

# Architects'

# Guide™

# TO GLASS & METAL

Volume 24 • Issue 4

July/August 2010

## Enlightening Glazing Projects

### Also Inside:

- Looking back at the AIA National Convention
- Essentials of Curtainwall Mock-up Testing



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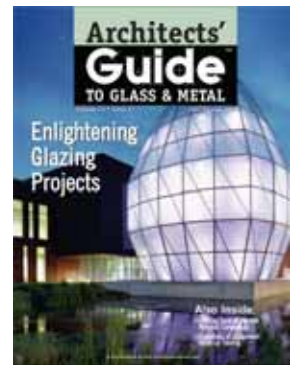
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## Architects' Guide TO GLASS & METAL

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**On the Cover**  
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*Photo credit: William Lemke, courtesy of Super Sky Products.*

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## From the Editor

### Lessons to Learn

Continuing education is an important part of most anyone's career. After all, even if you're one who has only recently finished school, it's still not likely that you remember every single thing you ever learned from day one. Taking advantage of those ongoing opportunities that allow you to continue learning, even after the diplomas are on the wall, will only help keep us all stay current with what's happening within the industries in which we work.

Back in June the American Institute of Architects (AIA) hosted its national convention in Miami. While class-room style lessons are important, you can also learn a lot by talking to other people in the industry to find out about their latest industry news, trends and developments. So in addition to the learning sessions, the AIA convention also included a trade show where hundreds of companies, including an impressive grouping from the glass and metal industry, offered up their newest products. Through their exhibitions, exhibitors brought their own type of education to architects—education about glass and energy performance; safety and security; and aesthetically pleasing design features. Check out more details in our show coverage that begins on page 6.

As part of learning, we're often tested to see just how much we really know. Whether we pass or fail, the outcome is typically determined by how much effort we put into learning the material beforehand. But even if you're somehow able to "just get by," eventually the fact that you didn't really know the material may come back and haunt you. Consider such a scenario for buildings. The design might look good on paper, but until it's actually standing and subjected to real-life situations, such as hurricanes, rainstorms and other natural occurrences, you don't really know how it will perform. That's just part of why mock-up testing is so important. If curtainwall testing is new for you, check out the feature article on page 10 that explores the subject, including why to test and the types of testing.

And one last thing: the *Architects' Guide to Glass & Metal* magazine is now on Twitter. You can follow us for news updates, show reports and much more at <http://twitter.com/AGGmagazine> **AG**



Ellen Rogers

*Ellen Rogers*

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# Miami Visitors Take a New View of Sun and Surf

## AIA Show Spotlights Glass for Everything from Solar Control to Hurricane Protection

by Ellen Rogers and Megan Headley

Companies supplying glass, metal, doors, windows and a host of other products for the fenestration industry pulled out all the stops and brought their most energy-efficient and hurricane-sound products to the American Institute of Architects' recent convention, which took place June 10-12 in Miami. Some exhibitors speculated that attendance was lighter than in years past, but more than 17,000 took part in the three-day event.

### New "Green" Glass

Though the number of glass exhibitors was smaller than in years past, those who did attend were focused on providing the latest innovations, and for many this included a green approach to their products.

"We're the greenest glass fabricator in the country," said Bob Price, national sales manager, with J.E. Berkowitz. He explained that some of the company's green efforts include recycling and re-using PVB cutoffs and also their recent installation of 7,200 solar panels.

"That's the largest solar installation in New Jersey," said Price, who added that they have also completed their first "almost paperless job."

The company also showcased a variety of products, such as laminated glass including its decorative laminated glass products made with DuPont's SentryGlas Expressions™.

In its booth PPG featured its newest launch, Solarban R100. According to Darijo Babic, national architectural manufacturer with the company's construction market team, Solarban R100 glass offers solar performance with color-neutral,



low exterior reflectance of 32 percent. Interior reflectance for Solarban R100 glass is 14 percent.

"The R100 glass has visible light transmittance of 42 percent and a high exterior reflectance," Babic said.

Guardian spotlighted its new SuperNeutral (SN) 62 glass. "It's a coated product that we brought over from Europe, designed for the commercial market," explained Chris Dolan, director of commercial glass products. "It has high light transmission, low solar heat gain and a light, very nice, blue reflective color. We find that architects are really interested in products that are less green—in terms of color—and a little more to the blue side, so we launched the SN 62 to be part of that."

Jeff Rigot, sales representative for Viracon, said that the company was introducing products for both the interior and exterior of the building.

"On the exterior side of the envelope we're showing our insulating #4 surface laminated product, which enables us to put the low-E coating on the #4 surface of an outboard laminated lite. It's pretty unique to the market here in the protective glazing arena in Miami," Rigot said.

Vetrotech Saint-Gobain also featured the new GLASSX® crystal, which it is now distributing. According to Ryan Dennett, president of the product manufacturer Greenlite Glass Systems Inc., the glass "creates a living environment" as it features a heat storage module that receives and stores the solar energy, which it later releases as solar heat.



## What's "Hot" in Miami

On the fire-rated scene, several companies were on-hand with new developments. Aluflam, for instance, featured its new two-hour fire-rated aluminum system.

"Because it's aluminum and not steel, more variety and finishes are available," explained Peter Lindgren, president. "Until now it was only available with a one-hour rating. The two hour-rating opens up new markets for us, such as stair enclosures."

SAFTI FIRST showcased its new SuperLite X-90 fire protective glass. "It's very clear and it's a good product for 90-minute temperature rise doors," commented Diana San Diego, marketing manager. She added, "We can supply the glass as a glass-only product and we can also supply it with the vision kits."

## Glass and Metal Get Together

Clearwall™ curtainwall was the latest development from Kawneer—so new, in fact, that it was not even available during the show (it became available June 28). Karen Zipfel, director of marketing, explained that the new system was designed to meet the demand for the monolithic look, but is more cost-effective than four-sided structural silicone.

Jot Chahal, project manager, added, "The uniqueness is in the way it is glazed. You get the same look with an efficient glazing method. The toggle directly captures two pieces of glass at the same time. You bring in the glass, set it, insert the



Door and window companies, including Pella, brought developments for a range of application types.

toggle and the rotation captures both sides of the glass [providing] a flush, uninterrupted look."

Going green has been a primary focus for Tubelite. According to the company's Mike Nicklas, their products have the highest recycled aluminum content in the industry. Earlier this year the company began manufacturing all of its architectural, extruded aluminum products with EcoLuminum™, a high recycled-content alu-

*continued on page 8*

## New View of Sun and Surf continued from page 7

minum billet composition.

"We're the aluminum tree huggers," he added.

Bob Griffiths, product development manager for Firestone Metal Products/Una-clad, provided booth demonstrations on the company's Una-clip clip system for attaching aluminum plate panels to walls.

"The clips are attached to the panels without mechanical fasteners," Griffiths said. "You slide them onto the top of the panel—there's a long slot to accommodate thermal movement and a short slot to pin the panel. The clip slides into the bottom of the panel, it slides and locks in place."

### A Range of Protective Products

In Miami, well known for its stringent hurricane codes, safety glazing products were prevalent.

Matt Snyder, Acurlite Structural Skylight's sales and marketing assistant manager, was promoting the company's timely completion of impact testing in South Florida. The company was assigned its Notice of Acceptance NOA 10-0271.07 by the Miami-Dade Building Code Compliance Office

for its Secure Series large and small missile impact tested skylight system.

CGI Windows in Miami showed what blast-resistant products can do and featured a sample of a fragmented window intact in its frame.

"We're a company that makes hurricane windows, impact [resistant] windows and now we've branched out to get into the blast area," explained Steve Dawson, chief financial officer for CGI.

### Doors and Windows on Display

Dennis Kelly, senior vice president of Graham Architectural Products in York, Pa., said the company had been receiving great reports following the six-month soft launch of its new GThurm window. The new product features thermal transmission measures as low as U 0.18 (R 5.5).

The architecturally rated windows are made using the company's glass-reinforced polyurethane technology. It combines 80-percent continuous stranded glass content with 20-percent of a unique polyurethane resin to produce window lineals using a pultrusion process.

Another European import was the Sunflex

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booth; the company has been importing products from Germany to its facility in Bonita Springs, Fla., for two years now.

Marco Bickenbach, customer relations manager with Sunflex, was letting attendees get a feel for the company's impact-resistant bifold system.

"It's a bottom loader, not top-hung," Bickenbach explained as he demonstrated the smooth movement of the 9-foot-tall sliding door system, "so you don't need to engineer the top header."

## Decorative Glass Options Abound

Companies continued to offer variety and choices when it comes to providing decorative glass selections.

"Custom patterns are at the forefront for us," said Marc Deschamps with Walker Glass. "We have the ability to do any [pattern] on glass and can meet any custom requirement."

One new product for Walker is its double-sided acid-etched glass, which is available in both opaque and satin finishes.

Endless possibilities seemed to be the theme for



Glass companies, including Pilkington, took part in this year's AIA show and offered their latest products.

NGI Designer glass. The company provides a variety of decorative glass products, including printed glass that Victor Trnavskis, president, said were extremely popular. He said that while traffic was light, they were still pleased with the show. **AG**

**Ellen Rogers** and **Megan Headley** are the editor and contributing editor respectively of the *Architects' Guide to Glass & Metal*.

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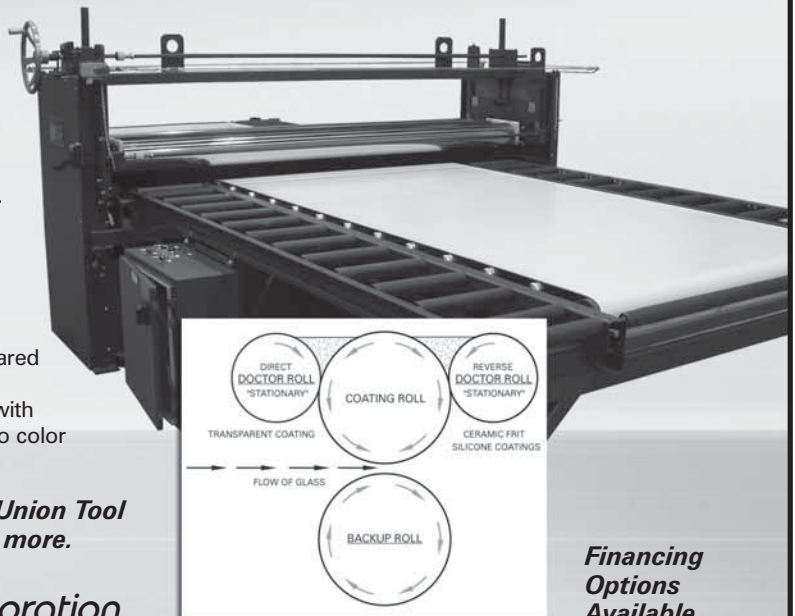
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# Making the Grade

## The Essentials of Curtainwall Testing

by Jerry Johnson

Curtainwall testing is one way to help ensure a building will perform as specified once it is constructed. Whether it is a set of tests on site, in a laboratory or a combination of both, double checking the design and installation can prevent problems that could occur after construction is complete. Curtainwalls are tested to ensure the system is designed correctly, to educate the installer and fabricator on the system's correct installation procedures, and/or verify the quality of a manufacturer's curtainwall product.

### Why Test?

Since many architects often take stock curtainwall systems and have them customized for a particular design, the altered systems must be tested to make sure they will work. Specifically, an architect may want to change a certain standard system, which could affect performance. For example, the water resistance of a sill depends on its vertical height. If the height is 2 inches and the architect increases the sight lines by reducing the sill to 1½ inches, it may create water leakage.

Testing uncovers design and installation problems in the initial stages of the project, when it is generally early enough to make corrections without heavy costs. The test model erected in the lab is done by the project's field workers, giving the installers a preview of how the installation should go together.

The tests reinforce the way a project should be installed, and demonstrate the need for quality workmanship in the field. Testing educates the installer and fabricator in the assembly of the components and problems in design and drafting. The test may also help those involved with the construction project figure out a better way of doing things.

### Specific Tests

Three basic tests are conducted in standard curtainwall testing operations: air infiltration, water penetration and uniform structural load tests. Additional tests for seismic movement and thermal performance are available as well.

Testing is generally required by the architect's specifications and is conducted through the curtainwall subcontractor or contract glazier. The contract glazing firm is required to demonstrate that the system it is using meets the architect's



An anchor designed for a custom unitized curtainwall system is used to attach the curtainwall back to structure.

design standards. Most of the tests follow ASTM standards, except for dynamic water tests, which follow the American Architectural Manufacturers Association standard.

Air infiltration tests are usually the first tests conducted on a system. A chamber is built in a section of the wall and static pressure is created to draw air in or out of the system.

The water penetration test is conducted next using the same equipment as the air infiltration test, but water is sprayed directly on the exterior of the structure for a pre-designated amount of time and pressure. The system is pressurized to draw the water inside. A pressure differential creates a vacuum which sucks water into the joints



As viewed from the inside of test specimen, a modified static water test is used for field testing the glazing system.

Project specific laboratory tests include, air and water infiltration under both uniform and dynamic loading; structural tests, under uniform loading; seismic performance; and thermal performance of the glazing system.

and aluminum. The test is monitored by technicians who apply water to the exterior while other technicians check the interior for leaks.

An additional water penetration test is usually conducted, as well. A large aircraft engine and propeller, used with the spray racks, creates a driving rain that simulates hurricane force conditions.

The third test is the structural loading test. This test simulates stress being applied to the glass by creating positive and negative pressures that could cause the glass to blow into or out of the building.

Seismic racking tests and thermal cycling tests are conducted in addition to the others.

Depending on the location of the project, seismic racking tests are generally required in areas prone

to earthquakes such as California. Thermal cycling tests, which measure the amount of condensation of a window, would be performed for a project in the Northern tier of the states, but are not required in Florida.

A team approach will help ensure a successful outcome, as curtainwall systems require expertise on the part of the architect, the manufacturer, the fabricator and the installer. A mock-up can be an essential tool when it comes to verifying that the system will indeed perform the way in which it was designed. **AG**

Jerry Johnson is a senior consultant with Curtain Wall Design & Consulting Inc. in Dallas.

## Projects



The LITE project's glass area spans 7,815 square feet.

### LITE's Glass Globe Shines in Louisiana

Designed by Architects Beazley Moliere, Louisiana Immersive Technologies Enterprise (LITE) is a \$27 million, 70,000-square-foot facility located at the Research Park of the University of Louisiana at Lafayette. LITE was conceived as an economic development initiative to enhance the development of visualization technologies and high-performance, 3-D computer modeling.

Charles Beazley with Architects Beazley Moliere explains that because of the structure of the visualization cube, the globe had to have an unusual shape.

"We used glass because [of its translucency] and we also put LED lights behind it to provide illumination," says Beazley. "The LED lights are programmed to change over time to light and glow and provide a way to call attention and illumination to the building."

The glass and aluminum globe was manufactured by Super Sky Products Inc. of Mequon, Wis. Created as a custom skylight and installed by J.B. Mouton Builders, the structure rises 59-feet and reaches 47-feet at its widest diameter. Linetec finished the skylight's aluminum framing in clear anodize.

The glass area spans 7,815-square-feet and is comprised of clear, laminated, heat-strengthened lites featuring two, "cool white," PVB interlayers. Fabricated by Prelco Inc.

"It was a fun, exciting project to work on. While we've been in business since 1915, we never had the opportunity to contribute such a unique feature to a building," says Robert Billeaud, president and owner of glazing contractor J.B. Mouton Inc. in Lafayette, La. "More than a skylight, it involved the full building envelope. It required precision and teamwork. Our team, the architects and the engineers worked excellently together toward a common goal."

Billeaud adds that the job was a 15-month project.

"Now that it's completed, I drive by it almost every day as it's just four blocks from our office. The project has captured a lot of excitement amongst the community. I believe it will serve as an architectural icon for a long time to come." **AG**

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