

NAFE Sunday Schedule (July 13, 2025)

Shawn P. Ray, P.E., DFE, ACTAR, ASE, CFEI, CVFI, CFII (NAFE #970S)

Principal Mechanical Engineer, S-E-A

Time: 8 to 9 AM

Title: Introduction to Consumer-Based 3D Scanner Apps for Use in Forensic Investigations

Abstract: Introduction to 3D scanning apps and a discussion of key factors as well as different technologies available, such as structured light, photogrammetry, LiDAR. A brief look at cost of equipment & software, and levels of training (learning curve) required. Many consumer-grade scanning software apps are designed with the hobbyist and may not be appropriate for professional applications like forensic documentation.



Shawn Ray is a Mechanical Engineer and has been evaluating mechanical failures and performing accident reconstruction for more than 35 years. His scientific analysis of incidents has resulted in expert testimony in both State and Federal courts. He was involved in racing (a test bed for new technology), vehicle development, and training for the understanding of vehicle control. Mr. Ray worked his way through school as a mechanic and maintained (3) ASE Master Certified Technician certificates for more than 25 years, he has full ACTAR accident reconstructionist accreditation, and is a Certified Fire and Explosion Investigator, a Certified Vehicle Fire Investigator, and a Fire Investigation Instructor.

Mr. Ray is a Board-Certified Diplomate in Forensic Engineering (DFE) by the National Academy of Forensic Engineers (NAFE) and is serving as the Secretary for the Academy (NAFE).

Mr. Ray is active in SAE International, particularly SAE's COMVEC, the Commercial Vehicle Exhibition & Technology Connection. His involvement includes being a session organizer, moderator and past Chair of the Powertrain committee. Additionally, Mr. Ray is the Vice-Chair of SAE's Crash Data Collection and Analysis Standards Committee (CDCA) and a liaison to the SAE Event Data Recorder (EDR) Standards Committee. He also remains active in testing and evaluation of failure and product evaluations, including all types of incidents with equipment and machinery.

Gregory L. Boso, P.E. (NAFE #748M)

President and Principal Engineer at Boso Forensics PLLC

Time: 9 to 10 AM

Title: Pitfalls of Multi-Jurisdictional Practice for Engineers

Abstract: Our shrinking world and ever-present technologies have made it easier than ever to apply for and maintain multi-jurisdiction licensure. What doesn't get communicated are the nuances, and pitfalls, when practicing in multiple jurisdictions. This presentation will endeavor to highlight potential problem areas when extending your practice beyond the borders of your state or country. We will also provide members with useful tools while voyaging the multi-jurisdictional regulatory waters for their forensic engineering practice.



Greg Boso is a native of Summersville, West Virginia and a 1980 graduate of the West Virginia Institute of Technology in the field of civil engineering. and has over 40 years of experience as a registered professional engineer. He is the President and Principal Engineer of Boso Forensics PLLC. A licensed engineer in 34 states and the District of Columbia, Greg has served in blasting or vibration damage claims in Kentucky, West Virginia, Tennessee, Virginia, Ohio, Indiana, and Minnesota. He has provided forensic engineering services for over 30 years serving in over 200 cases ranging from claims of damage by blasting or vibration, construction defects, landslides, flooding and storm water, to claims regarding premises liability, employer's liability, design professional negligence and fire damage liability. His clients have included individuals and property owners, insurers and attorneys, businesses and municipal governments.

As a professional engineer active in technical and professional societies, Greg serves in the National Society of Professional Engineers on the House of Delegates, as a member of the Board of Directors for the West Virginia Society of Professional Engineers, and as a Director-at-Large with the National Academy of Forensic Engineers. Additionally, he is thankful to have served his state as a West Virginia Senator elected from the 11th District from 2015 through 2019. Greg grew up with a background in construction and, for a time, operated the family's general construction business in Summersville, WV, as a 4th generation building contractor. He serves in his church as a deacon and his community as a firefighter and chaplain of the volunteer fire department, now in his 45th year.

Curt M. Freedman, MSEM, PE, CEM, CEA, LEED® AP (NAFE #912S)

Consulting Engineer at CMF Engineering, Inc.

Time: 10:15 to 11:15 AM

Title: “Responsible Charge” Building/Enclosure Energy Modeling for Forensic Engineering Investigations & Building Assessments Using Electronic Spreadsheets

Abstract: A fully comprehensive, “Responsible Charge” heating/cooling load analysis substantiated by ASHRAE standards using electronic spreadsheets has been utilized for FE building freeze investigations, and building assessment/design evaluations.

The analysis, mathematics, and methodology include:

- 24-hour ambient climatic temperature profiles; wind velocity
- Analytic psychrometric evaluation of air infiltration/ventilation/ACH
- Building envelope U-A totals
- Building orientation/latitude
- Building thermal heat capacity
- Sensible internal heat gain and latent loads - (People, lights, & equipment)
- Solar insolation based on ASHRAE Clear Sky methodology
- Wall/roof heat gain and surface temperature evaluated by Newton-Raphson analysis with datum of surface color, R-value, and solar insolation
- Window/fenestration solar gain

[ASHRAE - The American Society of Heating, Refrigerating, and Air Conditioning Engineers]



President, CMF Engineering, Inc. (established 1985), forensic engineering, mechanical systems design, indoor air quality, utility intervention, and energy conservation. Adjunct Professor, Western New England University, Springfield, MA, instructing alternative energy, energy management, and HVAC design. Education: Lehigh University, BSME, 1981; Western New England University, MSEM, 1987. Engineering honor society: Tau Beta Pi (τβπ).

Professional certifications:

Registered professional engineer: AZ, CA, CO, CT, FL, HI, IL, MA, MD, ME, MI, MN, NC, NH, NJ, NV, NY, OH, PA, RI, VA, VT, & WI

Certified Energy Manager (CEM), Certified Energy Auditor (CEA), The Association of Energy Engineers (AEE), Member LEED® AP (Leadership in Energy & Environmental Design, Accredited Professional)

Engineering society associations:

- The American Society of Civil Engineers (ASCE)
- The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)
- The American Society of Mechanical Engineers (ASME), Past-President - Western Mass Section
- The International Association of Arson Investigators (IAAI)
- The National Academy of Forensic Engineers (NAFE), Senior Member
- The National Fire Protection Association (NFPA), Member
- The National Society of Professional Engineers (NSPE), Member

Published “The Computer Simulation and Performance Testing of a Baseboard Tubing Solar Panel,” ASME National Heat Transfer Conference, 1984. Received the "Best Technical Conference Presentation Award" from NAFE (2019) entitled, "Solar Fires, Melted Vinyl Siding and Other Ramifications from Concentrated Reflected Sunlight from Low-E Glass Windows, Skylights, and Atrium Glass." Published “Utilization of CO₂ as a Tracer Gas in Laboratory, Building Science, and Engineering Applications to Determine Air Infiltration in Buildings, Vehicles, or Other Enclosures.” The 18th Conference of the International Society of Indoor Air Quality & Climate (ISIAQ), July 2024, Honolulu, Hawaii.

Received three patents for HVAC products: high-quality decorative wooden covers for perimeter baseboard heaters and ductless mini-split heat pumps.

Chad T. Williams, P.E., D.F.E., M.L.E. (NAFE #937M)

President and Principal Engineer at Valor Technical Consulting, LLC

Time: 11:15 AM to 12:15 PM

Title: Ethics and E58 Roundtable

Abstract: TBA



Mr. Williams is a Licensed Professional Engineer with more than 22 years of engineering experience, including more than 16 years of forensic engineering and maintenance/operations engineering. Primary practice areas include evaluating residential, commercial, industrial, and institutional facilities to determine the causes and extent of damage related to improper design, construction defects, and damage due to weather events and other causes. In addition, Mr. Williams has experience in facilities and asset management through maintenance and operations engineering. Mr. Williams is also involved in technical research, tool and process development, and providing training in forensic engineering and roofing. Mr. Williams has served as executive leadership of professional engineering firms and not-for-profit engineering service organizations.

Derek A. Hodgin, PE, RBEC, CCCA, CXLT, F-IIBEC, CPSI (NAFE #733S)

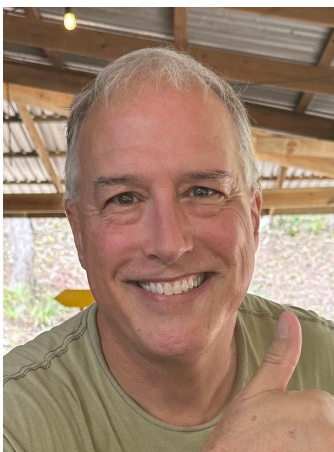
Founder/Owner of Positive Friction Consulting, LLC

Time: 1:30 to 2:30 PM

Title: How NOT to Serve As an Expert: (aka Why I Retired From Forensic Engineering)

Abstract: I am old enough to remember when serving the construction industry as a forensic engineer/expert witness nearly 30 years ago, we figured out real building problems, who was responsible, and how to fix it. I have enjoyed assisting others resolve construction issues, regardless of which party retained my services. Having a career that allowed research of codes and standards, review of plans and specifications, manufacturer instructions, material properties, testing standards and all things relevant to my construction cases has been amazing! However, I have become disenchanted with the process as I am exposed to despicable behavior displayed by experts that should know better. These experts value their client's position more than their own integrity, and that is unfortunate for our business and reputation as experts.

Recent poor expert behavior has served to reinforce my decision to retire from my expert witness role. This paper highlights some of the more recent examples of how NOT to be an expert. Each case study provides clear examples of questionable behavior, some of which is the subject of written complaints. For the record, litigation does not provide any protection for professional engineers and licensed architects to violate ethical standards of objectivity and honesty in their process of providing an expert "opinion". We are all bound by the same ethical standards to honor our profession by providing factual and supported opinions, regardless of the harm or benefit to the client that retained our services. Experts are not allowed to be advocates ...period.



Derek Hodgin is a retired forensic engineer that served as an expert witness for the construction industry for nearly 30 years. Derek was routinely retained by all parties related to construction litigation, including owners, developers, general contractors, subcontractors, architects, engineers, and property management companies, among others. Hodgin is a registered Building Envelope Consultant with IIBEC, and is certified as a Construction Contract Administrator with the Construction Specifications Institute (CSI).

A large part of Mr. Hodgin's projects included an analysis of damages related to natural disasters and deficient construction including roofs, exterior wall assemblies, windows, doors, structural framing, civil site work and building code review, as well as the repair of structures post disaster and/or litigation in the United States and Caribbean.

Derek's retirement from forensic engineering was followed by the formation of "Positive Friction Consulting" which provides construction education through presentations, seminars, webinars, technical articles, and books. His latest book "More Than 100 Ways to Build Better - A Contractor's Field Guide to Better Practices" has been published as a field guide and a textbook. The Spanish version of the book will be published and available this summer.

Lori Cox, P.E. (NAFE #1302S)

Senior Forensic Engineer, ProNet Group, Vice Chairman, ASTM E58 Committee on Forensic Engineering

Time: 2:45 to 3:45 PM

Title: The Case for AI in Forensic Engineering: Enhancing Expert Testimony and Avoiding Obsolescence

Abstract: As the demands on forensic engineers intensify—driven by increasingly complex cases, tighter deadlines, and heightened scrutiny of expert testimony—Artificial Intelligence (AI) offers transformative potential. This presentation makes the case for integrating AI tools into forensic engineering practice, particularly for professionals who serve as expert witnesses. Attendees will learn how AI can enhance case analysis, streamline data processing, improve modeling accuracy, and support more defensible conclusions. However, recent court decisions have highlighted the risks of improper or undisclosed use of AI in expert reports—leading to exclusion of testimony, challenges to credibility, and questions around authorship and reliability. These rulings underscore the necessity of transparency, human oversight, and adherence to professional standards when incorporating AI into forensic work. This session explores both the promise and the pitfalls of AI in expert witness practice, using real-world examples and current legal developments to guide ethical and effective implementation. Forensic engineers will walk away with a clearer understanding of how to responsibly integrate AI while preserving the integrity, admissibility, and impact of their testimony.



Lori Cox is a licensed Professional Engineer with over 25 years of experience in forensic engineering, specializing in structural failures, construction defects, premises liability, and construction-related injury investigations. She is licensed in 35 states and currently serves as a Senior Forensic Engineer with ProNet Group, where she leads complex investigations involving property loss, liability disputes, and building performance issues. Lori is Vice Chairman of ASTM Committee E58 on Forensic Engineering, where she contributes to the development of national standards that guide forensic practices across the industry. Her work spans commercial, residential, municipal, and industrial sectors, and she has provided expert opinions in numerous litigation matters in both state and federal courts.

Currently completing her Master of Legal Studies (expected August 2025), Lori brings a strong understanding of the legal landscape to her technical investigations. She is known for her analytical rigor, clear communication, and commitment to professional integrity—qualities that continue to define her leadership in the forensic engineering field.

Rebecca A. Bowman, Esq., P.E. (NAFE #1153)

Private Practice Attorney and Forensic Engineer

Time: 3:45 to 4:45 PM

Title: The Duty of Care: Resilience & Ethical Adaptation to Shifting Conditions

Abstract: Participants will examine several increasingly common circumstances, such as flood damage due to now-undersized drainage, uplift failures exacerbated by climate-related extreme weather, structural collapses from snow, wind, or rain now-undercalculated loads exacerbated by climate stressors, and wildfire-related ember penetration of now-improperly design defensible spaces. The impact of these shifting conditions will be evaluated with regard to courts' (and other fact-finders') expectations regarding the engineer's duty of care and with regard to the engineer's ethical duties, whether acting as a design engineer or as a forensic engineer.



Rebecca A. Bowman, Esq., P.E., D.F.E. (NAFE #1153) served four years as the Senior Director of Ethics and Professional Practice with the National Society of Professional Engineers. She is the principal of a woman-owned business in civil engineering, dispute resolution, and legal services. She is experienced in boundary law issues, engineering design and forensic analysis, and construction/project management. She is a registered professional engineer, a certified arbitrator, mediator, and Christian conciliator, and a Diplomate of Forensic Engineering. Mrs. Bowman wrote a column for Pennsylvania's PE Reporter, "Risky Business," for more than 20 years. Her book, Residential Construction and Remodeling in Pennsylvania: Working with Homeowners and Small Contractors, is going into its second edition. She is a frequent CPE lecturer (law and engineering) for a variety of providers. She received her B.S. degree in civil engineering from the University of North Dakota, her M.B.A. degree from Oklahoma University, her J.D. degree from Duquesne University, and she recently completed her certificate in Sustainability Policy from Penn State. Mrs. Bowman is involved with the National Society of Professional Engineers, American Society of Civil Engineers, the National Academy of Forensic Engineers, the American Arbitration Association, and the American Bar Association. She received the 2014 PSPE President's Distinguished Service Award.