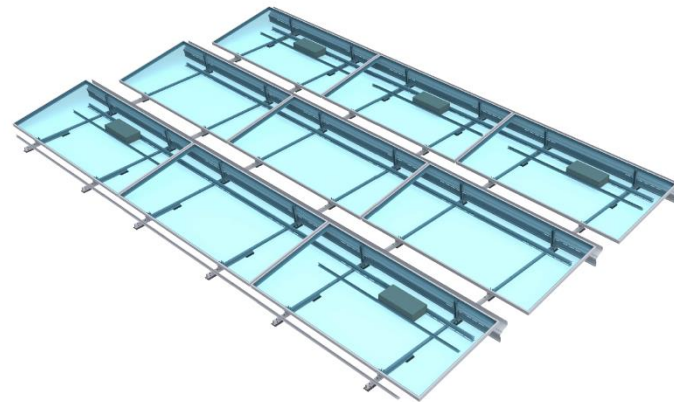


## clawFRplus™ 10 Degree Design Specifications, Rules and Guidelines





# Specifications: clawFRplus™ 10 Degree

<b>Roof Loading</b>	2 psf to 12 psf (9.75 kg/m <sup>2</sup> to 58.6 kg/m <sup>2</sup> ) including racking, modules and ballast
<b>Roof Slope</b>	5° max slope (1/12 pitch) in all directions Up to 7° (1.5 / 12 pitch) possible with engineering review
<b>Wavy Roofs</b>	clawFRplus can span up to 3° in undulation in any two directions This system is not designed to go over roof crickets
<b>Wind Speed</b>	190 mph (306 km/h) – 3 second gust per ASCE 7-16 (150 mph per ASCE 7-05) Higher wind speeds require PanelClaw engineering review
<b>Exposures</b>	ASCE wind exposure categories B, C and D
<b>Seismic Design Category</b>	USGS seismic design category A, B, C, D Seismic zones beyond D can also be evaluated upon request
<b>Maximum Building Height</b>	No Limitations
<b>Roof Material</b>	EPDM, TPO, PVC, Mod Bitumen, Asphalt, Coal Tar, Foam, Concrete, and Gravel Loose gravel and/or river rock must be cleared out from under clawFRplus bases
<b>UL/ANSI 2703-2015 Grounding &amp; Bonding</b>	UL LISTED – Will accommodate max module fuse rating of 40 amps. Typical module fuse rating is ~15 amps
<b>UL/ANSI 2703-2015 Mechanical Load</b>	UL LISTED – Racking components meet electrical and mechanical requirements of standard System load rating is always module dependent (module allowable loads are typically the limiting factor)
<b>UL/ANSI 2703-2015 Fire Listing</b>	System Fire Rating Class A with Type 1, 2, 16, 19, 22, 25, 29, and 30 modules No additional components required for compliance for these module types
<b>Ballast Block Size</b>	Nominal 2" x 8" x 16", 3" x 8" x 16", or 4" x 8" x 16" blocks Actual dimensions: 1 5/8" or 2 5/8" or 3 5/8" x 7 5/8" x 15 5/8" with +/- 1/8" tolerance



# Row Spacing and Roof Coverage Ratios: clawFRplus™ 10 Degree

Dimensions shown below vary by module except the Row-Row Gap, which is fixed.

Dynamic AutoCAD building blocks are available for any framed module within the range of dimensions below:

Module Width Range: 990-1150 mm, 1270-1310 mm<sup>1</sup>

Module Length Range: 1815-2500 mm

Configuration Name	Row-Row Gap	Example clawFRplus 10 Degree dimensions based on a module width of 1310 mm [51.57 in]				Example clawFRplus 10 Degree dimensions based on a module width of 1130 mm [44.49 in]			
		Tilt Angle [degrees]	Roof Coverage Ratio	Shading Ratio [H:V]	N-S Repeat	Tilt Angle [degrees]	Roof Coverage Ratio	Shading Ratio [H:V]	N-S Repeat
clawFRplus 10Deg-29 cm (11 in)	11.4 in [288 mm]	7.8	83%	1.55	61.9 in [1572 mm]	9.0	80%	1.57	54.9 in [1394 mm]
clawFRplus 10Deg-35 cm (14 in)	13.9 in [354 mm]	7.8	80%	1.92	64.5 in [1638 mm]	9.0	77%	1.94	57.5 in [1460 mm]
clawFRplus 10Deg-44 cm (17 in)	17.4 in [443 mm]	7.8	76%	2.42	68.0 in [1726 mm]	9.0	72%	2.44	61.0 in [1549 mm]

Repeat E-W dimension is fixed for every configuration as: Module Length + 0.71 in [18mm]

<sup>1</sup> At the time of this document's publication, no modules in the US market are in the width range of 1151 mm – 1269 mm. Contact PanelClaw if you're considering a new module in this range.

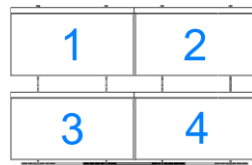
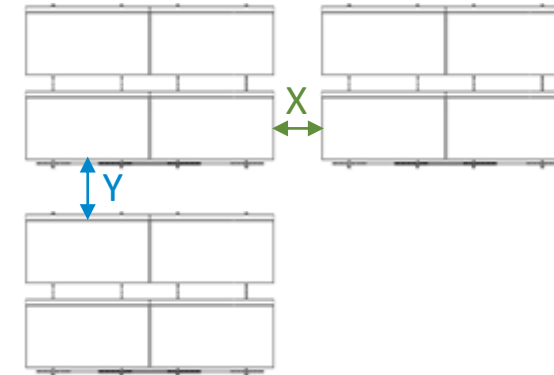


# Array Layout Rules: clawFRplus™ 10 Degree

These array layout guidelines were developed to maximize the performance of clawFRplus over its 25+ year lifespan.

Nonconforming arrays may require layout modifications, may not be ballast-able, or may require mechanical attachments.

- ▶ **Minimum setback from roof edges - 4 ft (1.2 m)**
- ▶ **Maximum array row/column length:**
  - ▶ **For Roof Slope > 2 degrees: 80 ft (24.4 m)<sup>1</sup>**
  - ▶ **For Roof Slope ≤ 2 degrees: 150 ft (45.7 m)**
- ▶ **Minimum clearance from obstructions<sup>2</sup>: 6 in (153 mm)**
- ▶ **Minimum module-to-module clearance between sub arrays<sup>2</sup>:**
  - ▶ **See Table**
- ▶ **Avoid going over existing pipes, lighting rods/cables or vents on the roof**
- ▶ **Minimum array size **2 x 2 modules****



Row Spacing	X, Min. Module-to-Module Clearance	Y, Min. Module-to-Module Clearance
11 in [29 cm]	8 in [203 mm]	16.5 in [419 mm]
14 in [35 cm]	8 in [203 mm]	16.5 in [419 mm]
17 in [44 cm]	8 in [203 mm]	20 in [508 mm]

<sup>1</sup> Adjacent subarrays can be grouped with minimum module-to-module clearances as long as the group of subarrays does not exceed 150' x 150' IBC fire code requirements

<sup>2</sup> Unless otherwise specified in DMPV analysis for unattached designs



## **Layout Recommendations for Reducing Weight and/or Mechanical Attachment Counts**

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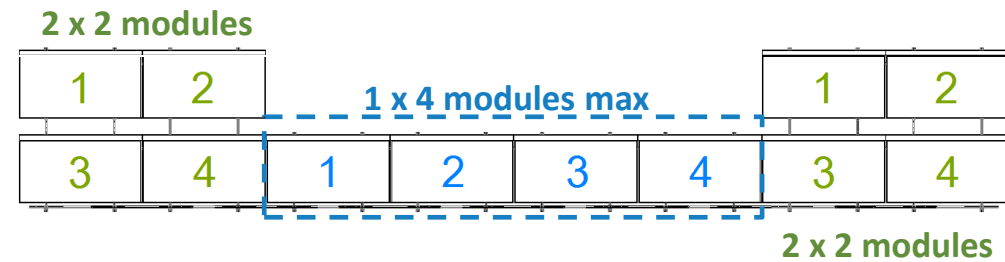
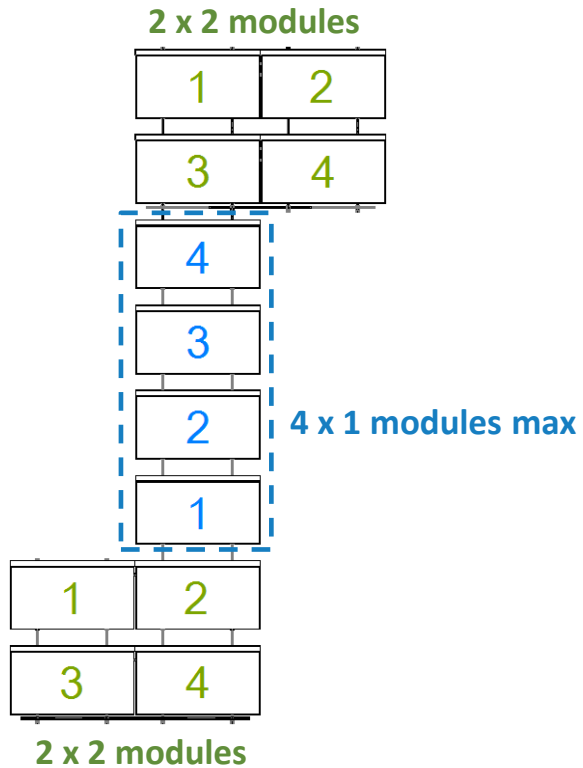


# Minimize the Use of Long “Bridges”

Keep the single module wide “bridges” to no more than **1 x 4 modules** or **4 x 1 modules**.

“Bridges” more than 4 single modules long will require additional ballast and/or mechanical attachments.

If “bridge ends” that are at least **2 x 2 modules** on both ends are not present it may result in additional ballast and/or mechanical attachments.



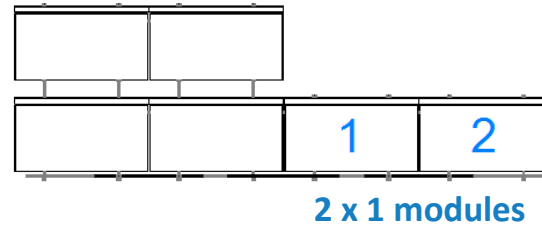
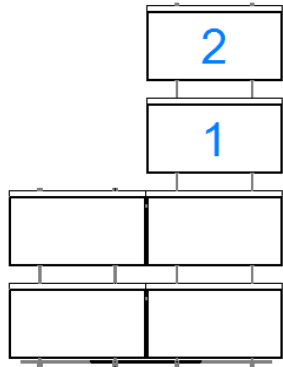


## Limit “Peninsulas” to No More Than Two Modules Long

Keep “peninsulas” to no more than **1 x 2 modules** or **2 x 1 modules**.

“Peninsulas” that are more than 2 modules long will require additional ballast and/or mechanical attachments.

1 x 2 modules





**For Questions or Feedback Contact [sales@panelclaw.com](mailto:sales@panelclaw.com) or call us at (978) 688-4900**

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