

What Building Owners Need To Know About Office Public Safety Communication Infrastructure



When disaster strikes, communication becomes an essential tool during the response and recovery process. From first responders to anxious family members, staying informed can mitigate risk and help save lives. Public safety infrastructure makes the flow of information possible. As building safety standards change to emphasize in-building communications, office owners need to understand their responsibility for supporting public safety infrastructure.

Being able to make phone calls from inside the office is more than a matter of convenience. In an emergency situation, receiving alerts and instructions quickly can make the difference between life and death. While public address systems and sirens can still inform office tenants of dangerous situations, building owners have started to tap into a PA system with greater reach: the cellphone.

According to the National Emergency Number Association, approximately 240 million calls are made to 911 in the U.S. each year. In many areas, 70% or more of these calls come from wireless devices. Cellphones have become a go-to for reporting and responding to emergencies, from 911 to checking in as safe on Facebook. Smartphone users experience a taste of Wireless Emergency Alerts during severe weather, presidential announcements, Amber Alerts and other national emergencies.

Eighty percent of phone calls come from indoors, according to AT&T, but construction materials and the height of nearby buildings can block cell tower reception. While carriers have worked to improve reception, they are not responsible for in-building connectivity. Increased phone use during an emergency situation can also affect service.

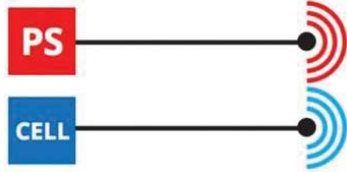
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Owners who improve in-building communications infrastructure could benefit from reduced insurance premiums.

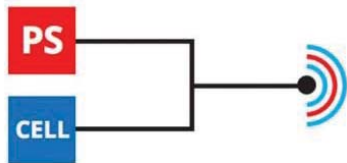
First responders also are affected by poor indoor signal strength. Police and fire departments communicate over their own radio networks and dedicated frequencies to avoid interference. However, radio communication can be compromised by building materials and design. In stairwells, fire control rooms and lobbies, areas of importance during emergencies, first responders need to communicate effectively.



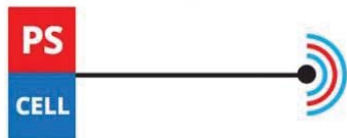
SEPARATE OR PARALLEL DAS



"HYBRID" SEPARATED DAS



CONVERGED DAS



Courtesy of SOLiD | Three approaches for enabling both commercial cellular and public safety coverage indoors

As with cellular usage, data streaming will further strain communication channels. While tools like body cameras allow for real-time interaction with external team members, live streams require a reliable connection.

Regulating the minimum level of communication available for first responders has begun to come under the control of local planning departments and building codes.

Responsibility for managing these networks also has started to shift from first responders to building owners, falling under the same scrutiny as fire alarms and sprinklers.

The National Fire Protection Agency and the International Fire Code have started to focus on in-building communication system requirements, which can vary across geographic locations and communities depending on local authorities.

Building owners need to be involved in the process and understand the changing codes.

The Safer Buildings Coalition launched in 2012 to educate all stakeholders on how to improve public safety infrastructure. The nonprofit focuses on advancing policies, ideas and technologies that ensure comprehensive in-building communications capabilities. With over 5.6 million office buildings in the U.S. and a dual need for tenants to be able to dial 911 and first responders to communicate indoors, many commercial buildings require an infrastructure upgrade.

Because cellular repeaters use the same technology and supply ecosystem as in-building public safety communication boosters, building owners can improve cellular connection and public safety networks at the same time. Distributed antenna systems can be designed to share common infrastructure like cable lines and antennas.

SOLiD suggests three different ways to set up a Distributed Antenna System, or DAS.

Separate or parallel DAS layers can have discrete infrastructure including cable feeds and antennas for cellular and public safety while hybrid or separated DAS layers use separate cable infrastructure but combine services on the same antenna.

A third option, converged DAS, places commercial cellular and public-safety frequencies on the same DAS infrastructure. Converged DAS is the least common option and can cause interference.

While building owners are more responsible than ever for ensuring adequate public safety infrastructure in their properties, organizations like the SBC mobilize owners into taking steps to work with experts to determine the best approach for their properties.

"Our best chance to accomplish our collective goals will come when all stakeholders are involved and invested in the process," Safer Buildings Coalition Executive Director Alan Perdue said.