

# STEVEN W. CARMAN

MSc FPE, IAAI-CFI, ATF CFI (Ret.), CFEI

## CARMAN & ASSOCIATES FIRE INVESTIGATION, Inc.

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### EMPLOYMENT HISTORY:

- 2008 – Present      **CARMAN & ASSOCIATES FIRE INVESTIGATION**  
**www.carmanfire.com**  
Grass Valley /Dunsmuir, California  
President/Owner of a fire investigation, consulting and training firm specializing in expert analyses of fire and explosion events and fire protection engineering issues.
- 2006 – 2012      **COGSWELL POLYTECHNICAL COLLEGE**  
Sunnyvale, California  
Adjunct instructor in the Fire Science department specializing in the areas of fire dynamics, incendiary fire analysis and investigation, and fire protection structure and systems design.
- 2004 – 2008      **BUREAU OF ALCOHOL, TOBACCO, FIREARMS and EXPLOSIVES**  
Redding, California Satellite Office  
  
**Senior Special Agent / Certified Fire Investigator**  
Federal Criminal Investigator responsible for investigating violations of the federal firearms, explosives and arson statutes. Primary emphasis focused on the investigation of fires and explosions and the determination of the origin and cause of those events.
- 1988 - 2004      **BUREAU OF ALCOHOL, TOBACCO AND FIREARMS**  
Sacramento, California Field Office  
  
**Senior Special Agent / Certified Fire Investigator**

1987 - 1988	<b>EIGEN, Inc.</b> Nevada City, California
	<b>Mechanical Engineering</b>
1986 - 1987	<b>SEAGATE TECHNOLOGY</b> Scotts Valley, California
	<b>Chemical Process Engineering</b>
1980 - 1986 (Active)	<b>U.S. COAST GUARD</b> <b>Commissioned Officer</b>
1986-1991 (Reserve)	
1980-1982	<b>Deck/Operations Officer, USCG Cutter BLACKHAW</b> San Francisco, California
1982-1984	<b>Commanding Officer, USCG Cutter CAPE JELLISON</b> Seward, Alaska
1984-1986	<b>Controller, USCG Pacific Area Operations / Rescue</b> <b>Coordination Center</b> , Alameda, California
1986-1989	<b>Commanding Officer, USCG Cutter CAPE ROMAIN - Reserve</b> <b>Crew</b> , San Francisco, California
1989-1991	<b>USCG High Endurance Cutter Reserve Crew</b> Alameda, California

## **FORMAL EDUCATION:**

### **CALIFORNIA POLYTECHNIC STATE UNIVERSITY, SAN LUIS OBISPO (2010-2013)**

San Luis Obispo, California

2013 Graduated with M.S. with Distinction in Fire Protection Engineering

### **U.S. COAST GUARD ACADEMY (1976-1980)**

New London, Connecticut

1980 Graduated with B.S. with High Honors in Physical Science (emphasis - Chemistry)

### **CALIFORNIA STATE UNIVERSITY, SACRAMENTO**

1987 - Graduate studies in Advanced Engineering Mathematics

### **UNIVERSITY OF MARYLAND, UNIVERSITY COLLEGE**

May 1995 **FIRE DYNAMICS** (3 semester hours)

May 1996 **APPLICATIONS OF FIRE RESEARCH** (3 semester hours)

## **ADDITIONAL ASSIGNMENTS / POSITIONS:**

- 2020 – Present      **Member, Underwriter Laboratory’s Fire Safety Research Institute (FSRI) Technical Panel on the Development of an Interactive Database of Contemporary Material Properties for Fire Modeling**  
Invited to Become a Member of the Technical Panel by the Research Director of UL’s Firefighter Safety Research Institute
- 2016 – 2019      **Member, Underwriter Laboratory’s Fire Safety Research Institute (FSRI) Technical Panel on Fire Forensics**  
Appointed to the Technical Panel by the Global Building and Security Leader of UL’s Commercial and Industrial Buildings Unit
- 2013 – 2020      **Member, Editorial Board, Fire Technology Journal**  
Appointed to Editorial Board of the world’s leading journal on issues related to fire science and technology.
- 2014 – 2016      **Member, NIST’s Organization of Scientific Area Committee’s Subcommittee on Fire and Explosion Investigation**  
Appointed to the Subcommittee by the National Institute of Standards and Technology’s forensic oversight body.
- 2008 – 2011      **Member, Board of Directors of the IAAI**  
Elected member of the International Association of Arson Investigator’s Board of Directors
- 2008 – Present      **Member, Training Committee, IAAI**  
Serving as training designer and consultant for the various worldwide training programs for the IAAI.
- 2008 – 2012      **Member, Training Committee, CCAI**  
Serving as training consultant for the various training programs for the California Conference of Arson Investigators.
- 1992 - 2008      **ATF San Francisco Division Response Team**  
Serving as a Certified Fire Investigator assigned to conduct investigations of major fire and explosions not meeting the requirements to activate the National Response Team.

1991 - 2000

**ATF National Response Team**

Conducted investigations of major fires and explosions as part of a 10-15 person rapid response team. Assigned duties include origin and cause determination; still and video photography; scene sketching; interviewing; and evidence collection and preservation.

## **PUBLICATIONS:**

### **“FIRE PROTECTION ENGINEERS IN FORENSIC FIRE INVESTIGATION”,**

Viewpoint Article, Fire Protection Industry News, Fire Engineering Journal, 1<sup>st</sup> Quarter 2019

### **“FIRE PROTECTION ANALYSIS OF THE ‘CENTER FOR THE ARTS’ BUILDING”**

Project report for MSc. Fire Protection Engineering, California Polytechnic University, San Luis Obispo, California, June 2013

### **“IMPACT OF VENTILATION IN FIRE INVESTIGATION”**

Published in the 2013 Proceedings of DRI’s “Fire Science and Litigation”, Scottsdale, Arizona, January 2013

### **“INVESTIGATING MULTI-COMPARTMENT FIRE BEHAVIOR OF ELEVATED ORIGINS”**

Published in the 2013 Proceedings of Fire and Materials, San Francisco, California, January 2013, Interscience Communications, London, UK

### **“SCIENCE TRUMPS ART IN FIRE INVESTIGATION: THE STATE OF FORENSIC SCIENCE ”**

Published in the Texas Bar Journal, July 2011, Vol. 74, No. 7, pp. 586-591

### **“INVESTIGATION OF AN ELEVATED FIRE – PERSPECTIVES ON THE “Z-FACTOR”**

Published in the 2011 Proceedings of Fire and Materials, San Francisco, California, January 2011, Interscience Communications, London, UK

### **“‘CLEAN BURN’ FIRE PATTERNS – A NEW PERSPECTIVE FOR INTERPRETATION”**

2010 Proceedings of Interflam, July 2010, London, UK (Paper presented at the University of Nottingham, Nottingham, England, July 2010), Interscience Communications, London, UK

### **“MARITIME FIRE INVESTIGATION”**

Entire chapter on “Maritime Fire Investigation” contained in the text, Fire Investigator – Principles and Practice to NFPA 921 and 1033, Jones and Bartlett Learning/NFPA/IAAI/IAFC, 2009

### **“PROGRESSIVE BURN PATTERN DEVELOPMENT IN POST-FLASHOVER FIRES”,**

2009 Proceedings of Fire and Materials, San Francisco, California, December 2008, Interscience Communications, London, UK

**“IMPROVING THE UNDERSTANDING OF POSTFLASHOVER FIRE BEHAVIOR”,** Proceedings of the International Symposium on Fire Investigation Science and Technology, Cincinnati, Ohio, May 2008

**HIGH TEMPERATURE ACCELERANTS**

Monograph published and distributed nationwide by the Bureau of ATF. The work was conducted in response to Congressional inquiries as to the extent of the national threat from HTA fires, Washington, D.C., October 1994

**"CHEMISTRY OF HIGH TEMPERATURE INCENDIARIES"**

Bureau of Alcohol, Tobacco and Firearms, Sacramento, CA March 1993

## PERSONAL AWARDS:

JANUARY 2001 DECEMBER 2000	SPECIAL ACT OR SERVICE AWARD, BUREAU OF ATF THE "HAMMER AWARD" FROM VICE PRESIDENT AL GORE FOR ROLE AS ONE OF THE DEVELOPERS OF THE <i>InterFIRE</i> VIRTUAL REALITY CD-ROM FOR FIRE INVESTIGATION DISTRIBUTED THROUGHOUT THE U.S. AND EUROPE
JUNE 1999	<b>ATF AGENT-OF-THE-YEAR</b> <i>Non-Supervisory</i> ( <i>For Entire United States</i> )
OCTOBER 1998	QUALITY STEP INCREASE, OUTSTANDING EVALUATION
OCTOBER 1996	QUALITY STEP INCREASE, OUTSTANDING EVALUATION
NOVEMBER 1995	ANNUAL U.S. TREASURY SECRETARY'S AWARD
APRIL 1995	SPECIAL ACT OR SERVICE AWARD, BUREAU OF ATF
JUNE 1994	SPECIAL ACT OR SERVICE AWARD, BUREAU OF ATF
OCTOBER 1992	SPECIAL ACT OR SERVICE AWARD, BUREAU OF ATF
MAY 1992	SPECIAL ACT OR SERVICE AWARD, BUREAU OF ATF
SEPTEMBER 1990	SPECIAL ACT OR SERVICE AWARD, BUREAU OF ATF
SEPTEMBER 1989	SPECIAL ACHIEVEMENT AWARD, BUREAU OF ATF
AUGUST 1989	TOP STUDENT, ATF NEW AGENT TRAINING CLASS
NOV 1984	MASTER'S LICENSE, U.S. MERCHANT MARINE, U.S. VESSELS TO 1600 TONS SECOND MATE'S LICENSE, U.S. MERCHANT MARINE, U.S. VESSELS OF UNLIMITED TONNAGE
MAY 1980	TOP CHEMISTRY STUDENT, US COAST GUARD ACADEMY
MAY 1980	TOP STUDENT IN THEORETICAL & PRACTICAL SEAMANSHIP, US COAST GUARD ACADEMY
MAY 1980	B.S. with HIGH HONORS IN PHYSICAL SCIENCES US COAST GUARD ACADEMY

**OTHER PROFESSIONAL ASSOCIATIONS** (present and past):

*MEMBER, FIRE AND EXPLOSIVES SCENE INVESTIGATION SUBCOMMITTEE, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY'S FORENSIC SCIENCE STANDARDS BOARD - ORGANIZATION OF SCIENTIFIC AREA COMMITTEES*

Appointed 2014

*EDITORIAL BOARD, JOURNAL OF FIRE TECHNOLOGY*

Appointed 2013

*SOCIETY OF FIRE PROTECTION ENGINEERS*

Member, 2010 to present

*INTERNATIONAL ASSOCIATION OF ARSON INVESTIGATORS*

Elected to Board of Directors 2008 to 2011

Member, Training Committee 2007 to present

Member, Strategic Training Summits, 2008 and 2010

Member, 1991 to Present

*CALIFORNIA CONFERENCE OF ARSON INVESTIGATORS*

Sub-Chair, Training Committee 2008

Member, 1991-1999, 2005-Present

*INTERNATIONAL ASSOCIATION OF MARINE INVESTIGATORS*

Member, 2007 - 2012

*NATIONAL ASSOCIATION OF FIRE INVESTIGATORS*

Member, 2010 - Present

*INTERNATIONAL ASSOCIATION OF BOMB TECHNICIANS AND INVESTIGATORS*

Technical Panel Expert for Underwriter Laboratory's Fire Safety Research Institute (FSRI) Technical Panel on Fire Forensics, appointed by the Global Building and Security Leader of UL's Commercial and Industrial Buildings Unit

Technical Panel Expert for Underwriter Laboratory's Fire Safety Research Institute (FSRI) Technical Panel on the Development of an Interactive Database of Contemporary Material Properties for Fire Modeling. Invited to Membership by the Research Director of UL's Firefighter Safety Research Institute

Principal Subject Matter Expert for the design/creation of two CFITrainer.net training modules, "Marine Fires" and "Understanding Post Flashover Fire Behavior". CFITrainer.net is the worldwide, online training program of the International Association of Arson Investigators

One of two Subject Matter Experts for the 2012-2013 rewrite of the National Fire Academy's class on "Fire Dynamics and Fire Modeling."

Design Team member - *InterFIRE VR* the first interactive CD fire investigation training tool

Sacramento-Sierra Regional Arson Task Force - Founding Member

Shasta / Siskiyou County, California Arson Task Forces

### **FIRE / EXPLOSION INVESTIGATION EXPERIENCE:**

Examined/investigated more than 800 fire and/or explosion scenes with an average dollar loss of more than \$1,000,000 per incident. The majority of these fires involved buildings, about half of which were commercial structures. Those investigations have involved deaths of over 190 people. Have set and/or observed more than 300 full scale test fires and participated in/observed over 100 explosions consisting of either low or high explosives or combustible fuel gas mixtures.

## **PROFESSIONAL CERTIFICATIONS:**

Feb 2019	Re-certified as a Fire Investigator (IAAI-CFI), by the International Association of Arson Investigators
June 2018	FAA Part 107 Remote Vehicle (Drone) Pilots License
Jan 2016	Re-Certified Fire and Explosion Investigator (CFEI) National Association of Fire Investigators
Aug 2013	Re-certified as a Fire Investigator (IAAI-CFI), by the International Association of Arson Investigators
Sep 2011	Private Pilot, Single Engine Aircraft, Ground – FAA License
Jan 2011	Certified Fire and Explosion Investigator (CFEI) National Association of Fire Investigators
Sept 2008	Certified HAZWOPER Hazardous Materials Specialist
Aug 2008	Certified Fire Investigator (IAAI-CFI), International Association of Arson Investigators
July 2008	Licensed Private Investigator, State of California, license number 26066
Apr 1995	Certified Fire Investigator, State of California
Nov 1995	Certified Hazardous Materials Technician/Specialist
Oct 1993	Certified Fire Investigator (ATF CFI), U.S. Bureau of Alcohol, Tobacco & Firearms, Certificate Number 03-01
Nov 1984	Master's License, US Merchant Marine, vessels to 1,600 gross tons,
Nov 1984	Second Mate's License, US Merchant Marine for vessels of unlimited tonnage

## **EXPERT WITNESS TESTIMONY:**

Mediation hearing between plaintiffs and defendants related to the May 2020 fire at Pier 45 in San Francisco, CA

Testified in person at the mediation hearing on March 9, 2022  
Case name: Burchell, et al. v. City and County of San Francisco  
ADRS Case No. 21-6855-MLH

Mediation hearing in matter related to the insurance claim by the Liu family against Safeco – Liberty Mutual Insurance (claim 042516973-0) for fire damage incurred in the fire at their residence located at 2026 Willowbrook Lane, Perris, CA.

Testified in an electronic hearing on March 3, 2022

California Superior Court, County of San Francisco

Testified in criminal trial of People of California v. Erbet Mayek  
September 7, 2021  
San Francisco, CA  
San Francisco Superior Court, Department 20, Case Number 19014035

US District Court, Central District of California

Testified in deposition for Scottsdale Insurance Company v. Broan-NuTone  
May 9, 2019  
Newport Beach, CA  
Case number 5:18-CV-00748-JAK-SP

California Superior Court, County of San Francisco

Testified in deposition for Beck & Bloom, LLC v. Hawk Lou, et al.  
September 7, 2018  
San Francisco, CA  
San Francisco Superior Court Case Number: CGC-16-552119

Alaska Superior Court, Third Judicial District

Testified in Daubert / Evidentiary Hearing for State of Alaska v. Marco A. Flores  
July 23, 2018  
Anchorage, AK  
Alaska Superior Court case number: 3AN-15-08130 CR

California Superior Court, County of Riverside

Testified in trial of California vs. Robert Pape and Cristin Smith  
April 19, 2018  
Riverside, California  
Criminal Case Number INF1600755

US District Court, Central District of California

Testified in deposition for Dawn Soares, et. al. v. County of Los Angeles, , Sheriff Jim McDonnell, et al

April 11, 2018, Los Angeles, CA

Case number: 2:17-cv-00924-RGK-AS

Arizona Superior Court, County of Maricopa

Testified in trial of State vs. Dwandarrius Robinson

March 20, 2018

Criminal Case CR2012-138236

Elvis Rivera, Et Al., vs. Hawk Ling Lou, Et Al., County of San Francisco, CA

Deposition taken December 1, 2017

San Francisco, CA

Civil Case: CGC-15-547334

American Family Mutual Insurance Co v. Jakel Motors, Inc., County of Maricopa, AZ

Deposition taken July 12, 2016

Civil Case No. CV2015-002143

George Souliotes v. State of California Victims Compensation Board

Testified in hearing for subject matter

May 5, 2016

Sacramento, California

California Superior Court, County of Sonoma, CA

Testified in trial of State Farm v. Alma Cruz, et.al.

Civil Case No. SCV 254109, February/March, 2016

State Farm v. Alma Cruz, et.al., County of Sonoma, CA

Deposition taken January 12, 2016

California Superior Court, County of Los Angeles

Testified in trial of Juan Gonzalez, et.al. vs. Wayne Lew

Civil Case No. KC 064256, September 2015

Juan Gonzalez, et.al. vs. Wayne Lew, County of Los Angeles, CA

Deposition taken August 24, 2015

Civil Case No. KC 064256

California Superior Court, County of Madera

Testified in trial of California v. Kenneth Jackson/Alice Waterman

Criminal Cases SCR013981A and SCR013981B, April 21-22, 2014

State of California v. Sierra Pacific Industries, et. al., Sacramento, California  
Deposition taken April 11-12 & 30, 2013  
Plumas County Superior Court Civil Case Number CV09-00205

Superior Court, County of Fresno, Fresno, California  
Testified in trial of California vs. Zachary Taylor (2<sup>nd</sup> trial)  
Criminal Case F12900297, Oct 16, 2012

Superior Court, County of Fresno, Fresno, California  
Testified in trial of California vs. Zachary Taylor  
Criminal Case F12900297, July 17, 2012

U.S. Magistrate's Court, Eastern District of California  
Testified in Innocence Project Evidentiary Hearing on behalf of Petitioner,  
George A. Souliotes v. Anthony Hegpeth, Warden, et al.,  
Case No. 06-CV-0667 OWW WMW HC  
Testimony given January 24, 2012

Superior Court, County of Solano, Fairfield, California  
Testified in trial of California vs. Shetarra James  
Criminal Case FCR277383, November 8, 2011

U.S. v. Sierra Pacific Industries, et. al., Sacramento, California  
Deposition taken August 30, 2011  
US District Court Civil Case Number 09-cv-02445- KJM-EFB

Superior Court, County of Alameda, Oakland, California  
Testified in civil trial in Sasser v. Allstate Insurance, March 2011

Sasser v. Allstate Insurance, Deposition taken Jan 28, 2011

Collier v. Windsor Fire Protection District, Deposition taken  
June 2010

U.S. District Court, Eastern District of California  
Testified in U.S. v. Sundeep Dharni, July 2007

Superior Court, County of Shasta, Redding, California  
Testified in Preliminary Hearing in State of California vs. David Dillion, May 2006  
U.S. District Court, District of Nevada  
Testified in civil trial of Nationwide Mutual Insurance v.  
Robert Reed, May 2003

Superior Court, County of Sacramento, Sacramento, California  
Testified in criminal trial in State of California vs. James A. Wirth, July 2002

Superior Court, County of Yolo, Woodland, California  
Testified in Criminal Trial in State of California vs. Richard Earl Ewing & Kevin Wayne  
Dunnigan, May 2001

Nevada Superior Court, County of Elko, Elko, Nevada  
Testified in Criminal Trial in People of Nevada vs. Robert Reed, April 2001

Superior Court, County of Yolo, Woodland, California  
Testified in Preliminary Hearing in State of California vs. Richard Earl Ewing & Kevin  
Wayne Dunnigan, January 2000

U.S. District Court, Eastern District of California  
Testified in U.S. v. Tanh Huu Lam, May 1998

U.S. District Court, Eastern District of California  
Testified in U.S. v. Pappadopoulos, May 1993

Several Civil Depositions and Federal Grand Jury Sessions

## **SPECIALIZED TRAINING RECEIVED:**

- Aug 2022      **SFPE Premium Webinar | Development of Fire Protection Engineering Practitioner Tools**  
Online continuing education (1 hour)
- Mar 2021      **Advanced Computational Fluid Dynamics Fire Modeling**  
Advanced topics and updates for computer fire model, *Fire Dynamics Simulator*, presented by the SFPE Continuing Education Series (18 hours)
- Sep 2020      **California Conference of Arson Investigators Semi-Annual Conference**  
Various topics related to updates contained in the 2021 edition of NFPA 921, updates to NFPA 1033 Update, Report Writing, and Miscellaneous Other Topics, San Luis Obispo, California (23 hours)
- Aug 2020      **SFPE Premium Webinar Series | Lithium-Ion Batteries: What Fire Protection Engineers Should Know**  
Online continuing education presentations on various factors related to Lithium-Ion Batteries and fire (5 hours)
- Apr 2019      **IAAI International Training Conference**  
Numerous topics related to fire dynamics/investigation/science  
Jacksonville, Florida (30 hours)
- Feb 2019      **California Conference of Arson Investigators Semi-Annual Conference / NFPA 921 and NFPA 1033 Update**  
Topics related to updates contained in the latest editions of *NFPA 921, Guide to Fire and Explosion Investigation* and *NFPA 1033, Standard for Professional Qualifications of Fire Investigator* . 2019 Spring Conference of the Calif. Conference of Arson Investigators, San Luis Obispo, California (24 hours)
- Apr 2018      **Society of Fire Protection Engineers Annual Conference on Performance Based Engineering**  
12<sup>th</sup> International Performance-Based Codes and Fire Safety Design Methods emphasizing the latest work on performance based engineering topics with an emphasis on wood-based high rise structures. Honolulu, Hawaii (24 hours)
- Apr 2018      **Advanced Fire Modeling Using *Fire Dynamics Simulator***  
Advanced topics and updates for computer fire model, *Fire Dynamics Simulator*, presented at the SFPE Conference in Honolulu, Hawaii (16 hours)

- Apr 2017 **IAAI International Training Conference**  
Numerous topics related to fire dynamics/investigation/science  
Las Vegas, Nevada (30 hours)
- Oct 2016 **Scientific Protocols for Fire Investigation**  
Canadian National Advanced Fire, Arson & Explosion Training Program  
Markham, Ontario, Canada (16 hours)
- May 2015 **IAAI International Training Conference**  
Numerous topics related to fire dynamics/investigation/science  
Chicago, Illinois (30 hours)
- Feb 2015 **Fire Investigation Topics**  
American Academy of Forensic Science, Orlando, Florida (20 hours)
- Feb 2013 **Insurance Committee on Arson Control (ICAC) 2013**  
ICAC Seminar, Destin, Florida (14 hours)
- Jan 2013 **Fire & Materials 2013**  
Training in topics of fire science and engineering, fire testing, behavior of materials in fire and fire investigation. Training was conducted in San Francisco, CA and sponsored by Interscience Communications, London, England. (24 hours)
- Apr 2012 **IAAI Annual International Training Seminar**  
Numerous topics related to fire dynamics/fire science  
Dover, Delaware (28 hours)
- May 2011 **IAAI Annual International Training Seminar**  
Numerous topics related to fire dynamics/fire science  
Las Vegas, Nevada (32 hours)
- Jan 2011 **Fire & Materials 2011**  
Training in topics of fire science and engineering, fire testing, behavior of materials in fire and fire investigation. Training was conducted in San Francisco, CA and sponsored by Interscience Communications, London, England. (24 hours)
- Sept 2010 **International Symposium on Fire Investigation Science and Technology 2010**  
University of Maryland, College Park, Maryland  
(24 hours)

- July 2010      **Interflam 2010**  
 Training in topics related to fire science and engineering, fire testing, behavior of materials in fire and fire investigation. Conference held at the University of Nottingham and sponsored by Interscience Communications, London, England. (24 hours)
- June 2009      **FI-210, Wildland Fire Investigation**  
 Investigation of wildland fires  
 Butte College, Chico, California (40 hours)
- May 2009      **IAAI Annual International Seminar**  
 Numerous topics related to fire dynamics/fire science  
 Arlington, Texas (32 hours)
- Jan 2009      **Fire & Materials 2009**  
 Training on various topics related to fire science and engineering, fire testing, behavior of materials in fire and fire investigation. Training was conducted in San Francisco, CA. Sponsored by Interscience Communications, London, England. (24 hours)
- Nov 2008      **California Conference of Arson Investigators Semi-Annual Conference / NFPA 921 Update**  
 Topics related to updates contained in the 2008 edition of *NFPA 921, Guide to Fire and Explosion Investigation*. 2008 Fall Conference of the Calif. Conference of Arson Investigators, San Luis Obispo, California (16 hours)
- June 2008      **ATF CFI Recertification**  
 Training in the science and engineering related to conducting scientific burn tests and collecting appropriate thermal, video, and photographic data  
 Wilmington, North Carolina (40 hours)
- May 2008      **International Symposium on Fire Investigation Science and Technology**  
 University of Cincinnati, Cincinnati, Ohio (24 hours)
- Apr 2008      **IAAI Annual International Seminar**  
 Numerous topics related to fire dynamics/fire science  
 Denver, Colorado (40 hours)
- Mar 2008      **Crisis Management for Fire/Explosion**  
 Federal Law Enforcement Training Center, Brunswick, Georgia (24 hours)
- Mar 2008      **Minnesota IAAI Annual Conference**  
 St. Cloud, Minnesota (20 hours)

- Mar 2008      **California Conference of Arson Investigators Spring Conference**  
Various topics in electrical fire investigation  
San Luis Obispo, California (20 hours)
- Jul 2007      **Advanced Fire Modeling - FDS Seminar**  
Advanced training and use of Fire Dynamics Simulator,  
FLETC, Brunswick, GA (40 hours)
- May 2007      **IAAI Annual International Seminar**  
Numerous topics related to fire dynamics/fire science  
Victoria, British Columbia, Canada (32 hours)
- Mar 2007      **California Conference of Arson Investigators Spring Conference**  
Various topics related to fire dynamics/fire science  
San Luis Obispo, California (16 hours)
- Aug 2006      **ATF CFI Recertification**  
Training in the science and engineering related to fire causes in the chemical process industry; the Dept. of Defense Medical Examiner program; and other topics, FLETC, Brunswick, GA(40 hours)
- May 2006      **IAAI International Seminar**  
Numerous topics related to fire dynamics/fire science  
Denver, Colorado (40 hours)
- Oct 2005      **2005 Conference of Nevada Chapter of the IAAI**  
Training on various topics related to the science and investigation of fire including various aspects of fire dynamics, methamphetamine lab investigation, and fire resources in the UK. (24 hours)
- Mar 2005      **ATF CFI Recertification**  
Advanced training in the science and engineering related to electrical systems and related fire causes, photography, advanced fire dynamics and other topics, Ammendale, MD (40 hours)
- Jan 2005      **Fire and Materials Conference, 2005**  
Training on various topics related to fire science and engineering of fire testing, fuel/oxidation materials and investigation. Training was held in San Francisco, CA. Sponsored by Interscience Communications, London, England. (16 hours)

- Oct 2004      **Advanced Fire Dynamics Simulator Training**  
Training in theory and use of Fire Dynamics Simulator and Smokeview, ATF  
Fire Research Lab, Ammendale, MD (40 hours)
- Apr 2003      **IAAI International Seminar**  
Numerous topics related to fire dynamics/fire science  
Sparks, Nevada (40 hours)
- Dec 2002      **Forensic Homicide/Death Investigation**  
Training in the forensic aspects of homicide and death investigations  
Las Vegas, NV (40 hours)
- Sep 2002      **Appliance Fire Investigation**  
Training in electrical & gas appliance fires presented by Jack Sanderson,  
Central Oregon Chapter, IAAI  
Bend, Oregon (16 hours)
- Aug 2002      **ATF CFI Recertification / Shipboard and Wildland Fire Investigation**  
Training related to shipboard systems, marine fire investigation, and wildland  
fire investigation. Williamsburg, VA (72 hours)
- Jun 2002      **Combustion Explosions – Mechanisms and Investigations**  
Offered by U.C. Davis Extension in Sacramento, CA (16 hours)
- Feb 2002      **Advanced Fire and Arson Seminar**  
Training related to advanced aspects of fire behavior, fire scene reconstruction,  
heat release rates and wood ignition. Grants Pass, OR; Oregon Chapter of the  
IAAI (24 hours)
- May 2001      **ATF CFI Recertification / Computerized Architectural Drawing**  
Training related to computerized architectural drawing for fire scene  
documentation as well as a hazardous materials refresher. Monterey, CA (40  
hours)
- Jan 2001      **Fire and Materials Conference, 2001**  
Training on topics related to the science and engineering of fire as related to  
various materials. Training held in San Francisco, CA. Sponsored by Interscience  
Communications, London, England. (24 hours)
- Mar 2000      **ATF CFI Recertification / Electrical Fire Investigation**  
Training related to scientific analysis of fire scenes with emphasis on electrical  
systems, failures, and causal factors. Kinston, NC (80 hours)

- Feb 2000      **ATF National Response Team Training**  
 Training on various topics related to investigations of large scale fire/explosion scenes. Fort Worth, TX (40 hours)
- Nov 1999      **Investigation of Electrical Appliance Related Fires**  
 IAAI / AHAMA sponsored training on electrical appliance fires, Reno, Nevada (20 hours)
- Sep 1999      **ATF National Forensic Accountant/Audit Conference**  
 Expert witness training, Orlando, Florida (24 hours)
- May 1999      **IAAI International Seminar**  
 Numerous topics related to fire dynamics/fire science Las Vegas, Nevada (40 hours)
- May 1998      **ATF CFI Recertification**  
 Conference focused on fire dynamics, and various aspects of electrical fire investigation.  
 Portland, Oregon (40 hours)
- May 1998      **IAAI International Seminar**  
 Several topics related to fire science/fire dynamics  
 Portland, Oregon (40 hours)
- Aug 1997      **Thermal Measurement Theory and Procedures**  
 ATF Certified Fire Investigator Training  
 Sandia National Laboratories, Albuquerque, New Mexico (80 hours)
- Sep 1996      **Hazardous Materials Refresher**  
 University of Maryland, College (8 hours)
- Jun 1996      **Advanced Fire Investigation**  
 ATF Certified Fire Investigator Training  
 University of Maryland, College Park, Maryland (80 hours)
- Nov 1995      **Hazardous Materials Training**  
 California Specialized Training Institute  
 Roseville, California (40 hours)
- Jun 1995      **Advanced Fire Case Studies - Fire Modeling**  
 ATF Certified Fire Investigator Training  
 University of Maryland, College Park, MD (80 hours)

Sep 1994     **Analytical Interviewing**  
Bureau of ATF  
FLETC, Glynco, Georgia (40 hours)

Jun 1994     **Analytical Fire Scene Reconstruction**  
ATF Certified Fire Investigator Training  
New Orleans, Louisiana (64 hours)

Dec 1993     **Analysis of Low Explosives**  
Forensic analysis of low explosive materials  
California Department of Justice (40 hours)

Oct 1993     **Specialized Fire Modeling Training for FPETOOL**  
Fairfax, Virginia (40 hours)

Jun 1993     **Dynamics of Building Fires II**  
University of Maryland, Dept. of Fire Protection Engineering, College Park,  
Maryland (80 hours)

Feb 1993     **Advanced Fire/Arson Investigation**  
IAAI, Oregon Chapter, Ashland, Oregon (24 hours)

Dec 1992     **Computer Fire Modeling Training**  
National Institute of Standards & Technology  
Building and Fire Research Department  
Gaithersburg, Maryland (40 hours)

Jul 1992     **Advanced Fire Technology Training**  
University of Maryland, Department of Fire Protection Engineering, College Park,  
Maryland (80 hours)

Feb 1992     **Fire Investigation 1-A**  
California State Fire Marshal (40 hours)

Sep 1991     **Fire Investigation 1-B**  
California State Fire Marshal (40 hours)

Mar 1990     **Advanced Fire/Arson Investigation**  
Sponsored by Denver Fire Department  
Denver, Colorado (40 hours)

Jul 1989     **Bureau of ATF New Agent Training (NAT-908)**  
FLETC, Glynco, Georgia (8 weeks)

- Nov 1988     **Explosives Recognition**  
BATF, San Francisco (24 hours)
- Aug 1988     **Criminal Investigators School**  
FLETC, Glynco, Georgia (8 weeks)

## **SPECIALIZED TRAINING PRESENTED:**

- Nov 2022      **Fire Dynamics and Ventilation Limited Burning**  
Presentation on the basic scientific principles related to fire behavior with concentration on the specifics of combustion and fire damage creation in underventilated conditions. Carman & Associates Fire Investigation Training, Grass Valley, CA (Approximately 10 students)
- Sep 2020      **Fire Dynamics and Fire Pattern Analysis**  
Review of the scientific bases of fire dynamics as related to the generation of heat damage in fire scenes. Application of that information to the identification of fire origins, especially considering the effects of ventilation and sequence of creation were discussed. Also reviewed was a pretrial reversal in a 2011 criminal case in which a man was improperly charged with arson-homicide. 2020 Fall Conference of the California Conference of Arson Investigators, San Luis Obispo, California (4 hours – Approximately 100 students)
- Sep 2020      **Case Study of the Arson/Homicide Investigation of Tanh Huu Lam, et. al.**  
Examination and review of the seven year federal criminal investigation of an arson fire that resulted in the death of a nine-year-old child in Carmichael, California (1.5 hours – Approximately 100 students)
- Apr 2019      **Hypothesis Formation and Testing in Fire Origin Determination**  
Scientific review of methods and references supporting the formation and testing of hypotheses related to identifying fire origin locations. IAAI International Training Conference, Jacksonville, Florida (4 hours – Approximately 200 students)
- Apr 2019      **Fire Protection Engineers in Forensic Fire Investigation**  
Review of and opportunities for Fire Protection Engineers in the field of Forensic Fire Investigation. 2019 Spring Symposium, Rocky Mountain Chapter of the Society of Fire Protection Engineers, Denver, Colorado (2 hours – Approximately 40 attendees)
- Feb 2019      **California Conference of Arson Investigators**  
Fire modeling topics and uses in forensic fire investigation. 2019 Spring Conference of the Calif. Conference of Arson Investigators, San Luis Obispo, California (2 hours – Approximately 50 students)
- June 2018      **Post-flashover Fire Investigation**  
Wisconsin Chapter of the IAAI Spring Seminar  
Stevens Creek, Wisconsin (4 hours – Approximately 150 students)

- June 2018     **Elevated Fires and their Investigation**  
Wisconsin Chapter of the IAAI Spring Seminar  
Stevens Creek, Wisconsin (4 hours – Approximately 150 students)
- Nov 2017     **Advanced Fire Dynamics and Live Burn Training**  
Fall Conference of the California Conference of Arson Investigators,  
San Luis Obispo, California (16 hours – Approx. 50 students)
- May 2017     **Post- flashover Fire Investigation**  
Oakland County, Michigan Association of Arson and Fire Investigators Annual  
Seminar, Auburn Hills, Michigan (7 hours – Approximately 115 students)
- May 2017     **Elevated Fires and their Investigation**  
Oakland County, Michigan Association of Arson and Fire Investigators Annual  
Seminar, Auburn Hills, Michigan (6 hours – Approximately 115 students)
- Oct 2016     **Post-flashover Fire Investigation**  
Canadian National Advanced Fire, Arson & Explosion Training Program  
Markham, Ontario, Canada (4 hours – Approximately 55 students)
- Oct 2016     **Elevated Fires and their Investigation**  
Canadian National Advanced Fire, Arson & Explosion Training Program  
Markham, Ontario, Canada (1.5 hours – Approximately 55 students)
- Sep 2016     **Post-flashover Fire Investigation - Included Live Burn Exercises**  
Australasian Association of Fire Investigators 2016 Conference (8 hours, -  
Approx. 110 students)
- Sep 2016     **Elevated Fires and their Investigation - Included Live Burn Exercises**  
Australasian Association of Fire Investigators 2016 Conference (8 hours, -  
Approx. 110 students)
- Oct 2015     **Post-flashover Fire Investigation**  
Canadian Advanced Fire, Arson & Explosion Training Program presented by Fire  
Facts, Inc., Toronto, Canada (4 hours, - Approx. 45 students)
- Oct 2015     **Elevated Fires, , Their Behavior and Investigation**  
Canadian Advanced Fire, Arson & Explosion Training Program presented by Fire  
Facts, Inc., Toronto, Canada (2 hours, - Approx. 45 students)
- May 2015     **Elevated Fires, Their Behavior and Investigation**  
Annual, International Training Conference of the IAAI, Chicago, Illinois  
(2 hours - Approx. 250 students)

- May 2015      **Mathematics for Fire Investigators**  
Annual, International Training Conference of the IAAI, Chicago, Illinois  
(2 hours - Approx. 80 students)
- Feb 2015      **Misinterpretation of Common Fire Behaviors and Its Effect on Criminal  
and Civil Litigation**  
American Academy of Forensic Science, Jurisprudence Section, Orlando, Florida  
(1/2 hours, Approx. 60 attendees)
- Feb 2015      **Changes in the Understanding of Fire Behavior and the Accuracy of Fire  
Origin Determinations**  
American Academy of Forensic Science, Workshop Section, Orlando, Florida  
(1-1/2 hours, Approx. 30 attendees)
- Nov 2014      **Critical Thinking and Hypothesis Testing in Fire Investigation**  
Fall Conference of the California Conference of Arson Investigators,  
San Luis Obispo, California (16 hours – Approx. 100 students)
- Oct 2014      **Critical Thinking/Post-flashover Fire Investigation/Elevated Fires/  
Combustible Fuel Gas Explosions/Innocence Project – Souliotes Case**  
Canadian Advanced Fire, Arson & Explosion Training Program presented by Fire  
Facts, Inc., Toronto, Canada (14 hours, - Approx. 50 students)
- Jun 2014      **Investigation of Fully Involved, Ventilation-Limited and Elevated Fires**  
Tualatin Valley Fire and Rescue Investigation Seminar  
Tigard, Oregon (8 hours – 16 students)
- Mar 2014      **Investigation of Fully Involved, Ventilation-Limited and Elevated Fires**  
Kansas City Arson Task Force, 2014 seminar  
Independence, Missouri (8 hours – Approx. 110 students)
- Nov 2013      **Critical Thinking in Fire Investigation/Post-flashover Fires/Elevated Fires**  
East Texas Arson Investigators' Association, Longview, TX (8 hours – Approx.  
140 students)
- Oct 2013      **Investigation of Ventilation-Controlled / Post-Flashover/Elevated Fires**  
Canadian Advanced Fire, Arson & Explosion Training Program presented by Fire  
Facts, Inc., Toronto, Canada (7 hours, - Approx.80 students)
- Sep 2013      **Investigation of Post-flashover and Elevated Fires**  
Iowa Chapter of the IAAI, 2013 seminar  
Ames, Iowa (8 hours – Approx. 100 students)

- Sep 2013      **Investigation of Post-flashover and Elevated Fires**  
Dane County, Wisconsin Arson Project Seminar  
Madison, WI (8 hours – Approx. 40 students)
- Sep 2012 –      **Fire Dynamics / Fire Modeling**  
Aug 2013      Served as one of two subject matter experts responsible for the subject material  
for the rewrite of the National Fire Academy’s 9-day school on the subject topic.
- May 2013      **Investigation of Elevated Fires**  
Pacific Northwest Fire Investigators’ Association 2013 Seminar  
Leavenworth, WA (4 hours – Approx. 150 students)
- May 2013      **Critical Thinking for Fire Investigation**  
Pacific Northwest Fire Investigators’ Association 2013 Seminar  
Leavenworth, WA (24 hours – Approx. 60 students)
- Mar 2013      **Beyond Origin and Cause: The Role of the Fire Protection Engineer**  
California Conference of Arson Investigators Seminar, San Luis Obispo, CA (Co-  
presented with Dr. Fred Mowrer. (4 hours – Approx. 50 students)
- Mar 2013      **Investigation of Elevated Fires**  
South Carolina Chapter of IAAI, Columbia, SC (7 hours – Approx. 80 students)
- Feb 2013      **Impact of Ventilation in Fire Investigations**  
Insurance Committee on Arson Control (ICAC) Seminar, Destin, FL (1 hour –  
Approx. 60 attendees)
- Jan 2013      **Impact of Ventilation in Fire Investigations**  
DRI’s Fire Science and Litigation Seminar, Scottsdale, AZ (1 hour – Approx. 120  
attendees)
- Nov 2012      **Critical Thinking in Fire Investigation / Post-flashover Fires / Elevated  
Fires**  
South Texas Fire Investigators’ Association, South Padre Island, TX  
(16 hours - 60 students)
- Nov 2012      **Investigation of Post-Flashover and Elevated Fires**  
Fall Training Conference of the Wisconsin Chapter of the IAAI, Wisconsin Dells,  
Wisconsin (8 hours - Approx. 125 students)
- Oct 2012      **Investigation of Ventilation-Controlled / Post-Flashover/Elevated Fires**  
Canadian Advanced Fire, Arson & Explosion Training Program, Toronto, Canada  
(7 hours, - 80 students)

- Sep 2012      **Critical Thinking in Fire Investigation / Post-flashover/Elevated Fires**  
Denver Fire Department's Advanced Fire Investigation Seminar,  
Denver, Colorado (8 hours – 60 students)
- Sep 2012      **National Fire Academy's Class on 'Fire Dynamics and Fire Modeling'**  
Served as one of two Subject Matter Experts in designing a new version of the  
NFA's Fire Dynamics and Fire Modeling class.
- Jun 2012      **Critical Thinking in Fire Investigation / Post-flashover Fires / Elevated  
Fires**  
Texas Farm Bureau, Waco, TX (12 hours - 30 students)
- Jun 2012      **Investigation of Elevated Fires**  
Northern California Investigators Roundtable, Chico CA  
(8 hours - Approx. 20 students)
- Apr 2012      **Investigation of Elevated Fires**  
Annual, International Training Conference of the IAAI, Dover, Delaware  
(4 hours - Approx. 250 students)
- Mar 2012      **Investigation of Elevated Fires**  
California Conference of Arson Investigators, Spring Conference  
San Luis Obispo, California (12 hours - 180 students)
- Nov 2011      **Computer Fire Modeling – Fire Dynamics Simulator for Investigators**  
Malaysia National Fire and Rescue Department, 'Bomba', Kuala Kubu Bahru,  
Malaysia (72 hours -30 students)
- Oct 2011      **Investigation of Ventilation-Controlled / Post-Flashover /Elevated Fires**  
Canadian Advanced Fire, Arson & Explosion Training Program, Toronto, Canada  
(8 hours, - 80 students)
- Sep 2011      **Investigation of Ventilation-Controlled, Post-Flashover Fires**  
Denver Fire Department's Advanced Fire Investigation Seminar,  
Denver, Colorado (8 hours – 60 students)
- Sep 2011      **Investigation of Elevated Fires**  
Denver Fire Department's Advanced Fire Investigation Seminar,  
Denver, Colorado (4 hours – 50 students)
- Sep 2011      **Investigation of Ventilation-Controlled, Post-Flashover Fires**  
North Dakota Chapter of IAAI, Fargo, North Dakota (8 hours – 40 students)

- Sep 2011     **Investigation of Elevated Fires**  
North Dakota Chapter of IAAI, Fargo, North Dakota (4 hours – 40 students)
- Sep 2011     **Investigation of Ventilation-Controlled, Post-Flashover Fires**  
Oregon Chapter of IAAI, Seaside, Oregon (8 hours – 80 students)
- Feb 2011     **Investigation of Ventilation-Controlled, Post-Flashover Fires**  
IRIS Fire Investigation, Inc. Training Center, Englewood, Colorado  
(8 hours – 30 students)
- Feb 2011     **Investigation of Ventilation-Controlled, Post-Flashover Fires**  
Sacramento-Sierra Fire Training Conference, Sacramento, California  
(8 hours – 40 students)
- Jan 2011     **Investigation of Elevated Fires**  
Presented paper at Fire & Materials 2011 conference, San Francisco, California  
(1 hour – 40 students)
- Oct 2010     **Investigation of Ventilation-Controlled, Post-Flashover Fires**  
Canadian Advanced Fire, Arson & Explosion Training Program, Toronto, Canada  
(4 hours, - 60 students)
- Oct 2010     **Forensic Science and Fire Investigation – The State of the Profession**  
Texas Appellate Courts Forensic Science Seminar, Austin, Texas (1 hour - 100  
participants)
- Sep 2010     **Clean Burn Fire Patterns – A New Perspective for Investigators**  
Int'l Symposium on Fire Investigation Science and Technology (ISFI), University  
of Maryland, College Park, Maryland (1 hour - 50 students)
- Sep 2010     **Understanding Post-flashover Fire Behavior**  
Nebraska Chapter of the IAAI, Hastings, Nebraska (8 hours - 100 students)
- Sep 2010     **Understanding Post-flashover Fire Behavior**  
Montana Chapter of the IAAI, Billings, Montana  
(8 hours - 60 students)
- Sep 2010     **Understanding Post-flashover Fire Behavior**  
California Conference of Arson Investigators, San Francisco Roundtable,  
Tiburon, California  
(8 hours - 50 students)

- Aug 2010      **Understanding Post-flashover Fire Behavior**  
Tennessee Chapter of the IAAI, Pigeon Forge, Tennessee  
(4 hours - 100 students)
- July 2010      **Clean Burn Fire Patterns – A New Interpretation**  
Presentation of paper at Interflam 2010, University of Nottingham, England (1  
hour)
- May 2010      **Maritime Fire Investigation**  
Annual, International Training Conference of the IAAI, Orlando, Florida  
(8 hours – Approx. 100 students)
- May 2010      **Post-flashover Fire Behavior and Investigation**  
Michigan Chapter of the IAAI, Mt. Pleasant, Michigan  
(8 hours - 120 students)
- Oct 2009      **Fire Dynamics / Understanding Post-Flashover Fire Behavior**  
Hawaii Chapter, IAAI 2009 Seminar, Honolulu, Hawaii (16 hours - 25 students)
- Oct 2009      **Fire Dynamics / Understanding Post-Flashover Fire Behavior**  
Arkansas Chapter of the IAAI Annual Seminar, Eureka Springs, Arkansas (16  
hours - 120 students)
- Sept 2009      **Marine Fire Investigation**  
Louisiana Chapter of the IAAI Annual Seminar, Lafayette, Louisiana  
(16 hours - 50 students)
- Aug-Oct  
2009      **CFITrainer.net Module on Marine Fires**  
Served as the principle subject matter expert for the  
first of several planned training modules regarding **Marine Fires**. Provided  
specialty material, photographs, reference writings and expertise in the  
preparation of the scripts and information used in the creation of that module.
- Jun 2009      **Understanding Post-Flashover Fire Behavior**  
Case Forensics, Corp. Seminar, Mountlake Terrace, Washington  
(4 hours - 15 students)
- Summer  
2009      **Fire Protection Structures and Systems**  
2009 summer semester, Cogswell Polytechnic College,  
Sunnyvale, CA (presented online for entire semester)

- May 2009      **Progressive Burn Pattern Development in Post-Flashover Fires**  
International Training Conference of the IAAI, Arlington, Texas  
(4 hours - 120 students)
- Apr 2009      **Improving the Understanding of Post-Flashover Fires**  
Annual conference of the Alberta Fire Investigators Association, Edmonton,  
Alberta (12 hours -100 students)
- Mar 2009      **Improving the Understanding of Post-Flashover Fires**  
Annual conference of the Kansas City Arson Task Force, Kansas City, Missouri (8  
hours - 120 students)
- Feb 2009      **Fire Dynamics / Arc Mapping / Understanding Post-Flashover Fire  
Behavior**  
Annual conference of the Northern Zone, Illinois Chapter of the IAAI, Moneka,  
Illinois (16 hours - 100 students)
- Feb 2009      **Fire Dynamics / Arc Mapping / Understanding Post-Flashover Fire  
Behavior**  
Annual conference of the Kansas Chapter of the IAAI, Topeka, Kansas  
(12 hours - 150 students)
- Jan 2009      **Progressive Burn Pattern Development in Post-Flashover Fires**  
Presented paper to Fire & Materials 2009, San Francisco, California  
(1 hour - 50 attendees)
- Spring  
2009      **Fire Dynamics**  
2009 spring semester, Cogswell Polytechnic College,  
Sunnyvale, CA (presented online for entire semester)
- Nov 2008      **Improving the Understanding of Post-Flashover Fires**  
Travelers Insurance Subrogation/Large Loss Group, Pewaukee, Wisconsin  
(4 hours - 60 students)
- Nov 2008      **Understanding Post-Flashover Fire Behavior**  
2008 Fall Conference of the California Conference of Arson Investigators  
(4 hours - 55 students)
- Oct 2008      **Understanding Post-Flashover Fire Behavior**  
Canadian Advanced Fire, Arson & Explosion Training Program, Toronto, Canada  
(4 hours - 75 students)

- Sep 2008      **Improving the Understanding of Post-Flashover Fire Behavior**  
 Small Group Seminar IX, Sponsored by *Core Engineering, Forensic Fire Analysis, Summit Engineering & Investigative Forensic Specialists*, Charleston, South Carolina (6 hours - 40 students)
- July 2008      **CFITrainer.net Module on Post-flashover Fire Behavior**  
 Helped design and execute three fire tests in instrumented compartments at the ATF Fire Research Laboratory, Ammendale, MD to support the filming and production of the CFITrainer.net module on *Post-flashover Fire Behavior*. Also assisted as the subject matter expert in the preparation of the scripts and reference material used in the creation of that module.
- May 2008      **Improving the Understanding of Post-Flashover Fire Behavior**  
 Int'l Symposium on Fire Investigation Science and Technology (ISFI), University of Cincinnati, Cincinnati, Ohio (1 hour -50 students)
- May 2008      **Understanding Post Flashover Fires**  
 Washington IAAI and Northwest Fire Investigators Annual Conference, Leavenworth, Washington  
 (4 hours - 100 students)
- May 2008      **Testifying as an Expert Witness**  
 International Training Conference of the IAAI  
 Denver, Colorado  
 (1 hour – Approx. 100 students, co-presented with Deputy DA Michael Cabral, Riverside County, CA D.A.)
- Mar 2008      **Fire/Explosion Investigation**  
 Crisis Management for Fire/Explosion Training,  
 Federal Law Enforcement Training Center, Brunswick, Georgia  
 (4 hours - 35 students)
- Mar 2008      **Understanding Post Flashover Fires**  
 Minnesota IAAI Annual Conference, St. Cloud, Minnesota  
 (2 hours - 260 students)
- Mar 2008      **Electrical Fire Investigation**  
 California Conference of Arson Investigators Spring  
 Conference, San Luis Obispo, California (1 hour – Approx. 360 students)
- Mar 2008      **Understanding Post Flashover Fires**  
 Tualatin Valley Fire and Rescue Academy, Tualatin, Oregon, (4 hours, 30 students)

- Spring 2008 **Fire Investigation and Analysis**  
2008 spring semester, Cogswell Polytechnic College,  
Sunnyvale, California (presented online for entire semester)
- Sep 2007 **Understanding Post Flashover Fires**  
2007 Annual Advanced Fire and Arson Investigation  
Conference of the Denver Fire Department  
Denver, Colorado (7 hours – Approx. 100 students)
- Sep 2007 **Understanding Post Flashover Fires**  
2007 Annual Conference of the Oregon Chapter of  
the International Association of Arson Investigators,  
Bend, Oregon (4 hours - Approx. 100 students)
- Summer 2007 **Fire Protection Structures and Systems**  
2007 summer semester, Cogswell Polytechnic College,  
Sunnyvale, California (presented online for entire semester)
- May 2007 **Understanding Post Flashover Fires**  
International Training Conference of the IAAI  
Victoria, British Columbia, Canada  
(4 hours – Approx. 200 students)
- Mar 2007 **Electrical Arc Mapping**  
Spring conference of the California Conference of Arson Investigators, San Luis  
Obispo, California (2 hours - Approx. 100 students)
- Mar 2007 **Understanding Post Flashover Fires**  
Spring conference of the California Conference of Arson Investigators, San Luis  
Obispo, California (4 hours - Approx. 150 students)
- Mar 2007 **Science of Spontaneous Combustion/Self Heating**  
Texas Chapter of IAAI Conference  
Austin, Texas (4 hours - Approx. 250 students)
- Mar 2007 **Understanding Post Flashover Fires**  
Texas Chapter of IAAI Conference  
Austin, Texas (8 hours – Approx. 250 students)
- Dec 2006 **ATF and Fire/Arson Investigation**  
California State Fire Marshal's Fire Investigation 1-A Class at the College of the  
Siskiyou Weed, California (4 hours - Approx. 30 students)

- Dec 2006     **ATF and Fire/Arson Investigation**  
California State Fire Marshal's Fire Investigation 1-A Class at Shasta College  
Redding, California (4 hours - Approx. 40 students)
- Aug 2006     **Understanding Post-Flashover Fires**  
Presented at the 2006 ATF CFI Recertification training at the Federal Law  
Enforcement Training Center, Brunswick, Georgia  
(4 hours - Approx. 40 students)
- May 2006     **Understanding Post-Flashover Fires**  
2006 Annual Conference of the Michigan Chapter of the International  
Association of Arson Investigators, Midland, Michigan  
(4 hours – Approx. 75 students)
- Apr 2006     **Understanding Post-Flashover Fires**  
2006 Recertification training for ATF CFIs, Federal Law Enforcement Training  
Center, Brunswick, Georgia  
(4 hours –Approx. 40 students)
- Oct 2005     **Advanced Fire Dynamics and Reconstruction**  
2005 Annual Conference of the Nevada Chapter of the International Association  
of Arson Investigators, Las Vegas, Nevada  
(24 hours – Approx. 65 students)
- Jun 2005     **Spontaneous Combustion of a Truck Trailer Load of Ammonium Nitrate  
Based Explosives**  
National Fire Protection Association Annual Meeting,  
Las Vegas, Nevada (2 hours - Approx. 50 participants)
- Jan 2005     **ATF and Fire/Arson Investigation**  
California State Fire Marshal's Fire Investigation 1-A Class at the College of the  
Siskiyou, Weed, California (4 hours - Approx. 30 students)
- Sep 2004     **Advanced Fire Reconstruction**  
2004 Annual Conference of the Central Oregon Chapter of  
the International Association of Arson Investigators,  
Bend, Oregon (8 hours - Approx. 85 students)
- Sep 2004     **Advanced Fire Dynamics / Fire Reconstruction**  
2004 Annual Advanced Fire and Arson Investigation  
Conference of the Denver Fire Department  
Denver, Colorado (8 hours - Approx. 130 students)

- May 2004     **Fire Dynamics and Advanced Fire Behavior**  
Two, one-week schools presented to the Tennessee State  
Fire Marshal's Bomb and Arson Investigator's  
Fire Investigator Certification Course, Murfreesboro, Tennessee  
(40 hours - Approx. 50 students)
- Apr 2004     **Arson/Explosives Investigation**  
Taught to the Arson/Explosives Specialty Course of the California Institute of  
Criminal Investigation, Diamond Springs, California  
(8 hours - Approx. 25 students)
- Apr 2004     **Introduction to Fire Dynamics**  
Co-sponsored by ATF and the Modesto Fire Department / Stanislaus County Fire  
Investigators, Modesto, California (20 hours- Approx. 25 students)
- Nov 2003     **An Introduction to Fire Reconstruction and the Scientific Method**  
2002 Annual Conference of the Idaho Chapter of the International Association of  
Arson Investigators, Post Falls, Idaho (8 hours - Approx. 75 students)
- July 2003     **A Hands on Explanation of Fire Behavior and Fire Scene  
Investigation**  
2003 summer conference of the California Conference of Arson Investigators,  
Seaside, California (8 hours - Approx. 275 students)
- May 2003     **An Introduction to Fire Dynamics**  
2003 Annual Northwest Fire and Arson Investigators Conference, Springfield,  
Oregon (4 hours - Approx. 60 students)
- Nov 2002     **Arson/Explosives Investigation**  
Taught to the Arson/Explosives Specialty Course of the California Institute of  
Criminal Investigation, Diamond Springs, California  
(8 hours - Approx. 25 students)
- Sep 2002     **Fire Reconstruction in the Scientific Method**  
2002 Annual Conference of the Central Oregon Chapter of the International  
Association of Arson Investigators, Bend, Oregon  
(8 hours - Approx. 110 students)
- Apr 2002     **Complex Arson Investigation and Arson for Profit**  
Co-sponsored by ATF and the Sacramento-Sierra Arson Task Force, Sacramento,  
California (24 hours - Approx. 24 students)

- Apr 2002      **Fire Dynamics for Advanced Fire Investigation**  
2002 Annual Fire and Arson Investigation Conference of the Alaska Fire and Arson Investigators Association, Sitka, Alaska (20 hours - Approx. 30 students)
- Mar 2002      **Fire Dynamics for Advanced Fire Investigation**  
2002 Conference of the Minnesota Chapter of the International Association of Arson Investigators, St. Cloud, Minnesota (8 hours - Approx. 200 students)
- Oct 2001      **Fire Dynamics for Advanced Fire Investigation**  
2001 Conference of the Nevada Chapter of the International Association of Arson Investigators, Las Vegas, Nevada (8 hours - Approx. 80 students)
- Sep 2001      **Fire Dynamics for Advanced Fire Investigation**  
2001 Annual Advanced Fire and Arson Investigation Conference of the Denver Fire Department  
Denver, Colorado (8 hours - Approx. 150 students)
- Nov 2000      **Current Trends in Fire Investigation – Application of the Scientific Method as related to Fire Science**  
Annual Conference of the Hawaii Chapter of the International Association of Arson Investigators, Honolulu, Hawaii (20 hours)
- Aug 2000      **Current Trends in Fire Investigation – Application of the Scientific Method as related to Fire Science**  
Annual Conference of the Alaska Conference of Arson Investigators, Anchorage, Alaska (4 hours)
- May 2000      **Fire Dynamics/Computer Fire Modeling**  
Graduate Fire Science Class, University of New Haven, at Sacramento, California (3 hours - Approx. 15 students)
- Mar 2000      **Fire Dynamics**  
Sacramento Area Fire Investigation Task Force  
Roseville, California (8 hours)
- Mar 2000      **InterFIRE VR**  
Fire Department Instructors Conference, Sacramento, California (1 hour)
- Jan 2000      **Current Trends in Fire Investigation – Application of the Scientific Method as related to Fire Science**  
2000 Semi-Annual Conference of the California Conference of Arson Investigators, San Luis Obispo, California (4 hours)

- Nov 1999     **Arson Investigation**  
California Institute of Criminal Investigation, Los Angeles County Sheriff's Department, Santa Clarita, California
- Oct 1999     **ATF and Fire / Arson Investigation**  
California State Fire Marshal's Fire Investigation 1-A Class at Sierra College, Roseville, California (4 hours, 30 students)
- Sept 1999    **Fire Origin and Cause Investigation**  
ATF National Audit Conference, Orlando, Florida  
(8 hours - 30 students)
- Sept 1999    **Fire Investigation 1-A: Cause & Origin** (portion thereof) 4 hours, 30 students  
Sierra College, Roseville, California
- May 1999     **Fire Dynamics/Computer Fire Modeling**  
Graduate Fire Science Class, University of New Haven, at Sacramento, California  
(3 hours - 20 students)
- Apr 1999     **Fire Origin and Cause Investigation**  
1999 Bi-Annual California District Attorney's Association Arson Prosecution Conference, Sacramento, California (8 hours - 50 students)
- Nov 1998     **Advanced Fire Scene Investigation**  
1998 Annual Washington State IAAI Conference, Spokane, Washington  
(8 hours - 60 students)
- Feb 1998     **Computer Fire Modeling**  
Graduate Fire Science Class, University of New Haven, at Sacramento, California  
(3 hours - 20 students)
- Sep 1997     **Advanced Fire Scene Investigation**  
1997 Annual Conference of the Denver Fire Department  
Denver, Colorado (8 hours - 120 students)
- Sep 1997     **Fire Dynamics/Computer Fire Modeling**  
Salt Lake Metro Fire Investigators Association  
Salt Lake City, Utah (8 hours - 40 students)
- Dec 1996     **High Temperature Accelerants**  
San Francisco Bay Area Roundtable  
California Conference of Arson Investigations  
Livermore, California (4 hours - 20 students)

- Dec 1996     **Advanced Cause and Origin Investigation**  
Sacramento Area Fire Investigators Association  
Placerville, California (8 hours - 40 students)
- Sep 1996     **Advanced Cause and Origin Investigation**  
1996 Annual Conference of the Denver Fire Department  
Denver, Colorado (8 hours - 125 students)
- Sep 1996     **High Temperature Accelerants**  
1996 Annual Conference, Nevada Chapter, IAAI, Las Vegas, Nevada  
(4 hours - 50 students)
- Sep 1996     **Fire Dynamics / Fire Chemistry**  
ATF Certified Fire Investigator Training (Class 5)  
University of Maryland, College Park, Maryland  
(16 hours - 30 students)
- Apr 1996     **Fire Dynamics/Computer Fire Modeling**  
Oregon Fire Marshal's Annual Conference, Bend, Oregon  
(4 hours - 75 students)
- Apr 1996     **Fire Investigation - The Branch Davidian Fire**  
California Conference of Arson Investigators  
Sacramento, California (2 hours - 25 students)
- Mar 1996     **Fire/Explosion Investigation - The Team Approach**  
ATF and Sacramento Area Fire Investigators  
Sacramento, California
- Feb 1996     **Fire Dynamics/Computer Fire Modeling**  
1996 Annual Conference, Oregon Chapter, IAAI, Medford, Oregon  
(8 hours - 80 students)
- Oct 1995     **Fire Dynamics/Computer Fire Modeling**  
New Orleans Area Arson Task Force (8 hours, 75 students)
- Sep 1995     **High Temperature Accelerant Fires**  
1995 Annual Conference, Washington State Chapter IAAI,  
Tumwater, Washington (8 hours - 80 students)

- Sep 1995      **Advanced Analytical Interviewing Techniques**  
ATF and Sacramento Area Fire Investigators Sacramento, California  
(8 hours - 30 students)
- Jun 1995      **California Fire Investigation 1-A**  
**Fire Dynamics & Fire Modeling**  
Rocklin Fire Department, Rocklin, California
- May 1995      **High Temperature Accelerants**  
1995 Annual Conference  
Michigan Chapter, IAAI, Kalamazoo, Michigan
- Apr 1995      **Fire Investigation 1-A**  
**Cause & Origin** (portion thereof)  
California State Fire Marshal, Kings Beach, California (4 hours - 30 students)
- Apr 1995      **High Temperature Accelerant Fires**  
Florida Advisory Commission on Arson Prevention  
Ocala, Florida (8 hours - 60 students)
- Feb 1995      **High Temperature Accelerant Fires**  
1995 Annual Conference, Oregon Chapter, IAAI, Medford, Oregon  
(8 hours - 75 students)
- Jan 1995      **Advanced Arson Investigation**  
ATF Arson Training, San Francisco, California (16 hours - 30 students)
- Nov 1994      **Trojan Explosives Factory Explosion and Fire**  
Int'l Association of Bomb Technicians & Investigators  
San Francisco, California  
(4 hours - 80 students)
- Oct 1994      **High Temperature Accelerant Fires**  
International Association of Chiefs of Police, Albuquerque, New Mexico  
(4 hours - 60 students)
- Jul 1994      **High Temperature Accelerant Fires**  
1994 Summer Conference, California Conference of Arson Investigators  
Fresno, California  
(4 hours - 125 students)
- May 1994      **High Temperature Accelerant Fires**  
NFPA Annual Meeting, San Francisco, California (2 hours)

- Mar 1994     **High Temperature Accelerant Fires**  
Illinois Arson Prevention Committee, Chicago, Illinois  
(4 hours - 50 students)
- Feb 1993     **Gas and Vapor Explosions**  
Oregon IAAI Annual Conference, Ashland, Oregon  
(4 hours - 80 students)
- Jan 1993     **Investigation in U.S. v. Pappadopoulos**  
California Conference of Arson Investigators, Sacramento, California