



## **Manufacturer's Instructions for the Handling, Installation, and Cleaning Of Flat Glass Mirrors**

Flat glass mirrors require certain handling, installation, and cleaning procedures to ensure that the product remains free of damage and will last its maximum product life. Following these procedures will help reduce potential mirror damage resulting from improper handling, installation, and cleaning. Mirrors are delicate and easily destructible. Proper storage, handling, installation, and cleaning will help mitigate potential damage and failure of the product. There are continual advances in education, installation products, and mirror manufacturing processes to provide a long-lasting product.

It is the responsibility of the mirror installer to ensure that the installation and care of the mirrors comply with any relevant product rules, laws, regulations, and building standards. Gilded Mirrors reserves the right to revise, amend, or modify this document from time to time as it sees fit and to do so without notification of prior recipients.

There are a number of helpful documents available at GANA's (Glass Association of North America) website that are written specifically for the mirror product. At the time of this publication, these documents were available from the GANA website store at no charge. We encourage your review of these documents.

### **Mirrors -- Looking Beyond the Glass**

Mirrors are created by applying various layers of chemical solutions, metals, and coatings to mirror quality glazing utilizing a galvanic plating process. Once manufactured, the mirror will provide maximum depth and reflectivity. However, if any of the various layers are compromised due to improper handling, storage, installation, or cleaning, the mirror can fail over time. As such, it's important to follow all handling and storage, installation, and cleaning procedures as outlined below. When done so, you will experience the long life that a well-cared for mirror offers.

### **Handling and Storage**

Every time a mirror is moved there is the opportunity for damage. Therefore, it is recommended to keep any movement to a minimum. Plan your storage in advance of receipt of the product, thus minimizing movement of the product prior to the time of installation. The following should be instituted for best handling and storage practices:



- **Inspect on Receipt.** Upon receipt of your mirror package, it should be inspected as soon as possible. If there is damage to the exterior packaging, it should be noted on your Bill of Lading and logged with the transportation company prior to signing for the receipt of the package. Of particular importance is to ensure there is no moisture on the packaging or mirrors. If the packaging damage or moisture is excessive, the delivery should be refused by the recipient.
- **Dry Storage.** Ensure that your mirrors are stored indoors in a dry, climate-controlled, and vented location. It is important to not expose the mirrors to high humidity or excessive heat. Mirrors will fail if exposed to elements that cause excessive expansion and contraction.
- **Timely Unpacking.** Upon completion of moving the packaged product, the product should be unpacked as soon as possible to allow any moisture to evaporate. Most importantly, any stretch wrap should be removed that may be trapping moisture should be removed to avoid any moisture build-up (e.g., sweating, dew, condensation). While moisture may not be obvious, the packaging could have been subject to changes in temperature during shipping that could cause moisture build-up.
- **Proper Unpacking.** When removing mirrors from a crate, the front of the crate should be removed, mirrors tilted out one at a time, and each lifted out of the crate. Mirrors should NOT be removed by pulling/sliding the mirror from the side (“end pulling”).
- **Vertical Storage.** Mirrors should always be stored vertically at a minimal angle. Mirrors should never be stored or stacked horizontally. Vertical storage and handling gives glass more strength, reduces possible flexibility leading to breakage, and offers less chance of surface scratches.
- **Store Off Ground and Walls.** Mirrors should not sit directly on floors or be leaned directly against walls. Blocking mirrors off the ground and walls, will avoid any moisture issues associated from improper ventilation. Mirrors should not be stored against concrete (e.g., concrete slabs, cinderblock walls, poured walls) -- both for moisture reasons and possible chips.
- **Protective Storage.** In addition to ensuring protection from moisture, the mirrors should be stored in such a place as they are not subject to any falling objects or storage movement. Even small objects falling onto stored mirrors can chip or break them. Any movement in the storage location (e.g., non-stable shelving) can cause mirror stress that can produce breakage.
- **Rotate Product.** Like any glass, mirrors have a limited shelf life in the state of storage. It's important to rotate the stored mirrors -- first in, first out. This should be taken into consideration when planning your storage. As noted above, you want to minimize movement, so you want to be able to pull old inventory without having to move new inventory.



- **Movement by Equipment.** A pallet or crate of mirrors can easily weigh in excess of 3,500 lbs. As such, it's important to ensure you are using equipment that is capable of handling such weight (e.g., forklift, pallet jack). Any rough treatment will likely result in breakage.
- **Re-packaging.** Prior to moving the mirrors from storage to the installation site, they should be re-packaged as they were received. If the re-packaged case allows for movement, there is a high probability of mirror breakage.

## Proper Installation

The following techniques and procedures should be followed by the installer to best ensure a long product life.

- **Use Gloves.** Not only is this a safety factor for the installer, but it will help ensure against dropping the glass. This will also reduce chemical exposure to skin-based contaminants.
- **Layout Preparation.** The mirror layout should be done in the shop, not at the installation site. Any additional cutting, sizing, or movement of the mirror can lead to excessive handling and thus scratches or breakage.
- **Proper Walls.** Do not install on freshly painted walls or on unsealed masonry walls. Ensure that the wall/substrate is clean of any debris prior to installation.
- **Proper Climate.** Do not install in humid climates -- the room should be climate controlled (i.e., air conditioning or heat is operational). Do not install where airborne solvents or heavy-duty cleaners are in the air (e.g., spray paint, cleaning solutions, tile grout sealers). Mirrors should be one of the final items installed in new construction and should be done after final clean-up. Mirrors should not be installed outdoors.
- **Proper Ventilation.** The installed mirror should have adequate ventilation between the mirror and the wall (recommended at 1/8"). This will allow for air flow and prevent moisture entrapment (especially important when installed in a bathroom). Good ventilation will prevent the mirror from "sweating" -- condensing liquids can be corrosive and damaging to mirrors, particularly on the edges.
- **Bottom Support.** Mirrors should not be installed on back splashes, countertops, sinks, etc. This may expose the bottom of the mirror to puddling conditions. There should be 3/8" gap from the bottom of the mirror to other non-mounting hardware.



- **Mechanical Hardware Support.** It is recommended that mechanical supports are used for most applications -- items such as J-moldings, clips/screws, or frames.
  - J-moldings should have weep holes to allow ventilation and drainage.
  - Mirrors should have a 3mm neoprene setting pad between the mirror and molding being used.
  - A light seam of clear (not acid-based) silicone can be placed across the face of the mirror between the J-molding and the mirror along the bottom of mirror only (not applied to top or sides to prohibit ventilation).
- **Use of Non-Mechanical Hardware Support.** If using adhesives for installation, use only those that are “neutral cure”. It is highly recommended that a mechanical means of fastening and support be used in conjunction with any adhesive. Refer to the adhesive’s specific manufacturer’s instructions for further information.
  - **Be sure the adhesive or mastic selected is compatible with the mirror backing.** Avoid adhesives containing strong solvents or acids like acetone, toluene, methylene chloride, acetic acid, etc., as these will damage mirror backings.
  - Use caulking gun when applying the adhesive and avoid the use of putty knives, trowels, etc. Follow the adhesive manufacturer’s recommended application techniques.
  - Apply adhesive vertically to promote air ventilation (i.e., do not install horizontally).
- **Proper Abutted Spacing.** When installing abutted mirrors in a new construction building, adequate space should be placed between the mirrors to allow for building movement/settlement.
- **Proper Final Cleaning.** Follow all techniques noted below when cleaning the mirror upon installation. Do not use acid or alkali cleaners for mirror clean up.

## Proper Care and Cleaning

Proper cleaning of installed mirrors is important to (a) avoid scratches of the surface and (b) avoid exposure of the mirror’s edges to chemicals that can penetrate the layers of the mirror. The care and cleaning of mirrors is simple and inexpensive. In the case of new construction, proper cleaning instructions should be provided to the new owner or housekeeping staff.

**Care should always be taken to avoid getting the edges of the mirror wet with any liquid, substance, or chemical. This can result in damage to the mirror edges, commonly referred to as “black edge”. Should mirror edges become wet, they should be dried off immediately.**



The following are cleaning recommendations for mirrors:

- Do not allow the mirror edges to get or remain wet over a period of time.
- The best and safest way to clean a mirror is to use warm water and a soft lint-free cloth. Wring all water from the cloth before wiping the mirror and dry immediately with a dry lint-free cloth.
- Never spray any cleaner directly to the mirror. Apply the cleaner to a soft lint-free cloth and then wipe the mirror. This will prevent puddling at the mirror edge where the cleaner will attack the mirror edge or backing.
- Do *NOT* use any of the following to clean mirrors:
  - Acid or alkali cleaners
  - Abrasive cleaners (steel wool grade 0000 oil-free is acceptable)
  - Heavy ammonia or vinegar-based commercial cleaners (Windex or similar products are acceptable cleaners)
  - Solvents (often improperly used on surface marks or stubborn dirt)
- When cleaning abutted mirrors (i.e., multiple mirrors installed side-by-side), each mirror should be cleaned independently. Do not clean across multiple mirrors at the same time. The joint between abutted mirrors should be wiped in the same direction as the joint, which will avoid having cleaner accumulate within a joint and exposing the edge of the mirror.
- Ensure to dry all joints and edges thoroughly to be certain no cleaner comes in contact with the edge or backing.
- Use care to ensure no hard objects such as rings come into contact with the mirror while cleaning.