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The remains of the Champlain Towers South in Surfside, Fla., in June 2021. The collapse caused the deaths of 98 people. GERALD HERBERT/ ASSOCIATED PRESS

Florida Condo's 2021 Collapse Started Three Weeks Earlier

BY DEBORAH ACOSTA

SURFSIDE, Fla.—Federal investigators concluded that the catastrophic 2021 partial collapse of the Champlain Towers South condominium began roughly three weeks before the building fell.

In a report released on Monday, the National Institute of Standards and Technology determined that a structural failure first occurred at two critical garage column connections beneath the pool deck in early June 2021.

That failure trapped the 12story building in an undetected, slow-motion domino effect that ultimately claimed 98 lives, concluding something that many engineers had long suspected.

Investigators found that when those initial slab-to-column connections failed, the pool deck's concrete slab began to silently warp and fracture over a 21-day period, progressively shifting immense weight to adjacent columns.

"When building structures are designed and built to required codes and standards, they have margins against failure, meaning they should be able to support much more load than they are expected to bear," said investigator Judith Mitrani-Reiser. "In the case of Champlain Towers South, however, these margins against failure were too narrow from the start."

On June 24, the pool deck gave way entirely, pulling down a major portion of the building.

The NIST report was released almost five years to the day after the building's collapse.

The federal investigation revealed that the complex's vulnerabilities stemmed from its original design, which failed to meet the codes and standards of 40 years ago. The construction itself further deviated from the structure's original design, which also contributed to the building's structural weakness.

The addition of heavy land--scape planters and thick paving stone on the pool deck in the 1990s further stressed the building, adding tons of uncalculated deadweight to the deficient slab. Those additions, coupled with the long-term degradation from corrosion, ultimately caused the collapse four decades after construction.

In the weeks leading up to the disaster, the building exhibited physical warning signs that went undiagnosed, according to the NIST report. Those included a residential sliding glass door popping out of its frame, shifting entry gates that jammed shut, and an increase in water leaking through the garage ceiling hours before the final collapse.
