

ANDREW D. ELLISON, P.E.

CURRICULUM VITAE

EDUCATION

Bachelor of Science in Mechanical Engineering, Worcester Polytechnic Institute, Worcester, Massachusetts, 2006

Master of Science in Fire Protection Engineering, Worcester Polytechnic Institute, Worcester, Massachusetts, 2008

Further Professional Studies in fire investigation, chemistry of hazardous materials, flammable liquids, fire sprinkler systems inspection, testing, and maintenance, chimney and fireplace inspection, fire dynamics, firefighting tactics, fuel gas systems, etc.

EXPERIENCE

2019 - present NEPONSET VALLEY ENGINEERING COMPANY, Inc., d/b/a GAI Engineers, a forensic engineering firm.

Investigate the technical aspects of property damage and personal injury matters, utilizing expertise in fire protection engineering and mechanical engineering.

Complete scene examinations, witness interviews, evidence examinations, research, document review, testing, engineering calculations, code review, and report writing, as well as provide expert testimony, on fire protection & mechanical equipment and systems.

Fire Protection projects include water supply evaluation, wet & dry sprinkler systems, fire pumps, kitchen extinguishing systems, deluge & foam systems, pre-action systems, life safety systems, passive fire protection, egress analysis, manual fire suppression, etc.

Mechanical projects include fuel gas systems, carbon monoxide exposures, commercial kitchen appliances & exhaust systems, HVAC equipment, plumbing piping & fixtures, water heaters, water supply piping & components, etc.

2000 – present HAMILTON FIRE DEPARTMENT, Hamilton, MA, a municipal fire department.

Company officer on a combination fire department responsible for the initial response to emergencies including: fires, hazardous materials incidents, medical emergencies, motor vehicle crashes, public assistance, other rescues as well as offering mutual aid assistance to nearby communities to assist in similar types of incidents.

2016 - 2019	EFI GLOBAL INC. (FORMERLY UNIFIED INVESTIGATIONS AND SCIENCES, INC.), Nashua, NH, a fire investigation and forensic engineering firm.
	Perform fire investigations and failure analysis involving fire protection and mechanical systems. Example project topics include: fires, explosions, fire suppression systems, flammability, combustion equipment, commercial kitchen fire extinguishing systems and exhaust systems, fuel gas systems, fire fighter operations, among others. Duties included scene examinations, witness interviews, document review, multi-jurisdictional code compliance analysis, laboratory examinations, experimentation, written reports, and legal testimony as an expert witness. Duties also included managing the national fire protection engineering service line.
2007 - 2016	EXPONENT, Inc., Natick, MA, an engineering consulting firm.
	Perform failure analysis involving fire protection and mechanical systems and components. Example projects include: fires, explosions, fire suppression systems, flammability, combustion equipment, commercial kitchen fire extinguishing systems and exhaust systems, fuel gas systems, fire fighter operations, mechanical design and prototype construction, among others. Duties included scene examinations, document review, multi-jurisdictional code compliance analysis, laboratory examinations, experimentation, written reports, and legal testimony as an expert witness. Duties also included managing teams of multidisciplinary engineers to solve client's problems.
2006 - 2007	UNITED STATES NAVY CLOTHING AND TEXTILE RESEARCH FACILITY, Natick, MA, a government research and development center for military clothing and equipment
	As a civilian employee, conducted research and development activities for both uniform clothing and personal protective equipment (PPE) for a variety of soldiers' and sailors' activities. Performed independent and standardized testing on garments and equipment, including flammability and thermal resistance. Testing ranged from bench-scale evaluations to full-scale flame engulfment tests. Provided technical guidance and expertise on flammability and thermal burn injury prediction.

TRAINING

<u>Date</u>	<u>Course Title</u>	<u>Hours</u>	<u>Sponsor(s)</u>
Sept 23	Cooking Appliance Fires	4	RI-IAAI
Jun 23	Hood & Duct Fires and Spontaneous Combustion	6	MA-IAAI
Nov 22	Boston Fire Construction Safety Summit	4	Boston Fire Dept.
Oct 22	Home Heating Systems and Appliance Fires	20	MA-IAAI
June 22	Investigating Fuel Gas Involved Fires	12	CT-IAAI
June 22	The Role of Consumer Product Safety Standards in Fire Safety	1.5	NFPA
June 22	Short Term Rentals – The Challenge of Maintaining Safety in the Most Dangerous Hospitality Segment	1.5	NFPA
June 22	Fires in Buildings Under Construction – Closing the Insurance and Fire Protection Gap	1	NFPA
June 22	NFPA 30: Flammable and Combustibles Liquid Code: Past, Present, and Future Requirements	1	NFPA

<u>Date</u>	<u>Course Title</u>	<u>Hours</u>	<u>Sponsor(s)</u>
June 22	Fuel Gas Detection Equipment – Full Scale Dispersion Testing	1	NFPA
June 22	Hot Work Safety – Learning from the Past As we look Toward the Future	1.5	NFPA
June 22	Carbon Monoxide Detection Requirements: Do you feel safe?	1.5	NFPA
June 22	The 2020 Beirut Explosion – Lessons Learned from An Ecosystem Failure	1.5	NFPA
June 22	Fire Alarm Systems – An Analysis of Addressable Fire Alarm Notification Appliances	1.5	NFPA
June 22	The 2021 Life Safety Code – The State of the Art	1.5	NFPA
June 22	Explosive Gas Response – Lessons Learned	1	NFPA
May 22	Fire Alarms and Sprinklers Plan Review and Inspection	4	Portsmouth NH FD
Mar 22	Hoarding and Natural Gas Incidents	6	MA-IAAI
Oct 21	A Comprehensive Perspective for New and Seasoned Fire Investigators	20	MA-IAAI
Sept 21	Electrical Engineering for the Fire Investigator	8	RI-IAAI
Sept 21	Fire Alarm Systems for the Fire Investigator	4	RI-IAAI
May 21	Sprinkler Systems for the Fire Investigator	2	IAAI
April 21	Fire Service Considerations with Lithium Ion Battery ESS	1	SFPE
April 21	Massachusetts Building and Fire Code Review	1	SFPE-NE
April 21	An Evaluation of the Effectiveness of Flourine-Free Firefighting Foams	1	SFPE-NE
Mar 21	Combustible Gas Dispersion & Detector Location Analysis	1.5	NFPA
Feb 21	The New NIST Fire Calorimetry Database	1	SFPE
Dec 20	Hot Works Certification	2	NFPA
Apr 20	Advances in Clean Agents for Fire Protection	2	PDH Online
Apr 20	OSHA HazWOper 8-Hr Refresher	8	PDH Online
Nov 19	Worcester Cold Storage Warehouse	4	MA-IAAI
Jun 19	Antifreeze Solutions in Fire Sprinkler Systems: An overview to UL 2901	1	NFPA/UL

<u>Date</u>	<u>Course Title</u>	<u>Hours</u>	<u>Sponsor(s)</u>
Jun 19	NFPA 25-2020, Standard for the Inspection, Testing And Maintenance of Water-Based Fire Protection Systems - Proposed Changes	1.5	NFPA
Jun 19	Fire Pump Testing – Requirements, Analysis, and Interpretation	1	NFPA
Jun 19	Water-Damaged Electrical Equipment - Replace Or Recondition?	1	NFPA/NEMA
Feb 19	F.I.R.E. Certified Chimney and Fireplace Inspector Courses FC-01, FC-02, FC-03	48	Fire Investigation Research and Education Service
Nov 18	Propane Gas Training	4	Propane Gas Association of New England
Sep 18	NFPA 30: Flammable Liquids	14	Society of Fire Protection Engineers
Jun 17	What to Expect at Civil Deposition	3.5	International Association of Arson Investigators Vermont Chapter
Jun 17	Fire Investigation and the Insurance Company	1	International Association of Arson Investigators Vermont Chapter
Jun 17	Fire Protection Systems in Fire Investigations	1	International Association of Arson Investigators Vermont Chapter
Jun 17	Expert Witness Testimony	1	International Association of Arson Investigators Vermont Chapter
Jun 17	Criminal Arson Case Study	1	International Association of Arson Investigators Vermont Chapter
Aug 17	Commercial Kitchen Hood Cleaning	6	Boston Fire Department
Apr 17	NFPA 25: Hands-On Inspection Testing & Maintenance of Water-based Fire Protection Systems 3-day Training	21	NFPA / Tyco Fire Products
Nov 16	Gone Hollywood	1	Defense Research Institute Fire Science and Litigation
Nov 16	Hear how the 2004 Updates to NFPA 921	1	Defense Research Institute Fire Science and Litigation
Nov 16	Batteries Not Included: Defending Lithium Battery Fire Losses	1	Defense Research Institute Fire Science and Litigation
Nov 16	Mythbusters: Fire Investigation Trends: Fact or Fiction	1.5	Defense Research Institute Fire Science and Litigation

<u>Date</u>	<u>Course Title</u>	<u>Hours</u>	<u>Sponsor(s)</u>
Oct 16	NFPA Chair Level II Training	14	NFPA Headquarters
Jun 16	NFPA Chair Level I Training	14	NFPA Conference & Expo
Jun 16	NFPA 25: What's New	1	NFPA Conference & Expo
Jun 16	Energy Storage System Fires	1	NFPA Conference & Expo
Jun 16	Fire Service Survey Results	1	NFPA Conference & Expo
May 16	Fire Hose Workshop	12	NFPA Fire Protection Research Foundation
Feb 16	Principles of Modern Fire Attack: SLICE-RS	8	Massachusetts Fire Chiefs Association
Feb 15	Fire Environments	1	Society of Fire Protection Engineers
Sep 15	FlashShield Certification Training Program	2	Gastite
Aug 15	From the Lab to the Street: Firefighter Research Forum	8	National Institute of Standards and Technology
Aug 15	NFPA 25: Fire Sprinkler Inspections	8	National Fire Sprinkler Association
Jun 13	Fire Department Incident Safety Officer	20	Fire Department Safety Officers Association
Apr 12	Conducting Firefighter Safety Investigations	16	Firefighter Safety Investigations
May 11	Fire Officer I	60	Massachusetts Firefighting Academy
May 11	Advanced Fire Investigation	40	Massachusetts Firefighting Academy
Apr 10	Basic Fire Investigation	48	Massachusetts Firefighting Academy
Sep 09	Natural Gas Essentials: Delivery to Incident	20	International Association of Arson Investigators Massachusetts Chapter
Sep 09	An Analysis of the Station Nightclub Fire	4	International Association of Fire Investigators
Sep 09	Arc Mapping Basics	4	International Association of Fire Investigators
Sep 09	Documenting the Event	4	International Association of Fire Investigators

Sep 09	Introduction to Evidence	4	International Association of Fire Investigators
Sep 09	Managing Complex Fire Scene Investigations	4	International Association of Fire Investigators
Sep 09	Post-flashover Fires	4	International Association of Fire Investigators
Sep 09	Understanding Fire Through the Candle Experiments	4	International Association of Fire Investigators
Mar 09	Battery Involvement in Fire: Cause or Effect	6	International Association of Arson Investigators Massachusetts Chapter
Mar 09	Charleston, SC Furniture Superstore Report	5	Massachusetts Firefighting Academy
Mar 08	National Fire, Arson, and Explosion Training Program	30	National Association of Fire Investigators
Mar 02	HazWOper – 40 Hour – Operations Level (Refreshed 8-hrs Annually)	40	Hamilton Fire Department

SEMINARS GIVEN

<u>Date</u>	<u>Topic</u>	<u>Hours</u>	<u>Sponsor(s)</u>
Sept 23	Commercial Kitchen Exhaust Systems and Fire Extinguishing Systems	4	RI-IAAI
Sept 21	Sprinkler Systems and Kitchen Extinguishing Systems for the Fire Investigator	4	RI-IAAI
Jun 19	NFPA 1961-2020, Standard on Fire Hose, and UL 19, Lined Fire Hose and Hose Assemblies	1	NFPA Conference & Exposition
Feb 18	Fire Dynamics & Fire Behavior (First biannual seminar)	4	New Hampshire State Fire Fighting Academy
Nov 17	Fire Cause: The Private Side (First biannual seminar)	2	New Hampshire State Fire Fighting Academy
June 17	Fuel Gas Systems' Failures, Explosions, and Carbon Monoxide Investigation	4	International Association of Arson Investigators Vermont Chapter
Nov 16	Determining Liability Associated with Fire Suppression Sprinkler Systems Failures	1	Defense Research Institute Fire Science and Litigation
Jun 16	Fire Dynamics & Fire Science	2	Hamilton Fire Department
Apr 16	Investigating Carbon Monoxide Exposure Incidents	2	Propane Gas Defense Lawyers Association

<u>Date</u>	<u>Topic</u>	<u>Hours</u>	<u>Sponsor(s)</u>
Dec 15	Expert Witnesses and Attorney Relationship	2	Law Firm, Kansas City, MO
May 15	Inspection, Testing, and Maintenance (ITM) of Water-Based Suppression Systems	2	National Association of Subrogation Professionals New England Chapter
Mar 13	The Role of Engineering Consultants in Fire Investigations	1	University of New Haven
Feb 13	Investigation of Explosion Incidents	2	Society of Fire Protections Engineers New England Chapter
Dec 12	Carbon Monoxide Dangers and Detection	2	American Society of Safety Engineers Greater Boston Chapter
Sep 12	Lightning Related Structure Fires	1	International Symposium on Fire Investigation Science & Technology
Sep 12	Investigation of Carbon Monoxide Related Incidents	1	International Symposium on Fire Investigation Science & Technology
Apr 11	Thermal Skin Burns	3	Worcester Polytechnic Institute Department of Fire Protection Engineering
Sep 10	Fire Service's Effects on Fire Investigations	1	National Association of Subrogation Professionals New England Chapter

ARTICLES PUBLISHED

<u>Date</u>	<u>Title</u>	<u>Publication</u>
2017	Ellison, A. D. and Bieder, J. - Fire Suppression System Failures	For The Defense
2015	Ellison, A.D. and Rosen, J.S. - Origin Determination in fires Involving Fuel Gas	National Fire Investigator
2014	Ellison, A.D. and Rosen, J.S. - Origin Determination in fires	International Symposium on Fire Investigation Science
2014	Morse, T, J, Ellison, A.D. and Kytomaa, HK. - Electrical Fault Damage to Corrugated Stainless Steel Tubing in a House Fire	International Symposium on Fire Investigation Science & Technology
2014	Ellison, A.D., Morse, T.J. and Kytomaa, H.K. - Lightning Related Structure Fires	International Symposium on Fire Investigation Science & Technology

<u>Date</u>	<u>Title</u>	<u>Publication</u>
2012	Ellison, A.D., Somandepalli, V. and Myers, T.J. Investigation of Carbon Monoxide Incidents	International Symposium on Fire Investigation Science & Technology
2009	Ibarreta, A., Clevenger, J. and Ellison, A.D. - Changes in Flammability of Nylon used as insulators in electrical conductors	American Bar Association Tort Trial & Insurance Practice Journal
2008	Davis, S., Ibarreta, A., Kessel, A. and Ellison, A.D. - Flammability of Nylon used as insulation in electrical conductors	International Symposium on Fire Investigation Science & Technology

PROFESSIONAL

Registered Professional Engineer, 50918 – Massachusetts, 13623 – Maine, 14473 - New Hampshire, 018.0105458 – Vermont, PEN.0011527 – Rhode Island, PEN.0031000 – Connecticut, 94291
Certified Fire Investigator, 20-02222.41, International Association of Fire Investigators
Certified Fire & Explosion Investigator, 13058-6678, National Association of Fire Investigators
Fire Investigator (NFPA 1033), 864561, National Board on Fire Service Professional Qualifications Systems
F.I.R.E. Certified Fireplace & Chimney Inspector, FCI-320, Fire Investigation Research and Education Service
Certified Hazardous Waste Operations and Emergency Response – Operations Level
Firefighter I/II (NFPA 1001), 196636, National Board on Fire Service Professional Qualifications
Incident Safety Officer (NFPA 1521), 33271, National Board on Fire Service Professional Qualifications
Fire Instructor I (NFPA 1041), National Board on Fire Service Professional Qualifications
Fire Officer I (NFPA 1021), National Board on Fire Service Professional Qualifications
Emergency Medical Technician, Basic, E860655, Massachusetts
Principal Member, Technical Committee on Fundamentals of Fire Control within a Structure Utilizing Fire Dynamics, National Fire Protection Association
Past Chairman and Principal Member, Technical Committee on Fire Hose, National Fire Protection Association
Past Principal Member, Technical Committee on Wildland Fire Fighting Protective Clothing and Equipment, National Fire Protection Association
Past Alternate Member, Technical Committee on Flash Fire Protective Garments, National Fire Protection Association
Member, Standards Technical Panel 91, Lined Fire Hose and Fire Hose Assemblies. Underwriters Laboratories
Society of Fire Protection Engineers, 34318346
International Association of Fire Investigators, 125461
National Association of Fire Investigators, 13058-6678
National Fire Protection Association, 2505875