

IS NEW YORK (MANHATTAN) SINKING?

As a retired Civil Engineer, items like this gather my attention as I always wondered about the weight of skyscrapers, that are usually set on bedrock, and their base affect.

This article provides some answers and appear very scientifically logical to me.

I will share with you:

"...Manhattan is sinking due to a combination of natural geological processes, the immense weight of its buildings, and human land-use practices.

Natural Causes

Much of Manhattan's subsidence is a legacy of the last ice age. Thousands of years ago, glaciers compressed the land, and as they melted, the ground began a slow process of settling and adjusting, which continues today at rates of about 1–2 millimeters per year on average . This natural settling is uneven, causing some areas to sink while others experience slight uplift, such as parts of Queens and Brooklyn

Human-Induced Factors

The city's dense urban infrastructure significantly contributes to sinking. Manhattan alone contains over a million buildings weighing roughly 1.68 trillion pounds, nearly double the weight of all humans combined. This immense load compresses the soil beneath, particularly in areas with softer or reclaimed land, accelerating subsidence unearththevoyage.com+1. Additionally, groundwater extraction in some areas has historically contributed to land settling

Land-Use Practices

Past modifications to the landscape, including land reclamation, construction on landfill, and other urban development, have made the ground more compressible. These human-altered areas are more prone to sinking under the weight of buildings and infrastructure

Consequences

Even though the sinking is gradual, it increases the city's vulnerability to flooding, especially when combined with rising sea levels and extreme weather events. Small annual changes in elevation can stress building foundations, roads, subway tunnels, and water pipes, and exacerbate the impact of storm surges, as seen during Hurricane Sandy in 2012 and Hurricane Ida in 2021 . Over decades, these millimeter-per-year shifts can lead to significant structural and environmental challenges.

Monitoring and Research

Advances in satellite technology, particularly Interferometric Synthetic Aperture Radar (InSAR), allow scientists to measure ground movements with millimeter precision. These observations help map which areas are sinking fastest and inform urban planning and flood mitigation strategies unearththevoyage.com+1.

*In summary, Manhattan's sinking is a slow but ongoing process driven by **ancient geological adjustments, the weight of skyscrapers, and human land-use practices**, all of which amplify the city's flood risk and infrastructure stress....."*

To bring this into perspective, the Empire State Building was completed on April 1931 or 95 years ago (using 2026). That means the building has sunk $2 \text{ mm} \times 95 = 190 \text{ mm}$ or 7.48 inches. The building is sinking together with the surrounding grounds so, it does not show a differential displacement that is noticeable; however, flooding is a threat:

“Parts of Brooklyn and Queens are also experiencing higher subsidence rates than other parts of New York City.

Though a one or two millimetre decline per year may not seem like much, researchers warned the city’s shift worsens the threat of flooding in the region, especially amid already [rising sea levels](#).

“New York faces significant challenges from flood hazard; the threat of sea level rise is 3 to 4 times higher than the global average along the Atlantic coast of North America,” researchers wrote. “A deeply concentrated population of 8.4 million people faces varying degrees of hazard from inundation in New York City.” ...”

Interesting!

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