



Is high-rise building evacuation different from other buildings?

The multiple floors of a high-rise building create the cumulative effect of requiring great numbers of persons to travel great vertical distances on stairs in order to evacuate the building. In the evacuation of the World Trade Center high-rise office towers following the terrorist bombing in 1993, the tens of thousands of building occupants successfully and safely traversed 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.

What are the key elements of emergency preparedness?

Early warning (typically through an alarm or voice communication system), adequate means of egress (exit routes) and occupant familiarity with the plan through knowledge and practice.

Are building owners or operators required to hold regular emergency drills for occupants?

Although not mandated for all buildings, NFPA 101®, *Life Safety Code*®, requires that workplaces, healthcare facilities, educational institutions and other occupancies provide evacuation/relocation plan information and routinely schedule and hold drills when practicable.

How are emergency instructions tailored to the actual emergency event and communicated to the building occupants?

High-rise building fire alarm systems are required to have emergency voice communication capability. Trained emergency personnel assess the emergency and can then broadcast a variety of specific messages to the occupants. The occupants believed to be in the greatest potential danger are instructed to use the exit stairs to begin their descent. Occupants of other floors might be instructed to stay where they are and await further instruction. In these cases, only occupants on the fire floor and the floors immediately above and below typically receive the message. Should the scale of the emergency increase, the an-

nouncements can be expanded to include additional floors, or if need be, the entire building.

If stair travel is potentially dangerous, are there alternatives?

The construction, fire protection and life safety systems installed in high-rise buildings, including automatic sprinkler protection, are designed to control a fire so as to lessen the need to evacuate all occupants to the street level. The occupants of the fire floor and floors immediately above and below it should immediately use the exit stairs to descend to a floor level that is at least a few floors below the fire floor. The occupants can then reenter the occupied space on those safe floors to await further instructions.

If exiting down stairs takes so long, am I better off going up to the roof and waiting to be rescued there?

No. Many of us have seen dramatic video of helicopters picking up occupants from the roof of a burning building. This is an extraordinarily dangerous procedure for the occupants, the pilots and firefighters who may be in the building. First, a helicopter may not come to rescue you, thus ascending to the roof instead of descending to grade may have wasted valuable time. This is not a standard procedure in the U.S., or in most foreign countries. In severe fires, the large thermal currents, generated by the heat from the fire, can cause the helicopter to be buffeted up or down, making it hard to control. The resulting down thrust from the helicopter rotor can force smoke and super heated air on top of fire suppression personnel. Most building designs incorporate numerous features that direct occupants to the street or grade level for evacuation purposes.

Can I use the elevator?

It is never appropriate to use the elevator during a fire or similar building emergency, even in a two-story building. When a fire occurs, elevators are designed to be recalled to a designated floor, normally the lobby. In unusual circumstances, an elevator malfunction may cause the elevator to travel to the fire floor itself, thus exposing occupants to the fire. Elevator shafts may also allow some smoke to enter the shaft and migrate toward the roof of the building. Any occupants of the elevator would be exposed to that smoke.

What procedures should be applied for people in a wheelchair or with other disabilities that affect mobility?

Able-bodied as well as disabled occupants must be covered under any written procedures. If your floor has to be evacuated, you should plan to horizontally relocate to a refuge area. In buildings with automatic fire sprinkler protection, this may simply be to an adjacent compartment or office space. In other cases, your building may be provided with areas of refuge. These spaces may be located as stand-alone, barriered compartments on the floor, or they may consist of oversized landings in

stairwells. Regardless of which feature you have, your plan includes waiting in one of the designated spaces until fire department personnel can remove you. Often times, these spaces are provided with a two-way communication device so you can give rescue personnel your location. Your work environment may also supplement this procedure with a "buddy" system. In this case, you need to anticipate situations where the "buddy" may not be available in an emergency. In every case, and regardless of one's abilities, if you have any questions about your building's plan or how you fit into it, you should ask your employer for detailed information and request a role for those with disabilities in crafting the plan.

If I stay and then the situation becomes untenable and I am trapped, should I break a window? Should I jump?

If you are trapped in a high-rise building, try to locate yourself in an area where you can close the door and seal the cracks to keep smoke out. Use a telephone to call the fire department and report your exact location in the building. Try to be patient. Emergency rescue of high-rise building occupants can take a long time. You can signal your position to rescue personnel from a window using a light-colored cloth, but it is not advisable to break a window. If you can open the window slightly, it is generally safe to do so to allow fresh air in, but be prepared to close it if smoke comes in. A broken window cannot be adjusted to block smoke from pouring in. Finally, falling glass from a broken window can sever fire hoses and severely injure rescue and suppression personnel below. It is very dangerous to use a window for escape from anything higher than the second floor.

Should my building have any type of exterior escape device?

Items such as escape chutes and controlled descent devices are permitted to provide escape routes in special structures such as some towers and special manufacturing environments. They are not permitted, nor recommended by U.S.-based codes for commercial and public buildings. Such devices do not come close to the level of protection provided by the other code-mandated features.

If the neighboring high-rise building is on fire, should my building be evacuated?

Not during a typical fire. You should remain vigilant and determine if there is some onset or change in conditions that could result in your building being threatened by the adjacent fire. In such cases, emergency personnel should have adequate time to order such evacuations.

Will building egress systems work in a terrorist attack?

Society has not demanded of its public officials that they enact laws that would require the expenditure of almost unlimited amounts of money to protect against all foreseeable and un-

foreseeable hazards. In reality, there may simply be no physical way to provide such protection, even with unlimited funds. Prior to the September 11, 2001 attack, a suicide pilot at the controls of a Boeing 767 aircraft would not have appeared on anyone's list of credible or foreseeable design hazards. In 1945, the pilot of a B-25 two-engine bomber became disoriented in heavy fog and crashed into the Empire State Building on a Saturday morning when the building was sparsely populated. Flaming gasoline from the 1400-gallon tanks ignited and 14 persons died and 26 were injured.

When the World Trade Center towers were built in 1970, they were designed to withstand the impact of a Boeing 707 aircraft — the largest aircraft being flown at that time. The Boeing 767 aircrafts used in the September 11 attack were considerably larger and carried nearly 20,000 gallons of jet fuel that would have carried the planes across the country to the West Coast without refueling. Current building evacuation or relocation procedures consider the need to move occupants from harms way with a fire that grows at a very predictable way at a rate that is typical to the anticipated fire hazard in the building.

My building has written evacuation procedures. Are they adequate for any emergency that may occur in my building?

It is highly likely that the procedures are adequate for all emergencies. In our society, we plan on events that are likely to happen in a building or structure. In large part, evacuation procedures are geared towards an accidental fire occurring in a building. As long as your procedures make clear to you the actions you are to take, and when to take them, that is in essence what you are looking for. Although not mandated for all buildings, encourage your employer to stage a mock drill once a year. If you are on the upper floor of a high-rise building, this may be a good opportunity to practice and experience your plan.

Many of these procedures are based on typical events. What happens when the event is not typical?

As with any situation in our daily lives, you are ultimately in control of your fate to a great degree. Thus, you are largely responsible for your own personal safety based upon the circumstances. Detailed procedures, verbal instructions and even past experience may not be adequate to help you deal with extraordinary events.

RED, the universal color for danger can be used to help you in such circumstances.

React: Take any indication of smoke, fire or other potentially threatening situation seriously. Activation of building fire alarms, smell of smoke, visual indication of flames, warning from other occupants, arrival of the fire department are some of the attributes that may signal an imminently dangerous situation.

Evaluate: You must judge the level of threat. This includes confirming evidence or presence of smoke or fire; judging the conditions in your immediate area; self-judgment of your physi-

cal ability to relocate or evacuate; evaluation of the needs and abilities of others who may need assistance; consider additional information being received.

Decide: There are only two, but difficult choices: Follow your plan and immediately leave the building.

OR

Follow your plan and stay where you are, or descend to the designated level below the fire floor and be prepared to take protective/defensive action. In this case, anticipated action may include alerting the fire department of your location, seal doors, windows and vents that lead into your space. Do not break out the windows. Be prepared to wait for a considerable time period (at least one hour) if you contemplate rescue by the fire department. This process is iterative. It is not only done at the first hint of a dangerous situation. It is a process that the individual must manage and it needs to be repeated until the danger has passed or, if total building evacuation is in order, when that action is completed.

Station #1

17355 S. 68th Court
(708) 444-5200

Station #2

7825 W. 167th Street

Station #3

9191 W. 175th Street

Station #4

7801 W. 191st Street
www.tinleypark.org

VILLAGE OF TINLEY PARK

Edward Zabrocki, Mayor
Patrick Rea, Village Clerk

Trustees

David Seaman
Gregory Hannon
Brian Maher
Thomas Staunton Jr.
Patricia Leoni
T.J. Grady



Frequently Asked
Questions
About
High-Rise
Building Fires

Information Provided by
The National
Fire Protection
Association

www.nfpa.org

&

Tinley Park
Fire Prevention
Bureau

(708) 444-5200