



Position Statement

Fire Sprinkler Retrofit of Existing High-Rise Buildings

Modern fire and building codes require complete automatic fire sprinkler protection and a variety of other safety features in new high-rise construction.¹ Many older high-rise buildings lack automatic fire sprinkler protection and other basic fire protection features necessary to protect the occupants, emergency responders, and the structure itself. Without complete automatic fire sprinkler protection, fire departments cannot provide the level of protection that high-rise buildings demand.

Existing high-rise buildings that are not protected with fire sprinklers installed in accordance with national standards represent a significant hazard to the occupants and firefighters forced to mitigate this protection shortfall.² Additionally, high-rise fires can significantly impact a communities' infrastructure and the economic viability of a downtown area.

Between 2003 and 2006, there was an average of 13,400 reported structure fires in high-rise buildings per year and associated losses of 62 civilian deaths, 490 civilian injuries, and \$179 million in direct property damage per year. Furthermore, from 1977 to 2009, 25 firefighters died from non-stress related cardiac death during fire suppression operations in high-rise buildings.³

By their very nature, high-rise fires present unique firefighting challenges that are extremely difficult for firefighters to mitigate without the presence of fire sprinkler systems. Some of these challenges include:

- High-rise structure fires require significantly more resources, such as personnel and equipment, to extinguish than do fires in other types of occupancies. This further strains the responding fire department and firefighters.
- Due to their height, smoke movement in high-rise structures is very different from that of other structures. Temperature gradients result in varying pressures throughout the structure, which can allow for the rapid, uncontrolled movement of smoke and flame (known as the "stack effect").
- By design, exits from high-rise structures are limited. In an emergency, the movement of people out of a building is particularly difficult.
- The HVAC and other utilities in some high-rises service multiple levels and can facilitate the spread of smoke and flame through a building.

¹ High-rise buildings are those that have a floor greater than 75 feet.

² A prime example of this hazard is the One Meridian Plaza fire. This fire occurred on the 22nd floor of the 38-story Meridian Bank Building and was reported to the Philadelphia Fire Department on February 23, 1991 at approximately 2040 hours and burned for more than 19 hours. The fire caused three firefighter fatalities and injuries to 24 firefighters. The 12-alarms brought 51 engine companies, 15 ladder companies, 11 specialized units, and over 300 firefighters to the scene. It was the largest high-rise office building fire in modern American history, completely consuming eight floors of the building, and was only controlled only when it reached a floor that was protected by automatic sprinklers.

³From NFPA report on "Traumatic Firefighter Fatalities in High-rise Buildings in the United States 1977-2009."

- Due to the height of the building, response times for the fire department to reach the actual fire itself are extended, contributing to larger fire growth thereby attributing to extensive smoke spread throughout the building.

Based on the extreme life hazard to both occupants and firefighters, it is the position of the International Association of Fire Chiefs that:

1. All existing high-rise buildings, regardless of occupancy classification, should be retrofit with complete automatic fire sprinkler protection.
2. Local fire officials should work together with community leaders, local officials, building owners and other stakeholders in a cooperative effort to protect citizens in the community by retrofitting older high-rise buildings with automatic fire sprinklers. Such retrofitting has been successful in many communities across the nation in a fashion that minimizes the financial burden on the stakeholders and creates a win-win outcome for all parties.
3. The priority for retrofitting high-rise buildings with automatic fire sprinklers should be placed on apartments, condominiums, and hotels as these properties create the greatest hazard to occupants and can result in significant life loss events.
4. All model code documents should contain code provisions mandating retrofit of all existing high-rise buildings.⁴
5. Provisions mandating the retrofit of existing high-rise buildings within model codes should be maintained by local jurisdictions in their adoption process.
6. A reasonable time frame should be established in each jurisdiction for the implementation of a fire sprinkler retrofit requirement.⁵

November 5, 2010

⁴ Of the two national model fire codes, the International Fire Code does not currently require the retrofit of existing high-rise buildings with fire sprinkler protection. NFPA 1 does require retrofit of existing high-rise buildings.

⁵ An eight to twelve year implementation time frame with intermediate progress reports is a reasonable approach.