

ANSI/ASB Standard 159, First Edition  
2024

**Standard for Scene Investigation and Reconstruction—  
Foundational Principles**



**ASB**  
**ACADEMY**  
**STANDARDS BOARD**



# Standard for Scene Investigation and Reconstruction— Foundational Principles

ASB Approved July 2022

ANSI Approved January 2024



410 North 21st Street  
Colorado Springs, CO 80904

This document may be downloaded from: [www.aafs.org/academy-standards-board](http://www.aafs.org/academy-standards-board)

*This document is provided by the AAFS Academy Standards Board. Users are permitted to print and download the document and extracts from the document for personal use, however the following actions are prohibited under copyright:*

- *modifying this document or its related graphics in any way;*
- *using any illustrations or any graphics separately from any accompanying text; and,*
- *failing to include an acknowledgment alongside the copied material noting the AAFS Academy Standards Board as the copyright holder and publisher.*

*Users may not reproduce, duplicate, copy, sell, resell, or exploit for any commercial purposes this document or any portion of it. Users may create a hyperlink to [www.aafs.org/academy-standards-board](http://www.aafs.org/academy-standards-board) to allow persons to download their individual free copy of this document. The hyperlink must not portray AAFS, the AAFS Standards Board, this document, our agents, associates and affiliates in an offensive manner, or be misleading or false. ASB trademarks may not be used as part of a link without written permission from ASB.*

*The AAFS Standards Board retains the sole right to submit this document to any other forum for any purpose.*

*Certain commercial entities, equipment or materials may be identified in this document to describe a procedure or concept adequately. Such identification is not intended to imply recommendations or endorsement by the AAFS or the AAFS Standards Board, nor is it intended to imply that the entities, materials, or equipment are necessarily the best available for the purpose.*

*Proper citation of ASB documents includes the designation, title, edition, and year of publication.*

*This document is copyrighted © by the AAFS Standards Board, LLC. 2024 All rights are reserved.  
410 North 21st Street, Colorado Springs, CO 80904, [www.aafs.org/academy-standards-board](http://www.aafs.org/academy-standards-board).*

## Foreword

This standard is not a substitute for more specific standards setting forth what is required to validate scene investigation and reconstruction methodologies and steps needed to mitigate contextual and other bias that impact scene investigation and reconstruction.

The American Academy of Forensic Sciences established the Academy Standards Board (ASB) in 2015 with a vision of safeguarding Justice, Integrity and Fairness through Consensus Based American National Standards. To that end, the ASB develops consensus based forensic standards within a framework accredited by the American National Standards Institute (ANSI), and provides training to support those standards. ASB values integrity, scientific rigor, openness, due process, collaboration, excellence, diversity and inclusion. ASB is dedicated to developing and making freely accessible the highest quality documentary forensic science consensus Standards, Guidelines, Best Practices, and Technical Reports in a wide range of forensic science disciplines as a service to forensic practitioners and the legal system.

This document was revised, prepared, and finalized as a standard by the Crime Scene Investigation (CSI) Consensus Body of the AAFS Standards Board. The draft of this standard was developed by the Crime Scene Investigation & Reconstruction Subcommittee of the Organization of Scientific Area Committees (OSAC) for Forensic Science.

Questions, comments, and suggestions for the improvement of this document can be sent to AAFS-ASB Secretariat, [asb@aafs.org](mailto:asb@aafs.org) or 401 N 21st Street, Colorado Springs, CO 80904.

All hyperlinks and web addresses shown in this document are current as of the publication date of this standard.

ASB procedures are publicly available, free of cost, at [www.aafs.org/academy-standards-board](http://www.aafs.org/academy-standards-board).

**Keywords:** *crime scene, chain of custody, ethics, bias, safety, contamination, validity, scene investigation*

## Table of Contents

1	Scope.....	1
2	Normative References.....	1
3	Terms and Definitions.....	1
4	Requirements .....	1
4.1	General.....	1
4.2	Legal Considerations.....	2
4.3	Personnel Safety.....	2
4.4	Scientific Reliability and Validity .....	2
4.5	Preserving Context.....	3
4.6	Maintaining Evidence Integrity .....	3
4.7	Transparency .....	3
4.8	Managing Bias.....	3
	Annex A Bibliography (informative).....	4

# Standard for Scene Investigation and Reconstruction— Foundational Principles

## 1 Scope

This document provides general requirements for scene investigation and reconstruction. This document establishes a framework for expected actions and decision-making based on foundational principles related to legal considerations, personnel safety, scientific reliability and validity, preserving context, maintaining evidence integrity, transparency, and managing bias.

## 2 Normative References

There are no normative reference documents. Annex A, Bibliography, contains informative references.

## 3 Terms and Definitions

For purposes of this document, the following definitions and acronyms apply.

NOTE In a situation that involves a potential criminal act definitions in section 3.1 through 3.5 would be preceded by “crime” (e.g., crime scene investigator).

### 3.1 scene

A place, an object, a person, or an animal that is subject to and/or requires forensic examination.

### 3.2 scene investigation

An examination of a scene to locate, document, process, collect, and preserve items of potential evidentiary value.

### 3.3 scene investigator

An individual, however named, who is responsible for performing elements of scene investigation.

### 3.4 scene reconstruction

The process to gain explicit knowledge of the series of events that surround a scene using deductive and inductive reasoning, physical evidence, scientific processes, and their interrelationships.

### 3.5 scene reconstructionist

An individual, however named, who is responsible for performing elements of a scene reconstruction.

## 4 Requirements

### 4.1 General

NOTE For purposes of this document scene investigators and scene reconstructionists are called scene practitioners.

Each scene is unique and requires scene practitioners to continuously evaluate how to proceed with processing in a manner that is safe and best preserves the evidence and its context. All decisions made by a scene practitioner before, during, and after a scene is processed should consider the following:

- a) legal considerations;
- b) personnel safety;
- c) scientific reliability and validity;
- d) preserving context;
- e) maintaining evidence integrity;
- f) transparency;
- g) managing bias.

Though the requirements and recommendations listed in this document are important, some circumstances could require a scene practitioner to give greater weight to one over another. A deviation from the guidelines contained in this document shall be documented and explained.

#### **4.2 Legal Considerations**

Scene practitioners shall conduct themselves with the expectation that their work may be used in every step of the legal process, and therefore shall ensure that they comply with applicable legal standards.

#### **4.3 Personnel Safety**

Scenes can present a wide variety of physical, biological, chemical, and situational hazards with a level of personal risk of injury, illness, or exposure almost always present. Personal protective equipment (PPE) considerations should include, but are not limited to, protection of eyes and face, head, foot and leg, hand and arm, body (torso), respiratory system, and hearing; and protection against falls, and drowning.

In order to ensure that the scene practitioners are not exposed to an unreasonable level of risk to personal safety they shall be provided with appropriate PPE and training or information (e.g., manuals, safety data sheets, text books) necessary to assess the hazards and mitigate risks presented by the scene and by any processing tools, equipment, or reagents used.

#### **4.4 Scientific Reliability and Validity**

Scene practitioners shall use scientifically reliable and valid methods, practices, and analytical procedures based on best practices, peer-reviewed studies, and/or validated techniques prior to use on scenes.

#### **4.5 Preserving Context**

Scene practitioners shall document a scene to the extent possible in such a way that it preserves the context of the evidence to ensure others can later understand not just what was collected, but also where, how, and in what condition it was found.

#### **4.6 Maintaining Evidence Integrity**

Scene practitioners shall complete the following.

- a) Take appropriate steps to maintain evidence integrity by preventing contamination, tampering, alteration, or loss of evidence.
- b) Account for the integrity and possession of evidence by tracking its handling and storage from its point of collection to its next disposition.

#### **4.7 Transparency**

The work of a scene practitioner generates the underlying basis for all subsequent analyses. The scene practitioner shall ensure the following.

- a) Document their specific and continual actions with the investigation including their actions on scene and their subsequent interactions with recovered evidence, data, and case information.
- b) Refrain from performing tasks for which they are not qualified, based on training, education, and experience.
- c) Document the circumstances and justification of any intentional deviations or acts of nonconformance from the requirements in this document.
- d) Upon discovery, document the circumstances of unintentional deviations, errors, omissions, or acts of nonconformance with the requirements in this document.

#### **4.8 Managing Bias**

Scene practitioners are uniquely positioned at the intersection of law enforcement and scientific investigations. Influences from internal and external sources may affect objectivity (e.g., time constraints, personal beliefs, contextual information about scene, suspect/victim). Information provided to the scene practitioner during an investigation should be objectively documented and continuously evaluated within the context of the evidence. The scene practitioner should remain open to all hypotheses and potential evidence.

## Annex A (informative)

### Bibliography

The following bibliography is not intended to be an all-inclusive list, review, or endorsement of literature on this topic. The goal of the bibliography is to provide examples of publications addressed in the standard.

- 1] Dror, Itiel E. Cognitive neuroscience in forensic science: understanding and utilizing the human element 370 *Philosophical Transactions of the Royal Society B*. August 2015.<sup>a</sup>
- 2] Forensic Science Regulator Guidance. Cognitive Bias Effects Relevant to Forensic Science Examinations. FSR-G-217 Issue 2 Crown Copyright 2020.<sup>b</sup>
- 3] ISO 21043-1:2018(E) Forensic sciences- Part 1: Terms and definitions.<sup>c</sup>
- 4] Lucas, D. The ethical responsibilities of the forensic scientist: Exploring the limits, *Journal of Forensic Sciences*, 34(3), 719–729, 1989.<sup>d</sup>
- 5] U.S. Department of Labor Occupational Safety and Health Administration. *Personal Protective Equipment* [OSHA Publication 3151-12R], 2004.<sup>e</sup>
- 6] United States Department of Labor, Occupational Health and Safety Administration. *Standard 1910 Subpart I Personal Protective Equipment* [Occupational Health and Safety Standards]<sup>f</sup>

---

<sup>a</sup> Available from: <https://royalsocietypublishing.org/doi/10.1098/rstb.2014.0255>

<sup>b</sup> Available from: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/914259/217\\_FSR-G-217\\_Cognitive\\_bias\\_appendix\\_Issue\\_2.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/914259/217_FSR-G-217_Cognitive_bias_appendix_Issue_2.pdf)

<sup>c</sup> Available from: <https://www.iso.org/obp/ui/#iso:std:iso:21043:-1:ed-1:v1:en>

<sup>d</sup> Available from: <https://www.astm.org/jfs12700j.html>

<sup>e</sup> Available from: <https://www.osha.gov/Publications/osh3151.pdf>,

<sup>f</sup> Available from: <https://www.osha.gov/laws-regs/regulations/standardnumber/1910>





Academy Standards Board  
410 North 21st Street  
Colorado Springs, CO 80904

[www.aafs.org/academy-standards-board](http://www.aafs.org/academy-standards-board)