Photonroof

ML SYSTEM ®

PHOTOVOLTAIC **CERAMIC ROOF TILES**

One **PRODUCT** *One* **ASSEMBLY** *Two* **FUNCTIONS**
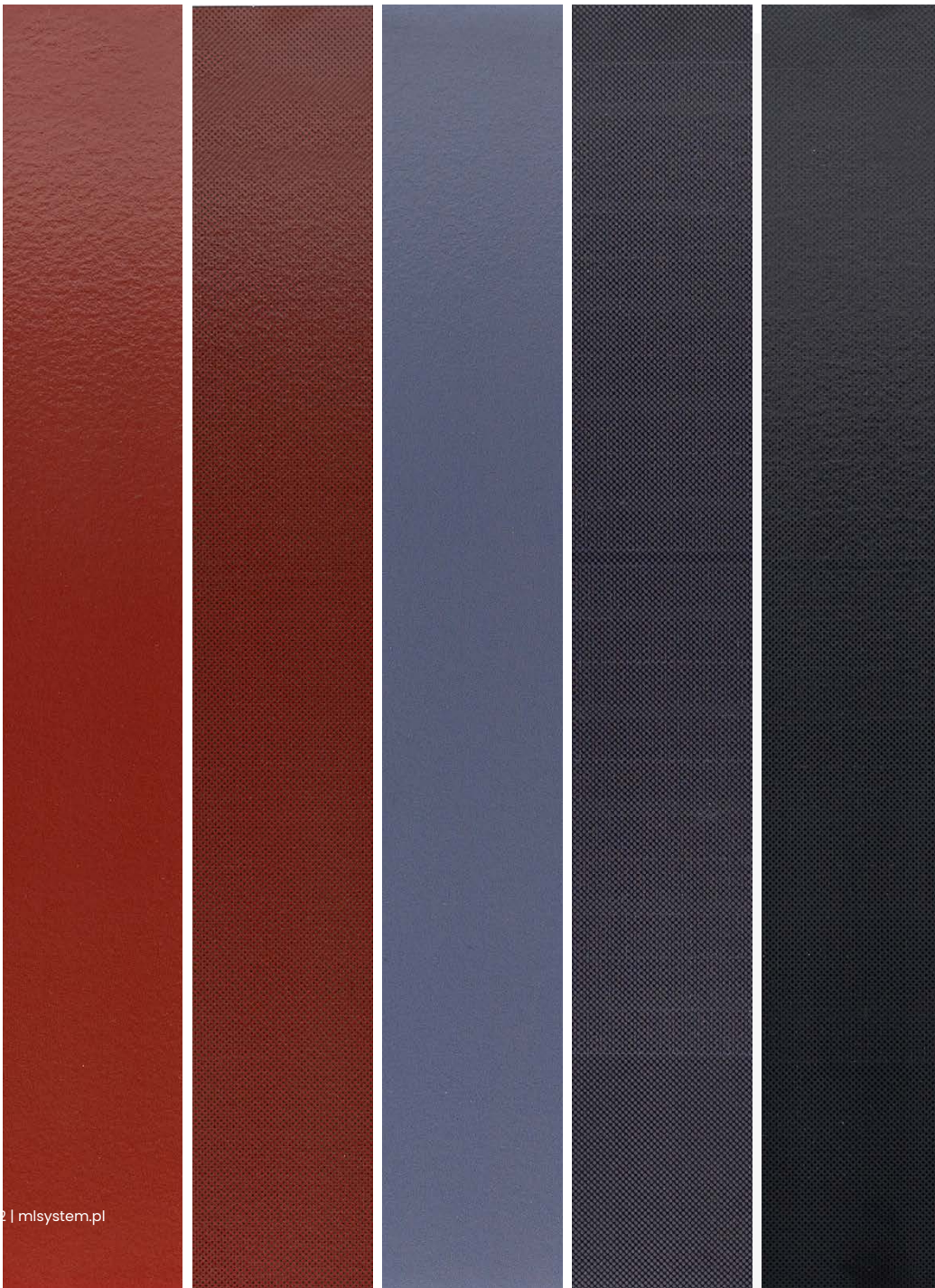
EUROPEAN PRODUCER

Photonroof

DURABILITY

PhotonRoof roof tiles are resistant to atmospheric conditions and aggressive environmental factors which guarantees durability for many years.

HUE

Thanks to the use of a ceramic layer embedded in the glass during the tempering process, the tile retains the traditional color of the ceramics, matching any space.

PhotonRoof

PROTECTED BY INTERNATIONAL INTELLECTUAL PROPERTY LAW

USA UP/100A/2021
P.435800

P.423436

P.448637

015018196-0001

015018196-0002

015018196-0003

015018196-0004

015021233-0001

015021233-0002

Due to the use of noble materials in the production process, the color shades of individual production batches may vary slightly.

UNIQUE SURFACE

It ensures perfect reproduction of the roughness, thickness and surface structure of standard ceramic products.
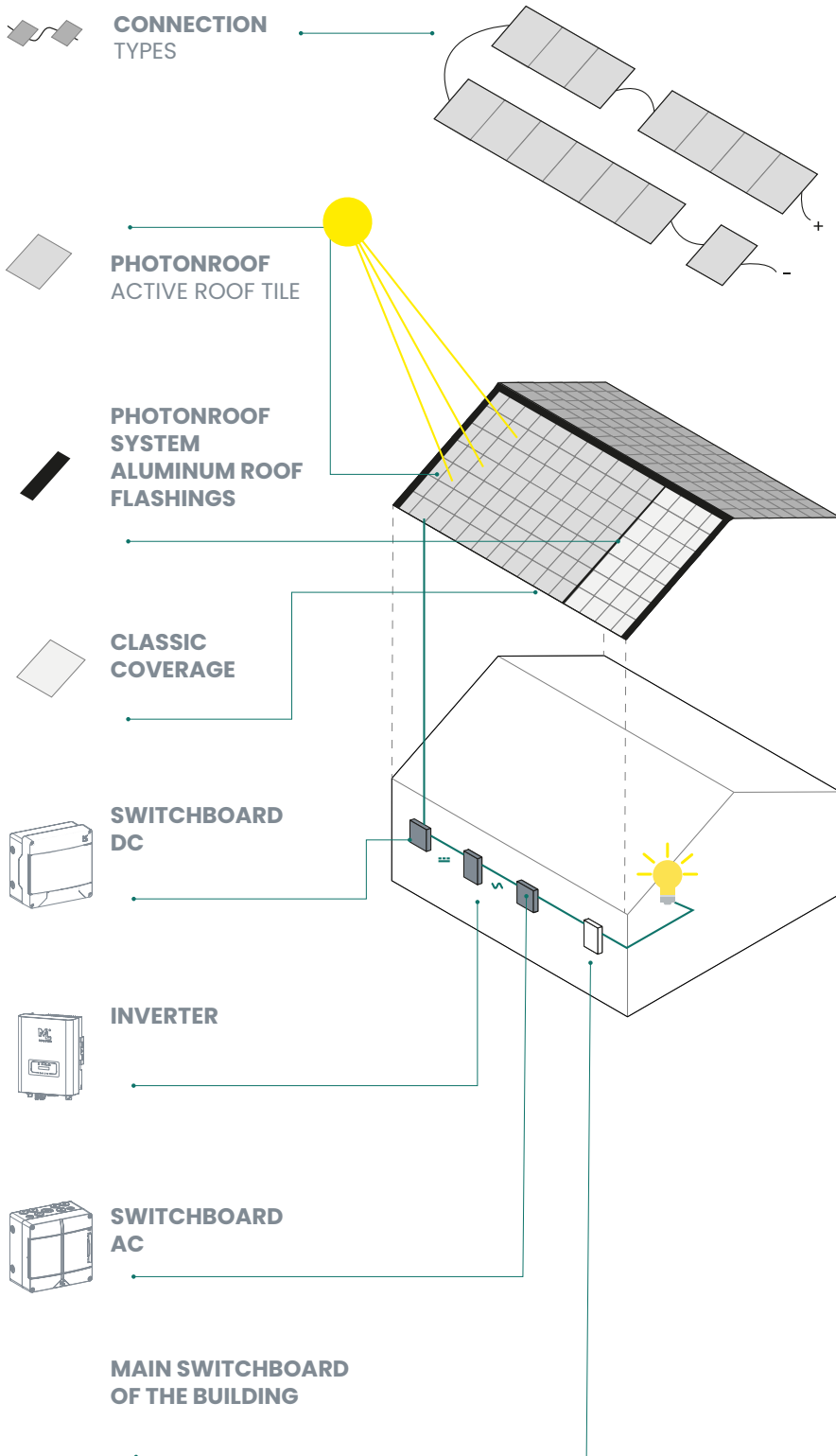
Has a positive opinion of monument conservators.
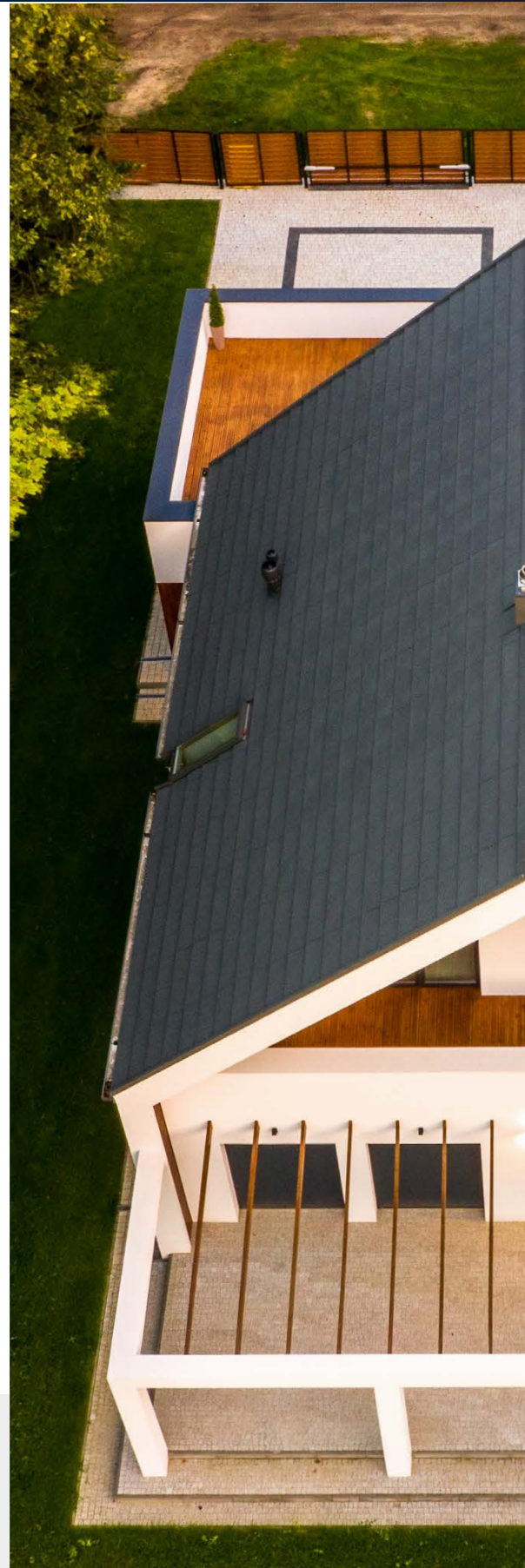
Classic ceramic tile

Photovoltaic roof tile PhotonRoof

TIGHTNESS

Technology refined to perfection, attention to detail and a dedicated seal system ensure the tightness of PhotonRoof roof coverings.

Photonroof

CONNECTION TYPES

PHOTONROOF ACTIVE ROOF TILE

PHOTONROOF SYSTEM ALUMINUM ROOF FLASHINGS

CLASSIC COVERAGE

SWITCHBOARD DC

INVERTER

SWITCHBOARD AC

MAIN SWITCHBOARD OF THE BUILDING

All elements necessary for installation are available as a complete system solution
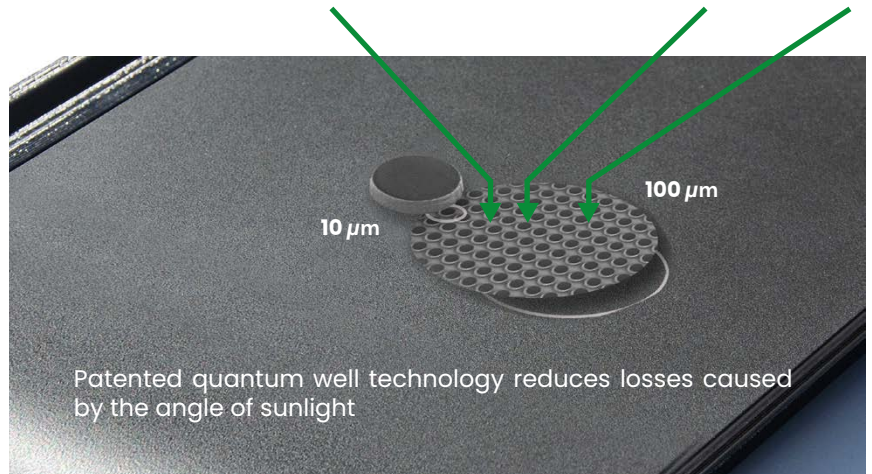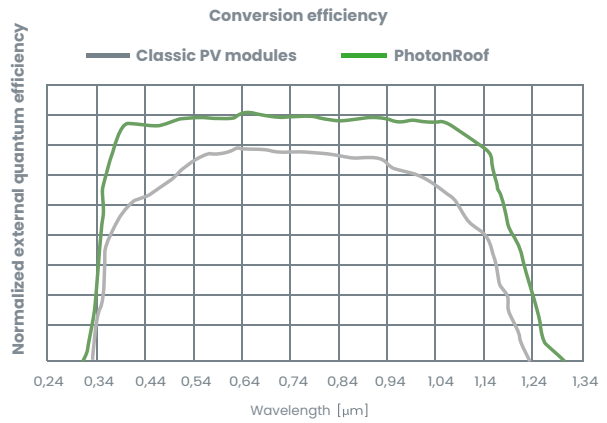
+30% MORE ENERGY

compared to classic PV modules

PhotonRoof photovoltaic roof tiles produce up to 30% more green energy than a classic photovoltaic installation of the same power.

Conversion efficiency

Normalized external quantum efficiency

— Classic PV modules   — PhotonRoof

Wavelength [μm]

0,24   0,34   0,44   0,54   0,64   0,74   0,84   0,94   1,04   1,14   1,24   1,34

10 μm   100 μm

Patented quantum well technology reduces losses caused by the angle of sunlight

A set of different sizes of roof tiles allows you to better fill the roof surface. The small dimensions of individual elements result in smaller losses if some of them are shaded.

PHOTONROOF
PHOTOVOLTAIC
CERAMIC ROOF TILE

COST

DEDICATED
PHOTOVOLTAIC
INSTALLATION

CLASSIC
CERAMIC
ROOF TILE
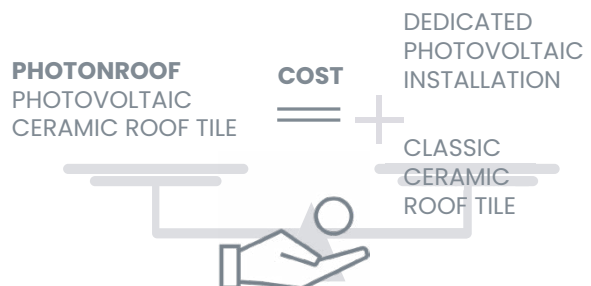
Photonroof

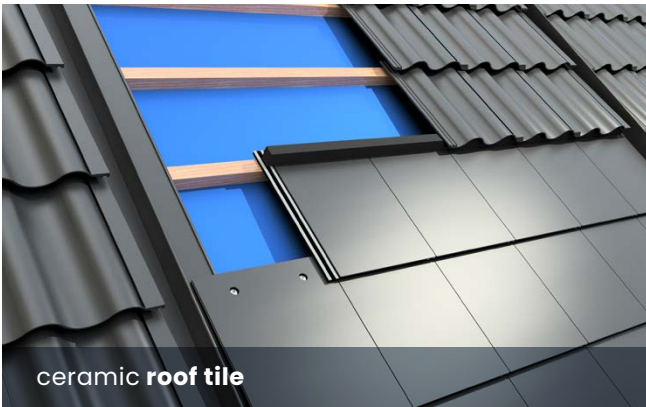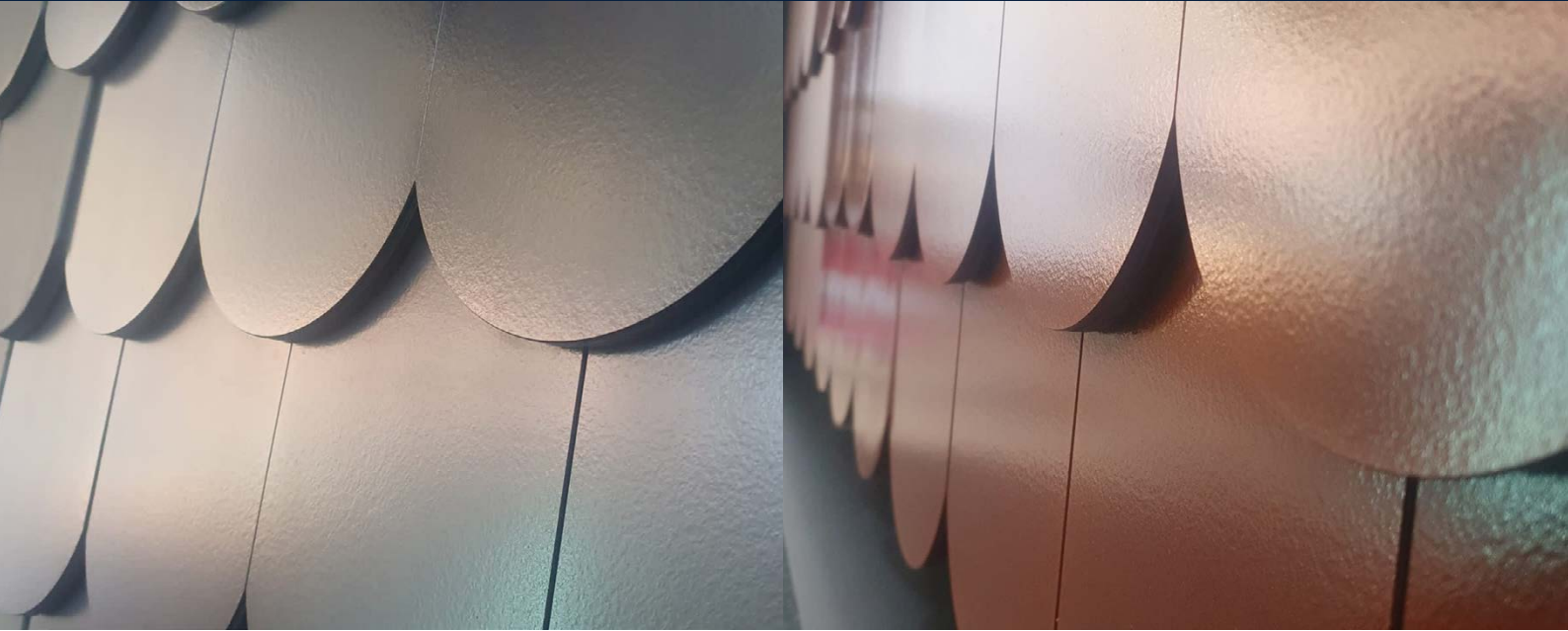**MEETS BUILDING STANDARDS REGARDING FIRE PROTECTION CLASSIFICATION**

HAIL RESISTANCE 75 mm / 140 km/h

✓ The PhotonRoof photovoltaic roof tile is approved for use as a building material

✓ The PhotonRoof photovoltaic roof tile is approved for use as a photovoltaic module

✓ Tested in aggressive environments (ammonia, salt)

✓ The photovoltaic roof tile is classified as NRO - Fire Retardant Material (which qualifies it for use on roofs with large surfaces above 1,000 m2)

✓ PhotonRoof has the European classification for BROOF roofing (t1)

		CLASSIC ROOF COVERING	CLASSIC PHOTOVOLTAICS	PhotonRoof
PHOTOVOLTAIC STANDARDS		✗	✓	✓
BUILDING STANDARDS		✓	✗	✓
BUILDING STANDARDS FOR FIRE CLASSIFICATION FOR 1000M² AREA		✓	✗	✓
ELECTRICAL STANDARDS		✗	✓	✓
ENVIRONMENTAL STANDARDS		✗	✗	✓

IGNIS RTF   TYPE III ENVIROMENTAL DECLARATION   CE   kiwa   TÜV NORD TÜV NORD Polska Sp. z o.o.   TÜV NORD EN ISO 50001 TÜV NORD CERT GmbH   TÜV NORD PN-ISO 45001
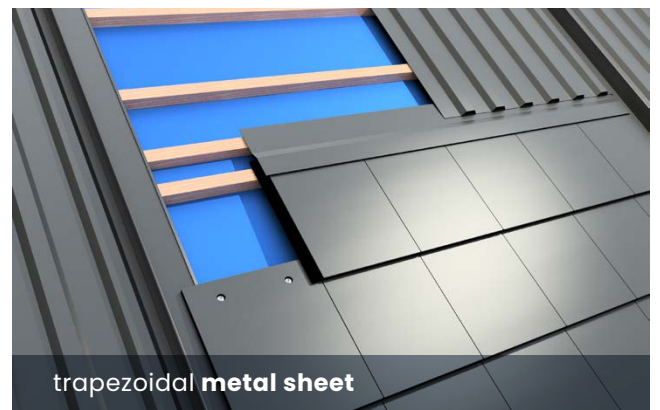
ceramic **roof tile**

steel **roof tile**
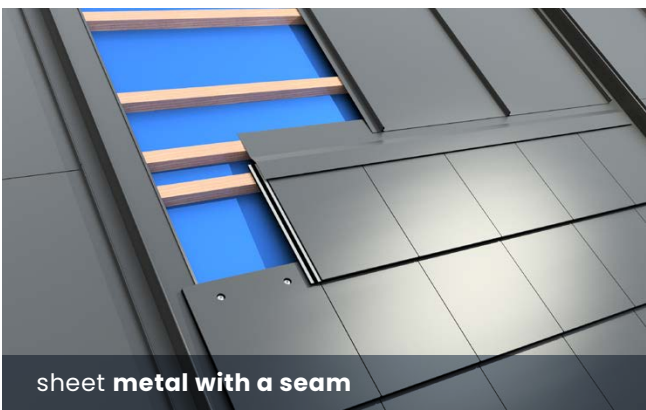
sheet **metal with a seam**

trapezoidal **metal sheet**

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ACTIVE ROOF TILE

producing green energy

BATTENS SPACING
340-360 MM

PASSIVE ROOF TILE

installed in shaded places
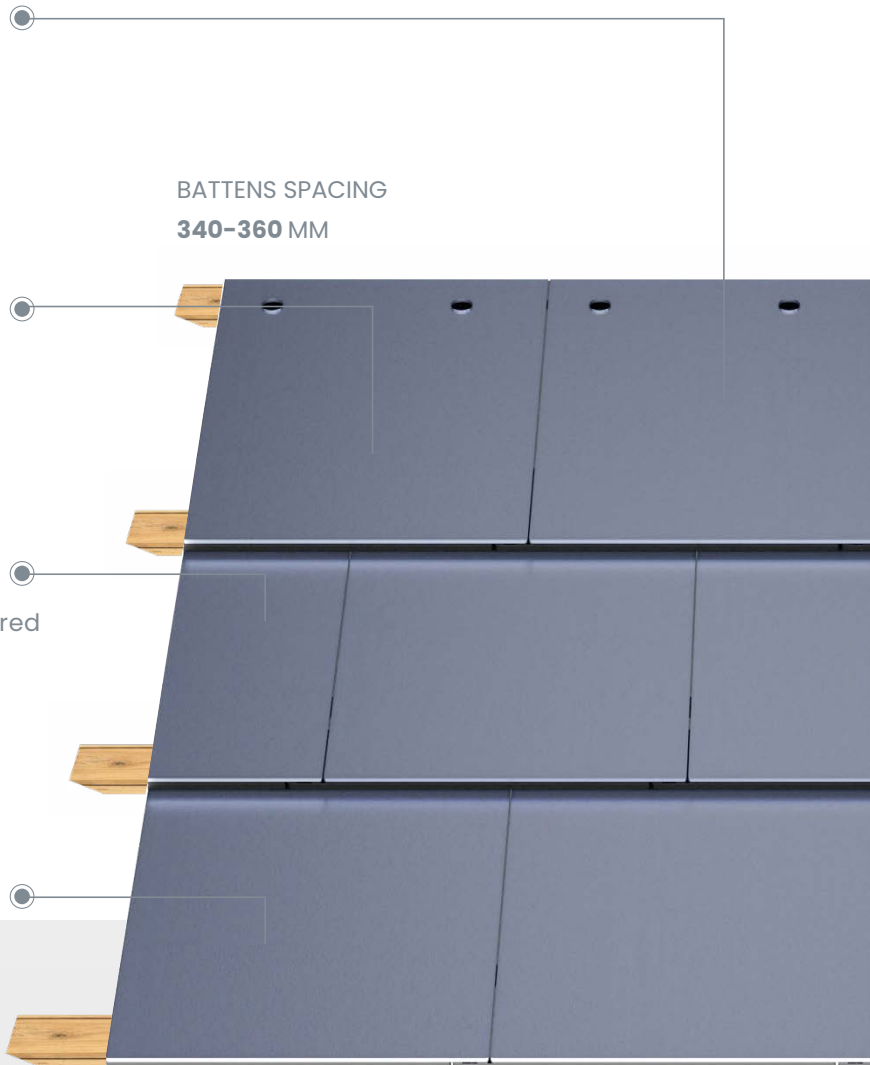
PASSIVE HALF ROOF TILE

allows the slope to be laid in a staggered arrangement

LEFT AND RIGHT ACTIVE ROOF TILE

for an aesthetic finish

MODULARITY

roof tiles are available in various module formats (active and passive), ensuring maximum use of the roof surface and optimization of power and costs.

100 YEARS
DURABILITY

WE ARE CHANGING THE WORLD FOR FUTURE GENERATIONS

SYSTEM HOLES

installation identical to that of classic ceramic roof tiles

INTUITIVE CONNECTION

using a connector

30 YEARS
WARRANTY *

SYSTEM COMPLETENESS

PhotonRoof is a complete solution that ensures easy selection of elements.

ML System offers consultations on the professional selection of system elements.

*all components from ML System provide a warranty and trouble-free use, monitored by the ML SCADA system
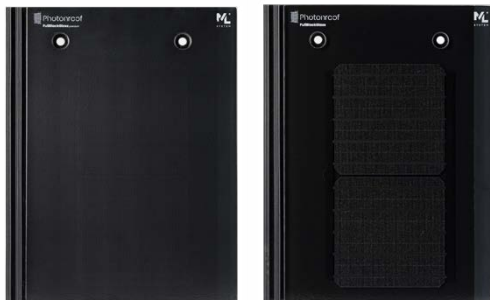
Photonroof

premium

Anthracite

FLAT TILE

Type	Dimension [mm]	premium Power** [Wp/m²]	Power** [Wp/m²]
M1 10 pcs./m²*	325 x 420 x 10	43	76
M3 3.3 pcs./m²*	925 x 420 x 10	70	126
M4 2.5 pcs./m²*	1225 x 420 x 10	64	114
M6 1.6 pcs./m²*	1825 x 420 x 10	71	127

premium

FullBlack

FLAT TILE

Type	Dimension [mm]	premium Power** [Wp/m²]	Power** [Wp/m²]
M1 10 pcs./m²*	325 x 420 x 10	44	87
M3 3.3 pcs./m²*	925 x 420 x 10	72	144
M4 2.5 pcs./m²*	1225 x 420 x 10	66	131
M6 1.6 pcs./m²*	1825 x 420 x 10	73	145

premium

Brick

FLAT TILE

Type	Dimension [mm]	premium Power** [Wp/m²]	Power** [Wp/m²]
M1 10 pcs./m²*	325 x 420 x 10	40	64
M3 3.3 pcs./m²*	925 x 420 x 10	66	105
M4 2.5 pcs./m²*	1225 x 420 x 10	60	96
M6 1.6 pcs./m²*	1825 x 420 x 10	67	106

M1   M3   M4   M6

Due to the use of noble materials in the production process, the color shades of individual roof tiles may vary. Always choose products from the same batch.

* Average number of modules per 1 m² of roof covering
** The given power for STC conditions is calculated per 1 m² of roof covering

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ML SYSTEM

premium

Anthracite

CARP TILE

premium

Type	Dimension [mm]	Power** [Wp/m²]	Power** [Wp/m²]
M1 *36 pcs./m²**	180 x 380 x 13	50	100
M3 *12 pcs./m²**	540 x 380 x 13	50	100
M4 *9 pcs./m²**	720 x 380 x 13	50	100
M6 *6 pcs./m²**	1080 x 380 x 13	50	100

premium

FullBlack

CARP TILE

premium

Type	Dimension [mm]	Power** [Wp/m²]	Power** [Wp/m²]
M1 *36 pcs./m²**	180 x 380 x 13	60	130
M3 *12 pcs./m²**	540 x 380 x 13	60	130
M4 *9 pcs./m²**	720 x 380 x 13	60	130
M6 *6 pcs./m²**	1080 x 380 x 13	60	130

premium

Brick

CARP TILE

premium
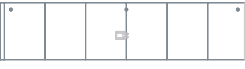
Type	Dimension [mm]	Power** [Wp/m²]	Power** [Wp/m²]
M1 *36 pcs./m²**	180 x 380 x 13	60	95
M3 *12 pcs./m²**	540 x 380 x 13	60	95
M4 *9 pcs./m²**	720 x 380 x 13	60	95
M6 *6 pcs./m²**	1080 x 380 x 13	60	95

M1   M3   M4   M6

! Due to the use of noble materials in the production process, the color shades of individual roof tiles may vary. Always choose products from the same batch.

* Average number of modules per 1 m² of roof covering
** The given power for STC conditions is calculated per 1 m² of roof covering

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FLAT TILE active roof tiles*	Type	Dimensions [mm]	Batten spacing [mm]	Coverage width [mm]	Consumption [pcs./m²]	Weight [pcs./kg]
	M1 **ML-D-PV-P-1**	325 x 420 x 10	min : 340 average: 350 max : 360	300	average: 10	2,7
	M3 **ML-D-PV-P-3**	925 x 420 x 10	min : 340 average: 350 max : 360	900	average: 3,3	8,2
	M4 **ML-D-PV-P-4**	1225 x 420 x 10	min : 340 average : 350 max : 360	1200	average: 2,5	10,8
	M6 **ML-D-PV-P-6**	1825 x 420 x 10	min : 340 average : 350 max : 360	1800	average: 1,6	16,3
	M1L **ML-D-PV-P-1L**	300 x 420 x 10	min : 340 average : 350 max : 360	300	–	2,7

CARP TILE active roof tiles*	Type	Dimensions [mm]	Batten spacing [mm]	Coverage width [mm]	Consumption [pcs./m²]	Weight [pcs./kg]
	M0,5 L **ML-D-P-0,5L**	150 x 420 x 10	min : 340 average : 350 max : 360	150	–	1,4
	M0,5 P **ML-D-P-0,5P**	175 x 420 x 10	min : 340 average : 350 max : 360	150	–	1,4

*types of active roof tiles can also be functional (passive) roof tiles

Packing

Small box pallet:
(for roof tiles 1,3,4 - modular M1, M3, M4)
external dimensions: 1 200 x 1 170 x 650 mm
weight: 84 kg each
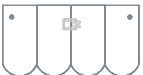
M1 - 80 pcs./pallet
M3 - 45 pcs./pallet
M4 - 40 pcs./pallet

Large box pallet:
(for 6-module M6 roof tiles)
external dimensions: 2 070 x 1 200 x 650 mm
weight: 114 kg each

M6-40 pcs./pallet

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CARP TILE active roof tiles*	Type	Dimensions [mm]	Batten spacing [mm]	Coverage width [mm]	Consumption [pcs./m²]	Weight [pcs./kg]
	M1 **ML-D-PV-K-1**	180 x 380 x 13	min : 155 average : 160 max : 165	180	36	1,7
	M3 **ML-D-PV-K-3**	540 x 380 x 13	min : 155 average : 160 max : 165	540	12	5,1
	M4 **ML-D-PV-K-4**	720 x 380 x 13	min : 155 average : 160 max : 165	720	9	6,8
	M6 **ML-D-PV-K-6**	1080 x 380 x 13	min : 155 average : 160 max : 165	1080	6	10,2

CARP TILE active roof tiles*	Type	Dimensions [mm]	Batten spacing [mm]	Coverage width [mm]	Consumption [pcs./m²]	Weight [pcs./kg]
	M0,5 L **ML-D-K-0,5L**	90 x 380 x 13	min : 155 average : 160 max : 165	90	–	0,8
	M0,5 P **ML-D-K-0,5P**	90 x 380 x 13	min : 155 average : 160 max : 165	90	–	0,8

*types of active roof tiles can also be functional (passive) roof tiles

Packing

Box pallet:
external dimensions:
1 200 x 1 170 x 650 mm

M1 - 200 pcs./pallet
M3 - 80 pcs./pallet
M4 - 40 pcs./pallet
M6 - 40 pcs./pallet

Carport PV

ML System offers photovoltaic parking shelters adapted to the needs of powering electric and plug-in hybrid cars. The green energy produced also allows you to power other electric vehicles, such as bicycles and scooters. Surplus power can be fed into the grid or accumulated in an energy storage facility. Available as complete assembly kits.

Pergola PV

The PERGOLA photovoltaic terrace roof is a combination of protection against atmospheric factors such as solar radiation, rain or snow, integrated with solar modules, the roof produces environmentally friendly green energy and allows you to reduce your home electricity bills. They improve comfort by providing shade, tightness and protection against rain. Available as complete assembly kits.

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GRATIS! *

Zaczernie 190G, 36-062 Zaczernie
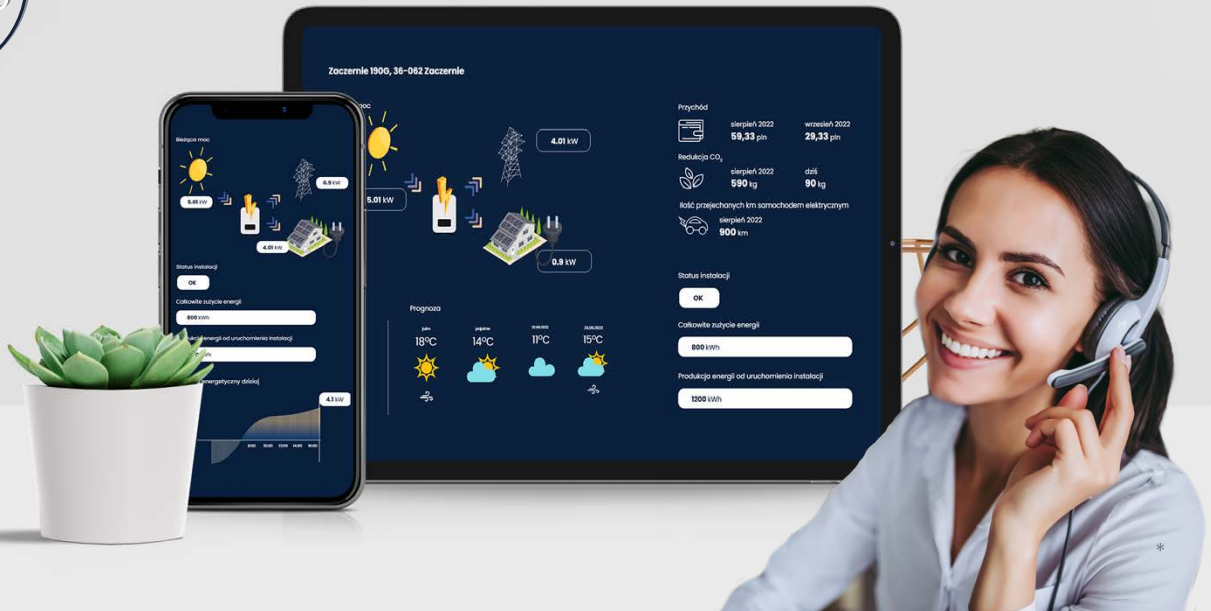
Service - Contact: **+48 17 853 58 76**

ML SCADA

is an original program for managing energy-producing installations.

Management function
The built-in function will decide for you when it is most profitable to use the manufactured one energy and when to return it to the grid or store it. With ML SCADA you will see your energy yields in real time.

The system can control other installations in the house, such as air conditioning, heating, monitoring or intelligent lighting. The responsiveness of the system ensures the ability to control the power of air conditioning or heating depending on the current installation yield.

ML System, as a responsible manufacturer, offers its customers a professional service in the field of inspection, maintenance and repair of ML System products.

ML SCADA not only takes care of your finances, but also about the convenience of use - the application is also available for mobile devices.

The application will remind you about the inspection date or notify you about any irregularities in the operation of the installation.

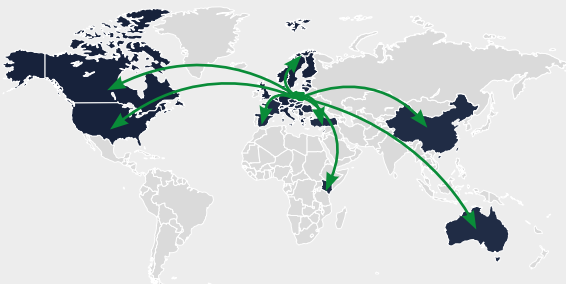*Photovoltaic roof tile it's more than just a roof – it's safety and energy independence for many years.*

Photonroof

**Production plant with an area of 40,000 m², ** Zaczernie, Poland.

MARKETS
IN WHICH WE OPERATE

ORDERS

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TECHNICAL CONSULTANCY

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