

# James Eric Bates

## Forensic Engineering Expertise

### Mechanical Failure

Investigation of losses to determine root cause of mechanical failure including industrial accidents, cranes, explosions, appliances, HVAC equipment, plumbing, fireplaces, auxiliary heating appliances, and fire suppression systems.

### Origin & Cause

Determine the source and responsible party or element related to the failure of a component resulting in water damage in a building. Examples of past work include failures causing moisture entry, humidity and condensation-related losses, and groundwater entry.

### Building Pathology/Construction Defects

Investigate and diagnose defects in a building relying on an in-depth knowledge of building design, construction, use, and changes, as well as assessing the environment of use and the materials and how these interrelate to systematically identify, investigate and diagnose defects in a building.

### Collision Analysis

Investigation and analysis of impacts involving passenger vehicles, commercial vehicles, motorcycles, bicycles, off-road vehicles, equipment, and pedestrians. Scene and vehicle mapping, speed determination, crash severity analysis, crash data recovery, biodynamics, seatbelts and supplemental restraint systems analysis, and site distance analysis. Full-scale vehicle and occupant dynamics and impact testing.

## Qualifications & Training

- EPA 608 Universal Certification, SkillCat, November 2024
- Steam System Basics, Cleaver Brooks, July 2024
- Five Must Knows for a Reliable Closed Loop Hydronic System, Cleaver Brooks, June 2024
- Canon 1: NSPE Code of Ethics, NSPE, June 2024
- Indiana Engineer's Laws and Rules, INSPE, June 2024
- Advanced Technology Training, Bendix CVS, April 2024
- Integrity Management for Oil and Gas Pipeline Systems, Franklin County Chapter – Ohio Society of Professional Engineers, April 2024
- Water Damage Events: Scope, Risks and Accountability in Remediation, Eurofins, March 2024
- Mold – Introduction, Eurofins, March 2024
- Endotoxins – Occupational Safety and Critical Water Testing, Eurofins, March 2024
- Air Brake School, Bendix CVS, March 2024
- Simplification: A respirable Silica Overview, Eurofins, February 2024
- Asbestos Awareness, Nederveld Inc., October 2023
- Heavy Vehicle Event Data Recorder Use in Traffic Crash Investigation, Forensic Training Group, October 2023
- USP 797 Surface Sampling Competency, Eurofins, September 2023
- Vehicle Fire Investigation Training Program, National Association of Fire Investigators (NAFI), September 2023
- NFPA 1033 & 921 Important Updates, CFITrainer.net, September 2023
- Heavy Vehicle Event Data Recorder Update, National Association of Professional Accident Reconstruction Specialists (NAPARS), July 2023

- The Importance of Air Sampling Flow Rates and Primary Calibration, Eurofins, July 2023
- Achieving Clean Air in an Era of Wildfires, Indoor Air Quality Association (IAQA), July 2023
- How to Size Heat Pump Water Heaters for Efficiency and Cost, Continuing Education Center, June 2023
- Complying with Rules of Ethics and Professional Conduct, Ohio Society of Professional Engineers, June 2023
- Machinery Automation in Agriculture, Ohio Society of Professional Engineers, June 2023
- Slope Stabilization with Geosynthetics, Ohio Society of Professional Engineers, June 2023
- Self-Driving Cars in Rural Appalachia, Ohio Society of Professional Engineers, June 2023
- Mine Subsidence: Cause, Effect, Mitigation, Ohio Society of Professional Engineers, June 2023
- Barriers & Solutions to Energy Independence and a Greener America, Ohio Society of Professional Engineers, June 2023
- Moving the Needle Forward: Funding Public EV Charging Stations in Ohio, Ohio Society of Professional Engineers, June 2023
- Survey of Rural Broadband Access Networks, Ohio Society of Professional Engineers, June 2023
- Regulation of Ephemeral Streams in Ohio, Ohio Society of Professional Engineers, June 2023
- Ethical Considerations of the I-35W Collapse, Ohio Society of Professional Engineers, June 2023
- Power Line Carrier Basics, Ohio Society of Professional Engineers, June 2023
- Stream Stabilization: Design Challenges & Lessons Learned, Ohio Society of Professional Engineers, June 2023
- Strategies for Mold Investigations and Sampling, Eurofins, June 2023
- Fungal Data Interpretation, Eurofins, May 2023
- Mold – Introduction, Eurofins, April 2023
- Understanding Vapor Pressure and Density, Indoor Air Quality Association (IAQA), April 2023
- Combustion By-Product Testing Services Part 1, Eurofins, December 2022
- Combustion By-Product Testing Services Part 2, Eurofins, December 2022
- Vehicle Crash Reconstruction Principles and Technology, SAE, October 2022
- Asbestos in Air Analysis - When to Pull Out the Big Gun, Eurofins, September 2022
- The Amazing Discovery of Mason and Dixon's Transit Instrument, NSPE, September 2022
- Bulk Asbestos Analysis - Method Comparisons and Frequent Questions, Eurofins, August 2022
- Bosch CDR Tool Technician Training, IPTM, August 2022
- Libby Amphibole, Erionite, and Other Respirable Elongate Mineral Particles - Nonregulated Hazards?, Eurofins, August 2022
- Overview of Asbestos and its Management, Eurofins, August 2022
- Industrial Units – What you need to know, OSPE, June 2022
- Full Scale Vehicle Impact and Occupant Kinematics Testing and Analysis, Nederveld, June 2022
- The Importance of Air Sampling Flow Rates and Primary Calibration, Eurofins, May 2022
- Fungal Data Solutions, Eurofins, May 2022
- Ethical Case Insights Part II: Keep the Public Safe, Receiving Gifts and Questioning Design Responsibility, NSPE, May 2022

- Mold Introduction, Eurofins Online Education Program, April 2022
- Fundamentals of HVAC, University of Wisconsin, March 2022
- Sewage Contamination: Microbiology, Health Risks and Remediation, Eurofins Online Education Program, January 2022
- Ethics Forum: Conflicts of Interest – Employers and Clients, NSPE, September 2021
- Ethics Forum: Conflicts of Interest – Vendors and Colleagues, NSPE, September 2021
- Strategies for Learning Through the Deployment of New Grid Technologies, OSPE, September 2021
- Lithium Battery Fires, CFITrainer.net, September 2021
- CIE Certified, Council-Certified Indoor Environmentalist, ACAC, September 2021
- IAQA Indoor Environmentalist Course, September 2021
- ABT 101: Comprehensive Air Brake Training, Bendix, June 2021
- 2019 NFPA 13: Standard for the Installation of Sprinkler Systems, NFPA, May 2021
- Forensic Engineering Analysis of a Collision Involving Aftermarket Bumper and Grille Guard Structure, NAFE, January 2021
- 2017 NFPA 25: Inspection, Testing and Maintenance of Water-Based Fire Protection Systems, NFPA, February 2021
- Overheating Poor Electrical Connections, NAFE, January 2021
- Forensic Engineering of Pedestrian and Worker Fall Incidents – The Evolution of Analysis Techniques and Safety Requirements, NAFE, January 2021
- Goals, Methodology, and Tools for Investigating Electrical Shocks, NAFE, January 2021
- Current Assessment of Stand-Up Forklift Underride Accidents, NAFE, January 2021
- Ethics for Forensic Engineers, NAFE, January 2021
- Remote Forensic Inspections in the Age of Covid-19, NAFE, January 2021
- Report Writing, NAFE, January 2021
- Building Your Credentials Through Publication and Review, NAFE, January 2021
- Introduction to Collision Analysis: Data Collection, Documentation and Analysis Techniques, Nederveld, September 2020
- Engineering Ethics: Conflicts of Interest and the Protection of the Public Health, Safety and Welfare, National Society of Professional Engineers (NSPE), September 2020
- Engineering Ethics: The Obligation to Conduct Themselves Honorably, Responsibly, Ethically and Lawfully, National Society of Professional Engineers (NSPE), August 2020
- Engineering Ethics: Serving as an Engineering Expert and Performing Forensic Engineering, National Society of Professional Engineers (NSPE), August 2020
- Ethics, Forensics and the PE, National Society of Professional Engineers (NSPE), August 2020
- Introduction to Forensic Engineering, National Academy of Forensic Engineers (NAFE), August 2020
- Deposition and Court Testimony, National Academy of Forensic Engineers (NAFE), August 2020
- Video Depositions, National Academy of Forensic Engineers (NAFE), August 2020
- Evidence Handling, National Academy of Forensic Engineers (NAFE), August 2020
- Forensic Engineering CV Preparation, National Academy of Forensic Engineers (NAFE), August 2020
- Daubert Hearing from Hell, National Academy of Forensic Engineers (NAFE), August 2020
- Credibility and Persuasion, National Academy of Forensic Engineers (NAFE), August 2020
- Principles of Fire Investigation Multi-Program, CFTrainer.net, May 2020
- Effective Investigation and Testimony, CFTrainer.net, May 2020
- Writing the Origin and Cause Report, CFTrainer.net, May 2020

- Fundamentals of Interviewing, CFTrainer.net, April 2020
- Explosion Dynamics, CFTrainer.net, April 2020
- Fire Flow Analysis, CFTrainer.net, April 2020
- Avoiding Ethical Pitfalls in Failure Investigations, American Society of Civil Engineers (ASCE), March 2020
- Structural Building Condition Surveys: Looking for Trouble, American Society of Civil Engineers (ASCE), March 2020
- The Scientific Method for Fire and Explosion Investigation, CFTrainer.net, March 2020
- Insurance and the Fire Investigator, CFTrainer.net, March 2020
- Investigating Motor Vehicle Fires, CFTrainer.net, March 2020
- Avoiding Ethical Pitfalls in Failure Investigations, ASCE, March 2020
- Structural Building Condition Surveys: Looking for Trouble, ASCE, March 2020
- Introduction to Evidence, CFTrainer.net, February 2020
- Physical Evidence at Fire Scene, CFTrainer.net, February 2020
- Documenting the Event, CFTrainer.net, February 2020
- Fire Investigator Scene Safety, CFTrainer.net, January 2020
- Arc Mapping Basics, CFTrainer.net, January 2020
- Residential Natural Gas Systems, CFTrainer.net, January 2020
- Introduction to Appliances, CFTrainer.net, January 2020
- Electrical Safety, CFTrainer.net, January 2020
- Residential Electrical Systems, CFTrainer.net, January 2020
- Basic Electricity, CFTrainer.net, January 2020
- Ethics and the Fire Investigator, CFTrainer.net, January 2020
- Understanding Undetermined, CFTrainer.net, January 2020
- NFPA1033 and Your Career, CFTrainer.net, November 2019
- Charting Your Career Path in Fire Investigation, CFTrainer.net, November 2019
- Critical Evaluation and Testing of Commonly Reported Accidental Causes, CFTrainer.net, November 2019
- Vehicle Fire Live Burn Exercise, OCAAFII, October 2019
- Engineering Ethics: Marketing, Communications, and Employment, NSPE, September 2019
- Engineering Ethics: The PE and Sustainable Development, NSPE, April 2019
- Mold Matters: The Effect of Fungi on Building Materials, EMLab P&K, April 2019
- Engineering Ethics: The PE as an Expert Witness, NSPE, March 2019
- Charleston Sofa Super Store Fire, CFTrainer.net, February 2019
- An Analysis of The Station Nightclub Fire, CFTrainer.net, January 2019
- Fire Chemistry, CFTrainer.net, January 2019
- 2019 Legislative Outlook – What to Expect and Where, NSPE, January 2019
- Investigation of Gas and Electric Appliance Fires, Fire Findings, November 2018
- Failure Mode and Effects Analysis (FMEA), Quality-One International, February 2015
- Problem Solving Corrective Action (PSCA), Simpler Consulting, May 2009

## Education

Bachelor of Science in Mechanical Engineering  
Ohio State University, Columbus, OH  
June 1995

## Licenses & Certifications

PE - Professional Engineer

Licensed by the State of Ohio – Number 74896  
Licensed by the State of Indiana – Number 12200410  
Licensed by the State of Kentucky - Number 21470  
Licensed by the State of Maryland – Number 62564  
Licensed by the State of Missouri – Number 2022012934  
Licensed by the State of Pennsylvania – Number PE095098  
Licensed by the State of Virginia – Number 0402068181  
Licensed by the State of West Virginia – Number 26396  
CIE - Council-Certified Indoor Environmentalist, Certified by the American Council for Accredited Certification (ACAC) – Number 2109013  
CDR Technician Certification  
Bosch Crash Data Retrieval System, August 2022  
CFEI – Certified Fire and Explosion Investigator, Certified by the National Association of Fire Investigators  
CVFI – Certified Vehicle Fire Investigator, Certified by the National Association of Fire Investigators

## Employment History

### Forensic Engineer

Nederveld, Inc.

2018 - Present

Investigation of losses to determine root cause of mechanical failure, including industrial accidents, explosions, appliances, HVAC equipment, plumbing, water intrusion, fireplaces, auxiliary heating appliances, and fire suppression systems, vehicle fire and vehicle collision reconstruction analysis.

### Design Engineer

PowerBuilt Material Handling Solutions, Bellefontaine, OH

2017 – 2018

Responsible for the mechanical design, fabrication, and assembly of custom tooling industrial clients. Designs included simple weldments and complex pneumatically actuated assembly tools. Responsible for engineering entire project, from design to installation. Tools are currently in use in several automotive facilities in Ohio, West Virginia, Indiana, and Kentucky. Also performed structural analysis on tools and overhead lifting systems to ensure design met code recommendations.

### Applications Engineer

EWI, Columbus, OH

2013 – 2017

Responsible for the mechanical design, fabrication, and assembly of fixtures and tooling related to various research and development projects. Projects ranged from simple welding fixtures to new versions of fully automated machines.

### Aerial Design Engineer

Sutphen Corporation, Dublin, OH

2011 – 2013

Responsible for the aerial ladder structure on fire apparatus, with main focus being the improvement of current models and development of new designs. Assisted with production issues and service questions on existing products. Also in charge of the hydraulic system design for the aerial ladder vehicles.

Mechanical Engineering – Assembly Equipment Engineering Department  
Honda of America (Aerotek Contractor), Marysville, OH

2010 – 2011

Responsible for developing assembly equipment for automotive assembly lines, reviewed new models to determine what changes need to be made to existing equipment, and assisted maintenance with the troubleshooting and repair of current equipment.

Mechanical Engineering Specialist – Liaison Engineering Department

General Dynamics Land System, Lima, OH

2009 – 2010

Liaison Engineer responsible for providing solutions to problems that arise during the welding, machining, and assembly of prototype and production military vehicles. Generated problem reports to notify product development team of design issues. Reviewed and approved the corrective actions generated in response to the problems reported. Communicated design changes to the factory floor to ensure products are produced to the correct revision level. Led off-shift engineering support during a critical phase of a large project for the United States Marine Corps. Resolved issues that arose during the assembly of prototype test vehicles. Also served as an alternate team leader, providing supervision to personnel on the assembly line.

Project Engineer – Quality Department

Whirlpool Corporation, Marion, OH

2005 – 2008

Responsible for assessing the quality of parts purchased from outside vendors. Investigated quality issues (internal and external), determined root cause, implemented corrective actions, and documented issues in facility's Quality Management System. Reviewed and approved/disapproved vendors' new parts applications, control plans, and DFMEA/PFMEA paperwork. Reviewed new vendors' production plans and quality systems, audited production facilities to ensure they met production requirements, and assisted vendors with process/quality improvements where needed. Completed projects to reduce the cost and improve the quality of finished units: approved new vendors, revised component designs to improve durability, simplified assembly processes, and commonized similar parts. Responsible for approximately 1,000 unique parts from 15 vendors located in the United States, Canada, Mexico, India, Spain, and China.

Senior Design Engineer

Link-Belt Construction Equipment Company, Lexington, KY

2003 – 2005

As Project Leader for new crane models and attachments, developed Gantt Charts for project timelines, conducted cross-functional meetings with other departments, worked with marketing/customers on specifications, and negotiated with vendors on details/prices for new parts. Conducted design and project reviews with other departments (marketing, sales, service, assembly, procurement, testing, and shipping) to ensure all requirements were satisfied and the project remained on schedule. Designed and detailed new lattice boom crane attachments. Performed calculations to determine lifting capacity of new products; conducted prototype testing to verify the safety of new machines; and worked with governmental and regulatory agencies such as OSHA, Department of Defense, New York City Department of Buildings, foreign governments (Canada, Egypt, Korea, and Norway) and NASA to ensure products complied with all requirements. Verified the cranes met all applicable industry codes and standards, such as SAE, ASME, PCSA and DIN standards. Assisted with customer support by satisfying customers' special requests, such as custom attachments, special capacities, and engineered lifts. Worked with both Link-Belt's and dealers' service departments on equipment repairs by revising

designs, troubleshooting issues, and providing professional support for temporary repairs. Supported delivery of new machines to the field by providing operator/rigger training, assisting with machine set-up, and verifying safety of initial set-up. Supervised testing crew (both internal employees and outside contractors) during prototype testing of new products. Reviewed all test data and wrote final reports verifying all lifting capacities. Assisted with accident investigations to help determine root cause and implement design changes if required.

#### Associate Design Engineer

Link-Belt Construction Equipment Company, Lexington, KY

1995 – 2003

Developed a new style of luffing attachment which reduced field set-up time by 50 percent. This new concept became the Link-Belt standard design. Led the implementation of this attachment on four different crane models. Introduced a new 110-ton crawler crane to the market ahead of schedule and under budget. Worked closely with other Link-Belt departments to coordinate project phases that were run concurrently, significantly reducing the overall project timeline.

## Expert Witness Experience

#### Depositions

October 2024

Stockinger vs Fox Powersports, LLC

Expert Witness for Law Office of William M. Woolsey

State of Michigan, Circuit Court for the County of Kent, Case No. 2023-07819-NO

February 2024

Selective Way Insurance Company vs Cincinnati Incorporated and Camfil USA, Inc.

Expert Witness for Law Offices of Robert Stutman, P.C.

State of Michigan, Circuit Court of the County of Ottawa, Case No. 21-6594-NP

August 2022

John Forst and Christine Hopkins vs Travelers Home and Marine Insurance Company

Expert Witness for Lewis Wagner, LLP

United States District Court, Northern District of Indiana, Fort Wayne Division, Case No. 1:21-cv-00227-DRL-SLC.

June 2022

AllState Indemnity Company as Subrogee of Lynne Allen and Subrogee of Melissa and Thomas Hollingworth vs Progressive Marathon Insurance Company

Expert Witness for Patrick Mulcahy

State of Michigan, Circuit Court for the County of Genesee, Case No. 21-188226-ND

March 2022

Eric A. Bujak and Sandra Bujak vs Corrigan Oil Co and Corrigan Propane LLC, Hurricane Products, Inc. and Burners, Inc.

Expert Witness for Gallagher Basset on behalf of Thomas R. Termaat, Foster Swift Collins & Smith PC

State of Michigan, Circuit Court for County of Genesee, Case No. 18-110834-NO

June 2021

Grange Property and Casualty Co vs Prestige and Premier Co

Expert Witness for Grange Property and Casualty

State of Ohio, Portage Country Job#693683, Case #2020CV00139

January 2021  
Cincinnati Insurance Company vs Cincinnati Terrace Association, LLC  
Expert Witness for Cincinnati Insurance Company  
Court of Common Pleas, Hamilton County, OH, Case No. 2002298

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