Code of Practice for Investigators of Fires and Explosions for the Justice Systems in the UK

Third Edition

Coming into effect xxx 2026

Jointly endorsed by

NFCC
National Fire Chiefs Council

THE INSTITUTION OF FIRE ENGINEERS
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UNITED KINGDOM ASSOCIATION OF FIRE INVESTIGATORS

This Code of Practice is jointly published and endorsed by the National Fire Chiefs Council, the Institution of Fire Engineers and the UK Association of Fire Investigators.

This Code of Practice has been developed by a drafting committee with national consultation, using the best knowledge available at the time.

British Standard 0 [1] defines a Code of Practice in clause 9.4.1 as a document which *"contains recommendations and supporting guidance, where the recommendations relevant to a given user have to be met in order to support a claim of compliance. Users may also justify substitution of any of the recommendations in a code of practice with practices of equivalent or better outcome. Depending on the context and field of application, a code of practice usually reflects current good practice as employed by competent and conscientious practitioners"*.

Compliance with this Code of Practice does not of itself confer immunity from legal obligations.

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National Fire Chiefs Council	**Institution of Fire Engineers**	**UK Association of Fire Investigators**
71-75 Shelton Street, Covent Garden, London, WC2H 9JQ	IFE House 64-66 Cygnet Court Timothy's Bridge Road Stratford-upon-Avon CV37 9NW	UK-AFI, PO Box 365 Alton, GU34 9LW
www.nationalfirechiefs.org.uk	www.ife.org.uk	www.uk-afi.org

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1. AIMS

1.1. The Code of Practice has been developed to support and provide guidance to organisations and individuals engaged in the investigation of fires and explosions within the framework of the justice systems of the UK (England, Wales, Scotland and Northern Ireland).

1.2. This guidance describes good practice for fire and (non-terrorist) explosion investigation.

1.3. This document sets out:

1.3.1. Information for fire investigators outlining the appropriate knowledge, understanding and competencies/skills required to undertake fire and explosion investigations within their particular area of expertise.

1.3.2. A structured, systematic approach for the engagement of fire investigators within the investigative process such that their participation maximises the quality of the information obtained from the investigation, assisting in the production of robust evidence for the justice process.

1.3.3. Recommendations for fire investigations, specifically for the identification, recording, recovery, interpretation and presentation of specific types of evidence encountered, in accordance with applicable quality standards and relevant occupational standards for fire investigations.

1.4. Where this Code of Practice states that something “must” be done or is a “requirement”, this indicates a legal requirement (for example, in compliance with the Criminal Procedure Rules, especially Rules 1, 3 and 19 [2][3]). Where this Code of Practice states that something “should” be done or is “recommended”, this indicates preferred good practice. Regarding activities that “should” be done, other methods may be equally valid but investigators and organisations must be capable of demonstrating an equivalent standard of rigour, particularly where any statement is made regarding compliance with this Code of Practice. The use of any alternative methodology must be rigorously documented.

2. SCOPE

2.1. This Code of Practice is directed at all practitioners who undertake fire and explosion investigations (including scene examinations and case reviews) and the reporting of their subsequent findings within the UK justice systems. Practitioners should be aware that all fires and explosions have the potential to be subject to judicial proceedings where this Code of Practice is relevant.

2.2. The Code of Practice does not apply to activities where the sole purpose is determining the 'supposed' (ie most likely) origin and cause of the fire or explosion for the purposes of statistical returns for central government or for prevention and protection risk reduction and fire safety responsibilities, for example by first responders. However, if, during such investigations, potential evidence is identified, or the fire or explosion involves significant financial loss, civil litigation, or is in the public interest, then the guidance relating to recovery, anti-contamination and continuity as presented in this Code of Practice must be followed, as a judicial investigation may be commenced at a later stage. It is recommended that, where organisations carry out activities for the purpose of statistical returns, policies and procedures should be developed to ensure preservation of evidence by those carrying out those activities. If for any reason the investigation becomes likely to be the subject of judicial proceedings, this entire Code of Practice will be relevant.

2.3. The Code of Practice does not include the chemical analysis of fire or explosion debris for ignitable liquids which, under the Forensic Science Regulator's Code of Practice, is a laboratory activity requiring ISO 17025 accreditation [4][5].

2.4. The Code of Practice does not include examination of scenes which are identified as being related to terrorist activity or criminal use of explosives, where the investigation would be led by other agencies.

2.5. Fire investigation is an opinion and evidence-based interpretation process supported by a broad body of scientific and engineering knowledge.

2.6. Fire investigation demands relevant scientific and discipline specific knowledge, understanding, skills, experience and competence for an investigator to be in a position to determine the origin, cause and development of a specific event.

2.7. The recognition of the fire investigator as an expert witness is a matter decided upon by a judge, and fire investigators must recognise that they may be called to court to present evidence in this capacity and must be aware of the responsibilities and obligations of an expert witness.

3. DEFINITIONS

3.1. **Competence:** The skills, knowledge, experience and understanding required to carry out a role, evidenced consistently over an appropriate period of time through performance in the workplace.

3.2. **Critical findings** [5]: Are observations or results that have a significant impact on the conclusion(s) reached, the interpretation, or opinion(s) provided; cannot be repeated or checked in the absence of the exhibit or sample; and/or could be interpreted differently.

3.3. **Critical findings review** [5]: The organisation of the fire investigator shall have a procedure for carrying out checks on critical findings and designate competent individuals to carry out such checks.

3.4. **Deployment to incidents:** The nature of deployment of fire investigators to a scene will depend upon the nature of the incident and the level of response required. This is a judgement made on a case by case basis by the organisation with primacy and/or agreed interagency arrangements. Incidents may require a low resource response, a technical specialist or a multiagency response to be deployed. In all cases, fire investigators must work within their areas of expertise and competence.

3.5. **Expert:** The decision whether a fire investigator is to provide expert evidence – whether in writing or in person is ultimately a decision for the judge alone to make. There are specific obligations placed upon expert witnesses and fire investigators acting in this capacity must understand and comply with these obligations.

3.6. **Fire investigation:** In its broadest sense, involves the identification, recovery, examination and interpretation of evidence related to a fire or a gas (vapour) phase explosion, together with post fire/explosion damage to provide a determination (where possible) of the area(s) of origin of the fire/explosion, the most likely ignition mechanism involved and the mechanism by which a fire/explosion may have developed and spread. Different organisations undertaking fire investigations categorise the complexity of investigations using different terminology, any of which may end up in the justice system and if so, must comply with the Code of Practice.

3.7. **Fire investigators:** In the UK, fire investigators include practitioners from both the public (fire and rescue service, police, publicly funded forensic science providers, academic and other public bodies) and the private sector (fire and explosion investigation organisations, private forensic science providers and other commercial organisations). Different organisations undertaking fire investigations categorise the competency of fire investigators differently. This Code of Practice applies equally across all categories of investigator.

3.8. **Instructing Authority:** This refers to the various organisations that may be responsible for commissioning an investigation.

3.9. **Investigating Authority:** This refers to the various organisations that have authority to conduct investigations.

3.10. **Peer review:** A technical review carried out by a fire investigator (either from inside or outside a fire investigator's organisation) with competence equal to or greater than that of the author of the original report. The purpose of peer review is to scrutinise the technical findings of a report prior to it being served in a judicial process. Where a peer reviewer is not available, non-peer review must be carried out and a statement and justification for non-peer review recorded in the report.

3.11. **Review by non-peer:** A review carried out to assess the logic and cogency of the report (including checks of spelling and grammar). This review may be carried out by someone who is not necessarily a fire investigator with the same competence as the author (who would normally be someone with specialist knowledge).

3.12. **Specialist information:** Fire investigators may also provide information of a specialist nature such as the use of computer modelling of fire or explosion behaviour. Fire investigators may also recover items from fire and/or explosion scenes for the purposes of further laboratory-based investigations.

4. NORMATIVE REFERENCES

4.1. The following normative references are included in the reference section. Some normative references apply to all investigations whereas others depend upon the relevant jurisdiction. Those responsible for the implementation of this standard within their organisation should be familiar with and understand the documents relevant to them; the most up to date versions of these and of any amendments to applicable legislation:

- Forensic Science Regulator (2025) Code of Practice, Version 2 [5]
- ILAC G19:06/2022 Modules in a Forensic Science Process [6]
- ILAC P15:05/2022 Application of ISO/IEC 17020:2012 for the Accreditation of Inspection Bodies [7]
- BS EN ISO/IEC 17020:2012, Conformity assessment - Requirements for the operation of various types of bodies performing inspection [8]
- BS EN ISO/IEC 17025:2017, General requirements for the competence of testing and calibration laboratories [4]
- UKAS-RG 201:2023, Accreditation of Bodies Carrying Out Scene of Crime Examination (Edition 3) [9]
- FSR-G-201, Validation, Issue 2 [10]

4.2. CRIMINAL PROCEDURE – ENGLAND, WALES AND SCOTLAND

- England and Wales – The Criminal Procedure Rules 2025 [2][3]
- Scotland – Act of Adjournal (Criminal Procedure Rules) 1996 [11]

4.3. CIVIL PROCEDURE – ENGLAND, WALES AND SCOTLAND

- England and Wales – The Civil Procedure Rules 1998 [12][13]
- Scotland – Sheriff Court – Civil Procedure Rules [14]

4.4. NORTHERN IRELAND

- Court Rules Publications, The Department of Justice, December 2016 [15]

4.5. CORONERS COURTS (THROUGHOUT UK)

- Coroners and Justice Act 2009 [16]

5. GOOD PRACTICE

5.1. GENERAL

5.1.1. Competent fire investigators must be impartial and independent and undertake their investigative duties with professionalism, maintaining the confidentiality of all materials relating to their investigation within any interagency agreements or instructions from the investigating/instructing authority. Fire investigators may be requested to provide unbiased and objective expert opinion evidence to a court.

5.1.2. A fire investigator must be competent to proffer a professional opinion on the origin, cause and development of a fire or explosion within their area of expertise and must not overstep the boundaries of their expertise.

5.1.3. Fire and explosion investigations need to be undertaken following a systematic data gathering and investigative approach (widely known as the 'scientific method') [17][18] accepted within the (UK) fire investigation community.

5.1.4. Recording items (evidence/exhibits) in situ and documenting the recovery, packaging and labelling of exhibits, including their continuity, is essential [8][19][20][21][22].

5.1.5. The fire investigator is required to comply with disclosure obligations in terms of any requirements to record, retain, reveal and review all details and physical evidence related to their examinations [3][19][20][21][22].

5.1.6. Any equipment (including vehicles) used must be fit for purpose and where appropriate, validated for use [10]. Equipment, resources (for example, hydrocarbon detection dogs) and clothing must be free of relevant contaminants, with appropriate validated cleaning regimes employed, together with a written monitoring system maintained to demonstrate an effective cleaning regime is in place. In addition, an assessment of each individual scene should be undertaken to ensure that suitable anti-contamination measures are in place and recorded given the circumstances of the case.

5.1.7. Samples recovered from a fire and/or explosion scene requiring chemical or other forensic analysis must be transferred to a laboratory where analytical testing would normally conform to the appropriate quality procedures (normally ISO/IEC 17025 [4]).

5.2. SCENE EXAMINATION

5.2.1. ***Area of origin:*** Determination of the origin of a fire or explosion involves an assessment of factors which may include (but is not limited to) indicators such as electrical evidence, witness evidence, burn and smoke patterns, the fuel load, firefighting activities, ventilation and temperature indicators as well as injury patterns on any victims. The basis for the interpretation of these factors is well documented in the professional literature. Support for the findings of the area of origin of the fire and explosion(s) should be documented as should all literature used to support such conclusions.

5.2.2. ***Cause:*** Identification of the cause of the fire or explosion must involve an assessment of all viable ignition sources in each individual case. This includes consideration of all viable sources pertinent to the specific incident and fuel available. Support for the inclusion or exclusion of a potential ignition source must be documented and evidenced as should all literature used to support such conclusions.

5.2.3. ***Development:*** Fire investigators might be required to comment on the probable development of the fire or explosion, which may be beneficial when supporting hypotheses. The development of a fire might also become of interest if the numbers of deaths and injuries or extent of damage appears disproportionately large. This might result from an unusually high fuel load or might point towards failures in fire protection. The application of fire dynamics and fire safety engineering are likely to be of assistance if this becomes a significant area of interest.

5.3. ESTIMATION OF UNCERTAINTY

5.3.1. Tests and measurements used in fire investigations are often indicative and not always quantitative.

5.3.2. The reliability (precision and accuracy), variability (statistical variance), errors and calibration related to any instrumental measurement or engineering method undertaken must be understood by the fire investigator [4][6][8].

5.3.3. Uncertainties in the forensic fire scene investigation process may arise from a number of sources taken into account on an individual basis in the interpretation and evaluation of a scene. Such areas include:

5.3.3.1. Competence of the investigator and their specific expertise and experience;

5.3.3.2. Information received;

5.3.3.3. Specific environmental conditions;

5.3.3.4. Destruction of evidence due to the fire, fire suppression and/or firefighting; and/or

5.3.3.5. Clean-up or repair activities which have started prior to collection of all evidence.

5.3.4. These factors should be taken into account and documented in every case in the interpretation and evaluation of a scene [20][21][23][24].

5.4. ROLES AND RESPONSIBILITIES

5.4.1. The degree to which a fire investigator will be engaged in any investigation will be defined by their specific expertise and documented in their terms of reference or interagency agreement.

5.4.2. Fire investigators' responsibilities include [25]:

5.4.2.1. Understanding their role within the investigation and the investigative team;

5.4.2.2. Understanding the relevance of all evidence types which may potentially be present at the fire or explosion scene;

5.4.2.3. Understanding the relevant crime scene and laboratory procedures (including applicable PPE (personal protective equipment) and RPE (respiratory protective equipment) requirements) to ensure the preservation, integrity, continuity and confidentiality of evidence as well as in support of applicable disclosure obligations;

5.4.2.4. Ensuring that the methods used in the investigation of the fire or explosion scene are accepted by the mainstream fire community or are peer reviewed (for example in the relevant scientific literature);

5.4.2.5. Reporting and justifying in case notes or within their statement/report as appropriate, any variations and limitations of accepted fire and explosion investigation practice;

5.4.2.6. Ensuring that their investigation does not adversely affect the requirements of other specialists at the scene but rather dovetails with other specialists to maximise the opportunities for the recovery of all available evidence at the scene;

5.4.2.7. Exercising all reasonable professional skill and care to prevent avoidable danger to health or safety and to minimise any adverse effect on the environment including post scene cleaning/decontamination processes.

5.4.2.8. Ensuring the security and storage of all correspondence in electronic or physical format including text and images;

5.4.2.9. Collecting relevant witness and documentary evidence;

5.4.2.10. Understanding that any destructive examination may make the original observations unavailable for re-examination by others. All reasonable efforts must be made to ensure that all interested parties are informed that evidence has been retained and, by so doing, provided with the opportunity to attend destructive testing and all data and critical findings of destructive testing must be recorded. It is recognised that in some circumstances (i.e. if it is in the public interest) there may be a need to conduct inspections urgently, however justification for this must be fully documented;

5.4.2.11. Making and retaining full, contemporaneous, clear and accurate records of the examinations undertaken. These should include (but are not limited to) the terms of reference, photographs, LIDAR scans and other visualisation methods, a scene plan detailing where items were located including, if appropriate, wiring diagrams, scene examination strategy, the time tasks were undertaken, and exhibits/productions recovered. All records must be maintained in appropriate and secure storage and must be disclosed in their entirety, in a timely manner, when requested in accordance with disclosure obligations compliant with the relevant procedures rules, or other applicable jurisdictional rules (see Normative References);

5.4.2.12. Writing statements and reports and attending court to give evidence if called upon to do so;

5.4.2.13. Enabling appropriate peer review and in certain circumstances non-peer review of statements and reports [5];

5.4.2.14. Presenting findings and evidential material in a logical, balanced, transparent and clear manner confining opinions to those based on personal skills, professional experience and knowledge;

5.4.2.15. Ensuring a full understanding of the ethical standards required and the expectations and obligations of appearing as an expert witness for the courts (see Normative References, Section 4);

5.4.2.16. Understanding the disclosure obligations of witnesses [3][19][20][21][22];

5.4.2.17. Presenting evidence in a fair, unbiased and impartial manner with honesty, integrity and objectivity [3][13][23][24][26][27];

5.4.2.18. Taking all reasonable steps to maintain and develop professional competence, by demonstrating engagement in continuous professional development or other agreed competency framework, either through a professional body or through the workplace where appropriate [5];

5.4.2.19. Alerting relevant authorities to any findings which may have implications for public safety, subject to any requirements of a criminal investigation;

5.4.2.20. Ensuring (where appropriate) that professional indemnity insurance is in place.

5.5. PERSONNEL

5.5.1. It is recognised that fire investigators have a wide range of experience and background knowledge. Their training and knowledge can be arrived at through a wide-ranging combination of qualifications, structured specialist training courses and experience. Irrespective of the means used, competent fire investigators must demonstrate the essential knowledge and skills equivalent to those listed in the National Occupational Standards for fire investigation [25] (N.B. it is not the intention of this Code to prescribe the form of qualifications/skills required, but to illustrate a level of competence that is to be expected; at the time of writing this equates to Level 5 on the National Qualifications Framework or Level 7/8 on the Scottish Qualifications Framework).

5.5.2. Competence of staff should be documented, with the organisation, or sole trader, having clearly defined policies and processes for demonstrating ongoing competence of staff.

5.5.3. Training records of staff undertaking the investigation of fires or explosions should be kept and reviewed regularly to ensure competencies are maintained.

6. ESTABLISHING REQUIREMENTS

6.1. A briefing (including forensic strategy) should take place where the fire investigator is informed of the incident and any background information that may be of relevance. This briefing may not always occur at the start of the investigation but should occur as early as practicable during the investigation. The content of the briefing should be recorded in the fire investigator's notes.

6.2. Fire investigators should be aware of potential biases in the information that they may provide or receive and ensure that suitable preventative safeguards in relation to this are in place [28].

6.3. Any conflict of interest must be declared and the resolution documented [20][21][22][23]. The terms of reference should be clearly stated and understood prior to commencement of the fire or explosion investigation. This may be for example via a forensic strategy meeting or an initial instruction, either in person, by telephone or in writing from the investigating/instructing authority.

6.4. The terms of reference for the fire or explosion investigation might include:

6.4.1. Information relating to the purpose of the requested examination, the expertise required, time frame and, if appropriate, any agreed costings.

6.4.2. The availability of suitable resources, facilities, specialists or other equipment (e.g. aerial platform).

6.4.3. Establishing a reflective review stage for evaluation of progress or changes in priority against requirements to reflect additional information received.

6.4.4. Discussion and agreement of any limitations imposed on the investigation as a consequence of health and safety risk issues and necessary control measures.

7. CASE ASSESSMENT

Fire investigators attend many different types of scene including those where explosions or fatalities may have occurred. Because of the variety of scenes, other forensic practitioners and other specialists may also be a part of the investigative team and the fire investigator(s) should familiarise themselves with, and contribute to, the investigative strategy as applicable [5].

7.1. PRIOR TO INVESTIGATION AT THE SCENE

7.1.1. The fire investigator should note the names of all individuals involved in the investigation including those active at the fire scene and their roles in accordance with any agreed investigative or forensic strategy. They must also establish the legal power under which they are operating (for example having written authorisation if required) [5][29][30][31].

7.1.2. Prior to any work being undertaken, the fire investigator must discuss and agree any limitations imposed on the investigation as a consequence of health and safety risk and all necessary control measures implemented prior to commencing the investigation. A suitable and sufficient risk assessment must be documented and brought to the attention of all persons involved at the scene. This risk assessment must be reviewed and updated as required as the investigation progresses [32].

7.1.3. The fire investigator should document details of the scene perimeters, cordons, logs and common approach paths, if in place, and must ensure that they comply with necessary control measures which may be in place.

7.1.4. The initial fire investigative strategy should be outlined and agreed between the investigating/instructing authority, crime scene manager or their representative and other specialists, being mindful of the potential for recovery of other types of evidence other than that relating to origin and cause.

7.2. SCENE INVESTIGATION

7.2.1. It is recognised that scene investigation is a dynamic activity and as such the investigative strategy should be reappraised regularly and communicated to all relevant parties as the investigation progresses [6][8].

The fire investigator is required for the purposes of disclosure to record their actions, decisions and observations, strategy, processes, any exhibits/productions (in Scotland) seized, etc. Records should include scene notes, scene plans, any photographs, scans and visualisations, photograph logs and electrical schematic and/or wiring

diagrams, other relevant schematics (e.g. ventilation systems) and contemporaneous notes and records. All documentation must be retained, listed and made available for disclosure purposes if required. Records should be supported by photography, although that may be undertaken by a different individual or agency [3][5][20][21][23][24].

7.2.2. Any equipment brought to the scene by the fire investigator must be suitably calibrated appropriate to its intended purpose as defined by the user.

7.2.3. Any equipment brought to the scene by the fire investigator must be clean and contamination free to the extent appropriate to its intended purpose as defined by the user.

7.2.4. Any limitations affecting the findings by the fire investigator, for example, as a result of restricted access at the scene (e.g. for safety reasons) should be recorded.

7.2.5. The fire investigator must follow and document a systematic data gathering and investigative approach to the scene investigation. The approach employed must meet the requirements of good practice accepted by the profession. In the fire investigation community this good practice is widely referred to as the 'scientific method' where alternative hypotheses are tested and subsequently recorded within the investigator's scene notes. This methodology is widely documented in the relevant literature [17][18].

7.2.6. The procedure used is a systematic process of gathering data relating to the fire or explosion scene under investigation [18]. This process may include, but is not limited to the following activities, the sequencing of which will depend upon the forensic strategy:

7.2.6.1. A preliminary external examination of the scene;

7.2.6.2. A preliminary internal examination of the scene;

7.2.6.3. A detailed external examination of the scene;

7.2.6.4. A detailed internal examination of the scene;

7.2.6.5. A scene reconstruction [33].

7.2.7. Preliminary examinations should;

7.2.7.1. Identify hazards and risks pertinent to the scene and measures necessary to mitigate those risks;

7.2.7.2. Provide a set of overview photographs of the scene;

7.2.7.3. Provide the fire investigator with an initial perspective of the scene, identify areas of interest, items of potential evidential value relating to the origin, cause and development of the fire or explosion as well as to the identification of other potential evidence sources;

7.2.7.4. Identify information which may need to be gathered from possible witnesses or other sources (for example CCTV, building plans etc.).

7.2.8. Detailed examinations should;

7.2.8.1. Identify and protect items of potential forensic evidence so that an assessment can be made of their relevance and that they can be recovered by practitioners competent to do so;

7.2.8.2. Ensure that the recovery of items is documented and recorded and that the items are packaged appropriately by practitioners who are competent to do so and in discussion with the investigating/instructing authority;

7.2.8.3. Include the systematic interpretation of the physical post fire or explosion indicators at the scene to identify the potential area of origin, being mindful that there may be more than one such area;

7.2.8.4. Undertake a systematic and fully documented excavation as appropriate to the scene and in line with the requirements of the investigation and agreed terms of reference.

7.3. RETRIEVAL OF ITEMS FROM THE SCENE [5]

7.3.1. Identification, preservation, packaging, labelling and documentation

7.3.1.1. Items must be recovered, packaged, labelled, documented, transported, stored and examined in accordance with recognised codes of practice (see Normative References, Section 4);

7.3.1.2. The fire investigator must have relevant authority/grounds to recover and remove items from the scene. Justification for such removal must be fully documented, in particular where this is done without permission from the investigating authority or owner. Prior to removal of such items, they must be fully documented including in situ photography, with a measurement / comparison scale where appropriate;

7.3.1.3. Items must be packaged suitably and labelled uniquely such that each item can be unequivocally identified. This must be done in accordance with the requirements for sample integrity and continuity of evidence such that a chain of custody is in place. Any deviation from appropriate packaging material shall be documented along with the reason for the deviation;

7.3.1.4. The potential for contamination and cross-contamination must be assessed on an item by item basis and all possible safeguards put in place to minimise the possibility of contamination;

7.3.1.5. All packaging containing recovered items must be sealed at the scene;

7.3.1.6. An evidence log must be produced detailing all the items recovered from the scene. This log must record details of who has responsibility for the items. These records must include details of when the items have been handed over to any other relevant agency or individual;

7.3.1.7. Evidential continuity must be maintained at all times and clearly documented;

7.3.1.8. Responsibility of storage and security of all items retrieved from the scene should be agreed from the outset normally at the initial briefing stage.

7.3.2. Transfer and transportation

7.3.2.1. The fire investigator should ensure that they witness the transfer of any items that they have recovered from the fire or explosion scene to another person or organisation and ensure there is a written record of this within their notes.

7.3.2.2. Any damage or potential for contamination during retrieval and transfer of items from the scene must be documented.

7.4. EXAMINATION OF ITEMS RETRIEVED FROM THE SCENE [5]

7.4.1. Examination of items (for example electrical appliances) must not be undertaken until the prioritisation of other evidence such as DNA and fingerprints has been fully discussed with the investigating authority [7].

7.4.2. Every effort should be made to notify all interested parties (for example practitioners engaged for the prosecution, defence or insurance industry provided they are known) by the investigating/instructing

authority undertaking or commissioning the examinations that such examinations are taking place and be provided with the opportunity to attend. As previously set out (at 5.4.2.10), it is recognised that in some circumstances (i.e. if it is in the public interest) there may be a need to conduct inspections urgently, however justification for this must be fully documented.

7.4.3. Any destructive examination of evidence, for example electrical equipment, should be undertaken only by those with the relevant technical expertise and competencies to do so.

7.4.4. To reduce the risk of relevant evidentiary material being contaminated and/or lost, examination of items recovered from fire or explosion scenes should be undertaken in a well-lit and clean environment. Surfaces and equipment used for examinations must be clean and present no risk of contaminating the items being examined.

7.4.5. Appropriate RPE and personal protective clothing, including gloves, must be worn in accordance with health, safety and forensic strategy requirements.

7.4.6. The condition of packaging should be recorded and fully documented, including photographically where appropriate.

7.4.7. The fire investigator should be aware of the potential needs of the defence or other experts when undertaking the examination of items and ensure that adequate and accurate documentation including photography is carried out prior to and during any destructive processes being undertaken. Destructive processes should be appropriately authorised and disclosed [20][21][23][24].

7.4.8. Care should be used in handling more fragile items given that damage may occur during the examinations and when this does occur, it must be documented.

8. REVIEW OF CRITICAL FINDINGS AND CONCLUSIONS

8.1. Critical findings are those which make a significant contribution to the conclusions in the case and can be subject to differences in interpretation by individual fire investigators.

8.1.1. All realistic hypotheses for the origin, cause and, if required, development of the fire and/or explosion should be stated.

8.1.2. Each hypothesis must be evaluated and the conclusions reached must be justified in light of the case circumstances and interpretation of physical evidence including subsequent laboratory examinations if applicable.

8.1.3. Critical findings and conclusions must be reviewed independently [5]. See 11.14.

9. UNDERTAKING CASE REVIEWS

9.1. In some circumstances fire investigators may be asked to undertake a review of case-related materials such as photographs, fire or explosion investigation reports, witness statements and other documents.

9.2. Instructions may be provided to the fire investigator by the investigating authority or instructing authority either in person, in writing or by telephone. In all cases the fire investigator should document:

9.2.1. The name and contact details of the investigating/instructing authority.

9.2.2. The terms of reference.

9.2.3. An agreement of the items to be reviewed.

9.2.4. The time scales under which the case review will be carried out.

9.2.5. An agreement of costs if appropriate.

9.3. Should there be any conflict of interest, the fire investigator must raise and discuss this with the investigating/instructing authority.

9.4. A list of material required from other experts should be passed to the relevant individual (for example the disclosure officer, defence solicitor or wider defence team as appropriate) at the earliest point to allow them to locate and pass on material which might be pertinent.

9.5. The fire investigator undertaking the case review at the request of the defence must understand their requirements in relation to disclosure.

9.6. Limitations imposed on the conclusions drawn by the fire investigator as a result of the method of examination of the evidence (photographs, written notes and reports) or as a result of restricted access at the scene (e.g. for safety reasons) must be communicated to the investigating/instructing authority.

10. CASE MANAGEMENT

10.1. A review must be undertaken to check that the investigating/instructing authority's requirements/instructions have been adequately addressed in accordance with the terms of reference [5].

10.2. All reports or statements must be peer reviewed (or, if not possible, reviewed by a non-peer) prior to submission to the investigating/instructing authority [5].

11. REPORTING

11.1. Fire investigators who provide factual evidence based on scientific methodology must additionally be able to demonstrate, if required:

11.1.1. Whether there is a body of specialised literature relating to the field;

11.1.2. That the principles, techniques and assumptions they have relied on are valid;

11.1.3. That assumptions they have relied upon are reasonable;

11.1.4. The impact that the uncertainty of measurement associated with the application of a given method could have on any conclusion.

11.2. Fire investigators who provide expert evidence must ensure that they have a sufficient level of knowledge, understanding, experience, and, where appropriate, qualifications, relevant to the type of evidence being adduced.

11.3. Fire investigators who provide expert evidence based on their practical experience and/or their professional knowledge must be able to provide:

11.3.1. An explanation of their methodology and reasoning, both in writing and orally, concisely in a way that is comprehensible to a lay person and not misleading;

11.3.2. Reference to a body of up to date specialised literature relating to the field of expertise and the extent to which this supports or undermines their methodology and reasoning;

11.3.3. An assessment that any database relied on is sufficient in size and quality to justify the nature and breadth of inferences drawn from it, that

the inferences are logically sound and that alternative hypotheses in the investigative mode and alternative propositions in the evaluative mode have been properly considered and that these are communicated to the Courts;

11.3.4. Evidence that their methodology, assumptions and reasoning have been considered by other fire investigators and are regarded as sound, or where challenged, the concerns have been satisfactorily addressed;

11.3.5. An assessment of the extent to which their methodology and reasoning are now accepted by their peers, together with details of any outstanding concerns;

11.3.6. Relevant information to support claims of expertise, as well as anything that may adversely affect their credibility or competence (e.g. adverse judicial findings) [21][22];

11.3.7. The statement of understanding and truth in expert reports for the relevant justice system [3][12][16].

11.4. The report must be signed and dated prior to submission.

11.5. Draft documents should be marked as such and signed and dated.

11.6. The report should be clear and easy to read. The summary and conclusions of the report must be easily understood by the layperson, to render it suitable for presentation in court. The use of technical terminology in the conclusions should be kept to a minimum with non-technical explanations of these terms given in plain English where they are felt to be essential.

11.7. The report should contain sufficient detail and precision for other fire investigators to be able to comprehend the significance of the results.

11.8. The report should make clear any assumptions made and limitations on the extent or reliability of the evidence assessed, and the significance of this on the results.

11.9. The fire investigator must not stray outside their area of expertise when writing the report.

11.10. The report should include any relevant illustrations such as a scene diagram and a selection of photographs and images according to the relevant jurisdictional requirement. The location of objects photographed at the fire scene should be clearly indicated.

11.11. Reports must conform to the legal rules applicable within the specific jurisdiction within which the case is being tried, for example to the Criminal Procedure Rules [3] if the case is conducted in the criminal courts of England and Wales.

11.12. Reports must carry the relevant declarations and any caveats particularly

relating to new information coming to light and how this may affect the fire investigator's opinions.

11.13. All reporting formats and standard operating procedures for presenting investigations and findings must conform to the legal rules applicable within the specific jurisdiction within which the case is being heard, for example the Criminal Procedure Rules [2][3] if the case is conducted in the criminal courts of England and Wales.

11.14. FINAL REVIEW AND CHECKING

Before signing and submitting a report it must be checked for legal compliance, critical findings accuracy, technical accuracy, typographical and grammatical errors. A critical findings review [5] of the conclusions within the report must be undertaken to ensure that:

- any conclusions drawn are justifiable considering the information contained within the report,
- the report is a complete and stand-alone document,
- the report carries the relevant declarations and any caveats particularly relating to new information coming to light and how this may affect the fire and explosion investigators opinions, and
- any significant differences between the initial findings and the peer review must be recorded and documented. Disclosure of such differences will vary depending on the judicial system (criminal, civil etc).

11.15. SUBMISSION

The report should be produced and submitted as quickly as practicable within the specific circumstances of the case and within an agreed timescale. Interim and supplementary reports may also be requested, and if there are any delays in producing reports the investigating/instructing authority should be informed.

11.16. STORAGE AND ARCHIVAL OF MATERIAL

All materials pertinent to the case must be stored and archived securely. This must include all unused material, for example written notes and photographs. An Index of unused material (material that may be relevant to the investigation that has been retained but does not form part of the case for the prosecution against the accused) should be compiled [20][21][23][24].

12. CASE RELATED CONFERENCES

12.1. The fire investigator should be prepared to:

12.1.1. Attend case conferences or meetings called by the investigating/ instructing authority or court to discuss their findings, report or any other issues relevant to the case.

12.1.2. Discuss their findings and interpretations openly and in an unbiased manner including details of any further work which may in their view be required. They should be in a position to discuss alternative hypotheses given the facts provided and identify and summarise any areas of disagreement.

12.1.3. All such discussions must be documented fully.

13. DISCLOSURE

13.1. The fire investigator must ensure that they adhere to the obligations placed upon them by the investigating/instructing authority and relevant court in relation to the disclosure of used and unused materials within the jurisdiction within which they are practicing [20][21][22][23][24].

14. ATTENDANCE AT COURT

14.1. The fire investigator must make themselves available to attend court when requested to do so, subject to previously declared period of absence [3].

14.2. They must understand the obligations that they have to the court and the UK criminal justice systems (see Normative References, Section 4).

14.3. In particular they are required to:

14.3.1. Ensure that they are well prepared and have reviewed their contemporaneous notes and report in advance of their appearance in court to give their evidence.

14.3.2. Ensure that all relevant documentation, such as a copy of their report and contemporaneous notes, are taken to the court.

14.3.3. Ensure that their appearance and behaviour is in accordance with standards expected by the courts.

14.3.4. Deliver all evidence in a clear, audible, and comprehensible manner. They should avoid using overly technical language when answering questions and offer explanations for such language if required.

14.3.5. Ensure a clear delineation between what is factual evidence and what is opinion evidence.

14.3.6. Ensure that testimony given is in accordance with the contents of their written report.

14.3.7. Answer questions truthfully and impartially.

14.3.8. Consider any alternative hypotheses that are presented to them, particularly in light of new facts that may emerge during the conduct of the trial.

14.3.9. Ensure that any conclusions given are within their field of expertise.

14.3.10. Attempt to bring to the attention of the court any evidence which appears to have been misunderstood or misstated by any of the relevant parties.

14.3.11. Be willing to enter into discussions with other specialists prior to attendance at court, with regards to confirming areas of agreement and/or to explore any differences in opinion that exist regarding findings and conclusions (see Case Related Conferences, Section 12).

14.3.12. Be prepared to change their opinion if the facts dictate it, and to state this change clearly to the court.

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16. AUTHORSHIP

The original Code of Practice was prepared by:

Professor Niamh Nic Daeid (Chair), University of Dundee
Dr Nick Carey, Hawkins & Associates Ltd, UK Association of Fire Investigators
Dr Peter Mansi, FIUK (LLP), UK Association of fire Investigators
Dr David Crowder, BRE Group, Institution of Fire Engineers
Mr Martin Shipp, BRE Global
Mr David Halliday, Prometheus Forensic Services (up until January 2016)
Dr Julian Halligan, Forensic Science Northern Ireland
Mr Michael Hannigan, Northern Ireland Fire and Rescue Service
Mr Mark Watson, Hertfordshire Constabulary
Ms Karen Robertson, Scottish Police Authority Forensic Services
Mr Douglas Boyd, Scottish Fire and Rescue Service
Mr Chris Blacksell, Humberside Fire and Rescue Service, Chief Fire Officers Association

The second edition was prepared by:

Professor Niamh Nic Daeid (Chair), University of Dundee
Dr David Crowder, Institution of Fire Engineers
Mr David Bristow, National Fire Chiefs Council
Mr John Gow, United Kingdom Association of Fire Investigators

The third edition was prepared by:

Professor Niamh Nic Daeid (Chair), University of Dundee
Mr Martin Shipp, Institution of Fire Engineers
Mr Stuart Drummond, National Fire Chiefs Council
Mr David Bristow, UK Association of Fire Investigators
Dr David Crowder, DCCH experts, Institution of Fire Engineers
Dr Nick Carey, Hawkins & Associates Ltd, UK Association of Fire Investigators

The Code of Practice has been widely contributed to by members of the fire and explosion investigation community across the UK from the public and private sectors.