



Tempered Glass

by Jonathan Hood

Glass

Glass is often a focal point of architecture! It's an appealing aesthetic that gives us wonderful views, while protecting us from the elements outside. However, poor quality heat-treated glass can ruin the look of a building, as well as the views it provides.

Heat-treated glass quality

Problems with heat-treated glass quality can occur when:

- Glass is not properly washed prior to heating/cooling;
- Glass is 'staged' or washed and set aside for future heat treating;
- Glass washing equipment is not properly cleaned and maintained;
- Glass breakage inside the heat-treating furnace;
- Poor maintenance of the heat-treating 'tempering' furnace/line.

Types of problems

Fabricating debris, a.k.a. "glass fines," are tiny microscopic particles of glass created when glass is cut and seamed during the tempering process. Debris that is not completely washed from the surface of the glass before it enters the tempering oven becomes permanently fused to the glass and is invisible to the naked eye. It is important to know that **fabricating debris causes scratches on the glass during the cleaning process if a razor scraper is used.** Now permanently fixed to the glass, this "quality defect" lies in wait until some unsuspecting cleaning contractor is hired to clean the windows. In the process of removing the excess paint, tape, etc., from the glass surface, these glass particles become dislodged and are dragged across the surface, causing hundreds of faint thin scratches. Even if protective measures are in place on a construction site so that construction debris is not on the glass, the defect will scratch the glass if a razor blade is used to remove debris. It is important to know that it is the defect itself that is "dragged across the glass surface causing scratches," and not the razor scraper.

In the past, the Glass Association of North America (GANA) has explained that these particles cannot be eliminated completely because they are an inherent part of the tempering process. It has also promoted the fact that there are procedures that can improve the glass, and they have worked to bring this information to the tempering industry.

With damage already done, who should be responsible? Would a carwash be liable if an auto manufacturer used defective paint that washed off in the car wash? Should a homeowner have to pay for carpet that can't be vacuumed? Manufacturers need to be accountable for their product defects. It is unreasonable to try to pass the cost and liability on to the maintenance professional, general contractor, or the end user.

Glass fabricators and window cleaning professionals have long debated on how the problem should be handled. GANA has tried to place the blame on window cleaners for using razor scrapers to remove construction debris. The International Window Cleaning Association (IWCA) has supported the fact that razor scrapers have long been the standard and accepted method for removing construction debris and will not scratch good quality uncoated glass when used properly. The current position held by GANA blames the window cleaning process and contradicts their earlier admittance to the fact that it is indeed a quality control issue and a defect.

Glass manufacturers do not recommend using a metal scraper. Most chemicals used to dissolve debris have potential harmful effects to you, the glass, other building surfaces and seals, and the environment. What do you do when you get to the jobsite and you find concrete, drywall mud, plaster, paint, caulk, and other debris adhering to the glass?

Solutions

Educate yourself. Attend seminars. Tour glass facilities. Read the materials on the IWCA website, and visit www.stopscratchedglass.com and www.scratched-glass.net. Study materials on the GANA site: www.glasswebsite.com. Learn everything you can about the subject.

Consequences

Hundreds of thousands of dollars have already been lost by builders and cleaning contractors nationwide, and this invisible bandit needs to be stopped. Ending this problem lies within the building, fabricating, and maintenance industries. Builders need to insist on receiving only quality products from their suppliers that can be cleaned and maintained according to standard practices. Cleaning professionals need to adhere to safe cleaning methods, and glass suppliers must adopt measures to ensure quality control on tempered glass surfaces.

What can be done to minimize exposure to the problem until it is corrected at the fabricating level? The IWCA recommends that the most effective way to eliminate damaged glass from entering the marketplace is to test for fabricating debris before the glass is accepted and installed by the builder. To perform a test, the glass must be free from any surface contaminants, such as paint, tape, etc. Glass that has a clean surface can usually be tested by “scraping” the surface with a plastic credit card or driver’s license and listening for a gritty sound or feel. This gritty sound or feel is created by the presence of fabricating debris on the surface as the plastic edge passes over it. Glass that’s defective should always be refused and returned to the fabricator. Testing should be performed by the builder when the glass is delivered and defective glass should be returned immediately.

In June 2004, the IWCA published a bulletin suggesting ways to address the tempered glass quality issue. The *2004 IWCA Tempered Glass Informational Bulletin*, as well as a sample waiver for builders to use to protect themselves, and links to more information are available at www.iwca.org.

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