

## STRAIN PATTERNS

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Strain patterns, sometimes referred to as iridescence, anisotropy or quench patterns, are an inherent characteristic of heat treated glass. The pattern is related to the effects of the multinozzle (tube) air quench sections used in current horizontal roller hearth and automotive tempering furnaces. These differences in strain show up optically when viewed under polarized light. Since direct sunlight has a component that is polarized, it can cause the pattern to become visible. Wearing polarized sunglasses will increase the effect. A coating with more reflectance can accentuate the intensity of these dark areas. The heat treated process involves heating the glass to its softening point and then quickly cooling or 'quenching' the glass surfaces with a series of nozzles. Strain pattern, seen with certain lighting conditions and is a characteristic of all tempered and heat strengthened. The pattern of the strain may vary from one manufacturer to another. However, the effect cannot be eliminated in heat-treated glass. Strain pattern is positive confirmation that the glass has been thermally strengthened.

The governing standard on heat-treated glasses is ASTM C1048, Heat Treated Flat Glass – Kind HS, Kind FT Coated and Uncoated Glass. In this standard, strain pattern is recognized as a common occurrence. Section 7.5 of the standard clearly states that strain pattern "is a characteristic of these kinds of glass [heat-treated] and should not be mistaken as discoloration or non-uniform tint or color."

In addition, the Glass Association of North America (GANA) has published the Glass Information Bulletin GANA TD-05-0108 Quench Patterns in Heat Treated Architectural Glass. This is available at [www.glasswebsite.com/](http://www.glasswebsite.com/)

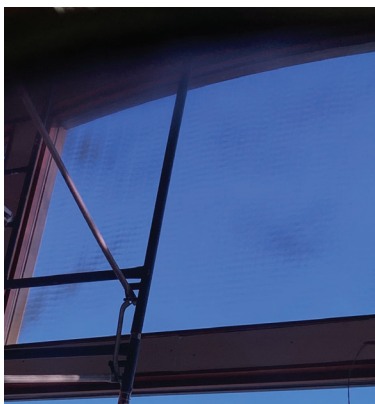


Image 1.

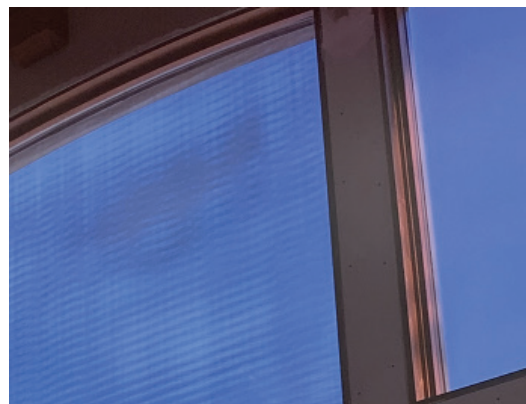


Image 2.

Since the phenomenon of strain pattern is the effect of ambient site conditions, the heat treating process, and glass or coating selection, remedial action is difficult to achieve. As such, the inherent appearance strain pattern **is not a defect nor cause for rejection** of heat treated glass.

**Your Lepage Millwork Team**