



**STRONGER
THAN STEEL.™**

HDS® Framing System

The HDS® Framing System is a high-performance, cost-effective, multipurpose, heavy-duty framing stud for headers, jambs, posts and built-up tube truss chords and webs. The superior strength and carrying capacity of the HDS Framing System means higher performance with fewer members. It means eliminating box beam headers, nesting track and stud for posts and jambs, and eliminating multi-member built-up truss chords and webs. It also means improved finish quality by eliminating excessive material and screw head buildup around doors and windows.

The HDSC header bracket is the perfect complement to the HDS Framing System. This simple, yet innovative header bracket turns curtain wall header installation from a two-person job into a one-person job. This unique, prepunched clip also eliminates surface head fastener buildup that can create finishing challenges. Let the light-gauge framing experts at ClarkDietrich help you incorporate this cutting-edge, framing assembly into your next project.

CONSTRUCTION ADVANTAGES:

- Outstanding bending strength in two directions.
- Reduces installation time by 50%.
- Eliminates box beam header assembly.
- Reduces material and labor costs up to 50%.
- HDS can be screw-attached from either side.
- Eliminates stud-to-track nesting for post, header and jamb studs.
- Openings up to 15' wide.
- Improves drywall finishing around doors and windows. No screw head buildup.
- Superior axial strength.





HDSC Header Bracket

HDSC HEADER BRACKET

Product code	Thickness			ksi	Size (in)	Fits HDS system size (in)
	Gauge	Mils	Design thickness (in)			
HDSC	14	68	0.0713	50	3-1/2 x 3-1/16 x 2	3-5/8
HDSC	14	68	0.0713	50	3-7/8 x 3-1/16 x 2	4
HDSC	14	68	0.0713	50	5-7/8 x 3-1/16 x 2	6
HDSC	14	68	0.0713	50	7-7/8 x 3-1/16 x 2	8

All material G90. Sold in pairs.



HDSC HEADER BRACKETS ALLOWABLE LOADS (LBS)

Product code	Size (in)	Jamb/Head Gauge			F1 (lbs)		F2 (lbs)	
		Gauge	Mils	Fy	Jamb	Head	Jamb	Head
HDSC	3-1/2	20	33	33	560	453	560	449
				33	832	673	832	713
		18	43	33	1172	948	890	890
				50	1680	1359	890	890
		16	54	33	1656	1339	890	890
				50	1680	1359	890	890
		14	68	33	1680	1359	890	890
				50	1680	1359	890	890
		12	97	33	1680	1359	890	890
				50	1680	1359	890	890
HDSC	3-7/8	20	33	33	560	453	560	449
				33	832	673	832	713
		18	43	33	1172	948	890	890
				50	1680	1359	890	890
		16	54	33	1656	1339	890	890
				50	1680	1359	890	890
		14	68	33	1680	1359	890	890
				50	1680	1359	890	890
		12	97	33	1680	1359	890	890
				50	1680	1359	890	890
HDSC	5-7/8	20	33	33	560	501	560	449
				33	832	744	832	713
		18	43	33	1172	1048	1172	1064
				50	1680	1503	1493	1493
		16	54	33	1656	1481	1493	1493
				50	1680	1503	1493	1493
		14	68	33	1680	1503	1493	1493
				50	1680	1503	1493	1493
		12	97	33	1680	1503	1493	1493
				50	1680	1503	1493	1493
HDSC	7-7/8	20*	33	33	560	501	560	449
				33	832	744	832	713
		18	43	33	1172	1048	1172	1064
				50	1680	1503	1493	1493
		16	54	33	1656	1481	1493	1493
				50	1680	1503	1493	1493
		14	68	33	1680	1503	1493	1493
				50	1680	1503	1493	1493
		12	97	33	1680	1503	1493	1493
				50	1680	1503	1493	1493

*Indicates that h/t exceeds 200. Web stiffeners are required at bearing points. No holes in the web are permitted.

Notes:

- 1 Screws shall be #10-16 Buildex® or equivalent, with an ultimate shear capacity per screw of 1400 lbs.
- 2 Table to be used by qualified engineers only.
- 3 To determine the capacity of any given connection, compare the jamb and head values, and use the minimum. For example, if a 16 gauge, 50ksi jamb is used with a 3.625" HDS 18 gauge, 33ksi head, the design value for F1 is the minimum F1 value of 1680 lbs for the jamb and 673 lbs for the head. Therefore, the design value is 673 lbs.
- 4 For F1 and F2 occurring at the same time, use the squared interaction equation: (f1/F1)^2+(f2/F2)^2<=1.0.
- 5 Buildex® is a registered trademark of Illinois Tool Works, Inc.

HDS® Framing System

HDS® FRAMING SYSTEM

Product code	Thickness			ksi	Depth (in)	Flange (in)	Return (in)	Double return (in)
	Gauge	Mils	Design thickness (in)					
HDS3	20	33	0.0346	33	3-5/8	3	1-1/16	3/4
					4	3	1-1/16	3/4
					6	3	2-1/4	3/4
					8	3	2-1/4	3/4
HDS3	18	43	0.0451	33	3-5/8	3	1-1/16	3/4
					4	3	1-1/16	3/4
					6	3	2-1/4	3/4
					8	3	2-1/4	3/4
HDS5	16	54	0.0566	50	3-5/8	3	1-1/16	3/4
					4	3	1-1/16	3/4
					6	3	2-1/4	3/4
					8	3	2-1/4	3/4
HDS5	14	68	0.0713	50	3-5/8	3	1-1/16	3/4
					4	3	1-1/16	3/4
					6	3	2-1/4	3/4
					8	3	2-1/4	3/4
HDS5	12	97	0.1017	50	3-5/8	3	1-1/16	3/4
					4	3	1-1/16	3/4
					6	3	2-1/4	3/4
					8	3	2-1/4	3/4

Standard material coating is CP60 per ASTM C955; G90 available.



HDS® SECTION PROPERTIES

Web size (in)	Gauge	Mils	Fy (ksi)	Min. delivered thickness (in)	Unperforated Section Properties								Torsional Properties					
					Area (in ²)	Wt. (lb/ft)	I _x (in ⁴)	S _x (in ³)	r _x (in)	I _y (in ⁴)	xbar (in)	S _y (in ³)	r _y (in)	Jx1000 (in ⁴)	C _w (in ⁴)	X _o (in)	R _o (in)	Beta
3-5/8	20	33	33	0.0329	0.445	1.52	0.934	0.515	1.448	0.631	1.426	0.405	1.190	0.178	4.624	-3.485	3.957	0.224
	18	43	33	0.0428	0.574	1.95	1.198	0.661	1.444	0.805	1.416	0.516	1.184	0.389	5.759	-3.483	3.952	0.223
	16	54	50	0.0538	0.715	2.43	1.483	0.818	1.441	0.990	1.406	0.632	1.177	0.764	6.894	-3.480	3.946	0.222
	14	68	50	0.0677	0.888	3.02	1.829	1.009	1.436	1.211	1.392	0.770	1.168	1.503	8.151	-3.476	3.938	0.221
4	12	97	50	0.0966	1.239	4.22	2.520	1.390	1.426	1.645	1.367	1.039	1.152	4.271	10.420	-3.449	3.906	0.220
	20	33	33	0.0329	0.458	1.56	1.175	0.588	1.601	0.656	1.386	0.411	1.196	0.183	5.146	-3.422	3.963	0.254
	18	43	33	0.0428	0.591	2.01	1.509	0.754	1.598	0.838	1.376	0.523	1.190	0.400	6.425	-3.418	3.956	0.254
	16	54	50	0.0538	0.736	2.50	1.869	0.934	1.594	1.031	1.365	0.641	1.183	0.787	7.715	-3.414	3.949	0.253
6	14	68	50	0.0677	0.914	3.11	2.307	1.154	1.588	1.261	1.351	0.782	1.175	1.548	9.159	-3.409	3.940	0.251
	12	97	50	0.0966	1.277	4.35	3.183	1.592	1.579	1.714	1.326	1.056	1.158	4.403	11.787	-3.379	3.905	0.251
	20	33	33	0.0329	0.610	2.08	3.034	1.011	2.230	0.993	1.441	0.644	1.276	0.244	24.960	-3.636	4.452	0.333
	18	43	33	0.0428	0.788	2.68	3.907	1.302	2.226	1.273	1.433	0.824	1.271	0.533	31.427	-3.633	4.446	0.332
8	16	54	50	0.0538	0.984	3.35	4.856	1.619	2.222	1.573	1.424	1.016	1.265	1.052	38.080	-3.630	4.440	0.332
	14	68	50	0.0677	1.226	4.17	6.023	2.008	2.216	1.938	1.412	1.249	1.257	2.076	45.721	-3.626	4.432	0.331
	12	97	50	0.0966	1.722	5.86	8.380	2.793	2.206	2.662	1.390	1.707	1.243	5.936	60.160	-3.602	4.403	0.331
	20*	33	33	0.0329	0.679	2.31	6.134	1.533	3.005	1.122	1.294	0.665	1.285	0.272	33.350	-3.412	4.725	0.479
8	18	43	33	0.0428	0.878	2.99	7.909	1.977	3.001	1.439	1.286	0.851	1.280	0.594	42.201	-3.406	4.716	0.478
	16	54	50	0.0538	1.097	3.73	9.843	2.461	2.996	1.779	1.277	1.050	1.274	1.173	51.431	-3.399	4.706	0.478
	14	68	50	0.0677	1.369	4.66	12.230	3.058	2.989	2.193	1.265	1.291	1.266	2.317	62.225	-3.391	4.694	0.478
	12	97	50	0.0966	1.926	6.55	17.075	4.269	2.978	3.013	1.243	1.766	1.251	6.637	82.848	-3.360	4.661	0.480

*Indicates that h/t exceeds 200. Web stiffeners are required at bearing points. No holes in the web are permitted.

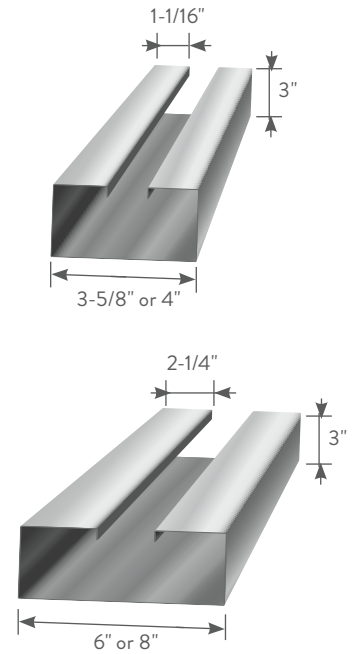
Notes:

- 1 SI: 1" = 25.4 mm
- 2 I_x = Gross Moment Of Inertia about x-axis.
- 3 S_x = Gross Section Modulus about x-axis.
- 4 r_x = Gross Radius of Gyration about x-axis.
- 5 I_y = Gross Moment Of Inertia about y-axis.
- 6 xbar = The distance from the web centerline to the center of gravity.
- 7 S_y = Gross Section Modulus about y-axis.
- 8 r_y = Gross Radius of Gyration about y-axis.
- 9 J = St. Venant Torsion Constant.
- 10 C_w = Warping Torsion Constant.
- 11 x_o = Distance from shear center to the centroid along the principal x-axis.
- 12 r_o = Polar Radius of Gyration about the centroidal principal axis.
- 13 Beta = 1 - (X_o/r_o)²
- 14 Stiffening Lip = 0.75" for all web sizes.

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HDS® EFFECTIVE PROPERTIES AND CAPACITIES

Web size (in)	Gauge	Mils	Fy (ksi)	Min. delivered thickness (in)	Other Properties					
					Lu (in)	Unperf'd Vx (kips)	Perf'd Vx (kips)	Vy (kips)	Px (kips)	Py (kips)
3-5/8	20	33	33	0.0329	103	1.03	0.54	2.05	0.29	0.38
	18	43	33	0.0428	102	1.74	0.68	3.09	0.46	0.61
	16	54	50	0.0538	82	3.38	1.02	5.77	1.02	1.38
	14	68	50	0.0677	82	4.37	1.00	7.06	1.51	2.08
	12	97	50	0.0966	81	6.05	0.92	9.71	1.97	4.00
4	20	33	33	0.0329	100	0.97	0.60	2.05	0.29	0.38
	18	43	33	0.0428	99	1.74	0.81	3.09	0.45	0.61
	16	54	50	0.0538	80	3.38	1.22	5.77	1.01	1.38
	14	68	50	0.0677	79	4.87	1.36	7.06	1.50	2.08
	12	97	50	0.0966	79	6.76	1.26	9.71	1.96	4.00
6	20	33	33	0.0329	125	0.63	0.63	2.05	0.27	0.38
	18	43	33	0.0428	124	1.41	1.24	3.09	0.43	0.61
	16	54	50	0.0538	100	2.83	1.95	5.77	0.97	1.38
	14	68	50	0.0677	100	5.34	2.88	7.06	1.44	2.08
	12	97	50	0.0966	98	10.58	3.90	9.71	1.89	4.00
8	20*	33	33	0.0329	113	0.47	—	2.05	0.00	0.38
	18	43	33	0.0428	112	1.05	1.05	3.09	0.27	0.61
	16	54	50	0.0538	90	2.09	2.09	5.77	0.62	1.38
	14	68	50	0.0677	90	4.21	3.36	7.06	0.94	2.08
	12	97	50	0.0966	89	10.88	5.99	9.71	1.84	4.00



HDS EFFECTIVE PROPERTIES AND CAPACITIES

Web size (in)	Gauge	Mils	Fy (ksi)	Min. delivered thickness (in)	Unperforated Bending Properties						Perforated Bending Properties						Eff. Moment of Inertia		
					Sxe (in ²)	Mxa (in-lb)	Web in Ten.		Web in Comp.		Sxe (in ²)	Mxa (in-lb)	Web in Ten.		Web in Comp.		Ixe (in ⁴)	Web in ten. Iye (in ⁴)	Web in comp. Iye (in ⁴)
							Sye (in ²)	Mya (in-lb)	Sye (in ²)	Mya (in-lb)			Sye (in ²)	Mya (in-lb)	Sye (in ²)	Mya (in-lb)			
3-5/8	20	33	33	0.0329	0.397	7846	0.401	7917	0.294	5814	0.367	7247	0.313	6192	0.243	4804	0.851	0.631	0.538
	18	43	33	0.0428	0.565	11165	0.516	11703	0.425	8401	0.540	10674	0.400	9080	0.342	6753	1.161	0.805	0.741
	16	54	50	0.0538	0.711	21290	0.632	21936	0.535	16019	0.683	20464	0.492	17084	0.429	12844	1.449	0.990	0.921
	14	68	50	0.0677	0.958	28672	0.770	27606	0.733	21944	0.939	28127	0.603	21607	0.572	17117	1.829	1.211	1.194
	12	97	50	0.0966	1.390	45805	1.039	39444	1.039	33711	1.375	45285	0.820	31127	0.820	26602	2.520	1.645	1.645
4	20	33	33	0.0329	0.456	9011	0.406	8025	0.296	5854	0.415	8199	0.344	6805	0.246	4853	1.074	0.656	0.542
	18	43	33	0.0428	0.648	12805	0.523	11874	0.430	8490	0.613	12113	0.440	9985	0.347	6866	1.463	0.838	0.750
	16	54	50	0.0538	0.816	24420	0.641	22263	0.541	16198	0.776	23240	0.542	18805	0.437	13079	1.827	1.031	0.933
	14	68	50	0.0677	1.096	32820	0.782	28027	0.745	22312	1.069	31998	0.664	23811	0.588	17616	2.307	1.261	1.216
	12	97	50	0.0966	1.592	52437	1.056	40069	1.053	31517	1.577	51966	0.905	34366	0.905	29163	3.183	1.714	1.714
6	20	33	33	0.0329	0.769	15192	0.532	10508	0.329	6505	0.769	15192	0.514	10153	0.275	5434	2.823	0.954	0.694
	18	43	33	0.0428	1.150	22733	0.762	16155	0.483	9535	1.150	22733	0.697	14768	0.394	7792	3.797	1.273	0.982
	16	54	50	0.0538	1.449	43377	0.927	29898	0.610	18261	1.449	43377	0.865	27897	0.498	14913	4.753	1.573	1.229
	14	68	50	0.0677	1.925	57642	1.226	40261	0.854	25573	1.925	57642	1.078	35400	0.686	20533	6.023	1.938	1.645
	12	97	50	0.0966	2.793	92027	1.707	57870	1.429	42793	2.793	92027	1.484	50318	1.122	33607	8.380	2.662	2.522
8	20*	33	33	0.0329	1.084	21420	0.548	10829	0.333	6570	—	—	—	—	—	—	5.805	1.076	0.703
	18	43	33	0.0428	1.729	34161	0.787	16681	0.490	9679	1.729	34161	0.770	16307	0.400	7896	7.723	1.439	1.001
	16	54	50	0.0538	2.208	66094	0.956	30850	0.620	18549	2.208	66094	0.935	30174	0.505	15122	9.662	1.779	1.254
	14	68	50	0.0677	2.946	88217	1.265	41554	0.874	26153	2.946	88217	1.237	40635	0.700	20957	12.230	2.193	1.690
	12	97	50	0.0966	4.269	140636	1.766	59876	1.486	44481	4.269	140636	1.724	58451	1.164	34855	17.075	3.013	2.631

*Indicates that the h/t exceeds 200. Web stiffeners are required at bending points. No holes in the web are permitted.

Notes:

- 1 Sxe = Effective Section Modulus about x-axis.
- 2 Mxa = Allowable Moment about x-axis.
- 3 Sye = Effective Section Modulus about y-axis.
- 4 Mya = Allowable Moment about y-axis.
- 5 Ixe = Effective Moment Of Inertia about x-axis for deflection calculations.
- 6 Iye = Effective Moment Of Inertia about y-axis for deflection calculations.
- 7 Lu = Maximum unbraced length to attain Mxa.
- 8 Vx = Allowable Shear for bending about x-axis.
- 9 Vy = Allowable Shear for bending about y-axis.
- 10 Px = For members having a web depth of less than 8" and also having a thickness less than 97mil, allowable web crippling per AISI Standard for CFS Wall Stud Design 2004. This value assumes the web resists web crippling and the HDS is nested in track having the same thickness. For other members, allowable end one flange web crippling per AISI NASPEC, 2001 w/2004 supplement. Both calculation procedures use a bearing length of 1-1/4".
- 11 Py = Allowable end one flange web crippling per AISI NASPEC, 2001 w/2004 supplement. This value assumes 2 flanges resist web crippling for a bearing length of 1-1/4".
- 12 Unless otherwise noted, properties are computed according to the AISI NASPEC, 2001 w/2004 supplement.
- 13 Perforated properties are based on the standard 1-1/2" x 4" oval ClarkDietrich web knockout. The knockout is centered about the web, and is spaced no less than 24" o.c.
- 14 Stiffening Lip = 3/4" for all web sizes.

HDS® Framing System Tables

INTERIOR SPAN CHART

ALLOWABLE HDS® HEADER SPANS FOR WINDOW AND DOOR OPENINGS

Dead Load = 10psf & Wind Load = 5psf (Dead Load Deflection limited to L/240 or a maximum of 0.5 in.)

Wall height (ft)	Member size (in)	Gauge	Mils	Fy (ksi)	Deflection												
					240				360				600				
					Opening Height (ft)												
					8	10	12	14	8	10	12	14	8	10	12	14	
9	3-5/8	20	33	33	11' 0"	—	—	—	10' 4"	—	—	—	9' 6"	—	—	—	
		18	43	33	11' 6"	—	—	—	10' 10"	—	—	—	10' 0"	—	—	—	
		16	54	50	11' 11"	—	—	—	11' 3"	—	—	—	10' 4"	—	—	—	
		14	68	50	12' 3"	—	—	—	11' 7"	—	—	—	10' 9"	—	—	—	
		12	97	50	12' 10"	—	—	—	12' 2"	—	—	—	11' 3"	—	—	—	
		20	33	33	12' 12"	—	—	—	12' 4"	—	—	—	11' 6"	—	—	—	
	6	18	43	33	13' 5"	—	—	—	12' 10"	—	—	—	11' 12"	—	—	—	
		16	54	50	13' 9"	—	—	—	13' 2"	—	—	—	12' 4"	—	—	—	
		14	68	50	14' 1"	—	—	—	13' 6"	—	—	—	12' 9"	—	—	—	
		12	97	50	14' 5"	—	—	—	13' 11"	—	—	—	13' 3"	—	—	—	
		20	33	33	9' 2"	11' 12"	—	—	9' 2"	11' 3"	—	—	9' 2"	10' 5"	—	—	
		18	43	33	10' 6"	12' 7"	—	—	10' 6"	11' 9"	—	—	9' 11"	10' 11"	—	—	
11	3-5/8	16	54	50	11' 11"	13' 0"	—	—	11' 2"	12' 2"	—	—	10' 4"	11' 3"	—	—	
		14	68	50	12' 3"	13' 6"	—	—	11' 7"	12' 8"	—	—	10' 9"	11' 8"	—	—	
		12	97	50	12' 10"*	14' 2"	—	—	12' 2"	13' 4"	—	—	11' 3"	12' 3"	—	—	
		20	33	33	12' 0"	14' 5"	—	—	12' 0"	13' 7"	—	—	11' 6"	12' 6"	—	—	
		18	43	33	12' 11"*	15' 0"	—	—	12' 10"*	14' 2"	—	—	11' 12"	13' 1"	—	—	
		16	54	50	13' 7"*	15' 6"	—	—	13' 2"*	14' 8"	—	—	12' 4"	13' 7"	—	—	
	6	14	68	50	14' 1"*	15' 11"	—	—	13' 6"*	15' 2"	—	—	12' 9"*	14' 1"	—	—	
		12	97	50	14' 5"*	16' 7"	—	—	13' 11"*	15' 10"	—	—	13' 3"*	14' 9"	—	—	
		20	33	33	7' 7"	9' 2"	11' 11"	—	7' 7"	9' 2"	11' 11"	—	7' 7"	9' 2"	10' 6"	—	
		18	43	33	8' 8"*	10' 5"	13' 6"	—	8' 8"*	10' 5"	12' 8"	—	8' 8"*	10' 5"	11' 4"	—	
		16	54	50	10' 8"*	12' 2"	13' 11"	—	10' 8"*	12' 2"	13' 1"	—	10' 3"*	11' 1"	12' 2"	—	
		14	68	50	11' 3"*	12' 9"*	14' 5"	—	11' 3"*	12' 7"*	13' 7"	—	10' 8"*	11' 7"	12' 7"	—	
13	3-5/8	12	97	50	12' 1"*	13' 9"*	15' 2"	—	12' 1"*	13' 3"*	14' 3"	—	11' 3"*	12' 3"	13' 2"	—	
		20	33	33	9' 11"*	11' 10"	15' 6"	—	9' 11"*	11' 10"	14' 6"	—	9' 11"*	11' 10"	13' 5"	—	
		18	43	33	11' 4"*	12' 11"*	16' 2"	—	11' 4"*	12' 11"*	15' 2"	—	11' 4"*	12' 11"*	14' 0"	—	
		16	54	50	11' 12"*	13' 7"*	16' 9"	—	11' 12"*	13' 7"*	15' 9"	—	11' 12"*	13' 7"*	14' 6"	—	
		14	68	50	12' 8"*	14' 4"*	17' 4"	—	12' 8"*	14' 4"*	16' 4"	—	12' 8"*	14' 1"*	15' 1"	—	
		12	97	50	13' 8"*	15' 6"*	18' 2"	—	13' 8"*	15' 6"*	17' 2"	—	13' 3"*	14' 9"*	15' 11"	—	
	15	3-5/8	20	33	33	6' 7"*	7' 7"	9' 2"	11' 11"	6' 7"*	7' 7"	9' 2"	11' 11"	6' 7"*	7' 7"	9' 2"	10' 6"
			18	43	33	7' 7"*	8' 8"*	10' 5"	13' 7"	7' 7"*	8' 8"*	10' 5"	12' 12"	7' 7"*	8' 8"*	10' 5"	11' 4"
			16	54	50	9' 9"*	10' 8"*	12' 2"	14' 10"	9' 9"*	10' 8"*	12' 2"	13' 9"	9' 9"*	10' 8"*	11' 5"	12' 0"
			14	68	50	10' 4"*	11' 3"*	12' 9"*	15' 4"	10' 4"*	11' 3"*	12' 9"*	14' 6"	10' 4"*	11' 3"*	12' 3"*	12' 9"
			12	97	50	11' 2"*	12' 1"*	13' 9"*	16' 1"	11' 2"*	12' 1"*	13' 9"*	15' 2"	11' 2"*	12' 1"*	12' 12"*	13' 11"
			20	33	33	8' 7"*	9' 10"*	11' 10"	15' 4"	8' 7"*	9' 10"*	11' 10"	15' 4"	8' 7"*	9' 10"*	11' 10"	14' 4"
6		18	43	33	10' 1"*	11' 4"*	12' 11"*	16' 12"	10' 1"*	11' 4"*	12' 11"*	16' 1"	10' 1"*	11' 4"*	12' 11"*	14' 11"	
		16	54	50	11' 0"*	11' 12"*	13' 7"*	17' 9"*	11' 0"*	11' 12"*	13' 7"*	16' 8"	11' 0"*	11' 12"*	13' 7"*	15' 5"	
		14	68	50	11' 7"*	12' 8"*	14' 4"*	18' 5"*	11' 7"*	12' 8"*	14' 4"*	17' 4"	11' 7"*	12' 8"*	14' 4"*	15' 12"	
		12	97	50	12' 7"*	13' 8"*	15' 6"*	19' 5"*	12' 7"*	13' 8"*	15' 6"*	18' 3"*	12' 7"*	13' 8"*	15' 6"*	16' 10"	

Notes:

- 1 Tabulated values are for a single HDS header installed with standard HDS clips. Each head-to-jamb connection requires (4) #10-16 screws to the header, and (4) #10-16 screws to the jamb. Tabulated values marked with an asterisk will require special engineering of the header-to-jamb connections.
- 2 Tabulated values include a connection check assuming 25 gauge jamb studs.
- 3 HDS header to be installed with open side facing up.
- 4 HDS properties computed in accordance with AISI NASPEC 2001.

EXTERIOR SPAN CHART

ALLOWABLE HDS® HEADER SPANS FOR WINDOW AND DOOR OPENINGS																
Dead Load = 12psf & Wind Load = 25psf (Dead Load Deflection limited to L/240 or a maximum of 0.5 in.)																
Wall height (ft)	Member size (in)	Gauge	Mils	Fy (ksi)	Deflection											
					240				360				600			
					Opening Height (ft)											
					8	10	12	14	8	10	12	14	8	10	12	14
9	3-5/8	20	33	33	7' 5"	—	—	—	7' 5"	—	—	—	7' 5"	—	—	—
		18	43	33	8' 6"	—	—	—	8' 6"	—	—	—	8' 3"	—	—	—
		16	54	50	9' 10"	—	—	—	9' 3"	—	—	—	8' 6"	—	—	—
		14	68	50	10' 2"	—	—	—	9' 7"	—	—	—	8' 10"	—	—	—
	6	12	97	50	10' 9"	—	—	—	10' 1"	—	—	—	9' 3"	—	—	—
		20	33	33	9' 7"	—	—	—	9' 7"	—	—	—	9' 5"	—	—	—
		18	43	33	11' 5"	—	—	—	10' 9"	—	—	—	9' 11"	—	—	—
		16	54	50	11' 9"	—	—	—	11' 1"	—	—	—	10' 3"	—	—	—
11	3-5/8	20	33	33	6' 1"	7' 5"	—	—	6' 1"	7' 5"	—	—	6' 1"	7' 5"	—	
		18	43	33	7' 0"	8' 6"	—	—	7' 0"	8' 6"	—	—	7' 0"	8' 3"	—	
		16	54	50	9' 2"	10' 9"	—	—	9' 1"	9' 11"	—	—	8' 3"	8' 8"	—	
		14	68	50	10' 2"	11' 1"	—	—	9' 6"	10' 5"	—	—	8' 7"	9' 3"	—	
	6	12	97	50	10' 8"	11' 8"	—	—	10' 0"	10' 11"	—	—	9' 2"	10' 2"	—	
		20	33	33	7' 11"	9' 6"	—	—	7' 11"	9' 6"	—	—	7' 11"	9' 6"	—	
		18	43	33	9' 4"	11' 1"	—	—	9' 4"	11' 1"	—	—	9' 4"	10' 9"	—	
		16	54	50	11' 9"	12' 11"	—	—	11' 1"	12' 1"	—	—	10' 3"	11' 2"	—	
13	3-5/8	20	33	33	5' 3"	6' 1"	7' 5"	—	5' 3"	6' 1"	7' 5"	—	5' 3"	6' 1"	7' 5"	
		18	43	33	6' 1"	7' 0"	8' 6"	—	6' 1"	7' 0"	8' 6"	—	6' 1"	7' 0"	8' 3"	
		16	54	50	8' 0"	9' 2"	10' 9"	—	8' 0"	9' 2"	9' 11"	—	7' 7"	8' 1"	8' 8"	
		14	68	50	9' 0"	10' 3"	11' 9"	—	9' 0"	9' 11"	10' 7"	—	8' 4"	8' 8"	9' 3"	
	6	12	97	50	10' 7"	11' 6"	12' 7"	—	9' 11"	10' 9"	11' 6"	—	8' 12"	9' 5"	10' 1"	
		20	33	33	6' 11"	7' 11"	9' 6"	—	6' 11"	7' 11"	9' 6"	—	6' 11"	7' 11"	9' 6"	
		18	43	33	8' 1"	9' 4"	11' 0"	—	8' 1"	9' 4"	11' 0"	—	8' 1"	9' 4"	11' 0"	
		16	54	50	10' 10"	12' 2"	13' 10"	—	10' 10"	11' 12"	12' 12"	—	10' 2"	10' 12"	11' 10"	
15	3-5/8	20	33	33	4' 8"	5' 3"	6' 1"	7' 5"	4' 8"	5' 3"	6' 1"	7' 5"	4' 8"	5' 3"	6' 1"	
		18	43	33	5' 5"	6' 1"	7' 0"	8' 6"	5' 5"	6' 1"	7' 0"	8' 6"	5' 5"	6' 1"	7' 0"	
		16	54	50	7' 2"	8' 0"	9' 2"	10' 9"	7' 2"	8' 0"	9' 2"	9' 11"	7' 2"	7' 7"	8' 1"	
		14	68	50	8' 1"	9' 0"	10' 3"	11' 9"	8' 1"	9' 0"	9' 11"	10' 7"	7' 9"	8' 2"	8' 8"	
	6	12	97	50	9' 6"	10' 6"	11' 10"	12' 9"	9' 6"	10' 5"	10' 10"	11' 6"	8' 9"	8' 11"	9' 5"	
		20	33	33	6' 2"	6' 11"	7' 11"	9' 6"	6' 2"	6' 11"	7' 11"	9' 6"	6' 2"	6' 11"	7' 11"	
		18	43	33	7' 3"	8' 1"	9' 4"	11' 0"	7' 3"	8' 1"	9' 4"	11' 0"	7' 3"	8' 1"	9' 4"	
		16	54	50	9' 8"	10' 8"	12' 1"	13' 11"	9' 8"	10' 8"	12' 1"	13' 6"	9' 8"	10' 8"	11' 2"	
14	68	50	10' 11"	12' 0"	13' 5"	15' 3"	10' 11"	12' 0"	13' 3"	14' 5"	10' 7"	11' 4"	11' 11"			
12	97	50	12' 0"	13' 1"	14' 10"	15' 12"	12' 0"	13' 1"	14' 0"	15' 1"	11' 2"	12' 0"	12' 10"			

Notes:

- 1 Tabulated values are for a single HDS header installed with standard HDSC clips. Each head-to-jamb connection requires (4) #10-16 screws to the header, and (4) #10-16 screws to the jamb. Tabulated values marked with an asterisk will require special engineering of the header-to-jamb connections.
- 2 Deflections are computed using 0.7 times the components and cladding wind load per Section B1 of the AISI Standard for Cold-Formed Steel Framing—Wall Design. Note that the 0.7 factor is not used for the interior 5psf loading condition.
- 3 Unless connections are engineered separately, jambs must be the same gauge and strength as the header.
- 4 HDS header to be installed with open side facing up.
- 5 HDS properties computed in accordance with AISI NASPEC 2001.

HDS® Framing System Tables

ALLOWABLE OPENING WIDTHS FOR SINGLE HDS® FRAMING USED AS JAMB STUDS

Wall Height (ft)	Member Size (in)	Gauge	Mils (in)	F _y (ksi)	5psf						25psf						35psf						
					Deflection						Deflection						Deflection						
					240		360		600		240		360		600		240		360		600		
					Sill Height						Sill Height						Sill Height						
		2	3	2	3	2	3	2	3	2	3	2	3	2	3	2	3	2	3				
9	3-5/8	20	33	33	16' 0"	16' 0"	16' 0"	16' 0"	12' 10"	11' 2"	3' 3"	3' 0"	3' 3"	3' 0"	—	—	—	—	—	—			
		18	43	33	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	6' 4"	5' 4"	6' 4"	5' 4"	3' 4"	3' 1"	3' 7"	3' 4"	3' 7"	3' 4"			
		16	54	50	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	13' 6"	11' 6"	9' 10"	8' 8"	4' 11"	4' 3"	9' 3"	7' 9"	6' 2"	5' 6"	2' 9"		
		14	68	50	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	14' 11"	13' 2"	11' 6"	6' 9"	5' 12"	11' 2"	10' 3"	8' 7"	7' 7"	3' 12"	3' 10"
		12	97	50	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	10' 5"	9' 1"	12' 1"	12' 5"	12' 1"	11' 3"	6' 7"	5' 10"
		20	33	33	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	8' 9" *	7' 7" *	8' 9" *	7' 7" *	8' 9" *	7' 7" *	4' 0" *	4' 11" *	4' 0" *	4' 11" *	4' 0" *	4' 11" *
	6	18	43	33	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	15' 8" *	13' 2" *	15' 8" *	13' 2" *	15' 8" *	13' 2" *	10' 9" *	8' 10" *	10' 9" *	8' 10" *	10' 9" *	8' 10" *	
		16	54	50	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	19' 3"	20' 0" *	17' 9" *	20' 0" *	17' 9" *	15' 0" *	13' 1"	
		14	68	50	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	19' 10"	17' 2"	
		12	97	50	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"
		20	33	33	16' 0"	16' 0"	12' 1"	10' 6"	5' 8"	5' 7"	—	—	—	—	—	—	—	—	—	—	—	—	
		18	43	33	16' 0"	16' 0"	16' 0"	15' 3"	9' 2"	8' 2"	3' 3"	2' 12"	2' 11"	2' 8"	—	—	—	—	—	—	—	—	
11	3-5/8	16	54	50	16' 0"	16' 0"	16' 0"	16' 0"	12' 5"	10' 9"	6' 0"	6' 12"	4' 2"	3' 10"	—	—	4' 7"	4' 4"	—	—			
		14	68	50	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	14' 3"	10' 10"	9' 6"	5' 11"	5' 9"	2' 8"	—	6' 10"	6' 1"	3' 6"	3' 3"	—	—	
		12	97	50	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	16' 0"	13' 2"	13' 1"	9' 7"	8' 6"	4' 5"	4' 1"	9' 1"	8' 11"	5' 9"	5' 7"	2' 7"	—	
		20	33	33	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	5' 6" *	5' 5" *	5' 6" *	5' 5" *	5' 3" *	5' 1" *	3' 3" *	2' 11" *	3' 3" *	2' 11" *	3' 2" *	2' 10" *	
		18	43	33	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	10' 12" *	9' 5" *	10' 12" *	9' 5" *	8' 3" *	7' 5" *	6' 6" *	4' 0" *	6' 6" *	4' 0" *	4' 12" *	4' 9" *	
		16	54	50	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0" *	18' 10" *	20' 0" *	18' 3" *	11' 5"	9' 11"	15' 4" *	12' 12" *	14' 5" *	12' 4" *	7' 4"	6' 5"
	6	14	68	50	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	15' 7"	13' 3"	20' 0" *	18' 4"	19' 5" *	16' 3"	9' 11"	8' 9"	
		12	97	50	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	19' 6"	20' 0"	20' 0"	20' 0"	20' 0"	15' 6"	13' 2"
		20	33	33	10' 8"	9' 8"	5' 9"	5' 6"	2' 8"	—	—	—	—	—	—	—	—	—	—	—	—	—	
		18	43	33	16' 0"	14' 4"	9' 10"	8' 6"	4' 3"	4' 1"	—	—	—	—	—	—	—	—	—	—	—	—	
		16	54	50	16' 0"	16' 0"	12' 11"	11' 4"	5' 11"	5' 8"	3' 7"	3' 5"	—	—	—	—	—	—	—	—	—	—	
		14	68	50	16' 0"	16' 0"	16' 0"	15' 2"	8' 8"	6' 0"	5' 1"	4' 10"	2' 9"	2' 7"	—	—	3' 1"	2' 11"	—	—	—	—	
13	3-5/8	12	97	50	16' 0"	16' 0"	16' 0"	16' 0"	13' 9"	11' 12"	8' 4"	6' 0"	4' 6"	4' 3"	—	—	4' 12"	4' 9"	2' 8"	2' 6"	—		
		20	33	33	20' 0" *	20' 0" *	20' 0" *	20' 0" *	16' 2"	13' 10"	3' 3" *	3' 1" *	3' 3" *	3' 1" *	—	—	—	—	—	—	—		
		18	43	33	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	19' 8"	6' 2" *	5' 11" *	6' 2" *	5' 11" *	3' 10"	3' 8"	3' 9" *	3' 6" *	3' 9" *	3' 6" *	—	—	
		16	54	50	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	17' 9" *	14' 9" *	11' 9"	10' 5"	5' 5"	5' 2"	10' 4" *	9' 5" *	6' 12"	6' 9"	3' 3"	3' 1"	
		14	68	50	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	16' 6"	14' 1"	7' 8"	7' 6"	16' 6" *	14' 0"	10' 1"	9' 2"	4' 8"	4' 5"
		12	97	50	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	12' 9"	11' 3"	20' 0"	20' 0"	16' 4"	13' 12"	7' 7"	7' 5"
	6	20	33	33	5' 6"	5' 4"	3' 1"	2' 11"	—	—	—	—	—	—	—	—	—	—	—	—	—		
		18	43	33	8' 8"	8' 4"	4' 10"	4' 8"	—	—	—	—	—	—	—	—	—	—	—	—	—		
		16	54	50	12' 3"	11' 3"	6' 7"	6' 4"	3' 2"	3' 0"	—	—	—	—	—	—	—	—	—	—	—		
		14	68	50	16' 0"	15' 4"	9' 4"	9' 2"	4' 5"	4' 3"	2' 8"	2' 7"	—	—	—	—	—	—	—	—	—		
		12	97	50	16' 0"	16' 0"	15' 7"	13' 8"	7' 0"	6' 9"	4' 4"	4' 2"	—	—	—	—	2' 7"	—	—	—	—		
		20	33	33	20' 0" *	20' 0" *	18' 6" *	15' 10"	8' 3"	7' 11"	—	—	—	—	—	—	—	—	—	—	—		
15	3-5/8	18	43	33	20' 0"	20' 0"	20' 0"	20' 0"	13' 3"	11' 12"	4' 0" *	3' 11" *	4' 0" *	3' 11" *	—	—	—	—	—	—			
		16	54	50	20' 0"	20' 0"	20' 0"	20' 0"	18' 9"	16' 1"	11' 3" *	10' 2"	5' 12"	5' 10"	2' 10"	2' 9"	6' 3"	6' 1"	3' 9"	3' 7"	—		
		14	68	50	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	16' 2" *	14' 2"	8' 6"	8' 2"	4' 1"	3' 11"	9' 5"	9' 3"	5' 3"	5' 1"	—		
		12	97	50	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	20' 0"	14' 5"	12' 10"	6' 6"	6' 3"	16' 0"	14' 0"	8' 5"	8' 0"	4' 0"	3' 10"	

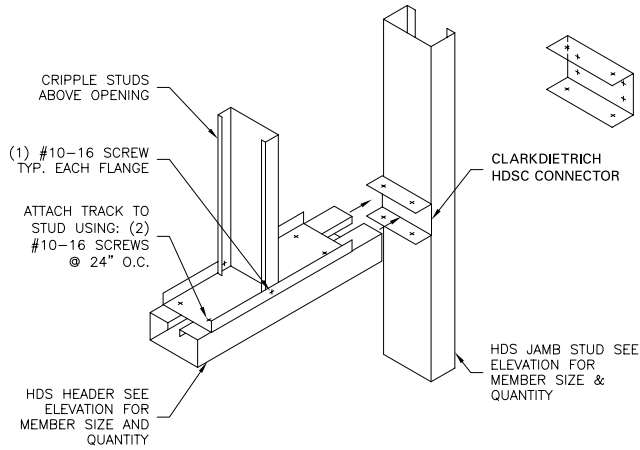
*Depending on the actual window width versus the tabulated window width, cells marked with an * (asterisk) may require an end connection that will prevent web crippling. Web crippling is computed in accordance with the AISI Standard for CFS Wall Stud Design 2004. End track must have a minimum thickness equal to the jamb stud.

Notes:

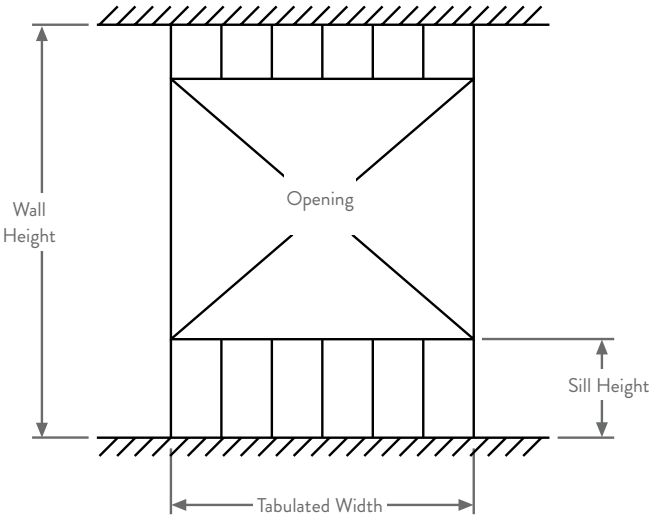
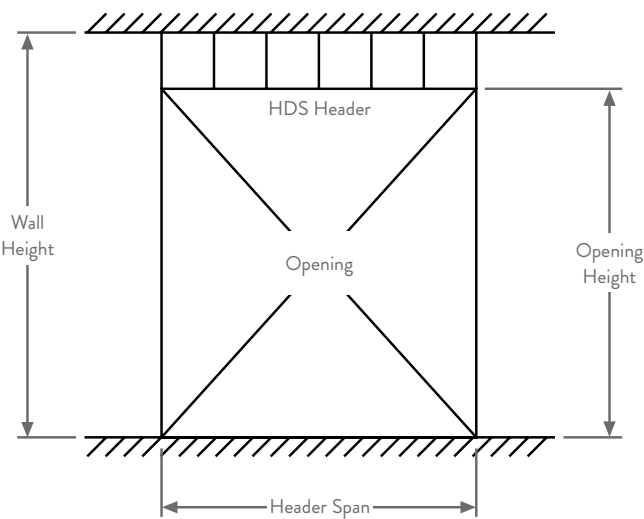
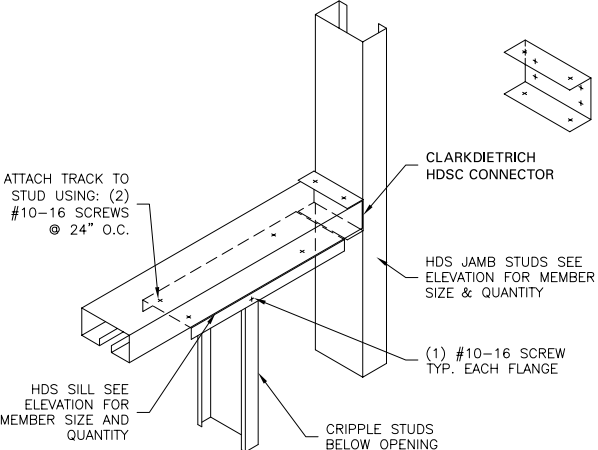
- 1 The opening is centered vertically about the wall height.
- 2 The assumed stud spacing adjacent to the opening is 16" o.c. or less.
- 3 The tabulated values assume a single HDS member is used at each jamb stud.
- 4 The tabulated values are limited to 16' for 3-5/8" walls and 20' for 6" walls. For wider openings or other conditions, contact ClarkDietrich at 888.437.3244.
- 5 The tabulated values are based on an unbraced length for bending of 6'.
- 6 Deflections are computed using 0.7 times the components and cladding wind load per Section B1 of the AISI Standard for Cold-Formed Steel Framing—Wall Design. Note that the 0.7 factor is not used for the interior 5psf loading condition.
- 7 HDS properties computed in accordance with the 2001 AISI NASPEC.
- 8 Table not valid for openings in load-bearing walls.

HDS® Framing Details

HDS® HEADER CONNECTIONS



HDS SILL CONNECTIONS



For use with the HDS® Framing System.

The ClarkDietrich HDS Framing System provides outstanding bending strength in two directions and superior axial strength. Plus, it reduces material, labor costs and installation time by up to 50%. The superior strength and carrying capacity of the HDS means higher performance with fewer members, like eliminating box beam headers, nesting track and stud for posts and jambs. It also means improved finish quality by eliminating excessive material and screw head buildup around doors and windows. The HDSC header bracket is a unique, prepunched clip that turns curtain wall header installation from a two-man job into a one-man job.

ClarkDietrich Engineering Services

Smarter engineering and technical expertise. It's support that extends beyond the structure itself.

From the initial design phase to jobsite installation, we are focused on providing inventive, yet practical and hands-on know-how to help you think outside the box—or to help you just get it done.

ClarkDietrich Engineering Services is a full-service consulting firm that believes strongly in value engineering and customer input. Our engineering fees and lead times are competitive, and our customer service exceeds the industry standard with consistent point-of-contact through our regional project managers.

We are able to exploit the vast advantages of building information modeling (BIM) with add-on tools that allow our products, and the rich data attached to them, to quickly be imported into digital designs. Our team is also comprised of LEED®-certified professionals to consult on sustainable building design.

- Electronically sealed shop drawings and calculations.
- Preliminary sizing and pre-bid engineering pricing.
- Reference plan on large projects.
- Detailed wall sections, full elevation opening design and C-stud truss design.

Our technical services team provides immediate response to questions ranging from general installation to detailed specification requirements and can deliver one-day turnaround on technical sizing. We are experts on industry standards such as AISI, ASTM and SFIA. Our team also supports our online product submittal system, SubmittalPro®, and our design/engineering software is available as a free download from www.clarkdietrich.com.

- Product support and typical member sizing.
- Framing detail recommendations.
- Compliance and industry standards, such as AISI, ASTM and SFIA.
- Engineering software and product submittal support.
- LEED requirements support.

TRADEMARKS AND WARRANTY

PATENTS

U.S. Patent No. 7,739,850 B2 is owned by ClarkDietrich Building Systems

TRADEMARKS

ClarkDietrich™ is a trademark of ClarkDietrich™ Building Systems. Clip ExpressSM, Drop 'N Lock™ Clip, HDS®, RedHeader ROSM, Stronger Than SteelSM, SubmittalPro®, and SwiftClip™ are owned by ClarkDietrich Building Systems.

Buildex® is a registered trademark of Illinois Tool Works, Inc.

LEED® is a registered trademark of the U.S. Green Building Council.

UL® and UL Design® are trademarks of Underwriter's Laboratories, Inc.

WARRANTY

Our products are manufactured in accordance with company standards and/or industry standards, as applicable. All ClarkDietrich Building Systems products are covered by our standard warranty which is contained in our Standard Terms and Conditions of Sale and which will be provided upon request. Generally, we warrant our products will be free from defects in material and workmanship at the time of shipment, subject to the limitations stated in the warranty. Unless specifically agreed in writing by us with respect to specific orders, we do not make any warranty of merchantability or fitness for a particular purpose. The buyer is responsible to assure that buyer orders the appropriate product for any applicable code or specification requirements.

NOTICE: Our liability is expressly limited to replacement of defective products. We shall not be liable for incidental and consequential damages, nor for any loss caused by misuse or misapplication of our products. Any claim shall be deemed waived unless made in writing to us within thirty (30) days from the date it was or reasonably should have been discovered.

CODE APPROVALS AND PERFORMANCE STANDARDS

ClarkDietrich products meet or exceed these applicable performance standards.

AISI "North American specification for the design of cold-formed steel structural members, 2001 w/2004 supplement"

ASTM American Society for Testing and Materials

Product specifications

- ASTM C645 Non-structural steel framing members
- ASTM C955 Load-bearing steel framing

Material specifications

- ASTM A1003 (NS33, ST33H, ST50H)
- ASTM A653 Zinc-coated hot-dip process

Protective coating standards

- ASTM C645 Non-structural steel framing members
- ASTM C955 Load-bearing steel framing
- ASTM A1003 Standard specification for steel sheet, carbon, metallic- and nonmetallic-coated for cold-formed framing members
- ASTM A653 Zinc-coated hot-dip process

UL® Underwriters Laboratories testing standard
UL 263 "Fire Tests of Building Construction and Materials"

ClarkDietrich Building Systems is a proud member of the Steel Framing Industry Association (SFIA). Check the updated list of Certified Production Facilities at Architectural Testing's website at www.archtest.com.



Scan for the most up-to-date ClarkDietrich literature.

LEED® Services

BUILD GREEN with ClarkDietrich Building Systems

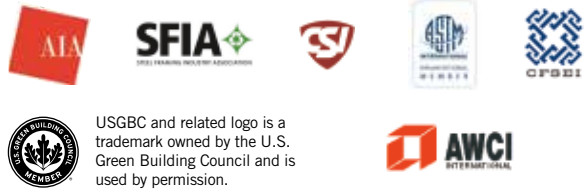
ClarkDietrich Building Systems is an active member of the U.S. Green Building Council and is committed to supplying quality products that are environmentally responsible. We are continually working to develop greener building products and sustainable business practices. ClarkDietrich steel framing helps contribute points toward LEED® certification. For more details contact Technical Services at 888-437-3244 or visit www.clarkdietrich.com/LEED.

ClarkDietrich Building Systems has prepared this literature with the utmost diligence and care for accuracy and conformance to standards.

ClarkDietrich intends this information to be accurate, informative, and helpful as a selection guide for choosing ClarkDietrich Building System products. However, this information is only to be used for guidance and is not intended to replace the design, drawings, specifications, and decisions of a professional architect or engineer.

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ClarkDietrich Building Systems reserves the right to modify or change any information contained in this literature without notification.



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**ClarkDietrich Building Systems
Manufacturing and Sales Locations:**

- | | | | |
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| GEORGIA McDonough
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F 513.645.0750 | MARYLAND Baltimore
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F 410.477.1550 |
| OHIO Warren—East
P 330.372.5564
F 330.372.4055 | OHIO Vienna
P 330.372.4014
F 330.372.1945 | TEXAS Baytown
P 281.383.1617
F 281.573.1679 | TEXAS Dallas
P 214.350.1716
F 214.350.7252 |
| CLIP EXPRESS™ —East
P 866.638.1908 | CLIP EXPRESS —West
P 530.406.3462 | VINYL CORP.™
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A full spectrum of solutions.**

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