

Professional Standard: Certified Fire Investigator Capabilities

Authority

This standard was endorsed by the EMPS Panel in March 2019.

Context

This document is a high-level outline of capabilities that can be observed in practice. These are capabilities expected of personnel working in the role of fire investigator who wish to have their practice acknowledged and certified as part of AFAC's Professionalisation Scheme. It is expected that demonstrating the capabilities will require a portfolio of evidence collected over time.

This document is NOT:

- a prescription of what training courses should be delivered;
- a replacement for agency sign off and validation that personnel are able to do the job;
- a selection and recruitment tool for trainees, or
- a template to be used to sign off capabilities in a once-off observation.

Appointment of Fire Investigators

Fire investigators may be assigned to carry out an investigation according to organisational procedures, or may be commissioned to do so by someone involved in or contemplating litigation, an insurance company, or other person with an interest in establishing the cause and origin of a fire.

Fire investigators may work within the Investigation Section as described in AIIMS or other systems aligned with AIIMS principles and functions. Fire investigators may also work in accordance with organisational practices and procedures or on a commercial basis, outside the AIIMS structure.

Certified fire investigators will always act ethically in relation to any appointment or commission to investigate a fire scene. They will ensure that any actions they take, including access to a fire scene, communicating with witnesses or accessing other evidential items are in accordance with jurisdictional laws and are not in conflict with the role of law enforcement or fire agencies. They will follow recognised industry approaches to ethical conduct such as the principles in the Institute of Fire Engineers *Code of Practice for Investigators of Fires and Explosions for the Criminal Justice Systems in the UK* (2017).

Certified Fire Investigators

Certified fire investigators will demonstrate advanced abilities in relation to:

- examination of complex fire scenes
- completion of detailed written fire investigation reports which present their findings in a format suitable for use in legal proceedings
- provision of detailed analysis of fire evidence in court in the capacity of expert witness, and ability to defend their conclusions where these are challenged
- sound knowledge of rules of court defining the role and responsibilities of an expert witness in court proceedings
- underpinning knowledge that enables the investigator to conduct fire investigations across jurisdictional boundaries

- advanced knowledge of fire dynamics, and sound and current knowledge of the topics listed under the sub-heading ‘technical expertise in fire investigation’ below.

Stakeholders

The fire investigator may be required to manage relationships with a range of stakeholders including:

- incident management teams and fireground personnel
- law enforcement agencies
- property owners
- insurance companies
- legal practitioners.

Areas of capability

Specific areas of capability for fire investigators include:

1. technical expertise in fire investigation, and
2. expertise in presenting findings, in written format and in a legal context.

1. Technical expertise in fire investigation requires advanced ability to manage a fire investigation, including management of a multi-party fire investigation team. It also includes advanced knowledge of the following subject-matter areas as they relate to the individual’s practice of fire investigation:

- 1) Safety related to fire investigation
- 2) Fire science
- 3) Fire chemistry
- 4) Thermodynamics
- 5) Thermometry
- 6) Fire dynamics
- 7) Explosion dynamics*
- 8) Computer fire modelling
- 9) Fire investigation process, methodology and technology
- 10) Fire analysis
- 11) Hazardous materials*
- 12) Fire protection systems*
- 13) Evidence documentation, collection, and preservation
- 14) Electricity and electrical systems
- 15) Research relating to fire cause and emerging fire trends
- 16) Wildfire fire behaviour*
- 17) Arson.

A fire investigator may specialise in types of fire investigation that do not require detailed knowledge of all the above topics. If an asterisked* topic is irrelevant to a practitioner’s field of practice e.g. for a specialist bushfire fire investigator, the requirement does not apply to that topic.

2. Expertise in presenting findings, in written format and in a legal context includes:

- 1) Ability to prepare written reports which:
 - a. Are properly argued from evidence and follow a scientific methodology to reach conclusions
 - b. Identify all evidence relied on in reaching conclusions, using graphics and illustrations appropriately
 - c. Identify any factors that might suggest a different conclusion from that reached by the report, and explain reasons why those factors have been discounted or do not in fact support a different conclusion
 - d. Are readable to a person without specialist knowledge, while maintaining scientific rigour
 - e. Clearly reference external sources of expertise that have been relied upon in reaching conclusions in the report
 - f. Are professionally presented with clear and correct use of language.

- 2) Ability to participate as an expert witness in legal proceedings demonstrating:
 - a. Understanding of the duty of an expert witness to the court, including the duty not to advocate for one party or another
 - b. Understanding of the duty to identify and deal with factors that do not support, or may undermine, the case of the party instructing them
 - c. Knowledge of rules of court relating to the formatting and presentation of written reports and supporting documentation and notes
 - d. Ability to take part in a meeting of experts for opposing parties and participate professionally to produce a joint report outlining areas of agreement and difference
 - e. Understanding of the concepts of evidence and chain of custody
 - f. Understanding the distinction between factual and opinion evidence
 - g. Understanding of the differences between criminal and civil proceedings
 - h. Ability to give oral evidence clearly and concisely
 - i. Ability to respond to cross-examination on written and oral evidence in a professional and persuasive way, conceding points if appropriate and explaining why proffered opinions have been reached.

Appendix A below sets out how an interview panel may approach the task of exploring these areas of capability with candidates for certification.

Review

This standard will commence 15 March 2019. The Panel will review this standard after two years or as required.

Related professional standards

This document should be read in conjunction with:

- Code of Ethics (2017)
- Professional Standard: Certified Fire Investigator Requirements (2019)
- Professional Standard: Continuing Professional Development (2018)

Other sources of professional and ethical guidance for fire investigators include:

- Code of Practice for Investigators of Fires and Explosions for the Criminal Justice Systems in the UK (Institute of Fire Engineers, 2017)
- NFPA 921 Guide for Fire and Explosion Investigations (2017).

Area of Capability	Elements of Capability	Indicators
<p>Technical expertise in fire investigation</p>	<ul style="list-style-type: none"> Knowledge of specialist topics supporting practice as a fire investigator 	<ul style="list-style-type: none"> Can explain in outline what the area covered by each topic is Can describe how each topic is relevant to personal areas of practice Demonstrates an understanding of how knowledge in each topic area is developing and why it is important to keep knowledge current Can discuss likely future developments in knowledge and understanding as they relate to fire investigation
	<ul style="list-style-type: none"> Self-awareness of gaps and weaknesses in knowledge 	<ul style="list-style-type: none"> Demonstrates an open acceptance that own knowledge can never be completely comprehensive Displays respect for other reputable sources of knowledge Can outline current weaknesses and gaps in knowledge and articulate strategies to address them
	<ul style="list-style-type: none"> Management or coordination of a fire investigation 	<ul style="list-style-type: none"> Can describe a standard approach to planning for and conducting a fire investigation, including management of the fire scene Describes good practice in the identification, documentation and management of evidence Can describe and follow a process to have an item of evidence analysed Demonstrates clear understanding of health and safety issues connected with an investigation
	<ul style="list-style-type: none"> Management of relationships with stakeholders, peers and subordinates 	<ul style="list-style-type: none"> Understands the needs, responsibilities and authority of stakeholders such as law enforcement and fire agencies Outlines strategies for working with peers, for example scientific analysts or incident managers Leads develops and manages investigation teams effectively, including participation in mentoring of less experienced colleagues
	<ul style="list-style-type: none"> Write evidence-based reports 	<ul style="list-style-type: none"> Reports identify evidence on which they are based

Area of Capability	Elements of Capability	Indicators
Expertise in presenting findings		<ul style="list-style-type: none"> • Reports explain how evidence leads to conclusions in light of applicable scientific concepts • Reports distinguish between factual content and opinion content • Reports identify any evidence that does not support or might be thought to undermine the report’s conclusions, and explain why they can be discounted or why they do not in fact alter conclusions
	<ul style="list-style-type: none"> • Reports are professionally presented and readable 	<ul style="list-style-type: none"> • Reports use ‘plain English’ without dumbing down • Reports make appropriate use of graphics and illustrations to support the text
	<ul style="list-style-type: none"> • Reports are suitable for use as expert evidence in legal proceedings 	<ul style="list-style-type: none"> • Reports include any content or declarations required by rules of court • Reports maintain an impartial tone and do not advocate for a party or conclusion • Reports identify and contain a discussion of all evidence that undermines or does not support the conclusions of the report, explaining why nonetheless those conclusions are maintained by the author • Report clearly differentiates between areas of knowledge within the author’s expertise, and other areas (such as statistical analysis) which may not be
	<ul style="list-style-type: none"> • Understand the legal context 	<ul style="list-style-type: none"> • Can explain the difference between criminal and civil proceedings and how that might affect the content of a report • Describes how legal rules and rules of court may affect the content of a report • Can articulate the meaning and importance of the concepts of legal evidence and chain of custody
	<ul style="list-style-type: none"> • Participate in legal processes 	<ul style="list-style-type: none"> • Understands the requirements that may be made of expert witnesses in the course of the legal process

Area of Capability	Elements of Capability	Indicators
		<ul style="list-style-type: none"> • Meets any deadlines in a timely fashion • Can participate professionally in any court-directed meeting of experts and collaborate in the preparation of a joint experts' report on areas of agreement and disagreement
	<ul style="list-style-type: none"> • Give evidence in a courtroom setting 	<ul style="list-style-type: none"> • Is able to orally articulate the content of a written report clearly and concisely • Understands the process of giving oral evidence and can describe possible challenges that may be encountered in doing so • Can describe the nature and purpose of cross-examination • Manages challenges to evidence in cross-examination professionally, making concessions where appropriate and assisting the court to understand conclusions.