



ORANGE BEACH FIRE RESCUE

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RE: High-Rise Emergency Voice/Alarm Communication (EVAC) Systems — INFORMATIONAL

A typical high-rise building fire alarm design requirement is to provide occupant notification through an emergency voice/alarm communication (EVAC) system. EVAC systems allow for more intelligible messaging to be distributed to building occupants by relating the type of emergency with instructions on how to properly egress.

In high-rise buildings, a minimum area of notification must include the alarming floor and the floors above and below it. For example, if a fire occurs on the 5th floor of a high-rise building with 20 floors, the voice evacuation message may sound alarm messages to occupants on the 4th, 5th, and 6th floors that a fire has been reported in the building and direct the occupants to the nearest exit. Occupants on the Floors 1 through 3 and 7 through 20 may not be notified on their floors because they are not at immediate risk. This sequence allows occupants closest to the fire to evacuate safely, with minimal occupants using egress systems thereby reducing egress times.

International Fire Code (2021 Edition):

907.5.2.2. Emergency voice/alarm communication systems.

Emergency voice/alarm communication systems required by this code shall be designed and installed in accordance with NFPA 72...In high-rise buildings, the system shall operate on at least the alarming floor, the floor above and the floor below.

Is high-rise building evacuation different from other buildings (NFPA 2020)?

The multiple floors of a high-rise building create the cumulative effect of mass amounts of people egressing great vertical distances on stairs in order to evacuate the building. The evacuation of the World Trade Center high-rise office towers were successfully traversed by tens of thousands of building occupants over some five million person-flights of stairs. The physical demands made on occupants often exceed the capabilities of many. In addition, the process of evacuating some of the largest high-rise buildings in the world may take upwards of two hours.

The fire and life safety systems installed in high-rise buildings today, including automatic fire sprinkler protection, are designed to control a fire and therefore lessen the need to evacuate all occupants. In a typical scenario, the occupants of the fire floor and the floors immediately above and below it should immediately use the exit stairs to descend to a floor level that is at least several floors below the fire floor, and await further instruction from safety officials.