



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: 21220004.001

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 44.8 inches x 67.5 inches in Portrait 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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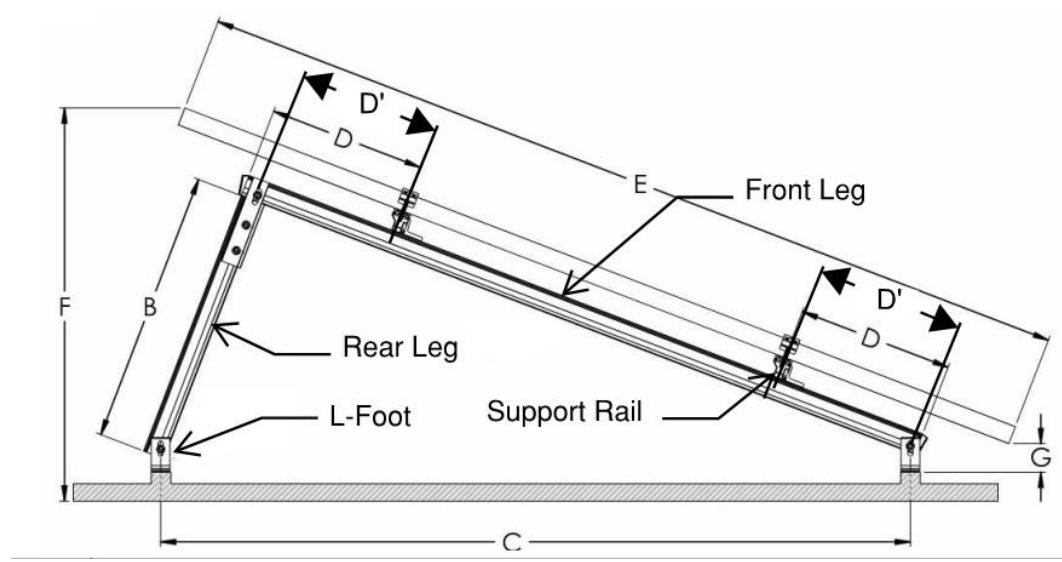


Figure 1 Typical Configuration (refer to K2 CrossRail Tilt Up System Assembly Instructions)

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 1/120. 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 $C_t=1.0$, $C_e=1.0$, $I=1.0$.

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	Ce: 1.0	Design Category: A-E
Roof Slope: 0° to 7 °	Pressure Zones: 1, 2 & 3	Ct: 1.0	Ss:</=2.0
Panel Slope: 7° to 25° (from ground)		Cs: Varies	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 **Portrait** 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
 Maximum Span Length (Inches) Single Span Only, Tables 1.5, 1.5A, 2.5, 2.5A, 3.5, 3.5A
 Maximum Downward Force (lbs) Single Span Only, Tables 1.6, 1.6A, 2.6, 2.6A, 3.6, 3.6A
 Maximum Horizontal Force (lbs) Single Span Only, Tables 1.7, 1.7A, 2.7, 2.7A, 3.7, 3.7A
 Maximum Uplift Force (lbs) Single Span Only. Tables 1.8, 1.8A, 2.8, 2.8A, 3.8, 3.8A

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.

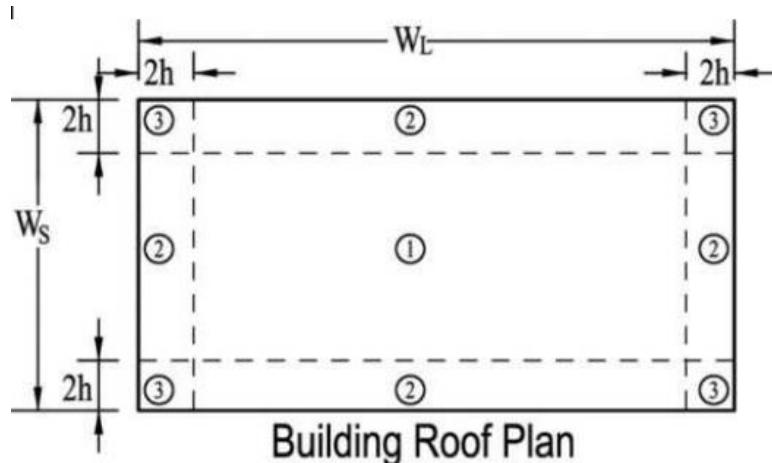


Figure 2. ASCE 7-16 Figure 29.4-7 shows the Building Roof Plan defining the roof zones.

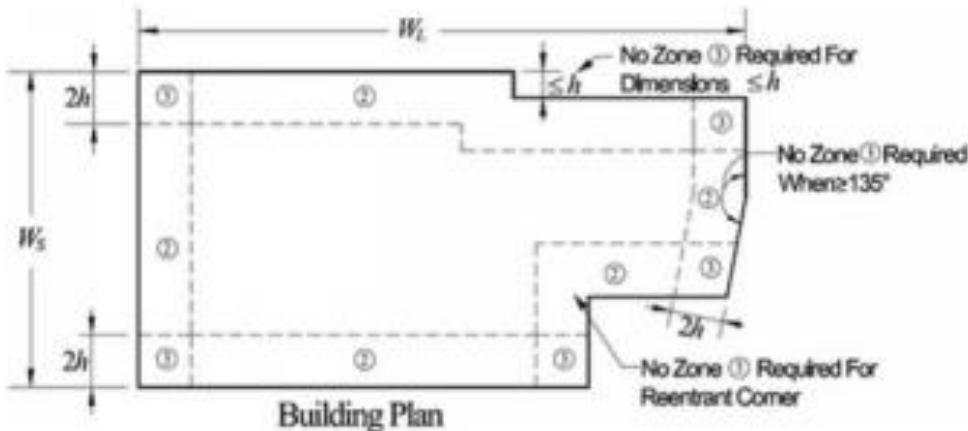


Figure 3. ASCE 7-16 Figure C29.4-1 shows a sketch of Building with Irregular Plan Dimensions

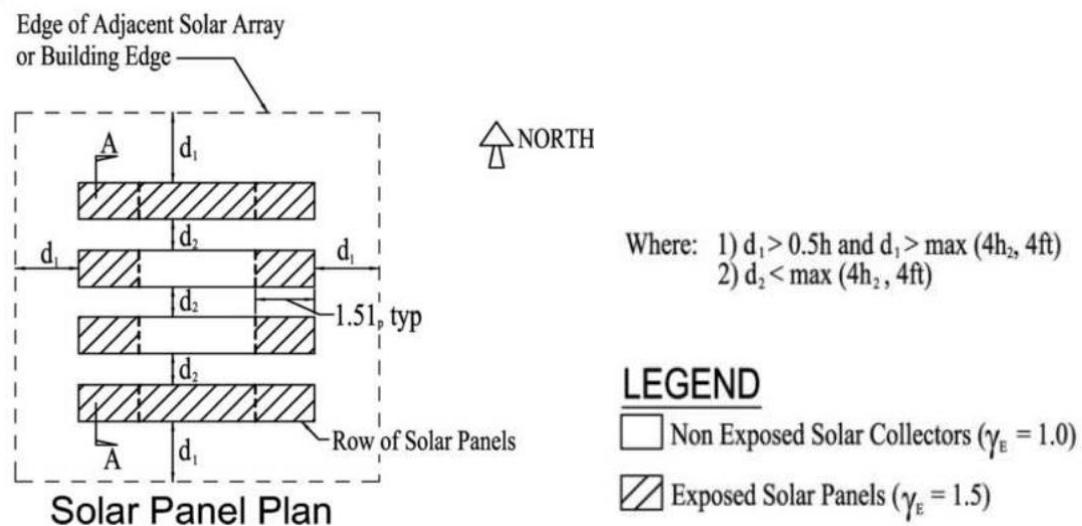


Figure 4. ASCE 7-16 Figure 29.4-7 Array Edge Factors

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.

Christine Wrobel

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CAW:ng

Attachments: Tables as indicated above



K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 44.8"x 67.5" Portrait 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	76	61	45	33	25	0	0	0	60	52	40	32	25	0	0	0	51	47	37	30	25	0	0	0
	48-X	85	67	47	33	25	0	0	0	66	58	43	33	25	0	0	0	57	53	41	32	0	0	0	0
	48-XL	164	132	96	68	52	42	36	31	128	113	86	68	52	42	36	31	110	102	79	65	52	42	36	31
	80	199	159	117	86	66	54	45	39	155	137	104	84	66	54	45	39	134	123	96	79	66	54	45	39
	44-X	65	56	42	33	25	0	0	0	50	47	37	30	25	0	0	0	43	42	34	28	0	0	0	0
	48-X	73	62	44	33	25	0	0	0	56	52	41	32	0	0	0	0	48	47	37	31	0	0	0	0
100	48-XL	140	119	90	68	52	42	36	31	109	101	79	65	52	42	36	31	93	90	72	60	52	42	36	31
	80	170	145	109	86	66	54	45	39	132	122	95	78	66	54	45	39	113	109	87	73	63	54	45	39
	44-X	56	50	39	32	25	0	0	0	43	42	34	28	0	0	0	0	37	36	30	0	0	0	0	0
	48-X	63	56	42	33	25	0	0	0	48	47	37	30	0	0	0	0	41	40	34	0	0	0	0	0
110	48-XL	121	108	84	67	52	42	36	31	93	90	72	60	51	42	36	31	79	77	65	55	48	42	36	31
	80	147	132	101	82	66	54	45	39	112	109	87	73	63	54	45	39	96	93	79	67	58	51	45	39
	44-X	49	46	36	30	25	0	0	0	37	36	31	26	0	0	0	0	32	31	28	0	0	0	0	0
	48-X	55	51	40	31	0	0	0	0	41	40	34	0	0	0	0	0	35	34	31	0	0	0	0	0
120	48-XL	106	99	77	64	52	42	36	31	80	78	66	56	48	42	36	31	68	66	59	51	45	40	36	31
	80	128	120	94	77	66	54	45	39	97	95	80	68	59	52	45	39	82	80	72	62	54	48	43	39
	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	48	46	37	30	0	0	0	0	36	35	31	0	0	0	0	0	0	0	0	0	0	0	0	0
130	48-XL	92	90	72	60	51	42	36	31	70	68	60	52	45	40	36	31	59	58	54	47	42	37	34	31
	80	112	109	87	73	62	54	45	39	84	83	73	63	55	49	44	39	71	70	65	57	50	45	41	37
	44-X	38	37	31	26	0	0	0	0	28	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	42	41	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	48-XL	82	79	67	56	49	42	36	31	61	60	55	48	42	38	34	31	52	51	49	43	39	35	32	29
	80	99	96	81	68	59	52	45	39	74	73	67	58	51	46	42	38	62	61	60	52	47	42	39	35
	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	37	37	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	48-XL	72	71	62	53	46	40	36	31	54	53	51	44	40	36	33	30	45	45	44	40	36	33	30	28
	80	88	86	75	64	56	50	45	39	65	64	62	54	48	43	39	36	55	54	53	48	44	40	36	34
	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	33	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	48-XL	65	63	57	50	44	39	35	31	48	47	46	41	37	34	31	28	40	40	39	37	33	31	28	26
	80	78	77	70	60	53	47	43	39	58	57	56	50	45	41	37	34	49	48	47	45	40	37	34	32
	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
170	48-XL	58	57	53	46	41	37	33	30	43	42	41	38	35	32	29	27	36	36	35	34	31	29	27	0
	80	63	62	60	53	47	43	39	36	47	46	45	43	39	36	33	31	39	39	38	38	35	32	30	28
	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	39	38	37	35	33	31	30	28	33	33	32	30	29	28	27	30	30	30	29	29	27	27	26	
180	48-XL	52	51	50	44	39	35	32	29	39	38	37	36	32	30	28	0	32	32	31	31	29	27	0	0
	80	63	62	60	53	47	43	39	36	47	46	45	43	39	36	33	31	39	39	38	38	35	32	30	28

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 44.8"x 67.5" Portrait 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	70
90	44-X	76	61	45	33	25	0	0	0	52	52	40	32	25	0	0	0	42	42	37	30	25	0	0	0	0
	48-X	85	67	47	33	25	0	0	0	58	58	43	33	25	0	0	0	47	47	41	32	0	0	0	0	0
	48-XL	164	132	94	66	51	41	35	30	128	113	86	66	51	41	35	30	110	102	79	65	51	41	35	30	30
	80	199	159	117	86	66	54	45	39	155	137	104	84	66	54	45	39	134	123	96	79	66	54	45	39	39
	44-X	59	56	42	33	25	0	0	0	41	41	37	30	25	0	0	0	33	33	28	0	0	0	0	0	0
100	48-X	66	62	44	33	25	0	0	0	46	46	41	32	0	0	0	0	37	37	37	31	0	0	0	0	0
	48-XL	140	119	89	66	51	41	35	30	109	101	79	64	51	41	35	30	92	90	72	60	51	41	35	30	30
	80	170	145	109	86	66	54	45	39	132	122	95	78	66	54	45	39	111	109	87	73	63	54	45	39	39
	44-X	48	48	39	32	25	0	0	0	33	33	33	28	0	0	0	0	27	27	27	0	0	0	0	0	0
	48-X	54	54	42	33	25	0	0	0	37	37	37	30	0	0	0	0	30	30	30	0	0	0	0	0	0
110	48-XL	121	108	84	65	51	41	35	30	91	90	72	60	50	41	35	30	75	75	65	55	48	41	35	30	30
	80	147	132	101	82	66	54	45	39	111	109	87	73	63	54	45	39	91	91	79	67	58	51	45	39	39
	44-X	40	40	36	30	25	0	0	0	28	28	28	26	0	0	0	0	23	23	23	0	0	0	0	0	0
	48-X	44	44	40	31	0	0	0	0	31	31	31	0	0	0	0	0	25	25	25	0	0	0	0	0	0
	48-XL	106	99	77	63	51	41	35	30	76	76	66	56	48	41	35	30	62	62	59	51	45	40	35	30	30
120	80	128	120	94	77	66	54	45	39	92	92	80	68	59	52	45	39	75	75	72	62	54	48	43	39	39
	44-X	33	33	33	28	0	0	0	0	23	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	48	46	37	30	0	0	0	0	36	35	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	91	90	72	60	50	41	35	30	64	64	60	52	45	40	35	30	53	53	53	47	42	37	34	30	
	80	110	109	87	73	62	54	45	39	78	78	73	63	55	49	44	39	64	64	64	57	50	45	41	37	
130	44-X	38	37	31	26	0	0	0	0	28	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-X	32	32	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-XL	78	78	67	56	48	41	35	30	55	55	55	48	42	38	34	30	45	45	45	43	39	35	32	29	
	80	94	94	81	68	59	52	45	39	66	66	66	58	51	46	42	38	55	55	55	52	47	42	39	35	
	44-X	24	24	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
140	48-X	27	27	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-XL	67	67	62	53	46	40	35	30	48	48	48	44	40	36	32	29	39	39	39	36	33	30	28		
	80	81	81	75	64	56	50	45	39	58	58	58	54	48	43	39	36	47	47	47	44	40	37	34	34	
	44-X	21	21	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-X	24	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
160	48-XL	59	59	57	50	44	38	34	30	42	42	42	37	34	31	28	34	34	34	34	33	31	28	26		
	80	71	71	70	60	53	47	43	39	50	50	50	45	41	37	34	41	41	41	41	40	37	34	32		
	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	52	52	52	46	41	37	33	29	37	37	37	35	32	29	27	30	30	30	30	30	29	27	26		
170	80	56	56	56	53	47	43	39	36	39	39	39	39	36	33	31	33	33	33	33	33	33	32	30	28	
	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	46	46	46	44	39	35	32	29	33	33	33	32	30	28	0	27	27	27	27	27	27	27	0	0	
	80	56	56	56	53	47	43	39	36	39	39	39	39	36	33	31	33	33	33	33	33	33	32	30	28	
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	46	46	46	44	39	35	32	29	33	33	33	32	30	28	0	27	27	27	27	27	27	27	0	0	
	80	56	56	56	53	47	43	39	36	39	39	39	39	36	33	31	33	33	33	33	33	33	32	30	28	

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 44.8"x 67.5" Portrait Orientation

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
90	44-X	201	226	245	256	256	0	0	0	202	216	235	250	256	0	0	0	203	208	227	240	256	0	0	0
		224	249	254	255	255	0	0	0	225	240	255	255	255	0	0	0	226	231	253	256	0	0	0	0
		432	487	523	525	525	525	525	525	435	464	505	525	525	525	527	525	436	446	488	515	525	525	525	525
	48-XL	524	590	639	665	665	665	665	665	527	563	613	652	665	665	668	665	529	541	592	625	665	665	665	665
		526	578	627	665	665	665	665	665	529	550	598	630	665	665	668	665	531	539	577	609	633	665	665	665
		528	578	627	665	665	665	665	665	529	550	598	630	665	665	668	665	531	539	577	609	633	665	665	665
100	44-X	202	222	240	256	256	0	0	0	203	211	230	242	256	0	0	0	204	207	221	234	0	0	0	0
		225	247	255	255	255	0	0	0	226	235	255	255	255	0	0	0	227	230	246	256	0	0	0	0
		434	477	517	525	525	525	525	525	436	454	493	519	525	525	527	525	438	445	475	502	522	525	525	525
	48-XL	526	578	627	665	665	665	665	665	529	550	598	630	665	665	668	665	531	539	577	609	633	665	665	665
		528	578	627	665	665	665	665	665	529	550	598	630	665	665	668	665	531	539	577	609	633	665	665	665
		530	578	627	665	665	665	665	665	529	550	598	630	665	665	668	665	531	539	577	609	633	665	665	665
110	44-X	203	218	236	247	256	0	0	0	204	207	225	236	0	0	0	0	204	200	216	0	0	0	0	0
		225	242	255	255	255	0	0	0	227	230	250	255	0	0	0	0	227	222	240	0	0	0	0	0
		435	179	212	238	263	292	318	343	198	193	225	250	272	293	319	343	216	211	230	258	279	299	318	343
	48-XL	528	567	615	645	665	665	665	665	531	539	585	616	639	665	668	665	532	520	562	595	618	639	665	665
		530	567	615	645	665	665	665	665	532	522	573	604	626	644	668	665	533	521	550	581	605	623	642	665
		531	567	615	645	665	665	665	665	532	522	573	604	626	644	668	665	533	521	550	581	605	623	642	665
120	44-X	203	214	232	243	255	0	0	0	204	200	220	232	0	0	0	0	205	200	211	0	0	0	0	0
		226	238	256	255	0	0	0	0	227	223	245	0	0	0	0	0	228	223	235	0	0	0	0	0
		437	460	498	522	525	525	525	525	439	430	473	498	517	523	527	525	440	430	453	479	499	514	525	525
	48-XL	530	558	604	633	664	665	665	665	532	522	573	604	626	644	668	665	533	521	550	581	605	623	642	665
		531	558	604	633	664	665	665	665	532	522	573	604	626	644	668	665	533	521	550	581	605	623	642	665
		532	558	604	633	664	665	665	665	533	521	562	592	615	632	649	665	534	524	539	569	592	611	626	642
130	44-X	204	211	228	239	0	0	0	0	205	200	216	0	0	0	0	0	0	0	0	0	0	0	0	0
		227	234	253	255	0	0	0	0	228	222	240	0	0	0	0	0	0	0	0	0	0	0	0	0
		438	453	489	514	523	525	525	525	440	430	463	488	507	521	525	525	440	432	445	469	488	504	516	525
	48-XL	531	549	593	623	644	665	665	665	533	521	562	592	615	632	649	665	534	524	539	569	592	611	626	642
		532	567	615	645	665	665	665	665	534	523	552	581	604	621	636	651	535	526	539	557	580	599	614	627
		533	578	627	665	665	665	665	665	535	523	552	581	604	621	636	651	535	526	539	557	580	599	614	627
140	44-X	204	202	224	235	0	0	0	0	205	201	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		227	224	249	0	0	0	0	0	206	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		439	434	481	505	523	523	525	525	440	432	455	479	498	512	524	525	441	434	445	460	479	494	506	517
	48-XL	532	567	615	645	665	665	665	665	534	523	552	581	604	621	636	651	535	526	539	557	580	599	614	627
		533	578	627	665	665	665	665	665	535	523	552	581	604	621	636	651	535	526	539	557	580	599	614	627
		534	578	627	665	665	665	665	665	536	523	552	581	604	621	636	651	535	526	539	557	580	599	614	627
150	44-X	204	200	220	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		228	222	245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		439	429	474	498	515	524	525	525	441	433	448	471	489	504	516	524	442	435	434	451	470	485	497	508
	48-XL	533	520	575	603	625	642	658	665	535	525	543	571	593	611	625	638	536	527	547	569	588	603	616	627
		534	522	566	594	616	633	646	665	535	525	552	584	601	616	628	536	529	551	579	599	577	592	605	627
		535	522	566	594	616	633	646	665	535	525	552	584	601	616	628	536	529	551	579	599	577	592	605	627
160	44-X	205	200	217	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		228	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		440	431	467	490	508	522	524	525	441	434	440	464	481	496	508	518	442	436	428	445	461	476	489	499
	48-XL	534	522	566	594	616	633	646	665	535	525	552	584	601	616	628	536	529	551	579	599	577	592	605	627
		535	522	566	594	616	633	646	665	535	525	552	584	601	616	628	536	529	551	579	599	577	592	605	627
		536	522	566	594	616	633	646	665	536	525	552	584	601	616	628	536	529	551	579	599	577	592	605	627



K2 Systems, LLC
 PV Tilt Up Kit Solar PV Mount System
 Standard size 44.8"x 67.5" Portrait 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	199	226	245	256	256	0	0	0	176	213	235	250	256	0	0	0	166	184	227	240	256	0	0	0	0
		223	249	254	255	255	0	0	0	197	239	255	255	255	0	0	0	186	206	253	256	0	0	0	0	0
		432	487	511	513	513	513	513	513	435	464	505	513	513	515	513	513	436	446	488	514	513	513	513	513	513
	48-X	524	590	639	665	665	665	665	665	527	563	613	652	665	665	668	665	529	541	592	625	665	665	665	665	665
		183	222	240	256	256	0	0	0	165	185	230	242	256	0	0	0	157	165	220	234	0	0	0	0	0
		205	247	255	255	255	0	0	0	185	207	255	255	0	0	0	0	176	185	246	256	0	0	0	0	0
100	48-XL	434	477	512	513	513	513	513	513	436	454	493	512	513	513	515	513	432	445	475	502	511	513	513	513	513
		526	578	627	665	665	665	665	665	529	550	598	630	665	665	668	665	523	539	577	609	633	665	665	665	665
		172	206	236	247	256	0	0	0	157	165	223	236	0	0	0	0	151	152	193	0	0	0	0	0	0
	48-X	192	231	255	255	255	0	0	0	176	185	250	255	0	0	0	0	169	170	216	0	0	0	0	0	0
		435	468	507	511	513	513	513	513	432	445	482	508	512	513	515	513	415	416	464	490	510	513	513	513	513
		528	567	615	645	665	665	665	665	523	539	585	616	639	665	668	665	503	505	562	595	618	639	665	665	665
110	44-X	164	184	232	243	255	0	0	0	152	153	199	232	0	0	0	0	147	147	173	0	0	0	0	0	0
		183	206	256	255	0	0	0	0	170	171	222	0	0	0	0	0	164	164	194	0	0	0	0	0	0
		437	460	498	512	513	513	513	513	416	419	473	498	512	511	515	513	403	403	453	479	499	512	513	513	513
	48-X	530	558	604	633	664	665	665	665	504	508	573	604	626	644	668	665	488	488	550	581	605	623	642	665	665
		157	168	226	239	0	0	0	0	148	148	180	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		176	188	253	255	0	0	0	0	165	165	201	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	48-XL	431	453	489	513	512	513	513	513	405	405	463	488	507	512	513	513	393	393	433	469	488	504	512	513	513
		523	549	593	623	644	665	665	665	490	490	562	592	615	632	649	665	476	476	525	569	592	611	626	642	642
		152	155	205	235	0	0	0	0	144	144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	171	173	229	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		418	424	481	505	512	511	513	513	395	395	452	479	498	512	512	513	386	386	408	460	479	494	506	512	512
		507	514	583	613	634	651	665	665	479	479	548	581	604	621	636	651	467	467	495	557	580	599	614	627	627
140	44-X	149	149	188	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		166	166	210	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		408	408	474	498	513	512	513	513	388	388	420	471	489	504	513	512	380	380	388	442	470	485	497	508	508
	48-X	494	494	575	603	625	642	658	665	470	470	508	571	593	611	625	638	460	460	470	536	569	588	603	616	616
		146	146	174	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		163	163	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	48-XL	399	399	467	490	508	513	512	513	382	382	396	464	481	496	508	512	375	375	413	461	476	489	499	499	499
		484	484	566	594	616	633	646	665	463	463	480	562	584	601	616	628	454	454	454	501	559	577	592	605	605
		0	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	392	392	446	483	501	513	512	512	377	377	380	436	474	488	500	510	371	371	395	441	468	480	480	480	480
		475	475	541	586	607	624	638	650	457	457	460	529	575	592	606	619	450	450	450	479	534	568	582	595	595
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	48-XL	387	387	421	477	494	508	513	512	373	373	373	411	467	481	493	0	368	368	368	380	415	461	0	0	0
		468	468	510	578	599	616	630	642	453	453	453	498	566	583	597	610	446	446	446	460	502	559	573	586	586
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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

Larson Engineering Inc

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K2 Systems, LLC
 PV Tilt Up Kit Solar PV Mount System
 Standard size 44.8"x 67.5" Portrait 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
90	44-X	69	55	40	30	23	0	0	0	75	66	50	41	32	0	0	0	87	72	56	46	39	0	0	0
	48-X	77	61	42	30	23	0	0	0	83	73	54	41	32	0	0	0	96	80	62	49	29	0	0	0
	48-XL	148	119	86	61	47	38	32	28	161	141	108	85	65	53	45	38	186	154	120	99	79	64	54	46
	80	179	144	106	77	59	48	41	35	195	171	131	106	83	67	57	49	226	187	146	120	100	81	68	59
	44-X	73	62	47	37	40	0	0	0	78	72	57	47	39	0	0	0	92	78	63	52	36	0	0	0
100	48-X	81	69	49	37	39	0	0	0	87	81	63	49	29	0	0	0	102	87	70	57	36	0	0	0
	48-XL	156	59	51	45	40	36	33	31	77	75	67	60	54	50	46	92	86	84	78	71	64	60	56	52
	80	190	161	121	96	103	60	50	43	204	189	148	121	102	83	70	60	239	204	163	136	117	100	84	73
	44-X	76	68	52	43	48	0	0	0	81	78	63	52	36	0	0	0	96	86	69	54	43	0	0	0
110	48-X	85	76	57	44	48	0	0	0	90	87	70	57	36	0	0	0	107	95	77	55	43	0	0	0
	48-XL	163	146	112	90	98	57	48	41	174	168	135	113	96	79	67	57	206	184	148	125	109	96	80	69
	80	198	177	136	111	124	72	61	52	211	204	164	136	117	100	85	73	250	223	179	152	132	116	102	88
	44-X	79	74	58	48	57	0	0	0	83	81	68	58	42	0	0	0	99	93	74	60	51	0	0	0
120	48-X	88	82	64	50	0	0	0	0	92	90	76	52	0	0	0	0	110	103	83	63	0	0	0	0
	48-XL	169	158	124	102	117	68	57	49	178	174	147	124	108	94	80	68	213	199	160	137	120	107	96	83
	80	205	192	151	124	148	86	72	62	216	211	178	151	131	115	101	87	258	241	194	166	146	130	117	105
	44-X	81	78	63	52	0	0	0	0	85	83	73	55	0	0	0	0	102	99	79	66	0	0	0	0
130	48-X	90	87	70	56	0	0	0	0	94	92	82	58	0	0	0	0	113	110	88	71	0	0	0	0
	48-XL	174	169	135	113	134	79	67	58	182	178	158	135	118	105	93	80	219	213	170	148	131	118	107	97
	80	211	204	164	137	164	101	85	73	221	216	191	164	144	128	115	102	266	258	207	180	159	143	130	119
	44-X	83	81	68	57	0	0	0	0	86	85	71	60	0	0	0	0	104	102	85	72	0	0	0	0
140	48-X	92	90	75	0	0	0	0	0	96	94	79	0	0	0	0	0	116	113	95	0	0	0	0	0
	48-XL	178	173	145	123	149	91	78	67	186	182	168	145	128	115	104	93	224	218	183	158	142	128	117	107
	80	216	210	176	149	180	114	98	85	225	220	203	176	156	140	126	115	272	265	222	192	172	155	141	130
	44-X	84	82	72	0	0	0	0	0	88	86	75	0	0	0	0	0	106	104	91	0	0	0	0	0
150	48-X	94	92	80	0	0	0	0	0	98	96	84	0	0	0	0	0	118	115	101	0	0	0	0	0
	48-XL	181	177	155	132	162	101	89	77	189	185	177	155	138	124	113	104	228	223	195	168	151	137	126	116
	80	220	215	188	160	196	124	112	97	229	224	214	188	167	151	137	126	277	270	237	203	183	167	153	141
	44-X	86	84	76	0	0	0	0	0	89	87	79	0	0	0	0	0	108	106	96	0	0	0	0	0
160	48-X	95	93	0	0	0	0	0	0	99	97	0	0	0	0	0	0	120	118	0	0	0	0	0	0
	48-XL	184	180	164	141	174	111	98	87	192	188	183	164	147	133	122	112	232	227	206	178	160	146	135	125
	80	223	218	198	171	211	134	121	111	233	228	222	198	178	162	148	136	281	275	250	216	194	177	164	152
	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
170	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	186	183	172	149	185	119	108	97	195	191	185	172	155	142	130	121	235	231	216	188	168	155	143	122
	80	226	222	208	181	225	144	131	120	236	231	225	208	188	172	158	146	285	280	262	228	204	187	174	162
	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
180	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	189	185	179	157	197	127	116	105	197	193	187	179	163	149	138	110	238	234	225	198	177	162	146	133
	80	229	225	217	191	238	154	140	129	239	234	227	217	197	181	167	156	288	283	273	240	215	197	183	171

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 44.8"x 67.5" Portrait 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
90	44-X	68	55	40	30	23	0	0	0	71	65	50	41	32	0	0	0	86	70	56	46	39	0	0	0
	48-X	76	61	42	30	23	0	0	0	80	73	54	41	32	0	0	0	96	76	62	49	29	0	0	0
	48-XL	148	119	84	60	46	37	31	27	161	141	108	83	64	52	44	38	186	154	120	99	77	63	53	45
	80	179	144	106	77	59	48	41	35	195	171	131	106	83	67	57	49	226	187	146	120	100	81	68	59
	44-X	66	62	47	37	28	0	0	0	69	65	57	47	39	0	0	0	83	78	62	52	36	0	0	0
100	48-X	74	69	49	37	28	0	0	0	77	72	63	49	29	0	0	0	93	87	70	57	36	0	0	0
	48-XL	156	133	99	74	57	46	39	33	168	156	122	99	79	64	54	46	197	168	135	112	95	77	65	56
	80	190	161	121	96	73	60	50	43	204	189	148	121	102	83	70	60	239	204	163	136	117	100	84	73
	44-X	64	64	52	43	34	0	0	0	67	67	62	52	36	0	0	0	81	81	66	54	43	0	0	0
	48-X	72	72	57	44	34	0	0	0	75	75	70	57	36	0	0	0	91	91	71	55	43	0	0	0
110	48-XL	163	146	112	88	69	56	47	40	171	168	135	113	94	77	65	56	206	184	148	125	109	93	79	68
	80	198	177	136	111	89	72	61	52	208	204	164	136	117	100	85	73	250	223	179	152	132	116	102	88
	44-X	63	63	58	48	40	0	0	0	66	66	62	58	42	0	0	0	80	80	73	60	51	0	0	0
	48-X	71	71	64	50	0	0	0	0	74	74	69	52	0	0	0	89	89	80	63	0	0	0	0	
	48-XL	169	158	124	100	82	66	56	48	176	169	147	124	107	92	78	67	213	199	160	137	120	107	94	81
120	80	205	192	151	124	106	86	72	62	214	205	178	151	131	115	101	87	258	241	194	166	146	130	117	105
	44-X	62	62	62	52	0	0	0	0	65	65	65	55	0	0	0	79	79	79	66	0	0	0	0	
	48-X	70	70	70	56	0	0	0	0	73	73	73	58	0	0	0	88	88	88	71	0	0	0	0	
	48-XL	171	169	135	113	93	78	65	56	179	176	158	135	118	103	91	78	216	213	170	148	131	118	106	95
	80	208	204	164	137	117	101	85	73	217	213	191	164	144	128	115	102	262	258	207	180	159	143	130	119
130	44-X	62	62	62	57	0	0	0	0	64	64	60	0	0	0	0	78	78	78	72	0	0	0	0	
	48-X	69	69	69	0	0	0	0	0	72	72	72	0	0	0	0	87	87	87	80	0	0	0	0	
	48-XL	169	169	145	123	104	89	76	65	177	177	166	145	128	115	102	91	214	214	183	158	142	128	117	106
	80	205	205	176	149	129	114	98	85	214	214	202	176	156	140	126	115	259	259	222	192	172	155	141	130
	44-X	61	61	61	0	0	0	0	0	64	64	64	0	0	0	0	77	77	77	0	0	0	0	0	
140	48-X	69	69	69	0	0	0	0	0	72	72	72	0	0	0	0	86	86	86	86	0	0	0	0	
	48-XL	168	168	155	132	115	99	87	75	175	175	165	155	138	124	113	101	212	212	195	167	151	137	126	116
	80	204	204	188	160	140	124	112	97	212	212	200	188	167	151	137	126	257	257	237	202	183	167	153	141
	44-X	86	84	76	0	0	0	0	0	89	87	79	0	0	0	0	108	106	96	0	0	0	0	0	
	48-X	68	68	68	0	0	0	0	0	71	71	71	0	0	0	0	86	86	86	86	0	0	0	0	
160	48-XL	167	167	164	141	124	109	96	85	174	174	171	164	147	133	122	111	210	210	206	178	160	146	135	125
	80	202	202	198	171	151	134	121	111	211	211	207	198	178	162	148	136	255	255	250	216	194	177	164	152
	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	
	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	
	48-XL	166	166	166	149	132	119	105	94	173	173	173	164	155	142	130	121	209	209	209	188	167	155	143	119
170	80	201	201	201	181	161	144	131	120	210	210	210	199	188	172	158	146	254	254	254	228	203	187	174	162
	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	
	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	
	48-XL	165	165	165	157	140	127	114	103	172	172	172	164	163	149	138	107	208	208	208	198	177	162	144	130
	80	200	200	200	191	170	154	140	129	209	209	209	199	197	181	167	156	252	252	252	240	215	197	183	171

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 44.8"x 67.5" Portrait 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	70
90	44-X	-115	-92	-68	-50	-38	0	0	0	-135	-119	-91	-73	-58	0	0	0	-145	-134	-105	-86	-72	0	0	0	
		-128	-102	-70	-50	-38	0	0	0	-151	-132	-98	-75	-57	0	0	0	-162	-149	-116	-92	0	0	0	0	
		-248	-199	-145	-102	-79	-64	-54	-46	-291	-255	-195	-154	-118	-96	-81	-70	-312	-288	-225	-184	-147	-119	-101	-87	
		80	-300	-241	-177	-130	-100	-81	-68	-59	-352	-309	-236	-191	-150	-121	-103	-88	-378	-349	-272	-223	-187	-151	-127	-110
		-128	-109	-82	-65	-50	0	0	0	-146	-136	-106	-87	-74	0	0	0	-155	-150	-120	-100	0	0	0	0	
100	48-X	-143	-122	-87	-65	-50	0	0	0	-163	-151	-118	-92	0	0	0	-173	-167	-134	-110	0	0	0	0	0	
		-276	-235	-177	-133	-102	-83	-70	-60	-314	-291	-228	-187	-151	-122	-103	-132	-333	-323	-259	-216	-185	-152	-128	-110	-87
		80	-335	-285	-214	-169	-130	-105	-88	-76	-381	-353	-277	-227	-191	-155	-131	-168	-404	-392	-314	-262	-224	-192	-162	-140
		-139	-124	-96	-78	-63	0	0	0	-155	-150	-120	-101	0	0	0	-163	-159	-135	0	0	0	0	0	0	
		155	-138	-104	-80	-62	0	0	0	-173	-167	-134	-108	0	0	0	-181	-177	-150	0	0	0	0	0	0	
110	48-XL	-299	-267	-206	-165	-128	-104	-88	-76	-333	-323	-259	-216	-184	-152	-128	-165	-350	-341	-290	-245	-213	-187	-158	-136	-87
		80	-363	-324	-250	-203	-163	-132	-111	-96	-404	-392	-314	-262	-225	-192	-163	-209	-424	-414	-351	-298	-258	-228	-200	-172
		-148	-138	-109	-90	-76	0	0	0	-162	-158	-134	-113	0	0	0	-169	-165	-148	0	0	0	0	0	0	
		-165	-154	-120	-94	0	0	0	0	-181	-176	-149	0	0	0	0	-188	-184	-164	0	0	0	0	0	0	
		-318	-297	-234	-192	-157	-127	-107	-93	-349	-340	-287	-243	-211	-183	-156	-201	-363	-355	-318	-273	-239	-213	-190	-164	
120	48-XL	80	-386	-360	-283	-233	-199	-161	-136	-117	-423	-412	-348	-295	-255	-225	-197	-255	-441	-431	-385	-331	-290	-258	-233	-208
		-155	-151	-121	-101	0	0	0	0	-168	-164	-146	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-173	-168	-134	-108	0	0	0	0	-187	-183	-162	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-334	-324	-260	-217	-183	-153	-128	-111	-361	-353	-313	-268	-235	-209	-184	-240	-374	-367	-343	-298	-264	-237	-215	-195	
		80	-405	-393	-315	-263	-225	-193	-163	-140	-438	-428	-379	-325	-285	-253	-228	-305	-454	-445	-415	-362	-320	-287	-261	-238
130	48-XL	-161	-157	-132	-111	0	0	0	0	-173	-169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-180	-175	-147	0	0	0	0	0	-187	-183	-162	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-347	-338	-284	-240	-207	-178	-151	-131	-372	-364	-336	-292	-258	-231	-209	-283	-383	-377	-365	-321	-287	-260	-237	-218	
		80	-421	-410	-344	-291	-251	-222	-192	-165	-451	-442	-408	-354	-312	-280	-253	-351	-465	-457	-443	-390	-348	-315	-287	-264
		-167	-163	-142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
140	48-XL	-185	-181	-158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-358	-350	-306	-261	-228	-200	-176	-152	-380	-373	-357	-313	-279	-252	-229	-318	-391	-385	-376	-343	-309	-281	-258	-238	
		80	-434	-424	-371	-317	-277	-245	-221	-192	-461	-453	-433	-380	-339	-305	-278	-387	-474	-466	-456	-415	-374	-341	-312	-289
		-171	-167	-152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-190	-186	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
160	48-XL	-367	-360	-326	-282	-248	-221	-196	-175	-387	-381	-372	-333	-299	-272	-249	-348	-397	-391	-384	-362	-329	-301	-277	-257	
		80	-445	-436	-396	-342	-301	-268	-242	-221	-470	-462	-452	-404	-363	-329	-301	-422	-481	-475	-465	-439	-398	-365	-336	-312
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-375	-368	-345	-301	-267	-240	-217	-194	-394	-388	-380	-352	-318	-290	-267	-376	-402	-397	-390	-379	-347	-319	-296	0	
170	48-XL	80	-455	-446	-419	-365	-323	-290	-264	-241	-477	-470	-461	-427	-386	-352	-324	-456	-487	-482	-473	-460	-421	-387	-359	-335
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-382	-376	-363	-319	-285	-257	-234	-213	-399	-394	-386	-369	-336	-308	-434	0	-406	-402	-396	-389	-364	-337	0	0	
		80	-463	-455	-440	-387	-345	-312	-284	-261	-484	-477	-468	-447	-407	-373	-526	-489	-493	-487	-480	-472	-441	-408	-380	-356

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 44.8"x 67.5" Portrait 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
90	44-X	-114	-92	-68	-50	-38	0	0	0	-117	-117	-91	-73	-58	0	0	0	-119	-119	-105	-86	-72	0	0	0
		-128	-102	-70	-50	-38	0	0	0	-131	-131	-98	-75	-57	0	0	0	-133	-133	-116	-92	0	0	0	0
		-248	-199	-141	-100	-77	-62	-53	-45	-291	-255	-195	-150	-115	-94	-79	-68	-312	-288	-225	-184	-144	-117	-98	-85
		80	-300	-241	-177	-130	-100	-81	-68	-59	-352	-309	-236	-191	-150	-121	-103	-88	-378	-349	-272	-223	-187	-151	-127
	48-X	-116	-109	-82	-65	-50	0	0	0	-119	-119	-106	-87	-74	0	0	0	-120	-120	-120	-100	0	0	0	0
		-130	-122	-87	-65	-50	0	0	0	-133	-133	-118	-92	0	0	0	0	-134	-134	-134	-110	0	0	0	0
		-276	-235	-175	-130	-100	-81	-68	-59	-314	-291	-228	-185	-147	-120	-101	-129	-329	-323	-259	-216	-181	-148	-125	-108
		80	-335	-285	-214	-169	-130	-105	-88	-76	-381	-353	-277	-227	-191	-155	-131	-168	-398	-392	-314	-262	-224	-192	-162
100	44-X	-118	-118	-96	-78	-63	0	0	0	-120	-120	-120	-101	0	0	0	0	-121	-121	-121	0	0	0	0	0
		132	-132	-104	-80	-62	0	0	0	-134	-134	-134	-108	0	0	0	0	-135	-135	-135	0	0	0	0	0
		-299	-267	-206	-161	-125	-102	-86	-74	-329	-323	-259	-216	-180	-148	-125	-162	-331	-331	-290	-245	-213	-183	-154	-133
		80	-363	-324	-250	-203	-163	-132	-111	-96	-398	-392	-314	-262	-225	-192	-163	-209	-401	-401	-351	-298	-258	-228	-200
	48-X	-119	-119	-109	-90	-76	0	0	0	-121	-121	-121	-113	0	0	0	0	-121	-121	-121	0	0	0	0	0
		-133	-133	-120	-94	0	0	0	0	-135	-135	-135	0	0	0	0	0	-136	-136	-136	0	0	0	0	0
		-318	-297	-234	-189	-153	-125	-105	-90	-331	-331	-287	-243	-209	-179	-152	-197	-333	-333	-318	-273	-239	-212	-186	-161
		80	-386	-360	-283	-233	-199	-161	-136	-117	-401	-401	-348	-295	-255	-225	-197	-255	-403	-403	-385	-331	-290	-258	-233
110	44-X	-120	-120	-120	-101	0	0	0	0	-121	-121	-121	0	0	0	0	0	0	0	0	0	0	0	0	0
		-134	-134	-134	-108	0	0	0	0	-136	-136	-136	0	0	0	0	0	0	0	0	0	0	0	0	0
		-329	-324	-260	-216	-179	-149	-125	-108	-333	-333	-313	-268	-235	-205	-180	-235	-334	-334	-334	-298	-264	-237	-213	-191
		80	-398	-393	-315	-263	-225	-193	-163	-140	-403	-403	-379	-325	-285	-253	-228	-305	-405	-405	-405	-362	-320	-287	-261
	48-X	-121	-121	-121	-111	0	0	0	0	-122	-122	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-135	-135	-135	0	0	0	0	0	-136	-136	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-331	-331	-284	-240	-203	-174	-148	-128	-334	-334	-334	-292	-258	-231	-204	-276	-335	-335	-335	-321	-287	-260	-237	-216
		80	-401	-401	-344	-291	-251	-222	-192	-165	-404	-404	-404	-354	-312	-280	-253	-351	-406	-406	-406	-390	-348	-315	-287
120	44-X	-121	-121	-121	0	0	0	0	0	-121	-121	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-136	-136	-136	0	0	0	0	0	-136	-136	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-332	-332	-306	-261	-227	-196	-172	-148	-335	-335	-335	-313	-279	-252	-228	-311	-336	-336	-336	-309	-281	-258	-238	
		80	-402	-402	-371	-317	-277	-245	-221	-192	-406	-406	-406	-380	-339	-305	-278	-387	-407	-407	-407	-374	-341	-312	-289
	48-X	-122	-122	-122	0	0	0	0	0	-122	-122	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-136	-136	-136	0	0	0	0	0	-136	-136	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-333	-333	-326	-282	-248	-217	-192	-171	-336	-336	-336	-336	-299	-272	-249	-345	-337	-337	-337	-329	-301	-277	-257	
		80	-404	-404	-396	-342	-301	-268	-242	-221	-407	-407	-407	-404	-363	-329	-301	-422	-408	-408	-408	-408	-398	-365	-336
130	44-X	-122	-122	-122	0	0	0	0	0	-122	-122	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-136	-136	-136	0	0	0	0	0	-136	-136	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-332	-332	-306	-261	-227	-196	-172	-148	-335	-335	-335	-313	-279	-252	-228	-311	-336	-336	-336	-309	-281	-258	-238	
		80	-402	-402	-371	-317	-277	-245	-221	-192	-406	-406	-406	-380	-339	-305	-278	-387	-407	-407	-407	-374	-341	-312	-289
	48-X	-122	-122	-122	0	0	0	0	0	-122	-122	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-136	-136	-136	0	0	0	0	0	-136	-136	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-332	-332	-306	-261	-227	-196	-172	-148	-335	-335	-335	-313	-279	-252	-228	-311	-336	-336	-336	-309	-281	-258	-238	
		80	-402	-402	-371	-317	-277	-245	-221	-192	-406	-406	-406	-380	-339	-305	-278	-387	-407	-407	-407	-374	-341	-312	-289
140	44-X	-122	-122	-122	0	0	0	0	0	-122	-122	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-136	-136	-136	0	0	0	0	0	-136	-136	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-331	-331	-284	-240	-203	-174	-148	-128	-334	-334	-334	-292	-258	-231	-204	-276	-335	-335	-335	-321	-287	-260	-237	-216
		80	-401	-401	-344	-291	-251	-222	-192	-165	-404	-404	-404	-354	-312	-280	-253	-351	-406	-406	-406	-390	-348	-315	-287
	48-X	-122	-122	-122	0	0	0	0	0	-122	-122	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-136	-136	-136	0	0	0	0	0	-136	-136	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-332	-332	-306	-261	-227	-196	-172	-148	-335	-335	-335	-313	-279	-252	-228	-311	-336	-336	-336	-309	-281	-258	-238	
		80	-402	-402	-371	-317	-277	-245	-221	-192	-406	-406	-406	-380	-339	-305	-278	-387	-407	-407	-407	-374	-341	-312	-289
150	44-X	-122	-122	-122	0	0	0	0	0	-122	-122	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-136	-136	-136	0	0	0	0	0	-136	-136	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-332	-332																						



K2 Systems, LLC
 PV Tilt Up Kit Solar PV Mount System
 Standard size 44.8"x 67.5" Portrait Orientation

Table 1.5 Max Length L (inches) for Single Span 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	68	53	37	26	20	0	0	0	53	46	34	26	20	0	0	0	46	42	33	25	20	0	0	0
	48-X	68	67	47	33	25	0	0	0	66	58	43	33	25	0	0	0	57	53	41	32	0	0	0	0
	48-XL	145	111	77	54	42	34	28	25	114	100	71	54	42	34	29	25	98	90	68	53	42	34	28	25
	80	209	166	115	81	62	51	43	37	164	144	107	81	62	51	43	37	141	130	101	80	62	51	43	37
	44-X	58	56	42	33	25	0	0	0	50	47	37	30	25	0	0	0	43	42	34	28	0	0	0	0
	48-X	58	49	35	26	20	0	0	0	45	42	32	25	0	0	0	0	38	37	30	24	0	0	0	0
100	48-XL	125	103	73	54	42	34	28	25	96	89	67	52	42	34	29	25	82	80	64	50	41	34	28	25
	80	179	152	109	81	62	51	43	37	138	128	100	78	62	51	43	37	119	115	92	76	62	51	43	37
	44-X	50	46	33	26	20	0	0	0	38	37	30	24	0	0	0	0	33	32	27	0	0	0	0	0
	48-X	50	45	33	25	20	0	0	0	38	37	30	24	0	0	0	0	33	32	27	0	0	0	0	0
110	48-XL	108	96	69	53	42	34	28	25	82	80	63	50	41	34	29	25	70	68	58	48	39	34	28	25
	80	155	138	103	80	62	51	43	37	118	115	92	74	61	51	43	37	101	98	83	71	59	51	43	37
	44-X	44	42	31	24	20	0	0	0	33	32	27	22	0	0	0	0	27	27	24	0	0	0	0	0
	48-X	44	42	31	24	0	0	0	0	33	32	27	0	0	0	0	0	28	27	25	0	0	0	0	0
120	48-XL	94	87	65	51	42	34	28	25	71	69	58	47	39	34	29	25	60	59	53	45	38	32	28	25
	80	135	126	98	77	62	51	43	37	102	100	84	70	59	50	43	37	87	85	76	65	56	49	43	37
	44-X	38	39	30	23	0	0	0	0	28	28	25	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	38	39	29	23	0	0	0	0	29	28	25	0	0	0	0	0	0	0	0	0	0	0	0	0
130	48-XL	82	80	62	49	41	34	28	25	62	60	53	45	37	32	28	25	52	51	48	42	36	31	27	25
	80	118	114	92	73	61	51	43	37	89	87	77	66	56	48	43	37	75	74	69	60	53	46	41	37
	44-X	34	34	28	22	0	0	0	0	24	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	34	36	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	48-XL	72	70	58	47	39	34	28	25	54	53	49	42	36	31	27	25	46	45	44	38	34	30	26	24
	80	104	101	85	70	58	50	43	37	78	76	71	61	54	46	41	37	66	65	63	55	49	44	39	36
	44-X	29	29	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	30	34	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	48-XL	64	63	55	45	38	32	28	25	48	47	45	39	34	30	26	24	40	40	39	35	32	28	25	23
	80	92	90	79	67	56	49	43	37	69	68	65	57	51	45	40	36	58	57	56	51	46	42	38	34
	44-X	26	26	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	27	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	48-XL	57	56	51	43	36	31	28	25	43	42	41	37	32	29	25	23	36	35	33	30	27	24	22	
	80	82	81	73	63	54	47	41	37	61	60	59	53	47	43	38	34	51	51	50	47	43	39	36	33
	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
170	48-XL	51	50	47	41	35	30	27	24	38	38	37	34	31	27	24	22	32	32	31	30	28	25	23	0
	80	74	73	68	59	52	45	40	36	55	54	53	49	44	40	37	33	46	45	45	43	40	37	34	32
	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
180	48-XL	46	46	44	39	33	29	26	23	34	34	33	32	29	26	24	0	29	28	28	27	26	24	0	0
	80	67	66	63	56	50	44	39	35	49	49	48	46	41	38	35	32	41	41	40	37	34	32	30	

Note: The Length is based on use of 2 or more 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 44.8"x 67.5" Portrait Orientation

Table 1.5A Max Length L (inches) for Single Span 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	61	51	36	25	19	0	0	0	42	42	33	25	19	0	0	0	34	34	32	25	19	0	0	0	0		
	48-X	68	52	36	25	19	0	0	0	46	46	33	25	19	0	0	0	38	38	32	25	0	0	0	0	0		
	48-XL	145	111	77	54	42	34	28	25	109	100	71	54	42	34	29	25	88	88	68	53	42	34	28	25	25		
	80	193	153	106	75	58	47	39	34	145	132	99	75	58	47	39	34	117	117	93	74	58	47	39	34	34		
	44-X	48	48	34	25	19	0	0	0	33	33	31	24	19	0	0	0	27	27	27	23	0	0	0	0	0		
	48-X	53	48	34	25	19	0	0	0	37	37	31	24	0	0	0	0	30	30	30	24	0	0	0	0	0		
100	48-XL	125	103	73	54	42	34	28	25	86	86	67	52	42	34	29	25	70	70	64	50	41	34	28	25	25		
	80	165	140	101	75	58	47	39	34	114	114	92	72	58	47	39	34	93	93	85	70	57	47	39	34	34		
	44-X	39	39	32	25	19	0	0	0	27	27	27	23	0	0	0	0	22	22	22	0	0	0	0	0	0		
	48-X	43	43	32	25	19	0	0	0	30	30	29	23	0	0	0	0	24	24	24	0	0	0	0	0	0		
110	48-XL	101	96	69	53	42	34	28	25	70	70	63	50	41	34	29	25	57	57	57	48	39	34	28	25	25		
	80	134	127	96	74	58	47	39	34	93	93	85	69	57	47	39	34	76	76	65	55	47	39	34	34	34		
	44-X	32	32	30	24	19	0	0	0	22	22	22	22	0	0	0	0	18	18	18	0	0	0	0	0	0		
120	48-X	35	35	31	24	0	0	0	0	25	25	25	0	0	0	0	0	20	20	20	0	0	0	0	0	0		
	48-XL	83	83	65	51	42	34	28	25	58	58	58	47	39	34	29	25	48	48	48	45	38	32	28	25	25		
	80	110	110	90	71	58	47	39	34	77	77	65	54	46	39	34	63	63	63	60	52	45	39	34	34	34		
	44-X	27	27	27	23	0	0	0	0	19	19	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
130	48-X	30	30	29	23	0	0	0	0	21	21	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-XL	70	70	62	49	41	34	28	25	49	49	49	45	37	32	28	25	40	40	40	40	36	31	27	25	25		
	80	93	93	84	68	56	47	39	34	65	65	65	61	52	45	39	34	53	53	53	53	49	43	38	34	34		
	44-X	23	23	23	22	0	0	0	0	16	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
140	48-X	25	25	25	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	60	60	58	47	39	34	28	25	42	42	42	42	36	31	27	25	35	35	35	35	34	30	26	24	24		
	80	79	79	78	65	54	46	39	34	56	56	56	56	49	43	38	34	46	46	46	46	45	41	36	33	33		
	44-X	20	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
150	48-X	22	22	22	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	51	51	51	45	38	32	28	25	36	36	36	36	34	30	26	24	30	30	30	30	28	25	23	23	23		
	80	68	68	68	62	52	45	39	34	48	48	48	47	41	37	33	40	40	40	40	40	38	35	32	32	32		
	44-X	17	32	30	24	19	0	0	0	22	22	22	22	0	0	0	0	18	18	18	0	0	0	0	0	0		
160	48-X	19	19	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	45	45	43	36	31	28	25	32	32	32	32	29	25	23	26	26	26	26	26	26	24	22	22	22		
	80	60	60	60	58	50	43	38	34	42	42	42	42	39	35	32	35	35	35	35	35	35	35	33	33	30	30	
	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	
170	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	
	48-XL	40	40	40	40	35	30	27	24	28	28	28	28	27	24	22	23	23	23	23	23	23	23	23	23	23	23	
	80	53	53	53	53	48	42	37	33	37	37	37	37	37	34	31	31	31	31	31	31	31	31	31	31	31	29	
	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	
180	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	
	48-XL	35	35	35	35	33	29	26	23	25	25	25	25	25	24	0	21	21	21	21	21	21	21	21	21	21	0	0
	80	47	47	47	47	46	40	36	32	33	33	33	33	33	32	30	27	27	27	27	27	27	27	27	27	27	27	27

Note: The Length is based on use of 2 or more 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

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K2 Systems, LLC
 PV Tilt Up Kit Solar PV Mount System
 Standard size 44.8"x 67.5" Portrait Orientation

Table 1.6 Maximum Downward Force (lbs) Single 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	89	98	75	57	38	0	0	0	90	96	75	49	43	0	0	0	90	92	64	55	46	0	0	0	0	
		90	97	75	57	38	0	0	0	90	96	74	49	43	0	0	0	90	92	64	55	0	0	0	0	0	
		192	205	158	119	80	73	66	48	193	206	156	104	90	79	56	55	193	198	135	115	97	67	64	60	60	
		80	276	306	236	178	119	109	99	72	278	296	234	155	134	118	84	82	278	285	200	172	145	100	95	90	
100	44-X	90	98	78	64	41	0	0	0	90	94	79	52	47	0	0	0	90	92	70	57	0	0	0	0	0	
		90	98	78	64	41	0	0	0	90	94	79	51	0	0	0	0	91	92	70	57	0	0	0	0	0	
		192	205	164	134	86	80	73	52	193	201	166	108	99	87	61	61	194	197	150	120	107	80	70	67	67	
		80	277	304	246	201	129	120	110	78	279	289	248	162	148	131	91	91	279	284	217	179	160	119	105	101	
110	44-X	90	98	82	71	45	0	0	0	90	92	83	56	0	0	0	0	91	89	75	0	0	0	0	0	0	
		90	98	81	71	44	0	0	0	91	92	83	56	0	0	0	0	91	89	75	0	0	0	0	0	0	
		193	206	171	149	94	88	81	57	194	197	175	117	107	97	67	67	195	190	161	132	113	94	79	75	75	
		80	278	299	256	223	140	132	122	85	279	284	256	175	160	145	101	101	280	274	232	196	169	141	118	112	112
120	44-X	90	99	86	77	48	0	0	0	91	89	85	62	0	0	0	0	88	88	79	0	0	0	0	0	0	
		90	98	86	76	0	0	0	0	91	89	86	0	0	0	0	0	91	89	80	0	0	0	0	0	0	
		194	204	181	161	102	97	90	62	195	191	183	129	113	107	78	74	195	191	170	146	122	105	92	83	83	
		80	279	293	270	240	152	146	135	93	280	275	263	193	169	160	117	111	281	274	245	211	182	157	138	125	125
130	44-X	90	99	91	82	0	0	0	0	89	89	87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		91	99	90	82	0	0	0	0	91	89	88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		194	201	190	172	107	107	100	67	195	190	188	141	119	114	90	82	195	192	179	156	134	116	103	93	93	
		80	279	289	282	257	161	160	150	101	281	274	270	208	177	170	134	123	281	276	257	224	198	174	154	139	139
140	44-X	91	93	94	87	0	0	0	0	86	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		91	99	94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		194	192	199	183	112	116	110	73	195	191	192	152	129	120	99	90	196	192	186	164	145	127	113	102	102	
		80	280	277	290	274	168	174	165	110	281	275	276	221	193	180	148	135	282	277	268	236	211	190	169	152	152
150	44-X	89	89	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		91	102	97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		195	190	207	194	117	123	121	80	195	192	196	161	139	127	108	97	196	193	189	172	155	138	123	111	111	
		80	280	274	297	291	175	184	182	119	281	276	282	232	207	190	162	145	282	278	271	247	223	203	184	166	166
160	44-X	87	87	98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		91	100	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	211	205	123	130	129	86	196	193	197	168	149	134	117	106	196	193	190	179	162	148	133	121	121	
		80	281	275	304	305	184	195	194	129	282	277	284	242	218	200	175	158	282	278	273	257	234	214	197	181	181
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
		195	192	216	216	132	137	137	92	196	193	195	175	158	141	126	114	196	194	190	185	169	156	143	0	0	
		80	281	276	311	315	197	205	206	137	282	278	281	252	228	208	189	171	282	279	274	267	244	224	208	194	194
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
		196	192	220	226	140	144	145	98	196	194	194	181	165	150	135	0	196	194	191	188	176	163	0	0	0	
		80	281	277	317	325	210	215	217	147	282	279	279	261	237	218	201	183	283	279	275	271	253	234	218	204	204

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 44.8"x 67.5" Portrait Orientation

Table 1.6A Maximum Downward Force (lbs) Single 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	80	95	74	55	37	0	0	0	71	86	73	48	42	0	0	0	67	74	63	53	45	0	0	0	0	
	48-X	89	96	74	56	37	0	0	0	79	96	73	48	42	0	0	0	74	82	63	54	0	0	0	0	0	
	48-XL	192	205	158	119	80	73	66	48	185	206	156	104	90	79	56	55	174	194	135	115	97	67	64	60	60	
	80	254	283	218	165	110	101	91	66	245	272	216	143	124	109	77	76	232	257	184	159	134	92	88	83	83	
	100	74	95	77	62	40	0	0	0	67	75	77	50	46	0	0	0	64	67	64	56	0	0	0	0	0	
100	44-X	82	96	77	63	40	0	0	0	74	83	77	50	0	0	0	0	70	74	70	56	0	0	0	0	0	
	48-XL	192	205	164	134	86	80	73	52	173	195	166	108	99	87	1418	61	166	174	150	120	107	80	70	67	67	
	80	255	280	227	185	119	111	101	72	230	258	228	149	137	121	1960	84	220	230	199	165	148	110	97	93	93	
	44-X	69	83	80	69	44	0	0	0	64	67	75	55	0	0	0	0	61	61	61	0	0	0	0	0	0	
	48-X	77	92	80	70	44	0	0	0	70	74	82	55	0	0	0	0	68	68	68	0	0	0	0	0	0	
110	48-XL	181	206	171	149	94	88	81	57	165	173	175	117	107	97	1464	67	159	160	159	132	113	94	79	75	75	
	80	240	275	236	206	129	122	113	78	220	230	236	162	148	134	2023	93	211	212	211	181	156	130	109	103	103	
	44-X	66	74	84	75	47	0	0	0	61	62	70	60	0	0	0	0	59	59	59	0	0	0	0	0	0	
	48-X	73	82	84	75	0	0	0	0	68	68	78	0	0	0	0	66	66	66	0	0	0	0	0	0		
	48-XL	172	194	181	161	102	97	90	62	160	161	182	129	113	107	1514	74	154	154	154	146	122	105	92	83	83	
120	80	228	257	250	222	140	134	125	85	212	213	242	178	156	148	2093	103	205	205	205	194	168	145	127	115	115	
	44-X	63	68	82	80	0	0	0	0	60	60	66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-X	70	75	89	80	0	0	0	0	66	66	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-XL	165	176	190	172	107	107	100	67	155	155	172	141	119	114	1563	82	151	151	151	151	134	116	103	93	93	
	80	219	234	259	238	149	148	138	93	206	206	229	192	164	157	2159	113	200	200	200	182	161	142	128	128	128	
140	44-X	62	62	78	85	0	0	0	0	58	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-X	68	69	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-XL	160	163	199	183	112	116	110	73	152	152	165	152	129	120	1564	90	148	148	148	148	145	127	113	102	102	
	80	213	216	267	253	155	161	152	101	201	201	219	201	178	166	2162	125	196	196	196	196	194	175	156	140	140	
	150	60	60	74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
160	48-X	67	67	83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-XL	156	156	194	194	117	123	121	80	149	149	158	149	139	127	1566	97	146	146	146	146	146	138	123	111	111	
	80	207	207	257	269	162	170	168	110	198	198	210	198	190	176	2164	134	193	193	193	193	186	170	154	154	154	
	170	59	59	72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	44-X	65	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
180	48-XL	153	153	187	205	123	130	129	86	147	147	153	147	147	134	1568	106	144	144	144	144	144	133	121	121	121	
	80	203	203	248	280	170	180	179	119	195	195	204	195	195	185	2167	146	191	191	191	191	191	181	167	167	167	
	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	150	150	181	210	132	137	137	92	145	145	149	145	145	141	1570	114	142	142	142	142	142	142	142	142	142	
180	80	200	200	240	279	182	189	190	127	192	192	198	192	192	191	2169	158	189	189	189	189	189	189	189	189	178	
	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	
180	48-XL	148	148	176	205	140	144	145	98	143	143	146	143	143	143	1571	0	141	141	141	141	141	141	141	141	0	0
	80	197	197	233	272	193	198	201	136	190	190	194	190	190	190	2160	169	187	187	187	187	187	187	187	187	187	

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 44.8"x 67.5" Portrait Orientation

Table 1.7 Maximum Horizontal Force (lbs) Single 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	31	24	16	12	9	0	0	0	33	29	21	16	12	0	0	0	38	32	25	19	15	0	0	0	
		31	24	16	12	9	0	0	0	33	29	21	16	12	0	0	0	39	32	25	19	11	0	0	0	
		66	50	35	24	19	15	13	11	71	63	45	34	26	21	18	15	83	68	52	40	32	26	22	19	
		80	94	75	52	37	28	23	19	17	103	90	67	51	39	32	27	23	119	98	77	60	47	38	32	28
	48-X	32	27	19	14	11	0	0	0	35	32	25	19	15	0	0	0	41	35	28	23	14	0	0	0	
		32	27	19	14	11	0	0	0	35	32	25	19	11	0	0	0	41	35	28	22	14	0	0	0	
100	48-XL	69	57	41	30	23	19	16	14	74	69	52	40	32	26	22	19	87	75	60	47	39	32	27	23	
		80	100	85	61	45	35	28	24	20	107	99	78	60	48	39	33	28	126	107	86	71	58	47	40	34
		34	31	22	17	13	0	0	0	36	35	28	22	14	0	0	0	42	39	31	22	17	0	0	0	
		34	31	22	17	13	0	0	0	36	35	28	22	14	0	0	0	43	39	31	22	17	0	0	0	
	48-XL	72	64	47	36	28	23	19	17	77	75	59	46	38	32	27	23	91	81	66	54	45	38	32	28	
		80	104	93	70	54	42	34	29	25	111	107	86	70	57	47	40	34	131	118	94	80	67	57	48	42
110	44-X	35	34	25	20	16	0	0	0	37	36	30	25	17	0	0	0	44	43	33	25	20	0	0	0	
		35	34	25	19	0	0	0	0	37	36	30	20	0	0	0	0	44	43	33	25	0	0	0	0	
		75	70	52	41	33	27	23	20	79	77	65	52	44	37	32	27	94	88	71	61	51	44	38	33	
		80	108	101	78	61	50	41	34	29	114	111	94	79	65	56	48	41	136	127	102	88	76	65	57	49
	48-X	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	
		36	37	28	22	0	0	0	0	38	38	33	23	0	0	0	0	45	46	35	28	0	0	0	0	
120	48-XL	77	75	58	46	38	32	27	23	81	79	70	58	49	42	37	32	97	94	76	66	57	49	43	39	
		80	111	108	86	69	57	48	40	35	116	114	101	86	73	63	56	48	140	136	109	95	84	73	65	58
		37	37	30	24	0	0	0	0	38	39	31	25	0	0	0	0	46	47	38	31	0	0	0	0	
		37	39	30	0	0	0	0	0	38	41	31	0	0	0	0	0	46	50	38	0	0	0	0	0	
	48-XL	79	77	64	51	43	37	31	27	82	81	74	64	54	47	42	37	99	97	80	70	62	54	48	43	
		80	113	111	93	76	64	55	46	40	118	116	107	93	81	71	62	56	143	139	117	101	90	81	72	65
130	44-X	37	37	32	0	0	0	0	0	38	38	33	0	0	0	0	0	46	46	40	0	0	0	0	0	
		38	42	32	0	0	0	0	0	39	44	33	0	0	0	0	0	47	53	40	0	0	0	0	0	
		80	78	69	56	47	41	36	31	84	82	78	69	59	52	46	41	101	99	87	74	67	60	53	48	
		80	116	113	99	84	70	61	53	46	121	118	113	99	88	78	69	62	146	142	125	107	96	88	80	72
	48-X	36	36	34	0	0	0	0	0	38	38	35	0	0	0	0	0	46	46	43	0	0	0	0	0	
		38	42	32	0	0	0	0	0	40	44	0	0	0	0	0	0	48	53	40	0	0	0	0	0	
140	48-XL	82	80	72	61	51	45	39	35	85	83	81	73	64	57	50	46	103	101	91	78	71	65	58	53	
		80	117	115	104	90	77	67	59	52	123	120	117	104	94	85	76	68	148	145	132	114	102	93	86	79
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		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	83	81	76	65	56	49	43	39	86	85	82	76	69	61	55	50	104	102	96	82	74	69	63	49	
		80	119	117	109	95	83	73	64	58	124	122	118	110	99	90	82	74	150	147	138	120	107	99	91	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	
		84	82	79	70	60	52	47	42	87	86	83	79	72	66	59	44	105	104	100	88	78	72	59	53	
		80	120	118	114	100	90	79	70	63	126	123	120	114	104	95	88	80	152	149	144	127	113	104	96	90
	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	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 44.8"x 67.5" Portrait Orientation

Table 1.7A Maximum Horizontal Force (lbs) Single 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	27	23	16	11	9	0	0	0	29	26	21	16	12	0	0	0	35	29	24	19	15	0	0	0
	48-X	30	23	16	11	9	0	0	0	32	29	21	16	12	0	0	0	38	29	24	19	11	0	0	0
	48-XL	66	50	35	24	19	15	13	11	68	63	45	34	26	21	18	15	83	67	52	40	32	26	22	19
	80	87	69	48	34	26	21	18	15	91	83	62	47	36	29	25	21	109	89	71	56	44	35	30	26
100	44-X	27	27	19	14	11	0	0	0	28	28	24	19	15	0	0	0	34	34	25	22	14	0	0	0
	48-X	30	27	19	14	11	0	0	0	31	28	24	19	11	0	0	0	37	34	28	22	14	0	0	0
	48-XL	69	57	41	30	23	19	16	14	72	67	52	40	32	26	22	19	87	72	60	47	39	32	27	23
	80	92	78	56	42	32	26	22	19	96	89	72	56	45	36	31	26	116	98	79	65	53	44	37	32
110	44-X	26	26	22	17	13	0	0	0	27	27	25	22	14	0	0	0	33	33	27	21	16	0	0	0
	48-X	29	29	22	17	13	0	0	0	30	30	27	22	14	0	0	0	36	36	28	21	17	0	0	0
	48-XL	68	64	47	36	28	23	19	17	71	67	59	46	38	32	27	23	85	81	65	54	45	38	32	28
	80	90	86	64	50	39	31	26	23	94	89	79	64	53	44	37	32	113	108	86	74	62	53	44	38
120	44-X	26	26	24	19	16	0	0	0	27	27	25	24	16	0	0	0	32	32	31	24	20	0	0	0
	48-X	28	28	24	19	0	0	0	0	30	30	28	20	0	0	0	0	36	36	31	24	0	0	0	0
	48-XL	67	67	52	41	33	27	23	20	69	69	65	52	44	37	32	27	84	84	66	61	51	44	38	33
	80	88	88	72	57	46	37	31	27	92	92	86	72	60	52	44	38	111	111	91	81	70	60	53	46
130	44-X	25	25	25	21	0	0	0	0	26	26	26	22	0	0	0	0	32	32	32	27	0	0	0	0
	48-X	28	28	27	22	0	0	0	0	29	29	28	22	0	0	0	0	35	35	34	27	0	0	0	0
	48-XL	66	66	58	46	38	32	27	23	68	68	64	58	49	42	37	32	83	83	73	64	57	49	43	39
	80	87	87	79	64	53	44	37	32	91	91	85	79	68	58	51	44	110	110	100	85	77	68	60	54
140	44-X	25	25	25	24	0	0	0	0	26	26	25	0	0	0	0	0	31	31	31	30	0	0	0	0
	48-X	28	28	28	0	0	0	0	0	29	29	29	0	0	0	0	0	35	35	35	35	0	0	0	0
	48-XL	65	65	64	51	43	37	31	27	68	68	66	64	54	47	42	37	82	82	80	64	62	54	48	43
	80	86	86	85	71	59	50	43	37	90	90	89	85	75	65	58	51	109	109	108	89	83	75	67	60
150	44-X	25	25	25	0	0	0	0	0	26	26	26	0	0	0	0	0	31	31	31	31	0	0	0	0
	48-X	27	27	27	0	0	0	0	0	29	29	29	0	0	0	0	0	35	35	35	35	0	0	0	0
	48-XL	64	64	64	56	47	41	36	31	67	67	63	59	52	46	41	81	81	81	70	63	60	53	48	
	80	86	86	86	77	65	56	49	42	89	89	84	81	72	64	57	108	108	97	84	81	74	66	66	
160	44-X	25	25	25	0	0	0	0	0	26	26	26	0	0	0	0	0	31	31	31	31	0	0	0	0
	48-X	27	27	27	0	0	0	0	0	28	28	0	0	0	0	0	0	34	34	0	0	0	0	0	0
	48-XL	64	64	64	61	51	45	39	35	67	67	63	63	57	50	46	81	81	81	76	65	63	58	53	
	80	85	85	85	83	71	62	54	48	89	89	86	84	78	70	63	107	107	107	104	90	83	79	73	
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	64	64	64	64	56	49	43	39	66	66	66	63	61	55	50	80	80	80	80	70	63	63	49	
	80	84	84	84	84	77	67	59	53	88	88	88	83	83	76	69	107	107	107	107	97	85	83	78	
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	63	63	63	63	60	52	47	42	66	66	66	63	63	59	44	80	80	80	80	75	66	59	53	
	80	84	84	84	84	82	72	65	58	88	88	88	86	83	81	74	106	106	106	106	104	91	83	83	

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 44.8"x 67.5" Portrait Orientation

Table 1.8 Max Uplift Force (lbs) Single 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	-51	-40	-28	-20	-15	0	0	0	-95	-53	-39	-29	-23	0	0	0	-64	-59	-46	-36	-28	0	0	0	
		-51	-40	-27	-19	-15	0	0	0	-95	-53	-38	-29	-22	0	0	0	-65	-60	-46	-36	0	0	0	0	
		-110	-84	-58	-41	-31	-26	-21	-19	-204	-113	-81	-62	-47	-38	-32	-28	-138	-128	-97	-75	-59	-48	-40	-35	
		80	-158	-125	-87	-61	-47	-38	-32	-28	-293	-163	-121	-92	-71	-57	-48	-42	-199	-184	-143	-113	-88	-72	-60	-52
		-57	-48	-34	-25	-20	0	0	0	-80	-60	-46	-36	-29	0	0	0	-69	-67	-53	-43	0	0	0	0	
100	48-X	-57	-48	-34	-25	-19	0	0	0	-81	-60	-46	-36	0	0	0	0	-69	-67	-54	-43	0	0	0	0	
		-122	-101	-72	-53	-41	-33	-28	-24	-172	-129	-97	-76	-60	-49	-41	-36	-148	-143	-114	-91	-74	-61	-51	-44	
		80	-176	-150	-107	-80	-61	-50	-42	-36	-248	-186	-145	-113	-90	-73	-62	-53	-213	-206	-165	-135	-111	-91	-76	-66
		-62	-56	-41	-31	-25	0	0	0	-69	-67	-53	-43	0	0	0	0	-72	-70	-60	0	0	0	0	0	
		-62	-56	-40	-31	-24	0	0	0	-69	-67	-54	-42	0	0	0	0	-72	-71	-60	0	0	0	0	0	
110	48-XL	-133	-118	-85	-66	-51	-42	-35	-30	-148	-143	-113	-89	-74	-61	-51	-44	-155	-151	-128	-106	-88	-75	-63	-54	
		80	-191	-171	-128	-99	-77	-62	-52	-45	-213	-206	-165	-133	-110	-91	-77	-66	-223	-218	-185	-157	-131	-112	-94	-81
		-66	-64	-47	-37	-30	0	0	0	-72	-70	-59	-49	0	0	0	0	-73	-73	-66	0	0	0	0	0	
		-66	-63	-47	-37	0	0	0	0	-72	-70	-59	0	0	0	0	0	-75	-74	-66	0	0	0	0	0	
		-141	-132	-99	-77	-63	-51	-43	-37	-155	-151	-127	-103	-85	-73	-62	-53	-161	-158	-141	-120	-101	-87	-76	-66	
120	48-XL	80	-203	-190	-148	-116	-94	-76	-64	-55	-223	-217	-183	-154	-128	-110	-93	-80	-232	-227	-203	-174	-151	-130	-114	-98
		-69	-71	-53	-42	0	0	0	0	-73	-73	-65	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-69	-71	-53	-42	0	0	0	0	-75	-73	-65	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-148	-144	-112	-88	-73	-61	-51	-44	-160	-157	-139	-116	-97	-84	-74	-64	-166	-163	-152	-132	-114	-99	-87	-78	
		80	-213	-207	-166	-132	-110	-91	-77	-66	-231	-225	-200	-171	-146	-126	-110	-95	-239	-234	-219	-190	-169	-148	-131	-117
130	48-XL	-72	-73	-59	-48	0	0	0	0	-73	-73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-72	-77	-59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-154	-150	-124	-100	-83	-71	-61	-52	-165	-161	-149	-128	-109	-94	-83	-75	-170	-167	-162	-143	-126	-110	-98	-88	
		80	-221	-216	-181	-149	-124	-107	-91	-78	-237	-232	-215	-186	-163	-141	-125	-112	-245	-240	-233	-205	-183	-165	-147	-132
		-73	-73	-63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
140	48-XL	-74	-83	-63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-159	-155	-136	-111	-93	-80	-70	-61	-169	-166	-158	-139	-120	-105	-93	-84	-173	-171	-167	-152	-137	-122	-109	-98	
		80	-228	-223	-195	-165	-139	-120	-105	-91	-243	-238	-228	-200	-178	-157	-139	-125	-249	-245	-240	-219	-197	-179	-163	-147
		-73	-73	-67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-163	-159	-145	-121	-103	-89	-79	-70	-172	-169	-165	-148	-131	-115	-103	-93	-176	-174	-170	-160	-146	-133	-119	-108	
160	48-XL	80	-234	-230	-208	-180	-154	-133	-118	-105	-247	-243	-238	-213	-191	-173	-154	-139	-253	-250	-245	-231	-210	-192	-177	-162
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-166	-163	-153	-131	-112	-98	-87	-78	-174	-172	-168	-156	-141	-125	-112	-102	-178	-176	-173	-168	-154	-142	-130	0	
		80	-240	-235	-220	-192	-168	-146	-130	-116	-251	-248	-242	-225	-203	-185	-168	-152	-257	-253	-249	-242	-221	-204	-189	-176
170	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-169	-167	-161	-141	-121	-106	-95	-85	-177	-175	-171	-163	-149	-135	-122	0	-180	-178	-175	-173	-161	-149	0	0	
		80	-244	-240	-231	-203	-182	-159	-142	-128	-255	-251	-246	-235	-214	-197	-182	-165	-259	-257	-252	-248	-232	-215	-200	-187
		0	0	0	0	0	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 44.8" x 67.5"

Table 1.8A Max Uplift Force (lbs) Single span only Exterior Conditions

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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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 44.8" x 67.5"

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

		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	44-X	62	55	42	32	25	0	0	0	48	45	36	30	0	0	0	0	41	40	33	28	0	0	0
		48-X	66	58	43	33	25	0	0	0	51	48	38	31	0	0	0	0	43	42	35	30	0	0	0
		48-XL	138	118	85	65	50	41	34	30	106	101	77	61	50	41	34	30	90	88	73	58	48	41	34
		80	164	145	106	82	63	51	43	37	126	121	96	76	63	51	43	37	108	105	87	73	61	51	43
100	44-X	44-X	53	49	38	31	25	0	0	0	40	39	33	27	0	0	0	0	34	33	29	0	0	0	0
		48-X	56	52	40	31	0	0	0	0	42	41	35	0	0	0	0	0	36	35	31	0	0	0	0
		48-XL	117	108	79	62	50	41	34	30	89	86	71	57	48	41	34	30	75	74	65	55	46	39	34
		80	139	129	100	78	63	51	43	37	106	103	86	72	60	51	43	37	90	88	78	67	57	49	43
110	44-X	44-X	45	44	35	29	0	0	0	0	34	33	29	0	0	0	0	0	0	0	0	0	0	0	
		48-X	48	46	37	30	0	0	0	0	36	35	31	0	0	0	0	0	0	0	0	0	0	0	
		48-XL	100	97	74	59	49	41	34	30	75	74	65	54	45	39	34	30	64	62	58	51	43	37	33
		80	119	115	93	74	61	51	43	37	90	88	78	67	57	49	43	37	76	74	69	60	53	47	41
120	44-X	44-X	39	38	32	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		48-X	41	40	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		48-XL	86	84	69	56	47	40	34	30	65	63	59	50	43	37	33	29	54	53	52	46	40	35	31
		80	103	100	85	70	59	50	43	37	77	75	70	61	54	47	41	37	65	64	62	55	49	44	40
130	44-X	44-X	34	33	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		48-X	36	35	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		48-XL	75	73	65	53	44	38	34	30	56	55	53	47	40	35	31	28	47	46	45	42	38	33	30
		80	89	87	77	66	56	48	43	37	66	65	63	56	50	44	39	35	56	55	54	50	45	41	38
140	44-X	44-X	30	29	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	
		48-XL	66	64	60	50	42	37	33	29	49	48	47	43	38	33	30	27	41	40	40	38	35	32	28
		80	78	77	71	62	53	46	41	37	58	57	56	51	46	42	38	34	49	48	47	45	41	38	35
150	44-X	44-X	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	
		48-XL	58	57	55	47	40	35	31	28	43	42	42	39	36	32	29	0	36	36	35	34	32	29	0
		80	69	68	65	57	51	44	39	36	51	50	49	47	43	39	36	33	43	42	42	41	38	35	33
160	44-X	44-X	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	
		48-XL	52	51	50	44	38	34	30	27	38	38	37	36	33	30	0	0	32	32	31	31	29	0	0
		80	61	61	59	53	48	42	38	34	45	45	44	43	39	36	34	31	38	38	37	36	35	32	30
170	44-X	44-X	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	
		48-XL	46	46	45	41	36	32	29	26	34	34	33	33	31	0	0	0	0	0	0	0	0	0	
		80	55	54	53	49	45	41	36	33	40	40	39	39	37	34	32	30	34	33	33	32	30	28	
180	44-X	44-X	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	
		48-XL	42	41	40	38	35	31	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		80	49	49	48	46	42	38	35	32	36	36	35	35	34	32	30	28	30	30	29	29	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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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 44.8"x 67.5" Portrait 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	52	42	32	25	0	0	0	36	36	36	30	0	0	0	0	30	30	30	28	0	0	0	0	0
	48-X	55	55	42	33	25	0	0	0	38	38	37	30	0	0	0	0	31	31	31	28	0	0	0	0	0
	48-XL	138	119	85	65	50	41	34	30	96	96	78	61	50	41	34	30	78	78	74	59	49	41	34	30	30
	80	164	145	106	82	63	51	43	37	126	121	96	76	63	51	43	37	107	105	87	73	61	51	43	37	37
	44-X	41	41	38	31	25	0	0	0	29	29	29	27	0	0	0	0	24	24	24	0	0	0	0	0	0
100	48-X	43	43	39	31	0	0	0	0	30	30	30	0	0	0	0	0	25	25	25	0	0	0	0	0	0
	48-XL	109	109	80	62	50	41	34	30	77	77	72	57	48	41	34	30	63	63	55	46	40	34	30	30	30
	80	139	129	100	78	63	51	43	37	104	103	86	72	60	51	43	37	85	85	78	67	57	49	43	37	37
	44-X	34	34	34	29	0	0	0	0	24	24	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	48-X	35	35	35	29	0	0	0	0	25	25	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	89	89	75	59	49	41	34	30	63	63	63	54	45	39	34	30	51	51	51	51	43	38	33	30	30
	80	119	115	93	74	61	51	43	37	85	85	78	67	57	49	43	37	70	70	69	60	53	47	41	37	37
	44-X	28	28	28	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	48-X	29	29	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	74	74	70	56	47	40	34	30	52	52	52	51	43	37	33	30	43	43	43	41	36	32	28	28	
	80	101	100	85	70	59	50	43	37	71	71	70	61	54	47	41	37	58	58	58	55	49	44	40	36	
	44-X	24	24	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
130	48-X	25	25	25	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	62	62	53	45	39	34	30	44	44	44	44	41	35	32	28	36	36	36	36	36	34	30	27	
	80	85	85	77	66	56	48	43	37	60	60	60	56	50	44	39	35	49	49	49	49	45	41	38	34	
	44-X	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
140	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	53	53	53	50	43	37	33	29	38	38	38	38	34	30	27	31	31	31	31	31	31	29	0		
	80	73	73	71	62	53	46	41	37	52	52	52	51	46	42	38	34	42	42	42	41	38	35	33		
	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	
150	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	46	46	46	46	41	36	32	28	33	33	33	33	32	29	26	27	27	27	27	27	27	0			
	80	63	63	63	57	51	44	39	36	45	45	45	43	39	36	33	37	37	37	37	37	35	33	31		
	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	
160	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	40	40	40	40	39	34	30	27	29	29	29	29	27	27	0	24	24	24	24	24	24	0			
	80	55	55	55	53	48	42	38	34	39	39	39	39	36	34	31	32	32	32	32	32	32	30	29		
	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	
170	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	36	36	36	36	33	29	26	25	25	25	25	25	0	0	0	0	0	0	0	0	0	0	0	0	
	80	49	49	49	49	45	41	36	33	35	35	35	35	34	32	30	29	29	29	29	29	29	29	28		
	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	
180	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	32	32	32	32	31	28	0	23	23	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0	
	80	43	43	43	43	42	38	35	32	31	31	31	31	30	28	25	25	25	25	25	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 44.8"x 67.5" Portrait 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	212	229	248	248	248	0	0	0	213	218	237	248	0	0	0	0	213	211	228	241	0	0	0	0	0	
		225	244	255	255	255	0	0	0	226	232	252	255	0	0	0	0	227	225	242	256	0	0	0	0	0	
		471	495	504	505	505	505	505	505	474	485	506	504	504	505	507	505	475	471	507	507	504	505	505	505	505	
	48-XL	561	607	634	634	635	635	635	635	564	577	627	634	634	635	637	635	565	560	603	637	633	635	635	635	635	
		563	607	634	634	635	635	635	635	564	577	627	634	634	635	637	635	565	560	603	637	633	635	635	635	635	
		563	607	634	634	635	635	635	635	564	577	627	634	634	635	637	635	565	560	603	637	633	635	635	635	635	
100	44-X	212	224	243	248	248	0	0	0	213	210	231	243	0	0	0	0	214	209	221	0	0	0	0	0	0	0
		226	239	256	255	255	0	0	0	227	224	245	245	0	0	0	0	228	222	236	0	0	0	0	0	0	0
		473	497	505	504	505	505	505	505	475	469	507	505	504	505	507	505	476	465	493	508	505	504	505	505	505	
	48-XL	563	594	635	633	635	635	635	635	565	558	611	635	634	635	637	635	567	554	587	620	634	633	635	635	635	
		563	594	635	633	635	635	635	635	565	558	611	635	634	635	637	635	567	554	587	620	634	633	635	635	635	
		563	594	635	633	635	635	635	635	565	558	611	635	634	635	637	635	567	554	587	620	634	633	635	635	635	
110	44-X	213	220	238	248	0	0	0	0	214	209	225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		227	234	253	255	0	0	0	0	228	222	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		474	490	506	505	504	505	505	505	476	466	502	506	505	504	505	505	477	468	482	508	506	505	504	505	505	
	48-XL	564	583	630	634	633	635	635	635	567	554	597	629	635	633	634	635	568	557	573	604	629	634	633	635	635	
		564	583	630	634	633	635	635	635	567	554	597	629	635	633	634	635	568	557	573	604	629	634	633	635	635	
		564	583	630	634	633	635	635	635	567	554	597	629	635	633	634	635	568	557	573	604	629	634	633	635	635	
120	44-X	213	209	233	245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		227	223	248	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		475	466	507	506	505	504	505	505	477	468	492	507	506	505	504	504	478	470	482	496	507	506	505	504	504	
	48-XL	566	554	618	635	634	633	635	635	568	557	585	616	636	634	633	635	569	559	573	590	615	634	633	634	634	
		566	554	618	635	634	633	635	635	568	557	585	616	636	634	633	635	569	559	573	590	615	634	633	634	634	
		566	554	618	635	634	633	635	635	568	557	585	616	636	634	633	635	569	559	573	590	615	634	633	634	634	
130	44-X	214	209	229	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		228	223	244	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		476	466	508	507	505	504	505	505	478	470	482	507	506	505	504	504	479	472	466	486	505	506	506	505	505	
	48-XL	567	554	607	636	635	634	633	635	569	559	574	603	627	635	634	635	570	561	554	578	601	620	635	634	634	
		567	554	607	636	635	634	633	635	569	559	574	603	627	635	634	635	570	561	554	578	601	620	635	634	634	
		567	554	607	636	635	634	633	635	569	559	574	603	627	635	634	635	570	561	554	578	601	620	635	634	634	
140	44-X	214	210	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		477	468	502	507	506	505	504	504	478	471	470	498	507	506	505	505	479	473	464	482	495	507	506	505	505	
	48-XL	568	556	598	627	636	635	634	633	569	561	559	592	615	633	635	634	570	563	553	573	589	608	624	635	635	
		568	556	598	627	636	635	634	633	569	561	559	592	615	633	635	634	570	563	553	573	589	608	624	635	635	
		568	556	598	627	636	635	634	633	569	561	559	592	615	633	635	634	570	563	553	573	589	608	624	635	635	
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
		478	469	495	508	507	506	505	505	479	473	463	489	508	507	506	505	480	474	466	477	486	501	0	0	0	0
	48-XL	568	558	589	617	637	635	634	634	570	562	552	582	604	622	636	635	571	564	555	568	578	596	612	626	626	626
		568	558	589	617	637	635	634	634	570	562	552	582	604	622	636	635	571	564	555	568	578	596	612	626	626	626
		568	558	589	617	637	635	634	634	570	562	552	582	604	622	636	635	571	564	555	568	578	596	612	626	626	626
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
		478	471	482	509	507	506	505	505	479	474	466	482	499	508	0	0	480	475	468	465	482	0	0	0	0	0
	48-XL	569	560	574	608	629	636	635	634	570	564	554	573	594	612	627	636	571	565	557	553	573	586	601	614	614	614
		569	560	574	608	629	636	635	634	570	564	554	573	594	612	627	636</td										



K2 Systems, LLC
 PV Tilt Up Kit Solar PV Mount System
 Standard size 44.8"x 67.5" Portrait 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	178	220	248	248	248	0	0	0	163	174	237	248	0	0	0	0	156	159	206	241	0	0	0	0	0	
		187	230	251	255	255	0	0	0	170	182	239	252	0	0	0	0	163	166	215	243	0	0	0	0	0	
		464	495	504	505	505	505	505	505	422	456	506	504	505	505	507	505	405	414	506	507	504	505	505	505	505	
	48-X	561	607	634	634	635	635	635	635	564	577	627	634	634	635	637	635	560	560	603	637	633	635	635	635	635	
		168	191	243	248	248	0	0	0	155	157	206	243	0	0	0	0	150	150	179	0	0	0	0	0	0	0
		176	200	246	255	0	0	0	0	163	165	216	0	0	0	0	0	157	157	188	0	0	0	0	0	0	0
100	48-X	48-X	435	497	505	504	505	505	505	403	410	507	505	504	505	507	505	389	389	469	508	505	504	505	505	505	
		563	594	635	633	635	635	635	635	558	558	611	635	634	635	637	635	539	539	587	620	634	633	635	635	635	
		160	170	230	248	0	0	0	0	150	150	183	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	168	178	240	253	0	0	0	0	157	157	191	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		415	445	506	505	504	505	505	505	389	389	477	506	505	504	507	505	378	378	419	509	506	505	504	505	505	
		564	583	630	634	633	635	635	635	539	539	597	629	635	633	634	635	524	524	573	604	629	634	633	635	635	
110	44-X	154	155	205	245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		162	163	214	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		400	405	507	506	504	504	505	505	379	379	431	507	506	505	504	505	369	369	390	457	507	506	505	504	504	
	48-X	554	554	618	635	634	633	635	635	525	525	585	616	636	634	634	512	512	538	590	615	634	634	634	634	634	
		150	150	185	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		157	157	194	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	48-X	389	389	484	506	505	504	504	505	371	371	396	474	507	506	505	504	363	363	368	417	481	506	505	505	505	
		539	539	607	636	635	634	633	635	514	514	545	603	627	635	634	504	504	508	573	601	620	635	634	634	634	
		147	147	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	0
		380	380	445	507	506	505	504	504	364	364	373	435	502	506	505	505	358	358	358	389	440	495	506	0	0	0
		527	527	598	627	636	635	634	633	506	506	515	592	615	633	635	634	497	497	497	537	589	608	624	635	635	
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
		373	373	413	494	507	506	505	504	360	360	360	404	462	507	506	505	354	354	354	370	408	455	0	0	0	0
	48-X	517	517	569	617	637	635	634	634	499	499	499	556	604	622	636	635	491	491	491	511	561	596	612	626	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		367	367	388	459	507	506	505	505	355	355	355	379	430	480	507	0	350	350	355	384	0	0	0	0	0	
160	48-X	509	509	534	608	629	636	635	634	494	494	522	591	612	627	636	487	487	487	490	530	582	601	614	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		362	362	367	429	492	507	506	505	352	352	352	362	403	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	503	503	505	591	620	637	636	635	489	489	489	501	555	602	617	630	483	483	483	483	508	545	591	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		358	358	358	405	461	507	506	0	349	349	349	349	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	48-X	498	498	498	558	612	629	637	636	485	485	485	485	525	579	608	621	480	480	480	480	489	0	0	0	0	0
		0	0	0	0	0	0	0	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 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 44.8"x 67.5" Portrait 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	78	69	53	40	31	0	0	0	84	80	63	52	32	0	0	0	99	87	70	59	39	0	0	0
	48-X	83	73	54	42	32	0	0	0	89	85	68	54	33	0	0	0	105	92	74	63	40	0	0	0
	48-XL	174	149	107	82	63	51	43	37	186	178	136	107	88	71	60	52	220	188	155	124	102	86	73	63
	80	208	183	134	103	79	64	54	47	222	212	168	134	110	90	76	65	262	230	185	156	129	108	91	79
	100	82	76	59	48	34	0	0	0	86	84	71	60	40	0	0	0	103	96	77	60	48	0	0	0
100	48-X	87	81	63	49	0	0	0	0	92	90	75	51	0	0	0	0	110	102	82	62	0	0	0	0
	48-XL	182	168	124	97	109	63	53	46	192	187	155	124	103	88	74	64	230	212	171	143	119	103	90	77
	80	217	201	155	122	137	80	67	58	229	223	187	156	129	111	94	80	273	254	204	174	150	129	113	97
	44-X	85	82	66	55	0	0	0	0	89	87	77	57	0	0	0	0	107	104	83	69	0	0	0	0
	48-X	90	87	70	56	0	0	0	0	94	92	82	59	0	0	0	0	114	110	88	71	0	0	0	0
110	48-XL	188	183	140	111	129	77	65	56	197	193	171	140	118	102	90	77	237	231	185	161	136	118	105	94
	80	224	218	174	140	162	96	81	70	235	230	204	175	148	128	113	97	283	274	220	191	169	149	131	118
	44-X	87	85	72	61	0	0	0	0	91	88	75	63	0	0	0	0	109	107	90	76	0	0	0	0
	48-X	92	90	76	0	0	0	0	0	96	94	80	0	0	0	0	0	117	114	96	0	0	0	0	0
	48-XL	193	188	156	125	146	90	77	66	202	197	184	157	133	116	102	92	244	238	197	174	152	133	119	107
120	80	230	224	190	157	184	113	96	83	240	235	219	190	167	145	129	115	290	283	239	207	185	167	149	134
	44-X	89	87	77	0	0	0	0	0	93	90	80	0	0	0	0	0	112	109	97	0	0	0	0	0
	48-X	94	92	82	0	0	0	0	0	98	96	85	0	0	0	0	0	119	116	103	0	0	0	0	0
	48-XL	197	193	171	139	164	101	89	78	206	201	195	172	147	129	115	103	249	243	215	185	167	148	133	120
	80	235	230	204	175	206	127	112	98	245	240	232	204	182	162	144	130	296	290	257	220	199	182	167	151
130	44-X	90	88	0	0	0	0	0	0	94	92	0	0	0	0	0	0	114	111	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	201	197	182	152	181	113	100	89	210	205	200	182	161	142	127	115	253	248	230	195	178	162	146	113
	80	239	234	217	188	228	141	125	112	249	244	237	217	195	178	160	145	301	295	273	237	212	195	180	167
	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
140	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	204	200	192	165	198	124	110	99	213	209	202	192	174	155	139	103	257	252	242	208	188	174	139	125
	80	242	238	228	200	249	156	138	125	253	248	241	228	208	190	175	159	306	300	288	252	224	207	192	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
150	48-XL	206	203	198	177	214	135	120	109	215	212	207	201	184	167	126	114	260	256	250	223	197	170	152	137
	80	245	241	236	211	266	169	151	137	256	252	246	239	219	202	187	173	309	304	297	267	239	218	204	191
	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	208	205	201	186	230	145	131	118	217	214	210	204	192	152	136	124	262	259	253	235	207	183	165	149
170	80	248	244	239	222	281	183	164	149	258	255	249	243	229	212	198	185	312	308	301	280	253	230	214	188
	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	210	207	203	194	245	156	141	0	219	216	212	203	182	163	147	0	264	261	256	245	220	196	177	0
	80	250	246	242	231	295	193	177	161	260	257	252	245	238	222	208	195	315	311	305	291	265	244	223	203

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 44.8"x 67.5" Portrait 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	70
90	44-X	66	66	53	40	31	0	0	0	69	69	63	52	32	0	0	0	83	83	66	59	39	0	0	0	0
	48-X	69	69	53	42	32	0	0	0	72	72	64	53	33	0	0	0	87	87	67	59	40	0	0	0	0
	48-XL	171	147	105	81	62	50	42	37	178	165	134	105	86	70	59	51	215	185	153	122	101	85	71	61	
	80	208	183	134	103	79	64	54	47	222	212	168	134	110	90	76	65	262	230	185	156	129	108	91	79	
100	44-X	65	65	59	48	38	0	0	0	67	67	63	60	40	0	0	0	81	81	75	60	48	0	0	0	0
	48-X	87	81	63	49	0	0	0	0	92	90	75	51	0	0	0	0	110	102	82	62	0	0	0	0	0
	48-XL	167	166	122	95	76	62	52	45	174	174	153	122	101	86	73	63	211	210	161	141	118	101	88	76	
	80	217	201	155	122	98	80	67	58	226	223	187	156	129	111	94	80	273	254	204	174	150	129	113	97	
110	44-X	64	64	64	55	0	0	0	0	66	66	66	57	0	0	0	0	80	80	80	69	0	0	0	0	0
	48-X	67	67	56	0	0	0	0	0	69	69	69	58	0	0	0	0	84	84	84	70	0	0	0	0	0
	48-XL	164	164	138	109	91	75	63	55	171	171	161	139	116	100	88	76	207	207	174	159	134	117	103	92	
	80	224	218	174	140	116	96	81	70	234	227	204	175	148	128	113	97	283	274	220	191	169	149	131	118	
120	44-X	63	63	63	61	0	0	0	0	66	66	66	63	0	0	0	0	79	79	79	76	0	0	0	0	0
	48-X	66	66	66	0	0	0	0	0	69	69	69	0	0	0	0	0	83	83	83	0	0	0	0	0	
	48-XL	162	162	154	123	103	88	75	65	169	169	161	155	131	114	101	90	205	205	194	158	150	132	117	105	
	80	225	224	190	157	131	113	96	83	235	234	219	190	167	145	129	115	284	283	239	207	185	167	149	134	
130	44-X	62	62	62	0	0	0	0	0	65	65	65	0	0	0	0	0	78	78	78	0	0	0	0	0	0
	48-X	65	65	65	0	0	0	0	0	68	68	68	0	0	0	0	0	82	82	82	0	0	0	0	0	0
	48-XL	161	161	161	137	115	100	88	76	168	168	168	158	146	127	113	102	203	203	203	173	157	146	131	118	
	80	223	223	204	175	147	127	112	98	233	233	220	204	182	162	144	130	282	282	257	220	199	182	167	151	
140	44-X	62	62	0	0	0	0	0	0	64	64	0	0	0	0	0	0	78	78	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	160	160	160	150	128	111	98	88	167	167	167	158	158	140	125	113	201	201	190	161	157	144	111		
	80	222	222	217	188	163	141	125	112	231	231	226	217	195	178	160	145	280	280	273	237	212	195	180	167	
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
	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	159	159	159	159	140	122	109	98	166	166	166	157	153	138	125	200	200	200	176	156	137	123			
	80	220	220	220	200	178	156	138	125	230	230	218	208	190	175	159	278	278	252	224	207	192	180			
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	0
	48-XL	158	158	158	158	151	133	119	107	165	165	165	158	156	149	112	199	199	199	199	191	168	150	135		
	80	219	219	219	211	190	169	151	137	229	229	221	217	202	187	173	277	277	267	239	216	204	191			
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	157	157	157	157	157	144	129	117	164	164	164	164	164	150	134	122	198	198	198	198	181	162	147		
	80	219	219	219	219	201	183	164	149	228	228	228	217	212	198	185	276	276	276	276	253	230	214	188		
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	157	157	157	157	154	139	0	164	164	164	164	164	161	145	0	198	198	198	198	198	194	175	0		
	80	218	218	218	218	211	193	177	161	227	227	227	220	216	208	195	275	275	275	275	265	244	223	203		

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 44.8"x 67.5" Portrait 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	-142	-125	-95	-73	-56	0	0	0	-159	-152	-121	-100	0	0	0	0	-168	-163	-136	-114	0	0	0	0	0	
		-151	-133	-98	-75	-58	0	0	0	-169	-162	-129	-103	0	0	0	0	-178	-174	-145	-122	0	0	0	0	0	
		-316	-270	-193	-149	-114	-93	-78	-67	-354	-338	-258	-203	-167	-136	-115	-99	-373	-363	-302	-241	-199	-168	-141	-122	-122	
		80	-376	-330	-243	-187	-144	-117	-98	-85	-422	-403	-320	-255	-210	-171	-144	-124	-444	-432	-360	-303	-250	-211	-177	-153	
	48-X	-153	-142	-111	-89	-72	0	0	0	-169	-164	-137	-116	0	0	0	0	-176	-172	-152	0	0	0	0	0	0	
		-163	-151	-117	-92	0	0	0	0	-179	-175	-146	0	0	0	0	0	-187	-183	-162	0	0	0	0	0	0	
100	48-XL	-316	-315	-232	-181	-146	-119	-100	-86	-375	-365	-302	-241	-201	-172	-145	-188	-391	-383	-339	-284	-237	-204	-178	-153	-153	
		80	-406	-377	-291	-228	-184	-149	-125	-108	-447	-435	-364	-303	-252	-216	-182	-236	-466	-455	-404	-346	-298	-256	-223	-193	-193
		-162	-158	-126	-105	0	0	0	0	-176	-172	-152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-168	-135	-108	0	0	0	0	0	-187	-183	-162	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-XL	-362	-351	-269	-213	-177	-147	-124	-107	-392	-383	-339	-279	-234	-202	-178	-232	-406	-398	-372	-323	-274	-238	-210	-188	-188	
		80	-431	-418	-335	-268	-222	-185	-156	-134	-466	-455	-404	-346	-295	-254	-223	-292	-483	-473	-442	-385	-341	-299	-264	-236	-236
110	44-X	-170	-166	-140	-119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-181	-176	-149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-378	-369	-305	-245	-205	-176	-150	-130	-405	-397	-369	-315	-267	-232	-206	-279	-417	-410	-400	-353	-310	-271	-241	-217	-217	
		80	-450	-439	-372	-308	-257	-221	-189	-163	-481	-472	-439	-382	-336	-292	-258	-351	-496	-488	-476	-420	-376	-340	-303	-273	-273
	48-X	-176	-172	-153	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-187	-183	-163	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
120	48-XL	-392	-383	-339	-276	-232	-201	-177	-154	-415	-408	-395	-348	-299	-262	-233	-319	-426	-420	-411	-379	-343	-304	-272	-246	-246	
		80	-466	-456	-405	-346	-292	-252	-222	-194	-494	-485	-470	-414	-370	-329	-293	-400	-507	-499	-489	-451	-408	-372	-341	-309	-309
		-181	-177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	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	-403	-395	-365	-305	-260	-226	-200	-179	-424	-417	-408	-373	-330	-291	-260	-358	-433	-428	-420	-403	-367	-335	-301	0	0	
		80	-480	-470	-435	-377	-326	-284	-251	-225	-504	-497	-486	-444	-400	-364	-327	-450	-515	-509	-499	-480	-437	-402	-371	-344	-344
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	
		-412	-405	-388	-334	-286	-251	-223	-201	-431	-425	-417	-395	-359	-319	-287	0	-439	-434	-427	-420	-390	-360	0	0	0	
		80	-491	-482	-462	-405	-360	-315	-280	-252	-513	-506	-496	-470	-427	-391	-360	-499	-523	-517	-508	-500	-464	-429	-399	-373	-373
	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	0	0	
160	48-XL	-420	-413	-404	-361	-312	-275	-246	-222	-437	-431	-424	-415	-380	-346	0	-444	-440	-433	-427	-410	0	0	0	0	-398	
		80	-500	-492	-481	-431	-387	-345	-309	-279	-520	-513	-505	-494	-452	-417	-387	-547	-529	-523	-516	-508	-487	-453	-424	-398	-398
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-427	-421	-412	-382	-337	-298	-268	-243	-442	-437	-430	-424	-399	0	0	0	0	0	0	0	0	0	0	0	0	
	48-XL	80	-508	-501	-490	-455	-411	-375	-337	-305	-525	-520	-512	-504	-475	-440	-411	-587	-533	-529	-522	-515	-509	-476	-447	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	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	
	48-X	-427	-421	-412	-382	-337	-298	-268	-243	-442	-437	-430	-424	-399	0	0	0	0	0	0	0	0	0	0	0	0	
		80	-508	-501	-490	-455	-411	-375	-337	-305	-525	-520	-512	-504	-475	-440	-411	-587	-533	-529	-522	-515	-509	-476	-447	0	0
180	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	0	0	
	48-XL	-432	-427	-419	-400	-360	-321	-290	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		80	-514	-508	-498	-476	-434	-398	-364	-331	-530	-525	-518	-511	-496	-462	-441	-587	-533	-529	-522	-515	-509	-476	-447	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



K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 44.8"x 67.5" Portrait 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	-120	-120	-95	-73	-56	0	0	0	-122	-122	-121	-100	0	0	0	-123	-123	-123	-114	0	0	0	0	0	0
		-125	-125	-96	-75	-58	0	0	0	-127	-127	-122	-101	0	0	0	-128	-128	-128	-116	0	0	0	0	0	0
		-308	-265	-190	-146	-112	-91	-76	-66	-314	-314	-254	-200	-164	-133	-112	-96	-316	-316	-298	-237	-196	-164	-138	-119	-119
		80	-376	-330	-243	-187	-144	-117	-98	-85	-422	-403	-320	-255	-210	-171	-144	-124	-440	-432	-360	-303	-250	-211	-177	-153
		-377	-330	-243	-187	-144	-117	-98	-85	-422	-403	-320	-255	-210	-171	-144	-124	-440	-432	-360	-303	-250	-211	-177	-153	
100	44-X	-121	-121	-111	-89	-72	0	0	0	-123	-123	-123	-116	0	0	0	-123	-123	-123	0	0	0	0	0	0	0
		-127	-127	-113	-92	0	0	0	0	-128	-128	-128	0	0	0	0	-129	-129	-129	0	0	0	0	0	0	0
		-312	-311	-228	-178	-143	-116	-98	-84	-317	-317	-298	-237	-197	-168	-142	-183	-318	-318	-318	-279	-233	-201	-174	-150	-150
		80	-406	-377	-291	-228	-184	-149	-125	-108	-441	-435	-364	-303	-252	-216	-182	-236	-443	-443	-404	-346	-298	-256	-223	-193
		-406	-377	-291	-228	-184	-149	-125	-108	-441	-435	-364	-303	-252	-216	-182	-236	-443	-443	-404	-346	-298	-256	-223	-193	
110	44-X	-122	-122	-122	-105	0	0	0	0	-123	-123	-123	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-128	-128	-128	-107	0	0	0	0	-129	-129	-129	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-315	-315	-265	-210	-173	-144	-121	-104	-318	-318	-318	-275	-231	-199	-175	-227	-320	-320	-320	-270	-234	-207	-184	-184	
		80	-431	-418	-335	-268	-222	-185	-156	-134	-443	-443	-404	-346	-295	-254	-223	-292	-445	-445	-442	-385	-341	-299	-264	-236
		-431	-418	-335	-268	-222	-185	-156	-134	-443	-443	-404	-346	-295	-254	-223	-292	-445	-445	-442	-385	-341	-299	-264	-236	
120	44-X	-123	-123	-123	-119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-129	-129	-129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-317	-317	-300	-241	-201	-173	-147	-127	-320	-320	-320	-310	-263	-229	-202	-274	-321	-321	-321	-306	-267	-237	-214	-214	
		80	-441	-439	-372	-308	-257	-221	-189	-163	-445	-445	-439	-382	-336	-292	-258	-351	-447	-447	-447	-420	-376	-340	-303	-273
		-441	-439	-372	-308	-257	-221	-189	-163	-445	-445	-439	-382	-336	-292	-258	-351	-447	-447	-447	-420	-376	-340	-303	-273	
130	44-X	-123	-123	-123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-129	-129	-129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-319	-319	-319	-272	-229	-198	-174	-151	-321	-321	-321	-321	-295	-258	-229	-313	-322	-322	-322	-322	-299	-268	-242	-242	
		80	-443	-443	-405	-346	-292	-252	-222	-194	-447	-447	-447	-414	-370	-329	-293	-400	-448	-448	-448	-408	-372	-341	-309	-309
		-443	-443	-405	-346	-292	-252	-222	-194	-447	-447	-447	-414	-370	-329	-293	-400	-448	-448	-448	-408	-372	-341	-309	-309	
140	44-X	-124	-124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-320	-320	-320	-301	-256	-222	-197	-176	-322	-322	-322	-322	-287	-256	-232	-323	-323	-323	-323	-323	-323	-323	-297	0	
		80	-445	-445	-435	-377	-326	-284	-251	-225	-448	-448	-448	-448	-444	-400	-364	-327	-450	-449	-449	-449	-449	-437	-402	-371
		-445	-445	-435	-377	-326	-284	-251	-225	-448	-448	-448	-448	-448	-444	-400	-364	-327	-450	-449	-449	-449	-449	-437	-402	-371
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
		-321	-321	-321	-321	-282	-247	-219	-197	-323	-323	-323	-323	-323	-323	-323	-323	-391	-391	-391	-323	-323	-323	-323	-323	
		80	-446	-446	-446	-405	-360	-315	-280	-252	-449	-449	-449	-449	-449	-427	-391	-360	-499	-450	-450	-450	-450	-429	-399	-373
		-446	-446	-446	-405	-360	-315	-280	-252	-449	-449	-449	-449	-449	-427	-391	-360	-499	-450	-450	-450	-450	-429	-399	-373	
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
		-322	-322	-322	-322	-308	-271	-242	-218	-323	-323	-323	-323	-323	-323	-323	-323	-309	0	-324	-324	-324	-324	0	-324	
		80	-447	-447	-447	-431	-387	-345	-309	-279	-450	-450	-450	-450	-450	-417	-387	-547	-450	-450	-450	-450	-450	-450	-424	-398
		-447	-447	-447	-431	-387	-345	-309	-279	-450	-450	-450	-450	-450	-417	-387	-547	-450	-450	-450	-450	-450	-450	-450	-424	-398
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
		-322	-322	-322	-322	-294	-264	-239	-204	-324	-324	-324	-324	-324	-324	-324	-324	0	0	0	0	0	0	0	0	0
		80	-448	-448	-448	-411	-375	-337	-305	-450	-450	-450	-450	-450	-450	-450	-450	-440	-411	-587	-451	-451	-451	-451	-451	-447
		-448	-448	-448	-411	-375	-337	-305	-450	-450	-450	-450	-450	-450	-450	-450	-450	-440	-411	-587	-451	-451	-451	-451	-451	-447
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
		-323	-323	-323	-323	-323	-317	-286	0	-324	-324	-324	-324	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-449	-449	-449	-449	-434	-398	-364	-331	-451	-451	-451	-451	-451	-451	-451	-451	-661	-622	-451	-451	-451	-451</td		



K2 Systems, LLC
 PV Tilt Up Kit Solar PV Mount System
 Standard size 44.8"x 67.5" Portrait Orientation

Table 2.5 Max Length L (inches) for Single Span 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	40	34	24	0	0	0	0	0	31	29	0	0	0	0	0	0	26	26	0	0	0	0	0	0	0
	48-X	39	33	24	0	0	0	0	0	31	29	0	0	0	0	0	0	26	25	0	0	0	0	0	0	0
	48-XL	79	69	50	38	29	23	20	17	62	58	46	36	29	23	20	17	53	51	42	35	28	23	20	17	
	80	117	99	71	53	41	33	28	24	91	85	65	51	41	33	28	24	77	75	61	49	40	33	28	24	
	44-X	34	31	23	0	0	0	0	0	26	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	33	31	22	0	0	0	0	0	26	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	48-XL	67	64	47	36	29	23	20	17	52	50	41	34	28	23	20	17	44	43	37	32	27	23	20	0	
	80	99	91	66	52	41	33	28	24	76	74	60	48	40	33	28	24	65	63	55	46	38	33	28	24	
	44-X	29	29	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	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
110	48-XL	58	59	44	35	29	23	20	17	44	43	37	32	27	23	20	0	37	36	33	29	25	22	0		
	80	85	83	62	49	40	33	28	24	64	63	55	45	38	32	28	24	55	53	49	42	36	31	27	24	
	44-X	25	25	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
120	48-XL	50	54	40	33	27	23	20	0	38	37	34	29	25	22	0	0	32	31	30	26	23	0	0	0	
	80	73	77	58	47	39	33	28	24	55	54	49	42	36	31	27	24	47	46	44	39	34	30	26	24	
	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
130	48-XL	43	50	37	31	26	23	20	0	33	32	30	27	24	0	0	0	27	27	26	24	0	0	0	0	
	80	64	70	54	44	37	32	28	24	48	47	45	39	34	29	26	23	40	40	39	35	32	28	25	0	
	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
140	48-XL	38	46	34	29	25	22	0	0	29	28	27	25	0	0	0	0	24	24	23	0	0	0	0	0	
	80	56	62	50	42	35	31	27	24	42	41	40	36	32	28	25	0	35	35	34	32	29	27	0	0	
	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
150	48-XL	34	40	31	27	24	21	0	0	25	25	24	23	0	0	0	0	0	0	0	0	0	0	0	0	
	80	50	53	46	40	34	29	26	24	37	36	33	30	27	0	0	31	31	30	29	27	0	0	0	0	
	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
160	48-XL	30	35	29	25	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	80	44	46	42	37	32	28	25	23	33	32	32	31	28	0	0	0	0	0	0	0	0	0	0	0	
	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	
170	48-XL	27	31	26	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	80	39	41	38	35	31	27	24	0	29	29	28	28	0	0	0	0	0	0	0	0	0	0	0	0	
	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	
180	48-XL	24	27	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	80	35	36	34	32	29	26	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.
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K2 Systems, LLC
 PV Tilt Up Kit Solar PV Mount System
 Standard size 44.8"x 67.5" Portrait Orientation

Table 2.5A Max Length L (inches) for SingleSpan 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	35	33	23	0	0	0	0	0	24	24	0	0	0	0	0	0	20	20	0	0	0	0	0	0	0
	48-X	35	33	24	0	0	0	0	0	25	25	0	0	0	0	0	0	20	20	0	0	0	0	0	0	0
	48-XL	81	68	48	36	28	23	19	16	57	57	44	35	28	23	19	16	46	46	42	33	27	23	19	16	
	80	110	97	71	53	41	33	28	24	77	77	64	51	41	33	28	24	63	63	59	49	40	33	28	24	
	44-X	27	27	22	0	0	0	0	0	19	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	28	28	22	0	0	0	0	0	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	48-XL	64	62	45	35	28	23	19	16	45	45	41	33	27	23	19	16	37	37	37	31	26	22	19	0	
	80	87	87	66	52	41	33	28	24	61	61	58	48	40	33	28	24	50	50	50	45	38	33	28	24	
	44-X	22	22	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	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	48-XL	52	52	43	34	28	23	19	16	37	37	37	31	26	22	19	0	30	30	30	29	25	21	0	0	
	80	70	70	62	49	40	33	28	24	50	50	45	38	32	28	24	41	41	41	41	36	31	27	24		
	44-X	18	18	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
120	48-XL	43	43	40	32	27	23	19	16	31	31	31	29	24	21	0	0	25	25	25	25	23	0	0	0	
	80	58	58	57	47	39	33	28	24	42	42	42	41	36	31	27	24	34	34	34	33	30	26	24		
	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
130	48-XL	36	36	36	30	25	22	19	0	26	26	26	26	23	0	0	0	21	21	21	21	0	0	0	0	
	80	49	49	49	44	37	32	28	24	35	35	35	35	33	29	26	23	29	29	29	29	29	28	25	0	
	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
140	48-XL	31	31	31	29	24	21	0	0	22	22	22	22	22	0	0	0	18	18	18	0	0	0	0	0	
	80	42	42	42	41	35	31	27	24	30	30	30	30	28	25	0	0	25	25	25	25	25	0	0	0	
	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
150	48-XL	27	27	27	27	23	20	0	0	19	19	19	19	0	0	0	0	0	0	0	0	0	0	0	0	
	80	37	37	37	37	34	29	26	24	26	26	26	26	26	0	0	0	22	22	22	22	22	0	0	0	
	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	
160	48-XL	24	24	24	24	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	80	32	32	32	32	32	28	25	23	23	23	23	23	23	0	0	0	0	0	0	0	0	0	0	0	
	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	
170	48-XL	21	21	21	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	80	28	28	28	28	27	24	0	0	20	20	20	20	0	0	0	0	0	0	0	0	0	0	0	0	
	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	
180	48-XL	18	18	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	80	25	25	25	25	25	25	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



K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 44.8" x 67.5"

Table 2.6 Maximum Downward Force (lbs) Single span only Interior Conditions

Table 2.6 Maximum Downward Force (lbs) Single 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	90	96	77	0	0	0	0	0	0	90	93	0	0	0	0	0	0	89	91	0	0	0	0	0	0
		88	94	75	0	0	0	0	0	0	88	91	0	0	0	0	0	0	88	89	0	0	0	0	0	0
		176	192	158	132	84	78	72	51	177	183	159	104	97	85	59	59	178	179	141	117	103	79	69	66	
		80	259	277	223	186	119	111	102	72	261	269	226	147	137	121	84	84	261	263	207	165	146	112	97	93
	48-X	90	96	81	0	0	0	0	0	0	89	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		88	94	79	0	0	0	0	0	0	88	88	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		177	196	166	146	92	87	81	56	178	178	165	116	104	96	68	67	178	174	151	129	110	94	80	0	
		80	260	278	235	207	131	124	114	79	261	262	241	164	147	136	97	94	262	256	222	186	156	133	113	105
	44-X	90	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		88	94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		177	197	176	159	100	98	91	62	178	174	170	129	110	105	81	0	179	175	160	139	122	106	0	0	
		80	261	279	250	224	142	138	129	88	262	256	250	182	156	149	114	105	263	257	236	204	173	150	132	119
	48-X	88	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		178	198	182	171	106	109	102	0	179	175	174	138	120	113	0	0	179	176	169	148	132	0	0	0	
		80	262	280	264	242	149	153	144	97	263	257	257	200	169	159	129	118	263	258	248	217	191	167	148	133
	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
		178	204	187	183	111	116	114	0	179	176	179	146	130	0	0	0	179	176	172	156	0	0	0	0	
		80	262	288	276	259	157	164	161	106	263	258	263	215	185	170	143	129	263	259	254	230	206	183	163	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
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		179	214	193	193	117	123	0	0	179	176	180	154	0	0	0	0	179	177	173	0	0	0	0	0	0
		80	263	290	283	275	166	175	174	117	263	259	265	226	201	180	157	0	264	260	255	240	218	199	0	0
	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
		179	214	197	200	127	131	0	0	179	177	178	161	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	263	283	290	291	179	185	186	125	264	260	262	237	214	191	0	0	264	261	256	250	229	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
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		179	210	201	207	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	263	278	296	305	192	195	198	136	264	261	260	246	224	0	0	0	0	0	0	0	0	0	0	0
	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
		179	207	200	214	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	264	273	294	314	205	205	210	0	264	261	258	253	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
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		179	204	199	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	264	270	292	323	217	215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		179	204	199	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	264	270	292	323	217	215	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.
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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 44.8" x 67.5"

Table 2.6A Maximum Downward Force (lbs) Single span only Exterior Conditions

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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 Standard size 44.8"x 67.5" Portrait Orientation

Table 2.7 Maximum Horizontal Force (lbs) Single 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	33	28	20	0	0	0	0	0	35	33	20	0	0	0	0	0	41	35	25	0	0	0	0	0	0
	48-X	32	27	19	0	0	0	0	0	34	32	20	0	0	0	0	0	40	34	24	0	0	0	0	0	0
	48-XL	64	56	40	31	23	19	16	14	69	65	51	40	32	26	22	19	81	70	56	47	38	32	27	23	
	80	95	80	57	43	33	27	23	20	101	95	72	57	46	37	31	27	118	102	83	66	54	45	38	33	
	44-X	34	31	23	0	0	0	0	0	36	35	24	0	0	0	0	0	43	39	29	0	0	0	0	0	0
	48-X	33	31	22	0	0	0	0	0	35	34	23	0	0	0	0	0	42	38	28	0	0	0	0	0	0
100	48-XL	67	64	47	36	29	23	20	17	71	69	57	47	39	32	27	24	84	80	62	53	45	39	33	21	
	80	99	91	66	52	41	33	28	24	105	102	83	66	55	46	39	33	124	114	91	76	63	55	47	40	
	44-X	35	35	0	0	0	0	0	0	37	36	0	0	0	0	0	0	44	44	0	0	0	0	0	0	0
	48-X	35	34	0	0	0	0	0	0	36	35	0	0	0	0	0	0	43	43	0	0	0	0	0	0	0
	48-XL	70	71	53	42	35	28	24	21	73	74	62	53	44	38	33	21	87	89	67	58	51	44	30	26	
	80	103	101	75	59	49	40	34	29	108	105	91	75	63	54	47	40	128	126	99	86	73	63	55	49	
110	44-X	35	35	0	0	0	0	0	0	37	37	0	0	0	0	0	0	44	44	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	78	58	47	40	34	28	0	75	81	67	58	50	43	29	0	90	98	73	63	56	42	36	0	
	80	106	110	84	67	56	48	40	35	110	114	98	84	71	61	54	48	132	138	106	93	81	71	63	57	
	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
120	48-XL	73	84	62	53	44	38	33	0	76	87	71	62	55	40	35	0	92	105	78	67	55	48	42	0	
	80	108	119	92	75	63	54	47	41	112	123	105	92	79	69	61	55	135	148	115	99	89	79	71	51	
	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	75	89	66	57	49	43	0	0	77	92	74	66	51	44	0	0	93	112	83	72	61	53	0	0	
	80	110	121	98	82	69	60	53	47	114	125	109	97	86	76	68	49	137	152	122	105	95	87	67	59	
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
	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	76	91	70	61	54	47	0	0	78	94	75	70	56	49	0	0	95	114	88	77	67	59	0	0	
	80	111	120	103	89	76	66	59	53	115	124	111	103	93	83	61	55	139	150	129	111	101	83	74	66	
	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
140	48-XL	77	90	73	65	58	0	0	0	79	93	76	67	60	0	0	0	96	113	92	81	73	0	0	0	
	80	113	119	108	95	82	72	65	58	117	123	112	108	98	75	67	60	141	149	135	119	103	91	81	73	
	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	78	89	75	68	0	0	0	0	80	93	77	70	0	0	0	0	97	112	93	85	0	0	0	0	
	80	114	118	110	100	89	78	70	0	118	122	114	112	92	81	73	0	143	148	137	125	111	98	88	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
	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	76	91	70	61	54	47	0	0	78	94	75	70	56	49	0	0	95	114	88	77	67	59	0	0	
	80	111	120	103	89	76	66	59	53	115	124	111	103	93	83	61	55	139	150	129	111	101	83	74	66	
	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
160	48-XL	77	90	73	65	58	0	0	0	79	93	76	67	60	0	0	0	96	113	92	81	73	0	0	0	
	80	113	119	108	95	82	72	65	58	117	123	112	108	98	75	67	60	141	149	135	119	103	91	81	73	
	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	78	89	75	68	0	0	0	0	80	93	77	70	0	0	0	0	97	112	93	85	0	0	0	0	
	80	114	118	110	100	89	78	70	0	118	122	114	112	92	81	73	0	143	148	137	125	111	98	88	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
	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	78	89	75	68	0	0	0	0	80	93	77	70	0	0	0	0	97	112	93	85	0	0	0	0	
	80	114	118	110	100	89	78	70	0	118	122	114	112	92	81	73	0	143	148	137	125	111	98	88	0	
	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
180	48-XL	78																								



K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 44.8"x 67.5" Portrait Orientation

Table 2.7A Maximum Horizontal Force (lbs) Singlespan 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	28	27	19	0	0	0	0	0	29	28	20	0	0	0	0	0	35	33	24	0	0	0	0	0	0		
		29	27	19	0	0	0	0	0	30	28	20	0	0	0	0	0	36	33	24	0	0	0	0	0	0		
		64	54	38	29	22	18	15	13	66	62	49	38	30	25	21	18	80	67	56	44	36	30	25	22	22		
		80	89	78	57	43	33	27	23	20	92	86	72	57	46	37	31	27	111	98	79	66	54	45	38	33		
	48-X	27	27	22	0	0	0	0	0	28	28	23	0	0	0	0	0	34	34	28	0	0	0	0	0	0		
		28	28	22	0	0	0	0	0	29	29	23	0	0	0	0	0	35	35	28	0	0	0	0	0	0		
100	48-XL	63	61	44	35	27	22	19	16	65	63	56	44	37	31	26	22	78	76	60	51	43	36	31	20	20		
		80	87	87	66	52	41	33	28	24	90	90	80	66	55	46	39	33	109	108	83	75	63	55	47	40		
		44-X	27	27	0	0	0	0	0	28	28	0	0	0	0	0	0	0	34	34	0	0	0	0	0	0		
		48-X	27	27	0	0	0	0	0	28	28	0	0	0	0	0	0	0	34	34	0	0	0	0	0	0		
	48-XL	62	62	51	40	33	27	23	19	64	64	60	50	42	36	31	20	77	77	63	58	49	42	28	24			
		80	85	85	75	59	49	40	34	29	88	88	83	75	63	54	47	40	107	107	94	82	72	63	55	49		
110	44-X	27	27	0	0	0	0	0	0	27	27	0	0	0	0	0	0	33	33	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			
		48-XL	61	61	56	45	37	32	27	23	63	63	60	56	48	41	28	24	76	76	71	59	55	40	34	29		
		80	84	84	82	67	56	48	40	35	87	87	85	81	71	61	54	48	105	105	102	84	79	71	63	57		
	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
		60	60	60	50	42	36	31	0	62	62	62	59	53	37	33	0	75	75	75	63	53	45	39	0			
120	48-XL	80	83	83	75	63	54	47	41	86	86	86	82	78	69	61	55	104	104	104	93	82	78	71	51			
		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			
		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			
		48-XL	60	60	60	50	42	36	31	0	62	62	62	59	53	37	33	0	75	75	75	63	53	45	39	0		
	80	83	83	83	75	63	54	47	41	86	86	86	82	78	69	61	55	104	104	104	93	82	78	71	51			
		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			
130	48-XL	80	83	83	75	63	54	47	41	86	86	86	82	78	69	61	55	104	104	104	93	82	78	71	51			
		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			
		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			
		48-XL	60	60	60	55	42	36	31	0	62	62	62	59	53	37	33	0	75	75	75	63	53	45	39	0		
	80	83	83	83	81	69	60	53	47	86	86	86	84	82	76	68	49	103	103	103	101	87	81	67	59			
		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			
140	48-XL	80	83	83	81	81	78	70	0	84	84	84	84	84	81	73	0	103	103	103	103	101	87	81	67			
		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			
		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			
		48-XL	60	60	60	55	47	40	0	62	62	62	59	58	42	0	0	75	75	75	69	58	51	0	0			
	80	82	82	82	82	76	66	59	53	85	85	85	85	85	81	81	61	55	103	103	103	103	95	83	74	66		
		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			
150	48-XL	80	82	82	82	82	72	65	58	85	85	85	85	85	85	85	76	60	102	102	102	102	102	91	81	73		
		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			
		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			
		48-XL	59	59	59	59	51	44	0	61	61	61	61	53	46	0	0	74	74	74	74	74	69	0	0	0		
	80	82	82	82	82	82	72	65	58	85	85	85	85	85	85	85	76	60	102	102	102	102	102	91	81	73		
		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			
160	48-XL	80	82	82	82	82	82	72	65	58	85	85	85	85	85	85	85	76	60	102	102	102	102	102	91	81	73	
		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			
		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			
		48-XL	59	59	59	59	0	0	0	61	61	61	61	57	0	0	0	74	74	74	74	74	69	0	0	0		
	80	82	82	82	82	82	72	65	58	85	85	85	85	85	85	85	84	60	102	102	102	102	102	91	81	73		
		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			
170	48-XL	80	81	81	81	81	81	78	70	0	84	84	84	84	84	84	84	81	73	0	102	102	102	102	102	98	88	0
		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			
		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			
		48-XL	59	59	59	59	0	0	0	61	61	61	61	0	0	0	0	73	73	73	73	73	0	0	0	0		
	80	81	81	81	81	81	81	81	0	84	84	84	84	84	84	84	84	0	102	102	102	102	102	98	88	0		
		44-X	0	0	0																							



K2 Systems, LLC
 PV Tilt Up Kit Solar PV Mount System
 Standard size 44.8"x 67.5" Portrait Orientation

Table 2.8 Max Uplift Force (lbs) Single 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	-58	-49	-35	0	0	0	0	0	-66	-62	0	0	0	0	0	0	-69	-68	0	0	0	0	0	0	0
		-57	-48	-35	0	0	0	0	0	-65	-61	0	0	0	0	0	0	-68	-66	0	0	0	0	0	0	0
		-115	-99	-72	-55	-42	-34	-29	-25	-208	-122	-96	-75	-61	-50	-42	-36	-137	-133	-108	-90	-74	-61	-52	-44	
		80	-169	-143	-102	-77	-59	-48	-40	-35	-191	-179	-136	-107	-86	-70	-59	-51	-202	-196	-159	-127	-105	-87	-73	-63
		-63	-58	-42	0	0	0	0	0	-69	-68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	48-X	-62	-57	-42	0	0	0	0	0	-69	-67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-125	-119	-87	-68	-54	-44	-37	-32	-174	-134	-110	-90	-75	-63	-53	-46	-144	-141	-122	-104	-88	-76	-65	0	
		80	-184	-169	-123	-96	-76	-62	-52	-45	-203	-197	-160	-127	-106	-89	-75	-64	-212	-207	-180	-150	-125	-107	-92	-79
		-68	-66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-66	-65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	48-XL	-133	-136	-101	-80	-66	-54	-46	-39	-148	-141	-122	-104	-88	-75	-65	0	-150	-147	-135	-117	-103	-89	0	0	
		80	-196	-192	-144	-113	-93	-77	-64	-56	-212	-207	-180	-148	-124	-106	-92	-79	-221	-216	-198	-171	-145	-126	-111	-97
		-69	-69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-139	-151	-113	-92	-77	-66	-55	0	-150	-146	-134	-116	-100	-87	0	0	-154	-152	-145	-128	-114	0	0	0	
120	80	-205	-214	-163	-130	-109	-93	-78	-68	-220	-215	-197	-167	-142	-123	-108	-96	-227	-223	-214	-188	-165	-144	-128	-115	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-145	-166	-123	-104	-88	-75	-66	0	-154	-151	-144	-126	-112	0	0	0	-158	-156	-152	-138	0	0	0	0	
		80	-213	-234	-181	-147	-124	-107	-93	-80	-226	-222	-211	-185	-159	-139	-123	-111	-232	-229	-224	-202	-182	-162	-144	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
		-145	-166	-123	-104	-88	-75	-66	0	-154	-151	-144	-126	-112	0	0	0	-158	-156	-152	-138	0	0	0	0	
		80	-213	-234	-181	-147	-124	-107	-93	-80	-226	-222	-211	-185	-159	-139	-123	-111	-232	-229	-224	-202	-182	-162	-144	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	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	0	0
		-149	-178	-133	-115	-98	-85	0	0	-157	-155	-151	-135	0	0	0	0	-161	-159	-156	0	0	0	0	0	
		80	-219	-242	-195	-164	-139	-120	-106	-94	-231	-227	-222	-199	-176	-155	-138	0	-237	-233	-229	-216	-196	-179	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-153	-183	-141	-123	-108	-95	0	0	-160	-158	-154	-144	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-225	-242	-208	-180	-153	-134	-119	-107	-235	-232	-227	-211	-191	-170	0	-240	-237	-233	-228	-208	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
		-156	-183	-149	-132	-118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-229	-242	-220	-194	-168	-147	-131	-118	-239	-236	-231	-222	-203	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	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	0	0
		-159	-183	-153	-139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-233	-242	-225	-205	-181	-160	-143	0	-242	-239	-235	-231	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-161	-183	-155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-236	-242	-229	-215	-194	-173	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	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 44.8"x 67.5" Portrait Orientation

Table 2.8A Max Uplift Force (lbs) Single 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	-50	-48	-34	0	0	0	0	0	-51	-51	0	0	0	0	0	0	-51	-51	0	0	0	0	0	0	0
		-51	-47	-35	0	0	0	0	0	-52	-52	0	0	0	0	0	0	-52	-52	0	0	0	0	0	0	0
		-114	-96	-68	-51	-39	-32	-27	-23	-117	-117	-91	-71	-57	-47	-39	-34	-118	-118	-107	-85	-70	-58	-48	-42	
		80	-159	-140	-102	-77	-59	-48	-40	-35	-162	-162	-135	-107	-86	-70	-59	-51	-163	-163	-153	-127	-105	-87	-73	-63
		-51	-51	-41	0	0	0	0	0	-51	-51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	48-X	-52	-52	-42	0	0	0	0	0	-52	-52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-116	-113	-82	-64	-50	-41	-34	-30	-118	-118	-107	-85	-71	-59	-50	-43	-118	-118	-118	-101	-84	-72	-61	0	
		80	-161	-161	-123	-96	-76	-62	-52	-45	-163	-163	-155	-127	-106	-89	-75	-64	-164	-164	-147	-125	-107	-92	-79	
		-51	-51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-52	-52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	48-XL	-117	-117	-96	-76	-62	-51	-43	-37	-118	-118	-118	-99	-83	-71	-61	0	-119	-119	-119	-116	-97	-84	0	0	
		80	-163	-163	-143	-113	-93	-77	-64	-56	-164	-164	-164	-147	-124	-106	-92	-79	-165	-165	-165	-164	-145	-126	-111	-97
		-52	-52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-118	-118	-109	-87	-73	-62	-52	-45	-119	-119	-119	-112	-95	-82	0	0	-120	-120	-120	-120	-111	0	0	0	
120	48-XL	80	-164	-164	-159	-130	-109	-93	-78	-68	-165	-165	-165	-163	-142	-123	-108	-96	-166	-166	-166	-166	-144	-128	-115	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-118	-118	-118	-99	-83	-71	-62	0	-119	-119	-119	-119	-107	0	0	0	-120	-120	-120	-120	0	0	0	0	
		80	-165	-165	-165	-147	-124	-107	-93	-80	-166	-166	-166	-166	-158	-139	-123	-111	-166	-166	-166	-166	-159	-144	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	
		-118	-118	-118	-99	-83	-71	-62	0	-119	-119	-119	-119	-107	0	0	0	-120	-120	-120	-120	0	0	0	0	
		80	-165	-165	-165	-147	-124	-107	-93	-80	-166	-166	-166	-166	-158	-139	-123	-111	-166	-166	-166	-166	-159	-144	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
140	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-119	-119	-119	-110	-93	-80	0	0	-120	-120	-120	-120	-118	0	0	0	-120	-120	-120	-120	0	0	0	0	
		80	-165	-165	-165	-162	-139	-120	-106	-94	-166	-166	-166	-166	-155	-138	0	-167	-167	-167	-167	-167	-167	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
150	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-119	-119	-119	-119	-103	-90	0	0	-120	-120	-120	-120	-118	0	0	0	-120	-120	-120	-120	0	0	0	0	
		80	-166	-166	-166	-166	-153	-134	-119	-107	-167	-167	-167	-167	-167	-167	0	-167	-167	-167	-167	-167	-167	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
160	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-120	-120	-120	-120	-112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		80	-166	-166	-166	-166	-147	-131	-118	-107	-167	-167	-167	-167	-167	-167	0	-167	-167	-167	-167	-167	-167	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
170	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-120	-120	-120	-120	-120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		80	-167	-167	-167	-167	-167	-160	-143	0	-167	-167	-167	-167	-167	-167	0	-167	-167	-167	-167	-167	-167	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
180	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-120	-120	-120	-120	-120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		80	-167	-167	-167	-167	-167	-167	-167	0	-167	-167	-167	-167	-167	-167	0	-167	-167	-167	-167	-167	-167	0	0	
		0	0	0	0	0	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 44.8"x 67.5" Portrait 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	41	37	27	0	0	0	0	0	0	32	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-X	42	37	27	0	0	0	0	0	0	32	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-XL	91	80	58	45	35	29	24	21	70	68	53	42	35	29	24	21	59	58	49	40	33	29	24	0	0	
	80	102	93	70	54	43	35	29	25	79	76	62	50	42	35	29	25	67	65	56	48	40	34	29	25	0	
	44-X	35	33	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	36	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
100	48-XL	76	73	54	43	35	29	24	21	58	57	48	39	33	28	24	0	49	48	44	37	31	27	0	0	0	
	80	86	82	65	51	42	35	29	25	66	64	55	47	39	34	29	25	56	55	50	43	38	33	29	25	0	
	44-X	29	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	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
	48-XL	65	63	50	40	34	29	24	0	49	48	44	36	31	27	0	0	41	41	39	34	29	0	0	0	0	
	80	74	72	59	49	40	35	29	25	56	54	50	43	37	32	28	25	47	46	44	39	34	31	27	25	0	
	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
120	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
	48-XL	56	55	47	38	32	28	24	0	42	41	39	34	29	0	0	0	35	35	34	31	0	0	0	0	0	
	80	63	62	54	46	39	33	29	25	48	47	45	39	35	31	27	24	40	39	39	35	31	29	26	0	0	
	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
130	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
	48-XL	49	48	44	36	30	26	0	0	36	36	35	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	55	54	49	43	37	32	28	25	41	40	36	32	29	26	0	35	34	33	32	29	26	0	0	0	0	
	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
140	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
	48-XL	43	42	40	34	29	0	0	0	32	31	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	48	47	45	39	35	30	27	24	36	35	35	33	29	27	0	0	30	30	29	29	0	0	0	0	0	
	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
150	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
	48-XL	38	37	36	32	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	43	42	41	36	33	29	26	0	32	31	30	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	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
160	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
	48-XL	33	33	32	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	38	37	36	34	30	28	0	0	28	28	27	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	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
170	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
	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	34	33	33	31	28	26	0	0	0	0	0	0	0	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
	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
	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	30	30	29	29	26	0	0	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 44.8"x 67.5" Portrait 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	33	33	28	0	0	0	0	0	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	36	36	26	0	0	0	0	0	26	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	86	83	60	47	37	30	25	22	60	60	55	43	36	30	25	22	49	49	49	42	35	30	25	0	0
	80	100	91	70	57	48	39	32	28	76	75	60	51	43	38	33	28	62	62	55	47	40	36	32	28	0
	44-X	26	26	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	29	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	48-XL	68	68	56	44	37	30	25	22	48	48	48	41	34	29	25	0	39	39	39	39	32	28	0	0	0
	80	85	80	64	53	45	39	32	28	61	61	54	46	40	36	32	28	50	50	49	42	37	33	30	27	0
	44-X	21	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	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	55	55	52	42	35	30	25	0	39	39	39	38	32	28	0	0	32	32	32	32	30	0	0	0	0
	80	70	70	58	49	42	37	32	28	50	50	49	42	37	33	30	27	41	41	41	38	34	30	28	25	0
	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
120	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	46	46	46	40	33	29	25	0	33	33	33	30	0	0	0	0	27	27	27	27	0	0	0	0	0
	80	58	58	53	45	39	35	31	28	42	42	42	38	34	31	28	26	34	34	34	31	28	26	0	0	0
	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
130	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	39	39	39	37	32	27	0	0	28	28	28	28	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	49	49	48	42	37	33	30	27	35	35	35	35	31	28	26	0	29	29	29	29	28	26	0	0	0
	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
140	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	33	33	30	0	0	0	24	24	24	0	0	0	0	0	0	0	0	0	0	0	0	0	
	80	42	42	42	39	34	31	28	26	30	30	30	29	26	0	0	25	25	25	25	0	0	0	0	0	
	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
150	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	29	29	29	29	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	37	37	37	36	32	29	26	0	26	26	26	26	0	0	0	0	0	0	0	0	0	0	0	0	0
	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
160	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	25	25	25	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	32	32	32	32	30	27	0	0	23	23	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0
	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
170	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	28	28	28	28	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	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
180	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	25	25	25	25	25	0	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 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 44.8" x 67.5"

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

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 44.8"x 67.5" Portrait 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	208	220	224	0	0	0	0	0	209	211	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		185	219	223	0	0	0	0	0	170	177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		434	498	507	506	507	507	508	508	400	416	508	507	506	510	508	385	385	485	510	507	506	507	0	0		
		80	509	544	589	618	657	657	657	506	517	562	592	613	649	660	657	487	487	540	570	593	611	649	657	0	
100	44-X	159	174	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		175	191	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		411	450	508	507	506	507	507	508	384	384	487	508	507	506	510	0	372	372	426	509	508	507	0	0	0	
		80	511	532	576	605	626	657	657	485	485	548	577	599	616	645	657	470	470	525	555	577	595	610	638	0	
110	44-X	152	156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		394	404	509	508	506	507	507	0	372	372	434	509	508	507	0	0	362	362	388	461	508	0	0	0	0	
		80	498	511	564	592	613	633	657	470	470	535	564	585	602	616	638	458	458	491	541	563	581	595	608	0	
120	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
		381	381	481	508	507	506	507	0	363	363	394	474	509	0	0	0	355	355	364	416	0	0	0	0	0	
		80	482	482	553	581	602	618	636	459	459	499	551	573	590	604	615	449	449	460	526	550	567	582	0	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	0	0
		371	371	438	509	508	507	0	0	356	356	368	431	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	469	469	543	570	591	607	621	635	450	450	465	540	561	578	592	0	442	442	442	485	537	555	0	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	0	0
		364	364	404	485	509	0	0	0	351	351	351	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	460	460	511	560	581	597	611	622	444	444	444	503	551	567	0	0	436	436	436	459	0	0	0	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
		358	358	377	447	509	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	452	452	477	551	571	587	601	0	438	438	438	470	533	0	0	0	0	0	0	0	0	0	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
		353	353	356	417	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	446	446	450	527	562	578	0	0	434	434	434	447	0	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
		441	441	441	495	554	570	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	437	437	437	469	529	0	0	0	0	0	0	0	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

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 44.8"x 67.5" Portrait 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	70
90	44-X	79	70	51	0	0	0	0	0	83	81	53	0	0	0	0	0	98	88	64	0	0	0	0	0	0
		81	72	52	0	0	0	0	0	86	83	54	0	0	0	0	0	101	90	65	0	0	0	0	0	0
		174	153	111	86	68	55	46	40	184	179	139	110	91	76	64	55	217	192	158	128	106	91	77	50	
		80	196	177	134	104	82	66	56	48	208	202	164	133	110	92	77	66	246	222	179	152	128	110	93	80
100	44-X	82	78	0	0	0	0	0	0	85	81	0	0	0	0	0	0	0	102	97	0	0	0	0	0	0
		84	80	0	0	0	0	0	0	87	83	0	0	0	0	0	0	0	105	100	0	0	0	0	0	0
		181	172	128	101	120	68	57	49	190	185	158	128	107	92	79	51	226	215	173	147	123	107	71	62	
		80	204	195	154	122	144	82	69	59	215	210	181	154	129	111	95	82	256	243	196	169	149	129	113	99
110	44-X	84	82	0	0	0	0	0	0	87	85	0	0	0	0	0	0	0	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
		186	181	145	116	138	82	69	0	194	190	173	144	122	106	72	0	233	227	186	164	140	103	86	0	
		80	211	205	170	139	167	99	83	72	220	215	196	169	147	127	112	99	264	257	213	185	165	147	131	117
120	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	186	160	130	157	94	82	0	198	194	185	160	137	97	85	0	239	233	200	176	136	118	103	0	
		80	216	211	184	156	189	113	99	86	224	220	210	184	164	144	128	115	270	264	231	199	179	163	148	107
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
		195	191	174	143	175	106	0	0	202	198	193	174	126	109	0	0	244	239	218	179	152	132	0	0	0
		80	220	216	197	170	211	127	112	101	228	224	219	197	177	160	143	104	276	270	247	213	192	176	141	126
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
		198	194	184	157	193	0	0	0	205	201	196	162	139	0	0	0	247	243	231	196	168	0	0	0	0
		80	224	220	209	183	232	141	125	113	232	227	222	208	189	173	130	117	280	275	261	228	202	177	157	141
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
		200	197	192	169	210	0	0	0	207	204	199	175	151	0	0	0	251	246	241	212	183	0	0	0	0
		80	226	223	218	194	250	155	138	0	234	231	225	219	200	160	143	0	283	279	272	242	217	194	173	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
		202	199	195	180	0	0	0	0	210	206	202	187	0	0	0	0	253	250	244	226	0	0	0	0	0
		80	229	226	221	204	265	168	0	0	237	234	229	224	191	174	0	0	286	282	276	255	231	210	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		231	228	224	213	279	178	0	0	239	236	231	221	201	184	0	0	289	285	280	267	243	223	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		233	230	226	222	292	0	0	0	241	238	234	230	210	0	0	0	291	288	283	277	254	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 44.8"x 67.5" Portrait 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	64	64	53	0	0	0	0	0	66	66	55	0	0	0	0	0	80	80	67	0	0	0	0	0	0	
	48-X	70	70	51	0	0	0	0	0	72	72	53	0	0	0	0	0	87	87	64	0	0	0	0	0	0	
	48-XL	164	159	116	90	70	57	48	42	170	165	145	115	95	79	67	57	205	199	157	133	111	95	80	52		
	80	192	174	134	110	91	74	62	54	202	198	160	134	115	101	86	74	241	217	175	149	129	114	103	90		
	44-X	62	62	0	0	0	0	0	0	65	65	0	0	0	0	0	0	78	78	0	0	0	0	0	0	0	
	48-X	69	69	0	0	0	0	0	0	71	71	0	0	0	0	0	0	86	86	0	0	0	0	0	0	0	
100	48-XL	161	161	133	105	87	71	59	51	167	167	157	133	111	95	82	53	201	201	167	152	128	111	74	64		
	80	200	190	151	125	107	91	77	66	207	199	177	151	131	116	104	92	251	238	192	166	146	130	118	108		
	44-X	61	61	0	0	0	0	0	0	64	64	0	0	0	0	0	0	77	77	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	159	159	150	120	100	85	72	0	164	164	156	150	127	110	74	0	198	198	188	154	146	107	90	0		
	80	201	201	166	140	121	106	93	80	208	208	192	166	146	131	118	108	251	251	208	181	161	145	132	122		
110	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	159	159	150	120	100	85	72	0	164	164	156	150	127	110	74	0	198	198	188	154	146	107	90	0		
	80	201	201	166	140	121	106	93	80	208	208	192	166	146	131	118	108	251	251	208	181	161	145	132	122		
	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	
120	48-XL	157	157	157	135	113	98	86	0	162	162	162	155	142	101	89	0	196	196	196	169	142	122	107	0		
	80	198	198	180	154	134	119	107	96	205	205	195	180	160	144	131	120	248	248	226	194	175	159	146	120		
	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	156	156	156	149	126	110	0	0	161	161	161	154	131	114	0	0	195	195	195	187	158	137	0	0		
	80	197	197	193	167	147	131	119	108	204	204	200	193	173	157	144	112	246	246	241	209	188	172	149	136		
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	
	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	156	156	156	149	126	110	0	0	161	161	161	154	131	114	0	0	195	195	195	187	158	137	0	0		
	80	197	197	193	167	147	131	119	108	204	204	200	193	173	157	144	112	246	246	241	209	188	172	149	136		
	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	
140	48-XL	155	155	155	155	139	0	0	0	160	160	160	160	144	0	0	0	193	193	193	193	174	0	0	0		
	80	195	195	195	179	159	143	130	119	202	202	202	193	185	169	135	124	245	245	245	224	199	179	163	149		
	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	154	154	154	154	152	0	0	0	159	159	159	159	157	0	0	0	192	192	192	192	192	0	0	0		
	80	194	194	194	194	180	165	0	0	201	201	201	196	193	160	146	0	243	243	243	237	213	193	176	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	
	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	154	154	154	154	152	0	0	0	159	159	159	159	157	0	0	0	192	192	192	192	192	0	0	0		
	80	194	194	194	194	180	165	0	0	201	201	200	200	187	0	0	0	242	242	242	242	226	206	0	0		
	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	
160	48-XL	153	153	153	153	153	0	0	0	159	159	159	159	157	0	0	0	192	192	192	192	192	0	0	0		
	80	194	194	194	194	180	165	0	0	200	200	200	200	187	0	0	0	242	242	242	242	226	206	0	0		
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	80	193	193	193	193	190	174	0	0	200	200	200	200	197	0	0	0	241	241	241	241	238	218	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	
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	80	192	192	192	192	192	0	0	0	199	199	199	199	199	0	0	0	241	241	241	241	241	0	0	0	</	



K2 Systems, LLC
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Standard size 44.8"x 67.5" Portrait 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	-145	-130	-94	0	0	0	0	0	-161	-156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-X	-149	-132	-96	0	0	0	0	0	-165	-161	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-XL	-320	-283	-205	-159	-125	-101	-85	-74	-355	-345	-269	-213	-176	-146	-124	-106	-372	-363	-311	-252	-209	-179	-152	0	0	
	80	-362	-327	-247	-192	-151	-122	-103	-89	-401	-390	-315	-256	-212	-176	-149	-128	-421	-410	-352	-299	-252	-216	-183	-158	0	
100	44-X	-156	-148	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	-160	-152	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	-344	-327	-244	-192	-158	-129	-109	-94	-374	-365	-312	-251	-210	-181	-156	0	-388	-380	-346	-294	-247	-213	0	0	0	0
	80	-389	-370	-293	-231	-191	-156	-131	-113	-423	-412	-356	-303	-253	-218	-188	-250	-439	-430	-392	-338	-298	-257	-227	-198	0	0
110	44-X	-164	-160	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	0
	48-XL	-362	-352	-281	-224	-187	-160	-134	0	-389	-380	-347	-288	-244	-211	0	0	-401	-394	-377	-331	-284	0	0	0	0	0
	80	-410	-399	-330	-271	-225	-193	-162	-140	-439	-430	-392	-339	-294	-255	-225	-308	-454	-446	-427	-374	-333	-298	-265	-238	0	0
120	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	0
	48-XL	-377	-368	-316	-256	-215	-186	-162	0	-400	-393	-375	-324	-277	0	0	0	-411	-405	-396	-359	0	0	0	0	0	
	80	-427	-417	-364	-309	-260	-224	-196	-169	-453	-445	-424	-371	-331	-291	-258	-362	-465	-458	-448	-406	-366	-333	-302	0	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
	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
	48-XL	-389	-381	-349	-287	-243	-211	0	0	-410	-403	-394	-355	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	-440	-431	-394	-341	-293	-255	-225	-201	-463	-456	-446	-401	-360	-327	-292	0	-474	-468	-459	-435	-395	-362	0	0	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
	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
	48-XL	-399	-392	-373	-316	-271	0	0	0	-417	-412	-403	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	-452	-444	-421	-369	-326	-285	-253	-228	-472	-466	-456	-428	-388	-355	0	0	-482	-476	-468	-460	0	0	0	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
	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
	48-XL	-408	-401	-392	-344	-297	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	-461	-454	-443	-394	-354	-315	-281	0	-479	-474	-465	-452	-413	0	0	0	0	0	0	0	0	0	0	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
	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
	48-XL	-415	-409	-400	-369	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	-469	-462	-452	-418	-378	-344	0	0	-485	-480	-472	-465	0	0	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
	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
	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	-476	-470	-461	-439	-400	-367	0	0	0	0	0	0	0	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
	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
	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	-481	-476	-468	-459	-420	0	0	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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 Standard size 44.8"x 67.5" Portrait 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	-117	-117	-98	0	0	0	0	0	-119	-119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-129	-129	-94	0	0	0	0	0	-131	-131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-303	-294	-213	-165	-130	-105	-89	-77	-307	-307	-279	-221	-183	-152	-128	-110	-309	-309	-309	-261	-217	-186	-158	0	0	
	48-X	80	-355	-320	-248	-202	-168	-136	-115	-99	-388	-382	-308	-258	-222	-194	-166	-143	-391	-391	-344	-292	-254	-225	-202	-176	
		44-X	-118	-118	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	-130	-130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	48-XL	-306	-306	-253	-199	-164	-134	-113	-97	-309	-309	-309	-261	-218	-188	-162	0	-311	-311	-311	-304	-256	-222	0	0	0	
		80	-380	-362	-287	-238	-203	-174	-146	-126	-391	-391	-348	-296	-258	-228	-205	-279	-393	-393	-384	-331	-292	-261	-236	-215	
		44-X	-119	-119	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	-308	-308	-292	-233	-194	-166	-140	0	-311	-311	-311	-300	-253	-219	0	0	-312	-312	-312	-312	-295	0	0	0	
		80	-390	-390	-323	-272	-235	-207	-181	-156	-393	-393	-384	-332	-292	-261	-236	-334	-395	-395	-367	-326	-294	-268	-246	0	
110	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	-308	-308	-292	-233	-194	-166	-140	0	-311	-311	-311	-300	-253	-219	0	0	-312	-312	-312	-312	-295	0	0	0	
	48-X	80	-390	-390	-323	-272	-235	-207	-181	-156	-393	-393	-384	-332	-292	-261	-236	-334	-395	-395	-367	-326	-294	-268	-246	0	
		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-XL	-310	-310	-310	-266	-224	-193	-169	0	-312	-312	-312	-312	-287	0	0	0	-313	-313	-313	-313	0	0	0	0	
120	48-XL	80	-392	-392	-356	-304	-265	-235	-212	-189	-395	-395	-395	-364	-324	-292	-265	-379	-396	-396	-396	-358	-326	-299	0	0	
		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	80	-394	-394	-386	-334	-294	-263	-238	-217	-396	-396	-396	-393	-353	-320	-293	0	-397	-397	-397	-397	-387	-355	0	0	
		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	
130	48-XL	80	-394	-394	-386	-334	-294	-263	-238	-217	-396	-396	-396	-393	-353	-320	-293	0	-397	-397	-397	-397	-387	-355	0	0	
		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	80	-395	-395	-395	-361	-321	-289	-263	-241	-397	-397	-397	-397	-347	-320	-293	0	-398	-398	-398	-398	-398	-398	0	0	
		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	
140	48-XL	80	-395	-395	-395	-361	-321	-289	-263	-241	-397	-397	-397	-397	-347	-320	-293	0	-398	-398	-398	-398	-398	-398	0	0	
		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	80	-396	-396	-396	-386	-346	-314	-287	0	-398	-398	-398	-398	-348	-321	-294	0	-399	-399	-399	-399	-399	-399	0	0	
		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	
150	48-XL	80	-396	-396	-396	-386	-346	-314	-287	0	-398	-398	-398	-398	-348	-321	-294	0	-399	-399	-399	-399	-399	-399	0	0	
		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	80	-396	-396	-396	-386	-346	-314	-287	0	-398	-398	-398	-398	-348	-321	-294	0	-399	-399	-399	-399	-399	-399	0	0	
		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	
160	48-XL	80	-397	-397	-397	-397	-370	-337	0	0	-398	-398	-398	-398	-348	-321	-294	0	-400	-400	-400	-400	-400	-400	0	0	
		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	80	-397	-397	-397	-397	-370	-337	0	0	-398	-398	-398	-398	-348	-321	-294	0	-400	-400	-400	-400	-400	-400	0	0	
		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	
170	48-XL	80	-397	-397	-397	-397	-370	-337	0	0	-398	-398	-398	-398	-348	-321	-294	0	-400	-400	-400	-400	-400	-400	0	0	
		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	80	-397	-397	-397	-397	-370	-337	0	0																	



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Table 3.5 Max Length L (inches) for Single Span 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	36	32	24	0	0	0	0	0	0	27	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	33	30	22	0	0	0	0	0	0	25	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	72	65	48	37	29	23	20	17	55	54	43	34	28	23	20	17	47	46	39	33	27	23	20	0	0
	80	102	93	67	52	41	33	28	24	79	76	61	48	40	33	28	24	67	65	56	46	38	33	28	24	0
	44-X	30	30	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	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
100	48-XL	61	60	44	35	29	23	20	17	46	45	39	32	27	23	20	0	39	38	35	30	26	22	0	0	0
	80	86	84	63	49	41	33	28	24	66	64	55	45	38	33	28	24	56	55	50	43	36	31	28	24	0
	44-X	25	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	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	52	54	41	33	27	23	20	0	39	38	35	30	25	22	0	0	33	32	31	27	24	0	0	0	0
	80	74	77	58	47	39	33	28	24	56	54	50	42	36	31	27	24	47	46	44	39	34	30	26	24	0
	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
120	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	44	49	38	31	26	23	20	0	33	33	31	27	24	0	0	0	28	28	27	25	0	0	0	0	0
	80	63	70	54	44	37	32	28	24	48	47	45	39	34	29	26	23	40	39	39	35	31	28	25	0	0
	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
130	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	39	45	35	29	25	22	0	0	29	28	28	25	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	55	60	49	42	35	31	27	24	41	40	40	36	32	28	25	0	35	34	33	32	29	26	0	0	0
	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
140	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	34	39	32	28	24	0	0	0	25	25	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	48	52	45	39	33	29	26	23	36	35	35	33	29	26	0	0	30	30	29	29	0	0	0	0	0
	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
150	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	34	29	26	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	43	45	41	36	32	28	25	0	32	31	30	27	0	0	0	0	0	0	0	0	0	0	0	0	0
	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
160	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	27	29	26	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	38	39	36	34	30	27	0	0	28	28	27	27	0	0	0	0	0	0	0	0	0	0	0	0	0
	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
170	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	34	34	33	31	28	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	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
180	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	30	30	29	29	26	0	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



K2 Systems, LLC
 PV Tilt Up Kit Solar PV Mount System
 Standard size 44.8"x 67.5" Portrait Orientation

Table 3.5A Max Length L (inches) for Single Span 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	29	29	22	0	0	0	0	0	0	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	29	29	23	0	0	0	0	0	0	21	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	
	80	91	89	67	52	41	33	28	24	64	64	59	48	40	33	28	24	52	52	52	52	46	38	33	28	24
	44-X	23	23	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	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	48-XL	52	52	43	34	28	23	19	16	37	37	37	31	26	22	19	0	30	30	29	25	21	0	0	0	
	80	72	72	62	49	41	33	28	24	51	51	45	38	33	28	24	42	42	42	41	36	31	28	24		
	44-X	19	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
110	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	42	42	40	32	26	23	19	0	30	30	30	29	24	21	0	0	25	25	25	25	23	0	0	0	
	80	59	59	57	47	39	33	28	24	42	42	42	41	36	31	27	24	34	34	34	33	30	26	24		
	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	
120	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	35	35	35	30	25	22	19	0	25	25	25	23	0	0	0	0	21	21	21	21	0	0	0		
	80	49	49	49	44	37	32	28	24	35	35	35	33	29	26	23	29	29	29	29	29	27	25	0		
	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	
130	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	30	30	30	28	24	21	0	0	21	21	21	21	0	0	0	0	0	0	0	0	0	0	0		
	80	41	41	41	41	35	31	27	24	30	30	30	30	28	25	0	24	24	24	24	24	24	0			
	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		
140	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		
	48-XL	25	25	25	25	23	0	0	0	18	18	18	0	0	0	0	0	0	0	0	0	0	0	0		
	80	35	35	35	35	33	29	26	23	25	25	25	25	25	0	0	21	21	21	21	0	0	0			
	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		
150	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		
	48-XL	22	22	22	22	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	80	31	31	31	31	28	25	0	22	22	22	22	22	0	0	0	0	0	0	0	0	0	0	0		
	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		
160	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		
	48-XL	19	19	19	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	80	27	27	27	27	27	0	0	19	19	19	19	0	0	0	0	0	0	0	0	0	0	0	0		
	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		
170	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		
	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	80	24	24	24	24	24	0	0	0	0	0	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		
	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		
	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	80	21	21	21	21	21	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 44.8"x 67.5"

Table 3.6 Maximum Downward Force (lbs) Single span only Interior Conditions

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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K2 Systems, LLC
 PV Tilt Up Kit Solar PV Mount System
 Standard size 44.8"x 67.5" Portrait Orientation

Table 3.6A Maximum Downward Force (lbs) Single 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	73	86	77	0	0	0	0	0	67	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		74	87	78	0	0	0	0	0	68	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		166	189	158	138	87	82	76	53	153	159	162	109	99	90	63	63	147	147	147	147	123	105	88	74	0	
	48-X	231	266	232	203	128	121	112	78	212	221	231	160	145	133	93	92	205	205	205	205	178	154	129	109	103	
		69	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		70	77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
100	44-X	157	172	169	151	96	93	86	59	147	147	166	123	105	100	76	0	142	142	142	142	138	116	100	0	0	
		80	218	239	247	222	141	136	127	87	204	204	230	180	155	147	112	104	197	197	197	197	194	171	148	130	117
		66	68	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	
		151	155	179	164	101	104	98	0	142	142	156	136	115	108	0	0	139	139	139	139	130	0	0	0	0	
		80	209	214	256	241	149	153	143	96	197	197	216	194	169	159	129	117	192	192	192	192	185	166	147	132	
110	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	
		146	146	180	177	107	112	110	0	139	139	148	139	127	0	0	0	136	136	136	136	0	0	0	0	0	
	48-X	80	202	202	250	260	157	165	162	107	193	193	206	193	184	170	144	130	189	189	189	189	189	181	164	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		142	142	172	189	114	120	0	0	136	136	142	136	0	0	0	0	0	0	0	0	0	0	0	0	0	
120	44-X	80	197	197	238	273	168	176	176	118	189	189	198	189	189	181	159	0	186	186	186	186	186	186	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		142	142	172	189	114	120	0	0	136	136	142	136	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-X	193	193	229	267	182	187	189	127	186	186	191	186	186	186	0	0	183	183	183	183	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		137	137	160	187	134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
140	44-X	80	190	190	222	260	190	198	202	0	184	184	186	184	184	0	0	0	183	183	183	183	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		135	135	156	183	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-X	187	187	216	254	187	209	0	0	182	182	182	182	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		185	185	211	249	185	205	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
160	44-X	80	183	183	207	245	183	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		185	185	211	249	185	205	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	
		180	183	183	207	245	183	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		180	183	183	207	245	183	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.
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 Standard size 44.8"x 67.5" Portrait Orientation

Table 3.7 Maximum Horizontal Force (lbs) Single 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	34	31	23	0	0	0	0	0	36	35	24	0	0	0	0	0	43	39	28	0	0	0	0	0	0	
	48-X	32	29	21	0	0	0	0	0	34	33	22	0	0	0	0	0	40	36	26	0	0	0	0	0	0	
	48-XL	69	62	46	35	28	23	19	16	73	71	57	45	37	31	26	23	86	78	63	52	44	37	32	20		
	80	98	89	64	50	39	32	27	23	104	101	81	64	53	44	37	32	123	111	90	74	62	53	45	39		
	44-X	36	35	0	0	0	0	0	0	37	37	0	0	0	0	0	0	45	44	0	0	0	0	0	0	0	
	48-X	32	29	21	0	0	0	0	0	34	33	22	0	0	0	0	0	40	36	26	0	0	0	0	0	0	
100	48-XL	72	71	53	41	34	28	23	20	75	74	63	52	44	38	32	21	90	88	69	59	51	44	29	25		
	80	102	100	74	58	48	39	33	29	107	105	90	74	62	53	46	39	128	125	98	85	71	62	54	48		
	44-X	35	35	0	0	0	0	0	0	37	37	0	0	0	0	0	0	44	44	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		
110	48-XL	74	78	59	47	39	34	28	0	77	80	69	59	50	43	29	0	93	97	74	65	57	42	35	0		
	80	105	110	84	67	56	48	40	35	110	114	98	83	71	61	54	48	132	138	105	92	81	71	63	56		
	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		
120	48-XL	76	84	65	53	45	38	34	0	79	87	74	64	56	40	35	0	95	105	81	70	56	48	42	0		
	80	108	119	92	75	63	54	48	41	112	123	105	92	79	69	61	55	135	149	115	99	90	80	71	51		
	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		
130	48-XL	77	90	69	59	50	43	0	0	80	93	77	69	52	45	0	0	97	113	87	73	62	54	0	0		
	80	110	121	99	83	70	61	54	48	114	125	109	98	87	77	69	50	138	151	123	106	96	88	68	60		
	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		
140	48-XL	78	91	73	64	55	0	0	0	81	94	78	66	57	0	0	0	98	113	92	80	69	0	0	0		
	80	112	120	104	91	78	68	60	54	116	124	111	104	94	85	62	56	140	150	131	113	97	85	75	68		
	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		
150	48-XL	79	90	76	68	60	0	0	0	82	93	79	70	62	0	0	0	99	112	96	85	75	0	0	0		
	80	113	119	109	97	84	74	66	0	117	123	113	109	100	77	69	0	142	149	136	121	106	93	83	0		
	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		
160	48-XL	80	89	77	72	0	0	0	0	83	92	80	74	0	0	0	0	100	112	97	90	0	0	0	0		
	80	114	118	110	102	91	81	0	0	118	122	114	112	94	83	0	0	143	148	138	128	114	101	0	0		
	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		
170	48-XL	80	115	117	112	107	97	87	0	0	120	122	116	110	100	90	0	0	144	147	140	133	121	109	0	0	
	80	116	117	113	111	102	0	0	0	120	121	117	115	105	0	0	0	146	146	141	139	127	0	0	0	0	
	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		
180	48-XL	80	116	117	113	111	102	0	0	120	121	117	115	105	0	0	0	146	146	141	139	127	0	0	0	0	
	80	116	117	113	111	102	0	0	0	120	121	117	115	105	0	0	0	146	146	141	139	127	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



K2 Systems, LLC
PV Tilt Up Kit Solar PV Mount System
Standard size 44.8"x 67.5" Portrait Orientation

Table 3.7A Maximum Horizontal Force (lbs) Single span only Exterior Conditions

Table 3.7A Maximum Horizontal Force (lbs) Single 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		
90	44-X	27	27	21	0	0	0	0	0	28	28	22	0	0	0	0	0	34	34	27	0	0	0	0	0	0	
		28	28	22	0	0	0	0	0	29	29	23	0	0	0	0	0	35	35	27	0	0	0	0	0	0	
		63	60	44	34	27	22	18	16	65	62	55	43	36	30	25	22	79	76	60	50	42	36	30	20	20	
		80	87	85	64	50	39	32	27	23	90	88	78	64	53	44	37	32	109	106	84	73	62	53	45	39	20
	48-X	27	27	0	0	0	0	0	0	28	28	0	0	0	0	0	0	0	34	34	0	0	0	0	0	0	0
		28	28	22	0	0	0	0	0	29	29	23	0	0	0	0	0	35	35	27	0	0	0	0	0	0	0
		62	62	50	40	33	27	22	19	64	64	60	50	42	36	31	20	77	77	63	58	49	42	28	24	24	
		80	85	85	74	58	48	39	33	29	88	88	84	74	62	53	46	39	107	107	93	81	71	62	54	48	24
100	44-X	27	27	0	0	0	0	0	0	27	27	0	0	0	0	0	0	33	33	0	0	0	0	0	0	0	0
		0	0	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	61	57	45	38	32	27	0	63	63	60	57	48	42	28	0	76	76	71	59	55	40	34	0	0	
		80	84	84	81	67	56	48	40	35	87	87	84	81	71	61	54	48	105	105	102	84	79	71	63	56	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	0
		60	60	60	51	43	37	32	0	62	62	62	59	54	38	34	0	75	75	75	64	54	46	41	0	0	
		80	83	83	83	75	63	54	48	41	86	86	86	82	78	69	61	55	104	104	104	94	81	78	71	51	0
		60	60	60	56	48	42	0	0	62	62	62	59	50	43	0	0	74	74	74	71	60	52	0	0	0	
110	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		60	60	60	51	43	37	32	0	62	62	62	59	54	38	34	0	75	75	75	64	54	46	41	0	0	
		80	83	83	83	82	70	61	54	48	86	86	86	85	82	77	69	50	103	103	103	102	88	81	68	60	0
		60	60	60	56	48	42	0	0	62	62	62	59	50	43	0	0	74	74	74	71	60	52	0	0	0	
	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	
		59	59	59	59	53	0	0	0	61	61	61	61	55	0	0	0	74	74	74	74	66	0	0	0	0	
		80	82	82	82	82	78	68	60	54	85	85	85	85	81	81	62	56	103	103	103	97	85	75	68	0	
120	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	0	0	0	0
		59	59	59	59	57	0	0	0	61	61	61	61	59	0	0	0	74	74	74	74	72	0	0	0	0	
		80	82	82	82	82	74	66	0	85	85	85	85	85	77	69	0	102	102	102	102	93	83	0	0	0	
	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	
		59	59	59	59	59	57	0	0	61	61	61	61	59	0	0	0	74	74	74	74	72	0	0	0	0	
		80	82	82	82	82	74	66	0	85	85	85	85	85	77	69	0	102	102	102	102	93	83	0	0	0	
130	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		60	60	60	56	48	42	0	0	62	62	62	59	50	43	0	0	74	74	74	71	60	52	0	0	0	
		80	83	83	83	82	70	61	54	48	86	86	86	85	82	77	69	50	103	103	103	102	88	81	68	60	0
	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
		59	59	59	59	59	53	0	0	61	61	61	61	55	0	0	0	74	74	74	74	66	0	0	0	0	
		80	82	82	82	82	78	68	60	54	85	85	85	85	81	81	62	56	103	103	103	97	85	75	68	0	
140	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	0	0	0	0
		59	59	59	59	59	57	0	0	61	61	61	61	59	0	0	0	74	74	74	74	72	0	0	0	0	
		80	82	82	82	82	74	66	0	85	85	85	85	85	77	69	0	102	102	102	102	93	83	0	0	0	
	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
		59	59	59	59	59	53	0	0	61	61	61	61	55	0	0	0	73	73	73	73	0	0	0	0	0	
		80	82	82	82	82	74	66	0	85	85	85	85	85	77	69	0	102	102	102	102	101	93	83	0	0	
150	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		59	59	59	59	59	59	0	0	61	61	61	61	55	0	0	0	73	73	73	73	0	0	0	0	0	
		80	82	82	82	82	74	66	0	84	84	84	84	84	83	0	0	102	102	102	102	101	93	83	0	0	
	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
		59	59	59	59	59	59	0	0	61	61	61	61	55	0	0	0	73	73	73	73	0	0	0	0	0	
		80	81	81	81	81	81	0	0	84	84	84	84	84	84	0	0	101	101	101	101	101	101	101	0	0	
160	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	0	0	0	0
		59	59	59	59	59	59	0	0	61	61																

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 44.8"x 67.5" Portrait Orientation

Table 3.8 Max Uplift Force (lbs) Single 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	-64	-57	-42	0	0	0	0	0	-111	-68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-59	-53	-38	0	0	0	0	0	-104	-63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-127	-115	-84	-65	-51	-42	-35	-30	-226	-137	-110	-87	-72	-60	-51	-43	-148	-144	-123	-103	-86	-73	-62	0	0	
		80	-181	-164	-119	-92	-72	-59	-49	-43	-322	-195	-155	-123	-102	-85	-72	-61	-210	-205	-176	-146	-121	-104	-88	-76	
		-68	-67	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	48-X	-63	-61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-136	-134	-100	-79	-65	-53	-44	-38	-189	-145	-125	-103	-86	-74	-64	0	-154	-151	-137	-119	-101	-87	0	0	0	0
		80	-194	-190	-141	-111	-92	-75	-63	-54	-269	-206	-178	-145	-122	-105	-90	-78	-220	-215	-196	-169	-143	-124	-109	-95	0
		-69	-69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	48-XL	-144	-348	-325	-293	-269	-250	-235	-220	-438	-431	-420	-393	-364	-341	-321	-305	-490	-483	-474	-454	-430	-405	-383	-364	0	0
		80	-205	-214	-163	-130	-108	-92	-78	-67	-228	-215	-196	-167	-141	-122	-108	-95	-227	-223	-213	-187	-164	-143	-127	-114	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-150	-166	-128	-105	-88	-76	-67	0	-159	-156	-149	-130	-113	0	0	-163	-161	-157	-143	0	0	0	0	0	0	
120	48-XL	80	-213	-235	-182	-148	-125	-107	-94	-81	-226	-222	-212	-186	-160	-140	-124	-111	-233	-229	-224	-203	-183	-163	-145	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-155	-180	-138	-117	-100	-86	0	0	-163	-160	-156	-141	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-220	-242	-197	-166	-141	-122	-108	-96	-232	-228	-223	-201	-178	-157	-140	0	-237	-234	-229	-217	-198	-181	0	0	0
130	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	0	0	0	0
		-159	-183	-148	-129	-111	0	0	0	-166	-163	-160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-226	-242	-211	-183	-157	-137	-122	-109	-236	-233	-228	-214	-194	-174	0	0	-241	-238	-234	-230	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-159	-183	-148	-129	-111	0	0	0	-166	-163	-160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-226	-242	-211	-183	-157	-137	-122	-109	-236	-233	-228	-214	-194	-174	0	0	-241	-238	-234	-230	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-162	-183	-155	-138	-122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-231	-242	-222	-197	-172	-151	-135	0	-240	-237	-233	-226	-206	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	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	0	0	0	0
		-165	-183	-159	-147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-235	-242	-226	-209	-187	-165	0	0	-242	-240	-236	-233	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-238	-242	-230	-220	-200	-179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	48-XL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-241	-242	-234	-229	-210	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	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

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 44.8"x 67.5" Portrait Orientation

Table 3.8A Max Uplift Force (lbs) Singlespan 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	-51	-51	-39	0	0	0	0	0	-51	-51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-52	-52	-40	0	0	0	0	0	-52	-52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-116	-111	-81	-63	-49	-40	-34	-29	-118	-118	-106	-84	-69	-58	-49	-42	-118	-118	-118	-99	-82	-70	-60	0	0	
		80	-161	-157	-119	-92	-72	-59	-49	-43	-163	-163	-151	-123	-102	-85	-72	-61	-164	-164	-164	-143	-121	-104	-88	-76	
		100	-51	-51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	48-X	-52	-52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-117	-117	-96	-76	-62	-51	-43	-37	-118	-118	-118	-99	-83	-71	-61	0	-119	-119	-119	-116	-97	-84	0	0	0	
		80	-162	-162	-141	-111	-92	-75	-63	-54	-164	-164	-164	-145	-122	-105	-90	-78	-165	-165	-165	-162	-143	-124	-109	-95	
		110	-52	-52	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
110	48-XL	-118	-118	-111	-88	-74	-63	-53	0	-119	-119	-119	-113	-96	-83	0	0	-120	-120	-120	-120	-112	0	0	0	0	
		80	-164	-164	-158	-130	-108	-92	-78	-67	-165	-165	-165	-162	-141	-122	-108	-95	-166	-166	-166	-166	-160	-143	-127	-114	
		120	0	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	-119	-119	-119	-101	-85	-73	-64	0	-120	-120	-120	-120	-109	0	0	-120	-120	-120	-120	0	0	0	0	0	
120	48-XL	80	-165	-165	-165	-148	-125	-107	-94	-81	-166	-166	-166	-166	-158	-140	-124	-111	-166	-166	-166	-166	-159	-145	0	0	
		130	0	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	-119	-119	-119	-113	-96	-83	0	0	-120	-120	-120	-120	-120	0	0	0	0	0	0	0	0	0	0	0	0
		80	-165	-165	-165	-163	-141	-122	-108	-96	-166	-166	-166	-166	-166	-157	-140	0	-167	-167	-167	-167	-167	0	0	0	
130	48-XL	144-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
		80	-166	-166	-166	-166	-157	-137	-122	-109	-167	-167	-167	-167	-167	-167	-167	0	-167	-167	-167	-167	-167	0	0	0	
		140	0	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	-119	-119	-119	-119	-107	0	0	0	-120	-120	-120	-120	-120	0	0	0	0	0	0	0	0	0	0	0	0
140	48-XL	80	-166	-166	-166	-166	-151	-135	0	-167	-167	-167	-167	-167	-167	-167	0	0	-167	-167	-167	-167	0	0	0	0	
		150	0	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	-120	-120	-120	-120	-117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-166	-166	-166	-166	-151	-135	0	-167	-167	-167	-167	-167	-167	-167	0	0	0	0	0	0	0	0	0	0	
160	48-XL	144-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
		80	-167	-167	-167	-167	-165	0	0	-167	-167	-167	-167	-167	-167	-167	0	0	0	0	0	0	0	0	0	0	
		170	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	48-XL	80	-167	-167	-167	-167	-167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		180	-167	-167	-167	-167	-167	0	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.
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