

CURRICULUM VITAE

Timothy C. Behrens, P.E., CFI, CFEI, CVFI & ACTAR Accredited
Behrens Engineering Investigations, LLC
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EDUCATION

University of Arizona
Tucson, Arizona
Bachelor of Science Degree in Mechanical Engineering
Graduated with Honors Distinction – 1983
Academic Honors – Tau Beta Pi – Engineering Honor Society

Glendale Community College
Glendale, Arizona
Engineering major – 1979 to 1981

EMPLOYMENT

Behrens Engineering Investigations, LLC
Forensic Engineering Consultant
September 2006 to present

EFI Global, Inc.
Senior Engineer
February 1999 to August 2006

Exponent Failure Analysis Associates, Inc.
Senior Engineer
June 1987 to February 1999

Garrett Turbine Engine Company
Development Engineer and Mechanical Component Design Engineer
June 1983 to June 1987

Climax Molybdenum Company
Anaconda Minerals Company
Construction Engineer
Summer 1981 and 1982

CERTIFICATIONS

Registered Professional Mechanical Engineer, Arizona, #31197
Registered Professional Engineer, Colorado, #34469
Registered Professional Mechanical Engineer, California, #35500
Record with National Council of Examiners for Engineering and Surveying
(NCEES), #18001
Certified Fire Investigator (IAAI) # 28-090909
Certified Fire and Explosion Investigator (NAFI), #6805-2704
Certified Vehicle Fire Investigator (NAFI)
ACTAR Accredited Traffic Accident Reconstructionist, #1020
Certified Operator for the English XL Variable Incidence Tribometer, CXLT
(Slip-Test Instrument for Floors)
Certified Fireplace & Chimney Inspector, Fireplace Investigation Research &
Education Service (F.I.R.E), # FCI-250

PROFESSIONAL EXPERTISE & EXPERIENCE

Vehicle fire origin and cause investigation

Fire origin and cause investigations of structures, heavy equipment, fireplaces and
appliances

Fire / explosion investigations of natural gas and LPG systems

Vehicle fuel system safety analysis and testing

Industrial and consumer product failure analysis

Vehicle accident investigation and reconstruction analysis

Vehicle crashworthiness and crash testing

Vehicle handling / braking / tire analysis and testing

Premises liability analysis - Slip/trip and fall accidents, Stairways, Code Compliance

Mechanical engineering and design analysis

Plumbing system & appliance / water loss investigation and analysis

Residential / commercial building failure analysis, foundations, water intrusion,
roofing & ventilation issues

Low speed accident - biomechanical injury potential analysis

Expert witness testimony

Project management

ADDITIONAL SPECIALIZED TRAINING

Failure Analysis Associates, Inc.
Vehicle Accident Reconstruction Training Seminar
1994 – 16 hours

Lee S. Cole and Associates, Inc.
Investigation of Vehicle Fires
1994 - 20 hours

Society of Automotive Engineers
High Speed Rear Impact TOPTEC Symposium
1997

Engineering and Fire Investigations
Low Speed Impact Analysis and Crash Testing
1999 – 20 hours

Lee S. Cole & Associates, Inc.
Mechanics of Vehicle Theft Seminar
1999 – 8 hours

Lawyers and Judges Publishing Company, Inc.
Low-Speed Automobile Accidents –
From Collision to Trial Seminar
1999 – 16 hours

National Association of Fire Investigators
Determining the Cause and Origin of Fires and Explosions
Training Seminar
2000 – 32 hours

Arizona Chapter, International Association of Arson Investigators
Natural Gas Seminar
2001 – 8 hours

Society of Automotive Engineers
Accident Reconstruction TOPTEC Seminar: Special Topics
May 2001

Steven R. Mackaig & Associates, Inc.
Advanced Vehicle Fire Investigation
June 2001 – 8 hours

Fire Findings Laboratories, LLC
Investigation of Gas and Electric Appliance Fires
October 2002 – 16 hours

The American Concrete Institute
Troubleshooting Concrete Construction
November 2002 – 8 hours

American Society of Civil Engineers
Testifying Skills for Engineers
March 2003 – 16 hours

Society of Automotive Engineers
Tire & Wheel Safety Issues
March 2004 – 8 hours

National Association of Subrogation Professionals
Practical Spoliation: How it Plays Out in The Real World, Not Just On Paper
Toilet Assembly Failures
March 2004 – 2.5 hours

University of California, Riverside
University Extension
Tire Failure Analysis in Traffic Accident Investigations
April 2004 – 12 hours

American Trainco
Boiler Operation, Maintenance & Safety
September 2004 – 14 hours

National Association of Fire Investigators
Vehicle Fire, Arson & Explosion Investigation Science & Technology Seminar
September 2005 – 32 hours

HalfMoon Seminars
Legal Issues for Arizona Professional Engineers
February 2006 – 8 hours

William English, Inc.
English XL Variable Incidence Tribometer Certification Program (CXLT)
June 2006 – 8 hours

Fire Findings Laboratories
Investigating Residential Dryer Fires
April 2007 Symposium – 16 hours

Society of Plastics Engineers, Inc.
Plastics Failure Analysis Workshop & Seminar
August 2007 – 16 hours

International Association of Arson Investigators
LP Gas Service Requirements and Investigation of LP Gas Fires and Explosions
May 2008 – 4 hours

International Association of Arson Investigators
Effective Investigation & Testimony Course
February 2009 – 8 hours

National Association of Subrogation Professionals
Western Region Chapter Meeting
Commercial Kitchen Fire Losses
February 2009 – 2 hours

American Society of Plumbing Engineers
Natural Gas and Propane Sizing
April 2009 Webinar Lecture – 1 hour

Society of Automotive Engineers
Fundamentals of Motor Vehicle Fire Investigation Seminar
October 2009 – 24 hours

Arizona Chapter of the International Association of Arson Investigators
Natural Gas Seminar
February 2010 – 8 hours

Arizona Chapter of the International Association of Arson Investigators
Forensic Evidence Collection and Processing
April 2010 – 8 hours

Arizona Chapter of the International Association of Arson Investigators
Fire Investigation Training Seminar – Alternative Fuel Vehicles
July 2010 – 20 hours

Arizona Chapter of the International Association of Arson Investigators
Scene and Investigator Safety Training Seminar
October 2010 – 8 hours

Arizona Chapter of the International Association of Arson Investigators
Daubert and Expert Testimony Seminar
February 2011 – 8 hours

International Association of Arson Investigators
Annual Training Conference – General Session
May 1-6, 2011 – 34 hours

American Society of Mechanical Engineers
Diagnosing Material Failures – University of Arizona
November 2011 – 2 hours

Arizona Chapter of the International Association of Arson Investigators
Vehicle Fire Failure Analysis Seminar
November 2011 – 16 hours

Arizona Chapter of the International Association of Arson Investigators
Forensic Photography Seminar
May 2012 – 8 hours

International Association of Arson Investigators
Arc Mapping Basics on CFITrainer.Net
October 2012 – 4 hours

Fireplace Investigation, Research & Education Service (F.I.R.E.)
Fireplace & Chimney Inspection Program, Advanced Courses
April 2013 – 48 hours

International Association of Fire Investigators
Ten Most Common Fire Scene Errors
September 2013 – 2 hours

Forcon International
Walkway Auditor Training Course: ASTM F2948
January 2014 – 8 hours

Arizona Chapter of the International Association of Arson Investigators
NFPA 921 Update Class – 2014 Edition
May 2014 – 8 hours

International Associate of Fire Investigators
Understanding Fire Through the Candle Experiments on CFITrainer.Net
August 2014 – 4 hours

International Association of Fire Investigators
Fire Scene Safety: Personal Protective Equipment (PPE), Selection and Use
August 2014 – 2 hours

Southwestern Association of Technical Accident Investigators
Tire Mechanics & Inspection and Forensic Tire Examination
Presented by TRGtech Tire Consulting
September 2014 – 20 hours

Fire Findings
Investigating Solid Fuel-Burning Appliance Fires (Plus Gas-Log Fireplaces)
October 2014 – 16 hours

ORGANIZATIONS

Member, Society of Automotive Engineers (SAE)

Member, American Society of Mechanical Engineers (ASME)

Member, American Society for Testing and Materials (ASTM)

Committee Memberships

D21 on Polishes

E58 on Forensic Engineering

F13 on Pedestrian / Walkway Safety and Footwear

Member, National Association of Fire Investigators (NAFI)

Member, International Association of Arson Investigators (IAAI)

Member, Southwestern Association of Technical Accident Investigators (SATAI)

Member, The Accident Reconstruction Communications Network (The ARC Network)

Member, American Society of Plumbing Engineers (ASPE)

Member, National Association of Subrogation Professionals (NASP)

Member, Arizona Insurance Claims Association (AICA)

Appointed to Enforcement Advisory Committee, AZ State Board of Technical Registration

PUBLICATIONS

“The Physics and Anatomy of Auto Collisions – The Mechanics of the Collision”, National Business Institute, January 2012 (58447)

“High Speed Rear Impact Crash Test Video and Notebook”
Society of Automotive Engineers, January 1998 (with S.M. Werner).

“Heavy Truck Crashworthiness Phase III,” Society of Automotive Engineers, Cooperative Research Project, Report No. CRP-013, April 1997 (with R.E. Larson, M.C. Marine and S.M. Werner). (This project resulted in the development of the SAE Recommended Practices J4218, J4219, J2420, J2421, J2422, J2423, J2424, J2425, and J2426).

“Ignition and Combustion of Automotive Carbon Canisters,” Failure Analysis Associates, Inc. Report, October 1991 (with D.A. Limbert, R.C. Lange, and J.L. Wirth).

“Comparative Refueling Losses from Disconnected Evaporative Emission and Onboard Refueling Vapor Recovery Systems,” Failure Analysis Associates, Inc. Report, October 1991 (with R. C. Lange and D.A. Limbert).

“Refueling Vapor Ignition Demonstration,” Failure Analysis Associates, Inc. Report, October 1991 (with N.K. Cooperrider).

“Thirty MPH Side Impact Crash Test 1985 Buick Century with Mobile Oil Company Onboard Refueling Vapor Recovery System,” Failure Analysis Associates, Inc. Report, February 1988 (with N.K. Cooperrider and T. Thomas).