

Innovative internal glazing retrofit system for improving the energy efficiency of existing old wooden windows

Summary

Profile type

Technology offer

Company's country

Austria

POD reference

TOAT20260212032

Profile status

PUBLISHED

Type of partnership

**Research and development
cooperation agreement**

Targeted countries

• World

Contact Person

[Enrico FRANZIN](#)

Term of validity

12 Feb 2026**12 Feb 2027**

Last update

12 Feb 2026

General Information

Short summary

A technology provider from Austria and Slovenia, specialized in energy efficiency, developed a lightweight internal glazing system that improves the thermal performance of existing old wooden windows without replacing frames. The solution enables quick, low cost and reversible energy upgrades for residential, commercial and heritage buildings. Partners are sought for testing, pilot projects and international cooperation.

Full description

A technology developer based in Austria and Slovenia specialises in energy efficiency, building physics and renovation solutions for existing buildings. The focus is on practical, low cost methods that significantly reduce heat losses while preserving the original structure, especially in older or protected buildings.

The offered technology is an internal glazing system installed on the room facing side of existing wooden windows. It reduces heat transmission through the window by adding an insulated interior glazing layer. Unlike full window replacement, the approach is minimally invasive, cost efficient and preserves the architectural character of the building.

The problem addressed is the high heat loss through ageing windows, particularly in historical buildings where replacement is restricted. Conventional replacement solutions are expensive, labour intensive, often not allowed in heritage settings and generate substantial material waste. The technology fills this gap by enabling rapid retrofitting with measurable improvement of thermal comfort and energy consumption.

Current solutions on the market typically involve replacing the entire window or adding external elements, which may conflict with façade conservation or installation constraints. In contrast, the internal glazing approach allows reversible installation, protects heritage aesthetics and requires no structural interventions.

The energy efficiency, thermal insulation, and airtightness of existing old wooden windows can be improved by installing additional glazing on the inside.

This acts as a second window and creates an additional insulating air gap.

The developer has conducted prototyping, heat flux measurements and validation under real operating conditions. The technology is suitable for residential and commercial properties, public buildings, heritage objects and large scale renovation programmes.

The solution comprises a continuous, software-supported process for energy-efficient window optimization. Based on customer inquiries, on-site inspections are planned and carried out. Window geometries and relevant thermodynamic parameters are recorded and transferred to a digital application. On this basis, the system creates variant comparisons including cost and efficiency estimates.

The desired level of energy improvement is determined in consultation with the client. The software then automatically generates the work order and initiates material procurement. Implementation is carried out by qualified project partners or subcontractors and includes the installation of interior secondary glazing and a supplementary sealing system.

There are two variants offered for the inner wooden frame:

The most economical solution is glued laminated timber made of spruce, the most natural look with high resistance is larch wood.

Once the work is complete, the thermodynamic properties are remeasured and the improvement achieved is documented. The entire process is standardized, scalable, and designed for efficient collaboration with partners.

The technology provider seeks international cooperation to further develop prototypes, improve installation methods, conduct validations in different building types and support market introduction. Cooperation is envisaged through technical collaboration, joint development, pilot installations, field testing and collaboration in EU funded programmes (e.g., Horizon Europe, Interreg, LIFE). This cooperation will help scale the technology, strengthen certification processes and prepare for deployment across multiple regions.

Advantages and innovations

- Reduces heat losses through existing windows significantly: The heat transfer coefficients (U_w) measured on prototypes and expected in practice are currently between $U_w = 1.1 \text{ W/m}^2\text{K}$ and $U_w = 1.5 \text{ W/m}^2\text{K}$. Further improvement is expected through targeted development and optimization, with a target value of less than $U_w = 1.1 \text{ W/m}^2\text{K}$.
- Fast, clean and reversible installation
- No window replacement required
- Minimally invasive, ideal for protected and historical buildings
- Cost effective compared to full window replacement
- Experimentally validated performance
- Scalable for large scale renovation programmes

The innovation lies in combining engineering design, building physics know how and prototype testing into a system that can be installed without affecting the building envelope or exterior. This makes the technology particularly suitable for areas with strict conservation rules or budget limited renovation projects.

Technical specification or expertise sought

Stage of development

Lab tested

IPR Status

Secret know-how

IPR Notes

Sustainable Development goals

- **Goal 13: Climate Action**
- **Goal 7: Affordable and Clean Energy**
- **Goal 11: Sustainable Cities and Communities**

Partner Sought

Expected role of the partner

The technology provider seeks partners with expertise in renovation and refurbishment of older or heritage buildings, especially organisations focusing on energy efficient upgrades or refurbishment of traditional building stock. Partners should ideally have practical experience in façade and window technologies, building physics, sustainable renovation or municipal building management.

- Integrate the internal glazing system into renovation or refurbishment projects
- Provide technical feedback, testing environments and performance evaluation

- Conduct pilot installations and demonstration activities
- Collaborate in certification, measurement campaigns and optimisation
- Support joint applications for EU funded cooperation projects
- Facilitate market introduction and large scale deployment

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **Big company**
- **SME 50 - 249**
- **SME <=10**
- **Other**
- **R&D Institution**

Dissemination

Technology keywords

- **04007004 - Thermal insulation**
- **04007006 - Low, zero and plus energy rating**
- **09001002 - Analyses / Test Facilities and Methods**

Targeted countries

- **World**

Market keywords

- **07006 - Other Consumer Related (not elsewhere classified)**
- **06006002 - Metering and monitoring**
- **06006001 - Thermal insulation**

Sector groups involved

- **Construction**