

Shaun K. Andres

Forensic Engineering Expertise

Mechanical Failure

Determine root cause of mechanical failure, including industrial accidents, explosions, appliances, HVAC equipment, plumbing, fireplaces and auxiliary heating appliances, and fire suppression systems.

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.

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.

Building Pathology

Including origin and cause of water determinations, microbial growth and testing, HVAC systems, roofs, attics, and foundations.

Inspection and Evaluation of Roofing Systems

This includes steep and low slope roofs as well as various types of roofing materials, including both common and unique roofing applications. Past work involved offering opinions and repairs related to installation deficiencies and storm-related damages, including for hail and wind.

Qualifications & Training

- Mold – Introduction, Eurofins, April 2024
- Electric & Hybrid Vehicle Design Basics, CFITrainer.net, April 2024
- Continued professional development – 2018 to Present
- Chimney Fires, Tennessee Chapter International Association of Arson Investigators Annual Training Conference, August 2023
- Report Writing, Tennessee Chapter International Association of Arson Investigators Annual Training Conference, August 2023
- Electrical Appliance Fires, Tennessee Chapter International Association of Arson Investigators Annual Training Conference, August 2023
- Lithium Batteries, Tennessee Chapter International Association of Arson Investigators Annual Training Conference, August 2023
- Fire Investigation Methodology, Tennessee Chapter International Association of Arson Investigators Annual Training Conference, August 2023
- Bosch® CDR Tool Technician Training, Institute of Police Technology and Management, April 2023
- NFPA 25: Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, December 2022
- Vehicle Crash Reconstruction: Principles and Technology, SAE, October 2022
- Presented to International Association of Special Investigation Units regarding Winter Water Loss Investigations, October 2022

- Tools to Ensure Effective Litigation Preparation and Testimony as an Engineering Professional, NSPE, June 2022
- Mapping the Seabed Using UAVs and Semi-Autonomous Vessels, NSPE, June 2022
- Residential Natural Gas Systems, CFITrainer.net, May 2022
- Vehicle Fire Investigation, IL IAAI Northern Training Conference, April 2022
- Photovoltaic Cells & Systems, CFITrainer.net, September 2021
- Lithium-Ion Battery Fires, CFITrainer.net, September 2021
- Sexual Harassment and Abusive Conduct Prevention Training, California Department of Fair Employment and Housing, Required by ISPE, June 2021
- Digital Photography and the Fire Investigator, CFITrainer.net, April 2021
- Fire Patterns Post Flashover, DCARI, April 2021
- Technical Topics in Forensic Engineering, NAFE, January 2021
- Critical Evaluation and Testing of Commonly Reported Accidental Causes, CFITrainer.net, December 2020
- Motor Vehicles, Transmission, Exhaust, Brake, and Accessory Systems, CFITrainer.net, December 2020
- Motor Vehicles: The Engine and the Ignition, Electrical, and Fuel Systems, CFITrainer.net, December 2020
- Charting Your Career Path in Fire Investigation, December 2020 CFI Trainer.net
- Investigating Motor Vehicle Fires, CFITrainer.net, December 2020
- Fire Alarm Control Panels, DCARI, December 2020
- Receptacle Fires, DCARI, December 2020
- Identifying Damage to Electrical Conductors, DCARI, December 2020
- Emerging Technologies in Fire Investigation, CFI Trainer.net, December 2020
- Corrugated Stainless Steel Tubing, DCARI, November 2020
- Fire Dynamics, DCARI, November 2020
- Nederveld Introduction to Collision Analysis, September 2020
- NAFE Forensic Engineering Seminar, August 2020
- Structural Building Condition Surveys: Looking for Trouble, ASCE, March 2020
- Investigating Natural Gas Systems, CFITrainer.net March 2020
- Arc Mapping Basics, CFITrainer.net, March 2020
- Residential Electrical Systems, CFITrainer.net, March 2020
- Avoiding Ethical Pitfalls in Failure Investigations, ASCE, March 2020
- CFITrainer.net MagneTek: A Case Study In The Daubert Challenge, January 2020
- CFITrainer.net Introduction to Appliances, January 2020
- APA Shear Exhilaration, December 2019
- NAFI Vehicle Fire Investigation Training Program, September 2019
- NSPE Advancing Your Career, June 2019
- NSPE Architects and Engineers Claims Risk: Impact of Changing Technology and Inexperience, June 2019
- HM 126 F DOT Hazardous Materials Training – Transportation Compliance Associates, Inc., March 2015
- International Air Transport Association (IATA) Dangerous Goods Training – Transportation Compliance Associates, Inc., March 2015
- International Maritime (IMO) Dangerous Goods Training – Transportation Compliance Associates, Inc., March 2015
- Lithium Battery Training, DOT and IATA – Transportation Compliance Associates, Inc., March 2015
- Wet Battery Training, DOT and IATA – Transportation Compliance Associates, Inc., March 2015
- Arc-Flash Safety Training Program – Eaton Corporation, March 2015

- Switching in Power Distribution and Transmission Systems – DNV KEMA Academy, September 2014
- PTC Creo Parametric 2.0 Update from Pro/ENGINEER Wildfire 2.0 – PTC University, June 2014
- Essentials of Managing Projects – University of Illinois BIS, May 2014

Education

Bachelor of Science in Mechanical Engineering
Purdue University Calumet
2009 - 2013

Licenses & Certifications

PE - Professional Engineer

Licensed by the State of Arkansas – Number 22643

Licensed by the State of Illinois – Number 062.069852

Licensed by the State of Indiana – Number PE12200371

Licensed by the State of Iowa – Number P27478

Licensed by the State of Kansas – Number 30470

Licensed by the State of Michigan – Number 6201311300

Licensed by the State of Nebraska – Number E-21374

DNR - Department of Natural Resources Explosive License

Licensed by the State of Illinois – Number 000 6578 (Expired 2021)

ATF - Alcohol, Tobacco, and Firearms Employee Possessor

Licensed by USA ATF, 2015 – February 2019

NAFI - Member No. 24595

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.

February 2019 – 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, and fire suppression systems and vehicles.

Test Engineer

Chemring Energetic Devices, Downers Grove, IL

July 2018 – February 2019

Design modifications to fixtures and cables as needed. Perform stress analysis to determine possibility of failure by overpressure, etc. Oversee and participate in testing to ensure safety to all personnel during testing of pyrotechnic devices.

Maintaining Engineer

G&W Electric Company, Bolingbrook, IL

2015 – 2018 (high volume product line)

Perform product improvements on high voltage (distribution level) solid dielectric and SF6 insulated switchgear with volumes of 60 units produced per day across all product lines. Design, build, and validate prototypes through the use of rapid prototyping. Analyze kinematic mechanisms for failure points to improve

manufacturability, reduce warranty liability, and reduce field service liability. Perform and report on various characteristic testing of products, including mechanical life; thermal and electrical aging; temperature rise (maximum current soak); shipping vibration per ASTM D4169. Respond to customer field service incidents requiring immediate attention, including same-day flights, customer-facing situations requiring on-the-spot use of sound engineering concepts and calculations. Perform field inspection of aged (20+ years) products in field to determine warranty liability. Perform primary and secondary review of multi-level product structures and drawings, including tolerance stack-up, GD&T verification, thermal analysis, material compatibility, and internal standards compliance. Train production engineering on product updates and provide engineering support for more complex situations and customer requirements.

Product Development Engineer, Systems Protection Division
G&W Electric Company, Bolingbrook, IL
2013 – 2015 (low volume product line)

Designed new products and updated existing products for explosive-driven high fault current limitation, ranging from 480V to 138kV and from 60A to 6000A continuous current ratings. Converted existing manual drawings to usable 3D models in PTC Creo. Interfaced directly with customers on design specifications, contract negotiations, and shipment targets. Generated bills of materials, acquired quotes from vendors, prepared costs for review. Expedited shipment of products through Kaizen events, reducing lead times and increasing safety through revised assembly procedures. Researched, analyzed, and tested alternative and innovative manufacturing techniques and emerging technologies. Provided support to manufacturing for expedited orders and complex customer requests. Collaborated with multiple departments internally on process and product improvements and implementation.

Joint Facilities Engineer Support Intern
NiSource, Inc., Merrillville, IN
2010 – 2013

Maintained accurate records and prepared methods of correcting erroneous records of electric distribution and transmission infrastructure. Tracked the progression of various types of improvement projects across northern Indiana, resulting in increased income from third-party attachments on facilities as well as minimized non-reimbursable expenses and penalty fees.

Maintenance/Assistance
T & M Tire, St. John, IN
2007 – 2010

Performed and assisted in the installation of tires and wheels on customer vehicles ranging from golf carts to front loaders, resulting in decreased down time for the customer, increased customer satisfaction, and return customers. Provided exceptional customer care by responding to customer specifications, needs and feedback, resulting in increased customer retention and positive customer referrals. Organized inventory located at the main headquarters, providing maximum efficiency and ease of identification resulting in reduced response times and improved customer experience. Performed regular maintenance and repair on fleet of mobile tire service turbo-diesel trucks in order to minimize down times.

Professional Affiliations

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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.

Member: American Society of Mechanical Engineers (ASME)
Member: National Society of Professional Engineers (NSPE)
Member: SAE International
Member: International Association of Arson Investigators (IAAI)
Member: Illinois Chapter of IAAI (IL-IAAI)

Expert Witness Experience

Depositions

May 2025

Norwood Centennial Farms, LLC vs Hutson Inc.

Expert Witness for Plunkett Cooney on behalf of Auto-Owners Insurance

Circuit Court of Charlevoix, Michigan, Case No. 23-0197-28-NP

May 2025

Alta Enterprises, LLC d/b/a Alta Construction Equipment Illinois LLC vs A & M General Contractor Corporation and Anthony McClinton

Expert Witness for Chitkowski Law Offices on behalf of Alta Enterprises

Circuit Court of Cook County, Illinois, Case No. 2022L005815

March 2025

State Farm Mutual Automobile Insurance Company vs. Tanisha S. Laws

Expert Witness for Ankin Law on behalf of Tanisha S. Laws

Circuit Court of Cook County, Illinois, Case No. 2023CH10084

March 2025

Dawn Winkiel vs Matthew Mendez and Wor, Inc.

Expert Witness for Wiedner McAuliffe on behalf of Matthew Mendez and Wor, Inc.

Circuit Court of Cook County, Illinois, Case No. 2023L006246

October 2023

SH Transport vs Lakeland Kenworth

Expert Witness for SGR, LLC on behalf of Lakeland Kenworth

United States District Court for the District of Colorado, Case No. 22-CV-02614

April 2023

Maxlife, LLC vs Illinois Casualty Company

Expert Witness for Illinois Casualty Company on behalf of Brown & James Law Firm

United States District Court for the Eastern District of Missouri, Case No. 4:22-CV-303

RLW

May 2020

Terry Thompson vs American Family Insurance Company

Expert Witness for American Family Insurance Company on behalf of Everson Law

State of Wisconsin, Manitowoc County, Case No. 19-CV-518