Security Entrances: Solutions for Every Industry

BOON EDAM

your entry experts

Introduction

Today, organizations face a wide range of risks regarding safety, loss prevention, liability, business continuity, and more. This is true for every kind of organization, from corporate businesses, to educational institutions, government offices, courts, non-profits, retail, residential buildings, and many more. In every industry, there is a need for securing a facility and controlling access to sensitive materials, information, and people. Traditional methods of controlling access, particularly those with swinging or sliding doors, have critical weaknesses, no matter how strong the locks are or how carefully credentials are prepared.

Fortunately, there are security entrance solutions for every industry. In this paper, we will first cover an overview of security entrance strategies, including entrance selection factors, and best practices for entrance selection and installation planning. Then, we will review a wide selection of installation case studies, showing how security entrances have solved challenges in a variety of industries.

Part I: Overview of Security Entrance Strategies

In this section, we begin with an overview of security entrance selection factors and how they support the overall purposes and objectives of those entrances. Then we will cover the general strategies for deployment and implementation of security entrances. Together, the material in this section is intended to form a basis of best practices that will help you in your planning, selection, and implementation of security entrances to successfully meet your particular goals.

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Purposes and Objectives

Businesses and all types of organizations often have a need to control access to a building, an outside area, or an interior space. The simplest solution is to use locks on doors or gates, while larger and more sophisticated organizations usually use stronger methods including access control systems and security guards. While these methods each have some advantages, they also have critical weaknesses. To control the actual number and direction of people passing through an entrance, the most effective tool is a security entrance.

Security entrances are designed specifically to mitigate the risk of unauthorized entry, and in some cases to control the direction or rate of the passing traffic. This is their primary function, but they bring other benefits as well.

For example, when security entrances are installed, their mere presence conveys messages to observers and users. For security management, they demonstrate a commitment to safety and security for the facility or organization. For staff or residents, they can represent

a safe, protected environment, where intruders and thieves are kept out. For visitors and passers-by, security entrances convey that the facility values its assets and staff, and that entering is a privilege that must be granted. And for thieves, and potential intruders, their presence says, "keep out."

In the course of their function, security entrances can also create an entrance audit trail, recording not only who enters but when, and how often. The more sophisticated entrances (i.e., security revolving doors and mantrap portals) can capture additional analytics, such as the number of piggybacking attempts and rejections, and pass this information to the access control system for reporting. These operational measurements can be used to monitor and improve services, and can also be important evidence or proof for audit purposes in regulated industries.

To gain the best performance and meet business objectives, it is critical to select the correct security entrances for each area of your building or campus.

In the next section, we will review the most important selection factors to include in this process.

Selection Factors

There are key selection factors that apply broadly to every new installation of a security entrance. For our purposes here, we will cover these factors very briefly; for more in-depth information on these factors, as well as handy reference charts that compare the security entrance types with regards to these factors, please see our ebook, *"Finding the Right Security Entrance: A Guide to Comparing Solutions."*

Security Levels

While all security entrances are intended to control access throughout a facility or campus, not every area needs the same level of access control. Each type of security entrance has inherent qualities that will determine how much access control and tailgating protection is provided by the entrance itself. To select a security entrance, the first step is to narrow down which types will meet the minimum security need of the area to be protected.

Level 1 – Crowd Control entrances provide a checkpoint for authorized entry at a controlled rate, and do not detect or prevent tailgating or unauthorized entry on their own. Waist high turnstiles fall into this level.

Level 2 - Deterrence entrances provide an increased visible and/or physical deterrent to unauthorized entry that is stronger than Level 1, but cannot detect or prevent tailgating. Full height turnstiles are a good example of Level 2 entrances.

Level 3 - Detection entrances provide a visual deterrent, and they also detect tailgating and other unauthorized intrusion attempts on their own, raising an alarm for action by security staff. Optical turnstiles (with or without barriers) are Level 3 entrances.

Level 4 - Prevention entrances provide the highest level of intrusion security by completely preventing tailgating and unauthorized entry on their own, without supervision. Security revolving doors and mantrap portals are Level 4 entrances.

To gain the **best performance** and meet **business objectives**, it is critical to select the correct security entrances for each area of your building or campus.

Choose security entrances that are **UL-certified for safety,** with options available to meet NFPA and ADA ingress and egress requirements.

Guards

Security guards generally increase the level of deterrence and security at an entrance, but they are not infallible, and there are ongoing costs associated with their presence.

The use of trained security guards is a closely related factor to the intrinsic qualities of each type of security entrance. In particular, for Levels 1, 2 and 3 described earlier, security guards are strongly recommended to complement the entrance when it is not feasible to install a Level 4 entrance. They should be stationed on the secure side of an entrance to respond quickly and intercept any tailgaters or turnstile jumpers that penetrate into the secure area.

Relative Costs

Initial costs for security entrances, often capitalized, will usually include the equipment itself, the installation, and perhaps initial training sessions for administrators and users. In general, initial costs have a positive correlation with the entrance security level. That is, Level 1 entrances have relatively low initial costs, while Level 4 entrances have a relatively higher initial cost.

Most often overlooked are the ongoing operating costs associated with an entrance selection. These costs include maintenance, repairs, and electricity, along with any necessary security officer staffing needed to respond to infiltrators.

For highly controlled entrances with limited access allowed, it can be more cost-effective to install an entrance with a higher initial price, such as a security portal, that does not require the ongoing presence of a guard to prevent unauthorized entry or tailgating.

Throughput

It is critical that the entrance selected has sufficient capacity for daily users, both in terms of the expected peak traffic numbers and timeframes, and in terms of the traffic direction. That is, will people move in one direction only, or will some enter and some exit at the same time? You should manually count the number of people at the busiest 10 minutes of the day (morning rush at 8am) for one-way traffic, and also, two-way traffic (such as during a lunch hour). The different types of security entrances have different capabilities with regard to traffic flow and directionality.

If the expected peak traffic will be too high for a single unit to handle, calculate how many units would be needed to meet the traffic need, and then consider how this plan would fit in the available space and budget.

Installation Time and Complexity

Security entrances have a range of complexity that affects their initial cost as well as their installation time and costs. In general, the entrances with the highest security level (security revolving doors and mantrap portals) also have the most complexity and longest installation time.

However, two people can install even the most complex entrances in less than three days. While waist high tripod turnstiles or full height turnstiles can be done in even less time.

Code Compliance

Because they control the movement of people, and can include electrical elements, security entrances must comply with applicable safety and access regulations. It is best to choose security entrances that are UL certified for safety, with options available to meet NFPA and ADA ingress and egress requirements.

Also, consider whether the entrance model can be integrated with fire alarm systems to trigger emergency functions, and whether it has a built-in response to failure conditions. Can

a barrier be pushed open manually, or does it use a battery backup to automatically collapse or open to provide a clear path of egress? Does your local fire code limit the allocation of people that can use the entrance or require an alternative emergency door nearby? Further discussion with a security consultant and a local fire marshal will support the development of security and emergency management plans for the facility.

Climate Considerations

Security entrances are all designed to be robust, but they do vary in their environmental sensitivity. While many security perimeters are located at building entrances or indoor checkpoints, there are also situations where a perimeter is fully outdoors and open to the elements. As you plan the approach to security in your facility, be aware of which entrances are suitable for interior or exterior use.

As a general rule, any type of security entrance can be used indoors. Check with the manufacturer regarding use on the building envelope or fully outdoors, and be sure to discuss climate conditions in your area as well as salt-water exposure or potential flooding during storms.

Design and Aesthetics

Security entrances have a big impact on how your facility is perceived by visitors, staff, and the public. Fortunately, there is a wide range of design styles available, and security entrances can support the intended style, design, and even corporate identity of the facility. Many materials and colors are available, ranging from stainless steel or painted finishes, to glass and acrylic panels, as well as textures to complement nearly any design intent.

Integration and Metrics Capabilities

Security entrances can provide additional value when they are integrated into your other business systems (i.e., an access control system for the entire building or campus) and used to collect valuable, objective operational data. At the most basic level, this captured data regarding staff working patterns can help improve security and operational matters such as lighting and environmental controls (to save energy and expense). At a higher security level, security entrances can be used to capture data regarding infiltration attempts including piggybacking, tailgating, and climb-over attempts that can be analyzed to support more detailed security conclusions about when, where, and perhaps even why such attempts are occurring.

Many of the metrics above are related to "after the fact" occurrences. Today, it is now possible for security managers to obtain predictive metrics for possibly the first time: a Level 4 mantrap portal, combined with mathematical modelling software and the capabilities of the most advanced sensor technologies, can accurately predict the probability of a potential piggybacking breach at each particular entrance. This predictive metric can be used to state the effectiveness of an entry and is something that no other type of security entrance – or even security guards – can provide or accurately estimate.

Security entrances **have a big impact** on how your facility is perceived by visitors, staff, and the public.

The best plans include time to **adjust the culture of the organization** if needed – make sure that occupants have a chance to ask questions and address any concerns.

General Deployment Strategies

As was stated above, selecting the correct security entrance is the first step on the path to a successful installation – but it is only the first step. The set of best practices includes several more steps to make sure that the selected entrances achieve their objectives.

Step 1: Determine your minimum security entrance Level requirement.
It is usually all right to choose a higher security entrance Level than needed at the moment, particularly if there is the possibility of higher requirements at a later time. If the security level of the entrance underserves, however, an expensive replacement is likely the only remedy. Make sure you know your minimum acceptable level, and eliminate entrance types below that level from your consideration.

Step 2: Consider the other important factors to arrive at your most appropriate entrance type.
These factors were briefly covered above; more information is available from Boon Edam, including a selection guide. Be sure to consider not only your capital budget timing and availability, but also your operating costs and procedures. There are several inherent tradeoffs built into the selection process – for example, the throughput requirement versus the amount of space available for entry lanes. These tradeoffs are why prioritizing the most important factors for your situation, then finding the security entrance solution that best satisfies your constraints and objectives is the best approach.

Step 3: Prepare a comprehensive project implementation plan.
When planning, include any necessary considerations, such as construction (and permits), installation, training, and integration and testing with any related systems, such as video surveillance, time and attendance systems, and visitor management, as examples.

Make sure that training is included in the plans, not only for maintenance staff, but for security managers and every occupant to make sure the system will be used safely and accepted. The best plans include time to adjust the culture of the organization if needed – make sure that occupants have a chance to ask questions and address any concerns. Also, be sure that provisions are included in the plan for the full range of possible users, including children, elderly people, service animals and people with physical challenges – do not assume that all users will be "average."

Step 4: Review the plan in its entirety with the full range of key constituents.
The security department should review for the overall security posture, and for how to handle visitor management, lost credentials, and any other applicable procedures. Facility and maintenance managers should review the plans in light of ADA and fire regulations, plus any local regulations that may apply, as well as taking into account maintenance and repair procedures – these may have to be updated for the new entrances. Don't forget the HR department; they can be valuable in terms of detecting and managing any employee concerns, changes in culture, and similar items.

Part 2: Industry Examples

There are security entrance solutions for every industry. While that may sound like a bold claim, there are several common threads that weave through all businesses and organizations. For example, every organization wants to provide a safe and secure work environment for the staff, customers, and visitors. Here's another example – regulated industries such as energy production, food preparation, and credit card processing are required to control access to sensitive areas and to maintain auditable records that prove their compliance. Security solutions that address the common threads across many industries are in a unique position to be relevant to every industry.

While this whitepaper won't be long enough to cover *every* industry, here in Part 2 we will show how security entrances were applied to solve challenges across a wide range of industries. These examples will, by necessity, be very brief, but case study brochures are available for each illustration that provide additional information. For each example, we will state the challenges posed by the customer and the primary elements of the solution.

Food Preparation

Challenge: At Martin's Famous Pastry Shoppe, located in Pennsylvania, a new building linked the main entrance to administrative offices as well as the bakery itself. As a regulated food provider, Martin's needed to strictly control access to the bakery while also conveying messages of safety, teamwork, and the highest quality among the staff.

Because the door system itself **blocks unauthorized entry 24/7**, no security guard staffing is required.

Solution: A Boon Edam Tourlock 180+90 security revolving door with an RFID badging system was installed to reject tailgating attempts and meet the strict regulatory requirements. Because the door system itself blocks unauthorized entry 24/7, no security guard staffing is required. The clean glass and white-painted, metal solution conveys the desired messages of safety and high quality to the staff and visitors.

Chemical Production/Critical Infrastructure/Energy

Challenge: Shell Chemical LP, in Texas, was required by the Maritime Transportation Security Act to know exactly who was in the production area of the facility at all times. The facility is in operation 24/7/365, with about 1,600 employees and 1,200 contractors moving in and out of the controlled area every day.

Because of the **peak traffic requirements**, a total of seven lanes were installed – four at the front entrance, where employees and visitors arrive, and three at the back entrance, **controlling access** to the protected area.

Solution: Shell chose Boon Edam optical turnstiles with a single, swinging panel of glass to control the flow of authorized users. Because of the peak traffic requirements, a total of seven lanes were installed – four at the front entrance, where employees and visitors arrive, and three at the back entrance, controlling access to the protected area.

Insurance

Challenge: Unum Group is a leading insurance provider that markets under the Unum and Colonial Life brands. Security is of primary importance, not only to protect the sensitive regulated financial and health insurance information about its customers, but also for the protection of nearly 9,000 employees across multiple locations including Maine, Massachusetts, Tennessee, and South Carolina. With up to 8,000 entries and exits per week at its busiest doors, throughput and reliability were also a high priority.

After evaluating the range of options, Unum decided on the Boon Edam Tourlock 180+90 **security revolving door** because it could **reliably accommodate** the required traffic flows **without monitoring by security officers**.

Solution: Unum chose to standardize their entry solution across all their locations to make it easier for staff and to simplify maintenance and procedures. And, after evaluating the range of options, Unum decided on the Boon Edam Tourlock 180+90 security revolving door because it could reliably accommodate the required traffic flows (up to 22 people per minute in each direction simultaneously) without monitoring by security officers. To date, Unum has installed 21 Tourlocks in their buildings, and it is a standard part of every new facility plan.

Corporate Office Buildings

Challenge: Eastman, based in Tennessee, is a global provider of advanced materials and specialty additives, with more than 50 locations worldwide. When it planned the construction of a new 300,000 square foot corporate center, they needed an efficient way to let the nearly 1,000 employees enter, while controlling visitors and conveying a state-of-the-art business image.

The **Tourlocks** provide convenient staff entry points 24/7 with **sufficient peak capacity** and with **no need for security guard staffing**.

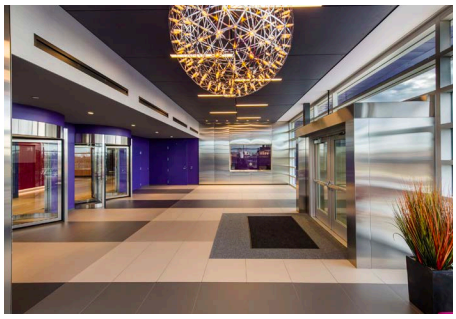
Solution: Eastman installed two different security entrance types to meet their needs. Boon Edam Tourlock 180+90 security revolving doors were installed at employee-only entrances in the main entrance, lobby, and two side entrances. The Tourlocks provide convenient staff entry points 24/7 with sufficient peak capacity and with no need for security guard staffing. In the supervised area of the lobby, where visitors enter the facility, Eastman installed Boon Edam optical turnstiles with full height panels. These lanes provide additional entries for employees as well as effective visitor management entries, and nicely support the high-end business positioning.

University Residences

Challenge: The campus at Hofstra University, in densely populated urban Long Island, New York, includes more than 100 buildings and over 7,000 full-time undergraduate students. The existing security system, including access control, electronically locked sliding doors, and student safety monitors, strained to control the many tailgating incidents while handling the normally high resident and visitor entrances and exits.

Tailgating incidents have been **significantly reduced**, and the student safety monitors can now focus on processing guests and other duties.

Solution: Hofstra upgraded the entrances to the residential complex areas and inside the lobbies of residential buildings with Boon Edam full height turnstiles that made use of the existing access control system, minimizing costs and disruption. The exterior turnstiles were environmentally hardened and provided a clear visual deterrent. The interior turnstiles were Boon Edam Turnlock 200EL models with transparent Lexan™ panels that allowed light to pass through; this created an open appearance that was welcomed by the students. Tailgating incidents have been significantly reduced, and the student safety monitors can now focus on processing guests and other duties, including homework!



Data Centers

Challenge: At RagingWire colocation data centers in Virginia and California, it is critical to control access and prevent unauthorized entry while allowing unsupervised access to authorized personnel 24/7. RagingWire provides data center services for some of the most demanding hyperscale cloud and enterprise companies, and they are recognized as a leader in part because of their commitment to securing their customers' mission-critical equipment and data.

The security revolving doors provide efficient passage for hundreds of people daily at the data centers, while **preventing tailgating** and **piggybacking** during both entry and exit.

Solution: Boon Edam provided Tourlock security revolving doors to support RagingWire's sophisticated, multi-layer security system. The security revolving doors provide efficient passage for hundreds of people daily at the data centers, while preventing tailgating and piggybacking during both entry and exit. Using a combination of sophisticated sensors, the door systems detect such violation attempts and prevent unauthorized passage, supporting RagingWire's defense-in-depth security strategy.

University Recreation Facilities

Challenge: North Carolina State University in Raleigh, North Carolina, needed efficient and effective crowd control to manage the rate of entry to their two large recreational facilities. These facilities are used by 2,500 faculty and staff, as well as 35,000 students by presenting a valid ID card. The current method of having staff check credentials would often create a bottleneck that allowed "non-members" to slip past the line. Going forward, the University planned to implement biometric authorization to increase the speed and accuracy of the system, so any solution must be capable of supporting that upgrade.

The turnstiles deliver a **strong visual deterrent**, and their minimal footprint and clean aesthetic look matched the design intent of the lobbies.

Solution: NC State installed Boon Edam optical turnstiles at the main entrances of both recreational buildings. This consistent approach works with the existing access control system to eliminate the bottleneck, and will also support a future biometric system upgrade. The turnstiles deliver a strong visual deterrent, and their minimal footprint and clean aesthetic look matched the design intent of the lobbies.

Port Security

Challenge: APM Terminals Callao had a strong need to increase security at their ports in Callao, Peru, and in particular to update their manual entry control and registration activities. As part of a security upgrade program that would add biometric access control, visitor management, and electronic vehicle barriers, among other improvements, they needed robust security entrances appropriate for perimeter management, exposed to the environment, and operating with high reliability and throughput capacity 24/7/365.

The security improvements helped **upgrade and speed up the entrance processes**, and safeguard the infrastructure, employees, and the goods that are shipped through the port.

Solution: APM Terminals Callao installed Boon Edam Turnlock 100 full height turnstiles at port entrances and integrated them with the other security systems including biometric access control, anti-passback, registration and visitor management software systems, among others. As a result, the security improvements helped upgrade and speed up the entrance processes, and safeguard the infrastructure, employees, and the goods that are shipped through the port.

Public Transportation

Challenge: Transportation Safety Administration (TSA) requirements for regional airports are clear – once passengers have left a secure space and entered the public terminal, they cannot be allowed to backtrack and avoid a new security screening. At Walla Walla Regional Airport in Washington State, two automated sliding doors did not provide the required backtrack prevention and needed to be upgraded.

These doors completely **eliminated backtracking** and supported the necessary traffic flow without the need for a security guard, making the upgrade a one-time expense.

Solution: Based on their architect's recommendation, the airport installed Boon Edam one-way security revolving doors. These doors completely eliminated backtracking and supported the necessary traffic flow without the need for a security guard, making the upgrade a one-time expense. As an additional benefit, the revolving doors eliminated unwanted air infiltration from the outdoor winds and extreme temperatures (unlike the previous sliding doors), saving energy and improving the comfort of the passengers in the terminal.

Public Recreation

Challenge: The enormous "La Perla" Ferris wheel in Guayaquil, Ecuador is South America's largest. It is more than a tourist attraction – it is part of a showcase development that has brought international attention to the area. With all the attention and a high number of paying riders – about 75,000 per month – it was imperative to have a robust, safe, and efficient way to manage the crowds and limit access to authorized ticketholders. Because the installation is exposed to the environment and located next to a river, the use of non-corroding materials would be required.

A full height Boon Edam Turnlock 100 turnstile allows for **easy departure** while presenting a **visual deterrent** and **preventing unauthorized access** back to the Ferris wheel.

Solution: Facility managers chose Boon Edam Trilock 75 turnstiles for the entrance lanes. The Trilock turnstiles were integrated into La Perla's ticket system and use barcodes and QR codes to admit or deny entrants based on the validity of their presented tickets. This particular model also features "collapsing arms" that can be quickly lowered by staff in case of emergency. At the exit of the ride, a full height Boon Edam Turnlock 100 turnstile allows for easy departure while presenting a visual deterrent and preventing unauthorized access back to the Ferris wheel. Both models are constructed of stainless steel for strength, durability, and corrosion resistance.

Conclusion

There are security entrance solutions for every industry. Now that you are familiar with the range of important selection factors, planning best practices, and successful case studies, you are in a much stronger position to make an excellent security entrance installation for your organization.

Whether your primary need is to provide a safe and secure work or living environment, to comply with mandates in a regulated industry, or some other objective, you are not alone – expert support and guidance is available to help you achieve your objectives.