

THE NEED FOR FEDERAL LEGISLATION REGARDING FIRE PROTECTION IN HIGH RISE BUILDINGS

Fires cause a high number of deaths, injuries, and losses of property in the United States every year.¹ Many of the deaths and injuries could have been prevented and property losses reduced had fire protection devices or special building designs been employed.² Such devices include smoke detectors, remote alarm systems, and automatic sprinkler systems, about which research and development have been steadily progressing. Installation of these simple devices could reduce fire-related injuries, deaths and property losses.³ Various building codes,⁴ state laws,⁵ and local ordinances⁶ have incorporated provisions requiring building owners to install one or more of these devices in new or preexisting structures, or both. Until all states and localities adopt provisions that apply retroactively, however, fire-related injuries, deaths, and property losses will continue in the United States.⁷

This note will examine how fire prevention and safety measures can be improved in high rise health care facilities, hotels, motels, and apartment buildings. More specifically, after canvassing federal, state, and local fire prevention statutes and ordinances, this note will demonstrate the need for retroactive federal legislation that requires automatic sprinkler systems to be installed in all high rise buildings.

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1. FEDERAL EMERGENCY MANAGEMENT AGENCY, U.S. FIRE AD. REPORT TO CONGRESS ON FIRE PROTECTION SYSTEMS: DETECTORS, REMOTE ALARM SYSTEMS, AND SPRINKLERS (1981). at 1. [hereinafter cited as REPORT]. Fire incidence and fire death rates per capita in the United States are among the highest in the industrialized world. The U.S. Fire Administration estimated that in 1978 there were 2.7 million reported fires, 30 million unreported fires, 8,400 deaths, 90,000 reported injuries, 200,000 unreported injuries, \$4.6 billion in direct property loss, and more than \$15 billion in other costs such as insurance premiums and fire department costs.
 2. Dektar, *MGM Fire Deaths Were Preventable*, 7 CURRENT MUN. PROB. 395, 397-400 (1981).
 3. REPORT, *supra* note 1, at 64. See also NAT'L FIRE PROTECTION ASS'N, LIFE SAFETY CODE HANDBOOK, at 175 (J. Lathrop ed., 2d ed. 1981) [hereinafter cited as HANDBOOK].
 4. U.S. DEP'T OF COMMERCE, NAT'L FIRE PREVENTION AND CONTROL ADMIN., SMOKE DETECTORS AND LEGISLATION 46 (1977) [hereinafter cited as SMOKE DETECTORS AND LEGISLATION]. The list of model national building codes includes: The Basic Building Code, the National Building Code, the Uniform Building Code, the Southern Standard Building Code, and the Life Safety Code, which has been adopted in whole or in part by a majority of the states.
 5. For example, California requires that an automatic sprinkler system must be installed and maintained in operable condition in any hospital, children's home, children's nursery, senior citizen's home or institution for insane or mentally retarded persons. CAL. HEALTH & SAFETY CODE § 13113 (West 1982).
 6. See *infra* note 62.
 7. Fires in high rise buildings are only part of a much larger problem. In the United States, most fire-related deaths result from residential fires. Fire is the second leading cause of accidental death in American homes. REPORT, *supra* note 1, at 2.

SCOPE OF THE PROBLEM

High rise buildings, particularly sky scrapers, have been likened to "small cities."⁸ Fire protection in these structures warrants special consideration because of the design of these buildings.⁹ First, the complete and prompt evacuation of hundreds or perhaps thousands of occupants is usually impractical, especially when the occupants are older, sick, or simply unfamiliar with the surrounding area.¹⁰ Second, the integrated system of design in high rises impedes proper control and containment of toxic smoke and heat and presents the constant risk of a communications systems breakdown within the building.¹¹ Third, firefighters encounter many difficulties gaining access to the fire itself and dispatching fire suppression materials when at the scene.

An efficient sprinkler system can neutralize these unique problems by automatically discharging water on a fire before it grows out of control—occupants could move to safety, toxic smoke could be contained on a greater scale, and firefighters would stand a greater chance of responding to fires at an early stage. According to the Life Safety Code¹² committee, sprinkler systems are "the single most important element of a design (in high rise buildings) that ensures a high level of life safety from fire."¹³

HISTORY OF THE PROBLEM

Since the industrial revolution, high rise buildings have become an important part of the urban scene. Unfortunately, these architectural wonders, which housed many people on a small parcel of real estate, turned into a "towering inferno" when set ablaze. For example, in 1946, hotel fires killed sixty-one persons in Chicago, nineteen in Dubuque, Iowa, and 119 in Atlanta, Georgia.¹⁴

Such tragedies prompted renewed efforts in the study and implementation of fire safety measures. For many years, fire safety programs had sought to improve the response time of external support systems of

8. Condon, *San Francisco Fire Department Deals with High-Rise Fires*, 7 CURRENT MUN. PROB. 400 (1981).

9. HANDBOOK, *supra* note 3, § 26-4.2. The commentary lists the following sources pertaining to problems which high rise buildings pose for life safety, fire fighting, and fire protection in general: *High-Rise Buildings and Fire Safety*, *Fighting High-Rise Building Fires-Tactics and Logistics*, and *Fires in High-Rise Buildings*.

10. Condon, *supra* note 8, at 401.

11. LIFE SAFETY CODE, §26-4.2 (1981).

12. The LIFE SAFETY CODE is published by the National Fire Protection Association; and is one of several model national building codes. *See infra* note 4.

13. HANDBOOK, *supra* note 3, § 26-4.2.1. The commentary expresses this view. Other solutions have been offered to address the problems of high rise fire protection. Given the importance of the human element, public education programs would be especially helpful. Regular and complete inspection of fire protection mechanisms and services would also provide the needed factor of reliability. Detection alarms, and minimum standards for interior finish, vertical openings and design of exists are important areas where fire protection can be improved.

14. HANDBOOK *supra* note 3, at xiii.

firemen and emergency medical teams. Private and public groups realized that these traditional approaches could not be viable in "high rise" circumstances and began to research and explore built-in fire protection devices.

Textile mills in New England first used primitive sprinkler systems to protect their property.¹⁵ Gradually, commercial buildings, factories, and schools installed sprinkler systems.¹⁶ Within the last decade the use of sprinklers in many facilities has become a generally common practice.¹⁷ Smoke alarm use expanded greatly in the 1970's.¹⁸ Research to improve fire-safety devices continues today.¹⁹

Despite the availability of fire protection mechanisms, the number of fire-related deaths in high rise buildings in the United States increased markedly during the late 1970's and early 1980's.²⁰ Although fire protection devices had been developed and state fire safety codes and local zoning laws required their installation in new buildings, many structures built before the laws were passed remain unprotected. Because the laws were not retroactive, the building owners had no legal obligation to install such equipment.²¹

The November, 1980 fire at Las Vegas' MGM Grand Hotel provides a glaring example of the problem. Experts claim that retroactively mandated fire safety devices could have prevented the eighty-four deaths that occurred.²² Though the MGM fire prompted renewed research, public awareness programs, and legislative activity in the field of fire protection, legislators have not yet fully implemented the logical and economical solutions to many fire safety problems.

ANALYSIS OF FIRE PROTECTION DEVICES

Technological advances have refined the design and application of fire prevention mechanisms developed long ago.²³ Recently, Congress asked the Fire Administration²⁴ to examine the effectiveness of remote alarm systems, smoke and heat detectors, and automatic sprinkler systems. Detectors operate upon heat or smoke entering a highly sensitive chamber in the unit, thereby activating a sounding horn. Automatic sprinklers use a system of connected water pipes and sprinkler "heads"

15. REPORT, *supra* note 1, at 40.

16. *Id.* at 40.

17. *Id.* at 4.

18. *Id.* It was estimated that only five percent of the households in the U.S. owned detectors at that time. By 1980, about one-half of the households owned detectors.

19. *See generally*, REPORT, *supra* note 1, at 8-24.

20. *High-Rise Fire Safety*, 7 CURRENT MUN. PROB. 395, editor's note (1981).

21. Favro, *Regulations and Responsibilities*, 7 CURRENT MUN. PROB. 395 (1981). Building owners, therefore, usually did not voluntarily install sprinklers.

22. Dektar, *supra* note 2, at 397. Although such a claim is impossible to prove, this point about fire protection systems is well taken.

23. REPORT, *supra* note 1, at 4, 40.

24. 15 U.S.C. § 2222(a) (Supp. III 1979). The study which was eventually published in 1981 by the Federal Emergency Management Agency (in the U.S. Fire Administration) in response to the mandate serves as authority for much of this note. *See* REPORT, *supra* note 1.

which contain a highly sensitive metallic strip that bends at a certain temperature to open the water valve. Though no one of the devices will resolve all the problems of fighting fires in high rise buildings, their use in conjunction with modern architectural design and structural plans can significantly help reduce loss of lives and property.²⁵

Remote Alarm Systems

Remote alarm systems, which transmit signals directly to a fire department or other central station facility,²⁶ are most commonly installed in places where the residents cannot react quickly enough to an alarm, such as nursing homes and hospitals. Unlike single station detectors,²⁷ remote alarm systems can directly alert external fire support teams, and can include burglar alarms and emergency medical warning systems.²⁸ High cost, excessive nuisance alarm rates, and potentially high failure rates have prevented the widespread use of this device.²⁹ Additionally, remote alarm systems are not as effective in high rise fire protection as sprinkler systems because the usual fire fighting problems remain.³⁰

Detectors

Detectors have become popular for use in all types of high rise buildings because they are inexpensive and easy to install.³¹ Three kinds of detectors have been developed:³² heat detectors, photoelectric

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25. See generally Favro, *supra* note 21, at 394. See also Gerard, *High-Rise Buildings*, 7 CURRENT MUN. PROB. 408, at 408-10 (1981). A variety of other fire protection systems and measures have been proposed by national firefighting and fire prevention organizations. Some have been incorporated in state statutes and local ordinances. California seems to have led other states in this regard. In addition to automatic sprinkler systems, "built-in" fire protection requirements for new buildings may include the following: manual-pull fire alarm systems, smoke detection systems within the duct work of heating, air conditioning, and ventilation systems, emergency electrical power, heliport landing facilities, communications systems, remote alarm systems, and smoke control systems. In addition to the prospective "built-in" requirements, preexisting buildings may be retroactively required to include the following: two means of egress from every floor, enclosed stairshafts, smoke detectors, recall for elevators, fire alarm manual pull boxes, smoke control systems, emergency fire evacuation plans and procedures, prominent display of evacuation maps and procedures in hallways and elevator lobbies, and regular fire drills. Some codes combine both the "built-in" and retroactive requirements into a "high-rise protection package." These plans embody the principle that no single fire protection measure can insure complete fire safety. Automatic sprinkler systems stand out, however, as the most efficient mechanism by which dangers from high rise fires can be reduced.
26. REPORT, *supra* note 1, at 33. One type of remote alarm system is the Automatic Remote Residential Alarm System (ARRAS), which uses telephone lines or two-way cable television installations to connect fire detectors in a residence to a remote facility.
27. Single station detectors are commonly one unit chambers which are usually battery operated.
28. REPORT, *supra* note 1, at 33.
29. *Id.* at 36-38.
30. See *supra* notes 9-12 and accompanying text.
31. Also for these reasons, detectors are most appropriate for residential homes.
32. REPORT, *supra* note 1, at 4-6. Heat detectors can be built to detect either a fixed high temperature or a specific rate-of-rise in temperature. Photoelectric smoke detectors use a small light source shining into a sensing chamber containing a light sensitive component which triggers a voltage current when smoke particles enter the chamber. Ionization smoke detectors use a

smoke detectors, and ionization smoke detectors, which are most common and generally used as a single station, battery-operated device. Evidence indicates that detectors save lives and property that would otherwise be lost or destroyed by fire.³³ One study estimates that detectors reduce the rate of deaths per fire by seventy-one to eighty-six percent.³⁴

Despite the effectiveness of detectors, a failure to maintain and test detectors can render these devices totally useless.³⁵ Where state or local code requirements are still lacking, public education programs about detectors' availability, proper use and maintenance should be encouraged,³⁶ but it must be realized that they are not as well-suited for high rise fire protection as are sprinkler systems.³⁷

Automatic Sprinklers

Automatic sprinkler systems have proven to be the most effective fire prevention method for high rise nursing homes, hospitals, hotels, motels, and apartment buildings.³⁸ These systems have dramatically reduced the number of fire-related fatalities.³⁹ According to one source, no multiple life fires have occurred in public buildings fully equipped with automatic sprinklers.⁴⁰ Sprinklers not only enhance chances for survival in high rise fires, but also provide comfort to residents and reduce the average property loss per fire.⁴¹

small amount of radioactive material to make the chamber electrically sensitive to smoke particles.

33. *Id.* at 9, 14, 64. While smoke detectors do not effect the absolute rate of physical (personal) injuries, they greatly reduce the *severity* of injuries. People's natural instinct to save possessions or assist family members, however, often results in injuries when homeowner's attempt to fight fires or rescue family members on their own. Although this is a serious problem, people in these situations at least have the opportunity to escape or help others, rather than become engulfed in the fire with no recourse.
34. *Id.* at 11. The REPORT cited a study by Johns Hopkins University Applied Physics Laboratory which estimated that the use of detectors could potentially reduce the rate of death per fire by 71 to 86%. One drawback to using detectors, however, is the injuries that result when homeowners attempt to fight fires or rescue family members on their own.
35. *Id.* at 26. Nuisance alarms, which are "false alarms" sounding when no fire really exists, are bothersome, but not a serious problem.
36. REPORT, *supra* note 1, at 21, 22. Another more recent innovation is the "multi-mode detection device" which incorporates several types of sensors that respond to different fire characteristics through a single detector system.
37. *See supra* note 9 and accompanying test.
38. The theory behind sprinkler systems, that water should be automatically applied to a fire before it grows, makes this device the obvious alternative for firefighting in high rise buildings. HANDBOOK, *supra* note 3, § 7-7.1.1. The commentary to this section states that:
The requirements in the *Code* for automatic sprinklers have been carefully based on the sprinkler experience record, which shows that a sprinkler system is the most effective device when installed properly for protecting and safeguarding against loss of life and property.
39. REPORT, *supra* note 1, at 45. By comparing statistics between high rise buildings using automatic sprinkler systems and those without, this fact becomes apparent. Indeed, one fire official has stated that there are no known records of multiple life loss fires in fully sprinklered buildings, except where explosions occurred.
40. *Id.* An exception is when explosions knocked out the sprinklers before they were activated.
41. *Id.* The REPORT quotes the NAT'L FIRE PROTECTION ASS'N, FIRE PROTECTION HANDBOOK (1976) in stating that sprinklers "have a psychological as well as a physical value in that they

At one time cost had been a significant barrier to uniform installation of sprinkler systems.⁴² Today, however, the average price of an industrial sprinkler system represents about 1.5% of the total cost of a new building.⁴³ Even in preexisting structures, problems of cost can be alleviated through tax credits, government financing programs, insurance premium reductions,⁴⁴ and a probable decrease in the long-term demand on external support teams.⁴⁵

Despite their obvious advantages, sprinkler systems, if extensively used in community buildings, may cause water shortage and contamination problems. Communities may, to alleviate these problems, impose special water standby charges to cover the cost of larger pipes needed for the system⁴⁶ and require backflow-protection valves for industrial sprinkler systems to protect the water supply from contamination. To the extent that such requirements are valid,⁴⁷ they may add substantially to the aggregate cost. Though business and industry can generally absorb this cost, residential homeowners often find the increased expense from these special requirements prohibitive. Research and development of sprinkler systems has been specifically aimed at making it economically and practically useful in residential homes.

MODEL BUILDING CODES AND RECENT LEGISLATION

Several federal regulations⁴⁸ authorize the Department of Housing and Urban Development to issue insurance covering loans made by financial institutions for the purchase and installation of fire safety equipment in nursing homes⁴⁹ and health care facilities.⁵⁰ Federal statutes fail, however, to mandate the installation of fire protection mechanisms in high rise structures. Through legislation or administrative regulation, states have adopted fire prevention provisions which are derived from local building codes.⁵¹ Some states have given local governments the power to enact code regulations that exceed state requirements,⁵² and many localities have actually done so.⁵³

give a sense of security to occupants of buildings and tend to minimize possible panic hazards."

42. *Id.* at 52. The REPORT states that "[s]prinkler system costs are substantial—much more than detector systems—but in commercial and industrial properties, these costs often can be offset by sizeable savings elsewhere."
43. *Id.* at 52.
44. *Id.* See also Dektar, *supra* note 2. Premium reductions of 40 to 95% are common. When amortized, the cost becomes insignificant.
45. *Id.* at 53. External support teams include fire departments and standby emergency teams.
46. *Id.* Many communities already require such special standby charges.
47. *Id.* Some authority suggests that the special requirements are not necessary.
48. The enabling statutes for the C.F.R. provisions mentioned herein are 42 U.S.C. § 3535(d) (1976) and 12 U.S.C. § 1703(h) (1976).
49. 25 C.F.R. § 232 (1982).
50. 24 C.F.R. § 201 (1982).
51. SMOKE DETECTORS AND LEGISLATION, *supra* note 4, at 46-54. These local building codes are drafted by a variety of organizations and associations that seek to promote fire safety.
52. FEDERAL EMERGENCY MANAGEMENT AGENCY, U.S. FIRE AD. STATE AND LOCAL ORDINANCES FOR SPRINKLER SYSTEMS: FINAL REPORT 2 (1982) [hereinafter cited as STATE AND

The Life Safety Code, published by the National Fire Protection Association (NFPA) is the code most commonly adopted by states. Forty-two states have adopted the Life Safety Code either in whole or in part.⁵⁴ Its purpose is to establish minimum requirements that provide a reasonable degree of safety from fires in buildings and structures.⁵⁵ This Code has a special provision for high-rise buildings which requires that every "business occupancy building"⁵⁶ over seventy-five feet high shall be protected throughout by an approved automatic sprinkler or a system that will provide equivalent life safety.⁵⁷ This equivalency concept,⁵⁸ which allows the use of equivalent or superior fire prevention methods if approved by an appropriate authority, distinguishes the Life Safety Code from normal specification codes in that it allows for implementation of state-of-the art technology.⁵⁹ The Code also specifically requires the installation of automatic sprinkler systems in new and existing health care facilities,⁶⁰ educational buildings,⁶¹ and mercantile buildings.⁶²

Despite regulations which favor the use of automatic sprinklers, the Life Safety Code is inconsistent in its regulatory scheme. In particular, hotels⁶³ and apartment buildings, both new and existing, are not required to have automatic sprinkler systems.⁶⁴ The absence of a sprin-

LOCAL ORDINANCES]. About 34 states allow local jurisdictions to adopt regulations which exceed or modify state requirements for automatic sprinkler systems.

53. For example, San Clemente, California, has a very detailed Automatic Fire Sprinkler System Ordinance for one and two family dwellings. *Id.* at 168. For a table of other such localities, see *id.* at 89.
54. *Id.* at 35. Those states fully adopting the NFPA LIFE SAFETY CODE include: Arkansas, Delaware, Georgia, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Mississippi, New Mexico, Oklahoma, South Dakota, Tennessee, Vermont, and West Virginia.
Twenty-seven states have adopted the LIFE SAFETY CODE in part: Alabama, Arizona, Colorado, Connecticut, Florida, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Montana, Nebraska, New Hampshire, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Texas, Utah, Virginia, and Washington.
Three states have no Code at all or have delegated responsibilities to localities: Idaho, Missouri, and Hawaii.
55. LIFE SAFETY CODE, § 1.2.1 (1981).
56. *Id.* § 26-4.2.1.
57. HANDBOOK, *supra* note 3, § 26-4.2.1, at 685. (2d ed. 1981).
58. LIFE SAFETY CODE, § 1-5.1 (1981). This section provides that:
Nothing in this Code is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety to those prescribed by this Code, provided technical documentation is submitted to the authority having jurisdiction to demonstrate equivalency and the system, method, or device is approved for the intended purpose.
59. HANDBOOK, *supra* note 3, § 1-5, at 5 (2d ed. 1981).
60. LIFE SAFETY CODE §§ 12-3.5.1 and 13-3.5.1 (1981).
61. *Id.* §§ 10-3.5 and 11-3.5 (1981).
62. *Id.* §§ 24-3.5 and 25-3.5 (1981).
63. *Id.* § 16-1.3 (1981). "Hotels" is defined as:
. . . buildings or groups of buildings under the same management in which there are more than 15 sleeping accommodations for hire, primarily used by transients who are lodged with or without meals, whether designated as a hotel, inn, club, motel, or by other name. So-called apartment hotels shall be classified as hotels because they are potentially subject to transient occupancy like that of hotels.
64. The LIFE SAFETY CODE sets up the following four options for apartment buildings, with the third and fourth options including automatic sprinkler systems:
(1) buildings without fire suppression systems;

kler system requirement in these structures is surprising in view of the Code's official comment that "[e]xperience shows that automatic sprinklers, properly installed and maintained, are the most effective of the various safeguards against loss of life by fire."⁶⁵ In light of the minimal costs involved for business to install an automatic sprinkler system, the Code's failure to uniformly adopt such a requirement for hotels and apartment buildings lacks foundation.⁶⁶ In a report to Congress prepared by the United States Fire Administration,⁶⁷ the authors unequivocally found that sprinklers save lives and property.⁶⁸ However, even the authors of this report fall short of fully and logically developing their findings into concrete recommendations. While the Fire Administration expressly recommended that "[c]onsideration of *mandatory detector legislation* be promoted for new and existing properties in States and localities that do not already have such legislation,"⁶⁹ they failed to even hint that mandatory sprinkler legislation, with retroactive requirements, should be considered.

Aside from the inconsistencies in the Life Safety Code itself, problems result from the wide range of building codes enacted by the states and the inconsistencies among their substantive provisions. Although a variety of codes seems necessary, in theory, to accommodate geographical and physical differences, the resultant disparity among the states is significant. For example, forty-seven states have provisions requiring automatic sprinkler systems for some occupancies but only twenty-three states require automatic sprinkler systems in some form of high rise building.⁷⁰ Of these states, only ten have codes requiring the retroactive application of these particular regulations to preexisting high rise buildings.⁷¹ Moreover, only five of these states have strict retroactive application requirements in every high rise building, two states require it only when occupancy changes, one in high rises other than privately owned, one in high rises in some cities only, and one in nursing homes only.⁷² Approximately nineteen states had been planning to revise their code provisions dealing with sprinkler systems, two states

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- (2) buildings provided with a complete fire detection and notification system;
 - (3) buildings provided with automatic sprinkler protection in selected areas;
 - (4) buildings protected throughout by an approved automatic sprinkler system.

65. LIFE SAFETY CODE, § 7-7.1.1 (1981).

66. Since the Code so strongly supports the use of sprinklers and it requires their use in both new and old health care facilities, educational buildings, and mercantile buildings, it is surprising that the Code does not consistently require sprinklers in all high rises.

67. REPORT, *supra* note 1.

68. *Id.* at 66. The REPORT specifically stated that "sprinklers have proven effective in reducing life and property loss in residential and public buildings." See also LIFE SAFETY CODE, § 7-7.1.1 (1981).

69. REPORT, *supra* note 1, at 64 (emphasis in original).

70. STATE AND LOCAL ORDINANCES, *supra* note 52, at 29-34.

71. *Id.*

72. *Id.* The five states that have strict retroactive application requirements are Illinois, Montana, Rhode Island, Wisconsin and District of Columbia. The two states requiring it when occupancy changes are Maine and Delaware. Florida requires it in publicly owned high rises. South Dakota requires it only in some cities. West Virginia has strict retroactive application in nursing homes only.

have not adopted a building code, and one state has granted its local jurisdictions complete power to enact and enforce any codes.⁷³

In the aftermath of the 1980 MGM Grand Hotel fire, legislative efforts increased on all levels of government.⁷⁴ Representative Adabbo introduced H.R. 1570,⁷⁵ a bill requiring automatic sprinkler systems in nursing homes and health care facilities and providing for direct low interest federal loans to such facilities. This bill would have amended the Social Security Act by applying its requirements only to those facilities certified for participation in the medicare or medicaid program. Just as with previous legislation, the bill failed to take the next logical step and require sprinklers in hotels, motels, and apartments where people have similar fire protection needs.

Congress appears willing to allow each state to determine its own fire prevention policy. Many states have comprehensive legislation which adopts the relevant Life Safety Code provisions relating to high rise buildings. The non-uniformity which exists among the states, however, allows for high rise structures to be without sprinkler systems and occupants to be without the best available protection.⁷⁶

73. *Id.* at 4, 30. Idaho, Missouri, and Hawaii do not have state building codes. Hawaii has recently given authority to exact and enforce code requirements to local jurisdictions.

74. STATE AND LOCAL ORDINANCES, *supra* note 52, at 114-201. On the federal level, several bills were introduced to the 97th Congress:

(i) H.R. Con. Res. 288, 97th Cong., 2nd Sess. (1982) expressing the sense of the Congress that state and local governments should support the fire safety effort of the U.S. Fire Administration to reduce lives and property damage lost by fire.

(ii) H.R. 1570, 97th Cong., 1st Sess. (1981) to amend the Social Security Act to require automatic sprinkler systems in all nursing facilities and intermediate care facilities certified for participation in the medicare or medicaid program, and to provide for direct low-interest Federal loans to assist such facilities in constructing or purchasing and installing automatic sprinkler systems.

(iii) S. 878, 97th Cong., 1st Sess. (1981) to amend the Internal Revenue Code of 1954 to provide an investment tax credit for the installation of certain fire prevention equipment in buildings such as nursing homes and other health facilities, hotels, high-rise buildings, restaurants, clubs, lounges, and other public facilities.

(iv) H.R. 389, 97th Cong., 1st Sess. (1981) to amend the Internal Revenue Code of 1954 to allow individuals a credit against income tax for qualified fire detector expenses.

Many state legislatures have been active in this area as well. STATE AND LOCAL ORDINANCES, *supra* note 52. For example:

(i) The California State Assembly was considering an act to amend the California Revenue and Taxation Code by authorizing a credit in an amount equal to 25% of the cost of a fire protection system installed in a dwelling owned by the taxpayer.

(ii) In Alaska, the state legislature considered an act to amend the state property tax authorizing an exemption of two percent of the assessed value of a structure if the structure contains in operating condition an approved fire protection system.

(iii) The Texas state legislature considered a proposal to amend the Texas Insurance Code by authorizing the Texas State Board of Insurance to require that insurers give policy holders of homeowners and renters insurance a credit on unearned premium or a reduction in premiums as determined by the board for installation of approved burglar alarms, smoke detectors, sprinkler systems, or deadbolt protective locks.

Fresno, California recently adopted a local ordinance provision entitled "Automatic Fire Protection Incentive Financing," to encourage the installation of automated fire protection systems in all existing commercial, industrial, office and recreational buildings by providing a revolving trust fund to finance these systems.

75. H.R. 1570, 97th Cong., 1st Sess. (1981).

76. Collectively, there exists a void in the fire prevention codes, state legislation, and local ordi-

PROPOSALS

In view of the overwhelming evidence supporting the benefits of detectors and sprinkler systems, it is questionable why Congress has not acted to require their installation at least for its most obvious application in high rise buildings. Perhaps Congress feels that the problems of cost outweigh the benefit of saving a few lives. Given the possibility of tax credits, government financing and insurance premium reductions, however, cost is not a substantial barrier, even for owners of pre-existing high rises.⁷⁷ While mandatory sprinkler legislation has been enacted at state and local levels, only twenty-three states require sprinkler system in some form of high rise building.⁷⁸ Only five states require retroactive application.⁷⁹

No one solution represents a cure-all for the problem of high rise fires. Because human behavior in a fire situation remains a significant factor,⁸⁰ public education programs must continue. Government funding of research and development to improve fire protection technology should also be encouraged. Fire safety experts must continue their efforts to study and design practical alternatives for fire protection. Mandatory sprinkler legislation has the greatest potential for improving life safety in high rise buildings.

Federal legislation must be enacted requiring the installation of automatic sprinkler systems in both preexisting and new, privately and publicly-owned high rise buildings over seventy-five feet high, including health care facilities, motels, hotels, and apartments. This legislation, modeled after the Life Safety Code, with several modifications, should incorporate the following four provisions:

- (1) authorize federal investment tax credits for owners of high rise buildings who install automatic sprinkler systems or an equivalent life safety system;
- (2) make available low interest federal loans to owners of high rise buildings who install sprinklers and create tax incentives for private financial institutions to do the same;
- (3) provide incentives for states to require that insurance companies give insurance premium reductions to owners who install sprinklers; and
- (4) establish an administrative enforcement scheme at the fed-

nances which must be filled. There is no practical or legal reason why both new and pre-existing high rise buildings—including all health care facilities, hotels, and apartment buildings—should not be required by federal law to have automatic sprinkler systems. Many states and local communities already have such legislation in force, and many private and public owners of high rises voluntarily choose to install them. But thousands of high rise buildings across the United States still do not.

77. *Supra* notes 43-45.

78. *Supra* note 70.

79. *See generally supra* note 72.

80. Favro, *supra* note 21, at 396.

eral level (perhaps within HUD) which would allow for compliance with stricter requirements at the state or local level.

CONCLUSION

Technology exists today that can prevent catastrophic fires in high rise buildings. Evidence overwhelmingly supports the conclusion that use of automatic sprinkler systems in high rises prevents fatalities in fires and reduces property loss. We must recognize that benefits to our elderly, the sick or infirmed, and the public at large greatly outweigh the initial problems of cost or convenience to high-rise building owners. As technology continues to develop, costs become more reasonable and alternative financing arrangements become more readily available. Insurance savings alone could reduce the cost of fire prevention devices to a minimal amount. Federal legislation requiring automatic sprinkler systems in high rise occupancies is needed now. To wait until each state or locality voluntarily adopts such requirements, with the knowledge and ability we presently have available, would be irresponsible. Undoubtedly, there will be a day when all high rise buildings will have comprehensive fire prevention systems. Until that day, however, people will continue to die needlessly.

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