# Glass Wind load Tables

The attached IG glass strength tables are to assist customers with glass selection to meet a given wind load. Wind loads are given as a DP or design pressure rating, usually in units of pounds per square foot (psf). A DP80 rating means the glass is required to resist a lateral wind force of 80 psf.

**Assumptions**

The attached tables are based on the governing standard for glass strength, ASTM E1300, "*Standard Practice for Determining the Minimum Thickness and Type of Glass Required to Resist a Specified Load*" which assumes a load duration of 3 seconds and a breakage potential of 8/1000 at design wind load. In addition, the table values reflect manufacturing and safe handling limits. As a result, some glass sizes may meet ASTM E1300 for a given wind load but not be acceptable due to safety and manufacturing concerns.

**Background**

As noted above, the attached tables are based on a 3 second load duration as described in ASTM E1300. Prior to the 2002 version of this standard, all loading was simulated at a 60 second load duration. Glass is a material that experiences what is known as "static fatigue". This means that the longer the load is applied the higher the probability of glass breakage. In the late 1990's design wind loads, as determined by ASCE 7, were adjusted to new weathering data and were seen to increase. However, this new weathering data was at a gust wind of 3 seconds in duration. Accordingly, the ASTM E1300 charts were adjusted in 2002 to reflect this change in duration from 60 seconds to 3 seconds. This change to a 3 second load duration is now incorporated into the International Building Code (IBC) and the International Residential Code (IRC). Use of the attached tables assures that glass is being selected according to requirements in these model codes.

**Using the Tables**

How to use the tables below:

1. Select dual pane or triple pane IG unit tables.
2. Select Annealed or Heat-Treated Glass Table.
3. Select the DP rating required.
4. For Annealed Glass Tables: Determine the Aspect Ratio, ≤2 or >2. The Aspect Ratio is the long dimension divided by the short dimension.
5. For Heat Treated Glass Tables: Select heat strengthened (HS/HS) or fully tempered (FT/FT) column.
6. Select glass thickness, scroll across to the appropriate DP rating column. This is the maximum square footage for the IG unit.

Example: A two pane IG with a dimension of 24” x 48” (8 square feet.) with annealed 3.0mm glass will meet a DP65 design pressure rating.

# Dual Pane Insulating Glass Size Limits
# Annealed Glass

**Maximum Area in Square Feet**

| Glass Thickness (mm) | DP80 | | DP65 | | DP60 | | DP50 | | DP40 | | DP30 | | Recommended Maximum Length (inches) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Aspect Ratio ≤2 | Aspect Ratio >2 | Aspect Ratio ≤2 | Aspect Ratio >2 | Aspect Ratio ≤2 | Aspect Ratio >2 | Aspect Ratio ≤2 | Aspect Ratio >2 | Aspect Ratio ≤2 | Aspect Ratio >2 | Aspect Ratio ≤2 | Aspect Ratio >2 | |
| 2.2 | 5 | 4 | 7 | 5 | 7 | 5 | 9 | 6 | 10 | 8 | 10[1] | 10[1] | 70 |
| 3.0 | 7 | 6 | 10 | 8 | 11 | 8 | 15[1] | 10 | 15[1] | 13 | 15[1] | 15[1] | 80 |
| 3.9 | 10 | 10 | 14 | 12 | 16 | 13 | 21 | 15 | 24[1] | 20 | 24[1] | 24[1] | 90 |
| 4.7 | 14 | 14 | 18 | 16 | 20 | 18 | 27 | 21 | 33[1] | 27 | 33[1] | 33[1] | 100 |
| 5.7 | 19 | 19 | 25 | 24 | 27 | 26 | 35 | 30 | 48 | 37 | 50[1] | 50[1] | 120 |
| 8.0 | 29 | 32 | 38 | 39 | 41 | 40 | 52 | 48 | 72 | 61 | 72[1] | 72[1] | 144 |

# Heat Treated Glass

**Maximum Area in Square Feet**

| Glass Thickness (mm) | DP80 | | DP65 | | DP60 | | DP50 | | DP40 | | DP30 | | Recommended Maximum Length (inches) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HS/HS | FT/FT | HS/HS | FT/FT | HS/HS | FT/FT | HS/HS | FT/FT | HS/HS | FT/FT | HS/HS | FT/FT | |
| 2.2 | 8 | NA | 12 | NA | 13 | NA | 15* | NA | 15* | NA | 15* | NA | 70 |
| 3.0 | 13 | 20[1] | 18 | 20[1] | 20 | 20[1] | 20[1] | 20[1] | 20[1] | 20[1] | 20[1] | 20[1] | 80 |
| 3.9 | 20 | 30[1] | 26 | 30[1] | 29 | 30[1] | 30[1] | 30[1] | 30[1] | 30[1] | 30[1] | 30[1] | 90 |
| 4.7 | 27 | 50[1] | 35 | 50[1] | 38 | 50[1] | 50[1] | 50[1] | 50[1] | 50[1] | 50[1] | 50[1] | 120 |
| 5.7 | 37 | 60[1] | 48 | 60[1] | 50 | 60[1] | 60[1] | 60[1] | 60[1] | 60[1] | 60[1] | 60[1] | 144 |
| 8.0 | 61 | 96[1] | 76 | 96[1] | 83 | 96[1] | 96[1] | 96[1] | 96[1] | 96[1] | 96[1] | 96[1] | 144 |

Notes:

1. Limitations are based on wind load, manufacturing tolerances, and safe handling limits.
2. DP Rating-Design Pressure in pounds/ft².
3. Limits shown do not apply to the IG units fabricated with mismatched glass.
4. Aspect ratio = 2 was used for AR≤2, and Aspect Ratio = 3 was used for AR>2 annealed glass calculations. Smaller aspect ratios may be more restrictive for maximum area.
5. Aspect ratio = 3 was used to determine heat treated glass limits. Smaller aspect ratios may be more restrictive for maximum area.
6. Size availability varies by manufacturing location.

# Triple Pane Insulating Glass Size Limits
# Annealed Glass

**Maximum Area in Square Feet**

| Glass Thickness (mm) | DP80 | | DP65 | | DP60 | | DP50 | | DP40 | | DP30 | | Recommended Maximum Length (inches) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Aspect Ratio ≤2 | Aspect Ratio >2 | Aspect Ratio ≤2 | Aspect Ratio >2 | Aspect Ratio ≤2 | Aspect Ratio >2 | Aspect Ratio ≤2 | Aspect Ratio >2 | Aspect Ratio ≤2 | Aspect Ratio >2 | Aspect Ratio ≤2 | Aspect Ratio >2 | |
| 2.2 | 5 | 4 | 7 | 5 | 7 | 5 | 9 | 6 | 10 | 8 | 10[1] | 10[1] | 70 |
| 3.0 | 7 | 6 | 10 | 8 | 11 | 8 | 15[1] | 10 | 15[1] | 13 | 15[1] | 15[1] | 80 |
| 3.9 | 10 | 10 | 14 | 12 | 16 | 13 | 21 | 15 | 24[1] | 20 | 24[1] | 24[1] | 90 |
| 4.7 | 14 | 14 | 18 | 16 | 20 | 18 | 27 | 21 | 33[1] | 27 | 33[1] | 33[1] | 100 |
| 5.7 | 19 | 19 | 25 | 24 | 27 | 26 | 35 | 30 | 48 | 37 | 50[1] | 50[1] | 120 |
| 8.0 | 29 | 32 | 38 | 39 | 41 | 40 | 52 | 48 | 72 | 61 | 72[1] | 72[1] | 144 |

# Heat Treated Glass

**Maximum Area in Square Feet**

| Glass Thickness (mm) | DP80 | | DP65 | | DP60 | | DP50 | | DP40 | | DP30 | | Recommended Maximum Length (inches) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HS/HS | FT/FT | HS/HS | FT/FT | HS/HS | FT/FT | HS/HS | FT/FT | HS/HS | FT/FT | HS/HS | FT/FT | |
| 2.2 | 8 | NA | 12 | NA | 13 | NA | 15* | NA | 15* | NA | 15* | NA | 70 |
| 3.0 | 13 | 20[1] | 18 | 20[1] | 20 | 20[1] | 20[1] | 20[1] | 20[1] | 20[1] | 20[1] | 20[1] | 80 |
| 3.9 | 20 | 30[1] | 26 | 30[1] | 29 | 30[1] | 30[1] | 30[1] | 30[1] | 30[1] | 30[1] | 30[1] | 90 |
| 4.7 | 27 | 50[1] | 35 | 50[1] | 38 | 50[1] | 50[1] | 50[1] | 50[1] | 50[1] | 50[1] | 50[1] | 120 |
| 5.7 | 37 | 60[1] | 48 | 60[1] | 50 | 60[1] | 60[1] | 60[1] | 60[1] | 60[1] | 60[1] | 60[1] | 144 |
| 8.0 | 61 | 96[1] | 76 | 96[1] | 83 | 96[1] | 96[1] | 96[1] | 96[1] | 96[1] | 96[1] | 96[1] | 144 |

Notes:

1. Limitations are based on wind load, manufacturing tolerances, and safe handling limits. Heat Treated Triple Panes wind load values assumes all three lites are Heat Treated.
2. DP Rating-Design Pressure in pounds/ft².
3. Limits shown do not apply to the IG units fabricated with mismatched glass.
4. Aspect ratio = 2 was used for AR≤2, and Aspect Ratio = 3 was used for AR>2 annealed glass calculations. Smaller aspect ratios may be more restrictive for maximum area.
5. Aspect ratio = 3 was used for the heat-treated glass calculations. Smaller aspect ratios may be more restrictive for maximum area.
6. Size availability varies by manufacturing location.