



MASSACHUSETTS STATE FIRE MARSHAL

Fire Investigation Guideline

This **Fire Investigation Guideline** describes a specific investigative approach for accident and incendiary fire investigation, which emphasizes collection and documentation of evidence in stages. Experience has proven that this approach is a very effective way of conducting public sector fire investigations.

Following these steps, *in order whenever possible*, will enable the fire investigator to document leads as a fire investigation progresses, as well as to achieve a better, more comprehensive origin and cause examination. This approach will greatly assist in narrowing down the origin and cause of a fire and also will assist the identification and successful prosecution of suspects. *Systematic investigation leads to arson convictions.*

The objective of a first rate origin and cause examination is to establish the exact point(s) of fire origin and gather evidence of fire cause. In extensively fire-damaged buildings this can be very tricky. The more information the origin and cause investigator has **beforehand**, the better job he is in a position to do. This is common sense.

The Fire Investigation Guideline consists of Four Steps

Step 1: Preliminary Scene Examination/Size-up

For best results, a trained fire investigator *should be notified about, and respond to, serious fires or possible arson fires* right after fire apparatus is dispatched, on a twenty-four hour basis. The fire investigator should carry a complete, "ready-to-go" compliment of turnout gear, excavation tools, evidence collection tools and camera equipment in his/her response vehicle.

The first investigator arriving on a fire scene should ascertain if additional assistance from the Fire Prevention Unit, State Fire Marshal's Office or municipal police is needed. Call for this assistance immediately.

Speak to the fire officer-in-charge and the first-in firefighter regarding their initial size-up and knowledge of the circumstances.

The investigator should then survey both the exterior and interior of the fire building providing entry can be made safely. This step permits the investigator to secure obvious evidence, help to control fire overhaul procedures and protect potential evidence, and orient himself to probable fire origins. This should occur *immediately upon arrival* and involve only a few minutes of time.

If fireground operations are in progress when you arrive and you are unable to get into the fire building for a preliminary scene examination, *immediately begin interviewing witnesses. In most cases reduce the statement to writing and have the witness sign it.*

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Fire and Explosion Investigation Section

Contents of a Fire Investigation File:

(Interviews should be conducted by two officers when possible)

1. Signed or taped statement of owner/occupant to include his alibi and completed Consent to Search form or search warrant affidavit and other documents.
2. Signed or taped statement of others present inside the home, apartment, shop at the time of the fire/explosion.
3. Signed or taped statements of others in the vicinity of the incident who have pertinent information. This group includes line of sight neighbors, passer-bys, the reporting witness, first responders or others with knowledge of some aspect of alibi or other evidence.
4. Photographs of the building exterior with emphasis on fire damage, evidence, utilities, security and condition of possible entrances, heating and electrical systems, interior damage prior to excavation, evidence relating to criminal activity, stock or storage levels, incendiary patterns.
5. Scene diagrams showing the shape and outstanding features of the AO together with taped measurements to the nearest inch and with magnetic compass symbol indicating north. Also depict the location of any key items of evidence using an accepted method of fixing each in the diagram (i.e. rectangular or triangulation measurements, etc.)
6. Laboratory test results.
7. A written summary of the origin and cause examination.
8. Newspaper clippings of the incident.
9. Fire Department FP32 and other data.
10. Police Department reports on the incident.
11. The insurance company "declaration sheet", application, pertinent reports.
12. Appropriate fire and police department reports on the incident as well as departmental reports.

Step 2: Interviewing Witnesses

- a. **Immediately** begin trying to locate occupants, passerby eyewitnesses or abutters of the fire building. Park your response vehicle as close as safely possible facing the fire scene. Take written or taped statements, one witness at a time, inside your vehicle or in a private place at the scene. Try to have each witness use the actual building and surrounding area to point out his/her observations.
- b. **Whenever possible interview the witnesses in the following order:**
 - 1st A victim or complainant
 - 2nd A witness who observed the initial fire take place.
 - 3rd A witness who did not observe the fire ignition but knows something about what occurred just before or after.
 - 4th A hostile witness or suspect.
- c. **In potential arson-for-profit or revenge fire cases**, consider interviewing the person who stands to gain by the fire first.

d. **Transient areas and inner cities:**

In areas where people move around frequently, *always obtain the expanded personal identification format* (i.e., Name, present address, DOB, SSN, work place or social worker, work and home phone numbers, next-of-kin, their addresses, etc.). This information is necessary so the investigator will have a number of avenues available to relocate someone months or years later.

Additional investigators arriving on the scene should check in with the initial investigator for directions. *These investigators should immediately begin interviewing witnesses as well.*

This all-important step involves identifying potential key witnesses to the following critical areas of concern to the fire investigator.

- Obtain details about events leading to the first appearance of fire;
- Determine exactly where the fire first appeared and its symptoms;
- Identify those present when this occurred;
- Learn about possible accidental causes;
- Make a map of contents and layout of the area of origin before the fire;
- Obtain details of possible motives for a given person to set the fire;
- Obtain legal releases and comprehensive statement from owner/occupant;
- Document, document, document.

e. **At Chaotic Street Scenes:**

Search the crowd near the fire scene for persons who *appear distressed, try to leave as you approach*, or, who *“meet and hold” your eyes* when you approach. Interview these individuals first. Interview abutters at the earliest moment. Always obtain their full identifications permitting a follow-up call.

Step 3: Full Scene Examination

A full fire scene examination generally consists of nine steps. Use information gained from interviews, including “maps” of the Area of Origin (AO) drawn by a witness familiar with pre-fire layout of the AO. The map should depict arrangement of contents and “Most Desirable Collection Areas” (refer to the *Pocket Guide for Accelerant Evidence Collection*) to help reconstruct the AO and focus accelerant evidence collection efforts if applicable.

Take required steps to ensure you are entering the building legally.

If the circumstances known to you at this point indicate a probable arson fire give **strong consideration** to requesting an accelerant detection canine teams to assist with scene processing and evidence collection.

1. Complete a photographic record of the outside and pertinent interior areas of the structure. This photographic record will document both undamaged and fire-damaged areas and will include furnishings, stock levels, the condition and adjustment of controls for each utility or appliance in the area of origin, locks and other security measures and so forth. Evidence relating to the cause of the fire must be photographically documented.
2. Complete removal of collapsed debris not germane to the fire cause.
3. Properly cleanse all tools *prior* to bringing them into the area of origin. Establish an “Evidence Collection Headquarters” convenient to the origin or evidence collection area. Assemble all tools, evidence containers and so forth here.
4. Reconstruction (replacement) of all furniture, appliances, or other materials to their pre-fire positions using the maps drawn by occupants.
5. Analysis of fire flow patterns, damage patterns and related evidence such as shields and shadows, leveling, inverted cone burn patterns, etc. Document this evidence with photographs, diagrams and written notes.
6. Individually examine and document each potential accidental ignition source in the area of origin. This should be done whether or not there is gross evidence of arson.
7. Diagram the room of origin showing accurate shape, dimensions, windows, doors and other key features, plus locations of key items and areas of evidence. Record the specific composition of the ceiling, walls and floor surfaces on the drawing. Measure movable items of evidence with a tape from fixed locations. Also using a tape measure diagram and measure the building exterior showing the first floor and basement entrance/egress points with lock types and conditions. Orient all such drawings to north using a magnetic compass.
8. Document and then collect physical evidence using appropriate methods.
9. Call in necessary experts for advice when required (e.g., electrical inspectors, furnace technicians, etc.).
10. Contact the arson prosecutor prior to releasing the scene to ascertain if he/she may be able to tour the scene with the investigation team.

Step 4: Follow up Investigation

In the final stage of a comprehensive fire investigation, whatever leads have been generated are followed up. Follow-up interviews may be needed to:

1. Rule out any accidental ignition scenario, which remains after the scene examination.
2. Clarify or expand upon eyewitness accounts of the fire's behavior in order to permit the investigator to reach a conclusion about the origin and cause of the fire.
3. Further develop motive, physical evidence or circumstantial evidence.
4. Confrontational interviews should only be conducted by police officers.
5. Consult with the District Attorney's Office early and often.
6. Secure all *original* key statements, Miranda cards, film negatives, signed consent forms, etc. on a daily basis in individual case files locked in an office file cabinet. If you need to take copies of important statements, maps or other materials back into the field, take photocopies of the originals.