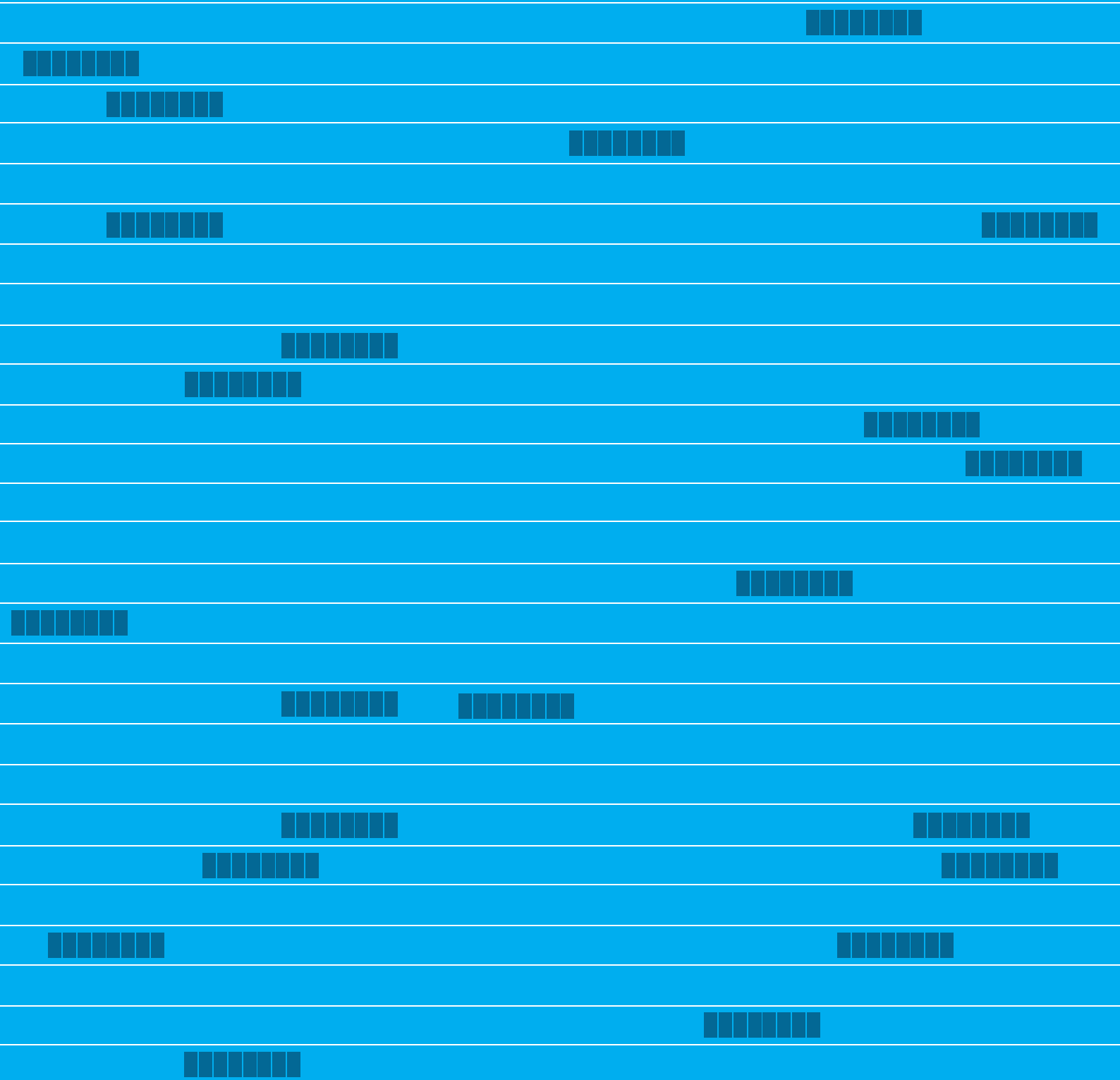


# Tegosolar<sup>®</sup> innovative architecturally integrated photovoltaic tiles

**TEGOLA<sup>®</sup>**  
CANADESE   
innovation in building

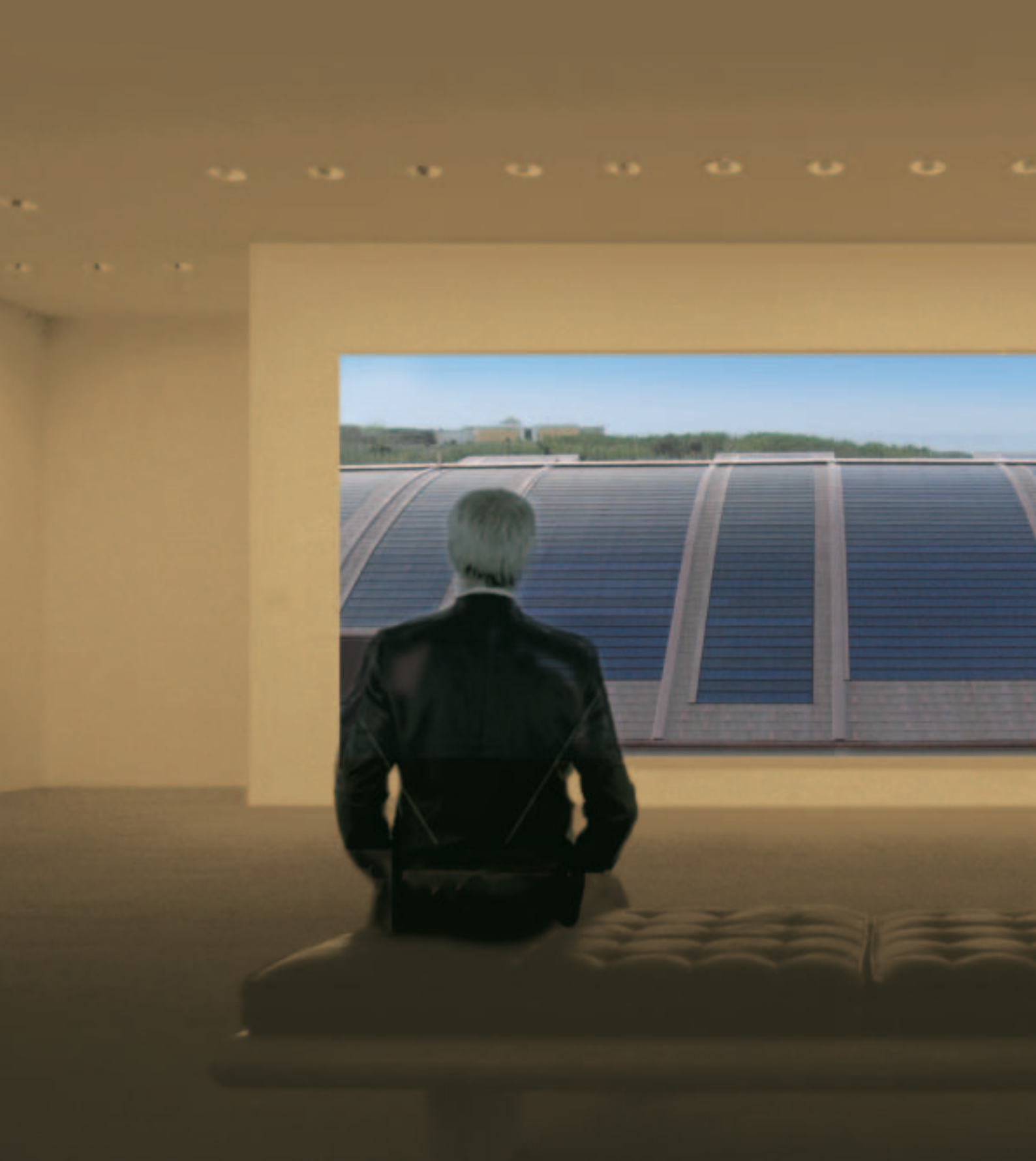




The sun, an unlimited source of renewable energy



High-tech PV modules





A long-standing experience



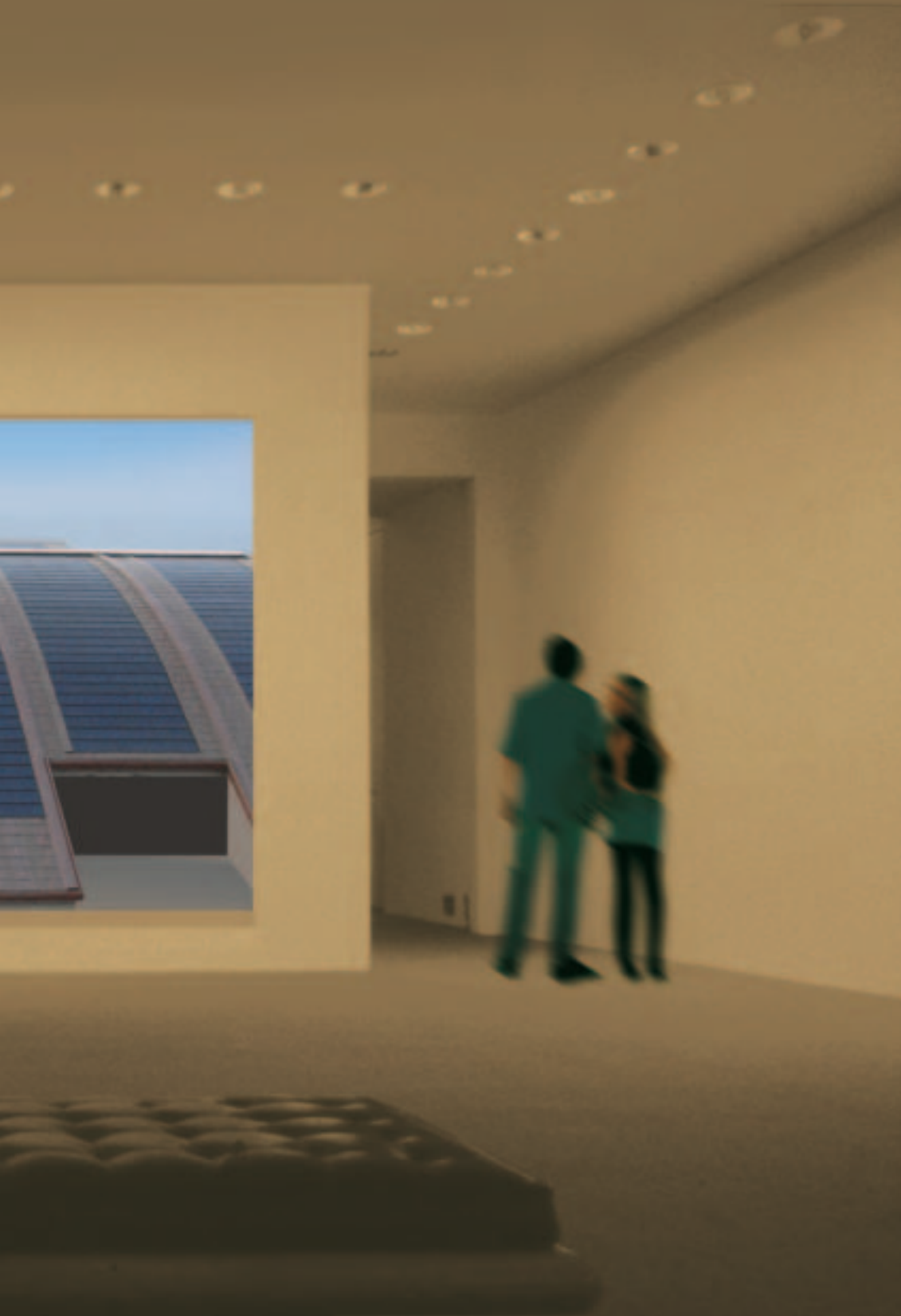
Quality and professional services

**TEGOLA**<sup>®</sup>  
CANADESE



innovation in building

Tegosolar<sup>®</sup>



**Tegosolar<sup>®</sup>** is the high-tech photovoltaic tile that is architecturally integrated into the roof. For a better future, we need to make the best decisions today: renewable sources of energy, experience, reliability, quality and services are the key elements of your best choice: Tegosolar.





Factory Vittorio Veneto (Italia)

● Tegola Canadese  
IWIS Holding headquarters

● Commercial businesses

TEGOLA ROOFING SALES

TEGOLA ROMANIA

TEGOLA LESPATEX

TEGOLA BOHEMIA

TEGOLA POLONIA

TEGOLA UNGARESE

TEGOLA SLOVAKIA

TEGOLA UKRAINE

TEGOLA MOLDOVA

TEGOLA TRADE

TC SHINGLE DO BRASIL

TEGOLA CHINA

● Retailers

■ Tegola production sites

TEGOLA CANADESE  
Italia

TEGOLA ROOFING PRODUCTS  
Russia

■ Other IWIS Holding group  
production sites





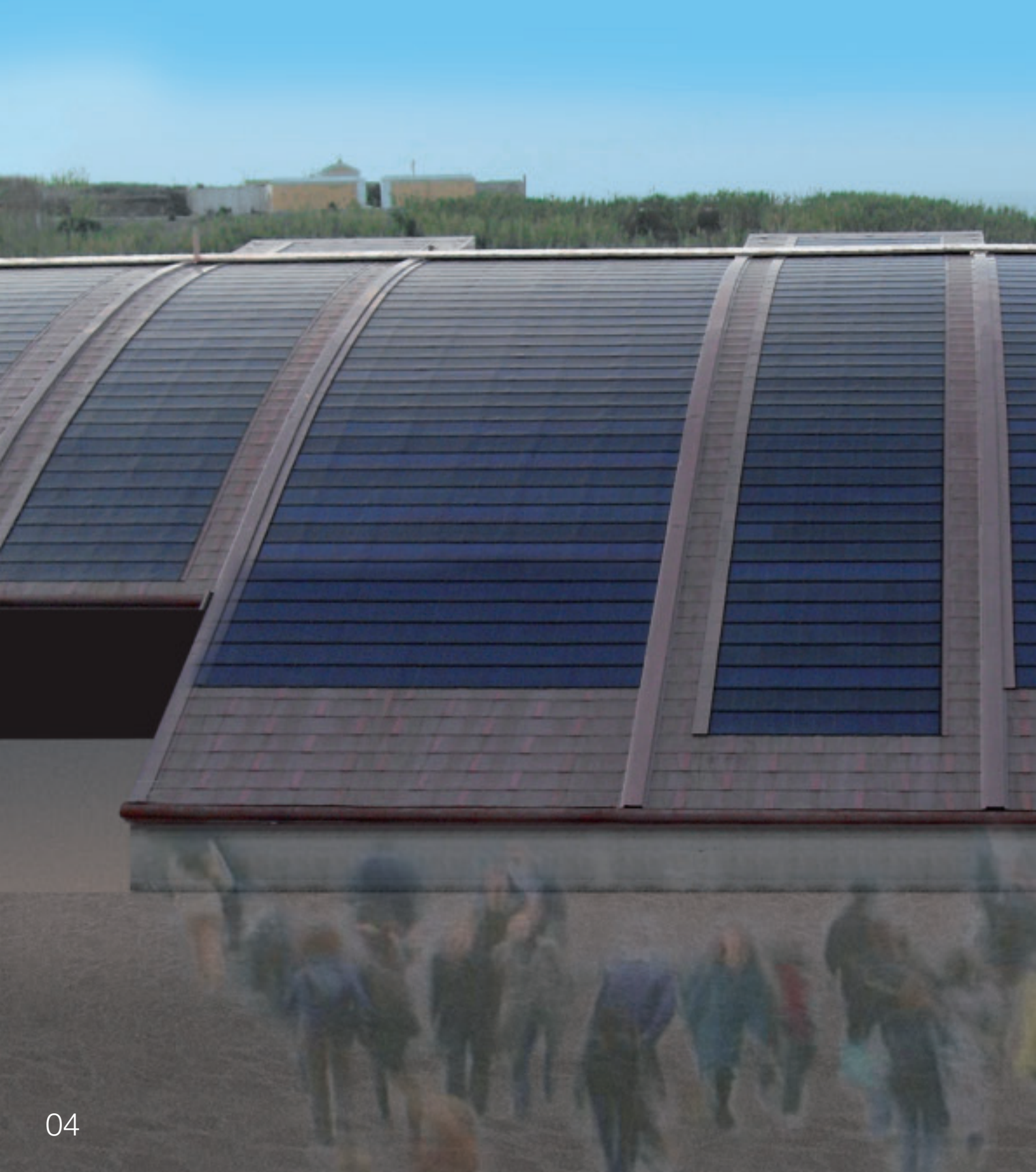
Factory Davidovo (Russia)



Head quarter Tegola Canadese IWIS Holding

Tegola Canadese spa is a leading company part of the IWIS group, specialised in the manufacturing and trading of bituminous shingles with granule, metal finish and photovoltaic tiles. The company was set up in 1977 in Vittorio Veneto with the inauguration of the production site which is still today a reference point at a European level in terms of technology and production capacity. Over the years it established its commercial presence on the international market through its firms and partnerships with specialised retailers. In 2004 it launched the second production site in Russia, near Moscow: a technology and experience concentrate targeted at Eastern markets. Tegola Canadese positioned itself in Italy, Europe and throughout the world thanks to its vision of a marketing-oriented company: its success has been confirmed by the market, which rewarded its entrepreneurial skills, its strong vocation for innovation, its specialisation, its ongoing development and improvement of the quality of its products and services offered to its customers. Tegola Canadese has always focused on the search for the best solutions by selecting the components and manufacturing processes of its shingles/tiles with mankind and the environment in mind. The ISO14001 certification for implementing environmental standards is not an award but a commitment which, every day, Tegola Canadese takes towards the community.









Tegosolar<sup>®</sup>



**No limits to flexibility**

Multipurpose Centre  
Ventotene (LT)  
21.56 kWp PV system integrated  
with Prestige Compact









Tegosolar<sup>®</sup>



**Pleasant aesthetic integration**

Municipal nursery "A.Pazienza"  
Vittorio V. (TV)  
10.2 kWp PV system integrated  
with Prestige Compact

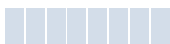








Tegosolar<sup>®</sup>



**We generate energy from all sides**

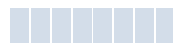
Municipal Elementary School  
"N.Sauro" – Vittorio V. (TV)  
14.28 kWp PV system placed  
over 6 pitches facing east,  
south and west. Integration  
with Prestige ZT Compact







Tegosolar<sup>®</sup>



**Energy at 360 degrees**

Private home "casa oro"  
Ravenna (RA)  
3.65 kWp PV roof  
with Prestige Compact finish

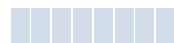








Tegosolar<sup>®</sup>



**You choose the shape of your roof and Tegosolar takes care of the rest**

Tegosolar is a waterproof photo-voltaic roof ideal for any shape of roofing, any kind of setting, for both new and renovated buildings, along with public, residential, commercial, religious, industrial ones, etc.

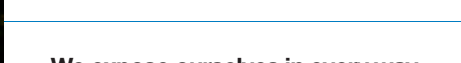
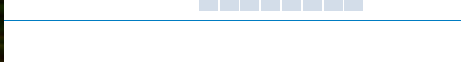
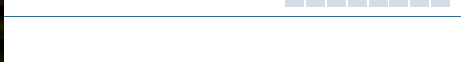
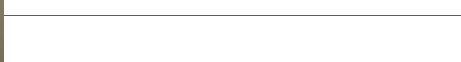
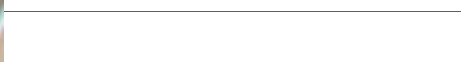
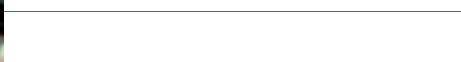
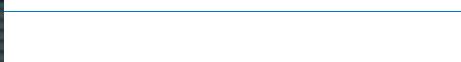
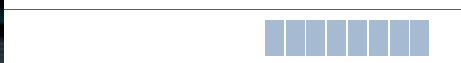
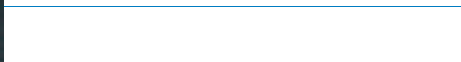








Tegosolar<sup>®</sup>



**We expose ourselves in every way**

Municipal secondary school  
 "T.Vecellio" – Colle Umberto (TV)  
 16.73 kWp PV system placed over  
 two pitches facing southeast and  
 southwest. Integration with Master,  
 Ancient Stone colour

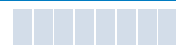
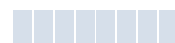








Tegosolar<sup>®</sup>



**Second home, first choice**

Holiday homes "Le 5 sorelle"  
Coreglia Antelminelli (LU)  
Three 3 kWp PV systems  
and 2.5 kWp systems integrated  
with Master, Ancient Stone colour









Tegosolar<sup>®</sup>



**A “fully integrated” solution  
immersed in nature**

Farm / riding school – Padola (BL)  
3.94 kWp PV system integrated  
with Master, Light Slate colour









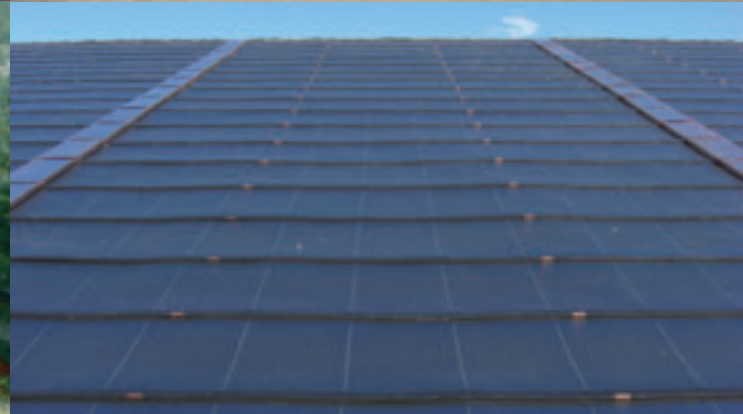
Tegosolar<sup>®</sup>



**The best roof under which  
to guarantee the future  
of our children**

Children's centre  
Viserba, Rimini (RN)  
13.65 kWp PV system integrated  
with Master, Stone Grey colour







Tegosolar<sup>®</sup>



**Tegosolar, great thing of being able to choose your roof**

Tegosolar is a waterproof photo-voltaic roof ideal for any shape of roofing, any kind of setting, for both new and renovated buildings, along with public, residential, commercial, religious, industrial ones, etc.



## Tegosolar®

Tegosolar is the **innovative architecturally integrated photovoltaic tile:**

- it represents an **innovative and yet well-tested and reliable application**, which, as well as providing protection against water, also produces electricity from renewable sources;

- **it fits perfectly** with roofs with any kind of shape and with excellent aesthetic results.

## Benefits

Tegosolar is the photovoltaic tile **designed and patented by Tegola Canadese:** because of its features it is the top choice for many types of roofs, for both new and renovated buildings, along with residential, commercial, public and also industrial ones.

**Tegosolar is**

- **flexible**, it adapts to roofs with any kind of shape
- **easy to install** with either mechanical or thermal fixing systems
- **applied by waterproofing operators**, in order to prevent infiltrations
- it ensures maximum freedom for designers for **roofs with advanced architectural features**
- **lightweight**, which means it is easy to transport and install
- **it is applied adherent to the roof, avoiding wind load**, a very important aspect when conducting a static test on the structure of the roof
- **is resilient to hail** (tested with hail with a 25mm diameter at a speed of 23 m/s) and is therefore **durable**
- **does not contain protective glass**, an element potentially subject to breakage
- **does not generate reflections**
- **it can be walked on**, which means that checks and maintenance work on the roof can be carried out easily and quickly
- **has a self-cleaning** surface, thanks to the external surface made with ETFE
- as it is an integral part of the roof, it cannot be forcibly removed by strangers

Tegosolar contains **11/22 PV cells connected in series and in parallel** with an overall production capacity of **68/136 Watts**.

**The connections between the modules are on the outside** of the covering layer, but are **protected** by sheet metal hoods: this system allows for quick and easy inspection and maintenance of electrical contacts. Plus, it does not require the support of an electrician when the photovoltaic tiles are applied.



It has a **great production yield even when it is not oriented or inclined in favourable conditions**. It is therefore recommended for applications on **both sloped and low-sloped roofs**.

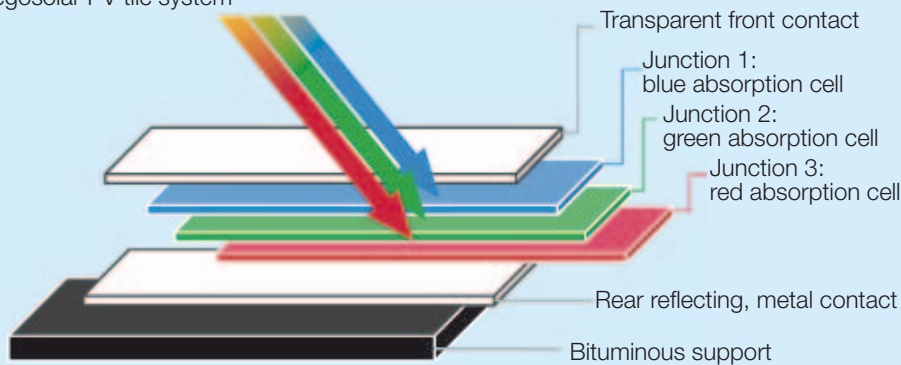




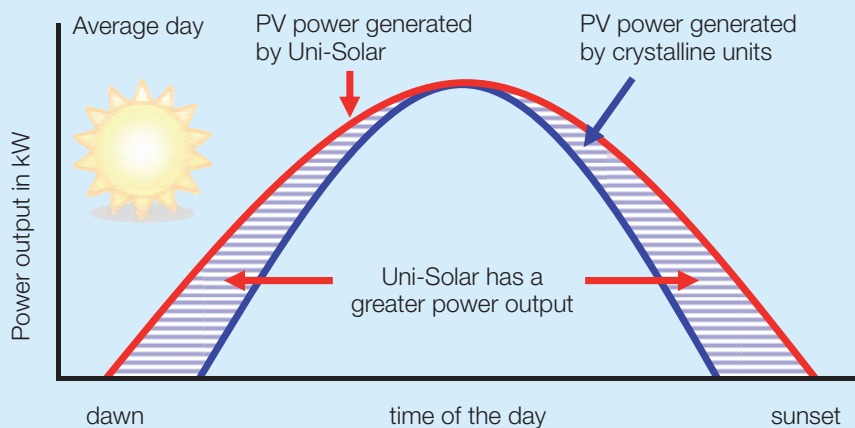
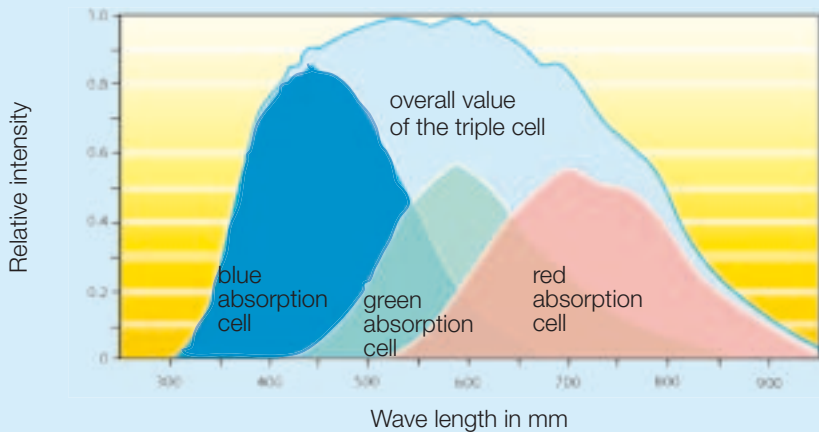
## Technology Tegosolar<sup>®</sup>

Tegosolar's **photovoltaic cells** are made by **UNI-SOLAR<sup>®</sup>** with **thin-film triple-junction amorphous silicon**: each cell absorbs the blue, green and red light of the solar spectrum through its 3 distinct layers.

Tegosolar PV tile system



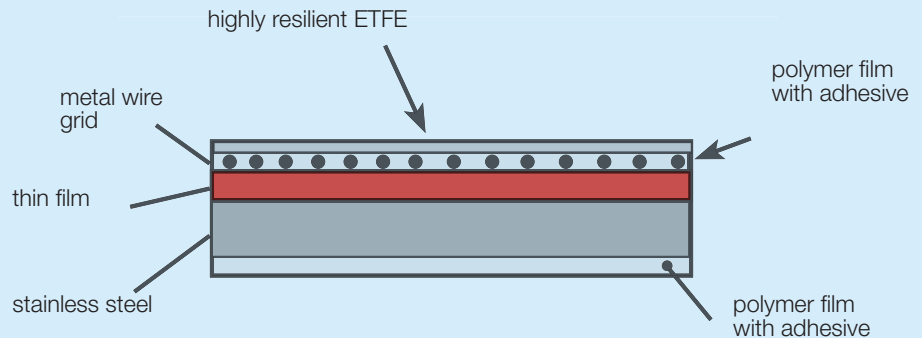
In this way UNI-SOLAR<sup>®</sup> PV cells convert a larger spectrum of light into electricity compared to traditional modules because **they produce energy with direct light**, but also **diffused light**, i.e. when the sun is low, when it is cloudy and when the cells are installed with unfavourable orientation and inclination conditions.



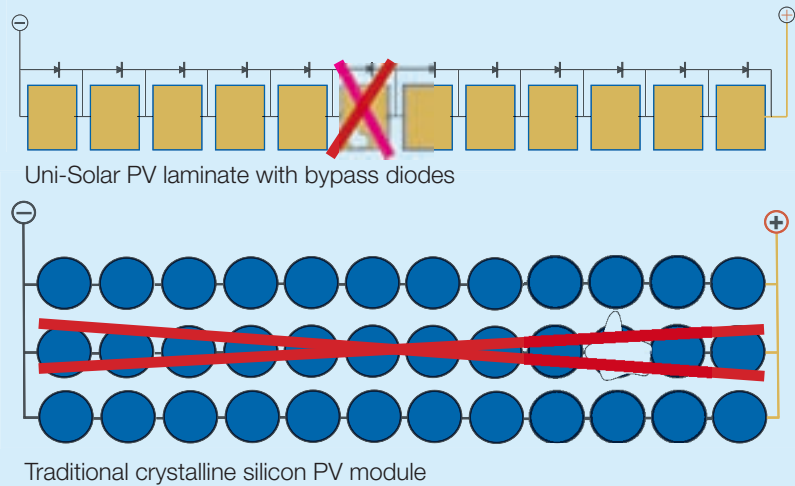
Tegosolar<sup>®</sup>



The **external surface is made with ETFE** (e.g. Tefzel®), a special ultra-resilient and ultra-adherent polymer, with anti-reflection treatment, as it has a high optical transmittance that allows for an **optimal absorption of solar light**. It is also an **excellent protective element** for underlying layers from both weight loads and water loads.



These PV modules **tolerate shading**: the **bypass diodes** between the various cells allow the module to **generate energy even when it is partly covered by the shade**, unlike traditional modules that would lose the overall power of the cells connected in series and not just that of the cell covered by the shade.



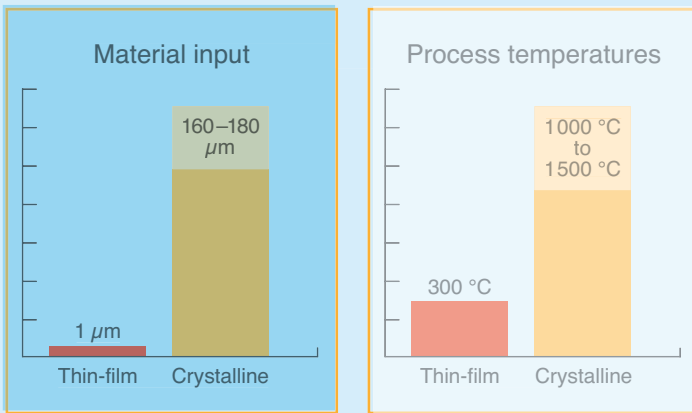
The UNI-SOLAR® PV cells have **excellent performance levels even at high temperatures**. This feature makes them particularly suitable for applications on roofs. Moreover, **they do not require rear ventilation**. They have a **greater yield in kWh** of electricity produced **per Watt** (up to 20% more) compared to many kinds of PV modules on the market.





**UNI-SOLAR<sup>®</sup> QUALITY GUARANTEE**

United Solar Ovonic LLC is a leading company at an international level in the field of thin-film triple-junction amorphous silicon PV technologies and a long-standing supplier of NASA for the PV cells used in space stations. The UNI-SOLAR<sup>®</sup> PV cells are produced with a **patented vacuum-based deposition technology and a roll-to-roll manufacturing process**: these laminates are produced in an **efficient** way and with a **low environmental impact**, with lower energy consumption rates and thinner materials compared to traditional crystalline silicon modules. However, they still ensure high quality standards (energy payback time is 1-2 years compared to 3-4 years for crystalline silicon modules). Moreover, they do not contain cadmium, a toxic substance.



The UNI-SOLAR<sup>®</sup> PV cells are **guaranteed to produce - after 25 years - at least 80% of the initial output of the module:**

When they finish their production capacity, the Tegosolar modules can be easily disposed of thanks to **Uni-Solar's adherence to the PV Cycle**.

Uni-Solar<sup>®</sup>'s guarantee on performance:

92% of the minimum power output after 10 years

85% of the minimum power output after 20 years

80% of the minimum power output after 25 years

The UNI-SOLAR<sup>®</sup> brand ensures quality and reliability.

The Tegosolar<sup>®</sup> photovoltaic roofs have greater performance levels compared to other FV technologies, both crystalline silicon and thin-film solutions, thanks to their excellent performance with diffused light and to the bypass diodes between the cells. These results in terms of electricity output are consistent with the measurement forecasts provided as a basis to make decisions and therefore allow to obtain a planned energy yield and income for the whole life cycle of the system.

**Certifications**

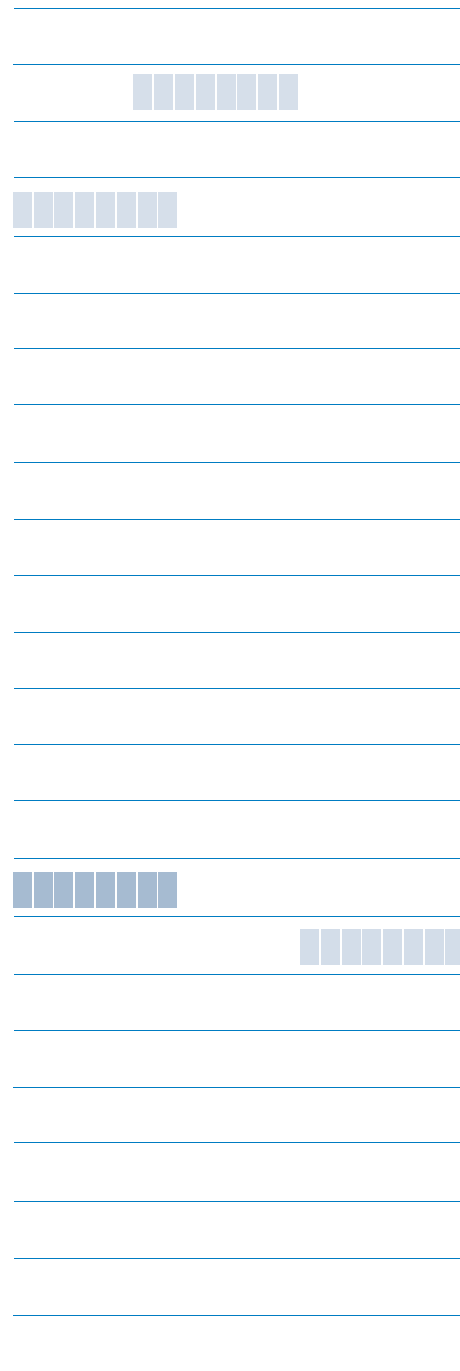


- Qualified IEC 61676
- Safety tested IEC 61730
- Periodic inspection

IEC 61676 Ed. 2

IEC 61730

Tegosolar<sup>®</sup>

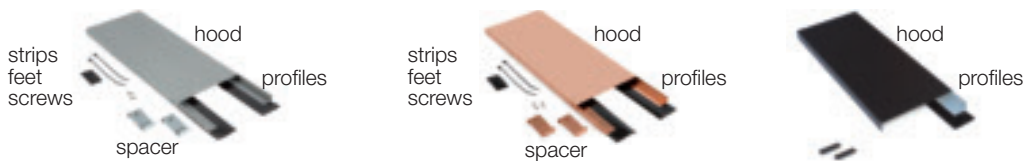




## Tegosolar® 68 Tegosolar® 136



### Accessories Tegosolar



### TECHNICAL DATA SHEET

#### GENERAL DATA

length

width

thickness

exposure

#### CHEMICAL-PHYSICAL FEATURES

weight

Photovoltaic module weight

Bituminous support weight

Tensile strenght MD/CMD (EN544)

#### ELECTRICAL SPECIFICATIONS in stand

Maximum Power (Pmax)

Voltage at Pmax (Vmp)

Current at Pmax (Imp)

Short-circuit Current (Isc)

Open-circuit Voltage (Voc)

Maximum Series Fuse Rating

#### ELECTRICAL SPECIFICATIONS in Nominal Oper

Maximum Power (Pmax)

Voltage at Pmax (Vmp)

Current at Pmax (Imp)

Short-circuit Current (Isc)

Open-circuit Voltage (Voc)

Maximum Series Fuse Rating

#### Temperature Coefficient at AM 1.5 and

Temperature Coefficient of Isc

Temperature Coefficient of Voc

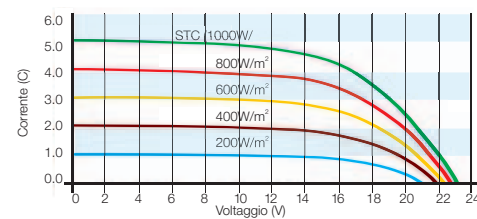
Temperature Coefficient of Pmax

Temperature Coefficient of Imp

Temperature Coefficient of Vmp

#### IV CURVES

IV curves at various Level of irradiance at Air



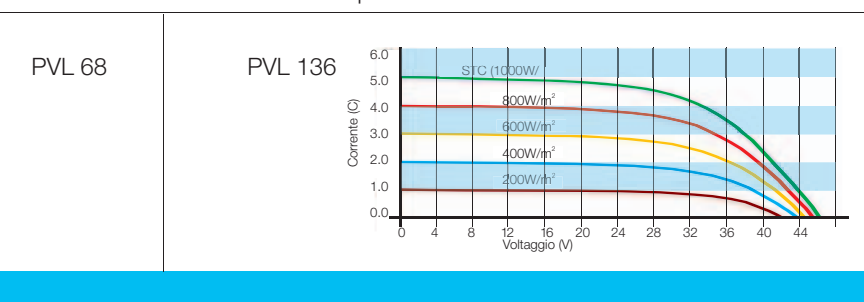
#### QUALIFICATIONS AND SAFETY

Certification UL

Certification TUV

		Tegosolar 68/136		Tegosolar X 68/136		Note
Unità di misura	Tegosolar 68/136	tolleranza	Tegosolar X 68/136	tolleranza		1. During the first 8-10 weeks of operation, electrical output exceeds specified ratings. Power output may be higher by 15%, operating voltage may be higher by 11% and operating current may be higher by 4%. 2. Electrical specifications ( $\pm 5\%$ ) are based on measurements performed at standard test conditions after stabilization. 3. Actual performance may vary up to 10% from rated power due to low temperature operation, spectral and other related effects. Maximum system open-circuit voltage not to exceed 600 VDC per UL, 1000 VDC per IEC regulations. 4. Specifications subject to change without notice.
mm	2878/5514	+/- 2	2878/5514	+/- 2		
mm	445	+/-2	445	+/-2		
mm	7.5	+/-0.5	6	+/-1		
mm	385	-	385	-		
Kg/m <sup>2</sup>	11.4	+/-12.5%	7.5	+/-15%		
Kg/m <sup>2</sup>	3.5	+/-10%	3.5	+/-10%		
Kg/m <sup>2</sup>	7.1	+/-10%	4.0	+/-20%		
N/5 cm	1500/1500	+/-15%	>300/>200	+/-15%		
<b>Standard test conditions STC (1000 W/m<sup>2</sup>, AM 1.5, 25°C cell temperature)</b>						
Wp	68/136		68/136			
V	16.5/33		16.5/33			
A	4.13		4.13			
A	5.1		5.1			
V	23.1/46.2		23.1/46.2			
A	8		8			
<b>Operating Cell Temperature conditions NOCT (800 W/m<sup>2</sup>, AM 1.5, 46°C cell temp, 1 m/s wind)</b>						
Wp	53/105		53/105			
V	15,4/30.8		15,4/30.8			
A	3.42		3.42			
A	4.1		4.1			
V	21.1/42.2		21.1/42.2			
A	-		-			
<b>1000 W/m<sup>2</sup> irradiance</b>						
mA/K	5.1	0.10%/°C	5.1	0.10%/°C		
mV/K	-88/-176	-0.38%/°C	-88/-176	-0.38%/°C		
mW/K	-143/-286	-0.21%/°C	-143/-286	-0.21%/°C		
mA/K	4.1	0.10%/°C	4.1	0.10%/°C		
mV/K	-51/-102	-0.31%/°C	-51/-102	-0.31%/°C		

Mass AM=1.5 and 25°C Cell Temperature



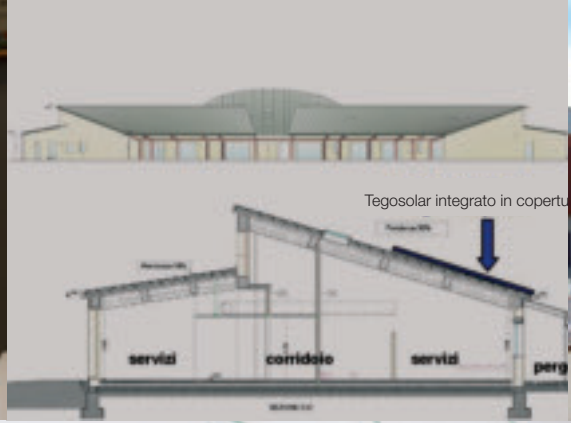
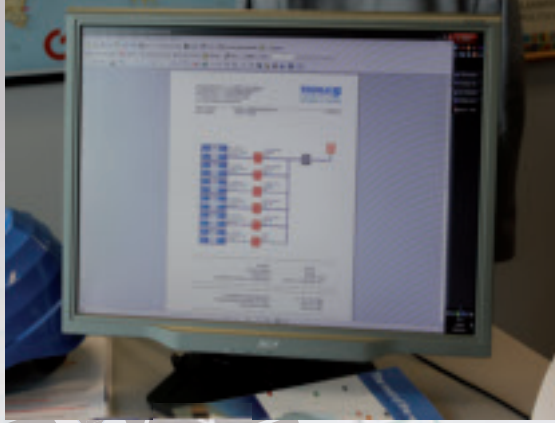
Certification UL on the only photovoltaic module for electrical and fire safety for use in system up to 600 VDC (Class A max. slope 2/12, Class B max. slope 3/12, Class C Unlimited slope fire rating)

IEC 61646 2° ed. and IEC 61730 certified by TÜV Rheinland, protection class II for use in systems up to 1000 VDC

Colours and technical data contained in this catalogue are indicative and Tegola Canadese Spa reserves the right to modify them at any time.







**TEGOLA**  
CANADENSE  
innovation in building





Tegosolar<sup>®</sup>



**Quality and customer service**

Tegola Canadese is a reliable partner you can contact for quotes, performance simulations of the PV system, design support and on-site assistance.









**TEGOLA CANADESE  
and THE ENVIRONMENT**

**“Environmental awareness”** has always been a key value for Tegola Canadese. Right from its first years of industrial activity, the company designed its production sites so that they would **not pollute soil, air and water**: the **ISO14001 certification** is not an award but a commitment that Tegola Canadese takes day after day towards the community to preserve the environment we live in.

Moreover, all our tile components are **eco-compatible**.

**Almost 50% of the energy used** in production processes is **generated by renewable sources**.

The company invests heavily in **Research&Development** to ensure the quality of its products, but also in **“technological innovation”** to preserve the environment: the **patent on Tegosolar®’s PV cells** to develop renewable energies, the studies on photocatalytic granules to reduce pollution levels and the innovative new-generation insulating materials that ensure improved insulating performance levels are just a few of the virtuous examples of **innovation placed at the service of the environment**.

Moreover, for some manufacturing processes the industrial group uses **recycled material**, with the support of the 3 specific plants to recycle plastic material.

We also **re-use production waste** and shingle by-products for other industrial activities in order to reduce waste and maximise the recycling of these materials, with clear benefits for the environment.

Last but not least, for our catalogues we choose FSC-certified paper to preserve forests.

**Tegola Canadese, an informed choice for the future.**



MIX  
Packaging from responsible sources  
Imballaggio da fonti gestite in maniera responsabile  
FSC® C068067





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info@tegolacanadese.com

[www.tegolacanadese.com](http://www.tegolacanadese.com)

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