

Keith Ferraiolo | Senior Fire Investigation, IAAI-CFEI

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Professional Summary:

Mr. Ferraiolo has been employed with EFI Global since 2019 and is currently a "Senior Origin and Cause investigator".

Mr. Ferraiolo has been a career firefighter since 2002. In addition to suppression, he has been assigned to the fire prevention bureau conducting fire inspections and investigations. He has served as an Acting Company officer, Fire Inspector, Acting Fire Official, Fire Investigator, and Fire Instructor.

Mr. Ferraiolo is a member of the Union County Office of Fire Investigations, where he served for 10 years as a Team Leader, currently serving as Chief Fire Investigator. He is also a member of the New Jersey Fire Threat Task Force, sitting on the "Active Threat/Civil Unrest" committee. He was responsible for integrating the ATF's Bomb and Arson Tracking System and serves as the unit's liaison to the ATF.

Mr. Ferraiolo has participated in or supervised over 1000 fire investigations in accordance with NFPA 921 and 1033. He also has over 950 hours of classroom training. His investigations have included:

- Joint investigations with local, county, state, and federal partners.
- Multi-million-dollar Losses.
- Residential and commercial structure fires.
- Vehicles fires.
- Heavy machinery fires.
- Fatal fires.
- Suspected Serial Arsonists.
- Line-of-Duty Death.
- Large Scale Investigations.

Licenses and Certifications:

NJ Certified Incident Management Level 3, NJ Division of Fire Safety, License # 149097

NJ Certified Fire Investigator, NJ Division of Fire Safety, NJ, License # 149097

NJ Certified Level 2 Fire Instructor, NJ Division of Fire Safety, License # 149097

Fire Prevention Inspector, NJ Division of Fire Safety, NJ, License # 149097

Fire Prevention Official, NJ, Division of Fire Safety, NJ, License # 149097

Certified Fire Investigator, IAAI, License #17-051767

Certified Fire and Explosion Investigator (CFEI), NAFI, License # 21054-13201

Certified Vehicle Fire Investigator (CVFI), NAFI, License #21054-13201(v)

Fire Investigation Technician (FIT), IAAI, License #1312974

Evidence Collection Technician (ECT), IAAI, License #1312974

Certified Instructor (CI), IAAI, License #1312974

Project Experience:

Union County Office of Fire Investigations, Elizabeth, NJ, October of 2020
Fire in retail store involving five fatalities.

EFI Global, East Rutherford, NJ, September of 2021
Multi-million-dollar loss at the American Dream Mall Complex.

Union County Office of Fire Investigations, Elizabeth, NJ, January of 2024
Fire in large industrial complex resulting in ATF National Response Team response.

Professional Experience:

EFI Global, Fire Investigator, 2019 – Present
Rahway Fire Department, Firefighter/ Fire Inspector, 2002 – Present
Union County Fire Investigation Unit, Investigator/ Team Leader, 2014- – Present

Specialized Education:

Arson Awareness for Line Personnel, Kean University, 2009
Basic Arson Investigators Course, NJ Division of Criminal Justice, April 2015
Post Pattern Genesis and Persistence, ATF, 2015
Homemade Explosives Awareness, Energetic Materials Research Center, 2016
Quality Depositions / O & C, NJ IAAI, October 2016
Investigator Safety, NJ IAAI, October 2018
Incident Response to Terrorist Bombings, Energetic Materials Research Center, 2017
Medical Preparedness Response to Bombing Incidents, Energetic Materials Research Center, 2017
Hands-On Vehicle Fire/Arson Investigations, Public Agency Training Center, 2017
Prevention & Response to Suicide Bombing Incidents, Energetic Materials Research Center, 2018
Understanding Ventilation, NJ IAAI, 2018
Persistence of Ignitable Liquids, NJ IAAI, March 2018
Electrical Aspects of Fire Investigations, NJ IAAI, March 2018
Appliance Fire Investigations, ATF, 2019
Arsonist Profile, NJ IAAI, March 2019
Fire Investigator Safety, NJ IAAI, March 2019
Case Preparation, NJ IAAI, March 2019
Fire Dynamics, NJ IAAI, November 2019
NFPA 921, 1033, 1321 Update, NJ IAAI, October 2021
Data Collection, NJ IAAI, October 2021
Fireplace and Chimney Fires, NJ IAAI, October 2021
Modern Day Case Studies, NJ IAAI, March 2022
Your O&C Report, NJ IAAI, March 2022
Lithium-Ion Batteries, IAAI March 2022
Arson for Profit, NJ IAAI, November 2022

Open-Source Intelligence and Tactical Interviews, NJ IAAI, March 2023
Hypothesis Development, NJ IAAI, March 2023
Emergency and Enduring Issues, NJ IAAI, March 2023
OSAC Updates, NJ IAAI, November 2023
NJ IAAI Annual Training Conference, February 2024
Courtroom Testimony and Expert Witness, IAAI, April 2025
Basic Explosion Scene Investigations, NJ IAAI, June 2025
Complex Scene Investigations, NJ IAAI, June 2025
Wildland origin and cause, NJ DEP-NWCG, Sept. 2025
Post Explosion Investigation, New Mexico Tech, Oct. 2025
Practical Fire Investigations, NJ IAAI, Oct. 2025

- International Association of Arson Investigators (IAAI) - CFITrainer.net
 - Ethics and the Fire Investigator, July 2015
 - Documenting the Event, July 2015
 - Introduction to Evidence, July 2015
 - Basic Electricity, October 2015
 - Charleston Sofa Super Store Fire, July 2015
 - Arc Mapping, October 2015
 - Practical Application of the Relationship Between NFPA 1033 and 921, August 2019
 - Residential Electrical Systems, October 2015
 - Basic Electricity, October 2015
 - Analysis of Station Nightclub Fire, October 2015
 - Impact of Ventilation in Building Systems, 2015
 - Critical Thinking Solves Cases, October 2015
 - Writing Initial O&C, October 2015
 - Explosion Dynamics, November 2015
 - Understanding Fire/ Candle Experiment, November 2015
 - Impact of Ventilation in Building Structures on Fire Development, October 2015
 - Fire Investigator Scene Safety, November 2015
 - Investigating Motor Vehicle Fires, November 2015
 - How First Responders Impact the Fire Investigation, December 2015
 - Post Flashover Fires, January 2016
 - Effective Investigation and Testimony, January 2016
 - DNA, January 2016
 - Fundamentals of Interviewing, January 2016
 - Investigation Fire and Explosion Incidents Involving Line-of-Duty Death, February 2016
 - Process of Elimination, August 2016
 - Legal Aspects of Investigating Youth-Set Fires, August 2016
 - Introduction to Fire Dynamics and modeling, December 2016
 - Insurance and the Fire Investigator, December 2016
 - Motive, Means and Opportunity: Determining Responsibility in an Arson Case, December 2016
 - Thermometry, Heat, Heat Transfer, January 2017
 - Fire Protection Systems, January 2017
 - Investigating Natural Gas Systems, February 2017
 - Scientific Method Fire and Explosion Investigation, February 2017
 - Managing Complex Fire Scenes, February 2017
 - Physical Evidence at the Fire Scene, February 2017
 - Using Resources to Validate Your Hypothesis, February 2017
 - Motor Vehicle Fires: Engine, Ignition, Electrical, Fuel, June 2017

Motor Vehicle Fires: Trans, Exhaust, Brake, June 2017
Ethical Duties Beyond the Fire Scene, July 2016
Fire Dynamics Calculator, October 2017
Fire Chemistry, January 2018
Discovery in Criminal Cases, January 2018
Discovery in Civil Cases, January 2018
Evidence Examination: What Happens at the Lab, March 2018
Magne Tek: Case Study in the Daubert Challenge, May 2018
NFPA 921 & 1033 2014 Edition, November 2018
Natural Gas Systems, November 2018
Vacant and Abandoned Buildings Hazards and Solutions, March 2019
Fire Investigation for Fire Officers, April 2019
Fire Flow Analysis, May 2019
Preparation for Marine Fire Scene, May 2019
Search and Seizure, June 2019
Hazwoper Standard, June 2019
Understanding Undetermined, June 2015
Commonly Reported Causes, June 2019
Deposition Part 1, June 2019
Principals of Fire Investigation, June 2019
Understanding the Fire Investigators Job, July 2019
Deposition Part 2, July 2019
Potential Value / Electronic Evidence, July 2019
Insurance Professional, July 2019
Wildland Fires, July 2019
Fire Investigation for Fire Officers, November 2019
Principals of Fire Investigation, November 2019
Latest Concepts in Fire Investigations, May 2020
Timelines, May 2020
Alarm Panels, May 2020
Damage to Electrical Conductors, May 2020
Receptacle Fires, May 2020
Emerging Technologies, December 2020
Lithium-Ion Battery Fires, May 2021
Hybrid Vehicle Basics, June 2021
Electric Hybrid Vehicle Fires, June 2021
Post Blast Investigations, November 2021
Photovoltaic Cell Systems, February 2022
Site Safety Assessment, January 2023
Alternative Fuel Vehicles, January 2023
NFPA 921 and 1033 2022/2021 Edition, February 2023
Ignitable Canine Teams, May 2023
Fire Effects Part 1, June 2023
Fire Effects Part 2, June 2023
Donning and Doffing PPE, October 2023
Commercial Kitchen Fires 2: Investigation, November 2024
Fatal Fires: Investigation, January 2025
Fatal Fires: Effects on the body, January 2025
Lightning Fundamentals, May 2025
Lightning Fire Cause Investigation, Nov. 2025

Affiliations:

International Association of Fire Investigators (IAFI)
International Association of Arson Investigators (IAAI)
National Association of Fire Investigators (NAFI)
New Jersey Firemen Mutual Benevolent Association
New Jersey Firemen's Relief Association Vice President

Honors and Awards:

American Legion Medal of Valor, American Legion, 2008
Chiefs Award, Avenel EMS, Dec 2015
EMS Medal of Merit, Woodbridge Township NJ, Dec 2016
Mayors Award, Woodbridge Township, 2017
Group Effort Valor Award, NJ FMBA, 2016
Special Recognition Valor Award (3), NJFMBA, 2016, 2021
Unit Citation, Rahway Fire Department, 2014, 2016, 2017
2023 Fire Investigator of the Year, NJ IAAI, 2023
Union County Resolution / Commendation, May 2024
2025 Fraternal Brotherhood Award, NJ State FMBA, 2025
NJ IAAI Presidents Award 2025