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**IMPORTANCE OF FIRE PREVENTION AND FIRE FIGHTING TRAINING FOR
OCCUPANTS OF HIGH RISE BUILDINGS**

The development of High – Rise Buildings

Over one hundred and fifty years ago, cities looked very different from the way they look today. The buildings that housed people and their business were rarely over the height of a flagpole. Urban landscapes tended to be flat and uniform in pattern. Three major developments led to the massive skyscrapers that dominate many city skylines today.

1. In 1853 an American, Elisha Graves Otis, invented the world's first safety elevator. This new form of transportation enabled people to travel safely upward at a much greater speed, and with considerably less effort than by walking.
2. In the 1870s steel frames became available, replacing the weaker combination of cast iron and wood previously used in construction. Until then, the walls had to be very thick to carry the weight of each floor.

Generally, a high-rise structure is considered to be one that extends higher than the maximum reach of available fire-fighting equipment.

Fire prevention and fire fighting training for occupants of High rise building is important because

1. The existence of multiple occupied floors, one on top of another, means a greater concentration of occupants and therefore a greater concentration of personal and business property, hence a greater potential fuel load of the building. Also, the probability of a large uncontrolled fire moving upward is an ever-present danger in a high-rise building because it is a vertical structure.
2. The more individuals assembled in one location at any one time, the more likely it is that some of these people could be injured or killed, particularly by an incident occurring close to them. Depending on the location of the incident, there may be a delay in reaching the area to provide assistance. For example, a medical emergency that occurs on the uppermost floor of a skyscraper will require considerably more travel time for the responding medical team than a similar incident occurring in a building lobby.
3. Evacuation of occupants, when an emergency occurs, is hampered by the fact that large numbers of people (sometimes hundreds, but possibly thousands) cannot all leave the structure at once via elevators and emergency exit stairwells.
4. Access by the fire department –from both without and within the building – may be restricted.
 - Setback of the building from public access roads and driveways, landscaping, berms, fountains and surfaces covering subterranean parking structures that will not support the weight of fire fighting vehicles. These may restrict the proximity to the building that fire department aerial ladder apparatus can attain.

- External features of the structure such as decorative walls, sunscreens and building offsets (where an upper floor is set back from the floors beneath it) may inhibit the use of aerial ladders.
- The limited reach of fire departmental aerial ladders above the 10th floor is beyond the reach of fire department ladders and exterior streams, fires above the 7th floor.

(Internal access may be restricted to the use of stairwells and elevators that are approached through the building lobby or lower levels such as basements. Internal access may also be complicated by the time required for fire department personnel to reach and equipment to be transported to, an incident occurring in the upper levels of a structure.

The effectiveness of the response to an incident, such as a fire, may be affected by the availability of fire department personnel and equipment-hoses, forcible entry tools, breathing apparatus, lights and power supplies. In the case of an advanced high-rise fire, only the largest fire departments are able to provide the several hundred fire fighters that may be necessary to control such an incident. The number of fire department staff required for response will depend on the type of tenancy and pattern of use of the building, the size and type of fire, its location within the structure, and whether an extensive search of the building needs to be conducted. Much of this information will be ascertained on-site, when fire department personnel have had an opportunity to evaluate the incident.)

“Also, the delivery of personnel and equipment to the fire may be blocked by very hazardous falling glass which may cut hose lines and injure personnel. The glass hazard may make evacuation from the building impossible”. Because modern high-rise building floor areas are frequently very large, interior hose lines run from stairwells by fire fighters may not reach every part of a floor.

The high-rise building often has natural forces affecting fire and smoke movement that are not normally significant in lower buildings. Stack effect and the impact of winds can be very significant and very different, in high-rise buildings. Stack effect is the result of the temperature differential between two areas, which creates a pressure differential that results in natural air movements within a building in high-rise buildings this effect is increased due to the height of the building. Many high-rise buildings have a significant stack effect, capable of moving large volumes of heat and smoke uncontrolled through the building.