

# 3M™ Window Film

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### Renewable Energy Division

St. Paul, MN 55144-1000

1-800-698-4595

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# 3M™ Window Film

## FAQ continued

### 1. How do 3M Sun Control Window Films work?

3M™ Sun Control Window Films are designed to help reduce the amount of solar heat transmission through window glass by increasing the solar reflection (not necessarily visible reflection) and solar absorption through the glass. Typical colored or dyed films work primarily through increased absorption. The color absorbs the solar energy at the glass, thus reducing the direct transmission into the room. These films offer only marginal performance when compared to reflective films.

Reflective films are films that have been precision coated with metals. These metalized films are designed to increase the solar energy reflection of the glass and some of the absorption. 3M™ Sun Control Window Film reflective films range from moderate to excellent in solar performance (heat gain reduction).

All 3M™ Sun Control Window Films are made to be transparent and optically clear. The ultraviolet protection in the adhesive system is there to protect the adhesive, the metals, the polyester film, and the abrasion resistant coating from UV degradation. This UV protection will also help protect what is behind the film (home and office furnishings), too.

All 3M™ Sun Control Window Films are protected with our patented abrasion resistant coating for long term durability and maintained appearance.

### 2. How do 3M™ Sun Control All Season (LE) Window Films work?

3M™ Sun Control All Season Window Films, or Low E films work much in the same way as the Sun Control Window Films except that they offer an increased performance against cold weather heat loss. The patented constructions of these films enable the metal coating to reflect more of the interior room heat back into the room where it is needed. This improves comfort by reducing potential draft feelings near the window, and may also save on energy costs, especially in commercial buildings. The LE films are also protected with our abrasion resistant coating for long term durability and maintained appearance.

### 3. Why do commercial customers have 3M™ Sun Control Window Film applied to their buildings?

- Improved tenant comfort
- Lower heating and cooling operating costs
- Lower utility demand costs
- Utility rebates
- Improved aesthetics, uniform appearance
- Improved safety and security
- Extended A/C equipment life
- Sustainable alternative to adding more A/C equipment

Quite often, our commercial customers will purchase 3M™ Sun Control Window Film window films for tenant comfort and justify the purchase on energy cost savings.

### 4. What is the typical energy pay back for 3M™ Sun Control Window Films?

Simple pay backs will vary depending upon the amount of sunlit glass exposure, the type of film, the type of glass, cost of fuel, cost of application, and other variables. However, we have often seen pay backs in the 2-5 year period, with some reported to be even less than 6 months.

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### 5. How are 3M™ Sun Control Window Film applied?

3M™ Sun Control Window Films are professionally applied by skilled, well-trained authorized 3M Dealer personnel. Almost all of our films are designed to be applied to the inside of your glass. The first step is to prepare the window area for the application, placing drop cloths on the floor protecting and/or moving furniture where necessary.

Next, the window glass is cleaned using simple cleaning solutions (often water and ammonia) and razor blade scrapers. Then the film is sprayed with a slip solution (detergent and water) for proper positioning, and applied to the window glass. Using a professional grade squeegee and following proper techniques, the application is completed by removing excess water, trimming the edges, and a final squeegee technique to dry the edges.

### 6. How long does it take for 3M™ Sun Control Window Films to dry?

We suggest allowing thirty days for the film to fully dry and cure. During this curing process, it is natural to have small water bubbles and/or a hazing milkiness appearance. These will disappear as the film dries; depending upon the film type and weather conditions, drying may take as much as 30 (or even 45) days, or as little as a few days. Once dried, 3M™ Sun Control Window Films will look great and perform well.

### 7. Can I install 3M™ Sun Control Window Film myself?

No, 3M™ Sun Control Window Films require professional application. Our authorized 3M™ Sun Control Window Film Dealer/Applicators are thoroughly trained and experienced in performing high quality work. In this way, our customers will enjoy the benefits of 3M™ Sun Control Window Films and have the comfort of the 3M™ Sun Control Window Film warranty.

### 8. How do I clean my 3M™ Sun Control Window Film?

After thirty (30) days, you may clean 3M™ Sun Control Window Films using normal household cleaning solutions, including ammonia based products like Windex®, and a soft, lint-free cloth or towel. You may also use a squeegee to clean the films. Abrasive products will scratch or damage the film and should never be used.

### 9. How long does 3M™ Sun Control Window Film last?

3M™ Sun Control Window Films are durable and made to last for many years. Just how long a particular film will last depends upon the type of film applied, type of glass it is applied to and the particular climate in which it is applied. Most applications last upwards of 12-15 years and several applications are still performing after 15 years. All applications have a minimum warranty period of 5 years (except exterior applications which are 2 years), and several films carry a 10 year commercial warranty, and even a lifetime residential warranty for as long as original purchaser owns the home.

### 10. How do I remove the old film from my windows?

3M™ Sun Control Window Films are designed to bond the film to the window glass for many years. Yet when it is time to remove the film, removal can be performed by following a relatively simple process.

- First, try to pull the film off by lifting and peeling the film from a corner. If removing the film is difficult, spray the film with a solution of detergent (Dawn™, Joy™) and water and cover with a plastic film (trash can liners work). Allow to soak for several hours or overnight. Now, try Step 1 again.
- Next, the adhesive residue left on the glass can be sprayed with a sudsy ammonia and water solution and scraped with a four inch razor blade tool.

Unfortunately, not all competitive films are designed for removal. They can prove to be particularly difficult to remove and may require more drastic measures.

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## FAQ continued

### 11. What is the warranty for 3M™ Sun Control Window Film?

3M™ Sun Control Window Films are warranted to maintain their solar properties without bubbling, peeling, cracking, or crazing. Many of our films are warranted against discoloration, too (those which do not use dyed polyesters). Should the product prove to be defective, 3M and the authorized 3M™ Sun Control Window Film dealer will replace the film and provide the reapplication labor free of charge.

In addition, the 3M™ Sun Control Window Film warranty includes 60 months glass breakage coverage for all qualified applications. Should your glass break due to thermal shock, 3M will replace the glass (maximum \$500.00 per window) and the dealer will replace the film.

The length of the warranty is determined by film type and market (residential or commercial). 3M commits to writing the terms of all film warranties in our brochures and consumer publications. For more details, please contact your local authorized 3M dealer/applicator and/or distributor.

### 12. Do 3M™ Sun Control Window Films cause glass to break?

3M™ Sun Control Window Films will increase the temperature of your sunlit glass, which will in turn; increase the stress on the glass edges. The quality of the glass edge and several other factors (external shading, interior shading, glass history, type of film, size/shape of glass, indoor/outdoor temperature) all contribute to the risk of glass breakage.

3M's forty plus years of experience with applying 3M™ Sun Control Window Films to different types of glass enables us to make proper film/glass recommendations and reduce the potential for glass breakage. In addition, we support these recommendations with our two year glass breakage warranty against thermal shock fracture. Should the glass break within two years of application, 3M will replace the glass (maximum \$500.00 per window), and the dealer will replace the film.

### 13. Do 3M™ Sun Control Window Films cause seal failure when applied to insulated (double-pane, Thermopane™) windows?

No, 3M™ Sun Control Window Films do not cause seal failure. We've been applying 3M™ Sun Control Window Films to insulated windows for over 40 years, having seen several millions of square feet of film applied to date.

When recommended films are applied to the inside pane of an insulated glass unit, there will be some absorption (except with clear safety films) of the sun's energy, which will increase the temperature of the glass pane. Some of this heat will transmit to the airspace, slightly raising the airspace temperature. However, even a 20 F degree increase (unusual for most films) will result in a less than 3% change in air pressure. Properly made windows are designed and tested to withstand 22% changes in air pressure.

Risk of seal failure is determined largely by the quality of workmanship and the quality of the materials that go into building the insulated glass units. The best guard against seal failure is to purchase well-made windows from reputable manufacturers that have solid experience and histories with insulated windows.

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# 3M™ Window Film

## FAQ continued

### 14. Will 3M™ Sun Control Window Film stop my furnishings from fading?

Nothing stops fading. 3M™ Sun Control Window Films are designed to help reduce the major causes of fading (ultraviolet light, visible light, and solar heat), thus prolonging the life and preserving the appearance of your furnishings.

As a general rule of thumb, Ultraviolet (UV) is approximately 40% of the cause of furniture fading, visible light about 25%, and heat about 25%. The remaining 10% can be attributed to humidity, pollutants, interior lights, dye anchorage, and other causes.

### 15. Does the ultraviolet protection lose its effectiveness over time?

No, the ultraviolet (UV) protection that we use in our proprietary adhesive system does not lose its effectiveness over time. In fact, we tested an actual glass sample from The Dumbarton House, Washington, DC. This was a ten (10) year old application and the Ultraviolet transmission still measures <1%!

### 16. How do 3M™ Safety and Security Window Films work?

3M™ Safety and Security Window Films are designed to make glass shatter-resistant by holding the glass pieces together when broken. Different from 3M™ Sun Control Window Film, 3M™ Safety and Security Window Films are made with thicker polyester and a much thicker, more aggressive adhesive system. The 3M™ Safety and Security Window Films are unique in the industry: they are built using a special micro-layered polyester technology which increases the film's tear resistance significantly. The impact and tear resistance of 3M™ Ultra Safety and Security Window Films outperform other films of similar thickness known to 3M.

### 17. Are 3M™ Safety and Security Window Films hurricane-proof? Bullet-proof? Burglar-proof?

No, 3M™ Safety and Security Window Films are not hurricane-proof, earthquake-proof, bullet-proof, bomb-proof, nor burglar-proof. No films ever could be. They do, however, make the window glass more shatter-resistant. In the event of a wind storm, these films may have significant safety and security value. They can reduce the risk of injury from flying shards of broken glass, and possibly help prevent debris and water penetration through the window depending on the severity of the storm (and the type of glass, framing system, size and velocity of objects, and more).

In an earthquake, these films can reduce the risk of serious injury from flying shards of broken glass, and possibly prevent glass from falling out of a home or building. Again, much may depend upon the severity of the quake (and the type of glass, framing system, and more, too).

**Bullets:** these films are not designed to stop bullets.

3M films were originally developed due to the international concerns and needs for improved safety and security against terrorist acts of bombings. These films can significantly reduce the risk of serious injury from flying shards of glass due to blasts, however, much depends upon the severity of the blast and the proximity of the window glass to the blast (and glass type, framing system, and more too).

3M™ Safety and Security Window Films are a low-profile, high performance measure of security in the battle against 'smash and grab' crime. The tough, shatter-resistant qualities of the film can hold the window glass together even if a brick (or similar object) were actually to pass through the glass. The thief must now make a choice; continue to attack this window, try another window, or move on. Time is short, and often they move on. However, if they are determined to gain entry, they will get in. It is generally recommended that the property have proper alarm systems in addition to 3M™ Ultra Safety and Security Window Film.

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## FAQ continued

### 18. Will 3M™ Safety and Security Window Films keep my glass from breaking?

No, 3M™ Ultra Safety and Security Window Films are designed to hold broken pieces of glass together in the window opening after a break. This reduces the chance of injury from flying shards of glass, makes it more difficult to break in through a window, as well as increases safety and security in the event of a windstorm or bomb blast.

**When glass breaks, 3M™ Safety and Security Window Film demonstrates its best performance!**

### 19. How do I find the nearest authorized 3M™ Sun Control Window Film dealer? Or, is XYZ Tinting a 3M Sun Control Window Film dealer?

The simplest way is to contact 3M directly for the name of the nearest 3M Distributor 1-800-480-1704. We would be able to provide you with an up-to-date listing of the Authorized 3M™ Sun Control Window Film Dealer/Applicator in your area. They can confirm which businesses are Authorized 3M dealerships.



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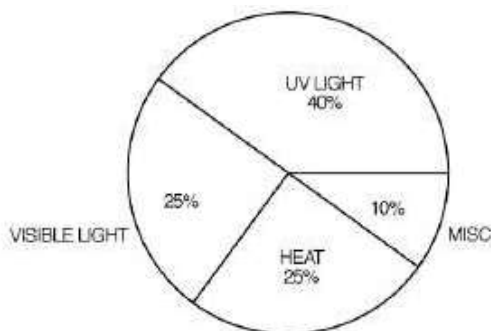
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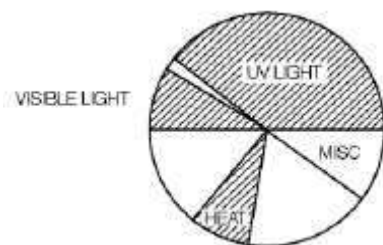
## Facts About Fading

### What Causes Fading? “As A Rule Of Thumb”

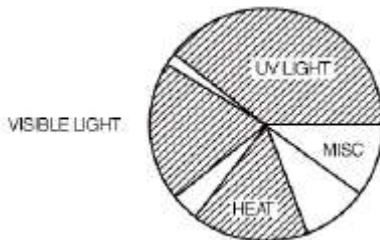


### 3M™ Sun Control Window Films and 3M™ Safety and Security Window Films Do Not Stop Fading. They Help Reduce Speed Of Fading.

Approximate fade reduction with Neutral 35 (RE35NEARL)



Approximate fade reduction with Silver P18ARL



Shaded areas indicate approximate amount of fade reduction when applying the 3M™ Sun Control Window Films mentioned above.

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