

Repairs to glass

This Technical Note describes common causes of damage to architectural glass, their effects and possible remediation techniques. These include: cleaning, polishing, grinding and filling of glass.

Introduction

Glass may be damaged during construction or subsequently during use of the building. Minor damage may be acceptable but more significant damage requires remedial action. This will often mean replacement of the glass but this may be expensive and have practical difficulties due to the time to obtain replacement glass hence the option to repair the glass may be attractive.

A number of techniques which are available for the repair of architectural glass are described in this Technical Note. Some of these techniques have been used for a number of years for windscreen repairs where their use is closely controlled by British Standards and vehicle regulations. Their use on architectural glass may not be constrained to the same extent.

Methods of repair

Cleaning

Glass is normally cleaned with water and stubborn dirt may be removed by addition of a mild household detergent to the water. However staining and build-up of dirt which is not removed by these methods can be removed by specialist chemical cleaners. Staining and dirt build up can arise from:

- Mortar splashes which harden on the glass and risk scratching the glass if removed by physical means
- Stains from alkaline run-off which attacks the glass surface
- Traffic film
- Metal staining from water flowing over metal surfaces and flashings

- Train stain from metal particles generated by braking systems
- Acid etching from careless use of cleaning chemicals on adjacent building materials.

Proprietary materials are used and the chemicals may affect other materials.

Following chemical treatment to remove deposits, polishing may be required to restore the appearance of the surface.

Trials of cleaning methods on less conspicuous areas may be carried out before more widespread use.

Removal of scratches

Scratches may be caused accidentally during handling and installation of the glass or subsequently during cleaning and maintenance. Scratches are also caused deliberately in the form of graffiti.

Scratches can be removed by polishing with abrasives however this can lead to visually apparent distortion of the glass surface. Several organisations claim to be able to remove scratches leaving the glass free of distortion. The processes appear to be a combination of grinding and polishing but precise details of the methods are kept confidential for commercial reasons. Claims that the glass surface is caused to flow to repair scratches seem fanciful.

It is claimed that scratches up to 0.1mm deep can be removed.

Any visual distortion should be apparent immediately the treatment is completed but inspection may be required in different lighting conditions to check appearance under reflected and transmitted light.