



STEEL FRAMING SPECIFICATION SHEET

"XCS" - PUNCHED "C" STUDS & JOISTS, 2" FLANGE

MANUFACTURER

California Expanded Metals (CEMCO)
263 N Covina Lane
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DESCRIPTION

"XCS" Studs and Joists are fabricated in 3-5/8", 4", 5-1/2", 6", 8", 10" and 12" widths, from 20, 18, 16 and 14 gauge (33, 43, 54 and 68 mils) steel. The flange size is 2" with a 3/4" return for extra strength. "XCS" Studs and Joists are available with the web punched or unpunched.

MATERIALS

20 and 18 gauge (33 and 43 mil) sections are fabricated from hot dipped galvanized steel conforming to ASTM A653 (steel) and ASTM A924 (coating) and when painted finish is specified, steel conforming to ASTM A611 Grade C or ASTM A1011 Grade 33 with a rust-inhibited paint will be furnished. (10" and 12" widths not available with a painted finish).

16 and 14 gauge (54 and 68 mil) sections are fabricated from hot dipped galvanized

steel conforming to ASTM A653 Grade 50 (steel) and ASTM A924 (coating) and when a painted finish is specified, steel conforming to ASTM A1011 Grade 50 with a rust-inhibited paint will be furnished. (10" and 12" widths not available with a painted finish).

UTILITY PUNCHOUTS

CEMCO "CS" Studs and Joists are available with or without punch-outs. The punchout size for the 3-5/8", 4", 5-1/2" and 6" sections are 1-1/2" wide x 3-1/4" long, 8", 10" and 12" sections are 2-1/2" wide x 4-1/4" long. Punchouts are spaced 24" on center and 12" on center from the ends to accommodate utilities and bridging (lateral support).

COLOR CODE

(painted on ends)

20 Gauge - Red
18 Gauge - Yellow
16 Gauge - Green
14 Gauge - Orange

RECOGNITION

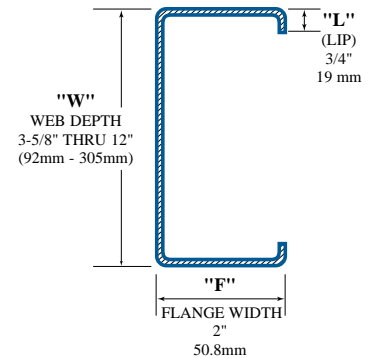
ICBO ER Report No. 4943-P
ICBO ES Report No. 3403-P
Los Angeles Research Report No. RR24923

ASTMC955

STEEL THICKNESS

Ga (Mil)	Design Thickness (in.) ¹	Minimum Thickness (in.) ^{1,2}
20 (33)	0.0346 (0.88mm)	0.0329 (0.84mm)
18 (43)	0.0451 (1.14mm)	0.0428 (1.09mm)
16 (54)	0.0566 (1.44mm)	0.0538 (1.37mm)
14 (68)	0.0713 (1.81mm)	0.0677 (1.72mm)

- 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.



SECTION PROPERTIES

SSMA Section Designation	Design Thickness (inches)	Weight (lbs/ft)	GROSS SECTION PROPERTIES					EFFECTIVE SECTION PROPERTIES			Allowable Moment M (in.lbs)*	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)		X _o (in)	J (in ⁴)	C _w (in ⁶)	R _o (in)	B
362S200-43	0.0451	1.350	0.397	0.852	1.466	0.244	0.785	0.852	0.450	0.316	8,891	-1.845	0.000269	0.8734	2.483	0.448
362S200-54	0.0566	1.679	0.494	1.052	1.459	0.300	0.779	1.052	0.560	0.407	16,773	-1.837	0.000527	1.0647	2.472	0.448
362S200-68	0.0713	2.091	0.615	1.295	1.451	0.366	0.772	1.295	0.715	0.508	21,399	-1.826	0.001042	1.2920	2.457	0.448
400S200-43	0.0451	1.407	0.414	1.070	1.608	0.253	0.783	1.070	0.512	0.318	10,122	-1.789	0.000281	1.0410	2.529	0.500
400S200-54	0.0566	1.751	0.515	1.321	1.602	0.311	0.777	1.321	0.638	0.408	19,104	-1.780	0.000550	1.2701	2.518	0.500
400S200-68	0.0713	2.183	0.642	1.629	1.593	0.380	0.769	1.629	0.815	0.531	24,387	-1.770	0.001087	1.5429	2.502	0.500
600S200-43	0.0451	1.713	0.504	2.750	2.336	0.291	0.760	2.750	0.882	0.314	17,422	-1.545	0.000342	2.2938	2.902	0.717
600S200-54	0.0566	2.135	0.628	3.405	2.328	0.357	0.754	3.405	1.100	0.405	32,935	-1.536	0.000671	2.8079	2.889	0.717
600S200-68	0.0713	2.665	0.784	4.216	2.319	0.436	0.746	4.216	1.405	0.535	42,081	-1.524	0.001329	3.4253	2.873	0.719
800S200-43	0.0451	2.019	0.594	5.438	3.025	0.317	0.730	5.438	1.303	0.310	25,757	-1.366	0.000403	4.2134	3.399	0.839
800S200-54	0.0566	2.519	0.741	6.746	3.017	0.389	0.724	6.746	1.639	0.402	49,076	-1.356	0.000792	5.1677	3.386	0.840
800S200-68	0.0713	3.151	0.927	8.373	3.006	0.475	0.716	8.373	2.093	0.533	62,674	-1.345	0.001571	6.3199	3.370	0.841
1000S200-43*	0.0451	2.325	0.684	9.314	3.689	0.336	0.701	9.314	1.600	0.312	31,610	-1.227	0.000464	6.8648	3.951	0.904
1000S200-54	0.0566	2.907	0.855	11.571	3.680	0.412	0.695	11.571	2.027	0.406	60,698	-1.218	0.000913	8.4302	3.938	0.904
1000S200-68	0.0713	3.638	1.070	14.385	3.667	0.504	0.687	14.385	2.877	0.540	86,136	-1.207	0.001812	10.3266	3.921	0.905
1200S200-54*	0.0566	3.291	0.968	18.105	4.325	0.430	0.667	17.442	2.410	0.408	72,162	-1.107	0.001033	12.6532	4.514	0.940
1200S200-68	0.0713	4.120	1.212	22.536	4.312	0.526	0.659	22.536	3.461	0.544	103,617	-1.096	0.002054	15.5169	4.498	0.941

*Indicates h_t > 200

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 using the latest provisions of 1997 Uniform Building Code, Chapter 22, Division VII.
3. Utility punchouts are assumed to be 24" on center.
4. Effective Section properties are calculated based on the yield stress occurring in the

extreme fibers of the section, accounting for punchouts if applicable.

5. For unequal flange sections, the lowest S_x is reported.
6. Studs must be checked for shear and web crippling capacity in accordance with 1997 Uniform Building Code, Chapter 22, Division VII (including provisions for punchouts).
7. 20 gauge section properties available upon request.



STEEL FRAMING SPECIFICATION SHEET

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ALLOWABLE CURTAIN WALL SPANS

DEFLECTION	L/120			L/240			L/360			L/120			L/240			L/360			
	SPACING	12"	16"	24"	12"	16"	24"	12"	16"	24"	12"	16"	24"	12"	16"	24"	12"	16"	24"
SSMA SECTION DESIGNATION	IN DEFLECTION	5 LBS. PER SQUARE FOOT SURFACE LOAD - INTERIOR WALLS									15 LBS. PER SQUARE FOOT WIND LOAD								
362S200-43	0.852	28'2"	25'7"	22'4"	22'4"	20'4"	17'9"	19'6"	17'9"	15'6"	19'6"	17'9"	15'6"	15'6"	14'1"	12'4"	13'6"	12'4"	10'9"
362S200-54	1.052	30'2"	27'5"	24'0"	24'0"	21'9"	19'0"	20'11"	19'0"	16'7"	20'11"	19'0"	16'7"	16'7"	15'1"	13'2"	14'6"	13'2"	11'6"
362S200-68	1.295	34'5"	29'5"	25'8"	25'8"	23'4"	20'5"	22'5"	20'5"	17'10"	22'5"	20'5"	17'10"	17'10"	16'2"	14'2"	15'7"	14'2"	12'4"
400S200-43	1.070	30'5"	27'7"	24'1"	24'1"	21'11"	19'2"	21'1"	19'2"	16'9"	21'1"	19'2"	16'9"	16'9"	15'2"	13'3"	14'7"	13'3"	11'7"
400S200-54	1.321	32'7"	29'7"	25'10"	25'10"	23'6"	20'6"	22'7"	20'6"	17'11"	22'7"	20'6"	17'11"	17'11"	16'4"	14'3"	15'8"	14'3"	12'5"
400S200-68	1.629	35'0"	31'9"	27'9"	27'9"	25'2"	22'0"	24'3"	22'0"	19'3"	24'3"	22'0"	19'3"	19'3"	17'6"	15'3"	16'10"	16'5'3"	13'4"
600S200-43	2.750	41'7"	37'10"	33'0"	33'0"	30'0"	26'3"	28'10"	26'3"	22'11"	28'10"	26'3"	22'9"	22'11"	20'10"	18'2"	20'0"	18'2"	15'11"
600S200-54	3.405	44'8"	40'7"	35'6"	35'6"	32'3"	28'2"	31'0"	28'2"	24'7"	31'0"	28'2"	24'7"	24'7"	22'4"	19'6"	21'6"	19'6"	17'1"
600S200-68	4.216	48'0"	43'7"	38'1"	38'1"	34'7"	30'3"	33'3"	30'3"	26'5"	33'3"	30'3"	26'5"	26'5"	24'0"	21'0"	23'1"	21'0"	18'4"
800S200-43	5.438	52'3"	47'6"	41'6"	41'6"	37'8"	32'11"	36'3"	32'11"	28'9"	36'3"	32'11"	27'8"	28'9"	26'1"	22'10"	25'1"	22'10"	19'11"
800S200-54	6.746	56'2"	51'0"	44'7"	44'7"	40'6"	35'4"	38'11"	35'4"	30'11"	38'11"	35'4"	30'11"	30'11"	28'1"	24'6"	27'0"	24'6"	21'5"
800S200-68	8.373	60'4"	54'10"	47'11"	47'11"	43'6"	38'0"	41'10"	38'0"	33'2"	41'10"	38'0"	33'2"	33'2"	30'2"	26'4"	29'0"	26'4"	23'0"
1000S200-43	9.314	62'6"	56'9"	49'7"	49'7"	45'1"	39'4"	43'4"	39'4"	34'5"	43'3"	37'6"	30'7"	34'5"	31'3"	27'4"	30'1"	27'4"	23'10"
1000S200-54	11.571	67'2"	61'1"	53'4"	53'4"	48'5"	42'4"	46'7"	42'4"	37'0"	46'7"	42'4"	37'0"	37'0"	33'7"	29'4"	32'4"	29'4"	25'8"
1000S200-68	14.385	72'3"	65'8"	57'4"	57'4"	52'1"	45'6"	50'1"	45'6"	39'9"	50'1"	45'6"	39'9"	39'9"	36'1"	31'7"	34'9"	31'7"	27'7"
1200S200-54	17.442	78'0"	70'10"	61'11"	61'11"	56'3"	49'2"	54'1"	49'2"	42'11"	54'1"	49'1"	42'7"	42'11"	39'0"	34'1"	37'6"	34'1"	29'9"
1200S200-68	22.536	83'11"	76'3"	66'7"	66'7"	60'6"	52'10"	58'2"	52'10"	46'2"	58'2"	52'10"	46'2"	46'2"	42'0"	36'8"	40'4"	36'8"	32'0"
20 LBS. PER SQUARE FOOT WIND LOAD										25 LBS. PER SQUARE FOOT WIND LOAD									
362S200-43	0.852	17'9"	16'1"	14'1"	14'1"	12'10"	11'2"	12'4"	11'2"	9'9"	16'6"	15'0"	12'7"	13'1"	11'11"	10'5"	11'5"	10'5"	9'1"
362S200-54	1.052	19'0"	17'3"	15'1"	15'1"	13'9"	12'0"	13'2"	12'0"	10'6"	17'8"	16'1"	14'0"	14'0"	12'9"	11'2"	12'3"	11'2"	9'9"
362S200-68	1.295	20'5"	18'6"	16'2"	16'2"	14'9"	12'10"	14'2"	12'10"	11'3"	18'11"	17'2"	15'0"	15'0"	13'8"	11'11"	13'2"	11'11"	10'5"
400S200-43	1.070	19'2"	17'5"	15'0"	15'2"	13'10"	12'1"	13'3"	12'1"	10'6"	17'9"	16'2"	13'5"	14'1"	12'10"	11'2"	12'4"	11'2"	9'9"
400S200-54	1.321	20'6"	18'8"	16'4"	16'4"	14'10"	12'11"	14'3"	12'11"	11'4"	19'1"	17'4"	15'2"	15'2"	13'9"	12'0"	13'3"	12'0"	10'6"
400S200-68	1.629	22'0"	20'0"	17'6"	17'6"	15'11"	13'10"	15'3"	13'10"	12'1"	20'5"	18'7"	16'3"	16'3"	14'9"	12'11"	14'2"	12'11"	11'3"
600S200-43	2.750	26'3"	23'10"	19'8"	20'10"	18'11"	16'6"	18'2"	16'6"	14'5"	24'4"	21'7"	17'7"	19'4"	17'7"	15'4"	16'10"	15'4"	13'5"
600S200-54	3.405	28'2"	25'7"	22'4"	22'4"	20'4"	17'9"	19'6"	17'9"	15'6"	26'2"	23'9"	20'9"	20'9"	18'10"	16'6"	18'1"	16'6"	14'5"
600S200-68	4.216	30'3"	27'6"	24'0"	24'0"	21'10"	19'1"	21'0"	19'1"	16'8"	28'1"	25'6"	22'3"	22'3"	20'3"	17'8"	19'6"	17'8"	15'5"
800S200-43	5.438	32'11"	29'4"	23'11"	26'1"	23'9"	20'9"	22'10"	20'9"	18'1"	30'3"	26'2"	21'5"	24'3"	22'0"	19'3"	21'2"	19'3"	16'10"
800S200-54	6.746	35'4"	32'2"	28'1"	28'1"	25'6"	22'3"	24'6"	22'3"	19'6"	32'10"	29'10"	26'1"	26'1"	23'8"	20'8"	22'9"	20'8"	18'1"
800S200-68	8.373	38'0"	34'6"	30'2"	30'2"	27'5"	23'11"	26'4"	23'11"	20'11"	35'3"	32'1"	28'0"	28'0"	25'5"	22'3"	24'6"	22'3"	19'5"
1000S200-43	9.314	37'6"	32'6"	26'6"	31'3"	28'5"	24'10"	27'4"	24'10"	21'8"	33'6"	29'0"	23'8"	29'0"	26'4"	23'0"	25'4"	23'0"	20'1"

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.

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