



# Mismatched Fears

Right Film + Right Window = Peace of Mind

by Drew Vass

Insulating glass manufacturers have been pointing fingers at window film and warning consumers about seal failure for years. Film manufacturers maintain that the right film, applied to the right glass, will not cause failure.

**W**hen Mrs. Giles\* had window film applied to her home in Chesterfield, Va., she noticed immediate results. It was a stifling hot day in mid-June, so she began to enjoy the solar heat protection from the minute the installation was complete.

"It didn't darken the appearance of the room any and, aside from the expected improvements, you couldn't tell that film had been applied, so I was pleasantly surprised," Giles says.

But that's not all she noticed. Minutes after the installer's van left her driveway, and as she was admiring her new glare-free view, she noticed a crack in her 5- by 7-foot palladium window. Only hours after completing the installation, her dealer was about to have a new experience. In his 22 years of being in the window film business, this dealer said he had never faced this sort of situation. Before he could even deposit the check, he received the shock of a lifetime—a glass fracture callback.

"It's really a shame," Giles says.

"Initially I was disgusted, but I didn't want to talk to him about it. My husband said, 'We need to stand up for this, because this is not something that costs a couple hundred dollars to fix.'"

The dealer returned immediately to see the damage and take pictures. He says he knew his window film provider, Madico Inc. in Woburn, Mass., had provisions in its contract for situations like these and would most likely cover the damages if its window film was at fault. Then it hit him. He had forgotten to go over the contract with her and failed to get a signature.

He decided to contact Madico immediately.

This dealer was about to learn a painful lesson. Signed contract or not, he wasn't covered. While every other window in the house was of vinyl construction, this one was wood. According to the dealer, Madico's contract specifically states that wood frames are not covered against glass failure.

"I went back and forth with the film manufacturer for two months," he says. "They needed pictures.

Then they asked me what type of frame it had and said they wouldn't cover it. It's just not covered under their contract."

In this situation, getting a post-installation contract signed may not have been as important as knowing and explaining that the window, because of its wood frame, would not be covered under warranty.

The dealer admits he has installed film on countless wood-framed windows over the years with no previous problems.

"The most important thing to do was just take care of it," he says. "But I'd never had anything like that happen before. I did a job years ago that involved a wooden frame and a window broke, but we discovered that it wasn't the window film or the frame at fault. The glass edge was resting on a nail, so the builder admitted it was his fault and took care of it. I'd never had one break due to us."

While it took him several months to resolve the issue, Mrs. Giles took action on her own part.

"During the three- to four-month period in which he seemed to be

\* At the request of the homeowner, her actual name has been replaced with a fictitious name (Giles).



**Contention and warranty battles between insulating glass and window film manufacturers have caused skepticism among homebuilders about offering film as an add-on.**

“One of our larger Michigan dealers told me that home builders have not really shown much interest [in window film] because of warranty issues with IG units,” Bollegar says. “They are afraid that film installed will either void the window manufacturer’s warranty, or, someday down the road, they will be drawn back into issues caused by film installation. It simply scares them away.”

IG manufacturers claim that window film applied to the inside surface of an IG unit causes heat build up, due to absorption caused by the window film. For this reason, they claim that the surface temperature of the inside pane (called a “lite”) of glass increases and expands disproportionately to the outside lite, possibly leading to seal failure and/or thermal stress fracture (TSF).

IG units incorporate a sealed space, containing air or some form of gas between two lites of glass. The two lites are separated by spacers, which typically contain some type of desiccant to absorb any moisture that makes its way through the unit’s seal. If too much moisture penetrates the unit, the desiccant will eventually be expended and will no longer be able to absorb the moisture and be effective. This is known as seal failure and will often cause a unit to become fogged or hazy.

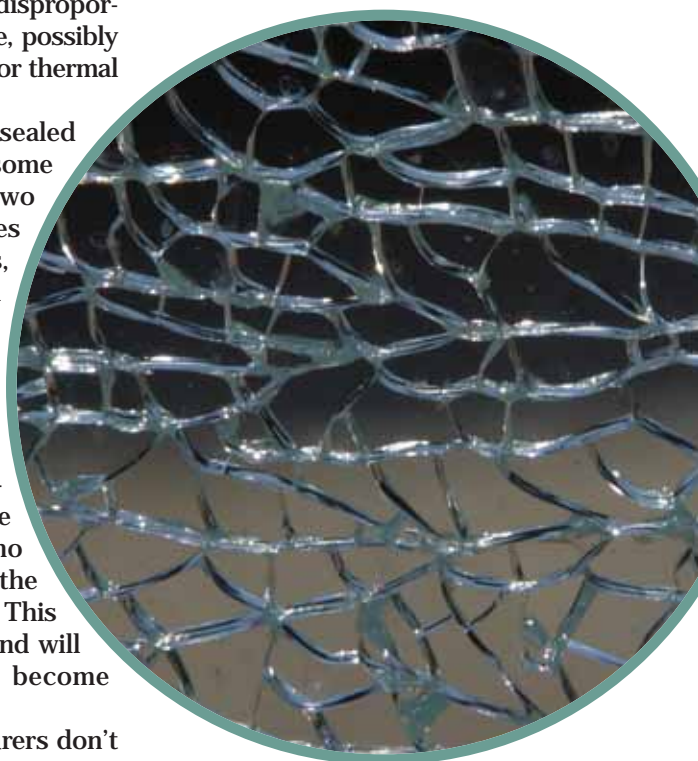
Window film manufacturers don’t deny these conditions are possible when film and glass products are matched improperly, but they also maintain that—the right film applied to the right glass, in a properly constructed IG unit, does *not* lead to failure. And many window film manufacturers are confident enough to back their claims up with

a warranty that not only covers their own products, but the products to which they are applied.

### Who’s at Fault

There are a number of possible reasons for IG seal failure. According to information published by the International Window Film Association (IWFA), premature failure of sealed units is usually caused by: poor initial design; poor workmanship during fabrication; or poor frame design. The Sealed Insulating Glass Manufacturers Association (SIGMA), who later merged with the Insulating Glass Manufacturers Association of Canada (IGMAC) in October of 2000, to form the Insulating Glass Manufacturers Alliance (IGMA), conducted a longevity study starting in 1980, which found that sealed unit

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**Window film and insulating glass (IG) manufacturers agree that thermal stress fracture (TSF) can occur as a result of heat absorption caused by window film. But film manufacturers say that when correct film types are used on IG units, TSF is not an issue.**

stalling us, I talked

to several window companies that came out to give us an estimate,” she says. “Most said [the break] was because of heat build-up between the window panes.”

### Point of Contention

It’s not surprising that these window replacement companies would be quick to jump on the heat-build-up bandwagon. Insulating glass manufacturers have been pointing fingers at window film and warning consumers about this issue for years. In fact, many back up their argument by declaring their manufacturer’s warranty null and void in the event that window film is applied. (See related story in the September-October 2006 issue of *WINDOW FILM*, page 16.) This is an issue that has served as a point of contention between the insulating glass (IG) and window film manufacturing industries for decades. And it doesn’t stop there. The ripple effects caused by this issue have interfered with other potential business relationships—namely between window film dealers and home builders.

“Most tinters install for the homeowner, not the home builder,” says Mark Bollegar, president of MarketPro Direct and marketing director for Global Window Films in Pembroke Pines, Fla.

Bollegar says his company has few, if any, dealers who have been successful in penetrating the home builder market.

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designs passing the highest level of performance testing failed at a rate of approximately four percent over a 15-year period. Units testing at lower performance levels failed at a rate of approximately ten percent over the same period. Since that time, IWFA says additional information indicates that newer IG units still have a failure rate of one percent. That means one in every 100 is expected to have seal failure.

IWFA executive director, Darrell Smith, says a written request to major sealed unit manufacturers for test results used to validate voided warranties due to window film installation resulted in no evidence.

"This research has been presented and distributed to many groups over the years (like IGMA and the Window and Door Manufacturers Association) and there has been no refutation of it to date," Smith says. "We believe our point is estab-

lished—that window film use, with the proper film specified for the specific type of window and glass, along with proper installation, will not affect a quality insulating window."

The Window Film Committee of the Association of Industrial Metallizers, Coaters and Laminators (AIMCAL) hired an independent researcher, who served as a technical consultant for SIGMA. Standard ASTM tests were conducted on IG units with and without window film applied. Findings on residential units showed that five out of the six units tested with applied window film would have passed the highest rating requirements of the ASTM test methods for sealed insulating glass. And the one unit, which did pass requirements but simply not the very highest standard, was found to perform at a lower rating due to the assembly process of the unit—not the window film.

### The Test of Time

St. Paul, Minn.-based 3M Co. says that its Scotchtint™ window film products simply do not cause seal failure.

"We've been applying 3M™ Scotchtint™ films to insulated windows for more than 30 years with several millions of square feet of film applied to date," the company's website says.

3M admits that recommended films applied to the inside lite of an IG unit will create some heat absorption resulting in a temperature increase for the glass lite; but the company says that even a 20-degree-Fahrenheit increase (which it says is unusual for most films) will result in less than a three-percent change in air pressure within the sealed unit. 3M says a properly manufactured IG unit should be designed to withstand 22 percent changes in pressure. As for glass breakage, the company says its 30-plus years of experience enables it to make proper recommendations to minimize the potential. The company supports its recommendations with a 60-month glass breakage warranty that covers glass replacement and the applied film.

Many film manufacturers say it's high time to put builders' minds at rest. Window film is an obvious candidate for the add-on list and manufacturers say builders shouldn't be afraid to reap the benefits. But it may take more than just a beefed-up warranty.

"With 25 years experience in new home construction and sales, I have talked with several of my dealers regarding their involvement with residential builders," says Alan Lamm, district representative for CPFilms Inc. in Martinsville, Va. "Most window film companies have a limited relationship with builders," he says. "Builders are afraid of homeowners calling regarding broken seals and cracked glass due to heat absorption."

Cody Forbes, marketing director

### DUAL PANE INSULATING GLASS UNIT (IGU)

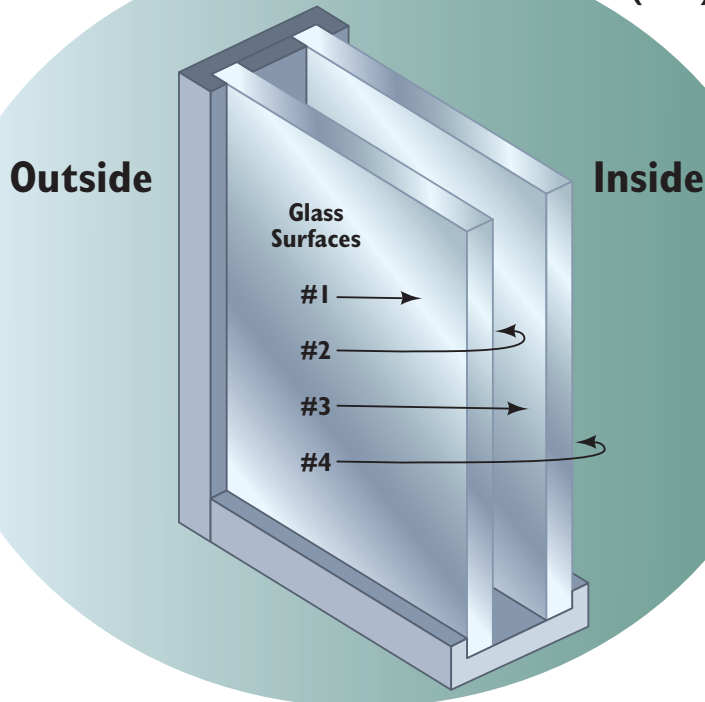


Image provided by Global Window Films in Pembroke Pines, Fla.

Insulating glass (IG) manufacturers claim that window film applied to the inside surface of an IG unit (#4) causes heat build up, due to absorption caused by the window film. For this reason, they claim that the surface temperature of the inside lite (#3) of glass increases and expands disproportionately to the outside lite (#1), possibly leading to seal failure and/or thermal stress fracture.

I think we as an industry have to do a better job of educating dealers on how to sell to home builders, architects, building managers, etc. ... when you are dealing with a more sophisticated and discriminative audience, you need to have a much stronger selling platform.

—Cody Forbes, marketing director for Johnson Window Films

for Johnson Window Films in Carson, Calif., says builders simply need to be provided with the facts and window film dealers need to be educated on how to present those facts properly.

“I think we as an industry have to do a better job of educating dealers on how to sell to home builders, architects, building managers, etc.,” Forbes says. “Selling an auto tint job to car owners is relatively easy. But when you are dealing with a more sophisticated and discriminative audience, you need to have a much stronger selling platform.”

Forbes suggests that dealers should incorporate the facts about film and glass failure into a home builder-oriented presentation.

“A comprehensive presentation that truly outlines the myths and truths regards IG failure and film in general is a must for this audience,” he explains.

Bollegar did just that for Global Window Films. A brochure labeled “Solar Control Window Film and Glass—Selecting the Right Film,” assures customers that their Global dealer is capable of guiding their decision. He also provides them with an overview of how the proper window film product is matched to their specific windows and needs. It doesn’t beat around the bush pertaining to seal failure and TSF, but goes straight to the issue in the first few pages, stating:

“As solar control window film continues to grow in popularity, it’s more important than ever to understand exactly how the installation of film impacts flat glass. When the proper window film is installed on undamaged glass, there are seldom any problems. However, under certain circumstances the installation of an improperly selected window film can contribute to thermal stress fracture (TSF) and even lead to insu-

lating glass unit (IGU) seal failure.”

Like 3M, Global’s information admits that heat absorption is a fact, stating: “Once installed, almost all window films will cause increased heat absorption in the glass [lite] treated with film.” It goes on to explain the malfunction, just as window manufacturers allege: “When thermal expansion occurs in an insulating glass unit (IGU) the inside [lite] treated with window film can expand more than the untreated outside [lite]. This causes a disparity in thermal expansion between the two [lites] of glass, which may result in thermal stress fracture or IGU seal failure, allowing moisture to get in between the [lites].” But the literature goes on to explain that these issues can be alleviated by pre-inspecting windows for damage and/or faulty construction and by simply pairing the right film product with the right window—something Giles’ dealer may have failed to do.

### Making It Right

So what about Mrs. Giles and her dealer? Well, Giles says her house was built in 1995, so the builder was long removed from the picture. But, there’s more to the story. She says the installers originally used improperly sized film, then, several hours into the project, quickly realized this and placed an order for the correct size. She says they returned at a later date to remove the original film and install the properly sized film, and both installations took two hours or more. This didn’t reassure her that her dealer knew how to match the proper film to her window.

The crack, she says, began around 15 minutes after the second installation.

“I don’t even want to say what, in fact, caused the breakage,”

Giles says. “The simple fact is—it did break as a result of his work on the window.”

She hasn’t experienced any problems with the rest of her windows and continues to enjoy the benefits of window film, but worries that this particular dealer may be better off sticking to cars.

“It’s not about the money. It’s really a cautionary tale to people who may be considering these services. There are people out there that don’t stand behind their promises. He said from the beginning and throughout the three to four month period, ‘If something isn’t right on our part, we will fix it,’” she says.

And he did. And the dealer says one bad apple in 22 years of business isn’t enough to make him stop installing on wood-framed windows.

“This was definitely a lesson on our behalf,” he says. “I’ve been doing wood frames all along and I’ve never had a problem. Our solution—from here on out, if we come across a customer with a wood frame, we’re going to give them a verbal and insist they sign the contract. We’re just going to let them know, wood expands and contracts; there is a small possibility that this could break and it’s not covered.”

Giles says she feels the situation has been rectified and the damaged window has been replaced with a low-E model. After doing her homework, she opted to not have film installed due to possible conflicts with the low-E coating. Though, there are window films designed for that specific scenario.

It seems this case supports the film manufacturers’ claims. It was simply a mismatch from the beginning. **WF**

Drew Vass is editor of WINDOW FILM magazine.