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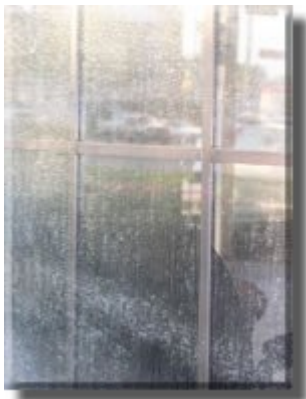
8:00am - 6:00pm Mon - Sat

ABN 90 114 138 420

## Factors that cause staining:

Acid Rain	Hard Water	Oxidization	Airborne Pollutants
Salt Spray	Rust	Over Spray	Sprinkler Systems

**TIP:** Many of these causes can be eliminated **by cleaning your window glass at least once a year.** This will help prevent glass degradation from acid rain, hard water, oxidization, airborne pollutants and salt spray.



**TIP:** Rearrange sprinkler systems so tap water does not wet windows. Tap water contains calcium and other hard minerals and will, over time, etch exterior window glass as seen in picture (left).

Pictured (right) is a close-up of the same degraded glass. Although, this might make a beautiful counter top finish for your kitchen; it will surely steal the natural beauty of your favourite viewing window!



**TIP:** When painting or staining building interiors and exteriors, cover glass in a protective plastic (visqueen) to prevent over spray.

**TIP:** When caulking windows be careful not to touch glass with sticky fingers.

### ***How is glass corrosion defined?***

**Stage 1** - Corrosion is defined as glass with light corrosion, with little or no damage to the glass.

**Stage II** - Corrosion occurs when the deposits are no longer on the surface of the glass, but have started to break down the molecular structure of the glass, leaving an etched or white haze on the glass after the stain has been removed.

## ***Problem types, professional techniques and products to restore damaged or staining in glass surfaces:***

The products and stain removal techniques you'll find in this section "should remove" all Stage 1 - Corrosion on window glass. They also may work well on Stage II Corrosion but you may find the extent of damage to your glass beyond restoration. In any case, it pays to give these products and techniques a try.

### **Glass Oxidization:**

Window's glass appears "**hazy**" and has a white "**etched**" look. Causes: Metal around exterior window has been exposed to rain or humid conditions causing the metal to slowly deteriorate and become "**oxidized**". Most commonly seen on windows with metal frames or metal screens, this condition penetrates glass and renders regular window cleaning techniques ineffective.

**Solution:** Apply specialized oxidization removal products i.e. Restoro, Sorbo Stain Remover, Winsol CC550 or BIO-CLEAN. \*After choosing a product, please read and apply the manufactures stain removal suggestion. The following procedure is "suggested" to give you an idea of what needs to be done to restore oxidized glass and is not to be understood as "the one, right technique".

**Step 1)** Apply product to a clean damp rag, sponge, or white nylon scrub pad and work into the glass using a circular motion until the chemical "dries out" while rubbing.

**TIP:** Always apply product to a small, inconspicuous area to "test" for adverse or damaging reactions between the chemical and glass.

**Step 2)** Wipe excess product off using a clean, dry towel.

**Step 3)** Use your professional window cleaning products and tools (i.e. soap, strip washer and squeegee) to rinse excess chemical from glass. This step will also neutralize the restoration chemical, halting any danger of it damaging window's surrounding surfaces. Repeat steps 1 through 3 if necessary.

This restoration process leeches the glass and restores it to its proper P.H. balance leaving you with a crystal clear sheet of glass!

Caution: Make sure to read the manufacture's warning when using restoration chemicals. Although, many of these chemicals are biodegradable and environmentally friendly, some may require the use of Acid Resistant Rubber Gloves and Protective Goggles. Also, you can use an electric buffer to apply restorative chemicals, but be careful, this may leave etched circular marks in the glass. My advice is... Apply the product by hand using protective measures - goggles and gloves.

### Hard Water Stains:

Window's glass appears to be etched with white "tear drop" shaped deposits. It can also appear as though a substance has been "dripped" down the window's surface.

Causes: Hard-water stains occur when rain water travels over the exterior building's surface i.e. (concrete, paint, and stain), and deposits minerals from these surfaces onto the window below. Acid rain, salt spray, sprinkler systems, and rust can also create this "undesirable" condition because they carry and deposit harmful minerals to the glass's surface area.

**Solution:** Apply the same products and techniques as you would to restore "Oxidized" glass. (See above)

**More preventative tips:** Some hard-water stains can be easily avoided. Your local tap water contains calcium and other minerals. Avoid further damage to your exterior windows by moving or redirecting your sprinkler systems so water does not contact glass. If you have exterior staircases that have rusted and rust water drips on glass surfaces below, remove and replace with new staircase - preferably using "rust proof" materials.



### Over-spray:

Causes: During exterior building maintenance or construction, tradesmen have over-sprayed (paint, caulking, mortar, stucco etc....) onto glass leaving its surfaces degraded.

**Solution:** Razor scraping and or chemicals need to be applied to remove over-spray from surface of glass. In most cases, you can use a razor scraper to remove over-spray.

**Procedure to remove paint, caulking, glue and water proofing from window glass:**

**TIP:** Never use a razor blade on dry glass!

**Step 1)** Choose a professional grade glass scraper, i.e. Triumph or Ettore, along with a brand-new, unused razor blade. A 3" professional grade glass scraper can be found in the Ettore Glass Cleaning Kit. For more information click here ---> Glass Cleaning Kit.

**Step 2)** Using your strip washer, wet glass with your window cleaning solution mix, i.e. Ettore's Squeegee Off and water. This will help lubricate the window's surface, lessening the risk of scratching. For a higher level of protection, add a friction reducer to your cleaning solution, i.e. Sorbo Glide.

**Step 3)** Scrap to remove over-spray in one direction, lifting to bring blade back. This will prevent scratching by eliminating the potential of the razor dragging across the scraped, dry glass.

**TIP:** While scraping, watch glass carefully to see if scratching occurs. If so, stop and examine blade (razor) for any cracks, rough surfaces or defects. If damaged, replace blade. An undamaged blade should leave the glass 100% dry on the treated area - much like a squeegee's rinse.

Continue scraping lubricated surfaces until all over-spray has been removed. Re-lubricate glass when needed.

**Step 4)** Follow-up restoration by applying professional window cleaning techniques.

### **Steel Wool Pads:**

If you don't want to risk accidental scratches caused by razor blading glass, try using a "0000" grade steel wool pad to remove over-spray. In many cases, steel wool will pull substances like glue and caulking out of the glass surface faster and safer than razor blade use.

To remove concrete, stucco, or mortar over-spray from glass surfaces, razor use may scratch and damage the glass surface. In this case, the use of chemicals is a must.

For glass that has been splashed with concrete or mortar water use Crystal Clear 550, it not only removes hard water stains, but also is effective in removing concrete. Please read the manufacturer's guidelines when applying any chemical to glass surfaces. You will need acid resistant rubber glove and safety goggles when using CC 550.

If the glass surface is stuck with "rocky mounds" of concrete, mortar or stucco, you'll want to apply a degreasing agent like Oil Flo. Oil Flo and other types of degreasers are also excellent for removing (stickers, adhesives, solar film, crayon, magic marker and caulking) from glass surfaces.

Degreasers are the perfect products to use during construction clean-ups; handy to have around when you don't want to risk scratching the glass with a razor blade. If you are a professional who is contracted to do a construction clean-up for the glass surfaces, have the person who contracted you sign a liability waiver excusing you from any damages that may occur to glass surfaces

**Remember:** There is no effective way to restore tinted or mirrored glass surfaces once over-spray or other degradation has penetrated the surface. Restoration chemicals won't be able to tell the difference between what it is designed to clean and the tinted or mirrored "treated" surfaces. Therefore, the tinting or mirroring will be dissolved along with the stain.

You may find "light scraping" with a razor blade may be effective to remove paint and other types of over spray on treated surfaces but, be cautious and continually look for damage to glass surface. For more information read my article: "Treated Windows an How To Maintain Them". <--- Coming soon

***Glass Preservation: "How to preserve the restored glass with a protective Glass Sealant".***

Keep previous problem stains from reappearing on restored glass by adding a protective coating to its surface. Problem stains can reappear in glass after a period of time. A sealant is necessary to delay or avoid the same stain reappearing in the glass.

Products like Sani Shield and 3 Star Barrier are designed to seal restored glass by creating a molecular barrier, protecting the surface against repeat stains. They also help to repel liquids and dirt, protect against incidental scratching and makes routine window cleaning easier.

The product you choose will determine how you will seal the restored glass. Using 3 Star Barrier is a great product if you are sealing several panes of glass and want to do it quickly. Simply apply 3 Star Barrier with a strip washer to glass surface and squeegee off. The remaining micro-thin barrier will help protect glass for 6 -12 months according to the manufacturer.

Sani Shield is great for sealing your favourite view windows. Because this product is applied to glass in the same way Rain X is applied to auto glass, (i.e. spray on glass, rub in with clean cloth until completely dry), using this is time consuming and is not "time" effective. Try Sani Shield if you have the time to apply by hand the sealant or are sealing 1 or 2 windows; its thick coat may protect windows for great lengths of time.

Try 3 Star Barrier for large jobs. Generally, as a professional window cleaner, I use 3 Star Barrier because of its quick application and glass usually comes out clearer when using products that squeegee off as opposed to leaving potential smear marks that are common to dry towelling techniques.