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Comparison of Glazing Types

LAMINATED SAFETY GLASS is made by bonding a tough polyvinyl butyral (PVB) plastic interlayer between two pieces of glass under heat and pressure in an autoclave (a type of furnace that combines heat and pressure). Laminated glass is typically made with annealed, heat-strengthened, or tempered glass and is a commonly used for fully framed window systems.

Key features:

- Reduces danger of flying or falling glass shards
- Resists penetration and forced entry
- Screens out 99 percent of the sun's ultraviolet rays
- Improves the thermal benefits of insulating units

FULLY TEMPERED GLASS is four times stronger than annealed glass. It is made by rapidly cooling annealed glass that has been heated in a furnace. Tempered glass is commonly used in frameless window systems because of its strength and the fact that the edges may be rounded and polished.

Key Features:

- Crumbles into many tiny pieces when broken
- Strong, but brittle with very fast crack propagation (shatters)
- Limited potential to produce sharp shards upon breakage

INSULATING GLASS (IG) units consist of two or more panes of glass that are separated by an air space. The amount of air space between the panes determines the glass systems' energy performance and acoustical benefits. IG units can be made with annealed, tempered, heat strengthened, or laminated glass.

Key Features:

- Offers significant thermal protection
- Provides noise reduction
- Poses the danger of broken glass, depending on which type of glass is used

POLYCARBONATE is a very durable material suitable for use in both framed and frameless windows. Although it is high impact-resistance, it has low scratch resistance and requires a hard coating to be applied.

Key Features:

- Reduced weight compared to glass – near 50% reduction
- High impact resistance – 60-70 times greater
- Improved thermal efficiency compared to glass

For additional information relating to this bulletin, contact: AskArowGlobal@arowglobal.com