



From the Outside In: Use Cases for Security Turnstiles

An exploration of common applications and best practices from Alvarado and SDM Magazine.

“What need does the customer already have, and what are they trying to accomplish?”





Security integrators are more frequently tasked than ever before with helping customers select the best security turnstile, revolving door or personal interlock for their needs. So knowing the most common use cases, solutions, and the problems they most typically solve is the first best step you can take to make sure you get it right the first time — and don't make a costly error for you or your customer.

Where are you most likely to encounter a turnstile solution? According to integrators who install turnstiles on a regular basis, the most common vertical spaces include manufacturing plants of all types; distribution centers and fulfillment centers; corporate high-rise facilities; class A or B commercial office spaces; and multi-family or property management facilities. But this list is by no means exhaustive. Higher education,

datacenters and even movie studios are a few of the other verticals mentioned in the course of researching this white paper.

Often a customer knows they need a turnstile solution and comes to the integrator already looking for that — even if they don't know exactly what kind or the specific name of what they want. They have a need that can only be solved by a turnstile of some kind and contact their integrator for help.

This is the point in time when the first questions should help narrow down that focus, and identify where on the premises you want to focus first: What need does the customer have, and what are they trying to accomplish with a turnstile? What are you trying to do for them?

Outermost Considerations

For many customers — particularly any in the industrial, manufacturing or distribution space — the first turnstile solution they look for is at the outer perimeter.

How far away this perimeter is located can vary, but typically the farthest location might be in a manufacturing plant that has large remote parking lots for employees and/or a majority of its workforce entering the perimeter on foot. These applications typically involve a guard shack and full-height turnstiles for foot traffic onto the grounds of the plant. There may sometimes be additional turnstiles located proximal to a nearby bus stop or other public transportation for employees who commute to work that way.

In these applications the turnstile essentially serves as an extension of the perimeter fence, and the facility is trying to keep that as secure as the rest of the property.

Other perimeter applications might be located physically closer to the building, but for the most part still use the same type of turnstile and technology.

A full-height turnstile is an industrial-looking and high security solution that works well in the majority of these types of settings. But not everyone will want the same thing, so it is important to always establish not only what the customer wants to accomplish but how the turnstile will typically be used.





The first question to ask the customer is what they want to prevent or promote; in the majority of cases that will likely involve a full-height turnstile. By their nature they don't allow people to carry large objects in or out, so they will also require a monitored gate to allow for those exceptions, as well as ADA-compliance. Another option outside are waist-high mechanical turnstiles. These are less secure than their full-height counterparts, but paired with the right electronics and monitoring, can be the best solution in some cases.

An additional parameter to set is whether there will be access control one-way or both ways. On the inbound side a turnstile at the outer perimeter is there to prevent unauthorized people from entering, and potentially to know what time an employee enters. Sometimes there is also a requirement to use the turnstile on the outbound side as well, to keep product from "growing legs and walking out."

Most commonly, perimeter turnstiles require a card read or other security check on the ingress, with free egress through the turnstile. However, there are circumstances where a customer may require security in both directions.

One example cited was at a steel mill, where the 300-acre site had concerns for worker safety. In this particular

application, not only did the facility elect to go with waist-high turnstiles rather than the more typical full-height solutions — they had a lot of employees coming in with large coolers, tools, PPE and other bulky items that would be impossible to get through otherwise— but they also insisted on badging both in and out. In this case the facility's main concern was not theft but safety. Employees were leaving without checking out and in the event of an explosion or other safety incident it was critical to know who was still in the building.

Any time you are working on an installation outside, you have particular challenges to consider. While most integrators won't be the ones installing awnings or other weather-related protections, the proposed location may not be ideal for other reasons.

For example, broken up or uneven asphalt is not the best foundation for a turnstile. Other times the outside concrete might be inclined to let water flow away. So sometimes a concrete pad or shimming will need to be added to keep the turnstile level.

There are also the typical challenges associated with getting power and cables to the electronics that are almost always used in conjunction with full-height turnstiles — from cameras to card readers and beyond.

Inside the Lobby

The majority of turnstile work integrators do is located just inside the front door, in the lobby area. Here, not only are there questions around type and throughput, but far more than with the perimeter turnstiles, you will need to address aesthetics and corporate culture.

While outside turnstile applications tend to be pretty industrial in looks and function, inside the lobby customers often want to match the décor, materials, and demand a higher level of finesse.

Initial questions to ask include directional flow of traffic, throughput, type of turnstile, materials desired, and accessibility needs.

How much available space does the customer have? How much throughput is necessary? Do they want to go with a full-height or waist-height mechanical, or an

optical, with or without barrier? Assuming the customer wants to go with an optical turnstile (by far the most common scenario), do they want them with or without a clear polymer barrier?

Unless they are strictly interested in people counting, most facilities will opt for a barriered solution; so the next question is what panel height do they want? Most are no higher than the turnstile cabinet but the clear panels themselves can also be full-height to prevent jumping over.

One way to help determine these answers is to assess what the overall goal is for the turnstiles. Is it for authorized people only? If so, full height barriers might be the way to go. In a lower security setting a more traditional optical turnstile barrier height might be the correct choice.





Once you know what type of turnstile they want, next you need to figure out how the traffic will flow to and around them, and how many will be needed. Alvarado provides a handy calculator based on how many people will be coming through at peak time. What is the facility's highest volume and longest duration? That can guide you on how many turnstiles will be needed. This helps plan for either not having enough or possibly buying too many — both scenarios leading to dissatisfied customers.

Also, consider the business's future plans for growth. If they are looking to increase their workforce by 20 percent in the next five years, that should factor into the number of turnstiles that will eventually be needed, saving a retrofit down the road.

Do they want one wider ADA lane, or to make them all wide enough to be accessible? In an open lobby it is sometimes necessary to build out walls or infill glass panels to ensure all traffic will flow through the turnstiles.

The next, and perhaps most complicated decision in the lobby is the aesthetics. As the central point of the client's building, the lobby is the first impression for both employees and visitors, and many customers have strong opinions on how the turnstiles should look. This can involve architects, and other outside consultants and may require etching of artwork, matching finishes and a lot of customization. Optical turnstiles provide the greatest customization opportunity and the ability for designers and facility managers to really dictate the look and feel of their chosen turnstile.

Another concern in the lobby is getting power to the turnstiles. How will you get infrastructure to the turnstiles without ripping up the floor? Is the floor able to be core drilled or is it a historic one with art deco floors that can't be touched? A nice marble floor that the customer doesn't want disturbed? Or maybe they are renting the space and don't want to make permanent changes.

Optical turnstiles require cables to bring power from underneath the turnstile cabinet. If you can't core drill the floor you will have to get to it another way. This might mean putting in conduit runs over the floor, which presents a different set of aesthetic challenges. Alvarado also offers an optional floor saver platform that eliminates the need for anchoring and trenching through the floor.

It can sometimes be both tedious and expensive to work around these constraints, but an up-front and early discussion on the cost and labor involved can save a lot of problems later on.

Other installation considerations include a nice, level floor. While optical turnstiles do have some tolerance built in, they also have sensors that can be thrown off by uneven flooring and may, like their outdoor counterparts, need shimming and leveling to get proper alignment.

Going Deeper

While lobbies are the most common location inside a building for turnstiles, there are situations that require more secured entrances the deeper you go into the facility. Good examples are a datacenter or computer room, healthcare applications where the drugs or records are kept and other situations where it is critical to control who is allowed in, but the customer wants something more than just a locked door.

In a datacenter application for example, there may be turnstiles leading into every data room in the facility — wherever switches reside. Typically these are waist-high

optical turnstiles or even a full-height turnstile; but in certain cases they might be an interlock or even security revolving door.

If the customer wants to fully prevent piggybacking and tailgating, a security revolving door or interlock might be appropriate. For example, an interlock might be the best choice in a chemical lab setting.

The tradeoff is throughput, so it is key to make sure the customer understands this is a solution best used on a controlled entrance accessed only by a few, and not as a primary form of entrance control.





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Cost is also a factor. A security revolving door not only requires a separate door installed within 6 feet of the entrance, but is also much more expensive than an optical turnstile, which is in turn more expensive than a waist-high mechanical. But where compliance is an issue, sometimes it does become necessary.

Any place that holds information that might be regulated and the customer needs to restrict passage to specific personnel is a potential candidate for an additional turnstile or security entrance solution.

When considering a security entrance or turnstile beyond the lobby, space becomes even more of a question to consider.

One application cited was a datacenter where a few of the rooms were down a long, narrow corridor. In this case

it was necessary to consider the possibility that the turnstiles will occasionally need to be moved out of the way to accommodate getting large equipment in or out. So in this situation, the integrator installed quick disconnects on the wiring to facilitate that.

A more common application is a mixed-use space, such as a plant that has a cafeteria that is open to more than just employees. In these cases turnstiles allow the employees to get into the cafeteria, but not back into the controlled area without going back to the main entrance.

Another example is higher education where there is a food court or recreation center requiring card access and people counting.

Integration Considerations

It is rare that a turnstile of any type exists on its own with no other security measures. This could be a security guard; but increasingly it will involve card access control, video, audio and a remote ability to unlock the turnstile.

In certain cases it is also required to integrate with the life safety systems, if the turnstile is part of the defined path of emergency egress. If there are emergency doors that unlock without going through the turnstiles, it is less critical.

This is familiar turf for any security integrator, but it is still important to have the conversation to make sure you are incorporating everything the customer wants with that turnstile. Do they want cameras to turn on if there is a piggy-backing or tailgating alarm?

What sort of access control do they want? Maybe it is a card reader, but increasingly facilities are looking for touchless options like a wave or biometrics reader such as facial recognition.

Another consideration integrators point to are video intercoms that allow security personnel to interact with the person at the turnstile and remotely trigger the turnstile to allow someone to go through without a credential.

Sometimes other security technology picks up the slack on what the optical turnstile can't do, such as detecting who attempted to jump over with a camera, or tying card access at a door with a turnstile that preceded it, preventing a person who didn't badge in at the turnstile from unlocking the subsequent door.

Further Points to Ponder

One of the most important things to understand about turnstiles is that there is not a one-size-fits-all approach to what will work for every customer.

Integrators in the know caution that as soon as you think a certain type of location or facility will always go with one particular type of turnstile solution, an exception that proves the rule will pop up.

One integrator cited a food manufacturing facility that elected not to install full-height turnstiles outside the perimeter, but instead put optical turnstiles in the lobby with full-height clear barriers.

Turnstiles are often both company culture and need specific, taking into account the site and their pain points and coming up with a custom combination that best fits what they are looking for.

Because of the nearly always custom-nature of turnstile installations, it is especially important to have a trusted manufacturer partner to provide premier support, and a reliable product. The challenges are unique enough that there will always be something that might come up and require the input of the manufacturer.

Above all, if you don't have a lot of experience with turnstiles, integrators recommend really leaning on that manufacturing partner early and often. Doing so will help prevent costly mistakes that would otherwise not only make you look bad to your customer, but also give them a poor experience. No one wants the expense or inconvenience of having to rip it back out and reconstruct an entrance.

But with careful planning, a solid understanding of exactly what the customer needs and wants, as well as which turnstile solutions can provide that, you will end up with a happy and satisfied customer and a successful turnstile project.





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