

# FIRE SPRINKLER TIMES

Northern Illinois Fire Sprinkler Advisory Board • December 2002



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**How much more would the average Chicago tenant pay in monthly rent to cover the cost of retrofitting a high-rise apartment building?**

See page 2 for answer.

## Resident in Chestnut Street High-Rise Fire Said Experience was Horrible

It was just past midnight when Maureen Marley awoke from the sound of an alarm while sleeping in her 14th floor condominium at 260 E. Chestnut Street in Chicago's Gold Coast.

"I thought I left the phone off the hook," Marley said. "Then I followed the sound to the hallway, I opened my door and heard the smoke alarms. I called the doorman to tell him that the smoke alarms were going off in the hallway. Then the sound got louder and louder. I opened my door again. I saw my neighbor open her door. We both saw a huge black wall of smoke coming at us," Marley said. "It was horrible. I told her to go back into her condominium and close the door. After I closed my door, smoke started coming through it."

The fire, believed to be caused by smoking material, killed one occupant and injured 11 people including eight firefighters. By the time firefighters arrived on the scene, flashover had occurred.

According to the *Chicago Tribune*, firefighters immediately began trying to control the fire while evacuating the residents, some of whom were going door to door to wake neighbors. About two-dozen residents fled to the roof after trying to escape down the stairwell and finding it filled with smoke.

"I can't imagine anything in my life as horrible as this," Marley said. "It was overwhelming, not knowing what to do. It was a feeling of helplessness not knowing if I should stay in the building and be overcome by smoke or jump out the window," she said.

According to Marley, water from the firefighter's hoses came flooding under her door. Marley stayed in her unit the entire time.

Firefighters declared the fire was put out at around 3:30 a.m. and began letting residents back in. However, another alarm was sounded after a resident smelled smoke. The fire had spread into the plumbing system on the 14th floor and crept to the unit directly above.



*A fire at 260 E. Chestnut Street, on Chicago's Gold Coast in January 2002, resulted in one death and 11 injuries including eight firefighter injuries. The damage was in the millions and some tenants were displaced for more than nine months.*

Marley had to live in a nearby hotel for more than eight months while her condo was being repaired. Again, she had a feeling of helplessness because building management decided to install an expensive annunciator – an alarm that senses heat and smoke – instead of retrofitting the building with a fire sprinkler system. Marley believes the annunciator wouldn't have made a difference if it were in place at the time of the fire.

"Now we have the opportunity to install fire sprinklers in this building and building management is not going to do it," Marley said. "That is a feeling of helplessness." ■

*Additional photos shown on page 2.*

# Retrofitting High-Rises Save Lives and Money

## Sprinklers Cost Less Than Monthly Cable TV

The new National Fire Protection Association (NFPA) "Life Safety Code 101 2000 Edition" affecting high-rise buildings went into effect in Illinois on January 1, 2002. The code, enacted by the Office of the State Fire Marshal, requires existing high-rise buildings to be equipped with fire sprinklers.

In addition to the life and property saving benefits, this code requiring high-rise buildings to be retrofitted with fire sprinklers makes good business sense for property owners and managers. With the cost of fire insurance rising, a building protected with a fire sprinkler system can result in a reduction in fire insurance rates.

The name "high rise" elicits an image of urban lifestyle and personal security. One would rarely think of fire hose cabinets, pressurized stairwells, smoke control, fire pumps and sprinklers. Yet all of these items are essential elements in controlling a fire before the deadly "flashover" stage when the entire contents of the fire area become heated to their ignition temperature. When it reaches this point, simultaneous ignition occurs and the area becomes engulfed in flames. No one escapes alive from flashover. Even the firefighters' protective gear will melt and burn in the over 1,200-degree heat of a flashover.

More than 800 high-rise buildings in the City of Chicago do not have all of these fire safety elements in place – particularly fire sprinklers.

According to the NFPA Lifesafety Code 101 2000 Edition, a high-rise is a building more than 75 feet in height. If the fire department cannot reach a floor to affect a rescue or to apply a hose stream, firefighters have to rely on fixed fire protection systems. The NFPA code calls for built-in fixed fire protection systems, such as fire hose standpipes placed to cover all areas, using 100 feet of hose and a 30-foot stream; stairways rated for two-hour fire protection; fire sprinklers for 100% floor-area protection; fireman's service for elevators; and possibly smoke control and stair pressurization with exit and emergency lighting connected to a generator.

Two residents were killed on the 37th floor of the Malibu Condominium fire in August of

1999. The fire started in one apartment, from careless use of smoking materials, then killed a neighbor, 70-year-old Pearl Majorca, when she opened her door and was consumed by the fire in the hallway.

This building only had standpipes and the Fireman's elevator was out of order. Firefighters had to carry hundreds of pounds of equipment up 37 floors before they could connect to the standpipe and fight the fire manually.

Had this building been protected with a fire sprinkler system, the fire would have been controlled automatically before firefighters arrived. According to the NFPA, there has never been a multiple fire death in a building protected by fire sprinklers. All Chicago high-rise buildings built

since 1975 are required to have fire sprinklers or fire compartmentation. Only two buildings built since the 1975 ordinance have opted for the compartmentation method of protection that allows a fire to reach "flashover" in the room of origin and only attempts to limit the spread of the fire. Those tenants occupying the fire "compartment" are effectively "written off" as an expendable loss of human life.

Fire sprinklers, however, control or suppress a fire 96% of the time and activate quickly to allow escape. Only the sprinklers activated by the fire will discharge water - contrary to the "Hollywood" perception that all sprinklers go off at the same time.

According to an NFPA report, in 1998 there were over 10,000 high-rise fires resulting in 560 injuries and 37 deaths as well as \$41.4 million in property damage. The Chicago Safety High-Rise Commission reported in 1998 that Chicago's high-rise deaths are over 3.5 times the National average!

Many of Chicago's high-rise buildings have the infrastructure already in place to install fire sprinklers such as a fire pump and fire hose standpipe stations in stairwells. As new tenants occupy space, tenant floors can be converted on an as needed basis with the addition of cross-mains and branch lines from the standpipe feed.

Part of Mayor Daley's proposal made after the 6007 N. Sheridan Road fire, and again after the fatal fire at 260 E. Chestnut, can be

*continued on page 4*

**This Illinois State Fire Marshal code is in effect now for new and existing buildings!**

**All condo boards should be aware of this new law.**

# High-Rise Fire Aftermath Scenes

260 E. Chestnut St., Chicago (Jan. 2002)



*Scenes in and around the condominium of Maureen Marley (right) in the aftermath of a high-rise fire showing the charred hallways, boarded-up doors and the destruction of condominiums on several floors of the building.*



**How much more would the average Chicago tenant pay in monthly rent to cover the cost of retrofitting a high-rise apartment building?**

**Answer: \$24.75**

# Chutes and Cables: A Questionable Option in Fire Safety

By Tom Lia, Executive Director, NIFSAB

Imagine driving on the highway when suddenly you see cars swerve right in front of your vehicle headed for an accident – and your own impact is imminent.

So, you make the only logical move to avoid injury or death and jump from the moving car onto the roadway!

Now, you're probably thinking that really doesn't make much sense since you'd be diving

into potentially greater danger than the accident itself. At least by remaining in the vehicle, you could take advantage of the car frame's protection as well as seatbelts and air bags.

Well, you'd likely be right! It wouldn't be a logical choice to

expose yourself to more danger when you already have built-in safety features to protect you.

Yet, in another dangerous scenario involving high-rise and multi-floor building fires, allegedly helpful devices designed to extricate a potential victim from danger offer little more option than jumping from that vehicle. The devices are known as "cables" and "chutes."

The "cable spool" type of device requires a bracing support installed on the window ledge of a high-rise building. An individual is placed into a harness with a spool containing a pre-arranged length of wire cable set for the floor's height.

In order to escape, the typically frightened individual must be hooked up to the harness and window device, step outside the window and then repel down the side of the building to a point at which the prearranged spool length stops the descent.

The "fabric chute" device requires the chute to be fixed in place should a window at the end of a high-rise building's hallway not exist. The chute needs to be released from its harness and extended to the ground. A guide or assistant needs to extend the chute to the proper angle and distance.

Then, once extended properly, the person on the fire floor enters the chute feet first and slides to the ground from many stories above. Ideally, padded grounding is provided to buffer the individual's eventual contact with the surface after descent.

All somewhat reminiscent of jumping from that moving vehicle into another tenuous situation while in an extraordinarily heightened state of anxiety, isn't it?

Now, contemplate the fire scenario at 260 E. Chestnut Street in Chicago as an example of lurking dangers for chutes and cables users.

Hallways and stairs filled with smoke and fire raged in the building. Occupants, of course, wanted

to evacuate the premises as fire lapped the windows on the east side of the building and spread to the 15th floor. Several occupants fled to the roof seeking escape ... and an eventual way down.

Outside on the street level courtyard, window glass shards

up to one square yard in size had fallen from the building and were vertically embedded in the grass. If cable or chute devices were installed, occupants may well have used them and the result could have been injuries or death.

Occupants who missed the glass shards may have landed instead on landscape rocks, iron bar fencing, front door canopies, fire equipment, firefighters, police officers or other occupants.

However, chutes and cables are only desperate choices with no consideration for the incipient stage of a fire. A fire allowed to progress to the treacherous flashover stage will result in the death of occupants exposed to it. And, to use cable escape devices or chutes may well end not only in needless injuries and deaths to citizens as they deploy and use the devices, but also to firefighters below as they prepare to fight the fire.

There's only one practical solution to high-rise fires in over 800 unprotected Chicago high-rises, as well as all the new multiple floor buildings going up ... and that's fire sprinkler retrofit or installation!

National code associations from the newly merged International Code Council, National Fire Protection Association 101 Life Safety Code and the new NFPA 5000 Code have confirmed fire sprinklers solve the high-rise problem.

And, now that Life Safety Code 101 is in effect in Illinois and insurance carriers provide a 25 percent discount on fire insurance, there is no longer any excuse not to retrofit high-rises, protect property, prevent injuries and save lives. ■

**"The most effective fire loss prevention and reduction measure with respect to both life and property is the installation and maintenance of fire sprinklers."**

**– United States Fire Administration**

## Where To Get More Information:

### Northern Illinois Fire Sprinkler Advisory Board (NIFSAB)

62 Orland Square Drive, Suite 203  
Orland Park, IL 60462  
Toll-Free: 866-264-3722  
Fax: 708-403-4771

[www.firesprinklerassoc.org](http://www.firesprinklerassoc.org)

*Use the form on the back page of this newsletter to order available materials via mail or fax*

### Office of State Fire Marshal (OSFM)

100 West Randolph Street  
Suite 11-800  
Chicago, IL 60462  
312-814-2693  
Fax: 312-814-3459

[www.state.il.us/osfm](http://www.state.il.us/osfm)

### National Fire Sprinkler Association

P.O. Box 1000  
Patterson, NY 12563  
845-878-4200, ext. 133  
Fax: 845-878-4215

[www.NFSA.org](http://www.NFSA.org)

### National Fire Protection Association

1 Batterymarch Park  
P.O. Box 9101  
Quincy, MA 02269-9101  
617-770-3000  
Fax: 617-770-0700

[www.NFPA.org](http://www.NFPA.org)

### United States Fire Administration

16825 South Seton Avenue  
Emmitsburg, MD 21727  
301-447-1000  
Fax: 301-447-1052

[www.usfa.fema.gov](http://www.usfa.fema.gov)

## Fire Sprinkler Facts:

The reduction in deaths and injuries associated with automatic fire suppression ranges from 60% in manufacturing occupancies to over 91% for hotels and motels.

Both smoke alarms and a fire sprinkler system reduce the risk of death by fire by 82%.

When fire sprinklers are present, the chances of dying in a fire and the average property loss per fire are both cut by two-thirds compared to fire where sprinklers are not present. ■

Source: U.S. Experience with Sprinklers, NFPA, September 2001

# NIFSAB TV Campaign

To increase awareness about the life and property saving benefits of retrofitting high-rise buildings, NIFSAB developed a 30-second TV spot. It features Maureen Marley, the first occupant to call 9-1-1 during the fire at 260 E. Chestnut St. The spot includes news footage from the fire, and Marley talks about her frightening and devastating experience. ■



A clip from the 30-second TV spot that ran on CLTV and WGN-TV this fall and is scheduled to air again on each network during 2003.

## Jurisdictions with High-Rise Retrofit Ordinances

Atlanta, GA	Maui, HI
Baltimore County	Nebraska
Billings, MT	Nevada
Boston, MA	New York, NY
Boulder, CO	(pending)
Casper, WY	Oak Brook, IL
DeKalb County, GA	Ocean City, MD
Denver, CO	Philadelphia, PA
Fresno, CA	Phoenix, AZ
Greenburgh, NY	San Diego, CA
Harrisburg, PA	San Fransico, CA
Honolulu, HI	San Jose, CA
Juneau, AK	Scottsdale, AZ
Los Angeles, CA	St. Louis, MO
Louisiana	(on owner change)
Louisville, KY	St. Paul, MN
Massachusetts	Ventura, CA

## Fire Sprinkler Myths:

### Sprinkler Myth: "Sprinklers are Ugly"

Sprinklers are inconspicuous. Apartments, condos, offices and hotels can be retrofitted with fire sprinklers that are mounted flush with walls or ceilings.

### Sprinkler Myth: "The Entire System Will Go Off"

Despite "sight gags" on TV sit-coms and Hollywood movies, cigarette smoke will not trigger sprinklers and the entire system does not activate. EACH SPRINKLER IS INDIVIDUALLY ACTIVATED. ONLY THE SPRINKLER CLOSEST TO THE FIRE ACTIVATES AND CONTROLS THE FIRE. ■

# Two High-Rise Fires, Two Outcomes

Fire With Sprinklers	Fire Without Sprinklers
1801 S. Michigan Ave., Chicago	260 E. Chestnut St., Chicago
Fire in bathroom caused by candle left unattended. Fire spread to towels. Heat activated single sprinkler; fire was extinguished. Fire department confirmed successful activation. Water was cleaned up.	Fire caused by smoking material in 14th floor unit. Resulted in one death and 11 injuries including 8 firefighter injuries.
Damage: \$2,000.00	Spread to floors above unit and 14th floor hallway. Flooding and smoke damage in other units.
Tenants never displaced for even one day.	Damage: \$2 million* <small>*Does not include damage to individual tenant possessions, claims for displacement or lost rent.</small>
	Some tenants displaced for more than nine months.

# Retrofitting High Rises Saves Lives and Money

continued from page 2

utilized to begin the retrofitting process. Daley's proposal included that fire sprinklers protect hallways.

While the idea would offer only partial protection, it can be expanded upon if the hallway piping is sized to handle tenant space fire sprinklers. When tenant space becomes vacant or remodeled, fire sprinklers can be installed in the units.

It should also be noted that this partial protection proposal would not provide reduction in the insurance rates. A standard such as NFPA 13 or NFPA 13R for the installation of fire sprinklers has to be followed in order to qualify for insurance rate reduction.

In "America Burning Re-commissioned," a report prepared by the Federal Emergency Management Agency/United States Fire Administration (FEMA/USFA), it was stated that the most effective fire loss prevention and reduction measure with respect to both life and property is the installation and maintenance of fire sprinklers.

Another standard in the national fire code (NFPA) calls for high-rise retrofit within a twelve-year time period. This is an option available for Chicago consideration. It is stricter than the recommendations of

the Chicago High-Rise Safety Commission that call for a twenty-year phased-in compliance period.

A contractor study commissioned by NIFSAB on the 6007 N. Sheridan Road building showed that the typical floor – all 13,613 square feet of it – could have sprinklers installed at

**"The high-rise retrofit costs less per month than the cost of cable TV, while providing the potential for substantial fire insurance savings."**

\$1.80 per square foot with chlorinated poly vinyl chloride pipe or \$1.96 per square foot using steel pipe.

What does that mean to tenants? Based on a 20-year loan at 8% interest, the monthly cost to retrofit a fire sprinkler

system would be \$24.75. After the fire sprinklers are installed, start deducting the reduction on fire insurance premiums and these savings will help pay off the installation cost.

A high-rise retrofit costs less per month than the cost of cable TV, while providing the potential for substantial fire insurance savings to both the common area assessment as well as individual homeowners or renters insurance. Condo associations and building managements should investigate these insurance reduction costs as well as determine a payback timetable. This is what has to be done not only for economics, but also for your personal fire safety. ■

# It's Time to Retrofit High Rises

In 1958 a school fire in Chicago killed 95 children; the City Council passed a school sprinkler ordinance. In 1967 McCormick Place burned to the ground; the City Council passed an exhibition hall sprinkler ordinance.

In 1976 a nursing home fire killed 24; the City Council passed a nursing home sprinkler ordinance. Now is the time to pass a high-rise sprinkler retrofit ordinance in Chicago and throughout Northern Illinois, before the next tragedy.

The threat to life and property in high-rises is very real. Based on a recent independent study, the rate of fire deaths in Chicago's high-rise buildings is about 3.5 times greater than the national average. Yet since 1975, Chicago has had one of the best fire safety ordinances in the country. The difference is the large number of buildings built before 1975 that are not required to have fire sprinklers. Ninety-one percent of high-rise fire deaths occur in unsprinklered buildings.

Besides the threat to life, high-rise fires are also an economic threat. The vast majority of buildings that have major fires never reopen. The closing of these buildings can have devastating effects on neighboring retail businesses, and the owners of the burnt buildings are liable for hundreds of millions of dollars in damages.

The cost of retrofitting can be significant, but not prohibitive. A 10-story, 117,000 square foot building may cost approximately \$265,000 to retrofit. This cost can be substantially offset through a number of tax incentives, low-interest loans, waiving of tap fees, and adoption of lower-cost materials such as plastic piping.

Jurisdictions across the country have passed retrofit ordinances. Many of these were passed in haste following a major fire, and have placed unnecessary and counter-productive burdens on building owners. These problems can be avoided by passing a better reasoned ordinance in an emotionally stable atmosphere.

The Chicago High-Rise Safety Commission has proposed legislation that could serve as a model ordinance for the entire region and the country. The proposed ordinance balances the need for fire safety with the economic realities of the market. The costs, requirements and time-tables can all be met while providing for the profitable management of properties.

# Historic Fires Led To Historic Changes in Codes

Few firefighting challenges are more demanding or more dangerous than a high-rise fire. In Chicago alone, there are more than 800 unprotected high-rise buildings that make this challenge even more serious.

## Chicago's Historical Fires

**1904: Iroquois Theater**  
604 deaths

Scenery curtains near a lamp caught fire. Theatergoers were trapped after flashover occurred. Codes were changed to insure fire protection in assembly occupancies to include stage sprinklers and doors that swung in the direction of occupants' travel.

**1946: LaSalle Hotel**  
62 people and a firefighter were killed  
Fire in a second floor atrium vented through an opening in the elevator shaft causing upper floor deaths from fire and smoke that totally disregarded the allegedly "fireproof" construction features.



Eventually, all buildings will be sprinklered. The process of retrofitting older structures can be reasonable and responsible, or we can wait until the next major fire and do it in haste. The real tragedy would be the lives lost while delaying the inevitable. ■

**1958: Our Lady of Angels School**  
95 children and adults perished

A wastepaper basket fire in an unprotected stairwell spread throughout the second floor roof void space trapping children and nuns. After the fire, Chicago changed its building code to require compartmentation, eliminate transoms, enclose stairwells and provide fire sprinklers in high hazard areas.

**1967: McCormick Place**  
1 death, total loss  
City Council passed an exhibition hall sprinkler ordinance.

**1976: Wincrest Nursing Home**  
24 deaths  
Then Mayor Richard J. Daley appointed a "Blue Ribbon Committee" which concluded that fire sprinklers and compartmentation should be used in all existing as well as new Chicago nursing homes.

**1992: Paxton Hotel**  
20 deaths  
Mayor Richard M. Daley called for fire sprinklers to be installed in all single room occupancy hotels. Building owners claimed it would force them to close their doors. The eventual compromise found less-protective fire alarms and voice signal alarms being installed instead.

## Major Cities Pass Retrofit Ordinances Following Major Fires

Media sources in other parts of the country reported high risk and high loss property damage in high-rise fires that resulted in the eventual passage of sprinkler retrofit ordinances.

**Los Angeles:** A fire at the Interstate Bank Building in 1988 ended with one death and \$50 million in damage. Nonetheless, it wasn't until after the fire that Los Angeles officials decided to enact the retrofit ordinance.

**Philadelphia:** Following a multi-floor fire at the Meridian Plaza Building in 1991, which claimed the lives of three firefighters and caused \$1 billion in property damage, Philadelphia officials passed a high-rise building retrofit ordinance.

**New York:** Even though New York has experienced several significant high-rise fires in which firefighters and civilians have been killed over the last four years, officials are still working on high-rise retrofit laws.

Unfortunately, history shows it typically takes death and major property loss before elected officials protect their citizens and enact retrofit ordinances. ■



# Northern Illinois Fire Sprinkler Advisory Board

www.firesprinklerassoc.org

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Orland Park, IL 60462

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**For more information about fire sprinklers, contact Tom Lia, Northern Illinois Fire Sprinkler Advisory Board, 866-264-3722**

You can also contact Tom via e-mail: [sprinktoml@aol.com](mailto:sprinktoml@aol.com)

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## **Northern Illinois Fire Sprinkler Advisory Board**

Mr. Tom Lia  
62 Orland Square Drive, Suite 203  
Orland Park, IL 60462

**866-264-3722**

[SPRINKTOML@aol.com](mailto:SPRINKTOML@aol.com)



### **NIFSAB INFORMATION & MATERIAL REQUEST**

- The Chicago High-Rise Safety Commission Report
- City of Chicago Tri-Data Study on Chicago Fire Dept.
- New York High-Rise Study
- America Burning Recommissioned* (FEMA/USFA)
- NFPA Life Safety Code 101 – 2000 Edition as adopted by the Office of the State Fire Marshal
- Northern Illinois Fire Sprinkler Directory
- NFSA Fire Safety in High-Rise Buildings Brochure
- Please contact me to schedule a no-fee cost study of my high-rise building.

This form can be faxed to: **708-403-4771**