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Matthew C. Wood, P.Eng.

Professional Engineer, Fire Investigation



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Education

UNIVERSITY OF GUELPH2004

Baccalaureate in Science in Engineering, Biological Engineering

Courses Included: Chemistry, Physics, Engineering Mechanics, Material Science, Engineering Systems Analysis, Fluid Mechanics, (Electrical) Network Theory, Philosophy of Science, Thermodynamics, Electrical Devices, Structure and Application of Microcomputers, Systems and Control Theory, Heat and Mass Transfer, and Bio-Instrumentation Design

Experience

ROAR ENGINEERING.....2017 – PRESENT

Forensic Engineer

Fire origin and cause investigations and evidence examinations for the following: residential, commercial, and industrial fires and explosions; and, vehicle fires and explosions. Investigations completed in accordance with National Fire Protection Association (NFPA) 921 "Guide for Fire and Explosion Investigations". Over 950 investigations completed as lead investigator over entire career.

Cause hypothesis testing involving the review of peer-reviewed research, independent testing, and examination of exemplar devices and products.

Detailed review of applicable codes, standards, and installation and maintenance instructions for products, appliances, and systems, including evaluation of evolution of said documents over time.

Preparation of comprehensive reports for the above investigations, completed in accordance with the requirements for an Expert's report as required by the Rules of Civil Procedure.

ROCHON ENGINEERING INC. 2004 – 2009
Forensic Engineer

Additional to the same fire investigation and evidence examination duties as in my *current position*: prepared curriculum and presentation materials for fire & explosion investigation professional development courses; and, trained and mentored incoming fire investigation staff members.

Additional Courses & Seminars

IAAI Chapter 21 & NW Fire Investigators Association..... 2026, 32 Credit Hours
Serial Arsonist Case Study; Fatal Fire Investigations; Artificial Intelligence; Fire Protection Systems; and, Community Risk Reduction.

CFI Trainer.net¹, International Association of Arson Investigators..... 2025, 21 Credit Hours
Donning and Doffing Personal Protective Equipment; Fatal Fires: Fire Effects on the Body; Fatal Fires: Investigation; Lightning Fire Cause Investigation; Lightning Fundamentals; Origin & Cause Hypothesis Testing Fundamentals; and, Origin & Cause Hypothesis Testing Methods.

International Association of Arson Investigators, BC Chapter 15 2024, 4 Credit Hours
Fatal Fire Death Investigation Course by Dr. Elayne Pope.

CFI Trainer.net, International Association of Arson Investigators 2024, 12 Credit Hours
Fire Dynamics in the Wildland; Commercial Kitchen Fires 1: Fundamentals; Commercial Kitchen Fires 2: Investigation; and, Personal Protective Equipment for Post-Fire Scenes.

International Association of Arson Investigators, BC Chapter 15 2023, 40 Credit Hours
Annual/Major Fire & Explosion Investigation Training Program (*instructed on Electricity and Fire*).

International Association of Arson Investigators 2023, 24 Credit Hours
Electrical Aspects of Fire Investigation (*in-person, multi-day, live electrical fire testing*).

CFI Trainer.net, International Association of Arson Investigators 2023, 12 Credit Hours
Fire Effects Part 1: Heat Effects on Fuels; Fire Effects Part 2: Combustion By-Products Effects; Ignitable Liquid Detection Canine Teams; and, Site Safety Assessment.

Underwriters Laboratories Firefighter Safety Research Institute..... 2023, 1.75 Credit Hour
Science of Fire and Explosion Hazards from Lithium-Ion Batteries; and, Firefighter Safety and Flammable Refrigerants.

CFI Trainer.net, International Association of Arson Investigators 2022, 22 Credit Hours
Alternative Fuel Vehicles; Emerging Technologies in Fire Investigation; NFPA 1033 & 921: 2022/2021 Editions Important Updates; Photovoltaic Cells & Systems; Search and Seizure; Understanding the Fire Investigator's Job: A Guide for Non-Investigators; and, What the Insurance Professional Needs to Know About Fire Investigation.

Underwriters Laboratories Firefighter Safety Research Institute..... 2022, 0.75 Credit Hours
Firefighter Safety and Photovoltaic Systems.

International Association of Arson Investigators, BC Chapter 15 2021, 12 Credit Hours
Fire Investigation Training Program.

¹ Please see <https://static.cfitrainer.net/Resources/NFPA1033.pdf> for a document detailing the correlations between the various training modules and the job performance requirements mandated in NFPA 1033: Standard for Professional Qualifications for Fire Investigator.

CFI Trainer.net, International Association of Arson Investigators 2021, 30 Credit Hours
The Deposition Part 1: Format, Content, and Preparation; The Deposition Part 2: Questioning Tactics and Effective Responses; Electric & Hybrid Vehicle Design Basics; Electric & Hybrid Vehicle Fires; Hazardous Waste Operations and Emergency Response; Lithium-Ion Battery Fires; The Potential Value of Electronic Evidence in Fire Investigations; Preventing Occupational Exposures to Carcinogens at the Fire Scene; Using Resources to Validate your Hypothesis; and, Vacant and Abandoned Buildings: Hazards and Solutions.

NFPA Online Training Courses 2021, 3 Credit Hours
Alternative Fuel Vehicles Safety Training Program: Fire/Rescue, Responding to Gaseous Fueled, Fuel Cell, and, Hybrid/Electric Vehicle Incidents; Construction Site Fire Safety Fundamentals; and, Hot Work Safe Practices.

Underwriters Laboratories Firefighter Safety Research Institute..... 2021, 3.75 Credit Hours
Cardiovascular and Chemical Exposure Risks During Training; Impact of Horizontal Ventilation on Fire Behavior; and, Impact of Ventilation on Fire Patterns.

University of Maryland, Department of Fire Protection Engineering (via Coursera)
The Effects of Fires on People, Property and the Environment, *September 2020*.

Wisconsin Department of Natural Resources & Dane County Arson Response Initiative, Inc.
Wildland Fire Investigations, *May 2020*.

CFI Trainer.net, International Association of Arson Investigators 2020, 55 Credit Hours
Accreditation, Certification, and Certificates; Charting Your Career Path in Fire Investigation; Critical Thinking Solves Cases; Discovery in Civil Cases; Discovery in Criminal Cases; DNA; Ethical Duties Beyond the Fire Scene; Ethics & Social Media; Fire Dynamics Calculations – Version 2.0; Fire Flow Analysis; Fire Investigation for Fire Officers; How First Responders Impact the Fire Investigation; Introduction to Appliances; Investigating Fire and Explosion Incidents Involving a Line-Of-Duty Death; Preparation for the Marine Fire Scene; Wildland Fires Investigation; and, Writing the Initial Origin and Cause Report.

Underwriters Laboratories Firefighter Safety Research Institute..... 2020, 11 Credit Hours
Air Entrainment by Fire Service Hose Streams; Evidence-Based Approaches to Reduce Exposure Risks; Introduction to Heat Transfer and Fire Measurements; Positive Pressure Attack; Research for the Development of More Effective Tactics; Residential Attic and Exterior Fires; The Science of...
...(cont'd) Interior and Transitional Suppression Tactics in Single-Family Homes; Understanding and Fighting Basement Fires; and, Water Mapping in Residential Structures.

International Association of Arson Investigators, BC Chapter 15
Dealing with Fire Investigations Involving Fatalities by Assistant Fire Chief Ray Bryant, Vancouver Fire Rescue Services, *October 2019*.

Ackland and Sander Consulting 2019, 12 Credit Hours
Prevention and Investigation of Commercial Kitchen Fires.

CFI Trainer.net, International Association of Arson Investigators 2019, 32 Credit Hours
Charleston Sofa Super Store Fire; Investigating Fatal Fires; MagneTek: A Case Study in the Daubert Challenge; Critical Evaluation and Testing of Commonly Reported Accidental Causes; Motive, Means, and Opportunity: Determining Responsibility in an Arson Case; Insurance and the Fire Investigation; Understanding Undetermined; and, Managing Complex Fire Scene Investigations; and, Digital Photography and the Fire Investigator.

International Association of Arson Investigators
Applied Visual Analytics for Fire Investigations by Dale Zlock of the National Insurance Crime Bureau, *February 2019*.

International Association of Arson Investigators, BC Chapter 15

Fire Scene Photography & Litigation and Legal aspects of Information Sharing on the Fire Scene, *December 2018*.

International Association of Arson Investigators, BC Chapter 15 2018, 40 Credit Hours

Annual Fire & Explosion Investigation Training Program.

Engineers and Geoscientists British Columbia & WorkSafeBC

Workers' Safety: Your Role and Responsibilities as a Professional Engineer and Geoscientist, *May 2018*.

International Association of Arson Investigators, BC Chapter 15

Fire Deaths in Single-Family Homes: New Research studying Fuel Volatility and Ventilation, and Large-Scale Exterior Cladding Use and Fire Risk Consideration in Canada, *April 2018*.

CFI Trainer.net, International Association of Arson Investigators 2018, 69 Credit Hours

An Analysis of the Station Nightclub Fire; Documenting the Event; Effective Investigation and Testimony; Electrical Safety; Ethics and the Fire Investigator; Evidence Examination: What Happens at the Lab?; Fire Investigator Scene Safety; Fundamentals of Interviewing; Introduction to Evidence; Introduction to Youth-Set Fires; Legal Aspects of Investigating Youth-Set Fires; Motor Vehicles: The Engine and the Ignition, Electrical, and Fuel Systems; Motor Vehicles: Transmission, Exhaust, Brake, and Accessory Systems; NFPA 921 and 1033 2014 Editions: Important Revisions; NFPA 1033 and Your Career; Physical Evidence at the Fire Scene; Post-Flashover Fires; Process of Elimination; The Impact of Ventilation in Building Structures on Fire Development; The Practical Application of the Relationship Between NFPA 1033 and NFPA 921; and, The Scientific Method for Fire and Explosion Investigation.

CFI Trainer.net, International Association of Arson Investigators 2017, 46 Credit Hours

Arc Mapping Basics; Basic Electricity; Explosion Dynamics; Fire Chemistry; Fire Protection Systems; Fundamentals of Residential Building Construction; Introduction to Fire Dynamics and Modelling; Investigating Motor Vehicle Fires; Investigating Natural Gas Systems; Residential Electrical Systems; Residential Natural Gas Systems; Thermometry, Heat, and Heat Transfer; and, Understanding Fire Through the Candle Experiments.

The National Association of Fire Investigators (NAFI)

Vehicle Fire, Arson & Explosion Investigation Science & Technology Seminar, *September 2007*.

International Symposium of Fire Investigation Science & Technology, *June 2006*.

International Association of Arson Investigators, Idaho Chapter

The Principles of Electrical Fires ("Electrical Fires 102"), *November 2005*.

Educational Program Innovations Center (EPIC)

Ontario's Electrical Safety Code, *December 2004*.

Fire Findings

Investigation of Gas and Electric Appliance Fires, *October 2004*.

The National Association of Fire Investigators (NAFI) & The National Fire Protection Association (NFPA)

National Fire, Arson and Explosion Investigation Training Program, *August 2004*.

Certified Fire Investigation Instructor Seminar, *August 2004*.

Professional Memberships & Certifications

Engineers and Geoscientists British Columbia (EGBC)

Professional Engineer (P.Eng.), License #46270, Member ID #206691

Professional Engineers of Ontario (PEO)

Professional Engineer (P.Eng.), License #100081232

International Association of Arson Investigators (IAAI)

Member #1400562

International Association of Arson Investigators BC Chapter 15

Member #201399

Secretary (2019 – Present)

Director-at-large (2018 – 2019)

National Association of Fire Investigators (NAFI)

Member #10107iv

Certified Fire and Explosion Investigator (CFEI)

Certified Vehicle Fire Investigator (CVFI)

Certified Fire Investigation Instructor (CFII)

British Columbia Chapter of the Society of Fire Protection Engineers

Supporter Member

Instruction

“Electricity and Fire”, BC-IAAI Fire Investigation Training Program, *September, 2023*.

“Slower Modes of Combustion: Smouldering & Self-Heating”, Co-presented, BC-IAAI Fire Investigation Training Program, *September, 2021*.

Publications

Wood, Matthew C., 2018, **“Fires Involving Christmas Trees and Decorative Lights”**²

Wood, Matthew C., 2018, **“High-Intensity Disaster: Could Insurers Prevent Millions in Metal-Halide Losses?”**

² Included in the Canadian Association of Fire Investigators (CAFI) *Journal*, Volume 4, 2018.