JS|HELD

PERSPECTIVES

Proper Collection, Handling, Storage & Disposal of Physical Evidence

Our perspectives feature the viewpoints of our subject matter experts on current topics and emerging trends.

OVERVIEW

Regardless of the specific cause of property damage—whether it be vehicle impact, structural collapse, construction defects, equipment failures, fire or explosion, hail, lightning, storms, animal activity, or water intrusion—there comes a point at which an expert may need to collect evidence as part of their investigation.

The admissibility of any evidence obtained hinges on the adherence to established protocols and procedures during the processes of collection, handling, storage, and disposal of physical evidence. Noncompliance with these standards can severely undermine the client's capacity to recover funds from a liable party through subrogation and may expose involved parties to litigation for spoliation.

WHAT IS EVIDENCE AND WHEN SHOULD IT BE COLLECTED?

Evidence is defined as any material that assists in establishing or refuting a specific fact or issue.[1] Forensic evidence, in particular, pertains to evidence utilized during legal proceedings.

According to the National Fire Protection Association (NFPA) 921, evidence can be classified into four categories[1]:

1. Physical.
2. Demonstrative.
3. Documentary.
4. Testimonial.

Examples of Physical Evidence

Physical evidence may encompass items such as a ruptured hose or fitting in the case of water loss, a space heater linked to a fire incident, a fragment of Exterior Insulation and Finish System (EIFS) from a construction defect, fuel samples resulting from a furnace puffback, or water samples from an environmental hazard.

Prior to collecting any evidence from a site of loss, the individual responsible for collection should pose the inquiry, "Does this item aid in proving or disproving my hypothesis?"

- **If the response is "no," it is advisable not to collect the item.** Collecting evidence solely to present to a colleague, due to unfamiliarity with the item, or for closer examination should be avoided unless it directly contributes to substantiating or refuting the theory concerning the cause or responsibility for the loss.
- **Conversely, if the response is "yes," the item may warrant collection.**

Several questions should be considered prior to the collection of evidence, including:

- Is the item more secure in the collector's possession than at the scene?
- Is there a risk of damaging the item during removal, which could render it less effective or nullify its status as evidence?
- Is the relative position or placement of the evidence more significant than the item itself?

Furthermore, the collector should contemplate the question, "What alternative causation could be assigned by others?" Demonstrating that another factor did not contribute to the loss may be more advantageous than establishing what caused it. A comprehensive assessment of the entire loss is crucial for effective recovery of evidence.

IS YOUR EVIDENCE BEING PROPERLY COLLECTED?

According to the National Fire Protection Association (NFPA), the collection of physical evidence is a critical component of a properly conducted investigation. The methodology for collecting physical evidence is influenced by several factors, including[1]:

- **Physical State** – whether the evidence exists as a solid, liquid, or gas.
- **Physical Characteristics** – encompassing the size, shape, and weight of the evidence.

[1] NFPA 921 – Guide to Fire and Explosion Investigations - National Fire Protection Association. (2024).

- **Fragility** – the susceptibility of the evidence to being broken, damaged, or altered.
- **Volatility** – the tendency of the evidence to evaporate, freeze, melt, or otherwise change.

Best Practices for Evidence Collection and Handling

In accordance with the standards established by the American Society for Testing and Materials (ASTM), every item of evidence should receive a unique numeric or alphanumeric identifier, which is assigned by the investigator collecting the evidence or an individual designated for that purpose. The system utilized should effectively prevent any physical confusion among items and ensure clarity in records and related documents.[2] Proper evidence numbering and handling practices are essential to minimize the potential for contamination.

Before the collection phase, it is imperative to document the location and condition of each item thoroughly.[2] This documentation should include detailed photographs and diagrams, in addition to notes recorded in field reports or evidence lists. Clear identification of the item number, using evidence tents or note cards, aids significantly in the documentation process within the collector's photographs. The collector is obligated to continue recording information regarding the evidence throughout the entire retrieval process.

The collector must judiciously consider which specific aspects of the evidence are vital and take precautions to safeguard these aspects. For instance, if it is essential to demonstrate that a valve is closed, the collector must ensure it remains in that position and avoid any alterations that might compromise its original state. Moving switches or valves may result in damage or render them incapable of returning to their original post-loss condition.

If the involved items necessitate disassembly for collection, each step of this process must be meticulously documented through contemporaneous photographs or video recordings.[3] It is crucial that individuals absent during the collection are provided with sufficient information to comprehend the evidence's origin.

Each item should be appropriately protected, potentially involving placement in a sealed bag, can, jar, or box designed to prevent contamination or loss. Evidence must also be shielded from damage during transport. In line with ASTM standards, each item or its proximal container shall be clearly marked or tagged with the following information[2]:

- Item number.
- Case or incident number.
- Identification of the individual who collected the item.
- Date of item collection.
- Brief description of the item.

Figure 1 *- Example of evidence tents used to help number and identify evidence in photographs.*

Figure 2 *- Example of cans used to securely seal and transport collected evidence.*

[2] ASTM E1459-13(2024), Standard Guide for Physical Evidence Labeling and Related Documentation, ASTM International, West Conshohocken, PA, 2024, www.astm.org
[3] ASTM E1188-11(2023), Standard Practice for Collection and Preservation of Information and Physical Items by a Technical Investigator, ASTM International, West Conshohocken, PA, 2023, www.astm.org

If specific handling is required for the preservation of evidence, such as maintaining temperature control, this should be explicitly documented in the evidence log or directly on the tag itself.3 The value of physical evidence depends significantly on the ability of the collector to maintain its security and integrity from the moment of discovery through the collection, examination, testing, and eventual disposal process. Once collected, items ought to be stored in a secure location, ideally within the collector's locked vehicle until the conclusion of the scene examination.

A chain of custody is essential for documenting who handled each piece of evidence, including the timing and manner of such handling. A robust chain of custody begins with the recovery of evidence at the loss site. All evidence recovery actions should be sanctioned by the property owner. Recovering evidence without proper permission constitutes theft; therefore, it is essential to obtain approval from all relevant parties prior to any evidence collection.

The chain of custody must comprehensively document the initial recovery, secure storage, any transfers made for testing, and the ultimate disposition of the evidence. This practice serves to assure both clients and the court that the evidence has remained tamper-proof, misplaced, or mishandled at any point throughout the process.

ENSURING PROPER TRANSFER OF EVIDENCE

When it becomes necessary to transfer the chain of custody from one individual to another, it is imperative to utilize a form that is duly signed by the receiving party upon receipt of the physical evidence. This transfer may be documented using either a copy of the chain of custody form or a distinct document known as a transfer form. The preferred method for transferring evidence is hand delivery, as it significantly reduces the likelihood of damage, misplacement, or theft of the physical evidence.[1]

In certain instances, it may be required to ship physical evidence to a laboratory or testing facility. When shipping is necessary, the evidence collector must take all precautions to maintain the integrity of the physical evidence.[1]

The evidence collector should select a container that is sufficiently sized to accommodate all individual evidence containers from a single investigation. It is crucial to avoid combining physical evidence from multiple investigations within the same shipment.[1]

Furthermore, individual evidence containers should be securely packed within the shipping container.[1] If hand delivery is not a viable option, the evidence should only be shipped using registered United States mail or a reputable commercial courier service. It is advisable to employ a shipping service that provides tracking capabilities, thereby enabling the documentation of the evidence's location throughout the shipping process.

IS YOUR EVIDENCE BEING PROPERLY PRESERVED AND STORED?

The responsibility of the evidence collector encompasses the preservation of evidence from the moment of collection until its eventual disposal. Preservation entails ensuring that evidence remains unchanged and is protected from evaporation, breakage, spoilage, contamination, or loss.

Following the discovery and collection of physical evidence, it should be stored in a secure location specifically designated for this purpose. Access to thisstorage area must be restricted to limit the chain of custody to as few individuals as feasible. It is imperative that evidence is stored in an orderly, traceable, and retrievable manner to maintain its integrity and physical characteristics.

The storage facility should be equipped to prevent any further damage to the retained evidence. Heat, sunlight, and moisture represent the primary sources of degradation for most types of evidence. Furthermore, opening sealed evidence bags that do not contain items intended for accelerant testing can facilitate moisture evaporation, enhance the preservation of metallic items, and mitigate the risk of mold growth on organic items, such as wet clothing.[1] Additionally, water-filled containers must be placed in an area where the temperature will not cause the water to freeze, as freezing could compromise the integrity of the evidence.

[1] NFPA 921 – Guide to Fire and Explosion Investigations - National Fire Protection Association. (2024).

ENSURING PROPER DISPOSAL OF EVIDENCE

The responsibility for the disposal of retained evidence ultimately rests with the evidence collector. Prior to |disposal, it is imperative to obtain a written authorization from the client, as well as any other interested parties, including the property owner. This authorization must be retained as part of the chain of custody documentation. The concluding step in the chain of custody requires that the personnel involved sign and date the record of disposal, which should also be accompanied by a signature from a witness. It is critical that all evidence is destroyed in a manner that renders it unusable and prevents any possibility of reuse.

CONCLUSION

The process of identifying and collecting evidence involves numerous essential steps that must be accurately followed and documented. It is imperative for the evidence collector to adhere to the most current evidence handling guidelines and procedures established by ASTM standards. Proper documentation and maintenance of all evidence are necessary to ensure its validity.

The chain of custody must be preserved throughout the entire lifespan of the evidence, from the point of collection to its eventual disposal. Any disruption in the chain of custody can jeopardize the client's ability to recover monetary damages from the responsible party through subrogation. Additionally, evidence that is deemed inadmissible in court may lead to potential lawsuits against the involved parties for spoliation. Consequently, it is vital for clients to select a reliable expert to meet their evidence collection requirements.

ACKNOWLEDGMENTS

We would like to thank our colleagues Rachel McColley and Stu Morrison for providing insight and expertise that greatly assisted this research.

MORE ABOUT J.S. HELD'S CONTRIBUTOR

Rachel McColley is a Senior Investigator in J.S. Held's Fire Origin & Cause service line. Rachel has more than eight years in the public sector conducting criminal and fire scene investigations. Prior to joining J.S. Held, she was employed as a fire investigator with the Missouri State Fire Marshal's Office. She has also been employed as a criminal investigator with the Ripley County Sheriff's Department. She has testified in Missouri State Court on both criminal and fire origin and cause. At J.S. Held, Rachel specializes in fire and explosion scene investigations and is responsible for investigating fire and explosion incidents in commercial, residential, industrial facilities, and automobiles.

Rachel can be reached at rmccolley@jsheld.com or +1 573 707 2088.

REFERENCES

[1] NFPA 921 – Guide to Fire and Explosion Investigations - National Fire Protection Association. (2024).
[2] ASTM E1459-13(2024), Standard Guide for Physical Evidence Labeling and Related Documentation, ASTM International, West Conshohocken, PA, 2024, www.astm.org
[3] ASTM E1188-11(2023), Standard Practice for Collection and Preservation of Information and Physical Items by a Technical Investigator, ASTM International, West Conshohocken, PA, 2023, www.astm.org