



STRESS CRACKS

Questions & Answers

WHAT ARE STRESS CRACKS?

A stress crack in an insulated glass unit is a crack in the glass that starts as a single crack from near the edge of the unit and often continues to “walk” across the glass.

ARE THEY COMMON?

No. But they can occur for various reasons.

WHY DO THEY OCCUR?



Scientifically speaking:

Stress cracks typically occur in windows when a thermal gradient causes different parts of the glass to expand by different amounts. At some point, the stress of the expansion may overcome the strength of the glass, causing a crack to form.



In normal-speak:

Extreme temperature fluctuations are the most common cause for small window cracks. If you have your heat turned way up and the outside temperature drops suddenly, your window may crack. Similar to what might happen if you poured cold water into a hot baking dish that you just took out of the oven or microwave.

As the cold liquid touches the hot dish, there’s an uneven increase in the thermal expansion of the walls of the baking dish. If the expansion is significant enough and the dish is thin or has a flaw, it will break.

Extreme temperatures aside, there are also other reasons that stress cracks crop up. For instance, stress cracks can also be caused by appropriately enough...stress. If the operating part of window is slammed open or closed, the force can cause a stress crack to occur. Of course, if the force of action is severe enough, the glass may break entirely.

Finally, another cause of stress cracks is the settling of your home and its foundation, which move slightly after being built. By most accounts, most settling is done within the first year. However, there is no specificity to the amount of time it takes.

ARE CERTAIN WINDOWS MORE SUSCEPTIBLE?

The type of window doesn’t necessary have anything to do with stress cracks. However, the size of the window could have some influence. So can the age of the windows. Where the window is located in the home and its surroundings can increase the chance of stress cracks too.

While stress cracks can happen in any window of any size, they seem to occur in large windows more than others. Especially those that are beneath overhangs or recessed behind a protruding outward room. This is because the shadows from these overhangs create an extreme change in glass temperature - the shady side is cool and the sunny side is hot. Once the expansion and contraction of the glass becomes too much, it cracks.

Windows in new homes are more prone to stress cracks than older windows. That’s because a new house has yet to settle.

In some instances, changes in your home’s surroundings can be the culprit. For example, if a new house goes up next door, previously sun-basked windows are now in a shady area and stress cracks could occur. On the other hand, if a large shade tree near your home is lost, windows in this pre-





viously shaded area of your home will now be the sun and may become a prime target for a stress crack.

ARE STRESS CRACKS EASY TO IDENTIFY?

Yes, but understand that there are couple general types so identifying it properly is important.

- *Thermal stress Cracks and Pressure Cracks* — These are basically the same thing...just caused by different creatures. Thermal stress cracks come from extreme temperature differentials. They start perpendicular to the glass edge, usually running from the edge of the glass for about a half-inch inward. At that point, it can go in any direction. Just be aware that cladding or trim can hide the edge of the glass, so you may not see a thermal stress crack right away. Pressure Cracks are found in insulating glass that is installed at too high or too low of an elevation level. It can also be attributed to severe changes to severe pressure changes in the weather.
- *Impact crack* — A starburst pattern that radiates from a central point. Hitting a window with a baseball could result in an impact crack.



CAN STRESS CRACKS BE PREVENTED?

Not really.

Since stress cracks are most often a natural result of temperature changes, it's hard to totally prevent them. However, there are some things you can do to reduce the possibility they show up. Purchasing windows with thicker glass panes can help decrease your risk. Also, choosing glass features such as tempered (safety) glass or reflective tints based on your climate and sun exposure will help too.



ARE STRESS CRACKS WARRANTED?

Quaker offers one (1) year of coverage against stress cracks on our windows.

Coverages from other window manufacturers vary. If you're unsure, check the company's website.



HOW DO I FIX A STRESS CRACK?

While a stress crack may not look big or be terribly disruptive to your view, that doesn't mean the glass shouldn't be replaced. Stress cracks not only cause an energy loss by letting in hot or cold air, but the crack can worsen over time and the entire window may eventually break.

WHAT DO I DO IF MY WINDOWS HAVE A STRESS CRACK?



If your home has Quaker windows, and you have a stress crack, please contact your locally authorized Quaker window dealer for information and assistance on replacing your stress cracked glass. Not sure who your local Quaker dealer is? Go to www.quakerwindows.com or call our home office at 800-347-0438.



Additional sources used:
www.chicagowindowexpert.com
www.ehow.com
www.uswindowfactory.com
www.lamiglass.ca
www.pella.com