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### SALES AND GENERAL MANAGEMENT

# The MECHANICS Access Con

At the heart of almost every building security system are the mechanical components that lay the foundation for an effective access control system. Before installation can commence, systems integrators must first analyze the access requirements of an organization, while setting goals and objectives to define a security model.

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#### AT A GLANCE

- When considering access control, it is important not to focus on high-tech products, but think basic requirements and price
- A determination of the customer's needs is the first step to providing a mechanical access control solution
- A site survey is necessary to identify areas of potential vulnerabilities and installation requirements
- Basic design principles of a quality key system include establishing hierarchical relationships and determining which keys will open which locking cores

The term *access control* often brings to mind images of electronic security systems that feature highly advanced technology, such as biometrics devices, smart cards and integration with video.

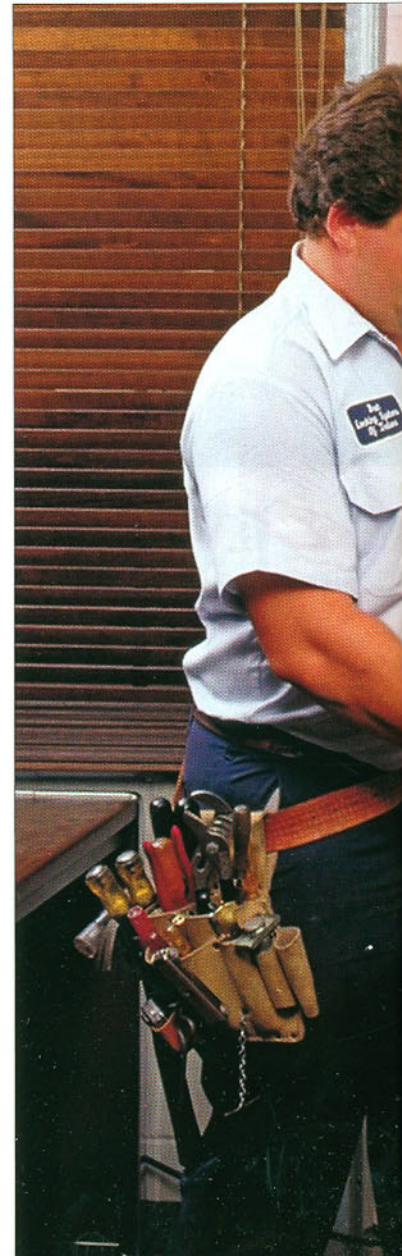
The problem with this association: 1) people often do not realize these high-tech products would not be effective unless integrated into a much larger access control system; 2) because they are extremely expensive, such products could suck up an entire security budget.

Although less sexy than high-tech security gadgetry, a mechanical access control solution more often than not will create a practical foundation for a total security solution. For security systems integrators, it is important to gather all the information as a means to have the total security picture in mind, and not just a "whiz bang" product solution. In designing and implementing an effective mechanical access control system, there are three distinct steps in realizing excellent results, and each of these steps is integral to the next.

These steps include setting goals and objectives, defining what the security model looks like, and implementing the system.

#### Communicating Goals, Objectives Are Necessary to Educate Client

The first step in successfully building a mechanical access control system is



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analyzing the customer's needs. It is important to first figure out exactly what is to be accomplished with the system in order to set realistic and effective goals and objectives for the system. For integrators, there is the issue of helping their customers understand that security is a balancing act between control and convenience as they assess where their organization lands in relation to the value of what is being protected. Rarely will an organization fall totally at one end or the other of the control/convenience spectrum.

That said, in setting goals and objectives, it is important to assess the budget as well. The budget sets the concrete parameters of what can realistically be accomplished with a security system. When considering the budget, a mechanical access system is often an ideal initial option. Not only is it less expensive but also it provides a security foundation that can be built upon over time as needs change and more money becomes available. The development of a strategic plan for the building of the system is an important factor to keep in mind, as it provides a long-term solution that will not depreciate in value or need to be completely replaced.

Finally, it is crucial for the integrator to continuously communicate with the customer. Not only is this important in assessing the customer's needs, but also provides the integrator the opportunity to justify why a mechanical access control system is in their best interest. Ironically, integrators often tell "what" they can and cannot do during the planning phase, failing to tell them "why" they should or should not do something. Ultimately, the communication process puts both the integrator and customer on the same page and

bolsters a strong partnership throughout the security system design and implementation process.

## **Define the Components of What a Security Model Should Look Like**

Every security model consists of three components — products, people and policies. How and to what degree these all relate depends largely on the goals and objectives determined in Step 1 above. All three, however, need to be "integrated" into the design of the system. Without taking the end users into account, the policies are meaningless. Without policies and procedures directing the end users, the product solutions will likely be compromised. Without the right product solutions, it is impossible to meet the security goals and objectives for the system.

Once each of the previously mentioned components (and the interrelated roles they play) are understood, focus can be shifted to the functional requirements of the system and an actual solution can begin to be designed. The functional requirements of the mechanical access control system can be broken down into four distinct categories: protection, control, detection and intervention. At this point, it is prudent to assess how much security is truly needed. This assessment pertains to the overall system as well as to specific areas of the system that may require additional layers of security, depending on the value of what is being secured.

## **Careful Site Survey Is Needed Before Implementing the System**

To implement a mechanical access control solution, it is important to conduct a thorough site survey. The purpose is to identify areas of potential



**Masterkeying is an important component of a mechanical access control solution that determines which keys will open locking cores or cylinders. Within each lock core are stacks of pin segments. When the correct key is inserted into the locking core or cylinder, the pin segments create a shearline, allowing the key and core to rotate.**

threat, areas of vulnerability and determine installation requirements.

It is critical to survey each and every opening and to be aware of potential concerns or possible hitches. These may include any door opening issues such as frames or hinges breaking down, malfunctioning door closers, plus what fire codes, life-safety requirements and ADA applications need to be addressed. Also, there are myriad smaller items that need to be determined at this stage, including the handing of doors, backset of the lock, proper cam on the back of a mortise cylinder, and the door and frame material.

The site inspection will provide the information to design a sound keying system. Being the foundation of a mechanical access control system, a well thought-out keying system is critical. Not only will it support the rest of the security system, but it will also help create that balance between control and convenience. Furthermore, it will provide an inexpensive way to maintain security in some areas as well as allow for cost-effective ways to regain security if and when an area is compromised.

A sound keying system is one that is not only secure, but also usable. When designing a quality keying system, there are a few basic design principles that need to be addressed. The following are some useful suggestions regarding the general design of a keying system:

- Keep the design as simple as possible; the more complex the keying system, the more likely it can be compromised
- Although often difficult to achieve, design the system around the function of the building, not the organization
- Project where, when and how people will be moving throughout the building. It is always important to limit access to those who require it
- No system should be considered static; plan for any future expansion that may be needed

### Take an Orderly Approach to Masterkeying Facilities, Buildings

The early design of a keying system can be approached in a very systematic manner. Keeping some of the masterkeying basics in mind (*see sidebar*), begin to establish the hierarchy of keys. Generally, most manufacturers begin with some sort of grandmaster level. Sometimes this is referred to as a “great grandmaster” or “great-great grandmaster.” In basic terms, this is the highest level of operating key that can open virtually every door.

Next, determine how the facility or the organization’s buildings are to be grouped. A university, for example, can be grouped by buildings. At a hospital or high-rise office, the building can be grouped by departments or floors. This initial grouping helps in establishing

the next level of control, called the “master level” keys. Further subdivision of the initial master level results in what is called the “submaster level.” For example, a residence complex on a university campus could be divided by building, divided by floor and then each individual room.

Once all the levels of control that are required have been created, the size of each level of control is determined. As stated earlier, it is important to keep in mind the system size when structuring the levels of control because the entire mechanical access system is finite. An advantage of a masterkeyed system is the ability to design special levels of access or restriction into the system, such as selectively allowing a building maintenance key or janitor key. Because each facility is unique and has a variety of security requirements, it is best to approach each project using the outlined steps.

When thinking of access control, it is important not to focus on the high-tech, but think basic requirements and price. Many times, the basics will translate into a mechanical access control solution that will be the foundation for a well-balanced access control system with long-term functionality. ■

*Larry Pryor is a 20-year veteran of the security industry, having held sales and training positions at Best Access Systems previous to Stanley Security Solutions.*

## Keys to Successful Masterkeying

In order to create an effective keying system, it is helpful to understand some of the basics.

And so, masterkeying ...

... is a simple mathematical process that manufacturers use to show the number of different key combinations that are available within a plan. These key combinations are also called codes and there are a finite number of codes available in any key system.

... is the process by which you determine which keys will open which locking cores or cylinders. Within each lock core, there are stacks of pin segments. When the correct key is inserted into the locking core or cylinder, the pin segments create a shearline, allowing the key and core to rotate. A simple mathematical process is used to translate the codes into pin segments.

... establishes the hierarchical relationships in a keying system. If a customer wants a high-level key in the system, such as a “grandmaster,” to open every door, this relationship needs to be established at the beginning of the masterkey process.

Suffice it to say, through the masterkeying process a lot of flexibility and customization can be created in the keying system, which adds to the value of a mechanical access control system.