

Forensic Engineering Expertise

Mechanical Failure

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

Fire and Explosion Investigation

Fire and explosion origin and cause investigations for commercial, industrial, residential, vehicle, and product applications. Experience includes initial site examinations, scene measurements, interviews, evidence collection and storage, joint site examinations, and laboratory examinations.

Qualifications & Training

- Charleston Sofa Super Store Fire, CFITrainer.net, August 2025
- Lightning Fire Cause Investigation, CFITrainer.net, July 2025
- Lightning Fundamentals, CFITrainer.net, July 2025
- The Potential Value of Electronic Evidence In Fire Investigations, CFITrainer.net, March 2025, July 2025
- An Analysis of the Station Nightclub Fire, CFITrainer.net, July 2025
- Electric and Hybrid Vehicle Fires, CFITrainer.net, July 2025
- Antimicrobial Products Effective Against Bloodborne Pathogens, ACAC, June 2025
- Commercial Kitchen Fires, IAAI, June 2025
- Lithium Ion Battery Fires, CFITrainer.net, May 2025
- ACAC Fire and Smoke Damage Study Review Manual, ACAC, May 2025
- Evaluation of First Responders after Maui, Hawaii Wildfires, ACAC, May 2025
- OSHA - Respiratory Protection in General Industry, ACAC, May 2025
- NIOSH Revised Lifting Equation - Explanation and Discussion, ACAC, May 2025
- Discovery in Criminal Cases, CFITrainer.net, May 2025
- Using Your Engineering Expertise as a Forensic Expert, NSPE, May 2025
- PFAS Basics Part 1, Eurofins, April 2025
- Alternative Fuel Vehicles, CFITrainer.net, April 2025
- Commercial Kitchen Fires 2: Investigation, CFITrainer.net, March 2025
- Commercial Kitchen Fires 1: Fundamentals, CFITrainer.net, March 2025
- Council Certified Fire and Smoke Damage Prep Course, Brad Kovar, March 2025
- Fire, Smoke, and Air Quality, Forestrywebinars.net, February 2025
- Wildland Fires Investigation, CFITrainer.net, January 2025
- The Practical Application of the Relationship Between NFPA 1033 and NFPA 921, CFITrainer.net, January 2025
- Legionella Regulations and Compliance Webinar, EMSL Analytical, January 2025
- Basic Electricity, CFITrainer.net, December 2024
- Emerging Technologies in Fire Investigation, CFITrainer.net, November 2024
- DNA Evidence, CFITrainer.net, October 2024
- Fire Protection Systems, CFITrainer.net, August 2024
- Electric & Hybrid Vehicle Design Basics, CFITrainer.net, August 2024
- National Academy of Forensic Engineers Summer Forensic Seminar, July 2024
- NFPA 1033 and Your Career, CFITrainer.net, July 2024
- Fire Investigation Safety, CFITrainer.net, June 2024

- Vacant and Abandoned Buildings: Hazards and Solutions, CFITrainer.net, June 2024
- The HAZWOPER Standard, CFITrainer.net, June 2024
- Site Safety Assessment, CFITrainer.net, June 2024
- Electrical Safety, CFITrainer.net, June 2024
- Motor Vehicles: Transmission, Exhaust, Brake, and Accessory Systems, CFITrainer.net, June 2024
- Fire Investigation for the Insurance Industry, CFITrainer.net, June 2024
- Motor Vehicles: The Engine and the Ignition, Electrical, and Fuel Systems, CFITrainer.net, June 2024
- What the Insurance Professional Needs to Know About Fire Investigation, CFITrainer.net, June 2024
- Introduction to Appliances, CFITrainer.net, June 2024
- Motive, Means, and Opportunity: Determining Responsibility in an Arson Case, CFITrainer.net, June 2024
- Accreditation, Certification, and Certificates, CFITrainer.net, May 2024
- NFPA 1033 & 921: 2022 / 2021 Editions Important Updates, CFITrainer.net, May 2024
- MagneTek: A Case Study in the Daubert Challenge, CFITrainer.net, May 2024
- Discovery in Civil Cases, CFITrainer.net, May 2024
- Legal Aspects of Investigating Youth Set Fires, CFITrainer.net, May 2024
- Photovoltaic Cells and Systems, CFITrainer.net, May 2024
- Introduction to Youth Set Fires, CFITrainer.net, May 2024
- How First Responders Impact the Fire Investigation, CFITrainer.net, May 2024
- Fire Investigation for Fire Officers, CFITrainer.net, May 2024
- Fundamentals of Residential Building Construction, CFITrainer.net, May 2024
- Understanding a Fire Investigators Job for Non Investigators, CFITrainer.net, April 2024
- Preventing Occupational Exposures to Carcinogens at the Fire Scene, CFITrainer.net, April 2024
- Donning and Doffing Personal Protective Equipment, CFITrainer.net, April 2024
- Preparation for the Marine Fire Scene, CFITrainer.net, April 2024
- Digital Photography and the Fire Investigator, CFITrainer.net, April 2024
- Physical Evidence at the Fire Scene, CFITrainer.net, April 2024
- The Scientific Method for Fire and Explosion Investigation, CFITrainer.net, March 2024
- Mold – Introduction, Eurofins, March 2024
- Water Damage Events: Scope, Risks, and Accountability in Remediation, HalfMoon Education Inc., March 2024
- Simplification: A Respirable Crystalline Silica Overview, Eurofins, February 2024
- Residential Electrical Systems, CFITrainer.net, January 2024
- Writing the Initial Origin and Cause Report, CFITrainer.net, December 2023
- Investigating Motor Vehicle Fires, CFITrainer.net, December 2023
- Insurance and the Fire Investigation, CFITrainer.net, December 2023
- Fundamentals of Interviewing, CFITrainer.net, December 2023
- Methamphetamine Residue Testing, Eurofins, December 2023
- Introduction to Evidence, CFITrainer.net, December 2023
- Understanding Undetermined, CFITrainer.net, November 2023
- Personal Protective Equipment for Post Fire Scenes, CFITrainer.net, November 2023
- Residential Natural Gas Systems, CFITrainer.net, October 2023
- Fire Flow Analysis, CFITrainer.net, September 2023
- USP 797 Surface Sampling Competency, Eurofins, September 2023

- Fire Chemistry, CFITrainer.net, September 2023
- Charting Your Career Path In Fire Investigation, CFITrainer.net, September 2023
- Asbestos Awareness, National OSHA Foundation, September 2023
- Combustion By-product Testing Services, Eurofins, September 2023
- Fire Investigation Methodology Training, International Association of Arson Investigators (IAAI), August 2023
- Chimney Fire Training, IAAI, August 2023
- Electrical Fire Training, IAAI, August 2023
- Lithium Battery Fire Training, IAAI, August 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, July 2023
- Law and Rules for Professional Engineers of Indiana for 2022 Renewal, PDHnow.com, July 2023
- Fire Investigator Scene Safety, CFITrainer.net, June 2023
- Completing IAQ Site Assessments on Amish Homes, Indoor Air Quality Association, June 2023
- Fire Effects Part 2: Combustion By-Products Effects, Eurofins, June 2023
- Arc Mapping Basics, CFITrainer.net, May 2023
- Fungal Data Interpretation, Eurofins, May 2023
- Effective Investigation and Testimony, CFITrainer.net, May 2023
- NFPA 1033 and Your Career, CFITrainer.net, May 2023
- The Deposition Part 2: Questioning Tactics and Effective Responses, CFITrainer.net, May 2023
- The Deposition Part 1: Format, Content, and Preparation, CFITrainer.net, April 2023
- Ethical Duties Beyond the Fire Scene, CFITrainer.net, April 2023
- Mold Introduction, Eurofins, April 2023
- Understanding Vapor Pressure and Vapor Density, Indoor Air Quality Association, April 2023
- Smelly Buildings: Containing Odors and Creating Indoor Air Quality, Indoor Air Quality Association, April 2023
- Endotoxins - Occupational Safety and Critical Water Testing, Eurofins, 2023
- Chemical Testing and Reporting, Eurofins, March 2023
- Industrial Hygiene 101 Part 1: Planning for Exposure Assessment, February 2023
- Endotoxins - Occupational Safety and Critical Water Testing, Eurofins, 2023
- Chemical Testing and Reporting, Eurofins, March 2023
- Industrial Hygiene 101 Part 1: Planning for Exposure Assessment, February 2023
- National Fire Protection Association, NFPA 25 Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, February 2023
- Combustion By-product Testing Services Part 2, Eurofins, December 2022
- Combustion By-product Testing Services Part 1, Eurofins, December 2022
- Spray Polyurethane Foam Insulation: A Comprehensive Review of the Chemistry, Application, Benefits, and Potential IAQ Impacts of SPF, Indoor Air Quality Association, September 2022
- Evaluating Post Fire Smoke Contamination in Indoor Air, Indoor Air Quality Association, September 2022
- Spray Polyurethane Foam Insulation: A Comprehensive Review of the Chemistry, Application, Benefits, and Potential IAQ Impacts of SPF, Indoor Air Quality Association, September 2022
- Evaluating Post Fire Smoke Contamination in Indoor Air, Indoor Air Quality Association, September 2022

- Asbestos in Human Tissue and the Environment, Eurofins, August 2022
- Overview of Asbestos and its Management, Eurofins, August 2022
- Industrial Hygiene Field Sampling and Analysis, Eurofins, July 2022
- Ethics and Social Media, CFITrainer.net, July 2022
- Critical Evaluation and Testing of Commonly Reported Accidental Causes, CFITrainer.net, July 2022
- The Importance of Air Sampling Flow Rates and Primary Calibration, Eurofins, July 2022
- Legionella 2 - Use of qPCR for Routine Monitoring, Eurofins, June 2022
- Legionella 1 - Legionellosis and Water Management, Eurofins, June 2022
- Combustion By-product Testing Services Part 1, Eurofins, June 2022
- Air Quality in Surgical Suites - History and Status, Indoor Air Quality Association, May 2022
- Fungal Data Interpretation, Eurofins, May 2022
- Indoor Air Quality Association Annual Meeting and Exposition, February 2022
- Forensic Water Damage and Mold Assessments: Insights into Conducting Defensible Assessment Workshop, February 2022
- Council-Certified Microbial Investigator, CMI, ACAC, November 2021
- Council-Certified Fire and Smoke Damage Technician, CFST, ACAC, September 2021
- Indoor Sciences Certified Microbial Investigator Preparation Course, June 2021
- IAQ Prep Courses - Fire and Smoke Damage Consultant Preparation Course, May 2021
- Introduction to Collision Analysis: Data Collection, Documentation and Analysis Techniques, Nederveld, Inc., September 2020
- Investigating Natural Gas Systems, CFITrainer.net, July 2020
- Explosion Dynamics, CFITrainer.net, July 2020
- Documenting the Event, CFITrainer.net, July 2020

Education

Mechanical Engineering, Bachelor of Science Mechanical Engineering
Saginaw Valley State University, Saginaw, MI
2003-2005

Industrial Design, Bachelor of Fine Arts
University of Michigan, Ann Arbor, MI
1998-2002

Licenses & Certifications

PE - Professional Engineer

Licensed by the State of Michigan – Number 6201059949

Licensed by the State of Illinois – Number 062074393

Licensed by the State of Indiana – Number PE12200575

Licensed by the State of Ohio – Number PE.88315

Licensed by the State of Wisconsin – Number 49971-6

CMC - Council-Certified Microbial Consultant, Council-Certified by the American Council for Accredited Certification (ACAC), Board Certification Number 2411017, awarded: November 20, 2024

CFSC - Council-Certified Fire and Smoke Damage Consultant, Council-Certified the American Council for Accredited Certification (ACAC), Board Certification Number 2504001, awarded: April 16, 2025

CFEI - Certified Fire & Explosion Investigator, Certified by the National Association of Fire Investigators, awarded: June 14, 2024

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Last Modified: 8/11/25

This CV is not a solicitation for services and is provided as information only. Retention of this expert can only be obtained through a mutually agreed upon Letter of Engagement.

Employment History

Forensic Engineer

Nederveld, Grand Rapids, MI

June 2020 – Present

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

Research and Development Engineer

NLB Corp, Wixom, MI

2012 – 2020

Design of high-pressure cleaning accessories. Selected materials of construction and performed calculations to size pressure containing parts. Created 3D models of the proposed designs. Performed Finite Element Analysis to verify part design and Fluid Flow Simulations to predict pressure drop. Created detail drawing for in-house machining or outside vendor estimates/machining. Created Bills of Material for assemblies. Estimated product cost for prototypes and production quantities using vendor quotes and in-house estimates. Ordered machined and purchased parts needed to build prototype. Tested prototype, refined design. Wrote product manual. Assisted Manufacturing, Purchasing, Inventory, and Marketing departments with initial production run.

Application Engineer

Despatch Industries, Lakeville, MN

2011 – 2012

Application Engineer

Deltak, Plymouth, MN

2008 – 2011

Application Engineer

Marposs Corporation, Auburn Hills, MI

2006 – 2008

Professional Affiliations

Member:

National Society of Professional Engineers -Member Number 1138

Member:

National Academy of Forensic Engineers – Affiliate Member, Number 1138, October 2020

Member:

Indoor Air Quality Association – December 2021

Member:

National Association of Fire Investigators – Member Number 28516

Member:

International Association of Arson Investigators – Member 1415669

Expert Witness Experience

Depositions

September 2024

Frank Azar vs Farm Bureau Mutual Insurance Company of Michigan

Expert Witness for Farm Bureau Mutual Insurance Company of Michigan on behalf of Honeyman Law PLLC

State of Michigan Circuit Court for the County of Huron, 24-105938-CK

March 2024

MT Capital Holdings LLC vs Auto-Owners Insurance Company

Expert Witness for Auto-Owners Insurance on behalf of Barrett Matura

The Judicial Branch of Arizona, Maricopa County, CV2021-054464

May 2023

MT Capital Holdings LLC vs Auto-Owners Insurance Company

Expert Witness for Auto-Owners Insurance on behalf of Barrett Matura

The Judicial Branch of Arizona, Maricopa County, CV2021-054464

Trials

August 2025

The People of The State of Michigan vs Ryan Allen Robinson

Expert Witness for The Newaygo County Prosecutor

State of Michigan 27th Judicial Circuit Court, Case Number: 24-013370-FH

August 2025

The People of The State of Michigan vs David Joseph Robinson

Expert Witness for The Newaygo County Prosecutor

State of Michigan 27th Judicial Circuit Court, Case Number: 24-013371-FH

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