

1.PPG-When to Heat-treat the Outboard Lite to Prevent Thermal Breakage/Table 17 &18

Please note this is the current PPG Tables (replacing Tables 13 & 14):

Note the size restrictions on when glass needs to be heat-treated in Table 18 are based on the design and installation assumptions made in Table 17. If any of the assumptions from Table 17 are not true, then Table 18 is not applicable. Please contact your local PPG representative if you have any questions. (Updated 2/22/08)

Glass Technical Document

TD-109

THERMAL STRESS GUIDELINES

The guidelines in Table 18 are general and have been prepared based on the assumed glazing and installation conditions in Table 17. The assumptions used may or may not be representative of your specific project. The guidelines presented are not a substitute for a rigorous thermal stress analysis and are offered only as a quick, first-step evaluation tool. The actual design conditions for your project must be compared to those assumed for the guidelines. If the assumptions used are representative or more severe than those for your project, then the guidelines may be appropriate; if the assumptions are less severe, then a thermal stress analysis must be done.

All of the analyses that were performed to develop the guidelines in Table 18 assumed good quality clean cut edges. Even slightly damaged edges can significantly weaken the glass edge strength and lead to increased thermal stress breakage.

TABLE 17
ASSUMED DESIGN AND INSTALLATION CONDITIONS
USED TO DEVELOP GLASS AREA GUIDELINES IN TABLE 14

1. **FRAMING:** Thin aluminum or structural rubber gaskets
2. **OUTDOOR GLAZING STOP COLOR:** Dark
3. **HEATING REGISTERS:** Indoors of the shading devices and directed away from the glass
4. **DESIGN WINTER TEMPERATURE:** +10° F. to + 30° F.
5. **ALTITUDE:** Below 5,000 feet
6. **ADJACENT REFLECTING SURFACES:** None
7. **OUTDOOR SHADING:** outdoor lite shaded 50%
8. **INDOOR SHADING:** 6" or more from the glass and ventilated
9. **ADJACENT INDOOR STRUCTURAL POCKET:** None
10. **ACCEPTABLE PROBABILITY OF GLASS BREAKAGE:** 8 lites/1000 lites.
11. **GOOD QUALITY CLEAN CUT EDGES**
12. **APPLICABLE ONLY TO VISION GLASS UNITS.**

TABLE 18
GUIDELINES TO REDUCE THERMAL STRESS BREAKAGE IN ¼" (6MM) THICK ANNEALED GLASS
(ASSUMES GOOD QUALITY CLEAN CUT UNDAMAGED EDGES)

OUTDOOR LITE PPG GLASS PRODUCT	MAXIMUM RECOMMENDED GLASS AREA <i>SQ. FT. (SQ. M.)</i>				
	MONOLITHIC	INSULATING GLASS UNITS – INDOOR LITE AS SHOWN			
		UNCOATED	SUNGATE 500(3)	SUNGATE 100(3)	SOLARBAN 60(3) SOLARBAN 70(3) SOLARBAN 80(3)
AZURIA, CARIBIA, ATLANTICA	35 (3.2)	20 (1.8)	20 (1.8)	20 (1.8)	18 (1.7)
GRAYLITE	35 (3.2)	18 (1.8)	18 (1.7)	18 (1.7)	15 (1.4)
OPTIBLUE	55 (5.0)	40 (3.7)	40 (3.7)	35 (3.2)	27 (2.5)
SOLARBRONZE and SOLEXIA	50 (4.6)	35 (3.2)	35 (3.2)	30 (2.8)	22 (2.1)
SOLARGRAY	45 (4.2)	30 (2.8)	30 (2.8)	25 (2.3)	20 (1.8)
OPTIGRAY	30 (2.8)	15 (1.4)	15 (1.4)	15 (1.4)	15 (1.4)
	MONOLITHIC			INSULATING GLASS UNITS (CLEAR INDOOR LITE ASSUMED)	

	MONOLITHIC	INSULATING GLASS UNITS (CLEAR INDOOR LITE ASSUMED)
SOLARBAN 60/70/80(2) CLEAR	NA	35 (3.2)
SOLARBAN 60/70(2) STARPHIRE	NA	50 (4.6)
SOLARBAN 60(2) TINTED	NA	MUST BE HEAT TREATED
SOLARBAN z50 GLASS	NA	25 (2.3)
SOLARCOOL <i>Coated</i> AZURIA (1)	40 (3.7)	20 (1.8)
SOLARCOOL <i>Coated</i> AZURIA (2)	35 (3.2)	18 (1.7)
SOLARCOOL <i>Coated</i> CARIBIA (1)	40 (3.7)	20 (1.8)
SOLARCOOL <i>Coated</i> CARIBIA (2)	35 (3.2)	18(1.7)
SOLARCOOL <i>Coated</i> BRONZE (1)	45 (4.2)	30 (2.8)
SOLARCOOL <i>Coated</i> BRONZE (2)	45 (4.2)	25 (2.3)
SOLARCOOL <i>Coated</i> GRAY (1)	45 (4.2)	25 (1.8)
SOLARCOOL <i>Coated</i> GRAY (2)	40 (3.7)	20 (1.8)
SOLARCOOL <i>Coated</i> GRAYLITE (1)	40 (3.7)	20 (1.8)
SOLARCOOL <i>Coated</i> GRAYLITE (2)	35 (3.2)	15 (1.4)
VISTACOOl AZURIA(2)	40 (3.7)	20 (1.8)
VISTACOOl CARIBIA(2)	40 (3.7)	20 (1.8)
VISTACOOl GRAY(2)	45 (4.2)	22 (2.1)
CAUTION! These guidelines applicable <u>only</u> if design and installation conditions for the intended application are equal or less severe than those assumed in Table 17.		