

NAFE Saturday Schedule (July 18, 2026)

Shawn Ray, PE (NAFE #970F)
Principal Mechanical Engineer
SEA, Ltd.

James Kasch
Mechanical Consultant
SEA, Ltd.

Time: 8 to 9 AM

Title: A Forensic Engineering Review & Testing of Bicycle Wheel Retention Strategies

Abstract: Each year, approximately 51 million Americans ride bicycles. Cycling offers numerous advantages, including a healthier lifestyle, reduced traffic and parking congestion, and more. In recent years, the popularity of e-bikes and e-scooters has surged — particularly in high-density urban areas — due to their small footprint and ability to extend pedestrian range through ease of mobility. However, bicycle-related fatalities are trending upward with the number of deaths since 2010 increasing by 87%. This rise likely correlates with the higher speeds that e-bikes and e-motos can attain. In most states, e-bikes are categorized as Class I, II, or III, with the latter reaching pedal-assisted speeds of 28 mph. Safety and reliability should align with a vehicle's intended use; for instance, a professional mountain bike must withstand far greater forces than a beach cruiser. This study will focus on one aspect of the forensic engineering evaluation: wheel retention capability. The presenters will evaluate various front-wheel retention designs and present their effectiveness in preventing unintended wheel separation. The following common attachment methods will be evaluated: (1) slotted dropouts equipped with quick-release levers and retention tabs referred to as "lawyer lips"; (2) slotted dropouts featuring retainer clips or retention plates; and (3) thru-axle bolts. Findings will compare and quantify the wheel retention capacity generated by each design and utilize ASTM load testing standards to demonstrate their relative viability for different applications.



Shawn Ray is a mechanical engineer who 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. Ray worked his way through school as a mechanic and maintained three 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. Ray is a Board-Certified Diplomate in forensic engineering (DFE) by the National Academy of Forensic Engineers (NAFE) in accordance with the guidelines of the Council of Engineering Specialty Boards (CESB) and is serving on the Board of Directors as the Secretary for the Academy (NAFE). Ray

is active in 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, 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.

James Kasch received his bachelor of science degree and his master of science degree in mechanical engineering from Virginia Tech. He is a mechanical consultant who conducts investigations, analyses, and reconstruction of accidents involving automobiles, commercial trucks, heavy equipment, and pedestrians. He has experience retrieving and analyzing CDR and ECM data, inspecting and documenting accident sites and vehicles, and utilizing industry-standard software and methodologies to assist in accident reconstruction, including Faro Scene, Pix4D, HVE, and Virtual Crash simulation software. His previous experience includes mechanical failure analysis, vehicle dynamics evaluation, and inspection photography. During his graduate work at Virginia Tech, he gained exposure to LiDAR and photogrammetry technologies. Kasch is a member of the Society of Automotive Engineers (SAE), the American Society of Mechanical Engineers (ASME), and the National Association of Professional Accident Reconstruction Specialists (NAPARS).



Michael Stall, PE (NAFE #955M)

President, Managed Response, Inc.

Time: 9 to 10 AM

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

Abstract: The owners of a 22-story, twin-tower condominium renovated and waterproofed the exposed top floor of a two-story parking structure. This structure is attached and partially supports the towers. They became concerned when water started infiltrating the garage. The forensic engineering investigation evaluated the scope of renovation work that was supposed to be performed and the quality of the work. The forensic engineering evaluation determined that there are significant material defects in the renovation work that allow water to infiltrate the garage, which causes deterioration of the columns and floors. This paper will identify the design requirements and provide extensive photographic evidence of the construction defects that were caused by the contractor. It will also evaluate the ongoing deterioration, how it affects the structure, and why it could cause future structural failures and a possible collapse. The paper will also provide an analysis of repairs that are required to restore and preserve the parking garage's structural elements. As the collapse of the Champlain Towers in Florida demonstrated, collapses of deteriorated concrete structures can occur, increasing the need for forensic engineering evaluation of deteriorating structures to prevent future catastrophes.



Michael Stall is a registered professional engineer (#65893) in Texas and is a National Academy of Forensic Engineers board-certified forensic engineer (DFE). Stall earned a master's of science in civil engineering from Stanford University and a bachelor's of science in architectural engineering from the University of Texas at Austin. He has worked as an expert witness in resolution of design, construction, and property insurance settlement disputes over the past 15 years. Stall is also a certified property appraiser and umpire. He has more than 45 years of construction experience as a carpenter, ironworker, foreman, supervisor, engineer, scheduler, and construction manager for construction of shopping centers, single-family homes, multi-family buildings, manufacturing plants, power plants, and medical facilities. He has evaluated hundreds of buildings during the past 30 years that have suffered damage from fires, explosions, hurricanes, earthquakes, tornados, hail storms, design defects, and construction defects. He has published peer-reviewed articles in the Journal of the National Academy of Forensic Engineers about construction

defects and resolution of schedule delay claims and has made numerous presentations to industry and university groups about construction management and disaster recovery. Stall is founder and president of Managed Response, Inc. (MRI), a Texas-registered professional engineering firm (#00546) and a general contracting company that specializes in evaluation and repair of distressed and damaged properties. MRI is a licensed general contractor in Florida and California and has been in business since 1998. MRI performs construction, renovation, disaster reconstruction, and forensic engineering.

Brian C. Eubanks, PE (NAFE #962S)

Founder and Principal Structural Engineer,
Paragon Structural Engineering

Derek T. Patoskie, PE (NAFE #1312A)

Senior Staff Structural Engineer, Paragon

Cameron Labunski, PE (NAFE #1365M)

Principal Engineer, Tom Green & Company Engineers, Inc.

Time: 10:15 to 11:15 AM

Title: As-Built Performance of Building Moisture Management Resulting from Prescriptive Code Requirements: Forensic Evaluation of Thermal, Ventilation, and Moisture Conditions

Abstract: Thermal envelope performance, attic ventilation, HVAC operation, and moisture control are inherently interdependent building systems, and conditions attributed to one are frequently associated with interactions among the others. This paper examines these issues through a series of forensic engineering case studies addressing allegations of building-damaging air infiltration, inadequate ventilation, HVAC performance concerns, and mold infestation. The investigations include review of construction documents, applicable building codes and standards, environmental and performance testing data, and both destructive and non-destructive field observations. Analytical emphasis is placed on evaluating as constructed system behavior, distinguishing prescriptive requirements from performance based criteria, and assessing whether alleged conditions are present and whether they are causally related to physical distress, functional failure, or occupant lifestyle, and whether or not verifiable health concerns exist. The case studies demonstrate how differing professional interpretations may arise when visual indicators, infrared thermography, modeling, and measured performance data are weighted differently. The paper concludes that defensible forensic conclusions require careful consideration of code intent, system level performance, occupant lifestyle, and causation, and it presents a performance based framework for objectively evaluating thermal, ventilation, HVAC, and moisture-related conditions in buildings.

Brian C. Eubanks, MSCE, PE, SE, MAC, D-IBFES, DFE, is Senior Principal Engineer and founder of Paragon Structural Engineering, LTD. With over two decades of experience, he leads a multidisciplinary team in the structural design and forensic investigation of residential, commercial, and institutional projects. He is a



Board-Certified Diplomate in forensic engineering by the National Academy of Forensic Engineers (NAFE) and the International Board of Forensic Engineering Sciences (IBFES) and holds professional engineering licenses in 15 states. Eubanks has been engineer-of-record on a diverse design portfolio and possesses significant proficiency in forensic investigations. He is recognized for expertise in structural systems, building envelopes, components and cladding, and construction defect evaluation. He is also a certified Mold Assessment Consultant (MAC), further supporting his forensic investigations involving moisture intrusion, indoor air quality, microbial growth, and building envelope failures. He is an active member of national and regional engineering committees, has authored numerous industry standards and technical publications, is a frequent expert witness in mediation, arbitration, and court proceedings, and served as an arbitrator. He regularly presents at engineering conferences and professional seminars, demonstrating his commitment to advancing best practices in engineering and forensic analysis.



Derek T. Patoskie, MECE, PE, is a Senior Staff Structural Engineer at Paragon Structural Engineering, LTD. He specializes in the structural design and forensic investigation of planned and existing structures, with expertise in building envelopes, soil-structure interaction, structural system performance, and the evaluation of peril-related damage. Patoskie is Building Envelope Certified by the Building Envelope Science Institute (BESI) and the Exterior Design Institute (EDI), Haag Certified, a Model Law Engineer with the National Council of Examiners for Engineering and Surveying (NCEES), an Associate Member of the National Academy of Forensic Engineers (NAFE) and holds professional engineering licenses in two states. Patoskie is an active member of several national engineering committees, has presented at engineering conferences and professional seminars and has contributed to multiple technical publications. With over seven years of experience, he has designed structural foundation systems, conducted a broad range of forensic investigations, prepared expert reports for mediation, arbitration, and court cases, and provided mentorship to developing engineers.

Cameron Labunski is a Principal Engineer with over two decades of experience in the design, commissioning, and forensic evaluation of mechanical, electrical, plumbing, and fire protection systems for complex building projects. He has served as Principal, Project Manager, and MEP/FP Task Design Engineer on a diverse portfolio of commercial, institutional, and critical-facility projects, including healthcare, educational, municipal, cultural, data center, and central plant facilities. Labunski is recognized for his expertise in high-performance and MEP-intensive facilities, sustainable design, and renovation projects executed in fully occupied environments. His experience includes LEED® Certified projects, advanced humidity control, and energy recovery systems, building automation and controls, energy auditing, and computer-based energy modeling. He brings extensive commissioning experience, having supported commissioning efforts and served as Commissioning Agent on numerous projects. In addition to his design practice, Labunski has significant forensic engineering experience and routinely serves as an expert witness in matters involving construction defects, design errors and omissions, and dispute resolution. His Mold Assessment Consultant (MAC) certification further supports his work in investigating building failures relating to moisture, air quality, and microbial growth. He is a licensed Professional Engineer in multiple states, holds ASHRAE HBDP and HFDP certifications, and is an active member of several professional engineering organizations.



Susan M. Bowley, Ph.D. (NAFE #408A)

Mechanical and Biomedical Engineer,
Founder, President & CEO, Bowley Inc.

Time: 11:15 AM to 12:15 PM

Title: Forensic Biomechanics Analysis of a Traumatic Brain Injury (TBI) Claim

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.



Susan M. Bowley has been a practicing engineer since 1988. Dr. Bowley grew up in Ashford, Conn. and completed her B.S. in mechanical engineering at the University of Connecticut. She then started her professional engineering career at NASA Ames Research Center in Northern California where she worked in various capacities for over 13 years. While at NASA, Dr. Bowley earned her M.S. in mechanical engineering at Stanford University with a concentration in thermosciences, including completion of an independent research study on transpired epidermal water loss in premature infants. After competitive selection for a NASA full-time graduate study fellowship, Dr. Bowley earned her Ph.D. in biomedical engineering at the University of Virginia. Her doctoral dissertation, with the help of a grant awarded by the National Osteoporosis Foundation, consisted of two human research studies to investigate the effect of physical activity on bone density in humans. Dr. Bowley then completed a post-doctoral fellowship at the Food and Drug Administration where she studied blood hemolysis via mechanical fragility of red

blood cells in various medical devices. After completing her post-doctoral research, Dr. Bowley served as a lead medical device reviewer at the FDA in the Cardiovascular Division for over three years, including serving on the ASTM F04.30.06 Task Group as Co-Chair. Dr. Bowley has also served as a faculty member at multiple universities where she has developed her own courses. Since leaving the FDA, Dr. Bowley has been working as a forensic expert witness and medical device consultant. In 2008, Dr. Bowley started her own engineering consulting firm. Corporate offices are located in Connecticut (HQ), Maryland, and Northern California. Dr. Bowley also worked at the Consumer Product Safety Commission (CPSC), U.S. Patent and Trademark Office (USPTO), and Transportation Security Administration (TSA).

Yoandi Interian, PE (NAFE #1260M)

Senior Engineer,
LGI Forensic Engineering

Time: 1:15 to 2:15 PM

Title: When Visual Evidence Is Not Enough: Evaluation of Fire-Exposed Concrete

Abstract: Post-fire evaluation of reinforced concrete structures presents significant challenges, particularly when visible indicators of damage are ambiguous or do not clearly correlate with the actual extent of thermal degradation. Surface manifestations such as discoloration, cracking, and spalling are commonly used as preliminary indicators of fire exposure; however, these features alone do not provide a reliable basis for assessing structural integrity or the depth of damage. This paper presents a systematic framework for evaluating fire-exposed concrete through an integrated approach that combines visual inspection, non-destructive testing (NDT), and targeted destructive laboratory analysis. It discusses a recent case study in which initial field observations identified typical signs of fire exposure, yet these indicators proved insufficient to accurately determine the extent and severity of damage. It examines the limitations associated with reliance on visual assessments and near-surface testing methods, which may not capture subsurface conditions. By incorporating destructive testing and laboratory evaluation, this study demonstrates that observed damage can be limited to superficial effects and not indicative of structural compromise. The findings underscore the importance of a comprehensive assessment methodology and highlight the critical role of destructive testing in accurately characterizing fire-related damage and informing appropriate repair strategies.



Yoandi Interian has a bachelor of science in civil engineering and master of engineering in civil engineering with concentrations in structural engineering from Rensselaer Polytechnic Institute (RPI). Interian is a licensed professional engineer (P.E.) in the state of Connecticut, New York, and New Jersey. He has more than 10 years of industry experience in all phases of building engineering design, construction, and project management. He also has knowledge of local and national building codes as well as experience in the analysis and design of reinforced concrete, structural steel, masonry, and timber structures. He has forensic experience specializing in the investigation of structural and non-structural failures and deficiencies in structures. Interian is also a certified fire and explosion investigator (CFEI).

John Bauer, PE (NAFE #1393M)

Senior Forensic Engineer & Vehicle Crash Reconstructionist
Nederveld, Inc.

Jerry Ogden, Ph.D., PE (NAFE #561F)

Transportation Group Manager Emeritus
Nederveld, Inc.

Time: 2:15 to 3:15 PM

Title: Forensic Engineering Evaluation of an Airbag Nondeployment

Abstract: Following a crash, questions may arise about why the occupant restraint airbag(s) did not deploy. This paper describes a forensic engineering methodology for evaluating an airbag non-deployment event. The process relies on vehicle specifications, restraint system content, and detailed examinations of seatbelts, airbags, sensors, and wiring. The examination process also includes imaging and scanning of the restraints control module (RCM) for faults and event data. A search for related recalls, previous collisions, and repair work to the restraint system of the subject vehicle provides background information. Steps to determine seatbelt usage at each passenger position provide data that can affect the airbag deployment threshold. Queries of crash databases can also provide a comparative damage analysis. The process culminates in a collision analysis, or crash reconstruction, and simulation to determine the principal direction of force (PDOF), velocity change (delta-V), accelerations, and other parameters useful for assessing impact severity and predicting airbag deployment. The methodologies presented allow the forensic engineer to systematically evaluate potential reasons for an airbag system's failure to deploy during motor vehicle collision events.



Jerry S. Ogden, Ph.D., PE has more than 35 years of experience in engineering forensics, spanning from his active-duty military days in the 1980s and early 1990s to his entry into private practice in 1991. Aside from his expertise in mechanical engineering related to impact analysis and mechanical failures, Dr. Ogden has extensive education, training, and experience in civil engineering as it relates to highway design, traffic engineering, and work zone temporary traffic control. He has testified in state and federal courts across the country, bringing with him a unique perspective on the forensic applications related to transportation-related failures and loss events.

John Bauer is a forensic engineer and certified vehicle crash reconstructionist with experience investigating and analyzing ve-

hicle collisions, component failures, and product liability since 2014. His work has included speed determination, mapping, crash/energy analysis, passenger vehicles, commercial vehicles, heavy trucks, motorcycles, mopeds, ATVs, pedestrians, site distance, and crash data recovery. He has an extensive background and expertise in vehicle occupant safety restraints, including seatbelts and airbags. Prior to becoming a forensic consultant, he held various engineering positions in the automotive industry for 25 years. Bauer spent over 23 years directly involved in automotive safety while focusing on design, simulation, and testing. He has provided expert witness testimony in his areas of practice at both trial and deposition.



Peter Glismann, PE (NAFE #1392M)

Consultant, Forensic Engineering Expert Witness
GlisWorks Engineering & Consulting

Time: 3:30 to 4:30 PM

Title: An “Undiscovered Country”: Optical Confusion in Public Transportation

Abstract: “Optical Confusion” is a camouflage technique assimilated with the surroundings through manipulating colors and patterns. It is a primary failure in data visualization, occurring when poor system elements distract or mislead the viewer, rather than informing them. It occurs, for example, when conditions in an area create the illusion of a flat surface, visually obscuring any changes in elevation in interior and or exterior floor levels, resulting in injury. Optical confusion is a common-law negligence principle that can be supported by expert testimony. This paper serves as an introduction to how this failure may be cited in legal cases. In addition to trips and falls, bicyclists unwittingly hitting a pothole in pavement, or misunderstanding safety information due to obscured lines of sight or poorly placed warnings and passengers attempting to exit trains when the platform is above or below an expected elevation are examples that may result in injury or fatality. Legal and technical documents were reviewed. Findings indicate a lack of available knowledge. In conclusion, optical confusion may be utilized in cases for passengers of public transportation in which lighting, surfaces, and signage interfered with their ability to see and appreciate inherent risks, thus affecting their ability to protect themselves.



Peter Glismann is delighted to present a paper as a member of NAFE for the first time. He got licensed 20 years ago in mechanical engineering and is now licensed in 10 states. Glismann has a BS in aeronautical & astronautical engineering from the Ohio State University and an MS in systems analysis & management from George Washington University. He is a 1099 consultant as a special inspector and a forensic engineer and expert witness at his own firm (GlisWorks Engineering & Consulting, PLLC). In his spare time, he performs as a corporate comedian in comedy clubs and festivals. He is also an avid biker, swimmer, and downhill skier. He lives on the Upper West Side of Manhattan.

Jahan Rasty, Ph.D., PE (NAFE #1152S)

Professor, Texas Tech University
Founder and CEO, Real-World Forensic Engineering

Luke Blackwell (NAFE #1275A)

Assistant Engineer,
Real-World Forensic Engineering

Matthew Mills, D.Eng., PE (NAFE #1199A)

Technical Director, Real-World Forensic Engineering

Time: 4:30 to 5:30 PM

Title: False-Latch Position in a Two-Post Automotive Lift: Investigating Design-Related Factors Contributing to Hazardous Maintenance Configurations

Abstract: During routine maintenance of a two-post automotive lift, involving replacement of a hydraulic hose connected to a hydraulic cylinder, the lift's arm-supporting carriage was elevated but did not reach the minimum height required for safety latch engagement intended to safeguard against uncontrolled descent. Instead, unstable geometric interference between a support plate within the carriage and the retracted cylinder created a temporary, but unstable, support condition that mimicked proper latch engagement. Dimensional analysis demonstrated that the diaphragm opening and cylinder geometry permitted off-axis interference prior to latch activation, allowing an unstable equilibrium state to exist below the designed latch position. Unexpected release of this interference resulted in the sudden and uncontrolled drop of the carriage. This investigation examines the role of design, maintainability, and hazard controls in contributing to the creation of a false-latch condition, and discusses the importance of verifiable safe-states during foreseeable maintenance activities. The findings emphasize that safety systems must physically prevent the creation of hidden, false-latch positions, rather than relying solely on operator interpretation of system cues.



Dr. Jahan Rasty holds BS, MS, and Ph.D. degrees in mechanical engineering and an MBA. Since 1988, he has served as a tenured professor at Texas Tech University where he is currently the founding director of the Materials Performance and Failure Analysis Laboratory as well as the founding director of the graduate-level Applied Forensic Engineering Certificate program. Dr. Rasty is also the founding president and CEO of Real-World Forensic Engineering, LLC (RWFE) where he has investigated 1,500+ cases resulting in 300+ deposition testimonies and dozens of court appearances as an expert witness in the areas of design, mechanical metallurgy, materials science, safety engineering, and warnings.



Matthew Mills, who holds a doctor of engineering in multidisciplinary engineering and an MS in mechanical engineering, is a licensed professional engineer with a specialization in engineering design. He also holds a graduate certificate in applied forensic engineering from Texas Tech University. He has 4+ years of experience assisting with analysis of hundreds of forensic engineering investigations and conducting site inspections.

Luke Blackwell holds a BS in mechanical engineering and is currently pursuing a master's degree in the same field. He has 3.5+ years of experience assisting with analysis of hundreds of forensic engineering investigations and conducting site inspections.



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: Human Factors Engineering in Forensic Investigations: Understanding Human Error in Engineered Systems

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: Forensic engineering has never been a straightforward discipline—but the demands on today's practitioners are more complex than ever. This session takes an honest, experience-driven look at the technical, professional, and interpersonal challenges that define modern forensic practice: from recognizing analytical blind spots and managing incomplete evidence, to bridging the communication gap between engineers, attorneys, and clients who speak very different languages.

Drawing on real case experience and research, the presentation examines how these challenges have evolved, where they most commonly derail investigations, and what seasoned practitioners do differently. Whether you are earlier in your forensic career or a veteran looking to sharpen your approach, you will leave with practical strategies for producing stronger analyses, clearer expert opinions, and more effective professional relationships.



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 state 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.