

IRONRIDGE AIRE PHOTOVOLTAIC PANEL RACKING SYSTEM WITH QUICKMOUNT HALO ULTRAGRIP ROOF ATTACHMENTS

GENERAL NOTES:

- THIS SYSTEM MEETS ALL OF THE REQUIREMENTS OF THE 7TH EDITION (2020) FLORIDA BUILDING CODE, INCLUDING THE HVHZ PROVISIONS.
- THIS SYSTEM HAS BEEN TESTED PER TAS 100(A) AND ASTM D7147. IT IS NOT A PART OF THE BUILDING ENVELOPE, AND IMPACT RESISTANCE IS NOT REQUIRED.
- THIS SYSTEM SHALL BE INSTALLED PER THE IRONRIDGE AIRE INSTALLATION MANUAL.
- THE PV PANELS ARE BY OTHERS AND ARE NOT A PART OF THIS APPROVAL.
- RAIL SPACING TO BE AS SPECIFIED BY THE PV PANEL MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- THE DESIGN OF THE ROOF SUBSTRATE IS THE RESPONSIBILITY OF THE ENGINEER OF RECORD OR OTHER SPECIALTY ENGINEER, AND IS NOT A PART OF THIS APPROVAL. THE SUBSTRATE MUST SAFELY TRANSMIT THE LOADS APPLIED TO THIS SYSTEM TO THE BUILDING STRUCTURE.
- FIRE RATINGS OR FIRE RESISTANCE IS NOT A PART OF THIS REVIEW.
- ALL ANCHORS SECURING THE SYSTEM TO PRESSURE TREATED WOOD SHALL BE CAPABLE OF RESISTING CORROSION CAUSED BY THE CHEMICALS IN THE WOOD.
- MATERIALS INCLUDING BUT NOT LIMITED TO STEEL/METAL SCREWS THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL BE PROTECTED PER FBC REQUIREMENTS.
- NO INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS PRODUCT. Cd=1.6 WAS USED FOR WOOD SCREWS ONLY.

WINDLOAD NOTES:

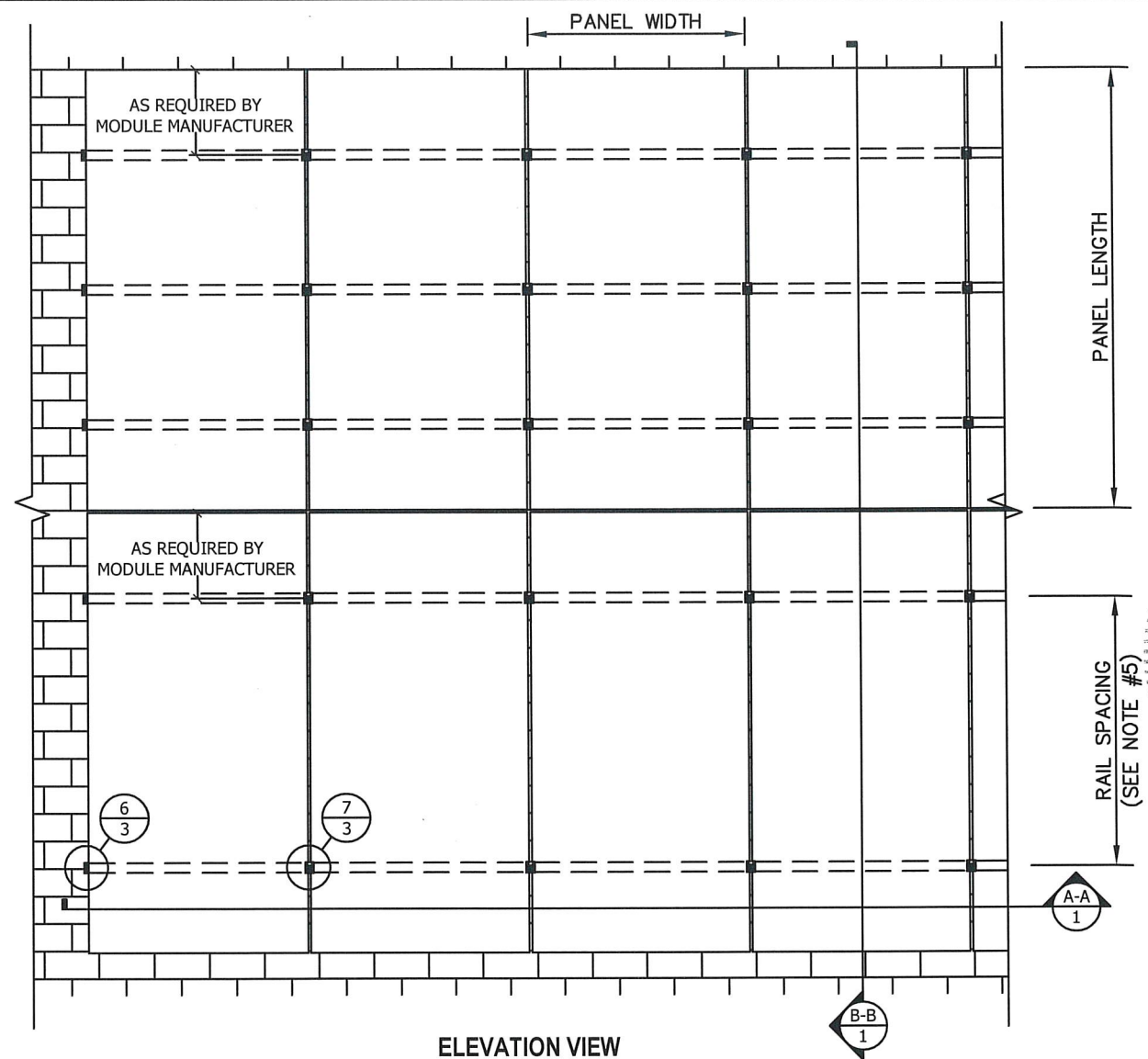
- DESIGN WINDLOADS MUST BE CALCULATED BY A LICENSED PROFESSIONAL ENGINEER OR ARCHITECT FOR EACH PROJECT, PER ASCE 7-16 SECTION 29.4.4. DESIGN WINDLOADS MAY NOT EXCEED THE ALLOWABLE WINDLOADS SHOWN IN THE CHARTS ON THIS SHEET OR SHEET 7.
- PANEL SYSTEM LOCATION, HEIGHT, AND SPACING MUST MEET THE REQUIREMENTS OF ASCE 7-16 SECTION 29.4.4. WINDLOADS ACT NORMAL TO THE SURFACE OF THE PV PANEL SYSTEM.
- OTHER CONFIGURATIONS REQUIRE PROJECT SPECIFIC ANALYSIS BY A LICENSED PROFESSIONAL ENGINEER OR ARCHITECT.
- ALLOWABLE WINDLOADS BELOW ARE BASED ON ANCHORING IN WOOD RAFTERS WITH S.G.=0.42 MIN. SEE SHEET 7 FOR ALLOWABLE FASTENER PATTERNS, AND FOR ALLOWABLE LOADS FOR FASTENING INTO THE DECK ONLY.

ALLOWABLE WINDLOADS

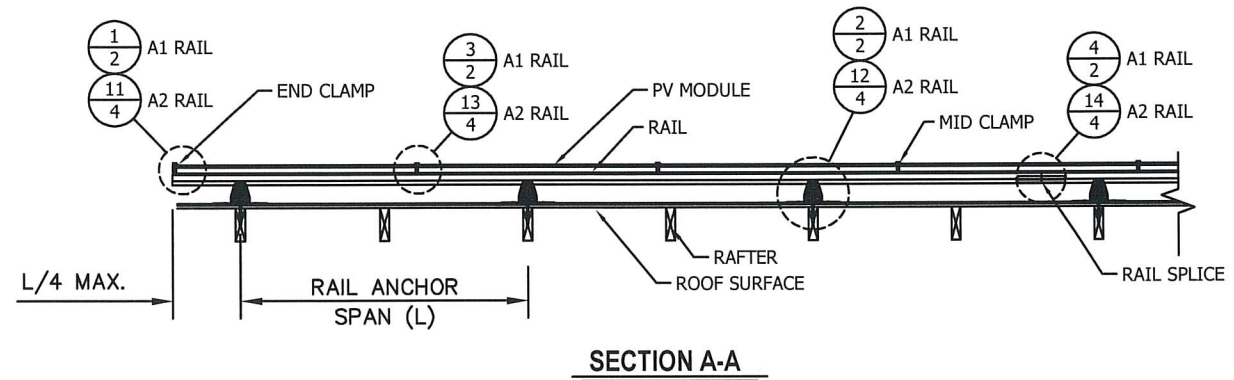
TWO RAIL SYSTEM					THREE RAIL SYSTEM				
PANEL WIDTH (in)	PANEL LENGTH (in)	ANCHOR SPAN (L) (in)	FASTENER PATTERN 1 or 2		PANEL WIDTH (in)	PANEL LENGTH (in)	ANCHOR SPAN (L) (in)	FASTENER PATTERN 1 or 2	
			A1 RAIL (+/- psf)	A2 RAIL (+/- psf)				A1 RAIL (+/- psf)	A2 RAIL (+/- psf)
45	67 1/2	16	100	100	45	67 1/2	16	150.0	150.0
		24	89.1	100			24	133.7	150.0
		32	79.6	100			32	119.4	150.0
		36	78.2	95.2			36	117.3	142.8
		48	64.5	89.2			48	96.8	133.8
		64	39.3	62.9			64	59.0	94.4
	72	31.3	54	72		47.0	81.0		
	80	16	84.3	84.3		80	16	126.5	126.5
		24	75.2	84.3			24	112.8	126.5
		32	67.2	84.3			32	100.8	126.5
		36	66	80.3			36	99.0	120.5
		48	54.4	75.3			48	81.6	113.0
64		33.2	53.1	64	49.8		79.7		
86	72	26.4	45.6	72	39.6	68.4			
	16	78.5	78.5	86	16	117.8	117.8		
	24	70	78.5		24	105.0	117.8		
	32	62.5	78.5		32	93.8	117.8		
	36	61.4	74.7		36	92.1	112.1		
	48	50.6	70		48	75.9	105.0		
64	30.9	49.4	64		46.4	74.1			
92 1/2	72	24.5	42.4	72	36.8	63.6			
	16	72.9	72.9	92 1/2	16	109.4	109.4		
	24	65	72.9		24	97.5	109.4		
	32	58.1	72.9		32	87.2	109.4		
	36	57.1	69.5		36	85.7	104.3		
	48	47	65.1		48	70.5	97.7		
64	28.7	45.9	64		43.1	68.9			
72	22.8	39.4	72	34.2	59.1				
LANDSCAPE LAYOUT:									
45	92 1/2	16	72.9	72.9	45	92 1/2	16	109.4	109.4
		24	71.2	72.9			24	106.8	109.4
		32	55.6	72.9			32	83.4	109.4
		36	48.4	69.5			36	72.6	104.3
		48	32.2	54.6			48	48.3	81.9
		64	28.4	48.4			64	42.6	72.6
72	27.7	48.4	72	41.6	72.6				

THREE RAIL SYSTEM:

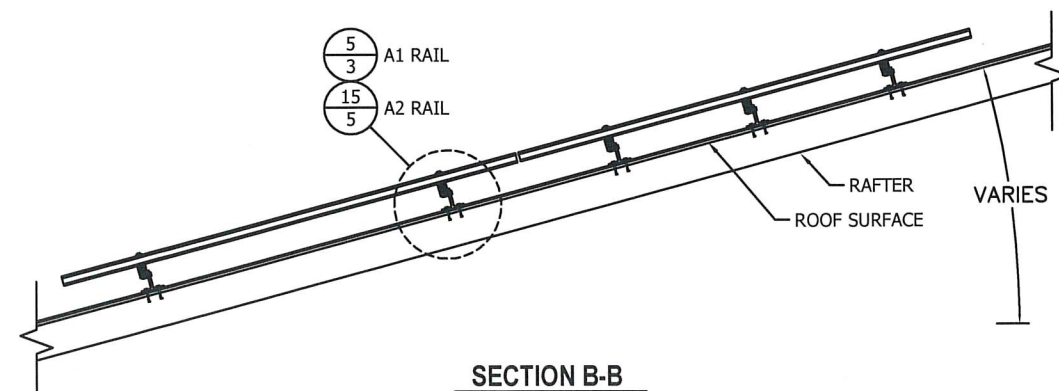
TWO RAIL SYSTEM:



ELEVATION VIEW



SECTION A-A



SECTION B-B

SCOTT WOLTERS
FL PE# 62354

WOLTERS ENGINEERING
(COA# 27194)
15211 97TH ROAD N
WEST PALM BEACH, FL 33412
(561) 225-1982

STATE OF FLORIDA
PROFESSIONAL ENGINEER
DEC 30 2022

REV.# DATE
12/30/22

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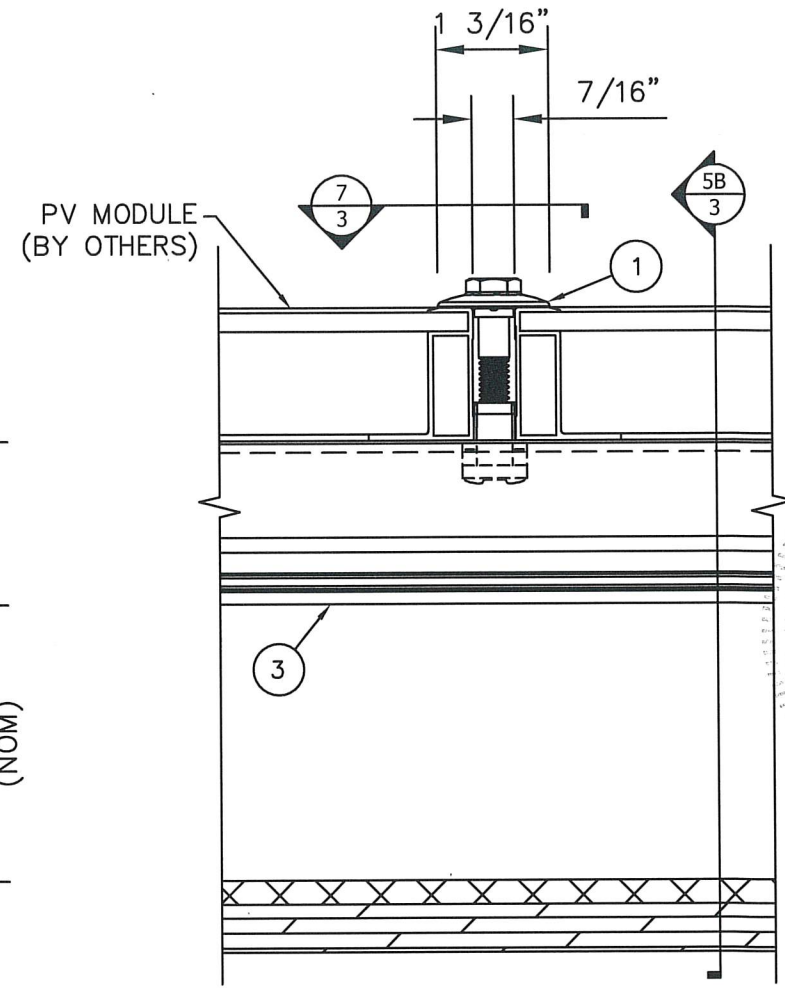
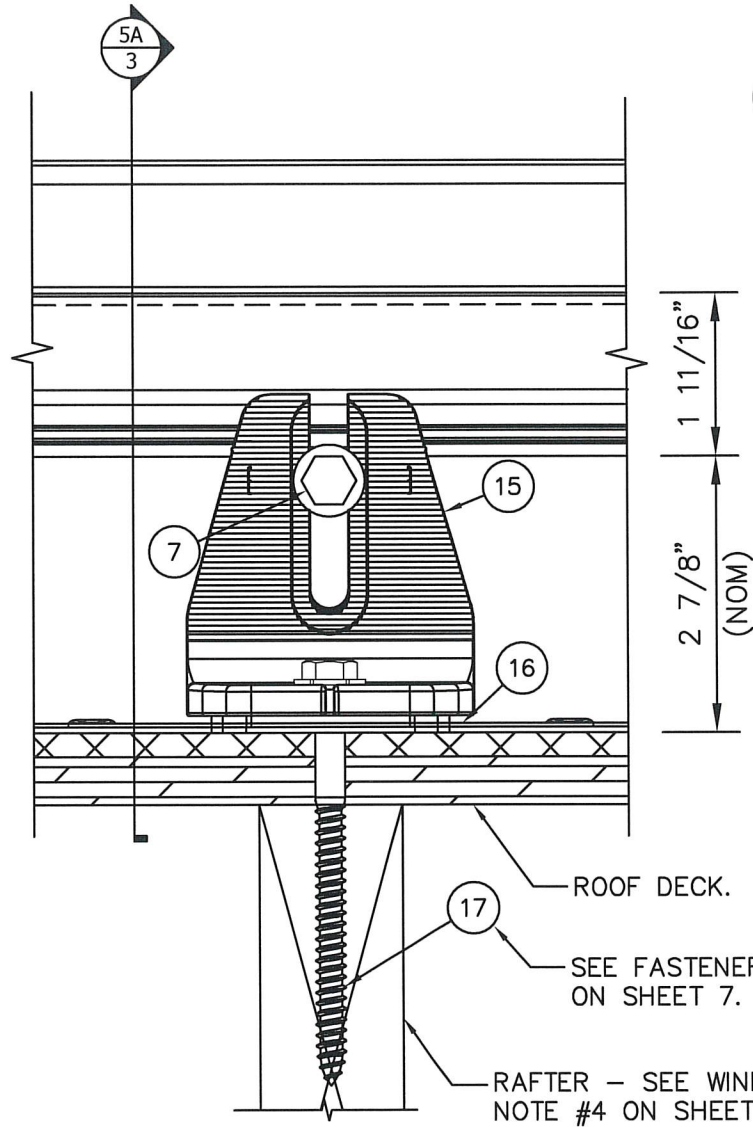
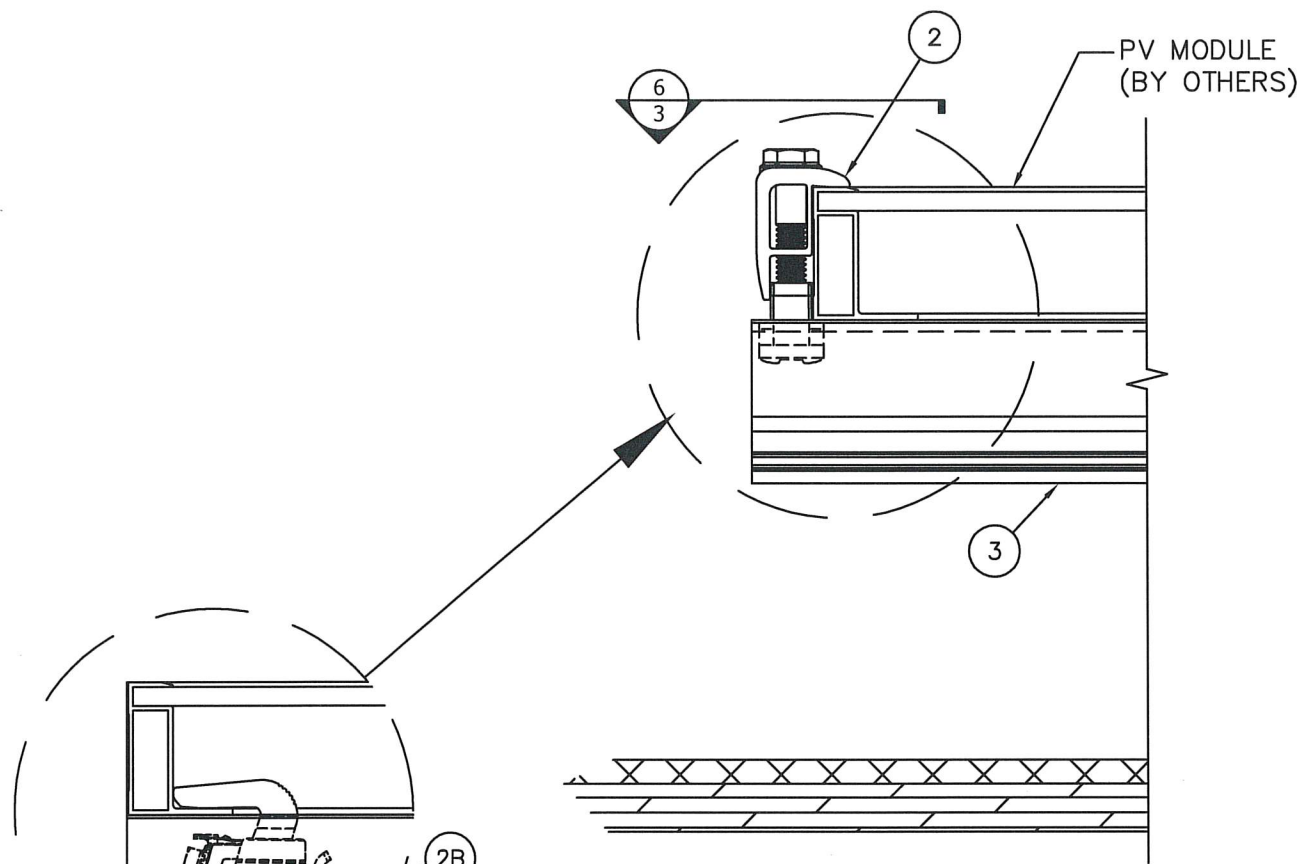
IRONRIDGE

28357 INDUSTRIAL BLVD.
HAYWARD, CA 94545

PHONE: (800) 227-9523
info@ironridge.com

DWG: AIRE-HUG
SHEET: 1/10

**IRONRIDGE AIRE PHOTOVOLTAIC PANEL RACKING SYSTEM
WITH QUICKMOUNT HALO ULTRAGRIP ROOF ATTACHMENTS**

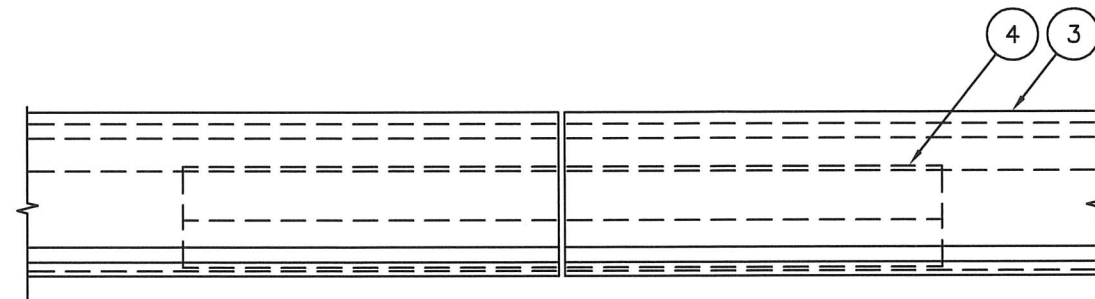


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ALTERNATE AIRE LOCK
STEALTH END-CLAMP DETAIL

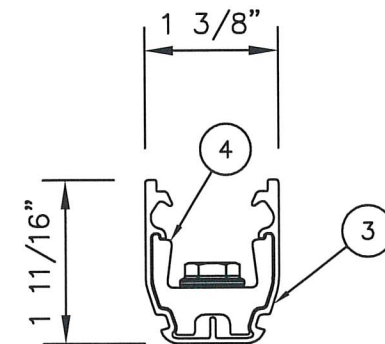
1
2
AIRE LOCK
END-CLAMP DETAIL

2
2
HALO ULTRAGRIP
DETAIL

3
2
AIRE LOCK
MID-CLAMP DETAIL



4
2
AIRE TIE
SPLICE DETAIL



SPLICE MAY NOT BE
LOCATED IN A CANTILEVER.

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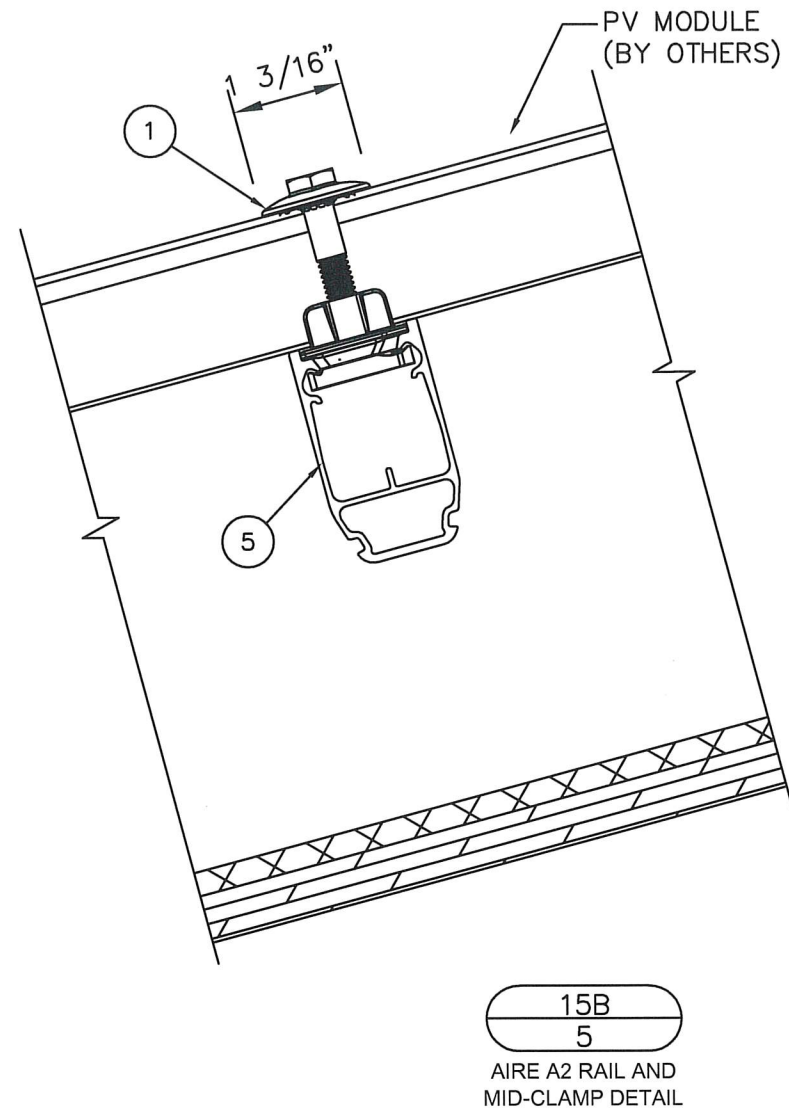
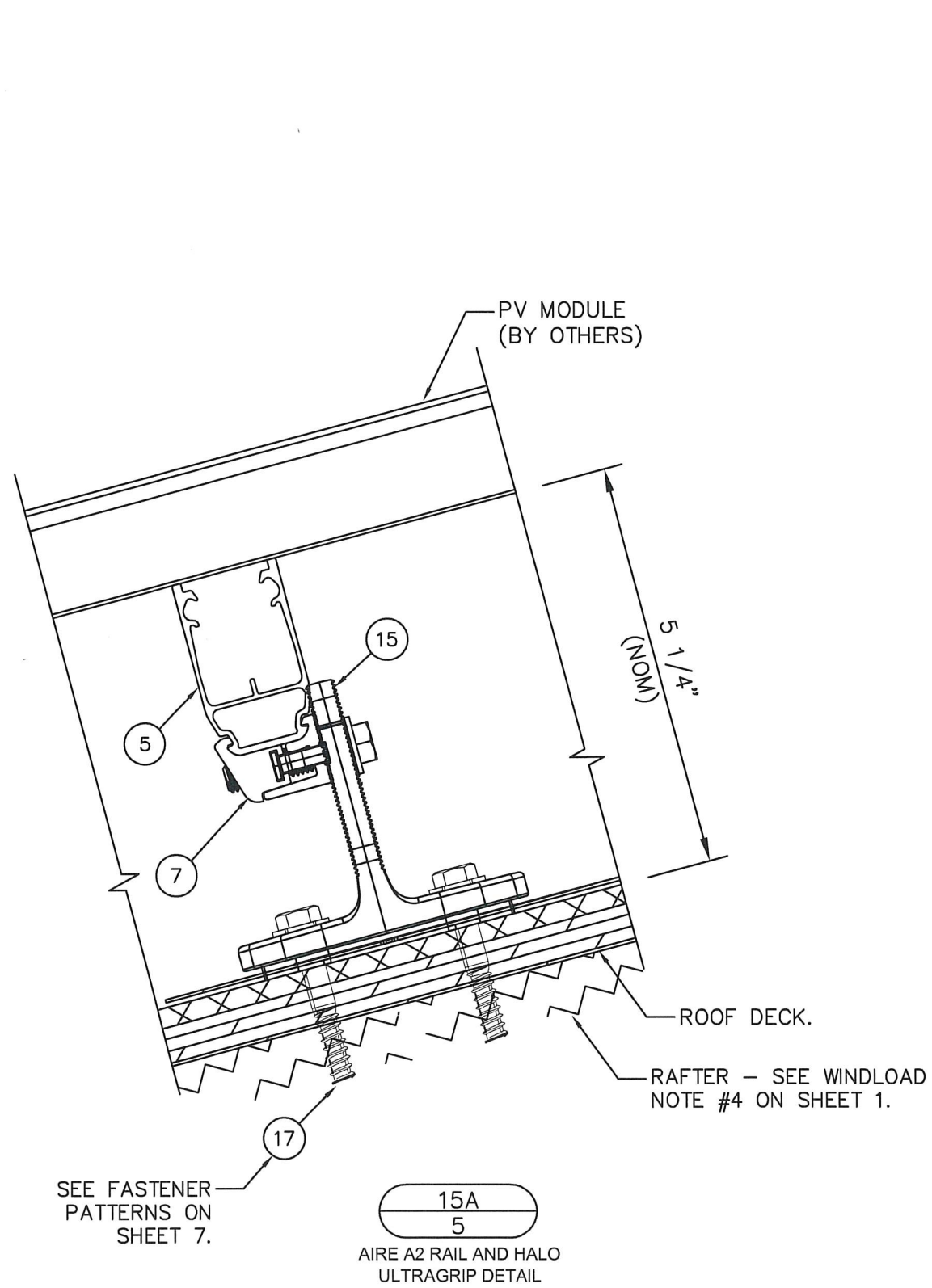
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IRONRIDGE

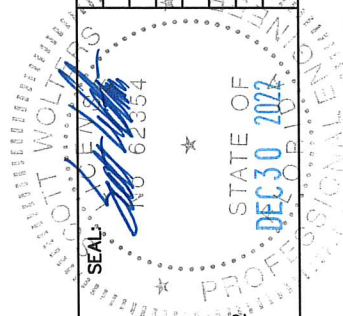
28357 INDUSTRIAL BLVD.
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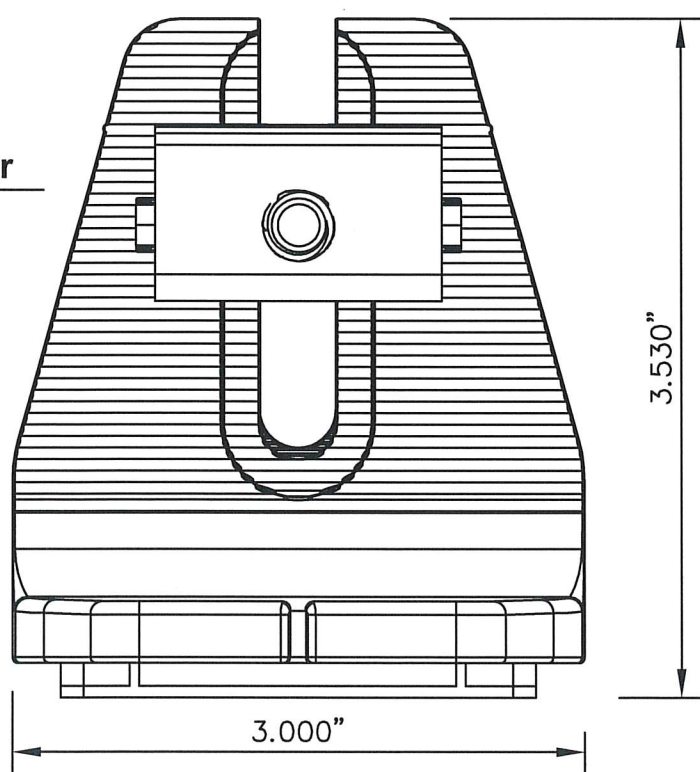
BILL OF MATERIALS- QuickMount Halo UltraGrip (HUG)		
#	DESCRIPTION	MATERIALS/NOTES
15	INTEGRATED MOUNT CASTING, MILL OR BLACK	300 SERIES ALUMINUM
16	ULTRAGRIP FLASHING SYSTEM	PROPRIETARY FLASHING SYSTEM
17	SCREW, #14 X 3" WITH EPDM BACKED WASHER	300 SERIES SS & EPDM

LOAD DIRECTION	ALLOWABLE LOADS		
	QUICKMOUNT HALO ULTRAGRIP		
	FASTENER PATTERN #1 or #2 (lb)	FASTENER PATTERN #3	
		7/16" or 15/32" OSB (lb)	19/32" OSB (lb)
F1 - UPLIFT	1004	195	273
F2 - SHEAR	240	117	117
F3 - SHEAR	368	117	117

SEE CHARTS ON SHEETS 1 AND 5 FOR ALLOWABLE WINDLOADS BASED ON RAFTER SPECIFIC GRAVITY.

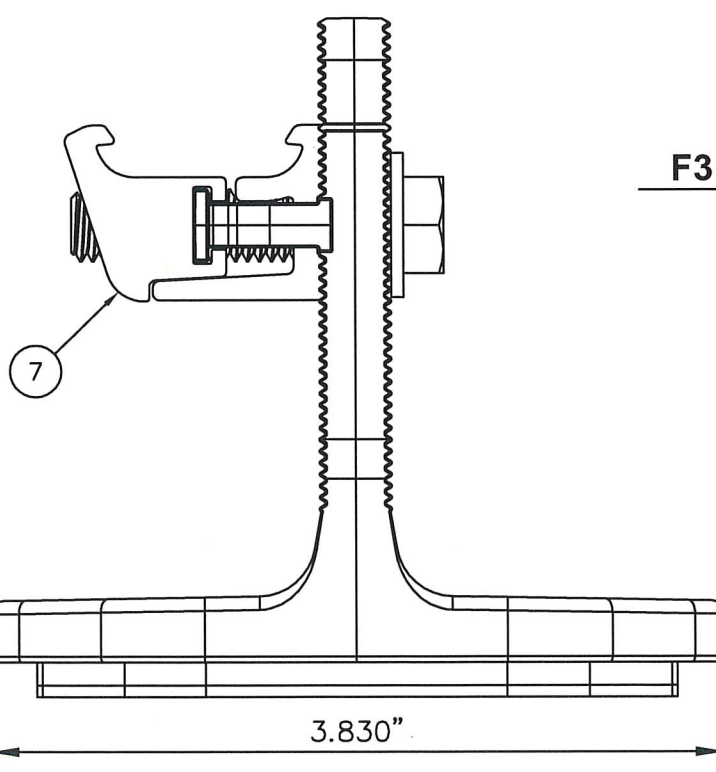
↑
Direct Tension/Uplift
(See Chart)

← **F2 = Lateral Shear**
(See Chart)

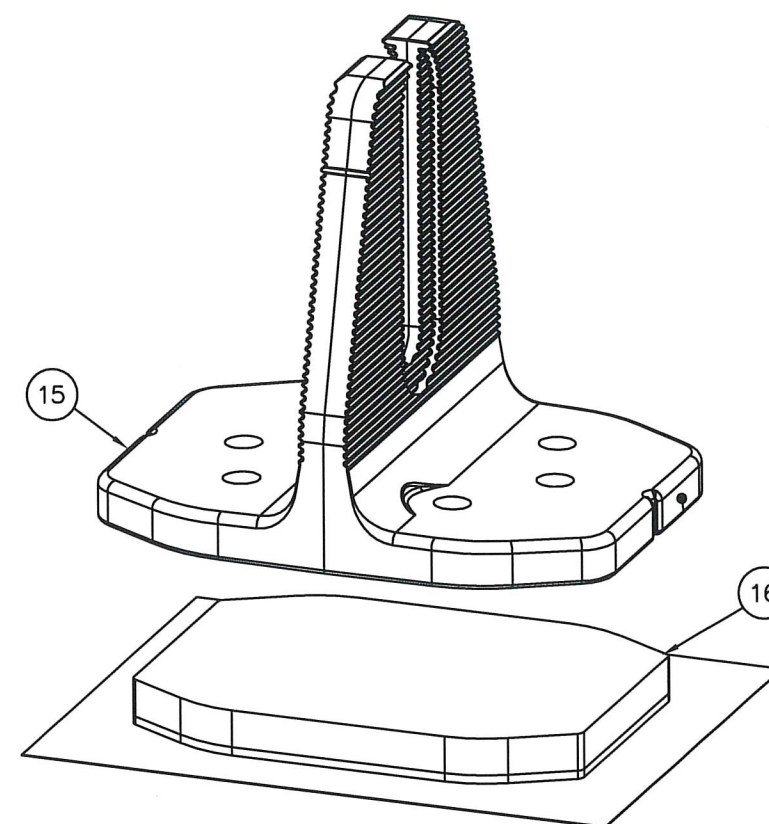


15

0.379"



→ **F3 = Lateral Shear**
(See Chart)



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DWG: **AIRE-HUG**
SHEET: **6/10**

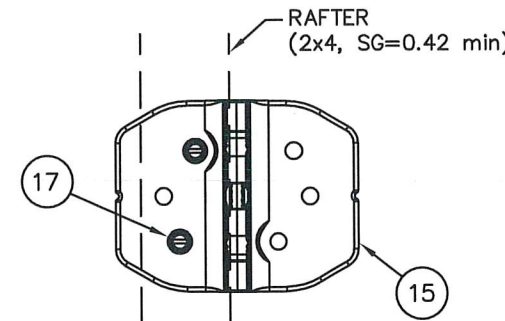
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**IRONRIDGE AIRE PHOTOVOLTAIC PANEL RACKING SYSTEM
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ALLOWABLE WINDLOADS (+/- psf)

TWO RAIL SYSTEM					THREE RAIL SYSTEM						
PANEL WIDTH (in)	PANEL LENGTH (in)	ANCHOR SPAN (L) (in)	FASTENER PATTERN #3		PANEL WIDTH (in)	PANEL LENGTH (in)	ANCHOR SPAN (L) (in)	FASTENER PATTERN #3			
			ALL RAILS					ALL RAILS			
			7/16" or 15/32" OSB (+/- psf)	19/32" OSB (+/- psf)				7/16" or 15/32" OSB (+/- psf)	19/32" OSB (+/- psf)		
45	67 1/2	16	22.2	31.1	45	67 1/2	16	33.3	46.7		
		24	21.3	29.8			24	32.0	44.7		
		32	20.3	28.5			32	30.5	42.8		
		36	18.5	25.9			36	27.8	38.9		
		48	17.3	24.3			48	26.0	36.5		
		64	12.2	17.1			64	18.3	25.7		
		72	10.7	14.9			72	16.1	22.4		
	80	16	18.7	26.2		45	80	16	28.1	39.3	
		24	17.9	25.1				24	26.9	37.7	
		32	17.2	24.0				32	25.8	36.0	
		36	15.6	21.8				36	23.4	32.7	
		48	14.6	20.5				48	21.9	30.8	
		64	10.3	14.5				64	15.5	21.8	
		72	9.0	12.6				72	13.5	18.9	
	86	16	17.6	24.4			45	86	16	26.4	36.6
		24	16.7	23.4					24	25.1	35.1
		32	16.0	22.3					32	24.0	33.5
		36	14.5	20.3					36	21.8	30.5
		48	13.6	19.0					48	20.4	28.5
		64	9.6	13.4					64	14.4	20.1
		72	8.4	11.7					72	12.6	17.6
	92 1/2	16	16.2	22.7	45			92 1/2	16	24.3	34.1
		24	15.5	21.7					24	23.3	32.6
		32	14.8	20.8					32	22.2	31.2
36		13.5	18.9	36					20.3	28.4	
48		12.6	17.7	48					18.9	26.6	
64		8.9	12.5	64					13.4	18.8	
72		7.7	10.9	72					11.6	16.4	
LANDSCAPE LAYOUT:											
45	92 1/2	16	16.2	22.7		45		92 1/2	16	24.3	34.1
		24	15.5	21.7					24	23.3	32.6
		32	14.8	20.8					32	22.2	31.2
		36	13.5	18.9					36	20.3	28.4
		48	13.5	18.9					48	20.3	28.4
		64	13.5	18.9					64	20.3	28.4
72	13.5	18.9	72	20.3		28.4					

UP/DOWN SLOPE RAILS:

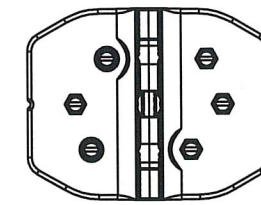


ACROSS SLOPE RAILS:

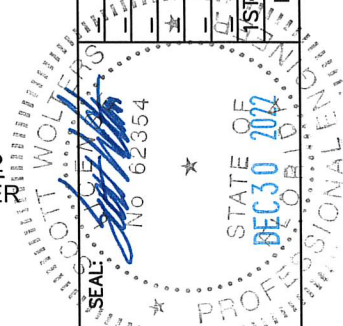


FASTENER PATTERN #1
(2) FASTENERS IN RAFTER

FASTENER PATTERN #2
(2) FASTENERS IN RAFTER
AND (1) IN DECK



FASTENER PATTERN #3
(6) FASTENERS IN DECK



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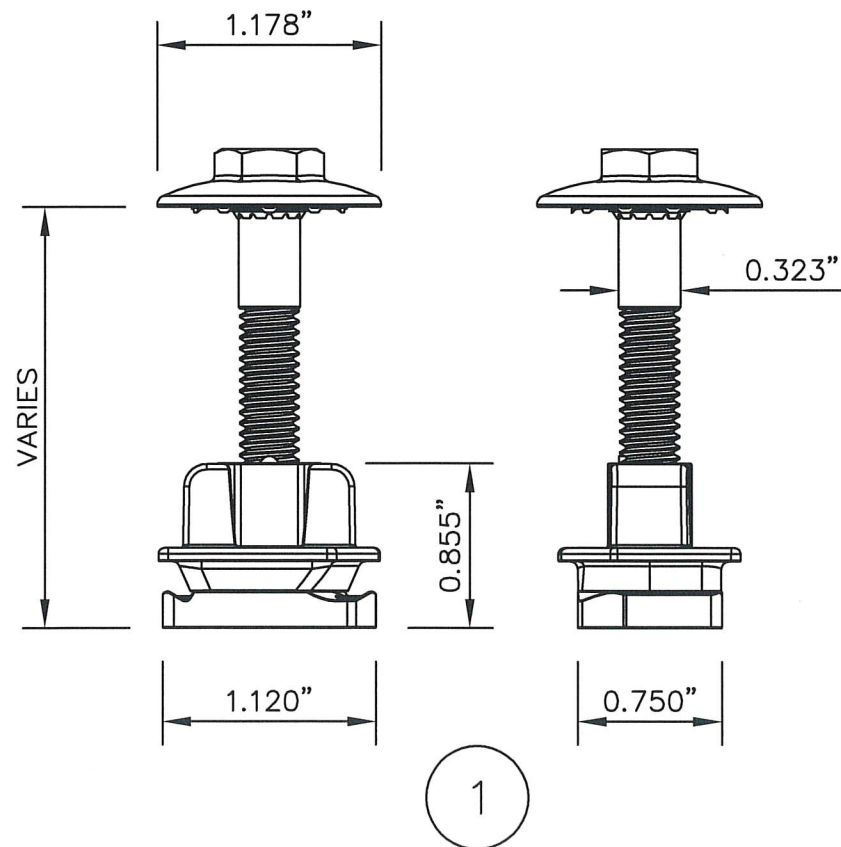
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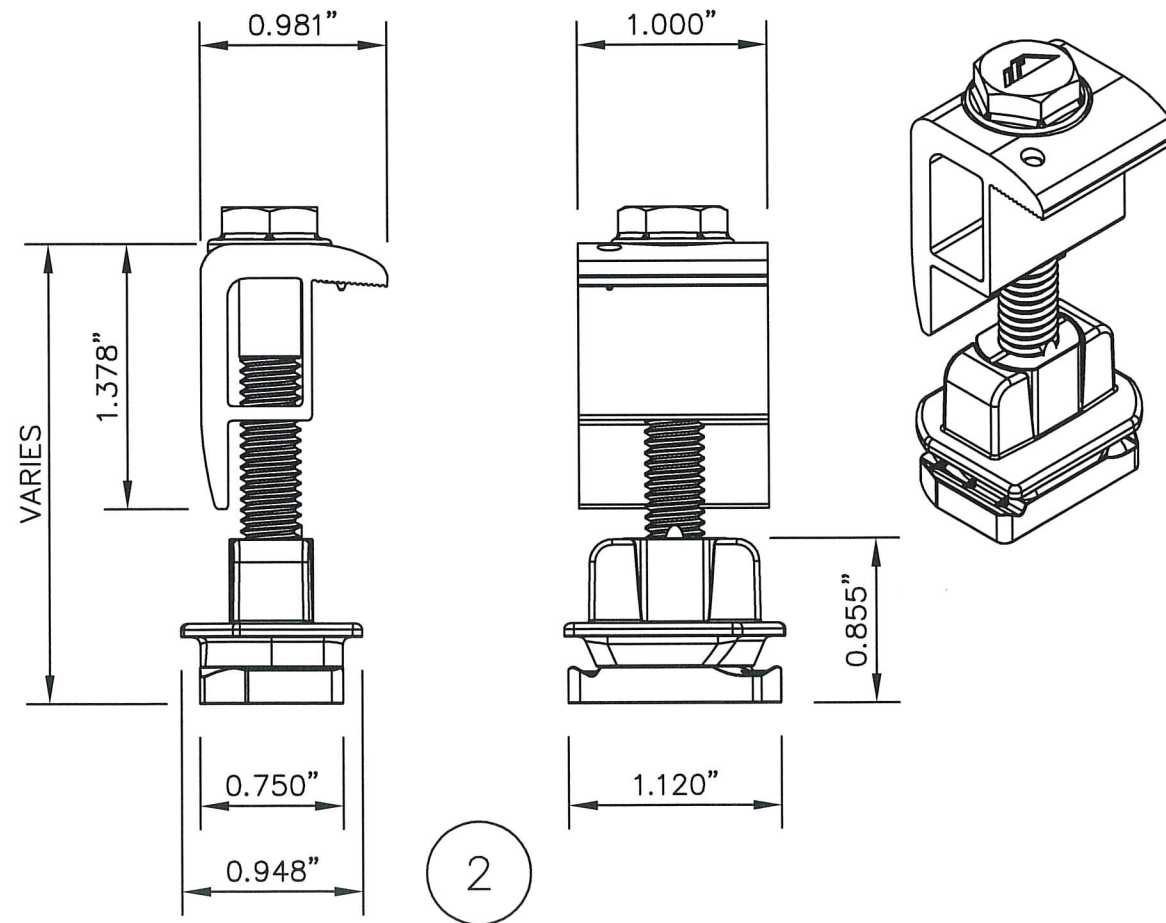
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BILL OF MATERIALS- Aire System		
#	DESCRIPTION	MATERIALS/NOTES
1	AIRE LOCK MID-CLAMP ASSEMBLY	6000 SERIES AL & 300 SERIES SS
2	AIRE LOCK END-CLAMP ASSEMBLY	6000 SERIES AL & 300 SERIES SS
2A	AIRE LOCK STEALTH END-CLAMP ASSEMBLY	6000 SERIES AL & 300 SERIES SS
3	A1 RAIL	6000 SERIES AL
4	A1 TIE (SPLICE)	6000 SERIES AL & 300 SERIES SS
5	A2 RAIL	6000 SERIES AL
6	A2 TIE (SPLICE)	6000 SERIES AL & 300 SERIES SS
7	AIRE RAIL DOCK ASSEMBLY WITH 3/8" X 1 3/4" HWH CAP SCREW	6000 SERIES AL & 300 SERIES SS
8	A1 END CAP (OPTIONAL)	POLYMERIC
9	A2 END CAP (OPTIONAL)	POLYMERIC
10	CONTOUR CLAMP ASSEMBLY (OPTIONAL)	6000 SERIES AL & 300 SERIES SS
11	CONTOUR TRIM (OPTIONAL)	6000 SERIES AL

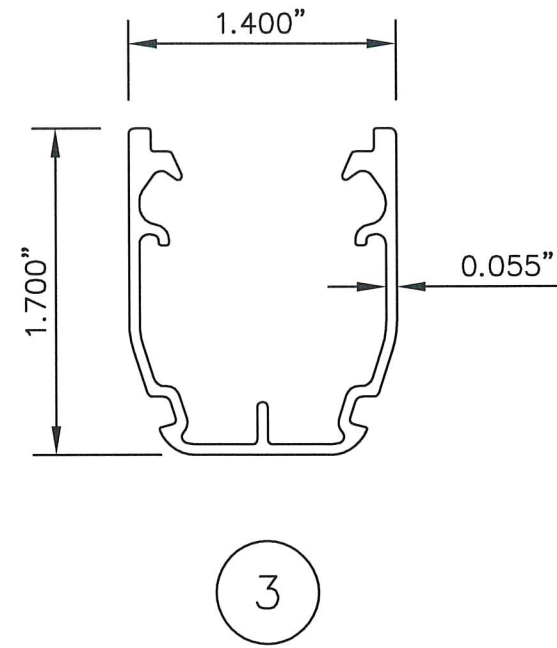
FOR 6000 SERIES EXTRUSIONS $F_{UT}=38$ ksi min, $F_Y=34$ ksi min.
FOR 300 SERIES STAINLESS STEEL $F_Y=65$ ksi min



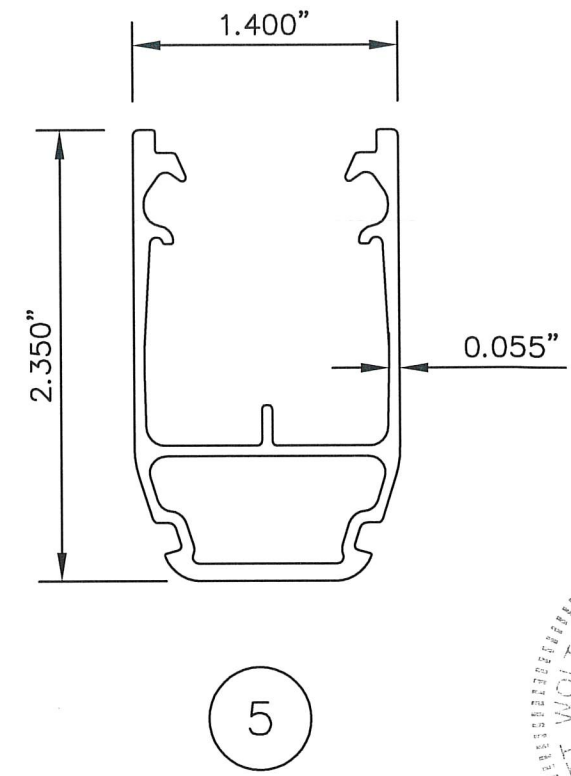
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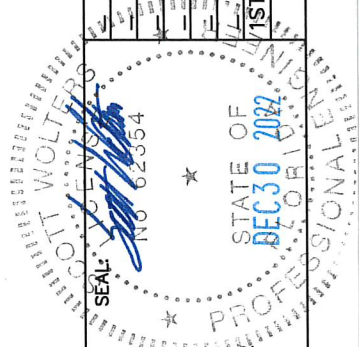
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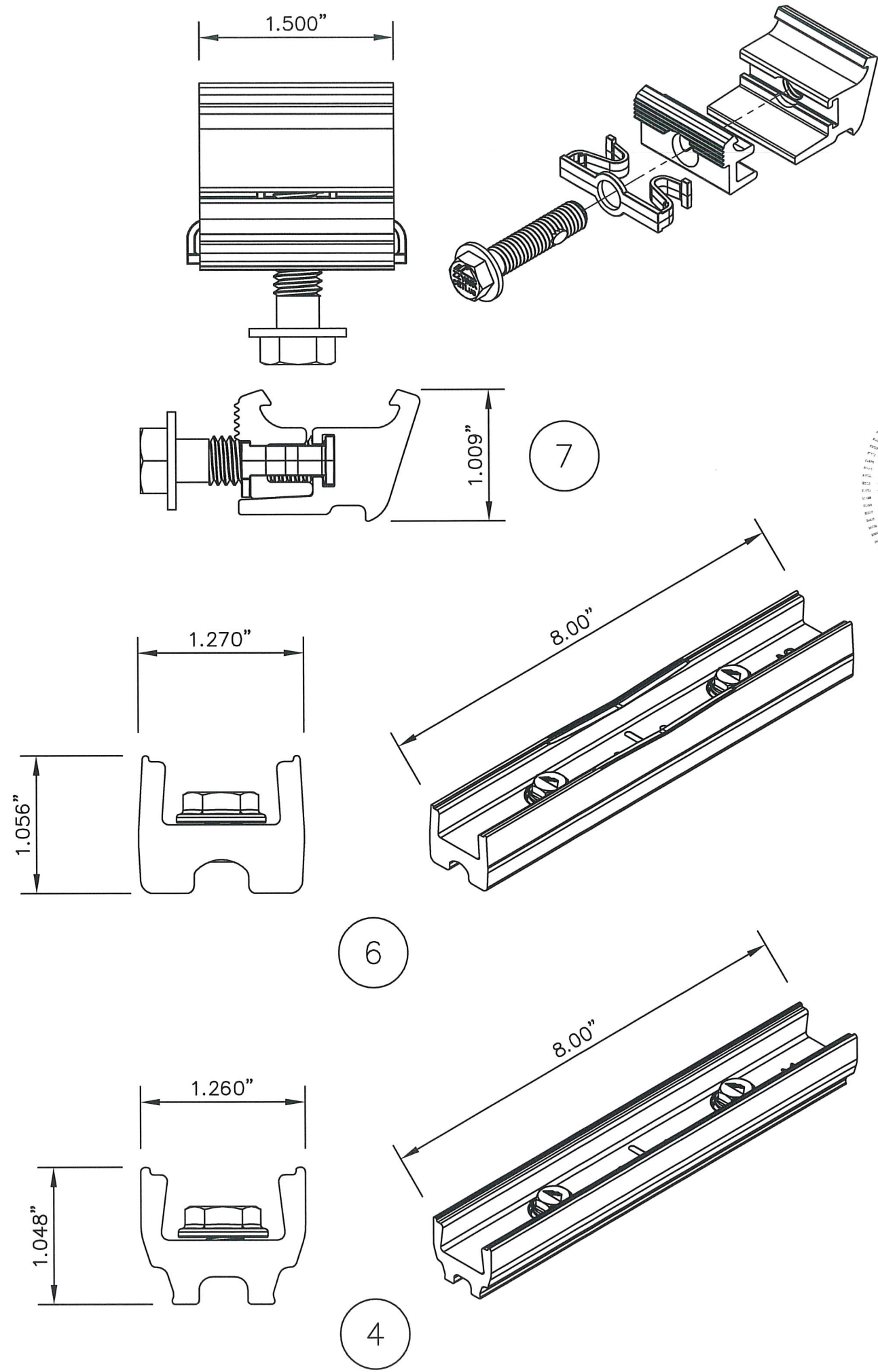
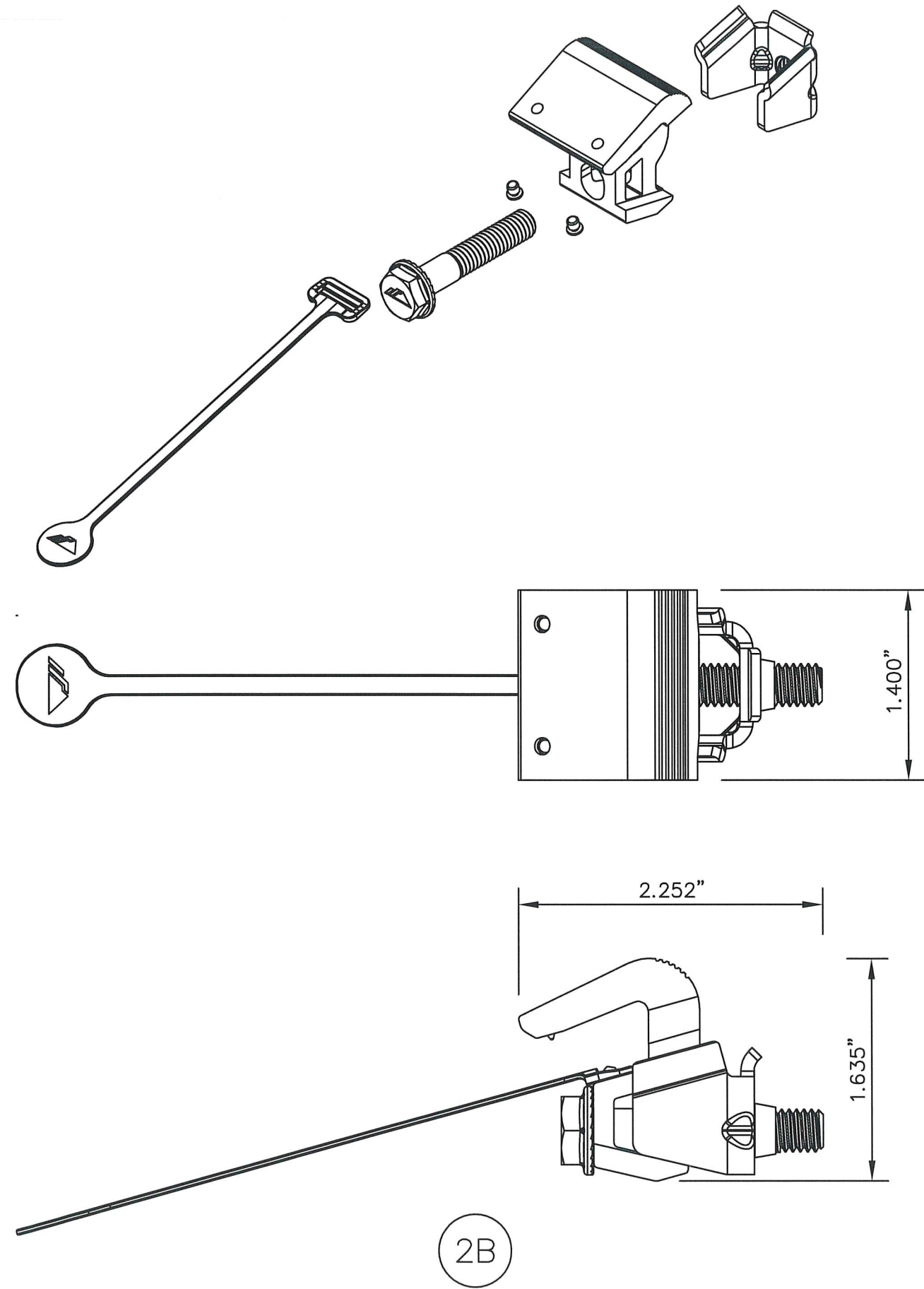
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DWG: AIRE-HUG
SHEET: 8/10

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SEAL: SCOTT WOLTERS
No. 62354

STATE OF FLORIDA
DEC 30 2022
PROFESSIONAL ENGINEER

1ST SUBMITTAL
PRINTS ISSUED FOUR

REV.# DATE
12/30/22

