

Casper Cloaking Technology
PF001

Use	Architectural Glass Films
Content	100% Triacetate
Backing	Acrylic Pressure-sensitive Adhesive
Cleaning	Water-based/Solvent (WS), Bleach Cleanable (10:1)
Weight	5.35 ounces/linear foot (498 g/lm)
Widths	56 inches (142 cm); 48 inches (122 cm)
Flammability	ASTM E 84 Adhered Class A
Lightfastness	60 hours
ACT	☛ ☛ *
Standards & Certs	CA 01350
Optimized Chemistry	Alternative to PVC, No Harmful Phthalates
Sustainable Logistics	Ships Carbon Neutral **
Warranty	5 years

Casper Graphic Films
PF002–PF016

Use	Architectural Glass Films
Content	100% Polyester
Backing	Acrylic Pressure-sensitive Adhesive
Cleaning	Water-based/Solvent (WS), Bleach Cleanable (10:1)
Weight	2.5 ounces/linear foot (233 g/lm)
Height	59 inches (150 cm)
Flammability	ASTM E 84 Adhered Class A
Lightfastness	60 hours
ACT	☛ ☛ *
Standards & Certs	CA 01350
Optimized Chemistry	Alternative to PVC, No Harmful Phthalates
Sustainable Logistics	Ships Carbon Neutral **
Warranty	5 years

Under reasonable weather conditions, the film will dry flat, with no blisters, within 30 days, when viewed under normal viewing conditions. Normal viewing conditions are viewing treated windows from a distance of ten feet from the room side, at angles of up to 45 degrees, looking at a clear or uniformly overcast sky. Since a particle-free application is possible only under sterile conditions, there may be small amounts of dust or grit caught between the film and glass.

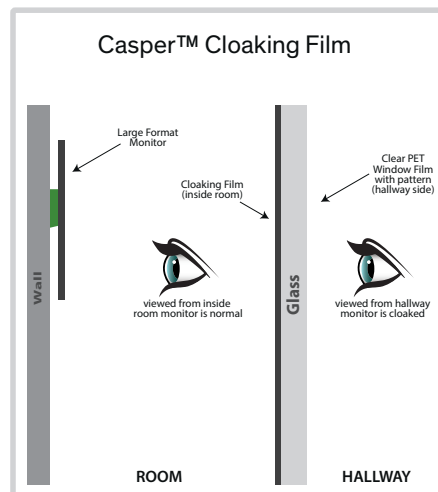
Casper Cloaking Technology renders large LED and LCD displays in glass-fronted rooms opaque when viewed from outside so that content cannot be seen. This cloaking effect works for most displays, but not all. Please contact your sales representative for more information.

Technical Data Sheet: Casper Cloaking Film

Applications	
Supported	Horizontally mounted LED displays over 40" diag size
Supported after field verification or not currently supported	LED monitors smaller than 40".
Not currently supported	Surface Hubs and collaborative touch screen devices
Not currently supported	OLED displays. Laptops, tablets, and smart phones.
Not supported	Projection displays. Displays mounted behind glass.
Not supported (discontinued technology)	Plasma displays. Passive 3D displays. CRT displays.
Physical specifications	
Roll WxL	56 inches x 100 feet
Film thickness	5 mil
Film chemistry	Triacetate
Adhesive Thickness	1 mil
Adhesion to glass	1.3lbs/ sq in
Adhesive chemistry	Acrylic
Lightfastness	Grade 5
UV Transmission	1%
Infrared Transmission	92%
Solar energy - transmitted	66%
Solar energy - reflected	7%
Solar energy - rejected	29%
Solar energy - absorbed	27%
Visible light - transmitted	41%
Visible light - reflected	6%
Visible light - glare reduction	54%
Flammability	
E84	Class A
Cleaning	
Cleaning	Water-based/Solvent (WS)
Chemical Resistance	
Expo White Board Cleaner	Pass
70% Isopropyl Alcohol	Pass
91% Isopropyl Alcohol	Pass
Fantastik	Pass
409	Pass
Goo Gone Gel	Pass
Goof Off (note does remove Black Sharpie)	Pass
Zep heavy duty citrus Cleaner	Pass
Woolite Oxy	Pass
3M HB Quaternary	Pass
Hydrogen Peroxide	Pass
Virex 256	Pass
Envy	Pass
Bleach 10:1	Pass
Oxivir	Pass
Installation	
Directional pattern	Apply vertically; cannot be railroaded
Small scale install (less the 54.5" width)	Wet application
Full window install (wider than 54.5")	Wet application with seam
Installation surface temp	60°F-90°F
Humidity range	30% - 60%
Chemistry / Compliance	
VOCs	Cal 0135 Pass
Prop 65	Prop 65 compliant

Technical Data Sheet: Casper Graphic Film

Physical specifications	
Roll WxL	60 inches x 100 feet
Film thickness	2 mil
Film chemistry	PET
Adhesive Thickness	1 mil
Adhesion to glass	.5 lbs/ sq in
Adhesive chemistry	Acrylic
Lightfastness	Grade 5
Flammability	
E84	Class A
Cleaning	
Cleaning	Water-based/Solvent (WS)
Chemical Resistance	
Expo White Board Cleaner	Pass
70% Isopropyl Alcohol	Pass
91% Isopropyl Alcohol	Pass
Fantastik	Pass
409	Pass
Goo Gone Gel	Pass
Goof Off (note does remove Black Sharpie)	Pass
Zep heavy duty citrus Cleaner	Pass
Woolite Oxy	Pass
3M HB Quaternary	Pass
Hydrogen Peroxide	Pass
Virex 256	Pass
Envy	Pass
Bleach 10:1	Pass
Oxivir	Pass
Installation	
Directional pattern	Apply horizontally
Installation	Wet application
Installation surface temp	60°F-90°F
Humidity range	30% - 60%
Chemistry / Compliance	
VOCs	Cal 0135 Pass
Prop 65	Prop 65 compliant



Installation Instructions

Stop! Read this entire document prior to beginning any installation. To learn more about Casper, visit decorativefilm.com or designtex.com. You can also email casper@decorativefilm.com or casper@designtex.com for more information and assistance.

ABOUT CASPER

Casper is a technology, not a film. Typical installation practices for installing glass materials are not always applicable when installing Casper.

Casper is hydrophilic, meaning it likes to absorb water; it has a strong tendency to wick water and moisture from all surfaces which can cause issues during the curing process.

Installing Casper is a two-person operation, minimally.

All stages of the install should be done in a way to keep the material exposed to moisture for as little time as possible. It's less important how much solution is used, but more importantly, how long the material is exposed to moisture.

Make sure Casper works with the display that is intended to be cloaked. Use a Designtex or Decorative Films branded sample of Casper prior to installation to make sure the displays to be cloaked are compatible with Casper. We do not recommend using a piece of material that has adhesive and the release liner as this may cause Casper to perform incorrectly. [Click here](#) or a list of displays that have been tested with Casper.

When Casper is applied to tempered glass it can appear to have a leopard spot pattern. This is due to the nature of tempered glass which has this pattern inherently. Because of the way Casper works, it may exaggerate this pattern depending on lighting conditions.

Install Casper as a band; floor to ceiling application is not recommended. Although Casper can be installed floor to ceiling, it is less costly and more practical to install a 5' high band beginning approximately 26" AFF. This band will provide more than sufficient coverage for the displays in the room. The band also helps signal that the glass has an active technology that is cloaking the displays versus the screens simply appearing to be off.

STORAGE AND HANDLING

- Casper is fragile; be careful not to bend at sharp angles or kink the material when handling or installing.
- Store product at 60°F – 80°F, with humidity between 35% - 65% and out of direct sunlight.
- Allow material to acclimate for a minimum of 48 hours onsite.
- Replace unused material in original packing and keep sealed until next use.

IMPORTANT CONSIDERATIONS

Correct orientation is essential. Generally speaking, Casper Cloaking Technology will be installed in a vertical orientation for LED displays 40" or larger. In some cases, installing the material horizontally or "railroaded" may cloak smaller monitors or computer monitors. Check orientation and display compatibility before estimating and installing.

Install Casper on the correct surface. Casper must be installed on the side of the glass closest to the display monitor. Nothing should be between the display and the Casper technology.

All blades need to be sharp and changed frequently. Carbon steel blades are recommended, and a fresh blade for every cut is a best practice.

Glass preparation is critical. Due to the fact that Casper is a rigid material, it will not conform around small imperfections in the glass surface. Be sure the glass is entirely free of debris, oils, adhesives, etc. Particularly gritty glass or scratched glass will show as imperfections when Casper is installed. Note these areas ahead of time and mark on exterior glass if possible, for future inspection.

Installation Instructions

TOOLS

- 5" x 1 3/8" Blue Max security material squeegee (no bevel) – wider or deeper not recommended, as it can be difficult to achieve even pressure. Do not use rubber window cleaning squeegees or graphic vinyl install card squeegees! (e.g. 3M gold card)
- Unger Pro Squeegee handle or similar. Extension handle optional.
- 3 gallon spray drum or spray bottles.
- Film handler with Carbon steel blades.
- Carbon steel blades for hand knives.
- Slip solution recommendations are to use Joy Non-Ultra or Dawn Ultra Platinum, 31 drops per 3 gallons of water. Apply using high pressure spray pump or hand sprayers. Johnson's Baby Shampoo not recommended as it contains silicone which can cause streaking and/or create longer tack time. Material-On, Rapid Tack and other enhancers are not recommended.

INSTALLATION – SETUP

- Always work in pairs. One person to measure, cut and spray – the other to hold the material and apply to the glass.
- Clean window twice with water solution and squeegee; for more difficult areas, use a scraper of soapy water and a green sponge scrubber.
- Inspect glass for flaws and scratches – and point them out to client/architect. Material will magnify flaws in the glass.
- Precut all pieces of Casper for installation, under sizing the pieces by a 1/16". Use a film handler or straight edge and cutting table. Assuming a vertical

installation that floats in the middle of the panes, the height can be oversized for final trimming on glass. If installing Casper between two mullions, undersize the piece so there is a 1/16" gap left and right so the mounting solution can escape.

- When using a cutting table and straight edge, measure twice before cutting and cut with the adhesive side facing up, so that the pressure creates negative curl on the edge of the material.
- When using a film handler, measure twice before cutting, use factory edge for one side and material handler cut for top and bottom. Position material so that material is coming off the bottom of the roll into the handler.
- Use a laser level to determine the height of Casper on the glass.
- Ideally, all door hardware will be removed before installing Casper. If this is not possible, a template should be created so Casper can be precut so it installs around the hardware with 1/16" of a gap.

INSTALLATION – APPLICATION

- Spray glass surface to receive Casper with mounting solution. Ensure glass is sufficiently wet.
- Remove the adhesive side release liner while spraying the exposed adhesive with the mounting solution. Do not remove the liner without also spraying the adhesive with mounting solution.

BEST PRACTICE: With one person holding and the other spraying, remove the liner in a diagonal direction from the upper right (or left) corner, spray glass, adhesive side and face of material generously with slip solution.

- Place on the wet glass and position the material. Lightly tack into position. Adhesive sets fairly quickly

Installation Instructions

INSTALLATION – APPLICATION (cont'd)

and is not repositionable once it tacks up. Re-wet the surface of the material with enough solution so the squeegee will slide on the material easily.

- **SQUEEGEE METHOD:** Use a one time, **HARD PRESSURE** pass with the squeegee to fix the material onto the glass. This must be a systematic squeegee pattern, overlapping 50% over the previous squeegee line. Position the squeegee at a 45-degree angle, pushing the mounting solution away from the area just squeegeed and remove all of the mounting solution. Do not squeegee again except to bump out the edges with a moisture-absorbing soft towel.

- **BEST PRACTICE:** Squeegee in a T shape, working from the top and center of the material to the sides. Work quickly and with very firm pressure in single passes to remove the water from the material in under three minutes per panel.

Most critical: do not leave excess moisture during the squeegee process. Excess moisture will recollect into smaller water pockets appear days later as a series of air bubbles, usually in clusters or striations where the bead of moisture was left. Standard glass films are more forgiving but Casper responds very differently.

- If necessary, trim all edges of the material with a 1/16" from the edge of mullions, frames, and hardware to enable any mounting solution removal from the edges. Trim remaining edge as needed, using a fresh carbon blade, being careful to avoid scratching the glass.
- Bump out all edges with a paper towel covering the squeegee to completely remove any remaining water. Make sure all the edges are clean and dry so that there is no remaining mounting solution.
- Casper does not have a scratch resistant coating and can be damaged if not cautious during the squeegee process or when bumping the edges to remove moisture.

- Because Casper is unlike typical window film materials, some tunneling may appear at the edges of the material shortly after installation. Should this occur, press out the raised area with a single push of a hard squeegee, with soft paper towel covering the blade. Push the squeegee toward the edge of the material until all moisture is removed from the edge. Make sure that there are no tiny particles under the material along every edge as this can create a weak spot and increase chances of additional tunneling. Continue to monitor the installed material for any signs of curling or tunneling and press these out as instructed.
- **SEAMS:** Casper can be difficult to butt seam, especially if two factory edges are not available. Therefore, we recommend a 1/16" parallel gap between pieces of material.
- **MONITOR MATERIAL AFTER INSTALLATION.** Continue to monitor the installed material for any signs of curling or tunneling and press these out.
- Casper adhesive will cure for up to 60 days during which time, smaller bubbles and imperfections may disappear.

If you experience problems during the installation STOP and contact Decorative Films at casper@decorativefilm.com or Designtex at casper@designtex.com for assistance.



www.decorativefilm.com

Decorative Films, LLC

3909 Cornell Place, Frederick, MD 21703 USA

T: 888.657.5224 | F: 240.363.4818 | casper@decorativefilm.com



Casper™ Cloaking Technology

BY DESIGNTEX

FILM CLEANING INSTRUCTIONS

The following are washing and maintenance instructions for all your **Casper™** Cloaking and Architectural Graphic Layer Films. Post these instructions where employees and/or maintenance personnel can read them since failure to follow them will irrevocably void your warranty.

DO NOT CLEAN UNTIL THIRTY (30) DAYS AFTER THE INSTALLATION DATE. This will ensure proper care of the adhesive and edge seal used to bond the film to the glass surface.

Recommended cleaner is *SimGlas®* Window Film Cleaner and microfiber cloth.

<https://www.decorativefilm.com/accessories-simglas-cleaner>

DO NOT USE BRISTLE BRUSHES OR ANY OTHER MATERIAL THAT MIGHT SCRATCH THE SURFACE. CAUTION! DO NOT USE AMMONIA OR VINEGAR OR ANY PRODUCTS CONTAINING AMMONIA OR VINEGAR TO CLEAN THE FILM. Some paper towels are coarse enough to scratch the Film. Repeated use of improper cleaning implements and/or solutions will damage the appearance of the Film.

GENERAL GUIDELINES

DO NOT USE ANY ADHESIVE TAPES, LABELS, OR SIGNAGE ON THE SURFACES TO WHICH THE FILM HAS BEEN APPLIED.

Under normal conditions, film will dry within 7 days.

Normal viewing conditions: View treated windows from a distance of six feet at angles of up to 45 degrees. Since a particle-free application is possible only under sterile conditions, there may be small amounts of dust or grit caught between the film and glass.

For help on specific questions relating to a Casper Film Product, contact our Technical Service team:



T: 888.657.5224 | F: 240.363.4818

3909 Cornell Place | Frederick, MD 21703 | USA

casper@decorativefilm.com

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