

Response to GANA Bulletin

Dear *Services*:

I would like to thank *Services* magazine for all of the informative, time and money-saving articles I have read for the past 20-plus years. I am writing in response to the article “*Proper*

Procedures for Cleaning Architectural Glass Products” that appeared in your November/December 2007 issue.

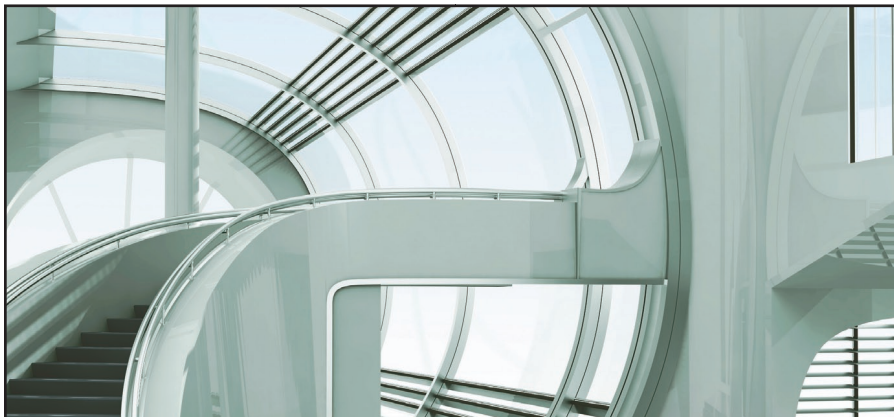
I have been in the window cleaning business since 1990 and have success-

fully completed new construction window cleaning operations on hundreds of homes and commercial buildings. I would like to address several of the claims in the article.

Scrapers are and should be used for glass cleaning as they are the most efficient method for removal of construction debris. A steel razor, regardless of size, cannot scratch glass, unless there is some debris on that glass that causes the scratching. The steel of a razor is actually softer than the glass itself. You would have as much chance of scratching glass with a Q-Tip® as you would a razor, regardless of the size of the razor. Take a razor of any length and try to scratch annealed glass. I will wager \$100 to your favorite charity that you cannot.

The Glass Association of North America (GANA) states that razors should never be used, then it recommends a one-inch razor be used only in one direction and only in small spots. Which is it? If razors damage glass, what would the difference be between a one-inch and a five-inch razor? If it's all about the razor blade, how can they advocate any use of razors?

It should also be noted that there are currently no insulated glass manufacturers that would recommend the use of any type of solvent during window cleaning, as the possibility of that solvent damaging the seals around the window pose too great a risk. So what should window cleaners do? If we use razors, we are going against what GANA says to do. If we use solvent, we are going against what the IG manufacturers say to do. Where does that leave window cleaners?



Proper Procedures for Cleaning Architectural Glass Products

Architectural glass products play a major role in the comfort of living and working environments of today's homes and eq o o gtekn"qhlæg"urcegu"lD{"rtqxkfp i"pcwtcn"fc{nk i jv."xkg yu" of the surroundings, thermal comfort and design aesthetics, glass usage and condition often affect our selection of where we live, work, shop, play and seek education.

Architectural glass products must be properly cleaned during construction activities and as a part of routine maintenance in order to maintain visual and aesthetic clarity. Since glass products can be permanently damaged if improperly cleaned, glass producers and fabricators recommend strict compliance with the following procedures for properly cleaning glass surfaces.

As dirt and residue appear, interior and exterior glass surfaces should be thoroughly cleaned. Concrete or mortar slurry, which runs down (or is splashed on) glass can be especially damaging and should be washed off as soon as possible. Before proceeding with cleaning, determine whether the glass is "enct."tprg"qt"tg1geixg"Uwtheeg"fc o c i g

lu" oqtg"pqkecdng"qp"tg1geixg" icu" cu" compared with other glass products. If the tg1geixg"uwtheeg"lu"gz1qqug".glojg"qp"vjg" exterior or interior, special care must be taken y jgp"engcpi".cu"uetodjgu"q"vjg"tg1geixg" glass surface can result in coating removal and a visible change in light transmittance. Engcpi"tprg"cpf"tg1geixg"icu"uwtheeg" in direct sunlight should be avoided, as the surface temperature may be excessively hot for optimum cleaning. Cleaning should begin at the top of the building and continue to the lower levels to reduce the risk of leaving residue and cleaning solutions on glass at the lower levels. Cleaning procedures should also ensure that the wind is not blowing the cleaning solution and residue onto already cleaned glass.

Cleaning during construction activities should begin with soaking the glass surfaces with clean water and soap solution to loosen dirt or debris. Using a mild, non-abrasive commercial window-washing solution, uniformly apply the solution to the glass surfaces with a brush, strip washer or other non-abrasive applicator. Immediately following the application of the cleaning solution, a squeegee should be used to remove all of the cleaning solution from the glass surface. Care should be taken to ensure that no metal parts of the cleaning equipment touch the glass surface and that no abrasive particles are trapped between the glass and the cleaning materials. All water and cleaning solution residue should be dried from window gaskets, sealants and frames to avoid the potential for deterioration of these materials as the result of the cleaning process.

It is strongly recommended that window washers clean a small area or one window, then stop and examine the surface for coating. The ability to detect certain surface fc o c i g ô l l g" aki j v" uetevejgu" oel" xcti" greatly with the lighting conditions. Direct sunlight is needed to properly evaluate a glass surface for damage. Scratches that are not easily seen with a dark or gray sky may be very noticeable when the sun is at a certain angle in the sky or when the sun is low in the sky.

The reason for glass scratches can be split into three areas.

- Careless trades that do not protect the glass during construction, spattering it with grout, mortar, sand, grit, spackle, Dry-Vit, stucco, grinder sparks, caulk, etc.
- Finishers who allow their sandpaper to run along the glass when prepping the wood to accept paint or stain. We call these parallel to the frame scratches “picture framing” and I have seen entire homes damaged this way;
- And, the elephant in the room—fabricating debris. Fabricating debris are nearly invisible glass particles and glass dust. Fabricating debris is found on some, not all, tempered, heat-strengthened and heat-treated glass. Fabricating debris is actually glass dust created operation that is then fused to the surface of the glass during the tempering or heat-treating process.

As I am sure you are aware, tempered glass cannot be cut. Rather, it is cut and edged or “seamed” as annealed glass and then tempered. It is during this cutting and edge sanding (seaming) that this glass dust is created. This glass dust is introduced to the surface of the glass in two ways:

1. By transfer from the rollers in tempering furnaces as the glass passes on the rollers during heat treating/tempering;
2. From the slurry used in glass-tempering furnaces. The water in the unit gets imbued with glass dust or glass fines and that water is then used to wash glass prior to tempering.

If this fabricating debris was inherent to the surfaces of all heat-treated or tempered glass, then perhaps GANA would have a reasonable argument to make. However that is certainly not the case.

We are faced every day with tempered glass from a number of

different fabricators. On some of the tempered glass, the fabricating debris is so prevalent that it can be seen with the naked eye. On tempered glass from certain other fabricators, we never seem to have a problem. How could this be possible? The answer is rather simple—housekeeping. If the fabricators and tempering companies would clean or replace their rollers more often, and change the slurry in their glass washing machines, the problem of fabricating debris would be nearly eliminated overnight. But rather than try and force their members to actually provide quality glass surfaces that can be cleaned with a tool that is as common to professional window cleaners as a squeegee—a scraper—GANA comes out with bulletins decrying scraper use, blaming window cleaners and stating that “heat treated surfaces are different.”

Why, if scrapers have been used for as long as glass has been around, has the scratching problem only gotten so bad in the last decade or so? There are a couple answers to that question.

One answer is simple: supply and demand. That is, demand for tempered, heat-strengthened and heat-treated architectural glass has virtually exploded over the past 15 years, in conjunction with the building boom that this nation has experienced. Housekeeping and oven-roller maintenance in the tempering plants has been pushed aside in the race to keep up with demand. And, as housekeeping has fallen off, instances of fabricating debris on tempered glass has risen.

The invention of Low-E (low emissivity) coatings has also played a significant role in the issue of fabricating debris. Prior to the invention of this coating, the “bad” side of the tempered glass was simply placed to the inside of an IG (insulated glass) unit and there was no real problem for window cleaners. But then Low-E coatings were invented, and it seems that the Low-E coatings don’t lay clear on the fabricating debris

side of the glass—the result is a mottled, fish-eyed appearance. Again, rather than actually have some standards regarding quality and housekeeping for their members, fabricators simply turned the side of the glass loaded with fabricating debris out and started blaming the use of scrapers for window scratching.

More information on fabricating debris can be found by following these links:

- www.auwc.org/fabricatingDebris_AUWC_4_10_07.pdf
- www.stopscratchedglass.com/
- www.window-cleaning.net/ (click on Scratched Glass)
- www.iwca.org/ (click on Tempered Glass)

Sincerely, Jeff Klass First Klass Window Cleaning Inc. West Allis, Wisconsin jklass1@aol.com www.firstklasswindowcleaning.com