

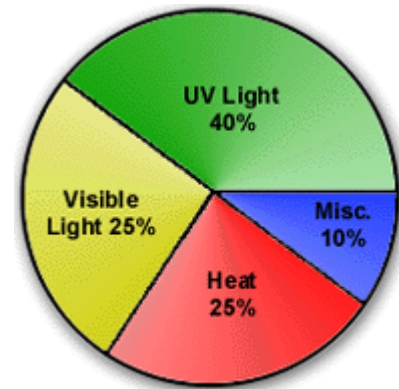
Frequently Asked Questions and Answers

- Will window film really stop fading of fabrics?
- How long will film last?
- How should I clean my windows after film is applied?
- Will window film kill my house plants?
- Can Window Film be used on Low E windows?
- Will window films cause glass to break?

Will Window Film Really Stop Fading Of Fabrics?

There are six factors affecting fabric fading:

1. Ultraviolet Light
2. Visible Light
3. Heat and Humidity
4. Chemical Vapors (including ozone)
5. Age of Fabric
6. Dye Fastness



Clear single pane glass (1/8" to 1/4") will reject 23-28% of the ultraviolet light from the sun. Insulated glass is slightly better, rejecting 36-41%. Window films installed on glass reject 95-99% of solar ultraviolet light.

Different types of clear glass and window systems will reject 13-29% of the solar heat. With window films, 80% solar heat rejection can be obtained.

No window film can eliminate fading. It can, however, offer maximum protection from fading due to solar ultraviolet light and solar heat.

How Long Will Film Last?

The effective life of window film will vary by the type of film, type of glass, window construction, compass orientation of glass, and in which part of the world the building is located. There are documented cases of film lasting 12 to 22 years or more in some instances. This should not, however, be assumed to be the normal expected life.

All quality window films for residential and commercial use are warranted by the film manufacturers for a minimum of five years (certain products may have extended coverage). The warranty includes an address to contact the manufacturer directly should any questions arise either before or after the installation of the window film.

How Should I Clean My Windows After Film Is Applied?

Wait 30 days to clean the film after installation. Windows with film applied are easily cleaned without damage to their appearance as long as a few common-sense guidelines are followed:

1. Use a soft clean cloth or clean synthetic sponge.
2. Use a clean soft cloth or clean soft rubber squeegee for drying the window.
3. Do not use ammonia or abrasive materials during cleaning your film. An effective and economical cleaning solution for window film is ½ ounce of liquid dish soap added to 1 quart of fresh water.

The availability of scratch resistant coatings as a standard feature of quality films has virtually eliminated the need for extra special precautions in cleaning.

Will Window Film Kill My House Plants?

In most cases if a house plant is already receiving adequate light the use of window film will not harm it. New growth or flowering may be retarded, and, for a few days, a plant may go into a state of shock while it adjusts to the light change. If a particular plant normally wilts by the end of a sunny day, it will actually thrive better with film installed. Although there are some obvious guidelines in determining what, if any, effect window film will have on a plant (for instance, dark green plants need less light than lighter colored ones), there is one simple test which can be done prior to film installation: merely move the plant to an area with less sunlight for a few days. In addition, most nurseries or local agriculture agencies can advise you whether a particular plant needs closer to maximal or minimal light.

Can Window Film Be Used On Low E Windows?

Whether window film should be used on low E windows and how much you will benefit depends on three factors:

1. Type of low E surface used on glass.
2. Location of low E surface in the window system.
3. The desired amount of heat gain reduction, heat loss reduction, or other film benefits.

There are two basic types of low E surfaces on glass. One of these is a conductive coating put on glass as it is being made. It gives some heat loss reduction, but does little to reduce heat gain into a building. The second type is a more complex system of multiple layers of metals and conductive coatings deposited on glass after it has been made. This type of low E glass gives heat reductions of 30% to 50% in addition to reducing heat loss. Obviously there will be more heat gain reduction using film on the first type. If there is any question about the type you may have, ask your glass company or the window manufacturer to send you the specific information about your glass.

The location of the low E surface in your window system is also very important in deciding whether

film should be used. If the low E coating is on the room-side surface of the innermost pane of glass, the use of window film may reduce or eliminate the heat loss reduction of the glass itself. This may be more than offset by the heat gain reduction/heat loss reduction properties of the films to be used. Most low E window systems, however, consist of double pane windows where the low E surface faces the air space between the panes. In this case, film can be installed without eliminating the heat loss reduction benefit of the low E glass. The type of window film you choose for low E glass depends entirely on your desired benefit -whether you want to reduce heat gain, control glare, prevent heat loss, reduce fading or enhance the safety of your windows and glass doors. Carefully consider all these benefits before making a final decision.

Will Window Films Cause Glass To Break?

Glass breaks when stressed. There are five types of stress which may cause glass breakage:

1. *Thermal Stress*--from absorption of solar radiation.
2. *Tensile Stress*--from the weight of the glass itself.
3. *Mechanical Flexing Stress*--from wind.
4. *Impact Stress*--from flying objects, hail, baseballs.
5. *Twisting Stress*--from building or window frame sagging or settling.

The first type, thermal stress, is the only one which film may affect. The use of window films will increase the thermal stress on sunlit glass. However, there are also other factors which will increase thermal stress such as: partial shading of windows from overhangs, tightly fitting drapes or blinds, signs or decals on windows, heating and cooling vents directed at glass. In addition, different types of glass (annealed versus tempered, clear versus tinted) have different solar absorption rates and will withstand different degrees of thermal stress.

The window film manufacturers have recommended film-to-glass tables for use by factory-trained dealer installers. If a consumer is ever in doubt, he/she should request a copy of such guidelines. Listed are some glass types or conditions where the use of a solar control (not clear safety) type of window film is not recommended without extreme caution.

- SINGLE PANE GLASS LARGER THAN 100 SQUARE FEET.
- DOUBLE PANE GLASS LARGER THAN 40 SQUARE FEET.
- CLEAR GLASS THICKER THAN 3/8 INCH.
- TINTED GLASS THICKER THAN 1/4 INCH.
- WINDOW FRAMING SYSTEMS OF CONCRETE, SOLID ALUMINUM, OR SOLID STEEL .
- GLASS WHERE SEALANT OR GLAZING COMPOUND HAS HARDENED.
- VISIBLY CHIPPED, CRACKED OR OTHERWISE DAMAGED GLASS.
- REFLECTIVE, WIRED, TEXTURED, OR PATTERNED GLASS.
- TRIPLE PANE GLASS.

Ultraviolet Radiation

Ultraviolet radiation, invisible electromagnetic radiation between visible violet light and X rays; it ranges in wavelength from about 400 to 4 nanometers and in frequency from about 10^{15} to 10^{17} hertz. It is a component (less than 5%) of the sun's radiation and is also produced artificially in arc lamps, e.g., in the mercury arc lamp.

The ultraviolet radiation in sunlight is divided into three bands: UVA (320–400 nanometers), which can cause skin damage and may cause melanomatous skin cancer; UVB (280–320 nanometers), stronger radiation that increases in the summer and is a common cause of sunburn and most common skin cancer; and UVC (below 280 nanometers), the strongest and potentially most harmful form. Much UVB and most UVC radiation is absorbed by the ozone layer of the atmosphere before it can reach the earth's surface; the depletion of this layer is increasing the amount of ultraviolet radiation that can pass through it. The radiation that does pass through is largely absorbed by ordinary window glass or impurities in the air (e.g., water, dust, and smoke) or is screened by clothing.

