

Safety and Security Film Installation Instructions

Safety and security window films from Madico help reduce the risk of personal injury, property damage and loss caused by natural disasters, burglary, vandalism and accidents. Available in a wide range of shades, styles and grades, our safety films are designed with protection in mind. Glass shards and debris can cause severe damage to people and property while exposing your building or home's interior to water, wind and other perils. Reduce the risk with safety and security films from Madico. Safety film provides passive protection twenty-four hours a day. Madico security films are also designed to mitigate smash-and-grab theft and prevent costly, disruptive damage to your business property and merchandise. In buildings where the government mandates tempered glass, Madico safety and security films can bring buildings up to code requirements at costs far below those of replacing existing windows. Madico safety and security films have been extensively tested by independent testing facilities and meet safety glazing criteria as defined by CPSC, the U.S. Consumer Product Safety Commission and Underwriters Laboratories.

Storage and Handling

- Items must always be kept dry.
- Optimum storage temperature is between 40 °F (5 °C) to 100 °F (38 °C). Do not store at temperatures above 140 °F (60 °C) or below 32 °F (0 °C)
- Heavy gauge polyester films will cause cuts. Madico recommends using cut-resistant gloves when handling these films.
- Store the material in a climate-controlled room for a minimum of 24 hours before application.
- Retain roll box for storage purposes and keep films in polybag, covered and suspended inside while not in use.

Application Solution

Residual applicator solution under the film is one of the greatest but least recognized causes of film re-installations. These microscopic particles prevent the adhesive and film from making direct contact with the glass and provide a starting point for bubbles, fingering, wash boarding, demetallization and other types of deterioration. Using proper applicator solution in the right concentration, along with the correct squeegee techniques with the proper squeegee will help prevent these problems.

Madico supplies 30-1-1 Window Solution Concentrate (gallon jug part # 516602) to be used as a window cleaner, application solution, and a squeegee lubricant. This solution has been tested and found to be neutral to both the films and adhesives that Madico uses. However, proper concentration is critical. Water evaporates from between film and glass quite easily, but the soapy portion of the solution can leave some residue. To minimize this, the recommended dilution is 30 parts distilled water to one-part solution. **Never** use more solution (>1 part per 30 parts water) than this and use less if possible. In fact, use as little of the concentrated solution as possible while still maintaining the ability to move the film on the glass.

Madico does not recommend using a soap surfactant, Johnson's[®] Baby Shampoo or liquid soap, as an application solution or additive to Madico 30-1-1 mounting solution.

Squeegee Techniques

The proper squeegee and squeegee technique also helps remove applicator solution from between the film and the glass. The best combination of squeegee firmness and flexibility is found in the 6" Pro Squeegee (part # GT062). There are also other squeegees that use the 6" block squeegee blade that will remove the mounting solution quite well. When squeegeeing, be sure to push the mounting solution out from under the film ahead of the blade rather than pulling it behind as is done when cleaning windows. **Always** lubricate the film surface first, and then use as much pressure as possible on the squeegee to remove all the solution. **Generous** lubrication will prevent the squeegeeing process from causing scratching of the film. Overlapping your squeegee passes by half the squeegee blade width will help.

Please note: For slow-drying products that have multiple layers, safety films, and interior or exterior films, it is important that the proper applicator solution be used and squeegeed out thoroughly during installation. Retained water can lead to failure where the pockets of mounting solution collect and pool. Inspect the installed film closely and squeegee out any water pockets that are observed.

Equipment

- Application solution in spray container, properly mixed (for cleaning and application)
- Squeegee
- Hard card
- Edge guide tool
- Trimming Knife
- Pressure-sensitive tape
- Cut-resistant gloves
- Razor scraper
- Paper towels (lint free towels are best)
- Film handler (for roll products) (Part # GT910 & GT911)

Application

The below are guidelines and suggested practices to ensure proper installation of these products.

Installation of films is not recommended in dusty environments or when temperatures fall below 40 °F (5 °C)

1. Completely Clean Window

Cleaning the window completely and thoroughly is the single most important step.

- a. Wash window with solution and squeegee.
- b. Wet window with solution then scrape entire surface with razor scraper.
- c. Wash and squeegee again.
- d. Wipe edges carefully with paper towel.
- e. Make sure that all loose dirt is removed.

2. Film Preparation

For thicker films, 7 mils (175 micron) and greater, better results can be obtained if the product is pre-cut to match the window/surface dimensions. Madico has found that 30-1-1 Window Solution can help improve results.

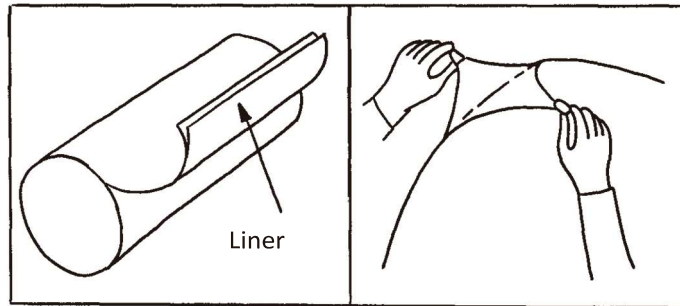
Film Preparation from box

- a. Prepare windows as in Step #1
- b. Take the film out of the box. Remove end plugs and protective sleeve. Save plastic to protect film when job is completed. Replace end plugs and put film back into box. Set box in front of window so that release liner, which protects the adhesive, (see diagram) faces installer.
- c. Measure window glass from inside the frame.
- d. Film width should be pre-cut at least 1/4 inch wider than window.
- e. Pull enough film from the box to overlap the top and bottom of the window by approximately 1 inch and cut.
- f. If possible, have assistant hold cut film
- g. Proceed to Step #3

Film Preparation with Film Handler

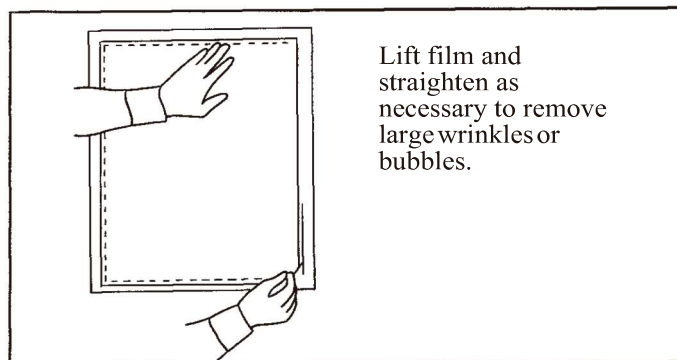
- h. Prepare windows as in Step #1
- i. Take the film out of the box. Remove end plugs and protective sleeve. Save plastic to protect film when job is completed. Place end plugs back into box. Set box aside for storage of remaining film later.
- j. Install film on Film Handler
- k. Measure window glass from inside the frame.
- l. Mark and set blade to cut film to exact width with Film Handler.
- m. Pull enough film from the Film Handler to exact length required.

- n. Proceed to Step #3
3. Release Liner Removal

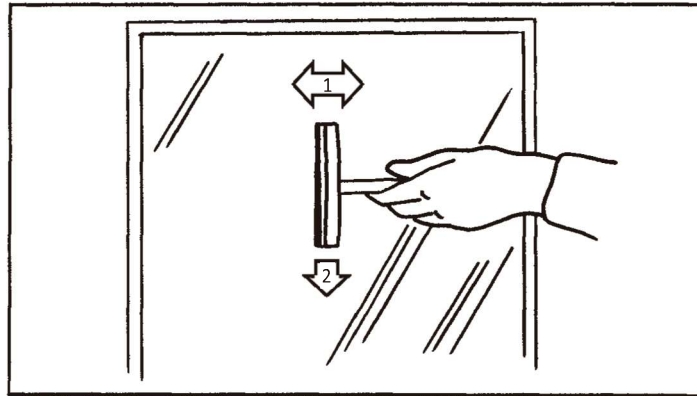


“PS” adhesive is pressure sensitive and sticks to anything with which it comes in contact. During application, the release liner must be removed. Protect the film and exposed adhesive during the entire installation procedure. Do not let it touch anything but the glass on which it is to be installed.

- a. Apply pressure-sensitive tape on one side of an upper corner of the film. Place a second piece of tape on same corner on opposite side of film (see diagram). Be careful not to let exposed tacky surfaces of the tape touch each other.
 - b. Grasping one piece of tape in each hand, pull the piece nearest you towards yourself, separating release liner from film.
 - c. As you pull the liner off the film, begin to spray adhesive surface with the mounting solution, completely soaking exposed adhesive. Continue pulling down on clear release sheet while spraying solution on adhesive. Solution will neutralize adhesive, preventing it from sticking to anything. Once initial removal of liner begins, try to pull it down evenly across the film. Removal will be easier. Discard release liner.
 - d. With adhesive surface completely exposed, spray one final time with solution to ensure that 100 percent of adhesive is wet.
4. Film Application
- a. Soak the window thoroughly with solution
 - b. Holding the film at uppermost corners, being careful not to allow film to touch the floor or any other surface, place the film on window with adhesive side against glass. Care must be taken to avoid bending or creasing the film.
 - c. Since the applicator solution has made the window surface slippery, you can now slide film so that one edge of the film is approximately 1/16th of an inch from one side of the window. If necessary, lift film to remove large wrinkles or bubbles. If properly done, this edge will not have to be trimmed. Other edges of the film should overlap top, bottom, and opposite edge of window.) Properly-sized, pre-cut films, leave enough gap (up to 3mm) at all edges so it can be positioned/centered into place.

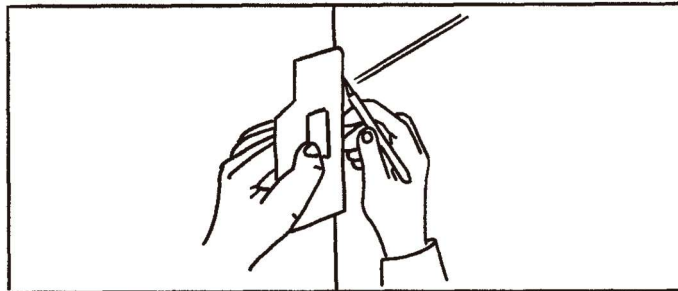


- d. Soak the side of the film facing you with Solution.
- e. Beginning at center of window, squeegee once across top to right side of window. Going back to top center, squeegee across to left hand edge of the window, then squeegee each half of the window in straight, smooth, downward strokes working from center out to edge of the window until all excess applicator solution has been squeegeed out from under film and film is lying flat. It is important to apply ample pressure to remove all the water and solution from under the film.
- f. However, squeegee will not float across a dry surface, so be sure to re-lubricate with applicator solution as needed.



5. Film Trimming (roll form from box)

- a. Butt your edge guide tool against window frame, perpendicular to glass (see diagram).
- b. With trimming knife and new, sharp blade, trim excess film using edge guide tool to provide a narrow straight-line border. Do bottom and side before top, so that trimmed film will not get in your way.



- c. Start trimming operation from corner but do not finish cutting into corner.
- d. Remove and discard all film scraps.

6. Final Squeegee

- a. Once film is completely trimmed, spray the surface once more with applicator solution. Repeat squeegee operation as described in 4-e.
- b. Finally, using several folded paper towels, wipe around edges of film to completely remove all excess water.
- c. Heavy gauge films require repeating this procedure until all visible moisture is evacuated from between the film and glass surface.

7. Large Glass Panels and Heavy Gauge Film Installation Points

- a. With larger windows and heavy gauge films, two technicians are sometimes necessary
- b. Heavy gauge film is not cut and fit on the window. First measurements are taken and then a film handler cutting device is used to make precise cuts.
- c. It is important that when the release liner is removed, and the adhesive is exposed, that a full, even flow of solution on both the film and glass surface is there before the film is positioned on the glass.

- d. Squeegeeing on larger windows is the same as above. Use EVEN, OVERLAPPING, FIRM PASSES. Heavy gauge films require repeating this procedure until all visible moisture is evacuated from between the film and glass surface.

Film Drying Time

Madico Safety Films need time to dry out and allow full adhesion to the mounting surface. Cold and/or cloudy weather conditions can lengthen the dry out time. Warm weather and direct sunlight exposure will shorten the dry out time. Small water beads and a slightly cloudy look is common and may appear during the dry out period. If slow drying occurs, do not be alarmed since it is the part of the natural curing process.

Care and Maintenance

1. Do not clean the glass during the drying period. The sun acts as a catalyst, ensuring that the adhesive thoroughly bonds the film to the glass. The adhesive withstands condensation, high humidity, and window flexing. Window surfaces with a northern exposure may need longer drying times.
2. Water bubbles will disappear. A few small particles or “points” may remain. They are visible only from the outside. Inherent to film adhesives, these points are light reflections.
3. A slightly hazy or milky appearance caused by water between the film and the glass at the outset sometimes appears. Do not be concerned, it will disappear.
4. The barely visible, clear border around the edges ensures that the film is properly bonded to the glass.
5. For best cleaning results, do not clean the film for 30 days after installation. Do not use brushes, pure ammonia, industrial strength cleaners, or solutions that contain abrasive materials. Always use a soft, clean cloth to wash and dry your windows. Avoid coarse paper towels. Windex® or similar window cleaning solutions may be safely used. A rubber squeegee may also be used.

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