



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: 21220004.004

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 46 inches x 92.5 inches in Landscape orientation. The purpose of the analysis was to provide tables for the maximum spans and reactions to the roof under various loading conditions.

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

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

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

DESCRIPTION

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

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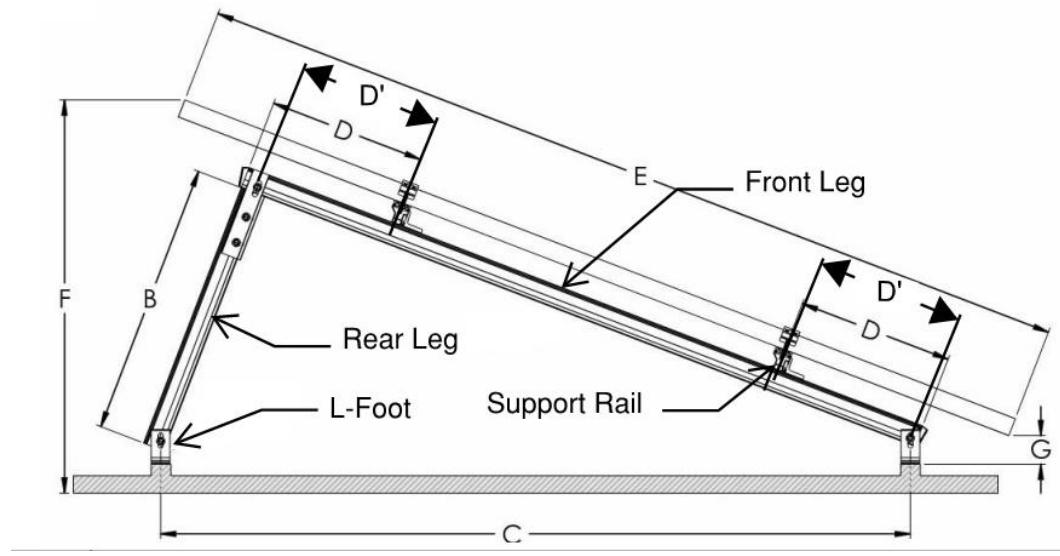


Figure 1 Typical Configuration (refer to K2 CrossRail Tilt Up System Assembly Instructions)

METHODS AND DESIGN PARAMETERS

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

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

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

Determine Equivalent Ground Snow for indicated flat snow (psf)

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

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

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

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

DESIGN RESULTS

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

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

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

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

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

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

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

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

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

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

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

h: Mean Roof Height.

WL=Width of a Building on its longest side.

Ws=Width of a Building on its shortest side.

Lp: Panel Length.

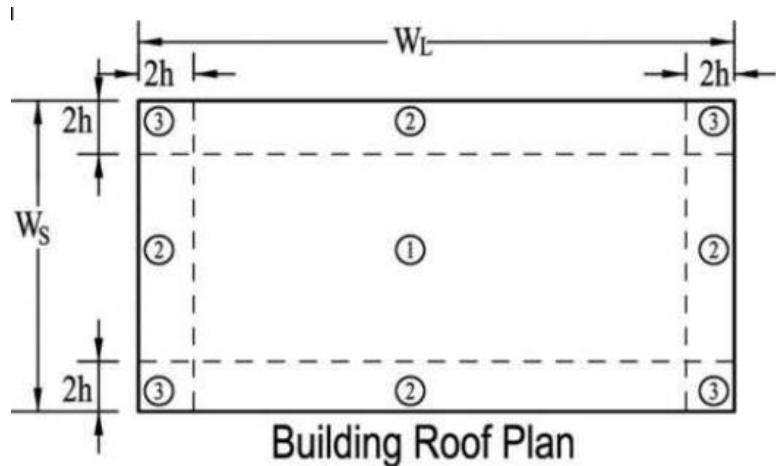


Figure 2. ASCE 7-16 Figure 29.4-7 shows the Building Roof Plan defining the roof zones.

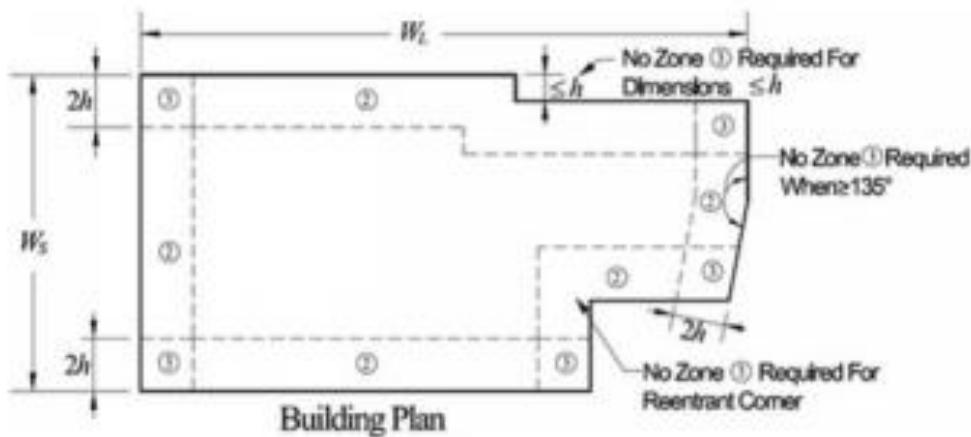


Figure 3. ASCE 7-16 Figure C29.4-1 shows a sketch of Building with Irregular Plan Dimensions

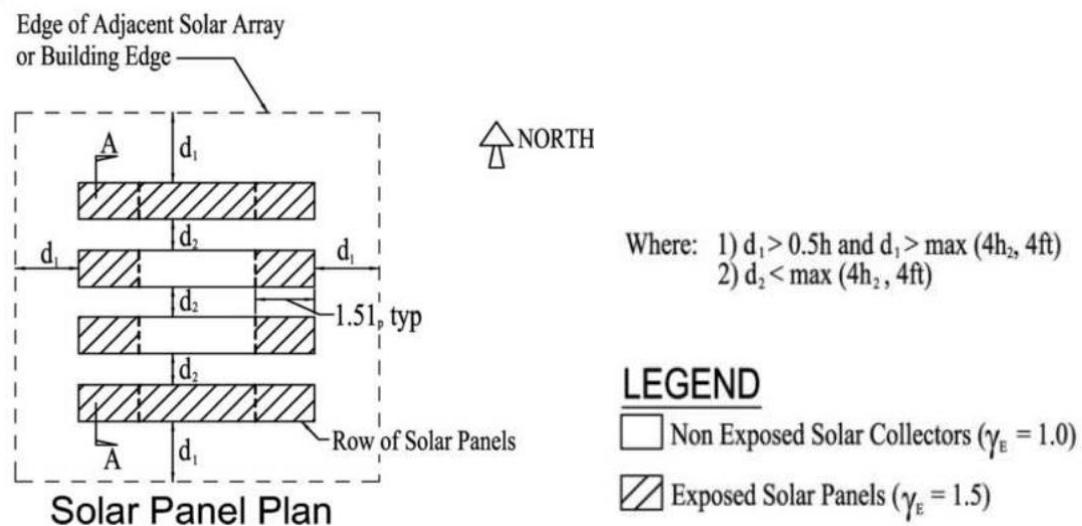


Figure 4. ASCE 7-16 Figure 29.4-7 Array Edge Factors
INSTALLATION & CONFIGURATION NOTES

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

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

SUMMARY

This assessment has provided design validation for code compliant installations of the K2 CrossRail Tilt Up System in the state noted in the stamp below. Local jurisdictions shall be consulted for the proper code requirements. For the configurations and design loadings noted previously, the attached span tables represent maximum span lengths based on allowable stresses and deflection criteria. For all other configurations, refer to K2 Systems, LLC for engineering support.

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

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

Sincerely,
Larson Engineering, Inc.

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 46"x 92.5" Landscape Orientation

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

Exp B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3								
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)								
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60
90	44-X	66	46	32	22	0	0	0	0	52	42	30	0	0	0	0	0	45	39	28	0	0	0	0	0
		66	48	33	23	0	0	0	0	52	44	31	0	0	0	0	0	45	41	30	0	0	0	0	0
		131	100	69	48	37	30	25	22	103	89	64	48	37	30	25	22	89	81	62	48	37	30	25	22
		168	132	94	65	50	41	34	30	133	114	87	65	50	41	34	30	115	104	80	65	50	41	34	30
100	44-X	56	43	30	0	0	0	0	0	44	38	28	0	0	0	0	0	38	36	0	0	0	0	0	0
		56	45	32	0	0	0	0	0	44	40	29	0	0	0	0	0	38	36	0	0	0	0	0	0
		112	93	65	48	37	30	25	22	87	80	60	47	37	30	25	22	75	71	57	45	37	30	25	22
		144	121	89	65	50	41	34	30	113	103	80	64	50	41	34	30	97	92	73	61	50	41	34	30
110	44-X	49	40	29	0	0	0	0	0	38	35	0	0	0	0	0	0	32	31	0	0	0	0	0	0
		49	42	30	0	0	0	0	0	38	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		97	85	62	48	37	30	25	22	75	71	57	45	37	30	25	22	64	62	52	43	35	30	25	0
		125	110	84	65	50	41	34	30	97	92	73	61	50	41	34	30	82	80	67	56	48	41	34	30
120	44-X	43	37	27	0	0	0	0	0	33	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		43	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		85	78	59	46	37	30	25	22	65	63	52	42	35	30	25	0	55	54	47	40	34	29	25	0
		109	100	78	63	50	41	34	30	83	81	67	56	48	41	34	30	71	69	61	52	45	40	34	30
130	44-X	37	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		37	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		74	71	56	44	36	30	25	22	56	55	48	40	34	29	25	0	48	47	43	37	32	28	0	0
		96	91	73	60	50	41	34	30	73	71	62	52	46	40	34	30	62	60	55	48	42	38	34	30
140	44-X	33	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		33	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		66	64	52	42	35	30	25	22	50	48	44	38	32	28	0	0	42	41	39	34	30	0	0	0
		84	82	68	57	48	41	34	30	64	62	57	49	43	38	34	30	54	53	50	44	39	35	32	29
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
		58	57	49	40	34	29	25	0	44	43	40	35	31	27	0	0	37	36	35	32	28	0	0	0
		75	73	63	53	46	40	34	30	56	55	52	45	40	36	32	29	48	47	46	41	37	33	30	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
		52	51	45	39	33	28	25	0	39	38	37	33	29	0	0	0	33	32	32	29	0	0	0	0
		67	66	58	50	44	38	34	30	50	49	48	42	38	34	31	28	42	42	41	38	34	31	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
		47	46	42	37	31	27	0	0	35	34	34	31	0	0	0	0	0	0	0	0	0	0	0	0
		54	53	51	44	39	35	32	29	40	40	39	37	33	30	0	0	34	34	33	32	30	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
		39	38	37	35	33	31	30	28	33	33	32	32	30	29	28	27	30	30	30	29	27	27	26	
		42	41	39	34	30	0	0	31	31	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		54	53	51	44	39	35	32	29	40	40	39	37	33	30	0	0	34	34	33	32	30	0	0	0

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

See SEAOC PV-2 2012 for definition of Roof Zones

Larson Engineering Inc

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 46"x 92.5" Landscape Orientation

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

Exp B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3								
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)								
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60
90	44-X	61	46	32	22	0	0	0	0	44	41	30	0	0	0	0	0	36	36	28	0	0	0	0	0
		66	48	33	23	0	0	0	0	47	43	31	0	0	0	0	0	38	38	29	0	0	0	0	0
		127	94	65	45	35	28	24	20	100	86	61	45	35	28	24	20	85	78	58	45	35	28	24	20
		80	159	125	91	67	51	42	35	30	125	108	82	66	51	42	35	30	108	98	76	62	51	42	35
100	44-X	50	43	30	0	0	0	0	0	35	35	28	0	0	0	0	0	28	28	0	0	0	0	0	0
		54	45	31	0	0	0	0	0	37	37	29	0	0	0	0	0	30	30	0	0	0	0	0	0
		109	88	62	45	35	28	24	20	83	77	57	44	35	28	24	20	67	67	55	43	35	28	24	20
		80	136	114	85	67	51	42	35	30	106	97	75	61	51	42	35	30	91	87	69	57	49	42	35
110	44-X	40	40	29	0	0	0	0	0	28	28	0	0	0	0	0	0	23	23	0	0	0	0	0	0
		43	41	30	0	0	0	0	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		94	82	59	45	35	28	24	20	67	67	54	42	35	28	24	20	55	55	50	41	34	28	24	0
		80	118	104	79	64	51	42	35	30	91	87	69	57	49	42	35	30	75	75	63	53	46	40	35
120	44-X	33	33	27	0	0	0	0	0	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		36	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		79	76	56	44	35	28	24	20	56	56	50	40	33	28	24	0	46	46	46	39	32	28	24	0
		80	103	95	74	61	51	42	35	30	76	76	63	53	46	40	35	30	62	62	57	49	43	38	34
130	44-X	28	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		37	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		67	67	53	42	34	28	24	20	47	47	38	32	28	24	0	39	39	39	36	31	26	0	0	
		80	90	86	69	57	49	42	35	30	64	64	58	50	43	38	34	30	53	53	52	45	40	36	32
140	44-X	33	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		26	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		57	57	50	40	33	28	24	20	40	40	40	36	31	26	0	0	33	33	33	33	29	0	0	0
		80	77	77	64	54	46	41	35	30	55	55	53	46	41	36	33	30	45	45	45	42	37	33	30
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
		49	49	47	38	32	28	24	0	35	35	34	29	25	0	0	29	29	29	29	28	0	0	0	0
		80	67	67	59	50	44	39	35	30	48	48	48	43	38	34	31	28	39	39	39	38	35	31	29
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
		43	43	43	37	31	27	23	0	31	31	31	28	0	0	0	25	25	25	25	25	0	0	0	0
		80	58	58	55	47	42	37	33	30	42	42	42	40	36	32	29	27	34	34	34	34	32	29	0
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		38	38	38	35	30	26	0	0	27	27	27	27	0	0	0	0	0	0	0	0	0	0	0	0
		80	46	46	46	42	37	34	30	28	33	33	33	31	29	0	0	27	27	27	27	27	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
		33	33	33	33	28	0	0	0	24	24	24	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	46	46	46	42	37	34	30	28	33	33	33	31	29	0	0	27	27	27	27	27	0	0	0

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

See SEAOC PV-2 2012 for definition of Roof Zones

Larson Engineering Inc

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 46"x 92.5" Landscape 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	70	
90	44-X	113	113	116	116	0	0	0	0	0	113	114	116	0	0	0	0	0	114	114	116	0	0	0	0	0	
	48-X	113	119	122	122	0	0	0	0	0	113	120	122	0	0	0	0	0	114	117	122	0	0	0	0	0	
	48-XL	224	246	252	252	252	252	252	252	252	225	242	252	252	252	253	252	252	226	233	252	253	252	252	252	252	
	80	288	326	344	344	344	344	344	344	344	290	312	340	344	344	346	344	344	291	301	329	345	344	344	344	344	
100	44-X	113	114	116	0	0	0	0	0	0	114	114	116	0	0	0	0	0	114	116	0	0	0	0	0	0	
	48-X	113	119	122	0	0	0	0	0	0	114	119	122	0	0	0	0	0	114	116	0	0	0	0	0	0	
	48-XL	225	246	252	252	252	252	252	252	252	226	237	252	313	252	253	252	252	227	230	249	253	252	252	252	252	
	80	289	320	343	344	344	344	344	344	344	291	305	332	343	344	346	344	344	292	297	320	338	344	344	344	344	
110	44-X	113	114	116	0	0	0	0	0	0	114	115	0	0	0	0	0	0	114	113	0	0	0	0	0	0	
	48-X	113	120	122	0	0	0	0	0	0	114	117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-XL	225	179	212	238	263	292	318	343	198	193	225	250	272	293	319	343	216	211	230	258	279	299	318	343	343	
	80	290	314	340	344	344	344	344	344	344	292	299	325	342	344	346	344	344	293	290	313	330	343	344	344	344	
120	44-X	114	115	116	0	0	0	0	0	0	114	114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-X	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	
	48-XL	226	239	252	252	252	252	252	252	252	227	226	247	252	300	252	253	0	228	222	237	251	252	252	252	252	
	80	291	308	334	343	344	344	344	344	344	293	291	318	335	344	344	346	344	293	286	305	323	336	343	344	344	
130	44-X	114	115	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	114	119	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	227	236	253	252	252	252	252	252	252	228	222	242	253	288	252	253	0	228	223	232	245	252	252	252	252	
	80	292	303	328	344	343	344	344	344	344	293	286	312	329	341	343	346	344	294	288	299	316	329	339	343	344	
140	44-X	114	115	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	114	115	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	227	228	251	252	252	252	252	252	252	228	223	238	251	275	252	252	0	228	224	230	240	250	0	0	0	
	80	293	294	323	339	344	344	344	344	344	294	288	307	323	335	344	343	344	294	289	297	310	323	333	341	343	
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	228	222	247	253	252	252	252	252	252	0	228	224	234	246	263	252	0	0	229	225	229	236	246	0	0	0
	80	293	286	318	334	344	343	344	344	344	294	289	302	317	330	339	344	343	295	290	294	304	317	327	335	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	
	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	228	223	243	253	252	252	252	252	252	0	229	225	231	242	252	0	0	0	229	226	223	232	0	0	0	
	80	294	287	313	329	341	344	343	344	344	295	290	297	312	324	334	342	344	295	291	287	299	311	321	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	228	224	240	252	253	252	0	0	0	229	225	226	239	0	0	0	0	0	0	0	0	0	0	0	0	
	80	294	288	309	325	336	344	344	343	343	295	290	291	308	319	329	337	0	295	291	286	297	306	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	
	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	228	224	237	249	253	0	0	0	0	229	226	221	0	0	0	0	0	0	0	0	0	0	0	0	0	
	80	294	289	305	320	332	341	344	344	344	295	291	285	303	315	324	0	0	295	292	287	297	301	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

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 46"x 92.5" Landscape Orientation

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

Exp B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3									
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)									
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	104	113	116	116	0	0	0	0	96	113	116	0	0	0	0	0	0	90	103	116	0	0	0	0	0
	48-X	113	117	121	121	0	0	0	0	103	118	120	0	0	0	0	0	0	97	111	121	0	0	0	0	0
	48-XL	218	232	238	239	239	239	239	239	219	234	238	239	239	239	240	239	239	216	227	239	239	239	239	239	239
	80	272	308	335	351	351	351	351	351	274	295	321	347	351	351	353	351	351	275	284	311	327	351	351	351	351
100	44-X	100	114	116	0	0	0	0	0	90	103	116	0	0	0	0	0	0	85	91	0	0	0	0	0	0
	48-X	107	118	120	0	0	0	0	0	96	111	121	0	0	0	0	0	0	92	98	0	0	0	0	0	0
	48-XL	219	233	238	239	239	239	239	239	214	231	239	238	296	239	240	239	204	218	239	240	239	239	239	239	239
	80	273	302	328	351	351	351	351	351	275	288	314	330	351	351	353	351	351	276	280	302	319	336	351	351	351
110	44-X	93	114	116	0	0	0	0	0	85	92	0	0	0	0	0	0	0	82	83	0	0	0	0	0	0
	48-X	100	118	121	0	0	0	0	0	92	99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	219	234	239	239	239	239	239	239	204	219	239	239	296	239	240	239	195	199	236	240	238	239	239	239	0
	80	274	296	321	338	351	351	351	351	276	282	307	323	336	351	353	351	351	267	272	295	312	324	341	351	351
120	44-X	89	102	116	0	0	0	0	0	82	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	95	110	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	212	233	239	238	239	239	239	239	196	201	240	239	285	239	240	0	189	189	230	240	239	238	239	0	0
	80	275	291	316	331	351	351	351	351	268	274	301	317	328	342	353	351	351	258	258	289	305	317	327	342	351
130	44-X	85	92	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	91	99	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	203	221	239	239	238	239	239	239	190	190	236	239	273	238	240	0	184	184	209	239	239	239	0	0	0
	80	276	287	310	326	337	351	351	351	260	260	295	311	322	332	346	351	351	252	252	283	299	311	320	328	342
140	44-X	82	85	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	89	92	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	197	203	240	239	238	239	239	239	186	186	219	240	261	239	0	0	181	181	195	232	239	0	0	0	0
	80	268	278	305	321	332	344	351	351	253	253	290	305	317	326	333	347	247	247	266	293	305	314	322	329	
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	191	191	240	239	239	238	239	0	182	182	202	240	249	239	0	0	178	178	185	214	239	0	0	0	0
	80	261	261	300	316	327	336	350	351	248	248	276	300	311	321	328	334	243	243	252	287	299	309	317	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
	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	187	187	229	240	239	239	238	0	179	179	189	226	240	0	0	0	175	175	177	199	0	0	0	0	0
	80	256	256	296	311	322	331	338	351	244	244	258	295	306	315	323	329	239	239	241	272	294	303	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
	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	184	184	214	240	239	239	0	0	177	177	181	211	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	251	251	292	307	318	327	334	340	241	241	247	288	302	311	318	0	237	237	237	257	289	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
	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	181	181	201	240	240	0	0	0	175	175	175	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	247	247	275	302	313	322	330	336	238	238	238	271	297	306	0	0	234	234	234	247	273	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

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 46"x 92.5" Landscape Orientation

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

Exp B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3								
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)								
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60
90	44-X	38	26	18	13	0	0	0	0	41	33	23	13	0	0	0	0	47	38	27	16	0	0	0	0
		38	28	19	13	0	0	0	0	41	35	25	14	0	0	0	0	47	39	29	17	0	0	0	0
		75	57	39	28	21	17	14	12	82	71	51	38	29	24	20	17	94	77	59	46	35	29	24	21
		80	97	76	54	38	29	23	20	17	106	91	69	52	40	32	27	23	121	100	77	63	48	39	33
100	44-X	40	30	21	0	0	0	0	0	43	38	27	0	0	0	0	0	50	43	27	0	0	0	0	0
		40	32	23	0	0	0	0	0	43	39	29	0	0	0	0	0	50	43	28	0	0	0	0	0
		80	59	51	45	40	36	33	31	77	75	67	60	54	50	46	92	86	84	78	71	64	60	56	52
		80	103	86	63	46	36	29	24	21	111	101	78	63	49	40	34	29	128	109	87	72	59	48	41
110	44-X	44	38	28	0	0	0	0	0	46	45	29	0	0	0	0	0	54	48	35	0	0	0	0	0
		42	36	26	0	0	0	0	0	45	43	27	0	0	0	0	0	53	45	32	0	0	0	0	0
		83	73	53	41	32	26	22	19	89	85	67	53	44	35	30	26	104	92	74	62	51	43	36	23
		80	107	95	72	56	43	35	29	25	115	109	87	72	59	48	41	35	134	118	95	80	69	58	49
120	44-X	45	42	0	0	0	0	0	0	46	43	0	0	0	0	0	0	56	52	0	0	0	0	0	0
		44	40	0	0	0	0	0	0	45	41	0	0	0	0	0	0	54	50	0	0	0	0	0	0
		87	80	60	47	38	30	26	22	91	89	74	60	50	42	36	23	108	100	80	69	58	50	43	28
		80	111	103	80	64	51	42	35	30	118	115	95	80	68	57	49	42	139	128	103	88	77	68	58
130	44-X	45	42	0	0	0	0	0	0	46	43	0	0	0	0	0	0	56	52	0	0	0	0	0	0
		45	43	0	0	0	0	0	0	46	44	0	0	0	0	0	0	56	54	0	0	0	0	0	0
		89	85	67	53	44	36	30	26	94	91	79	67	56	48	42	27	111	107	86	74	65	56	38	33
		80	115	110	87	72	60	49	41	35	120	118	102	87	76	66	57	49	144	137	111	96	84	75	67
140	44-X	46	45	0	0	0	0	0	0	48	46	0	0	0	0	0	0	57	56	0	0	0	0	0	0
		46	45	0	0	0	0	0	0	48	46	0	0	0	0	0	0	57	56	0	0	0	0	0	0
		91	89	73	59	49	42	35	30	95	93	84	73	62	54	36	31	114	111	91	80	71	52	44	38
		80	118	114	94	79	67	57	48	41	123	120	109	94	82	73	65	57	147	143	118	102	91	82	75
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
		93	91	78	65	54	46	40	0	97	95	89	78	68	59	42	0	116	114	98	84	76	58	50	0
		80	120	117	100	85	74	63	55	47	125	122	115	100	89	80	72	64	150	146	126	109	97	88	81
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
		95	93	82	70	59	51	45	0	98	96	93	82	74	53	47	0	118	116	103	89	74	64	56	0
		80	122	119	106	91	80	70	61	54	126	124	120	106	95	86	78	71	153	149	133	114	103	94	77
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
		96	94	87	75	64	56	0	0	99	97	95	86	66	58	0	0	120	118	108	94	80	70	0	0
		80	124	121	112	97	85	76	67	60	128	125	123	111	100	91	84	62	155	152	140	121	109	95	84
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		97	95	91	79	69	0	0	0	101	99	96	82	72	0	0	0	121	119	113	99	87	0	0	0
		80	125	123	117	102	91	82	73	66	129	127	124	116	105	96	76	68	157	154	146	128	114	102	92

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 46"x 92.5" Landscape Orientation

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

Exp B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3									
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)									
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	35	26	18	13	0	0	0	0	0	36	33	23	13	0	0	0	0	44	34	27	16	0	0	0	0
		38	27	19	13	0	0	0	0	0	39	34	24	14	0	0	0	0	47	37	28	16	0	0	0	0
		73	54	37	26	20	16	14	12	100	86	65	52	41	33	28	24	114	94	73	59	43	33	27	23	20
		80	91	72	52	38	29	24	20	17	100	86	65	52	41	33	28	24	114	94	73	59	49	40	34	29
	48-X	35	30	21	0	0	0	0	0	0	37	34	27	0	0	0	0	0	44	38	27	0	0	0	0	0
		38	32	22	0	0	0	0	0	0	39	37	28	0	0	0	0	0	48	40	28	0	0	0	0	0
		78	63	44	32	25	20	17	15	81	76	56	43	34	28	23	20	97	80	65	51	41	33	28	24	
		80	97	81	60	47	36	29	25	21	104	95	74	60	50	41	34	30	121	103	82	68	58	49	41	36
100	44-X	34	34	28	0	0	0	0	0	0	35	35	29	0	0	0	0	0	42	42	35	0	0	0	0	0
		37	36	26	0	0	0	0	0	0	38	37	26	0	0	0	0	0	47	45	32	0	0	0	0	0
		81	71	51	39	30	24	20	18	84	80	64	50	41	33	28	24	102	88	72	58	48	40	34	22	
		80	102	89	68	55	44	36	30	26	108	103	82	68	58	49	42	36	127	112	90	76	66	58	50	43
	48-X	33	33	0	0	0	0	0	0	0	35	35	0	0	0	0	0	0	42	42	0	0	0	0	0	0
		36	36	0	0	0	0	0	0	0	38	38	0	0	0	0	0	0	46	46	0	0	0	0	0	0
		81	77	57	45	36	29	24	21	84	80	71	57	47	40	34	22	101	97	78	66	55	47	41	26	
		80	105	97	76	62	52	42	36	31	109	108	89	75	65	57	50	43	132	121	98	83	73	65	58	51
110	44-X	33	33	0	0	0	0	0	0	0	35	35	0	0	0	0	0	0	42	42	0	0	0	0	0	0
		36	36	0	0	0	0	0	0	0	38	38	0	0	0	0	0	0	46	46	0	0	0	0	0	0
		81	71	51	39	30	24	20	18	84	80	64	50	41	33	28	24	102	88	72	58	48	40	34	22	
		80	102	89	68	55	44	36	30	26	108	103	82	68	58	49	42	36	127	112	90	76	66	58	50	43
	48-X	33	33	0	0	0	0	0	0	0	35	35	0	0	0	0	0	0	42	42	0	0	0	0	0	0
		36	36	0	0	0	0	0	0	0	37	37	0	0	0	0	0	0	45	45	0	0	0	0	0	0
		80	80	64	50	41	34	29	25	23	83	83	77	63	53	46	40	25	100	100	80	72	61	53	36	31
		80	108	104	82	68	58	50	42	36	112	107	96	82	72	63	57	50	136	130	104	90	80	71	64	59
120	44-X	33	33	0	0	0	0	0	0	0	34	34	0	0	0	0	0	0	41	41	0	0	0	0	0	0
		36	36	0	0	0	0	0	0	0	37	37	0	0	0	0	0	0	45	45	0	0	0	0	0	0
		79	79	70	56	46	39	33	29	82	82	78	70	59	51	34	30	99	99	87	77	68	49	41	36	
		80	108	108	89	75	64	57	49	42	112	112	103	89	78	69	63	57	135	135	111	97	86	78	71	65
	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
		78	78	76	61	51	44	38	0	81	81	78	76	64	56	39	0	98	98	95	76	74	55	48	0	0
		80	107	107	95	81	70	62	56	48	111	111	105	95	84	75	68	63	134	134	119	103	92	83	76	60
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
		78	78	78	66	56	48	43	0	80	80	77	70	50	44	0	97	97	97	83	70	61	53	0	0	0
		80	106	106	100	86	76	67	61	55	110	110	105	100	89	81	74	68	133	133	126	108	98	89	76	69
	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
		77	77	77	72	61	53	0	0	80	80	76	63	55	0	0	97	97	97	90	76	66	0	0	0	0
		80	106	106	105	91	81	72	65	60	109	109	104	95	86	79	62	132	132	132	114	103	90	82	75	
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
		77	77	77	72	61	53	0	0	80	80	76	63	55	0	0	97	97	97	90	76	66	0	0	0	0
		80	105	105	105	96	86	77	70	64	109	109	104	100	91	73	67	131	131	131	121	107	96	88	80	
		80	105	105	105	96	86	77	70	64	109	109	104	100	91	73	67	131	131	131	121	107	96	88	80	

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 46" x 92.5" Landscape Orientation

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

		Table 1.4 Max Uplift Force (lbs) Multi span only Interior Conditions																							
Exp B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3								
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)								
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60
90	44-X	-62	-44	-30	-21	0	0	0	0	-73	-59	-42	0	0	0	0	0	-79	-70	-50	0	0	0	0	0
		-62	-46	-31	-22	0	0	0	0	-73	-62	-44	0	0	0	0	0	-79	-72	-53	0	0	0	0	0
		-124	-94	-65	-45	-35	-28	-24	-20	-146	-126	-91	-68	-52	-42	-36	-31	-158	-143	-109	-85	-65	-53	-44	-38
		-159	-125	-89	-62	-47	-39	-32	-28	-188	-162	-123	-92	-71	-58	-49	-42	-203	-184	-142	-115	-89	-72	-61	-52
100	44-X	-70	-53	-37	0	0	0	0	0	-80	-70	-51	0	0	0	0	0	-85	-81	0	0	0	0	0	0
		-70	-56	-39	0	0	0	0	0	-80	-73	-53	0	0	0	0	0	-85	-81	0	0	0	0	0	0
		-139	-115	-81	-59	-45	-37	-31	-27	-159	-145	-110	-85	-67	-54	-46	-42	-169	-161	-128	-102	-83	-67	-57	-49
		-179	-149	-110	-81	-62	-50	-42	-37	-205	-186	-144	-116	-91	-74	-62	-57	-218	-208	-165	-137	-113	-92	-77	-67
110	44-X	-76	-62	-45	0	0	0	0	0	-85	-80	0	0	0	0	0	0	-90	-87	0	0	0	0	0	0
		-76	-65	-47	0	0	0	0	0	-85	-81	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-151	-133	-97	-74	-57	-46	-39	-34	-169	-161	-128	-101	-83	-67	-57	-51	-178	-173	-144	-120	-99	-83	-70	0
		-195	-171	-131	-102	-78	-63	-53	-46	-218	-208	-165	-137	-113	-92	-78	-70	-230	-223	-185	-156	-135	-113	-95	-82
120	44-X	-81	-71	-52	0	0	0	0	0	-89	-87	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-81	-75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-161	-148	-113	-88	-70	-57	-48	-41	-178	-173	-143	-116	-97	-82	-69	0	-186	-181	-159	-135	-114	-98	-85	0
		-208	-191	-149	-120	-96	-78	-65	-56	-229	-222	-184	-155	-132	-112	-94	-82	-239	-233	-204	-175	-152	-134	-115	-100
130	44-X	-85	-79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-85	-82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-170	-162	-128	-101	-83	-68	-57	-50	-184	-180	-156	-132	-110	-95	-82	0	-191	-188	-172	-149	-129	-112	0	0
		-219	-209	-166	-138	-114	-93	-78	-68	-238	-232	-201	-171	-149	-129	-112	-102	-247	-242	-221	-191	-169	-151	-135	-118
140	44-X	-89	-87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-89	-87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-177	-172	-142	-114	-95	-80	-68	-58	-190	-186	-168	-145	-124	-107	0	0	-196	-193	-184	-161	-143	0	0	0
		-228	-222	-182	-153	-129	-110	-92	-80	-245	-240	-217	-187	-164	-146	-129	-112	-354	-253	-248	-236	-207	-184	-166	-151
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
		-183	-178	-153	-127	-106	-91	-79	0	-195	-191	-179	-157	-137	-119	0	0	-200	-197	-193	-172	-154	0	0	0
		-236	-230	-197	-168	-145	-125	-107	-93	-251	-246	-231	-202	-179	-161	-144	-120	-405	-258	-254	-248	-221	-199	-180	-165
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
		-188	-184	-164	-139	-117	-102	-89	0	-199	-195	-190	-167	-149	0	0	0	-204	-201	-197	-182	0	0	0	0
		-242	-237	-211	-181	-159	-139	-122	-107	-256	-252	-244	-215	-192	-174	-159	-141	-451	-263	-259	-253	-234	-212	-193	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
		-192	-188	-174	-151	-129	-112	0	0	-202	-199	-195	-177	0	0	0	0	0	0	0	0	0	0	0	0
		-248	-243	-224	-194	-171	-153	-135	-121	-260	-256	-251	-228	-205	-186	-171	0	-266	-263	-258	-246	-224	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
		-196	-193	-183	-160	-140	0	0	0	-205	-202	-198	0	0	0	0	0	0	0	0	0	0	0	0	0
		-253	-248	-236	-206	-183	-165	-148	-133	-264	-260	-255	-239	-217	-198	0	0	-269	-266	-262	-257	-236	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

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 46"x 92.5" Landscape Orientation

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

Exp B	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3										
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)										
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	
90	44-X	-58	-44	-30	-21	0	0	0	0	-62	-59	-42	0	0	0	0	0	-63	-63	-50	0	0	0	0	0	0	
		-62	-45	-31	-22	0	0	0	0	-67	-61	-43	0	0	0	0	0	-68	-68	-52	0	0	0	0	0	0	
		-120	-89	-61	-43	-33	-27	-22	-19	-142	-121	-86	-64	-49	-40	-34	-29	-150	-139	-103	-80	-62	-50	-42	-36		
		80	-150	-118	-86	-63	-48	-39	-33	-29	-178	-153	-116	-93	-72	-59	-50	-43	-192	-174	-134	-110	-91	-74	-62	-53	
100	44-X	-62	-53	-37	0	0	0	0	0	-63	-63	-51	0	0	0	0	0	-64	-64	0	0	0	0	0	0	0	0
		-66	-55	-39	0	0	0	0	0	-68	-68	-52	0	0	0	0	0	-68	-68	0	0	0	0	0	0	0	0
		-135	-109	-77	-56	-43	-35	-29	-25	-151	-141	-104	-81	-63	-51	-43	-34	-114	-152	-152	-123	-97	-78	-64	-54	-46	
		80	-169	-141	-105	-82	-63	-51	-43	-37	-193	-176	-136	-112	-93	-75	-64	-168	-206	-196	-156	-129	-110	-94	-79	-68	
110	44-X	-63	-62	-45	0	0	0	0	0	-64	-64	0	0	0	0	0	0	-64	-64	0	0	0	0	0	0	0	0
		-67	-65	-46	0	0	0	0	0	-68	-68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-147	-128	-92	-71	-54	-44	-37	-32	-152	-152	-121	-95	-79	-64	-54	-143	-153	-153	-140	-113	-94	-79	-66	0		
		80	-184	-162	-123	-100	-80	-65	-54	-47	-206	-196	-156	-129	-110	-94	-79	-210	-209	-209	-175	-148	-127	-112	-97	-84	
120	44-X	-63	-63	-52	0	0	0	0	0	-64	-64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-68	-68	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	-144	-107	-83	-66	-54	-45	-39	-153	-153	-138	-110	-92	-77	-65	0	-154	-154	-154	-130	-108	-93	-80	0		
		80	-196	-180	-141	-115	-98	-79	-67	-57	-209	-209	-174	-146	-126	-111	-96	-256	-210	-210	-193	-165	-144	-128	-115	-102	
130	44-X	-64	-64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
		-152	-152	-121	-95	-79	-65	-54	-47	-154	-154	-152	-125	-104	-90	-78	0	-155	-155	-155	-145	-123	-106	0	0		
		80	-207	-197	-157	-130	-111	-95	-80	-69	-210	-210	-190	-162	-141	-125	-112	-307	-211	-211	-209	-181	-159	-143	-129	-118	
140	44-X	-64	-64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
		-153	-153	-135	-108	-90	-76	-64	-55	-155	-155	-155	-139	-117	-101	0	0	-155	-155	-155	-155	-137	0	0	0	0	
		80	-209	-209	-172	-145	-125	-110	-94	-81	-211	-211	-205	-177	-155	-139	-125	-356	-212	-212	-212	-196	-174	-157	-142	-131	
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
		-154	-154	-149	-120	-101	-86	-75	0	-155	-155	-155	-152	-130	-113	0	0	-156	-156	-156	-156	-150	0	0	0	0	
		80	-210	-210	-186	-158	-138	-122	-109	-95	-212	-212	-212	-190	-169	-152	-138	-395	-213	-213	-213	-209	-188	-170	-156	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
		-154	-154	-154	-132	-111	-96	-85	0	-156	-156	-156	-156	-142	0	0	0	-156	-156	-156	-156	0	0	0	0	0	
		80	-211	-211	-199	-171	-150	-133	-120	-109	-212	-212	-212	-203	-182	-164	-150	-432	-213	-213	-213	-213	-200	-183	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
		-155	-155	-155	-143	-122	-106	0	0	-156	-156	-156	-156	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-212	-212	-211	-183	-162	-145	-131	-120	-213	-213	-213	-213	-193	-176	-161	0	-213	-213	-213	-213	-212	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
		-155	-155	-155	-132	0	0	0	-156	-156	-156	-156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-212	-212	-212	-195	-173	-156	-142	-130	-213	-213	-213	-213	-205	-187	0	0	-214	-214	-214	-214	-214	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

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 46"x 92.5" Landscape Orientation

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

Exp C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3									
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)									
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	48-X	48	42	30	0	0	0	0	0	37	35	0	0	0	0	0	0	32	31	0	0	0	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	0
		48-XL	105	90	64	49	37	30	26	22	81	76	59	46	37	30	26	22	69	67	55	45	37	30	26	22
		80	146	126	93	70	54	44	37	32	113	106	84	66	54	44	37	32	97	94	76	64	53	44	37	32
100	44-X	44-X	41	37	29	0	0	0	0	0	31	31	0	0	0	0	0	0	0	0	0	0	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	0
		48-XL	89	81	61	47	37	30	26	22	68	66	54	44	36	30	26	22	58	57	49	42	35	30	26	0
		80	124	113	87	68	54	44	37	32	95	92	76	63	52	44	37	32	81	79	68	58	50	43	37	32
110	44-X	44-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
		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
		48-XL	76	73	57	45	37	30	26	22	58	57	49	41	34	30	26	0	49	48	44	38	33	28	0	0
		80	106	101	81	64	53	44	37	32	81	79	68	58	49	42	37	32	68	67	61	53	47	41	36	32
120	44-X	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
		48-X	41	40	34	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	53	43	35	30	26	0	50	49	44	38	33	28	0	0	42	41	39	35	31	0	0	0
		80	92	89	74	61	51	44	37	32	69	68	62	53	47	41	36	32	58	57	55	48	43	39	34	31
130	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	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	0	0
		48-XL	57	56	49	40	34	29	26	0	43	42	40	35	31	0	0	0	36	36	35	32	0	0	0	0
		80	80	78	68	58	49	42	37	32	60	59	56	49	44	39	34	31	50	50	49	44	40	36	33	0
140	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	0	0
		48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		48-XL	50	49	45	38	32	28	0	0	38	37	36	32	0	0	0	0	32	31	31	0	0	0	0	0
		80	70	69	62	54	47	40	36	32	52	52	50	45	40	37	33	0	44	43	43	40	36	33	0	0
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	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	44	44	41	36	31	27	0	0	33	33	32	30	0	0	0	0	0	0	0	0	0	0	0	0
		80	62	61	57	50	44	39	34	31	46	45	45	41	37	34	0	0	39	38	38	37	34	0	0	0
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	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	40	39	38	33	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	55	54	53	47	42	37	33	30	41	40	40	38	35	0	0	0	0	0	0	0	0	0	0	
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	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	35	35	34	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	49	49	48	43	39	35	32	0	37	36	36	35	0	0	0	0	0	0	0	0	0	0	0	0
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	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	32	31	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	44	44	43	40	37	33	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 46"x 92.5" Landscape Orientation

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

Exp C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3									
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)									
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	43	41	29	0	0	0	0	0	30	30	0	0	0	0	0	0	25	25	0	0	0	0	0	0	0
		49	42	-394	0	0	0	0	0	34	34	0	0	0	0	0	0	0	28	28	0	0	0	0	0	0
		123	108	82	63	49	39	33	29	95	90	72	59	48	39	33	29	81	79	65	55	47	39	33	29	
		80	128	110	84	67	52	42	36	31	99	93	73	60	51	42	36	31	85	82	67	56	48	42	36	31
100	44-X	34	34	27	0	0	0	0	0	24	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		39	38	-394	0	0	0	0	0	27	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		104	97	76	60	49	39	33	29	79	77	65	55	46	39	33	29	67	66	58	50	44	38	33	29	
		80	108	99	77	63	52	42	36	31	83	81	66	56	48	42	36	31	71	69	60	51	44	39	35	31
110	44-X	28	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		31	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		89	87	69	57	47	39	33	29	67	66	58	50	44	38	33	29	57	56	52	45	40	36	32	29	
		80	93	89	71	59	50	42	36	31	71	69	60	51	44	39	35	31	60	58	54	46	41	37	33	30
120	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
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		77	75	63	54	45	39	33	29	58	56	53	46	40	36	32	28	49	48	47	41	37	33	30	27	
		80	80	78	65	55	47	41	36	31	61	59	54	47	41	37	33	30	51	50	48	42	38	34	31	28
130	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		67	65	58	50	43	37	33	29	50	49	47	42	37	34	30	27	42	41	40	37	34	31	28	26	
		80	70	68	59	51	44	39	35	31	52	51	49	43	38	34	31	29	43	43	42	38	35	31	29	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
		59	58	53	46	41	36	32	28	44	43	42	38	35	31	29	26	37	36	35	34	31	28	26	0	
		80	61	60	55	47	41	37	33	30	45	45	44	39	35	32	29	0	37	37	37	35	32	29	0	0
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		52	51	49	43	38	34	30	27	38	38	37	35	32	29	27	0	32	32	31	31	28	26	0	0	
		80	54	53	50	44	39	35	32	29	39	39	39	36	33	30	0	0	32	32	32	32	32	29	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
		46	45	44	40	36	32	29	26	34	34	33	32	30	27	0	0	28	28	28	27	26	0	0	0	
		80	48	47	46	41	36	33	30	28	34	34	33	30	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
		41	41	40	37	33	30	28	25	30	30	30	29	27	0	0	0	0	0	0	0	0	0	0	0	0
		80	42	42	42	38	34	31	28	0	30	30	30	30	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
		37	37	36	34	31	29	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	37	37	37	35	32	29	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 46"x 92.5" Landscape Orientation

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

Exp C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3									
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)									
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	107	116	121	0	0	0	0	0	107	111	0	0	0	0	0	0	108	108	0	0	0	0	0	0	
		149	162	169	169	343	0	0	0	150	154	167	169	0	0	0	0	151	149	161	170	0	0	0	0	
		231	252	256	257	257	257	257	257	233	240	257	256	257	257	258	257	233	235	251	258	256	257	257	257	
		80	322	351	368	369	369	369	369	324	335	364	368	369	369	370	369	325	327	350	370	368	369	369	369	
100	44-X	107	114	121	0	0	0	0	0	108	108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		150	158	169	169	0	0	0	0	151	149	163	0	0	0	0	0	0	151	148	156	0	0	0	0	0
		232	247	257	256	257	257	257	257	233	234	255	257	256	257	258	257	234	228	245	258	257	257	256	257	
		80	323	344	369	368	369	369	369	325	325	355	369	368	369	370	369	326	318	341	360	368	368	369	369	
110	44-X	108	112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		150	156	168	169	0	0	0	0	151	148	159	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		233	242	257	257	256	257	257	257	234	228	249	257	257	256	258	0	235	230	239	252	257	257	0	0	
		80	324	337	365	368	368	369	369	326	318	347	365	369	368	370	369	327	320	332	351	366	368	368	369	
120	44-X	108	107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		151	148	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		234	233	257	257	256	257	257	0	234	230	244	257	257	257	0	0	235	231	237	246	256	0	0	0	
		80	325	324	358	369	368	369	369	326	320	340	358	369	368	369	369	327	321	330	343	357	368	368	368	
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
		151	148	162	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		234	228	252	257	257	256	257	0	235	231	239	252	257	257	0	0	0	235	232	232	241	0	0	0	0
		80	326	318	351	369	369	368	369	327	321	333	350	364	369	368	368	328	323	324	336	349	360	369	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
		234	230	248	258	257	257	0	0	235	231	235	247	0	0	0	0	0	236	232	228	0	0	0	0	0
		80	326	320	346	363	369	369	368	327	322	327	344	357	368	369	0	328	324	317	330	342	353	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
		235	230	244	256	257	257	0	0	235	232	228	243	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	327	321	340	357	370	369	368	328	323	317	338	351	361	0	0	0	328	324	319	330	336	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
		235	231	241	253	258	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	327	322	336	352	364	369	369	328	324	318	333	345	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
		235	232	232	249	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	328	323	324	347	359	369	369	0	328	325	319	328	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
		235	232	228	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	328	323	317	342	354	364	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 46"x 92.5" Landscape Orientation

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

Exp C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3									
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)									
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	95	114	116	0	0	0	0	0	87	95	0	0	0	0	0	0	83	86	0	0	0	0	0	0	
		108	116	-769	0	0	0	0	0	98	108	0	0	0	0	0	0	94	97	0	0	0	0	0	0	
		279	302	324	325	659	325	325	325	281	287	312	324	324	325	678	325	281	279	300	317	324	325	325	325	
		80	282	307	333	355	357	357	357	284	293	318	335	353	357	359	357	284	286	306	324	336	357	357	357	
100	44-X	89	104	116	0	0	0	0	0	82	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		101	117	-769	0	0	0	0	0	94	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		280	296	320	324	659	325	325	325	281	278	304	320	390	325	719	325	282	276	292	309	321	324	325	325	
		80	283	301	326	342	357	357	357	284	285	310	327	339	356	359	357	285	278	298	315	328	338	356	357	
110	44-X	85	92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		96	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		281	290	314	325	641	325	325	325	282	276	297	313	369	324	761	325	283	277	285	301	313	323	324	325	
		80	284	295	319	335	347	357	357	285	278	303	320	332	341	356	357	286	280	291	307	320	330	338	352	
120	44-X	82	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		282	276	308	323	613	324	325	325	283	277	291	306	342	325	777	324	283	278	285	294	306	316	324	324	
		80	285	284	313	329	341	351	357	286	280	297	313	325	334	342	354	285	281	289	300	312	322	331	337	
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
		282	276	302	317	585	324	324	325	283	278	286	300	316	321	793	324	283	279	276	288	299	309	317	324	
		80	285	278	307	323	335	344	354	286	281	292	307	318	328	336	342	279	279	283	294	306	315	324	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
		283	277	297	312	554	325	324	324	283	279	278	295	306	315	803	325	284	280	275	285	293	302	310	0	
		80	286	280	302	317	329	338	345	355	281	281	286	301	312	322	330	0	275	275	275	289	299	309	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
		283	278	293	307	518	325	325	324	284	280	274	290	301	310	803	0	284	281	276	283	288	297	0	0	
		80	286	281	298	312	324	333	340	347	277	277	277	296	307	316	0	0	272	272	272	288	294	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
		283	279	286	302	484	322	325	325	284	281	276	285	296	304	0	0	284	281	277	275	285	0	0	0	
		80	282	282	294	308	319	328	335	342	273	273	273	291	302	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
		283	279	275	298	453	317	325	325	284	281	277	279	291	0	0	0	0	0	0	0	0	0	0	0	0
		80	279	279	283	303	314	323	331	0	271	271	271	282	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
		284	280	275	294	424	313	320	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	275	275	275	299	310	319	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

Larson Engineering Inc

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 46"x 92.5" Landscape Orientation

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

Exp C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3									
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)									
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	39	34	24	0	0	0	0	0	42	39	25	0	0	0	0	0	49	42	31	0	0	0	0	0	0
		55	49	36	28	60	0	0	0	59	56	45	36	22	0	0	0	70	61	49	42	27	0	0	0	0
		85	73	52	39	30	24	21	18	90	85	66	51	42	34	29	25	106	91	74	60	49	41	34	30	0
		80	118	102	75	56	43	35	30	25	126	118	93	74	60	48	41	35	147	127	103	86	71	59	49	43
100	44-X	41	37	28	0	0	0	0	0	43	42	29	0	0	0	0	0	51	47	36	0	0	0	0	0	0
		58	54	41	32	0	0	0	0	61	59	50	34	0	0	0	0	73	68	54	41	0	0	0	0	0
		88	81	60	47	37	30	25	22	94	91	75	60	50	42	35	30	111	101	81	69	58	50	42	27	0
		80	123	112	87	67	53	43	36	31	130	127	104	86	71	60	51	43	154	141	113	97	83	71	61	53
110	44-X	42	40	0	0	0	0	0	0	44	42	0	0	0	0	0	0	53	51	0	0	0	0	0	0	0
		60	58	47	37	0	0	0	0	63	61	54	39	0	0	0	0	75	73	59	47	0	0	0	0	0
		92	88	68	54	45	37	31	27	96	94	82	68	57	49	43	27	115	110	88	76	66	57	38	33	0
		80	128	122	97	78	64	52	44	38	134	131	114	97	82	71	61	53	160	153	123	106	94	82	72	64
120	44-X	43	42	0	0	0	0	0	0	45	44	0	0	0	0	0	0	54	53	0	0	0	0	0	0	0
		61	60	51	0	0	0	0	0	64	62	53	0	0	0	0	0	77	75	64	0	0	0	0	0	
		94	92	76	61	51	43	37	0	98	96	88	76	64	56	38	0	118	115	95	83	74	54	46	0	
		80	131	128	106	88	73	62	53	45	137	134	122	106	93	80	71	63	164	160	133	115	103	93	82	74
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
		63	61	54	0	0	0	0	0	65	64	57	0	0	0	0	0	79	77	69	0	0	0	0	0	
		96	94	82	68	57	49	43	0	100	98	93	82	72	51	44	0	121	118	103	89	71	61	54	0	
		80	134	131	114	97	82	71	62	53	139	137	130	114	101	90	80	72	168	164	143	123	111	101	92	67
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	
		98	96	87	75	63	55	0	0	102	100	97	87	65	57	0	0	123	120	109	93	79	69	0	0	
		80	137	134	122	105	91	79	69	62	141	139	136	121	109	99	88	64	171	167	152	131	118	108	87	77
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	
		100	98	92	80	69	60	0	0	103	101	99	92	72	62	0	0	125	122	115	101	87	75	0	0	
		80	139	136	128	112	99	87	77	69	143	141	138	128	116	106	80	71	173	170	160	140	125	108	96	86
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	
		101	99	96	85	75	0	0	0	104	103	100	88	78	0	0	0	126	124	121	106	94	0	0	0	
		80	140	138	134	118	106	95	84	76	145	143	139	134	122	98	87	79	176	173	168	148	133	118	105	95
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	
		102	100	98	89	0	0	0	0	0	105	104	102	93	0	0	0	0	127	125	123	112	0	0	0	0
		80	142	140	137	124	112	102	91	0	147	145	141	139	116	106	95	0	177	175	171	156	140	128	114	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	
		103	101	99	0	0	0	0	0	0	106	105	103	0	0	0	0	0	128	127	124	0	0	0	0	0
		80	143	141	138	130	118	108	0	0	148	146	143	135	122	112	0	0	179	176	173	163	148	135	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 46"x 92.5" Landscape Orientation

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

Exp C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3										
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)										
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	
90	44-X	35	33	24	0	0	0	0	0	36	34	24	0	0	0	0	0	44	41	29	0	0	0	0	0	0	
		39	34	-53	0	0	0	0	0	41	38	0	0	0	0	0	0	49	42	0	0	0	0	0	0	0	
		103	91	69	53	114	33	28	24	110	105	84	69	56	46	39	33	130	115	92	78	66	55	47	40	41	
		80	103	89	67	54	42	34	29	25	110	103	81	67	57	47	40	34	129	111	90	75	65	57	48	41	
100	44-X	34	34	27	0	0	0	0	0	35	35	28	0	0	0	0	0	43	43	34	0	0	0	0	0	0	0
		58	54	41	32	0	0	0	0	61	59	50	34	0	0	0	0	0	73	68	54	41	0	0	0	0	0
		108	100	78	62	141	41	34	30	114	111	93	79	66	57	48	41	36	136	126	101	87	76	66	58	50	51
		80	108	98	76	63	52	42	35	30	114	111	91	76	66	58	49	42	135	123	99	85	74	65	59	51	51
110	44-X	33	33	0	0	0	0	0	0	35	35	0	0	0	0	0	0	42	42	0	0	0	0	0	0	0	0
		38	38	0	0	0	0	0	0	39	39	0	0	0	0	0	0	47	47	0	0	0	0	0	0	0	0
		112	108	87	71	166	49	41	36	117	114	101	87	76	66	58	50	141	137	109	95	84	76	67	60	60	
		80	112	107	85	71	60	51	43	37	117	114	99	85	74	65	59	51	140	134	108	93	82	73	66	61	61
120	44-X	33	33	0	0	0	0	0	0	34	34	0	0	0	0	0	0	41	41	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		115	112	95	80	189	58	49	43	119	117	109	95	84	74	66	59	144	141	119	103	92	83	76	69	69	
		80	115	112	93	78	67	59	51	44	120	117	107	92	81	73	66	60	144	140	116	101	90	81	74	68	68
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
		117	114	102	87	212	65	57	50	122	119	115	102	91	82	74	66	147	144	128	110	99	90	83	77	77	
		80	117	115	100	85	74	66	59	52	122	120	114	100	89	80	73	67	147	143	125	108	97	88	81	64	64
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
		119	117	108	94	233	72	64	57	124	122	118	108	97	89	81	74	150	147	136	118	105	97	90	72	72	
		80	119	117	106	92	81	72	65	59	124	121	119	106	95	86	79	62	150	146	133	115	104	95	82	74	74
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
		121	118	114	100	250	80	71	64	126	124	120	114	103	95	87	66	152	149	143	126	112	103	89	80	80	
		80	121	119	112	98	87	78	71	65	126	123	120	112	101	93	73	67	152	149	140	123	110	98	89	81	81
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
		122	120	117	105	266	86	77	70	127	125	122	119	109	100	81	73	154	151	148	133	119	108	98	88	88	
		80	121	121	118	104	93	84	77	70	125	125	122	117	107	87	79	73	151	151	147	130	116	105	96	88	88
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
		123	121	119	110	281	91	84	76	129	127	124	121	114	95	87	79	155	153	150	139	126	115	106	96	96	
		80	121	121	119	109	98	89	82	0	125	125	124	119	102	92	85	0	151	151	149	136	123	112	102	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
		124	123	120	115	295	96	89	0	130	128	126	120	109	100	93	0	157	155	152	145	132	121	112	0	0	
		80	120	120	120	114	103	94	0	124	124	124	118	107	98	0	0	150	150	150	142	129	118	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 46"x 92.5" Landscape Orientation

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

Exp C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3										
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)										
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	
90	44-X	-70	-60	-44	0	0	0	0	0	-79	-74	0	0	0	0	0	0	-83	-81	0	0	0	0	0	0	0	
		-100	-88	-65	-50	-38	0	0	0	-112	-107	-85	-68	0	0	0	0	-118	-115	-96	-81	0	0	0	0	0	
		-151	-130	-93	-70	-54	-44	-37	-32	-170	-160	-124	-97	-78	-64	-54	-46	-180	-175	-142	-116	-95	-79	-66	-57	-57	
		80	-210	-182	-133	-101	-77	-63	-53	-46	-237	-223	-175	-139	-113	-91	-77	-66	-251	-244	-198	-166	-137	-113	-95	-82	
100	44-X	-76	-69	-53	0	0	0	0	0	-84	-81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-108	-100	-78	-61	0	0	0	0	-119	-116	-97	0	0	0	0	0	-124	-121	-108	0	0	0	0	0	0	0
		-164	-150	-112	-87	-69	-56	-47	-41	-181	-176	-144	-116	-96	-81	-68	-182	-190	-185	-161	-137	-114	-98	-84	0	0	
		80	-229	-209	-161	-125	-99	-80	-68	-58	-252	-245	-201	-166	-138	-116	-98	-261	-264	-258	-224	-191	-163	-140	-120	-104	
110	44-X	-81	-77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-115	-111	-89	-71	0	0	0	0	-124	-121	-108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-175	-167	-130	-103	-85	-70	-59	-51	-190	-185	-161	-134	-113	-97	-84	0	-197	-193	-177	-153	-132	-114	0	0	0	
		80	-243	-233	-185	-148	-122	-100	-84	-73	-264	-258	-224	-191	-162	-139	-121	-323	-274	-269	-246	-213	-188	-164	-145	-127	
120	44-X	-85	-82	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	-117	-99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-183	-178	-148	-119	-99	-85	-71	0	-196	-192	-175	-152	-129	-112	0	0	-203	-199	-191	-168	-149	0	0	0	0	
		80	-255	-248	-206	-170	-142	-121	-102	-88	-273	-268	-244	-211	-185	-160	-141	-391	-282	-277	-266	-233	-208	-187	-166	-150	
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
		-124	-122	-108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-190	-186	-162	-134	-112	-97	-85	0	-202	-198	-189	-165	-145	0	0	0	-207	-204	-200	-181	0	0	0	0	0	
		80	-265	-258	-225	-192	-162	-139	-122	-105	-281	-276	-263	-230	-204	-181	-161	-453	-289	-284	-278	-252	-226	-206	-188	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
		-196	-192	-174	-149	-126	-109	0	0	-206	-203	-198	-177	0	0	0	0	-211	-208	-204	0	0	0	0	0	0	0
		80	-273	-267	-243	-210	-181	-157	-139	-123	-287	-283	-276	-247	-222	-201	-180	0	-294	-290	-284	-268	-243	-223	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
		-201	-197	-186	-162	-139	-122	0	0	-210	-207	-203	-189	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-279	-274	-259	-226	-200	-175	-155	-139	-292	-288	-282	-262	-238	-217	0	0	-299	-295	-290	-283	-259	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
		-205	-201	-196	-173	-152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-285	-280	-273	-241	-215	-192	-171	-154	-297	-293	-288	-277	-252	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
		-208	-205	-200	-183	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-290	-285	-279	-254	-229	-209	-187	0	-300	-297	-292	-287	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
		-211	-208	-204	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-294	-290	-284	-267	-242	-222	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 46"x 92.5" Landscape Orientation

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

Exp C	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3									
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)									
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	-62	-59	-42	0	0	0	0	0	-63	-63	0	0	0	0	0	0	-64	-64	0	0	0	0	0	0	0
		-71	-60	467	0	0	0	0	0	-72	-72	0	0	0	0	0	0	-73	-73	0	0	0	0	0	0	0
		-187	-164	-124	-96	-74	-60	-50	-43	-210	-200	-159	-131	-108	-87	-74	-63	-221	-215	-179	-151	-128	-108	-91	-78	
		80	-184	-159	-121	-97	-75	-61	-51	-44	-208	-195	-154	-127	-108	-89	-75	-64	-219	-213	-173	-145	-125	-110	-92	-80
100	44-X	-63	-63	-51	0	0	0	0	0	-64	-64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-72	-71	467	0	0	0	0	0	-73	-73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-202	-188	-147	-117	-94	-76	-64	-55	-222	-216	-181	-153	-129	-110	-93	-182	-232	-227	-201	-172	-151	-131	-114	-99	
		80	-200	-183	-142	-116	-96	-78	-66	-57	-221	-215	-176	-148	-127	-112	-95	-252	-231	-225	-196	-167	-145	-129	-116	-100
110	44-X	-64	-64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-72	-72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-214	-208	-167	-137	-114	-95	-80	-69	-232	-227	-201	-172	-151	-130	-114	-225	-240	-236	-220	-192	-170	-152	-135	-121	
		80	-213	-203	-162	-134	-115	-97	-81	-70	-231	-226	-196	-167	-145	-129	-116	-313	-240	-235	-215	-186	-164	-147	-133	-121
120	44-X	-64	-64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-224	-218	-185	-157	-132	-113	-97	-83	-240	-235	-219	-190	-168	-149	-132	-270	-247	-243	-237	-209	-187	-169	-155	-140	
		80	-223	-217	-180	-152	-131	-115	-99	-85	-239	-234	-214	-185	-163	-145	-131	-375	-246	-243	-233	-204	-182	-164	-149	-137
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
		-232	-227	-201	-173	-149	-129	-114	-99	-246	-242	-234	-206	-184	-166	-150	-309	-252	-249	-243	-225	-203	-185	-170	-158	
		80	-232	-226	-197	-168	-147	-130	-117	-102	-245	-241	-230	-201	-179	-161	-147	-421	-246	-246	-243	-220	-198	-180	-165	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
		-239	-234	-216	-188	-166	-145	-129	-115	-251	-247	-242	-221	-199	-181	-166	-347	-256	-253	-249	-239	-218	-200	-185	0	
		80	-239	-234	-212	-183	-161	-144	-130	-119	-246	-246	-242	-216	-194	-176	-161	0	-247	-247	-247	-235	-213	-195	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
		-244	-240	-230	-202	-180	-161	-143	-129	-255	-252	-247	-234	-213	-195	-180	0	-260	-257	-253	-249	-231	-213	0	0	
		80	-244	-240	-226	-197	-175	-158	-143	-131	-247	-247	-247	-230	-208	-190	0	0	-247	-247	-247	-247	-226	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
		-249	-245	-239	-215	-193	-175	-158	-143	-259	-256	-251	-246	-225	-207	0	0	-263	-260	-257	-253	-243	0	0	0	
		80	-246	-245	-239	-211	-188	-170	-156	-143	-247	-247	-242	-221	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
		-253	-249	-244	-226	-205	-187	-172	-156	-262	-259	-255	-251	-236	0	0	0	0	0	0	0	0	0	0	0	0
		80	-246	-246	-244	-223	-201	-183	-167	0	-248	-248	-248	-248	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
		-256	-253	-248	-237	-216	-198	-183	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-247	-247	-247	-234	-212	-194	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 46"x 92.5" Landscape Orientation

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

Exp D	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3										
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)										
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	61	
90	44-X	46	46	41	30	0	0	0	0	0	36	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		48-X	46	42	31	0	0	0	0	0	36	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		48-XL	96	87	65	50	39	32	27	23	74	72	58	47	38	32	27	23	63	61	53	45	37	32	27	0	
		80	128	116	87	67	53	43	36	31	98	96	77	62	51	43	36	31	84	82	70	59	50	42	36	31	
100	44-X	39	37	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	37	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	81	77	60	48	39	32	27	23	62	60	52	44	36	31	27	0	52	51	47	40	35	30	0	0	
		80	108	103	81	64	52	43	36	31	82	80	69	58	49	42	36	31	70	68	62	54	47	40	36	31	
110	44-X	33	32	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	69	67	56	45	37	32	27	0	52	51	47	40	34	30	0	0	44	43	41	36	32	0	0	0	
		80	92	90	74	60	50	43	36	31	70	68	62	54	46	40	35	31	59	58	55	48	43	38	34	30	
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	
		48-XL	59	58	51	42	36	31	27	0	45	44	42	37	32	0	0	0	38	37	36	33	0	0	0	0	
		80	79	77	68	57	48	41	36	31	59	58	56	49	43	38	34	30	50	49	48	44	39	36	32	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	
		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	51	46	40	34	29	0	0	39	38	37	33	0	0	0	0	0	0	0	0	0	0	0	0	
		80	69	67	62	53	45	39	35	31	51	51	49	44	40	36	32	0	43	43	42	40	36	33	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	
		48-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		48-XL	45	44	42	37	32	0	0	0	34	33	33	0	0	0	0	0	0	0	0	0	0	0	0	0	
		80	60	59	56	49	43	38	33	30	45	44	43	41	37	34	0	0	38	37	37	36	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	
		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	39	38	34	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		80	53	52	51	45	41	36	32	0	39	39	38	37	34	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	
		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	34	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		80	47	47	46	42	38	34	0	0	35	35	34	33	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	
		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	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	42	42	41	39	35	33	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	
		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	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	38	37	37	36	33	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 46"x 92.5" Landscape Orientation

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

Exp D	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3									
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)									
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	61
90	44-X	39	38	29	0	0	0	0	0	0	27	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	42	39	30	0	0	0	0	0	0	29	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-XL	94	84	61	47	37	30	25	22	22	72	70	55	44	36	30	25	22	61	60	51	42	35	30	25	0
	80	114	105	82	67	57	49	43	39	39	87	84	70	59	51	45	40	36	74	72	63	54	47	42	38	34
100	44-X	31	31	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	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
	48-XL	79	75	57	45	37	30	25	22	22	60	59	51	41	34	29	25	0	51	50	46	39	33	28	0	0
	80	96	93	74	62	53	46	41	37	72	71	62	53	47	41	37	34	61	60	56	48	43	38	35	32	
110	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
	48-XL	68	66	53	42	35	30	25	0	51	50	46	38	32	28	0	0	43	42	41	36	31	0	0	0	
	80	82	80	67	57	49	44	39	35	61	60	56	48	43	38	35	32	52	51	49	44	39	35	32	30	
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	58	57	49	40	33	29	25	0	44	43	41	36	30	0	0	0	37	36	35	32	0	0	0	0	
	80	70	69	61	52	46	41	37	33	52	51	50	44	39	35	32	30	44	43	42	39	35	32	30	28	
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	51	49	45	38	32	28	0	0	37	37	36	33	0	0	0	0	0	0	0	0	0	0	0	0	
	80	61	60	56	48	43	38	35	32	45	44	43	40	36	33	30	28	38	37	37	35	32	30	28	26	
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
	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	43	43	41	35	30	0	0	0	32	32	32	0	0	0	0	0	0	0	0	0	0	0	0	0	
	80	53	52	51	44	40	36	33	30	39	39	38	36	33	30	28	26	33	33	32	32	29	27	25	24	
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	37	37	37	33	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	47	46	45	41	37	34	31	28	35	34	34	33	30	28	26	24	29	29	28	28	27	25	24	22	
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	33	33	33	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	42	41	40	38	34	31	29	27	31	30	30	29	28	26	24	23	26	25	25	25	24	23	0	0	
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	37	37	36	35	32	29	27	25	27	27	27	26	26	24	23	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
	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	33	33	33	32	30	28	26	24	24	24	24	24	23	22	0	0	0	0	0	0	0	0	0	0	

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

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Larson Engineering Inc

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 46"x 92.5" Landscape Orientation

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

Exp D	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3										
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)										
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	
90	44-X	117	117	121	123	0	0	0	0	0	117	119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		117	117	125	128	0	0	0	0	0	118	119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		243	259	270	270	271	271	271	271	271	244	246	268	270	270	271	272	271	245	238	257	272	270	270	271	0	
		80	323	345	362	361	362	362	362	362	325	328	357	362	361	362	363	362	326	318	343	362	361	361	362	362	
100	44-X	117	117	122	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	122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		244	254	271	270	270	271	271	271	271	245	239	261	271	270	270	272	0	245	240	250	264	271	270	0	0	
		80	324	338	362	361	361	362	362	362	326	318	348	362	361	361	363	362	326	320	333	352	362	361	361	362	
110	44-X	117	117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		244	244	269	271	270	271	271	271	0	245	240	255	269	271	270	0	0	246	241	248	258	268	0	0	0	
		80	325	325	358	362	361	362	362	362	326	320	340	358	362	361	361	362	326	320	333	352	362	361	361	361	
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
		245	239	264	271	271	270	271	271	0	246	241	250	263	271	0	0	0	246	242	243	252	0	0	0	0	
		80	326	318	351	363	362	361	362	362	327	321	333	350	363	362	361	361	328	323	323	335	349	360	362	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
		245	240	259	272	271	270	0	0	0	246	242	244	258	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	327	320	345	362	362	362	362	362	327	322	325	343	356	363	362	0	328	324	317	330	341	352	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
		246	241	255	267	271	0	0	0	246	243	238	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	327	321	339	356	363	362	362	361	328	323	317	337	350	360	0	0	328	325	319	330	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
		246	242	249	263	272	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	327	322	332	350	363	363	362	0	328	324	318	331	343	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
		246	243	239	259	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	328	323	319	345	357	363	0	0	328	325	320	324	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
		0	0	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	328	324	318	340	352	362	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
		0	0	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	328	324	319	336	347	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 46"x 92.5" Landscape Orientation

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

Exp D	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3										
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)										
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	
90	44-X	117	121	123	0	0	0	0	0	0	117	119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-X	105	117	124	0	0	0	0	0	0	97	101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	48-XL	237	250	254	253	254	254	254	254	254	239	241	255	254	254	255	254	255	239	233	252	256	254	253	254	0	
	80	296	314	340	357	379	405	426	441	441	297	296	323	340	353	368	390	408	298	291	310	328	341	351	368	387	
100	44-X	92	101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	48-X	99	109	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	238	248	255	254	253	254	254	254	254	239	233	255	255	254	254	255	0	240	235	245	256	254	254	0	0	
	80	297	307	332	349	361	382	404	421	421	298	291	315	332	455	354	365	384	298	293	302	319	332	342	351	361	
110	44-X	89	91	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	239	239	255	254	254	254	254	0	0	240	235	250	255	254	254	0	0	240	236	242	252	255	0	0	0	
	80	297	292	325	342	354	363	382	400	400	298	293	308	324	418	346	354	361	299	294	301	311	323	334	342	349	
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	239	234	256	255	254	254	254	0	0	240	236	244	255	255	0	0	0	241	237	237	246	0	0	0	0	
	80	298	291	319	335	347	356	364	380	380	299	294	302	317	384	339	347	354	299	295	291	303	316	326	334	342	
130	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	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	240	235	253	255	255	254	254	0	0	238	237	239	252	0	0	0	0	0	0	0	0	0	0	0	0	
	80	298	293	313	329	341	350	358	364	364	299	295	293	311	352	332	340	347	300	296	291	301	309	319	327	334	
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	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	235	235	249	256	255	0	0	0	0	234	234	233	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	299	294	308	323	335	344	352	359	360	300	296	290	305	323	326	334	341	300	297	292	297	303	312	320	327	
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	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	231	231	243	256	255	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	299	295	298	318	329	339	346	353	353	300	297	292	300	311	320	328	335	300	297	293	289	301	306	314	321	
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	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	227	227	229	253	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	300	295	290	313	324	333	341	348	348	300	297	293	292	306	315	322	329	300	298	294	291	298	301	0	0	
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	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	300	296	291	309	320	329	336	343	343	300	298	294	290	301	310	317	0	0	0	0	0	0	0	0	0	
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	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	300	297	292	302	315	324	332	338	338	301	298	295	291	295	305	0	0	0	0	0	0	0	0	0	0	

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

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 46"x 92.5" Landscape Orientation

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

Exp D	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3									
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)									
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70
90	44-X	44	39	28	0	0	0	0	0	47	45	29	0	0	0	0	0	55	49	35	0	0	0	0	0	
		48-X	44	40	29	0	0	0	0	47	45	30	0	0	0	0	0	55	50	37	0	0	0	0	0	
		48-XL	92	83	62	48	38	30	26	22	97	94	76	61	51	42	36	31	115	104	84	71	59	51	43	28
		80	122	110	82	64	50	41	34	30	129	126	102	82	68	56	48	41	153	138	111	95	79	68	57	49
100	44-X	46	44	0	0	0	0	0	0	48	45	0	0	0	0	0	0	57	55	0	0	0	0	0	0	
		48-X	46	44	0	0	0	0	0	48	45	0	0	0	0	0	0	58	55	0	0	0	0	0	0	
		48-XL	95	91	71	56	46	38	32	27	100	98	84	71	59	51	44	28	119	114	92	79	68	59	40	34
		80	127	121	95	75	62	50	42	37	134	130	112	95	79	68	59	50	159	151	122	105	92	79	70	61
110	44-X	47	46	0	0	0	0	0	0	49	48	0	0	0	0	0	0	59	58	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	98	96	79	64	53	46	38	0	103	100	92	79	68	59	40	0	123	120	99	86	77	57	48	0
		80	131	128	106	86	71	61	51	44	137	134	122	105	90	78	69	61	164	160	132	115	102	91	80	72
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	
		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	101	98	86	72	60	52	46	0	105	103	98	86	76	54	47	0	126	123	108	93	76	65	57	0
		80	134	131	115	96	81	70	61	53	139	137	130	114	101	89	79	71	168	164	143	124	111	101	91	66
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	
		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	103	101	92	80	67	59	0	0	106	104	102	92	70	61	0	0	129	126	115	99	84	73	0	0
		80	137	134	123	106	90	78	69	62	142	139	136	122	110	99	88	64	171	168	153	133	119	109	87	77
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	
		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	104	102	97	85	74	0	0	0	108	106	104	88	77	0	0	0	131	128	122	107	93	0	0	0
		80	139	136	130	114	99	87	77	69	144	141	138	129	117	107	80	72	174	171	162	142	124	109	96	87
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	
		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	106	104	102	90	81	0	0	0	109	108	105	94	84	0	0	0	132	130	127	113	101	0	0	0
		80	141	139	135	120	108	95	85	0	146	143	140	136	124	98	88	0	176	173	169	151	135	119	106	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	
		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	107	105	103	95	0	0	0	0	111	109	107	99	0	0	0	0	134	132	129	119	0	0	0	0
		80	142	140	137	127	115	103	0	0	147	145	142	139	119	107	0	0	178	175	172	159	143	129	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	
		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	144	142	139	133	121	111	0	0	149	147	144	137	125	115	0	0	180	177	174	166	151	138	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	
		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	145	143	140	138	126	0	0	0	150	148	145	143	131	0	0	0	181	179	176	172	158	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

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Standard size 46"x 92.5" Landscape Orientation

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

Exp D	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3											
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)											
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70		
90	44-X	37	37	28	0	0	0	0	0	38	38	29	0	0	0	0	0	46	46	35	0	0	0	0	0	0		
		40	37	28	0	0	0	0	0	41	39	29	0	0	0	0	0	50	47	35	0	0	0	0	0	0		
		90	80	58	45	35	29	24	21	95	92	73	58	48	40	33	29	112	100	82	67	55	47	40	26	0		
		80	113	104	81	66	56	49	43	39	120	116	96	81	70	62	55	50	143	131	105	90	78	70	63	57		
100	44-X	36	36	0	0	0	0	0	0	37	37	0	0	0	0	0	0	45	45	0	0	0	0	0	0	0	0	
		39	39	0	0	0	0	0	0	40	40	0	0	0	0	0	0	49	49	0	0	0	0	0	0	0	0	
		93	89	67	53	43	35	30	26	98	96	83	66	56	48	41	27	117	111	90	77	64	56	37	32	0		
		80	117	113	91	76	65	57	50	45	123	120	106	91	79	70	63	58	148	143	115	100	88	79	72	65		
110	44-X	36	36	0	0	0	0	0	0	37	37	0	0	0	0	0	0	45	45	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		96	94	75	60	50	43	36	0	100	98	90	75	64	55	37	0	120	117	96	84	73	54	45	0	0	0	
		80	121	118	100	84	73	64	58	52	126	123	115	100	88	79	72	65	152	148	126	108	97	88	80	74		
120	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		99	96	83	68	57	49	43	0	102	100	96	83	71	51	44	0	123	120	104	91	71	61	54	0	0	0	
		80	124	121	108	92	81	72	65	59	129	126	122	108	96	87	79	73	156	152	136	116	105	96	88	82		
130	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		101	98	90	75	63	55	0	0	104	102	100	90	66	57	0	0	126	123	113	93	79	69	0	0	0	0	
		80	126	123	115	100	88	79	72	66	131	129	125	115	104	94	87	80	159	156	145	126	112	103	96	89		
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		100	100	95	82	70	0	0	0	103	103	101	84	72	0	0	0	125	125	119	102	87	0	0	0	0	0	
		80	128	126	121	107	95	86	78	72	133	131	127	121	110	101	94	87	161	158	153	135	120	110	103	96		
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		99	99	99	88	76	0	0	0	103	103	103	91	79	0	0	0	124	124	124	110	95	0	0	0	0	0	
		80	129	127	125	113	102	92	85	78	135	133	130	127	117	108	100	94	163	161	157	142	128	117	109	102		
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		99	99	99	93	0	0	0	0	102	102	102	96	0	0	0	0	123	123	123	116	0	0	0	0	0	0	
		80	131	129	126	119	108	98	91	84	136	134	132	128	122	114	106	100	165	162	159	150	136	124	114	106		
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	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	132	130	128	124	113	104	96	90	137	136	133	129	127	119	112	94	166	164	161	156	143	131	122	113		
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	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	133	131	129	127	118	109	102	95	138	137	135	133	129	124	106	99	167	165	163	160	149	138	128	120		

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

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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 46"x 92.5" Landscape Orientation

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

Exp D	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3										
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)										
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	
90	44-X	-81	-71	-52	0	0	0	0	0	-90	-88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-81	-74	-54	0	0	0	0	0	-90	-88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-169	-153	-114	-88	-69	-56	-47	-41	-187	-182	-147	-118	-98	-81	-68	-59	-196	-191	-164	-139	-116	-99	-84	0	0	
		80	-225	-203	-152	-118	-93	-75	-63	-55	-249	-242	-196	-158	-130	-108	-92	-79	-261	-255	-219	-186	-155	-133	-112	-97	
100	44-X	-87	-83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-87	-83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-181	-173	-135	-106	-88	-72	-60	-52	-197	-192	-166	-139	-116	-100	-86	0	-205	-201	-183	-158	-137	-118	0	0	0	
		80	-242	-230	-181	-142	-117	-96	-80	-69	-263	-256	-221	-186	-156	-134	-115	-309	-273	-267	-244	-210	-183	-158	-139	-122	
110	44-X	-92	-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	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	-154	-124	-104	-89	-74	0	-205	-201	-183	-158	-135	-117	0	0	-212	-208	-199	-175	-156	0	0	0	0	
		80	-255	-248	-205	-166	-138	-118	-100	-86	-273	-267	-244	-211	-181	-157	-138	-381	-282	-277	-265	-233	-207	-183	-163	-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	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-199	-194	-170	-142	-119	-103	-90	0	-211	-208	-198	-173	-153	0	0	0	-217	-214	-209	-190	0	0	0	0	0	
		80	-265	-259	-226	-190	-160	-138	-120	-104	-281	-276	-264	-231	-205	-179	-159	-447	-289	-285	-278	-253	-227	-207	-186	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
		-206	-201	-184	-159	-135	-117	0	0	-216	-213	-208	-187	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-274	-268	-245	-212	-180	-157	-138	-124	-288	-284	-277	-249	-224	-201	-179	0	-295	-291	-285	-270	-246	-225	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
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-211	-207	-197	-172	-150	0	0	0	-220	-217	-213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-281	-276	-262	-229	-201	-175	-156	-140	-293	-289	-284	-266	-241	-220	0	0	-299	-296	-291	-286	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
		-215	-212	-207	-184	-165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-287	-282	-275	-245	-220	-194	-173	0	-298	-294	-289	-281	-256	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
		-219	-216	-211	-195	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-292	-287	-281	-260	-235	-212	0	0	-302	-298	-294	-289	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
		0	0	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	-296	-292	-286	-273	-248	-228	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
		0	0	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	-299	-296	-291	-285	-261	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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K2 Systems, LLC

PV Tilt Up Kit Solar PV Mount System

Standard size 46"x 92.5" Landscape Orientation

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

Exp D	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1							Roof Wind Pressure Zone 2							Roof Wind Pressure Zone 3										
			Roof Snow Load (psf)							Roof Snow Load (psf)							Roof Snow Load (psf)										
			0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	0	10	20	30	40	50	60	70	
90	44-X	-68	-67	-51	0	0	0	0	0	-69	-69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-73	-69	-52	0	0	0	0	0	-74	-74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		-165	-147	-107	-83	-65	-53	-44	-38	-183	-178	-140	-111	-92	-76	-64	-55	-192	-187	-161	-131	-109	-93	-79	0	0	
		80	-210	-193	-151	-123	-105	-91	-80	-72	-232	-226	-187	-157	-136	-119	-107	-96	-243	-237	-208	-177	-155	-137	-124	-112	
100	44-X	-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
		-74	-74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-177	-169	-127	-100	-82	-67	-57	-49	-193	-188	-162	-131	-109	-94	-81	0	-201	-196	-179	-153	-129	-111	0	0	0	
		80	-225	-217	-174	-145	-124	-109	-97	-87	-244	-238	-210	-180	-157	-140	-126	-260	-253	-248	-230	-200	-177	-159	-144	-131	
110	44-X	-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
		-187	-182	-146	-117	-97	-83	-70	0	-201	-196	-179	-150	-127	-110	0	0	-207	-204	-195	-171	-148	0	0	0	0	
		80	-236	-230	-195	-165	-143	-126	-113	-102	-253	-248	-230	-200	-177	-159	-144	-300	-261	-256	-250	-220	-197	-178	-163	-150	
120	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	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	-190	-165	-133	-112	-97	-85	0	-207	-203	-194	-169	-144	0	0	0	-212	-209	-205	-186	0	0	0	0	0	
		80	-246	-240	-214	-183	-161	-143	-129	-117	-260	-256	-248	-219	-195	-177	-161	-339	-267	-263	-257	-238	-215	-197	-181	-167	
130	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-201	-197	-180	-149	-127	-110	0	0	-209	-208	-204	-183	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-253	-248	-231	-201	-177	-159	-144	-132	-266	-262	-256	-235	-212	-193	-178	-377	-272	-268	-263	-254	-232	-213	-197	-184	
140	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-202	-202	-192	-165	-141	0	0	0	-209	-209	-208	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-259	-255	-246	-216	-193	-174	-159	-146	-270	-267	-262	-250	-228	-209	-193	-412	-275	-272	-268	-264	-247	-228	-213	-199	
150	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-202	-202	-202	-179	-155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-264	-260	-254	-231	-208	-189	-173	-160	-274	-271	-267	-262	-242	-223	-207	-445	-279	-276	-272	-268	-260	-242	-227	-213	
160	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-202	-202	-202	-191	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		80	-268	-265	-259	-244	-221	-202	-187	-173	-277	-275	-270	-267	-254	-236	-221	-477	-281	-279	-276	-272	-269	-255	0	0	
170	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	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	-272	-269	-264	-256	-234	-215	-199	-185	-280	-278	-274	-270	-266	-248	-233	0	0	0	0	0	0	0	0	0	
180	44-X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	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	-275	-272	-268	-263	-245	-227	-211	-197	-282	-280	-277	-273	-270	-259	0	0	0	0	0	0	0	0	0	0	

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

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