



**GERKIN™**  
WINDOWS & DOORS

June 26, 2014

**Subject: High Altitude Glass for the Mountain States**

Gerkin Windows and Doors has been supplying windows and doors throughout the Rocky Mountain States for many years. It has been our policy to allow fully sealed glass with argon in altitudes up to 6000 feet above sea level. Gerkin manufactures glass at 1100 feet. Using the insulated glass guidelines by Cardinal Glass, glass can be provided without capillary tubes up to 5000 feet above the manufacturing altitude of the glass.

We will continue to offer windows under this policy; however it will be up to the dealer and or owner of the project to determine if capillary tubes are wanted for elevations lower than 6000 feet. There is no magical elevation cut-off for sealed glass. There is an obvious pressure difference from our manufacturing elevation of 1100 feet and the Front Range. Below is a quote taken from a Cardinal Glass technical bulletin concerning sealed glass in high altitudes:

“When a sealed insulating glass unit is exposed to windloads, local barometric pressure fluctuations, temperature swings, or an altitude change, a pressure imbalance is created. Depending on the glass stiffness, there are four potential problems associated with these pressure loads”

- Damage to the insulating glass hermetic seal
- Glass breakage
- Excessive deflection and clearance problems for operating windows
- Complaints about unacceptable distortion resulting from glass deflection. (The perceived distortion for a given deflection is a subjective item.)

Due to these potential issues in higher altitudes that are less than 6000 feet, Gerkin Windows and Doors is going to require dealer confirmation on whether or not capillary tubes are needed on each order. If capillary tubes are not wanted, Gerkin will not offer warranty coverage concerning bowed or distorted glass as described in the last bullet point.

There are many variables to consider when making a decision whether to use capillary tubes or not. Here are a couple things among many to consider:

- What has been your previous experience with bowed and distorted glass in your area from windows manufactured at lower altitudes?
- What is more important to your customer....thermal performance or esthetics?

When capillary tubes are needed or wanted, argon gas can no longer be used and thus the u-value of the glass will be reduced. As alternative to argon gas, Gerkin does offer an air filled double Low E option. This option uses Low E 366 on the #2 surface and Low E i89 on the #4 surface. This glass combination can be used to offset the u-value performance loss when argon is not used.

If the double Low E option is used, it should be noted that there will likely be additional condensation on the glass on colder days. Condensation resistance test results show that by adding i89 to Low E 366 that there is a loss in condensation resistance as compared to Low E 366 used by itself. This lower performance occurs because the i89 reflects heat from the inside and thus keeps the glass surface cooler. Using i89 also does change the visible lite transmittance slightly. There will be a slightly darker tint to the glass when i89 is added to 366.

If you have any questions about this information, please contact your Gerkin representative.