

Shelter from the Storm

ACUTA Members Try to Decipher Varying Rules for Areas of Refuge

By Curt Harler

Technology to help telecom professionals meet the emerging new flock of regulations for Areas of Refuge (AOR) is coming to the market. The question for ACUTA members is what is required in their locale. States such as California are among the leaders in requiring telecommunications AORs. But the rules are scattered and inconsistent.

Perhaps more easily understood by its other names—Area of Rescue or Areas of Rescue Assistance, as the Americans with Disabilities Act (ADA) calls them—the AOR is basically a location in a building designed to hold occupants during an emergency, when evacuation may not be safe or possible. Occupants can wait there safely until rescued by firefighters or other emergency personnel. An AOR requires an identifiable emergency lifeline link to a central station.

According to the Alarm Detection Systems Inc. website, "The Americans with Disabilities Act requires that an Area of Refuge (also known as an Area of Rescue) system be included in all newly constructed multi-story buildings and public accommodations, as well as in existing multi-story facilities undergoing significant renovations."

Since elevators are often unsafe in evacuation situations, an Area of Refuge serves as a designated meeting point—a safer area on the other side of a firewall within a building where disabled persons, or anyone unable to evacuate, can gather and await assistance or rescue. These areas are generally prescribed by various local and state codes and are usually enforced by the fire marshal. (Source: www.adsalarm.com/compliance/RefugeArea.aspx)

AORs are generally defined in the International Building Code (IBC), the International Fire Code (IFC), NFPA 101 provisions of the National Electrical Code (NEC), and ADA.

The simple part taken care of, both telecom administrators and vendors find themselves trying to untangle a web of requirements. At the moment, there seems to be no single source of information or regulation.

"There's not much out there on the subject," states Rocco Petrunti, I&M manager in the IT Services Department at Stanford University. He has done a lot of digging into the subject.

"It seems the states pretty much leave it up to local authorities to enforce the code," Petrunti adds. That means what works in the Bay area might not work in Los Angeles. Syracuse's AOR rules differ from Buffalo's.

"We're trying to get copies of the codes ourselves," says Peter Rampf, general manager at Webb Electronics, Inc., Vancouver, British Columbia. While Webb has supplied hands-free, push-of-button elevator call systems for a decade, Rampf is utterly perplexed about where AOR is going.

Likewise, Rampf has been unable to determine whether AOR requirements will be dictated by federal or state regulation (or both). "As far as we can tell there is no cohesion," he says.

"Part of the trouble ACUTA members will have tackling this issue is that there are actual construction requirements for AORs," says Kyle R. Hamilton, vice president of marketing at Kings III Emergency Communications, Coppell, Texas. In his experience, AORs are usually enforced at a municipal level by the fire marshal.

"There are modest requirements in ADA, IBC, IFC, and NFPA 101, so those are good sources," he continues.

While those bodies have certain requirements, the local AHJ (authority having jurisdiction) often has more specific rules and the final say. "So, fire resistance, size of rooms, distance between AORs, smokeproofing, and separate ventilation come into play along with items an AHJ or even an individual inspector wants," Hamilton says.

With the professionals searching for answers, it is no wonder it is confusing to a college.

"We believe that AORs are emerging codes or standards," Hamilton says. He agrees that no dominant code-writing body has defined the complete AOR system or process.

Fire marshals began looking for ways to prevent recurrence of the tragedy that occurred at the Cook County (Chicago) Office Building during a fire in 2003. In that fire, the building was "grandfathered" from sprinkler requirements. Several people were overcome by smoke while trapped in a stairwell. That pointed out problems that needed to be addressed: There was a lack of clearly designated areas for occupants to retreat to when smoke and fire blocked their escape. Stairwell doors locked behind people trying to escape, which prevented them from exiting the stairwell and trying another exit route. And it was impossible to alert fire rescue personnel that people were trapped in a stairwell in need of rescue.

"Had there been appropriate AORs with communication systems, the deaths might have been avoided," Hamilton says.

Getting Started

Rampf says that Webb Electronics', and the industry's, original understanding of the goal for AORs was to develop systems like those in use in elevators today. These are simple units that allow a person with a medical emergency to connect with someone in a central emergency center simply and quickly.

Most companies that supply emergency equipment (including Webb and Kings III) designed systems to allow a person to punch a button and summon help. There is no need to dial any phone number or even to use any specific part of one's body to push the button. A head-butt works as effectively as a finger-push or a foot-kick.

As California goes, so typically goes much of the rest of the nation, so the data Petrunti unearthed may be helpful to any school.

The California Building Code, Section 1007.6.3 "Two-way communication" defines the need for communications in an AOR: "Areas of refuge shall be provided with a two-way communication system between the area of refuge and a central control point. If the central control point is not constantly attended, the area of refuge shall also have controlled access to a public telephone system. Location of the central control point shall be approved by the fire department. The two-way communication system shall include both audible and visible signals."

Petrunti found the building code to be fairly explicit, "but the local authorities seem to have jurisdiction," he says.

Code Spelled Out

In several cases, there are separate requirements for indoor spaces (i.e., stairwells) and outdoor areas (pool areas, athletic fields). California's building code requires some sort of visible communication method under Section 1007.6:

"A button ... in the area of refuge shall activate both a light in the area of refuge indicating that rescue has been requested and a light at the central control point indicating that rescue is being requested," the code specifies. It continues: "A button at the central control point shall activate both a light at the central control point and a light in the area of refuge indicating that the request has been received."

In areas of refuge that have a two-way emergency communications system, instructions on the use of the area under emergency conditions shall be posted adjoining the communications system, according to California code.

Rampf says that two-way communications typically means that the box is linked to a location staffed by authorized personnel. That site can be on-site or off-site. "Anywhere an appropriate response can be taken," he says.

A system will have a call-first number. However, if it is not answered or if it is answered by a non-human system or fax, it must hang up and redial a second location. "The important issue is that whoever receives the call must be able to respond appropriately," Rampf says.

AOR guidelines for buildings generally fall under "accessible means of egress." "I am not aware of rules applying to outdoor areas, but there may be local or municipal rules addressing this," Hamilton says.

Codes generally require that AOR devices be located on the accessible means of egress and adjacent to an exit. Common locations for AOR devices would be next to an elevator or in exit stairwells. Some municipalities require AOR devices on every floor above or below the main egress level. Others require them on every fourth or fifth floor above or below the main exit level. Check the local code.

From a technology standpoint, there are a couple of simple ways to ensure against interruptions in power and communications in an AOR. One is a self-charging battery backup for a phone system that requires electrical power beyond telephone line current. Another is the use of fire-rated cabling.

"One could use alternative means to call for help, such as cellular or two-way radio technologies rather than building phone systems. These are reasonable steps that are not specifically defined under IBC, IFB, or ADA but may be defined in local codes," Hamilton says.

Building the RFP

Any ACUTA member's shopping list for AOR equipment should include such features as self-diagnostics (alerts when "out of action"), ability to call in and out, and compliance with ADA standards. Also important, especially for equipment that may be used in turbulent times, is good sound quality and sufficient volume.

Rampf sees the future in redundant systems and battery backup. "Alarm panels often use wired and wireless, but, to my knowledge, this is not mandated for emergency communications yet," he says.

AOR communications typically connect in the main network via the telephone network. "Network-based systems are growing in popularity, especially VoIP," Rampf says. This is probably of greater interest to ACUTA members. And it is another ball of twine to untangle.

There appears to be no requirement that these communication systems connect to a main campus network or that they be answered by campus law enforcement or the local 911 center. In fact, Hamilton notes that the 2009 IBC Section 1007.8 specifies that the communications from the AOR be connected to a communication device at the fire control or main egress point in the building in which the AOR is located.

"The assumption is that the emergency responders could answer a call for help from an AOR or call all of the AORs to see which ones were being used. Then they could send rescuers to those locations rather than having to check them all physically, which would delay rescue," Hamilton says. Further, fire control rooms and main entrances are areas familiar to emergency responders. "We feel like our system with connection to our call center for call recording and dispatch notification is the best overall solution, but codes generally don't go into such detail," Hamilton adds.

"I do not think the communications systems should routinely go to 911 or campus police directly," Hamilton says. "Resources are a big deal right now, and 911 centers have to dispatch local emergency resources that may not be available to respond to false or possibly false calls; so having a monitoring center that can dispatch other assistance to the scene is an advantage."

Using campus police dispatch may sound faster on the surface, but police dispatch has resource issues, too. Hamilton adds that while he would defer liability discussions to attorneys and insurance companies, "Obviously, there are risks associated with noncompliance with codes."

Some colleges self-insure. "One has to wonder how much it would really cost a campus to build up their emergency call center and dispatch processes to do as good a job as an outside entity can do," Hamilton says. Kings III monitors and maintains emergency telephones. Cost for this service typically runs around \$30 per month per phone. "Compare that to staffing and training a dispatch center to handle the calls from 50 AORs," Hamilton says.

Of course, liability and insurance issues are best addressed by insurers and attorneys. However, Hamilton points out, failing to meet local code requirements and attempting to provide an AOR solution where no code requires them may both have liability implications. The latter, he says, may depend on the nature of protections afforded under a particular state's Good Samaritan laws.

Wherever it resides, the question of what group should control the communications is a thorny one.

"If by 'control' you mean what department should be responsible for purchasing a system and overseeing its installation and maintenance, I would say that the department with the experience relating to purchasing electronic security or telecommunications is appropriate," Hamilton says.

On the other hand, if "control" means who should answer the call from an AOR, that may be one of the few places where there is a set answer. "In IBC at least, the phones in AORs have to ring to an area by the main entrance or fire control inside the building in which the AOR is located, unless local AHJs prescribe a different location," Hamilton says. This would be nearly impossible in a campus setting, says Mike Grunder, consultant with Vantage Technology Consulting Group.

In buildings not staffed around the clock, the calls must either transfer automatically to a location that is answered 24x7 or be primarily programmed to ring there. "In those cases, an emergency call center is appropriate as is 911 or campus police, etc.," Hamilton says, adding, "Any are fine as long as they are continuously available and the AHJ does not object."

Where It's Going

Given his company's position, Hamilton says a call center dedicated to answering and dispatching two-way voice emergency calls with (1) CPR-trained operators and advanced emergency medical dispatch certified supervisors and shift leaders, (2) automatic location identification capabilities, and (3) instant access to other emergency contacts for notification, dispatch, and response to the specific location is best.

However, such detail is not specified by the code-writers like ADA, IBC, IFC and NFPA 101. "Suffice it to say that each group will think they are the best equipped to 'control' AORs, but when it comes to needing money for additional training of dispatch personnel and maintenance of systems, suddenly it will be better for some other department to handle and pay for it," Hamilton says.

While he sees the value of regulations headed toward making access to emergency services more available and more reliable, Rampf says, "There are issues. This is a moving target, getting more onerous day-by-day."

Hamilton agrees. "Until the code-writing groups harmonize with each other on AORs, it will be difficult to say with certainty in every case, 'This is what you do' regarding AORs," he says. "And bottom line, if nobody's enforcing it, nobody's going to do it."

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