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Pegasus Solar™ Inc.  
100 West Ohio Avenue  
Richmond, CA 94804

January 16, 2019  
page 1 of 8

Attn: Mr. Kai Stephan, CEO

**Subject: Pegasus Solar™ Mounting System for Composite Asphalt or Concrete Tile Roof Supporting Everest (Everest) Solar Systems, LLC Crossrail 48 (X48) Rails Maximum Attachment Spacing**

SML Job No.: 182-15

Dear Mr. Stephan:

We have analyzed the Pegasus Solar™ photovoltaic (PV) panel roof mount system for its use on a composite asphalt or concrete tile roof in conjunction with the Everest X48 rail attached. It was determined that, for the configurations and criteria described below, this system is in compliance with the applicable sections of the following reference documents:

Codes: ASCE/SEI 7-10 Min. Design Loads for Buildings & Other Structures  
California Building Code 2016 Edition  
California Residential Building Code 2016 Edition  
Other: Aluminum Design Manual, ADM 2015 Edition

This letter is intended to address the allowable attachment spacing for the Pegasus Solar™ Composite Asphalt or Concrete Tile Roof Solar Mounting system with the Everest X48 rail system.

We have reviewed the test data for Pegasus Solar™ Concrete Tile Roof and L-Foot Composite Asphalt Roof Solar Mounting System prepared by Western Technologies (WT), tested January 7, 2017, and by Applied Materials & Engineering (AME), tested September 20, 2017 respectively, in conjunction with the span tables from the Everest X48 Rail, CrossRail PV Panel Mounting System – Structural Analysis letter by Moment Engineering + Design, dated June 23, 2017. We have determined that, subject to the limitations outlined below, the Pegasus Solar™ L-Foot Composite Asphalt Roof or Concrete Tile Roof Solar Mounting System is suitable for use with the Everest X48 rail.

The values in tables 1-9 provided below represent the lowest value for the attachment spacing based on either the allowable loads of the Pegasus Solar™ Concrete Tile Roof Mounting photovoltaic (PV) panel roof mount system or the maximum span of the X48 rail recommended by the manufacturer. The values in the tables below shall be verified by the end user of this letter to comply with all the requirements of the rail manufacturers installation recommendations. These values are based on a maximum building height of 30 feet.

**Concrete Tile Roof System**

**Table 1: Maximum Span Length (in.) - Wind Exposure B Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs 0° to 7°	110	X48	96	88	81	72	63	56	89	88	81	72	63	56	76	76	76	72	63	56
	115	X48	96	88	81	72	63	56	86	86	81	72	63	56	73	73	73	72	63	56
	120	X48	96	88	81	72	63	56	83	83	81	72	63	56	69	69	69	69	63	56
	130	X48	95	88	81	72	63	56	79	79	79	72	63	56	60	60	60	60	60	56
	140	X48	90	88	81	72	63	56	73	73	73	72	63	56	51	51	51	51	51	51
	150	X48	85	85	80	72	63	56	68	68	68	68	63	56	44	44	44	44	44	44
	160	X48	81	81	80	71	63	56	61	61	61	61	61	56	39	39	39	39	39	39
	170	X48	78	78	78	70	63	56	54	54	54	54	54	54	34	34	34	34	34	34
	180	X48	74	74	74	69	63	56	48	48	48	48	48	48	30	30	30	30	30	30
200	X48	66	66	66	66	61	56	38	38	38	38	38	38	24	24	24	24	24	24	

**Table 2: Maximum Span Length (in.) - Wind Exposure C Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs 0° to 7°	110	X48	94	88	81	72	63	56	79	79	79	72	63	56	59	59	59	59	59	56
	115	X48	92	88	81	72	63	56	75	75	75	72	63	56	54	54	54	54	54	54
	120	X48	89	88	81	72	63	56	72	72	72	72	63	56	49	49	49	49	49	49
	130	X48	84	84	80	72	63	56	66	66	66	66	63	56	42	42	42	42	42	42
	140	X48	79	79	79	71	63	56	57	57	57	57	57	56	36	36	36	36	36	36
	150	X48	75	75	75	69	63	56	49	49	49	49	49	49	31	31	31	31	31	31
	160	X48	70	70	70	68	62	56	43	43	43	43	43	43	27	27	27	27	27	27
	170	X48	66	66	66	66	61	56	38	38	38	38	38	38	24	24	24	24	24	24
	180	X48	62	62	62	62	60	56	34	34	34	34	34	34	21	21	21	21	21	21
200	X48	50	50	50	50	50	50	27	27	27	27	27	27	17	17	17	17	17	17	

**Table 3: Maximum Span Length - Wind Exposure D Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs 0° to 7°	110	X48	89	88	81	72	63	56	72	72	72	72	63	56	50	50	50	50	50	50
	115	X48	86	86	81	72	63	56	69	69	69	69	63	56	45	45	45	45	45	45
	120	X48	83	83	80	72	63	56	66	66	66	66	63	56	41	41	41	41	41	41
	130	X48	79	79	79	70	63	56	56	56	56	56	56	56	35	35	35	35	35	35
	140	X48	73	73	73	69	63	56	48	48	48	48	48	48	30	30	30	30	30	30
	150	X48	68	68	68	68	62	56	41	41	41	41	41	41	26	26	26	26	26	26
	160	X48	64	64	64	64	61	56	36	36	36	36	36	36	23	23	23	23	23	23
	170	X48	59	59	59	59	59	55	32	32	32	32	32	32	20	20	20	20	20	20
	180	X48	52	52	52	52	52	52	28	28	28	28	28	28	18	18	18	18	18	18
200	X48	42	42	42	42	42	42	23	23	23	23	23	23	14	14	14	14	14	14	

**Concrete Tile Roof System**

**Table 4: Maximum Span Length (in.) - Wind Exposure B Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs >7° to 27°	110	X48	96	89	78	66	58	52	90	89	78	66	58	52	78	78	78	66	58	52
	115	X48	96	89	78	66	58	52	87	87	78	66	58	52	75	75	75	66	58	52
	120	X48	96	89	78	66	58	52	85	85	78	66	58	52	71	71	71	66	58	52
	130	X48	95	88	77	66	58	52	80	80	77	66	58	52	63	63	63	63	58	52
	140	X48	92	87	76	66	58	52	74	74	74	66	58	52	54	54	54	54	54	52
	150	X48	88	85	74	66	58	52	69	69	69	66	58	52	47	47	47	47	47	47
	160	X48	84	84	73	64	58	52	63	63	63	63	58	52	41	41	41	41	41	41
	170	X48	80	80	71	63	58	52	56	56	56	56	56	52	36	36	36	36	36	36
	180	X48	76	76	70	62	57	52	50	50	50	50	50	50	32	32	32	32	32	32
	200	X48	69	69	66	60	55	51	40	40	40	40	40	40	26	26	26	26	26	26

**Table 5: Maximum Span Length (in.) - Wind Exposure C Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs >7° to 27°	110	X48	95	88	77	66	58	52	80	80	77	66	58	52	63	63	63	63	58	52
	115	X48	93	87	77	66	58	52	77	77	77	66	58	52	57	57	57	57	57	52
	120	X48	91	87	76	66	58	52	73	73	73	66	58	52	52	52	52	52	52	52
	130	X48	86	85	74	65	58	52	68	68	68	65	58	52	44	44	44	44	44	44
	140	X48	82	82	72	64	58	52	59	59	59	59	58	52	38	38	38	38	38	38
	150	X48	78	78	70	62	57	52	51	51	51	51	51	51	33	33	33	33	33	33
	160	X48	73	73	68	61	56	52	45	45	45	45	45	45	29	29	29	29	29	29
	170	X48	68	68	66	60	55	51	40	40	40	40	40	40	26	26	26	26	26	26
	180	X48	64	64	64	59	54	50	35	35	35	35	35	35	23	23	23	23	23	23
	200	X48	54	54	54	54	52	49	28	28	28	28	28	28	18	18	18	18	18	18

**Table 6: Maximum Span Length - Wind Exposure D Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs >7° to 27°	110	X48	92	87	76	66	58	52	73	73	73	66	58	52	53	53	53	53	53	52
	115	X48	89	86	75	66	58	52	70	70	70	66	58	52	48	48	48	48	48	48
	120	X48	86	85	74	65	58	52	67	67	67	65	58	52	44	44	44	44	44	44
	130	X48	81	81	72	64	58	52	58	58	58	58	58	52	37	37	37	37	37	37
	140	X48	76	76	70	62	57	52	50	50	50	50	50	50	32	32	32	32	32	32
	150	X48	71	71	68	61	56	52	43	43	43	43	43	43	28	28	28	28	28	28
	160	X48	67	67	66	59	55	51	38	38	38	38	38	38	24	24	24	24	24	24
	170	X48	63	63	63	58	53	50	33	33	33	33	33	33	22	22	22	22	22	22
	180	X48	57	57	57	56	52	49	30	30	30	30	30	30	19	19	19	19	19	19
	200	X48	46	46	46	46	46	46	24	24	24	24	24	24	15	15	15	15	15	15

**Concrete Tile Roof System**

**Table 7: Maximum Span Length (in.) - Wind Exposure B Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
<b>B</b>	110	X48	93	88	75	65	57	52	93	88	75	65	57	52	93	88	75	65	57	52
	115	X48	91	87	74	65	57	52	91	87	74	65	57	52	91	87	74	65	57	52
	120	X48	89	86	73	65	57	52	89	86	73	65	57	52	89	86	73	65	57	52
	130	X48	86	84	71	63	57	52	86	84	71	63	57	52	86	84	71	63	57	52
	140	X48	83	81	69	62	56	52	83	81	69	62	56	52	83	81	69	62	56	52
	150	X48	81	78	68	61	55	51	80	78	68	61	55	51	80	78	68	61	55	51
	160	X48	79	75	66	59	54	51	76	75	66	59	54	51	76	75	66	59	54	51
	170	X48	75	72	64	58	53	50	71	71	64	58	53	50	71	71	64	58	53	50
	180	X48	71	70	62	57	52	49	67	67	62	57	52	49	67	67	62	57	52	49
	200	X48	65	65	59	54	50	47	56	56	56	54	50	47	56	56	56	54	50	47

**Table 8: Maximum Span Length (in.) - Wind Exposure C Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
<b>C</b>	110	X48	86	84	71	63	57	52	86	84	71	63	57	52	86	84	71	63	57	52
	115	X48	85	82	70	62	57	52	85	82	70	62	57	52	85	82	70	62	57	52
	120	X48	83	80	69	62	56	52	83	80	69	62	56	52	83	80	69	62	56	52
	130	X48	80	77	67	60	55	51	79	77	67	60	55	51	79	77	67	60	55	51
	140	X48	77	73	65	58	54	50	73	73	65	58	54	50	73	73	65	58	54	50
	150	X48	72	70	63	57	53	49	68	68	63	57	53	49	68	68	63	57	53	49
	160	X48	68	67	61	55	51	48	62	62	61	55	51	48	62	62	61	55	51	48
	170	X48	65	65	59	54	50	47	55	55	55	54	50	47	55	55	55	54	50	47
	180	X48	59	59	57	52	49	46	49	49	49	49	49	46	49	49	49	49	49	46
	200	X48	48	48	48	48	46	44	40	40	40	40	40	40	40	40	40	40	40	40

**Table 9: Maximum Span Length - Wind Exposure D Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
<b>D</b>	110	X48	83	80	69	62	56	52	83	80	69	62	56	52	83	80	69	62	56	52
	115	X48	81	78	68	61	56	51	81	78	68	61	56	51	81	78	68	61	56	51
	120	X48	80	76	67	60	55	51	78	76	67	60	55	51	78	76	67	60	55	51
	130	X48	76	73	64	58	54	50	72	72	64	58	54	50	72	72	64	58	54	50
	140	X48	71	70	62	56	52	49	67	67	62	56	52	49	67	67	62	56	52	49
	150	X48	67	67	60	55	51	48	60	60	60	55	51	48	60	60	60	55	51	48
	160	X48	63	63	58	53	50	47	53	53	53	53	50	47	53	53	53	53	50	47
	170	X48	56	56	56	52	48	45	47	47	47	47	47	45	47	47	47	47	47	45
	180	X48	50	50	50	50	47	44	42	42	42	42	42	42	42	42	42	42	42	42
	200	X48	40	40	40	40	40	40	34	34	34	34	34	34	34	34	34	34	34	34

The values in tables 10-18 provided below represent the lowest value for the attachment spacing based on either the allowable loads of the Pegasus Solar™ L-Foot Composite Asphalt Roof photovoltaic (PV) panel roof mount system or the maximum span of the X48 rail recommended by the manufacturer. The values in the tables below shall be verified by the end user of this letter to comply with all the requirements of the rail manufacturers installation recommendations. These values are based on a maximum building height of 30 feet.

**Composite Asphalt Roof System**

**Table 10: Maximum Span Length (in.) - Wind Exposure B Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs 0° to 7°	110	X48	96	88	81	72	63	56	89	88	81	72	63	56	76	76	76	72	63	56
	115	X48	96	88	81	72	63	56	86	86	81	72	63	56	73	73	73	72	63	56
	120	X48	96	88	81	72	63	56	83	83	81	72	63	56	69	69	69	69	63	56
	130	X48	95	88	81	72	63	56	79	79	79	72	63	56	64	64	64	64	63	56
	140	X48	90	88	81	72	63	56	73	73	73	72	63	56	59	59	59	59	59	56
	150	X48	85	85	80	72	63	56	68	68	68	68	63	56	55	55	55	55	55	55
	160	X48	81	81	80	71	63	56	64	64	64	64	63	56	52	52	52	52	52	52
	170	X48	78	78	78	70	63	56	60	60	60	60	60	56	48	48	48	48	48	48
	180	X48	74	74	74	69	63	56	56	56	56	56	56	56	46	46	46	46	46	46
	200	X48	66	66	66	66	61	56	51	51	51	51	51	51	41	41	41	41	41	41

**Table 11: Maximum Span Length (in.) - Wind Exposure C Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs 0° to 7°	110	X48	94	88	81	72	63	56	79	79	79	72	63	56	64	64	64	64	63	56
	115	X48	92	88	81	72	63	56	75	75	75	72	63	56	61	61	61	61	61	56
	120	X48	89	88	81	72	63	56	72	72	72	72	63	56	58	58	58	58	58	56
	130	X48	84	84	80	72	63	56	66	66	66	66	63	56	54	54	54	54	54	54
	140	X48	79	79	79	71	63	56	61	61	61	61	61	56	50	50	50	50	50	50
	150	X48	75	75	75	69	63	56	57	57	57	57	57	56	46	46	46	46	46	46
	160	X48	70	70	70	68	62	56	54	54	54	54	54	54	43	43	43	43	43	43
	170	X48	66	66	66	66	61	56	50	50	50	50	50	50	41	41	41	41	41	41
	180	X48	62	62	62	62	60	56	47	47	47	47	47	47	39	39	39	39	39	39
	200	X48	55	55	55	55	55	54	43	43	43	43	43	43	32	32	32	32	32	32

**Table 12: Maximum Span Length - Wind Exposure D Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Roofs 0° to 7°	110	X48	89	88	81	72	63	56	72	72	72	72	63	56	58	58	58	58	58	56
	115	X48	86	86	81	72	63	56	69	69	69	69	63	56	56	56	56	56	56	56
	120	X48	83	83	80	72	63	56	66	66	66	66	63	56	53	53	53	53	53	53
	130	X48	79	79	79	70	63	56	61	61	61	61	61	56	49	49	49	49	49	49
	140	X48	73	73	73	69	63	56	56	56	56	56	56	56	46	46	46	46	46	46
	150	X48	68	68	68	68	62	56	52	52	52	52	52	52	43	43	43	43	43	43
	160	X48	64	64	64	64	61	56	49	49	49	49	49	49	40	40	40	40	40	40
	170	X48	60	60	60	60	60	55	46	46	46	46	46	46	37	37	37	37	37	37
	180	X48	57	57	57	57	57	54	44	44	44	44	44	44	33	33	33	33	33	33
	200	X48	51	51	51	51	51	51	39	39	39	39	39	39	27	27	27	27	27	27

**Composite Asphalt Roof System**

**Table 13: Maximum Span Length (in.) - Wind Exposure B Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
<b>Roofs &gt;7° to 27°</b>	<b>110</b>	X48	96	89	78	66	58	52	90	89	78	66	58	52	78	78	78	66	58	52
	<b>115</b>	X48	96	89	78	66	58	52	87	87	78	66	58	52	75	75	75	66	58	52
	<b>120</b>	X48	96	89	78	66	58	52	85	85	78	66	58	52	71	71	71	66	58	52
	<b>130</b>	X48	95	88	77	66	58	52	80	80	77	66	58	52	66	66	66	66	58	52
	<b>140</b>	X48	92	87	76	66	58	52	74	74	74	66	58	52	61	61	61	61	58	52
	<b>150</b>	X48	88	85	74	66	58	52	69	69	69	66	58	52	57	57	57	57	57	52
	<b>160</b>	X48	84	84	73	64	58	52	65	65	65	64	58	52	53	53	53	53	53	52
	<b>170</b>	X48	80	80	71	63	58	52	61	61	61	61	58	52	50	50	50	50	50	50
	<b>180</b>	X48	76	76	70	62	57	52	58	58	58	58	57	52	47	47	47	47	47	47
	<b>200</b>	X48	69	69	66	60	55	51	52	52	52	52	52	52	42	42	42	42	42	42

**Table 14: Maximum Span Length (in.) - Wind Exposure C Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
<b>Roofs &gt;7° to 27°</b>	<b>110</b>	X48	95	88	77	66	58	52	80	80	77	66	58	52	66	66	66	66	58	52
	<b>115</b>	X48	93	87	77	66	58	52	77	77	77	66	58	52	63	63	63	63	58	52
	<b>120</b>	X48	91	87	76	66	58	52	73	73	73	66	58	52	60	60	60	60	58	52
	<b>130</b>	X48	86	85	74	65	58	52	68	68	68	65	58	52	55	55	55	55	55	52
	<b>140</b>	X48	82	82	72	64	58	52	63	63	63	63	58	52	51	51	51	51	51	51
	<b>150</b>	X48	78	78	70	62	57	52	58	58	58	58	57	52	48	48	48	48	48	48
	<b>160</b>	X48	73	73	68	61	56	52	55	55	55	55	55	52	45	45	45	45	45	45
	<b>170</b>	X48	68	68	66	60	55	51	51	51	51	51	51	51	42	42	42	42	42	42
	<b>180</b>	X48	64	64	64	59	54	50	49	49	49	49	49	49	40	40	40	40	40	40
	<b>200</b>	X48	58	58	58	56	52	49	44	44	44	44	44	44	34	34	34	34	34	34

**Table 15: Maximum Span Length - Wind Exposure D Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
<b>Roofs &gt;7° to 27°</b>	<b>110</b>	X48	92	87	76	66	58	52	73	73	73	66	58	52	60	60	60	60	58	52
	<b>115</b>	X48	89	86	75	66	58	52	70	70	70	66	58	52	58	58	58	58	58	52
	<b>120</b>	X48	86	85	74	65	58	52	67	67	67	65	58	52	55	55	55	55	55	52
	<b>130</b>	X48	81	81	72	64	58	52	62	62	62	62	58	52	51	51	51	51	51	51
	<b>140</b>	X48	76	76	70	62	57	52	57	57	57	57	57	52	47	47	47	47	47	47
	<b>150</b>	X48	71	71	68	61	56	52	54	54	54	54	54	52	44	44	44	44	44	44
	<b>160</b>	X48	67	67	66	59	55	51	50	50	50	50	50	50	41	41	41	41	41	41
	<b>170</b>	X48	63	63	63	58	53	50	47	47	47	47	47	47	39	39	39	39	39	39
	<b>180</b>	X48	59	59	59	56	52	49	45	45	45	45	45	45	36	36	36	36	36	36
	<b>200</b>	X48	53	53	53	53	50	47	40	40	40	40	40	40	29	29	29	29	29	29

**Composite Asphalt Roof System**

**Table 16: Maximum Span Length (in.) - Wind Exposure B Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
<b>Roofs &gt;27° to 45°</b>	<b>110</b>	X48	93	88	75	65	57	52	93	88	75	65	57	52	93	88	75	65	57	52
	<b>115</b>	X48	91	87	74	65	57	52	91	87	74	65	57	52	91	87	74	65	57	52
	<b>120</b>	X48	89	86	73	65	57	52	89	86	73	65	57	52	89	86	73	65	57	52
	<b>130</b>	X48	86	84	71	63	57	52	86	84	71	63	57	52	86	84	71	63	57	52
	<b>140</b>	X48	83	81	69	62	56	52	83	81	69	62	56	52	83	81	69	62	56	52
	<b>150</b>	X48	81	78	68	61	55	51	80	78	68	61	55	51	80	78	68	61	55	51
	<b>160</b>	X48	79	75	66	59	54	51	76	75	66	59	54	51	76	75	66	59	54	51
	<b>170</b>	X48	75	72	64	58	53	50	71	71	64	58	53	50	71	71	64	58	53	50
	<b>180</b>	X48	71	70	62	57	52	49	67	67	62	57	52	49	67	67	62	57	52	49
	<b>200</b>	X48	65	65	59	54	50	47	60	60	59	54	50	47	60	60	59	54	50	47

**Table 17: Maximum Span Length (in.) - Wind Exposure C Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
<b>Roofs &gt;27° to 45°</b>	<b>110</b>	X48	86	84	71	63	57	52	86	84	71	63	57	52	86	84	71	63	57	52
	<b>115</b>	X48	85	82	70	62	57	52	85	82	70	62	57	52	85	82	70	62	57	52
	<b>120</b>	X48	83	80	69	62	56	52	83	80	69	62	56	52	83	80	69	62	56	52
	<b>130</b>	X48	80	77	67	60	55	51	79	77	67	60	55	51	79	77	67	60	55	51
	<b>140</b>	X48	77	73	65	58	54	50	73	73	65	58	54	50	73	73	65	58	54	50
	<b>150</b>	X48	72	70	63	57	53	49	68	68	63	57	53	49	68	68	63	57	53	49
	<b>160</b>	X48	68	67	61	55	51	48	64	64	61	55	51	48	64	64	61	55	51	48
	<b>170</b>	X48	65	65	59	54	50	47	60	60	59	54	50	47	60	60	59	54	50	47
	<b>180</b>	X48	61	61	57	52	49	46	57	57	57	52	49	46	57	57	57	52	49	46
	<b>200</b>	X48	55	55	53	49	46	44	51	51	51	49	46	44	51	51	51	49	46	44

**Table 18: Maximum Span Length - Wind Exposure D Condition - ASCE 7-10**

Exposure	Ultimate Wind Speed, V (mph)	Rail Type	Roof Wind Pressure Zone 1						Roof Wind Pressure Zone 2						Roof Wind Pressure Zone 3					
			Roof Snow Load (psf)						Roof Snow Load (psf)						Roof Snow Load (psf)					
			0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
<b>Roofs &gt;27° to 45°</b>	<b>110</b>	X48	83	80	69	62	56	52	83	80	69	62	56	52	83	80	69	62	56	52
	<b>115</b>	X48	81	78	68	61	56	51	81	78	68	61	56	51	81	78	68	61	56	51
	<b>120</b>	X48	80	76	67	60	55	51	78	76	67	60	55	51	78	76	67	60	55	51
	<b>130</b>	X48	76	73	64	58	54	50	72	72	64	58	54	50	72	72	64	58	54	50
	<b>140</b>	X48	71	70	62	56	52	49	67	67	62	56	52	49	67	67	62	56	52	49
	<b>150</b>	X48	67	67	60	55	51	48	62	62	60	55	51	48	62	62	60	55	51	48
	<b>160</b>	X48	63	63	58	53	50	47	58	58	58	53	50	47	58	58	58	53	50	47
	<b>170</b>	X48	60	60	56	52	48	45	55	55	55	52	48	45	55	55	55	52	48	45
	<b>180</b>	X48	56	56	54	50	47	44	52	52	52	50	47	44	52	52	52	50	47	44
	<b>200</b>	X48	51	51	50	47	44	42	47	47	47	47	44	42	47	47	47	47	44	42



Pegasus Solar™ Inc.  
Pegasus Solar™ Inc. Mounting System for Composite Asphalt or  
Concrete Tile Roof Supporting Everest X48 Rails  
SML Job No.: 182-15

Mr. Kai Stephan

January 16, 2019

page 8 of 8

Our analysis assumes that the connections and associated hardware are installed in a workmanlike manner in accordance with the Pegasus Solar™ Mount Installation Manual and generally accepted standards of construction practice. It is the responsibility of the contractor to verify that the roof framing can safely support the loads imposed by the addition of the PV array. Starling Madison Lofquist, Inc. and Pegasus Solar™ assume no liability beyond what is specifically shown in this letter. Additional information is available at the Pegasus Solar™ web site, <http://pegasussolar.com/>

Please feel free to contact me at your convenience if you have any questions.

Respectfully yours,



Jesse Light, S.E.  
Sr. Structural Engineer

Rusmir Begic, E.I.T., M.S.E.  
Structural Designer