

Our low-energy solutions

Including Passive House Certified components
and Minergie Modules

Photo: Laurent Brandjais



MINERGIE®



Reynaers
Aluminium

Windows.
Doors.
Façades.

Together for better

www.reynaers.com

Low-energy solutions

Two complementary paths to certify your building

In 2019, buildings all over the world established 35% of our global energy consumption, and 55% of our global electricity use. With energy prices soaring and the current climate crisis taking full effect, we need to consider sustainable materials to optimise buildings' energy performance.

To raise the energy efficiency of both new and existing buildings, we have to take the thermal performance of building components into account. For example, highly insulated windows and doors are an excellent way to limit heat loss, optimise solar gains, and, as a result, reduce your overall energy consumption.

Why should you add our energy-efficient solutions to your next building project?

1 Firstly, highly insulated aluminium systems are **more durable**, they increase your living comfort and save tonnes of energy costs. Your heating bill stays low, while you are protected from harsh weather conditions, all year long.

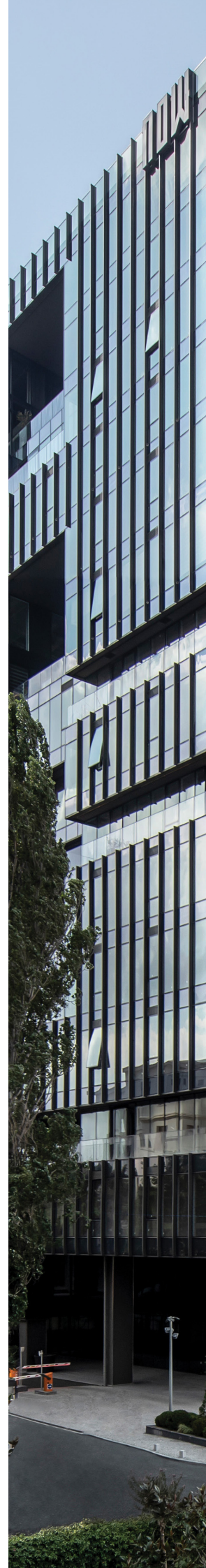
2 Next, official certificates guide you in your choice for sustainable products. **Easily find energy-efficient solutions** for your new-build or renovation project, all compatible with the latest building regulations.

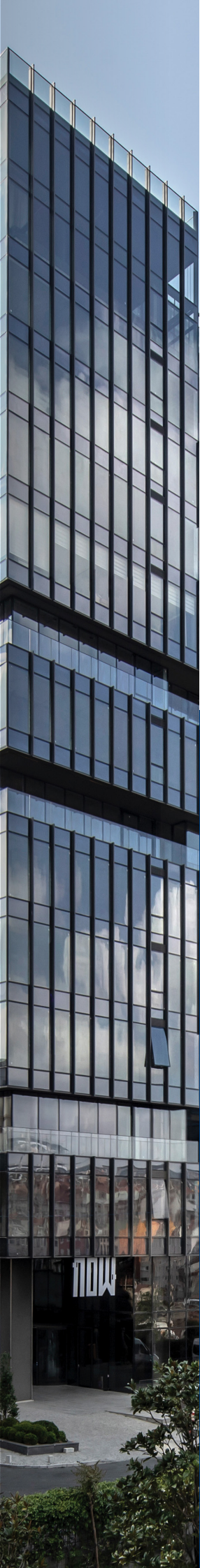
3 Finally, long-lasting materials and energy-efficient components help **raise the value and lengthen the lifetime of your building**. Always build responsibly, with future generations in mind.

Reynaers Aluminium has a long history of building towards a better future. Through years of research and innovation, we went from insulation levels of 6.5 W/m²K in 1965, to 4.0 W/m²K for our first insulated system, to reaching Uf values of less than 0.8 W/m²K with our current passive-level solutions. We go the extra mile to make sure our products and services have a positive impact on the energy efficiency, comfort, safety, and long-term durability of any building. Certifying our high-quality aluminium solutions is part of this daily sustainability journey.

Get in touch

For more information, visit www.reynaers.com to find your local Reynaers Aluminium contact.





What are your options?

The requirements for certifying a low-energy building combine a variety of parameters. In order to design and build Passive House or Minergie certified buildings, there are multiple solutions at your disposal:

- **Using Passive House or Minergie certified products**

The components are independently verified by the respective institute and therefore immediately applicable to achieve low-energy building certification. Although you gain time during your planning phase, the design freedom is rather limited.

- **Using non-certified energy-efficient products**

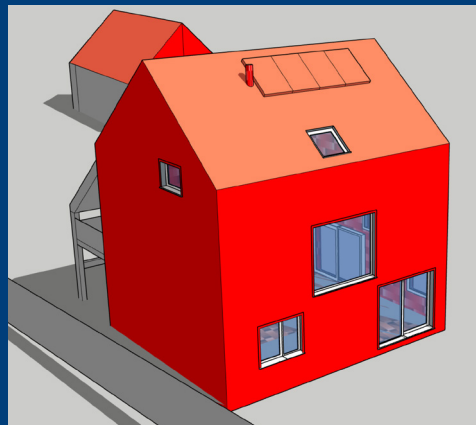
With these solutions, it is still possible to achieve low-energy certification for buildings by deviating from the strict component certification rules, for example, by changing element size, glass specification, or opening type. Additional calculations are necessary to make sure you meet the overall building requirements, but you have a broader range of products at your disposal.

Below you can find an example of a simulation we commissioned for a Certified Passive House, but the same principle can be applied to Minergie or other low-energy concepts:

SIMULATION EXAMPLE FOR A CERTIFIED PASSIVE HOUSE PROJECT

To ensure building certification, thorough evaluation is required. Therefore, let us put theory to the test. Belgian Passive House platform Pixii performed two simulations with Reynaers Aluminium systems. They calculated energy efficiency levels of two existing buildings - one detached and one terraced house - if they would contain MasterLine 8-HI (or HI+) windows and MasterPatio-HI sliding systems, instead of their current joinery elements.

The result? Both simulations showed how the new joinery would help reach a nett **Space Heating Energy Demand of less than 15 kWh/m²a**, which is a core Passive House criterion. Although these systems are not Passive House Certified components, they do help buildings drastically raise their energy efficiency levels. The simulation proves they are an excellent choice for both contemporary new-builds and renovation projects with high energy requirements.

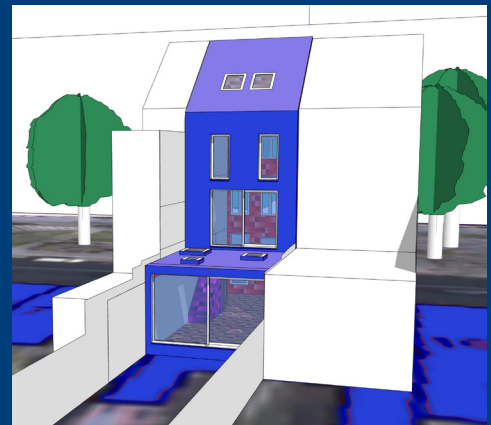


Detached House

Space Heating Energy Demand* with all joinery replaced by:

1. MasterLine 8-HI & MasterPatio-HI = **14.9 kWh/m²a**
2. MasterLine 8-HI+ & MasterPatio-HI = **14.4 kWh/m²a**

*For glazing with $U_g = 0.6 \text{ W/m}^2\text{K}$ and g-value of 60%.



Terraced House

Space Heating Energy Demand* with all joinery replaced by:

1. MasterLine 8-HI & MasterPatio-HI = **13.5 kWh/m²a**
2. MasterLine 8-HI+ & MasterPatio-HI = **12.7 kWh/m²a**

*For glazing with $U_g = 0.6 \text{ W/m}^2\text{K}$ and g-value of 60%.

Low-energy building certificates: Passive House

Your reference point for energy-efficient projects

The **Passive House certificate** is a German energy standard, created by the **Passivhaus Institut**, that indicates whether a building or construction element creates excellent comfort conditions all year long.

Passive houses are all about energy efficiency. Even more than standard building projects, passive houses drastically limit the heat loss that typically takes place in buildings through the walls, roof, and windows. They do so by applying the following five basic principles:

- High-quality thermal insulation
- Windows with triple glazing
- Avoidance of thermal cold bridges
- An airtight building envelope
- A ventilation system with heat recovery

Buildings that apply these principles – and in doing so, reach an exceptional level of energy efficiency – can be classified as “passive houses”. They are called that way because a major part of their heating demand is met through passive energy sources, such as solar heat. Their clever design results in very comfortable, healthy, and sustainable projects that are built to last for generations.



How Reynaers Aluminium applies the Passive House principle

Although the use of Passive House Certified elements is not a prerequisite to realise Passive House Certified buildings, Reynaers Aluminium offers different officially certified components. These include:

- MasterLine 8 High Insulation + Panel Door
- MasterLine 10 High Insulation + Windows
- ConceptWall 50 High Insulation
- ConceptWall 60 High Insulation
- SlimWall 35

Other elements, such as the HiFinity and MasterPatio sliding systems, or MasterLine 8-HI(+) windows and doors, can reach passive energy levels, but they are not certified (see page 3). We use the Passive House standard as a reference point when designing our products, which can be integrated into all sorts of highly insulated projects.

Nonetheless, we are constantly renewing certificates and exploring new ways to certify even more of our systems. That way, we ease component selection for professionals in the design phase of their energy-efficient buildings.

LEARN MORE



Visit the Passive House Institute's website for more information on calculations and certification requirements: www.passivehouse.com



Minergie

A Swiss label for exceptional comfort

To indicate excellent indoor conditions for people living and working in certified buildings: that is what the Swiss Minergie label stands for.

Minergie is a Swiss sustainability label for new and refurbished buildings. The comfort of building occupants is at the heart of the label, with a focus on highly performing, energy-efficient building envelopes and continuous natural ventilation. Other important criteria are the usability, mechanical strength, ease of maintenance, and economy of building components.

Minergie is both a building standard and a component certificate. This means that Minergie certified components, or “modules”, can help buildings reach exceptional comfort levels. However, as explained in the previous pages, these modules are not mandatory for your project to achieve the Minergie building label.

How Reynaers Aluminium applies the Minergie principle

Reynaers Aluminium offers various joinery solutions that meet the strict Minergie component standards (i.e., Minergie Module Certified). These include:

- MasterLine 8 Functional Windows
- MasterLine 8 Hidden Vent Windows
- HiFinity High Insulation
- MasterPatio High Insulation

LEARN MORE

Visit the Minergie website for more information on calculations and certification requirements: www.minergie.ch

MINERGIE®



Photo: Peter Würmli

As is the case for our other sustainable certificates, we keep exploring new ways of expanding our range of certified solutions.

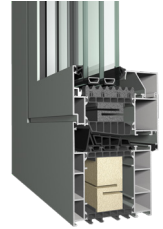
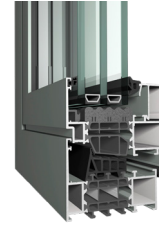
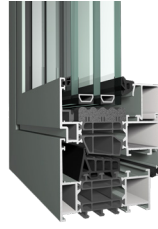
Currently, Minergie certification is ongoing for MasterLine 8 doors and other energy-efficient systems. That is how Reynaers Aluminium helps create aesthetical and futureproof building projects, including yours.




Our compatible solutions for



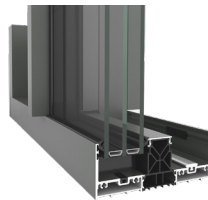
Windows




PERFORMANCE*	MasterLine 8 High Insulation Hidden Vent	MasterLine 8 High Insulation	MasterLine 8 High Insulation +	MasterLine 10 High Insulation +
Thermal insulation (Uf)	1.6 W/m ² K	1.6 W/m ² K	1.3 W/m ² K	1.0 W/m ² K
Thermal insulation (Uw)	0.9-1.0 W/m ² K	0.9-1.1 W/m ² K	0.8-1.0 W/m ² K	0.7-0.8 W/m ² K
Air tightness	600 Pa (class 4)	600 Pa (class 4)	600 Pa (class 4)	600 Pa (class 4)
Wind load resistance	2000 Pa (class 5)	2000 Pa (class 5)	1200 Pa (class C3)	1600 Pa (class 4)
Water tightness	900 Pa (class E900)	1200 Pa (class E1200)	900 Pa (class E900)	900 Pa (class E900)
 Passive House Institute Certified component	-	-	-	✓
MINERGIE® Certified module	✓	✓	-	-
Compatible with low-energy projects	✓	✓	✓	✓



Sliding systems



PERFORMANCE*	HiFinity High Insulation	MasterPatio High Insulation
Thermal insulation (Uw)	0.7-0.9 W/m ² K	0.7-1.0 W/m ² K
Air tightness	600 Pa (class 4)	600 Pa (class 4)
Wind load resistance	2000 Pa (class 5)	2000 Pa (class 5)
Water tightness	750 Pa (class E750)	1200 Pa (class E1200)
 Passive House Institute Certified component	-	-
MINERGIE® Certified Module	✓	✓
Compatible with low-energy projects	✓	✓

low-energy building projects



Doors




PERFORMANCE*

MasterLine 8 High Insulation

MasterLine 8 High Insulation +

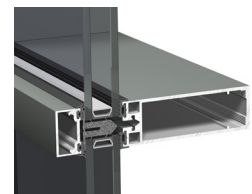
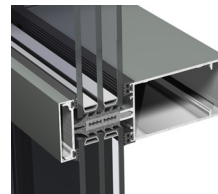
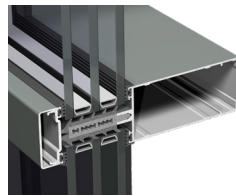
MasterLine 8 High Insulation + Panel Door

MasterLine 10 High Insulation +

Thermal insulation (Uf)	2.0 W/m ² K	1.4 W/m ² K	1.4 W/m ² K	0.96 W/m ² K
Thermal insulation (Ud)	1.1-1.2 W/m ² K	0.9-1.0 W/m ² K	0.8 W/m ² K	0.7-0.8 W/m ² K
Air tightness	600 Pa (class 4)	600 Pa (class 4)	600 Pa (class 4)	600 Pa (class 4)
Wind load resistance	800 Pa (class C2)	800 Pa (class C2)	1200 Pa (class 3)	1200 Pa (class C3)
Water tightness	300 Pa (class 7A)	300 Pa (class 7A)	100 Pa (class 3A)	600 Pa (class 9A)
 Passive House Institute Certified component	-	-	✓	-
MINERGIE [®] Certified module	-	-	-	-
Compatible with low-energy projects	✓	✓	✓	✓



Façades



PERFORMANCE*

ConceptWall 50 High Insulation

ConceptWall 60 High Insulation

SlimWall 35

Thermal insulation (Uf)	0.56 W/m ² K	0.56 W/m ² K	0.71 W/m ² K
Thermal insulation (Ucw)	0.6-0.8 W/m ² K	0.6-0.8 W/m ² K	0.8 W/m ² K
Air tightness	1950 Pa (class AE 1950)	1950 Pa (class AE 1950)	1200 Pa (class AE 1200)
Wind load resistance	2400 Pa	2400 Pa	2000 Pa
Water tightness	1950 Pa (class RE 1950)	1950 Pa (class RE 1950)	1200 Pa (class RE 1200)
 Passive House Institute Certified component	✓	✓	✓
MINERGIE [®] Certified Module	-	-	-
Compatible with low-energy projects	✓	✓	✓

* Performance levels depend on size, profile combinations, hardware and infill choices.

Our sustainable road ahead

A global sustainable commitment

At Reynaers Group, we aim to improve people's living and working conditions, now and in the future.

Sustainability is part of everything we do, and it is at the core of our worldwide futureproof strategy.

By doing our part, we can help limit global warming one step at a time. Less waste and CO₂ pollution, more circular systems and sustainable homes: these are just a few ways we can build a better future together. But we do not stop there.

As part of Reynaers Group, Reynaers Aluminium fully commits to an ambitious set of goals.

Promises and good intentions are no longer enough: it is time to act to have a lasting positive impact.

While we may have a long journey still ahead of us, we are confident we can reach our goals together with our trusted partners - and with you!

To keep an overview of our commitments, we focus on three key pillars to act upon:

I. Safeguarding our planet

II. Engaging our people

III. Taking responsibility towards society



Lifelong learning and personal development

- Lifelong learning
- Talent development

Healthy and safe place to work

- Safety and physical health
- Mental health

Empowering culture

- Employee engagement
- Entrepreneurship and innovation
- Diversity and inclusion



The Reynaers Group Sustainability Report

Want to learn more about our commitments for a better future? Browse our official sustainability report, Reynaers *Act*, by scanning the QR code.



Climate action

- Reduction of greenhouse gas emission (Scope 1 and 2)
- Reduction of greenhouse gas emission (Scope 3)
- Water and soil pollution

Circular solutions

- Eco-design of our products
- Circular business model and collectio
- Packaging

Sustainable buildings

- Decarbonisation
- Circular buildings
- Comfort

Ethical and responsible business

- Ethical behaviour
- Healthy and sustainable busine
- Sustainability strategy and risk
- Local communities (philantroph

Responsible procurement and due

- Responsible procurement and supply
- Biodiversity and water management in the value chain

Transparency, traceability and co

- Transparency and reporting
- Traceability
- Dialogue with stakeholders

ABOUT REYNAERS ALUMINIUM

“Together we are improving the living and working environment for people now and for future generations.”

As part of Reynaers Group, Reynaers Aluminium is a leading specialist in the development and marketing of innovative, sustainable aluminium solutions for windows, doors and façades. Together with our partners, we focus on creating energy-efficient, responsibly made products that make a difference for homes, buildings and the people they serve.

Reynaers Aluminium is founded in 1965 and currently employs over 2,600 workers in more than 40 countries worldwide. The company exports to more than 70 countries on 5 different continents. In 2023, Reynaers Group achieved an annual turnover of 704 million euros.

The company’s success is strengthened by our close partnership with 5,000 partner fabricators, architects, and project developers worldwide. This unique cooperation is reflected in our motto: Together for better.

At Reynaers Campus, our headquarters in Belgium, we focus on sharing knowledge and experience with architects, fabricators, contractors and other building partners while inspiring them with new technologies. Next to the Technology, Training and Automation Centre, Reynaers Campus also has its own Experience Centre where future buildings can be explored in our virtual reality room Avalon.



**Reynaers
Aluminium**

Oude Liersebaan 266
B-2570 Duffel

T +32 (0)15 30 88 10
info@reynaers.com

www.reynaers.com