REHAU

Unlimited Polymer Solutions



PERFECT ENERGY EFFICIENCY

GENEO® WINDOW SYSTEM - MADE FOR THE FUTURE IN HIGH-TECH RAU-FIPRO® MATERIAL

www.rehau.co.uk

Building Solutions

Automotive

Industry



GENEO® WINDOW PROFILE SYSTEM

BEST IN CLASS - GENEO® IS AHEAD OF THE FIELD TO HELP YOU MAKE THE RIGHT DECISION



Thanks to their technological advances and their performance characteristics, windows & doors constructed from GENEO® profiles put all previous systems in the shade.

- The first fully self reinforced window profile system
- Made from a high-tech fibre reinforced composite material RAU-FIPRO® which is fully recyclable.
- The most energy-efficient profile available for windows ranging from low energy houses (e.g., U_w = 1.1 W/m²K) to Passivhaus standards (e.g., U_w = 0.73 W/m²K).
- The best possible level of sound insulation without steel reinforcement, achieving previously unattainable values (glass 50 dB = $R_{w,P}$ 47 dB) for sound insulation class 5 – and including optimal thermal insulation.
- Break-in protection up to resistance class 3. Without steel reinforcement, resistance class 2 – including optimal thermal insulation.
- Investing in the best frame/sash combinations possible future proofs your investment should better performing glass become available.
- BRE Green Guide rated, A‘ for domestic and, A+‘ for commercial with a life cycle of 35 years.

RAUFIPRO® - the innovative material formulation created by REHAU results in PVC window and door profiles with high stability, torsional stiffness and static properties, which were previously not possible without the addition of steel reinforcements. RAUFIPRO® has been developed based on fibre composites used in aircraft construction and Formula 1 vehicles bringing high end technology to the fenestration industry.



Larger elemental sizes using GENEO®

GENEO® WINDOW PROFILE SYSTEM

THERE IS NO BETTER WAY TO CHANGE YOUR ENERGY BUDGET TO MEET FUTURE NEEDS





GENEO® MD plus,
Passive House standard - certified

Ug value = 0.5 W/m²K
Uf value = 0.77/0.78 W/m²K
Uw value = 0.67 W/m²K *

Calculated savings **
Savings using GENEO® MD plus:
Gas: 3555 kWh / annually
CO_2 reduction: 648 kg / annually
CO_2 reduction: 22,680 kg***
Energy saving: 17%

GENEO® MD plus,
Suitable for Passive Houses

Ug value = 0.6 W/m²K
Uf value = 0.91 W/m²K
Uw value = 0.80 W/m²K *

Calculated savings **
Savings using GENEO® MD plus:
Gas: 2,614 kWh / annually
CO_2 reduction: 480 kg / annually
CO_2 reduction: 16,800 kg***
Energy saving: 15%

GENEO® MD plus, surpasses the latest Part L 2010 regulations[1)]

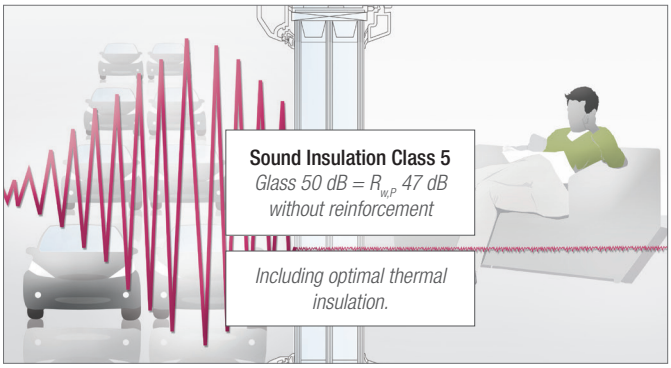
Ug value = 1.0 W/m²K
Uf value = 0.91 W/m²K
Uw value = 1.1 W/m²K *

Calculated savings **
Savings using GENEO® MD plus:
Gas: 1,961 kWh / annually
CO_2 reduction: 360 kg / annually
CO_2 reduction: 12,600 kg***
Energy saving: 13%

** Window size: 1230 × 1480 mm.*
*** Based on: timber/plastic windows from the 1970s with an approximate U_w value of 3.0 W/m²K and a typical detached house with 120 m² of floor space and 25 m² of total window area.*
*** Based on lifespan of window being 35 years as indicated in the BRE Green Guide*
Heating method: Gas

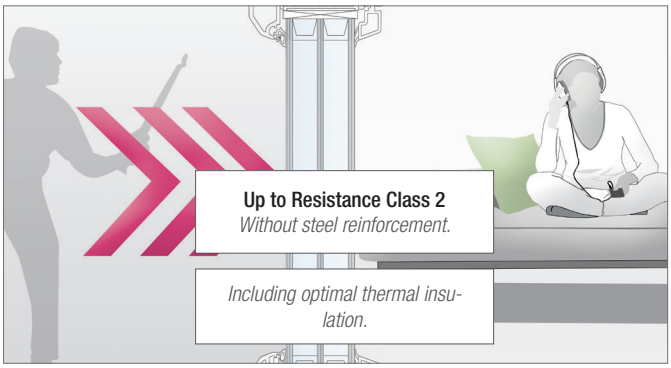
WINDOWS MADE OF GENEO®PROFILES

SOUND INSULATION AND BREAK-IN PROTECTION



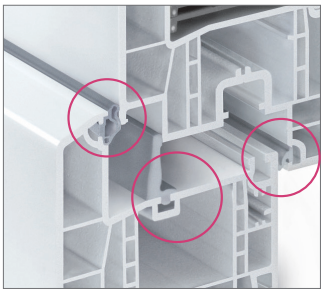
Sound insulation class	Traffic density	Distance between the home and the center of the street	Recommended window sound insulation value*	Glass	$R_{w,P}$
1	Residential street, 1,500 vehicles/day	3-12 m	28-29 dB		
2	Residential street, 1,500 vehicles/day	12-5 m	30-34 dB		
3	Federal highway, 30,000 vehicles/day	150-80 m	35-39 dB		
4	Federal highway, 30,000 vehicles/day	80-30 m	40-44 dB	40 dB	42 dB
5	Freeway, 50,000 vehicles/day	70-40 m	45-49 dB	50 dB	47 dB

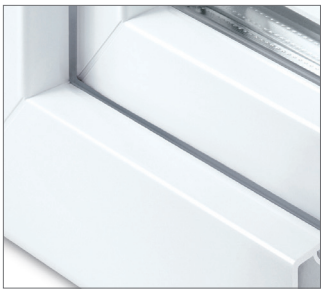
** Noise level which the window can dampen.*

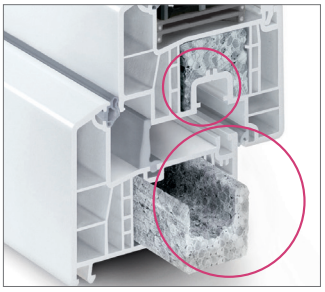


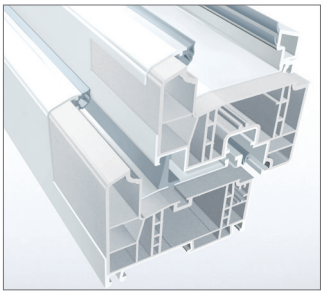
Break-in protection: For security in every situation.

- **Basic security:** *Basic security is adequate for windows which are difficult to access.*
- **Resistance class 1:** *Low protection against the use of levers.*
- **Resistance class 2:** *Improved protection against the use of simple tools such as screwdrivers, pliers and wedges.*
- **Resistance class 3:** *Best possible protection against the use of heavy tools such as a crowbar.*









Centre seal

With its three surrounding seal levels, the GENEO® window profile offers the best possible insulation characteristics. The highly elastic seal material which is resistant to continuous stress guarantees a long service life.

Sleek design

The profile design offers an elegant, sleek appearance (115 mm) for even the largest elements. Combined with REHAU's innovative adhesive technology, even floor-length windows can be created with the necessary degree of stability.

Optimized thermal insulation

GENEO® possesses functional chambers which can be employed for a variety of purposes. For example, the GENEO® MD plus uses thermal modules to optimise the insulation properties to provide an enhanced thermal performance.

RAU-FIPRO® profile core

The profile core made from the high-tech material RAU-FIPRO® gives GENEO® window profile systems maximum stability.

GENEO® PROFILE SYSTEMS

FOR WINDOWS WITH A FUTURE

RAU-FIPRO®- THE INNOVATIVE, HIGH-TECH MATERIAL



1. Unbeatably stable

RAU-FIPRO® – an innovative material formulation created by REHAU. This high level of profile core stability sets new benchmarks for window profile systems.

2. Uniquely innovative

The innovative high-tech fibre composite material has been developed following work done with aircraft construction and Formula 1 design. This now also offers the best performance in the area of window design.

3. Highest quality

The best initial materials combined with the highest manufacturing benchmarks result in the outstanding quality and long service life of profiles made from RAU-FIPRO®, under even the highest stress levels.



An overview of all properties:

GENEO® window profile systems

Construction width:	*86 mm / 6 chamber system*
Thermal insulation:	*U_f up to 0.85 W/m²K (MD plus)**
Sound insulation, sound insulation class (VDI 2719):	*Up to sound insulation class 5** (Glass 50 dB = $R_{w,P}$ 47 dB)*
Security	*Up to resistance class 3 Up to resistance class 2 (without steel)*
Surface:	*High value, smooth, sealed and easy maintenance*
- Ideal for low energy houses and energy conscious renovation	*- Up to the Passivhaus standard - For upscale home construction*

** U_f = Profile thermal insulation value*

*** Including optimal thermal insulation*

GENEO® ENTRANCE DOOR SYSTEM

WHERE ENERGY EFFICIENCY MEETS DESIGN



When choosing an entrance door, aspects like energy efficiency, design, and durability are essential considerations. The features of the GENEO® Passivhaus Certified entrance door system can satisfy all of these considerations due to the high-tech material RAUFIPRO®, which forms an integral part of the door system.

- Passivhaus certified.
- Great stability due to fibreglass reinforced profile heart RAUFIPRO®
- Highest insulation is guaranteed with optimum noise protection.
- Barrier-free ground sill according to 18024, 18025 and 18040 with a height of 20mm.
- Environmentally friendly as the GENEO® system is recyclable.
- Perfect energy efficiency - with the GENEO® system (Windows, Front Doors, Patio Doors) you are able to insulate your building envelope perfectly.
- High profile new buildings and low energy housing.
- Single-leaf doors opening inside or outside, with side panel.
- Double-leaf doors opening inside or outside, with fanlights.
- Front door constructions in different varieties.
- Exclusively only at REHAU: optional covered fittings for a perfect look and low maintenance, without interrupting fitting elements.
- Wide-ranging in design, thanks to colour options with foil finishes or aluminum-facing formwork.
- Almost limitless design with different front door panels with glazing rebate up to 53mm.

An overview of all properties:

GENEO® entrance door profile system

Construction width:	*86 mm / 6 chamber system*
Thermal insulation:	*U_f up to 0.76 W/m²K* (with sash covering filling Up=0,317 W/m²K).
Break-in protection	*Up to resistance class 2 (without steel)*
Surface:	*High value, smooth, sealed and easy maintenance*
- Ideal for low energy houses and energy conscious renovation	*- Up to the Passivhaus standard* *- For upscale home construction*

GENEO® PATIO DOOR SYSTEM

FOR UNCOMPROMISING LIGHT AND SPACE



You do not have to compromise on light and space when fulfilling the need for energy efficiency.
The GENEO® Lift/Slide patio door from REHAU is manufactured using high tech material RAUFIPRO® and combines maximum glass areas with the best energy efficiency and many other advantages such as noise reduction and security.

- High profile stability due to REHAU's high-tech material RAUFIPRO®
- Easy handling due to perfectly aligned system technology.
- Surrounding gaskets with vulcanised edges protect against draught, dust, water and loss of heat.
- Surpasses the latest Part L regulations
- Extraordinary architectural elements, which can be maximised from floor to ceiling.
- Environmentally friendly, due to its recyclability.
- Complete energy efficiency – with GENEO® products (windows, front doors, patio doors) you are able to insulate your building envelope perfectly.
- Slim profile design for modern design.
- Elements available up to a height of 2.70m and a width of 10m.
- Different opening possibilities.
- Wide-ranging in design, thanks to colouring with foil finishes or Aluminum-facing formwork.

An overview of all properties:

Construction width:	*86 mm / 6 chamber system*
Thermal insulation:	*U_f up to 1.3 W/m²K*
Air Permeability:	*Class 4 according to EN 12207*
Watertightness:	*Up to class 9A according to EN 12208*
Resistance to wind load:	*Up to class B3 to EN 12210*
Break-in protection	*Up to resistance class 2 (without steel)*
Extreme weather rating	*BS 6375*
Surface:	*High value, smooth, sealed and easy maintenance*
- Ideal for low energy houses and energy conscious renovation	*- Up to the Passivhaus standard - For upscale home construction*

GENEO® PROFILE SYSTEMS

PROVIDING ENERGY EFFICIENT SOLUTIONS



The East Midlands regional office for Interserve Construction Limited in Syston, Leicestershire is the first Zero Carbon office in the UK to be fully certified to Passivhaus standard.

Twenty seven windows and four doors in the Passivhaus certified GENEO® system were fabricated for the £1.5m, 680m² office, the majority of which were installed across its south facing aspect to increase solar gain in winter and minimise the requirement to generate additional heat.



GENEO® windows have been installed throughout a new workshop building at Cambridge Regional College which is expected to achieve a BREEAM Excellent rating. The windows were specified by the architects on the basis of their thermal efficiency and slim sight lines.

The windows feature 32mm and 28mm double glazed sealed units achieving a G-value of between 0.41 and 0.56. Some of the windows are up to 2.5m high x 2.5m wide which would have required bulky frames and substantial steel reinforcement in conventional PVC-U but, in GENEO® the self reinforced frames are just 86mm. The windows were specified in an anthracite grey for the project to match the cladding used on the exterior of building.

The new construction workshop provides nearly 1,000m² of workshop space at the further education college for training school leavers, apprentices and adults in bricklaying.



At the £16m Yate International Academy 215 windows were installed in the Passivhaus certified GENEO® window system. These are WER A rated with a Uw-Value of just 1.2W/m²K. This was in line with the overall specification of the Academy which focuses on sustainable features including a ground source heat pump powered by photovoltaic panels and highly insulated materials throughout.

Alongside the GENEO® windows more than 15 varying sized curtain walling screens were fabricated and installed in the REHAU Polytec 50S composite curtain walling system with a similar low Uw-Value. All of the window and curtain walling components are coloured grey.

REHAU provided their support on the project with drawings and design calculations, particularly in the inclusion of additional reinforcement box sections to meet the wind loading requirements on the site.

GENEO® PROFILE SYSTEMS

PROVIDING ENERGY EFFICIENT SOLUTIONS



REHAU's Passivhaus certified GENEO® window system was chosen for a residential development for North Ayrshire Council which were required to meet a Silver Active Level of sustainability defined by the Scottish Building Regulations (2012 ed), Section 7.

The Council had stated a preference for a PVC-U window solution because of its proven low maintenance properties and the GENEO® system was judged to be the most contemporary looking high performance window in a PVC finish.

The architects liked the slim 115mm sightlines of GENEO® coupled with the fact that it could be foiled externally in a grey finish and left white on the inside.

In total, 150 windows have been installed on the development in sizes ranging from 0.6m^2 to 5.2m^2, with U-Values as low as 0.68 W/m^{2}K. All windows were triple glazed.



On the first floor of The London Building Centre in Store Street, seven tilt and turn GENEO® windows have been installed to replace 1960s aluminium frames as part of an overall refurbishment programme which is aiming to achieve a BREEAM Excellent rating.

The refurbishment is a means of demonstrating how even a building which is approaching 100 years old can be refurbished to BREEAM Excellent standards.

The U_W Value of the windows has been improved from 4.5W/m^{2}K to less than 0.8 W/m^2 utilising the triple glazed GENEO® solution.



GENEO® windows have been installed throughout a project carried out by Orbit Heart of England Housing Association which aims to maximise the energy efficiency of a traditional 1900s mid terrace house.

Orbit Heart of England set itself a target of using mainstream affordable solutions to refurbish the house using Passivhaus principles.

The installation, in Foleshill Road Coventry, is within the qualifying area under the Community Energy Savings Programme (CESP) where energy providers have committed to delivering energy efficiency measures and improving standards to reduce fuel bills.

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