

COLD FORMED STEEL 118 MILS – 10 GAUGE LOAD TABLES



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HEIGHTS WITH
118 MILS

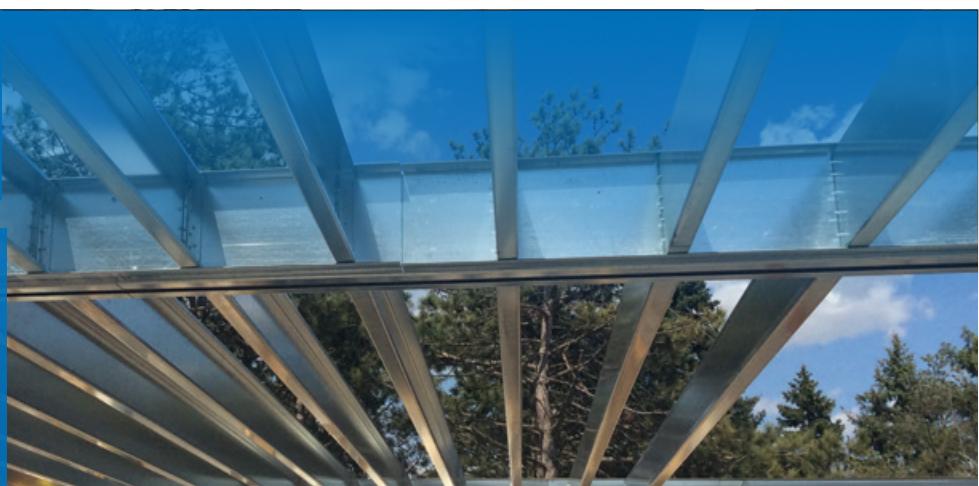


- Increased limiting wall heights.
- Superior axial load capacity.
- Eliminates the need for stud/track built-up jambs and posts.
- Provides a more cost-effective solution for designing load bearing walls.

SUPER-SPAN™ HEADERS & JOISTS

**STRONGER
LONGER
SMARTER**

- Increased span and load capacities with 118 mils steel.
- Simplified floor system design by reducing or eliminating the need for built up joist sections.
- Streamlines jobsite installation when replacing heavy non-CFS structural components.
- Provides a lighter weight, more efficient header solution.



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COLD FORMED STEEL 118 MILS -10 GAUGE LOAD TABLES

February 2024

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PREFACE:

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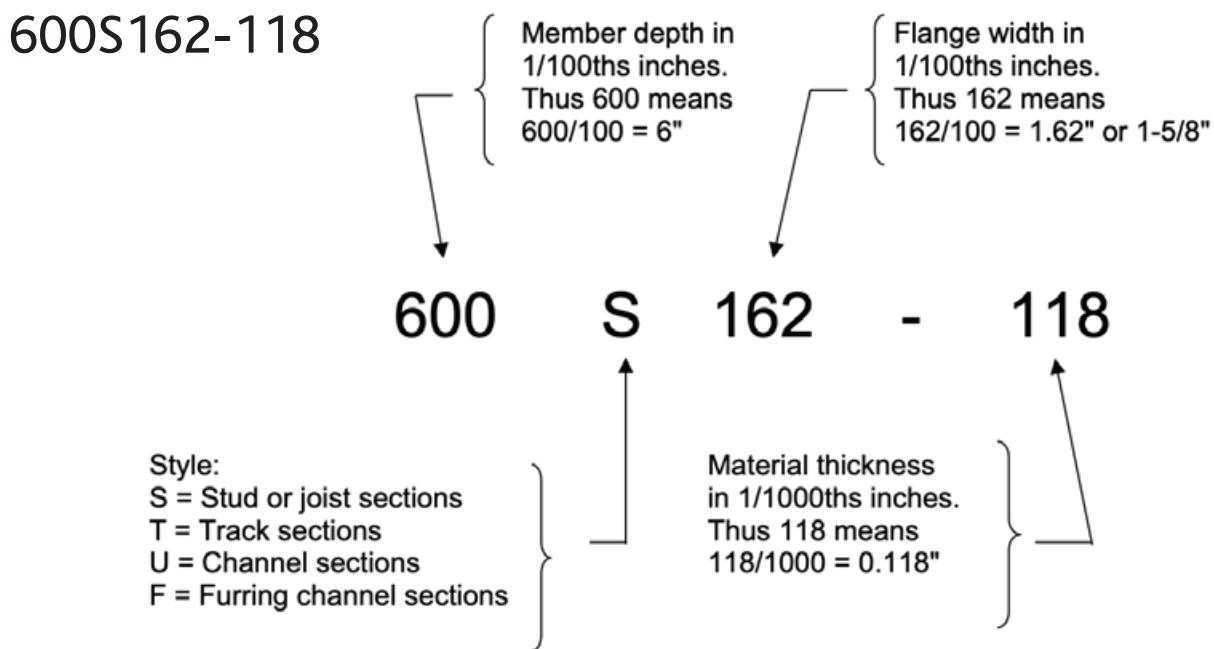
GENERAL NOTES

1. INTRODUCTION

The technical data in this publication is intended as an aid to the design professional and should not be used to replace the judgement of a qualified Engineer or design professional.

2. PRODUCT DESIGNATOR

Cold formed steel framing manufacturers use a common designator method for their products. The designator is a four part code which identifies depth, flange width, member type and material thickness. This designator (based on Imperial units) is used for both SI Metric and Imperial units.



3. SECTION GEOMETRIES

3.1 Section geometries are identified by the product designator method described in Section 2.

3.2 Stud, joist and track member members shall be cold formed to shape from sheet steel with a minimum base steel thickness and inside bend radius as follows:

Designation Thickness (Mils)	Base Steel Design Thickness (in.)	Minimum Base Steel Thickness (in.)	Inside Bend Radius, R (in.)
118	0.1242	0.118	0.1863

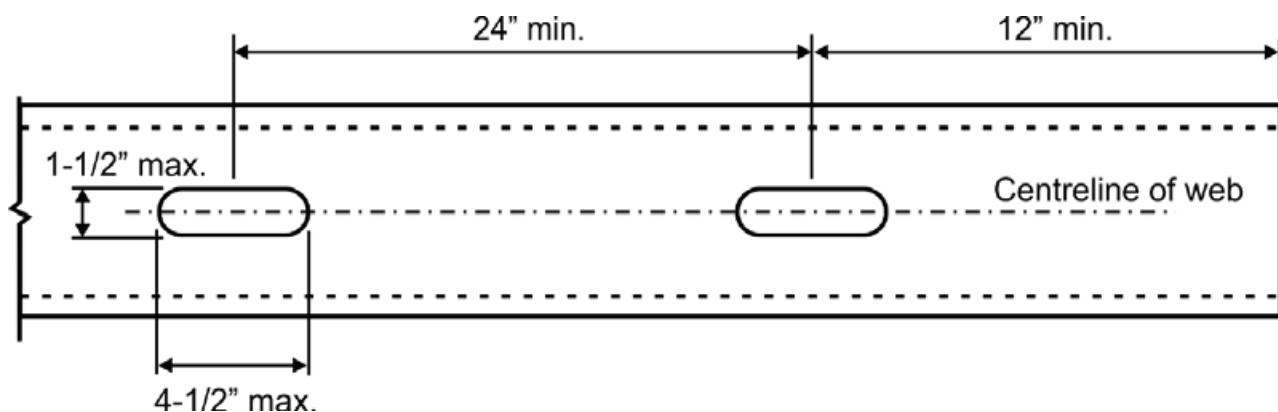
3.3 Stud and joist lip lengths are as shown:

Section	Flange Width, B (in.)	Lip Length, C (in.)
S162	1.625	0.500
S200	2.00	0.625
S250	2.50	0.625
S300	3.00	0.625
S350	3.50	1.00

GENERAL NOTES

4. SECTION PROPERTIES

- 4.1 Structural properties are based on Limit States Design (LSD) of the CSA Standard S136-16, North American Specification for the Design of Cold-Formed Steel Structural Members, including supplement CSA-S136-16S2-20.
- 4.2 Steel shall conform to the requirements of S136-16, AISI S220-15 North American Standard for Cold-Form Steel Framing - Nonstructural Members. The minimum guaranteed yield stress, $F_y = 50$ ksi.
- 4.3 Section properties are computed for the base design thicknesses (exclusive of coating) shown in the tables.
- 4.4 When provided, factory punchouts shall be located along the centreline of the webs of the members and shall have a minimum centre-to-centre spacing of 24". Punchouts for members greater than 2.5" deep are a maximum of 1.5" wide by 4.5" in length. Any configuration or combination of holes that fit within the punchout width and length limitations stated above shall be permitted; other punchout configurations and locations not in compliance with the stated limitations must be approved by a design professional.
- 4.5 Increase in yield stress from cold work of forming has been included whenever applicable.
- 4.6 The effective moment of inertia for deflection, I_{xd} , is based on local buckling at an assumed specified live load stress of $0.6F_y$. This moment of inertia is only appropriate for checking serviceability limit states.



GENERAL NOTES

5. SYMBOLS

GROSS PROPERTIES

I_x	Moment of inertia about x-axis
S_x	Section modulus about x-axis
r_x	Radius of gyration about x-axis
I_y	Moment of inertia about y-axis
r_y	Radius of gyration about y-axis

EFFECTIVE PROPERTIES

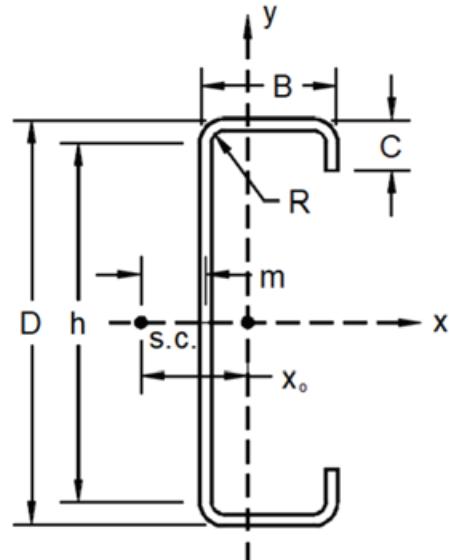
I_{xd}	Moment of inertia about x-axis for deflection calculations
S_{xe}	Section modulus about x-axis
M_{rxLB}	Factored moment resistance about x-axis based on local buckling
M_{rxDB}	Factored moment resistance about x-axis based on distortional buckling, assuming $K_\phi = 0$
M_{ryLB}	Factored moment resistance about y-axis based on local buckling with web/lip in compression
M_{ryDB}	Factored moment resistance about y-axis based on distortional buckling with lip in compression
M_r	Factored moment resistance of track and channel sections based on local buckling
V_{rg}	Factored shear resistance along y-axis of unperforated section based on Section G2 of S136-16
V_{rn}	Factored shear resistance along y-axis of perforated section based on Section G3 of S136-16

TORSIONAL AND OTHER PROPERTIES

J	Saint-Venant torsion constant. The values shown in the table have been multiplied by 1,000 To obtain the actual values, divide table values by 1,000
C_w	Torsional warping constant
x_o	Distance from shear center to centroid along principle x-axis
m	Distance from shear center to mid-plane of web
r_o	Polar radius of gyration about shear center
β	$1 - (x_o/r_o)^2$
L_u	Limiting unbraced length below which lateral-torsional buckling is not considered
K_ϕ	Rotational stiffness
h	Flat depth of web

6. WEB DEPTH TO THICKNESS RATIOS, h/t

Designation Thickness (Mils)	118	
Base Design Thickness (in.)	0.1242	
Inside Bend Radius, R (in.)	0.1863	
Section Depth, D (in.)	h (in.)	h/t
3.625	3.00	24.2
4	3.38	27.2
6	5.38	43.4
8	7.38	59.4
10	9.38	75.5
12	11.4	91.6
14	13.4	108
16	15.4	124



CURTAIN WALL LIMITING HEIGHT TABLES – SINGLE AND DOUBLE SPAN

TABLE NOTES:

- 1 For wind load deflection calculations, the SLS importance factor, $I_w = 0.75$ is incorporated in the load tables.
- 2 Studs must be braced against rotation and lateral displacement at all supports.
- 3 Studs are assumed to be adequately braced at a maximum spacing of L_u to develop the full factored moment resistance.
- 4 Web crippling check is based on 1.25" of bearing at end supports and 3" of bearing at interior supports.
- 5 Shear and web crippling resistance at end supports have not been reduced for punchouts. At interior supports, the shear and web crippling resistance has been reduced for the presence of punchout adjacent to the support.
- 6 Combined bending and shear check at interior support is based on unreinforced web as per S136-16 (Eq. H2-1). Shear resistance and combined bending and shear checks at interior supports have been reduced for the presence of punchouts adjacent to the support.
- 7 In the "Double Span" tables, the listed span is the distance from either end to the centre of the interior support with the stud continuous past the interior support.

COMBINED AXIAL AND LATERAL LOAD TABLES

TABLE NOTES:

- 1 Limiting factored axial resistances are based on simple span and are given in kips (1 kip = 1,000 lb).
- 2 Axial resistances are based on Section H1 of S136-16 with the assumption that the axial load passes through the centroid of the effective section and studs are braced at 4'-0" o.c.
- 3 Studs are assumed to be adequately braced at a maximum spacing of L_u to develop the full factored moment resistance, M_r .
- 4 For deflection calculations, the SLS importance factor for wind load is 0.75.
- 5 End supports have not been checked for web crippling. See web crippling data on page 35 .

FLOOR JOIST LOAD TABLES

TABLE NOTES:

- 1 Load values are based on continuous support of the compression flange over the full length of the joist, and the tension flange is laterally braced at a maximum spacing of 8'-0".
- 2 Joists must be braced against rotation at all supports.
- 3 End shear and web crippling resistances are not reduced for punchouts.
- 4 End web crippling check is based on a 3.5" bearing length. Where load values are followed by (*), web stiffeners are required at end supports.

Bridging Recommendations

Bracing components shall be designed based on Section C2 of S136-16 with the minimum required number of rows as shown below. Additional bridging rows may be required by design.

Minimum Number

Span(ft)	of Rows
up to 16	1 at mid span
16 to 24	2 at 1/3 point
24 to 32	3 at 1/4 point
32 to 40	4 at 1/5 point

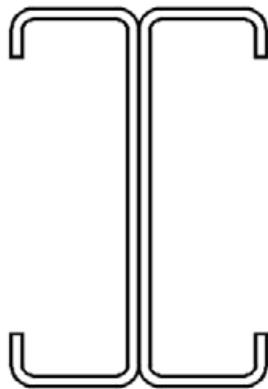
HEADER LOAD TABLES

TABLE NOTES:

- 1 Values are for unpunched members and are given in pounds per linear foot.
- 2 Headers are made from two "boxed" or back-to-back members.
- 3 Factored moment, shear and web crippling resistances are based on twice the resistance of a single member.
The moment of inertia for deflection is based on twice the value of a single member.
- 4 Web crippling check is based on 1 in. of bearing at end supports.
- 5 Members are assumed to be adequately braced for bending.
- 6 Header loads are for simply supported members subjected to uniform bending loads only.



Boxed Header

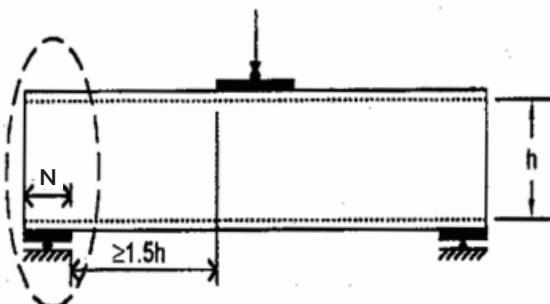


Back-to-Back Header

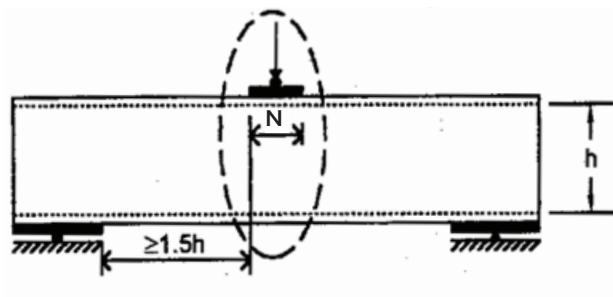
WEB CRIPLING DATA

TABLE NOTES:

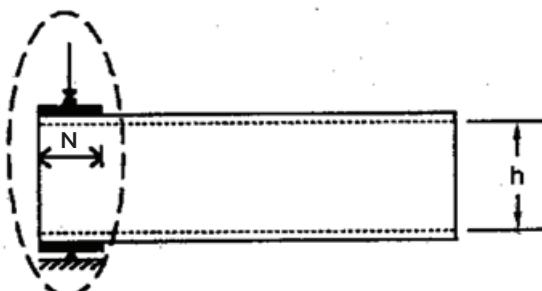
- 1 The factored web crippling data is based on Section G5 of S136-16.
- 2 For single web members, the coefficients and resistance factors are based on Table G5-2. N is the bearing length. If $N/h > 2$, then N can not be greater than $2h$. If $N/t > 210$, then N can not be greater than $210t$.
- 3 For back-to-back members, the coefficients and resistance factors are based on Table G5-1. If $N/h > 1$, then N can not be greater than h . If $N/t > 210$, then N can not be greater than $210t$.
- 4 Coefficients and resistance factors are based on members "Fastened to Support", except for back-to-back members under two-flange loading, the coefficients and resistance factors "Unfastened to Support" are used.
- 5 For back-to-back members, the distance between web connectors and flange shall be kept to a minimum.
- 6 Calculations are based on unperforated webs. Resistance reductions for end and interior one flange loading near punchouts can be calculated based on Section G6 of S136-16.



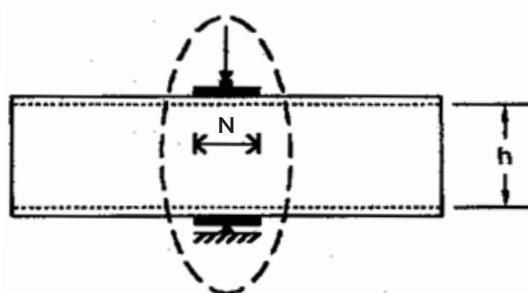
End One Flange Loading (EOF)



Interior One Flange Loading (IOF)



End Two Flange Loading (ETF)



Interior Two Flange Loading (ITF)

FACTORED WEB CRIPPLING DATA FOR SINGLE WEB MEMBERS

SECTION DEPTH (in.)	DESIGNATION CRITERIA (Mils)	DESIGN THICKNESS (in.)	F _y (ksi)	h/t	FACTORED WEB CRIPPLING DATA (lb)							
					EOF		IOF		ETF		ITF	
					P _{eo1}	P _{eo2}	P _{io1}	P _{io2}	P _{et1}	P _{et2}	P _{it1}	P _{it2}
3.625	118	0.1242	50	24.2	1729	605	5478	767	2990	359	8604	688
4.00	118	0.1242	50	27.2	1717	601	5461	765	2934	352	8511	681
6.00	118	0.1242	50	43.4	1665	583	5383	754	2677	321	8081	647
8.00	118	0.1242	50	59.4	1622	568	5318	745	2466	296	7726	618
10.0	118	0.1242	50	75.5	1584	554	5261	737	2281	274	7417	593
12.0	118	0.1242	50	91.6	1550	543	5210	729	2115	254	7140	571
14.0	118	0.1242	50	108	1519	532	5164	723	1964	236	6886	551
16.0	118	0.1242	50	124	1490	522	5121	717	1823	219	6650	532

NOTES:

1. Based on Eq. G5-1 of S136-16 and Table G5-2.
2. Factored end one flange web crippling resistance (EOF), $P_{eo} = P_{eo1} + P_{eo2}[N/t]^{1/2}$
3. Factored interior one flange web crippling resistance (IOF), $P_{io} = P_{io1} + P_{io2}[N/t]^{1/2}$
4. Factored end two flange web crippling resistance (ETF), $P_{et} = P_{et1} + P_{et2}[N/t]^{1/2}$
5. Factored interior two flange web crippling resistance (ITF), $P_{it} = P_{it1} + P_{it2}[N/t]^{1/2}$

FACTORED WEB CRIPPLING DATA FOR BACK-TO-BACK WEB MEMBERS

SECTION DEPTH (in.)	DESIGNATION CRITERIA (Mils)	DESIGN THICKNESS (in.)	F _y (ksi)	h/t	FACTORED WEB CRIPPLING DATA (lb)							
					EOF		IOF		ETF		ITF	
					P _{eo1}	P _{eo2}	P _{io1}	P _{io2}	P _{et1}	P _{et2}	P _{it1}	P _{it2}
3.625	118	0.1242	50	24.2	7631	2137	18687	2056	11108	889	24024	1922
4.00	118	0.1242	50	27.2	7628	2136	18681	2055	10943	876	23667	1893
6.00	118	0.1242	50	43.4	7618	2133	18655	2052	10188	815	22034	1763
8.00	118	0.1242	50	59.4	7609	2131	18634	2050	9565	765	20686	1655
10.0	118	0.1242	50	75.5	7602	2129	18616	2048	9022	722	19511	1561
12.0	118	0.1242	50	91.6	7595	2127	18599	2046	8534	683	18456	1477
14.0	118	0.1242	50	108	7589	2125	18584	2044	8087	647	17491	1399
16.0	118	0.1242	50	124	7583	2123	18570	2043	7673	614	16595	1328

NOTES:

1. Based on Eq. G5-1 of S136-16 and Table G5-1.
2. Factored end one flange web crippling resistance (EOF), $P_{eo} = P_{eo1} + P_{eo2}[N/t]^{1/2}$
3. Factored interior one flange web crippling resistance (IOF), $P_{io} = P_{io1} + P_{io2}[N/t]^{1/2}$
4. Factored end two flange web crippling resistance (ETF), $P_{et} = P_{et1} + P_{et2}[N/t]^{1/2}$
5. Factored interior two flange web crippling resistance (ITF), $P_{it} = P_{it1} + P_{it2}[N/t]^{1/2}$



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