



Life Safety Compliance in Modern Senior Living

- **Client:** Premier Senior Living Community
- **Location:** Michigan
- **Services Provided:** Emergency Responder Communication Enhancement System (ERCES)

Disclaimer: This image is a fictionalized architectural visualization created for this case study. Any resemblance to actual names, logos, or physical locations is purely coincidental.

The Challenge

During the construction of a new multi-story residential care facility in Michigan, testing revealed that emergency radio signals could not penetrate the building envelope. Modern construction materials often create unintended barriers for public safety frequencies. At this site, masonry, metal siding, and low-E glass blocked critical signals from reaching the interior.

Initial testing revealed that while some areas had adequate signal volume, high levels of interference and structural barriers led to widespread failure. Multiple 'dead spots' were identified where signal strength dropped as low as -97 dBm, and other zones failed to meet clarity standards even at -85 dBm.

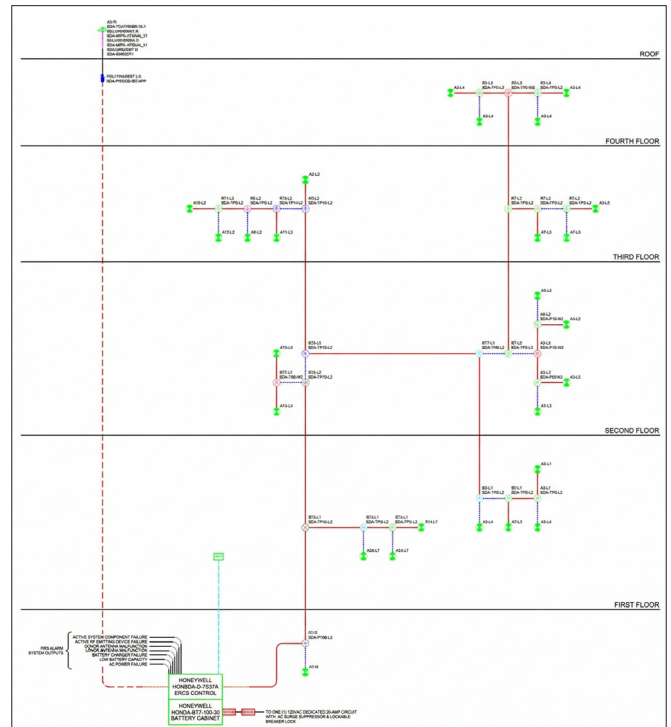
The Solution

Midwest Alarm Services partnered with the developer to design and install a code-compliant Emergency Responder Communication Enhancement System (ERCES).

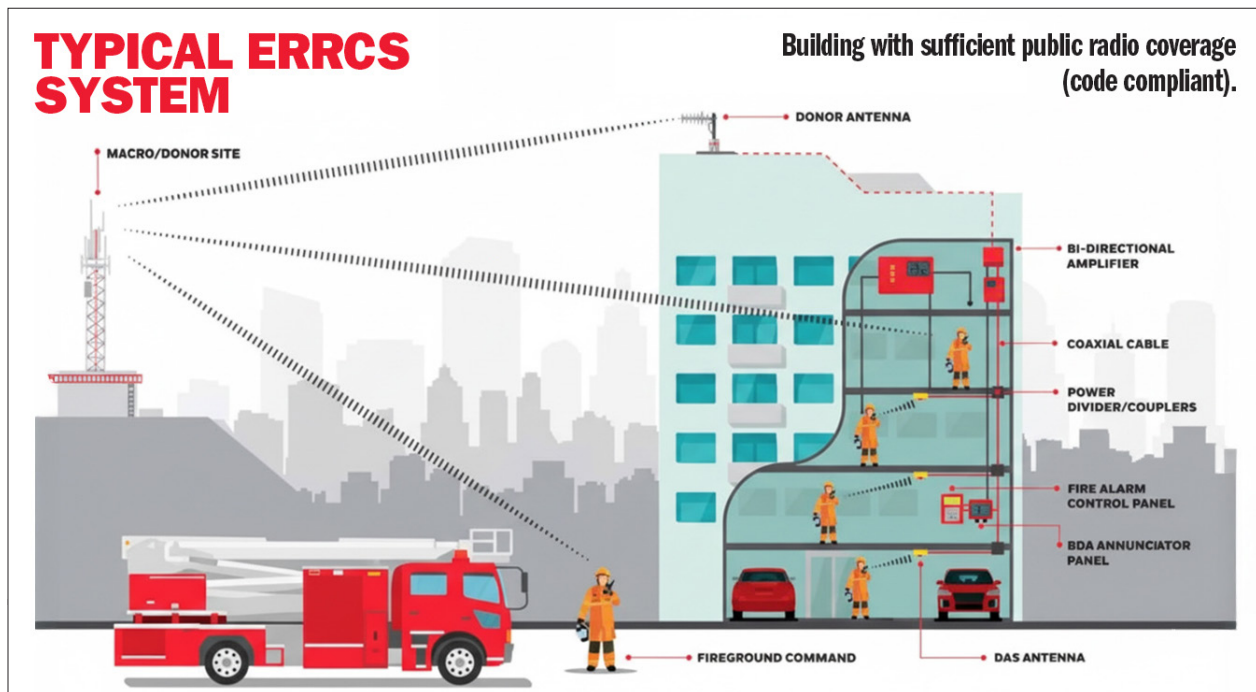
The process began with a technical engineering survey using the PCTEL SeeHawk solution. This provided the data needed for a precise system design by measuring the Received Signal Strength Indicator (RSSI) and Signal to Noise Ratio (SINR).

The final system utilized Bi-Directional Amplifiers (BDA) and a Distributed Antenna System (DAS). Our team installed an external antenna on the roof to capture public safety signals. These signals were amplified and distributed through a DAS network mapped specifically to cover the identified dead spots.

System Design: Distributed Antenna System (DAS) Layout



Technical diagram showing the distribution network across the facility levels.



Pre-Enhancement Test: Signal Failures Identified

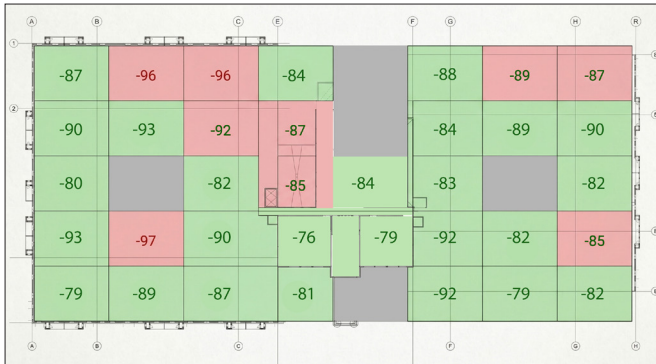
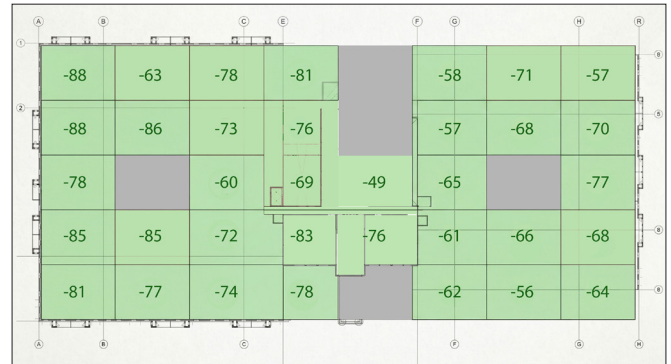


Diagram illustrating various zones failing to meet the -95 dBm threshold.

Post-Enhancement Test: 100% Signal Coverage Achieved



Final verification showing all facility zones in the "green" passing range.

The installation eliminated communication failures by boosting signal strength to compliant levels throughout the entire building.

- **Code Compliance:** Post-enhancement testing confirmed all dead spots were resolved.
- **Verified Performance:** Signal readings improved to a passing range, with many zones reaching between -49 dBm and -88 dBm.
- **Official Approval:** Local Fire and Building Department officials conducted final tests and confirmed excellent two-way transmissions in all areas.
- **Liability Reduction:** The system ensures first responders maintain uninterrupted contact, protecting residents and the property.

From Critical Dead Zones to Life-Saving Reliability

The contrast between these two tests represents more than technical compliance. It represents the safety of occupants and the effectiveness of first responders. By eliminating these communication "dead spots," we ensure that when seconds count, your facility's infrastructure supports clear, uninterrupted coordination.

Need a compliance solution for your facility?

Contact Midwest Alarm Services today for a comprehensive RF survey.

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