

THERMO-TECH[®]
VINYL WINDOWS & DOORS




green
Building Solutions

THERMO-TECH[®]
VINYL WINDOWS & DOORS

AN AWARD-WINNING COMPANY

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**ENERGY EFFICIENT
WINDOW SOLUTIONS**

energy efficient

Energy efficient windows guarantee lower energy bills, a lower environmental impact, and most important, a greener future.

save money

Thermo-Tech® Windows can have an impact far beyond the houses where they're installed. Energy efficient windows guarantee lower energy bills, a lower environmental impact, and most important, a greener future. All building owners from residential homes, apartment buildings and office buildings lose a good part of their heating and cooling dollars due to window design inefficiencies. As important as saving money is, more energy efficient Thermo-Tech® Windows also allow the building owner to produce fewer harmful gases such as CO2. This means savings are seen well beyond energy costs.

Here's how Thermo-Tech®'s window and door products protect the building owner from the heat and cold, and the environment from unneeded, wasted fuel and possible global warming.

Energy Performance Windows Designed to Conserve Energy:

All Thermo-Tech®'s windows and doors meet or exceed the requirements of ENERGY STAR® rating, which is a very significant part of achieving LEED certification and other green building rating systems.



By utilizing Thermo-Tech's LoE²™/Argon filled insulated glass, the building owner optimizes thermal performance, thus providing a shield against the cold as well as UV protection. We also offer a tinted glass option, which helps to minimize solar heat gain when needed.

LoE²™ glass contains two layers of silver, which selectively transmits visible light and reflects solar heat and far infrared, making it efficient in both hot and cold climates.

Thermo-Tech® Window's insulated glass also incorporates a state-of-the-art warm edge spacer system between the two panes of glass that make up an insulated glass unit. This less-conductive spacer provides optimized energy savings, fights condensation and enhances environmental comfort and health near windows. This system achieves low heat conductance throughout the edge seal and improves the overall U-Value of the window by not transferring cold as readily, and increasing the room side glass temperature, enhancing the Thermo-Shield by blocking more of the heat and cold.

Thermo-Tech® Window's vinyl framing material rivals traditional materials for windows and door frames, providing competitive energy efficiency. The vinyl product has low thermal conductivity, thus reducing heating and cooling costs while still providing protection against dangerous weather. The design of Thermo-Tech® Window's vinyl window frames further enhances energy efficiency by creating multi-chambers in the frame that provide additional insulation against the heat and cold. Beyond that, the use of vinyl window frames has been shown to save the ****United States nearly 2 trillion Btu's of energy per year, enough to meet the yearly electrical needs of 18,000 single family homes.





save energy

Vinyl window frames and sashes are fusion welded for maximum strength and protection against air and water infiltration. Tests using the common measure of insulating ability, the U-factor, have shown that vinyl windows regularly perform exceptionally well because of excellent thermal performance of the frame. Warm air stays inside during the winter and cool air stays inside during the summer. Energy is conserved and money is saved when the furnace and air conditioner don't have to work so hard to maintain the desired temperature.

Environmentally Sound

Vinyl can be reprocessed and recycled repeatedly. Thermo-Tech® Window's scrap is recycled directly back into other vinyl products, making it a resource-efficient operation. *A comprehensive study of vinyl recycling completed in 1999 found that more than 1 billion pounds of material were recovered in 1997 and recycled into useful products. Twenty million pounds of that were recycled at the post consumer level. That was many years ago, just think if that study was done now ?

The vinyl material provides excellent life cycle benefits due to the energy efficiency, thermal insulating value, low contribution to greenhouse gases, easy maintenance and superior durability of the products made from it. *Vinyl windows are so durable that the vast majority of them installed over the past 25 years are still in use and, therefore, not candidates for end-of-life or post-consumer recycling. When that time does come however, vinyl windows like all vinyl can be recycled. As with any building product, the key to post-consumer vinyl recycling is to find cost effective ways to collect, separate, process and transport used materials.

*Vinyl is a highly-efficient user of natural resources. Only 43 percent of vinyl comes from non-renewable petroleum feedstocks. The balance of 57 percent comes from salt. World wide production represents less than .30% of all annual oil and gas consumption.

Vinyl windows performed well in life cycle assessments, requiring no painting or staining and offering substantial durability. The result is that vinyl also conserves resources, an important component in sustainability.

The effects of using energy-efficient LoE²™ and Warm-edge Spacer can and has had a positive impact on our environment and can only grow with usage. **Currently the residential windows and doors sold with energy-efficient glass (58%) are reducing peak energy demand enough to eliminate the need for eight new 200 MW coal fired power plants each year. If the remaining inefficient windows and doors (42%) sold each year were required to have LoE²™ glass, peak U.S. energy demands would be reduced sufficiently to eliminate the need to construct six additional 220 MW coal-fired power plants each year. Greenhouse gas emissions (CO₂) from heating and cooling U.S. homes would be reduced by 2.5 million tons each year.

***With the insulated glass spacer systems, the difference between the performance of standard cold edge insulated glass spacers and warm edge spacers is an approximate 0.4 U-value, or a difference of approximately 1,600 pounds of CO₂ per home per year. This also translates into as much as \$205 in heating energy costs, not to mention less condensation and a more comfortable living space. (Results modeled using Resfen 5.0 based on conversion data from www.eia.doe.gov energy calculator). Because it take three trees to absorb one ton of CO₂ it would take nine million trees just to absorb CO₂ produced by one year worth of inefficient windows. (Three trees for one ton of CO₂ is taken from Climate Change Calculator on www.americanforests.org)



The vinyl product has low thermal conductivity, thus reducing heating and cooling costs while still providing protection against dangerous weather.

environmental impact



a greener future

The effects of using energy efficient LoE²TM and Warm edge spacer can and has had a positive impact on our environment and can only grow with usage.

protect the environment

THERMO-TECH® AND THE ENVIRONMENT

Thermo-Tech® Windows is committed to applying and promoting environmental practices in both our work place and in the products we build. We work diligently to incorporate optimal energy performance in our products, which will also benefit the environment. We have partnered with the ENERGY STAR® program to help consumers quickly and easily identify energy saving products. The ENERGY STAR® program uses energy values obtained by window and door manufacturers through the NFRC (National Fenestration Rating Council) program. NFRC ratings are based on the energy performance of the total window or door (glass and frame).

Thermo-Tech Windows are designed and engineered for optimal energy performance and durability. All our products are also tested for air and water infiltration as well as structural performance.

Recycled Items at Thermo-Tech:

- Steel
- Aluminum
- Vinyl
- Glass
- Computers
- Florescent light bulbs
- Beverage cans
- Metal drums
- Paper
- Wood scraps
- Cardboard

Use of recycled or renewable products:

- Vinyl (used on interior grade accessories)
- Glass
- Cardboard packing material
- Wheat board extension jambs
- Water usage from insulated glass manufacturing (1.680 gal weekly savings)
- Reusable racks for glass and vinyl transport

At Thermo-Tech® Windows we continue to find ways to lessen the impact on the environment while increasing the performance of our products and services. With this commitment we will continue to make energy efficient windows and doors that can make a difference.

Credits and Resources

- * = The Vinyl Institute
(Vinyl windows and the environment)
- ** = Cardinal glass
(Climate change facts)
- *** = Window & door magazine (Oct 2007)
- **** = Franklin Associates

