



Advantages of Suspended Coated Film Insulating Glass



Manheim Township High School,
Lancaster County, Pennsylvania

SeriousGlass cut annual energy bills by 40%. Thermal performance allowed the school to install a smaller HVAC system. Payback achieved in 6.5 years.



Mount Rushmore Visitor Center,
South Dakota

8200 square feet of SeriousGlass that provides maximum insulation from South Dakota's harsh winters. The limited light reflectivity optimizes visitor viewing, especially at night when the mountain is illuminated.



McDonalds Play Places

SeriousGlass used in 54 structures over 5 years with a 7 month financial payback based on reduced HVAC costs.

The U.S. Department of Energy estimates that despite heavily insulated walls and ceilings, **25 to 35 percent of the energy used in American buildings and homes is wasted due to inefficient windows and glass.**

The DOE's Energy Star program has promoted energy efficient windows equipped with low-e glass for more than 10 years. Low-e glass coatings reflect heat thereby reducing the heat transfer between panes of glass and improving the glass' insulation performance. Insulating performance of glass and windows is critical to architects, building owners, and other trusted partners in designing the most energy efficient buildings.

To understand how glass in the modern era can save even more energy, it is necessary to look at the recent advancements made in window and glass design.

The transition from single pane glass to dual pane (with a single-cavity) provided a small improvement in energy performance. In much the same way, the introduction of multiple-cavity glass packages – with two to three insulating cavities and multiple surfaces – allowed for significant improvements in the energy savings and performance of windows and glass.

Two alternatives to single cavity low-e insulating glass exist that meet or exceed Energy Star requirements: triple-pane glass and Suspended Coated Film (SCF). SCF glass packages demonstrate significant cost and performance advantages over triple-pane glass systems.

Triple-Pane Glass

Triple-pane glass consists of three panes of glass and two low-e coatings. Using a third pane creates a second insulating cavity. Gas is filled in the insulating cavity to slow the transfer of heat or cold air through the window. Triple-pane low-e glass improves generic low-e insulating glass, moving the insulation value from a R-4 to up to a R-9. However, triple-pane glass units are 50% heavier than standard insulating glass. The heavier glass requires stronger framing systems which will increase the overall cost of *any* building project. The extra weight can also impose strict size constraints, and may affect how much glass is used in the design of a building – impacting the overall aesthetics of a structure. General functionality of triple-pane windows is also affected by their weight. Additional stress is placed on any operable mechanisms in the window and the window hardware, causing them to wear out quicker.

Issues with Triple-Pane Glass:

- Increased project costs (more labor, sturdier frames, stronger building design)
- 50% heavier than standard insulating glass
- Aesthetic and design limitations due to size constraints imposed on the glass and window units
- More stress on frame potentially creating gaps that will allow air, water and dust infiltration
- Amount of natural light in the overall design may be reduced
- Additional stress on operable portions of the window and window hardware
- Wider glass packages may not fit framing systems or window openings

For nearly three decades, Serious Materials has successfully installed millions of square feet of SCF architectural glass and windows in over 10,000 projects.

Serious Materials has been tested and IGCC certified for both polyurethane and silicone sealants for the past 27+ years. The extensive IGCC testing includes: 2 weeks of high humidity HAST; 9 weeks of accelerated weathering HAST, high temperature, UV exposure, and low temperature; and volatile fogging tests. The design, longevity and reliability of Serious Materials' SCF glass packages are unmatched in the industry.

SeriousGlass SCF projects and dates installed include:

- Smithsonian National Portrait Gallery, Washington D.C., 1991
- New York Historical Society, NYC, 1982
- Smithsonian Freer Art Gallery, Washington D.C., 1992
- Holy Cross Energy, Glenwood, CO, 1981
- San Jose Convention Center, San Jose, CA, 1994
- Colorado State Services Building, Grand Junction, CO, 1982
- 700 Broadway (1891 Schermerhorn Building), NYC, 1992



Virginia Air and Space Museum, Hampton, VA, 1984

www.SeriousWindows.com
www.SeriousMaterials.com

Suspended Coated Film Insulating Glass

Suspended Coated Film (SCF) is one of the most significant technologies critical to improving insulation and achieving higher performance across a broad spectrum of glazing characteristics - without any of the design limitations typical of triple-pane glass systems.

Internally mounted, low-e coated films work together to complement the benefits of low-e glass. Combining both film-based coatings and glass-based coatings creates a lightweight, multi-cavity insulating glass unit that reflects heat and harmful UV radiation while maximizing light transmission, and provides superior insulation performance ranging from R-6 to R-14.

The glass and films of SCF packages are separated by thermally insulated spacer systems to improve the insulating performance at the edge of the glass unit. The edge of the glass is then triple sealed for redundant protection. A variety of inert gases can also be used to fill the air spaces to further block heat transfer.

Benefits of SeriousGlass Insulating Glass Units:

- HVAC \$ savings due to downsized equipment and lower annual operating costs
- Directional tuning to enhance daylighting with morning warmth and afternoon coolness
- 99.5% UV protection - reduces interior fading and damage
- Reduced outside noise
- Improved occupant comfort and health
- Architectural freedom to include more glass in the design
- Reduced condensation
- Decreased project costs when compared to triple-pane glass
- Potential elimination of perimeter baseboard heating
- LEED contribution of up to 19 points

Features of SeriousGlass Insulating Glass Units:

- Super-insulating glass packages with 2 to 3 air spaces (triple or quad glazings)
- R-values from R-6 to R-20 COG
- Wide range of glass packages with SHGC from 0.21-0.60, VT from 39-70% and LSG from 1.2-2.4
- Less weight - no need for specialized framing systems
- Triple edge seal technology around the edges of the glass units provides the most reliable, strongest glass packages in the market
- Long lasting glass units that weigh the same as typical double pane insulated glass
- Choice of glass packages to meet your design needs
- Larger air spaces than triple-pane glass in the same glass pocket for significantly better thermal performance

About Serious Materials

Serious Materials develops and manufactures sustainable green building materials that save energy, save money, improve comfort and aggressively address climate change. Full frame R-value SeriousWindows™ and SeriousGlass™ commercial glass reduce heating and cooling energy costs by up to 50%. QuietRock® sound damping drywall and QuietGlass® reduce material use, enhance livability, and support dense urban construction. EcoRock™ is the only true green alternative to gypsum drywall. SeriousWindows and SeriousGlass support energy efficiency funding programs. The company was commended by both President Obama and Vice President Biden for its advanced energy-saving materials and the work it is doing to create thousands of American green jobs.



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