

Tragic High-Rise Fires Spur Dramatic Fire Safety Improvements

by Battalion Chief John Norman

A series of fires in high-rise residential buildings late in 1998 and early 1999 prompted the Fire Department and city government to take a long, hard look at fire safety in residential buildings. The deaths of three FDNY members--Lieutenant Joseph Cavalieri and FFs James Bohan and Christopher Bopp--at 77 Vandalia Avenue in Brooklyn, in a building that, on paper, appeared to be a "safe" building, was the first shock. This was followed within a week by the death of four civilians at 124 West 60th Street in Manhattan. Each of these fires injured numerous firefighters and civilians and caused millions of dollars in property damage.

Early in 1999, yet another blaze in Brooklyn rendered many civilians unconscious as they fled their apartments. They were rescued promptly by fire units and administered timely medical treatment by CFR-D and EMS Command units. All of these incidents signaled the need for a review of the fire safety of residential buildings.

On January 4th, 1999, Mayor Rudolph Giuliani directed the heads of the Fire Department, the Departments of Buildings Housing Preservation and Development, the Housing Authority and the Mayor's Offices of Operations, Management and Budget, and City Legislative Affairs, to form a task force to recommend improvements in fire safety for high-rise residential buildings. Fire Commissioner Thomas Von Essen convened a Fire Department High-Rise Fire Safety Task Force, under the direction of Assistant Chief Donald Burns. The task force was comprised of representatives of the Bureaus of Operations, Fire Prevention and Legal Affairs and the Offices of Intergovernmental Affairs and Public Information.

Additionally, much valuable assistance was received from the Bureaus of Fire Investigation, Fire Communications and Training, the Safety Command, building owner and management associations and the Real Estate Board and numerous private contractors and trade associations, particularly the National Automatic Fire Sprinkler Association. Among the issues to be addressed was the need for improvements in:

- Building fire protection features
- Public Education concerning how to behave during a fire emergency
- Fire Department operational procedures
- Fire Department inspectional practices
- Fire Department training

The Task Force built on a foundation previously laid by the Bureau of Fire Prevention. Fire Prevention has had proposals for improving fire safety in these structures for several years, but there had not been sufficient impetus to enact them. Following the

December tragedies, the City Council held a series of hearings at which some of the survivors of the fires were permitted to testify. Based on the testimony of witnesses and firefighters, coupled with information gained from examining the physical evidence at the scene of both incidents, reviewing tape recordings of telephone calls reporting the fires and tapes of Fire Department radio communications, members of the Task Force were able to piece together an accurate picture of the fire behavior and the behavior of the occupants in the early phases of each fire.

The Task Force found that since residential high-rises are not required to have fire alarms (other than smoke detectors in each apartment), occupants typically become aware of a fire only when conditions are serious enough to cause the smoke detectors in their own apartments to sound, usually after the public hall becomes full of smoke. Some occupants only became aware of the incident when the sound of many arriving fire apparatus drew their attention; still others when the large clouds of smoke drifted past their windows.

The large number of occupants, plus long, vertical egress distances, make evacuation of all occupants above the fire a last-resort technique, especially if evacuation does not begin until after a fire has contaminated the public hall and stairs. This makes reliance on an aggressive interior attack, partnered with a "protect in place" strategy for occupants of apartments other than the fire apartment, the preferred strategy.

One similarity among all the fires that greatly hindered operations was the failure of the required fireproof, self-closing (FPSC) door to protect the public hall, because the door was blocked open or the self-closer was disabled. This created severe life-threatening conditions outside the fire apartment very early in the incidents.

From experience, as well as analysis of each of these incidents, we know that the preferred behavior for occupants of apartments other than the fire apartment is to remain in their apartment, behind the two-hour-rated fire barriers, until the fire is extinguished. Unfortunately, many occupants of these buildings admit to having no idea that this is the correct thing to do. Many cite the



77 Vandalia Avenue, Brooklyn, site of the high-rise fire that took the lives of Lieutenant Joseph Cavalieri and FFs James Bohan and Christopher Bopp on December 18, 1998.

photo by FF J.J. Brown

signs posted at the elevator lobby, which advise: *In case of fire, use stairs unless otherwise instructed.* Many people felt this meant that in case of fire, they **always** should attempt to flee via the stairs, even if the fire was not in their apartment.

These required elevator landing signs, which people view every day as they enter and leave their residences, have indoctrinated the occupants to behave improperly. This error is compounded by the inability of the Fire Department Incident Commander to promptly advise the residents in the correct behavior, "unless otherwise instructed," once the fire has begun, since residential high-rises do not have the communications systems required in Class E (offices) and J-1 (hotels) buildings.

Another problem identified by the Task Force members is the extremely rapid spread of toxic levels of products of combustion within the building. At the West 60th Street fire, the initial alarm was received from the occupant of the fire apartment, on the 19th floor, followed *four minutes* later by the third telephone call reporting heavy smoke on the 48th floor! The type and volume of smoke produced in the modern structure fire is far more deadly than in the past and the speed with which a fire develops when it involves plastics has reduced the time frame in which firefighters successfully may intervene to prevent fire and smoke from extending out of the compartment of origin.

Additionally, the occurrence of extreme wind-driven fires in these structures, such as those that occurred in the Vandalia Avenue fire, as well as the apartment of jazz legend Lionel Hampton and the Rockaway Beach fire that killed FF James Williams, have proved to be so severe as to make the standard aggressive interior attack difficult at these blazes. Some other means of conquering this type of fire behavior and smoke travel had to be found, especially in light of the boom in high-rise residential housing in the city, with projects of unprecedented size on the drawing board.

Task Force personnel reviewed the fire-related deaths in New York City during the prior five years (1994-98) and found that for the majority of the 720 deaths, of all the options for improving life safety, only the installation of an automatic sprinkler system would have made the difference between life and death for these victims. It became clear that if any significant improvement was to be made to life safety in these buildings, the installation of automatic sprinklers would have to be one of the key components of the plan.

Task Force members reviewed the cost factor of installing sprinklers in many different types of structures, from prefabricated,



Firefighters take a break as Commissioner Von Essen confers with Mayor Giuliani during operations at the fatal fire in the building of Macauley Culkin's family.

photo by FF Mike McGevna

single-family dwellings to new townhouses, from older tenements to city housing projects and luxury high-rise apartment buildings. These costs were projected for

both new construction, as well as for the retrofit of existing buildings. Following severe objections from the real estate and housing representatives over the cost of retrofitting existing buildings, as well as asbestos and lead abatement issues, it was determined that further study was needed on this matter. As a result, the Task Force recommended that all new dwellings and those existing dwellings that are undergoing substantial renovation be required to install automatic sprinklers under this legislation.

On March 16th, 1999, the City Council unanimously approved Local Law 10 of 1999. The approved bill was forwarded to Mayor Giuliani, who signed it into law on March 24. Among the provisions of the bill are several items that will have major impact on the safety of New Yorkers for decades to come:

- Automatic sprinklers are required in all **new** residential J-2 (apartment buildings) housing four or more families.*
- Automatic sprinklers will be required in **existing** J-2 buildings housing four or more families, which are **renovated** to the extent of 50 percent or more of the residential portion of the building's value in any 12-month period.*

(*Sprinklers may be omitted from closets, pantries, bathrooms and enclosed stairways.)

- The adoption of two new Reference Standards to the Building Code--RS-17-2A and RS-17-2B--governing the installation of sprinkler systems in J-2 buildings up to six stories and one- and two-family homes, respectively. The acceptance of these standards for use in J-2 buildings up to six stories is a major advancement in sprinkler design, intended to encourage the installation of automatic sprinklers in the thousands of non-fireproof tenements found throughout the city. Both new standards require far less costly plumbing and control equipment than does a conventional sprinkler system installed in commercial buildings under RS-17-2. For example, approved types of plastic pipe will be permitted in some areas under RS-17-2A and RS-17-2B, in place of the steel pipe previously required by RS-17-2.
- A single three-inch inlet Fire Department connection may be used in lieu of a siamese for J-2 buildings up to six stories or 75 feet in height (Fire Department connections are not required in one- and two-family homes).
- Inspections of sprinklers installed in J-2 buildings six stories and 75 feet or less in height and having a secondary means of egress for each dwelling unit or occupiable space can be performed less frequently than the inspection of other occupancies. Sprinkler systems in these buildings will require inspection every six months, instead of every month, as is required of other occupancies.
- A flow test now will be required for the sprinkler systems in these affected buildings. This test will be required every 30 months and must be performed by a licensed master plumber or licensed master fire suppression contractor, who shall certify a report of this test. This report shall be kept for five years for examination by the Fire Department. Every five years (every other test cycle), this test also shall include a hydrostatic test of the system's Fire Department connection. These five-year tests must be witnessed by a Fire Department representative.
- The owners of J-2 buildings must develop a fire safety plan and provide a copy or appropriate fire safety educational material to building occupants and service employees. A fire safety plan includes instructions regarding evacuation and other conduct in the event of a fire. This includes a notice affixed to the inside

of the door to each dwelling unit that describes correct evacuation procedures and fire safety features of each building. Similar notices must be posted in a common area of the building, near tenants' mailboxes if they exist. Additional material must be distributed to all tenants annually.

This legislation promises to have one of the most significant impacts on life safety ever enacted in this city, rivaling the benefits of smoke detector legislation of the 1980s. While it will take years to develop--since Local Law 10 does not require existing buildings to retrofit--it is possible that some time in the future, loss of firefighters and civilians in residential fires will become a thing of the past, the way firefighter deaths in loft building fires in "Hell's Hundred Acres" ended abruptly when sprinklers were mandated in those firefighter traps.

The benefits to the city, its residents and its firefighters will be even greater, given the huge numbers of residential structures that eventually could be affected. Yet, more remains to be done. Work continues on developing a standard for installing an Emergency Voice Communications System for apartments and public areas of high-rise multiple dwellings--similar to those found in Class E buildings--so that the Incident Commander may issue instructions to occupants threatened by fire. It is hoped that by working with industry and the real estate interests, a viable solution to improving the life safety of the thousands of existing high-rise residential buildings will be forthcoming.

Other improvements already have been implemented:

- The FDNY's Firefighting Procedures--Multiple Dwelling manual has been revised to reflect the fire conditions we may

encounter in these structures, with emphasis on the safety of firefighters.

- The Department has tested and purchased a new tool for curtailing the impact of wind on high-rise fires--the Fire Window Blanket.
- Every tenant of a high-rise multiple dwelling has received written fire safety guidelines for surviving a fire in his/her building.
- The Public Education Unit of the Office of Intergovernmental Affairs has conducted dozens of training sessions with tenants' groups and building staff to educate them about fire safety.
- Increased emphasis has been placed on ensuring that self-closing devices on apartment doors are functioning and that the forcible entry team maintains control of this critical fire barrier once fire operations have begun.
- The fire unions have sponsored a public safety announcement, aired on all the local television stations, emphasizing the importance of closing the door to the fire apartment as the occupants flee.

It is through cooperative, coordinated efforts such as these that we can improve the fire safety of our citizens and firefighters entering the new millennium.

About the Author...

Battalion Chief John Norman is a 20-year veteran with the FDNY and is assigned to the 10th Battalion covering. He majored in Fire Protection Engineering at Oklahoma State University. He is a Contributing Editor to Firehouse Magazine and a frequent contributor to WNYF.



Photo Reporter



(Left) The FDNY Holy Name Society of Manhattan, the Bronx and Staten Island celebrated its 75th Annual Communion Mass and Breakfast and honored Father Mychal Judge, John Driscoll and James Dowling as "The Holy Name Man of the Year," April 11, 1999. Left to right are Battalion Chief Joseph R. Bryant, Father Mychal Judge, retired FFs John Driscoll and James Dowling and First Deputy Fire Commissioner William Feehan.

photo by FF John Leavy

(Below) Father John Delendick celebrated his 50th birthday on August 29th at Casa Nova, Brooklyn. Participating in the festivities were Deputy Chief John Francese, UFA President Kevin Gallagher, Malachy Corrigan, Counseling Unit, covering Lieutenant and Anchor Club President Kevin Kilgannon, Father John Delendick and UFA Brooklyn Trustee Matty James.

photo courtesy of retired Captain Pat Larkin



More Photo Reporter in full color on page 22.

(Right) October 1999 was a very good month for Peter J. Ganci, Jr., promoted to Chief of Department, and Dan Nigro, promoted to Chief of Operations. First Deputy Fire Commissioner William Feehan and Commissioner Thomas Von Essen offer their congratulations.

photo by FDNY Photo Unit



(Above) The second Proby class of 1999 is dedicated in honor of Captain Vincent Fowler, who died on June 4, 1999, as a result of injuries sustained in the performance of duty at Queens Box 22-8943 on June 3, 1999. Pictured are FF Raymond Werts, Jr., Chief of Training Joseph Callan and Mayor Rudolph Giuliani. (Left) At September 10, 1999, proclamation for Captain Fowler, Ladder 173, Lieutenant K. Callaghan poses by his depiction of the departed Captain.

photos by FDNY Photo Unit

