

## Thermal Stress Fractures in Glass and GAP Warranty Obligations

A relatively common occurrence with insulated glass is the phenomenon called Thermal Stress Fractures, which is the spontaneous cracking of a piece of glass. This breakage is caused by the temperature differential between the edge of a piece of glass and the center of the glass. Temperature differentials can be caused by the partially shading of a piece of glass or quick changes in the ambient temperature (e.g. nighttime to daytime).

The use of tinted and coated glass will increase the possibility of thermal stress breaks since they absorb or reflect heat. The location of the coated surface is an important consideration as certain locations can increase the possibility of stress cracks. In general the low emissivity coating should not be placed on the #3 surface for a dual IG unit and the #4 on a triple IG unit. If tinted glass is used on the exterior lite with the low emissivity coating on the alternate lite then heat strengthening or tempering of the tinted lite is recommended. Heat strengthened or tempered glass will reduce the likelihood of stress fractures to less than 1 per 1000.

In most situations, stress cracks will occur within the first year of exposure to temperature fluctuation or variable solar exposures. In many cases, what is reported as a "stress fracture" is actually an accidental or breakage from abuse. Only IG units supplied and glazed by Graham are warranted against stress cracks. That warranty is for one year regardless of the seal failure warranty.

A warranty claim must be filed within one year of the effective installation and/or warranty date and must be accompanied by photographs of the specific piece of glass being submitted for replacement. Graham will review the information and if we determine that it is a stress crack that is covered, Graham replace the piece of glass. Removal and replacement is to be handled by others and this labor is not covered under our warranty.