



MICHAEL M. FITZ, P.E., CFEI, January 2024

**MICHAEL M. FITZ, P.E., CFEI,** [Michael@mmfitzllc.com](mailto:Michael@mmfitzllc.com)

Mr. Fitz is a mechanical and civil engineer with 39 years of forensic experience specializing in fires, explosions, fire protection, civil, electrical, and mechanical failure analysis, with consultation in over 1000 projects. He is a registered Professional Engineer (P.E.) and a Certified Fire and Explosion Investigator (CFEI). He is well versed in fire origin and cause determination, examination, testing, and engineering analysis involving residential, commercial, industrial, marine, wildland, vehicles, appliances, equipment, and machinery. Specific examples include heaters and furnaces (propane, natural gas, electric, wood, gasoline, and oil), coffee makers, dryers, ranges, smoke and gas detectors, spontaneous heating of linseed oil and other materials, fireworks, automobiles, construction equipment, and boats. Mr. Fitz's failure analysis experience includes controlled atmosphere and cold storage, pumps, valves, pipes, HVAC equipment, fans, and insulation failures. His additional aspects of investigation include hazard analysis, explosion and blast analysis, fire spread, building construction, and code analysis.

Additionally, Mr. Fitz has worked on the design and development of machinery, testing of machine operation and product performance, explosive venting of hazardous materials, packaging systems, conveyors, material handling machinery, and presses, including concepts, mechanical design, hydraulic systems, logic and schematics, safety analysis, and constructability. He has also designed, constructed, and operated an explosive mining machine prototype.

His research interests include materials and their fire behavior and ignition properties, electrical arcing analysis, high-temperature accelerants, the development of explosives, and energetic materials.

#### Areas of Specialization

- Fire/explosion origin and cause
- Equipment and machinery failures
- Fire protection
- Marine fire investigation
- Hazard analysis/hazardous materials
- HVAC equipment/controlled atmosphere
- Machine design and development
- Mechanical failures
- Building codes analysis

#### Education

B.S., Mechanical Engineering, University of Washington, 1978

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

- Registered Mechanical Engineer, State of Montana, #08653E, 1985 to date
- Registered Mechanical Engineer, State of Oregon, #73372PE, 2011 to date
- Registered Mechanical Engineer, State of Washington, #21094, 1983 to date
- Registered Civil Engineer, State of Washington, #21094, 1987 to date
- NAFI Certified Fire and Explosion Investigator (CFEI), 1991 to date
- NAFI Certified Fire and Explosion Instructor (CFII), 1991 to date



MICHAEL M. FITZ, P.E., CFEL, January 2024

NPQS NFPA 1033 Certified Fire Investigator, 1995-2010

IAAI Certified Fire Investigator, 1990 to 2010

Licensed Blaster, State of Washington, 1986 to 2005

EPA Certified Universal Refrigerant Technician

## Training

Ongoing education including vehicle, electrical, commercial and wildland fire investigation; building codes and fire safety; National Electrical Code; oil furnaces; arctic engineering; fire alarms; fire pumps; sprinkler and automatic fire suppression and protection systems; explosion protection; fire dynamics, ignition phenomena, failure analysis, and blasting. Passed NICET ITM Level 2 Exam

## Professional Affiliations/Honors

### International Association of Arson Investigators (IAAI)

Member, 1986 - present

### International Conference of Building Officials (ICBO)

Professional Corporate Member, 1995 - 2016

### KCFD#2 Firefighter Academy 89-1

Volunteer Firefighter, 1989 - 1994

### National Association of Fire Investigators (NAFI) Member,

1989 - present

### National Fire Protection Association (NFPA) Member,

1987 - 2016

### National Society of Professional Engineers (NSPE)

Member, 1995 2022

## Positions Held

### MMFitzLLC, Shelton, WA

President 2024 -

### Engineering Systems Inc., Seattle, Washington

Senior Managing Consultant, 2016 – 2024

### MDE, Inc., Seattle, Washington

Past President & Principal, 1985 – 2016

### Bethlehem Steel Company, Seattle, Washington

Plant and Mechanical Engineer, 1978 – 1985

### CM Lange & Sons; MLF, Inc., Everett, Washington

Shipwright, 1972 – 1978



## Publications/Presentations

- Fitz, Michael M.**, "High-Temperature Accelerant Investigation Report", as Appendix C in "Investigation of Arson Fires Using High-Temperature Accelerant", published by the Seattle Fire Department Fire Investigation Unit.
- Keltner, N.R., Hasagawa, H.R., Staggs, K., White, J. A., Shaw, J., Gehlhausen, R., Fowler, D., Mars, J., and **Fitz, M. M.**, "Investigation of a High Tech Arsonist", submitted to 3rd International Symposium on Fire Safety Science, Edinborough, Scotland, 1991
- Martin, D.P., Winsor, J.O., Goodwin, V. D., **Fitz, M. M.**, Sackett, R. W., "Low-Speed Automobile Impact Testing", as presented to the American Academy of Forensic Sciences, February 20, 1992
- Fitz, M. M.** and Mann, D. C., "Washing Machine Effluent". Fire Findings, Vol. 7 No.4 Pg. 4, Fall 1999.
- Mann, D. C. and **Fitz, M. M.**, "Dryer Fire Investigations: An Alternative Sampling Protocol To Recover Oils Which May Spontaneously Heat". The Fireplace, Pg. 12-13, December 1999.
- Fitz, Michael M.** and Babrauskas, V. "Chimneys and Flues". Ignition Handbook, Pg. 715, 2003
- Fitz, Michael M.** and Babrauskas, V. "Coffeemakers and teapots". Ignition Handbook, Pg. 725, 2003
- Fitz, Michael M.** "Welding". Ignition Handbook, Pg. 941, 2003
- Evans, Susan, **Fitz, Michael M.**, Kent, Randy K. "Making the Most of a Technical Expert". News of Engineering Forensics, July 2004.
- Kent, Randy K., **Fitz, Michael M.**, Cline, Keith G., Evans, Susan, and Kentala, Laura K. "Understanding and Addressing Microbiologically Influenced Corrosion (MIC) Issues". News of Engineering Forensics, April 2005.
- Fitz, Michael M.** and Putaansuu, Noel, "Case Study to Evaluate Effects of Building Code Violations on the Outcome of a Fatality Fire", Proceedings, Fire and Evacuation Modeling Technical Conference 2011, Baltimore, MD Aug 15-16, 2011
- Mann, Dale C. and Putaansuu, Noel, "Bagged Dry Snack Food Fire Study", presented by **Fitz, Michael M.** at 2011 Fire and Materials Conference, San Francisco, CA.