

# ANTONIO DE LUCA, PH.D., P.E., S.E.

Associate



## Summary

Antonio De Luca is a licensed structural engineer specializing in forensic analysis and field investigations. Antonio's areas of expertise include the diagnosis of structural health through field testing, monitoring, and analysis. Antonio co-authored several publications, mainly focused on the use of composite materials for repair and rehabilitation of reinforced concrete structures, and in new design applications. He currently serves as a member of the International Editorial Board of the ASCE Journal of Composites for Construction and co-lectures the course "Forensic Engineering and Law" at the University of Miami.

## Areas of Technical Expertise

- Forensic Engineering
- Vibration Analysis and Monitoring
- Adjacent Construction

## Education

- Ph.D., Structural Engineering, 2009, University of Miami, Coral Gables, FL
- M.S., Structural and Geotechnical Engineering, 2006, University of Naples, "Federico II," Italy
- B.S., Civil Engineering, 2004, University of Naples, "Federico II," Italy

## Registrations

- Licensed Professional Engineer in MD and FL
- Licensed Structural Engineer in IL

## Professional Activities

- Member, International Editorial Board, ASCE Journal of Composites for Construction, 2020-present
- Part-time lecturer, University of Miami, Coral Gables, FL, 2019-present
- Lecturer, University of Miami: Mechanics of Solids I; Materials Laboratory; and Geotechnical Laboratory, 2010-2011
- Associate Director, NSF Industry/University Cooperative Research Center for "Integration of Composites into Infrastructure," University of Miami, 2010-2011
- Mapei Scholar Program, University of Missouri-Rolla, MO, 2006

## Select Project Experience

### Forensic Engineering and Structural Analysis

**261 Madison Avenue Emergency Response**, New York, NY. Damage assessment and structural stabilization following the collapse of a mechanical unit.

**Adagio Building Assessment and Repair**, Fort Lauderdale, FL. Field testing and analysis to evaluate causes of efflorescence and water intrusions through building envelope.

**AMC Garage Assessment**, Abu Dhabi, UAE. Analysis of concrete deterioration due to chloride intrusion and evaluation of garage structure's service life.

**Crane Collapse Investigation**, Miami/Fort Lauderdale, FL. Field investigation and structural analysis to determine causes of collapse of two cranes.

**Jerome Ave Parking Garage Assessment**, Bronx, NY. Service life evaluation of a 50-year-old reinforced concrete parking structure.

**Pegasus Statue**, Hallandale Beach, FL. Design review and structural analysis of the Pegasus Statue structure.

**Safeco Field Rail Investigation**, Seattle, WA. Structural analysis of the rail sections supporting a movable roof structure.

**The Shed**, New York, NY. Analysis and design of steel rail sections and rail assembly supporting a movable structure subjected to termite welding.

**One Thousand Museum**, Miami, FL. Design review and construction administration for the installation of glass fiber reinforced concrete precast façade panels.

**Sunny Isles Pedestrian Bridge**, Sunny Isles Beach, FL. Analysis and design of a steel box girder single-span pedestrian bridge.

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### Vibration Analysis and Monitoring

**Bradford Marina**, Fort Lauderdale, FL. Preconstruction evaluation and construction vibration monitoring during sheet metal pile driving.

**Lone Tree Pedestrian Bridge**, Lone Tree, CO. Analysis and field performance evaluation of a 168-foot cable-stayed pedestrian bridge to assess pedestrian- and wind-induced vibrations.

**Hollywood Circle Apartment**, Hollywood, FL. Analysis of wind-induced vibrations of aluminum railings and assessment of fatigue failure risk.

**UCF Football Stadium Monitoring**, Orlando, FL. Vibration monitoring for performance evaluation of steel frame grandstands and user comfort assessment.

**The Vessel**, New York, NY. Dynamic analysis of the Vessel structure, assessment of user comfort, and performance evaluation of tuned-mass damping system.

### Adjacent Construction

**334 East 54th Street**, New York, NY. Condition assessment of a 5-story brick masonry building neighboring an active construction site.

**50 North Federal Highway Wall Collapse**, Dania Beach, FL. Assessment of wall collapse caused by adjacent construction and design of temporary stabilization system.

**Monaco Resort – Dezer v. Coastal Constr.**, Sunny Isles, FL. Damage assessment of a 2-story building allegedly damaged by adjacent construction.

**St. Cyril's of Turov Cathedral**, Brooklyn, NY. Preconstruction survey of a historic building neighboring a new construction site and review of means and methods of pile installation.

**Tropicana Building Assessment**, Sunny Isles Beach, FL. Condition assessment and analysis of a circa 40-year-old reinforced concrete building allegedly damaged by construction vibrations.

### Select Papers, Lectures and Publications

"Case Studies of Construction Vibration Monitoring and Evaluation through Soil-Structure Interaction," ASCE 2022 Forensics Congress, Denver, CO (accepted, co-author).

"Service Life Prediction of Concrete Parking Structures: Case Studies," ASCE 2022 Forensics Congress, Denver, CO (accepted, co-author).

"Advanced Analysis of a Pedestrian Bridge and Considerations on Crowd-Structure Interaction," IABSE 2022 Symposium, Prague, CZ (accepted, co-author).

"Evaluation and Mitigation of Risks from Adjacent Construction," Structures Magazine, April 2022 (co-author).

"Service Life Evaluation of Concrete Structures," International Concrete Repair Institute, 2022 Spring Convention, Baltimore, MD (co-presenter).

"Evaluation and Monitoring of the Effects of Construction Activities on Adjacent Buildings," Structural Engineering Institute, Bay Area and Palm Beach County Chapters, March 23, 2022, Virtual (co-presenter).

"Introduction to Forensic Engineering," College of Architecture and Construction Management, Kennesaw State University, November 4, 2021 (presenter)

"Issues Related to Construction Vibrations in Densely Populated Cities," Under Construction, American Bar Association Forum on Construction Law, Summer 2021 (co-author).

"Introduction to Forensic Engineering," Department of Civil and Environmental Engineering, Rensselaer Polytechnic Institute, April 15, 2021 (presenter).

"Service Life Prediction of Parking Structures: Case Studies," 2021 Engineering Mechanics Institute International Conference, Virtual (co-presenter).

"Vibration Testing of a Footbridge Subjected to Crowds," 2021 Engineering Mechanics Institute International Conference, Virtual (co-presenter).

"Assessment of Reinforced Concrete Structures in Marine Environment: A Case Study," Corrosion Reviews, Vol 37, Issue 1, 2019 (co-author).

"Vibration Analysis of Footbridges: an Overview of the Current Practice," The 14th International Conference on Vibration Engineering and Technology of Machinery (VETOMAC XIV), 2018 (co-author).

"Evaluation of the Vibrational Behavior of Cable-stayed Footbridges Under Pedestrian and Wind Loading," ASCE Structures Congress, 2017 (co-presenter).

"Weighty Matters: An Overview of In-Situ Load Testing," The Construction Specifier, 2015 (co-author).

"FRP Reinforced Concrete Structures - Theory, Design and Practice," CRC Press, 978-0-415-77882-4, 2014 (co-author).

### CONTACT

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