



4/26/2017

Attn: Mr. Marshall Green
Quick Mount PV
2700 Mitchell Dr.
Walnut Creek, CA, 94598

RE: Quick Mount PV QHook Mount System for use with
Unirac Solarmount Flush-to-Roof Rail System

SEI Project No.: 17054.00

Dear Mr. Green

Structural Enginuity Inc. (SEI) has completed its review of the Quickmount PV QHook Mount System for use in conjunction with the Unirac Solarmount Flush-to-Roof Rail System. The QHook product line includes the Quick Hook for Side Mount Rails (QMHSS & QMHLS) mounts.

The review was based on the following reference data:

- Unirac, Design & Engineering Guide – Solarmount: Flush-to-Roof Design, May 19, 2016
- Applied Materials & Engineering, Laboratory Load Test of the QMHSS with 6061 Base Plate, Project Number 114490C, March 18, 2015
- Applied Materials & Engineering, Laboratory Load Test of the QMHLS with 6061 Base Plate, Project Number 114490C, March 10, 2015

SEI has determined that the QHook Mount is suitable for use with the Unirac Solarmount System. The approved installation and allowable loads for the Quick Mount PV QHook products is outlined in the Structural Enginuity, Inc. letters referenced above. The allowable load values are shown below, no additional load duration factors may be applied to these values.

Table 1: QHook Allowable Loads

Load Direction	Mount Type	Allowable Load
Uplift	QMHSS	506 lb.
	QMHLs	418 lb.
Lateral	QMHSS	367 lb.
	QMHLs	323 lb.
Compression	QMHSS	378 lb.
	QMHLs	338 lb.

SEI has prepared allowable rail span charts for the Unirac Solarmount System used in conjunction with the Quick Mount PV QHook products. These span tables serve as a quick reference for looking up maximum rail spans based on building and site conditions and follow the 2016 CBC, 2015 IBC/IRC and applicable ASCE 7-10 load cases. The tables take into account the strength of the rail system as well as the allowable tension, compression, and lateral forces of the QHook Mount. A site specific analysis is required if the site conditions or building characteristics do not meet the requirements listed in the attached tables. In all cases, the tables are meant to be used in conjunction with Unirac Solarmount System Structural Report and Calculations and all requirements listed are still applicable for these tables including edge zones and edge distances.

Please contact our office if you have any further questions relating to this matter.

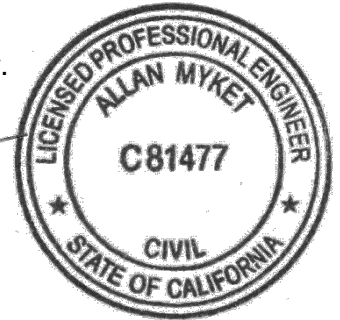
Sincerely,



Peter Martin
Engineer II
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Allan T. Myket, P.E.
President/Founder
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4/26/17

Structural Enginuity Inc.

Rail Spans (in.) for Unirac Solarmount Rails for use with QMHSS Products

Table 1A		Roof Height: 0 - 30 feet																	
		Roof Angle: 7 - 27 degrees		Roof Wind Pressure Zone 1				Roof Wind Pressure Zone 2				Roof Wind Pressure Zone 3							
Exposure B	Ultimate Wind Speed, V (mph)	Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
		0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs >7° to 27°	110	150	107	73	55	44	37	132	107	73	55	44	37	84	84	73	55	44	37
	115	150	105	72	54	44	37	120	105	72	54	44	37	76	76	72	54	44	37
	120	150	102	70	54	43	36	110	102	70	54	43	36	69	69	69	54	43	36
	130	141	97	68	52	43	36	92	92	68	52	43	36	58	58	58	52	43	36
	140	128	92	65	51	42	35	79	79	65	51	42	35	50	50	50	50	42	35
	150	116	87	63	49	41	34	68	68	63	49	41	34	43	43	43	43	41	34
	160	105	82	60	48	39	34	59	59	59	48	39	34	38	38	38	38	38	34
	170	96	78	58	46	38	33	52	52	52	46	38	33	33	33	33	33	33	33
	180	88	74	56	45	37	32	46	46	46	45	37	32	30	30	30	30	30	30
	200	72	66	51	42	35	31	37	37	37	37	35	31	24	24	24	24	24	24

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-10 and allowable uplift and lateral values of Quick Mount products per test reports.
2. Panels are assumed to be in portrait orientation with a maximum length of 66"

Rail Spans (in.) for Unirac Solarmount Rails for use with QMHLS Products

Table 1B		Roof Height: 0 - 30 feet																	
		Roof Angle: 7 - 27 degrees		Roof Wind Pressure Zone 1					Roof Wind Pressure Zone 2					Roof Wind Pressure Zone 3					
Exposure B	Ultimate Wind Speed, V (mph)	Roof Snow Load (psf)					Roof Snow Load (psf)					Roof Snow Load (psf)							
		0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs >7° to 27°	110	150	96	65	49	40	33	111	96	65	49	40	33	69	69	65	49	40	33
	115	147	94	64	49	39	33	100	94	64	49	39	33	63	63	63	49	39	33
	120	140	91	63	48	39	33	91	91	63	48	39	33	57	57	57	48	39	33
	130	126	87	61	47	38	32	76	76	61	47	38	32	48	48	48	47	38	32
	140	114	82	59	45	37	31	65	65	59	45	37	31	41	41	41	41	37	31
	150	103	78	56	44	36	31	56	56	56	44	36	31	36	36	36	36	36	31
	160	94	74	54	43	35	30	49	49	49	43	35	30	31	31	31	31	31	30
	170	85	70	52	41	34	29	43	43	43	41	34	29	28	28	28	28	28	28
	180	75	66	50	40	33	29	38	38	38	38	33	29	24	24	24	24	24	24
	200	60	59	46	37	32	27	31	31	31	31	31	27	20	20	20	20	20	20

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-10 and allowable uplift and lateral values of Quick Mount products per test reports.
2. Panels are assumed to be in portrait orientation with a maximum length of 66"

Rail Spans (in.) for Unirac Solarmount Rails for use with QMHSS Products

Table 2A		Roof Height: 0 - 30 feet																		
		Roof Angle: 7 - 27 degrees		Roof Wind Pressure Zone 1					Roof Wind Pressure Zone 2					Roof Wind Pressure Zone 3						
Exposure C	Ultimate Wind Speed, V (mph)	Roof Snow Load (psf)					Roof Snow Load (psf)					Roof Snow Load (psf)								
		0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50	
Roofs >7° to 27°	110	141	97	68	52	42	36	92	92	68	52	42	36	58	58	58	52	42	36	
	115	132	94	66	51	42	35	84	84	66	51	42	35	53	53	53	51	42	35	
	120	125	91	65	51	41	35	76	76	65	51	41	35	49	49	49	49	41	35	
	130	112	85	62	49	40	34	64	64	62	49	40	34	41	41	41	41	40	34	
	140	100	80	59	47	39	33	55	55	55	47	39	33	35	35	35	35	35	35	33
	150	90	75	56	45	38	32	47	47	47	45	38	32	30	30	30	30	30	30	30
	160	81	70	54	43	36	31	41	41	41	41	36	31	27	27	27	27	27	27	27
	170	71	66	51	42	35	30	37	37	37	37	35	30	24	24	24	24	24	24	24
	180	63	62	48	40	34	30	32	32	32	32	32	30	21	21	21	21	21	21	21
	200	51	51	44	37	32	28	26	26	26	26	26	26	17	17	17	17	17	17	17

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-10 and allowable uplift and lateral values of Quick Mount products per test reports.
2. Panels are assumed to be in portrait orientation with a maximum length of 66"

Rail Spans (in.) for Unirac Solarmount Rails for use with QMHL Products

Table 2B		Roof Height: 0 - 30 feet																	
		Roof Angle: 7 - 27 degrees		Roof Wind Pressure Zone 1					Roof Wind Pressure Zone 2					Roof Wind Pressure Zone 3					
Exposure C	Ultimate Wind Speed, V (mph)	Roof Snow Load (psf)						Roof Snow Load (psf)					Roof Snow Load (psf)						
		0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs >7° to 27°	110	126	87	61	47	38	32	76	76	61	47	38	32	48	48	48	47	38	32
	115	119	84	59	46	37	32	69	69	59	46	37	32	44	44	44	44	37	32
	120	112	81	58	45	37	31	63	63	58	45	37	31	40	40	40	40	37	31
	130	100	76	55	44	36	30	53	53	53	44	36	30	34	34	34	34	34	30
	140	89	71	53	42	35	30	45	45	45	42	35	30	29	29	29	29	29	29
	150	78	67	50	40	34	29	39	39	39	39	34	29	25	25	25	25	25	25
	160	67	63	48	39	33	28	34	34	34	34	33	28	22	22	22	22	22	22
	170	59	59	46	37	31	27	30	30	30	30	30	27	19	19	19	19	19	19
	180	52	52	43	36	30	26	27	27	27	27	27	26	17	17	17	17	17	17
	200	42	42	39	33	28	25	22	22	22	22	22	22	14	14	14	14	14	14

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-10 and allowable uplift and lateral values of Quick Mount products per test reports.
2. Panels are assumed to be in portrait orientation with a maximum length of 66"

Rail Spans (in.) for Unirac Solarmount Rails for use with QMHSS Products

Table 3A		Roof Height: 0 - 30 feet																	
		Roof Angle: 7 - 27 degrees		Roof Wind Pressure Zone 1					Roof Wind Pressure Zone 2					Roof Wind Pressure Zone 3					
Exposure D	Ultimate Wind Speed, V (mph)	Roof Snow Load (psf)					Roof Snow Load (psf)					Roof Snow Load (psf)							
		0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs >7° to 27°	110	126	91	65	51	41	35	77	77	65	51	41	35	49	49	49	49	41	35
	115	118	88	63	50	41	35	70	70	63	50	41	35	44	44	44	44	41	35
	120	111	85	62	49	40	34	64	64	62	49	40	34	41	41	41	41	40	34
	130	98	79	59	47	39	33	54	54	54	47	39	33	34	34	34	34	34	33
	140	88	74	56	45	37	32	46	46	46	45	37	32	30	30	30	30	30	30
	150	78	69	53	43	36	31	40	40	40	40	36	31	26	26	26	26	26	26
	160	68	64	50	41	35	30	35	35	35	35	35	30	22	22	22	22	22	22
	170	60	60	47	39	33	29	31	31	31	31	31	29	20	20	20	20	20	20
	180	53	53	45	37	32	28	27	27	27	27	27	27	18	18	18	18	18	18
	200	42	42	40	34	30	26	22	22	22	22	22	22	14	14	14	14	14	14

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-10 and allowable uplift and lateral values of Quick Mount products per test reports.
2. Panels are assumed to be in portrait orientation with a maximum length of 66"

Rail Spans (in.) for Unirac Solarmount Rails for use with QMHL Products

Table 3B		Roof Height: 0 - 30 feet																	
		Roof Angle: 7 - 27 degrees		Roof Wind Pressure Zone 1					Roof Wind Pressure Zone 2					Roof Wind Pressure Zone 3					
Exposure D	Ultimate Wind Speed, V (mph)	Roof Snow Load (psf)					Roof Snow Load (psf)					Roof Snow Load (psf)							
		0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs >7° to 27°	110	112	81	58	45	37	31	63	63	58	45	37	31	40	40	40	40	37	31
	115	105	79	57	44	36	31	58	58	57	44	36	31	37	37	37	37	36	31
	120	99	76	55	43	36	30	53	53	53	43	36	30	34	34	34	34	34	30
	130	88	71	53	42	35	30	44	44	44	42	35	30	28	28	28	28	28	28
	140	75	66	50	40	33	29	38	38	38	38	33	29	24	24	24	24	24	24
	150	64	61	47	38	32	28	33	33	33	33	32	28	21	21	21	21	21	21
	160	56	56	45	37	31	27	29	29	29	29	29	27	19	19	19	19	19	19
	170	49	49	42	35	30	26	25	25	25	25	25	25	16	16	16	16	16	16
	180	44	44	40	33	29	25	23	23	23	23	23	23	15	15	15	15	15	15
	200	35	35	35	30	26	23	18	18	18	18	18	18	12	12	12	12	12	12

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-10 and allowable uplift and lateral values of Quick Mount products per test reports.
2. Panels are assumed to be in portrait orientation with a maximum length of 66"

Rail Spans (in.) for Unirac Solarmount Rails for use with QMHSS Products

Table 4A		Roof Height: 0 - 30 feet																	
		Roof Angle: 27 - 45 degrees		Roof Wind Pressure Zone 1					Roof Wind Pressure Zone 2					Roof Wind Pressure Zone 3					
Exposure B	Ultimate Wind Speed, V (mph)	Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
		0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs >27° to 45°	110	122	104	80	65	55	42	122	104	80	65	55	42	122	104	80	65	55	42
	115	114	100	77	63	53	42	114	100	77	63	53	42	114	100	77	63	53	42
	120	107	96	75	61	52	42	107	96	75	61	52	42	107	96	75	61	52	42
	130	94	88	70	58	50	42	94	88	70	58	50	42	94	88	70	58	50	42
	140	84	81	65	55	47	42	84	81	65	55	47	42	84	81	65	55	47	42
	150	75	74	61	52	45	40	75	74	61	52	45	40	75	74	61	52	45	40
	160	67	67	57	49	43	38	67	67	57	49	43	38	67	67	57	49	43	38
	170	60	60	53	46	41	36	60	60	53	46	41	36	60	60	53	46	41	36
	180	55	55	50	43	39	35	55	55	50	43	39	35	55	55	50	43	39	35
	200	45	45	44	39	35	32	45	45	44	39	35	32	45	45	44	39	35	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-10 and allowable uplift and lateral values of Quick Mount products per test reports.
2. Panels are assumed to be in portrait orientation with a maximum length of 66"

Rail Spans (in.) for Unirac Solarmount Rails for use with QMHLS Products

Table 4B		Roof Height: 0 - 30 feet																	
		Roof Angle: 27 - 45 degrees		Roof Wind Pressure Zone 1					Roof Wind Pressure Zone 2					Roof Wind Pressure Zone 3					
Exposure B	Ultimate Wind Speed, V (mph)	Roof Snow Load (psf)					Roof Snow Load (psf)					Roof Snow Load (psf)							
		0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs >27° to 45°	110	109	93	71	58	49	42	109	93	71	58	49	42	109	93	71	58	49	42
	115	102	89	69	56	48	41	102	89	69	56	48	41	102	89	69	56	48	41
	120	96	86	67	55	47	40	96	86	67	55	47	40	96	86	67	55	47	40
	130	84	78	63	52	44	39	84	78	63	52	44	39	84	78	63	52	44	39
	140	75	72	58	49	42	37	75	72	58	49	42	37	75	72	58	49	42	37
	150	67	66	55	46	40	36	67	66	55	46	40	36	67	66	55	46	40	36
	160	60	60	51	44	38	34	60	60	51	44	38	34	60	60	51	44	38	34
	170	54	54	48	41	36	32	54	54	48	41	36	32	54	54	48	41	36	32
	180	49	49	44	39	34	31	49	49	44	39	34	31	49	49	44	39	34	31
	200	40	40	39	35	31	28	40	40	39	35	31	28	40	40	39	35	31	28

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-10 and allowable uplift and lateral values of Quick Mount products per test reports.
2. Panels are assumed to be in portrait orientation with a maximum length of 66"

Rail Spans (in.) for Unirac Solarmount Rails for use with QMHSS Products

Table 5A		Roof Height: 0 - 30 feet																	
		Roof Angle: 27 - 45 degrees		Roof Wind Pressure Zone 1				Roof Wind Pressure Zone 2				Roof Wind Pressure Zone 3							
Exposure C	Ultimate Wind Speed, V (mph)	Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
		0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs >27° to 45°	110	94	88	70	58	50	42	94	88	70	58	50	42	94	88	70	58	50	42
	115	88	83	67	56	48	42	88	83	67	56	48	42	88	83	67	56	48	42
	120	82	79	64	54	47	41	82	79	64	54	47	41	82	79	64	54	47	41
	130	72	72	59	51	44	39	72	72	59	51	44	39	72	72	59	51	44	39
	140	63	63	55	47	42	37	63	63	55	47	42	37	63	63	55	47	42	37
	150	56	56	51	44	39	35	56	56	51	44	39	35	56	56	51	44	39	35
	160	50	50	47	41	37	33	50	50	47	41	37	33	50	50	47	41	37	33
	170	45	45	43	38	35	31	45	45	43	38	35	31	45	45	43	38	35	31
	180	40	40	40	36	32	30	40	40	40	36	32	30	40	40	40	36	32	30
	200	33	33	33	31	29	27	33	33	33	31	29	27	33	33	33	31	29	27

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-10 and allowable uplift and lateral values of Quick Mount products per test reports.
2. Panels are assumed to be in portrait orientation with a maximum length of 66"

Rail Spans (in.) for Unirac Solarmount Rails for use with QMHLS Products

Table 5B		Roof Height: 0 - 30 feet																			
		Roof Angle: 27 - 45 degrees		Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
Exposure C	Ultimate Wind Speed, V (mph)	Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)							
		0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50		
Roofs >27° to 45°	110	84	78	62	52	44	39	84	78	62	52	44	39	84	78	62	52	44	39		
	115	78	75	60	50	43	38	78	75	60	50	43	38	78	75	60	50	43	38		
	120	73	71	58	49	42	37	73	71	58	49	42	37	73	71	58	49	42	37		
	130	64	64	53	45	39	35	64	64	53	45	39	35	64	64	53	45	39	35		
	140	56	56	49	42	37	33	56	56	49	42	37	33	56	56	49	42	37	33		
	150	50	50	45	39	35	31	50	50	45	39	35	31	50	50	45	39	35	31		
	160	45	45	42	37	33	30	45	45	42	37	33	30	45	45	42	37	33	30		
	170	40	40	39	34	31	28	40	40	39	34	31	28	40	40	39	34	31	28		
	180	36	36	36	32	29	27	36	36	36	32	29	27	36	36	36	32	29	27		
	200	30	30	30	28	26	24	30	30	30	28	26	24	30	30	30	28	26	24		

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-10 and allowable uplift and lateral values of Quick Mount products per test reports.
2. Panels are assumed to be in portrait orientation with a maximum length of 66"

Rail Spans (in.) for Unirac Solarmount Rails for use with QMHSS Products

Table 6A		Roof Height: 0 - 30 feet																	
		Roof Angle: 27 - 45 degrees		Roof Wind Pressure Zone 1				Roof Wind Pressure Zone 2				Roof Wind Pressure Zone 3							
Exposure D	Ultimate Wind Speed, V (mph)	Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
		0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs >27° to 45°	110	82	80	65	54	47	41	82	80	65	54	47	41	82	80	65	54	47	41
	115	76	75	62	52	45	40	76	75	62	52	45	40	76	75	62	52	45	40
	120	71	71	59	50	44	39	71	71	59	50	44	39	71	71	59	50	44	39
	130	62	62	54	47	41	37	62	62	54	47	41	37	62	62	54	47	41	37
	140	54	54	50	43	39	35	54	54	50	43	39	35	54	54	50	43	39	35
	150	48	48	46	40	36	33	48	48	46	40	36	33	48	48	46	40	36	33
	160	43	43	42	37	34	31	43	43	42	37	34	31	43	43	42	37	34	31
	170	38	38	38	35	32	29	38	38	38	35	32	29	38	38	38	35	32	29
	180	35	35	35	32	30	27	35	35	35	32	30	27	35	35	35	32	30	27
	200	28	28	28	28	26	24	28	28	28	28	26	24	28	28	28	28	26	24

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-10 and allowable uplift and lateral values of Quick Mount products per test reports.
2. Panels are assumed to be in portrait orientation with a maximum length of 66"

Rail Spans (in.) for Unirac Solarmount Rails for use with QMHL Products

Table 6B		Roof Height: 0 - 30 feet																	
		Roof Angle: 27 - 45 degrees		Roof Wind Pressure Zone 1					Roof Wind Pressure Zone 2					Roof Wind Pressure Zone 3					
Exposure D	Ultimate Wind Speed, V (mph)	Roof Snow Load (psf)					Roof Snow Load (psf)					Roof Snow Load (psf)							
		0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs >27° to 45°	110	74	71	58	49	42	37	74	71	58	49	42	37	74	71	58	49	42	37
	115	68	67	55	47	41	36	68	67	55	47	41	36	68	67	55	47	41	36
	120	64	64	53	45	39	35	64	64	53	45	39	35	64	64	53	45	39	35
	130	55	55	48	42	37	33	55	55	48	42	37	33	55	55	48	42	37	33
	140	49	49	44	39	34	31	49	49	44	39	34	31	49	49	44	39	34	31
	150	43	43	41	36	32	29	43	43	41	36	32	29	43	43	41	36	32	29
	160	38	38	37	33	30	27	38	38	37	33	30	27	38	38	37	33	30	27
	170	34	34	34	31	28	26	34	34	34	31	28	26	34	34	34	31	28	26
	180	31	31	31	29	26	24	31	31	31	29	26	24	31	31	31	29	26	24
	200	25	25	25	25	23	22	25	25	25	25	23	22	25	25	25	25	23	22

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-10 and allowable uplift and lateral values of Quick Mount products per test reports.
2. Panels are assumed to be in portrait orientation with a maximum length of 66"