

JOHN ABRUZZO, P.E., S.E., LEED AP

Managing Principal



Summary

For over 25 years, John Abruzzo has brought structural design, protective design, forensic structural engineering, emergency response, and standard of care expertise to Thornton Tomasetti. John has managed the Philadelphia and San Francisco Offices. He is currently the national leader for the Forensics practice, and resides in San Francisco. John has testified as an expert witness, providing expert reports on topics from engineering mechanics to construction issues. His experience covers investigations of structural collapses and a wide variety of building types, such as stadiums, arenas, tall buildings and bridges. He also brings knowledge of structural instrumentation, material properties and performance, as well as laboratory testing and instrumentation to expert witness work.

Areas of Technical Expertise

- Forensic Structural Engineering
- Emergency Response
- Standard of Care

Education

- M.C.E., 1989, Stevens Institute of Technology
- B.C.E., 1984, Villanova University

Registrations

- Licensed Structural Engineer in CA
- Licensed Civil Engineer in CA
- Licensed Professional Engineer in AL, AZ, GA, ID, LA, MN, NV, PA, TX, UT and WA
- LEED Accredited Professional
- "Modern Force Protection," 2001, Penn State University

Professional Activities

- Member, American Society of Civil Engineers (ASCE)
- Member, American Welding Society
- Member, American Concrete Institute (ACI)
- Committee Member, ASCE and American Institute of Steel Construction (AISC) for the design of blast and impact-resistant structures
- Lecturer, Design of Steel and Composite Structures, CEE247, University of California, Berkeley, 2017-2020
- Assistant Professor, Villanova University, 1996-1999
- Committee Member, AISC Connection Prequalification Review Panel

Select Project Experience

Forensic Structural Engineering

Salesforce Tower, San Francisco, CA. Forensic investigation of the foundation system using deep load-bearing elements (LBEs) for arbitration.

Champlain Tower South, Surfside, FL. Investigated the cause of the collapse.

I-35 West Bridge Collapse, Minneapolis, MN. Forensic investigation of vehicular bridge collapse, including FIM, collapse analysis and nonlinear finite element model to simulate the collapse initiation.

Woodlands Warehouse, Woodland, CA. Investigated construction defects of a panelized roof system.

Colusa Casino, Colusa, CA. Investigated construction defects associated with wood and metal stud framing, and wood trusses using trussplate connectors.

Confidential Client, Shopping Mall Fire Damage Assessment, Northern California. Structural damage assessment for an insurance adjuster of a mall wing that experienced a fire. Project scope included a survey of the electrical, fire alarm, power, lighting, equipment and telecommunication systems and mechanical system.

Emergency Response

Arecibo Telescope, Arecibo, PR. Developed procedures for failed replacement of several ruptured cables and upon collapse, provided clean-up services to restore the site to a safe working condition and investigated the cause of the collapse.

Hard Rock Hotel, New Orleans, LA. Provided structural assessment on site with urban search and rescue to determine the stability of the collapsed structure and planned the demolition of the two damaged and unstable tower cranes to reduce the risk to surrounding city blocks.

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1018 W Peachtree, Atlanta, GA. Emergency response resulting from failure of tower crane thereby releasing the counterweights requiring stabilization of impacted structure, removal of debris, and select demolition for rebuild.

Mills, various projects. Site assessments of unstable structures such as tanks, silos, conveyors, etc. and the development of demolition plans to remove the damaged elements allowing the mills to operate.

Tropicana Parking Garage Collapse, Atlantic City, NJ. Investigation to determine the cause of the cast in-place structure's collapse during construction.

Miller Park, Crane Collapse, Milwaukee, WI. Emergency response, failure investigation and collapse analysis of a 500-foot-tall mobile crane.

David L. Lawrence Convention Center, Pittsburgh, PA. Emergency response, forensic engineering, structural design and continuous on-site presence following the collapse of an elevated loading dock.

Standard of Care

SR-91 Highway Project, Riverside County, CA. Provided expert services to assess the standard of care of the design services. The project was a highway expansion impacting more than 16 miles of highway and more than 30 bridges.

Baruch College Construction Claim, New York, NY. Construction claim regarding building structure, foundations and exterior wall.

New York Post Printing Facility, Bronx, NY. Investigation of concrete cracks within the pile-supported slab and elevated steel-framed slabs.

Solar Array

Ohlone Community College District, Ohlone College Newark Campus, Solar Investigation, Newark, CA. Structural consulting for an investigation related to solar panels. The scope included analysis of construction documents with regard to pier and steel member sizes and wind loads to determine design sufficiency and to identify potential design alternatives. It also included analysis of column placement and cold joints in piers.

APS Desert Star and Luke Air Force Base, Solar Photovoltaic Power Plant Investigation, Arlington, AZ. Investigation into array supports and tracking mechanisms that failed during a windstorm. The scope included documenting as-built conditions, comparison of as-built conditions to design, evaluation of design and root cause analysis of failures.

Sworn Testimony

Deposition and Arbitration, Clark/Design Build of California Inc. and Clark Constr. Grp. LP v. FW Spencer and Sons, Safeco Ins. Co., regarding the investigation of the below grade utilities and their support. American Arbitration Association Case No. 01-20-0015-7784. 2024.

Deposition and Arbitration, Caltrain v. Union Pacific Railroad Co., regarding scope of repairs needed for a rail bridge in San Jose, CA. November 2021.

Deposition and Arbitration, Clark/Hathaway Dinwiddie v. Illinois Union Ins., Superior Court of the State of California, County of San Francisco, regarding the investigation of the foundation system using deep LBEs. February 2021.

Deposition and Trial, Superior Court of the State of California for the County of Orange, URS Corp. v. Atkinson/Walsh Joint Venture Inc., Standard of Care. May 2019.

Deposition, U.S. District Court for the Southern District of Florida, Alberici Constr. Inc. v. Hunt Constr. Grp., South Florida State LLC & Thornton Tomasetti, Inc., Construction claim. July 2019.

Deposition, Superior Court of Fulton County, State of Georgia, 3344 Peachtree, LLC and 3344 Sovereign v. Hardin Co. LLC, et al., Civil Action N. 2014CV249149, regarding a construction defects claim. September 2016.

Deposition, Superior Court of the State of California, in and for the County of Sacramento, Colusa Indian Community v. Hunt Constr., et. al., regarding a construction claim. August 2014.

Deposition, Circuit Court of Jefferson County, Alabama, Bresette v. Brasfield & Gorrie regarding a failure analysis. May 2014.

Deposition, Superior Court of State of California in and for the County of Napa, Town of Yountville v. Swank Constr., regarding a construction claim and a structural engineer's standard of care. November 2013.

Deposition and Trial, Court of Common Pleas of Allegheny County, Commonwealth of Pennsylvania, DGS; Univ. of Pittsburgh v. Havens Steel Co., USF&G, et. al., regarding a construction claim and a structural engineer's standard of care. December 2010.

Litigation

I-35 West Bridge Collapse, Minneapolis, MN. Litigation support for a claim related to a vehicular bridge collapse.

University of Pittsburgh, Pittsburgh Convocation Center, Pittsburgh, PA. Litigation support for a claim related to a retrofit for over 30 connections that required bearings to be installed.

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Baruch College Construction Claim, New York, NY. Litigation support for a construction claim regarding building structure, foundations and exterior wall.

Tropicana Parking Garage, Atlantic City, NJ. Litigation support for a claim related to the partial collapse of the concrete garage structure.

Independence Harbor, Edgewater, NJ. Litigation support for a construction claim related to adequacy of steel and reinforced concrete framed structures.

Lewis Residence, Oakland, CA. Litigation support for a claim of negligence against the forensic construction specialist.

Outokumpu Stainless Steel Mill, Calvert, AL. Evaluated the structural design of the existing facilities, particularly the overhead crane runway girders and trusses. Determined the service life limited by fatigue of the runway system and bracing requirements.

Alternative Dispute Resolution

Subgrade Utility Investigation, Mission Bay, San Francisco, CA. Litigation support and repair design for buried utilities impacted by ongoing settlement. Scope included evaluation of a construction defect claim by observing site conditions after the failures occurred, reviewing progress photos during construction, and performing laboratory testing to evaluate capacities of installed elements.

Salesforce Tower, San Francisco, CA. Deposition and Arbitration testimony regarding large reinforced concrete deep LBEs.

Creve Coeur Bridge Claim, St. Louis, MO. Provided expert advice on concrete for a claim pertaining to the construction of a cast-in-place segmental bridge.

New York Post Printing Facility, Bronx, NY. Litigation support for a construction claim related to concrete cracks within the pile-supported slab and elevated steel-framed slabs.

America West Arena, Phoenix, AZ. Litigation support for a claim related to the code compliance and strength of a steel roof structure.

Outokumpu Stainless Steel Mill, Calvert, AL. Provided expert advice during mediation with regard to the performance of overhead cranes on runway girders, expected life estimates, fatigue, and overall structural standard of care.

Select Papers, Lectures and Publications

"Jacking Columns of Existing Structures under Existing Loads," Seventh Congress on Forensic Engineering, Miami, FL; November 15-18, 2015 (co-author)

"Disproportionate Collapse—How to Check the Computer Analysis;" Forensic Engineering; 2015: pp. 513-527 (author)

"Performance Based Seismic Design of Soyak Crystal Tower-Getting a Safer and More Economical Structure," Second European Conference on Earthquake Engineering and Seismology, Istanbul, TUR, August 25-29, 2014 (co author)

"Forensic Information Modeling in Bridge Renovation: Sherman Minton Bridge;" IABMAS 7th International Conference on Bridge Maintenance, Safety and Management, July 7-11, 2014, Shanghai, China (co-author)

"Introduction to the Guideline for the Structural Design, Evaluation, and Testing of Permanent Building-Supported Façade Access Equipment, and Commentary," ASCE Structures Congress 2014, Boston, MA, April 3-5, 2014 (co-author)

"Forensic Information Modeling: A New Forensic Tool," Civil Engineering, January 2013 (co-author)

"How Computers Lie: The Fact and Fiction of Computer Simulations in Court Cases," Construction SuperConference, San Francisco, CA, December 14, 2012 (co-presenter)

"Structural Investigation of the Sherman Minton Bridge Closure," 6th Congress on Forensic Engineering, October 31, 2012-November 3, 2012 (co-presenter)

"Forensic Investigation Modeling (FIM) Approach: 1-35 West Bridge Collapse Case Study," 6th Congress on Forensic Engineering, October 31, 2012-November 3, 2012 (co-presenter)

"Discussion of Nonlinear Finite-Element Analysis of Critical Gusset Plates in the 1-35 West Bridge in Minnesota," ASCE Journal of Structural Engineering, June 2012 (co-author)

"New Frontier for BIM," Construction SuperConference, December 14-16, 2011 (presenter)

"Chapter 4: Materials Performance," Handbook for Blast-Resistant Design of Buildings, Donald O. Dusenberry, John Wiley & Sons, Inc., January 14, 2010 (co-author)

"A Study of Mitigation Strategies for Progressive Collapse of a Reinforced Concrete Commercial Building," Journal of Performance of Constructed Facilities, November 2006 (co-author)

"Protective Design of Building Structure," ASHRAE, 2005 (presenter)

"Protective Design of Existing Building Structures After World Trade Center," ASCE, 2005 (presenter)

"The Role of the Structural Engineer in Risk Assessment for Privately Owned Buildings with Public Function in the USA," International Conference on Structural Safety and Reliability, Rome, Italy, June 19-23, 2005 (presenter)

"Protective Design of Building Structure," Engineering, Architectural and Security Approaches in Protecting People and Buildings Post 9/11 Conference, April 26, 2005 (presenter)

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"Applying the Lesson Learned from 9/11 to the Remedial Protective Design of Existing Buildings," ASCE Structures Congress 2005: Metropolis and Beyond, New York, NY, April 20-24, 2005 (co author)

"Chapter 22: Protective Design of Structures," Building Security: Handbook for Architectural Planning & Design, Barbara A. Nadel, FAIA, ed., The McGraw-Hill Companies, Inc., 2004 (co-author)

"Pivot Points," Modern Steel Construction, May 2004 (co-author)

"Miller Park Pivot Bearing Replacement," ASCE's Proceedings of the Third Forensics Congress, 2003 (co-author)

"Reduce Damage, Increase Safety," The Military Engineer, September | October 2003 (co-author)

"Owners Eye Vulnerability Analysis and Security Design," Real Estate Weekly, February 2002 (co author)

"Blast Design and Collapse Analysis," Rutgers University Department of Civil Engineering, 2002 (presenter)

"Responding to the World Trade Center Emergency," Delaware Valley Chapter of ACI, 2002 (presenter)

"Overview of Regional Seismicity and Structural Evaluation and Criteria of Structural Upgrade," ASCE Structures Congress, Washington, D.C., May 21-23, 2001 (co-author)

"The Izmit Earthquake & The Ataturk Airport Terminal Seismic Upgrade," ASCE Metropolitan Section, 2001 (presenter)

"Airport Features a Seismic Upgrade During Construction," Modern Steel Construction, August 2000 (co-author)

"Applications of Truss Models for Precast Concrete Connections," Rutgers University Department of Civil Engineering, 1999 (presenter)

"Discussion of Comparison of Installation Techniques for 1-1/4 Diameter A490 Bolts," AISC Engineering Journal, 1996 (co-author)

"Comparison of Installation Techniques for 1-1/4 Diameter A490 Bolts," AISC Engineering Journal, 1994 (co-author)

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