

# Wall to Wall

**The Differences in  
Installing Curtainwall  
and Window Wall  
Systems**

by Jordan Scott

**1000 Maine at the Wharf in Washington, D.C., features six different glazing configurations, including a two-toned terracotta unitized curtainwall system.**

Glazing is an integral part of a building's façade, giving occupants access to the outside world while protecting them from its elements. However, there are many differences between the various glazing types which impact performance and aesthetics. It's important for glazing contractors to be aware of these differences and how they can impact installation.

## Curtainwall vs. Window Wall

A curtainwall is a glazing system that runs past the floor slabs, essentially hanging from a building's front structure, whereas a window wall system sits between each floor's structural elements. According to Crawford-Tracey Corp. owner Ray Crawford, curtainwall configurations are usually 4 to 5 feet wide and 14 feet in height or taller. Window wall panels are often smaller since the system does not have to span the area in between floors.

Russell South, project manager for Giroux Glass in Los Angeles, says storefront systems, which are used for first floor applications, typically are 10 to 12 feet in height. Window wall usually is installed beginning with the second floor with a storefront system on the ground floor. Curtainwall systems can be used on any floor.

Storefront and window wall systems drain water differently than curtainwall. South says that on a curtainwall system, the water drains out of each individual lite so that each horizontal on a multi-span building drains water. For storefront systems, the water goes into the horizontal before being transitioned down the vertical and out the sill at the bottom.

"When you're doing more than one floor you don't want to use storefront because it will take on a lot of water and you don't want all that water running down the verticals," says South. "Also, since curtainwall is more robust, it works better for windload issues because it has a deeper mullion."

Curtainwall also includes pressure plates along the mullions and longer mullion depths, often assembled with shear blocks, due to the higher design pressures associated with these systems. Window walls do not require pressure plates and are assembled with



Photo: Crawford-Tracey Corp.

**The Adventist Health Solutions Center in Altamonte Springs, Fla., includes Crawford-Tracey's non-impact, insulating Pro-Tech 7SG glazing system, which was installed using a crane.**

screw splines rather than shear blocks.

YKK AP field technical services manager Bart Harrington says that the installation of window wall products is much more like the installation of a storefront versus a curtainwall system. While some window wall systems have slab edge covers to give it the appearance of a curtainwall system it won't be as streamlined in appearance as a curtainwall.

"Since a window wall system is sitting in between the floor slabs the slab edge cover will create a significant reveal at the floor slabs," says Harrington. "This isn't a design element of curtainwall systems, which are much sleeker. It's less apparent where the floor slabs are [located.]"

Curtainwall systems typically are pressured equalized, meaning the air pressure inside each individual zone is equalized with pressure on the outside of a building so gravity can pull water out of the system continuously. With a window wall system there is no pressure equalization, so while gravity may be pulling water to the bottom of the system, it requires a water head in the flashing at the bottom of the system.

Storefront and window wall typically are less expensive than curtainwall. One aspect that can contribute to the cost difference is that there are more glazing contractors capable of installing multi-floor window walls.

"This opens up competition to a

wide variety of glazing contractors and the competition can help keep costs down. The more sophisticated a project, the fewer the contractors that are able to bid it," says Harrington.

## Unitized vs. Stick Built

Unitized curtainwall systems are glazed in the shop, providing increased quality control. Glazing a system in shop allows the installation process to be quicker and more efficient in the field compared to traditional stick built methods. However, stick built still has a place in the glazing industry.

According to Harrington, stick built curtainwall systems are designed so that the mullion is spliced vertically. This enables the system to go as high as the architect or designer desires, which means that other considerations such as how air and water are managed within the system also need to be kept in mind. In stick built systems, individual zones of air are created around each lite of glass using zone bands or joint plugs, forming a picture frame of air around each lite, says Harrington.

In unitized systems, each curtainwall unit spans only a floor or two. Each unit is erected in the factory with glass preinstalled in many cases.

South's team at Giroux also unitizes its storefront systems, but without the

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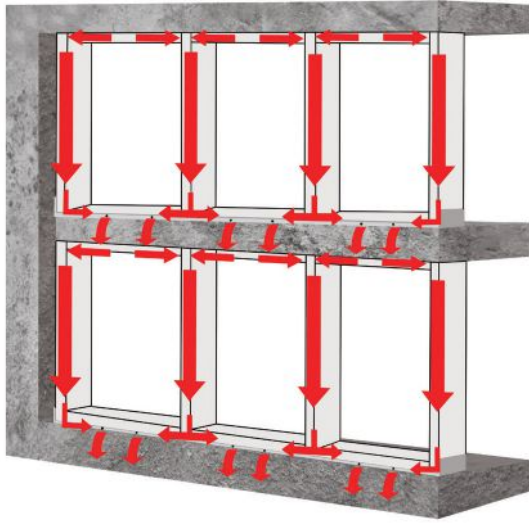


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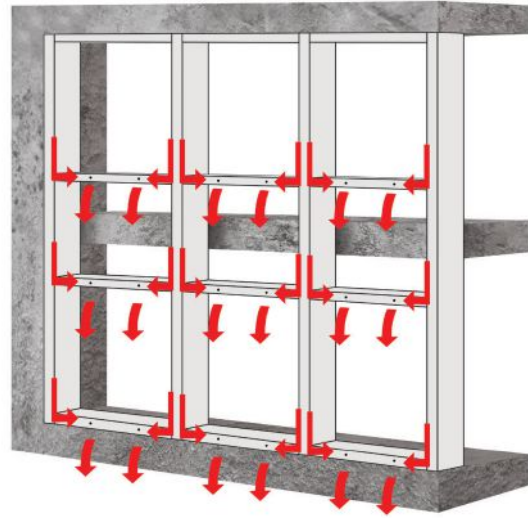
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Illustrations: YKK AP America

## Window Wall Water Drainage



## Curtainwall Water Drainage



**Curtainwalls employ drainage at each lite of glass installed. The water is dammed off and sent out with weep holes placed at horizontal mullions. Window walls rely on the framing system inside to direct the water to vertical mullions and then water is sent down to the bottom sill flashing, which contains weep holes to rid the system of water.**

glass. He says the company fabricates and assembles each unit and then snaps them in place.

Crawford-Tracey uses unitized systems for 99% of its projects, according to Crawford, who adds that his team does stick built only if the conditions require it.

“The challenge with stick-built is quality control in the field,” he says. “You don’t have the same quality control and clean atmosphere as you do in the shop.”

## Installation Considerations

Over time, glazing systems have become heavier due to the advent of impact requirements and energy codes in some regions, which have led to more laminated glass and insulating glass units being specified. Architects’ desire for larger glass is also impacting the weight of glass units.

“It’s been a challenge but we’ve been able to address it,” says Crawford, who adds that there can be restrictions on how much weight a glazier can lift. This means more people or machinery are needed to handle some glazing units. He also says that premiums may be applied due to the increased risk of

handling larger lites.

If logistics allow it, Crawford’s team will use a truck crane or tower crane to lift the glazing unit for installation. Crawford says this requires coordination with the general contractor and a potential adjustment of cost.

“On a good day without high winds we can install up to 40, 5- by 13-foot unitized window wall panels a day. It’s pretty much the same with curtainwall panels,” adds Crawford.

Even if the panels are installed from the inside of the building, his team still needs access to the outside of the building to do ancillary work such as face components, caulking or installing sunshades. For most projects, swing stages can be used. However, if the project has a sloped roof or other complex configurations that preclude the use of swing stages, a specialized system may be needed to provide access.

“This is something that needs to be taken into consideration when designing or bidding a project,” says Crawford, who adds custom and specialty projects also require testing in Florida to meet impact requirements.

South adds that pushing the lim-

its on glass size leads to more custom engineering and steel reinforcements. If an architect requests glass sizes over 50 square feet, the Giroux team will notify them that they might not get a warranty on systems that large.

“When we tell them that they often say no and will shrink the sizes,” he says.

The design-build project delivery method has given glaziers the opportunity to consult with architects during the design phase, which can help clear up any potential conflicts that could have arisen otherwise. South says that one con for glazing contractors is that if there are any pricing conflicts later on the general contractor could say they should have anticipated the need.

“There are certain things you can’t anticipate so it’s a double edged sword but it’s nice to be upfront in the design phase,” he says. ■

## the author



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