WHITE PAPER

How do you choose the most suitable equipment to secure the entrances to your buildings?

Practical guide for security operators:
6 questions you should ask before choosing access control equipment

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Executive summary

There are many different types of access control equipment, and each one meets different needs. In order to make an appropriate choice, it is useful to define your end-customer's priorities and to find the right balance between them and the project context. This practical guide invites you to think about six basic questions, all of which can significantly impact the choice of access equipment:

- How many people enter and exit the building during the peak hours?
  The flow is decisive when selecting the type and quantity of equipment.
- What is your goal in terms of security?
  The equipment will differ depending on whether you are looking for a deterrent effect, fraud prevention or complete security.
- How can users be protected?
  It is essential to comply with rules and standards, notably to avoid accidents and to facilitate evacuation in the event of an emergency.
- To what extent should access control equipment enhance the company's image?
  Aesthetic requirements, prestige and design can vary widely from building to building.
- What is the best way to maximise the return on investment?
  Purchase price is only one aspect of the total cost of ownership (TCO) of secure access control equipment.
- How can the user experience be optimised using access equipment?
  Products must be simple to use, reliable, smooth, quiet and possibly connected.

For each of these aspects, even tentative answers and/or concrete examples will help you to make an informed choice, thus enabling you to make the case to your end-customers.

Introduction

Why should you invest in access control equipment for building entrances?
How do you select them ? Are all systems equally valid?

For example, which products do you choose from tripod turnstiles, security entrance lanes with swing or retractable glasses (or obstacles), full-height security turnstiles, revolving doors or security doors? Architects, security and facility managers, integrators, property developers and other professionals in the sector all ask questions like these, when it comes to securing and controlling access to a building for individuals (tenants, visitors, employees, the public, etc.).

Automatic Systems, a specialist and global player in access control automation, would like to offer you this white paper as a decision-making tool. As you read this guide, you will have the opportunity to ask yourself the right questions. This will help you to make a better choice of access control equipment for your buildings, as well as to fully justify your choices to your end-customers.

What are the challenges associated with access control equipment?

Whether it's a business, public service, cultural or sports infrastructure, residential building, shopping mall, healtcare center, school or a university campus – no matter what the type of building, securing and regulating people flow it is more important than ever before.

Pedestrian access control equipment is usually installed at the entrance to the building in question. Their main purpose is to increase the building's level of security, thus restricting or controlling access, especially if the building contains some sensitive activities. Moreover, this entrance control enhances the sense of security of the building's occupants. It can also boost the brand image and professionalism of the company or building.

Pedestrian access equipment also enables the flow of people entering or leaving a building to be controlled, as well as restricting access to only those who are authorised to enter certain areas. New office buildings are a clear example of this. Increasingly, large facilities accommodate different companies, each of which may occupy one or more floors, although they usually share a common entrance and reception area. Here, it is crucial to know and control who is entering and leaving the building and what access rights each person has. Furthermore, flexible working hours also pose new challenges in terms of access control.

Access control equipment also complements the guarded security of buildings, as provided by security firms. Numerous large buildings opt for a combination of these two forms of protection.

Six questions to ask yourself before choosing access equipment

There is a huge market for access control automation, with a wide range of products available. Each product meets different goals.

By asking yourself the right questions, you will be able to refine your requirements. You will then be able to set priorities based on the project's needs, while taking into account the priorities of your customers, so you can find the right balance and make the right choice.

1. How many people enter and exit the building during the peak hours?

The flow - or throughput -refers to the number of people passing through a place. This is important to know, so you can first establish what type of product to choose. Afterwards, you will be able to determine the type of equipment and the number of lanes required, in order to optimise the flow of people.

When establishing the number of entrance lanes required to secure an entrance, you will for example have to consider the building's architecture (number of entrance doors, size of the lobby, etc.) and work out how many people enter and leave the building, and how often they do so. You should also take into account peak hours, in order to avoid long queues and any resulting frustrations. In some big high-rise buildings, several thousand employees may access a single entrance in less than 30 minutes. Here, 'fast' and secure entrance lanes are a good solution. In a concert hall or stadium, tens of thousands of people are checked in no more than an hour before the event starts. If so, turnstiles or full-height turnstiles are usually used.

Emergency services also make recommendations on the dimensions of evacuation exits. As these recommendations affect the minimum number of secure entrance lanes and the doors clearance width, they must be taken into account.

The flow can also be impacted by the type of control. If you want to identify people who enter the building, you will need to choose from a variety of identification methods: badge, QR code, RFID, biometrics, etc. Some methods facilitate the throughput more than others.

If you choose more sophisticated equipment, fewer people will be able to pass through in any given time. By equipping an access point with a security booth, only five or six people will pass through in a minute. Conversely, if you opt for an open turnstile-type system, or a revolving door, more than 30 people per minute will be able to pass through the entrance.

2. What is your security goal?

It is crucial to determine the security goal for your entrances. Are you just looking for a deterrent to prevent unauthorised persons from entering? Do you want to protect yourself against fraud, if you have paid access (public swimming pool, cinema, etc.)? Do you want to block entry by means of a physical barrier? Each of these cases requires a different form of security. So the type of barrier chosen and the degree of detection of the equipment will be key factors.

Crowd control and entry restrictions are meant to act as a deterrent. This role may be best performed by tripod turnstiles, by fast entrance lanes with low windows, or by entrance doors for people with reduced mobility, for accompanied children, or for service or delivery trolleys.

Fraud detection involves creating a physical barrier. Here, security lanes are preferable, as found in metro systems. You should ideally choose them with high windows to avoid 'jump over' fraud. Another option is to select a full-height turnstile, as can be found in some stadiums.

A security booth with sliding doors is the best solution for preventing entry, as the booth acts an impassable physical barrier. Banks or data centres are often equipped with them.

Another question also arises:
do you want to identify the people entering? There are various options, from simple badges to facial recognition and other biometric technologies. The badge is an effective solution, but biometrics can save time and improve security.

Main types of acces gates' fraud

- Tailgating, sidegating, or piggybacking, refers to when a person tags along with another person who is authorized to gain entry into a restricted area.
    - Tailgating: passing through by closely following the person walking in front. For security revolving doors in particular, means following the authorized person by entering into the next rotating sector
    - Sidegating: walking side by side, sticking closely to the shaft and synchronising steps
    - Piggybacking: For security pedestrian gates, it is the same scenario as tailgating. For security revolving doors, means following the authorized person by entering into the same rotating sector
- Jump over: holding on to the equipment and leaping over the barrier
- Crawl under: crawling under the barrier, or the turnstile's arm
- Force open: trying to force the obstacles of an access gate by pressure or shock
- Wrong way: entering an access gate in the wrong direction when another person exits
- Leave objects, baggage or metal detection: concerns security revolving doors and security booths in particular

3. How do you protect users?

People's safety is very important. Regulations and standards vary from country to country, or at least from continent to continent. For example, American standards are stricter than standards in emerging markets. However, these standards are increasingly tending to converge towards the same minimum standards.

Furthermore it is the responsibility of the leading manufacturers to have a special consideration also to optionally apply for a greater safety level for some applications, for disable and even for children to reduce as much as possible risks, and also in educating users to properly use the equipment in such circumstances to minimize safety risks.

Evacuation in an emergency is also an essential part of safety. For example, if a fire alarm is triggered, entrance lanes or gates will automatically open, so that as many people as possible can be evacuated within a short time. Only the best manufacturers offer fail-safe equipment that does not depend on batteries or external power supplies in order to open the doors, and provide certified emergency exits equipment.

Most manufacturers offer certified products that meet all standards and legal requirements. However, it is important to be careful here, especially for low-cost products.

4. To what extent can access control equipment enhance the company's image?

The equipment must blend smoothly into the building's style. Design and style requirements are not the same for a sports hall as they are for the lobby of a multinational company. This also applies to pedestrian access control equipment. For high-rise office buildings, aesthetics sometimes outweigh price considerations.

The majority of market players offer customised products, and these can enhance a building's aesthetics. There are many different options for customisation, in terms of design and style: tinted windows, the colour of fittings and barriers, seamless and stylish integration of technologies, of readers or biometric detection systems, etc. Without a doubt, this can help to improve the image and reputation of the end-customer.

Visitors' perception of the reception area can be influenced by many things – such as the colour, materials and finishes of access control equipment. Does your customer want an attractive and welcoming reception area? Is security very important to them? If a building features a beautiful lobby, then security access should be as unobtrusive, stylish and welcoming as possible – especially if security guards are present at the entrance. So the architect must ensure that any security equipment will blend in with the surroundings. On the other hand, at the entrance to a Seveso-listed chemical company, one should give priority to a larger and more restrictive – and therefore more dissuasive – entrance. In that case, the aesthetics of the building are less important.

5. How do you optimise the user experience with access equipment?

Here, the user experience means the desired comfort for customers and end-users. To ensure that the experience is positive, equipment must be simple to use, reliable, smooth and quiet, with an intuitive as efficient signalization, sound and visual, colour and symbols.

The technological side of identification can also enhance users' positive experience. A badge reader or QR reader, a facial recognition camera, or a biometric reader that recognises the iris or the hand's microvascular system are not all perceived in the same way. Some end-users do not readily consent to biometric checks. For this reason, it is advisable to provide a badge system too, in order to take into account personal preferences.

To ensure a good user experience for the operator (usually a security guard or receptionist), it may be useful to ask yourself about equipment control. Should they be connected? Do the tools need to be handled remotely? Should the building manager receive an error message in the event of a malfunction, so that alerts can be managed more effectively? Most of the market's major players now offer connected systems with a control panel.

User experience is also key for people with reduced mobility. If they are to enjoy a positive user experience, at least one wheelchair-accessible entrance lane must be provided. Depending on the customer's wishes, a range of options and configurations can be foreseen – such as with or without detection, manual or motorised doors, etc.

6. What is the best way to maximise the return on investment?

If you want a quicker return on investment, you should choose reliable products that offer a long service life. The MCBF (Mean Cycles Between Failures) index indicates the average number of cycles (one cycle = one opening-closing cycle of the obstacle) before the equipment is likely to fail if not maintained according to recommended maintenance instructions. This index, which generally averages five million cycles, will help you to more accurately calculate your overall TCO (Total Cost of Ownership).

Bear in mind that the purchase price of a piece of equipment does not always tell the whole story. The total acquisition cost of secure access control equipment will be determined by the purchase price, plus the cost of preventive and corrective maintenance, as well as the equipment's power consumption, and its eventual end-of-life recycling cost. It is also important to have highly professional and expert provider knowledgeable of latest trends on standards and norms, especially on safety requirements, and connectivity, to avoid soon later to encounter into expensive retrofits to adapt to new coming standards. This, also relevant as a good partner to guarantee a long life and ROI, considers also the product life cycle and future foreseen trends.

Summary table

We show below some practical applications. They will give you a better overview of the importance of the different criteria, depending on the type of context and use.

Environment	**Importance of the criteria**						**Example of equipment**
	Flow	Security	Safety	Design	User experience	Return on investment	
Office building	+++	++	+++	+++	+++	+	Speed gates Revolving doors
Public institutions and services	++	+++	+++	++	++	++	Speed gates (high glass) Revolving doors
sports centre	++	++	+++	++	++	+++	Tripod turnstiles full-height turnstiles
cultural centre	+++	+	+++	++	++	++	Secure lanes with high windows
Leisure centre	+++	+	+++	+++	+++	++	Speed gates Revolving doors
Healthcare centre	++	+	+++	+++	+++	+	Speed gates Revolving doors
Data centre	+	+++	++	++	++	+	Security booth

Conclusion

As you can see now, the selection of access control equipment is not an easy choice. Working closely with the end-customer, you must analyse the flow, security goal, safety, the design, user experience, and the return on investment.

A specialist in access control automation can help you clarify the criteria that need to be considered.

That specialist is ideally placed to establish priorities, give you sound advice, and to make the case for choosing one solution over another. A specialist like this can then guide you in making a final and informed choice.

Automatic Systems SA

Avenue Mercator 5 - 1300 Wavre
BELGIUM
Tel.: +32(0)10 230 211
sales.asgroup@automatic-systems.com
www.automatic-systems.com