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Larger Than Lite

Demand for Big Glass has Fabricators on the Move

by Nick St. Denis

Glass fabricators such as sedak have responded in a big way to architects' growing demand for massive lites. The company can now produce lites in a variety of treatments spanning 49 feet.

“How big can we go?” It’s a question glass fabricators are all too used to hearing from the architectural community. It’s also one they’re happy to answer. The demand for large, expansive views has always played a role in architecture. In recent years, it has driven the glass industry to innovate and expand its capabilities.

Coming to the U.S.

The European market has been a prominent user of what would be considered “oversized” glass for at least the last decade. German-based fabricator sedak Inc., for example, was established in 2007 to cater specifically to that market.

But as many architectural trends do, the big glass movement made its way across the Atlantic and has caught on in the United States.

“Architects and developers have watched the technology develop in Europe and other parts of the world,” says Garret Henson, vice president of sales and marketing at Viracon, which recently expanded its glass-size offerings. “Traditionally, curtainwall spanned five feet wide, and [the design community was] watching the vertical mullions get

removed and the glass going to ten feet wide, and so on.”

sedak North America vice president Maic Pannwitz says there has always been a demand for large glass, given architects’ love of seamless surfaces and unobstructed views. He says sizes maxed out around 17 feet in the U.S. and about 20 feet in Europe until his company recently made massive investments in research, development and machinery.

Now, it can produce laminated and tempered glass that spans 49 by 10½ feet with all of its fabrication treatments. In fact, oversize lites nearly 46 feet wide currently are being installed at Apple’s new Cupertino, Calif., headquarters.

For sedak, the U.S. market has become a major focus over the last two years.

Home Grown

Fabricators such as Owatonna, Minn.-based Viracon are also addressing the jumbo glass demand.

The company expanded its size offerings in 2006, going from the traditional 84 by 144-inch maximum size to 96 by 165 inches. “We thought

that was a pretty substantial change in size capabilities," says Henson. "But almost immediately, architects were asking to go bigger."

Viracon responded and is now adding more than 360,000 square feet to its headquarters to house new glass manufacturing technology and fabrication equipment, which will increase its maximum finished product size capability to 130 by 236 inches.

"From about 2010 on, every year the average size of the insulating glass unit Viracon has produced has grown on a steady curve of about five to ten square feet," he says.

Optics and Performance

Pannwitz says a key question architects often have is in regard to optical quality.

"When they go with large glass, they want low-iron [and not just] clear glass," says Pannwitz. "They want as little optical distortion as possible."

Large glass also brings with it structural requirements, which involves tempering. He says sedak



The production of massive glass sizes requires fabricators to make big investments in machinery and technology.

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has developed the tempering process "in a way to minimize birefringence as much as possible."

Henson says it's important for the industry to keep a close eye on how larger spans of glass affect thermal performance and solar control.

"As glass gets bigger, are we introducing ourselves back to the window-to-wall ratio battle?" he says. "As windows get larger, we have to be sure we're managing these things, as well as visible characteristics."

Keep it in Mind

For every action, there's a reaction.

The larger glass gets, the more important factors such as windload and deflection become—and a high premium is put on engineering, particularly from a structural standpoint.

"As a glass supplier, we provide the glass that the client requests," says Pannwitz. "... Responsibility for the structural concept is with the facade contractor. A special glass engineer should be involved from the beginning when building development starts. They have to check story drifts, dead loads and building movements.

Glass can accommodate a lot, but it's still glass and if it's overloaded, it breaks. Designing the correct interfaces between the building structure and the glass is the key."

Another consideration that needs to be made is how the sheer increase in size and weight affects all parties involved, from the shop to the installation.

"Think about the logistics of moving these larger lites of glass, not only on the jobsite, but also for the curtainwall manufacturers within their facilities," says Henson. "That's important logistically and from a safety standpoint."

Thanks to innovations in equipment and the will of the glass and glazing industry, the big ideas designers are coming up with in modern-day architecture can be brought to fruition. And as for the growth of glass, will it ever stop getting bigger?

"I'm sure eventually we've got to reach the point of no return," says Henson. "But as we all understand, given the imagination of architects and developers, I don't think we're there yet." **AGG**

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