

Fire Safety and Emergency Procedures



PARTICIPANT GUIDE

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UW Oshkosh

Center for Community Development, Engagement and Training (CCDET)

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NOTE: This is NOT the department-approved training on Fire Safety required under DHS 83.20 for CBRFs.

Learning Points

These are the major goals for this training:

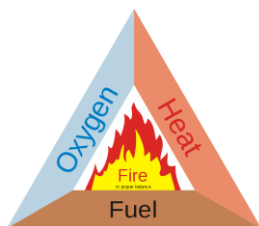
- Learn more about fire and flammable materials
- Identify special needs of those in your care during an emergency
- Review the steps for discharging a fire extinguisher
- Understand the steps for responding to a fire emergency

Introduction

There are many reasons why caregivers must be aware of fire safety rules and emergency procedures. Wisconsin laws and federal regulations often outline facility requirements for keeping residents safe in the event of a fire or other emergency. Caregivers who provide care in a patient's own home should also be aware of fire hazards and safe procedures. Fragile elders and people with developmental disabilities may be unable to respond to emergencies independently. It is the job of the facility and the caregiver to help assure their safety.

What do you believe might be the major cause of fires in healthcare facilities?

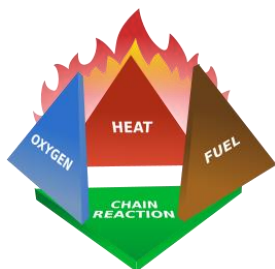
What Causes Fire



The “fire triangle” is made up of the three components needed to produce fire:

- Fuel (something that will burn)
- Heat (enough to make the fuel burn)
- Oxygen (air)

All three components must be present to have a fire. Fire will burn until one or more of the components are removed. Traditional fire extinguishing methods involve removing the fuel, heat, or oxygen.



Once you have oxygen, fuel and heat, a fourth component, called the uninhibited chain reaction, is needed to maintain the fire. The chain reaction provides the heat necessary to maintain the fire. The addition of this component makes up what is called the fire *tetrahedron* (a four-sided figure).

The term “tetrahedron” may be difficult to remember, but the key point is that for fire to occur, you need fuel, heat, oxygen and the chain reaction between the three of them.

The only way to stop a fire is to eliminate one of those four elements in the following ways:

1. Cool the burning material
2. Exclude oxygen
3. Remove the fuel
4. Break the chemical reaction

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Classifications of Fire

Classifications of fire are based on fuel type. They match up with classes of fire extinguishers, which will be covered later in the course.



Class A fires involve ordinary combustible (burnable) materials, such as wood, cloth, paper, rubber and many plastics. They burn with an ember and leave an ash.

Class A fires are extinguished by cooling the fuel to a temperature that is below the ignition temperature. Water and other extinguishing agents are effective in putting out a Class A fire. They can also be extinguished using the dry chemicals used for Class A, B and C fires.



Class B fires involve flammable liquids (which can burn at room temperature) and combustible liquids (which require heat to ignite). Examples of class B fuels include cooking oils, oil-based paints, solvents, lacquers, nail polish and aerosol hairspray.

Class B fires are a high fire hazard; water may not extinguish the fire. This type of fire is best extinguished by creating a barrier between the fuel and the oxygen, or a smothering effect. Dry chemical, foam, vaporizing liquids, carbon dioxide and water fog can be used to extinguish a Class B fire, depending on the circumstances of the fire.



Class C fires are those that occur because of electrical equipment that has a current running through it, such as appliances, extension cords, outlets, and fuse boxes. Special techniques and agents are required to extinguish these types of fires, most commonly carbon dioxide or dry chemical agents.

Use of foam, water and other water-type extinguishing agents is very dangerous because water conducts electricity. Use of these on an electrical or Class C fire could kill or injure the person operating the extinguisher or at the very least, cause severe damage to the electrical equipment.

Class D fires involve combustible metals, such as magnesium, titanium, zirconium, sodium, lithium and potassium. Most cars contain numerous such metals. Because of extremely high flame temperatures, water can break down into hydrogen and oxygen, enhancing burning or exploding. Class D fires should be extinguished with special powders based on sodium chloride or other salts; also clean dry sand. ***It is very unlikely that you would encounter a Class D fire in a health care facility.***

Class K fires are fires that involve vegetable oils, animal oils or fats in cooking appliances. This classification is for commercial kitchens. ***Some large facilities may have kitchens that are classified as commercial.***

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Activity: Identify Flammable Materials

What materials in your facility might be prone to causing or fueling a fire, based on each of the classes we just discussed?

Class A: _____

Class B: _____

Class C: _____

Sources of Fire

Understanding some of the most common sources of fires in home settings will help you recognize the potential for danger before a fire starts in your own facility.

Kitchens/Cooking pose a high risk of fire from unattended ovens, stoves, microwaves or other appliances. Carelessness is also a factor in the potential for fire. This could include spilling oil on a burner, placing a hot pad too close to a heat source, or forgetting to turn off the stove. Dirty or poorly maintained range hoods can also be a source of fires.

According to the NFPA, cooking fires are a leading cause of home fires and home fire injuries. More than half (55%) of these fires started with the ignition of food or other cooking materials.

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Smoking is the leading cause of fire fatalities (deaths) when people fall asleep while smoking or handle smoking materials carelessly.

Electrical fires may result from the improper use of extension cords or circuits that are overloaded. Cords and wires should never be placed under rugs or extend beyond the room of origin. Any object (appliance, lamp, etc.) that emits a spark or unusual smell should be immediately disconnected and checked. Electrical cords that are frayed or worn, or have exposed wires, should be immediately replaced. Temporary or exposed wiring also poses a fire hazard.

Heating systems and fireplaces must be inspected and maintained regularly to ensure that they are functioning properly. Portable space heaters pose a high risk for fire. The use of portable space heaters in some facilities is restricted.

Burning candles, left unattended, are another leading cause of fires. Battery-operated candles are now available in many sizes and provide a safe alternative. As a rule, facilities should not permit the use of candles.

Bedrooms contain many flammable materials, e.g., mattresses, clothing, bedding, etc. The risk of a bedroom fire may be even higher because sleeping residents may not notice early warning signs.

Clothes dryers are fire hazards based on the potential for accumulated lint, a highly flammable fire source. Filters and vents should be cleaned regularly.

Who is at Risk?



Persons living in long-term care or receiving care in their own homes may be at increased risk for injury or death in a fire. These persons often need assistance with at least some of their daily activities. Some may have conditions that put them at risk for safely evacuating on their own.

Think about the residents that you serve. What conditions might prevent them from responding appropriately during an emergency? For example, do any of your residents meet the following descriptions?

1. **Residents with dementia** may not understand the danger or need to evacuate and may be unable to evacuate a building independently. They may also have a fear of strangers including firefighters and emergency personnel. Residents with dementia may need close supervision to ensure that they evacuate to a safe area *and* remain there.
2. **Elderly residents and those with physical disabilities** may be unable to evacuate the building safely. They may be unable to reach assistive equipment such as a wheelchair or a walker.
3. **Residents with developmental disabilities** may become uncomfortable with a variation in routine. An emergency such as a fire may seem especially disruptive. It is especially important to practice the evacuation protocol in advance with these residents.
4. **Residents with visual impairments** may have trouble finding an exit due to reduced visibility from smoke.
5. **Residents with hearing impairments** may not be wearing hearing aids and fail to hear audio alarms.

Knowing your residents and the level of assistance each might need can save lives in an emergency.













Practice Makes Perfect

We all remember fire drills in school. They were an excellent way to prepare us to evacuate a building. Most regulated facilities have requirements for evacuation or safety plans. Failure to conduct required fire drills is cited by state surveyors.

Are you aware of your facility's evacuation plan? Have you practiced it lately? If not, remind your supervisors when you return to work—it may be time for a fire drill!

Fire Extinguishers

Fire extinguishers are canisters that can be sprayed onto a fire to extinguish it. There are different types of fire extinguishers:

	Class A extinguishers put out fires in ordinary combustible materials such as cloth, wood, rubber, paper, and many plastics.	 Ordinary Combustibles
	Class B extinguishers are used on fires involving flammable liquids, such as grease, gasoline, oil, and oil-based paints.	 Flammable Liquids
	Class C extinguishers are suitable for use on fires involving appliances, tools, or other equipment that is electrically energized or plugged in.	 Electrical Equipment
	Multi-purpose extinguishers are suitable for ordinary combustibles, flammable liquids, or electrical equipment (A, B, and C)	 Ordinary Combustibles Flammable Liquids Electrical Equipment
	Class D extinguishers are designed for use on flammable metals and are often specific for the type of metal in question. These are typically found only in factories working with these metals.	 Combustible Metals
	Class K fire extinguishers are intended for use on fires that involve vegetable oils, animal oils, or fats in cooking appliances. These extinguishers are generally found in commercial kitchens.	 Combustible Cooking

Many healthcare facilities are equipped with multi-purpose extinguishers (A B C).

Never use water or a Class A extinguisher to extinguish flammable liquid (oil, grease, solvents, etc.) fires. Water is ineffective at extinguishing this type of fire and may make matters worse by the spreading the fire.

Never use water to extinguish an electrical fire. Water is a good conductor and may lead to electrocution if used to extinguish an electrical fire. Electrical equipment must be unplugged and/or de-energized before using a water extinguisher on an electrical fire.

Use a fire extinguisher only if you are completely familiar with its operation. Next, we will watch a brief video demonstration and reminder of the steps involved with the acronym PASS. The video is used with permission from Fire Chief Publications at www.firechief.com and located at: <https://www.youtube.com/watch?v=2Z2C13gJh-g>

Activity: Locate the Equipment in Your Facility

Think about the kitchen area in your facility. Do you know where the fire extinguisher is located? What kinds of fires can it safely extinguish?

Does your facility have a sprinkler system?

Are the smoke alarms directly connected to the Fire Department? Or must you call 911 in the event of a fire?

How many fire extinguishers are located in your facility? Where are they located?

Check your answers when you return to work!

Responding to an Emergency – RACE(E)

The acronym RACE(E) stands for the five basic steps that everyone should remember in the event of a fire or alarm. The first step is the most important. The next steps may be carried out in different order, depending on the circumstances and the systems within the facility.

Rescue: Remove those in immediate danger

If there is a fire or smoke in one area of the facility, remove the residents in that area first. Ask for help if you need assistance in removing residents from the immediate area.

Activate the alarm: Notify the fire department/911 and others in the facility

Pull the alarm to ensure that all staff and residents are notified of the emergency. If the facility does not have a system that automatically notifies the fire department, dial 911 and report the emergency.

Control: Prevent the fire from spreading

Compartmentalize (contain) the fire. On your way out of the building or room, close the doors between you and the fire, but DO NOT lock them. Confining a fire to one area is the most effective method of limiting the spread of smoke and fire in a building.

Evacuate

Evacuate all residents from the building or past a firewall according to your facility plan.

Extinguish:

If it is safe to do so, use a fire extinguisher to extinguish the fire. You should have experience handling a fire extinguisher before attempting this step.

Learning Points Review

Let's review the learning points from today's training:

- Learn more about fire and flammable materials
- Identify special needs of those in your care during an emergency
- Review the steps for discharging a fire extinguisher
- Understand the steps for responding to a fire emergency

Wrap-Up

Can you remember the acronym for activating a fire extinguisher? What does each letter represent?

How about the acronym for responding to an emergency? What do those letters stand for?

Resources

The following are resources used for this curriculum. These resources may also provide valuable information about current standards and practices. Instructors and students are encouraged to explore the resources to increase program knowledge.

National Fire Protection Agency (NFPA)

<http://www.nfpa.org>

Fire concepts, early warning systems, fire extinguishers, etc.

Wisconsin Administrative Code and Register

<http://docs.legis.wisconsin.gov/code>

Chapter 50, Wisconsin Stats: Uniform Licensure

Chapters DHS 83, 88, 89, 132, Wisconsin Administrative Code

Administrative rules for Community-Based Residential Facilities, Adult Family Homes, RCACs, Nursing Homes, etc.

Wisconsin Department of Health/Division of Quality Assurance

<https://www.dhs.wisconsin.gov/dqa/sections.htm>

Licensing, certification and registration for covered health care facilities

Occupational Safety and Health Administration (OSHA)

<http://www.osha.gov>

Fire safety information

US Fire Administration/Federal Emergency Management Agency

<https://www.usfa.fema.gov/>

Fire safety, fire extinguisher use, evacuation systems, etc.

US Consumer Product Safety Commission

<http://www.cpsc.gov/en/Safety-Education/Safety-Education-Centers/Carbon-Monoxide-Information-Center/CO-Alarms/>

Carbon Monoxide Alarms

WI Department of Health Services

Division of Public Health

<https://www.dhs.wisconsin.gov/air/co.htm>

Carbon Monoxide Alarms

Fire Chief Publications

<http://www.firechief.com>

Training videos available on a variety of fire safety topics