

# United States Fire Administration



## Technical Report Series

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### Indianapolis Athletic Club Fire Indianapolis, Indiana



Federal Emergency Management Agency

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United States Fire Administration  
National Fire Data Center

**Indianapolis Athletic Club Fire  
Indianapolis, Indiana  
(February 5, 1992)**

**Investigated by: Mark Chubb**

**This is Report 063 of the Major Fires Investigation Project conducted by TriData Corporation under contract EMW-90-C-3338 to the United States Fire Administration, Federal Emergency Management Agency.**



**Federal Emergency Management Agency**



**United States Fire Administration  
National Fire Data Center**

## **Indianapolis Athletic Club Fire Indianapolis, Indiana**

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### **OVERVIEW**

Two Indianapolis firefighters and an elderly male guest died in an early morning fire in the Indianapolis Athletic Club. This fire received widespread media coverage since it occurred while the building housed the jury hearing testimony in heavyweight boxer Michael G. Tyson's rape trial. The true significance of this incident is not the involvement of the Tyson jury - their presence was merely coincidental -but why it turned so tragic.

The fire originated in the third floor bar due to an electrical malfunction in or near a refrigerator. A detailed chronology of the incident and the plan of the floor of origin are presented in Appendices A and B. Indianapolis fire communications received a 911 call at 12:06 a.m., February 5, 1992 reporting an odor of smoke in the lobby of the Indianapolis Athletic Club, a nine-story mixed use building. Within two minutes a first alarm assignment of four engine companies, two truck companies, and two chief officers was dispatched to the incident. A little more than a minute and a half later, the first company arrived on the scene and reported "nothing showing." What looked routine upon arrival would become tragic less than 20 minutes later when fire erupted from a concealed space on the third floor, resulting in a flash fire which claimed the lives of Corporal Ellwood Gelenius and Private John Lorenzano,

## SUMMARY OF KEY ISSUES

Issue	Comments
Casualties	Two firefighters and one civilian died; four firefighters were seriously injured.
Fire Origin	Electrical malfunction in or near a refrigerator in bar on third floor.
Structure	Nine-story mixed use 70-year-old building, no sprinklers.
Interior Finishes	Highly combustible interior finish fueled the rapid spread of the fire.
Standpipes	Incompatible threads and lack of hose outlets for fire department use on the occupant use standpipe hose system hampered fire department attack.
Concealed Spaces	Overhead noncombustible concealed spaces allowed products of combustion to accumulate above the ceiling. The fire spread rapidly when these gases ignited.
Unenclosed Stairways	Unenclosed and unprotected stairways provided an ideal avenue of vertical fire and smoke spread, permitting the fire to involve a significant portion of the floor above the fire.
Confusing Exit Arrangement	Confusing exit arrangement and extensive upward smoke migration via the stairways may have contributed the loss of one civilian life.
Mechanical System Control	Smoke detection was not provided to shut down air handling systems; this contributed to smoke transport throughout the building.
Fire Detection and Suppression Systems	Only partial smoke detection was provided in the building. The nearest smoke detector to the room of origin, in the elevator lobby, was not connected to the building fire alarm system. Automatic sprinklers were not provided.

<b>SUMMARY OF KEY ISSUES</b>	
<b>Issue</b>	<b>Comments</b>
Firefighter Access	Revolving doors appeared to impede firefighter access and the deployment of a back-up hoseline.
Fire Department Tactics	The lack of standard operating procedures for buildings with standpipes and/or a pre-fire plan for the specific building may have compromised efforts to control the fire.
Communications Equipment	One firefighter was seriously burned attempting to activate the emergency notification button on his portable radio.
Communications Systems	Problems in communication between the Incident Commander and the Communications Center may be related to the activation of a new radio system shortly before the incident. Additional training should have been conducted.
Personal Alert Safety System (PASS) Devices	PASS devices were not issued to firefighters operating at structural fires and could have helped rescuers locate downed firefighters more efficiently.

seriously injured two other Indianapolis firefighters, and caused minor injuries to two more. The civilian guest was killed when fire and smoke spreading up a stairway caught him trying to flee the building. Of the 45 50 people in the building at the time of the fire, a number of people had to be rescued from upper floors by firefighters using aerial ladders.

The firefighter fatalities were the first line-of-duty deaths in the Indianapolis Fire Department in 23 years. Following this incident, the department activated its Critical Incident Stress Debriefing (CISD) program and convened a formal review panel to investigate every aspect of the incident. Both of these actions have had significant impacts on the department as it recovers from this incident. The review panel has given the department a constructive outlet for implementing operational changes. The CISD program has offered firefighters an opportunity to seek confidential help in coping with the loss of their colleagues.

The analysis of this fire reinforces the lesson that no fire or suspected fire, especially one in a complex mixed-use building, can be treated as routine. Firefighters must be trained, equipped, and prepared for the worst when working in these types of buildings. This is never more true than when the building involved is old, unsprinklered, and occupied by people unfamiliar with the structure.

It also demonstrates the risk factors which can be significantly reduced through the installation of automatic sprinklers in existing, non-code-compliant buildings.

## **THE BUILDING**

The Indianapolis Athletic Club was completed and occupied in 1922. City and state officials indicate that neither jurisdiction had adopted nor enforced a building code at the time of original construction.<sup>1</sup> Notwithstanding the lack of a building code, the design and construction of the Athletic Club building appears to have been consistent with generally recognized practices of the 1920s. Typical building features included fire-resistive construction with open stairways, noncontinuous egress paths, large air handling shafts without fire or smoke dampers, an unsupervised manual fire alarm system, occupant use standpipes without fire department hose outlets, and no automatic sprinklers.

The building construction most closely resembles Uniform Building Code Type 1 construction or NFPA 220 Type 1 (4,3,3). Consequently, the fire caused little structural damage despite its extensive spread. A concrete protected steel frame supports concrete floor decks and nonbearing masonry exterior walls. Interior partitions consist of plaster and lath on wood studs. Vertical shaft enclosures, including the elevator, stair, air handling, and plumbing shafts and chases are generally of concrete masonry or brick masonry construction.

### **Fire Prevention Regulations**

Fire and building codes adopted subsequent to the building's original occupancy applied to its operation and maintenance. At the time of the fire, the Indiana Building Code and Indiana Fire Code were in

<sup>1</sup> State building regulations were adopted beginning in 1923. City regulations were adopted much later, in the mid to late 1960s.

effect.<sup>2</sup> These codes are promulgated by the Indiana Department of Fire Prevention and Building Safety and are based on the 1988 editions of the *Uniform Building Code* and the *Uniform Fire Code* published by the International Conference of Building Officials. Both city and state building and fire officials had jurisdiction over code enforcement.

### **Building Location**

The building location permitted unobstructed exterior access for firefighting and rescue from three sides. The building faces Meridian Street, the principal northsouth thoroughfare in downtown Indianapolis. The parcel to the south is occupied by a surface parking lot. To the west, across a 15-foot wide alley, is an open parking structure attached to the Athletic Club building by a pedestrian walkway at the third floor. Vermont Street borders the building on the north side.

The dimensions of the 9-story building are approximately 100 feet by 200 feet, with the long axis running parallel to Vermont Street on the north side of the building.

Grade-level entrances were located on the north (Vermont Street) and east sides (Meridian Street) through revolving doors. A shipping and receiving entrance was provided at grade level on the west side of the building, accessible from the alley.

### **Use and Occupancy**

The first through fourth floors of the Athletic Club were occupied by a variety of uses, including the hotel and club lobby, offices, meeting rooms, a pool, exercise equipment rooms, locker rooms, a barber shop, newsstand, restaurants, dining rooms, and the bar and lounge where the fire occurred. Three below-grade floors housed mechanical rooms, workshops, storage, and a laundry. Floors five through eight were occupied by guest rooms and suites which were rented through the club. Part of the fifth floor also housed small meeting rooms. The ninth floor was occupied by a lounge and meeting rooms which provided panoramic views of downtown Indianapolis and environs. The elevator machine equipment and controls and building maintenance supplies were located in a mechanical penthouse above the ninth floor.

<sup>2</sup> In 1984, the State of Indiana consolidated building and fire regulatory authority at the state level and enacted statewide minimum building and fire regulations in 1985. Local authorities must enforce the state regulations and may not adopt or enforce requirements which conflict with the state requirements. More stringent local requirements may not be adopted without the review and approval of the Indiana Fire Prevention and Building Safety Commission.

## **Mechanical Systems**

Three separate air-handling systems circulated and conditioned air in the building. None of the systems was equipped with smoke detectors or controls to shut the fans down in order to prevent recirculation of smoke. The first sign of a fire in the building was the presence of smoke in the lobby that had been circulated by the air handling system.

Two air handling systems, located in the basement, were dedicated to the three floors below grade and the first through fifth stories, respectively. Each of these systems heated, cooled, and mixed air, moving fresh supply air to the floors through a large air shaft near the center of the building. A separate shaft was provided for returning air from these floors to the air handling units in the basement. Supply air was ducted to registers throughout these areas, while return air was transported to the shaft through a common return air plenum above the original plaster ceiling. The dangerous accumulation of fire gases on the third floor is believed to have occurred in this return air plenum as well as a secondary void space between the original ceiling and a “dropped” ceiling.

Floors five through nine received air from a shared mechanical unit located between the eighth and ninth floors. Individual units were used for heating and cooling in the guest suites. Return air circulated through the corridors? The provision of a separate air handling system for the upper floors prevented smoke from the fire on the third floor from being recirculated to the guest rooms by the air handling system.

## **Elevators**

Although the elevator shafts did not contribute significantly to smoke spread, some occupants used the elevators rather than stairways to evacuate the building. A single bank of two elevators served all floors except the mechanical penthouse. At least one hotel guest reported that he left the building via an elevator after becoming aware of the fire.

<sup>3</sup> The use of corridors for return air purposes is now expressly prohibited by several model codes. See Section 803.1 of the *BOCA National Building Code*, 1990 edition and NFPA 90A-(89), Section 2-3.11.1.

## **FIRE PROTECTION FEATURES**

### **Standpipe**

The building was not equipped with automatic sprinklers. A standpipe for occupant use (Class II according to NFPA 14, *Standpipe and Hose Systems*) was provided. A single 6-inch riser supplied one hose station on each floor from the basement through the fifth floor. Above the 5th floor the water supply split into two 4-inch risers to supply hose outlets on each floor. The mechanical penthouse had a single hose station supplied from one of the 4-inch standpipe risers.

Each hose station was equipped with 100 feet of 1 1/2-inch single-jacketed linen fire hose and a plastic variable stream fog nozzle. Hose outlets consisted of national pipe standard threaded connections, not national standard fire hose thread as specified by NFPA 1963, *Screw Threads and Gaskets for Fire Hose Connections*. As a result, firefighters were unable to connect their hoses directly to the standpipe outlets. During their initial attack, firefighters extended the occupant use hose line with 50 feet of their own hose, but the line disconnected when it was charged and they were forced to rely solely on the occupant use hose for the initial attack on the fire.

The primary water supply for the standpipe was provided through a 6-inch domestic service line. Pressure for the upper floors was boosted by two electric pumps, which were not listed or approved for fire protection service. A single fire department connection located at the northeast corner of the building provided two 2 1/2-inch hose inlets to supplement the water supply for the standpipe risers. The standpipe system appeared to be well maintained and in good condition at the time of the fire.

### **Fire Alarm and Detection**

The building had a manual fire alarm system and two separate smoke detection systems covering different areas. The only smoke detector on the third floor, where the fire originated, was in the elevator lobby and was not connected to the fire alarm system. The elevator lobby smoke detectors were single-station devices that were installed solely to activate the elevator recall feature and did not start the alarm.<sup>4</sup>

<sup>4</sup> NFPA 72-(90), Section 3-733 requires that smoke detectors used to initiate elevator recall also activate the building fire alarm signals.

## **Fire Separation and Compartmentation**

Although the building construction closely resembled Type 1 fire-resistive construction, floor-to-floor and area separation was generally non-existent. Vertical and horizontal communication between areas, including areas with different uses, was common throughout the building. As noted below, some stairways and vertical shafts were open on one or more floor levels. These conditions contributed to smoke and fire spread beyond the area of origin, especially during fire control efforts.

## **Interior Finishes**

Combustible interior finish materials were installed extensively throughout the third and fourth floor areas that were damaged by the fire. Combustible ceiling tiles and plywood paneling installed on furring strips contributed to the severe flash fire which occurred during firefighting operations.

At the time of construction, most of the areas involved in the fire had smooth or decorative plaster ceilings. Decorative wood and leaded glass fixtures were installed in ceilings in the special function areas, including the large dining room. In succeeding years, 1-foot by 1-foot composite ceiling tiles were glued to the underside of the plaster ceiling in many areas to hide defects. Sometime later, a new suspended track ceiling was installed below the plaster ceiling to hide other defects and accommodate new lighting fixtures. The ceiling tile materials used in both of these systems were combustible, however, the flame spread ratings could not readily be determined.

Like the ceilings, wall coverings had been successively replaced and modified. In the bar and McHale Rooms, 1/8-inch plywood paneling was installed on 1-inch by 3-inch furring strips. In corridors and the monumental stair leading from the lobby to the third floor, foil-backed vinyl wall coverings had been installed. The plywood paneling was labeled to indicate it had been tested in accordance with ASTM E84, *Test of Surface Burning Characteristics of Building Materials* and had a flame spread index rating of 150. The *Uniform Building Code* requires that interior finish material covering fire-resistive or noncombustible assemblies be attached directly to the assembly? Installing the paneling on furring strips instead of directly attaching it to the wall surface could be expected to significantly increase the material's flame spread index rating.

<sup>5</sup> See *Uniform Building Code* (1991), Section 4203. Whittier, CA: International Conference of Building Officials.

Most floor surfaces were covered with carpeting. Tile or other resilient floor coverings were used in service spaces and some high traffic areas including stairs, some corridors, bar backs, and restrooms. Floor coverings did not appear to contribute significantly to the fire.

## **MEANS OF EGRESS**

There were 45-50 people in the building at the time of the fire. The toll from this fire could have been significantly higher had there been more people in the building or if those occupants who were closest to the area of fire origin had not reacted promptly to use the available means of escape to leave the building. The body of one male hotel guest who was killed was found in the west service stairway between the sixth and seventh floors after the fire was extinguished.

### **Confusing and Nonconforming Means of Egress**

Only one stairway, a service stairway, provided direct, unobstructed access to all floors, including the three levels below grade. However, this stairway was not of adequate width to function as an approved means of egress and the stair shaft also accommodated mechanical and plumbing services, including a laundry or trash chute. Moreover, it did not provide a continuous protected path down and out of the building.

Five stairways served the residential floors above the 6th floor. With the exception of the service stair, all other stairways serving the guest room floors required occupants to leave the stairways on the 6th and 3rd floors to cross over to another stairway, in order to continue downward.

Three stairways served the lower floors. The east stairway carried occupants from the sixth down to the third floor. The occupants had to cross over to the center monumental stairway to continue down to the lobby (grade) level. The west stairway continued down to the first basement level. No means was provided for identifying which stairways provided access to which floors.

### **No Stairway Separation**

All of the stairways below the sixth floor, except the service stair, were unprotected on one or more floors. The center monumental stair was open to floors one through three. The east stairway, which connected the third through ninth floors, was open on the third and fourth floors. This stairway, the operating air handling system, and open mechanical shafts provided the primary means of smoke transport to the upper floors of the

building. Smoke damage varied from light to extensive on all floors above the fire.

Smoke entering the west service stairway was a fatal problem for the civilian victim of this fire. If there had been more people in the building, the confusing stairways and lack of proper stairway enclosures would probably have caused a major problem.

## **THE FIRE**

### **Detection of the Fire**

Between 11:45 p.m and 12:00 a.m., building employees became aware of an odor of smoke in the lobby. As indicated above, neither smoke detectors nor sprinklers were installed in the area of fire origin and therefore, occupants had difficulty identifying the source of the smoke odor. None of the smoke detector systems gave the critical alarm.

### **Occupant Response**

Employees began to investigate the smoke odor, but their attempts to locate the fire were unsuccessful, and while they investigated conditions grew worse. Eventually, it became apparent that the smoke was coming from the air handling registers. After nearly fifteen minutes of searching, at 12:06 a.m., the desk clerk notified the fire department via 911. Meanwhile, the security guard notified the security detail sequestering the Tyson jury that the building might be on fire. Bailiffs guarding the jury hastily woke the twelve principal and three alternate jurors and escorted them from the building, carefully maintaining security during the evacuation. After the fire department arrived, it was discovered that one juror had not made it out with the rest. Firefighters successfully located and rescued this individual before the flash fire occurred.

Other occupants became aware of the fire by various means. Some reported having heard the fire alarm sounding. Others reportedly became aware of the incident upon hearing the commotion associated with the fire department's arrival. Although some of these occupants reportedly fled the building, firefighters were forced to rescue several from upper floors using aerial ladders.

Several occupants who successfully evacuated were videotaped by news crews after their escape and reported taking inappropriate actions prior to their escape. One occupant said he took the elevator from his floor to the lobby, but upon arriving there realized he had forgotten

something of value and took the elevator back upstairs to return to his room.<sup>6</sup> In his subsequent attempt to leave, recalling the advice that stairs not elevators should be used during a fire, he returned safely to the lobby via a stairway.

Most occupants appeared to have dressed and collected some valuables before evacuating. Several occupants were rescued by firefighters using aerial ladders. To reach some seventh and eighth floor occupants, firefighters were forced to extend the reach of their aerial ladders with ground ladders. It should be noted that all reported occupant responses were consistent with those observed and reported at other similar incidents.<sup>7</sup>

### **Fire Department Response**

The Indianapolis Fire Communications Center received a 9-1-1 call reporting the odor of smoke at 350 North Meridian Street at 12:06 a.m. and dispatched a first alarm assignment consisting of four engine companies, two truck companies, a district chief, and the division chief. At 12:10 a.m., Truck 7 arrived on the scene and took up a position on the Vermont Street (north) side of the building, reporting, “on the scene, nothing showing, will investigate.”<sup>8</sup>

### **Initial Operations**

Arriving with the first companies, Division Chief Charles Williams entered the building with the firefighters from Engine and Truck 7 to investigate. Upon entering the lobby, firefighters confirmed the presence of a heavy smoke haze. The building fire alarm was reportedly sounding and the fire alarm control unit indicated a smoke detector activation in the basement laundry room. It is believed that smoke from the fire on the third floor activated a smoke detector in the basement, near the air-handling equipment. Engine 7 and Truck 7 firefighters proceeded downstairs to the second basement level to investigate. (No permanent

<sup>6</sup> It was not determined during the investigation whether or not elevator recall activated. The fire department did not use Phase II Firefighters' & Service (elevator control) during their operations.

<sup>7</sup> See D. Canter, J. Breaux and J. Sime. (1990), “Domestic, multiple occupancy, and hospital fires,” in *Fires and Human Behavior*, 2nd ed., D. Canter, ed. London: David Fulton Publishers.

<sup>8</sup> Athletic Club Review Panel Report, “Synopsis of the Indianapolis Athletic Club Fire,” p. 8

record of the device activation was maintained and the location of the activated initiating device(s) could not be determined during the investigation. Due to the absence of controls to shutdown the air-handling system, recirculation of smoke could have activated a basement smoke detector.)

See Table 1 on the following page for the first alarm company assignments.

The smoke condition suggested that there must be a significant fire somewhere in the occupied high-rise building. District Chief Clyde Pfisterer (DC3) established a command post on the Vermont Street side of the building and assumed the role of Incident Commander. Division Chief Williams (Car 2) went inside to supervise interior operations. Rescue 13 established a medical sector on the Vermont Street side. And Captain Michael Spalding from Truck 7 — working inside with his crew, attempting to locate the seat of the fire — was designated the Ventilation Sector Officer.

Firefighters spent several minutes unsuccessfully searching for a fire in the basement, sub-basement, and first floor areas. Additional crews from Engine 13 and Truck 13 joined the crews of Engine 7 and Truck 7 attempting to locate the source of the smoke. Engine 13 was reportedly equipped with a high-rise pack consisting of rolled 1 3/4-inch hose, “hotel adaptor,” spanner wrench, and nozzle. The crews from Station 13 went to the second floor to investigate while the Station 7 companies continued to search the lower floors.

In a room in the north central portion of the second floor, directly beneath the third floor bar, Truck 13 firefighters found water dripping from the ceiling. They thought the water might be coming from an operating sprinkler on the floor above them and proceeded to the third floor to investigate.<sup>9</sup> As they entered the third floor from the monumental stair, a smoke haze hung in the elevator lobby and public corridor.

### **Initial Attack**

At approximately 12:17 a.m. -more than 30 minutes after building occupants first smelled smoke, the fire was located on the third floor. Truck 13 reported, “we have a working fire in the dumbwaiter on the third floor.” Firefighters from Engine 7, Truck 7, Engine 13, Truck 13, and

<sup>9</sup> They were aware that the building was not fully sprinklered, but surmised that sprinklers could be present in limited areas.

Division Chief Williams were all on the fire floor at this time. Smoke was visible, however, conditions did not require firefighters to don the face-pieces of their self-contained breathing apparatus (SCBA).

<b>Table 1: First Alarm Company Assignments</b>	
<b>Company ID</b>	<b>Assignment</b>
Engine 7 (1st Due Engine)	Investigated, attempting to locate source of smoke. Once fire is located, stretched attack line from third floor standpipe and attack fire.
Truck 7 (1st Due Truck)	Attempted to locate source of smoke. Located fire. During initial attack, ventilated, monitored fire progress, checked for extension, and supported attack crew.
Engine 13 (2nd Engine)	Assisted Engine 7's crew with attack line.
Truck 13 (2nd Truck)	Forced entry to bar and assisted Engine 7's crew with interior attack.
Engine 5 (3rd Engine)	Connected and stretched backup line from second floor standpipe. Located and removed injured Firefighters Comparet and Gates.
Engine 1 <b>(4th Engine)</b>	Performed search and rescued missing juror on sixth floor.
Rescue 13	Established medical sector on north side of building. Treated injured firefighters and civilians.
D C 3 (1st Due Chief)	Incident Commander. Established command post on north (Vermont Street) side of the building.
C a r 2 (2nd Due Chief - Shift Commander)	Division Chief supervised interior operations until fire was located, then took up an exterior position on Meridian Street (east Side).

Firefighters mistakenly identified an opening between louvers in the top half of a dutch door as a dumbwaiter. A strong upward draft drawing fire past the opening on the opposite side of the door resembled a chimney, which suggested to the firefighters that the space was a vertical shaft. In fact, the concealed space above the ceiling on the other side of the door was a return air plenum connected to a mechanical shaft, explaining the fire behavior they witnessed.

Fire had become visible on the exterior of the Vermont Street side through the windows of the bar. Upon receiving Truck 13's report of a "fire in the dumbwaiter," DC 3 reported that he attempted to summon extra companies. However, Chief Pfisterer recounted that his request was never acknowledged by the Fire Department Communications Center. An alarm for another incident was being dispatched at the same time and may have interrupted the fireground talk group (channel) while he was trying to contact the dispatcher.

Fire Department records indicate that a 2nd Alarm was requested approximately 21 minutes into the incident. One of the 2nd Alarm companies (Truck 1) was dispatched to this incident on a special alarm three minutes later and the full 2nd Alarm assignment was dispatched seven minutes after the request, according to the recorded times. However, two of the engines on the 2nd Alarm (Engines 4 and 19) arrived just over a minute after the request was made, which was six minutes before the 2nd Alarm was actually transmitted. The companies may have been monitoring radio traffic in quarters or on-the-air and responded in anticipation of the 2nd Alarm.

Meanwhile, interior crews prepared to attack the fire in the bar area behind the location identified as a dumbwaiter. Engine 7's crew attempted to disconnect the occupant use hose from the standpipe at the west end of the corridor but were unsuccessful. They decided to stretch the occupant use line and an additional 50-feet of 1 3/4-inch hose from their high-rise pack to ensure they had sufficient hose to reach the fire.

As the line was extended, Engine 7's and Truck 13's crews donned their SCBA face-pieces and entered the McHale Room. When they reached the door to the bar area, Truck 13 reported that the fire was actually in a room (the bar) between the corridor and dining room. Standing-by at the entrance from the McHale Room (lounge) west of the bar area, Truck 13's crew received instructions from Chief Williams to wait until Engine 7 had a hoseline in place before opening the door to the room of fire origin.

At this time, Chief Williams reportedly left the building to direct exterior operations on the Meridian Street side of the building. After this point, DC 3's aide, Lieutenant David Smearage provided communication between the interior crews and the incident commander.

Indianapolis Fire Department operating procedures call for use of the Indianapolis Fire Incident Command (IFIC) system at major incidents. Normally, the Incident Commander would maintain contact with interior

crews through his aide. When the IFIC is activated, an Interior Sector and/or Operations Division are usually established, but neither was formally used at this time.

With the fire now located and interior crews preparing to engage the fire, DC 3 assigned companies to extend a back-up line to the fire area. Engine 5 was assigned to stretch a second 1 3/4- inch line from the second floor standpipe to backup Engine 7 on the fire floor. At this time, in addition to Engine 7's and Truck 13's crews attacking the fire, the firefighters in the area included Truck 7's captain (assigned to oversee ventilation) and his crew monitoring fire conditions in the elevator lobby at the entrance to the McHale Room and at the doors from the bar area to the corridor. Engine 13's crew was backing-up Engine 7 on the attack line.

### **Problems Develop**

When Engine 7 arrived in the McHale Room with a charged hoseline at approximately 12:23 a.m., Truck 13's firefighters forced open the door to the bar area. At approximately the same time, firefighters from Truck 7 forced open the dutch doors on the east corridor side of the bar adjacent the large dining room. As the firefighters advanced the attack line on the seat of the fire, the couplings connecting the fire department hose to the standpipe hose separated, leaving the crews at the nozzle without water. To control the fire while Engine 7 worked to identify the problem and restore water supply to their handline, Truck 13's crew attempted to close the door between the McHale Room and the bar area. At this point in the fire, the status of the dutch door on the corridor side could not be positively determined, but physical evidence suggested that this door remained open.

When their water supply was interrupted, the crew from Engine 7 quickly retraced the attack line out of the McHale Room and discovered that their 1 3/4-inch line had disconnected from the occupant use hose. They decided to abandon their line, reattached the occupant use nozzle, and stretched the occupant use line back to the entrance to the bar. At this point, Truck 13 reopened the doors and the crews advanced together on the fire with Private Gates at the nozzle.

With the crews inside again advancing on the fire, Lieutenant Smearage broke out a window in the large dining room to the east of the bar area. It remains unclear whether the window was broken to provide ventilation or to provide access for a backup line. Approximately 2% minutes later, the lieutenant and another firefighter were forced to evacuate the building via this window.

Engine 7 and Truck 13 firefighters quickly gained control of the fire in the bar area using the occupant use hoseline and nozzle. As the fire was nearly extinguished in the bar, two of the Engine 7 firefighters, Privates Comparet and Gates, were forced to leave when their SCBA low air supply alarms began to ring. Private Gates handed over the attack line to the Truck 13 firefighters who continued the attack. Within seconds of their departure, the Engine 7 firefighters become aware that a rapid and intense flame front was advancing over their heads. Gates later reported that he felt as if he himself was about to burst into flames. In the process of evacuating through the McHale Room, Comparet and Gates became separated. Gates reported trying to follow the hoseline, but lost track of it somewhere beyond the elevator lobby. Disoriented by the deteriorating conditions around him and a depleted air supply, Gates located the monumental stair. Attempting to descend it, he stumbled and rolled to the second floor landing near the elevator lobby. Comparet successfully retraced the hoseline back to the cabinet in the service corridor before collapsing.

While Engine 7's and Truck 13's crews fought to control the fire in the bar, Private John Lorenzано and Captain Michael Spalding of Truck 7, who were operating behind the attack line crews in the McHale Room, became aware that Corporal Ellwood Gelenius of Truck 13 had run low or out of air in the third floor elevator lobby and needed assistance leaving the area. They responded to aid him. Within seconds of arriving in the elevator lobby, the three men were driven to the floor by a blast of flame coming through the doors from the McHale Room. Somewhere in the confusion, Captain Spalding and Private Lorenzано became separated. Spalding stayed with Gelenius, who was unconscious, and struggled to drag him to safety. Disoriented in the rush of heat and smoke that had descended so suddenly, Spalding reportedly attempted to follow the attack line down the monumental stair. When he realized it led past the stair, he turned and headed east down the long corridor past the monumental stair without Gelenius, who he was forced to leave at the doors separating the service corridor from the lobby. By the time Spalding arrived at the east stairway leading up, he had run low on air himself. Realizing that this would lead him nowhere, he turned and continued back to the east into the large dining room. Here he turned right, into the Grill Room, and collapsed as a section of ceiling dropped on him from above.

During his desperate attempt to rescue Gelenius and find safety himself, Captain Spalding activated the emergency button on his portable radio and made several unsuccessful attempts to verbally request assistance. To operate his radio controls, he had been forced to remove his glove, severely burning his hand in the process.

After becoming separated from Spalding in the elevator lobby, Private Lorenzano apparently followed Engine 7's attack line west down the service corridor. Since the standpipe was located in the corridor on the wall opposite the entrance to the stairway, it did not provide a direct path into the exit. Three doors on the opposite wall opened off of the corridor in the immediate vicinity of the standpipe cabinet. Two of these doors led to stairways. The center door of the three opened into a short service corridor which led back into the McHale Room. Investigators believe Private Lorenzano reentered the McHale Room through this corridor and headed north towards the windows on the Vermont Street side. Before he could reach the outside wall, however, Lorenzano became entangled in furniture, ran out of air, collapsed, and died.

Meanwhile, in the bar area, Truck 13's crew reportedly became aware that in their words, "something terrible," was happening behind them and in the corridor while they were knocking down the fire in the southeast corner of the room. Outside, Truck 7's chauffeur, Private Toffolo positioned his aerial ladder at the window broken earlier by Lieutenant Smear-age and quickly extricated the lieutenant and another firefighter. With heavy smoke and flame now venting from the eastern most windows of the McHale Room, Toffolo quickly repositioned his aerial to rescue the remaining members of Engine 7's and Truck 13's crews from the east bar window. In the process of retracting the aerial to move to the bar windows, Lieutenant Smear-age's foot became caught between rungs, injuring it. This momentarily delayed efforts to reposition the ladder.

When the ladder reached the east bar window where Truck 13's crew was waiting to be rescued, flames become visible from the west bar window. With heavy smoke pouring out over the heads of Truck 13's crew, Lieutenant Smearage and the other firefighter played a hose stream on the west window flames while the aerial was extended to the east bar window. Truck 13's crew then abandoned their attack line and exited the east window to join them on the aerial ladder. A short time later, fire became visible through the east window as well.

### **Search and Rescue Operations**

The plights of Lieutenant Smearage and the attack line crew were apparent to the incident commander and firefighters on the exterior fireground. However, the much more desperate situation of the other interior firefighters only became obvious as crews advancing second and third lines on the fire stumbled upon their downed comrades.

The magnitude of problems inside became apparent when Engine 5's crew entered the third floor service corridor from the west stair. There they encountered Private Comparet unconscious in front of the hose cabinet. As they removed her back down the west stair through the second floor, they encountered Private Gates's unconscious form lying in the corridor west of the monumental stair. Gates and Comparet were subsequently transported to area hospitals and treated for burns and smoke inhalation. Gates was treated and released; Comparet would remain hospitalized substantially longer with respiratory burns. (Both firefighters have subsequently returned to duty.)

Soon second alarm companies arrived and engaged the search. At approximately 12:52 a.m., Engine 4's crew located Corporal Gelenius's body in the doorway between the elevator lobby and the service corridor on the third floor. Attempts began immediately to revive Corporal Gelenius, but he was pronounced dead at Methodist Hospital less than one hour later.

When second alarm companies arrived, Engine 11 stretched a 1¾-inch attack line (3rd line) up Truck 13's aerial ladder from the Meridian Street (east) side. After firefighters pushed their way westward through the large dining room and gained control of the fire in the large dining room and east end of the corridor, they fanned out and located the body of Captain Spalding under a mass of ceiling debris just south of the corridor entrance. This occurred some 20 minutes after Engine 11's crew began their attack on the third floor, about seven minutes after Engine 4's crew located Corporal Gelenius, and approximately 23 minutes after the flash fire forced Captain Spalding to begin his unsuccessful escape attempt. Captain Spalding was transported to the ground over Truck 13's tower bucket and removed to the hospital for treatment of smoke inhalation and critical second and third degree burns. (Captain Spalding remained off-duty for more than three months undergoing rehabilitative therapy to restore full use of the hand he burned operating his portable radio.)

Without a portable radio or PASS device, Private Lorenzano was unable to alert anyone of his predicament. Once the fire was reported under control, all interior crews had pulled out of the fire area, and rescue teams had evacuated all of the injured except Private Lorenzano, the incident commander ordered a roll call. When it became apparent that a member was unaccounted for, a systematic search of the building was ordered by then Acting Chief Keith Smith, who had assumed the role of incident commander. The search commenced at 2:08 a.m. and Private Lorenzano's body was located a little more than 10 minutes later. He was examined and pronounced dead at the scene.

## **Rescue of Civilians**

Efforts to rescue guests of the hotel trapped on upper floors started immediately after the fire was located on the third floor. With several of the occupants trapped on the eighth floor, high above the fire, attention focused on keeping people calm and preventing the vertical spread of the fire, while positioning aerials to bring those who could be reached to safety.

Upon their arrival, firefighters had been advised that one juror could not be accounted for and Engine 1's crew was sent to the sixth floor to retrieve him. On their way up, the crew used the east stairway, which started on the third floor. By the time they retrieved the stranded juror and began their descent, the firefighters reported to the incident commander that the smoke had become dense and much hotter, and they discouraged any further attempts to use that route to access upper floors, fearing the fire had begun to spread via this avenue. This belief proved well founded when, after the fire, evidence demonstrated convincingly that the fire's vertical spread had been most severe in this area.

Other stairs had become heavily charged with fire as well. The sole civilian victim -Thomas R. Mutz, a 71 year-old hotel guest from Willmette, Illinois -was found in the west service stairway between the 6th and 7th floors during a secondary search of the building 2 1/2 hours after the firefighters arrived on the scene. His actions prior to his death are unknown, but it is believed he was in the process of evacuating the building when he suddenly encountered heavy smoke conditions in the stairway. This stairway had been used by firefighters from Engine 5 when they reentered the third floor with a backup line to fight the fire after the flash fire in the McHale Room and the corridor.

## **ANALYSIS**

After the fire, a great deal of attention focused on the coincidence that the fire occurred while the jury hearing testimony in the highly publicized and controversial Mike Tyson rape trial was sequestered in the building. Every effort was made to thoroughly and carefully examine the origin and cause of the fire to determine if it had been maliciously set. To ensure that these matters received thoughtful and thorough consideration, the results of the fire origin and cause investigation were reviewed by the Marion County Grand Jury, while the review and analysis of the fire and fire department operations were referred to a specially convened review panel.

## **Origin and Cause**

Post-fire investigation determined that the fire was caused by an electrical malfunction in or near a refrigerator in the third floor bar. Evidence at the scene was examined independently by fire origin and cause investigators from the Indianapolis Fire and Police Departments, Marion County Prosecutor's Office, federal Bureau of Alcohol, Tobacco, and Firearms, and the insurance company underwriting the premises. All of the investigators concurred with the finding that the cause of the fire was accidental.

Because of the coincidence of a fire occurring in the hotel while the Tyson jury was sequestered there and rampant speculation that the fire may have been incendiary, evidence from the official investigation was presented to the Marion County Grand Jury by the prosecutor's office. They too concurred with the findings and declared publicly that the fire was not related in any way to an attempt to disrupt or influence the outcome of the Tyson trial.

## **Fire Development**

Once the origin and cause of the fire were established and agreed upon, efforts focused on determining how and why fire conditions deteriorated so quickly and unexpectedly. These conditions and the subsequent confusion and disorientation they produced led to the deaths of two firefighters, one civilian, and four serious injuries to firefighters.

Many accounts of this fire have suggested that at least one and as many as three separate flashovers occurred during this incident. While this is certainly true of the bar room where the fire originated, a more complex, destructive, and unpredictable condition produced the rapid growth and spread of the fire into the McHale Room, corridor, and large dining room.

Flashover is a common occurrence in most compartment fires. The commonly accepted definitions of flashover describe the phenomenon as the point at which all available combustible material in a compartment simultaneously reaches its auto-ignition temperature. It is also described as the transition point between the fire's oxygen-regulated and fuel-regulated phases.

Evidence examined at the scene suggests that the events which led to the firefighter and civilian deaths and injuries do not fit the accepted definitions of flashover. The only room in which evidence strongly suggests that flashover occurred was the room of fire origin. (Low burning also

occurred in the McHale Room, however, the extent of flame damage did not appear sufficiently uniform to suggest that this room had reached flashover as well.) It is unclear whether the flashover occurred in the bar before or after the arrival of the fire department.

In this fire, extensive low burning indicative of a post-flashover fire was observed in the immediate vicinity of the bar and the opening between it and the McHale Room. In fact, much of the available fuel in the McHale Room at or below tabletop level remained unburned. Those fuels which were significantly consumed appeared to be relatively lightweight, with very high flame spread index ratings, and high surface to mass ratios. These materials consisted mainly of interior wall and ceiling finishes.

Given these conditions, a more apt description of the fire development which occurred in the McHale Room and the east corridor appears to be that of a flash fire with accompanying rollover or flameover.

The rapid and unexpected development of these conditions may have been the result of four coincident factors:

- The deep concealed space above the suspended ceiling,
- The failure of fire streams during the initial attack,
- The failure to contain the fire within the bar area while waiting for fire suppression to resume,
- And the uncontrolled low level ventilation of the fire area which resulted when windows in the bar and large dining room were broken.

With the introduction of a fresh air supply from the broken windows in the bar and large dining room and access to unburned fuel in the corridor when the dutch doors were left open, the fire spread to the east corridor near the entrance to the large dining room. Fresh air entering the bar area, coupled with resumed firefighting efforts, permitted air to mix with the unburned combustion products trapped in the overhead combustible concealed space.

The introduction of fresh air from below precipitated the ignition and rapid expansion of the trapped hot gas layer. Openings in the ceiling would have provided an avenue for the expanding superheated gases to escape and ignite combustible wall and ceiling finishes.

Cooler smoke and fire gases below the lower suspended ceiling very likely obscured flameover and exacerbated conditions when they

themselves were ignited. Firefighters unaware that the fire was extending over their heads in the combustible concealed space were caught off-guard when fire erupted in the McHale Room and spread into the corridor.

The development of a flash fire in the McHale room produced a very hot, very rapid flame front which spread across the combustible interior finishes in that room and the corridor. The availability of more fresh air drawn up through the monumental stair allowed the fire to spread from the McHale Room into the elevator lobby and then pushed it toward the large dining room where fire was already spreading through the open dutch doors. The unenclosed east stairway then provided an ideal avenue for vertical fire spread, as evidenced by extensive fire damage on the fourth floor and heavy smoke and heat damage on several floors above. These conditions left the firefighters with a much larger, dangerous, and more difficult fire to control than they had originally confronted when they arrived on the third floor.

### **Communications**

Notwithstanding delays in identifying the need for additional companies, the acknowledgement and processing of the request for a 2nd Alarm was significantly delayed. Some officials indicated that they felt the transition to a new 800 MHz trunked radio system only two weeks before this incident and lack of familiarity and confidence in the system played a part in these difficulties.

The incident commander indicated in interviews that his initial request for extra companies was interrupted by a dispatch for another incident. He also reported that another incident had been assigned to the same talk group (channel). This could happen easily due to a human or system error.

The seven minute delay processing the 2nd Alarm request after it was received, may have been caused by a lack of familiarity with new computer-aided dispatch equipment or procedures as well.

The prompt response of two of the 2nd Alarm engine companies (Engines 4 and 19) may have been the result of these companies monitoring the radio traffic and responding in anticipation of the 2nd Alarm. This may be an example of how an old habit overcame a modern problem.

## **AFTER THE FIRE**

Indianapolis fire officials began their efforts to recover from this devastating incident immediately. When it was determined to have been accidental, efforts quickly focused on reconstructing the events which led to the tragic loss of two firefighters and one civilian, and the injuries to four other fire department personnel and eight civilians.

### **Review Panel**

Determined that the department learn from this incident' a review panel consisting of nine members of the Indianapolis Fire Department was convened. Atlanta Fire Chief David M. Chamberlin, Sr. was retained to facilitate the review panel inquiry. Review panel members were selected from each operating unit of the fire department to bring their particular areas of expertise to the deliberations. The review panel met for the first time on February 11, six days after the fire. In total, more than 140 hours of deliberations, research, and investigation were conducted by the panel before issuing its recommendations. A summary of the panel's list of "Lessons Learned or Reinforced" is provided in Appendix E.

Panel members used a process which began with a member or members identifying and framing a particular concern or issue within their scope of expertise. This issue was reinforced with historical background on the origin and development of the tactic or operating procedure involved. Finally, the committee's recommendations for resolving the issue were presented. In all, 57 issues were identified and considered by the panel. At the conclusion of its deliberations, the panel issued a 90 page report detailing these recommendations and summary of lessons learned.

One of the best ways to evaluate the outcome of an especially tragic incident is to consider its impact on future events. The review panel report and recommendations have been taken seriously and changes are being implemented to improve the operations of the department. The following is a brief summary of some changes already implemented in Indianapolis:

- Purchase and issue of fire-resistant protective hoods for all firefighters;
- Purchase and issue of personal alert safety system (PASS) devices for each position on a company;
- Reorganization of the Fire Prevention Bureau under the new title of "Technical Services Division" to reflect its support role (the duties of this new organization are still being defined);

- Implementation of a general order requiring the use of the Indianapolis Fire Incident Command (IFIC) system at all incidents.

### **Critical Incident Stress Debriefing**

Like many other emergency service organizations, Indianapolis fire officials had become concerned about the potentially debilitating effects of job-related stress before this tragic incident. Consequently, steps had been taken to organize and implement a critical incident stress debriefing (CISD) program in the department. Coping with the aftermath of the Indianapolis Athletic Club incident would be its first major test.

The command officers initially responsible for organizing and implementing the CISD program, Deputy Chief David Grider and Fire Marshal Timothy Whitaker, experienced the magnitude of the incident firsthand while operating on the fireground and activated the CISD program immediately after the incident was brought under control. Before the change of shifts the next morning, every firefighter assigned to the incident, approximately 70 in all, had received an initial debriefing at his or her fire station. Over the next several days and weeks, through the funerals, hospital visits, and subsequent duty shifts, members would receive continual reinforcement of the CISD message:

- Experiencing stress after a traumatic incident is natural...
- Experiencing stress reactions means your mind and body are going through emotional healing...
- You can cope!

The value of the CISD program was evident in the immediate aftermath of the incident. Firefighters at Station 7 were observed practicing the coping strategies recommended in the program such as discussing the incident and participating in physical exercise.

### **FUNERALS**

The deaths of Corporal Gelenius and Private Lorenzano were the first line-of-duty deaths in the Indianapolis Fire Department in 23 years. Such a long interval between tragedies had been fortunate, but as a result no plans or procedures were in place for managing the notification of next-of-kin, assisting the families, planning the funerals, or providing for the flood of firefighters from across the nation who would come to pay their respects to their fallen comrades.

The dedicated men and women of the Indianapolis Fire Department and their extended fire service family came together and helped the victims' families and themselves through this trying and difficult period.

Two separate processions and funerals were held, highlighting the distinctive contributions each firefighter had made to his family, department, and community. In all, more than 1,000 firefighters from as far away as Texas and Maine were said to have been in attendance. Following the funeral ceremonies and interment, a formal wake was held at the downtown convention center.

## **LESSONS LEARNED**

The Indianapolis Athletic Club fire demonstrates the value of retrospective code enforcement, and planning and preparing for those fires which cannot be prevented. Once the fire started, many conditions conspired to cause the deaths of two firefighters and one civilian, and the injuries to four firefighters and eight civilians. Considering the building conditions prior to the fire and the command, control, and communication problems which developed during fireground operations, the loss of life could easily have been substantially higher.

### **1. Fire departments have a vested interest in code enforcement.**

Fire prevention regulations are generally viewed in the context of how they affect the public -both positively and negatively. The duty of the state to use its police powers to preserve the health, safety, and welfare of the public is often cited when justifying the adoption of fire codes. When opposing fire codes, the debate usually focuses on the economic costs of private fire protection features and the development options that are precluded by such investments. Firefighter safety rarely figures in the discussions.

The Indianapolis Athletic Club, like the One Meridian Plaza fire in Philadelphia, clearly demonstrates the need to consider the costs of failing to provide private protection for public servants - our nation's firefighters. Most of the firesafety deficiencies at the Indianapolis Athletic Club had gone undetected and Indiana building and firesafety regulations make only limited provisions for retrospective enforcement. Without such code authority, deficiencies in unenclosed exits, nonconforming exit discharge, inadequate standpipe system, combustible interior finish, and mechanical system controls which permitted the system to recirculate smoke may never have been successfully abated.

2. An incident command system should be routinely used by every fire department.

An incident command system is absolutely necessary for ensuring effective command, control, and communication, especially at fires such as this. It is often said that practice makes perfect. Incident command systems should not be reserved only for the big incidents. Every member of the department should be familiar with the operation of the incident command system, and every officer should be skilled in its application. The Indianapolis Fire Department had adopted an incident command system, and all officers had been trained in its use. However, the IFIC was not routinely used at fire and emergency incidents. It was reserved for “major” incidents and implemented at the discretion of the officer in charge.

The interior situation was complex and changing rapidly and the lack of a strong component of the incident command system to direct interior operations was a serious handicap.

3. Firefighter accountability must be one of the principal functions of an incident command system.

One of the key reasons for adopting and using an incident command system is to aid in maintaining firefighter accountability during emergency operations. The incident command system is designed to limit each officer’s span of control while maintaining unity of command. Company integrity should be maintained while carrying out task assignments during firefighting operations to ensure that each member is accounted for at all times. The lack of a cohesive and effective incident command system may impact firefighter safety as well as company performance.

During the incident, several firefighters became separated and lost. An incident command system cannot provide an absolute assurance that firefighters will not become separated in the adverse, dangerous, and confusing environment of interior fire attack, but effective incident command will ensure a more effective and timely response if assistance is urgently needed. Privates Comparet and Gates were located only by chance. Had Engine 5’s crew not literally tripped over their fallen comrades, the incident commander may have learned of their predicament too late. Similarly, Corporal Gelenius was located by a crew returning to the fire floor with an attack line to complete a task that had been interrupted by the flash fire.

Captain Spalding's rescue was accomplished with considerable delay. The firefighters who eventually located Captain Spalding, the only injured firefighter whose predicament had been communicated before he collapsed, found him only after they had completed their primary task of attacking and controlling the fire on the eastern front. Private Lorenzano was located solely as the result of an organized search and rescue effort.

4. Communications equipment and systems need to be redesigned for firefighting service — especially the radio.

Captain Spalding's most serious injuries were a direct result of having to compromise his personal safety in order to send a distress signal. The 800 MHz trunked portable radios issued to fire company officers in Indianapolis incorporate a distress signal button. While the push-to-talk switches could be operated with minor difficulty with a gloved hand, the emergency or distress button is virtually impossible to operate in the same manner. These expensive radios must usually be concealed in pockets or under turnout clothing to protect them from the harmful environment and abuse of interior firefighting operations. These factors detract from the laudable purpose of the distress signal feature.

Research and development should be undertaken to redesign portable radios especially for firefighting service. Particular attention should be paid to the emergency or distress signaling features. One possible modification would include an interface between personal alert safety system (PASS) devices and portable radios so that distress signals could be transmitted locally via the PASS horn and to the communications center and incident commander through the portable radio. Modern trunked radio systems would permit this signal to be accompanied by a discrete unit identifier indicating which firefighter and company was assigned the radio. Under an effective incident command system, this information can be used to quickly identify the downed firefighter's assignment and location to aid rescuers. Fire department procurement specifications should highlight the need for such communication equipment features.

5. Dangerous and complex buildings such as multiple mixed uses, highrises, and places of assembly demand an immediate commitment of additional personnel and resources.

Complex mixed uses like the Indianapolis Athletic Club are among the most challenging environments in which firefighters must operate. With a hotel occupancy above a restaurant, offices, meeting rooms, and athletic facilities, it is often impractical or infeasible to evacuate all

occupants before attacking a fire. Protecting occupants in-place and suppressing the fire must often be simultaneous objectives.

Adding to this complexity, open stairways at the Indianapolis Athletic Club forced firefighters to commit to an interior fire attack and exterior rescue operations. The inadequate standpipe and restricted access at grade level made stretching backup lines difficult and time consuming. Appreciable quantities of smoke pouring from the ventilation system, the extreme danger of uncontrolled vertical fire spread, and the presence of guests on upper floors were all ominous indicators that additional companies were needed from the outset of the incident.

Although the incident commander reportedly requested extra companies as soon as the fire was located and confirmed on the third floor, a significant delay occurred in dispatching additional companies. According to fire department records, the 2nd Alarm was dispatched approximately 28 minutes after companies arrived on the scene. By this time, the flash fire had already occurred in the McHale Room and corridor on the third floor.

6. Communications systems, radio operators, and command personnel must be thoroughly familiar with equipment and procedures.

New radio equipment and lack of familiarity with its operation may have contributed to delays in acknowledging and processing requests for additional companies. If so, these problems illustrate the need for thorough training before, during, and after the transition to new radio equipment and procedures. Many departments have found it useful or even necessary to maintain components of their old systems as backups during the early phases of such transitions.

7. Pre-fire plans should be prepared for all high-rise buildings and other target hazards.

The incident commander and company officers had little knowledge of building features or conditions prior to their arrival and there was no pre-fire plan for the building. These factors placed the incident commander at a disadvantage from the start. Detailed knowledge of the unenclosed exit stairways, the large overhead concealed space, the lack of mechanical system controls to prevent recirculation of smoke, the highly combustible interior finish, and lack of automatic sprinklers, would have been a major advantage for the incident commander.

The initial incident command strategy focused on locating the fire. All of the companies inside were actively engaged in efforts to locate a fire, and once the fire was located, a containment strategy was forced on the incident commander by the prospect that the fire already involved a vertical shaft. (The first report was that the fire was in a dumbwaiter.) The immediate priority of attacking the fire was compromised by the problems encountered with the standpipe system.

8. All departments should purchase and issue personal alert safety system (PASS) devices, and all fireground personnel should be required to use them.

Identifying and locating distressed firefighters quickly is imperative. Three of the injured firefighters were found only by chance during firefighting operations. The two firefighters who died were both victims of smoke inhalation, even though they wore and used self-contained breathing apparatus. Both firefighters apparently inhaled smoke and toxic gases after depleting their SCBA air supplies. Their companions had no way to know they were still in trouble nor to find them before they succumbed.

PASS devices operate manually or automatically to activate a distinctive distress signal when a firefighter becomes trapped, disoriented, or stops moving. Once activated, PASS devices help warn others that an emergency is occurring and help rescuers locate the victim.

9. Every fire department should adopt procedures for conducting investigations of serious firefighter injuries and line-of-duty deaths and developing critiques of significant incidents.

Despite the lack of a documented procedure for conducting a formal inquiry, the Indianapolis Fire Department assembled a review panel and proceeded to conduct a comprehensive and thorough review of the incident. As a result, changes are already being implemented to prevent future tragedies. More changes will certainly follow.

The official review avoided the pitfall of seeking to assign fault or responsibility and focused on the more important objective of learning from the experience. Indianapolis firefighters have embraced the purpose and intent of the inquiry with little hesitation, viewing it not as a head hunt, but as means of preventing future tragedies. The review panel inquiry seems to have produced a sense that the department will overcome the tragic loss of two of its members by building a lasting legacy of improved firefighter safety and fire department efficiency as a memorial to their fallen comrades.

## **Appendices**

- A. Timeline of Events
- B. Floor Plan
- C. Additional Information About Fire Protection Deficiencies
- D. Fire Origin and Cause Determination Section from the Athletic Club Fire Review Panel Report, Indianapolis Fire Department
- E. Lessons Learned or Reinforced Section from the Athletic Club Fire Review Panel Report
- F. Photographs

**Appendix A**  
**Timeline of Events**

## Timeline of Events

Note: Events described in italics could not be fixed in time accurately from radio transmissions. Bold type identifies communications center alarm traffic.

Actual Time	Elapsed Time	Event/Activity
11:45 p.m. to 12:00 a.m.	--	<i>Employees smell smoke in the lobby and begin investigating. Smoke is observed coming from air registers, and desk clerk warns bailiffs guarding Tyson jury.</i>
12:06 a.m.	--	Fire department communications receives 911 call for odor of smoke in the building, 350 North Meridian Street, Indianapolis Athletic Club.
<b>12:08 a.m.</b>	--	<b>FIRST ALARM Engines 13, 7, 5, and 1, Trucks 13 and 7, Rescue 13, District Chief (DC) 3, Car 2 (Division Chief) dispatched.</b>
12:10 a.m.	00:00	Engine 7 arrives on the scene, "nothing showing, will investigate."
12:11 a.m.	01:14	Engine 7's lieutenant reports heavy smoke in the lobby. DC3 (IC) orders Engine 13 to bring their high-rise pack to the lobby to backup Engine 7. Crews from Engine 7 and Truck 7 begin searching for the fire in the basement and on the second floor.
12:12 a.m.	02:08	IC (DC3) places Captain Spalding (Truck 7) in charge of the ventilation sector. Captain Spalding reports he is in the basement and cannot locate the source of the smoke.
12:12 a.m.	02:51	Truck 13 firefighters find water dripping from the ceiling in the second floor changing room (directly under the fire area). Unaware that the building is unsprinklered and believing that the water may be coming from an activated sprinkler, they proceed to the third floor to investigate further.

## Timeline of Events

<b>Actual Time</b>	<b>Elapsed Time</b>	<b>Event/Activity</b>
12:17 a.m.	07:05	Firefighters locate the fire on the third floor. Approaching the fire from the east end of the corridor, they see flame peering through the crack between the two halves of a dutch door and report they have a “working fire in the dumbwaiter on the third floor.” Engine 7’s crew proceeds to the hose cabinet at the west end of the floor in the service corridor beyond the elevator lobby. Engine 13 is ordered by the IC to back up Engine 7’s crew on the attack line.
12:18 a.m.	08:51	Truck 7’s chauffeur (Private Toffolo) positions his aerial outside on the Vermont Street side and advises the IC (DC3) that he sees fire through the windows in the bar area.
12:19 a.m.	09:50	IC (DC3) orders Engine 5 to take a line into the building to backup the attack crew on the third floor. Engine 5 stretches a preconnected 1 3/4-inch line into the building from the Vermont Street side and takes a 50-foot section of rolled hose with them.
12:20 a.m.	10:07	Truck 13 reports that the fire is actually in a bar off of a dining or meeting room (McHale Room), and that the “whole room is engulfed.” An additional 50-feet of 1 3/4-inch hose has been added to the 100-feet of occupant use hose pulled from the hose station in the service corridor, and firefighters in the McHale Room are waiting for water before attacking the fire in the bar.
12:21 a.m.	11:08	A bailiff advises that a juror staying in Room 657 is unaccounted for. IC (DC3) assigns Engine 1’s crew (already en route to the third floor for search and rescue) to proceed to the sixth floor.

## Timeline of Events

<b>Actual Time</b>	<b>Elapsed Time</b>	<b>Event/Activity</b>
12:23 a.m.	13:13	Lieutenant Smearage (DC3A), the IC's aide, reports from the third floor that there is a "working room fire" on the third floor and a window will need to be broken to bring a line in over an aerial ladder (presumably Truck 7). Meanwhile, the attack line is charged and the doors from the McHale Room into the bar and the dutch doors on the corridor side are forced open. The attack line is advanced into the bar area. Within a few seconds, the couplings between the house line and the firefighters' 1 3/4-inch line separate and water is lost at the nozzle. The companies retreat from the bar area and the crew from Truck 13 attempts to re-close the doors leading into the bar from the McHale Room to contain the fire. The dutch doors on the corridor side remain open.
12:25 a.m.	15:06	Lieutenant Smearage breaks a window in the large dining room on the Vermont Street side, just east of the windows to the bar area. Meanwhile, Engine 5's crew is connecting a line to the standpipe hose outlet on the second floor.
12:26 a.m.	16:23	Engine 5 begins advancing their line up the west stairway to the third floor.
12:27 a.m.	17:06	Lieutenant Smear-age reports to the IC (DC3) that heavy smoke is entering the large dining room from the corridor and he believes the fire is about to break in behind them. (This appears to be about the time that Engine 1's crew descends the east stairway with the lost juror.)

## Timeline of Events

<b>Actual Time</b>	<b>Elapsed Time</b>	<b>Event/Activity</b>
12:27 a.m.	17:41	Fire enters the large dining room from the corridor cutting off Lieutenant Smear-age and another firefighter. Lieutenant Smearage requests assistance from Truck 7 and the two firefighters are rescued from the window. At about the same time, Privates Gates and Comparet, who are running low on air, leave the bar area. Captain Spalding and Private Lorenzано, working in the McHale Room are advised that Corporal Gelenius is running low on air in the elevator lobby and needs assistance evacuating.
12:28 a.m.	18:36	Captain Spalding and Private Lorenzано encounter Corporal Gelenius standing in the elevator lobby in obvious distress. Meanwhile, a flash fire erupts in the McHale Room and blows into the elevator lobby through the open doors. Outside, fire is can be seen venting from the two eastern most windows of the McHale Room. Spalding, Lorenzано, and Gelenius become separated.
12:30 a.m.	20:39	Engine 5's crew, entering the third floor from the west stairway, finds Private Comparet collapsed in front of the third floor hose cabinet. In the process of removing Comparet, Engine 5's crew finds Gates unconscious in the second floor corridor west of the elevator lobby at the base of the monumental stair.
12:31 a.m.	21:31	IC (DC3) radios for a second alarm (not dispatched until 12:39:01). Seven firefighters from Engine 7, Engine 13, and Truck 13 are rescued from third floor windows by Truck 7. Truck 13 sets up on the Meridian Street (east) side. Firefighters advance a line (3rd line) up Truck 7's aerial through the west window of the bar area.

## Timeline of Events

Actual Time	Elapsed Time	Event/Activity
12:32 a.m.	22:08	All firefighters except Captain Spalding, Corporal Gelenius, and Private Lorenzano have left or been evacuated from the third floor. Engine 11(2nd Alarm) arrives at the scene and reports to Car 2 on the Meridian Street side.
12:32 a.m.	22:35	IC (DC3) requests more aerial ladders. Engines 4 and 19 arrive on the scene. Engine 4 is assigned to lay two 3-inch lines for a ladder pipe operation. After completing this operation, Engine 4 is sent to the third floor to take up Engine 5's attack line and advance on the fire floor. Engine 19 is assigned to stretch a 1 1/2-inch line (4th line) to the fire floor.
12:33 a.m.	23:49	Fire is observed from outside engulfing the large dining room.
<b>12:34 am.</b>	<b>24:29</b>	<b>Special Call: Truck 1 is dispatched.</b>
12:35 a.m.	25:42	Captain Spalding activates the emergency button on his radio for the first time. It is now approximately 7 minutes since he became separated from Corporal Gelenius and Private Lorenzano.
12:36 a.m.	26:02	Captain Spalding again activates the emergency button on his radio.
12:36 a.m.	26:17	Captain Spalding transmits an inaudible radio message.
12:36 a.m.	26:21	Engine 19's crew enters the building with their line.
12:36: a.m.	26:28	Captain Spalding again transmits an inaudible radio message.
12:36 a.m.	26:37	Division Chief Williams (Car 2) reports, "the whole third floor [is] fully engulfed."
12:36 a.m.	26:47	Captain Spalding transmits a third inaudible radio message.

## Timeline of Events

Actual Time	Elapsed Time	Event/Activity
12:37 a.m.	27:13	Captain Spalding keys his radio without giving a message. He does this again 8 seconds later, and once more 3 seconds after that.
12:39 a.m.	28:54	Engine 11 takes a 1 1/2-inch line (5th line) in over Truck 13's aerial ladder from Engine 7 on the Meridian Street (east) side. They advance the line through the large dining room.
<b>12:39 am.</b>	<b>28:55</b>	<b>Second Alarm: Engines 11, 4, and 19, and Truck 1 is struck. Engines 4, 11, and 19 had already arrived and been committed at the scene. Truck 1 had been dispatched earlier on the special call.</b>
12:40 a.m.	30:15	Captain Spalding keys his radio again without transmitting a message.
12:48 a.m.	38:08	Fire Marshal Whitaker assumes command of the north sector (Vermont Street side).
12:49 a.m.	38:34	Truck 1 begins making rescues from upper stories on the Vermont Street side. The Sector Commander is giving instructions over a vehicle public address speaker to building occupants.
<b>12:50 a.m.</b>	<b>39:54</b>	<b>Special Call: Truck 14 is dispatched.</b>
12:52 a.m.	42:33	Engine 4 finds Corporal Gelenius in the doorway between the elevator lobby and the service corridor on the third floor. It is now almost 24 minutes since Corporal Gelenius became separated from Captain Spalding and Private Lorenzano.
12:54 a.m.	44:23	Fire Marshal Whitaker moves to the west sector to oversee aerial ladder rescue operations there.
12:57 a.m.	47:15	Corporal Gelenius's body is removed from the building, placed in an ambulance, and transported to Methodist Hospital where he is pronounced dead less than an hour later.

### Timeline of Events

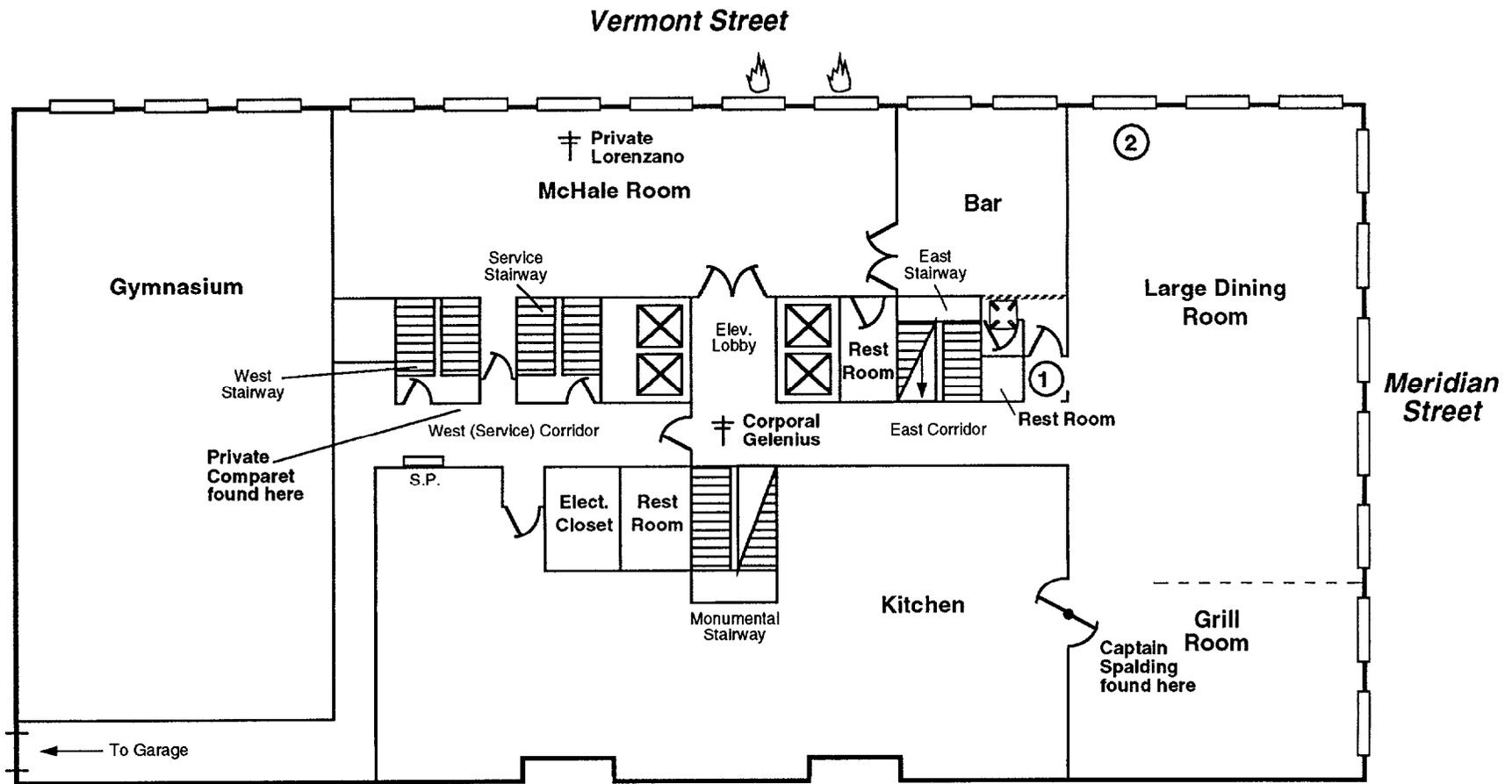
Actual Time	Elapsed Time	Event/Activity
12:59 a.m.	49:01	Engine 11 locates Captain Spalding beneath a layer of debris in the Grill Room.
1:00 a.m.	50:47	Truck 14 begins making aerial ladder rescues from upper floors on the south side of the building.
<b>1:01 am.</b>	<b>51:01</b>	<b>Third Alarm: Engine 14 and Truck 27 are dispatched.</b>
1:05 a.m.	55:10	Captain Spalding is removed from the third floor via Truck 13's aerial tower bucket.
1:11 a.m.	1:00:59	Truck 27 and Engine 14 are rescuing occupants from the west side of the building using ground ladders to extend the reach of the aerial ladder.
1:14 a.m.	1:04:00	Deputy Chief Grider assumes command of interior sector operations. A ground ladder is being attached to the end of Truck 7's aerial ladder so it too can be used for upper floor rescues.
1:20 a.m.	1:10:28	Chief Grider reports that the fire has been knocked down on the third floor, but fire may have extended upward.
1:21 a.m.	1:11:09	District Chief Pfisterer (DC3) is relieved as Incident Commander by Acting Chief Keith Smith. DC3 assumes command of the south sector.
1:29 a.m.	1:19:07	Chief Grider reports that the fire is under control with only spot fires burning now on the fourth floor.
1:38 a.m.	1:28:32	IC (Chief Smith) and the medical sector commander, Chief Zickier, confer about plans for a comprehensive interior search. Chief Smith advises he wants a check for the accountability of all firefighters assigned to the incident.
2:05 a.m.	1:55:03	DC3 relieves Deputy Chief Grider as interior sector commander.

## Timeline of Events

<b>Actual Time</b>	<b>Elapsed Time</b>	<b>Event/Activity</b>
2:05 a.m.	1:55:35	Crews from Engines 11 and 19, and Truck 14 check for extension on the fourth floor.
2:08 a.m.	1:58	<i>Systematic (secondary) search of building to locate missing firefighter and civilian victims begins.</i>
2:18 a.m.	2:08:23	Private Lorenzano's body is found in the McHale Room. He is pronounced dead at the scene.
2:38 a.m.	2:28:39	Civilian victim is found in east stairway between the sixth and seventh floors.

**Appendix B**

**Floor Plan**



Third Floor

# Indianapolis Athletic Club



(L7)

**LEGEND**

-  Origin of Fire
-  Standpipe Hose Station
-  Fire Venting From Windows
-  Bar
-  Partition
-  Fire First Viewed Here
-  Window Broken by DC3A

**Appendix C**

**Additional Information About  
Fire Protection Deficiencies**

## **Additional Information About Fire Protection Deficiencies**

This appendix contains additional information about key fire protection and life safety deficiencies which contributed delayed detection and suppression of the fire. This information is intended to supplement the information about these systems contained in the body of this report.

### **FIRE ALARM AND DETECTION SYSTEM**

The arrangement and installation of the building fire alarm systems was complex and smoke detector coverage was incomplete. As a result, the elevator lobby detector was the only smoke detector on the third floor where the fire originated. The elevator lobby detectors were not connected to the building fire alarm system and did not initiate an alarm.<sup>10</sup>

Smoke detection was added to the existing manual fire alarm system in the late 1980s to comply with state regulations requiring such protection in hotels.<sup>11</sup> However, these regulations were not interpreted to require smoke detection throughout mixed use hotel occupancies. The system consisted of:

- Three separate systems: a high-voltage manual station system, low-voltage conventional-zoned corridor detection on guest room floors, and analog smoke detection in guest rooms and selected hazardous areas;
- Manual pull stations were provided in corridors and public areas;
- Conventional ceiling-mounted ionization smoke detectors installed at 30 foot intervals on guest room floors; these detectors were connected to conventional-zoned control units on each floor, which in turn were connected to signal-line-circuits and assigned addresses on the analog/addressable system;

<sup>10</sup> NFPA 72-(90), Section 3-733 requires that smoke detectors used to initiate elevator recall also activate the building fire alarm signals.

<sup>11</sup> See Indiana Code 22-11-18, Smoke Detection Devices.

- Photoelectric smoke detectors installed in individual guest rooms and throughout the basement workshop and storage areas; these detectors were of the analog/addressable type; the control unit was programmed to indicate the location of each addressable device upon activation;
- The analog/addressable system control unit was interconnected with the high-voltage manual station system which operated the fire alarm signals;
- The manual fire alarm system circuits, including the signaling circuits, were not supervised for continuity and operability.

Several aspects of this fire alarm system design contributed to delays in identifying the fire's location and notifying occupants to evacuate:

- The fire alarm system was not supervised by a central, remote, or proprietary station; therefore, it was the responsibility of the desk clerk or security guard to notify the fire department in the event of an alarm;
- Fire alarm signals were installed in corridors, not individual guest rooms and may not have produced warning signals strong enough to wake sleeping occupants; a typical floor had two to three fire alarm signals;
- Single-station smoke detectors were installed in the elevator lobbies but were not connected to the fire alarm system and did not initiate a fire warning signal;
- Smoke detection was not provided in air handling equipment or beyond the elevator lobbies on floors one through five.

#### **INADEQUATE ACCESS TO THE PUBLIC WAY**

The provision of revolving doors as the sole means of egress at grade level was not a factor in occupant evacuation, but would have been had there been more occupants. These doors, located on the north and east sides of the building, provided the only grade level access from Vermont Street (north) and Meridian Street (east). Supplemental side-hinged doors were not provided to permit access or egress.

Although the revolving doors were collapsible, the fire department never broke down (folded) the doors to provide unobstructed access or egress. At some point, glass in the revolving door on the north side of the building was broken to allow a hose line to be stretched into the building.

**Appendix D**

**Fire Origin and Cause Determination Section  
from the Athletic Club Fire Review Panel  
Report, Indianapolis Fire Department**

## Fire Origin and Cause Determination

*NOTE: The origin and cause determination of this fire was not included in the review panel's mission. It is included here because it is a relevant part of the overall analysis of the incident.*

On February 5, 1992 at 00:06 hours a fire occurred at the Indianapolis Athletic Club located at 350 North Meridian Street. The building is nine and a half stories with approximate dimensions of 100 feet by 200 feet, with approximately 20,000 square feet of area per floor.

Fire investigators from the Indianapolis Police and Fire Arson Investigation Unit examined the entire Athletic Club Building. The examination revealed that the most severe damage was on the third floor. Investigators were on the scene during the fire suppression effort and were aware of the extent of the fire on the third floor, and they were also aware that a flashover had occurred.

Although there was tremendous damage caused by the flashover conditions and resulting fires, there appeared to be only one area of origin, in the bar area located on the third floor. The heaviest damage was discovered behind the bar in the "back-bar" area. A large "V" pattern was present emanating from the top of the counter to the ceiling. The counter top had been burned through from the bottom in a semi-circular shape. The counter top had a large amount of fire debris on top of it, particularly plaster that had been exposed to the high temperatures.

There was a small refrigerator under the counter top. The refrigerator was filled with canned fruit juice, and it was beside a bottle cooler filled with beer. The counter top was cleared off, one layer at a time, until the fire debris had been removed, exposing several protected areas. These areas were documented and later compared with the statement given by the bartender. The bartender indicated that the bar closed at approximately 4:30 pm, and that he locked the bar at approximately 5:30 pm when he left. The counter top was then removed using prybars, Halligan tools, and a sledge hammer. The refrigerator was then removed and photographed.

The rear of the refrigerator showed a clear "V" pattern that perfectly matched the pattern found behind it on the wall. There was no other low burn found anywhere else on the third floor of the club, and this area was very carefully examined. The baseboard was removed and inspected, revealing no signs of any flammable accelerant. Samples were taken for lab analysis from the pan of the refrigerator, all; showing no signs of accelerants.

The fire extended upward, burning through a paneled wall that had been added in front of the original plaster wall. It burned through a suspended ceiling and continued its travel through the original plaster ceiling until its upward progression was halted by the concrete floor deck of the fourth floor. Investigators discovered that there were numerous holes in the original false ceiling that allowed the fire to progress. They also discovered numerous breaches in the block walls which allowed the fire to spread into the rooms adjoining the bar area. These

breaches allowed the heat and combustion byproducts to accumulate creating the deadly flashover conditions. Investigators also found evidence that the flashover was particularly intense in the lobby area near the stairwell where oxygen was able to further feed the fire. The numerous wall coverings and additions of wood paneling to the walls contributed to the fire load on the third floor. Investigators concluded that the thirteen foot ceiling height, with several with ceilings, allowed the super-heated gases to accumulate above firefighters without their knowledge.

Because of the severity of the injuries and the presence of the Michael G. Tyson rape trial jury, the Bureau of Alcohol Tobacco and Firearms (ATF) was asked to assist in the investigation. ATF investigators conducted independent examinations of the fire scene. They agreed with the conclusions of the IPD/IFD fire investigators. An electrical engineer familiar with fire investigation was retained to assist in the investigation. The electrical equipment that served the bar area was thoroughly inspected, and removed for further laboratory analysis, as was the refrigerator.

All of the investigators who have examined the Athletic Club have reached the same opinion independently: the fire was accidental resulting from an electrical fault somewhere in the plug, wiring, or components of the refrigerator. They also agreed that there was no evidence whatsoever of tampering with any of these components.

On February 20, 1992, the Marion County Grand Jury heard testimony about the fire and the fire investigation. After deliberating, the jury agreed with the unanimous opinion of the various investigators, commending their efforts and finding that no further investigation was required. The Grand Jury ruled the fire accidental.

**Appendix E**

**Lessons Learned or Reinforced Section  
from the Athletic Club Fire Review Panel Report**

## **Lessons Learned or Reinforced Section from the Athletic Club Fire Review Panel Report**

*This list of lessons learned is reproduced from the report of the Review Panel convened to investigate the Indianapolis Athletic Club Fire.*

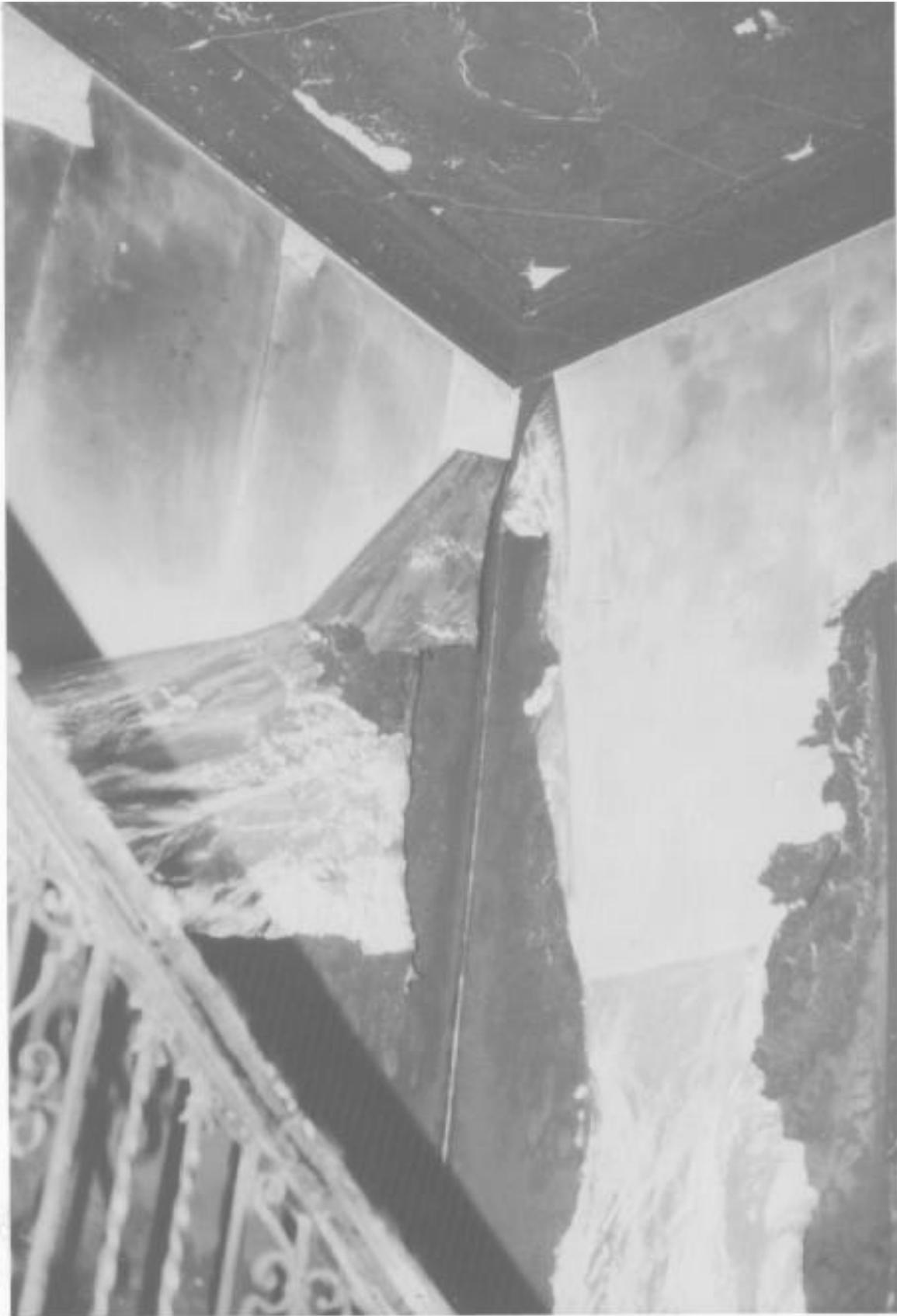
- The inevitable fact is that disastrous incidents will occur.
- There is no substitute for proper training.
- Training is not an area to enact budget cuts.
- Standard operating procedures are necessary, and must be followed.
- Beware of “routine” situations, there is no such thing.
- Firefighters must be familiar with all buildings in their response district.
- Vertical and horizontal fire spread will be severe in buildings without sprinklers and adequate compartmentation.
- Unprotected stairways are always dangerous.
- Always plan for your escape, poor visibility is assured.
- The “buddy system” works and must be utilized.
- Linen cabinet hose is not a good substitute for fire department attack hose.
- When using a standpipe system, always use the standpipe from the floor below the fire so firefighters can use the hose as an escape route.
- Physical fitness is a necessary survival asset.
- Full turnout gear and SCBA are an essential part of safety.
- Helmet chin straps must be utilized at all times.
- The proper use of self-contained breathing apparatus saves lives.
- When SCBA alarm goes off, get out immediately.

- Proper use of the Incident Command System is vital to safety and organization on the fireground.
- It is important to formally establish command and/or assignments.
- It is important to know who is in charge.
- Plan ahead, have necessary suppression tools and equipment at hand.
- High-rise fires require a heavy commitment of personnel and equipment early in the incident.
- Be prepared to effect aerial ladder rescue.
- Inspection of a building must be made prior to occupancy to make sure that all systems are operational and that they meet the needs of the Fire Department.
- Building fire protection systems must be tested regularly.
- Building occupants must be trained to report fires promptly.
- Radio discipline is important.

## **Appendix F**

### **Photographs**

The photographs on the following pages were taken by Mark Chubb. These and other photographs and slides are in the master file for this investigation at the United States Fire Administration.



This view from the monumental stairway looking up toward third floor ceiling shows relatively light damage to the cornice, but heavy damage to the combustible foil-backed wallcovering.



This view of the third floor corridor looking east toward the large dining room shows the extensive damage to combustible wallcoverings.



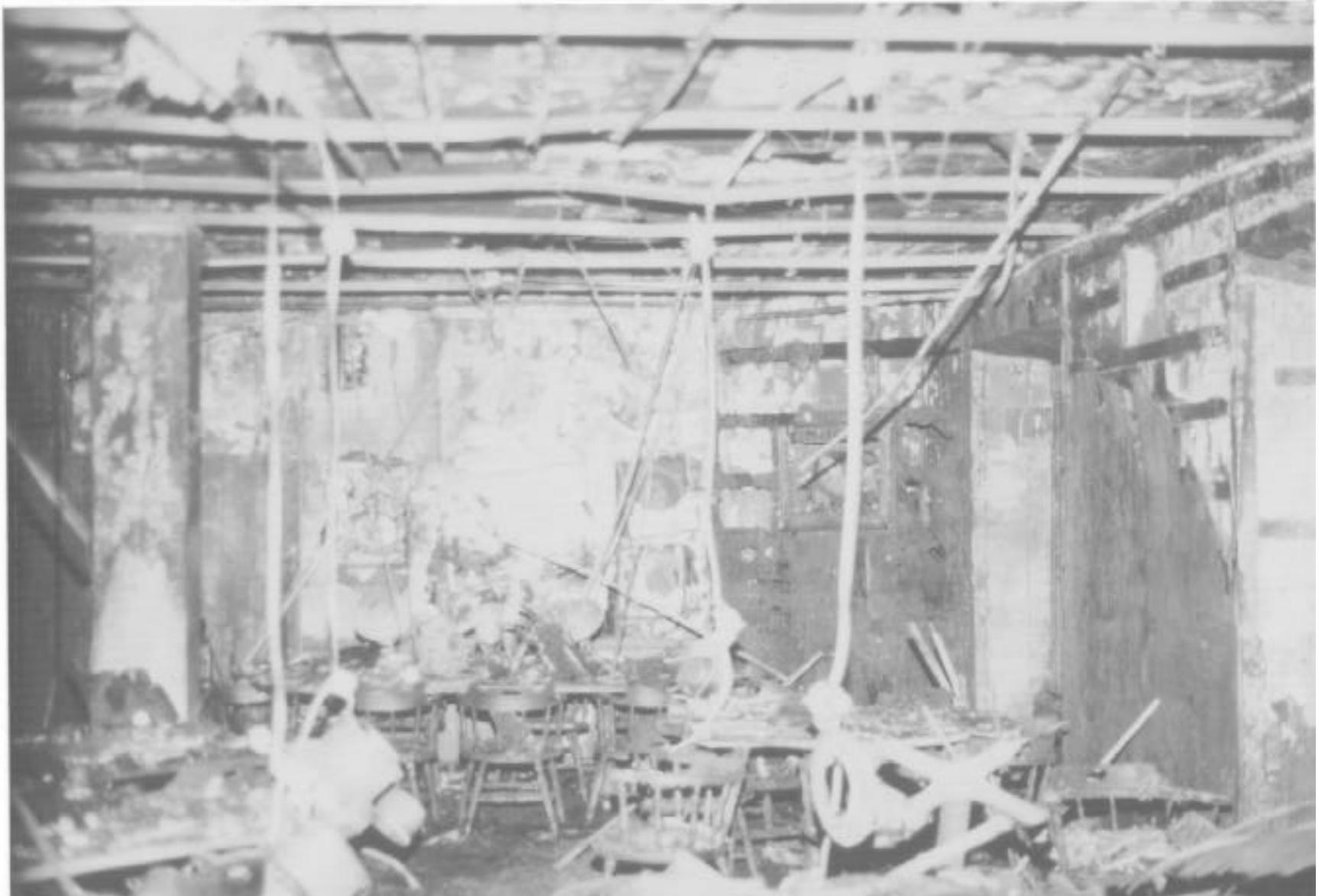
Entrance to ladies room adjacent to the dutch-style service door to the bar (room of fire origin). Note the air return register over the door and the air supply register over the opening to the dining room.



Entrance to the McHale Room looking north from the elevator lobby. Note the fire damage to the wall coverings above the door and the relatively light charring of the door frame.



This view of the dutch-style service door to the bar room shows the deep charring to the door frame above the opening and the plywood paneling on the lower right side of the door opening.



The inside of the McHale Room looking west. Shows the use of furring strips under the wall paneling. Much of the paneling at the remote west end of the room remains intact. Also note that the tops of the chair backs are only slightly blistered.



View of opening in suspended ceiling in the McHale Room. Note the charred 1-foot ceiling tiles (at left) glued to the underside of the plaster suspended ceiling and the remnants of the aluminum suspended ceiling frame.



Remnants of occupant use standpipe hoseline used by Engine 7 and Truck 13 firefighters in the initial attack. Note the plastic adjustable-stream fog-nozzle attached to the end (near center of photo).



View of third floor service corridor looking east from standpipe cabinet. Note the relatively minor damage. Most of the damage is confined to wall and ceiling finish materials.



View of suspended ceiling damage above the location in the grill room where Captain Spalding was found unconscious and covered in debris.



View of east stairway connecting third through ninth floors. This stairway was open on the third floor (shown here) and the fourth floor permitting the stairway to fill with smoke and the fire to spread vertically to the fourth floor.



View of fire damage in the fourth floor corridor looking west toward the center of the building.



Manual fire alarm system cabinet and tabular fire alarm annunciator above. This system provided power to the fire alarm signals on all floors.



Analog addressable smoke detector control unit. This unit powered and supervised the in-room and basement smoke detectors as well as monitoring the conventional zoned control units which powered the corridor smoke detectors.