

November 11, 2002

Engineering Report 22299-S

Construction Metal Products, Incorporated
CMP Series 2500 18-inch Wide Steel Panel

Uplift Load Span Table

SUMMARY

Allowable span tables were tabulated for the Construction Metal Products, Incorporated, CMP Series 2500 18-inch wide steel panel under uniformly distributed negative (uplift) loads. The allowable spans were determined from full scale uplift tests in accordance with ASTM E1592, "Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference," at spans of 48-inches and 24-inches (see Cerny & Ivey Engineers, Inc. reports 22299-1 and 22299-2). Intermediate span values were linearly interpolated between test spans. All allowable spans include safety factors as recommended in the AISI 96 (Blue Book) by the American Iron and Steel Institute.

Respectfully submitted,

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INTRODUCTION

Allowable span tables were tabulated for the Construction Metal Products, Incorporated, CMP Series 2500 18-inch wide steel panel under uniformly distributed negative (uplift) loads. The span tables are typically used to determine the adequacy of roof panels to resist design wind loads. The allowable spans were determined from full scale uplift tests in accordance with ASTM E1592, "Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference," at spans of 48-inches and 24-inches. Intermediate span values were linearly interpolated between test spans. None of the spans were determined by extrapolation outside of the test values. Straight-line interpolation was assumed. Factors of safety were applied to all span values as recommended by AISI 96 (Blue Book) by the American Iron and Steel Institute.

FACTORS OF SAFETY

Three different factors of safety, each with and without an increase for wind factor, are included in the span tables. It is the responsibility of anyone using these span tables to determine the proper factor of safety for the particular application of this product under consideration. The attached span tables present the allowable span for a multiple span continuous panel under varying negative uniformly distributed pressure.

Table 1 – Allowable Panel Span for Uplift Pressure with 2.5 Safety Factor

Construction Metal Products, Incorporated
 CMP Series 2500 18-inch Wide Steel Panel
 Based on Test Pressures with 2.5 Safety Factor Applied

Without 1/3 Increase for Wind Factor		With 1/3 Increase for Wind Factor	
Negative Pressure (PSF)	Allowable Span (inches)	Negative Pressure (PSF)	Allowable Span (inches)
39.5	48.00	52.7	48.00
40	47.21	53	47.62
41	45.56	54	46.38
42	43.91	55	45.15
43	42.26	56	43.91
44	40.62	57	42.68
45	38.97	58	41.44
46	37.32	59	40.20
47	35.67	60	38.97
48	34.02	61	37.73
49	32.37	62	36.49
50	30.73	63	35.26
51	29.08	64	34.02
52	27.43	65	32.79
53	25.78	66	31.55
54	24.13	67	30.31
54.1	24.00	68	29.08
		69	27.84
		70	26.60
		71	25.37
		72	24.13
		72.1	24.00

Table 2 – Allowable Panel Span for Uplift Pressure with 2.0 Safety Factor

Construction Metal Products, Incorporated
 CMP Series 2500 18-inch Wide Steel Panel
 Based on Test Pressures with 2.0 Safety Factor Applied

Without 1/3 Increase for Wind Factor		With 1/3 Increase for Wind Factor	
Negative Pressure (PSF)	Allowable Span (inches)	Negative Pressure (PSF)	Allowable Span (inches)
49.4	48.00	65.9	48.00
50	47.21	66	47.87
51	45.89	67	46.88
52	44.57	68	45.89
53	43.25	69	44.90
54	41.93	70	43.91
55	40.62	71	42.92
56	39.30	72	41.93
57	37.98	73	40.95
58	36.66	74	39.96
59	35.34	75	38.97
60	34.02	76	37.98
61	32.70	77	36.99
62	31.38	78	36.00
63	30.07	79	35.01
64	28.75	80	34.02
65	27.43	81	33.03
66	26.11	82	32.04
67	24.79	83	31.05
67.6	24.00	84	30.07
		85	29.08
		86	28.09
		87	27.10
		88	26.11
		89	25.12
		90	24.13
		90.1	24.00

Table 3 – Allowable Panel Span for Uplift Pressure with 1.65 Safety Factor

Construction Metal Products, Incorporated
 CMP Series 2500 18-inch Wide Steel Panel
 Based on Test Pressures with 1.65 Safety Factor Applied

Without 1/3 Increase for Wind Factor		With 1/3 Increase for Wind Factor	
Negative Pressure (PSF)	Allowable Span (inches)	Negative Pressure (PSF)	Allowable Span (inches)
59.9	48.00	79.8	48.00
60	47.87	80	47.87
61	46.78	81	47.05
62	45.69	82	46.24
63	44.60	83	45.42
64	43.52	84	44.60
65	42.43	85	43.79
66	41.34	86	42.97
67	40.25	87	42.16
68	39.16	88	41.34
69	38.08	89	40.52
70	36.99	90	39.71
71	35.90	91	38.89
72	34.81	92	38.08
73	33.73	93	37.26
74	32.64	94	36.45
75	31.55	95	35.63
76	30.46	96	34.81
77	29.37	97	34.00
78	28.29	98	33.18
79	27.20	99	32.37
80	26.11	100	31.55
81.9	24.00	101	30.73
		102	29.92
		103	29.10
		104	28.29
		105	27.47
		106	26.65
		107	25.84
		108	25.02
		109	24.21
		109.3	24.00