

# Firefighter I & II - Quiz Questions with Answers

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## Building Materials and Structure

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Building Materials and Structure

1.

What term is used to describe the damage caused by firefighters during the actions taken to extinguish the fire?

**Secondary damage**

Primary damage

Principal damage

Tributary damage

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*Correct answer: Secondary damage*

*Secondary damage is the term used to describe the damage caused by firefighters during the actions taken to extinguish the fire. Forcible entry and ventilation are actions that create secondary damage.*

*Primary damage is the term used to describe the damage caused by the actual fire itself. Principal damage and tributary damage are not terms used to describe damage caused at fire scenes.*

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2.

Firefighters are exposed to the danger of electrical shock when attempting to isolate the electrical power system in electric or hybrid vehicles as they contain higher voltages than conventional fuel vehicles. What color do **most** vehicle manufacturers use to assist emergency responders with recognizing high-voltage power wires?

Orange

Blue

Red

Green

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*Correct answer: Orange*

*Most vehicle manufacturers use orange tape or shielding to assist emergency responders with recognizing high-voltage power wires in electric or hybrid vehicles.*

*Saturn is the only vehicle manufacturer that uses blue to identify its 36-volt system. Red and green are not colors used by manufacturers to identify high-voltage power wires.*

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**3.**

Firefighters use a variety of stabilizing tools to ensure objects do not move and cause further damage. Which stabilizing tool would be used to prevent emergency vehicles from moving when parked?

**Wheel chock**

Buttress tension system

Cribbing material

Screw jack

*Correct answer: Wheel chock*

*A wheel chock is used to prevent emergency vehicles from moving when parked. A wheel chock is a block of wood, plastic, or metal placed against a tire to prevent a vehicle from moving.*

*A buttress tension system is used to stabilize vehicles resting on their sides. Cribbing material is used to stabilize debris after a structural collapse. A screw jack is used to hold an object in place.*

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4.

Which composite building material comprises small pieces of wood joined into longer boards using epoxy resins and glues?

**Finger-jointed timber**

Medium density fiberboard

Particle board

Synthetic wood

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*Correct answer: Finger-jointed timber*

*Finger-jointed timber is a composite building material composed of small pieces of wood merged to form boards using various types of glue.*

*Medium-density fiberboard is a composite building material that is a type of laminated wood closely resembling hardwood. It is used for doors and decorative moldings. Particle board is a composite building material composed of small flakes of wood merged together with glue to form boards used for furniture. Synthetic wood is a composite building material composed of recycled plastics to form sheets or boards.*

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5.

During extrication, a firefighter needs to maintain safe working distances using the 5-10-12-18-20 rule. What should a firefighter keep 5 inches away from?

**Side-impact airbags**

Driver frontal airbags

Side-impact curtains

Passenger frontal air bags

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*Correct answer: Side-impact airbags*

*In regard to the 5-10-12-18-20 extrication rule, firefighters should keep 5 inches away from the side-impact airbags. Firefighters should also keep 5 inches away from knee bolsters.*

*Firefighters should keep 10 inches away from driver frontal airbags, 12-18 inches away from side-impact curtains, and 20 inches away from passenger frontal airbags.*

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**6.**

You arrive on the scene of a high-rise office building. An elevator car is stuck between floors. The occupants are communicative and are under no serious stress or threat and report no medical problems. What might be the **best** alternative in this situation?

**Reassure the car occupants and wait for elevator technicians to arrive**

Force the elevator doors open and remove the occupants

Open the maintenance door on the top of the car

Raise or lower the car from the mechanical room

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*Correct answer: Reassure the car occupants and wait for elevator technicians to arrive*

*If there is no immediate threat to life, the option to wait for trained elevator technicians may be the safest alternative. This option puts neither the occupants of the car at risk, nor does it put firefighters at risk.*

*Forcing the doors open and pulling victims through the opening puts the victims at risk and firefighters at risk working around the open elevator shaft.*

*The maintenance opening in an elevator car is not a viable option. It puts firefighters at risk working on top of the elevator car and requires moving the victims upward.*

*There is no way to manually raise or lower an elevator car with the equipment that fire department rescue teams normally carry.*

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7.

A vehicle generally contains safety glass and tempered glass. Which of the following is **true** in regard to tempered glass?

**It crumbles into chunks**

It is stronger than safety glass

It is generally used in windshields

It is laminated to a sheet of plastic

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*Correct answer: It crumbles into chunks*

*Tempered glass crumbles into chunks, as it is treated to prevent it from splintering into jagged shards.*

*Safety glass is stronger than tempered glass. Tempered glass is generally used in side and rear windows, not windshields. Tempered glass is treated glass, not laminated to a sheet of plastic.*

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8.

Rescue tools can get their power from several different sources. Which of the following is **not** a common source of power for fire department rescue power tools?

**Water flow**

Hydraulic

Pneumatic

Electric

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*Correct answer: Water flow*

*Water flow is not normally a powersource used to operate rescue equipment.*

*Hydraulic, electric, and pneumatic are the common types of power used for fire department rescue tools.*

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9.

Safety during overhaul operations is the primary concern. Which of the following is **not** part of maintaining situational awareness during overhaul operations?

**Ventilate every compartment in the structure that has an exterior opening**

Operate in teams of two or more

Monitor personnel rehabilitation needs

Watch for still operating utilities

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*Correct answer: Ventilate every compartment in the structure that has an exterior opening*

*It is not necessary to ventilate every compartment in some structures. Where there is no evidence of fire extension or heavy smoke concentrations, it may not be necessary to remove windows in those areas.*

*Firefighters should always operate in teams of two or more, including overhaul operations.*

*Be aware of the need for personnel rehabilitation as a long incident wears on and firefighters begin to fatigue.*

*Watch for electrical utilities that may be live and gas utilities that may be leaking.*

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**10.**

A firefighter arrives at a scene where a type II structure is on fire. In regard to determining the collapse zone, the firefighter knows which of the following to be **true** for this structure?

**Its walls could be pushed out due to its steel I-beams expanding and twisting**

Its primary concern is flying glass from windows

It is the structure type least likely to collapse

It could collapse inward if it is a platform-frame structure or outward if it is a balloon-frame structure

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*Correct answer: Its walls could be pushed out due to its steel I-beams expanding and twisting*

*When determining the collapse zone for a type II structure, the firefighter should know that its walls could be pushed out due to its steel I-beams expanding and twisting. Type II building construction contains structural components able to resist fire for 1 to 2 hours.*

*Its primary concern is flying glass from windows is true for a type I structure. It is the structure type least likely to collapse is true for a type IV structure. It could collapse inward if it is a platform-frame structure or outward if it is a balloon-frame structure is true for a type V structure.*

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**11.**

A material used for wallcoverings in many structures is known for its high water content that absorbs large amounts of heat as the water evaporates. This property provides excellent heat-resistance and fire retardant abilities. Which of the following is **not** a term by which this product is known?

**MDF**

Drywall

Gypsum

Sheetrock

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*Correct answer: MDF*

*MDF, or medium density fiberboard, is a product made of sawdust and a bonding agent pressed together to form a sheet that is highly stable in almost every direction. It will disintegrate over time when exposed to water and may give off toxic gases when burned.*

*Gypsum, drywall, or sheetrock are the terms most commonly used for the material described.*

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**12.**

Firefighters use a variety of cutting tools during their day-to-day operations. Which cutting tool would **most likely** be used to cut a ring from an individual's finger?

**Whizzer saw**

Reciprocating saw

Rotary saw

Air chisel

*Correct answer: Whizzer saw*

*A Whizzer saw is used to cut a ring from an individual's finger. A Whizzer saw is a highly portable, lightweight cutting tool used to make delicate cuts.*

*A reciprocating saw is used to cut structural components on a vehicle. A rotary saw is used to cut wood, metal, or masonry utilizing different blades. An air chisel is used to break locks or remove rivets and bolts.*

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**13.**

A firefighter is in the process of removing debris from a burnt structure. Which tool or piece of equipment would the firefighter **most likely** use to complete this task?

**Carryall**

Pike pole

Plaster hook

Thermal imager

*Correct answer: Carryall*

*A firefighter would most likely use a carryall to remove debris from a burnt structure. A carryall is also used to carry water in order to immerse smoldering material. Buckets and tubs are also used to remove debris and to carry water.*

*A pike pole and a plaster hook are both used to open ceilings. A thermal imager is used to check for hot spots.*

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14.

A vehicle generally contains safety glass and tempered glass. Which of the following is **true** in regard to laminated safety glass?

**It is most commonly used in windshields**

It crumbles into chunks

It is a single sheet of laminated glass

It is generally used in side windows

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*Correct answer: It is most commonly used in windshields*

*Laminated safety glass is generally used in windshields and in some rear windows. Safety glass is composed of two sheets of glass laminated to a sheet of plastic in between them, which makes the glass a lot stronger and more resistant to shattering.*

*Tempered glass crumbles into chunks, not safety glass. Safety glass contains two sheets of laminated glass, not one. It is generally used in windshields and in rear windows, not side windows.*

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**15.**

Which of the following is not part of the assessment of a vehicle incident scene size-up?

**Is there a collapse risk?**

Are the vehicles located on the roadway?

How many victims are there, and what is their status?

Is there a potential for a vehicle fire?

*Correct answer: Is there a collapse risk?*

*In the context of assessing a vehicle incident scene, all of the options are important considerations, but they each address different aspects of the situation.*

***Is there a potential for a vehicle fire?***

*This is a critical question in the assessment of a vehicle incident scene. Fire risk assessment is essential for ensuring the safety of victims, responders, and bystanders. It involves checking for signs of fire, fuel leaks, or any condition that might lead to a fire.*

***Are the vehicles located on the roadway?***

*Determining the location of the vehicles is important for understanding the impact on traffic and the potential risk to other road users. It also helps in planning for vehicle stabilization and extrication efforts.*

***How many victims are there, and what is their status?***

*This is a crucial part of the initial size-up, as it helps prioritize actions based on the number of victims and the severity of their conditions. Victim assessment is fundamental to triage and determines the level of resources required at the scene.*

***Is there a collapse risk?***

*While collapse risk is a primary concern in structural fire and rescue scenarios, it might be less directly relevant to a typical vehicle incident. However, if the incident involves structures (e.g., a vehicle crashing into a building), or there are large vehicles involved (such as trucks that might tip over), assessing the risk of collapse can be crucial for responder safety and determining the approach to victim rescue.*

*This is generally less directly related to a standard vehicle incident scene unless specific conditions (like those involving structures or large vehicles) make it a relevant concern. The collapse risk assessment is more commonly associated with structural emergencies rather than typical vehicle incidents. However, it's essential to consider that every incident has unique aspects, and a comprehensive size-up will evaluate all potential risks, including those less common for the scenario.*

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16.

What are the three determining factors for the tool setup to stabilize a vehicle that is resting on its side or roof?

**The condition and weight of the vehicle, the stability of the soil, and the condition of the victims**

Make and model of the vehicle, stability of the victims, and the condition of the soil

Number of vehicles involved, passenger compartment orientation, and the stability of the soil

Number of victims, year and model of car, and the type of emergency apparatus responding to the scene

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*Correct answer: The condition and weight of the vehicle, the stability of the soil, and the condition of the victims*

*A tensioned buttress system stabilizes vehicles resting on their sides or roofs. It may consist of one or more posts wedged between the ground and vehicle, or it may be a commercial system composed of metal rods and straps. The condition and weight of the vehicle, the stability of the soil, and the condition of the victims determine the number of posts needed and their placement.*

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17.

What fire service tool/equipment is used to protect building contents during fire suppression?

**Salvage cover**

Hose roller

Scupper

Thermal Imager (TI)

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*Correct answer: Salvage cover*

*Salvage covers are used to protect unaffected furniture and areas of the building.*

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18.

The choice of salvage procedures performed by firefighters depends on all **except** which of the following?

**Time of day**

Number of personnel available

Extent and location of the fire

Current weather conditions

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*Correct answer: Time of day*

*The choice of salvage procedures performed by firefighters does not depend on the time of day.*

*The choice of salvage procedures performed by firefighters depends on the number of personnel available, the extent and location of the fire, and the current weather conditions. The type, size, and quantity of the contents are also factors.*

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19.

Loss control is a term used by firefighters to refer to which of the following?

**Minimization of property loss**

Minimization of personnel loss

Minimization of victim loss

Minimization of water loss

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*Correct answer: Minimization of property loss*

*Loss control is a term used by firefighters to refer to the minimization of property loss. Firefighters work in a fashion that minimizes damage to property before, during, and after an incident.*

*Firefighters do not use the term loss control to describe the minimization of personnel loss, victim loss, or water loss.*

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**20.**

Which type of composite building material is composed of small flakes of wood merged together with glue to form boards used for interior and exterior wall panels and furniture?

**Particle board**

Finger-jointed timber

Laminated timber

Medium density fiberboard

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*Correct answer: Particle board*

*Particle board is composite building material composed of small particles and flakes of wood merged together with glue to form boards used for furniture and walls.*

*Finger-jointed timber is composite building material composed of small pieces of wood merged to form boards using various types of glue.*

*Laminated timber is composite building material that consists of sheets of wood used for floor decking or walls.*

*Medium density fiberboard is composite building material that is a type of laminated wood closely resembling hardwood and is used for doors and decorative moldings.*

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21.

Large quantities of water can be removed from structures using all **except** which of the following actions?

Opening windows

Removing toilet fixtures

Creating scuppers

Creating chutes with salvage covers

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*Correct answer: Opening windows*

*Large quantities of water cannot generally be removed by opening windows, as window openings are generally too high for the water to easily escape.*

*Large quantities of water can be removed from structures by removing toilet fixtures, creating chutes with salvage covers, or creating scuppers. Firefighters can also locate and clean clogged drains and make use of existing sanitary piping systems to remove large quantities of water from structures.*

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**22.**

During a vehicle extrication, which of the following should a firefighter avoid touching, cutting, or opening?

**Any electrical cables insulated or marked with an orange, blue, yellow, or other brightly colored coating**

Any electrical cables insulated or marked with a black or grey coating

Deployed side curtain airbags

Any cables connected directly to the battery of the vehicle

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*Correct answer: Any electrical cables insulated or marked with an orange, blue, yellow, or other brightly colored coating*

*Never touch, cut, or open any orange, blue, yellow, or other brightly colored electrical cables while working around a vehicle involved in any accident causing impact, regardless of vehicle damage. Orange cables can contain high-voltage charges even after the battery has been disconnected that can cause serious injury and death in the right condition. Blue cables may contain enough stored electrical charge to hold a moderate charge capable of causing injury.*

*It is not considered unsafe to touch, cut, or open electrical cables coated or marked in black or grey while working around a vehicle involved in an accident. It is not considered unsafe to touch side curtain airbags that have previously deployed. There is no secondary danger involved with deployed side airbags. However, a firefighter should avoid side curtain airbags that haven't deployed. The general rule is to try to stay 12-18 inches away from side curtain airbags when they haven't deployed even though the vehicle was involved in a serious accident. It isn't considered inappropriate to touch, cut, or open wires connecting the battery to the vehicle's electrical system, especially the normally black negative cable. It is appropriate to cut vehicles black negative battery cable in two places to avoid accidental contact.*

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**23.**

A36 steel is the most commonly used structural steel in the United States. Other steels reflect a similar pattern to A36 when exposed to temperatures normally found in structural fires. At what temperature does A36 steel begin to lose its strength when exposed to fire?

**570 degrees Fahrenheit**

550 degrees Fahrenheit

2,000 degrees Fahrenheit

2,250 degrees Fahrenheit

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*Correct answer: 570 degrees Fahrenheit*

*From a firefighting perspective, you must consider the type of steel used in the members of the structure when trying to determine when the steel may begin to fail. Steel begins to lose its strength at around 570 degrees F. (300 degrees C). At this point, the steel will only support 40 percent or less of its deigned load and could fail at any given time after flashover.*

*Steel beams do not begin to lose their load bearing capacity at temperatures below 570 degrees Fahrenheit. At temperatures above 1,000 degrees F, steel beams will have likely begun to buckle and collapse due to excessive heat.*

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24.

How can a building's HVAC system affect fire spread?

**HVAC systems can spread fire throughout a building by moving heated gases and air into uninvolved compartments of the building until those materials ignite**

All HVAC systems will always automatically shut off when a fire is detected

HVAC systems will choke off the fire by only moving cool air into the fire room(s)

HVAC systems will automatically ventilate the structure before the fire department's arrival on the scene

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*Correct answer: HVAC systems can spread fire throughout a building by moving heated gases and air into uninvolved compartments of the building until those materials ignite*

*Heating, Ventilation, and Air Conditioning (HVAC) systems in a building can affect tactical ventilation operations during a structural fire. These systems move air (heated or cooled) throughout a structure through a series of ducts. During a structural fire, these same ducts can move heated air and products of combustion from an involved compartment to other compartments within the structure.*

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**25.**

An automatic sprinkler kit is used to stop an open sprinkler's water flow. All **except** which of the following items are recommended for an automatic sprinkler kit?

**Sprinkler hose lines**

Sprinkler tongs

Sprinkler stoppers

Sprinkler wedges

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*Correct answer: Sprinkler hose lines*

*Sprinkler hose lines are not recommended for an automatic sprinkler kit.*

*The items recommended for an automatic sprinkler kit are sprinkler tongs, sprinkler stoppers, and sprinkler wedges. Catchalls, chutes, and hose lines can be used to direct the water from sprinklers out a door or window until the sprinkler water flow stops.*

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26.

A structure fire results in primary and secondary damage. All **except** which of the following are examples of secondary damage?

**Damage caused by smoke**

Damage caused by weather after fire suppression

Damage caused by ventilation operations during fire suppression

Damage caused by forcible entry

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*Correct answer: Damage caused by smoke*

*Damage caused by smoke is an example of primary structure damage, not secondary damage.*

*Secondary damage results from fire suppression activities or damage that occurs after fire suppression such as damage caused by weather after fire suppression, by ventilation operations during fire suppression, or by forcible entry.*

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**27.**

A firefighter arrives at a scene where a type III structure is on fire. In regard to determining the collapse zone, the firefighter knows which of the following to be **true** for this structure?

**Its exterior walls are likely to collapse in one piece or crumble and could travel a distance**

Its primary concern is flying glass from windows

Its walls could be pushed out due to its steel I-beams expanding and twisting

It could collapse inward if it is a platform frame structure or outward if it is a balloon frame structure

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*Correct answer: Its exterior walls are likely to collapse in one piece or crumble and could travel a distance*

*When determining the collapse zone for a type III structure, the firefighter should know that its exterior walls are likely to collapse and could travel a distance. Type III building construction contains an exterior constructed of noncombustible materials and an interior that is constructed of wood.*

*Its primary concern is flying glass from windows is true for a type I structure. Its walls could be pushed out due to its steel I-beams expanding and twisting is true for a type II structure. It could collapse inward if it is a platform frame structure or outward if it is a balloon-frame structure is true for a type V structure.*

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28.

What is the difference between cast iron and wrought iron in regards to building construction?

**Wrought iron is usually riveted or welded together, while cast iron is bolted or screwed**

Cast iron is usually riveted or welded together, while wrought iron is bolted or screwed

Wrought iron is strictly used for functional building components, while cast iron is strictly used for decorative building components

Wrought iron is a recent technology, while cast iron became prominently used in the 1960s

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*Correct answer: Wrought iron is usually riveted or welded together, while cast iron is bolted or screwed*

*Wrought iron is usually riveted or welded together, while cast iron is bolted or screwed.*

*Cast iron was commonly used in the 19th century for structural support beams and columns, balconies, elevators, stairs, railings, etc.*

*Wrought iron was used in buildings of the early 1800s for nails, straps, tie rods, railings, and balconies; and after 1850, wrought iron was used for rail and I-beams, channels, and support columns.*

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**29.**

Structures can collapse in various patterns. Once the pattern is determined, the rescuer can decide where the void spaces are and where the victims are most likely trapped. Which collapse pattern occurs when the outer walls remain intact and the upper floors and/or roof structure fail in the middle creating voids along the outer walls?

**V-shaped collapse**

Pancake collapse

Lean-to collapse

A-frame collapse

*Correct answer: V-shaped collapse*

*A V-shaped collapse pattern occurs when the outer walls remain intact and the upper floors and/or roof structure fail in the middle creating voids along the outer walls.*

*A pancake collapse pattern is when the structure's floors collapse on top of each other with debris between them.*

*A lean-to collapse pattern occurs when one outer wall fails and the opposite wall remains intact.*

*An A-frame collapse occurs when the floor and/or roof assemblies on both sides of a load bearing center wall collapse.*

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30.

The “point of origin” is **best** described as which of the following?

**The exact physical location where the heat source and the fuel came into contact to begin the fire**

The vicinity in which the ignition source and material came together for the first time

The happenings that occur in order for the heat source and material to come together and ignite the fire

The obvious design and path of burned material from where the fire initially started

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*Correct answer: The exact physical location where the heat source and the fuel came into contact to begin the fire*

*The point of origin is the exact location where the heat source and the fuel came into contact to begin the fire.*

*The area of origin is the vicinity in which the ignition source and material came together for the first time. The fire cause is the happenings that occur in order for the heat source and material to come together and ignite the fire. The fire pattern is the obvious design and path of burned material from where the fire initially started.*

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**31.**

A trailer is something used to cause a fire to spread to multiple areas within the structure. Items most often used to make trailers include all **except** which of the following?

**Alarm clock**

Rolled rags

Newspapers

Blankets

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*Correct answer: Alarm clock*

*An alarm clock is most often used as a timing device and is not an item used to make a trailer.*

*Items generally used to make a trailer include rolled rags, combustible liquids, black gunpowder, newspapers, wax paper, excelsior, blasting fuse, string, and cotton.*

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**32.**

Dewatering devices, such as submersible pumps and jet-siphons, are used to remove water from all **except** which of the following areas?

**Floors**

Basements

Elevator shafts

Sumps

*Correct answer: Floors*

*Floors do not generally contain water deep enough to use a dewatering device, so they generally require the use of a water vacuum.*

*Dewatering devices, such as submersible pumps and jet-siphons, are used to remove water from basements, elevator shafts, or sumps. Dewatering devices are portable and can be moved around in order to remove water in various areas during salvage operations.*

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**33.**

The amount of water used to extinguish a fire has a direct effect on an unstable structure. For every gallon of water used to extinguish a structural fire, how much weight does it add?

**8 to 10 lbs.**

5 to 7 lbs.

250 lbs.

2000 lbs.

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*Correct answer: 8 to 10 lbs.*

*For every gallon of water used to extinguish a structural fire, 8.33 pounds are added to the floors of the structure. If a firefighter is using 250 gallons per minute, it adds 1 ton to the structure per minute. This additional weight can cause floors to pancake down and/or push walls out.*

*5 to 7 lbs is too low, and 250 lbs is also incorrect. A line flowing 250 gpm will add one ton or 2000 lbs of additional weight to the structure per minute.*

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**34.**

When working within 10 feet of the water's edge during a water rescue or when riding in waterborne craft, firefighters are required to be outfitted with what?

**Personal flotation devices (PFDs)**

PPE

PASS systems

Safety rope

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*Correct answer: Personal flotation devices (PFDs)*

*PFDs are required for all personnel working within 10 feet of the water's edge or on waterborne craft during a rescue or recovery operation. The PFDs must be US Coast Guard approved.*

*Personnel may wear PPE but must not be closer than 10 feet to the edge of the water and not on a waterborne craft. Waterlogged PPE can quickly pull you under.*

*PASS systems are used for structural firefighting and not water rescue operations.*

*Safety lines are sometimes used, but are not a required part of a water rescue operation.*

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**35.**

Firefighters use a variety of cutting tools during their day-to-day operations. Which cutting tool would **most likely** be used to cut structural components on a vehicle?

**Reciprocating saw**

Rotary saw

Whizzer saw

Air chisel

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*Correct answer: Reciprocating saw*

*A reciprocating saw is used to cut structural components on a vehicle. A reciprocating saw contains a short, straight blade that can be used to cut a vehicle's body panels or its structural components.*

*A rotary saw is used to cut wood, metal, or masonry utilizing different blades. A Whizzer saw is used to cut a ring from an individual's finger. An air chisel is used to break locks or remove rivets and bolts.*

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**36.**

Firefighters use hydraulic and electric-powered tools during rescue operations. Which of the following options **best** describes hydraulic spreaders used by firefighters?

**Device used for pushing and pulling and has an opening spread of up to 32 inches**

Device used for cutting and has an opening spread of up to 7 inches

Device used for cutting, pulling, and pushing and good for a small, rapid intervention vehicle

Device used primarily for pushing and secondarily for pulling with an extension from 3-5 feet

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*Correct answer: Device used for pushing and pulling and has an opening spread of up to 32 inches*

*Hydraulic spreaders are used for pushing and pulling and have an opening spread of up to 32 inches. When combined with chains and adapters, they can produce a tremendous amount of force at their tips.*

*Combination spreaders/shears are used for cutting, pulling, and pushing and are good for a small, rapid intervention vehicle. Hydraulic shears are used for cutting and have an opening spread of up to 7 inches. Extension rams are used primarily for pushing and secondarily for pulling with an extension from 3 to 5 feet.*

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**37.**

After removing the structure's door to extinguish the fire within, the firefighter had to install a temporary door covering. Which tool or piece of equipment would the firefighter **most likely** use to complete this task?

**Screwdriver**

Axe

Prying tool

Carryall

*Correct answer: Screwdriver*

*A firefighter would most likely use a screwdriver to install a temporary door. Power saws and drills are also used to install coverings for temporary doors and windows.*

*An axe is used to open walls or floors. A prying tool is used to remove baseboards, door frames, or window frames. A carryall is used to carry debris or to carry water to immerse smoldering material.*

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**38.**

A firefighter arrives at a scene where a type V structure is on fire. In regard to determining the collapse zone, the firefighter knows which of the following to be **true** for this structure?

**It could collapse inward or outward**

Its walls could be pushed out due to its steel I-beams expanding and twisting

Its exterior walls are likely to collapse and could travel a distance

It is the structure type least likely to collapse

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*Correct answer: It could collapse inward or outward*

*Type V building construction is composed of load-bearing walls constructed of wood and covered with various types of siding, wood, metal, or masonry products. Exterior masonry walls and veneer walls that are not load-bearing get placed over load-bearing walls. Outward, curtain collapse, can occur when veneer coverings fall. Interior collapse is a greater danger to firefighters due to the use of lightweight trusses and engineered flooring systems in newer construction.*

*Type V construction does not usually have internal steel structural members.*

*Typically, if an exterior collapse is experienced, it will be a curtain collapse, in which brick veneer falls into a pile. A fallout may also occur.*

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39.

A firefighter needs to open the floor of a structure to search for remaining fire. Which tool or piece of equipment would the firefighter **most likely** use to complete this task?

Axe

Pike pole

Drill

Bale hook

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*Correct answer: Axe*

*A firefighter would most likely use an axe to open the floor of a structure to search for remaining fire. Axes are also used to open walls.*

*A pike pole is used to open ceilings. A drill is used to install temporary coverings for windows or doors. A bale hook is used to move baled or loose materials.*

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**40.**

Once a firefighter ensures that a vehicle is stable and its electrical system is secure, he must gain access to the vehicle in order to rescue the victim. Which of the following is the **best** method for gaining access to a trapped victim in an automobile?

**The one that is the simplest and fastest**

Opening an operational door

Removing a window

Prying open a door

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*Correct answer: The one that is the simplest and fastest*

*Lengthier methods of gaining access prolong victims suffering and are more dangerous for victims and rescuers. Seriously injured victims are more likely to survive if they receive medical treatment quickly.*

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41.

When a firefighter is pulling or opening a ceiling, where should the firefighter stand?

**Between the area being opened and a doorway**

Underneath the area being opened

Between the area being opened and a wall

Above the ceiling's surface in the attic or on a higher floor

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*Correct answer: Between the area being opened and a doorway*

*When a firefighter is pulling or opening a ceiling, he/she should stand between the area being opened and a doorway. This stance provides the firefighter a quick escape route and prevents the firefighter from being blocked or hit by falling debris.*

*A firefighter should not stand underneath the area being opened or between the area being opened and a wall, as these two locations do not prevent the firefighter from being hit by or blocked from falling debris. The firefighter should not stand above the ceiling from the attic or a higher floor, as the firefighter may fall through the ceiling being opened.*

---

42.

Firefighters use carryalls for all **except** which of the following activities?

**Remove water**

Carry debris

Catch falling debris

Provide a water basin

---

*Correct answer: Remove water*

*Firefighters use dewatering devices and water vacuums to remove water.*

*Firefighters use carryalls to carry debris, to catch falling debris, and to provide a water basin. Carryalls are composed of waterproof materials.*

---

**43.**

Which type of structural collapse leaves a structure most susceptible to a secondary collapse?

**Cantilever collapse**

Pancake collapse

Lean-to collapse

A-frame collapse

---

*Correct answer: Cantilever collapse*

*This pattern occurs when one or more walls of a multistory building collapse, leaving the floors attached to and supported by the remaining walls. This pattern offers a good chance of habitable voids, but it is most vulnerable to secondary collapse.*

---

**44.**

Which of the following is the **first** consideration to be taken into account before beginning overhaul operations?

**Safety**

Air quality

Property preservation

Scene security

---

*Correct answer: Safety*

*Safety is always the first consideration before beginning overhaul operations. Once the fire has been controlled, there is not pressing need for speed. Take time to plan and organize the overhaul activities to provide the highest degree of safety for all personnel that can be attained.*

*Air quality, property preservation, and scene security are all important parts of fire department operations but do not define the primary consideration in starting an overhaul operation.*

---

**45.**

When do salvage operations begin at a fire scene?

**Upon first arrival**

As soon as firefighters have entered the structure

After the firefighters have extinguished the fire

After investigators have collected evidence

---

*Correct answer: Upon first arrival*

*Salvage operations begin at a fire scene upon the first arrival of fire personnel.  
Salvage operations take place until the last unit leaves the scene.*

---

46.

Salvage procedures performed by firefighters include all **except** which of the following?

**Cleaning contents to remove smoke residue**

Moving contents to a safe location in the structure

Removing contents from the structure

Protecting the contents in place with salvage covers

---

*Correct answer: Cleaning contents to remove smoke residue*

*Salvage procedures performed by firefighters do not include the cleaning of contents in order to remove smoke residue.*

*Salvage procedures performed by firefighters include moving contents to a safe location in the structure, removing contents from the structure, and protecting the contents in place with salvage covers.*

---

**47.**

Firefighters use various stabilizing tools to ensure objects do not move and cause further damage. Which stabilizing tool can be extended or retracted by turning a threaded shaft?

**Screw jack**

Buttress tension system

Wheel chock

Cribbing material

*Correct answer: Screw jack*

*A screw jack is used to hold an object in place. A screw jack is a non-hydraulic jack extended or retracted by manually turning its threaded shaft.*

*A buttress tension system stabilizes vehicles resting on their sides. A wheel chock prevents emergency vehicles from moving when parked. Cribbing material stabilizes debris after a structural collapse.*

---



48.

Which of the following tools would be used by a firefighter to install a temporary window covering?

**Screwdriver**

Prying tool

Plaster hook

Axe

---

*Correct answer: Screwdriver*

*A screwdriver is used by firefighters to install a temporary window covering. Screwdrivers, power saws, and drills are also used to install temporary door and window coverings.*

*A prying tool can be used to remove door frames, window frames, or baseboards. A plaster hook can be used to open ceilings for fire extension inspections. An axe can be used to open walls and floors.*

---

49.

A firefighter can sometimes detect hidden fires by touch. Which of the following is an indicator for detecting hidden fires by touch?

**Heat coming from floors**

Burned areas

Popping of fire burning

Heat signature detection

---

*Correct answer: Heat coming from floors*

*Heat coming from floors is an indicator for detecting hidden fires by touch. Heat coming from walls is another indicator for detecting hidden fires by touch.*

*Burned areas is an indicator for detecting hidden fires by sight. Popping of fire burning is an indicator for detecting hidden fires by sound. Heat signature detection is an indicator for detecting hidden fires by electronic sensors.*

---

50.

When do overhaul operations take place?

**After extinguishment of the main body of the fire**

During a transitional fire attack

Only after combinational fire attacks

Between scene size-up 360 and entry to structure

---

*Correct answer: After extinguishment of the main body of the fire*

*Overhaul refers to all operations conducted after the main body of the fire has been extinguished and includes the following activities:*

- *Searching for and extinguishing hidden or remaining fire*
  - *Placing the building and its contents in a safe condition*
  - *Determining the cause of the fire*
  - *Recognizing and preserving evidence of arson*
-

51.

If, when approaching a downed power line, you feel tingling in your feet, what should you do?

**Keep your feet together and hop away from the line**

Spread your feet apart and wait for the electric to be shut off

Keep walking toward the downed power line

Sit down and avoid movement until the electric company responds

---

*Correct answer: Keep your feet together and hop away from the line*

*If you are approaching a downed power line and you feel tingling in your feet, you should keep your feet together and hop away from the line. The term used to describe the downed power line's ground electrical field is ground gradient.*

*The electrical voltage drops progressively as you move away from the downed power line; therefore, you should not spread your feet apart and wait for the electric to be shut off, keep walking toward the downed power line, or sit down and avoid movement until the electric company responds.*

---

**52.**

When performing confined space rescue operations, it may not be possible for rescuers to wear SCBA because of the size of the cylinders and other equipment. In these cases it may be necessary to use what kind of breathing apparatus in order to perform the rescue?

**Supplied Air Respirators**

Rebreathing apparatus

Extended wear respirators

NIOSH certified particulate masks

*Correct answer: Supplied Air Respirators*

*Supplied Air Respirators (SARs) are hose fed respirators with hoses up to 300 feet long connected to tanks or breathing air compressors outside the entrance.*

*Rebreathing apparatus are SCUBA equipment that are a closed system and not used in rescue or firefighting operations.*

*Extended wear respirators and NIOSH certified particulate masks provide no protection from oxygen depleted atmospheres or toxic gases.*

---

53.

What term is used to describe the damage caused by the actual fire itself?

**Primary damage**

Secondary damage

Principal damage

Tributary damage

---

*Correct answer: Primary damage*

*Primary damage is the term used to describe the damage caused by the actual fire itself. Smoke damage is also considered primary damage.*

*Secondary damage is the term used to describe the damage caused by firefighters during the actions taken to extinguish the fire. Principal damage and tributary damage are not terms used to describe damage caused at fire scenes.*

---

**54.**

What danger is associated with water rescues in low-head dams?

**Undertow**

Hypothermia

Dangerous wildlife

Lack of nearby resources

---

*Correct answer: Undertow*

*Low-head dams, or low-water dams, are extremely dangerous for victims and rescuers. These dams create a pool of standing water in a river or stream. Water creates an undertow as it passes over the face of the dam, creating powerful undercurrents. Commonly called the "drowning machine," the hydraulic action of this dam is virtually impossible to escape.*

---

**55.**

At what temperature does steel begin to rapidly deform and lose strength?

**860°F**

460°F

750°F

570°F

---

*Correct answer: 860°F*

*At 860°F, steel begins to rapidly deform and lose strength.*

---



56.

A firefighter can sometimes detect hidden fires by sound. Which of the following is an indicator for detecting hidden fires by sound?

**Popping or cracking of fire burning**

Heat signature detection

Cracked plaster

Heat coming from floors

---

*Correct answer: Popping or cracking of fire burning*

*Popping or cracking of fire burning is an indicator for detecting hidden fires by sound. Hissing of steam is another indicator for detecting hidden fires by sound.*

*Heat signature detection is an indicator for detecting hidden fires by electronic sensors. Cracked plaster is an indicator for detecting hidden fires by sight. Heat coming from floors is an indicator for detecting hidden fires by touch.*

---

57.

Salvage covers used by fire personnel are manufactured from all **except** which of the following types of material?

**Polyurethane**

Waterproof canvas

Vinyl

Heavy-duty plastic

---

*Correct answer: Polyurethane*

*Salvage covers used by fire personnel are not manufactured from polyurethane.*

*Salvage covers used by fire personnel are manufactured from waterproof canvas, vinyl, and heavy-duty plastic. Salvage covers are used to protect a structure's contents and to create chutes to route water to other areas.*

---

**58.**

What was the 5-10-12-18-20 rule established for, in regards to vehicle incident scene response?

**To determine a safe distance for rescuers to maintain from airbags during vehicle extrication**

To determine the remaining potential fire hazard after a fluid leak on a vehicle incident

To determine victim status priority during a vehicle extrication involving multiple victims

To determine resources needed on a mass casualty vehicle incident

---

*Correct answer: To determine a safe distance for rescuers to maintain from airbags during vehicle extrication*

*Disconnecting the battery or removing the ignition key will usually disable airbags. However, the airbag may still be dangerous for up to 60 minutes because of the capacitors in the electrical activation system. Use the 5-10-12-18-20 rule to maintain safe working distances from airbags during extrication.*

- *5 inches away from side-impact airbags and knee holsters*
  - *10 inches away from the driver's frontal airbags*
  - *12–18 inches away from side-impact curtains*
  - *20 inches away from passenger frontal airbags*
-

59.

Which type of insulation was used prior to 1970 and is a known carcinogen?

**Asbestos**

Fiberglass

Cellulose

Urea formaldehyde foam insulation

---

*Correct answer: Asbestos*

*Asbestos is a type of insulation that was used prior to 1970 and is a known carcinogen. The use of asbestos has been banned since 1989.*

*Fiberglass insulation is composed of a wool-like material.*

*Cellulose is mostly composed of recycled newspaper.*

*Urea formaldehyde foam insulation was used in the 1970s and is no longer used due to the high levels of formaldehyde emissions it created when not properly installed.*

---

**60.**

Pulling tools are important parts of the firefighters rescue toolkit. There are many variations on pulling tools. Which of the terms below **most** accurately describes a pulling tool on which the firefighter operates a lever ratchet level to wind a cable onto a drum?

**Come-along**

Jack winch

Cable spool

Jack leg

---

*Correct answer: Come-along*

*The come along is a manually operated winch that uses a lever operated ratcheting drum to retract a cable that can pull an object toward the operator.*

*Jack winch, cable spool, and jack leg are not terms used to describe pulling tools in the fire service.*

---

**61.**

Electric and hybrid vehicles contain higher voltages of electricity than conventional fuel vehicles. Some electric and hybrid vehicles' electrical systems can carry as much as which of the following?

**650 Volts**

36 Volts

72 Volts

500 Volts

---

*Correct answer: 650 Volts*

*Some electric and hybrid vehicles can have voltages up to 650 volts in their electrical systems. Most of these high voltage systems identify the high voltage wiring with orange color codes and orange tags. Hybrid and electric manufacturers produce Emergency Response Guides that have quick reference information on the vehicle electrical systems. Many of the guides are available online.*

---

62.

Which type of composite building material consists of sheets of wood used for floor decking or walls?

**Laminated timber**

Finger-jointed timber

Particle board

Synthetic wood

---

*Correct answer: Laminated timber*

*Laminated timber is composite building material that consists of sheets of wood used for floor decking or walls. This material is more commonly known as plywood or glulam.*

*Finger-jointed timber is composite building material composed of small pieces of wood merged to form boards using various types of glue.*

*Particle board is composite building material composed of small flakes of wood merged together with glue to form boards used for furniture.*

*Synthetic wood is composite building material composed of recycled plastics to form sheets or boards.*

---

63.

What makes gypsum (i.e., drywall) unique in regard to heat exposure?

**Its high water content gives gypsum excellent heat-resistant and fire-retardant properties**

It's generally found in buildings constructed before 1950

It spalls to reduce heat transfer

It contains urea formaldehyde, which can pose a health hazard due to offgassing when heated

---

*Correct answer: Its high water content gives gypsum excellent heat-resistant and fire-retardant properties*

*Gypsum, also known as drywall or sheetrock, is an inorganic product from which plaster and wallboards are constructed. It is unique because it has a high water content that absorbs a great deal of heat as the moisture evaporates. The water content gives gypsum excellent heat-resistant and fire-retardant properties.*

---



**64.**

What is the proper size to set a collapse zone?

**1.5 times the structure's height**

2 times the structure's height

Same as the structure's height

1/2 of the structure's height

*Correct answer: 1.5 times the structure's height*

*A structure's collapse zone should be set at 1.5 times the structure's height. So, if a structure is 30 feet high, its collapse zone should be 45 feet. A collapse zone should be established at structural fires to prevent injuries from structural collapses.*

*A structure's collapse zone should be set at 1.5 times the structure's height, not 1/2 the structure's height, the same as the structure's height, or 2 times the structure's height.*

---

**65.**

What is the typical load capacity of a come-along?

**1 to 10 tons**

100 to 1,000 pounds

1 to 10 psi

250 psi

---

*Correct answer: 1 to 10 tons*

*The typical load capacity of a come-along ranges from 1 to 10 tons.*

---

66.

You are on-scene of a structure fire when an entry team firefighter noted the presence of "spalling" within the interior of the structure. What does this indicate to other firefighters on the scene?

**The concrete or stone showing the spalling has been heated and small portions of the surface have cracked away**

The structure may be beginning to fail and the structure should be evacuated

The material is compromised where the spalling is apparent and may pose a local collapse hazard

The internal moisture in the material showing spalling may be an explosion hazard

---

*Correct answer: The concrete or stone showing the spalling has been heated and small portions of the surface have cracked away*

*Bricks rarely show any signs of loss of integrity or serious deteriorations from the effects of fire exposure. Stone and concrete may spall, losing small portions of their surface. This does not indicate a structural failure. Concrete blocks may break but usually retain most of their strength and basic structural integrity.*

---

67.

Which type of construction is the most prone to collapse?

**Type V**

Type I

Type II

Type IV

---

*Correct answer: Type V*

*Walls in Type V construction may collapse inward or outward. Plan for a collapse zone at any fire incident with a type V building.*

---

**68.**

Once a firefighter ensures that a vehicle is stable and its electrical system is secure, he must gain access to the vehicle in order to rescue the victim. Which of the following is the **first** logical step in gaining entry to a vehicle?

**Opening an operational door**

Removing a window

Prying open a door

Removing the roof

---

*Correct answer: Opening an operational door*

*Firefighters should use the entry method that is the simplest and fastest, which is opening an operational door. It is best if the firefighter can open the door closest to the victim, but other operational doors can be used if that particular door is not operational.*

*The second logical entry method is to remove a window. The third logical entry method is to pry open a door. The fourth option is to remove the vehicle's roof.*

---

69.

Cellulose is a type of insulation **mostly** composed of which of the following?

Recycled newspaper

Cotton

Foam

Straw

---

*Correct answer: Recycled newspaper*

*Cellulose is a type of insulation mostly composed of recycled newspaper. It contains approximately 80% recycled newspaper and 20% fire-retardant chemicals.*

*Cotton, foam, and straw are all additional types of insulations used in the insulate structures.*

---

**70.**

There are numerous potential hazards associated with the collapse zone of a single-story structure with 20-foot exterior walls. Where is the safest place for firefighters to establish exterior defense operations for this building?

**In the area formed by a 90-degree arc from the wall intersection and far enough away to be safe from flying debris**

40 feet back in the middle of the exterior wall

At the corner of the building 10 feet from the exterior wall

20 feet down the wall and 50 feet back from the exterior wall

---

*Correct answer: In the area formed by a 90-degree arc from the wall intersection and far enough away to be safe from flying debris*

*Because the collapse zone of a structure fire extends the full length of all affected walls, the safest place for firefighters to launch a defensive stand is at the corner of the building. Master streams and apparatus can be located in the area formed by the 90-degree angle of the building. Plus, they should be back from the exterior wall 1.5 times the height of the walls. Therefore, a wall height of 20 feet would require fire lines to be established 30 feet back to prevent being in the direct collapse zone of the structure.*

*It is a general rule to position master lines and apparatus to launch a defensive stand at the corner of buildings, not in the middle of the affected wall. Plus, the height of the exterior wall is 20 feet. This would require firefighters and their equipment to maintain a 30-foot collapse zone area. Launching a defensive stand at the corner of a building is appropriate, however, it isn't safe to position firefighters only 10 feet off of a 20-foot wall. This places them directly in the collapse zone and presents potential injury to anyone in the area. It is not appropriate to establish a fire line or place fire apparatus along the length of an exterior wall. This limits the direction of attack and prevents a two-wall attack as is accomplished when fire lines are established a safe distance back from a corner of the building.*

---

71.

Firefighters use hydraulic- and electric-powered tools during rescue operations. Which of the following options **best** describes hydraulic shears used by firefighters?

**Device used for cutting any metal object that fits between the blades and has an opening spread of up to 7 inches**

Device used for pushing and pulling and has an opening spread of up to 32 inches

Device used for cutting, pulling, and pushing and good for a small, rapid intervention vehicle

Device used primarily for pushing and secondarily for pulling with an extension from 3-5 feet

---

*Correct answer: Device used for cutting any metal object that fits between the blades and has an opening spread of up to 7 inches*

*Hydraulic shears are used for cutting and have an opening spread of up to 7 inches.*

*Hydraulic spreaders are used for pushing and pulling and have an opening spread of up to 32 inches.*

*Combination spreaders/shears are used for cutting, pulling, and pushing and are good for a small, rapid intervention vehicle.*

*Extension rams are used primarily for pushing and secondarily for pulling with an extension from 3 to 5 feet.*

---



72.

Firefighters use hydraulic- and electric-powered tools during rescue operations. Which of the following options **best** describes combination spreaders/shears used by firefighters?

**A tool with the ability to perform both cutting and spreading operations**

Device used for pushing and pulling and has an opening spread of up to 32 inches

Device used for cutting and has an opening spread of up to 7 inches

Device used primarily for pushing and secondarily for pulling with an extension from 3-5 feet

---

*Correct answer: A tool with the ability to perform both cutting and spreading operations*

*These are excellent tools for small rapid-intervention vehicles.*

*Hydraulic spreaders are used for pushing and pulling and have an opening spread of up to 32 inches.*

*Extension rams are used primarily for pushing and secondarily for pulling with an extension from 3 to 5 feet.*

*Hydraulic shears are used for cutting and have an opening spread of up to 7 inches.*

---

73.

What is the primary concern associated with Type I construction collapse?

**Flying glass from windows or curtain walls**

Masonry debris during a collapse

Expanding and twisting steel

A large fire load of heavy timber, causing high BTU fires

---

*Correct answer: Flying glass from windows or curtain walls*

*Type I construction high-rise buildings are not likely to collapse, making the primary concern the hazard of flying glass from windows or curtain walls. In Type I construction, the contents of the building burn, not the structure itself. Structural collapse, if it does occur, will be localized and not structure-wide.*

---

**74.**

Which type of composite building material is composed of recycled plastics from liquid containers, mostly milk bottles, to form sheets or boards?

**Synthetic wood**

Laminated timber

Medium density fiberboard

Particle board

---

*Correct answer: Synthetic wood*

*Synthetic wood is composite building material composed of recycled plastics from liquid containers mostly milk bottles, to form sheets or boards. Synthetic wood materials are used mostly for exterior rails, stairs and decks.*

*Laminated timber is composite building material that consists of sheets of wood used for floor decking or walls.*

*Medium density fiberboard is composite building material that is a type of laminated wood closely resembling hardwood and is used for doors and decorative moldings.*

*Particle board is composite building material composed of small flakes of wood merged together with glue to form boards used for furniture.*

---

75.

A structure fire results in primary and secondary damage. Which of the following is an example of primary damage?

**Damage caused by fire**

Damage caused by forcible entry

Damage caused by extinguishing fire

Damage caused by vandalism after fire suppression

---

*Correct answer: Damage caused by fire*

*Primary damage at a structure fire includes the damage caused by the actual fire or by smoke.*

*Damaged caused by forcible entry, by extinguishing fire, or by vandalism after fire suppression are examples of secondary damage.*

---

76.

Firefighters use hydraulic- and electric-powered tools during rescue operations. Which of the following options **best** describes extension rams used by firefighters?

**Device used primarily for pushing and secondarily for pulling with an extension from 3-5 feet**

Device used for pushing and pulling and has an opening spread of up to 32 inches

Device used for cutting and has an opening spread of up to 7 inches

Device used for cutting, pulling, and pushing and good for a small, rapid intervention vehicle

---

*Correct answer: Device used primarily for pushing and secondarily for pulling with an extension from 3-5 feet*

*Extension rams are used primarily for pushing and secondarily for pulling with an extension from 3 to 5 feet.*

*Hydraulic spreaders are used for pushing and pulling and have an opening spread of up to 32 inches. Combination spreaders/shears are used for cutting, pulling, and pushing and are good for a small rapid-intervention vehicle. Hydraulic shears are used for cutting and have an opening spread of up to 7 inches.*

---

**77.**

A firefighter arrives at a scene where a type IV structure is on fire. In regard to determining the collapse zone, the firefighter knows which of the following to be **true** for this structure?

**It is the structure type least likely to collapse**

Its primary concern is flying glass from windows

Its walls could be pushed out due to its steel I-beams expanding and twisting

Its exterior walls are likely to collapse and could travel a distance

---

*Correct answer: It is the structure type least likely to collapse*

*When determining the collapse zone for a type IV structure, the firefighter should know it is a structure least likely to collapse. Type IV building construction primarily uses large-dimensioned lumber that must have a minimum fire-resistance rating of 1 hour.*

*Its primary concern is flying glass from windows is true for a type I structure. Its walls could be pushed out due to its steel I-beams expanding and twisting is true for a type II structure. Its exterior walls are likely to collapse and could travel a distance is true for a type III structure.*

---

78.

Wood is a common building material used in the United States. When a structure is built using green wood, what does it mean?

**The wood contains a high moisture content**

The wood has been used previously

The wood is painted green to prevent moisture

The wood has been coated with a flame retardant

---

*Correct answer: The wood contains a high moisture content*

*Green wood contains a high moisture content. The burn rate of wood depends on its size and its moisture content. Green wood is not easily ignitable, nor does it burn as fast as wood that has been dried in a kiln.*

*Green wood is not wood that has been used previously, wood that is painted green to prevent moisture, or wood that has been coated with a flame retardant.*

---

**79.**

Firefighters use a variety of cutting tools during their day-to-day operations. Which cutting tool would **most likely** be used to break locks or remove rivets and bolts?

**Air chisel**

Reciprocating saw

Rotary saw

Whizzer saw

*Correct answer: Air chisel*

*An air chisel is used to break locks or remove rivets and bolts. An air chisel uses air pressure to operate cutting bits and other special bits that can be used to break locks, drive in plugs, cut sheet metal, and remove rivets and bolts.*

*A reciprocating saw is used to cut structural components on a vehicle. A rotary saw is used to cut wood, metal, or masonry utilizing different blades. A Whizzer saw is used to cut a ring from an individual's finger.*

---



80.

What does NFPA 1006 consider a trench?

**An excavation that is deeper than it is wide**

An excavation that is wider than it is deep

A spherical hole in the ground of equal parameters

A hole, shaped like a cube that is at least 20 feet in depth and width

---

*Correct answer: An excavation that is deeper than it is wide*

*NFPA 1006 defines a trench as "an excavation, narrow in relation to its length, made below the surface of the earth." The standard also states that a trench is deeper than it is wide, and suggests that excavations of 15 feet or narrower can be considered trenches.*

---

**81.**

A fire's area of origin is the general vicinity in which the fire started. The area of origin is generally apparent for what type of fires?

**Structure and vehicle fires**

Wildland and ground cover fires

Structure and wildland fires

Vehicle and ground cover fires

---

*Correct answer: Structure and vehicle fires*

*The area of origin is generally apparent for structure and vehicle fires. The area of origin generally contains the most damage and debris, which is easier to identify in structures or vehicles than in wildland and ground cover fires. Incident Commanders or fire investigators are generally used to locate the area of origin for structure and vehicle fires.*

*The area of origin is not generally apparent for wildland and ground cover fires. Experienced investigators are generally used to locate the area of origin for wildland and ground cover fires.*

---

82.

In what circumstances would you minimize fire suppression and overhaul activities?

**In an attempt to preserve evidence**

If the property is not salvageable

If the engineer orders a cease to fire suppression efforts

If the homeowner asks you not to continue

---

*Correct answer: In an attempt to preserve evidence*

*You should minimize fire suppression and overhaul activities that could destroy important evidence regarding the origin and cause of the fire.*

---

**83.**

A firefighter needs to look for hot spots within a structure. Which tool or piece of equipment would most likely reduce the time the firefighter needs to complete this task?

**Thermal imager**

Pike pole

Axe

Prying tool

---

*Correct answer: Thermal imager*

*A firefighter would most likely use a thermal imager to look for hot spots within a structure, which can reduce the time needed to perform a search.*

*A pike pole is used to open ceilings. An axe is used to open walls or floors. A prying tool is used to remove baseboards, door frames, or window frames.*

---

**84.**

A firefighter arrives at a scene where a type I structure is on fire. In regard to determining the collapse zone, the firefighter knows which of the following to be **true** for this structure?

**Its primary concern is flying glass from windows or curtain walls**

Its exterior walls are likely to collapse and could travel a distance

It is the structure type least likely to collapse

It could collapse inward if it is a platform-frame structure or outward if it is a balloon-frame structure

---

*Correct answer: Its primary concern is flying glass from windows or curtain walls*

*When determining the collapse zone for a type I structure, the firefighter's primary concern will be flying glass from windows. Type I building construction contains structural components able to resist fire for 3 to 4 hours.*

*Its exterior walls are likely to collapse and could travel a distance is true for a type III structure. It is the structure type least likely to collapse is true for a type IV structure. It could collapse inward if it is a platform-frame structure or outward if it is a balloon-frame structure is true for a type V structure.*

---

85.

Which of the following is not a fire factor that contributes to structural collapse?

**Response time**

Age of the structure

Length of fire exposure

Weather

---

*Correct answer: Response time*

*Fire factors contributing to structural collapse:*

- *Renovations*
  - *Alterations*
  - *Weather*
  - *Construction type*
  - *Length of fire exposure*
  - *Building contents*
  - *Additions*
  - *Age of the structure*
  - *Loads placed on the structure*
  - *Building condition*
  - *Stage of the fire*
-

86.

What is the Nader pin on a vehicle?

**The bolt on a vehicle's door frame that the door latches onto in order to close**

The pin that holds the firewall in place

The bolt that secures the Side-Impact Protection Systems (SIPS)

The pin that holds the oil dipstick in the engine compartment

---

*Correct answer: The bolt on a vehicle's door frame that the door latches onto in order to close*

*The Nader pin is the bolt on a vehicle's door frame that the door latches onto in order to close.*

---

87.

During extrication, a firefighter needs to maintain safe working distances using the 5-10-12-18-20 rule. What should a firefighter keep 20 inches away from?

**Passenger frontal airbags**

Side-impact curtains

Driver frontal airbags

Knee bolsters

---

*Correct answer: Passenger frontal airbags*

*In regard to the 5-10-12-18-20 extrication rule, firefighters should keep 20 inches away from passenger frontal airbags.*

*Firefighters should keep 5 inches away from knee bolsters, 10 inches away from driver frontal airbags, and 12-18 inches away from side-impact curtains.*

---



88.

Which part of the vehicle determines its structural integrity?

**Chassis**

B post

Firewall

Hinges, latches, and locks

---

*Correct answer: Chassis*

*The strength of the vehicle's chassis after a collision determines the vehicle's structural integrity. Rescuer's extrication efforts, such as removing the vehicle's doors or roof, may further weaken the chassis.*

---

**89.**

Firefighters use a variety of cutting tools during their day-to-day operations. Which cutting tool would **most likely** be used to cut wood, metal, or masonry utilizing different blades?

**Rotary saw**

Reciprocating saw

Whizzer saw

Air chisel

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*Correct answer: Rotary saw*

*A rotary saw is used to cut wood, metal, or masonry utilizing different blades. A rotary saw uses large-tooth blades to make rough cuts and fine-tooth blades to make precision cuts.*

*A reciprocating saw is used to cut structural components on a vehicle. A Whizzer saw is used to cut a ring from an individual's finger. An air chisel is used to break locks or remove rivets and bolts.*

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**90.**

Structures can collapse in various patterns. Once the pattern is determined, the rescuer can decide where the void spaces are and where the victims are most likely trapped. Which collapse pattern occurs when the floor and/or roof assemblies on both sides of a load-bearing center wall collapse creating a lean-to collapse on opposite sides of the wall and creating void spaces on both sides of the wall?

**A-frame collapse**

V-shaped collapse

Pancake collapse

Lean-to collapse

*Correct answer: A-frame collapse*

*An A-frame collapse occurs when the floor and/or roof assemblies on both sides of a load-bearing center wall collapse creating a lean-to collapse on opposite sides of the wall and creating void spaces on both sides of the wall.*

*A V-shaped collapse pattern occurs when the outer walls remain intact and the upper floors and/or roof structure fail in the middle.*

*A pancake collapse pattern is when the structure's floors collapse on top of each other with debris between them.*

*A lean-to collapse pattern occurs when one outer wall fails while the opposite wall remains intact.*

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91.

What size perimeter should be established for an explosion scene?

**1.5 times the distance from the farthest piece of debris found**

2 times the distance from the farthest piece of debris found

1.5 times the distance of the closest piece of debris found

3 times the distance of the farthest piece of debris found

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*Correct answer: 1.5 times the distance from the farthest piece of debris found*

*The perimeter for explosions should be established at 1.5 times the distance from the farthest piece of debris found. As the investigation continues, this perimeter may expand as additional debris is located.*

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**92.**

When responding to incidents that require technical rescue, firefighters perform three roles. Which of the following is **not** one of these three roles?

**Performing triage on the victims**

Recognizing the hazards associated with the incident

Knowing how to mitigate the hazards associated with the incident

Locating and operating rescue tools and equipment

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*Correct answer: Performing triage on the victims*

*Triage is usually performed by trained emergency medical personnel and is not the responsibility of the fire department unless the fire department also operated the emergency medical response.*

*Fire department personnel are generally responsible for:*

- *recognizing the types of hazards associated with the type of incident or situation*
  - *understanding how to mitigate these hazards*
  - *knowing, locating, and operating rescue tools and equipment*
-

**93.**

Which type of composite building material is a type of laminated wood product that closely resembles the appearance and strength of hardwood and is used for doors and decorative moldings?

**Medium-density fiberboard**

Finger-jointed timber

Laminated timber

Synthetic wood

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*Correct answer: Medium-density fiberboard*

*Medium-density fiberboard is a composite building material that is a type of laminated wood closely resembling hardwood. It is used for doors and decorative moldings, and it may also be used for rails, skirting, and cornices.*

*Finger-jointed timber is a composite building material composed of small pieces of wood merged to form boards using various types of glue. Laminated timber is a composite building material that consists of sheets of wood used for floor decking or walls. Synthetic wood is a composite building material composed of recycled plastics to form sheets or boards.*

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94.

Which of the following is **not** an area that is defined by OSHA as a confined space?

**Can accommodate more than one person**

Is large enough to enter

Has limited means of entry and exit

Is not designed for continuous occupancy

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*Correct answer: Can accommodate more than one person*

*The number of persons able to occupy a space has no bearing on the definition of confined space.*

*OSHA defines a confined space as one which:*

- can be entered*
  - has limited means of entry and exit*
  - is not designed for continuous habitation*
-

**95.**

A firefighter needs to move loose materials from a fire scene. Which tool or piece of equipment would the firefighter **most likely** use to complete this task?

**Shovel**

Drill

Prying tool

Axe

*Correct answer: Shovel*

*A firefighter would most likely use a shovel to move loose materials from a fire scene. Bale hooks and pitchforks are also used to move loose materials.*

*An axe is used to open walls or floors. A prying tool is used to remove baseboards, door frames, or window frames. A drill is used to install temporary coverings over windows or doors.*

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96.

Who should coordinate the overhaul operation once the fire has been extinguished?

**The IC and the lead fire investigator**

The IC and the building owner

The local building inspector

The senior fire officer on the scene

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*Correct answer: The IC and the lead fire investigator*

*Overhaul operations should only begin when the IC, in consultation with the lead fire investigator, give the go ahead. Beginning overhaul before this could compromise evidence that may be important to the fire cause investigation.*

*The building owner has no input into the decisions about overhaul.*

*Building inspectors may visit the scene later to determine the structure's condition but have no input into overhaul operations.*

*The senior officer on the scene of the fire has no decision making responsibility unless he assumes the role of Incident Commander officially.*

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**97.**

You arrive on the scene of automobile accident and find a power line draped across the roof of the car. It is obvious that the power line is energized by the active arcing of the power line on the ground. Which of the following is **not** a proper procedure to follow when dealing with an energized downed power line?

**Use a fiberglass handle pike pole to drag the power line off the car**

Establish a perimeter and maintain scene security

Call for the electrical company to respond

Direct the occupant of the car to remain in the car

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*Correct answer: Use a fiberglass handle pike pole to drag the power line off the car*

*Firefighters should never try to handle energized power lines. The levels of current carried by these lines require special tools and special training.*

*Firefighters should:*

- *Establish a perimeter and maintain scene security*
  - *Call for the electrical company to respond*
  - *Direct the occupant of the car to remain in the car*
-

98.

What is the preferred type of cribbing material and why?

**Plastic cribbing because it is lighter, lasts longer, and resists contamination**

Wooden cribbing because it cracks before failing to give warning, and resists contamination

Steel cribbing because it is reinforced

Plastic cribbing because it cracks before failing to give warning, and is cheaper to replace

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*Correct answer: Plastic cribbing because it is lighter, lasts longer, and resists contamination*

*Wooden cribbing is made from construction-grade lumber. However, plastic cribbing is often preferred because it is lighter and lasts many times longer. It resists contamination from fuel, oil, or other substances.*

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99.

What happens to steel when it is exposed to heat?

**Steel elongates when exposed to heat**

Steel compresses when exposed to heat

Heat exposure has no effect on steel

Heat causes spalling in steel

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*Correct answer: Steel elongates when exposed to heat*

*Steel structural members lengthen (elongate) when heated. If the steel buckles and fails somewhere in the middle, it tends to pull the walls in.*

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