STEEL FRAMING SPECIFICATION SHEET

"DS" - PUNCHED "C" STUDS & JOISTS, 1-1/4" FLANGE

MANUFACTURER

California Expanded Metals (CEMCO)
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DESCRIPTION

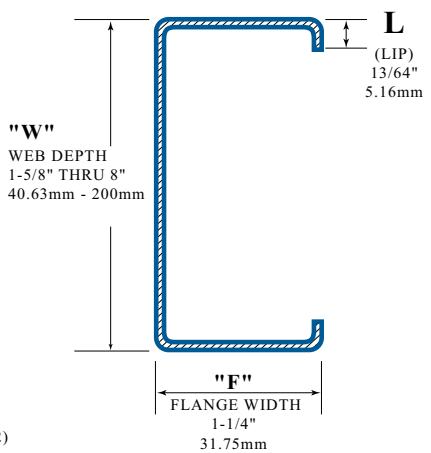
"DS" Studs and Joists are fabricated in 1-5/8",2-1/2",3-1/2", 3-5/8", 4", 5-1/2", 6" and 8" widths, from 25, 22 and 20 gauge (18, 27 and 33 mils) steel. The Flange size is 1-1/4" with a 13/64" return for extra strength.

MATERIALS

25, 22 and 20 gauge (18, 27 and33 mil) sections are fabricated from Hot Dipped Galvanized Carbon Steel conforming to ASTM A653 Grade 33 (steel) and ASTM A924 (coating).
25 gauge (18 mil) DS studs are available in 1-5/8", 2-1/2", 3-1/2", 3-5/8" and 4" widths.
22 gauge (27 mil)DS Studs are available in 2-1/2", 3-1/2", 3-5/8", 4", 5-1/2" and 6" widths.
20 gauge (33 mil) DS Studs are available in 1-5/8", 2-1/2", 3-1/2", 3-5/8", 4", 5-1/2", 6" and 8" widths.

UTILITY PUNCHOUTS

The punchout sizes for the 1-5/8" and 2-1/2" sections is 3/4" wide x 2" long, for the 3-1/2", 3-5/8", 4", 5-1/2" and 6" sections the punchouts are 1-1/2' wide x 3-1/4" long, for the 8" sections the punchouts are 2-1/2" wide x 4-1/4" long. Punchouts are spaced 24" on center and a minimum of 12" from ends to accommodate utilities and bridging (lateral support).



UTILITY PUNCHOUTS cont.

RECOGNITION

ICBO ER Report No 4943-P
ICBO ES Report No 3403-P
Los Angeles Research Report No. RR24923
ASTM C-645

COLOR CODE

(painted on ends)

20 Gauge - Red
22 Gauge - Black & Red
25 Gauge - None

STEEL THICKNESS

Ga (Mil)	Design Thickness (in.) [1]	Minimum Thickness (in.) [1,2]
25 (18)	0.0188 (0.48mm)	0.0179 (0.46mm)
22 (27)	0.0285 (0.73mm)	0.0271 (0.69mm)
20 (33)	0.0346 (0.88mm)	0.0329 (0.84mm)

1) Uncoated Steel Thickness. Thickness is for carbon sheet steel.
2) Minimum Thickness represents 95% of the design thickness and is the minimum acceptable thickness delivered to the job site, based on Section A3.4 of the 1986 AISI specification with 1989 Addendum and AISI 1996 edition.

ALLOWABLE HEIGHTS FOR NON-BEARING CURTAIN WALLS

"DS25 -- 25 Gauge -- PUNCHED "C" STUDS

DEFLECTION		L/120			L/240			L/360		
SPACING		12"	16"	24"	12"	16"	24"	12"	16"	24"
SSMA SECTION DESIGNATION	1xx DEFLECTION	SURFACE-LOAD 5 LBS. PER SQUARE FOOT - INTERIOR								
162S125-18	0.034	9'8"	8'9"	7'7"	7'11"	7'2"	6'2"	6'11"	6'4"	5'6"
250S125-18	0.091	13'4"	12'1"	10'4"	10'10"	9'9"	8'6"	9'7"	8'8"	7'6"
350S125-18	0.198	17'3"	15'4"	12'6"	13'11"	12'7"	11'0"	12'4"	11'3"	9'8"
362S125-18	0.216	17'9"	15'7"	12'9"	14'4"	12'11"	11'4"	12'8"	11'6"	10'0"
400S125-18	0.271	18'11"	16'4"	13'4"	15'5"	14'0"	12'2"	13'9"	12'5"	10'9"

"DS20 -- 20 Gauge -- PUNCHED "C" STUDS

DEFLECTION		L/120			L/240			L/360		
SPACING		12"	16"	24"	12"	16"	24"	12"	16"	24"
SSMA SECTION DESIGNATION	1xx DEFLECTION	SURFACE-LOAD 5 LBS. PER SQUARE FOOT - INTERIOR								
162S125-33	0.072	12'2"	11'0"	9'7"	9'8"	8'9"	7'8"	8'5"	7'8"	6'8"
250S125-33	0.177	16'9"	15'2"	13'3"	13'4"	12'1"	10'7"	11'8"	10'7"	9'3"
350S125-33	0.386	21'8"	19'8"	17'2"	17'3"	15'8"	13'8"	15'1"	13'8"	12'0"
362S125-33	0.419	22'3"	20'3"	17'8"	17'9"	16'1"	14'1"	15'6"	14'1"	12'4"
400S125-33	0.528	24'1"	21'10"	19'1"	19'2"	17'5"	15'3"	16'9"	15'3"	13'4"
550S125-33	1.153	31'0"	28'2"	24'7"	24'9"	22'6"	19'7"	21'7"	19'7"	17'2"
600S125-33	1.403	33'3"	30'3"	26'5"	26'6"	24'1"	21'1"	23'2"	21'1"	18'5"
800S125-33	2.853	42'3"	37'9"	30'10"	33'8"	30'7"	26'8"	29'5"	26'9"	23'4"

1. Allowable heights are based on both flanges continuous supported over the full length of the stud by approved wall covering in accordance with the code.
2. Studs end reactions must be checked for shear and web crippling.
3. Heights are based on steel properties only.

STEEL FRAMING SPECIFICATION SHEET

"DS" - PUNCHED "C" STUDS, 1-1/4" FLANGE

SECTION PROPERTIES

SSMA Section Designation (inches)	Design Thickness (inches)	Weight (lbs/ft)	GROSS SECTION PROPERTIES					EFFECTIVE SECTION PROPERTIES			ALLOWABLE MOMENT	TORSIONAL SECTION PROPERTIES				
			Area (in^2)	I_x (in^4)	r_x (in)	I_y (in^4)	r_y (in)	I_x (in^4)	S_x (in^3)	A (in^2)	M_a (in. lbs.)	X_o (in)	J (in^4)	C_w (in^6)	R_o (in)	B
"DS25" - PUNCHED "C" STUDS, 1-1/4" & 1-1/4" FLANGES																
162S125-18	0.0188	0.275	0.081	0.038	0.687	0.017	0.453	0.034	0.034	0.067	681	-1.068	0.000010	0.0094	1.348	0.373
250S125-18	0.0188	0.333	0.098	0.101	1.016	0.019	0.445	0.091	0.061	0.073	1,211	-0.937	0.000012	0.0237	1.452	0.583
350S125-18	0.0188	0.398	0.117	0.219	1.370	0.022	0.429	0.198	0.089	0.061	1,763	-0.827	0.000014	0.0505	1.656	0.751
362S125-18	0.0188	0.404	0.119	0.238	1.413	0.022	0.427	0.216	0.092	0.060	1,823	-0.815	0.000014	0.0547	1.686	0.766
400S125-18*	0.0188	0.428	0.126	0.299	1.540	0.022	0.421	0.271	0.101	0.058	2,005	-0.782	0.000015	0.0685	1.778	0.807
"DS22" - PUNCHED "C" STUDS, 1-1/4" & 1-1/4" FLANGES																
250S125-27	0.0285	0.500	0.147	0.150	1.011	0.028	0.440	0.144	0.095	0.122	1,882	-0.927	0.000040	0.0346	1.441	0.586
350S125-27	0.0285	0.598	0.176	0.327	1.364	0.032	0.424	0.314	0.152	0.113	3,005	-0.817	0.000048	0.0739	1.646	0.754
362S125-27	0.0285	0.608	0.179	0.355	1.407	0.032	0.422	0.341	0.160	0.112	3,159	-0.805	0.000048	0.0800	1.675	0.769
400S125-27	0.0285	0.646	0.190	0.447	1.534	0.033	0.416	0.431	0.184	0.111	3,639	-0.772	0.000051	0.1003	1.767	0.809
550S125-27	0.0285	0.793	0.233	0.957	2.029	0.036	0.391	0.957	0.263	0.111	5,192	-0.665	0.000063	0.2091	2.170	0.906
600S125-27*	0.0285	0.840	0.247	1.183	2.189	0.036	0.383	1.145	0.285	0.113	5,623	-0.636	0.000067	0.2557	2.312	0.924
"DS20" - PUNCHED "C" STUDS, 1-1/4" & 1-1/4" FLANGES																
162S125-33	0.0346	0.318	0.155	0.072	0.682	0.032	0.454	0.072	0.081	0.129	1,598	-1.034	0.000062	0.0186	1.335	0.377
250S125-33	0.0346	0.605	0.178	0.180	1.008	0.034	0.437	0.177	0.125	0.152	2,464	-0.921	0.000071	0.0410	1.433	0.587
350S125-33	0.0346	0.723	0.212	0.393	1.361	0.038	0.421	0.386	0.197	0.145	3,895	-0.811	0.000085	0.0877	1.639	0.755
362S125-33	0.0346	0.737	0.216	0.426	1.404	0.038	0.419	0.419	0.207	0.144	4,090	-0.799	0.000086	0.0950	1.668	0.771
500S125-33	0.0346	0.782	0.229	0.538	1.531	0.039	0.413	0.528	0.238	0.143	4,698	-0.766	0.000092	0.1191	1.761	0.811
550S125-33	0.0346	0.933	0.281	1.153	2.024	0.042	0.388	1.153	0.377	0.146	7,453	-0.659	0.000112	0.2488	2.164	0.907
600S125-33	0.0346	1.018	0.299	1.426	2.185	0.043	0.380	1.403	0.423	0.148	8,354	-0.630	0.000119	0.3044	2.306	0.925
800S125-33*	0.0346	1.254	0.368	2.911	2.813	0.046	0.353	2.853	0.540	0.155	10,676	-0.537	0.000147	0.5918	2.886	0.965

* h/t ratio exceeds 200 - Web stiffeners are required

1) Resisting moment reported for major axis direction, and is based on the assumption that the compression flanges of the section are fully braced.
2) All properties were calculated in accordance with 1997 U.B.C Chapter 22, Division VII.
3) Utility punchouts are assumed 24-inches on center.
4) Compression yield properties are calculated based on material yield stress occuring in the extreme fibers of the section, accounting for punchouts if applicable.
5) For unequal flange sections, the lowest Sx is reported.

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