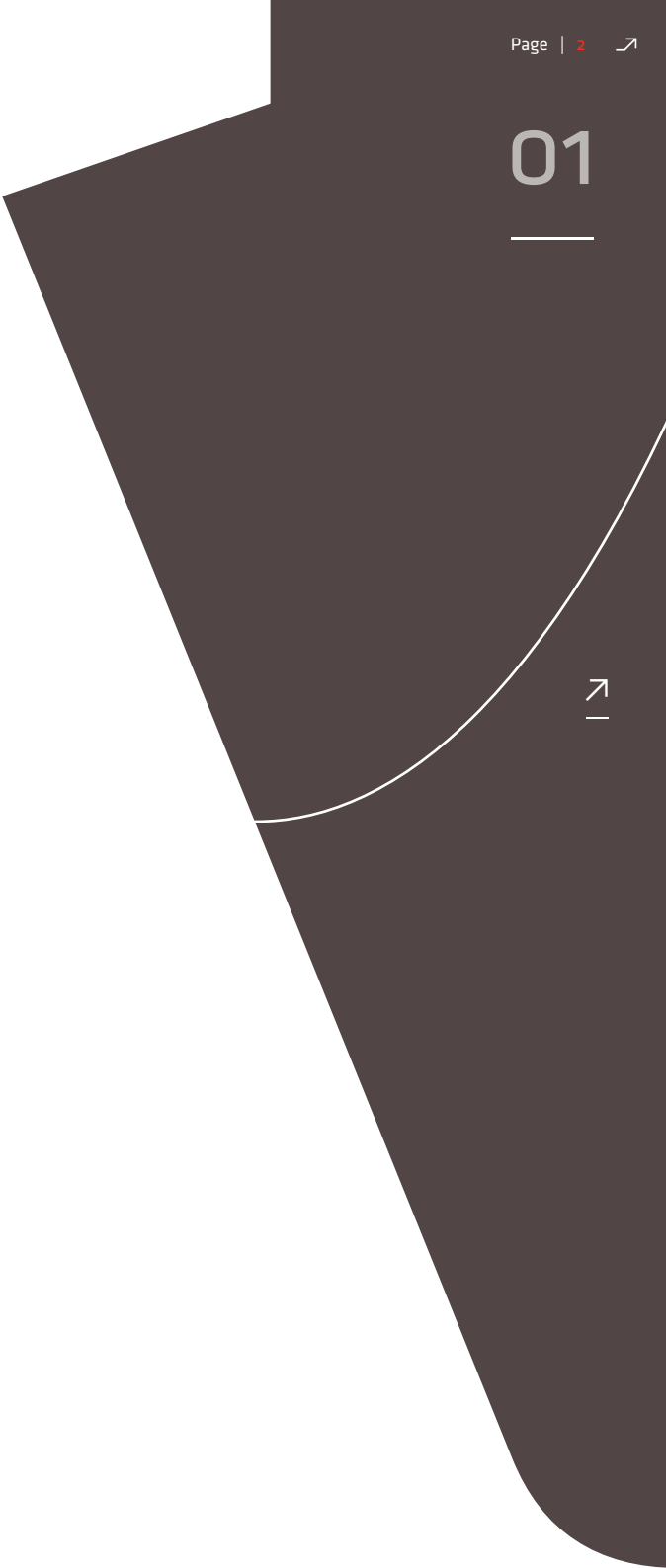


Energy and
aesthetics ... *

A dark grey, abstract, angular shape occupies the left side of the page. It has a vertical top edge, a diagonal right edge, and a rounded bottom edge. The text "Energy and aesthetics ..." is positioned on the left side of this shape. A white asterisk is placed at the end of the text, and a thin white curved line extends from the asterisk towards the right edge of the shape.

01
—

... for a new attitude for living.

The energy revolution has begun.

The building landscape is characterised by the monotony of conventional solar collectors. These collectors hardly integrate in existing rooftops and have a relatively low rate of effectiveness.

ATMOVA is an energy-providing solution for all who have individual demands for aesthetics and design with a high degree of heat effectiveness.

The revolutionary energy and design concept is composed in a surprisingly simple and at the same time effective way with available resources which have up to now been hardly used at all – ambient temperature as a source of energy.

This gives our customers the opportunity to become independent of the currently available heat sources in an elegant way.



ATM+VA
Designed Energy

SWISSMETAL
Design Solutions AG

02 Entering a new era – with energy

↗ We copper-plate your way forward.

Our vision | **Swissmetal Design Solutions AG unites aesthetics and energy in its groundbreaking solutions for converting ambient energy into usable heat. We are the leading manufacturer in energy-generating building architecture.**



This is possible thanks to the intelligent ATMOVA system, an invention that is based on the high-quality Swissmetal copper alloys used by Swissmetal Design Solutions AG.

The affiliate was founded in 2007 by a parent that is steeped in tradition. Swissmetal Holding AG has been in the global copper technology business for over 150 years. By marketing products and solutions such as top-quality window and façade profiles, Swissmetal has been involved in prestigious large-scale architectural projects for many decades now.

Anything else is wasted energy



The elegant solution for your environment.

In addition to conventional heat sources and solar collectors, there is one source of energy that puts everything else in the shade – even the sun. This is because there is only one truly inexhaustible resource: the weather.

The principle is extremely simple. Copper roof tiles respectively façade elements use ambient temperatures of up to -20 degrees Celsius as an energy source and extract heat from them.

The secret lies in copper's excellent thermal conductivity and corrosion resistance. Copper makes an aesthetically pleasing feature of roofs and façades and can attractively be combined with marble, stone, concrete or wood.

The ATMOVA system combines technology with style, satisfying all requirements in terms of heating properties, comfort, visual appearance and aesthetic qualities.

Energy concept

- + Highly efficient generation of energy
- + Works in all weather conditions, not dependent on sunlight
- + No fine dust unlike fossil fuel-based heating systems
- + No CO₂ emissions

Design concept

- + High-class roofing and façade cladding
- + Flexible tile shape and façade design options
- + Option of creating attractive decorative highlights
- + Integrates perfectly into existing or new roofs and façades

04 Life can be this good

It's in your hands.

Use the easy-to-use touch screen to program in your preferred room temperature in just a few strokes. While you sit back and relax, your heating system will be working inconspicuously to reliably ensure that you have the temperature you want at all times.



Screenshot | ATMOVA plan

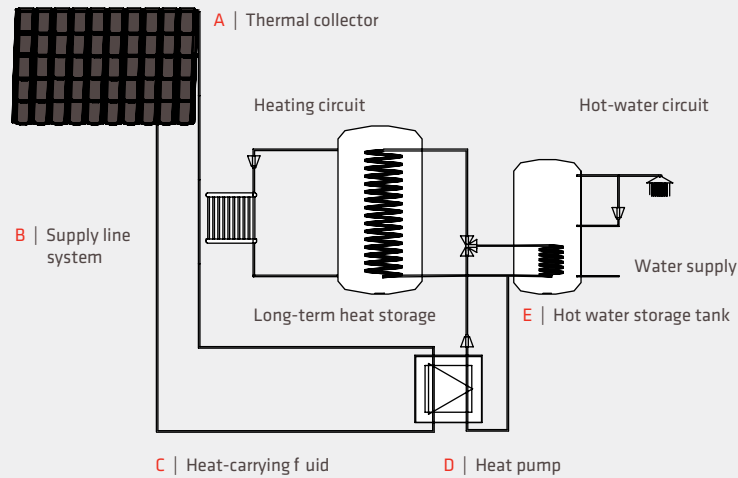
Enjoyment with an easy conscience

Make the best of the weather. (See functional model p.15)



Test it | The system is currently switched off. Enter the current weather conditions to see on the wattmeter just how much energy the ATMOVA system can generate. (See p.15)

05 A new conception of energy



↗ Chart
— F | ATMOVA Control system

↗ Recognising the link.

The ATMOVA system is a perfect combination of the following components:

- + A | Copper-based thermal collectors (roof tiles or façade)
- + B | Supply line system
- + C | Heat-carrying fluid
- + D | Heat pump
- + E | Hot water storage tank
- + F | Control system



↗ fig. 1

fig. 1 | **Touchscreen**
Inconspicuous integration in comfortable
ambiance.

Economical thermal energy



How the system works.

Thermal energy is extracted from the ambient temperature, wind, rain and sun's rays by the thermal collectors – roof tiles or façade – and carried through the supply line system by the heat-carrying fluid to the heat pump.

The heat pump extracts the thermal energy from this fluid. The heat extraction process cools the tiles to below ambient air temperature. As they are colder than their surroundings, they are ready to absorb fresh heat. Extracted heat is stored in a hot water storage tank. Energy for water and room heating is drawn from this tank as required. The control system ensures that the heat pump is used as efficiently and effectively as possible at all times and ensures that the room temperature remains comfortable.

This system constellation guarantees a high coefficient of performance (COP, an indicator of heat pumps' thermal efficiency) of > 3.5 . A COP of 3.5 means that the system produces 3.5 kWh of output energy for every kWh of input energy. The energy yield equates to more than 500 W/m^2 .

Because copper is very durable, ATMOVA systems have a considerably longer service life than other heating systems. The high energy yield and the long service life guarantee above-average system efficiency.



fig. 2

fig. 2 | **Design concept**
Perfect integration in the existing roof.

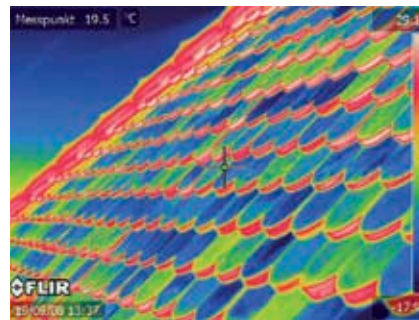


fig. 3

fig. 3 | **Energy concept**
Thermal image. High energy efficiency.

Our References

“We wanted to use the latest ecological building techniques for our listed building, and in particular to meet our energy supply needs extensively from renewable energy sources. Because of the building’s listed status, we were prohibited from fitting photovoltaic or solar collector systems. The ATMOVA system enabled us to unobtrusively incorporate the energy collection system into the building’s roof.” | PD Dr. Dr. Hans-Niklaus Müller

↗ — Haus der Umwelt, 13th-century listed building in Lucerne, Switzerland

As a centre of excellence for ecology and sustainability, the “Haus der Umwelt” is an information hub as well as a meeting point for interested members of the public.

The ATMOVA roof tiles were installed on various parts of the northwest-facing front façade (Mühlenplatz) and rear of the building overlooking its inner courtyard. These tiles are sufficient to generate heat for the entire building, including its restaurant.

This installation proves just how effectively ATMOVA roof tiles can be incorporated into a listed building in a heritage area.

The “Haus der Umwelt” will become Swissmetal Design Solutions AG’s primary sales support installation. The demonstration installation lets everyone feel the heat produced by the ATMOVA system for themselves and gain an understanding of how it works.

↗
— Haus der Umwelt | South side (inner courtyard)



“The ATMOVA concept had us convinced right from the start. We felt it was important to adopt a regenerative energy solution that would not alter the external appearance of our house but was still extremely efficient. Sustainable value retention was a further key factor in the decision. The fact that the purchase price is fully amortised in a matter of years if you consider the total financial outlay and savings through the service life of the system was a compelling argument.”

Dipl. Kfm. Frederic C. Reinicke



Private villa, active energy-house, Stuttgart, Germany

The active energy-house designed and built by ELKA Haus is an innovative home that is fully self-sufficient in terms of its energy needs. It is thus a prime candidate for the installation of ATMOVA roof tiles.

The ATMOVA roof tiles have been installed to the west side of the roof where they are exposed to the weather. Because heat transfer from the wind and rain to the metallic tiles is highly efficient, the advantages of the ATMOVA system over conventional energy extraction systems really come into their own.



Active energy-house | West side (exposed to the weather)

07



↗ ATMOVA façade

Energy with style

A most appealing disguise.

Because ATMOVA façades consist of a customised system of profiles that can be used to create a range of exclusive design combinations, bare building shells can be transformed into extraordinary façades. ATMOVA offers developers, architects and planners a wide range of design configuration options.

The advantages of ATMOVA façades

- + Architecturally high quality façade cladding
- + Design freedom
- + Attractive design highlights
- + Combination with other construction materials possible
- + Easy for façade constructors to install

Energy that falls from the heavens



→ ATMOVA roof tiles (selection)

All good things are sent from above.

Your roof will be covered either fully or in part with ATMOVA roof tiles, depending on your building's heating requirements.

ATMOVA roof tiles can be incorporated inconspicuously into any roof or used to create eye-catching design highlights. Custom tiles to suit individual needs are available on request.

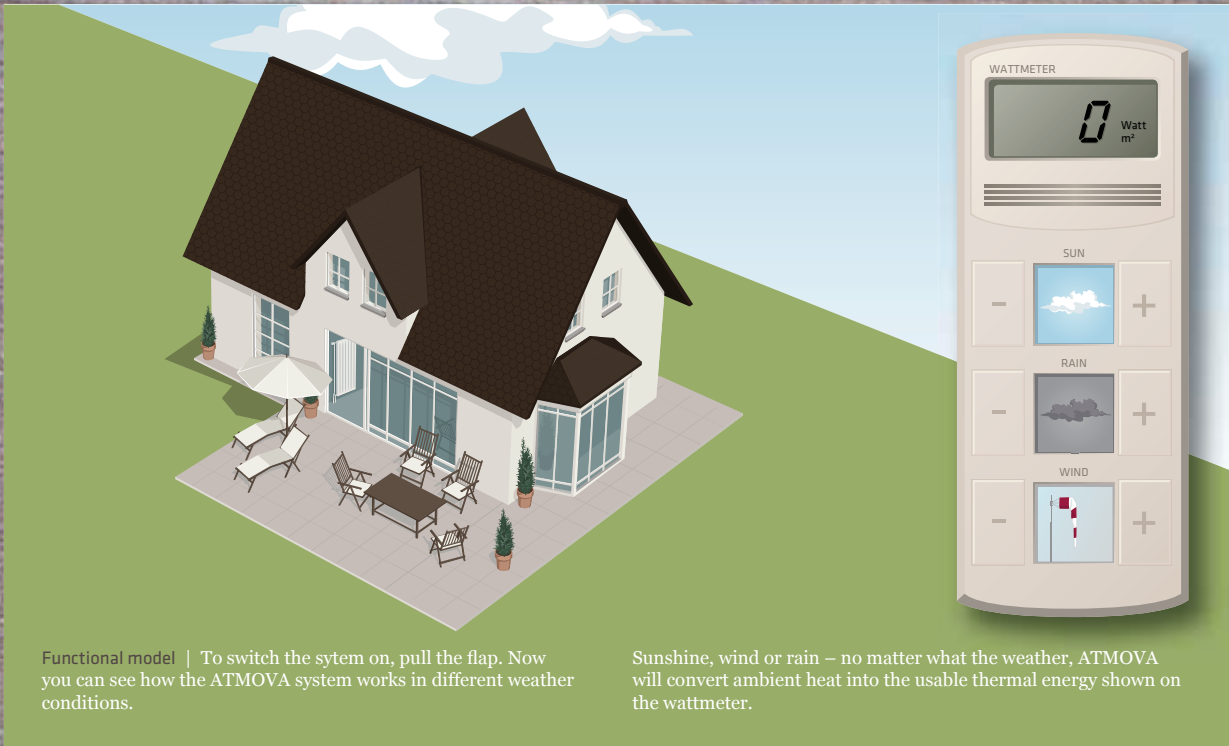
The advantages of ATMOVA roof tiles

- + Aesthetically pleasing highlights
- + Flexible tile shape options
- + Perfect integration into new and existing roofs
- + Ideal for listed buildings and heritage areas
- + Easy for roofers to install

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The climate initiative of the German Printing
and Media Industries Federation



Functional model | To switch the system on, pull the flap. Now you can see how the ATMOVA system works in different weather conditions.

Sunshine, wind or rain – no matter what the weather, ATMOVA will convert ambient heat into the usable thermal energy shown on the wattmeter.

OFF



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