

Universal Window and Door Combines Historic Charm and Modern Efficiencies

> > Edgetech I.G. and Lauren Manufacturing contribute to award-winning windows

If there's one thing the East coast specializes in, it's history. Like nowhere else in the U.S., historic buildings and homes line the streets, offering a glimpse into the founding days of the nation. Preservation societies work hard to restore these buildings to their original splendor for generations to come to enjoy.

Regulations are in place to ensure the integrity of these gems – and that includes the style of the windows. Universal Window and Door of Marlborough, Mass. specializes in offering windows with insulating glass systems that not only meet these historic requirements, but also offer the modern convenience of superior energy efficiency and long-term durability through the use of high-performance components, such as Super Spacer® and seals from Lauren Manufacturing.

Universal's 700 Series historic replica windows have captured the attention of renovators, as well as the industry. In 2009, the product earned Glass Magazine's Crystal Achievement Award for "Most Innovative Commercial Window."



The 700 Series achieved this honor because of its unique simulated divided lite design.

"Our goal was to provide builders and renovators with a product that would meet all of their requirements, including the historic look and modern efficiencies," said Charlotte Broussard, president and owner of Universal. "All of our products are made-to-order specifically for each project. The Series 700 has solved an unmet need in our area and we are quoting on more projects than ever before."

History in the making

In total, research and development for the 700 Series took two years. Universal always had a niche in historic replacements, and hoped to meet the needs of renovators seeking steel replicas for old factories and other commercial buildings requiring simulated divided lites with triple grids. Traditionally, this was accomplished by applying the exterior grid with tape.

"Applying the grids with tape proved to be problematic, so we innovated a way to route the frame and set the grids in the grooves," said Paul Weisblatt, technical director for Universal. "We still had some challenges with water getting into the grooves and that's when we turned to Lauren Manufacturing for assistance."

Edgetech's sister company Lauren Manufacturing specializes in

custom rubber seals for a variety of industries. The company visited Universal and met with Paul Weisblatt to develop a solution.

"Lauren did an excellent job for us from the expert service to product development," Weisblatt said. "They developed three custom seals for us that helped us overcome our design challenges."

Universal Window and Door has been in business since 1965, and an Edgetech customer since the mid-1990s, first using Super Spacer for complex shapes. Since 2006, the company has used Super Spacer exclusively in its IG. According to Weisblatt, he wishes the company had made the switch to 100 percent Super Spacer much sooner.

"When working with grids and complex window systems, such as the Series 700, it is imperative to use Super Spacer to avoid stress cracks," Weisblatt said. "Its flexibility helps us eliminate stress cracks during production and in the field – and its no-metal formula provides us with the best thermal performance and durability available. Production efficiency is also improved because we don't have to cut and track down different sizes of metal – Super Spacer is cut directly off the spool during production, vastly reducing our scrap rates. The low reflectivity of Super Spacer makes it ideal for historic applications."



Before and After: Installed 700 Series units in Langston Terrace Dwellings restoration project

Universal operates from a 75,000 square-foot facility, employing up to 65 people. While the company offers some basic IG systems, it specializes in custom windows, including historic replicas, that have been used in Massachusetts, New Jersey, North Carolina, Ohio and beyond.

Langston Terrace Dwellings refurbishment includes series 700 units

Most recently, the company completed a revitalization of the Langston Terrace Dwellings in Washington, DC, with the Series 700 windows. Langston Terrace first opened in 1938 as part of the New Deal relief work initiated by Franklin D. Roosevelt, and was the first U.S. government-funded public housing project in Washington and the second in the nation. The finished building included 274 units for working-class families, and 34 more units were added in 1965.

Langston Terrace was listed on the National Register of Historic Places and on the DC Inventory of Historic sites in 1987. When the decision

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> > was made to replace the old steel windows, Universal was enlisted to complete the project because it could



offer steel replicas that met the historic needs of the project, as well as energy efficiency, durability and ease of use. Universal provided more than 600 units for the Langston Terrace project.

"Architects were looking for systems where the glass could be removed by maintenance personnel to install and uninstall air conditioning units without interfering with the integrity of the grids and the window in general," Weisblatt said. "The Series 700 was the perfect solution because of our built-in technologies that enable the

safe removal and replacement of glass and exterior grids, while also meeting their needs for efficiency and long-term durability. With our unique design, Lauren's seals and Edgetech's Super Spacer, we were able to provide the best possible option for the project."

Universal's windows have been used in a number of historic projects and the company anticipates continued growth as architects and builders focus on designing for efficiency and Leadership in Energy and

Environmental Design (LEED®) certification. For more information on Universal Window and Door, visit www.universalwindow.com. For more on Lauren Manufacturing, visit www.lauren.com and for more on Edgetech I.G., visit www.edgetech360.com.



Triple Advantage: Efficiency, Durability, Profits

> > **Why manufacturers are adding triple-pane systems to their product mixes**

If manufacturers haven't already added a triple-glazed product line, they have certainly thought about it. And why not? When constructed properly, triples provide improved U-Values, better condensation resistance, better sound dampening properties and an opportunity to achieve higher profit margins. Some manufacturers also view triples as a way to meet upcoming ENERGY STAR® and National Fenestration Rating Council (NFRC) codes.

Those considering a triple-pane product – or even those who already have one – should do plenty of investigative work to ensure optimal results.

"Manufacturing triples involves much more than stacking a third lite of glass," said Mike Burk, Edgetech's technical service manager. "Production methods should be examined to make sure it's done properly. Suppliers can also add great insight into proper construction, and provide products that help streamline the process for better outcomes."

For example, most IG failures are due to moisture transmission between the spacer sealants and the glass, and incorporating a third lite adds two

additional moisture vapor transmission paths – doubling the potential for IG failure over time.

These additional moisture paths can also become escape routes for gas filled units. Care must be taken to ensure superior sealant adhesion, especially between the spacers and glass surfaces three and four.

To combat this problem, Edgetech I.G. offers the silicone foam Super Spacer® Cushion Edge™ U-channel spacer system, which enables manufacturers to build triples without adding an additional moisture path. And while other spacer systems require an additional spacer to complete the unit, only a single spacer is needed with Cushion Edge because its u-channel construction suspends the middle lite as units are assembled.

"Looking at the components, such as the spacer, and the overall design is an important first step toward success," Burk said. "Cushion Edge features a multi-layer vapor barrier backing and dual-seal design for enhanced thermal performance, long-term durability and improved gas retention for the life of the product. Also be sure to look at glass type, glass thickness, glass

coatings, airspace, overall unit thickness and gas fill requirements."

Beyond extensive research into the design of the product, Burk recommends taking the following into consideration when working with triples:

- 1. Handling** – Provide training to glass-cutting associates on loading, separating and sequencing the lites; and if the units are assembled manually, operators must be trained on new stacking procedures. The washer loader may also need to review the washer loading sequence and glass surface orientation to ensure uninterrupted production.
- 2. Assembly** – Automated dual-seal units may require additional machinery programming changes or mechanical adjustments. Units that are manually sealed or hand-gunned may require additional caster tables or handling devices. Gas filling procedures must be defined to determine if both air spaces or a single air space will be filled. Gas fill probes or lances may require replacement or modification to accommodate the smaller airspaces common with triples.
- 3. Information technology** – Involve the IT department early because your business operating systems may need



updated to specify and process triples. It's also likely that stocking levels may need to be adjusted and machine interface software may need updated to recognize the glass size, thickness and coating to account for the additional lite.

4. Testing and certification – There are a number of proposed requirements for the testing of triple-glazed units. Check with your third-party certifier for current requirements.

Clearly, there is much involved with adding triples to a product mix, but most will find it's worth the effort.

"The triple-glazed unit is not the window of the future," Burk said. "It is the window of today with the increasingly stringent energy codes and consumer demand for optimal energy efficiency."

For more information on Super Spacer Cushion Edge or manufacturing triple-glazed IG units, visit www.superspacer.com.