

October 24, 2016

Everest Solar Systems, LLC
3809 Ocean Ranch Blvd, Suite 111
Oceanside, CA 92056
Attn: Andy Neshat



RE: *AddOn System – Structural Evaluation*

To whom it may concern:

Per your request, Moment Engineering + Design has performed a comprehensive structural analysis of the Everest Solar “AddOn System” for typical roof-mounted PV installations in the State of Arizona. When installed per the conditions and design criteria described herein, the AddOn System is compliant with the sections of the design reference documents noted below.

Design Reference Documents

- *2012 International Building Code, as amended*
- *2012 International Residential Code, as amended*
- *ASCE/SEI 7-10 – Minimum Design Loads for Buildings and Other Structures*
- *2010 Aluminum Design Manual, by the Aluminum Association*
- Section and materials data provided by Everest Solar Systems
 - Rail section properties appear in the appendix to this report

Overview

The AddOn System is a shared-rail PV-panel roof mounting system consisting of extruded aluminum support rails, panel clamps, and associated fasteners. Proprietary fiber-reinforced polymer (FRP) AddOn brackets provide bearing points for panels and enable the shared-rail configuration. This analysis is limited to capacity of the rail, AddOn, and associated components only; review of roof mounting hardware is not included in this scope of work. Attachment of the AddOn System to the existing roof structure shall be the responsibility of the installer, and should be analyzed by a registered design professional where required by the local authority having jurisdiction.

Methods & Design Parameters

Applicable combinations of dead, wind, snow, and seismic loads were evaluated in accordance with current code requirements to determine allowable rail span lengths, based on assumptions of single-span, shared-rail conditions and allowable deflection of L/60.

Design wind pressures were determined using Components and Cladding calculations in Chapter 26-30 of ASCE 7-10, using the loading parameters listed below. Configurations not conforming to these parameters will require additional analysis. Calculation of applicable roof snow load should be based upon ground snow load maps and equations and factors of ASCE 7-10, Chapter 7 and

applicable sections of the 2012 IBC. For designated Case Study areas noted in the 2012 International Building Code, as amended, refer to local jurisdiction requirements for snow and wind load determination. Seismic criteria were considered per provisions of ASCE 7-10 Chapter 13 with parameters specified below. While seismic effects did not appear to govern the capacity of this system, applicable seismic detailing requirements should be satisfied when installed per the manufacturer instructions and additional installation notes specified herein.

Loading Parameters:

General:

Structural risk category: II
Panel orientation: Portrait or Landscape
Panel slope: Flush with roof deck
Rail configuration: Shared between panels
Roof slope (θ): 0-45°

Seismic:

Seismic site class: D
Seismic design category: A through E
 S_S : Not to exceed 2.000
 S_1 : Not to exceed 1.250
Component importance factor, I_p : 1.0
Amplification factor, a_p : 1.0
Response modification factor, R_p : 1.5

Wind/Snow:

Wind speed, V (Ultimate): 110-200 mph
Roof mean height, h : 30 ft. or less
Roof wind pressure region: Zone 1 - Zone 3
Wind exposure: B, C
Roof snow load = 0-50 psf

Design Results

The allowable span lengths of the system are principally controlled by applicable wind and snow loads to the structure. Refer to the AddOn System span tables in the appendix to this document for recommended rail configurations based on combinations of these loading parameters. Note that reaction loads provided in the attached tables are only applicable when used with the corresponding span length recommendations provided therein. These reactions may be scaled linearly when shorter spans are used.

Installation Notes

The following guidelines apply to all installations using the AddOn System:

- Tables assume aluminum support rails are shared between rows or columns in array.
- Panel orientation corresponds to layout relative to extruded aluminum support rails.
- Maximum end cantilever of aluminum support rail shall not exceed one-third (1/3) of allowable span in the roof wind pressure zone of the cantilever.
- Rails shall be continuous (not spliced) over a minimum of two supports.
- Installation over roof overhangs or within 10" of any roof edge is not advised.
- Extreme distance of panel surface from roof covering shall not exceed 10".
- Observe all local jurisdictional requirements regarding roof setback requirements.
- Ensure that actual span length does not exceed capacity of roof attachment.

Summary

This assessment has provided design validation for code-compliant installations of the Everest Solar AddOn System in the State of Arizona. For the configurations and design loadings noted previously, the attached span tables represent maximum span lengths based on allowable stresses and deflection criteria. For all other configurations, refer to Everest Solar Systems for engineering support.

This report does not provide analysis of roof attachment hardware, nor of any existing structures, as may be required by the local authority having jurisdiction.

We appreciate the opportunity to have assisted you with this project. Should you have any further questions regarding this analysis, please feel free to contact us by phone or email.

Best Regards,



Shawn P. Kelley, P.E.

Principal

moment ENGINEERING + DESIGN

spkelley@msegllc.com

Attachments:

1. Span Tables – Portrait Orientation
2. Span Tables – Landscape Orientation
3. Section properties and materials data

Table 1.1: Maximum Span Length (in.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - PORTRAIT	110	X80	108	91	75	64	56	50	89	89	75	64	56	50	71	71	71	64	56	50
		X48	78	64	53	46	40	36	61	61	53	46	40	36	49	49	49	46	40	36
		48-S	76	63	52	45	39	35	60	60	52	45	39	35	48	48	48	45	39	35
	115	X80	108	91	75	64	56	50	84	84	75	64	56	50	68	68	68	64	56	50
		X48	77	64	53	46	40	36	58	58	53	46	40	36	47	47	47	46	40	36
		48-S	75	63	52	45	39	35	57	57	52	45	39	35	46	46	46	45	39	35
	120	X80	106	91	75	64	56	50	81	81	75	64	56	50	65	65	65	64	56	50
		X48	73	64	53	46	40	36	55	55	53	46	40	36	45	45	45	45	40	36
		48-S	72	63	52	45	39	35	54	54	52	45	39	35	44	44	44	44	39	35
	130	X80	98	91	75	64	56	50	74	74	74	64	56	50	60	60	60	60	56	50
		X48	67	64	53	46	40	36	51	51	51	46	40	36	41	41	41	41	40	36
		48-S	66	63	52	45	39	35	50	50	50	45	39	35	40	40	40	40	39	35
	140	X80	90	90	75	64	56	50	69	69	69	64	56	50	56	56	56	56	56	50
		X48	62	62	53	46	40	36	47	47	47	46	40	36	38	38	38	38	38	36
		48-S	61	61	52	45	39	35	46	46	46	45	39	35	37	37	37	37	37	35
	150	X80	84	84	75	64	56	50	64	64	64	64	56	50	52	52	52	52	52	50
		X48	57	57	53	46	40	36	44	44	44	44	40	36	35	35	35	35	35	35
		48-S	56	56	52	45	39	35	43	43	43	43	39	35	35	35	35	35	35	35
	160	X80	78	78	74	64	56	50	60	60	60	60	56	50	49	49	49	49	49	49
		X48	54	54	52	46	40	36	41	41	41	41	40	36	33	33	33	33	33	33
		48-S	53	53	51	45	39	35	40	40	40	40	39	35	33	33	33	33	33	33
	170	X80	74	74	72	64	56	50	56	56	56	56	56	50	46	46	46	46	46	46
		X48	50	50	50	45	40	36	38	38	38	38	38	36	31	31	31	31	31	31
		48-S	49	49	49	44	39	35	38	38	38	38	38	35	31	31	31	31	31	31

Table 1.2: Maximum Uplift (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - PORTRAIT	110	X80	-571	-481	-397	-337	-295	-266	-826	-826	-702	-596	-522	-470	-1030	-1030	-1030	-922	-807	-726
		X48	-410	-340	-282	-244	-213	-192	-566	-566	-499	-431	-377	-339	-705	-705	-705	-666	-583	-525
		48-S	-402	-331	-275	-236	-207	-186	-556	-556	-486	-417	-365	-329	-693	-693	-693	-645	-565	-508
	115	X80	-630	-531	-438	-373	-326	-293	-867	-867	-772	-656	-574	-517	-1080	-1080	-1080	-1012	-885	-797
		X48	-446	-375	-312	-269	-235	-212	-594	-594	-549	-474	-415	-373	-738	-738	-738	-731	-640	-576
		48-S	-439	-366	-304	-261	-228	-205	-584	-584	-534	-459	-402	-362	-726	-726	-726	-708	-620	-558
	120	X80	-682	-584	-482	-410	-358	-323	-909	-909	-847	-720	-630	-567	-1129	-1129	-1129	-1105	-967	-870
		X48	-468	-412	-343	-296	-259	-233	-622	-622	-602	-520	-455	-409	-772	-772	-772	-772	-699	-629
		48-S	-460	-402	-334	-287	-251	-226	-612	-612	-586	-504	-441	-397	-759	-759	-759	-759	-677	-609
	130	X80	-747	-696	-575	-489	-428	-385	-990	-990	-990	-852	-745	-671	-1228	-1228	-1228	-1228	-1143	-1029
		X48	-512	-492	-409	-353	-309	-278	-677	-677	-677	-615	-538	-484	-839	-839	-839	-839	-825	-743
		48-S	-503	-480	-398	-342	-299	-269	-666	-666	-666	-596	-522	-469	-826	-826	-826	-826	-800	-720
	140	X80	-811	-811	-677	-575	-503	-453	-1071	-1071	-1071	-996	-872	-784	-1326	-1326	-1326	-1326	-1326	-1198
		X48	-556	-556	-481	-415	-363	-327	-732	-732	-732	-719	-630	-567	-906	-906	-906	-906	-906	-865
		48-S	-546	-546	-468	-403	-352	-317	-721	-721	-721	-697	-610	-549	-891	-891	-891	-891	-891	-838
	150	X80	-874	-874	-781	-667	-583	-525	-1152	-1152	-1152	-1149	-1006	-905	-1425	-1425	-1425	-1425	-1425	-1381
		X48	-599	-599	-556	-482	-421	-379	-787	-787	-787	-787	-726	-654	-973	-973	-973	-973	-973	-973
		48-S	-589	-589	-541	-467	-408	-367	-774	-774	-774	-774	-704	-633	-957	-957	-957	-957	-957	-957
	160	X80	-938	-938	-882	-765	-670	-603	-1232	-1232	-1232	-1232	-1150	-1035	-1523	-1523	-1523	-1523	-1523	-1523
		X48	-642	-642	-626	-550	-484	-435	-842	-842	-842	-842	-831	-748	-1039	-1039	-1039	-1039	-1039	-1039
		48-S	-631	-631	-610	-535	-469	-422	-828	-828	-828	-828	-805	-725	-1023	-1023	-1023	-1023	-1023	-1023
	170	X80	-1000	-1000	-984	-865	-761	-685	-1312	-1312	-1312	-1312	-1303	-1173	-1620	-1620	-1620	-1620	-1620	-1620
		X48	-684	-684	-684	-616	-549	-494	-896	-896	-896	-896	-896	-847	-1106	-1106	-1106	-1106	-1106	-1106
		48-S	-673	-673	-673	-599	-532	-479	-882	-882	-882	-882	-882	-821	-1089	-1089	-1089	-1089	-1089	-1089

Table 1.3: Maximum Downforce (lb.) - Wind Exposure B Condition

Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - PORTRAIT	110	X80	608	724	855	953	1090	1211	498	704	855	953	1090	1211	402	568	812	953	1090	1211
		X48	437	511	608	689	787	874	341	482	608	689	787	874	275	388	555	689	787	874
		48-S	428	498	592	667	763	847	335	474	592	667	763	847	270	382	546	667	763	847
	115	X80	608	724	855	953	1090	1211	475	671	855	953	1090	1211	384	542	776	953	1090	1211
		X48	431	511	608	689	787	874	325	460	608	689	787	874	262	371	530	689	787	874
		48-S	423	498	592	667	763	847	320	452	592	667	763	847	258	365	522	667	763	847
	120	X80	598	724	855	953	1090	1211	454	641	855	953	1090	1211	367	519	743	953	1090	1211
		X48	411	511	608	689	787	874	311	439	608	689	787	874	251	355	507	666	787	874
		48-S	404	498	592	667	763	847	306	432	592	667	763	847	247	349	499	655	763	847
	130	X80	549	724	855	953	1090	1211	418	590	845	953	1090	1211	338	478	684	897	1090	1211
		X48	376	511	608	689	787	874	286	404	578	689	787	874	231	326	467	612	787	874
		48-S	370	498	592	667	763	847	281	397	568	667	763	847	227	321	459	603	763	847
	140	X80	507	716	855	953	1090	1211	387	546	782	953	1090	1211	313	443	634	831	1086	1211
		X48	347	491	608	689	787	874	264	373	534	689	787	874	214	302	433	568	742	874
		48-S	341	483	592	667	763	847	260	367	526	667	763	847	211	298	426	559	730	847
	150	X80	483	675	860	953	1090	1211	369	516	735	953	1090	1211	299	418	596	775	1012	1211
		X48	331	462	611	689	787	874	252	352	502	653	787	874	204	285	407	529	691	853
		48-S	325	454	595	667	763	847	248	347	494	642	763	847	201	281	400	520	680	839
	160	X80	499	666	879	981	1090	1211	381	509	715	920	1090	1211	310	413	580	747	947	1169
		X48	341	456	624	706	787	874	261	348	488	628	787	874	211	282	396	510	647	798
		48-S	336	448	608	686	763	847	256	342	480	618	763	847	208	278	390	502	636	786
	170	X80	517	662	899	1008	1090	1211	396	507	700	893	1090	1211	321	411	568	725	891	1099
		X48	353	453	625	718	787	874	270	346	478	610	749	874	219	281	388	494	608	750
		48-S	348	445	615	698	763	847	266	341	470	600	737	847	216	276	382	487	598	738

Table 1.4: Maximum Shear (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - PORTRAIT	110	X80	14	55	82	100	115	127	11	54	82	100	115	127	9	43	78	100	115	127
		X48	10	39	58	72	83	92	8	37	58	72	83	92	6	30	53	72	83	92
		48-S	10	38	57	70	80	89	8	36	57	70	80	89	6	29	52	70	80	89
	115	X80	14	55	82	100	115	127	11	51	82	100	115	127	9	41	74	100	115	127
		X48	10	39	58	72	83	92	7	35	58	72	83	92	6	28	51	72	83	92
		48-S	10	38	57	70	80	89	7	35	57	70	80	89	6	28	50	70	80	89
	120	X80	14	55	82	100	115	127	10	49	82	100	115	127	8	40	71	100	115	127
		X48	9	39	58	72	83	92	7	34	58	72	83	92	6	27	49	70	83	92
		48-S	9	38	57	70	80	89	7	33	57	70	80	89	6	27	48	69	80	89
	130	X80	12	55	82	100	115	127	9	45	81	100	115	127	8	37	65	94	115	127
		X48	9	39	58	72	83	92	6	31	55	72	83	92	5	25	45	64	83	92
		48-S	8	38	57	70	80	89	6	30	54	70	80	89	5	25	44	63	80	89
	140	X80	12	55	82	100	115	127	9	42	75	100	115	127	7	34	61	87	114	127
		X48	8	38	58	72	83	92	6	29	51	72	83	92	5	23	41	60	78	92
		48-S	8	37	57	70	80	89	6	28	50	70	80	89	5	23	41	59	77	89
	150	X80	11	51	81	100	115	127	8	39	70	100	115	127	7	32	56	81	106	127
		X48	7	35	58	72	83	92	6	27	48	69	83	92	5	22	39	56	73	90
		48-S	7	34	56	70	80	89	5	26	47	68	80	89	4	21	38	55	71	88
	160	X80	10	48	80	100	115	127	8	36	65	94	115	127	6	30	53	76	100	123
		X48	7	33	57	72	83	92	5	25	45	64	83	92	4	20	36	52	68	84
		48-S	7	32	55	70	80	89	5	24	44	63	80	89	4	20	36	51	67	83
	170	X80	9	45	79	100	115	127	7	34	61	88	115	127	6	28	50	72	94	116
		X48	6	31	55	71	83	92	5	23	42	60	79	92	4	19	34	49	64	79
		48-S	6	30	54	69	80	89	5	23	41	59	78	89	4	19	33	48	63	78

Table 1.5: Maximum Span Length (in.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - PORTRAIT	110	X80	97	91	75	64	56	50	74	74	74	64	56	50	60	60	60	60	56	50
		X48	67	64	53	46	40	36	51	51	51	46	40	36	41	41	41	41	40	36
		48-S	66	63	52	45	39	35	50	50	50	45	39	35	40	40	40	40	39	35
	115	X80	93	91	75	64	56	50	71	71	71	64	56	50	57	57	57	57	56	50
		X48	64	64	53	46	40	36	48	48	48	46	40	36	39	39	39	39	39	36
		48-S	63	63	52	45	39	35	48	48	48	45	39	35	39	39	39	39	39	35
	120	X80	89	89	75	64	56	50	68	68	68	64	56	50	55	55	55	55	55	50
		X48	61	61	53	46	40	36	46	46	46	46	40	36	38	38	38	38	38	36
		48-S	60	60	52	45	39	35	46	46	46	45	39	35	37	37	37	37	37	35
	130	X80	82	82	74	64	56	50	62	62	62	62	56	50	51	51	51	51	51	50
		X48	56	56	53	46	40	36	43	43	43	43	40	36	35	35	35	35	35	35
		48-S	55	55	51	45	39	35	42	42	42	42	39	35	34	34	34	34	34	34
	140	X80	76	76	73	64	56	50	58	58	58	58	56	50	47	47	47	47	47	47
		X48	52	52	52	46	40	36	39	39	39	39	39	36	32	32	32	32	32	32
		48-S	51	51	50	44	39	35	39	39	39	39	39	35	32	32	32	32	32	32
	150	X80	70	70	70	63	56	50	54	54	54	54	54	50	44	44	44	44	44	44
		X48	48	48	48	45	40	36	37	37	37	37	37	36	30	30	30	30	30	30
		48-S	47	47	47	44	39	35	36	36	36	36	36	35	29	29	29	29	29	29
	160	X80	66	66	66	62	56	50	50	50	50	50	50	50	41	41	41	41	41	41
		X48	45	45	45	44	40	36	34	34	34	34	34	34	28	28	28	28	28	28
		48-S	44	44	44	43	39	35	34	34	34	34	34	34	28	28	28	28	28	28
	170	X80	62	62	62	61	55	50	47	47	47	47	47	47	39	39	39	39	39	39
		X48	42	42	42	42	39	36	32	32	32	32	32	32	26	26	26	26	26	26
		48-S	42	42	42	42	38	35	32	32	32	32	32	32	26	26	26	26	26	26

Table 1.6: Maximum Uplift (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - PORTRAIT	110	X80	-748	-700	-578	-491	-430	-387	-991	-991	-991	-853	-747	-672	-1230	-1230	-1230	-1230	-1146	-1031
		X48	-513	-494	-411	-355	-310	-279	-678	-678	-678	-616	-539	-485	-840	-840	-840	-840	-828	-745
		48-S	-504	-482	-400	-344	-301	-271	-667	-667	-667	-597	-523	-470	-827	-827	-827	-827	-802	-722
	115	X80	-786	-770	-636	-540	-473	-425	-1039	-1039	-1039	-937	-820	-738	-1288	-1288	-1288	-1288	-1256	-1130
		X48	-538	-538	-452	-390	-341	-307	-710	-710	-710	-677	-592	-533	-880	-880	-880	-880	-880	-816
		48-S	-529	-529	-440	-378	-331	-298	-699	-699	-699	-656	-574	-517	-866	-866	-866	-866	-866	-791
	120	X80	-823	-823	-697	-592	-518	-466	-1087	-1087	-1087	-1026	-898	-808	-1346	-1346	-1346	-1346	-1346	-1233
		X48	-564	-564	-496	-428	-374	-337	-743	-743	-743	-741	-648	-584	-919	-919	-919	-919	-919	-891
		48-S	-554	-554	-482	-414	-363	-326	-731	-731	-731	-718	-628	-565	-904	-904	-904	-904	-904	-863
	130	X80	-898	-898	-818	-703	-615	-554	-1182	-1182	-1182	-1182	-1060	-954	-1462	-1462	-1462	-1462	-1462	-1455
		X48	-615	-615	-582	-508	-444	-400	-808	-808	-808	-808	-765	-689	-998	-998	-998	-998	-998	-998
		48-S	-605	-605	-566	-492	-430	-387	-795	-795	-795	-795	-742	-667	-983	-983	-983	-983	-983	-983
	140	X80	-973	-973	-940	-824	-721	-649	-1278	-1278	-1278	-1278	-1236	-1113	-1578	-1578	-1578	-1578	-1578	-1578
		X48	-666	-666	-666	-588	-521	-469	-873	-873	-873	-873	-873	-804	-1077	-1077	-1077	-1077	-1077	-1077
		48-S	-655	-655	-650	-572	-504	-454	-859	-859	-859	-859	-859	-779	-1060	-1060	-1060	-1060	-1060	-1060
	150	X80	-1047	-1047	-1047	-937	-833	-750	-1372	-1372	-1372	-1372	-1372	-1282	-1693	-1693	-1693	-1693	-1693	-1693
		X48	-716	-716	-716	-666	-602	-542	-937	-937	-937	-937	-937	-926	-1156	-1156	-1156	-1156	-1156	-1156
		48-S	-704	-704	-704	-649	-583	-525	-922	-922	-922	-922	-922	-897	-1137	-1137	-1137	-1137	-1137	-1137
	160	X80	-1121	-1121	-1121	-1055	-954	-858	-1467	-1467	-1467	-1467	-1467	-1464	-1809	-1809	-1809	-1809	-1809	-1809
		X48	-766	-766	-766	-749	-682	-620	-1002	-1002	-1002	-1002	-1002	-1002	-1234	-1234	-1234	-1234	-1234	-1234
		48-S	-754	-754	-754	-730	-663	-601	-986	-986	-986	-986	-986	-986	-1215	-1215	-1215	-1215	-1215	-1215
	170	X80	-1194	-1194	-1194	-1175	-1069	-973	-1561	-1561	-1561	-1561	-1561	-1561	-1924	-1924	-1924	-1924	-1924	-1924
		X48	-816	-816	-816	-816	-761	-703	-1065	-1065	-1065	-1065	-1065	-1065	-1313	-1313	-1313	-1313	-1313	-1313
		48-S	-803	-803	-803	-803	-740	-681	-1049	-1049	-1049	-1049	-1049	-1049	-1292	-1292	-1292	-1292	-1292	-1292

Table 1.7: Maximum Downforce (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - PORTRAIT	110	X80	548	724	855	953	1090	1211	417	590	844	953	1090	1211	338	477	683	895	1090	1211
		X48	376	511	608	689	787	874	285	403	577	689	787	874	231	326	466	612	787	874
		48-S	369	498	592	667	763	847	281	397	568	667	763	847	227	321	459	602	763	847
	115	X80	523	724	855	953	1090	1211	398	563	806	953	1090	1211	323	456	652	856	1090	1211
		X48	358	506	608	689	787	874	272	385	551	689	787	874	220	311	445	584	763	874
		48-S	352	498	592	667	763	847	268	379	542	667	763	847	217	306	438	575	751	847
	120	X80	500	706	855	953	1090	1211	381	538	770	953	1090	1211	309	436	625	819	1070	1211
		X48	342	484	608	689	787	874	260	368	527	689	787	874	211	298	427	559	731	874
		48-S	337	476	592	667	763	847	256	362	518	667	763	847	208	293	420	551	719	847
	130	X80	490	672	867	964	1090	1211	374	513	727	941	1090	1211	303	416	590	763	986	1211
		X48	335	460	616	696	787	874	256	351	497	643	787	874	207	284	403	521	673	831
		48-S	330	452	600	674	763	847	252	345	489	633	763	847	204	280	396	513	662	818
	140	X80	508	663	890	999	1090	1211	389	507	705	903	1090	1211	316	412	573	734	915	1129
		X48	348	453	630	712	787	874	266	347	482	617	769	874	216	281	391	501	624	771
		48-S	342	446	615	693	763	847	261	341	474	607	757	847	212	277	385	493	614	758
	150	X80	533	662	903	1023	1101	1211	408	507	692	876	1061	1211	332	412	562	712	862	1052
		X48	364	452	617	728	795	874	279	346	472	598	724	874	226	281	383	486	588	718
		48-S	358	445	607	708	771	847	274	341	465	589	713	847	223	277	377	478	579	707
	160	X80	554	661	886	1046	1137	1211	425	507	680	852	1025	1211	345	412	552	693	833	986
		X48	379	452	605	743	813	874	290	346	464	582	700	828	236	281	377	473	568	673
		48-S	373	444	596	723	790	847	286	341	457	573	689	815	232	277	371	465	559	662
	170	X80	578	664	875	1070	1163	1230	444	510	672	835	997	1160	361	414	546	678	810	942
		X48	395	454	598	743	827	889	303	348	459	570	681	791	246	283	373	463	553	643
		48-S	389	446	589	731	805	861	298	342	452	561	670	779	242	278	367	455	544	633

Table 1.8: Maximum Shear (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - PORTRAIT	110	X80	12	55	82	100	115	127	9	45	81	100	115	127	8	36	65	94	115	127
		X48	9	39	58	72	83	92	6	31	55	72	83	92	5	25	45	64	83	92
		48-S	8	38	57	70	80	89	6	30	54	70	80	89	5	25	44	63	80	89
	115	X80	12	55	82	100	115	127	9	43	77	100	115	127	7	35	62	90	115	127
		X48	8	39	58	72	83	92	6	29	53	72	83	92	5	24	43	61	80	92
		48-S	8	38	57	70	80	89	6	29	52	70	80	89	5	23	42	60	79	89
	120	X80	11	54	82	100	115	127	9	41	74	100	115	127	7	33	60	86	112	127
		X48	8	37	58	72	83	92	6	28	50	72	83	92	5	23	41	59	77	92
		48-S	8	36	57	70	80	89	6	28	50	70	80	89	5	22	40	58	76	89
	130	X80	10	50	81	100	115	127	8	38	68	98	115	127	6	31	55	79	104	127
		X48	7	34	58	72	83	92	5	26	46	67	83	92	4	21	38	54	71	87
		48-S	7	33	56	70	80	89	5	25	46	66	80	89	4	21	37	53	70	86
	140	X80	10	46	79	100	115	127	7	35	63	91	115	127	6	29	51	74	96	119
		X48	7	31	56	71	83	92	5	24	43	62	81	92	4	19	35	50	66	81
		48-S	6	31	55	70	80	89	5	24	42	61	80	89	4	19	34	49	65	80
	150	X80	9	43	76	99	115	127	7	33	59	84	110	127	6	27	48	69	90	111
		X48	6	29	52	70	83	92	5	22	40	58	75	92	4	18	32	47	61	75
		48-S	6	29	51	68	80	89	5	22	39	57	74	89	4	18	32	46	60	74
	160	X80	8	40	72	97	115	127	6	31	55	79	103	127	5	25	45	64	84	104
		X48	6	27	49	69	82	92	4	21	37	54	71	87	4	17	30	44	57	71
		48-S	6	27	48	67	80	89	4	21	37	53	69	86	4	17	30	43	56	70
	170	X80	8	38	67	95	113	127	6	29	52	74	97	120	5	23	42	60	79	97
		X48	5	26	46	66	81	92	4	20	35	51	66	82	3	16	29	41	54	66
		48-S	5	25	45	65	78	89	4	19	35	50	65	81	3	16	28	41	53	65

Table 1.9: Maximum Span Length (in.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - PORTRAIT	110	X80	106	80	63	53	46	41	88	80	63	53	46	41	73	73	63	53	46	41
		X48	76	61	51	43	37	34	61	61	51	43	37	34	50	50	50	43	37	34
		48-S	74	58	48	40	35	31	60	58	48	40	35	31	49	49	48	40	35	31
	115	X80	106	80	63	53	46	41	84	80	63	53	46	41	69	69	63	53	46	41
		X48	76	61	51	43	37	34	59	59	51	43	37	34	48	48	48	43	37	34
		48-S	74	58	48	40	35	31	57	57	48	40	35	31	47	47	47	40	35	31
	120	X80	106	80	63	53	46	41	81	80	63	53	46	41	67	67	63	53	46	41
		X48	75	61	51	43	37	34	56	56	51	43	37	34	46	46	46	43	37	34
		48-S	73	58	48	40	35	31	55	55	48	40	35	31	45	45	45	40	35	31
	130	X80	99	79	63	53	46	41	75	75	63	53	46	41	61	61	61	53	46	41
		X48	69	60	50	43	37	34	52	52	50	43	37	34	42	42	42	42	37	34
		48-S	67	57	47	40	35	31	51	51	47	40	35	31	42	42	42	40	35	31
	140	X80	91	77	63	53	46	41	69	69	63	53	46	41	57	57	57	53	46	41
		X48	64	59	49	43	37	34	48	48	48	43	37	34	39	39	39	39	37	34
		48-S	62	56	46	40	35	31	47	47	46	40	35	31	39	39	39	39	35	31
	150	X80	85	75	62	53	46	41	65	65	62	53	46	41	53	53	53	53	46	41
		X48	59	57	48	42	37	34	45	45	45	42	37	34	37	37	37	37	37	34
		48-S	58	54	46	40	35	31	44	44	44	40	35	31	36	36	36	36	35	31
	160	X80	80	73	61	53	46	41	61	61	61	53	46	41	50	50	50	50	46	41
		X48	56	55	47	42	37	34	42	42	42	42	37	34	34	34	34	34	34	34
		48-S	54	53	45	39	35	31	41	41	41	39	35	31	34	34	34	34	34	31
	170	X80	75	71	60	53	46	41	57	57	57	53	46	41	47	47	47	47	46	41
		X48	52	52	46	41	37	34	39	39	39	39	37	34	32	32	32	32	32	32
		48-S	51	51	44	39	35	31	39	39	39	39	35	31	32	32	32	32	32	31

Table 1.10: Maximum Uplift (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - PORTRAIT	110	X80	-512	-385	-304	-253	-222	-200	-785	-710	-561	-468	-409	-368	-978	-978	-850	-708	-620	-558
		X48	-368	-296	-244	-206	-181	-163	-547	-546	-450	-381	-333	-300	-676	-676	-676	-577	-505	-454
		48-S	-357	-281	-230	-193	-168	-152	-535	-519	-425	-355	-311	-280	-663	-663	-644	-538	-471	-424
	115	X80	-567	-426	-337	-281	-246	-221	-826	-780	-617	-514	-450	-405	-1026	-1026	-932	-776	-679	-611
		X48	-407	-328	-270	-229	-200	-180	-574	-574	-495	-419	-366	-330	-708	-708	-708	-632	-553	-498
		48-S	-395	-312	-255	-213	-187	-168	-562	-562	-468	-391	-342	-308	-695	-695	-695	-590	-516	-465
	120	X80	-623	-468	-370	-308	-270	-243	-867	-855	-676	-563	-493	-444	-1075	-1075	-1019	-849	-743	-668
		X48	-441	-360	-297	-251	-220	-198	-601	-601	-542	-459	-402	-361	-741	-741	-741	-691	-605	-544
		48-S	-430	-342	-281	-234	-205	-185	-589	-589	-512	-428	-375	-337	-727	-727	-727	-645	-564	-508
	130	X80	-690	-551	-442	-368	-322	-290	-947	-947	-800	-666	-583	-525	-1171	-1171	-1171	-1002	-877	-789
		X48	-483	-422	-350	-300	-262	-236	-655	-655	-634	-543	-475	-427	-806	-806	-806	-806	-714	-643
		48-S	-472	-402	-331	-280	-245	-220	-643	-643	-600	-506	-443	-399	-792	-792	-792	-762	-666	-600
	140	X80	-754	-634	-519	-433	-379	-341	-1028	-1028	-934	-779	-682	-614	-1268	-1268	-1268	-1169	-1023	-920
		X48	-525	-483	-404	-353	-309	-278	-710	-710	-710	-635	-555	-500	-872	-872	-872	-872	-833	-750
		48-S	-514	-460	-382	-329	-288	-259	-696	-696	-688	-592	-518	-466	-856	-856	-856	-856	-777	-700
	150	X80	-815	-716	-591	-501	-438	-395	-1107	-1107	-1060	-899	-787	-708	-1364	-1364	-1364	-1347	-1178	-1061
		X48	-566	-542	-457	-403	-357	-321	-763	-763	-763	-723	-641	-577	-936	-936	-936	-936	-936	-864
		48-S	-555	-518	-434	-381	-333	-300	-749	-749	-749	-684	-598	-538	-920	-920	-920	-920	-896	-806
	160	X80	-876	-802	-666	-575	-503	-453	-1187	-1187	-1187	-1028	-900	-810	-1459	-1459	-1459	-1459	-1344	-1210
		X48	-608	-604	-514	-455	-410	-369	-817	-817	-817	-813	-733	-660	-1001	-1001	-1001	-1001	-1001	-986
		48-S	-596	-578	-488	-430	-382	-344	-802	-802	-802	-770	-684	-615	-984	-984	-984	-984	-984	-920
	170	X80	-938	-890	-745	-654	-573	-515	-1265	-1265	-1265	-1164	-1019	-917	-1554	-1554	-1554	-1554	-1522	-1370
		X48	-649	-649	-572	-509	-463	-420	-870	-870	-870	-870	-823	-747	-1065	-1065	-1065	-1065	-1065	-1065
		48-S	-637	-637	-544	-482	-435	-392	-855	-855	-855	-855	-774	-697	-1047	-1047	-1047	-1047	-1047	-1041

Table 1.11: Maximum Downforce (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - PORTRAIT	110	X80	586	601	672	724	817	907	487	601	672	724	817	907	400	547	672	724	817	907
		X48	421	463	539	590	665	739	339	463	539	590	665	739	277	378	535	590	665	739
		48-S	408	440	510	550	621	690	332	440	510	550	621	690	271	371	510	550	621	690
	115	X80	586	601	672	724	817	907	466	601	672	724	817	907	383	523	672	724	817	907
		X48	421	463	539	590	665	739	324	442	539	590	665	739	265	361	511	590	665	739
		48-S	408	440	510	550	621	690	317	433	510	550	621	690	260	355	502	550	621	690
	120	X80	586	601	672	724	817	907	446	601	672	724	817	907	367	502	672	724	817	907
		X48	414	463	539	590	665	739	310	423	539	590	665	739	253	346	489	590	665	739
		48-S	405	440	510	550	621	690	303	414	510	550	621	690	248	339	480	550	621	690
	130	X80	585	618	692	741	817	907	443	586	692	741	817	907	364	482	674	741	817	907
		X48	409	474	549	603	665	739	307	406	549	603	665	739	251	332	464	596	665	739
		48-S	400	451	519	563	621	690	301	398	519	563	621	690	246	326	455	563	621	690
	140	X80	613	648	727	771	818	907	465	584	727	771	818	907	382	480	658	771	818	907
		X48	427	494	566	628	667	739	321	403	553	628	667	739	263	330	453	575	667	739
		48-S	418	471	536	586	622	690	315	396	536	586	622	690	258	324	445	565	622	690
	150	X80	643	679	754	804	847	907	487	585	754	804	847	907	401	481	647	804	847	907
		X48	447	515	584	646	690	739	336	403	543	646	690	739	275	330	445	559	673	739
		48-S	438	491	554	611	644	690	330	396	533	611	644	690	270	325	437	549	644	690
	160	X80	674	711	782	838	877	919	510	589	778	838	877	919	420	484	640	796	877	919
		X48	467	536	602	663	715	748	351	405	536	663	715	748	288	332	439	546	653	748
		48-S	458	513	572	627	667	698	345	398	526	627	667	698	283	327	432	537	642	698
	170	X80	706	745	811	876	910	949	535	596	774	876	910	949	440	490	636	783	910	949
		X48	489	544	622	681	735	773	368	410	532	655	735	773	302	336	436	537	637	738
		48-S	479	533	592	645	692	721	362	402	523	643	692	721	297	330	429	528	626	721

Table 1.12: Maximum Shear (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - PORTRAIT	110	X80	55	196	278	333	381	423	46	196	278	333	381	423	37	178	278	333	381	423
		X48	39	151	223	271	310	345	32	151	223	271	310	345	26	123	221	271	310	345
		48-S	38	143	210	253	289	322	31	143	210	253	289	322	25	121	210	253	289	322
	115	X80	55	196	278	333	381	423	44	196	278	333	381	423	36	171	278	333	381	423
		X48	39	151	223	271	310	345	30	144	223	271	310	345	25	118	211	271	310	345
		48-S	38	143	210	253	289	322	30	141	210	253	289	322	24	116	207	253	289	322
	120	X80	55	196	278	333	381	423	42	196	278	333	381	423	34	164	278	333	381	423
		X48	39	151	223	271	310	345	29	138	223	271	310	345	24	113	202	271	310	345
		48-S	38	143	210	253	289	322	28	135	210	253	289	322	23	111	198	253	289	322
	130	X80	51	194	278	333	381	423	39	184	278	333	381	423	32	151	270	333	381	423
		X48	36	148	220	271	310	345	27	127	220	271	310	345	22	104	186	268	310	345
		48-S	35	141	208	253	289	322	26	125	208	253	289	322	21	102	183	253	289	322
	140	X80	47	189	277	333	381	423	36	170	277	333	381	423	29	140	251	333	381	423
		X48	33	144	216	271	310	345	25	118	211	271	310	345	20	96	172	248	310	345
		48-S	32	137	204	253	289	322	24	115	204	253	289	322	20	95	169	244	289	322
	150	X80	44	185	273	333	381	423	33	159	273	333	381	423	27	131	234	333	381	423
		X48	31	140	211	268	310	345	23	110	196	268	310	345	19	90	161	232	303	345
		48-S	30	134	200	253	289	322	23	108	193	253	289	322	19	88	158	228	289	322
	160	X80	41	180	268	333	381	423	31	149	267	333	381	423	26	123	219	316	381	423
		X48	29	136	207	264	310	345	22	103	184	264	310	345	18	84	151	217	283	345
		48-S	28	130	196	249	289	322	21	101	180	249	289	322	17	83	148	213	279	322
	170	X80	39	176	263	333	381	423	29	140	251	333	381	423	24	115	207	298	381	423
		X48	27	128	202	259	308	345	20	96	173	249	308	345	17	79	142	204	267	329
		48-S	26	126	192	245	289	322	20	95	170	245	289	322	16	78	139	201	262	322

Table 1.13: Maximum Span Length (in.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - PORTRAIT	110	X80	99	79	63	53	46	41	75	75	63	53	46	41	61	61	61	53	46	41
		X48	69	60	50	43	37	34	52	52	50	43	37	34	42	42	42	42	37	34
		48-S	67	57	47	40	35	31	51	51	47	40	35	31	41	41	41	40	35	31
	115	X80	94	78	63	53	46	41	71	71	63	53	46	41	59	59	59	53	46	41
		X48	66	59	49	43	37	34	49	49	49	43	37	34	40	40	40	40	37	34
		48-S	64	57	47	40	35	31	48	48	47	40	35	31	40	40	40	40	35	31
	120	X80	90	77	63	53	46	41	68	68	63	53	46	41	56	56	56	53	46	41
		X48	63	58	49	43	37	34	47	47	47	43	37	34	39	39	39	39	37	34
		48-S	62	56	46	40	35	31	46	46	46	40	35	31	38	38	38	38	35	31
	130	X80	83	74	62	53	46	41	63	63	62	53	46	41	52	52	52	52	46	41
		X48	58	56	48	42	37	34	43	43	43	42	37	34	36	36	36	36	36	34
		48-S	57	54	45	40	35	31	43	43	43	40	35	31	35	35	35	35	35	31
	140	X80	77	72	60	53	46	41	59	59	59	53	46	41	48	48	48	48	46	41
		X48	54	54	46	41	37	34	40	40	40	40	37	34	33	33	33	33	33	33
		48-S	52	52	44	39	35	31	40	40	40	39	35	31	32	32	32	32	32	31
	150	X80	72	70	59	52	46	41	55	55	55	52	46	41	45	45	45	45	45	41
		X48	50	50	45	40	37	34	38	38	38	38	37	34	31	31	31	31	31	31
		48-S	49	49	43	38	35	31	37	37	37	37	35	31	30	30	30	30	30	30
	160	X80	68	68	58	51	46	41	51	51	51	51	46	41	42	42	42	42	42	41
		X48	47	47	44	39	36	33	35	35	35	35	35	33	29	29	29	29	29	29
		48-S	46	46	42	37	34	31	35	35	35	35	34	31	28	28	28	28	28	28
	170	X80	64	64	57	50	46	41	48	48	48	48	46	41	40	40	40	40	40	40
		X48	44	44	43	39	35	33	33	33	33	33	33	33	27	27	27	27	27	27
		48-S	43	43	41	37	34	31	33	33	33	33	33	31	27	27	27	27	27	27

Table 1.14: Maximum Uplift (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - PORTRAIT	110	X80	-691	-552	-443	-369	-323	-290	-949	-949	-803	-669	-585	-527	-1173	-1173	-1173	-1005	-880	-792
		X48	-484	-423	-351	-300	-263	-237	-657	-657	-637	-545	-477	-429	-808	-808	-808	-808	-717	-645
		48-S	-473	-403	-332	-280	-245	-221	-644	-644	-602	-508	-445	-400	-793	-793	-793	-764	-669	-602
	115	X80	-729	-601	-489	-407	-356	-321	-996	-996	-881	-734	-642	-578	-1229	-1229	-1229	-1101	-963	-867
		X48	-509	-459	-383	-332	-290	-261	-688	-688	-688	-598	-523	-471	-846	-846	-846	-846	-785	-706
		48-S	-498	-438	-362	-309	-271	-244	-675	-675	-653	-558	-488	-439	-830	-830	-830	-830	-732	-659
	120	X80	-765	-649	-532	-446	-390	-351	-1044	-1044	-959	-803	-702	-632	-1286	-1286	-1286	-1202	-1052	-947
		X48	-533	-494	-414	-363	-318	-286	-720	-720	-720	-654	-572	-515	-884	-884	-884	-884	-857	-771
		48-S	-522	-471	-392	-339	-296	-267	-707	-707	-706	-610	-534	-480	-869	-869	-869	-869	-799	-720
	130	X80	-838	-749	-619	-529	-463	-416	-1137	-1137	-1109	-947	-828	-745	-1399	-1399	-1399	-1399	-1240	-1116
		X48	-582	-566	-479	-423	-377	-339	-783	-783	-783	-757	-675	-607	-961	-961	-961	-961	-961	-909
		48-S	-570	-541	-455	-400	-352	-317	-769	-769	-769	-715	-630	-567	-944	-944	-944	-944	-942	-848
	140	X80	-912	-852	-712	-620	-543	-488	-1232	-1232	-1232	-1105	-967	-870	-1513	-1513	-1513	-1513	-1444	-1300
		X48	-632	-632	-547	-486	-441	-398	-847	-847	-847	-847	-786	-709	-1037	-1037	-1037	-1037	-1037	-1037
		48-S	-619	-613	-520	-460	-412	-371	-832	-832	-832	-819	-735	-661	-1020	-1020	-1020	-1020	-1020	-988
	150	X80	-983	-955	-804	-708	-626	-563	-1325	-1325	-1325	-1260	-1114	-1003	-1625	-1625	-1625	-1625	-1625	-1496
		X48	-679	-679	-615	-549	-500	-459	-910	-910	-910	-910	-890	-817	-1114	-1114	-1114	-1114	-1114	-1114
		48-S	-666	-666	-586	-520	-473	-428	-894	-894	-894	-894	-842	-762	-1095	-1095	-1095	-1095	-1095	-1095
	160	X80	-1055	-1055	-901	-797	-716	-645	-1418	-1418	-1418	-1415	-1272	-1145	-1737	-1737	-1737	-1737	-1737	-1705
		X48	-728	-728	-685	-615	-562	-521	-973	-973	-973	-973	-973	-926	-1189	-1189	-1189	-1189	-1189	-1189
		48-S	-714	-714	-654	-584	-533	-490	-956	-956	-956	-956	-946	-870	-1170	-1170	-1170	-1170	-1170	-1170
	170	X80	-1127	-1127	-1001	-890	-809	-733	-1510	-1510	-1510	-1510	-1430	-1295	-1849	-1849	-1849	-1849	-1849	-1849
		X48	-776	-776	-757	-683	-627	-583	-1035	-1035	-1035	-1035	-1035	-1030	-1265	-1265	-1265	-1265	-1265	-1265
		48-S	-762	-762	-724	-650	-595	-552	-1018	-1018	-1018	-1018	-1018	-975	-1245	-1245	-1245	-1245	-1245	-1245

Table 1.15: Maximum Downforce (lb.) - Wind Exposure C Condition

Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - PORTRAIT	110	X80	584	618	692	741	817	907	442	585	692	741	817	907	364	481	673	741	817	907
		X48	409	474	549	603	665	739	306	405	549	603	665	739	250	331	463	595	665	739
		48-S	400	451	519	563	621	690	300	397	519	563	621	690	246	325	455	563	621	690
	115	X80	602	636	714	759	817	907	456	585	714	759	817	907	375	481	664	759	817	907
		X48	420	486	559	618	665	739	315	404	558	618	665	739	258	331	457	583	665	739
		48-S	411	463	529	577	621	690	309	396	529	577	621	690	254	325	449	573	621	690
	120	X80	619	654	732	777	823	907	469	584	732	777	823	907	386	480	656	777	823	907
		X48	431	498	569	633	671	739	323	403	550	633	671	739	265	330	451	571	671	739
		48-S	422	475	539	591	626	690	317	395	539	591	626	690	260	324	443	561	626	690
	130	X80	655	691	764	817	858	907	496	587	764	817	858	907	408	482	644	806	858	907
		X48	455	523	591	653	699	739	342	404	540	653	699	739	280	331	442	554	665	739
		48-S	446	500	561	617	652	690	336	397	530	617	652	690	275	325	435	544	652	690
	140	X80	691	730	798	859	895	935	524	592	775	859	895	935	431	487	637	788	895	935
		X48	479	541	613	673	728	762	360	407	533	659	728	762	295	334	437	540	643	746
		48-S	469	525	583	637	681	711	354	400	524	637	681	711	290	328	430	531	632	711
	150	X80	729	770	833	896	935	971	552	600	771	896	935	971	454	493	634	774	914	971
		X48	504	548	637	694	747	791	379	412	530	647	747	791	311	338	434	530	627	723
		48-S	494	537	606	658	707	738	373	405	520	636	707	738	306	332	427	522	616	711
	160	X80	767	805	869	928	978	1009	581	610	770	928	978	1009	478	502	633	765	897	1009
		X48	529	556	661	716	768	816	399	419	528	638	748	816	327	343	434	524	614	704
		48-S	519	545	630	680	727	767	392	411	519	627	727	767	322	338	426	515	604	692
	170	X80	807	822	907	963	1018	1051	612	623	774	925	1018	1051	503	512	636	760	884	1008
		X48	556	566	686	739	789	837	420	427	531	634	737	837	344	351	435	520	605	690
		48-S	546	556	656	703	748	792	413	420	522	623	725	792	339	345	428	512	595	678

Table 1.16: Maximum Shear (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - PORTRAIT	110	X80	51	194	278	333	381	423	38	183	278	333	381	423	32	151	270	333	381	423
		X48	36	148	220	271	310	345	27	127	220	271	310	345	22	104	186	268	310	345
		48-S	35	141	208	253	289	322	26	124	208	253	289	322	21	102	182	253	289	322
	115	X80	49	191	278	333	381	423	37	175	278	333	381	423	30	144	258	333	381	423
		X48	34	146	217	271	310	345	25	121	217	271	310	345	21	99	178	256	310	345
		48-S	33	139	206	253	289	322	25	119	206	253	289	322	20	97	174	251	289	322
	120	X80	47	188	276	333	381	423	35	168	276	333	381	423	29	138	247	333	381	423
		X48	32	143	215	271	310	345	24	116	207	271	310	345	20	95	170	245	310	345
		48-S	32	137	203	253	289	322	24	114	203	253	289	322	20	93	167	241	289	322
	130	X80	43	183	271	333	381	423	33	155	271	333	381	423	27	128	228	329	381	423
		X48	30	138	209	266	310	345	22	107	191	266	310	345	18	88	157	226	295	345
		48-S	29	132	199	252	289	322	22	105	188	252	289	322	18	86	154	222	289	322
	140	X80	40	178	265	333	381	423	30	144	258	333	381	423	25	118	212	305	381	423
		X48	28	132	204	261	310	345	21	99	177	255	310	345	17	81	145	209	274	338
		48-S	27	128	194	247	289	322	20	97	174	247	289	322	17	80	143	206	269	322
	150	X80	37	172	260	330	381	423	28	134	241	330	381	423	23	110	198	285	372	423
		X48	26	123	199	256	304	345	19	92	165	238	304	345	16	76	136	195	255	315
		48-S	25	120	189	242	288	322	19	91	162	234	288	322	16	74	133	192	251	310
	160	X80	35	166	254	324	381	423	26	126	225	324	381	423	22	104	185	267	349	423
		X48	24	115	193	250	299	342	18	86	155	223	291	342	15	71	127	183	239	295
		48-S	24	113	185	238	283	322	18	85	152	219	283	322	15	70	125	180	235	290
	170	X80	33	156	249	319	378	423	25	119	212	306	378	423	20	98	175	252	329	406
		X48	23	108	188	245	293	337	17	81	146	210	274	337	14	67	119	172	225	278
		48-S	22	106	180	233	278	319	17	80	143	206	269	319	14	66	117	169	221	273

Table 1.17: Maximum Span Length (in.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - PORTRAIT	110	X80	97	74	59	49	43	39	97	74	59	49	43	39	97	74	59	49	43	39
		X48	70	58	49	42	37	33	70	58	49	42	37	33	70	58	49	42	37	33
		48-S	68	55	45	39	34	31	68	55	45	39	34	31	68	55	45	39	34	31
	115	X80	94	73	59	49	43	39	94	73	59	49	43	39	94	73	59	49	43	39
		X48	67	57	48	42	37	33	67	57	48	42	37	33	67	57	48	42	37	33
		48-S	65	54	45	39	34	31	65	54	45	39	34	31	65	54	45	39	34	31
	120	X80	91	72	59	49	43	39	91	72	59	49	43	39	91	72	59	49	43	39
		X48	65	56	47	42	37	33	65	56	47	42	37	33	65	56	47	42	37	33
		48-S	63	53	44	39	34	31	63	53	44	39	34	31	63	53	44	39	34	31
	130	X80	86	70	58	49	43	39	86	70	58	49	43	39	86	70	58	49	43	39
		X48	61	54	46	41	37	33	60	54	46	41	37	33	60	54	46	41	37	33
		48-S	59	51	43	38	34	31	59	51	43	38	34	31	59	51	43	38	34	31
	140	X80	81	68	57	49	43	39	80	68	57	49	43	39	80	68	57	49	43	39
		X48	57	52	45	40	36	33	56	52	45	40	36	33	56	52	45	40	36	33
		48-S	56	50	42	37	34	31	55	50	42	37	34	31	55	50	42	37	34	31
	150	X80	77	66	56	49	43	39	75	66	56	49	43	39	75	66	56	49	43	39
		X48	54	50	44	39	36	33	52	50	44	39	36	33	52	50	44	39	36	33
		48-S	53	48	41	37	33	31	51	48	41	37	33	31	51	48	41	37	33	31
	160	X80	73	64	54	48	43	39	70	64	54	48	43	39	70	64	54	48	43	39
		X48	51	48	42	38	35	33	49	48	42	38	35	33	49	48	42	38	35	33
		48-S	50	46	40	36	33	30	48	46	40	36	33	30	48	46	40	36	33	30
	170	X80	69	62	53	47	43	39	66	62	53	47	43	39	66	62	53	47	43	39
		X48	48	47	41	37	34	32	46	46	41	37	34	32	46	46	41	37	34	32
		48-S	47	45	39	35	32	30	45	45	39	35	32	30	45	45	39	35	32	30

Table 1.18: Maximum Uplift (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - PORTRAIT	110	X80	-523	-400	-321	-268	-234	-211	-621	-476	-382	-318	-278	-250	-621	-476	-382	-318	-278	-250
		X48	-378	-315	-263	-228	-200	-180	-450	-375	-313	-271	-237	-214	-450	-375	-313	-271	-237	-214
		48-S	-366	-298	-246	-209	-183	-165	-435	-354	-292	-249	-218	-196	-435	-354	-292	-249	-218	-196
	115	X80	-558	-435	-354	-295	-258	-232	-661	-515	-419	-349	-306	-275	-661	-515	-419	-349	-306	-275
		X48	-402	-341	-286	-251	-220	-198	-477	-404	-339	-298	-261	-235	-477	-404	-339	-298	-261	-235
		48-S	-390	-322	-268	-231	-202	-182	-462	-382	-317	-274	-239	-215	-462	-382	-317	-274	-239	-215
	120	X80	-594	-471	-386	-323	-283	-255	-704	-558	-458	-383	-336	-302	-704	-558	-458	-383	-336	-302
		X48	-427	-367	-310	-273	-241	-217	-506	-436	-367	-323	-286	-257	-506	-436	-367	-323	-286	-257
		48-S	-414	-348	-290	-253	-222	-199	-491	-412	-344	-300	-263	-236	-491	-412	-344	-300	-263	-236
	130	X80	-666	-544	-450	-385	-337	-303	-789	-644	-533	-456	-399	-359	-789	-644	-533	-456	-399	-359
		X48	-476	-421	-359	-318	-287	-258	-554	-499	-425	-376	-340	-306	-554	-499	-425	-376	-340	-306
		48-S	-462	-400	-337	-297	-264	-237	-541	-473	-399	-352	-312	-281	-541	-473	-399	-352	-312	-281
	140	X80	-738	-620	-518	-452	-395	-356	-860	-730	-610	-532	-466	-419	-860	-730	-610	-532	-466	-419
		X48	-524	-476	-409	-365	-332	-303	-600	-561	-482	-430	-391	-357	-600	-561	-482	-430	-391	-357
		48-S	-510	-453	-386	-342	-309	-278	-587	-533	-455	-403	-364	-328	-587	-533	-455	-403	-364	-328
	150	X80	-809	-697	-587	-517	-457	-412	-929	-820	-691	-609	-538	-485	-929	-820	-691	-609	-538	-485
		X48	-572	-531	-461	-413	-377	-350	-647	-625	-543	-486	-444	-412	-647	-625	-543	-486	-444	-412
		48-S	-558	-506	-435	-388	-353	-322	-633	-596	-513	-457	-416	-379	-633	-596	-513	-457	-416	-379
	160	X80	-880	-775	-659	-583	-524	-472	-999	-912	-776	-686	-617	-555	-999	-912	-776	-686	-617	-555
		X48	-620	-586	-514	-463	-424	-394	-693	-690	-605	-545	-500	-464	-693	-690	-605	-545	-500	-464
		48-S	-605	-560	-486	-435	-398	-368	-679	-660	-572	-513	-468	-434	-679	-660	-572	-513	-468	-434
	170	X80	-948	-853	-731	-649	-590	-535	-1068	-1003	-860	-764	-695	-629	-1068	-1003	-860	-764	-695	-629
		X48	-666	-641	-566	-513	-472	-440	-739	-739	-666	-603	-555	-517	-739	-739	-666	-603	-555	-517
		48-S	-650	-613	-537	-483	-443	-412	-725	-722	-632	-569	-521	-484	-725	-722	-632	-569	-521	-484

Table 1.19: Maximum Downforce (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1					Roof Wind Pressure Zone 2					Roof Wind Pressure Zone 3							
			Roof Snow Load (psf)					Roof Snow Load (psf)					Roof Snow Load (psf)							
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - PORTRAIT	110	X80	627	588	639	672	710	772	627	588	639	672	710	772	627	588	639	672	710	772
		X48	454	463	523	573	605	658	454	463	523	573	605	658	454	463	523	573	605	658
		48-S	439	437	489	526	556	604	439	437	489	526	556	604	439	437	489	526	556	604
	115	X80	656	608	662	691	727	772	656	608	662	691	727	772	656	608	662	691	727	772
		X48	473	477	535	589	620	658	473	477	535	589	620	658	473	477	535	589	620	658
		48-S	459	450	501	541	569	604	459	450	501	541	569	604	459	450	501	541	569	604
	120	X80	685	628	682	711	744	780	685	628	682	711	744	780	685	628	682	711	744	780
		X48	492	490	547	599	634	665	492	490	547	599	634	665	492	490	547	599	634	665
		48-S	477	464	513	556	582	610	477	464	513	556	582	610	477	464	513	556	582	610
	130	X80	742	669	718	753	781	813	742	669	718	753	781	813	742	669	718	753	781	813
		X48	530	518	571	621	666	693	521	518	571	621	666	693	521	518	571	621	666	693
		48-S	515	492	537	581	611	636	509	492	537	581	611	636	509	492	537	581	611	636
	140	X80	801	713	756	799	821	849	792	713	756	799	821	849	792	713	756	799	821	849
		X48	569	547	597	645	690	724	552	547	597	645	690	724	552	547	597	645	690	724
		48-S	554	521	563	605	643	665	540	521	563	605	643	665	540	521	563	605	643	665
	150	X80	858	757	794	838	863	887	837	757	794	838	863	887	837	757	794	838	863	887
		X48	607	576	624	669	712	753	582	576	624	669	712	753	582	576	624	669	712	753
		48-S	591	550	589	628	666	694	570	550	589	628	666	694	570	550	589	628	666	694
	160	X80	916	807	835	874	909	928	883	807	835	874	909	928	883	807	835	874	909	928
		X48	645	610	651	694	736	776	613	610	651	694	736	776	613	610	651	694	736	776
		48-S	630	583	616	653	690	725	601	583	616	653	690	725	601	583	616	653	690	725
	170	X80	975	877	877	913	952	972	933	877	877	913	952	972	933	877	877	913	952	972
		X48	685	659	679	721	760	799	646	646	679	721	760	799	646	646	679	721	760	799
		48-S	669	631	644	680	714	748	633	631	644	680	714	748	633	631	644	680	714	748

Table 1.20: Maximum Shear (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - PORTRAIT	110	X80	68	247	355	426	487	541	68	247	355	426	487	541	68	247	355	426	487	541
		X48	49	195	290	363	415	461	49	195	290	363	415	461	49	195	290	363	415	461
		48-S	47	184	272	333	381	423	47	184	272	333	381	423	47	184	272	333	381	423
	115	X80	66	243	355	426	487	541	66	243	355	426	487	541	66	243	355	426	487	541
		X48	47	191	286	363	415	461	47	191	286	363	415	461	47	191	286	363	415	461
		48-S	46	180	268	333	381	423	46	180	268	333	381	423	46	180	268	333	381	423
	120	X80	64	240	353	426	487	541	64	240	353	426	487	541	64	240	353	426	487	541
		X48	46	187	283	359	415	461	46	187	283	359	415	461	46	187	283	359	415	461
		48-S	44	177	265	333	381	423	44	177	265	333	381	423	44	177	265	333	381	423
	130	X80	60	233	346	426	487	541	60	233	346	426	487	541	60	233	346	426	487	541
		X48	43	181	275	352	415	461	42	181	275	352	415	461	42	181	275	352	415	461
		48-S	42	171	259	329	381	423	41	171	259	329	381	423	41	171	259	329	381	423
	140	X80	57	226	339	426	487	541	56	226	339	426	487	541	56	226	339	426	487	541
		X48	40	174	268	344	409	461	39	174	268	344	409	461	39	174	268	344	409	461
		48-S	39	165	252	322	381	423	38	165	252	322	381	423	38	165	252	322	381	423
	150	X80	54	220	332	421	487	541	52	220	332	421	487	541	52	220	332	421	487	541
		X48	38	168	260	336	402	459	36	168	260	336	402	459	36	168	260	336	402	459
		48-S	37	160	246	316	376	423	36	160	246	316	376	423	36	160	246	316	376	423
	160	X80	51	213	325	414	487	541	49	213	325	414	487	541	49	213	325	414	487	541
		X48	36	161	253	329	394	452	34	161	253	329	394	452	34	161	253	329	394	452
		48-S	35	154	240	309	369	422	33	154	240	309	369	422	33	154	240	309	369	422
	170	X80	48	207	318	407	483	541	46	207	318	407	483	541	46	207	318	407	483	541
		X48	34	156	246	321	386	444	32	153	246	321	386	444	32	153	246	321	386	444
		48-S	33	149	233	303	363	416	31	149	233	303	363	416	31	149	233	303	363	416

Table 1.21: Maximum Span Length (in.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - PORTRAIT	110	X80	86	70	58	49	43	39	86	70	58	49	43	39	86	70	58	49	43	39
		X48	61	54	46	41	37	33	60	54	46	41	37	33	60	54	46	41	37	33
		48-S	59	51	43	38	34	31	59	51	43	38	34	31	59	51	43	38	34	31
	115	X80	83	69	57	49	43	39	82	69	57	49	43	39	82	69	57	49	43	39
		X48	59	53	45	40	37	33	57	53	45	40	37	33	57	53	45	40	37	33
		48-S	57	50	43	38	34	31	56	50	43	38	34	31	56	50	43	38	34	31
	120	X80	80	68	57	49	43	39	79	68	57	49	43	39	79	68	57	49	43	39
		X48	57	52	45	40	36	33	55	52	45	40	36	33	55	52	45	40	36	33
		48-S	55	49	42	37	34	31	54	49	42	37	34	31	54	49	42	37	34	31
	130	X80	75	65	55	49	43	39	73	65	55	49	43	39	73	65	55	49	43	39
		X48	53	50	43	39	35	33	51	50	43	39	35	33	51	50	43	39	35	33
		48-S	52	47	41	36	33	31	50	47	41	36	33	31	50	47	41	36	33	31
	140	X80	71	63	54	48	43	39	68	63	54	48	43	39	68	63	54	48	43	39
		X48	50	47	42	38	35	32	47	47	42	38	35	32	47	47	42	38	35	32
		48-S	48	45	40	36	33	30	46	45	40	36	33	30	46	45	40	36	33	30
	150	X80	67	61	52	47	43	39	63	61	52	47	43	39	63	61	52	47	43	39
		X48	47	45	40	37	34	32	44	44	40	37	34	32	44	44	40	37	34	32
		48-S	46	44	38	35	32	30	43	43	38	35	32	30	43	43	38	35	32	30
	160	X80	63	59	51	46	42	39	59	59	51	46	42	39	59	59	51	46	42	39
		X48	44	44	39	36	33	31	41	41	39	36	33	31	41	41	39	36	33	31
		48-S	43	42	37	34	31	29	40	40	37	34	31	29	40	40	37	34	31	29
	170	X80	60	57	50	45	41	38	56	56	50	45	41	38	56	56	50	45	41	38
		X48	42	42	38	35	32	30	39	39	38	35	32	30	39	39	38	35	32	30
		48-S	41	40	36	33	30	29	38	38	36	33	30	29	38	38	36	33	30	29

Table 1.22: Maximum Uplift (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - PORTRAIT	110	X80	-669	-546	-452	-386	-338	-304	-791	-646	-535	-457	-400	-360	-791	-646	-535	-457	-400	-360
		X48	-477	-423	-360	-319	-288	-260	-555	-500	-426	-377	-341	-307	-555	-500	-426	-377	-341	-307
		48-S	-464	-401	-339	-298	-265	-238	-542	-474	-400	-353	-313	-282	-542	-474	-400	-353	-313	-282
	115	X80	-710	-590	-491	-425	-372	-334	-832	-696	-579	-501	-438	-395	-832	-696	-579	-501	-438	-395
		X48	-505	-454	-389	-346	-315	-285	-582	-536	-459	-408	-371	-336	-582	-536	-459	-408	-371	-336
		48-S	-491	-431	-366	-324	-291	-262	-569	-509	-432	-382	-343	-309	-569	-509	-432	-382	-343	-309
	120	X80	-752	-634	-531	-465	-407	-366	-874	-749	-627	-549	-480	-432	-874	-749	-627	-549	-480	-432
		X48	-533	-486	-419	-374	-341	-312	-610	-574	-495	-441	-402	-368	-610	-574	-495	-441	-402	-368
		48-S	-519	-463	-395	-350	-318	-287	-597	-546	-467	-414	-376	-338	-597	-546	-467	-414	-376	-338
	130	X80	-836	-726	-614	-541	-482	-434	-957	-856	-724	-639	-569	-512	-957	-856	-724	-639	-569	-512
		X48	-590	-551	-480	-431	-395	-366	-665	-651	-567	-509	-466	-432	-665	-651	-567	-509	-466	-432
		48-S	-575	-526	-454	-405	-370	-339	-651	-621	-536	-478	-436	-401	-651	-621	-536	-478	-436	-401
	140	X80	-919	-819	-699	-620	-563	-507	-1037	-962	-822	-729	-662	-596	-1037	-962	-822	-729	-662	-596
		X48	-646	-617	-543	-491	-451	-420	-719	-719	-638	-577	-530	-493	-719	-719	-638	-577	-530	-493
		48-S	-631	-590	-515	-463	-423	-393	-705	-694	-605	-543	-497	-461	-705	-694	-605	-543	-497	-461
	150	X80	-1001	-913	-787	-702	-639	-585	-1118	-1072	-924	-824	-751	-688	-1118	-1072	-924	-824	-751	-688
		X48	-701	-683	-607	-551	-509	-475	-773	-773	-712	-648	-598	-558	-773	-773	-712	-648	-598	-558
		48-S	-686	-655	-576	-521	-478	-445	-758	-758	-677	-612	-562	-523	-758	-758	-677	-612	-562	-523
	160	X80	-1084	-1008	-876	-786	-718	-666	-1200	-1184	-1030	-923	-844	-783	-1200	-1184	-1030	-923	-844	-783
		X48	-757	-748	-671	-613	-568	-532	-828	-828	-788	-721	-668	-625	-828	-828	-788	-721	-668	-625
		48-S	-740	-719	-639	-580	-535	-500	-813	-813	-751	-682	-629	-587	-813	-813	-751	-682	-629	-587
	170	X80	-1163	-1101	-966	-871	-799	-742	-1280	-1280	-1134	-1022	-938	-872	-1280	-1280	-1134	-1022	-938	-872
		X48	-810	-810	-734	-675	-628	-590	-882	-882	-862	-793	-738	-693	-882	-882	-862	-793	-738	-693
		48-S	-793	-783	-701	-640	-593	-555	-866	-866	-823	-752	-696	-652	-866	-866	-823	-752	-696	-652

Table 1.23: Maximum Downforce (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - PORTRAIT	110	X80	743	670	718	753	781	813	743	670	718	753	781	813	743	670	718	753	781	813
		X48	530	519	572	622	666	693	521	519	572	622	666	693	521	519	572	622	666	693
		48-S	515	492	538	582	612	637	509	492	538	582	612	637	509	492	538	582	612	637
	115	X80	778	696	741	780	805	835	774	696	741	780	805	835	774	696	741	780	805	835
		X48	553	536	587	636	682	712	541	536	587	636	682	712	541	536	587	636	682	712
		48-S	539	509	553	595	630	653	529	509	553	595	630	653	529	509	553	595	630	653
	120	X80	812	721	763	808	829	856	800	721	763	808	829	856	800	721	763	808	829	856
		X48	576	553	602	650	694	730	558	553	602	650	694	730	558	553	602	650	694	730
		48-S	561	526	568	609	649	670	546	526	568	609	649	670	546	526	568	609	649	670
	130	X80	880	774	810	852	880	902	854	774	810	852	880	902	854	774	810	852	880	902
		X48	621	588	634	679	721	762	594	588	634	679	721	762	594	588	634	679	721	762
		48-S	606	561	599	638	675	706	581	561	599	638	675	706	581	561	599	638	675	706
	140	X80	950	847	859	897	936	953	913	847	859	897	936	953	913	847	859	897	936	953
		X48	668	638	667	709	750	789	633	633	667	709	750	789	633	633	667	709	750	789
		48-S	652	610	632	668	704	738	620	610	632	668	704	738	620	610	632	668	704	738
	150	X80	1018	928	908	942	978	1006	968	928	908	942	978	1006	968	928	908	942	978	1006
		X48	713	694	700	740	779	816	669	669	700	740	779	816	669	669	700	740	779	816
		48-S	697	665	665	699	732	765	656	656	665	699	732	765	656	656	665	699	732	765
	160	X80	1087	1011	960	990	1023	1057	1024	1011	960	990	1023	1057	1024	1011	960	990	1023	1057
		X48	759	751	735	772	809	845	707	707	735	772	809	845	707	707	735	772	809	845
		48-S	743	722	700	731	762	793	694	694	700	731	762	793	694	694	700	731	762	793
	170	X80	1157	1096	1013	1039	1070	1102	1084	1084	1013	1039	1070	1102	1084	1084	1013	1039	1070	1102
		X48	806	806	770	806	841	875	747	747	770	806	841	875	747	747	770	806	841	875
		48-S	789	779	735	764	794	823	734	734	735	764	794	823	734	734	735	764	794	823

Table 1.24: Maximum Shear (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - PORTRAIT	110	X80	60	233	346	426	487	541	60	233	346	426	487	541	60	233	346	426	487	541
		X48	43	180	275	351	415	461	42	180	275	351	415	461	42	180	275	351	415	461
		48-S	42	171	259	329	381	423	41	171	259	329	381	423	41	171	259	329	381	423
	115	X80	58	229	341	426	487	541	58	229	341	426	487	541	58	229	341	426	487	541
		X48	41	176	271	347	412	461	40	176	271	347	412	461	40	176	271	347	412	461
		48-S	40	168	255	325	381	423	39	168	255	325	381	423	39	168	255	325	381	423
	120	X80	56	225	337	426	487	541	55	225	337	426	487	541	55	225	337	426	487	541
		X48	40	173	266	342	408	461	38	173	266	342	408	461	38	173	266	342	408	461
		48-S	39	164	251	321	381	423	38	164	251	321	381	423	38	164	251	321	381	423
	130	X80	53	217	329	418	487	541	51	217	329	418	487	541	51	217	329	418	487	541
		X48	37	165	258	333	399	456	35	165	258	333	399	456	35	165	258	333	399	456
		48-S	36	158	244	313	373	423	35	158	244	313	373	423	35	158	244	313	373	423
	140	X80	49	210	321	410	486	541	47	210	321	410	486	541	47	210	321	410	486	541
		X48	35	158	249	324	390	447	33	157	249	324	390	447	33	157	249	324	390	447
		48-S	34	151	236	306	365	419	32	151	236	306	365	419	32	151	236	306	365	419
	150	X80	47	203	313	402	478	541	44	203	313	402	478	541	44	203	313	402	478	541
		X48	33	151	241	316	381	439	31	146	241	316	381	439	31	146	241	316	381	439
		48-S	32	145	229	298	358	411	30	143	229	298	358	411	30	143	229	298	358	411
	160	X80	44	196	304	393	470	538	42	196	304	393	470	538	42	196	304	393	470	538
		X48	31	145	233	307	372	429	29	137	233	307	372	429	29	137	233	307	372	429
		48-S	30	140	222	291	350	403	28	134	222	291	350	403	28	134	222	291	350	403
	170	X80	42	189	296	385	461	529	39	187	296	385	461	529	39	187	296	385	461	529
		X48	29	139	225	298	363	420	27	129	225	298	363	420	27	129	225	298	363	420
		48-S	29	134	215	283	342	395	27	126	215	283	342	395	27	126	215	283	342	395

Table 2.1: Maximum Span Length (in.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - LANDSCAPE	110	X80	122	112	97	82	72	65	114	112	97	82	72	65	92	92	92	82	72	65
		X48	92	83	69	59	52	47	78	78	69	59	52	47	63	63	63	59	52	47
		48-S	89	81	67	58	50	45	77	77	67	58	50	45	62	62	62	58	50	45
	115	X80	122	112	97	82	72	65	109	109	97	82	72	65	88	88	88	82	72	65
		X48	92	83	69	59	52	47	75	75	69	59	52	47	60	60	60	59	52	47
		48-S	89	81	67	58	50	45	73	73	67	58	50	45	59	59	59	58	50	45
	120	X80	122	112	97	82	72	65	104	104	97	82	72	65	84	84	84	82	72	65
		X48	92	83	69	59	52	47	71	71	69	59	52	47	58	58	58	58	52	47
		48-S	89	81	67	58	50	45	70	70	67	58	50	45	57	57	57	57	50	45
	130	X80	122	112	97	82	72	65	96	96	96	82	72	65	78	78	78	78	72	65
		X48	86	83	69	59	52	47	66	66	66	59	52	47	53	53	53	53	52	47
		48-S	85	81	67	58	50	45	64	64	64	58	50	45	52	52	52	52	50	45
	140	X80	116	112	97	82	72	65	89	89	89	82	72	65	72	72	72	72	72	65
		X48	80	80	69	59	52	47	61	61	61	59	52	47	49	49	49	49	49	47
		48-S	78	78	67	58	50	45	60	60	60	58	50	45	48	48	48	48	48	45
	150	X80	108	108	96	82	72	65	83	83	83	82	72	65	67	67	67	67	67	65
		X48	74	74	69	59	52	47	56	56	56	56	52	47	46	46	46	46	46	46
		48-S	73	73	67	58	50	45	56	56	56	56	50	45	45	45	45	45	45	45
	160	X80	101	101	95	82	72	65	77	77	77	77	72	65	63	63	63	63	63	63
		X48	69	69	67	59	52	47	53	53	53	53	52	47	43	43	43	43	43	43
		48-S	68	68	66	58	50	45	52	52	52	52	50	45	42	42	42	42	42	42
	170	X80	95	95	93	82	72	65	73	73	73	73	72	65	59	59	59	59	59	59
		X48	65	65	65	58	52	47	50	50	50	50	50	47	40	40	40	40	40	40
		48-S	64	64	64	57	50	45	49	49	49	49	49	45	40	40	40	40	40	40

Table 2.2: Maximum Uplift (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - LANDSCAPE	110	X80	-387	-355	-306	-260	-227	-205	-640	-629	-541	-460	-403	-363	-798	-798	-798	-713	-624	-562
		X48	-290	-261	-217	-188	-164	-148	-438	-438	-385	-333	-291	-262	-546	-546	-546	-515	-451	-406
		48-S	-280	-255	-212	-182	-159	-143	-431	-431	-375	-322	-282	-254	-537	-537	-537	-499	-437	-393
	115	X80	-428	-392	-338	-287	-251	-226	-672	-672	-596	-507	-444	-399	-837	-837	-837	-782	-685	-616
		X48	-320	-289	-240	-207	-182	-163	-460	-460	-424	-366	-320	-288	-572	-572	-572	-565	-495	-445
		48-S	-309	-281	-234	-201	-176	-158	-452	-452	-413	-355	-310	-279	-563	-563	-563	-547	-479	-431
	120	X80	-470	-432	-371	-316	-276	-249	-704	-704	-654	-556	-487	-438	-875	-875	-875	-855	-748	-673
		X48	-352	-317	-264	-228	-200	-180	-482	-482	-465	-402	-351	-316	-598	-598	-598	-598	-540	-486
		48-S	-340	-309	-257	-221	-193	-174	-474	-474	-453	-389	-341	-307	-588	-588	-588	-588	-523	-471
	130	X80	-562	-515	-444	-377	-330	-297	-767	-767	-767	-658	-576	-519	-952	-952	-952	-952	-884	-796
		X48	-396	-379	-316	-272	-238	-215	-525	-525	-525	-475	-416	-375	-650	-650	-650	-650	-639	-575
		48-S	-389	-370	-307	-264	-231	-208	-516	-516	-516	-461	-403	-363	-640	-640	-640	-640	-619	-557
	140	X80	-628	-607	-522	-444	-389	-350	-830	-830	-830	-770	-674	-607	-1028	-1028	-1028	-1028	-1028	-927
		X48	-430	-430	-371	-321	-281	-253	-568	-568	-568	-556	-487	-438	-702	-702	-702	-702	-702	-670
		48-S	-423	-423	-361	-311	-272	-245	-558	-558	-558	-539	-472	-425	-691	-691	-691	-691	-691	-649
	150	X80	-677	-677	-603	-515	-451	-406	-892	-892	-892	-889	-778	-700	-1104	-1104	-1104	-1104	-1104	-1069
		X48	-464	-464	-429	-372	-326	-293	-610	-610	-610	-610	-562	-506	-754	-754	-754	-754	-754	-754
		48-S	-456	-456	-417	-360	-315	-284	-600	-600	-600	-600	-544	-490	-742	-742	-742	-742	-742	-742
	160	X80	-726	-726	-681	-591	-518	-466	-955	-955	-955	-955	-890	-801	-1180	-1180	-1180	-1180	-1180	-1180
		X48	-497	-497	-484	-425	-374	-337	-653	-653	-653	-653	-643	-579	-806	-806	-806	-806	-806	-806
		48-S	-489	-489	-471	-414	-362	-326	-642	-642	-642	-642	-623	-561	-793	-793	-793	-793	-793	-793
	170	X80	-775	-775	-760	-669	-588	-529	-1017	-1017	-1017	-1017	-1008	-908	-1256	-1256	-1256	-1256	-1256	-1256
		X48	-530	-530	-530	-476	-425	-382	-695	-695	-695	-695	-695	-656	-857	-857	-857	-857	-857	-857
		48-S	-521	-521	-521	-463	-412	-370	-684	-684	-684	-684	-684	-684	-635	-844	-844	-844	-844	-844

Table 2.3: Maximum Downforce (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - LANDSCAPE	110	X80	418	541	665	741	846	940	390	541	665	741	846	940	314	443	633	741	846	940
		X48	313	398	473	535	611	679	267	377	473	535	611	679	215	303	433	535	611	679
		48-S	302	388	460	518	592	658	263	370	460	518	592	658	212	298	426	518	592	658
	115	X80	418	541	665	741	846	940	372	524	665	741	846	940	300	423	605	741	846	940
		X48	313	398	473	535	611	679	255	359	473	535	611	679	205	289	413	535	611	679
		48-S	302	388	460	518	592	658	251	353	460	518	592	658	202	285	407	518	592	658
	120	X80	418	541	665	741	846	940	355	501	665	741	846	940	287	405	579	741	846	940
		X48	313	398	473	535	611	679	243	343	473	535	611	679	196	277	396	518	611	679
		48-S	302	388	460	518	592	658	239	337	460	518	592	658	193	272	389	510	592	658
	130	X80	418	541	665	741	846	940	327	461	659	741	846	940	265	373	533	698	846	940
		X48	295	398	473	535	611	679	224	315	451	535	611	679	181	255	364	477	611	679
		48-S	289	388	460	518	592	658	220	310	443	518	592	658	178	251	358	469	592	658
	140	X80	397	541	665	741	846	940	303	427	609	741	846	940	245	346	494	647	845	940
		X48	272	384	473	535	611	679	207	292	417	535	611	679	168	236	337	442	577	679
		48-S	267	377	460	518	592	658	204	287	410	518	592	658	165	232	332	435	568	658
	150	X80	378	527	668	741	846	940	289	403	573	741	846	940	234	326	464	603	787	940
		X48	259	361	475	535	611	679	197	275	391	508	611	679	160	223	317	412	537	663
		48-S	255	355	462	518	592	658	194	271	385	500	592	658	157	219	312	405	529	653
	160	X80	390	520	683	762	846	940	298	398	557	716	846	940	242	323	452	581	737	909
		X48	267	356	485	548	611	679	204	272	380	489	611	679	165	220	308	397	503	621
		48-S	263	350	472	533	592	658	201	267	374	481	592	658	163	217	304	390	495	611
	170	X80	404	517	699	783	846	940	309	395	545	695	846	940	251	321	442	564	693	855
		X48	276	353	487	558	611	679	211	270	372	475	583	679	171	219	302	385	473	583
		48-S	272	348	479	543	592	658	208	266	366	467	574	658	169	216	297	379	465	574

Table 2.4: Maximum Shear (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - LANDSCAPE	110	X80	10	41	64	78	89	99	9	41	64	78	89	99	7	34	61	78	89	99
		X48	7	30	45	56	64	71	6	29	45	56	64	71	5	23	41	56	64	71
		48-S	7	30	44	54	62	69	6	28	44	54	62	69	5	23	41	54	62	69
	115	X80	10	41	64	78	89	99	9	40	64	78	89	99	7	32	58	78	89	99
		X48	7	30	45	56	64	71	6	28	45	56	64	71	5	22	40	56	64	71
		48-S	7	30	44	54	62	69	6	27	44	54	62	69	5	22	39	54	62	69
	120	X80	10	41	64	78	89	99	8	38	64	78	89	99	7	31	55	78	89	99
		X48	7	30	45	56	64	71	6	26	45	56	64	71	5	21	38	54	64	71
		48-S	7	30	44	54	62	69	6	26	44	54	62	69	5	21	37	54	62	69
	130	X80	10	41	64	78	89	99	8	35	63	78	89	99	6	29	51	73	89	99
		X48	7	30	45	56	64	71	5	24	43	56	64	71	4	20	35	50	64	71
		48-S	7	30	44	54	62	69	5	24	42	54	62	69	4	19	34	49	62	69
	140	X80	9	41	64	78	89	99	7	33	58	78	89	99	6	27	47	68	89	99
		X48	6	29	45	56	64	71	5	22	40	56	64	71	4	18	32	46	61	71
		48-S	6	29	44	54	62	69	5	22	39	54	62	69	4	18	32	46	60	69
	150	X80	9	40	63	78	89	99	7	30	54	78	89	99	5	25	44	63	83	99
		X48	6	27	45	56	64	71	5	21	37	53	64	71	4	17	30	43	56	70
		48-S	6	27	44	54	62	69	4	20	37	53	62	69	4	17	30	43	56	69
	160	X80	8	37	62	78	89	99	6	28	51	73	89	99	5	23	41	59	77	96
		X48	6	25	44	56	64	71	4	19	35	50	64	71	3	16	28	41	53	65
		48-S	5	25	43	54	62	69	4	19	34	49	62	69	3	16	28	40	52	64
	170	X80	8	35	61	77	89	99	6	27	48	69	89	99	5	22	39	56	73	90
		X48	5	24	43	55	64	71	4	18	33	47	61	71	3	15	26	38	50	61
		48-S	5	24	42	54	62	69	4	18	32	46	60	69	3	15	26	37	49	60

Table 2.5: Maximum Span Length (in.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - LANDSCAPE	110	X80	122	112	97	82	72	65	96	96	96	82	72	65	77	77	77	77	72	65
		X48	86	83	69	59	52	47	65	65	65	59	52	47	53	53	53	53	52	47
		48-S	85	81	67	58	50	45	64	64	64	58	50	45	52	52	52	52	50	45
	115	X80	120	112	97	82	72	65	91	91	91	82	72	65	74	74	74	74	72	65
		X48	82	82	69	59	52	47	62	62	62	59	52	47	51	51	51	51	51	47
		48-S	81	81	67	58	50	45	61	61	61	58	50	45	50	50	50	50	50	45
	120	X80	115	112	97	82	72	65	87	87	87	82	72	65	71	71	71	71	71	65
		X48	79	79	69	59	52	47	60	60	60	59	52	47	48	48	48	48	48	47
		48-S	77	77	67	58	50	45	59	59	59	58	50	45	48	48	48	48	48	45
	130	X80	105	105	96	82	72	65	80	80	80	80	72	65	65	65	65	65	65	65
		X48	72	72	68	59	52	47	55	55	55	55	52	47	45	45	45	45	45	45
		48-S	71	71	66	58	50	45	54	54	54	54	50	45	44	44	44	44	44	44
	140	X80	97	97	94	82	72	65	75	75	75	75	72	65	61	61	61	61	61	61
		X48	67	67	67	59	52	47	51	51	51	51	51	47	41	41	41	41	41	41
		48-S	66	66	65	57	50	45	50	50	50	50	50	45	41	41	41	41	41	41
	150	X80	91	91	91	81	72	65	69	69	69	69	69	65	56	56	56	56	56	56
		X48	62	62	62	58	52	47	47	47	47	47	47	47	39	39	39	39	39	39
		48-S	61	61	61	56	50	45	47	47	47	47	47	45	38	38	38	38	38	38
	160	X80	85	85	85	80	72	65	65	65	65	65	65	65	53	53	53	53	53	53
		X48	58	58	58	57	51	47	44	44	44	44	44	44	36	36	36	36	36	36
		48-S	57	57	57	55	50	45	44	44	44	44	44	44	35	35	35	35	35	35
	170	X80	80	80	80	78	71	65	61	61	61	61	61	61	50	50	50	50	50	50
		X48	54	54	54	54	51	47	42	42	42	42	42	42	34	34	34	34	34	34
		48-S	54	54	54	54	49	45	41	41	41	41	41	41	33	33	33	33	33	33

Table 2.6: Maximum Uplift (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - LANDSCAPE	110	X80	-564	-518	-445	-379	-332	-298	-768	-768	-768	-660	-577	-520	-953	-953	-953	-953	-886	-798
		X48	-397	-381	-317	-274	-239	-216	-525	-525	-525	-476	-417	-375	-651	-651	-651	-651	-640	-576
		48-S	-390	-371	-308	-265	-232	-209	-517	-517	-517	-462	-404	-364	-641	-641	-641	-641	-620	-559
	115	X80	-608	-570	-490	-417	-365	-329	-805	-805	-805	-724	-634	-571	-998	-998	-998	-998	-972	-875
		X48	-417	-417	-349	-301	-264	-237	-550	-550	-550	-523	-458	-412	-682	-682	-682	-682	-682	-632
		48-S	-410	-409	-339	-292	-255	-230	-541	-541	-541	-507	-444	-400	-671	-671	-671	-671	-671	-612
	120	X80	-637	-625	-538	-457	-400	-360	-843	-843	-843	-793	-694	-625	-1043	-1043	-1043	-1043	-1043	-955
		X48	-437	-437	-382	-330	-289	-260	-576	-576	-576	-573	-501	-451	-712	-712	-712	-712	-712	-690
		48-S	-429	-429	-372	-320	-280	-252	-567	-567	-567	-555	-486	-437	-701	-701	-701	-701	-701	-668
	130	X80	-696	-696	-632	-543	-475	-428	-916	-916	-916	-916	-820	-738	-1134	-1134	-1134	-1134	-1134	-1126
		X48	-476	-476	-449	-392	-343	-309	-626	-626	-626	-626	-592	-533	-774	-774	-774	-774	-774	-774
		48-S	-468	-468	-437	-380	-333	-299	-616	-616	-616	-616	-574	-516	-762	-762	-762	-762	-762	-762
	140	X80	-754	-754	-726	-637	-557	-502	-991	-991	-991	-991	-957	-861	-1223	-1223	-1223	-1223	-1223	-1223
		X48	-516	-516	-515	-454	-402	-362	-677	-677	-677	-677	-677	-622	-835	-835	-835	-835	-835	-835
		48-S	-507	-507	-502	-442	-390	-351	-666	-666	-666	-666	-666	-603	-822	-822	-822	-822	-822	-822
	150	X80	-811	-811	-811	-724	-644	-580	-1064	-1064	-1064	-1064	-1064	-992	-1313	-1313	-1313	-1313	-1313	-1313
		X48	-555	-555	-555	-515	-465	-419	-726	-726	-726	-726	-726	-717	-896	-896	-896	-896	-896	-896
		48-S	-546	-546	-546	-501	-451	-406	-715	-715	-715	-715	-715	-694	-882	-882	-882	-882	-882	-882
	160	X80	-869	-869	-869	-816	-738	-664	-1137	-1137	-1137	-1137	-1137	-1134	-1403	-1403	-1403	-1403	-1403	-1403
		X48	-594	-594	-594	-579	-527	-480	-777	-777	-777	-777	-777	-777	-957	-957	-957	-957	-957	-957
		48-S	-584	-584	-584	-564	-513	-465	-764	-764	-764	-764	-764	-764	-942	-942	-942	-942	-942	-942
	170	X80	-926	-926	-926	-909	-827	-753	-1210	-1210	-1210	-1210	-1210	-1210	-1492	-1492	-1492	-1492	-1492	-1492
		X48	-633	-633	-633	-633	-589	-544	-826	-826	-826	-826	-826	-826	-1018	-1018	-1018	-1018	-1018	-1018
		48-S	-622	-622	-622	-622	-573	-527	-813	-813	-813	-813	-813	-813	-1002	-1002	-1002	-1002	-1002	-1002

Table 2.7: Maximum Downforce (lb.) - Wind Exposure C Condition

Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - LANDSCAPE	110	X80	418	541	665	741	846	940	327	461	658	741	846	940	264	372	532	697	846	940
		X48	294	398	473	535	611	679	223	315	450	535	611	679	181	254	363	476	611	679
		48-S	289	388	460	518	592	658	220	310	443	518	592	658	178	250	358	469	592	658
	115	X80	409	541	665	741	846	940	312	440	628	741	846	940	252	356	508	666	846	940
		X48	281	396	473	535	611	679	213	301	430	535	611	679	172	243	347	455	594	679
		48-S	276	388	460	518	592	658	210	296	423	518	592	658	170	239	342	448	584	658
	120	X80	391	541	665	741	846	940	298	420	601	741	846	940	242	341	487	638	833	940
		X48	268	378	473	535	611	679	204	287	411	535	611	679	165	233	332	436	569	679
		48-S	264	372	460	518	592	658	201	283	404	518	592	658	162	229	327	429	560	658
	130	X80	383	525	674	749	846	940	293	401	567	733	846	940	237	325	459	594	767	940
		X48	262	359	479	541	611	679	200	274	387	501	611	679	162	222	314	406	524	646
		48-S	258	353	466	524	592	658	197	270	381	493	592	658	160	218	309	399	515	636
	140	X80	397	517	692	776	846	940	304	396	550	703	846	940	247	321	446	571	711	878
		X48	272	354	491	554	611	679	208	270	375	480	599	679	169	219	305	390	486	599
		48-S	267	348	478	538	592	658	204	266	369	473	589	658	166	216	300	384	478	590
	150	X80	416	516	703	795	855	940	319	396	539	682	825	940	259	321	438	554	670	818
		X48	285	353	481	565	618	679	218	270	368	466	564	679	177	219	299	378	457	558
		48-S	280	347	473	550	599	658	214	266	362	458	555	658	174	216	294	372	450	550
	160	X80	433	515	690	812	883	940	332	395	529	663	797	940	270	321	430	539	648	766
		X48	296	352	472	577	631	679	226	270	361	453	544	644	184	219	293	368	442	523
		48-S	291	347	464	562	614	658	223	266	356	446	536	634	181	216	289	362	435	515
	170	X80	451	518	682	831	903	955	346	397	523	649	776	902	281	323	425	528	630	733
		X48	308	354	466	578	642	690	236	271	357	443	529	615	192	220	290	360	430	500
		48-S	303	348	458	569	625	669	232	267	352	436	521	606	189	217	286	354	423	492

Table 2.8: Maximum Shear (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS 0° TO 7° - LANDSCAPE	110	X80	10	41	64	78	89	99	8	35	63	78	89	99	6	29	51	73	89	99
		X48	7	30	45	56	64	71	5	24	43	56	64	71	4	20	35	50	64	71
		48-S	7	30	44	54	62	69	5	24	42	54	62	69	4	19	34	49	62	69
	115	X80	10	41	64	78	89	99	7	34	60	78	89	99	6	27	49	70	89	99
		X48	7	30	45	56	64	71	5	23	41	56	64	71	4	19	33	48	62	71
		48-S	6	30	44	54	62	69	5	23	40	54	62	69	4	18	33	47	61	69
	120	X80	9	41	64	78	89	99	7	32	57	78	89	99	6	26	47	67	88	99
		X48	6	29	45	56	64	71	5	22	39	56	64	71	4	18	32	46	60	71
		48-S	6	28	44	54	62	69	5	22	39	54	62	69	4	18	31	45	59	69
	130	X80	8	39	63	78	89	99	6	30	53	76	89	99	5	24	43	62	81	99
		X48	6	27	45	56	64	71	4	20	36	52	64	71	4	16	29	42	55	68
		48-S	6	26	44	54	62	69	4	20	36	51	62	69	4	16	29	41	54	67
	140	X80	8	36	62	78	89	99	6	27	49	71	89	99	5	22	40	57	75	92
		X48	5	25	44	56	64	71	4	19	33	48	63	71	3	15	27	39	51	63
		48-S	5	24	43	54	62	69	4	18	33	47	62	69	3	15	27	38	50	62
	150	X80	7	33	60	77	89	99	6	26	46	66	86	99	5	21	37	53	70	86
		X48	5	23	41	55	64	71	4	17	31	45	59	71	3	14	25	36	48	59
		48-S	5	22	40	53	62	69	4	17	31	44	58	69	3	14	25	36	47	58
	160	X80	7	31	56	75	89	99	5	24	43	62	80	99	4	19	35	50	65	81
		X48	5	21	38	54	64	71	4	16	29	42	55	68	3	13	24	34	45	55
		48-S	5	21	38	52	62	69	3	16	29	41	54	67	3	13	23	34	44	54
	170	X80	6	29	52	74	88	99	5	23	40	58	76	93	4	18	33	47	61	76
		X48	4	20	36	52	63	71	3	15	27	40	52	64	3	13	22	32	42	52
		48-S	4	20	35	51	61	69	3	15	27	39	51	63	3	12	22	32	41	51

Table 2.9: Maximum Span Length (in.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - LANDSCAPE	110	X80	123	102	81	68	59	53	114	102	81	68	59	53	94	94	81	68	59	53
		X48	92	79	65	55	48	43	79	79	65	55	48	43	65	65	65	55	48	43
		48-S	89	75	61	51	45	41	78	75	61	51	45	41	63	63	61	51	45	41
	115	X80	123	102	81	68	59	53	109	102	81	68	59	53	90	90	81	68	59	53
		X48	92	79	65	55	48	43	76	76	65	55	48	43	62	62	62	55	48	43
		48-S	89	75	61	51	45	41	74	74	61	51	45	41	61	61	61	51	45	41
	120	X80	123	102	81	68	59	53	104	102	81	68	59	53	86	86	81	68	59	53
		X48	92	79	65	55	48	43	72	72	65	55	48	43	59	59	59	55	48	43
		48-S	89	75	61	51	45	41	71	71	61	51	45	41	58	58	58	51	45	41
	130	X80	121	101	81	68	59	53	96	96	81	68	59	53	79	79	79	68	59	53
		X48	89	78	64	55	48	43	67	67	64	55	48	43	55	55	55	55	48	43
		48-S	87	74	61	51	45	41	65	65	61	51	45	41	54	54	54	51	45	41
	140	X80	117	99	81	68	59	53	89	89	81	68	59	53	73	73	73	68	59	53
		X48	82	75	63	55	48	43	62	62	62	55	48	43	51	51	51	51	48	43
		48-S	81	72	60	51	45	41	61	61	60	51	45	41	50	50	50	50	45	41
	150	X80	110	96	80	68	59	53	83	83	80	68	59	53	69	69	69	68	59	53
		X48	77	73	62	54	48	43	58	58	58	54	48	43	47	47	47	47	47	43
		48-S	75	70	59	51	45	41	56	56	56	51	45	41	46	46	46	46	45	41
	160	X80	103	94	78	68	59	53	78	78	78	68	59	53	64	64	64	64	59	53
		X48	72	71	60	54	48	43	54	54	54	54	48	43	44	44	44	44	44	43
		48-S	70	68	57	51	45	41	53	53	53	51	45	41	43	43	43	43	43	41
	170	X80	97	92	77	68	59	53	74	74	74	68	59	53	61	61	61	61	59	53
		X48	67	67	59	53	48	43	51	51	51	51	48	43	42	42	42	42	42	42
		48-S	66	66	56	50	45	41	50	50	50	50	45	41	41	41	41	41	41	41

Table 2.10: Maximum Uplift (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - LANDSCAPE	110	X80	-355	-296	-234	-195	-171	-154	-608	-547	-433	-361	-316	-285	-757	-757	-657	-547	-479	-431
		X48	-266	-228	-188	-159	-139	-125	-423	-421	-347	-294	-258	-232	-524	-524	-524	-446	-390	-351
		48-S	-257	-216	-177	-148	-130	-117	-414	-400	-328	-275	-240	-216	-514	-514	-498	-416	-364	-328
	115	X80	-394	-328	-260	-216	-189	-171	-639	-602	-476	-397	-348	-313	-794	-794	-720	-600	-525	-473
		X48	-295	-252	-208	-176	-154	-139	-444	-444	-382	-323	-283	-255	-549	-549	-549	-489	-428	-385
		48-S	-285	-240	-197	-165	-144	-130	-435	-435	-361	-302	-264	-238	-538	-538	-538	-456	-399	-359
	120	X80	-433	-360	-285	-238	-208	-187	-671	-659	-522	-435	-381	-343	-832	-832	-787	-656	-574	-517
		X48	-324	-277	-229	-194	-170	-153	-466	-466	-419	-355	-310	-279	-574	-574	-574	-535	-468	-421
		48-S	-313	-264	-216	-181	-158	-142	-456	-456	-396	-331	-290	-261	-564	-564	-564	-499	-437	-393
	130	X80	-507	-424	-340	-284	-248	-224	-733	-733	-618	-515	-451	-406	-907	-907	-907	-775	-678	-611
		X48	-374	-325	-270	-231	-202	-182	-508	-508	-490	-419	-367	-331	-625	-625	-625	-625	-553	-498
		48-S	-365	-310	-255	-216	-189	-170	-498	-498	-463	-391	-343	-308	-614	-614	-614	-589	-516	-464
	140	X80	-580	-488	-400	-334	-293	-263	-796	-796	-721	-602	-527	-475	-982	-982	-982	-904	-791	-712
		X48	-407	-372	-312	-272	-238	-215	-550	-550	-550	-491	-430	-387	-676	-676	-676	-676	-645	-580
		48-S	-398	-355	-295	-254	-222	-200	-539	-539	-532	-458	-401	-361	-664	-664	-664	-664	-602	-542
	150	X80	-630	-552	-456	-387	-339	-305	-858	-858	-819	-695	-609	-548	-1057	-1057	-1057	-1042	-912	-821
		X48	-439	-418	-353	-311	-276	-248	-591	-591	-591	-559	-496	-446	-726	-726	-726	-726	-726	-669
		48-S	-429	-400	-335	-294	-257	-232	-581	-581	-581	-529	-463	-417	-713	-713	-713	-713	-693	-624
	160	X80	-678	-618	-515	-444	-389	-350	-919	-919	-919	-795	-696	-627	-1131	-1131	-1131	-1131	-1041	-937
		X48	-471	-466	-397	-351	-317	-285	-633	-633	-633	-629	-567	-511	-776	-776	-776	-776	-776	-763
		48-S	-461	-446	-377	-332	-296	-266	-622	-622	-622	-595	-529	-476	-763	-763	-763	-763	-763	-712
	170	X80	-726	-687	-576	-506	-443	-399	-980	-980	-980	-900	-788	-710	-1204	-1204	-1204	-1204	-1178	-1061
		X48	-503	-503	-442	-393	-358	-325	-674	-674	-674	-674	-637	-578	-826	-826	-826	-826	-826	-826
		48-S	-493	-493	-420	-372	-337	-303	-662	-662	-662	-662	-599	-539	-812	-812	-812	-812	-812	-806

Table 2.11: Maximum Downforce (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - LANDSCAPE	110	X80	412	467	523	563	634	705	381	467	523	563	634	705	313	427	523	563	634	705
		X48	308	360	419	458	517	574	265	360	419	458	517	574	216	295	417	458	517	574
		48-S	298	342	396	428	482	535	260	342	396	428	482	535	212	289	396	428	482	535
	115	X80	412	467	523	563	634	705	364	467	523	563	634	705	300	408	523	563	634	705
		X48	308	360	419	458	517	574	253	345	419	458	517	574	207	282	398	458	517	574
		48-S	298	342	396	428	482	535	248	338	396	428	482	535	203	277	391	428	482	535
	120	X80	412	467	523	563	634	705	349	467	523	563	634	705	287	391	523	563	634	705
		X48	308	360	419	458	517	574	242	330	419	458	517	574	198	270	381	458	517	574
		48-S	298	342	396	428	482	535	237	323	396	428	482	535	194	265	374	428	482	535
	130	X80	435	480	538	575	634	705	346	457	538	575	634	705	285	376	525	575	634	705
		X48	320	368	426	469	517	574	240	317	426	469	517	574	196	259	361	464	517	574
		48-S	313	350	403	437	482	535	235	310	403	437	482	535	192	254	355	437	482	535
	140	X80	476	504	565	599	635	705	363	455	565	599	635	705	298	375	513	599	635	705
		X48	334	384	440	488	518	574	251	315	431	488	518	574	205	258	353	447	518	574
		48-S	327	366	416	455	483	535	246	309	416	455	483	535	202	253	346	440	483	535
	150	X80	502	528	586	624	658	705	380	456	586	624	658	705	313	375	504	624	658	705
		X48	349	400	454	502	536	574	262	315	423	502	536	574	215	258	346	435	523	574
		48-S	342	382	430	474	500	535	257	309	415	474	500	535	211	253	340	427	500	535
	160	X80	525	552	607	651	681	713	398	459	606	651	681	713	327	377	498	619	681	713
		X48	365	416	468	515	555	581	274	316	417	515	555	581	225	259	342	425	508	581
		48-S	357	398	445	487	518	542	269	310	410	487	518	542	221	255	336	417	499	542
	170	X80	550	579	630	680	707	736	417	464	602	680	707	736	343	381	495	609	707	736
		X48	381	424	483	529	571	600	287	319	414	509	571	600	235	262	340	418	495	573
		48-S	374	416	460	501	537	560	282	313	407	500	537	560	231	257	334	410	487	560

Table 2.12: Maximum Shear (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - LANDSCAPE	110	X80	40	153	216	259	296	329	37	153	216	259	296	329	30	139	216	259	296	329
		X48	30	118	173	211	241	268	26	118	173	211	241	268	21	96	172	211	241	268
		48-S	29	112	163	197	225	250	25	112	163	197	225	250	20	95	163	197	225	250
	115	X80	40	153	216	259	296	329	35	153	216	259	296	329	29	133	216	259	296	329
		X48	30	118	173	211	241	268	24	113	173	211	241	268	20	92	164	211	241	268
		48-S	29	112	163	197	225	250	24	111	163	197	225	250	20	90	161	197	225	250
	120	X80	40	153	216	259	296	329	34	153	216	259	296	329	28	128	216	259	296	329
		X48	30	118	173	211	241	268	23	108	173	211	241	268	19	88	157	211	241	268
		48-S	29	112	163	197	225	250	23	106	163	197	225	250	19	87	154	197	225	250
	130	X80	39	151	216	259	296	329	31	144	216	259	296	329	26	118	211	259	296	329
		X48	29	116	171	211	241	268	22	99	171	211	241	268	18	81	145	209	241	268
		48-S	28	110	162	197	225	250	21	97	162	197	225	250	17	80	142	197	225	250
	140	X80	38	147	215	259	296	329	29	133	215	259	296	329	24	110	195	259	296	329
		X48	27	112	168	211	241	268	20	92	164	211	241	268	16	75	134	193	241	268
		48-S	26	107	159	197	225	250	20	90	159	197	225	250	16	74	132	190	225	250
	150	X80	36	144	212	259	296	329	27	124	212	259	296	329	22	102	182	259	296	329
		X48	25	109	164	208	241	268	19	86	153	208	241	268	15	70	125	180	235	268
		48-S	24	104	156	197	225	250	18	84	150	197	225	250	15	69	123	177	225	250
	160	X80	33	140	208	259	296	329	25	117	208	259	296	329	21	96	171	246	296	329
		X48	23	106	161	205	241	268	17	80	143	205	241	268	14	66	117	169	220	268
		48-S	23	101	153	194	225	250	17	79	141	194	225	250	14	65	115	166	217	250
	170	X80	31	137	205	259	296	329	24	110	196	259	296	329	20	90	161	232	296	329
		X48	22	100	157	201	239	268	16	75	135	194	239	268	13	62	110	159	207	256
		48-S	21	98	149	191	225	250	16	74	132	190	225	250	13	61	108	156	204	250

Table 2.13: Maximum Span Length (in.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - LANDSCAPE	110	X80	121	101	81	68	59	53	96	96	81	68	59	53	79	79	79	68	59	53
		X48	89	78	64	55	48	43	67	67	64	55	48	43	54	54	54	54	48	43
		48-S	87	74	61	51	45	41	65	65	61	51	45	41	53	53	53	51	45	41
	115	X80	119	100	81	68	59	53	92	92	81	68	59	53	76	76	76	68	59	53
		X48	85	76	64	55	48	43	64	64	64	55	48	43	52	52	52	52	48	43
		48-S	83	73	60	51	45	41	62	62	60	51	45	41	51	51	51	51	45	41
	120	X80	116	98	81	68	59	53	88	88	81	68	59	53	73	73	73	68	59	53
		X48	81	75	63	55	48	43	61	61	61	55	48	43	50	50	50	50	48	43
		48-S	79	71	59	51	45	41	60	60	59	51	45	41	49	49	49	49	45	41
	130	X80	107	96	79	68	59	53	81	81	79	68	59	53	67	67	67	67	59	53
		X48	75	72	61	54	48	43	56	56	56	54	48	43	46	46	46	46	46	43
		48-S	73	69	58	51	45	41	55	55	55	51	45	41	45	45	45	45	45	41
	140	X80	100	93	78	68	59	53	76	76	76	68	59	53	62	62	62	62	59	53
		X48	69	69	60	53	48	43	52	52	52	52	48	43	43	43	43	43	43	43
		48-S	68	67	57	50	45	41	51	51	51	50	45	41	42	42	42	42	42	41
	150	X80	93	90	76	67	59	53	71	71	71	67	59	53	58	58	58	58	58	53
		X48	64	64	58	52	47	43	48	48	48	48	47	43	40	40	40	40	40	40
		48-S	63	63	55	49	45	41	48	48	48	48	45	41	39	39	39	39	39	39
	160	X80	87	87	74	66	59	53	66	66	66	66	59	53	54	54	54	54	54	53
		X48	60	60	57	51	46	43	45	45	45	45	45	43	37	37	37	37	37	37
		48-S	59	59	54	48	44	41	45	45	45	45	44	41	37	37	37	37	37	37
	170	X80	82	82	73	65	59	53	62	62	62	62	59	53	51	51	51	51	51	51
		X48	57	57	55	50	46	42	43	43	43	43	43	42	35	35	35	35	35	35
		48-S	56	56	53	47	43	40	42	42	42	42	42	40	34	34	34	34	34	34

Table 2.14: Maximum Uplift (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - LANDSCAPE	110	X80	-508	-425	-341	-284	-249	-224	-735	-735	-620	-517	-452	-407	-909	-909	-909	-778	-681	-613
		X48	-374	-326	-271	-232	-203	-183	-509	-509	-492	-421	-369	-332	-626	-626	-626	-626	-555	-499
		48-S	-366	-310	-256	-216	-189	-170	-499	-499	-465	-393	-344	-310	-615	-615	-615	-591	-517	-466
	115	X80	-551	-463	-377	-314	-275	-248	-771	-771	-680	-567	-496	-447	-952	-952	-952	-851	-745	-671
		X48	-394	-354	-295	-256	-224	-202	-533	-533	-533	-462	-404	-364	-655	-655	-655	-655	-607	-547
		48-S	-385	-337	-280	-239	-209	-188	-523	-523	-504	-431	-377	-340	-644	-644	-644	-644	-566	-510
	120	X80	-592	-500	-411	-344	-301	-271	-808	-808	-741	-621	-543	-489	-997	-997	-997	-930	-814	-733
		X48	-413	-381	-319	-280	-245	-221	-558	-558	-558	-506	-443	-398	-685	-685	-685	-685	-663	-597
		48-S	-404	-363	-303	-262	-229	-206	-548	-548	-546	-472	-413	-372	-673	-673	-673	-673	-619	-557
	130	X80	-649	-577	-478	-408	-358	-322	-881	-881	-857	-732	-641	-577	-1085	-1085	-1085	-1085	-960	-864
		X48	-451	-437	-370	-327	-291	-262	-607	-607	-607	-585	-522	-470	-745	-745	-745	-745	-745	-704
		48-S	-442	-417	-351	-309	-272	-245	-596	-596	-596	-553	-487	-438	-732	-732	-732	-732	-729	-657
	140	X80	-706	-658	-550	-479	-419	-378	-954	-954	-954	-855	-748	-673	-1173	-1173	-1173	-1173	-1118	-1006
		X48	-489	-489	-423	-375	-341	-308	-657	-657	-657	-657	-608	-549	-804	-804	-804	-804	-804	-804
		48-S	-480	-473	-402	-355	-319	-287	-645	-645	-645	-634	-569	-512	-791	-791	-791	-791	-791	-765
	150	X80	-761	-737	-621	-547	-484	-436	-1027	-1027	-1027	-975	-862	-776	-1260	-1260	-1260	-1260	-1260	-1158
		X48	-526	-526	-475	-424	-387	-355	-705	-705	-705	-705	-689	-632	-863	-863	-863	-863	-863	-863
		48-S	-516	-516	-453	-402	-366	-331	-693	-693	-693	-693	-652	-590	-849	-849	-849	-849	-849	-849
	160	X80	-817	-817	-697	-616	-554	-499	-1099	-1099	-1099	-1095	-984	-886	-1347	-1347	-1347	-1347	-1347	-1321
		X48	-564	-564	-530	-475	-435	-403	-754	-754	-754	-754	-754	-717	-922	-922	-922	-922	-922	-922
		48-S	-553	-553	-505	-452	-412	-379	-741	-741	-741	-741	-732	-674	-907	-907	-907	-907	-907	-907
	170	X80	-873	-873	-774	-688	-626	-567	-1170	-1170	-1170	-1170	-1107	-1003	-1434	-1434	-1434	-1434	-1434	-1434
		X48	-602	-602	-586	-528	-485	-451	-803	-803	-803	-803	-803	-798	-981	-981	-981	-981	-981	-981
		48-S	-591	-591	-560	-503	-460	-427	-789	-789	-789	-789	-789	-755	-965	-965	-965	-965	-965	-965

Table 2.15: Maximum Downforce (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - LANDSCAPE	110	X80	435	480	538	575	634	705	346	456	538	575	634	705	284	375	524	575	634	705
		X48	320	368	426	469	517	574	239	316	426	469	517	574	196	259	361	463	517	574
		48-S	313	350	403	437	482	535	235	310	403	437	482	535	192	254	354	437	482	535
	115	X80	460	494	555	589	634	705	356	456	555	589	634	705	293	375	517	589	634	705
		X48	328	378	434	480	517	574	246	315	434	480	517	574	202	258	356	454	517	574
		48-S	321	360	411	448	482	535	242	309	411	448	482	535	198	253	350	446	482	535
	120	X80	483	508	569	604	640	705	366	455	569	604	640	705	301	374	511	604	640	705
		X48	337	387	442	492	521	574	253	314	429	492	521	574	207	257	351	445	521	574
		48-S	330	369	419	459	486	535	248	308	419	459	486	535	203	253	345	437	486	535
	130	X80	511	537	594	634	666	705	387	457	594	634	666	705	318	376	502	627	666	705
		X48	355	406	459	507	543	574	267	315	421	507	543	574	218	258	344	431	517	574
		48-S	348	388	436	479	506	535	262	309	413	479	506	535	215	254	338	423	506	535
	140	X80	539	567	620	667	695	726	408	461	603	667	695	726	336	379	496	613	695	726
		X48	373	422	476	523	565	592	281	317	415	513	565	592	230	260	340	420	500	580
		48-S	366	408	453	495	528	552	276	312	408	495	528	552	226	256	334	413	492	552
	150	X80	568	598	647	695	726	754	430	467	600	695	726	754	354	384	493	602	711	754
		X48	393	427	495	539	580	614	296	321	412	503	580	614	242	263	338	413	487	562
		48-S	385	419	471	511	549	573	290	316	405	494	549	573	238	259	332	406	479	552
	160	X80	597	627	675	721	759	784	452	475	599	721	759	784	372	391	493	595	697	784
		X48	412	433	513	556	596	634	311	326	411	496	582	634	255	267	337	407	477	547
		48-S	405	425	490	528	564	596	305	320	404	488	564	596	251	263	332	401	469	538
	170	X80	629	640	704	748	790	816	476	485	602	719	790	816	392	399	495	591	687	783
		X48	433	441	533	574	613	649	327	333	413	493	573	649	268	273	339	404	470	536
		48-S	425	433	509	546	581	614	321	327	406	485	563	614	264	268	333	398	463	527

Table 2.16: Maximum Shear (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >7° TO 27° - LANDSCAPE	110	X80	39	151	216	259	296	329	31	143	216	259	296	329	26	118	210	259	296	329
		X48	29	116	171	211	241	268	21	99	171	211	241	268	18	81	145	208	241	268
		48-S	28	110	162	197	225	250	21	97	162	197	225	250	17	80	142	197	225	250
	115	X80	38	149	216	259	296	329	30	137	216	259	296	329	24	113	201	259	296	329
		X48	27	114	169	211	241	268	21	95	169	211	241	268	17	78	138	199	241	268
		48-S	27	108	160	197	225	250	20	93	160	197	225	250	17	76	136	196	225	250
	120	X80	38	147	215	259	296	329	28	131	215	259	296	329	23	108	193	259	296	329
		X48	26	112	167	211	241	268	20	91	162	211	241	268	16	74	133	191	241	268
		48-S	26	107	158	197	225	250	19	89	158	197	225	250	16	73	130	187	225	250
	130	X80	35	143	211	259	296	329	26	121	211	259	296	329	22	100	178	256	296	329
		X48	24	108	163	207	241	268	18	84	149	207	241	268	15	69	122	176	230	268
		48-S	24	103	155	196	225	250	18	82	146	196	225	250	15	67	120	173	225	250
	140	X80	32	138	206	259	296	329	24	113	201	259	296	329	20	93	165	238	296	329
		X48	22	103	159	203	240	268	17	77	138	199	240	268	14	64	113	163	213	263
		48-S	22	100	151	192	225	250	16	76	136	192	225	250	14	62	111	160	209	250
	150	X80	30	134	202	256	296	329	23	105	187	256	296	329	19	86	154	222	290	329
		X48	21	96	155	199	236	268	16	72	129	185	236	268	13	59	106	152	198	245
		48-S	20	94	147	188	224	250	15	71	127	182	224	250	13	58	104	149	195	241
	160	X80	28	130	198	252	296	329	21	99	176	252	296	329	18	81	145	208	272	329
		X48	19	90	151	194	232	266	15	68	121	174	227	266	12	55	99	142	186	229
		48-S	19	88	144	185	220	250	14	66	119	171	220	250	12	55	97	140	183	226
	170	X80	26	122	194	248	294	329	20	93	165	238	294	329	17	76	136	196	256	315
		X48	18	84	146	190	228	261	14	64	113	163	213	261	11	52	93	134	175	216
		48-S	18	83	140	181	216	247	14	63	112	161	210	247	11	51	92	132	172	212

Table 2.17: Maximum Span Length (in.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - LANDSCAPE	110	X80	118	95	76	64	56	50	118	95	76	64	56	50	118	95	76	64	56	50
		X48	89	75	63	54	48	43	89	75	63	54	48	43	89	75	63	54	48	43
		48-S	85	71	59	50	44	39	85	71	59	50	44	39	85	71	59	50	44	39
	115	X80	116	94	76	64	56	50	116	94	76	64	56	50	116	94	76	64	56	50
		X48	87	74	62	54	48	43	87	74	62	54	48	43	87	74	62	54	48	43
		48-S	84	70	58	50	44	39	84	70	58	50	44	39	84	70	58	50	44	39
	120	X80	114	93	76	64	56	50	114	93	76	64	56	50	114	93	76	64	56	50
		X48	84	72	61	54	48	43	84	72	61	54	48	43	84	72	61	54	48	43
		48-S	81	68	57	50	44	39	81	68	57	50	44	39	81	68	57	50	44	39
	130	X80	110	90	74	64	56	50	110	90	74	64	56	50	110	90	74	64	56	50
		X48	79	70	59	53	48	43	78	70	59	53	48	43	78	70	59	53	48	43
		48-S	76	66	56	49	44	39	76	66	56	49	44	39	76	66	56	49	44	39
	140	X80	104	87	73	64	56	50	103	87	73	64	56	50	103	87	73	64	56	50
		X48	74	67	58	51	47	43	72	67	58	51	47	43	72	67	58	51	47	43
		48-S	72	64	54	48	44	39	70	64	54	48	44	39	70	64	54	48	44	39
	150	X80	98	85	72	63	56	50	96	85	72	63	56	50	96	85	72	63	56	50
		X48	70	65	56	50	46	43	67	65	56	50	46	43	67	65	56	50	46	43
		48-S	68	62	53	47	43	39	66	62	53	47	43	39	66	62	53	47	43	39
	160	X80	93	82	70	62	56	50	90	82	70	62	56	50	90	82	70	62	56	50
		X48	66	62	55	49	45	42	63	62	55	49	45	42	63	62	55	49	45	42
		48-S	64	60	52	46	42	39	61	60	52	46	42	39	61	60	52	46	42	39
	170	X80	89	80	68	61	55	50	85	80	68	61	55	50	85	80	68	61	55	50
		X48	62	60	53	48	44	41	59	59	53	48	44	41	59	59	53	48	44	41
		48-S	61	57	50	45	42	39	58	57	50	45	42	39	58	57	50	45	42	39

Table 2.18: Maximum Uplift (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - LANDSCAPE	110	X80	-383	-308	-248	-206	-181	-163	-456	-367	-294	-245	-215	-193	-456	-367	-294	-245	-215	-193
		X48	-287	-243	-203	-176	-154	-139	-341	-289	-241	-209	-183	-165	-341	-289	-241	-209	-183	-165
		48-S	-277	-229	-190	-162	-141	-127	-329	-273	-225	-192	-168	-151	-329	-273	-225	-192	-168	-151
	115	X80	-414	-335	-273	-227	-199	-179	-491	-397	-324	-270	-236	-213	-491	-397	-324	-270	-236	-213
		X48	-309	-263	-220	-194	-170	-153	-367	-312	-261	-230	-201	-181	-367	-312	-261	-230	-201	-181
		48-S	-299	-248	-207	-178	-156	-140	-355	-294	-245	-211	-185	-166	-355	-294	-245	-211	-185	-166
	120	X80	-447	-363	-298	-250	-218	-197	-530	-430	-353	-296	-259	-233	-530	-430	-353	-296	-259	-233
		X48	-329	-283	-239	-210	-186	-168	-390	-336	-283	-250	-221	-199	-390	-336	-283	-250	-221	-199
		48-S	-319	-268	-224	-195	-171	-154	-378	-318	-266	-232	-203	-183	-378	-318	-266	-232	-203	-183
	130	X80	-513	-419	-348	-297	-260	-234	-608	-497	-412	-352	-308	-277	-608	-497	-412	-352	-308	-277
		X48	-367	-325	-277	-245	-222	-200	-429	-385	-328	-291	-263	-237	-429	-385	-328	-291	-263	-237
		48-S	-356	-308	-260	-229	-204	-183	-419	-365	-308	-272	-241	-217	-419	-365	-308	-272	-241	-217
	140	X80	-569	-478	-400	-349	-305	-275	-665	-564	-471	-411	-360	-324	-665	-564	-471	-411	-360	-324
		X48	-404	-367	-316	-282	-257	-234	-465	-433	-373	-332	-303	-276	-465	-433	-373	-332	-303	-276
		48-S	-394	-349	-298	-264	-239	-215	-454	-412	-351	-311	-282	-254	-454	-412	-351	-311	-282	-254
	150	X80	-624	-538	-453	-399	-353	-318	-719	-633	-534	-470	-416	-375	-719	-633	-534	-470	-416	-375
		X48	-442	-410	-356	-319	-292	-270	-501	-483	-419	-376	-344	-318	-501	-483	-419	-376	-344	-318
		48-S	-430	-391	-336	-300	-273	-249	-490	-460	-396	-353	-321	-293	-490	-460	-396	-353	-321	-293
	160	X80	-679	-598	-509	-450	-405	-365	-774	-705	-599	-531	-477	-430	-774	-705	-599	-531	-477	-430
		X48	-479	-453	-397	-358	-328	-305	-537	-533	-468	-421	-387	-359	-537	-533	-468	-421	-387	-359
		48-S	-467	-433	-376	-337	-308	-285	-526	-510	-443	-396	-362	-336	-526	-510	-443	-396	-362	-336
	170	X80	-732	-659	-565	-502	-457	-414	-827	-775	-665	-591	-537	-487	-827	-775	-665	-591	-537	-487
		X48	-514	-495	-438	-396	-365	-340	-573	-573	-515	-467	-430	-400	-573	-573	-515	-467	-430	-400
		48-S	-502	-474	-415	-374	-343	-318	-561	-558	-489	-440	-403	-375	-561	-558	-489	-440	-403	-375

Table 2.19: Maximum Downforce (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - LANDSCAPE	110	X80	464	456	496	522	551	599	464	456	496	522	551	599	464	456	496	522	551	599
		X48	348	360	406	445	470	511	348	360	406	445	470	511	348	360	406	445	470	511
		48-S	336	339	380	409	432	469	336	339	380	409	432	469	336	339	380	409	432	469
	115	X80	492	472	514	537	565	599	492	472	514	537	565	599	492	472	514	537	565	599
		X48	367	370	416	457	481	511	367	370	416	457	481	511	367	370	416	457	481	511
		48-S	356	350	389	420	442	469	356	350	389	420	442	469	356	350	389	420	442	469
	120	X80	519	488	529	552	578	605	519	488	529	552	578	605	519	488	529	552	578	605
		X48	382	381	425	465	493	516	382	381	425	465	493	516	382	381	425	465	493	516
		48-S	370	360	398	432	452	474	370	360	398	432	452	474	370	360	398	432	452	474
	130	X80	576	520	557	584	606	631	576	520	557	584	606	631	576	520	557	584	606	631
		X48	411	403	444	483	517	538	406	403	444	483	517	538	406	403	444	483	517	538
		48-S	400	382	417	451	475	494	397	382	417	451	475	494	397	382	417	451	475	494
	140	X80	621	553	587	620	637	659	616	553	587	620	637	659	616	553	587	620	637	659
		X48	441	425	464	501	536	562	430	425	464	501	536	562	430	425	464	501	536	562
		48-S	430	404	437	469	499	516	421	404	437	469	499	516	421	404	437	469	499	516
	150	X80	665	587	617	650	670	688	651	587	617	650	670	688	651	587	617	650	670	688
		X48	471	448	484	520	553	585	453	448	484	520	553	585	453	448	484	520	553	585
		48-S	459	427	457	488	517	539	444	427	457	488	517	539	444	427	457	488	517	539
	160	X80	710	626	648	679	705	720	687	626	648	679	705	720	687	626	648	679	705	720
		X48	501	474	505	539	571	602	477	474	505	539	571	602	477	474	505	539	571	602
		48-S	489	453	478	507	535	563	468	453	478	507	535	563	468	453	478	507	535	563
	170	X80	756	680	681	709	739	755	725	680	681	709	739	755	725	680	681	709	739	755
		X48	531	511	528	559	590	620	503	503	528	559	590	620	503	503	528	559	590	620
		48-S	519	490	500	527	554	580	493	490	500	527	554	580	493	490	500	527	554	580

Table 2.20: Maximum Shear (lb.) - Wind Exposure B Condition																				
Exposure B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - LANDSCAPE	110	X80	52	192	276	331	378	420	52	192	276	331	378	420	52	192	276	331	378	420
		X48	39	152	226	282	322	358	39	152	226	282	322	358	39	152	226	282	322	358
		48-S	37	143	211	259	296	329	37	143	211	259	296	329	37	143	211	259	296	329
	115	X80	51	190	276	331	378	420	51	190	276	331	378	420	51	190	276	331	378	420
		X48	38	149	223	282	322	358	38	149	223	282	322	358	38	149	223	282	322	358
		48-S	37	141	209	259	296	329	37	141	209	259	296	329	37	141	209	259	296	329
	120	X80	50	187	274	331	378	420	50	187	274	331	378	420	50	187	274	331	378	420
		X48	37	146	220	279	322	358	37	146	220	279	322	358	37	146	220	279	322	358
		48-S	36	138	206	259	296	329	36	138	206	259	296	329	36	138	206	259	296	329
	130	X80	48	182	269	331	378	420	48	182	269	331	378	420	48	182	269	331	378	420
		X48	34	141	214	273	322	358	34	141	214	273	322	358	34	141	214	273	322	358
		48-S	33	134	201	255	296	329	33	134	201	255	296	329	33	134	201	255	296	329
	140	X80	45	177	263	331	378	420	45	177	263	331	378	420	45	177	263	331	378	420
		X48	32	136	208	267	318	358	32	136	208	267	318	358	32	136	208	267	318	358
		48-S	31	129	196	250	296	329	31	129	196	250	296	329	31	129	196	250	296	329
	150	X80	43	172	258	327	378	420	42	172	258	327	378	420	42	172	258	327	378	420
		X48	31	131	203	261	312	357	29	131	203	261	312	357	29	131	203	261	312	357
		48-S	30	125	191	246	292	329	29	125	191	246	292	329	29	125	191	246	292	329
	160	X80	41	167	253	322	378	420	40	167	253	322	378	420	40	167	253	322	378	420
		X48	29	126	197	256	306	351	27	126	197	256	306	351	27	126	197	256	306	351
		48-S	28	120	186	240	287	328	27	120	186	240	287	328	27	120	186	240	287	328
	170	X80	39	162	247	316	375	420	37	162	247	316	375	420	37	162	247	316	375	420
		X48	27	121	191	250	300	345	26	119	191	250	300	345	26	119	191	250	300	345
		48-S	27	116	182	235	282	323	25	116	182	235	282	323	25	116	182	235	282	323

Table 2.21: Maximum Span Length (in.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - LANDSCAPE	110	X80	110	90	74	64	56	50	110	90	74	64	56	50	110	90	74	64	56	50
		X48	78	70	59	53	48	43	77	70	59	53	48	43	77	70	59	53	48	43
		48-S	76	66	56	49	44	39	76	66	56	49	44	39	76	66	56	49	44	39
	115	X80	106	88	74	64	56	50	106	88	74	64	56	50	106	88	74	64	56	50
		X48	76	68	58	52	47	43	74	68	58	52	47	43	74	68	58	52	47	43
		48-S	74	65	55	49	44	39	72	65	55	49	44	39	72	65	55	49	44	39
	120	X80	103	87	73	64	56	50	102	87	73	64	56	50	102	87	73	64	56	50
		X48	73	67	57	51	47	43	71	67	57	51	47	43	71	67	57	51	47	43
		48-S	71	63	54	48	44	39	69	63	54	48	44	39	69	63	54	48	44	39
	130	X80	96	84	71	63	56	50	94	84	71	63	56	50	94	84	71	63	56	50
		X48	68	64	56	50	46	42	65	64	56	50	46	42	65	64	56	50	46	42
		48-S	66	61	53	47	43	39	64	61	53	47	43	39	64	61	53	47	43	39
	140	X80	91	81	69	61	56	50	87	81	69	61	56	50	87	81	69	61	56	50
		X48	64	61	54	49	45	42	61	61	54	49	45	42	61	61	54	49	45	42
		48-S	62	58	51	46	42	39	59	58	51	46	42	39	59	58	51	46	42	39
	150	X80	86	78	67	60	55	50	82	78	67	60	55	50	82	78	67	60	55	50
		X48	60	58	52	47	44	41	57	57	52	47	44	41	57	57	52	47	44	41
		48-S	59	56	49	45	41	38	55	55	49	45	41	38	55	55	49	45	41	38
	160	X80	81	75	66	59	54	50	77	75	66	59	54	50	77	75	66	59	54	50
		X48	57	56	50	46	43	40	53	53	50	46	43	40	53	53	50	46	43	40
		48-S	55	54	48	43	40	37	52	52	48	43	40	37	52	52	48	43	40	37
	170	X80	77	73	64	58	53	49	72	72	64	58	53	49	72	72	64	58	53	49
		X48	54	54	49	45	42	39	50	50	49	45	42	39	50	50	49	45	42	39
		48-S	52	52	46	42	39	37	49	49	46	42	39	37	49	49	46	42	39	37

Table 2.22: Maximum Uplift (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - LANDSCAPE	110	X80	-515	-421	-349	-298	-261	-235	-609	-498	-413	-353	-309	-278	-609	-498	-413	-353	-309	-278
		X48	-368	-326	-278	-246	-223	-200	-429	-386	-329	-292	-264	-237	-429	-386	-329	-292	-264	-237
		48-S	-357	-309	-261	-230	-204	-184	-420	-366	-309	-273	-242	-218	-420	-366	-309	-273	-242	-218
	115	X80	-546	-455	-379	-328	-287	-258	-644	-537	-447	-387	-339	-305	-644	-537	-447	-387	-339	-305
		X48	-389	-350	-300	-267	-243	-220	-450	-414	-355	-315	-287	-260	-450	-414	-355	-315	-287	-260
		48-S	-379	-333	-283	-250	-225	-202	-440	-393	-334	-295	-265	-239	-440	-393	-334	-295	-265	-239
	120	X80	-579	-489	-410	-359	-314	-283	-676	-578	-484	-424	-371	-334	-676	-578	-484	-424	-371	-334
		X48	-411	-375	-324	-289	-263	-241	-472	-443	-382	-341	-311	-285	-472	-443	-382	-341	-311	-285
		48-S	-400	-357	-305	-271	-246	-221	-462	-422	-360	-320	-290	-262	-462	-422	-360	-320	-290	-262
	130	X80	-644	-560	-474	-418	-372	-335	-741	-661	-560	-494	-440	-396	-741	-661	-560	-494	-440	-396
		X48	-455	-426	-371	-333	-305	-283	-515	-503	-438	-394	-360	-334	-515	-503	-438	-394	-360	-334
		48-S	-444	-406	-351	-313	-286	-263	-504	-480	-414	-370	-337	-310	-504	-480	-414	-370	-337	-310
	140	X80	-709	-633	-541	-480	-436	-392	-803	-743	-635	-564	-512	-461	-803	-743	-635	-564	-512	-461
		X48	-499	-477	-420	-380	-349	-325	-557	-557	-494	-446	-410	-382	-557	-557	-494	-446	-410	-382
		48-S	-487	-456	-398	-358	-327	-304	-546	-536	-468	-420	-385	-357	-546	-536	-468	-420	-385	-357
	150	X80	-773	-705	-608	-543	-495	-453	-866	-829	-715	-638	-581	-532	-866	-829	-715	-638	-581	-532
		X48	-542	-528	-469	-427	-394	-368	-599	-599	-551	-501	-463	-432	-599	-599	-551	-501	-463	-432
		48-S	-530	-506	-446	-403	-370	-344	-588	-588	-524	-473	-435	-405	-588	-588	-524	-473	-435	-405
	160	X80	-837	-779	-678	-608	-556	-515	-929	-916	-797	-714	-653	-606	-929	-916	-797	-714	-653	-606
		X48	-585	-579	-519	-475	-440	-412	-642	-642	-610	-558	-517	-484	-642	-642	-610	-558	-517	-484
		48-S	-572	-556	-494	-449	-414	-387	-630	-630	-581	-528	-487	-455	-630	-630	-581	-528	-487	-455
	170	X80	-899	-852	-747	-674	-618	-575	-991	-991	-878	-791	-726	-675	-991	-991	-878	-791	-726	-675
		X48	-627	-627	-568	-522	-486	-456	-684	-684	-667	-614	-571	-536	-684	-684	-667	-614	-571	-536
		48-S	-613	-605	-542	-495	-459	-429	-671	-671	-637	-582	-539	-504	-671	-671	-637	-582	-539	-504

Table 2.23: Maximum Downforce (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - LANDSCAPE	110	X80	576	520	558	585	607	631	576	520	558	585	607	631	576	520	558	585	607	631
		X48	412	403	444	483	517	538	406	403	444	483	517	538	406	403	444	483	517	538
		48-S	400	382	418	452	475	494	397	382	418	452	475	494	397	382	418	452	475	494
	115	X80	603	540	575	606	625	648	602	540	575	606	625	648	602	540	575	606	625	648
		X48	430	416	456	494	529	552	421	416	456	494	529	552	421	416	456	494	529	552
		48-S	418	396	429	462	489	507	412	396	429	462	489	507	412	396	429	462	489	507
	120	X80	630	560	592	627	643	665	622	560	592	627	643	665	622	560	592	627	643	665
		X48	447	429	468	504	539	567	434	429	468	504	539	567	434	429	468	504	539	567
		48-S	435	409	441	473	504	520	425	409	441	473	504	520	425	409	441	473	504	520
	130	X80	683	601	629	661	683	700	665	601	629	661	683	700	665	601	629	661	683	700
		X48	482	456	492	527	560	591	462	456	492	527	560	591	462	456	492	527	560	591
		48-S	470	436	465	495	524	548	453	436	465	495	524	548	453	436	465	495	524	548
	140	X80	737	657	667	696	727	740	710	657	667	696	727	740	710	657	667	696	727	740
		X48	518	495	518	551	582	612	492	492	518	551	582	612	492	492	518	551	582	612
		48-S	506	474	491	519	546	573	483	474	491	519	546	573	483	474	491	519	546	573
	150	X80	789	720	705	731	759	781	752	720	705	731	759	781	752	720	705	731	759	781
		X48	554	539	544	575	605	633	521	521	544	575	605	633	521	521	544	575	605	633
		48-S	541	517	517	543	568	594	511	511	517	543	568	594	511	511	517	543	568	594
	160	X80	843	784	745	768	794	821	796	784	745	768	794	821	796	784	745	768	794	821
		X48	589	583	570	600	628	656	550	550	570	600	628	656	550	550	570	600	628	656
		48-S	576	560	543	567	592	616	540	540	543	567	592	616	540	540	543	567	592	616
	170	X80	897	850	786	807	830	855	842	842	786	807	830	855	842	842	786	807	830	855
		X48	626	626	598	626	653	679	581	581	598	626	653	679	581	581	598	626	653	679
		48-S	612	604	571	593	616	639	570	570	571	593	616	639	570	570	571	593	616	639

Table 2.24: Maximum Shear (lb.) - Wind Exposure C Condition																				
Exposure C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
ROOFS >27° TO 45° - LANDSCAPE	110	X80	48	182	269	331	378	420	48	182	269	331	378	420	48	182	269	331	378	420
		X48	34	141	214	273	322	358	34	141	214	273	322	358	34	141	214	273	322	358
		48-S	33	134	201	255	296	329	33	134	201	255	296	329	33	134	201	255	296	329
	115	X80	46	179	266	331	378	420	46	179	266	331	378	420	46	179	266	331	378	420
		X48	33	138	211	270	320	358	32	138	211	270	320	358	32	138	211	270	320	358
		48-S	32	131	198	252	296	329	32	131	198	252	296	329	32	131	198	252	296	329
	120	X80	45	176	262	331	378	420	44	176	262	331	378	420	44	176	262	331	378	420
		X48	32	135	207	266	317	358	31	135	207	266	317	358	31	135	207	266	317	358
		48-S	31	128	195	249	296	329	30	128	195	249	296	329	30	128	195	249	296	329
	130	X80	42	170	256	325	378	420	41	170	256	325	378	420	41	170	256	325	378	420
		X48	30	129	200	259	310	354	29	129	200	259	310	354	29	129	200	259	310	354
		48-S	29	123	190	244	290	329	28	123	190	244	290	329	28	123	190	244	290	329
	140	X80	40	164	249	319	378	420	38	164	249	319	378	420	38	164	249	319	378	420
		X48	28	123	194	252	303	347	27	123	194	252	303	347	27	123	194	252	303	347
		48-S	27	118	184	238	284	325	26	118	184	238	284	325	26	118	184	238	284	325
	150	X80	38	158	243	312	371	420	36	158	243	312	371	420	36	158	243	312	371	420
		X48	26	118	188	245	296	341	25	114	188	245	296	341	25	114	188	245	296	341
		48-S	26	113	178	232	278	319	24	112	178	232	278	319	24	112	178	232	278	319
	160	X80	36	153	237	306	365	417	34	153	237	306	365	417	34	153	237	306	365	417
		X48	25	113	181	239	289	334	23	107	181	239	289	334	23	107	181	239	289	334
		48-S	24	109	173	226	272	313	23	105	173	226	272	313	23	105	173	226	272	313
	170	X80	34	147	231	299	358	411	32	146	231	299	358	411	32	146	231	299	358	411
		X48	23	108	175	232	282	326	22	101	175	232	282	326	22	101	175	232	282	326
		48-S	23	105	167	220	266	307	21	99	167	220	266	307	21	99	167	220	266	307

Table 3.1: CrossRail Section Properties				
	48-S	X48	X80	(unit)
Cross Sectional Area (A)	0.5433	0.7130	0.7770	(in ²)
Moments of Inertia:				
Vertical (I _x)	0.2183	0.2518	0.8000	(in ⁴)
Horizontal (I _y)	0.1614	0.2306	0.1970	(in ⁴)
Section Moduli:				
Vertical (S _x)	0.2229	0.2457	0.5290	(in ³)
Horizontal (S _y)	0.1910	0.2966	0.2514	(in ³)
Material:	AL EN AW 6063-T66 AL 6005A-T61 AL 6005-T5 AL 6061-T6			
Note:	Material selection is region dependent. Analysis based on worst-case.			

Table 3.2: AddOn Bracket Properties			
K2 Systems Part # 1005530			(unit)
Overall Length			1.969 (in)
Overall Width			2.756 (in)
Overall Depth			1.102 (in)
Min. thickness			0.197 (in)
Material:	PA66-GF35		
Fastener:	Everest Solar M8 Slot-Nut		
Note:	Do not exceed specified torque of 10.3 ft.-lbs. (14N-m), per Everest authored assembly guide.		