

*Just Roof™  
Building integrated  
solution.*





## Exceptional Product Features and Benefits

The Just Roof™ Building Integrated Photovoltaic System (BIPV) delivers an innovative combination of superior aesthetics, proven reliability and high efficiency.

Just Roof™ is a unique roof-integrated system designed to form a complete roof by replacing traditional roofing tiles or other roof coverings. Just Roof™ is ideal for use on residential and commercial buildings and is ideal for either new construction or retrofit applications.

### Superior Aesthetics

- Smartly designed all black modules blend seamlessly into the roof
- Low profile railing system creates a smooth and integrated finish
- Interlocking frames create natural flat complete roof system

### Proven Reliability

- Has been installed on more than 5000 homes since its introduction in 1994
- All-aluminum components ensure the long-term reliability of the system
- Unsurpassed drainage system features multiple water channels to prevent water leaks, no plastic sealants
- Tested for excellent moisture, wind, snow and earthquake resistance
- Module framed on all four sides for long term durability
- IEC passes at 5400 Pa
- Ammoniac Resistant
- Industry leading warranty

### High Efficiency

- Features high-efficiency monocrystalline cells to give up to 195 Wp per module (143 Wp/m<sup>2</sup>)

### Versatile Design

- Can be easily installed, replacing whole or part of roof
- Compatible with a wide variety of roof types and materials
- Suitable for use on roof with pitch angles as low as 15°
- Modular design helps to adapt installation even at skylights, balconies and dormers
- Suitable for both new build or retrofit residential or small commercial buildings
- Flexible to adapt to conventional pitched roof or any gabled roof configuration
- Half size module also available for better matching to all roof sizes

### Ease of Installation

- Simple mounting system allows roof installation within one working day
- Just one vertical rail profile and a capping rail make installation easy
- Easy replacement on single modules if needed
- Plug-n-play connectors make wiring of the solar system simple and safe
- Supplied in palletized 3 kW ready-to-go kits and can be variable split in smaller kits

# The History of Just Roof™

Just Roof™ was the world's first building integrated solar roofing product to be developed, springing from the vision of Chiyoji Misawa, the founder of Misawa Homes, Japan. The following summarizes the groundbreaking history of the Just Roof™ system.



## 1994: The Start of Just Roof™

Misawa Homes was re researching into environmentally friendly house construction, looking first to insulation and other energy saving techniques to reduce home energy usage by 85%. It soon became clear that to reach the 85% target, energy saving alone was not enough, and the home would need to actively generate its own energy. Thus the idea was born of a solar panel system that was actually integrated into the roof of the house. Misawa Homes worked with Suntech Japan (then called MSK) for the solar panels, Shin Nikkei for the aluminum rails and Kubota Hometech for the installation.

## 1997: "Taiyo no ie" (The Sun Home)

Misawa launched its first environmentally friendly home featuring 85% lower energy use than a standard home thanks to advanced energy saving technology and Just Roof™ panels.

## 1998: Continuous Kaizen

Suntech Japan and Misawa took continual steps to develop and improve the Just Roof™ system. These include redesigning the rails to optimize aluminum usage, changing from rubber to aluminum capping rails for better reliability, and performing a simulation of the Kobe Earthquake on a home mounted with Just Roof™ to ensure the reliability and safety of the system.



## 1998: Hybrid Z

Misawa launched its Hybrid Z home in 1998, which reached true zero energy status, with 100% of the energy required for the home being supplied by the Just Roof™ panels on the roof.

## 2003: Hills Garden Kiyota

First sales of homes in "Hills Garden Kiyota" – a 500 home development in Hokkaido, Japan featuring Just Roof™.



## 2008: European Launch

Just Roof™ was optimized for use in Europe and IEC certified in 2008. One of the first projects besides residential houses was a 4.5 MW project comprising five large agricultural warehouse roofs.

# Ease of Installation

The Just Roof™ photovoltaic system consists primarily of a photovoltaic array mounted on vertical aluminium rails. The array is connected to an inverter which in turn is connected to the mains electricity grid. The total system weight is approximately 18 kg/m<sup>2</sup>.



Photo courtesy: Hanau Energies

- Modules are mounted in portrait mode on vertical aluminium rails.
- Modules interlock and the gaps between modules are covered by a propriety black anodized aluminium capping rail.
- Metal flashing is used around the four edges of the array to complete the system.
- Plug-n-Play connectors make wiring of the solar system simple and safe.



**01**  
Mark positions for  
mounting rails



**02**  
Mounting rails extendable  
(male/female)



**03**  
Fix rails



**04**  
Install and connect  
photovoltaic modules



**05**  
Ground the system



**06**  
Install side flashing



**07**  
Install hat covers and  
aluminium strips



**08**  
Install top flashing



**09**  
Install bottom flashing



**10**  
Complete Just Roof™  
system

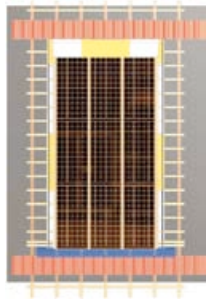
# Packaging

## Residential Roof Kit 3 kW

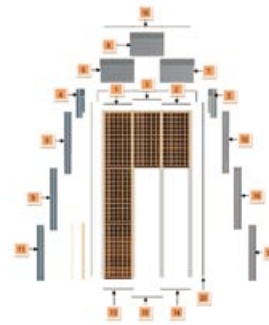
- Full size modules 72 cells
- Short rails for one module length
- All fixing screws included
- Optional: tile flashings

## Commercial Roof Kit

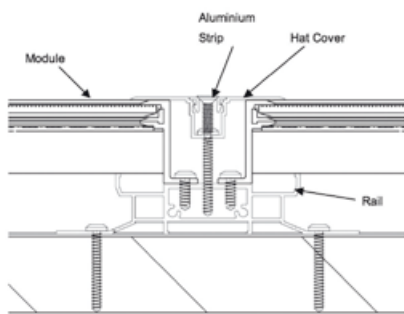
- Full size modules 72 cells
- White back sheet foil
- Long Rails for 4 module length
- All fixing screws included



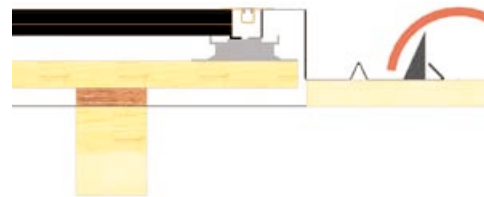
**01**  
Overview of a Just Roof™ installation



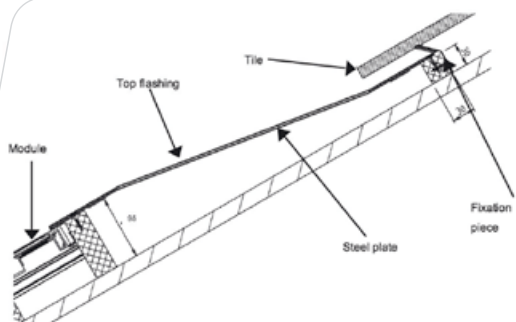
**02**  
Exploded view of Just Roof™ and flashing



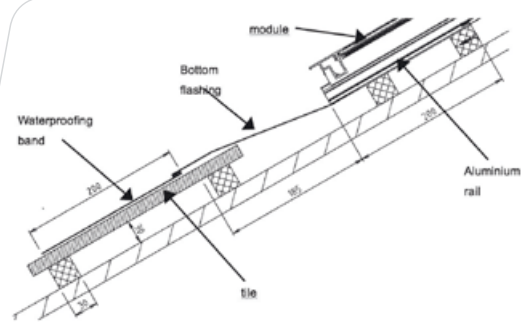
**03**  
Cross section of joint between modules



**04**  
Just Roof™ side flashing

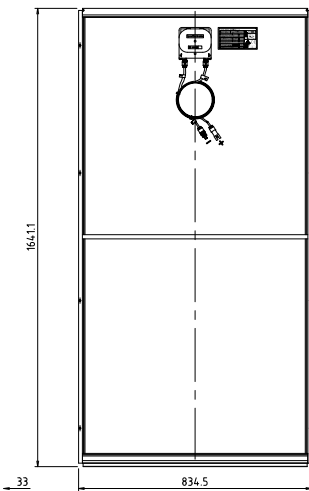
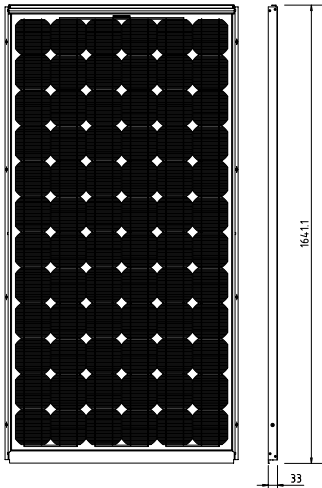


**05**  
Just Roof™ top flashing



**06**  
Just Roof™ bottom flashing

# Technical Specifications



## Electrical Specifications

Characteristics		MSZ-190J-D		MSZ-195J-D*		MSZ-185J-C		MSZ-190J-C*		MSZ-95J-DH		MSZ-90J-CH	
		White		Black		White		Black					
Backsheet Colour		White		Black		White		Black					
Peakpower Pmax	Wp	190	195	185	190	95	90						
Rated Voltage Vmp	V	36.6	36.6	36.4	36.6	18.3	18.0						
Rated Current Imp	A	5.20	5.33	5.09	5.20	5.20	5.00						
Open Circuit Voltage Voc	V	45.2	45.4	45.0	45.2	22.6	22.4						
Short Circuit Current Isc	A	5.62	5.69	5.43	5.62	5.62	5.29						
Maximum System Voltage	V			1000									
Temperature Coefficient: Power	%/°C			-0.48									
Temperature Coefficient: Voltage	%/°C			-0.34									
Temperature Coefficient: Current	%/°C			+0.037									
Series Fuse Rating	A			15									
Peak Power per Unit Area	Wp/m <sup>2</sup>	139	143	136	139	132	125						
NOCT	°C			45±2									
Insulation Performance	MΩ			50 (500 VDC)									
Ability to Withstand Voltage	VDC			3000 for 1 min									

The electrical characteristics of the module are measured at standard test conditions of 1000W/m<sup>2</sup> irradiance, AM 1.5 spectrum, 25°C cell temperature. Maximum performance limits conform IEC 61215 standards.

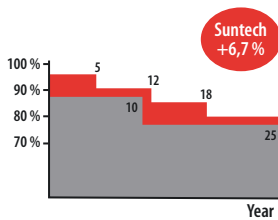
\* also available from July 2010

## Mechanical Specifications

Type		Unit	
Dimensions	Length	mm	Full size 1641 (Mounting length 1621) Half size 879 (Mounting length 858)
	Width	mm	834.5 (Mounting Width 841)
	Depth	mm	33
Weight		kg	Fulls size 15 Half size 9
	Type		Monocrystalline
Solar Cells	No. Cells		Fulls size 72 Half size 36
	Size	mm	125x125, ø165*
Front Glass	Type		Non-reflective tempered glass
	Thickness	mm	3.2
Diodes	3 pieces	A, V	11, 40
Frame			Black anodized aluminium interlocking frame
Junction Box			H+S RY3 IP67*
Output Cables			IEC 60502-1, 950mm length 4mm <sup>2</sup> , rated temperatur equal or greater than 90°
Connectors			Helios H4*

## Standard Operating Conditions

Type	Unit	
Temperature	°C	-40~+85
Humidity	%RH	45-95
Angle	°	15-45
Special Environment		Avoid excess exposur to smoke, dust, saltwater (install minimum 1km from coast)



## Industry-Leading Warranty

- 25 year transferrable power output warranty: 5 year/95%, 12 year/90%, 18 year/85%, 25 year/80%
- Based on nominal power
- Warrants 6.7% more power than the market standard over 25 years
- 5 year material and workmanship warranty

## Certifications

IEC 61215 (2nd edition), IEC 61730  
CSTB Pending (as of April 2010)



# Financial Benefits

## Key Features and Benefits

- Best value for money – superior product at highly competitive price
- Qualifies for highest FiT and tax refund in France
- Excellent return on investment

### Example

4 person family installing a 3 kW south facing BIPV system in Marseille\*

Annual Energy Production	1450 x 3	=	4350 kWh/year
Annual Income	4350 x 0.58	=	€ 2523
System Cost	3000 x 5	=	€ 15000
Tax Refund	15000 - 8400	=	€ 6600
<b>ROI</b>	<b>2523 ÷ 6600</b>	<b>=</b>	<b>38.2 %</b>
<b>Payback Period</b>	<b>6600 ÷ 2523</b>	<b>=</b>	<b>2.6 years</b>

\*simplified calculations - no warranty of correctness

# Installed on more than 5000 Homes



### Solar Farm in Weinbourg

**Country:** France  
**Capacity:** 4.5 MW  
**Type:** Utility



### Valencia BIPV Home Project

**Country:** Spain  
**Capacity:** 43.2 kW  
**Type:** Residential



### Residential Home in Watford

**Country:** UK  
**Capacity:** 4.7 kW  
**Type:** Residential

**Ask your sales partner for the Just Roof™ Installation Training!**

[www.suntech-power.com](http://www.suntech-power.com)

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