INTEGRATING A SECURITY REVOLVING DOOR

by Michael Stadler & Joe Desisto

IN TODAY’S POST 9/11 WORLD, SECURITY is at the forefront in the minds of security managers of office buildings. In addition to terrorism and espionage, exponential growth, downsizing, and the general complexities of an organization have evolved into a primary concern of security personnel. Now, more than ever, security integrated at building entrances is pivotal to the safety of the company's staff and intellectual property. Incorporating both the security of access control and automation into the building entrances presents a challenge, not only for new construction, but for retrofit applications as well.

Security Requirements

An automatic revolving door proved to be the most feasible solution to control access into the building. Among the energy efficiency benefits, when coupled with applicable security, a revolving door is most practical in verifying passage through the door and preventing unauthorized entry, as compared to a manual door that is non-secure until it relocks. For instance, it is common courtesy for employees to hold the door open for those entering behind them, thus allowing for lack of entry or exit control.

End-User Challenge

At the time of constructing a new division, a large corporation was looking to install security at their mail order facility’s revolving door entrance at the Ft. Lauderdale, Florida location. The new building would house over 1,000 employees, so the integrated security would need to be an effective and reliable solution that did not cause 'rush hour' bottlenecks at the portal. In addition to the security requirements, the company’s main objective is to integrate the system seamlessly, so as not to impose upon the appearance of the lobby entrance.

CASE STUDY
to the building. The intent was to verify the employee for entry or exit, while preventing tailgating, which is detecting unauthorized entry as a valid user exits and forcing the unauthorized user to exit the door.

**Architectural Requirements**

In addition to the performance of the security, architects and facility managers preferred not to cover their new, elegant flooring with mats, which can be exposed to premature erosion from harsh daily use. This may result in frequent, unnecessary, and costly replacements.

The current specifications for the revolving door would require the security solution to protect a 2-way, 4-wing revolving door with a 7-foot inside diameter. These specifications were imperative to the architectural integrity of the front façade of the building.

**Distributor Challenge**

Receiving a call from Security Management, Mark Bogdol, Technical Product Manager—Revolving Doors at Besam, analyzed the situation thoroughly. This was a new construction project, but the entrance had already been established, including the access control system. Distributors must be concerned with price points, delivery times, adaptability and applications, ease of installation, ease of service and troubleshooting, just to name a few. Above all of these concerns, safety and security take precedence.

**Security Requirements**

This particular installation came with its share of challenges, as the revolving door had already been specified in the blueprints. The security solution would need to detect according to the size and width of the door, as well as accommodate the type of traffic, which was 2-way, both secured with a card reader. The type of traffic is especially important when planning the layout of security and the system must be capable of working efficiently with a card reader access control system.

The customer desired a security system to detect both anti-tailgating and anti-piggybacking, all the while staying within a set budget. Factoring in the performance and financials at the same time, Bogdol had to take into consideration the type of the building, which was a medium-traffic office building. The level of security required for such an application would also determine the most effective, yet economical solution.

While security is the primary goal for the revolving door, safety, too, is also a key concern for a distributor. There is a constant need for discovering new ways to ensure maximum safety for all automatic doors, let alone revolving doors. All that pass through the door on a daily basis including children, senior citizens, and disabled persons, must be kept from harm’s way when entering and exiting a facility. To this purpose, the American National Standards Institute, Inc. (ANSI), has published the standard, A156.27, which addresses all automatically operated access controlled (security) revolving doors. All automatic revolving door applications require different safety measures, in which a door distributor must be aware of and consider when installing a door. In the particular scenario at this facility, a two-way security application was requested with valid identification on both entry and exit to the facility.

**Architectural Requirements**

Within the tangible security aspect, Bogdol must be concerned with the time and level of difficulty of the installation; would the entrance need
modified structurally, thus adding cost? How many technicians would be required for the job and for how long? Beyond the initial installation, what would be required from Besam in terms of future customer support? How often would the system require maintenance and replacement? How difficult is it to make adjustments to the system without disrupting daily operations of the customer? This solution must provide durability and reliability to maintain the trust of the customer and the efficiency of his own resources.

Finally, the system must be transparent to the aesthetics of the building entrance. The customer’s strong desire to maintain clean floors and an attractive lobby appearance was an ultimate objective. Thus, an all-inclusive end solution from the distributor would need to be one that fulfilled all of the security and architectural requirements from the customer, as well as the safety requirements prescribed by the ANSI standard, all within budget.

**Solution**

Taking into account all of the requirements for the mail order facility, and factoring safety into the equation, the final decision was to install a sensor security system for revolving doors, the BlackHawk system.

**Security Solution**

The sensor system monitors passage through the revolving door quadrants by providing a curtain of infrared detection to prevent any attempt at tailgating, or catching a ‘free ride’ into the building. The customer originally requested a security system to provide both anti-tailgating and anti-piggy-backing capabilities, however, with a budget constraint and considering the amount of security necessary for an office building, an anti-tailgating capability would provide protection to the company. The anti-tailgating system allows passage of employees and prevents entry by intruders. This system would be most effective in eliminating the possibility of entry by tailgating, as well as negating the opportunity for an intruder to gain entry by hanging on the door leaf.

The chosen sensor system operates efficiently with various access control methods such as keypads and biometric systems, and in this case, a card reader. Employees are given a coded card to swipe prior to entering the revolving door. Once the employee’s card has been verified by the access control system, the automatic revolving door activates to carry the employee through to the opposite side. As in this company’s scenario, the card reader is applied to both entry and exit of the building.

To address a major concern for Bogdol, the BlackHawk system complies with the ANSI 156.27 standards and would provide the safety needed for a two-way security revolving door.

**Architectural Solution**

The entire system is recessed into the canopy of the door, making the system transparent to patrons of the building. All wiring for the sensors is contained in the ceiling of the revolving door and based from a central hub that manages the entire sensor system. This protocol for wiring also minimizes installation time since the process does not require wiring up through the door.

As the system is recessed and consists entirely of electronics, it is not subject to the wear-and-tear of daily door operation. This reduces the need for frequent replacements and cumbersome maintenance, as all adjustments for the BlackHawk are executed by a remote control. In addition, the elegant flooring is displayed and provides an aesthetically pleasing entrance to the lobby.

Adaptability is another concern for the distributor when looking for solution that is modular enough to work with multiple applications. The security system at the mail order facility works with the 4-wing, 7-foot inside diameter door. The system is adaptable to multiple door types and sizes and is customized for various applications.

Prior to the installation of the door at the job site, the door ceiling has been prepped at the OEM for the insertion of the sensors and the stainless steel faceplate, so installation on the job site is minimal and non-disruptive to the normal flow of employee traffic. Future adjustments
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or maintenance of the sensor system would be conducted through a remote control or thumbscrews.

**Result**

The BlackHawk system is new to the security market and has not gone through a full product lifecycle. Field installations are currently being evaluated at primarily secure office and manufacturing buildings.

To ensure successful system integration of the BlackHawk, several factors should be considered prior to planning and installation:

- Familiarity about manufacturer and technical specifications of the door control
- Determine if the application will be for a new installation or a retrofit scenario. This will determine the type of installation labor that will be required
- The dimensions of the door; 6’, 7’, 8’ or other
- The intended use of traffic; one-way or two-way

Factors to consider when looking into a security system for a revolving door:

- Type of building to secure
- How many doors and where they are located
- Type of security required
- Door specifications
- Maintenance and support commitments for installation and future relationship.
- Budget requirements
- Ceiling and door finish
- Type of activation device (sensor, mats, push plates).

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