Glass Maintenance Guide

Glass is amongst the strongest of common construction materials used. However, although it is very hard it is susceptible to damage from different sources, and requires care and regular maintenance to maintain the original appearance. The primary purpose of glass is to be viewed through, and any damage or defects on the glass will detract from the original condition clarity and vision. A lot of care is taken during the manufacturing process, storage and delivery to site. It is therefore worthwhile taking precautions to prevent possible contamination and damage to glass during the installation phases. Preventative measures are often less time consuming and more effective than the cleaning techniques available.

Storage and handling

All handling, delivery and site storage methods must be agreed for each site. Upon receiving the delivery of glass, check for marks, labels and packing to ensure compliance. The corners and edges are susceptible to damage during handling, storage and installation. Inspect the cut edges of the glass for flaws or large shells that may compromise the strength or performance of the glass. Make sure you check all the surfaces for any sign of damage.

Glass should not be stacked or stored horizontally. Store all panels on edge at an angle of 3 to 6 degrees from vertical, with sufficient support and to stop the glass from bowing. It must be stored in a clean dry ventilated area, you must ensure to avoid direct sunlight and excessive heat sources. Any protection applied such as pads, cork or shrink wrap must not be removed until the glass is ready to be installed.

If any moisture or condensation appears between the panes of stored glass, you must dry immediately, if not permanent staining may occur. If water is allowed to remain on glass for a prolonged period of time it can cause a concentrated alkaline solution and will attack the glass surface causing permanent damage and in extreme cases even “welding” the sheets together. All glass must be inspected prior to installation.

After installation during construction

It is always recommended that the glass is protected during construction to avoid any harmful contamination, i.e. paint, plaster and concrete. If the glass is not protected it must be cleaned regularly during the construction process. If any paint or plaster get onto the glass it must be cleaned immediately before it is allowed to dry.

The production labels and transport pads affixed to the glass for delivery to site should be removed within 24 hours of the glazing process. If it is left on the glass for an extended period of time and exposed to sunlight the adhesives can harden and become very difficult to remove. A solvent such as acetone may be used in small quantities to spot clean any adhesive left or any residue, taking care not to allow any contact with the glazing seals, gaskets, any paint finishes or the perimeter edge seal of an insulating glass unit .

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Before cleaning commences

Before performing any cleaning you must determine whether the glass is clear, tinted or reflective. Any surface damage can be more noticeable on reflective glass when compared with clear uncoated glass. If the reflective coated surface is exposed, either externally or internally, special care must be taken when cleaning as scratches can remove the coating and result in sizable changes to the light transmittance. Specialist glass such at Bioclean requires particular cleaning methods and specific instructions.

Tinted and coated glasses should not be cleaned in direct sunlight, as it may be too hot for the optimum cleaning. The cleaning solution will dry before it has been cleaned off correctly and the dry surface may promote scratching. Excessive temperature changes of the glass should also be avoided, for example hot water on cold glass or cold water on hot glass.

It is recommended that cleaning operators begin by cleaning a small area or window first then stop and examine the surface for any damage to the glass or coating bearing in mind that some scratches and damage can be more visible at different times of the day and under different lighting.

Standard cleaning procedure

Cleaning during continued construction work differs from ordinary routine cleaning mainly through the careful removal of debris from the glass surface. This is a delicate procedure and should be carried out by trained professionals only. The cleaning process begins with thoroughly soaking the glass in clean water and a suitable soap solution to remove and loosen any dirt or debris.

Apply a non-abrasive mild commercial window washing solution, uniformly to the glass surface by spraying on or with a brush, clean grit-free cloth or grit-free sponge. Using a circular motion applying light to medium pressure, wipe the solution on the glass. Rinse the glass immediately with generous amounts of clean water making sure to remove all the cleaning solution. Use a clean lint free cloth or squeegee to dry the surface of the glass.

If any of the cleaning equipment has any metal parts on it care should be taken to make sure it has no contact with the surface of the glass.

All water and residue should be dried from the window frames, seals and gaskets to avoid any deterioration of these materials.

Abrasive cleaners, powder based cleaners, scouring pads of any other harsh materials should not be used to clean the glass or the framework.

Excess glazing compounds and sealants should be carefully removed from the glass and framework, taking care not to scratch the finished surfaces with tools or abrasives. Avoid scraping the glass with metal scrapers or blades. A solvent such as white spirit or a professional glass cleaner can be used to remove any glazing compound, finger marks or grease. You must take care not to make any contact with the glazing seals, gaskets, any paint finishes or perimeter edge seal of the insulating glass. The glass must then be cleaned following the procedure above.

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When paint or other construction materials cannot be removed by the standard cleaning procedure, a new 25mm razor blade may be used on non-surface treated or non-coated glass surfaces. It should be used only in small spots and the scraping is to be carried out in one direction only. WARNING this process can cause small hairline scratches that may be visible under certain lighting conditions.

Glass staining

Water run off flowing over the façade of a building may carry contaminants onto the surface of the glass. These types of contaminants may cause stains on the glass and can be extremely difficult to remove, sometimes even chemically binding to the glass surface. The most effective way of dealing with this problem is to prevent run off reaching the glass at the design stage by use of suitable drainage techniques employing flashings.

Lime scale and concrete stains can occur where rainwater has passed over masonry, concrete or mortar onto the glazing below. Insoluble salts and calcium crystallise on the glass surface and become chemically bound to it making it extremely difficult to remove using standard cleaning procedures.

Organic sealants may leach out solvents, oils or plasticisers and these may adhere very strongly onto the glass surface and cause staining. The sealant may not necessarily need to be adjacent to the glass to cause this problem as they could be carried over the glass by water runoff. This tends to be a greater problem when the building is new. Consult the sealant manufacturer or advice and follow their recommendations.

Weathering metals release oxides as they age and can cause staining on adjacent glazing. They occur where rainwater passes over metal flashing or other architectural elements and deposit metal oxides onto glazing; iron, zinc, lead and copper are particularly prone to cause problems of this nature. The oxides adhere tenaciously onto the glass and expensive chemical cleaning techniques may be required if they are left on the glass for any length of time

Glass should be examined frequently during construction to see if any build up is occurring. If so the glass should be cleaned immediately

Weld Spatter

This causes a rough and pitted surface on glass. Any glass that has been damaged by weld splatter should be replaced, as the strength of the glass will have been unpredictably reduced.

Temporary screens should be installed if welding, sandblasting or other potentially damaging construction process is being carried out near the glass.

Regular Maintenance

It is essential that all installations are inspected and maintained during the lifetime of the building at regular intervals as recommended by the sealant and framing system manufacturers. The regular routine cleaning of the glass following the standard cleaning procedure detailed above will help to preserve the original appearance and performance characteristics.

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Quick reference guide

- Store glass in a safe manner in a suitable dry ventilated area out of direct sunlight and away from any other sources of heat.
- Check the specification of the glass products concerned to determine if they are tinted, coated or reflective and follow any specific instructions from the supplier
- Avoid cleaning the glass in direct sunlight, particularly tinted or coated glasses.
- Clean frequently as and when dirt and residues appear on the glass both on the external surface and the internal surface.
- Don’t allow splashed materials to dry on the glass surface.
- Start cleaning at the top of the building and work downwards.
- Start by cleaning a small area first and assessing it to see if the cleaning procedure have caused any damage.
- Begin by thoroughly soaking the glass surface with clean water and soap solution to loosen debris and dirt.
- Don’t use aggressive or abrasive cleaning solutions or materials.
- Avoid use of metal scrapers and blades.
- Make sure all cleaning solution is dried from gaskets, seals and frame surrounds.
- Regularly inspect and maintain the glazing throughout the lifetime of the building and take remedial action as necessary or as recommended by the framing and sealant manufactures.

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