

# NAFE Sunday Schedule (January 19, 2025)

**Brian Malm, PE, FNSPE**

NSPE President Principal Engineer/Project Manager at Bolton & Menk

**Time:** 8:00 to 9:00 AM

**Title:** Ethics in Engineering: Maintaining Professional Integrity

**Abstract:** In this interactive session led by the President of the National Society of Professional Engineers, we will explore the critical role of ethics in the engineering profession. Prior to the event, attendees will have the opportunity to participate in a survey to help shape the discussion by highlighting key ethical challenges they face in their work. Using real-world examples and audience input, the session will focus on maintaining professional integrity and navigating complex ethical dilemmas. This is an essential presentation for engineers dedicated to upholding the values of trust and accountability in their practice.



Information about the speaker will be available soon.

**Amy Headrick, Attorney**

**Leah Shover, Attorney**

**Time:** 9:15 to 11:15 AM

**Title:** Mock Trial: Navigating Expert Testimony as a Forensic Engineer

**Abstract:** Join fellow forensic engineers in this highly immersive mock trial experience, designed specifically to hone your courtroom skills and deepen your understanding of the litigation process. As a forensic engineer, your ability to effectively communicate technical findings in a clear and credible manner can be the deciding factor in legal cases. This session will provide an in-depth look at the nuances of expert testimony, the art of withstanding cross-examination, and strategies for presenting complex engineering concepts to a non-technical audience.

Through live courtroom simulations, you'll observe and critique the performance of your peers as they take the stand, providing expert testimony under direct and cross-examination. This session will emphasize best practices for report preparation, handling difficult questioning, and maintaining composure under pressure. Whether you have extensive courtroom experience or are looking to refine your skills, this mock trial will offer practical insights and real-world scenarios to enhance your effectiveness as an expert witness.

Prepare to step into the courtroom with greater confidence and a stronger understanding of your role in legal proceedings. This session is an essential opportunity for forensic engineers to sharpen their litigation expertise and improve their impact as expert witnesses.

Information about the speakers will be available soon.

## **Kathryn Bakos**

Managing Director, Finance and Resilience, Intact Centre on Climate Adaptation, University of Waterloo

**Time:** 11:30 AM to 12:30 PM

**Title:** How to Adapt to a Mad, Mad World?

**Abstract:** This presentation will explore the evolving risks associated with physical climate change and extreme weather, examining key energy usage trends and natural processes driving these changes. It will provide an in-depth analysis of the financial impacts of extreme weather, including both catastrophic insurable and uninsurable costs. The session will also highlight the work conducted by the Intact Centre on Climate Adaptation (Intact Centre), with a focus on available resources aimed at mitigating risks at the home and community levels for threats such as flooding, wildfires, and extreme heat. Finally, the presentation will introduce a sector-specific climate risk framework, outlining recommended strategies for reducing risks across various industries.

As Managing Director, Finance and Resilience, Kathryn leads innovative work at the intersection of climate



change and finance, including research on the impact of flooding on Canada's real estate market and developing frameworks for businesses to reduce climate risk. Kathryn's work has had national and international influence, informing all levels of government, regulators, supervisors, investors, financial institutions, communities, and homeowners on how to adapt more effectively to a changing climate. Kathryn holds degrees from the University of Toronto and the University of Waterloo, is a recognized expert on climate adaptation, a Ted Talk speaker, recipient of Clean50's Emerging Leader 2023 award, and serves on various ESG-related committees.

**Anastasios Hionis, EE, ME, PE (NAFE #1201A)**

CEO, Principal Engineer, PV AMPS

**Time:** 1:30 to 2:30 PM

**Title:** When the Sun Burns – Technical Investigations of Solar Projects



**Abstract:** With solar energy becoming increasingly popular, it has also brought new challenges in technical investigations related to thermal events and structural failures. These issues often arise due to aging, neglect, poor design, manufacturing defects, or improper installation. This session will provide a comprehensive look at the world of solar investigations, covering why solar systems are installed, the impact of failures on system owners and insurers, and common system failures and site hazards. Attendees will gain insights into solar system architecture, including types such as ground-mounted systems, trackers, carports, and roof installations, as well as key components like modules, inverters, and monitoring systems. The session will also address common failure points, safety risks, and best practices for investigating and mitigating hazards. Attendees will leave with practical tips and methodologies to conduct effective and safe solar investigations, equipping them with the knowledge to assess design, installation, and operational challenges.

**Key Takeaways:**

1. Why solar systems are installed and the impacts of failures on owners and insurers.
2. Overview of solar system types: ground-mounted, trackers, carports, and rooftop systems.
3. Key system components: modules, inverters, wire management, and monitoring systems.
4. Common failures: connectors, inverters, wiring, wind damage, and electrical connections.
5. Site hazards and dangers: arc flash, high voltage, heights, dehydration, and wildlife.
6. Best practices for design, pre-fabrication, and installation to prevent failures.
7. Safety tips for on-site investigations: PPE and hazard mitigation.
8. Tools and techniques for conducting thorough solar investigations.

**Skills Enhanced:**

- Understanding the current solar landscape and system failure impacts.
- Techniques for diagnosing and discovering root causes of failures.
- Tools and methodologies for effective, safe solar investigations.

Anastasios “Stas” Hionis, PE, is the CEO of PV AMPS, an Independent Engineering, Validation and Forensics team. He brings 20 years of insights in Engineering, Energy Modeling, Field Investigation and Data Analytics to provide Technical Due Diligence and Advisory Services for Solar & Storage assets. He takes pride in being known as an “Engineer in Boots” and uses his experience to evaluate project risks, performance issues and the root causes of failures. He advises clients through discovery, developing methodologies for corrective actions and creating guidance documents to implement lessons learned into future projects. He is a NAFE Affiliate member.

**Gina Bumshteyn, PE, CFEI (NAFE #1321A)**

Senior Engineer, LGI Forensic Engineering, P.C.

**Time:** 2:45 to 3:45 PM

**Title:** Investigating Solar Fires

**Abstract:** Photovoltaic systems are now part of our everyday life. Understanding the photovoltaic system components and requirements is essential to investigating photovoltaic fires. This presentation will review the components of a typical photovoltaic system, the functionality and purpose of each component, as well as discuss the associated codes and standards. Followed by a discussion of the evolution of the governing codes, available modes of utility/ photovoltaic system interconnection, and typical photovoltaic system failures.



Gina Bumshteyn, PE, CFEI holds a degree in electrical and computer engineering from Polytechnic University. Ms. Bumshteyn is a licensed engineer in the states of NY, NJ, MA, CT, and PA. Her career began with the utility industry as a substation engineer. She later moved on to a large MEP firm to design various electrical systems for hospitals, schools, and major commercial construction. Ms. Bumshteyn continued her career as a technical coordinator for MTA Bridges and Tunnels, where she reviewed drawings for code compliance and constructability. Ms. Bumshteyn moved on to construction manager for MTA bridges and tunnels, serving as the engineer-in-charge for several large projects including all electronic tolling systems and security systems for the New York bridges. As a senior forensic engineer for LGI Forensic Engineering, P.C. she performs

evaluation of code compliance, field investigations, analysis of fires, failures, and accidents involving various types of electrical systems and equipment. She examines electrical damages and failed components to determine the root cause of failures, including electrocutions, lightning damage, and electrical fires. Her areas of expertise include high voltage equipment and systems, solar systems, electrical fires, utilities, open neutral, grounding and bonding, construction accidents, lighting analysis, lightning damage, DC systems, and Lithium-Ion batteries.

**Scott J. Anson, Ph.D., P.E. (NAFE #1287A)**

Principal Forensic Engineer and Professor of Mechanical Engineering, Anson Engineering, LLC and LeTourneau University

**Time:** 3:45 to 4:45 PM

**Title:** Non-Destructive Evaluation Techniques for Forensic Engineers

**Abstract:** This session will provide an overview of essential techniques used in failure analysis and forensic engineering, including visual inspection, hardness testing, Dye Penetration, Magnetic Particle, and various forms of Ultrasonic Testing (UT), Eddy Current, X-ray, and in-situ metallography. Attendees will learn the basics of how each technique works, what it can detect, and key factors for successful application. The focus will be on practical uses in forensic investigations, with insights on avoiding common pitfalls. If time allows, Anson may dive deeper into individual methods based on member interest.



Scott Anson, Ph.D., P.E. is a Professor of Mechanical Engineering at LeTourneau University and a practicing engineer. He has worked for Universal Instruments, IBM, Rochester Institute of Technology, IEC Electronics, Intertek, and Acuren. He holds multiple certifications from the American Petroleum Institute including API 510 Pressure “Vessel Inspection”, 580 “Risk Based Inspection”, and 571 “Materials and Damage Mechanisms”. He remains a university professor and is the owner and principal engineer of Anson Engineering near Longview TX, where he leverages his combined background in mechanical engineering, materials engineering, failure analysis, oil & gas, product design and safety, and nondestructive testing to support well informed outcomes in litigation matters.