

Second Generation Solar & Premium Metal Roofs: the SmartPower Roof™



Sundial Energy, Inc. merges technology from Uni-Solar™ and MasterCraft Metals to produce the SmartPower Roof™

Integrating the latest UL approved Uni-Solar flexible PV laminate technology with premium metal roofing by MasterCraft Metals, Inc., the SmartPower Roof provides customers with cost effective power generation from an attractive integrated roof that lasts a lifetime.

Architects appreciate the clean lines of the roof integrated Uni-Solar laminate. Simple, fast installation of the modular roof assures home builder satisfaction. Homeowners will rest easy knowing they've purchased a quality product backed by solid warranties: **20 years** from Uni-Solar and **50 years** from MasterCraft Metals, Inc.

SmartPower Roof delivers where it really counts: performance. The SmartPower Roof generates electricity even at very low sun angles and continues to perform well under the hottest conditions or cloudy weather. The result is more total energy throughput than the competition, up to 30% more on a watt-per-watt comparison.*

With the SmartPower Roof, customers can develop any level of energy security and independence they desire, from a complete stand alone system to one that utilizes the electric grid for backup energy needs.

www.sundialenergy.com Providing intelligent solutions for your renewable energy needs.

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Why SmartPower Roof?

Speed: Sundial Energy's SmartPower Roof installs faster than all other solar panels. On-ladder time is minimized and no roof racks are needed with this system.

Efficiency: Due to their remarkable temperature and shadow tolerance, SmartPower Roofs produce more electricity than traditional crystalline panels, on a watt-per-watt basis, in actual power output.*

Aesthetics: In the SmartPower Roof system the power producing surface is laminated directly to the metal panels to maintain roof profiles from all directions. The SmartPower roof's unobtrusive quick connect wiring system is hidden in roof details to eliminate the negative visual impact associated with rack-mounted crystalline modules.

Flexibility: The SmartPower Roof can be installed over a wide range of roof geometries, from 3.5° to 60°.

Reliability: The SmartPower Roof will last. With no penetrations through the roof panels, in typical installations, any potential for roof failure is minimized. Since power is produced under diverse temperature and lighting conditions, more electricity will be available when you need it. And, Uni-Solar includes a 20 year power output warranty and 5 year system warranty.

Vandalism Resistance: Uni-Solar's SmartPower Roof laminates are highly resistant to vandalism. They have no glass to shatter. Aggressive adhesion makes them extremely difficult to remove.

Balance-of-System (BOS): Because the SmartPower Roof laminates do not require an additional roof mounting system, as do crystalline solar panels, BOS costs for hardware and labor are reduced. Only the most efficient BOS components are used in order to reduce production losses inherent in many installed systems, resulting in more energy per watt installed.

Specifications:

Photovoltaic Laminates

- Roof slope: 3.5° to 60°
- Temperature limitations: 185°F (85°C) on Uni-Solar laminate, 194°F (90°C) on wiring
- Available laminate lengths: 9'.4" (285 cm) 16'.5" (501 cm) 18' (549 cm)
- Standard laminate width: 15.5 inches (39.4 cm)
- Uni-Solar laminates can be wired in series or parallel
- Uni-Solar laminates are UL listed
- Efficiency: 100% rated output under standard test conditions (STC); 94.6% rated output - PVUSA test conditions (PTC) - one of the highest in the industry; actual energy output is up to 25% higher, kWh per installed watt, than silicon crystalline modules.
- Temperature Coefficient: -0.21%/°C > 25°C compared to -0.45%/°C to -0.55%/°C for crystalline modules

MasterCraft Metals roofs

- Standing seam 24 gauge roof panels
- Minimum MasterCraft roof panel width required: 16 inches (40.6 cm)
- Low maintenance
- Low life-cycle cost
- Fire and wind resistant
- 20 year "Kynar" paint system

Warranties

- **5 year system warranty**
- Uni-Solar PV Laminates - **20 year limited warranty**
- MasterCraft roof panels - **50 year limited warranty**

Balance-of-System

- NO roof mounts needed
- Inverters (DC to AC conversion)**
- AC and DC disconnects**
- Batteries: (use determined by system type)**
- Charge controller (only with battery incorporated system)**
- Meter or meters as needed**

* Paper 6B.7.3 presented at the 20th EPVSEC Conference, Barcelona (S), June 2005.

** Industry leading manufacturers with standard or extended warranties
SmartPower Roof[™] is a Uni-Solar trademark.

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