High-Rise Fires Case Studies and Photos

New York City
Philadelphia
Los Angeles
Chicago
Boston
Rhode Island
Las Vegas
Near closing time on Saturday afternoon, March 25, 1911, a fire broke out on the top floors of the Asch Building in the Triangle Waist Company. Within minutes, the quiet spring afternoon erupted into madness, a terrifying moment in time, disrupting forever the lives of young workers. By the time the fire was over, 146 of the 500 employees had died. The survivors were left to live and relive those agonizing moments. The victims and their families, the people passing by who witnessed the desperate leaps from ninth floor windows and the City of New York would never be the same. The result of this fire was the NYS Labor Law, and the organizations of the FDNY’s Bureau of Fire Prevention. In addition it addressed the need for automatic sprinklers, improved exits, fire drills, and rubbish removal.

Equitable Building Fire of 1912

Every available piece of fire apparatus in the city was brought to the scene of the fire, in response to the “borough alarm,” the call which always indicates a catastrophe. Every fire company in Manhattan, below Fifty-ninth street was rushed downtown, the companies above them being moved down to take their places, while practically all the available apparatus in Brooklyn was summoned and raced, across the Brooklyn Bridge, the north roadway of which was closed to all other traffic. It was the most serious fire in a financial way, New York had ever known. The most thrilling incident of the early stages of the fire was the killing of three men who had fled to the roof to escape the fire that was burning fiercely beneath them. They were seen on a cupola on the Cedar street side of the building just when dawn was breaking. Firemen in the street yelled to them not to jump, and hurried away for scaling ladders. When they returned the men still were there, holding out their arms
appealingly to those in the street below. The firemen started up the Cedar street side of the building on scaling ladders, and were nearing the men when gushes of flames burst from the windows and forced them to retreat. Almost simultaneously the section of the roof back of the three men collapsed and went down into the building. The flames then gushed up from the furnace a block in size. The heat was so terrific the three men could not stand it. They knelt on the coping, prayed for a few seconds, and two of them leaped outward. They landed on the pavement in Cedar Street and death was instant. The third man stood up on the coping, staggered, fell backward and plunged head-long into the volcano that raged beneath him in the interior of the building. This fire became the impetus for scientific research into fireproof construction. Materials are now rated according to the length of time they can withstand the effect of graded temperatures. The fire tower and Building Code requirements for sprinklers and standpipes can be traced to this fire.

One New York Plaza Fire of 1970

One New York Plaza is a 50-story office tower less than a mile from the World Trade Center site. It suffered a severe fire and explosion on August 5, 1970. The fire started around 6 PM, and burned for more than 6 hours. A fire on the 13th floor of a high-rise Class “E” building which was the first NYC Class “E” high-rise to involve fire on more than one floor. It had an alarm system but was not connected to central station. Elevator call buttons were heat sensitive, and there was no Firefighters Service installed. This fire resulted in the passage of Local Law 5 of 1973, which had a profound effect of fire safety in the city, and created the Fire Safety Plan, the entire Fire safety team, as well as the Fire Safety Director.

World Trade Center Towers 1 and 2 Fires of 2001
One Meridian Plaza is a 38-floor skyscraper in Philadelphia that suffered a severe fire on February 23, 1991. The fire started on the 22nd floor and raged for 18 hours, gutting eight floors and causing an estimated $100 million in direct property loss. It was later described by Philadelphia officials as “the most significant fire in this century”. The fire caused window breakage, cracking of granite, and failures of spandrel panel connections. Despite the severity and duration of the fire, as evidenced by the damage the building sustained, no part of the building collapsed.

Los Angeles

First Interstate Bank Building Fire of 1988

The First Interstate Bank Building is a 62-story skyscraper in Los Angeles that suffered the worst high-rise fire in the city's history. From the late evening of May 4, 1988 through the early morning of the next day, 64 fire companies battled the blaze, which lasted for 3 1/2 hours. The fire caused
extensive window breakage, which complicated firefighting efforts. Large flames jutted out of the building during the blaze. Firefighting efforts resulted in massive water damage to floors below the fire, and the fire gutted offices from the 12th to the 16th floor, and caused extensive smoke damage to floors above. The fire caused an estimated $200 million in direct property loss. A report by Iklim Ltd. describes the structural damage from the fire: In spite of the total burnout of four and a half floors, there was no damage to the main structural members and only minor damage to one secondary beam and a small number of floor pans.

CHICAGO

Iroquois Theater Fire of 1903

This fire killed 602 people and resulted in the requirements for unlocked, illuminated exits, exits opening in the direction of egress, automatic sprinklers, fire alarm systems, and flame resistant scenery.

Our Lady of Angels School Fire of 1958

The fire started in the basement sometime between 2:00 and 2:20 that cold December afternoon, in a cardboard trash barrel at the foot of the northeast stairwell. The fire burned undetected for an estimated 15 to 30 minutes, gradually filling the stairwell with super hot gases and smoke. In the intense heat, a window at the foot of the stairwell shattered, giving the smoldering fire a new supply
of oxygen. The wooden staircase itself burst into flames and, acting like a chimney, sent super hot gases, fire and smoke swirling up the stairwell. The first floor landing was equipped with a heavy wooden door which effectively blocked the fire and heat from entering the first floor hallway. But the second floor landing had no doors - the fire, smoke and heat were free to roam the second floor halls at will. As the fire was climbing (consuming) the stairway, a pipe chase running from the basement to the cockloft above the second floor false ceiling gave the superheated gases a direct route to the attic, where the temperature rapidly rose higher and higher until it finally reached ignition temperature. Almost as though planning a coordinated attack, the fire swept through the halls of the second floor in the north wing of the school, and flashed through the cockloft above the classrooms. By the time the students and their teachers in the second floor classrooms realized there was a fire, their sole escape route (the center hallway) was all but impassable. For 329 children and 5 teaching nuns, the only remaining means of escape was to jump from their second floor windows to the concrete and crushed rock 25 feet below, or to pray for the fire department to arrive and rescue them before it was too late. Recognizing the trap they were in, some of the nuns encouraged the children to sit at their desks or gather in a semi-circle and pray. And they did - until the smoke, heat and flames forced them to the windows. But there were no firemen to rescue them. Some began jumping - others fell or were pushed. This fire in which 95 people were killed resulted in mandatory fire drills, improved construction practices, school inspections, and placement of fire extinguishers.

Cook County Administration Building Fire of 2003

The fire in the unsprinklered 36-story Cook County Administration Building on 17 October 2003, resulted in six fatalities and left a dozen people injured. A human behavior study using a questionnaire survey was used to gain an understanding of the existing conditions in the building prior to the fire, past training and occupant awareness of the evacuation procedure, and to document the occupants' behavior and evacuation on the day of the fire. Results show that although 85% of the survey respondents had received fire safety training, only 20% understood the phased-evacuation plan. There were only around 250 occupants still in the building at the time of the fire; half of them used an elevator to exit. Unfortunately, the combination of locked doors that prevented re-entry on to the floors from the stairwells and fire fighting activity taking place from the stairwell, contributed to this tragedy.
LaSalle Bank Building Fire of 2004

At 6:30 pm on 6th December, 2004, there was a major fire at the 44-story LaSalle Bank headquarters in downtown Chicago. The fire, caused by faulty electrical ballast in the ceiling of the 29th floor of the building, spread to the 30th floor. The Chicago fire and police departments were on site within minutes. They spent the next five hours fighting the largest skyscraper fire in the history of the city, using over one million gallons of water to extinguish the blaze. The heat of the fire became so intense that the pools of water that formed on the floors were boiling. Some fire-fighters had burns on their knees from kneeling down while working on the fire. Thanks to the outstanding efforts of Chicago’s fire and police departments, the 450 people who were in the building, which normally holds 5,000 employees and tenants were all evacuated with no serious or permanent injuries. Critical bank and building employees were on site or on the pre-established emergency conference call by 6:45 pm. By 7:00 pm, all local radio and television stations were providing live coverage. At 8:00 pm, the crisis management team held the first official meeting and all department-level business continuity plans were officially initiated. Meetings and much work continued throughout the evening. By 7:30am the next morning, all critical bank functions were up and running at alternative sites. Seven hundred and fifty employees reported to alternative work sites throughout the city, while 400 more worked from home. Despite the magnitude of the event, LaSalle Bank clients experienced no disruptions in service. Some commercial loans were only slightly delayed as LaSalle waited for supporting firms to open and supply copies of paper documents. The 29th floor and most of the 30th floor of the building were gutted. Overall damage was in the US$50m range, yet LaSalle Bank’s business interruption insurance claim was zero dollars. All the resources of the City of Chicago, the surrounding suburbs, LaSalle Bank’s technology staff and their vendors and the financial community within the city, worked with LaSalle Bank to make this improbable nightmare one of the greatest business continuity successes ever. How does a major organization survive (and in LaSalle Bank’s case thrive) when it experiences such a significant disruption? How can something so devastating turn into a positive? How does an organization begin to prepare for something so far reaching and be ready for such an event at any moment? An unfortunate event that was considered an accident, initiated a recovery effort that was no accident. It was the culmination of years of preparation and testing on the bank’s part.
Cocoanut Grove Fire of 1942

On November 28th 1942, a huge fire occurred at the Cocoanut Grove Night Club in Boston in which 492 people perished in total. The Cocoanut Grove was originally a speakeasy—an illegal bar during alcohol Prohibition—and some of its doors were bricked up or bolted shut. The main entrance to the club was only a revolving door. There were flammable decorations throughout the building including cloth drapery and paper palm trees. The club had a licensed capacity of 500 people, and on the night of the fire there were about 1000 people in the building. All of the above contributed to the tragedy.

RHODE ISLAND

The Station Night Club Fire of 2003

Daniel M. Biechele, Great White’s new tour manager, borrowed a flashlight and positioned the “gerbs”—devices that would spray 15-foot plumes of brilliant sparks for 15 seconds—just behind
the band’s guitarist and just in front of its drummer. And then, just after 11 p.m., he turned a key that ignited the display at The Station nightclub -- and triggered a cataclysm. Biechele knew his way around The Station from earlier work with another band. He knew about fireworks, too -- how to use them and how they could add a visual exclamation point to the musical roar.

In early January of this year, Biechele test-fired a gerb in a San Diego parking lot for Great White’s lead singer, Jack Russell. The band was looking for something new to spruce up its act, and Russell liked what he saw, band manager Paul Woolnough said. He said Biechele then placed an order for more than $1,000 worth of the “pyro” from a Memphis special effects firm. At other stops on the Great White tour, when the shower of sparks fell harmlessly to the floor, no one thought much about the possible risk.

But at The Station, owners Michael and Jeffrey Derderian had installed a 2½-inch-thick layer of polyurethane in an attempt to sound-proof the club and appease irate neighbors. The foam would fuel a fire so intense that it devoured all the oxygen in its path, and so swift that once patrons realized the danger they had less than a minute to escape. Lawyers and prosecutors are attempting to decipher whether the fireworks were the work of a renegade roadie or the planned pyrotechnics of nightclub owners trying to fill the house. But once the flames erupted, The Station’s patrons were doomed by a series of missteps, oversights, and in some cases clear violations of Rhode Island law.

The Globe has found that, as the 300-plus patrons looked for ways to escape, two of the club’s four available exits proved nearly useless. One in the kitchen was known only to employees and regular customers. The path to the exit next to the stage was blocked by an inner door and, according to three people who escaped, by a security staff member who directed panicked patrons to other doors even as flames rose.

Those who reached the main entrance were forced to squeeze by a ticket booth that funneled fleeing customers into a 3-foot-wide space that became a deadly bottleneck. Fire safety experts consulted by the Globe say a crowd that size ought to have been able to make its way out in 200 seconds. But 43 seconds after the crowd headed for the club’s main exit, the door was blocked by a growing pile of club patrons, panicked and stumbling over one another in the smoke and darkness. In the days and weeks after the fire, the ruined nightclub was fenced off, serving temporarily as a shrine for the 100 who died there. It has since been demolished, its cellar hole leveled off. Its charred remains have been trucked away.
LAS VEGAS

MGM Grand Hotel Fire of 1980

The second-largest loss-of-life hotel fire in United States history took place on November 21, 1980, at the 26-story MGM Grand Hotel and Casino in Las Vegas, Nevada. This fire, which killed 85 people and injured almost 700, provided a wake-up call for the industry to improve fire safety standards in hotels around the country. As a result, hotels today are safer than ever.

The fire scene at the MGM was grim. The blaze began with an electrical ground fault in a wall soffit in the first-floor deli that resulted when the un-insulated wires of a refrigeration unit were stretched and rubbed as the unit vibrated. Once the fire ignited, it quickly traveled to the ceiling and the giant air-circulation system above the casino. In the casino, flames fed on flammable furnishings, including wall coverings, PVC piping, glue, fixtures, and even the mirrors on the walls, which were made of plastic. The fire burned undetected for hours until it flashed over just after 7 a.m. and began spreading at a rate of 19 feet (5.8 meters) per second through the casino.

About 5,000 people were in the resort when the blaze started to burn in earnest. Many were trapped in their rooms, in the corridors, and in stairwells, and most of the victims died at the scene or in Las Vegas Valley hospitals. Another handful of victims succumbed to fire-related injuries within a year. Fourteen firefighters were hospitalized, most suffering from smoke inhalation.