

B25 Bomber Crashes into the Empire State Building July 28, 1945, New York, USA

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A B-25 bomber that was about to land in Newark Airport (about 8 miles west of Manhattan Island) crashed into the 79th floor of the Empire State Building due to dense fog. This crash caused a large scale fire in the 79th and 80th floors, and took the lives of 14 people. One of the engines flew into an elevator shaft, causing fire on the ground floor. Since the bomber did not have much fuel left, the crash did not affect the integrity of the building.

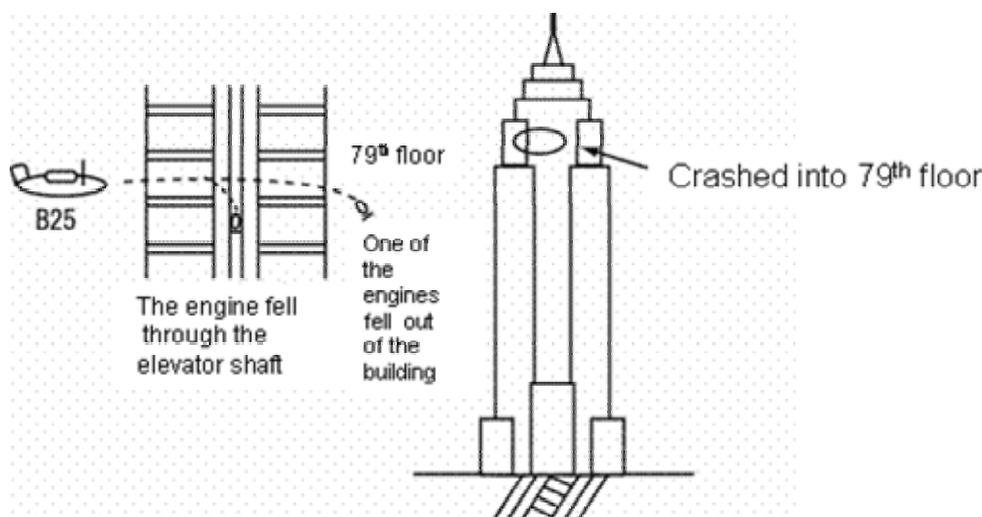


Fig. 1 B25 Bomber Crashed into the Empire State Building [5]

1 . Event

A B-25 bomber that was about to land in Newark Airport (about 8 miles west of Manhattan Island) crashed into 79th floor of the Empire State Building due to dense fog. This crash caused a large scale fire in the 79th and 80th floors and killed 14 people. One of the engines flew into an elevator shaft and caused fire on the ground floor. The integrity of the building was not affected.

2 . Course

On the morning of July 28, 1945, a US Army B-25 bomber (Wingspan: 67 ft 6 in, Length: 52 ft 11 in) was heading for Newark Airport in New York. In the dense fog in New York, the pilot lowered the altitude to land. The B-25 bomber flying at 250 miles per hour crashed into the North side of 79th floor of the Empire State Building at 9:49 am. The crash caused a fire in 79th and 80th floors. One of the engines fell through the elevator shaft and caused fire at the ground floor. 14 people died in this accident.

The accident did not affect the integrity of the building and resulted in 1 million dollars in damage to the building (value of that time). The building returned to business 2 days after the accident.

3 . Cause

The B-25 bomber's pilot was a 27-year-old veteran of 34 bombing missions over Germany, but crashed into the building due to the dense fog. Although B-25 bomber could hold 3,700 liters of fuel, fortunately it only had small amount of fuel left since it was close to the destination, and did not cause significant damage to the building.

4 . Immediate Action

Unknown

5 . Countermeasure

Since this accident, skyscrapers have been designed to tolerate airplane crashes. 55 years later, when terrorists high-jacked B767 passenger planes and flew into the World Trade Center buildings, the buildings avoided immediate collapse. B767 planes have wing-span of 154 feet and length of 157 feet. They are about 3 times bigger than B25. In addition to wide range of damages to the structures such as columns by the impact, fires broke out while fireproof covering fell off due to the collision impact. High temperature from the fire significantly reduced the strength of the metal columns, causing some columns not to hold the weight of upper floors. The lower floors started collapsing in chain reaction, and finally the whole building fell as everyone knows.

6 . Summary

Original plan for the antenna on the Empire State Building was to be used as a mooring mast for Zeppelin. However, after the Hindenburg explosion, the plan was never carried out. They probably never considered an airplane to crash into the building when they were designing the skyscraper, but the damage to the building was small. However, who would have thought the world trade center buildings would be demolished by terrorists crashing into them with high-jacked passenger planes.

7 . Knowledge

Unexpected and unpredictable accidents occur. However, it is important to analyze occurred accidents and have "damage estimate" of potential accidents in order to be ready for immediate actions.

"Damage Estimate" is to estimate in advance what type of disasters may occur in what area or region, and what type of damage may result. By performing damage estimates, we can forecast how many buildings may be damaged or flooded in which area and

where the power outage takes place. From the results of damage estimation, we can make plans and preparation.

8 . On The Side

Skyscraper race in New York started in early 20th century and ended when the Empire State Building was built. Being 203.4 feet higher than the Chrysler Building built in 1931, the Empire State Building is 1282.8 feet in height and has 102 stories (1470 feet including the antenna). Due to a limited amount of space, columns, windows, window frames were pre-fabricated in the factories. 60,000 tons of steel was brought from the steel mills in Pennsylvania, 500 km away. 4,000 people worked on the building which was completed in one year and 45 days. The cost of the building was estimated to be \$50 million, but the cost of the building turned out to be about \$24.7 million because the Great Depression significantly lowered labor costs.

The Empire State Building officially opened on May 1, 1931 with President Hoover lighting up the tower with a push of a button from Washington DC.

However, due to the depression, only 25% of the building was being occupied at the beginning and people called it “Empty State Building. ” They left lights on the vacant offices until they were occupied.

People say “Fools and monkeys love to climb high” and fools and engineers are the same. They like to “build something big.” As a result, a huge bridge falls every 30 years. They also like to “build something fast”. As a result, England’s railway speed competitions got dangerously overheated in 19th century. One of the contributing factors for the Titanic accident in 1912 was also trying to beat the record time for crossing Atlantic Ocean. As a result of “Wanting to build something tall”, people competed in building sky scrapers in 1930’s in the US, in 1990’s in Japan, and in 2000’s in China.

< References >

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[4] Official site of the Empire State Building:
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