

# Solving Solar Panels' Installation Challenges with Bonding

## BURNDY/Wiley Partnership Provides Cost-Effective Solutions

Whether you're installing miles of electrical wires or acres of solar panels, it's the components no bigger than a few inches that can give the project long-term success and peace of mind. But as PV technology has evolved—making solar power even more viable and available—the old grounding solutions aren't proving as effective. Rather, it's enhancements in bonding technology that better suit the industry.



"The simplicity that bonding provides ensures consistent, long-term results,"

says Craig Lawson, Renewable Energy Business Development Manager at BURNDY. "As more and more projects are successfully completed with bonding, we're seeing higher demand for these products."

"The WEEB has completely revolutionized the solar industry. It achieves all the benefits of bonding while also delivering BURNDY's industry-recognized customer service."

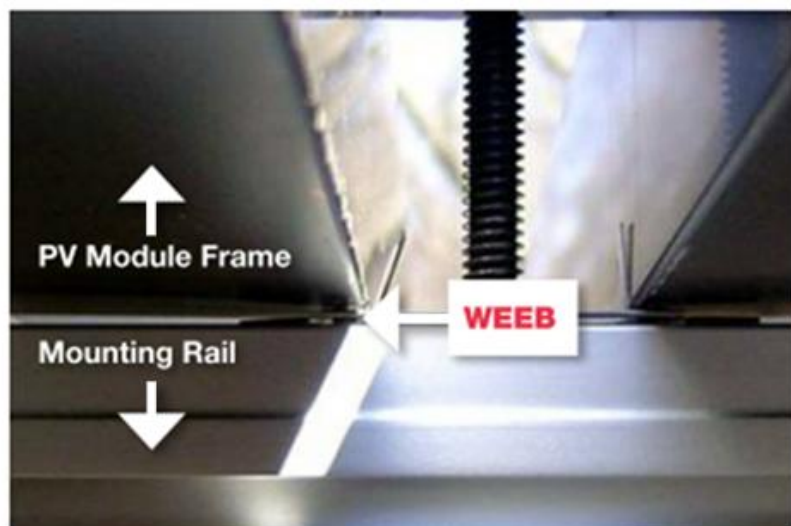
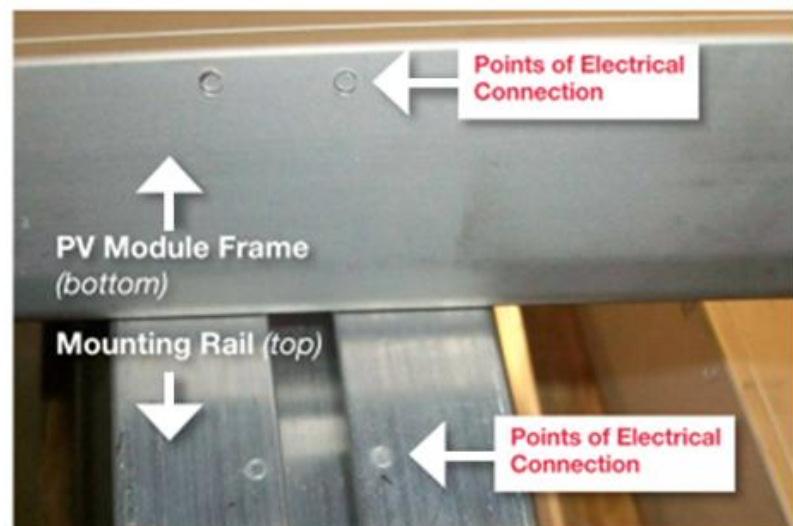
—Craig Lawson, Renewable Energy Business Development Manager at BURNDY

To help meet the demand, BURNDY now offers the Wiley WEEB (Washer, Electrical Equipment Bond)—a simple, reliable and low-cost method to bond PV module frames and racking together.

Wiley Product Specialist Annick Magac explains how bonding works. "The WEEB is inserted between the module frame and mounting rail," she says. "When the WEEB's teeth pierce the anodized coating, the result is excellent conductivity without oxidation—bonding the PV module frame with the metal racking structure. Basically the module and rail become one big piece of metal."

Because only the mounting structure is grounded and the modules are bonded to the rails, this approach addresses several of the challenges that traditional grounding methods pose for solar panels.

"We found," Magac says, "that the NEC language for PV grounding was complicated and can be confusing. In addition, different Authority Having Jurisdictions (AHJs) brought their own interpretations, based on local guidelines."



 **BURNDY**

## Addressing Solar Installation Needs

With the WEEB, installers are seeing consistency for inspection and solutions to some common challenges.

### **WEEB Benefit 1: Requires Less Copper Conductor**

Traditional lay-in lugs require installation on each PV module, using a good amount of copper conductor for the grounding. With the rising cost and theft of copper, using this material now presents additional on-site challenges. However, because the WEEB bonds solar PV modules to mounting structures, a low impedance, electrical path to ground is created automatically. "This eliminates the need for older, more costly grounding methods and greatly reduces the amount of labor and materials used in installations," Magac says. "There's no longer the need to run ground wire to each individual module."

### **WEEB Benefit 2: Lay-In Lug Engineered for Outdoor Use**

Many lay-in lugs aren't rated for outdoor use, resulting in a much shorter lifespan. However, the WEEB Lug's specialized teeth embed into anodized aluminum, galvanized steel or any electrically conductive metal to establish a gas-tight electrical connection. The tin-plated WEEB Lug ensures minimum contact resistance and protection against corrosion for years.

### **WEEB Benefit 3: Ensuring Proper Installation**

For proper performance in the long-term, it's critical that any grounding or bonding connector is installed according to manufacturer specifications. Even the smallest difference has an effect.

"This is really where customers see the benefits of the Wiley/BURNDY partnership," Lawson says. "With our educated local sales force and USA-based customer service, we're dedicated to helping each customer see the long-term reliability and results that the WEEB can deliver."

### **WEEB Benefit 4: Preventing Galvanic Corrosion**

If the metals used in manufacturing the grounding connector aren't compatible with the metals used in the solar panels, galvanic corrosion can occur. "The WEEB is engineered to be compatible with rack materials," Magac says. Corrosion is significantly reduced due to the WEEB's revolutionary design.

### **WEEB Benefit 5: Long-Term Reliability**

Once these challenges are addressed, the system experiences a longer lifespan, making solar energy more attractive for all markets. WEEBs are compliant with the NEC, ETL listed to UL 467 test requirements for grounding and bonding, and UL recognized to UL 2703 for rack mounting and clamping devices.

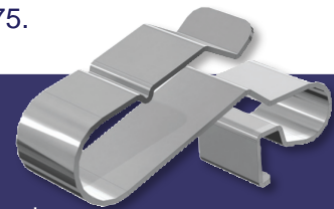
"With the UL recognition," Lawson says, "WEEBs can be documented for traceability, which means racking manufacturers can utilize WEEBs in their system if they choose to pursue UL 2703."

### **Bonding at Work**

As more and more installers learn about the significant cost- and time-savings that bonding offers, the WEEB has seen a soaring demand. WEEBs are successfully installed in numerous projects around the world as well as in various residential, commercial and utility-scale installations—including on Google's headquarters in California.

"The future of the PV industry depends on safety, reliability and quality workmanship," Lawson says. "With these systems expected to last up to 25 years, proper training and education about components are vital. BURNDY's history of industry-leading customer support brings that confidence to every WEEB installation."

With more than 50 different racking companies that are compatible with WEEB, and new rails and profiles evaluated periodically. You can learn more about the Wiley WEEB, including its compatible (with the WEEB Compatibility List), log on to [www.burndy.com](http://www.burndy.com) or call 1-800-346-4175.



### **Wire Management**

Although sometimes overlooked, long-term applications require properly secured the PV cables. ACME cable clips can do just this. The clips:

- Help prevent damage to the cable insulation;
- Prevents the cables from coming out of the junction box on the modules;
- Simplify wire management; and
- Create a cleaner aesthetic appearance.

Unlike zip ties, ACME's stainless-steel cable clips are easy to install and designed to last in harsh environments, thereby ensuring a safer installation.



[www.burndy.com](http://www.burndy.com) | 1-800-346-4175