Gregory H. Shoss

PE, CFEI, CVFI

Senior Consultant

Mr. Shoss is a licensed electrical engineer with over ten years of specialized experience in forensic engineering and the investigation of accidents and claims involving electrical systems. His expertise includes analyzing incidents arising from electrical faults, failures, or malfunctions, particularly those suspected of contributing to fire cause, equipment damage, or personal injury.

Mr. Shoss conducts comprehensive scene and laboratory examinations to determine the mode, sequence, and mechanisms of electrical failure. His work involves detailed inspection, testing, and analysis of electrical power distribution systems, appliances, consumer products, and electrical workmanship to evaluate operational performance, design adequacy, and adherence to safety standards. He routinely applies the scientific method to document, test, and analyze findings in support of clear, technically grounded opinions provided to clients for use in insurance claims, litigation, and risk assessments.

Prior to focusing on forensic investigations, Mr. Shoss gained broad industry experience working with a major electrical equipment manufacturer and service provider of residential, commercial, and industrial products. During this time, he held multiple technical positions across field services, power systems engineering, applications, and product management. His responsibilities encompassed the maintenance, testing, and troubleshooting of electrical systems, as well as technical training and data collection. He also performed system upgrades, power quality assessments, protective device coordination studies, and arc flash hazard calculations, providing him with a solid foundation in both practical operations and power systems engineering.

Mr. Shoss is a licensed professional electrical engineer in several states and an active member of multiple professional organizations. His professional credentials reflect his commitment to maintaining the highest standards of practice in electrical engineering and forensic investigation.

In addition to his investigative work, Mr. Shoss has provided expert witness services in both deposition and trial settings. His ability to clearly communicate technical findings to lay and technical audiences alike support clients in effectively understanding and presenting the facts of complex incidents.

Contact Information

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Areas of Specialization

- Electrical Codes & Standards
- Electrical Devices
- Fire / Explosion Investigation
- Power Distribution
- Product Fires
- Residential Fires
- Shock & Electrocution Hazard

Education

BS, Electrical Engineering. University of Denver 2003

Licenses & Certifications

- State of Arizona P.E. License No. 62217
- State of California P.E. License No. E21729
- State of Colorado P.E License No. PE.0051080
- State of Florida P.E. License No. 101016
- State of Georgia P.E. License No. PE053576
- State of Idaho P.E. License No. 17598
- State of Iowa P.E. License No. P26950
- State of Illinois P.E. License No. 062071369
- State of Kansas P.E. License No. 29508
- State of Louisiana P.E. License No. 45698
- State of Massachusetts P.E. License No. 56664
- State of Michigan P.E. License No. 6201311613
- State of Minnesota P.E. License No. 48759
- State of Montana P.E. License No. PEL-PE-LIC-62869
- State of Nebraska P.E. License No. E-17314
- State of Nevada P.E. License No. 024355
- State of New Mexico P.E. License No. 23614
- State of New York P.E. License No. 112056
- State of North Carolina P.E. License No. 059991
- State of North Dakota P.E. License No. PE-7298
- State of Oregon P.E. License No. 92456PE
- State of South Dakota P.E. License No. 14370
- State of Texas P.E. License No. 125459
- State of Utah P.E. License No. 9779366-2202
- State of Washington P.E. License No. 55326
- State of Wisconsin P.E. License No. 49108-6

- State of Wyoming P.E. License No. 15606
- National Association of Fire Investigators, Membership No. 21087-12652v
  - Certified Fire and Explosion Investigator (CFEI)
  - Certified Vehicle Fire Investigator (CVFI)
- National Council of Examiners for Engineering and Surveying (NCEES) Model Law Engineer (MLE)

Positions Held

Engineering Systems Inc., Aurora, Illinois

- Senior Consultant, 2021 – Present

SEA, Ltd., Denver, Colorado

- Forensic Electrical Engineer, 2015 – 2021

Eaton Corporation, Pittsburgh, Pennsylvania

- Product Manager, 2014 – 2015

Eaton Corporation, Minneapolis, Minnesota

- Product Line Application Engineer, 2012 – 2014
- Senior Power Systems Engineer, 2008 – 2012
- Field Service Engineer, 2006 – 2008

Arjay Automation, Inc., Minneapolis, Minnesota

- Inside Sales / Technical Support Engineer, 2004 – 2006

Continuing Education

- **Kitchen Appliance Fires** – MN-IAAI
- **Concepts and Applications of Battery Energy Storage Systems** – Cummins / CSE
- **Spontaneous Combustion** – 2025 IEEE SPCE, Portland, OR
- **Lightning Fire Cause Investigations** – www.CFITrainer.net
- **Lightning Fundamentals** – www.CFITrainer.net
- **Challenges of Subrogation Involving Electric Vehicles** – Cozen O'Connor
- **2025 Annual Minnesota IAAI Spring Conference**
  - Use of Fire Dynamics for Origin Determination
  - Lithium Ion Battery Construction, Defects, and Investigations
- **2024 NFPA 70E Standard for Electrical Safety in the Workplace Series**

- **Introduction to EV Infrastructure: Standards, Regulations & Safety Practices, Society of Automotive Engineers (SAE)**
- **Thermometry, Heat, and Heat Transfer** – www.CFITrainer.net
- **2024 Annual Minnesota IAAI Spring Conference**
  - Complex Fire Investigations: Analyzing Electrical Systems
  - Examination of Wi-Fi (Smart) Plugs for Their Recognition and Associated Data
  - Marijuana Extraction Fires
- **Electrical Design – Lightning and Static Electricity Protection** – PDH Online
- **EV Champion Training 2: Electric Vehicle Supply Equipment (EVSE) and Energy**
- **EV Champion Training 1: Electric Vehicle Technology and Financial Considerations**
- **Electric & Hybrid Vehicle Design Basics** – www.CFITrainer.net
- **Ice Heating: Reimagining thermal energy storage in an electrified world** – Consulting-Specifying Engineer
- **Critical Power: Energy Storage Systems** – Consulting-Specifying Engineer
- **Paralleling of Distributed Dissimilar Energy Sources in Microgrid Applications** – Consulting-Specifying Engineer
- **2023 Annual Minnesota IAAI Spring Conference**
  - Hypothesis Development in Fire Investigation: Theory and Practice
  - Alternative Energy Systems
  - Introduction to Hybrid and Electric Vehicle Fires
  - Motor Vehicle Fluid Heater Failures
  - Failure Analysis of Residential Dehumidifiers
- **Amplifying the Current Infrastructure for the Imminent EV Transition** – NSPE
- **Electrical Safety at High Voltages** – NFPA
- **Fundamentals of Battery Troubleshooting** – EnviroGuard
- **2021 NFPA 70E Standard for Electrical Safety in the Workplace Online Training Series** – NFPA
- **Investigating Solar Panel Fires** – Cozen O'Connor
- **2020 NEC® Changes: Branch Circuit GFCI Protection** – RedVector
- **2021 NFPA 921 – Chapter 19 – Fire Cause and Fire Determination** – IAAI
- **IEEE 1584-2002 Arc Flash Study: Good Enough for a Post IEEE 1584-2018 Rish Assessment** – EC&M/ABB
- **Lightning Damage: Fact, Fiction, or Somewhere in Between** – Envista Forensics

- **HVAC System Controls** – RedVector
- **HVAC – Basics** – RedVector
- **HVAC – Heating and Cooling** – RedVector
- **Protecting Your Communications Systems from Transients and Surges** – RedVector
- **Power Supplies** – RedVector
- **Fire Essentials – Commercial Buildings** – RedVector
- **2019 Forensic Engineering Seminar (Fire Investigations)** – NAFE
  - Fire Investigation Technology and Fire Analysis
  - Fire Science and Thermodynamics
  - Fire Chemistry, Thermometry, and Fire Dynamics
  - Explosion Dynamics
  - Fire Protection Systems and Hazardous Materials
  - Electricity and Electrical Systems
  - Evidence Documentation, Collection, and Preservation
  - Failure Analysis
- **NFPA 70E-2018 Updates** – RedVector
- **OSH 254 Lithium Battery Safety** – Lion Technology, Inc.
- **Colorado IAAI Annual Training Conference – Advanced Track** – IAAI / ATF
- **Short Course on Lithium-Ion Batteries: Fundamental Concepts, Heating Mechanisms and Simulation Techniques** – NASA / NESC
- **Effective Investigation and Testimony** – www.CFITrainer.net
- **Understanding the Arc Flash Hazard and Changes to NFPA 70E Related to AR/FR Clothing** – Westex
- **2017 Vehicle Fire, Arson & Explosion Science & Technology Seminar** – NAFI
- **2017 Complex Fire Investigations for the Insurance Industry** – IAAI / ATF
- **Subro Wars: E-Cigarettes, Hoverboards, and Other Fires Hazard Products** – Cozen O'Connor
- **Investigations of Gas and Electric Appliance Fires** – Fire Findings, LLC
- **Arc Mapping Basics** – www.CFITrainer.net
- **Fundamentals of Residential Building Construction** – www.CFITrainer.net
- **Solar Power Part I** – SunCam, Inc.
- **2013 Minnesota Power Systems Conference** – IEEE-PES and University of Minnesota

Professional Affiliations/Honors

Institute of Electrical and Electronics Engineer (IEEE)

- Member 2006 – Present

National Society of Professional Engineers (NSPE)

- Member 2016 – Present

International Association of Arson Investigators (IAAI)

- Member 2015 – Present

National Association of Fire Investigators (NAFI)

- Member 2015 – Present

National Fire Protection Association (NFPA)

- Member (Electrical Section) 2015 – Present

Project Experience

Investigations

Fire Investigations

- Residential single- and multi-family home and garage fire investigations involving the examination and testing of wiring, electrical workmanship, lightning, and appliances for origin and cause including, but not limited to, stovetops, ranges, refrigerators, freezers, microwaves, toasters, HVAC equipment, panelboards, grounding, meters, utility service entrances, light switches / fixtures, low voltage lighting systems, lamps, receptacles / outlets, irons, heating blankets, heat tape, fans, televisions, IT equipment, video game consoles, sound systems, electric grills, generators, solar panels / arrays, inverters, hot tubs, water heaters, battery-powered tools and toys, power banks, and other consumer or specialized products and appliances.
- Commercial and industrial property fire and failure analysis investigations involving equipment associated with utility and power distribution, switchgear, switchboards, panelboards, meters, protective relays, motor control centers (MCC), transformers, circuit breakers, fuses, variable / adjustable frequency drives (VFD / AFD), generators, automatic / manual transfer switches (ATS / MTS), capacitor banks, commercial kitchens, electric signage, storage spaces, lighting, controllers, programmable logic controllers (PLC), elevators, and other specialized products and appliances.

Personal Injury Claims

- Personal injury and workers compensation investigations resulting from electric shock, electrocution, and arc flash / blast incidents. [OSHA 1910 / 1926 and NFPA 70E analyses].

Design and Operational Experience

Building Systems – Power Distribution and HVAC

- Designed electrical system addition of a new 80-ton air-cooled chiller in existing facility.
- Designed electrical system addition of four new RTU units to upgrade HVAC system in existing facility.
- Responsible for dozens of electrical system studies for new and existing commercial/industrial facilities including short-circuit equipment evaluation, protective device overcurrent coordination, protective relaying and control, power quality, harmonics, arc flash incident energy calculations, and customer training.

Presentations

"Forensic Electrical Engineering & Fire Investigations," **G. H. Shoss**, Webinar for insurance claims adjusters, Denver, CO, July 7, 2020.

"Multi-Point Failure in a Weight Loss Cocoon - A Case Study," **G. H. Shoss**, 2025 IEEE Symposium on Product Compliance Engineering, Portland, OR, November 12, 2025.