



Smart Building Practices: Extreme Weather

Design Paradigm: Fleetwood designs its products for the minimalist. This design purpose results in products with small sightlines in order to maximize the glass. Locations that have the potential for extreme weather conditions are often selected to build a luxury home. Many of these locations offer views and experiences unequalled in more innocuous locations. Before purchasing windows and doors for such locations, detailed planning is required. The purpose of this document is to draw attention to some of the factors that should be included in the planning.

Water Infiltration

- Fleetwood can manufacture products to meet most any specified water performance. Unless otherwise requested, Fleetwood will build products that meet a basic single-family home water exposure. For example, hinged doors that swing to the interior offer much lower performance than exterior swinging doors. *(Be sure to reference Fleetwood's order paperwork to confirm the specifications. Authorized Dealers will provide a copy of the factory order at no charge.)*
- If the window/door is to be installed more than 30' above grade level (AGL), near a cliff or significant geographic feature, attention should be given to ordering products that meet at least 4 psf water performance.

Air Infiltration

- Products installed above 30' (AGL) are more susceptible to more air infiltration at higher wind pressures.
- Sliding products offer several lifestyle benefits but allow more air than compression seal products that are hinged. Steps can be taken during ordering and installation to mitigate air infiltration but hinged products should be selected if air reduction is a high priority.

High Wind Loads

- Most products offered by Fleetwood can be modified in the factory to meet higher wind load requirements. *(Be sure to reference Fleetwood's order paperwork to confirm the specifications. Authorized Dealers will provide a copy of the factory order at no charge.)*
- Determining project wind speed:
 - Design Pressure * 1.5 = X
 - $X/5.202 = X1$
 - $X1/.00048 = X2$
 - The square root of X2 = Wind Speed (MPH)

Hurricane/Impact/HVHZ

- Review [Installation Instructions](#) for Anchor Schedule

Condensation

- Review [Condensation](#)

Frost

- Review [Frost](#)



Thermal Bridging

- Thermal bridging occurs when thermal material has failed to reduce energy conduction such as heat flow. When thermally broken windows/doors are installed, the location of the thermal material should be in line with that of the rest of the wall thermal material.
- Because thermal material in a window or door is NOT designed to hold water, sill panning is required. Review [Extreme Weather](#) in our installation instructions.
- Review [Thermal Aluminum Twisting](#)
- Review [Thermally Broken Framing](#)
- Ice storms can bridge thermally broken sections of windows. Once the ice melts, the window/door will resume intended design.
- Design and building professionals should be referencing the ASTM standards associated with flashing and panning. One such reference is ASTM E 2112-07.

Extreme Solar Heat/Short Wave Radiation (Direct Sun Exposure)

- Aluminum products are well suited to handle extreme sun exposure but thermally broken aluminum extrusions can temporarily distort or bow due to interior/exterior temperature differential. In taller products this bowing may impede operation for a few hours.
- Review [Thermal Aluminum Twisting](#) ; [The Energy Code Trap](#)
- The best glass for these locations is one that has a lower SHGC than clear glass. Ask our Authorized Dealer for samples.

Project Locations Exceeding 3,000' Above Sea Level

- Fleetwood's factory is positioned at about 700 feet above sea level. For projects located in elevations above 3,000 feet, any insulated glass should be specified to have capillary tubes that allow the air within the insulated glass unit to regulate the pressure change as it rises in elevation. Capillary tubes disallow the option of an argon fill of the airspace.
- The installer must close the capillary tubes when the products arrive on site to prevent moisture from entering the air space.

Coastal Corrosion

- Review [Care & Maintenance Instructions](#)