

## Adam Mills, PE, CFEI | Senior Forensic Engineer

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### Professional Summary:

Mr. Mills is a licensed professional engineer in multiple states and has several years of engineering experience. Mr. Mills has provided engineering services for the heavy machinery industry, including power and cement plants, and heavy movable structures. He has prepared designs for mechanical systems, including hydraulic and power transmission machinery, and has performed stress analysis and machinery loading calculations. Mr. Mills has provided on-site technical support and troubleshooting during the installation and commissioning of new and rehabilitated machinery, and has performed hundreds of inspections and testing of various mechanical systems.

Mr. Mills is also a Certified Tunnel Inspector, Certified Fire and Explosion Investigator, a Certified Fireplace and Chimney Inspector, and has received certifications from the Occupational Safety and Health Administration (OSHA) and the Mine Safety and Health Administration (MSHA). Mr. Mills utilizes these certifications to evaluate the design, installation, maintenance, use, and potential failure modes for various mechanical systems.

Mr. Mills is well versed in consulting on, leading, and managing projects of all scales related to litigation, product design analysis, equipment evaluation, and failure analysis. His work often entails the forensic analysis of plumbing, HVAC, and fire protection systems. Mr. Mills is proficient in researching, analyzing, and interpreting codes and standards for fire protection, mechanical, and building systems. Mr. Mills is also proficient in performing vehicle forensic investigations, including mechanical inspections, vehicle fire investigations, and Event Data Recorder (EDR) analysis.

Mr. Mills' expertise includes, but are not limited to:

- Mechanical failures
- Water losses and plumbing failures
- HVAC systems
- Vehicle forensics
- Event Data Recorder (EDR) analysis
- Equipment evaluation
- Fire protection systems
- Fireplace, chimney, & wood-burning appliances
- Fire and explosion origin and cause investigations
- Analyzing and interpreting codes and standards

### Licenses and Certifications:

Professional Engineer (Additional states available upon application):

Pennsylvania, PE093183

Maryland, 5415047

Washington DC, PE40000654

New York, 106119

Florida, 78907

New Jersey, 24GE05165300

Delaware, 27088

Virginia, 402064970

North Carolina, 048368

Ohio, PE.89797

#### Licenses and Certifications (Continued):

National Engineering Registration, NCEES, 13-169-24

Certified Fire and Explosion Investigator, National Association of Fire Investigators, 27710-16918

Certified Fireplace and Chimney Inspector, Fireplace Investigation, Research & Education Service (F.I.R.E.) Service, FCI-417

National Certified Tunnel Inspector, Federal Highway Administration & National Highway Institute

#### Project Experience:

The projects here outline a small sampling of the types of projects and losses Mr. Mills regularly investigates. For further information or additional examples, please contact EFI Global.

##### **Carlisle, PA Water Loss**

Investigated cause of water loss at a new-build residential property. Discovered the PEX supply line for a clawfoot bathtub was inadequately supported, and the shut off valve for the tub was not installed per manufacturer instructions, resulting in the supply line disconnecting from the shut off valve.

##### **Englishtown, NJ Mechanical Analysis & Fire Investigation**

Investigated fire involving a boiler for area high school. Investigation found boiler was started up at the beginning of the cold season, but water pumps were not. Improperly wired low water cutoff switch failed to turn off unit, resulting in fire.

##### **Lawrenceville, NJ HVAC Failure**

Investigated cause of smoke emanating from an air handler in the ceiling of a commercial space. Investigation found the region experienced a thunderstorm which caused an interruption to the electrical service to the property, resulting in a phase loss and overheating of the blower motor for the air handler.

##### **Finksburg, MD Vehicle Fire**

Investigated vehicle fire. Discovered improperly repaired power steering line resulted in pressurized power steering fluid spraying on hot surface of exhaust.

##### **Albany, NY Vehicle Event Data Recorder**

Investigated reported "Sudden Unintended Acceleration" event resulting in a single vehicle accident. Performed a download and analysis of the Event Data Recorder (EDR) data. The EDR data revealed the cause of the accident was pedal misapplication. Over the five seconds prior to the event the accelerator pedal position increased from 20% to 100%. The brake pedal was never activated.

#### Project Experience (Continued):

##### **Red Lion, PA**

##### **HVAC Failure/Water Loss**

Investigated cause of a freeze event to the hydronic lines of a recently installed Energy Recovery Ventilator (ERV). It was discovered the controls systems for the ERV was improperly programmed allowing the unit to run during subzero temperatures, resulting in a freeze event and ultimate water loss.

##### **Hershey, PA**

##### **Fire Sprinkler System Failure Analysis**

Investigated the cause of a loss involving water freezing within a dry-pipe fire sprinkler system. Found the sprinkler system was improperly installed, causing water to become trapped, resulting in a freeze event and ultimate water loss.

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

List of Expert Witness Testimony Experience is Available Upon Request

#### Professional Experience:

EFI Global Inc., Senior Forensic Engineer (current title), 2021 to Present

Wiss, Janney, Elstner Associates Inc. (Formerly Stafford Bandlow Engineering Inc.), Mechanical Engineer, 2010 - 2021

FLSmith Inc., Mechanical Engineer, 2008 - 2010

#### Formal Education:

Bachelor of Science, Mechanical Engineering, University of Pittsburgh, Pittsburgh, PA - 2008

#### Specialized Education/Training:

Crane Failures, EFI Global, 2025

Subrogation and Product Liability Cases, EFI Global, 2025

Physical Evidence at the Fire Scene, IAAI, 2025

Residential Natural Gas Systems, IAAI, 2025

Introduction to Heavy Truck Air Brake System, EFI Global, 2025

NFPA 13 Training Series, NFPA, 2025

NFPA 25 Training Series, NFPA, 2025

Mold & Moisture: A Truly Dynamic Duo, EFI Global, 2025

Motor Vehicles: The Engine and the Ignition, Electrical, and Fuel Systems, IAAI, 2025

Arc Mapping Basics, IAAI, 2025

Water Heater Investigations in Water and Fire Losses, EFI Global, 2025

**Specialized Education/Training (Continued):**

Fire Dynamics, EFI Global, 2025  
Professional Engineering Ethics – Florida, EZ PDH, 2025  
Flange Sealing Installation Best Practices, Fluid Sealing Association, 2025  
Fractography: What is the Evidence Trying to Tell Us? EFI Global, 2025  
Fireplace and Chimney Investigations, EFI Global, 2025  
Fire Sprinkler Systems & Failures, EFI Global, 2025  
Dust Collection System Design, Donaldson Company, 2025  
Heating Degree Days, EFI Global, 2025  
NFPA 1033, IAAI, 2025  
Engineering Ethics, PDF Pro, 2024  
Introduction to Evidence, IAAI, 2024  
Fire Investigation Training Program, NAFI, 2024  
Fire Effects: Heat Effects on Fuels, IAAI, 2024  
Fire Investigation Scene Safety, IAAI, 2024  
Mystery Explosion at a Fire in a Multi-Family Dwelling, EFI Global, 2024  
Materials Failure Analysis, EFI Global, 2024  
Equipment and Building Systems Consulting Training, EFI Global, 2024  
Slip, Trip and Fall, EFI Global, 2024  
CSST – Products, Codes, Lightning Interaction and Related Fires, EFI Global, 2024  
Fraudulent Water Losses & A Case Study, EFI Global, 2024  
Spontaneous Combustion, EFI Global, 2023  
Roof Top and Ladder Safety, EFI Global, 2023  
Slip, Trip and Fall – What to Look For, EFI Global, 2023  
Hybrid and Electric Vehicles and Fire Investigation, EFI Global, 2023  
Carbon Monoxide Incidents, EFI Global, 2023  
An Investigation into Lithium-Ion Batteries and Their Failures, EFI Global, 2023  
Commercial Kitchen Fire Investigations and Engineering, EFI Global, 2023  
Fireplace & Chimney Inspection Program, F.I.R.E., 2023  
Explosion Dynamics, IAAI, 2023  
Fire Chemistry, IAAI, 2023  
Professional Engineering Ethics – Florida, EZ PDH, 2023  
Professional Engineering Rules and Laws – Florida, EZ PDH, 2023  
Investigating Motor Vehicle Fires, IAAI, 2023



#### Specialized Education/Training (Continued):

Fire Flow Analysis, IAAI, 2022

The Scientific Method for Fire and Explosion Investigation, IAAI, 2022

Critical Evaluation and Testing of Commonly Reported Accidental Causes, IAAI, 2022

Large and Complex Loss, EFI Global, 2022

Humidity and HVAC, EFI Global, 2022

Vehicle Accident Reconstruction, EFI Global, 2022

Investigating Condensation Related Losses, EFI Global, 2022

Wind Turbines & Typical Losses, EFI Global, 2022

Vessel/Marine Fire Investigation Basics, EFI Global, 2022

Assessment of Mechanical & Electrical Equipment After a CAT Event, EFI Global, 2022

Evidence Photography, EFI Global, 2022

The ABC's of Electrical Fire Investigation, EFI Global, 2022

Electric Vehicle Design and Performance, Decatur Professional Development, 2022

Bosch Vehicle Crash Data Retrieval Kit Training, Crash Academy, 2021

Responding to Weld Flaws and Defects, WJE, 2021

Tunnel Safety Inspection, FHWA, 2021

Safety Inspection of In-Service Bridges, NHI, 2021

Professional Engineering Rules and Laws – Florida, EZ PDH, 2023

Temporary Traffic Control, MDOT SHA, 2020

Bridge Impact Repairs for Fracture Critical Member, H&H, 2020

Rehabilitation of Movable Bridges: Design & Construction, ASCE-SEI, 2020

Ethical Issues in Design-Build, CPE Solutions, 2020

Fluid Power – Hydraulic Power Units, CPE Solutions, 2020

Fluid Power – Hydraulic Principles, CPE Solutions, 2019

Fluid Power – Hydraulic Components, CPE Solutions, 2019

Professional Engineering Ethics – Florida, EZ PDH, 2019

Professional Engineering Rules and Laws – Florida, EZ PDH, 2019

Fluid Power – Valves, EZ PDH, 2019

Fluid Power – Pumps, EZ PDH, 2019

Professional Engineering Ethics – New Jersey, EZ PDH, 2018

**Affiliations:**

Member, National Association of Fire Investigators

Member, National Fire Protection Association

Member, Order of the Engineer

**Courses Instructed/Guest Lecturer**

Movable Bridge Balance and Strain Gage Operational Testing

Plumbing Connection Failures

Unvented Room Heaters

**Publications:**

Mills, Adam. "Transverse Misalignment and Load Sharing Complications." Heavy Movable Structures Symposium. January, 2021

Mills, Adam & Giernacky, Ralph. "Movable Bridge Balance and Counterweight Design Considerations." Heavy Movable Structures Symposium. September, 2016