Fire Protection
February 2022

Purpose

To provide employees with an understanding of fire prevention and to prevent delays in providing adequate fire protection.

Definitions

1. Closed Containers - a container so sealed by means of a lid or other device that neither liquid nor vapor will escape from it at ordinary temperatures.

2. Combustible Liquids - any liquid having a flash point at or above 140 degrees Fahrenheit and below 200 degrees Fahrenheit.

3. Combustion - any chemical process that involves oxidation sufficient to produce light or heat.

4. Fire Resistance - so resistant to fire that, for a specified time and under conditions of a standard heat intensity, it will not fail structurally and will not permit the side away from the fire to become hotter than a specified temperature.

5. Flammable - capable of being easily ignited, burning intensely, or having a rapid rate of flame spread.

6. Flammable Liquids - any liquid having a flash point below 140 degrees Fahrenheit and having a vapor pressure not exceeding 40 pounds per square inch (absolute) at 100 degrees Fahrenheit.

7. Flash Point - the temperature at which a liquid gives off vapor sufficient to form an ignitable mixture with the air near the surface of the liquid.

8. Incipient Stage Fire – means a fire which is in the initial or beginning state and which can be controlled or extinguished by portable fire extinguishers, Class II standpipe or small hose systems without the need for protective clothing or breathing apparatus.

9. Inspections – means a visual check of fire protection systems and equipment to ensure that they are in place, charged, and ready for use in the event of a fire.

10. Maintenance – means the performance of services on fire protection systems and equipment to assure that they will perform as expected in the event of a fire.

Maintenance differs from inspection in that maintenance requires the checking of internal fittings, devices, and agent supplies.

11. Portable Tank - a closed container having a liquid capacity more than 60 U.S. gallons, and not intended for fixed installation.

12. Safety Can - an approved container, of not more than 5 gallons capacity, having a flash-arresting screen, spring closing lid, and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure.

References

29 CFR 1910, Subpart L	Fire Protection
29 CFR 1910.38	Emergency Plans and Fire Prevention Plans
29 CFR 1910.106	Flammable Liquids
29 CFR 1910.157	Portable Fire Extinguishers

Procedures

General Requirements:

1. Preparation is the key to controlling the consequences of a fire:

    a. Keep work areas clean and clutter-free;

    b. Practice good handling and storage techniques of flammable substances;

    c. Know what you are expected to do in case of a fire emergency;

    d. Call professional help immediately. Don't let a fire get out of control (this applies to a fire wherever you are);

    e. Know the names and nature of the chemicals with which you work.. You might have to advise fire fighters on the scene of a chemical fire concerning the type of hazardous substances involved;

f. Make sure you are familiar with the College's CCC Campus Police Safety/Security Guide posted in every classroom and throughout campus.

g. Shelving or stacked materials, books, etc., shall not be located within 18" of the ceiling of any office or room. Items located within this space may obstruct the operation of the sprinkler system or may be situated above the sprinkler range, thus creating a fire hazard.

Classification of Fires:

1. The National Fire Protection Association (NFPA) has classified five general types of fires, based on the combustible materials involved and the kind of extinguisher needed to put them out. The five fire classifications are A, B, C, D, and K. Each classification has a special symbol and color identification.

    a. Class A: This type of fire is the most common. The combustible materials are wood, cloth, paper, rubber and plastics. The common extinguisher agent is water, but dry chemicals are also effective.

    b. Class B: Flammable liquids, gases and greases create Class B fires. The extinguishers to use are foam, carbon dioxide and dry chemical. Also, water fog and vaporizing liquid extinguishers can be used.

    c. Class C: Class C fires are electrical fires and a non-conducting agent must be used. Use carbon dioxide and dry chemical extinguishers. Never use foam or water-type extinguishers on these fires.

    d. Class D: Combustible metals, such as magnesium, titanium, zirconium and sodium, create Class D fires. These fires require specialized techniques to extinguish them. Do not use common extinguishers because they can increase the intensity of the fire by adding an additional chemical reaction.

    e. Class K: Combustible cooking media (vegetable, animal oils or fats). Like fires involving other flammable liquids, water should not be used to extinguish this type of fire as it may cause the fuel to scatter and spread the flames. Other equipment is sometimes used to control fire hazards in kitchens, including fire blankets and ventilation hoods fitted with extinguishers.

Portable Fire Extinguishers:

1. Each workplace building must have a full complement of the proper type of fire extinguisher for the fire hazards present.

2. Maintain access to all available firefighting equipment at all times.

3. A fire extinguisher, rated not less than 10ABC, shall be provided so that travel distance from any point of the protected area to the nearest fire extinguisher does not exceed 75 feet or less.

4. One or more fire extinguishers, rated not less than 10ABC, shall be provided on each floor. In multi-story buildings, at least one fire extinguisher shall be located adjacent to the stairway.

5. Protect extinguishers from freezing.

6. A fire extinguisher, rated not less that 10B, shall be provided within 50 feet or less of wherever more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas are being used at the workplace. This requirement does not apply to the integral fuel tanks of motor vehicles.

7. Carbon tetrachloride and other toxic vaporizing liquid fire extinguishers are prohibited.

8. Portable fire extinguishers shall be inspected periodically (visual monthly check at least once every 30 days) and maintained (yearly maintenance by a professional).

9. Employees expected or anticipated to use fire extinguishers must be instructed on the hazards of fighting fire, how to properly operate the fire extinguishers available, and what procedures to follow in alerting others to the fire emergency. Training shall be provided at time of hire and at least annually thereafter.

10. Only approved fire extinguishers are permitted to be used in workplaces, and they must be kept in good operating condition. Proper maintenance and inspection of this equipment is required.

Storage & Handling of Flammables/Combustibles:

1. Store and handle in approved containers designed and intended for storage of flammable substances.

2. Do not store near exits, stairs, or passageways.

3. A one-hour fire rated barrier shall segregate non-compatible materials that may create a fire hazard.

4. With approval from the Office of Environmental Safety and Health, up to 25 gallons of flammables or combustibles may be stored indoors without an approved flammable metal storage cabinet, but with another approved storage container. A fire extinguisher rated 10ABC must be kept within 25-50 feet.

5. If more than 25 gallons must be stored indoors, use an approved flammable metal storage cabinet. Never store more than 60 gallons of flammables in a single cabinet. Never store more than 120 gallons of combustibles in a single cabinet. No more than 3 flammable metal storage cabinets can be kept in one storage area at a time. A fire extinguisher rated 20ABC must be kept within 25-50 feet.

6. All approved containers designed and intended for storage of flammable substances shall also bare a hazard warning such as “Danger – Flammable Liquids”.

7. Do not store flammables/combustibles below grade.

8. Smoking, open flames, welding, and grinding are not permitted within 35 feet of flammable/combustible storage areas.

9. All exterior gasoline, kerosene, and diesel fuel storage tanks are to be located no less than 20-feet from any building on all sides.

10. All exterior gasoline, kerosene, and diesel fuel storage tanks must have “Flammable” and “No Smoking” signs attached.

11. All exterior gasoline, kerosene, and diesel fuel storage tanks must have contents and hazards identified with signage or markings permanently and conspicuously affixed to the exterior of the tank.

12. Within 200 feet of a portable storage tank, there shall be a 12-foot wide access way to permit approach of fire control apparatus.

13. At least one portable fire extinguisher having a rating of not less than 20B units shall be located not less than 25 feet nor more than 75 feet from any flammable liquid storage area located outside.

14. A drip-can should be placed under a faucet to catch spills and leaks. The receiving container must be bonded to the dispensing drum to prevent discharge of static electricity.

15. Use specially designed oil waste cans for temporary storage of oily rags and liquid flammable and combustible waste.

Storage and Handling of Pressurized Gases:

1. Propane
    a. Storage of propane within buildings is prohibited.

    b. Secure or enclose the cylinders to prevent tampering or damage.

    c. The storage area must be five feet or more away from building exits.

    d. Keep a fire extinguisher rated 20ABC within 25 feet or less of the storage area.

2. Fuel Gas and Oxygen:
    a. When storing cylinders, store oxygen a minimum of 20 feet away from fuel gas or other combustibles. If oxygen and fuel gas must be stored together, they must be separated by a five feet high and one-half hour rated fire-resistant wall.

3. All Compressed Gases:
    a. Store upright and secure and keep in a well-protected, well-ventilated, dry location.

    b. Do not store cylinders at elevators, stairways, or gangways.

    c. Store cylinders in areas where they are not subject to damage by passing or falling objects or subject to being knocked over.

    d. Do not keep cylinders in unventilated enclosures, such as lockers, gang boxes, toolboxes, etc.

    e. When in storage, close cylinder valves and install the valve protection cap.

    f. Do not use valve protection caps for lifting cylinders vertically from one platform to another.

    g. Do not hoist cylinders by choker slings.

h. When moving cylinders, use a cart designed for transport of compressed gas cylinders.

i. Do not intentionally drop cylinders or strike them against each other.

j. When cylinders are empty, close the valve, install the valve protection cap, and move the cylinder to an "empty cylinder" storage area.

k. Keep cylinders clear of the sparks, slag, and flame of welding operations.

l. Never strike electrodes against a cylinder to strike an arc.

m. Never place cylinders where they could become part of an electrical circuit.

n. Do not use damaged or defective cylinders.

o. Before installing a regulator to a cylinder, slightly open the valve and close immediately (cracking) to clear the valve of dust and dirt.

p. Before removing a regulator from a cylinder, close the valve and release the gas from the regulator.

Temporary Heat:

1. Use only UL approved heaters.

2. Properly vent a temporary heating device as instructed in manufacturer recommendations.

3. Take special precautions when heating near wood framework and/or in enclosed spaces.

4. Shut down or turn off heaters before refueling.

5. Ensure heaters are filled only with the correct and proper fuel.

6. Locate fire extinguishers within the required proximity where temporary heaters are used.

7. Fuel Fired Heaters (i.e.; propane, kerosene)
    a. Unless it is specifically and purposefully designed for indoor use, do not use fuel fired heaters indoors, in enclosed spaces, or in confined spaces.

b. Proper ventilation shall be provided in accordance with the manufacturer's recommendations.

c. Propane gas heaters shall have an approved automatic shut-off device to stop the flow of gas to the main burner in the event of flame failure.

d. Place all heaters on a firm level surface in an upright position.

e. Other than heater units with an integral fuel storage tank, the propane heater shall be located at least 6 feet from any propane container.

f. Do not direct blower and radiant type heaters toward any propane container within 20 feet.

g. If working in an un-partitioned area on the same floor, separate the propane container or containers from each other by at least 20 feet.

8. Personal Heaters:
   a. Carroll County Government does not allow the use of personal heaters in County owned buildings. As such, the College does not allow the use of personal electric heaters unless there is a medical necessity for their use, or if temperatures in a space cannot be regulated adequately.

   b. If temperatures in a space are colder than preferred, please notify College Maintenance by opening a Work Order. Every effort will be made to adjust the temperatures appropriately for your area.

   c. If you have a medical necessity, please provide the Human Resources Department, A138, with a doctor's note evidencing your need. HR will then notify Facilities of the accommodation needed to allow a personal heater to be used.

   d. Under no circumstances are approved personal heaters to be plugged into power strips or extension cords.

Training

Carroll Community College will train employees in fire prevention and protection strategies applicable to their job duties. This training shall be completed before an employee performs

related tasks and shall be conducted by a person competent in the subject matter. The training will be refreshed at intervals stipulated by the current and applicable OSHA standard.

All third-party contractors are responsible to ensure their employees are trained, certified, and/or licensed as required by the industry standards and all applicable OSHA standards related to the scope of work.

Record Keeping and Certification

1. Safety Training records for Carroll Community College employees shall include the following:
    a. Names of training attendees.
    b. The dates of the training sessions.
    c. The contents or a summary of the training sessions.
    d. The name(s) and title(s) of person(s) conducting the training sessions.

2. Safety Training records shall be maintained for a length of time in accordance with industry and OSHA standards.

3. All third-party contractors are responsible to maintain safety training records for their employees in accordance with industry and OSHA standards.

4. Inspection records for all fire extinguishers owned by Carroll Community College are attached to each individual device and maintained electronically in the College's preventative maintenance work order system.

5. Inspection records for fire extinguishers are refreshed annually on each individual device as required by NFPA. Electronic records are stored indefinitely.