

Fire Prevention Plan

Kingston University

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Fire Prevention Plan created by:
Kingston University

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Fire Prevention Plan

Policy

Established **07/01/2021** by **Kingston University**

It is the policy of **Kingston University** to provide to employees the safest practical workplace free from areas where potential fire hazards exist. The primary goal of this fire protection program is to reduce or eliminate fire in the workplace by heightening the fire safety awareness of all employees. Another goal of this plan is to provide all employees with the information necessary to recognize hazardous conditions and take appropriate action before such conditions result in a fire emergency.

This fire prevention plan complies with the requirements of 29 CFR 1910.39.

This plan details the basic steps necessary to minimize the potential for fire occurring in the workplace. Prevention of fires in the workplace is the responsibility of everyone employed by the company but must be monitored by each supervisor overseeing any work activity that involves a major fire hazard. Every effort will be made by the company to identify those hazards that might cause fires and establish a means for controlling them.

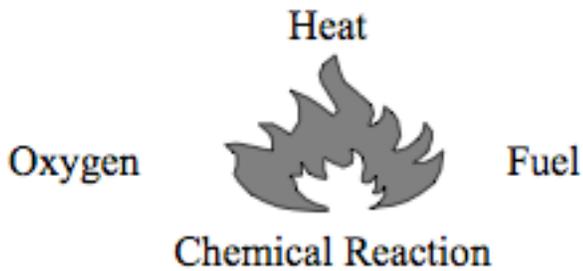
The fire prevention plan will be administered by **OSHA Officer** who will compile a list of all major workplace fire hazards, the names or job titles of personnel responsible for fire control and prevention equipment maintenance, names or job titles of personnel responsible for control of fuel source hazards and locations of all fire extinguishers in the workplace. The plan administrator, or safety officer, must also be familiar with the behavior of employees that may create fire hazards as well as periods of the day, month, and year in which the workplace could be more vulnerable to fire.

This fire prevention plan will be reviewed annually and updated as needed to maintain compliance with applicable regulations and standards and remain up-to-date with the state of the art in fire protection. Workplace inspection reports and fire incident reports will be maintained and used to provide corrections and improvements to the plan.

This plan will be available for employee review at any time during all normal working hours.

Classification

Fire is a chemical reaction involving the rapid oxidation or burning of a fuel. It needs four elements to occur as illustrated below in the tetrahedron. This is described by the following illustration:



The first component of the tetrahedron is fuel. Fuel can be any combustible material such as: solid (such as wood, paper, or cloth), liquid (such as gasoline) or gas (such as acetylene or propane). Solids and liquids generally convert to gases or vapors before they will burn. Another component of the tetrahedron is oxygen. Fire only needs an atmosphere with at least 16% oxygen.

Heat is also a component of the tetrahedron. Heat is the energy necessary to increase the temperature of the fuel source to a point in which sufficient vapors are emitted for ignition to occur.

The final side of the tetrahedron represents a chemical chain. When these components are brought together in the proper conditions and preparations, fire will develop. Take away any one of these elements, and the fire cannot exist or will be extinguished if it was already burning.

Fires are classified into four groups according to sources of fuel: Class A, B, C, and D based on the type of fuel source. Table 1 below describes the classifications of fire which can be used in making hazard assessment.

Class A	Ordinary combustible materials such as paper, wood, cloth and some rubber and plastic materials.
Class B	Flammable or combustible liquids, flammable gases, greases and similar materials, and some rubber and plastic materials.
Class C	Energized electrical equipment and power supply circuits and related materials.
Class D	Combustible metals such as magnesium, titanium, zirconium, sodium, lithium and potassium.

Determining Fire Hazards

This section consists of two steps: first, identifying the existing fire hazards in the workplace and, second, taking action to resolve them. The inspection checklist, in Appendix A, provides a guide for precise fire-safe practices that must be followed. The location of these major fire hazards are denoted in Appendix C. Also included in Appendix C is a listing of the personnel responsible for the maintenance of the equipment and systems installed to prevent or control fires.

Material hazards shall be identified, as evident on the specific (Material) Safety Data Sheets (SDS/MSDS), and labeled on containers as soon as they arrive in the workplace. The identification

system shall also include incorporation into the company's hazard communication program.

OXYGEN-ENERGIZED ATMOSPHERES

Oxygen-enriched atmospheres involve operating rooms and anesthesia machines, oxygen tents as used by ambulances, fire and police or rescue squads; hospitals and laboratory supply systems; cutting and welding. If practical, nonflammable anesthetic agents will be used. To prevent dangerous adiabatic heating of flammable anesthetic gases, the cylinder valves will be opened very slowly to allow the gradual introduction of the high pressure gas downstream from the cylinder valve. This will permit a slow buildup of pressure and hence temperature. An aid to the identification of hazards associated with medical agents and gases in NFPA 704, Standard Systems for the Identification of the Fire Hazards of Materials.

INDUSTRIAL TRUCKS

The type of industrial truck being used shall be approved for use within any building storing hazardous materials. All refueling operations shall be conducted outside and away from storage of flammable materials. Areas that are used for maintenance and battery charging of electrical trucks should be separated from storage areas.

Storage and Handling Procedures

The storage of material shall be arranged such that adequate clearance is maintained away from heating surfaces, air ducts, heaters, flue pipes, and lighting fixtures. All storage containers or areas shall prominently display signs to identify the material stored within. Storage of chemicals shall be separated from other materials in storage, from handling operations, and from incompatible materials. All individual containers shall be identified as to their contents.

Only containers designed, constructed, and tested in accordance with the U. S. Department of Transportation specifications and regulations are used for storage of compressed or liquefied gases. Compressed gas storage rooms will be areas reserved exclusively for that purpose with good ventilation and at least 1 hour fire resistance rating. The gas cylinders shall be secured in place and stored away from any heat or ignition source. Pressurized gas cylinders shall never be used without pressure regulators.

ORDINARY COMBUSTIBLES

- Wooden pallets will not be stacked over 6 feet tall. If feasible, extra pallets will be stored outside or in separate buildings to reduce the risk of fire hazards.
- Piles of combustible materials shall be stored away from buildings and located apart from each other sufficiently to allow fire fighting efforts to control an existing fire.

FLAMMABLE MATERIALS

- Bulk quantities of flammable liquids shall be stored outdoors and away from buildings. Smaller quantities are subsequently brought into a mixing room where they are prepared for use. The mixing room shall be located next to an outside wall equipped with explosion relief vents. The

room shall also have sufficient mechanical ventilation to prevent the accumulation of flammable vapor concentration in the explosive range.

- Small quantities (limited to amount necessary to perform an operation for one working shift) of flammable liquids shall be stored in, and also dispensed from, approved safety containers equipped with vapor-tight, self-closing caps, screens or covers.
- Flammable liquids shall be stored away from sources that can produce sparks.
- Flammable liquids shall only be used in areas having adequate and, if feasible, positive ventilation. If the liquid is highly hazardous, the liquid shall only be used in areas with a local exhaust ventilation.
- Flammable liquids shall never be transferred from one container to another by applying air pressure to the original container. Pressurizing such containers may cause them to rupture, creating a serious flammable liquid spill.
- When dangerous liquids are being handled, a warning sign will be posted near the operation, notifying other employees and giving warning that open flames are hazardous and are to be kept away.
- The storage and usage areas will include fire-resistive separations, automatic sprinklers, special ventilation, explosion-relief valves, separation of incompatible materials, and the separation of flammable materials from other materials.

POTENTIAL IGINATION SOURCES

- Ensure that utility lights always have some type of wire guard over them.
- Don't misuse fuses. Never install a fuse rated higher than specified for the circuit.
- Investigate any appliance or equipment that smells strange. Space heaters, microwave ovens, hot plates, coffee makers and other small appliances shall be rigidly regulated and closely monitored.
- The use of extension cords to connect heating devices to electric outlets shall be prohibited.
- If a hot or under inflated tire is discovered, it should be moved well away from the vehicle. As an alternative, the driver should remain with the vehicle until the tire is cool to the touch, and then make repairs. If a vehicle is left with a hot tire, the tire might burst into flames and destroy the vehicle and load.

Table 2 below lists common sources of ignition that cause fires in the workplace, gives examples in each case, and suggests preventive measures.

Sources of Ignition	Examples	Preventive Measures
Electrical equipment	Electrical defects, generally due to poor maintenance, mostly in wiring, motors switches, lamps and hot elements.	Use only approve equipment. Follow National Electrical Code. Establish regular maintenance.
Friction	Hot bearings, misaligned or broken machine parts, poor adjustment.	Follow a regular schedule of inspection maintenance and lubrication.
Open flames	Cutting and welding torches, gas oil burners, misuse of gasoline torches.	Follow established welding precautions. Keep burners clean and properly adjusted. Do not use open flames near combustibles.
Smoking and matches	Dangerous near flammable liquids and in areas where combustibles are stored or used.	Smoke only in permitted areas. Make sure matches are out. Use appropriate receptacles.
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Static electricity	Occurs where liquid flows from pipes.	Ground equipment. Use static eliminators. Humidify the atmosphere.
Hot surfaces	Exposure of combustibles to Furnaces, electric lamps or irons.	Provide ample clearances, insulation, air circulation. Check heating apparatus prior to leaving it unattended.

WELDING AND CUTTING

Welding and cutting will not be permitted in areas not authorized by management.

If practical, welding and cutting operations shall be conducted in well-ventilated rooms with a fire-resistant floor. If this practice is not feasible, **OSHA Officer** shall ensure that the work areas have been surveyed for fire hazards; the necessary precautions taken to prevent fires; and issue a hot permit. This hot permit shall only encompass the area, item and time which is specified on it.

If welding is to be performed over wooden or other combustibles type floors, the floors will be swept clean, wetted down, and covered with either fire-retardant blankets, metal or other noncombustible coverings.

Welding will not be permitted in or near areas containing flammable or combustible materials (liquids, vapors, or dusts). Welding will not be permitted in or near closed tanks that contain or have contained flammable liquids unless they have been thoroughly drained, purged and tested free from flammable gases or vapors. Welding shall not begin until all combustible materials have been removed at least 35 feet from the affected areas, or if unable to relocate, covered with a fire retardant covering. Openings in walls, floors, or ducts shall be covered if located within 35 feet of the intended work area. Welding will not be permitted on any closed containers.

Fire extinguishers will be provided at each welding or cutting operation. A trained watcher will be stationed at all times during the operation and for at least 30 minutes following the completion of the operation. This person will assure that no stray sparks cause a fire and will immediately extinguish fires that do start.

OPEN FLAMES

No open flames will be permitted in or near spray booths or spray rooms. If indoor spray-painting work needs to be performed outside of standard spray-painting booths, adequate ventilation will be provided. All potential ignition sources will also be eliminated.

Gasoline or alcohol torches shall be placed so that the flames are at least 18 inches away from wood surfaces. They will not be used in the presence of dusts, vapors, flammable combustible liquids, paper or similar materials. Torches shall never be left unattended while they are burning.

The company has a specific policy regarding cigarette/cigar/pipe smoking in the workplace. Smoking and no-smoking areas will be clearly delineated with conspicuous signs. Rigid enforcement will be maintained at all times. The plan administrator will enforce observance of permissible and prohibited smoking areas for employees and outside visitors to the workplace. Fire-safe, metal containers will be provided where smoking is permitted. No-smoking areas will be checked periodically for evidence of discarded smoking materials.

STATIC ELECTRICITY

The company recognizes that it is impossible to prevent the generation of static electricity in every situation, but the company realizes that the hazard of static sparks can be avoided by preventing the buildup of static charges. One or more of the following preventive methods will be used: grounding, bonding, maintaining a specific humidity level (usually 60-70 percent), and ionizing the atmosphere.

Where a static accumulating piece of equipment is unnecessarily located in a hazardous area, the equipment will be relocated to a safe location rather than attempt to prevent static accumulation.

Environmental Services Preventative Techniques

The following are environmental services techniques and procedures to prevent occurrences of fire.

- Keep storage and working areas free of trash.
- Place oily rags in covered containers and dispose of daily.
- Do not use gasoline or other flammable solvent or finish to clean floors.
- Use noncombustible oil-absorptive materials for sweeping floors.
- Dispose of materials in noncombustible containers that are emptied daily.
- Remove accumulation of combustible dust.
- Don't refuel gasoline-powered equipment in a confined space, especially in the presence of equipment such as furnaces or water heaters.
- Don't refuel gasoline-powered equipment while it is hot.
- Follow proper storage and handling procedures.
- Ensure combustible materials are present only in areas in quantities required for the work operation.
- Clean up any spill of flammable liquids immediately.

- Ensure that if a worker's clothing becomes contaminated with flammable liquids, these individuals change their clothing before continuing to work.
- Post "No Smoking" caution signs near the storage areas.
- Report any hazardous condition, such as old wiring, worn insulation and broken electrical equipment, to the supervisor.
- Keep motors clean and in good working order.
- Don't overload electrical outlets.
- Ensure all equipment is turned off at the end of the work day.
- Maintain the right type of fire extinguisher available for use.
- Use the safest cleaning solvents (nonflammable and nontoxic) when cleaning electrical equipment.
- Ensure that all passageways and fire doors are unobstructed. Stairwell doors shall never be propped open, and materials shall not be stored in stairwells.
- Periodically remove over spray residue from walls, floors, and ceilings of spray booths and ventilation ducts.
- Remove contaminated spray booth filters from the building as soon as replaced, or keep immersed in water until disposed.
- Don't allow material to block automatic sprinkler systems, or to be piled around fire extinguisher locations. To obtain the proper distribution of water, a minimum of 18 inches of clear space must be maintained below sprinkler deflectors. If there are no sprinklers, a 3 foot clearance between piled material and the ceiling must be maintained to permit use of hose streams. These distances must be doubled when stock is piled higher than 15 feet.
- Check daily for any discard lumber, broken pallets or pieces of material stored on site and remove properly.
- Repile immediately any pile of material which falls into an aisle or clear space.
- Use weed killers that are not toxic and do not pose a fire hazard.

Fire Protection Equipment

Every building will be equipped with an electrically managed, manually operated fire alarm system. When activated, the system will sound alarms that can be heard above the ambient noise levels throughout the workplace. The fire alarm will also be automatically transmit to the fire department. Any fire suppression or fire detection system will automatically actuate the building alarm system.

The automatic sprinkler system, if applicable, will adhere to NFPA 13, Standard for the Installation of Sprinkler Systems. The sprinkler system and components will be electrically supervised to ensure reliable operation. This includes gate valve tamper switches with a local alarm at a constantly attended site when the valve is closed. If a single water supply is provided by a connection to the city mains, a low pressure monitor is included. If pressure tanks are the primary source of water, air pressure, water level, and temperature shall be supervised. If fire pumps are provided to boost system pressure, supervision will monitor loss of pump power, pump running indication, low system pressure, and low pump suction pressure.

In hospitals, every patient sleeping room will be provided with an outside window or door that can be opened from the inside; this will allow venting of products of combustion if there is a fire. A specially designed smoke control system can be a substitute for an outside window.

Portable fire extinguishers are placed in a building. Fire extinguishers must be kept fully charged and in their designated places. The extinguishers will not be obstructed or obscured from view.

Portable fire extinguishers are located in the following locations

Portable Fire Extinguisher Locations
Lobby and corridors

A map indicating the locations of all fire extinguishers for this company is located in Appendix E.

The fire extinguishers will also be inspected by **OSHA Officer** at least monthly, to make sure that they are in their designated places, have not been tampered with or actuated, and are not corroded or otherwise impaired. Attached inspection tags shall be initialed/dated each month.

The location of all hydrants, hose houses, portable fire extinguishers, or other fire protective equipment should be properly marked with arrows and signs painted on the pavement.

Training

All employees shall be instructed on the locations and proper use of fire extinguishers in their work areas. Employees shall also be instructed as to how to operate the building's fire alarm system, and be familiar with evacuation routes. The training of all employees shall include the locations and types of materials and/or processes which pose potential fire hazards. The training program shall also emphasize the following:

1. Use and disposal of smoking materials
2. The importance of electrical safety
3. Proper use of electrical appliances and equipment
4. Unplugging heat-producing equipment and appliances at the end of each work day
5. Correct storage of combustible and flammable materials
6. Safe handling of compressed gases and flammable liquids (where appropriate)

Ongoing training shall include regularly scheduled fire drills. Training documentation shall be placed in Appendix D.

APPENDIX A: Fire Prevention Checklist

This checklist should be reviewed regularly and kept up-to-date.

ELECTRICAL EQUIPMENT

- No makeshift wiring
- Extension cords serviceable
- Motors and tools free of dirt and grease
- Lights clear of combustible materials
- Fuse and control boxes clean and closed
- Circuits properly fused or otherwise protected
- Equipment approved for use in hazardous areas (if required)
- Safest cleaning solvents used

FRICTION

- Machinery properly lubricated
- Machinery properly adjusted and/or aligned

SPECIAL FIRE-HAZARD MATERIALS

- Storage of special flammable isolated
- Nonmetal stock free of tramp metal

WELDING AND CUTTING

- Area surveyed for fire safety
- Combustible removed or covered
- Permit issued

OPEN FLAMES

- Kept away from spray rooms and booths
- Portable torches clear of flammable surfaces
- No gas leaks

PORTABLE HEATERS

- Set up with ample horizontal and overhead clearances
- Safely mounted on noncombustible surfaces
- Secured against tipping or upset
- Use of steel drums prohibited
- Combustibles removed or covered
- Not used as rubbish burners

HOT SURFACES

- Hot pipes clear of combustible materials
- Soldering irons kept off combustible surfaces
- Ample containers available and serviceable
- Ashes in metal containers

SMOKING AND MATCHES

- "No smoking" and "smoking" areas clearly marked
- No discarded smoking materials in prohibited areas
- Butt containers available and serviceable

SPONTANEOUS IGNITION

- Flammable waste material in closed, metal containers
- Piled material, dry, and well ventilated
- Flammable waste material containers emptied frequently
- Trash receptacle emptied daily

STATIC ELECTRICITY

- Flammable liquid dispensing vessels grounded and bonded
- Proper humidity maintained
- Moving machinery grounded

ENVIRONMENTAL SERVICES

- No accumulation of rubbish
- Premises free of unnecessary combustible materials
- Safe storage of flammables
- No leaks or dripping of flammables and floor free of spills
- Passageways clear of obstacles
- Fire doors unblocked and operating freely
- Automatic sprinklers unobstructed

FIRE PROTECTION

- Proper type of fire extinguisher
- Extinguishing system in working order
- Fire extinguisher in proper location
- Service date current
- Access to fire extinguishers unobstructed
- Personnel trained in use of equipment
- Access to fire extinguishers clearly marked
- Personnel exits unobstructed and maintained
- Fire protection equipment turned on

APPENDIX B: Inspection Logs and Fire Incident Reports

Insert any fire incident reports and inspection records behind this tab.

APPENDIX C: Identified Fire Hazards and Responsible Personnel

Type	Location	Control	Extinguisher Location	Responsible Personnel
paper, plastic, ordinary combustible wastes	office and student lounge		lobby and corridor	OSHA Officer
Hazardous wastes such as soiled linens and towels	clinic		lobby and corridor	OSHA Officer

APPENDIX D: Training Record

Name	Department	Date
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APPENDIX E: Fire Extinguisher Location

Insert a map designating fire extinguisher locations behind this tab.