

# JONATHAN RIVERA, PH.D., S.E.

Associate



## Summary

Jonathan joined Thornton Tomasetti’s Boston office over a decade ago while completing his doctorate at the University at Buffalo. Since then, he has developed a broad and diverse portfolio that ranges from connection design for landmark structures like 30 Hudson Yards to prototype testing for the U.S. Armed Forces. His experience includes the structural design of large-scale office buildings, laboratories, and mission-critical facilities, as well as extensive forensic work. Jonathan has responded to damage from natural disasters, conducted cause-and-origin assessments for insurance claims, and investigated structural failures.

## Areas of Technical Expertise

- Structural Engineering
- Forensic Structural Engineering
- Property Loss Consulting
- Emergency Response

## Education

- Ph.D., Civil Engineering, 2018, University at Buffalo
- M.S., Civil Engineering, 2013, University at Buffalo
- B.S., Civil Engineering, 2011, University at Buffalo

## Registrations

- Licensed Professional Engineer in MA

## Select Project Experience

### Structural Engineering

**St. Luke’s Hospital Helipad**, New Bedford, MA. Structural engineering services, condition assessment and feasibility studies to replace the existing helipad with a new 55 ft by 55 ft elevated helipad and walkway. The new helipad will be able to safely accept larger medevac helicopters for patient transport.

**2 Wells Avenue, Renovation and Expansion**, Newton, MA. Structural engineering services for 66,000- square-foot, three-story office building addition, selective demolition and seismic upgrade of an existing steel-framed laboratory building.

**30 Hudson Yards**, Manhattan, New York City, NY. Structural design of a 90-story, 2.6-million-square-foot supertall office tower with a 1.3-million-square-foot podium. The 1,296-foot-tall building footprint is located over the LIRR railyard, which limits the locations for the building foundation and support columns. The project has the city’s highest open-air observation deck.

**Office/Laboratory Building**, Cambridge, MA. Structural engineering, building envelope, building analysis and LEED consulting services for a 460,000 sq ft building. The project also included structural retrofits to meet the tenants’ vibrational requirements.

**Mission Critical Facility**, United States. Structural engineering for several mission-critical structures. The project included the development of prototypes for the structures as well as resiliency testing of each prototype.

### Forensic Structural Engineering

**30 St James Ave**, Boston, MA. Provided emergency response to stabilize and repair a buckled terracotta stairwell wall

**7-11 Water St**, Boston, MA. Evaluated the root cause of the observed beam deterioration supporting the vaulted sidewalk. Scope also included structural retrofits to replace and reinforce multiple beams.

\*Denotes work performed with previous employer.

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**Winthrop Square**, Boston, MA. Performed advanced non-linear analysis to understand the impacts of adjacent construction on an archaic masonry structure. Confidential building, Boston, MA. Emergency response and structural investigation into a partial structural collapse during demolition. Emergency stabilization of MBTA tunnel

**655 E. 7th St.**, Boston, MA. Determined the root cause of various damage observed within the condominium and reviewed shoring to stabilize the shared masonry party wall.

**421 Park St.**, Boston, MA. Structural investigation of excessive deflection in the structural steel transfer girders at multiple levels and subsequent curtain wall panel fit-up issues.

### Property Loss Consulting

**Hurricane Milton, Motel Building Envelope and Roof Assessment**, FL. Investigated extent of hurricane related damage to the envelope, interiors, and roof assemblies for multiple buildings.

**Hurricane Helene, Commercial Retail Plaza Envelope and Roof Assessment**, FL. Investigated extent of hurricane related damage to the interiors, envelope and roof assemblies for a retail plaza.

**Driftwood Inn**, Bailey Island, ME. Investigated extent of storm related damage to the interior, envelope and roofing for multiple buildings on-site.

**Granite State Fair**, Rochester, NH. Investigated the extent of fire damage to the grandstand. Scope also included structural retrofits to bring the structure back to its pre-damaged condition.

**R. K. Miles, Inc.**, Montpelier, VT. Investigated the suitability of reusing existing foundations and knee walls damaged in a fire. Additional scope included a flood hazard analysis in accordance with local building codes.

**Hyatt Place Fire Loss**, Braintree, MA. Determined the extent of fire-related damage to the building housing the in-ground pool and its surrounding spaces.

**Tornado Evaluation of Airport Hangers**, Omaha, NE. Evaluated the stability of two airport hangers after they sustained damage from a high wind/tornado weather event.

**West Athens Lime Street Fire Station**, Athens, NY. Conducted a cause and origin investigation into the roof collapse of a fire station that occurred during construction.

### Litigation Support

Enfield Builders, Inc. v. The Commonwealth of Massachusetts, Division of Capital Asset Management and Maintenance, West Boylston, MA. Litigation support for standard of care claim regarding the construction of a new corrections facility in West Boylston, MA.

Agricola Constr. Co., Inc. v. Rescom Architectural Inc. Litigation support services regarding structural defects to a new residential home located in Borne, MA.

United Steel, Inc v. DGS Technical Services d/b/a X-Steel Detailing. Litigation support services relating to steel details services for a school located in Worcester, MA.

Bulfinch Unit A Owner, LLC v. John Moriarty & Associates, Inc., JDC Demolition Company, Inc., and GZA GeoEnvironmental, Inc. Litigation support services related to the demolition of a parking garage in Boston, MA.

### Select Papers, Lectures and Publications

"It's 2024: Do You Know What's Going on Under Your Sidewalk: Subgrade Column Corrosion in Mid-Rise Steel Office Buildings," ASCE Forensic Engineering, October 2024 (co-author)

"Assessment and Repair of Earthquake-Damaged Reinforced Concrete Shear Walls," Transactions, 25th International Conference on Structural Mechanics in Reactor Technology (SMiRT25), Charlotte, NC, August 2019 (presenter)

"Updated Fragility Functions For Shear Critical, Reinforced Concrete Walls," ACI Structural Journal, Vol 116/No 2, March 2019 (co-author)

"Forensic Evaluation of Earthquake-Damaged Reinforced Concrete Shear Walls," ASCE Forensic Engineering 8th Congress, December 2018 (co-presenter)

"Seismic Damage Assessment of Low Aspect Ratio Reinforced Concrete Shear Walls," Technical Report MCEER-18-002, University at Buffalo, March 2018 (co-author)

"Seismic Response of Low Aspect Ratio Reinforced Concrete Shear Walls for Buildings and Safety-Related Nuclear Applications," Technical Report MCEER-16-0008, University at Buffalo, March 2018 (co-author)

"Seismic Behavior of Low-Aspect-Ratio Reinforced Concrete Shear Walls," ACI Structural Journal, Vol 112/No 5, September 2015 (co-author)

"Automatic Detection and Measurement of Cracks in Reinforced Concrete Components," ACI Structural Journal, Vol 112/No 5, May 2015 (co-author)

## CONTACT

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