1.2**

a b c d e f g
h i j k l m n
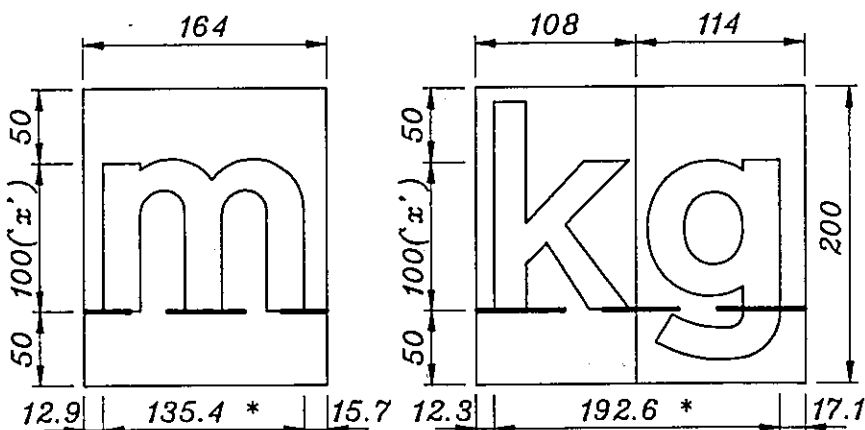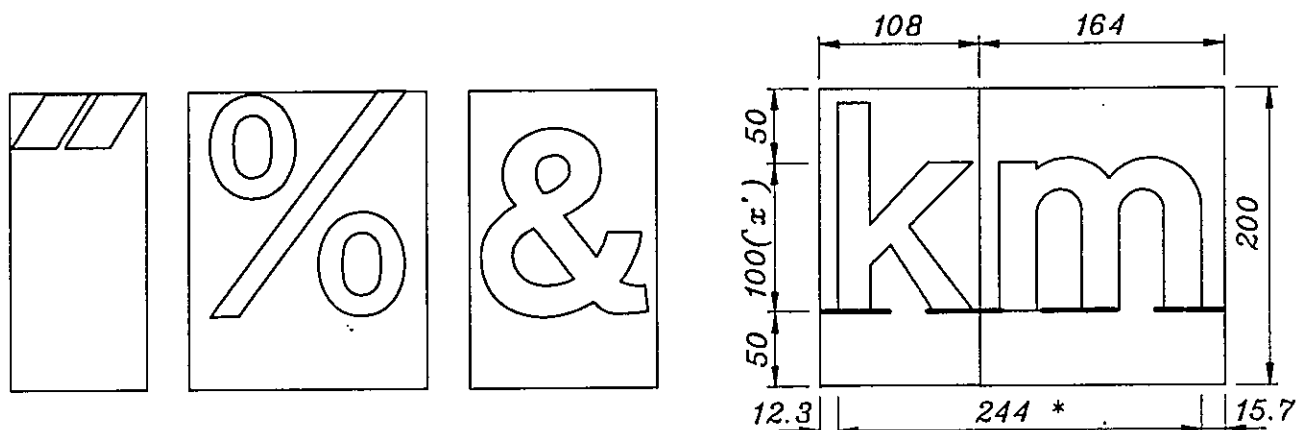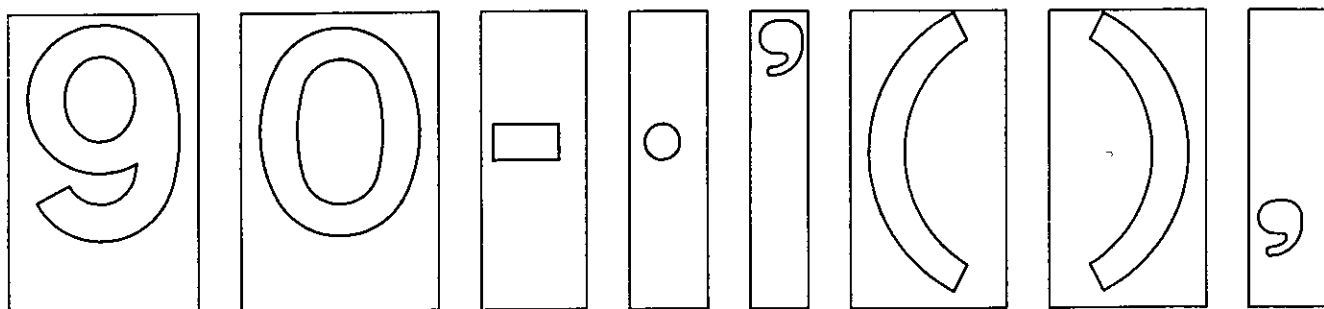o p q r s t u
v w x y z 1 2
3 4 5 6 7 8
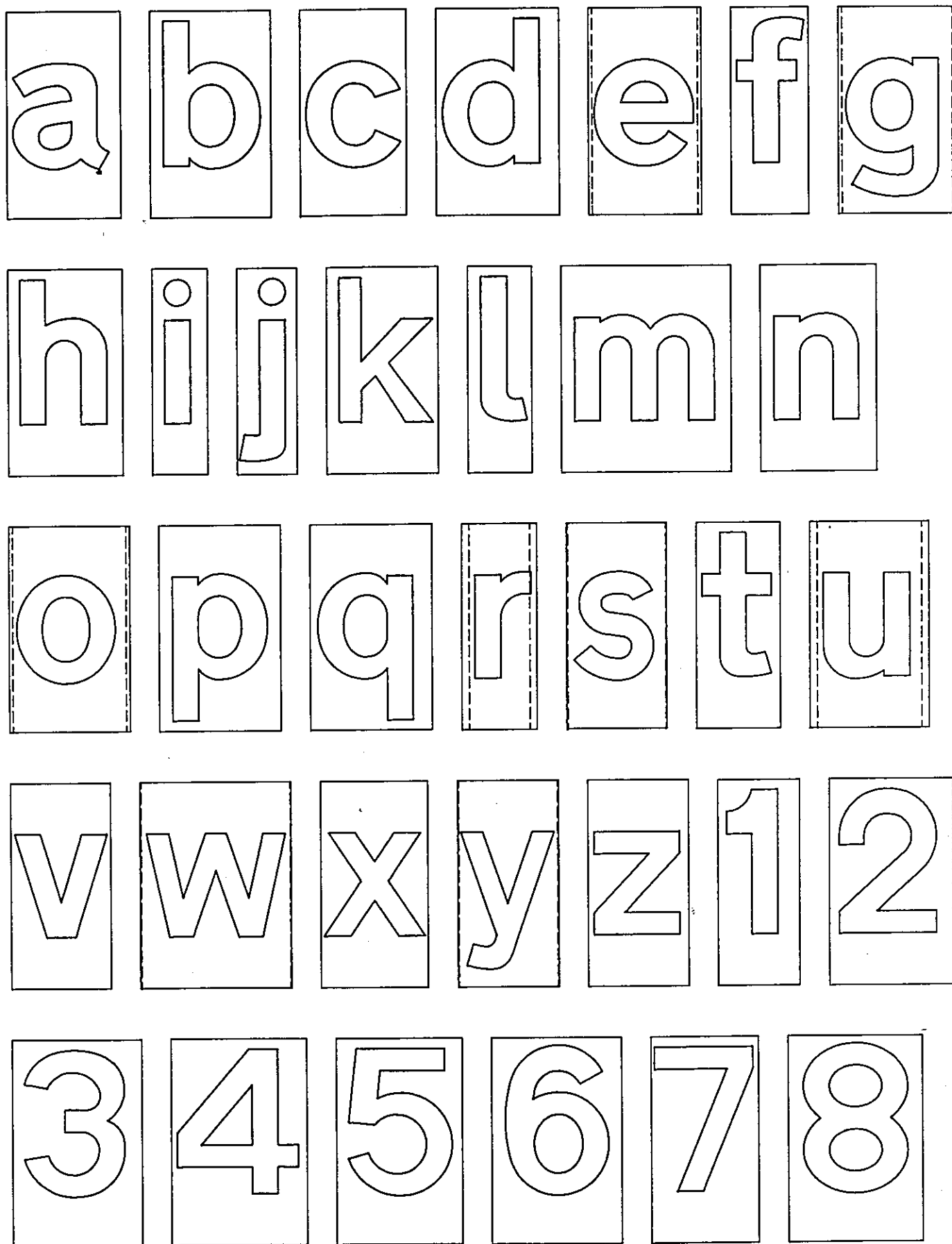
FIGURE A1.3   TRANSPORT MEDIUM ALPHABET - TILE DETAILS

METRIC SYMBOLS

1. All metric symbol dimensions shown on these diagrams are expressed as a *percentage of the 'x' height*. The dimensions indicated thereon by asterisks are given in millimetres on individual sign specification diagrams. These dimensions in millimetres have been determined by applying the *percentage of the 'x' height* values to the actual 'x' height (in millimetres) specified for the particular sign.

2. The vertical location reference of metric symbols on individual sign specification diagrams is shown by a bold dashed line thus: ▬▬ ▬▬

3. As a general rule the *'x' height* of the symbols "kg", "km", and "km/h" is 50% of the height of adjacent numerals, while for "m", this is 67%.
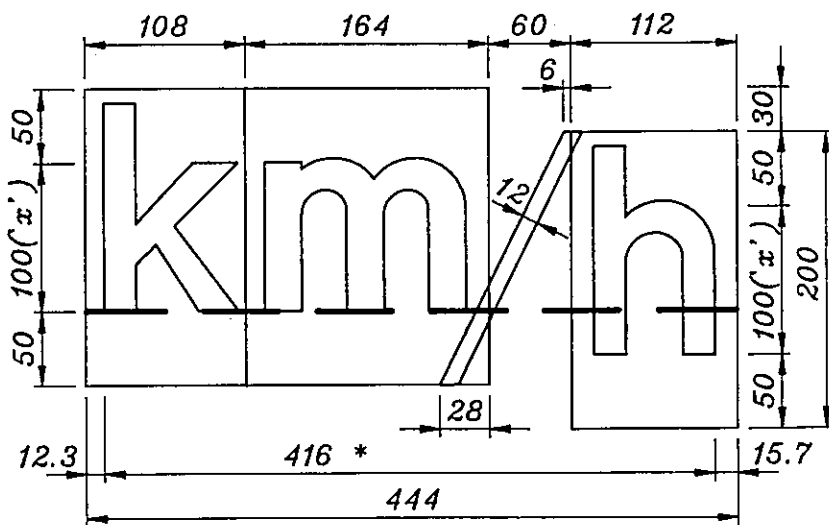
TRANSPORT MEDIUM ALPHABET - TILE DETAILS AND METRIC SYMBOLS

FIGURE A1.4

MODIFIED SERIES E/lower case ALPHABET

3.1 GENERAL

The Modified Series E/lower case alphabet is only used for stage and destination names on guide signs.

3.2 LETTER AND NUMERAL DIMENSIONS

The dimensions of letters and numerals for a Modified Series E/lower case alphabet at 640 mm and at 160 mm are given in Table A1.7.

Dimensions for other letter heights are determined by multiplying values from Table A1.7 by a conversion factor. The conversion factor, k, is determined by the following calculation:

$$k = \frac{\text{letter height to be used (mm)}}{640}$$

3.3 SPACING FACTORS

Spacings between letters and between letters and numerals for the Modified Series E/lower case alphabet shall be:

(a) LETTER TO LETTER SPACING

Spacings between capital letters and lower case letters are given in Table A1.8. Spacings between lower case letters are given in Table A1.9. For letter heights other than 640 mm, proportion the value from Table A1.8 or A1.9 according to the letter size being used, eg:

$$\text{Letter space} = \frac{\text{value from Table} \times \text{letter height}}{640}$$

(b) LETTER TO NUMERAL AND NUMERAL TO NUMERAL SPACING

Spacings between numerals and between capital letters and numerals are given in Table A1.10. For letter heights other than 640 mm, proportion the value from Table A1.10 according to the letter size being used, eg:

$$\text{Letter space} = \frac{\text{value from Table} \times \text{letter height}}{640}$$

TABLE A1.7   MODIFIED SERIES E/lower case ALPHABET – LETTER AND NUMERAL DIMENSIONS.

Capital Letters			Lower Case Letters		
Height	640	160	Height	480	120
Matching lower case letter height	480	120	Matching capital letter height	640	160
Stroke width	128	32	Stroke width	120	30
Letter width			Letter width		
A	652	163	a	408	102
B	518	130	b	413	103
C	512	128	c	408	102
D	518	130	d	403	101
E	493	123	e	408	102
F	474	119	f	264	66
G	512	128	g	408	102
H	525	131	h	403	101
I	128	32	i	120	30
J	493	123	j	226	57
K	538	135	k	398	100
L	493	123	l	120	30
M	666	167	m	682	171
N	538	135	n	408	102
O	538	135	o	422	106
P	525	131	p	403	101
Q	538	135	q	403	101
R	525	131	r	312	78
S	525	131	s	398	100
T	480	120	t	322	81
U	531	133	u	408	102
V	589	147	v	485	121
W	691	173	w	634	159
X	646	162	x	494	124
Y	646	162	y	514	129
Z	525	131	z	418	105
1	216	54			
2	525	131			
3	525	131			
4	621	155			
5	525	131			
6	525	131			
7	525	131			
8	525	131			
9	525	131			
0	538	135			

TABLE A1.7

MODIFIED SERIES E/lower case ALPHABET LETTER AND NUMERAL DIMENSIONS

TABLE A1.8: MODIFIED SERIES E/lower case ALPHABET SPACINGS BETWEEN CAPITAL AND LOWER CASE LETTERS
(millimetres space for letter height 640 mm)

Initial or preceding letter	Followed by							
	acde goq	bhikl mnpru	fw	j	st	vy	x	z
A	150	170	140	95	120	100	120	155
B	180	230	170	120	165	140	140	185
C	170	210	155	110	150	150	160	175
D	165	215	160	105	150	150	160	170
E	170	210	155	110	150	150	160	175
F	80	160	100	80	90	90	95	120
G	170	210	155	110	150	150	160	175
H	220	260	210	170	205	205	215	225
I	220	260	210	170	205	205	215	225
J	215	230	205	165	190	190	200	220
K	130	190	120	75	115	115	125	140
L	130	190	120	75	115	115	125	140
M	220	260	210	170	205	205	215	225
N	220	260	210	170	205	205	215	225
O	165	215	160	105	150	150	160	170
P	155	180	145	80	130	130	140	150
Q	165	215	160	105	150	150	160	170
R	165	215	160	105	150	150	160	170
S	150	205	140	100	135	135	145	155
T	120	190	110	90	120	120	130	140
U	215	230	205	165	190	190	200	220
V	110	180	120	95	135	135	145	155
W	150	170	140	95	120	100	120	155
X	150	170	140	95	120	100	120	155
Y	80	160	100	70	75	75	90	130
Z	200	240	195	140	190	190	200	210

TABLE A1.9: MODIFIED SERIES E/lower case ALPHABET SPACINGS BETWEEN LOWER CASE LETTERS
(millimetres space for letter height 640 mm)

Initial or preceding letter	Followed by							
	acde goq	bhikl mnpru	fw	j	st	vy	x	z
a	195	245	185	140	180	180	190	200
b	140	195	130	85	125	125	135	145
c	150	200	140	95	135	135	145	155
d	195	245	185	140	180	180	190	200
e	150	200	140	95	135	135	145	155
f	140	195	130	85	125	125	135	145
g	195	245	185	140	180	180	190	200
h	195	245	185	140	180	180	190	200
i	195	245	185	140	180	180	190	200
j	195	245	185	140	180	180	190	200
k	140	195	130	85	125	125	135	145
l	195	245	185	140	180	180	190	200
m	195	245	185	140	180	180	190	200
n	195	245	185	140	180	180	190	200
o	140	195	130	85	125	125	135	145
p	140	195	130	85	125	125	135	145
q	195	245	185	140	180	180	190	200
r	95	150	90	40	80	80	90	100
s	140	195	130	85	125	125	135	145
t	145	200	135	90	130	130	140	150
u	195	245	185	140	180	180	190	200
v	125	180	115	70	110	110	120	130
w	130	180	120	75	115	115	125	135
x	135	185	125	80	120	120	130	140
y	125	180	115	70	110	110	120	130
z	145	200	135	90	130	130	140	150

NOTE: Spacing is proportional to letter height. For example, the space between 'A' and 'b' for 640 mm letter height is 170 mm. The space between the same letters for 160 mm letter height would be 170×160/640=42.5 mm.

MODIFIED SERIES E/lower case ALPHABET SPACINGS BETWEEN LETTERS   TABLE A1.8   TABLE A1.9

TABLE A1.10: MODIFIED SERIES E/lower case ALPHABET
SPACINGS BETWEEN CAPITAL LETTERS AND NUMERALS
(millimetres space for letter height 640 mm)

Initial or preceding letter	Followed by							
	AVWX 5	BDEFHIK LMNPRU	CGOQS 24890	J	T7	Y	Z1	3,6
A	165	245	175	145	150	160	230	
B	185	265	185	165	175	180	250	
C	180	260	185	160	165	175	245	
D	175	250	180	150	160	165	240	
E	180	260	185	160	165	175	245	
F	150	230	160	130	135	145	215	
G	130	260	185	160	165	175	245	
H	245	325	250	225	230	240	310	
I	245	325	250	225	230	240	310	
J	245	325	250	225	230	240	310	
K	145	225	150	120	130	135	210	
L	145	225	150	120	130	135	210	
M	245	325	250	225	230	240	310	
N	245	325	250	225	230	240	310	
O	175	250	180	150	160	165	240	
P	175	250	180	150	160	165	240	
Q	175	250	180	150	160	165	240	
R	175	250	180	150	160	165	240	
S	160	240	165	135	145	150	225	
T	150	230	160	130	135	145	215	
U	245	325	250	225	230	240	310	
V	165	245	175	145	150	160	230	
W	165	245	175	145	150	160	230	
X	165	245	175	145	150	160	230	
Y	160	240	165	135	145	150	225	
Z	230	310	240	210	215	225	295	
1	245		250		230		310	260
2	160		165		145		225	175
3	185		195		175		250	200
4	225		230		210		290	240
5	165		175		150		230	180
6	165		175		150		230	180
7	150		160		135		215	165
8	175		180		160		240	185
9	175		180		160		240	185
0	175		180		160		240	185

NOTE: Spacing is proportional to letter and numeral height. For example, the space between 'A' and '5' for 640 mm letter height is 165 mm. The same space for 160 mm letter height would be 165×160/640=41.25 mm.

TABLE A1.10   **MODIFIED SERIES E/lower case ALPHABET SPACINGS BETWEEN LETTERS AND NUMERALS**