

SECTION 08 83 00

MIRRORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Annealed monolithic glass mirrors.

1.2 DEFINITIONS

- A. Deterioration of Mirrors: Defects developed from normal use attributable to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning mirrors contrary to mirror manufacturer's written instructions. Defects include discoloration, black spots, and clouding of the silver film.

1.3 ACTION SUBMITTALS

- A. Product Data: Technical data for mirror units including description of materials and process used to produce each type of silvered flat glass mirror specified that indicates sources of glass, glass coating components, edge sealer, and quality control provisions.
 - 1. Mirrors: Submit description of materials and process used to produce each type of silvered flat glass mirror specified that indicates sources of glass, glass coating components, edge sealer, and quality control provisions.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: Submit certificates for each type of mirror and mirror mastic.
- B. Preconstruction Test Reports: Submit mirror manufacturer test data indicating that mirror mastic was tested for compatibility and adhesion with mirror backing and substrates on which mirrors are installed.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified entity having minimum 5 years documented experience that employs glass installers certified under the National Glass Association's Certified Glass Installer Program.
- B. Mirror Glazing Publications:
 - 1. GANA Publications: Refer to publication for definitions of glass and glazing terms not otherwise defined.
 - a. Glazing Manual unless more stringent requirements are indicated.
 - b. Glazing Manual and Mirrors, Handle with Extreme Care: Tips for the Professional on the Care and Handling of Mirrors.

- C. Source Limitations for Mirrors: Obtain mirrors from one source for each type of mirror indicated.
- D. Source Limitations for Mirror Glazing Accessories: Obtain mirror glazing accessories from one source for each type of accessory indicated.
- E. Preconstruction Mirror Mastic Compatibility Test: Submit mirror mastic products to mirror manufacturer for testing to determine compatibility of mastic with mirror backing and substrates on which mirrors are installed.
- F. Preconstruction Testing:
 - 1. Preconstruction Mirror Mastic Compatibility Test: Submit mirror mastic products to mirror manufacturer for testing to determine compatibility of mastic with mirror backing.
 - a. Testing is not required if data are submitted based on previous testing of mirror mastic products and mirror backing matching those submitted.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect mirrors according to mirror manufacturer's written instructions and as needed to prevent damage to mirrors from moisture, condensation, temperature changes, direct exposure to sun, or other causes.
- B. Comply with mirror manufacturer's written instructions for shipping, storing, and handling mirrors as necessary to prevent deterioration of silvering, damage to edges, and abrasion of glass surfaces and applied coatings. Store indoors.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Do not install mirrors until ambient temperature and humidity conditions are maintained at levels indicated for final occupancy.

1.8 WARRANTY

- A. Written warranty signed by mirror manufacturer in which manufacturer agrees to replace mirrors that deteriorate within specified warranty period. Deterioration of mirrors is defined as defects developed from normal use that are not attributed to mirror breakage or to maintaining and cleaning mirrors contrary to manufacturer's written instructions. Defects include discoloration, black spots, and clouding of the silver film.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Provide mirrors that will not fail under normal usage. Failure includes glass breakage and deterioration attributable to defective manufacture, fabrication, and installation.

2.2 SILVERED FLAT GLASS MIRRORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Guardian Glass; SunGuard.
 2. Sunshine Mirror.
 3. Trulite Glass and Aluminum Solutions, ScarGuard.
 4. Virginia Mirror Company, Inc.
 5. Walker Glass Co., Ltd.
- B. Mirrors: ASTM C 1503; manufactured using copper free, low lead mirror coating process.
- C. Annealed Monolithic Glass Mirrors: Mirror Select Quality, ultraclear (low iron) float glass with a minimum 91 percent visible light transmission.
1. Nominal Thickness: 6.0 mm minimum.
- D. Miscellaneous Materials:
1. MDF standoff box and plywood backing as specified in Section 06 40 00 Architectural Woodwork.
 2. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
 3. Edge Sealer: Coating compatible with glass coating and approved by mirror manufacturer for use in protecting against silver deterioration at mirrored glass edges.
 4. Mirror Mastic: An adhesive setting compound, asbestos free, produced specifically for setting mirrors and certified by both mirror and mastic manufacturer as compatible with glass coating and substrates on which mirrors will be installed.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Franklin International.
 - 2) Laurence, C. R. Co., Inc.
 - 3) Liquid Nails Adhesive.
 - 4) Palmer Products Corporation.
 - 5) Pecora Corporation.
 - 6) Royal Adhesives & Sealants.
- E. Mirror Hardware:
1. Aluminum J Channels and Cleats: Aluminum extrusions with a return deep enough to produce a glazing channel to accommodate mirrors of thickness indicated and in lengths required to cover edges of mirrors in a single piece.
 - a. Bottom and Side Trim: J channels formed with front leg and back leg not less than 5/16 and 3/4 inch (7.9 and 19 mm) in height, respectively.
 - 1) Manufacturers: Subject to compliance with requirements, provide Laurence, C. R. Co., Inc.

- b. Top Trim: Formed with front leg with a height matching bottom trim and back leg designed to fit into the pocket created by wall mounted aluminum cleat.
 - 1) Manufacturers: Subject to compliance with requirements, provide Laurence, C. R. Co., Inc.
 - c. Finish: Clear bright anodized.
 - 2. Mounting Clips and bars: Provide clips as required for a complete installation and to support all mirrors. Provide top, bottom and intermediate clips.
 - a. Mirror mounting Z bar clips: Provide Z bar clips for mirror mounting as indicated and as required for a complete installation.
 - 3. Plated Steel Hardware: Formed steel shapes with plated finish indicated.
 - a. Profile: Indicated on drawings.
 - 4. Fasteners: Fabricated of same basic metal and alloy as fastened metal and matching it in finished color and texture where fasteners are exposed.
 - 5. Anchors and Inserts: Provide devices as required for mirror hardware installation. Provide toothed or lead shield, expansion bolt devices for drilled in place anchors. Provide galvanized anchors and inserts for applications on inside face of exterior walls and where indicated.
- F. Wood Trim Transparent Finish
- 1. Quality Standard and Grade: AWI Grade: Premium.
 - 2. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.
 - 3. Assemble casings in shop except where limitations of access to place of installation require field assembly.
 - 4. Assemble moldings in plant to maximum extent possible. Miter corners in plant and prepare for field assembly with bolted fittings designed to pull connections together.
 - 5. Wood Species and Cut: Quarter Sliced Hard White Maple unless otherwise indicated, stained and finished to comply with the Finish Schedule or selections made by Architect in submittals..
 - 6. Provide sizes, shaped and profiles as indicated on the Drawings.
- G. LED Lighting:
- 1. Provide Line LED Series Wet Tube, small profile LED strip for wet locations. Model LL36WET-T-35K-SL65-NC.
 - 2. Provide power supply, lenses and channel and all accessories for a complete and functional installation. Reference electrical documents for additional information, coordination and any respective controls.

2.3 FABRICATION

- A. Fabricate mirrors in the shop to greatest extent possible. Fabricate cutouts for notches and holes in mirrors without marring visible surfaces. Locate and size cutouts to fit closely around penetrations in mirrors.
- B. Mirror Edge Treatment: Flat polished.

1. Seal edges of mirrors with edge sealer after edge treatment to prevent chemical or atmospheric penetration of glass coating.
 2. Require mirror manufacturer to perform edge treatment and sealing in factory immediately after cutting to final sizes.
- C. Film Backed Safety Mirrors: Apply film backing with adhesive coating over mirror backing paint, as recommended in writing by film backing manufacturer, to produce a surface free of bubbles, blisters, and imperfections.
- D. Fabricate MDF standoff box, plywood backing, trim and other components as specified in Section 06 40 00 Architectural Woodwork.
- E. Coordinate LED lighting with fabrication of mirrors and supports.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, over which mirrors are mounted for compliance with installation tolerances, substrate preparation, and conditions affecting performance of the work. Verify compatibility with and suitability of substrates, including compatibility of existing finishes or primers with mirror mastic.
- B. Proceed with installation after correcting unsatisfactory conditions and surfaces are dry.

3.2 PREPARATION

- A. Comply with mastic manufacturer's written installation instructions for preparation of substrates, including coating substrates with mastic manufacturer's special bond coating where applicable.

3.3 INSTALLATION

- A. Install mirrors to comply with mirror manufacturer's written instructions and with GANA publications. Mount mirrors accurately in place in a manner that avoids distorting reflected images.
- B. Provide a minimum airspace of 1/8 inch (3 mm) between back of mirrors and mounting surface for air circulation between back of mirrors and face of mounting surface.
- C. Wall Mounting: Install mirrors with mastic and mirror hardware. Attach mirror hardware securely to mounting surfaces with mechanical fasteners installed with anchors or inserts as applicable. Install fasteners so heads do not impose point loads on backs of mirrors.
1. Aluminum J Channels and Cleats: Fasten J channel directly to wall and attach top trim to continuous cleat fastened directly to wall.
 2. Mirror Clips: Place a felt or plastic pad between mirror and each clip to prevent spalling of mirror edges. Locate clips symmetrically placed and evenly spaced.
 3. Mounting Z bars: Provide Z bar mounting clips and rails for mirror installations.

- a. Mirror mounted bars shall be set in place with adhesive recommended by the manufacturer for mounting.
 - b. Wall mounted bars shall be anchored to partitions with solid wood blocking or other support members. Coordinate all anchorages, blocking and mounting requirements.
4. Install mastic:
- a. Apply barrier coat to mirror backing where approved in writing by manufacturers of mirrors and backing material.
 - b. Apply mastic to comply with mastic manufacturer's written instructions for coverage and to allow air circulation between back of mirrors and face of mounting surface.
 - c. After mastic is applied, align mirrors and press into place while maintaining a minimum airspace of 1/8 inch (3 mm) between back of mirrors and mounting surface.
- D. Standoff box mounting
1. Install mirrors to comply with mirror manufacturer's written instructions and with GANA publications. Mount mirrors accurately in place in a manner that avoids distorting reflected images.
 2. Mount stand off boxes, frame, backup materials and trim in accordance with standards indicated herein and as specified in Section 06 40 00 Architectural Woodwork.
 3. Provide wood trim finished as selected by Architect fully adhered with no exposed fasteners. Miter trim at all corners and changes in direction.
 4. Coordinate installation of LED lighting and all accessories, components wiring and controls. Coordinate all Work with the electrical requirements of the Project.

3.4 CLEANING AND PROTECTION

- A. Protect mirrors from breakage and contaminating substances resulting from construction operations.
- B. Do not permit edges of mirrors to be exposed to standing water.
- C. Maintain environmental conditions that prevent mirrors from being exposed to moisture from condensation or other sources for continuous periods of time.
- D. Clean exposed surface of mirrors not more than four days before date scheduled for inspections that establish date of Substantial Completion. Clean mirrors as recommended in writing by mirror manufacturer.

END OF SECTION