

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

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### Professional Summary:

Mr. Marinelli has 37 years of experience in the structural and mechanical engineering fields, including over 27 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, Association of Professional Engineers, Delaware, 26541

Professional Engineer, Florida Board of Professional Engineers, Florida, 97233

Professional Engineer, North Carolina Board of Examiners, North Carolina, 059804

Professional Engineer, State Board of Registrations for Professional Engineers and Surveyors, South Carolina, 43683

Professional Engineer, New York Board of Professional Engineers, New York, 111576-01

### Project Experience:

#### Hurricanes Studies

Inspected multiple residential structures following Hurricane Ian in 2022, and Helene/Milton 2024. 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.

#### Building Envelope Studies

Multiple building envelope studies related to building water intrusion, hail, and wind damage to roofs and siding for residential and commercial buildings. Study included building code requirements and weather research.

#### Structural Studies

Inspected multiple residential and commercial buildings to assess structural conditions after vehicle and tree impact, explosion, and earthquakes. Determined component failure related to the specific event separating pre-existing damage. Final assessment and report included scope of repair.

Performed studies to assess the cause of building or partial building collapses. Evaluation included engineer analysis, component failure analysis, and code research.

#### Mechanical Studies

Performed multiple investigations to determine cause and origin related to plumbing and HVAC systems failure. Investigations included review of equipment design documentation, maintenance records, interviews, and site studies/measurements.

#### 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.

#### 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.

#### 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.

#### 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.

#### 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.

Design Flight Structure and Ground Equipment.

Development a structural support system for the recovery of the Hubble Space Telescope module dealing with dynamic structural loads and was a member of solid rocket motor redesign team. Developed statistical approach to the mating of solid rocket sections.

#### **Expert Witness Testimony: Court Qualifications/Depositions/Testimony:**

*Mr. Marinelli has extensive experience testifying as an expert witness in mediation, arbitration, dispositions and trials and has been accepted as an expert witness in numerous jurisdictions.*

*\*Expert Witness Testimony Experience is Available Upon Request*

#### **Professional Experience:**

EFI Global, Senior Forensic Engineer, 2022-Present

Donan, Forensic Engineer, 2020-2022 Consultant

Argovian Technologies, Managing Partner, 2016-2022

Flowserve, Business Operation and 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

#### **Formal Education:**

Master of Business Administration, LaSalle University, Philadelphia, PA, 2011

Bachelor of Science, Mechanical Engineering, New Jersey Institute of Technologies, Newark, NJ, 1987

#### **Specialized Education:**

Roof and Building Seminar, International Institute of Building Enclosure Consultants, 2024

Advanced Roof Training for Steep and Low Sloped Roofs, 2024

Advanced Roofing Certificate, 2023

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

#### **Publications and Patents:**

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

United States Patent; 5,696,444; Monitoring System for Detecting Axial and Radial Movement of a Rotating Body Independent of Rotational Position.