

As Senior Staff Consultant in the fire and explosion practice, Ms. Lussier investigates fire and explosion incidents across the United States with Engineering Systems Inc. (ESi). Ms. Lussier has performed on-site and laboratory investigations regarding hundreds of fires and explosions related to a variety of industries including residential, commercial, industrial, automotive, and fuel gas systems. Utilizing her degrees in mechanical engineering and fire protection engineering, Ms. Lussier provides clients with expert consultation regarding fire origin and cause, fire dynamics, fire testing, gas dispersion, and fire suppression systems. She also consults on mechanical systems and compliance with industry codes and standards. Ms. Lussier developed ESi Houston's explosion chamber, which is capable of various testing including the competency of ignition sources as well as flammability of diffuse fuel in air mixtures. She is a skilled problem solver and leverages the diverse resources of ESi to solve complex problems.

Prior to joining ESi, Ms. Lussier worked at Fiat Chrysler Automobiles as a Design Release Engineer, where she was responsible for the design, development, and production of HVAC controls and sensors for twelve different vehicle lines. She also conducted testing and validation of new software and hardware, managed issues for program launches, and authored and maintained specifications for design and validation activities.

Ms. Lussier is a licensed professional engineer in the state of Texas.

Education

Master of Engineering, Fire Protection Engineering, University of Maryland, 2023

Bachelor of Science, Mechanical Engineering and Mathematics (Cum Laude), Tufts University, 2013

Licenses & Certifications

- State of Texas P.E. License No. 138384
- NCEES Record ID No. 20-079-69

Contact Information

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ESi Houston

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Houston, TX 77385

Areas of Specialization

- Fire and Explosion
- Oil, Gas & Industrial
- Gas Dispersion
- Residential Fires & Explosions
- Fire Protection Systems
- Heavy Equipment Fires
- Vehicle Fires

Positions Held

Engineering Systems Inc., Conroe, TX

- Senior Staff Consultant, 2021 – Present
- Staff Consultant, 2019 – 2020

Fiat Chrysler Automobiles, Auburn Hills, MI

- Design Release Engineer, 2013 - 2018

Continuing Education

- **From Evidence to Insight: Forensic Evaluation of Gas-Related Explosions Using Damage Indicators**, Engineering Systems, Inc. - Akansha Khandelwal, 2025
- **Failure Modes of NG Risers Exposed to External Fire**, Engineering Systems, Inc. - Erich Baine, 2025
- **Fire Fatality Investigations**, Engineering Systems, Inc. - Jennifer Nara, 2024
- **Self-Heating of Polymeric Material (LTLTIW)**, Engineering Systems, Inc. - Mike Hanks, 2024
- **Kitchen Fire Suppression Systems**, Engineering Systems, Inc. - Scott Dillon, 2024
- **Fire Protection Systems** - CFITrainer.net, 2024
- **ENFP662 Performance Based Design** - University of Maryland, 2023
- **ENFP663 Advanced Fire Risk Modeling** - University of Maryland, 2023
- **The HAZWOPER Standard** - CFITrainer.net, 2023
- **ENFP661 Forensic Fire Analysis** - University of Maryland, 2023
- **Hazardous Waste Operations and Emergency Response** - (OSHA HAZWOPER), 2023
- **Asbestos Awareness Training** - 2023
- **ENFP613 Advanced Life Safety Analysis** - University of Maryland, 2022
- **IAAI Expert Witness Courtroom Testimony Course** - IAAI, Wayne Tyson, 2022
- **ENFP664 Advanced Industrial Fire Safety** - University of Maryland, Arnaud Trouvé, 2022
- **ENFP653 Advanced Fire Suppression** - University of Maryland, Jason Sutula, 2022
- **ENFP625 Advanced Fire Modeling** - University of Maryland, Arnaud Trouvé, 2022
- **Motor Vehicle Fire Investigation (Three-Day)** - IAAI, 2022
- **Investigating Motor Vehicle Fires** - CFITrainer.net, 2022
- **ENFP652 Fire Assessment Methods** - University of Maryland, Marc Janssens, 2021
- **ENFP651 Advanced Fire Dynamics** - University of Maryland, Stanislav Stoliarov, 2021

- **ENFP655 Smoke Control** - University of Maryland, James Milke, 2021
- **NFPA 1033 and Your Career** - CFITrainer.net, 2021
- **The Practical Application of the Relationship Between NFPA 1033 and NFPA 921** - CFITrainer.net, 2021
- **The Scientific Method for Fire and Explosion Investigation** - CFITrainer.net, 2021
- **Ethics and the Fire Investigator** - CFITrainer.net, 2021
- **PE Mechanical Machine Design & Materials Live Online Course** - Ray Burynski, 2020
- **Fire Investigation Training Program – Pittsburgh – Main Program, CFEI Training** - 2020
- **An Analysis of The Station Nightclub Fire** - CFITrainer.net, 2019
- **Charleston Sofa Super Store Fire** - CFITrainer.net, 2019
- **Digital Photography and the Fire Investigator** - CFITrainer.net, 2019
- **Documenting the Event** - CFITrainer.net, 2019
- **Physical Evidence at the Fire Scene** - CFITrainer.net, 2019
- **Writing the Initial Origin and Cause Report** - CFITrainer.net, 2019
- **Fire Flow Analysis** - CFITrainer.net, 2019
- **NRTLs in the Forensic World, Engineering Systems Inc.** - Perry Hopkins, 2019
- **Cargo Vessel MV Courage Vehicle Fire, Engineering Systems Inc.** - Hernan Mercado, 2019
- **Case Study – Bottle Rockets, Engineering Systems Inc.** - Michael Pratt, 2019
- **VOC Detection Camera, Engineering Systems Inc.** - Matt Wilbur, 2019
- **Self-Heating, Engineering Systems Inc.** - Dale Mann, 2019
- **Case Study – Oil Field Fires, Engineering Systems Inc.** - Michael Craddock, 2019
- **Case Study – Williams v. CenterPoint, Engineering Systems Inc.** - Amy Gray, 2019
- **Gas Dispersion Analysis, Engineering Systems Inc.** - Shireen Afshan, 2019
- **29 CFR 1910.120 Hazardous Waste Operations & Emergency Response, Engineering Systems Inc.** - Scott Dillon, 2019
- **Forensic Analysis Involving Fugitive Natural Gas and Propane** - Weyler, M., Weyler Engineering, PC, SunCam, 2019

Professional Affiliations/Honors

American Society of Mechanical Engineers (ASME)

- Member

International Association of Arson Investigators (IAAI)

- Certified Fire Investigator, IAAI-CFI, #03-0328192, 2024
- Member

National Association of Fire Investigators (NAFI)

- Certified Fire and Explosion Investigator, CFEI, #24691-14303, 2020
- Member

National Fire Protection Association (NFPA)

- Member

Society of Fire Protection Engineers (SFPE)

- Member

Presentations

“Live Burn Discussions” and “Q&A Session”, ESi Training Day, **K.L. Lussier**, May 2025.

“Fire Scene Best Practices”, Engineering Systems, Inc., **K.L. Lussier**, Aurora, IL., August 2024.

“Analyzing AMR and Smart Meter Data”, presented to various legal and insurance audience, **K.L. Lussier**, 2024.

H. Mercado, “Electric Vehicle Fires”, DRI Fire Science Conference, **K.L. Lussier**, Washington D.C., August 2023.

“Proactive Investigation”, ESi Lessons Learned Day, **K.L. Lussier**, July 2023. Additional presentation at VP meeting. October 2023.

“What is Forensic Engineering: How does it relate to me?” Society of Women Engineers Local Detroit Conference, **K.L. Lussier**, D. Estrada, February 2023.

“Gas Leak Residential Explosion Case Study”, ESi Lessons Learned Day, **K. L. Lussier**, July 2022.