

KOLBE

GREEN INITIATIVES



KOLBE
■ WINDOWS & DOORS ■

See the Difference Quality Makes®

KOLBE GREEN INITIATIVES

Whether your building is a dream home, commercial project or a renovation, you may be interested in incorporating green building practices. One of the most significant ways you can do this is by choosing durable and energy-efficient windows and doors for your project. By including numerous venting windows in your design, you can help to reduce the energy required to heat and cool your project. This saves on energy costs, while also providing known health benefits of ample daylight and increased natural ventilation. These are all important elements of green building systems.

Kolbe® products are designed to achieve optimal energy performance and to be extremely durable. We care for the environment, and will strive to help you with your building or remodeling projects, while also providing you with the finest quality, custom-crafted windows and doors available.

As a company, Kolbe is dedicated to practicing and promoting environmental stewardship, both in our workplace and in the products we build. Recycling is a very important part of our corporate culture. Many of the materials we recycle (such as glass, wood, and aluminum) are used in the manufacturing of products by other industries.

We've aligned ourselves with suppliers who adhere to sound environmental practices, and most of our product components are sourced from within 500 miles of our manufacturing facilities. The majority of the lumber used

in our wood products comes from managed forests that embrace sustainable practices. Plus, we've partnered with many of our suppliers to reduce the amount of packaging used and to determine ways to recycle or repurpose most shipping containers.

If you're a homeowner in the process of building a new home or remodeling your current residence, making the sound decision to buy Kolbe products will reward you in many ways. Not only will you enjoy increased savings in the costs for heating and cooling your home, you will have made a long-lasting investment – both in terms of your family's comfort and also the durability built into your windows and doors.

Keep in mind that Kolbe products carry transferable warranties, should you decide to later sell your home. There may also be tax incentives that may further motivate you to choose our energy-efficient products. The initial investment in high quality, energy-efficient products provides lower life cycle costs due to their longevity and a reduction in energy costs. Plus, you'll have the added satisfaction of knowing you've made a decision that benefits the future of our planet.





TABLE OF CONTENTS

Energy Performance	4-5
ENERGY STAR®	6-7
Green Building Rating Systems.....	8-9
Interior Wood & Finish Options	10
Exterior Finish Options	11



SUSTAINABLE DESIGN PROJECT

Residence of AIA Architect Peter Pfeiffer
Austin, Texas

FEATURED KOLBE PRODUCTS

50 Heritage Series wood windows – including double hungs, single hungs, awnings, transoms, and casements. K-Kron II high performance paint finish in Bay Leaf on exterior and 1-1/8" performance divided lite bars with ovolo glazing bead option.

PROJECT HIGHLIGHTS

The home is so energy-efficient that it qualifies for Austin Energy's Green Choice Program, allowing homeowners to tap into wind-generated energy, while guaranteeing to keep the participants utility rates constant for a period of up to 10 years.

Note: This project is also shown on front cover of brochure.

The project received the highest point rating in the history of Austin's Green Builder Program at the time and was also showcased on several national green building tours.

Properly installed, quality Kolbe windows are a big factor in minimizing energy loss from unwanted warm air infiltration. As a result, utility bills for this 4,175-sq.ft. home with six occupants are roughly equivalent to a home one-third its size. The home's design included venting windows that help further reduce the energy required to cool this home, while also providing the benefits of ample daylight and good air circulation.



For further details about this award-winning project and how Kolbe products can contribute to sustainable design projects, visit the Green Building Capabilities area of our website at www.kolbe-kolbe.com.



ENERGY PERFORMANCE

Kolbe products are designed to meet and exceed today's stricter building codes and standards for energy efficiency, as well as to meet the energy requirements for green building rating systems. We utilize the latest innovations in LoE technologies in various combinations, so that we are able to offer glass that is best suited to your climate. Most Kolbe window and door products are glazed as standard with double-pane, insulating LoE glass with argon gas* and a stainless steel spacer bar system, providing great thermal performance as well as excellent UV protection.

We also offer LoE glass with various coatings that help minimize solar heat gain in very warm climates. By reducing the amount of solar heat gain, your project will be able to utilize smaller air conditioning units to maintain proper temperatures. Adding either our performance divided lites (PDL) or grilles-in-the-airspace design option will help to further reduce the amount of solar heat gain.

Kolbe's ThermaPlus™ LoE glass option will further enhance the thermal performance of our windows, saving you even more money in reduced energy costs. ThermaPlus glass can also help meet more stringent energy performance criteria required for federal tax credits in 2009 or 2010.

Windquest® Series casements, awnings and studio units are available as Energy Performance (EP) windows. A 1-1/4" triple glazing system option helps these products achieve energy performance ratings that are quite remarkable, with



SUSTAINABLE DESIGN PROJECT

Private Residence
Traverse City, Michigan

FEATURED KOLBE PRODUCTS

Ultra Series extruded aluminum clad wood products—including inswing doors, casements, and several radius units, plus custom grilles in all 12 doors and 60 windows. A 70% PVDF fluoropolymer finish in Chutney is on the exterior.

PROJECT HIGHLIGHTS

This project earned one of five ENERGY STAR® grants from the State of Michigan for 2005, and was the highest scoring of the five projects. Grants are awarded every year to licensed

Photos of this project are courtesy of Rauth Photographic.

insulating values nearly twice those currently required by ENERGY STAR®, and are 30 times better than the industry standard in terms of air infiltration. Windquest Series EP units can achieve R-values of 5 (with the standard glass offering of LoE²-270 on surface 2 and LoE-179 on surface 5). These units are also certified to an R-PG50 (residential performance grade) and structural DP50 rating.

For windows and doors to provide optimal energy efficiency, they must also be flashed, caulked and sealed properly at the time of installation. All of our products are shipped with detailed installation instructions, which emphasize the importance of these final steps to the builder. Once properly installed, the energy-efficient technology built into Kolbe products will further ensure your green design project provides all the benefits of a healthy and comfortable living or working environment.

NOTES:

*Argon gas may not be included with units to be installed in or shipped through high altitude areas; breather tubes and air will be used for these units.

LoE, LoE-179, and LoE²-270 are trademarks of Cardinal IG.

Kolbe products are being tested on a continual basis, so that we are able to offer products that keep up with changes in codes and regulations. All energy performance and air-water-structural data for our products is updated monthly and made available to the public on our website at www.kolbe-kolbe.com. All tests are conducted in an unbiased manner by independent laboratories.

Additional information about our products and our warranties is available from your Kolbe dealer and on our website.



Information about the ENERGY STAR® program and the performance criteria to achieve compliance for climate zones in either the United States or Canada can be found on pages 6-7.

Many Kolbe products meet or exceed the necessary ratings to qualify for ENERGY STAR certification. Contact your Kolbe dealer to learn more about what windows are certified for your region.

residential builders whose projects demonstrate optimal energy efficiency and innovative design. The cost of heating and cooling this 6,200-sq.ft. home are 61% less than a similarly-sized home without efficient windows.

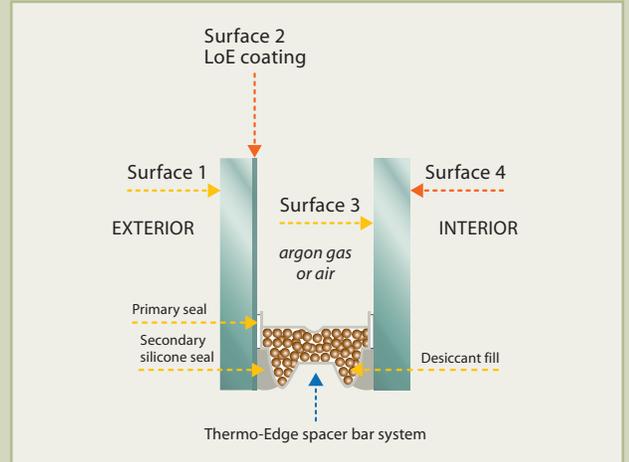
The builder specified Kolbe products for their aesthetic match and their energy efficiency track record. The builder noted that “the superior ratings of Kolbe’s products means the homeowners can enjoy the views without thinking that their dollars are flying out the windows – or the doors.”



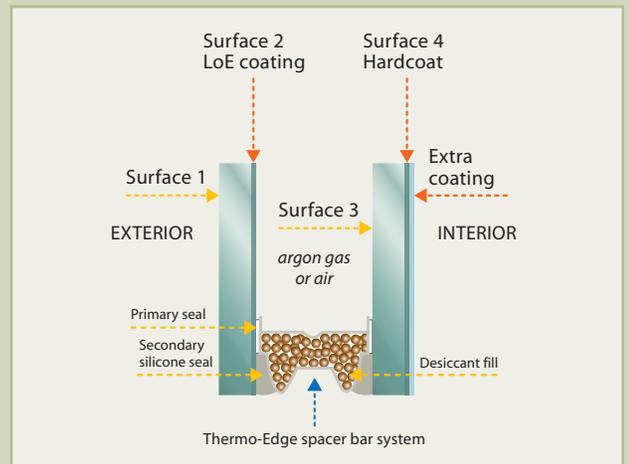
For further details about this award-winning project and how Kolbe products can contribute to sustainable design projects, visit the Green Building Capabilities area of our website at www.kolbe-kolbe.com.

KOLBE'S GLAZING SYSTEMS FOR OPTIMAL ENERGY EFFICIENCY

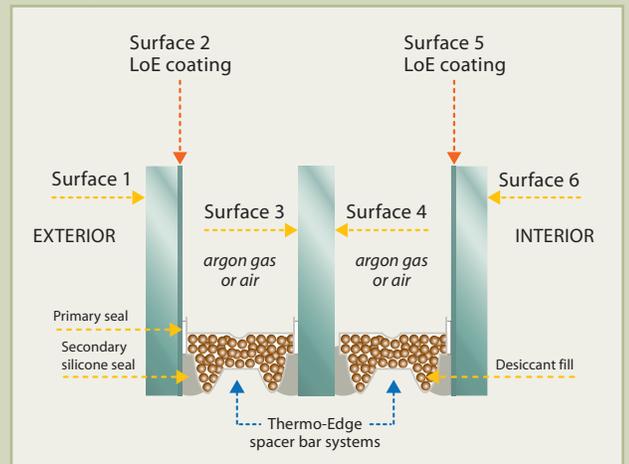
LoE Insulating Glass



ThermaPlus™ Glass



Triple Glazing for Windquest® Series Energy Performance (EP) Units

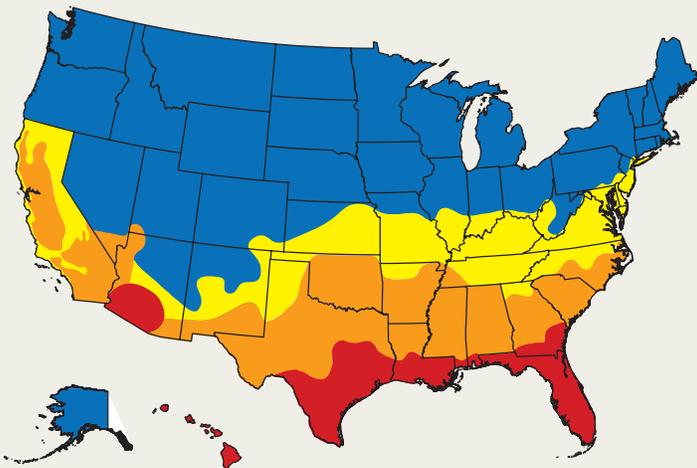


ENERGY STAR® - UNITED STATES

ENERGY STAR is a government-regulated program that was created by the Environmental Protection Agency (EPA), and the U.S. Department of Energy (DOE), to help consumers quickly and easily identify energy saving products. The ENERGY STAR program uses energy values obtained by window and door manufacturers through the National Fenestration Rating Council (NFRC) program. NFRC ratings are based on the energy performance of the total window or door - both glass and frame.



The ENERGY STAR program for the United States divides the nation into four separate climate zones - Northern, North-Central, South-Central, and Southern.



- Northern
Mostly Heating
- South-Central
Heating & Cooling
- North-Central
Heating & Cooling
- Southern
Mostly Cooling

Kolbe demonstrates a commitment to providing accurate energy data by having products independently simulated, tested, inspected and listed in the NFRC certification program, and making that data available on our website and window labels.

The performance criteria that needs to be met in order to be ENERGY STAR compliant in a specific climate zone (effective January 4, 2010) is shown in the charts provided below.

2010 ENERGY STAR Qualification Criteria for Windows

Climate Zones - U.S.		U-Factor	SHGC
	Northern**	≤ 0.30	Any
	Northern	= 0.31	≥ 0.35
	Northern	= 0.32	≥ 0.40
	North-Central	≤ 0.32	≤ 0.40
	South-Central	≤ 0.35	≤ 0.30
	Southern	≤ 0.60	≤ 0.27

** Northern zone windows can meet prescriptive (1st row) or alternative energy performance (2nd & 3rd row) criteria to qualify for ENERGY STAR.

2010 ENERGY STAR Qualification Criteria for Doors[†]

Glazing	U-Factor	SHGC
Opaque	≤ 0.21	No rating
≤ 1/2-Lite	≤ 0.27	≤ 0.30
> 1/2-Lite	≤ 0.32	≤ 0.30

[†] Criteria shown applies to both sliding and hinged doors and in all four climate zones.

ENERGY PERFORMANCE TERMINOLOGY

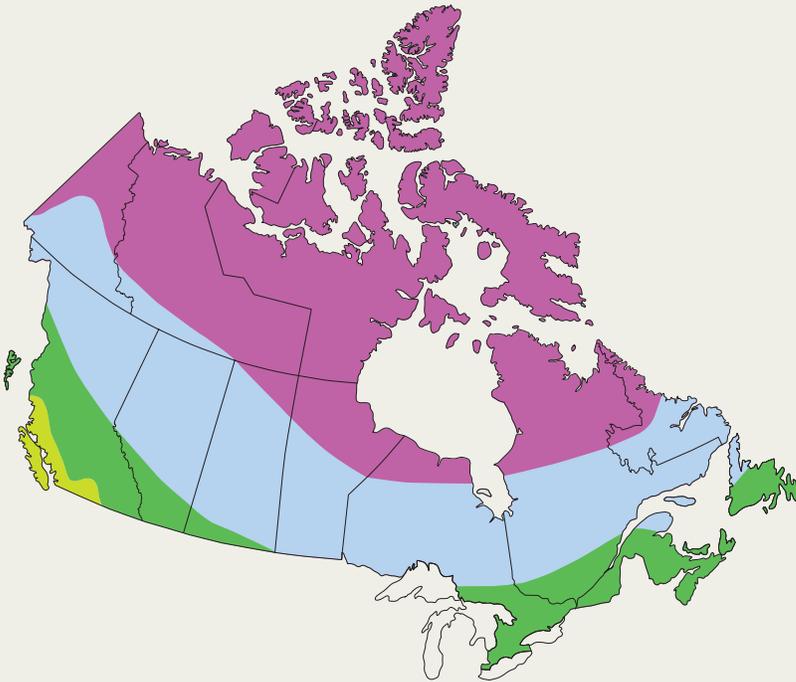
- **U-Factor** refers to a measure of heat transfer through the window or door unit. A lower U-factor means less heat escapes during winter weather, thus reducing heating costs in cold climates.
- **R-Value** refers to resistance to heat flow. A high R-value indicates that a window or door has good heat insulating properties.
- **Solar Heat Gain Coefficient (SHGC)** is a measure of how much solar energy is passing through the unit's glass. The lower a window or door unit's SHGC, the less solar heat is transmitted into a room, thus allowing for lower cooling bills in hot climates.
- **Visible Transmittance (VT)** is a measure of the portion of visible light that passes through a window or door. The higher a window or door unit's VT Total, the more visible light is transmitted into a room. This value is influenced by both the glass selection and by the ratio of glazing and frame area.

ENERGY STAR® - CANADA

Products may comply for Canada's ENERGY STAR program based on two compliance paths: either their U-factor total, or their Energy Rating (ER). The Energy Rating is based on a product's overall performance based on three criteria: (1) solar heat gain, (2) heat loss through the frame, spacer and glass, and (3) air leakage loss. The higher the ER number, the better the product's thermal performance.



The U-factor and ER criteria for Canada's four climate zones is shown in the charts provided. For more detailed information about their Energy Rating system and Kolbe products that qualify for Canada's ENERGY STAR Program, visit their website at www.oee.nrcan.gc.ca/energystar.



- Zone A
Southwestern Canada/
British Columbia
- Zone B
Southern Canada
- Zone C
Central Canada
- Zone D
Northern Canada

ENERGY STAR - Canada Qualification Criteria for Windows and Doors before June 1, 2010

Zone	COMPLIANCE PATHS		
	Minimum Energy Rating (ER)*	or	Maximum U-Factor
A	17 (Max. U-factor 0.35)	or	≤ 0.35
B	21 (Max. U-factor 0.35)	or	≤ 0.32
C	25 (Max. U-factor 0.35)	or	≤ 0.28
D	29 (Max. U-factor 0.35)	or	≤ 0.25

*The ER column shows levels for operable windows only. For fixed windows, add 10 ER points.

ENERGY STAR - Canada Qualification Criteria for Windows after June 1, 2010

Zone	COMPLIANCE PATHS		
	Minimum Energy Rating (ER)**	or	Maximum U-Factor
A	21 (Max. U-factor 0.35)	or	≤ 0.32 (Min. ER = 13)
B	25 (Max. U-factor 0.35)	or	≤ 0.28 (Min. ER = 17)
C	29 (Max. U-factor 0.35)	or	≤ 0.25 (Min. ER = 21)
D	34 (Max. U-factor 0.35)	or	≤ 0.21 (Min. ER = 25)

** After June 1, 2010: Both fixed and operable windows will have to meet the same ER level for each climate zone.

ENERGY STAR - Canada Qualification Criteria for Doors† after June 1, 2010

Zone	COMPLIANCE PATHS		
	Minimum Energy Rating (ER)	or	Maximum U-Factor
A	21 (Max. U-factor 0.35)	or	≤ 0.32
B	25 (Max. U-factor 0.35)	or	≤ 0.28
C	29 (Max. U-factor 0.35)	or	≤ 0.25
D	34 (Max. U-factor 0.35)	or	≤ 0.21

† Criteria shown applies to both sliding and hinged doors and in all four climate zones. Doors following the "Maximum U-factor" compliance path do not have a minimum ER requirement.

U-FACTOR CONVERSION	
Imperial	Metric
0.35	2.00
0.32	1.80
0.28	1.60
0.25	1.40
0.21	1.20

Understanding green building standards and practices can be challenging. There are several national organizations that promote sustainable design and have developed rating systems to help guide green building processes. While all of these voluntary rating systems vary somewhat with their requirements, they share similar goals.

U.S. GREEN BUILDING COUNCIL (USGBC)

USGBC's green building rating system is known as LEED® (Leadership in Energy and Environmental Design) and there is a rating system for both new commercial (LEED-NC) and for residential construction (LEED-H), as well as others.

For more specific information about LEED and the U.S. Green Building Council, visit their website at www.usgbc.org.

GREEN BUILDING INITIATIVE™ (GBI)

The GBI's rating system for commercial buildings is known as the Green Globes™ and for the residential sector the GBI has the NAHB Model Green Home Building Guidelines™.

For valuable information about green building practices, visit the website for the Green Building Initiative at www.thegbi.org.

NATIONAL ASSOCIATION OF HOME BUILDERS™ (NAHB)

The NAHB and the International Code Council (ICC) partnered to form and establish a nationally recognizable standard definition of what is meant by "green building".

The result of this collaborative effort is an American National Standards Institute (ANSI) approved ICC-700-2008 National Green Building Standard™.

To learn more about the National Green Building Standard, visit the website for the NAHB's National Green Building Program™ at www.nahbgreen.org.

Check with your local building organization for any additional building criteria governing the construction of "green" projects.

At Kolbe, we believe that quality is in the details and we strive to make a difference both in how we manufacture our products and the ways in which this makes a positive impact on the environment. Kolbe products can help contribute in numerous ways to the criteria these organizations have established for a project to earn green building certification. We also have a LEED® certified staff member to assist architects, designers and construction professionals with green building technical questions and to serve as a liaison with our manufacturing team.

SUSTAINABILITY & DURABILITY

Kolbe windows and doors are designed and built with performance and durability in mind:

- Kolbe products are tested for air and water infiltration, as well as structural and impact performance – to ensure you will have a certified product to meet your building's design criteria
- Ultra Series extruded aluminum clad products offer the ultimate in performance and are finished with a 70% fluoropolymer exterior coating that carries up to a 30-year warranty
- Kolbe vinyl products carry a limited lifetime warranty

We stand behind the durability and performance of all Kolbe products, which is evident by our extensive transferable warranties.* By choosing high-quality products that will last for decades, you have taken important steps toward reducing your carbon footprint.

*All warranties are for products installed in a structure located in the United States or Canada. Ask your Kolbe dealer or visit our website at www.kolbe-kolbe.com for further explanation of our warranties.



SUSTAINABLE DESIGN PROJECT

2009 Green Builder® VISION House
Aspen, Colorado

FEATURED KOLBE PRODUCTS

Ultra Series extruded aluminum clad wood windows and doors, constructed of alder, which is a sustainable wood species. An anodized aluminum finish in Dark Bronze is on the exterior and the push-out casements and awning windows are accented with square-profile performance divided lite (PDL) bars.

PROJECT HIGHLIGHTS

When complete†, this showcase home project will be rated for four different green building guidelines: LEED® for Homes, Built Green Colorado, Aspen's green building requirements, and the NAHB's Green Building Program.

†Kolbe is a sponsor for this project which will demonstrate the benefits of sustainable design, construction, and product selection. Completion is expected by the end of 2009.

MATERIALS AND RESOURCES

The selection of materials is an important criteria for green building rating systems and Kolbe products can contribute in several ways:

- Most of the components used in our products are sourced from within 500 miles of our factory
- Pine and other wood species available for our wood products are all renewable resources and sourced from managed forests
- Kolbe has achieved Forest Stewardship Council (FSC) Chain-of-Custody certification, as have many of our distributors, and can provide FSC-certified wood for many window and door products



FSC Supplier
SCS-COC-002040

The mark of responsible forestry
© 1996 Forest Stewardship Council A.C.

During the manufacturing process, we maximize how all lumber is utilized in our products. There is also some recycled content in our products:

- Ultra Series extruded aluminum billet consists of 50-75% recycled material
- Roll-formed cladding used in our Classic Series products contains 65-70% recycled aluminum
- Standard glass used in our products contains 25-30% recycled content



INDOOR ENVIRONMENTAL QUALITY

Green building practices also address concerns about our environmental air quality and the release of volatile organic compounds (VOCs). Some ways in which Kolbe further demonstrates their commitment to manufacture their products in an environmentally conscientious manner:

- Kolbe uses a fully encapsulated process in which the VOCs are destroyed when applying our wood preservative and also our 70% PVDF fluoropolymer exterior finish
- We offer interior prefinishing with water-based, low-VOC stains and paints for our products, saving you the hassle of field-application, clean-up and disposal
- BetterVue® fiberglass screen mesh for all wood products has attained GREENGUARD® certification

NOTES:

Refer to pages 10-11 for more information about the wide array of interior and exterior design options available for Kolbe windows and doors.

To learn more about green building rating systems and how Kolbe's products can contribute to sustainable design projects, visit the Green Building Capabilities area of our website at www.kolbe-kolbe.com.



Kolbe products can contribute to sustainable design projects because of their durability and energy-efficient technology, as well as utilizing materials and finishes that address environmental concerns.



KOLBE INTERIOR WOOD & FINISH OPTIONS

While our wood species options are sourced from managed forests, Kolbe also offers FSC-certified wood for most of our wood products. Kolbe's wood window and doors may also be prefinished on the interior with any of our water-based stains or paints, providing a variety of design options as well as environmentally-friendly choices. Best of all, opting to have your Kolbe windows and doors prefinished will save you the hassle of cleaning up.

INTERIOR WOOD SPECIES



Pine*



Maple



Fir



Alder



Cherry



Oak



Mahogany



Walnut

* Pine is the standard wood species for most Kolbe wood windows and door products. Our wood species, including mahogany, are sourced from managed forests. Kolbe also offers FSC-certified wood for most of our wood products. Architects and design professionals should work with Kolbe's distributor partners that have also achieved FSC certification.



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INTERIOR WATER-BASED STAINS



Wheat



Red Wheat



Light Oak 998



Spiced Walnut



Sunset Oak



Chestnut



Cherry



Library Red



Coffee Bean

Stain colors are shown on pine. Since no two trees are identical, wood can be expected to differ both in color and graining. These factors will influence the stain's final color.

Custom stain matching is also available; please supply your Kolbe dealer with a sample (minimum 3" x 3") with the stain color on the wood species you would like matched.

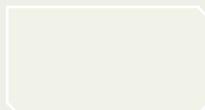
INTERIOR WATER-BASED PAINTS



Bright White



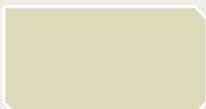
Ultra Pure White



Abalone



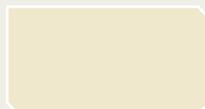
Silk



Beige



Ivory Tusk



Natural Cotton

Most products may be prepared by requesting "primer only" as a factory prefinish, for painting on the jobsite. Interior prefinishing with paint is not available for raised panel doors. Custom colors are also available.

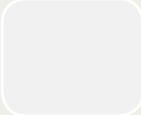
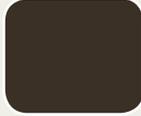
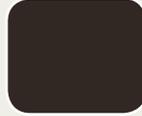
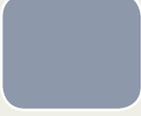
Printed images of wood species and interior finishes will vary from actual colors. Selections must be made based on actual samples available from your Kolbe dealer.

EXTERIOR FINISH OPTIONS

Ultra Series extruded aluminum clad products are finished on the exterior with a 70% PVDF fluoropolymer finish that meets the requirements of AAMA 2605-05 specifications – the highest level in the industry. This finish carries up to a 30-year warranty, proving Kolbe’s commitment to providing the very best. A variety of unique, anodized exterior finishes are also available for Ultra Series clad products.

Heritage Series wood products may be coated on the exterior with K-Kron II, a high performance paint finish that offers a low-maintenance way to enhance and preserve the look of wood windows and doors. We also offer a high performance, heat-reflective polyurethane finish in numerous colors for our vinyl products.

EXTERIOR COLOR OPTIONS

						
Ultra Pure White	White*	Abalone	Natural Cotton	Alabaster*	Camel*	Spiced Vinegar*
						
Beige	Sand	Mudpie*	Gingersnap	Rustic	Truffle*	Frosted Jade*
						
Kiwi*	Bay Leaf	Manchester*	Green Tea Leaf*	Mystic Ivy*	Basil*	Hartford Green
						
Butterscotch*	Pumpkin Spice*	Chutney	Antique Red*	Merlot	Patriotic Blue	Cape Cod*
				<p><i>Kolbe vinyl products are either white or beige as standard; the color is an integral part of the extrusions. Most Kolbe vinyl products may be coated with a water-based, high performance, heat-reflective finish which meets performance standards determined by AAMA 613-98. Most of the colors shown are available, with the exception of Ultra Pure White, White, Beige, Antique Red, and Patriotic Blue.</i></p>		
Waterford*	Timberwolf*	Slate	Coal Black**			

* Specialty colors which will incur an added charge and possible longer lead times.

** Coal Black is not available for Heritage Series wood products or for Classic Series roll-formed clad products. Classic Series products are available in White, Beige, Sand and Rustic only.

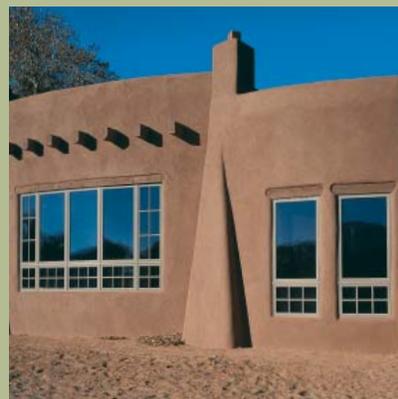
Talk to your local Kolbe dealer for more information.

ANODIZED ALUMINUM FINISHES

						
Clear	Champagne	Light Bronze	Medium Bronze	Dark Bronze	Black	Auburn

Note: There may be slight color variations when an anodized aluminum finish is applied to different substrates.

Printed images of exterior finishes will vary from actual colors.
 Selections must be made based on actual color samples available from your Kolbe dealer.



KOLBE

■ WINDOWS & DOORS ■

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