



MICHAEL M. FITZ, P.E., CFEI, CFII, CFPS **SENIOR MANAGING CONSULTANT**

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Mr. Fitz is a mechanical and civil engineer and Senior Managing Consultant with 38 years of experience specializing in fires, explosions, large loss expert coordination, fire protection, civil, electrical, and mechanical failure analysis, with consultation in over 1000 projects. He is a registered Professional Engineer (P.E.), a Certified Fire and Explosion Investigator (CFEI), a Certified Fire Protection Specialist (CFPS), and a Certified Fire and Explosion Investigator and Instructor (CFII). 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, boilers, 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, insulation, and roofing systems. 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 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 been involved in the design, construction, and operation of an explosive mining machine prototype.

His research topics include materials and their fire behavior and ignition properties, electrical arcing analysis, high temperature accelerants, 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
- Large loss expert coordination
- Machine design and development
- Mechanical failures
- Building codes analysis

June 2018



Education

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

Licensed Professional Engineer (P.E.)

Registered Civil Engineer, State of Alaska, #8562, 1993 to date
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
NPQS NFPA 1033 Certified Fire Investigator, 1995-2010
NFPA Certified Fire Protection Specialist, #2279, 2005 to date
IAAI Certified Fire Investigator, 1990 to 2010
Licensed Blaster, State of Washington, 1986 to 2005
ABYC Certified Marine Systems and Electrical Technician
NFI Certified Master Hearth Specialist, Pellet, Gas and Woodburning Specialist
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, FDS modeling, failure analysis, and blasting.

Passed NICET ITM Level 2 Exam

MDE qualified to NFPA 70E to 15kV

Professional Affiliations/Honors

International Association of Arson Investigators (IAAI)

Member, 1986 - present

International Conference of Building Officials (ICBO)

Professional Corporate Member, 1995 - present

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 - present

National Society of Professional Engineers (NSPE)

Member, 1995 - present

International Association of Marine Investigators

Member, 2015 - present

Society of Fire Protection Engineers (SFPE)

Member, 1992 - present

Positions Held

Engineering Systems Inc., Seattle, Washington

Senior Managing Consultant, 2016 – Present

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.