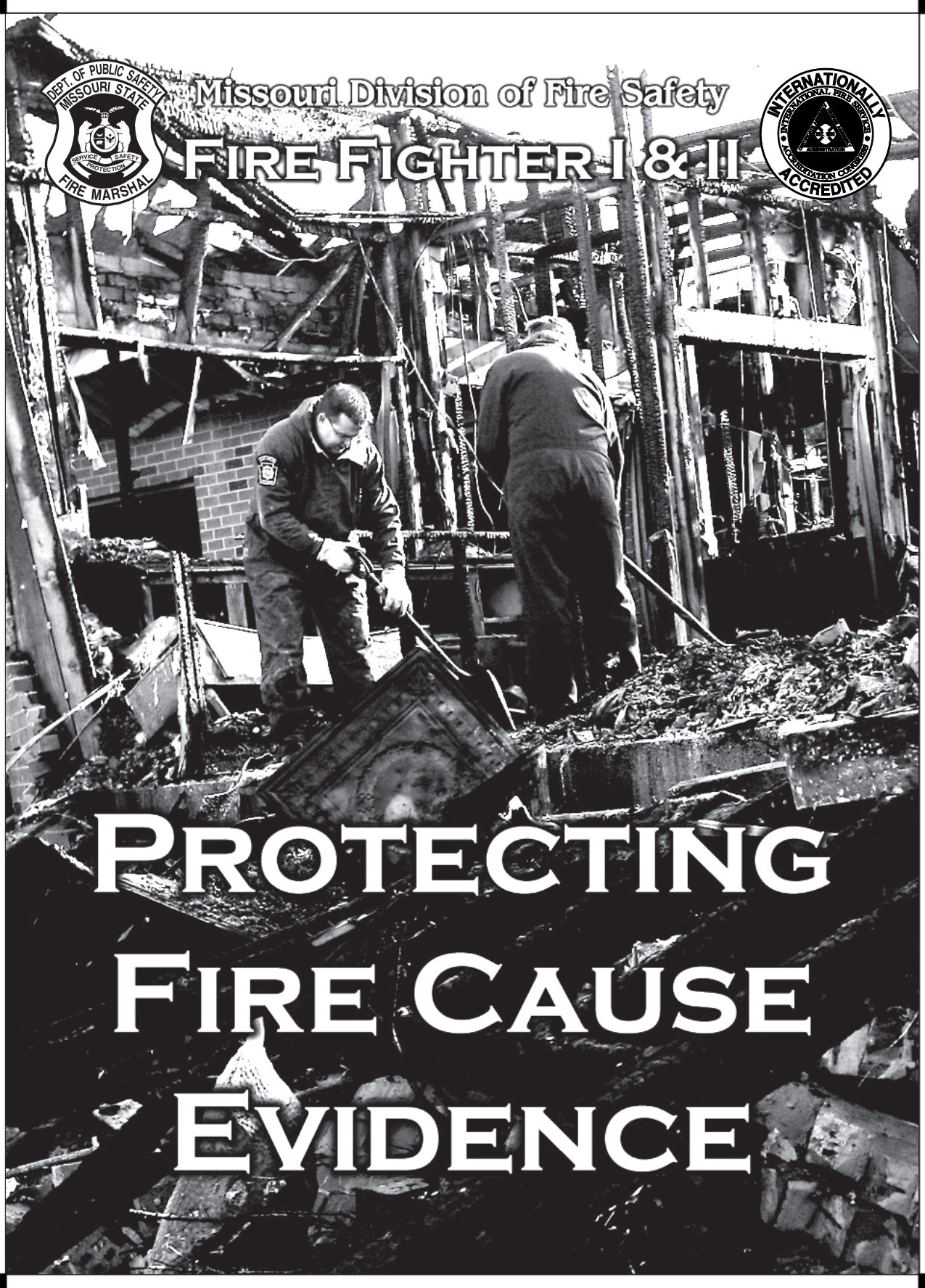




Missouri Division of Fire Safety



FIRE FIGHTER I & II

A black and white photograph of two firefighters in full gear working at a fire scene. They are surrounded by charred debris and the skeletal remains of a building. One firefighter is in the foreground, leaning over a large, dark, rectangular object, possibly a fire hydrant or a piece of equipment. The other firefighter is standing slightly behind and to the right, looking towards the debris. The scene is filled with twisted metal, charred wood, and other remnants of a destroyed structure.

**PROTECTING
FIRE CAUSE
EVIDENCE**



UNIT OBJECTIVES

Upon completion of this unit of study, the student should be able to:

1. Identify the responsibilities of the fire fighter in determining the point of origin of a fire and the basic steps to accomplish this task.
2. Identify the reasons for determining the cause of fires.
3. Identify the fire fighter's role and responsibility in the protection of evidence of fire causes.
4. Explain the indicators of a fire's area of origin and fire cause.
5. Explain the procedures for the preservation and protection of fire cause evidence.
6. Demonstrate the methods for scene and evidence protection.



NFPA STANDARDS

Successful completion of the information in this section is necessary to fulfill the requirements of the following sections of NFPA 1001-2008:

Fire Fighter I Standard

5.3.8* Extinguish fires in exterior Class A materials, given fires in stacked or piled and small unattached structures or storage containers that can be fought from the exterior, attack lines, hand tools and master stream devices, and an assignment, so that exposures are protected, the spread of fire is stopped, collapse hazards are avoided, water application is effective, the fire is extinguished, and signs of the origin area(s) and arson are preserved.

(A) Requisite Knowledge. Types of attack lines and water streams appropriate for attacking stacked, piled materials and outdoor fires; dangers — such as collapse — associated with stacked and piled materials; various extinguishing agents and their effect on different material configurations; tools and methods to use in breaking up various types of materials; the difficulties related to complete extinguishment of stacked and piled materials; water application methods for exposure protection and fire extinguishment; dangers such as exposure to toxic or hazardous materials associated with storage building and container fires; obvious signs of origin and cause; and techniques for the preservation of fire cause evidence.

(B) Requisite Skills. The ability to recognize inherent hazards related to the material's configuration, operate handlines or master streams, break up material using hand tools and water streams, evaluate for complete extinguishment, operate hose lines and other water application devices, evaluate and modify water application for maximum penetration, search for and expose hidden fires, assess patterns for origin determination, and evaluate for complete extinguishment.

5.3.13 Overhaul a fire scene, given personal protective equipment, attack line, hand tools, a flashlight, and an assignment, so that structural integrity is not compromised, all hidden fires are discovered, fire cause evidence is preserved, and the fire is extinguished.

(A) Requisite Knowledge. Types of fire attack lines and water application devices most effective for overhaul, water application methods for extinguishment that limit water damage, types of tools and methods used to expose hidden fire, dangers associated with overhaul, obvious signs of area of origin or signs of arson, and reasons for protection of fire scene.

(B) Requisite Skills. The ability to deploy and operate an attack line; remove flooring, ceiling, and wall components to expose void spaces without compromising structural integrity; apply water for maximum effectiveness; expose and extinguish hidden fires in walls, ceilings, and subfloor spaces; recognize and preserve obvious signs of area of origin and arson; and evaluate for complete extinguishment.



NFPA STANDARDS

Fire Fighter II Standard

6.3.4* Protect evidence of fire cause and origin, given a flashlight and overhaul tools, so that the evidence is noted and protected from further disturbance until investigators can arrive on the scene.

(A) Requisite Knowledge. Methods to assess origin and cause; types of evidence; means to protect various types of evidence; the role and relationship of Fire Fighter IIs, criminal investigators, and insurance investigators in fire investigations; and the effects and problems associated with removing property or evidence from the scene.

(B) Requisite Skills. The ability to locate the fire's origin area, recognize possible causes, and protect the evidence.

PROTECTING FIRE SCENE EVIDENCE

MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II



NOTES	STUDENT GUIDE
	<p>I. Protecting Fire Scene Evidence</p> <p>A. It is the responsibility of every fire fighter to learn as much as he or she can about the circumstances surrounding the origin and cause of each fire</p> <p>B.</p> <p>C. The investigation of fires is an important component in fire prevention and public education</p> <p>D. Arson fires result in the loss of millions of dollars of property and deaths and injuries throughout America</p> <ol style="list-style-type: none">1. Arsonists constantly put fire fighters at risk as they attempt to suppress fires that were intentionally set2. Fire fighters must learn to recognize and preserve the evidence of a fire cause for fire investigators. <p>II. Fire Fighter's Responsibilities in Fire Investigation <i>(Essentials p. 909)</i></p> <p>A. Fire fighters play a vital role in the investigation of any fire</p> <ol style="list-style-type: none">1. Usually the first to observe and identify evidence of the fire cause2.3. Investigators are not always present during suppression and overhaul and rely on fire fighters for important information to assist with the fire cause determination

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<p>B. In most jurisdictions, the fire chief has the responsibility to determine the origin and cause of a fire</p> <ol style="list-style-type: none">1. This may be delegated to fire officers or fire fighters depending on local policies2. Many departments have fire marshals, fire inspectors, fire investigators, or other members assigned to investigating fires <p>C. Missouri Division of Fire Safety fire investigations</p> <ol style="list-style-type: none">1. Division fire investigators are stationed throughout the state and respond to requests for assistance from local fire departments and law enforcement agencies for fire and explosion investigations2. Investigators are certified law enforcement officers and have arrest authority in these investigations and are trained in:<ol style="list-style-type: none">a. Fire and explosion investigation techniquesb. Evidence collectionc. Interviewingd. Fraud investigatione. Other aspects of criminal investigation <p>III. Observations on the Scene (<i>Essentials p. 910</i>)</p> <p>A. Notification of the fire may come from other than normal channels</p> <ol style="list-style-type: none">1. Reporting individual may walk in the fire station to report fire

PROTECTING FIRE SCENE EVIDENCE

MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II



NOTES	STUDENT GUIDE
	<ul style="list-style-type: none">2. Personnel may be stopped on the street by reporting person3. Personnel may be called at home4. The identity of reporting individual, including a home phone number must be obtained for a later interview <p>B. While en route to the incident</p> <ul style="list-style-type: none">1. Time of day<ul style="list-style-type: none">a.b. Are occupants dressed as they normally would for the hour?c. Are the fire cause indicators normal for the time?<ul style="list-style-type: none">(1) Business operations after normal working hours(2) Cooking fires at unusual times2. Weather conditions<ul style="list-style-type: none">a. Bad weather conditions have an affect on the fireb. Fire could be blamed on lightningc. Severe conditions may slow fire department response thus allowing more damage to be done

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<ul style="list-style-type: none">3. Forced delays and man-made barriers<ul style="list-style-type: none">a. The longer it takes to get to a fire, the more damage is doneb.<ul style="list-style-type: none">(1) Locked gates(2) Fallen trees(3) Stalled vehicles on access route(4) False alarms some distance from the fire(5) Diversionary fires set in another location(6) Obstructions to fire hydrants or sprinkler connections4. People and vehicles fleeing the scene<ul style="list-style-type: none">a. People are generally drawn to a fireb. It may be unusual for an innocent person to be rapidly fleeing the areac. A fleeing individual may be the firesetter attempting to escape the aread. Responding personnel should attempt to get a description of:<ul style="list-style-type: none">(1) Vehicles leaving scene(2) Individuals leaving the area

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<ul style="list-style-type: none">e. Even when an identification can not be obtained, report the fact that someone did flee the scene <p>5. Observation of smoke and flame color</p> <ul style="list-style-type: none">a.b. Dark black smoke and deep red flames in early stages of the fire may indicate a petroleum product is burningc. Black smoke in later stages of fire might only indicate roofing materials and contents are burning <p>C. Observations upon arrival at the fire scene</p> <ul style="list-style-type: none">1. Location of the fire<ul style="list-style-type: none">a.b. Fires burning in unusual locations<ul style="list-style-type: none">(1) Under or on porches(2) Along exterior walls with no extension from the interiorc. Look for indicators that flashover or self-ventilation has occurred2. Conditions of windows and doors<ul style="list-style-type: none">a. View into the structure may be blocked to delay discovery of the fire

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<ul style="list-style-type: none">b. c. Windows broken prior to or at ignition of the fire<ul style="list-style-type: none">(1) Clean, unsmoked glass on the exterior may indicate the glass was broken before the fire could build (2) Clean window glass some distance from the structure could indicate an explosion occurred before or as the fire ignited 3. Evidence of forced entry before arrival<ul style="list-style-type: none">a. b. The firesetter may have forced entry prior the arrival of fire fighters c. Lack of forced entry may indicate firesetter had a key d. Always report evidence of forced entry to officer-in-charge 4.<ul style="list-style-type: none">a. Doors nailed shut b. Contents placed in front of doors c. Door hardware removed

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<ul style="list-style-type: none">5. Condition of utility service<ul style="list-style-type: none">a. Confirm whether utilities were on or offb. May assist with elimination of accidental causesc. Check utilities for the safety of personnelD. Observations while fighting the fire<ul style="list-style-type: none">1. Unusual odors<ul style="list-style-type: none">a. May be detected by personnel on the exteriorb. Unburned ignitable liquid or fuel gas odorsc. Can give fire fighters warning of possible flash fire2. Reaction to hose streams<ul style="list-style-type: none">a.b. Flame flashback may be an indicator of ignitable liquids burningc. Water applied to burning ignitable liquids may cause it to splatter and intensify the burning3.<ul style="list-style-type: none">a. Holes cut in floorsb. "Touch-off" containers of flammable liquids

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<ul style="list-style-type: none">c. Missing stairs or handrails4. Watch for indications that explosion may have occurred<ul style="list-style-type: none">a. Possibility of second explosion<ul style="list-style-type: none">(1) Gas leak(2) Undetonated explosivesb. Weakened walls and structural supports which can lead to subsequent collapses5.<ul style="list-style-type: none">a. Separate fires with no natural connectionb. Fires burning on floorsc.<ul style="list-style-type: none">(1) Closets(2) Crawl spaces(3) Under furniture(4) Areas where there are no apparent accidental fire causesd. A large amount burned or unburned fuel in the area<ul style="list-style-type: none">(1) Combustible fuels may be added to the normal fuel load in an attempt to increase the damage

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<p>(2) Be alert to a large amount of combustible materials piled in unusual areas</p> <p>6. Unburned or burning trailers</p> <ul style="list-style-type: none">a. Rags, newspapers, contents, or ignitable liquids intentionally used to help the fire spread from one location to anotherb. <p>7. Volatile liquid containers</p> <ul style="list-style-type: none">a. Consider the location and occupancy before considering containers unusualb. Containers would probably be found in garages, workshops, etc.c. An unusual number of containers may be suspicious <p>8. Structural alterations</p> <ul style="list-style-type: none">a.b. Attempt to determine whether the damage was done prior to the fire and was not a result of the fire or fire suppression activities <p>9. Note any indicators of irregular or unnatural burning</p>

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<p>10. Note evidence of the fire being more intense than would normally be expected in the particular occupancy, which may indicate the use of accelerants</p> <p>11. Observe the building contents</p> <ul style="list-style-type: none">a.b. Note any of the following:<ul style="list-style-type: none">(1) An obvious lack of contents(2) Contents scattered about, drawers open or missing(3) Furniture piled together at the seat of the fire or at points of entry(4) Crates, merchandise piled around sprinkler heads to defeat the sprinkler operation(5) Crates and boxes opened to expose combustible materialsc. <p>12. Fire protection and detection systems</p> <ul style="list-style-type: none">a. If the building is protected by automatic fire alarm or extinguishing system, systems may be disabled or altered to defeat its operationb. Sprinkler systems may be turned offc. Sprinkler heads may be wired shut

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<ul style="list-style-type: none">d. Fire department sprinkler connection may be blocked by gravel or other obstructionse. Automatic fire alarms disconnectedf. Burglar or intrusion alarms may be disconnected or turned off <p>13.</p> <ul style="list-style-type: none">a. Same people may repeatedly show up at firesb. Spectators may try to hamper fire fighting operationsc. Listen for comments from spectatorsd. Watch for eager civilian volunteers who want to help fight the fire, may be a disturbed individual who set the fire to help fight it <p>14.</p> <ul style="list-style-type: none">a. Actions may be inappropriate for the situation<ul style="list-style-type: none">(1) Lack of concern(2) Anger with fire fightersb. Dress may be inappropriate for time of day - fully clothed in middle of nightc. May urge fire fighters not to extinguish fire <p>15. Watch for injuries to owners or occupants</p> <ul style="list-style-type: none">a. May have been injured in a flash fire when volatile liquid vapors ignited

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<ul style="list-style-type: none">b. May involve burn injuries to feet, hands or facec. A firesetter may be uninjured but have burned clothing <p>E. After extinguishment of the fire</p> <ul style="list-style-type: none">1. Fire fighters should report all of their observations about the fire to the officer-in-charge as soon as possible2. If at all possible, fire fighters should remain at the scene until the investigator arrives so the information can be given directly to him or her3.<ul style="list-style-type: none">a. Overhaul may change the fire scene and hamper the investigation into the fire cause due to:<ul style="list-style-type: none">(1) Removal of contents(2) Opening of walls and ceilings(3) Destruction and removal of evidence(4) Breaks in the chain of evidence(5) Loss of flammable accelerant residue(6) Destruction of the fire causeb. In any case where a detailed fire scene examination is going to be conducted into the cause of a fire, overhaul must be limited until an investigator has examined the scene

PROTECTING FIRE SCENE EVIDENCE

MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II



NOTES	STUDENT GUIDE
	<ol style="list-style-type: none">4.5. Personnel should make a written account of their observations and actions<ol style="list-style-type: none">a. This written account is valuable if fire fighters have to testify in court laterb. Cases may come to court years after an incident6. When a potential witness supplies information:<ol style="list-style-type: none">a. The witness should be taken to a fire officer or a law enforcement officer to obtain contact informationb. At a minimum, personnel should obtain information where that witness can be later contacted for an interview by the investigatorc. Witnesses should be requested to remain in the area until they can be contacted by the investigator7. Fire fighters should never attempt to interrogate a potential suspect8.<ol style="list-style-type: none">a. These opinions can be easily overheard by bystanders or the news mediab. Careless joking or unauthorized comments can be embarrassing to the fire department and potentially impede an investigation

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<p>c. Unless authorized as the investigator, all fire personnel should not give any opinion as to the fire cause</p> <p>d. Personnel should simply state that the fire is under investigation and avoid any other personal opinions</p> <p>IV. Securing the Scene (<i>Essentials p. 917</i>)</p> <p>A. Proper scene security is vital to the investigation of every fire</p> <p>B.</p> <p>C. The U.S. Supreme Court has ruled that fire officials can remain at a fire scene for a reasonable time to investigate the cause of a fire</p> <ol style="list-style-type: none">1. Michigan v. Tyler (1978) and Michigan v. Clifford (1981)2. Due to these rulings, the investigation of a fire must be a continuation of the initial fire department response to the emergency3. Fire personnel must have continuous control of the scene by physically being on the property <p>D. If a break in control of the scene occurs:</p> <ol style="list-style-type: none">1. The investigator and fire department will be required to obtain either a search warrant or voluntary consent to reenter the property2.

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<p>3. Evidence collected from an unprotected scene may not be admissible in court</p> <p>E. Scene security procedures</p> <p>1.</p> <p>a. Instruct personnel to remain at entry points and not enter the area of the investigation</p> <p>b. Unnecessary personnel in the scene may increase the loss of evidence</p> <p>2. People who may try to enter fire scene:</p> <p>a. Owners and/or occupants</p> <p>b. Spectators/neighbors</p> <p>c. News media</p> <p>d. The firesetter</p> <p>(1) To remove or destroy evidence</p> <p>(2) To mislead investigators</p> <p>(3) To cover-up the fire cause</p> <p>3. It should be explained that the scene cannot be entered because:</p> <p>a. Fire fighters have not finished their work</p> <p>b. Structure is unsafe</p>

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<ul style="list-style-type: none">c. They could destroy or contaminate the evidence of the fire cause <p>4. Cordoning off the scene with rope or barrier line tape can help keep bystanders at a safe distance and help with security</p> <ul style="list-style-type: none">a. The area to be cordoned off should be large enough to protect any evidence and personnel involved with the investigationb. The boundary must be monitored by personnel to prevent unauthorized entry <p>V. Protection of Evidence (<i>Essentials p. 918</i>)</p> <p>A.</p> <p>B. Potential evidence must not be seized unless it is necessary to prevent its destruction</p> <ul style="list-style-type: none">1. The officer-in-charge must be notified of any discovery of possible evidence2.3. If the fire cannot be controlled, fire fighters may have to take evidence before it is further damaged4. If it is necessary to remove evidence, the fire fighter becomes part of the chain of custody of the evidence and may have to testify about the handling procedures for that evidence

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<ol style="list-style-type: none">5. If possible, any evidence to be moved must be properly documented in place before removal<ol style="list-style-type: none">a.b.c. Maintain a signed log of everyone who had contact with the item6. By touching or moving evidence, fire fighters can destroy its acceptability in court7. Evidence must never be left unattended <p>C.</p> <ol style="list-style-type: none">1. Fire cause evidence undergoes contamination from the moment it is placed in a scene<ol style="list-style-type: none">a. The fire itself partially destroys the evidenceb. Fire streams and suppression techniques further damage evidence2. To minimize further contamination of evidence, fire personnel must not handle evidence with leather fire fighting gloves which have contacted other debris3. Evidence must be handled only with new rubber gloves, which are used only once4. Personnel must use caution with their boots to avoid bringing traces of ignitable liquids into the scene

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<p data-bbox="570 411 1224 443">VI. Basic Fire Origin and Cause Determination</p> <p data-bbox="618 489 1393 558">A. A fire scene investigation should be conducted at every incident</p> <ol data-bbox="667 604 1398 978" style="list-style-type: none"><li data-bbox="667 604 1398 674">1. Some fire causes may be obvious and not require an in-depth scene examination<li data-bbox="667 720 1398 789">2. Many other fires will require a length of time to correctly identify the fire cause<li data-bbox="667 835 1398 978">3. Regardless of any information supplied, the fire cause must be determined from an independent and unbiased point of view and from the physical evidence at the scene <p data-bbox="618 1024 857 1056">B. Point of origin</p> <ol data-bbox="667 1102 1398 1780" style="list-style-type: none"><li data-bbox="667 1102 1398 1360">1. Point of origin:<ol data-bbox="716 1171 1398 1360" style="list-style-type: none"><li data-bbox="716 1171 1398 1241">a. May be an exact point, such as an electrical cord<li data-bbox="716 1287 1398 1360">b. May be a general area, such as a ignitable liquid pour<li data-bbox="667 1407 1398 1476">2. The fire cause will usually be located at or near the point of origin<li data-bbox="667 1522 1398 1780">3. Fires typically burn longer near the point of origin<ol data-bbox="716 1591 1398 1780" style="list-style-type: none"><li data-bbox="716 1591 1398 1661">a. The longer the fire burns at a location, the more damage is done<li data-bbox="716 1707 1398 1780">b. Fires naturally grow upward and outward from the point of origin

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<p>C. Examination of the fire scene</p> <ol style="list-style-type: none">1.<ol style="list-style-type: none">a. Observe areas of fire extension from the interior to the exteriorb. Check openings, such as doors and windows, into the structurec. Look for possible indicators that the fire began on the exterior and spread to the interiord. Be alert for possible evidence of incendiarism on the exterior<ol style="list-style-type: none">(1) Discarded flammable liquid containers(2) Removed contents2. Interior examination<ol style="list-style-type: none">a. Work backwards in relation to the fire's travel or spreadb.<ol style="list-style-type: none">(1) Little smoke staining to heavy smoke staining(2) Little heat damage to heavy heat damage(3) Light charring to heavy charringc. Check the entire structure for fire travel

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<ul style="list-style-type: none">d. Ceiling damage will usually be more severe over or near the area of origin <p>3. Look for low level burning</p> <ul style="list-style-type: none">a.b. The point of origin may be found near the lowest level of burning<ul style="list-style-type: none">(1) Falldown burning must be eliminated(2) Falldown burning debris may cause what appears to be separate points of origin(3) Falldown burning will not be as severe as the low burning at the point of originc. Examine the underside of contents and structural elements for low level damage <p>4. "V" patterns and the point of origin</p> <ul style="list-style-type: none">a. The upward and outward growth of fire frequently produces a burn in the shape of a "V"b.c. "V" may extend around corners, doors and wallsd. Falldown burning may cause secondary "V" patterns - remember to compare the amounts of damage

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<ul style="list-style-type: none">5. Check for the depth of charring of combustible objects<ul style="list-style-type: none">a. Deeper charring is usually found near the point of originb. The presence of flammable liquids increases the amount of charringc. Be sure to compare only like fuels6. Light bulbs and the point of origin<ul style="list-style-type: none">a. Light bulbs will swell or distort when exposed to heatb. Bulbs may distort and point toward the area of originD. After locating the point of origin, establish the fire cause<ul style="list-style-type: none">1. Elements of a fire cause<ul style="list-style-type: none">a. Heat sourceb. Fuelc. Event which brings the heat source and fuel together<ul style="list-style-type: none">(1) May be an action - striking a match(2) May be inaction - not extinguishing a cigarette

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<p>2. Types of fire causes</p> <p>a. _____</p> <p>(1) Actions or inactions not intended to start a fire</p> <p>(2) Includes natural causes, such as lightning and spontaneous heating</p> <p>b. Incendiary:</p> <p>c. Terms such as suspicious, undetermined or unknown refer to the status of the incident, not the cause of the fire</p> <p>E. Accidental fire causes</p> <p>1. Accidental fire causes must be eliminated before an incendiary cause can be established</p> <p>2. From a fire prevention standpoint, it is as important to determine accidental fire causes as incendiary causes</p> <p>3. Electrical fire causes - for ignition to be from an electrical source:</p> <p>(1) Sufficient heat to ignite the closest combustible must be produced</p> <p>(2) The electricity must have been on</p> <p>(3) The electrical component must have been energized</p>

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<ol style="list-style-type: none">4. Heating equipment - most fires involving heating equipment result from combustible materials in contact with the equipment5. Cooking equipment - the fire origin is usually above or around the appliance6. Smoking materials - smoking materials in contact with lightweight combustibles may cause ignition7. Spontaneous heating - occurs in organic materials8. Lightning - may produce unnatural burn patterns <p>F. Incendiary fire causes</p> <ol style="list-style-type: none">1. Incendiary: intentionally set2. Arson: the crime of intentionally damaging a building or inhabitable structure by setting a fire or causing an explosion3. All incendiary fires do not involve the crime of arson<ol style="list-style-type: none">a. Burning trashb. Igniting a fireplace fire4. To be the crime of arson, a fire must be incendiary in origin5. To prove that any fire was incendiary, all accidental causes at the point of origin must be eliminated as the cause

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<p>6. Indicators of incendiary fires</p> <ul style="list-style-type: none">a. _____: fires started in separate locations at about the same timeb. Trailers - any combustible or flammable spread to help speed fire extension to other areasc.<ul style="list-style-type: none">(1) One of the most common indicators of incendiarism(2) Most structure fires produce little floor charring prior to flashover(3) Liquid accelerants intentionally poured leave very distinctive burn patterns(4) Liquids may leave “fingers” or “runs” <p>VII. Protecting Fire Cause Evidence Summary</p> <p>A. Every fire fighter must learn as much as he or she can about the circumstances surrounding the origin and cause of each fire</p> <ul style="list-style-type: none">1. Fires are not only investigated to prove whether or not they were intentionally started2. The investigation of fires is an important component in fire prevention and public education3. When dangerous products are found and recalls are issued, it is because investigations found those products caused fires

PROTECTING FIRE SCENE EVIDENCE



MISSOURI DIVISION OF FIRE SAFETY FIRE FIGHTER I & II

NOTES	STUDENT GUIDE
	<p data-bbox="618 411 1393 558">B. The role of any fire fighter assisting with a fire investigation begins during the response to the scene and continues through suppression and extends until after the fire is extinguished</p> <ol data-bbox="667 600 1398 825" style="list-style-type: none"><li data-bbox="667 600 1398 709">1. Fire fighters must be able to recognize potential fire cause evidence while fighting a fire and take reasonable precautions to protect that evidence<li data-bbox="667 751 1398 825">2. Evidence can easily be destroyed by fire personnel not being aware of their activities