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In Through the Out Door

Do Your School's Door Systems Meet Expectations?

By Sean M. Artz)

You expect the doors in your building to function smoothly, but even when new they may not always perform the way you had hoped. Over time, things also may wear and get out of adjustment. Here are some ways you can minimize these problems.

What is a door system?

It takes more than just a door to protect an opening. The total combination of door, frame, and hardware that makes up a door system must be designed, specified and installed so it meets all the conditions under which the door will be used.

The frame is the basic structure on which the opening's functionality depends. Although frames are available in wood and aluminum, steel is specified for most school applications that require increased strength and durability.

Security and life safety considerations are other reasons for using steel. Steel frames provide a high degree of rigidity to resist heavy use or abuse, and their construction makes it easier to install the electric strikes, monitors, power transfers, and other electrified hardware that is required to meet today's life safety and security functions.

Doors can be made of wood, steel, aluminum, or composite materials. Some interior doors are hollow-core, but primarily solid-core wood doors are used in high traffic areas. Exterior doors generally are either hollow metal or aluminum.

A door system may have a lot more hardware than meets the eye. Doorknobs and lever trims are the most noticeable to the user, and lever trims are widely used since the advent of ADA guidelines. They also make it easier for a person with an armload of materials to open the door. Unfortunately, they can be more susceptible to damage if someone uses a foot, knee or other unintended body part to operate the lever. Manufacturers now offer breakaway levers that turn freely instead of breaking if excess force is used, yet they can be reset easily.

Hinges support the door in the frame and allow it to open and close if they are properly installed and aligned. Standard and heavy-duty hinges are available in a wide variety of sizes, styles and finishes. Other choices may include full-length "piano" hinges, especially where doors are subject to heavy use or abuse, and pivots, for heavier or oversize doors.

If the door doesn't close properly, latching will be inconsistent, and security will be compromised, no matter how extensive and expensive the locks, latches, exit devices, card readers and other security systems are. Seen in this light, the door closer really is the heart of the opening. Power operators are the choice for openings that must provide ADA mandated accessibility for those with disabilities. They provide assistance with opening as well as closing.

Exit devices provide a safe way out in an emergency while protecting the building's security and are required for exits in schools and other facilities by building codes. Many choices are available, including push pad and lever designs, electrified devices and recessed models.

In addition to a standard mechanical key lock, an access control system that controls the opening may incorporate an electric strike, electrically-released latch or other mechanism can be activated by a magnetic or proximity card reader, PIN keypad or biometric reader.

Structuring for successful operation

Planning for component compatibility is one way to ensure successful operation. Blindly following low-bid dictates often results in a mélange of different hardware that may not always be compatible, especially as systems are expanded and coordinated throughout a facility or even an organization's multiple locations. Specifying hardware and system components from a manufacturer that offers a broad line of choices helps minimize these conflicts and promotes smoother operation. In addition, this makes it easier to obtain technical advice and service support from a single source.

Multiple requirements are often in conflict, and it is advisable to work with a professional consultant who is familiar with ways to resolve them. The desire to lock a building to protect building may conflict with the need to provide easy emergency egress security for life safety. The requirement to meet ADA accessibility guidelines may conflict with the need for a strong door closer because of wind conditions or air pressure differentials.

Many problems arise because of improper installation and incorrect adjustment. Gone are the days when the maintenance staff could simply tinker with the locks or closers to keep them working, as systems have become more complex and require special training. Outsourcing to a qualified service organization can lift this concern and enable management to focus more strongly on its core objectives.

Outside factors such as vandalism and misuse may be out of your control to a large degree, but their impact can be minimized by selecting compatible door system components that withstand a higher degree of abuse when necessary. Monitoring by such means as CCTV, electronic audit trails, and door position monitors can help reduce incidents and identify offenders.

Problem areas

Several areas may require special attention to ensure that problems remain minimal. ADA guidelines are one prime concern when it comes to door accessibility. Most buildings include at least one power operator in a bank of doors, usually operated by a wall or bollard-mounted pushbutton.

Other options, especially where after-hours access is required, include using a card reader or biometric device to grant access and activate the operator. Not all doors need be so equipped, nor would it be cost effective. However, the power-operated doors provide other benefits as well, including greater convenience for occupants or visitors with armloads of materials or with young children in strollers.

Security can be compromised in many ways. Sometimes needs are simply overlooked in the planning process so, for example, a locked door that is more convenient than the main entrance

may simply be blocked open with a wedge or brick if it is not properly monitored or alarmed. An electronic access control can be provided for authorized individuals.

Ineffective credential or key control can be a more serious problem. Unauthorized individuals can have duplicate keys made, and even authorized keys can be shared, as can cards and PIN numbers. Patented restricted keyways eliminate this problem, since blank keys are only available from the manufacturer. Electronic credentials make it easier to add or drop people than with key systems, and they can provide audit trails that pinpoint accountability, even if a credential is shared. Biometric readers can be used for critical areas where it is necessary to ensure that an individual, rather than his or her credential, went through a door.

Mechanical problems are one of the most common causes of security breaches. Closers that are improperly adjusted won't allow the door to close and latch. Latches themselves can be misadjusted or faulty. Poorly aligned doors are another problem, especially if the door or frame were abused or not sufficiently robust for the application.

Doors are constantly in use, opening, closing, even slamming. It's easy to fall into the routine of having general maintenance personnel try to keep up with the demands of their adjustment and repair, but often they lack the training necessary to fine-tune the operation of all system components. Outsourcing this function or working closely with an organization that can provide both up-front consulting when building or remodeling and ongoing maintenance assistance may prove to be the smartest approach.

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