

Technology Corner

Radiant Barrier Window Insulators

The Holes in Our Walls (Windows)

Lackland AFB, TX

We all like to have windows in our buildings and homes. They keep us connected to our surroundings and provide natural light. In some instances, we even open our windows to ventilate with fresh air. Yes windows add a lot to our buildings and homes, but they come with a big energy cost.

Windows after all are just holes in the walls with panes of glass. Glass has a very low insulation value and does little to shield the interior from the outside temperatures. Windows are usually the weakest part of the building envelope and account for heat gain in the summer and heat loss in the winter.

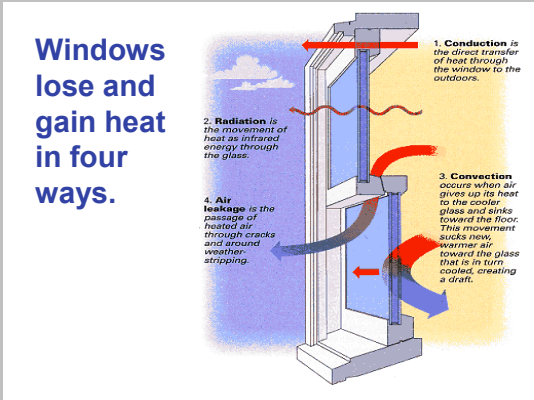
A single pane window gains or loses 20 times as much heat as the same area of an adjacent well insulated wall, and a double-glazed window loses or gains 10 times as much. In our efforts to be good stewards of

our natural resources, keep costs down, and to meet the Federal mandates; we must address the energy losses due to these holes in our walls (windows). Lackland has addressed

this issue in many different ways. The base has limited the size, number, and location of windows in new facilities. They have also painted over windows, added shades, curtains, solar screens and of course window tinting. All of these actions help, but in a limited way.

Last year Inflector brand radiant barrier window Insulators were installed inside the west facing foyer windows at the Gateway Club. Since this product is a see through radiant barrier window insulator it does not obstruct the view; rather, it helps prevent the air conditioning system from being over worked by the late afternoon heat that pours through the un-insulated windows.

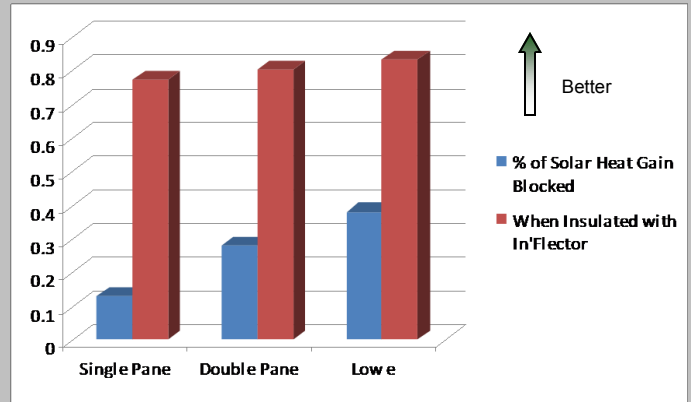
These window insulators keep the heat in during the winter and out during the summer. They reflect sunlight,



Lackland AFB Gateway Club

reducing radiant heat, and solar gain. The insulators maintain and stabilize interior temperatures by reflecting hot or cool air back into

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the interior space rather than allowing conduction through glass, and convection or leakage through the window seals. They also block 90% of UV rays that damage carpets, drapes and furniture and reduce glare while being virtually transparent.

Not every building is a good candidate for the window insulators; however, building 2000 located on Lackland's Security Hill is a very good candidate. The building is 53 years old with the original windows. The windows have significant energy loss and comfort issues. Since the building is occupied 24 hours a day, the heating, ventilation and air conditioning system is energized continually, year round, making it very important to reduce operating costs.

Replacing windows is rarely cost effective, solely based on energy-savings. Replacing all the windows of building 2000 with new more efficient windows would be extremely expensive and the demolition/installation would disrupt the tenant's mission.

For these reasons, the Inflector window Insulators were the right solution for building 2000 and the cost was much less than window replacement. Lackland awarded a \$488K project in FY10 to install these insulators. The installation is relatively simple and will cause little disruption to the building occupants. We anticipate reduced heating, ventilation and air conditioning loads with energy cost savings of \$100,000 per year.

In 2009, electric meters were installed on building 2000. We now have the ability to measure the electric usage before and after the window insulators are installed. Once the energy savings are verified, we will use the data to justify replicating the project at other appropriate buildings across the base.

For more information on the window Insulators or the project contact:

Frank Thomas, CEM/CSDP
 Resource Efficiency Manager
 802 CES/CEAOE
 Lackland AFB, TX
 DSN: 473-7221 COM: 210-671-7221