

ICC-ES Evaluation Report

ESR-2374

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This report is subject to re-examination in two years.

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DIVISION: 05—METAL

Section: 05400—Cold-Formed Metal Framing

Section: 05410—Load-Bearing Wall Framing

DIVISION: 09—FINISHES

Section: 09110—Non-Load Bearing Wall Framing

REPORT HOLDER:

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EVALUATION SUBJECT:

DIETRICH HEAVY DUTY STUD (HDS)

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2006 *International Building Code*® (IBC)
- * ■ ~~2006 *International Residential Code*® (IRC)~~
- ~~Other Codes (see Section 8.0)~~

Property evaluated:

Structural

2.0 USES

The Dietrich Industries Heavy Duty Stud (HDS) is a steel stud for use in interior and exterior walls.

- * ~~Used under the IRC, the steel studs are limited to structures engineered under IRC Section R301.1.3.~~

3.0 DESCRIPTION

3.1 General:

The HDS members described in this report are limited to those noted in Table 1 and are factory-fabricated at the Dietrich Industries manufacturing facilities in Warren, Ohio, and Colton, California. The studs are formed from coils of light gauge steel. See Figure 1 for stud configuration. The studs are manufactured with and without web punch-outs. When punch-outs are provided, they are located along the center of the web, with a width of 1½ inches (38 mm) and a length of 4 inches (102 mm). The holes are spaced a minimum of 24 inches (610 mm) on center. The hole's edge is a minimum of 10 inches (254 mm) from the end of the stud.

3.2 Material:

Studs with metal thicknesses of 33 mils and 43 mils are formed from metallic-coated steel coils complying with ASTM A 1003 Structural Grade 33 Type H (ST33H) or ASTM A 653 SS Grade 33; studs with metal thicknesses of 54 mils, 68 mils and 97 mils are formed from steel complying with ASTM A 1003 Structural Grade 50 Type H (ST50H) or ASTM A 653 SS Grade 50 Class I. The steel has a minimum G60 hot-dipped galvanized coating weight designation. For steel base-metal thicknesses, see Table 1.

4.0 INSTALLATION

4.1 General:

The studs must be installed in accordance with the approved plans and this report. The approved plans must be available at the jobsite at all times during installation.

4.2 Design:

4.2.1 General: Section properties in Tables 2, 3 and 4 have been determined in accordance with the 2001 AISI North American Specification for Design of Cold-formed Steel Structural Members, including 2004 Supplement (AISI-NAS). The allowable moments (M_{xa} and M_{ya}) listed in Table 3 are for use with Allowable Stress Design (ASD). M_{xa} is for flexural members with a maximum unbraced length (L_u) of the compression flange as noted in Table 4. M_{ya} is for flexural members installed with the compression flange continuously braced. For other conditions of compression flange bracing, the allowable moment must be determined per AISI-NAS. The design of flexural members must address combined bending and web crippling and combined bending and shear, as applicable, in accordance with AISI-NAS. As an alternative to an engineered approved design, structural uses may be determined in accordance with Section 4.2.2 or 4.2.3 of this report.

4.2.2 Nonload-bearing Wall Heights: Allowable wall heights for interior nonload-bearing walls and allowable limiting wall heights for nonload-bearing curtain walls are shown in Table 5. In addition, the end reactions of the studs due to the applied transverse loads must be verified as complying with the allowable concentrated loads and reactions based on web crippling (P) in Table 4.

4.2.3 Load-bearing Wall Studs: Allowable axial loads combined with lateral loads for various bearing wall heights and stud spacing, based on mechanical bracing at a maximum of 60 inches (1524 mm) on center and continuous support of both flanges, with the design complying with Section C5 in the AISI-NAS, are shown in

Table 6. In addition, the end reactions of the studs due to the applied transverse loads must be verified as complying with the allowable concentrated loads and reactions based on web crippling (P) in Table 4.

5.0 CONDITIONS OF USE

The Dietrich Heavy Duty Stud described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Studs must be installed in accordance with this report, the applicable code and the approved plans. In case of a conflict between this report and the plans, this report governs.
- 5.2 Minimum uncoated steel thickness of cold-formed steel members, as delivered to the jobsite, must be at least 95 percent of the thickness used in design.
- 5.3 Complete plans and calculations verifying compliance with this report must be submitted to the code official for each project. The calculations and drawings must be prepared and sealed by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.4 Stud member end reactions, resulting from allowable heights and loads, as noted in the tables in this report, must be checked with allowable reactions based on web crippling in this report.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Cold-formed Steel Framing Members (AC46), dated February 2007 (editorially revised April 2008).

7.0 IDENTIFICATION

Each stud must have a legible label, stamp or embossment, at a maximum of 48 inches (1219 mm) on center, indicating the Dietrich Metal Framing name or initials; the evaluation report number (ESR-2374); the acronym "ICC-ES"; material minimum base-metal thickness (uncoated) in decimal thickness or mils; minimum specified yield strength [if greater than 33 ksi (228 MPa)]; and coating grade (if G60 or greater).

8.0 OTHER CODES

8.1 Evaluation Scope:

In addition to the codes listed in Section 1.0, the products in this report were evaluated for compliance with the requirements of the following codes:

■ 2003 *International Building Code*®

■ 2003 *International Residential Code*®

8.2 Uses:

See Section 2.0.

8.3 Description:

See Section 3.0.

8.4 Design and Installation:

See Section 4.0, except replace the wording of Sections 4.2.1 and 4.2.3 with the following:

General: Section properties in Tables 2, 3 and 4 have been determined in accordance with the 2001 AISI North American Specification for Design of Cold-formed Steel Structural Members (AISI-NASPEC). The allowable moments (M_{xa} and M_{ya}) listed in Table 3 are for use with Allowable Stress Design (ASD). M_{xa} is for flexural members with a maximum unbraced length (L_u) of the compression flange as noted in Table 4. M_{ya} is for flexural members installed with the compression flange continuously braced. For other conditions of compression flange bracing, the allowable moment must be determined per AISI-NASPEC. The design of flexural members must address combined bending and web crippling and combined bending and shear, as applicable, in accordance with AISI-NASPEC. As an alternative to an engineered approved design, structural uses may be determined in accordance with Section 4.2.2 or 4.2.3 of this report.

Load-bearing Wall Studs: Allowable axial loads combined with lateral loads for various bearing wall heights and stud spacing, based on mechanical bracing at a maximum of 60 inches (1524 mm) on center and continuous support of both flanges, with the design complying with Section C5 in the AISI-NASPEC, are shown in Table 6. In addition, the end reactions of the studs due to the applied transverse loads must be verified to comply with the allowable concentrated loads and reactions based on web crippling (P) in Table 4.

8.5 Conditions of Use:

See Section 5.0.

8.6 Evidence Submitted:

See Section 6.0

8.7 Identification:

See Section 7.0.

TABLE 1—HDS MEMBER DIMENSIONS AND YIELD STRENGTH^{1,2,3}

WEB SIZE (in.)	GAUGE	MILS	F _y (ksi)	DESIGN BASE METAL THICKNESS (in.)	MINIMUM DELIVERED BASE METAL THICKNESS (in.)	FLANGE (A) (in.)	LIP (B) (in.)	INSIDE BEND RADIUS (in.)
3.625	20	33	33	0.0346	0.0329	3.000	1.0625	0.0519
	18	43	33	0.0451	0.0428	3.000	1.0625	0.0677
	16	54	50	0.0566	0.0538	3.000	1.0625	0.0849
	14	68	50	0.0713	0.0677	3.000	1.0625	0.1070
	12	97	50	0.1017	0.0966	3.000	1.0625	0.1250
4	20	33	33	0.0346	0.0329	3.000	1.0625	0.0519
	18	43	33	0.0451	0.0428	3.000	1.0625	0.0677
	16	54	50	0.0566	0.0538	3.000	1.0625	0.0849
	14	68	50	0.0713	0.0677	3.000	1.0625	0.1070
	12	97	50	0.1017	0.0966	3.000	1.0625	0.1250
5.5	20	33	33	0.0346	0.0329	3.500	1.000	0.0519
	18	43	33	0.0451	0.0428	3.500	1.000	0.0677
	16	54	50	0.0566	0.0538	3.500	1.000	0.0849
	14	68	50	0.0713	0.0677	3.500	1.000	0.1070
	12	97	50	0.1017	0.0966	3.500	1.000	0.1250
6	20	33	33	0.0346	0.0329	3.000	2.250	0.0519
	18	43	33	0.0451	0.0428	3.000	2.250	0.0677
	16	54	50	0.0566	0.0538	3.000	2.250	0.0849
	14	68	50	0.0713	0.0677	3.000	2.250	0.1070
	12	97	50	0.1017	0.0966	3.000	2.250	0.1250
8	20 ⁴	33 ⁴	33	0.0346	0.0329	3.000	2.250	0.0519
	18	43	33	0.0451	0.0428	3.000	2.250	0.0677
	16	54	50	0.0566	0.0538	3.000	2.250	0.0849
	14	68	50	0.0713	0.0677	3.000	2.250	0.1070
	12	97	50	0.1017	0.0966	3.000	2.250	0.1250

For **SI**: 1 inch = 25.4 mm, 1 psi = 6.895 kPa.

¹See Figure 1 for member geometry.

²See Tables 2 and 3 for member section properties.

³Lip stiffener = 0.75 inch for all members

⁴h/t exceeds 200. Web stiffeners are required at bearing points. No holes in the web are permitted.

TABLE 2—HDS UN-PERFORATED SECTION PROPERTIES AND TORSIONAL PROPERTIES

WEB SIZE (in.)	MILS	UN-PERFORATED SECTION PROPERTIES									TORSIONAL PROPERTIES				
		Area (in ²)	Weight (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 ⁶)	X _o (in)	R _o (in)	Beta
3.625	33	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
	43	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
	54	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
	68	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
	97	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
4	33	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
	43	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
	54	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
	68	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
	97	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
5.5	33	0.541	1.84	2.728	0.992	2.246	1.048	1.462	0.519	1.392	0.216	10.384	-3.628	4.488	0.347
	43	0.698	2.38	3.510	1.276	2.242	1.340	1.452	0.661	1.385	0.472	13.079	-3.621	4.479	0.346
	54	0.870	2.96	4.358	1.585	2.238	1.652	1.440	0.813	1.378	0.930	15.860	-3.614	4.469	0.346
	68	1.084	3.69	5.397	1.963	2.232	2.027	1.425	0.994	1.368	1.834	19.075	-3.605	4.455	0.345
	97	1.519	5.17	7.490	2.724	2.221	2.768	1.398	1.350	1.350	5.235	25.095	-3.570	4.416	0.346
6	33	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
	43	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
	54	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
	68	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
	97	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
8	33	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
	43	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
	54	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
	68	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
	97	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

For SI: 1 inch = 25.4 mm, 1 lb = 0.47536 kg.

Notes to Table 2:

See Figure 1 for member geometry.

Lip stiffening = 0.75 inch for all web sizes.

I_x = Gross Moment of Inertia about x-axis.
 S_x = Gross Section Modulus about x-axis.
 R_x = Gross Radius of Gyration about x-axis.
 I_y = Gross Moment of Inertia about y-axis.
 $\bar{x}$ = The distance from the web centerline to the center of gravity.
 S_y = Gross Section Modulus about y-axis.
 r_y = Gross radius of Gyration about y-axis.

J = St. Venant Torsion Constant
 C_w = Warping Torsion Constant.
 X_o = Distance from shear center to the centroid along the principal x-axis.
 R_o = Polar Radius of Gyration about the centroidal principal axis.
 $\text{Beta} = 1 - (X_o / R_o)^2$

TABLE 3—HDS EFFECTIVE PROPERTIES AND CAPACITIES

WEB SIZE (in)	MILS	UN-PERFORATED BENDING PROPERTIES					PERFORATED BENDING PROPERTIES							EFFECTIVE MOMENT OF INERTIA		
		S_{x0} (in ³)	M_{xa} (in-lb)	Web in Ten.		Web in Comp.		S_{x0} (in ³)	M_{xa} (in-lb)	Web in Ten.		Web in Comp.		I_{x0} (in ⁴)	Web in Ten. I_{x0} (in ⁴)	Web in Comp. I_{x0} (in ⁴)
				S_{y0} (in ³)	M_{ya} (in-lb)	S_{y0} (in ³)	M_{ya} (in-lb)			S_{y0} (in ³)	M_{ya} (in-lb)	S_{y0} (in ³)	M_{ya} (in-lb)			
3.625	33	0.397	7846	0.401	7917	0.294	5814	0.367	7247	0.313	6192	0.243	4804	0.851	0.631	0.538
	43	0.565	11165	0.516	11703	0.425	8401	0.540	10674	0.400	9080	0.342	6753	1.161	0.805	0.741
	54	0.711	21290	0.632	21936	0.535	16019	0.683	20464	0.492	17084	0.429	12844	1.449	0.990	0.921
	68	0.958	28672	0.770	27606	0.733	21944	0.939	28127	0.603	21607	0.572	17117	1.829	1.211	1.194
	97	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	33	0.456	9011	0.406	8025	0.296	5854	0.415	8199	0.344	6805	0.246	4853	1.074	0.656	0.542
	43	0.648	12805	0.523	11874	0.430	8490	0.613	12113	0.440	9985	0.347	6866	1.463	0.838	0.750
	54	0.816	24420	0.641	22263	0.541	16198	0.776	23240	0.542	18805	0.437	13079	1.827	1.031	0.933
	68	1.096	32820	0.782	28027	0.745	22312	1.069	31998	0.664	23811	0.588	17616	2.307	1.261	1.216
	97	1.592	52437	1.056	40069	1.053	31517	1.577	51966	0.905	34366	0.905	29163	3.183	1.714	1.714
5.5	33	0.706	13945	0.509	10058	0.374	7383	0.706	13945	0.488	9639	0.315	6226	2.429	1.048	0.784
	43	1.041	20578	0.661	15129	0.543	10728	1.041	20578	0.632	14459	0.448	8851	3.299	1.340	1.093
	54	1.312	39290	0.813	28442	0.685	20501	1.312	39290	0.776	27163	0.564	16900	4.129	1.652	1.362
	68	1.768	52942	0.994	35968	0.918	27476	1.768	52942	0.949	34319	0.770	23051	5.356	2.027	1.808
	97	2.724	88601	1.350	51846	1.310	39234	2.724	88601	1.286	49393	1.224	36641	7.490	2.768	2.753
6	33	0.769	15192	0.532	10508	0.329	6505	0.769	15192	0.514	10153	0.275	5434	2.823	0.954	0.694
	43	1.150	22733	0.762	16155	0.483	9535	1.150	22733	0.697	14768	0.394	7792	3.797	1.273	0.982
	54	1.449	43377	0.927	29898	0.610	18261	1.449	43377	0.865	27897	0.498	14913	4.753	1.573	1.229
	68	1.925	57642	1.226	40261	0.854	25573	1.925	57642	1.078	35400	0.686	20533	6.023	1.938	1.645
	97	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	33	1.084	21420	0.548	10829	0.333	6570	—*	—*	—*	—*	—*	—*	5.805	1.076	0.703
	43	1.729	34161	0.787	16681	0.490	9679	1.729	34161	0.770	16307	0.400	7896	7.723	1.439	1.001
	54	2.208	66094	0.956	30850	0.620	18549	2.208	66094	0.935	30174	0.505	15122	9.662	1.779	1.254
	68	2.946	88217	1.265	41554	0.874	26153	2.946	88217	1.237	40635	0.700	20957	12.230	2.193	1.690
	97	4.269	140636	1.766	59876	1.486	44481	4.269	140636	1.724	58451	1.164	34855	17.075	3.013	2.631

For **SI**: 1 inch = 25.4 mm, 1 lb = 0.47536 kg.
 *h/t exceeds 200. No holes in the web are permitted.

Notes to Table 3:

S_{xe} = Effective Section Modulus about x-axis.
 M_{xa} = Allowable Moment about x-axis.
 S_{ye} = Effective Section Modulus about y-axis.
 See Figure 1 for member geometry.

M_{ya} = Allowable Moment about y-axis.
 I_{xe} = Effective Moment of Inertia about x-axis for deflection calculations.
 I_{ye} = Effective Moment of Inertia about y-axis for deflection calculations.

TABLE 4—HDS EFFECTIVE PROPERTIES AND CAPACITIES-OTHER PROPERTIES⁹

WEB SIZE (in)	MILS	L_u^1 (in)	UN-PERF'D V_x^2 (kips)	PERF'D $V_x^{2,7}$ (kips)	V_y^3 (kips)	$P_x^{4,5}$ (kips)	$P_y^{4,6}$ (kips)
3.625	33	103	1.03	0.54	2.05	0.29	0.38
	43	102	1.74	0.68	3.09	0.46	0.61
	54	82	3.38	1.02	5.77	1.02	1.38
	68	82	4.37	1.00	7.06	1.51	2.08
	97	81	6.05	0.92	9.71	1.97	4.00
4	33	100	0.97	0.60	2.05	0.29	0.38
	43	99	1.74	0.81	3.09	0.45	0.61
	54	80	3.38	1.22	5.77	1.01	1.38
	68	79	4.87	1.36	7.06	1.50	2.08
	97	79	6.76	1.26	9.71	1.96	4.00
5.5	33	103	0.69	0.69	2.05	0.28	0.37
	43	102	1.54	1.20	3.47	0.44	0.60
	54	83	3.10	1.88	6.75	0.98	1.36
	68	82	5.34	2.53	8.40	1.46	2.06
	97	81	9.62	3.11	11.62	1.91	3.96
6	33	125	0.63	0.63	2.05	0.27	0.38
	43	124	1.41	1.24	3.09	0.43	0.61
	54	100	2.83	1.95	5.77	0.97	1.38
	68	100	5.34	2.88	7.06	1.44	2.08
	97	98	10.58	3.90	9.71	1.89	4.00
8	33 ⁸	113	0.47	----	2.05	---	0.38
	43	112	1.05	1.05	3.09	0.27	0.61
	54	90	2.09	2.09	5.77	0.62	1.38
	68	90	4.21	3.36	7.06	0.94	2.08
	97	89	10.88	5.99	9.71	1.84	4.00

For **SI**: 1 inch = 25.4 mm, 1 pound = 4.4482 N.

¹ L_u = Maximum unbraced length to attain M_{xa} (Table 3).

² V_x = Allowable shear for bending about x-axis.

³ V_y = Allowable shear for bending about y-axis.

⁴ P_x and P_y are the allowable reactions based on web crippling of members bent about the x-axis and y-axis respectively.

⁵ P_x = Value based on the end of the HDS placed inside a track with the same or greater thickness and a minimum track leg length of 1.25 inches.

⁶ P_y = Based on allowable end one flange (EOF) web crippling. It is assumed that 2 flanges of the HDS resist web crippling with a bearing length of 1.25 inches.

⁷Perforated properties are based on the standard 1.5 x 4 inch oval Dietrich web knockout. The knockout is centered about the web, and is spaced no less than 24 inches on-center.

⁸ h/t exceeds 200. Web stiffeners are required at bearing points. No holes in the web are permitted.

⁹See Figure 1 for member geometry.

TABLE 5—HDS ALLOWABLE WALL HEIGHTS - INTERIOR WALLS

MEM SIZE (in)	MILS	SPACING (in)	5 PSF			MEM SIZE (in)	MILS	SPACING (in)	5 PSF		
			$\Delta = L / 120$	$\Delta = L / 240$	$\Delta = L / 360$				$\Delta = L / 120$	$\Delta = L / 240$	$\Delta = L / 360$
3.625	33	12	28' 2"	22' 4"	19' 6"	6	33	12	42' 0"	33' 4"	29' 1"
		16	25' 7"	20' 4"	17' 9"			16	38' 2"	30' 3"	26' 5"
		24	22' 0" ^f	17' 9"	15' 6"			24	31' 10" ^f	26' 5"	23' 1"
	43	12	31' 3"	24' 9"	21' 8"		43	12	46' 4"	36' 9"	32' 2"
		16	28' 4"	22' 6"	19' 8"			16	42' 1"	33' 5"	29' 2"
		24	24' 9"	19' 8"	17' 2"			24	36' 9"	29' 2"	25' 6"
	54	12	33' 7"	26' 8"	23' 4"		54	12	49' 11"	39' 8"	34' 8"
		16	30' 7"	24' 3"	21' 2"			16	45' 5"	36' 0"	31' 6"
		24	26' 8"	21' 2"	18' 6"			24	39' 8"	31' 6"	27' 6"
	68	12	36' 4"	28' 10"	25' 2"		68	12	54' 1"	42' 11"	37' 6"
		16	33' 0"	26' 2"	22' 11"			16	49' 1"	39' 0"	34' 1"
		24	28' 10"	22' 11"	20' 0"			24	42' 11"	34' 1"	29' 9"
	97	12	40' 5"	32' 1"	28' 0"		97	12	60' 4"	47' 11"	41' 10"
		16	36' 9"	29' 2"	25' 6"			16	54' 10"	43' 6"	38' 0"
		24	32' 1"	25' 6"	22' 3"			24	47' 11"	38' 0"	33' 3"
4	33	12	30' 5"	24' 2"	21' 1"	8	33	12	53' 5" *	42' 5" *	37' 0" *
		16	27' 8"	21' 11"	19' 2"			16	46' 3" ^f *	38' 6" *	33' 8" *
		24	23' 5" ^f	19' 2"	16' 9"			24	37' 9" ^f *	33' 8" *	29' 5" *
	43	12	33' 9"	26' 9"	23' 5"		43	12	58' 9"	46' 7"	40' 9"
		16	30' 8"	24' 4"	21' 3"			16	53' 4"	42' 4"	37' 0"
		24	26' 9"	21' 3"	18' 7"			24	46' 7"	37' 0"	32' 4"
	54	12	36' 4"	28' 10"	25' 2"		54	12	63' 3"	50' 3"	43' 10"
		16	33' 0"	26' 2"	22' 11"			16	57' 6"	45' 8"	39' 10"
		24	28' 10"	22' 11"	20' 0"			24	50' 3"	39' 10"	34' 10"
	68	12	39' 3"	31' 2"	27' 3"		68	12	68' 5"	54' 4"	47' 6"
		16	35' 8"	28' 4"	24' 9"			16	62' 2"	49' 4"	43' 1"
		24	31' 2"	24' 9"	21' 7"			24	54' 4"	43' 1"	37' 8"
	97	12	43' 8"	34' 8"	30' 4"		97	12	76' 6"	60' 9"	53' 1"
		16	39' 8"	31' 6"	27' 6"			16	69' 6"	55' 2"	48' 2"
		24	34' 8"	27' 6"	24' 1"			24	60' 9"	48' 2"	42' 1"
5.5	33	12	39' 11"	31' 8"	27' 8"		33	12	53' 5" *	42' 5" *	37' 0" *
		16	36' 3"	28' 10"	25' 2"			16	46' 3" ^f *	38' 6" *	33' 8" *
		24	30' 6" ^f	25' 2"	22' 0"			24	37' 9" ^f *	33' 8" *	29' 5" *
	43	12	44' 3"	35' 1"	30' 8"		43	12	58' 9"	46' 7"	40' 9"
		16	40' 2"	31' 11"	27' 10"			16	53' 4"	42' 4"	37' 0"
		24	35' 1"	27' 10"	24' 4"			24	46' 7"	37' 0"	32' 4"
	54	12	47' 8"	37' 10"	33' 1"		54	12	63' 3"	50' 3"	43' 10"
		16	43' 4"	34' 4"	30' 0"			16	57' 6"	45' 8"	39' 10"
		24	37' 10"	30' 0"	26' 3"			24	50' 3"	39' 10"	34' 10"
	68	12	52' 0"	41' 3"	36' 0"		68	12	68' 5"	54' 4"	47' 6"
		16	47' 3"	37' 6"	32' 9"			16	62' 2"	49' 4"	43' 1"
		24	41' 3"	32' 9"	28' 7"			24	54' 4"	43' 1"	37' 8"
	97	12	58' 2"	46' 2"	40' 4"		97	12	76' 6"	60' 9"	53' 1"
		16	52' 10"	41' 11"	36' 7"			16	69' 6"	55' 2"	48' 2"
		24	46' 2"	36' 7"	32' 0"			24	60' 9"	48' 2"	42' 1"

For SI: 1 inch = 25.4 mm, 1 psf = 47.88 Pa.

Table 5 continued on next page

TABLE 5—HDS ALLOWABLE WALL HEIGHTS - EXTERIOR WALLS (Continued)

MEM SIZE (in)	MILS	SPACING (in)	15 PSF					20 PSF					25 PSF				
			Δ = L/240	Δ = L/360	Δ = L/600	Δ = L/720	Δ = L/900	Δ = L/240	Δ = L/360	Δ = L/600	Δ = L/720	Δ = L/900	Δ = L/240	Δ = L/360	Δ = L/600	Δ = L/720	Δ = L/900
3.625	33	12	17' 5"	15' 3"	12' 10"	12' 1"	11' 3"	15' 7"	13' 10"	11' 8"	11' 0"	10' 2"	13' 11"	12' 10"	10' 10"	10' 2"	9' 6"
		16	15' 7"	13' 10"	11' 8"	11' 0"	10' 2"	13' 6"	12' 7"	10' 7"	10' 0"	9' 3"	12' 0"	11' 8"	9' 10"	9' 3"	8' 7"
		24	12' 8"	12' 1"	10' 2"	9' 7"	8' 11"	11' 0"	11' 0"	9' 3"	8' 9"	8' 1"	9' 10"	9' 10"	8' 7"	8' 1"	7' 6"
	43	12	19' 4"	16' 11"	14' 3"	13' 5"	12' 5"	17' 7"	15' 4"	12' 11"	12' 2"	11' 4"	16' 4"	14' 3"	12' 0"	11' 4"	10' 6"
		16	17' 7"	15' 4"	12' 11"	12' 2"	11' 4"	16' 0"	13' 11"	11' 9"	11' 1"	10' 3"	14' 7"	12' 11"	10' 11"	10' 3"	9' 7"
		24	15' 4"	13' 5"	11' 4"	10' 8"	9' 11"	13' 4"	12' 2"	10' 3"	9' 8"	9' 0"	11' 11"	11' 4"	9' 7"	9' 0"	8' 4"
	54	12	20' 10"	18' 2"	15' 4"	14' 5"	13' 5"	18' 11"	16' 6"	13' 11"	13' 2"	12' 2"	17' 7"	15' 4"	12' 11"	12' 2"	11' 4"
		16	18' 11"	16' 6"	13' 11"	13' 2"	12' 2"	17' 2"	15' 0"	12' 8"	11' 11"	11' 1"	16' 0"	13' 11"	11' 9"	11' 1"	10' 3"
		24	16' 6"	14' 5"	12' 2"	11' 6"	10' 8"	15' 0"	13' 2"	11' 1"	10' 5"	9' 8"	13' 11"	12' 2"	10' 3"	9' 8"	9' 0"
	68	12	22' 6"	19' 8"	16' 7"	15' 7"	14' 6"	20' 6"	17' 10"	15' 1"	14' 2"	13' 2"	19' 0"	16' 7"	14' 0"	13' 2"	12' 3"
		16	20' 6"	17' 10"	15' 1"	14' 2"	13' 2"	18' 7"	16' 3"	13' 8"	12' 11"	12' 0"	17' 3"	15' 1"	12' 9"	12' 0"	11' 1"
		24	17' 10"	15' 7"	13' 2"	12' 5"	11' 6"	16' 3"	14' 2"	12' 0"	11' 3"	10' 5"	15' 1"	13' 2"	11' 1"	10' 5"	9' 8"
	97	12	25' 1"	21' 11"	18' 6"	17' 4"	16' 2"	22' 9"	19' 11"	16' 9"	15' 9"	14' 8"	21' 2"	18' 6"	15' 7"	14' 8"	13' 7"
		16	22' 9"	19' 11"	16' 9"	15' 9"	14' 8"	20' 8"	18' 1"	15' 3"	14' 4"	13' 4"	19' 2"	16' 9"	14' 2"	13' 4"	12' 4"
		24	19' 11"	17' 4"	14' 8"	13' 9"	12' 10"	18' 1"	15' 9"	13' 4"	12' 6"	11' 8"	16' 9"	14' 8"	12' 4"	11' 8"	10' 10"
4	33	12	18' 10"	16' 6"	13' 11"	13' 1"	12' 2"	16' 6"	15' 0"	12' 8"	11' 11"	11' 0"	14' 9"	13' 11"	11' 9"	11' 0"	10' 3"
		16	16' 6"	15' 0"	12' 8"	11' 11"	11' 0"	14' 4"	13' 7"	11' 6"	10' 10"	10' 0"	12' 10"	12' 8"	10' 8"	10' 0"	9' 4"
		24	13' 6"	13' 1"	11' 0"	10' 5"	9' 8"	11' 8"	11' 8"	10' 0"	9' 5"	8' 9"	10' 5"	10' 5"	9' 4"	8' 9"	8' 2"
	43	12	20' 11"	18' 3"	15' 5"	14' 6"	13' 5"	19' 0"	16' 7"	13' 11"	13' 2"	12' 3"	17' 8"	15' 5"	13' 0"	12' 3"	11' 4"
		16	19' 0"	16' 7"	14' 0"	13' 2"	12' 3"	17' 3"	15' 1"	12' 9"	12' 0"	11' 1"	15' 7"	14' 0"	11' 10"	11' 1"	10' 4"
		24	16' 5"	14' 6"	12' 3"	11' 6"	10' 8"	14' 3"	13' 2"	11' 1"	10' 5"	9' 8"	12' 9"	12' 3"	10' 4"	9' 8"	9' 0"
	54	12	22' 6"	19' 8"	16' 7"	15' 7"	14' 6"	20' 5"	17' 10"	15' 1"	14' 2"	13' 2"	19' 0"	16' 7"	14' 0"	13' 2"	12' 3"
		16	20' 5"	17' 10"	15' 1"	14' 2"	13' 2"	18' 7"	16' 3"	13' 8"	12' 11"	12' 0"	17' 3"	15' 1"	12' 9"	12' 0"	11' 1"
		24	17' 10"	15' 7"	13' 2"	12' 5"	11' 6"	16' 3"	14' 2"	12' 0"	11' 3"	10' 5"	15' 1"	13' 2"	11' 1"	10' 5"	9' 8"
	68	12	24' 4"	21' 3"	17' 11"	16' 10"	15' 8"	22' 1"	19' 4"	16' 3"	15' 4"	14' 3"	20' 6"	17' 11"	15' 1"	14' 3"	13' 3"
		16	22' 1"	19' 4"	16' 3"	15' 4"	14' 3"	20' 1"	17' 7"	14' 10"	13' 11"	12' 11"	18' 8"	16' 3"	13' 9"	12' 11"	12' 0"
		24	19' 4"	16' 10"	14' 3"	13' 5"	12' 5"	17' 7"	15' 4"	12' 11"	12' 2"	11' 4"	16' 3"	14' 3"	12' 0"	11' 4"	10' 6"
	97	12	27' 1"	23' 8"	19' 11"	18' 9"	17' 5"	24' 7"	21' 6"	18' 2"	17' 1"	15' 10"	22' 10"	19' 11"	16' 10"	15' 10"	14' 8"
		16	24' 7"	21' 6"	18' 2"	17' 1"	15' 10"	22' 4"	19' 6"	16' 6"	15' 6"	14' 5"	20' 9"	18' 2"	15' 4"	14' 5"	13' 4"
		24	21' 6"	18' 9"	15' 10"	14' 11"	13' 10"	19' 6"	17' 1"	14' 5"	13' 7"	12' 7"	18' 2"	15' 10"	13' 4"	12' 7"	11' 8"
5.5	33	12	24' 9"	21' 7"	18' 3"	17' 2"	15' 11"	21' 7"	19' 8"	16' 7"	15' 7"	14' 6"	19' 3"	18' 3"	15' 5"	14' 6"	13' 5"
		16	21' 7"	19' 8"	16' 7"	15' 7"	14' 6"	18' 8"	17' 10"	15' 1"	14' 2"	13' 2"	16' 8"	16' 7"	14' 0"	13' 2"	12' 2"
		24	17' 7"	17' 2"	14' 6"	13' 7"	12' 8"	15' 3"	15' 3"	13' 2"	12' 5"	11' 6"	13' 8"	13' 8"	12' 2"	11' 6"	10' 8"
	43	12	27' 5"	23' 11"	20' 2"	19' 0"	17' 8"	24' 11"	21' 9"	18' 4"	17' 3"	16' 0"	20' 2"	17' 3"	17' 0"	16' 0"	14' 11"
		16	24' 11"	21' 9"	18' 4"	17' 3"	16' 0"	22' 8"	19' 9"	16' 8"	15' 8"	14' 7"	20' 3"	18' 4"	15' 6"	14' 7"	13' 6"
		24	21' 5"	19' 0"	16' 0"	15' 1"	14' 0"	18' 6"	17' 3"	14' 7"	13' 8"	12' 9"	16' 7"	16' 0"	13' 6"	12' 9"	11' 10"
	54	12	29' 6"	25' 10"	21' 9"	20' 6"	19' 0"	26' 10"	23' 5"	19' 9"	18' 7"	17' 3"	24' 11"	21' 9"	18' 4"	17' 3"	16' 0"
		16	26' 10"	23' 5"	19' 9"	18' 7"	17' 3"	24' 5"	21' 4"	18' 0"	16' 11"	15' 8"	22' 8"	19' 9"	16' 8"	15' 8"	14' 7"
		24	23' 5"	20' 6"	17' 3"	16' 3"	15' 1"	21' 4"	18' 7"	15' 8"	14' 9"	13' 9"	19' 9"	17' 3"	14' 7"	13' 9"	12' 9"
	68	12	32' 3"	28' 2"	23' 9"	22' 4"	20' 9"	29' 3"	25' 7"	21' 7"	20' 4"	18' 10"	27' 2"	23' 9"	20' 0"	18' 10"	17' 6"
		16	29' 3"	25' 7"	21' 7"	20' 4"	18' 10"	26' 7"	23' 3"	19' 7"	18' 5"	17' 1"	24' 8"	21' 7"	18' 2"	17' 1"	15' 11"
		24	25' 7"	22' 4"	18' 10"	17' 9"	16' 6"	23' 3"	20' 4"	17' 1"	16' 1"	14' 11"	21' 7"	18' 10"	15' 11"	14' 11"	13' 11"
	97	12	36' 0"	31' 6"	26' 7"	25' 0"	23' 2"	32' 9"	28' 7"	24' 1"	22' 8"	21' 1"	30' 5"	26' 7"	22' 5"	21' 1"	19' 7"
		16	32' 9"	28' 7"	24' 1"	22' 8"	21' 1"	29' 9"	26' 0"	21' 11"	20' 7"	19' 2"	27' 7"	24' 1"	20' 4"	19' 2"	17' 9"
		24	28' 7"	25' 0"	21' 1"	19' 10"	18' 5"	26' 0"	22' 8"	19' 2"	18' 0"	16' 9"	24' 1"	21' 1"	17' 9"	16' 9"	15' 6"
6	33	12	26' 0"	22' 9"	19' 2"	18' 1"	16' 9"	22' 6"	20' 8"	17' 5"	16' 5"	15' 3"	20' 2"	19' 2"	16' 2"	15' 3"	14' 2"
		16	22' 6"	20' 8"	17' 5"	16' 5"	15' 3"	19' 6"	18' 9"	15' 10"	14' 11"	13' 10"	17' 5"	17' 5"	14' 8"	13' 10"	12' 10"
		24	18' 4"	18' 1"	15' 3"	14' 4"	13' 4"	15' 11"	15' 11"	13' 10"	13' 0"	12' 1"	14' 3"	14' 3"	12' 10"	12' 1"	11' 3"
	43	12	28' 9"	25' 1"	21' 2"	19' 11"	18' 6"	26' 1"	22' 10"	19' 3"	18' 1"	16' 10"	24' 3"	21' 2"	17' 10"	16' 10"	15' 7"
		16	26' 1"	22' 10"	19' 3"	18' 1"	16' 10"	23' 9"	20' 9"	17' 6"	16' 5"	15' 3"	21' 4"	19' 3"	16' 3"	15' 3"	14' 2"
		24	22' 6"	19' 11"	16' 10"	15' 10"	14' 8"	19' 6"	18' 1"	15' 3"	14' 4"	13' 4"	17' 5"	16' 10"	14' 2"	13' 4"	12' 5"
	54	12	31' 0"	27' 1"	22' 10"	21' 6"	19' 11"	28' 2"	24' 7"	20' 9"	19' 6"	18' 1"	26' 1"	22' 10"	19' 3"	18' 1"	16' 10"
		16	28' 2"	24' 7"	20' 9"	19' 6"	18' 1"	25' 7"	22' 4"	18' 10"	17' 9"	16' 5"	23' 9"	20' 9"	17' 6"	16' 5"	15' 3"
		24	24' 7"	21' 6"	18' 1"	17' 0"	15' 10"	22' 4"	19' 6"	16' 5"	15' 6"	14' 4"	20' 9"	18' 1"	15' 3"	14' 4"	13' 4"
	68	12	33' 6"	29' 3"	24' 8"	23' 3"	21' 7"	30' 5"	26' 7"	22' 5"	21' 1"	19' 7"	28' 3"	24' 8"	20' 10"	19' 7"	18' 2"
		16	30' 5"	26' 7"	22' 5"	21' 1"	19' 7"	27' 8"	24' 2"	20' 5"	19' 2"	17' 10"	25' 8"	22' 5"	18' 11"	17' 10"	16' 6"
		24	26' 7"	23' 3"	19' 7"	18' 5"	17' 1"	24' 2"	21' 1"	17' 10"	16' 9"	15' 7"	22' 5"	19' 7"	16' 6"	15' 7"	14' 5"
	97	12	37' 5"	32' 8"	27' 7"	25' 11"	24' 1"	34' 0"	29' 8"	25' 0"	23' 7"	21' 10"	31' 7"	27' 7"	23' 3"	21' 10"	20' 4"
		16	34' 0"	29' 8"	25' 0"	23' 7"	21' 10"	30' 10"	27' 0"	22' 9"	21' 5"	19' 10"	28' 8"	25' 0"	21' 1"	19' 10"	18' 5"
		24	29' 8"	25' 11"	21' 10"	20' 7"	19' 1"	27' 0"	23' 7"	19' 10"	18' 8"	17' 4"	25' 0"	21' 10"	18' 5"	17' 4"	16' 1"

For SI: 1 inch = 25.4 mm, 1 psf = 47.88 Pa.

Table 5 continued on next page

TABLE 5—HDS ALLOWABLE WALL HEIGHTS - EXTERIOR WALLS (Continued)

MEM SIZE (in)	MILS	SPACING (in)	15 PSF					20 PSF					25 PSF				
			Δ = L/240	Δ = L/360	Δ = L/600	Δ = L/720	Δ = L/900	Δ = L/240	Δ = L/360	Δ = L/600	Δ = L/720	Δ = L/900	Δ = L/240	Δ = L/360	Δ = L/600	Δ = L/720	Δ = L/900
8	33	12	30' 10" f	28' 11" *	24' 5" *	22' 11" *	21' 4" *	26' 9" f	26' 3" *	22' 2" *	20' 10" *	19' 4" *	23' 11" f	23' 11" f	20' 7" *	19' 4" *	18' 0" *
		16	26' 9" f	26' 3" *	22' 2" *	20' 10" *	19' 4" *	23' 2" f	23' 2" f	20' 2" *	18' 11" *	17' 7" *	20' 8" f	20' 8" f	18' 8" *	17' 7" *	16' 4" *
		24	21' 10" f	21' 10" f	19' 4" *	18' 3" *	16' 11" *	18' 11" f	18' 11" f	17' 7" *	16' 7" *	15' 4" *	16' 11" f	16' 11" f	16' 4" *	15' 4" *	14' 3" *
	43	12	36' 5" *	31' 10" *	26' 10" *	25' 3" *	23' 5" *	33' 1" *	28' 11" *	24' 4" *	22' 11" *	21' 3" *	30' 2" f	26' 10" *	22' 7" *	21' 3" *	19' 9" *
		16	33' 1" *	28' 11" *	24' 4" *	22' 11" *	21' 3" *	29' 3" f	26' 3" *	22' 2" *	20' 10" *	19' 4" *	26' 2" f	24' 4" *	20' 7" *	19' 4" *	17' 11" *
		24	27' 7" f	25' 3" *	21' 3" *	20' 0" *	18' 7" *	23' 10" f	22' 11" *	19' 4" *	18' 2" *	16' 11" *	16' 11" *	21' 3" *	17' 11" *	16' 11" *	15' 8" *
	54	12	39' 3" *	34' 3" *	28' 11" *	27' 2" *	25' 3" *	35' 8" *	31' 2" *	26' 3" *	24' 8" *	22' 11" *	33' 1" *	28' 11" *	24' 4" *	22' 11" *	21' 3" *
		16	35' 8" *	31' 2" *	26' 3" *	24' 8" *	22' 11" *	32' 4" *	28' 3" *	23' 10" *	22' 5" *	20' 10" *	30' 1" *	26' 3" *	22' 2" *	20' 10" *	19' 4" *
		24	31' 2" *	27' 2" *	22' 11" *	21' 7" *	20' 0" *	28' 3" *	24' 8" *	20' 10" *	19' 7" *	18' 2" *	26' 3" *	22' 11" *	19' 4" *	18' 2" *	16' 11" *
	68	12	42' 5" *	37' 1" *	31' 3" *	29' 5" *	27' 4" *	38' 7" *	33' 8" *	28' 5" *	26' 9" *	24' 10" *	35' 9" *	31' 3" *	26' 4" *	24' 10" *	23' 0" *
		16	38' 7" *	33' 8" *	28' 5" *	26' 9" *	24' 10" *	35' 0" *	30' 7" *	25' 10" *	24' 3" *	22' 6" *	32' 6" *	28' 5" *	23' 11" *	22' 6" *	20' 11" *
		24	33' 8" *	29' 5" *	24' 10" *	23' 4" *	21' 8" *	30' 7" *	26' 9" *	22' 6" *	21' 3" *	19' 8" *	28' 5" *	24' 10" *	20' 11" *	19' 8" *	18' 3" *
	97	12	47' 5" *	41' 5" *	34' 11" *	32' 11" *	30' 6" *	43' 1" *	37' 8" *	31' 9" *	29' 10" *	27' 9" *	40' 0" *	34' 11" *	29' 6" *	27' 9" *	25' 9" *
		16	43' 1" *	37' 8" *	31' 9" *	29' 10" *	27' 9" *	39' 2" *	34' 2" *	28' 10" *	27' 2" *	25' 2" *	36' 4" *	31' 9" *	26' 9" *	25' 2" *	23' 5" *
		24	37' 8" *	32' 11" *	27' 9" *	26' 1" *	24' 3" *	34' 2" *	29' 10" *	25' 2" *	23' 8" *	22' 0" *	31' 9" *	27' 9" *	23' 5" *	22' 0" *	20' 5" *
MEM SIZE (in)	MILS	SPACING (in)	30 PSF					35 PSF					40 PSF				
			Δ = L/240	Δ = L/360	Δ = L/600	Δ = L/720	Δ = L/900	Δ = L/240	Δ = L/360	Δ = L/600	Δ = L/720	Δ = L/900	Δ = L/240	Δ = L/360	Δ = L/600	Δ = L/720	Δ = L/900
3.625	33	12	12' 8" f	12' 1" *	10' 2" *	9' 7" *	8' 11" *	11' 9" f	11' 6" *	9' 8" *	9' 1" *	8' 6" *	11' 0" f	11' 0" f	9' 3" *	8' 9" *	8' 1" *
		16	11' 0" f	11' 0" f	9' 3" *	8' 9" *	8' 1" *	10' 2" f	10' 2" f	8' 10" *	8' 3" *	7' 8" *	9' 6" f	9' 6" f	8' 5" *	7' 11" *	7' 4" *
		24	9' 0" f	9' 0" f	8' 1" *	7' 7" *	7' 1" *	8' 4" f	8' 4" f	7' 8" *	7' 3" *	6' 9" *	7' 9" f	7' 9" f	7' 4" *	6' 11" *	6' 5" *
	43	12	15' 4" *	13' 5" *	11' 4" *	10' 8" *	9' 11" *	14' 3" f	12' 9" *	10' 9" *	10' 1" *	9' 5" *	13' 4" f	12' 2" *	10' 3" *	9' 8" *	9' 0" *
		16	13' 4" f	12' 2" *	10' 3" *	9' 8" *	9' 0" *	12' 4" f	11' 7" *	9' 9" *	9' 2" *	8' 6" *	11' 7" f	11' 1" *	9' 4" *	8' 10" *	8' 2" *
		24	10' 11" f	10' 8" *	9' 0" *	8' 5" *	7' 10" *	10' 1" f	10' 1" f	8' 6" *	8' 0" *	7' 5" *	9' 5" f	9' 5" f	8' 2" *	7' 8" *	7' 2" *
	54	12	16' 6" *	14' 5" *	12' 2" *	11' 6" *	10' 8" *	15' 9" *	13' 9" *	11' 7" *	10' 11" *	10' 1" *	15' 0" *	13' 2" *	11' 1" *	10' 5" *	9' 8" *
		16	15' 0" *	13' 2" *	11' 1" *	10' 5" *	9' 8" *	14' 3" *	12' 6" *	10' 6" *	9' 11" *	9' 2" *	13' 8" *	11' 11" *	10' 1" *	9' 6" *	8' 9" *
		24	13' 2" *	11' 6" *	9' 8" *	9' 1" *	8' 5" *	12' 6" *	10' 11" *	9' 2" *	8' 8" *	8' 0" *	11' 11" *	10' 5" *	8' 9" *	8' 3" *	7' 8" *
	68	12	17' 10" *	15' 7" *	13' 2" *	12' 5" *	11' 6" *	17' 0" *	14' 10" *	12' 6" *	11' 9" *	10' 11" *	16' 3" *	14' 2" *	12' 0" *	11' 3" *	10' 5" *
		16	16' 3" *	14' 2" *	12' 0" *	11' 3" *	10' 5" *	15' 5" *	13' 6" *	11' 4" *	10' 8" *	9' 11" *	14' 9" *	12' 11" *	10' 10" *	10' 3" *	9' 6" *
		24	14' 2" *	12' 5" *	10' 5" *	9' 10" *	9' 2" *	13' 6" *	11' 9" *	9' 11" *	9' 4" *	8' 8" *	12' 11" *	11' 3" *	9' 6" *	8' 11" *	8' 4" *
	97	12	19' 11" *	17' 4" *	14' 8" *	13' 9" *	12' 10" *	18' 11" *	16' 6" *	13' 11" *	13' 1" *	12' 2" *	18' 1" *	15' 9" *	13' 4" *	12' 6" *	11' 8" *
		16	18' 1" *	15' 9" *	13' 4" *	12' 6" *	11' 8" *	17' 2" *	15' 0" *	12' 8" *	11' 11" *	11' 1" *	16' 5" *	14' 4" *	12' 1" *	11' 5" *	10' 7" *
		24	15' 9" *	13' 9" *	11' 8" *	10' 11" *	10' 2" *	15' 0" *	13' 1" *	11' 1" *	10' 5" *	9' 8" *	14' 4" *	12' 6" *	10' 7" *	9' 11" *	9' 3" *
4	33	12	13' 6" f	13' 1" *	11' 0" *	10' 5" *	9' 8" *	12' 6" f	12' 5" *	10' 6" *	9' 10" *	9' 2" *	11' 8" f	11' 8" f	10' 0" *	9' 5" *	8' 9" *
		16	11' 8" f	11' 8" f	10' 0" *	9' 5" *	8' 9" *	10' 10" f	10' 10" f	9' 6" *	8' 11" *	8' 4" *	10' 1" f	10' 1" f	9' 1" *	8' 7" *	7' 11" *
		24	9' 7" f	9' 7" f	8' 9" *	8' 3" *	7' 8" *	8' 10" f	8' 10" f	8' 4" *	7' 10" *	7' 3" *	8' 3" f	8' 3" f	7' 11" *	7' 6" *	6' 11" *
	43	12	16' 5" f	14' 6" *	12' 3" *	11' 6" *	10' 8" *	15' 2" f	13' 9" *	11' 7" *	10' 11" *	10' 2" *	14' 3" f	13' 2" *	11' 1" *	10' 5" *	9' 8" *
		16	14' 3" f	13' 2" *	11' 1" *	10' 5" *	9' 8" *	13' 2" f	12' 6" *	10' 7" *	9' 11" *	9' 3" *	12' 4" f	12' 0" *	10' 1" *	9' 6" *	8' 10" *
		24	11' 7" f	11' 6" *	9' 8" *	9' 2" *	8' 6" *	10' 9" f	10' 9" f	9' 3" *	8' 8" *	8' 1" *	10' 1" f	10' 1" f	8' 10" *	8' 4" *	7' 8" *
	54	12	17' 10" *	15' 7" *	13' 2" *	12' 5" *	11' 6" *	17' 0" *	14' 10" *	12' 6" *	11' 9" *	10' 11" *	16' 3" *	14' 2" *	12' 0" *	11' 3" *	10' 5" *
		16	16' 3" *	14' 2" *	12' 0" *	11' 3" *	10' 5" *	15' 5" *	13' 6" *	11' 4" *	10' 8" *	9' 11" *	14' 9" *	12' 11" *	10' 10" *	10' 3" *	9' 6" *
		24	14' 2" *	12' 5" *	10' 5" *	9' 10" *	9' 2" *	13' 6" *	11' 9" *	9' 11" *	9' 4" *	8' 8" *	12' 11" *	11' 3" *	9' 6" *	8' 11" *	8' 4" *
	68	12	19' 4" *	16' 10" *	14' 3" *	13' 5" *	12' 5" *	18' 4" *	16' 0" *	13' 6" *	12' 9" *	11' 10" *	17' 7" *	15' 4" *	12' 11" *	12' 2" *	11' 4" *
		16	17' 7" *	15' 4" *	12' 11" *	12' 2" *	11' 4" *	16' 8" *	14' 7" *	12' 3" *	11' 7" *	10' 9" *	15' 11" *	13' 11" *	11' 9" *	11' 1" *	10' 3" *
		24	15' 4" *	13' 5" *	11' 4" *	10' 8" *	9' 10" *	14' 7" *	12' 9" *	10' 9" *	10' 1" *	9' 4" *	13' 11" *	12' 2" *	10' 3" *	9' 8" *	9' 0" *
	97	12	21' 6" *	18' 9" *	15' 10" *	14' 11" *	13' 10" *	20' 5" *	17' 10" *	15' 1" *	14' 2" *	13' 2" *	19' 6" *	17' 1" *	14' 5" *	13' 7" *	12' 7" *
		16	19' 6" *	17' 1" *	14' 5" *	13' 7" *	12' 7" *	18' 7" *	16' 3" *	13' 8" *	12' 10" *	11' 11" *	17' 9" *	15' 6" *	13' 1" *	12' 4" *	11' 5" *
		24	17' 1" *	14' 11" *	12' 7" *	11' 10" *	11' 0" *	16' 3" *	14' 2" *	11' 11" *	11' 3" *	10' 5" *	15' 6" *	13' 7" *	11' 5" *	10' 9" *	10' 0" *

For SI: 1 inch = 25.4 mm, 1 psf = 47.88 Pa.

Table 5 continued on next page

TABLE 5—HDS ALLOWABLE HEIGHTS - EXTERIOR WALLS (Continued)

MEM SIZE (in)	MILS	SPACING (in)	30 PSF					35 PSF					40 PSF				
			Δ = L/240	Δ = L/360	Δ = L/600	Δ = L/720	Δ = L/900	Δ = L/240	Δ = L/360	Δ = L/600	Δ = L/720	Δ = L/900	Δ = L/240	Δ = L/360	Δ = L/600	Δ = L/720	Δ = L/900
5.5	33	12	17' 7" ^f	17' 2"	14' 6"	13' 7"	12' 8"	16' 4" ^f	16' 4" ^f	13' 9"	12' 11"	12' 0"	15' 3" ^f	15' 3" ^f	13' 2"	12' 5"	11' 6"
		16	15' 3" ^f	15' 3" ^f	13' 2"	12' 5"	11' 6"	14' 1" ^f	14' 1" ^f	12' 6"	11' 9"	10' 11"	13' 2" ^f	13' 2" ^f	11' 11"	11' 3"	10' 5"
		24	12' 5" ^f	12' 5" ^f	11' 6"	10' 10"	10' 0"	11' 6" ^f	11' 6" ^f	10' 11"	10' 3"	9' 6"	10' 9" ^f	10' 9" ^f	10' 5"	9' 10"	9' 1"
	43	12	21' 5" ^f	19' 0"	16' 0"	15' 1"	14' 0"	19' 10" ^f	18' 1"	15' 3"	14' 4"	13' 4"	18' 6" ^f	17' 3"	14' 7"	13' 8"	12' 9"
		16	18' 6" ^f	17' 3"	14' 7"	13' 8"	12' 9"	17' 2" ^f	16' 5"	13' 10"	13' 0"	12' 1"	16' 0" ^f	15' 8"	13' 3"	12' 5"	11' 7"
		24	15' 1" ^f	15' 1"	12' 9"	12' 0"	11' 1"	14' 0" ^f	14' 0" ^f	12' 1"	11' 4"	10' 7"	13' 1" ^f	13' 1" ^f	11' 7"	10' 11"	10' 1"
	54	12	23' 5"	20' 6"	17' 3"	16' 3"	15' 1"	22' 3"	19' 5"	16' 5"	15' 5"	14' 4"	21' 4"	18' 7"	15' 8"	14' 9"	13' 9"
		16	21' 4"	18' 7"	15' 8"	14' 9"	13' 9"	20' 3"	17' 8"	14' 11"	14' 0"	13' 0"	19' 4"	16' 11"	14' 3"	13' 5"	12' 5"
		24	18' 7"	16' 3"	13' 9"	12' 11"	12' 0"	17' 8"	15' 5"	13' 0"	12' 3"	11' 5"	16' 11"	14' 9"	12' 5"	11' 9"	10' 11"
	68	12	25' 7"	22' 4"	18' 10"	17' 9"	16' 6"	24' 3"	21' 3"	17' 11"	16' 10"	15' 8"	23' 3"	20' 4"	17' 1"	16' 1"	14' 11"
		16	23' 3"	20' 4"	17' 1"	16' 1"	14' 11"	22' 1"	19' 3"	16' 3"	15' 4"	14' 2"	21' 1"	18' 5"	15' 7"	14' 8"	13' 7"
		24	20' 4"	17' 9"	14' 11"	14' 1"	13' 1"	19' 3"	16' 10"	14' 2"	13' 4"	12' 5"	18' 5"	16' 1"	13' 7"	12' 9"	11' 10"
	97	12	28' 7"	25' 0"	21' 1"	19' 10"	18' 5"	27' 2"	23' 9"	20' 0"	18' 10"	17' 6"	26' 0"	22' 8"	19' 2"	18' 0"	16' 9"
		16	26' 0"	22' 8"	19' 2"	18' 0"	16' 9"	24' 8"	21' 7"	18' 2"	17' 1"	15' 11"	23' 7"	20' 7"	17' 5"	16' 4"	15' 2"
		24	22' 8"	19' 10"	16' 9"	15' 9"	14' 7"	21' 7"	18' 10"	15' 11"	14' 11"	13' 11"	20' 7"	18' 0"	15' 2"	14' 4"	13' 3"
6	33	12	18' 4" ^f	18' 1"	15' 3"	14' 4"	13' 4"	17' 0" ^f	17' 0" ^f	14' 5"	13' 7"	12' 8"	15' 11" ^f	15' 11" ^f	13' 10"	13' 0"	12' 1"
		16	15' 11" ^f	15' 11" ^f	13' 10"	13' 0"	12' 1"	14' 9" ^f	14' 9" ^f	13' 2"	12' 4"	11' 6"	13' 9" ^f	13' 9" ^f	12' 7"	11' 10"	11' 0"
		24	13' 0" ^f	13' 0" ^f	12' 1"	11' 4"	10' 7"	12' 0" ^f	12' 0" ^f	11' 6"	10' 10"	10' 0"	11' 3" ^f	11' 3" ^f	11' 0"	10' 4"	9' 7"
	43	12	22' 6" ^f	19' 11"	16' 10"	15' 10"	14' 8"	20' 10" ^f	18' 11"	16' 0"	15' 0"	13' 11"	19' 6" ^f	18' 1"	15' 3"	14' 4"	13' 4"
		16	19' 6" ^f	18' 1"	15' 3"	14' 4"	13' 4"	18' 0" ^f	17' 2"	14' 6"	13' 8"	12' 8"	16' 10" ^f	16' 5"	13' 10"	13' 1"	12' 1"
		24	15' 11" ^f	15' 10"	13' 4"	12' 7"	11' 8"	14' 9" ^f	14' 9" ^f	12' 8"	11' 11"	11' 1"	13' 9" ^f	13' 9" ^f	12' 1"	11' 5"	10' 7"
	54	12	24' 7"	21' 6"	18' 1"	17' 0"	15' 10"	23' 4"	20' 5"	17' 2"	16' 2"	15' 0"	22' 4"	19' 6"	16' 5"	15' 6"	14' 4"
		16	22' 4"	19' 6"	16' 5"	15' 6"	14' 4"	21' 2"	18' 6"	15' 8"	14' 8"	13' 8"	20' 3"	17' 9"	14' 11"	14' 1"	13' 1"
		24	19' 6"	17' 0"	14' 4"	13' 6"	12' 7"	18' 6"	16' 2"	13' 8"	12' 10"	11' 11"	17' 9"	15' 6"	13' 1"	12' 3"	11' 5"
	68	12	26' 7"	23' 3"	19' 7"	18' 5"	17' 1"	25' 3"	22' 1"	18' 7"	17' 6"	16' 3"	24' 2"	21' 1"	17' 10"	16' 9"	15' 7"
		16	24' 2"	21' 1"	17' 10"	16' 9"	15' 7"	22' 11"	20' 1"	16' 11"	15' 11"	14' 9"	21' 11"	19' 2"	16' 2"	15' 3"	14' 2"
		24	21' 1"	18' 5"	15' 7"	14' 8"	13' 7"	20' 1"	17' 6"	14' 9"	13' 11"	12' 11"	19' 2"	16' 9"	14' 2"	13' 4"	12' 4"
	97	12	29' 8"	25' 11"	21' 10"	20' 7"	19' 1"	28' 2"	24' 8"	20' 9"	19' 7"	18' 2"	27' 0"	23' 7"	19' 10"	18' 8"	17' 4"
		16	27' 0"	23' 7"	19' 10"	18' 8"	17' 4"	25' 7"	22' 5"	18' 11"	17' 9"	16' 6"	24' 6"	21' 5"	18' 1"	17' 0"	15' 9"
		24	23' 7"	20' 7"	17' 4"	16' 4"	15' 2"	22' 5"	19' 7"	16' 6"	15' 6"	14' 5"	21' 5"	18' 8"	15' 9"	14' 10"	13' 9"
8	33	12	21' 10" ^{f*}	21' 10" ^{f*}	19' 4" *	18' 3" *	16' 11" *	20' 2" ^{f*}	20' 2" ^{f*}	18' 5" *	17' 4" *	16' 1" *	18' 11" ^{f*}	18' 11" ^{f*}	17' 7" *	16' 7" *	15' 4" *
		16	18' 11" ^{f*}	18' 11" ^{f*}	17' 7" *	16' 7" *	15' 4" *	17' 6" ^{f*}	17' 6" ^{f*}	16' 8" *	15' 9" *	14' 7" *	16' 4" ^{f*}	16' 4" ^{f*}	16' 0" *	15' 0" *	13' 11" *
		24	15' 5" ^{f*}	15' 5" ^{f*}	15' 4" *	14' 5" *	13' 5" *	13' 6" ^{f*}	13' 6" ^{f*}	13' 6" ^{f*}	13' 6" ^{f*}	12' 9" *	11' 10" ^{f*}	11' 10" ^{f*}	11' 10" ^{f*}	11' 10" ^{f*}	11' 10" ^{f*}
	43	12	27' 7" ^f	25' 3"	21' 3"	20' 0"	18' 7"	25' 6" ^f	24' 0"	20' 3"	19' 0"	17' 8"	23' 10" ^f	22' 11"	19' 4"	18' 2"	16' 11"
		16	23' 10" ^f	22' 11"	19' 4"	18' 2"	16' 11"	22' 1" ^f	21' 9"	18' 4"	17' 3"	16' 1"	20' 8" ^f	20' 8" ^f	17' 7"	16' 6"	15' 4"
		24	19' 6" ^f	19' 6" ^f	16' 11"	15' 11"	14' 9"	18' 0" ^f	18' 0" ^f	16' 1"	15' 1"	14' 0"	16' 10" ^f	16' 10" ^f	15' 4"	14' 5"	13' 5"
	54	12	31' 2"	27' 2"	22' 11"	21' 7"	20' 0"	29' 7"	25' 10"	21' 9"	20' 6"	19' 0"	28' 3"	24' 8"	20' 10"	19' 7"	18' 2"
		16	28' 3"	24' 8"	20' 10"	19' 7"	18' 2"	26' 10"	23' 6"	19' 10"	18' 8"	17' 4"	25' 8"	22' 5"	18' 11"	17' 10"	16' 6"
		24	24' 8"	21' 7"	18' 2"	17' 2"	15' 11"	23' 6"	20' 6"	17' 4"	16' 3"	15' 1"	22' 5"	19' 7"	16' 6"	15' 7"	14' 5"
	68	12	33' 8"	29' 5"	24' 10"	23' 4"	21' 8"	32' 0"	27' 11"	23' 7"	22' 2"	20' 7"	30' 7"	26' 9"	22' 6"	21' 3"	19' 8"
		16	30' 7"	26' 9"	22' 6"	21' 3"	19' 8"	29' 1"	25' 5"	21' 5"	20' 2"	18' 8"	27' 10"	24' 3"	20' 6"	19' 3"	17' 11"
		24	26' 9"	23' 4"	19' 8"	18' 6"	17' 2"	25' 5"	22' 2"	18' 8"	17' 7"	16' 4"	24' 3"	21' 3"	17' 11"	16' 10"	15' 8"
	97	12	37' 8"	32' 11"	27' 9"	26' 1"	24' 3"	35' 9"	31' 3"	26' 4"	24' 9"	23' 0"	34' 2"	29' 10"	25' 2"	23' 8"	22' 0"
		16	34' 2"	29' 10"	25' 2"	23' 8"	22' 0"	32' 6"	28' 4"	23' 11"	22' 6"	20' 11"	31' 1"	27' 2"	22' 11"	21' 6"	20' 0"
		24	29' 10"	26' 1"	22' 0"	20' 9"	19' 3"	28' 4"	24' 9"	20' 11"	19' 8"	18' 3"	27' 2"	23' 8"	20' 0"	18' 10"	17' 6"

For SI: 1 inch = 25.4 mm, 1 psf = 47.88 Pa.

Notes to Table 5:¹Table values of 120, 240, 360, 600, 720 and 900 represent the allowable deflection limit.²Studs are checked for simple-span deflection and stress. Stress calculations are made for mid-span fully braced moment, end shear through the unperforated section, and shear moment interaction through the perforated section 10 inches away from the end bearing.³Limiting heights are based on continuous lateral support of each flange over the full height of the stud for lateral bracing.⁴Check end reactions for web crippling (Table 4).⁵Cells having an "f" indicated the limiting height is controlled by stress. Cells having an "*" have h/t>200 and require bearing stiffeners designed in accordance with AISI-NAS.⁶A 1.5 x 4 inch knockout spaced no closer than 24 inches on center is assumed.

TABLE 6—ALLOWABLE AXIAL LOAD (kips)

MEMBER LENGTH (ft)	SPACING (in)	5 PSF														
		3.625" HDS Members					4" HDS Members					5.5" HDS Members				
		Gauge (mils)														
		20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)
8	12	3.34 a	5.06 a	8.20 a	10.45 a	14.35 a	3.55 a	5.39 a	8.96 a	11.81 a	16.42 a	4.09 a	6.30 a	11.13 a	15.61 a	24.10 a
	16	3.24 a	4.96 a	8.10 a	10.36 a	14.27 a	3.46 a	5.30 a	8.87 a	11.72 a	16.34 a	4.04 a	6.25 a	11.08 a	15.55 a	24.04 a
	24	3.05 a	4.75 a	7.92 a	10.19 a	14.11 a	3.29 a	5.11 a	8.70 a	11.55 a	16.18 a	3.93 a	6.14 a	10.97 a	15.44 a	23.92 a
9	12	3.12 a	4.75 a	7.58 a	9.56 a	13.16 a	3.36 a	5.13 a	8.43 a	11.03 a	15.31 a	3.99 a	6.16 a	10.84 a	15.20 a	23.39 a
	16	3.00 a	4.62 a	7.46 a	9.45 a	13.06 a	3.25 a	5.01 a	8.32 a	10.92 a	15.21 a	3.92 a	6.09 a	10.77 a	15.13 a	23.32 a
	24	2.76 a	4.36 a	7.23 a	9.23 a	12.85 a	3.03 a	4.78 a	8.10 a	10.71 a	15.01 a	3.79 a	5.95 a	10.63 a	14.98 a	23.17 a
10	12	2.88 a	4.41 a	6.93 a	8.63 a	11.92 a	3.15 a	4.83 a	7.84 a	10.19 a	14.14 a	3.88 a	6.01 a	10.51 a	14.74 a	22.60 a
	16	2.73 a	4.25 a	6.78 a	8.5 a	11.79 a	3.01 a	4.69 a	7.71 a	10.06 a	14.01 a	3.79 a	5.92 a	10.42 a	14.65 a	22.51 a
	24	2.45 a	3.94 a	6.5 a	8.24 a	11.55 a	2.75 a	4.40 a	7.44 a	9.80 a	13.77 a	3.63 a	5.74 a	10.25 a	14.47 a	22.32 a
11	12	2.63 a	4.05 a	6.17 a	7.68 a	10.64 a	2.92 a	4.51 a	7.23 a	9.30 a	12.92 a	3.75 a	5.83 a	10.14 a	14.23 a	21.73 a
	16	2.46 a	3.86 a	6.00 a	7.53 a	10.49 a	2.76 a	4.34 a	7.07 a	9.14 a	12.77 a	3.65 a	5.72 a	10.03 a	14.12 a	21.62 a
	24	2.14 a	3.51 a	5.69 a	7.25 a	10.22 a	2.46 a	4.01 a	6.76 a	8.84 a	12.48 a	3.45 a	5.50 a	9.82 a	13.89 a	21.38 a
12	12	2.37 a	3.67 a	5.42 a	6.79 a	9.46 a	2.68 a	4.17 a	6.56 a	8.38 a	11.68 a	3.61 a	5.63 a	9.74 a	13.68 a	20.79 a
	16	2.18 a	3.46 a	5.24 a	6.63 a	9.30 a	2.50 a	3.97 a	6.38 a	8.21 a	11.52 a	3.49 a	5.50 a	9.61 a	13.54 a	20.65 a
	24	1.83 a	3.08 a	4.91 a	6.32 a	9.00 a	2.16 a	3.60 a	6.03 a	7.87 a	11.19 a	3.25 a	5.25 a	9.36 a	13.26 a	20.36 a
14	12	1.85 a	2.93 a	4.17 a	5.31 a	7.49 a	2.19 a	3.47 a	5.19 a	6.64 a	9.35 a	3.29 a	5.19 a	8.85 a	12.43 a	18.73 a
	16	1.64 a	2.69 a	3.98 a	5.13 a	7.31 a	1.98 a	3.23 a	4.99 a	6.44 a	9.16 a	3.13 a	5.01 a	8.67 a	12.24 a	18.53 a
	24	1.26 c	2.27 b	3.64 a	4.79 a	6.97 a	1.59 b	2.79 a	4.61 a	6.07 a	8.79 a	2.82 a	4.67 a	8.34 a	11.86 a	18.14 a
16	12	1.38 b	2.22 a	3.23 a	4.17 a	5.96 a	1.72 a	2.78 a	4.11 a	5.27 a	7.52 a	2.94 a	4.69 a	7.87 a	11.00 a	16.51 a
	16	1.17 c	1.99 b	3.04 a	3.98 a	5.77 a	1.49 b	2.52 a	3.89 a	5.06 a	7.30 a	2.74 a	4.47 a	7.65 a	10.75 a	16.25 a
	24	0.79 e	1.57 d	2.7 c	3.65 b	5.42 a	1.08 d	2.07 c	3.5 b	4.68 a	6.91 a	2.36 a	4.04 a	7.24 a	10.28 a	15.76 a
MEMBER LENGTH (ft)	SPACING (in)	15 PSF														
		3.625" HDS Members					4" HDS Members					5.5" HDS Members				
		Gauge (mils)														
		20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)
8	12	2.77 a	4.46 a	7.64 a	9.93 a	13.86 a	3.03 a	4.85 a	8.45 a	11.31 a	15.94 a	3.78 a	5.97 a	10.81 a	15.27 a	23.75 a
	16	2.51 a	4.17 a	7.38 a	9.67 a	13.62 a	2.78 a	4.58 a	8.21 a	11.07 a	15.71 a	3.62 a	5.81 a	10.65 a	15.10 a	23.57 a
	24	2.00 a	3.62 a	6.87 a	9.18 a	13.15 a	2.31 a	4.08 a	7.73 a	10.59 a	15.26 a	3.31 a	5.48 a	10.34 a	14.76 a	23.23 a
9	12	2.42 a	4.00 a	6.89 a	8.91 a	12.55 a	2.72 a	4.44 a	7.78 a	10.40 a	14.72 a	3.59 a	5.74 a	10.43 a	14.76 a	22.94 a
	16	2.10 a	3.65 a	6.57 a	8.61 a	12.25 a	2.41 a	4.12 a	7.48 a	10.10 a	14.43 a	3.39 a	5.53 a	10.22 a	14.55 a	22.72 a
	24	1.51 a	3.01 a	5.96 a	8.03 a	11.69 a	1.85 a	3.51 a	6.89 a	9.51 a	13.86 a	3.00 a	5.12 a	9.82 a	14.12 a	22.28 a
10	12	2.06 a	3.52 a	6.11 a	7.87 a	11.19 a	2.38 a	4.00 a	7.06 a	9.43 a	13.41 a	3.38 a	5.48 a	9.99 a	14.19 a	22.04 a
	16	1.70 a	3.12 a	5.74 a	7.53 a	10.85 a	2.03 a	3.62 a	6.70 a	9.07 a	13.06 a	3.14 a	5.22 a	9.74 a	13.92 a	21.76 a
	24	1.04 b	2.4 a	5.06 a	6.87 a	10.20 a	1.38 a	2.92 a	6.02 a	8.40 a	12.40 a	2.67 a	4.72 a	9.25 a	13.39 a	21.20 a
11	12	1.71 a	3.03 a	5.26 a	6.84 a	9.82 a	2.04 a	3.55 a	6.32 a	8.42 a	12.07 a	3.15 a	5.19 a	9.51 a	13.56 a	21.03 a
	16	1.31 b	2.60 a	4.87 a	6.46 a	9.44 a	1.65 a	3.12 a	5.91 a	8.01 a	11.67 a	2.87 a	4.88 a	9.21 a	13.22 a	20.69 a
	24	0.61 d	1.82 b	4.15 a	5.77 a	8.74 a	0.94 b	2.34 a	5.16 a	7.27 a	10.93 a	2.31 a	4.28 a	8.62 a	12.58 a	20.02 a
12	12	1.37 a	2.56 a	4.46 a	5.89 a	8.57 a	1.70 a	3.09 a	5.55 a	7.41 a	10.74 a	2.91 a	4.87 a	8.99 a	12.86 a	19.95 a
	16	0.95 c	2.10 a	4.06 a	5.50 a	8.17 a	1.28 b	2.62 a	5.11 a	6.97 a	10.3 a	2.58 a	4.51 a	8.64 a	12.47 a	19.54 a
	24	0.23 d	1.30 c	3.34 b	4.79 a	7.44 a	0.53 d	1.79 b	4.32 a	6.19 a	9.50 a	1.94 a	3.82 a	7.95 a	11.71 a	18.74 a
14	12	0.77 d	1.73 b	3.18 a	4.35 a	6.51 a	1.08 c	2.22 a	4.10 a	5.57 a	8.28 a	2.38 a	4.19 a	7.85 a	11.32 a	17.57 a
	16	0.35 e	1.25 d	2.78 c	3.95 a	6.09 a	0.63 d	1.72 c	3.65 a	5.12 a	7.81 a	1.97 a	3.73 a	7.40 a	10.81 a	17.03 a
	24	---	0.45 e	2.08 d	3.24 c	5.34 b	---	0.84 d	2.86 c	4.32 b	6.97 a	1.20 b	2.87 a	6.54 a	9.85 a	16.01 a
16	12	0.32 e	1.05 d	2.26 c	3.20 b	4.95 a	0.56 d	1.48 c	3.00 b	4.18 a	6.39 a	1.84 a	3.46 a	6.66 a	9.63 a	15.07 a
	16	---	0.60 e	1.88 d	2.82 c	4.53 b	0.11 e	0.98 d	2.56 c	3.73 b	5.92 a	1.36 b	2.92 a	6.12 a	9.03 a	14.42 a
	24	---	---	1.22 e	2.14 e	3.80 d	---	0.12 e	1.80 e	2.96 d	5.08 c	0.5 d	1.95 b	5.14 a	7.94 a	13.23 a

For SI: 1 inch = 25.4 mm, 1 kip = 4.4482 kN.

Table 6 continued on next page

TABLE 6—ALLOWABLE AXIAL LOAD (kips) (Continued)

MEMBER LENGTH (ft)	SPACING (in)	20 PSF														
		3.625" HDS Members					4" HDS Members					5.5" HDS Members				
		Gauge (mils)														
		20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)
8	12	2.51 a	4.17 a	7.38 a	9.67 a	13.62 a	2.78 a	4.58 a	8.21 a	11.07 a	15.71 a	3.62 a	5.81 a	10.65 a	15.10 a	23.57 a
	16	2.16 a	3.80 a	7.03 a	9.34 a	13.31 a	2.46 a	4.24 a	7.88 a	10.75 a	15.41 a	3.41 a	5.59 a	10.44 a	14.87 a	23.34 a
	24	1.52 a	3.11 a	6.38 a	8.71 a	12.70 a	1.85 a	3.59 a	7.26 a	10.13 a	14.81 a	3.00 a	5.15 a	10.02 a	14.43 a	22.89 a
9	12	2.10 a	3.65 a	6.57 a	8.61 a	12.25 a	2.41 a	4.12 a	7.48 a	10.10 a	14.43 a	3.39 a	5.53 a	10.22 a	14.55 a	22.72 a
	16	1.70 a	3.22 a	6.16 a	8.22 a	11.87 a	2.03 a	3.71 a	7.08 a	9.71 a	14.05 a	3.13 a	5.25 a	9.96 a	14.26 a	22.42 a
	24	0.97 b	2.41 a	5.40 a	7.48 a	11.14 a	1.32 a	2.93 a	6.34 a	8.96 a	13.32 a	2.62 a	4.71 a	9.43 a	13.69 a	21.84 a
10	12	1.70 a	3.12 a	5.74 a	7.53 a	10.85 a	2.03 a	3.62 a	6.70 a	9.07 a	13.06 a	3.14 a	5.22 a	9.74 a	13.92 a	21.76 a
	16	1.25 b	2.63 a	5.28 a	7.08 a	10.41 a	1.59 a	3.14 a	6.24 a	8.62 a	12.62 a	2.83 a	4.88 a	9.41 a	13.56 a	21.39 a
	24	0.45 d	1.74 b	4.44 a	6.27 a	9.59 a	0.79 b	2.27 a	5.40 a	7.76 a	11.77 a	2.21 a	4.23 a	8.77 a	12.86 a	20.66 a
11	12	1.31 b	2.60 a	4.87 a	6.46 a	9.44 a	1.65 a	3.12 a	5.91 a	8.01 a	11.67 a	2.87 a	4.88 a	9.21 a	13.22 a	20.69 a
	16	0.84 c	2.07 a	4.38 a	5.99 a	8.97 a	1.17 b	2.59 a	5.40 a	7.51 a	11.17 a	2.50 a	4.48 a	8.81 a	12.79 a	20.24 a
	24	---	1.13 c	3.51 b	5.14 a	8.09 a	0.31 d	1.63 b	4.48 a	6.58 a	10.23 a	1.79 a	3.71 a	8.05 a	11.96 a	19.37 a
12	12	0.95 c	2.10 a	4.06 a	5.50 a	8.17 a	1.28 b	2.62 a	5.11 a	6.97 a	10.30 a	2.58 a	4.51 a	8.64 a	12.47 a	19.54 a
	16	0.46 d	1.55 c	3.57 b	5.01 a	7.67 a	0.77 c	2.05 b	4.58 a	6.44 a	9.76 a	2.15 a	4.05 a	8.17 a	11.96 a	19.01 a
	24	---	0.60 d	2.7 d	4.15 c	6.77 a	---	1.05 d	3.62 c	5.47 a	8.76 a	1.35 a	3.17 a	7.29 a	10.99 a	17.98 a
14	12	0.35 e	1.25 d	2.78 c	3.95 a	6.09 a	0.63 d	1.72 c	3.65 a	5.12 a	7.81 a	1.97 a	3.73 a	7.40 a	10.81 a	17.03 a
	16	---	0.70 e	2.30 d	3.46 c	5.58 a	0.09 e	1.12 d	3.11 c	4.57 b	7.24 a	1.45 a	3.15 a	6.81 a	10.16 a	16.34 a
	24	---	---	1.48 e	2.62 d	4.67 c	---	0.08 e	2.17 d	3.62 d	6.22 b	0.49 c	2.08 b	5.74 a	8.96 a	15.05 a
16	12	---	0.60 e	1.88 d	2.82 c	4.53 b	0.11 e	0.98 d	2.56 c	3.73 b	5.92 a	1.36 b	2.92 a	6.12 a	9.03 a	14.42 a
	16	---	0.08 f	1.43 e	2.36 d	4.03 c	---	0.39 e	2.04 d	3.20 d	5.35 b	0.77 c	2.26 b	5.46 a	8.29 a	13.61 a
	24	---	---	0.66 f	1.56 e	3.16 e	---	---	1.14 e	2.29 e	4.35 d	---	1.07 d	4.27 c	6.95 a	12.15 a
MEMBER LENGTH (ft)	SPACING (in)	25 PSF														
		3.625" HDS Members					4" HDS Members					5.5" HDS Members				
		Gauge (mils)														
		20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)
8	12	2.25 a	3.89 a	7.12 a	9.43 a	13.39 a	2.54 a	4.33 a	7.96 a	10.83 a	15.48 a	3.46 a	5.64 a	10.49 a	14.93 a	23.40 a
	16	1.83 a	3.45 a	6.70 a	9.02 a	13.00 a	2.15 a	3.91 a	7.57 a	10.44 a	15.11 a	3.21 a	5.37 a	10.23 a	14.65 a	23.12 a
	24	1.06 a	2.62 a	5.91 a	8.26 a	12.25 a	1.42 a	3.12 a	6.82 a	9.68 a	14.38 a	2.70 a	4.83 a	9.71 a	14.10 a	22.55 a
9	12	1.80 a	3.32 a	6.26 a	8.31 a	11.97 a	2.13 a	3.81 a	7.18 a	9.80 a	14.14 a	3.20 a	5.32 a	10.02 a	14.33 a	22.50 a
	16	1.32 a	2.80 a	5.77 a	7.84 a	11.50 a	1.67 a	3.31 a	6.70 a	9.33 a	13.68 a	2.88 a	4.98 a	9.69 a	13.97 a	22.13 a
	24	0.46 c	1.85 b	4.86 a	6.96 a	10.62 a	0.81 b	2.38 a	5.81 a	8.43 a	12.79 a	2.25 a	4.31 a	9.04 a	13.27 a	21.40 a
10	12	1.36 a	2.75 a	5.39 a	7.19 a	10.52 a	1.70 a	3.26 a	6.36 a	8.73 a	12.73 a	2.90 a	4.97 a	9.49 a	13.65 a	21.48 a
	16	0.84 c	2.17 a	4.84 a	6.67 a	9.99 a	1.18 a	2.69 a	5.81 a	8.18 a	12.19 a	2.52 a	4.55 a	9.09 a	13.21 a	21.02 a
	24	---	1.14 c	3.86 b	5.71 a	9.01 a	0.24 c	1.66 b	4.81 a	7.17 a	11.17 a	1.77 a	3.75 a	8.29 a	12.35 a	20.12 a
11	12	0.95 c	2.20 a	4.50 a	6.11 a	9.09 a	1.28 a	2.72 a	5.53 a	7.63 a	11.29 a	2.59 a	4.58 a	8.91 a	12.90 a	20.35 a
	16	0.40 d	1.58 c	3.93 a	5.55 a	8.52 a	0.72 c	2.09 a	4.93 a	7.03 a	10.69 a	2.14 a	4.09 a	8.43 a	12.37 a	19.80 a
	24	---	0.51 d	2.93 c	4.56 b	7.49 a	---	0.98 c	3.86 b	5.95 a	9.57 a	1.28 a	3.15 a	7.50 a	11.35 a	18.73 a
12	12	0.58 d	1.69 b	3.68 a	5.13 a	7.79 a	0.89 c	2.19 a	4.71 a	6.57 a	9.89 a	2.26 a	4.16 a	8.29 a	12.08 a	19.14 a
	16	0.01 e	1.06 d	3.12 c	4.57 b	7.21 a	0.30 d	1.53 c	4.08 b	5.94 a	9.24 a	1.74 a	3.60 a	7.73 a	11.47 a	18.49 a
	24	---	---	2.12 d	3.57 d	6.15 b	---	0.38 d	2.98 d	4.82 b	8.07 a	0.78 b	2.54 a	6.67 a	10.29 a	17.24 a
14	12	---	0.83 d	2.42 d	3.58 c	5.70 a	0.22 e	1.26 d	3.24 c	4.71 a	7.38 a	1.57 a	3.29 a	6.96 a	10.32 a	16.51 a
	16	---	0.21 e	1.87 e	3.03 d	5.11 b	---	0.58 e	2.62 d	4.08 c	6.71 a	0.96 c	2.60 a	6.27 a	9.55 a	15.68 a
	24	---	---	0.94 f	2.07 e	4.07 d	---	---	1.54 e	2.98 d	5.53 c	---	1.35 c	5.00 b	8.13 a	14.14 a
16	12	---	0.21 e	1.53 e	2.47 d	4.15 c	---	0.53 e	2.16 d	3.33 c	5.48 b	0.92 c	2.42 a	5.62 a	8.47 a	13.81 a
	16	---	---	1.02 f	1.94 e	3.58 d	---	---	1.57 e	2.73 d	4.83 c	0.23 d	1.64 c	4.84 b	7.60 a	12.86 a
	24	---	---	0.15 f	1.05 f	2.59 e	---	---	0.56 f	1.69 e	3.69 e	---	0.27 d	3.46 d	6.05 c	11.15 a

For SI: 1 inch = 25.4 mm, 1 kip = 4.4482 kN.

Table 6 continued on next page

TABLE 6—ALLOWABLE AXIAL LOAD (kips) (Continued)

MEMBER LENGTH (ft)	SPACING (in)	30 PSF														
		3.625" HDS Members					4" HDS Members					5.5" HDS Members				
		Gauge (mils)														
		20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)
8	12	2.00 a	3.62 a	6.87 a	9.18 a	13.15 a	2.31 a	4.08 a	7.73 a	10.59 a	15.26 a	3.31 a	5.48 a	10.34 a	14.76 a	23.23 a
	16	1.52 a	3.11 a	6.38 a	8.71 a	12.70 a	1.85 a	3.59 a	7.26 a	10.13 a	14.81 a	3.00 a	5.15 a	10.02 a	14.43 a	22.89 a
	24	0.63 b	2.15 a	5.46 a	7.82 a	11.82 a	1.00 a	2.67 a	6.38 a	9.25 a	13.95 a	2.40 a	4.52 a	9.41 a	13.77 a	22.21 a
9	12	1.51 a	3.01 a	5.96 a	8.03 a	11.69 a	1.85 a	3.51 a	6.89 a	9.51 a	13.86 a	3.00 a	5.12 a	9.82 a	14.12 a	22.28 a
	16	0.97 b	2.41 a	5.40 a	7.48 a	11.14 a	1.32 a	2.93 a	6.34 a	8.96 a	13.32 a	2.62 a	4.71 a	9.43 a	13.69 a	21.84 a
	24	---	1.33 c	4.36 a	6.46 a	10.12 a	0.34 c	1.86 a	5.31 a	7.92 a	12.28 a	1.89 a	3.92 a	8.65 a	12.86 a	20.97 a
10	12	1.04 b	2.40 a	5.06 a	6.87 a	10.20 a	1.38 a	2.92 a	6.02 a	8.40 a	12.40 a	2.67 a	4.72 a	9.25 a	13.39 a	21.20 a
	16	0.45 d	1.74 b	4.44 a	6.27 a	9.59 a	0.79 b	2.27 a	5.40 a	7.76 a	11.77 a	2.21 a	4.23 a	8.77 a	12.86 a	20.66 a
	24	---	0.58 d	3.33 c	5.18 b	8.46 a	---	1.09 c	4.25 b	6.60 a	10.59 a	1.34 a	3.28 a	7.83 a	11.85 a	19.60 a
11	12	0.61 d	1.82 b	4.15 a	5.77 a	8.74 a	0.94 b	2.34 a	5.16 a	7.27 a	10.93 a	2.31 a	4.28 a	8.62 a	12.58 a	20.02 a
	16	---	1.13 c	3.51 b	5.14 a	8.09 a	0.31 d	1.63 b	4.48 a	6.58 a	10.23 a	1.79 a	3.71 a	8.05 a	11.96 a	19.37 a
	24	---	---	2.39 d	4.02 c	6.92 b	---	0.38 d	3.27 c	5.35 b	8.95 a	0.79 b	2.61 a	6.96 a	10.76 a	18.10 a
12	12	0.23 d	1.30 c	3.34 b	4.79 a	7.44 a	0.53 d	1.79 b	4.32 a	6.19 a	9.50 a	1.94 a	3.82 a	7.95 a	11.71 a	18.74 a
	16	---	0.60 d	2.70 d	4.15 c	6.77 a	---	1.05 d	3.62 c	5.47 a	8.76 a	1.35 a	3.17 a	7.29 a	10.99 a	17.98 a
	24	---	---	1.60 e	3.04 d	5.58 c	---	---	2.39 d	4.21 c	7.43 b	0.24 c	1.94 b	6.06 a	9.63 a	16.52 a
14	12	---	0.45 e	2.08 d	3.24 c	5.34 b	---	0.84 d	2.86 c	4.32 b	6.97 a	1.20 b	2.87 a	6.54 a	9.85 a	16.01 a
	16	---	---	1.48 e	2.62 d	4.67 c	---	0.08 e	2.17 d	3.62 d	6.22 b	0.49 c	2.08 b	5.74 a	8.96 a	15.05 a
	24	---	---	0.44 f	1.56 e	3.51 e	---	---	0.98 e	2.39 e	4.89 d	---	0.65 d	4.30 c	7.34 a	13.29 a
16	12	---	---	1.22 e	2.14 e	3.80 d	---	0.12 e	1.80 e	2.96 d	5.08 c	0.50 d	1.95 b	5.14 a	7.94 a	13.23 a
	16	---	---	0.66 f	1.56 e	3.16 e	---	---	1.14 e	2.29 e	4.35 d	---	1.07 d	4.27 c	6.95 a	12.15 a
	24	---	---	---	0.57 f	2.07 f	---	---	0.03 f	1.14 f	3.08 e	---	---	2.72 d	5.21 c	10.22 b
MEMBER LENGTH (ft)	SPACING (in)	35 PSF														
		3.625" HDS Members					4" HDS Members					5.5" HDS Members				
		Gauge (mils)														
		20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)
8	12	1.75 a	3.36 a	6.62 a	8.95 a	12.92 a	2.08 a	3.83 a	7.49 a	10.36 a	15.03 a	3.16 a	5.32 a	10.18 a	14.59 a	23.06 a
	16	1.21 a	2.78 a	6.07 a	8.41 a	12.4 a	1.56 a	3.28 a	6.96 a	9.83 a	14.52 a	2.80 a	4.94 a	9.82 a	14.21 a	22.66 a
	24	0.22 c	1.7 a	5.03 a	7.39 a	11.39 a	0.60 b	2.24 a	5.96 a	8.82 a	13.53 a	2.11 a	4.20 a	9.10 a	13.44 a	21.87 a
9	12	1.23 a	2.7 a	5.67 a	7.75 a	11.41 a	1.58 a	3.21 a	6.61 a	9.23 a	13.59 a	2.81 a	4.91 a	9.62 a	13.90 a	22.06 a
	16	0.62 c	2.04 a	5.04 a	7.13 a	10.79 a	0.98 b	2.56 a	5.98 a	8.60 a	12.96 a	2.38 a	4.45 a	9.17 a	13.41 a	21.55 a
	24	---	0.83 c	3.88 b	5.98 a	9.63 a	---	1.37 b	4.82 a	7.43 a	11.78 a	1.53 a	3.54 a	8.28 a	12.45 a	20.55 a
10	12	0.74 c	2.06 a	4.74 a	6.57 a	9.89 a	1.08 b	2.58 a	5.71 a	8.07 a	12.08 a	2.44 a	4.47 a	9.01 a	13.12 a	20.93 a
	16	0.09 d	1.34 c	4.05 b	5.89 a	9.20 a	0.42 c	1.86 b	5.00 a	7.36 a	11.36 a	1.92 a	3.91 a	8.45 a	12.52 a	20.30 a
	24	---	0.06 d	2.82 d	4.68 c	7.94 a	---	0.55 d	3.73 c	6.06 a	10.03 a	0.92 a	2.83 a	7.38 a	11.36 a	19.08 a
11	12	0.30 d	1.47 c	3.82 b	5.45 a	8.41 a	0.62 c	1.98 b	4.82 a	6.92 a	10.57 a	2.05 a	3.99 a	8.33 a	12.27 a	19.69 a
	16	---	0.71 d	3.12 c	4.75 b	7.69 a	---	1.19 c	4.06 b	6.15 a	9.79 a	1.44 a	3.33 a	7.68 a	11.55 a	18.94 a
	24	---	---	1.88 e	3.51 d	6.38 b	---	---	2.72 d	4.78 c	8.36 a	0.31 c	2.09 a	6.44 a	10.19 a	17.49 a
12	12	---	0.94 d	3.01 c	4.46 b	7.10 a	0.19 d	1.41 c	3.96 b	5.82 a	9.12 a	1.64 a	3.49 a	7.62 a	11.35 a	18.36 a
	16	---	0.17 e	2.31 d	3.76 c	6.35 b	---	0.60 d	3.19 c	5.03 b	8.30 a	0.97 b	2.75 a	6.87 a	10.52 a	17.48 a
	24	---	---	1.10 e	2.54 e	5.04 d	---	---	1.83 e	3.65 d	6.82 c	---	1.37 b	5.48 a	8.98 a	15.83 a
14	12	---	0.09 e	1.77 e	2.92 d	4.99 c	---	0.45 e	2.5 d	3.96 c	6.58 a	0.84 c	2.47 a	6.13 a	9.40 a	15.52 a
	16	---	---	1.11 e	2.25 e	4.26 d	---	---	1.75 e	3.18 d	5.75 c	0.05 d	1.59 c	5.24 a	8.40 a	14.44 a
	24	---	---	---	1.09 f	2.99 e	---	---	0.45 f	1.85 e	4.30 d	---	---	3.63 c	6.60 b	12.47 a
16	12	---	---	0.93 f	1.84 e	3.47 d	---	---	1.46 e	2.61 d	4.70 c	0.10 d	1.50 c	4.69 b	7.43 a	12.68 a
	16	---	---	0.32 f	1.21 f	2.78 e	---	---	0.75 f	1.88 e	3.90 d	---	0.53 d	3.72 c	6.34 b	11.48 a
	24	---	---	---	0.14 f	1.58 f	---	---	---	0.63 f	2.52 e	---	---	2.02 e	4.43 d	9.35 c

For SI: 1 inch = 25.4 mm, 1 kip = 4.4482 kN.

Table 6 continued on next page

TABLE 6—ALLOWABLE AXIAL LOAD (kips) (Continued)

MEMBER LENGTH (ft)	SPACING (in)	40 PSF														
		3.625" HDS Members					4" HDS Members					5.5" HDS Members				
		Gauge (mils)														
		20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)
8	12	1.52 a	3.11 a	6.38 a	8.71 a	12.70 a	1.85 a	3.59 a	7.26 a	10.13 a	14.81 a	3.00 a	5.15 a	10.02 a	14.43 a	22.89 a
	16	0.92 b	2.46 a	5.76 a	8.11 a	12.11 a	1.28 a	2.97 a	6.67 a	9.54 a	14.23 a	2.60 a	4.73 a	9.61 a	13.99 a	22.43 a
	24	---	1.26 b	4.62 a	6.98 a	10.98 a	0.21 c	1.81 a	5.55 a	8.41 a	13.12 a	1.82 a	3.89 a	8.8 a	13.12 a	21.54 a
9	12	0.97 b	2.41 a	5.40 a	7.48 a	11.14 a	1.32 a	2.93 a	6.34 a	8.96 a	13.32 a	2.62 a	4.71 a	9.43 a	13.69 a	21.84 a
	16	0.30 c	1.68 b	4.69 a	6.79 a	10.45 a	0.65 b	2.21 a	5.64 a	8.26 a	12.62 a	2.13 a	4.18 a	8.91 a	13.13 a	21.26 a
	24	---	0.36 d	3.42 c	5.53 b	9.16 a	---	0.89 c	4.36 b	6.95 a	11.30 a	1.18 a	3.16 a	7.90 a	12.05 a	20.13 a
10	12	0.45 d	1.74 b	4.44 a	6.27 a	9.59 a	0.79 b	2.27 a	5.40 a	7.76 a	11.77 a	2.21 a	4.23 a	8.77 a	12.86 a	20.66 a
	16	---	0.95 c	3.68 b	5.53 a	8.83 a	0.07 d	1.47 b	4.62 a	6.97 a	10.97 a	1.63 a	3.59 a	8.14 a	12.18 a	19.95 a
	24	---	---	2.35 d	4.20 c	7.44 b	---	0.04 d	3.22 c	5.54 b	9.50 a	0.52 b	2.38 a	6.94 a	10.87 a	18.57 a
11	12	---	1.13 c	3.51 b	5.14 a	8.09 a	0.31 d	1.63 b	4.48 a	6.58 a	10.23 a	1.79 a	3.71 a	8.05 a	11.96 a	19.37 a
	16	---	0.31 d	2.74 d	4.38 c	7.30 a	---	0.78 d	3.66 c	5.74 a	9.36 a	1.11 a	2.97 a	7.32 a	11.15 a	18.52 a
	24	---	---	1.41 e	3.03 d	5.87 c	---	---	2.20 d	4.25 c	7.79 b	---	1.59 b	5.93 a	9.63 a	16.90 a
12	12	---	0.60 d	2.70 d	4.15 c	6.77 a	---	1.05 d	3.62 c	5.47 a	8.76 a	1.35 a	3.17 a	7.29 a	10.99 a	17.98 a
	16	---	---	1.94 e	3.39 d	5.96 b	---	0.17 e	2.78 d	4.61 c	7.85 a	0.60 c	2.34 a	6.46 a	10.07 a	17.00 a
	24	---	---	0.64 f	2.06 e	4.53 d	---	---	1.31 e	3.11 d	6.24 c	---	0.81 c	4.92 b	8.36 a	15.15 a
14	12	---	---	1.48 e	2.62 d	4.67 c	---	0.08 e	2.17 d	3.62 d	6.22 b	0.49 c	2.08 b	5.74 a	8.96 a	15.05 a
	16	---	---	0.77 f	1.90 e	3.88 d	---	---	1.35 e	2.78 e	5.31 c	---	1.11 c	4.76 b	7.86 a	13.85 a
	24	---	---	---	0.65 f	2.50 e	---	---	---	1.33 f	3.73 e	---	---	3.00 d	5.88 c	11.68 a
16	12	---	---	0.66 f	1.56 e	3.16 e	---	---	1.14 e	2.29 e	4.35 d	---	1.07 d	4.27 c	6.95 a	12.15 a
	16	---	---	---	0.88 f	2.41 e	---	---	0.38 f	1.50 f	3.48 e	---	0.02 e	3.21 d	5.76 c	10.84 a
	24	---	---	---	---	1.12 f	---	---	---	0.15 f	1.99 f	---	---	1.36 e	3.69 d	8.52 c

For SI: 1 inch = 25.4 mm, 1 kip = 4.4482 kN.

Table 6 continued on next page

TABLE 6—ALLOWABLE AXIAL LOAD (kips) (Continued)

MEMBER LENGTH (ft)	SPACING (in)	5 PSF									
		6" HDS Members					8" HDS Members				
		Gauge (mils)									
		20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)
8	12	5.09 a	8.10 a	14.77 a	20.74 a	30.98 a	5.31 a*	8.47 a	15.60 a	22.27 a	33.77 a
	16	5.03 a	8.04 a	14.71 a	20.67 a	30.90 a	5.27 a*	8.43 a	15.56 a	22.23 a	33.72 a
	24	4.90 a	7.90 a	14.57 a	20.53 a	30.75 a	5.19 a*	8.34 a	15.47 a	22.14 a	33.63 a
9	12	4.96 a	7.92 a	14.49 a	20.11 a	29.97 a	5.24 a*	8.38 a	15.40 a	21.95 a	33.25 a
	16	4.89 a	7.84 a	14.40 a	20.02 a	29.87 a	5.19 a*	8.32 a	15.35 a	21.89 a	33.19 a
	24	4.73 a	7.67 a	14.23 a	19.83 a	29.67 a	5.08 a*	8.21 a	15.24 a	21.78 a	33.07 a
10	12	4.82 a	7.72 a	14.09 a	19.40 a	28.84 a	5.16 a*	8.27 a	15.18 a	21.58 a	32.65 a
	16	4.73 a	7.61 a	13.98 a	19.29 a	28.72 a	5.10 a*	8.20 a	15.11 a	21.50 a	32.57 a
	24	4.54 a	7.40 a	13.76 a	19.05 a	28.47 a	4.96 a*	8.06 a	14.97 a	21.36 a	32.42 a
11	12	4.67 a	7.49 a	13.57 a	18.62 a	27.62 a	5.07 a*	8.14 a	14.92 a	21.15 a	31.97 a
	16	4.55 a	7.36 a	13.43 a	18.47 a	27.47 a	4.99 a*	8.06 a	14.84 a	21.06 a	31.88 a
	24	4.32 a	7.11 a	13.16 a	18.18 a	27.16 a	4.83 a*	7.89 a	14.67 a	20.88 a	31.69 a
12	12	4.50 a	7.24 a	13.00 a	17.71 a	26.32 a	4.97 a*	8.00 a	14.69 a	20.68 a	31.22 a
	16	4.36 a	7.08 a	12.84 a	17.53 a	26.13 a	4.87 a*	7.90 a	14.59 a	20.57 a	31.10 a
	24	4.08 a	6.78 a	12.51 a	17.18 a	25.75 a	4.68 a*	7.71 a	14.39 a	20.35 a	30.87 a
14	12	4.12 a	6.67 a	11.67 a	15.75 a	23.51 a	4.74 a*	7.68 a	14.14 a	19.60 a	29.51 a
	16	3.93 a	6.45 a	11.44 a	15.51 a	23.25 a	4.60 a*	7.54 a	14.00 a	19.45 a	29.34 a
	24	3.57 a	6.04 a	11.00 a	15.03 a	22.73 a	4.34 a*	7.27 a	13.72 a	19.15 a	29.02 a
16	12	3.69 a	6.02 a	10.24 a	13.70 a	20.56 a	4.47 a*	7.30 a	13.31 a	18.33 a	27.57 a
	16	3.46 a	5.75 a	9.95 a	13.40 a	20.21 a	4.29 a*	7.12 a	13.12 a	18.13 a	27.35 a
	24	3.01 a	5.24 a	9.42 a	12.82 a	19.56 a	3.95 a*	6.77 a	12.75 a	17.73 a	26.92 a
MEMBER LENGTH (ft)	SPACING (in)	15 PSF									
		6" HDS Members					8" HDS Members				
		Gauge (mils)									
		20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)
8	12	4.72 a	7.71 a	14.38 a	20.31 a	30.53 a	5.06 a*	8.22 a	15.35 a	22.00 a	33.48 a
	16	4.54 a	7.51 a	14.18 a	20.10 a	30.30 a	4.93 a*	8.09 a	15.22 a	21.87 a	33.34 a
	24	4.19 a	7.13 a	13.79 a	19.67 a	29.86 a	4.68 a*	7.83 a	14.97 a	21.60 a	33.06 a
9	12	4.50 a	7.42 a	13.97 a	19.55 a	29.38 a	4.92 a*	8.05 a	15.08 a	21.60 a	32.88 a
	16	4.27 a	7.17 a	13.71 a	19.28 a	29.09 a	4.76 a*	7.89 a	14.92 a	21.43 a	32.70 a
	24	3.83 a	6.68 a	13.21 a	18.73 a	28.51 a	4.44 a*	7.56 a	14.60 a	21.08 a	32.33 a
10	12	4.25 a	7.09 a	13.43 a	18.70 a	28.10 a	4.76 a*	7.86 a	14.77 a	21.14 a	32.19 a
	16	3.97 a	6.79 a	13.11 a	18.35 a	27.74 a	4.56 a*	7.66 a	14.57 a	20.92 a	31.96 a
	24	3.43 a	6.19 a	12.48 a	17.68 a	27.02 a	4.17 a*	7.26 a	14.18 a	20.49 a	31.50 a
11	12	3.98 a	6.73 a	12.76 a	17.75 a	26.70 a	4.58 a*	7.65 a	14.42 a	20.61 a	31.40 a
	16	3.65 a	6.36 a	12.37 a	17.33 a	26.26 a	4.34 a*	7.40 a	14.18 a	20.35 a	31.12 a
	24	3.01 a	5.65 a	11.62 a	16.52 a	25.38 a	3.87 a*	6.92 a	13.70 a	19.82 a	30.56 a
12	12	3.69 a	6.33 a	12.04 a	16.67 a	25.21 a	4.39 a*	7.41 a	14.10 a	20.03 a	30.53 a
	16	3.30 a	5.90 a	11.58 a	16.17 a	24.67 a	4.10 a*	7.12 a	13.80 a	19.71 a	30.19 a
	24	2.57 a	5.08 a	10.70 a	15.22 a	23.64 a	3.55 a*	6.54 a	13.22 a	19.08 a	29.51 a
14	12	3.05 a	5.46 a	10.38 a	14.36 a	21.99 a	3.95 a*	6.87 a	13.30 a	18.70 a	28.54 a
	16	2.57 a	4.91 a	9.80 a	13.73 a	21.28 a	3.57 a*	6.47 a	12.89 a	18.26 a	28.07 a
	24	1.68 a	3.89 a	8.72 a	12.55 a	19.96 a	2.84 a*	5.71 a	12.10 a	17.40 a	27.14 a
16	12	2.40 a	4.54 a	8.68 a	12.02 a	18.66 a	3.46 a*	6.25 a	12.20 a	17.14 a	26.28 a
	16	1.85 a	3.90 a	8.01 a	11.30 a	17.82 a	2.99 a*	5.75 a	11.68 a	16.57 a	25.66 a
	24	0.85 c	2.75 b	6.82 a	9.99 a	16.32 a	2.09 a*	4.79 a	10.67 a	15.48 a	24.46 a

For SI: 1 inch = 25.4 mm, 1 kip = 4.4482 kN.

Table 6 continued on next page

TABLE 6—ALLOWABLE AXIAL LOAD (kips) (Continued)

MEMBER LENGTH (ft)	SPACING (in)	20 PSF									
		6" HDS Members					8" HDS Members				
		Gauge (mils)									
		20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)
8	12	4.54 a	7.51 a	14.18 a	20.10 a	30.30 a	4.93 a*	8.09 a	15.22 a	21.87 a	33.34 a
	16	4.31 a	7.25 a	13.92 a	19.81 a	30.00 a	4.76 a*	7.92 a	15.06 a	21.69 a	33.15 a
	24	3.84 a	6.75 a	13.4 a	19.25 a	29.41 a	4.42 a*	7.58 a	14.73 a	21.33 a	32.77 a
9	12	4.27 a	7.17 a	13.71 a	19.28 a	29.09 a	4.76 a*	7.89 a	14.92 a	21.43 a	32.70 a
	16	3.98 a	6.84 a	13.38 a	18.91 a	28.71 a	4.54 a*	7.67 a	14.71 a	21.20 a	32.45 a
	24	3.39 a	6.20 a	12.71 a	18.19 a	27.95 a	4.12 a*	7.24 a	14.29 a	20.74 a	31.97 a
10	12	3.97 a	6.79 a	13.11 a	18.35 a	27.74 a	4.56 a*	7.66 a	14.57 a	20.92 a	31.96 a
	16	3.61 a	6.39 a	12.69 a	17.90 a	27.26 a	4.30 a*	7.39 a	14.31 a	20.63 a	31.65 a
	24	2.91 a	5.61 a	11.87 a	17.02 a	26.31 a	3.78 a*	6.86 a	13.78 a	20.06 a	31.04 a
11	12	3.65 a	6.36 a	12.37 a	17.33 a	26.26 a	4.34 a*	7.40 a	14.18 a	20.35 a	31.12 a
	16	3.22 a	5.89 a	11.87 a	16.78 a	25.67 a	4.03 a*	7.08 a	13.86 a	20.00 a	30.74 a
	24	2.40 a	4.97 a	10.90 a	15.73 a	24.53 a	3.40 a*	6.44 a	13.22 a	19.30 a	30.00 a
12	12	3.30 a	5.90 a	11.58 a	16.17 a	24.67 a	4.10 a*	7.12 a	13.80 a	19.71 a	30.19 a
	16	2.81 a	5.35 a	10.99 a	15.53 a	23.98 a	3.73 a*	6.73 a	13.41 a	19.29 a	29.74 a
	24	1.88 a	4.30 a	9.87 a	14.32 a	22.65 a	3.00 a*	5.98 a	12.65 a	18.46 a	28.84 a
14	12	2.57 a	4.91 a	9.80 a	13.73 a	21.28 a	3.57 a*	6.47 a	12.89 a	18.26 a	28.07 a
	16	1.97 a	4.22 a	9.07 a	12.93 a	20.39 a	3.08 a*	5.96 a	12.36 a	17.68 a	27.44 a
	24	0.87 c	2.96 a	7.74 a	11.48 a	18.74 a	2.14 a*	4.97 a	11.33 a	16.56 a	26.23 a
16	12	1.85 a	3.90 a	8.01 a	11.30 a	17.82 a	2.99 a*	5.75 a	11.68 a	16.57 a	25.66 a
	16	1.17 c	3.11 a	7.20 a	10.41 a	16.80 a	2.38 a*	5.10 a	11.00 a	15.84 a	24.86 a
	24	---	1.72 c	5.76 b	8.83 a	14.97 a	1.24 a*	3.88 a	9.72 a	14.44 a	23.32 a
MEMBER LENGTH (ft)	SPACING (in)	25 PSF									
		6" HDS Members					8" HDS Members				
		Gauge (mils)									
		20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)
8	12	4.36 a	7.32 a	13.98 a	19.88 a	30.08 a	4.80 a*	7.96 a	15.10 a	21.73 a	33.20 a
	16	4.07 a	7.00 a	13.66 a	19.53 a	29.71 a	4.59 a*	7.75 a	14.89 a	21.51 a	32.96 a
	24	3.49 a	6.37 a	13.02 a	18.83 a	28.97 a	4.17 a*	7.33 a	14.48 a	21.06 a	32.49 a
9	12	4.05 a	6.93 a	13.46 a	19.00 a	28.80 a	4.60 a*	7.72 a	14.76 a	21.25 a	32.52 a
	16	3.68 a	6.52 a	13.04 a	18.55 a	28.32 a	4.33 a*	7.46 a	14.50 a	20.97 a	32.21 a
	24	2.96 a	5.73 a	12.23 a	17.67 a	27.39 a	3.80 a*	6.92 a	13.97 a	20.39 a	31.60 a
10	12	3.70 a	6.49 a	12.79 a	18.01 a	27.37 a	4.36 a*	7.46 a	14.38 a	20.70 a	31.73 a
	16	3.26 a	5.99 a	12.28 a	17.45 a	26.78 a	4.04 a*	7.12 a	14.05 a	20.35 a	31.35 a
	24	2.40 a	5.04 a	11.28 a	16.37 a	25.62 a	3.39 a*	6.47 a	13.39 a	19.63 a	30.59 a
11	12	3.33 a	6.00 a	11.99 a	16.92 a	25.82 a	4.10 a*	7.16 a	13.94 a	20.08 a	30.84 a
	16	2.80 a	5.42 a	11.38 a	16.25 a	25.10 a	3.71 a*	6.76 a	13.54 a	19.65 a	30.37 a
	24	1.82 a	4.32 a	10.20 a	14.97 a	23.71 a	2.94 a*	5.97 a	12.75 a	18.78 a	29.45 a
12	12	2.93 a	5.48 a	11.13 a	15.69 a	24.15 a	3.82 a*	6.83 a	13.51 a	19.39 a	29.85 a
	16	2.34 a	4.82 a	10.42 a	14.92 a	23.30 a	3.36 a*	6.35 a	13.03 a	18.87 a	29.29 a
	24	1.23 a	3.57 a	9.09 a	13.46 a	21.70 a	2.47 a*	5.43 a	12.09 a	17.84 a	28.18 a
14	12	2.12 a	4.39 a	9.24 a	13.13 a	20.61 a	3.20 a*	6.09 a	12.49 a	17.82 a	27.60 a
	16	1.41 b	3.58 a	8.38 a	12.18 a	19.54 a	2.60 a*	5.46 a	11.84 a	17.12 a	26.83 a
	24	0.12 d	2.10 b	6.83 a	10.48 a	17.6 a	1.46 a*	4.25 a	10.58 a	15.75 a	25.35 a
16	12	1.33 b	3.30 a	7.40 a	10.62 a	17.05 a	2.53 a*	5.26 a	11.17 a	16.02 a	25.06 a
	16	0.54 d	2.39 b	6.45 a	9.59 a	15.85 a	1.80 a*	4.48 a	10.35 a	15.13 a	24.08 a
	24	---	0.79 d	4.80 c	7.77 b	13.74 a	0.44 b*	3.02 a	8.82 a	13.45 a	22.21 a

For SI: 1 inch = 25.4 mm, 1 kip = 4.4482 kN.

Table 6 continued on next page

TABLE 6—ALLOWABLE AXIAL LOAD (kips) (Continued)

MEMBER LENGTH (ft)	SPACING (in)	30 PSF									
		6" HDS Members					8" HDS Members				
		Gauge (mils)									
		20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)
8	12	4.19 a	7.13 a	13.79 a	19.67 a	29.86 a	4.68 a*	7.83 a	14.97 a	21.60 a	33.06 a
	16	3.84 a	6.75 a	13.40 a	19.25 a	29.41 a	4.42 a*	7.58 a	14.73 a	21.33 a	32.77 a
	24	3.15 a	6.00 a	12.64 a	18.42 a	28.54 a	3.92 a*	7.07 a	14.23 a	20.79 a	32.20 a
9	12	3.83 a	6.68 a	13.21 a	18.73 a	28.51 a	4.44 a*	7.56 a	14.60 a	21.08 a	32.33 a
	16	3.39 a	6.20 a	12.71 a	18.19 a	27.95 a	4.12 a*	7.24 a	14.29 a	20.74 a	31.97 a
	24	2.54 a	5.27 a	11.75 a	17.15 a	26.83 a	3.49 a*	6.6 a	13.66 a	20.05 a	31.24 a
10	12	3.43 a	6.19 a	12.48 a	17.68 a	27.02 a	4.17 a*	7.26 a	14.18 a	20.49 a	31.50 a
	16	2.91 a	5.61 a	11.87 a	17.02 a	26.31 a	3.78 a*	6.86 a	13.78 a	20.06 a	31.04 a
	24	1.91 a	4.49 a	10.70 a	15.74 a	24.94 a	3.01 a*	6.08 a	13.01 a	19.21 a	30.14 a
11	12	3.01 a	5.65 a	11.62 a	16.52 a	25.38 a	3.87 a*	6.92 a	13.70 a	19.82 a	30.56 a
	16	2.40 a	4.97 a	10.9 a	15.73 a	24.53 a	3.4 a*	6.44 a	13.22 a	19.30 a	30.00 a
	24	1.26 a	3.68 a	9.53 a	14.24 a	22.91 a	2.49 a*	5.50 a	12.28 a	18.27 a	28.90 a
12	12	2.57 a	5.08 a	10.70 a	15.22 a	23.64 a	3.55 a*	6.54 a	13.22 a	19.08 a	29.51 a
	16	1.88 a	4.30 a	9.87 a	14.32 a	22.65 a	3.00 a*	5.98 a	12.65 a	18.46 a	28.84 a
	24	0.61 b	2.86 a	8.34 a	12.64 a	20.79 a	1.95 a*	4.88 a	11.54 a	17.24 a	27.53 a
14	12	1.68 a	3.89 a	8.72 a	12.55 a	19.96 a	2.84 a*	5.71 a	12.10 a	17.40 a	27.14 a
	16	0.87 c	2.96 a	7.74 a	11.48 a	18.74 a	2.14 a*	4.97 a	11.33 a	16.56 a	26.23 a
	24	---	1.30 c	5.97 b	9.54 a	16.52 a	0.81 a*	3.56 a	9.86 a	14.96 a	24.48 a
16	12	0.85 c	2.75 b	6.82 a	9.99 a	16.32 a	2.09 a*	4.79 a	10.67 a	15.48 a	24.46 a
	16	---	1.72 c	5.76 b	8.83 a	14.97 a	1.24 a*	3.88 a	9.72 a	14.44 a	23.32 a
	24	---	---	3.91 d	6.80 c	12.6 a	---	2.20 b	7.96 a	12.50 a	21.15 a
MEMBER LENGTH (ft)	SPACING (in)	35 PSF									
		6" HDS Members					8" HDS Members				
		Gauge (mils)									
		20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)
8	12	4.01 a	6.94 a	13.59 a	19.46 a	29.63 a	4.55 a*	7.71 a	14.85 a	21.46 a	32.91 a
	16	3.60 a	6.49 a	13.15 a	18.97 a	29.12 a	4.26 a*	7.41 a	14.56 a	21.15 a	32.58 a
	24	2.81 a	5.63 a	12.26 a	18.01 a	28.10 a	3.67 a*	6.82 a	13.98 a	20.52 a	31.92 a
9	12	3.61 a	6.44 a	12.96 a	18.46 a	28.23 a	4.28 a*	7.40 a	14.44 a	20.91 a	32.15 a
	16	3.10 a	5.89 a	12.39 a	17.84 a	27.57 a	3.91 a*	7.03 a	14.08 a	20.51 a	31.72 a
	24	2.13 a	4.82 a	11.28 a	16.64 a	26.29 a	3.18 a*	6.29 a	13.34 a	19.71 a	30.88 a
10	12	3.17 a	5.9 a	12.18 a	17.34 a	26.66 a	3.97 a*	7.06 a	13.98 a	20.27 a	31.27 a
	16	2.57 a	5.23 a	11.48 a	16.59 a	25.85 a	3.52 a*	6.60 a	13.52 a	19.78 a	30.74 a
	24	1.43 a	3.96 a	10.13 a	15.13 a	24.28 a	2.63 a*	5.69 a	12.62 a	18.79 a	29.69 a
11	12	2.70 a	5.31 a	11.26 a	16.12 a	24.96 a	3.63 a*	6.68 a	13.46 a	19.56 a	30.28 a
	16	2.01 a	4.53 a	10.43 a	15.22 a	23.98 a	3.09 a*	6.12 a	12.90 a	18.95 a	29.63 a
	24	0.71 b	3.07 a	8.88 a	13.53 a	22.13 a	2.05 a*	5.04 a	11.82 a	17.76 a	28.35 a
12	12	2.22 a	4.69 a	10.28 a	14.77 a	23.14 a	3.27 a*	6.26 a	12.93 a	18.77 a	29.18 a
	16	1.45 a	3.81 a	9.35 a	13.75 a	22.01 a	2.64 a*	5.61 a	12.28 a	18.05 a	28.40 a
	24	0.02 c	2.19 b	7.62 a	11.85 a	19.91 a	1.43 a*	4.35 a	10.99 a	16.65 a	26.89 a
14	12	1.27 b	3.42 a	8.22 a	12.00 a	19.34 a	2.49 a*	5.34 a	11.71 a	16.98 a	26.68 a
	16	0.37 c	2.38 b	7.12 a	10.80 a	17.97 a	1.68 a*	4.49 a	10.83 a	16.02 a	25.64 a
	24	---	0.53 d	5.17 c	8.65 b	15.50 a	0.18 b*	2.89 a	9.16 a	14.20 a	23.63 a
16	12	0.39 d	2.22 c	6.28 a	9.40 a	15.63 a	1.66 a*	4.33 a	10.19 a	14.95 a	23.88 a
	16	---	1.09 d	5.11 c	8.12 b	14.14 a	0.71 b*	3.30 a	9.12 a	13.78 a	22.58 a
	24	---	---	3.08 d	5.89 d	11.53 b	---	1.41 b	7.13 a	11.59 a	20.12 a

For SI: 1 inch = 25.4 mm, 1 kip = 4.4482 kN.

Table 6 continued on next page

TABLE 6—ALLOWABLE AXIAL LOAD (kips) (Continued)

MEMBER LENGTH (ft)	SPACING (in)	40 PSF									
		6" HDS Members					8" HDS Members				
		Gauge (mils)									
		20 (33)	18 (43)	16 (54)	14 (68)	12 (97)	20 (33)	18 (43)	16 (54)	14 (68)	12 (97)
8	12	3.84 a	6.75 a	13.40 a	19.25 a	29.41 a	4.42 a*	7.58 a	14.73 a	21.33 a	32.77 a
	16	3.37 a	6.24 a	12.89 a	18.70 a	28.83 a	4.09 a*	7.24 a	14.40 a	20.97 a	32.39 a
	24	2.48 a	5.26 a	11.89 a	17.61 a	27.67 a	3.43 a*	6.57 a	13.74 a	20.26 a	31.64 a
9	12	3.39 a	6.20 a	12.71 a	18.19 a	27.95 a	4.12 a*	7.24 a	14.29 a	20.74 a	31.97 a
	16	2.82 a	5.58 a	12.07 a	17.49 a	27.20 a	3.70 a*	6.81 a	13.87 a	20.28 a	31.48 a
	24	1.73 a	4.37 a	10.81 a	16.13 a	25.74 a	2.87 a*	5.97 a	13.03 a	19.37 a	30.52 a
10	12	2.91 a	5.61 a	11.87 a	17.02 a	26.31 a	3.78 a*	6.86 a	13.78 a	20.06 a	31.04 a
	16	2.23 a	4.86 a	11.08 a	16.16 a	25.39 a	3.26 a*	6.34 a	13.26 a	19.49 a	30.44 a
	24	0.96 a	3.44 a	9.58 a	14.53 a	23.62 a	2.26 a*	5.31 a	12.24 a	18.37 a	29.24 a
11	12	2.40 a	4.97 a	10.90 a	15.73 a	24.53 a	3.40 a*	6.44 a	13.22 a	19.30 a	30.00 a
	16	1.63 a	4.10 a	9.98 a	14.72 a	23.44 a	2.79 a*	5.81 a	12.59 a	18.61 a	29.26 a
	24	0.19 c	2.48 a	8.25 a	12.84 a	21.37 a	1.61 a*	4.59 a	11.36 a	17.26 a	27.81 a
12	12	1.88 a	4.30 a	9.87 a	14.32 a	22.65 a	3.00 a*	5.98 a	12.65 a	18.46 a	28.84 a
	16	1.02 b	3.33 a	8.83 a	13.19 a	21.39 a	2.29 a*	5.24 a	11.90 a	17.64 a	27.97 a
	24	---	1.54 b	6.93 a	11.09 a	19.06 a	0.93 a*	3.83 a	10.46 a	16.06 a	26.25 a
14	12	0.87 c	2.96 a	7.74 a	11.48 a	18.74 a	2.14 a*	4.97 a	11.33 a	16.56 a	26.23 a
	16	---	1.83 c	6.54 a	10.16 a	17.23 a	1.24 a*	4.02 a	10.34 a	15.49 a	25.05 a
	24	---	---	4.41 c	7.81 b	14.53 a	---	2.23 a	8.47 a	13.45 a	22.80 a
16	12	---	1.72 c	5.76 b	8.83 a	14.97 a	1.24 a*	3.88 a	9.72 a	14.44 a	23.32 a
	16	---	0.50 d	4.49 c	7.44 b	13.35 a	0.19 c*	2.74 a	8.53 a	13.13 a	21.85 a
	24	---	---	2.30 e	5.03 d	10.53 c	---	0.66 c	6.33 b	10.71 a	19.13 a

For SI: 1 inch = 25.4 mm, 1 kip = 4.4482 kN.

Notes to Table 6:

¹Studs are assumed to be simple span.

²Axial loads are assumed to pass through the geometric centroid of the section.

³Allowable axial loads when combined with 5 psf lateral load are applicable for interior use only.

⁴Allowable axial loads when combined with lateral loads greater than 5 psf are applicable to HDS for exterior use only.

⁵Cells marked with an a, b, c, d, e, or f meet L/720, L/600, L/480, L/360, L/240 or L/120 respectively.

⁶Provide bridging and/or bracing at 5 foot on center maximum. Allowable loads are based on weak axis and torsional bracing at 5 feet on center maximum for axial load and continuous support of each flange for moment.

⁷A 1.5 x 4 inch knockout spaced no closer than 24 inches on center is assumed.

⁸Cells marked with an "*" have h/t>200 and require bearing stiffeners designed in accordance with AISI-NAS. No holes in the web are permitted.

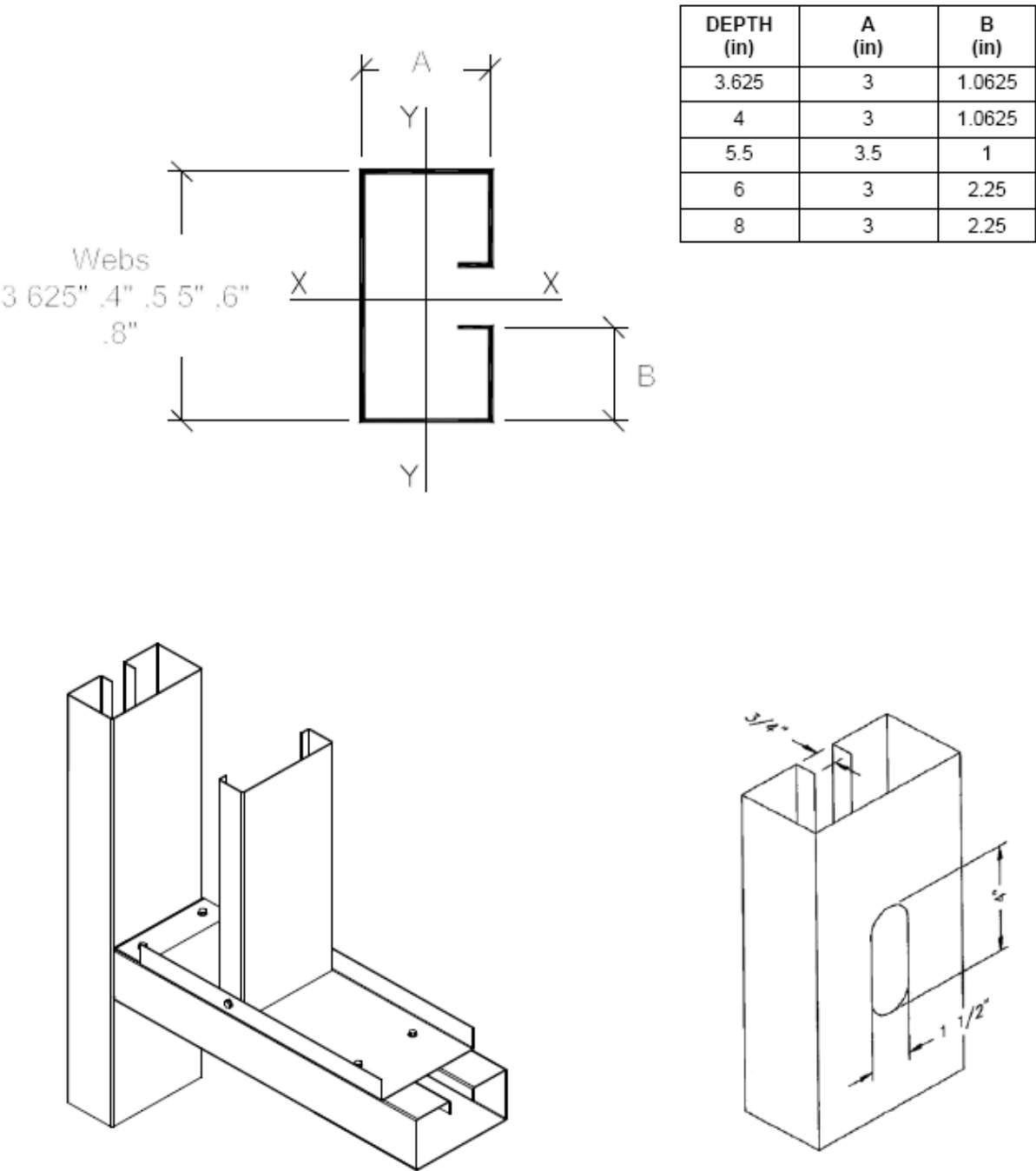


FIGURE 1—DIETRICH HEAVY DUTY STUD