Residential Hotel

Reno, NV
October 31, 2006

12Fatalities

Prepared by

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On October 31, 2006, a fire occurred in the Mizpah Hotel in Reno, NV, a residential hotel housing mainly low income people. At the time of the fire there were 85 occupants within the building. The fire spread rapidly in the corridor on the second floor of the building and then upward, preventing many occupants from promptly exiting the building. Several mattresses stored in the second floor corridor provided fuel for the fire as it grew in size. First arriving fire units were confronted with an acute situation, with occupants awaiting rescue at several windows and several more unaccounted for.

Twelve occupants died in the fire, and over 30 were injured. The building was destroyed and had to be demolished in the aftermath of the fire and investigation.

Investigators determined that the fire was deliberately set by a resident who ignited one of the mattresses in the corridor and left it against a dwelling room door in the second floor corridor. The suspect in the fire, a 47 year-old female was charged with twelve counts of murder and one count of first degree arson. She pled guilty to these counts in January, 2007 and was sentenced to multiple life sentences in March, 2007.
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I. INTRODUCTION

NFPA documented the Reno, NV, fire in order to review significant factors that may have contributed to the occupant fatalities. The study was conducted by NFPA as part of an ongoing program to study technically significant incidents. NFPA’s Fire Investigations Department periodically documents significant fire events so as to report potential lessons learned in an effort to minimize future loss of life and property.

NFPA became aware of the Reno, NV fire the day after it occurred. NFPA Senior Fire Investigator Robert Duval traveled to Reno to meet with investigators and fire officers to view the scene, interview participants, and perform an on-site study of the incident. The information gathered during the on-site activities and subsequent analysis of that information is the basis for this report. Entry to the fire scene was made through the cooperation of the Reno Fire Department.

This report is another of NFPA’s studies of fires having an important educational and technical interest. It is a project of NFPA’s Fire Investigations Department. It is intended to serve as an aid to researchers, safety specialists, and to the codes and standards development activities conducted by NFPA and other organizations. The opinions expressed and conclusions drawn are those of the NFPA staff who prepared this report and do not, therefore, necessarily represent the official position of NFPA or of the NFPA Technical Committees that develop NFPA codes and standards. (See NFPA Regulations Governing Committee Projects at 6-1.1.)

The NFPA codes and standards, discussed in this report including NFPA 101®, Life Safety Code® and NFPA 5000®, Building Construction and Safety Code® are developed through a consensus standards development process approved by the American National Standards Institute. This process brings together volunteers representing varied viewpoints and interests to achieve a consensus of the affected interests relating to fire and other safety issues. NFPA does not determine the content of these codes and standards but, instead, administers the process and establishes rules to promote openness and fairness in the development of the consensus requirements.

All information and details regarding the fire safety conditions gathered in this report are based on the best available data and observations made during the on-site data collection phase and on any additional information provided during the report development process. It should be noted that the ability of NFPA Fire Investigations staff to collect all relevant facts and draw definitive conclusions may be limited by a variety of factors, including available time, and access. It is not the author’s intention to comprehensively document this fire incident from all perspectives. The purpose of the report is not to pass judgment on or fix liability for the loss of life and property resulting from the
fire. Rather, the report’s purpose is to identify factors that may have contributed to the loss of life and property and to provide analysis that may serve to better the understanding of how to minimize or prevent these losses in the future.

Current editions of relevant NFPA codes and standards were used as the basis for this analysis so that conditions at the scene of the fire could be compared with current fire protection practices. It is recognized, however, that these codes and standards may not have been in effect during the design, construction and operation of the building. NFPA has not analyzed the building in Reno regarding its compliance with the local codes and standards in existence when the building was constructed and during its operation.

The cooperation of the Reno Fire Department is greatly appreciated. The writer would also like to extend his appreciation to Reno Fire Chief Paul Wagner, Fire Marshal William Burney and Fire Investigators Tray Palmer and Scott Shields for their assistance during the on-scene portion of the investigation and in preparing this report.
II. BACKGROUND

Building Classification


By definition, a hotel is a building or groups of buildings under the same management in which there are sleeping accommodations for more than 16 persons and primarily used by transients for lodging with or without meals (NFPA 101: 3.3.125). So-called apartment hotels should be classified as hotels, because they are potentially subject to the same transient occupancy as hotels. (NFPA 101: A.3.3.125)

The hotel portion of the building contained 104 sleeping rooms on four stories. There were six commercial establishments located in the ground floor south wing of the building (along Second Street). There were reportedly 85 occupants in the hotel at the time of the fire. This facility was utilized as a "residential" type hotel. In this context, the facility had the basic attributes of a hotel, but its population was somewhat permanent in that it served as the domicile for the majority of occupants.

The building is classified as a multiple occupancy by NFPA 101 because it contained more than one occupancy classification, namely, hotel and mercantile. The Code would permit the multiple occupancies to be treated as either "mixed" or "separated." The protection requirements vary depending on whether the uses are mixed or separated.

Construction

The Mizpah Hotel was a three and four-story U-shaped building constructed in 1922. The building was constructed with brick exterior bearing walls and wood structural frame: [Type III (200) as defined by NFPA 5000, *Building Construction and Safety Code*, 2006 edition, and NFPA 220, *Standard on Types of Building Construction*, 2006 edition]. The interior walls were constructed of wood studs with a covering of plaster and wooden lath. The roof structure was wood frame and wood decking under insulation and an asphalt top coat.

The hotel operation occupied the majority of the building. The portions not occupied for the hotel contained commercial businesses. The commercial occupancies were located on the ground floor of the south and the southwest portions of the building.
The two sides of the “U” shape were referred to as the north and south wings. The hotel occupied the ground floor of the north wing as well as the second and third floors (north and south wings). (See Figure 1)

![Overall Building Dimensions](image)

**Figure 1 - Overall Building Dimensions**

The four story portion of the building was located on the east end of the north wing. This portion of the building was an addition to the original building. To access the addition one would have to climb a small flight of stairs on the third floor, raising the addition slightly above the original north wing on the second and third levels and creating a fourth floor. (See Building Diagrams - Figures 1-4)

The ground floor was arranged with a central corridor. The second and third floors of the north wing were arranged with interior rooms in the center of the floors, creating a rectangular shaped corridor arrangement. (See Figures 2, 3 and 4)

The main stairwell was located in the northwest portion of the building. This stairwell provided access to the upper floor directly from the lobby area of the hotel. There was also a stairwell to provide access between the north wing
and south wing. This stairwell was located in the center space between the two wings. Access to this stairwell was located on the second floor. There was no access from the lobby due to the arrangements of the commercial establishments located on the ground floor. The third stairwell was located in the northwest portion of the building and provided access to the east wing (addition). Access to this stairwell was from the second and third floors only. (See Figures 3 and 4) The stairwells were equipped with solid-core (non-rated) doors with self-closing devices. The status of the doors (open or closed) at the time of the fire was not reported.

Figure 2 - Hotel Ground Floor Layout

The space between the two wings was utilized for access for the rear of the commercial occupancies in the south wings.
The building was equipped with four fire escapes; two in the north wing and two in the south wing. (See Building Diagrams). The fire escapes were constructed of metal with drop down ladders. Access to the fire escape on the northwest portion of the building was through Guest Room Nos. 22 (second floor) and 43 (third floor). Access to the remaining three fire escapes was through windows located on each level at the ends of the corridors in each wing.

Figure 3 - Second Floor Layout

**Fire Protection Features**

The building contained a system of smoke detectors in the corridors and common areas. These smoke detectors were connected to the building fire
alarm system which was monitored by a central station service. Local, battery-powered smoke alarms were installed within the guest rooms throughout.

Manual fire alarm boxes were located throughout the building.

Portable fire extinguishers and occupant-use standpipe hose cabinets (Class II per NFPA 14, *Installation of Standpipe Systems*) were located throughout the building. The exact locations of this equipment could not be determined. The standpipe system was supplied from a connection to the municipal water system.

The fire escape on the northwest wing was equipped with a Class I dry standpipe system. The fire department connection (FDC) was located by the main hotel entrance and served as the only source of water supply for this system. 2-1/2 inch standpipe outlets for 2-1/2 inch hose were located at each floor on the fire escape landings and on the roof inside of the front rooftop parapet.
Figure 4 - 3rd and 4th Floor Layout

Fire Department

The Reno Fire Department provides fire protection to approximately 650 square miles of combined Reno and Truckee Meadows jurisdictions. It also provides direct support and services to about 6,000 square miles in Northern Washoe County.
The fire department operates from 17 full-time career fire stations located throughout the City of Reno and in the incorporated areas of the Truckee Meadows Fire Protection District in Washoe County. The fire department personnel consists of 339 suppression and EMS staff, 23 fire prevention and fire investigation personnel and 27 support staff, including mechanics, warehouse and clerical personnel.

Fire department equipment consists of:
- 18 engines
- 4 ladder trucks
- 11 wildland apparatus
- 3 water tenders
- 1 light rescue unit
- 2 heavy rescue units for technical rescue
- 1 hazardous materials response unit
- 3 water rescue units

In 2005, the Reno Fire Department responded to 26,985 calls for service.
III. THE FIRE

At approximately 10:00 pm on October 31, 2006, a female resident moved a mattress up against the door of a second floor room (Room 1), in the north wing, which was occupied by a male resident with whom she had a disagreement earlier. She ignited the mattress and returned to her room (Room 21) which was located next to that of the male occupant. At the time, the corridor was filled with 17 mattresses that were intended to replace the existing mattress sets in the guest rooms. Investigators believe that the mattresses contributed to the rapid fire spread down the corridor, eventually leading to flashover throughout the second floor.

Video from a surveillance camera across the street shows flames at a second floor window on the north side of the building at approximately 10:01 pm. As the video continues, it shows the rapid fire spread and flashover throughout the 2nd floor corridor, and eventually through the roof of the north wing of the building.

Fire department investigation records indicate that two hotel employees attempted to battle the fire in its incipient stage with portable fire extinguishers, with little effect. The employees fled the building soon after.

An alarm from the fire alarm zone including the 2nd floor was received at the central station service at 10:02 pm. The Reno Fire Department was notified and responded arriving at 10:05 pm. (The RFD headquarters is located less than a block from the fire building.) Witnesses that included occupants and fire department personnel reported hearing alarm horns sounding within the building.

The initial response included 3 engines, 1 ladder, 1 rescue (EMS) unit, and a battalion chief. Based on information being received, RFD dispatch increased the response, adding another engine and ladder. The first unit on the scene reported a “working fire” with heavy fire showing. The initial units were confronted with a rapidly spreading fire and an imminent need to begin rescue operations based on the number of occupants showing at many windows).

The central station service notified RFD dispatch that it was now receiving alarms from all zones within the building at 10:06 pm.

Shortly after arrival at the building the Incident Commander requested a 3rd alarm (which included the 2nd alarm assignment at 10:08 pm.)

The fire department units battled the fire and rescued many occupants while conducting search and rescue operations through all wings of the building.
The surveillance camera video shows fire breaking through a skylight and then through roof structure of the north wing at approximately 10:13 pm. At this point, the fire has spread through the second and third floor of the north wing and the second, third and fourth floor of the east wing (addition). Smoke and heat had rapidly spread into the south wing on all floors. A closed door (of an unknown rating) in the second floor corridor between the north and south wings kept the fire from spreading into the south wing, allowing the RFD to search for and remove many occupants.

Once the fire was brought under control at 10:48 pm, a total of six victims were accounted for. In the days following, an additional six victims were located in the rubble. Over 30 residents were reportedly injured as a result of the fire.

Fire department personnel, technical rescue units and fire investigators (including a contingent from the Bureau of Alcohol, Tobacco, Firearms and Explosives – National Response Team) remained on the scene until November 8 at 8:00 am.

**Victim Locations**

Investigations records show that victims were located in the following areas:

1. Room 64 – male victim (removed from building by FD – died at scene)
2. Room 39 – male victim
3. Stairwell in north-south corridor, west side of the building (adjacent Room 39) – male victim
4. Room 64 – male victim
5. Room 58 – female victim
6. Room 69 – male victim
7. Second floor, northeast/west corridor in the north wing (adjacent Room 6) – male victim
8. Second floor, southeast/west corridor in the north wing (adjacent Room 15) – male victim
9. Second floor, southeast/west corridor in the north wing (adjacent Rooms 16-17) – male victim
10. Third floor, north-south corridor in the east portion of the north wing (adjacent Room 31) – male victim
11. Third floor, north-south corridor in the east portion of the north wing (adjacent Room 32) – male victim
12. Adjacent to Victim 11 on third floor of north wing (adjacent Room 35) – female victim

Five victims were found in their rooms while seven victims were found in corridors.
During the preparation of this report a female resident of the hotel pled guilty to murder (by arson) on January 19, 2007, as a result of the investigation into the fire. She was sentenced to 12 life sentences in March, 2007.

Photo: 1 - View of north wing of hotel during demolition – NFPA
Photo: 2 - View of fire escape SW portion of the hotel - NFPA
Photo: 3 - View of rear of hotel facing west – NFPA

Photo: 4 - View of the rear of the north wing - NFPA

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Note: At the time of the NFPA site visit into this incident, the building was being demolished for safety reasons. Access to the building was not possible for this reason. Observations were therefore made from the exterior of the structure and were also based on the eyewitness statements, diagrams and photographs.


Means of Egress

The ground floor of the hotel portion of the building contained two exits. The first was located on the west side in the lobby area of the building and consisted of two doors (each 36 in. [0.9 m] wide) that opened outward. The second was located on the east side of the building and consisted of a single (36 in. wide) door that opened outward.

The mercantile occupancies located in the south portion of the building each had two means of egress from each space.

The second and third floors of the north wing of the hotel were constructed with two stairwells (east and west). These stairwells discharged into the ground floor level: the west stairwell into the lobby and the east stairwell into the central corridor, near the laundry room.

The second and third floors of the south wing of the building were equipped with a single egress stairwell. This stairwell is located in the northwest corner of the south wing, in the corridor connecting the two wings of the building.

The status of the doors within the stairwells at the time of the fire cannot be confirmed. It is unknown if the doors were in the open or closed position due to the amount of destruction in the northern wing of the building.

None of the stairwells discharged directly to the outside of the building. The west stairwell in the north wing of the building as well as the stairwell in the south wing discharged into the lobby level, but not directly to the outside the building. The east stairwell in the north wing discharged on the ground level but not into the lobby or to the exterior of the building.

The Life Safety Code requires that exits shall terminate directly, at a public way or at an exterior exit discharge (NFPA 101: 7.7.1). NFPA 101: 7.7.2.3 requires that exits discharge through areas on the level of exit discharge and that they lead to a free and unobstructed way to the exterior of the building.
This path of travel is required to be readily visible and identifiable from the point of discharge from the exit stair.

In the north wing of the building, both stairwells terminate on the ground floor, but not directly to a public way or an exterior exit discharge thus not meeting the requirements described above.

The building was equipped with four fire escape stairs; two in the north wing and two in the south wing. (See Building Diagrams). The fire escape stairs were constructed of metal with drop down ladders that terminated at the sidewalk. Access to the fire escape on the northwest portion of the building was through Room Nos. 22 and 43. The location of these fire escape access points within guest rooms does not comply with NFPA 101:7.5.12 and NFPA 101:7.5.16. The remaining three fire escapes were able to be accessed through windows located at the ends of the corridors in each wing.

Fire escape stairs are permitted in existing hotels (NFPA 101:29.2.2.9), however, they are limited to providing not more than 50% of required means of egress (NFPA 101:7.2.8.1.2.1). Although existing fire escape stairs are allowed to be accessed via windows (NFPA 101:7.2.8.3), they would only be credited for use by occupants of that room or space. Occupants from areas outside of those rooms would not be expected to have customary access to these fire escape stairs. Since the stairwells were not arranged to comply with the requirements for the egress provisions in the Life Safety Code, the fire escapes would have had to provide 100% of the required means of egress in this building-a condition that is not permitted.

The building was reportedly equipped with illuminated exit signs and emergency lighting in the corridors and stairwells. The frequency of inspection and testing of the exit signs and emergency lighting was not reported. The performance of these signs and lights during the fire was not available.

NFPA 101: 7.1.10.1 states; the means of egress shall be continuously maintained free of all obstructions or impediments to full instant use in the case of fire or other emergency. In this incident, combustible mattresses were stored in the corridor of the second floor of the north wing of the building at the time of the fire, impeding egress. (NFPA 1 Uniform Fire Code™ Section 4.4.3.1.1)

11 NFPA 101:7.5.1.2 Corridors shall provide exit access without passing through any intervening rooms other than corridors, lobbies, and other spaces permitted to be open to the corridor.
NFPA 101:7.5.1.6 Exit access from rooms or spaces shall be permitted to be through adjoining or intervening rooms or areas, provided that such rooms or areas are accessory to the areas served. Foyers, lobbies, and reception rooms constructed as required for corridors shall not be construed as intervening rooms.
Vertical Openings

The stairwells in the north wing of the building were equipped with self-closing doors at each floor level. The positions of these doors cannot be accounted for at the time of the fire. In addition, the exact configuration of the stairwells could not be determined due to the damage caused by the fire and the ongoing demolition of the building at the time of the site visit. With the self-closing doors in the closed position, this stairwell would have been classified as enclosed. NFPA 101: 29.2.2.1.2 and NFPA 101:7.1.3.2.1 (1) indicates that the fire resistance rating of the enclosure of floor openings in existing buildings shall be not less than 1 hour.

NFPA 101: 7.1.3.2.1(1) requires an exit to be separated from other parts of the building. The separation shall not have less than a 1-hour fire resistance rating where the exit connects three stories or less.

The stairwell in the south wing of the building also contained self-closing doors on each level. Very little smoke or heat damage was visible in this stairwell which would indicate that the doors were in the closed position at the time of the fire.

The Life Safety Code requires that exit stairs be continuously enclosed down to the level of exit discharge or to a mezzanine within a lobby at the level of exit discharge. (NFPA 101:29.2.7.2)

Interior Finish

The interior wall finish of the corridors was comprised of painted plaster over wooden lath and frame. There is no indication that the interior finish played a role in the outcome of the fire.

Extinguishment Equipment

Portable fire extinguishers and occupant-use standpipe hose cabinets were located throughout the building. The exact locations of this equipment could not be determined. It is reported that the portable fire extinguishers used by the two hotel employees to battle the fire were from the first floor of the hotel.

The fire escape on the northwest wing was equipped with a dry standpipe system. The fire department connection (FDC) was located by the main hotel.

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2 NFPA 101: 29.2.2.1.2 In buildings, other than high-rise buildings, that are protected throughout by an approved automatic sprinkler system in accordance with 29.3.5, exit enclosures shall have a fire resistance rating of not less than 1 hour, and the fire protection rating of doors shall be not less than 1 hour.
entrance. Standpipe outlets for 2-1/2 inch hose were located at each floor on the fire escape landings and on the roof inside of the front rooftop parapet.

Detection, Alarms and Communication Systems

The building contained a system of smoke detectors in the corridors and common areas. These smoke detectors were connected to the building alarm system which was monitored by a central station service. Local, battery-powered smoke alarms were installed within the guest rooms throughout.

Battery-operated smoke alarms are not permitted in hotels (NFPA 101 – 29.3.4.5 and 9.6.2.9). The Life Safety Code requires that smoke alarms in guest rooms, must be powered by the building electrical system, but do not have to be connected to a building alarm system.

The building alarm system was divided into zones that encompassed the building, including the mercantile occupancies on the ground floor of the south wing.

The first notification of a fire within the building was through the activation of a smoke detector on the second floor of the north wing of the building. Activation of this detector sounded the building’s alarm system.

Manual fire alarm boxes were located throughout the building. The alarm boxes were also connected to the remote alarm monitoring service. There is no indication that any of the manual fire alarm boxes were ever activated.

Hotel Emergency Organization

It is unknown if there was a formal Hotel Emergency Organization in place at the time of the fire. The frequency of emergency drills and training was not reported. Two hotel employees did respond and attempt to extinguish the fire with fire extinguishers they obtained on the first floor before being driven out of the building by the smoke and heat.

Signs containing the emergency exit locations were posted throughout the hotel. It is unknown if similar signs were installed in each guest room on or near the door, as per NPFA 101:29.7.4.1
V. SUMMARY

An intentional fire in an occupied residential hotel resulted in twelve fatalities. The major contributing factor to the fatalities in this incident was the storage of several mattresses in the corridor. This contributed not only to the ignition of the fire but to the rapid spread of the fire throughout the corridor and eventually the entire north wing of the building.

A smoke detector in the second floor corridor activated and sounded the building fire alarm, as well as notified the central station company of the fire within the building. Even with the prompt notification and response of the fire department, they were still faced with a daunting challenge upon arrival due to the rapid fire spread throughout the north wing.

Fire protection features in existing hotel occupancies rely on building construction features such as properly arranged means of egress, enclosed stairwells (vertical openings), interior finish, fire detection and alarms and hotel staff response to emergency events.

In this incident, the alarms sounded giving the occupants notice of a fire in the building as well as notifying the fire department. However, the egress stairwells were not compliant with the Life Safety Code as they did not discharge directly to a public way or to a free and unobstructed way to the exterior of the building. Two of the four fire escapes were also not compliant given that they were only accessible through intervening rooms (guest rooms) that were not available to the exiting occupants.

In addition, the mattresses stored in the corridor not only posed a means to spread the fire but posed an obstruction to egress for the occupants most severely exposed on the fire floor. Investigators have determined that a mattress was the first fuel ignited, spreading to the other mattresses in the corridor, quickly making the corridor atmosphere untenable to the occupants in that area. Of the twelve occupants that perished in the fire, five were found in their rooms, while seven were found in corridors. The obstruction posed by the mattresses in the corridor most likely hampered the occupants of the second floor from promptly exiting once the fire was discovered or when the building fire alarm sounded.

In older (existing) buildings used as residential hotels these features outlined above must be maintained to provide the occupants a means to escape the building in the event of a fire. This incident as well as the 1993 fire at the Paxton Hotel in Chicago (See Appendix), demonstrates the importance of a properly designed and maintained means of egress as it relates to life safety of hotel residents.
VI. NFPA DOCUMENTS


SUMMARY

FIRE INVESTIGATION REPORT

PAXTON HOTEL FIRE

CHICAGO, ILLINOIS
MARCH 16, 1993

PREPARED BY

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FIRE PROTECTION ENGINEER
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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.
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

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

1 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\(^2\) 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

\(^2\) 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, firefighters 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 firefighters arrived. One neighbor reported to investigators that smoke odors were noticeable approximately 45 minutes before firefighters 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®-1991, *Life Safety Code* (LSC), contains requirements that have assisted in the mitigation of these problems.\(^3\)

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"\(^4\) 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 ...

\(^3\) Registered Trademark, National Fire Protection Association.

\(^4\) 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.

\(^4\) 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. 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

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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.