

## Thermique™ Heated Glass for Architectural Windows



With a 60-year history on the cutting edge of the glass industry, Thermique Technologies is now a world leader in the science and manufacturing of heated glass. Thermique™ heated glass can transform an architectural window unit into a transparent radiator for added indoor comfort and complete condensation control.

Named the "Best of What's New" by *Popular Science* magazine, Thermique heated glass has changed the rules of architectural design. Windows are no longer a source of chills and drafts. They will not frost up or fog over. With Thermique heated glass, architects and builders are suddenly free to include as much window space in their designs as they can imagine.

Only Thermique heated glass is UL® approved for use in architectural window units and skylights.

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## Thermique Technology

Thermique heated glass radiates warmth with adjustable temperature control. An architectural window unit with Thermique heated glass will remain free of condensation even in 100% humidity. Plus, it will contribute warmth and comfort to the room, rather than steal them.

In order to manufacture heated glass, Thermique applies an invisible tin oxide coating to an ordinary pane of float glass during the fabrication process. Two copper buss bars are then attached to the glass on opposite sides.

When the glass is turned on, an electrical current travels from one buss bar to the other across the tin oxide coating. Electrical resistance results in heat energy, which radiates from the glass. Since the electrical resistance is uniform across the entire glass surface, so is the glass temperature.

By increasing or decreasing the electrical current, the glass temperature goes up or down with precise control. This control technology is patented by Thermique Technologies.



*"Once you try it, you can't go back to ordinary glass windows. I wouldn't want to be without these windows again."*

— Al Shapiro  
CEO, Active Glass

## Heated Window Units

In a dual-pane window unit, Thermique heated glass is used as the interior lite. The exterior lite can be almost any type of glass required by the architect or building owner. The window unit will radiate virtually all its heat energy in one direction: indoors. Very little heat escapes to the outside.

Once the window unit is installed, the heating technology is all but invisible. The copper buss bars on the glass are typically hidden in the window frame, and all wiring is concealed within the walls of the building. By sight, a heated window looks no different than an ordinary window. Only the warmth of the glass gives away its secret technology.

Using heated glass can eliminate the need for noisy fans and blowers, as well as intrusive ductwork. Windows will generate heat without making any noise or changing the appearance of the room.

A proprietary Thermique control unit is used to adjust the glass temperature. This unit can be mounted on the wall by the light switch or concealed somewhere else in the building.



## Condensation Control

In a window unit, Thermique heated glass reaches a maximum of 105° F (40.6° C) at its highest setting. In practice, most people prefer to keep their window temperature just slightly above the indoor air temperature.

So long as the glass temperature remains higher than air temperature, moisture will remain in the air and not on the glass. Condensation problems are solved.

Moisture on window glass is a common breeding ground for mold and bacteria. By eliminating condensation, Thermique heated glass can help fight these problems as well.

## Added Comfort

Windows are the number one source of heat loss in most buildings in cooler months. Even the best Low-E dual-pane window unit will only slow heat loss down to about 5 watts per sq. ft. Thermique heated glass replaces this heat energy in order to maintain a comfortable indoor environment.

When glass is colder than skin temperature, it will literally steal heat from the human body, creating a chill. Anyone within ten feet of a window will feel the effects. Thermique heated glass easily solves this problem.

In addition, cold glass will cool the air by the window. This creates a temperature imbalance in the room that leads to unwanted air currents. The entire room starts to feel drafty and cold. Once again, the solution is heated glass.

## Energy Efficiency

By eliminating the heat loss, chills, and drafts created by ordinary windows, people will naturally feel warmer than before. In fact, most customers lower their traditional HVAC thermostat to prevent people from feeling too warm.

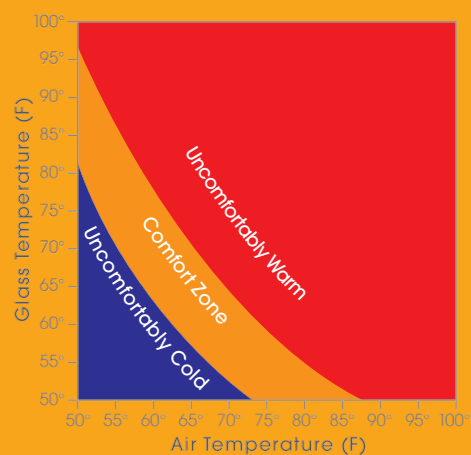
Lowering the thermostat by a few degrees saves a significant amount of energy and reduces utility bills. In many cases, the amount of energy saved by the HVAC system is greater than the amount of energy used to heat the windows. This results in an overall energy savings—providing both environmental and financial benefits.

## Safety Features

If the glass breaks in the heated pane, the controller senses a fault and immediately shuts down. A redundant safety shutoff is provided by a required GFCI breaker that supplies the electricity to the window. Properly installed, the design is efficient, safe, and environmentally responsible.

## Creating Comfort

As you can see in the chart below, glass temperature plays an important role in maintaining a comfortable indoor environment. The amount of energy required to heat the window is modest: 5 to 25 watts per sq. ft. of glass.



Based on ASHRAE's 1997 Handbook of Fundamentals

### Thermique™ IG Unit:

<b>Availability:</b>	Fixed IG window units (Operable windows & doors by request) Minimum Size: 14" x 20" Maximum Size: 72" x 84" (42 sq. ft.)
<b>Maximum Temperature:</b>	105° F (40.6° C)
<b>Maximum U Value:</b>	.33 (equivalent to R3) (value for air-filled window unit with clear outboard lite)
<b>Compliant:</b>	ASTM C 1036 (float glass) ASTM C 1048 (tempered glass) ANSI Z 97 (tempered glass) All applicable CPSO safety codes UL® Approved
<b>LEED Opportunities:</b>	Credit 1.0, Credit 1.1-1.4 Credit 5.1, Credit 6.2, Credit 7.2

### Thermique™ Controller:

<b>Circuit:</b>	120 VAC GFCI (Circuit size dependent on window size)
<b>Mounting:</b>	Standard electrical j-box (plastic j-box recommended)
<b>Options:</b>	Various configurations available UL® Approved





## Additional Applications

Thermique Technologies also manufactures the world's most beautiful towel warmers. Towels and linens are draped over an elegant pane of heated glass for perfect warmth.

Thermique Towel Warmers are designed to add beauty to the home. The heated glass is housed in a sleek, freestanding frame—which is available in a variety of colors and finishes to complement any decorating style. At last, there is a towel warmer that matches the décor and not just the fixtures!

Plus, there is no need for wall space or professional installation. Thermique Towel Warmers plug it into a standard GFCI outlet. The versatile, freestanding design goes anywhere in the home—by an indoor pool or spa, in the laundry room for drying delicates, by the front door for wet clothes and coats, or in the bedroom to warm blankets and comforters.

Thermique Towel Warmers are available for sale online at:  
[www.ThermiqueTowelWarmers.com](http://www.ThermiqueTowelWarmers.com)

Thermique Technologies continues to explore new applications for its heated glass technology. For additional information on heated glass solutions and availability, contact Thermique Technologies at (312) 326-2522 or mail to:  
[info@thermiquetech.com](mailto:info@thermiquetech.com)



## About Thermique Technologies, LLC

Combining more than 60 years of leadership with cutting-edge expertise, Thermique Technologies, LLC, is today's premier developer of heated glass technology. Headquartered in Chicago, Ill., Thermique Technologies is a wholly owned subsidiary of Engineered Glass Products (EGP), which originally developed the technology behind Thermique heated glass. Since 1947, EGP has been an industry leader in glass, electronics, fabrication, and technical support.

**thermique™**

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