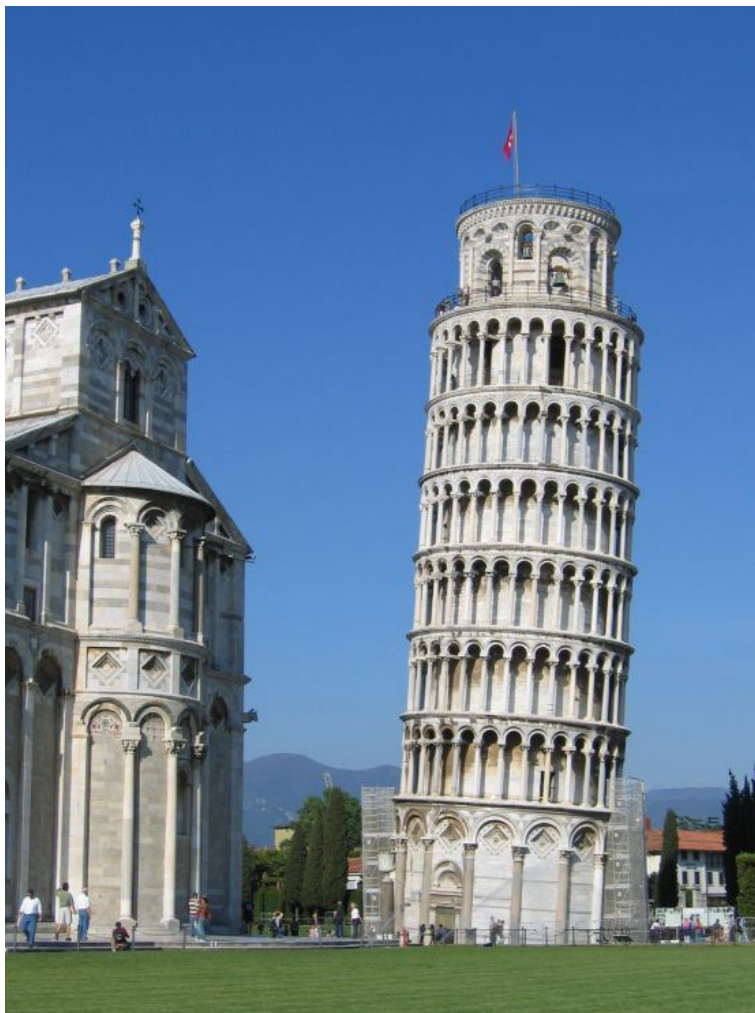


Top Ten Construction Failures

10.) Tower of Pisa

No list of construction failures would be complete without this iconic engineering mishap. A mere three meter foundation and weak subsoil contributed to a nearly 5.5 degree lean until preservation crews were called in to help lessen the instability. The tower's top is still more than 3.9 meters off center.



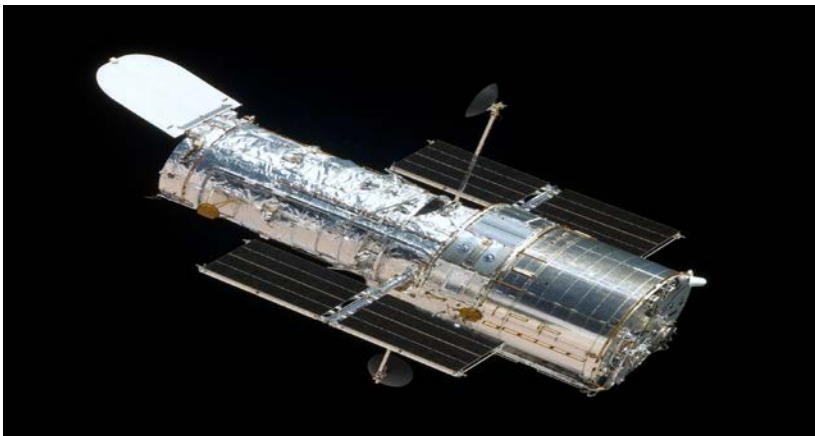
9.) Tacoma Narrows Bridge

Opened in 1940, the bridge was the third longest suspension bridge in the world before it collapsed in dramatic fashion just four months later. Sustained 40 mph winds caused a phenomenon known as aeroelastic flutter, resonating violently with the structure until the roadway broke apart and fell hundreds of feet into the gorge below.



8.) Hubble

One of the crowning achievements of the space age, the Hubble Space Telescope launched with a defective mirror that severely inhibited the quality of the incredibly expensive instrument's imaging capabilities. Several servicing missions had to be flown to correct the issue, and Hubble ended up costing U.S. taxpayers nearly \$6 billion – up from an original \$400 million.



7.) Lotus Riverside Complex

In 2009, a recently completed residential building collapsed nearly intact in Shanghai, killing one construction worker. A lengthy probe pointed to excavated earth being dumped nearby, which caused a river bank to collapse and saturate the surrounding soil, causing the instability. The eleven remaining structures in the project were immediately investigated.



6.) New York City Crane Collapse

A 2008 crane collapse in a downtown NYC neighborhood resulted in the deaths of six construction workers and another female bystander. Investigators determined that instead of the recommended eight safety straps, negligent crews had installed only four, worn straps, leading to the deadly failure.



5.) Hyatt Regency Walkway

During a tea dance in July of 1981, dozens of people gathered on an aerial walkway of the less than year-old hotel, before a catastrophic structural failure sent hundreds hurtling down four floors onto crowds of hundreds below. More than 200 people were injured and 114 lost their lives.



4.) Chicago Crib

As crews were working on a water intake tunnel for Chicago in 1909, a fire broke out on a water crib in the middle of winter, killing 60 workers and badly burning dozens of others, with many drowning or succumbing to hypothermia as they tried to escape the flames.



3.) Quebec City Bridge

The 1907 construction of the Quebec City Bridge across the St. Lawrence River ended tragically after officials ignored the fact that initial calculations for the bridge were off by more than 8 million pounds. 75 workers lost their lives when the structure finally failed and plunged into the river below.



2.) Willow Island Cooling Tower

A 430-foot power plant cooling tower, under construction in 1978, was severely behind schedule, resulting in a number of shortcuts and oversights that led to a collapse claiming 51 lives. Unset concrete and poorly constructed scaffolding were the main factors behind the structural failure.



1.) Teton Dam

While many of these construction failures resulted in tragic loss of life, they have helped shape the safety procedures and guidelines that have saved countless lives over the years.

The Teton Dam, for example, was an earthen dam built by the federal government in southeastern Idaho which broke apart upon its first filling on June 5th, 1976. The rushing waters from the catastrophic failure killed 11 people and drowned more than 13,000 head of cattle, with damages estimated up to \$2 billion.

Permeable soil and cracked foundations were blamed for the dam's collapse, which allowed more than 2,000,000 cubic feet of water per second to careen into the Teton River canyon, emptying the reservoir within hours. The Dam's failure prompted a round of more stringent regulations governing similar projects across the United States.



Source: <https://civilsolution.wordpress.com/category/civil-engineering/page/10/>