



Technical Bulletin
Rev. 1/15/08

Thermal Stress - Avoiding Glass Breakage

Any heat absorbing glass may break due to excessive thermal stress. Thermal stress is greater and breakage is more likely to occur in insulating units than in monolithic glass. The addition of reflective or Low-E coatings will increase heat absorption in glass and will make thermal stress breakage more likely. If thermal stress breakage is a potential problem, the glass should be Heat Treated (either Fully Tempered or Heat Strengthened; see Technical Bulletin 2/16/07 *Tempered Glass and Heat Strengthened Glass*). Heat Treating the glass increases the mechanical strength of the glass to a point that solar-induced thermal stress breakage cannot occur, although, heat treated glass may break due to other causes.

Building features can increase the amount of stress placed on the glass. These include shading patterns on the glass from columns, spandrel beams, soffits or sunscreens; the color and location of drapes or blinds; and even the altitude of the job site. For these reasons, Vitro America cannot be responsible for thermal stress breakage. The glazing contractor must determine if a thermal stress problem exists and if the glass should be Heat Treated to prevent breakage of the glass.

Vitro America Guidelines

These guidelines are based on buildings with no exterior shadows, medium or dark ventilated blinds that are 6" or more away from the glass, and a job site altitude below 1000'. For different conditions, contact Vitro America's Technical Service Department for assistance.

Monolithic Glass

- The following products may need to be heat treated if they exceed 30 sq. ft. in area:

6.0 mm Atlantica (PPG)	6.0 mm EverGreen (Pilkington)
6.0 mm Azuria (PPG)	6.0 mm Supergrey (Pilkington)
6.0 mm Caribia (PPG)	6.0 mm Versalux Blue 2000 (Visteon)
6.0 mm Graylite "14" (PPG)	6.0 mm Versalux Green 2000 (Visteon)
6.0 mm Optigray "23" (PPG)	6.0 mm Versalux Gray 2000 (Visteon)
6.0 mm Arctic Blue (Pilkington)	



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- The following glass types need to be Heat Treated for all applications.

6.0 mm Solarcool Azuria (2) (PPG)	6.0 mm Eclipse Advantage Grey (2)
6.0 mm Solarcool Bronze (2) (PPG)	6.0 mm Versalux Blue R (2) (Visteon)
6.0 mm Solarcool Caribia (2) (PPG)	6.0 mm Versalux Blue 2000R (2) (Visteon)
6.0 mm Solarcool Gray (2) (PPG)	6.0 mm Versalux Blue 2000 T (2) (Visteon)
6.0 mm Solarcool Graylite (2) (PPG)	6.0 mm Versalux Bronze R (2) (Visteon)
6.0 mm Solarcool Solexia (2) (PPG)	6.0 mm Versalux Green R (2) (Visteon)
6.0 mm Eclipse Advantage Arctic Blue (2)	6.0 mm Verslx Green 2000 R (2) (Visteon)
6.0 mm Eclipse Advantage Blue-Green (2)	6.0 mm Verslx Green 2000 T (2) (Visteon)
6.0 mm Eclipse Advantage Bronze (2)	6.0 mm Versalux Grey R (2) (Visteon)
6.0 mm Eclipse Advantage EverGreen (2)	

Insulating Units

- The following products may need to be Heat Treated when they exceed 40 sq. ft. in area.

1" Blue-Green or Solexia / Clear	1" Solarcool Solexia (1) / Clear
1" Bronze / Clear	1" Versalux Blue R (1) / Clear
1" Gray / Clear	1" Versalux Blue 2000 R (1) / Clear
1" Solarcool Azuria (1) / Clear	1" Versalux Bronze R (1) / Clear
1" Solarcool Bronze (1) / Clear	1" Versalux Green R (1) / Clear
1" Solarcool Caribia (1) / Clear	1" Versalux Green 2000 R (1) / Clear
1" Solarcool Gray (1) / Clear	1" Versalux Grey R (1) / Clear
1" Solarcool Graylite (1) / Clear	1" Solarban 60 (2) / Clear
1" Solarban 70 (2) / Clear	

- The following products may need to be Heat Treated when they exceed 20 sq. ft. in area.

1" Atlantica / Clear	1" Arctic Blue / Clear
1" Azuria / Clear	1" EverGreen / Clear
1" Caribia / Clear	1" Versalux Blue 2000 / Clear
1" Graylite / Clear	1" Versalux Green 2000 / Clear
1" Solarban 80 (2) / Clear	



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- The following glass types need to be Heat Treated for all applications.

1" Optigray 23 / Clear	1" Eclipse Advantage Grey (2) / Clear
1" Solarcool Azuria (2) / Clear	1" Versalux Blue R (2) / Clear
1" Solarcool Bronze (2) / Clear	1" Versalux Blue 2000 R (2) / Clear
1" Solarcool Gray (2) / Clear	1" Versalux Blue 2000 T (2) / Clear
1" Solarcool Graylite (2) / Clear	1" Versalux Bronze R (2) / Clear
1" Solarcool Solexia (2) / Clear	1" Versalux Green R (2) / Clear
1" SuperGrey / Clear	1" Versalux Green 2000 R (2) / Clear
1" Eclipse Advant. Arctic Blue (2) / Clear	1" Versalux Green 2000 T (2) / Clear
1" Eclipse Advant. Blue-Green (2) / Clear	1" Versalux Grey R (2) / Clear
1" Eclipse Advantage Bronze (2) / Clear	1" Versalux Grey 2000 / Clear
1" Eclipse Advant. EverGreen (2) / Clear	1" Solarban z50 (3) / Azuria (both lites)
1" Vistacool Azuria (2) / Clear	1" Solarban z50 (3) / Atlantica (both lites)
1" Vistacool Cariba (2) / Clear	1" Solarban z50 (3) / Caribia (both lites)
1" Vistacool Solargray (2) / Clear	1" Solarban z50 (3) / Solexia (both lites)
1" Solarban z50 (2) Clear / Clear	1" Solarban z50 (3) / Gray (both lites)

Low E Insulating Units

The following glass types need to be Heat Treated for all applications when used with **any** type of Low E coating.

- All tinted glass when used with a Low E (3) glass.
- All reflective glass [either (1) or (2) surface] when used with a Low E (3) glass.
- All tinted or tinted reflective glass with a Low E coating on the (2) surface.

For questions about specific projects or product combinations not listed, contact Vitro America's Technical Service Department.



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