GLASS

NOTE: The addition of after-market applied tints or films to Milgard windows and patio doors may cause seal failure or glass breakage, and will void Milgard's Full Lifetime Warranty. For complete warranty details, visit milgard.com

There are various tints available through Milgard to achieve the energy performance or architectural style that is desired. These tints include Solar Bronze, Solar Gray, Graylite, Solex, Evergreen and Azurlite. Please check with your Milgard Representative on availability of these and other tinted products.

REFLECTIVE GLASS

The reflective coating is applied just like Low-E. It is either sprayed through (pyrolitic process) or applied using the vacuum deposition sputtering process, depending on suppliers.

Benefits of Reflective Glass:

- Reflects light and heat with a metal oxide coating giving a mirror effect.
- Minimizes solar heat gain and ultraviolet light damage to interior furnishings.
- Adds daytime privacy.
- Can be tempered.

There are various reflective glass types available through Milgard to achieve the energy performance or architectural style that is desired. These include Solar Cool Bronze and Solar Cool Gray. Please check with your Milgard Representative on availability of these and other reflective products.

NOTE: Heat absorbing and heat reflective glass can only be used on the exterior lite of a glazing unit, to avoid a build-up of heat inside the airspace, which will cause thermal stress cracks or seal failure.

NOTE: Reflective-type glass works with the play of light. Example: During daylights hours you can't see inside a building with reflective glass, you only can see your reflection. At night, the opposite effect occurs. You can see in, but the people inside cannot see out. If you specify this type of glazing in a residential application, suggest that a spotlight be placed outside of the window. It will give the same effect as daylight.

LAMINATED GLASS

Laminated glass is produced by permanently bonding two pieces of glass together with a tough plastic interlayer (polyvinyl butyral) under heat and pressure. Once bonded together, the lite behaves as a single piece. The interlayer is invisible when viewed through the glass; thus, the finished lite is indistinguishable from plain glass.

Most often, laminated glass is produced from annealed glass, but tempered glass can be used when special performance needs are present. The benefit of laminated glass – if it is broken, glass fragments adhere to the plastic interlayer rather than falling free and potentially causing injury. Laminated annealed glass can be cut or drilled.

Laminated glass is required in sloped glazing applications (such as skylights), that exceed any of the following conditions:

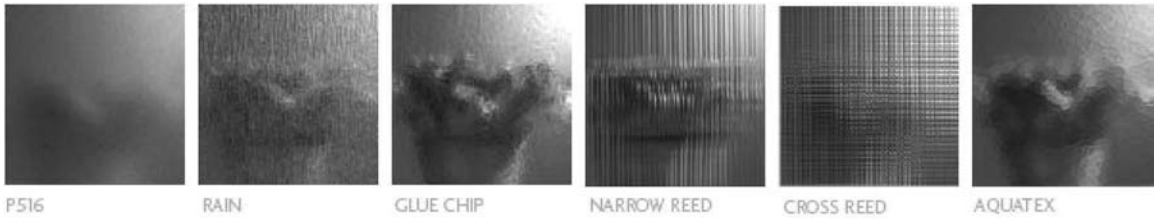
- The area of each pane (single glass) or unit (insulating glass) exceeds 16 square feet.
- The highest point of the glass is greater than 12 feet above any walking surface or other accessible area.
- The nominal thickness of each pane exceeds 3/16".

Noise Reduction Benefits:

- Laminated glass is highly effective in reducing noise, thus reducing Sound Transmission Ratings. The damping characteristics of the plastic interlayer combines with the attenuating characteristics of the air space of the insulated glass (IG) unit to maximize sound reduction.
- Example: Two lites of 1/4" laminated glass in an IG unit with a 1/2" air space provides an STC rating of 42. This compares with two pieces of plain 1/4" glass in an IG unit with a 1/2" air space, where the STC rating would be 35.
- Laminated glass eliminates 99.9% of ultraviolet rays, making it highly effective in protecting furnishings, displays, merchandise, etc.
- Standard laminated glass is 7/32" with a .030 (approx. 1/32") polyvinyl butyral interlayer.

OBSCURE GLASS

To add privacy where window coverings are impractical or undesireable, we recommend obscure glass. Our obscure glass can be tempered for safety and is available in numerous styles, some of which are shown below.



Benefits of Obscure Glass:

- Adds privacy where window coverings are impractical or undesirable (bathrooms, door sidelites).
- Various colors and texture patterns provide a translucent, semi-opaque effect for unique visual design applications.
- Can be tempered.

Please check with your Milgard Representative on availability of these and other obscure glass products.

GRIDS (DIVIDERS, GBG, MUTTONS, ETC.)

With the right choices in grids, you can really make your windows and doors stand out. Grids are available with all of our window and door product lines. Milgard's Aluminum and Thermally Improved Aluminum (TIE) product lines offer a choice of either flat or sculptured grids.

Grids Between the Glass:


5/8" Flat grid

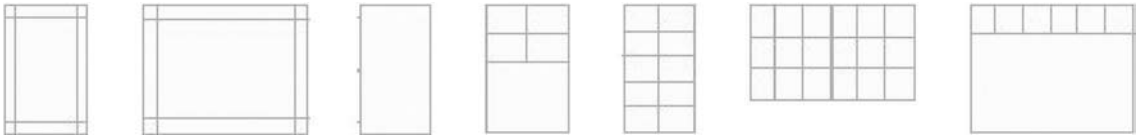

1 1/16' Sculptured grid

Milgard Architectural Manual
Glazing Section

GLASS
SERIES
ALUMINUM

Multiple grid configurations allow nearly endless options to customize your home design. By simply altering the grid design, you can dramatically impact the home's curb appeal. Below are just a few of the many possible grid configurations.

Please check with your Milgard Representative on availability of these and other grid patterns.



INERT GAS

Optional Argon gas, inserted between the panes of glass, is also available to improve thermal performance. Argon gas is heavier than air and is a good thermal insulator because it reduces the amount of heat that can pass through the glazing of a window.

INSULATED GLASS SPACER

The standard insulated glass spacer used in the Aluminum and Thermally Improved Aluminum window series is the EdgeGard™ warm edge spacer system. As an option, Milgard also offers the EdgeGardMAX™ warm edge spacer system. Milgard's EdgeGardMAX spacer is a state of the art and utilizes an all-foam design. Because of the all-foam design, the energy performance of the windows and doors increases substantially allowing these products to meet ENERGY STAR® requirements in some zones.

BASIC GLASS DEFINITIONS

Lite: Single piece of glass

SS: Single strength glass, 3/32" thickness

DS: Double strength glass, 1/8" thickness

IG Unit: Two or more pieces of glass separated by a hermetically (air-tight) sealed airspace, forming a construction that reduces heat transfer for improved thermal performance.

O.A.: The thickness, overall, of an insulated unit of glass, including both pieces of glass and the spacer bar.

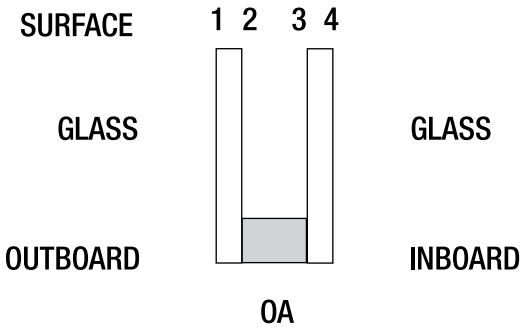
GLASS LIMITATIONS

Up to 12 sq ft: SS glass (3/32" thick)

From 12 to 25 sq ft: DS glass (1/8" thick)

From 25 to 40 sq ft: 3/16" glass

Over 40 sq ft: 1/4" glass



R-VALUE VS. U-FACTOR:

R-value: Measures the insulation effectiveness of a window – its resistance to heat gain or loss. The higher the r-value, the better the insulation against heat and cold.

U-factor: Measures the heat gain or loss caused by differences in indoor and outdoor temperatures. The lower the u-factor, the slower the rate of heat flow, thus the better the insulating performance.