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**BRAD A. LAURITSEN, P.E.**  
**SENIOR CONSULTANT & TEAM LEAD**

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Mr. Lauritsen is a Senior Consultant with Engineering Systems Inc. (ESi) and a licensed professional engineer in several states. He has 25 years of experience in various fields of mechanical engineering.

Mr. Lauritsen has 16 years of experience as a forensic engineer where he is involved in investigation of construction defects, storm damages, fires, design errors & omissions, air/water infiltration, indoor air quality, product defects, as well as mechanical, HVAC, and plumbing failures. He has testified in deposition and in court as a recognized expert in the field of mechanical engineering.

Mr. Lauritsen also has experience as an A/E design project manager, involving mechanical and plumbing design, contract administration and construction observation for renovations and new construction of educational, commercial, and government facilities.

Prior to working in forensics, Mr. Lauritsen worked in the field of ATFP (anti-terrorism force protection), researching explosive entry (breaching) and blast effects on structures.

Mr. Lauritsen also has experience in the aircraft industry, performing structural analysis and testing of aircraft components.

**Areas of Specialization**

- Construction Defects
- Storm Damage
- Design Errors & Omissions
- Air/Water Infiltration
- Building Envelope
- Indoor Air Quality
- Mechanical Failures
- HVAC System Failures
- Plumbing Failures
- Product Defects

**Education**

M.S., Mechanical Engineering (Materials Science), Wichita State University, 2004  
B.S., Mechanical Engineering, University of Nebraska – Lincoln, 2001

*January 2025*



**Licensed Professional Engineer (P.E.)**

State of Iowa .....	License No. P24415
State of Kansas .....	License No. 18158
State of Nebraska .....	License No. E-12388
State of North Dakota .....	License No. PE-9933
State of South Dakota .....	License No. 12717
State of Missouri .....	License No. PE-2021013551
State of Oklahoma .....	License No. 32582
State of Illinois .....	License No. 062.073112
State of Tennessee.....	License No. 125116
State of Arkansas.....	License No. 20306
State of Colorado.....	License No. PE.0059452
State of Texas.....	License No. 144797
State of Indiana.....	License No. PE12300549
State of Ohio.....	License No. PE.89999

**Certifications**

United States Green Building Council (USGBC), LEED Accredited Professional  
Level II Certified Thermographer

**Professional Affiliations/Honors**

**National Academy of Forensic Engineers (NAFE)**

Member

**National Society of Professional Engineers (NSPE)**

Member

**American Society of Heating, Refrigerating, & Air Conditioning Engineers (ASHRAE)**

Member

**American Society of Mechanical Engineers (ASME)**

Member

**International Institute of Building Enclosure Consultants (IIBEC)**

Member

**ASM International**

Member

**Failure Analysis Society (FAS)**

Member

## **Positions Held**

**Engineering Systems, Inc., St. Peters, Missouri**  
Senior Consultant, 2021 – Present

**KPE-Consulting Engineers, Omaha, NE**  
Senior Mechanical / Forensic Engineer, 2008-2021

**Duncan Aviation, Lincoln Nebraska**  
Senior Mechanical Engineer, 2007-2008

**Applied Research Associates, San Antonio, TX**  
Senior Mechanical Engineer, 2004 – 2007

**Boeing Commercial Airplanes, Wichita, KS**  
Structural Analyst, 2001-2004

## **Specialized Training / Continuing Education**

Roof Technology and Science II  
IIBEC, 2024

Expansion Joints & Sealants: Types, Applications, Failure Analysis  
IIBEC, 2024

Exterior Wall Technology and Science I  
IIBEC, 2024

Reroofing  
IIBEC, 2024

Roof Technology and Science I  
IIBEC, 2023

Ethics for Engineers: Doing the Right Thing When No One is Looking  
ASME, 2022

Engineering Ethics – Conflicts of Interest, Licensure, Confidentiality, & Public Criticism  
NSPE, 2022

Fire Protection in Property Management  
NSPE, 2022

Tools to Ensure Effective Litigation Preparation and Testimony as an Engineering Professional  
NSPE, 2022

Professional Standard of Care (Ethics)  
ESi, 2022

How to Organize and Run a Failure Investigation  
ASM International (Virtual), 2022

Introduction to Abaqus  
Dassault Systems Simulia, 2021

Ethics for Forensic Engineers  
Remote Forensic Inspections in the Age of Covid 19  
Report Writing  
Building Credentials through Publication and Review  
Current Assessment of Stand-Up Forklift Underride Accidents  
Goals, Methodology, and Tools for Investigating Electric Shocks  
Forensic Engineering of Pedestrian and Worker Fall Incidents  
Overheating Poor Electrical Connections  
Forensic Engineering Analysis of a Collision Involving Aftermarket Bumper and Grille Guard Structure  
National Academy of Forensic Engineers Winter Conference (Virtual), 2021

Introduction to Forensic Engineering  
Deposition and Court Testimony  
Evidence Handling, Labeling, Preparation and Storage  
Depositions, Rights and Responsibilities  
Expert Credibility and Persuasion in Court  
National Academy of Forensic Engineers Summer Conference (Virtual), 2020

Ethics (Hard Conversations)  
Leadership at All Levels  
Ownership Transition  
Why are PMs Late and Overbudget?  
American Council of Engineering Companies Conference (ACEC), Chicago, IL, 2019

Level II Infrared Thermography  
Infraspection Institute Omaha, NE, 2018

Building Code Questions with Commercial Loss Adjustments  
Faulty Construction Coverage Disputes  
Hail Damage to Building Components, Cladding, & HVAC  
Water Mitigation, Mold & Wind-Driven Rain Issues  
Drones and Remote Sensing for Claims  
PLRB Claims Conference, Indianapolis, IN, 2019

Appraisal Clauses  
Claims Strategies with Public Adjusters  
Claims with Emerging Building Technologies  
Construction Defect Claims  
Drones and Their Use in Claims  
Large Commercial Hail Claims

PLRB Claims Conference, Orlando, FL, 2018

Advanced NFPA 921 and 1033 Recertification Class  
Investigative Engineering Association Conference, Atlanta, GA, 2016

2015 Training Update/Review— The Scientific Method and NFPA 921  
Vehicle Hydroplaning Investigations  
Investigative Engineering and Insurance Fraud  
Key Points of Vehicular Crash Reconstruction  
How Insurance Carriers Use Engineers in Fraud Investigations  
Structural/Geotechnical Case Investigations  
Effective Methods for Addressing Structural Defects  
Ethics and Business Practices  
Roof Damage/Assessment Investigations  
Flood Control and Drainage Investigations  
Use of Drones in Investigative Engineering Photography in Investigative Engineering  
Investigative Engineering Association Conference, Phoenix, AZ, 2015

Central Plant Optimization  
Insuring Energy Efficient and Healthy Buildings – Effective Control of Outside Air  
Anticipating the Challenges of Modern Mechanical Systems Approaches  
Indoor Environmental and Air Quality  
ASHRAE 90.1 Updates  
American Society of Heating, Refrigeration, and Air Conditioning Engineers,  
(ASHRAE), Omaha, NE, 2014

Energy Saving Strategies for Water-Source and Ground-Source Heat Pump Systems  
Air & Water Systems  
Air Conditioning Systems & Components – Heat Transfer Equipment  
Air Conditioning Systems & Components – Pumps, Valves, Piping, Ductwork  
Air Conditioning Systems & Components – Source Equipment  
HVAC Selection Issues  
American Society of Heating, Refrigeration, and Air Conditioning Engineers  
(ASHRAE), Omaha, NE, 2013

Heat Recovery from Virtually any type of heating Plant  
Sub-Metering for Sustainability and Performance Monitoring  
Commercial Kitchen Ventilation, Performance, Efficiency, Fire Safety and Prevention  
Airflow Control in High Performance Buildings  
Variable Speed Compressor Technology  
American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE), Omaha,  
NE, 2012

Ethics for Engineers

Design-Build Risks –Contracting & Succeeding with Contractor-Led Projects

Green Design: New Liabilities, Risks, and Insurance Strategies

American Council of Engineering Companies Conference (ACEC), Las Vegas, NV, 2011

The Scientific Method for Fire & Explosion Investigations

Structural Investigations

Electrical Wire Fires

Equipment Failure and Fire Investigations

New Investigative Technologies using Structural Monitoring

Storm Damage Assessments

Fire Investigations for Total Burnout and Total Burn-down

Investigative Engineering Association Workshop, Atlanta, GA, 2010

Level I Infrared Thermographer Certification

Infrared Training Institute, North Billerica, MA, 2010

Trane TRACE Load Design Seminar

Trane Systems, Omaha, NE, 2009

Chilled Water Systems

Trane Systems, Omaha, NE, 2/12/09

“Forensic Engineering Training” (Certified in Fire Investigations By Peter Vallas Associates)

Investigative Engineers Association, Ft Lauderdale, FL, 2009

Mold Origin & Cause Testing & Investigation

Vehicular Black Box and Air Bag Investigating

Human Factor Aspects of Investigation

Infrared Technology

Fire Alarm/Fire Protection Systems Investigations Mechanical

Equipment Investigations

Catastrophic Response

Investigative Engineering Association Workshop, Dallas, TX, 2008

“Tactical Explosive Entry Course”

Olive Security Training Center, West Memphis, AR, 2006

“Tactical Explosive Entry”

National Security Associates, Atlanta, GA, 2006

“Special Entry Technicians Course”

Rapid Entry Systems Technology, Prescott, AZ, 2005

## Publications

- “Developing an Explosive Breaching Handbook,” **B. A. Lauritsen**  
National Tactical Officers Association (NTOA) Trade Journal *The Tactical Edge*, January 2008
- “Explosive Breaching Characterization Handbook,” **B. A. Lauritsen**  
Combatting Terrorism Technology Support Office/Technical Support Working Group (CTTSO/TSWG), 2008
- “Human Lethality from a Suicide Bomber Bus Event,” **B. A. Lauritsen**  
International Association of Bomb Technicians and Investigators (IABTI) Trade Journal *The Detonator*, December 2007
- “Dynamic Breaching Characterization Report,” **B. A. Lauritsen**  
Combatting Terrorism Technology Support Office/Technical Support Working Group (CTTSO/TSWG), 2007
- “Design and Evaluation of Novel Counter-Mobility Barrier Systems,” **B. A. Lauritsen**  
*ARA Technology Review*, June 2006

## Technical Teaching and Presentations

- “How Laboratory Analysis and Metallurgy Assist in Some Common Insurance Claims”  
Greater Kansas City Claims Association, Kansas City, KS, 2022
- “Construction Defects Investigations Overview”  
South Dakota Claims Association Seminar, Larchwood, Iowa, 2018
- “Roofing Assessments and Damage Identification”  
Nebraska Claims Association Fall Seminar, Omaha, NE, 2016
- “Construction Defects Investigations”  
Upper Red River Valley Claims Seminar, Fargo, ND, 2015
- “Construction Defects Investigations”  
Investigative Engineers Association Annual Conference, Phoenix, AZ, 2015
- “Use of Infrared Thermography in Engineering Investigations”  
Nebraska Claims Association Fall Seminar, Omaha, NE, 2010
- “Developing an Explosive Breaching Handbook - Part 2”  
International Breachers Symposium, Memphis, TN, 2007
- “Developing an Explosive Breaching Handbook”  
International Breachers Symposium, Tucson, AZ, 2006