

Optical Distortion in SeaStorm® Laminated Glass Fabricated with Encapsulated PET Film

Laminated glass is typically used in windows and doors requiring safety glazing, security glazing, burglary resistance, sound control, ultraviolet filtering, and hurricane impact-resistance. Laminated glass is produced by bonding a plastic interlayer (often polyvinyl butyral) between two or more panes of glass under heat and pressure in an autoclave.

SeaStorm® PET laminated glass is produced by bonding, or encapsulating, a plastic PET (polyester) film within the PVB interlayer. The result is a durable high performance glazing composite material, which if broken, tends to retain glass fragments and reduces the risk of injury or property damage.

SeaStorm® PET was originally developed by Cardinal LG to meet hurricane impact codes that are required along the Atlantic and Gulf coasts. SeaStorm® PET laminated glass can be used in applications requiring advanced penetration resistance, such as hurricane impact-resistant windows and doors. The laminated glass penetration resistance is enhanced due to the PET film's mechanical properties that resist tearing and stretching.

The optical properties of the PET film are closely matched to the properties of the PVB interlayer and glass substrate; however the PET film can be visible primarily when viewed in reflectance under certain viewing conditions.

Under critical viewing conditions, the reflected light from the PET film will sometimes be noticeable as ripples, dimples, or as waves with an inconsistent pattern. The ripples in the PET film will not typically distort visible images when viewed in transmission. However when used in conjunction with tinted (gray, green, bronze, white, etc.) PVB interlayers, PET film ripples may result in a spotted or streaked appearance that can be visible in transmission.

Cardinal's manufacturing processes (laminated glass lay-up and autoclave) are tightly controlled to minimize the appearance of PET film ripples. However, with the SeaStorm® PET laminated glass products, there is the possibility of distortion when the glass is viewed at angles not normal to the glass and in reflection.

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