SWR

BREATHABLE SECONDARY WINDOW RETROFIT (SWR) SYSTEM

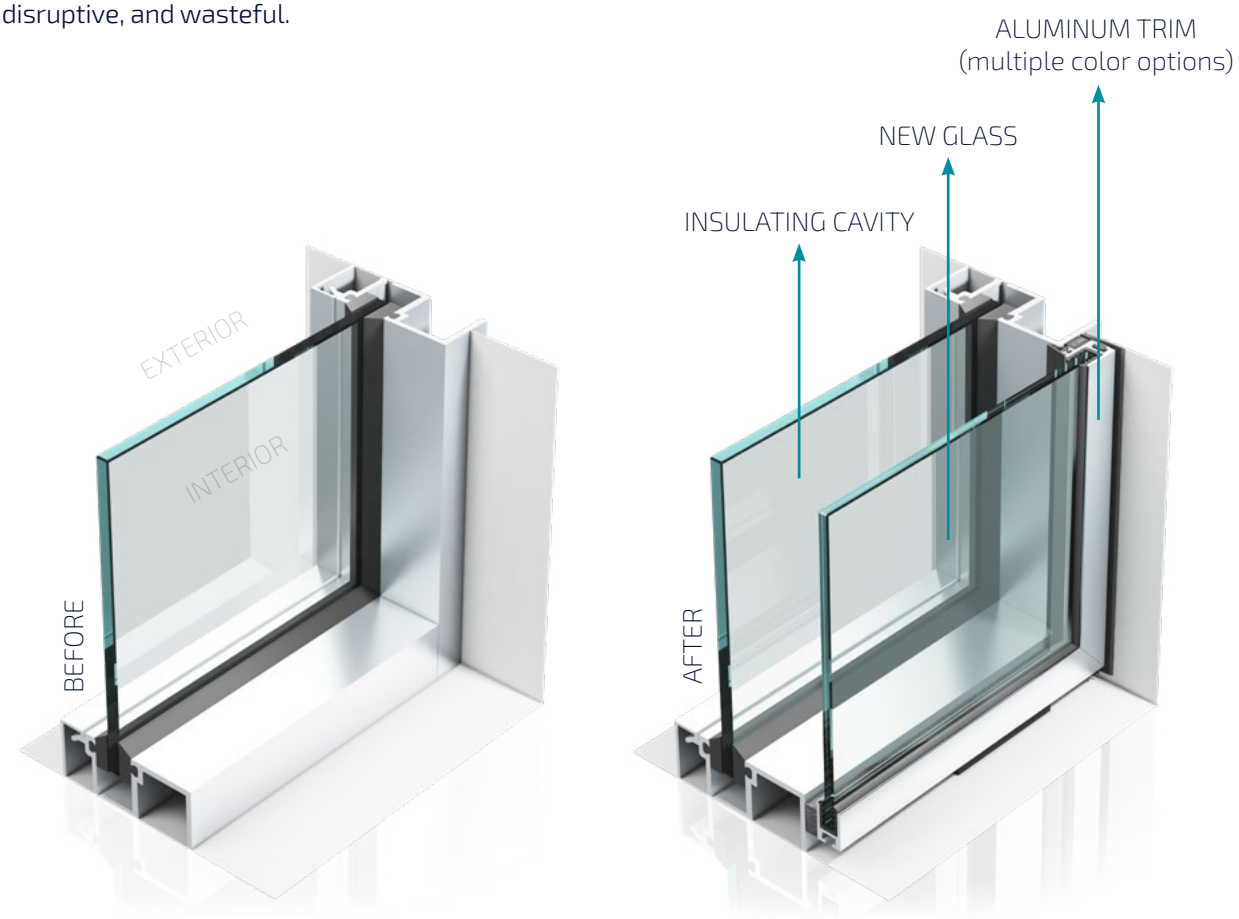
UPGRADE FIXED WINDOWS WITHOUT REPLACEMENT

CHALLENGE

- $1.1 Trillion commercial real estate (CRE) obsolescence problem.
- 70% of buildings have obsolete glazing — 14.7 Billion ft^2 in US commercial & multi-family buildings alone — and new glass systems become obsolete within the first few years after installation.
- $9.2 Billion annual cost of energy loss due to inefficient glazing.
- Replacement is costly (up to 100-year payback), disruptive, and wasteful.

OUR SOLUTION

- First-of-its-kind platform for renewable / upcyclable windows and glass facades.
- Up to 10x improved thermal performance, based on the specified glass type.
- Cuts retrofit costs by up to 90% for 10x faster ROI.
- Uses 70% fewer materials than replacement.



USA-designed & manufactured

INOVUES

KEY BENEFITS

- Up to 10x faster payback & >10% cost of replacement
- 2-10x thermal & 65% or higher acoustic comfort improvement
- Up to 40% energy savings; utility & public incentives
- Enhanced prestige, curb appeal, sustainability, asset value
- Up to 30% operational + 70% embodied CO_2 savings

Multi-award winner, including Gold Stevie® American and International Business Awards for Energy Industry Innovation of 2023. Featured in Bill Gates' Breakthrough Energy Climate Action Playbook.

	Before	After (w/ Solar Low-E)	After (w/ VIG)
Glass	1/4" Clear (Single-Glazed)	+ 1/4" Solar Low-E Clear (Double-Glazed)	+ Vacuum Insulated Glass (Triple-Glazed)
U-Value (Total)	1.04 Btu/hr ft^2 F 5.92 W/m^2 K	0.42 Btu/hr ft^2 F 2.39 W/m^2 K	0.21 Btu/hr ft^2 F 1.18 W/m^2 K
R-Value (CoG)	0.96	2.77	10.99
SHGC	0.75	0.47	0.31

U-Value, Center-of-Glass (CoG) R-Value, Solar Heat Gain Coefficient (SHGC), and Visible Light Transmittance (VLT) calculated using methods set by the National Fenestration Ratings Council (NFRC) and the Attachments Energy Rating Council (AERC), together with the industry-standard WINDOW 7.8 and THERM 7.8 software by the Lawrence Berkeley National Laboratory (LBNL). U-value / R-value measure the insulating properties of a window. They are reciprocal: a lower U-value / higher R-value indicates better insulation. SHGC measures the amount of solar heat that enters the building through the glass. VLT measures the amount of visible light that passes through the glass — higher VLT generally translates to brighter, naturally lit interiors.

INNOVATIVE PATENT-PENDING SYSTEM

- Upgrades building facades and windows into smart, energy efficient, sustainable systems without removal and replacement.
- Upcycles the original single- or double-pane glazing into 2-10x better performing double- or triple-pane insulating glass.
- Installs without having to alter any parts of the existing window system, without drilling, and without disrupting occupants.

HIGHLY VERSATILE

- Transforms most fixed or operable window and curtain wall systems into upgradable, future-proof glazing systems.
- Compatible with all glass options, including the latest energy-saving, sound-insulating, dynamic-tinting, transparent photovoltaic (PV), and R-10 vacuum insulated glass (VIG).
- Compact, lightweight retrofit system can be applied from the exterior or interior (1" thickness with 1.5" sightline and 0.63" hermetically-sealed insulating air cavity; as low as 2 lb/sq. ft. added weight).