



## PERFECT ENERGY EFFICIENCY

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







# GENEO® WINDOW PROFILE SYSTEM

BEST IN CLASS - GENEOR® 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 GENEOR® 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 RAUFIPRO® which is fully recyclable.
- The most energy-efficient profile available for windows ranging from low energy houses (e.g.,  $U_w = 1.1 \text{ W/m}^2\text{K}$ ) to Passivhaus standards (e.g.,  $U_w = 0.73 \text{ W/m}^2\text{K}$ ).
- 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 GENE<sup>®</sup>



# 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/m<sup>2</sup>K  
Uf value = 0.77/0.78 W/m<sup>2</sup>K  
Uw value = 0.67 W/m<sup>2</sup>K \*

Calculated savings \*\*  
Savings using GENEOR® MD plus:  
Gas: 3555 kWh / annually  
CO<sub>2</sub> reduction: 648 kg / annually  
CO<sub>2</sub> reduction: 22,680 kg\*\*\*  
Energy saving: 17%

GENEO® MD plus,  
Suitable for Passive Houses

Ug value = 0.6 W/m<sup>2</sup>K  
Uf value = 0.91 W/m<sup>2</sup>K  
Uw value = 0.80 W/m<sup>2</sup>K \*

Calculated savings \*\*  
Savings using GENEOR® MD plus:  
Gas: 2,614 kWh / annually  
CO<sub>2</sub> reduction: 480 kg / annually  
CO<sub>2</sub> reduction: 16,800 kg\*\*\*  
Energy saving: 15%

GENEO® MD plus, surpasses the  
latest Part L 2010 regulations<sup>1)</sup>

Ug value = 1.0 W/m<sup>2</sup>K  
Uf value = 0.91 W/m<sup>2</sup>K  
Uw value = 1.1 W/m<sup>2</sup>K \*

Calculated savings \*\*  
Savings using GENEOR® MD plus:  
Gas: 1,961 kWh / annually  
CO<sub>2</sub> reduction: 360 kg / annually  
CO<sub>2</sub> reduction: 12,600 kg\*\*\*  
Energy saving: 13%

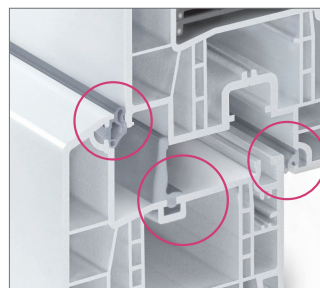
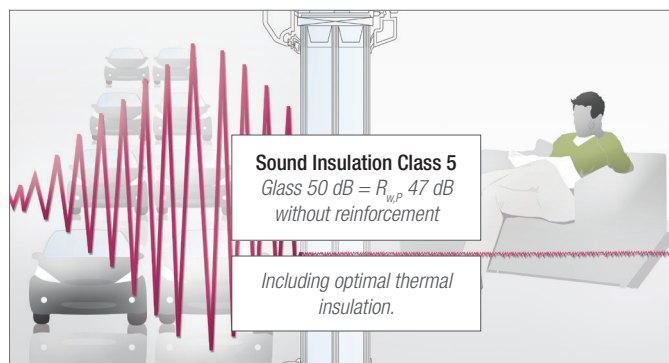
\* Window size: 1230 × 1480 mm.

\*\* Based on: timber/plastic windows from the 1970s with an approximate  $U_w$  value of 3.0 W/m<sup>2</sup>K and a typical detached house with 120 m<sup>2</sup> of floor space and 25 m<sup>2</sup> 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 GENEOR<sup>®</sup> PROFILES

## SOUND INSULATION AND BREAK-IN PROTECTION



### Centre seal

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

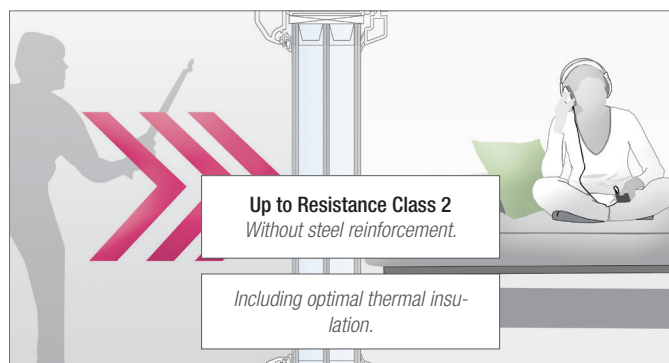
Sound insulation class	Traffic density	Distance between the home and the center of the street	Recommended window sound insulation value*	Glass	R <sub>w,P</sub>
1	Residential street, 1,500 vehicles/day	3-12 m	28-29 dB		
2	Residential street, 1,500 vehicles/day	12-5 m	30-34 dB		
3	Federal highway, 30,000 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.

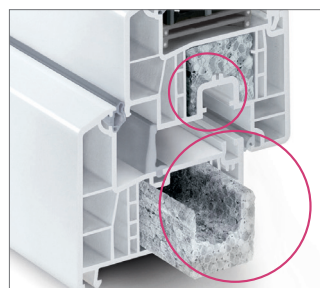


### Sleek design

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.



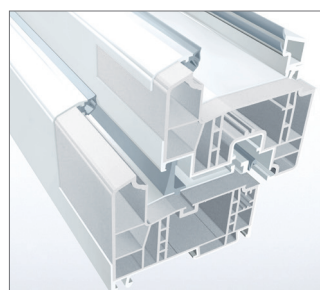
Break-in protection: For security in every situation.



### Optimized thermal insulation

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

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



### RAU-FIPRO<sup>®</sup> profile core

The profile core made from the high-tech material RAU-FIPRO<sup>®</sup> gives GENEOR<sup>®</sup> 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:	$U_i$ up to 0.85 W/m <sup>2</sup> K (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

\*  $U_i$  = 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 GENEО® 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 GENEО® system is recyclable.
- Perfect energy efficiency - with the GENEО® 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/m <sup>2</sup> K (with sash covering filling $U_p=0,317$ W/m <sup>2</sup> K).
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 GENEО® 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 GENEО® 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:	$U_i$ up to 1.3 W/m <sup>2</sup> K
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	- Up to the Passivhaus standard
energy conscious renovation	- For upscale home construction

# GENEO® PROFILE SYSTEMS

## PROVIDING ENERGY EFFICIENT SOLUTIONS

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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 GENEО® system were fabricated for the £1.5m, 680m<sup>2</sup> 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 GENEО® 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 1,000m<sup>2</sup> 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 GENEО® window system. These are WER A rated with a Uw-Value of just 1.2W/m<sup>2</sup>K. 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 GENEО® 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

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REHAU's Passivhaus certified GENEIO® 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 GENEIO® system was judged to be the most contemporary looking high performance window in a PVC finish.

The architects liked the slim 115mm sightlines of GENEIO® 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<sup>2</sup> to 5.2m<sup>2</sup>, with U-Values as low as 0.68 W/m<sup>2</sup>K. All windows were triple glazed.



On the first floor of The London Building Centre in Store Street, seven tilt and turn GENEIO® 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<sub>w</sub> Value of the windows has been improved from 4.5W/m<sup>2</sup>K to less than 0.8 W/m<sup>2</sup> utilising the triple glazed GENEIO® solution.



GENEIO® 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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#### UK & IRELAND SALES OFFICES

**London**, REHAU Ltd, The Building Centre, 25 Store Street, London WC1E 7BT Phone: 0207 580 6155 Fax: 0207 307 8595 **Slough**, Units 5 J & K, Langley Business Centre, Station Road, Langley, Slough SL3 8DS Phone: 01753 588500 Fax: 01753 588501 **Manchester**, Brinell Drive, Irlam, Manchester M44 5BL Phone: 0161 777 7400 Fax: 0161 777 7401 **Glasgow**, Phoenix House, Phoenix Crescent, Strathclyde Business Park, Bellshill, North Lanarkshire ML4 3NJ Phone: 01698 503700 Fax: 01698 503701 **Dublin**, 9 St. Johns Court, Business Park, Swords Road, Santry, Dublin 9 Phone: 00353 (0)1 8165020 Fax: 00353 (0)1 8165021

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