

Secondary Window Products

High-Performance Windows
at a Fraction of the Cost

John Jennings

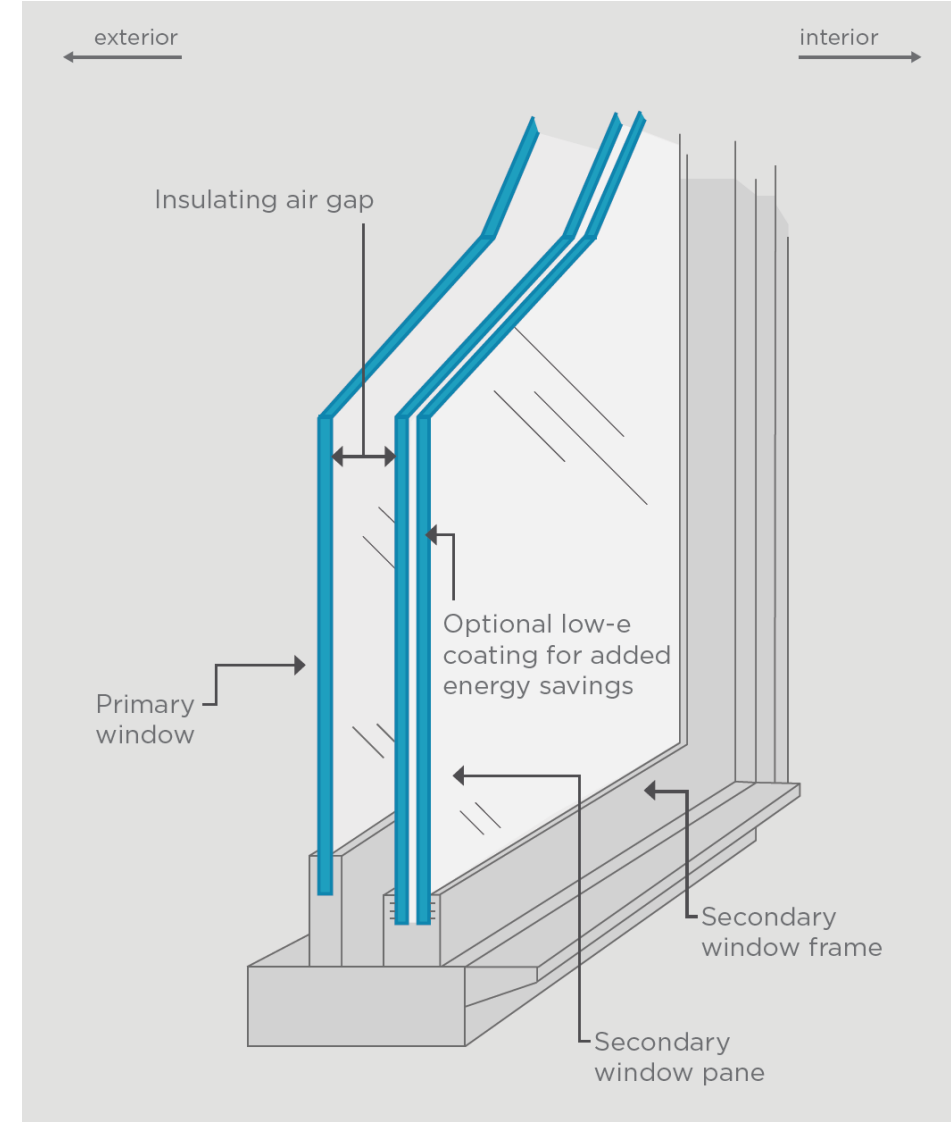
Senior Product Manager

Northwest Energy Efficiency Alliance (NEEA)



How it Works

- Attaches to the interior or exterior of an existing window
- Creates an insulating air pocket between new and existing panes
- Improves comfort, health and wellness, and reduces heating/cooling energy use



Technical Potential

20%

*reduction in heating /
cooling energy use*

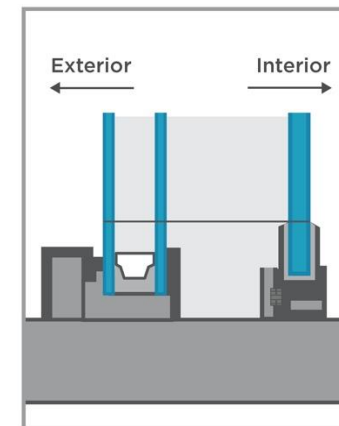
~\$32/sq. ft.

*(up to half the cost of
window replacement)*

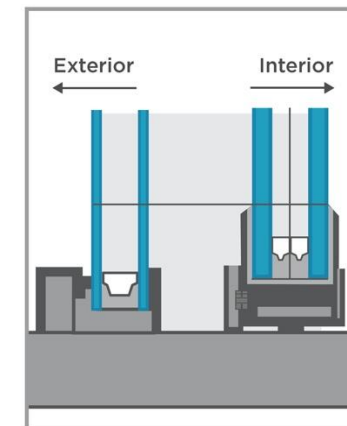
Baseline Window Performance

| | | |
|---------|------|------|
| U-Value | 0.68 | 0.68 |
| SHGC | 0.67 | 0.67 |
| VLT | 0.71 | 0.71 |

Single-Pane



Double-Pane



Window Performance with Secondary Window Attached

| | | |
|---------|------|------|
| U-Value | 0.53 | 0.24 |
| SHGC | 0.38 | 0.34 |
| VLT | 0.51 | 0.47 |

Note: Average whole window (frame and glass) values

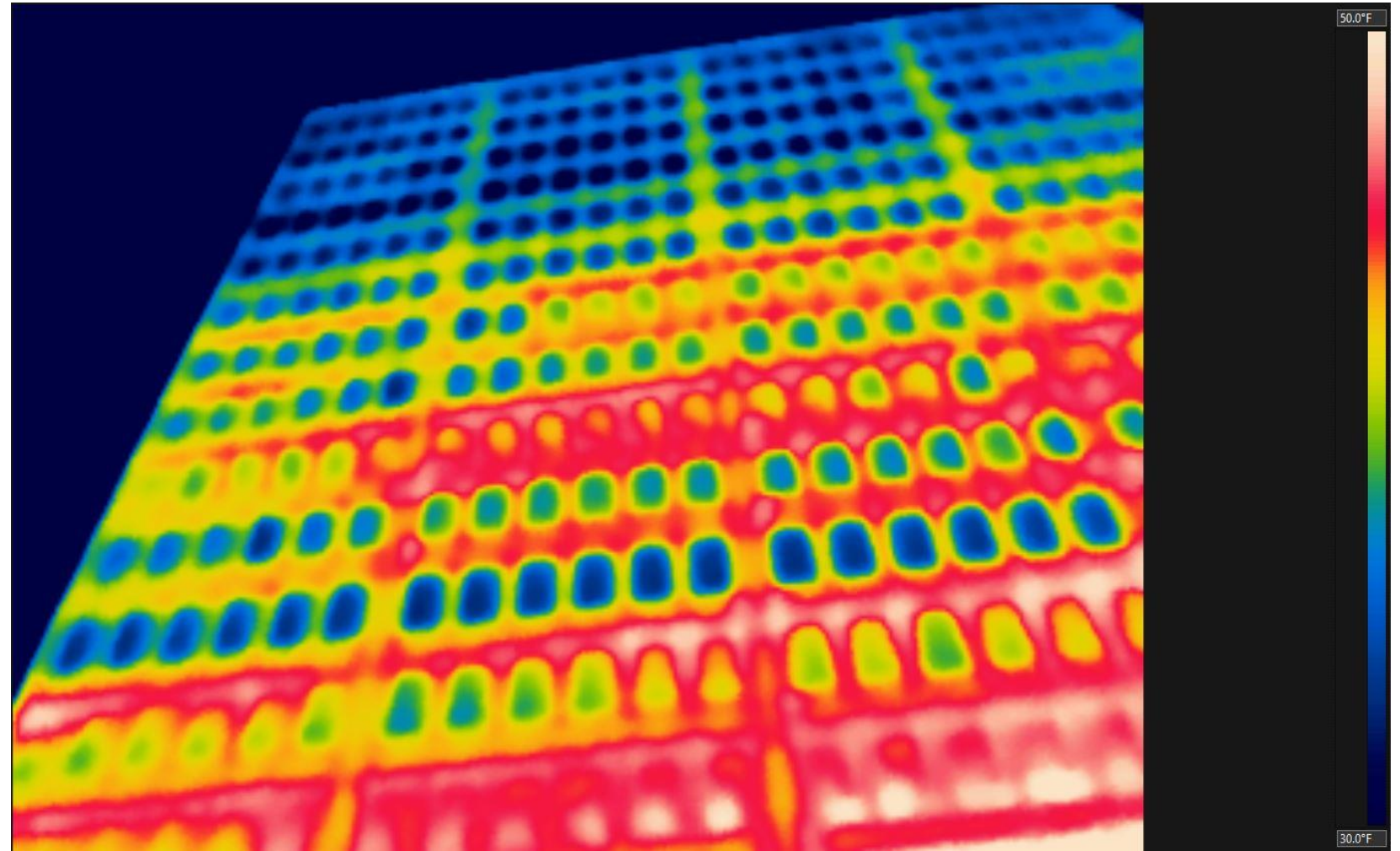
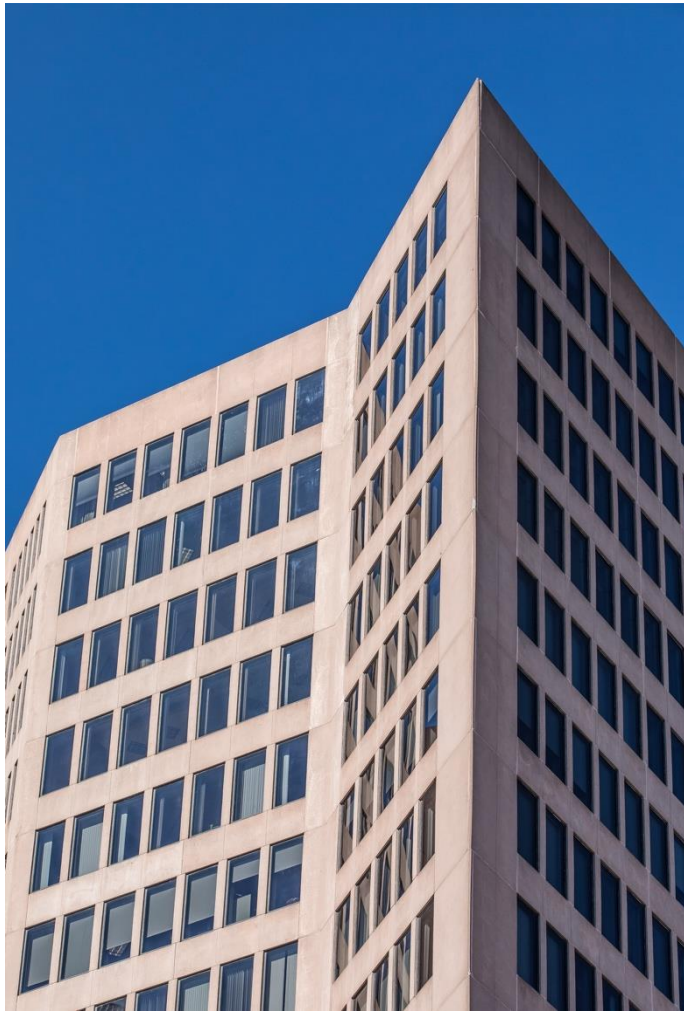
BEFORE



AFTER



New Haven, Conn. office building with secondary window upgrade



New Haven, Conn. office building with secondary window upgrade

Technology Barriers

- Lack of end-user product awareness
- Upfront cost
- Lack of supply-side product awareness and installation experience
- Pre-existing window conditions may limit applicability

Additional Studies

Characterization of Commercial Secondary Windows Market Final Report

Prepared for NEEA by Evergreen Economics; April 1, 2020

Secondary Glazing System (SGS) Thermal Performance and Annual Energy Use Analysis 2020 Update

Robert Hart, Valerie Green, Charlie Curcija

Lawrence Berkeley National Laboratory; September 2020

Window Retrofit Technologies: Increased Energy Efficiency without Replacement

Christopher Plum, Center for Energy and Environment

Minnesota Department of Commerce, Division of Energy Resources; March 2015

Case studies available at:

betterbricks.com/solutions/windows/secondary-windows

- **BetterBricks**—offering additional resources, including case studies, research and a forthcoming cost calculator tool:
betterbricks.com/solutions/windows/secondary-windows
- **Attachments Energy Rating Council (AERC)**—an independent, non-profit providing rigorous testing and product certification, including product simulations, plant inspections, air leakage testing and individual product verification: aercnet.org



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