

# PAXTON HOTEL FIRE

Chicago, IL

March 16, 1993



# FIRE INVESTIGATIONS

NATIONAL FIRE PROTECTION ASSOCIATION

1 Batterymarch Park, PO Box 9101, Quincy, MA 02269-9101 USA  
Telephone: 1-617-984-7263 E-mail: [investigations@nfpa.org](mailto:investigations@nfpa.org)



# **National Fire Protection Association**

International

Executive Offices

*1 Batterymarch Park*

*P.O. Box 9101*

*Quincy, Massachusetts 02269-9101 USA*

*Telephone (617) 770-3000 Fax (617) 770-0700*

## **SUMMARY FIRE INVESTIGATION REPORT**

### **PAXTON HOTEL FIRE**

**CHICAGO, ILLINOIS  
MARCH 16, 1993**

**PREPARED BY**

**MICHAEL S. ISNER  
FIRE PROTECTION ENGINEER  
NATIONAL FIRE PROTECTION ASSOCIATION**

On March 16, 1993, an early morning fire of undetermined cause and origin occurred at the Paxton Hotel in Chicago, Illinois, a building housing mainly low-income and elderly people. The fire spread into several rooms and filled corridors with combustion products before most occupants could escape and before the fire department was notified. First arriving fire fighters found the building heavily involved in fire and found tens of people by windows and on the roof in need of immediate rescue.

Twenty residents died in this fire and other people who would have been expected to be on the premises at the hotel were counted as "missing". An estimated 28 other residents were injured, and the building was destroyed.

Publishers of the National Fire Codes® and National Electrical Code®

A non-profit membership organization dedicated to promoting safety from fire, electricity, and related hazards through research, codes and standards, technical advisory services, and public education since 1896.

## **Introduction**

The National Fire Protection Association (NFPA), with the cooperation of the Chicago Fire Department, investigated this fire as part of its ongoing program to investigate technically significant incidents. It was not NFPA's intention that the investigation and resulting report pass judgment on, or fix liability for, the loss of life or property resulting from this fire. Rather, the NFPA documented and analyzed this incident intending to determine the significant factors that resulted in the loss of life and property and to report the lessons learned to enable the fire service and other concerned parties to reduce the potential for similar life and property losses.

## **Background<sup>1</sup>**

The Paxton Hotel was a four-story, reverse E-shaped building constructed in approximately 1930. A variety of materials were used to construct this building. The exterior bearing walls were masonry, and a steel structural frame supported interior bearing walls that were constructed of terra cotta tiles with a plaster finish. Non-bearing interior walls separating rooms were constructed of wood studs and were covered with plaster-on-lath. Wood joists were installed between the interior and exterior bearing walls, and the joists were covered with wood sheathing material forming a sub-floor. The sub-floor was, in turn, covered with hardwood flooring in all areas. Ceilings in the building were wire mesh covered by painted plaster. The roof was constructed in a manner similar to the floor assemblies; i.e., it had wood structural members and wood sheathing materials.

Each floor had a central corridor which connected smaller corridors for the three wings. The corridors served as access to three exit stairways; one stairway was located at the end of each wing. Like the corridors, stairways

---

<sup>1</sup> At the time this investigation was being conducted, the search for victims was in progress, with heavy equipment dismantling the severely damaged building during that search. Due to the operation of heavy equipment, entry into the building was limited to a small area; therefore, many of the building's interior details could not be confirmed.

were enclosed by painted terra cotta tile walls, and the stairway enclosures were originally equipped with fire doors. Prior to the fire, however, doors on the top three floors had been removed during the installation of carpeting, and these doors had not been replaced at the completion of the project. The fire doors on the first floor reportedly were held open by chocks on the night of the fire. Combustible materials in the building's stairway components included wood treads and risers and stringers. Combustible materials in the corridors included wood sub-floor assemblies, carpeting<sup>2</sup> over hardwood floors, wood guest/resident room doors, and wood trim.

The building had an estimated 140 single-occupant, guest/resident rooms, and all of these rooms opened directly onto the central corridor. Reportedly, all of the room doors were wood, and none of the doors were equipped with self-closing devices.

The building's population at the time of the fire has been estimated at 160 people because approximately 128 of the building's 140 guest/resident rooms were occupied, and several occupants had guests in their rooms. The majority of the building occupants were middle-aged; however, a few were elderly. Most occupants had a low income. Many of the building occupants were apparently long-term, i.e., periods longer than 30 days, residents of the facility. Due to the apparent lengths of their stay, some of the residents filled their rooms with personal possessions and furnishings, the majority of which were combustible. Therefore, the fuel load in many guest/resident rooms was much higher than that in rooms housing a more transient or short-term population.

The building was equipped with a local fire alarm system. Manual pull stations were installed throughout the building and the operation of any pull stations should have initiated alarm signaling devices also located throughout the building. Reportedly, the fire alarm system was not operational at the time of the fire. In addition to the fire alarm system, individual single station smoke detectors were reportedly installed in a few

---

<sup>2</sup> Specific information regarding the combustibility of the carpet was not available.

of the guest/resident rooms. Due to the extensive damage to the building, investigators were unable to locate any of these smoke detectors.

## **The Fire**

At approximately 4:05 a.m., the Chicago Fire Department received a telephone call reporting a fire at the Paxton Hotel. That call was followed by a second, and last, telephone call reporting the fire. An alarm was initiated, which resulted in the dispatch of two engines, a tower ladder, an aerial tower, a squad and a battalion chief.

Upon arrival, the first engine company saw fire visible above the building's roof and it appeared that smoke was coming out of windows on the second and third floors of the four-story building. The company officer ordered a 2 1/2-inch hoseline be brought into the building and went around the building to perform an exterior size-up of the situation. Upon closer examination of the building, he found heavy smoke coming out of the top three stories and many people hanging out of windows on upper floors. He returned to the engine and, at 4:10 a.m., requested that a full box alarm be initiated. In response to this request, two additional engines, one ladder, and two battalion chiefs were dispatched.

Fire fighters who advanced the first attack hoseline into the building found the first floor corridor to be clear of smoke. As they reached the southwest corner of the building, they found the fire involved the stairway and a large section of that stairway had already collapsed. In addition, the fire involved two first-floor guest/resident rooms adjacent to the stairway. The fire fighters were able to knock down the fires in the rooms, but they were not able to control the fire spreading up the stairway.

In order to find a location for a more effective attack against the fire in the stairway, fire fighters eventually backed their attack hoseline away from their position near the southwest stairway. As they they were moving through the building, this crew saw that the center stairway was now involved in the fire. In addition, plaster from the ceiling was dropping on

their heads, indicating that the ceiling assembly was deteriorating. This deterioration was likely caused by fire spreading through the joist channels above the finished ceiling. These conditions forced the fire fighters to back all the way out of the building.

As other fire companies arrived, they found external conditions that also indicated conditions within the building were rapidly deteriorating. For example, the amount of smoke coming out of windows on the upper floors continually increased, and more and more occupants began hanging out of windows pleading for rescue. Some occupants even began to jump.

Early in the rescue operations, there were more occupants in need of immediate rescue than there were available fire fighters and ladders. Adjacent buildings, trees, and power lines limited the areas where aerial equipment could be used. Therefore, fire fighters used many ground ladders as quickly as they could. Fire fighters attempted to verbally assure the anxious occupants that they would be rescued soon. In addition to using visual cues to estimate the relative need for rescue, fire fighters sometimes gauged the need for rescue by the stress in the occupants' voices.

The difficulty of the rescues varied greatly. Sometimes fire fighters could hear, but not see, an occupant due to the heavy smoke that remained close to the ground engulfing the building; as a result, they placed ladders close to the voice as they attempted to locate the person. Some occupants attempted to jump on ladders while fire fighters were putting the ladders into position, and other occupants were too scared to climb down the ladders. A few victims did not want to leave, while others attempted to bring belongings and money down the ladder with them. Several occupants jumped before fire fighters could reach their location and attempt rescue.

In addition to using ladders while rescuing occupants, fire fighters cut metal security bars in order to reach occupants trapped in first-floor guest/resident rooms. At least one of these trapped persons died in her room before fire fighters could remove the bars and reach her.

Ultimately, five alarms were struck, bringing 30 fire apparatus, 5 battalion chiefs, 1 district chief, and 20 ambulances to the scene. In addition to being committed to the numerous and complex search and rescue operations, fire fighters were involved in the protection of exposures and the operation of at least eight hoselines and master streams while extinguishing the fire. The fire was considered under control a couple of hours after the initial report; however, small hot spots continued to burn within the rubble for days while the damaged building was dismantled and the debris searched for victims.

### **Analysis**

At the time this report was prepared, local fire investigators considered the cause of the fire to be "undetermined." During their investigation, local authorities examined several possible ignition scenarios. One scenario placed the area of fire origin in a first-floor guest/resident room, and another scenario theorized that the fire may have started in a storage closet. The possibility of an incendiary ignition was not ruled out; however, no physical evidence was found to support that ignition scenario.

Due to the lack of information regarding ignition, it was not possible to develop specific details about the initial fire growth, but the accounts of building occupants and of people who lived in buildings near the Paxton Hotel suggest that the fire may have been burning for an extended period of time before being reported to the fire department. For example, two occupants of the building were awakened by ringing telephones connected to the hotel's automatic "wake up call" system approximately 20 minutes before the Chicago Fire Department was notified of the fire. These people smelled smoke and found that their room doors were hot. Reportedly, both occupants attempted to call the fire department, but, were unable to do so for undetermined reasons. In addition, other witnesses reportedly observed smoke spreading across a street near the Paxton Hotel approximately 40 minutes before fire fighters arrived. One neighbor reported to investigators that smoke odors were noticeable approximately 45 minutes before fire fighters arrived at the hotel. Although the witness felt that the smoke odors were not coming from the building in which he was located, the witness could not confirm the smoke odors were coming from the Paxton Hotel.

Investigators believe that most occupants of the Paxton Hotel did not become aware of the fire until it was well developed, blocking their means of egress. According to statements from the occupants who first discovered the fire, they attempted to evacuate the rooms closest to the two first-floor rooms involved in the fire. Their statements did not indicate that they attempted to notify occupants of other parts of the building. The building's alarm system was reportedly inoperative at the time of the fire, and there were no reports of anyone hearing fire alarm signals early in this incident. These statements and details strongly suggest that many of the building's occupants were unaware of the developing fire. Moreover, the fact that most occupants did not escape before fire department arrival, and the fact that arriving fire fighters found a well-developed fire, supports the theory that most building occupants were not aware of the fire during the period when they likely could have escaped.

Arriving fire fighters, who had a response time of four minutes, found fire visible above the building's roof and smoke coming out of rooms on at least two floors. They also confirmed that the fire involved at least two first-floor guest/resident rooms and a stairway when they made entry into the building. All of these observations show that the fire was well developed at the time of their arrival and suggest that the fire was probably already well developed and growing at the time that the first reports of the fire were being communicated to the fire department dispatch center.

Investigators theorize that several paths for fire spread were involved in this incident and allowed the fire to involve large areas of the building before the fire was discovered and reported. Evidence suggests that fire may have ignited combustible materials within the floor assemblies early in the fire scenario. The fire then spread horizontally in the joist channels until it reached the clay tile corridor walls. These walls had pockets allowing the floors joists to rest on the walls. The pockets were non-firestopped holes through the walls; therefore, fire in a joist channel on one side of the wall was able to spread to the joist channels on the other side of the wall, increasing the area subject to horizontal fire spread. Investigators also believe that fire spreading above the first-floor ceiling



probably caused plaster in that assembly to deteriorate and drop onto fire fighters operating below it. In addition to the horizontal fire spread, investigators theorize that early in the fire scenario the fire spread vertically through non-firestopped pipe chases. The fire spreading through pipe chases entered the building's attic, a large, undivided, combustible concealed space. Once in this area, the fire spread over the building's entire length.

In addition to the fire spreading in concealed spaces, fire also spread vertically and horizontally in occupied areas. At some point in the incident, combustible materials in the southwest stairway and two first-floor rooms near this stairway were ignited. It was against this fire that fire fighters made their first attack. Even though suppression crews were able to extinguish the room fires, they were not able to suppress the fire that was spreading up the stairway. The fire in the stairway also entered corridors on floors above because enclosure doors had been removed. In turn, miscellaneous combustible materials in corridors, e.g., wood trim, wood flooring, and carpeting, were ignited contributing to the horizontal spread of fire through corridors. Because the corridors were not divided into at least two smoke compartments, smoke was able to quickly fill the corridor and fire was able to spread along the entire length of the corridor. Over time the fire burned through room doors, igniting the contents of those rooms. Thus, it appears that the fire was fueled by both combustible construction materials and combustible room contents.

Based on the NFPA's investigation and analysis, several factors apparently contributed to the loss of life and property at the Paxton Hotel. These factors include, but are not limited to, fire spread in combustible concealed spaces, stairways without doors, the lack of subdivisions in corridors, the lack of an operating building-wide fire alarm system, and a delay in fire department notification due in part to the absence of fire detection equipment. All of these factors are not new to the fire safety professionals and code writers and have been commonly cited as contributors to other large life loss fires.

Moreover, NFPA 101<sup>®</sup> -1991, *Life Safety Code (LSC)*, contains requirements that have assisted in the mitigation of these problems.<sup>3</sup>

In order to determine the LSC requirements that apply to facilities like the Paxton Hotel, one needs to establish an occupancy classification.

Information received during this investigation indicated that many of the guests/residents probably resided in the facility for periods longer than 30 days and the rooms did not have cooking facilities; thus, the Paxton Hotel could be classified as an "existing dormitory"<sup>4</sup> according to the 1991 LSC, despite the name of the facility. On the other hand, the facility did have a transient population so the Paxton Hotel could possibly be considered a hotel, according to the 1991 LSC criteria. Since Chapter 17 of the LSC applies to both existing hotels and existing dormitories, specifying which occupancy subclassification, i.e., hotel or dormitory, most accurately captures the essence of the Paxton Hotel is not necessary in order to apply the LSC to this facility.

Chapter 17 of the LSC contains several requirements that would have helped to mitigate the hazards, reducing the potential for the loss of life. Those requirements include the following:

- Every stairway, elevator shaft, and other vertical opening shall be enclosed ...
- Every guest room floor shall be divided into at least two smoke compartments of approximately the same size ...

---

<sup>®</sup> Registered Trademark, National Fire Protection Association.

<sup>3</sup> In the interest of comparing conditions and other details regarding this incident with current national consensus codes, the 1991 edition of the LSC was used as the basis for comparison. It was recognized, however, that the LSC was not part of the legal requirements governing life safety at the Paxton Hotel. This discussion concerns requirements that have particular relevance to this fire. It is not intended to be a complete description of all parts of the codes that could be applied to this hotel.

<sup>4</sup> The LSC contains requirements for both new and existing buildings. Since the Paxton Hotel was an existing structure at the time of this fire, the LSC requirements for existing dormitories were used in the code analysis.

- A manually initiated, internal audible alarm shall be provided and shall automatically notify occupants without delay.
- Provisions shall be made for the immediate notification of the local fire department by telephone or other means in case of fire.

The requirements in codes and standards, of themselves, cannot reduce the loss of life and property due to fire. Local communities need to ensure that the codes or standards currently adopted within their jurisdiction are being applied and enforced. In addition, communities should periodically review their adopted codes and standards to ensure the documents are reasonably current and keeping pace with changing fire protection philosophies and technologies.

### **Discussion**

In 1989, the NFPA Fire Analysis and Research Division prepared a paper for the U.S. House of Representatives subcommittee holding hearings on what became The Hotel and Motel Safety Act of 1989. The purpose of this paper was to set out the size, patterns, history, trends, and characteristics of the U.S. fire experience in hotels and motels.

The study revealed that, from 1969 to 1988, 23 fires in hotels and motels killed 10 or more people.<sup>5</sup> The following discussion of the 23 fires, written four years before the Paxton Hotel fire, seems particularly relevant:

A close look at these 23 incidents reveals two fairly distinct types of facilities. Most (17 of the 23) of these fires occurred in old buildings that were not high-rise and that catered to the lower end of the lodging market, that is, the poor and disadvantaged. The majority of these facilities were constructed before any of the existing model building codes were first published. The fire safety deficiencies in these buildings were glaring even to an untrained eye. These deficiencies typically began with open stairways, setting the stage for rapid spread of fire and smoke beyond the first involved floor and early loss of the use of all exit passages out of guest rooms. Detection and suppression

---

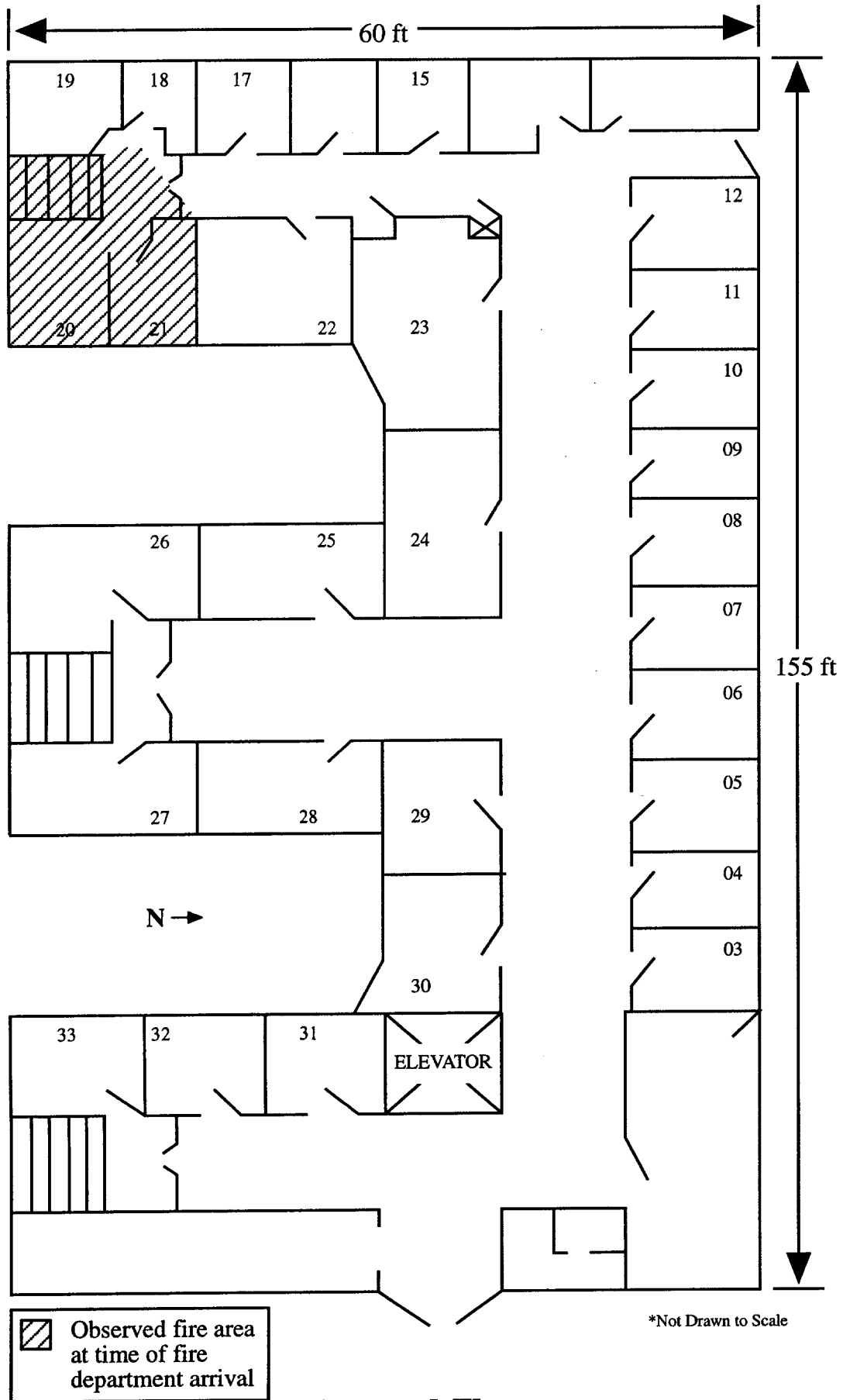
<sup>5</sup> Hall, John R., Jr., *Report Prepared for the House Subcommittee on Science, Research, and Technology on H.R. 94, The Hotel and Motel Fire Safety Act of 1989*, Fire Analysis & Research Division, National Fire Protection Association, Quincy, MA, 1989.

systems were either totally or nearly non-existent. More than one of these facilities was operating in violation of some local code, despite the considerable advantages older buildings have in grandfather clauses that keep codes from being applied retroactively.

Here we see the lodging industry's analogue of the larger patterns of our American fire problem. The poor, the elderly, the disadvantaged, all suffer the ravages of fire out of proportion to their numbers. When Americans think of hotels and motels, they do not think of these places. When federal workers book lodging for official travel, they do not stay at these places. But they are there, nevertheless, and they are a key to further progress in hotel and motel fire safety.

The NFPA report's statement can be perceived as a challenge to fire safety professionals. Specifically, that challenge is establishing how community's containing other "Paxton Hotel" like facilities can provide fire safe, low-cost housing for a community's poor and disadvantaged. The fire at the Paxton Hotel reinforces the importance of that challenge.

A reasonable starting point would be the adoption and enforcement of recognized fire safety codes and standards in communities where these facilities exist. Those communities may recognize that there is a cost associated with adopting and enforcing state-of-the-art codes and standards. Therefore, it is important for communities to also recognize that there is also an insidious cost associated with failing to apply current codes and standards to these facilities. That cost can be measured in lost lives, injuries, and lost property.



# Ground Floor Paxton Hotel