



PROFESSIONAL RESUME

CURRICULUM VITAE

RICHARD J. MEIER

B.Sc., IAAI-CFI, CFPS, MFireE, CFEI, CFII, CVFI

**PRINCIPAL EXPERT,
FIRE AND EXPLOSION INVESTIGATOR
& ANALYST**



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Richard J. Meier

Fire and Explosion Investigator, Analyst and Expert

AREAS OF EXPERTISE

- Fire and Explosion Investigation, including determination of Origin, Cause and Responsibility.
- Fire and Safety related Codes and Standards.
- Warnings, Labels and Instructions for Consumer and Industrial Products.

PROFESSIONAL BACKGROUND

Richard J. Meier is the founder of Meier Fire Investigation. He is a fulltime fire and explosion investigator, analyst and expert. He currently holds a number of national and international professional certifications including: Certified Fire Investigator; Certified Fire and Explosion Investigator; and Certified Fire Protection Specialist. He has been court qualified as an expert witness on numerous occasions.

Prior founding his own company, Richard Meier began working for John A. Kennedy and Associates, Inc., the world's oldest fire investigation company.

Richard Meier also spent a quarter of a century as a design and manufacturing engineer designing, building, and trouble-shooting a wide range of products and equipment. During this time, he gained a broad and diverse knowledge including: plastics; metals; mechanical and electrical systems; hydraulic and fuel systems; marine, automotive and industrial systems; manufacturing techniques; and failure analysis.

Principal Expert, Fire and Explosion Investigator and Analyst Meier Fire Investigation, LLC, Bradenton, Florida	2016 – Present
Staff/Sr. Staff/Principal Expert, Fire and Explosion Investigator and Analyst John A. Kennedy & Associates, Bradenton, Florida	2011 – 2018
Manufacturing Engineer Johnson Controls, Largo, Florida <i>Manufacturer commercial HVAC products.</i>	2008 – 2011
Manufacturing/Chief Engineer Trilectron Industries, Palmetto, Florida <i>Manufacturer of HVAC/power generation ground support equipment for the commercial/military aviation industry.</i>	2003 – 2007
Engineering Manager Champ Products Inc., Sarasota, Florida <i>Manufacturer of heat exchangers for marine, transportation and industrial markets.</i>	2001 – 2003
Manufacturing Engineering Manager Teleflex-Morse Marine Group, Clearwater, Florida <i>Manufacturer of control systems for the marine industry.</i>	2000 – 2001
Design Engineer H-P Products, Louisville, Ohio <i>Manufacturer of metal tube assemblies for a diverse market.</i>	1999 – 2000
Manufacturing Engineer Meteor-Lauren, Dover, Ohio <i>Manufacturer of extrusions and moldings for the automotive market.</i>	1998 – 1999
Manufacturing Engineer Furon, Kent, Ohio <i>Manufacturer of thermoplastic tube and hose for a diverse market.</i>	1996 – 1998
Industrial/Process/Plant/Design/Tooling Engineer Handy & Harman/EPIC Automotive Group, Dover, Ohio <i>Manufacturer of automotive fuel and control systems and a diverse assortment of plastic and metal components.</i>	1987 – 1996

LICENSING AND CERTIFICATION

Private Investigators License

Richard Meier has been licensed as a Private Investigator by the State of Florida, since November 2011. His Investigator License is No. C_1300627.

The State of Florida requires individuals and their companies who conduct investigations into the cause, origin or responsibility for fires, accidents, or injuries to real or personal property must be licensed and registered under the Florida Private Investigators Statutes.

Florida has reciprocal licensing agreements with the States of California, Georgia, Louisiana, North Carolina, Oklahoma, Tennessee, and Virginia.

Certified Fire Investigator (IAAI-CFI)

Richard Meier was certified April, 2016 as a Certified Fire Investigator by meeting the standards for education, experience, and competence, and by successfully passing the CFI challenge examination required by the International Association of Arson Investigators (IAAI).

Fire Investigation Technician (IAAI-FIT)

Richard Meier was certified 2014 as a Certified Fire Investigation Technician by meeting the standards for education, experience, and competence, and by successfully passing the FIT challenge examination required by the International Association of Arson Investigators (IAAI).

Certified Fire Protection Specialist (CFPS)

Richard Meier was certified 2014 as a Certified Fire Protection Specialist by meeting the standards for education, experience, and competence, and by successfully passing the CFPS challenge examination required by the Certified Fire Protection Specialist Board of the National Fire Protection Association.

Certified Fire and Explosion Investigator (CFEI)

Richard Meier holds National Board registration as a Certified Fire and Explosion Investigator from the National Association of Fire Investigators (NAFI). This certification was achieved 2010 by evaluation of qualifications and experience, and by passing a comprehensive written examination, administered by the National Certification Board.

Certified Fire Investigation Instructor (CFII)

Richard Meier holds National Board registration as a Certified Fire Investigation Instructor from the National Association of Fire Investigators (NAFI). This certification was achieved 2010 by evaluation of qualifications and experience, and by passing a comprehensive written examination, administered by the National Certification Board.

Certified Vehicle Fire Investigator (CVFI)

Richard Meier holds National Board registration as a Certified Vehicle Fire Investigator from the National Association of Fire Investigators (NAFI). This certification was achieved 2012 through special instruction, evaluation of qualifications and experience, and by passing a comprehensive examination, administered by the National Certification Board.

Member – Institute of Fire Engineers (MFireE)

Richard Meier was admitted in 2018 as a Member of the I.F.E. The designation of *Member* is given in recognition the applicant's level of training, expertise, and contribution to the profession of fire safety, and is awarded based on a thorough review of the applicant's application and documentation.

PROFESSIONAL MEMBERSHIPS & AFFILIATIONS



National Fire Protection Association (NFPA) 2011

NFPA 901 – Standard Classifications for Incident Reporting and Fire Protection Data

Principal Committee Member (Special Expert). (2017-Present)

NFPA 921 – Guide for Fire and Explosion Investigation

Past Task Group Member for: Fire Patterns, Marine Fire Investigations, Heating Systems.

NFPA 1033 – Standard for Professional Qualifications for Fire Investigator. (2014-2016)

Past Technical Committee Member (alternate)

Certified Fire Protection Specialist Board – Certification Advisory Group. (2016-2023)

Member of the following Sections:

Fire Science Technology Educator; Research; Industrial Fire Protection; Education.



International Association of Arson Investigators (IAAI), 2011



National Association of Fire Investigators, International (NAFI), 2010

Past positions: Instructor, Treasurer, Member of Board of Governors



International Association of Fire Investigators (IAFI) – Member, 2012

Past positions: Instructor



National Academy of Forensic Engineers (NAFE) – Affiliate, 2018

Member of: Fire Investigation Committee



ASTM International (American Society for Testing & Materials), 2012

Member of:

Committee E05 on Fire Standards, Committee E58 on Forensic Engineering



American Boat and Yacht Council (ABYC), 2012

Member of: Electrical Sub-Committee on 3-Phase Electrical Systems



Florida Fire Marshals and Inspectors Association (FFMIA), 2017



Institute of Fire Engineers (IFE) – Member (MFireE), 2018



International Association for Fire Safety Science (IAFSS), 2013



International Codes Council (ICC), 2018



International Society of Explosives Engineers (ISEE), 2012



International Pyrotechnics Society (IPS), 2017



Claims & Litigation Management Alliance (CLM), 2016



Society of Automotive Engineers, International (SAE), 2012



Society of Plastics Engineers, International (SPE), 1989 – 1996



National Association of Subrogation Professionals (NASP), 2016-22

MILITARY EXPERIENCE



Richard Meier is U.S. Army veteran, serving in the Reserves from 1983 to 1992 and serving on Active Duty in 1990 and 1991 during the first Gulf War. He achieved the rank of Staff Sergeant and position of Assistant Squad Leader. He was awarded the Army Commendation Medal for his service during Operation Desert Storm, and his unit awarded the Meritorious Service Citation.

UNIVERSITY STUDIES

Degree Programs

Richard Meier completed his Bachelor of Science degree in Mechanical Engineering Technology in May of 1995. Course work included Advanced Mathematics, Computer Programming, Production Machinery & Processes, Mechanical Design, Fluid Power, Chemistry, Physics, Electronics, Statics, Dynamics, Material Science, Process Instrumentation and Thermodynamics.



Bachelor of Science Degree – Mechanical Engineering Technology

University of Akron
Akron, Ohio
Completed 1995



Associate of Science Degree – Mechanical Engineering Technology

Stark State College
North Canton, Ohio
Completed 1987

Other University Programs

Writing and Designing Manuals and Warnings, University of Wisconsin, Madison, October 2019.

Course work covered: Determining appropriate content, organization, graphics and warnings for product manuals in compliance with ANSI 535.6 Standard for Product Manuals and Instructions and other global standards.

The Effects of Fire on People, Property and the Environment, University of Maryland, College Park MD, October – December 2016.

Course work covered: Introduction to Fire Behavior; Fire Protection Engineering; Fire Safety Subsystems; The Effects of Fire on People; Effects of Fire on Property and the Environment; Implementing Fire Safety Designs.

Using Warnings and Instructions to Increase Safety and Reduce Liability, University of Wisconsin, Madison, June 2014.

Course work covered: labels, warnings, instructions; ANSI 535.4 Product Safety Signs and Labels, and ANSI 535.6 Standard for Product Manuals and Instructions; minimum requirements; and acceptable methods of compliance.

TEACHING

Richard Meier teaches various aspects of fire investigation. He has taught at numerous seminars for the National Association of Fire Investigators (NAFI), and webinars presented by the International Association of Fire Investigators (IAFI). In addition, he is active in teaching at seminars, training programs and webinars for other organizations such as the Fire Inspectors Association of Broward County (FIABC), the Mississippi Defense Lawyers Association (MDLA), the National Association of Subrogation Professionals (NASP), the National Academy of Forensic Engineers (NAFE), and the National Aeronautics and Space Administration (NASA).

FIRE SCIENCE AND ANALYSIS RESEARCH

Richard Meier is active in fire science research as it pertains to fire and explosion origin, cause, and responsibility analysis. He has conducted research and hundreds of case specific experiments and tests on many investigations. He maintains a fire science laboratory, and has also conducted and participated in laboratory experiments, field research projects and live burn exercises delving into the nature of explosions, and fire development and fire spread in structures and vehicles on numerous occasions, including but not limited to:

- Richard Meier conducted numerous cooking fires prior to the publication of his article “*Anatomy of a Cooking Fire*” in the Summer 2016 edition of the National Fire Investigator.
- Richard Meier participated in live burn exercises (vehicle fires) at Scott County Fire Department Training Grounds. Fifteen vehicles were burned in preparation for, and during, the NAFI Vehicle Fire, Arson and Explosion Investigation Science and Technology Seminar. Lexington, Kentucky – September 2015.
- Over 30 fire/explosion experiments were performed during studies for “*A Detailed Look at the Necked Vessel Flame Thrower Effect*”, a research paper deeper into the science behind flash fire incidents occurring during the pouring of ignitable liquids. JAK & A Laboratories – October to November 2014. Over 80 fire/explosion experiments were performed.
- Richard Meier participated in live burn exercises (structure fires) at Eastern Kentucky University, Fire Protection Engineering Department, Burn Building. Ten fires performed in preparation for, and during, the NAFI National Fire, Arson and Explosion Investigation Training Program. Richmond, Kentucky – March 2014.
- Richard Meier participated in live burn exercises (vehicle fires) at Scott County Fire Department Training Grounds. Fourteen vehicles were burned in preparation for, and during, the NAFI Vehicle Fire, Arson and Explosion Investigation Science and Technology Seminar. Lexington, Kentucky – September 2013.
- Richard Meier conducted over 80 fire/explosion experiments were performed during studies for “*Necked Vessel Flame Thrower Effect*”, a research paper into the science behind flash fire incidents occurring during the pouring of ignitable liquids. JAK & A Laboratories – May 2013 to August 2013.
- Richard Meier conducted numerous fire experiments during studies for “*Fire Effects on High Efficiency Lighting*”, a research project building on his previous research into the practical use different of high efficiency lights as means of determining fire origin, movement and intensity in fire scene investigation. JAK & A Laboratories – March to June, 2013.

- Richard Meier conducted numerous fire experiments during studies for “*Fire Effects on High Efficiency Compact Fluorescent Lighting*” a research project into the practical use compact fluorescent lights as means of determining fire origin, movement and intensity in fire scene investigation. JAK & A Laboratories – June to August, 2012.
- Richard Meier participated in live burn exercises (vehicle fires) at Henderson Fire Department. Five vehicles were burned as part of the PATC Vehicle Fire, Arson and Explosion Investigation Seminar. Henderson, North Carolina – March 2012.

PUBLICATIONS, PAPERS AND ARTICLES

“*Explosive Weather*”, a case study by Richard Meier of the investigation of a residential explosion resulting from Hurricane Irma and an unusual chain of events in September 2017. *Industrial Fire Journal* 1st Quarter 2018. (https://issuu.com/hemminggroup/docs/ijf_q1_2018)

“*Home Away from Home, How Safe is Your Hotel Room?*”, an article by Richard Meier looking at the hotel industry and fire safety. Published on LinkedIn Pulse 2016. (<https://www.linkedin.com/pulse/home-away-from-how-safe-your-hotel-room-richard?trk=prof-post>)

“*Lithium-Ion Batteries, More Dangerous or Just More Common? And a Simple Analysis to Narrow the Possible Failure Modes*”, a research paper by Richard Meier investigating the science lithium-ion batteries and simple method to help determine possible failure modes and causes. Published in *ISFI Proceedings – 2016*.

“*Anatomy of a Kitchen Fire*”, an article by Richard Meier on the chemistry and physics of a typical cooking fire. Published in the Summer 2016 edition of *The National Fire Investigator*.

“*A Detailed Look at the Necked Vessel Flame Thrower Effect*”, a research paper by Richard Meier delving deeper into the science behind flash fire incidents occurring during the pouring of ignitable liquids. Published in *Fire and Materials Proceedings – 2015*.

“*The Necked Vessel Flame Thrower Effect*”, a research paper by Richard Meier into the science behind flash fire incidents occurring during the pouring of ignitable liquids. Published in *ISFI Proceedings – 2014*.

Richard J. Meier and Patrick M. Kennedy coauthored “*Fire Effects on High Efficiency Lighting*” a research paper by Richard Meier into the practical use high efficiency lights as means of determining fire origin, movement and intensity in fire scene investigation.

Published in *Interflam Proceedings – 2013*. Republished December, 2013 in *The National Fire Investigator*.

“*Fire Effects on High Efficiency Compact Fluorescent Lighting*” a research paper by Richard Meier into the practical use compact fluorescent lights as means of determining fire origin, movement and intensity in fire scene investigation. Published in *ISFI Proceedings – 2012*. Republished January, 2013 in the newsletter of Idaho Fire Marshall’s office.

“*Know Your Standards*”, a series of articles by Richard Meier covering test standards used by fire investigators in their work. Published biannually in *The National Fire Investigator*.

PRESENTATIONS

“Thermometry, Fire Chemistry and Fire Dynamics”, a presentation by Richard Meier to forensic professionals on knowledge topic requirements of NFPA 1033.

National Academy of Forensic Engineers (NAFE), Westin Hotel, Denver, Colorado, July 2019.

“Defending Your Fire Claim”, a presentation by Richard Meier to insurance and legal professionals on the use of NFPA 921 and NFPA 1033 to defend against unqualified or unsubstantiated claims made by plaintiffs in fire and explosion litigation.

Joint Seminar of the Mississippi Claims Association and the Mississippi Defense Lawyers Association, Table 100 Conference Center, Flowood, Mississippi, November 2016.

“Lithium-Ion Batteries, More Dangerous or Just More Common? And a Simple Analysis to Narrow the Possible Failure Modes”, a presentation by Richard Meier of his research on understanding the construction, chemistry and failure modes of lithium-ion cells batteries, and investigation techniques. By seeking the right data early in the investigation, and understanding Li-ion batteries, it is often possible to correctly include or exclude cause hypotheses before resorting to extensive and expensive examination techniques.

International Symposium on Fire Investigation Science and Technology (ISFI 2016), Scottsdale Resort at McCormick Ranch, Scottsdale, Arizona, September 2016.

“A Five Fatality Fire, and a Fire Scene Gone Very Wrong” – a presentation by Richard Meier of the case study of the 2011 Christmas Morning fire in the home of Madonna Badger. The fire made national news when it occurred, but the one day origin and cause investigation was terribly flawed and the scene completely demolished immediately after local officials finished.

International Symposium on Fire Investigation Science and Technology (ISFI 2016), Scottsdale Resort at McCormick Ranch, Scottsdale, Arizona, September 2016.

“A Detailed Look at the Necked Vessel Flame Thrower Effect”, a presentation by Richard Meier of research delving more deeply into “Necked Vessel Flame Thrower Effect” with an emphasis on the fire dynamics inside the vessel. This is a follow-up to previous research answering some of the questions formulated when evaluating the results.

14th International Conference on Fire and Materials 2015, in San Francisco, California, February 2015.

“The Necked Vessel Flame Thrower Effect”, a presentation by Richard Meier of his research on understanding what happens when an ignitable liquid is poured near an ignition source, at the Sometimes referred to as a “fire jet” or “flame jetting”, the results can resemble a flame thrower resulting in serious injuries and property damage. Includes data from JAK&A cases over the last 4 decades, and recent laboratory work to gain a detailed understanding of the phenomenon.

International Symposium on Fire Investigation Science and Technology (ISFI 2014), University of Maryland, September 2014.

“Fire Effects on High Efficiency Lighting”, a presentation by Richard Meier of his research on the practical use popular forms of high efficiency lights as means of determining fire origin, movement and intensity in fire scene investigation.

13th International Conference and Exhibition on Fire Science and Engineering (Interflam 2013), Royal Holloway College, University of London, UK, June 2013.

“Fire Effects on High Efficiency Compact Fluorescent Lighting”, a presentation by Richard Meier of his research on the practical use compact fluorescent lights as means of determining fire origin, movement and intensity in fire scene investigation.

International Symposium on Fire Investigation Science and Technology (ISFI 2012), University of Maryland, October 2012.

REQUIRED KNOWLEDGE OF FIRE INVESTIGATION TOPICS

Richard Meier has extensive training, knowledge and experience in all sixteen of topics required by the National Fire Protection Association's *NFPA 1033 – Standard for Professional Qualifications for Fire Investigator, 2014 edition*.

- Fire Science
- Fire Chemistry
- Thermodynamics
- Thermometry
- Fire Dynamics
- Explosion Dynamics
- Computer Fire Modeling
- Fire Investigation
- Fire Analysis
- Fire Investigation Methodology
- Fire Investigation Technology
- Hazardous Materials
- Failure Analysis
- Fire Protection Systems
- Evidence Collection, Documentation and Preservation
- Electricity and Electrical Systems

FIRE RELATED KNOWLEDGE, TRAINING AND EXPERIENCE

Richard Meier has extensive knowledge, training and experience in all of the following and other fire, arson, and explosion related subjects:

- Determining the origin and cause of fires and explosions.
- Fire and explosion scene documentation.
- Fire and explosion scene photography.
- Interview skills and techniques.
- Evidence photography.
- Laboratory testing and experimentation.
- Material testing sciences.
- The chemistry, physics, and behavior of fires and explosions.
- Fuels, ignition sources, ignition sequences.
- Electrical fire causes.
- Flammable liquids and vapors.
- Hazardous materials.
- Natural and LP gas fires and explosions.
- Spontaneous heating of materials.
- Fires in oxygen-enriched atmospheres.
- Tracing the fire spread.
- Computer modeling of fires.
- Firefighting and rescue operations and procedure.
- Fire Codes and Standards.
- Fire detection and suppression systems.
- Compliance to fire safety systems and programs.
- Fire and explosion related injuries and fatalities.
- Consumer products.
- Labels and warnings.
- Products liability involving fires and explosions.
- Affixing the responsibility and liability for fires and explosions.
- Subrogation investigation of fire and explosion insurance losses.
- Incendiary fires and arson.
- Bombs, explosives, and incendiary devices.

ACCEPTED METHODS OF DETERMINING ORIGIN AND CAUSE

Richard Meier has extensive knowledge on the proper application of the recognized and accepted methods of fire and explosion investigation, including the following:

- Witness Information and/or Electronic Data*
 - Witness Statements or Interviews
 - Recorded images or alarm system data
- Fire Dynamics*
 - Fire Chemistry
 - Fire initiation and growth
 - Fire interaction with structure/ environment
 - Computer Fire Modeling
- Fire Pattern Analysis*
 - Arc Mapping
 - Depth of Char Studies
 - Depth of Calcination Studies
 - Fire Effects Analysis
 - Fire/Flame Spread Analysis
 - Heat and Flame Vector Analysis
 - Pointer and Arrow Methods

**Primary methods described in NFPA 921*

KNOWLEDGE OF FIRE PREVENTION LAWS, REGULATIONS, CODES AND STANDARDS

Richard Meier is familiar with the various fire related laws, regulations, codes and standard promulgated by the many legal jurisdictions and code and standard making organizations. He is adept at researching the applicable code and standards involved for any particular case, including those of the following organizations:

- NFPA National Fire Protection Association – National Fire Codes
- ASTM American Society for Testing and Materials – Annual Codes
- ANSI American National Standards Institute – American National Standards
- DOT United States Department of Transportation – Regulations
- CPSC Consumer Products Safety Commission – Consumer Products Safety Act – Hazardous Substances Act
- OSHA Occupational Safety and Health Administration – Guidelines and Regulations
- CFR United States Code of Federal Regulations
- AIA American Insurance Association – Fire Prevention Code
- UL Underwriters Laboratories - Standards for Safety
- ICC International Code Council (*a consolidation of the following former organizations*)
 - BOCA Building Officials and Code Administrators – Basic Fire Code
 - ICBO International Congress of Building Officials – Uniform Fire Codes
 - SBCC Southern Building Code Congress – Standard Fire Code

These codes and standards and others, including various industry standards, for current and past years are contained in our extensive reference library.

FIRE SCIENCE AND CODE REFERENCE LIBRARY

Meier Fire Investigation, LLC maintains a comprehensive reference library containing and with access to thousands of books, papers and articles and photographs.

The library contains works covering such topics as: general references; various trade publications; fire codes and standards; safety codes and standards; industry codes and standards; federal, state, and local laws, rules, and regulations; fire science; current fire research; materials science; computer fire modeling; fire investigation; fire protection; explosions; solid and liquid fuels; fuel gases; welding; transportation; and law enforcement.

The library is continuously upgraded by the addition of new works, periodicals, current codes, standards handbooks, as well as complete collections of new research publications and related texts from various research conferences around the world. The library also contains a collection of more than 500,000 photographs and videos in fire science, fire engineering, and fire investigation topics.

FORENSIC FIRE SCIENCE AND TECHNOLOGY LABORATORY

Meier Fire Investigation, LLC operates a fully equipped Fire Forensic and Fire Science Laboratory in Palmetto, Florida. The laboratory uses modern and up-to-date equipment and techniques to conduct fire and flammability standards testing and fire experiments.

The laboratory is equipped with a modern digital video studio and equipment designed to take, edit, and produce accurate photography and videography of tests, experiments, and courtroom demonstrations.

Our facilities are also equipped with CAD (Computer Aided Drafting) software and digitizing equipment to produce highly accurate drawings of fire and explosion scenes, pertinent fire case evidence and equipment, and heat and flame vector analysis and explosion dynamics analysis diagrams.

KNOWLEDGE OF FIRE INVESTIGATION CODES AND STANDARDS

Richard Meier is knowledgeable in the codes and standards that apply directly to fire and explosion investigation. These codes and standards include:

- *NFPA 921 – The Guide for Fire and Explosion Investigation*
- *NFPA 1033 – Standard for Professional Qualifications for Fire Investigator*
- *ASTM E678 – Standard Practice for Evaluation of Technical Data*
- *ASTM E860 – Standard Practice for Examination and Testing Items That Are or May Become Involved in Litigation*
- *ASTM E1020 – Standard Practice for Reporting Incidents that May Involve Criminal or Civil Litigation*
- *ASTM E1188 – Standard Practice for Collection and Preservation of Information and Physical Items by a Technical Investigator*
- *ASTM E1459 – Standard Guide for Physical Evidence Labeling and Related Documentation*
- *ASTM E1492 – Standard Practice for Receiving, Documenting, Storing, and Retrieving Evidence in a Forensic Science Laboratory*

FIRE AND STANDARDS TESTING

Richard Meier is familiar with the standard of various standards organization, and in the course of his cases and research has personally performed many of these tests, including, but not limited to:

- American National Standards Institute (ANSI)
- American Society of Testing and Materials, International (ASTM)
- Society of Automotive Engineers (SAE)
- Underwriters Laboratory (UL)

In addition, Richard Meier has developed new and unique tests and test apparatus to answer specific investigation related questions not specifically addressed by current standard testing procedures.

FIRE AND EXPLOSION INVESTIGATION AND RELATED TRAINING

Training Programs, Seminars, Conferences and Symposiums

Photovoltaic Systems Investigation, presented by the International Association of Arson Investigators (IAAI). Drury Hotel, Orlando, Florida, June 14, 2023.

Course covered electrical systems and various failure modes which lead to fires.

2021 FL IAAI Annual Training Conference, presented by the Florida Chapter of the International Association of Arson Investigators. Hard Rock Hotel, Daytona Beach, Florida, November 7-10, 2021.

Presentations attended:

Investigation Commercial Kitchen Fires - Systems Design, Evaluation, and Documentation; Mental Health Challenges for Fire Investigators; Electrical Training; Fuel Gas Systems Fire and Explosion Investigations.

VT IAAI Training Event, presented virtually by the Vermont Chapter of the International Association of Arson Investigators. April 29, 2022.

Presentations taught:

Diagramming the Fire & Explosion Scene, Fire & Explosion Scene Photography.

Metro Fire/Arson Investigators Association Training Event, presented virtually by the Metro Fire/Arson Investigators Association (Winthrop, Massachusetts), April 4, 2021.

Presentations taught:

Diagramming the Fire & Explosion Scene, Fire & Explosion Scene Photography.

2021 MN IAAI Annual Training Conference, presented virtually by the Minnesota Chapter of the International Association of Arson Investigators. March 2021.

Presentations attended:

NFPA 1321 - A New Standard on Fire Investigation Units; Case Study: Molly Delgado Double Filicide; What Can Your Forensic Laboratory Tell You?; Commercial Kitchen Fire Protection Systems; Case Study: The Use of an Explosion to Conceal a Homicide; Investigations Involving Gas Systems and Appliance and Legal Consideration^r; Fire Modeling and Calculations^r.

Electrical Fire Causation, presented by the International Association of Arson Investigators (IAAI). Drury, Carmel, Indiana, March 2020.

Course covered electrical systems and various failure modes which lead to fires.

NAFE Summer Conference, presented by the National Academy of Forensic Engineers (NAFE). Westin Hotel, Denver, Colorado, July 2019.

Presentations attended [taught]:

Various accident and fire case studies.

*Sixteen knowledge topics for fire investigators required by NFPA 1033 – Fire Science; **Thermometry, Fire Chemistry & Fire Dynamics**; Thermodynamics; Explosion Dynamics; Computer Fire Modeling; Fire Investigation; Fire Analysis; Fire Investigation Methodology; Fire Investigation Technology; Hazardous Materials; Failure Analysis; Fire Protection Systems; Evidence Collection, Documentation and Preservation; Electricity and Electrical Systems.*

15th International Conference and Exhibition on Fire Science and Engineering (Interflam 2019), presented by the Interscience Communications, the University of London, and numerous corporate sponsors. Royal Holloway College, University of London, UK, July 2019.

Over two hundred and twenty research papers from researchers, scientists and fire investigators in over thirty countries aimed at advancing fire science and fire investigation were presented at this conference.

2019 International Training Conference, presented by the International Association of Arson Investigators (IAAI). Hyatt Regency Hotel, Jacksonville, Florida, April 2019.

Presentations attended:

Vehicle- Electrical Systems & Hot Surface Ignition Heat Sources; The Impact of Ventilation on Fire Patterns in Full-Scale Structures; Keys to a Successful Fire Death Investigation; Marine Surveying for Fire Investigators.

NAFE Winter Conference, presented by the National Academy of Forensic Engineers (NAFE). Wyndham Grand Orlando Resort Bonnet Creek, Orlando, Florida, January 2019.

Presentations attended:

Forensic Analysis that Revealed an Attempted Fraud; Electrocutions and Downed Power Lines; The Kaprun Ski Train - A Disaster Waiting to Happen; The Status of Arc Mapping; Forensic Engineering Use of Arc Fault Circuit Analysis/Arc Mapping in a Residential Kitchen Fire Investigation; Solar Fires, Melted Vinyl Siding and Other Ramifications from Concentrated Reflected Sunlight from Low-E Glass Windows, Skylights and Atrium Glass; Pinched Power Cord is the Latent Defect Causing Fire When the Appliance is Not in Use.

NASP, 18th Annual Conference, presented by the National Association of Subrogation Professionals (NASP). Rosen Shingle Creek Hotel, Orlando, Florida, November 2018.

Presentations attended:

When Warnings Don't Work: Communication Breakdowns May Apply in Product Liability Subrogation; Fireplace and Chimney Fires: Common Claims and Recovery Strategies; The Shield Surrounding Online Retailers: An Update on the Prime Strategies Utilized by Cyber Stores to Deflect Accountability; Subrogation Opportunities Arising From Design, Installation, and Maintenance of Roofing Structures; Forensic Engineering in Marine Claim Subrogation; Propane Explosions: Essential Elements to a Successful Investigation and Subrogation Recovery; The Emerging Connected and Automated Ecosystem: What If...?; Propane Explosions: Essential Elements to a Successful Investigation and Subrogation Recovery; Lithium Battery Fires and Products Liability: Charge your Subrogation Recoveries!; Follow the Fact and the Fire Code: A Case Study in Obtaining a Jury Verdict When the Fire's Ignition Source is Undetermined; The Future is Green: Investigating and Subrogating Solar Panel Losses

2018 NFPA Conference & Exposition, presented by the National Fire Prevention Association. Mandalay Bay Conference Center, Las Vegas, Nevada June 2018.

Presentations attended:

Unlucky 13: Large-loss Assembly Fires; Hot Work Safety; The Changing Face of Refrigerants – How the Move Toward Flammable Refrigerants Affects You; Safeguarding Construction, Alteration, and Demolition Operations.

2018 International Training Conference, presented by the International Association of Arson Investigators (IAAI). Frisco Conference Center, Frisco, Texas May 2018.

Presentations attended:

Everything a Fire Investigator Needs to Know About Chemistry; Investigating Commercial Kitchen Fires; Alarm Science Boot Camp for Arson and Fire Investigators; An Analysis of Pinched Cords and Overdriven Staples; Application of Two Comparative Reduced Scale Burns for Fire Investigations and Hypothesis Testing; A Review of Soil Migration in Natural Gas Fires and Explosions.

NASP, Subrogation Litigation: Burning Down the House, presented by the National Association of Subrogation Professionals (NASP). Roosevelt Hotel, New Orleans, Louisiana, March 2018.

Presentations attended:

Jury Research Focus Groups; Advancing Fire Scene Documentation with the Latest Technology; Standard of Care in Fire Loss Litigation; To Burn or Not to Burn? That is the Question; Litigation Coalitions – Common Alliances and Strange Bedfellows (wildfire litigation); Stop Overlooking Manufacturers on Clearance to Combustible Fireplace Cases – A Case Study on Why Pursuing Only the Installer is Selling Your Case Short; Stains to Flames! Subrogating the Spontaneous Combustion Fire; Hardware and Maintenance in Restaurants are not the Only Culprits for Liability; Sun Burned – The Future of Subrogation Investigations in Renewable Energy Equipped Residences; A Humorous Look Behind the Scenes of Jury Selection.

Giving Stronger Deposition and Trial Testimony, presented by the Florida Chapter of the International Association of Arson Investigators. Hillsborough County Fire Rescue, Tampa, Florida, February 6, 2018.

NAFE Winter Conference, presented by the National Academy of Forensic Engineers (NAFE). Hyatt Regency Hotel, Phoenix, Arizona, January 2018.

Presentations attended:

Fire Investigation Case Studies; Advanced Fire Investigation for Professional Engineers – Job Performance Requirements (JPRs) and Knowledge Topics requirements of NFPA 1033.

Using NFPA 921 to Meet the Professional Qualifications for Fire Investigator in NFPA 1033, presented by the National Fire Protection Association (NFPA). Sheraton Hotel, Orlando, Florida, December 2017.

Fire Alarms, Key Boxes and Fire Investigations, presented by the Florida Fire Marshals and Inspectors Association (FFMIA), and the Lee County Fire Marshals Association. Bonita Springs Fire Department, Bonita Springs, Florida, October 2017.

7th International Symposium on Fire Investigation Science & Technology (ISFI 2016), presented by the National Association of Fire Investigators (NAFI), the International Association of Fire Investigators (IAFI), and Eastern Kentucky University. Scottsdale Resort at McCormick Ranch, Scottsdale, Arizona, September 2016.

Forty-fire research papers from researchers, scientists and fire investigators in seven countries aimed at advancing the science of fire investigation were presented at this conference. [Presenter]

2016 Advanced International Fire, Arson and Explosion Investigation Training Program – 1033 & 921: Putting it Together, presented by the National Association of Fire Investigators, International (NAFI) and the International Association of Fire Investigators (IAFI). Hilton Hotel, Tampa, Florida, July 2016.

Presentations attended [taught]:

*Fire Investigation Methodology; Photography; **Documentation**; Explosion Dynamics; Fire Dynamics and Pattern Development; Arson Investigation; Interview Techniques; Fire Protection Systems; Fire Related Deaths; Fire Patterns Analysis; Hazardous Materials; Fire Computer Modeling; Fire Investigation Case Studies.*

2016 International Training Conference, presented by the International Association of Arson Investigators (IAAI) and corporate sponsors. Rosen Center Hotel, Orlando Florida, April 2016.

Presentations attended:

Lithium Ion Batteries – Implications in Fire and Explosion Investigations; Arc Mapping Research and Updates.

2016 International Fire, Arson and Explosion Investigation Training Program, presented by the National Association of Fire Investigators, International (NAFI) and the International Association of Fire Investigators (IAFI). Double Tree Hotel, Seattle, Washington, March 2016.

Presentations attended [taught]:

*NFPA 921 and 1033; The Arson Research Project; Fire Dynamics; Fire Dynamics and Pattern Development; Heat and Flame Vector Analysis; Photography; **Diagramming**; Origin Determination; Cause Determination; Explosions; Cognitive Bias; Electrical; **Fire Chemistry**.*

2015 Vehicle Fire, Arson and Explosion Investigation Science and Technology Seminar, presented by the National Association of Fire Investigators, International (NAFI), and the International Association of Fire Investigators (IAFI). Hilton Hotel, Lexington, Kentucky, September/October 2013.

Presentations attended [taught]:

*NFPA 921 – Vehicle Chapter Update; Vehicle Fire Chemistry; Vehicle Fire Dynamics; Vehicle Mechanical Systems; Safety; **Vehicle Fire Safety Standards**; Vehicle Electrical Systems; Documenting the Vehicle Fire; Origin Determination; Cause Determination; Post-Collision Fuel-Fed Motor Vehicle Fires; Live Vehicle Burns; **Burned Vehicle Examinations**; “Black Box” Data Crash Retrieval; Sources of Information; Vehicle Arson.*

2015 Fundamentals of Computer Fire Modeling Course, presented by the National Association of Fire Investigators (NAFI), Hyatt Hotel, Sarasota, Florida, July 2015.

Course covers the use of Fire Dynamics Tools calculators, Consolidated Fire and Smoke Transport (CFAST) software, Smokeview visualization software, and Fire Dynamics Simulator (FDS) software for performing mathematical calculations and simulations of fire phenomena.

2015 National Fire, Arson and Explosion Investigation Training Program – NFPA 921 & NFPA 1033: Putting it Together, presented by the National Association of Fire Investigators, International (NAFI) and the International Association of Fire Investigators (IAFI), Hyatt Hotel, Sarasota, Florida, July 2015.

Presentations attended [taught]:

*Fire Investigation Methodology; Explosion Dynamics; Photography; **Diagramming**; Applied Fire Dynamics; Legal Considerations; Fire Protection Systems; Fire Related Deaths; Patterns Analysis; Interview Techniques; Hazardous Materials; Computer Fire Dynamics; Fire Investigation Case Studies.*

2015 Canadian Fire, Arson, and Explosion Investigation Training Program, presented by the National Association of Fire Investigators, International (NAFI) and the International Association of Fire Investigators (IAFI). Hilton Hotel, Winnipeg, Manitoba, May 2015.

Presentations attended [taught]:

*Overview of NFPA 921 and 1033; **Diagramming the Fire Scene**; Determining Origin and Cause; Fire Patterns; Fire Dynamics; Fire Dynamics and Pattern; Canadian Legal System; **Photography**; Electrical Fires.*

2015 Certified Fire Investigation Instructor Course, presented by the National Association of Fire Investigators (NAFI). Doubletree Hotel, Dallas, Texas 2015.

Course covers various aspects of presenting fire investigation training to other fire investigators.

2015 International Fire, Arson, and Explosion Investigation Training Program, presented by the National Association of Fire Investigators, International (NAFI) and the International Association of Fire Investigators (IAFI). Doubletree Hotel, Dallas, Texas March 2015.

Presentations attended [taught]:

*NFPA 921 and 1033; Fire Chemistry and Dynamics; Fire Dynamics and Pattern; Heat and Flame; **Diagramming**; Photography; Origin; Cause; Depth of Calcination; Legal Issues; Electrical; Arson Cases.*

14th International Conference on Fire and Materials 2015, presented by the Interscience Communications; Arup; ATF Fire Research Laboratory; the Australian Institute of Forensic Fire Investigation; and FM Global. Hyatt Hotel, San Francisco, California, February 2015.

Eighty-one research papers from researchers, scientists and fire investigators in 15 countries aimed at advancing fire and material sciences and fire investigation were presented at this conference. [Presenter]

6th International Symposium on Fire Investigation Science & Technology (ISFI 2014), presented by the National Association of Fire Investigators (NAFI), the International Association of Fire Investigators (IAFI), and Eastern Kentucky University. Held at the University of Maryland, September 2014.

Sixty-two research papers from researchers, scientists and fire investigators in twelve countries aimed at advancing the science of fire investigation were presented at this conference. [Presenter]

2014 International Fire, Arson, and Explosion Investigation Training Program, presented by the National Association of Fire Investigators (NAFI), and International Association of Fire Investigators (NAFI). Hyatt Regency Hotel, Sarasota, Florida July 2014.

Presentations attended [taught]:

*Fire Investigation Methodology; Fire Related Deaths; Electricity; **Documentation**; Applied Fire Dynamics; Computer Fire Dynamics; Explosion Dynamics; Interview techniques; Fire Protection Systems; Legal; Hazardous materials; Fire Investigation Case Studies*

2014 Fundamentals of Computer Fire Modeling Course, presented by the National Association of Fire Investigators (NAFI) and the National Fire Protection Association (NFPA), Hyatt Regency Hotel, Sarasota, Florida, July 2014.

Course covers the use of Fire Dynamics Tools calculators, Consolidated Fire and Smoke Transport (CFAST) software, Smokeview visualization software, and Fire Dynamics Simulator (FDS) software for performing mathematical calculations and simulations of fire phenomena.

Fire Inspector/Arson Investigator Education Seminar, presented by the Florida Fire Marshals and Inspectors Association, Florida Fire Investigators Association and Miami-Dade Fire Rescue. Miami Dade County Fire Rescue Training Facility, Doral, Florida, May 2014.

Presentations attended [taught]:

*Marine Fire Investigations; Daubert Challenge and a Review of/Introduction to NFPA 921/1033 [Instructor]; **Diagramming the Fire Scene; Ten Most Common Fire Scene Errors; The Secret Life of the Private Sector Fire Investigator.***

Seminar at Volunteer Park, presented by the Fire Inspectors Association of Broward County; Fire Chiefs Association of Broward County, and the Broward County Board of Rules and Appeals. Volunteer Park, Plantation, Florida, March 2014.

Presentations attended [taught]:

Relationship of Fire Inspection to Fire Investigation and a Review of / Introduction to NFPA 921/1033; Electrical Safety; Fog Special Effects Amendment (Nightclub Safety); ADA Accessibility.

2014 National Fire, Arson, and Explosion Investigation Training Program, presented by the National Association of Fire Investigators (NAFI), the National Fire Protection Association (NFPA) and Eastern Kentucky University. ECU Campus, Richmond Kentucky, March 2014.

Presentations attended [taught]:

*Fire Investigation Methodology; Fire Investigation Documentation; Fire Investigation Photography; Fire Dynamics; Fire Patterns Analysis; Origin Determination – Heat & Flame Vector Analysis; Basics of Explosions and Explosion Investigations; Basic Electricity for Fire Investigators and Electrical Ignition Sources; **Hands-on Scene Exercises**; Live burns at Ashland Fire and Safety Laboratory; Legal Issues and Cognitive Bias in Fire Investigation.*

Certified Fire Protection Specialist Review, presented by the Certified Fire Protection Specialist Board and the National Fire Protection Association, Gaylord Palms Resort, Kissimmee, Florida, December 2013.

68th Annual Florida Arson Seminar, presented by the Florida Fire Marshals and Inspectors Association, Wyndham Hotel, Orlando, Florida, October 2013.

Presentations attended:

The New Fire Science Issues: Impact on Investigation and Testimony; Understanding Chapter 43 (NFPA 101 - Life Safety Code).

2013 Vehicle Fire, Arson and Explosion Investigation Science and Technology Seminar, presented by the National Association of Fire Investigators, International (NAFI), the International Association of Fire Investigators (IAFI) and the National Fire Protection Association (NFPA). Hilton Hotel, Lexington, Kentucky, September/October 2013.

Presentations attended [taught]:

*The Vehicle Fire Problem, Myth or a Reality; NFPA 921 Chapter 25, 2011 Update; Vehicle Fire Science and Basic Fire Dynamics; **Vehicle Fire Safety Standards**; Vehicle Mechanical Systems; Live Fire Evolutions; Vehicle Electrical Systems; Burned Vehicle Examinations [Instructor]; Vehicle Investigation Technology - Origin; Documenting the Vehicle Fire; Post-Collision Fuel-Fed Motor Vehicle Fires; “Black Box” Data Crash Retrieval; Sources of Information - Recalls, Service Bulletins.*

2013 National Advanced Fire, Arson, and Explosion Investigation Training Program, presented by the National Association of Fire Investigators (NAFI) and the National Fire Protection Association (NFPA). Hyatt Regency Hotel, Sarasota, Florida August 2013.

Presentations attended:

Don't be That Guy – Surviving a Qualifications Challenge; The Use of the Scientific Method & Update of NFPA 921-2011; Building Construction; Applied Fire Dynamics; Explosion Investigations and Analysis; Assessment of Fire Protection Suppression Systems During the Fire Incident Analysis.

2013 Fire Analysis Litigation Seminar, presented by the National Association of Fire Investigators (NAFI) and the National Fire Protection Association (NFPA). Hyatt Regency Hotel, Sarasota, Florida August 2013.

Course covered current legal issues affecting fire investigators in civil and criminal fire investigations.

13th International Conference and Exhibition on Fire Science and Engineering (Interflam 2013), presented by the Interscience Communications, the University of London, and numerous corporate sponsors. Royal Holloway College, University of London, UK, June 2013.

One hundred and sixty-eight research papers from researchers, scientists and fire investigators in 35 countries aimed at advancing fire science and fire investigation were presented at this conference. [Presenter]

2013 International Training Conference, presented by the International Association of Arson Investigators (IAAI) and corporate sponsors. Rosen Center Hotel, Orlando Florida, May 2013.

Presentations attended:

Investigations of Industrial/ Chemical Events; What It Takes for an Expert to Testify in the Age of Daubert & NFPA 921; Ventilation Flowpaths & Fire Growth: A Recent Review of Fire Fighter Line of Duty Deaths Utilizing Fire Dynamics Simulator; Overview of the Investigation of Fires Involving Lighting Fixtures; Meeting the 921 and 1033 Challenge for Today's Investigator.

2013 National Fire, Arson, and Explosion Investigation Training Program, presented by the National Association of Fire Investigators (NAFI) and the National Fire Protection Association (NFPA). Hilton Hotel, Charlotte, North Carolina, March 2013.

Presentations attended [taught]:

*Dynamics of Fire Investigations, NFPA 921 and 1033; Fire Chemistry & Fire Dynamics; Fire Dynamics and Pattern Analysis; Heat and Flame Vector Analysis; Processing the Fire and Explosion Scene – Photography; **Processing the Fire and Explosion Scene – Diagramming**; Determining Origin; Determining Cause and Responsibility; Legal Considerations; Fire Case Studies; Building Construction; Basic Electricity for Fire Investigator and Electrical Fire Ignition Sources.*

5th International Symposium on Fire Investigation Science & Technology (ISFI 2012), presented by the National Fire Protection Association (NFPA), Institution of Fire Engineers—USA Branch, National Association of Fire Investigators (NAFI), Eastern Kentucky University, and many corporate sponsors. University of Maryland, October 2012.

Sixty-two research papers from researchers, scientists and fire investigators in twelve countries aimed at advancing the science of fire investigation were presented at this conference. [Presenter]

2012 National Advanced Fire, Arson, and Explosion Investigation Training Program, presented by the National Association of Fire Investigators (NAFI) and the National Fire Protection Association (NFPA). Hyatt Regency Hotel, Sarasota, Florida August 2012.

Presentations attended:

Applied Fire Dynamics; Low Voltage-The Incompetent Ignition Source, Dispelling the Myth; Assessment of Fire Protection Suppression Systems; Use of the Scientific Method; Explosion Investigation and Analysis; Building Construction

2012 Fundamentals of Computer Fire Modeling Course, presented by the National Association of Fire Investigators (NAFI) and the National Fire Protection Association (NFPA). Hyatt Regency Hotel, Sarasota, Florida August 2012.

Course covers the use of Fire Dynamics Tools calculators, Consolidated Fire and Smoke Transport (CFAST) software, Smokeview visualization software, and Fire Dynamics Simulator (FDS) software for performing mathematical calculations and simulations of fire phenomena.

2012 Fire Analysis Litigation Seminar, presented by the National Association of Fire Investigators (NAFI) and the National Fire Protection Association (NFPA). Hyatt Regency Hotel, Sarasota, Florida August 2012.

Course covered current legal issues affecting fire investigators in civil and criminal fire investigations.

2012 Hands-On Vehicle Fire/Arson Investigation Program, presented by Public Agency Training Council (PATC). Hendersen Fire Dept., Henderson, North Carolina, March 2012.

Classroom and practical live burn and hands-on investigation training program on vehicle fire investigations.

2012 National Fire, Arson, and Explosion Investigation Training Program, presented by the National Association of Fire Investigators (NAFI) and the National Fire Protection Association (NFPA). Embassy Suites Hotel, St. Charles, Missouri, March 2012.

Presentations attended [taught]:

*Dynamics of Fire Investigations; The NFPA Code Making Process; Update of NFPA 921-2011; Fire Chemistry & Fire Dynamics; Fire Dynamics and Pattern Analysis; Heat and Flame Vector Analysis; Processing the Fire and Explosion Scene -Photography; Processing the Fire and Explosion Scene - Diagramming; **Ten Most Common Fire Scene Errors** [Co-Instructor]; Determining Origin - Heat and Flame Vector Analysis; Determining Cause and Responsibility; Legal Considerations; Fire Case Studies; Fire Investigation and the Law; Basic Electricity for Fire Investigator and Electrical Fire Ignition Sources.*

2011 National Advanced Fire, Arson, and Explosion Investigation Training Program, presented by the National Association of Fire Investigators (NAFI) and the National Fire Protection Association (NFPA). Hyatt Regency Hotel, Sarasota, Florida August 2011.

Presentations attended:

Applied Fire Dynamics; Assessment of Fire Protection Suppression Systems; Explosion Investigation and Analysis; Electricity and Fire Investigations; Joint Evidence Inspections in Complex Investigations.

2011 Fire Analysis Litigation, presented by the National Association of Fire Investigators (NAFI) and the National Fire Protection Association (NFPA), Hyatt Regency Hotel, Sarasota, Florida August 2011.

Course covered current legal issues affecting fire investigators in civil and criminal fire investigations.

2010 Certified Fire Investigation Instructor Course, presented by the National Association of Fire Investigators (NAFI) and the National Fire Protection Association (NFPA), Sarasota, Florida, August 2010.

Course covers various aspects of presenting fire investigation training to other fire investigators.

2010 National Fire, Arson, and Explosion Investigation Training Program, presented by the National Association of Fire Investigators (NAFI) and the National Fire Protection Association (NFPA). Hyatt Regency Hotel, Boston, Massachusetts, March 2010.

Presentations attended:

Philosophy of Fire Investigation; NFPA Code Making Process; Update on NFPA 921-2008; NFPA 921 and the Law; Fire Chemistry and Fire Dynamics; Fire Dynamics and Pattern Analysis; Fire Case Studies; Processing the Fire Scene—Searching, Note Taking, Diagramming & Photography; Basics of Explosions and Explosion Investigation; Determining Origin—Heat and Flame Vector Analysis; Determining Cause and Responsibility; Basic Electricity for the Fire Investigator and Electrical Fire Ignition Sources.

2010 Fundamentals of Computer Fire Modeling Course, presented by the National Association of Fire Investigators (NAFI) and the National Fire Protection Association (NFPA). Hyatt Regency Hotel, Boston, Massachusetts, March 2010.

Course covered the use of Fire Dynamics Tools calculators, Consolidated Fire and Smoke Transport (CFAST) software, Smokeview visualization software, and Fire Dynamics Simulator (FDS) software for performing mathematical calculations and simulations of fire phenomena.

On-line Education and Training

International Association of Arson Investigators/CFI Trainer

Courses Completed:

Principles of Fire Investigation Multi-Program (67 Hours) (completed 2/2020)

Fire Investigation for Fire Officers (25 Hours) (completed 2/2020)

Classes Taken:

- *A Ventilation-Focused Approach to the Impact of Building Structures and Systems on Fire* (8/2011)
- *An Analysis of the Station Night Club Fire* (9/2011)
- *Arc Mapping Basics* (8/2011)
- *Basic Electricity* (12/2014)
- *Charleston Super Sofa Store Fire* (9/2011)
- *Charting Your Career Path in Fire Investigation* (2/2020)
- *Critical Evaluation and Testing of Commonly Reported Accidental Causes* (1/2020)
- *Critical Thinking Solves Cases* (2011)
- *Digital Photography & the Fire Investigator* (2013)
- *Discovery in Civil Cases* (3/2020)
- *Documenting the Event* (2013)
- *Effective Investigation & Testimony* (2013)
- *Electric & Hybrid Vehicle Fires* (4/2023)
- *Electrical Safety* (2014)
- *Ethics and Social Media* (2015)
- *Ethics and the Fire Investigator* (2011)
- *Evidence Examination: What Happens at the Lab* (2013)
- *Explosion Dynamics* (2014)
- *Fire Chemistry* (1/2020)
- *Fire Investigation for Fire Officers* (2/2020)
- *Fire Investigator Scene Safety* (2014)
- *Fire Flow Analysis* (2/2020)
- *Fundamentals of Interviewing* (2014)
- *Fire Protection Systems* (2014)
- *Fundamentals of Residential Building Construction* (2014)
- *Insurance and the Fire Investigator* (2014)
- *Insurance and Law Enforcement* (11/2022)
- *Introduction to Appliances* (1/2020)
- *Introduction to Evidence* (2014)
- *Introduction to Fire Dynamics and Modeling* (2015)
- *Investigating Fatal Fires* (2014)
- *Investigating Motor Vehicle Fires* (2015)
- *Investigating Natural Gas Systems* (2017)
- *Lithium-Ion Battery Fires* (5/2021)
- *MagneTek: A Case Study in The Daubert Challenge* (2017)
- *Managing Complex Fire Scene Investigations* (2017)
- *Motive, Means, and Opportunity: Determining Responsibility in an Arson Case* (2014)
- *Motor Vehicles: The Engine and the Ignition, Electrical, and Fuel Systems* (4/2020)
- *Motor Vehicles: Transmission, Exhaust, Brake, and Accessory Systems* (4/2020)
- *NFPA 921 and 1033 – 2014 Editions: Important Revisions* (2014)
- *NFPA 1033 and Your Career* (2012)
- *Physical Evidence at the Fire Scene* (2017)
- *Photovoltaic Cells & Systems* (11/2022)
- *Post Flashover Fires* (2016)
- *Preparation for the Marine Fire Scene* (2011)
- *Process of Elimination* (2014)
- *Residential Electrical Systems* (2014)
- *Residential Natural Gas Systems* (2015)
- *Search and Seizure* (2017)
- *The HAZWOPER Standard* (2015)
- *The Potential Value of Electronic Evidence in Fire Investigations* (9/2019)
- *The Practical Application of the Relationship Between NFPA 1033 and NFPA 921* (2014)
- *The Scientific Method for Fire and Explosion Investigation* (2014)
- *Thermometry, Heat, and Heat Transfer* (4/2020)
- *Understanding Fire through Candle Experiments* (2013)
- *Understanding Undetermined* (2/2020)
- *Using Resources to Validate Your Hypothesis* (2017)
- *Vacant and Abandoned Buildings: Hazards and Solutions* (2014)
- *What the Insurance Professional Needs to Know About Fire Investigation* (4/2020)
- *Wildland Fire Investigation* (2017)
- *Writing the Initial Origin and Cause Report* (2017)

International Association of Fire Investigators/Webinar Series

Classes taken [taught]:

- *Anatomy of a Wrongful Arson Conviction (2014)*
- ***Chemistry of Fire (2015)***
- ***Diagramming the Fire Scene (2013, 2014)***
- *Expert Witness/Testifying in Depositions and Trials (2015)*
- *Fire Dynamics and Fire Pattern Analysis (2014)*
- *Fire Scene Safety (2014)*
- *Fire Scene Safety: Hazard and Risk Assessment (2014)*
- *Fire Scene Safety: Personal Protective Equipment (PPE), Selection and Use (2014)*
- *Fire Scene Photography (2013)*
- *Large Loss Fires. The ABCs of an SOP to CYA (2016)*
- *NFPA 1033 – What You Need to Know (2013)*
- *Origin, Cause, Classification and Negative Corpus (2016)*
- *Professional Liability Insurance for Fire Investigators (2015)*
- *Report Writing for Fire Investigators (2015)*
- *Ten Most Common Fire Scene Errors (2013)*
- *Understanding The Daubert Challenge (2015)*
- *Understanding Battery and Vehicle Electrical Fire (2016)*

National Fire Protection Association/Webinar Series

Classes taken:

- *2019 NFPA 72, National Fire Alarm and Signaling Code Changes (7/2018)*
- *Don't Go it Alone – How NFPA Can Support Your Home Fire sprinkler (2015)*
Addressing Fire Safety Challenges During Construction (4/2021)
- *Advocacy Efforts Live Online Training Webinar (2015)*
- *Dust Swirls for NFPA Codes and Standards (Combustible Dust Explosions) (2012)*
- *Fire Safety Challenges of 'Green' Buildings and Attributes Webinar (4/2021)*
- *Fire Safety of Tall Wood Buildings: A Research Review (2014)*
- *Hazard Assessment of Lithium Ion Battery Storage Systems (2016)*
- *High Volume-Low Velocity Fans & Sprinkler Operation (2011)*
- *Quantifying the Impact of Portable Fire Extinguisher Agents on Cultural Resource Materials (2016)*
- *Smart Fire Protection: Update on NFPA Sandbox, Smart Home Summit, Smart Enforcement Workshop, and Related Activities (2016)*
- *Smoke Alarm Nuisance Source Characterization (2015)*
- *Wildfires and Insurance: Learn How to Prepare Financially? (5/2020)*

National Association of Subrogation Professionals, Subrogation Webinar Series (NASP)

Classes Taken [Taught]:

- *Building Systems: Why did my System Fail, and What are Potential Avenues for Recovery?* (2/2017)
- *Catastrophic Gas Explosions and Aging Infrastructure: What Every Recovery Professional Must Know* (8/2018^{*})
- *Commercial Kitchen Fires: A Significant but Avoidable Hazard* (7/2018^{*})
- *Guide to Subrogating a Commercial Restaurant Fire Loss-Focus on the Ansul System* (7/2018^{*})
- *Don't Short Circuit Your Recovery – Litigating Claims Against Power Companies* (7/2018^{*})
- *Dryer Fires: Cleaning up on Subro* (7/2017)
- *Electrical Engineering* (9/2016)
- *Evidentiary Our Insured is not at Fault: An Inside Look at Proofs and Evidence in Arbitration* (1/2017)
- *Fire Dynamics for Beginners* (2/2018)
- *Fire Investigation from the Insurance Perspective* (8/2017)
- *Fire Scene Safety, Preservation, and Relationships: Three Keys to a Safe and Successful Fire Investigation* (9/2018^{*})
- *Fire Spread... Beyond Origin and Cause* (9/2019)
- *Fire Sprinkler System Claims* (12/2016)
- *Hidden Hazards in Nonmetallic Cable Installations* (8/2017)
- *High Tech and High Risk: The Hidden Dangers of Rooftop Solar Electric and the Subrogation Strategies for Recovery* (9/2018^{*})
- *Introduction to Fire Science* (8/2018^{*})
- *Investigating the Fire Scene – When Claims, Flames and Subro Cross Paths* (8/2018^{*})
- *Is It Defective?* (8/2021)
- *One Dimensional vs. Two Dimensional Fire Investigation Experts* (7/2018^{*})
- *Practical Strategies for Developing Fire Spread Liability Theories* (8/2017)
- ***Propane Fires and Explosions – Looking Beyond the Leak*** (3/2019)
- *Public Fire Investigator – Friend or Foe?* (3/2020)
- *Subrogation and the Fire Expert* (5/2017)
- *Subrogation Arising from the Installation, Inspection, and Cleaning of Chimneys, Fireplaces, and Wood Burning Appliances* (9/2018)
- *Subrogation of Equipment Accident and Industrial Claims* (2017)
- *Subrogation Fires and Explosions Involving Death or Serious Injury: Complex Investigation, Ethical and Legal Issues* (6/2021)
- *The Clock is Ticking - Statute of Repose/Statute of Limitations* (8/2016)
- *The Daubert Standard, the Scientific Method, and What it Means to Insurance Investigations* (3/2017)
- *The Investigation and Litigation of Fan Fires* (2/2018)
- *Understanding Safety Concerns: Asbestos at the Fire Scene* (7/2018^{*})
- *Unintended Consequences of Green Design* (7/2016)
- *Vetting the Fire Expert* (8/2018^{*})
- *What Does “Undetermined” Really Mean?* (8/2018^{*})
- *Where Lightning Strikes, Subrogation Lurks* (8/2018^{*})

American National Standards Institute/Webinar Series

Classes Taken:

- *ANSI/ASSE Z590.3 – 2011 Prevention through Design, Guidelines for Addressing Occupational Hazards and Risks in Design and Redesign Process* (2011)

ASTM, International (American Society for Testing and Materials)/Webinar Series

Classes Taken:

- *ASTM Webinar: Practice of Flash Point Determination* (2014)

American Boat & Yacht Council (ABYC)

Classes Taken:

- *A.C. Electrical Safety (6/2020)*
- *A.C. Troubleshooting (2/2021^r)*
- *Batteries: The Good, The Bad, and The Ugly of Selection and Install (4/2020)*
- *Common Causes of Boat Fires (12/2020^r)*
- *De-mystifying Basic Electrical Concepts and Standards (5/2020^r)*
- *A-4: Fire Fighting Equipment (7/2021^r)*
- *Fuel Fill System Overview (7/2021^r)*
- *Lithium-Ion Battery Basics (7/2020^r)*
- *Propane Systems on Boats (6/2020)*
- *What's New with Electric Propulsion (12/2020^r)*
- *Surveying Electrical Systems: Sweat the Small Stuff! (4/2020)*

Claims and Litigation Management Alliance (CLM)

Classes Taken:

- *Battery Litigation: It's Hot! (5/2021^r)*
- *Chimney Fires: How to Determine What Causes Them (9/2017)*
- *Effective Loss Scene Investigation (2017)*
- *Fire on Wheels - Food Truck Fires: Liabilities & Subrogation Opportunities (1/2018)*
- *Handling a Fire or Explosion Scene Inspection (2016)*
- *Risk Transfer Through Other Means: How Can I Get Someone Else to Pay for This? (8/2017)*
- *Rules and Strategies in Defending Construction Defect Cases in Arbitration (9/2017)*
- *Subrogation: Maximizing Cost-Effective Subrogation Recoveries (2016)*
- *Vapor Intrusion: Impact of Recent US EPA Actions (6/2017)*

Easy Power Webinar Series

Classes Taken:

- *208 VAC Arc Flash Study - An Actual PowerStart Discussion (8/2018)*
- *Arc Flash Webinar Series - Part 1, Regulations and Industry Standard requirements (2017)*
- *Fuse Basics (2017)*
- *Introduction into Electrical Safety – NFPA 70E, 70 NEC, & OSHA Standards (2017)*
- *NFPA 70E Arc Flash & Shock - Getting It Right! (2017)*

Webinars from Miscellaneous Sources

Classes Taken [Classes Taught]:

- *30 Minutes to Better Blasting. ISEE (2015)*
- *Advancing Fire Scene Investigations through Field Portable Technologies. Forensic Technology Center of Excellence (DOJ) (4/2021)*
- *Understanding Mechanical & Electrical Ignition Sources. Dekra Process Safety (1/2019)*
- *Assessing the Flammability Hazards of Modern Refrigerant Blends, Dekra Process Safety (8/2018)*
- ***Natural Gas & Propane Fires and Explosions: Investigation of Fuel Gas Incidents.***
Metro Fire/Arson Investigators Association (4/2021)
- *NFPA 1 & 101 with 7th Edition Florida Fire Prevention Code Updates. FFMIA/NFPA (2/2021)*
- *NFPA 30 (2021): Practical Viewpoints to Ensure Flammable Liquid Safety. Dekra Process Safety (5/2020)*
- *Next-Generation Advanced Combustion/After-treatment. NASA/SAE (2016)*
- *Pumped Two Phase Cooling: The Advanced Thermal Management Solution for Emerging High Power Electronics Applications. NASA/SAE (2016)*
- *Understanding Chemical Reactivity Hazards. Dekra Process Safety (4/2018)*
- *Understanding Mechanical & Electrical Ignition Sources. Dekra Process Safety (1/2019)*
- *Zone Fire Modeling and CFD Analysis. CIBSE ASHRAE Group (12/2017)*

Safety Related Training

OSHA 8 Hour HAZWOPER Refresher Training, Safety Unlimited. (10/2017)

Version 1 - Includes: Legal Issue and Chemical Hazards

OSHA 8 Hour HAZWOPER Refresher Training, Safety Unlimited. (12/2015)

Version 3 - Includes: Recognition, Detection Basics and Containment.

OSHA 24 Hour HAZWOPER Training, Safety Unlimited (11/2012)

NFPA 70E Arc Flash Safety, Johnson Controls Inc, Largo, Florida (2009)

OSHA “Right to Know” Hazardous Material Safety Training, Johnson Controls, (2008)

Boater Safety Course, US Coast Guard Auxiliary, Palmetto, Florida (2000)

Nuclear, Biological and Chemical Defense Course, U.S. Army, Camp Perry, Ohio (1986)

Other Relevant Technical Education and Training

Air Conditioning Technician – 75 Hour Course, Manatee Technical Institute, Bradenton, Florida (2005)

Brazing Seminar – 3 Day Course, Kay & Associates, Greenville, South Carolina (2009)

Injection Molding Seminar, University of Akron, Akron, Ohio (1993)

Kepner Tregoe Problem Solving – 3 Day Course, Johnson Controls, (2010)

Thermoplastic Elastomers Seminar, University of Akron, Akron, Ohio (1992)

Patents and Other Achievements

United States Patent no. 9,097,449

Awarded August 4, 2015 to Richard Meier, Varun Rajasekaran, and Daniel Quinones.

"Pressure Based Control of Parallel Compressors in Multiple Refrigeration Units".

A system for ensuring the continuing operation of HVAC units in extreme climates.

Other Interests

Over the years Richard Meier has taken an interest in many activities of a technical nature. This has proved to be beneficial to his work in fire and explosion investigation and analysis, as it broadens his overall understanding of how things work and how they fail. Some of these interest have included:

- ***Home Construction and Building Trades.*** Having been born to parents who believed every house could be improved by additions and remodeling, Mr. Meier learned the basics of carpentry, plumbing and electrical wiring at an early age. He rewired, re-plumbed, and remodeled his first home, built in the 1920's, while in his early twenties. He has also volunteered on various construction projects for the charitable organization *Habit for Humanity*.
- ***Automobiles and Motorcycles.*** Mr. Meier bought his first car a 17, and performed a complete "bare frame" disassembly and reassembly during the restoration process. He still performs much of the maintenance on his personal vehicles when time allows.
- ***Boating.*** Mr. Meier has owned and maintained both sailing and motor vessels for almost 40 years. He performs all of the maintenance and repairs on his vessels, and is constantly looking for ways to simplify and enhance the mechanical and electrical systems on board.
- ***Machine Shop, Welding, and Fabrication.*** Mr. Meier has owned and used various welders and machine tools for over 30 years, both for personal and professional use. He still maintains a small machine shop at his home for fabricating items for personal use and specialized equipment for the laboratories of MFI.
- ***Furnace Building and Metal Casting.*** Mr. Meier has built and rebuilt his own furnaces, both fuel fed and electric, for personal and laboratory use. He is experienced at mold and pattern making and recreationally casts metal products.
- ***Scuba Diving.*** Mr. Meier have been a certified diver for since 1998 years and has taken an active interest in the science of diving and the design of diving equipment. He currently is certified as an *Advanced Open Water Diver* and *Dry Suit Diver*.
- ***Photography.*** Mr. Meier has had an interest in photography – both film and digital – for more than 40 years, and once had his own dark room and equipment for photographic development and enlargement.
- ***Antique Electrical Meters.*** Mr. Meier collects, repairs and restores antique Weston electrical meters. The company's founder was the inventor of the first commercially successful electrical meter, and the company produced premium laboratory and commercial meters for nearly a century. Many of the units in Mr. Meier's collection are still suitable for laboratory use today.

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ADDITIONAL INFORMATION AVAILABLE ON REQUEST

- Company Brochure
- Richard Meier Case Experience
- Richard Meier Testimony List
- Rates & Retention Information
- Complimentary Case Consultation
- Investigator Availability

Please call 941-900-1234 to obtain additional information or to speak with a fire investigation professional about your case.