

Steven A. Marinelli | Senior Forensic Engineer, P.E.

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Professional Summary:

Mr. Marinelli has 35 years of experience in the structural and mechanical engineering fields, including over 25 years performing building and structural inspections and evaluations of new construction and pre-existing structures. The scope of work includes forensic investigations and analysis for foundation movement, building envelope failures, structural failures, tree and vehicle impact structural assessments, code compliance, and roof damage associated with wind and hail. He has design and analytical experience in structural and mechanical fields including large high speed rotating equipment, fixed steel structures, concrete foundations, pressure vessels, naval components meeting shock loading, components for Space Missions, and a variety of process equipment. Mr. Marinelli has inspected over eight thousand commercial and residential properties. He has developed analytical techniques and written numerous technical programs to analyze and reduce technical data. He has performed vibration analysis, fatigue testing, and worked on the development of a device that led to a patent related to measuring and monitoring vibration in rotating equipment.

Mr. Marinelli's structural design knowledge of various building types including steel, wood, concrete, and masonry has allowed him to develop repairs related to structural failure and plans for building renovations. He has created 3D models and utilized Finite Element Analysis techniques to perform stress analysis on multiple structural and machine components. He has written over five thousand reports and developed multiple engineering specifications for new development and repair projects.

Licenses and Certifications:

Professional Engineer, State Board of Professional Engineers and Land Surveyors, New Jersey, #24GE03751000

Professional Engineer, State Registration Board for Professional Engineers, Land Surveyors and Geologists, Pennsylvania, #PE053203E

Professional Engineer, State of Delaware Association of Professional Engineers, Delaware, #26541

Professional Engineer, State of Florida, #97233

Project Experience:

EFI Global, Florida Hurricanes Studies

Inspected multiple residential structures following Hurricane Ian in 2022. Inspections included wind and tidal surge damage to boat docks, tile and asphalt roofs, and building envelope failure. Provided cause related to damage based on investigation and analysis of evidence. Included recommendations as needed.

**Donan, Louisville, KY
Forensic Accident Studies**

Performed investigation into multiple accident-related incidents resulting in personal injury. Investigations included review of equipment design documentation, maintenance records, expert evaluations, interviews, and site studies/measurements.

**Flowserve, Chesapeake, VA
Vibration Damage to Equipment and Foundation**

Determined the cause for repeated failures of Pump Impeller and Foundation Failure. Reviewed design of equipment static and dynamic loading conditions, fluid process, and equipment design. Traveled to China facility and recorded power reading, process measurements, and foundation vibration level. Reduced data to determine cause of repeated failures and provided repair/improvement recommendations.

**Delta Inspection, Yardley, PA
Roof Collapse**

Reviewed a partial roof collapse of Plastic Manufacturing facility to determine the underlying cause of the collapse. Analyzed existing design for building code compliance, visual evidence of damage, roof rework proposal, and provided detailed evaluation reporting the roof cause of failure.

Foundation and Retaining Wall Repairs

Multiple projects for the repair of bowed or collapsed foundation and retaining walls. Designs required soil load analysis and detailed structural drawing, and improvements to minimize hydraulic loads.

**Kingsbury, Philadelphia, PA
Lead Design Engineer Aircraft Carrier Propulsion Bearing System**

Developed conceptual design of thrust bearing system including the design of bearings, housings, and lubrication system. Design met Military, Naval, and Federal specifications for materials and shock loads.

**Exxon Chemical, Linden, NJ
Installation of Process Facility Product Equipment.**

Development of process equipment design and purchasing specifications including the review and oversight of manufacturing and installation. The designs required adherence to AMSE, ANSI, Local building codes.

Professional Experience:

EFI Global, Senior Forensic Engineer, 2022-Present
Donan, Forensic Engineer, 2020-2022 Part Time Consultant
Argovian Technologies, Managing Partner, 2016-2022
Flowserve, Engineering Manager, 2012-2016
Kingsbury, Senior Engineer, Engineer Manager, 1999-2012
Delta Inspection Services, Structural Engineer, 1994-1999 Full Time, 1999-2020 Consultant
Kingsbury, Design Engineer, 1991-1994
Exxon Chemical, Engineer for Rotating Equipment and Structural Components, 1988-1991
NASA, Flight Structural Engineer, 1987- 1988

Specialized Education:

Structural Wind Damage, Donan, 2021
Providing Conclusive Expert Opinions in Forensic Studies, Donan, 2021

Weather and Event Research in Forensic Studies, Donan, 2021
Roofing - Flexible Membrane Wind Load Design, Red Vector, 2021
Residential Plumbing: Introduction for Forensic Engineers, Donan, 2021
Introduction to Clay and Concrete Tile Roofing, Donan, 2022
Stucco in Home Building for Home Inspectors, Red Vector, 2022
2020 NEC Changes: Overvoltage and Grounding and Bonding, Red Vector, 2022
Applied Vibration Analysis: Analyzing Motor Vibrations, Red Vector 2022
Mold Sampling, Red Vector, 2022
Anatomy of Construction Defects, Red Vector, 2021
Concrete Standards and Requirements, Donan, 2021
International Building Codes, Red Vector, 2021
Concrete Pavement: Glass Fiber Reinforced Polymers, Red Vector, 2021

Education:

Master of Business Administration, LaSalle University, Philadelphia, PA, 2011
Bachelor of Science, Mechanical Engineering, New Jersey Institute of Technologies, Newark, NJ, 1987

Publications and Presentations:

Steven Marinelli, PE and David Casper. "Thrust Actuator Designed to Provide Two Degrees of Freedom", Design Product News June 2003