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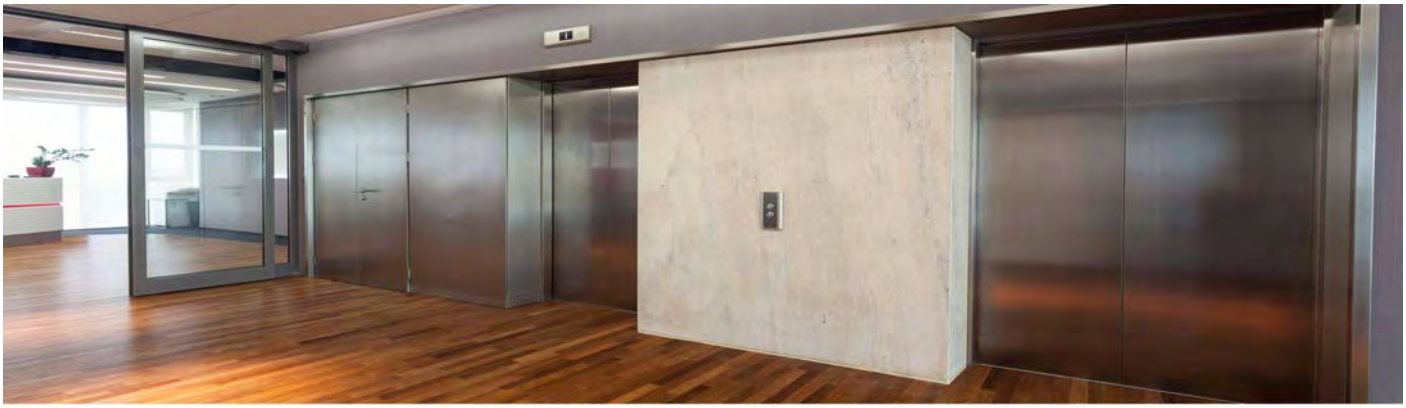

How Occupant Evacuation Operation Works

In the last edition of The Insider, we discussed the overall benefits of Occupant Evacuation Operation (OEO) protocols for elevators including a brief update on where this development stands in the United States. In this issue, we will dig a little deeper into what it means for passengers, developers and facility managers alike.

The mission of elevator OEO protocols is to evacuate occupants safely and efficiently by using elevators to transport people out of harm's way. And the way OEO works is characteristically simple. Imagine being on the 78th floor of a high-rise building when you hear the fire alarm go off. Instead of taking 78 flights of stairs to exit, OEO enables you to simply walk to the lobby of your floor, catch the designated elevator to the discharge level and from there make an efficient exit, freeing up the elevator for other occupants.

But there's much more going on behind the scenes to make this seamless experience possible. The same high-powered algorithms that enable destination dispatching in elevators are put to work in OEO as well. They instantaneously calculate the most efficient evacuation pattern possible for the evacuation zone or the entire building and kicking into action.

When a Fire Alarm Initiating Device (FAID) is activated in an area that doesn't initiate Fire Recall for a group of elevators, a signal is sent to the elevator group indicating what floors should be evacuated. The evacuation zone consists of the floor with the active fire alarm, as well as the two floors directly above and below. Priority is given to the floor(s) with an active alarm. If more than one floor has an active alarm, the zone is expanded to include all the floors in between those with the active alarm. That is, two floors above the highest floor with an active alarm and two floors below the lowest floor with an active alarm. All landing calls for floors outside the evacuation zone are cancelled, unless a total building evacuation is initiated. In that case, the cars are available at all floors, with the floors furthest from the discharge level given higher priority.

During a fire emergency, the OEO elevator cars automatically travel to a floor within the evacuation zone and park with the doors closed. The cars are then dispatched to service calls from evacuation zone floors based on priority assignments. Once the cars are occupied by passengers, they travel down toward the discharge level with the ability to stop at other floors in the evacuation zone.

In an emergency, effective communication between the building systems, the elevator system, occupants and emergency response personnel are crucial to a safe evacuation. The same elevator notification systems displaying messages or advertisements during normal operation are put to use in OEO to communicate with

building occupants. Elevators available during OEO will use the signage to display messages such as: “Elevators & stairs available for evacuation. Next car in 2 minutes.” This messaging helps to keep passengers calm and informed regarding the fastest evacuation route.

On evacuation floors where elevators are out of service and unable to be used, signage will display messages such as: “Elevators are unavailable for evacuation. Use stairs for evacuation.” Floors not in an immediate evacuation zone will be taken out of the system so that elevators dedicated to the evacuation are fully used.

In-car notifications will also be used to provide information for building occupants. In-car notifications include voice messages and visual signals. A voice message and visual signal is also used when the maximum elevator weight is exceeded. The car will remain stopped until the weight is reduced to a level within the car’s capacity.

Because OEO is a new code concept, education around its methods, goals and benefits is of utmost importance. Continued collaboration and coordination will need to take place between architects, engineers, elevator providers and installers, as well as fire alarm system providers and installers when designing projects for OEO. This collaboration is particularly critical throughout the design, installation and commissioning phases to ensure the best possible implementation of the protocols.

Educating business personnel and building occupants is equally as important. Just as with regular fire and evacuation training, owners, building managers and occupants should receive detailed educational materials and demonstrations to learn about OEO safety.

Have a comment or question for the experts? Want to submit a topic for a future issue of the newsletter? Send us your thoughts at theinsider@neii.org to keep the conversation going!

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