



Thermal Aluminum Twisting (Bowing, Expansion of Thermally Broken Aluminum)

Cold Climate Exposure

Aluminum is an efficient conductor of energy. Consider how quickly an aluminum frying pan heats up compared to steel or iron. Therefore, it should NOT be the choice for windows in extreme cold climates **UNLESS** all extrusions are thermally broken. “Thermal break” is the addition of a polyurethane, polyimide (or similar plastic) isolator between the interior and exterior of each extrusion. If done properly most of the cold energy will not transfer to the interior surfaces of the window frame.

Hot Climate & Direct Sun Exposure

When thermally broken aluminum is exposed to radical surface temperature changes, e.g. direct sun after a cold night, the aluminum will temporarily (few hours) bow or “twist”. The bowing/twisting/expansion is simply a natural reaction to the rapid change in temperature of the inside and outside extrusions. This phenomenon is primarily limited to the suspended verticals of a sliding door.

Additionally, thermal break was designed as a cold & frost inhibitor NOT for heat. Though the isolator slows down the transfer of heat, some will be felt. In particular, the short wave radiating through the glass will warm up exposed metal.

Warranty

Thermal twisting/bowing will NOT affect the product warranty. As stated, it is a temporary reaction to rapid extreme temperature changes. Fleetwood’s products were engineered to handle these changes without damaging the product.

Design Suggestions

1. Shield the product from direct sunlight (sunscreens...) during exposure hours.
2. Select non-thermally broken products.
3. Order vertical stiffeners if available as an option.
4. Order a lighter product finish to reduce some of the heat absorption.