



Are You Ready for Massive Unitized Curtainwall?

Photo courtesy of Oldcastle Glass.

They say everything's bigger in Texas, and that's certainly the goal with the Dallas Cowboys' new football stadium.

The stadium, designed by HKS Inc. in Dallas, will seat approximately 80,000 people, although will be expandable to up to 100,000 seats for major events, such as a Super Bowl (coincidentally, Super Bowl XLV is scheduled to be held at the stadium February 6, 2011—mark your calendars). Oldcastle Glass's facility in Dallas, Texas, designed and manufactured the world's largest retractable all-glass doors, measuring 120 feet high by 180 feet wide, especially for this stadium. The exterior of the stadium will feature five thousand unitized panels.

"It's just huge," says Larry Long, pres-

ident of Oldcastle Glass Engineered Walls.

After eight months of engineering, Oldcastle began shipping custom-manufactured product to the site in late December 2007. "It will go on continuously for another eight months," Long says. "Units are being shipped out there every single day of the week. Taking them right off the truck and loading them."

The stadium features a blend of curtainwall systems—more specifically, 187,000 square feet of unitized and 161,000 of stick-built curtainwall, according to Jeff Benson, vice president of project management for Haley-Greer Inc. (HGI), also of Dallas. HGI began installing the glass on December 20, 2007.

Like other contractors across the

country, Benson says he has certainly seen an increase in interest in unitized systems. As of press time, HGI has eight active projects that are all or some portion unitized. For the Dallas stadium, Benson explains that two years of meetings between HGI, Texas Wall Systems, the architect and the general contractor on the design and details of the building led to a number of reasons to use unitized curtainwall systems.

"The Bowl (a 14-degree inverted wall) was selected to be unitized and shop-glazed due to the difficulty of field-glazing an inverted wall," Benson says. "All of vertical grid for the Bowl is designed to be fabricated and installed out of square. This could be better accomplished in terms of installation and quality control with a shop unitized sys-

Advantages—and Drawbacks—of Unitized Curtainwall

Advantages:

- Better quality control due to fabrication in a controlled environment.
- Faster schedule/reduced erection time.
- Speed the closing-in process
- Saves on field crew size and man hours

Disadvantages:

- Bigger sightlines
- Can be difficult to transport to the jobsite
- Need to be shipped in sequence
- Require plenty of space on site for storage

tem versus stick erect.”

He adds that the need for speed also led to the decision for unitized systems.

“Meeting an aggressive dry-in schedule is another reason the Bowl is unitized, in lieu of a stick-erected wall,” Benson says. “A unitized wall assists the general contractor with scheduling other trades to begin the interior finishes in certain area sooner to meet finish-out schedules.”

So far, the biggest challenge on the stadium hasn't come from its unitized solution, at least, not exactly.

“Our biggest challenge thus far has been with the layout and installation of the backup steel that supports the unitized wall furnished and installed by another subcontractor,” says Benson. “The steel subcontractor has tolerances that are much greater than the tolerances of the Bowl wall. Haley-Greer tried to get the general contractor to award to us the steel portion that supports our wall but, needless to say, that did not happen. Consequently coordination with the steel subcontractor and his installed work has been somewhat a difficult process.”

Still, work has continued, and is scheduled to do so for some time. Benson reports that the scheduled completion date is March 12, 2009, which means Dallas fans will have to wait to examine the stadium up-close.

What is Unitized Curtainwall?

You're responsible for glazing a complex project. The framing has been assembled and the units are glazed. The next step is to ship the panels to the jobsite to be installed.

Not a scenario you're used to? Then you're not using unitized curtainwall systems.

“The old process would be a stick-built curtainwall where you had to put up the framing, all the metal, and then you had to come back and let another crew put in the glass,” explains Brian Clark, vice president and division manager of Trainor Glass in Dallas. “[With unitized] you have only one crew putting in the frame and the glass, it's all assembled and, of course, then it's done.”

These preassembled panels can vary greatly in size and shape, and can be useful for complex projects.

According to information from Wausau Window and Wall Systems in Wausau, Wis., the pre-glazed units typically are off-loaded at the project site using the main construction crane. Usually, they are lifted to the roof or the floor above their installed position where they are stored and organized for future distribution. The units are erected by stacking individual panels vertically and horizontally, resulting in a four-way stack-joint design.

“The product is installed from the inside of the building, so you don't have the need for cranes there around the clock and throughout the whole installation process,” explains Brian Harrington, director of sales and marketing of Architectural Glazing Technologies (AGT) in Waterboro, Maine. “You bring the units up to the floor above where you're working and ... basically they have that unit up on the slab above and they just position the unit in place, the guys are working inside the building. They use embed anchors to connect the unit to the building,” Harrington adds, “so it's not like they're drilling into the slab right there on the site, which can be time consuming and kind of dangerous.”

“In many situations, cast-in-place embed inserts are used in conjunction with three-way adjustable ‘jack bolt’ unit anchors to facilitate proper anchorage,” says Steve Fronek, vice president of Wausau Window and Wall Systems. “Unitized curtainwall panels can be quite heavy, and are almost always set with a crane, manipulator or other lifting device. Jack bolt anchors allow for adjustments in plumb, square and level to be done ‘off the rig’ for productivity reasons. This is a non-issue with ‘hand-set’ stick systems.” ■