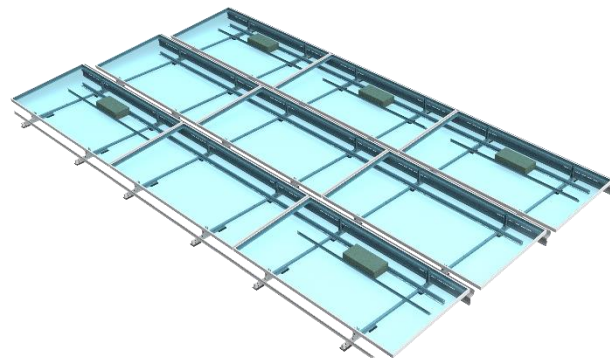


## clawFR® 5 Degree Design Specifications, Rules and Guidelines





# Specifications: clawFR® 5 Degree

<b>Roof Loading</b>	2.3 psf to 8.0 psf (11.2 kg/m <sup>2</sup> to 39.1 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>	clawFR can span up to 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 clawFR 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"x16" 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: clawFR® 5 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 clawFR 5 Degree dimensions based on a module width of 1310 mm [51.57 in]				Example clawFR 5 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
clawFR 5Deg-18 cm (7 in)	6.90 in [175 mm]	3.8	88%	1.99	58.3 in [1481 mm]	4.5	87%	1.99	51.2 in [1301 mm]
clawFR 5Deg-26 cm (11 in)	10.4 in [264 mm]	3.8	83%	3.00	61.8 in [1570 mm]	4.5	81%	3.00	54.7 in [1390 mm]

Repeat E-W dimension is fixed for every configuration as: Module Length + 0.75 in [19mm]

<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.

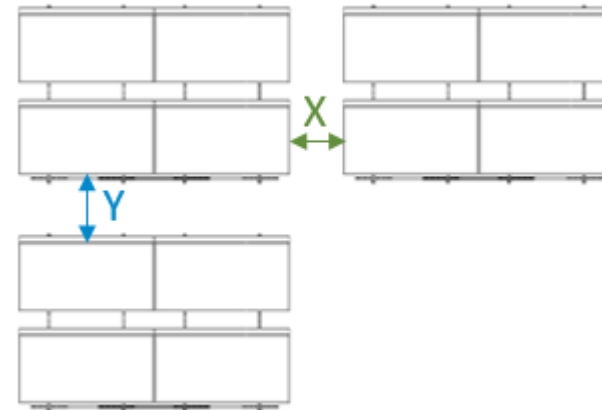


# Array Layout Rules: clawFR® 5 Degree

These array layout guidelines were developed to maximize the performance of clawFR 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
7 in [18 cm]	8 in [203 mm]	15.5 in [394 mm]
11 in [26 cm]	8 in [203 mm]	16.5 in [419 mm]

<sup>1</sup> Adjacent subarrays can be grouped with a minimum module-to-module clearances as long as those groups of subarrays do 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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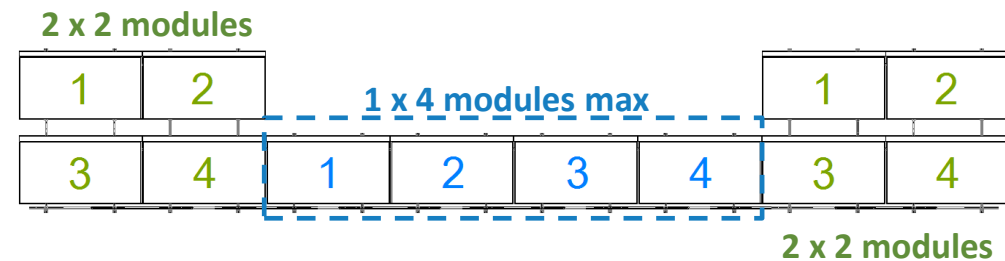
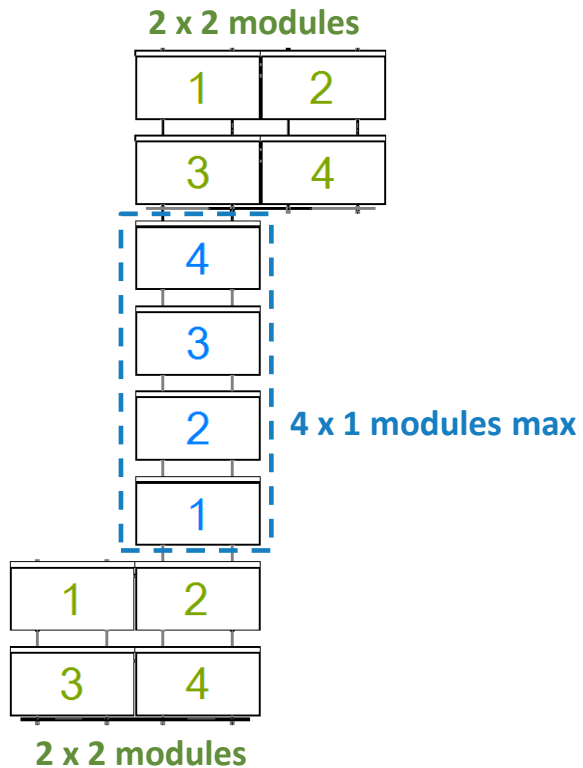


## Minimize the Use of Long “Bridges”

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.



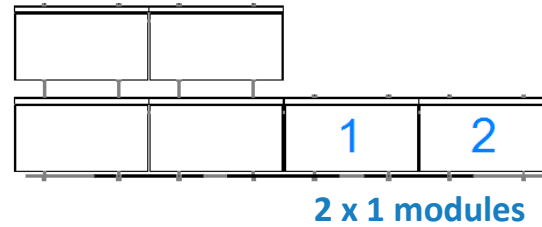
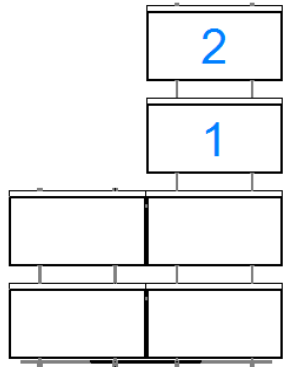


## Limit “Peninsulas” to No More Than Two Modules Long

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

“Peninsulas” that are more than 2 module 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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