

Understanding the issues that affect the physical security of an opening is certainly essential in the role of the Facility Manager. At the same time, it is critical that the Facility Manager be an efficient steward of the monies allotted for building maintenance costs, regardless of public or private status.

### Exploring Physical Security Issues

Physical security of an access point, whether an interior or exterior door, is specifically degraded when control of the access credentials for the opening is lost. Simply put, if you can't accurately assess the groups of individuals that have access to open the locks on an opening, you have no control. As advances in hardware continue to enlist more and more digital capabilities, this ability to track users through electronic credentials becomes more and more robust. That said, with the higher costs of electronically controlled openings, traditional mechanical key and cylinders remain the work horse in managing access at an opening. There are several methods to track and maintain the records of who has what access at these openings. Those methods range from the sophistication of Key System Management Database software to the simplistic hand written card based systems. Even the most sophisticated tracking methods are undermined when the ability to duplicate keys freely exists. Open keyway key systems do little to control users of the system from duplicating the access credential (the key) that they have been issued. Most would say that this is done purely as a matter of convenience, allowing them the ability to have multiple copies to have their own emergency backup key. While seemingly innocent, the extra key that is not known to those charged with key control creates a false sense of control. Further, without having a proven method of controlling this duplication, even those provided a key in a temporary status can subvert the facilities efforts for key control by having the key loaned to them and duplicated locally with ease.

Another issue of physical security in an opening is the actual operation of the opening. Often, it's found that the proper closing and latching of a door is inhibited by conditions that have little to nothing to do with the hardware installed on the door. If a door doesn't swing freely, there is no amount of hardware that will overcome the interference. It's important to keep the bigger picture of what it takes to make a door free of obstruction. How the hinge design, door and frame gaps, threshold clearance and weather-stripping interact may change over time. High cycle counts, exposure to high winds and direct sunlight each can also influence the freedom of movement necessary for a door to perform as expected. While adjustments to hardware to counteract or overcome obstacles do exist, identification and avoidance remains the surest path to proper function.

Further in exploring common concerns surrounding maintenance issues affecting an opening is the closing and latching speed of the door closer. Often the door closer is used to compensate for issues that should be addressed through maintenance of the opening as a whole and not through increasing the speed with which the door closes or adjusting the spring rate of the closer to increase the power of the closer. Overcoming a slight door rub with closer latching speed provides a rapid solution to a small problem. However, not addressing the root cause and allowing the door rub to continue and to grow in intensity will require even more future adjustment to overcome the interference and greater wear on the hardware, reducing itself life expectancy. Another typical issue found in openings that the door closer is used to overcome is the existence of hinge bind. A door can be adjusted in the opening to account for slight alignment issues. If these adjustments are made incorrectly or too aggressively, the result could be hinge bind. The effect of this is that the door will not swing freely to the jamb stop of the frame. It will come to a position of almost closing and the hinges will bind upon themselves and the door will exhibit a springing effect. Increasing the latching speed or the spring weight of the closer can overcome hinge bind

but it comes at the cost of stressing the other hardware components of an opening, specifically the latching device (lock or exit device), the hinges and the closer itself. Eventually, the hinge bind and the stressed hardware components will provide inconsistent results in providing 100% assurance of proper closing and latching 100% of the time.

### Exploring Maintenance Difficulties

With larger facilities having multiple campuses and buildings each of varied construction generations, the selection of hardware for an opening has likely changed as new products are introduced, new suppliers enter the market or architectural preferences change. The end result of this scenario is inconsistency in the manufacturer of similar products used to secure and control the opening. Following that inconsistency is a diversification of the maintenance methods for the hardware necessary to keep the doors swinging and latching properly to maintain the security properties of the opening. As you would expect, these diverse maintenance methods require more training time due to the specifics of each manufacturer's products. In addition to the training demands are increased maintenance parts inventories that must be kept in stock to affect repairs in a timely fashion. Increased inventories drive an increase in investment as well as increase in the space and time required to maintain the inventory.

A similar problem to the variation created with using multiple manufacturers of door hardware is the inconsistent hardware arrangements used for an opening. As an example, consider two similar openings designed by two different design firms using different hardware specifications. While it may seem fairly innocuous, the net result is that the two hardware specifications usually do not arrive at the same applied hardware solution to achieve a desired functionality in an opening. These inconsistent applications of hardware drive similar consequences as the use of different manufacturers - increased inventories and training requirements.

### Addressing the Physical Security Issues

The ability to know who has access to an opening quickly could be the difference in preventing or risking loss of properties. A Facility Manager should be able to understand within minutes of a reported loss of credentials what the organization's exposure is to potential loss. Similarly, upon notification of a loss, that same person should be able to provide an accurate list of individuals that had access to that area. As stated earlier, one of the most effective ways to provide this level of detail in time critical instances is through the use of dedicated key system tracking with Key System Management Database software. In the market today there are several providers of this technology. While the "bells and whistles" are different from one version or brand to another, the underlying basis of these databases work to provide the elements that are critical for managing a key system and credentials for a facility, campus or enterprise. Selection of a key management system should be based on need, ease of use and abilities for importing data versus data entry. It is important to bear in mind that the reports generated by the system can only be as good as the data entry efforts allow it. It is a significant investment to ensure that the records are kept up to date and to sell that effort short would be inaccurate. That said, the return on that investment can be seen in things like, longevity of key system between rekeying/replacing, decreased response time in addressing security breaches, accurate records of individuals with access to specific areas and more robust capabilities to ensure that the correct credentials are issued and returned.

No matter how diligent you are in tracking your key system, all of those efforts can be undermined if a system does not utilize a key blank that is protected from duplication through some level of patent

protection. Patented keys allow a manufacturer to control the supply chain for a key blank and possibly offer characteristics on a key that can guarantee some level of geographic exclusion areas for that design. Without an ability to control the supply chain, a key blank can be made readily available to the marketplace and offer opportunities for a key holder to make a duplicate without the knowledge of the Facility Manager charged with protecting the organization's assets. By controlling the supply chain for how cut keys and key blanks reach the marketplace, the manufacturer and the facility can work closely in assuring that the key blanks are only provided when authorized by the Facility Manager, providing peace of mind that keys end up in the right hands and tenants cannot take duplication in their own hands.. While these blank types can be an added cost over an uncontrolled blank, the return on the investment is seen with the tightened key control efforts similar to the key system tracking software – system longevity, absolute key distribution management and control.

As with most things, treating the symptoms rather than the disease usually results in continued attention to the symptoms while gaining little progress on treating what lies beneath. This is no different than the exterior doors to a facility faced with high traffic counts, opportunity for abuse and exposure to manic swings in weather. Doors that do not lock or latch reliably pose a real threat to the ability to control access to a facility. The reliability of that locking and latching is what needs to be addressed. Through casual observation over the years, we have come to notice that the most common treatment for the symptoms of unreliable operation of an exterior door is to make adjustments to the door closer closing speeds and spring rates. A typical exterior door hardware set can consist of the following: hinges, lock/latch device, door closer and weather-stripping. A good first step in finding the root cause is to remove the door closer influence by disconnecting the arm. From there, it's now easier to observe the free and easy swing of the door. Check things like door clearances – top, bottom and sides. Looking for telltale signs of interference like scratches on the frames, door, floor or thresholds will indicate the existence of interference. Finding evidence of that interference could be an indication of door sag, hinge failure, rod malfunction, building shift or floor heaving under the threshold. All of which have their own remedy.

Progress from there to detailing how the weather-stripping interacts as the door comes to a close. Does it bind or pinch between the door and frame or does it prevent the latch from engaging without effort? Is it the right type for the hardware and door function? Does it comply with the building code? Weather-stripping and gasketing at the opening have a significant impact on the operation of a door and the installed hardware if it is not installed or adjusted properly. Moreover, the weather-stripping can also present problems if it is damaged and starts impeding door operation. It really doesn't take much influence from the weather-stripping to prevent an exterior door from working properly.

Finally, we can review how the door control is operating. Is the arm adjusted correctly? Do we understand how the closer should be adjusted to close the door? Are their imbalances in the buildings HVAC system causing positive pressures and affecting the closing cycle? Door closer adjustments tend to be used to compensate for many of the issues covered previously. The actual intent of door closers is to protect the door, provide a controlled swing of the door and ensure that the door returns to a secure status. Every manufacturer of door closers will publish the adjustment instructions for their specific devices. Those instructions come with recommended swing rates for the door closer. Following the manufacture specific guidelines will help with assuring that the doors will operate consistently and reliably through their serviceable life.

Addressing Maintenance Challenges

Throughout our daily lives, we are continually asked to do more with less. The challenge is to be as productive with budgets this year as we were with them last year despite either a reduction or hold in budget amounts and possible increased costs in labor rates or maintenance parts. What can be done in that effort? There are several tactics that can be employed to aid in increasing the productivity with a maintenance group. And we will explore a few of them here.

Model specifications for new construction and renovation projects with consistent manufactures enable a maintenance force to be proficient in one manufactures products and reduces the likelihood of requiring outside assistance in maintaining a facility. Added benefits of this approach include manufacture assisted training efforts on understanding, installation and maintenance of the installed equipment. Narrowing the focus of the maintenance group also has an impact on the inventory stocking levels of commonly used repair parts and replacement units. Centering on one manufacture and design options reduces the necessary breadth of parts and replacement units held in anticipation of maintenance.

Utilizing model specifications to reduce the burden of maintenance are enhanced when coupled with a standardized definition of door function for the opening type. For example, the hardware set for a classroom door or patient door should be consistent. Not just in a wing of a building, but throughout the campus. If we can maintain the same set of hardware across these similar functional requirement doors, we are increasing the effectiveness and productivity of our maintenance group. Having familiarity of the associated hardware items on a door and how they should function better equip the maintenance person to be able to troubleshoot, identify and repair deficiencies more rapidly.

Another management technique that can be employed to increase the maintenance productivity is to ensure that the products used are of the type that has replacement parts readily available. Serviceability of a product should have a place in the decision of what hardware manufacture to use. A robust selection of repair parts available and a supply chain with those parts in inventory will help with returning an opening back to service quickly and with less cost than a full replacement of the item creating an issue. Even as door hardware improves in cycle counts and endurance, this still maintains its level of importance in the effective use of a maintenance budget and the productivity of the maintenance staff.

One aspect of maintenance effectiveness that cannot be overlooked is training. Training can take many forms and come from many sources. Be sure to explore any avenue presented for how to improve the effectiveness of the maintenance group. Manufacturers typically can provide training at low to no cost on their products. These training events can be great opportunities to meet with manufacture representatives and get valuable insight on product design, installation and maintenance information. Similarly, there are several associations that cater to the building maintenance, door hardware or locksmith professional industries that provide training on many aspects of the doors and hardware found in a typical commercial or institutional setting. The importance of continuing education cannot be understated in the benefit to both the employee and the institution.

## Closing

The intent of the presentation was to allow the participant to walk away with a few actionable items that could be employed to aid in reducing the overall cost of ownership and at the same time increase the amount of security these openings provide. Providing a safe secure work place, learning or rehabilitation environment is the goal. Implementing any one of these ideas is a great step toward that goal.



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