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Mr. Tom Bell
Petersen Aluminum Corporation
4175 Royal Drive, Building 300
Kennesaw, GA 30144

SUBJECT: Engineering Report Number 24396
Allowable Negative Load Calculations
PAC-850 Soffit Panel

Dear Mr. Bell,

INTRODUCTION

The following tables are for the section properties and the allowable wind suction load calculations for the PAC-850 Soffit panel manufactured by Petersen Aluminum. The PAC-850 panel is a .032 aluminum panel designed for use as a soffit panel. The “top” and “bottom” panel references mentioned in this report are based upon the cross-section of an installed soffit panel. Table 1 displays the section properties for the panel analyzed while Table 2 displays the allowable wind suction loads. The values shown in Table 1 are for one foot of panel width. All calculations for the allowable loads of Table 2 have been made in accordance with the 1994 edition of “Aluminum Design Manual” published by the Aluminum Association, Inc. The values shown in Table 2 are for a negative loading situation; a “suction” load on the bottom surface of the panel. Also, deflection was not considered as a possible limiting factor when determining the allowable wind suction loads. The allowable loads were not increased by one-third for wind loads. The frames, purlins, fasteners, clips and/or all supports must be designed to resist the loads imposed by the panel as the allowable loads given in Table 2 apply to the panel only.





RESULTS

Table 1 – Section Properties for PAC-850 Soffit Panel

Specimen	Top in Compression			Bottom in Compression		
	I_x (in. ⁴ /ft.)	S (in. ³ /ft.)	M_a (k-in./ft.)	I_x (in. ⁴ /ft.)	S (in. ³ /ft.)	M_a (k-in./ft.)
0.032 Aluminum	0.00286	0.0106	0.1022	0.00276	0.0570	0.1398

1. Values are for one foot of panel width.

Table 2 – Allowable Wind Suction Loads (PSF) for PAC-850 Soffit Panel

	Span Length (feet)			
	1.0	2.0	3.0	4.0
Number of Spans				
1	68.1	17.0	7.6	4.3
2	93.2	23.3	10.4	5.8
3	106.5	26.6	11.8	6.7

1. All calculations have been made in accordance with the 1994 edition of “Aluminum Design Manual” published by the Aluminum Association, Inc.
2. These load capacities are for the panel itself. Frames, purlins, fasteners, clips, and all supports must be designed to resist loads imposed by the panel.
3. Deflection was not considered as a governing factor for determining loads.
4. Loads were not increased by one-third for wind loads.
5. Loads are for a negative, or suction, loading situation only.
6. All loads are in PSF.

If you have any questions or if we can be of further assistance, please do not hesitate to contact us.

Respectfully submitted,

Mark L. Jansen, E.I.T.
 Laboratory Manager/Staff Engineer

Report originally signed and stamped on
 December 30, 2004 by Gerard J. Boyce, P.E.

Gerard J. Boyce, P.E.
 Senior Staff Engineer