



March 22, 2023

Mr. Ryan Estrada
K2 Systems LLC
4665 North Avenue, Suite I
Oceanside, CA 92056

Re: PV Tilt Up Rack System
Creation of Span Tables
Various Locations in the USA

LEI Project No: 21220004.003

Dear Mr. Estrada:

Pursuant to your request, Larson Engineering, Inc. (LEI) has performed a structural analysis of the K2 CrossRail Tilt Up System using the rail type: 44-X, 48-X, 48-XL and 80 for a panel size of 41 inches x 86 inches in Landscape orientation. The purpose of the analysis was to provide tables for the maximum spans and reactions to the roof under various loading conditions.

The analysis was performed in accordance with the following codes and guidelines:

- *ASCE 7-16 Minimum Design Loads for Buildings and Other Structures*, referenced by the International Building Code 2018 and 2021 editions and the International Residential Code 2018 and 2021 editions, 2019 California Building Standards Code and 2022 California Building Standards Code,
- *2015 Aluminum Design Manual* and the *2020 Aluminum Design Manual* by the Aluminum Association,
- *Wind Design for Low-Profile Solar Photovoltaic Arrays on Flat Roofs Report SEAOC PV2-2012* dated August 2012 by the Structural Engineers Association of California (SEAOC), portions of this are referenced in ASCE 7-16, chapter 29.

The rail system used 6000 series aluminum alloy with a minimum yield strength of 34.8ksi. Section properties for each rail system was provided by K2 Systems, LLC.

DESCRIPTION

The K2 CrossRail Tilt Up System consists of extruded aluminum PV support rails that span between an L-shaped support consisting of two (2) members, the front leg and the rear leg, whose lengths can be adjusted as required to vary the tilt angle of the panels. The front and rear legs are constructed of the same type of rail as the PV support rails. They are connected to one another using plates with screws to form a 90 degree triangle and each leg is attached to the roof using an L-foot. The PV support rails connect to the front leg with angle attachments. The PV panels connect to the PV support rails using a clamp. Attachment of the Tilt Up System to the existing roof shall be the responsibility of the installer and is required to be analyzed by a registered professional or structural engineer.

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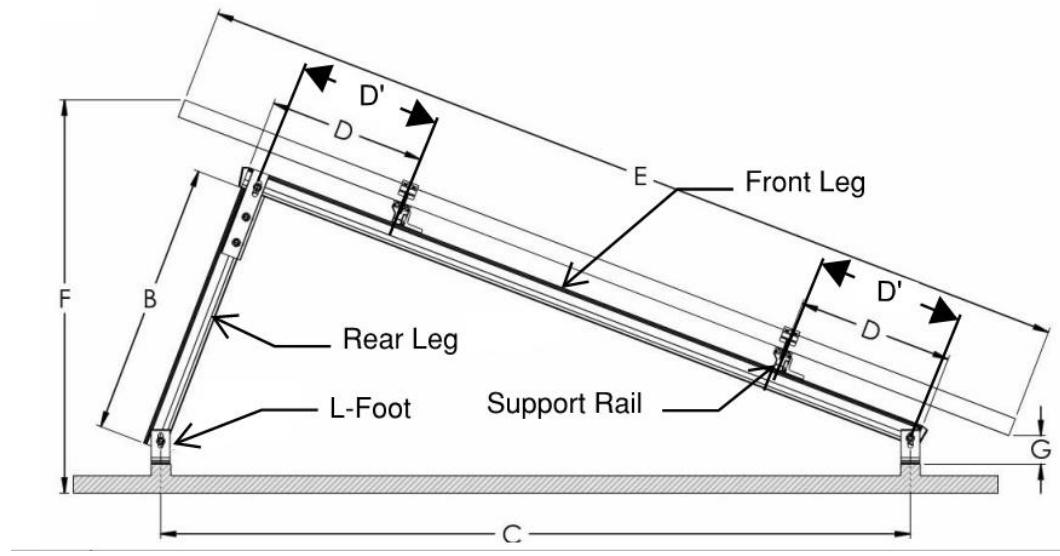


Figure 1 Typical Configuration (refer to K2 CrossRail Tilt Up System Assembly Instructions)

METHODS AND DESIGN PARAMETERS

Load combinations were provided in accordance with the ASCE 7-16 guidelines based on the assumption that the rail is a single span condition or multi-span condition and using an allowable deflection of $l/120$. Wind pressure was determined in accordance with ASCE 7-16 chapter 26 and ASCE 7-16 section 29.4.3 “Rooftop Solar Panels for Buildings of all Heights with Flat Roofs or Gable or Hip Roofs with slopes less than 7° ” whose tilt angles are less than 35° .

The snow loads indicated in the tables are based on a flat roof snow load. The snow load applied to the system may be adjusted with the tilt angle in accordance with sloped roof snow loads. The appropriate ground snow loads should be determined in accordance with the ground snow load maps in ASCE 7-16 or per the local building code.

The following table shows the equivalent ground snow value associated with the flat snow load shown in the span and reaction tables assuming $Ct=1.0$, $Ce=1.0$, $I=1.0$.

Determine Equivalent Ground Snow for indicated flat snow (psf)

P _f , flat snow (psf)	10	20	30	40	50	60	70
P _g , ground snow (psf)	14.3	28.5	42.8	57.2	71.4	85.7	100

Seismic criteria were considered per the provisions of ASCE 7-16, chapter 13. Seismic effects did not govern the capacity of this system.

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The following design parameters were used for the purpose of this analysis:

<u>General</u>	<u>Wind</u>	<u>Snow</u>	<u>Seismic</u>
Risk Category: II	V, ult: 90 - 180 mph	Flat snow pf: 0 - 70 psf	Site Class: D
Roof Mean Height: </= 30 ft	Exposures: B, C & D Pressure Zones: 1, 2 &	Ce: 1.0	Design Category: A-E
Roof Slope: 0° to 7 ° Panel Slope: 7° to 25° (from ground)	3	Ct: 1.0 Cs: Varies	Ss:</=2.0 S1:</=1.25
Panel Orientation: See Charts		Is: 1.0	Ip: 1.0
Panel Size: See Charts			ap: 1.0 Rp: 1.5

DESIGN RESULTS

The allowable span lengths of the system are controlled by applicable wind and snow load combinations. The reaction loads provided in the tables are only applicable to the corresponding span lengths provided. Reaction loads shown are based on the worst case of the front and rear mounting brackets. Reactions may be scaled linearly where shorter spans are used. The reactions shown for Multi Span assumes an interior support location. The maximum span length may be limited due to the capacity of the support rail, the capacity of the front leg to resist the reaction load from the support rail, or the capacity of the L-foot connection.

The following tables are provided for each exposure category, B, C & D for Interior and Edge Multi-Span Conditions in the **Landscape** Orientation:

Maximum Span Length (Inches) Multi Span Only, Tables 1.1, 1.1A, 2.1, 2.1A, 3.1, 3.1A

Maximum Downward Force (lbs) Multi Span Only, Tables 1.2, 1.2A, 2.2, 2.2A, 3.2, 3.2A

Maximum Horizontal Force (lbs) Multi Span Only, Tables 1.3, 1.3A, 2.3, 2.3A, 3.3, 3.3A

Maximum Uplift Force (lbs) Multi Span Only. Tables 1.4, 1.4A, 2.4, 2.4A, 3.4, 3.4A

Please note that simple span (2 supports) will not work for landscape orientation for the panel noted due to the lengths of the panel in that direction. A Minimum of 3 supports are required for 2 adjacent panels.

Figures 2 & 3 define the roof zones per ASCE 7-16 Figure 29.4-1 and are referenced in the attached Tables for Interior and Edge Conditions. Figure 4 defines the array edge factors used for wind uplift. The Edge Condition tables should be applied to the north and south rows and to the spans that occur within 1.5 panel lengths of the east and west edges as defined in Figure 4.

The following notations should be applied to Figures 2 through 4.

d1: Horizontal distance orthogonal to the panel edge to an adjacent panel or building edge.

d2: Horizontal distance orthogonal from the edge of one panel to the nearest edge in the next row.

h: Mean Roof Height.

WL=Width of a Building on its longest side.

Ws=Width of a Building on its shortest side.

Lp: Panel Length.

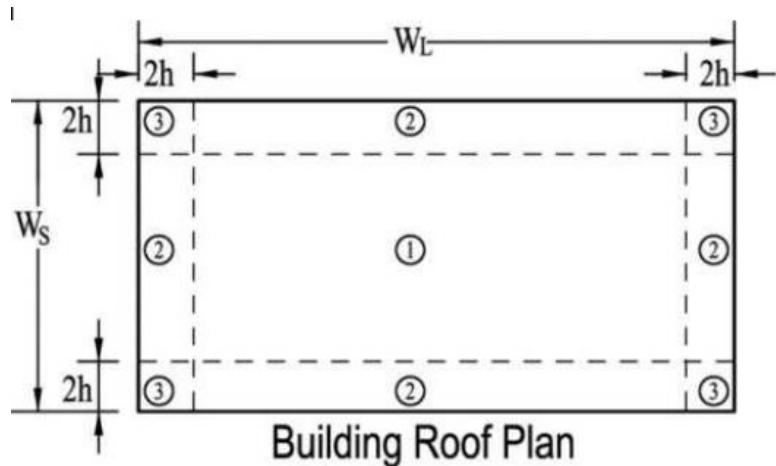


Figure 2. ASCE 7-16 Figure 29.4-7 shows the Building Roof Plan defining the roof zones.

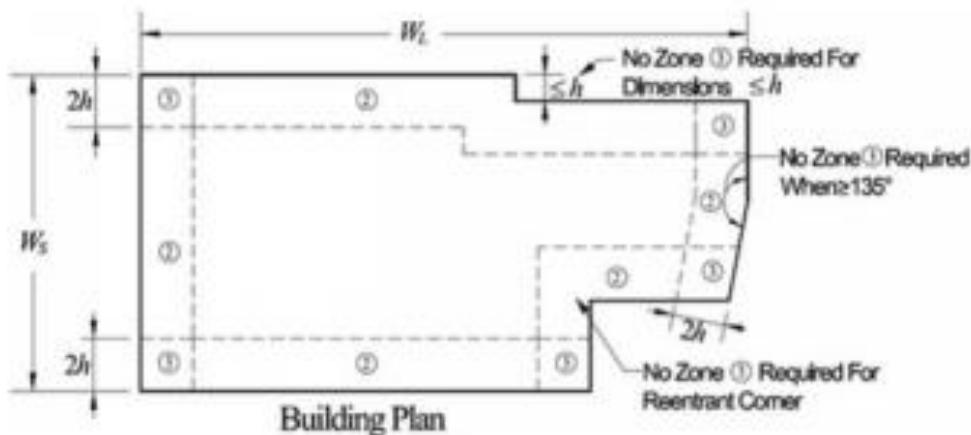


Figure 3. ASCE 7-16 Figure C29.4-1 shows a sketch of Building with Irregular Plan Dimensions

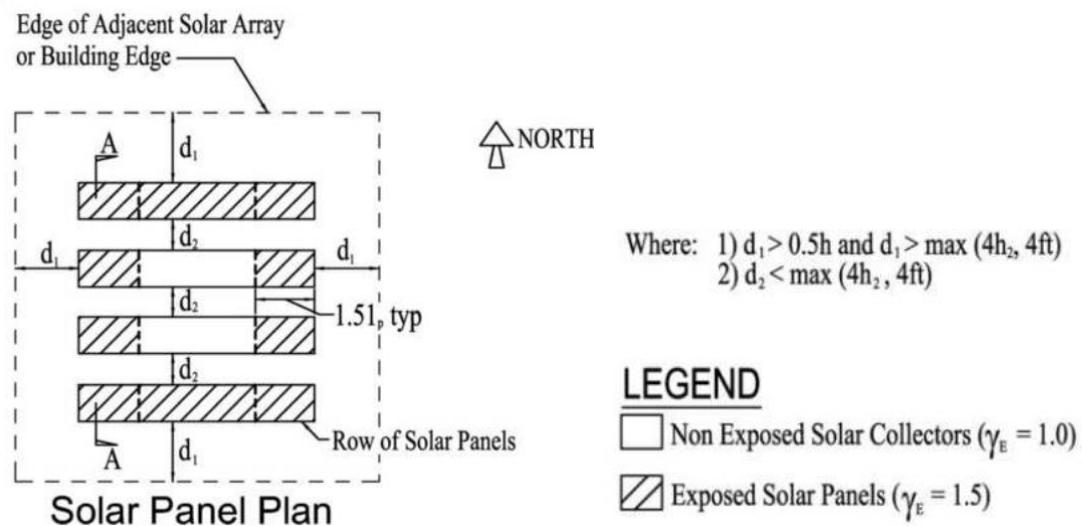


Figure 4. ASCE 7-16 Figure 29.4-7 Array Edge Factors
INSTALLATION & CONFIGURATION NOTES

The following guidelines apply to all installations using the K2 CrossRail Tilt Up System product line:

- Refer to Tilt Up Kit allowable geometry and installation guidelines by K2 Systems, LLC,
- All fasteners and connective hardware shall be installed per manufacturer specifications,
- The support rails shall be placed no further from the center of the L-Foot or Rear leg than 6", see dimension D' on Figure 1,
- This analysis is limited to installations south of any roof ridge, if present. On pitched roofs the northern most row of panels should be located between 3' and 12' from the ridge,
- Span tables assume (2) two independent horizontal support rails per panel. Rails shall be located no further than 8" from cut end of diagonal member (refer to Figure 1),
- High edge of panel not to exceed 30" from roof surface,
- Maximum end cantilever of horizontal support rail shall not exceed one-third (1/3) of allowable span in the roof wind pressure zone,
- Rails shall be continuous over a minimum of two (2) supports unless using an approved K2 Structural Splice,
- Installations over roof overhangs or within 12" of any roof edge is not advised,
- Observe all local jurisdictional requirements regarding roof setback requirements.

SUMMARY

This assessment has provided design validation for code compliant installations of the K2 CrossRail Tilt Up System in the state noted in the stamp below. Local jurisdictions shall be consulted for the proper code requirements. 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 K2 Systems, LLC for engineering support.

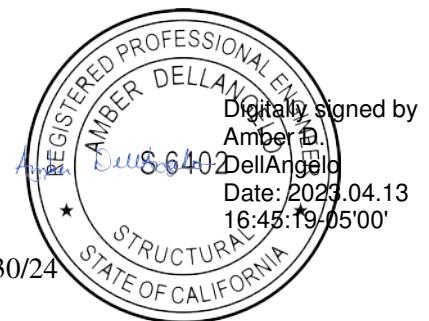
This report does not provide analysis of any existing structures to support the loading imposed by the K2 CrossRail Tilt Up System, as may be required by the local authority having jurisdiction.

If you have any further questions regarding this matter, please feel free to contact our office.

Sincerely,
Larson Engineering, Inc.

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CAW:ng

Attachments: Tables as indicated above



K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 1.1 Max Length L (inches) for Multi Span only Interior Conditions

Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60
90	44-X	66	52	38	27	20	0	0	0	52	45	34	27	0	0	0	0	44	41	32	26	0	0	0	0
		71	56	39	28	21	0	0	0	55	48	37	28	0	0	0	0	48	44	34	27	0	0	0	0
		158	126	90	63	48	39	33	28	124	108	82	63	48	39	33	28	107	98	76	62	48	39	33	28
		80	176	140	101	71	54	44	37	32	138	120	91	71	54	44	37	32	119	109	85	69	54	44	37
100	44-X	56	47	36	27	0	0	0	0	44	40	31	26	0	0	0	0	37	36	29	0	0	0	0	0
		61	51	38	28	0	0	0	0	47	43	34	27	0	0	0	0	40	39	31	0	0	0	0	0
		135	114	85	63	48	39	33	28	105	97	75	61	48	39	33	28	90	87	69	57	48	39	33	28
		80	151	127	95	71	54	44	37	32	117	108	84	69	54	44	37	32	100	96	77	64	54	44	37
110	44-X	49	43	33	26	0	0	0	0	37	36	29	0	0	0	0	0	32	31	26	0	0	0	0	0
		52	46	36	28	0	0	0	0	40	39	31	0	0	0	0	0	34	33	0	0	0	0	0	0
		117	104	80	62	48	39	33	28	90	86	69	57	48	39	33	28	77	75	63	53	46	39	33	28
		80	130	116	89	70	54	44	37	32	100	96	77	64	54	44	37	32	85	83	70	59	51	44	37
120	44-X	42	39	31	25	0	0	0	0	32	31	26	0	0	0	0	0	27	27	0	0	0	0	0	0
		46	42	33	0	0	0	0	0	35	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		102	95	74	60	48	39	33	28	78	76	63	53	46	39	33	28	66	64	57	49	43	38	33	28
		80	113	105	82	67	54	44	37	32	86	84	70	59	51	44	37	32	73	72	63	54	48	42	37
130	44-X	37	36	29	0	0	0	0	0	28	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		40	38	31	0	0	0	0	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		89	86	69	57	47	39	33	28	68	66	58	50	43	38	33	28	57	56	52	45	40	36	32	28
		80	99	96	77	64	53	44	37	32	75	74	65	55	48	43	37	32	64	62	58	50	44	40	36
140	44-X	33	32	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		35	34	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		79	77	64	54	46	39	33	28	59	58	53	46	41	36	32	28	50	49	47	42	37	33	30	0
		80	88	85	71	60	51	44	37	32	66	65	59	51	45	40	36	32	56	55	53	46	41	37	34
150	44-X	29	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		31	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		70	68	59	51	44	38	33	28	52	51	49	43	38	34	31	28	44	43	42	38	34	31	29	0
		80	78	76	66	56	49	43	37	32	58	57	54	48	42	38	35	31	49	48	47	43	38	35	32
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		63	61	55	47	42	37	32	28	47	46	45	40	36	32	29	0	39	39	38	35	32	29	0	0
		80	70	68	61	53	46	41	36	32	52	51	50	44	40	36	33	30	44	43	42	39	36	33	30
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		56	55	51	45	39	35	31	28	42	41	40	37	33	30	0	0	35	35	34	33	30	0	0	0
		80	56	55	53	47	42	37	34	31	42	41	40	38	35	32	29	27	35	35	34	33	31	29	27
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		39	38	37	35	33	31	30	28	33	33	32	30	29	28	27	30	30	29	29	27	27	26	26	0
		51	50	48	42	37	34	30	0	38	37	36	34	31	0	0	0	31	31	31	30	0	0	0	0
		80	56	55	53	47	42	37	34	31	42	41	40	38	35	32	29	27	35	35	34	33	31	29	27

Note: The Length is based on use of at least two spans. Cantilevered ends may be used that are no greater than 1/3 of the backspan.

See SEAOC PV-2 2012 for definition of Roof Zones

Larson Engineering Inc

1488 Bond Street, Suite 100 Naperville, IL 60563-6503 - p (630) 357-0540 - www.larsonengr.com



K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 1.1A Max Length L (inches) for Multi Span only Exterior Conditions

Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60
90	44-X	76	61	44	31	24	0	0	0	60	52	40	31	24	0	0	0	51	47	37	30	24	0	0	0
	48-X	71	57	39	28	21	0	0	0	56	49	37	28	0	0	0	0	48	44	34	27	0	0	0	0
	48-XL	141	112	78	55	42	34	29	25	111	97	72	55	42	34	29	25	96	87	68	54	42	34	29	25
	80	174	138	101	74	57	46	39	33	137	119	90	73	57	46	39	33	118	108	84	69	57	46	39	33
100	44-X	65	56	42	31	24	0	0	0	50	47	37	30	24	0	0	0	43	42	34	28	0	0	0	0
	48-X	61	52	37	28	0	0	0	0	47	44	34	27	0	0	0	0	41	39	31	0	0	0	0	0
	48-XL	121	102	74	55	42	34	29	25	94	86	67	53	42	34	29	25	80	77	62	51	42	34	29	25
	80	149	126	94	74	57	46	39	33	116	106	83	68	57	46	39	33	99	95	76	63	54	46	39	33
110	44-X	56	50	39	31	24	0	0	0	43	42	34	28	0	0	0	0	37	36	30	0	0	0	0	0
	48-X	53	47	36	27	0	0	0	0	41	39	31	0	0	0	0	0	35	34	0	0	0	0	0	0
	48-XL	105	93	70	54	42	34	29	25	80	77	62	50	42	34	29	25	68	67	56	47	40	34	29	25
	80	129	115	88	71	57	46	39	33	99	95	76	63	54	46	39	33	84	82	69	58	51	45	39	33
120	44-X	49	46	36	29	24	0	0	0	37	36	31	26	0	0	0	0	32	31	28	0	0	0	0	0
	48-X	46	43	33	0	0	0	0	0	35	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	91	85	66	52	42	34	29	25	69	68	57	48	40	34	29	25	59	58	51	44	38	33	29	25
	80	112	104	82	67	57	46	39	33	86	83	70	59	51	45	39	33	73	71	63	54	47	42	38	33
130	44-X	43	42	33	28	0	0	0	0	32	32	28	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	40	38	31	0	0	0	0	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	80	77	61	50	41	34	29	25	60	59	52	44	38	33	29	25	51	50	46	40	36	32	28	25
	80	98	95	76	63	54	46	39	33	74	73	64	55	48	42	38	33	63	62	57	50	44	39	36	33
140	44-X	33	32	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	36	35	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	70	69	57	48	40	34	29	25	53	52	48	41	36	32	28	25	45	44	42	37	33	30	27	0
	80	87	85	70	59	51	45	39	33	65	64	59	51	45	40	36	33	55	54	52	46	41	37	34	31
150	44-X	34	33	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	32	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	63	61	53	45	38	33	29	25	47	46	44	38	34	30	27	24	39	39	38	34	31	28	26	0
	80	77	75	65	56	49	43	39	33	58	57	54	47	42	38	34	31	49	48	47	42	38	34	32	29
160	44-X	30	29	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	56	55	49	42	37	32	28	25	42	41	40	35	32	29	26	0	35	35	34	32	29	26	0	0
	80	69	67	61	52	46	41	37	33	51	51	49	44	39	36	32	30	43	43	42	39	35	32	30	28
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	50	49	46	40	35	31	27	24	37	37	36	33	30	27	0	0	31	31	30	29	27	0	0	0
	80	56	55	53	46	41	37	34	31	41	41	40	38	34	32	29	27	35	34	34	33	31	28	26	0
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	45	44	43	37	33	30	26	0	34	33	32	31	28	0	0	0	28	28	27	27	0	0	0	0
	80	56	55	53	46	41	37	34	31	41	41	40	38	34	32	29	27	35	34	34	33	31	28	26	0

Note: The Length is based on use of at least two spans. Cantilevered ends may be used that are no greater than 1/3 of the backspan.

See SEAOC PV-2 2012 for definition of Roof Zones

Larson Engineering Inc

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 1.2 Maximum Downward Force (lbs) Multi Span Only Interior Conditions

		Table 1.2 Maximum Downward Force (lbs) Multi Span Only Interior Conditions																								
Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	103	116	125	125	125	0	0	0	103	111	121	125	0	0	0	0	104	107	117	123	0	0	0	0	
		111	125	130	130	130	0	0	0	111	119	130	130	0	0	0	0	112	115	126	131	0	0	0	0	
		248	279	295	296	296	296	296	296	249	267	290	296	296	296	297	297	296	250	257	281	296	296	296	296	
		276	311	331	332	333	333	333	333	277	297	324	332	333	333	334	333	333	278	286	313	330	333	333	333	
100	44-X	103	114	123	125	0	0	0	0	104	108	118	124	0	0	0	0	104	106	114	0	0	0	0	0	
		111	122	130	130	0	0	0	0	112	117	127	130	0	0	0	0	112	114	122	0	0	0	0	0	
		249	274	295	296	296	296	296	296	296	250	261	284	295	353	296	297	297	296	251	255	274	289	296	296	296
		277	305	331	332	333	333	333	333	278	291	316	332	396	333	334	333	333	279	284	305	322	333	333	333	
110	44-X	104	112	121	125	0	0	0	0	104	106	115	0	0	0	0	104	103	111	0	0	0	0	0	0	
		112	120	130	130	0	0	0	0	112	114	124	0	0	0	0	112	111	0	0	0	0	0	0	0	
		249	179	212	238	263	292	318	343	198	193	225	250	272	293	319	343	216	211	230	258	279	299	318	343	
		278	299	324	331	333	333	333	333	279	285	309	326	393	333	334	333	333	280	276	297	314	327	333	333	
120	44-X	104	110	119	125	0	0	0	0	104	103	113	0	0	0	0	105	102	0	0	0	0	0	0	0	
		112	118	128	0	0	0	0	0	112	111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		250	264	286	295	296	296	296	296	296	251	248	272	286	335	296	297	297	296	252	246	261	276	287	295	296
		279	294	318	332	333	333	333	333	280	276	303	319	375	333	334	333	333	281	274	291	307	320	329	333	
130	44-X	104	108	117	0	0	0	0	0	105	102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		112	116	126	0	0	0	0	0	113	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		251	260	281	295	295	296	296	296	296	252	246	267	281	316	295	297	297	296	252	247	255	270	281	290	295
		279	289	313	329	332	333	333	333	280	274	297	313	352	332	334	333	333	281	276	285	301	313	323	331	
140	44-X	104	104	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		112	112	124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		251	250	276	290	296	296	296	296	296	252	247	262	276	296	295	295	296	253	248	255	265	275	284	291	
		280	279	308	323	332	332	333	333	281	275	292	307	329	328	332	333	333	281	277	284	295	307	317	325	
150	44-X	105	102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		113	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		252	246	272	286	296	295	296	296	296	253	248	258	271	281	290	296	295	253	249	251	260	270	279	286	
		280	274	303	318	330	332	333	333	281	276	287	302	314	323	331	332	332	282	277	279	289	301	311	319	
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		252	247	268	282	292	296	295	296	296	253	249	254	267	277	285	292	0	253	250	245	255	265	274	0	
		281	275	299	314	325	332	332	333	282	277	283	297	308	318	325	332	282	278	273	284	296	305	313	320	
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		252	247	265	278	288	296	296	295	295	253	249	247	263	273	281	0	253	250	246	255	261	0	0	0	
		281	276	295	309	321	329	332	332	332	282	278	276	293	304	313	320	327	282	279	274	284	291	300	308	
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		253	248	261	274	284	292	296	0	253	250	245	259	269	0	0	0	254	251	247	253	0	0	0	0	
		281	276	291	305	316	325	332	332	282	278	273	289	299	308	316	322	283	279	275	281	286	295	303	0	

Note: The Reactions shown in the tables above account for reactions associated with the exterior support of a multi span condition. See Max length for Multi Span Only for corresponding span length.

See SEAOC PV-2 2012 for definition of Roof Zones

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 1.2A Maximum Downward Force (lbs) Multi Span Only Exterior Conditions

Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	134	150	159	160	160	0	0	0	0	134	143	156	160	160	0	0	0	135	138	151	159	160	0	0	0
	48-X	112	126	129	130	130	0	0	0	0	112	120	130	130	0	0	0	0	113	116	127	130	0	0	0	0
	48-XL	221	250	256	257	257	257	257	257	257	223	239	256	257	257	258	257	257	223	230	251	257	257	257	257	257
	80	273	308	334	346	346	346	346	347	347	275	294	320	343	346	346	348	347	275	283	310	327	346	346	346	347
100	44-X	134	147	159	160	160	0	0	0	0	135	140	152	159	160	0	0	0	135	137	147	155	0	0	0	0
	48-X	112	124	130	130	0	0	0	0	0	113	118	128	130	0	0	0	0	113	115	123	0	0	0	0	0
	48-XL	222	245	256	257	257	257	257	257	257	223	233	254	256	306	257	258	257	224	228	245	258	257	257	257	257
	80	274	302	327	346	346	346	346	347	347	276	287	313	329	413	346	348	347	276	281	302	319	332	346	346	347
110	44-X	134	145	157	159	160	0	0	0	0	135	137	149	157	0	0	0	0	136	133	143	0	0	0	0	0
	48-X	113	121	130	129	0	0	0	0	0	113	115	125	0	0	0	0	0	113	112	0	0	0	0	0	0
	48-XL	223	240	257	256	257	257	257	257	257	224	228	248	257	303	257	258	257	225	221	239	252	256	257	257	257
	80	275	296	321	337	346	346	346	347	347	276	282	306	322	395	346	348	347	277	273	294	311	323	337	346	347
120	44-X	135	142	154	159	160	0	0	0	0	136	133	146	154	0	0	0	0	136	133	140	0	0	0	0	0
	48-X	113	119	129	0	0	0	0	0	0	113	112	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	224	236	256	256	257	257	257	257	257	225	222	243	256	291	257	258	257	225	220	233	246	256	256	257	257
	80	276	291	315	331	346	346	346	347	347	277	273	300	316	371	338	348	347	278	271	288	304	316	326	338	347
130	44-X	135	140	151	159	0	0	0	0	0	136	133	143	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	113	117	127	0	0	0	0	0	0	114	111	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	224	232	251	257	256	256	257	257	257	225	220	238	251	278	256	258	257	226	221	228	241	251	257	256	257
	80	276	286	310	325	336	346	346	347	347	278	271	294	310	348	331	342	347	278	273	282	297	310	319	327	338
140	44-X	135	134	149	156	0	0	0	0	0	136	133	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	113	113	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	225	224	247	257	257	257	257	257	257	225	221	234	247	264	257	256	257	226	222	228	236	246	254	257	0
	80	277	276	305	320	331	341	346	347	347	278	272	289	304	326	325	332	343	279	274	281	292	304	313	321	328
150	44-X	136	133	146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	114	111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	225	220	243	256	257	256	257	257	257	226	222	230	242	252	257	257	256	226	223	224	232	242	249	256	0
	80	277	271	300	315	326	335	346	347	347	278	273	284	299	310	319	327	333	279	275	276	286	298	307	315	322
160	44-X	136	133	144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	225	220	240	252	257	257	256	257	257	226	222	227	238	248	255	257	0	226	223	219	228	237	245	0	0
	80	278	272	296	310	322	331	338	347	347	279	274	280	294	305	314	322	328	279	275	270	281	293	302	310	317
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	226	221	237	248	257	257	257	256	256	226	223	221	235	244	251	0	0	227	224	220	228	233	0	0	0
	80	278	273	292	306	317	326	333	339	339	279	275	273	290	301	310	317	324	279	276	271	281	288	297	305	312
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	226	222	234	245	254	257	257	0	0	226	223	219	232	240	0	0	0	227	224	221	226	0	0	0	0
	80	279	274	288	302	313	322	329	335	335	279	276	270	286	296	305	313	319	280	276	272	279	283	292	300	0

Note: The Reactions shown in the tables above account for reactions associated with the exterior support of a multi span condition. See Max length for Multi Span Only for corresponding span length.

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 1.3 Maximum Horizontal Force (lbs) Multi span only Interior Conditions

Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	35	28	20	14	11	0	0	0	38	33	25	20	11	0	0	0	44	36	28	23	14	0	0	0	
		48-X	38	30	21	15	11	0	0	0	41	36	27	20	12	0	0	0	47	39	30	24	14	0	0	0
		48-XL	84	67	48	34	26	21	18	15	91	80	61	46	36	29	24	21	106	87	68	55	43	35	29	25
		80	94	74	53	38	104	23	20	17	102	89	67	52	40	33	27	24	118	97	75	62	48	39	33	29
100	44-X	37	31	23	18	0	0	0	0	40	37	28	23	0	0	0	0	46	40	32	22	0	0	0	0	
		48-X	40	34	25	18	0	0	0	0	43	39	31	24	0	0	0	0	50	43	34	23	0	0	0	0
		48-XL	89	59	51	45	40	36	33	31	77	75	67	60	54	50	46	92	86	84	78	71	64	60	56	52
		80	99	84	63	46	128	29	24	21	107	98	76	62	49	40	34	29	124	106	85	70	60	48	41	35
110	44-X	40	37	29	24	0	0	0	0	42	41	34	25	0	0	0	0	50	47	37	30	0	0	0	0	
		48-X	42	37	28	22	0	0	0	0	44	43	34	23	0	0	0	0	52	46	36	27	0	0	0	0
		48-XL	93	83	63	50	38	31	26	23	99	95	76	63	53	43	37	31	117	104	83	71	61	52	44	38
		80	104	92	71	56	155	35	29	25	110	106	85	70	59	49	41	35	130	116	93	79	68	59	49	43
120	44-X	41	40	32	0	0	0	0	0	43	42	33	0	0	0	0	0	52	50	40	0	0	0	0	0	
		48-X	43	40	31	0	0	0	0	45	44	33	0	0	0	0	0	54	50	39	0	0	0	0	0	
		48-XL	96	89	70	57	46	37	31	27	102	99	83	70	60	51	43	37	121	112	90	77	68	60	52	45
		80	107	100	78	64	184	42	35	30	113	110	92	78	67	58	49	42	135	125	101	86	75	67	59	51
130	44-X	41	40	32	0	0	0	0	0	43	42	33	0	0	0	0	0	52	50	40	0	0	0	0	0	
		48-X	44	43	34	0	0	0	0	46	45	35	0	0	0	0	0	56	54	43	0	0	0	0	0	
		48-XL	99	96	76	64	53	44	37	32	104	102	89	76	67	58	51	44	125	120	96	84	74	66	60	53
		80	110	106	85	71	212	49	41	36	116	113	99	85	74	65	57	49	139	134	107	93	82	74	67	60
140	44-X	42	41	34	0	0	0	0	0	44	43	35	0	0	0	0	0	53	52	43	0	0	0	0	0	
		48-X	45	44	37	0	0	0	0	47	46	38	0	0	0	0	0	57	55	46	0	0	0	0	0	
		48-XL	101	99	82	69	59	50	42	37	106	104	95	82	72	65	57	51	127	124	103	90	80	72	66	46
		80	113	110	92	77	237	57	48	41	118	115	106	91	81	72	64	57	142	138	115	100	89	80	73	67
150	44-X	43	42	0	0	0	0	0	0	45	44	0	0	0	0	0	54	53	0	0	0	0	0	0	0	0
		48-X	46	45	0	0	0	0	0	48	47	0	0	0	0	0	58	57	0	0	0	0	0	0	0	0
		48-XL	103	101	88	75	65	56	49	42	108	105	100	88	78	70	63	57	130	127	110	95	85	77	71	53
		80	115	112	98	83	260	63	55	47	120	117	111	97	87	78	71	64	145	141	123	106	95	86	79	73
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	105	103	93	80	70	62	54	48	109	107	104	93	83	75	69	50	132	129	116	100	90	83	68	60
		80	117	115	103	89	280	69	61	54	122	119	116	103	92	84	76	70	147	144	130	112	101	92	85	79
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	107	104	97	85	75	67	59	53	111	109	106	97	88	80	62	55	134	131	122	106	95	84	75	67
		80	119	116	108	94	299	75	67	60	123	121	118	108	98	89	82	76	149	146	136	118	106	97	90	84
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	108	106	101	89	79	72	65	0	112	110	107	101	92	74	67	0	135	133	127	112	100	90	81	0
		80	120	118	113	99	317	80	72	65	125	123	119	113	103	94	87	81	151	148	142	125	111	102	95	82

Note: The Reactions shown in the tables above account for reactions associated with the exterior support of a multi span condition. See Max length for Multi Span Only for corresponding span length.

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PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 1.3A Maximum Horizontal Force (lbs) Multi span only Exterior Conditions

Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	46	46	37	26	19	14	0	0	0	50	44	33	26	20	0	0	0	58	48	37	30	24	0	0	0
		48-X	38	30	21	15	11	0	0	0	41	36	27	20	12	0	0	0	48	39	31	24	14	0	0	0
		48-XL	75	60	41	29	22	18	15	13	82	71	53	40	31	25	21	18	94	78	61	48	37	30	26	22
		80	93	74	54	39	30	24	21	18	101	88	67	54	42	34	29	25	116	96	75	61	50	41	34	30
	44-X	48	48	41	31	23	18	0	0	0	52	48	38	31	25	0	0	0	61	52	42	35	22	0	0	0
		48-X	40	34	25	18	0	0	0	0	43	40	31	24	0	0	0	0	50	43	34	23	0	0	0	0
		48-XL	80	67	49	36	28	22	19	16	85	79	61	48	38	31	26	23	100	85	68	56	46	37	32	27
		80	98	83	62	48	37	30	25	22	105	97	76	62	52	42	35	30	123	105	84	70	60	51	43	37
	44-X	52	49	38	31	25	0	0	0	0	55	54	45	38	26	0	0	0	66	61	49	39	32	0	0	0
		48-X	42	37	28	22	0	0	0	0	45	43	34	23	0	0	0	0	53	47	35	27	0	0	0	0
		48-XL	83	74	56	43	33	27	23	20	89	85	68	56	46	38	32	27	104	93	75	63	53	45	38	33
		80	103	91	70	57	45	36	31	26	109	105	84	70	60	51	43	37	129	114	92	78	67	59	51	44
	44-X	54	52	42	35	0	0	0	0	0	56	55	49	36	0	0	0	0	68	66	53	44	0	0	0	0
		48-X	43	40	32	0	0	0	0	0	46	45	33	0	0	0	0	0	55	51	40	0	0	0	0	0
		48-XL	86	80	63	49	40	32	27	23	91	89	74	63	52	45	38	32	108	100	81	69	61	52	45	39
		80	106	99	77	63	54	43	37	32	112	109	91	77	67	59	51	44	133	124	100	85	75	66	60	53
	44-X	54	52	42	35	0	0	0	0	0	56	55	49	36	0	0	0	0	68	66	53	44	0	0	0	0
		48-X	45	43	34	0	0	0	0	0	47	46	36	0	0	0	0	0	56	54	43	0	0	0	0	0
		48-XL	89	85	68	55	46	38	32	27	93	91	80	68	59	51	44	38	111	107	86	75	66	59	52	46
		80	109	105	84	70	60	51	43	37	115	112	98	84	73	65	59	51	137	132	106	92	82	73	66	60
	44-X	55	53	45	38	0	0	0	0	0	57	56	47	40	0	0	0	0	69	67	57	48	0	0	0	0
		48-X	46	45	37	0	0	0	0	0	48	46	39	0	0	0	0	0	58	56	47	0	0	0	0	0
		48-XL	91	88	73	61	51	44	37	32	95	93	85	73	65	56	50	44	114	111	92	80	71	64	58	40
		80	112	109	91	76	66	58	50	43	117	114	105	90	80	71	64	59	141	137	114	99	88	79	72	66
	44-X	56	55	48	0	0	0	0	0	58	57	50	0	0	0	0	0	71	69	60	0	0	0	0	0	
		48-X	47	46	0	0	0	0	0	49	47	0	0	0	0	0	0	0	59	57	0	0	0	0	0	0
		48-XL	92	90	78	67	56	49	42	37	96	94	89	78	70	62	55	49	116	113	98	85	76	69	63	46
		80	114	111	97	82	72	64	57	49	119	116	110	96	86	77	70	64	143	140	121	105	94	85	78	72
	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	94	92	83	71	62	53	47	42	98	96	93	83	74	67	60	43	118	115	104	90	81	74	59	52
		80	116	113	102	88	77	69	62	56	120	118	115	102	91	83	76	70	146	142	128	110	100	91	84	78
	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	95	93	87	76	67	58	52	46	99	97	95	87	78	71	54	48	120	117	109	95	85	73	65	58
		80	117	115	107	93	82	74	67	61	122	120	117	107	97	88	81	75	148	145	135	117	105	96	89	83
	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	96	95	91	80	71	63	56	0	100	98	96	91	82	66	58	0	121	119	114	100	89	79	70	0
		80	119	117	112	98	87	79	72	66	123	121	118	112	102	93	86	80	149	147	141	123	110	101	94	83

Note: The Reactions shown in the tables above account for reactions associated with the exterior support of a multi span condition. See Max length for Multi Span Only for corresponding span length.

See SEAOC PV-2 2012 for definition of Roof Zones

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 1.4 Max Uplift Force (lbs) Multi span only Interior Conditions

Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60
90	44-X	-58	-46	-33	-24	-18	0	0	0	-68	-59	-45	-35	0	0	0	0	-73	-67	-52	-43	0	0	0	0
		-62	-50	-35	-25	-19	0	0	0	-73	-64	-49	-37	0	0	0	0	-79	-72	-56	-45	0	0	0	0
		-140	-111	-79	-56	-43	-35	-29	-25	-164	-143	-109	-83	-64	-52	-44	-38	-177	-162	-126	-103	-80	-65	-55	-47
		-156	-124	-89	-63	-48	-39	-33	-28	-183	-159	-121	-94	-72	-58	-49	-42	-197	-180	-140	-115	-90	-73	-61	-53
	48-X	-65	-55	-41	-31	0	0	0	0	-74	-68	-53	-43	0	0	0	0	-79	-76	-60	0	0	0	0	0
		-70	-59	-43	-32	0	0	0	0	-80	-73	-57	-46	0	0	0	0	-85	-81	-65	0	0	0	0	0
		-156	-132	-98	-73	-56	-45	-38	-33	-178	-164	-128	-104	-82	-67	-56	-38	-189	-182	-145	-121	-102	-83	-69	-60
		80	-174	-147	-110	-82	-63	-51	-43	-37	-198	-182	-142	-116	-92	-75	-63	-155	-211	-203	-162	-135	-114	-93	-78
100	44-X	-70	-62	-48	-38	0	0	0	0	-79	-76	-60	0	0	0	0	0	-83	-81	-68	0	0	0	0	0
		-76	-67	-52	-40	0	0	0	0	-85	-81	-65	0	0	0	0	0	-89	-87	0	0	0	0	0	0
		-169	-150	-115	-90	-70	-57	-48	-41	-189	-182	-145	-121	-101	-83	-70	-173	-199	-194	-163	-138	-119	-102	-86	-74
		80	-189	-168	-129	-102	-79	-64	-54	-46	-211	-203	-162	-135	-113	-93	-78	-194	-222	-216	-182	-153	-133	-115	-96
	48-X	-75	-70	-54	-45	0	0	0	0	-82	-80	-67	0	0	0	0	0	-86	-84	0	0	0	0	0	0
		-81	-75	-59	0	0	0	0	0	-89	-86	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-181	-167	-131	-106	-86	-70	-58	-50	-198	-193	-162	-136	-117	-100	-85	-210	-207	-202	-179	-153	-134	-119	-104	-90
		80	-201	-187	-146	-119	-96	-78	-66	-57	-221	-215	-180	-152	-131	-113	-95	-236	-230	-225	-199	-171	-150	-133	-117
110	44-X	-79	-76	-61	0	0	0	0	0	-85	-83	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-85	-82	-65	0	0	0	0	0	-92	-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-190	-183	-146	-122	-101	-83	-70	-61	-206	-201	-176	-151	-132	-115	-101	-251	-213	-209	-194	-168	-148	-133	-120	-106
		80	-211	-204	-163	-135	-113	-94	-79	-68	-229	-224	-196	-168	-147	-129	-113	-282	-238	-233	-216	-187	-165	-148	-134
	48-X	-82	-80	-66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-88	-86	-71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-197	-192	-160	-135	-114	-98	-83	-71	-212	-207	-190	-164	-145	-129	-115	-296	-219	-215	-206	-181	-162	-146	-133	0
		80	-220	-214	-178	-150	-129	-110	-93	-80	-236	-231	-211	-183	-161	-144	-129	-332	-243	-239	-230	-202	-180	-163	-148
120	44-X	-85	-83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-91	-89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-204	-199	-173	-147	-128	-110	-96	-83	-217	-213	-202	-177	-157	-141	-128	-335	-223	-219	-214	-194	-174	-158	-145	0
		80	-227	-222	-192	-164	-143	-124	-108	-93	-241	-237	-225	-197	-175	-158	-143	-376	-248	-244	-239	-216	-194	-176	-161
	48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-209	-205	-184	-159	-140	-123	-108	-95	-221	-217	-212	-188	-169	-153	-140	0	-226	-223	-219	-205	-185	-170	0	0
		80	-233	-228	-205	-177	-155	-138	-122	-107	-246	-242	-236	-210	-188	-170	-156	-418	-252	-249	-244	-228	-207	-189	-174
130	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-204	-199	-173	-147	-128	-110	-96	-83	-217	-213	-202	-177	-157	-141	-128	-335	-223	-219	-214	-194	-174	-158	-145	0
		80	-227	-222	-192	-164	-143	-124	-108	-93	-241	-237	-225	-197	-175	-158	-143	-376	-248	-244	-239	-216	-194	-176	-161
	48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-209	-205	-184	-159	-140	-123	-108	-95	-221	-217	-212	-188	-169	-153	-140	0	-226	-223	-219	-205	-185	-170	0	0
		80	-233	-228	-205	-177	-155	-138	-122	-107	-246	-242	-236	-210	-188	-170	-156	-418	-252	-249	-244	-228	-207	-189	-174
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-197	-192	-160	-135	-114	-98	-83	-71	-212	-207	-190	-164	-145	-129	-115	-296	-219	-215	-206	-181	-162	-146	-133	0
		80	-220	-214	-178	-150	-129	-110	-93	-80	-236	-231	-211	-183	-161	-144	-129	-332	-243	-239	-230	-202	-180	-163	-148
	48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-204	-199	-173	-147	-128	-110	-96	-83	-217	-213	-202	-177	-157	-141	-128	-335	-223	-219	-214	-194	-174	-158	-145	0
		80	-227	-222	-192	-164	-143	-124	-108	-93	-241	-237	-225	-197	-175	-158	-143	-376	-248	-244	-239	-216	-194	-176	-161
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-209	-205	-184	-159	-140	-123	-108	-95	-221	-217	-212	-188	-169	-153	-140	0	-226	-223	-219	-205	-185	-170	0	0
		80	-233	-228	-205	-177	-155	-138	-122	-107	-246	-242	-236	-210	-188	-170	-								



K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 1.4A Max Uplift Force (lbs) Multi span only Exterior Conditions

Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	
90	44-X	-77	-61	-44	-31	-24	0	0	0	-90	-79	-60	-47	-36	0	0	0	-96	-89	-69	-57	-45	0	0	0		
		-63	-50	-35	-24	-19	0	0	0	-74	-65	-49	-37	0	0	0	-80	-73	-57	-45	0	0	0	0			
		-125	-99	-69	-48	-37	-30	-25	-22	-147	-128	-96	-72	-56	-45	-38	-33	-158	-145	-112	-89	-69	-56	-47	-41		
		80	-154	-122	-90	-65	-50	-41	-34	-29	-181	-158	-120	-97	-75	-61	-51	-44	-195	-178	-139	-113	-94	-76	-64	-55	
100	44-X	-85	-72	-54	-41	-31	0	0	0	-97	-90	-70	-57	-46	0	0	0	-103	-100	-80	-67	0	0	0	0		
		-70	-59	-43	-32	0	0	0	0	-80	-74	-58	-45	0	0	0	-85	-82	-66	0	0	0	0	0	0		
		-139	-118	-85	-63	-48	-39	-33	-28	-159	-146	-114	-90	-71	-58	-49	-42	-169	-163	-130	-108	-88	-72	-60	-52		
		80	-172	-145	-109	-85	-65	-53	-45	-38	-196	-181	-141	-115	-96	-78	-66	-162	-209	-201	-160	-133	-114	-97	-81	-70	
110	44-X	-92	-83	-64	-50	-39	0	0	0	-103	-100	-80	-67	0	0	0	-108	-105	-89	0	0	0	0	0	0		
		-76	-68	-51	-40	0	0	0	0	-85	-82	-66	0	0	0	0	-90	-87	0	0	0	0	0	0	0	0	
		-151	-134	-102	-79	-61	-49	-41	-36	-169	-163	-130	-106	-88	-72	-61	-150	-178	-173	-146	-123	-104	-89	-74	-64		
		80	-187	-166	-127	-103	-82	-66	-56	-48	-209	-201	-160	-133	-114	-97	-82	-202	-219	-214	-180	-152	-131	-116	-100	-87	
120	44-X	-98	-92	-72	-59	-48	0	0	0	-108	-105	-89	-75	0	0	0	-112	-110	-98	0	0	0	0	0	0	0	0
		-81	-76	-59	0	0	0	0	0	-89	-87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-161	-150	-117	-92	-74	-60	-51	-44	-177	-173	-144	-122	-102	-87	-74	-183	-185	-181	-160	-137	-120	-104	-90	-78		
		80	-199	-185	-145	-119	-100	-81	-68	-59	-219	-213	-178	-150	-130	-115	-99	-246	-228	-223	-197	-169	-148	-132	-118	-105	
130	44-X	-103	-100	-80	-67	0	0	0	0	-112	-109	-97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-86	-82	-66	0	0	0	0	0	-93	-91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-170	-163	-131	-106	-87	-72	-61	-53	-184	-180	-158	-135	-116	-100	-88	-218	-191	-187	-173	-150	-133	-118	-104	-92		
		80	-209	-202	-161	-134	-115	-98	-82	-71	-227	-221	-194	-166	-145	-129	-116	-294	-235	-230	-213	-185	-164	-147	-133	-121	
140	44-X	-107	-104	-88	-74	0	0	0	0	-115	-112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-89	-87	-72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-176	-172	-143	-119	-99	-85	-72	-62	-189	-185	-170	-147	-129	-113	-100	-257	-195	-192	-185	-162	-145	-130	-117	0	0	
		80	-218	-212	-176	-148	-128	-113	-97	-83	-233	-229	-209	-181	-160	-143	-129	-342	-241	-237	-228	-200	-178	-161	-147	-135	
150	44-X	-111	-108	-94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-92	-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-182	-178	-154	-132	-111	-96	-83	-72	-194	-190	-181	-158	-140	-125	-111	-291	-199	-196	-192	-173	-156	-141	-129	0	0	
		80	-225	-219	-190	-162	-141	-125	-112	-97	-239	-235	-223	-195	-173	-156	-142	-378	-246	-242	-236	-213	-192	-174	-160	-147	
160	44-X	-113	-111	-101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-187	-183	-165	-142	-123	-106	-94	-83	-198	-194	-190	-168	-151	-137	-123	0	-202	-200	-196	-183	-166	-152	0	0	0	
		80	-231	-226	-203	-175	-154	-137	-124	-112	-244	-240	-234	-208	-186	-168	-154	-413	-250	-246	-241	-226	-204	-187	-172	-160	
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-191	-188	-175	-152	-134	-117	-104	-93	-201	-198	-194	-178	-160	-146	0	0	-205	-203	-199	-192	-175	0	0	0	-171	
		80	-236	-231	-215	-187	-166	-149	-135	-123	-248	-244	-239	-219	-198	-180	-166	-447	-253	-250	-245	-237	-216	-199	-184	-171	
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-195	-191	-184	-161	-143	-128	-113	0	-204	-201	-197	-186	-169	0	0	0	-208	-205	-202	-199	0	0	0	0	0	
		80	-240	-236	-226	-199	-177	-160	-145	-133	-251	-248	-243	-230	-209	-191	-517	-480	-256	-253	-249	-245	-227	-210	-195	0	

Note: The Reactions shown in the tables above account for reactions associated with the exterior support of a multi span condition. See Max length for Multi Span Only for corresponding span length.
See SEAOC PV-2 2012 for definition of Roof Zones



K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 2.1 Max Length L (inches) for Multi span only Interior Conditions

Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60
90	44-X	52	45	34	28	0	0	0	0	40	38	30	0	0	0	0	0	34	33	27	0	0	0	0	0
		56	49	37	28	0	0	0	0	43	41	32	0	0	0	0	0	37	36	30	0	0	0	0	0
		112	98	74	57	44	35	30	26	86	82	65	53	44	35	30	26	74	72	59	50	42	35	30	26
		80	171	150	112	85	65	53	45	39	132	125	99	80	65	53	45	39	113	110	90	76	64	53	45
100	44-X	44	40	31	26	0	0	0	0	33	32	27	0	0	0	0	0	28	28	0	0	0	0	0	0
		48	44	34	27	0	0	0	0	36	35	29	0	0	0	0	0	31	30	0	0	0	0	0	0
		95	87	68	54	44	35	30	26	72	70	58	49	42	35	30	26	61	60	53	45	39	34	30	26
		80	145	134	104	82	65	53	45	39	111	108	89	75	63	53	45	39	94	92	81	69	60	52	45
110	44-X	37	36	29	0	0	0	0	0	28	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		41	39	31	0	0	0	0	0	31	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		81	78	62	52	43	35	30	26	61	60	53	45	39	34	30	26	52	51	47	41	36	32	29	26
		80	124	120	96	78	64	53	45	39	94	92	81	69	59	51	45	39	79	78	72	63	55	49	43
120	44-X	32	31	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		35	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		70	68	57	48	41	35	30	26	53	52	48	41	36	32	29	26	44	44	42	37	33	30	27	0
		80	107	104	88	74	61	53	45	39	81	79	73	63	56	49	43	39	68	67	65	57	51	46	41
130	44-X	28	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		61	60	52	45	39	34	30	26	46	45	43	38	34	30	27	0	38	38	37	34	30	28	0	0
		80	93	91	80	69	59	51	45	39	70	68	66	58	52	47	41	37	59	58	57	52	47	42	39
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		53	52	48	42	37	32	29	26	40	39	38	35	31	28	0	0	33	33	32	31	28	0	0	0
		80	82	80	74	64	56	49	43	38	61	60	59	53	48	43	40	36	51	50	49	47	43	39	36
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		47	46	44	39	34	31	28	25	35	35	34	32	29	26	0	0	29	29	29	28	0	0	0	0
		80	72	71	68	59	53	47	41	37	54	53	52	49	44	40	37	34	45	44	44	43	39	36	34
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		42	41	40	36	32	29	26	0	31	31	30	29	0	0	0	0	0	0	0	0	0	0	0	0
		80	64	63	62	55	49	45	40	36	48	47	46	45	41	38	35	33	40	39	39	38	36	34	0
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		38	37	36	33	30	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	58	57	56	51	46	42	38	35	42	42	41	41	38	35	33	0	35	35	35	34	34	0	0
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		34	33	33	31	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	52	51	50	48	43	40	37	33	38	38	38	37	35	0	0	0	0	0	0	0	0	0	0

Note: The Forces shown in the tables above account for reactions associated with the interior support of a multi-span condition. See Max length for Multi Span for corresponding span length.
See SEAOC PV-2 2012 for definition of Roof Zones

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 2.1A Max Length L (inches) for Multi span only Exterior Conditions

Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70		
90	44-X	52	45	35	28	0	0	0	0	40	38	30	0	0	0	0	0	34	33	27	0	0	0	0	0	0		
		56	49	37	28	0	0	0	0	43	41	32	0	0	0	0	0	37	36	30	0	0	0	0	0	0		
		112	98	73	56	43	35	29	25	86	82	65	53	43	35	29	25	74	72	59	50	42	35	29	25	25		
		80	133	116	88	71	60	49	41	36	102	97	77	64	54	47	42	36	87	85	70	59	51	45	40	36		
100	44-X	44	41	32	26	0	0	0	0	34	33	27	0	0	0	0	0	29	28	0	0	0	0	0	0	0	0	
		47	44	34	27	0	0	0	0	36	35	29	0	0	0	0	0	31	30	0	0	0	0	0	0	0	0	
		95	87	68	54	43	35	29	25	72	70	58	49	41	35	29	25	61	60	53	45	39	34	29	25	25	25	
		80	112	104	81	66	56	49	41	36	86	83	69	58	50	44	40	36	73	71	63	53	47	41	37	34	34	
110	44-X	38	36	29	0	0	0	0	0	29	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		41	39	31	0	0	0	0	0	31	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		81	78	62	51	42	35	29	25	61	60	53	45	39	34	29	25	52	51	47	41	36	32	29	25	25	25	
		80	96	93	74	62	53	46	41	36	73	71	62	53	47	41	37	34	62	60	56	49	43	38	35	32	32	
120	44-X	33	32	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		35	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		70	68	57	48	40	35	29	25	53	52	48	41	36	32	28	25	44	44	42	37	33	30	27	0	0	0	
		80	83	81	68	57	50	44	39	35	62	61	56	49	43	39	35	32	53	52	50	44	39	36	32	30	30	
130	44-X	28	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		61	60	52	45	39	33	29	25	46	45	43	38	34	30	27	0	38	38	37	34	30	28	0	0	0	0	
		80	72	71	62	53	47	41	37	34	54	53	51	45	40	36	33	30	45	45	44	40	36	33	30	28	28	
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		53	52	48	42	37	32	28	25	40	39	38	35	31	28	0	0	33	33	32	31	28	0	0	0	0	0	
		80	63	62	57	49	44	39	35	32	47	46	45	41	37	34	31	28	40	39	38	37	33	30	28	26	26	
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		47	46	44	39	34	31	27	24	35	35	34	32	29	26	0	0	29	29	29	28	0	0	0	0	0	0	
		80	56	55	52	46	41	37	33	31	42	41	40	38	34	31	29	27	35	34	34	33	31	28	26	0	0	
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		42	41	40	36	32	29	26	0	31	31	30	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	50	49	48	43	38	35	32	29	37	36	35	32	29	27	25	31	31	30	30	28	26	0	0	0	0	0
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		38	37	36	33	30	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	45	44	43	40	36	33	30	28	33	33	32	32	29	27	25	0	27	27	27	27	26	0	0	0	0	0
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		34	33	33	31	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	40	40	39	37	33	31	28	26	30	29	29	28	27	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: The Forces shown in the tables above account for reactions associated with the exterior support of a multi-span condition. See Max length for Multi Span for corresponding span length.

See SEAOC PV-2 2012 for definition of Roof Zones

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 2.2 Maximum Downward Force (lbs) Multi Span Only Interior Conditions

Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	
90	44-X	105	114	123	130	0	0	0	0	105	108	117	0	0	0	0	0	105	105	113	0	0	0	0	0	0	
		114	123	133	133	0	0	0	0	114	117	128	0	0	0	0	0	115	114	123	0	0	0	0	0	0	
		226	246	266	266	266	267	267	228	234	254	266	266	268	268	267	228	228	245	259	266	266	267	267	267	267	
		80	347	377	400	400	401	401	401	349	358	389	400	401	401	401	401	350	349	375	396	400	401	401	401	401	
100	44-X	105	111	120	126	0	0	0	0	106	105	115	0	0	0	0	0	106	103	0	0	0	0	0	0	0	0
		114	121	131	133	0	0	0	0	115	114	125	0	0	0	0	0	115	112	0	0	0	0	0	0	0	0
		227	241	261	266	266	267	267	228	227	248	261	400	266	268	267	229	224	238	252	262	266	267	267	267	267	
		80	348	369	399	400	401	401	401	350	347	380	400	601	401	402	401	351	343	365	385	400	400	401	401	401	
110	44-X	105	109	118	0	0	0	0	0	106	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		114	119	128	0	0	0	0	0	115	112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		228	236	255	266	266	267	267	229	224	242	255	377	266	268	267	229	225	232	245	255	263	266	267	267	267	
		80	349	362	391	400	399	401	401	351	343	371	391	570	400	402	401	351	344	356	376	391	400	400	401	401	
120	44-X	106	104	116	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		115	113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		228	226	250	263	266	266	267	267	229	225	237	250	349	266	266	267	230	226	232	240	249	257	264	0	0	0
		80	350	346	384	401	400	399	401	351	344	363	383	535	400	400	401	352	346	355	367	382	394	400	400	400	
130	44-X	106	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		229	224	246	258	266	266	266	267	230	226	233	245	323	262	266	0	230	227	225	234	244	252	0	0	0	0
		80	351	343	377	396	401	400	399	401	352	346	357	375	495	401	400	400	352	347	345	359	374	386	396	400	
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		229	225	242	254	263	266	266	266	230	226	227	240	299	257	0	0	230	227	223	232	239	0	0	0	0	0
		80	351	344	371	389	401	400	400	352	347	348	368	458	394	401	400	353	348	342	355	366	378	388	396		
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		230	225	238	250	259	266	266	266	230	227	223	236	277	252	0	0	231	228	224	231	0	0	0	0	0	
		80	352	345	365	383	397	401	400	353	348	341	362	424	387	396	401	353	349	343	354	359	371	380	0		
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		230	226	234	246	255	262	267	0	230	228	224	233	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	352	346	358	377	391	401	400	353	349	342	356	393	380	390	398	353	350	345	344	355	364	0	0	0	0
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		230	227	225	243	251	258	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	352	347	345	372	385	396	401	401	353	349	344	349	364	374	384	0	354	350	346	341	355	0	0	0	0
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		230	227	223	240	248	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	353	348	341	367	380	390	400	401	354	350	345	341	359	0	0	0	0	0	0	0	0	0	0	0	0

Note: The Forces shown in the tables above account for reactions associated with the interior support of a multi-span condition. See Max length for Multi Span for corresponding span length.

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PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 2.2A Maximum Downward Force (lbs) Multi Span Only Exterior Conditions

Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	
90	44-X	105	114	124	130	0	0	0	0	0	106	109	118	0	0	0	0	0	106	106	114	0	0	0	0	0	
		113	123	132	132	0	0	0	0	0	114	117	127	0	0	0	0	0	114	114	122	0	0	0	0	0	
		226	246	263	263	263	263	263	263	263	228	234	254	263	263	264	263	263	228	228	245	259	262	263	263	263	
		269	292	316	335	366	372	372	372	372	270	278	302	318	332	357	373	372	271	270	290	307	319	337	357	372	
100	44-X	106	112	121	127	0	0	0	0	0	106	106	115	0	0	0	0	0	107	104	0	0	0	0	0	0	0
		114	120	130	132	0	0	0	0	0	114	113	124	0	0	0	0	0	115	112	0	0	0	0	0	0	0
		227	241	261	263	263	263	263	263	263	228	227	248	261	395	263	264	263	229	224	238	252	262	262	263	263	
		270	286	309	325	345	369	372	372	372	271	269	294	310	483	334	355	372	272	265	283	299	311	320	334	352	
110	44-X	106	110	119	0	0	0	0	0	0	107	104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		114	118	128	0	0	0	0	0	0	115	112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		228	236	255	263	262	263	263	263	263	229	224	242	255	374	263	264	263	229	225	232	245	255	263	263	263	
		271	280	303	318	329	349	369	372	372	272	265	288	303	448	324	334	352	272	267	276	291	303	313	320	331	
120	44-X	106	105	117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		114	113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		228	226	250	263	263	262	263	263	263	229	225	237	250	349	263	263	263	230	226	232	240	249	257	263	0	
		271	268	297	312	323	332	351	368	368	272	267	282	297	415	317	324	332	273	268	275	284	296	305	313	320	
130	44-X	107	104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		229	224	246	258	263	263	262	262	263	230	226	233	245	323	262	263	0	230	227	225	234	244	252	0	0	
		272	266	292	307	318	326	333	351	351	273	268	276	291	384	311	318	324	273	269	268	278	290	299	307	313	
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		229	225	242	254	263	263	263	263	263	230	226	227	240	299	257	0	0	230	227	223	232	239	0	0	0	
		272	267	287	301	312	321	328	334	334	273	269	270	285	355	305	312	319	273	270	265	275	284	293	300	307	
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		230	225	238	250	259	263	263	263	263	230	227	223	236	277	252	0	0	231	228	224	231	0	0	0	0	
		273	268	283	297	307	316	323	329	329	273	270	264	280	329	300	307	313	274	271	266	274	278	287	295	0	
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		230	226	234	246	255	262	263	0	0	230	228	224	233	0	0	0	0	0	0	0	0	0	0	0	0	
		273	268	277	292	303	311	318	324	324	274	270	265	276	305	295	302	308	274	271	267	267	275	282	0	0	
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		230	227	225	243	251	258	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		273	269	267	288	298	307	314	320	320	274	271	266	271	282	290	297	0	274	272	268	264	275	0	0	0	
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		230	227	223	240	248	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		273	270	265	284	294	303	310	316	316	274	271	267	264	278	0	0	0	0	0	0	0	0	0	0	0	

Note: The Forces shown in the tables above account for reactions associated with the exterior support of a multi-span condition. See Max length for Multi Span for corresponding span length.

See SEAOC PV-2 2012 for definition of Roof Zones

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 2.3 Maximum Horizontal Force (lbs) Multi span only Interior Conditions

Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60
90	44-X	38	34	26	21	0	0	0	0	41	39	31	21	0	0	0	0	48	42	34	26	0	0	0	0
		42	37	28	21	0	0	0	0	45	42	34	22	0	0	0	0	53	46	37	26	0	0	0	0
		83	73	55	42	32	26	22	19	89	84	67	55	45	36	31	26	105	91	74	62	53	44	37	32
		80	128	111	83	63	49	40	33	29	136	129	102	83	68	55	46	40	160	140	113	95	79	66	56
100	44-X	40	37	29	24	0	0	0	0	43	41	34	25	0	0	0	0	51	47	36	30	0	0	0	0
		44	40	31	25	0	0	0	0	46	45	37	26	0	0	0	0	55	51	40	31	0	0	0	0
		87	80	63	50	40	32	27	24	92	90	74	63	53	45	38	33	109	101	81	69	61	53	46	40
		80	133	123	96	75	60	49	41	35	141	137	114	96	80	68	57	49	168	154	124	106	93	80	69
110	44-X	42	40	32	0	0	0	0	0	44	43	33	0	0	0	0	0	52	50	40	0	0	0	0	0
		45	44	35	0	0	0	0	0	47	46	36	0	0	0	0	0	57	55	44	0	0	0	0	0
		90	87	69	57	47	39	33	29	95	92	81	69	61	53	46	40	113	109	88	76	67	60	54	48
		80	138	133	106	86	71	59	50	43	145	141	124	106	92	79	69	59	174	167	134	117	103	92	81
120	44-X	43	42	35	0	0	0	0	0	44	43	36	0	0	0	0	0	54	52	44	0	0	0	0	0
		47	45	0	0	0	0	0	0	48	47	0	0	0	0	0	0	58	57	0	0	0	0	0	0
		93	90	76	64	54	46	39	34	96	95	87	76	67	60	53	47	116	113	95	82	74	66	61	43
		80	142	138	116	97	81	70	59	51	148	145	134	116	102	90	79	71	178	174	146	126	113	102	92
130	44-X	44	43	0	0	0	0	0	0	45	44	0	0	0	0	0	0	55	54	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		95	92	81	70	61	52	46	40	98	96	93	81	73	65	59	41	119	116	102	88	79	72	58	50
		80	145	142	125	107	91	79	69	60	151	148	142	125	111	100	89	80	182	178	157	135	121	111	102
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		96	94	87	75	66	58	51	46	100	98	96	87	78	71	54	48	121	119	109	94	85	73	65	58
		80	147	144	133	115	101	88	77	69	153	150	146	133	119	108	99	89	185	182	167	144	129	119	110
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		98	96	91	80	71	64	57	51	102	100	97	91	83	76	59	53	123	121	115	100	89	80	72	64
		80	150	147	140	122	109	96	86	77	156	153	149	140	127	116	107	98	188	185	176	154	137	126	117
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		99	97	95	84	76	69	62	0	103	101	99	95	79	71	65	0	124	122	119	106	95	86	78	0
		80	151	149	145	129	116	105	94	85	157	155	151	146	134	123	114	106	190	187	183	163	146	133	118
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		100	98	96	89	80	73	0	0	104	102	100	92	83	76	0	0	125	124	121	111	101	92	0	0
		80	153	151	147	136	123	112	102	92	159	157	153	150	140	130	121	96	192	189	185	171	154	140	128
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		101	99	97	92	84	0	0	0	105	103	101	96	87	0	0	0	127	125	122	116	106	0	0	0
		80	154	152	149	142	129	118	109	100	160	158	155	151	146	123	113	104	194	191	188	178	162	148	137

Note: The Forces shown in the tables above account for reactions associated with the interior support of a multi-span condition. See Max length for Multi Span for corresponding span length.

See SEAOC PV-2 2012 for definition of Roof Zones



K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 2.3A Maximum Horizontal Force (lbs) Multi span only Exterior Conditions

Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60
90	44-X	39	34	26	21	0	0	0	0	41	39	31	21	0	0	0	0	49	43	34	26	0	0	0	0
		42	36	27	21	0	0	0	0	45	42	33	22	0	0	0	0	52	46	37	26	0	0	0	0
		83	73	55	42	32	26	22	19	89	84	67	54	44	36	30	26	105	91	74	62	52	44	37	32
		80	99	86	66	53	44	37	31	27	106	100	79	66	56	49	43	37	124	108	87	73	63	56	50
100	44-X	41	37	29	24	0	0	0	0	43	42	35	25	0	0	0	0	51	47	37	30	0	0	0	0
		44	40	31	25	0	0	0	0	46	45	37	26	0	0	0	0	55	51	40	31	0	0	0	0
		87	80	63	49	40	32	27	23	92	90	74	63	52	44	38	32	109	101	81	69	61	52	45	39
		80	103	95	74	61	52	45	38	33	109	106	88	74	64	56	50	46	130	120	96	82	72	64	57
110	44-X	42	40	32	0	0	0	0	0	44	43	34	0	0	0	0	0	53	51	41	0	0	0	0	0
		45	44	35	0	0	0	0	0	47	46	36	0	0	0	0	0	57	55	44	0	0	0	0	0
		90	87	69	57	47	39	33	28	95	92	81	69	60	52	45	39	113	109	88	76	67	60	53	47
		80	107	103	82	69	59	51	46	40	112	110	96	82	72	64	57	52	134	130	104	90	80	72	65
120	44-X	43	42	35	0	0	0	0	0	45	44	37	0	0	0	0	0	54	53	44	0	0	0	0	0
		46	45	0	0	0	0	0	0	48	47	0	0	0	0	0	0	58	57	0	0	0	0	0	0
		93	90	76	64	53	46	39	34	96	95	87	76	67	59	52	46	116	113	95	82	74	66	60	42
		80	110	107	90	76	66	58	52	47	115	112	104	90	79	71	64	59	138	135	113	98	87	79	72
130	44-X	44	43	0	0	0	0	0	0	46	45	0	0	0	0	0	0	55	54	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		95	92	81	70	60	52	45	39	98	96	93	81	73	65	58	41	119	116	102	88	79	72	57	49
		80	112	110	97	83	72	64	58	52	117	114	110	97	86	78	71	65	141	138	121	104	94	86	79
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		96	94	87	75	66	58	51	46	100	98	96	87	78	71	53	47	121	119	109	94	85	72	64	57
		80	114	112	103	89	79	70	64	58	119	116	114	103	92	84	77	71	144	141	129	112	100	92	85
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		98	96	91	80	71	63	56	51	102	100	97	91	83	76	58	53	123	121	115	100	89	80	71	64
		80	116	114	108	95	84	76	69	63	121	118	115	108	98	90	83	77	146	143	136	119	106	98	91
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		99	97	95	84	76	69	62	0	103	101	99	95	79	71	64	0	124	122	119	106	95	86	77	0
		80	117	115	113	100	90	81	74	69	122	120	117	113	104	95	88	82	147	145	142	126	113	103	94
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		100	98	96	89	80	73	0	0	104	102	100	92	83	76	0	0	125	124	121	111	101	92	0	0
		80	119	117	114	105	95	87	80	74	123	121	119	116	108	100	93	77	149	147	144	132	119	109	100
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		101	99	97	92	84	0	0	0	105	103	101	96	87	0	0	0	127	125	122	116	106	0	0	0
		80	120	118	116	110	100	91	84	78	124	123	120	117	113	95	88	82	150	148	145	138	125	115	106

Note: The Forces shown in the tables above account for reactions associated with the exterior support of a multi-span condition. See Max length for Multi Span for corresponding span length.

See SEAOC PV-2 2012 for definition of Roof Zones

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 2.4 Max Uplift Force (lbs) Multi span only Interior Conditions

Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	
90	44-X	-69	-60	-46	-37	0	0	0	0	-78	-74	-59	0	0	0	0	0	-82	-80	-66	0	0	0	0	0	0	
		-75	-66	-50	-38	0	0	0	0	-85	-80	-64	0	0	0	0	0	-89	-87	-72	0	0	0	0	0	0	
		-150	-131	-99	-76	-58	-47	-40	-34	-169	-160	-127	-104	-85	-69	-58	-50	-178	-173	-143	-120	-102	-85	-72	-62	-62	
		80	-230	-201	-150	-114	-88	-71	-60	-52	-259	-245	-194	-157	-128	-104	-88	-75	-273	-265	-219	-184	-154	-128	-108	-93	
100	44-X	-75	-69	-54	-44	0	0	0	0	-83	-80	-67	0	0	0	0	0	-86	-84	0	0	0	0	0	0	0	0
		-82	-75	-59	-46	0	0	0	0	-90	-87	-73	0	0	0	0	0	-94	-92	0	0	0	0	0	0	0	0
		-163	-150	-117	-93	-75	-61	-51	-44	-179	-174	-144	-122	-103	-87	-74	-63	-183	-187	-183	-160	-137	-120	-105	-91	-78	
		80	-249	-229	-179	-140	-112	-91	-77	-66	-274	-267	-221	-186	-155	-132	-111	-276	-286	-280	-246	-210	-183	-158	-136	-117	
110	44-X	-80	-77	-61	0	0	0	0	0	-86	-84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-87	-84	-67	0	0	0	0	0	-94	-92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-173	-166	-133	-110	-91	-75	-63	-55	-187	-183	-161	-137	-120	-104	-91	-227	-194	-190	-176	-153	-135	-121	-108	-96	-96	
		80	-264	-255	-204	-165	-137	-113	-95	-82	-286	-280	-246	-210	-181	-156	-137	-341	-297	-291	-270	-234	-207	-184	-162	-144	
120	44-X	-83	-81	-68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-91	-88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-181	-176	-148	-125	-105	-90	-77	-66	-193	-190	-175	-152	-134	-120	-106	-274	-199	-196	-190	-167	-149	-135	-123	0	0	
		80	-277	-270	-226	-190	-159	-136	-115	-100	-296	-290	-268	-232	-205	-180	-159	-412	-306	-300	-291	-256	-229	-207	-187	-168	
130	44-X	-87	-85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-187	-183	-161	-138	-120	-104	-91	-79	-199	-195	-188	-165	-147	-133	-120	0	-204	-201	-197	-180	-162	-148	0	0	0	
		80	-287	-280	-247	-211	-180	-156	-137	-119	-304	-299	-287	-252	-225	-203	-180	-473	-312	-308	-301	-276	-249	-226	-208	-190	
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-193	-189	-173	-150	-132	-117	-103	-92	-203	-200	-195	-177	-159	-144	0	0	-208	-205	-201	-191	-174	0	0	0	0	0
		80	-295	-289	-266	-230	-202	-175	-155	-139	-311	-306	-299	-271	-243	-221	-202	-532	-318	-314	-308	-293	-267	-245	-226	-210	
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-197	-194	-184	-161	-144	-129	-115	-103	-206	-204	-199	-187	-170	-156	0	0	-211	-208	-205	-201	0	0	0	0	0	
		80	-302	-297	-282	-247	-220	-195	-173	-156	-316	-312	-306	-287	-260	-238	-220	-590	-322	-319	-313	-308	-283	-261	-243	0	
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-201	-198	-193	-172	-154	-140	-127	0	-209	-207	-203	-197	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-308	-303	-296	-263	-236	-214	-191	-172	-321	-317	-311	-302	-276	-254	-235	-642	-326	-323	-318	-313	-298	-277	0	0	
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-204	-201	-197	-182	-164	-149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-313	-309	-302	-278	-251	-229	-208	-189	-324	-321	-316	-311	-290	-269	-250	0	-329	-326	-322	-318	-312	0	0	0	
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-207	-205	-201	-190	-173	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-317	-313	-307	-292	-265	-243	-224	-205	-327	-324	-320	-315	-303	0	0	0	0	0	0	0	0	0	0	0	0

Note: The Forces shown in the tables above account for reactions associated with the interior support of a multi-span condition. See Max length for Multi Span for corresponding span length.

See SEAOC PV-2 2012 for definition of Roof Zones

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 2.4A Max Uplift Force (lbs) Multi span only Exterior Conditions

Exp 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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	
90	44-X	-70	-61	-46	-37	0	0	0	0	-79	-74	-59	0	0	0	0	0	-83	-81	-66	0	0	0	0	0	0	
		-75	-66	-49	-38	0	0	0	0	-84	-80	-63	0	0	0	0	0	-89	-87	-71	0	0	0	0	0	0	
		-150	-131	-98	-75	-58	-47	-39	-34	-169	-160	-127	-103	-84	-68	-58	-50	-178	-173	-143	-120	-101	-84	-71	-61	-61	
		80	-178	-155	-118	-96	-80	-66	-56	-48	-200	-190	-150	-124	-106	-93	-81	-70	-211	-206	-169	-142	-123	-108	-96	-87	
100	44-X	-76	-70	-54	-45	0	0	0	0	-83	-81	-67	0	0	0	0	0	-87	-85	0	0	0	0	0	0	0	0
		-81	-75	-59	-46	0	0	0	0	-90	-87	-72	0	0	0	0	0	-94	-91	0	0	0	0	0	0	0	0
		-163	-150	-117	-92	-74	-60	-50	-43	-179	-174	-144	-122	-102	-86	-73	-61	-181	-187	-183	-160	-137	-120	-104	-89	-77	
		80	-193	-178	-139	-114	-97	-84	-71	-61	-212	-207	-172	-144	-125	-110	-98	-256	-222	-217	-190	-163	-142	-126	-114	-103	
110	44-X	-80	-77	-62	0	0	0	0	0	-87	-85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-86	-83	-67	0	0	0	0	0	-94	-91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-173	-166	-133	-109	-90	-74	-62	-54	-187	-183	-161	-137	-119	-103	-90	-224	-194	-190	-176	-153	-135	-121	-107	-95	-95	
		80	-205	-198	-158	-131	-113	-99	-88	-76	-222	-217	-191	-163	-142	-126	-114	-299	-230	-226	-209	-182	-160	-144	-130	-119	
120	44-X	-84	-82	-69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-90	-88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-181	-176	-148	-125	-104	-89	-76	-65	-193	-190	-175	-152	-134	-118	-104	-271	-199	-196	-190	-167	-149	-135	-123	0	0	
		80	-214	-209	-175	-148	-128	-113	-101	-91	-230	-225	-208	-180	-159	-142	-129	-342	-237	-233	-225	-198	-177	-160	-146	-134	-134
130	44-X	-87	-85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-187	-183	-161	-138	-118	-102	-90	-78	-199	-195	-188	-165	-147	-133	-118	0	-204	-201	-197	-180	-162	-148	0	0	0	
		80	-222	-217	-191	-164	-143	-127	-114	-104	-236	-232	-223	-196	-174	-157	-143	-384	-242	-238	-233	-214	-193	-175	-161	-149	-149
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-193	-189	-173	-150	-132	-115	-102	-91	-203	-200	-195	-177	-159	-144	0	0	-208	-205	-201	-191	-174	0	0	0	0	0
		80	-229	-224	-206	-178	-157	-141	-127	-116	-241	-237	-232	-210	-189	-171	-157	-424	-246	-243	-239	-227	-207	-190	-175	-163	-163
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-197	-194	-184	-161	-144	-128	-114	-102	-206	-204	-199	-187	-170	-156	0	0	-211	-208	-205	-201	0	0	0	0	0	
		80	-234	-230	-219	-192	-170	-154	-140	-128	-245	-242	-237	-223	-202	-185	-170	-462	-250	-247	-243	-239	-219	-203	-188	0	0
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-201	-198	-193	-172	-154	-140	-125	0	-209	-207	-203	-197	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-239	-235	-229	-204	-183	-166	-152	-140	-248	-245	-241	-234	-214	-197	-182	-498	-253	-250	-246	-243	-231	-215	0	0	0
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-204	-201	-197	-182	-164	-149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-243	-239	-234	-215	-195	-177	-163	-151	-251	-249	-245	-241	-225	-208	-194	0	-255	-253	-250	-246	-241	0	0	0	0
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-207	-205	-201	-190	-173	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-246	-243	-238	-226	-205	-188	-174	-161	-254	-251	-248	-244	-235	0	0	0	0	0	0	0	0	0	0	0	0

Note: The Forces shown in the tables above account for reactions associated with the exterior support of a multi-span condition. See Max length for Multi Span for corresponding span length.

See SEAOC PV-2 2012 for definition of Roof Zones

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 3.1 Max Length L (inches) for Multi span only Interior Conditions

Exp D	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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	61		
90	44-X	52	48	35	27	0	0	0	0	40	39	32	0	0	0	0	0	34	33	0	0	0	0	0	0	0		
		49	44	35	28	0	0	0	0	37	36	30	0	0	0	0	0	32	31	0	0	0	0	0	0	0		
		101	92	71	57	46	37	31	27	77	75	61	52	44	37	31	27	66	64	56	47	41	36	31	27	27		
		80	129	118	91	75	62	50	42	36	99	96	79	66	57	50	42	36	84	82	71	61	53	47	42	36		
100	44-X	44	42	33	0	0	0	0	0	33	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		41	39	31	0	0	0	0	0	31	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		85	82	65	54	45	37	31	27	64	63	55	47	41	36	31	27	54	53	49	43	38	34	30	27	27		
		80	109	104	83	69	59	50	42	36	82	80	70	60	52	46	42	36	70	68	63	54	48	43	39	36	36	
110	44-X	37	36	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		35	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		72	70	59	50	43	37	31	27	54	53	49	43	38	34	30	27	46	45	44	38	34	31	28	0	0		
		80	93	90	76	64	55	49	42	36	70	68	63	54	48	43	39	36	59	58	56	49	44	40	36	33	33	
120	44-X	32	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		62	61	54	46	40	35	31	27	47	46	44	39	35	31	28	0	39	39	38	35	31	28	0	0	0		
		80	80	78	69	59	51	46	41	36	59	58	56	50	44	40	36	33	50	49	48	44	40	36	33	31	31	
130	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		54	53	49	42	37	34	30	27	40	40	39	35	32	29	0	0	34	33	33	31	28	0	0	0	0	0	
		80	69	68	63	54	48	43	39	35	51	51	50	45	41	37	34	31	43	43	42	40	36	33	31	29	29	
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		47	46	45	39	35	31	29	0	35	35	34	32	29	0	0	0	29	29	29	28	0	0	0	0	0	0	
		80	60	59	57	50	45	40	37	34	45	44	43	41	37	34	32	29	38	37	37	36	33	31	29	0	0	
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		42	41	40	36	32	29	27	0	31	30	30	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	53	53	51	46	41	38	34	32	39	39	38	38	34	32	29	0	33	33	32	32	30	28	0	0	0	
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		37	37	36	33	30	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	47	47	46	43	39	35	32	30	35	35	34	33	32	29	0	0	0	0	0	0	0	0	0	0	0	0
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		33	33	32	31	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	42	42	41	39	36	33	31	28	31	31	30	30	29	0	0	0	0	0	0	0	0	0	0	0	0	0
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		30	29	29	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	38	38	37	36	34	31	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: The Forces shown in the tables above account for reactions associated with the interior support of a multi-span condition. See Max length for Multi Span for corresponding span length.
See SEAOC PV-2 2012 for definition of Roof Zones

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 3.1A Max Length L (inches) for Multi span only Exterior Conditions

Exp D	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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	61	
90	44-X	46	42	32	26	0	0	0	0	35	34	28	0	0	0	0	0	30	29	0	0	0	0	0	0	0	
		48-X	48	44	33	26	0	0	0	0	37	36	29	0	0	0	0	0	31	31	0	0	0	0	0	0	0
		48-XL	100	92	71	55	44	35	30	26	77	75	61	51	42	35	30	26	65	64	55	47	41	35	30	26	26
		80	114	105	82	67	57	49	43	39	87	84	70	59	51	45	40	36	74	72	63	54	47	42	38	34	34
100	44-X	38	37	29	0	0	0	0	0	29	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-X	41	39	31	0	0	0	0	0	31	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	85	81	65	52	43	35	30	26	64	63	55	47	40	34	30	26	54	53	49	42	37	33	29	26	26
		80	96	93	74	62	53	46	41	37	72	71	62	53	47	41	37	34	61	60	56	48	43	38	35	32	32
110	44-X	33	32	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-X	35	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	72	70	59	49	41	35	30	26	54	53	49	42	37	33	29	26	46	45	43	38	34	31	28	0	0
		80	82	80	67	57	49	44	39	35	61	60	56	48	43	38	35	32	52	51	49	44	39	35	32	30	30
120	44-X	28	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	62	61	53	46	39	34	30	26	46	45	44	39	34	31	28	0	39	38	38	34	31	28	0	0	0
		80	70	69	61	52	46	41	37	33	52	51	50	44	39	35	32	30	44	43	42	39	35	32	30	28	28
130	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	54	53	49	42	37	32	29	26	40	39	39	35	32	29	0	0	34	33	33	31	28	0	0	0	0
		80	61	60	56	48	43	38	35	32	45	44	43	40	36	33	30	28	38	37	37	35	32	30	28	26	26
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	47	46	44	39	35	31	27	0	35	34	34	32	29	0	0	0	29	29	28	28	0	0	0	0	0
		80	53	52	51	44	40	36	33	30	39	39	38	36	33	30	28	26	33	33	32	32	29	27	25	24	24
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	42	41	40	36	32	29	26	0	31	30	30	29	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	47	46	45	41	37	34	31	28	35	34	34	33	30	28	26	24	29	29	28	28	27	25	24	22	22
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	37	36	36	33	30	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	42	41	40	38	34	31	29	27	31	30	30	29	28	26	24	23	26	25	25	25	24	23	0	0	0
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	33	33	32	31	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	37	37	36	35	32	29	27	25	27	27	27	26	24	23	0	0	0	0	0	0	0	0	0	0	
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	30	29	29	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	33	33	33	32	30	28	26	24	24	24	24	23	22	0	0	0	0	0	0	0	0	0	0	0	0

Note: The Forces shown in the tables above account for reactions associated with the exterior support of a multi-span condition. See Max length for Multi Span for corresponding span length.

See SEAOC PV-2 2012 for definition of Roof Zones

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 3.2 Maximum Downward Force (lbs) Multi Span Only Interior Conditions

Exp D	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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	121	129	133	132	0	0	0	0	0	122	122	133	0	0	0	0	0	122	119	0	0	0	0	0	0
		113	120	130	135	0	0	0	0	0	113	114	124	0	0	0	0	0	114	111	0	0	0	0	0	0
		234	249	270	278	279	279	279	279	279	235	235	257	270	278	279	280	279	236	230	247	261	271	278	279	279
		80	299	318	345	362	378	378	378	378	301	301	328	346	359	376	379	378	301	294	315	333	347	357	376	378
100	44-X	121	126	133	0	0	0	0	0	0	122	119	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		113	118	127	0	0	0	0	0	0	114	111	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		235	244	264	277	278	279	279	279	279	236	230	250	264	453	278	280	279	236	231	240	253	264	272	278	279
		80	300	312	337	354	366	378	378	378	301	294	320	337	579	360	374	378	302	296	307	324	337	348	356	370
110	44-X	122	120	133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		114	112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		235	233	258	271	278	278	279	279	279	236	231	245	257	416	275	278	279	237	233	239	247	257	265	272	0
		80	301	298	330	347	359	368	378	378	302	296	313	329	532	352	360	369	303	297	305	316	329	339	348	355
120	44-X	122	119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		236	230	253	266	275	278	278	279	279	237	233	240	252	383	269	276	0	237	234	232	241	251	259	0	0
		80	302	295	324	340	352	362	369	378	303	297	306	322	489	345	353	360	303	299	306	321	331	340	347	0
130	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		236	232	249	261	270	278	278	278	278	237	233	233	247	352	264	0	0	237	234	230	239	245	0	0	0
		80	302	296	318	334	346	355	363	370	303	298	316	450	338	346	353	303	300	294	305	314	324	333	340	0
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		237	232	245	257	266	273	279	0	237	234	230	242	323	0	0	0	238	235	231	236	0	0	0	0	0
		80	303	297	313	328	340	349	357	364	303	299	294	310	414	331	339	346	304	300	295	302	308	317	326	0
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		237	233	238	252	261	269	275	0	237	235	231	239	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	303	298	304	323	334	344	352	358	304	300	295	305	381	325	333	0	304	301	297	294	305	311	0	0
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		237	234	229	249	257	265	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	303	299	293	318	329	339	346	353	304	301	296	297	351	320	0	0	0	0	0	0	0	0	0	0
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		237	234	230	245	254	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	304	300	294	314	325	334	341	348	304	301	297	293	324	0	0	0	0	0	0	0	0	0	0	0
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		238	235	231	241	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	304	300	295	308	320	329	337	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: The Forces shown in the tables above account for reactions associated with the interior support of a multi-span condition. See Max length for Multi Span for corresponding span length.
See SEAOC PV-2 2012 for definition of Roof Zones

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 3.2A Maximum Downward Force (lbs) Multi Span Only Exterior Conditions

Exp D	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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	121	129	133	132	0	0	0	0	0	122	122	133	0	0	0	0	0	122	119	0	0	0	0	0	0
		112	119	125	124	0	0	0	0	0	112	112	123	0	0	0	0	0	113	110	0	0	0	0	0	0
		233	248	267	267	267	267	267	267	267	234	234	255	267	267	267	268	267	235	229	245	259	267	267	267	267
		80	296	314	340	357	379	405	426	441	297	296	323	340	353	368	390	408	298	291	310	328	341	351	368	387
100	44-X	106	110	119	0	0	0	0	0	0	107	104	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		112	116	125	0	0	0	0	0	0	113	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		234	243	262	267	266	267	267	267	267	235	229	249	262	442	267	268	267	235	230	239	252	262	267	267	267
		80	297	307	332	349	361	382	404	421	298	291	315	332	455	354	365	384	298	293	302	319	332	342	351	361
110	44-X	106	105	117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		112	111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		234	232	257	267	266	267	267	267	267	235	230	243	256	414	267	267	267	236	231	237	246	256	264	267	0
		80	297	292	325	342	354	363	382	400	298	293	308	324	418	346	354	361	299	294	301	311	323	334	342	349
120	44-X	107	104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		235	229	252	265	267	267	266	267	267	235	231	238	251	381	267	267	0	236	232	231	240	250	258	0	0
		80	298	291	319	335	347	356	364	380	299	294	302	317	384	339	347	354	299	295	291	303	316	326	334	342
130	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		235	230	247	260	268	267	267	266	266	236	232	232	246	350	263	0	0	236	233	229	237	244	0	0	0
		80	298	293	313	329	341	350	358	364	299	295	293	311	352	332	340	347	300	296	291	301	309	319	327	334
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		235	231	244	255	264	268	267	0	236	233	228	241	322	0	0	0	236	234	230	235	0	0	0	0	0
		80	299	294	308	323	335	344	352	359	300	296	290	305	323	326	334	341	300	297	292	297	303	312	320	327
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		236	232	237	251	260	268	267	0	236	234	229	237	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	299	295	298	318	329	339	346	353	300	297	292	300	311	320	328	335	300	297	293	289	301	306	314	321
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		236	233	228	247	256	263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	300	295	290	313	324	333	341	348	300	297	293	292	306	315	322	329	300	298	294	291	298	301	0	0
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		236	233	229	244	253	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	300	296	291	309	320	329	336	343	300	298	294	290	301	310	317	0	0	0	0	0	0	0	0	0
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		236	234	230	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	300	297	292	302	315	324	332	338	301	298	295	291	295	305	0	0	0	0	0	0	0	0	0	0

Note: The Forces shown in the tables above account for reactions associated with the exterior support of a multi-span condition. See Max length for Multi Span for corresponding span length.

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K2 Systems, LLC

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Standard size 41"x 86" Landscape Orientation

Table 3.3 Maximum Horizontal Force (lbs) Multi span only Interior Conditions

Exp D	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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60
90	44-X	46	42	31	24	0	0	0	0	49	47	39	25	0	0	0	0	58	53	39	30	0	0	0	0
		43	39	30	25	0	0	0	0	45	44	36	26	0	0	0	0	54	49	38	31	0	0	0	0
		89	81	63	51	40	33	27	24	94	92	75	63	54	45	38	33	112	102	82	70	61	54	46	40
		80	114	104	81	66	54	44	37	32	121	117	96	81	69	61	52	44	143	130	105	89	78	69	62
100	44-X	48	46	36	0	0	0	0	0	50	49	37	0	0	0	0	0	60	58	45	0	0	0	0	0
		45	43	34	0	0	0	0	0	47	46	35	0	0	0	0	0	56	54	43	0	0	0	0	0
		93	89	71	59	49	40	34	29	97	95	83	71	62	54	47	40	116	112	90	78	69	61	55	49
		80	118	114	90	75	64	55	46	40	124	121	106	90	79	70	63	55	149	143	115	99	88	78	71
110	44-X	49	48	40	0	0	0	0	0	51	50	42	0	0	0	0	0	62	60	50	0	0	0	0	0
		46	45	0	0	0	0	0	0	48	47	0	0	0	0	0	0	58	56	0	0	0	0	0	0
		95	93	78	66	56	48	41	35	99	97	90	78	69	61	55	49	120	117	98	85	76	68	62	44
		80	122	119	99	84	73	64	55	48	127	124	115	99	88	79	71	65	153	149	125	108	97	87	80
120	44-X	50	49	0	0	0	0	0	0	53	51	0	0	0	0	0	0	63	62	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		98	95	84	72	63	55	48	42	101	99	96	84	75	68	62	44	123	120	106	91	82	75	61	53
		80	125	122	108	92	81	72	64	57	130	127	122	108	96	87	79	73	157	153	135	116	105	96	88
130	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		99	97	90	78	69	62	55	49	103	101	99	90	81	74	57	51	125	122	113	98	88	77	69	62
		80	127	125	115	100	88	79	71	65	132	130	126	115	103	94	86	80	160	157	144	125	112	103	95
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		101	99	95	83	74	67	61	0	105	103	100	95	86	70	63	0	127	125	119	105	93	84	77	0
		80	129	127	122	107	95	86	78	72	134	132	128	121	110	101	93	87	162	159	153	134	119	110	102
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		102	101	98	88	79	72	66	0	106	105	102	100	83	75	69	0	128	126	123	111	100	91	83	0
		80	131	129	126	113	102	92	84	78	136	134	131	127	117	108	100	81	164	162	158	142	128	116	106
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		103	102	100	93	84	77	0	0	107	106	104	97	88	80	0	0	130	128	125	117	106	97	0	0
		80	132	130	127	119	108	98	91	84	137	135	133	129	122	114	94	87	166	164	160	149	135	124	114
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		104	103	101	97	89	0	0	0	108	107	105	101	92	0	0	0	131	129	127	122	111	0	0	0
		80	133	131	129	124	113	104	96	90	138	137	134	131	128	108	100	93	167	165	162	156	142	131	121
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		105	104	102	100	0	0	0	0	109	108	106	104	0	0	0	0	132	130	128	126	0	0	0	0
		80	134	133	130	128	118	109	102	0	139	138	136	133	123	114	106	0	168	167	164	161	149	137	128

Note: The Forces shown in the tables above account for reactions associated with the interior support of a multi-span condition. See Max length for Multi Span for corresponding span length.

See SEAOC PV-2 2012 for definition of Roof Zones

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 3.3A Maximum Horizontal Force (lbs) Multi span only Exterior Conditions

Exp D	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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	40	37	28	23	0	0	0	0	43	41	34	24	0	0	0	0	51	46	36	29	0	0	0	0	
		42	39	29	23	0	0	0	0	45	44	36	24	0	0	0	0	53	49	37	28	0	0	0	0	
		89	81	62	49	38	31	26	23	94	91	75	62	52	43	37	31	111	101	82	70	60	51	44	38	
		80	113	104	81	66	56	49	43	39	120	116	96	81	70	62	55	50	143	131	105	90	78	70	63	57
100	44-X	42	40	32	0	0	0	0	0	44	43	33	0	0	0	0	0	53	50	40	0	0	0	0	0	
		44	42	33	0	0	0	0	0	46	45	35	0	0	0	0	0	56	53	42	0	0	0	0	0	
		92	88	70	57	47	39	32	28	97	94	82	70	60	52	45	39	116	111	89	77	68	60	53	47	
		80	117	113	91	76	65	57	50	45	123	120	106	91	79	70	63	58	148	143	115	100	88	79	72	65
110	44-X	43	42	35	0	0	0	0	0	45	44	37	0	0	0	0	0	54	53	44	0	0	0	0	0	
		46	44	0	0	0	0	0	0	47	46	0	0	0	0	0	0	57	56	0	0	0	0	0	0	
		95	92	77	65	54	46	39	34	99	97	89	77	68	60	53	47	119	116	97	84	75	68	61	43	
		80	121	118	100	84	73	64	58	52	126	123	115	100	88	79	72	65	152	148	126	108	97	88	80	74
120	44-X	44	43	0	0	0	0	0	0	46	45	0	0	0	0	0	0	55	54	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		97	95	84	72	61	53	46	40	101	99	95	84	75	67	60	42	122	119	105	90	82	74	58	51	
		80	124	121	108	92	81	72	65	59	129	126	122	108	96	87	79	73	156	152	136	116	105	96	88	82
130	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		99	97	89	78	68	59	52	47	103	101	98	89	81	73	55	49	124	122	112	98	87	74	66	59	
		80	126	123	115	100	88	79	72	66	131	129	125	115	104	94	87	80	159	156	145	126	112	103	96	89
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		100	99	95	83	74	66	58	0	104	103	100	95	86	68	61	0	126	124	119	104	93	82	73	0	
		80	128	126	121	107	95	86	78	72	133	131	127	121	110	101	94	87	161	158	153	135	120	110	103	96
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		102	100	98	88	79	72	64	0	106	104	102	99	82	75	67	0	128	126	123	111	99	90	81	0	
		80	129	127	125	113	102	92	85	78	135	133	130	127	117	108	100	94	163	161	157	142	128	117	109	102
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		103	101	99	92	84	77	0	0	107	105	103	96	87	80	0	0	129	127	125	116	105	96	0	0	
		80	131	129	126	119	108	98	91	84	136	134	132	128	122	114	106	100	165	162	159	150	136	124	114	106
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		104	102	100	97	88	0	0	0	108	106	104	100	92	0	0	0	130	129	126	121	111	0	0	0	
		80	132	130	128	124	113	104	96	90	137	136	133	129	127	119	112	94	166	164	161	156	143	131	122	113
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		104	103	101	100	0	0	0	0	108	107	105	104	0	0	0	0	131	130	127	125	0	0	0	0	0
		80	133	131	129	127	118	109	102	95	138	137	135	133	129	124	106	99	167	165	163	160	149	138	128	120

Note: The Forces shown in the tables above account for reactions associated with the exterior support of a multi-span condition. See Max length for Multi Span for corresponding span length.

See SEAOC PV-2 2012 for definition of Roof Zones



K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 3.4 Max Uplift Force (lbs) Multi span only Interior Conditions

Exp D	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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	-85	-78	-57	-45	0	0	0	0	-94	-92	-75	0	0	0	0	0	-99	-96	0	0	0	0	0	0	0
		-80	-73	-56	-46	0	0	0	0	-88	-86	-70	0	0	0	0	0	-92	-90	0	0	0	0	0	0	0
		-165	-150	-117	-94	-74	-60	-51	-44	-182	-177	-145	-122	-104	-87	-74	-63	-191	-186	-162	-138	-120	-106	-91	-78	
		80	-211	-192	-149	-122	-101	-82	-69	-59	-233	-227	-186	-156	-134	-118	-100	-86	-244	-238	-207	-176	-153	-136	-122	-106
100	44-X	-91	-88	-68	0	0	0	0	0	-99	-97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-85	-82	-65	0	0	0	0	0	-93	-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-177	-169	-135	-112	-93	-77	-65	-56	-192	-187	-163	-140	-122	-107	-93	-73	-199	-195	-180	-156	-137	-123	-111	-98	
		80	-226	-217	-173	-144	-123	-104	-88	-76	-245	-239	-209	-178	-156	-138	-124	-114	-255	-249	-230	-199	-176	-157	-142	-130
110	44-X	-96	-94	-78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-90	-87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-186	-181	-152	-128	-110	-94	-80	-69	-199	-195	-180	-156	-137	-123	-110	-98	-205	-202	-195	-172	-153	-138	-126	0	
		80	-238	-231	-194	-164	-142	-125	-108	-93	-255	-249	-230	-199	-176	-157	-142	-137	-263	-258	-250	-220	-196	-177	-162	-148
120	44-X	-100	-98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-193	-189	-167	-143	-125	-109	-96	-83	-205	-201	-194	-170	-152	-137	-125	0	-210	-207	-203	-186	-168	-153	0	0	
		80	-247	-242	-213	-183	-160	-142	-128	-113	-262	-257	-248	-218	-194	-176	-160	-428	-269	-265	-259	-238	-215	-196	-180	-166
130	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-199	-195	-180	-156	-138	-124	-110	-98	-209	-206	-202	-184	-165	-150	0	0	-214	-212	-208	-199	-181	0	0	0	
		80	-255	-250	-231	-200	-177	-158	-143	-131	-268	-264	-258	-235	-212	-192	-177	-476	-274	-270	-265	-254	-231	-213	-196	-183
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-204	-201	-192	-169	-150	-136	-123	0	-213	-210	-206	-196	-178	0	0	0	-217	-215	-211	-208	0	0	0	0	0
		80	-261	-257	-246	-216	-192	-174	-158	-145	-273	-269	-264	-250	-227	-208	-192	-522	-278	-275	-270	-266	-247	-228	-212	0
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-208	-205	-200	-180	-162	-147	-135	0	-216	-214	-210	-206	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-266	-262	-256	-231	-207	-188	-172	-159	-277	-274	-269	-264	-241	-223	-207	0	-281	-279	-275	-271	-260	-242	0	0
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-212	-209	-205	-191	-173	-158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-271	-267	-262	-244	-221	-202	-186	-172	-280	-277	-273	-269	-254	-236	0	0	0	0	0	0	0	0	0	0
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-215	-212	-208	-200	-183	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-275	-271	-266	-256	-234	-215	-199	-185	-283	-280	-276	-273	-266	0	0	0	0	0	0	0	0	0	0	0
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-217	-215	-211	-208	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-278	-275	-270	-266	-245	-227	-211	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: The Forces shown in the tables above account for reactions associated with the interior support of a multi-span condition. See Max length for Multi Span for corresponding span length.
See SEAOC PV-2 2012 for definition of Roof Zones

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 41"x 86" Landscape Orientation

Table 3.4A Max Uplift Force (lbs) Multi span only Exterior Conditions

Exp D	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	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	-75	-68	-53	-43	0	0	0	0	-82	-80	-66	0	0	0	0	0	-86	-84	0	0	0	0	0	0	0
		-79	-72	-54	-42	0	0	0	0	-87	-85	-69	0	0	0	0	0	-91	-89	0	0	0	0	0	0	0
		-164	-150	-116	-90	-71	-58	-49	-42	-182	-176	-144	-120	-100	-84	-71	-61	-190	-185	-161	-137	-118	-101	-87	-75	
		80	-210	-193	-151	-123	-105	-91	-80	-72	-232	-226	-187	-157	-136	-119	-107	-96	-243	-237	-208	-177	-155	-137	-124	-112
100	44-X	-80	-77	-61	0	0	0	0	0	-87	-85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-84	-81	-64	0	0	0	0	0	-92	-89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-176	-169	-134	-108	-89	-74	-62	-53	-191	-186	-163	-139	-119	-102	-89	-722	-198	-194	-179	-155	-137	-121	-106	-94	
		80	-225	-217	-174	-145	-124	-109	-97	-87	-244	-238	-210	-180	-157	-140	-126	-260	-253	-248	-230	-200	-177	-159	-144	-131
110	44-X	-84	-82	-69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-89	-86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-185	-180	-151	-126	-105	-90	-77	-66	-198	-194	-179	-155	-137	-119	-105	-274	-204	-201	-194	-171	-153	-138	-124	0	
		80	-236	-230	-195	-165	-143	-126	-113	-102	-253	-248	-230	-200	-177	-159	-144	-300	-261	-256	-250	-220	-197	-178	-163	-150
120	44-X	-87	-85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-192	-188	-166	-142	-121	-105	-92	-80	-204	-200	-193	-170	-151	-136	-121	0	-209	-206	-202	-185	-167	-152	0	0	0
		80	-246	-240	-214	-183	-161	-143	-129	-117	-260	-256	-248	-219	-195	-177	-161	-339	-267	-263	-257	-238	-215	-197	-181	-167
130	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-198	-194	-179	-156	-137	-119	-105	-94	-208	-205	-201	-183	-165	-150	0	0	-213	-210	-207	-198	-180	0	0	0	0
		80	-253	-248	-231	-201	-177	-159	-144	-132	-266	-262	-256	-235	-212	-193	-178	-377	-272	-268	-263	-254	-232	-213	-197	-184
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-203	-200	-192	-168	-150	-133	-118	0	-212	-209	-205	-195	-177	0	0	0	-216	-214	-210	-207	0	0	0	0	0
		80	-259	-255	-246	-216	-193	-174	-159	-146	-270	-267	-262	-250	-228	-209	-193	-412	-275	-272	-268	-264	-247	-228	-213	-199
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-207	-204	-199	-179	-161	-146	-131	0	-215	-213	-209	-205	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-264	-260	-254	-231	-208	-189	-173	-160	-274	-271	-267	-262	-242	-223	-207	-445	-279	-276	-272	-268	-260	-242	-227	-213
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-211	-208	-204	-190	-172	-157	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-268	-265	-259	-244	-221	-202	-187	-173	-277	-275	-270	-267	-254	-236	-221	-477	-281	-279	-276	-272	-269	-255	0	0
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-214	-211	-207	-199	-182	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-272	-269	-264	-256	-234	-215	-199	-185	-280	-278	-274	-270	-266	-248	-233	0	0	0	0	0	0	0	0	0
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-216	-214	-210	-207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-275	-272	-268	-263	-245	-227	-211	-197	-282	-280	-277	-273	-270	-259	0	0	0	0	0	0	0	0	0	0

Note: The Forces shown in the tables above account for reactions associated with the exterior support of a multi-span condition. See Max length for Multi Span for corresponding span length.
See SEAOC PV-2 2012 for definition of Roof Zones

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