

**Professional Resume  
of  
RANDY J. BICKNESE, P. E.**

January 2023

**I. General Information**

Mechanical Engineer  
Schaefer Engineering, Inc.  
Wentzville, Missouri

**II. Professional Summary**

**A. Education:**

Bachelor of Science  
Mechanical Engineering  
University of Missouri – Rolla  
Rolla, Missouri  
1996

**B. Experience:**

August 2004 to present

Position: Mechanical Project Engineer  
Co-Owner, Vice President, and Director of Engineering starting February 2017  
Schaefer Engineering, Inc.  
Wentzville, Missouri

Responsible for mechanical engineering projects and mechanical design analysis with emphasis in gas-fired, oil-fired, and wood-burning appliance fire and explosion evaluation, carbon monoxide related incidents, vehicle and agricultural equipment fire and accident evaluation, and building components and equipment failure analysis and evaluation including HVAC, plumbing, and fire suppression systems. Also responsible for automotive and marine product failure analysis. Mechanical engineering expertise includes industrial material handling and manufacturing equipment, electronic and CNC control systems, and automotive, marine, and recreational vehicle systems. Background in automotive and marine systems originated from hands-on training and experience as a service technician in heavy truck and marine service businesses.

April 2004 to August 2004

Position: Owner / Consulting Contract Engineer  
R&D Contract Engineering Services  
Defiance, Missouri

Provided mechanical and electrical project engineering services to manufacturing companies.

**Experience (continued):**

September 2001 to April 2004

Position: Manufacturing Project Engineer  
Wainwright Industries, Inc.  
St. Peters, Missouri

Focused on the design and manufacturing process development of automotive and aerospace components / systems and specialized industrial material handling equipment. Responsible for the specification, installation and failure analysis of complex automated manufacturing equipment used to produce automotive and aerospace system components.

December 1996 to August 2001

Position: Senior Design Engineer / Product Development Engineer  
Cooper Industries / Bussmann Division  
Ellisville, Missouri

Provided design, product development, and manufacturing engineering support for manufacturing operations that produced electrical and electronic circuit protection equipment. Responsible for the specification, installation and failure analysis of automated manufacturing equipment used to produce electrical system components as well as failure analysis of new products being developed.

**III. Professional Registration**

Registered Professional Engineer in the States of Missouri, Illinois, Kansas, Arkansas, Tennessee, Mississippi, Oklahoma, Michigan, Nebraska, Florida, and Virginia.

Certified Fire and Explosion Investigator, National Association of Fire Investigators.

**IV. Professional Affiliations**

American Society of Mechanical Engineers (ASME)  
National Fire Protection Association (NFPA)  
National Association of Fire Investigators (NAFI)  
International Association of Arson Investigators (IAAI)  
National Association of Subrogation Professionals (NASP)  
DRI –The Voice of the Defense Bar  
Society of Automotive Engineers (SAE)  
American Boat and Yacht Council (ABYC)

**V. Publications**

Bicknese, Randy & Metzger, Todd; *Type HT Factory Built Chimneys in Relationship to Cellulose Insulation*; International Symposium on Fire Investigation Science and Technology Proceedings; October, 2012.

## **VI. Continuing Education**

- 1998 – Plating Technology for Electronics Applications, IMAPS, San Diego, California
- 1999 – Low Cost Flip Chip Technology and Manufacturing, Georgia Institute of Technology, Atlanta, Georgia
- 1999 – Mechanics of Composite Materials, Washington University, St. Louis, MO
- 2004 – Heavy Truck Brake Tests – HTTG, Traffic Research Center, East Liberty, OH
- 2004 – Motorcycle Racer Licensing Clinic and Testing – CCS / Formula USA Road Racing, Blackhawk Farms Raceway, Rockton, IL
- 2004 – Investigation of Gas and Electric Appliance Fires, Fire Findings Laboratories, St. Joseph, MI
- 2004 – Vehicle Accident Reconstruction Methods, Society of Automotive Engineers, Troy, MI
- 2005 – Investigation of Gas/Oil Service and Appliances, The Institute of Fire Science, Rochester, NH
- 2006 – Vehicle Fire Investigations – Death & Injury, International Association of Arson Investigators, Robinsonville, MS
- 2006 – Commercial Vehicle Brake Safety Symposium, Commercial Vehicle Safety Alliance, Indianapolis, IN
- 2008 – Society of Automotive Engineers World Congress & Exhibition, Technical Sessions Society of Automotive Engineers, Detroit, MI
- 2008 – Basic and Advanced Diagramming and Animation with Total Station Visual Statement, Ontario, CA
- 2009 – Understanding Post-Flashover Fire Behavior, International Association of Arson Investigators – Arkansas Chapter, Eureka Springs, AR
- 2010 – Fire and Casualty Seminar – DRI, Chicago, IL
- 2011 – NFPA 921 Fire & Explosion Investigations Seminar Nation Fire Protection Association (NFPA) – St. Louis, MO
- 2012 – National Fire, Arson & Explosion Investigation Training Program (NAFI) - St. Charles, MO
- 2012 – International Symposium on Fire Investigation Science and Technology NAFI, University of Maryland – University College, College Park, Maryland
- 2013 – Fire Science Seminar – DRI, Scottsdale, AZ
- 2013 – Asbestos Operations and Maintenance Initial Course – Environmental Safety Training Center, Wentzville, MO
- 2013 – NASP Annual Conference, San Diego, CA
- 2014 – Asbestos Operations and Maintenance Refresher Course – Environmental Safety Training Center, St. Louis, MO
- 2014 – Fire Science Seminar – DRI, Scottsdale, AZ
- 2015 – Asbestos Operations and Maintenance Refresher Course – Environmental Safety Training Center, Wentzville, MO
- 2016 – Product Liability Conference – DRI, New Orleans, LA
- 2016 – International Advanced Fire Investigation Training Program – NAFI, Tampa, FL
- 2017 – Asbestos Operations and Maintenance Refresher Course – Environmental Safety Training Center, Wentzville, MO

**Continuing Education (continued):**

- 2017 – Ethics for Professionals – RedVector.com
- 2018 – Asbestos Operation and Maintenance Refresher Course – Environmental Safety Training Center, Wentzville, MO
- 2018 – Fire Science Seminar and Live Burn – DRI, Washington, DC
- 2018 – Florida Engineering Laws and Rules – RedVector.com
- 2018 – Ethics for the Practicing Engineer – RedVector.com
- 2019 – Asbestos Operations and Maintenance Refresher Training – Environmental Safety Training Center, Wentzville, MO
- 2019 – Aerial Lift Operator Training, Federal OSHA Regulation 29CFR 1910.67 – Safety Training Resources LLC, Wentzville, MO
- 2019 – Working at Heights (Fall Protection), Federal OSHA Regulation 29CFR 1926.500 Subpart M Safety Training Resources LLC, Wentzville, MO
- 2019 – Forklift Operation – Safety Training Resources LLC, Wentzville, MO
- 2019 – Ethical Decision Making for Engineers #2 – RedVector.com
- 2020 – Asbestos Operations and Maintenance Refresher Training – BluSky, Wentzville, MO
- 2020 – Project Management Essentials – RedVector.com
- 2020 – AEC Success: Time Management and Billable Hours – RedVector.com
- 2020 – Fire Essentials and Fire Science – RedVector.com
- 2020 – Fuel and Combustion Systems Safety - What You Don't Know Can Kill You! – RedVector.com
- 2020 – Innovative Heat Pump Technology – RedVector.com
- 2021 – Asbestos Operations and Maintenance Refresher Training – BluSky, Wentzville, MO
- 2021 – Telehandler Operation (Classroom & Practical Skills) – Safety Training Resources LLC, Wentzville, MO
- 2021 – Illinois Sexual Harassment Prevention Training for General Businesses – APYO Compliance
- 2021 – Ethical Decision Making for Engineers #3 – RedVector.com
- 2021 – Preparation for the Marine Fire Scene – CFI Trainer.net
- 2021 – Thermometry, Heat, and Heat Transfer – CFI Trainer.net
- 2022 – Electric & Hybrid Vehicle Fires – CFI Trainer.net
- 2022 – Fire Flow Analysis – CFI Trainer.net
- 2022 – NFPA 1033 and Your Career – CFI Trainer.net
- 2022 – Alternative Fuel Vehicles – CFI Trainer.net
- 2022 – Asbestos Awareness Refresher Training – EPA 763.92 & OSHA 1926.1101
- 2023 – Ethical Decision Making for Engineers #4 – RedVector.com
- 2023 – Florida Laws and Rules (2023) – PDH Library

**VII. Courses Taught**

Vehicle Fire Investigation – September 2006, Fire Investigation Training Conference of the Illinois Chapter of IAAI, in Cooperation with the Illinois Fire Service Institute and the Office of the State Fire Marshall.

Vehicle Fire Investigation – May 2007, MAACA Training Conference in St. Louis, Missouri.

Vehicle and Agricultural Equipment Fire Investigation – September 2007, Investigation Training Conference of the Iowa Chapter of IAAI.

**Courses Taught (continued):**

A Team Approach to Fire Investigation (Mechanical Engineer's role in dwelling and equipment fire investigations) – March 2008, Farm Bureau Fire / Fraud Seminar in Little Rock, Arkansas.

Cellulose Insulation in Relation to Factory-Built Fireplaces and Chimneys – October 2010, Investigation Training Conference of the Arkansas Chapter of IAAI.

Cellulose Insulation in Relation to Factory-Built Fireplaces and Chimneys – January 2011, Northern Zone Fire Investigation Seminar of the Illinois Chapter of IAAI.

Cellulose Insulation in Relation to Factory-Built Fireplaces and Chimneys – May 2012, Southern Zone Fire Investigation Seminar of the Illinois Chapter of IAAI.

The Investigation of Vehicle Fires Related to the Insurance Industry – September 2012, Fire Investigation Training Conference of the Illinois Chapter of IAAI.

Anatomy of a Fireplace Chimney / Cellulose Insulation Fire: Investigation, Testing and Trial – November 2013, NASP 2013 Annual Conference.

Fire Investigations Involving Fireplaces, Chimney Systems and Cellulose Insulation – May 2014, NASP Kansas & Missouri Chapter Meeting.

Residential Natural Gas Systems, Subject Matter Expert – 2014 & 2015, IAAI CFITrainer, CFITrainer.net

Investigating Natural Gas Systems, Subject Matter Expert – 2014 & 2015, IAAI CFITrainer, CFITrainer.net

Building an Effective Defense Litigation Team – February 2016, DRI Product Liability Conference

Motor Vehicles: Parts I & II, Subject Matter Expert – 2016 & 2017, IAAI CFITrainer, CFITrainer.net

Investigation of Natural Gas Fires and Explosions – October 2021, Professional Fire & Fraud Investigators Association, St. Charles, MO

**VIII. Service Technician Experience Summary**

1994 to Present

Position:                      Technical Consultant

Provided technical support and system troubleshooting for marine drive systems, generators and electrical systems on a consulting basis to the marina facilities listed below as well as Lewis Engines located in St. Charles, Missouri and Lewis Marina located on the Lake of the Ozarks near Osage Beach, Missouri.

**Service Technician Experience Summary (continued):**

1993 to 1994

Position: Marine Service Technician and Service Manger  
Little John's Marine Service  
St. Charles, Missouri

Responsible for performing mechanical and electrical repairs on marine engines, drive systems and generators. Responsible for writing estimates and documenting repair orders based on customer requests and for evaluating work performed by other marine service technicians.

1991 to 1992

Position: Marine Service Technician and Marina Lift Operator  
Yacht Club of St. Louis  
St. Charles, Missouri

Responsible for performing mechanical and electrical repairs on marine engines, drive systems and generators. Responsible for operating machinery used to lift boats from the water and transport them to storage and/or repair facilities.

1988 to 1990

Position: Marine Service Technician and Marina Lift Operator  
Woodland Marina  
St. Charles, Missouri

Responsible for performing mechanical and electrical repairs on marine engines, drive systems and generators. Responsible for operating machinery used to lift boats from the water and transport them to storage and/or repair facilities.