

# Emergency Evacuation for Correctional Facilities

White Paper

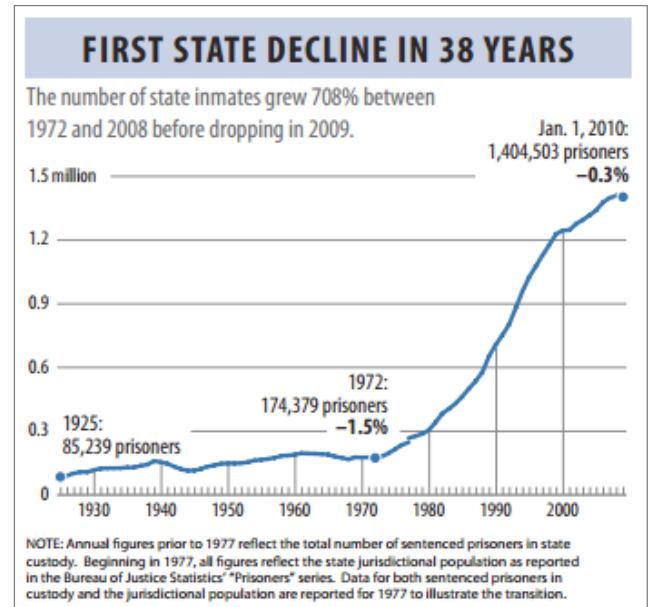
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Locking Down on Evacuation Safety

# Emergency Evacuations

“An electrical fire starts in an area of the jail without sprinklers and that staff cannot reach quickly. Some of the materials burning are plastic, and the heating/ventilation/air conditioning (HVAC) system spreads a thick, heavy, toxic black smoke throughout the jail. The on-duty weekend staff does not know how to shut off the HVAC system. A crowded visiting hall is one of the first areas filling with smoke.... The crowd has panicked and people are reported down.”<sup>1</sup>

This is one of several potential evacuation scenarios the U.S. Department of Justice laid out in its 2009 publication entitled “A Guide to Preparing for and Responding to Jail Emergencies.” Jail and detention center emergencies are a concern in the U.S. because there are a growing number of these facilities, and they are crowded. In fact, the U.S. has the highest incarceration rate in the world, with over two million prisoners.<sup>2</sup> And while state correctional facilities have experienced a slight decline in the number of inmates over the last two years, it took 38 years for this to happen. At the end of 2010, nineteen states were still operating above their highest capacity.<sup>3</sup>



*Prison Count 2010: State Population Declines for the First Time in 38 Years (www.pewcenteronthestates.org).*

According to the DOJ Guide, there is a deep-rooted belief among correctional personnel (and maybe the general public) that riots and hostage situations are the only jail emergencies which really matter. But the reality is jails are often evacuated for more routine reasons – a small fire, noxious gas<sup>4</sup>, a bomb threat<sup>5</sup>, even a broken pipe.<sup>6</sup> The recent tornado activity in the Midwest and Southern U.S. reminds us that natural disasters can cause a facility evacuation, too. And like the fire scenario described above, often small incidents can lead to a greater problem, and could result in a serious loss of life. The public responsibility weighing on city and county officials and the potential risk of life during an emergency situation is too great to treat even a minor evacuation incident lightly. So correctional administrators are compelled to practice preparedness and stand ready to evacuate occupants safely when the need arises.

## Visitors and Contractors



*A string of tornados hit North Carolina, including one destroying a Lowe's store in Sanford, North Carolina.*

### JUST PASSING THROUGH

Of particular concern to correctional institutions is its frequent passer-throughs (i.e. visitors, contractors, volunteers). These individuals are sojourners in a strange land of gates and guards. They have to be protected, watched over and not allowed to wander.

In the case of an emergency, everyone needs to be accurately accounted for. There is always a certain amount of confusion and chaos in an emergency, especially with visitors. Like the situation described above, where toxic smoke fills a crowded hallway, visitors tend to panic. The human mind, under extreme stress, reverts to "fight or flight," which, in an evacuation scenario, usually just equates to "flight." That flight could involve a panicked run down a hallway with little visibility. It could involve getting lost in a maze of unfamiliar hallways and doors. Injuries are to be expected, even the potential for fatalities in some situations.

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How great the injuries and fatalities during an evacuation may depend largely on the occupancy information and the swiftness that information can be provided to first responders. Those first on the scene of an emergency arrive to a mixture of confusion and urgency. Their highest priority is treating those in immediate medical need, finding out who remains in the building and where they were last seen. They may have only minutes to reach imperiled individuals, so every second counts.

## Visitors and Contractors Continued



*Tracking systems can range from human-based systems to automated solutions.*

### TRACKING SYSTEMS

Most facilities rely on a human-based system for keeping track of visitors. They maintain a list of everyone entering the facility. That means in an evacuation, without an automated tracking method in place, personnel are largely guided by their own memory and observation of who arrived at a given muster point and who remains unaccounted for. Even if someone remembered to grab the sign-in sheet, the situation most likely won't allow for an orderly and accurate roll count, especially if there are multiple muster points a visitor might report to. And checking off a list or scanning ID badges can eat up valuable time.

Keeping track of facility contractors may be even more difficult. Contractors may carry credentials with them (like in the case of medical personnel who treat prisoners), so that they often come and go unnoticed. All this could severely hinder first responders' ability to reach imperiled individuals quickly because they don't have enough information to be effective. Responders may end up searching empty rooms for a facility contractor who has already exited the building or are futilely combing a vacant hallway where a visitor was last observed by a passer by. This confusion could mean others are overlooked in a moment that could determine if lives are lost or saved in an emergency evacuation situation.

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# Enter Radio Frequency Identification (RFID)

Forward-looking correctional facilities are solving the visitor evacuation problem by combining time-proven evacuation procedures with technology. Radio Frequency Identification (RFID) is not new to an evacuation scenario. A number of businesses, from oil refineries to office buildings, have successfully implemented RFID tracking systems to account for employees and visitors in an emergency and ensure their safe exit.<sup>7,8</sup>

## HOW RFID WORKS

Here's how it typically works. Each visitor is equipped with a transponder or RFID tag. That tag sends a signal to one of several RFID readers stationed throughout the building, allowing facility personnel to instantly detect the number and proximate location of RFID badge-wearing occupants. Depending on the RFID hardware chosen, it is possible to actually track specific locations that can be used by emergency personnel to locate a person's exact position within the facility. When an emergency arises, administrator personnel refer to a listing and/or graphical map, which pinpoints the proximate location of badge wearers, and potentially down to the specific room they are trapped in. This vital information allows first responders to arrive quickly at the location of imperiled individuals. Having accurate, real-time data on a visitor's location saves valuable time and greatly reduces the risk of casualties.

RFID not only automates the tracking process, but ensures that the data is accessible. Unlike a manual list or printout, which can easily be misplaced or destroyed in an emergency, RFID visitor data is often stored in an off-site server or data center, ensuring that first responders can readily have access to the information.



*RFID tag and reader helps pinpoint individuals within the building.*

## PASSIVE VERSUS ACTIVE RFID

But not all RFID is created equal. One major divergence in this technology is the difference between passive and active RFID. Active RFID tags are equipped with their own power source, a battery, which transmits a signal at regular intervals. Whereas passive RFID tags depend upon an interrogator (reader) as its energy source. A passive tag must be within proximity of a reader's radio frequency (RF) field to transfer sufficient power to the tag for readability. Because active tags have their own power source, they have a higher read range. Active RFID tags can be detected by a reader at up to 300 feet, where passive tags are limited to 40 feet or less.

## Enter RFID Continued

For tracking occupants during evacuation, active RFID is the preferred technology for several reasons. First, there is often a challenge reading passive tags close to the human body; the body's water content can absorb a reader's energy and interfere with a signal being transmitted. That can lead to an inability to read the passive tag, and in the case of an emergency that inaccuracy can cost lives. The proximity to water (i.e., the human body) also makes automation of the process difficult with passive RFID. The read distance may be limited to a couple of inches or less, necessitating some intervention from staff to make sure each person was scanned.

Lastly, a passive RFID solution may cost significantly more. The passive RFID tags cost about one-tenth the price of an active RFID tag, but the cost in readers (which can run over \$1,200 each) can really add up. For example, to get 1,000-ft. coverage for a given area, you may need to have up to forty RFID readers for a passive UHF (Ultra High Frequency) system. For an active RFID system, you would only need about three. Accuracy and affordability make active RFID the preferred solution for evacuation.



*Consider the advantages of active versus passive RFID solutions.*

## Improved Access Control

### An Added Measure of Security

The RFID solutions mentioned above can be combined with other technologies to lend an added measure of security for correctional institutions. Some solutions, like TransitionWorks Software's Facility Evacuation, offer integrated access verification by combining RFID tracking with biometric fingerprint identification. This allows correctional facilities to verify the identity of approved visitors, contractors, and employees and can optionally be integrated the third party ID Card issuance and/or access control systems. When a visitor or contractor arrives, he or she would report to the watch commander's desk. If they were a previous visitor, their name would be searched for within the system and identity verified by placing his or her finger(s) on the biometric reader. If a new visitor, they could register and provide pertinent information: Name, physical attributes (sex, race, eye and hair color, tattoos, etc.), visitor category (vendor, contractor, medical staff, volunteer, etc.), access permissions (with escort, medical area only, full access, etc.) and photograph. The visitor's fingerprint(s) would be captured to provide positive identification. Authorized visitors and personnel would be assigned an active RFID badge to wear while in the facility.



## Improved Access Control Continued



*Effective tracking solutions can be extended beyond just tracking people to tracking equipment, materials, and other items*

This kind of tracking can be extended beyond people to things. Equipment, keys, or other materials contractors “check-out” to perform their duties can be assigned and accounted for at all times. Losing one or more of these items could present a grave security concern to facility administrators.

Because correctional facilities are public institutions, they are held to a higher standard when it comes to proper and safe evacuation practices. In the case of a mishap or unexpected loss of life, these facilities can be subject to severe public scrutiny and even legal action. Combining RFID tracking technology with time-proven evacuation procedures is a way to ensure visitor safety and added security.

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### About TransitionWorks

TransitionWorks is a leading provider of data collection solutions. The TransitionWorks Facility Evacuation Solution gives institutions, like jails and detention centers, the ability to automatically track personnel, visitors, contractors, and volunteers. In an emergency scenario, facilities can quickly provide first responders with accurate data on the location of individuals in the building, minimizing the risk of severe injury or loss of life. The TransitionWorks solution also provides an added measure of security for correctional facilities, lending a higher standard of control over occupants and equipment. [www.TransitionWorksSoftware.com](http://www.TransitionWorksSoftware.com).

## Works Cited

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