

GLASS CLEANING AND MAINTENANCE

PRACTICAL ADVICE

DATA SHEET / Quebec

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MULTIVER Ltd
436, Berube Street, Quebec (Quebec) G1M 1C8
tel. : 1 800 463-2810 and fax : 418 687-0804

 **MULTIVER**
Cutting edge of the glass industry

Recommended **PROCEDURES**

During renovation or new construction projects, it can be hard to have any control over the environment in which glass and glazing products are delivered to you. **Glass being a brittle material**, this document is mainly intended to inform the various parties involved before, during and after the installation of glass products about **best practices in glass handling, maintenance and cleaning**. The following are helpful tips and guidelines to minimize the risks associated with glass products.

RECEIPT OF GOODS

- ▶ Upon receipt of Multiver glass products, we recommend that you **store them in a dry, well-ventilated and temperature-controlled location. Glass should be slightly spaced apart using dividers.** Otherwise, condensation may repeatedly appear on glass surfaces and evaporate, resulting in the appearance of alkaline stains; this phenomenon is referred to as *surface corrosion or iridescence*. These stains—characterized by their matte appearance—can be hard to remove. Their removal actually requires the use of mildly acidic specialty products. Cerium oxide has also proven to be effective in some cases. That being said, such stains may not be removable, which would require the complete replacement of the glass¹.
- ▶ To minimize the risk of breakage or premature wear, **do not to leave glass products exposed to direct sunlight on the delivery racks without protection** when the goods are delivered. Make sure to **store glass properly or protect it** with opaque screens.
- ▶ Stored glass must always be **stacked upright with a slight tilt of approximately 5 degrees.** Glass edges must be **equally supported at the base by even, smooth materials.** Glass must be properly secured to prevent falls.
- ▶ Considering that glass is a brittle material, it **must be handled very carefully** using safe methods and equipment.
- ▶ When delivered to the job site, **glass must be protected from adjacent construction materials at all times.**

¹AGC, Your Glass Pocket, 2013, p. 352.

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- ▶ Multiver strongly recommends that, for each project, cleaning professionals start by **testing their cleaning products and equipment on a small area of the glass**. Then, a careful examination under ambient light will allow to detect any anomalies (scratches, chemical reactions, stains that cannot be removed) and react quickly to the situation.
- ▶ **Scratching and contamination of the glass at a job site can result from a variety of sources**, including paint, plastering, metal cutting, welding, concreting, excavating and caulking. **Welding sparks, metal chips as well as cement stains can permanently contaminate glass surfaces**, which would require the complete replacement of the glass. As for contaminants such as dust, cement stains, plaster, paint and sealant, proper cleaning by professionals can usually remove them without damaging the glass surfaces.
- ▶ **Exposed surfaces of glass products provided by Multiver must be protected at all times**, until the completion of the project, using sheets and screens. Doing so will reduce the risk of glass breakage, scratching and corrosion caused by external agents. When putting protective screens in front of glass products, make sure to allow for proper ventilation between the screens and glass products to minimize the risk of thermal stress breakage.
- ▶ **Wash glass regularly** using a soft, clean cloth and soapy water. Then rinse with clear water and wipe dry.
- ▶ In the case of glass surfaces exposed to the outside, first rinse the glass surfaces thoroughly with water to remove as much dirt (e.g. sand, dust particles and other abrasives) as possible. Concrete residues can be severely damaging to glass; **we therefore recommend washing glass surfaces near concrete elements on a regular basis**. To prevent residues from scratching the glass, **we strongly advise against using a scraper** if there are concrete residues deposited on the glass surface.
- ▶ Follow cleaning product instructions and avoid excessive use of such products.
- ▶ **Do not use abrasive materials** such as steel wool or scouring powder.

¹AGC, Your Glass Pocket, 2013, p. 352.

- ▶ If necessary, wash glass surfaces with a non-alkaline product with a low solvent content. **Never use any abrasive cleaners or products that contain or can produce fluorine salts or hydrofluoric acid².**
- ▶ To remove stubborn stains and dirt—e.g. paint or sealant stuck to the glass—, first thoroughly wet the surface and then, gently scrape the glass surface using a strong stainless steel single-edged blade. Make sure the blade or scraper is specifically designed to clean glass surfaces. **Single-edged blades and scrapers must only be used as a last resort** and when using such tools, **avoid going back and forth on the glass surface**, since abrasive particles could get trapped under the blade, dragged across the surface and scratch it. Blades and scrapers must be safely used on localized areas of the glass. Also check the condition and sharpness of the blade on a regular basis and replace it if necessary. **Never use a blade on glass surfaces with a reflective or self-cleaning coating.** That being said, in cases where particulates are deposited on coated surfaces, it is important to exercise caution when washing these types of surface to avoid scratching the glass.
- ▶ In extreme cases where **stubborn stains** cannot be removed, **contact us or an authorized specialist.**
- ▶ Before starting to clean glass, it is important to ensure that no cleaning equipment (e.g. cradles, ladders, scaffolds) is in direct contact with glass surfaces, as it could damage them.
- ▶ After cleaning the glass, **the window gaskets, sealant and frame must be wiped dry** in order to remove all cleaning product residues.
- ▶ We recommend that you start by cleaning the glazing at the top of the building and then proceed with lower levels.
- ▶ Glass surfaces with an exposed reflective or self-cleaning coating must be cleaned with care to avoid damaging the coating. When washing self-cleaning glass, **avoid the use of silicone-based products** since they pose a risk of contamination.

²Saint-Gobain, Memento, 2015, p. 367.

- ▶ It is recommended to **clean glazing products immediately after installation**. Regular maintenance will be required until adjacent products that may contaminate exposed glass surfaces have stabilized.
- ▶ **Products used by the cleaning company must be compatible** with other materials in the project.
- ▶ **Remove all identification labels from glazing products after installation** to reduce the amount of adhesive residue on glass surfaces. Carefully remove labels without, if possible, using any tools that may scratch the glass surface.
- ▶ **As for grease, resin, wax or oil stains**, it is recommended to use **acetone or isopropyl alcohol** solely on the contaminated area and avoid spreading the stain across the glass surface. Immediately after using such solvents, it is important to clean the glass surface and rinse it with water.
- ▶ Glazing systems must be installed by accredited professionals. **Compatible setting blocks and sealants must be used**. In any type of system, it is important to **make sure that water drains quickly through**, among other things, proper weep holes.
- ▶ **Multiver recommends cleaning glass and glazing products on a regular basis** to maximize their lifespan. Depending on the surroundings, it may be advisable—if not necessary—to clean them more frequently. Make sure to use clean water without limescale, and neutral cleaners.
- ▶ **Fenestration systems should be maintained on a regular basis** throughout the product's life cycle. It is also important to carry out regular inspections of and repairs to the frames and gaskets, clean the drain and ventilation holes, and frequently check the system to detect, as early as possible, any irregularities that must be addressed.
- ▶ During the maintenance of products adjacent to glazing, make sure to protect the glazing to reduce the risk of drippings, projections, splashes, etc.
- ▶ Avoid washing glass and glazing products in direct sunlight.

- ▶ When handling glass and glazing products to stack them in transport racks, their manufacturers use rubber or silicone suction cups. **Faint marks may be visible on the glass after installation due to moisture condensation and dirt accumulation.** Depending on the surroundings, these marks should eventually disappear after several cleanings. However, in some cases, you will be need to use cerium oxide to remove more stubborn stains.



Vistal Condominiums I and II

PRODUCTS RECOMMENDED FOR REGULAR CLEANING OF GLAZING PRODUCTS^{3 4} :

- Soft, clean cloths;
- Mild liquid soap or neutral detergent;
- Distilled, demineralized or filtered water;
- Inspector's gloves, 100% nylon;
- Mr. Clean Magic Eraser by Procter & Gamble;
- Sparkle Glass Cleaner by A.J. Funk & Co.;
- Windex Glass & Surface by SC Johnson & Son, Inc.;
- Solution of one part vinegar to ten parts water without limescale;
- Lime A-Way by Reckitt Benckiser Inc.;
- The Works Tub & Shower Cleaner by BioLab Inc.;
- Basic H Classic by Shaklee Corporation;
- Formula 409 Glass & Surface Cleaner by The Clorox Company;
- Dart 210 by Madison Chemical Co.;
- Glass Washing Detergent by Billco Manufacturing, Inc.;
- Low E Detergent by Sommer & Maca Industries Inc.;
- Buckeye Blue by J.P. Davies Co.

PRODUCTS RECOMMENDED TO REMOVE STUBBORN STAINS (E.G. GREASE, RESIN, WAX, OIL)⁵ :

- Isopropyl alcohol (silicone residue);
 - Acetone;
 - Methyl ethyl ketone (MEK);
 - 1,1,1-trichloroethane;
 - White spirit (mineral spirit);
 - Acid Magic by Universal Chemicals & Supplies Inc.;
 - Cerium oxide
- (certain conditions apply, please contact us for further information).

³John W. Roots, Ph. D., Maintenance Manual for Glass & Ceramic, version 2.1, 2007, p. 13-14.

⁴PPG, TD-144 Recommended Techniques for Washing Glass, 2015, p.8.

⁵Pilkington, Technical Bulletin ATS-166, 2013, p. 4.

FOLLOWING PROCEDURES

The following is a summary of the proper procedures for cleaning glass according to the Glass Association of North America (GANA)⁶ :



DO

DO clean glass when dirt and residue appear.

DO determine if coated glass surfaces are exposed.

DO exercise special care when cleaning coated glass surfaces.

DO avoid cleaning tinted and coated glass surfaces in direct sunlight.

DO start cleaning at the top of the building and continue to lower levels.

DO soak the glass surface with a clean water and soap solution to loosen dirt and debris.

DO use a mild, non-abrasive commercial window cleaning solution.

DO use a squeegee to remove all of the cleaning solution.

DO dry all cleaning solution from window gaskets, sealants and frames.



DO NOT

DO NOT start cleaning without reading the entire GANA bulletin on glass cleaning.

DO NOT use scrapers of any size or type for cleaning glass.

DO NOT allow dirt and residue to remain on glass for an extended period of time.

DO NOT begin cleaning glass without knowing if a coated surface is exposed.

DO NOT clean tinted or coated glass in direct sunlight.

DO NOT allow water or cleaning residue to remain on the glass or adjacent materials.

DO NOT begin cleaning without rinsing excessive dirt and debris.

DO NOT use abrasive cleaning solutions or materials.

DO NOT allow metal parts of cleaning equipment to contact the glass.

⁶GANA, Glass Informational Bulletin GANA 01-0300 : Proper Procedures for Cleaning Architectural Glass Products, p. 3-4.



DO clean one small window and check to see if procedures have caused any damage.

DO be aware of and follow the glass supplier's specific cleaning recommendations.

DO caution other trades against allowing other materials to contact the glass.

DO watch for and prevent conditions that can damage the glass.

DO read the entire GANA bulletin on glass cleaning before starting to clean glass.



DO NOT trap abrasive particles between the leaning materials and the glass surface.

DO NOT allow other trades to lean tools or materials against the glass surface.

DO NOT allow splashed materials to dry on the glass surface.

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