



COLD-FORMED

Structural Framing Systems

Product Catalog



Cold-Formed
Structural Framing Systems

MARINO WARE®

RETHINK STEEL FRAMING

Our large inventory of finished products and coil steel allows us to readily satisfy your requests. We utilize the latest in roll forming techniques, maintain the latest level of technology available to the steel framing industry, and strictly adhere to all ASTM specifications.

To best serve your needs, we offer a wide range of cold-formed steel structural framing members:

- Web sizes from 1-5/8" up to 16"
- Thicknesses from 33 mil up to 118 mil
- Flange sizes can be manufactured from 1-3/8" to 3-1/2"
- We provide both CP60 and CP90 coating options



OUR COMPANY

MarinoWARE® has been a leading supplier of cold-formed steel framing products for over 30 years. We are committed to providing a superior customer experience through:

- A vast selection of readily available products
- Innovative solutions that reduce construction costs
- Products designed to increase jobsite safety
- A knowledgeable sales team
- Comprehensive technical support and services
- An extensive distribution network
- Prompt delivery

OUR COMMITMENT

As a 100% American-owned and operated company, MarinoWARE takes pride in creating local jobs, supporting local communities, and manufacturing products that reflect the uncompromising skill and ethics of our professional team. We operate state-of-the-art production facilities in New Jersey, Georgia, and Indiana.

Visit MarinoWARE.com to experience our full line of innovative solutions.

TECHNICAL SERVICES + SUPPORT | *DesignGroup*

Our commitment to quality products extends to best-in-class design support. The MarinoWARE® DesignGroup™ offers a full range of technical support and engineering services, including professionally engineered stamped shop drawings, design and installation assistance on all MarinoWARE manufactured products, and expert advice on structural, nonstructural, fire and acoustic assemblies.

If you have questions or need more information on any of the products listed in this catalog, contact our Technical Services department at technicalservices@marinoware.com, or at 866.545.1545. In most cases Technical Services representatives can provide an immediate response.

Warranty & Limitations

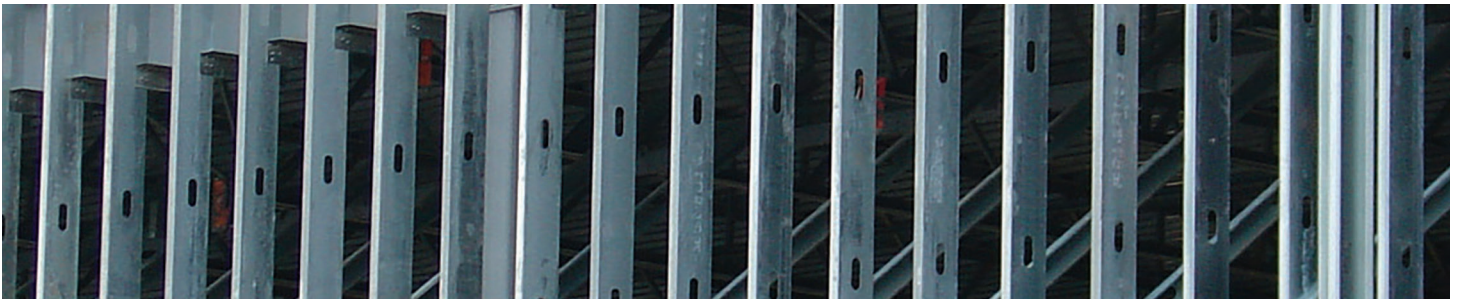
All products presented herein are warranted to the buyer to be free from defects in material and workmanship. The foregoing warranty is non-assignable and in lieu of and excludes all other warranties not expressly set forth herein, whether express or implied by operation of law or otherwise, including but not limited to any implied warranties of merchantability or fitness for a particular purpose. All details and specifications presented herein are intended as a general guide for the use of MarinoWARE® framing systems. These products should not be used without evaluation by a qualified engineer or architect to determine their suitability for a specific use.

MarinoWARE® assumes no responsibility for failure resulting from use of its details or specifications, or for failure resulting from improper application or installation of these products.

Governing Law

All issues arising in connection with your order and all transactions associated with it shall be interpreted according to the laws of the State of New Jersey, and all actions or other proceedings arising out of such issues shall be brought only in Superior Court, State of New Jersey, County of Essex, or United States District Court for the District of New Jersey. No action may be brought more than one year after accrual of the cause of action therefore.

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ASTM SPECIFICATION DESCRIPTIONS

A1003 - Standard specification for steel sheet, carbon, metallic and nonmetal-coated for cold formed framing members

A653 - Standard specification for steel sheet, zinc-coated (galvanized) or zinc-iron alloy coated by galvanized hot-dip process

A924 - Standard specification for general requirements for steel sheet, metallic-coated galvanized by the hot-dip process

C754 - Standard specification for installation of steel framing members to receive screw-attached gypsum panel products

C955 - Standard specification for load-bearing (transverse and axial) steel studs, runners (tracks), and bracing or bridging for screw application of gypsum panel products and metal plaster bases

CODE COMPLIANCE - ICC-ES ESR#4062

AISI STANDARDS

AISI S100-16/S2-20 North American Specification for the Design of Cold-Formed Steel Structural Members

AISI S240 - North American Standard for Cold-Formed Steel Structural Framing

LEED® INFORMATION - MATERIALS & RESOURCES

Marino\WARE® is proud to support the building industry in its efforts to create sustainable commercial and residential buildings. We support the Leadership in Energy & Environmental Design (LEED®) program and have LEED® accredited professionals on staff. Using products manufactured by Marino\WARE® can help in accumulating LEED® points in several categories.

MEMBER DEPTH	TYPE	FLANGE WIDTH	MILS TO GAUGE
250 = 2-1/2"	S = Stud	137 = 1-3/8"	33 = 20 STR ga.
362 = 3-5/8"	T = Track	162 = 1-5/8"	43 = 18 ga.
400 = 4"		200 = 2"	54 = 16 ga.
600 = 6"		250 = 2-1/2"	68 = 14 ga.
800 = 8"		300 = 3"	97 = 12 ga.
1000 = 10"		350 = 3-1/2"	118 = 10 ga.
1200 = 12"			
1400 = 14"			
1600 = 16"			

MILS	MINIMUM THICKNESS (in.)	DESIGN THICKNESS (in.)	INSIDE BEND RADIUS (in.)	GAUGE	COLOR CODE	MEMBER	FLANGE WIDTH	RETURN LIP (in.)
33	0.0329	0.0346	0.076	20 Structural	WHITE	S137	1-3/8"	0.375
43	0.0428	0.0451	0.071	18	YELLOW	S162	1-5/8"	0.500
54	0.0538	0.0566	0.085	16	GREEN	S200	2"	0.625
68	0.0677	0.0713	0.107	14	ORANGE	S250	2-1/2"	0.625
97	0.0966	0.1017	0.153	12	RED	S300	3"	0.625
118	0.1180	0.1242	0.186	10	BLUE	S350	3-1/2"	1.000

Minimum thickness represents 95% of the design thickness and is the minimum acceptable thickness delivered to the project site based on section B7.1 of AISI S100.

Symbols and Definitions

Gross Properties

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

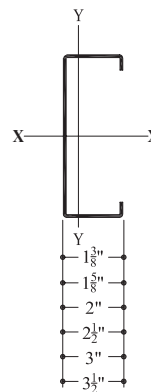
Effective Properties

I_{xd}	Deflection moment of inertia about x-axis
S_{xe}	Section modulus about x-axis
M_{al}	Allowable moment based on local buckling
M_{ad}	Allowable moment based on distortional buckling, assuming $K_\phi = 0$
M_a	Allowable moment for track and channel sections based on local buckling
V_{ag}	Allowable strong axis shear away from punchout, per AISI Section C3.2.1
V_{anet}	Allowable strong axis shear at punchout, per AISI Section 3.2.2

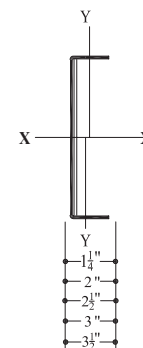
Torsional and other Properties

J	Saint-Venant torsion constant. The values shown in the tables 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 principal x-axis
m	Distance from shear center to mid-plane of web
r_o	Polar radius of gyration about shear center
B	$1 - (x_o / r_o)^2$
L_u	Limit of unbraced length below which lateral-torsional buckling is not considered
K_ϕ	Rotational stiffness

STUD



TRACK



FRAMING MEMBERS

STUD AND JOISTS (CW, SW, J, JE, JX, & JXW)

Studs serve as a general all purpose framing component used in a variety of applications including exterior curtainwalls, load bearing walls, headers, floor & roof joists, soffits and truss frame components.

TRACK (T & DT)

Track is used as a closure to stud and joist ends as well as head and sill conditions. It is also used for blocking and bridging conditions.

C-STUDS (CW, SW, J, JE, JX & JXW)

MIW	GAUGES	WEB	FLANGE	RETURN LIP
CW	20 – 14	2-1/2" – 8"	1-3/8"	3/8"
SW	20 – 10	2-1/2" – 16"	1-5/8"	1/2"
J	20 – 10	2-1/2" – 16"	2"	5/8"
JE•	18 – 10	3-5/8" – 16"	2-1/2"	5/8"
JX•	16 – 10	3-5/8" – 16"	3"	5/8"
JXW•	16 – 10	3-5/8" – 16"	3-1/2"	1"

TRACK (T & DT)

MIW	GAUGES	FLANGE	WEB
T	20 – 10	1-1/4"	2-1/2" – 16"
DT	20 – 10	2" MIN.	2-1/2" – 16"

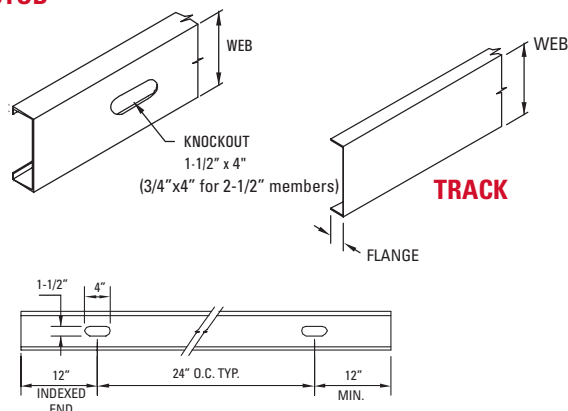
Notes:

- Products shown with • symbol will be available subject to minimum order quantities.
- 10'-0" standard length. Custom orders are available.

WEB KNOCKOUT SIZE AND LOCATION

MarinoWARE studs and joists are manufactured with knockouts in the web to accommodate mechanical and electrical installation. The knockout is provided 12" from the indexed end and the intermediate knockouts are placed at 24" o.c. intervals. Unpunched studs are available upon request.

STUD



WEB STIFFENERS (JS)

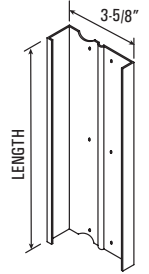
Web Stiffeners are used to provide reinforcement of joist webs to prevent crippling. Web reinforcement is often required by design to enhance the load capacity of joists.

LENGTH: 8", 9 1/4", 10", 11- 1/4, 12", 14"
(inside or outside)

WIDTH: 3 5/8"

INSTALLATION:

- Centered within the load or reaction bearing width.
- Installed on the inside or outside of the joist.
- Web stiffeners require full bearing along their supported ends.
- (4-6) #10 -16 screws are required to attach the stiffener to the joist web using pre-punched holes.



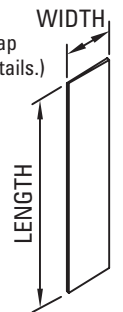
FLAT STRAP

Tension component of shear wall assemblies. Component of strap & blocking for bridging applications. (*See page 25 for more details.)

USE:

Tension component of shear wall assemblies.
Component of strap and blocking for bridging application.

AVAILABLE GAUGES: 20, 18, 16, 14, 12 & 10 Gauges.
LENGTH: As required by purchaser.



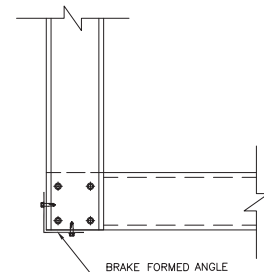
BRAKE FORMED ACCESSORIES

USE:

Miscellaneous closures, continuous angles, etc.

LENGTH:

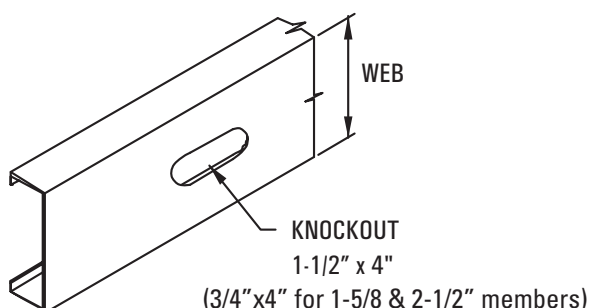
10'-0" maximum. Dimensioned product drawing must accompany order.





1. The information contained in this catalog is intended as a general guide only and all designs shall be verified by a design professional having experience with cold-formed steel design.
2. The data contained in this catalog is based on allowable strength design (ASD) of the 2016 Edition of the North American Specification for the Design of Cold-Formed Steel Structural Members, AISI S100/S2-20).
3. The strength increase based on cold work of forming has been incorporated for flexural strength per Section A3.3.2 of AISI S100.
4. Distortional buckling calculations are based on $K = 0$.
5. The effective moment of inertia for deflection is calculated at a stress that results in a section modulus such that the stress times the section modulus at that stress is equal to the allowable moment. Procedure I of AISI S100 was used for serviceability determination.
6. Various sections may be manufactured with yield stresses of 33 or 50 ksi. The yield stress used for calculations is indicated in the tables.
7. For sections available in both 33 and 50 ksi, the specifier must clearly indicate which yield stress is required. For example: 362S162-54 (50 ksi).
8. Sections used as nonstructural members that exceed the 10 psf load limit require an approved G60 minimum coating.
9. When provided, factory punchouts shall:
 - be spaced along the centerline of the web of the framing member.
 - have a center-to-center spacing of not less than 24" (610 mm).
 - have a width not greater than half the member depth or 2-1/2" (63.5 mm), whichever is less.
 - have a length not exceeding 4-1/2" (114 mm).
 - The distance from the center of the last punchout to the end of the member shall not be less than 12" (305 mm), unless otherwise specified.

Any configuration or combination of holes that fits within the punchout width and length limitations shall be permitted. 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. The punchout configuration and location illustrated below were used herein.



Web Depth(h)-to-Thickness (t) Ratios

MIL THICKNESS	18 mil		27 mil		30 mil		33 mil		43 mil		54 mil		68 mil		97 mil		118 mil	
DESIGN THICKNESS (in.)	0.0188		0.0283		0.0312		0.0346		0.0451		0.0566		0.0712		0.1017		0.1242	
INSIDE BEND RADIUS (in.)	0.0844		0.0796		0.0782		0.0765		0.0712		0.0849		0.1069		0.1525		0.1863	
DEPTH (in.)	h (in.)	h/t	h (in.)	h/t	h (in.)	h/t	h (in.)	h/t	h (in.)	h/t	h (in.)	h/t	h (in.)	h/t	h (in.)	h/t	h (in.)	h/t
1.625	1.42	75.5	1.41	49.8	1.41	45.1	1.40	40.5	1.39	30.9	1.34	23.7	1.27	17.8	1.12	11.0	1.00	8.10
2.5	2.29	122	2.28	80.7	2.28	73.1	2.28	65.8	2.27	50.3	2.22	39.2	2.14	30.1	1.99	19.6	1.88	15.1
3.625	3.42	182	3.41	121	3.41	109	3.40	98.3	3.39	75.2	3.34	59.0	3.27	45.8	3.12	30.6	3.00	24.2
4	3.79	202 ¹	3.78	134	3.78	121	3.78	109	3.77	83.5	3.72	65.7	3.64	51.1	3.49	34.3	3.38	27.2
6	5.79	*	5.78	204 ¹	5.78	185	5.78	167	5.77	128	5.72	101	5.64	79.2	5.49	54.0	5.38	43.3
8	7.79	*	7.78	*	7.78	249 ¹	7.78	225 ¹	7.77	172	7.72	136	7.64	107	7.49	73.7	7.38	59.4
10	9.79	*	9.78	*	9.78	*	9.78	*	9.77	217 ¹	9.72	172	9.64	135	9.49	93.3	9.38	75.5
12	11.8	*	11.8	*	11.8	*	11.8	*	11.8	*	11.7	207 ¹	11.6	163	11.5	113	11.4	91.6
14	13.8	*	13.8	*	13.8	*	13.8	*	13.8	*	13.7	242 ¹	13.6	191	13.5	133	13.4	108
16	15.8	*	15.8	*	15.8	*	15.8	*	15.8	*	15.7	*	15.6	219 ¹	15.5	152	15.4	124

NOTE:

1. h/t exceeds 200.
2. * h/t exceeds 260.

Allowable Screw Connection Capacities (lbs)

GAUGE DESIGNATION	MIL DESIGNATION	DESIGN THICKNESS (in.)	F _y (ksi)	F _u (ksi)	#6 SCREW			#8 SCREW			#10 SCREW			#12 SCREW			#14 SCREW		
					(P _{ss} = 643 lbs, P _{ts} = 419 lbs) 0.138" dia, 0.272" Head			(P _{ss} = 1278 lbs, P _{ts} = 586 lbs) 0.164" dia, 0.272" Head			(P _{ss} = 1644 lbs, P _{ts} = 419 lbs) 0.190" dia, 0.340" Head			(P _{ss} = 2330 lbs, P _{ts} = 419 lbs) 0.216" dia, 0.340" Head			(P _{ss} = 3048 lbs, P _{ts} = 419 lbs) 0.250" dia, 0.409" Head		
					SHEAR	PULL-OUT	PULL-OVER	SHEAR	PULL-OUT	PULL-OVER	SHEAR	PULL-OUT	PULL-OVER	SHEAR	PULL-OUT	PULL-OVER	SHEAR	PULL-OUT	PULL-OVER
25	18	0.0188	33	33*	44	24	84	48	29	84	52	33	105	55	38	105	60	44	127
22	27	0.0283	33	33*	82	37	127	89	43	127	96	50	159	102	57	159	110	66	191
20	30	0.0312	33	33*	95	40	140	103	48	140	111	55	175	118	63	175	127	73	211
20	33	0.0346	33	45	151	61	140	164	72	195	177	84	265	188	95	265	203	110	318
18	43	0.0451	33	45	214	79	140	244	94	195	263	109	345	280	124	345	302	144	415
16	54	0.0566	33	45	214	100	140	344	118	195	370	137	386	394	156	433	424	180	521
14	68	0.0713	33	45	214	125	140	426	149	195	523	173	386	557	196	545	600	227	656
12	97	0.1017	33	45	214	140	140	426	195	195	548	246	386	777	280	775	1016	324	936
16	54	0.0566	50	65	214	140	140	426	171	195	534	198	386	569	225	625	613	261	752
14	68	0.0713	50	65	214	140	140	426	195	195	548	249	386	777	284	775	866	328	948
12	97	0.1017	50	65	214	140	140	426	195	195	548	356	386	777	405	775	1016	468	1067
10	118	0.1242	50	65	214	140	140	426	195	195	548	386	386	777	494	775	1016	572	1067

NOTE:

- * This is a NS type steel with no requirement for ultimate.
- Capacities are based on section J4 of the AISI S100 Specification.
 - Capacities are based on Allowable Strength Design (ASD).
 - Screw pull-out capacities are based on listed head diameter.
 - Two sheets of equal thickness and tensile strength are assumed in tabulated values.
 - When materials of different steel thickness and tensile strength are connected, use the lowest value for shear capacity (tilting and bearing), for pull-out capacity use sheet closest to screw tip and for pull-over capacity use sheet closest to screw head.
 - Where multiple fasteners are used, screws are assumed to have a center-to-center spacing of at least 3 times the nominal diameter.
 - Screws are assumed to have a center-of-screw to edge-of-steel dimension of at least 1.5 times the nominal diameter of the screw.
 - When screws are subjected to combination of shear and tension forces, interaction equation of AISI S100 Specification section J4.5 shall be used.
 - Screw Shear (P_{ss}), tension (P_{ts}), diameter, and head diameter are from CFSEI Tech Note (F701-12).
 - Screw shear strength is the average value, and tension strength is the lowest value listed in CFSEI Tech Note (F701-12).
 - Higher values for screw strength (P_{ss}, P_{ts}), may be obtained by specifying screws from a specific manufacturer.

Weld Capacities (lbs/in.)

GAUGE DESIGNATION	MIL DESIGNATION	DESIGN THICKNESS (in.)	F _y (ksi)	F _u (ksi)	FILLET WELDS		FLARE GROOVE WELDS	
					LONGITUDINAL	TRANSVERSE	LONGITUDINAL	TRANSVERSE
18	43	0.0451	33	45	499	864	544	663
16	54	0.0566	33	45	626	1084	682	832
14	68	0.0713	33	45	789	1365	859	1048
12	97	0.1017	33	45	1125	1480	1226	1480
16	54	0.0566	50	65	905	1566	985	1202
14	68	0.0713	50	65	1140	1972	1241	1514
12	97	0.1017	50	65	1480	1480	1480	1480

NOTE:

- Capacities based on the AISI S100 Specification Sections J2.5 for fillet welds and J2.6 for flare groove welds.
- When connecting materials of different steel thicknesses or tensile strengths, use the lowest values.
- Capacities are based on Allowable Strength Design (ASD).
- Weld capacities are based on E60 electrodes. For material thinner than 68 mil, 0.030" to 0.035" diameter wire electrodes may provide best results.
- Longitudinal capacity is considered to be loading in the direction of the length of the weld.
- Transverse capacity is loading in perpendicular direction of the length of the weld.
- For flare groove welds, the effective throat of weld is conservatively assumed to be less than 2t.
- For longitudinal fillet welds, a minimum value of Eq. J2.5-1, J2.5-2, J2.5-3, J2.5-4 were used.
- For transverse fillet welds, a minimum value of Eq. J2.5-5 and J2.5-6 were used.
- For longitudinal flare groove welds, a minimum value of Eq. J2.6-2 and J2.6-3 were used
- For transverse flare groove welds, a minimum value of Eq. J2.6-1 was used.

MEMBER	F _y (ksi)	SPACING (in.) o.c.	5 psf			7.5 psf			10 psf		
			L/120	L/240	L/360	L/120	L/240	L/360	L/240	L/360	L/600
362S137-33	33	12	23' 2"	18' 6"	16' 1"	16' 1"	14' 1"	11' 10"	14' 7"	12' 9"	10' 9"
		16	21' 1"	16' 9"	14' 7"	14' 7"	12' 9"	10' 9"	13' 3"	11' 7"	9' 9"
		24	17' 2"	14' 7"	12' 9"	12' 9"	11' 2"	9' 4"	11' 7"	10' 2"	8' 7"
362S137-43	33	12	25' 3"	20' 1"	17' 6"	17' 6"	15' 3"	12' 10"	15' 10"	13' 10"	11' 8"
		16	23' 0"	18' 2"	15' 10"	15' 10"	13' 10"	11' 8"	14' 6"	12' 7"	10' 8"
		24	20' 1"	15' 10"	13' 10"	13' 10"	12' 2"	10' 3"	12' 7"	11' 0"	9' 3"
362S137-43	50	12	25' 3"	20' 1"	17' 6"	17' 6"	15' 3"	12' 10"	15' 10"	13' 10"	11' 8"
		16	23' 0"	18' 2"	15' 10"	15' 10"	13' 10"	11' 8"	14' 6"	12' 7"	10' 8"
		24	20' 1"	15' 10"	13' 10"	13' 10"	12' 2"	10' 3"	12' 7"	11' 0"	9' 3"
362S137-54	50	12	27' 1"	21' 6"	18' 9"	18' 9"	16' 4"	13' 9"	17' 0"	14' 10"	12' 7"
		16	24' 7"	19' 6"	17' 0"	17' 0"	14' 10"	12' 7"	15' 6"	13' 6"	11' 4"
		24	21' 6"	17' 0"	14' 10"	14' 10"	13' 0"	11' 0"	13' 6"	11' 9"	10' 0"
362S137-68	50	12	28' 10"	23' 0"	20' 1"	20' 1"	17' 6"	14' 9"	18' 2"	15' 10"	13' 4"
		16	26' 3"	20' 10"	18' 2"	18' 2"	15' 10"	13' 4"	16' 7"	14' 6"	12' 2"
		24	23' 0"	18' 2"	15' 10"	15' 10"	13' 10"	11' 8"	14' 6"	12' 7"	10' 8"
362S137-97	50	12	31' 9"	25' 3"	22' 1"	22' 1"	19' 3"	16' 3"	20' 0"	17' 6"	14' 9"
		16	28' 10"	22' 10"	20' 0"	20' 0"	17' 6"	14' 9"	18' 2"	15' 10"	13' 4"
		24	25' 3"	20' 0"	17' 6"	17' 6"	15' 3"	12' 10"	15' 10"	13' 10"	11' 8"
362S162-33	33	12	24' 4"	19' 3"	16' 10"	16' 10"	14' 9"	12' 4"	15' 3"	13' 4"	11' 3"
		16	22' 1"	17' 7"	15' 3"	15' 3"	13' 4"	11' 3"	13' 10"	12' 2"	10' 3"
		24	18' 7"	15' 3"	13' 4"	13' 4"	11' 8"	9' 10"	12' 2"	10' 7"	9' 0"
362S162-43	33	12	26' 6"	21' 0"	18' 4"	18' 4"	16' 1"	13' 6"	16' 8"	14' 7"	12' 3"
		16	24' 1"	19' 1"	16' 8"	16' 8"	14' 7"	12' 3"	15' 2"	13' 3"	11' 2"
		24	21' 0"	16' 8"	14' 7"	14' 7"	12' 8"	10' 8"	13' 3"	11' 7"	9' 9"
362S162-43	50	12	26' 6"	21' 0"	18' 4"	18' 4"	16' 1"	13' 6"	16' 8"	14' 7"	12' 3"
		16	24' 1"	19' 1"	16' 8"	16' 8"	14' 7"	12' 3"	15' 2"	13' 3"	11' 2"
		24	21' 0"	16' 8"	14' 7"	14' 7"	12' 8"	10' 8"	13' 3"	11' 7"	9' 9"
362S162-54	50	12	28' 4"	22' 6"	19' 8"	19' 8"	17' 2"	14' 6"	17' 10"	15' 7"	13' 2"
		16	25' 9"	20' 6"	17' 10"	17' 10"	15' 7"	13' 2"	16' 2"	14' 2"	12' 0"
		24	22' 6"	17' 10"	15' 7"	15' 7"	13' 7"	11' 6"	14' 2"	12' 4"	10' 6"
362S162-68	50	12	30' 4"	24' 1"	21' 1"	21' 1"	18' 4"	15' 6"	19' 1"	16' 8"	14' 1"
		16	27' 7"	21' 10"	19' 1"	19' 1"	16' 8"	14' 1"	17' 4"	15' 2"	12' 9"
		24	24' 1"	19' 1"	16' 8"	16' 8"	14' 7"	12' 3"	15' 2"	13' 3"	11' 2"
362S162-97	50	12	33' 6"	26' 7"	23' 2"	23' 2"	20' 3"	17' 1"	21' 1"	18' 4"	15' 7"
		16	30' 4"	24' 2"	21' 1"	21' 1"	18' 4"	15' 7"	19' 2"	16' 9"	14' 1"
		24	26' 7"	21' 1"	18' 4"	18' 4"	16' 1"	13' 7"	16' 9"	14' 7"	12' 3"
362S162-118	50	12	35' 3"	28' 0"	24' 6"	24' 6"	21' 4"	18' 0"	22' 2"	19' 4"	16' 4"
		16	32' 0"	25' 4"	22' 2"	22' 2"	19' 4"	16' 4"	20' 2"	17' 7"	14' 10"
		24	28' 0"	22' 2"	19' 4"	19' 4"	17' 0"	14' 3"	17' 7"	15' 4"	13' 0"
362S200-33	33	12	25' 8"	20' 4"	17' 9"	17' 9"	15' 7"	13' 1"	16' 2"	14' 1"	11' 10"
		16	23' 3"	18' 6"	16' 2"	16' 2"	14' 1"	11' 10"	14' 8"	12' 9"	10' 9"
		24	19' 8"	16' 2"	14' 1"	14' 1"	12' 4"	10' 4"	12' 9"	11' 2"	9' 6"
362S200-43	33	12	28' 0"	22' 2"	19' 4"	19' 4"	17' 0"	14' 3"	17' 7"	15' 4"	13' 0"
		16	25' 4"	20' 2"	17' 7"	17' 7"	15' 4"	13' 0"	16' 0"	14' 0"	11' 9"
		24	22' 2"	17' 7"	15' 4"	15' 4"	13' 6"	11' 3"	14' 0"	12' 2"	10' 3"
362S200-43	50	12	28' 0"	22' 2"	19' 4"	19' 4"	17' 0"	14' 3"	17' 7"	15' 4"	13' 0"
		16	25' 4"	20' 2"	17' 7"	17' 7"	15' 4"	13' 0"	16' 0"	14' 0"	11' 9"
		24	22' 2"	17' 7"	15' 4"	15' 4"	13' 6"	11' 3"	14' 0"	12' 2"	10' 3"
362S200-54	50	12	30' 0"	23' 9"	20' 9"	20' 9"	18' 2"	15' 3"	18' 10"	16' 6"	13' 10"
		16	27' 3"	21' 7"	18' 10"	18' 10"	16' 6"	13' 10"	17' 2"	15' 0"	12' 8"
		24	23' 9"	18' 10"	16' 6"	16' 6"	14' 4"	12' 2"	15' 0"	13' 1"	11' 1"
362S200-68	50	12	32' 1"	25' 6"	22' 3"	22' 3"	19' 6"	16' 4"	20' 2"	17' 8"	14' 10"
		16	29' 2"	23' 2"	20' 2"	20' 2"	17' 8"	14' 10"	18' 4"	16' 1"	13' 7"
		24	25' 6"	20' 2"	17' 8"	17' 8"	15' 4"	13' 0"	16' 1"	14' 0"	11' 9"
362S200-97	50	12	35' 6"	28' 2"	24' 7"	24' 7"	21' 6"	18' 2"	22' 4"	19' 7"	16' 6"
		16	32' 3"	25' 7"	22' 4"	22' 4"	19' 7"	16' 6"	20' 3"	17' 9"	15' 0"
		24	28' 2"	22' 4"	19' 7"	19' 7"	17' 1"	14' 4"	17' 9"	15' 6"	13' 1"
362S200-118	50	12	37' 6"	29' 8"	26' 0"	26' 0"	22' 8"	19' 1"	23' 7"	20' 7"	17' 4"
		16	34' 0"	27' 0"	23' 7"	23' 7"	20' 7"	17' 4"	21' 4"	18' 8"	15' 9"
		24	29' 8"	23' 7"	20' 7"	20' 7"	18' 0"	15' 2"	18' 8"	16' 4"	13' 9"
362S250-33	33	12	26' 8"	21' 2"	18' 6"	18' 6"	16' 2"	13' 8"	16' 9"	14' 8"	12' 4"
		16	24' 3"	19' 3"	16' 9"	16' 9"	14' 8"	12' 4"	15' 3"	13' 4"	11' 3"
		24	20' 4"	16' 9"	14' 8"	14' 8"	12' 10"	10' 9"	13' 4"	11' 8"	9' 10"
362S250-43	33	12	29' 6"	23' 4"	20' 6"	20' 6"	17' 10"	15' 1"	18' 7"	16' 2"	13' 8"
		16	26' 9"	21' 3"	18' 7"	18' 7"	16' 2"	13' 8"	16' 10"	14' 9"	12' 4"
		24	23' 4"	18' 7"	16' 2"	16' 2"	14' 2"	12' 0"	14' 9"	12' 10"	10' 10"
362S250-43	50	12	29' 2"	23' 1"	20' 2"	20' 2"	17' 8"	14' 10"	18' 4"	16' 0"	13' 6"
		16	26' 6"	21' 0"	18' 4"	18' 4"	16' 0"	13' 6"	16' 8"	14' 7"	12' 3"
		24	23' 1"	18' 4"	16' 0"	16' 0"	14' 0"	11' 9"	14' 7"	12' 8"	10' 8"
362S250-54	50	12	31' 7"	25' 0"	21' 10"	21' 10"	19' 1"	16' 1"	19' 10"	17' 4"	14' 7"
		16	28' 8"	22' 9"	19' 10"	19' 10"	17' 4"	14' 7"	18' 1"	15' 9"	13' 3"
		24	25' 0"	19' 10"	17' 4"	17' 4"	15' 2"	12' 9"	15' 9"	13' 9"	11' 7"
362S250-68	50	12	33' 10"	26' 10"	23' 6"	23' 6"	20' 7"	17' 3"	21' 4"	18' 8"	15' 9"
		16	30' 9"	24' 6"	21' 4"	21' 4"	18' 8"	15' 9"	19' 4"	17' 0"	14' 3"
		24	26' 10"	21' 4"	18' 8"	18' 8"	16' 3"	13' 9"	17' 0"	14' 9"	12' 6"
362S250-97	50	12	37' 7"	29' 9"	26' 1"	26' 1"	22' 9"	19' 2"	23' 8"	20' 8"	17' 6"
		16	34' 2"	27' 1"	23' 8"	23' 8"	20' 8"	17' 6"	21' 6"	18' 9"	15' 10"
		24	29' 9"	23' 8"	20' 8"	20' 8"	18' 1"	15' 2"	18' 9"	16' 4"	13' 10"
362S250-118	50	12	39' 8"	31' 6"	27' 6"	27' 6"	24' 1"	20' 3"	25' 0"	21' 10"	18' 4"
		16	36' 1"	28' 7"	25' 0"	25' 0"	21' 10"	18' 4"	22' 8"	19' 10"	16' 8"
		24	31' 6"	25' 0"	21' 10"	21' 10"	19' 1"	16' 1"	19' 10"	17' 3"	14' 7"

Notes:

1. 5 psf, 7.5 psf and 10 psf loads have not been reduced for strength or deflection checks. Full lateral load is applied.
2. Heights are based on continuous support of each flange over the full length of the stud.
3. Web crippling checks are based on end-one flange loading condition using 1-inch end bearing.

4. "e" web stiffeners required both ends.
5. Allowable Flexural Strength is based on lateral and torsional bracing at a max 48" o.c.
6. Limiting heights are based on steel properties only (non-composite)

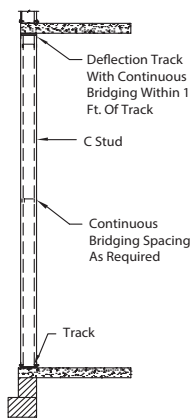
MEMBER	F _y (ksi)	SPACING (in.) o.c.	5 psf			7.5 psf			10 psf		
			L/120	L/240	L/360	L/120	L/240	L/360	L/240	L/360	L/600
400S137-33	33	12	25' 1"	19' 10"	17' 4"	17' 4"	15' 2"	12' 9"	15' 9"	13' 9"	11' 7"
		16	22' 3"	18' 1"	15' 9"	15' 9"	13' 9"	11' 7"	14' 4"	12' 6"	10' 7"
		24	18' 2"	15' 9"	13' 9"	13' 9"	12' 1"	10' 2"	12' 6"	11' 0"	9' 2"
400S137-43	33	12	27' 3"	21' 8"	18' 10"	18' 10"	16' 6"	13' 10"	17' 2"	15' 0"	12' 8"
		16	24' 9"	19' 8"	17' 2"	17' 2"	15' 0"	12' 8"	15' 7"	13' 8"	11' 6"
		24	21' 7"	17' 2"	15' 0"	15' 0"	13' 1"	11' 1"	13' 8"	11' 10"	10' 1"
400-137-43	50	12	27' 3"	21' 8"	18' 10"	18' 10"	16' 6"	13' 10"	17' 2"	15' 0"	12' 8"
		16	24' 9"	19' 8"	17' 2"	17' 2"	15' 0"	12' 8"	15' 7"	13' 8"	11' 6"
		24	21' 8"	17' 2"	15' 0"	15' 0"	13' 1"	11' 1"	13' 8"	11' 10"	10' 1"
400S137-54	50	12	29' 2"	23' 2"	20' 3"	20' 3"	17' 8"	14' 10"	18' 4"	16' 1"	13' 7"
		16	26' 7"	21' 1"	18' 4"	18' 4"	16' 1"	13' 7"	16' 8"	14' 7"	12' 3"
		24	23' 2"	18' 4"	16' 1"	16' 1"	14' 1"	11' 10"	14' 7"	12' 9"	10' 9"
400S137-68	50	12	31' 3"	24' 9"	21' 8"	21' 8"	18' 10"	16' 0"	19' 8"	17' 2"	14' 6"
		16	28' 4"	22' 6"	19' 8"	19' 8"	17' 2"	14' 6"	17' 10"	15' 7"	13' 2"
		24	24' 9"	19' 8"	17' 2"	17' 2"	15' 0"	12' 8"	15' 7"	13' 8"	11' 6"
400S162-33	33	12	26' 3"	20' 10"	18' 2"	18' 2"	15' 10"	13' 4"	16' 7"	14' 6"	12' 2"
		16	23' 10"	19' 0"	16' 7"	16' 7"	14' 6"	12' 2"	15' 0"	13' 1"	11' 1"
		24	19' 8"	16' 7"	14' 6"	14' 6"	12' 7"	10' 8"	13' 1"	11' 6"	9' 8"
400S162-43	33	12	28' 7"	22' 8"	19' 9"	19' 9"	17' 3"	14' 7"	18' 0"	15' 8"	13' 3"
		16	26' 0"	20' 7"	18' 0"	18' 0"	15' 8"	13' 3"	16' 4"	14' 3"	12' 1"
		24	22' 8"	18' 0"	15' 8"	15' 8"	13' 8"	11' 7"	14' 3"	12' 6"	10' 6"
400S162-43	50	12	28' 7"	22' 8"	19' 9"	19' 9"	17' 3"	14' 7"	18' 0"	15' 8"	13' 3"
		16	26' 0"	20' 7"	18' 0"	18' 0"	15' 8"	13' 3"	16' 4"	14' 3"	12' 1"
		24	22' 8"	18' 0"	15' 8"	15' 8"	13' 8"	11' 7"	14' 3"	12' 6"	10' 6"
400S162-54	50	12	30' 7"	24' 3"	21' 2"	21' 2"	18' 7"	15' 8"	19' 3"	16' 10"	14' 2"
		16	27' 9"	22' 1"	19' 3"	19' 3"	16' 10"	14' 2"	17' 6"	15' 3"	12' 10"
		24	24' 3"	19' 3"	16' 10"	16' 10"	14' 8"	12' 4"	15' 3"	13' 4"	11' 3"
400S162-68	50	12	32' 9"	26' 0"	22' 8"	22' 8"	19' 10"	16' 9"	20' 8"	18' 1"	15' 2"
		16	29' 9"	23' 8"	20' 8"	20' 8"	18' 1"	15' 2"	18' 9"	16' 4"	13' 9"
		24	26' 0"	20' 8"	18' 1"	18' 1"	15' 9"	13' 3"	16' 4"	14' 3"	12' 1"
400S162-97	50	12	36' 2"	28' 9"	25' 1"	25' 1"	21' 10"	18' 6"	22' 9"	19' 10"	16' 9"
		16	32' 10"	26' 1"	22' 9"	22' 9"	19' 10"	16' 9"	20' 8"	18' 1"	15' 3"
		24	28' 9"	22' 9"	19' 10"	19' 10"	17' 4"	14' 8"	18' 1"	15' 9"	13' 3"
400S162-118	50	12	38' 2"	30' 3"	26' 6"	26' 6"	23' 1"	19' 6"	24' 0"	21' 0"	17' 8"
		16	34' 8"	27' 6"	24' 0"	24' 0"	21' 0"	17' 8"	21' 9"	19' 1"	16' 1"
		24	30' 3"	24' 0"	21' 0"	21' 0"	18' 3"	15' 6"	19' 1"	16' 8"	14' 1"
400S200-33	33	12	27' 8"	22' 0"	19' 2"	19' 2"	16' 9"	14' 1"	17' 4"	15' 2"	12' 10"
		16	25' 2"	20' 0"	17' 4"	17' 4"	15' 2"	12' 10"	15' 10"	13' 9"	11' 8"
		24	20' 9"	17' 4"	15' 2"	15' 2"	13' 3"	11' 2"	13' 9"	12' 1"	10' 2"
400S200-43	33	12	30' 2"	23' 10"	20' 10"	20' 10"	18' 3"	15' 4"	19' 0"	16' 7"	14' 0"
		16	27' 4"	21' 9"	19' 0"	19' 0"	16' 7"	14' 0"	17' 3"	15' 1"	12' 8"
		24	23' 10"	19' 0"	16' 7"	16' 7"	14' 6"	12' 2"	15' 1"	13' 2"	11' 1"
400S200-43	50	12	30' 2"	23' 10"	20' 10"	20' 10"	18' 3"	15' 4"	19' 0"	16' 7"	14' 0"
		16	27' 4"	21' 9"	19' 0"	19' 0"	16' 7"	14' 0"	17' 3"	15' 1"	12' 8"
		24	23' 10"	19' 0"	16' 7"	16' 7"	14' 6"	12' 2"	15' 1"	13' 2"	11' 1"
400S200-54	50	12	32' 4"	25' 8"	22' 4"	22' 4"	19' 7"	16' 6"	20' 4"	17' 9"	15' 0"
		16	29' 4"	23' 3"	20' 4"	20' 4"	17' 9"	15' 0"	18' 6"	16' 2"	13' 7"
		24	25' 8"	20' 4"	17' 9"	17' 9"	15' 7"	13' 1"	16' 2"	14' 1"	11' 10"
400S200-68	50	12	34' 8"	27' 6"	24' 0"	24' 0"	21' 0"	17' 8"	21' 9"	19' 1"	16' 1"
		16	31' 6"	25' 0"	21' 9"	21' 9"	19' 1"	16' 1"	19' 9"	17' 3"	14' 7"
		24	27' 6"	21' 9"	19' 1"	19' 1"	16' 8"	14' 1"	17' 3"	15' 1"	12' 9"
400S200-97	50	12	38' 4"	30' 6"	26' 7"	26' 7"	23' 2"	19' 7"	24' 2"	21' 1"	17' 9"
		16	34' 10"	27' 8"	24' 2"	24' 2"	21' 1"	17' 9"	22' 0"	19' 2"	16' 2"
		24	30' 6"	24' 2"	21' 1"	21' 1"	18' 4"	15' 7"	19' 2"	16' 9"	14' 1"
400S200-118	50	12	40' 6"	32' 1"	28' 1"	28' 1"	24' 6"	20' 8"	25' 6"	22' 3"	18' 9"
		16	36' 9"	29' 2"	25' 6"	25' 6"	22' 3"	18' 9"	23' 2"	20' 2"	17' 1"
		24	32' 1"	25' 6"	22' 3"	22' 3"	19' 6"	16' 4"	20' 2"	17' 8"	14' 10"
400S250-33	33	12	28' 9"	22' 10"	20' 0"	20' 0"	17' 4"	14' 8"	18' 1"	15' 10"	13' 4"
		16	26' 2"	20' 9"	18' 1"	18' 1"	15' 10"	13' 4"	16' 6"	14' 4"	12' 1"
		24	21' 6"	18' 1"	15' 10"	15' 10"	13' 9"	11' 8"	14' 4"	12' 7"	10' 7"
400S250-43	33	12	31' 9"	25' 2"	22' 0"	22' 0"	19' 2"	16' 2"	20' 0"	17' 6"	14' 9"
		16	28' 10"	22' 10"	20' 0"	20' 0"	17' 6"	14' 9"	18' 2"	15' 10"	13' 4"
		24	25' 2"	20' 0"	17' 6"	17' 6"	15' 3"	12' 10"	15' 10"	13' 10"	11' 8"
400S250-43	50	12	31' 4"	24' 10"	21' 9"	21' 9"	19' 0"	16' 0"	19' 9"	17' 3"	14' 7"
		16	28' 6"	22' 7"	19' 9"	19' 9"	17' 3"	14' 7"	18' 0"	15' 8"	13' 2"
		24	24' 10"	19' 9"	17' 3"	17' 3"	15' 1"	12' 8"	15' 8"	13' 8"	11' 7"
400S250-54	50	12	34' 0"	27' 0"	23' 7"	23' 7"	20' 7"	17' 4"	21' 4"	18' 8"	15' 9"
		16	30' 10"	24' 6"	21' 4"	21' 4"	18' 8"	15' 9"	19' 4"	17' 0"	14' 3"
		24	27' 0"	21' 4"	18' 8"	18' 8"	16' 3"	13' 9"	17' 0"	14' 9"	12' 6"
400S250-68	50	12	36' 7"	29' 0"	25' 4"	25' 4"	22' 1"	18' 8"	23' 0"	20' 1"	17' 0"
		16	33' 2"	26' 4"	23' 0"	23' 0"	20' 1"	17' 0"	20' 10"	18' 3"	15' 4"
		24	29' 0"	23' 0"	20' 1"	20' 1"	17' 7"	14' 9"	18' 3"	16' 0"	13' 6"
400S250-97	50	12	40' 6"	32' 2"	28' 1"	28' 1"	24' 7"	20' 8"	25' 6"	22' 3"	18' 9"
		16	36' 9"	29' 2"	25' 6"	25' 6"	22' 3"	18' 9"	23' 2"	20' 3"	17' 1"
		24	32' 2"	25' 6"	22' 3"	22' 3"	19' 6"	16' 4"	20' 3"	17' 8"	14' 10"
400S250-118	50	12	42' 9"	34' 0"	29' 8"	29' 8"	25' 10"	21' 10"	27' 0"	23' 7"	19' 10"
		16	38' 10"	30' 10"	27' 0"	27' 0"	23' 7"	19' 10"	24' 6"	21' 4"	18' 1"
		24	34' 0"	27' 0"	23' 7"	23' 7"	20' 7"	17' 4"	21' 4"	18' 8"	15' 9"

Notes:

- 5 psf, 7.5 psf and 10 psf loads have not been reduced for strength or deflection checks. Full lateral load is applied.
- Heights are based on continuous support of each flange over the full length of the stud.
- Web crippling checks are based on end-one flange loading condition using 1-inch end bearing.

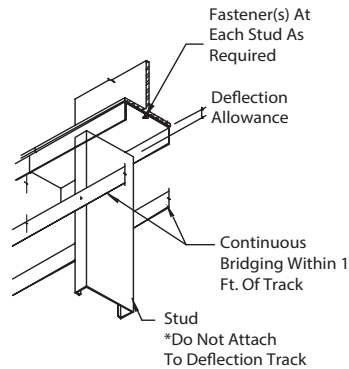
- "e" web stiffeners required both ends.

- Allowable Flexural Strength is based on lateral and torsional bracing at a max 48" o.c.
- Limiting heights are based on steel properties only (non-composite)



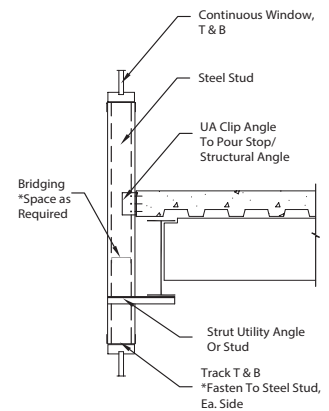
INFILL STUD

INFILL WALL APPLICATION



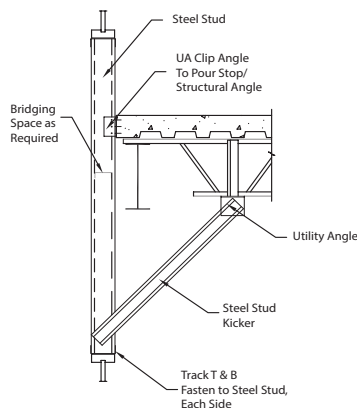
DEFLECTION TRACK

SPANDREL APPLICATION



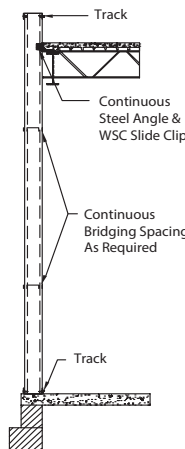
STRUT TO BEAM

SPANDREL APPLICATION



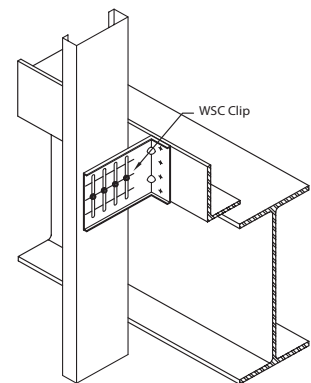
DIAGONAL KICKER

BY-PASS WALL APPLICATION



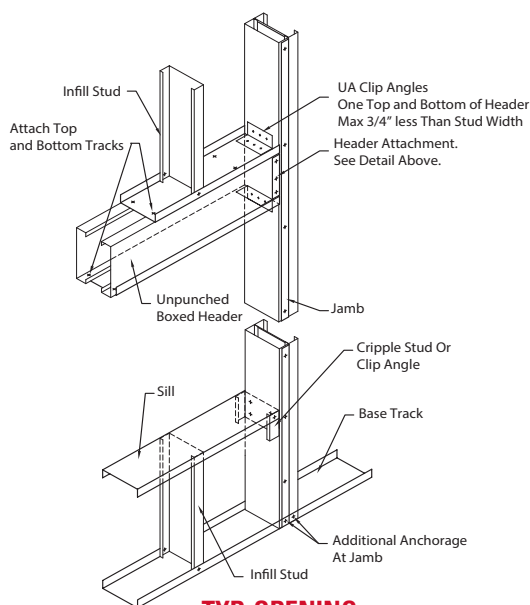
BY-PASS WALL

CURTAIN WALL STUD

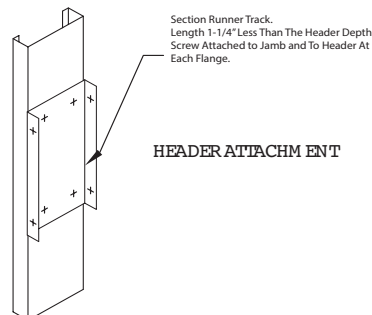


WSC SLIDE CLIP

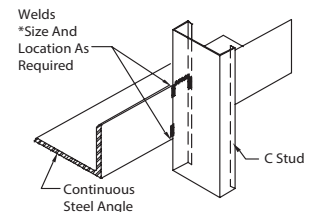
WINDOW OPENING DETAILS



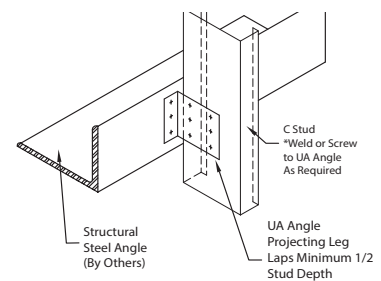
TYP. OPENING



GRAVITY LATERAL ATTACHMENT ALTERNATIVES



DIRECT TO STEEL ANGLE



UA ANGLE TO STEEL ANGLE

1. NOTES:
2. Size, spacing and anchorage of framing components shall be qualified by design.
3. Vertical deflection of the primary frame shall be accommodated in the window head.

DIAGONAL RACKING BRACING

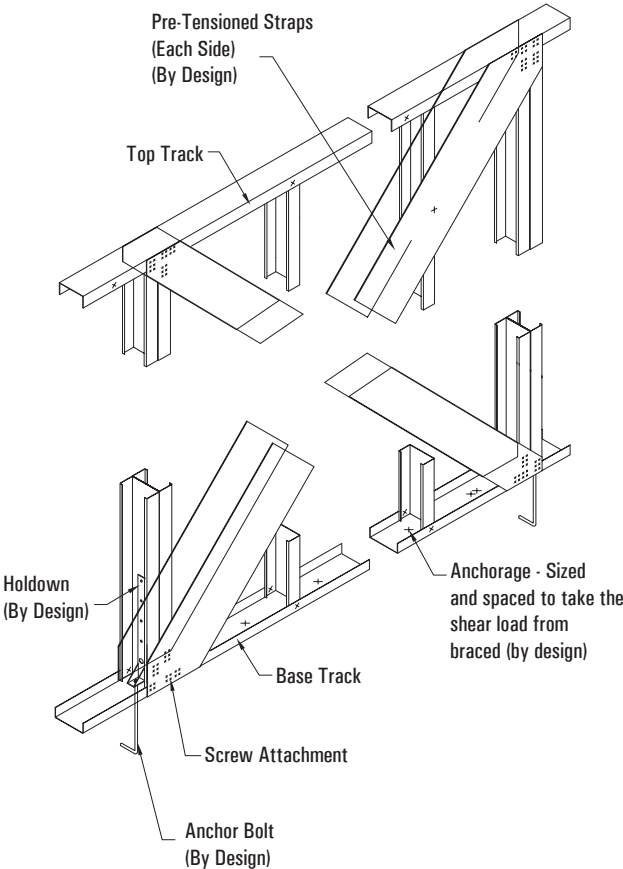
Diagonal bracing and connections must be designed for the specific conditions of a building. For allowable load capacities of Marino\WARE members and assistance in developing connections, please contact Marino\WARE's Technical Services Department. Buildings must be properly braced to resist racking under wind and seismic loads. In steel-framed construction, diagonal strap bracing offers an economical and effective means to provide this resistance. Straps are sloped to resist racking forces in tension. They are installed over framing members and easily covered with facing materials. Diagonal strap ends are secured by screws or welded to transfer the tension loads to the wall framing and floor assembly. End connections must be designed to transfer accumulated design loads. At the foundation, floor anchors must be adequate to prevent uplift and horizontal shear. Splicing of strapping is not recommended.

DIAGONAL CROSS-BRACING

For selection of Flat Strap (FS) subjected to tension loads in shear wall assemblies or miscellaneous applications.

USE:

Select a flat strap which provides an allowable tensile capacity equal to or greater than the applied tension load.



CROSS BRACING: ALLOWABLE TENSION CAPACITY BASED ON SINGLE STRAP		
Flat Strap Bracing (thickness)	Area (in ²)	P _a Without 1/3 increase
2" x 20ga (33mil)	0.0692	1.37
2" x 18ga (43 mil)	0.0902	1.78
4" x 18ga (43 mil)	0.1804	3.57
2" x 16ga(54 mil)	0.1132	3.39
4" x 16ga(54 mil)	0.2264	6.79
2" x 14ga(68 mil)	0.1426	4.28
4" x 14ga(68 mil)	0.2852	8.56

NOTES:
1. Strap end connections shall be designed to transfer the tensile load.
2. 16 and 14 gauge strap: F_y (min)=50 ksi
3. 20 and 18 gauge strap: F_y (min)=33 ksi

NOTES:

1. Allowable axial loads listed are based on simple one span condition and are given in kips (1 kip = 1,000 lb).
2. Allowable axial loads are determined based on Section H1 of AISI S100 with the assumption that the axial load passes through the centroid of the effective section.
3. Allowable axial loads based on 4'-0" on center bracing.
4. Studs are assumed to be adequately braced at a maximum spacing of L_U to develop the full allowable moment, M_a .
5. Listed wind pressures represent the calculated design wind pressure (1.0W based on 2009 IBC or 0.6W based on 2012 IBC and later editions). For deflection calculations, the listed wind pressures have been reduced by 0.70 as per IBC. The 5 psf pressure has not been reduced for deflection checks.
6. End supports have not been checked for web crippling.
7. If no note, deflection meets L/720
8. ¹Deflection meets L/120
9. ²Deflection meets L/240
10. ³Deflection meets L/360
11. ⁴Deflection meets L/600
12. See General Notes on Page 6.

5 psf Lateral Load (Interior Walls)

3 5/8" MEMBERS

Wall Height (ft)	Stud Spacing (in.) o.c.	362S137				362S162				362S200				362S250			
		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi	
		33	43	54	68	33	43	54	68	33	43	54	68	33	43	54	68
8	12	1.48	2.13	3.31	4.36	1.87	2.64	4.14	5.37	2.23	3.28	5.17	6.67	2.43	3.72	5.81	7.75
	16	1.41	2.06	3.24	4.29	1.79	2.56	4.07	5.30	2.15	3.19	5.09	6.59	2.35	3.63	5.72	7.66
	24	1.27	1.92	3.11	4.16	1.64	2.41	3.92	5.16	1.99	3.03	4.93	6.43	2.19	3.45	5.56	7.49
9	12	1.37	2.00	3.09	4.06	1.73	2.47	3.84	4.97	2.08	3.07	4.78	6.15	2.28	3.52	5.45	7.16
	16	1.28	1.91	3.01	3.98	1.63	2.37	3.75	4.88	1.98	2.96	4.68	6.05	2.17	3.41	5.34	7.05
	24	1.11	1.73	2.85	3.81	1.45	2.19	3.57	4.70	1.78	2.75	4.49	5.86	1.97	3.18	5.13	6.84
10	12	1.25	1.85	2.84	3.72	1.58	2.28	3.51	4.53	1.91	2.83	4.36	5.59	2.11	3.29	5.07	6.52
	16	1.14	1.74	2.74	3.62	1.46	2.16	3.40	4.42	1.79	2.70	4.24	5.48	1.98	3.15	4.94	6.39
	24	0.95	1.53	2.54	3.42	1.25	1.94	3.19	4.21	1.56	2.46	4.01	5.25	1.75	2.89	4.68	6.14
12	12	0.98	1.50	2.25	2.96	1.24	1.86	2.77	3.59	1.55	2.32	3.44	4.42	1.73	2.73	4.06	5.20
	16	0.85 ⁴	1.36	2.13	2.83	1.10	1.71	2.64	3.45	1.39	2.15	3.30	4.28	1.57	2.55	3.89	5.04
	24	0.61 ³	1.11 ³	1.90 ⁴	2.60	0.85 ³	1.44 ⁴	2.39	3.20	1.10 ³	1.86	3.02	4.00	1.28 ⁴	2.22	3.58	4.73
14	12	0.71 ³	1.15 ⁴	1.73	2.29	0.92 ⁴	1.43	2.12	2.77	1.17	1.81	2.63	3.42	1.35	2.15	3.11	4.04
	16	0.57 ³	0.99 ³	1.60 ⁴	2.15	0.77 ³	1.27 ⁴	1.98	2.62	1.00 ³	1.63 ⁴	2.47	3.26	1.17 ⁴	1.95	2.94	3.86
	24	0.33 ²	0.72 ²	1.36 ³	1.90 ³	0.51 ²	0.98 ³	1.72 ³	2.36 ⁴	0.70 ³	1.30 ³	2.19 ³	2.97	0.85 ³	1.58 ³	2.61 ⁴	3.53
16	12	0.48 ³	0.83 ³	1.31 ³	1.75 ⁴	0.65 ³	1.06 ³	1.61 ⁴	2.13	0.84 ³	1.35 ⁴	2.01	2.64	1.01 ³	1.63	2.39	3.14
	16	0.35 ²	0.68 ²	1.18 ³	1.61 ³	0.50 ²	0.89 ³	1.47 ³	1.98 ⁴	0.66 ³	1.17 ³	1.85 ³	2.48	0.82 ³	1.42 ³	2.21 ⁴	2.96
	24	0.11 ¹	0.41 ¹	0.94 ²	1.37 ²	0.24 ¹	0.61 ²	1.22 ²	1.72 ³	0.37 ²	0.86 ²	1.57 ³	2.20 ³	0.49 ²	1.06 ³	1.89 ³	2.63 ³

15 psf Lateral Load

3 5/8" MEMBERS

Wall Height (ft)	Stud Spacing (in.) o.c.	362S137				362S162				362S200				362S250			
		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi	
		33	43	54	68	33	43	54	68	33	43	54	68	33	43	54	68
8	12	1.07	1.71	2.92	3.96	1.42	2.19	3.72	4.95	1.76	2.79	4.70	6.20	1.95	3.20	5.31	7.24
	16	0.89	1.52	2.74	3.78	1.22	1.98	3.51	4.74	1.53	2.56	4.48	5.98	1.73	2.95	5.07	7.00
	24	0.53 ⁴	1.14	2.39	3.41	0.83	1.58	3.13	4.35	1.11	2.12	4.05	5.55	1.30	2.48	4.62	6.52
9	12	0.88	1.48	2.62	3.57	1.19	1.92	3.32	4.45	1.50	2.46	4.20	5.58	1.69	2.87	4.83	6.53
	16	0.66	1.25	2.40	3.34	0.95	1.66	3.08	4.20	1.23	2.19	3.93	5.31	1.42	2.57	4.54	6.23
	24	0.25 ³	0.82 ⁴	1.99	2.92	0.51 ³	1.20	2.63	3.74	0.75 ⁴	1.67	3.43	4.80	0.92	2.01	3.99	5.67
10	12	0.68	1.24	2.28	3.14	0.96	1.63	2.90	3.92	1.23	2.12	3.68	4.92	1.41	2.51	4.32	5.78
	16	0.43 ³	0.98 ⁴	2.03	2.88	0.69 ⁴	1.34	2.63	3.64	0.94 ⁴	1.81	3.38	4.62	1.11	2.17	3.98	5.44
	24		0.50 ³	1.58 ³	2.41 ⁴	0.21 ³	0.83 ³	2.13 ⁴	3.12	0.40 ³	1.24 ⁴	2.82	4.05	0.55 ³	1.54	3.36	4.81
12	12	0.31 ³	0.77 ³	1.60 ⁴	2.28	0.52 ³	1.07 ⁴	2.06	2.86	0.73 ³	1.46	2.65	3.63	0.88 ⁴	1.77	3.16	4.31
	16		0.47 ³	1.33 ³	1.99 ³	0.22 ²	0.75 ³	1.76 ³	2.55 ⁴	0.40 ³	1.10 ³	2.32 ⁴	3.29	0.53 ³	1.37 ⁴	2.78	3.93
	24			0.84 ²	1.48 ³		0.19 ²	1.24 ³	2.00 ³		0.48 ³	1.73 ³	2.68 ³		0.67 ³	2.11 ³	3.24 ⁴
14	12		0.37 ²	1.05 ³	1.58 ³	0.17 ²	0.60 ³	1.39 ³	2.01 ³	0.31 ²	0.89 ³	1.82 ³	2.59 ⁴	0.43 ³	1.12 ³	2.19 ⁴	3.10
	16			0.78 ²	1.29 ³		0.28 ²	1.09 ²	1.70 ³		0.53 ²	1.49 ³	2.25 ³		0.71 ³	1.82 ³	2.72 ⁴
	24			0.31 ¹	0.79 ²			0.59 ¹	1.17 ²			0.92 ²	1.66 ²			1.17 ²	2.04 ³
16	12			0.65 ²	1.06 ²		0.25 ²	0.90 ²	1.39 ³		0.46 ²	1.21 ³	1.83 ³		0.61 ²	1.49 ³	2.21 ³
	16			0.39 ¹	0.78 ²			0.62 ¹	1.09 ²		0.12 ¹	0.90 ²	1.50 ²		0.22 ²	1.13 ²	1.84 ³
	24				0.31 ¹			0.15 ¹	0.59 ¹			0.37 ¹	0.95 ¹			0.52 ¹	1.21 ²

If no note, deflection meets L/720

1. Deflection meets L/120

2. Deflection meets L/240

3. Deflection meets L/360

4. Deflection meets L/600

35 psf Lateral Load

3 5/8" MEMBERS

Wall Height (ft)	Stud Spacing (in.) o.c.	362S137				362S162				362S200				362S250			
		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi	
		33	43	54	68	33	43	54	68	33	43	54	68	33	43	54	68
8	12	0.37 ⁴	0.97	2.23	3.24	0.65 ⁴	1.38	2.95	4.16	0.91	1.91	3.84	5.35	1.09	2.25	4.40	6.30
	16		0.58 ³	1.85 ⁴	2.85	0.25 ³	0.96 ⁴	2.54	3.74	0.47 ³	1.44	3.38	4.88	0.64 ⁴	1.75	3.90	5.78
	24			1.17 ³	2.13 ³		0.18 ³	1.78 ³	2.95 ⁴		0.59 ³	2.53 ⁴	4.02		0.82 ⁴	2.98	4.81
9	12		0.61 ³	1.79 ⁴	2.71	0.31 ³	0.98 ⁴	2.42	3.52	0.52 ³	1.43	3.19	4.56	0.68 ⁴	1.75	3.73	5.40
	16		0.17 ³	1.37 ³	2.27 ⁴		0.50 ³	1.95 ³	3.04 ⁴		0.91 ³	2.67 ⁴	4.03	0.17 ³	1.17 ⁴	3.16	4.81
	24			0.61 ²	1.46 ³			1.11 ³	2.16 ³			1.73 ³	3.06 ³		0.13 ³	2.12 ³	3.72 ⁴
10	12		0.28 ³	1.37 ³	2.19 ³		0.59 ³	1.90 ³	2.88 ⁴	0.16 ³	0.98 ³	2.56 ⁴	3.79	0.30 ³	1.25 ⁴	3.07	4.52
	16			0.91 ³	1.71 ³			1.40 ³	2.36 ³		0.41 ³	2.00 ³	3.21 ⁴		0.62 ³	2.45 ³	3.87 ⁴
	24			0.11 ²	0.85 ²			0.52 ²	1.43 ²			1.02 ²	2.19 ³			1.34 ³	2.72 ³
12	12			0.62 ²	1.25 ²			1.00 ²	1.75 ³		0.20 ²	1.46 ³	2.41 ³		0.36 ³	1.81 ³	2.93 ³
	16			0.16 ¹	0.75 ²			0.49 ²	1.22 ²			0.89 ²	1.82 ²			1.17 ²	2.26 ³
	24								0.29 ¹				0.79 ¹				1.09 ²
14	12			0.10 ¹	0.57 ¹			0.36 ¹	0.93 ²			0.67 ²	1.39 ²			0.88 ²	1.74 ²
	16				0.10 ¹				0.42 ¹			0.13 ¹	0.83 ¹			0.27 ¹	1.10 ²
	24																
16	12				0.11 ¹				0.37 ¹			0.14 ¹	0.70 ¹			0.26 ¹	0.92 ¹
	16												0.18 ¹				0.33 ¹
	24																

40 psf Lateral Load

3 5/8" MEMBERS

Wall Height (ft)	Stud Spacing (in.) o.c.	362S137				362S162				362S200				362S250			
		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi	
		33	43	54	68	33	43	54	68	33	43	54	68	33	43	54	68
8	12	0.21 ³	0.80 ⁴	2.06	3.07	0.48 ⁴	1.20	2.77	3.98	0.72 ⁴	1.71	3.64	5.15	0.89	2.04	4.18	6.07
	16		0.36 ³	1.65 ⁴	2.64		0.73 ³	2.31 ⁴	3.51	0.23 ³	1.19 ⁴	3.13	4.63	0.39 ³	1.48	3.63	5.50
	24			0.89 ³	1.83 ³			1.47 ³	2.63 ³		0.24 ³	2.19 ³	3.66 ⁴		0.45 ³	2.61 ⁴	4.42
9	12		0.42 ³	1.61 ³	2.52 ⁴	0.11 ³	0.77 ³	2.21 ⁴	3.31	0.31 ³	1.20 ⁴	2.96	4.33	0.46 ³	1.49	3.48	5.14
	16			1.14 ³	2.03 ³		0.24 ³	1.70 ³	2.78 ⁴		0.62 ³	2.39 ³	3.74		0.86 ³	2.85 ⁴	4.49
	24			0.31 ²	1.14 ²			0.78 ²	1.81 ³			1.36 ³	2.68 ³			1.72 ³	3.29 ³
10	12			1.17 ³	1.97 ³		0.36 ³	1.68 ³	2.65 ³		0.73 ³	2.32 ³	3.54 ⁴		0.97 ³	2.80 ⁴	4.23
	16			0.67 ²	1.45 ³			1.14 ³	2.08 ³		0.11 ²	1.71 ³	2.91 ³		0.28 ³	2.11 ³	3.53 ⁴
	24				0.52 ²			0.18 ²	1.07 ²			0.63 ²	1.79 ²			0.90 ²	2.27 ³
12	12			0.42 ²	1.03 ²			0.78 ²	1.51 ²			1.21 ²	2.15 ³			1.53 ³	2.63 ³
	16				0.49 ¹			0.23 ¹	0.94 ²			0.59 ²	1.51 ²			0.83 ²	1.90 ²
	24												0.40 ¹			0.65 ¹	
14	12				0.36 ¹			0.15 ¹	0.70 ¹			0.43 ¹	1.14 ²			0.61 ¹	1.46 ²
	16								0.16 ¹				0.54 ¹				0.77 ¹
	24																
16	12								0.16 ¹				0.47 ¹				0.66 ¹
	16																
	24																

50 psf Lateral Load

3 5/8" MEMBERS

Wall Height (ft)	Stud Spacing (in.) o.c.	362S137				362S162				362S200				362S250			
		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi	
		33	43	54	68	33	43	54	68	33	43	54	68	33	43	54	68
8	12		0.47 ³	1.75 ⁴	2.74	0.14 ³	0.84 ⁴	2.42	3.62	0.35 ³	1.31	3.25	4.75	0.51 ⁴	1.61	3.77	5.64
	16			1.26 ³	2.23 ⁴		0.29 ³	1.88 ³	3.06 ⁴		0.70 ³	2.65 ⁴	4.13		0.95 ⁴	3.11	4.95
	24			0.37 ²	1.28 ³			0.90 ³	2.03 ³			1.54 ³	3.00 ³			1.91 ³	3.67 ⁴
9	12			1.25 ³	2.15 ³		0.37 ³	1.83 ³	2.91 ⁴		0.76 ³	2.53 ⁴	3.89		1.01 ³	3.00 ⁴	4.65
	16			0.71 ²	1.57 ³			1.23 ³	2.28 ³			1.86 ³	3.19 ³		0.27 ³	2.27 ³	3.87 ⁴
	24				0.54 ²			0.17 ²	1.16 ²			0.66 ²	1.95 ³			0.94 ²	2.48 ³
10	12			0.79 ²	1.57 ³			1.27 ³	2.22 ³		0.26 ³	1.85 ³	3.06 ³		0.45 ³	2.28 ³	3.70 ⁴
	16			0.22 ²	0.97 ²			0.64 ²	1.56 ²			1.15 ²	2.33 ³			1.49 ³	2.87 ³
	24								0.40 ¹				1.04 ²			0.10 ²	1.42 ²
12	12				0.62 ¹			0.36 ¹	1.07 ²			0.74 ²	1.66 ²			1.00 ²	2.08 ³
	16								0.41 ¹				0.93 ²			0.20 ¹	1.25 ²
	24																
14	12							0.29 ¹				0.68 ¹				0.11 ¹	0.93 ²
	16																0.15 ¹
	24																
16	12																0.17 ¹
	16																
	24																

NOTE: See page 30 for Table Notes.

25 psf Lateral Load

4" MEMBERS

Wall Height (ft)	Stud Spacing (in.) o.c.	400S137				400S162				400S200				400S250			
		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi	
		33	43	54	68	33	43	54	68	33	43	54	68	33	43	54	68
8	12	0.86	1.55	2.95	4.22	1.22	2.04	3.81	5.35	1.53	2.66	4.88	6.73	1.73	3.03	5.36	7.70
	16	0.58	1.25	2.67	3.92	0.91	1.73	3.51	5.03	1.20	2.31	4.54	6.38	1.40	2.67	5.01	7.33
	24	0.70 ⁴		2.14	3.36	0.34 ⁴	1.13	2.92	4.41	0.58 ⁴	1.66	3.88	5.70	0.76	1.97	4.33	6.60
9	12	0.61	1.26	2.59	3.82	0.93	1.71	3.37	4.81	1.21	2.27	4.33	6.06	1.40	2.63	4.88	7.05
	16	0.29 ³	0.91 ⁴	2.26	3.46	0.57 ⁴	1.33	3	4.42	0.82	1.86	3.92	5.63	1.00	2.19	4.44	6.58
	24		0.28 ³	1.64 ³	2.79 ⁴		0.65 ³	2.32 ⁴	3.7	0.12 ³	1.10 ⁴	3.15	4.84	0.27 ³	1.38	3.63	5.71
10	12	0.36 ³	0.96 ⁴	2.22	3.34	0.63 ⁴	1.36	2.9	4.23	0.88 ⁴	1.86	3.75	5.35	1.06	2.21	4.31	6.29
	16		0.57 ³	1.84 ⁴	2.93	0.24 ³	0.94 ⁴	2.49	3.78	0.45 ³	1.40 ⁴	3.28	4.86	0.62 ⁴	1.71	3.81	5.75
	24			1.15 ³	2.18 ³		0.19 ³	1.73 ³	2.97 ⁴		0.57 ³	2.44 ³	3.97 ⁴		0.80 ³	2.89 ⁴	4.76
12	12		0.40 ³	1.46 ³	2.34 ⁴	0.11 ³	0.71 ³	1.98 ³	3.03 ⁴	0.28 ³	1.09 ³	2.62 ⁴	3.91	0.42 ³	1.37 ⁴	3.15	4.65
	16			1.04 ³	1.88 ³		0.23 ²	1.52 ³	2.53 ³		0.57 ³	2.10 ³	3.36 ⁴		0.79 ³	2.56 ³	4.04 ⁴
	24			0.30 ²	1.08 ²			0.71 ²	1.65 ²			1.19 ²	2.39 ³			1.54 ³	2.94 ³
14	12			0.83 ²	1.49 ³		0.17 ²	1.21 ²	2.00 ³		0.45 ²	1.67 ³	2.65 ³		0.63 ³	2.04 ³	3.20 ⁴
	16			0.40 ¹	1.04 ²			0.75 ²	1.50 ²			1.16 ²	2.11 ³			1.46 ²	2.59 ³
	24				0.25 ¹				0.66 ¹			0.28 ¹	1.17 ²			0.46 ¹	1.52 ²
16	12			0.36 ¹	0.87 ²			0.64 ²	1.24 ²			0.97 ²	1.73 ²			1.22 ²	2.12 ³
	16				0.44 ¹			0.20 ¹	0.78 ¹			0.49 ¹	1.21 ²			0.67 ¹	1.54 ²
	24											0.34 ¹				0.54 ¹	

30 psf Lateral Load

4" MEMBERS

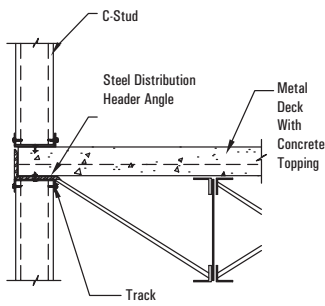
Wall Height (ft)	Stud Spacing (in.) o.c.	400S137				400S162				400S200				400S250			
		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi	
		33	43	54	68	33	43	54	68	33	43	54	68	33	43	54	68
8	12	0.69	1.37	2.78	4.04	1.03	1.85	3.63	5.16	1.33	2.45	4.67	6.52	1.53	2.81	5.15	7.48
	16	0.37 ⁴	1.03	2.45	3.70	0.68	1.48	3.27	4.78	0.95	2.04	4.27	6.10	1.14	2.38	4.73	7.03
	24		0.39 ³	1.84 ⁴	3.04		0.79 ⁴	2.59	4.06	0.24 ³	1.29	3.51	5.32	0.40 ⁴	1.58	3.94	6.18
9	12	0.41 ⁴	1.05	2.39	3.60	0.71 ⁴	1.48	3.15	4.58	0.97	2.02	4.08	5.80	1.16	2.36	4.61	6.77
	16		0.65 ³	2.01	3.19	0.30 ³	1.05 ⁴	2.72	4.12	0.53 ⁴	1.55	3.60	5.31	0.70 ⁴	1.86	4.11	6.22
	24			1.30 ³	2.42 ³		0.26 ³	1.94 ³	3.29 ⁴		0.68 ³	2.73 ⁴	4.39		0.92 ⁴	3.17	5.21
10	12	0.14 ³	0.72 ³	1.99 ⁴	3.09	0.40 ³	1.11 ⁴	2.65	3.96	0.62 ³	1.58	3.46	5.05	0.79 ⁴	1.90	4.01	5.97
	16		0.28 ³	1.55 ³	2.62 ⁴		0.63 ³	2.17 ⁴	3.45	0.13 ³	1.06 ³	2.93	4.49	0.28 ³	1.33 ⁴	3.43	5.34
	24			0.78 ²	1.77 ³			1.32 ³	2.53 ³		0.11 ³	1.98 ³	3.48 ³		0.30 ³	2.39 ³	4.21 ⁴
12	12		0.13 ²	1.20 ³	2.06 ³		0.42 ³	1.70 ³	2.72 ³		0.77 ³	2.30 ³	3.57 ⁴	0.11 ³	1.01 ³	2.79 ⁴	4.28
	16			0.73 ²	1.54 ³			1.18 ²	2.16 ³		0.19 ²	1.72 ³	2.95 ³		0.36 ³	2.13 ³	3.58 ³
	24				0.64 ²			0.27 ¹	1.18 ²			0.71 ²	1.87 ²			0.98 ²	2.36 ³
14	12			0.57 ²	1.21 ²			0.92 ²	1.69 ³		0.12 ²	1.35 ²	2.32 ³		0.26 ²	1.69 ³	2.83 ³
	16			0.10 ¹	0.71 ¹			0.41 ¹	1.15 ²			0.78 ²	1.71 ²			1.04 ²	2.14 ³
	24								0.21 ¹				0.67 ¹				0.96 ²
16	12			0.11 ¹	0.60 ¹			0.37 ¹	0.96 ²			0.67 ¹	1.41 ²			0.88 ²	1.76 ²
	16				0.13 ¹				0.44 ¹			0.14 ¹	0.85 ¹			0.27 ¹	1.12 ²
	24																

35 psf Lateral Load

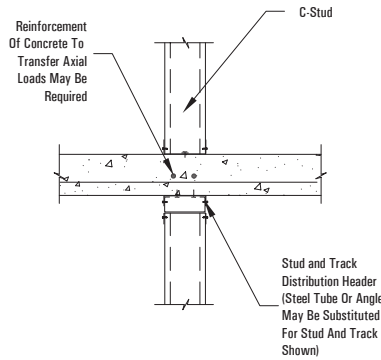
4" MEMBERS

Wall Height (ft)	Stud Spacing (in.) o.c.	400S137				400S162				400S200				400S250			
		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi		33 ksi		50 ksi	
		33	43	54	68	33	43	54	68	33	43	54	68	33	43	54	68
8	12	0.53	1.20	2.61	3.87	0.85	1.66	3.45	4.97	1.14	2.24	4.47	6.31	1.33	2.59	4.94	7.25
	16	0.16 ³	0.81	2.24	3.47	0.45 ⁴	1.25	3.04	4.54	0.70	1.79	4.01	5.83	0.89	2.11	4.46	6.74
	24			1.55 ³	2.73		0.47 ³	2.27 ⁴	3.72		0.93 ⁴	3.15	4.94		1.20	3.57	5.77
9	12	0.23 ³	0.85 ⁴	2.20	3.39	0.50 ⁴	1.26	2.93	4.35	0.75 ⁴	1.78	3.84	5.55	0.93	2.11	4.36	6.49
	16		0.40 ³	1.76 ⁴	2.92		0.78 ³	2.45	3.84	0.25 ³	1.25 ⁴	3.30	4.99	0.41 ³	1.54	3.79	5.88
	24			0.97 ³	2.06 ³			1.58 ³	2.90 ³		0.28 ³	2.32 ³	3.96 ⁴		0.49 ³	2.74 ⁴	4.74
10	12		0.50 ³	1.77 ⁴	2.85	0.17 ³	0.86 ³	2.41 ⁴	3.70	0.37 ³	1.31 ⁴	3.19	4.77	0.53 ³	1.61	3.71	5.65
	16			1.28 ³	2.32 ³		0.33 ³	1.88 ³	3.13 ⁴		0.73 ³	2.60 ⁴	4.14		0.97 ³	3.07 ⁴	4.95
	24			0.42 ²	1.38 ³			0.93 ²	2.10 ³			1.54 ³	3.01 ³			1.91 ³	3.69 ³
12	12			0.96 ²	1.80 ³		0.15 ²	1.43 ³	2.44 ³		0.47 ³	2.00 ³	3.25 ³		0.68 ³	2.45 ³	3.92 ⁴
	16			0.44 ²	1.23 ²			0.86 ²	1.82 ³			1.36 ²	2.57 ³			1.73 ³	3.15 ³
	24				0.24 ¹				0.74 ²			0.26 ¹	1.38 ²			0.47 ²	1.81 ²
14	12			0.32 ¹	0.95 ²			0.66 ²	1.41 ²			1.06 ²	2.01 ³			1.35 ²	2.47 ³
	16				0.40 ¹			0.10 ¹	0.82 ¹			0.44 ¹	1.35 ²			0.65 ²	1.72 ²
	24											0.21 ¹				0.44 ¹	
16	12				0.36 ¹			0.12 ¹	0.69 ¹			0.39 ¹	1.12 ²			0.57 ¹	1.43 ²
	16								0.14 ¹				0.50 ¹				0.73 ¹
	24																

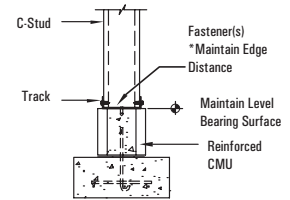
NOTE: See page 30 for Table Notes.



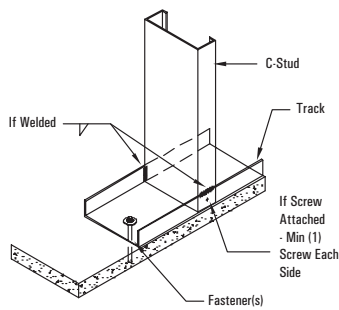
EXTERIOR WALL



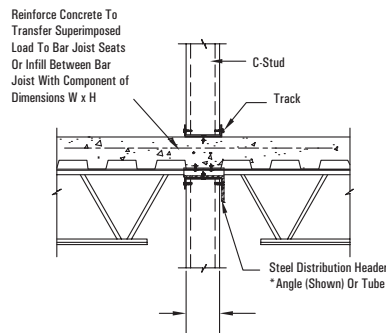
INTERIOR WALL



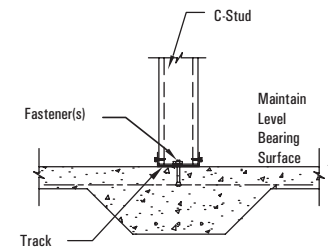
EXTERIOR FOUNDATION



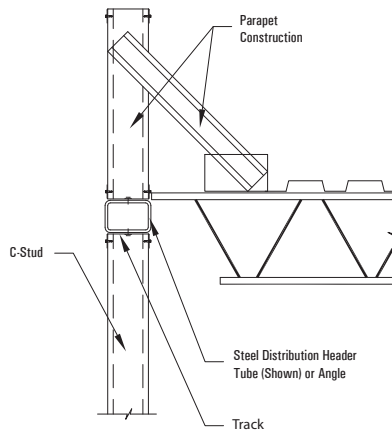
STUD TO TRACK



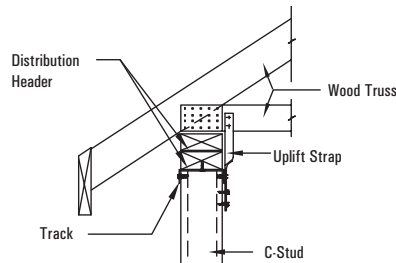
INTERIOR WALL W/ BAR JOIST



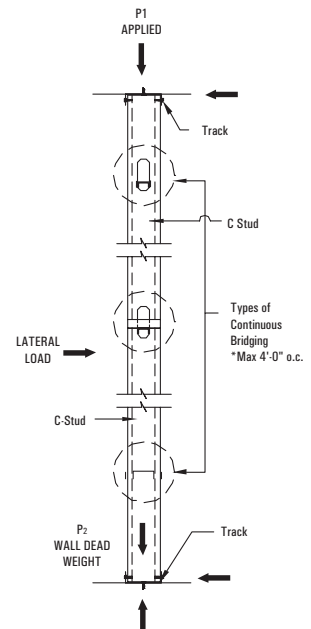
INTERIOR FOOTING



EXTERIOR WALL WITH BAR JOIST



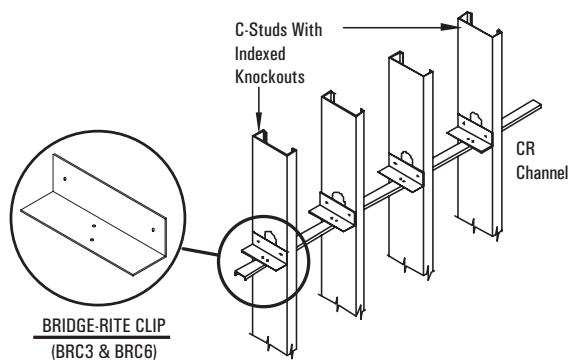
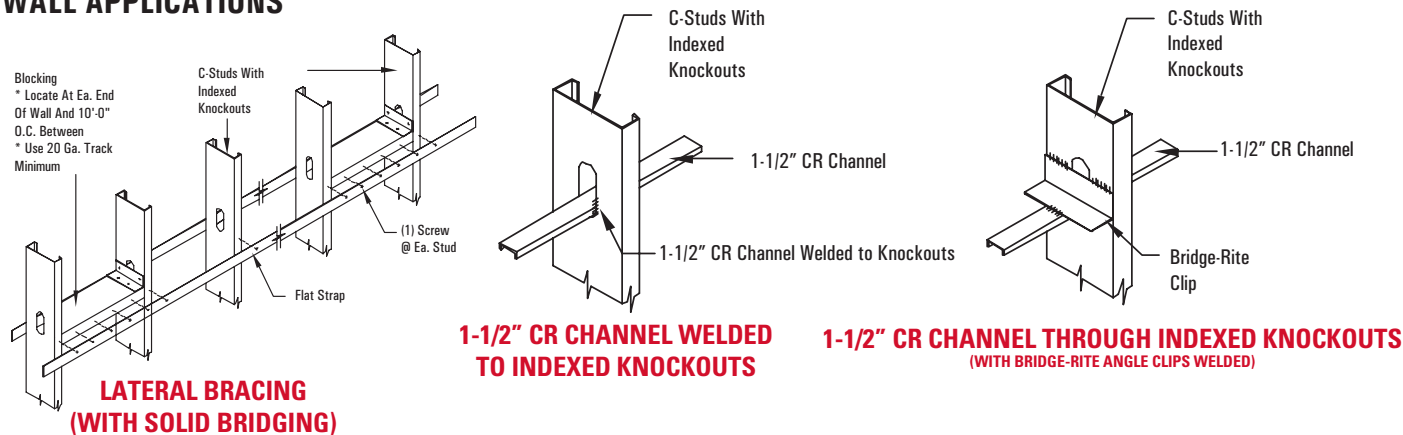
WOOD TRUSS @ EXTERIOR WALL



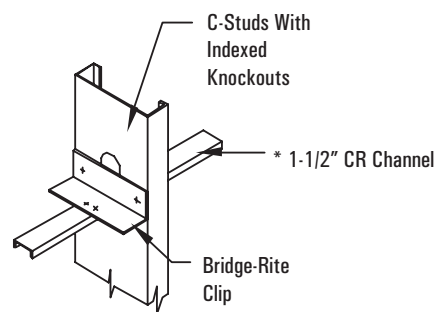
BEARING WALL SCHEMATIC

$$P_{\text{DESIGN}} = P_1 + P_2$$

WALL APPLICATIONS



LATERAL BRACING (WITH CR CHANNEL)

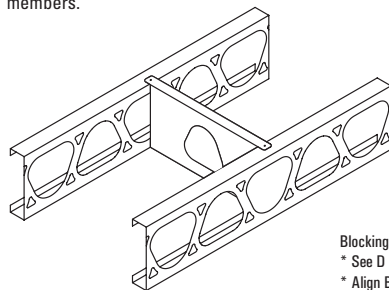


1-1/2" CR CHANNEL THROUGH INDEXED KNOCKOUTS (WITH BRIDGE-RITE ANGLE CLIPS WELDED)

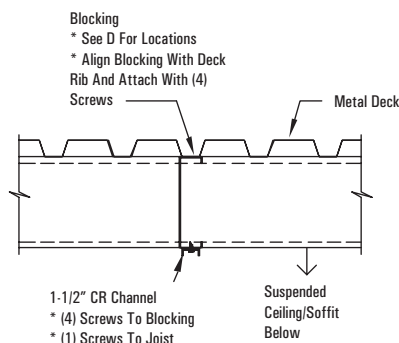
FLOOR & ROOF APPLICATIONS

SOLID BLOCKING (JB)

Joist Blocking is pre-cut to fit securely between joists to prevent joist rotation. Joist Blocking is a one piece system in lieu of the typical 3 piece detail offering an economical alternative to installing conventional clips and solid web members.



MATERIAL: 16 ga (54 mil) 50ksi
FINISH: Galvanized -G90

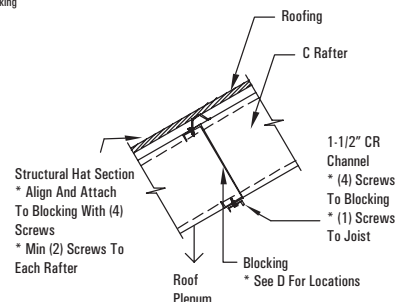
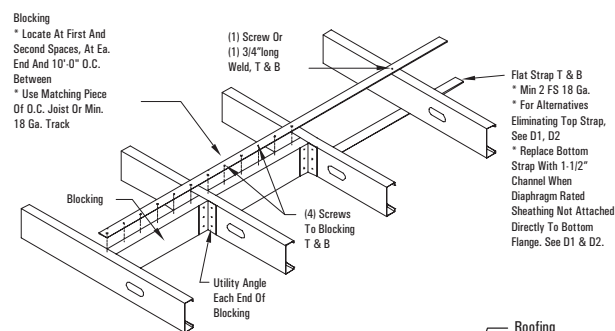


D1-SUBSTITUTE METAL DECK

FLAT STRAP & BLOCKING (D1 & D2)

Blocking

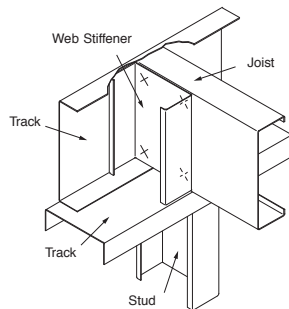
- Locate at first and second spaces at ea. end and 10'-0" o.c.
- Use Matching Piece of o.c. Joist or min. 18 Ga. Track



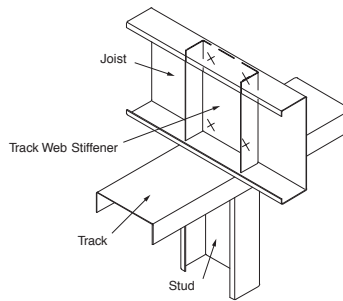
D2-SUBSTITUTE CHANNEL

NOTES:

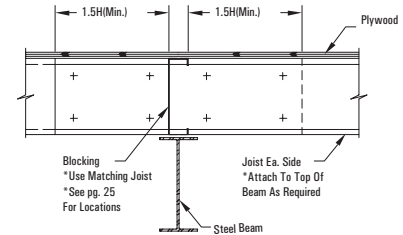
- Spans are based on continuous support of the compression flange over the full length of the joist and the tension flange is laterally braced at maximum spacing of 8'-0".
- For two equal spans, the listed span is the distance from either end to the center support, with the joist continuous over the center support.
- Joists must be braced against rotation at all supports.
- End shear and web crippling capacity have not been reduced for punchouts.
- End web crippling check is based on a 3.5" bearing length.
Where allowable spans are followed by "e", web stiffeners are required at end supports.
- Interior support not checked for combined bending and web crippling. Web stiffeners are required at interior supports.
- Shear capacity at interior support has been reduced for the presence of punchouts adjacent to the supports.
Combined bending and shear check is based on unreinforced web based on AISI S100.
- Total load deflection is limited to $L/240$. Live load deflection limit is as noted.
- Alternate span live loading has been considered for two equal span conditions.
- Bearing stiffeners must be designed in accordance with AISI S100 section F5, G4.
- See General Notes on Page 6.



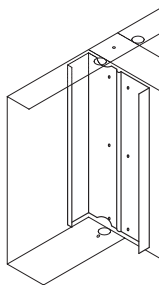
**WEB STIFFENER:
STUD SEGMENT ON BACK OF JOIST**



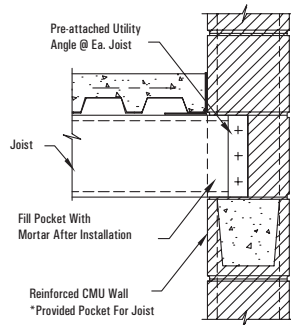
**WEB STIFFENER:
TRACK INSIDE JOIST**



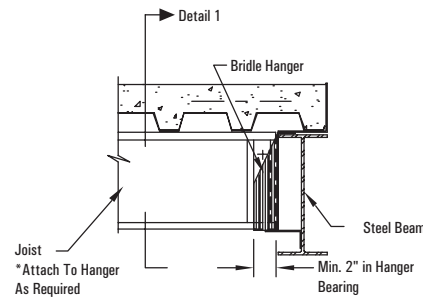
LAPPED JOIST @ INTERIOR SUPPORT



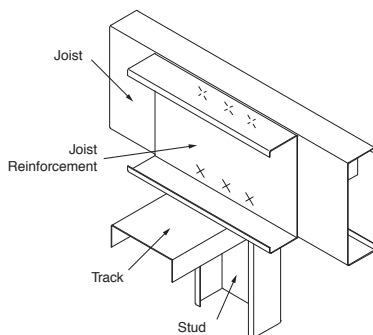
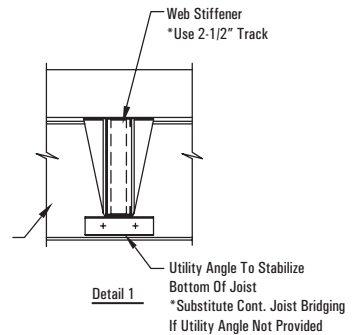
WEB STIFFENER: (JS)



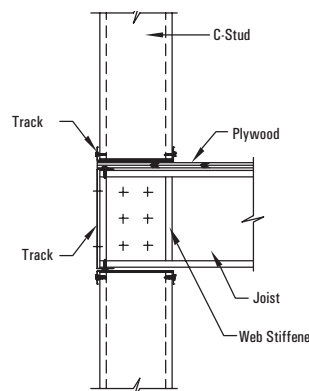
JOIST @ REINFORCED CMU WALL



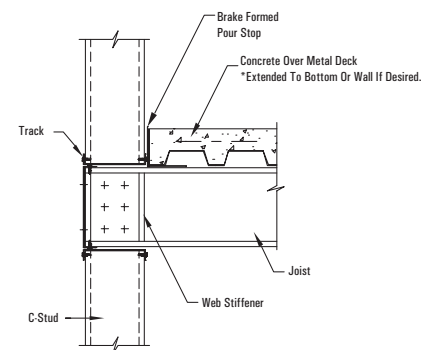
JOIST @ STEEL BEAM W/BRIDLE HANGER



**WEB STIFFENER: DOUBLE WEB
(USE BACK-TO-BACK WEB CRIPPLING TABLES)**



JOIST @ EXTERIOR BEARING WALL



JOIST @ EXTERIOR BEARING WALL

BRIDGING RECOMMENDATIONS:

Bracing components shall be designed based on AISI S100 (C2) and the minimum number of rows required as shown in table. Additional bridging rows may be required by design. Check fire-rated assemblies for additional requirements.

SPAN (ft)	MINIMUM NUMBER OF ROWS
Up To 16 ft	1 at Mid-span
16 ft To 24 ft	2 Rows at 1/3 Points
24 ft To 32 ft	3 Rows at 1/4 Points

10 psf Dead Load and 30 psf Live Load

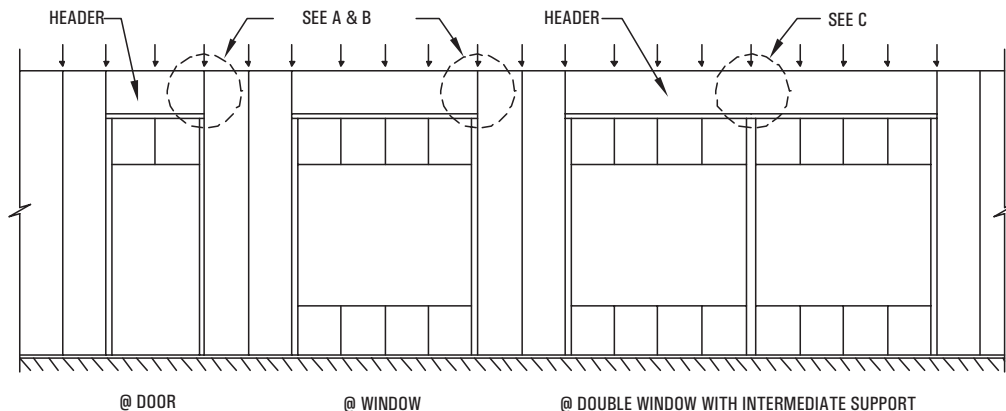
MEMBER	F _y (ksi)	LIVE LOAD DEFLECTION L/360						Live Load Deflection L/480					
		SINGLE SPAN			TWO EQUAL SPANS			SINGLE SPAN			TWO EQUAL SPANS		
		JOIST SPACING (in.) o.c.			JOIST SPACING (in.) o.c.			JOIST SPACING (in.) o.c.			JOIST SPACING (in.) o.c.		
		12	16	24	12	16	24	12	16	24	12	16	24
1000S250-68	50	28' 4"	25' 9"	22' 7"	31' 10"	29' 0"	23' 9"	25' 9"	23' 6"	20' 6"	29' 0"	26' 3"	23' 0"
1000S250-97	50	31' 8"	28' 9"	25' 1"	35' 7"	32' 3"	28' 2"	28' 9"	26' 2"	22' 9"	32' 3"	29' 4"	25' 7"
1000S250-118	50	33' 7"	30' 6"	26' 8"	37' 8"	34' 3"	30' 0"	30' 6"	27' 9"	24' 2"	34' 3"	31' 2"	27' 2"
1000S300-54	50	26' 9"	24' 3"	20' 7"	29' 1"	24' 9"	19' 7"	24' 3"	22' 1"	19' 3"	27' 3"	24' 9"	19' 7"
1000S300-68	50	29' 2"	26' 6"	23' 1"	32' 8"	29' 8"	24' 2"	26' 6"	24' 1"	21' 0"	29' 8"	27' 0"	23' 7"
1000S300-97	50	32' 9"	29' 9"	26' 0"	36' 9"	33' 4"	29' 2"	29' 9"	27' 0"	23' 7"	33' 4"	30' 3"	26' 6"
1000S300-118	50	34' 10"	31' 8"	27' 8"	39' 1"	35' 7"	31' 1"	31' 8"	28' 9"	25' 1"	35' 7"	32' 3"	28' 2"
1000S350-54	50	28' 3"	25' 8"	22' 4"	31' 8"	27' 0"	21' 2"	25' 8"	23' 3"	20' 4"	28' 9"	26' 2"	21' 2"
1000S350-68	50	30' 9"	28' 0"	24' 6"	34' 7"	31' 4"	26' 10"	28' 0"	25' 6"	22' 2"	31' 4"	28' 7"	25' 0"
1000S350-97	50	34' 6"	31' 3"	27' 4"	38' 8"	35' 2"	30' 8"	31' 3"	28' 6"	24' 10"	35' 2"	32' 0"	27' 10"
1000S350-118	50	36' 7"	33' 3"	29' 1"	41' 1"	37' 4"	32' 7"	33' 3"	30' 2"	26' 4"	37' 4"	34' 0"	29' 8"
1200S162-43	33	20' 9"	18' 0"	14' 8"	19' 3"	15' 10"	11' 9"	20' 9"	18' 0"	14' 8"	19' 3"	15' 10"	11' 9"
1200S162-43 (50)	50	23' 6"	20' 4"	16' 7"	20' 10"	17' 0"	12' 3"	23' 0"	20' 4"	16' 7"	20' 10"	17' 0"	12' 3"
1200S162-54	50	27' 6"	24' 2"	19' 8"	27' 10"	24' 1"	18' 8"	25' 0"	22' 8"	19' 8"	27' 10"	24' 1"	18' 8"
1200S162-68	50	30' 0"	27' 2"	23' 6"	33' 2"	28' 9"	23' 6"	27' 2"	24' 8"	21' 7"	30' 7"	27' 9"	23' 6"
1200S162-97	50	33' 10"	30' 9"	26' 10"	38' 1"	34' 7"	30' 2"	30' 9"	28' 0"	24' 6"	34' 7"	31' 4"	27' 6"
1200S162-118	50	36' 0"	32' 8"	28' 7"	40' 6"	36' 9"	32' 1"	32' 8"	29' 9"	26' 0"	36' 9"	33' 4"	29' 2"
1200S200-54	50	28' 8"	26' 1"	21' 4"	29' 6"	24' 10"	19' 2"	26' 1"	23' 8"	20' 8"	29' 3"	24' 10"	19' 2"
1200S200-68	50	31' 2"	28' 4"	24' 9"	35' 1"	30' 10"	25' 3"	28' 4"	25' 9"	22' 3"	31' 10"	25' 3"	20' 8"
1200S200-97	50	35' 3"	32' 1"	28' 0"	39' 8"	36' 0"	31' 6"	32' 1"	29' 2"	25' 6"	36' 0"	32' 8"	28' 7"
1200S200-118	50	37' 7"	34' 1"	29' 9"	42' 2"	38' 3"	33' 6"	34' 1"	31' 0"	27' 1"	38' 3"	34' 9"	30' 4"
1200S250-54	50	29' 10"	27' 0"	22' 1"	30' 0"	25' 2"	19' 6"	27' 2"	24' 8"	21' 7"	30' 0"	25' 2"	19' 6"
1200S250-68	50	32' 6"	29' 7"	25' 9"	36' 6"	31' 10"	25' 9"	29' 7"	26' 10"	23' 6"	33' 2"	30' 2"	25' 9"
1200S250-97	50	36' 8"	33' 4"	29' 2"	41' 2"	37' 6"	32' 8"	33' 4"	30' 3"	26' 6"	37' 6"	34' 0"	29' 8"
1200S250-118	50	39' 0"	35' 4"	31' 0"	43' 9"	39' 9"	34' 8"	35' 4"	32' 2"	28' 1"	39' 9"	36' 1"	31' 7"
1200S300-54	50	31' 0"	27' 6"	22' 6"	30' 8"	25' 9"	19' 9"	28' 2"	25' 7"	22' 3"	30' 8"	25' 9"	19' 9"
1200S300-68	50	33' 9"	30' 8"	26' 7"	37' 7"	32' 7"	26' 7"	30' 8"	27' 10"	24' 4"	34' 6"	31' 3"	26' 7"
1200S300-97	50	38' 0"	34' 6"	30' 1"	42' 7"	38' 8"	33' 9"	34' 6"	31' 4"	27' 4"	38' 8"	35' 2"	30' 8"
1200S300-118	50	40' 4"	36' 8"	32' 0"	45' 3"	41' 2"	36' 0"	36' 8"	33' 3"	29' 1"	41' 2"	37' 4"	32' 8"
1200S350-54	50	32' 7"	29' 7"	25' 2"	33' 3"	27' 9"	21' 1"	29' 7"	26' 10"	23' 6"	33' 3"	27' 9"	21' 1"
1200S350-68	50	35' 7"	32' 4"	28' 3"	40' 0"	36' 2"	29' 3"	32' 4"	29' 4"	25' 8"	36' 3"	33' 0"	28' 9"
1200S350-97	50	39' 9"	36' 2"	31' 7"	44' 8"	40' 7"	35' 6"	36' 2"	32' 10"	28' 8"	40' 7"	36' 10"	32' 9"
1200S350-118	50	42' 3"	38' 4"	33' 7"	47' 6"	43' 2"	37' 8"	38' 4"	34' 10"	30' 6"	43' 2"	39' 2"	34' 2"
1400S162-54	50	29' 6"	25' 6"	20' 9"	29' 6"	24' 7"	18' 7"	28' 1"	25' 6"	20' 9"	29' 6"	24' 7"	18' 7"
1400S162-68	50	33' 9"	30' 6"	24' 10"	35' 3"	30' 6"	24' 10"	30' 8"	27' 10"	24' 4"	34' 6"	30' 6"	24' 10"
1400S162-97	50	38' 6"	34' 10"	30' 6"	43' 2"	39' 2"	32' 8"	34' 10"	31' 8"	27' 8"	39' 2"	35' 7"	31' 1"
1400S162-118	50	41' 2"	37' 4"	32' 8"	46' 2"	42' 0"	36' 8"	37' 4"	34' 0"	29' 8"	42' 0"	38' 2"	33' 3"
1400S200-54	50	32' 1"	27' 9"	22' 8"	30' 6"	25' 3"	19' 0"	29' 3"	26' 7"	22' 8"	30' 6"	25' 3"	19' 0"
1400S200-68	50	35' 2"	31' 10"	26' 10"	38' 1"	33' 0"	26' 9"	31' 10"	29' 0"	25' 4"	35' 10"	32' 7"	26' 9"
1400S200-97	50	40' 0"	36' 3"	31' 8"	44' 9"	40' 8"	35' 0"	36' 3"	33' 0"	28' 9"	40' 8"	37' 0"	32' 3"
1400S200-118	50	42' 9"	38' 10"	33' 10"	48' 0"	43' 7"	38' 1"	38' 10"	35' 3"	30' 9"	43' 7"	39' 7"	34' 7"
1400S250-54	50	33' 3"	28' 10"	23' 7"	30' 10"	25' 6"	19' 1"	30' 4"	27' 7"	23' 7"	30' 10"	25' 6"	19' 1"
1400S250-68	50	36' 7"	33' 2"	28' 0"	39' 6"	34' 1"	27' 0"	33' 2"	30' 2"	26' 4"	33' 10"	27' 0"	20' 8"
1400S250-97	50	41' 6"	37' 8"	32' 10"	46' 6"	42' 3"	36' 3"	37' 8"	34' 2"	29' 10"	42' 3"	38' 4"	33' 7"
1400S250-118	50	44' 3"	40' 2"	35' 2"	49' 8"	45' 2"	39' 6"	40' 2"	36' 7"	31' 10"	45' 2"	41' 0"	33' 10"
1400S300-54	50	34' 1"	29' 6"	24' 1"	31' 1"	25' 8"	19' 2"	31' 6"	28' 1"	24' 1"	31' 1"	25' 8"	19' 2"
1400S300-68	50	37' 6"	34' 1"	28' 7"	40' 6"	34' 7"	27' 3"	34' 1"	31' 0"	27' 1"	38' 3"	34' 7"	27' 3"
1400S300-97	50	42' 10"	38' 10"	34' 0"	48' 1"	43' 8"	37' 1"	38' 10"	35' 4"	30' 10"	43' 8"	39' 8"	34' 8"
1400S300-118	50	45' 8"	41' 6"	36' 3"	51' 3"	46' 7"	40' 8"	41' 6"	37' 9"	33' 0"	46' 7"	42' 4"	37' 0"
1400S350-54	50	36' 4"	33' 0"	27' 1"	33' 8"	27' 7"	20' 3"	33' 0"	30' 0"	26' 2"	33' 8"	27' 7"	20' 3"
1400S350-68	50	40' 2"	36' 7"	31' 10"	45' 2"	38' 6"	30' 1"	36' 7"	33' 2"	29' 0"	41' 0"	37' 3"	30' 1"
1400S350-97	50	45' 0"	40' 10"	35' 8"	50' 6"	45' 10"	40' 1"	40' 10"	37' 1"	32' 4"	45' 10"	41' 8"	36' 4"
1400S350-118	50	47' 9"	43' 6"	38' 0"	53' 8"	48' 9"	42' 7"	43' 6"	39' 6"	34' 6"	48' 9"	44' 3"	38' 8"
1600S162-68	50	36' 10"	32' 0"	26' 1"	36' 10"	32' 0"	26' 1"	34' 0"	30' 10"	26' 1"	36' 10"	32' 0"	26' 1"
1600S162-97	50	42' 9"	38' 10"	34' 0"	48' 0"	42' 3"	34' 6"	38' 10"	35' 3"	30' 10"	43' 7"	39' 8"	34' 6"
1600S162-118	50	46' 0"	41' 9"	36' 6"	51' 7"	46' 10"	40' 2"	41' 9"	37' 10"	33' 1"	46' 10"	42' 7"	37' 2"
1600S200-68	50	39' 0"	34' 8"	28' 3"	40' 1"	34' 8"	27' 4"	35' 4"	32' 2"	28' 1"	39' 8"	34' 8"	27' 4"
1600S200-97	50	44' 4"	40' 4"	35' 3"	49' 10"	45' 3"	37' 1"	40' 4"	36' 8"	32' 0"	45' 3"	41' 2"	36' 0"
1600S200-118	50	47' 8"	43' 3"	37' 9"	53' 6"	48' 7"	42' 6"	43' 3"	39' 3"	34' 4"	48' 7"	44' 2"	38' 7"
1600S250-68	50	40' 4"	36' 2"	29' 6"	41' 9"	35' 4"	27' 7"	36' 8"	33' 3"	29' 1"	41' 2"	35' 4"	27' 7"
1600S250-97	50	46' 0"	41' 9"	36' 6"	51' 7"	46' 10"	38' 7"	41' 9"	37' 10"	33' 1"	46' 10"	42' 7"	37' 2"
1600S250-118	50	49' 3"	44' 9"	39' 1"	55' 3"	50' 3"	43' 10"	44' 9"	40' 8"	35' 6"	50' 3"	45' 8"	39' 10"
1600S300-68	50	41' 3"	37' 2"	30' 4"	42' 4"	35' 9"	27' 9"	37' 6"	34' 1"	29' 9"	42' 1"	35' 9"	27' 9"
1600S300-97	50	47' 3"	43' 0"	37' 7"	53' 1"	48' 3"	39' 7"	43' 0"	39' 1"	34' 1"	48' 3"	43' 10"	38' 3"
1600S300-118	50	50' 9"	46' 2"	40' 4"	57' 1"	51' 10"	45' 3"	46' 2"	42' 0"	36' 8"	51' 10"	47' 1"	41' 2"
1600S350-68	50	43' 7"	39' 7"	34' 0"	46' 3"	38' 9"	29' 10"	39' 7"	36' 0"	31' 4"	44' 6"	38' 9"	29' 10"
1600S350-97	50	49' 7"	45' 0"	39' 4"	55' 8"	50' 7"	43' 9"	45' 0"	40' 10"	35' 9"	50' 7"	45' 10"	40' 1"
1600S350-118	50	53' 1"	48' 3"	42' 2"	59' 7"	54' 2"	47' 3"	48' 3"	43' 9"	38' 3"	54' 2"	49' 2"	43' 0"

NOTE: See page 43 for Table Notes.

NOTES

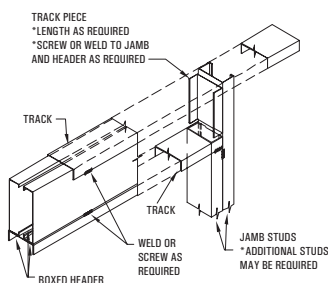
1. Values are for unpunched members.
2. Total load deflection is limited to $L/360$.
3. Headers are made from two "boxed" or back to back members.
4. Allowable moment, shear, web crippling and moment of inertia are based on twice the capacity of a single member.
5. Web crippling check is based on 1" of bearing at end supports.
6. Members are assumed to be adequately braced for bending.
7. Allowable loads are for simply supported headers with uniform bending loads only.
8. "e" web stiffeners required at ends.
9. See General Notes on Page 6.

MEMBER	DESIGN THICKNESS (in.)	F _y (ksi)	4 (ft)	5 (ft)	6 (ft)	7 (ft)	8 (ft)	9 (ft)	10 (ft)	11 (ft)	12 (ft)	13 (ft)	14 (ft)	15 (ft)	16 (ft)
362S162-33	0.0346	33	480.e	307.e	214.e	140.e	94.e	66	-	-	-	-	-	-	-
362S162-43	0.0451	33	705.e	451.e	287.e	181.e	121	85	62	-	-	-	-	-	-
362S162-43 (50)	0.0451	50	882.e	496.e	287.e	181	121	85	62	-	-	-	-	-	-
362S162-54	0.0566	50	1192.e	610.e	353	222	149	105	76	57	-	-	-	-	-
362S162-68	0.0713	50	1460.e	747	432	272	182	128	93	70	54	-	-	-	-
362S162-97	0.1017	50	1960.e	1004	581	366	245	172	125	94	73	57	-	-	-
362S162-118	0.1242	50	2285	1170	677	426	286	201	146	110	85	67	53	-	-
600S162-33	0.0346	33	638.e	510.e	422.e	310.e	238.e	188.e	152.e	118.e	91.e	71.e	57.e	-	-
600S162-43	0.0451	33	1390.e	889.e	618.e	454.e	347.e	275.e	202.e	152.e	117.e	92.e	74	60	-
600S162-43 (50)	0.0451	50	1415.e	1126.e	782.e	575.e	395.e	278.e	202.e	152.e	117	92	74	60	-
600S162-54	0.0566	50	2527.e	1617.e	1123.e	729.e	488.e	343.e	250.e	188	145	114	91	74	61
600S162-68	0.0713	50	3288.e	2105.e	1426.e	898.e	602.e	423.e	308	231	178	140	112	91	75
600S162-97	0.1017	50	4727.e	3025.e	1941.e	1223.e	819	575	419	315	243	191	153	124	102
600S162-118	0.1242	50	5745.e	3677.e	2287.e	1441	965	678	494	371	286	225	180	146	121
800S162-33	0.0346	33	474.e	379.e	316.e	271.e	237.e	211.e	187.e	155.e	130.e	111.e	95.e	83.e	72.e
800S162-43	0.0451	33	1051.e	841.e	701.e	548.e	420.e	332.e	269.e	222.e	186.e	159.e	137.e	116.e	96.e
800S162-43 (50)	0.0451	50	1051.e	841.e	701.e	601.e	525.e	427.e	346.e	286.e	221.e	174.e	139.e	113.e	93
800S162-54	0.0566	50	2091.e	1673.e	1363.e	1001.e	766.e	606.e	487.e	366.e	282.e	222.e	177.e	144	119
800S162-68	0.0713	50	4150.e	2656.e	1845.e	1355.e	1038.e	820.e	616.e	463.e	357.e	281.e	225	183	150
800S162-97	0.1017	50	6058.e	3877.e	2693.e	1978.e	1515.e	1165.e	849.e	638.e	491	386	309	252	207
800S162-118	0.1242	50	8768.e	5612.e	3897.e	2863.e	1964.e	1379.e	1006.e	755	582	458	366	298	245
1000S162-33	0.0346	33	377.e	302.e	251.e	215.e	188.e	168.e	151.e	137.e	126.e	116.e	108.e	101.e	93.e
1000S162-43	0.0451	33	836.e	669.e	557.e	478.e	418.e	371.e	334.e	284.e	238.e	203.e	175.e	153.e	134.e
1000S162-43 (50)	0.0451	50	836.e	669.e	557.e	478.e	418.e	371.e	334.e	304.e	279.e	257.e	224.e	188.e	155.e
1000S162-54	0.0566	50	1660.e	1328.e	1107.e	949.e	830.e	738.e	628.e	519.e	436.e	370.e	297.e	241.e	199.e
1000S162-68	0.0713	50	3345.e	2676.e	2230.e	1755.e	1344.e	1062.e	860.e	711.e	597.e	474.e	380.e	309.e	254.e
1000S162-97	0.1017	50	8157.e	5221.e	3625.e	2664.e	2039.e	1611.e	1305.e	1079.e	858.e	675.e	540.e	439	362
1000S162-118	0.1242	50	10064.e	6441.e	4473.e	3286.e	2516.e	1988.e	1610.e	1324.e	1020.e	802.e	642	522	430
1200S162-43	0.0451	33	694.e	555.e	462.e	396.e	347.e	308.e	277.e	252.e	231.e	213.e	198.e	185.e	163.e
1200S162-43 (50)	0.0451	50	694.e	555.e	462.e	396.e	347.e	308.e	277.e	252.e	231.e	213.e	198.e	185.e	173.e
1200S162-54	0.0566	50	1377.e	1102.e	918.e	787.e	689.e	612.e	551.e	501.e	459.e	424.e	390.e	340.e	298.e
1200S162-68	0.0713	50	2770.e	2216.e	1847.e	1583.e	1385.e	1231.e	1056.e	873.e	733.e	625.e	539.e	469.e	390.e
1200S162-97	0.1017	50	8145.e	6516.e	4537.e	3333.e	2552.e	2016.e	1633.e	1350.e	1134.e	966.e	833.e	689.e	568.e
1200S162-118	0.1242	50	12894.e	8252.e	5731.e	4210.e	3224.e	2547.e	2063.e	1705.e	1433.e	1221.e	1024.e	832.e	686.e
1400S162-54	0.0566	50	1176.e	941.e	784.e	672.e	588.e	523.e	471.e	428.e	392.e	362.e	336.e	314.e	294.e
1400S162-68	0.0713	50	2364.e	1891.e	1576.e	1351.e	1182.e	1051.e	946.e	860.e	788.e	727.e	638.e	556.e	489.e
1400S162-97	0.1017	50	6938.e	5550.e	4625.e	3964.e	3065.e	2422.e	1962.e	1621.e	1362.e	1161.e	1001.e	872.e	766.e
1400S162-118	0.1242	50	12743.e	10031.e	6966.e	5118.e	3918.e	3096.e	2508.e	2072.e	1741.e	1484.e	1279.e	1115.e	980.e
1600S162-68	0.0713	50	2062.e	1649.e	1375.e	1178.e	1031.e	916.e	825.e	750.e	687.e	634.e	589.e	550.e	515.e
1600S162-97	0.1017	50	6042.e	4834.e	4028.e	3453.e	3021.e	2685.e	2291.e	1893.e	1591.e	1355.e	1169.e	1018.e	895.e
1600S162-118	0.1242	50	11086.e	8868.e	7390.e	6027.e	4615.e	3646.e	2953.e	2441.e	2051.e	1748.e	1507.e	1313.e	1154.e

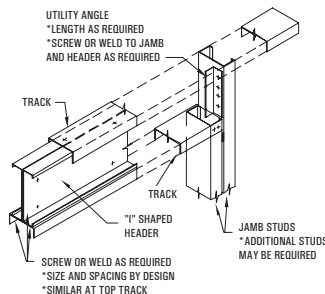


MEMBER	DESIGN THICKNESS (in.)	F _y	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		(ksi)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
362S162-33	0.0346	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-
362S162-43	0.0451	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-
362S162-43 (50)	0.0451	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
362S162-54	0.0566	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
362S162-68	0.0713	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
362S162-97	0.1017	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
362S162-118	0.1242	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
600S162-33	0.0346	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-
600S162-43	0.0451	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-
600S162-43 (50)	0.0451	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
600S162-54	0.0566	50	51	-	-	-	-	-	-	-	-	-	-	-	-	-
600S162-68	0.0713	50	63	53	-	-	-	-	-	-	-	-	-	-	-	-
600S162-97	0.1017	50	85	72	61	52	-	-	-	-	-	-	-	-	-	-
600S162-118	0.1242	50	101	85	72	62	53	-	-	-	-	-	-	-	-	-
800S162-33	0.0346	33	60.e	50.e	--	-	-	-	-	-	-	-	-	-	-	-
800S162-43	0.0451	33	80.e	67.e	57.e	-	-	-	-	-	-	-	-	-	-	-
800S162-43 (50)	0.0451	50	78	66	56	-	-	-	-	-	-	-	-	-	-	-
800S162-54	0.0566	50	99	83	71	61	53	-	-	-	-	-	-	-	-	-
800S162-68	0.0713	50	125	106	90	77	67	58	51	-	-	-	-	-	-	-
800S162-97	0.1017	50	173	146	124	106	92	80	70	61	54	-	-	-	-	-
800S162-118	0.1242	50	205	172	147	126	109	94	83	73	64	57	51	-	-	-
1000S162-33	0.0346	33	82.e	73.e	66.e	59.e	52.e	-	-	-	-	-	-	-	-	-
1000S162-43	0.0451	33	119.e	106.e	95.e	82.e	71.e	61.e	54.e	-	-	-	-	-	-	-
1000S162-43 (50)	0.0451	50	129.e	109.e	92.e	79.e	68.e	60.e	52.e	-	-	-	-	-	-	-
1000S162-54	0.0566	50	166.e	140.e	119.e	102	88	76	67	59	52	-	-	-	-	-
1000S162-68	0.0713	50	212.e	179	152	130	112	98	86	75	67	59	53	-	-	-
1000S162-97	0.1017	50	302	254	216	185	160	139	122	107	95	84	75	68	61	55
1000S162-118	0.1242	50	359	302	257	220	190	166	145	128	113	100	90	80	72	65
1200S162-43	0.0451	33	144.e	129.e	116.e	104.e	95.e	86.e	79.e	72.e	63.e	56.e	50.e	-	-	-
1200S162-43 (50)	0.0451	50	163.e	154.e	139.e	120.e	103.e	90.e	79.e	69.e	61.e	54.e	-	-	-	-
1200S162-54	0.0566	50	252.e	212.e	180.e	154.e	133.e	116.e	102.e	89.e	79.e	70.e	63.e	56.e	51.e	-
1200S162-68	0.0713	50	325.e	274.e	233.e	199.e	172.e	150	131	115	102	91	81	73	65	59
1200S162-97	0.1017	50	473.e	399.e	339	291	251	218	191	168	149	132	118	106	95	86
1200S162-118	0.1242	50	572.e	482	410	351	303	264	231	203	180	160	143	128	115	104
1400S162-54	0.0566	50	277.e	261.e	248.e	220.e	190.e	165.e	144.e	127.e	112.e	100.e	89.e	80.e	72.e	65.e
1400S162-68	0.0713	50	433.e	386.e	333.e	285.e	247.e	214.e	188.e	165.e	146.e	130.e	116	104	94	85
1400S162-97	0.1017	50	679.e	579.e	492.e	422.e	364.e	317.e	277.e	244	216	192	171	154	138	125
1400S162-118	0.1242	50	846.e	712.e	606.e	519.e	449.e	390	342	301	266	236	211	189	170	154
1600S162-68	0.0713	50	485.e	446.e	401.e	362.e	328.e	292.e	256.e	225.e	199.e	177.e	158.e	142.e	127.e	115.e
1600S162-97	0.1017	50	793.e	707.e	635.e	573.e	502.e	437.e	382.e	336.e	298.e	265.e	236.e	212	191	172
1600S162-118	0.1242	50	1022.e	912.e	818.e	721.e	623.e	542.e	474.e	417.e	369.e	328	293	263	237	214

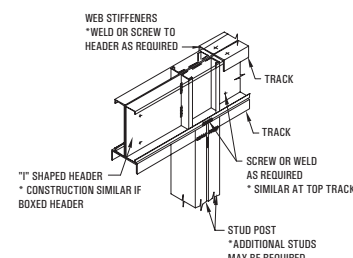
NOTE: See page 56 for Table Notes.



DETAIL A



DETAIL B

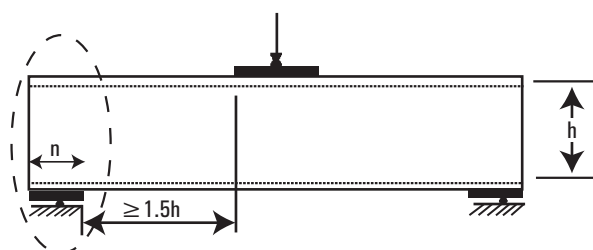
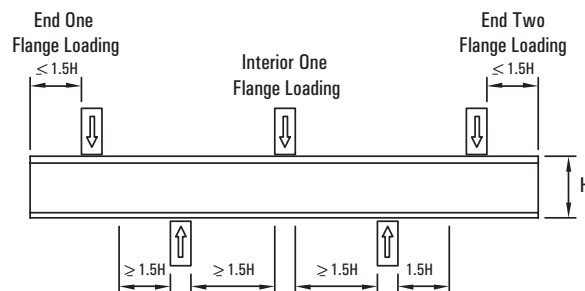
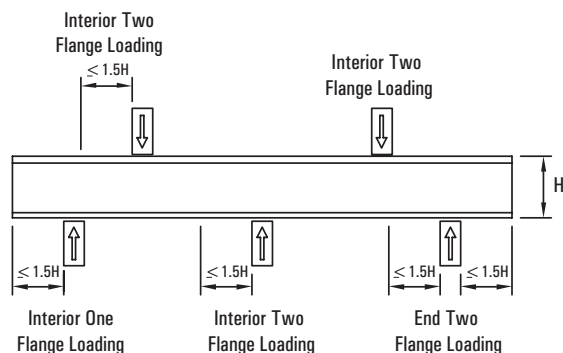
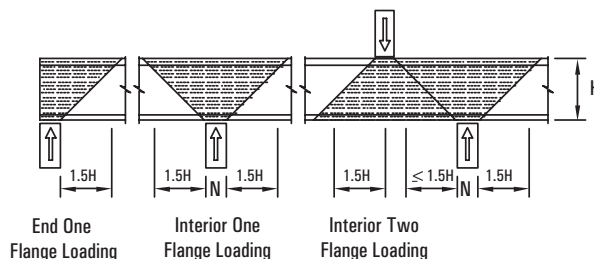
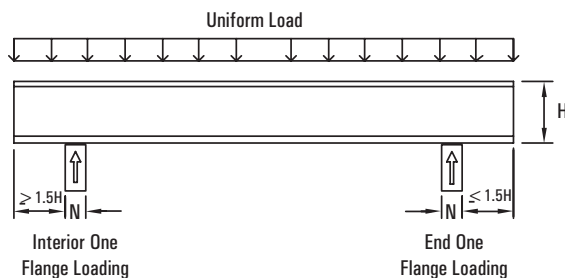


DETAIL C

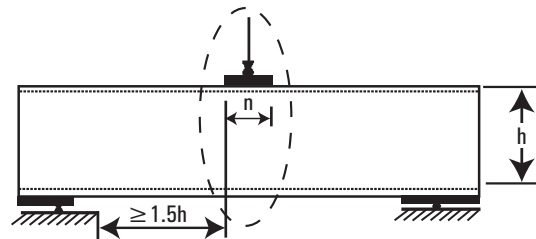
NOTES

1. Listed allowable loads apply only to C-sections.
2. For back-to-back members, the listed allowable loads are for the entire two-member assembly.
3. Listed allowable loads are based on members "fastened to supports", except back-to-back members under two-flange loading (Cases 3 and 4) for which data for "fastened to support" is unavailable in AISI S100.
4. For back-to-back members, the distance between the web connectors and the flange shall be kept to a minimum.
5. Listed allowable loads are for non-punched webs. Capacity reductions for end and interior one flange loading (Cases 1 and 2) near punchouts can be calculated based on AISI S100 (G6).
6. "h" refers to the flat dimension of the web. See web depth-to-thickness ratios table herein.
7. + If $N/h > 2$, then N was set equal to 2h.
8. * If $N/t > 210$, then N was set equal to 210(t)
9. See General Notes on Page 6.

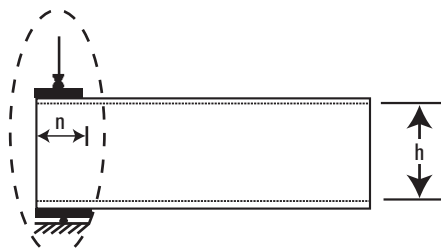
Web Crippling Cases



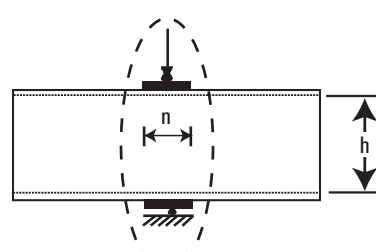
END ONE FLANGE LOADING - CASE 1



INTERIOR ONE FLANGE LOADING - CASE 2



END TWO FLANGE LOADING - CASE 3



INTERIOR TWO FLANGE LOADING - CASE 4

Allowable Web Crippling Loads (lbs) - Single Members

MEMBER	DESIGN THICKNESS (in.)	DESIGNATION THICKNESS (mils)	F _y (ksi)	CASE 1			CASE 2			CASE 3			CASE 4		
				FASTENED TO SUPPORT BEARING LENGTH (in.)			FASTENED TO SUPPORT BEARING LENGTH (in.)			FASTENED TO SUPPORT BEARING LENGTH (in.)			FASTENED TO SUPPORT BEARING LENGTH (in.)		
				1.0	3.5	6.0	1.0	3.5	6.0	1.0	3.5	6.0	1.0	3.5	6.0
250S	0.0346	33	33	173	271	300+	330	453	491+	150	201	216+	411	519	552+
	0.0451	43	33	287	443	489+	580	780	840+	267	351	376+	720	892	943+
	0.0451	43	50	435	671	741+	878	1182	1272+	405	532	570+	1092	1352	1429+
	0.0566	54	50	656	996	1087+	1350	1785	1903+	652	842	893+	1730	2109	2212+
	0.0713	68	50	990	1480	1592+	2073	2693	2836+	1049	1333	1398+	2750	3302	3428+
	0.1017	97	50	1872	2726	2848+	4025	5095	5248+	2167	2683	2757+	5597	6575	6715+
362S	0.0346	33	33	165	259	322	323	444	525	129	173	202	381	480	547
	0.0451	43	33	277	427	526	570	767	898	236	311	360	675	836	943
	0.0451	43	50	419	647	798	863	1162	1360	358	471	546	1023	1267	1429
	0.0566	54	50	634	963	1182	1329	1758	2043	588	760	874	1635	1994	2232
	0.0713	68	50	962	1437	1752	2044	2657	3064	961	1221	1393	2618	3143	3492
	0.1017	97	50	1827	2659	3212	3978	5035	5738	2020	2501	2821	5374	6313	6936
400S	0.0346	33	33	163	256	317	322	442	522	122	164	192	372	469	534
	0.0451	43	33	274	422	520	567	763	893	227	299	346	662	819	924
	0.0451	43	50	415	639	789	859	1156	1354	344	453	525	1003	1242	1400
	0.0566	54	50	628	954	1170	1323	1750	2034	569	735	846	1607	1960	2194
	0.0713	68	50	953	1424	1737	2036	2646	3051	936	1188	1356	2579	3096	3440
	0.1017	97	50	1814	2640	3189	3965	5018	5718	1978	2448	2761	5309	6236	6852
600S	0.0346	33	33	153	240	297	313	430	507	93	125	146	329	416	473
	0.0451	43	33	259	400	493	553	745	872	185	243	282	600	743	838
	0.0451	43	50	393	605	747	838	1128	1321	281	369	427	909	1125	1269
	0.0566	54	50	599	909	1116	1295	1713	1991	482	623	716	1478	1802	2017
	0.0713	68	50	914	1366	1666	1998	2596	2994	816	1036	1183	2399	2881	3201
	0.1017	97	50	1752	2551	3081	3902	4939	5628	1781	2205	2487	5010	5885	6466
800S	0.0346	33	33	153	240	297	313	430	507	93	125	146	329	416	473
	0.0451	43	33	259	400	493	553	745	872	185	243	282	600	743	838
	0.0451	43	50	393	605	747	838	1128	1321	281	369	427	909	1125	1269
	0.0566	54	50	599	909	1116	1295	1713	1991	482	623	716	1478	1802	2017
	0.0713	68	50	914	1366	1666	1998	2596	2994	816	1036	1183	2399	2881	3201
	0.1017	97	50	1752	2551	3081	3902	4939	5628	1781	2205	2487	5010	5885	6466
1000S	0.0346	33	33	153	240	297	313	430	507	93	125	146	329	416	473
	0.0451	43	33	259	400	493	553	745	872	185	243	282	600	743	838
	0.0451	43	50	393	605	747	838	1128	1321	281	369	427	909	1125	1269
	0.0566	54	50	599	909	1116	1295	1713	1991	482	623	716	1478	1802	2017
	0.0713	68	50	914	1366	1666	1998	2596	2994	816	1036	1183	2399	2881	3201
	0.1017	97	50	1752	2551	3081	3902	4939	5628	1781	2205	2487	5010	5885	6466
1200S	0.0346	33	33	153	240	297	313	430	507	93	125	146	329	416	473
	0.0451	43	33	259	400	493	553	745	872	185	243	282	600	743	838
	0.0451	43	50	393	605	747	838	1128	1321	281	369	427	909	1125	1269
	0.0566	54	50	599	909	1116	1295	1713	1991	482	623	716	1478	1802	2017
	0.0713	68	50	914	1366	1666	1998	2596	2994	816	1036	1183	2399	2881	3201
	0.1017	97	50	1752	2551	3081	3902	4939	5628	1781	2205	2487	5010	5885	6466
1400S	0.0346	33	33	153	240	297	313	430	507	93	125	146	329	416	473
	0.0451	43	33	259	400	493	553	745	872	185	243	282	600	743	838
	0.0451	43	50	393	605	747	838	1128	1321	281	369	427	909	1125	1269
	0.0566	54	50	599	909	1116	1295	1713	1991	482	623	716	1478	1802	2017
	0.0713	68	50	914	1366	1666	1998	2596	2994	816	1036	1183	2399	2881	3201
	0.1017	97	50	1752	2551	3081	3902	4939	5628	1781	2205	2487	5010	5885	6466
1600S	0.0346	33	33	153	240	297	313	430	507	93	125	146	329	416	473
	0.0451	43	33	259	400	493	553	745	872	185	243	282	600	743	838
	0.0451	43	50	393	605	747	838	1128	1321	281	369	427	909	1125	1269
	0.0566	54	50	599	909	1116	1295	1713	1991	482	623	716	1478	1802	2017
	0.0713	68	50	914	1366	1666	1998	2596	2994	816	1036	1183	2399	2881	3201
	0.1017	97	50	1752	2551	3081	3902	4939	5628	1781	2205	2487	5010	5885	6466

NOTE: See page 58 for Table Notes.

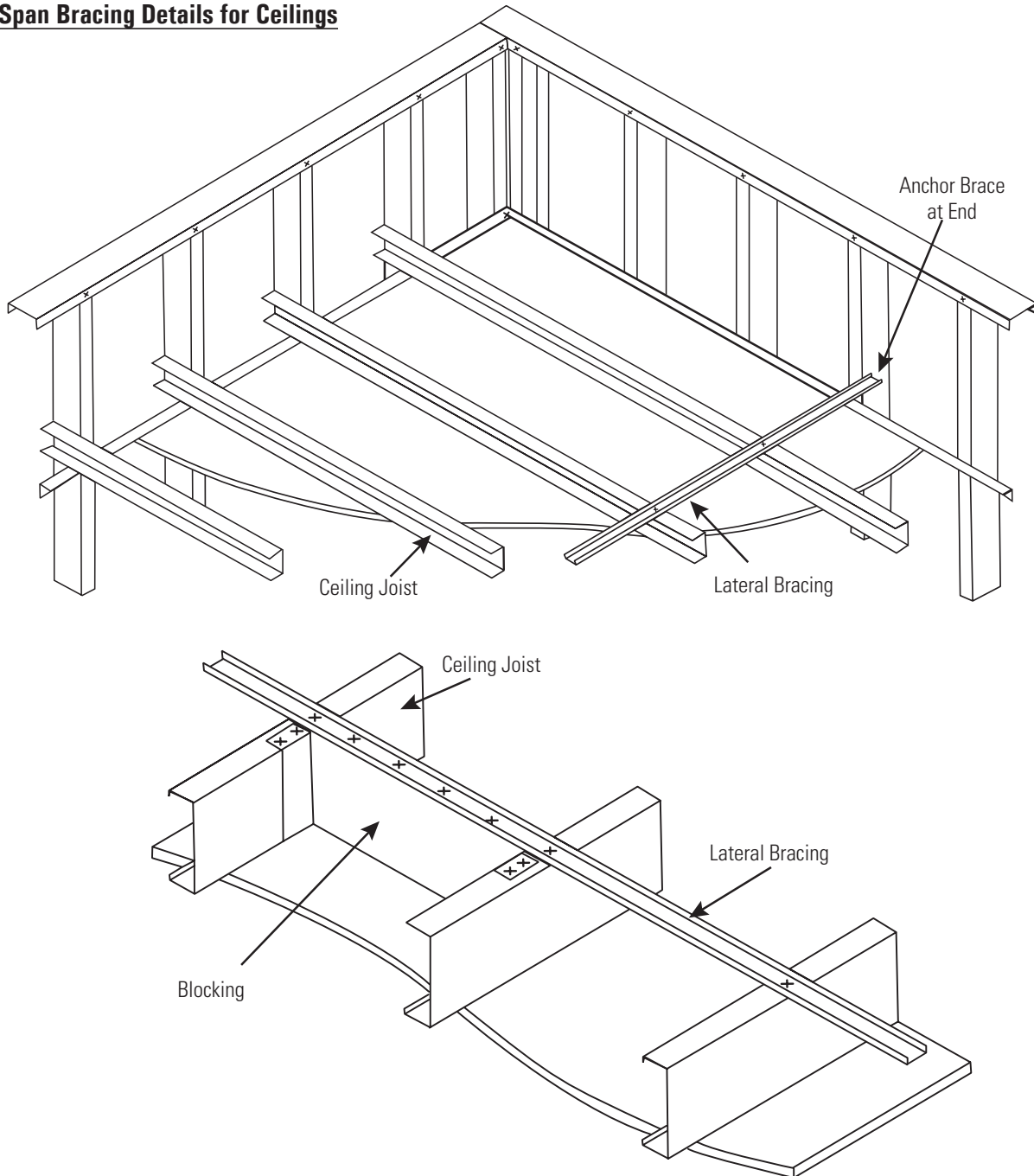
Allowable Web Crippling Loads (lbs) - Back to Back Members

MEMBER	DESIGN THICKNESS (in.)	DESIGNATION THICKNESS (mils)	F _y (ksi)	CASE 1			CASE 2			CASE 3			Case 4		
				FASTENED TO SUPPORT BEARING LENGTH (in.)			FASTENED TO SUPPORT BEARING LENGTH (in.)			FASTENED TO SUPPORT BEARING LENGTH (in.)			FASTENED TO SUPPORT BEARING LENGTH (in.)		
				1.0	3.5	6.0	1.0	3.5	6.0	1.0	3.5	6.0	1.0	3.5	6.0
250S	0.0346	33	33	777	1015+	1015+	1092	1298+	1298+	512	591+	591+	1088	1255+	1255+
	0.0451	43	33	1273	1640+	1640+	1864	2186+	2186+	910	1036+	1036+	1964	2236+	2236+
	0.0451	43	50	1929	2484+	2484+	2824	3312+	3312+	1379	1570+	1570+	2976	3388+	3388+
	0.0566	54	50	2871	3630+	3630+	4318	4986+	4986+	2213	2485+	2485+	4786	5375+	5375+
	0.0713	68	50	4291	5310+	5310+	6621	7518+	7518+	3557	3937+	3937+	7692	8515+	8515+
	0.1017	97	50	8011	9551+	9551+	12845	14200+	14200+	7342	7948+	7948+	15879	17189+	17189+
362S	0.0346	33	33	776	1170+	1170+	1090	1432+	1432+	458	574+	574+	972	1219+	1219+
	0.0451	43	33	1271	1880+	1880+	1861	2396+	2396+	830	1021+	1021+	1790	2203+	2203+
	0.0451	43	50	1926	2848+	2848+	2820	3630+	3630+	1257	1547+	1547+	2713	3338+	3338+
	0.0566	54	50	2867	4150+	4150+	4312	5441+	5441+	2045	2471+	2471+	4422	5343+	5343+
	0.0713	68	50	4285	6057+	6057+	6613	8171+	8171+	3322	3941+	3941+	7185	8523+	8523+
	0.1017	97	50	8002	10866+	10866+	12831	15350+	15350+	6946	8012+	8012+	15022	17328+	17328+
400S	0.0346	33	33	776	1181	1215+	1089	1442	1471+	442	557	567+	937	1183	1203+
	0.0451	43	33	1271	1900	1951+	1860	2413	2457+	806	998	1013+	1739	2154	2187+
	0.0451	43	50	1925	2879	2956+	2818	3656	3723+	1221	1512	1536+	2635	3263	3314+
	0.0566	54	50	2866	4215	4303+	4310	5497	5575+	1995	2432	2461+	4315	5260	5322+
	0.0713	68	50	4284	6193	6276+	6610	8290	8363+	3253	3906	3935+	7036	8448	8510+
	0.1017	97	50	8000	11248+	11248+	12827	15684+	15684+	6830	8020+	8020+	14772	17346+	17346+
600S	0.0346	33	33	774	1178	1426+	1086	1438	1653+	366	462	521+	778	982	1107+
	0.0451	43	33	1268	1896	2279+	1856	2408	2744+	696	862	963+	1501	1859	2077+
	0.0451	43	50	1921	2873	3452+	2812	3648	4157+	1054	1305	1458+	2275	2817	3147+
	0.0566	54	50	2860	4207	5011+	4302	5486	6193+	1765	2152	2383+	3818	4654	5154+
	0.0713	68	50	4276	6182	7287+	6599	8275	9247+	2935	3524	3865+	6347	7621	8359+
	0.1017	97	50	7988	11240	13004+	12808	15668	17220+	6299	7399	7996+	13623	16002	17294+
800S	0.0346	33	33	774	1178	1426+	1086	1438	1653+	366	462	521+	778	982	1107+
	0.0451	43	33	1268	1896	2279+	1856	2408	2744+	696	862	963+	1501	1859	2077+
	0.0451	43	50	1921	2873	3452+	2812	3648	4157+	1054	1305	1458+	2275	2817	3147+
	0.0566	54	50	2860	4207	5011+	4302	5486	6193+	1765	2152	2383+	3818	4654	5154+
	0.0713	68	50	4276	6182	7287+	6599	8275	9247+	2935	3524	3865+	6347	7621	8359+
	0.1017	97	50	7988	11240	13004+	12808	15668	17220+	6299	7399	7996+	13623	16002	17294+
1000S	0.0346	33	33	774	1178	1426+	1086	1438	1653+	366	462	521+	778	982	1107+
	0.0451	43	33	1268	1896	2279+	1856	2408	2744+	696	862	963+	1501	1859	2077+
	0.0451	43	50	1921	2873	3452+	2812	3648	4157+	1054	1305	1458+	2275	2817	3147+
	0.0566	54	50	2860	4207	5011+	4302	5486	6193+	1765	2152	2383+	3818	4654	5154+
	0.0713	68	50	4276	6182	7287+	6599	8275	9247+	2935	3524	3865+	6347	7621	8359+
	0.1017	97	50	7988	11240	13004+	12808	15668	17220+	6299	7399	7996+	13623	16002	17294+
1200S	0.0346	33	33	774	1178	1426+	1086	1438	1653+	366	462	521+	778	982	1107+
	0.0451	43	33	1268	1896	2279+	1856	2408	2744+	696	862	963+	1501	1859	2077+
	0.0451	43	50	1921	2873	3452+	2812	3648	4157+	1054	1305	1458+	2275	2817	3147+
	0.0566	54	50	2860	4207	5011+	4302	5486	6193+	1765	2152	2383+	3818	4654	5154+
	0.0713	68	50	4276	6182	7287+	6599	8275	9247+	2935	3524	3865+	6347	7621	8359+
	0.1017	97	50	7988	11240	13004+	12808	15668	17220+	6299	7399	7996+	13623	16002	17294+
1400S	0.0346	33	33	774	1178	1426+	1086	1438	1653+	366	462	521+	778	982	1107+
	0.0451	43	33	1268	1896	2279+	1856	2408	2744+	696	862	963+	1501	1859	2077+
	0.0451	43	50	1921	2873	3452+	2812	3648	4157+	1054	1305	1458+	2275	2817	3147+
	0.0566	54	50	2860	4207	5011+	4302	5486	6193+	1765	2152	2383+	3818	4654	5154+
	0.0713	68	50	4276	6182	7287+	6599	8275	9247+	2935	3524	3865+	6347	7621	8359+
	0.1017	97	50	7988	11240	13004+	12808	15668	17220+	6299	7399	7996+	13623	16002	17294+
1600S	0.0346	33	33	774	1178	1426+	1086	1438	1653+	366	462	521+	778	982	1107+
	0.0451	43	33	1268	1896	2279+	1856	2408	2744+	696	862	963+	1501	1859	2077+
	0.0451	43	50	1921	2873	3452+	2812	3648	4157+	1054	1305	1458+	2275	2817	3147+
	0.0566	54	50	2860	4207	5011+	4302	5486	6193+	1765	2152	2383+	3818	4654	5154+
	0.0713	68	50	4276	6182	7287+	6599	8275	9247+	2935	3524	3865+	6347	7621	8359+
	0.1017	97	50	7988	11240	13004+	12808	15668	17220+	6299	7399	7996+	13623	16002	17294+

NOTE: See page 58 for Table Notes.

NOTES

1. Values are for simple span conditions.
2. For unbraced sections, the allowable moment is based on AISI S100 with the unbraced length assumed to be the listed span. For mid-span braced members, the allowable moment is based on AISI S100 with the unbraced length to be half the listed span.
3. Web crippling calculation is based on a bearing length of 1".
4. Web crippling and shear capacity have NOT been reduced for punchouts. If web punchouts occur near supports, members must be checked for reduced shear and web crippling based on AISI S100.
5. "e" indicates that web stiffeners are required at ends.
6. * 13 psf requires a G60 minimum coating.
7. See General Notes on Page 6.

Mid-Span Bracing Details for Ceilings

General Note: All connections should be designed by a licensed design professional.

ALLOWABLE CEILING SPAN (U-SECTIONS) NOTES

1. Multiple span indicates two or more equal spans continuous over interior supports.
2. Compression flanges assumed unbraced.
3. Web crippling based on 3/4" bearing at end and interior supports.
4. When applicable, cold work of forming was considered as per Section A3.3.2 of AISI S100-16/S2-20.

Allowable Ceiling Spans (U-Sections) - L/240

MEMBER	F _y (ksi)	SPAN TYPE	4 psf CHANNEL SPACING (in.) o.c.					6 psf CHANNEL SPACING (in.) o.c.					13 psf CHANNEL SPACING (in.) o.c.					15 psf CHANNEL SPACING (in.) o.c.				
			24	36	48	60	72	24	36	48	60	72	24	36	48	60	72	24	36	48	60	72
75U050-54	33	Single	3' 10"	3' 4"	3' 1"	2' 10"	2' 8"	3' 4"	2' 11"	2' 8"	2' 6"	2' 4"	2' 7"	2' 3"	2' 1"	1' 11"	1' 9"	2' 6"	2' 2"	1' 11"	1' 10"	1' 8"
	33	Multiple	4' 9"	4' 2"	3' 9"	3' 6"	3' 4"	4' 2"	3' 8"	3' 4"	3' 1"	2' 10"	3' 3"	2' 9"	2' 4"	2' 1"	1' 11"	3' 1"	2' 7"	2' 3"	2' 0"	1' 9"
150U050-54	33	Single	5' 6"	4' 10"	4' 5"	4' 1"	3' 10"	4' 10"	4' 3"	3' 10"	3' 7"	3' 4"	3' 9"	3' 3"	3' 0"	2' 9"	2' 7"	3' 7"	3' 2"	2' 10"	2' 8"	2' 6"
	33	Multiple	7' 1"	6' 2"	5' 7"	5' 3"	4' 11"	6' 2"	5' 5"	4' 11"	4' 7"	4' 4"	4' 9"	4' 2"	3' 10"	3' 6"	3' 2"	4' 7"	4' 0"	3' 7"	3' 3"	3' 0"
200U050-54	33	Single	5' 10"	5' 1"	4' 8"	4' 4"	4' 1"	5' 1"	4' 5"	4' 1"	3' 9"	3' 7"	3' 11"	3' 6"	3' 2"	2' 11"	2' 9"	3' 9"	3' 4"	3' 0"	2' 10"	2' 8"
	33	Multiple	7' 5"	6' 6"	5' 11"	5' 6"	5' 2"	6' 6"	5' 8"	5' 2"	4' 10"	4' 6"	5' 0"	4' 5"	4' 0"	3' 9"	3' 6"	4' 10"	4' 3"	3' 10"	3' 7"	3' 4"
250U050-54	33	Single	6' 1"	5' 3"	4' 10"	4' 6"	4' 3"	5' 3"	4' 8"	4' 3"	3' 11"	3' 9"	4' 1"	3' 7"	3' 4"	3' 1"	2' 11"	3' 11"	3' 6"	3' 2"	2' 11"	2' 9"
	33	Multiple	7' 9"	6' 9"	6' 2"	5' 9"	5' 5"	6' 9"	5' 11"	5' 5"	5' 0"	4' 9"	5' 3"	4' 7"	4' 2"	3' 11"	3' 8"	5' 0"	4' 5"	4' 0"	3' 9"	3' 6"

Allowable Ceiling Spans (U-Sections) - L/360

MEMBER	F _y (ksi)	SPAN TYPE	4 psf CHANNEL SPACING (in.) o.c.					6 psf CHANNEL SPACING (in.) o.c.					13 psf CHANNEL SPACING (in.) o.c.					15 psf CHANNEL SPACING (in.) o.c.				
			24	36	48	60	72	24	36	48	60	72	24	36	48	60	72	24	36	48	60	72
75U050-54	33	Single	3' 4"	2' 11"	2' 8"	2' 6"	2' 4"	2' 11"	2' 7"	2' 4"	2' 2"	2' 0"	2' 3"	2' 0"	1' 9"	1' 8"	1' 7"	2' 2"	1' 10"	1' 8"	1' 7"	1' 6"
	33	Multiple	4' 2"	3' 8"	3' 4"	3' 1"	2' 10"	3' 8"	3' 2"	2' 10"	2' 8"	2' 6"	2' 10"	2' 5"	2' 3"	2' 1"	1' 11"	2' 8"	2' 4"	2' 1"	1' 11"	1' 9"
150U050-54	33	Single	5' 6"	4' 10"	4' 5"	4' 1"	3' 10"	4' 10"	4' 3"	3' 10"	3' 7"	3' 4"	3' 9"	3' 3"	3' 0"	2' 9"	2' 7"	3' 7"	3' 2"	2' 10"	2' 8"	2' 6"
	33	Multiple	7' 1"	6' 2"	5' 7"	5' 3"	4' 11"	6' 2"	5' 5"	4' 11"	4' 7"	4' 4"	4' 9"	4' 2"	3' 10"	3' 6"	3' 2"	4' 7"	4' 0"	3' 7"	3' 3"	3' 0"
200U050-54	33	Single	5' 10"	5' 1"	4' 8"	4' 4"	4' 1"	5' 1"	4' 5"	4' 1"	3' 9"	3' 7"	3' 11"	3' 6"	3' 2"	2' 11"	2' 9"	3' 9"	3' 4"	3' 0"	2' 10"	2' 8"
	33	Multiple	7' 5"	6' 6"	5' 11"	5' 6"	5' 2"	6' 6"	5' 8"	5' 2"	4' 10"	4' 6"	5' 0"	4' 5"	4' 0"	3' 9"	3' 6"	4' 10"	4' 3"	3' 10"	3' 7"	3' 4"
250U050-54	33	Single	6' 1"	5' 3"	4' 10"	4' 6"	4' 3"	5' 3"	4' 8"	4' 3"	3' 11"	3' 9"	4' 1"	3' 7"	3' 4"	3' 1"	2' 11"	3' 11"	3' 6"	3' 2"	2' 11"	2' 9"
	33	Multiple	7' 9"	6' 9"	6' 2"	5' 9"	5' 5"	6' 9"	5' 11"	5' 5"	5' 0"	4' 9"	5' 3"	4' 7"	4' 2"	3' 11"	3' 8"	5' 0"	4' 5"	4' 0"	3' 9"	3' 6"

U-Channel Section Properties

MEMBER	F _y (ksi)	DESIGN THICKNESS (in.)	AREA (in. ²)	WEIGHT (lb/ft)	GROSS PROPERTIES				EFFECTIVE PROPERTIES			
					I _x (in. ⁴)	r _x (in.)	I _y (in. ⁴)	r _y (in.)	I _{xd} (in. ⁴)	S _{xe} (in. ³)	M _a (in.-k)	V _a (lb)
75U050-54	33	0.0566	0.0867	0.295	0.00720	0.288	0.00210	0.156	0.00720	0.0192	0.454	315
150U050-54	33	0.0566	0.129	0.439	0.0387	0.548	0.00271	0.145	0.0387	0.0516	1.22	840
200U050-54	33	0.0566	0.158	0.536	0.0792	0.709	0.00294	0.137	0.0792	0.0792	1.88	1190
250U050-54	33	0.0566	0.186	0.632	0.139	0.866	0.00310	0.129	0.139	0.112	2.64	1540

Note: Inside bend radius taken as 3/32".

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