ELECTRONIC ENTRY CONTROL:

WHAT YOU NEED TO KNOW

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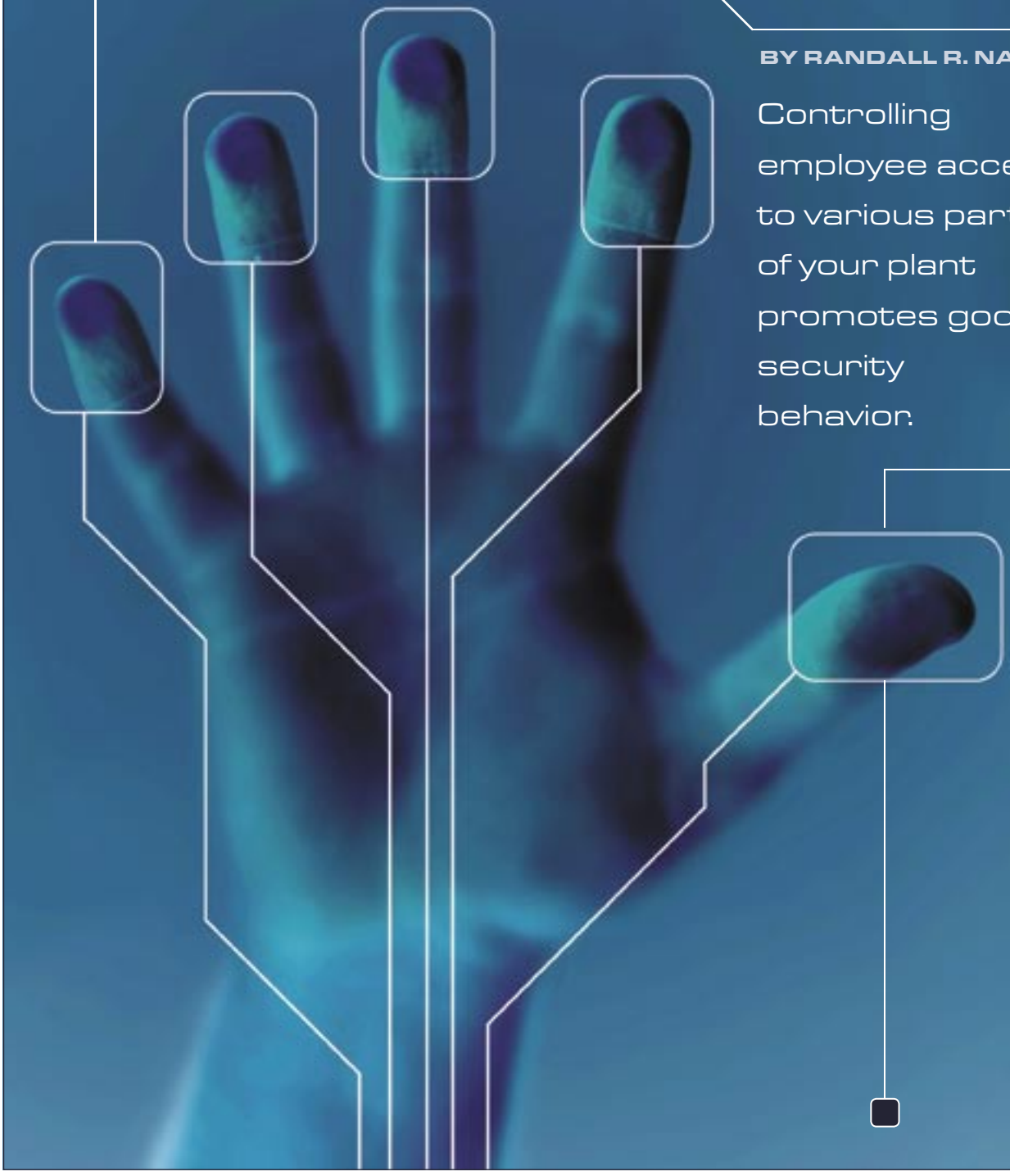
Controlling employee access to various parts of your plant promotes good security behavior.



As the need for an elevated security posture impacts the food industry, cost-effective and reliable control of your facility perimeter becomes an essential first step. In order to confidently apply and manage an electronic entry control system (EECS) it is important to understand the basic building blocks of these systems. The first step, covered in this article, deals with electronically controlled personnel doors.

The primary purpose of an EECS is to enforce good security behavior among the plant population. This is done by enforcing access restrictions. For example, certain groups of individuals should be allowed access into the plant laboratory; conversely, the rest of the population based on their specific job functions, do not need access to the laboratory. Properly applied and managed, an EECS can enforce this functional segregation.

An EECS controlled door has five major components.

1. ***Identification Device:*** The single EECS device that requires interaction with the user is the identification device located at the controlled door. The most common form of identification device in an EECS is the card reader. In a typical configuration, the employee walks up to the door, presents his EECS card to the reader, and is then granted or denied access through the door depending on his or her access authorization levels. Other types of identification devices include personal identification number (PIN) keypads, and for high security applications, biometric devices.

2. ***Electric Locking Device:*** Every controlled door must have some sort of electronic device that holds and, at the proper time, releases the door upon direction of the EECS software. These locking devices take several forms. The most common is the electric strike, which is mounted on the latch side of the doorframe. The electric strike catches and holds the door bolt until commanded to release by the EECS software. Other variations include the common electromagnetic lock. These devices are normally mounted at the top of the door near the latch side. They consist of an electromagnetic lock mounted to the doorframe which mates up with a steel plate mounted to the door. Depending on the application, electromagnetic locks are available with holding strengths ranging from 1,800 to well over 2,500 pounds. The final option in this category is the electric bolt. This device replaces the bolt portion of the manual lock set. When the door is to be secured, the bolt is projected from the door into a receiver in the jamb. When the door is to be released, a solenoid withdraws the bolt. Use of the electric bolt device requires a power transfer hinge and provision for passage of the necessary wiring through the door to the electric bolt.

3. ***Door Contact:*** Every EECS controlled door should have a door contact that monitors the position of the door. A door contact consists of a two-part magnetic switch. The magnet is embedded or affixed to the latch side of the door; the second part of the switch, consisting of a magnetically sensitive read switch, is affixed or embedded on the latch side of the doorjamb so that it lines up with the magnet portion. When the door is closed, the magnet pulls the read switch into the secure position. When the door is open and the magnet is pulled away from the read switch, the switch changes position and signals to the EECS software that the door has been opened. Magnetic switches are also very useful in monitoring the position of doors that are not normally used. Any movement of the latch side of the door of more than approximately ½-inch will cause an alarm notifying the monitoring staff that the door has been opened.

4. ***Request-to-Exit Device:*** It is common for EECS systems to be configured to allow free egress through a controlled door. In order to conveniently accomplish this, a device must be provided to unlock the electronic locking device when an individual needs to exit. As before, there are several options available. The most common is the use of a request-to-exit (REX) passive infrared (PIR) motion sensor. These devices, nearly identical to the devices that control automatic doors at retail shopping establishments, are mounted above the door and sense the motion of an approaching individual. Once the presence of an individual is detected, the REX PIR performs two functions:
   - The electronic locking device is released allowing the controlled door to swing freely for the exiting individual.
   - The signal coming from the door contact is shunted so that an alarm is not registered in association with the movement of the controlled door.

   As before, there are other devices available that perform the request-to-exit function. In certain jurisdictions, it is common to install a request-to-exit button near the controlled door. Pushing the button accomplishes exactly the same thing as described for the REX PIR; the electronic locking device is released and the alarm associated with door movement is shunted.

5. ***Distributed Processing Panel:*** All of the devices described above are wired to a local distributed processing panel, commonly referred to as a local panel. The local panel is primarily a small computer, which manages the access control database and the various inputs from the identification, request-to-exit, and door contact devices. It also controls the electric strike. Local panels are often centrally located in equipment closets or dedicated electronic equipment closets.

One of the key activities prior to design of the EECS system is to identify those areas within the plant that require controlled access to limit the individuals in that area to only those with an identified job need. The specific areas to be controlled are dependent on the specific plant type and configuration. The plant laboratory was mentioned above. Other examples include plant offices, motor control centers, mixing rooms, sensitive ingredient storage areas, and possibly the production area in general. Proper equipment selection, implementation, and management will result in a cost-effective means to control and monitor personnel and in some cases, vehicular traffic throughout a plant site. **AIB**

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