

NAFE Sunday Schedule (July 19, 2026)

Larry G. Nelson Sr., PE, DFE (NAFE #1154M)

President, Electrical/Electronic Consultant, Expert Witness, Technical Training
Nelson Research

Time: 8 to 9 AM

Title: Following the Evidence: Root Cause Analysis of an Electric Vehicle Fire

Abstract: This presentation follows a case from engagement to final resolution. The incident involved a house fire caused by a homemade electric car, a commercial charger, and lead-acid batteries. The batteries had been removed from the car for charging by a commercial-grade wheeled battery charger and were being charged, unattended, in the drive-in cellar beneath the house when they caught fire. The charger had already been examined by another expert with no fault found—after drilling out all rivets, disassembling the transformer, and unwinding the windings onto a piece of wood. This presentation walks through the steps followed to work around that destruction of evidence and ultimately identify the root cause. It is a practical case study in forensic persistence and methodical analysis under difficult evidentiary conditions.



Larry has had his own consulting company, Nelson Research, since 1980 and has published technical articles and created technical training programs for Universities as well as Industry. He has participated in design reviews for various client companies and has designed and prototyped many products for different industries. He has been granted several Patents and is a licensed PE in the state of Massachusetts. He is a DFE with NAFE. He has served as an Expert Witness in several litigations and has advised insurance companies and law firms on several cases to determine root cause of failure. He is a Platinum level consultant with Microchip Corporation and has a broad technical background across many industries. He is also a listed consultant with Parallax and Digi Key.

Robert Peruzzi, PhD, PE, DFE (NAFE #967M)

President, Technical Consultant, And Expert Witness,
R. Peruzzi Consulting

Time: 9 to 10 AM

Title: Forensic Engineering Evaluation of a Defective and Deteriorating Concrete Parking Garage

Abstract: Human Factors Engineering (HFE) examines how human capabilities and limitations interact with engineered systems. In forensic investigations, many incidents attributed to "operator error" may instead reflect predictable human behavior interacting with poorly designed equipment, controls, warnings, or procedures. This presentation provides forensic engineers with an overview of key HFE principles relevant to accident investigation and expert testimony. Topics include categories of human error, limits of human perception and cognition, anthropometry and physical interaction with equipment, and the role of warnings and instructions in product safety. Practical examples illustrate how human factors considerations can influence determinations of misuse, foreseeability, design adequacy, and system safety. The presentation also outlines a framework for incorporating human factors analysis into forensic engineering investigations—giving attendees a working understanding of how human–system interactions contribute to incidents and how these principles can strengthen technical analyses and expert opinions.



Robert Peruzzi, 954M, joined NAFE in 2016 and presented his first paper at the 2017 Winter Meeting in New Orleans, where he also began volunteering on the Public Relations Committee. He is now PR co-chair and has served as an Associate Editor of the NAFE Journal since 2020. He has presented at six NAFE meetings, with multiple papers published and others in progress.

He is a Licensed Professional Electrical Engineer (PE), expert witness, and President of R. Peruzzi Consulting, Inc., specializing in forensic and technical consulting. His career began at AT&T Bell Labs in 1990, later earning a PhD in 2005 while working through successive industry transitions in integrated circuit design. He became an independent consultant in 2008 and expanded into forensic engineering and expert witness work around 2015. He has held leadership roles in IEEE organizations. He lives in Bethlehem, PA, with his wife, Esther, and they have two adult children and three grandchildren.

Paul Tucker, SE, PE, DFE, FRSE, CXLT (NAFE #1129S)

Structural Engineer,
Áreté Forensics, PLLC

Time: 10:15 to 11:15 AM

Tim Coleman, PhD

Consulting Meteorologist, Founding
Partner Coleman, Knupp and Dice LLC

Title: Where Engineering Ends: The Role of the Forensic Meteorologist

Abstract: Weather is a factor in a substantial share of forensic investigations—yet the data most engineers reach for first is often poorly suited to the specific question at hand. This session draws a clear line between what engineering judgment can reasonably support and where specialized meteorological expertise becomes not just useful, but necessary. Working through real case examples, Paul Tucker and forensic meteorologist Dr. Tim Coleman examine the practical limitations of commonly used weather datasets, including NOAA/NWS records and third-party reports, and the dangers of applying regional or generalized data to site-specific conditions. The session also introduces advanced reconstruction techniques—storm modeling, Doppler radar analysis, and micro-scale weather reconstruction—that can materially strengthen or refocus forensic conclusions. Attendees will leave knowing when to rely on their own judgment, when to bring in a specialist, and how to defend weather-related findings under cross-examination.



Mr. Tucker's work experience includes civil and structural engineering positions in industry, academia, and consulting firms. In industry, he has been responsible for structural engineering design, project management, inspections, and code compliance. Mr. Tucker has personally designed thousands of buildings and structures, including but not limited to schools, churches, restaurants, gymnasiums, condominiums, industrial facilities, recreational facilities, retail stores, office buildings, and residential structures. In academia, he has incorporated his industrial and consulting experience into graduate and undergraduate classroom lectures on structural engineering and construction. As a structural engineering consultant, Mr. Tucker applies the principles of design, analysis, testing, and safety to the forensic evaluation of damaged and deficient structures. Mr. Tucker is currently taking a hiatus from his Ph.D. studies at the University of Tennessee in the Biosystems Engineering Department. Mr. Tucker is a native speaker of English, is fluent in Modern Standard Arabic, and has a basic proficiency of Spanish.

Dr. Tim Coleman, founding partner, holds an MS and a PhD in Atmospheric Science from The University of Alabama in Huntsville, and a BS in Physics and Mathematics from Samford University. He started his career in meteorology at age 16 with the National Weather Service, where he worked through college and graduate school. After 3 years in television, Tim went into weather research at UAH in 2005, studying severe storms, radar meteorology (including rainfall estimation), non-traditional damaging winds, tornadoes, and lightning. Tim has authored twenty



peer-reviewed articles published in several academic journals, and he has trained National Weather Service meteorologists across the eastern U.S. in the use of his research in warning for severe weather. He has given numerous invited presentations on his research, and he has been interviewed twice on The Weather Channel about some of his most important findings. Tim also teaches courses and advises students as an adjunct professor at UAH. Tim is a member of the American Meteorological Society and The National Weather Association. Tim has performed meteorological consulting services in a variety of cases involving rainfall, flooding, hurricanes, building collapse, lightning, hail damage, automobile accidents, aircraft accidents, wind damage, and tornadoes; many of these have involved expert testimony.

Klas C. Haglid, PE, RA, F-ASHRAE, CEM, F-DFE (NAFE #599F)

CEO & President,
Haglid Engineering

Time: 11:15 AM to 12:15 PM

Title: Challenges Facing the Modern Forensic Engineer

Abstract: As a forensic engineering expert, we are often tasked with evaluating the human biomechanics of an incident to focus on injury causation analysis. Addressing engineering issues in a case that seems to focus on medical diagnosis can be challenging. However, adhering to first principles, creating clear demonstrative evidence, and remaining objective will ultimately uncover the key underlying causes of a specific injury. From a biomechanical engineering viewpoint, this paper evaluates the claim of a Traumatic Brain Injury (TBI) in a 16-year-old male subject riding to school on a city bus. The biomechanics analysis performed and discussed in this paper reveals how the injuries sustained were not supported by the medical diagnosis or opposing experts' opinions. However, ultimately, the flaws in the opposing experts' analyses were never revealed to the jury, since the case settled prior to this expert's testimony. Revealing the underlying causes of the injuries to the subject in this case, via the methods and techniques discussed, may provide useful insights to other forensic engineering experts with similar cases.



Klas Haglid, P.E., R.A., C.E.M.-2.0, F-ASHRAE, is the founder and CEO of HAGLID ENGINEERING & ASSOCIATES INC. He specializes in HVAC, mechanical & structural engineering, as well as expert witness services. An Emmy Award-winning engineer and architect, Klas has led numerous high-performance building projects and secured millions of dollars in energy-efficiency incentives for schools, commercial, and industrial clients. Klas has chaired multiple ASHRAE technical committees, presented at national conferences, and published extensively on energy recovery and HVAC systems. His career includes work with DuPont, Atlantic Electric, and the U.S. Department of Energy. He maintains a National NCEES Record, holds more than 12 U.S. and Canadian patents with over 150 approved patent claims related to air-handling equipment, and has received more than 350 Google Scholar citations for his published work. He is licensed as a Professional Engineer and/or Registered Architect in multiple states.

Jim D'Aloisio, PE, LEED

Managing Principal and Secretary,
Klepper, Hahn & Hyatt

Time: 1:30 to 2:30 PM

Title: Thermal Losses in Building Envelopes

Abstract: Compromises in thermal building envelopes—such as thermal bridging and discontinuities in the air barrier system—can lead to serious problems driven by condensation, including mold propagation, wood rot, and steel corrosion. These failures can also compromise interior thermal comfort, increase utility costs, and contribute to a building's carbon emissions. Critically, they are frequently misdiagnosed as water leaks. This session describes the underlying mechanisms, reviews real examples of these conditions, and covers available diagnostic methodologies and remediation strategies. Attendees working on building envelope claims will leave better equipped to recognize these failures in the field and distinguish them from true water intrusion.



James A. D'Aloisio, PE, LEED AP, is President and Managing Principal of Klepper, Hahn & Hyatt, a structural engineering, landscape architecture, and building envelope consulting firm based in East Syracuse, New York. With more than four decades of experience, he specializes in the design, evaluation, rehabilitation, and forensic investigation of building structures, with expertise spanning structural failures, building condition assessments, parking structures, and code compliance.

A recognized leader in sustainable structural engineering, Jim serves as Chair of the American Society of Civil Engineers (ASCE) Structural Engineering Institute (SEI) Climate Action Team and previously chaired the SEI Sustainability Committee. He has also served on numerous national committees focused on structural condition assessments, thermal bridging, and climate resilience in the built environment. A graduate of Rensselaer Polytechnic Institute, he is a Registered Professional Engineer in New York and Massachusetts, is certified by the Structural Engineering Certification Board (SECB), and is a LEED Accredited Professional.

Jim has authored more than 20 technical publications and has delivered over 200 presentations on structural engineering, forensic investigations, sustainability, building science, and climate action. His ability to connect technical excellence with practical solutions has made him a sought-after speaker for engineers, architects, and forensic professionals nationwide.

Zohaib A. Alvi, M.Eng, PE, DFE (NAFE #1030M)

Principal, za/engineering

Time: 2:45 to 3:45 PM

Title: Trial and Error: A Brief History of Engineering

Abstract: There is an adage which states that laws (or regulations) are “written in blood”. As engineers, we understand that rules and codes are often a reflection of a prior failure or issue. Laws, rules, and codes regarding engineering tenants have existed all throughout history, and in many cases, arise from trial and error, or more correctly stated, the iterative process.

This presentation will explore historic rules and laws related to engineering and design, their purpose, how they laid the groundwork for modern codes and engineering processes, and how sometimes failures shape our options.



Zohaib A. Alvi, M.Eng., PE, DFE, is a civil, structural, and forensic engineering consultant and Principal of za/engineering. He earned dual Bachelor of Science degrees in Architectural Technology and Construction Management Engineering Technology (ETAC-ABET accredited) from the State University of New York at Farmingdale, an Engineering Leadership Certificate from Cornell University, and a Master of Engineering in Engineering Management from the University at Buffalo. A licensed Professional Engineer in multiple states, Alvi has extensive experience in forensic investigations, structural evaluations, construction defects, building code compliance, and the repair and rehabilitation of existing and historic structures. He is an active member of the American Society of Civil Engineers, the National Society of Professional Engineers, the National Academy of Forensic Engineers, the National Academy of Building Inspection Engineers, the Structural Engineers Association of New York, and the International Association for Bridge and Structural Engineers.

GM Samaras, PhD, DSc, PE, CPE, DFE (NAFE # 966S)

Principal, Samaras & Associates, Inc.

Time: 3:45 to 4:45 PM

Title: Software Engineering IS Engineering - Forensic Engineering Opportunities & Ethical Issues

Abstract: Widespread software flaws, failures, & security issues stem from a systemic lack of true *software engineering*—with enormous economic impact (estimated *trillions of dollars* over two decades) and serious consequences across infrastructure, safety-critical, and administrative systems. *Coding* is distinguished from engineering, framing coding as technician-level work (analogous to soldering or machining) that often proceeds without the structured, systematic engineering essentials: clear validated requirements, reliable design, rigorous risk analysis, statistically valid testing (including human factors), maintenance, and full life cycle management.

Significant ethical issues of poorly supervised “AI” systems (LLM/ML statistical pattern *recognition hallucinations*) can worsen these challenges. There is real-world fallout: deaths/injuries, delays, lost productivity, a thriving cybercrime environment, and insurers denying large cyber-fraud claims when organizations’ software practices don’t match what they represented for policy. *Software forensic engineering*—most often not requiring any code analysis—is important for protecting public health, safety, and welfare.



George M. Samaras trained as an electrical engineer and earned double doctorates (Physiology/Pharmacology and Industrial Engineering). He is a double-licensed PE (electrical/electronic engineering and software engineering). He is double Board-certified (Human Factors Engineer and Forensic Engineer). He was ASQ-certified as both a Quality Engineer and a Biomedical Auditor. He is a former medical school and engineering graduate school professor, a former USFDA reviewer and manager, and a former CEO of a FDA-regulated biomedical engineering product development firm. He has been in private practice with Samaras & Associates, Inc. since 1997 on his ranch southwest of Pueblo, Colorado. His practice is limited to medical devices. He is currently semi-retired.