

Visual Variances

Selecting an Acid-Etched Finish That's Right for the Job

“Both the acid-etch finish and the glass substrate used will impact the color appearance, level of opacity and performance ratios of the finished product. In order to enhance certain characteristics of the acid-etched glass, etching both sides of the glass is an option.”

Applying the acid-etching process to different colors of glass can create visual interest and aesthetics. The Quebec Civilization Museum in Quebec City features acid-etched blue, green and ultra-clear glass.

Architects and designers are constantly looking for decorative glass products that are designed to enhance both a building's exterior and interior surroundings. In recent years products such as acid-etched glass and mirror have gained widespread marketplace acceptance as they offer a number of benefits, including a consis-

tent finish and durability. Today, acid-etched glass and mirror products are available in many sizes and thicknesses, and members of the design community have embraced using them as a way to bring unique architectural details to their projects.

While the glass etching process is generally the same manufacturer to manufacturer, varying the chemistry and other process parameters will create different glass surfaces with a wide-range of visual and performance characteristics. With so many options, it may sometimes be difficult to determine the right acid-etched glass for

each specific job. So just how do you know? There are a number of details to consider.

Design Objectives

Designers and architects typically have a specific design objective in mind when selecting different glass types for their projects. Start by asking yourself, what does the glass need to provide for this job specifically? When considering the use of acid-etched glass, it can be used for:

- Diffusing light;
- Privacy;
- Visual appearance;

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Using acid-etched glass in interior applications, as in the Quebec Civilization Museum, allows a certain amount of natural light to reach throughout the surrounding area.

- Integration with surrounding objects;
- Light transmission; and
- Energy efficiency.

Opaque or Transparent

The question of whether the job is better served with an opaque or transparent glass is another consideration. An etched surface with rugged peaks and deep valleys absorbs and diffuses light, rather than transmitting or reflecting it. This results in a rich, white opaque appearance. On the other hand, an etched surface with smooth, rounded bumps enhances light transmission and creates a more transparent



Acid-etched glass can be used for interior office applications, such as Moody's Investor Services in New York City, providing aesthetics as well as privacy.

glass, characterized by reduced reflective glare and a soft translucent appearance.

The type of acid-etch surface finish selected will render a different level of opacity and smoothness as well as create varied visual effects. It will also have an impact on the following performance ratios:

- Gloss;
- Visible light transmittance;
- Visible light reflectance;
- Shading coefficient;
- Solar direct transmission;
- Solar direct reflectance; and
- U-value.

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Handle with Care: Tips for Working with Acid-Etched Glass

Acid-etched glass is just one of many available choices when it comes to creating a unique environment with decorative glass. But product specification is just the first step toward creating an attractive space. Like all glass products, acid-etched glass comes with its own share of considerations, and fabricators and installers alike need to know how best to handle these products to ensure the glass makes it to the jobsite looking the way the architect or designer intended. Here are some considerations to keep in mind:

- Glass should be stored in dry, adequately ventilated spaces to best avoid unnecessary marks. Don't store sheets in areas of high humidity, where they are exposed to chemical fumes or near high heat areas such as steam or water pipes. Such conditions can lead to staining. Also, avoid storing the glass products outdoors.
- Acid-etched glass is also subject to marking during the fabrication processes if not handled properly. Due to its particular surface characteristics, extra care should be taken when fabricating rugged glass surfaces to minimize the likelihood of embedding grease or dirt into the surface.
- Always wear gloves when handling the glass.
- When working with suction cups, apply the cups to the flat, untreated side. If this is not possible, extra care should be taken to ensure that proper vacuum is achieved. The suction cups need to be clean and dust free.

When edging glass:

- Keep the machine's conveyors clean and free of grease and glass grindings or cerium oxide build-up.
- Regularly open the conveyor and wash the interior of the machine, particularly the brushes. Regularly brush the front and back conveyor pads with soapy water until all traces of cerium oxide and glass grindings are removed.
- Ensure that the front and back conveyors are synchronized at identical speeds.
- Use only coolants specifically recommended for glass grinding and adhere to the manufacturer's recommended dilution ratio closely.
- When using cerium oxide, follow the manufacturer's guidelines for concentration, and be careful to never add more than the minimum amount necessary to achieve good polishing.
- Wash the glass immediately after polishing. For best results, washer brushes should be made with .014-inch diameter nylon bristles. The glass washer should be equipped with one pair of upper and lower brushes for every 2 feet per minute of travel. *(This guideline is applicable to regular float glass only, not to coated glass such as low-E.)*
- As an extra precaution, wetting the surface of the glass just prior to polishing will greatly reduce the risk of marking.

Bear in mind that these are general recommendations for keeping acid-etched glass or mirror stain-free during storage and fabrication. These guidelines may not be suitable in all situations, so fabricators should follow the guidelines issued by the acid-etched glass or mirror manufacturer.

Substrate Selection

Keep in mind that the type of glass substrate used will also impact the characteristics and performance of the glass. For example, acid-etched glass made with low-iron glass will create a translucent satin appearance without the greening effect of ordinary clear glass. Similarly, using glass from different manufacturers can also create different visual effects. Acid-etched glass made from one manufacturer's blue glass will have a different appearance than acid-etched glass made from a different manufacturer's blue glass.

Consequently, both the acid-etch finish and the glass substrate used will impact the color appearance, level of opacity and performance ratios of the finished product. In order to enhance certain characteristics of the acid-etched glass, etching both sides of the glass is an option. This is a good approach for applications requiring a high level of opacity or a similar finish and visual effect on both sides of the glass panel, such as a partition or room divider.

Interior vs. Exterior

The use of acid-etched glass for exterior applications may also be appropriate, but because acid-etched glass is not actually a coated product its resistance to properties in exterior conditions essentially are equivalent to un-etched glass. When considering glass for an exterior application, keep in mind that an etched surface with rugged peaks and deep valleys could lead to higher maintenance costs because dirt particles may be more difficult to remove. In these cases, using an etched surface with a lighter finish (smooth, rounded bumps) typically is recommended for exterior applications.

When specifying an acid-etched glass product, it's important to provide the supplier with as many details as possible about the nature of job for which the glass will be used. Do not hesitate to communicate your job requirements in detail to your glass professional to ensure the acid-etched glass product selected meets your goals and objectives. **dg**