

Guardian UltraMirror[™]

Copper-Free Mirror

See what's possible[™]



As the world's largest mirror producer, Guardian uses the latest technologies available to manufacture beautifully reflective mirrors that have proven to be durable and long lasting. Using a patented process, Guardian produces UltraMirror copper-free mirrors with outstanding technical properties, far exceeding today's toughest industry standards. UltraMirror is proven to be superior to conventional mirrors in all accelerated tests including: CASS (copper accelerated salt spray), humidity, salt fog, ferric chloride and ammonia tests.

INDUSTRY LEADING WARRANTY

Guardian UltraMirror is covered by a written limited warranty against defects in material and workmanship resulting in deterioration or clouding of the silver film for a period of ten years from date of manufacture.

CARE & MAINTENANCE

Clean with a soft, grit-free cloth using warm water. Do not use any acid, alkali or ammonia cleaners. Do not allow the mirror edges to remain wet. Good ventilation will keep mirrors from "sweating" and creating condensing liquids which can be corrosive and damaging to mirrors. Glazing guidelines, such as those presented in the Glass Association of North America Glazing Manual, should be followed to minimize installation problems.

- MD 01-0105 *Proper Procedures for Cleaning Flat Glass Mirrors*
- MD 02-0209 *Proper Procedures for Fabrication of Flat Glass Mirrors*
- MD 03-0811 *Installation Techniques Designed to Prolong Life of Flat Glass Mirrors*

TECHNICAL CONFORMANCES

Safety applications require conformance to the Consumer Product Safety Commission federal standard. 16 CFR 1201 regulates the use of glass and glass products in specified locations, such as doors, sidelights and shower enclosures. Guardian's float glass line produces input for mirror production that is Q1 quality per the ASTM C1036-11 (Standard Specification for Flat Glass), and in compliance with the following industry standards:

- ASTM C-1048 *Heat-Treated Glass*
- ASTM C-1036 *Flat Glass*
- ASTM C-1172 *Laminated Architectural Flat Glass*
- ASTM C-1503 *Silvered Flat Glass Mirrors*
- ANSI Z97.1 *"Safety Performance and Methods of Test for Safety Glazing Material Used in Buildings"*

APPLICATIONS



Guardian mirrors are available on clear glass from 2.3mm through 6.0mm, with the capability of producing gray or bronze colored mirrors by applying the mirror coating onto a colored substrate. Typical applications include wardrobe doors, bathroom mirrors, furniture, TV projection screens, display cases, vehicle mirrors, decorative walls, ceiling and pillar covers, exercise rooms and mirrors for dance studios. Guardian laminated mirrors provide the benefits of a safety glazing product with the distortion-free attributes of traditional laminated glass and are a good choice for outdoor applications.

INSTALLATION

Install with mechanical fasteners or incorporate a weep system with setting blocks into all J or C channel frame glazing systems. Setting blocks should not interfere with the proper operation of the weep system. Verify sealant compatibility by the sealant supplier. Provide

for minimum face and edge clearance, as well as nominal bite. Make proper allowance for mirror glass, metal and erection tolerance, plus expansion and contraction. Do not install mirror on freshly painted walls or plaster. Avoid use of rubberized mastics.

LIMITATIONS

The glazing contractor/installer is responsible for conducting appropriate sealant compatibility tests when installing mirrored glass. It is recommended that mechanical fasteners be used on all installations. Adhesives that release acetic acid or ammonia-like compounds while curing are not recommended for use, and mastics with sulphur compound must be avoided. Best results are obtained

with a factory or shop-cut edge, and field cutting should be avoided to minimize edge deterioration. Prolonged exposure to moisture, corrosive chemicals, solvents, solvent vapors and cleaning fluids will cause edge deterioration and silver spoilage. Weep system must be used for all J or C channel frame installations.

COMPOSITION & METHODS



Guardian mirrors are produced on the latest state-of-the-art equipment. A four-layer patented process to create copper-free mirrors involves an initial application of tin as a super sensitizer to the glass, followed by a layer of sensitizing palladium providing the ultimate foundation for silver-to-glass adhesion. A layer of silver is applied for reflectivity with a fourth layer of GMP to protect the silver. The mirror is further protected and encapsulated with organic paints, giving the mirror mechanical and chemical durability. Mirrors may be further fabricated, e.g., hole drilling, beveling and other edge preparation. Our quality systems registered to ISO-9001 ensure that Guardian provides lasting brilliance and durability.

LEARN MORE

For specification details and availability, please contact your local sales representative, call 855.58.GLASS (855.584.5277) or visit GuardianGlass.com.

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.