

IRONRIDGE XR FLUSH MOUNT PHOTOVOLTAIC PANEL RACKING SYSTEM
WITH QUICKMOUNT HALO ULTRAGRIP ROOF ATTACHMENTS

GENERAL NOTES:

- 1. THIS SYSTEM MEETS ALL OF THE REQUIREMENTS OF THE 8TH EDITION (2023) FLORIDA BUILDING CODE, INCLUDING THE HVHZ PROVISIONS.
- 2. 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.
- 3. THIS SYSTEM SHALL BE INSTALLED PER THE IRONRIDGE XR FLUSH MOUNT INSTALLATION MANUAL.
- 4. THE PV PANELS ARE BY OTHERS AND ARE NOT A PART OF THIS APPROVAL.
- 5. RAIL SPACING TO BE AS SPECIFIED BY THE PV PANEL MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 6. 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.
- 7. FIRE RATINGS OR FIRE RESISTANCE IS NOT A PART OF THIS REVIEW.
- 8. ALL ANCHORS SECURING THE SYSTEM TO PRESSURE TREATED WOOD SHALL BE CAPABLE OF RESISTING CORROSION CAUSED BY THE CHEMICALS IN THE WOOD.
- 9. MATERIALS INCLUDING BUT NOT LIMITED TO STEEL/METAL SCREWS THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL BE PROTECTED PER FBC REQUIREMENTS.
- 10. NO INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS PRODUCT. Cd=1.6 WAS USED FOR WOOD SCREWS ONLY.

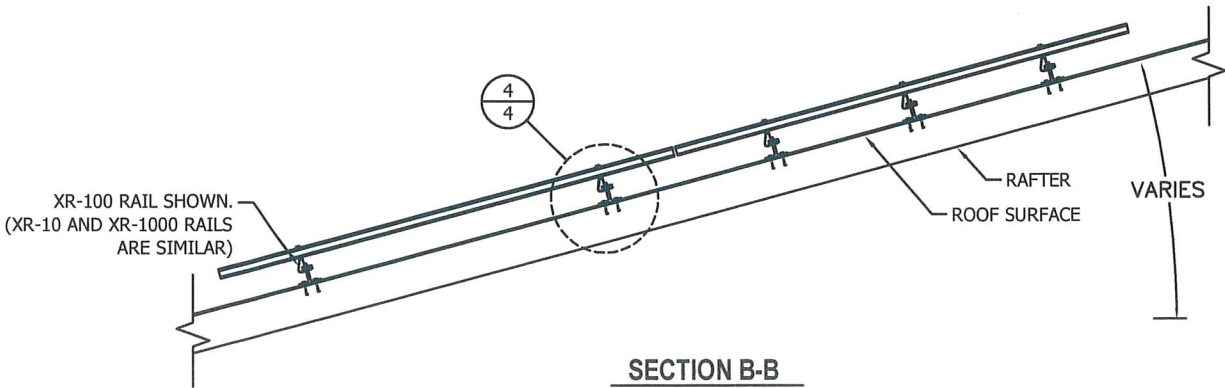
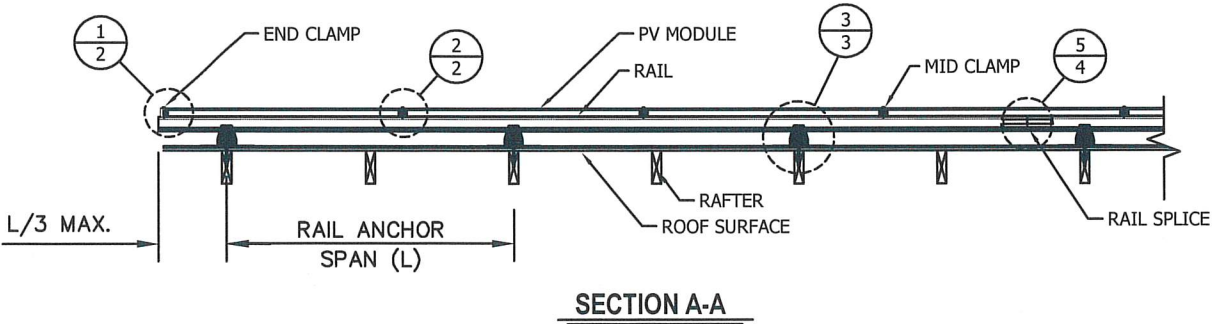
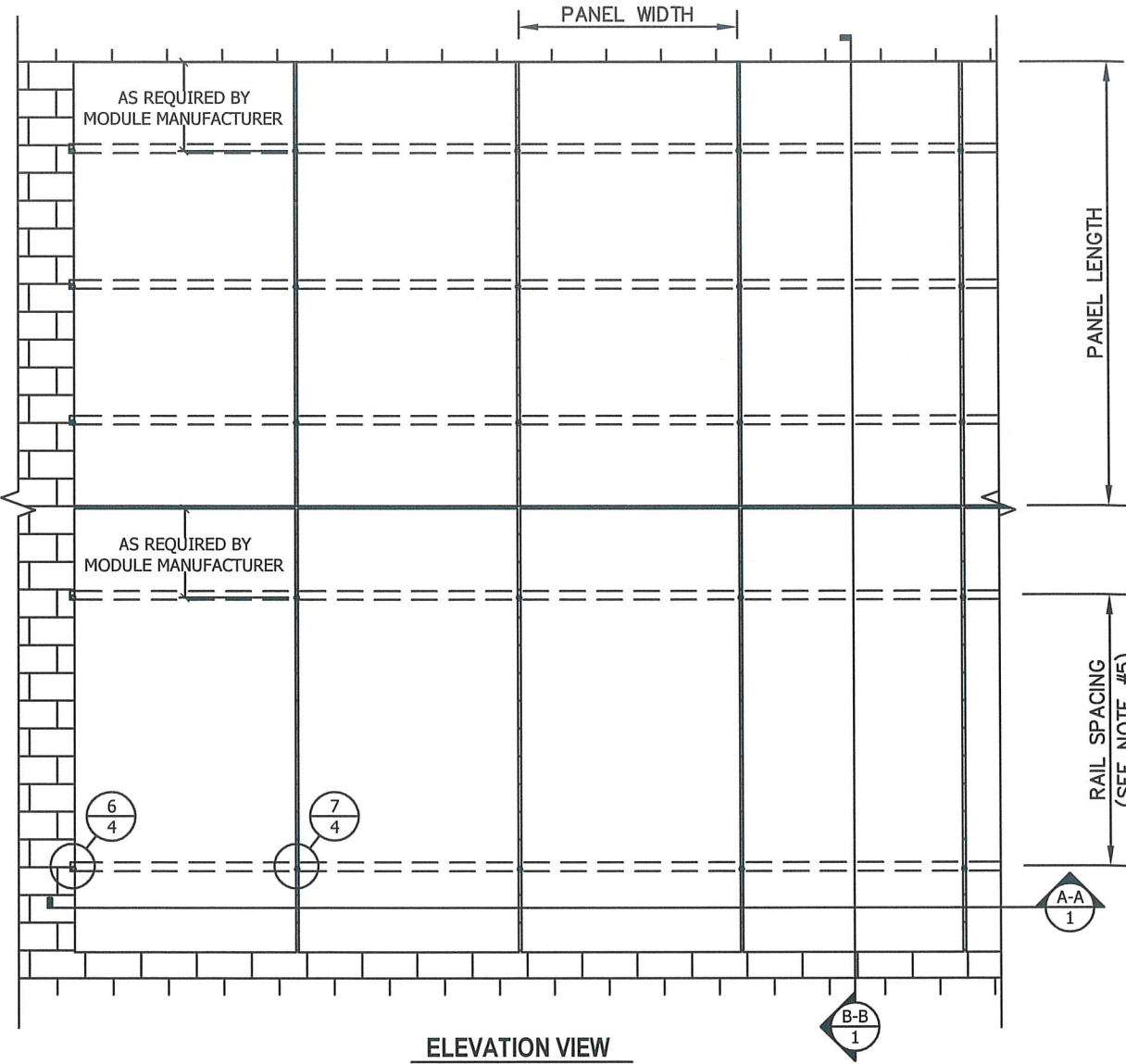
WINDLOAD NOTES:

- 1. DESIGN WINDLOADS MUST BE CALCULATED BY A LICENSED PROFESSIONAL ENGINEER OR ARCHITECT FOR EACH PROJECT, PER ASCE 7-22 SECTION 29.4.4. DESIGN (ASD) WINDLOADS MAY NOT EXCEED THE ALLOWABLE WINDLOADS SHOWN IN THE CHARTS ON THIS SHEET OR SHEET 6.
- 2. PANEL SYSTEM LOCATION, HEIGHT, AND SPACING MUST MEET THE REQUIREMENTS OF ASCE 7-22 SECTION 29.4.4. WINDLOADS ACT NORMAL TO THE SURFACE OF THE PV PANEL SYSTEM.
- 3. OTHER CONFIGURATIONS REQUIRE PROJECT SPECIFIC ANALYSIS BY A LICENSED PROFESSIONAL ENGINEER OR ARCHITECT.
- 4. ALLOWABLE (ASD) WINDLOADS BELOW ARE FOR ANCHORS IN WOOD RAFTERS WITH S.G.=0.42 MIN. SEE SHEET 6 FOR ALLOWABLE FASTENER PATTERNS AND FOR ALLOWABLE WINDLOADS WHEN 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					
			XR-10 RAIL (+/- psf)	XR-100 RAIL (+/- psf)	XR-1000 RAIL (+/- psf)				XR-10 RAIL (+/- psf)	XR-100 RAIL (+/- psf)	XR-1000 RAIL (+/- psf)			
45	67 1/2	16	90	90	90	45	67 1/2	16	135.0	135.0	135.0			
		24	65.4	90	90			24	98.1	135.0	135.0			
		32	56.1	90	90			32	84.2	135.0	135.0			
		36	49.9	90	90			36	74.9	135.0	135.0			
		48	37.4	85.6	89.2			48	56.1	128.4	133.8			
		64	28.1	62.9	62.9			64	42.2	94.4	94.4			
		72	23.7	54	54.7			72	35.6	81.0	82.1			
	80	16	75.9	75.9	75.9		80	16	113.9	113.9	113.9			
		24	55.2	75.9	75.9			24	82.8	113.9	113.9			
		32	47.3	75.9	75.9			32	71.0	113.9	113.9			
		36	42.1	75.9	75.9			36	63.2	113.9	113.9			
		48	31.6	72.2	75.3			48	47.4	108.3	113.0			
		64	23.7	53.1	53.1			64	35.6	79.7	79.7			
	86	72	20	45.6	46.2		86	72	30.0	68.4	69.3			
		16	70.6	70.6	70.6			16	105.9	105.9	105.9			
		24	51.3	70.6	70.6			24	77.0	105.9	105.9			
		32	44	70.6	70.6			32	66.0	105.9	105.9			
		36	39.1	70.6	70.6			36	58.7	105.9	105.9			
		48	29.4	67.2	70			48	44.1	100.8	105.0			
	92 1/2	64	22	49.4	49.4		92 1/2	64	33.0	74.1	74.1			
		72	18.6	42.9	43			72	27.9	64.4	64.5			
		16	72.9	65.7	65.7			16	109.4	98.6	98.6			
		24	47.7	65.7	65.7			24	71.6	98.6	98.6			
		32	40.9	65.7	65.7			32	61.4	98.6	98.6			
		36	36.4	65.7	65.7			36	54.6	98.6	98.6			
		48	27.3	62.5	65.1			48	41.0	93.8	97.7			
		64	20.5	45.9	45.9				64	30.8	68.9	68.9		
		72	17.3	39.4	39.9					72	26.0	59.1	59.9	
LANDSCAPE LAYOUT:														
45		92 1/2	16	72.9	65.7	65.7				45	92 1/2	16	109.4	98.6
	24		52.9	65.7	65.7	24	79.4					98.6	98.6	
	32		40.8	65.7	65.7	32	61.2	98.6				98.6		
	36		36	65.7	65.7	36	54.0	98.6	98.6					
	48		24.2	55	65.7	48	36.3	82.5	98.6					
	64		20.5	46.9	65.7	64	30.8	70.4	98.6					
72	18.2	41.7	65.7	72	27.3	62.6	98.6							

THREE RAIL SYSTEM:

TWO RAIL SYSTEM:



REV #	DATE	PRINTS ISSUED FOR
1	12/19/22	1
2	10/18/23	1
3	4/29/24	1
4	4/24/25	1

SCOTT WOLTERS
FL PE# 62354

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

APR 24 2025

IRONRIDGE

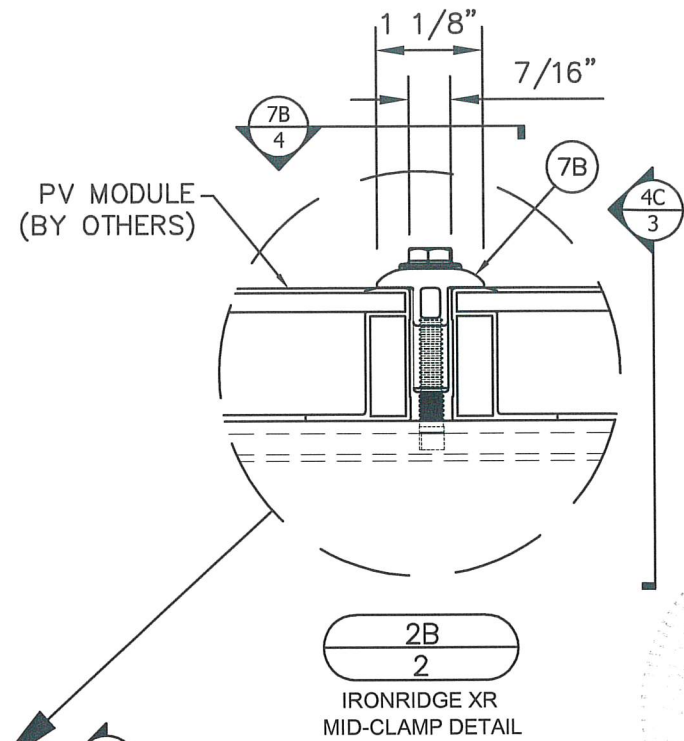
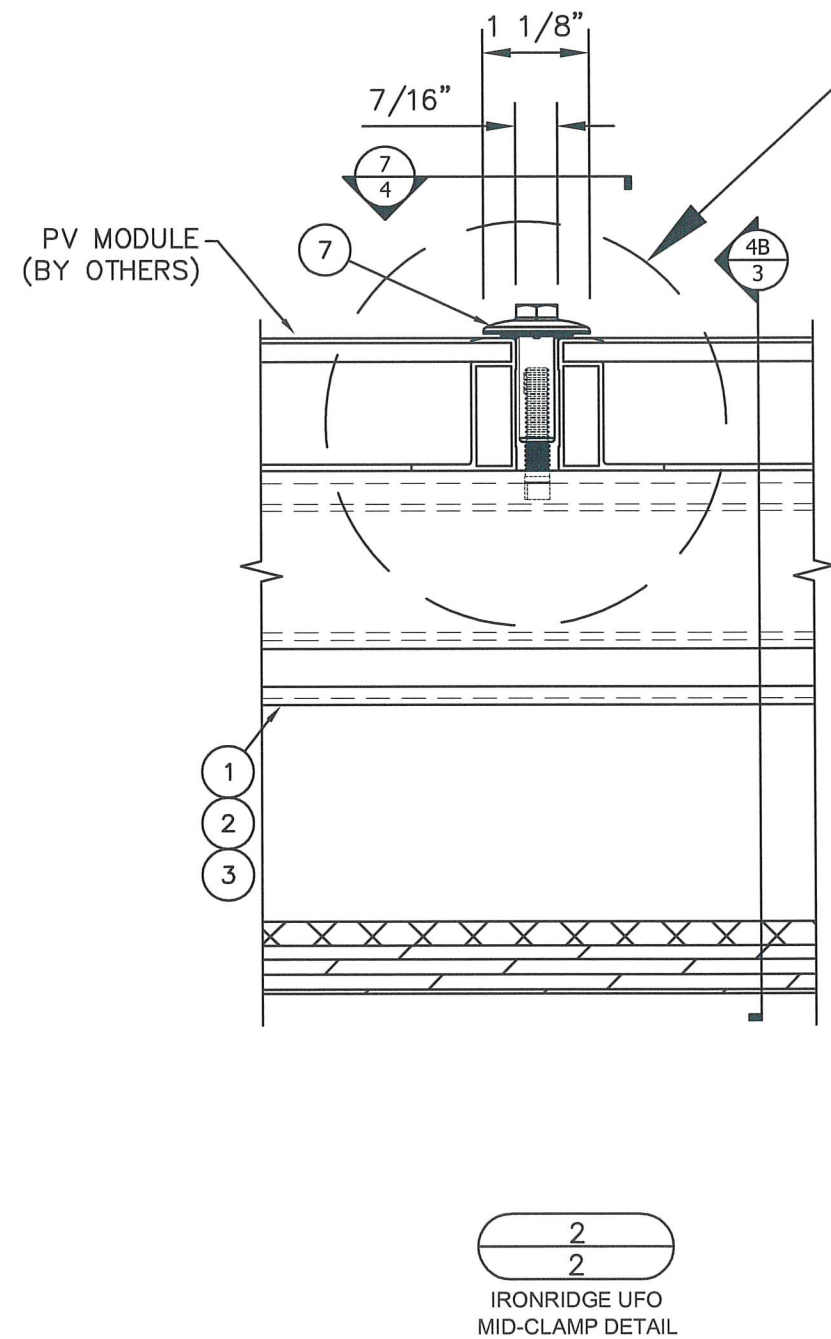
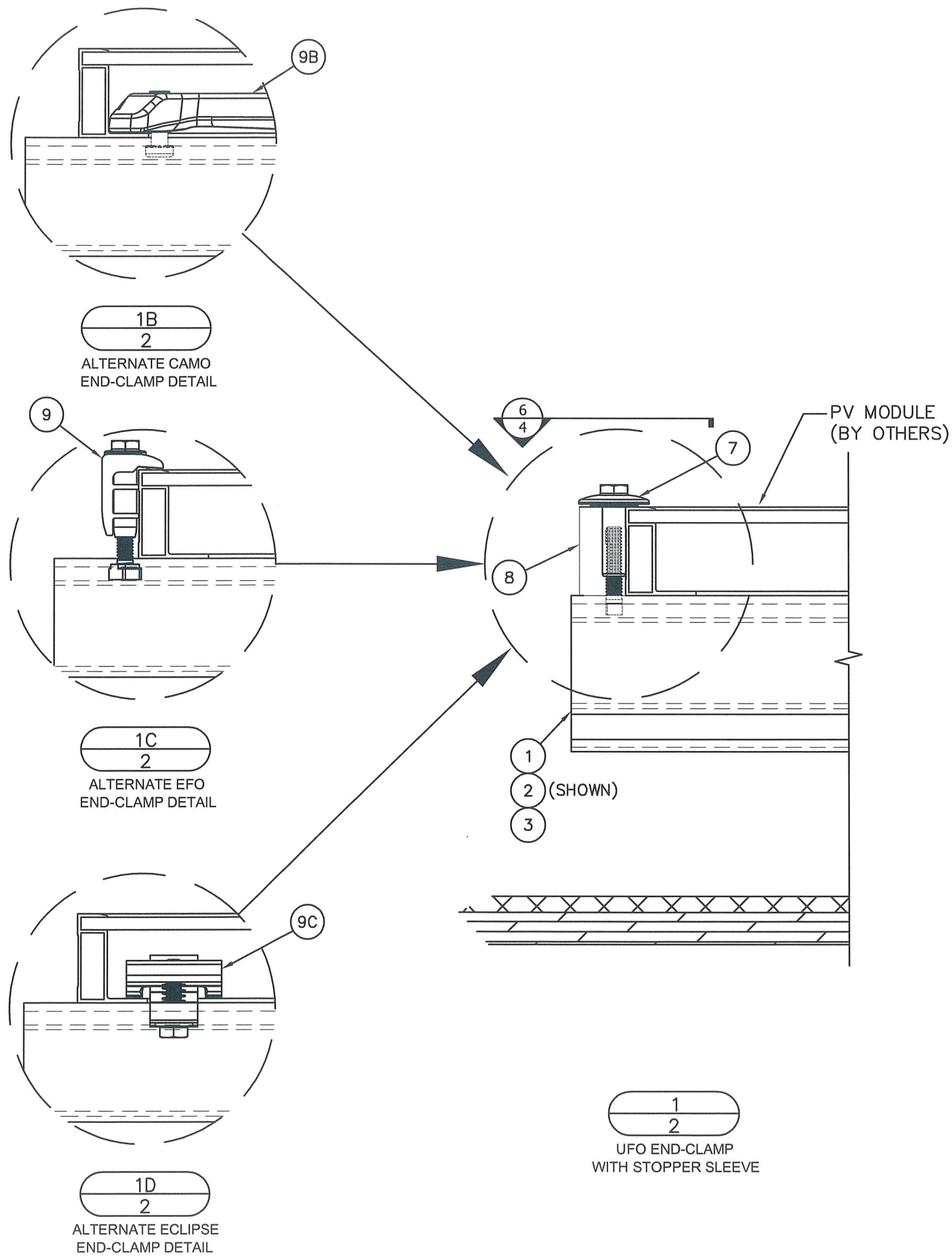
DWG: **XR-HUG**

SHEET: **1/9**

28357 INDUSTRIAL BLVD.
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IRONRIDGE XR FLUSH MOUNT PHOTOVOLTAIC PANEL RACKING SYSTEM
WITH QUICKMOUNT HALO ULTRAGRIP ROOF ATTACHMENTS



REVISION	DATE	REV.#	DATE
1	4/24/25	1	12/19/22
2	4/29/24	2	10/18/23
3	4/24/25	3	12/19/22

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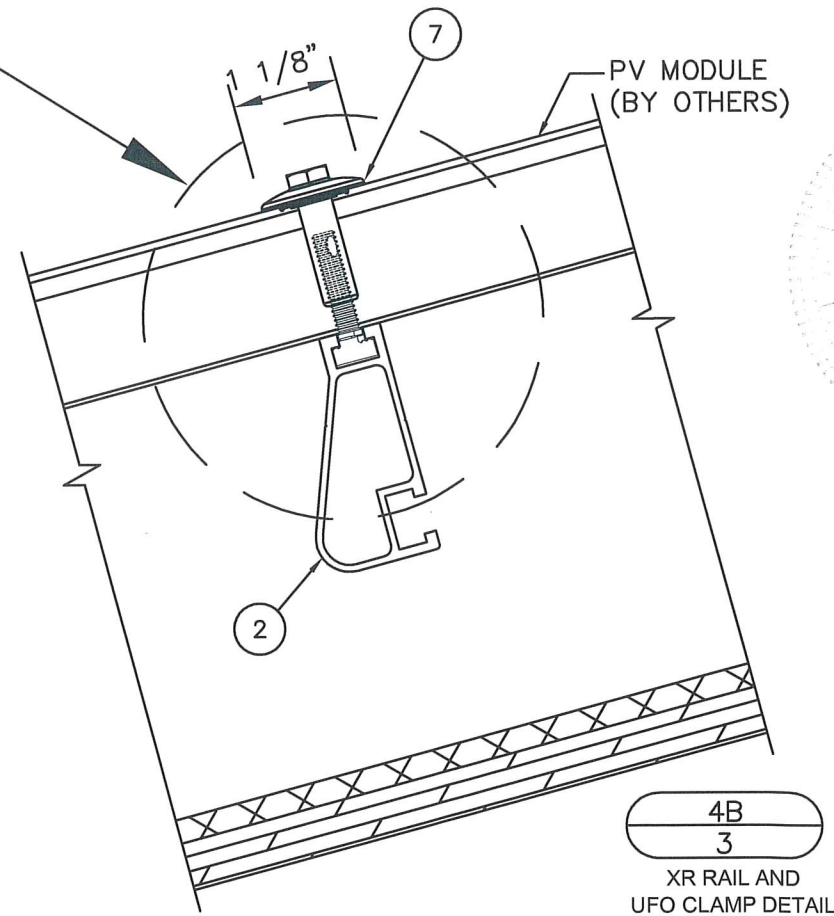
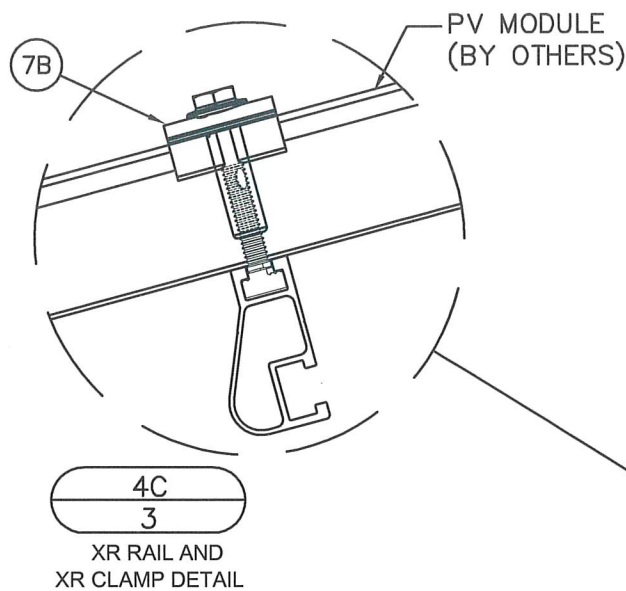
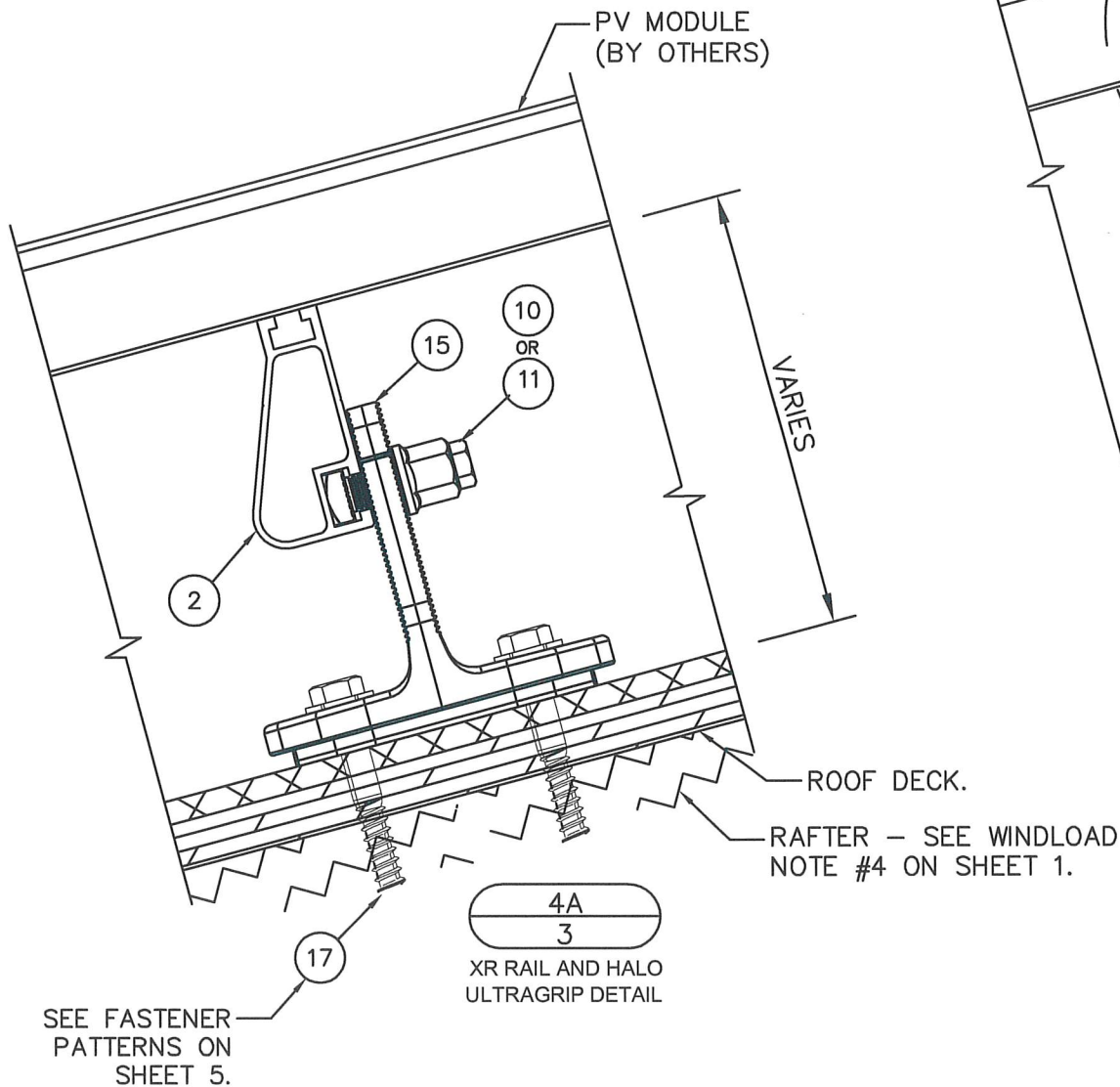
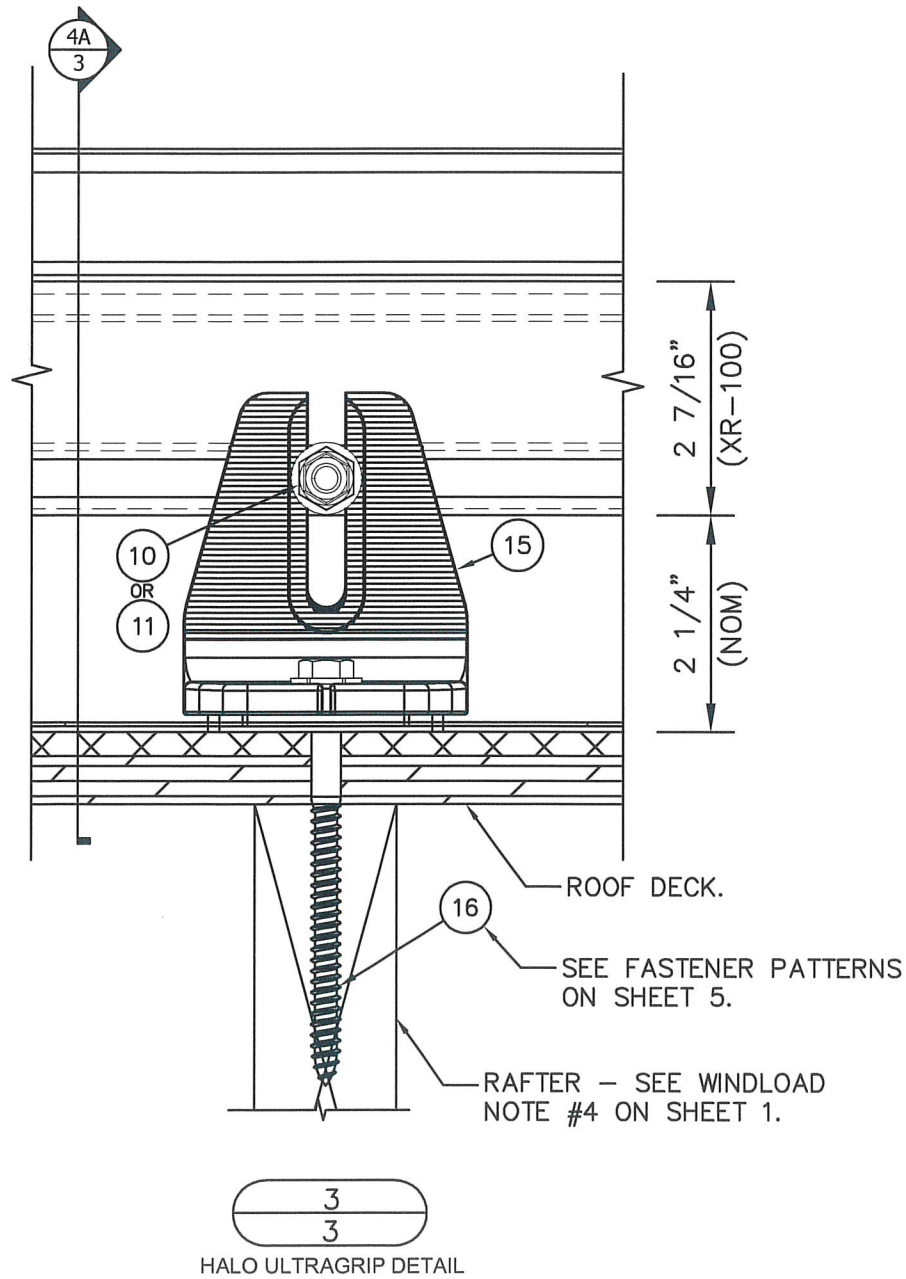
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DWG: XR-HUG
SHEET: 2/9

IRONRIDGE XR FLUSH MOUNT PHOTOVOLTAIC PANEL RACKING SYSTEM
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XR-100 RAIL IS SHOWN.
XR-10 AND XR-1000
RAILS ARE SIMILAR.

REVISION	DATE	REV.#	DATE
3	4/24/25	2	4/29/24
2	4/29/24	1	10/18/23
1	10/18/23	1	12/19/22

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PRINTS ISSUED FOR

DWG: XR-HUG

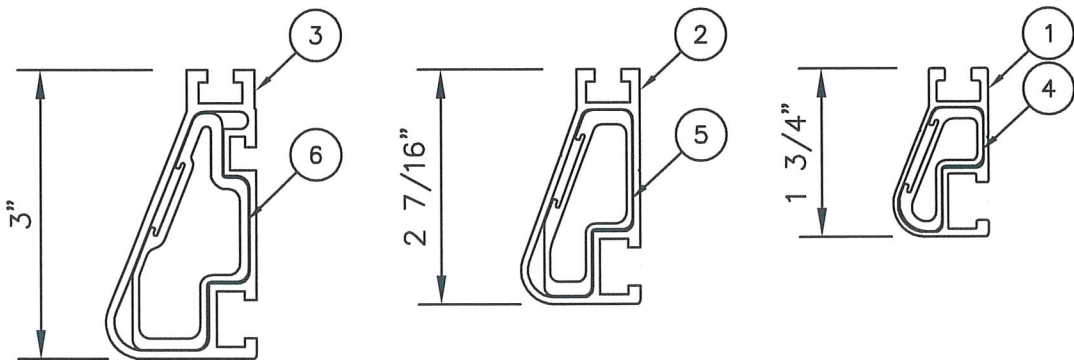
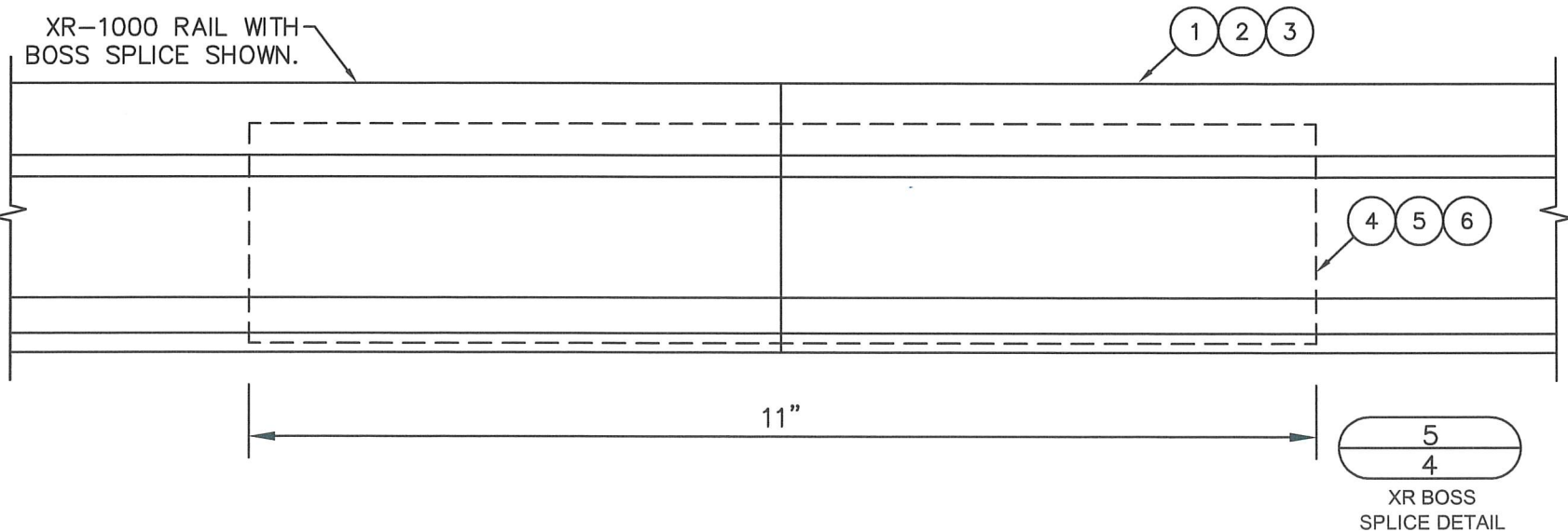
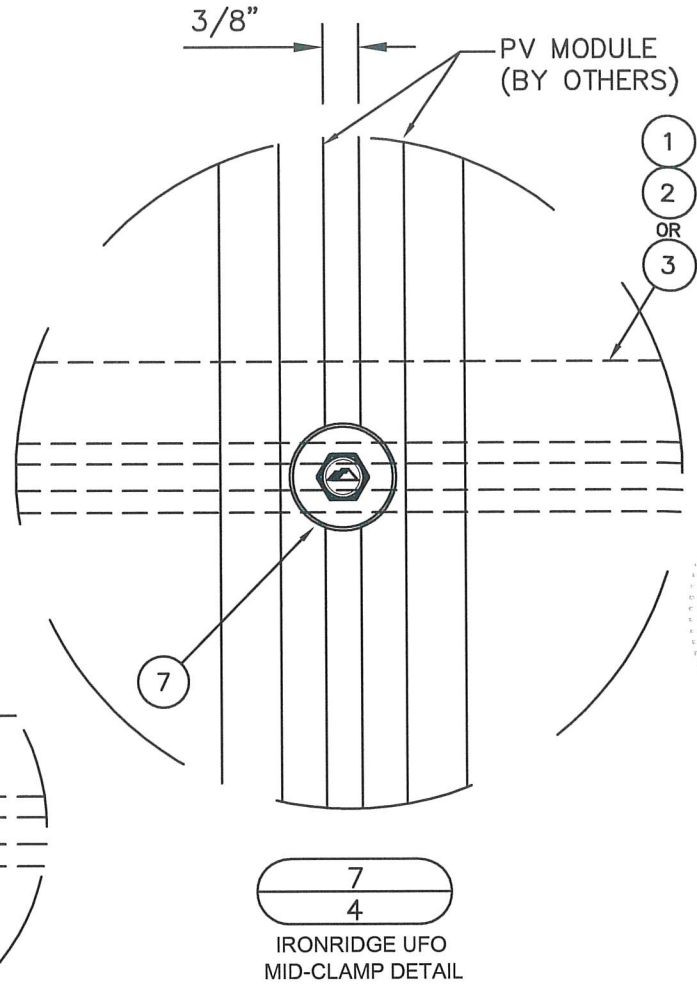
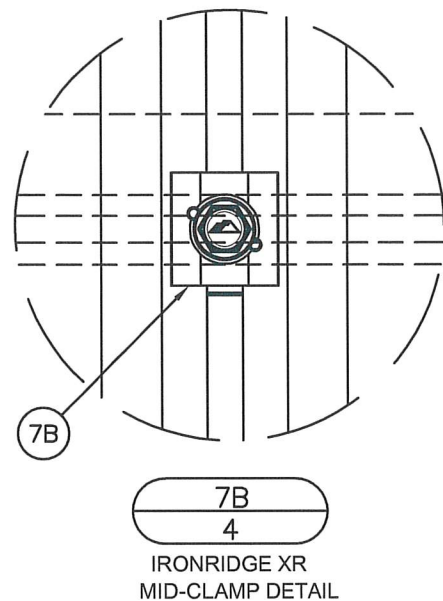
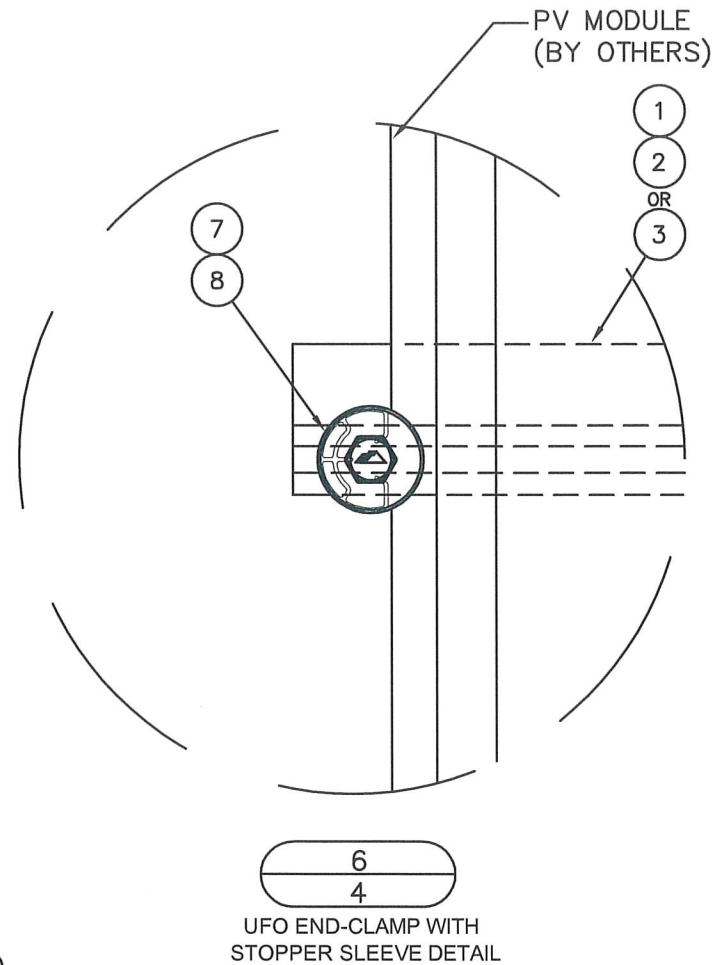
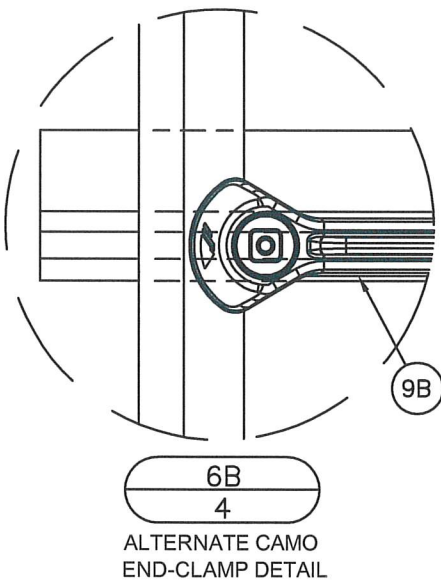
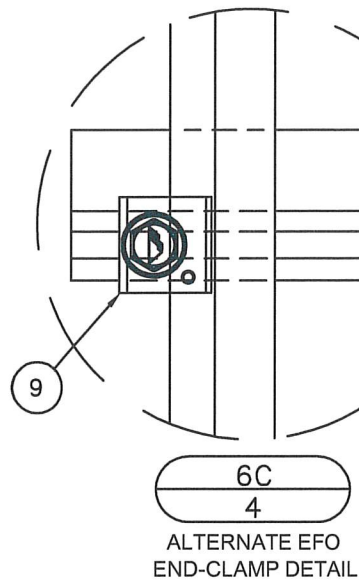
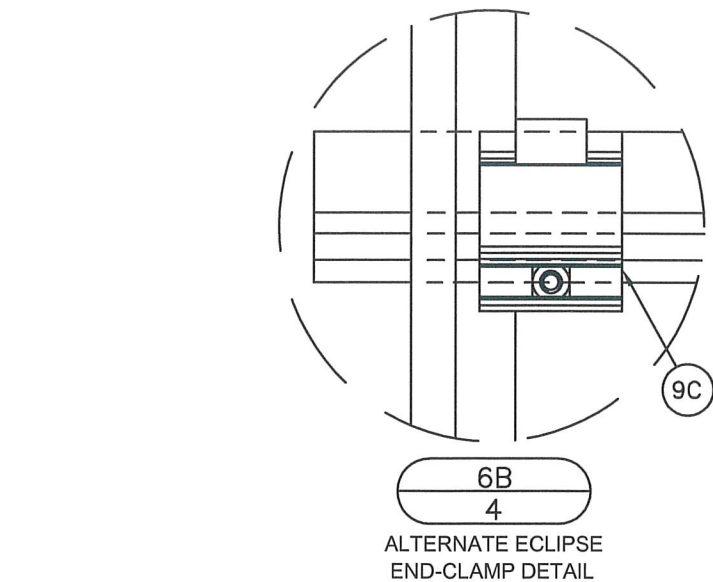
SHEET: 3/9

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SPLICE MAY NOT BE
LOCATED IN A CANTILEVER.

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1	4/24/25	
2	4/29/24	
3	10/18/23	
4	12/19/22	

SEAL: [Signature] No. 62354

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APR 24 2025

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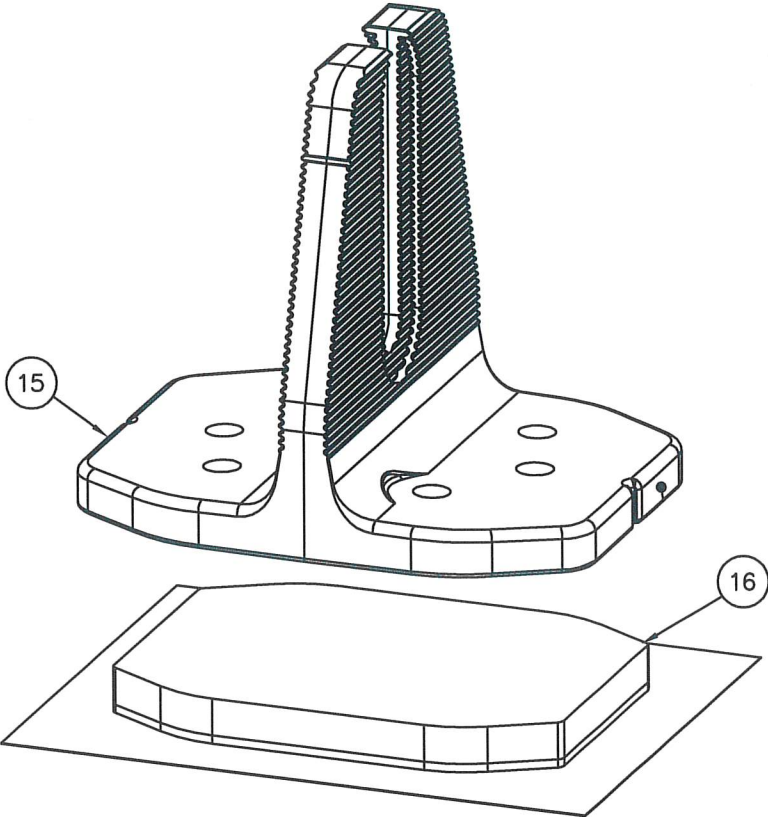
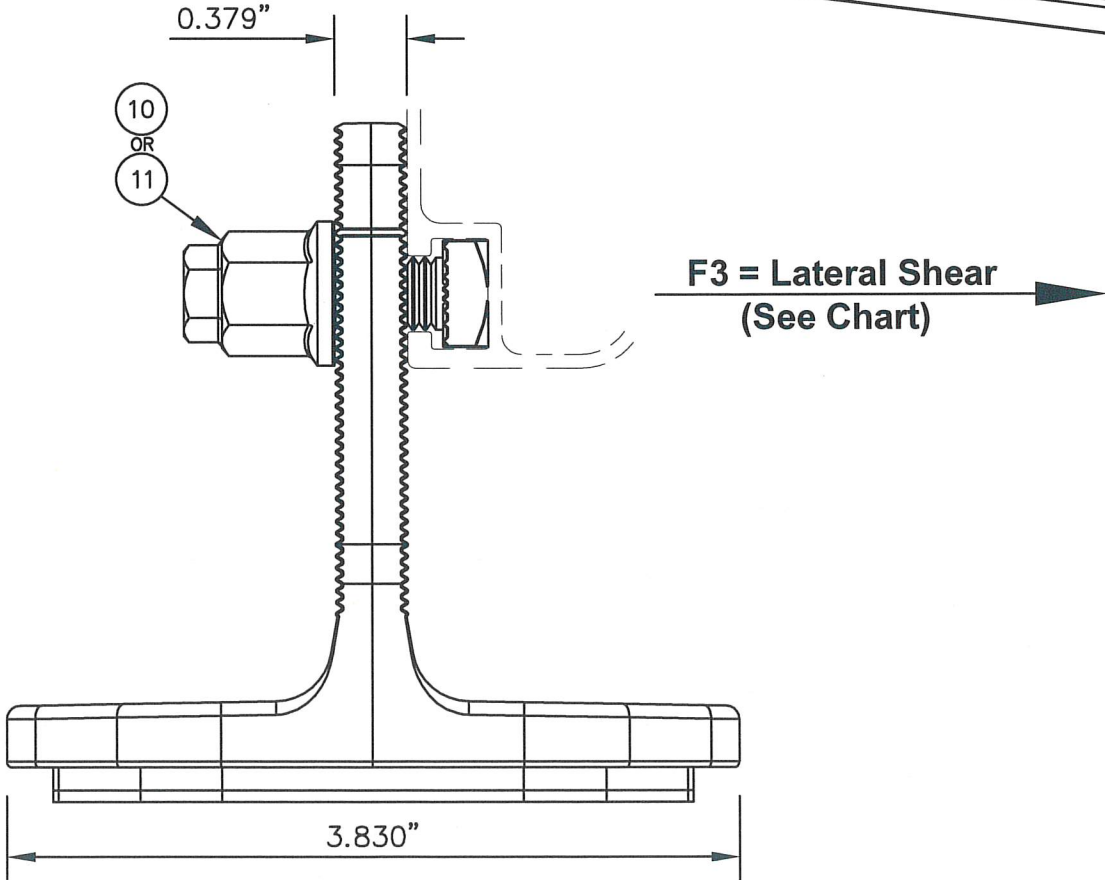
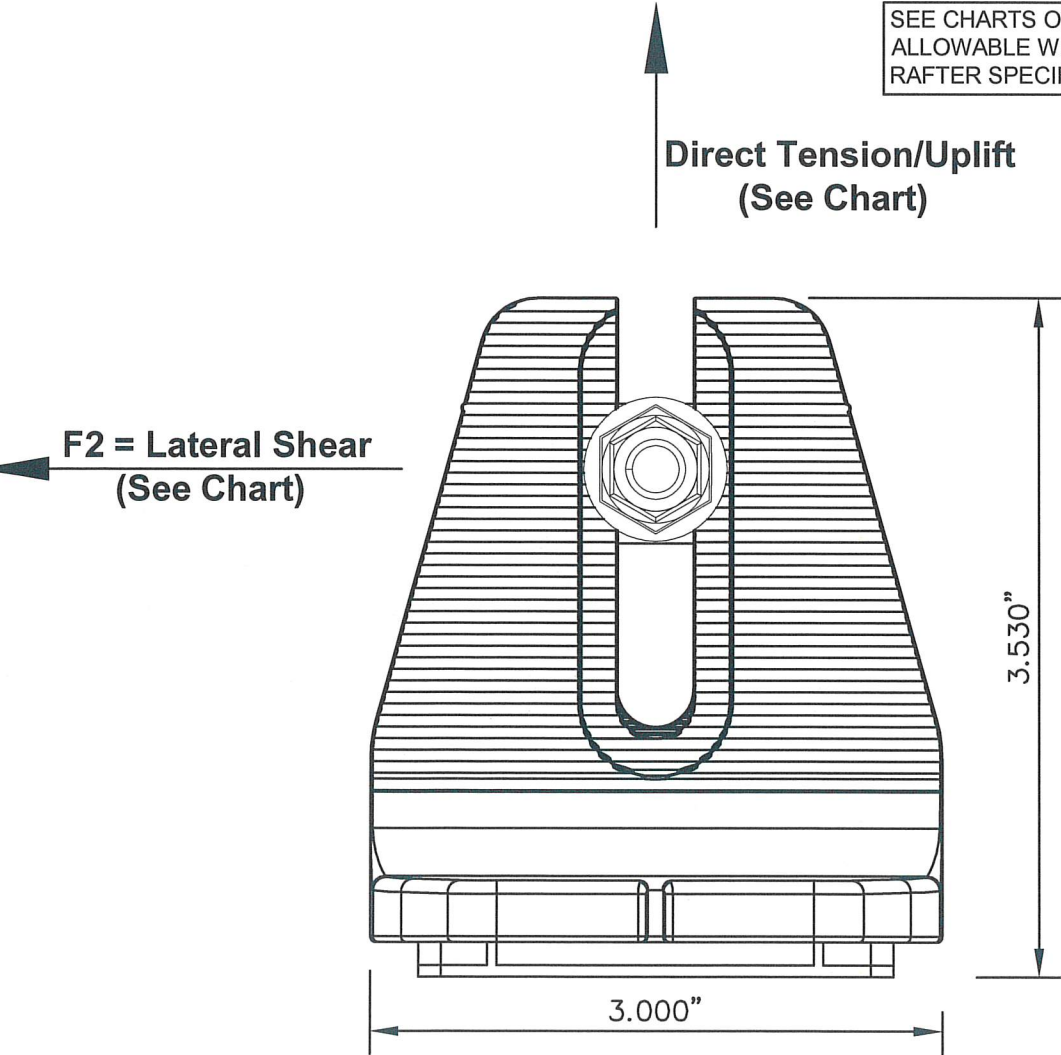
DWG: **XR-HUG**

SHEET: **4/9**

IRONRIDGE XR FLUSH MOUNT PHOTOVOLTAIC PANEL RACKING SYSTEM
WITH QUICKMOUNT HALO ULTRAGRIP ROOF ATTACHMENTS

BILL OF MATERIALS- QuickMount Halo Ultra Grip (HUG)		
#	DESCRIPTION	MATERIALS/NOTES
15	HALO ULTRAGRIP BASE, 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

ALLOWABLE LOADS			
LOAD DIRECTION	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



REV.#	DATE	PRINTS ISSUED FOR
1	4/24/25	
2	4/29/24	
1	10/18/23	
1	12/19/22	

SEAL: [Signature] N 62054

STATE OF FLORIDA

APR 24 2025

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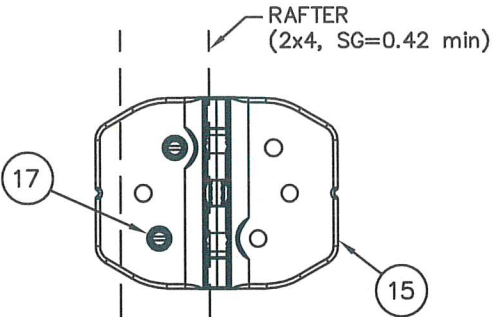
DWG: XR-HUG
SHEET: 5/9

IRONRIDGE XR FLUSH MOUNT PHOTOVOLTAIC PANEL RACKING SYSTEM
WITH QUICKMOUNT HALO ULTRAGRIP ROOF ATTACHMENTS

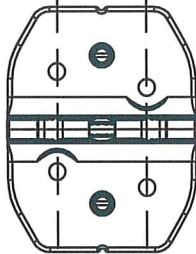
ALLOWABLE WINDLOADS (+/- psf)										
TWO RAIL SYSTEM						THREE RAIL SYSTEM				
PANEL WIDTH (in)	PANEL LENGTH (in)	ANCHOR SPAN (L) (in)	FASTENER PATTERN #3			PANEL WIDTH (in)	PANEL LENGTH (in)	ANCHOR SPAN (L) (in)	FASTENER PATTERN #3	
			ALL RAILS						ALL RAILS	
			7/16" or 15/32" OSB (+/- psf)	19/32" 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		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		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		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:

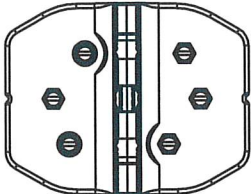
ACROSS SLOPE RAILS:



FASTENER PATTERN #1
(2) FASTENERS IN RAFTER



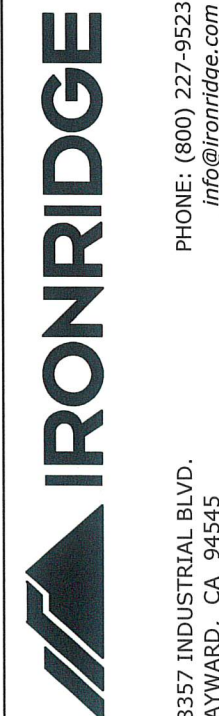
FASTENER PATTERN #2
(2) FASTENERS IN RAFTER
AND (1) IN DECK



FASTENER PATTERN #3
(6) FASTENERS IN DECK

SEAL: 
SCOTT WOLTERS
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DWG: XR-HUG
SHEET: 6/9

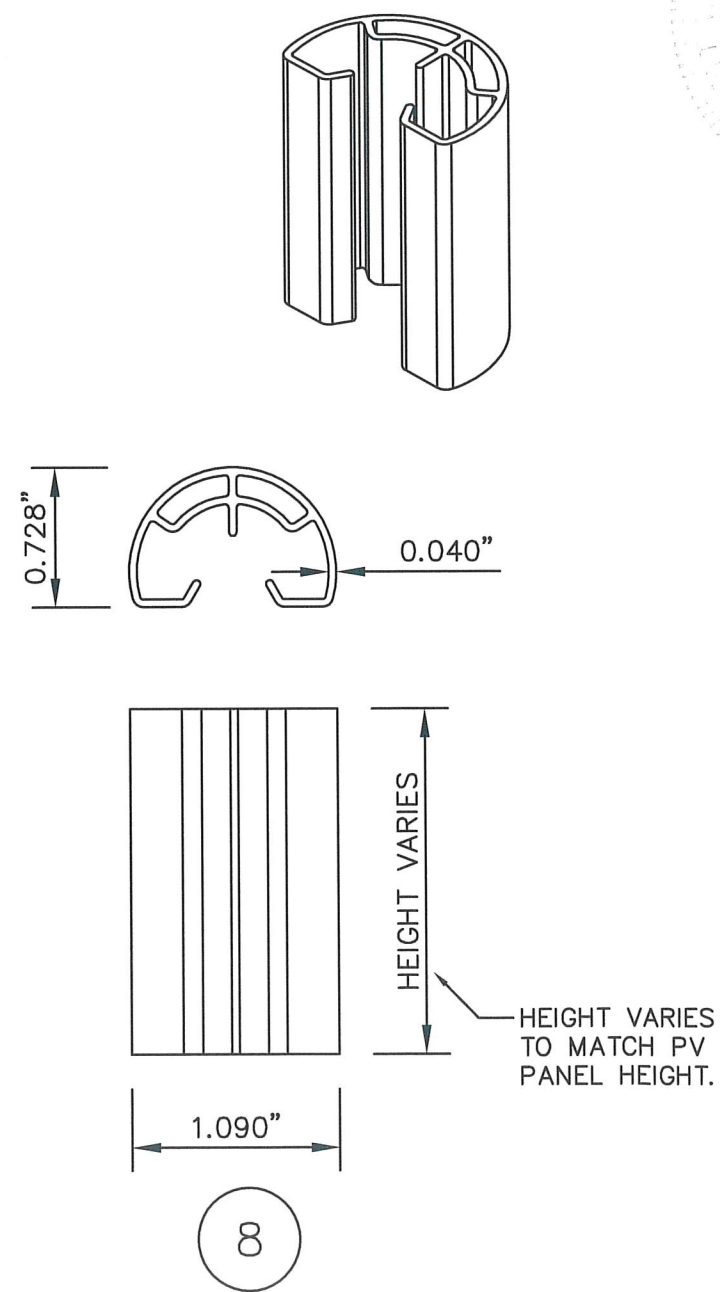
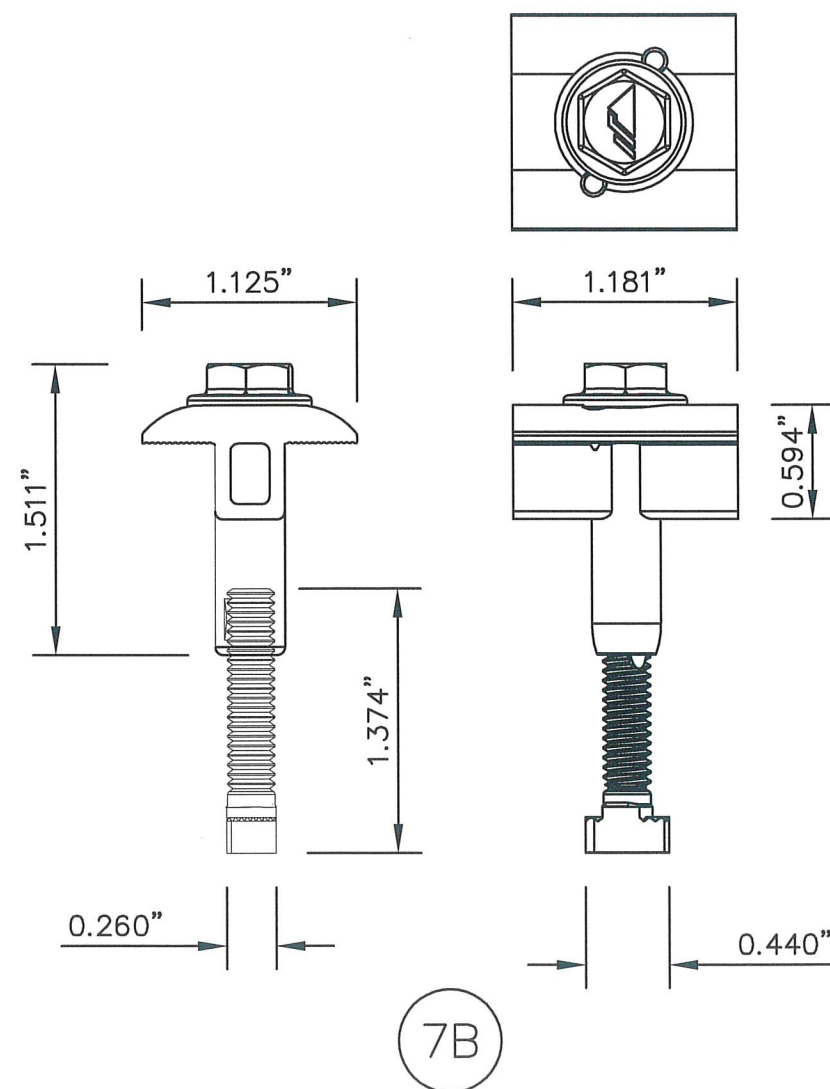
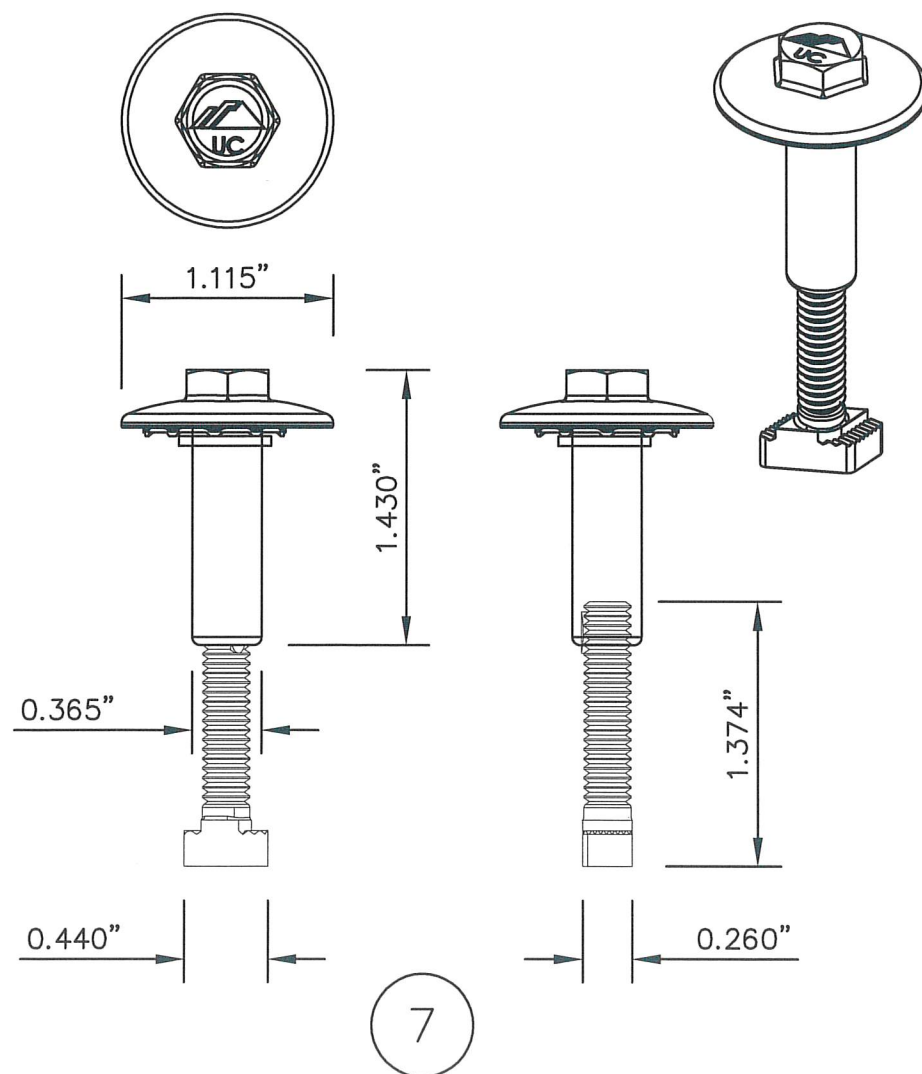
REVISION
4/24/25
2
2023 CODE UPDATE
1
10/18/23
1ST SUBMITTAL
12/19/22
REV#
DATE
PRINTS ISSUED FOR

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BILL OF MATERIALS- XR System		
#	DESCRIPTION	MATERIALS/NOTES
1	XR-10 RAIL	6000 SERIES AL
2	XR-100 RAIL	6000 SERIES AL
3	XR-1000 RAIL	6000 SERIES AL
4	XR-10 BOSS SPLICE	6000 SERIES AL & 300 SERIES SS
5	XR-100 BOSS SPLICE	6000 SERIES AL & 300 SERIES SS
6	XR-1000 BOSS SPLICE	6000 SERIES AL & 300 SERIES SS
7	UFO UNIVERSAL MODULE CLAMP	300 SERIES SS
7B	XR MID CLAMP (30-40MM), US PRODUCTION	6000 SERIES AL & 300 SERIES SS
8	STOPPER SLEEVE	6000 SERIES AL
9	EFO UNIVERSAL END CLAMP	300 SERIES AL & 300 SERIES SS
9B	CAMO HIDDEN END CAM	300 SERIES AL & 300 SERIES SS
9C	ECLIPSE HIDDEN END CLAMP ASSEMBLY	6000 SERIES AL & 300 SERIES SS
10	3/8" X 1" SQUARE BOLT BONDING HARDWARE	300 SERIES SS
11	3/8" X 1" T-BOLT BONDING HARDWARE	300 SERIES SS
12	XR-10 RAIL END CAP (OPTIONAL)	POLYMERIC
13	XR-100 RAIL END CAP (OPTIONAL)	POLYMERIC
14	XR-1000 RAIL END CAP (OPTIONAL)	POLYMERIC

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

FOR 300 SERIES STAINLESS STEEL $F_y=65$ ksi min.



DWG:	XR-HUG
SHEET:	7/9

 **IRONRIDGE**

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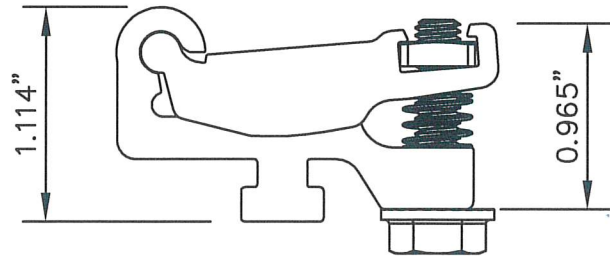
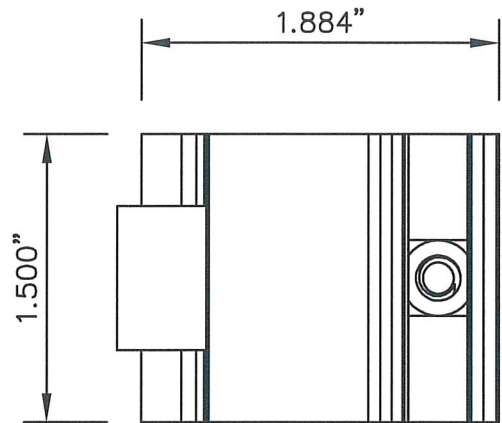
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WEST PALM BEACH, FL 33412
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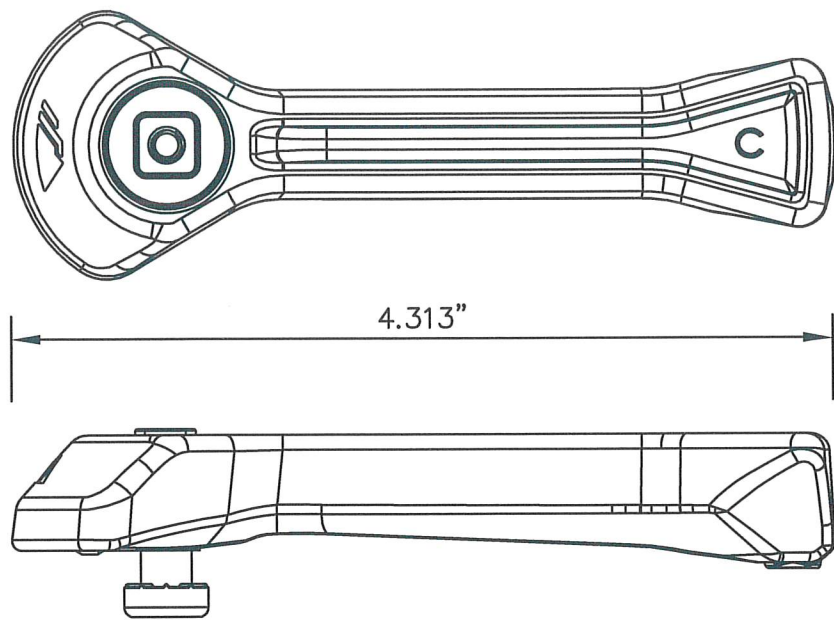
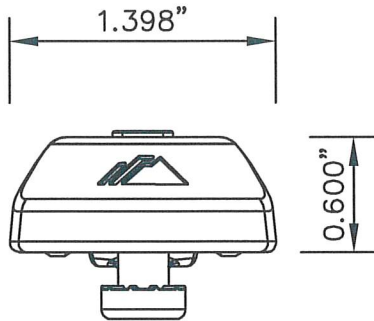
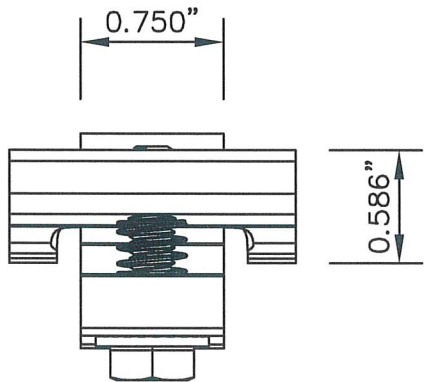
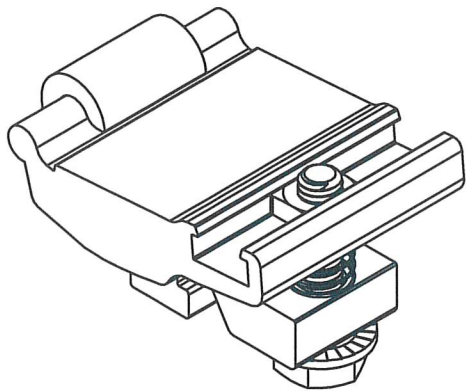
SEAL: *[Signature]* NO 62554

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REVISION	3	4/24/25
REVISION	2	4/29/24
2023 CODE UPDATE	1	10/18/23
1ST SUBMITTAL	—	12/19/22
PRINTS ISSUED FOR	REV.#	DATE

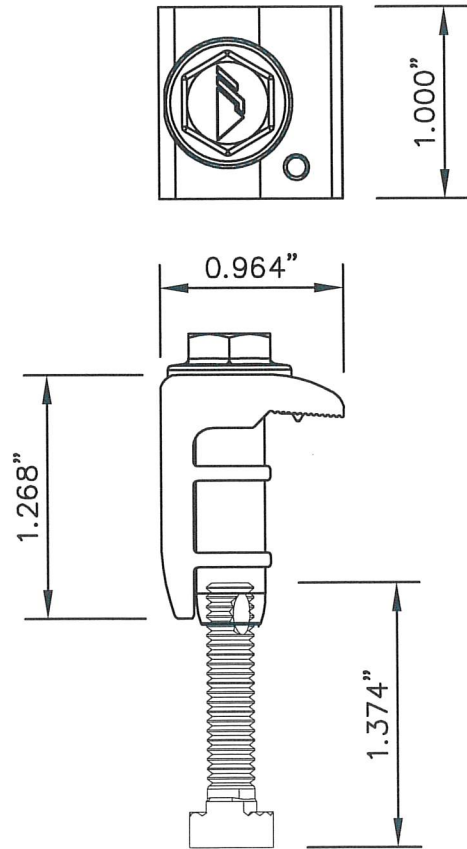
IRONRIDGE XR FLUSH MOUNT PHOTOVOLTAIC PANEL RACKING SYSTEM
WITH QUICKMOUNT HALO ULTRAGRIP ROOF ATTACHMENTS



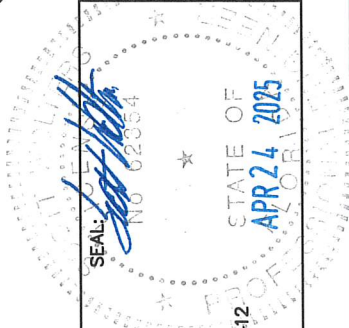
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9B



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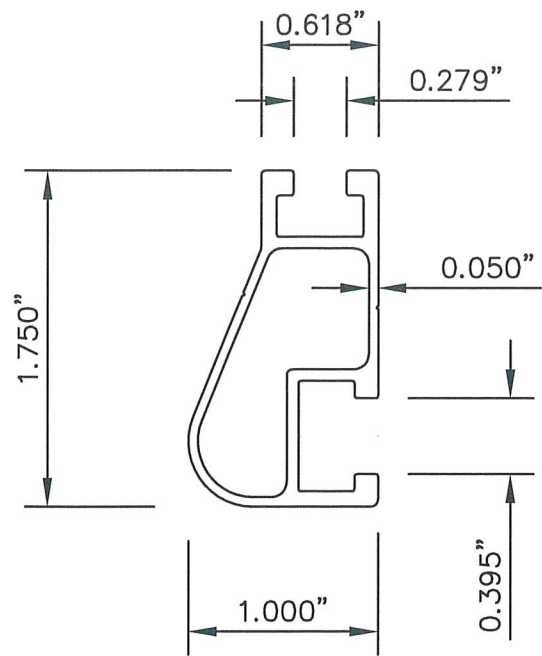
DWG: XR-HUG
SHEET: 8/9

28357 INDUSTRIAL BLVD.
HAYWARD, CA 94545
PHONE: (800) 227-9523
info@ironridge.com

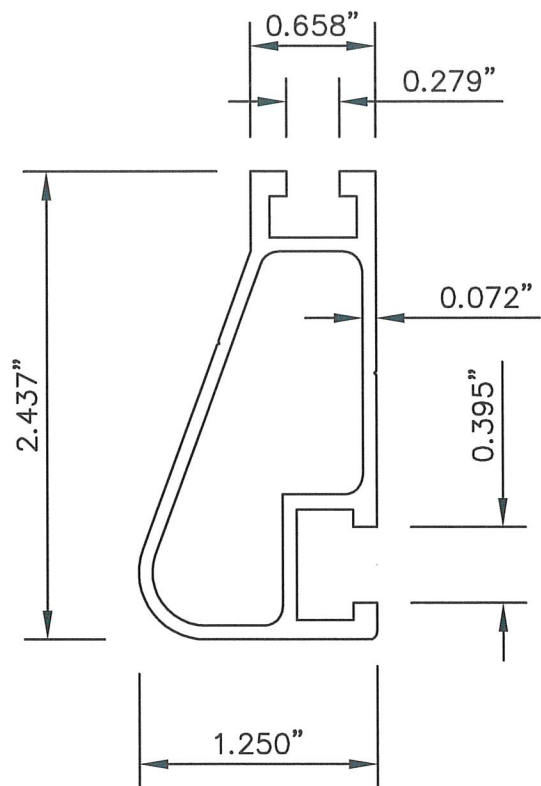
SCOTT WOLTERS
FL PE# 62354
WOLTERS ENGINEERING
(COA# 27194)
15211 97TH ROAD N
WEST PALM BEACH, FL 33412
(561) 225-1982

REVISION	DATE
3	4/24/25
2	4/29/24
1	10/18/23
1ST SUBMITTAL	12/19/22
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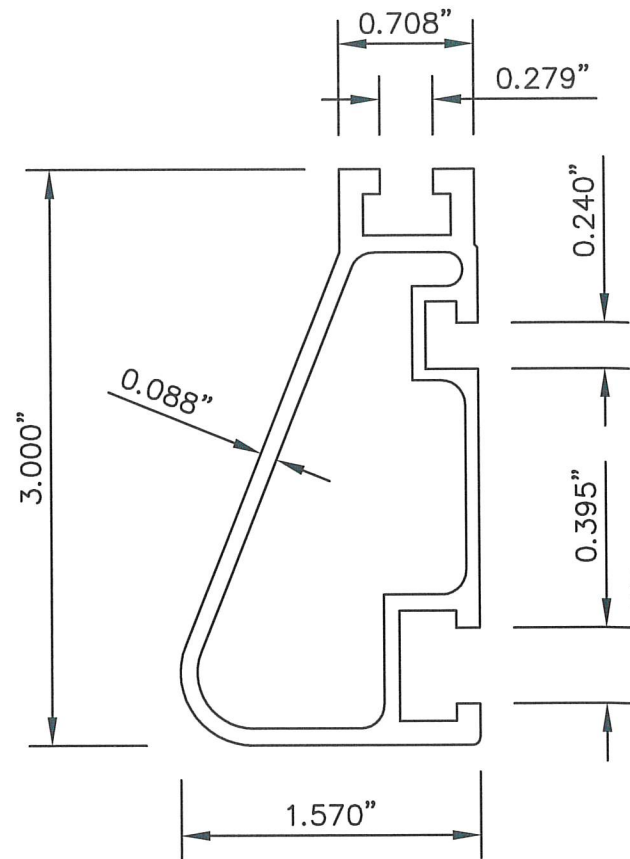
IRONRIDGE XR FLUSH MOUNT PHOTOVOLTAIC PANEL RACKING SYSTEM
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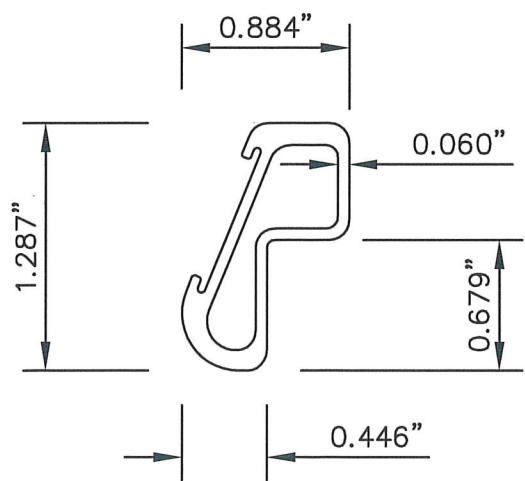
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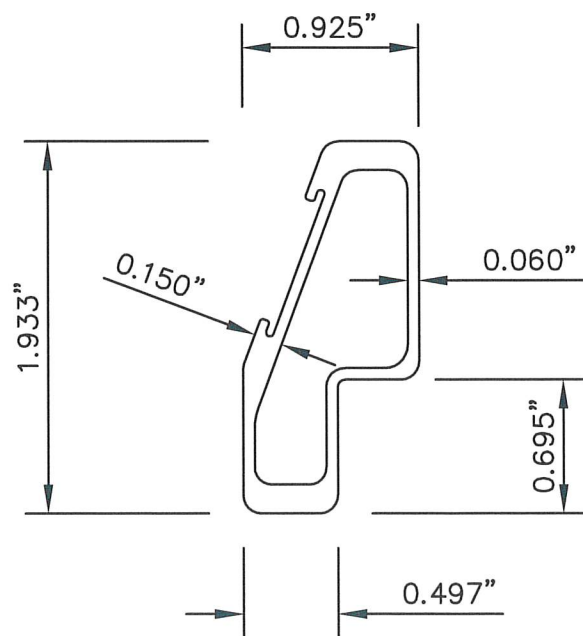
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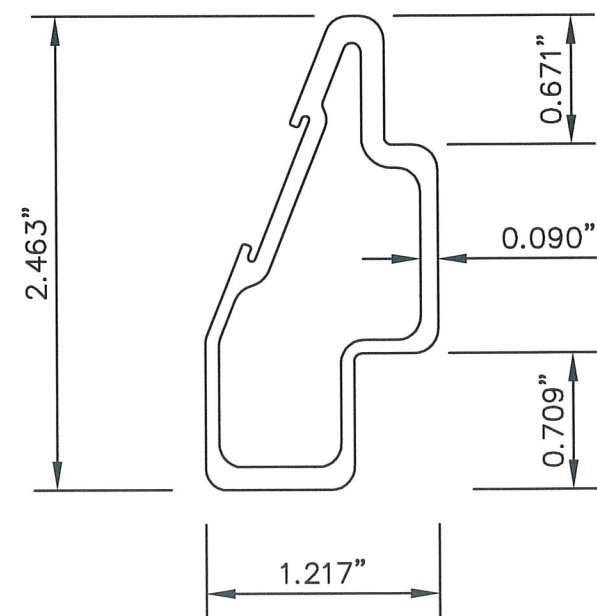
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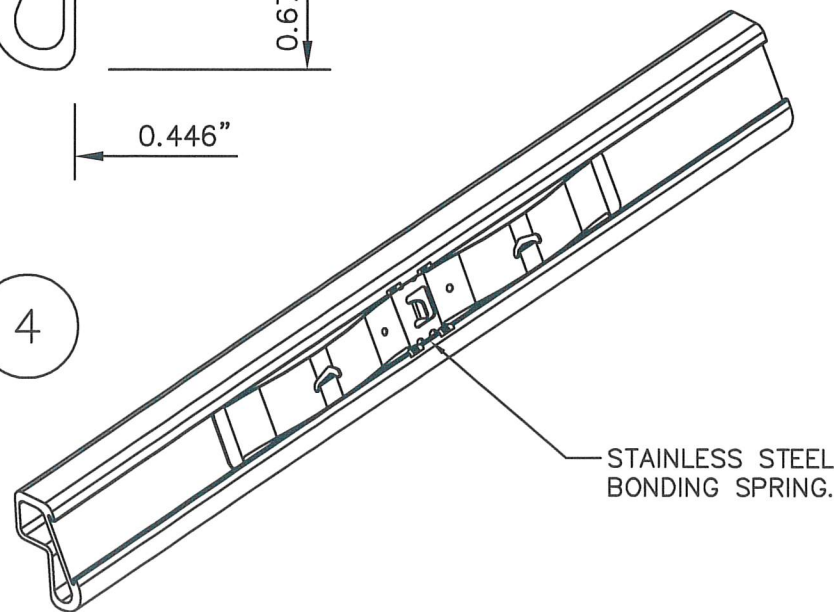
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5



6



STAINLESS STEEL
BONDING SPRING.



28357 INDUSTRIAL BLVD.
HAYWARD, CA 94545

DWG:
SHEET:

XR-HUG
9/9

SCOTT WOLTERS
FL PE# 62354

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WEST PALM BEACH, FL 33412
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SEAL:  No. 62354
STATE OF FLORIDA
APR 24 2025

REVISION	DATE
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1ST SUBMITTAL	12/19/22

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