



Install Virtually Any Solar Panel without Rails

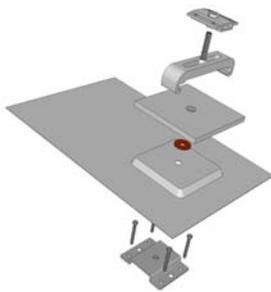
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Innovative rail-less design- “The Paradigm Shift”

“Typical racking and flashing systems involve locating structural framing members beneath the sheathing surface with the installers typically working from above (i.e. not having access to the attic space). By eliminating the need to attach to these structural framing members, a multitude of advantages proliferate from manufacturing to installation and beyond.”

With this in mind, Zilla Corporation has developed a revolutionary, fully flashed, rail-less PV mounting system with integrated grounding that may be installed directly to roof sheathing.

With over 25 years of experience installing photovoltaic systems, Zilla® has continually stayed on the cutting edge of design. The Zilla® Phantom™ combines the watertight sealing methods of the Zilla® Double Stud Flashing with innovative design allowing for superior strength and field adjustability.



Zilla® Phantom™ incorporates 3-axis adjustability providing landscape or portrait orientation maximizing roof utilization. Zilla® Phantom™ is compatible with standard frame modules eliminating the need for specialty frames.

The Zilla® Phantom™ Advantages-

1. Adaptability

- a. Modules (standard framed)
 - 1. Any Size
 - 2. No specialty frames
 - i. PV
 - ii. Thermal
 - iii. Hybrids
- b. Glass only capable
- c. Roof types
 - 1. Asphalt
 - 2. Shake
 - 3. SIPS*
 - 4. Concrete*
 - 5. Metal*
 - 6. Tile*
 - 7. Others*

*custom option
- d. Orientation
 - 1. Landscape
 - 2. Portrait
 - 3. Other patterns
 - 4. Mix of All
- e. Seamless integration
 - 1. To Zilla rail systems
 - 2. Same components

2. Adjustability

- 1. All module thicknesses
- 2. 3 inches E-W and N-S
- 3. Unlimited vertical adj.

3. Durability

- a. Aluminum and Stainless
 - 1. Lightweight
 - 2. Corrosion Resistant
 - 3. Long life

4. Speed

- a. Direct sheathing option
 - 1. Top down mounting
 - 2. No rafters or purlins
 - 3. No need to pre drill
 - 4. No tape measure
 - 5. One man install



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5. Integrated Design

- a. Flashing
 1. Double Stud Design
- b. Grounding
 1. Top Clip
 - i. UL 467 Certified
 - ii. Up to 650 Amps
 - iii. One wire
- c. Optimizers/Micro Inverters
 1. Zilla® adapters
- d. Wire Management
 1. Stainless Clips

6. Safety

- a. No long rails
 1. Reduced electrocution risk
 2. Minimized trip hazard
 3. Compact handling
 4. Dangerous transport
- b. Anti-rotational Deck
- c. Integrated Ground
- d. Fully Flashed
- e. One man install
- f. Ergonomic Design
 1. Minimal Parts
 2. Lightweight

7. Aesthetics

- a. Low Profile
 1. 1.5 inch to roof
 2. Reduced vermin
 3. No obstructions

8. Lowest Overall Cost

- a. Shipping
 1. Anywhere Delivery
 2. Small size
 - i. UPS/FedEx/LTL
 3. No special equipment
 - i. Forklift
 - ii. No storage rack
 - iii. No truck
- b. Handling
 1. Minimal equipment
 2. Reduced Inventory
- c. Equipment
 1. Minimal tools
 2. Minimal training

Engineered to Perform

Strength-

Zilla Corporation has used extensive design criteria to evaluate application for the Zilla® Phantom™ in real world conditions.

- In house Structural Engineering
- In house Mechanical Engineering
- Third Party Evaluations
- Finite Element Analysis
- In house stress testing
- Laboratory stress testing
- Field installations
- Code Mechanical Connection Analysis
- Fastener Designs and mfg. data
- Code applicable Design Criteria
 - APA
 - ASCE
 - UBC/IBC
 - ASTM
 - Other(s)

A properly installed Phantom™ System is capable of withstanding the forces it has been designed for in the specific geographical region as per any properly designed Zilla® system.

Module Efficiency & Aesthetics-

Zilla Corporation has done in house testing of modules at various heights above various roof surfaces, while measuring module temperature. Zilla Corporation believes based upon its tests and calculations, that given the unique unobstructed underside design of the Phantom™ rail-less system, the Phantom™ system is comparable in module efficiency due to temperature degrade to many common rail systems, due to the obstructions and trapped air pockets created by the rail systems. Zilla Corporation believes that based upon the knowledge obtained that annual production efficiency loss could be between 0.5% - 3% of the annual production. This is compared to a



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module mounted on a Zilla® rail system 4.25" to bottom of panel frame off a black asphalt surface. Zilla Corporation has worked with many optimizer/micro inverter applications and most inverter manufacture recommended clearances could be obtained with the usage of the Phantom™. Zilla Corporation believes hot ambient direct radiation climates like Arizona, to be on the upper end of this range. Again, Zilla Corporation believes that the low profile of 1.5" to the bottom of the module frame is a good aesthetic tradeoff. The Zilla® Phantom™ Mounting System utilizes 1" row and column spacing to facilitate air movement. Zilla® options exist to raise the module height. Due to the multitude of manufactures, it is the responsibility to the purchaser to verify compliance with the various manufactures to the Phantom™ Mounting System.

Overall Cost-

Zilla Corporation believes that given all the variables in mounting solar panels, that the Zilla® Phantom™ is hands down the least expensive fully integrated solutions in the market place today. This Patent Pending technology is revolutionary to the industry and will provide competitive advantages to its users. When you factor in all the above listed advantages, of adaptability, adjustability, durability, speed, integration, safety, aesthetics, shipping, handling, etc., Zilla Corporation believes there is no other system out there that can deliver the value of the Phantom™ Mounting System. However, just as you do not use the same tool for every job, Zilla Corporation recognizes the need to use the Phantom™ in the way it was competitively designed. Thus the Zilla® Rail Mounting Solutions seamlessly integrate with the Phantom™ mounting solution to provide comprehensive mounting solutions anywhere, any place, any time.

Conclusion:

The Phantom™ Paradigm"

Given the large reduction in module cost and the need for further Balance of System (BoS) cost reduction, the Zilla® Phantom™ will lead the way to revolutionary cost advantages.

Basically an integration service for the install, the Zilla® Phantom™ provides cutting edge technology while greatly decreasing time spent on the roof resulting in lower costs and increased profitability.

"This unconventional fully integrated solution will revolutionize the way systems are installed as distributors and installers look for new ways to further BoS reductions."

To learn more about this innovative and effective product, please visit zillarac.com or contact our sales team at 720.880.6700.

Zilla® – So Simple It's ScarySM

