



FIRE & INVESTIGATOR

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The article describes how the internal conceptual model historically used by fire investigators is evolving into a systems approach formally grounded in the scientific method. A discussion of what a model fundamentally is provided. Single-Equation, Procedures, and Full-Scale fire models are identified and a description provided of how each can be applied to issues arising during fire investigations.

FORENSIC FIRE DYNAMICS ANALYSIS & FIRE MODELING

By: Joseph M. Ellington, IAAI-CFI

The forensic analysis of a fire involves the credible evaluation of information about the environment, the building and its contents, the fire, and elements of human interaction that together as a system, shape and influence the development of a fire over time and determine its outcome. As an observer and participant in this system, the investigator plays a crucial role in the process. Data is often unknown or incomplete and elements of human interaction that influence changes in the environment are frequently ambiguous or contradictory.

The systems approach is not a new concept and is based on the premise that breaking down a complex concept into simple easy to understand units helps in better understanding its complexity. The approach concentrates on the holistic entity of the system without neglecting its components and attempts to understand the role of each component while simultaneously understanding the activity of the whole system. The figure below visually describes the systems approach and its application to fire investigation.

Facts common to the investigation of many alleged electrically caused fires are given with examples. Usual electrical causes of fires are listed. Common sense suggestions are given that would apply to many fire investigations, electrical and non-electrical.

ELECTRICALLY CAUSED FIRE AND THE EXPERT

By Stephen Tubbs, M.Sc.

THE MOST COMMON CAUSES OF ELECTRICAL FIRES ARE IMPROPERLY USED/OVERLOADED/ FAULTY: OUTLETS • APPLIANCES • CORDS • SPACE HEATERS • WIRING

A Systems Approach to Fire Investigation

2020 Election
Election to be held at ITC 2020

IAAI
International Association of Arson Investigators

Candidates for IAAI Second Vice President
Las Vegas | Voting starts on March 3rd

In Ballot Order



Randy Watson (GA)

HOW LONG HAVE YOU BEEN A MEMBER OF THE IAAI? 35 Years

HOW MANY ANNUAL MEETINGS HAVE YOU ATTENDED; WHICH YEARS? 14 (1997, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019)

WHAT IAAI COMMITTEES HAVE YOU SERVED ON; WHICH YEARS?

- Public Agency Advisor Committee (Chairman) - 2013 to Present
- Tagline Adhoc Committee (Year unknown, Possibly 2013) Executive Director Vetting Committee (2018)
- Budget and Finance Committee (Chairman 2019, member 2017 to Present) CFITrainer.net Steering Committee - 2012 to Present
- CFITrainer Adhoc Committee on Funding (2019) Board of Directors (2014 to Present)

DO YOU REGULARLY ATTEND YOUR STATE/PROVINCIAL CHAPTER MEETINGS AND ACTIVITIES? YES

OFFICES HELD STATE/PROVINCE CHAPTER? SC Chapter - Board of Directors 1990 to 1992

PLEASE LIST ANY INTERNATIONAL OFFICES HELD, SPECIAL PROJECTS OR COMMITTEE WORK, INDICATING YEARS OF SERVICE.

- NFPA 921 Technical Committee - Chairman 2008 to Present, Member 1992 to Present NFPA 1033 Technical Committee - Alternate 2009 to Present
- NFPA Professional Qualification Correlating Committee - Principle 2017 to Present NFPA Fire Investigation Units Technical Committee - Chairman - 2018 to Present
- Organization of Scientific Area Committees (OSAC) Principle 2015 to Present

WHAT DO YOU BELIEVE ARE YOUR BEST LEADERSHIP QUALITIES AND HOW WOULD YOU USE THEM AS A DIRECTOR OR CHAIRMAN?
A leader must possess and demonstrate vision, fair and strong work ethic. Using all these qualities, a leader must accomplish the vision. During my 27 plus years of leadership in fire departments, fire organizations, and organizations, I have used this inclusive leadership style to use these qualities as Second Vice President.

WHAT STEPS DO YOU BELIEVE SHOULD BE TAKEN TO IMPROVE LEADERSHIP?
Non-international members within a fire department are a tremendous value of the association. We must communicate the value of these dedicated chapter-only members. This begins with communicating the tremendous value of the 50% first-year membership discount for new members. The second avenue is involvement in the activities of similar interests. We should actively work with these organizations.

HOW WOULD YOU PROPOSE TO IMPROVE RELATIONSHIPS BETWEEN THE INTERNATIONAL AND NATIONAL CHAPTERS?

We must be actively communicating with and listening to our chapters. That active involvement begins with the leadership is actively involved, then the board members is strong. The relationship and communication is leadership.

WHAT ARE YOUR RECOMMENDATIONS FOR THE IAAI?

As long as we can receive federal grants, we should explore the mechanism explored can replace the money that must implement a plan so that in the event of a fire or we have not obtained the grant in the event of a fire can be implemented. A reasonable subscription can be implemented. In addition, seeking additional sponsors or donors.

Scene On Scene
Evidence Boards

By Robert K. Toth, IAAI-CFI

Boogie Boards are no longer limited to the beach. You can use them for evidence markers, as well. Okay, not THOSE boogie boards, but a product I was introduced to and found in the children's section of a bookstore.

The Boogie Boards I am referring to is a pressure-sensitive LCD writing surface that creates lines of different thickness based on how hard you push - just like paper and pen. You can write or draw with the included stainless steel stylus or any other suitable instrument - even your finger! You'll never need to search for a pen or pencil again. Why is this important? Because the board can be placed next to your evidence at a fire scene, with the number corresponding to your evidence log for photo documentation. Once you've captured the image, and with a press of the button, the writing disappears, and you can write the next number in its place. A sealed 3V watch battery never needs replacing.

The Boogie Board tablet is 1/8-Inch thin and is easy to take with you in a pocket, tool pouch, scheduler, briefcase, or toolbox. The case and LCD are made from durable plastic materials. Safe for use all around the fire scene.

Because of the available varying sizes, you can give a more personalized evidence card, by attaching your business card on the board and still have enough space to write the evidence number. I found prices starting as low as \$10.00, small enough for the most frugal investigator.

You can find them on Amazon, or at the following website, <https://myboogieboard.com/>. As I write this article, I am still experimenting with creating a thicker line when I write for it to show up better in the photos. Nonetheless, the stylus that came with my Boogie Board produces a line that is easily seen in the images.

Another option is what I produced sitting in the airport during



Figure 1: An "evidence board" and then saved c



the northern exposure

Richard B. Lindsay, Q.C., P. Eng and Margot Liechti Lindsay LLP

The Role of the Expert when there is "No Physical Evidence of Scientific Data to Interpret"

The case of *Guilbert v. Economical Mutual Insurance Company* is an interesting case of suspected arson that involved a finding at trial that the fire in question was deliberately set, a conclusion that the Court of Queen's Bench of Manitoba made without reliance on expert evidence, albeit there being three experts that gave evidence at trial.

The case involved a fire that completely destroyed the building belonging to a failing business. The fire originated in the attic of a three-story building, owned by the plaintiffs, a husband and wife, and the lower level comprising of a basement, the ground level a store, and the upper level an attic and four apartments. The basement was accessible via an overhead hatch, directly above the basement stairs. To access the attic, the basement door had to be first closed. A standalone stepladder was kept nearby, to access the attic storage area, when needed.

the attic hatch. The basement door was already closed and the stepladder open. During the subsequent investigations by the RCMP and Economical, the husband lied or was evasive about the state of his business affairs and the events leading up to the fire. He also overinflated his insurance claims to Economical, unable to provide documentation to support the value of his losses when asked. The husband's lies, omissions and evasions continued throughout the trial, resulting in the trial judge stating that Court had significant concerns over his credibility. With regard to the expert evidence, it was inconclusive as to the exact cause.

A fire investigator with the Office of the Fire Commissioner attended the scene on the evening of the fire - he was able to conclude that the fire had originated in the attic and that the only potential ignition source therein was the attic's electrical wiring, but was unable to identify an exact cause of the fire. Perhaps surprisingly, this investigator expressed the opinion that it was not possible, nor was there an opportunity, for a human to have caused the fire. This investigator had not been privy to the subsequent investigations of the RCMP and Economical, which included findings that there was no evidence of electrical disruptions in the building that day, such as flickering lights or computer failures.

The plaintiffs' expert, an engineer, similarly concluded the origin of the fire was the attic, noting that the firefighters had found no evidence of a fire in the basement and that the evidence was unclear as to whether the basement door was open or closed. On this point, the Court found that the basement door was closed. The engineer also reported that a "smoky" odour had been smelled by an employee earlier in the day, but the source had not been identified before the employees left for the day. He postulated that the smell could have been due to a smouldering fire in the attic caused by older wiring and combustible insulation. On this point, the Court found that the employees had smelled the smell and that the fire was caused by the attic wiring.