

# Commercial Window Film

## Solar Over Heating

### REDUCES HVAC LOADS

Window film reduces the transmission of solar energy through glass, which reduces the heat and lessens the need for air conditioning.

### REDUCES CARBON EMISSIONS

The reduction of heat as a result of applied window film decreases off gassing from carpet, furniture and window blinds or other coverings.

### REDUCES GLARE IN OFFICES

Solar window film can reduce up to 93% of glare.



- **SOLAR OVER HEATING**

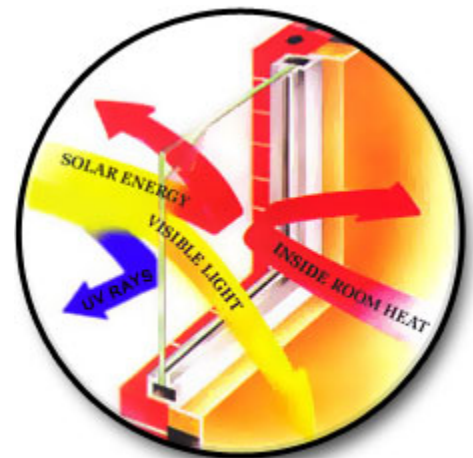
Heat flows from hot to cold by radiation, conduction or convection, or by a combination of these processes. Air conditioning can reduce the problem but then parts of the building are at satisfactory temperatures and other areas are too hot or too cold. In addition, direct solar energy causes surface temperatures (doors, walls and furniture) to become particularly hot. HVAC systems trying to compensate for this overheating is increasing energy costs by the minute, not only to cool hot spots but to also warm cold spots.

### SOLUTION

Reducing solar energy transmitted by glazing before it enters the building by installing window film is often the best solution.

Reflective window film helps optimize energy efficiency, prolong the life of product displays and interior furniture, and even create a more productive atmosphere. Approximately one-third of an average building's cooling load is due to solar heat gain through windows, according to the U.S. Department of Energy. Window film can cut up to 88% of total solar energy that transmits through glass, and can yield an annual savings of up to 14.31 kWh according to Flex Your Power, California's statewide energy efficiency marketing and outreach campaign.

Case studies have shown that some buildings have downgraded cooling systems to adjust to the energy load reductions.



# Glare



It is proven that people require a minimum amount of sunshine to live healthy lives, but, too much sunshine could be discomfoting and cause injuries, even leading to eyestrain and headaches. Glare is defined as a steady dazzling light. In order to reduce that light, reducing the visible light transmission can solve most glare problems. However, today there are many films on the market that can reduce up to 50 percent of glare and yet continue to let in over 60 of light. When glare is sufficiently reduced, colors seem brighter and more vivid. Since all of our window films reduce glare, it is up to you to decide which level of glare reduction film will best suit your needs. Removing excessive glare will improve your view, not detract from it.

A good guide to finding the amount of Glare Reduction needed is to consider how glare affects building occupants.

Working Conditions	Minimum Glare Reduction
Comfortable	No glare reduction needed
Slightly uncomfortable	Minimum 30% required
Uncomfortable	Minimum 50% required
Distressing	Minimum 80% required
Disabling	Minimum 90% required

## Selection

- PAYBACK**

Building owners ask “what is the typical performance of solar window films in reducing energy costs.” The actual result depends not only on the film selected but also upon the glazing specification and building construction. Case studies have shown that is possible to save thousands of dollars a year in energy costs, even in moderate climates. Also, with energy companies’ incentive programs, payback times are typically less than 3 years, and even as low as 1.5 years. Commercial window films typically carry warranties between 10 and 15 years.

- CHOOSING A FILM**

Unlike many years ago when the selection of film was minimal, typically a metalized or dyed film was available for one’s choosing. In today’s market with current technology, there are metalized film, spectrally selective film, infra-red films, and ceramic films. Determine your issue: heat, glare, privacy and let a film representative provide you with samples to assist in the performance and aesthetic needs.



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### Solar Energy Reduction Performances

There are various types of glass on commercial buildings. Some windows have a “built in” heat rejection component, which is commonly known as Low-E glazing. Below is a list of comparisons for typical glass and its manufactured heat rejection percentage, and an approximate percentage post-installation of window film.

#### CLEAR GLASS

Without Film – Up to 12%  
 With Film – Up to 88%

#### CLEAR DUAL PANE

Without Film – Up to 23%  
 With Film – Up to 80%

#### TINTED GLASS

Without Film – Up to 26%  
 With Film – Up to 75%

#### DUAL TINTED GLASS

Without Film – Up to 38%  
 With Film – Up to 83%

For more information on solar window film, please visit us at:  
[www.wcswindowfilms.com](http://www.wcswindowfilms.com)