

**Professional Resume
of
AARON K. BARKLAGE, P.E.**

July 2024

I. General Information

Metallurgical / Materials Engineer
Schaefer Engineering, Inc.
Wentzville, Missouri

II. Professional Summary

A. Education:

Bachelor of Science, Magna Cum Laude – 2000
Metallurgical Engineering
University of Missouri – Rolla (now the Missouri University of Science and Technology)
Rolla, Missouri

B. Experience:

June 2015 to present
Position: Metallurgical / Materials Engineer
Schaefer Engineering, Inc.
Wentzville, Missouri

Responsible for materials and mechanical engineering projects with emphasis in the evaluation of the appropriateness of material selection, analysis of various types of material failures, and evaluation of material fabrication methods and quality.

July 2011 to June 2015
Position: Manager, Technical Services & Market Development Engineering
Global Brass and Copper d.b.a. Olin Brass
East Alton, Illinois

Managed an engineering group that provided customer technical support and complaint resolution on copper alloy products. Responsible for failure analysis, technical document creation (PPAPs, FMEAs, Control Plans), specification review, and leading Quality Function Deployment (QFD) events at customer facilities.

Experience (continued):

February 2010 to June 2011

Position: Senior Metallurgical Engineer
Briem Engineering
St. Louis, Missouri

Responsible for materials engineering & forensic engineering projects for various clients. Performed laboratory testing such as: metallography, fracture analysis, hardness testing, tensile testing, x-ray imaging, and SEM/EDS analysis.

August 2009 to January 2010

Position: Technical Manager
Feroni Metals of Texas
Houston, Texas

Provided customer technical support for the specification and application of corrosion resistant alloys (nickel based and specialty stainless steel alloys).

April 2006 to July 2009

Position: Process Engineering Manager
Caterpillar, Inc. High Performance Extrusions
Oxford, Mississippi

Managed the process engineering and plant engineering groups that supported hydraulic hose coupling manufacturing. The supported processes included: annealing, zinc phosphate coating, cold extrusion, machining, brazing, and plating.

March 2004 to March 2006

Position: Failure Analyst and Laboratory Manager
Caterpillar, Inc. Track Type Tractors
East Peoria, Illinois

Managed Caterpillar's largest metallurgical laboratory and attained ISO 17025 laboratory accreditation. Performed failure analysis on Caterpillar equipment components such gears, ground engaging tools, and hydraulic components.

March 2002 to February 2004

Position: Supplier Quality Engineer
Caterpillar, Inc. Global Purchasing
Mossville, Illinois

Responsible for product development and supplier quality of forged components supplied to Caterpillar.

Experience (continued):

May 2000 to February 2002

Position: Failure Analysis Engineer
Caterpillar, Inc. Technical Services Division
Mossville, Illinois

Responsible for failure analysis of various Caterpillar components and for the maintenance of Caterpillar engineering specifications for steel, forgings, and fasteners.

III. Professional Registration

Licensed Professional Engineer in the following states:

Missouri	2011009643
Illinois	062-058671
Kansas	24986
Iowa	23381
Arkansas	17100
Texas	146290

NCEES Record Holder (#67024) for simplified licensure application in any state

Certified Fire and Explosion Investigator (NAFI-CFEI), National Association of Fire Investigators, (#22589-12906)

IV. Professional Affiliations

ASM International
Association for Materials Protection and Performance (formerly NACE International)
National Fire Protection Association (NFPA)
International Association of Arson Investigators (IAAI)
National Association of Fire Investigators International (NAFI)

V. Publications

O'Rourke, Robert & Barklage, Aaron; *Misunderstanding Surrounds ASTM A48*; Foundry Management & Technology, March 2000.

VI. Continuing Education

- 2000 – Ultrasonic Testing Levels I & II
Caterpillar, Inc., Peoria, Illinois
- 2001 – Applied Failure Analysis I
Caterpillar, Inc., Peoria, Illinois
- 2001 – Caterpillar Product Operations
Caterpillar, Inc., Peoria, Illinois
- 2001 – Heat Treatment of Steel
ASM International, Materials Park, Ohio
- 2002 – Aluminum & Its Alloys
ASM International, Materials Park, Ohio
- 2002 – Casting and Forging Profile Tolerance Training
Caterpillar, Inc., Peoria, Illinois
- 2002 – Portland College of Forging Knowledge
Portland Forge, Portland, Indiana
- 2003 – 6 Sigma Green Belt Training & Certification
Caterpillar, Inc., Peoria, Illinois
- 2004 – ISO/IEC 17025 Accreditation Course
American Association for Laboratory Accreditation (A2LA), Peoria, Illinois
- 2005 – Ferrous Microstructures Seminar
University of Missouri-Rolla, Dr. David Van Aken, Peoria, Illinois
- 2005 – DMAIC / DMEDI Black Belt Training
Caterpillar, Inc., Peoria, Illinois
- 2006 – Caterpillar Black Belt Certification
Caterpillar, Inc., Peoria, Illinois
- 2008 – Fundamental of Brazing
ASM International, Materials Park, Ohio
- 2009 – Nickel and Its Alloys
ASM International, Materials Park, Ohio
- 2009 – Caterpillar Production System Support Qualification
Caterpillar, Inc., Oxford, Mississippi
- 2011 – Quality Function Deployment (QFD) Green Belt Workshop
The QFD Institute, Glenn H. Mazur, East Alton, Illinois
- 2012 – Quality Function Deployment (QFD) Black Belt Training
The QFD Institute, Glenn H. Mazur, Saint Augustine, Florida
- 2012 – Fundamentals of Rolling
Olin Brass, Brian Stacks, East Alton, Illinois
- 2013 – Situational Sales Negotiation
The Bay Group International, Louisville, Kentucky
- 2015 – Understanding Fire Through the Candle Experiments
IAAI, CFITrainer.net
- 2015 – The Scientific Method for Fire and Explosive Investigation
IAAI, CFITrainer.net
- 2015 – The Practical Application of the Relationship between NFPA 1033 and NFPA 921
IAAI, CFITrainer.net
- 2015 – Residential Natural Gas Systems
IAAI, CFITrainer.net
- 2015 – Investigating Natural Gas Systems

- IAAI, CFITrainer.net
- 2015 – Fundamentals of Residential Building Construction
IAAI, CFITrainer.net
- 2015 – Electrical Fire Investigation
IAAI-IL, 2015 Annual Training Conference
- 2015 – Kitchen Fire Investigation
IAAI-IL, 2015 Annual Training Conference
- 2015 – Investigation of Gas & Electric Appliance Fires
Fire Findings, Benton Harbor, Michigan
- 2015 – Accreditation, Certification, and Certificates
IAAI, CFITrainer.net
- 2016 – Plastic Part Failure: Analysis, Design & Prevention
University of Wisconsin – Milwaukee
- 2017 – Anhydrous Ammonia Safety Awareness Training
Illinois Fertilizer and Chemical Association
- 2017 – Advanced Fire Investigation Training Program
National Association of Fire Investigators, International
- 2018 – Asbestos Operations & Maintenance Training
Environmental Safety Training Center
- 2018 – Pressure Vessel & Piping Failures: Integrity Assessment and Repair Using ASME/API Codes
ASME – American Society of Mechanical Engineers
- 2018 – Pressure Vessel & Piping Failures: Causes Mitigation, and Repair, General Corrosion
ASME – American Society of Mechanical Engineers
- 2018 – Pressure Vessel & Piping Failures: Local Thin Areas
ASME – American Society of Mechanical Engineers
- 2018 – Pressure Vessel & Piping Failures: Pitting Corrosion
ASME – American Society of Mechanical Engineers
- 2019 – Asbestos Operations & Maintenance Refresher Training
Environmental Safety Training Center
- 2019 – Aerial Lift Operator Training
Safety Training Resources
- 2019 – Fall Protection
Safety Training Resources
- 2019 – Forklift Safety
Safety Training Resources
- 2019 – Certified Inspector Training
American Association of Automatic Door Manufacturers (AAADM)
- 2019 – Fundamentals of Plastic Material Selection
University of Wisconsin – Milwaukee
- 2020 – Asbestos Operations & Maintenance Refresher Training
BlueSky
- 2021 – Asbestos Operations & Maintenance Refresher Training
BlueSky
- 2021 – Anti-Harassment training for All Employees,
RedVector.com
- 2021 – Generating Electricity,
RedVector.com
- 2021 – Electrical Installations 1
RedVector.com

- 2021 – Power Transmission and Distribution
RedVector.com
- 2021 – Critical Evaluation and Testing of Commonly Reported Accidental Causes
IAAI, CFITrainer.net
- 2021 – Documenting the Event
IAAI, CFITrainer.net
- 2021 – Effective Investigation and Testimony
IAAI, CFITrainer.net
- 2021 – Ethics and the Fire Investigator
IAAI, CFITrainer.net
- 2021 – Explosion Dynamics
IAAI, CFITrainer.net
- 2022 – Asbestos Operations and Maintenance Refresher
The Asbestos Institute
- 2022 – Fire Chemistry
IAAI, CFITrainer.net
- 2022 – Fire Flow Analysis
IAAI, CFITrainer.net
- 2022 – Fire Investigator Scene Safety
IAAI, CFITrainer.net
- 2022 – Fundamentals of Interviewing
IAAI, CFITrainer.net
- 2022 – Insurance and Fire Investigation
IAAI, CFITrainer.net
- 2022 – Lithium-Ion Battery Fires
IAAI, CFITrainer.net
- 2023 – Ethics and the Fire Investigator
IAAI, CFITrainer.net
- 2023 – Introduction to Evidence
IAAI, CFITrainer.net
- 2023 – Investigating Motor Vehicle Fires
IAAI, CFITrainer.net
- 2023 – Physical Evidence at the Fire Scene
IAAI, CFITrainer.net
- 2023 – Residential Electrical Systems
IAAI, CFITrainer.net
- 2024 – Understanding Undetermined
IAAI, CFITrainer.net
- 2024 – Asbestos Operations and Maintenance Refresher
The Asbestos Institute

VII. Courses Taught

An Introduction to Materials and Metallurgy – February, 2017
Will, Cook, Grundy County Fire Investigation Task Force, Tinley Park, Illinois

An Introduction to Materials and Metallurgy – April, 2017
Arkansas – IAAI Spring Conference

An Introduction to Materials and Metallurgy – May, 2019
Missouri – IAAI Annual Training Conference