

# Scrapers & Fabricating Debris

2/23/04 © By Gary Mauer - gmauer@window-cleaning.net  
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**Window cleaners and builders alike realize that construction deadlines require the most efficient methods, including properly used scrapers.**

They realize that alternative methods will typically be much more labor intensive, may possibly be harmful to seals and surrounding surfaces, and may be ergonomic or chemical hazards for workers.

Metal scrapers, which won't scratch uncoated glass when properly used, have long been the standard and most practical method for removal of debris such as paint, adhesives, or stickers from uncoated glass, not only during construction cleaning, but throughout the useful life of the window.

However, if fabricating debris is present, it can be dislodged and trapped by a scraper during window cleaning. The result will be scratches caused by the abrasive fabricating debris itself, not by the scraper.



Left –Magnified image of fabricating debris defect before scraping.

Right – Defect and scratch after scraping.

Note the unique "fingerprint" of the ink mark used to set up these shots.



"Fabricating debris" refers to abrasive microscopic particles, including glass fines, which may become fused to glass as it contacts the rollers in some tempering ovens. Another type of heat treated glass known as "heat strengthened" may also be affected.

No ASTM standard currently addresses the issue. Fabricating debris is a known quality control issue that can be minimized when temperers follow all recommended maintenance procedures for washers, rollers and other tempering equipment.

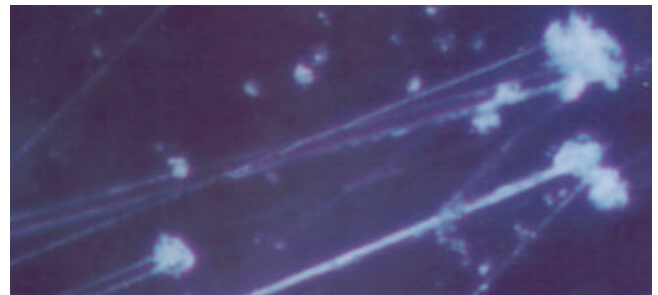
When tempered glass gets scratched because of fabricating debris, thorny issues of profit, liability and customer satisfaction emerge. Fabricating debris is permanent, and these issues may persist even if windows are protected during construction.

Most scratched tempered glass is associated with fabricating debris, and as window cleaners become aware of the issue, many are actually refusing to do post construction window cleaning. Many are urging builders to manage the problem by requiring their suppliers to provide tempered glass which will not scratch when cleaned with a properly used scraper.

Many window cleaners now require a damage liability waiver in construction window cleaning contracts. Waivers and customer education are recommended for maintenance projects involving significant scraper use as well - whenever surface quality of tempered glass is doubtful or unknown.

Waivers typically state that the window cleaner will not be held liable for any scratches in tempered glass. A variation states that the window cleaner will not be held liable for damage attributable to the presence of fabricating debris on heat treated glass.

Scratches due to fabricating debris are normally lighter than scratches due to common abrasives like sandpaper. With the aid of a magnifying device, some of these scratches will look like comets.



When a "comet scratch" can be located, the cause is obvious. The comet's "head" is fabricating debris, broken and trapped by a scraper, creating a "tail".

Fabricating debris itself is usually invisible to the naked eye, but when it is present on tempered glass, it can usually be felt, and a distinct gritty sound can be heard when a scraper is moved very lightly (so as not to cause damage) over a clean surface.

It is often possible to locate fabricating debris this way, and to demonstrate the effects for customers, but the window cleaner should be careful not to assume liability for detecting fabricating debris while cleaning, particularly in a construction environment.

If it is somehow determined that glass cannot be scraped, the owner must realize that vigilance will be required of them for the life of the window, to somehow assure that scraper use is never called for, or that only alternative cleaning methods are used.

Builders have the option of addressing issues of tempered glass surface quality with their suppliers, and builders who need efficient, practical window cleaning should agree to sign those fabricating debris damage liability waivers.

Window cleaners will always be responsible for using proper methods and avoiding willful damage. Waivers are the builder's assurance that the window cleaner will not be held responsible for variations in the quality of tempered glass surfaces.