

High-Rise Fire Safety: Problems & Solutions

a Report by

The Chicago High-Rise Safety Commission
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HIGH-RISE FIRE SAFETY: PROBLEMS AND SOLUTIONS

ARTICLE I. INTRODUCTION

On December 14, 1996, a group of public officials met to announce the formation of the Chicago High-Rise safety Commission (the “Commission”) to examine and propose fire safety solutions in Chicago high-rises. The Commission was responding to such tragedies as the 1996 high-rise apartment fire at 3555 S. Cottage Grove Avenue, which killed four and injured 50. During its deliberations, the Commission reviewed the status of high-rise fire safety and considered proposals to improve current conditions.

Under the City of Chicago Municipal Code, high-rise buildings constructed after 1975 enjoy a high level of protection, since they must either be compartmented or sprinklered. Compartmentation blocks or slows the spread of a fire, while sprinklers extinguished it. Because sprinklers are more effective and less costly than compartmentation, building owners have overwhelmingly opted for sprinklers since 1975. Unfortunately, the Municipal Code does not require high-rise buildings constructed before 1975 to be sprinklered or compartmented, and therefore, a fire in one of these buildings is far more likely to result in casualties and property damage than one in a sprinklered building.

The Commission has discovered that the rate of fire deaths in Chicago’s high-rise buildings is approximately 3.5 times greater than the national average. Concluding that automatic sprinkler systems offer the optimum level of fire safety, the Commission proposes that the Chicago City Council, as well as Cook County, the State of Illinois, and the federal government, address this problem by encouraging sprinkler retrofitting in high-rise buildings (buildings at least 80 feet tall) through various federal, state and local incentives to ease the financial burden of retrofitting.

The following report reflects the consensus of a majority of Commission members; each member was invited to submit a minority report to express additional or dissenting viewpoints, although none did.

ARTICLE II. BACKGROUND

The Commission consists of elected and appointed government officials, building owners and managers, sprinkler companies, organized labor, and engineering firms. The Commission met in plenary session seven times, and conducted more detailed deliberations through its working groups:

1. The Incentives/Financing group reviewed public and private incentives and financing mechanisms to enhance the cost-effectiveness of Commission recommendations.
2. The Timing/Exemptions/Alternatives group considered timetables for implementing Commission recommendations, as well as exemptions from and alternatives to those recommendations.
3. The Insurance/Academic Verification group explored insurance options and costs and also retained a university professor to independently assess Chicago fire safety and sprinkler effectiveness.
4. The Legislation group reviewed potential state and local legislation to implement Commission recommendations.
5. The Education/Promotion group developed a strategy for promoting increased fire safety in high-rises.

This final report relies on the labors of the working groups, as well as the entire Commission. It also draws on the findings of Dr. Christopher Janicak of the College of Applied Science and Technological Health Sciences at Illinois State University, retained by the Commission to evaluate Chicago fire safety, as well as sprinkler effectiveness and cost. Dr. Janicak, whose report is included as Appendix A to this report, is an expert in statistics and occupational safety.

ARTICLE III. FIRE SAFETY CONSIDERATIONS IN HIGH-RISES

Fire poses a particularly serious threat in high-rise buildings. First, it is difficult for fire fighters to reach the upper floors; for example, the highest fire truck ladder in Chicago only extends to the eight floors. To extinguish blazes above that point, fire fighters must sometimes climb dozens of flights of stairs, dragging fire hoses and other heavy equipment with them. Second, large buildings populations are difficult to rapidly and safely evacuate. Since elevators do not offer a safe means of exit during a fire, thousands of people may be forced to descend crowded

stairs. This is a daunting problem under the best of conditions, but the dangers are intensified in the noise, smoke darkness, and confusion of a high-rise fire, particularly for those attempting to escape from an upper floor.

Third, chimney type stairwells and electrical/plumbing chases allow smoke to travel to floors far above the fire. Fourth, building materials in high-rises constructed in the past forty years pose a further danger, as a fire will often generate poisonous smoke from thousands of miles of wiring, plastics, fiber floor tiling, furniture, and carpeting. The longer the fire rages, the more toxic the environment becomes. Finally, as a high-rise fire intensifies, it will actually begin traveling up a building through exterior windows, rapidly “looping” from floor to floor.

The Commission discussed many methods of improving high-rise fire safety. One is compartmentation, a construction technique in which, during construction, the contractor separates the interior of a building into compartments with unusually thick walls, which prevent fire from escaping from a compartment for two to four hours. By delaying the fire, compartmentation reduces casualties and property damage. Another major fire fighting method is the installation of heat-activated automatic sprinklers, which control a fire at its source through the release of discrete volumes of water sufficient to extinguish a blaze. Other important fire safety measures include convenient and well-marked exits, smoke and heat detectors, smoke and fire alarms, fire extinguishers, and education regarding fire safety and evacuation. All of these fire safety measures are potentially available for use in existing buildings, with the exception of compartmentation, which must be incorporated into a building’s original design.

The Chicago Municipal Code allows high-rise buildings constructed since 1975 either to be compartmented or to contain a sprinkler system. Because of the significant cost of compartmentation, because sprinklers represent a more effective means of fighting a fire, and because many insurance companies will not insure a high-rise building unless it has sprinklers, owners of newly constructed buildings in Chicago have overwhelmingly chosen sprinklers since 1975. During a February 25, 1997 Commission meeting, the Chicago Fire Department’s Chief Fire Engineer, Edward Prendergast, affirmed the wisdom of this choice when he stated, “Give us windows that open and light hazard fire sprinkler and we’ll put your fires out.”

Although nearly every Chicago high-rise built since 1975 contains sprinklers, approximately 800-1000 pre-1975 buildings in Chicago do not. Dr. Janicak’s research suggests that this is a particular cause for concern:

- Chicago's death rate in high-rise fires is approximately 3.5 times greater than the national average;
- Nearly 91% of those high-rise fire deaths have occurred in non-sprinklered high-rises;
- Residential buildings are at greatest risk: 86% of all Chicago high-rise fires were in residential structures, and approximately 85% of those buildings did not have sprinklers;
- Nationally, from 1985-94, sprinklers reduced death rates in high-rises by 71% and
- Nationally, sprinklers typically reduce the average property loss per fire by one-half to two-thirds.

(See Appendix A)

The Commission has reviewed the fire safety strategies employed by other cities, particularly focusing on sprinklers. Some jurisdictions, such as Los Angeles, Philadelphia, Atlanta, Las Vegas and the State of Massachusetts, have enacted legislation requiring sprinkler retrofit. In the Chicago Metropolitan area, the Village of Oak Brook has enacted a retrofit requirement. Unfortunately, many of these cities enacted hastily drafted legislation in an emotional atmosphere following a major fire: for example in Las Vegas, after 85 people died in the 1980 fire at the MGM Grande Hotel. The retrofit legislation passed by other cities often has burdened building owners with unrealistically short compliance timetables and other onerous provisions, because the public demanded immediate action in the wake of those cities' catastrophic fires.

In Chicago, the City Council also has tended to approve key sprinkler requirements in the Chicago Municipal Code only in the wake of tragic fires: for schools, after the 1958 Our Lady of the Angels fire killed 95; for exhibition halls, after the 1967 McCormick Place fire killed one and completely destroyed the building; and for nursing homes, after the 1976 Winecrest Nursing Home fire killed 24. In addition, after the Hawthorne House fire on Lake Shore Drive killed four residents in the early 1970s, the City Council approved an ordinance requiring either a sprinkler system or compartmentation in new high-rise buildings. The Municipal Code also requires sprinklers in such institutions as hospitals, department stores, orphanages, nurseries, and homes for the developmentally disabled.

At this time, the Commission is not proposing sprinkler requirements, but, rather, a series of initiatives designed to encourage increased installation of sprinklers (See Article VI of this report.)

ARTICLE IV. COST OF SPRINKLER INSTALLATION

Although sprinklers have proven to be highly effective in controlling fires, building owners and managers often cite cost as an impediment to sprinkler acquisition. Dr. Janicak also analyzed this issue in detail and drew several conclusions, as summarized below:

- Data provide by the National Fire Prevention Association (the “NFPA”), as well as sprinkler contractors, revealed a cost range of \$1.50 to \$4.75 per square foot for a retrofit, excluding asbestos or lead abatement;
- Spot asbestos abatement costs \$1.00 to \$4.00 per square foot, according to data obtained from the *Journal of Property Management* and asbestos contractors; and
- Spot lead abatement costs approximately \$0.05 per square foot, according to the periodical *Risk Management*.

(See Appendix A.)

ARTICLE V. BENEFITS OF SPRINKLER INSTALLATION

Sprinklers fight fires more effectively than any other existing technology, offering numerous advantages:

1. *Sprinklers protect human life.* It is impossible to place a price tag on the lives saved by sprinklers.
2. *They protect property.* According to the NFPA, sprinklers reduce property damage in high-rise buildings by one-half to two-thirds. (See Appendix A.)
3. *They are tax deductible.* A building owner can obtain a depreciation allowance for the value of the system, as well as a deduction for the interest on a loan, if he or she finances the cost of installation. In addition, an owner may qualify for a 20% federal Rehabilitation Tax Credit for renovation of historic buildings.
4. *They minimize the risk of costly business interruption.* Fire closes all or part of a building for extended periods of time. In fact, the vast majority of buildings, which suffer major fires, do not open their doors again, according to the NFPA. One example of this is One Meridian Plaza in Philadelphia, a 38 story building where 3

firefighters died in a 1991 fire that burned out of control until it reached the sole floor with sprinklers. Those sprinklers extinguished a blaze that had defeated the efforts of the Philadelphia Fire Department. In 1998, seven years later, workers finally began demolishing the vacant, partially burned building across the street from City Hall in downtown Philadelphia. Hundreds of millions of dollars in damages were awarded in lawsuits filed after the fire (including an enormous suit between the building owner and its insurer); over two dozen tenants were forced to relocate (four left the city entirely); a dozen area retail stores closed permanently due to the relocation of 4,000 shoppers; and the City of Philadelphia has lost more than \$3 million annually in property taxes.

5. *They minimize liability.* Catastrophic fires result in significant liability for business owners, as demonstrated by the Philadelphia fire. Almost before the smoke had cleared, lawyers began filing the first of the claims that would eventually total over a billion dollars. In Las Vegas and Puerto Rico, lawsuits filed by families of the deceased after catastrophic fires in non-sprinklered hotels resulted in verdicts of \$100 million in each case.
6. *They cause the value of property to appreciate.* A building with a sprinkler system has a higher appraised value than a building without one.
7. *They create jobs.* Because sprinkler retrofitting is labor intensive, it will benefit the Chicago economy.

ARTICLE VI. RECOMMENDATIONS

The Commission proposes measures encouraging sprinkler installation in all Chicago high-rise buildings. Recognizing that automatic sprinklers may represent a substantial expense to many building owners, the Commission has developed a comprehensive package of proposed financial incentives, one that far exceeds the incentives included in sprinkler legislation in any other jurisdiction in the country. The goal is to make these vital fire protection devices more affordable to building owners. The Commission also proposes a partnership among the Chicago Fire Department, the sprinkler industry, and the real estate industry to develop an aggressive program to educate building owners and managers regarding high-rise fire protection.

A. Incentives

1. Tax Incentives

The Commission makes the following tax recommendations:

- a. *Tax Increment Financing.* Use of City of Chicago Tax Increment Financing (“TIF”) revenues for sprinkler retrofit. Many of the high-rises in Chicago are in Central Loop Tax Increment Financing District. The Commission’s statutory research into the state law authorizing the creation of TIF districts confirms that the City can use TIF revenues to fund sprinkler installation in renovated buildings. In fact, the City recently allocated tax increment revenues for sprinklers in the conversion of the Bismarck Hotel into the Hotel Allegro. The Commission recommends that the City continue and expand the use of TIF revenues for sprinkler retrofit.
- b. *Federal Tax Credit.* Federal legislation allowing a tax credit of 15% of annual sprinkler system expenditures. (See Appendix B for Federal legislation.)
- c. *Property Tax Relief.* Cook County property tax relief for high-rise buildings, which retrofit. The Commission urges the County Board to add such buildings to the existing Class 6b real estate category, thus reducing property taxes to 16% for the first eight years, after which they would rise to 23% in year nine, and 30% in year 10. Typically, current rates for residential and commercial high-rise buildings are 33% and 38%, respectively. (See Appendix C for Cook County Resolution.) In addition, the Commission urges the County to approve an exemption of the value of a sprinkler system from assessment and taxation for as long as the building does not undergo a change of ownership after the system is installed.
- d. *Sales Tax Exemption.* State and local legislation to exempt the purchase of sprinkler installation materials from the State, Cook County, and City of Chicago sales taxes. (See Appendix D for the State legislation, Appendix E for the County Resolution, and Appendix F for the Chicago ordinance.)

2. Low Interest Loans

For building owners who seek financing for sprinkler installation, the Commission recommends the establishment of one or more loan guarantee funds offering low interest loans for retrofit and thereby substantially reducing financing costs.

- a. *Sprinkler Pension Fund Program.* The Commission has obtained a commitment from the National Automatic Sprinkler Industry Pension Fund (the “Sprinkler Fund”), through the investment firm State Street Global Advisors, to invest \$5 million immediately for a loan guarantee program. The loan guarantee program will reduce financing costs for building owners who obtain loans to install sprinklers.

If an additional guarantor (for example the State) establishes a loan guarantee program, the Sprinkler Fund will match that program dollar for dollar, up to a maximum additional \$10 million, for a total investment by the Sprinkler Fund of \$15 million, and a potential total program of at least \$25 million. This program demonstrates the strong faith of sprinkler industry workers in their product, since they are willing to invest their own retirement money in a program to facilitate sprinkler installation.

- b. *Public Loan Programs.* To maximize the Sprinkler Fund’s commitment, the Commission also urges the creation of a State loan guarantee program, backed by the issuance of bonds. As stated above, if the State approves a program totaling \$10 million, the Sprinkler Fund will invest a total of \$15 million, for a public-private program of \$25 million. (See Appendix G.)

3. Tap Fees

All Chicago high-rises must tap into the City’s water main, and City plumbers must perform this work. Depending on the size of the building and the water requirements, the tap fee can reach several thousand dollars. In the vast majority of retrofits, no new tap fee will be assessed because the building’s existing connection to the City water main will be adequate. However, in a few cases, a building planning to retrofit may have to establish a new connection to the City water main. The Commission recommends that the City waive the tap fee for these building owners.

4. Installation Materials

In view of the importance of installing sprinklers in the maximum number of buildings, the Commission recommends that the City of Chicago allow sprinkler contractors to use installation materials that represent the latest advances in sprinkler technology. For example, the Commission encourages the City of Chicago to consider whether plastic pipe should be permitted in sprinkler systems in Chicago buildings. Underwriter’s Laboratories has approved plastic pipe for use in “wet pipe” sprinkler systems (those with water in the

pipes at all times). A fire would not melt the pipe since the system's heat sensors would activate a sprinkler head or heads long before the heat could reach the pipe itself. Sprinkler Fitters Union Local 281, which represents Chicago-area sprinkler fitters, strongly supports the use of plastic pipe, because it is safe, effective, and costs less than metal pipe, thus reducing the overall cost of a system. The Commission does not advocate the use of plastic pipe in any other residential or commercial context.

B. Education of Promotion

Because fire poses a deadly threat in high-rises, the Commission believes it is important to combine the incentives outlined above with a vigorous education program to promote fire safety in high-rise buildings of all types. The goal is to achieve the highest possible level of fire safety, including the installation of sprinklers in the maximum number of buildings.

We envision a series of seminars in which in Chicago Fire Department, the sprinkler industry, and the real estate industry would work together to reach the maximum number of building owners and manager. These comprehensive programs should discuss sprinklers, evacuation plans, smoke detectors, and fire alarms. Mechanical systems should be discussed with regard both to installation and proper maintenance. For example, seminars could explain types of sprinklers, their effectiveness, installation costs and requirements, and annual maintenance procedures.

The sprinkler industry and Fire Departments should provide high quality seminar materials and speakers, while the real estate industry should provide the audience. All parties should help fund the seminars.

B. Conclusion

At the beginning of the century, Chicago invented the high-rise. As we enter the next century, it is time for federal, state, and local governments to move forward with legislation that will improve the fire safety of hundreds of Chicago high-rises, better protecting the tens of thousands of people who live and work in them. Therefore, the Commission urges the enactment of the incentive legislation and education program proposed in this report.

Retrofitting Existing High-rise Buildings with Sprinkler Systems

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I. Unique Fire Hazards in High-rise Buildings

High-rise buildings pose unique fire hazards not found in other types of structures (NFPA 1991). Because of these hazards, fire prevention and control are critical.

1. Fire department accessibility to high-rise building fire may be hampered.
 - Present-day fire apparatus is limited in its ability to reach upper floors from the exterior of the building.
 - The height of the fire and the number of personnel required to deliver adequate types and amounts of equipment to the fire area may limit fire department accessibility.
 - Inherent delays in deploying equipment and fire fighters can indirectly affect fire growth.
 - The height and the location of a building can restrict the fire department's ability to approach the area of origin from more advantageous directions.
2. Traditional features of life safety are limited in high-rise structures. Evacuation times may exceed a city's expectations.
3. The high-rise building often has natural forces affecting fire and smoke movement that are not normally significant in lower buildings. May high-rise building have a significant stack effect capable of moving large volumes of heat and smoke uncontrollably through the building.
4. Due to their nature and design, high-rise buildings significantly increase the occupant, equipment, and material load in a given building. These stacked loads, combined with fire's natural tendency to travel upward, dramatically increase the potential exposure in a given fire.

States and municipalities that require sprinklers throughout existing high-rise buildings include California, Florida, Massachusetts, Nevada, New Jersey, Puerto Rico, Atlanta, Philadelphia, and Louisville, KY (Jaspen 1995). In 1979, Oakbrook, Illinois adopted an amended fire code, which requires all commercial properties to be sprinklered. This code requires all existing commercial properties to be retrofitted with sprinklers, including high-rise properties (Nielsen 1987).

Many times these ordinances have been passed after a major catastrophe. That was the case in Philadelphia, where three firefighters were killed in 1991 while battling a blaze that raged 19 hours at a downtown, 38-story high-rise, One Meridian Plaza (Jaspen 1995). Within the year, the Philadelphia City

Council passed an ordinance requiring that all high-rise building be equipped with automatic sprinkler systems.

II. United States Fire Experience in High-rise Buildings

The National Fire Prevention Association (NFPA) is the most recognized organization in the United State for compiling statistics on fire experiences. Data in this section of the report were obtained from this organization. Terms used in this section of the analysis are defined as follows:

High-rise Structures: The NFPA defines a high-rise as a structure measuring more than 75 feet from the lowest level of vehicle access to the highest occupiable floor. Because of the classification system used in reporting fires, the NFPA identified high-rise structures as those seven stories or greater.

Occupancies: The occupancy classification used by the NFPA includes apartment occupancies, hotel and motel occupancies, facilities that care for the sick, and offices.

III. Risk of Fire In High-rise Buildings

Direct data analysis of high-rise versus non high-rise is somewhat difficult to determine because the exact number of structures for some occupancies does not exist. The best data exist for apartment buildings. Census data estimate the number of apartment housing units at anywhere between 15 million and 24 million (Hall 1997). In 1993, the number of housing units in high-rise buildings was 2,294,000, which means 9.3-14.8% of all apartments were in high-rise buildings. During 1993, approximately 8.8% of all apartment fire occurred in high-rises (Hall 1997). Since the percentage of high-rise fires (8.8%) is lower than the percentage of high-rise apartments (9.3%), the risk for a fire in a high-rise apartment is somewhat lower in a high-rise building than an apartment that is not a high-rise (see Table 1).

Table 1: Summary of Fires for Apartments (NFPA)

Occupancy	Percentage of Units that Could Be High-rises	Reported High-rise Fires	Percentage of Fires in High-rises
Apartments	9.3-14.8	7,700	8.8

Since there are no data available that provide the exact number of high-rise offices, hotels/motels and facilities that care for the sick, the National Fire Protection Association has calculated the number of existing structures using estimates based upon the total square footage of the buildings. In 1992, there were 21,000 office occupancies, 5,000 health-care properties and an undetermined number of lodging properties with more than 100,000 square feet of space (Hall 1997). While it is unlikely that a high-rise building would have less than 100,000 square feet of space, it is possible to have a building with more than 100,000 square feet that is not a high-rise. Therefore, the actual number of buildings over 100,000 square feet that are high-rises is some fraction of the total number of occupancies. Because the data necessary to determine the number of high-rise office structures, hotel/motel structures and facilities that care for the sick are not available, one cannot accurately determine the risk for a fire starting in these structures.

In 1995, it is estimated that approximately 19.7% of the hotel/motel fires occurred in high-rises (Hall 1997). Approximately 9.4% of all office building fires occurred in high-rises and 31.0% of all fires in health care facilities occurred in high-rises (Hall 1997) (see Table 2).

Table 2: Summary of Fires Occupancy Type in 1995
(Offices, Hospitals and Hotels)(NFPA)

Occupancy	Reported High-rise Fires	Percentages of Fires in High-rises
Offices	500	9.4
Hospitals and Other Facilities That Care for the Sick	800	31.0
Hotels/Motels	1,000	19.7

The incidence of fires in the various classifications of high-rise structures has remained consistent over longer analysis periods. The National Fire Protection Association estimates that from 1985-93, roughly one in every 12 reported apartment building fires was a high-rise building (Hall 1997). One-sixth to one-fourth of reported hotel and motel fires have been in high-rises buildings. Roughly one of every eight reported office building fires was in high-rise building and one-third of reported fires in facilities that care for the sick have been in high-rise buildings (Hall 1996). These numbers are consistent with the percentages reported for 1995 data in Table 1 and Table 2.

IV. Risk of Death Due to Fire in a High-rise Building

The Council on Tall Buildings and Urban Habitat (1992) concluded that although overall incident data and statistics show that the percentages of injuries and property damage associated with fires in tall buildings are small, the small number of tall building fires which do occur usually impact substantially on the urban environment. Examples of this adverse impact include the permanent closure of businesses, lawsuits from injured parties, and business interruptions. News reports from previous high-rise structure fires suggest that lawsuits alone can reach hundreds of millions of dollars in losses. The fires in tall buildings have consequences which are related to the construction features which may lead to extensive fire and smoke spread, or to reductions in occupants’ ability to exit readily (Council on Tall Buildings and Urban Habitat 1992).

From 1989-93, high-rise buildings accounted for 8.4% of civilian injuries in apartment fires and 6.7% of civilian deaths (Hall 1996). From 1985-93, fires in high-rise hotels and motels were less than one-fourth as likely to involve a death as fires in hotels and motels that are not high-rise (Hall 1996). This means that whether or not the risk of fire is somewhat higher in high-rise hotels and motels, the risk of fire deaths is probably much lower. A summary of the reported high-rise structure fires for the United States from 1994-1996 is presented in Table 3.

Table 3: Summary of High-rise Structure Fires in U.S. by Year (1994-96)

Year	Fires	Civilian Deaths	Civilian Injuries	Property Damage (\$ Millions)	Deaths Per 1,000 Fires
1994	11,400	51	952	\$59.3	4.5
1995	10,000	55	688	\$44.5	5.5
1996	12,100	64	790	\$69.2	5.3
Total	33,500	170	2,430	\$173.0	5.1

The frequency of fires and deaths from the fires in high-rise occupancies varies by the type of occupancy. Apartment occupancies nationally experience a higher frequency of fires and a higher frequency of deaths and injuries. Descriptive statistics for fires by the type of high-rise occupancy are displayed in Table 4.

Table 4: Summary of High-rise Fires in the United States by Occupancy Class (1994-96)(NFPA Data)

	Reported Fires	Civilian Deaths	Civilian Injuries	Property Damage (& Millions)	Deaths Per 1000
Apartments	26,200	160	1,999	\$100.3	6.1
Hotels and Motels	3,000	8	247	\$26.9	2.7
Hospitals And Other Facilities That Care For the Sick	2,600	2	95	\$7.9	.8
Office Buildings	1,700	0	89	\$37.9	0.0
Total	33,500	170	2,430	\$173.0	5.1

V. The City of Chicago's Fire Experience

Data on the incidence of high-rise fire deaths in Chicago were obtained from three different sources to identify the high-rise fire fatality experience in Chicago. Data were obtained from the National Fire Incident Reporting System (NFIRS) reports for the City of Chicago for 1994 to 1996 on reported structure fires from the Illinois State Fire Marshal's Office. The Chicago Fire Department provided a summary of the reported structure fires they had record for 1994 to 1996. The NFIRS Master Database for the United States was obtained from the Federal Emergency Management Agency for 1994 to 1996 to confirm the number of fatalities.

Terms used in this section of the analysis are defined as follows:

High-rise Structure: The City of Chicago defines a high-rise as a structure in excess of 80 feet in height. The NFPA data available for this analysis did not identify the height of the building in feet; rather, buildings were classified by the number of stories. High-rise structures in this section of the analysis were buildings classified as structures with 7-12 stories, 13-24 stories, 25-49 stories and 50 or more stories. The NFPA figures include all fires in Chicago high-rises (buildings in excess of 80 feet). With this data, there could be some structures included in the 7-12 story structures that do not meet the definition of high-rise under the Chicago codes, thus increasing the numbers of reported fires. If it is assumed that the frequency of fires in the category was equally distributed among each floor height category and that all buildings 10 stories and higher meet the definition of a high-rise, the frequency of high-rise fires may be overestimated by as much as 15%. This would only be the case if no 7-story, 8-story and 9-story building met the height requirements to be defined as a high-rise in the City codes.

Residential high-rise occupancies: In this portion of the analysis, residential high-rise occupancies included apartment complexes, rooming houses and dormitories.

Hotels and motels: Hotels and motels were identified in the analysis.

Office Occupancies: Office occupancies were identified in the analysis.

Other high-rise occupancies: Other high-rise occupancies included educational property, public assembly property and manufacturing, to name a few.

Chicago Fire Department Data. Dates were obtained from the Chicago Fire Department for the three-year analysis period. The Chicago Fire Department identified some discrepancies in the number of fatalities and fires reported to the Illinois State Fire Marshal for the 1994-1996 time period. The Chicago Fire Department records showed 18 fatalities in high-rise buildings occurring in 1,384 fires. A summary of the fatalities is displayed in Table 5.

Table 5: Summary of Fatalities in High-rises 1994-1996 (Chicago Fire Department)*

Year	Fires	Civilian Deaths	Civilian Injuries	Deaths Per 1,000 Fires
1994	518	12	23	23.1
1995	411	1	26	2.4
1996	455	5	68	11.0
Total	1,384	18	117	13.0

*NOTE: During 1994-1996, the Chicago Fire Department indicated that 9 of the 18 fatalities occurred in Chicago Housing Authority public housing properties.

Based on this data, Chicago experienced approximately 13.0 deaths per 1,000 high-rise structural fires from 1994 to 1996. The most current data published on high-rise structural fires from the NFPA for

1994-96 yielded a national average death rate of approximately 5.1 deaths per 1,000 reported high-rise structural fires.

Illinois State Fire Marshal’s Office Data. From January 1, 1994 to December 31, 1996, 1,396 high-rise structure fires resulting in 25 civilian deaths were reported to the Illinois State Fire Marshal’s Office (see Table 6). There was an estimated loss of \$2,861,200 in high-rise structure fires during this period. Fire reports indicated that approximately 84% of the total estimated losses occurred in non-sprinklered buildings with approximately 84% if these non-sprinklered high-rise losses occurring in residential occupancies.

Table 6: Summary of High-rise Structure Fires in Chicago by Year (1994-96)(Illinois State Fire Marshal)

Year	Fires	Civilian Deaths	Civilian Injuries	Property Damage (\$100,00)	Deaths Per 1,000 Fires
1994	511	12	73	\$8.9	23.5
1995	431	3	37	\$11.2	7.0
1996	454	10	90	\$8.5	22.0
Total	1,396	25	200	\$26.6	17.9

In 1996, fires in residential complexes comprise 92% of the reported high-rise structure fire, resulting in 10 deaths and 88 injured civilians. In 1995, residential complexes comprised 86% of the reported high-rise structure fires. These fires resulted in 3 deaths and 35 injured civilians. In 1994, residential complexes comprised 88% of the reported high-rise structure fires, resulting in 12 civilian deaths and 57 injured. For the three-year period, residential complexes accounted for 86% of the high-rise structure fires (see Table 7).

Table 7: Summary of Fires by Occupancy Class in Chicago (1994-96)

Occupancy	Fires	Civilian Deaths	Civilian Injuries	Property Damage (\$100,000)	Deaths Per 1,000 Fires
Residential (Apartments, Rooming Houses, etc.)	1,194	25	183	\$21.0	20.9
Hotels/Motels	49	0	8	\$2.6	0.0
Offices	47	0	4	\$2.4	0.0
Other	106	0	5	\$2.7	0.0
Total	1,396	25	200	\$28.7	17.9

Based on this data, Chicago experienced approximately 18.0 deaths per 1,000 high-rise structural fires from 1994 to 1996. The most current data published on high-rise structural fires from the NFPA for 1994-96 yielded a national average death rate of approximately 5.1 deaths per 1,000 reported high-rise

structural fires, placing Chicago’s rate at approximately 3.5 times higher than the estimated national average. A summary of reported fires, deaths and injuries for the buildings by number of floors is displayed in Table 8.

Table 8: Summary of Deaths by Height of Building in Chicago (1994-96)

	Reported Fires	Deaths	Injuries	Deaths Per 1,000 Fires
7-12 Stories	462	12	88	26.0
13-24 Stories	754	11	63	14.6
25-49 Stories	144	2	43	13.9
50 or More Stories	36	0	6	0.0
Total	1,396	25	200	17.9

Further analysis identified even higher death rates in high-rise structural fires for residential occupancies. The death rates in residential complexes had a three-year average rate of approximately 20.9 deaths per 1,000 reported high-rise fires in Chicago from 1994 to 1996. Chicago also experienced injury rates that are higher than the national average. From 1994-96, Chicago experienced approximately 143 injuries per 1,000 structural fires. The national average from 1994-96 for reported fires was approximately 69 injuries per 1,000 high-rise structural fires.

An examination of the high-rise fires in Chicago found approximately 85% of the residential high-rise structures did not have a sprinkler system in place, while approximately 47% of the other types of high-rise structures did not have a sprinkler in place. Approximately 92% of the deaths that occurred due to high-rise structure fires during the analysis period in Chicago occurred in non-sprinklered buildings. Two fires in sprinklered buildings, which resulted in one death each, accounted for the remaining 8%.

Federal Emergency Management Agency Data. Because discrepancies in numbers of fatalities reported by the Illinois State Fire Marshal’s Office and the Chicago Fire Department in high-rise buildings were identified for 1995 and 1996, data from the Federal Emergency Management Agency NFIRS Master Database were analyzed. In 1995, the Chicago Fire Department reported one fatality in a high-rise structure while the State Fire Marshal’s Office indicated there were three. The 1995 FEMA Master Database file contained the records of three deaths matching the data from the Illinois State Fire Marshal’s Office. In 1996, the Chicago Fire Department indicated there were five deaths, while Fire Marshal records indicated there were 10. The FEMA database for 1996 contained records for 10 fatalities.

VI. Comparisons to other Cities

A comparison of Chicago’s deaths due to fires in high-rises was made using data from the 1994, 1995 and 1996 NFIRS master databases. Because the NFIRS reporting is not mandatory, not all cities’ records were available. Some of the largest cities, based on population, which reported complete data during the three years, were analyzed. New York City and Los Angeles data were not available in the data set; however, requests have been made for the data. The results are displayed in Table 9.

Table 9: City Comparisons for High-Rise Fatalities (1994-96)

City	Fires	Civilian Deaths	Deaths per 1,000 Fires
Chicago	1,396	25	17.9
Washington, D.C.	239	4	16.7
Boston	362	2	5.5
Detroit	293	0	0.0
National Average	33,500	170	5.1

VII. Risk For Property Damage in High-rise Buildings

From 1989-93, high-rise buildings accounted for 5.2% of all direct property damage (Hall 1996). In office buildings, the risk of property damage is clearly higher for high-rise office buildings due to the fact that just a few fires in such occupancies sustained losses of \$50 million dollars or more. NFPA data suggest that sprinklers typically cut the average loss per fire by one-half to two-thirds (Hall 1996). Table 10 summarizes the average direct property damage for sprinklered and unsprinklered buildings by property type.

Table 10: Summary of Average Direct Property Damage per Fire in the United States

Property	Without Automatic Sprinklers	With Automatic Sprinklers	Percent Reduction
Public	\$17,700	\$6,900	61
Educational	\$13,200	\$4,400	67
Apartments	\$ 7,300	\$3,900	47
Hotels/Motels	\$11,700	\$4,700	60
Health Care and Correctional	\$ 3,500	\$1,300	63

VIII. Retrofit Costs

Sprinkler System Installation. Without a doubt, the capital investment is significant: the retrofit of a 10-story, 117,000 square feet hotel, for example, could cost approximately \$520,000 (ENR 1994). Information provided from the NFPA estimated retrofitting sprinklers would cost approximately \$1.50 per square foot to \$3.00 per square foot. Data from past sprinkler retrofit projects completed in Chicago ranged from \$2.10 per square foot to \$4.75 per square foot. Additional figures from projects completed in Chicago estimated office occupancies to be \$3.00 per square foot and hotels to cost \$2.50 per square foot to \$3.00 per square foot.

Asbestos Abatement. Building owners may be faced with additional costs related to the abatement of hazardous materials encountered during the retrofit process. Asbestos and lead are the two most common abatement issues in retrofit work. The most comprehensive cost estimates were obtained from asbestos abatement consultants. Spot removal of asbestos to allow for the installation of sprinklers was

suggested as the most cost-effective method for abating an asbestos problem during retrofit work (Cronin and Jensen 1993).

Because each facility is different, for estimation purposes, an average spacing of 10 feet for piping and hangers was used. Which would result in approximately one tent per 100 square feet, yielding approximately \$1.50 to \$2.50 per square foot for asbestos abatement. This coincides roughly with data from the *Journal of Property Management* (Cronin and Jensen 1993) which estimates asbestos spot abatement costs to be about \$1.00 per square foot. Additional abatement contractors estimated costs from a range of \$1.00 to \$4.00 per square foot.

Lead Abatement. Lead hazards, prevalent in most commercial, industrial and residential settings as well as throughout the public infrastructure, pose potentially serious health and environmental risks to a building’s personnel and visitors. Lead paint was used extensively through the late 1970s, until the passage of the Lead Based Paint Reduction Act (Bowker 1996).

The four major classes of lead abatement technology are abrasive blasting, water jetting, power tools and chemical strippers. In abrasive blasting, compressed air propels abrasive material, often sand, against the surface to be cleaned. It remains a popular method of abatement because of its speed, efficiency and familiarity (Bowker 1996). Applying the assumptions of spot removal of lead for areas that will required the installation of hangars; the costs for lead abatement during a retrofit project appear to be approximately \$.04-.06 per square foot of sprinklered area.

Tenant Displacement. Building owners may face additional expenses displacing tenants during the retrofit and abatement work. Because of the vast differences in occupancy rates, layouts of the buildings and time frames for retrofit work, data from past retrofit work completed must be obtained to determine these costs accurately.

IX. Effects of Sprinkler Systems on Deaths

The National Fire Protection Association has record of a fire killing more than two people in a completely sprinklered public assembly, educational, institutional, or residential building where the system was properly operating (Hall 1996). According to NFPA statistics, sprinklers reduce the rate of fire deaths per 1,000 fires by one-third to two-thirds (Stein 1995).

From 1985-94, sprinklers have shown approximately a 53% reduction in the civilian death rates for all types of buildings (see Table 11). In high-rise buildings, automatic suppression equipment is associated with a reduction of at least 71 percent in the rate of deaths per 1,000 fires (Hall 1997).

Table 11. Deaths per 100,000 by selected type of Occupancy and Sprinkler Protection in the United States

Property	Without Automatic Suppression Equipment	With Automatic Suppression Equipment	Percent Reduction
Public	1.1	0.0	100
Educational	.3	.3	---
Healthcare	4.2	1.7	59
Hotels/Motels	9.2	1.5	83
Stores and Offices	.9	0.0	100

Manufacturing	1.6	1.1	30
All Properties	1.7	0.8	53

X. Effects of Sprinkler Systems of Insurance

Depending on insurance market conditions, there may be opportunities for reduced property insurance premiums if a facility is provided with automatic sprinkler protection. In today's relatively soft property insurance market, sprinklers do not necessarily lead to much lower premiums, but firms with well-protected properties may improve premium stability in the future (Stein 1995).

Estimates on property insurance savings from retrofitting were obtained from the Insurance Services Office and underwriters from the nation's largest property and fire insurance companies. The results obtained were consistent. The market is currently (1998-99) experiencing a "soft market" which makes insurance prices very competitive but does not reward insureds financially for sprinkler systems.

Insurance Services Office. The Insurance Services Office (ISO) rates occupancies for insurance companies for the purposes of developing a base premium rate. Buildings begin with a 100-point rating and deficiency points are subtracted from the 100 points. If a sprinkler system requires the use of pumps, there is an automatic 60-point deduction if the pumps are not monitored. If they are, there is a 40-point deduction. There is also an automatic 10-point deduction for the water supply because most facilities do not have a water supply for the system as required by ISO. Because of these factors, plus the impact of a soft insurance market, the addition of a sprinkler system in a high-rise building, such as an office building, will not dramatically reduce insurance rates.

Sample rates for property and contents were obtained from ISO for a hypothetical high-rise office building located on Michigan Avenue in Chicago. The rates were determined under two scenarios: that the building was sprinklered and that it was not. Rates for a non-sprinklered building ranged from .03-.04 per \$100 of property value for property and .06-.08 per \$100 for property and .03-.05 per \$100 for contents. Assuming a property was valued at \$25 million and using the high end of the rated, an unsprinklered building would have a base rate of approximately \$30,000 while a sprinklered building would have a base rate of approximately \$17,500. The insurance companies then apply their discounts as a method for attracting and keeping business. The discounts vary widely from insurance company to insurance company. In today's market, with the discounts applied, the bottom line premiums for a sprinklered and unsprinklered high-rise building are not significantly different.

Major Insurance Companies not Using ISO. Some of the largest property insurance companies do not use ISO to determine base premiums and subsequent final premiums. Using their data and underwriting methods and average rate for property insurance is .08 per \$100 of property and content value for and unsprinklered building and .04 per \$100 of property and content value for a sprinklered building. Using a \$25 million dollar building as an example, an estimated premium would be \$20,000 and \$10,000 respectively, for savings of \$10,000 annually.

If an office building averages \$100 per square foot in property and contents value, this facility has 250,000 square feet to sprinkler, and assuming the sprinkler system costs \$3.00 per square foot, the owner would have to spend \$750,000 and would realize a \$10,000 per year savings in insurance premiums.

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10TH C ONGRESS
____SESSION

H.R. _____

To amend the Internal Revenue Code or 1986 to allow a credit for the cost of installing automatic fire sprinkler systems in certain buildings.

IN THE HOUSE OF REPRESENTATIVES
_____ , _____

_____ introduced the following bill; which was referred to the Committee on Ways and Means

A BILL

To amend the Internal Revenue Code of 1986 to allow a credit for the cost of installing automatic fire sprinkler systems in certain buildings.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled.

SECTION 1. CREDIT FOR INSTALLATION OF SPRINKLER SYSTEMS.

(a) GENERAL RULE. – Subpart of part IV of sub-chapter A of chapter 1 of the Internal Revenue Code of 1986 (relating to business-related credits) is amended by adding at the end thereof the following new section:

“SEC. 45C. EXPENDITURES IN INSTALL AUTOMATIC FIRE SPRINKLER SYSTEMS.

“(a) GENERAL RULE. – For purposes of section 38, the sprinkler system installation credit determined under this section for any taxable year is 15 percent of the qualified sprinkler system expenditures for such taxable year.

“(b) QUALIFIED SPRINKLER SYSTEMS EXPENDITURES. – For purposes of this section –

“(1) IN GENERAL. - The term ‘qualified sprinkler system expenditure’ means any amount which is properly chargeable to a capital account in connection with the installation of a qualified sprinkler system in a qualified building but only if such installation is not in connection with the original construction of such building. Any such expenditure shall be taken into account for the taxable year in which it is properly chargeable to capital account.

“(2) QUALIFIED SPRINKLER SYSTEM- The term ‘qualified sprinkler system’ means any automatic fire sprinkler system which meets the requirements of National Fire Protection Association Standard Number 13.

“(3) QUALIFIED BUILDING. - The term ‘qualified building’ means any building if –

“(A) such building has one or more floors which are more than 75 feet above the lowest level of fire department vehicle access and are used in a manner requiring the presence of individuals, and

“(B) the installation of a qualified sprinkler system in such building would be required if such building were being constructed on the date of the installation referred to in paragraph (1).

“(c) DENIAL OF DOUBLE BENEFIT. –

“(1) OTHER CREDITS. - No credit shall be allowed under any other provision of this chapter for any expenditure taken into account in determining the amount of the credit under this section.

“(2) BASIS ADJUSTMENT. - For purposes of this subtitle, if any expenditure with respect to any property is taken into account under subsection (a), the increase in the basis of such property which would (but for this paragraph) result from such expenditure shall be reduced by the amount of the credit determined under subsection (a) with respect to such expenditure.

“(d) TERMINATION. - This section shall not apply to any expenditure made on or after January 1, 200_.”

(b) CREDIT MADE PART OF GENERAL BUSINESS CREDIT.- Subsection (b) of section 38 of such Code is amended by striking “plus” at the end of paragraph (11), by striking the period at the end of paragraph (12) and inserting, “plus”, and by adding at the end thereof the following new paragraph:

“(13) the sprinkler system installation credit determined under section 45C(a).”

(c) DEDUCTION FOR UNUSED CREDIT.- subsection (c) of section 196 of such Code is amended by striking “and” at the end of paragraph (6), by striking the period at the end of paragraph (7) an inserting, “and”, and by adding at the end thereof the following new paragraph:

“(8) the sprinkler system installation credit determined under section 45C(a).”

(d) LIMITATION ON CARRYBACKS.- Subsection (d) of section 39 of such Code is amended by adding at the end thereof the following new paragraph:

“(8) NO CARRYBACK OF SECTION 45C CREDIT BEFORE ENACTMENT. - No portion of the unused business credit for any taxable year which is attributable to the sprinkler system

installation credit determined under section 45C(a) may be carried to a taxable year ending before January 1, _____.”

(e) CLERICAL AMENDMENT.- The table of sections for subpart D of part IV of subchapter A of chapter 1 of such Code is amended by adding at the end thereof the following new item:

“Sec. 45C. Expenditures to install automatic fire-prevention sprinkler system.”

(f) EFFECTIVE DATE.- The amendments made by this section shall apply to expenditures made after December 31, _____.

ORDINANCE

Sponsored by:

COUNTY OF COOK, ILLINOIS

**AN ORDINANCE AMENDING THE REAL PROPERTY
ASSESSMENT CLASSIFICATION ORDINANCE, AS AMENDED**

BE IT ORDAINED BY THE COOK COUNTY BOARD OF COMMISSIONES:

The Real Property Assessment Classification ordinance, as from time to time amended (November 29, 1976; June 6, 1977; September 19, 1977; May 16, 1978; January 2, 1979; March 3, 1980; September 2, 1980; October 3, 1983; April 2, 1984; November 18, 1985; May 19, 1986; June 20, 1988; September 5, 1989; December 18, 1989; March 16, 1992; December 6, 1994; November 19, 1996; and May 6, 1997) is hereby amended to read as follows:

* * *

Section 2.

Real estate is divided into the following assessment classes:

* * *

Class 6b: Real estate used primarily for industrial purposes, as defined herein, consisting of all newly constructed buildings or other structures, including the land upon which they are situated; or abandoned property, as defined herein, including the land upon which such property is situated; or all buildings and other structures which are substantially rehabilitated to the extent such rehabilitation has added to their value, including qualified land related to the rehabilitation. Regardless of the subsequent assessment, the installation of an automatic sprinkler system is considered a substantial rehabilitation, which adds value to the building. Land qualifies when the rehabilitation adds vertical or horizontal square footage to the improvements. The amount of land eligible for the incentive shall be in such proportion as the square footage added by the rehabilitation bears to the total square footage of the improvements on the parcel.

Prior to filing a Class 6b eligibility application with the Assessor, an applicant must obtain from the municipality in which the real estate is located or the Board of Commissioners of Cook County if the real estate is located in an unincorporated area, an ordinance or resolution expressly stating that the municipality or County Board, as the case may be, has determined that the incentive provided by Class 6b is necessary for development to occur on

the specific real estate and that the municipality or County Board, as the case may be, supports and consents to the Class 6b application to the Assessor. A certified copy of such ordinance or resolution shall be included with the Class 6b eligibility application at the time of filing the application with the Assessor.

This classification shall continue for a period of ten years from the date such new construction (excluding demolition, if any) or such substantial rehabilitation was completed and initially assessed, or in the case of abandoned property, from the date of substantial reoccupancy. After such ten-year period the real estate shall revert to the applicable classification under this Ordinance.

Additionally, for newly constructed or substantially rehabilitated buildings and other structures to qualify for Class 6b classification, an eligibility application must be made to the Assessor within one year prior to the commencement of such new construction or substantial rehabilitation. With respect to abandoned property, the eligibility application must be made to the Assessor no later than ninety days after purchase for value if such property is encompassed within the definition herein of abandoned property by reason of purchase for value; or within one year prior to the commencement of substantial rehabilitation if such property is encompassed within that definition by reason of substantial rehabilitation.

Where eligibility requirements are met, including timing and applicant may apply for a Class 6c classification in addition to Class 6b classification. As described below, the Class 6c classification provides for: 1) a possible 3 year extension of the Class 6b classification; and 2) a restriction on the commencement of the Class 6b classification as to the land, if remediation of the lands I not yet completed.

The Assessor may adopt rules consistent with the foregoing necessary to ensure proper review of all factors relevant to determine eligibility for the benefits provided under Class 6b.

The Assessor shall provide by rule for the filing of triennial reassessment reports by all Class 6b recipients as to the use of the property and the number of persons employed at the Class 6b site. Such reports shall be verified. Failure to file such reports within the time established by the Assessor's rules shall result in loss of the incentive for the period relating to the non-filing.

* * *

Section 3.

The Assessor shall assess, and the Board of Appeals shall review, assessments on real estate in the various classes at the following percentages of market value:

* * *

Class 6b: 16% for first 8 years, 23% in year 9 and 30% in year 10; where eligible in conjunction with the Class 6c classification as described in Section 2 above, an extension of 3 additional years at 16%, followed by 23% in year 12 and 30% in year 13.

* * *

Approved and adopted this _____ day of _____, _____.

JOHN H. STRONGER, JR., President
Cook County Board of Commissioners

(S E A L)

Attest: _____
DAVID D. ORR, County Clerk

____ **TH GENERAL ASSEMBLY**

State of Illinois

_____ **and** _____

Introduced _____, **by** _____

SYNOPSIS AS INTRODUCED:

35 ILCS 120/2-5 amended

Exempts sprinkler materials from the Illinois Retailers' Occupation Tax. Effective immediately.

A BILL FOR

AN ACT in relation to sprinkler incentives, amending a named Act.

Be it enacted by the People of the State of Illinois, represented in the General Assembly:

Section 5. The Retailers' Occupation Tax Act is amended by changing Section 120/2-5 as follows:
(35 ILCA 120/2-5 (32))

§ 2-5. Exemptions. Gross receipts from proceeds from the sale of the following tangible personal property are exempt from the tax imposed by this Act:

* * *

- (32) All materials necessary for the installation of automatic sprinkler systems, including, without limitation, piping, sprinkler heads, fittings, fire pumps (including motors and controllers), pressure maintenance pumps, pipe hanger materials, control valves, hose valves, hose equipment, backflow preventers, water flow devices, valve supervisory devices, and pressure monitoring devices.

Section 10. Effective date. This Act shall take effect upon becoming law.

ORDINANCE

Sponsored by:

COUNTY OF COOK, ILLINOIS

**AN ORDINANCE AMENDING THE
HOME RULE COUNTY RETAILERS' OCCUPATION TAX ORDINANCE**

WHEREAS, County of Cook is a home rule unit of local government pursuant to Article VII, section 6(a) of the 1970 Illinois Constitution, and

WHEREAS, as a home rule county, County of Cook is authorized by P.A. 86-962, as amended, to impose a tax upon all persons in Cook County engaged in the business of selling tangible personal property, and

WHEREAS, the Board of Cook County Commissioners finds that alternative and new sources of revenue are required to fund the operations of Cook County Government.

NOW THEREFORE BE IT ORDAINED THAT:

SECTION 1. As authorized by the "Home Rule County Retailers' Occupation Tax Law" (Ill. Rev. Stat. (1991) ch. 34, par. 5-1006), on and after September 1, 1992, a tax is imposed countywide upon all persons in Cook County engaged in the business of selling tangible personal property at retail, at the rate of $\frac{3}{4}\%$ of the gross receipts from such sales made in the course of such business. The tax shall be paid in the manner provided by the "Home Rule County Retail Occupation Tax Law".

SECTION 2. The tax herein provided for shall not be imposed on the sales of food for human consumption which is to be consumed off the premises where it is sold (other than alcoholic beverages, soft drinks and food which has been prepared for immediate consumption), or on prescription and nonprescription medicines, drugs, medical appliances and insulin, urine testing materials, or syringes and needles used by diabetics. The tax herein provided for shall not be imposed on materials necessary for the installation of automatic sprinkler systems, including, without limitation, piping, sprinkler heads, fittings, fire pumps (including motors and controllers), pressure maintenance pumps, pipe hanger materials, control valves, hose valves, hose equipment, backflow preventers, water flow devices, valve supervisory devices, and pressure monitoring devices. The tax herein provided for shall not apply to tangible personal property titled or registered with an agency of this State's government. Nothing in this ordinance shall be construed to authorize imposition of a tax on the privilege of engaging in any business, which, under the Constitution of the United States, may not be made the subject of taxation.

SECTION 3. The Clerk of the Board is hereby authorized and directed to obtain and transmit a certified copy of this Ordinance to the Illinois Department of Revenue not later than five days after its effective date, and in no case later than June 1, 1992.

SECTION 4. The Ordinance shall be known and cited as the "COOK COUNTY HOME RULE COUNTY RETAILERS' OCCUPATION TAX ORDINANCE" and shall be effective upon its passage

Approved and adopted this _____ day of _____, _____.

JOHN H. STROGER, JR., President
Cook County Board of Commissioners

Attest: DAVID D. ORR, County Clerk

**AN ORDINANCE IN RELATION
TO AUTOMATIC SPRINKLERS**

WHEREAS, avoiding a catastrophic fire loss is in the interests of the citizens and businesses of Chicago; and

WHEREAS, sprinklers offer an increased level of safety that builds on the expands alternative measures currently utilized and employed; and

WHEREAS, since 1975, the Municipal Code of Chicago (the “Code”) has reflected the policy of the City of Chicago to avoid catastrophic fire loss by strongly encouraging all newly constructed buildings more than 80 feet above grade to install sprinklers; and

WHEREAS, the City should encourage most of the existing residential high-rise buildings in Chicago to install sprinkler systems if they do not already have them and should provide such incentives as tax relief to encourage sprinkler installation.

BE IT ORDAINED by the City Council of the City of Chicago.

SECTION 1: Section 3-40-0101 of the Municipal Code of Chicago is amended as follows:

3-40-10 Tax-Imposed.

(a) A tax is hereby imposed upon all persons engaged in the business of selling tangible personal property, other than tangible personal property titled or registered with an agency of Illinois government, at retail in the City of Chicago, pursuant to the Home Rule Municipal Retailer’s Occupation Tax Act, at the rate of one percent of the gross receipts from such sales made in the course of such business.

(b) The tax imposed by this section shall not be applicable to or imposed upon sales of the following items:

* * *

(iii) Any materials used in the installation of automatic sprinkler systems.

SECTION 2: This Ordinance shall take effect and be enforced from and after its passage.

_____TH GENERAL ASSEMBLY

State of Illinois

_____ and _____

INTRODUCED _____, by _____

SYNOPSIS AS INTRODUCED:

- 20 ILCS 3505/7.12 new
- 20 ILCS 3505/7.13 new
- 20 ILCS 3505/7.14 new
- 20 ILCS 3505/7.15 new
- 20 ILCS 3505/7.16 new
- 20 ILCS 3505/7.17 new
- 30 ILCS 105/5.988 new

Amends the Illinois Development Finance Authority Act. Authorizes the Authority to provide certain financing for the installation of sprinkler systems. Establishes guide lines. Creates the Fire Safety Loan Guarantee Fund. Amends the State Finance Act to create the Fire Safety Loan Guarantee Fund. Effective Immediately.

A BILL FOR

AN ACT in relation to Fire Safety, amending a named Act.

Be it enacted by the People of the State of Illinois, represented in the General Assembly:

Section 5. The Illinois Development Finance Authority Act is changed by adding Sections 7.12, 7.13, 7.14, 7.15, 7.16, and 7.17 as follows:

(20 ILCS 3505.7.12 new)

§ 7.12. Findings and declaration of policy. The General Assembly has found and determined and does declare that fire results in the tragic loss of life every year; that every year fire destroys the living and working spaces of Illinois citizens; that much of the loss in lives and property can be avoided; that automatic sprinkler systems effectively reduce or eliminate the threat of fire in thousands of buildings; that many high-rises lack automatic sprinklers; and that it is declared to be the policy of the

State, in the interest of promoting the health, safety, and general welfare of the people of Illinois, to improve fire safety by facilitating the installation of automatic sprinkler systems.

(20 ILCS 3505/7.13 new)

§ 7.13. Definitions. The following terms, whenever used or referred to in Sections 7.13 through 7.17 of this Act, shall have the following meanings ascribed to them, except where the context clearly requires otherwise:

(a) “Automatic sprinkler system” means an arrangement of piping installed in a building with outlets distributed approximately uniformly in such a manner that water can be discharged in a spray indirectly from special outlets, termed heads, for the purpose of extinguishing an incipient fire and protecting the building and its contents, with pumps, tanks and other equipment as necessary to provide an adequate supply of water to the heads.

(b) “Board” means the governing body of the Authority.

(c) “Fire safety debt” means a debt held by a lender, the purpose of which is the finance fire sprinkler installation in at risk buildings in the State.

(d) “Fund” means the Fire Safety Loan Guarantee Fund established under Section 7.14 of this Act.

(e) “Lender” means any federal or State chartered bank, federal or State chartered savings and loan association or building and loan association, Small Business Investments Company, or any other institution qualified within this State to originate and service loans, including, but without limitation to, insurance companies, credit unions, and mortgage loan companies. “Lender” also means a wholly owned subsidiary of a manufacturer, seller, or distributor of goods or services that makes loans to businesses or individuals, commonly known as a captive finance company.

(f) “State guarantee” means a note held by a person for which the State of Illinois shall be liable of 85% of the total principal and interest of the note as determined by the Authority.

(g) “Secondary guarantee” means a security held by a person for which the State of Illinois shall be liable for 100% of the total principal and interest of the security as determined by the Authority.

(20 ILCS 3505/7.14 new)

§ 7.14. Fire Safety Loan Guarantee Fund. There is created the Fire Safety Loan Guarantee Fund. The Treasurer of the Authority shall have custody of the Fund, which shall be held, outside of the State Treasury, not subject to General Assembly appropriation. The Authority is authorized to accept any and all grants, loans, including grants and loans from employee pension funds, as authorized by this Act or any other statute, subsidies, matching funds, reimbursements, appropriations, transfers of appropriations, federal grant monies, income derived from investments, or other things of value from the federal or state

governments or any agency of any other state or from any institution, person, firm or corporation, public or private, for deposit in the fund. Any amounts in the Fund not currently need to meet its obligations shall be investments shall be retained in the Fund. The Authority shall provide for its expenses from its operations by the charges and fees or from the proceeds of investments on its reserve fund as it may decide or from investment earnings from the Fund or special funds that the Authority is empowered to use.

(20 ILCS 3505/7.15 new)

Sec. 7.15 Powers and duties. The Authority shall have the power: (a) To issue State guarantees for fire safety debts held by a Lender, with the maximum permissible debt to asset ratio based on criteria established by the Authority;

(b) In order to further the purposes of Sections 7.12 through 7.17, to cooperate in any manner whatsoever with any governmental or private source (including private pension funds), by, for example, accepting aid, gifts, grants, contributions, or loans of money, property, labor, or other items of value, subject to any conditions not inconsistent with this Act or with the laws of this State pertaining to contributions;

(c) To issue bonds or secondary guarantees for the purposes of establishing secondary markets for the guaranteed loans authorized under Section 7.12 to 7.17 of this Act, provided that the Authority shall not have outstanding at any one time State guarantees under this Section in an aggregate principal amount exceeding \$20,000,000, and until time as the Fund achieves a balance of \$4,000,000, the Authority shall not have outstanding at any one time State guarantees in an aggregate principal amount exceeding 5 times the balance of the Fund.

(20 ILCS 3505/7.16 new)

§ 7.16. Notes and bonds of the Authority. The notes and bonds of the Authority are securities in which all public officers and bodies of this State and all municipalities and municipal subdivisions, all insurance companies, associations, and other persons carrying on an insurance business, all banks, trust companies, savings banks, and savings associations, saving and loan associations, investment companies, all administrators, guardians, executors, trustees and other fiduciaries, and all other persons who are authorized to invest in bonds or other obligations of the State may properly and legally invest funds, including capital, in their control or belonging to them.

(20 ILCS 3505/7.17 new)

§ 7.17. Issuance of State guarantees.

(a) Lenders shall apply for the State guarantees on forms provided by the Authority and certify that the application and any other documents submitted are true and correct. (Possible Fire Safety Advisory Council insert, including p. 10 language and 3505/7.6 language) The Lender or borrower, or both, shall pay an administrative fee as determined by the Authority. The applicant shall be responsible for paying any fees or charges involved in recording mortgages, releases, financing statements, insurance for secondary issues, and any other similar fees or charges as the Authority may require. The application shall at a minimum contain the business name, address, present credit, and financial statements, balance sheets, and any other information pertinent to the application, and the collateral to be used to secure the State guarantee. In addition, the Lender must agree to charge a fixed or adjustable interest rate that the Authority determines to be below the rate of interest generally available to the borrower, taking into account marketability of the loan to potential secondary markets. If the Lender agrees, the interest rate on the State guarantee loan can be converted to a fixed interest rate at any time during the term of the loan.

(b) In reviewing applications, the Authority shall consider whether:

- (1) the Lender agrees to pay to the Authority a fee equal to 25 basis points on the loan;
- (2) the application provides collateral acceptable to the Authority that is at least equal to the State's portion of the guarantee to be provided;
- (3) the Lender assumes all responsibility and costs for pursuing legal action to collect on any loan that is delinquent or in default; and
- (4) the Lender is responsible for the first 15% of the outstanding principal of the note of which the State guarantee has been applied.

(c) In the event of default on any guarantee loan, the Lender shall be entitled and the Authority shall direct payment on the State guarantee after 90 days of delinquency. All payments by the Authority shall be made from the Fund to satisfy claims against the State guarantee. The Fund shall guarantee receipt of payment of the 85% of the principal and interest owed on the State guarantee loan by the borrower to the guarantee holder.

It shall be the responsibility of the Lender to proceed with the collecting and disposing of collateral on the State guarantee within 14 months of the time the State guarantee is declared delinquent; provided, however, that the Lender shall not collect or dispose of collateral on the State guarantee without the express written prior approval of the Authority. If the Lender does not dispose of the collateral within 14 months, the Lender shall be liable to repay to the State interest on the State guarantee equal to the same rate that the Lender charges on the State guarantee; provide, however, that the Authority may extend the 14 month period for a Lender in the case of bankruptcy of extenuating circumstances. The Fund shall be reimbursed

for any amounts paid under this Section upon liquidation of the collateral. The Authority, by resolution of the Board, may borrow sums from the Fund and provide for repayment within a reasonable time upon receipt of payments of principal and interest by a borrower. Money may be borrowed from the Fund by the Authority for the sole purpose of paying certain interests costs for borrowers associated with selling a loan subject to a State guarantee in a secondary market as may be deemed reasonable and necessary by the Authority.

Section 10. The State Finance Act is amended by adding Section 5.338 as follows:

(30 ILCS 105/5.338)

§5.338. The Fire Safety Loan Guarantee Fund.

Section 15. Effective date. This Act takes effect upon becoming law.