



# Glass Options







**For nearly 80 years, Kolbe has been known for innovative products** that push the boundaries and defy the limits of function, performance and style. Exceptional design, quality craftsmanship, endless options and custom solutions allow Kolbe to personalize your design experience with distinctive windows and doors. With multiple product lines designed to meet specific architectural and aesthetic goals, each offers distinct advantages, while remaining vastly customizable.

## Why Consider Glass?

Because windows and doors greatly affect the interior environment through lighting, thermal performance, acoustics and air quality, choosing the right type of glass is paramount to creating your ideal living space. When considered holistically, windows and doors can help provide comfortable spaces that offer a sense of well-being and a connection to nature.

### Select from Glass Options that provide:

- Enhanced energy efficiency to reduce heating and cooling costs
- High performance and impact performance options to meet climate demands
- Low-E coatings to protect against fading of furniture, fabrics and carpeting
- Surface treatments allowing you to spend less time cleaning
- Specialty glass for texture, color, or decorative details
- Smart glass for various levels of privacy on-demand
- Improved interior acoustics & sound buffering
- Maximum daylighting, views & ventilation



Our standard glass contains  
25-30% recycled content.



## Energy Efficiency

Kolbe participates in ENERGY STAR® and WDMA Hallmark Certification programs to ensure that our products are tested to industry standards, in order to meet or exceed today's strict building codes.

Many of Kolbe's products can also meet California's Title 24 Building Energy Efficiency Standards, as well as PHIUS verification.

See [kolbewindows.com/solutions/energy-efficiency](http://kolbewindows.com/solutions/energy-efficiency) for energy performance data and climate zone maps



## Acoustics

Kolbe offers windows and doors with laminated dual and triple pane insulated glass that helps reduce outside noise to create quiet, comfortable spaces. Select sizes are tested to meet Sound Transmission Class (STC) and Outdoor-Indoor Transmission Class (OITC) values, with use of dissimilar glass thicknesses (including laminated glass) to further increase the acoustic performance for a more relaxing interior environment.

See [kolbewindows.com/resources/professional-tools/acoustic](http://kolbewindows.com/resources/professional-tools/acoustic) for acoustic data and sound transmission ratings



## Wellness

Because windows and doors are instrumental in creating and maintaining a sense of well-being and ideal living conditions, Kolbe offers holistic solutions for adding visual comfort to interior environments. Large expanses of glass with narrow frames maximize daylighting for well-illuminated spaces with views of the outdoors and exposure to natural light. The connection between our indoor space and the world outside helps enhance concentration, creativity, mood and energy.





## Low-E Coatings

Kolbe offers glazing options to provide optimum energy efficiency for the geographic region in which you live. Low-E is a “smart” coating that reduces energy transfer through the insulating glass unit, resulting in reduced heating and cooling costs throughout the year. Low-E coatings also reduce the potential for condensation, as well as provide protection against fading of furniture, fabrics and carpeting.

### Solar Gain Low-E

When the weather turns frigid, Solar Gain Low-E glass is the perfect cold remedy. It keeps homes warmer and more comfortable by blocking heat loss to the outside and letting the sun’s heat stream in to increase solar heat gain.

### Solar Low-E (Kolbe’s standard)

Suitable for most climates and meets most energy zone requirements. Solar Low-E glass is designed to reflect room-side heat back into the room during winter months. In summer, visible sunlight is allowed in while blocking most of the sun’s infrared heat energy.

### Solar Control Low-E

Offers an ideal balance of solar control and high visibility by blocking 95% of UV rays while maintaining the interior temperature.

### Solar Advanced Control Low-E

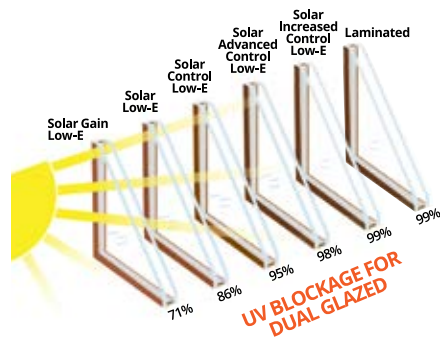
A tinted glass recommended for warm climates that achieves greater solar control over a wide range of the spectrum, while also helping to reduce glare.

### Solar Increased Control Low-E

Provides a four-layer silver coating with 52% visible light transmission while offering 99% UV protection. This glass is generally used in warm climates and is formulated to manage solar heat gain while maintaining clearer views.

### ThermaPlus™ Low-E

An additional Low-E coating which helps to meet the strictest energy requirements by providing protection against heat loss and UV damage. Available with dual pane versions of Solar Gain Low-E, Solar Low-E, Solar Control Low-E, and Solar Advanced Control Low-E glass.



NOTE: Tested units include argon. The laminate has 1/4" inner pane. Based on Lawrence Berkeley Lab (LBL) Window 5.2 © 2003 analysis for classical UV transmission data.



## Specialty Glass + Additional Options

Kolbe also offers additional glass options for uniquely decorative windows and doors, including custom solutions and special surface treatments.



### Tinted or Colored

Provides shading, privacy or visual interest.

### Finely Crafted

Includes stained, leaded, beveled glass, and more.

### Turtle Glass

Achieves turtle code lighting ordinance enforcement while meeting all other NFRC thermal performance standards.\*\*

Please check your local building code ordinances for specific values.

### Bird-Safe Glass

Has a pattern or design on the exterior surface of the glass so birds can see the solid barrier. The patterns can range in visibility to humans so the view is not obstructed. Contact your local dealer to request samples and select the best solution for your project.

### Preserve® Film

When applied to glass surfaces, this film helps protect against scratches during transit and construction. Also helps reduce the time involved in job site clean-up.

### Neat+™

Harnesses the sun's UV rays to break down greenhouse gases, other pollutants, and loosens dirt so water can rinse it away, leaving windows cleaner, longer. A special sputter-coating process makes the glass ultra smooth, so the water "sheets off" more readily than it would on uncoated glass, allowing you to spend less time cleaning.

## Enhanced Performance & Strength

Kolbe's windows and doors are tested to meet the North American air, water and structural certification requirements of any climate or region. Paired with various glass options, our high performance products can help create quieter, more comfortable living spaces.

### Impact Performance\*

Kolbe's impact performance products are specially designed to withstand hurricane force winds and flying debris, and are independently tested to meet or exceed the strict building codes of the coastal regions. Impact-rated windows and doors utilize laminated glass with different interlayer levels that are unit specific so that each window or door will perform as tested.

### Laminated

Designed to stay intact if the glass is broken, laminated glass acts as a durable shield. Upon impact, most broken glass fragments adhere to the interlayer, keeping the window or door intact and prohibiting debris from entering the opening.

### Tempered

Tempered glass is a safety-enhanced, heat-treated glass that's stronger than standard glass and breaks into small, blunt pieces for added protection. It's a standard feature in our Kolbe door offering, ensuring durability, thermal resistance, and peace of mind in every application.



© Keen Eye Marketing

#### NOTES:

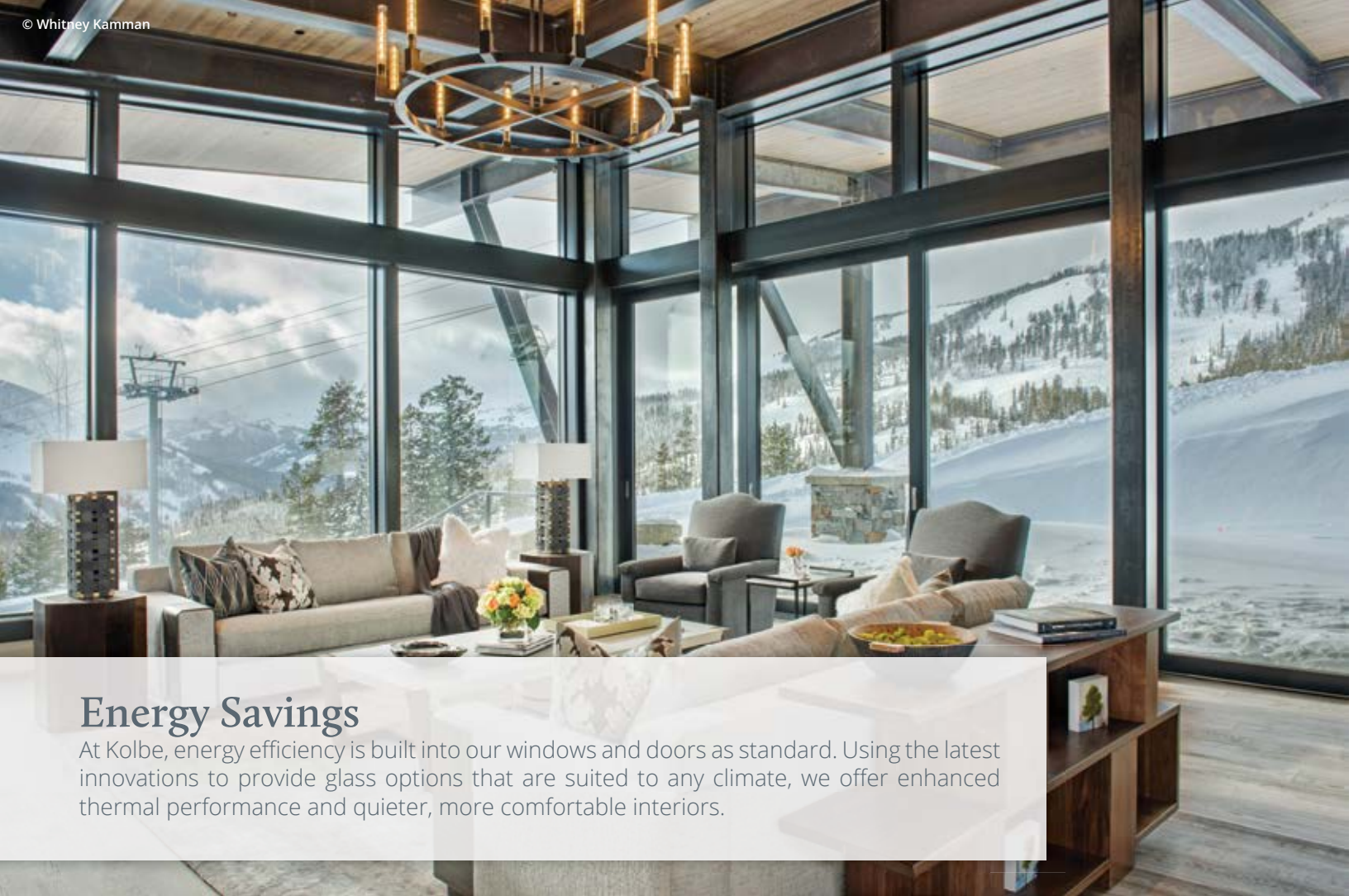
Not all glass is available for all products. Not all glass options listed have the same glass warranty. See Kolbe dealer for details. All Forgent Series impact-rated products are glazed with structural silicone.

Contact your local dealer to request samples and select the best solution for your project.

Neat+ and Preserve are trademarks of Cardinal IG.

\* Not all products are available with impact performance capabilities.

\*\* Visible Transmittance at or below .45.



## Energy Savings

At Kolbe, energy efficiency is built into our windows and doors as standard. Using the latest innovations to provide glass options that are suited to any climate, we offer enhanced thermal performance and quieter, more comfortable interiors.

### Triple Pane

Provides a greater energy performing window that keeps indoor air warm and comfortable, prevents heat loss, and can lower your heating bills. It is constructed with three panes of glass, thermal spacer bars, and is available in: Solar Gain Low-E, Solar Low-E, Solar Control Low-E, and Solar Advanced Control Low-E glass.



© Andrew Latreille | BLA Design Group | Campos Studio

### Vacuum Insulating Technology

Transparent Insulation utilizes vacuum technology to create a virtually airless space between the glass panes. Compared to the standard use of air, argon, or krypton, Transparent Insulation offers improved thermal insulation, and is perfect for either new construction, renovation, or historic restoration projects. Insulating glass can be retrofit into existing window openings, providing improved insulation with thinner, lighter-weight glass.



© LandMark Photography

#### NOTES:

Not all glass is available for all products. Ask your local Kolbe dealer about available products with Transparent Insulation options.

Not all glass options listed have the same glass warranty. See your Kolbe dealer for details.

Impact performance products are not available with Transparent Insulation options. Limitations apply. See Kolbe dealer for exact unit sizing.

Requests for specialty or custom glass options are subject to review by a Kolbe representative.



## LuxWall's Enthermal™ Vacuum Insulating Technology

Located in Ypsilanti, Michigan, LuxWall is focused on developing, scaling, and commercializing innovative energy-efficient solutions for the built environment. Their product line, Enthermal™, is a next-generation transparent insulation technology that delivers step-change thermal performance for windows and façades. Kolbe has partnered with LuxWall to integrate this Transparent Insulation into select products – redefining what is possible when pursuing improved efficiency and optimal comfort through your choice of windows and doors. Learn more about our two available Transparent Insulation options.

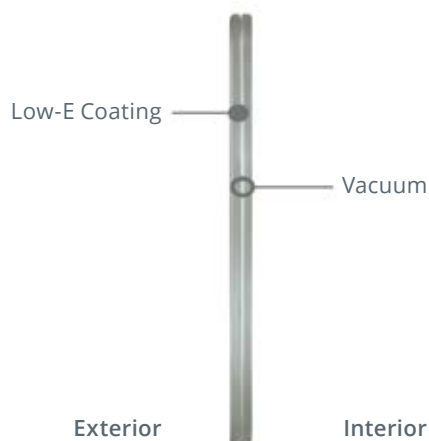


### Kolbe's options provide:

- U-value improvement over best performing dual-pane argon-filled insulating glass units
- Quality acoustic performance
- Reduced heating and cooling costs
- Convenient and approachable design with no specialized installation required
- Thinner construction than most triple-pane glass units
- American-made glass with lower embodied carbon
- Rectangular shapes ranging from 12" x 18" up to 60" x 96"
- Performance divided lite patterns. Some limitations exist.
- A 20-year warranty. See Kolbe dealer for details.

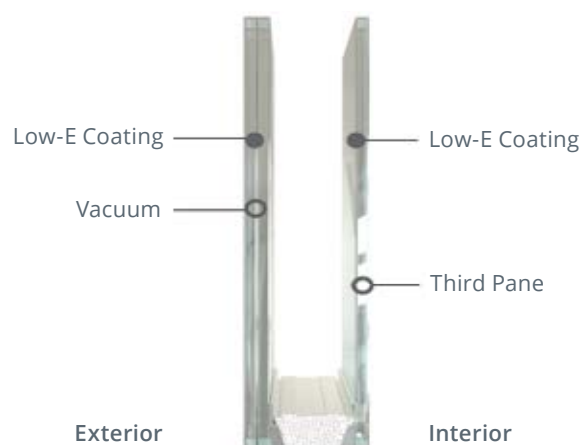
### LuxWall's Enthermal™

In addition to the improved thermal performance of Transparent Insulation, Enthermal™ offers a two-pane glass system with one Low-E coating, further limiting the amount of thermal energy that can pass through.



### LuxWall's Enthermal Plus™

For the ultimate performance values, Enthermal Plus™ utilizes the same vacuum technology as Enthermal™, but allows for additional customization of a third pane – including specialty glass – and two Low-E coatings.



#### NOTES:

This option is not available for all products. Ask your local Kolbe dealer about available products with this option.

Not all glass options listed have the same glass warranty. See your Kolbe dealer for details.

Impact performance products are not available with this option. Limitations apply. See Kolbe dealer for exact unit sizing.

Requests for specialty or custom glass options are subject to review by a Kolbe representative.

Enthermal™ and Enthermal Plus™ are trademarks of LuxWall, Inc. Used with permission.

## Smart Glass

Enhance indoor spaces with a unique option that brings comfort and luxury to any design. Kolbe offers a selection of windows and doors with smart glass that can switch from transparent to obscure on demand – for various levels of privacy when and where you need it.



Photos courtesy of CMGT Construction Group

Easily integrated with smart home and lighting systems, these switchable glass options provide modern versatility and dynamic shading – whether 'on', 'off' or anywhere in between.

### Smart glass solutions offer:

- Obscure to transparent glass on demand
- Alternative to fabric, blinds, or other privacy options
- Adjustable shading without obstructing views
- Cooler, more comfortable interiors
- Reduced UV rays, glare & solar reflection
- Extended glass functionality as HD projection surface



### Controllers allow customized experiences:

- Control of single or multiple glass units
- Wall-mounted touch panel or light switch operation
- WiFi enabled for syncing with home automation systems

### The Kolbe products listed below are available with Smart Glass options:

#### Ultra Series

- Crank-out casements
- Crank-out awnings
- Direct sets\*
- Corner direct sets
- Swinging doors\*\*

#### VistaLuxe® WD LINE

- Direct sets\*
- Corner direct sets
- Swinging doors

#### Forgent® Series (All Glastra®)

- Crank-out casements
- Crank-out awnings
- Direct sets\*

#### NOTES:

Not all available products are listed. Impact performance products are not available with smart glass options.

\* Limitations apply; not all shapes are available. Factory approval required. Please consult your local Kolbe dealer for product specifics.

\*\* Ultra Series swinging door products are available with 4.5" x 4.5" Brushed Chrome commercial grade hinges only.



## Gauzy LCG® (Light Control Glass)

Premium Polymer Dispersed Liquid Crystal (PDLC) films are laminated between two pieces of glass to create switchable smart glass. To switch glass from obscure to transparent, electricity is applied to the PDLC films with controllers located within the building structure. When the glass is turned 'on', the liquid crystals align to allow light to pass through for transparency. When the glass is turned 'off', the liquid crystals scatter, partially blocking or obscuring the light. Dimming capabilities are an option to allow various degrees of light and visibility.



Photos © Christian Klugmann



White

Gray

### Gauzy Color Options

For further personalization of interior spaces, you can choose from White or Gray smart glass in your windows or doors.

White and Gray colors will vary in size availability. See Kolbe dealer for details. LCG® is a registered trademark of Gauzy Ltd.

## CLiC™ On-demand Privacy Glass

CLiC™ is another option for switching glass from obscure to transparent when electricity is applied. However, unlike similar smart glass options, CLiC's polymer stabilized cholesteric texture (PSCT) liquid crystal technology is applied directly to the glass without the use of a film. When the controllers located within the building structure are turned 'on' the liquid crystals align to allow light to pass through for transparency. When the glass is turned 'off', the liquid crystals scatter.



CLiC glass is available for square and rectangular units only. See Kolbe dealer for exact unit sizing. CLiC™ is a trademark of Cardinal Glass Industries.



Photos © Peter VonDeLinde



## Patterned Glass

Decorative patterns in glass provide shading, privacy or visual interest. Kolbe offers various glass options with patterns or textures to help reduce visibility through your window or door. Custom options are also available.



© Benjamin Benschneider

### Glass Pattern Options

Below are some samples of glass patterns and textures available to enhance your Kolbe windows and doors.



Frosted Matte



Rain



Glue Chip



Pattern 62



Reeded (Horizontal)

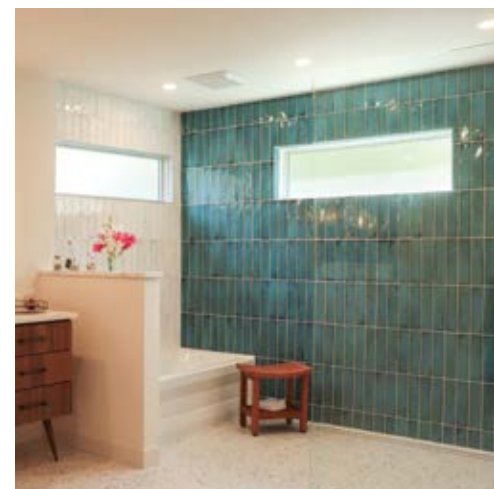


Reeded (Vertical)



Aqualite

Contact your local Kolbe dealer to request samples and select the best solution for your project.



Not all glass is available for all products. Please consult your dealer for specifics or custom options.





## Professional Tools

Kolbe prides itself on offering the tools and resources architects, builders and other industry professionals need to complete their projects. From product specifications and 3D models to continuing education courses and webinars, Kolbe supports all of your project needs.

Scan the QR code to learn more about our tools & resources for professionals.



[kolbewindows.com/resources](https://kolbewindows.com/resources)

### Architect Library

Kolbe's Architect Library is the main resource for specifying Ultra Series windows and doors. Search detailed product information, including:

- Cross section drawings
- Elevation charts
- 3D Revit® models
- CSI specifications
- Installation instructions

### Additional resources include:

- Door configurations
- Clear openings
- Care & maintenance guide
- Acoustic data
- Energy performance
- Performance class & grade
- Product brochures
- Color & design samples
- Warranties

### AIA/CES Courses

As a Registered AIA Continuing Education Services (CES) provider, Kolbe provides AIA Learning Units (LU) and/or Health, Safety & Welfare (HSW) credits as required per state and/or professional memberships to meet yearly requirements.

### Virtual Showrooms

Experience Kolbe's full capabilities through three interactive showrooms filled with product displays and custom solutions.

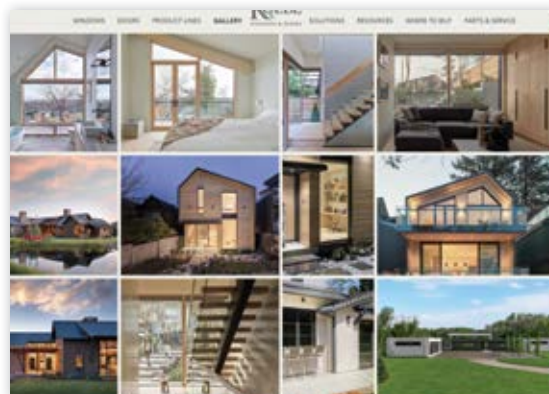
[kolbewindows.com/virtual-showroom](https://kolbewindows.com/virtual-showroom)



### Inspiration Gallery

Browse through photos, videos, project profiles and custom solutions.

[kolbewindows.com/gallery](https://kolbewindows.com/gallery)





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available literature



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1323 S. 11th Avenue | Wausau, WI 54401-5998  
715.842.5666

[www.kolbewindows.com](https://www.kolbewindows.com)

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