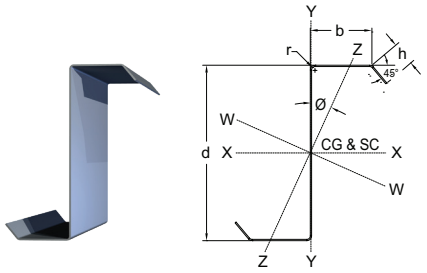


Z Sections

6" – 10" COLD FORMED STRUCTURAL SECTIONS

SECTION DIMENSIONS & PROPERTIES

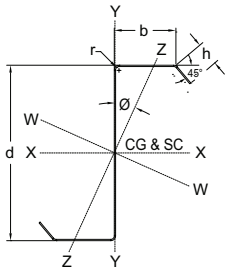
IMPERIAL

SECTION	DIMENSIONS					PROPERTIES									
	Depth of Section	Flange Width	Length of Lip	Thickness of Steel	Area of Section	Gross Moment of Inertia About X-X	Elastic Section Modulus About X-X	Radius of Gyration About X-X	Gross Moment of Inertia About Y-Y	Elastic Section Modulus About Y-Y	Radius of Gyration About Y-Y	Radius of Gyration About Z-Z	Local of Minor Principal Axes	St. Venant Torsion Constant	Warping Constant
	d (in)	b (in)	h (in)	t (in)	A (in^2)	I_x (in^4)	S_x (in^3)	r_x (in)	I_y (in^4)	S_y (in^3)	r_y (in)	r_{min} (in)	Ø ang (°)	J (in^4)	C_w (in^6)
06Z16	6	2.50	0.95	0.060	0.75	4.31	1.44	2.40	1.46	0.47	1.40	0.84	26.5	8.93E-04	8.7
06Z14	6	2.50	0.95	0.075	0.93	5.33	1.78	2.39	1.80	0.58	1.39	0.83	26.4	1.73E-03	10.7
06Z13	6	2.50	0.95	0.090	1.11	6.34	2.11	2.39	2.14	0.68	1.39	0.83	26.4	2.99E-03	12.6
06Z12	6	2.50	0.95	0.105	1.29	7.33	2.44	2.38	2.46	0.79	1.38	0.82	26.4	4.72E-03	14.5
06Z11	6	2.50	0.95	0.120	1.47	8.30	2.77	2.37	2.78	0.89	1.37	0.82	26.3	7.03E-03	16.2
06Z10	6	2.50	0.95	0.135	1.65	9.24	3.08	2.37	3.09	1.00	1.37	0.82	26.3	9.96E-03	17.9
08Z16	8	2.80	1.08	0.060	0.92	9.15	2.29	3.15	2.09	0.59	1.51	0.95	21.2	1.10E-03	23.0
08Z14	8	2.80	1.08	0.075	1.15	11.34	2.84	3.15	2.58	0.73	1.50	0.95	21.2	2.13E-03	28.3
08Z13	8	2.80	1.08	0.090	1.37	13.52	3.38	3.14	3.07	0.87	1.50	0.95	21.1	3.68E-03	33.5
08Z12	8	2.80	1.08	0.105	1.59	15.64	3.91	3.13	3.54	1.01	1.49	0.94	21.1	5.81E-03	38.5
08Z11	8	2.80	1.08	0.120	1.82	17.75	4.44	3.13	4.00	1.14	1.48	0.94	21.0	8.66E-03	43.4
08Z10	8	2.80	1.08	0.135	2.04	19.80	4.95	3.12	4.45	1.27	1.48	0.94	21.0	1.23E-02	48.1
09Z16	9	2.88	1.08	0.060	0.99	12.24	2.72	3.52	2.23	0.62	1.50	0.98	18.7	1.18E-03	31.6
09Z14	9	2.88	1.08	0.075	1.23	15.18	3.37	3.51	2.75	0.76	1.49	0.97	18.6	2.29E-03	38.9
09Z13	9	2.88	1.08	0.090	1.48	18.10	4.02	3.50	3.27	0.91	1.49	0.97	18.6	3.96E-03	46.1
09Z12	9	2.88	1.08	0.105	1.72	20.96	4.66	3.50	3.77	1.05	1.48	0.96	18.6	6.26E-03	53.0
09Z11	9	2.88	1.08	0.120	1.96	23.79	5.29	3.49	4.27	1.19	1.48	0.96	18.5	9.32E-03	59.7
09Z10	9	2.88	1.08	0.135	2.19	26.57	5.90	3.48	4.75	1.33	1.47	0.96	18.5	1.32E-02	66.2
10Z16	10	3.02	1.18	0.060	1.08	16.29	3.26	3.89	2.66	0.69	1.57	1.03	17.5	1.29E-03	47.2
10Z14	10	3.02	1.18	0.075	1.34	20.22	4.04	3.88	3.29	0.86	1.56	1.03	17.5	2.50E-03	58.2
10Z13	10	3.02	1.18	0.090	1.61	24.13	4.82	3.87	3.90	1.02	1.56	1.03	17.4	4.31E-03	69.0
10Z12	10	3.02	1.18	0.105	1.87	27.95	5.59	3.87	4.51	1.19	1.55	1.02	17.4	6.82E-03	79.4
10Z11	10	3.02	1.18	0.120	2.13	31.75	6.35	3.86	5.10	1.34	1.55	1.02	17.4	1.02E-02	89.6
10Z10	10	3.02	1.18	0.135	2.39	35.48	7.10	3.85	5.68	1.50	1.54	1.02	17.3	1.44E-02	99.4

ExSteel roll forms a wide range of cee and zee sections for use in building applications or to replace hot rolled sections. Sizes range from 4 1/2 to 16 inches deep with flange widths from 2 to 3 1/2 inches and thicknesses from 16 ga. (0.06 in) to 10 ga. (0.135 in). An infinite choice of sizes between those listed are also available. This design table only includes standard section sizes that are typically manufactured by ExSteel.

1. Section properties are in accordance with 2004 NAS - Canada (LSD) for the Design of Cold-Formed Steel Structural Members.

STEELWAY BUILDING SYSTEMS



Z Sections

6" – 10" COLD FORMED STRUCTURAL SECTIONS

SECTION RESISTANCE TABLE

IMPERIAL

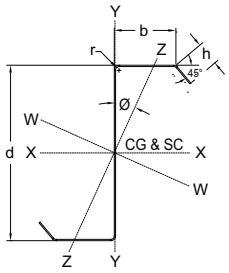
SECTION								LIMIT STATES DESIGN - 2004 NAS - CANADA							
								M_r' (kip-ft) (FACTORED EFFECTIVE MOMENT RESISTANCE)							
								UNBRACED LENGTH							
	Mass (lb/ft)	V_r (kips)	C_r' (kips)	P_r 4" (kips)	P_r 8" (kips)	L_u (ft)	$M_r<L_u$ (kip-ft)	6'	8'	10'	12'	14'	16'	18'	20'
06Z16	2.55	4.4	20.9	0.71	0.76	4.04	5.2	4.7	3.9	2.8	2.0	1.5	1.1	0.9	0.8
06Z14	3.17	7.9	28.5	1.12	1.18	4.04	6.7	6.2	5.0	3.5	2.5	1.8	1.4	1.2	1.0
06Z13	3.79	11.4	39.7	1.62	1.70	4.04	8.6	7.6	6.0	4.2	3.0	2.3	1.8	1.5	1.2
06Z12	4.40	15.0	49.3	2.21	2.32	4.04	10.1	8.8	7.0	4.9	3.5	2.7	2.1	1.8	1.5
06Z11	5.01	17.0	58.3	2.90	3.03	4.04	11.4	10.0	8.0	5.7	4.1	3.2	2.5	2.1	1.8
06Z10	5.62	19.0	67.5	3.68	3.82	4.04	12.7	11.1	9.0	6.5	4.7	3.7	3.0	2.5	2.1
08Z16	3.13	3.2	22.3	0.71	0.75	4.45	8.1	7.6	6.5	5.1	3.7	2.8	2.1	1.7	1.4
08Z14	3.90	6.4	30.5	1.12	1.18	4.45	10.4	9.7	8.6	6.6	4.6	3.4	2.7	2.1	1.8
08Z13	4.66	11.0	41.0	1.62	1.70	4.45	13.1	12.5	10.6	7.9	5.6	4.2	3.2	2.6	2.1
08Z12	5.42	15.5	53.8	2.21	2.31	4.45	16.1	14.7	12.3	9.2	6.5	4.9	3.8	3.1	2.6
08Z11	6.18	20.2	64.4	2.90	3.02	4.45	18.3	16.7	13.9	10.5	7.5	5.6	4.4	3.6	3.0
08Z10	6.92	25.6	74.9	3.67	3.82	4.45	20.4	18.6	15.6	11.8	8.5	6.4	5.1	4.1	3.5
09Z16	3.36	2.9	22.6	0.71	0.75	4.48	9.1	8.6	7.8	6.1	4.5	3.3	2.6	2.0	1.7
09Z14	4.19	5.6	30.7	1.12	1.18	4.48	12.3	11.5	10.0	8.0	5.6	4.1	3.2	2.5	2.1
09Z13	5.02	9.7	40.6	1.62	1.70	4.48	15.3	14.5	12.7	9.5	6.7	5.0	3.9	3.1	2.5
09Z12	5.83	15.5	53.6	2.21	2.31	4.48	18.8	17.6	14.7	11.1	7.8	5.8	4.5	3.6	3.0
09Z11	6.65	20.2	65.8	2.90	3.02	4.48	21.8	19.9	16.7	12.6	8.9	6.7	5.2	4.2	3.5
09Z10	7.45	25.6	76.6	3.67	3.82	4.48	24.4	22.3	18.6	14.1	10.1	7.6	6.0	4.8	4.0
10Z16	3.67	2.6	22.7	0.71	0.75	4.73	10.1	9.7	8.8	7.7	5.7	4.4	3.4	2.7	2.2
10Z14	4.57	5.0	32.4	1.12	1.18	4.73	14.7	14.1	12.5	10.2	7.4	5.5	4.2	3.4	2.7
10Z13	5.47	8.7	41.5	1.62	1.70	4.73	18.0	17.4	15.8	12.5	8.9	6.6	5.1	4.1	3.3
10Z12	6.36	13.8	55.8	2.21	2.31	4.73	22.6	21.5	18.4	14.4	10.3	7.7	5.9	4.8	3.9
10Z11	7.25	20.2	68.7	2.89	3.02	4.73	26.2	24.5	20.9	16.4	11.8	8.8	6.8	5.5	4.5
10Z10	8.13	25.6	80.0	3.67	3.82	4.73	29.3	27.3	23.4	18.4	13.2	9.9	7.7	6.2	5.2

1. Loads are based on steel conforming to G40.21 or ASTM A1011/A1011M.
2. Member resistances are in accordance with 2004 NAS - Canada (LSD) for the Design of Cold-Formed Steel Structural Members.
3. Values have been calculated assuming no effect from cold work of forming.
4. Users of data contained in these tables assume all liability arising from such use.

F_y = 55 ksi = minimum specified yield strength
L_u = calculated maximum unbraced length to achieve fully braced member capacities
M_r = factored effective moment resistance for unbraced length less than or equal to L_u
M_r' = factored effective moment resistance based on unsupported length
C_r' = factored compressive resistance for a fully braced member

V_r = factored shear resistance
$K_x = K_y = K_t = 1.0$
$C_b = 1.0$
P_r 4" = 4" bearing web crippling resistance
P_r 8" = 8" bearing web crippling resistance
R = Average bend radius (all values calculated based on 3/16" bend radius)

STEELWAY BUILDING SYSTEMS



Z Sections

12" – 14" COLD FORMED STRUCTURAL SECTIONS

SECTION DIMENSIONS & PROPERTIES

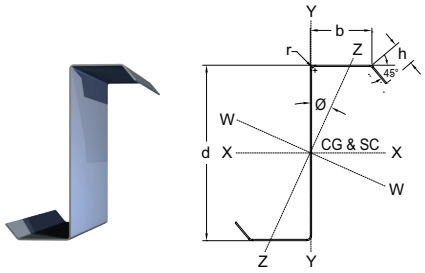
IMPERIAL

SECTION	DIMENSIONS					PROPERTIES									
	Depth of Section	Flange Width	Length of Lip	Thickness of Steel	Area of Section	Gross Moment of Inertia About X-X	Elastic Section Modulus About X-X	Radius of Gyration About X-X	Gross Moment of Inertia About Y-Y	Elastic Section Modulus About Y-Y	Radius of Gyration About Y-Y	Radius of Gyration About Z-Z	Local of Minor Principal Axes	St. Venant Torsion Constant	Warping Constant
	d (in)	b (in)	h (in)	t (in)	A (in^2)	I_x (in^4)	S_x (in^3)	r_x (in)	I_y (in^4)	S_y (in^3)	r_y (in)	r_{min} (in)	Ø ang (°)	J (in^4)	C_w (in^6)
12Z14	12	3.14	1.18	0.075	1.51	31.76	5.29	4.59	3.59	0.91	1.54	1.05	14.1	2.81E-03	94.3
12Z13	12	3.14	1.18	0.090	1.81	37.92	6.32	4.58	4.27	1.09	1.54	1.05	14.1	4.85E-03	111.8
12Z12	12	3.14	1.18	0.105	2.10	43.96	7.33	4.57	4.93	1.26	1.53	1.05	14.1	7.68E-03	128.8
12Z11	12	3.14	1.18	0.120	2.40	49.98	8.33	4.56	5.58	1.43	1.53	1.04	14.1	1.14E-02	145.5
12Z10	12	3.14	1.18	0.135	2.69	55.89	9.31	4.56	6.22	1.59	1.52	1.04	14.0	1.62E-02	161.6
14Z13	14	3.14	1.18	0.090	1.99	54.79	7.83	5.25	4.27	1.09	1.47	1.04	11.4	5.33E-03	157.0
14Z12	14	3.14	1.18	0.105	2.31	63.57	9.08	5.24	4.93	1.26	1.46	1.03	11.4	8.44E-03	180.9
14Z11	14	3.14	1.18	0.120	2.64	72.31	10.33	5.23	5.58	1.43	1.45	1.03	11.3	1.26E-02	204.4
14Z10	14	3.14	1.18	0.135	2.96	80.89	11.56	5.23	6.22	1.59	1.45	1.02	11.3	1.79E-02	227.1

ExSteel roll forms a wide range of cee and zee sections for use in building applications or to replace hot rolled sections. Sizes range from 4 1/2 to 16 inches deep with flange widths from 2 to 3 1/2 inches and thicknesses from 16 ga. (0.06 in) to 10 ga. (0.135 in). An infinite choice of sizes between those listed are also available. This design table only includes standard section sizes that are typically manufactured by ExSteel.

1. Section properties are in accordance with 2004 NAS - Canada (LSD) for the Design of Cold-Formed Steel Structural Members.

STEELWAY BUILDING SYSTEMS



Z Sections

12" – 14" COLD FORMED STRUCTURAL SECTIONS

SECTION RESISTANCE TABLE

IMPERIAL

SECTION	Mass (lb/ft)	V_r (kips)	C_r' (kips)	P_r 4" (kips)	P_r 8" (kips)	L_u (ft)	$M_r<L_u$ (kip-ft)	LIMIT STATES DESIGN - 2004 NAS - CANADA M_r' (kip-ft) (FACTORED EFFECTIVE MOMENT RESISTANCE) UNBRACED LENGTH 6'	8'	10'	12'	14'	16'	18'	20'
12Z14	5.13	4.1	32.6	1.12	1.18	4.76	17.5	17.0	15.7	13.4	9.8	7.2	5.6	4.4	3.6
12Z13	6.15	7.2	41.8	1.62	1.70	4.76	23.0	22.2	20.2	16.5	11.7	8.7	6.7	5.3	4.3
12Z12	7.15	11.4	55.0	2.21	2.31	4.76	28.7	27.6	24.2	19.1	13.6	10.1	7.8	6.2	5.1
12Z11	8.16	17.1	69.2	2.89	3.02	4.76	34.0	32.2	27.5	21.7	15.5	11.5	8.9	7.1	5.9
12Z10	9.15	24.4	82.3	3.66	3.81	4.76	38.4	35.9	30.8	24.2	17.4	12.9	10.0	8.1	6.6
14Z13	6.76	6.1	42.0	1.62	1.70	4.63	24.5	23.5	22.0	18.1	13.2	10.0	7.9	6.2	5.1
14Z12	7.87	9.7	55.2	2.20	2.31	4.63	31.7	30.7	27.3	21.6	15.7	11.8	9.1	7.3	5.9
14Z11	8.97	14.6	69.6	2.89	3.01	4.63	39.0	36.9	31.8	25.2	18.2	13.5	10.4	8.3	6.8
14Z10	10.07	20.8	82.9	3.66	3.81	4.63	45.3	42.3	36.4	28.7	20.4	15.2	11.7	9.4	7.7

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L_u = calculated maximum unbraced length to achieve fully braced member capacities
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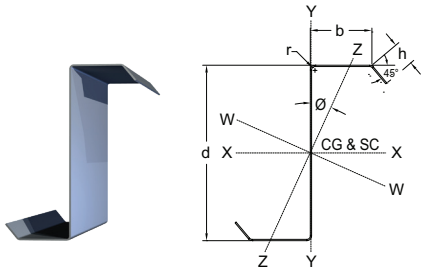
C_r' = factored compressive resistance for a fully braced member
V_r = factored shear resistance
$K_x = K_y = K_t = 1.0$
$C_b = 1.0$
P_r 4" = 4" bearing web crippling resistance
P_r 8" = 8" bearing web crippling resistance
R = Average bend radius (all values calculated based on 3/16" bend radius)

STEELWAY BUILDING SYSTEMS



Z Sections

152 mm – 254 mm COLD FORMED STRUCTURAL SECTIONS

SECTION DIMENSIONS & PROPERTIES

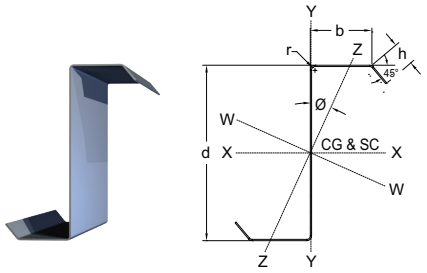
METRIC

SECTION	DIMENSIONS					PROPERTIES									
	Depth of Section	Flange Width	Length of Lip	Thickness of Steel	Area of Section	Gross Moment of Inertia About X-X	Elastic Section Modulus About X-X	Radius of Gyration About X-X	Gross Moment of Inertia About Y-Y	Elastic Section Modulus About Y-Y	Radius of Gyration About Y-Y	Radius of Gyration About Z-Z	Local of Minor Principal Axes	St. Venant Torsion Constant	Warping Constant
	d (mm)	b (mm)	h (mm)	t (mm)	A (mm^2)	I_x (10^6 mm^4)	S_x (10^3 mm^3)	r_x (mm)	I_y (10^6 mm^4)	S_y (10^3 mm^3	r_y (mm)	r_{min} (mm)	Ø ang (°)	J (10^3 mm^4)	C_w (10^9 mm^6)
06Z16	152	63.5	24.1	1.52	483	1.79	23.6	60.9	0.608	7.62	35.5	21.2	26.5	0.372	2.34
06Z14	152	63.5	24.1	1.90	601	2.22	29.1	60.8	0.751	9.43	35.3	21.1	26.4	0.722	2.87
06Z13	152	63.5	24.1	2.28	719	2.64	34.7	60.6	0.890	11.21	35.2	21.0	26.4	1.245	3.39
06Z12	152	63.5	24.1	2.66	835	3.05	40.0	60.4	1.026	12.94	35.0	20.9	26.4	1.965	3.88
06Z11	152	63.5	24.1	3.04	951	3.45	45.3	60.2	1.158	14.65	34.9	20.9	26.3	2.926	4.36
06Z10	152	63.5	24.1	3.42	1065	3.85	50.5	60.1	1.286	16.31	34.7	20.8	26.3	4.145	4.81
08Z16	203	71.1	27.4	1.52	594	3.81	37.5	80.1	0.870	9.69	38.3	24.2	21.2	0.457	6.18
08Z14	203	71.1	27.4	1.90	739	4.72	46.5	79.9	1.074	11.99	38.1	24.1	21.2	0.887	7.61
08Z13	203	71.1	27.4	2.28	885	5.63	55.4	79.7	1.276	14.27	38.0	24.0	21.1	1.531	9.00
08Z12	203	71.1	27.4	2.66	1028	6.51	64.1	79.6	1.472	16.50	37.8	23.9	21.1	2.420	10.34
08Z11	203	71.1	27.4	3.04	1172	7.39	72.7	79.4	1.664	18.70	37.7	23.9	21.1	3.605	11.65
08Z10	203	71.1	27.4	3.42	1314	8.24	81.1	79.2	1.851	20.84	37.5	23.8	21.0	5.110	12.91
09Z16	229	73.2	27.4	1.52	638	5.09	44.6	89.3	0.927	10.10	38.1	24.8	18.7	0.491	8.49
09Z14	229	73.2	27.4	1.90	795	6.32	55.3	89.1	1.146	12.51	38.0	24.7	18.6	0.954	10.46
09Z13	229	73.2	27.4	2.28	952	7.53	65.9	89.0	1.361	14.90	37.8	24.6	18.6	1.647	12.38
09Z12	229	73.2	27.4	2.66	1107	8.72	76.3	88.8	1.571	17.22	37.7	24.5	18.5	2.604	14.23
09Z11	229	73.2	27.4	3.04	1261	9.90	86.6	88.6	1.777	19.52	37.5	24.4	18.5	3.881	16.04
09Z10	229	73.2	27.4	3.42	1414	11.06	96.7	88.4	1.977	21.76	37.4	24.3	18.5	5.502	17.79
10Z16	254	76.7	30.0	1.52	695	6.78	53.4	98.7	1.106	11.38	39.9	26.3	17.5	0.535	12.68
10Z14	254	76.7	30.0	1.90	866	8.42	66.3	98.6	1.367	14.10	39.7	26.2	17.5	1.040	15.64
10Z13	254	76.7	30.0	2.28	1037	10.04	79.1	98.4	1.625	16.80	39.6	26.1	17.4	1.795	18.53
10Z12	254	76.7	30.0	2.66	1206	11.63	91.6	98.2	1.876	19.43	39.4	26.0	17.4	2.839	21.33
10Z11	254	76.7	30.0	3.04	1376	13.22	104.1	98.0	2.123	22.03	39.3	25.9	17.4	4.232	24.06
10Z10	254	76.7	30.0	3.42	1543	14.77	116.3	97.8	2.364	24.57	39.1	25.8	17.3	6.002	26.71

ExSteel roll forms a wide range of cee and zee sections for use in building applications or to replace hot rolled sections. Sizes range from 114 to 406 mm inches deep with flange widths from 51 to 89 mm and thicknesses from 16 ga. (1.52mm) to 10 ga. (3.42mm). An infinite choice of sizes between those listed are also available. This design table only includes standard section sizes that are typically manufactured by ExSteel.

1. Section properties are in accordance with 2004 NAS - Canada (LSD) for the Design of Cold-Formed Steel Structural Members.

STEELWAY BUILDING SYSTEMS



Z Sections

152 mm – 254 mm COLD FORMED STRUCTURAL SECTIONS

SECTION RESISTANCE TABLE

METRIC

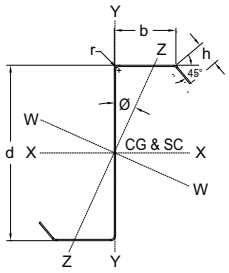
SECTION								LIMIT STATES DESIGN - 2004 NAS - CANADA							
								M_r' (kN-m) (FACTORED EFFECTIVE MOMENT RESISTANCE)							
								UNBRACED LENGTH							
	Mass (kg/m)	V_r (kN)	C_r' (kN)	P_r 102mm (kN)	P_r 203mm (kN)	L_u (m)	$M_r<L_u$ (kN-m)	1.83m	2.44m	3.05m	3.66m	4.27m	4.88m	5.49m	6.1m
06Z16	3.79	19.7	93	3.2	3.4	1.23	7.1	6.4	5.3	3.8	2.7	2.0	1.5	1.2	1.0
06Z14	4.72	35.1	127	5.0	5.3	1.23	9.0	8.4	6.8	4.7	3.3	2.5	2.0	1.6	1.3
06Z13	5.64	50.6	176	7.2	7.6	1.23	11.7	10.3	8.2	5.7	4.0	3.1	2.4	2.0	1.7
06Z12	6.55	66.5	219	9.8	10.3	1.23	13.7	11.9	9.5	6.7	4.8	3.6	2.9	2.4	2.0
06Z11	7.46	75.6	259	12.9	13.5	1.23	15.5	13.5	10.8	7.7	5.6	4.3	3.4	2.8	2.4
06Z10	8.36	84.6	300	16.3	17.0	1.23	17.2	15.1	12.1	8.8	6.4	5.0	4.0	3.3	2.9
08Z16	4.66	14.4	99	3.2	3.4	1.36	10.9	10.3	8.8	6.9	5.0	3.7	2.9	2.3	1.9
08Z14	5.80	28.3	136	5.0	5.2	1.36	14.1	13.2	11.7	9.0	6.3	4.7	3.6	2.9	2.4
08Z13	6.94	49.1	182	7.2	7.6	1.36	17.8	16.9	14.4	10.7	7.6	5.6	4.4	3.5	2.9
08Z12	8.06	68.8	239	9.8	10.3	1.36	21.8	19.9	16.6	12.5	8.8	6.6	5.2	4.2	3.5
08Z11	9.19	89.9	287	12.9	13.4	1.36	24.8	22.6	18.9	14.3	10.1	7.6	6.0	4.9	4.1
08Z10	10.30	113.7	333	16.3	17.0	1.36	27.7	25.2	21.1	16.0	11.5	8.7	6.9	5.6	4.7
09Z16	5.01	12.7	100	3.2	3.4	1.36	12.3	11.7	10.5	8.2	6.1	4.5	3.5	2.8	2.2
09Z14	6.23	24.9	137	5.0	5.2	1.36	16.7	15.6	13.6	10.8	7.6	5.6	4.3	3.5	2.8
09Z13	7.46	43.3	181	7.2	7.6	1.36	20.7	19.7	17.2	12.9	9.1	6.7	5.2	4.2	3.4
09Z12	8.68	68.8	238	9.8	10.3	1.36	25.5	23.8	19.9	15.0	10.6	7.9	6.1	4.9	4.1
09Z11	9.89	89.9	293	12.9	13.4	1.36	29.6	27.0	22.6	17.1	12.1	9.1	7.1	5.7	4.8
09Z10	11.09	113.7	341	16.3	17.0	1.36	33.0	30.2	25.3	19.2	13.6	10.3	8.1	6.6	5.5
10Z16	5.45	11.4	101	3.2	3.4	1.44	13.7	13.2	12.0	10.4	7.8	6.0	4.6	3.6	3.0
10Z14	6.79	22.3	144	5.0	5.2	1.44	20.0	19.2	17.0	13.8	10.0	7.4	5.7	4.6	3.7
10Z13	8.14	38.7	185	7.2	7.6	1.44	24.5	23.5	21.5	16.9	12.0	8.9	6.9	5.5	4.5
10Z12	9.46	61.6	248	9.8	10.3	1.44	30.6	29.2	25.0	19.6	14.0	10.4	8.1	6.5	5.3
10Z11	10.79	89.9	306	12.9	13.4	1.44	35.5	33.2	28.3	22.3	15.9	11.9	9.3	7.4	6.2
10Z10	12.10	113.7	356	16.3	17.0	1.44	39.7	37.0	31.7	25.0	17.9	13.4	10.5	8.5	7.0

1. Loads are based on steel conforming to G40.21 or ASTM A1011/A1011M.
2. Member resistances are in accordance with 2004 NAS - Canada (LSD) for the Design of Cold-Formed Steel Structural Members.
3. Values have been calculated assuming no effect from cold work of forming.
4. Users of data contained in these tables assume all liability arising from such use.

F_y = 379 MPa = minimum specified yield strength
L_u = calculated maximum unbraced length to achieve fully braced member capacities
M_r = factored effective moment resistance for unbraced length less than or equal to L_u
M_r' = factored effective moment resistance based on unsupported length
C_r' = factored compressive resistance for a fully braced member

V_r = factored shear resistance
$K_x = K_y = K_t = 1.0$
$C_b = 1.0$
P_r 102mm = 102mm bearing web crippling resistance
P_r 203mm = 203mm bearing web crippling resistance
R = Average bend radius (all values calculated based on 4.8mm bend radius)

STEELWAY BUILDING SYSTEMS



Z Sections

305 mm – 356 mm COLD FORMED STRUCTURAL SECTIONS

SECTION DIMENSIONS & PROPERTIES

METRIC

SECTION	DIMENSIONS					PROPERTIES									
	Depth of Section	Flange Width	Length of Lip	Thickness of Steel	Area of Section	Gross Moment of Inertia About X-X	Elastic Section Modulus About X-X	Radius of Gyration About X-X	Gross Moment of Inertia About Y-Y	Elastic Section Modulus About Y-Y	Radius of Gyration About Y-Y	Radius of Gyration About Z-Z	Local of Minor Principal Axes	St. Venant Torsion Constant	Warping Constant
	d (mm)	b (mm)	h (mm)	t (mm)	A (mm^2)	I_x (10^6 mm^4)	S_x (10^3 mm^3)	r_x (mm)	I_y (10^6 mm^4)	S_y (10^3 mm^3	r_y (mm)	r_{min} (mm)	Ø ang (°)	J (10^3 mm^4)	C_w (10^9 mm^6)
12Z14	305	79.8	30.0	1.90	974	13.22	86.7	116.5	1.495	14.95	39.2	26.8	14.2	1.169	25.32
12Z13	305	79.8	30.0	2.28	1167	15.78	103.6	116.3	1.778	17.81	39.0	26.7	14.1	2.020	30.03
12Z12	305	79.8	30.0	2.66	1358	18.30	120.1	116.1	2.052	20.60	38.9	26.6	14.1	3.195	34.59
12Z11	305	79.8	30.0	3.04	1549	20.80	136.5	115.9	2.324	23.37	38.7	26.5	14.1	4.763	39.07
12Z10	305	79.8	30.0	3.42	1737	23.26	152.6	115.7	2.588	26.08	38.6	26.4	14.0	6.758	43.39
14Z13	356	79.8	30.0	2.28	1283	22.81	128.3	133.3	1.778	17.81	37.2	26.3	11.4	2.220	42.15
14Z12	356	79.8	30.0	2.66	1493	26.46	148.8	133.1	2.053	20.61	37.1	26.2	11.4	3.512	48.58
14Z11	356	79.8	30.0	3.04	1703	30.10	169.3	132.9	2.324	23.37	36.9	26.1	11.3	5.238	54.88
14Z10	356	79.8	30.0	3.42	1911	33.67	189.4	132.7	2.588	26.07	36.8	26.0	11.3	7.433	60.99

ExSteel roll forms a wide range of cee and zee sections for use in building applications or to replace hot rolled sections. Sizes range from 114 to 406 mm inches deep with flange widths from 51 to 89 mm and thicknesses from 16 ga. (1.52mm) to 10 ga. (3.42mm). An infinite choice of sizes between those listed are also available. This design table only includes standard section sizes that are typically manufactured by ExSteel.

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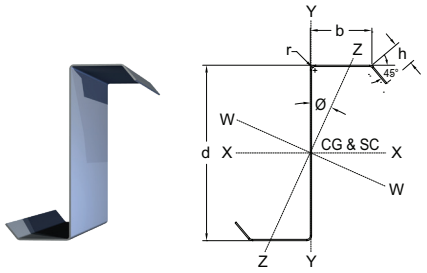
STEELWAY BUILDING SYSTEMS



Z Sections

305 mm – 356 mm COLD FORMED STRUCTURAL SECTIONS

SECTION RESISTANCE TABLE

METRIC

SECTION	Mass (kg/m)	V_r (kN)	C_r' (kN)	P_r 102mm (kN)	P_r 203mm (kN)	L_u (m)	$M_r<L_u$ (kN-m)	LIMIT STATES DESIGN - 2004 NAS - CANADA M_r' (kN-m) (FACTORED EFFECTIVE MOMENT RESISTANCE) UNBRACED LENGTH							
								1.83m	2.44m	3.05m	3.66m	4.27m	4.88m	5.49m	6.1m
12Z14	7.64	18.4	145	5.0	5.2	1.45	23.8	23.0	21.3	18.2	13.3	9.8	7.5	6.0	4.9
12Z13	9.15	31.9	186	7.2	7.5	1.45	31.2	30.1	27.4	22.3	15.9	11.7	9.0	7.2	5.9
12Z12	10.65	50.8	244	9.8	10.3	1.45	38.9	37.4	32.9	25.9	18.4	13.6	10.5	8.4	6.9
12Z11	12.14	76.1	308	12.9	13.4	1.45	46.1	43.6	37.3	29.4	21.0	15.6	12.1	9.7	7.9
12Z10	13.62	108.5	366	16.3	17.0	1.45	52.1	48.7	41.7	32.9	23.5	17.5	13.6	10.9	9.0
14Z13	10.06	27.2	187	7.2	7.5	1.41	33.3	31.8	29.9	24.5	17.8	13.5	10.6	8.5	6.9
14Z12	11.71	43.2	246	9.8	10.3	1.41	43.0	41.6	37.0	29.3	21.3	16.1	12.4	9.9	8.1
14Z11	13.35	64.8	310	12.9	13.4	1.41	52.9	50.1	43.2	34.1	24.7	18.3	14.2	11.3	9.3
14Z10	14.98	92.3	369	16.3	17.0	1.41	61.4	57.3	49.3	38.9	27.7	20.5	15.9	12.7	10.5

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STEELWAY BUILDING SYSTEMS