

James Lord, PE, IAAI-CFI

Professional Profile

James Lord, PE, CFI, is a Principal Fire and Forensic Engineer with 19 years' experience. He began his career as a fire fighter in Brewster, Massachusetts, before earning degrees in Mechanical and Fire Protection Engineering. Mr. Lord worked for 6 years as a Consulting Engineer in New York City and Washington DC specializing in egress simulation and computational fluid dynamics fire modeling, before transitioning to forensic fire work. He spent 10 years investigating fires, performing forensic engineering analyses and serving as an expert witness for the US Bureau of Alcohol, Tobacco and Firearms, participating in hundreds of investigations from small residential fires to large industrial fires and explosions. After transitioning back to the private sector, Mr. Lord spent 2 years as a Senior Fire and Forensic Engineer at Jensen Hughes, specializing in forensic analysis of fire protection systems and investigating large loss fire scenes before joining Reax Engineering, Inc. as a Principal Engineer. He is also an adjunct instructor in the forensic sciences graduate program at Oklahoma State University.

Professional Licensure

Licensed Professional Engineer, State of Maryland, # 50342 (Fire Protection Engineering)
Certified Fire Investigator, IAAI, #MD-53-031810

Education

MS – Fire Protection Engineering, Worcester Polytechnic Institute, 2001
BS – Mechanical Engineering, Worcester Polytechnic Institute, 2000

Professional Experience

2018 – present **Reax Engineering Inc.** Washington, DC, *Principal Engineer*

Provides a wide range of forensic engineering services in support of fire and explosions:

- Origin and cause investigation
- Analyses of detection, alarm systems and fire suppression systems
- Arc mapping
- Analysis of smoke detector response and occupant evacuations
- Computer fire modeling
- Smoke movement analysis
- Computer Egress Analysis
- Investigation of large fires and explosions in industrial and storage settings
- Investigation of fuel air explosions and suspected gas supply issues
- Investigation of fires and explosions in wood pellet facilities
- Analysis of dust hazards
- Analysis of hydrant and fire department water supplies
- Analysis of water losses resulting from sprinkler failures
- Scene management, litigation support and expert testimony
- Training for fire investigators

2014 – present **Oklahoma State University (OSU)** *Adjunct Instructor*

- Instructs online graduate classes in fire dynamics, fire protection systems and computer fire modeling as part of the forensic science program at OSU

- 2016-2018 **Jensen Hughes** Baltimore, MD, *Senior Fire and Forensic Engineer*
- Responsible for conducting and managing projects related to fire protection engineering analyses, fire and explosion investigations, failure analyses of fire detection and alarm systems and fire suppression systems, analysis of appliances and product fire performance, fire and materials research, process hazard analysis, fire hazard analysis, and computational fluid dynamics modeling analyses
 - Provided litigation support services, expert testimony and origin and cause determination.
- 2006-2016 **Bureau of Alcohol, Tobacco Firearms & Explosives (ATF) Fire Research Laboratory**
Beltsville, MD *Senior Fire Research Engineer*
- Performed over 700 fire investigations, including over 35 very large loss National Response Team callouts
 - Performed experimental fire testing and engineering analyses in support of criminal investigations
 - Testified in a number of trials across the US and in Canada
- 2001-2006 **Arup Fire** New York, NY and Washington, DC
- Specialized in performance-based fire engineering designs, including structural response to fire, egress simulation and computational fluid dynamics fire modeling
- 1996-2001 **Brewster Fire Department** Brewster, MA
- Served as a call fire fighter and emergency medical technician for the Town of Brewster

Awards

- Investigator of the Year, International Association of Arson Investigators (IAAI), 2013
- Tau Beta Pi, Honorary Engineering Society
- Pi Tau Sigma, Honorary Mechanical Engineering Society
- Salamander, Honorary Fire Protection Engineering Society

Selected Publications & Presentations

1. Lannon, C., Stoliarov, S., Lord, J. and Leventon, I., “A Methodology for Predicting and Comparing the Full-scale Fire Performance of Similar Materials”, *Fire and Materials 2017 Conference Proceedings, San Francisco, CA, February 6-8, 2017*.
2. Lord, J. and Geiman, J., “Cigarette ignition of cellulosic materials with non-fire standards compliant cigarettes,” *Fire and Materials 2015 Conference Proceedings, San Francisco, CA, February 2–4, 2015*
3. SFPE Engineering Guide, *Fire Safety for Very Tall Buildings*, 2013 (co-author)
4. Lord, J. and Geiman, J., “Systematic Analysis of Witness Statements for Fire Investigation,” *Fire Technology Journal*, 48 (2), 2012
5. Lord, J., “Dynamics of Slow Ignition Scenarios” – Two day course presented to the Kansas City Arson Task Force 30th Annual Educational Seminar, March 2012 (Also presented a one-day version to the Maryland Fire and Explosive Investigator’s Association, May 2013)
6. SFPE Engineering Guide, *Guidelines for Substantiating a Fire Model for a Given Application*, 2011 (co-author)
7. Lord, J., “Castle West Apartment Fire – A case study in the use of engineering analysis, laboratory testing and computer modeling in fire investigation”, International Association of Arson Investigators 61st Annual Training Conference, Orlando, FL, May 2010
8. Lord, J., “Fire Dynamics for Fire and Explosion Investigators” – Two day course taught over 25 times since 2007 at the National Fire Academy in Emmitsburg, MD, as well as a two week version for the International Law Enforcement Agency (through the US Department of State) in Budapest, Hungary and Bangkok, Thailand
9. Lord, J., “Fire Modeling for Fire Investigators” – Taught a 5-day course in computational fluid dynamics fire modeling to federal fire and explosion investigators at the Federal Law Enforcement Training Center in Glynco, GA, July 2007
10. Lord, J., Meacham, B., Moore, A., Fahy, R., and Proulx, G., “Guide for Evaluating the Predictive Capabilities of Computer Egress Models,” NIST GCR 06-886, December 2005
11. Lord, J. and Meacham, B., “Investigation of Uncertainty in Egress Models and Data,” *3rd International Symposium on Human Behaviour in Fire*, Belfast, September 2004

12. Lord, J. and Meacham, B., "Uncertainty in Egress Models and Data: Investigation of Dominant Parameters and Extent of Their Impact on Predicted Outcomes – Initial Findings," *5th International Conference on Performance-Based Codes and Fire Safety Design Methods*, Luxembourg, October 2004
13. Lord, J. and Marrion, C., "Smoke Management 101," *Tunnel Business Magazine*, July 2003
14. Lord, J. and Marrion, C., "Developments in Codes around the World," *Fire Protection Engineering*, Summer 2003.
pp. 28–35
15. Lord, J., "Analysis of the World Trade Center Disaster: Towers 1 and 2," presented to the Association of General Contractors, Saratoga Springs, NY, December 2002
16. Lord, J., "Learning from Disasters and Addressing Extreme Events in the Built Environment," presented to the Society of Fire Protection Engineers, NY Metro Chapter, September 2002
17. Lord, J. and Gerome, V., "CFD Modeling of Post-Flashover Fires in Ventilated Compartments," *CFD2K Conference Proceedings*, Canadian Society of CFD; Montreal, June 2000