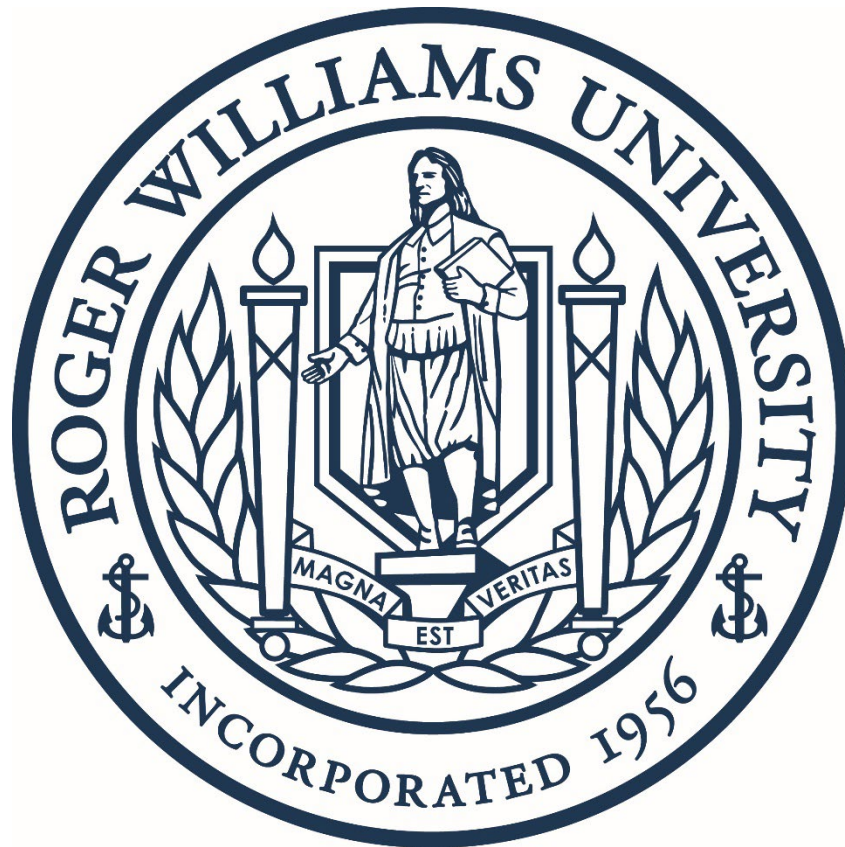


# Roger Williams University Fire Prevention Plan



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## Introduction

### Purpose

This fire prevention plan has been developed to comply with the requirements of OSHA General Industry regulation 29 CFR 1910.39 (Fire Prevention Plans), which is part of Subpart E (Exit Routes and Emergency Planning).

Roger Williams University (RWU) is required to have a fire prevention plan because of RWU's portable fire extinguisher procedures (fire extinguishers are provided in the buildings but are not intended for employee use). Having a compliant emergency action plan and fire prevention plan allows for RWU's more limited-scope portable fire extinguisher distribution and training program. RWU's plan must be written because there are more than 10 employees.

### Scope

This fire prevention plan applies to all Roger Williams University (RWU) owned and leased properties, including owned properties in Bristol (Main Campus and School of Law; Almeida Apartments; Wind Hill) and Portsmouth (Baypoint Inn and Conference Center), and leased properties in Providence (University College) and Bristol (various locations).

This fire prevention plan applies to all Roger Williams University campus community members, including faculty, staff, and students. The plan also applies to all visitors, contractors, and vendors. Visitor hosts (project managers, contracting departments, sponsoring faculty, etc.) are responsible for notifying visitors of the plan requirements.

# Fire Hazards and Controls

## Major Fire Hazards Classifications and Descriptions

### Fire Hazard Types

RWU has grouped fire hazards into these general descriptive categories:

- hazardous materials (including flammable/combustible liquids and combustible metals)
- oil-filled or other electrical system equipment
- batteries
- ordinary combustibles
- open flames
- cooking equipment
- hot work
- heat-producing equipment

### Ignition Sources and Controls

RWU has identified the following ignition sources and controls for the identified fire hazards:

#### *Smoking*

Smoking and disposal of smoking materials is a potential ignition source for all indoor and outdoor fire hazards.

- Smoking is prohibited in all indoor locations per the RWU Smoking Policy.
- Smoking is only permitted outdoors in designated locations with smoking material disposal locations (sand-filled container).
- Mulch is not permitted adjacent the designated smoking locations and adjacent landscaping is maintained neatly
- All employees and students are informed of the smoking policy at time of hire/student orientation

#### *Mulch and Landscaping Debris*

Mulch and landscaping debris (leaf litter, grass clippings, etc.) are potential ignition sources for all outdoor fire hazards.

- Mulch is not permitted around outdoor designated smoking locations, oil-filled electrical equipment such as transformers, emergency generators, or flammable/combustible liquid and gas outdoor storage locations
- Emergency generators, transformers, and flammable/combustible liquid and gas outdoor storage locations are located on concrete pads and/or pavement to provide a barrier between adjacent landscaping
- RWU Facilities Management Department Grounds division maintains the grounds on a daily basis, including mowing, string trimming, raking and gathering leaves and clippings.

- Clippings and leaf litter are collected and disposed in a designated roll-off dumpster located away from regular vehicle and foot traffic
- Mulch waiting to be distributed around campus is located in specific piles adjacent the leaf litter dumpster away from regular vehicle and foot traffic. The piles are turned and kept damp.

#### *Unattended Heat-Producing Equipment, Cooking or Chemical Reactions*

Unattended heat-producing equipment, cooking, or chemical reactions can be a potential indoor ignition source for ordinary combustibles, open flames, cooking equipment, hot work, heated equipment, and hazardous materials.

- Unattended heat-producing equipment, cooking, and chemical reaction operations are prohibited for all University employees, visitors, and students (including in residence halls)
- Chemical reactions which take place on a longer time scale are designated as “Experiments in Progress” and stored exclusively in the laboratory fume hood with signage describing the experiment and notification from the professor to the Stockroom and Environmental Health and Safety in advance
- Hot work procedures must follow all fire watch requirements described in the Hot Work Plan
- There is an Outdoor Grilling Procedure in place for all University-sponsored and individual (student, etc.) outdoor grilling.
- Portable electric heaters (“space heaters”), candles, incense, open flames, and any food warming or cooking devices (besides microwaves) are not permitted in the University residence halls.

#### *Uncontrolled Natural Gas or Electrical Power*

Uncontrolled natural gas or electrical power can be a potential indoor and outdoor ignition source for all hazard types.

- The Marine and Natural Science building has natural gas emergency shutoff valves located in each laboratory that shut off the natural gas flow to that laboratory.
- The Architecture woodworking shop has an emergency stop button for stopping power to all shop circuits. There is also a key-activated room-level electrical power control which can be turned off when the shop closes for the evening.
- RWU has a “safe shutdown” procedure for laboratories, shops, and studios in the event of power loss.
- RWU has a procedure for community members and visitors to report suspected natural gas odors or leaks.
- RWU has a Lockout Tagout Plan.
- RWU completes the Dig Safe process to prevent accidentally disturbing electrical or gas lines when digging or excavating.

- Outdoor electrical circuits and indoor electrical circuits in wet environments are GFCI and protected with weather casing
- Multi-plug adapters are encouraged over extension cords. Extension cords cannot be in place for more than 90 days.

*Housekeeping, Storage, and Waste Management (including flammable/combustible)*

Housekeeping and storage issues can be a potential indoor ignition source for all indoor hazard types.

- Electrical panels and equipment are required to have at least three feet of clear access space in all directions. Facilities Management is responsible for keeping electrical panels in electrical rooms free and clear.
- Unrelated item storage is not permitted in mechanical, electrical, fire alarm or suppression equipment, HVAC, custodial, or other building-system related rooms. Facilities Management is responsible for keeping building-system related rooms free and clear of storage.
- Residence Life and Housing conducts Health and Safety checks in the residence halls every semester. These checks include housekeeping, storage, and clearance around fire alarm and suppression devices. Residents are responsible for general housekeeping and storage in their rooms.
- Environmental Health and Safety creates and distributes safe storage and housekeeping educational material for offices and residence halls.
- Office space and residence hall wastebaskets and single-source recycling containers (cardboard, paper, commingled) are available throughout campus. RWU campus community members and visitors are responsible for using the provided disposal containers.
- Labs, shops, and studios that use additional wood, cardboard, or other project materials (including dust collection systems) have dedicated waste disposal collection containers that Facilities Management empties regularly. RWU campus community members and visitors are responsible for using the provided disposal containers.
- Rags and other ordinary combustibles that are contaminated with flammable or combustible liquids (Facilities mechanic shop; Visual Art painting and printmaking studios) are collected in 5-gallon metal step cans with self-closing lids and emptied bi-weekly by HAZWOPER-trained environmental chemist vendors. Individual generating departments are responsible for rag management in their shop/area. EHS (via vendor) is responsible for rag pickup, MAA storage, and offsite disposal.
- Hazardous waste (including flammable and combustible waste) is collected from satellite accumulation areas (SAA) in laboratories, shops, studios, and other as-needed campus locations bi-weekly by HAZWOPER-trained environmental chemist vendors. Satellite accumulation cannot exceed 55-gallons per individual SAA. Laboratory-scale containers used in labs, shops, and studios cannot exceed

5-gallons each and are typically smaller. The waste is segregated by compatibility type and overpacked into temporary storage containers or UN-rated shipping containers that are stored in the main accumulation area (MAA) for up to 90 days prior to shipment and final disposal. The MAA has a dry chemical fire suppression system and is rated for chemical storage. The waste is managed in accordance with EPA and Rhode Island Department of Environmental Management (RIDEM) regulations. Hazardous waste is disposed of with an approved vendor. Individual generating departments are responsible for SAA management in their shop/area. EHS (via vendor) is responsible for SAA pickup, MAA storage, and offsite disposal.

- Used rechargeable batteries (EPA and RIDEM universal waste) are collected from generating departments on an as-needed basis. Batteries are individually bagged or have the terminals taped to prevent incidental contact and the resulting heating, sparks, or thermal runaway. Batteries that are inside equipment or are connected in series are removed and separated prior to bagging/taping and packing for disposal. Leaking lead acid batteries are managed as hazardous waste following disposal vendor packaging guidelines. Batteries are recycled with an approved vendor. Individual generating departments are responsible for bagging/taping and temporary storage in their shop/area. EHS (via vendor) is responsible for collecting and storing/packaging for disposal, and offsite disposal.
- Used cooking oil collection and disposal procedures are in place for Dining staff to safely drain the fryers and pump the used oil into the onsite collection tanks. The collection tanks are pumped out by an approved recycling vendor (biodiesel). Dining is responsible for fryer draining and pumping into collection tank. Facilities Management (via vendor) is responsible for collection pickup and offsite disposal.

#### *Heat-Producing Equipment Safeguards*

Maintenance issues with heat-producing equipment safeguards can be a potential ignition source for heat-producing equipment.

- Heat-producing equipment is required to have clearance space to allow for airflow and help prevent overheating.
- Individual departments oversee the routine use and maintenance of their heat-producing equipment.
  - Routine use and upkeep tasks are managed in-house by department members.
  - Routine and minor maintenance requests are managed in-house by Facilities Management (departments submit work order requests).
  - Specialized maintenance requests (significant repairs, replacements, etc.) are coordinated by the department with the original manufacturer or an authorized vendor.
- Facilities Management manages the building systems' use and maintenance (mechanical, electrical, plumbing, HVAC, etc.)

## Specific Fire Hazard Identification, Responsible Departments, and Hazard Controls

The following table identifies specific instances of major fire hazards on campus, their locations and the responsible departments, and the specific hazard controls in place. RWU Environmental Health and Safety arranges for the inspection, testing, and maintenance of the fire protection equipment (fire suppression, fire alarm, portable fire extinguishers, etc.)

Hazard Description	Hazard Type	Responsible Department and Location	Handling and Storage Requirements	Fire Protection Equipment
Commercially-sized quantities of flammable and combustible liquids and aerosols (paints, maintenance products, hand sanitizers)	Hazardous Material	<ul style="list-style-type: none"> <li>Facilities storage areas</li> <li>Facilities shops</li> <li>Shop and studio locations</li> </ul>	<ul style="list-style-type: none"> <li>Handle according to safety data sheet and manufacturer instructions</li> <li>Store in flammable cabinet or locked storage area (custodial closet, etc.)</li> <li>Hazardous waste disposal</li> </ul>	<ul style="list-style-type: none"> <li>Wet-sprinkler system (building)</li> <li>Portable fire extinguishers (ABC)</li> </ul>
Diesel fuel	Hazardous Material	<ul style="list-style-type: none"> <li>Emergency Generators (Facilities)</li> <li>Vehicles and Equipment (Facilities)</li> <li>Convault storage tank (Facilities)</li> </ul>	<ul style="list-style-type: none"> <li>Dispense using pump nozzle</li> <li>Store in designated tanks or in designated flammable liquid jerry cans (5-gallon) inside a flammable storage cabinet</li> <li>Storage on pavement or concrete slab</li> <li>Keep landscaping trimmed and no mulch</li> </ul>	<ul style="list-style-type: none"> <li>Outdoor storage</li> </ul>
Gasoline fuel	Hazardous Material	<ul style="list-style-type: none"> <li>Vehicles and Equipment (Facilities)</li> <li>Convault storage tank (Facilities)</li> </ul>	<ul style="list-style-type: none"> <li>Dispense using pump nozzle</li> <li>Store in designated tanks or in designated flammable liquid jerry cans (5-gallon) inside a flammable storage cabinet</li> <li>Storage on pavement or concrete slab</li> <li>Keep landscaping trimmed and no mulch</li> </ul>	<ul style="list-style-type: none"> <li>Outdoor storage</li> </ul>
Laboratory-scale quantities of flammable and combustible liquids, solids, and gases	Hazardous Material	<ul style="list-style-type: none"> <li>Marine and Natural Science laboratories and stockroom</li> <li>Shop and studio locations</li> </ul>	<ul style="list-style-type: none"> <li>Use according to safety data sheet instructions</li> <li>Fume hood and spray booth ventilation systems by building</li> <li>Flammable storage cabinet</li> <li>Hazardous waste disposal</li> </ul>	<ul style="list-style-type: none"> <li>Wet-sprinkler system (building)</li> <li>Portable fire extinguishers (ABC)</li> </ul>
Laboratory-scale quantities of peroxidizable compounds, organic peroxides, self-heating chemicals, water-reactive chemicals, pyrophoric chemicals, combustible metals	Hazardous Material	<ul style="list-style-type: none"> <li>Marine and Natural Science laboratories and stockroom</li> </ul>	<ul style="list-style-type: none"> <li>Use according to safety data sheet instructions</li> <li>Handling procedures approved by professor and Environmental Health and Safety</li> <li>Flammable storage cabinet</li> <li>Hazardous waste disposal</li> </ul>	<ul style="list-style-type: none"> <li>Wet-sprinkler system (building)</li> <li>Portable fire extinguishers (ABC and D)</li> </ul>
Two-part filler and resin (organic peroxide)	Hazardous Material	<ul style="list-style-type: none"> <li>Marine and Natural Science Wet Lab (boat repair)</li> </ul>	<ul style="list-style-type: none"> <li>Use according to safety data sheet and manufacturer instructions</li> </ul>	<ul style="list-style-type: none"> <li>Wet-sprinkler system (building)</li> </ul>



		<ul style="list-style-type: none"> <li>Sailing Center (boat repair)</li> </ul>	<ul style="list-style-type: none"> <li>Flammable storage cabinet</li> <li>Hazardous waste disposal</li> </ul>	<ul style="list-style-type: none"> <li>Portable fire extinguishers (ABC)</li> </ul>
Propane fuel	Hazardous Material	<ul style="list-style-type: none"> <li>Wind Hill emergency generator (Facilities)</li> <li>Performing Arts Annex emergency generator</li> <li>Dining Commons and Student Life propane grills</li> <li>Facilities Fork Lifts</li> </ul>	<ul style="list-style-type: none"> <li>Use according to safety data sheet and manufacturer instructions</li> <li>Storage cages (locked) for propane cylinder storage</li> </ul>	<ul style="list-style-type: none"> <li>Outdoor storage and use</li> <li>Portable fire extinguishers (ABC)</li> </ul>
Hazardous Waste	Hazardous Material	<ul style="list-style-type: none"> <li>Hazardous Waste storage shed (EHS)</li> </ul>	<ul style="list-style-type: none"> <li>Metal storage shed with secondary containment and locked access</li> <li>Inspect and manage according to EPA and RIDEM hazardous waste management requirements (segregation, labeling, container type/condition)</li> </ul>	<ul style="list-style-type: none"> <li>Explosion vent panel</li> <li>Intrinsically safe heater</li> <li>Dry chemical fire suppression system</li> </ul>
Elevator hydraulic systems	Oil-filled Electrical Equipment	<ul style="list-style-type: none"> <li>Elevator machine rooms (Facilities)</li> </ul>	<ul style="list-style-type: none"> <li>Authorized maintenance and repair vendor</li> </ul>	<ul style="list-style-type: none"> <li>Wet-sprinkler system (building)</li> </ul>
Electrical Transformers	Oil-filled Electrical Equipment	<ul style="list-style-type: none"> <li>Outdoor locations (Facilities)</li> </ul>	<ul style="list-style-type: none"> <li>Controlled access (locked)</li> <li>Stored on concrete slab</li> <li>Keep landscaping trimmed and no mulch</li> </ul>	<ul style="list-style-type: none"> <li>Outdoor storage</li> </ul>
Electrical equipment	Electrical System	<ul style="list-style-type: none"> <li>Building electrical rooms (Facilities)</li> <li>Building mechanical and HVAC equipment (Facilities)</li> <li>Office and computer equipment (IT)</li> </ul>	<ul style="list-style-type: none"> <li>Keep at least three feet clear space around all electrical panels and access paths</li> <li>Do not store ordinary combustibles in or around electrical equipment</li> <li>Keep away open flames, heat, chemicals</li> <li>Follow Lockout Tagout requirements</li> </ul>	<ul style="list-style-type: none"> <li>Wet-sprinkler system (building)</li> <li>Portable fire extinguishers (ABC)</li> </ul>
Lead Acid Batteries	Batteries / Hazardous Material	<ul style="list-style-type: none"> <li>Vehicles and Equipment (Facilities)</li> <li>Facilities shops</li> <li>Emergency Generators (Facilities)</li> <li>Emergency siren warning system (EHS)</li> <li>Fire (EHS) and HVAC control panels (Facilities)</li> <li>IT battery backups (IT)</li> </ul>	<ul style="list-style-type: none"> <li>Use according to safety data sheet and manufacturer instructions</li> <li>Locked access panels (Facilities, EHS, Public Safety)</li> <li>Universal waste disposal</li> </ul>	<ul style="list-style-type: none"> <li>Outdoor storage (covered, locked access panels)</li> <li>Wet-sprinkler system (building)</li> <li>Clean agent fire suppression system (Gabelli Data Center)</li> <li>Portable fire extinguishers (ABC)</li> </ul>
Lithium Batteries	Batteries / Hazardous Material	<ul style="list-style-type: none"> <li>Laptops and personal electronics (IT; individual users)</li> </ul>	<ul style="list-style-type: none"> <li>Use according to safety data sheet and manufacturer instructions</li> <li>Universal waste disposal</li> </ul>	<ul style="list-style-type: none"> <li>Wet-sprinkler system (building)</li> <li>Portable fire extinguishers (ABC)</li> </ul>

Nickel-Cadmium and Nickel Metal Hydride Batteries	Batteries / Hazardous Material	<ul style="list-style-type: none"> <li>Handheld tools and radios (Facilities, individual departments, Public Safety)</li> </ul>	<ul style="list-style-type: none"> <li>Use according to safety data sheet and manufacturer instructions</li> <li>Universal waste disposal</li> </ul>	<ul style="list-style-type: none"> <li>Wet-sprinkler system (building)</li> <li>Portable fire extinguishers (ABC)</li> </ul>
Paper	Ordinary combustibles	<ul style="list-style-type: none"> <li>Offices and residence halls (Individual departments)</li> <li>Paper goods (Dining storage shed)</li> </ul>	<ul style="list-style-type: none"> <li>Keep away from open flame, heat, electrical sources, chemicals</li> <li>Collect recycling in designated locations</li> </ul>	<ul style="list-style-type: none"> <li>Wet-sprinkler system (building)</li> <li>Glycol system (Dining storage shed)</li> <li>Portable fire extinguishers (ABC)</li> </ul>
Wood products	Ordinary combustibles	<ul style="list-style-type: none"> <li>Shop and studios</li> <li>Facilities shops</li> <li>Office furniture (individual departments)</li> <li>Cutting and shaping equipment (sanders, saws, CNC mill, etc.) (Facilities, shops, and studios)</li> <li>Dust and particulates from cutting/shaping (Facilities, shops, and studios)</li> </ul>	<ul style="list-style-type: none"> <li>Keep away from open flame, heat, electrical sources, chemicals</li> <li>Purchase appropriately rated furniture</li> <li>Collect scrap in designated locations</li> <li>Use dust collection equipment when cutting/shaping and dispose regularly</li> </ul>	<ul style="list-style-type: none"> <li>Wet-sprinkler system (building)</li> <li>Portable fire extinguishers (ABC)</li> </ul>
Cloth	Ordinary combustibles	<ul style="list-style-type: none"> <li>Performing Arts Center costume storage</li> <li>Performing Arts Center stage curtains</li> <li>Event Operations pipe and drape</li> <li>Office furniture (individual departments)</li> </ul>	<ul style="list-style-type: none"> <li>Keep away from open flame, heat, electrical sources, chemicals</li> <li>Purchase and maintain fire retardant curtain and drape products</li> <li>Collect scrap in designated locations</li> </ul>	<ul style="list-style-type: none"> <li>Wet-sprinkler system (building)</li> <li>Fire retardant treatment (PAC curtains, Event Operations drape)</li> <li>Portable fire extinguishers (ABC)</li> </ul>
Commercial cooking equipment	Cooking equipment	<ul style="list-style-type: none"> <li>Dining Commons kitchen areas (includes oil fryers)</li> <li>Law School Dining kitchen areas (includes oil fryers)</li> <li>Baypoint Dining kitchen areas (includes oil fryers)</li> <li>Global Heritage Hall Dining food service area</li> <li>FCAS Dining food service area</li> </ul>	<ul style="list-style-type: none"> <li>Monitor all cooking equipment while in use; do not leave unattended</li> <li>Shut off burners and heat sources when not in use</li> <li>Routine maintenance and cleaning of kitchen hoods (grease accumulation)</li> <li>Procedures for changing and disposing used cooking oil</li> </ul>	<ul style="list-style-type: none"> <li>Wet-sprinkler system (building)</li> <li>Portable fire extinguishers (ABC and K)</li> <li>Ansul system (dry fire suppression) over kitchen hoods</li> </ul>
Open flame (natural gas)	Open flame	<ul style="list-style-type: none"> <li>Marine and Natural Science laboratories (bench work)</li> <li>Dining Kitchen areas (stove)</li> </ul>	<ul style="list-style-type: none"> <li>Monitor all cooking and laboratory equipment while in use; do not leave unattended</li> <li>Shut off burners and heat sources when not in use</li> <li>Emergency natural gas shutoff valve (MNS laboratories)</li> </ul>	<ul style="list-style-type: none"> <li>Wet-sprinkler system (building)</li> <li>Portable fire extinguishers (ABC, D, and K)</li> </ul>

Hot Work (Welding, brazing, cutting, grinding, and other spark-producing processes)	Hot Work	<ul style="list-style-type: none"> <li>• Hot Work designated areas</li> <li>• Any indoor location requiring hot work when work cannot be relocated to outside or designated area</li> </ul>	<ul style="list-style-type: none"> <li>• Perform hot work outside if possible</li> <li>• Perform hot work in hot work designated area if possible</li> <li>• Follow all hot work plan requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Wet-sprinkler system (building)</li> <li>• Portable fire extinguishers (ABC)</li> </ul>
Laser cutters and scientific lasers (Cutting materials; performing scientific experiments)	Heat-producing equipment	<ul style="list-style-type: none"> <li>• Marine and Natural Science (laser)</li> <li>• SECCM Lab (laser cutter)</li> <li>• Maker Space (laser cutter)</li> <li>• Architecture (laser cutter)</li> <li>• Graphic Design (laser cutter)</li> </ul>	<ul style="list-style-type: none"> <li>• Follow all laser safety plan requirements</li> <li>• Only use approved materials and settings</li> </ul>	<ul style="list-style-type: none"> <li>• Wet-sprinkler system (building)</li> <li>• Portable fire extinguishers (ABC)</li> <li>• Clean Agent fire suppression system local to equipment on ULS laser cutters and specialized fire extinguishers local to equipment for non-ULS laser cutters</li> </ul>
3D Printers	Heat-producing equipment	<ul style="list-style-type: none"> <li>• SECCM Lab</li> <li>• Maker Space</li> <li>• Architecture</li> <li>• Graphic Design</li> </ul>	<ul style="list-style-type: none"> <li>• Follow all 3D printer safety plan requirements</li> <li>• Only use approved materials and settings</li> </ul>	<ul style="list-style-type: none"> <li>• Wet-sprinkler system (building)</li> <li>• Portable fire extinguishers (ABC)</li> <li>• Clean Agent fire suppression system local to equipment</li> </ul>
Hot plates, toaster ovens, and microwaves, autoclaves	Heat-producing equipment	<ul style="list-style-type: none"> <li>• Residential and department microwaves (individual and departmental personal use)</li> <li>• Marine and Natural Science laboratories</li> <li>• Shops and studios</li> </ul>	<ul style="list-style-type: none"> <li>• Follow all cooking instructions (food items); microwaves only in residence halls; all other areas microwaves, hot plates, and toaster ovens should be in kitchen/kitchenette areas only</li> <li>• Follow all manufacturer instructions and experiment protocols (lab, shop, studio use)</li> </ul>	<ul style="list-style-type: none"> <li>• Wet-sprinkler system (building)</li> <li>• Portable fire extinguishers (ABC)</li> </ul>