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

<table>
<thead>
<tr>
<th></th>
<th>Single-Pane</th>
<th>Double-Pane</th>
</tr>
</thead>
<tbody>
<tr>
<td>U-Value</td>
<td>0.68</td>
<td>0.68</td>
</tr>
<tr>
<td>SHGC</td>
<td>0.67</td>
<td>0.67</td>
</tr>
<tr>
<td>VLT</td>
<td>0.71</td>
<td>0.71</td>
</tr>
</tbody>
</table>

### Window Performance with Secondary Window Attached

<table>
<thead>
<tr>
<th></th>
<th>Single-Pane</th>
<th>Double-Pane</th>
</tr>
</thead>
<tbody>
<tr>
<td>U-Value</td>
<td>0.53</td>
<td>0.24</td>
</tr>
<tr>
<td>SHGC</td>
<td>0.38</td>
<td>0.34</td>
</tr>
<tr>
<td>VLT</td>
<td>0.51</td>
<td>0.47</td>
</tr>
</tbody>
</table>

Note: Average whole window (frame and glass) values
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

John Jennings
Senior Product Manager
JJennings@neea.org
NEEA