

Cleaning Instructions for LoE-i89® + Neat®-

LoE-i89 is a durable sputtered TCO (Transparent Conductive Oxide) coating that can be used on the room-side glass surface (surface #2 of a single glazed unit or surface #4 of a double glazed unit). This coating is designed to reflect escaping heat back into the room. Unlike magnetron sputter coat (or soft-coats) such as LoE³-366, it is sufficiently durable so that it can be used on the room-side glass surface. And the haze and surface roughness is 4 times lower than other commonly used pyrolytic coatings (or hard-coats) such as Etech™.

Condensation: - When used on the # 4 glass surface of a double glazed unit it will reflect room-side radiation back into the room. The room-side pane of glass will be colder than the same glass construction that does not include the LoE-i89 coating. This will result in a slightly colder room-side pane in winter conditions with the potential of having a higher probability of room-side glass condensation in the winter. This is very dependent on the outdoor ambient temperature, indoor room temperature, and the percent relative humidity in the room.

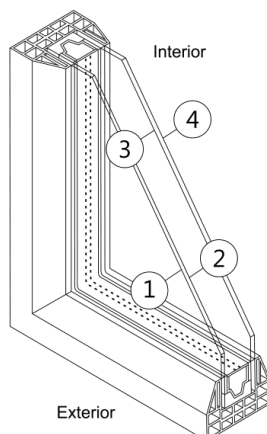
Cleaning of Glass

This information is offered as general guidance only. Glassworks recommends seeking specific advice on the cleaning of glass from a reputable glazier or professional window cleaner before undertaking any glass cleaning.

This advice is to be taken in addition to 'Cleaning instructions - Uncoated glass', with these additional instructions specific to the LoE-i89®

Routine and spot cleaning

Room side (LoE-i89 coating)



- Standard cleaning solutions, such as a soap solution with clean water, or standard commercial cleaning products (like Windex®) can be used to clean the LoE-i89 coating.
- Many rust removal products contain hydrofluoric acid (HF). HF containing materials, including rust removers, will attack glass and the LoE-i89 coating causing permanent damage. These materials should not be used to clean the LoE-i89 coating

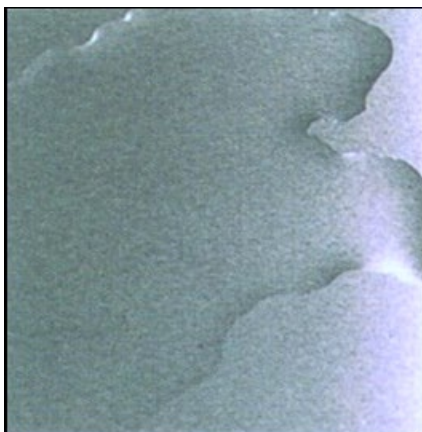
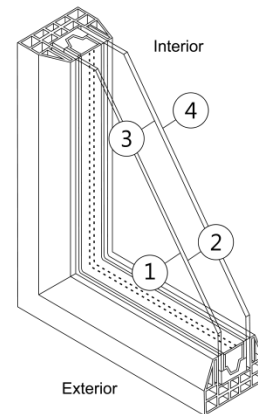
- Abrasive cleaning products including cerium oxide should not be used on the LoE-i89 coating. In addition, scratch removal should not be attempted with the LoE-i89 coating. Buffing with the aforementioned products may cause changes in the appearance of the coating.
- As with standard non-coated glass products, razor blades or other sharp instruments should not be used when cleaning the LoE-i89 glass surface. If a squeegee is used to clean the coated glass surface, the squeegee should not have any metal edges exposed as the metal edges could scratch the coating or glass.
- If furniture polish or similar materials are used on the wood components of the window. Care should be taken to avoid overspray onto the coated glass. If overspray does occur, the glass must be cleaned immediately.

Surface #1 – Neat coating on outside

LoE-i89 comes standard with Neat® easy-clean coating - a smooth titanium dioxide (TiO₂) coating designed to keep the exterior glass surface naturally cleaner longer than uncoated glass.

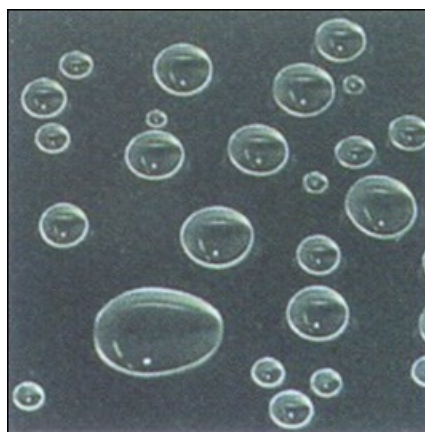
Neat is applied onto surface #1 or outdoor glass surface. It has both photocatalytic and anti-static properties.

Photocatalytic means the coating absorbs ultraviolet (UV) light and uses it in the decomposition of organic residue on the glass surface.



Neat coating®

Hydrophilic (water sheets off glass)



Uncoated

Hydrophobic (water beads up and resists flow)

Neat performs well in all environments, whether dry, humid, cold or warm. The decomposition time will vary with the amount of UV radiation (solar intensity, variations in cloud cover, sun angle, length of daylight) and amount of contaminant.

Additional factors that could affect/delay the benefits of Neat are:

- Screens
- Elevations/orientations
- Vegetation
- Volatile Organic Compounds (VOC's)
- Inorganic chemicals (like silicones)

Neat decomposes:

- Organic materials (pollens, resins, oily fingerprints and other organic pollutants). Thick layers may be partially decomposed, loosened and then rinsed away with water.
- Vapor contamination from many sealants, i.e. Dow Corning 1199, GE Silglaze, Novagard, Novaflex, Dow Corning 9-1350 and Dow Corning 3-0117.

Neat does not:

- Decompose thick contaminations, like silicone (cured or glazing residue), paint, stain, etc.
- Stop bleeding around the edge of a window which can cause moisture picture framing around the perimeter (Fig CG 04-06). This isn't unique to Neat® and occurs on uncoated glass as well. Windows with a bed of silicone to adhere the glaze the glass on the outdoor #1 glass surface can result in a narrow residue area of higher contact area around the perimeter of the glass. This perimeter area can extend into the vision area approximately 1" to 3" from the edge of the window

No special cleaning requirements are necessary to clean Neat, all the same instructions apply as per 'Cleaning instructions – Uncoated glass', specifically;

- Neat is easier to clean since less force or "elbow grease" is needed. The results of a friction test showed Neat required 80% less force to wipe compared to uncoated glass.
- Neat is more conductive than uncoated glass. This inhibits the buildup of static electricity that can attract dust and debris to the surface of the glass. This anti-static property does not require UV light, keeping the glass cleaner than uncoated glass regardless of how shaded the windows are. An independent lab test showed a reduction of 34-44% in dust on the window when compared to uncoated glass.
- When Neat is installed in a window in the field, normal glass protection should occur to reduce the opportunity for building materials (i.e. stucco, paints, stains, etc.) used at the job site from contacting the glass surfaces. Thick deposits or layers of these materials will not be removed by the photocatalytic action of Neat.
- Standard cleaning solutions such as a soap solution with clean water or standard window cleaning products can be used
- As with standard glass products, if a squeegee is used to clean the glass, the squeegee should not have exposed metal edges as the metal edges could scratch the coating or glass itself.
- As with uncoated glass products, metal blades should not be used as they may scratch Neat coated glass just as they will scratch any glass product.

- Clean Neat glass on a regular schedule as needed. In most applications this will be needed less frequently than without Neat. However, in areas where rainfall does not reach the surface, Neat cannot rinse clean.
- Hard water deposits can still be visible on Neat coated glass although less visible than on uncoated glass. These deposits can be reduced after contact with rain or washing. Sprinklers should be adjusted to prevent water contact with the coating.

ABOUT THIS ADVICE

This information is offered as a general guide only and specific advice should always be sought from a reputable glazier or professional window cleaner before undertaking any cleaning. This guidance does not preclude the use of other methods, materials or equipment; however the user should undertake careful evaluation and make suitable enquiries of the suitability of alternative methods, materials or equipment, before using them. Glassworks has taken all reasonable care in producing this document, however Glassworks makes no representations or warranties, express or implied, as to the accuracy, reliability or completeness of, and disclaims all liability, direct or indirect (and whether or not arising out of the negligence, default or lack of care of Glassworks for any loss or damage (whether foreseeable or not) suffered by the recipient or any other person arising out of, or in connection with, any use or reliance by any of them on this document. Liability which cannot legally be excluded is limited to the maximum extent possible.