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# Lessons in Light & Energy

## Solving the Challenges Windows Bring to Facilities

Reducing HVAC Loads, Increasing Energy Savings and  
Achieving LEED Credits with Window Film

## Energy Savings



- 12.7% of a US building's energy use comes from cooling
- 33% of a building's cooling bill is caused by windows
- With proven heat-rejection properties, architectural window films help buildings consume up to 30% less energy for cooling by keeping interior temperatures more stable; look for films that are NFRC rated
- Window film quickly and efficiently transforms existing glass into high performance energy conservation systems that benefit the entire building:
  - Reduces the HVAC load, allowing buildings to downsize and prolong the life of their cooling equipment\*
  - Helps balance peak energy usage with climate control and interior comfort
  - Decreases lighting costs by facilitating daylighting, allowing natural light to illuminate a room, without bothersome glare or hotspots

\*Pew Center on Global Climate Change  
[www.pewclimate.org/technology/overview/buildings](http://www.pewclimate.org/technology/overview/buildings)

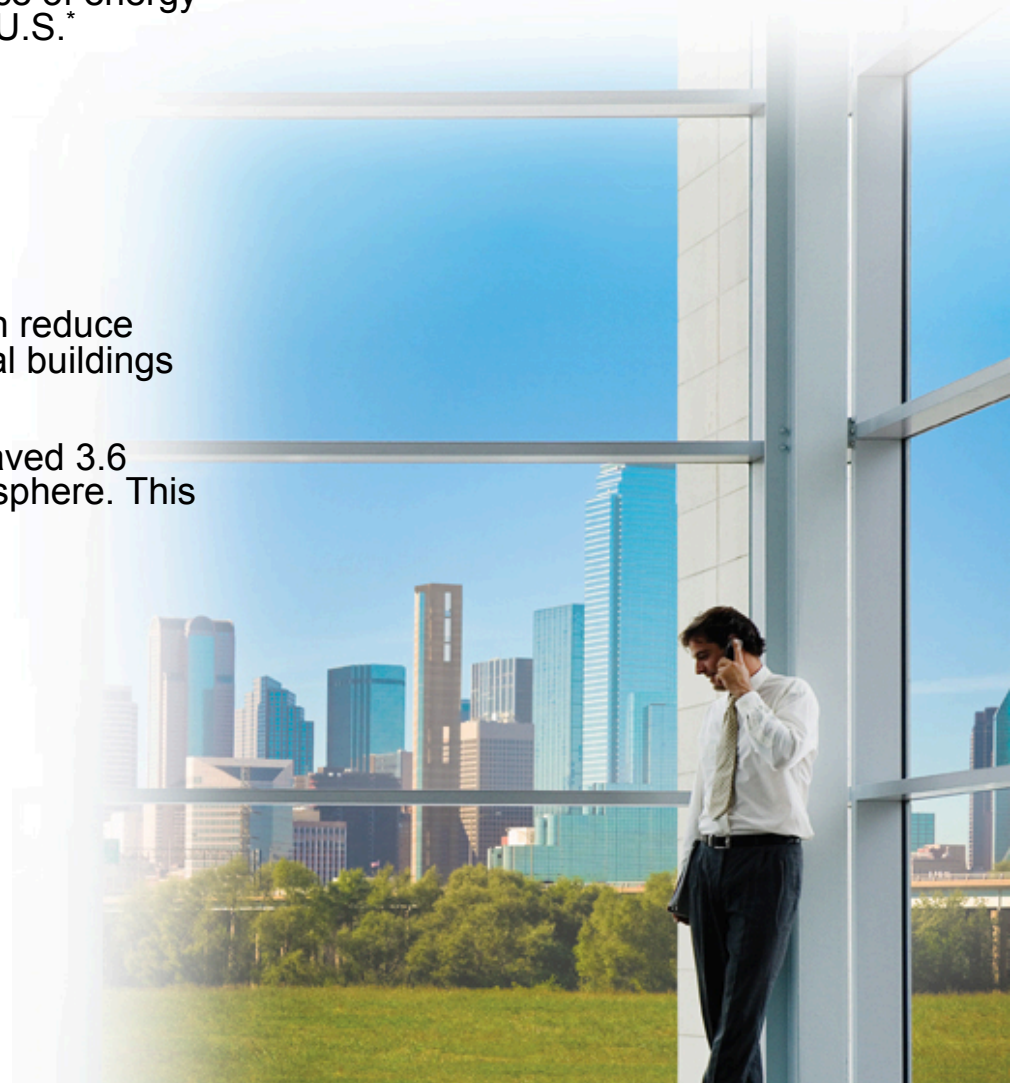


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## Carbon Savings

- Commercial buildings are the leading source of energy consumption and carbon emissions in the U.S.\*
  - Buildings produce 39% of the total CO<sub>2</sub> emissions in the U.S. (2236 million metric tons)
  - CO<sub>2</sub> emissions from buildings are projected to grow faster than any other sector in next 25 years
- Architectural solar control window films can reduce GHG emissions by 10 – 40% in commercial buildings
- In just one year, Solar Gard window film saved 3.6 million tons of CO<sub>2</sub> from entering the atmosphere. This is equal to:
  - Carbon attributed to combusting 367 million gallons of gasoline
  - Carbon offset of 83,740,126 tree seedlings grown over 10 years

\*US Green Building Council, "Buildings and Climate Change."





## Cost-Effective and Carbon Smart

- 49 billion square feet of glazing in the world today
- Solar control window film is more cost efficient and carbon efficient than replacement windows

	Solar Control Window Film*	Low-E Wood Frame Glazing
Carbon cost	less than 1 kg per sq meter	253 kg per sq meter**
Financial cost (installed)	\$64-150 per sq meter USD (\$6-14 per sq ft USD)	\$314 per sq meter*** (\$29 per sq ft USD)

“Window film is the most cost-effective way to upgrade a building’s windows.”

– Berkeley Labs, a DOE laboratory\*\*\*\*

\*Based on Environmental Product Declaration published by Solar Gard.

\*\* 2009 Buildings Energy Databook, published by the U.S. Department of Energy.

\*\*\* Solar Gard estimates based on internal data and data obtained from RSMeans Construction Cost Data Book 2011.

\*\*\*\*Cost Effective Building Envelope Options for Reducing Cooling Loads in Commercial Buildings,” Lawrence Berkeley National Laboratory, University of California.

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## Earning LEED Credits

- Window film can assist commercial buildings in achieving LEED credits in five categories:
  - Energy Performance Credits
  - Credit for Light Pollution Reduction
  - Glare Reduction Credit
  - Thermal Comfort
  - Innovation Credits



## Proven Energy Solution Worldwide



- University of Arizona (Tucson, AZ)
  - Energy consumption dropped by 30%
  - Utility costs decreased drastically (maximum temperatures dropped significantly from 119.5° F to 85° F)
- ASEM Tower (Seoul, South Korea)
  - Significantly lowered energy expenditures
  - Cut utility costs (room temperatures decreasing from 7° to 11° F (4° to 6° C))
- Adobe Building (San Francisco, CA)
  - World's first LEED Platinum Certified commercial office building
- No. 1 Collins Street (Melbourne, Australia)
  - ROI in less than 4 years
  - Decreased energy use
  - Reduced coolers needed from 2 to 1

## Architectural Window Film Benefits

- **Energy savings**
  - Decreases energy costs up to 30% by reducing interior temperature fluctuations and HVAC load
- **Reduces carbon footprint**
  - Our window films are proven to produce a net positive impact on the environment, saving more carbon than used to produce
- **Provides protection**
  - Rejects 99% of damaging UVA and UVB rays that cause premature aging and skin cancer, and fading of interior furnishings and fixtures
  - Certain films provide a sacrificial coating that can be peeled away if vandalized with graffiti or etching
- **Increases comfort**
  - Reduces solar heat gain to stabilize room temperature and eliminate uncomfortable hot spots
  - Reduces bothersome glare
  - Allows natural daylighting to boost the energizing effects of sunshine and outside views
- **Enhances safety and security**
  - Keeps shattered glass from becoming dangerous shrapnel in the event of a violent storm, earthquake or explosion
  - Blocks electronic signals to prevent intellectual property theft
  - Solar and safety benefits can be combined
- **Improves aesthetics**
  - Films are available in a wide array of tint colors to enhance ambiance or increase privacy





Protect. Save. Renew.  
Smart solutions that positively impact lives.

