


GUARDIAN GLASS for NORTH AMERICA



See what's possible™



If you know glass, you know
there's more than meets the eye.

And if glass means more to you,
you should know Guardian.

LOOK AGAIN 1

ABOUT GUARDIAN.....2

FLOAT GLASS 4

SUNGUARD®
Advanced Architectural Glass 6

CLIMAGUARD®
Residential Glass Solutions..... 8

INTERIOR GLASS
Advanced Interior Glass.....10

TECHNICAL GLASS
Electronics, Lighting and More.....12

AUTOMOTIVE & TRANSPORTATION
Tinted Float Glass14

GUARDIAN RESOURCES16

LOOK AGAIN



Guardian is changing the way the world experiences glass

In our vibrant Science & Technology Center and our manufacturing facilities around the globe, we work continuously to make glass perform in new ways—solving the customer needs of today and discovering the potential of glass for tomorrow.

Every time you choose glass, you have an opportunity to make your project stronger, smarter, better looking. Whether you select SunGuard® architectural glass to heighten the performance of a skyscraper, or use Guardian UltraClear® to deliver beautiful, maximum clarity, Guardian innovation can give you more.

Our approach pairs sophisticated manufacturing capabilities with deep research into the chemical nature of glass and ceramics. As a result, we can infuse glass with properties that optimize its performance for any purpose and environment. We have applied for or registered over 900 U.S. patents, but the real value is glass that offers exceptional durability, ultraviolet protection, heat retention, reflection, solar transmission and more.

If the glass you need doesn't exist today, we invite you to talk with us—and discover what we can develop together.

Guardian is committed to growth, innovation and you

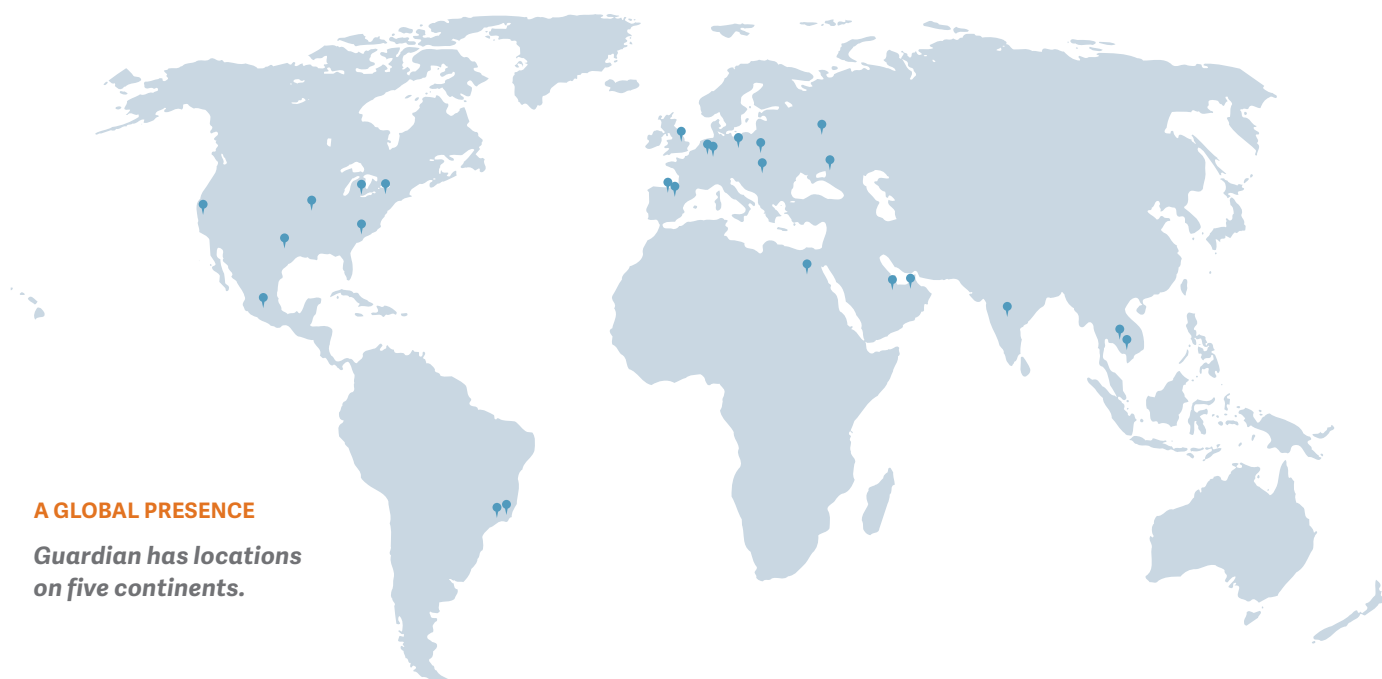
With locations on five continents Guardian knows how to ask, “How may we help you?” in dozens of languages. National and multinational customers appreciate our global knowledge of industry trends and ability to satisfy high-speed, high-volume requests and support all of their locations.

Established in 1932, Guardian today is a multibillion dollar company—a strong and dependable partner highly responsive to customer needs. As one of the world’s largest manufacturers of float glass and fabricated glass, we control quality from the outset of each solution. Our extensive capabilities in coating, treating and fabricating glass give customers extraordinary choice and the ability to add genuine value to their projects. Find our products scaling skyscrapers and equipping high-performance homes ... protecting delicate electronics and drivers on hostile terrain ... converting energy into electricity and making artful impressions.

Our decisions are driven by product quality, customer satisfaction and a passion for developing glass solutions that look better, last longer and outperform their predecessors.

Guardian operates with an attitude of responsibility. A corporate commitment to ethics guides us. We care for people and the environment by producing safe, reliable products; protecting the health and safety of customers, employees and neighbors; and using natural resources efficiently and respectfully.

The Guardian promise to customers and consumers is fulfilled through strong partnerships with skilled fabricators, glaziers, dealers, window manufacturers, architects and designers. We invest in these relationships and support mutual, continuous learning to elevate our work together.



A GLOBAL PRESENCE

Guardian has locations on five continents.



Guardian glass adorns extraordinary buildings, including the world's tallest, Burj Khalifa in the UAE. The building features SunGuard Silver 20.

FLOAT GLASS



BEHIND THE GLASS

Float glass begins with mountains of silica sand and select raw materials, heated to a liquid state and floated on a bath of molten tin to produce a perfect ribbon of glass. Guardian brings the process and results of glassmaking to new levels, applying deep knowledge of chemistry, physics and advanced technologies to create glass with optimal light transmission, clarity and integrity for custom treatments and fabrication.



Great glass design begins with quality float glass—a Guardian specialty

Start with quality float glass

Our float glass is available in a range of thicknesses and colors, including clear, green and other tints. We also offer specialty tints that customers can choose to control the appearance and performance of glass.

Precision glass is available for sophisticated technology applications including electronics, display cover glass and biomedical/life sciences.

Clear glass of the highest quality is available for a wide range of applications.

Guardian UltraClear® low-iron is exceptionally clear, sparkling glass that welcomes abundant light.

Green glass in various shades is available for commercial, automotive and other applications.

Gray glass is industry-standard tinted float glass to help control solar heat gain and provide aesthetic options.

CrystalGray® is light gray in color and transmits visible light well while reducing solar heat gain.

CrystalBlue® is a beautiful, soft blue color with outstanding light transmission and energy performance.

MidnightGray™ offers excellent solar control, energy savings and privacy with a dark gray color.

Add exceptional value

As part of our manufacturing process, we can infuse glass with special properties, helping our customers achieve impressive performance and dramatic visual effects. We can improve safety, increase comfort, lower cost, preserve a like-new look, include color and graphics, add privacy and more.

Heat-treated glass, including heat-strengthened and tempered glass, resists breakage and, if broken, fractures in a way that reduces the likelihood of serious injury.

Laminated glass delivers strength, beauty and sound control with abundant color options by bonding a plastic interlayer between two or more panes of glass under heat and pressure.

Coated glass can heighten performance in a number of ways, including increasing energy efficiency, reducing solar heat gain, virtually eliminating reflection, resisting scratches and corrosion under harsh conditions, and more.

Mirror glass is beautifully reflective, durable, easy to clean and long-lasting.

Textured and etched glass, including our exclusive Berman Glass editions designer textures, add depth, drama and degrees of privacy to a range of applications.

Collaboration

We collaborate with our clients to solve their glass needs. And we support them every step of the way with extensive technical resources and powerful online tools.

In the pages that follow, we describe a selection of our products for commercial, residential, interior, security and automotive applications. Ask us to learn more—or to collaborate on something altogether new.

Build with light

SunGuard® Advanced Architectural Glass from Guardian helps architects create striking building designs using natural light and color—while significantly reducing energy costs. SunGuard low-emissivity and solar control coated glass is specifically designed for a wide variety of commercial applications, including office buildings, high-rise apartments, schools, hospitals, libraries, government buildings, arenas and more. We can help architects and designers with glass solutions that meet local performance needs and realize their vision.



Top left: SunGuard AG 43 permits spectacular views from the Aman Tower in New York City.

Top right: Montrose Residential Tower, Houston, Texas, uses SunGuard SNX 51/23 to reduce solar heat gain.

Bottom: SunGuard SuperNeutral 68 on low-iron and bent make 7 St. Thomas Street in Toronto, ON beautifully efficient.

Guardian SunGuard products offer many performance coatings applied to a range of float glass substrates including clear, UltraClear low-iron, green, CrystalBlue, CrystalGray and gray.

SunGuard SuperNeutral 68 lowers solar heat gain and transmits light beautifully for outstanding energy savings and a clear, neutral appearance.

SuperNeutral 54 offers lower light transmission to reduce glare and solar heat gain while still providing low reflectance and neutral appearance.

SunGuard SNX 62/27 employs triple-silver technology to provide our highest light-to-solar-gain ratio of 2.30, delivering more light with less heat gain in one neutral coating.

SunGuard SNX 51/23, another triple-silver coating, has an attractive neutral-blue reflected color and a low solar heat gain coefficient of 0.23 to deliver the best combination of visible light transmission and solar heat gain.

SunGuard SNR 43 offers a light silver appearance with a very low solar heat gain coefficient of 0.23 in a standard insulated glass unit.

SunGuard AG and NU Series products provide medium light transmission, typically 40% to 60%, on clear glass with excellent energy performance in silver, light gray and light blue appearance options.

SunGuard IS 20 is a game-changing, interior surface coating that delivers superior thermal performance, lowering the U-factor of double glazing to approach triple-glaze performance.

SunGuard offers additional options, including **Neutral 78/65** and **Silver 20**.



SunGuard SNX 51/23 helped create the impressive Mayo Civic Center - Expansion, Rochester, Minnesota.

Expert customer care

Guardian offers unique capabilities and quality craftsmanship from production to installation via our independent Guardian Select[®] Fabricator Network and Glazier Connection partners. Professionals in these exclusive groups have completed a rigorous training and certification process administered by Guardian. This network also enables glass to be fabricated closer to the project location, shortening delivery times, which may help the project earn LEED credit.

SunGuard's online home at SunGuardGlass.com provides a wide array of product information, as well as intuitive tools and resources to help architects specify SunGuard products. Our new Glass Analytics online suite of engineering and analytic tools for glass demonstrate the advantages of high performance glass in building facades and include the Performance Calculator, Building Energy Calculator, BIM Generator and Glass Visualizer. Other resources found online are a searchable project database, a performance comparison tool and our Guardian Select Fabricator and Glazier Connection locators.

Knowledge sharing

Guardian participates in the American Institute of Architects Continuing Education System (AIA/CES) by providing seminar presentations that architects can attend to build their glass knowledge and, in most cases, earn Health, Safety and Welfare credits. Online education is also available at continuingeducation.construction.com, in cooperation with BNP Media.

Call 866.482.7374, email SunGuardGlass@Guardian.com or visit GuardianGlass.com to learn more.

GREEN BUILDING ADVANTAGE

SunGuard products offer tremendous energy savings and more. They can contribute to the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program for commercial projects in five categories: Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, Innovation in Design and Regional Priority.

CLIMAGUARD RESIDENTIAL GLASS SOLUTIONS



ClimaGuard low-E welcomes natural daylight while it helps reduce energy costs and improve insulating value.

The science of comfort

Homeowners find their living space more beautiful, comfortable and energy efficient with ClimaGuard® residential glass. This family of products is designed expressly for residential settings. Windows, skylights, entry doors and garage doors can be tailored to suit specific climates, exceed performance expectations and achieve distinctive style.

Maintaining a comfortable indoor environment is a challenge when temperatures fluctuate throughout the day, between seasons, and across climate zones. According to U.S. Government estimates, an average household spends more than 40% of its annual energy budget on heating and cooling. With ClimaGuard, it is possible to welcome natural light and neutralize the negative effects of sunshine and frosty temperatures.

ClimaGuard offers these benefits and more with striking color neutrality for a crisp, clear view.



Save energy

ClimaGuard low-E products are formulated to meet specific solar- and energy-control needs of differing climates and alignment with energy codes and guidelines, including ENERGY STAR®. Guardian offers many low-E products, including:

ClimaGuard 72/57 is a unique low-e coating designed for homes in northern climates that want to capture more of the sun's heat during the cold weather. Designed for surface #3 of a double pane IGU this coating helps optimize window performance for cold climates.

ClimaGuard 70/36 is a versatile low-E product for a wide range of environments with temperatures that vary, throughout the day and between seasons. Offering balanced performance, 70/36 helps insulate in the winter and block heat in the summer, making homes more comfortable and energy efficient all year long.

ClimaGuard 53/23 is ideal for hot, sunny, southern climates. This product has a low solar heat gain coefficient to keep out the sun's heat and glare while still allowing abundant visible light to enter the home.

ClimaGuard IS 20 is an interior surface low-E product designed to reduce the U-factor of any glass package. This product is best suited for cold climates and performs well in tandem with other ClimaGuard products.

Other ClimaGuard low-E products are available for many climate conditions and specialty applications. No matter where you live, ClimaGuard makes a product to help meet local building codes and energy standards.

Improve safety, security and comfort

ClimaGuard laminated glass bonds a plastic interlayer between panes of glass. It reduces sound, achieving superior Outdoor-Indoor Transmission Class (OITC) ratings. It protects furnishings, blocking 99.9% of UV rays. And it resists impact, providing protection from intruders.

ClimaGuard tempered glass is four to five times stronger than annealed glass, making it a smart choice for vulnerable surfaces, such as shelves, doors and railings, and can be combined with low-E coatings to improve energy efficiency.

Call 855.660.5905, email ClimaGuardInfo@ClimaGuard.com or visit GuardianGlass.com to learn more.



CLEAR ADVANTAGE

Residential window makers find competitive advantage in ClimaGuard glass and a capable, innovative partner in Guardian.

INTERIOR ADVANCED INTERIOR GLASS



ShowerGuard Glass is permanently sealed to keep it looking forever beautiful.

Design forward

Our Interior glass portfolio sets the standard for quality and brings the beauty and performance of interior glass to new places. Guardian interior products are infused with innovation to exceed the design capabilities of ordinary glass. Think dramatic light control and privacy options. Corrosion resistance under punishing conditions.

Available in stunning variety, architects and designers can access hundreds of combinations of performance benefits, colors, textures and finishes to create inspiring floors, walls, stairs, railings, shelves, fixtures and more.

ShowerGuard® is the first bath and shower glass that provides permanent protection against corrosion and discoloration. Manufactured and sealed with Guardian's patented ion-beam process, ShowerGuard shower enclosures, glass doors and washroom surfaces maintain a like-new appearance for years to come.

SatinDeco® acid-etched glass is smooth to the touch and easy on the eyes. The satin-smooth, translucent finish of SatinDeco obscures the view through the glass while maintaining a high level of light transmittance. Add interest and a touch of privacy with SatinDeco windows, dividers, tabletops and more.

UltraMirror™ corrosion-resistant mirror is beautifully reflective and stays that way, resisting moisture, chemicals and abrasions. In hospitality restrooms and other high-traffic settings, UltraMirror can heighten beauty and reduce the cost of cleaning and replacement.



Guardian UltraClear® low-iron float glass delivers maximum clarity and color neutrality—clear to the edge. Without the green tint of standard float glass, it elevates light transmission and presents views that are true to life.

Deco HT™ back-painted glass is both durable and eye-catching. Created using a proprietary coating system, Deco HT has a smooth, uniform finish to perfectly accent any design.

Berman Glass editions is a series of signature glass textures hand-designed by pioneering glass artist Joel Berman. Exclusively manufactured and distributed by Guardian, this series invites architects and designers to transform almost any setting with the look of custom glass.

Standard textures lend privacy and dimension with a wide range of options at an exceptional value.

Laminated glass delivers advanced safety and sound control by bonding two panes of glass with a variety of interlayers – available in a rainbow of colors.

Reveal® switchable privacy glass transitions from clear to opaque with the flip of a switch, for ultimate privacy control in conference rooms, consultation spaces, enclaves and more. Create dynamic spaces that shift with user needs and introduce it everywhere privacy and light matter.

Call 855.58.GLASS (855.584.5277), email Info@GuardianGlass.com or visit GuardianGlass.com to learn more.

TECHNICAL GLASS ELECTRONICS, LIGHTING AND MORE



Ideal for electronic displays, highly efficient lighting and commercial refrigeration, Guardian technical glass solutions meet exacting specifications and deliver advanced performance—adding value for product manufacturers and their customers.

Clearly smart

Expect advanced performance and dependable quality. Guardian's technical glass components are engineered with flawless clarity, custom coatings and special treatments to maximize their optical, thermal and structural properties.

Guardian glass experts can work directly with original equipment manufacturers and their customers to meet exacting project requirements and innovate custom solutions.

Electronics products

Guardian glass lets electronics manufacturers sharpen the image and perfect the performance. Use our precision glass for sophisticated technology applications including automotive displays and mirrors, consumer and industrial electronics and biomedical/life sciences. Bring pictures to life with anti-reflective display cover glass and optical filters. Create interactive electronics applications that respond to touch with conductive glass. Brand and customize through specialty edges, tempering, lamination and silk screening.



Lighting products

Whether you're flooding a stadium with light so fans don't miss a play or lighting a roadway for safety, Guardian glass lenses give you leading-edge performance and unmatched design flexibility. Transmit more light with less residual reflection. Soften the scenery with etched glass that diffuses light. Capture and focus light to spotlight the subject and virtually eliminate light pollution. Heat your lens to remove snow and ice in LED lighting applications. Increase lighting efficiency up to 10%. Because lenses using Guardian glass technology heighten light transmission, you achieve the same lighting result with fewer fixtures, lower installation costs, less maintenance and reduced ongoing energy consumption.



Commercial refrigeration products

The right glass door can entice customers to buy what's inside, lower the utility bill and resist the wear of daily use. Our ThermaGuard® commercial refrigeration glass offers exceptional choice in advanced performance and price points. This product's low emissivity keeps refrigeration units cool and energy use efficient. That's good news for the environment and for retailers interested in reducing operating costs. ThermaGuard helps meet ENERGY STAR, and is EPA 2005 and EISA 2007 compliant.



Call 855.270.4193, email TechGlass@Guardian.com or visit Guardian.com to learn more.

AUTOMOTIVE & TRANSPORTATION FLOAT GLASS



As a manufacturer of quality automotive float glass since 1970, Guardian delivers the glass products, global reach and expertise that you can rely on. We continue to grow and invest in new and innovative products to deliver float glass that meets OEM requirements today and into the future.



Drive with confidence

Guardian manufactures float glass specifically for customers who create advanced glass solutions for use in automotive, specialty transportation and related industries. When it comes to float glass production, no one has more experience or technological know-how.

All-purpose glass for transportation

Guardian green-tinted float glass is prized for its high light transmission, optical clarity and ability to be fabricated to meet customer needs for performance and aesthetics. Decades of manufacturing experience have resulted in the highest quality float glass for a variety of automotive and transportation applications.

Enhanced solar performance

The **Solar Management Glass (SMG®)** product family balances light transmission with improved solar gain to meet various customer and application requirements. It combines maximum solar heat absorbing capabilities while exceeding 70% visible light transmission with standard green glass aesthetics in varying shades, depending on customer needs.

High solar performance

Our **SilverGuard™** Infrared Reflective Solar Control Glass looks like conventional clear glass but reflects most of the rays that escalate interior heat.

PrivaGuard® and **MidnightGray® II** glass formulations are used extensively in automotive glazing applications that require privacy or lower visible light transmission. These products exhibit outstanding heat-absorbing ability with deep-tinted, neutral gray aesthetics. They are ideal in applications where high solar performance, uncoated glass is required.

Call 800.521.9040, email AutoFloatGlass@Guardian.com or visit GuardianGlass.com to learn more.



Guardian glass protects passengers while reducing solar load for a cooler cabin, better fuel economy and fewer vehicle emissions while offering options that add statement-making style.

North American facilities

World Headquarters	2300 Harmon Road, Auburn Hills, MI 48326	248.340.1800
Science & Technology Center	14511 Romine Road, Carleton, MI 48117	734.654.1111

FLAT GLASS MANUFACTURING

Carleton, MI	14600 Romine Road, Carleton, MI 48117	734.654.6264
Corsicana, TX	3801 S. Highway 287, Corsicana, TX 75109	903.872.4871
DeWitt, IA	300 South 5th Avenue E., DeWitt, IA 52742	563.659.4000
Geneva, NY	50 Forge Avenue, Geneva, NY 14456	315.787.7000
Kingsburg, CA	11535 E. Mountainview, Kingsburg, CA 93631	559.896.6400
Queretaro, Mexico	Km. 9.6 La Griega, El Marques, Qro. C.P. 76249	442.278.1700
Richburg, SC	610 L & C Railway Dist. Park, State Hwy 9, Richburg, SC 29729	803.789.6100

We're here to help

There's a lot to know about glass—and Guardian. But above all, you should know that we're here to help.

We'd love to learn about your project and collaborate on a solution. Our engineers, suppliers, sample systems and online tools stand ready to support you from concept to completion.

Visit GuardianGlass.com or email Info@Guardian.com.

WHAT DO YOU SEE?

Structures that redefine the skyline and great design. Walls and surfaces with brilliant form and function. Homes that help you care for loved ones. Alternative energy and stewardship. Advanced electronics, even smarter. Safety over the road and on the front lines.

In Guardian, you will find a partner devoted to your project and possibilities as endless as your vision.

GUARDIAN GLASS for NORTH AMERICA

SunGuard®

Advanced Architectural Glass
866.482.7374

Technical Glass

Electronics, Lighting and More
855.270.4193

Transportation Glass

Automotive and Mass Transit
800.521.9040

Interior Glass

Advanced Interior Glass
855.584.5277

ClimaGuard®

Residential Glass Solutions
855.660.5905



See what's possible™

Headquartered in Auburn Hills, Michigan, Guardian Glass is a leading international manufacturer of float, value-added coated, and fabricated glass products and solutions for architectural, residential, interior, transportation and technical glass applications. To learn more, visit GuardianGlass.com.

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