

## ***PHOTOVOLTAIC TILES***



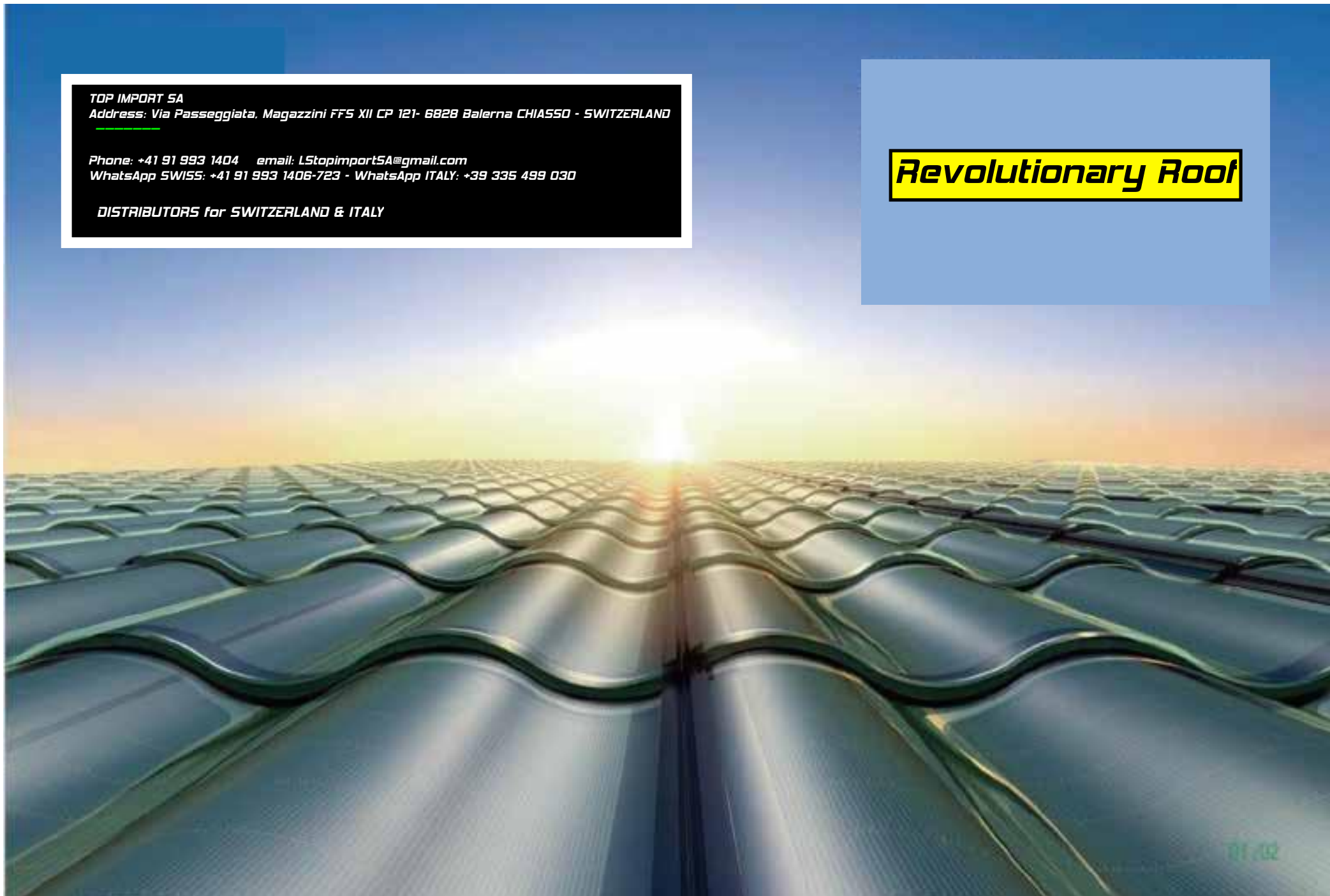


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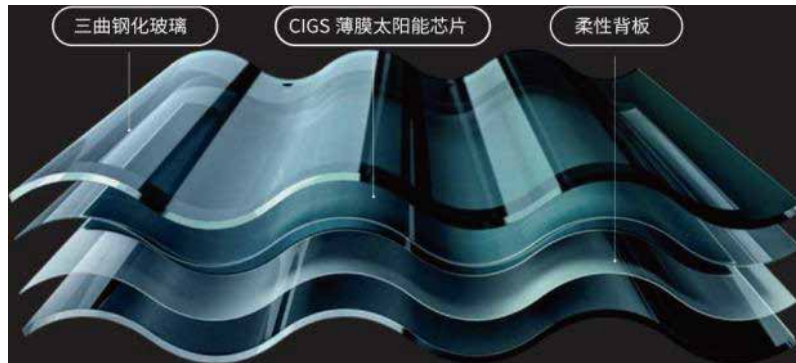
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***Revolutionary Roof***



## PRODUCT INTRODUCTION

Relying on advanced thin-film solar energy technology, and taking green development as the foothold of product research and development, Hantile launched the innovative products combining with roof building materials. Through the inside and outside double layer of glue seal special packaging process, Bluesun accurately seals the thin, efficient and flexible  $\text{CuIn}_{1-x}\text{Ga}_x\text{Se}_2$  (CIGS) thin-film solar chips in a inner glass layer with a transmittance of over 91.5%, to maximize the conversion rate of thin-film solar energy, which is very strong, resilient, impact resistance, and reach the highest level of hail resistance.



365 Patents = 1 Bluesun



Hot summer

Maximum temperature: above 85 °C



Cold winter

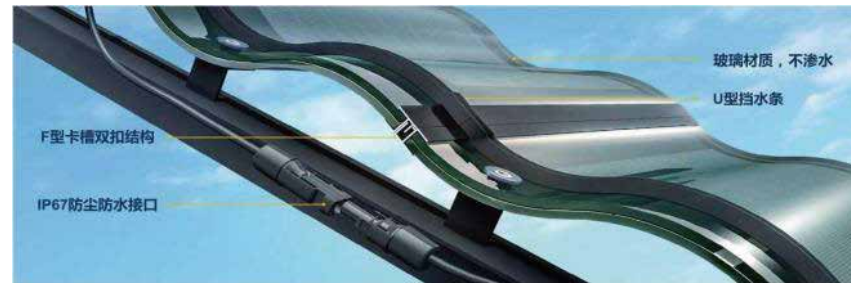
Minimum temperature: 40 °C



Coastal high humidity zone

Maximum humidity of Hantile is 85%

Bluesun is cold resistant, heat resistant, tide resistant, wind resistant and impact resistant, adapting to the vast majority of construction environment.



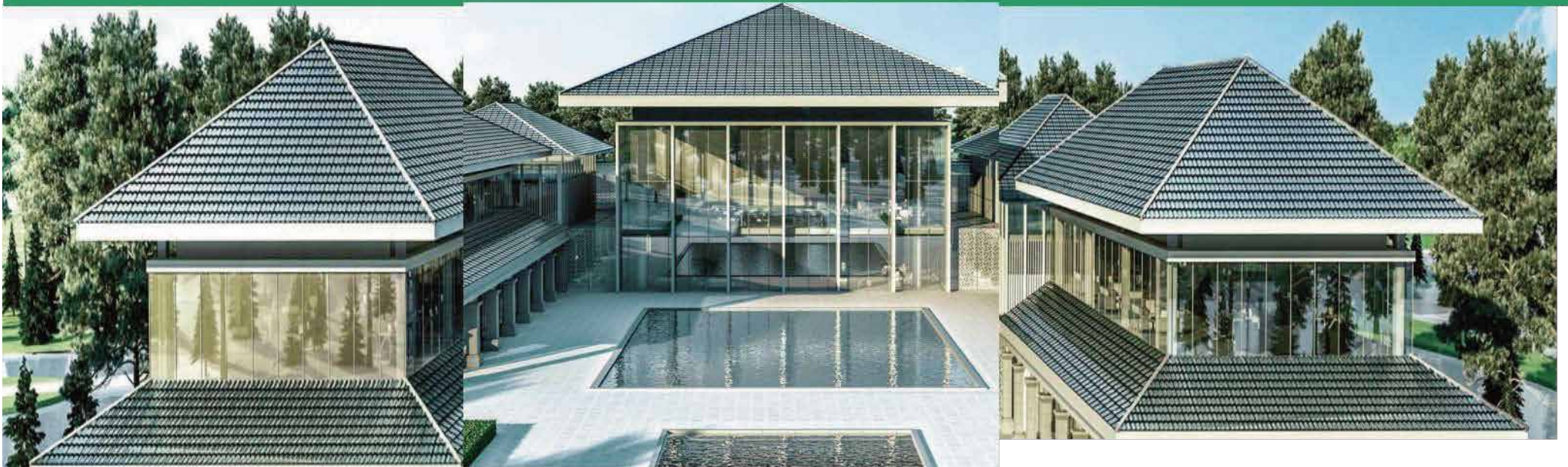
Anti-wind uncovering

Resistant to Hurricane



# ***DISRUPTIVE***

## ***Innovation***



# VALUE



## Practical value

has all the functions of traditional house tiles, no matter in the material, shape, or integrity, it can be comparable to the best traditional house tiles, and in terms of safety, waterproof, service life and other aspects, it is also better than the traditional tiles.



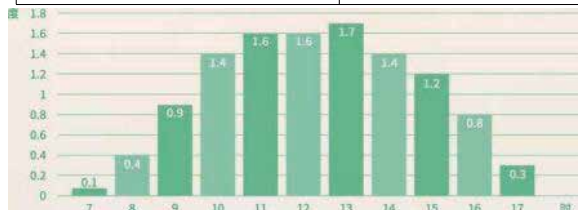
## Investment value

not only has the property of tile, but also can generate electricity! Using Bluesun is investing in a small power station on your roof. The service life of Bluesun can run through the whole service life of the house building; the decay rate of power generation function in 25-year is lower than 20%; and we offer a lifetime warranty for Bluesun tiles.

### example data - system model room

System performance index (Real data, in sufficient sunshine, for reference)

Model room	Index
Active area	21.15 m <sup>2</sup>
Installed capacity	2.14 kw
Cumulative daily power generation	11.4 degrees



## Social value

If you installed 100 m<sup>2</sup> of Bluesuntiles, you will burn 123 tons less coal in 30 years, equivalent to reducing 322 tons of carbon dioxide emissions, reducing 1,045 kg of sulfur dioxide emissions, reducing 910 kg of nitrogen oxide emissions, more equal to you planting 340 green trees!



Annual output of 600 MW thin-film components, annual power generation up to 600 million degrees, 520000 tons of carbon dioxide reduction a year, equivalent to planting 28.2 million trees.



## Cultural value

inherits ancient cultural and develops contemporary culture. Bluesun brings about a kind of inheritance of architectural culture, which is a leap of civilization. Bluesun inherits the essence of Chinese architectural culture and uses the achievements of modern architectural civilization, which is the perfect integration of the two.



## Aesthetic value

The appearance and style of presents the curve surface beauty, and the glittering and transparent glass material makes the roof more beautiful. You can say all the beautiful houses should use Bluesun!





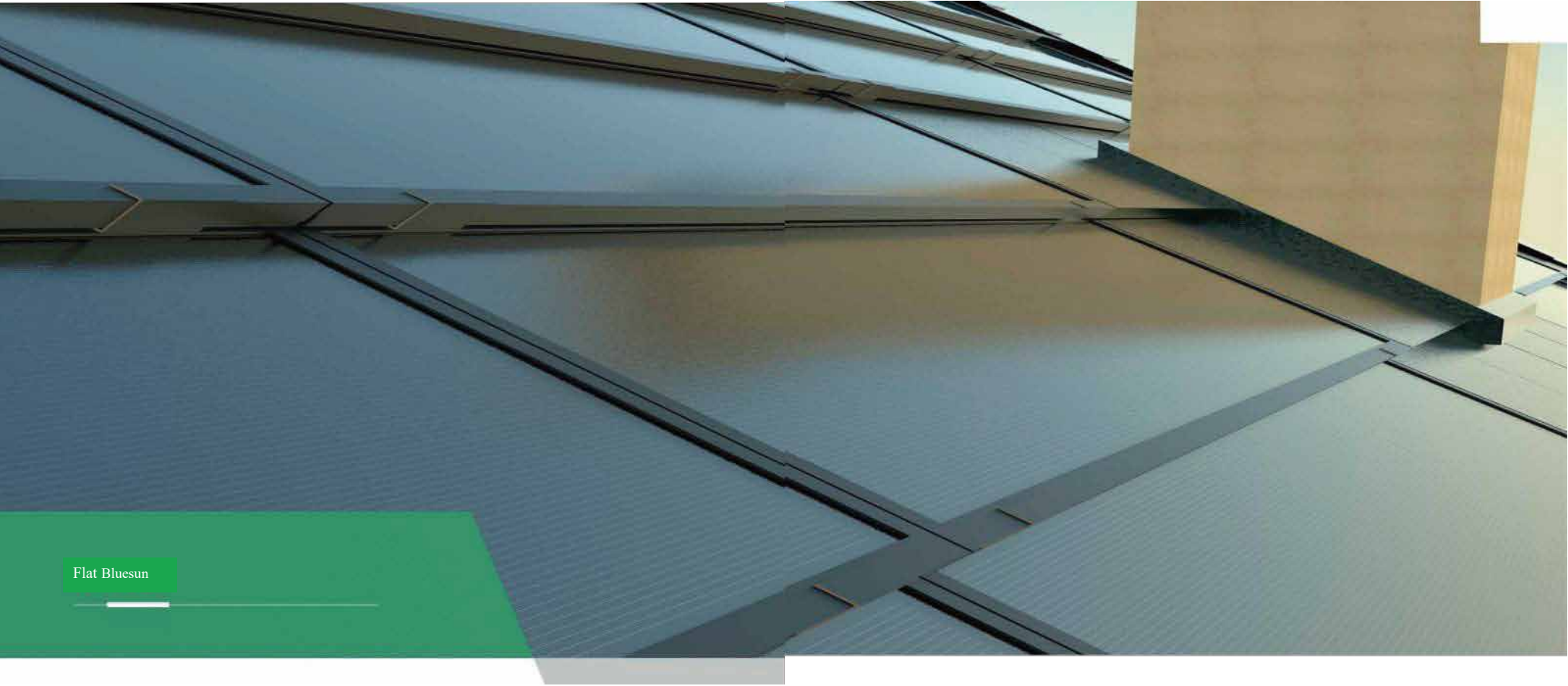
Three-curve Bluesun

■ With the style of Han and Tang Dynasties, the product with power and splendors



■ Technical Parameters

Specifications	721 (Long) mm,500 (Width) mm	Waterproof grade	IP67
Weight	6.5 (±0.5)Kg	Fire level	A
Linear power guarantee	25 years	Wind level	F
Power	30W (±5W )	Anti-hail grade	Level 4
Short circuit current	4A	Working temperature	-40 °C to + 85 °C
Load level	5400Pa		



Flat Bluesun

■ Simple and fashionable, fast and efficient



■ Technical Parameters

Specifications	1460 (Long) mm, 430 (WW) mm	Fire level	A
Weight	12 (±0.5)Kg	Wind level	F
Linear power guarantee	25 years	Anti-hail grade	Level 4
Power	100W (±5W )	Working temperature	-40 °C to + 85 °C
Load level	5400Pa		
Waterproof grade	IP67		



## 7 INTERNATIONAL HONORS



## 365 INTERNATIONAL PATENTS



Independent research and development, controllable technology

The world's leading green power generation building materials application technology  
The product has passed the major global quality certifications, TÜV, 3C, CE, UL, CEC, CQC etc.  
It will have over 500 patents in the next three years.

# APPLICATION SCENARIOS AND CASES

Bluesun mainly focuses on the construction demands of high-end villas, government public buildings, rural revitalization, industrial and commercial roofs, tourism real estate and roof renovation projects at present. It serves the customers from high net worth groups, real estate developers, local governments and other fields.





## New roof

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Applicable to antique buildings, houses and villas with single slope, double slope and multi-slope



## Reconstruction and renovation of roof

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Applicable to roof reconstruction that removes the original roof or directly installs tiles on the existing roof.

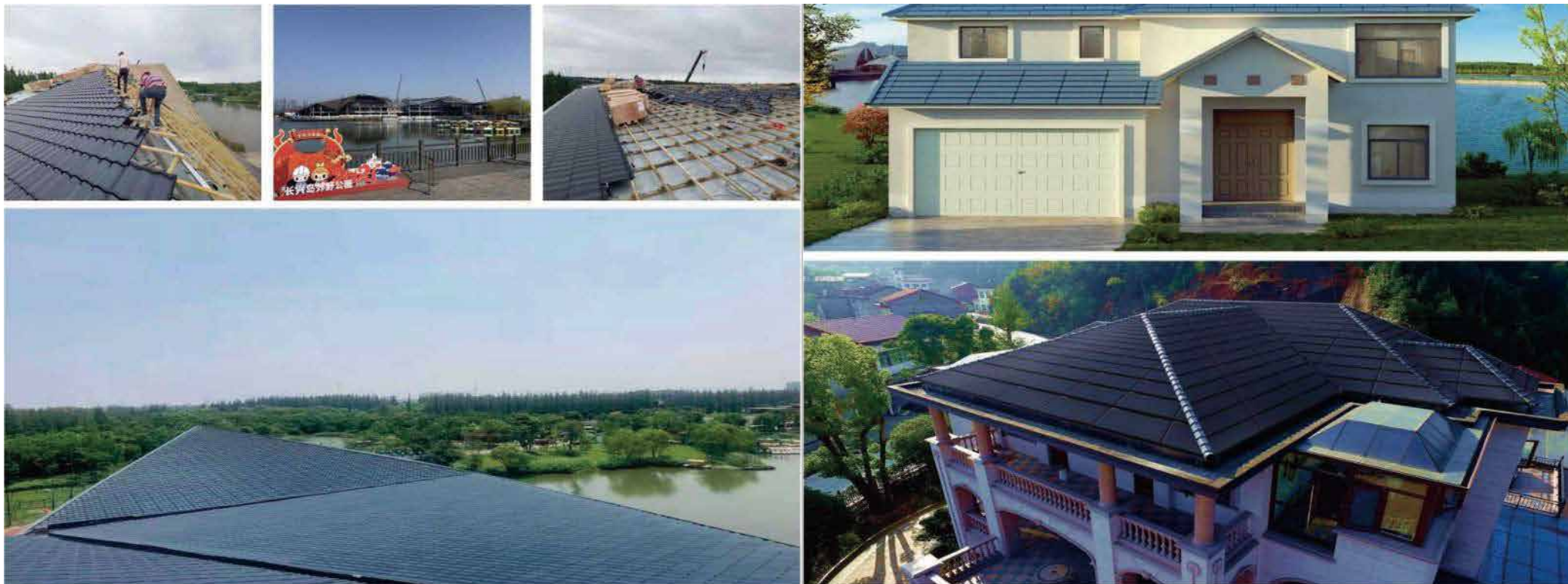


## Application scenario-Structural form

Applicable to reinforced concrete structure, steel structure and wood roof.







## Typical case

### Shanghai Changxing Island Country Park Visitor Center Project

Project address: Changxing Island Country Park, Shanghai

Product type: double glass three-curve tile

Total installed capacity: 310KW

Project time: 2021

Project value: save about 141.6 tons / year of standard coal, reduce carbon emission about 353 tons / year, reduce sulfur dioxide emission 10.6 tons / year, reduce nitrogen emission 5.3 tons / year, reduce soot emission 96.3 tons / year, save clean water about 1.416 million litres / year, equivalent to about 10,000 green trees.

Actual quantity values are correlated with the local conditions

## Typical case

### Yulin "zero energy consumption" solar energy town model room

Project address: Yulin City, Shaanxi Province

Product type: flat Bluesun tile

Total installed capacity: 10kw

Project value: the total power generation of 30 years is about 384,000 degrees, equivalent to saving 123 tons of standard coal, reducing 322 tons, reducing carbon dioxide emission of sulfur dioxide emissions by 1,045 kg, reducing nitrogen oxide emission by 910 kg, equivalent to planting 7,340 green trees.

Actual quantity values are correlated with the local conditions

## More cases



■ 200KW Industrial Plant



■ 10KW Shunyi District, Beijing



■ 10KW Suiyang District, Shangqiu City, Henan Province



■ 10.2KW Changshu City, Suzhou Province



■ 5KW Germany



■ 8.6 KW, France



■ 68.8 KW Swiss Hotel



■ 5 KW Chibi, Wuhan City, Hubei Province



■ 68.8 KW Swiss Hotel



■ 100KW Yokohama, Japan



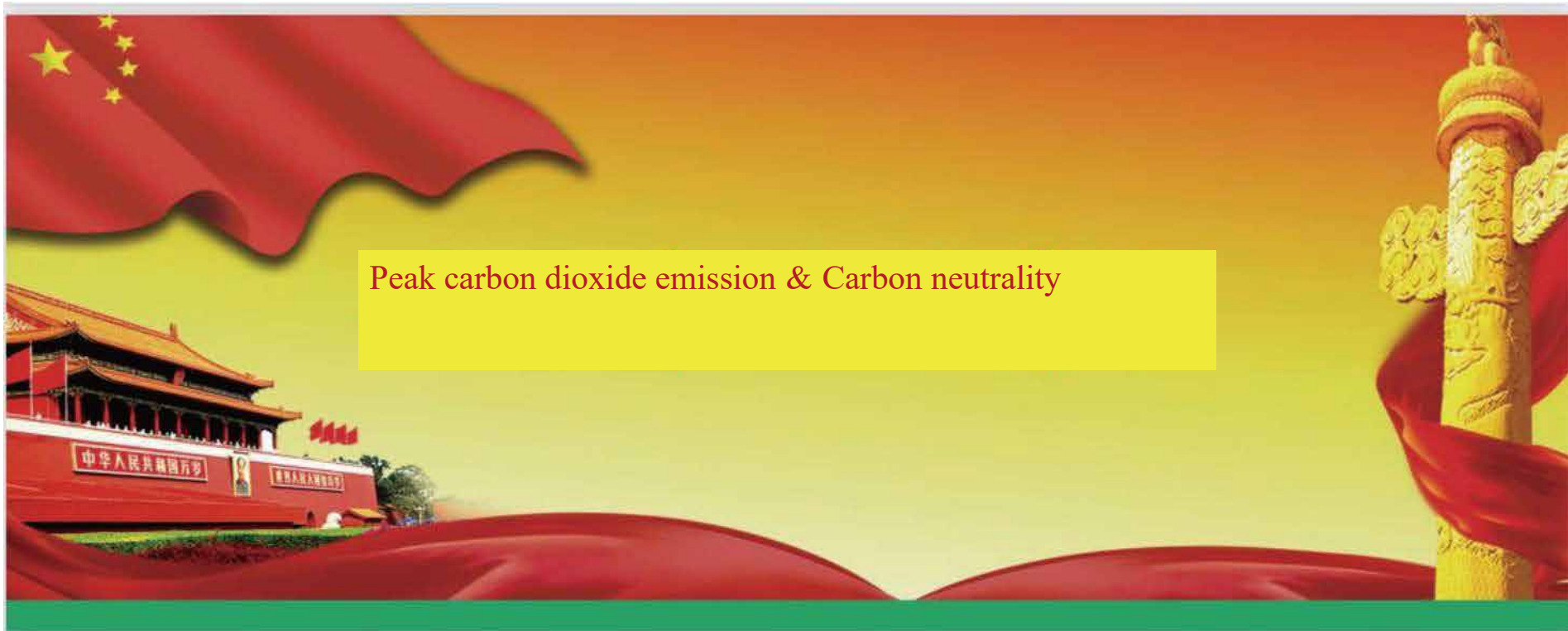


China  
6.3 trillion



Global  
12.6 trillion





## Peak carbon dioxide emission & Carbon neutrality

### Policy background: in line with major national strategies

In the ninth meeting of the central financial and economic committee on March 15, 2021 afternoon, Xi Jinping, general secretary delivered an important speech stressed that achieving the goal of peak carbon dioxide emission and carbon neutrality is a broad and profound economic and social systemic change, we should include the goal of peak carbon dioxide emission and carbon neutrality into the overall layout of ecological civilization construction, and achieve the goals of peak carbon dioxide emissions before 2030, carbon neutrality before 2060 with iron momentum.

Account for three fields in the seven strategic emerging industries of China  
 New material      New energy      High-end equipment      New energy auto  
 Energy saving and environmental      Information technology      Biotechnology

Cover two 2025 fields in the "Made in China" key development fields  
 New material      Biological medicine and high-performance medical devices      new generation of information technology      Agricultural machinery and equipment  
 Electronic equipment      Ocean engineering equipment      High-end numerically-controlled machine tool and robotics      Aerospace hardware      Advanced rail transit equipment      Energy-efficient and new energy vehicle

## Summary list of the latest policies in 2019-2021 for China's new energy industry

Date	Policy name	Content
2021.3	Outline of the 14th Five-Year Plan for National Economic and Social Development and Vision Objectives for 2035	Accelerate the development of non-fossil energy, adhere to centralized and distributed, vigorously improve the scale of wind power and photovoltaic power generation; build a number of complementary clean energy bases, non-fossil energy to about 20% of total energy consumption; extensive energy information collection, energy efficiency online analysis, realize source and network charge
2020.3	Notice on the Construction of Wind Power and Photovoltaic Power Generation Projects in 2020	Actively promote the construction of wind power and photovoltaic evaluation online projects, promote state financial subsidies projects in an orderly manner, actively support the construction of decentralized wind power projects, steadily promote offshore wind power projects, reasonably determine the competitive allocation scale of photovoltaic state subsidy projects, and fully implement the
2020.1	Several Opinions on Promoting the Healthy Development of Non-Water Renewable Energy Power Generation	To collect support, reasonably determine the scale of new subsidies; continue to promote the reduction of onshore wind power, photovoltaic power station, industrial and commercial distributed photovoltaic prices; and allocate new projects through competitive means
2019.1	Notice on Actively Promoting the Construction of Wind Power and Photovoltaic Power Generation Projects	Budget projects and low-price Internet projects are not limited by annual construction scale; for wind power, photovoltaic power generation projects and low-price Internet projects, power grid enterprises shall ensure that the power generation generated by the project is fully online, and monitor the project wind abandonment and light abandonment according to the requirements of



## Market trend: strong market demand of RMB trillions

**Market status quo:** As a green power building materials, Bluesun subverted the public awareness of the traditional building materials, make ordinary roof into beautiful investment-oriented power station, therefore, it is praised by the People's Daily, Xinhua daily, and other media, and have signed contracts of advance sale with many large real estate, building materials companies.

**Potential market:** According to the forecast of authorized third party consultancy: in 2018-2022, hantile has a potential domestic market scale of 6.3 trillion, and a global potential market size of 12.6 trillion.

## Providing the high-end green building materials



Energy saving and environmental,  
featuring high-end style



High-tech product, highlighting status



Green building materials making  
earnings



Help build zero-energy-consumption  
buildings







All high-end villas use