

Re-Energizing  
Building Facades

At INOVUES, our mission is to improve the health and wellbeing of building occupants, increase resource efficiency, and protect the natural environment. We strive to help cities worldwide achieve their energy-efficiency and emissions-reduction targets by increasing the rate of window upgrades in buildings.

“**T**he startup taking on the \$9.5 trillion opportunity to transform real estate energy-efficiency”

**Forbes**

ENERGY LOSS



NYC Skyline IR Photo © Tyrone Turner

UP TO **40**% of a building's energy loss is due to inefficient windows

~ **70**% buildings w/ inefficient facades/windows

\$ **23<sup>+</sup>B** annual cost of preventable energy loss

# Non-Invasive Window Retrofit Innovations

NO REPLACEMENT · NO DISRUPTION · HIGH-ROI

At INOVUES, we help building owners save up to 40% on energy consumption, improve indoor thermal and acoustic comfort, and increase the value and sustainability of their buildings.

Our patented retrofit technology is installed over your existing window system — allowing us to fully upgrade your facades without disrupting the day-to-day of your business or the comfort of your tenants, at a fraction of the cost of inaction or competitive solutions.

UP TO **40%**   
Energy Savings

UP TO **30%**   
GHG Emissions Intensity Reduction

“**T**he measure that is going to deliver the most bang for the buck, the most energy savings, the highest impact on carbon emissions”

COMMERCIAL  
OBSERVER

UP TO **10x**

HIGHER PERFORMANCE · LOWER INVESTMENT



ENERGY RETROFITS



FACADE REBRANDING



QUIET FACADES



FUTURE-PROOFING

UP TO 10X FASTER THAN TRADITIONAL SOLUTIONS

In addition to energy efficiency and CO2 reduction, INOVUES offers a variety of benefits that increase your property value and maximize ROI.

- **Carbon Reducing:** Our upgrades can provide points towards green building certifications, like LEED or Energy Star—helping you earn tax credits and avoid regulatory fines.
- **Enhanced Image:** Our aesthetically inspired design options modernize exteriors and increase curb appeal.
- **Increased Comfort:** Improved acoustic and thermal comfort increases occupant satisfaction and productivity, tenant retention, and net operating income.

“**T**his type of technology provides a range of energy and non-energy benefits. Even if you have primary windows that are in good condition, it helps with thermal comfort and outside noise attenuation, creating a more comfortable space around the perimeter of the building.”

— Rick Dunn, Senior Product Manager Building Envelope, Northwest Energy Efficiency Alliance (NEEA)

“**I**NOVUES’ retrofit technology is affordable and easy to implement, and it blends with the facade. Its impact on indoor comfort has been significant over the past three years... I was amazed by the professionalism of the installation and I am still excited about the high and long-lasting quality of the window upgrade here at Saint-Gobain’s R&D center in Northborough, MA.”

— Sven Harmsen, Director External Ventures, NOVA, Saint-Gobain

# USE CASES

MAXIMIZE YOUR PROPERTY VALUE





3x

Improvement  
(from R1 to R3 CoG)

15°F

Difference between  
original & retrofit glass  
surface temperature

3M

HQ Building: Single-pane  
glass turned into double-  
pane insulating glass

**“W**alking into a building, from an energy conservation standpoint, you would look at the facade first and assess its performance before automatically running to the mechanical rooms.”

**THE REAL DEAL**

~ 70%

FEWER MATERIALS: LOWER COST & EMBODIED CARBON

8-12%

Energy Efficiency  
Improvement

-22

TONNES CO<sub>2</sub>

Annual GHG  
Equivalency Savings

ENERGY350

Validated Energy  
Savings

CapitaLand

OR Office Building: Double-  
pane turned into triple-  
pane windows

UP  
TO 70%

EXTERIOR NOISE ATTENUATION

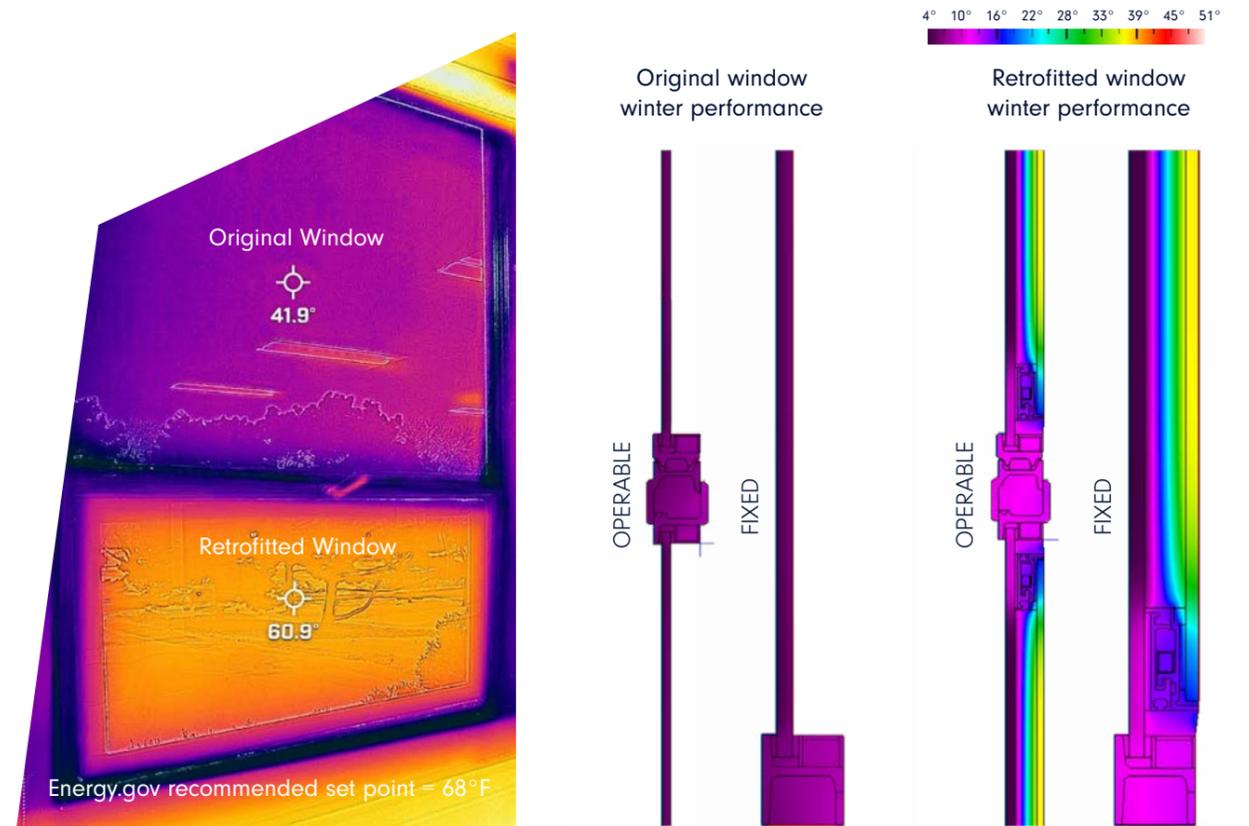


Photo © W. L. Hall Co. (installer for UMN retrofit)



AS  
LITTLE  
AS **2 lbs/ft<sup>2</sup>**

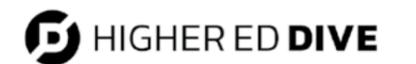
LIGHTWEIGHT · FIXED OR OPERABLE WINDOWS



The INOVUES system is compact and lightweight, typically adding <1" total thickness and 2 to 3.5 lb/ft<sup>2</sup> total weight, depending on the glass used. It is applicable to both fixed and operable windows.

At University of Minnesota, infrared IR imaging (above left) shows 19°F difference between the retrofitted window on the bottom and the colder original window on the top. At 60.9°F, the retrofitted window is much closer to the recommended thermostat set point of 68°F, demonstrating it is significantly better at reducing heat loss. Thermal modeling analysis (above right) reveals the IGR system roughly doubles the overall insulating properties of both the fixed and operable windows.

**“A**n opportunity for the UMN facilities team to live through the process and experience first-hand the improvement in indoor thermal and acoustic comfort that these retrofits can achieve, in addition to energy savings”



# SWR

## BREATHABLE SECONDARY WINDOW RETROFIT (SWR) SYSTEM



	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 <sup>2</sup> F 5.92 W/m <sup>2</sup> K	0.42 Btu/hr ft <sup>2</sup> F 2.39 W/m <sup>2</sup> K	0.21 Btu/hr ft <sup>2</sup> F 1.18 W/m <sup>2</sup> K
R-Value (CoG)	0.96	2.77	10.99
SHGC	0.75	0.47	0.31
VLT	80	39	56

Engineered solution eliminates dust and heat build-up that could cause thermal stress, fogging, and condensation. Installs quickly from the interior. Ultra-slim profile available in multiple colors.

# IGR

## NON-INVASIVE INSULATING GLASS RETROFIT SYSTEM



	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 <sup>2</sup> F 5.92 W/m <sup>2</sup> K	0.50 Btu/hr ft <sup>2</sup> F 2.85 W/m <sup>2</sup> K	0.32 Btu/hr ft <sup>2</sup> F 1.78 W/m <sup>2</sup> K
R-Value (CoG)	0.96	2.92	10.99
SHGC	0.75	0.34	0.31
VLT	80	64	48

Compatible with most windows and curtain walls, fixed or operable, as an exterior or interior retrofit.

- **Highly Compact and Lightweight:** 1" total added thickness with 1.5" frameless-looking sightline and as low as 2 lb/sq. ft. total added weight.
- **Insulating Cavity:** 0.63" hermetically-sealed air gap, utilizing multiple primary and secondary seals and desiccants for longer service life.

# LESS IS MORE

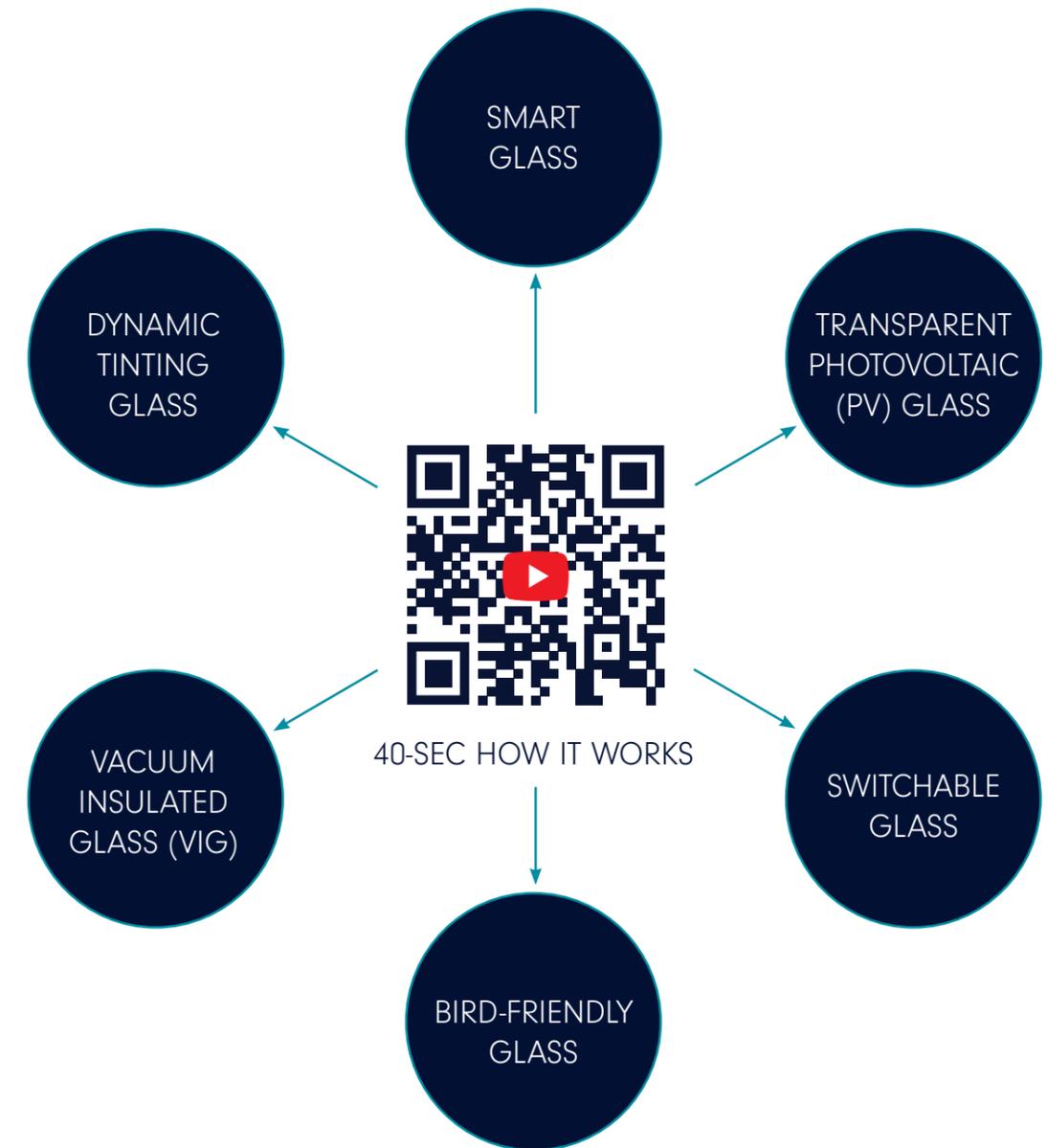
REDUCE · REUSE · UPCYCLE = FASTER PAYBACK

USA-designed & manufactured



# FUTURE-PROOF FACADES

UPGRADE TO THE LATEST GLASS INNOVATIONS WITHOUT REMOVAL



Once the INOVUES glass retrofit system is installed, it transforms the facade into a continuously renewable asset. It is easily upgradeable, and as glass technologies and aesthetics continue to evolve, it allows the building to be affordably brought up to the highest sustainability and modernization standards of the day.

## RENEWABLE

LATEST GLASS TECHNOLOGIES AS ADD-ON

THE CONCEPT IS SIMPLE. THE INNOVATION IS IN HOW IT'S DONE.

Our team of experts is involved in the upgrade process from start to finish. We work directly with you to identify your property's specific structural requirements and efficiency targets, make recommendations, and handle the retrofit from design and rebate assistance to financing and installation. The process below is an outline of a full-scope project, but many of the steps apply to partial projects where applicable.

- Nothing is removed or replaced
- Tailored to your unique existing window / facade conditions
- Scalable – from a full-facade energy retrofit to a single floor or tenant fit-out
- Countless Glass Options: from modern energy-saving and sound-insulating safety glass to cutting-edge technologies like dynamic, transparent PV, and R-10 vacuum insulated glass



# OUR PROCESS

HOLISTIC APPROACH · YOUR DEDICATED PARTNERS

“A multiple-award winning startup that has already participated in several accelerators and been recognized by Bill Gates’ Breakthrough Climate Action Playbook... A simple but effective solution to upgrading old infrastructure that leaks energy”





INOVUES

MODERNIZING BUILDINGS FOR A BETTER FUTURE

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