

# Keep cool, carry on: solutions to your needs for cooling cost reduction and internal comfort

Windows can inspire productivity and a sense of well-being by allowing the benefits of natural daylighting. The duality of windows is however that windows also contribute to heat gain, bothering glare, and reduced comfort due to direct solar radiation.

In a previous article we gave an overview of the five window challenges Solar Gard® window films help you to solve. In this article two specific challenges are discussed: Cooling costs and comfort. Windows have a profound effect on the energy performance and operating costs of a building. The U.S. DoE estimates that 30% of a building's cooling bill is related to solar heat gain through windows. The solar heat gain associated with windows makes them an ideal target for efficiency improvements

## Reduce your cooling costs

Window Film has proven heat-rejection properties and helps buildings consume less energy by keeping interior temperatures more controllable and stable. Up to 75% of solar energy can be rejected, dramatically reducing heat gain (72%) through glass while allowing day lighting of interiors and reducing glare (80%).

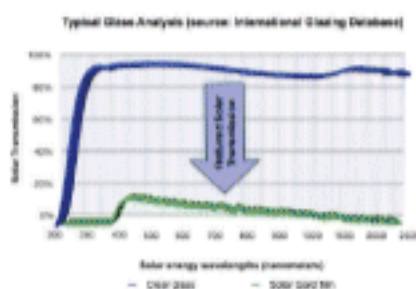


Figure 1: Solar Energy rejection by Solar Gard window film

## No theory but real gain: payback of 2 to 5 years.

There are many examples of how Solar Gard window has helped building owners and managers around the world to reduce energy costs and improve comfort.

In this article two examples are described of recent projects where an energy analysis was performed evaluating different options:

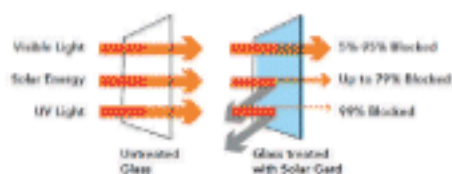
Case study 1 is a large office block with double pane tinted glass in the Middle East with in total 4800 m<sup>2</sup> of glazed surface. The proposed solution has a payback of less than 3 years. Solar Gard window film will allow to save 160,000 US\$ in cooling costs and reduce the carbon footprint of the building by nearly 90 tons annually.

Case study 2 is a smaller office building in Durban, South Africa with 200 m<sup>2</sup> of single pane tinted glass. Figure 1 gives a summary of both cases.

## Comfort and Productivity

Daylight is an effective stimulant linked to productivity and well being, but brings challenges to the workplace with uncomfortable heat gain, uncomfortable hot spots and bothersome glare.

Filtering incoming natural light, window film significantly reduces glare on computer and electronic screens – easing strain on the eyes.



Results of Building Energy Analysis Capshot® - Savings over warranty period	Middle East office - 4800 m <sup>2</sup> double pane tinted glass	South Africa office - 200 m <sup>2</sup> laminated tinted glass
Payback period	2,5 years	3,1 years
Energy reduction in kWh	1,443,750 kWh	234,261 kWh
Energy cost savings US\$	158,810 US\$	22,840 US\$
Carbon emission reduction (Tons CO <sub>2</sub> )	849 tons	198 tons

Figure 2: ME: 11 US\$ct/kWh - South Africa: 9,8 US\$ ct/kWh

Window film is an ideal solution as there is a wide range of solar control solutions with light transmission and glare reduction from 20% up to 70%.

Energy analyses demonstrate also that the internal peak temperatures can be lowered considerably. Recent case studies in Europe have confirmed this. A case study conducted on in Belgium early 2012 compared 2 identical offices, one office with and one without Solar Gard window film. The building manager was facing serious comfort issues and occupants were complaining about hot spots. The

measurement results were impressive and confirmed earlier Building Energy Analyses: 3°C to 6°C reduction with peaks up to 7-10°C (figure 4).

To get help to find concrete solutions for specific challenges around cooling cost reduction and improved internal comfort contact .

### About Solar Gard

Solar Gard positively impacts lives with products that protect, save and renew. Headquartered in San Diego, California, Solar Gard makes industry leading architectural and automotive window films, photovoltaics and custom coatings. A division of Saint-Gobain Performance Plastics, a subsidiary of Saint-Gobain, the world leader in the habitat and construction markets, Solar Gard's architectural solar control window films are proven carbon negative and reduce global greenhouse gas emissions. Solar Gard products are sold in more than 90 countries under the Solar Gard®, Panorama®, Quantum® and Solar Gard Armorcoat® brands. For more information, visit [www.solargard.com](http://www.solargard.com).

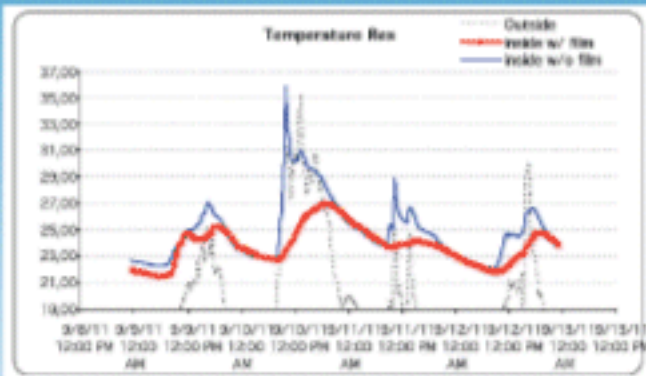


Figure 4: comparative case study on comfort in offices with and without Solar Gard window film (Belgium – spring 2012)

A better environment inside and out.™



Reduce Cooling Costs  
Increase Comfort  
in a Cost Effective Way

» Installing Solar Gard window film increases the amount of solar energy rejected. If looking to change the heating and air conditioning capacity of a building, or overhaul a low-performing building's system, the potential benefits of installing premium quality Solar Gard window film should be considered before system replacement. »

Says Imran Luqman - Super Cool Solutions

Contact us today and help us reduce the temperature in your office and get comfortable!

Saudi Arabia - Super Cool Solutions +966 1 2082368 or [imran@supercool-solutions.com](mailto:imran@supercool-solutions.com)

Qatar - Titanium +974 44687 299 or [feras@titanium-tint.com](mailto:feras@titanium-tint.com)

Bahrain - B Cool +973 177 37 391 or [bcoolgroupb@gmail.com](mailto:bcoolgroupb@gmail.com)

For other countries - Solar Gard Middle East +971 505 53 36 59 or [info.middleeast@solargard.com](mailto:info.middleeast@solargard.com)



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