



All-Glass Security

Lining Up the Hardware for All-Glass Doors

by Megan Headley

A glimpse through an all-glass door

can make a

financial goliath's headquarters appear open and easily accessible to those who pass by; allow a view into conference room proceedings without interrupting discussions; and offer great security and longevity. Cheryl Carlson, a specialist with Oldcastle Glass in Perrysburg, Ohio, says that big accounting firms, financial advisors and other companies may choose a glass entrance because "it's going to last a long time."

"In the Toledo Zoo we have all-glass doors that are 40- or 50-years old," she says. "They don't get subjected to the same potential damage that a steel door or wood door would."

However, Carlson adds, "[Security] is a new arena for the all-glass doors."

Sophisticated locks and hardware can add to the strength of these all-glass doors—and add to the challenges of door installation.

"In essence, most people say to us they want the most sophisticated locking hardware you can find," says Andrew Chatfield, architectural sales for Custom Hardware

Manufacturing Inc. (CHMI) of Keokuk, Iowa. "My answer to them is always . . . it doesn't matter what lock you put on there because the door is only as secure as the edge of the glass."

He continues, "A lock on a glass door is purely a deterrent."

However, installing locks or other hardware on all-glass doors can also prove to be a challenge for glass companies. Whether the majority of the hardware is installed when the door arrives or the glazier's job starts with combining glass and components, the challenges of working with all-glass doors are varied.

Steve Murray, a national accounts manager for Security Lock Distributors in Westwood, Mass., offers some words of wisdom to glaziers planning to install all-glass doors in their next project: "Just brick the door opening shut!"

Getting Into Glass Doors

Other glaziers may not go so far as Murray, but when a client requests the open, spacious look of a glass entryway, the all-too-visible hardware can make or break that image.

Tim O'Connor, manager of Granite State Glass's Hudson, N.H., branch, says one of the biggest challenges he sees is trying to use all-glass doors in the right application—he says that they don't seal particularly well.

"The only difficult part . . . is the coordination part of it,"

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—Andrew Chatfield, CHMI

says Frank Rosen, senior project manager of Kensington Glass in Kensington, Md.

For example, he says, deciding on the right hardware for the job.

“Really the hardest part is coordinating where the holes need to be and what type of hardware you need to use,” adds O'Connor. “Trying to ensure that the hardware works directly with the product that you're purchasing.”

About Those Locks

And there are plenty of hardware options available that glaziers must make sure work with their glass product.

“Locks are better these days,” says Larry Miller, vice president of Salem Glass of Salem, Mass. “I can remember getting callbacks all the time on magnetic locks.”

He says that it is possible to install the necessary hardware and keep an open, all-glass look.

“You can do it [installation] in a very neat fashion with concealed fasteners,” says Miller. “I've seen other people put a bolt right through the door and I don't like the appearance of it.”

“With the all-glass doors you want the all-glass look,” adds Carlson.

She explains that the locking mechanism is usually somewhere in the periphery, either in the head or the jamb, or possibly in the sill “as a last resort.”

Carlson notes, “Typically, with the all-glass doors you can have a bottom rail with a lock in it or a bottom lock patch, but then people have to bend over to unlock it

and there's no remote.”

There are plenty of other security options with which glaziers can work.

“There's magnetic locks and shear

locks and drop bolts,” says Carlson.

“A shear lock would be installed in the top rail of the glass door,” says O'Connor.

And shear locks are useful for all-glass doors, says Miller, since they can be concealed.

“Though they look good because you don't see them, they are much more temperamental [than other lock types],” says Miller.

He says shear locks must engage perfectly in order to work properly.

Electronic Hardware

One locking option being mentioned more often is electronic hardware. Running wires across the glass door isn't really an option, so glaziers have to come up with ways to hide the necessary parts.

“There are wires and that does become a challenge,” says Murray. “We have a company that can specially make metal strips of polished brass or polished chrome and you can start hiding the wire so at least from the outside it looks pretty.”

“Electronic is a whole other deal,” says Scott Welch, manager of marketing and sales operations for DORMA Glas Inc. of Upper Marlboro, Md.



The “all glass” look is a popular choice when it comes to glass doors.

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Welch says that there are two types of electronic locking devices.

First are electric strikes, which just release the door.

"Typically, like a center lock housing or lever lock or a panic device locking mechanism," says Welch.

He continues, "More common applications on glass doors is where they do electro-magnetic shear locks."

For these electronic locks, the glazier must coordinate installation with an electrician who handles the wiring.

"The actual installation of the electromagnetic lock takes a lot of preparation to door rails and to the header, a lot of machining and special blocks to install them," says Welch.

"What a glass company ... would do is install the lock and prepare it," says Miller. "The glazier's responsibility stops after he puts the door in."

He says that the next step is to have an electrician come in and add the wiring.

"I drill the holes but he's bringing the power for it," Miller says. He adds, "The electrician normally provides the devices, the motion sensor or card reader."

Miller calls his part of the job "dry wiring."

Rosen has a similar process.

"What we try to do is prep the doors for electronic locks so it can be installed by somebody else," says Rosen. "We exclude it because it's part of the electronics package."

Welch adds that the electronic locks most likely tie into the entire building system, one reason an electrician must handle that part of the job.

Some Assembly Required

In many cases, much of the hardware installation is done before the challenging all-glass door is shipped to the glazier.

"Most glass doors are shipped out with the locks already in the rails from the door manufacturers," says Welch. "They usually get them already applied and assembled."

He explains that most hardware manufacturers only offer their products to door manufacturers and not directly to glass companies.

"A lot of people want you to apply the hardware to the door before it leaves," says Chatfield.

Chatfield adds that most end-users require the door to be as complete as possible because of the intricacy of installing the hardware in the all-glass doors, as well as the

desire to cut down the number of people on the jobsite.

"I've always bought the doors with the rails attached, with the headers and the closers installed," says Rosen.

However, Welch says that there has been a "slight dynamic change" in recent years.

"[There is] lots of competition from offshore companies and they will sell direct to installers," says Welch.

He says that more glaziers are buying glass and components separately in order to build their own doors.

"It's a scary thing to

us," says Welch. He adds, "It is happening more and more."

"I would say that's true," agrees Miller.

Miller says that some glaziers see an advantage in buying individual components because it provides a cheaper alternative to buying ready-made glass doors.

O'Connor adds that if purchasing parts separately, the notching is already done on the glass and it is a matter of installing the hardware.

"When we buy the glass, all the notching is done in the glass itself before it's sent to us, that's all done with industrial-type equipment."

However, he cautions that glaziers should use one supplier for obtaining components.

"Try and ... buy hardware from the same single source in order to ensure that everything's going to be compatible," he says.

He explains that getting different parts from different suppliers might save a little money on the front end but could cause big liability on the tail end.

While Miller acknowledges the mix and match trend, it's not an option he prefers. He says it's easier for him to buy the glass "with the rails or patch fittings installed on them because it's all assembled, ready to go."

He adds, "For me it's one-stop shopping."

There are one or two components Miller says he will find on his own. Push pulls are one example, because he says architects typically specify the manufacturer whose product they want to use.

"I would say that most of the time the pulls are not installed," adds Rosen.

Another example Miller offers is magnetic locks.

"It's less expensive for me to buy those direct. They have to be applied in the field after the fact anyway, and I prepare my header tubes to receive those beforehand," he says.

“You can do it [installation] in a very neat fashion with concealed fasteners.”

—Larry Miller, Salem Glass

Glass doors are typically shipped with most hardware already installed.



He adds that rather than buying header tubes he prefers to make his own.

The one hardware item Welch says he sees being added to all-glass doors after they are manufactured are the lock cylinders.

“At least half the time at the site they throw those cylinders out because they want a special keying cylinder, something special to the project, and put their own in,” says Welch. “There are a lot of facilities now that want these core-changeable cylinders.”

He says the core-changeable cylinders make it easy to re-key a building, rather than installing entirely new cylinders.

Lining Everything Up

In addition to finding and installing the right hardware, aligning the door so that the hardware works properly is another challenge.

“Alignment would be the biggest issue,” says Carlson.

“From a locking point of view, it is always the alignment,” adds Chatfield.

Carlson says the electric drop bolt is probably the hardest to align because the lock has to fit precisely into a receiver.

“It’s got to be a tight fit so it’s got to be a tight alignment,” she says.

Chatfield agrees that alignment is the biggest issue facing many glaziers.

“When you get to the site, the alignment of the lock with the latch bolt or dead bolt is always the biggest issue that you have,” says Chatfield. “A lot of it stems back to the guy who does the original survey.”

“I only put certain people on those [all-glass doors] because you do need to have the right alignment,” says Miller.

Similarly, Rosen adds, “The biggest challenge I guess is making sure that you’ve got the right opening, especially for glass doors that have patch fittings because there’s no tolerance in the size of the doors. You’ve got to be right on, because the glass is the whole opening. That becomes somewhat of a challenge.”

Expert Advice

The experts do have some advice to offer to glaziers before beginning to install a glass door.

In fact, “always talk to an expert,” is one piece of advice Chatfield offers.

Carlson agrees. “Consult someone,” she says.

Don’t just talk to the experts, Chatfield adds—talk to the client to discover what he hopes to achieve with the all-glass door.

“Does he just want a night-latch facility? A latch bolt where you’re just literally locking the latch? Does he want the door to be single action?” prompts Chatfield.

O’Connor agrees, saying that what the customer sees on paper is often different from what they might really want. He adds that keeping everyone happy throughout the process is key to getting the job done successfully, and talking with the client to discover what they really want helps keep everyone happy.

Talk to the code officials, Murray adds. He recalls one colleague who had installed tens of thousands of dollars worth of mag locks in a building based on what the state codes allowed. The local code official, however, visited the job after the fact and told the glazier the mag locks weren’t allowed.

“It doesn’t hurt to check all this out and find out what they’re going to allow and not going to allow,” says Murray.

So double check the codes and, Miller adds, double-check the dimensions.

“If your dimensions are right it makes the installation of the door, the hardware and the whole entry that much easier,” he says. “I know people sometimes rush through.”

He advises checking and rechecking the levelness and plumbness of everything.

And with his earlier advice of bricking the opening shut rather than installing an all-glass door, Murray wasn’t entirely kidding. He says if a glazier does decide to install an all-glass door, it’s best to have even a small frame with which to work.

“As pretty as the glass by itself looks, work with a door frame,” says Murray. “It gives you more to work with . . . in the future.” ■

the author



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