

Major Fires in Steel-Framed High-rise Buildings

1970 — 1 New York Plaza is a 50-story skyscraper in New York City that suffered a severe fire and explosion on August 5, 1970. The fire started around 6:00 PM on the 33rd and 34th floors and burned for more than six hours. It caused shear connections to fail and beams to drop onto girder flanges, resulting in a partial collapse of the 34th floor. The rest of the steel structure remained standing. See <http://911research.wtc7.net/wtc/analysis/compare/fires.html> and <https://www.wpi.edu/Pubs/ETD/Available/etd-050406-105306/unrestricted/rnacewicz.pdf>

1975 — World Trade Center North Tower, otherwise known as WTC 1, was still a 110-story skyscraper when its 11th floor suffered a fire from an unknown cause on February 13, 1975. The fire started shortly before midnight in a furnished office on the 11th floor and spread through some 65% of the floor (the core plus half the office area). By the time firefighters arrived, flames were also spreading vertically via telephone cable openings in the floor slab, causing subsidiary fires from the 9th to the 19th floors. The fire lasted more than three hours and did an estimated \$2 million worth of damage. Cleaning and service personnel were evacuated without any fatalities. However, of the 150 firefighters at the scene, 28 sustained injuries from the intense heat and smoke. According to Captain Harold Kull of Engine Co. 6, "It was like fighting a blow torch. Flames could be seen pouring out of 11th floor windows on the east side of the building." The structural steel trusses, undamaged, did not need to be replaced. See http://bellacio.org/en/article.php3?id_article=10613

1988 — First Interstate Bank 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 and caused an estimated \$200 million of property damage. Of that fire, the U.S. Fire Administration wrote: "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." See <http://www.usfa.fema.gov/downloads/pdf/publications/tr-022.pdf> (p. 21) and <http://911research.wtc7.net/wtc/analysis/compare/fires.html>

1990 — Broadgate was a partially completed 14-story building in London, England, when a fire began in a first-floor contractor's hut on June 23, 1990. Since the fire detection and sprinkler systems were not yet in operation during off-work hours, smoke and flames spread undetected throughout the building. Neither during nor after the 4½-hour fire—which for two hours exceeded 1,800° F—did any columns, beams, or floors collapse, despite large deflections in the structural steel exposed to fire. See <http://guardian.150m.com/fire/small/cardington.htm>

1991 — One Meridian Plaza is a 38-floor skyscraper in Philadelphia, Pennsylvania, that suffered a severe fire on February 23, 1991. The fire started on the 22nd floor and raged for 18 hours, gutting eight floors, causing an estimated \$100 million in direct property loss, and killing three firefighters. Despite the severity and duration of the fire, as evidenced by the damage the building sustained, no part of the building collapsed. Fire and safety officials said later that it was in no danger of collapsing, as had been feared. See <http://www.nytimes.com/1991/02/26/us/philadelphia-fire-officials-rule-out-collapse-of-tower.html> and <http://911research.wtc7.net/wtc/analysis/compare/fires.html>

2001 — World Trade Center 5, a nine-story building, was engulfed in fires on September 11, 2001, after sustaining heavy damage from falling debris. The fires were much more severe and widespread than those in the 47-story World Trade Center 7. Though there were some partial interior collapses in WTC 5, the overall structure remained standing. See <http://911research.wtc7.net/wtc/attack/wtc5.html>

2004 — East Parque Central is a 56-story, 730-foot office tower in Caracas, Venezuela, that went up in flames just before midnight on Saturday, October 16, 2004, on the 34th floor. By Sunday afternoon, it had burned for more 17 hours and spread over 26 floors, reaching the roof. Only two floors and some staircases in the building collapsed. Afterwards, engineers inspected the building and found it "very solid," according to Caracas Fire Chief Rodolfo Briceno. See <http://www.cbsnews.com/news/towering-inferno-in-caracas>

2005 — The Windsor Tower is a 28-story skyscraper in Madrid, Spain, that was being fireproofed when fire broke out on February 12, 2005. The not-yet-fireproofed upper 10 floors partially collapsed in stages over a period of more than two hours. Although flames spread down as low as the third floor and lasted up to 20 hours, the already-fireproofed lower 17 floors did not collapse. See <http://www.mace.manchester.ac.uk/project/research/structures/strucfire/CaseStudy/HistoricFires/BuildingFires/default.htm>

2007 — Deutsche Bank Building was originally a 41-story skyscraper, but in 2007 it was being dismantled because of massive damage incurred when debris was hurled into it from World Trade Center 2's explosion on September 11, 2001. On August 18, 2007, at 3:40 PM, a seven-alarm fire, started by workers' smoking, broke out on the 17th floor of the by-then-26-story structure. The fire burned for seven hours and heavily damaged 10 floors above and below its point of origin. Two firefighters died of smoke inhalation. The steel structure did not collapse. See https://en.wikipedia.org/wiki/Deutsche_Bank_Building

2009 — Mandarin Oriental Hotel/Beijing Television Cultural Center in Beijing, China, was a not-yet-completed 44-story, 522-foot skyscraper that was totally engulfed in flames for more than three hours on February 9, 2009. The cause of the fire was said to be an unauthorized fireworks display during the Lunar New Year celebration. One firefighter died fighting the blaze. The structure, built with 140,000 tons of steel, did not collapse. It was later rebuilt. See <https://www.youtube.com/watch?v=3B1OnhSucP8> and https://en.wikipedia.org/wiki/Beijing_Television_Cultural_Center_fire and <http://www.nytimes.com/2009/02/10/world/asia/10beijing.html>

2010 — A Shanghai, China, high-rise apartment building that was undergoing renovation broke out in a fire on November 15, 2010, that destroyed all 28 stories. The fire, started by sparks that ignited the scaffolding from welding work being done by unlicensed welders, burned for several hours and required more than 80 fire engines to contain it. It killed at least 58 people and injured more than 70 others. Firefighters on the ground were unable to hose water on the top of the 279-foot building. The steel structure did not collapse. See https://en.wikipedia.org/wiki/2010_Shanghai_fire

2012 — The Dubai Tamweel is a 34-story residential tower in the United Arab Emirates' most populous city, Dubai. It was partially gutted by fire on November 18, 2012. The blaze started at 1:30 AM, shot flames to every single floor, and was put out more than seven hours later—at around 8:20 AM. All residents were evacuated to safety. The steel-framed structure did not collapse. See <http://www.emirates247.com/news-in-images/pre-dawn-fire-guts-jlt-s-tamweel-tower-2012-11-19-1.483797> and <http://gulfnews.com/news/uae/emergencies/fire-breaks-out-at-tamweel-tower-in-jumeirah-lake-towers-1.1106387>