

BY TOM LIA, NORTHERN ILLINOIS FIRE SPRINKLER ADVISORY BOARD

What Owners and Managers Should Know About Fire Sprinklers and Chicago High-Rise Buildings

According to the Chicago Fire Sprinkler Substitute Ordinance passed in 2004, the January 2009 deadline just passed requiring commercial structures exceeding 80 feet in height to have 1/3 of their gross square footage protected by automatic sprinklers. The second third must be completed by 2013. The entire building must be protected with a fire sprinkler system by January 1, 2017.

The ordinance does not include residential, landmark and historical high-rise buildings be retrofitted with fire sprinklers. Chicago's ordinance requires Life Safety Evaluations (LSE) for residential buildings. Unfortunately, there are differences between Chicago's LSE and the LSE of the national standard NFPA Life Safety code 101 2000 Edition, adopted by the Illinois State Fire Marshal's Office, which requires all existing high-rise buildings, including residential, landmark and historical, in excess of 75 feet in height be retrofit with a fire sprinkler system and/or engineered life safety system.

The provisions for fines can be very large if a building is not in compliance with the ordinance. Building owners can avoid fines and penalties by having a life safety evaluation performed. But, owners may also be able to avoid fines and penalties by implementing a plan to install fire sprinkler systems.

The following information was prepared by Cecil Bilbo, Director of Engineering Technology, The Academy of Fire Sprinkler Technology, to help building owners and managers understand the facts about fire sprinklers and high-rise buildings.

What You Should Know

The ordinance adopted by the Chicago City Council requires at least four items to be addressed by owners of high-rise buildings. These four items are found in unique sections of the City's Municipal Code as modified by the ordinance. Each of these sections are now found under 13-196 in the municipal code.

Section 203 requires high-rise owners to submit a Life Safety Data Sheet to the Fire Department. This document is not the Life Safety Evaluation that has so often been discussed. This simpler document asks many questions, including whether the building has fire sprinklers and standpipes. All owners of high-rise buildings should have already complied with Section 203 as the final submission date was April 1, 2005.

Section 204 requires voice communications systems in most high-rise buildings. The owner should read this section to determine if their building must comply. Where required, owners must comply with this section by January 2012.

Section 205 requires fire sprinklers in most high-rise buildings and allows the use of economical strategies to accomplish this task (Section 207

allows the use of CPVC pipe and existing water supplies). The types of buildings described below may not be required to install sprinklers, but owners may choose to do so to meet the requirements of this ordinance. If the owner does not install sprinklers as required, they must show that they meet the minimum scores of the Chicago Life Safety Evaluation System in Section 206.

High Rise Buildings that do not require sprinklers include:

- Certain open air parking facilities
- Open air portions of a stadium
- Certain "non-transient" residential facilities
- Certain "non-transient" residential portions of mixed occupancy buildings
- Chicago landmark buildings and certain contributing buildings
- Certain buildings recognized by the Chicago Historic Resources Survey

("Non-transient residential" means use that is not a hotel, motel, bed-and-breakfast, dormitory, certain shelters, or other temporary residential uses.)

Plans for sprinklers should have included installation of fire sprinklers in one-third of the building by January 2009. Two-thirds of the building should be protected by January 2013. And the entire building should be protected by January 2017.

Section 206 requires the owners of high rise buildings to submit a Life Safety Evaluation if their building is not required to have fire sprinkler protection by Section 205. If the building already has a sprinkler system or one is being installed, there is no requirement to submit a life safety evaluation. The Life Safety Evaluation must be conducted by an Architect or Engineer that is licensed in the State of Illinois. The evaluation must follow the model and rules created for, and adopted by, the City of Chicago. If the building receives a score that is too low, the owners must find ways to increase the score until the building score is high enough to meet minimums established by the City of Chicago.

The Academy's Concerns

There are concerns that were expressed in the original study of the LSE performed in 2004. In a report titled, "Analysis of the Life Safety Evaluation System for Business and Residential Buildings" issued by the Pro Design Group in February 2004,

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it was shown that there is "...a distinct difference in the levels of value assigned to the life safety systems that can be upgraded by building owners..." when compared to the national standard used throughout the country. In fact, the building that was analyzed in the study received only a 14% increase in safety scores when the installation of a sprinkler system was considered under the City's adopted rules. The NFPA models show that this

Chicago high-rise building owners who own buildings that are not protected with fire sprinkler systems need to understand the facts about Chicago's Fire Sprinkler Substitute Ordinance. Installing fire sprinkler systems in a residential high-rise building can be less expensive than meeting the requirements of the Chicago Life Safety Evaluation while protecting the occupants and firefighters.

same improvement would result in a 43% percent increase in safety scores. The 2004 report also indicated that the values of the top five life safety improvements resulted in rankings by the Chicago LSE model that were nearly the reverse of the values assigned using the NFPA model.

The NFPA models used worldwide should also be used in the City of Chicago. The City should recognize the value of fire protection and life safety systems as identified in the National NFPA Codes and Standards.

We are concerned that the City of Chicago has decided to use an evaluation method that has not been subjected to the modern code development process while the State of Illinois has recognized the value of such codes and standards by adopting NFPA 101, Life Safety Code. What liability will the City bear by requiring the use of a Life Safety Evaluation System of it's own making? When the Council makes the statement: "The criteria adopted pursuant to this subsection shall

provide sufficient protection to life and safety of building occupants...," they have appeared to accept the liability involved in protecting the lives of the public with this untested model.

Conclusions

The Chicago Life Safety Ordinance requires the owners of every high rise to:

- Submit a Life Safety Data Sheet by April 2005.
- Install emergency voice communications systems.
- Install sprinkler systems or meet the minimum requirements of the Life Safety Evaluation System.

The Academy is concerned that the public may not be aware that installing fire sprinkler systems can be less expensive than meeting the requirements of the Chicago LSE.

The Academy is also concerned that the values assigned to fire protection and life safety systems in the Chicago Ordinance are not in line with standards accepted world-wide. ❖

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