



GENEO[®] TILT-TURN WINDOWS

The ultimate Passive House ingredient





GENEO TILT-TURN WINDOWS

Strong. Energy efficient. Superbly comfortable.

With the right windows, you can enjoy the highest level of comfort in your home. And you can rely on superior quality – today, tomorrow and for years to come.

Take a moment to see for yourself why GENEO is the right window for you.

REHAU's unique GENEO profile design and high-tech RAU-FIPRO™ material are one unbeatable team. This modern technology allows you to open your home to the beauty of the outdoors while locking out harsh weather and unwanted noise.

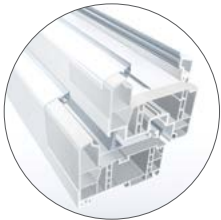
Design the home of your dreams with GENEO.

GENEO: UNIQUELY EFFICIENT

A concept of unsurpassed integrity.

GENEO is the first fully reinforced polymer window profile system that doesn't rely on steel for its strength. Instead, it's composed of RAU-FIPRO, a proprietary fiber composite material similar to those employed in aeronautic construction and racing vehicles for outstanding strength and load capacities. RAU-FIPRO is the best of both worlds: PVC and fiberglass.

In the hands of our experienced window engineers, this unique material was transformed into an extremely strong polymer profile that substantially improves thermal insulation. Rest assured that GENEO meets the energy saving requirements of tomorrow, securing the long-term value of your home.



RAU-FIPRO profile core

Achieves excellent stability and torsional rigidity making it possible to build larger windows without the typical steel reinforcement that compromises thermal insulation.



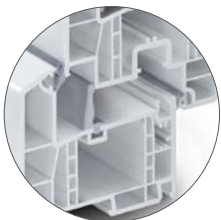
Patented integrated reinforcement system (IRS)

Ensures the highest degree of strength at all critical points, using screw channels and additional lateral stiffening.



Six-chambered frame

Provides unmatched thermal insulation, surpassing the requirements of the U.S. Department of Energy R-5 Window program and making the achievement of German Passivhaus standards possible.



Compression-seal technology

Reduces closing pressure significantly, making window operation easy and extending the service life. The three seals are strategically located to provide maximum insulation.



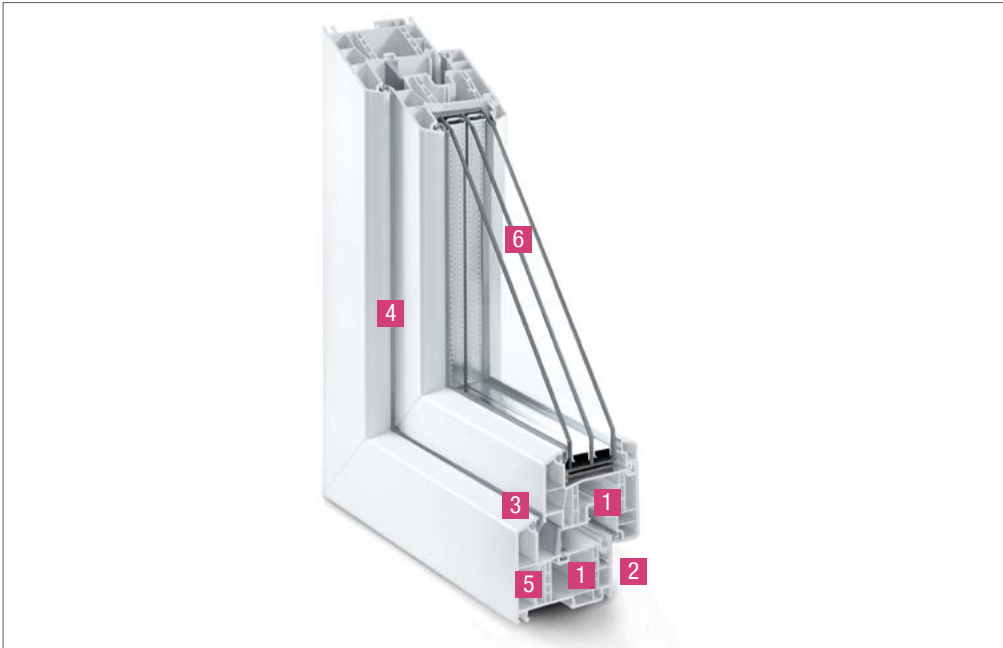
High-definition finish

Enhances weather resistance and is very easy to clean due to its exceptionally smooth, luminous properties.



GENEO: TILT-TURN WINDOWS

Window design at its best.



- 1 RAU-FIPRO profile core**
Ensures excellent stability and torsional rigidity making it possible to build larger windows without steel reinforcement
- 2 Six-chambered frame**
Provides unmatched thermal insulation, surpassing the requirements of the U.S. Department of Energy R-5 Window program and making achievement of German Passivhaus standard possible
- 3 Innovative compression-seal technology**
Reduces closing pressure significantly, making window operation easy and extending the service life
- 4 Multiple locking points surrounding the sash**
Provide extra security, tighter seal and greater comfort
- 5 Integrated reinforcement system with screw bosses**
Allows highest installation stability and security
- 6 2 3/32" (53 mm) glazing channel**
Accommodates triple glazing, increasing both energy efficiency and acoustical properties



Tilt



Turn



Closed

Tilt-turn designs are three window styles in one:

a secure top-venting hopper in the tilt position, an inward opening casement in the turn position and a tightly sealed fixed window when closed.

The REHAU GENE0 window design is for the eco-conscious home or building owner serious about energy efficiency: Our innovative, high-tech RAU-FIPRO material and unique profile design takes REHAU tilt-turn technology to its highest levels of strength and thermal performance, while the 40% lighter profile reduces transportation and installation costs.



Thermal insulation

- U-value down to 0.13



Ease of maintenance

- High-definition finish (HDF) is low maintenance and easy to clean
- Innovative compression-seal technology significantly reduces closing force



Acoustic insulation

- STC up to 45



Forced-entry resistance

- Up to Grade 20 (per ASTM F588) without compromising thermal insulation



Design freedom

- Custom architectural shapes and color selection
- Slim-line profiles with generous glass surfaces

Performance Summary

NAFS: up to CW-PG70

ASTM E90 Acoustical (STC): up to 45 dB

U-factor down to 0.13*

* based on simulation

THERMAL INSULATION: SAVE WITH GENE0

Permanently reduce your energy consumption.

GENEO provides the optimal conditions for saving energy.

You can now significantly reduce energy consumption and save money – every day, every month, every year.

With a 3 3/8" (86 mm) frame depth, multiple chambers and triple-pane insulated glazing, GENE0 can aide in achieving building energy targets as stringent as those required by the German Passivhaus standard.

There is simply no better way to shift your energy balance toward the future.



How much energy can you save? Find out with the REHAU Window Energy Estimator windowcalculator.rehau.com



Save energy easily: With better thermal performance.

Reducing energy usage is important. Not just for your wallet but also on a larger scale when it comes to sustainable building. **Lower energy consumption with a good conscience – whether it's cold or hot outside.**

	U-value framing	U-value window
GENEO standard (triple pane, low-E)	down to 0.17	down to 0.15
GENEO with thermal inserts	down to 0.15	down to 0.14
GENEO according to Passivhaus	own to 0.14	down to 0.13

ACOUSTICS: KEEP THE NOISE OUT WITH GENE0

Give your body and mind a break.

With GENE0's STC rating of up to 45, you'll be amazed how quiet your home feels.

Whether in a quiet residential neighborhood, on a busy street or even near an airport – GENE0 can turn your home into a place of quiet and relaxation.



Ensure peace and quiet: With a view on mute.

Noise is disturbing and over time, it is even unhealthy. **Increase your feeling of well-being with previously unattained values in noise protection.**



FORCED ENTRY: INCREASE SECURITY WITH GENE0

Feel secure within your own four walls.

GENEO provides superior security without compromising maximum thermal insulation.

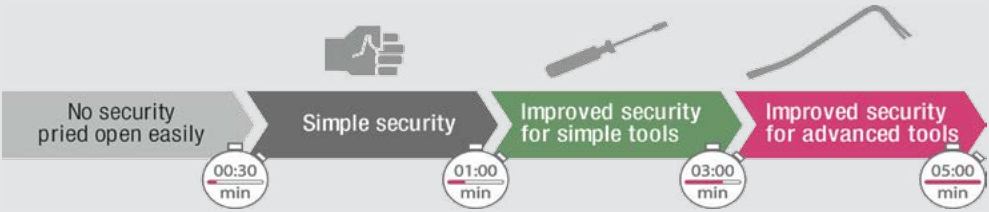
Thanks to the strength of RAU-FIPRO fiber-composite material, GENE0 window and door designs achieve FER Grade 20 per NAFS-11 without steel reinforcement that compromises thermal insulation.



Watch how safe our windows are
na.rehau.com/security

Trust high levels of safety: With superior security features.

In combination with the appropriate hardware, GENE0 windows enhance security with multiple locking points, fusion-welded corners and multi-chambered design. **Enjoy the security you are looking for.**



CONVENIENCE: LOWER MAINTENANCE WITH GENE0

Smooth surfaces clean easily.

Easy cleaning, low maintenance. GENE0 gives you more free time to enjoy your home.

The high-definition finish of GENE0 profiles cleans quickly and easily with mild detergent and water. Nothing more than a few drops of oil for the hardware and some silicone for the seals is required for maintenance.



Minimize maintenance: With **ease of operation, ease of cleaning.**

Thanks to a high-quality, high-definition finish (HDF), smudges can be quickly and easily removed using conventional detergents. As far as maintenance, the occasional application of a quality lubricant to the moving parts, such as hinges and lock mechanisms, is all that is needed. The highly engineered sealing technology assures optimal closing pressure. Due to advanced engineering and close cooperation with hardware suppliers, window and door operation is smooth and easy.

Reduce maintenance and cleaning effort to a minimum.

DESIGN: EMPHASIZE YOUR STYLE WITH GENE0

CREATE WINDOWS THAT MEET YOUR NEEDS.

GENEO shapes homes from the inside as well as from the outside.

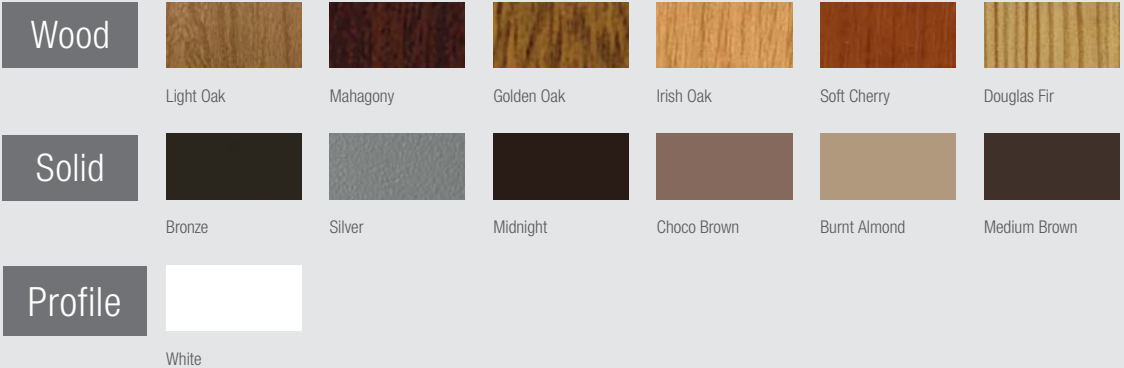
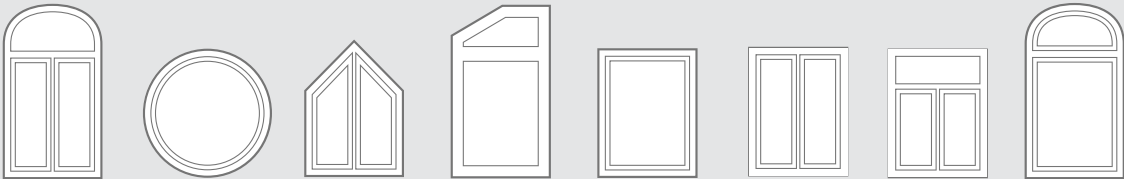
Choose between classic white, popular solid colors or luxurious wood grain patterns. And your windows can even have the same or different colors on the inside and the outside.

GENEO windows also offer great flexibility when it comes to shapes: Square or round, large or small – they can be made in various options with large glass surfaces that let in plenty of natural light.

Experience creative freedom: With countless shapes and colors.

GENEO allows for a wide choice of customized shapes, e.g., round, half-round, triangular, rake-top, ellipsoidal windows. In addition, extensive design variations with brilliant colors and patterns will liven up any building interior and exterior.

Get creative with countless design options.





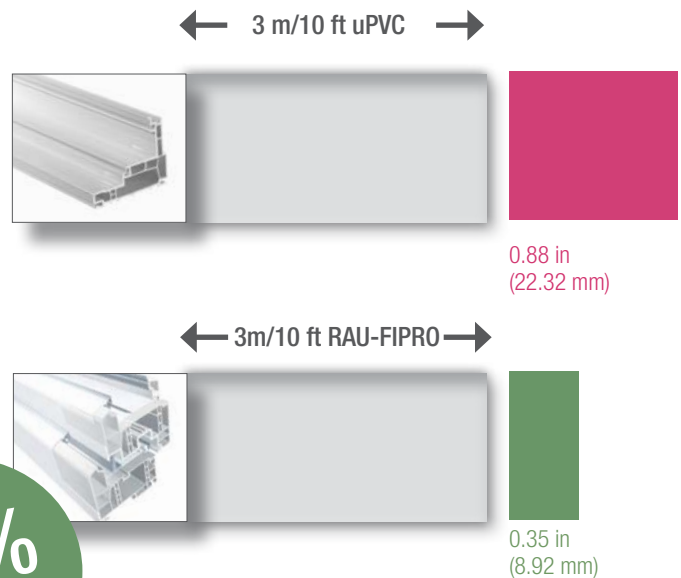
THE SECRET IS THE FORMULATION

There are many recipes, but only one RAU-FIPRO.

GENEO in RAU-FIPRO is the first window design that doesn't rely on steel for its strength. Instead, it relies on RAU-FIPRO, a proprietary fiber-composite material similar to those employed in aerospace and racing vehicles for outstanding strength and load capacities. Comparable systems with steel reinforcements are up to 40% heavier than the inherently reinforced GENEO profiles.

Fiber composites in GENEO are specifically used as profile core and effortlessly ensure excellent stability and torsional rigidity. The fiber-infused core significantly lowers expansion and contraction of GENEO profiles compared to those of standard uPVC.

Inherent qualities like these allow hassle-free color applications in all climates.



Comparison of Contraction/Expansion: uPVC vs RAU-FIPRO

PVC Linear Thermal Expansion Coefficient 0.080 mm/mK
 RAU-FIPRO Linear Thermal Expansion Coefficient 0.032 mm/mK
RAU-FIPRO expands/contracts 60% less than uPVC, allowing for hassle-free color application.

Max. Temperature Wisconsin Summer +63°C (146°F)
 Min. Temperature Wisconsin Winter -30°C (-22°F)
Max. Temperature Variation 93°C (-168°F)

Expansion/Contraction of 3 m uPVC 0.080 x 93°C x 3 m = 22.32 mm
 Expansion/Contraction of 3 m RAU-FIPRO 0.032 x 93°C x 3 m = 8.92 mm
Δ Expansion/Contraction 60% less (RAU-FIPRO)





Only RAU-FIPRO allows for:

- Excellent stability and torsional rigidity
- Exceptional sash dimensions without compromising thermal, structural and acoustic performance
- Hardware fastening into fiber-reinforced uPVC walls to ensure equal pull-out retention to steel reinforcement
- Reduced need for steel reinforcement even in bigger units
- Easier handling and assembly due to 40% weight advantage compared to conventional window profile systems
- Hassle-free color applications because of 60% less profile contraction/expansion

GENEO and RAU-FIPRO combine benefits such as reduced expansion and contraction with enhanced structural rigidity all the while maintaining advantageous weld and bend abilities.

Comparison of Unit Sizes: uPVC vs RAU-FIPRO

Moment of Inertia uPVC Sash 0.24 cm⁴
 Moment of Inertia RAU-FIPRO Sash 0.73 cm⁴

RAU-FIPRO achieves 3x the structural strength of uPVC, allowing for larger unit sizes without the use of steel reinforcement.

uPVC Unit Size 32x71 in (820x1800 mm)
 RAU-FIPRO Unit Size 47x71 in (1200x1800 mm)
Δ Unit Size 32% bigger (RAU-FIPRO)

uPVC Unit Size 36x71 in (920x1200 mm)
 RAU-FIPRO Unit Size 54x71 in (1370x1200 mm)
Δ Unit Size 33% bigger (RAU-FIPRO)

GENEO and RAU-FIPRO – REHAU window design at its best.





© REACH/Ankrom Moisan Architects



www.na.rehau.com/geneo
rehau.mailbox@rehau.com

For updates to this publication, visit na.rehau.com/resourcecenter
The information contained herein is believed to be reliable, but no representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications or the results to be obtained therefrom. Before using, the user will determine suitability of the information for user's intended use and shall assume all risk and liability in connection therewith. © 2016 REHAU 4700.700 08.2016