

## **Abstract**

In October 2011, Superstorm Sandy buffeted New York City. The strength of the storm was one that had not been seen in decades. The resulting damages from the storm demonstrated that resilient design standards and codes applicable to foundations in New York City were insufficient in requirements for dry floodproofing, the most common method of resilience in New York City. In this analysis, a wet floodproofed structural foundation is designed for a structural occupancy category 2 structure in Far Rockaway, New York City. This foundation, a partially exposed pile foundation, is analyzed in this study by being exposed to the storm surge of 9.7 feet set forth in the relevant 2007 Flood Insurance Rate Map, the actual storm surge of 9 feet measured in Far Rockaway during the peak of Superstorm Sandy, and the 13.1 foot storm surge set forth in the Advisory Flood Insurance Rate Maps published in the immediate aftermath of the storm. The designed foundation does survive the storm surge in code stress limits, deflection limits, and material limits, but fails under the new base flood elevation set forth after the storm. This analysis shows the effectiveness of wet floodproofing and the insufficiencies of the design code editions that were used prior to Superstorm Sandy.